TECHNICAL DESIGN NOTE

Project Name	Lackham College, Chippenham Proposed Bus Drop off/ Turning Provision
Design Note Title	Flood Risk and Drainage Strategy
Author	
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Date	

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1. INTRODUCTION

The proposals relate to the development of a bus drop-off and turning facility, including associated hardstanding, footways and drainage infrastructure. The site is therefore considered greenfield in nature with respect to surface water runoff, with surface water currently draining naturally in accordance with topography.

2. ASSESSMENT

2.1. Existing Topography, Geology and Hydrology

The proposed development site is located to the east of the A350 at Lackham Roundabout and currently comprises open agricultural land, and is therefore considered 'greenfield' with respect to surface water drainage. The site sits adjacent to existing highway infrastructure, with access taken from the Lackham estate road to the south of the roundabout.

Topographically, the site gently slopes from west to east, with LiDAR data indicating levels of approximately 53.99m AOD at the western boundary adjacent to the A350, falling to circa 50.23m AOD toward the north-eastern extent. Intermediate levels across the site (approximately 51.7m to 52.1m AOD) suggest a relatively uniform gradient directing surface water runoff toward the eastern boundary.

The Ground Investigation Report prepared by RPS (August 2022) indicates, from the rotary core borehole logs, that the site is underlain by a sequence of gravelly silty clay together with gravelly fine- to coarse-grained sand deposits. Soakaway testing was undertaken within each trial pit and, where practicable, repeated in accordance with BRE 365 (2016). The report notes that the shallow soils were typically cohesive and that changes in water level during testing were generally minor. Consequently, valid BRE 365 infiltration rates could only be derived at a limited number of locations where more granular material was encountered, while the majority of tests did not record sufficient water level change to enable calculation of an infiltration coefficient. On this basis, the investigation does not demonstrate consistent infiltration performance across the site and infiltration drainage cannot be considered a proven site-wide means of surface water disposal. The Ground Investigation report is appended in **Appendix A.**

Groundwater conditions across the site were found to be variable, with the majority of exploratory holes either remaining dry or recording only limited groundwater inflows. Within the area adjacent to the A350 roundabout and western extent of the scheme, groundwater was encountered locally at shallow depths, including seepages at approximately 1.2m below ground level (bgl) in boreholes AVC1_BH_01 and AVC1_BH_05, and at approximately 3.6m bgl in borehole AVC1_BH_06. However, several adjacent boreholes recorded no groundwater seepage during drilling, indicating that groundwater is not laterally continuous within the near-surface strata. The soakaway testing programme also recorded only minor changes in water levels within the majority of trial pits, reflecting the predominantly cohesive and low-permeability nature of the shallow soils. Whilst localised groundwater ingress and instability were encountered in some excavations, the ground investigation does not indicate the presence of a persistent shallow groundwater table across the site.

An ordinary watercourse is understood to be located along the eastern boundary of the site, which is proposed to act as the receiving watercourse for surface water discharge. No main rivers cross the site itself, but the wider area includes drainage features and watercourses associated with the surrounding agricultural land.

According to Environment Agency and Wiltshire Council mapping, the site lies within Flood Zone 1 and is therefore at low risk from fluvial flooding. The site is also located within Source Protection Zone II (Outer Protection Zone).

2.2. Flood Risk

2.2.1. Historic Flood Records

A review of publicly available information, including the Wiltshire Council Level 1 Strategic Flood Risk Assessment (SFRA), Appendix J – Recorded Flood History Data (November 2024), has not identified any recorded historical flood incidents at the proposed bus turning area adjacent to Lackham Roundabout. The SFRA mapping confirms that historical flood events have been recorded elsewhere within the Chippenham area; however, no flood incident is shown at the proposed development location.

Although flooding incidents have been recorded on the wider A350 corridor in the vicinity of Chippenham. These include flooding along the A350 between Chequers Roundabout and Lackham Roundabout during Storm Henk (January 2024), together with significant flooding on the A350 West Cepen Way during Storm Bert (November 2024), which subsequently prompted highway drainage improvement works.

The available evidence therefore indicates that, whilst the surrounding highway network has experienced flooding during extreme rainfall events, neither the publicly available records reviewed or the Wiltshire Council SFRA Recorded Flood History dataset identify any known historical flooding at the proposed bus turning area itself.

2.2.2. Fluvial

The Environment Agency's (EA's) Flood Zone mapping indicates that the entirety of the site is located within Flood Zone 1, defined as land having a less than 1 in 1,000 annual probability of fluvial flooding. As such, the site is considered to be at low risk from fluvial sources.

The site is not situated within the floodplain of any main river and is not directly affected by overland flow routes associated with adjacent watercourses. Whilst a ditch is present adjacent to the eastern boundary, this feature is understood to be an ordinary watercourse and does not pose a significant fluvial flood risk to the site.

Given the site's elevated position relative to the surrounding catchment and its location outside current modelled flood extents, the risk of flooding from fluvial sources is considered to be low.

2.2.3. Tidal

The Environment Agency's (EA's) Flood Zone mapping confirms that the site is located inland and is not influenced by coastal or estuarine processes. The site lies wholly within Flood Zone 1 and at a significant distance from any tidal water bodies. As such, there is no pathway for tidal flooding to affect the site.

Given the absence of any nearby tidal watercourses and the site's elevated inland position relative to coastal floodplains, the risk of flooding from tidal sources is considered to be negligible.

2.2.4. Surface water

The Environment Agency's Flood Risk from Surface Water mapping indicates that the entirety of the site is at low risk of surface water flooding. There are no notable flow routes or areas of ponding identified within the red line boundary. Limited areas of elevated surface water flood risk are present locally beyond

the site boundary and within the wider River Avon catchment; however, these are located downstream of the proposed development and are not associated with the site or proposed outfall location.

The proposed drainage strategy comprises a swale conveying runoff to an existing ordinary watercourse. Review of the Environment Agency Flood Map for Planning confirms that the development site, proposed swale corridor and discharge location are all situated within Flood Zone 1. Whilst Flood Zones 2 and 3 are present further downstream where the receiving watercourse joins the River Avon, these flood extents do not affect the proposed drainage infrastructure or outfall location.

Surface water runoff from the development will be managed through the proposed SuDS network and discharged to the receiving watercourse at a controlled rate. Consequently, the proposed development will not increase peak runoff rates or volumes above the agreed greenfield discharge regime and is therefore not expected to increase flood risk either on-site or elsewhere within the catchment.

Given the site's gently sloping topography, falling from west to east, any overland surface water flow would be expected to drain toward the eastern boundary and into the receiving drainage network. Overall, the risk of surface water flooding to the development site is considered to be low.

2.2.5. Groundwater

Information from the Site Investigation (SI) undertaken in 2022 indicates that no groundwater was encountered during intrusive investigations across the wider site area. Borehole BH001, located approximately 15m west of the proposed development, recorded no groundwater strike or seepage to a depth of 20.5m below ground level. Likewise, trial pits TP001, TP002 and TP002A (located up to 109m from the site) did not encounter groundwater to depths between 1.5m and 2.0m below ground level.

Despite the absence of recorded groundwater during site investigation works, soakaway testing undertaken within the trial pits failed at all locations, indicating low permeability soils and limited infiltration potential.

In contrast, strategic mapping (SFRA and LLFA datasets) identifies the site as being within an area of potentially high groundwater flood risk, with groundwater levels possibly rising close to the ground surface during wetter periods. This discrepancy suggests that whilst groundwater was not present at the time of investigation, seasonal variation may result in elevated groundwater levels under certain conditions.

Based on the SI findings, the likelihood of groundwater flooding at the site is considered low under normal conditions, but with the potential for seasonally elevated groundwater levels. The principal impact on the development relates to drainage design, where a precautionary approach is required, avoiding infiltration and ensuring the system is resilient to variable groundwater conditions.

2.3. Proposed Development

The proposed works consist of the construction of a new bus drop-off and turning facility adjacent to the Lackham Roundabout, located off the existing access road serving Wiltshire College, Lackham. The site will remain associated with the existing educational use and is intended to formalise and improve access and manoeuvring arrangements for buses serving the campus.

The development will include a circular turning area, a designated bus drop-off, and associated highway infrastructure including kerbing, footways, and a two-bay enclosed bus shelter. The proposals also incorporate localised areas of landscaping and topsoiled / seeded verges.

In terms of surface water drainage, a shallow attenuation basin is proposed within the centre of the turning head to manage runoff from the impermeable areas of the development in accordance with the SuDS hierarchy. The basin will provide initial storage and facilitate attenuation of peak flows. Surface water will discharge from the basin via a carrier pipe into a swale conveyance system, which will provide both attenuation and conveyance functions through a series of check dams. The swale will route flows towards an existing ditch located to the east of the site, which will act as the receiving watercourse. The drainage strategy has been designed to restrict discharge to the agreed greenfield runoff rate of 1l/s, with exceedance flows managed within the swale corridor and directed safely towards the receiving watercourse.

The proposed layout has been developed to integrate with the existing highway network, tying into the current access arrangements and kerb lines, while maintaining safe vehicle tracking for a single-decker bus. The development footprint is relatively small in scale and largely confined to the defined red line boundary previously identified. **Appendix B** provides the design decisions and calculations undertaken in the design of the drainage proposal.

Overall, the proposals represent a minor infrastructure development on greenfield land, introducing new impermeable surfacing but incorporating appropriate drainage measures to manage surface water runoff in accordance with sustainable drainage principles.

2.4. Surface Water Drainage

A review of available utility records, including the National Underground Asset Register (NUAR) mapping, indicates that there are no public surface water sewers located within the proposed development site. While a number of statutory undertakers operate within the wider area (including Wessex Water, Wiltshire Council and utility providers), the mapping confirms that underground infrastructure within the site does not comprise a formal surface water sewer network serving the development.

Surface water runoff from the site is currently unmanaged and drains naturally in accordance with site topography, generally falling from west to east toward adjacent drainage features. The wider catchment ultimately drains toward the River Avon, which forms the principal receiving waterbody within the area.

Greenfield runoff rates for the site have been estimated using the IH124 methodology via the UK SuDS tool, based on a site area of approximately 0.09ha, producing the following indicative discharge rates:

Table 1: Greenfield runoff rates for the site estimated using the IH124 methodology

Event	Discharge Rate
1 year event	0.01 l/s
30 year event	0.03 l/s
100 year event	0.04 l/s
QBAR	0.01–0.02 l/s

The calculated greenfield runoff rate is below 1 l/s; however, due to the limitations of flow control devices and blockage risk, a minimum discharge rate of 1 l/s is proposed as the lowest practicable rate, in agreement with standard industry practice.

Given the small scale of the development and the very low greenfield runoff rate, it is anticipated that the proposed surface water drainage strategy will provide sufficient attenuation and control of runoff. The combination of storage within the attenuation basin, conveyance via the swale, and additional attenuation provided by a series of check dams will effectively regulate flows. Discharge to the receiving ordinary watercourse will be restricted to a controlled discharge rate of 1 l/s, with the system also providing improved water quality through sedimentation and treatment as runoff passes through the swale network.

In accordance with national SuDS guidance and the established surface water drainage hierarchy, the following options have been considered in order of preference:

- Collection and re-use of rainwater;
- Infiltration to ground;
- Discharge to an ordinary watercourse or other surface water body;
- Discharge to a surface water sewer or other drainage system;
- Discharge to a combined sewer as a last resort.

Rainwater harvesting and water re-use have been considered; however, the proposed development does not generate a sufficient demand for non-potable water use to justify the installation of a rainwater re-use system. Consequently, this option has been discounted.

Infiltration drainage was subsequently assessed through ground investigation and soakaway testing undertaken in accordance with BRE 365. The testing identified predominantly cohesive soils and generally insufficient changes in water level across the majority of trial pit locations to derive reliable infiltration rates. While measurable infiltration was recorded at a limited number of locations, the investigation did not demonstrate consistent infiltration performance across the site and therefore infiltration has not been proven to provide a reliable site-wide drainage solution.

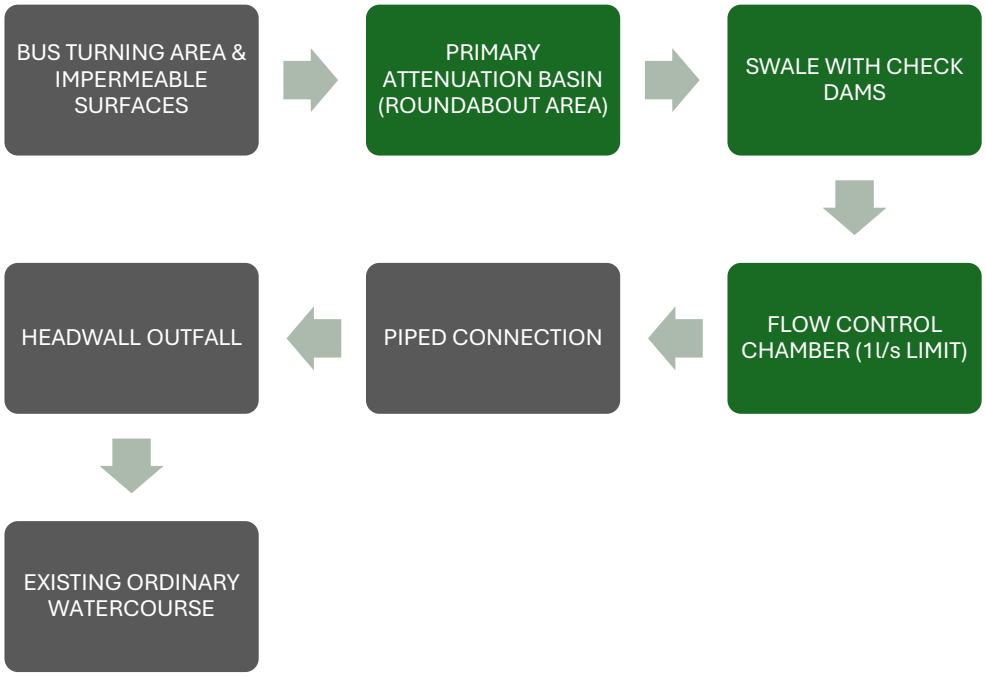
In accordance with the drainage hierarchy, discharge to an existing ordinary watercourse has therefore been identified as the most appropriate and sustainable means of surface water disposal for the proposed development.

Site Investigation (SI) data confirms that infiltration drainage is unlikely to be feasible, with soakaway testing failing across multiple locations and indicating low permeability soils. As such, discharge to ground is not considered appropriate for this site.

A conceptual schematic of the proposed surface water drainage strategy is provided in Figure 1 below. The proposed drainage strategy comprises a SuDS-based system incorporating:

- A primary attenuation basin located within the turning circle (roundabout) to provide on-site attenuation storage and initial water quality treatment;
- A swale incorporating check dams to convey runoff from the attenuation basin towards the discharge location, whilst providing additional attenuation, flow control and treatment;
- A flow control chamber incorporating an orifice or similar flow control device to restrict discharge rates;
- A piped connection conveying controlled flows to the receiving ordinary watercourse;
- A headwall outfall structure discharging to the existing ordinary watercourse located east of the roundabout, with flows restricted to a maximum discharge rate of 1 l/s.

Figure 1: Proposed surface water drainage strategy schematic



This treatment train accords with SuDS best practice by providing attenuation, conveyance and water quality treatment before discharge to the receiving ordinary watercourse. The use of check dams and attenuation storage provides additional resilience during larger storm events whilst ensuring runoff is discharged in a controlled manner at greenfield-equivalent rates.

The drainage strategy will ensure that:

- There is no flooding on-site during storms up to and including the 1 in 30 year event;
- All flows up to the 1 in 100 year event plus an appropriate climate change allowance (45%) are contained within the surface water network;
- Exceedance flows are managed safely without increasing flood risk elsewhere.

Overall, due to the absence of existing sewer infrastructure and constraints to infiltration, the site will rely on a SuDS-based attenuation and controlled discharge strategy to the adjacent ditch, ensuring compliance with national and local planning policy while maintaining greenfield runoff conditions.

A summary of the SuDS that have been reviewed as part of the surface water strategy and their suitability are listed in Table 2 below.

Table 2: SuDS feature with general description taken from CIRIA C753 SuDS Manual

SuDS Feature	Description	Technical Viability	Selection Rationale
Rainwater Harvesting Systems	Rainwater Harvesting is collecting and storing rainwater runoff for use in gardens, irrigation, and domestic use. Runoff can be collected from roofs and other clean areas.	Yes	No buildings or demand for non-potable water use. As such this has not been incorporated into the design.

SuDS Feature	Description	Technical Viability	Selection Rationale
Green Roofs	Green Roofs are planting cells filled with soil or compost. The cells are planted which offers ecological benefits and water treatment. They also offer insulation for enhanced building performance.	Yes	Selected. Green roofs will be incorporated on the proposed bus shelters to provide biodiversity enhancement, water quality benefits and a reduction in runoff from the shelter roof areas. Although contributing a relatively small proportion of the overall site attenuation volume, the feature supports the SuDS treatment train and delivers additional sustainability benefits.
Infiltration Systems	Infiltration systems such as large-scale soakaways, infiltration blankets and basins offer both treatment and water storage for the rainwater runoff from the site. The systems require a good infiltration rate, determined by testing to BRE365.	No	Ground investigation and soakaway testing did not demonstrate consistent infiltration performance across the site.
Swales	Swales are shallow, vegetated depressions used to convey treat and store rainwater	Yes	Selected. Swales have been incorporated within the drainage strategy to provide surface water conveyance, water quality treatment and additional attenuation. The feature integrates well within the available landscape and supports the SuDS treatment train.
Pervious Surfaces	Pervious Surfaces provide a surface suitable for traffic and/or pedestrian movement, while allowing rainwater to infiltrate through the surface and into the underlying structural layers and ground.	No	The proposed development comprises a bus turning area and access road subject to regular vehicular loading and manoeuvring. A conventional impermeable pavement construction has therefore been adopted, with runoff managed through downstream SuDS components.
Filter Drains	Filter Drains are shallow trenches filled with gravel/clean stone that create temporary subsurface storage for	Yes	Not selected. Whilst technically feasible, the proposed swale with check dams provides the required conveyance, attenuation and

SuDS Feature	Description	Technical Viability	Selection Rationale
	rainwater's attenuation, conveyance, and filtration.		treatment functions. Separate filter drains are therefore not required to achieve the drainage objectives for the site.
Ponds and wetlands	Features with a permanent pool of water can be used to provide both attenuation and treatment of runoff, where outflows are controlled and water levels are allowed to increase following rainfall.	Yes	Not selected. Permanent water features are not considered necessary to meet the attenuation, treatment and discharge requirements of the development. The required storage volume can be accommodated within the proposed attenuation basin and swale without introducing a permanent body of water, thereby reducing future maintenance requirements and safety considerations.
Attenuation Basins	Attenuation basins are landscaped depressions that usually remain dry except during extreme storm events. They offer both treatment and storage to runoff collected by the system.	Yes	Selected. An attenuation basin has been incorporated within the turning circle to provide the required storage volume, facilitate water quality treatment and restrict runoff rates to the agreed discharge rate prior to discharge to the receiving ordinary watercourse.

2.4.1. Interception Storage

The central attenuation basin incorporated within the roundabout green space will provide attenuation and interception storage in accordance with the principles of Standard S2 of the Non-Statutory Technical Standards for SuDS. The basin has an approximate diameter of 8m, side slopes of 1 in 3 and a maximum depth of 1.0 m, providing approximately 22m^3 of attenuation storage. Surface water runoff from the proposed bus turning area will be directed to the basin, where temporary storage, sediment settlement and initial water quality treatment will be provided prior to discharge to the downstream swale system. Given the cohesive nature of the underlying soils and the results of soakaway testing, no storage volume has been attributed to infiltration within the drainage design. Surface water runoff will subsequently be conveyed through the swale system and discharged at a controlled rate of 1 l/s to the receiving ordinary watercourse.

Feature	Available Storage Volume m^3	Function
Roundabout Attenuation Basin	22	Attenuation, interception storage and treatment
Swale with Check Dams	577	Conveyance, treatment and additional temporary storage
Total SuDS Storage	599	Controlled runoff management

2.4.2. Exceedance Flow Management

The proposed drainage strategy has been developed so that surface water runoff generated during events exceeding the design standard, or arising from a blockage of the drainage system, will be directed via overland flow routes towards the attenuation basin and swale corridor. The proposed site levels generally fall towards the east and the receiving ordinary watercourse.

The central attenuation basin located within the roundabout provides approximately 22 m^3 of storage, with the remaining attenuation requirement accommodated within the swale system. Hydraulic assessment identified a storage requirement of approximately 58 m^3 within the swale; however, the proposed swale geometry provides approximately 577 m^3 of available storage volume. This provides a substantial attenuation reserve and demonstrates that the swale has sufficient capacity to accommodate exceedance flows and temporary surcharging of the drainage system without increasing flood risk to adjacent land.

During storm events exceeding the design standard, runoff will preferentially pond within the attenuation basin and swale network before ultimately discharging at the controlled rate of 1 l/s to the receiving ordinary watercourse. As a result, exceedance flows are expected to remain within the designed drainage corridor and landscaped areas, avoiding uncontrolled flooding of the surrounding highway or third-party land.

1.1. Water Quality

The required treatment has been determined using the following Simple Index Approach from C753:

Step 1: Define the Pollution Hazard Indices using Table 26.2 provided in the CIRIA C753 SuDS Manual.

Table 3: Pollution Hazard Indices for land use classifications. Data extracted from Table 26.2 of CIRIA C753

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Commercial yard and delivery areas / non-residential car parking with frequent change, all roads except low traffic roads and trunk roads/ motorways	Medium	0.7	0.6	0.7
TOTAL		0.7	0.6	0.7

Step 2: Determine the SuDS Pollution Mitigation Indices, using Table 26.3 of the CIRIA C753 SuDS Manual.

Table 4: SuDS Pollution Mitigation Indices, using Table 26.3 from the C753 SuDS Manual.

	Mitigation Indices		
Type of SuDS component	TSS	Metals	Hydrocarbons
Attenuation Basin	0.5	0.6	0.6
Swale	0.5 (0.25)	0.6 (0.3)	0.6 (0.3)
TOTAL	0.75	0.9	0.9

The total SuDS mitigation Index > Pollution Hazard Index. Therefore, water treatment is acceptable.

2. MAINTENANCE

The maintenance requirements for each of the SuDS features proposed are outlined in the tables below and are in accordance with guidance set out within the CIRA C753 SuDS Manual.

Table 5: Operation and maintenance requirements for attenuation basins (CIRIA, 2015).

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

Table 6: Operation and maintenance requirements for swales (CIRIA, 2015).

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for >48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
Remedial actions	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

3. CONCLUSION

From the above review of available information, it is concluded that the proposed development can be safely and effectively drained without increasing flood risk on-site or elsewhere. The site is located within Flood Zone 1 and is therefore at low risk of flooding from fluvial and tidal sources, with surface water risk also considered to be low.

Ground investigations confirm that infiltration techniques are unlikely to be feasible due to low permeability soils and failed soakaway testing, and no groundwater was encountered during site investigations. As such, a precautionary approach has been adopted within the drainage strategy.

A suitable and sustainable drainage solution has been identified comprising a SuDS-based system, incorporating filter drains, attenuation storage, controlled discharge via a flow control device, and connection to existing ditch networks which ultimately outfall to the River Avon. Surface water runoff will be attenuated and discharged at a restricted rate (1 l/s), ensuring that runoff is effectively controlled and managed in line with greenfield conditions as far as practicable.
The proposed drainage strategy will be designed to ensure that:

- No flooding occurs on-site during storm events up to the 1 in 30 year return period;
- Runoff generated during the 1 in 100 year event plus climate change allowance is safely contained within the site;
- There is no increase in flood risk to third parties or the wider catchment.

It has been demonstrated that appropriate and viable drainage solutions are available, and the proposed development is acceptable in flood risk and drainage terms in accordance with national and local planning policy.

APPENDIX A: GROUND INVESTIGATION

CHIPPENHAM DISTRIBUTOR ROAD

Factual Report



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1 INTRODUCTION

1.1 Background

1.1.1 RPS Consulting Services Ltd (RPS) has been commissioned by Wiltshire Council (WC) (herein referred to as the Client) to undertake a programme of ground investigation works along the proposed route for the Chippenham Distributor Road (CDR) to support and inform the design phase.

1.1.2 RPS were appointed as the Consultant to the Client for the duration of the works, to act and carry out the duties of the Principal Contractor in accordance with the Construction, Design and Management (CDM) Regulations 2015.

1.1.3 Atkins are the appointed Principal Designer. They provided technical direction on site in response to any changes together with approval for reinstatement of exploratory holes and access routes.

1.1.4 The CDR route is proposed to create improved links to the south of the town of Chippenham. The route options are shown in Figure 1. The middle route is the preferred option and the investigation follows the route connecting London Road in the east and the A350 in the west. It is understood that no previous intrusive works have been undertaken along the proposed route of the CDR.

1.1.5 The factual report provides an account of the ground investigation undertaken by RPS between April and May 2022 and the subsequent groundwater monitoring programme between May and August 2021. This is a final report and any additional monitoring to be completed will be reported as addendums.

1.2 Report Structure

1.2.1 The remainder of the report is structured as follows:

Section 2: Site Location and Description;

Section 3: Ground Investigation Methodology.

2 SITE LOCATION AND DESCRIPTION

2.1.1 The section of the proposed CDR route subject to the current investigations, is a semi-linear, approximately 4.5 km length, connecting the A350 in the south-west of Chippenham with the A4 London Road in the south-east of Chippenham. The National Grid Reference for the eastern extent of the route is 394376 E, 171759 N, and western extent is 390925 E, 170619 N.

2.1.2 The route predominantly passes through rural undeveloped agricultural land under a number of ownerships, including Wiltshire Council, private landowners and tenanted land. The western extent passes through fields and then down onto River Avon flood plain. The River Avon is approximately 12m wide where the site investigation crosses it, with relatively steep tree lined banks.

2.1.3 The route then rises out of the flood plain and passes through several large fields to the south and east of Lower Lodge Farms, east through Middle Lodge Farm and then passes to the northeast past Forest Farm to join the A350 London Road.

2.1.4 There is a branch to the route, north from the eastern Lower Lodge Farm to join the A4 Pewsham Way at the junction with Forest Lane

2.1.5 A number of the land parcels comprise working farms with several outbuildings and slurry lagoons, with other fields used for arable farming and livestock. Hardstanding is limited to the farmyards and footprint of outbuildings.

2.1.6 Stockpiles of demolition rubble and tyres are present at most farms within the Assessment Site boundary.

3 GROUND INVESTIGATION METHODOLOGY

3.1 Summary of Ground Investigation Site Works

3.1.1 The intrusive ground investigation works were undertaken between Monday 4th April and Monday 16th June 2022 and comprised the following works:

- Provision of a detailed Health and Safety Construction Phase Plan including risk assessments and method statements;
- Drilling of 33 no. rotary core boreholes to depths of between 20.00 m and 20.90 m below ground level (m bgl);
- Drilling of 16 no. windowless sample borehole to depths of between 0.70 m and 8.10 m below ground level (m bgl);
- Excavation of 25 no. machine excavated trial pits locations to a maximum depth of 3.50 m bgl;
- Soakaway Infiltration testing and all trial pit locations;
- Completion of 12 no. Plate Load Testing (PLT) at depths of 0.60 m bgl;
- Completion of 7 no. California Bearing Ratio (CBR) tests at depths of 0.30 m and 0.65 m bgl;
- Completion of 16 no. Cone Penetration Tests (CPTs) to depths of between 3.08 m bgl and 16.98 m bgl;
- Completion of 9 no. Dynamic Cone Penetration (DCP) tests to depths of between 0.61 m bgl and 0.97 m bgl;
- Installation of gas and groundwater monitoring well standpipes at various depths within 9 no. rotary core boreholes and 7 no. windowless sample boreholes;

3.1.2 The locations of the exploratory holes are shown on Drawings JER9352 SI 001-003. Monitoring well installations have been indicated as yellow on the drawings.

3.1.3 Upon completion of the intrusive works, groundwater monitoring and sampling and gas monitoring has been completed. All monitoring data completed to data is included within this report.

3.2 Investigation Standards

3.2.1 The investigation was designed by the Principal Designer and meets the requirements within the Client's scope, HE1457 Ground Intrusive Surveys – Chippenham Distributor Road, Volume 3 – Client Scope (November 2021).

3.2.2 The investigation was set in the context of relevant UK legislation and associated regulatory guidance relating to the investigation of contaminated land and controlled waters. This includes:

- BS10175:2011+A2:2017 Investigation of Potentially Contaminated Sites a Code of Practice (BSI, 2017); and,
- BS5930:2015+A1:2020 Code of Practice for Ground Investigations (BSI, 2020).

3.3 Intrusive Ground Investigation Works

Rotary Core Boreholes

3.3.1 A total of 33 no. boreholes were drilled using dynamic sampling with rotary core follow on drilling techniques where dynamic sampling can no longer be advanced. For the majority of the works,

two multipurpose drilling rigs were present (Commachio 205 and 405). A third multipurpose rig was mobilised to site towards the latter of the project (Commachio 305). All locations were completed approximately at the proposed locations apart from AVC1_BH_07, AVC1_BH_14 and AVC1_BH_15. AVC1_BH_14 and AVC1_BH_15, which were moved up slope and down slope respectively from their original location in order that they could be set up on level ground without the requirement for additional measures. AVC1_BH_07 was moved east to ensure a safe working distance from the riverbank and remove any requirement for license arrangements with the Environment Agency.

3.3.2 Geo-environmental Consultants from RPS were in attendance during the drilling works to supervise and log the soil arisings and collect representative soil samples.

3.3.3 In-situ geotechnical testing was also undertaken in each borehole to depth. Standard Penetration Tests (SPTs) at 1 m intervals to 5.00 m BGL, 1.50 m intervals thereafter. SPT(c)'s were undertaken in granular strata.

3.3.4 UT100s to retrieve Class 1 samples were completed in appropriate strata.

3.3.5 All boreholes were advanced to the target depth of 20.00 m BGL and cores stored within plastic liners and core boxes for logging and sampling purposes. Prior to drilling, a service inspection pit was hand dug to 1.20 m BGL. Dynamic sampling subsequently started at the base of the inspection pit.

3.3.6 9 no. rotary holes were installed with 50 mm HDPE combined gas and groundwater monitoring wells. The installation details were instructed by the Investigation Supervisor based on the ground conditions identified during drilling, as outlined below in Table 3-1.

3.3.7 The monitoring well installation and depths are also shown on the exploratory logs in Appendix A. The location of boreholes are shown on Drawings JER9352 SI 001-003. Monitoring well installations are indicated as yellow on the drawings.

Windowless Sample Boreholes

3.3.8 A total of 17 no. boreholes were drilled using windowless sampling techniques to a target depth of 8.00 m BGL. Due to dense strata, only 6 no. windowless sample boreholes achieved target depth.

3.3.9 Geo-environmental Consultants from RPS were in attendance during the windowless sampling works to supervise and log the soil arisings and collect representative soil samples. Standard Penetration Tests (SPTs) were undertaken at 1.00 m intervals to base. SPT(c)'s were undertaken where strata was granular in nature.

3.3.10 Prior to windowless sampling, a service inspection pit was hand dug at each location. Windowless sampling then started at the base of the inspection pit.

3.3.11 7 no. windowless sample boreholes were installed with 50 mm HDPE combined gas and groundwater monitoring wells. The installation details are also outlined below in Table 3-1. The installation details were instructed by the Investigation Supervisor based on the ground conditions identified during drilling and logging of the windowless samples at the location. Details of each and depths are shown on the exploratory logs in Appendix A, location of boreholes are shown on Drawings JER9352 SI 001-003. Monitoring installations are indicated as yellow on the drawing.

Table 3-1 – Summary of Rotary Core & Windowless Boreholes with Installation Details

Borehole	Monitoring Well Diameter (mm)	Borehole Final Depth m bgl (mAOD)	Response Zone Top m bgl (mAOD)	Response Zone Base m bgl (mAOD)
AVC1_BH_05	50	20.70 (40.20)	1.00(20.50)	8.00(27.50)
AVC1_BH_08	50	20.00 (41.10)	4.00 (25.10)	7.00 (28.10)
AVC1_BH_14	50	20.00 (43.15)	15.00 (38.15)	20.00 (43.15)

Borehole	Monitoring Well Diameter (mm)	Borehole Final Depth m bgl (mAOD)	Response Zone Top m bgl (mAOD)	Response Zone Base m bgl (mAOD)
AVW_BH_02	50	20.40 (52.70)	2.00 (34.30)	5.00 (37.30)
AVW_BH_08	50	20.00 (53.70)	12.00 (45.70)	15.00 (48.70)
BH001	50	20.50 (52.35)	5.00 (36.85)	15.00 (46.85)
BH003	50	20.50 (45.55)	4.00 (29.05)	7.00 (32.05)
PWB_BH_01	50	20.50 (61.40)	5.00 (45.90)	9.00 (49.90)
PWB_BH_06	50	20.50 (52.70)	3.00 (35.20)	9.00 (41.20)
WS001	50	4.00 (51.70)	0.70 (48.40)	3.90 (51.60)
WS004	50	6.33 (50.85)	1.00 (45.52)	6.20 (50.72)
WS006	50	3.65 (55.65)	1.00 (53.00)	3.20 (55.20)
WS009	50	8.10 (51.95)	1.00 (44.85)	8.10 (51.95)
WS011	50	8.10 (55.00)	2.00 (48.90)	8.00 (54.90)
WS019	50	3.70 (57.10)	1.00 (58.10)	3.50 (53.80)
WS020	50	8.10 (55.45)	1.00 (48.35)	8.10 (55.45)

Trial Pits & Soakaway Testing

3.3.12 A total of 25 no. trial pits were excavated with a 6 tonne tracked mechanical excavator to maximum depths of up to 3.50 m BGL. A number of trial pits were terminated at shallower depths due to water ingress and instability of pit walls.

3.3.13 A Geo-environmental Consultant from RPS logged the arisings and took samples for chemical and geotechnical analyses at appropriated depths as per the project specification, and based upon field observations, as instructed by the Investigation Supervisor.

3.3.14 Copies of the exploratory hole logs are provided in Appendix A and the locations of the trial pits are shown on Drawings JER9352 SI 001-003.

3.3.15 Selected photographs of the trial pits are provided in Appendix B.

Soakaway Infiltration Testing

3.3.16 The scope required soakaway testing to be undertaken in every trial pit, and where possible repeated three times in accordance with BRE 365 (2016).

3.3.17 The nature of the shallow soils across the proposed route were typically cohesive and observed and measured changes in water level were minor. Therefore only one test was typically completed at each location. Each test was ended with an instruction from the Investigation Supervisor.

3.3.18 Three tests were repeated in trial pit TP001, in accordance with BRE 365 within 24 hours, where more granular material was identified, and infiltration rates could be measured. Two tests were also achievable within trial pit TP002a.

3.3.19 The soakaway results are presented in Appendix C.

Plate Load Tests (PLTs)

3.3.20 Plate Load Tests (PLTs) were required at 12 no. locations, and undertaken at 0.60 m BGL, as instructed by the Investigation Supervisor. Each test was undertaken in accordance with BS 1377: Part 9 (1990), using a 600 mm diameter steel plate, by specialist contractor, Geo Site and Testing Services Ltd (GSTL). A tracked excavator was used at each position for kentledge for the tests.

3.3.21 All tests were completed at their original proposed locations however PLT001 could not be undertaken due to location adjacent to a national speed limit A350 roundabout and insufficient space for an excavator to sit on location for kentledge. It was proposed by RPS that PLT001 could

be replaced by light reflectometry techniques, however during hand pitting to 0.60 m BGL ahead of the test, shallow bedrock was encountered, negating the requirement for the testing.

3.3.22 Geo-environmental Consultants from RPS were present during each PLT to supervise, log and sample soils, as instructed by the Investigation Supervisor.

3.3.23 The PLT results are presented in Appendix D.

Cone Penetration Tests (CPTs)

3.3.24 16 no. Cone Penetration Tests were undertaken across the proposed route, by specialist Contractor, Lankelma, using a Unimog (Tracked Truck) with retractable tracks to minimise ground disruption.

3.3.25 Hand dug service inspection pits were undertaken at each location prior to the CPT and samples taken, as instructed by the Investigation Supervisor. Each CPT test was carried out in accordance with BS 1377: Part 9, BS EN ISO 22476: Part 1 and BS 5930.

3.3.26 Geo-environmental Consultants from RPS were present during the works.

3.3.27 The preliminary CPT results are presented in Appendix E.

California Bearing Ratio Tests (CBRs)

3.3.28 In situ CBR tests were required at 7 no. locations along the proposed route. Each test was undertaken by specialist contractor, Geo Site and Testing Services Ltd (GSTL), in accordance with BS 1377: Part 9.

3.3.29 Test depths were instructed by the Investigation Supervisor, at 0.60 m BGL. A number of positions within the pavement of the A350 in the west, and the A4 London Road in the east had to be moved to avoid services. The strata was locally dense and some testing was completed at shallower depths. Any changes in location or test depth was agreed by the Investigation Supervisor before continuing. Tests were generally undertaken between 0.30 m BGL and 0.65 m BGL in natural soils.

3.3.30 The CBR test results are presented in Appendix F.

Light Dynamic Cone Penetrometer Tests (DCPs)

3.3.31 9 no. Light Cone Penetrometer (DCPs) were undertaken in line with BS EN ISO 22476: Part 2 (2005) and were advanced to refusal, typically within the top 1 metre.

3.3.32 Each DCP was undertaken by Geo-environmental Consultants from RPS and measurements taken after each penetration blow.

3.3.33 The DCP results are presented in Appendix G.

Soil Gas Monitoring During Intrusive Works

3.3.34 Photo-Ionisation Detector (PID) fitted with a 10.6 eV lamp was used to conduct headspace tests on soil samples during the intrusive works to detect the presence of VOCs. Each environmental samples taken from all exploratory positions were analysed for volatiles and the highest reading recorded for each. The PID readings are included in the exploratory hole logs within Appendix A.

3.4 Soil Sampling

3.4.1 During the ground investigation, soil samples considered to be representative of soil conditions were collected from the exploratory locations. An outline of the sampling strategy is as follows:

- Environmental samples were generally taken at 0.30 m, 0.80 m and 1.20 m and / or at every change in strata and then at frequencies of every 1 m or change of strata to the base of Made Ground, where present;
- Environmental samples were taken at 0.50 m in the first metre of natural stratum, and only at change of strata or where visual or olfactory evidence of contamination was observed;

3.4.2 Geotechnical samples were generally taken as follows:

- Small disturbed samples were taken at every strata change or 0.50 m interval; and
- Large bulk disturbed samples were taken at 0.50 m intervals in inspection pits and at 1.0 m intervals in trial pits, or one per stratum.

3.4.3 Core samples were taken from each rotary borehole for geotechnical testing. Samples were taken generally as one per run, or where a sample had solid core recovery between 200 mm and 300 mm, or as requested by the Investigation Supervisor. Each core sample was wrapped in foil, and clingfilm before being wrapped in geosock and waxed, and subsequently wrapped in another layer of clingfilm.

3.4.4 Environmental soil samples comprising approximately 1.0 – 1.5 kg of soil were collected in appropriate containers supplied by the laboratory. Each disturbed environmental soil sample was labelled with a unique reference number together with the project details. All samples were stored in cool boxes and maintained at a temperature of +4ºC ± 2ºC together with the chain of custody records until collected and couriered to a MCERTS / UKAS accredited laboratory for testing.

3.4.5 Geotechnical samples were stored at the site compound before being couriered to a UKAS accredited laboratory for testing.

3.4.6 The sample types and depths are presented in the logs in Appendix A and the sample codes used on the exploratory logs are provided in Table 3-2.

Table 3-2 – Summary of Soil Sample Types

Sample Type Code	Sample Type
B	Large disturbed sample within bulk bag for geotechnical analysis
C	Rock core sample intact
CD	Disturbed rock core sample
D	Small disturbed sample within plastic tub for geotechnical analysis
ES	Disturbed soil sample inc. glass amber jars and plastic tubs for chemical analysis
PID	Soil sample VOC monitoring using a PID
SPTLS	Sample obtained within SPT (supplied within plastic tub as a D sample)
SW	Surface water sample inc. glass green bottles and vials for chemical analysis
UT100	Ultra-thin wall 100 mm diameter sample
EW	Groundwater sample incl. glass green bottles and vials for chemical analysis

3.5 Gas and Groundwater Monitoring and Sampling

3.5.1 To date, two rounds of groundwater monitoring and sampling have been undertaken on 17th May and 9th June 2022.

3.5.2 One round of surface water monitoring, as requested by the Principal Designer has been undertaken on 9th June. One sample was taken from the River Avon, accessed from the west at Showell Nurseries (near AVC1_BH_06), and the second from Cocklemore Brook.

3.5.3 Prior to purging of the boreholes, the following measurements were recorded at all of the monitoring wells;

- The groundwater level (from ground level);

- The depth to the base of the monitoring well (from ground level); and
- Thickness of hydrocarbon free product (if present).

3.5.4 The results of the groundwater level monitoring that has been completed to date (at the time of writing), are provided in Appendix H.

3.5.5 Once groundwater levels and monitoring well depths had been recorded a groundwater sample was collected. Each well was purged of at least three well volumes of standing groundwater. Samples were placed in laboratory supplied and prepared bottles, labelled at the time of sampling using indelible marker pens and then packed into cool boxes and dispatched to the laboratories. Sample bottles were filled to the top, where required, in order to form an inverse meniscus preventing air bubbles forming, thus minimising the potential loss of any volatile gases dissolved in the water sample.

3.5.6 To date, one round of gas monitoring has been undertaken on 9th June 2022. The following measurements were recorded during the first gas round, over a period of 5 minutes to reach steady state:

- Atmospheric pressure and relative pressure (mb);
- Flow (l/hr);
- Oxygen (%);
- Carbon Dioxide (%);
- Methane (% & LEL);
- Hydrogen Sulphide (ppm);
- Carbon Monoxide (ppm); and
- Depth to water and depth to base of monitoring installation.

3.5.7 Results of the first gas round are provided in Appendix H.

3.6 Laboratory Analysis

Soil Chemical Analysis

3.6.1 Soil samples considered to be representative of ground conditions across the proposed route were submitted to ALS for chemical analysis.

3.6.2 A total of 46 no. soil samples were submitted to the laboratory. Testing suites comprised the following: metals (As, B, Cd, Cr, Cr Hexavalent, Cu, Pb, Hg, Ni, Se, Zn, V, Al, An, Ba, Be, Fe, Mn, Mo) pH, Electrical conductivity, Water Soluble Sulphate (as SO4), Sulphide, Phosphorus Ammoniacal Nitrogen, Nitrate, Nitrite, Chloride, Cyanide Total, Cyanide Free, Cyanide complex, Total Petroleum Hydrocarbons (TPH) CWG with aromatic / aliphatic banding BTEX compounds, Polycyclic Aromatic Hydrocarbons (PAH) testing, Phenol.

3.6.3 22 No of those samples were also tested for an equivalent leachate suite of contaminants.

3.6.4 The results of all completed analysis at the time of writing are included within Appendix I.

Water Chemical Analysis

3.6.5 A total of 7 no. groundwater samples were obtained and analysis completed from the first groundwater monitoring round. 11 no. samples were obtained and analysed during the second monitoring round, in addition to 2 no. surface samples. All samples were submitted to ALS for testing.

3.6.6 Testing suites comprised the following: metals (As, B, Cd, Cr, Cr Hexavalent, Cu, Pb, Hg, Ni, Se, Zn, V, Al, An, Ba, Be, Fe, Mn, Mo) pH, Electrical conductivity, Water Soluble Sulphate (as SO4), Sulphide, Phosphorus Ammoniacal Nitrogen, Nitrate, Nitrite, Chloride, Cyanide Total, Cyanide Free, Cyanide complex, Total Petroleum Hydrocarbons (TPH) CWG with aromatic / aliphatic banding BTEX compounds, Polycyclic Aromatic Hydrocarbons (PAH) testing, Phenol.

3.6.7 The results of the completed analyses at the time of writing are included in Appendix J.

Geotechnical Analysis

3.6.8 Soil and rock samples considered to be representative of ground conditions across the proposed route were submitted to GSTL for geotechnical analysis.

3.6.9 Geotechnical testing scheduled comprised the following (quantities in brackets):

- Natural Moisture Content (289)
- Atterberg Limits (4 Point) (274)
- Particle Size Distribution (Wet Sieve) (155)
- Particle Size Distribution (Sedimentation) (144)
- Bulk density (29)
- Organic matter (75)
- Quick Undrained Triaxial Compression test - set of 3 - 38mm diameter specimens (Quick Triaxial) (22
- Quick Undrained Triaxial Compression Test - Multi-stage Loading of a single specimen diameter) (100mm) (8)
- Consolidated undrained triaxial compression test on a Single Specimen with Multistage Loading with the measurement of pore water pressure including saturation and consolidation (6)
- Consolidated drained Triaxial compression test on a single 100 mm diameter specimens Multistage loading with the measurement of volume change and pore water pressure including saturation and consolidation (5).
- Consolidated undrained triaxial compression test on a set of three x 38 mm diameter specimens with the measurement of pore water pressure including saturation and consolidation (1)
- Determination of Permeability in a triaxial cell (1)
- One-dimensional Consolidation (Oedometer) (15)
- Dry Density Moisture Content (2.5kg) (19)
- MCV/Moisture content relationship (3)
- California Bearing Ratio on recompacted disturbed sample (1)
- Consolidated Drained Peak and Residual Shear Strength (Small shear box (60mm x 60mm) (11)
- Immediate Shear Strength - set of 3 60 x 60 mm Shear Box (1)
- BRE Suites - B (Greenfield, pyrite present) (62)
- BRE Suites - D (Brownfield, pyrite present) (2)

The following testing was scheduled on rock samples:

- Uniaxial Compressive Strength of Rock (61)
- Determination of Point Load Value Axial or Diametrical including WC (132)
- Point load strength index test 10 Determination (2)
- Natural water content of rock sample (25)

3.6.10 All results completed at the time of writing are provided in Appendix K.

3.7 QA/QC Sampling Protocols

Sample Storage and Transportation

3.7.1 All soil and water samples were stored and transported in cool boxes with ice packs to ensure a nominal temperature of + 4°C ± 2°C. Cool boxes were regularly transported to the laboratory to ensure sample integrity.

3.8 Topographic Survey

3.8.1 Topographical surveys were undertaken post completion of each exploratory positions, to obtain as built Ordnance Datum National Grid Coordinates and ground levels to Ordnance Datum. Co-ordinates and ground levels are provided on the exploratory hole logs in Appendix A.

Drawing 1 JER9352 SI 001 Exploratory Hole Location Plan

Drawing 2 JER9352 SI 002 Exploratory Hole Location Plan

Drawing 3 JER9352 SI 003 Exploratory Hole Location Plan

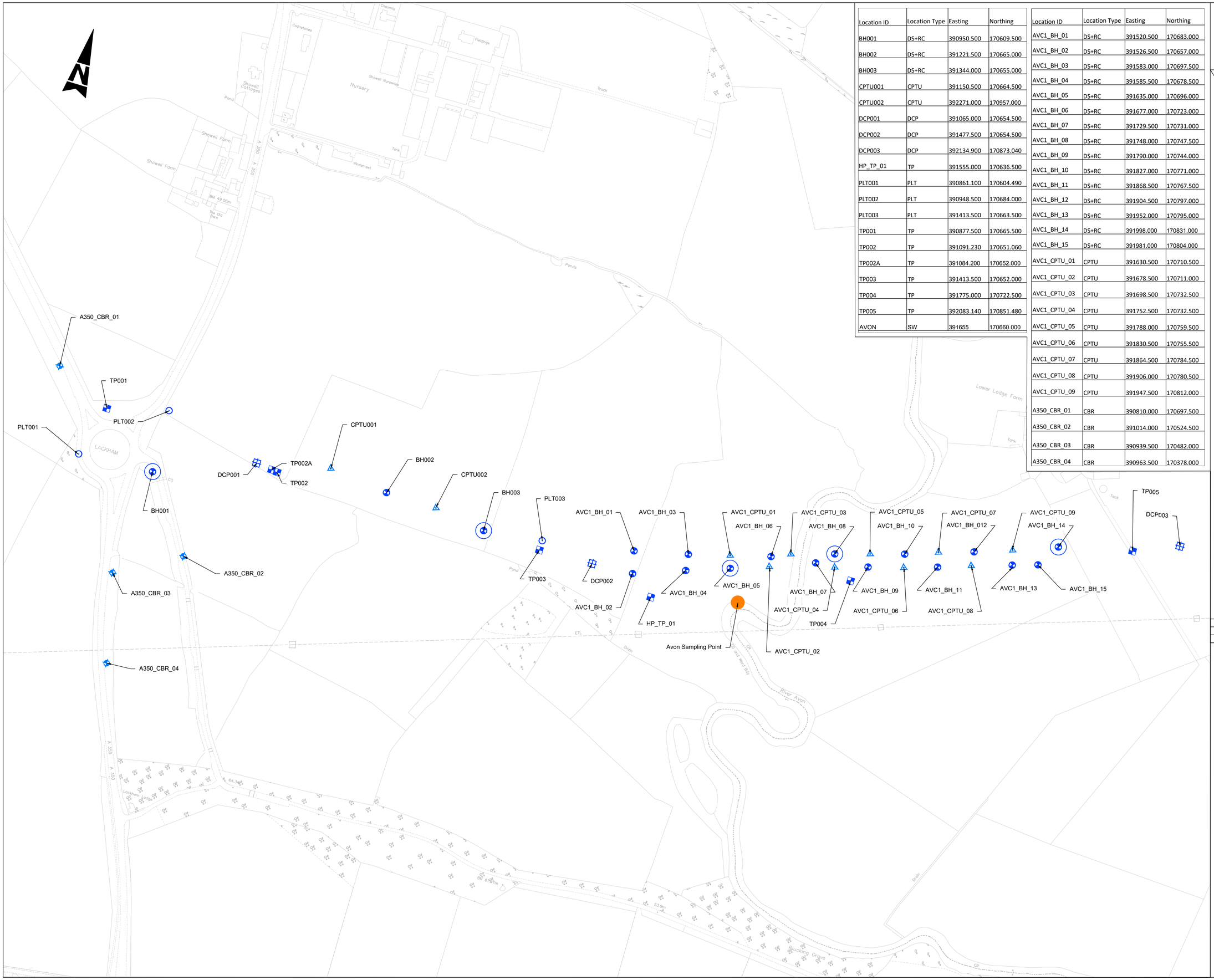
FIGURE 1 – CHIPPENHAM DISTRIBUTOR ROAD, ROUTE OPTIONS



* Ground Investigation follows Option B – Middle Route

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Client:	Wiltshire Council		
Project:	Chippenham Distributor Road		
Checked By:	CW		
Job Ref:	JER9352	**Date:**	Aug 22



Location ID	Location Type	Easting	Northing
BH001	DS+RC	390950.500	170609.500
BH002	DS+RC	391221.500	170665.000
BH003	DS+RC	391344.000	170655.000
CPTU001	CPTU	391150.500	170664.500
CPTU002	CPTU	392271.000	170957.000
DCP001	DCP	391065.000	170654.500
DCP002	DCP	391477.500	170654.500
DCP003	DCP	392134.900	170873.040
HP_TP_01	TP	391555.000	170636.500
PLT001	PLT	390861.100	170604.490
PLT002	PLT	390948.500	170684.000
PLT003	PLT	391413.500	170663.500
TP001	TP	390877.500	170665.500
TP002	TP	391091.230	170651.060
TP002A	TP	391084.200	170652.000
TP003	TP	391413.500	170652.000
TP004	TP	391775.000	170722.500
TP005	TP	392083.140	170851.480
AVON	SW	391655	170660.000

Location ID	Location Type	Easting	Northing
AVC1_BH_01	DS+RC	391520.500	170683.000
AVC1_BH_02	DS+RC	391526.500	170657.000
AVC1_BH_03	DS+RC	391583.000	170697.500
AVC1_BH_04	DS+RC	391585.500	170678.500
AVC1_BH_05	DS+RC	391635.000	170696.000
AVC1_BH_06	DS+RC	391677.000	170723.000
AVC1_BH_07	DS+RC	391729.500	170731.000
AVC1_BH_08	DS+RC	391748.000	170747.500
AVC1_BH_09	DS+RC	391790.000	170744.000
AVC1_BH_10	DS+RC	391827.000	170771.000
AVC1_BH_11	DS+RC	391868.500	170767.500
AVC1_BH_12	DS+RC	391904.500	170797.000
AVC1_BH_13	DS+RC	391952.000	170795.000
AVC1_BH_14	DS+RC	391998.000	170831.000
AVC1_BH_15	DS+RC	391981.000	170804.000
AVC1_CPTU_01	CPTU	391630.500	170710.500
AVC1_CPTU_02	CPTU	391678.500	170711.000
AVC1_CPTU_03	CPTU	391698.500	170732.500
AVC1_CPTU_04	CPTU	391752.500	170732.500
AVC1_CPTU_05	CPTU	391788.000	170759.500
AVC1_CPTU_06	CPTU	391830.500	170755.500
AVC1_CPTU_07	CPTU	391864.500	170784.500
AVC1_CPTU_08	CPTU	391906.000	170780.500
AVC1_CPTU_09	CPTU	391947.500	170812.000
A350_CBR_01	CBR	390810.000	170697.500
A350_CBR_02	CBR	391014.000	170524.500
A350_CBR_03	CBR	390939.500	170482.000
A350_CBR_04	CBR	390963.500	170378.000

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Notes

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KEY:

- CPTU - CONE PENETRATION TEST
- DCP - DYNAMIC CONE PENETRATION
- DS+RC - ROTARY BOREHOLES
- PLT - PLATE LOAD TEST
- TP - TRIAL PITS
- WS - WINDOWLESS SAMPLING
- CBR - CALIFORNIA BEARING RATIO TEST
- BOREHOLES WITH MONITORING WELL INSTALLATION
- SURFACE WATER SAMPLING POINT

Rev	Description	By	CB	Date
0	Issue	TF	CW	01/09/22

MAKING COMPLEX EASY

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Client: Wiltshire Council

Project: Chippenham Distributor Road

Title: Exploratory Hole Location Plan

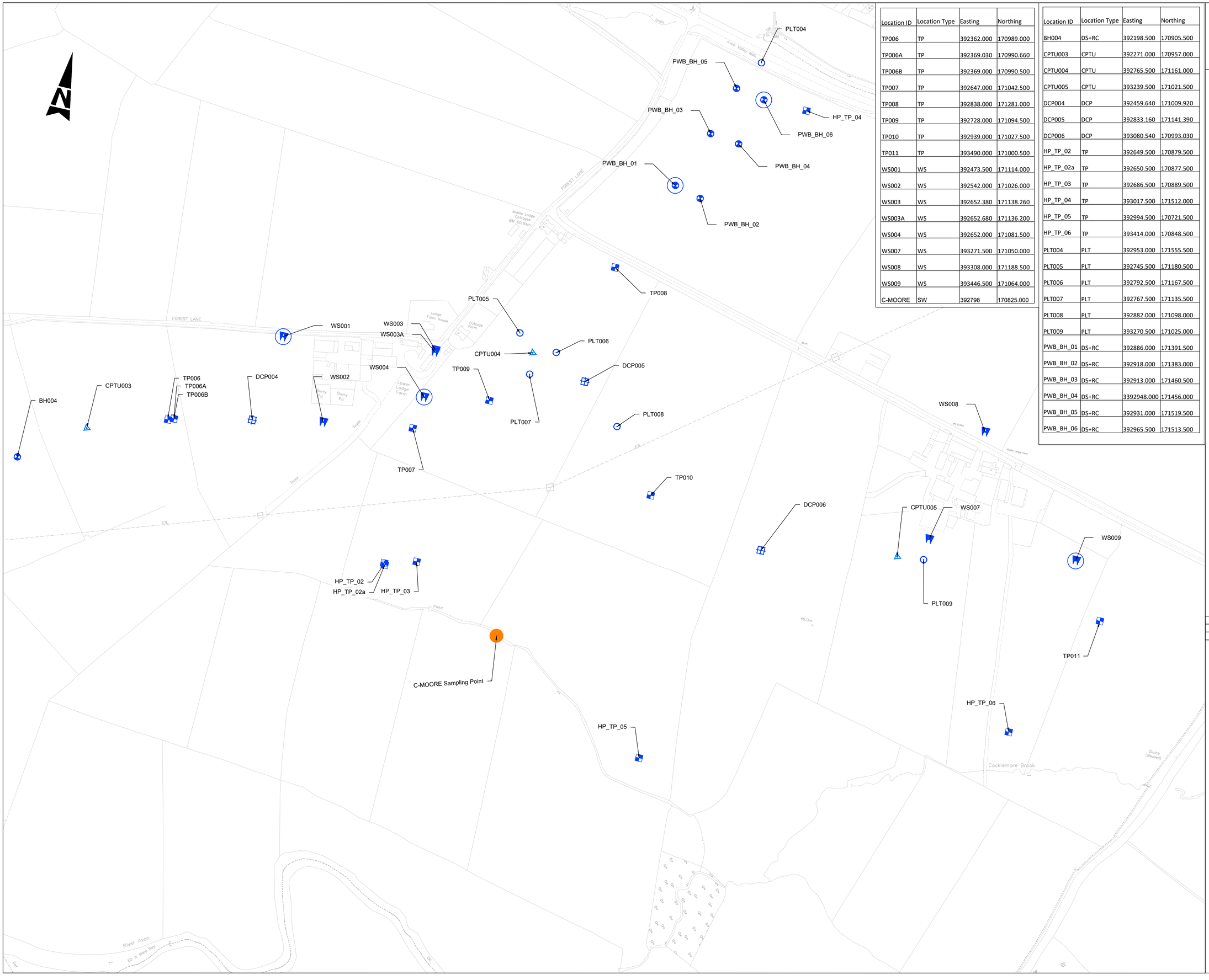
Status	Drawn By	PM/Checked by
FINAL	TF	CW

Project Number	Scale @ A1	Date Created
JER9352	1:2000	SEPT 2022

RPS Drawing / Figure Number: JER9352 SI 001

Rev: 0

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Location ID	Location Type	Easting	Northing
TP006	TP	392362.000	170989.000
TP006A	TP	392369.030	170990.660
TP006B	TP	392369.000	170990.500
TP007	TP	392647.000	171042.500
TP008	TP	392838.000	171281.000
TP009	TP	392728.000	171094.500
TP010	TP	392939.000	171027.500
TP011	TP	393490.000	171000.500
WS001	WS	392473.500	171114.000
WS002	WS	392542.000	171026.000
WS003	WS	392652.380	171138.260
WS003A	WS	392652.680	171136.200
WS004	WS	392652.000	171081.500
WS007	WS	393271.500	171050.000
WS008	WS	393308.000	171188.500
WS009	WS	393446.500	171064.000
C-MOORE	SW	392798	170825.000

Location ID	Location Type	Easting	Northing
BH004	DS+RC	392198.500	170905.500
CPTU003	CPTU	392271.000	170957.000
CPTU004	CPTU	392765.500	171161.000
CPTU005	CPTU	393239.500	171021.500
DCP004	DCP	392459.640	171009.920
DCP005	DCP	392833.160	171141.390
DCP006	DCP	393080.540	170993.030
HP_TP_02	TP	392649.500	170879.500
HP_TP_02a	TP	392650.500	170877.500
HP_TP_03	TP	392686.500	170889.500
HP_TP_04	TP	393017.500	171512.000
HP_TP_05	TP	392994.500	170721.500
HP_TP_06	TP	393414.000	170848.500
PLT004	PLT	392953.000	171555.500
PLT005	PLT	392745.500	171180.500
PLT006	PLT	392792.500	171167.500
PLT007	PLT	392767.500	171135.500
PLT008	PLT	392882.000	171098.000
PLT009	PLT	393270.500	171025.000
PWB_BH_01	DS+RC	392886.000	171391.500
PWB_BH_02	DS+RC	392918.000	171383.000
PWB_BH_03	DS+RC	392913.000	171460.500
PWB_BH_04	DS+RC	3392948.000	171456.000
PWB_BH_05	DS+RC	392931.000	171519.500
PWB_BH_06	DS+RC	392965.500	171513.500

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Notes

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KEY:

- CPTU - CONE PENETRATION TEST
- DCP - DYNAMIC CONE PENETRATION
- DS+RC - ROTARY BOREHOLES
- PLT - PLATE LOAD TEST
- TP - TRIAL PITS
- WS - WINDOWLESS SAMPLING
- CBR - CALIFORNIA BEARING RATIO TEST
- BOREHOLES WITH MONITORING WELL INSTALLATION
- SURFACE WATER SAMPLING POINT

Rev	Description	By	CB	Date
0	Issue	TF	CW	01/09/22

MAKING COMPLEX EASY

5th Floor
One Temple Quay
Temple Back East
Bristol
BS1 6DZ
T: 01454 279568 **W:** rpsgroup.com

Client: Wiltshire Council

Project: Chippenham Distributor Road

Title: Exploratory Hole Location Plan

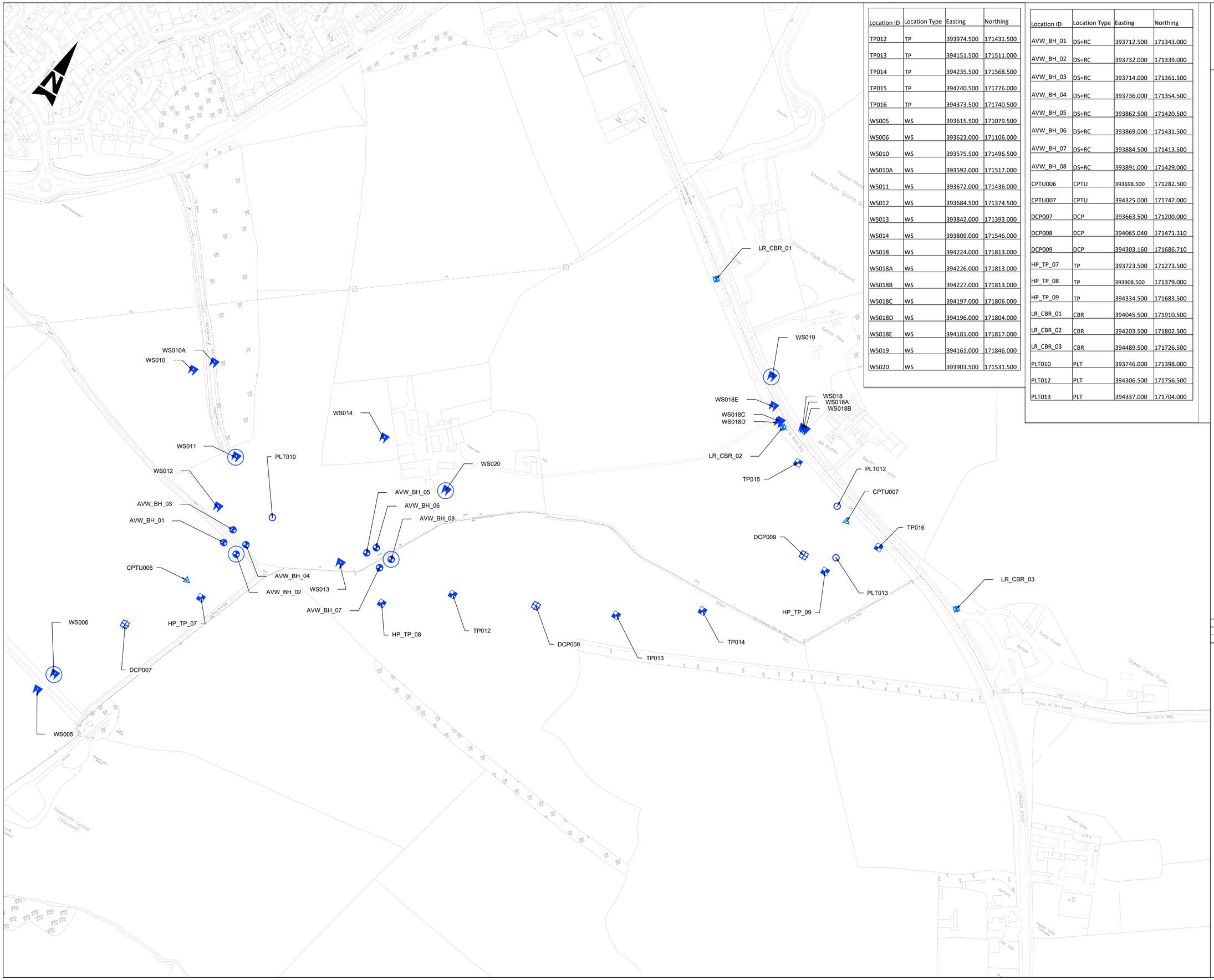
Status	Drawn By	PM/Checked by
FINAL	TF	CW

Project Number	Scale @ A1	Date Created
JER9352	1:2000	SEPT 2022

RPS Drawing / Figure Number: JER9352 SI 002

Rev: 0

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Location ID	Location Type	Easting	Northing
TP012	TP	393974.500	171431.500
TP013	TP	394151.500	171511.000
TP014	TP	394235.500	171568.500
TP015	TP	394240.500	171776.000
TP016	TP	394373.500	171740.500
WS005	WS	393615.500	171079.500
WS006	WS	393623.000	171106.000
WS010	WS	393575.500	171496.500
WS010A	WS	393592.000	171517.000
WS011	WS	393672.000	171436.000
WS012	WS	393684.500	171374.500
WS013	WS	393842.000	171393.000
WS014	WS	393809.000	171546.000
WS018	WS	394224.000	171813.000
WS018A	WS	394226.000	171813.000
WS018B	WS	394227.000	171813.000
WS018C	WS	394197.000	171806.000
WS018D	WS	394196.000	171804.000
WS018E	WS	394181.000	171817.000
WS019	WS	394161.000	171846.000
WS020	WS	393903.500	171531.500

Location ID	Location Type	Easting	Northing
AVW_BH_01	DS+RC	393712.500	171343.000
AVW_BH_02	DS+RC	393732.000	171339.000
AVW_BH_03	DS+RC	393714.000	171361.500
AVW_BH_04	DS+RC	393736.000	171354.500
AVW_BH_05	DS+RC	393862.500	171420.500
AVW_BH_06	DS+RC	393869.000	171431.500
AVW_BH_07	DS+RC	393884.500	171413.500
AVW_BH_08	DS+RC	393891.000	171429.000
CPTU006	CPTU	393698.500	171282.500
CPTU007	CPTU	394325.000	171747.000
DCP007	DCP	393663.500	171200.000
DCP008	DCP	394065.040	171471.310
DCP009	DCP	394303.160	171686.710
HP_TP_07	TP	393723.500	171273.500
HP_TP_08	TP	393908.500	171379.000
HP_TP_09	TP	394334.500	171683.500
LR_CBR_01	CBR	394045.500	171910.500
LR_CBR_02	CBR	394203.500	171802.500
LR_CBR_03	CBR	394489.500	171726.500
PLT010	PLT	393746.000	171398.000
PLT012	PLT	394306.500	171756.500
PLT013	PLT	394337.000	171704.000

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KEY:

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- BOREHOLES WITH MONITORING WELL INSTALLATION

Rev	Description	By	CB	Date
0	Issue	TF	CW	01/09/22

MAKING COMPLEX EASY

5th Floor
One Temple Quay
Temple Back East
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BS1 6DZ
T: 01454 279568 **W:** rpsgroup.com

Client: Wiltshire Council

Project: Chippenham Distributor Road

Title: Exploratory Hole Location Plan

Status	Drawn By	PM/Checked by
FINAL	TF	CW

Project Number	Scale @ A1	Date Created
JER9352	1:2000	SEPT 2022

RPS Drawing / Figure Number: JER9352 SI 003

Rev: 0

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Appendix A
EXPLORATORY LOGS

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Borehole ID: AVC1_BH_01
Contract Number: JER9352	Start Date: 05/05/2022	End Date: 06/05/2022	Checked By: CW	Status: FINAL	Sheet 1 of 3
Rotary Core Drilling Log	Easting: 391520.5	Northing: 170683.0	Ground Level: 44.30mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN	Scale: 1:50
Weather: Sunny+Variable	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%		

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								Samples & Core Recovery / Strata Details / Groundwater		
PID 0.2ppm	ES1					(0.75)		Grass over very soft to soft brown slightly sandy CLAY with fragments of organic matter (<3mm). Sand is fine to coarse.		
	D1									
PID 0.0ppm	ES2				43.55	0.75				
	B2					(0.45)		Orangish brown slightly gravelly silty CLAY. Gravel is angular to subrounded fine to coarse flint, limestone and quartzite.		
~~PID 0.0ppm~~	D3	SPT(S) 1.20m, N=24 (4,6/5,7,5,7)			43.10	1.20				
	D4							Orangish brown very gravelly fine to coarse SAND. Gravel is subangular and subrounded fine and medium sandstone, mudstone and quartzite.		
	ES3		100 N/A N/A							
1.20 - 2.20	B5									
	D6	SPT(S) 2.20m, N=18 (3,5/3,3,5,7)								
	U7					(3.60)				
	D8									
3.30 - 4.30			100 N/A N/A							
	D9	SPT(S) 4.30m, N=9 (2,2/2,1,3,3)								
4.30 - 5.50	C10		83 40 40	None	39.50	4.80		Weak grey argillaceous MUDSTONE.		
						(0.70)				
5.50 - 5.90	C11		100 75 67	None	38.80	5.50		Very strong light grey medium grained oolititc LIMESTONE with occasional fine and medium gravel sized white calcareous inclusions and suspected calcified shells.		
					38.40	5.90				
				None		(0.40)		Medium strong grey fine and medium grained argillaceous SANDSTONE with relic cross bedding possibly calcified.		
					38.05	6.25				
5.90 - 7.00	C12		118 100 100	N/A	37.80	6.50		Very stiff dark grey slightly gravelly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments. Sand is fine and medium. Gravel is fine coarse mudstone.		
								Extremely strong creamish grey medium grained fossiliferous LIMESTONE with frequent marl seams randomly orientated and generally less than 20mm in width.		
								From 7.00m to 7.45m becoming cream in colour.		
7.00 - 8.50			93 100 97	One Fracture		(2.00)		*At 7.50m bedding fracture.* *From 7.45m becoming light grey.*		
	C13									
	D14	SPT(S) 8.50m, N=15 (1,2/3,2,3,7)			35.80	8.50		Stiff greenish thinly laminated grey silty CLAY.		
				None		(1.00)				
8.50 - 10.00			100 37 37							
					34.80	9.50		Very weak to weak argillaceous thickly laminated greenish grey SILTSTONE.		
	C15									

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
05-05-2022	12:15			
05-05-2022	17:00	20.50	3.00	19.00
06-05-2022	08:00	20.50	3.00	
06-05-2022	12:45	20.50	0.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	2.80		100%-100%	brown
4.30	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20	0.00		20	1.20	Seepage

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_01
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 06/05/2022	Checked By: CW	Status: FINAL
					Sheet 2 of 3
Rotary Core Drilling Log	Easting: 391520.5	Northing: 170683.0	Ground Level: 44.30mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN
					Scale: 1:50

Weather: Sunny+Variable | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 10.70	D16 C17	SPT(S) 10.00m, 50 (8,15/50 for 125mm)	100 64 36	None	33.65	(1.15) 10.65		Very weak to weak lenticular greenish grey MUDSTONE. Lenses are extremely closely spaced and thinly laminated (<5mm in width) lenses, slightly harder than surrounding mudstone. *Between 10.65m and 20.50m very closely spaced to widely spaced, average medium spaced, smooth planar bedding fractures.*		
10.70 - 11.50	C18		100 100 100							
11.50 - 13.00	D19 C20	SPT(S) 11.50m, 50 (3,2/50 for 155mm)	100 100 100			(4.35)				
13.00 - 14.50	C21		100 100 100							
14.50 - 16.00	C22		100 100 100	60 400 850	29.30	15.00		Weak greenish grey MUDSTONE with medium to closely spaced lenses of thinly laminated siltstone (<5mm in width).		
16.00 - 17.50	C23		93 100 100		27.35	(1.95) 16.95		Weak lenticular greenish grey MUDSTONE. Lenses are very closely spaced out thinly laminated and slightly harder than surrounding matrix.		
17.50 - 19.00	C24		100 100 100			(3.55)				
19.00 - 20.50	C25		100 100 100							

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20	0.00		20	1.20	Seepage

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_01
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 06/05/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 391520.5	Northing: 170683.0	Ground Level: 44.30mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN
					Scale: 1:50

Weather: Sunny+Variable | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					23.80	20.50		*From 20.20m lenses are very thinly bedded (<20mm width).* *From 20.30 to 20.45m band of strong light grey mudstone.* End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)

Casing Diameter	
Depth (m)	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20	0.00		20	1.20	Seepage

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_02
Contract Number: JER9352	Start Date: 04/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391526.5	Northing: 170657.0	Ground Level: 44.20mOD	Plant Used: Comacchio GEO 300
Logged By: IS/DN	Scale: 1:50			Sheet 1 of 3
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.30)		Grass over stiff brown slightly sandy silty CLAY with frequent rootlets (<2mm).		
PID 0.0ppm	ES1				43.90	0.30		Firm orangish brown silty CLAY.		
	D1					(0.40)		*From 0.50m to 0.70m slightly sandy.*		
PID 0.0ppm	ES2				43.50	0.70		Soft mottled orangish brown and grey very sandy CLAY. Sand is fine and medium.		
	B2					(0.30)				
	D3				43.20	1.00		Light brown gravelly clayey fine and medium SAND. Gravel is subangular to rounded fine to coarse limestone, flint, quartzite and sandstone.		
~~PID 0.0ppm~~	B4	SPT(S) 1.20m, N=19 (2,3/4,4,5,6)			43.00	1.20				
	ES3							Orangish brown very sandy angular to subrounded fine to coarse limestone, sandstone and mudstone GRAVEL with shell fragments.		
	D5		100 N/A N/A							
1.20 - 2.20						(1.05)				
		SPT(S) 2.20m, N=11 (2,2/2,2,3,4)			41.95	2.25		Very stiff grey CLAY with fine and medium gravel sized shell fragments.		
	D6									
	U7									
				N/A		(2.40)				
	D8		65 N/A N/A							
3.30 - 4.30								*Between 3.95m bgl and 4.05m bgl smooth planar very tight clean fracture with a dip of 45°.*		
	C9									
	D10	SPT(S) 4.30m, N=13 (2,3/2,3,4,4)			39.55	4.65		Very weak, grey arenaceous MUDSTONE with closely spaced rough planar suspected bedding fractures, possibly induced.		
4.30 - 5.50			125 71 71	Two		(0.45)				
					39.10	5.10		Extremely strong light grey medium grained LIMESTONE.		
				One induced		(0.80)		*From 5.50m occasional fine gravel sized inclusions of locally darker material.*		
								From 5.8m becoming darker grey.		
				One	38.30	5.90		Extremely weak grey arenaceous MUDSTONE with occasional thin sand lenses (<5mm).		
						(0.30)				
			97 97 97		38.00	6.20		Extremely strong cream argillaceous LIMESTONE with frequent very closely spaced thin marl seams (<8mm), random orientation fine and medium gravel sized inclusions.		
5.50 - 7.00										
	C11									
				420 500 560		(2.05)				
			97 83 83					*At 7.55m becoming light grey and marl seams and inclusions are infrequent.*		
7.00 - 8.50										
	C12				35.95	8.25		Very stiff fissured greenish grey CLAY.		
		SPT(S) 8.50m, N=45 (5,5/6,11,11, 17)								
	D13			N/A		(1.05)				
			100 50 50							
8.50 - 10.00					34.90	9.30		Weak greenish grey MUDSTONE with trace laminations locally slightly sandy tending to arenaceous extremely closely spaced thin bands (<2mm) of sand, widely spaced smooth planar bedding fractures.		
	C14									

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
04-05-2022	07:30			
04-05-2022	17:00	14.50	3.00	14.30
05-05-2022	08:00	14.50	3.00	0.00
05-05-2022	12:15	20.50		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	4.30		100%-100%	brown
4.30	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.20	0.00		20	1.20	Very Slow

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_02
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	04/05/2022	05/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391526.5	Northing: 170657.0	Ground Level: 44.20mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	D15 C16	SPT(S) 10.00m, 50 (12,12/50 for 215mm)	100 93 93							
11.50 - 13.00	D17 C18	SPT(S) 11.50m, 50 (1,9/50 for 220mm)	97 90 90							
13.00 - 14.50	C19		95 95 95	160 1000 2000		(8.45)				
14.50 - 16.00	C20		100 100 100							
16.00 - 16.80	C21		100 100 100							
16.80 - 17.50	C22		100 100 83							
17.50 - 19.00	C23		100 100 90	80 350 590	26.45	17.75 (1.70)		Weak greyish grey lenticular MUDSTONE. Lenses extremely close to very closely spaced (<5mm) composed of a darker grey siltstone and closely to medium spaced smooth planar very tight bedding fractures.		
19.00 - 20.50	C24		100 100 100	None	24.75 24.55	19.45 19.65		*Between 19.00m and 19.45m lenses increase in width (10mm) with several bands showing brownish grey colour.* Very strong to extremely strong blueish grey fossiliferous medium grained LIMESTONE with fine and medium gravel sized inclusions of cream mudstone, weaker than		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)

Casing Diameter	
Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.20	0.00		20	1.20	Very Slow

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_02
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER9352	04/05/2022	05/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391526.5	Northing: 170657.0	Ground Level: 44.20mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				160 210 280		(0.85)		surrounding matrix. *At 19.50m partly open bedding fracture infilled with grey clay.* *At 19.55m medium gravel sized inclusion of dark brown mudstone.*		
					23.70	20.50		Weak greyish grey lenticular MUDSTONE. Lenses are extremely close to very closely spaced (5mm) composed of darker grey siltstone and closely to medium spaced smooth planar very tight bedding fractures. *Between 19.80m and 19.90m band of medium strong bluish grey lenticular SILTSTONE with extremely closely spaced mudstone lenses <2mm softer than surrounding siltstone.* End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)

Casing Diameter	
Depth (m)	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.20	0.00		20	1.20	Very Slow

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_03
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 06/06/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 3
Rotary Core Drilling Log	Easting: 391583.0	Northing: 170697.5	Ground Level: 42.00mOD	Plant Used: Comacchio 305	Logged By: IS/DN
					Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: MC405 Energy Ratio: 82.34%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.50)		Grass over brown clayey sandy SILT with frequent rootlets (<2mm).		
PID 0.0ppm	ES1									
	D1				41.50	0.50		Soft brown silty CLAY.		
PID 0.0ppm	ES2				41.30	0.70		Orangish brown very clayey gravelly fine to coarse SAND. Gravel is subangular to rounded fine to medium limestone, sandstone and quartzite.		
	D2					(0.35)				
	B3				40.95	1.05		Firm to stiff grey slightly sandy CLAY.		
~~PID 0.0ppm~~	ES3	SPT(S) 1.20m, N=9 (2,2/2,2,2,3)								
	D4									
	D5		100 N/A N/A							
1.20 - 2.20						(1.40)				
	U6				39.55	2.45		Very stiff thickly laminated dark grey CLAY.		
2.70 - 3.60	D7		111 N/A N/A			(1.15)				
		SPT(S) 3.60m, 50 (3,5/50 for 220mm)			38.40	3.60		Very weak dark grey arenaceous MUDSTONE. Lenses are 1-10mm thickness, extremely closely to very closely spaced siltstone. Slightly stronger than the surrounding mudstone.		
3.60 - 4.10	D8 C9		100 100 90	One		(0.50)				
					37.90	4.10		*At 4.05m tough planar bedding fracture.*		
	C10			None		(0.80)		Extremely strong grey fine and medium grained LIMESTONE with occasional thin seams (<2mm width) randomly orientated and fine and medium gravel sized dark grey inclusions of siltstone. Occasional fine and medium gravel sized shells.		
4.10 - 5.60			100 83 83		37.10	4.90		*From 4.8m becoming dark grey.*		
				None	36.85	5.15		Stiff dark grey slightly gravelly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
	C11			One, bedding? .		(1.05)		Extremely strong cream fine and medium grained LIMESTONE with abundant thin marl seams (<10mm) and fine to coarse gravel sized inclusions of darker colour.		
5.60 - 7.10			100 100 83	None	35.80	6.20		Very strong light blueish grey medium grained LIMESTONE with occasional fine and medium gravel sized inclusions of siltstone. Occasional fine to medium gravel sized shells and frequent fine to medium gravel sized weathered pockets.		
						(1.00)		*At top of unit bedding fracture infilled with sandy gravel of limestone (5mm wide).*		
					34.80	7.20		Very stiff greenish sandy grey mottled brown CLAY.		
7.10 - 8.60	C12		100 100 83	N/A		(1.25)		*At 7.3m bedding fracture infilled with sand (<5mm wide).*		
		SPT(S) 8.60m, 50 (9,15/50 for 140mm)			33.55	8.45		Weak with extremely weak bands thickly laminated greenish grey MUDSTONE with bands and seams of extremely closely spaced siltstone generally less than 5mm in thickness, slightly stronger than surrounding mudstone.		
8.60 - 10.10	D13 C14		100 100 97							

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
05-05-2022	13:00	0.00		
05-05-2022	17:30	8.89	3.00	
06-05-2022	07:30	8.89	3.00	
06-05-2022	13:40	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.60	7.10	Air/Mist	100%-100%	grey
7.10	8.60	Air/Mist	100%-100%	brown
8.60	20.48	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.60	131
20.48	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	177

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
Borehole dry at end and beginning of shifts.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_03
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	05/05/2022	06/06/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391583.0	Northing: 170697.5	Ground Level: 42.00mOD	Plant Used: Comacchio 305	Logged By: IS/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: MC405 Energy Ratio: 82.34%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				None						
	D15	SPT(S) 10.10m, 50 (9,14/50 for 185mm)								
10.10 - 11.60	C16		100 100 100							
11.60 - 13.10	C17		100 100 100			(7.05)		*Between 11.7m and 15.5m medium to closely spaced smooth planar very tight bedding fractures.*		
13.10 - 14.60	C18		100 100 100	120 300 350						
14.60 - 16.10	C19		100 100 100		26.50	15.50		Weak lenticular greenish grey MUDSTONE. *Between 15.8m and 15.9m band of very strong grey mudstone. Between 15.9m and 16.9 becoming extremely weak verging towards a very stiff clay.*		
16.10 - 17.60	C20		100 100 100	60 400 800		(2.75)				
17.60 - 19.10	C21		100 97 90	One bedding fracture 18.5m.	23.75 / 23.20	18.25 / (0.55) / 18.80		*Between 17.7m and 18.5m closely to medium spaced and wide smooth planar very tight clean bedding fractures generally along lenticular bands.* Weak greenish grey MUDSTONE with very closely spaced lenses and bands (<3mm) of siltstone, stronger than surrounding mudstone. Weak lenticular greenish grey MUDSTONE. Siltstone lenses and bands 2-10mm thickness, slightly stronger than surrounding mudstone. *At 18.85m 20mm band of very strong bluish grey fossiliferous LIMESTONE with fine gravel sized inclusions of cream siltstone.*		
19.10 - 20.48			109 109 94	120 200 850		(1.68)		*Between 18.9m and 19.8m closely to medium spaced and wide between smooth planar very tight clean bedding fractures generally along lenses and bands.*		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Borehole dry at end and beginning of shifts.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.60	131	3.00	177
20.48	146		

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_03
Contract Number: JER9352	Start Date: 05/05/2022	End Date: 06/06/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391583.0	Northing: 170697.5	Ground Level: 42.00mOD	Plant Used: Comacchio 305
Logged By: IS/DN	Scale: 1:50			Sheet 3 of 3
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: MC405 Energy Ratio: 82.34%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C22				21.52	20.48		End of Borehole at 20.48m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)
3.60	131
20.48	146

Casing Diameter	
Depth (m)	Dia (mm)
3.00	177

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
Borehole dry at end and beginning of shifts.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_04
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	09/05/2022	10/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391585.5	Northing: 170678.5	Ground Level: 41.75mOD	Plant Used: Comacchio 205	Logged By: IS/RT	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.40)		Grass over light brown clayey sandy SILT. Frequent rootlets.		
PID 0.0ppm	ES1				41.35	0.40		Soft light orangish brown sandy silty CLAY.		
	D1				41.15	0.60		Light orangish brown locally black very sandy subangular to rounded fine to coarse flint, sandstone, quartzite and limestone GRAVEL. Sand is fine to coarse.		
PID 0.0ppm	ES2					(0.60)		*From 1.00m to 1.20m slightly clayey.*		
	B2									
~~PID 0.0ppm~~	D3 ES3	SPT(S) 1.20m, N=10 (1,2/2,2,3,3)			40.55	1.20		Stiff extremely closely fissured thinly to thickly laminated dark grey CLAY with rare fine and medium gravel sized pockets of light grey silt.		
	D4		100 N/A N/A							
1.20 - 2.20										
	D5									
	U6									
2.20 - 2.70			66 N/A N/A	N/A		(2.60)				
2.70 - 3.70			100 N/A N/A					*From 3.50m to 3.70m becoming very closely fissured sandy with rare fine gravel sized fossil shell fragments. Sand is fine and medium.*		
	D7									
	D8	SPT(S) 3.70m, 50 (7,11/50 for 155mm)	100 80 80		37.95	3.80		Medium strong locally strong pale grey locally pale yellowish grey shelly LIMESTONE.		
3.70 - 4.20	C9							*From 3.80 to 4.00m becoming weak to moderately strong dark grey, sandy. Sand is fine and medium.*		
								At 4.10m with a medium gravel sized fossil wood fragment.		
								From 4.55 to 4.60m becoming dark grey, sandy. Sand is fine and medium.		
								From 4.60m to 4.90m with a thin bed of very stiff dark grey very sandy clay. sand is fine and medium.		
4.20 - 5.70			100 80 80					*At 4.75m with a thick lamination of fine and medium gravel sized shell fragments.*		
	C10							*From 4.90m to 7.00m becoming pale yellowish grey with occasional fine and medium gravel sized bioturbation features.*		
				None		(3.20)				
								From 6.15m to 6.40m medium strong, locally weak. Mottled grey.		
5.70 - 7.20			90 90 90							
	C11				34.75	7.00		Very weak to weak thickly laminated greenish grey SILTSTONE.		
		SPT(S) 7.20m, N=42 (5,5/7,10,12, 13)						*From 7.00m to 7.15m AZCL.*		
	D12							*From 7.0 to 8.30m localised ferrous staining.*		
7.20 - 8.70			100 100 100	None		(1.70)				
	C13							*From 8.30m to 8.70m with extremely closely to very closely spaced medium sized lenticular inclusions of light grey silty fine sand, locally well cemented.*		
		SPT(C) 8.70m, 50 (10,11/50 for 235mm)			33.05	8.70		*From 8.60 to 8.90m becoming well cemented, moderately strong, thinly laminated.*		
	C14							Very weak to weak locally moderately strong greenish grey thinly yo thickly laminated SILTSTONE. Locally micaceous.		
8.70 - 10.20			100 100 100							

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
09-05-2022	08:00			
09-05-2022	17:00	20.60	3.20	4.20

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.70	20.60	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
20.60	146

Casing Diameter

Depth (m)	Dia (mm)
3.20	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_04
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	09/05/2022	10/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391585.5	Northing: 170678.5	Ground Level: 41.75mOD	Plant Used: Comacchio 205	Logged By: IS/RT	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 10.20m, 50 (9,10/50 for 230mm)								
10.20 - 11.70			100 100 100			(4.20)		*From 11.50 to 12.90m with occasional fine and medium gravel sized angular clasts of grey siltstone. Locally extremely weak.*		
11.70 - 13.20	C15		100 100 100		28.85	12.90		Extremely weak to very weak greenish grey thickly laminated SILTSTONE with extremely closely to very closely spaced lenticular inclusions of light grey silty fine sand. Locally well cemented with rare fine gravel sized pyritic inclusions.		
13.20 - 14.70	C16		97 97 97	None				*At 15.15m with a thick lamination of extremely weak pale olive siltstone.*		
14.70 - 16.20	C17		100 100 100					*From 15.70m to 16.40m thickly laminated to very thinly bedded.*		
16.20 - 17.70	C18		100 100 100			(7.70)		*At 16.60m with medium gravel sized lenticular inclusions.*		
17.70 - 19.20	C19		100 100 100					*At 17.45m with a thick lamination of dark grey cemented silt.*		
19.20 - 20.60	C20		100 100 100					*From 18.55m to 18.75m with extremely closely spaced very thin beds of strong dark grey limestone with frequent coarse sand to medium gravel sized shell fragments.*		
								At 19.40m with a coarse gravel sized inclusion of strong grey limestone. *At 19.45m with a very thin bed of strong grey limestone.*		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
20.60	146	3.20	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_04
Contract Number: JER9352	Start Date: 09/05/2022	End Date: 10/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391585.5	Northing: 170678.5	Ground Level: 41.75mOD	Plant Used: Comacchio 205
Logged By: IS/RT	Scale: 1:50			Sheet 3 of 3
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: GEO205 Energy Ratio: 84.64%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					21.15	20.60		*From 20.35m to 20.50m with extremely closely spaced very thin to thin beds of strong grey shelly limestone. Rare medium gravel sized clasts of pale brown siltstone and medium gravel sized fossil wood fragments.* End of Borehole at 20.60m		

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Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
20.60	146	3.20	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_05
	Contract Number: JER9352	Start Date: 04/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391635.0	Northing: 170696.0	Ground Level: 40.20mOD	Plant Used: Comacchio 305	Logged By: IS/DN
					Sheet 1 of 3
					Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: MC405 Energy Ratio: 82.34%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.40)		Grass over firm brown locally mottled orangish brown and grey silty CLAY. with frequent rootlets (2mm).		
PID 0.0ppm	ES1							*From 0.30m to 0.40m gravely. Gravel is subangular to rounded fine to coarse limestone*		
	D1				39.80	0.40				
						(0.35)		Firm mottled orangish brown and grey CLAY with frequent rootlets (2mm).		
PID 0.0ppm	ES2				39.45	0.75				
	D2					(0.45)		Firm mottled orangish brown and grey very sandy silty CLAY. Sand is fine and medium.		
~~PID 0.0ppm~~	B3 D4 ES3	SPT(S) 1.20m, N=5 (1,2/1,1,2,1)			39.00	1.20		*From 1.00 to 1.20m, Grey*		
	D5		100 N/A N/A					Soft locally very soft slightly sandy slightly gravelly silty CLAY with occasional roots and rootlets <5mm and <20mm in length. Gravel is fine to subangular to subrounded sandstone, siltstone and mudstone.		
1.20 - 2.20										
						(1.60)				
	U6									
	D7		100 N/A N/A		37.40	2.80				
2.70 - 3.10	D8				37.20	3.00		Stiff greyish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine and medium subangular to subrounded. Sandstone, mudstone and chert.		
	D9			One bedding fracture.		(0.40)		Weak dark grey arenaceous MUDSTONE with closely spaced bands (2mm) of brown sand.		
					36.80	3.40				
3.10 - 4.20			100 70 50	None		(0.55)		Strong grey medium grained LIMESTONE with frequent marl seams and fine gravel sized inclusions, randomly orientated. Seams are generally <4mm in width.		
	C10				36.25	3.95				
				N/A				Firm grey sandy clayey SILT with fine gravel sized shells and shell fragments. Sand is fine and medium.		
					36.00	4.20		Strong locally weak creamy off-white medium grained LIMESTONE with abundant siltstone seams and randomly orientated fine and medium gravel sized inclusions. Seams generally <5mm in width.		
4.20 - 5.70			97 97 41	One fracture and one vertical joint.		(1.35)		*From 4.2 to 4.8m vertical joint. rough undulations moderately wide infilled with silty gravelly sand of broken limestone.*		
	C11				34.65	5.55		Strong grey medium grained LIMESTONE with frequent dark grey marl/siltstone seams generally <5mm in width.		
				One joint running vertically from 5.7 to 6.2m		(0.90)				
5.70 - 7.20			100 50 41		33.75	6.45		*At 6.35m Suspected bedding fracture tight infilled with silty clay. Becoming medium strong and increased weathering.*		
	C12			N/A		(0.90)		Stiff thickly laminated fissured greenish grey mottled with brown CLAY.		
	D13	SPT(S) 7.20m, 50 (7,13/50 for 150mm)			32.85	7.35		Weak greenish grey lenticular MUDSTONE. Lenses are extremely closely spaced (<5mm) grey siltstone.		
7.20 - 8.70			100 100 70	Two bedding fractures possibly induced.		(1.25)				
	C14				31.60	8.60		Very stiff greenish grey CLAY tending to extremely weak MUDSTONE.		
	D15	SPT(S) 8.70m, 50 (8,8/50 for 260mm)		None		(0.60)				
			100 100 100		31.00	9.20		Weak greenish grey lenticular MUDSTONE. Lenses are extremely closely spaced (<5mm) grey siltstone.		
8.70 - 10.20	C16			220 200 190		(0.90)		*Bedding fracture at 9.48m.*		
								Bedding fracture at 9.75m.		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
04-05-2022	11:45	0.00		
04-05-2022	17:35	13.20	3.00	
05-05-2022	07:30	13.20	3.00	
05-05-2022	13:00	20.70		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	1.00	PLAIN	50
Pipe 1	1.00	8.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
2.20	2.70		0%-0%	No return
3.10	13.20	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.10	131
20.70	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	177

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
Borehole dry at end and beginning of shifts.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20	0.00	3.00	20	1.00	Medium

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_05
	Contract Number: JER9352	Start Date: 04/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
					Sheet 2 of 3
Rotary Core Drilling Log	Easting: 391635.0	Northing: 170696.0	Ground Level: 40.20mOD	Plant Used: Comacchio 305	Logged By: IS/DN
					Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: MC405 Energy Ratio: 82.34%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					30.10	10.10		Very weak to weak massive locally thinly to thickly laminated greenish grey MUDSTONE.		
10.20 - 11.70	C17		100 100 100							
11.70 - 13.20	C18		100 100 100			(5.25)				
13.20 - 14.70	C19		100 100 97							
14.70 - 16.20	C20		100 100 95	70 300 340 Two bedding fractures possibly induced.	24.85 24.55	15.35 (0.30) 15.65		Weak greenish grey lenticular MUDSTONE. Lenses are extremely to very closely spaced (<5mm) grey siltstone. Weak generally massive, locally thinly to thickly laminated greenish grey MUDSTONE..		
16.20 - 17.70	C21		100 100 96		24.00	16.20 (0.55) (1.70)		Weak greenish grey lenticular MUDSTONE. Lenses are extremely to very closely spaced (<5mm) grey siltstone.		
17.70 - 19.20	C22		100 100 100		22.30	17.90 (1.55)		Weak to medium strong greenish grey clastic flow banded MUDSTONE with bands of light grey medium strong SILTSTONE. Bands are chaotic, vary in size, generally planar orientation varying in widths but 0.5-2mm thickness.		
19.20 - 20.70			100 100 77		20.75	19.45		Interbedded greenish grey lenticular MUDSTONE and light grey LIMESTONE. Mudstone is weak with lenticular bands of medium strong extremely closely spaced limestone and		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	1.00	PLAIN	50
Pipe 1	1.00	8.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
13.20	20.70	Air/Mist	100%-100%	grey

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.10	131	3.00	177
20.70	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Borehole dry at end and beginning of shifts.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20	0.00	3.00	20	1.00	Medium

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_05
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER9352	04/05/2022	05/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391635.0	Northing: 170696.0	Ground Level: 40.20mOD	Plant Used: Comacchio 305	Logged By: IS/DN	Scale: 1:50
Weather: Sunny	Termination: Target depth achieved.	SPT Hammer: MC405 Energy Ratio: 82.34%			

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C23			Fractures concentrated on interbedded boundaries.	19.50	(1.25) 20.70		siltstone up to 5mm in width. Limestone is extremely strong medium grained. With fine gravel sized shells. Very thinly to thinly bedded with very closely to closely spaced fracturing along the bedding.		
								End of Borehole at 20.70m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	1.00	PLAIN	50
Pipe 1	1.00	8.00	SLOTTED	50

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.10	131	3.00	177
20.70	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
Borehole dry at end and beginning of shifts.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20	0.00	3.00	20	1.00	Medium

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Borehole ID: AVC1_BH_06
Contract Number: JER9352	Start Date: 03/05/2022	End Date: 04/05/2022	Checked By: CW	Status: FINAL	Sheet 1 of 3
Rotary Core Drilling Log	Easting: 391677.0	Northing: 170723.0	Ground Level: 40.95mOD	Plant Used: Comacchio 305	Logged By: IS/DN	Scale: 1:50
Weather: Fine+Sunny	Termination: Target depth achieved.		SPT Hammer: MC405 Energy Ratio: 82.34%		

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.30)		Grass over stiff brown clayey SILT with frequent rootlets (<2mm).		
PID 0.0ppm	ES1				40.65	0.30		Firm light brown silty CLAY.		
	D1									
PID 0.0ppm	ES2					(0.90)		*From 0.80m to 1.20m mottled grey and light brown with rare shell fragments (up to 1x5mm).*		
	B2									
~~PID 0.0ppm~~	D3	SPT(S) 1.20m, N=8 (1,1/2,2,2,2)			39.75	1.20		Firm brown slightly sandy slightly gravelly CLAY. Sand is fine and medium. Gravel is fine and medium calcareous nodules.		
	ES3									
	D4									
	D5		85 N/A N/A							
1.20 - 2.20						(1.25)				
			100 N/A N/A							
2.20 - 2.70	U6				38.50	2.45		Firm brownish grey mottled brown slightly sandy CLAY.		
	D7									
						(0.90)				
			100 N/A N/A							
2.70 - 3.60										
	D8				37.60	3.35				
	D9				37.45	3.50		Very soft black slightly sandy organic CLAY with fragments of decayed wood (<20mm).		
		SPT(S) 3.60m, N=28 (1,3/4,5,9,10)			37.35	3.60		Grey cemented sandy fine and medium subangular and subrounded sandstone, mudstone and limestone GRAVEL.		
	B10		100 N/A N/A			(0.40)				
3.60 - 4.10	D11				36.95	4.00		Orangish brown very sandy fine and medium subangular and subrounded sandstone mudstone and quartzite GRAVEL. Sand is fine to coarse.		
		SPT(C) 4.10m, 50 (25 for 100mm/50 for 45mm)	93 48 0	Heavily fractured						
4.10 - 4.50								Strong grey medium grained LIMESTONE with occasional fine gravel sized fossils. Fractures are closely spaced, undulating rough with slight orangish brown staining.		
	D12		93 93 50	40 50 60		(1.00)				
4.50 - 4.90										
					35.95	5.00				
			100 33 33			(0.30)		Firm grey slightly sandy slightly gravelly CLAY. Sand is fine and medium. Gravel is fine and medium angular mudstone and limestone.		
4.90 - 5.60					35.65	5.30				
								Medium strong very close to closely bedded cream medium and coarse grained LIMESTONE. Fractures are persistent, rough undulating, partly open and infilled with weathered marl.		
				40 60 150		(1.25)				
5.60 - 7.10	C13		100 100 100							
					34.40	6.55		Strong to very strong medium and coarse grained LIMESTONE with closely spaced tight bedding fractures.		
				180 200 200		(0.90)				
	C14				33.50	7.45		Extremely weak greenish grey thickly laminated fissured MUDSTONE. Tending to very stiff CLAY.		
			100 100 100	N/A						
7.10 - 8.60	C15					(0.95)				
					32.55	8.40		Weak greenish grey lenticular thinly and thickly laminated MUDSTONE with medium to widely spaced bedding fractures. Lenses are very closely spaced persistent and discontinuous, generally <5mm thickness of medium strong light grey fine grained siltstone.		
	C16							*From 8.95m to 9.21m Extremely weak.*		
			100 100 100							
8.60 - 10.10										

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
03-05-2022	07:30			
03-05-2022	17:40	13.10	4.00	3.10
04-05-2022	07:30	13.10	4.00	3.00
04-05-2022	11:45	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	2.70		0%-0%	No return
4.10	20.60	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.60	131
4.10	101
20.60	146

Casing Diameter

Depth (m)	Dia (mm)
4.00	177

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.60	0.00		20	2.80	Medium flow.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_06
Contract Number: JER9352	Start Date: 03/05/2022	End Date: 04/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391677.0	Northing: 170723.0	Ground Level: 40.95mOD	Plant Used: Comacchio 305
Logged By: IS/DN	Scale: 1:50			Sheet 2 of 3
Weather: Fine+Sunny	Termination: Target depth achieved.		SPT Hammer: MC405 Energy Ratio: 82.34%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.10 - 11.60	C17		100 100 100							
11.60 - 13.10	C18		100 100 100							
13.10 - 14.60	C19		100 100 100					*From 13.60m to 16.30m lenses are closely spaced.*		
14.60 - 16.10	C20		100 100 100	80 800 1200		(12.20)		*From 14.32m to 14.58m Extremely weak.*		
16.10 - 17.60	C21		100 100 100							
17.60 - 19.10	C22		100 100 100					*From 17.76m to 18.02m Very weak.* *From 18.10m to 18.15m extremely strong medium to coarse grained limestone.* *From 18.65m to 18.70m discontinuous lense of extremely strong medium and coarse grained limestone.*		
19.10 - 20.60	C23		100 100 100					*Between 19.05m and 19.90m lenses are extremely closely to very closely spaced.*		

11 12 13 14 15 16 17 18 19 20

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)
3.60	131
4.10	101
20.60	146

Casing Diameter	
Depth (m)	Dia (mm)
4.00	177

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.60	0.00		20	2.80	Medium flow.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_06
	Contract Number: JER9352	Start Date: 03/05/2022	End Date: 04/05/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 391677.0	Northing: 170723.0	Ground Level: 40.95mOD	Plant Used: Comacchio 305	Logged By: IS/DN
					Scale: 1:50

Weather: Fine+Sunny | Termination: Target depth achieved. | SPT Hammer: MC405 Energy Ratio: 82.34%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								From 20.25m to 20.30m band of extremely strong medium and coarse grained limestone.		
					20.35	20.60		End of Borehole at 20.60m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.60	131	4.00	177
4.10	101		
20.60	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.60	0.00		20	2.80	Medium flow.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_07
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	06/04/2022	07/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391729.5	Northing: 170731.0	Ground Level: 41.35mOD	Plant Used: Comacchio 205	Logged By: MP/BW	Scale: 1:50

Weather: Wind and Rain+Variable | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D1					(0.40)		Soft brown sandy CLAY with rootlets and roots (<5mm).		
PID 0.0ppm	ES1				40.95	0.40		Light orangish brown sandy silty CLAY. Sand is fine and medium.		
	B2									
	D3									
PID 0.0ppm	ES2					(0.80)				
PID 0.0ppm	B4									
	D5									
	ES3				40.15	1.20		Soft brown very sandy CLAY. Sand content decreases with depth.		
	U6									
	D7					(0.95)				
1.70 - 2.70	B8		100 N/A N/A		39.20	2.15		Soft brown with occasional grey mottling slightly sandy CLAY. Sand is fine and medium. Rare shells (up to 3mm).		
	D9									
	D10	SPT(S) 2.70m, N=4 (1,1/1,1,1,1)				(1.00)		*From 2.61m to 2.70m highly fossiliferous with lenses (up to 3mm) of carboniferous CLAY.*		
	D11									
	D12				38.20	3.15		Very soft greenish grey highly fossiliferous SILT with a strong organic odour and abundant gastropods (up to 3mm).		
	D13				37.95	3.40		Soft dark brown and dark grey mottled highly fossiliferous SILT with organic odour.		
3.15 - 4.15	D14		100 N/A N/A					*From 3.70m to 3.87m thinly (20mm) with black clay.*		
						(1.35)				
4.15 - 4.75	U15		100 N/A N/A							
	B16				36.60	4.75				
4.75 - 5.25	D17		100 N/A N/A		36.35	5.00		Medium dense to dense grey very sandy subangular to subrounded fine to coarse of flint and limestone GRAVEL with occasional pockets of grey clay (100mm).		
				None	36.15	5.20		Stiff dark grey friable sandy silty fossiliferous slightly calcareous CLAY.		
				intact.	36.00	5.35		Recovered as grey occasionally off white coarse angular LIMESTONE Gravel.		
5.25 - 6.50	C18		100 90 80	30 100 160		(0.95)		Medium strong dark grey medium to coarse grained fossiliferous argillaceous LIMESTONE. Joints are very closely to closely spaced (5-30°) rough and undulating infill (if present) washed out.		
	D19			Clay.	35.05	6.30		Firm to stiff dark grey slightly sandy silty slightly fossiliferous calcareous CLAY.		
6.50 - 8.00	C20		100 100 100	100 120 280	34.85	6.50		Medium strong to strong light brown to off white wackestone packstone textured fossiliferous LIMESTONE with very closely spaced becoming extremely closely spaced wavy marl seams (<3mm). Joints are closely to medium spaced (5-15°) rough and undulating locally with clay smearing.		
						(1.25)				
					33.60	7.75		Medium strong to strong grey argillaceous fossiliferous LIMESTONE with very closely spaced wavy marl seams and occasional (<25mm) light brown nodules/pockets of possible siderite. Joints are closely to medium spaced (5-10°) rough and undulating.		
8.00 - 9.50	C21		100 100 100	70 310 310		(1.10)				
					32.50	8.85		Extremely weak friable light green MUDSTONE locally weakly cemented (20mm) pockets.		
	C22				32.30	9.05		Extremely weak dark greenish grey locally fossiliferous MUDSTONE with fragments (1-2mm) of brown plant remains with very closely to closely spaced thinly laminated to thinly bedded of highly carbonaceous and fossiliferous 'beds'.		
		SPT(S) 9.50m, 50 (4,4/50 for 298mm)				(1.45)				
	D23			None						

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
06-04-2022	08:00			
06-04-2022	17:00	2.70	0.00	
07-04-2022	08:00	2.70	0.00	
07-04-2022	17:00	17.00	5.00	2.30
08-04-2022	08:00	17.00	5.00	2.30
08-04-2022	12:00	20.00	0.00	

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
5.00	20.00	Air/Mist	100%-100%	grey

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.70	144	5.00	178
5.25	101		
17.00	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered during drilling.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Borehole ID: AVC1_BH_07
Contract Number: JER9352	Start Date: 06/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL	Sheet 2 of 3
Rotary Core Drilling Log	Easting: 391729.5	Northing: 170731.0	Ground Level: 41.35mOD	Plant Used: Comacchio 205	Logged By: MP/BW	Scale: 1:50
Weather: Wind and Rain+Variable	Termination: Target depth achieved.		SPT Hammer: GEO205 Energy Ratio: 84.64%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
9.50 - 11.00	C14	SPT(S) 11.00m, 50 (10,14/50 for 160mm)	100 100 100	None	30.85	10.50 (0.75)		*From 10.14m to10.62m carbonaceous bed.* *From 10.42m to 10.49m carbonaceous bed.* Very weak locally thinly laminated greenish grey locally calcareous MUDSTONE.		
	C24									
11.00 - 12.50	D25		100 100 100		30.10	11.25		Very weak locally thinly laminated greenish grey locally calcareous MUDSTONE with extremely closely to very closely spaced impersistant limestone laminae (up to 8mm thick typically 1-2mm).		
	C26									
12.50 - 14.00			100 100 100					*From 12.83m to 13.00m extremely closely spaced limestone thins (1-2mm).* *From 13.18m to 13.37m extremely closely spaced limestone thins (1-2mm).*		
	C27									
14.00 - 15.50	C28		100 100 100	None		(8.45)				
	C29									
15.50 - 17.00			100 100 100							
17.00 - 18.50			100 100 100					*From 17.30m to 17.78m extremely closely spaced limestone thins (1-2mm).*		
	C30									
								From 18.25m to 19.70m limestone thins are extremely closely spaced (1-2mm).		
	C31									
18.50 - 20.00			100 100 100							
				None	21.65	19.70 (0.30)		Very thinly interbedded LIMESTONE and MUDSTONE. Limestone is strong dark grey argillaceous fine and medium		
					21.35	20.00				

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.70	144	5.00	178
5.25	101		
17.00	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered during drilling.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_07
	Contract Number: JER9352	Start Date: 06/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 391729.5	Northing: 170731.0	Ground Level: 41.35mOD	Plant Used: Comacchio 205	Logged By: MP/BW
					Scale: 1:50

Weather: Wind and Rain+Variable | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								grained. Mudstone is very weak dark grey with limestone thins (1 - 2mm).		
								End of Borehole at 20.00m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.70	144	5.00	178
5.25	101		
17.00	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered during drilling.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_08
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 2
JER9352	05/04/2022	06/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391748.0	Northing: 170747.5	Ground Level: 41.10mOD	Plant Used: Comacchio 205	Logged By: MP/BW	Scale: 1:50

Weather: Cloudy+Wind and Rain | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D1				40.85	0.25		Brown slightly clayey slightly gravelly coarse SAND with roots and rootlets. Gravel is subangular and subrounded fine to coarse flint.		
PID 0.0ppm	B2							Soft light brown locally mottled orangish brown and grey calcareous slightly sandy silty CLAY with black organic fragments.		
	ES1									
	D3									
PID 0.3ppm	B4									
	D5									
	ES2									
~~PID 0.3ppm~~	B6									
	D7									
	ES3									
	U8		100							
1.20 - 2.20	D9		N/A			(2.95)				
			N/A							
	D10	SPT(S) 2.20m, N=4 (1,1/1,1,1,1)								
	D11		100							
2.20 - 3.20			N/A							
			N/A							
	D12				37.90	3.20		Light brown very sandy subangular to rounded fine and medium GRAVEL. Sand is medium and coarse.		
	U13					(0.95)				
	B14		100		36.95	4.15		*From 4.00m to 4.10m Orangish brown.*		
3.70 - 4.70			N/A					Grey slightly clayey sandy subangular to rounded fine and medium flint GRAVEL with pockets of soft black clay.		
			N/A							
	B15				36.40	4.70				
	D16	SPT(S) 4.70m, 50 (5,6/50 for 80mm)						Medium strong dark grey becoming light grey fossiliferous LIMESTONE with occasional to frequent calcite veins.		
	C17			20 120 240		(1.40)		*From 5.50m to 5.60m Pocket of calcite crystals (10-15mm).*		
			95							
5.00 - 6.40			92							
			72							
					35.00	6.10				
					34.95	6.15		Very weak dark grey fossiliferous calcareous MUDSTONE.		
								Medium strong to strong light brownish grey fossiliferous LIMESTONE with occasional closely to medium spaced clay bands.		
				40 110 210		(1.25)				
			98							
6.40 - 7.90	C18		98							
			68							
					33.70	7.40		Medium strong to strong grey slightly argillaceous fossiliferous LIMESTONE with frequent pockets of dark grey clay.		
				120 420 740		(1.05)				
	C19							*From 8.30m to 8.45m Very argillaceous, joints are closely to widely spaced, rough and planar.*		
					32.65	8.45				
			60		32.60	8.50		Extremely weak dark green grey MUDSTONE. AZCL		
7.90 - 9.40			36			(0.60)				
			36							
					32.00	9.10		Extremely weak dark brown locally mottled green locally calcareous MUDSTONE.		
						(0.30)				
		SPT(S) 9.40m, N=25 (4,5/5,6,5,9)			31.70	9.40		Very weak greenish grey calcareous MUDSTONE with frequent thin limestone bands (1-2mm).		
	D20					(0.60)				
					31.10	10.00				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
05-04-2022	12:15	0.00		
05-04-2022	17:00	10.90	10.90	2.00
06-04-2022	08:00	10.90	10.90	2.00
06-04-2022	11:30	20.00	20.00	2.00

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	4.00	PLAIN	50
Pipe 1	4.00	7.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
5.00	20.00	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
1.20	300
4.70	144
20.00	146

Casing Diameter

Depth (m)	Dia (mm)
5.00	178
20.00	146

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_08
Contract Number: JER9352	Start Date: 05/04/2022	End Date: 06/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391748.0	Northing: 170747.5	Ground Level: 41.10mOD	Plant Used: Comacchio 205
Logged By: MP/BW	Scale: 1:50			Sheet 2 of 2
Weather: Cloudy+Wind and Rain	Termination: Target depth achieved.		SPT Hammer: GEO205 Energy Ratio: 84.64%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
9.40 - 10.90	C21		100 100 100					Very weak locally thinly laminated greenish grey calcareous MUDSTONE with occasional very closely spaced limestone bands (1-2mm).		
	D22	SPT(S) 10.90m, 59 (1,0/59 for 225mm)								
10.90 - 12.40	C23		90 90 90					*From 11.25m to 11.35m Extremely closely spaced limestone bands*		
	D24	SPT(S) 12.40m, 50 (12,12/50 for 260mm)						*From 12.15m to 12.25m Extremely closely spaced limestone bands*		
12.40 - 13.90	C25		100 100 100			(6.80)				
13.90 - 15.40	D26	SPT(S) 13.90m, 50 (9,12/50 for 156mm)	97 97 97	N/A				*From 13.90m to 14.00m Extremely closely spaced limestone bands*		
	C27									
15.40 - 16.90	C28		100 100 100		24.30	16.80				
					24.20	16.90		Strong grey slightly argillaceous LIMESTONE with thick laminations of greenish grey mudstone and occasional brown calcareous lenses.		
16.90 - 18.40	C29		100 100 100					Very weak thinly laminated greenish grey calcareous MUDSTONE with extremely closely to closely spaced laminations of grey limestone.		
						(3.10)				
18.40 - 20.00	C30		100 100 100					*From 19.35m yo 19.40m Strong grey thinly laminated limestone.*		
	D31				21.10	20.00		End of Borehole at 20.00m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	4.00	PLAIN	50
Pipe 1	4.00	7.00	SLOTTED	50

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
1.20	300	5.00	178
4.70	144	20.00	146
20.00	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Borehole ID: AVC1_BH_09
Contract Number: JER9352	Start Date: 05/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 3
Rotary Core Drilling Log	Easting: 391790.0	Northing: 170744.0	Ground Level: 40.90mOD	Plant Used: Comacchio GEO 300	Logged By: KJ/BW	Scale: 1:50
Weather: Cloudy+Variable+Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					40.70	0.20		Grass over firm dark brown silty Clay with occasional rootlets (<2mm).		
PID 0.0ppm	ES1							Soft fissured light brown mottled grey and yellowish brown CLAY. Fissures are extremely closely spaced randomly oriented rough, smooth and occasionally polished with silt on some surfaces.		
	D1									
PID 0.0ppm	ES2									
						(1.50)				
PID 0.0ppm	ES3	SPT(S) 1.20m, N=22 (1,2/2,4,7,9)								
	D2									
					39.20	1.70				
					39.05	1.85		Soft brown slightly sandy silty CLAY with occasional lenses of reddish brown silt and occasional pockets of carbonaceous clay. Sand is fine and medium.		
								Soft to firm brown with occasional orangish brown and grey mottling silty CLAY with occasional pockets of carbonaceous clay (10mm) and rare gypsum crystals (up to 15mm).		
	D3									
	U4					(1.65)				
	D5				37.40	3.50				
	D6				37.30	3.60		Very soft dark grey silty CLAY.		
	D7				37.20	3.70		Very soft dark brown pseudo fibrous PEAT.		
	D8				37.05	3.85		Dark brown and black (stained) sandy subangular fine to coarse limestone GRAVEL. Sand is fine to coarse.		
					36.90	4.00		Orangish brown very sandy subangular and subrounded fine to coarse flint and limestone GRAVEL. Sand is fine to coarse.		
	B9	SPT(S) 4.20m, N=35 (1,3/6,7,11,11)				(0.45)				
	D10				36.45	4.45		Dense brown very sandy subangular fine and medium flint and limestone GRAVEL.		
4.00 - 5.50			99 30 7		36.20	4.70		(recovered as) Dark grey sandy CLAY with fragments od off white and grey limestone.		
	C11				36.05	4.85				
					35.75	(0.30) 5.15		(recovered as) subangular coarse off white and red limestone GRAVEL		
						(0.65)		Medium strong with weak bands grey to dark grey fossiliferous coarse grained argillaceous LIMESTONE. Joints are very closely spaced rough and undulating.		
	D12				35.10	5.80		Medium strong to strong dark grey becoming grey slightly fossiliferous fine grained argillaceous LIMESTONE. Joints are very closely to closely spaced, rough and undulating locally with clay veneer.		
5.50 - 7.00			100 80 45		34.85	6.05		Firm dark grey slightly fossiliferous calcareous sandy CLAY with occasional sand dustings.		
	C13							Medium strong to strong light brown to off white wackestone and packstone textured LIMESTONE with closely to medium spaced clay seams (up to 4mm thick). Joints are very closely to closely spaced, rough and undulating locally infilled with clay.		
						(1.45)				
					33.40	7.50		Medium strong to strong grey slightly argillaceous fossiliferous LIMESTONE with occasional pockets of dark grey clay and possible siderite nodules.		
7.00 - 8.50			100 79 69							
	C14					(1.05)				
					32.35	8.55		Very stiff dark greenish grey fossiliferous and calcareous CLAY.		
						(0.45)				
					31.90	9.00		Very stiff greenish grey mottled brown slightly calcareous CLAY.		
8.50 - 10.00			100 19 19							
	C15					(0.75)				
								From 9.60m to 9.80m thinly laminated.		
					31.15	9.75 (0.50)		Extremely weak grey locally greenish grey slightly calcareous		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
05-04-2022	07:00			
05-04-2022	17:00	10.00	5.00	6.60
06-04-2022	07:00	10.00	5.00	1.50
06-04-2022	17:00	13.00	5.00	3.60
07-04-2022	07:00	13.00	5.00	1.50
07-04-2022	17:00	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	1.70		100%-100%	brown
4.00	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_09
Contract Number: JER9352	Start Date: 05/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391790.0	Northing: 170744.0	Ground Level: 40.90mOD	Plant Used: Comacchio GEO 300
Logged By: KJ/BW	Scale: 1:50			Sheet 2 of 3
Weather: Cloudy+Variable+Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D16	SPT(S) 10.00m, 48 (4,4/48 for 220mm)			30.65	10.25		MUDSTONE.		
10.00 - 11.50	C17		100 100 100					Very weak locally thinly laminated greenish grey locally calcareous MUDSTONE with occasional very closely spaced limestone laminations (1-2mm).		
11.50 - 12.50	C18		100 100 100							
12.50 - 13.00			86 86 86			(5.55)				
13.00 - 14.50	C19		100 100 100							
	D20	SPT(S) 14.50m, 50 (5,14/50 for 156mm)								
14.50 - 16.00	C21		97 97 97		25.10	15.80		Very weak to weak thinly laminated greenish grey MUDSTONE with very closely spaced limestone laminations (1-3mm).		
16.00 - 16.80			100 100 100							
16.80 - 17.50	C22		100 100 100			(3.50)				
17.50 - 19.00	C23		97 100 100					*From 17.85m to 18.10m Extremely closely spaced limestone laminations.* *From 18.75m to 18.90m Extremely closely spaced limestone laminations.*		
19.00 - 20.50	C24		100 98 98		21.60	19.30 (1.20)		Strong grey argillaceous fine grained LIMESTONE with very closely to closely spaced very weak dark grey mudstone seams (20mm).		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_09
Contract Number: JER9352	Start Date: 05/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391790.0	Northing: 170744.0	Ground Level: 40.90mOD	Plant Used: Comacchio GEO 300
Logged By: KJ/BW	Scale: 1:50			Sheet 3 of 3
Weather: Cloudy+Variable+Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					20.40	20.50		End of Borehole at 20.50m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_10
Contract Number: JER9352	Start Date: 11/04/2022	End Date: 11/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391827.0	Northing: 170771.0	Ground Level: 41.00mOD	Plant Used: Comacchio GEO 300
Logged By: MP/BW	Scale: 1:50	Sheet 1 of 2		
Weather: Sunny	Termination: Target depth achieved.	SPT Hammer: AR3407 Energy Ratio: 65.44%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D1				40.80	0.20		Brown sandy CLAY with roots and rootlets (<5mm). Sand is fine to coarse.		
PID 0.0ppm	ES1							Brown slightly very silty CLAY with frequent black organic fragments.		
	B2									
	D3					(1.00)				
PID 0.0ppm	ES2									
	B4									
	D5				39.80	1.20				
	U6							Firm brown with orangish brown and grey mottling silty CLAY with occasional pockets of dark brown carbonaceous clay.		
1.70 - 2.70			100 N/A N/A							
	D7					(2.50)				
	D8	SPT(S) 2.70m, N=8 (2,2/2,2,2,2)								
	U9									
					37.30	3.70		Very soft grey SILT.		
	D10					(0.40)				
	D11		100 N/A N/A		36.90	4.10		Very soft dark brown to black highly fossiliferous pseudo fibrous PEAT with decomposed highly fossiliferous wood fragments up to 30mm.		
3.70 - 4.70					36.65	4.35				
	B12					(0.35)		Medium dense dark grey very sandy angular to subrounded fine to coarse limestone GRAVEL.		
	D13	SPT(S) 4.70m, 50 (25 for 80mm/50 for 10mm)		NI	36.30	4.70		Medium strong to strong coarse grained dark grey, light grey and grey fossiliferous argillaceous LIMESTONE with occasional clay veins up to 2mm thick. Joints are extremely closely to closely spaced (5-10 degrees) rough and undulating locally with sand smear.		
4.70 - 5.50			100 74 0	30 70		(0.95)				
				40 40 80						
				None	35.35	5.65		*From 5.05m bgl to 5.15m bgl non-intact fragments (5-40mm) of angular limestone fragments.*		
5.50 - 6.40	C14		100 81 67					Medium strong to strong off white wackestone and packstone LIMESTONE locally with extremely closely spaced wavy marl seams (grey clay) (1-8mm thick).		
6.40 - 7.00			100 83 83	None		(1.80)				
					33.55	7.45		*From 7.24m bgl to 7.38m bgl fragments 5-70mm of limestone possibly drilling disturbed.*		
7.00 - 8.50	C15		100 100 100	100 100 540		(0.75)		Medium strong to strong grey fossiliferous argillaceous medium grained LIMESTONE with closely spaced wavy marl seams. Joints are closely to medium spaced rough and undulating infilled with clay (up to 10mm).		
				Clay.	32.80	8.20		Very stiff greenish grey with occasional brown mottling silty calcareous CLAY.		
	D16	SPT(S) 8.50m, 50 (2,8/50 for 260mm)		Clay.		(1.10)				
8.50 - 10.00	C17		100 100 100		31.70	9.30		Extremely weak to very weak thinly laminated greenish grey locally calcareous silty MUDSTONE with occasional closely to medium thin impersistent laminations (1-5mm) of limestone..		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
07-04-2022	13:45	0.00	0.00	
07-04-2022	16:10	1.20	0.00	
08-04-2022	08:00	1.20	0.00	
08-04-2022	14:00	7.00	5.00	
11-04-2022	08:00			
11-04-2022	17:00	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	3.20		100%-100%	brown
4.70	20.00		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_10
Contract Number: JER9352	Start Date: 11/04/2022	End Date: 11/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391827.0	Northing: 170771.0	Ground Level: 41.00mOD	Plant Used: Comacchio GEO 300
Logged By: MP/BW	Scale: 1:50			Sheet 2 of 2
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	D18	SPT(S) 10.00m, 50 (6,14/50 for 185mm)	100 100 100	None						
	C19									
11.50 - 13.00			100 100 100			(4.95)				
	C20									
13.00 - 14.50			100 100 100							
	C21				26.75	14.25		Very weak thinly laminated greenish grey locally calcareous MUDSTONE with closely spaced thin impersistant laminations (1-3mm) of limestone.			
14.50 - 16.00	C22		100 100 100	None		(1.90)				
16.00 - 17.50			100 100 100		24.85	16.15		Very weak thinly laminated greenish grey locally calcareous MUDSTONE with extremely closely to very closely spaced thin impersistant laminations (1-3mm) of limestone. *From 16.83m bgl to 16.87m bgl strong dark grey limestone band with a thin lamination (3mm) of brown siltstone (possibly siderite).*			
	C23									
17.50 - 19.00	C24		100 100 100	None		(3.00)				
19.00 - 20.00	C25		100 100 100	None	21.85	19.15		Very thinly to thinly interbedded LIMESTONE and MUDSTONE. Limestone is strong dark grey and argillaceous. Mudstone is very weak thinly laminated greenish grey and calcareous.		
					21.00	20.00		End of Borehole at 20.00m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepages encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_11
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 2
JER9352	08/04/2022	11/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391868.5	Northing: 170767.5	Ground Level: 41.05mOD	Plant Used: Comacchio 205	Logged By: MP/BW	Scale: 1:50

Weather: Variable | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D1					(0.30)		Soft brown sandy CLAY		
PID 0.3ppm	ES1				40.75	0.30		Soft light brown slightly sandy CLAY. Sand is fine.		
	B2									
	D3					(0.90)				
PID 0.2ppm	ES2									
	B4									
	D5									
PID 0.3ppm	ES3				39.85	1.20		Very soft brown with reddish brown and grey mottling silty CLAY with rare rootlets. (<1mm thick)		
	U6					(0.40)				
	D7				39.45	1.60		Soft to firm brown with occasional orange brown and grey mottling silty CLAY.		
	D8					(0.60)				
		SPT(S) 2.20m, N=4 (1,1/1,1,1,1)			38.85	2.20		AZCL.		
	D9					(0.60)				
					38.25	2.80		Firm brown with grey and occasional orangish brown mottling CLAY.		
	D10				38.05	3.00		Very soft spongy pseudo fibrous PEAT with decomposed wood fragments (50mm).		
	B10				37.85	3.20		Loose dark brown to black slightly clayey fossiliferous SAND.		
	U11				37.65	3.40		Medium dense dark brown sandy GRAVEL. Gravel is angular coarse limestone locally red.		
	D12					(1.70)				
	B13									
4.70 - 5.00			0							
					35.95	5.10		Medium strong grey fossiliferous fine and medium grained argillaceous LIMESTONE. Joints are closely to medium spaced (5-15°) planar rough with sand smear.		
				150						
				150						
5.00 - 6.50	C14		100	560		(0.90)				
			100							
			100		35.05	6.00		Firm becoming very stiff dark grey slightly fossiliferous SILT.		
	D15			Clay.	34.83	6.22				
					34.73	6.32		Medium strong grey fossiliferous fine and medium grained argillaceous LIMESTONE. Joints are closely to medium spaced (5-15°) planar rough with sand smear.		
								Medium strong to strong light brown to off white wackestone and packstone textured fossiliferous LIMESTONE locally with extremely closely spaced wavy marl seams (1-8mm thick). Joints are closely to medium spaced (5-10°) smooth and undulating locally infilled with soft light grey clay (up to 5mm).		
				190				*From 6.85m bgl to 7.60m bgl extremely closely spaced wavy marl seams.*		
				410						
6.50 - 8.00	C16		100	450		(1.48)				
			87							
			87		33.25	7.80		Medium strong to strong grey argillaceous fossiliferous LIMESTONE with occasional to frequent pockets (3-12mm) of dark grey clay and brown possible siderite nodules.		
				2 fractures .		(0.65)		*From 8.27m bgl to 8.43 with bgl two bedding fractures infilled with soft clay and subangular limestone fragments (up to 20mm)*		
				None	32.60	8.45				
					32.50	8.55		Very weak greyish green MUDSTONE.		
			93					Extremely weak greenish grey locally calcareous slightly silty MUDSTONE.		
8.00 - 9.50			100							
	C17		100	None		(0.95)				
								AZCL.		
		SPT(S) 9.50m, 50 (5,10/50 for 230mm)			31.55	9.50		Extremely weak greenish grey silty locally calcareous MUDSTONE with rare limestone laminations (1-2mm thick).		
	D18									

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
08-04-2022	08:00	0.00		
08-04-2022	17:00	4.70	0.00	2.20
11-04-2022	08:00	4.70	0.00	2.20
11-04-2022	17:00	20.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
4.70	20.00	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.20	144
4.70	101
20.00	146

Casing Diameter

Depth (m)	Dia (mm)
4.70	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_11
Contract Number: JER9352	Start Date: 08/04/2022	End Date: 11/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391868.5	Northing: 170767.5	Ground Level: 41.05mOD	Plant Used: Comacchio 205
Logged By: MP/BW	Scale: 1:50			Sheet 2 of 2
Weather: Variable	Termination: Target depth achieved.		SPT Hammer: GEO205 Energy Ratio: 84.64%	

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				None		(1.05)				
9.50 - 11.00	C19		93 100 100		30.50	10.55		Very weak locally thinly laminated greenish grey silty locally calcareous MUDSTONE with closely spaced thin impersistent laminations (1-2mm) of limestone, locally partially formed impersistent.		
11.00 - 12.50	D20	SPT(S) 11.00m, 50 (7,14/50 for 50mm)	100 100 100							
	C21									
12.50 - 14.00	C22 C23		100 100 100					*From 13.30m bgl to 13.45m bgl extremely weak.*		
				None		(6.05)				
14.00 - 15.50	C24		100 100 100							
15.50 - 17.00	C25		93 90 90		24.45	16.60		Very weak to weak thinly laminated greenish grey calcareous MUDSTONE with extremely closely spaced impersistent thin laminations of limestone (1-3mm).		
17.00 - 18.50	C26		100 100 100					*From 17.71m bgl 17.75m bgl medium strong to strong grey limestone band with light brown siltstone laminations (5mm) (possibly siderite).*		
				None		(3.40)				
18.50 - 20.00	C27		100 100 100					*From 19.83m bgl to 19.85m bgl strong grey limestone.*		
					21.05	20.00		End of Borehole at 20.00m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20	144	4.70	178
4.70	101		
20.00	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_12
Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391904.5	Northing: 170797.0	Ground Level: 41.15mOD	Plant Used: Comacchio 205
Logged By: SD/DN	Scale: 1:50			Sheet 1 of 2
Weather: Variable	Termination: Target depth achieved.		SPT Hammer: GEO205 Energy Ratio: 84.64%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.40)		Soft brown slightly sandy silty CLAY with frequent rootlets and rare subangular fine to coarse limestone. Sand is fine.		
PID 0.0ppm	ES1				40.75	0.40		Soft light orangish brown slightly silty CLAY. Sand is fine.		
	B1 D2									
PID 0.0ppm	ES2					(0.80)		*From 0.80m: Becoming slightly gravelly. Gravel is subangular fine to coarse limestone.*		
	B3									
PID 0.0ppm	D4 ES3 U5				39.95	1.20		Soft brown slightly gravely sandy CLAY. Sand is fine to coarse. Gravel is fine to medium angular sandstone.		
					39.75	1.40		Yellow brown silty sandy fine to coarse sub angular to subrounded flint, quartzite, sandstone and mudstone GRAVEL. Sand is medium and coarse.		
	B6									
	D7	SPT(S) 2.70m, N=4 (1,1/1,1,1,1)				(2.45)				
	D8									
	B9									
	D10				37.30	3.85		Stiff grey silty CLAY.		
	D11	SPT(S) 4.15m, N=13 (1,2/3,3,4,3)								
	D12					(1.45)				
4.65 - 5.00	D13		100							
					35.85	5.30		Weak dark grey medium grained arenaceous LIMESTONE with infrequent fossils. At 5.50m bgl rough planar suspected bedding fracture.		
				One fracture		(0.35)				
5.00 - 6.50	C14		100 80 80		35.50	5.65		Weak to medium strong grey medium grained fossiliferous LIMESTONE with frequent lenses of unweathered dark grey mudstone (<2mm to 15mm).		
				One fracture		(0.70)		*Between 5.85m and 6.15m becoming strong with reduced fossil content.. At 6.15m one smooth planar fracture (induced).*		
				One ~~fracture.~~	34.80	6.35		Weak dark grey medium grained arenaceous LIMESTONE with infrequent fossils.		
					34.55	6.60		Very strong creamy off white medium grained fossiliferous LIMESTONE with infrequent inclusions of grey silt (<10mm x 2mm x 2mm)		
				One fracture		(0.60)		*At 6.75m rough planar bedding fracture. Between 7.15m and 7.85m rough stepped tight joint at approximate angle of 80°.*		
6.50 - 8.00	C15		100 100 81		33.95	7.20		Very strong creamy off white medium grained fossiliferous arenaceous LIMESTONE with frequent inclusions of grey finer material and light grey and brown seams <2mm in thickness with closely spaced undulating tight bedding fractures.		
				Bedding and two joints		(1.25)		*At 7.35m smooth open planar bedding fracture infilled with grey clayey silt. At 7.85m rough undulating tight joint..*		
					32.70	8.45		Weak becoming strong light grey medium grained fossiliferous LIMESTONE with frequent lenses of dark grey mudstone (<4mm x 30mm) approaching lenticular texture.		
8.00 - 9.50	C16		97 100 73	2 joints between 8.7m and 9.0m		(0.55)		*From 8.75m to 8.9m undulating moderately wide bedding fractures infilled with grey silty clay. 8.90m to 9.00m grey seam of finer material (maximum width 20mm).*		
					32.15	9.00		Very weak grey thinly laminated MUDSTONE verging towards a very stiff clay.		
	D17	SPT(S) 9.50m, 48 (5,4/48 for 280mm)								

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
12-04-2022	08:00	0.00		
12-04-2022	17:00	20.00		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
4.65	20.00	Air/Mist	100%-100%	grey

Borehole Diameter	
Depth (m)	Dia (mm)
2.70	144
4.15	101
20.00	146

Casing Diameter	
Depth (m)	Dia (mm)
4.00	178

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_12
Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391904.5	Northing: 170797.0	Ground Level: 41.15mOD	Plant Used: Comacchio 205
Logged By: SD/DN	Scale: 1:50			Sheet 2 of 2
Weather: Variable	Termination: Target depth achieved.		SPT Hammer: GEO205 Energy Ratio: 84.64%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
9.50 - 11.00	C18	SPT(S) 11.00m, 50 (5,6/50 for 170mm)	100 100 100	None		(2.70)				
11.00 - 12.50	D19		93 85 85		29.45	11.70		Weak grey thinly laminated MUDSTONE. *Between 11.80m and 11.90m interbedded zone with lighter grey siltstone up to 10mm in width. Unweathered.*		
	C20									
12.50 - 14.00			100 100 100							
	C21									
14.00 - 15.50			100 100 100	None		(5.80)				
	C22									
15.50 - 17.00			100 100 100							
	C23									
17.00 - 18.50	C24		100 100 97		23.65	17.50		Weak grey lenticular argillaceous laminated MUDSTONE. Lenses are medium strong limestone and generally up to 5mm in thickness.		
18.50 - 20.00	C25		100 100 97	None		(2.50)		*From 18.90m larger lenses 30mm in width.*		
					21.15	20.00		End of Borehole at 20.00m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.70	144	4.00	178
4.15	101		
20.00	146		

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_13
Contract Number: JER9352	Start Date: 12/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391952.0	Northing: 170795.0	Ground Level: 41.05mOD	Plant Used: Hand tools
Logged By: MP/BW	Scale: 1:50	Sheet 1 of 3		
Weather: Cloudy	Termination: Target depth achieved.	SPT Hammer: AR3407 Energy Ratio: 65.44%		

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D1				40.85	0.20		Soft brown sandy CLAY with frequent roots and rootlets (up to 25 mm).		
PID 0.0ppm	ES1							Soft orangish brown sandy CLAY.		
	B2									
	D3					(1.00)				
PID 0.0ppm	ES2									
	B4									
	D5				39.85	1.20		Very soft orangish brown and grey mottled silty CLAY.		
PID 0.0ppm	ES3									
	U6					(0.95)				
1.70 - 2.70			90 N/A N/A		38.90	2.15		Soft to firm grey with orangish brown and reddish brown mottling silty CLAY. *From 2.17m bgl red stained angular flint (12mm).* *From 2.20m bgl pocket of dark grey carbonaceous clay (50mm).*		
	D7									
	D8	SPT(S) 2.70m, N=8 (2,2/2,2,2,2)				(1.35)				
	U-NR				37.55	3.50		Medium dense brown sandy fine to coarse angular to subrounded GRAVEL of flint and limestone.		
3.20 - 4.20			70 N/A N/A							
	B9					(1.15)				
	D10	SPT(S) 4.20m, N=19 (3,4/4,4,6,5)								
					36.40	4.65		AZCL		
4.65 - 5.50			47 N/A N/A			(0.75)				
	D11	SPT(S) 5.50m, N=4 (1,1/1,1,1,1)			35.65	5.40		Firm grey slightly fossiliferous CLAY with occasional parlings of light grey fine sand.		
						(0.50)				
					35.15	5.90		Stiff becoming very stiff dark grey fossiliferous slightly calcareous CLAY.		
5.50 - 7.00			100 63 63	None	34.90	6.15 (0.30)		Extremely weak dark grey slightly fossiliferous calcareous MUDSTONE.		
	C12			None	34.60	6.45 (0.85)		Medium strong dark grey becoming grey argillaceous LIMESTONE with frequent lenses (up to 3mm thick) of soft dark grey clay (decreasing with depth).		
					33.75	7.30		Stiff to very stiff silty slightly sandy fossiliferous CLAY. *From 7.30m bgl to 7.32m bgl limestone fragments (10-50mm).*		
				N/A		(0.30)				
7.00 - 8.50			100 100 100	Bedding	33.45	7.60 (0.55)		Strong grey to light grey wackestone and packstone textured fossiliferous argillaceous LIMESTONE with occasional clay seams (up to 6mm thick).		
	C13			Bedding	32.90	8.15 (1.00)		Medium strong off white fossiliferous wackestone and packstone textured LIMESTONE with extremely closely spaced marl seams and pockets (up to 3mm thick). *From 8.82m bgl to 9.15m bgl marl seams less frequent.*		
8.50 - 10.00			100 100 100	Bedding	31.90	9.15 (0.55)		Medium strong grey to dark grey argillaceous LIMESTONE with frequent lenses and pockets of grey clay (up to 20mm) increasing with depth.		
	C14			Bedding	31.35	9.70		Strong light grey fine grained fossiliferous argillaceous LIMESTONE.		
	D15				31.15	9.90				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
12-04-2022	08:00	0.00		
12-04-2022	16:30	11.81	4.65	
13-04-2022	08:00	11.81	4.65	
13-04-2022	12:05	20.50		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	3.20		60%-60%	brown
4.65	20.50	Air/Mist	100%-100%	grey

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
Borehole dry at beginning and end of shift.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater encountered within the hand dug inspection pit

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_13
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391952.0	Northing: 170795.0	Ground Level: 41.05mOD	Plant Used: Hand tools	Logged By: MP/BW
					Sheet 2 of 3
					Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				N/A	30.90	10.15		Very stiff greenish grey slightly calcareous CLAY.		
10.00 - 11.50	C16	SPT(S) 10.00m, 50 (3,7/50 for 230mm)	100 80 80	None		(2.45)		Extremely weak locally thinly laminated greenish grey locally calcareous MUDSTONE. *From 11.20m bgl to 11.50m bgl AZCL.*		
11.50 - 13.00	D17 C18	SPT(S) 11.50m, 50 (3,6/50 for 155mm)	100 100 100		28.45	12.60		Very weak thinly laminated greenish grey calcareous MUDSTONE with closely spaced thin impersistant laminations of limestone (up to 3mm thick).		
13.00 - 14.50	C19		100 100 100	None	26.80	(1.65)				
14.50 - 16.00	C20		100 100 100	None		14.25		Very weak thinly laminated greenish grey calcareous MUDSTONE with extremely closely spaced thin impersistant laminations of limestone (1-3mm thick). *From 15.10m bgl to 16.00m bgl extremely closely spaced thin impersistant laminations (1-3mm thick).*		
16.00 - 17.50	C21		100 100 100			(6.25)				
17.50 - 19.00	C22		100 100 100	None						
19.00 - 20.50			100 100 100							

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
Borehole dry at beginning and end of shift.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater encountered within the hand dug inspection pit

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_13
Contract Number: JER9352	Start Date: 12/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391952.0	Northing: 170795.0	Ground Level: 41.05mOD	Plant Used: Hand tools
Logged By: MP/BW	Scale: 1:50			Sheet 3 of 3
Weather: Cloudy	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C23				20.55	20.50		End of Borehole at 20.50m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
Borehole dry at beginning and end of shift.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater encountered within the hand dug inspection pit

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_14
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	13/04/2022	13/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391988.5	Northing: 170822.5	Ground Level: 43.15mOD	Plant Used: Comacchio 205	Logged By: MC/BW	Scale: 1:50

Weather: Variable+Fine | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
PID 0.0ppm	ES1				42.90	0.25		Grass over soft to firm dark brown gravelly CLAY. Gravel is subangular and subrounded fine to coarse flint and mudstone.		
	B1 D2							Stiff to firm orangish brown mottled brown and grey slightly sandy silty gravelly CLAY. Gravel is subangular and subrounded fine to coarse flint and limestone. Sand is fine to coarse.		
PID 0.0ppm	ES2					(1.55)		*At 0.80m becoming soft to firm.* *At 1.10m becoming stiff and sandy.*		
PID 5.0ppm	B3 D4 ES3 U5				41.35	1.80		Firm greyish brown with orangish brown and yellow mottling silty CLAY with rare selenite crystals (<2mm).		
	D6					(1.00)				
	D7									
	D8 C9	SPT(S) 2.80m, N=11 (1,2/3,2,5,1)	57 0 0		40.35	2.80		Firm locally stiff grey slightly sandy silty CLAY with occasional selenite crystals (up to 10mm).		
2.80 - 3.50						(1.30)				
	D10	SPT(S) 3.50m, N=9 (1,2/2,3,2,2)	90 0 0		39.05	4.10		Stiff to very stiff locally weakly cemented grey sandy fossiliferous CLAY. *From 4.15 to 4.20m weakly cemented pocket.*		
3.50 - 5.00										
	C11					(1.60)				
	D12	SPT(S) 5.00m, N=16 (2,5/4,4,4,4)	100 0 0		37.45	5.70		Stiff locally very stiff grey CLAY.		
5.00 - 6.50										
	C13					(1.40)				
	D14	SPT(S) 6.50m, N=22 (2,3/5,6,5,6)	100 0 0		36.05	7.10		Very stiff grey fossiliferous sandy clayey SILT. Sand is fine and medium.		
6.50 - 8.00										
	C15					(0.75)				
	D16	SPT(S) 8.00m, N=26 (4,3/6,7,6,7)	100 0 0		35.30	7.85		Stiff to very stiff grey silty CLAY with occasional fossils.		
8.00 - 9.50										
	C17				34.40	8.75		Stiff grey fossiliferous slighty sandy SILT/CLAY with very closely spaced lenses of light brown fine sand.		
						(2.10)				
	D18	SPT(S) 9.50m, N=28 (4,5/7,7,7,7)								

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
13-04-2022	08:00			
13-04-2022	17:00	12.50	3.00	
14-04-2022	08:00	12.50	3.00	
14-04-2022	17:00	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	15.00	PLAIN	50
Pipe 1	15.00	20.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
2.80	20.00	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
2.80	144
20.00	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_14
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	13/04/2022	13/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391988.5	Northing: 170822.5	Ground Level: 43.15mOD	Plant Used: Comacchio 205	Logged By: MC/BW	Scale: 1:50

Weather: Variable+Fine | Termination: Target depth achieved. | SPT Hammer: GEO205 Energy Ratio: 84.64%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
9.50 - 11.00	C19		100 0 0		32.30	10.85		Stiff to very stiff grey silty CLAY.		
11.00 - 12.50	D20	SPT(S) 11.00m, N=36 (5,3/7,10,11, 8)	100 0 0		31.25	11.90 (1.05)		Very stiff grey CLAY with occasional fossil fragments.		
	C21				30.70	12.45 (0.55)		Very stiff grey sandy fossiliferous silty CLAY.		
12.50 - 14.00	D22	SPT(S) 12.50m, 50 (7,5/50 for 90mm)	100 100 100		30.55	12.60 (0.85)		Medium strong to strong grey fine and medium grained fossiliferous argillaceous LIMESTONE with occasional pockets (<20mm) of brown siltstone (possible siderite).		
	C23				29.70	13.45		Extremely weak dark grey sandy highly fossiliferous MUDSTONE.		
					29.45	13.70		Strong grey to off white fossiliferous wackestone and packstone textured argillaceous LIMESTONE.		
						(1.00)		*From 14.10m to 14.40m off white.*		
14.00 - 15.50	C24		100 100 100		28.45	14.70 (1.30)		Medium strong grey fossiliferous argillaceous LIMESTONE, with frequent wavy clay seams (up to 8mm thick).		
				1 bedding fracture				*At 15.70m bedding fracture with soft grey clay infill.*		
15.50 - 17.00	C25		100 100 100		27.15	16.00		Firm greenish grey fossiliferous CLAY.		
	D26	SPT(S) 17.00m, 50 (12,13/50 for 100mm)			26.95	16.20 (2.40)		Extremely weak greenish grey calcareous MUDSTONE		
17.00 - 18.50			100 100 100							
	C27				24.55	18.60		Very weak locally thinly laminated greenish grey calcareous MUDSTONE with extremely closely to closely spaced impersistent thin limestone laminations.		
								At 18.90m 1 No 75° planar smooth fracture.		
18.50 - 20.00	C28		100 100 100	1 fracture		(1.40)		*From 18.90m to 19.10m extremely closely spaced limestone laminations.* *At 19.10m 1 No 75° planar smooth fracture.*		
					23.15	20.00				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	15.00	PLAIN	50
Pipe 1	15.00	20.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
2.80	144
20.00	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_14
Contract Number: JER9352	Start Date: 13/04/2022	End Date: 13/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391988.5	Northing: 170822.5	Ground Level: 43.15mOD	Plant Used: Comacchio 205
Logged By: MC/BW	Scale: 1:50			Sheet 3 of 3
Weather: Variable+Fine	Termination: Target depth achieved.		SPT Hammer: GEO205 Energy Ratio: 84.64%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								At 19.90m1 No 75° planar smooth fracture.		
								End of Borehole at 20.00m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	15.00	PLAIN	50
Pipe 1	15.00	20.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
2.80	144
20.00	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVC1_BH_15
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	13/04/2022	19/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391999.5	Northing: 170806.0	Ground Level: 43.10mOD	Plant Used: Comacchio GEO 300	Logged By: MP/DN	Scale: 1:50

Weather: Fine+Cloudy+Sunny | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.30)		Grass over soft brown sandy CLAY with frequent roots and rootlets (<25 mm). Sand is fine.		
PID 0.0ppm	ES1				42.80	0.30		Soft grey mottled brown sandy CLAY. Sand is fine.		
	D1									
PID 0.0ppm	ES2					(0.90)				
	D2									
PID 0.0ppm	B3 ES3 U4 B5				41.90	1.20		Soft to firm orangish brown slightly sandy slightly silty CLAY. Sand is fine and medium.		
1.70 - 2.70	D6		98 N/A N/A			(2.00)				
	C7									
		SPT(S) 2.70m, N=37 (2,6/8,10,10, 9)								
					39.90	3.20		Stiff brownish grey slightly sandy silty thinly laminated CLAY with frequent fine gravel sized angular selenite crystals and fine and medium pockets of brown fine and medium sand.		
3.20 - 4.20			98 N/A N/A			(0.95)				
	C8									
	D9	SPT(S) 4.20m, N=34 (5,5/8,9,9,8)			38.95	4.15		Very stiff grey slightly sandy silty thinly laminated CLAY with occasional fine gravel sized shells and shell fragments and frequent layers (<2mm) of light grey silt. Sand is fine.		
4.20 - 5.70			87 0 0							
	D10									
	C11					(2.55)				
		SPT(S) 5.70m, N=19 (1,1/3,4,5,7)								
	D12									
5.70 - 6.70			94 0 0							
	D13									
	C14									
					36.40	6.70		Weak greenish grey medium grained fossiliferous LIMESTONE. Fossils include bivalves. Strength increases with depth.		
6.70 - 7.20	C15		100 96 88		36.10	(0.30) 7.00				
						(0.60)		Medium strong light grey medium grained fossiliferous argillaceous LIMSTONE with occasional cream coloured seams.		
					35.50	7.60		Extremely weak dark grey fossiliferous SILTSTONE.		
7.20 - 8.70	C16		99 92 92		35.25	7.85		Medium strong creamy grey medium and coarse grained fossiliferous argillaceous LIMESTONE.		
						(1.85)				
	C17									
8.70 - 10.20			100 99 92							
					33.40	9.70		Weak grey locally greenish grey medium and coarse grained wackestone textured fossiliferous argillaceous LIMESTONE.		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
13-04-2022	12:30			
13-04-2022	17:00	4.20	4.20	
14-04-2022	08:00	4.20	4.20	
14-04-2022	14:00	20.70	4.20	
19-04-2022	08:00	20.70	4.20	5.60
19-04-2022	17:00	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	3.20		100%-100%	brown
4.20	20.70		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Slow seepage

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVC1_BH_15
Contract Number: JER9352	Start Date: 13/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391999.5	Northing: 170806.0	Ground Level: 43.10mOD	Plant Used: Comacchio GEO 300
Logged By: MP/DN	Scale: 1:50			Sheet 2 of 3
Weather: Fine+Cloudy+Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.70)				
					32.70	10.40		Extremely weak dark grey argillaceous MUDSTONE		
						(0.30)				
					32.40	10.70		Medium strong light grey medium to coarse grained wackestone textured fossiliferous argillaceous LIMESTONE with widely spaced fracture rough undulating 20°.		
10.20 - 11.70			63 58 51			(0.50)				
	C18				31.90	11.20		AZCL		
						(0.50)				
	D19	SPT(S) 11.70m, 50 (7,18/50 for 120mm)			31.40	11.70		Extremely weak grey arenaceous MUDSTONE with closely spaced planar bedding fractures (<1mm)		
11.70 - 12.70	C20		87 70 59			(0.75)				
					30.65	12.45		Medium strong light grey coarse grained wackestone textured fossiliferous LIMESTONE		
					30.40	12.70		Very weak grey silty argillaceous MUDSTONE.		
12.70 - 13.20	C21		130 114 94			(0.75)				
	D22	SPT(S) 13.20m, 50 (25 for 40mm/50 for 20mm)			29.65	13.45		Weak greenish grey silty fossiliferous argillaceous MUDSTONE with occasional lenses (<4mm) of cream silt and fine gravel sized inclusions of lignite and plant matter.		
	C24					(0.65)				
13.20 - 14.70			97 97 90		29.00	14.10		Weak grey silty MUDSTONE interbedded with light grey fine and medium grained SANDSTONE. Beds are closely spaced (<1-10mm).		
					28.70	(0.30) 14.40		Weak grey thickly laminated argillaceous MUDSTONE with closely spaced bedding fractures.		
	C25									
14.70 - 16.20			100 97 97							
	C26					(4.00)				
16.20 - 17.70			100 100 100							
	C27									
17.70 - 19.20			100 97 97		24.70	18.40		Weak grey interbedded MUDSTONE and SANDSTONE. Sandstone is light grey fine and medium grained with lenticular bedding structure.		
						(2.30)				
19.20 - 20.70	C28		100 97 97							

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Slow seepage

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVC1_BH_15
	Contract Number: JER9352	Start Date: 13/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 391999.5	Northing: 170806.0	Ground Level: 43.10mOD	Plant Used: Comacchio GEO 300	Logged By: MP/DN
					Scale: 1:50

Weather: Fine+Cloudy+Sunny | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					22.40	20.70		End of Borehole at 20.70m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Slow seepage

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

rps	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVW_BH_01
	Contract Number: JER9352	Start Date: 21/04/2022	End Date: 25/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 3
Rotary Core Drilling Log	Easting: 393712.5	Northing: 171343.0	Ground Level: 52.80mOD	Plant Used: Commachio 205	Logged By: EL/DN
					Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.35)		Very soft to soft brown slightly sandy CLAY with some fine organic matter (3mm). Sand is fine to coarse.		
PID 0.0ppm	ES1				52.45	0.35		Soft to firm grey mottled orangish brown CLAY with occasional organic fragments.		
	D1					(0.65)				
PID 0.0ppm	ES2									
	D2				51.80	1.00		Firm grey mottled orangish brown CLAY.		
PID 0.0ppm	B3 ES3	SPT(C) 1.20m, N=5 (1,1/1,1,1,2)			51.60	1.20		Firm yellowish brown mottled grey gravelly very sandy CLAY. Sand is fine and medium. Gravel is fine to coarse subangular sandstone. mudstone and shell fragments.		
	D4					(0.80)		*Between 1.60m and 1.90m decayed root structure and pungent organic odour.*		
1.20 - 2.20	D5				50.80	2.00				
	D6	SPT(C) 2.20m, N=23 (3,3/5,5,7,6)				(0.80)		Very stiff dark brown slightly sandy slightly gravelly CLAY with frequent dark reddish brown staining along joint structures and occasional fine gravel sized selenite. Slight organic odour.		
2.20 - 3.20	C7 D8				50.00	2.80				
		SPT(C) 3.20m, 50 (6,9/50 for 225mm)		20 30 100		(1.00)		Weak dark brownish grey thinly laminated fossiliferous arenaceous MUDSTONE with very closely to closely spaced smooth planar very tight bedding fractures and medium spaced smooth planar wide bedding fractures infilled with gravelly SILT. Gravel is fine sandstone.		
3.20 - 4.70	D9		90 80 9		49.00	3.80		Weak to extremely weak thickly laminated grey MUDSTONE with frequent fine and medium gravel sized shells and widely spaced shell bands (<20mm) and closely spaced smooth planar very tight bedding fractures.		
	D10	SPT(C) 4.70m, N=37 (5,7/10,8,9,10)		40 140 250						
4.70 - 6.20			100 100 97							
	C11							*From 5.90m bedding fractures medium spaced.*		
		SPT(C) 6.20m, N=33 (6,7/7,8,8,10)						*At 6.10m medium gravel sized fossilised wood fragment.*		
6.20 - 7.70	C12		87 87 80			(6.10)				
		SPT(C) 7.70m, N=26 (3,4/4,5,8,9)		60 280 400						
7.70 - 9.20	D13 C14		100 100 83							
		SPT(C) 9.20m, N=40 (4,7/8,10,10,12)								
9.20 - 10.70			100 47 47		42.90	9.90				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
21-04-2022	08:00	0.00		
21-04-2022	17:00	3.20	3.00	
22-04-2022	08:00	3.20	3.00	0.25
22-04-2022	16:00	12.20	3.00	1.40
23-04-2022	08:00	12.20	3.00	1.05
23-04-2022	17:00			

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	2.80		100%-100%	brown
4.30	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVW_BH_01
Contract Number: JER9352	Start Date: 21/04/2022	End Date: 25/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 393712.5	Northing: 171343.0	Ground Level: 52.80mOD	Plant Used: Commachio 205
Logged By: EL/DN	Scale: 1:50			Sheet 2 of 3
Weather: Cloudy	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D15							Very stiff grey thickly laminated CLAY with occasional fine and medium gravel sized shell fragments.		
	C16	SPT(C) 10.70m, N=39 (3,5/7,9,9,14)								
10.70 - 12.20	D17 C18		100 N/A N/A							
		SPT(C) 12.20m, N=33 (4,5/7,8,9,9)						*Between 12.20m and 13.00m shells frequent.*		
12.20 - 13.70	C19		100 N/A N/A			(6.80)				
		SPT(C) 13.70m, N=33 (4,5/8,7,8,10)								
13.70 - 15.20	C20		100 N/A N/A							
		SPT(C) 15.20m, N=38 (4,6/9,10,9,10)								
15.20 - 16.70	C21		100 N/A N/A							
		SPT(C) 16.70m, N=38 (4,5/8,8,10,12)			36.10	16.70		Extremely weak thinly laminated grey MUDSTONE with closely spaced smooth planar moderately wide to wide bedding fractures infilled with fine and medium gravel sized mudstone fragments with a clay matrix and occasional shell fragments.		
16.70 - 18.20	C22		100 N/A N/A			(2.80)				
		SPT(C) 18.20m, 50 (6,12/50 for 285mm)								
18.20 - 19.70			90 13 0					*At 19.00m smooth fault with dip of 25°.*		
	C23				33.30	19.50		Medium strong grey MUDSTONE with vertical calcite vein (5-15mm thickness) and one tight fracture/bedding fracture with ammonite fossil.		
		SPT(C) 19.70m,				(1.00)				

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVW_BH_01
	Contract Number: JER9352	Start Date: 21/04/2022	End Date: 25/04/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 393712.5	Northing: 171343.0	Ground Level: 52.80mOD	Plant Used: Commachio 205	Logged By: EL/DN
					Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.70 - 20.50		N=42 (5,8/9,10,11, 12)			32.30	20.50		End of Borehole at 20.50m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVW_BH_02
Contract Number: JER9352	Start Date: 26/04/2022	End Date: 27/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 393732.0	Northing: 171339.0	Ground Level: 52.70mOD	Plant Used: Comacchio 205
Logged By: EL/DN	Scale: 1:50			Sheet 1 of 3
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.30)		Very soft brown slightly sandy CLAY with occasional rootlets (<5mm). Sand is fine to coarse.		
PID 0.0ppm	ES1				52.40	0.30		Soft to firm grey mottled orangish brown slightly sandy CLAY. Sand is fine to coarse.		
	D1					(0.70)				
PID 0.0ppm	ES2									
	D2				51.70	1.00		Soft to firm light grey mottled brown very sandy CLAY with rare organic matter (4mm). Sand is fine to coarse.		
PID 0.0ppm	B3	SPT(C) 1.20m, N=4 (1,1/1,1,1,1)								
	ES3									
	D4		100 N/A N/A							
1.20 - 2.20						(1.30)				
		SPT(C) 2.20m, N=23 (1,3/5,6,5,7)			50.40	2.30		Stiff laminated purplish brown slightly sandy silty CLAY with occasional medium sand sized selenite crystals. Slight organic odour.		
2.20 - 2.80			100 N/A N/A			(0.50)				
	D5				49.90	2.80		Firm brownish grey slightly sandy CLAY with occasional fine gravel sized selenite crystals		
2.80 - 3.00	D6		100		49.70	3.00		Medium strong thinly bedded dark brownish grey fossiliferous MUDSTONE with closely spaced continuous smooth planar very tight clean bedding fractures and widely spaced continuous rough undulating bedding fractures with silty clay infill and abundant shell fragments.		
		SPT(C) 3.00m, 50 (3,9/50 for 215mm)								
3.00 - 4.50	D7		90 77 0	30 60 100		(2.90)				
		SPT(C) 4.50m, N=33 (4,6/7,8,9,9)								
4.50 - 6.00	D8		90 80 0							
		SPT(C) 6.00m, N=24 (3,4/5,6,6,7)			46.80	5.90		Extremely weak thinly laminated fossiliferous MUDSTONE with closely spaced persistent smooth planar very tight clean bedding. Fine and medium grained gravel sized shell fragments.		
6.00 - 7.50	D9 C10		80 80 80	100 110 190						
		SPT(C) 7.50m, N=28 (3,4/4,6,8,10)				(6.35)				
7.50 - 9.00	C11 D12		100 80 73					*From 8.80m Non fossiliferous.*		
		SPT(C) 9.00m, N=35 (3,6/6,7,9,13)								
9.00 - 10.50			100 100 100					*At 9.75m, band of shells (40mm thick).*		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
26-04-2022	08:00			
26-04-2022	17:15	19.50	2.80	10.80
27-04-2022	08:00	19.50	2.80	0.50
27-04-2022	17:00	0.00		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	2.00	PLAIN	50
Pipe 1	2.00	5.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
2.80	20.40	Air/Mist	90%-90%	grey

Borehole Diameter	
Depth (m)	Dia (mm)
2.80	113
20.40	146

Casing Diameter	
Depth (m)	Dia (mm)
2.80	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_02
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	26/04/2022	27/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393732.0	Northing: 171339.0	Ground Level: 52.70mOD	Plant Used: Comacchio 205	Logged By: EL/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D13									
	C14	SPT(C) 10.50m, N=31 (4,5/6,8,8,9)								
10.50 - 12.00			90 90 90	210 800 1500						
		SPT(C) 12.00m, 50 (25 for 90mm/50 for 10mm)								
	C15			One fracture	40.45	12.25 (0.35)		Very strong to extremely strong light grey brecciated LIMESTONE with significant veining of white calcite and finer grained brown calcite		
12.00 - 13.50	C16 D17 C18		93 20 20		40.10	12.60		*At 12.50m coarse gravel sized voids.* Very stiff grey thickly laminated CLAY with frequent fine and medium gravel sized shells and shell fragments		
		SPT(C) 13.50m, N=25 (3,4/6,6,7,6)								
13.50 - 15.00	C19		73 0 0							
		SPT(C) 15.00m, N=45 (4,6/7,10,13, 15)								
15.00 - 16.50	C20		100 0 0			(6.45)				
		SPT(C) 16.50m, N=44 (3,5/8,10,12, 14)								
16.50 - 18.00	C21		87 0 0							
		SPT(C) 18.00m, 50 (6,11/50 for 260mm)								
18.00 - 19.50			100 37 37							
	C22			None	33.65	19.05		Weak dark brownish grey thickly laminated MUDSTONE with frequent shells and shell fragments		
		SPT(C) 19.50m, 50 (7,12/50 for 260mm)				(1.35)		*From 19.50m grey.*		
19.50 - 20.40			100 0 0	None						

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	2.00	PLAIN	50
Pipe 1	2.00	5.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.80	113	2.80	175
20.40	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVW_BH_02
Contract Number: JER9352	Start Date: 26/04/2022	End Date: 27/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 393732.0	Northing: 171339.0	Ground Level: 52.70mOD	Plant Used: Comacchio 205
Logged By: EL/DN	Scale: 1:50			Sheet 3 of 3
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					32.30	20.40		End of Borehole at 20.40m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	2.00	PLAIN	50
Pipe 1	2.00	5.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.80	113	2.80	175
20.40	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVW_BH_03
Contract Number: JER9352	Start Date: 04/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 393714.0	Northing: 171361.5	Ground Level: 52.60mOD	Plant Used: Comacchio 205
Logged By: MC/DN	Scale: 1:50			Sheet 1 of 3
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%	

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					52.40	0.20		Brown sandy SILT with frequent roots and rootlets. Sand is fine to coarse.		
PID 0.0ppm	ES1					(0.30)				
	B1				52.10	0.50		Soft to firm brown orange mottled light grey sandy silty CLAY with occasional roots. Sand is fine and medium.		
	D2									
PID 0.0ppm	ES2					(0.50)		Soft brown orange slightly gravelly fine to coarse SAND with clayey intrusions. Gravel is fine to coarse subrounded mudstone and sandstone.		
	B3				51.60	1.00				
~~PID 0.0ppm~~	D4									
	D5	SPT(S) 1.20m, N=9 (1,1/2,2,2,3)			51.40	1.20		Soft to firm grey silty sandy CLAY with calcareous intrusions and frequent shell fragments. Sand is fine and medium.		
	ES3					(0.35)				
	D6		100 N/A N/A		51.05	1.55		Firm greyish brown slightly sandy slightly gravelly CLAY with occasional rootlets (<2mm). Sand is fine and medium. Gravel is fine subangular mudstone and sandstone.		
1.20 - 2.20	D7					(0.45)		Firm dark brown slightly sandy silty CLAY. Sand is medium and coarse.		
	D8				50.60	2.00		*Between 1.95m and 2.00m laminated, slightly organic. Sand is fine and medium. Slight organic odour.*		
	D9	SPT(S) 2.20m, N=14 (2,2/3,3,4,4)						Stiff dark greyish brown sandy laminated CLAY with frequent fine and medium gravel sized shell fragments.		
2.20 - 3.20			90 N/A N/A			(1.50)				
	D10									
	D11	SPT(S) 3.20m, 50 (6,8/50 for 280mm)			49.10	3.50				
3.20 - 4.65			100 54 0					Extremely weak dark brownish grey fossiliferous thinly laminated MUDSTONE. Very close to closely spaced smooth planar clean tight bedding fractures. Tending to very stiff clay.		
	D12	SPT(C) 4.65m, N=29 (2,5/6,7,7,9)		400 210 30		(2.85)				
4.65 - 6.15			73 41 33					*Between 5.8m and 6.1m, increases proportion of shells and smaller fracture spacing.*		
		SPT(C) 6.15m, N=24 (4,4/4,6,6,8)			46.25	6.35		Very stiff grey slightly sandy CLAY with frequent fine and medium gravel sized shell fragments.		
6.15 - 7.65	C13		87 0 0			(2.45)				
		SPT(C) 7.65m, N=24 (2,4/5,6,6,7)								
7.65 - 9.15	C14		87 13 13		43.80	8.80		Extremely weak grey fossiliferous MUDSTONE with fine and medium gravel sized shell fragments. Closely spaced bedding fractures. Tending to very stiff clay.		
		SPT(C) 9.15m, N=40 (5,7/7,10,10, 13)				(1.10)				
9.15 - 10.65			100 77 77		42.70	9.90				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
04-05-2022	12:30			
04-05-2022	17:00	7.65	3.00	
05-05-2022	08:00	7.65	3.00	0.25
05-05-2022	17:00	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.20	7.65	Air/Mist	90%-90%	grey
7.65	20.75		90%-90%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.20	113
7.65	146

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVW_BH_03
Contract Number: JER9352	Start Date: 04/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 393714.0	Northing: 171361.5	Ground Level: 52.60mOD	Plant Used: Comacchio 205
Logged By: MC/DN	Scale: 1:50			Sheet 2 of 3
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C15							Extremely weak grey MUDSTONE with occasional fine and medium gravel sized with closely to medium spaced bedding fractures. Tending to very stiff clay.		
10.65 - 12.15		SPT(C) 10.65m, N=34 (5,8/7,8,9,10)	100 93 88	200 300 400		(3.00)				
12.15 - 13.65	C16 C17	SPT(C) 12.15m, N=34 (5,6/8,8,8,10)	100 50 50		39.70	12.90		Very stiff grey CLAY with occasional fine and medium gravel sized shells and shells fragments.		
13.65 - 15.15		SPT(C) 13.65m, N=28 (3,4/5,7,7,9)	43 0 0		38.30	(1.40) 14.30		AZCL		
15.15 - 16.65	C18	SPT(C) 15.15m, 50 (9,10/50 for 260mm)	23 83 73		37.45	(0.85) 15.15		Extremely weak fissured grey MUDSTONE with frequent fine and medium gravel sized fossils and medium to closely spaced bedding fractures and two sets of faults medium spaced with a dip of 40° and 25°.		
16.65 - 18.15	C19	SPT(C) 16.65m, 50 (8,11/50 for 245mm)	33 80 53	250 350 400		(3.00)				
18.15 - 19.65	C20		27 93 77	200 250 3500	34.45	18.15 (1.25)		Extremely weak to weak grey thickly laminated MUDSTONE with frequent fine to coarse shells and shell fragments including bivalves. Medium spaced smooth planar bedding fractures.		
	C21				33.20	19.40 (0.60)		Weak to medium strong thinly laminated brownish grey MUDSTONE with occasional fine and medium gravel sized shells and shell fragments. Medium spaced bedding fractures.		
					32.60	20.00				

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)
3.20	113
7.65	146

Casing Diameter	
Depth (m)	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVW_BH_03
	Contract Number: JER9352	Start Date: 04/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 393714.0	Northing: 171361.5	Ground Level: 52.60mOD	Plant Used: Comacchio 205	Logged By: MC/DN
					Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.65 - 20.75			100 100 81	60 120 80		(0.75)		Weak grey thickly laminated MUDSTONE with frequent fine and medium gravel sized shells. Closely spaced smooth planar bedding fractures.		
					31.85	20.75		End of Borehole at 20.75m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20 7.65	113 146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_04
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	06/05/2022	10/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393736.0	Northing: 171354.5	Ground Level: 52.85mOD	Plant Used: Comacchio 205	Logged By: RT/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.30)		Grass over soft brown slightly sandy CLAY with rootlets (<2mm)		
PID 0.0ppm	ES1				52.55	0.30		Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine and medium. Gravel is medium and coarse subangular and subrounded chert, flint and ironstone.		
	D1					(0.70)				
PID 0.0ppm	ES2									
	B2				51.85	1.00				
	D3									
~~PID 0.0ppm~~	ES3	SPT(S) 1.20m, N=6 (1,1/1,2,1,2)			51.65	1.20		Firm very closely fissured light grey locally mottled orange brown slightly silty CLAY.		
	D4		100 N/A N/A					Stiff locally to very stiff dark brown slightly sandy slightly gravelly slightly organic CLAY with occasional fragments of decayed organic matter (<5-20mm). Sand is fine and medium. Gravel is fine angular sandstone.		
1.20 - 2.20	D5					(1.80)				
	D6	SPT(S) 2.20m, N=10 (1,1/2,3,2,3)								
2.20 - 3.20	D7		100 N/A N/A							
					49.85	3.00		Very stiff dark grey slightly sandy friable CLAY with frequent fine and medium gravel sized shells and shell fragments.		
		SPT(S) 3.20m, N=27 (3,4/4,5,8,10)				(0.45)				
	D8				49.40	3.45		Very stiff dark grey slightly sandy fossiliferous fissured thinly laminated CLAY. Fossils are fine and medium gravel sized shells and shell fragments including bivalves and ammonites. *Between 3.45 and 4.30m, very closely spaced planar joints (suspected relic bedding).*		
3.20 - 4.65			93 N/A N/A							
	D9									
		SPT(S) 4.65m, N=26 (2,3/5,6,6,9)				(2.60)				
	D10									
4.65 - 6.15			90 N/A N/A							
	C11									
					46.80	6.05		Very stiff greenish grey fossiliferous thickly laminated fissured CLAY. Shells are fine to medium gravel sized shells and shell fragments including ammonites, bivalves and gastropods. *At 6.1m, one shear fracture, approx 35°.*		
	D12	SPT(S) 6.15m, N=22 (2,3/4,5,6,7)								
6.15 - 7.65			100 N/A N/A							
	C13					(2.50)				
	D14	SPT(S) 7.65m, N=24 (2,3/5,6,6,7)								
	C15									
7.65 - 9.15			100 N/A N/A							
					44.30	8.55		Very stiff locally stiff greenish grey thickly laminated fissured CLAY with frequent fine and medium gravel sized shells and shell fragments including bivalves and gastropods.		
	D16	SPT(S) 9.15m, N=40 (3,5/7,9,11,13)								
9.15 - 10.65			100 N/A N/A							

10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
06-05-2022	08:00			
06-05-2022	16:00	9.15	3.00	
09-05-2022	08:00	9.15	3.00	0.55
09-05-2022	17:00	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.20	9.15	Air/Mist	90%-90%	grey
9.15	20.05	Air/Mist	90%-90%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.20	113
20.05	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_04
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	06/05/2022	10/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393736.0	Northing: 171354.5	Ground Level: 52.85mOD	Plant Used: Comacchio 205	Logged By: RT/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C17									
	D18	SPT(S) 10.65m, N=34 (3,5/6,8,9,11)				(2.95)				
10.65 - 12.15	C19		100 N/A N/A		41.35	11.50		Very stiff thickly laminated fissured grey CLAY with occasional fine and medium gravel sized shells and shell fragments including ammonites and bivalves.		
	D20	SPT(S) 12.15m, N=33 (2,3/6,8,9,10)								
12.15 - 13.65	C21		83 N/A N/A							
	D22	SPT(S) 13.65m, N=35 (3,5/6,8,8,13)								
13.65 - 15.15	C23		100 N/A N/A			(6.95)				
	D24	SPT(S) 15.15m, 50 (5,8/50 for 280mm)								
15.15 - 16.65	C25		100 N/A N/A							
	D26	SPT(S) 16.65m, N=39 (3,7/7,8,11,13)								
16.65 - 18.15	C27		100 N/A N/A							
	D28	SPT(S) 18.15m, 50 (5,15/50 for 20mm)								
	D29			40 200	34.40	18.45				
						(0.40)		Extremely strong grey fine grained MUDSTONE with white calcareous veining up to 5mm in thickness, with heavily fractured rock prior to calcification erratically jointed		
18.15 - 19.65			100 27 N/A		34.00	18.85		Very stiff grey thickly laminated fissured CLAY with frequent fine and medium gravel sized shells and shell fragments including bivalves.		
	C30					(1.20)				
19.65 - 20.05		SPT(C) 19.65m, 50 (10,15/50 for 210mm)	100							

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20	113	3.00	175
20.05	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_04
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER9352	06/05/2022	10/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393736.0	Northing: 171354.5	Ground Level: 52.85mOD	Plant Used: Comacchio 205	Logged By: RT/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					32.80	20.05		End of Borehole at 20.05m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20	113	3.00	175
20.05	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_05
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	10/05/2022	10/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393862.5	Northing: 171420.5	Ground Level: 53.80mOD	Plant Used: Comacchio 205	Logged By: RT/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								Samples & Core Recovery / Strata Details / Groundwater		
PID 0.0ppm	ES1				53.55	0.25		Grass on firm orangish brown slightly sandy SILT with occasional rootlets (<2mm).		
	D1							Firm orangish brown mottled grey sandy silty CLAY.		
PID 0.0ppm	ES2					(0.95)		*From 0.80m becoming extremely closely fissured with occasional fine gravel sized pockets of dark brown organic matter.*		
	B2									
PID 0.0ppm	D3									
	ES3	SPT(S) 1.20m, N=8 (1,1/2,2,2,2)			52.60	1.20		Firm light grey mottled brown and orangish brown slightly sandy CLAY with frequent fine and medium sand sized selenite crystals.		
	D4									
	D5		95 N/A N/A							
1.20 - 2.20						(1.25)				
		SPT(S) 2.20m, N=13 (1,2/3,3,3,4)								
	D6				51.35	2.45		Firm greyish brown slightly sandy CLAY with frequent fine and medium gravel sized selenite crystals and thin bands (<2mm) of yellow silt. Frequent layers of brown staining along suspected relic laminations.		
	U-NR									
2.20 - 3.20	D7		100 N/A N/A							
		SPT(S) 3.20m, N=11 (1,1/2,3,2,4)				(1.45)				
	D8									
3.20 - 4.65			100 0 0		49.90	3.90		Stiff grey slightly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
	D9									
		SPT(S) 4.65m, N=15 (1,1/3,3,4,5)								
	D10									
4.65 - 6.15	C11		93 0 0							
		SPT(S) 6.15m, N=25 (2,3/5,7,6,7)								
	D12									
6.15 - 7.65			100 0 0			(7.05)		*From 6.85m shells are frequent and very stiff.*		
	C13									
		SPT(S) 7.65m, N=35 (2,5/8,9,8,10)								
	D14									
7.65 - 9.15	C15		90 0 0					*From 8.65m shells are occasional. Between 8.65m to 8.85m abundant shells including bivalves.*		
		SPT(S) 9.15m, N=30 (4,7/7,7,7,9)								
	D16									
9.15 - 10.65			100 0 0							

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
10-05-2022	08:00	0.00		
10-05-2022	17:00	20.90		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.20	20.90	Air/Mist	90%-90%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.20	113
20.90	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVW_BH_05
	Contract Number: JER9352	Start Date: 10/05/2022	End Date: 10/05/2022	Checked By: CW	Status: FINAL
					Sheet 2 of 3
Rotary Core Drilling Log	Easting: 393862.5	Northing: 171420.5	Ground Level: 53.80mOD	Plant Used: Comacchio 205	Logged By: RT/DN
					Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C17									
	D18	SPT(S) 10.65m, 50 (25 for 100mm/50 for 150mm)			42.85	10.95		Extremely weak grey arenaceous fossiliferous MUDSTONE with frequent fine and medium sand sized pyrite crystals and fossils.		
						(0.35)		*At 11.15m coarse gravel sized fragment of fossilised wood with two small bands of pyrite within up to to 3mm in thickness.*		
10.65 - 12.15			100 70 70		42.50	11.30		Very strong to extremely strong grey medium grained fossiliferous LIMESTONE with darker grey seams up to 3mm in width and 40mm in length and occasional medium to coarse gravel sized fossilised wood inclusions.		
	C19					(0.70)				
					41.80	12.00		Stiff grey sandy CLAY with occasional fine and medium gravel sized shells and shell fragments. Sand is fine and medium		
	D20	SPT(S) 12.15m, 50 (6,10/50 for 250mm)								
						(1.20)				
12.15 - 13.65	D21		63 0 0							
					40.60	13.20		AZCL		
						(0.45)				
					40.15	13.65		Stiff grey slightly sandy CLAY with rare fine gravel sized shells.		
	C22					(1.20)				
13.65 - 15.15			100 0 0					*Between 14.4m and 14.5m half the core is strong grey MUDSTONE with calcareous veining giving brecciated texture with coarse gravel sized fragments of mudstone cemented by a creamy white infilling up to 8mm in thickness.*		
					38.95	14.85		Very stiff grey sandy thickly laminated CLAY with occasional fine and medium gravel sized shells and shell fragments.		
						(1.20)				
	C23									
15.15 - 16.65			100 40 40							
					37.75	16.05		Extremely weak grey arenaceous MUDSTONE with frequent fine and medium gravel sized shells and shell fragments verging towards a very stiff sandy CLAY with closely spaced bedding fractures.		
	C24									
						(2.35)				
16.65 - 18.15			90 90 90							
					35.40	18.40		Very stiff slightly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
18.15 - 19.65			100 13 13							
	C25					(2.50)				
	C26									

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
3.20	113
20.90	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council	Borehole ID: AVW_BH_05
	Contract Number: JER9352	Start Date: 10/05/2022	End Date: 10/05/2022	Checked By: CW	Status: FINAL	Sheet 3 of 3
Rotary Core Drilling Log	Easting: 393862.5	Northing: 171420.5	Ground Level: 53.80mOD	Plant Used: Comacchio 205	Logged By: RT/DN	Scale: 1:50
Weather: Sunny		Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.65 - 20.90			100 0 0		32.90	20.90		End of Borehole at 20.90m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20 20.90	113 146	3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_06
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	11/05/2022	12/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393869.0	Northing: 171431.5	Ground Level: 53.60mOD	Plant Used: Comacchio 205	Logged By: IS/RT	Scale: 1:50

Weather: Rain+Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					53.40	0.20		Grass over slightly sandy clayey SILT. Frequent rootlets.		
PID 0.0ppm	ES1							Firm orangish brown mottled light grey slightly sandy CLAY. Sand is fine and medium.		
	D1									
PID 0.0ppm	ES2									
	B2					(1.65)				
~~PID 0.0ppm~~	D3									
	D4	SPT(S) 1.20m, N=7 (1,1/1,2,2,2)								
	ES3									
	D5		90							
1.20 - 2.20	U-NR		N/A							
			N/A		51.75	1.85		Stiff greyish brown thinly laminated slightly silty CLAY with occasional fine to medium gravel sized selenite crystals and fine gravel sized pockets of pale yellow silt.		
	B6							*From 1.85m to 2.00m with abundant orange ferrous staining and fine and medium gravel sized pockets of pale yellow silt.*		
		SPT(S) 2.20m, N=9 (1,1/2,2,2,3)				(1.10)				
	D7		100					*From 2.75m to 2.95m with abundant fine and medium gravel sized pockets of pale yellow silt.*		
2.20 - 3.20			N/A							
			N/A		50.65	2.95		Stiff locally very stiff greenish grey extremely closely fissured thinly to thickly laminated CLAY		
	D8									
		SPT(S) 3.20m, N=9 (1,1/1,2,2,4)								
	D9									
	D10		48					*From 3.90m to 4.65m, AZCL.*		
3.20 - 4.65			0							
			0							
		SPT(S) 4.65m, N=21 (2,2/4,5,5,7)								
	D11									
			80							
4.65 - 6.15			0							
			0					*From 5.60m with occasional medium gravel sized fossil shell fragments, becoming very stiff.*		
	D12							*From 5.85m to 6.15m, AZCL.*		
		SPT(S) 6.15m, N=26 (3,5/5,6,7,8)						*From 6.25m to 6.70m, AZCL.*		
	D13					(9.20)				
			73							
6.15 - 7.65			0							
	D14		0					*From 7.25m to 7.65m, AZCL.*		
		SPT(S) 7.65m, 50 (6,8/50 for 250mm)								
	D15									
			100							
7.65 - 9.15			0							
			0							
	C16									
		SPT(C) 9.15m, N=32 (4,5/6,9,8,9)								
			83							
9.15 - 10.65			0							
			0					*From 9.65m becoming very closely to closely fissured with rare medium gravel sized pockets of light grey silt.*		
	D17									

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
11-05-2022	08:00			
11-05-2022	17:00	12.15	3.00	
12-05-2022	08:00	12.15	3.00	8.48
12-05-2022	17:00	20.30		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.20	20.30	Air/Mist	90%-90%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.20	113
20.30	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_06
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	11/05/2022	12/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393869.0	Northing: 171431.5	Ground Level: 53.60mOD	Plant Used: Comacchio 205	Logged By: IS/RT	Scale: 1:50

Weather: Rain+Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								From 10.40m to 10.65m, AZCL.		
		SPT(C) 10.65m, 50 (4,9/50 for 230mm)								
10.65 - 12.15	C18		93 47 47					*From 11.25m to 11.95m with a thick bed of very strong light grey shelly limestone with occasional fine and medium gravel sized voids and occasional to abundant fine to coarse gravel sized fossil and wood fragments.*		
		SPT(C) 12.15m, 50 (5,11/50 for 150mm)			41.45	12.15		Stiff to very stiff dark greenish grey CLAY with occasional fine and medium gravel sized fossil shell fragments and rare medium gravel sized pockets of fine light grey sand.		
12.15 - 13.65	C19 D20		90 0 0			(1.65)		*From 13.15m to 13.80m with occasional medium gravel sized pockets of very stiff dark greenish grey clay.* *From 13.50m to 13.65m, AZCL.*		
					39.80	13.80		Very stiff greenish grey very closely to closely fissured CLAY with rare coarse sand to fine gravel sized fossil shell fragments and rare pockets of fine light grey sand.		
13.65 - 15.15	C21		100 7 7			(1.00)		*From 14.60m to 14.70m with a thin bed of very strong greenish grey siltstone, occasional calcite veins and up to coarse gravel sized inclusions.*		
					38.80	14.80		Very stiff greenish grey sandy CLAY with occasional fine and medium gravel sized fossil fragments and rare fine and medium gravel sized pockets of fine light grey sand.		
15.15 - 16.65	C22		100 0 0			(3.25)				
16.65 - 18.15	C23		100 0 0							
					35.55	18.05		Very stiff greenish grey thinly to thickly laminated locally sheared CLAY with occasional fine and medium gravel sized fossils		
18.15 - 19.65	C24		100 0 0			(2.25)		*At 18.95m with a medium gravel sized strong pale brown nodular siltstone inclusion.*		
19.65 - 20.30			100					*From 19.85m to 19.95m becoming sandy. Sand is fine and medium.*		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20 20.30	113 146	3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: AVW_BH_06
	Contract Number: JER9352	Start Date: 11/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 393869.0	Northing: 171431.5	Ground Level: 53.60mOD	Plant Used: Comacchio 205	Logged By: IS/RT
					Scale: 1:50

Weather: Rain+Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C25				33.30	20.30		End of Borehole at 20.30m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)
3.20	113
20.30	146

Casing Diameter	
Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_07
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	13/05/2022	16/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393884.5	Northing: 171413.5	Ground Level: 53.80mOD	Plant Used: Comacchio 205	Logged By: MC/DN	Scale: 1:50

Weather: Sunny+Showers | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					53.60	0.20		Grass over soft brown slightly sandy slightly silty CLAY with some fine brick gravel. Sand is fine to coarse.		
PID 0.0ppm	ES1					(0.60)		Soft grey mottled orangish brown very sandy very silty CLAY. Sand is fine to coarse.		
	B1 D2				53.00	0.80				
PID 0.0ppm	ES2							Firm grey mottled orangish brown sandy very silty CLAY with rare organic matter (<5mm)		
	B3 D4									
~~PID 0.0ppm~~	ES3	SPT(S) 1.20m, N=8 (1,1/2,2,2,2)								
	D5					(1.40)				
1.20 - 2.70	D6		100 N/A N/A							
					51.60	2.20		Firm thinly laminated purplish brown slightly sandy CLAY with frequent yellow bands of silt and abundant fine and medium sand sized selenite crystals.		
	D7									
	U8					(1.75)		*From 3.00m selenite crystals are fine to medium gravel sized.*		
2.70 - 4.30			78 N/A N/A							
					49.85	3.95		Firm grey slightly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
	C9									
	D10	SPT(S) 4.30m, N=13 (1,2/2,3,4,4)								
						(1.85)				
4.30 - 5.80	C11		90 0 0							
					48.00	5.80				
	D12	SPT(S) 5.80m, 50 (25 for 60mm/50 for 20mm)				(0.30)		Extremely strong grey MUDSTONE with white calcareous veining. Brecciated with medium and coarse mudstone fragments cemented with white veining (<5mm).		
					47.70	6.10		Stiff thickly laminated grey slightly sandy CLAY with frequent fine and medium gravel sized shells and shell fragments.		
5.80 - 7.30			93 20 13							
	C13					(1.60)				
		SPT(C) 7.30m, N=36 (3,5/7,9,10,10)			46.10	7.70		Very stiff thickly laminated grey fossiliferous slightly sandy CLAY with abundant fine and medium gravel sized shell fragments. Tending to very weak mudstone.		
7.30 - 8.80			100 0 0							
	C14					(1.30)				
		SPT(C) 8.80m, N=31 (4,5/5,7,9,10)			44.80	9.00		Stiff grey slightly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
8.80 - 10.30			100 0 0							
	D15					(1.40)				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
13-05-2022	08:00	0.00		
13-05-2022	14:15	8.80	3.00	
16-05-2022	08:00	8.80	3.00	7.52
16-05-2022	17:00	20.80		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.15	20.80	Air/Mist	90%-90%	grey

Borehole Diameter

Depth (m)	Dia (mm)
2.70	128
20.80	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVW_BH_07
Contract Number: JER9352	Start Date: 13/05/2022	End Date: 16/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 393884.5	Northing: 171413.5	Ground Level: 53.80mOD	Plant Used: Comacchio 205
Logged By: MC/DN	Scale: 1:50			Sheet 2 of 3
Weather: Sunny+Showers	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 10.30m, 50 (4,5/50 for 225mm)			43.40	10.40		Grey slightly gravelly fine and medium SAND. Gravel is fine and medium angular mudstone, shells and shell fragments.		
					43.15	10.65		Extremely weak grey argillaceous SANDSTONE with abundant fine and medium gravel sized shells and shell fragments.		
10.30 - 11.80	C16		80 0 0			(0.50)		*Between 10.85m and 11.20m medium strong.*		
					42.65	11.15		Grey clayey fine and medium SAND		
					42.35	(0.30) 11.45		Stiff grey sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
		SPT(C) 11.80m, 50 (4,7/50 for 225mm)				(0.80)				
					41.55	12.25		Grey clayey fine and medium SAND.		
11.80 - 13.30	D17		97 0 0			(0.55)				
	D18				41.00	12.80		Stiff grey sandy CLAY with frequent fine and medium gravel sized shells and shell fragments.		
					40.65	(0.35) 13.15		AZCL		
					40.50	13.30		Very stiff thickly laminated grey slightly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
13.30 - 14.80	C19		100 0 0			(1.30)				
					39.20	14.60		Very strong grey MUDSTONE.		
					39.00	14.80		Stiff to very stiff grey sandy CLAY with frequent fine and medium gravel sized shells and shell fragments.		
14.80 - 16.30	C20		100 13 0			(2.75)				
16.30 - 17.80	C21		100 0 0							
					36.25	17.55		Very stiff thickly laminated grey slightly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments.		
17.80 - 19.30	C22		100 0 0			(3.25)				
	C23									

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
2.70	128
20.80	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: AVW_BH_07
Contract Number: JER9352	Start Date: 13/05/2022	End Date: 16/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 393884.5	Northing: 171413.5	Ground Level: 53.80mOD	Plant Used: Comacchio 205
Logged By: MC/DN	Scale: 1:50			Sheet 3 of 3
Weather: Sunny+Showers	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.30 - 20.80			100 0 0		33.00	20.80		End of Borehole at 20.80m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)
2.70	128
20.80	146

Casing Diameter	
Depth (m)	Dia (mm)
3.00	175

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_08
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 2
JER9352	10/05/2022	11/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393891.0	Northing: 171429.0	Ground Level: 53.70mOD	Plant Used: Comacchio 205	Logged By: MP/RT	Scale: 1:50

Weather: Variable | Termination: Target depth achieved | SPT Hammer: GEO205 Energy Ratio: 84.64%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
PID 0.0ppm	ES1				53.45	0.25		Grass over stiff brown slightly sandy silty CLAY. Frequent rootlets.		
	D1				53.15	(0.30)		Firm to stiff mottled orangish brown and grey silty CLAY. Rare rootlets.		
PID 0.0ppm	ES2				53.00	0.55		Firm mottled orangish brown and grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine and medium limestone.		
	D2					0.70				
PID 0.0ppm	B3 ES3 U4					(1.00)		Firm light grey mottled orangish brown CLAY with rare rootlets (<2mm).		
					52.00	1.70				
1.70 - 2.70	D5		100 N/A N/A			(0.65)		Stiff extremely closely fissured greyish brown locally mottled orangish brown CLAY with occasional fine and medium gravel sized pockets of coarse sand sized decomposed selenite crystals.		
	D6				51.35	2.35		*From 2.10m becoming extremely closely to very closely fissured clay.* Stiff dark greenish grey extremely closely to very closely fissured CLAY.		
	D7	SPT(S) 2.70m, N=10 (2,2/2,2,3,3)						*From 2.35m to 2.70m localised orangish brown ferrous staining and occasional medium to coarse gravel sized selenite crystals.* *From 2.70m becoming very stiff very closely fissured thinly to thickly laminated with rare gravel sized shell fragments.*		
3.00 - 4.50	C8		100 0 0							
4.50 - 6.00	D9	SPT(S) 4.50m, N=12 (2,2/2,3,3,4)	83 0 0			(6.05)				
	C10									
6.00 - 7.50	D11 C12	SPT(S) 6.00m, N=37 (2,2/3,9,12,13)	97 0 0					*From 6.10m to 6.70m becoming dark grey, foliated.* *From 6.70m with occasional to frequent gravel sized shell and fossil fragments.*		
7.50 - 9.00	D13 C14	SPT(S) 7.50m, N=32 (4,5/6,8,9,9)	100 7 7		45.30	8.40		*From 8.30m to 8.40m with a thin bed of strong grey shelly sandy limestone with occasional fine and medium gravel sized fossil and shell fragments, rare medium gravel sized pyritic inclusions.* Very stiff greenish grey extremely closely to very closely fissured slightly sandy CLAY with occasional to frequent fine to medium gravel sized shell fragments and rare pockets of light grey fine sand.		
9.00 - 10.50	D15 C16	SPT(S) 9.00m, N=25 (3,4/3,5,8,9)	100 0 0			(1.65)		*From 9.20m to 9.40m with occasional medium and coarse gravel sized fossil fragments.*		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
10-05-2022	08:00	0.00		
10-05-2022	17:00	6.00	3.00	
11-05-2022	08:00	6.00	3.00	
11-05-2022	17:00	20.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	12.00	PLAIN	50
Pipe 1	12.00	15.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.00	20.00	Air/Mist	100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)
20.00	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			AVW_BH_08
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 2
JER9352	10/05/2022	11/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 393891.0	Northing: 171429.0	Ground Level: 53.70mOD	Plant Used: Comacchio 205	Logged By: MP/RT	Scale: 1:50

Weather: Variable | Termination: Target depth achieved | SPT Hammer: GEO205 Energy Ratio: 84.64%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					43.65	10.05		Very stiff greenish grey very closely to closely fissured CLAY with occasional fine and medium gravel sized fossils.		
	D17	SPT(S) 10.50m, N=34 (3,4/5,7,9,13)				(0.85)				
10.50 - 12.00	C18		93 33 33		42.80	10.90		Very stiff greenish grey to dark grey very sandy CLAY with frequent medium to coarse gravel sized pockets of clay and occasional medium gravel sized pockets of fine and medium light grey sand. Occasional fine to coarse gravel sized fossil fragments. *From 11.40m to 11.90m with a medium bed of strong grey to dark grey shelly LIMESTONE and occasional coarse gravel sized pockets of dark grey fine and medium sand.*		
	C19									
	D20	SPT(S) 12.00m, 50 (4,7/50 for 270mm)				(3.05)				
12.00 - 13.50			90 0 0							
	C21									
	D22	SPT(S) 13.50m, 50 (4,8/50 for 230mm)			39.75	13.95		Very stiff greenish grey very closely fissured CLAY with occasional medium gravel sized pockets of light grey fine and medium sand and occasional fine and medium gravel sized fossil shell fragments. *From 14.50m becoming thickly locally thinly laminated.*		
13.50 - 15.00	C23		100 0 0			(1.05)				
					38.70	15.00		Very stiff greenish grey very closely fissured sandy locally very sandy CLAY with frequent medium to coarse gravel sized fossils and occasional medium gravel sized pockets of fine and medium light grey sand. *At 15.35m with coarse gravel sized fossilised wood fragment.*		
15.00 - 16.50			93 0 0							
	C24					(3.35)				
16.50 - 18.00			100 0 0					*At 16.90m with a coarse gravel sized inclusion of nodular pyrite. From 17.0m with closely to medium spaced partings of fine greenish grey sand.*		
	C25									
	C26				35.35	18.35		Very stiff greenish grey very closely to closely fissured thinly to thickly laminated CLAY with rare medium gravel sized fossil fragments.		
18.00 - 19.50			100 0 0					*From 19.90m to 20.00m with a thin bed of strong light greenish grey siltstone and occasional calcite veins and inclusions.*		
						(1.65)				
19.50 - 20.00	C27		100 20 20							
					33.70	20.00		End of Borehole at 20.00m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	12.00	PLAIN	50
Pipe 1	12.00	15.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)
20.00	146

Casing Diameter

Depth (m)	Dia (mm)
3.00	178

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: BH001
Contract Number: JER9352	Start Date: 12/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 390950.5	Northing: 170609.5	Ground Level: 52.35mOD	Plant Used: Comacchio 450
Logged By: IS/DN	Scale: 1:50	Sheet 1 of 3		
Weather: Sunny	Termination: Target depth achieved.	SPT Hammer: AR3408 Energy Ratio: 63.28%		

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
PID 0.0ppm	ES1				51.95	(0.40) 0.40		Grass over brown slightly sandy clayey SILT with a low subangular limestone cobble content.		
0.50 - 2.00	D1		60 3 0	Non intact		(1.95)		Medium strong light grey LIMESTONE, heavily fractured, recovered as non intact fine to coarse gravel.		
2.00 - 2.50	D2		100 10 0							
	D3	SPT(S) 2.50m, N=18 (2,3/3,4,5,6)			50.00	2.35		Very stiff grey CLAY		
2.50 - 4.00	D4		83 33 0			(1.15)				
	C5				48.85	3.50		Extremely weak thickly laminated grey MUDSTONE with prominent very closely to closely spaced lenses of lighter grey siltstone. Medium spaced occasionally closely spaced smooth planar tight bedding.		
4.00 - 5.50	D6	SPT(S) 4.00m, 50 (4,4/50 for 285mm)	100 100 100							
	C7									
5.50 - 7.00	D8	SPT(S) 5.50m, 50 (5,6/50 for 275mm)	100 100 100	120 300 430		(4.30)				
	C9									
7.00 - 8.50			100 100 100		44.55	7.80		Extremely to very weak green grey slightly fissured MUDSTONE with occasional lenses of siltstone (<2mm).		
	C10									
8.50 - 10.00			100 100 100			(2.20)				
	C11				42.35	10.00				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
12-05-2022	07:00	0.00		
12-05-2022	17:30	20.50	0.00	
13-05-2022	08:00	20.50	0.00	
13-05-2022	17:00	20.50		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	5.00	PLAIN	50
Pipe 1	5.00	15.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
0.50	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			BH001
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	12/05/2022	12/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 390950.5	Northing: 170609.5	Ground Level: 52.35mOD	Plant Used: Comacchio 450	Logged By: IS/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 10.35	D12		29	Non intact	42.00	(0.35)		Strong blue grey LIMESTONE. Heavily fractured, recovered as fine to coarse gravel.		
10.35 - 11.50	C13		91 91 83			10.35		Extremely weak green grey arenaceous MUDSTONE with closely spaced thinly laminated (2mm) bands and lenses of siltstone. Closely to medium spaced smooth planar tight clean bedding fractures along siltstone bands.		
11.50 - 13.00	C14		100 100 100	120 200 250		(2.85)				
13.00 - 13.45			111 22 0		39.15	13.20		Interbedded MUDSTONE and LIMESTONE with closely spaced beds. Mudstone is weak thickly laminated green grey with very closely spaced thin bands and lenses of lighter grey siltstone. Limestone is strong to very strong bluish grey medium grained fossiliferous, heavily fractured and generally recovered as fine to coarse gravel.		
13.45 - 14.50			48 19 19							
14.50 - 15.05			100 80 58	20 300 490		(2.80)				
15.05 - 15.65	C15		100 67 58							
15.65 - 16.00			100							
16.00 - 17.50	C16		100 64 40		36.35	16.00		Strong to very strong with weak bands creamish grey medium grained LIMESTONE with frequent gravel sized pitting and gravel sized inclusions of fossilised black organic matter. Closely spaced rough planar suspected bedding, wide filled with sandy gravel.		
17.50 - 19.00			100 55 0	80 100 200 Single joint		(2.95)		*From 17.95m to 18.40m near vertical joint rough undulating with brown staining. Medium gravel sized calcite crystals on joint surface.*		
19.00 - 20.50	C17		100 100 N/A	60 200 280	33.40	18.95 (1.55)		Medium strong to very strong creamish grey medium grained fossiliferous LIMESTONE with closely spaced to medium smooth planar very tight clean bedding.		
								At 19.80m bedding fracture open and infilled with grey sandy clay.		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	5.00	PLAIN	50
Pipe 1	5.00	15.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: BH001
	Contract Number: JER9352	Start Date: 12/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 390950.5	Northing: 170609.5	Ground Level: 52.35mOD	Plant Used: Comacchio 450	Logged By: IS/DN
					Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					31.85	20.50		End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	5.00	PLAIN	50
Pipe 1	5.00	15.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			BH002
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 2
JER9352	10/05/2022	11/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391221.5	Northing: 170665.0	Ground Level: 48.50mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN	Scale: 1:50
Weather: Sunny	Termination: Target depth achieved.	SPT Hammer: AR3407 Energy Ratio: 65.44%			

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.40)		Grass over brown sandy clayey SILT with frequent rootlets (<2mm).		
PID 0.0ppm	ES1				48.10	0.40		Soft to firm light brown locally mottled orangish brown slightly sandy silty CLAY.		
	D1					(0.60)				
PID 0.0ppm	ES2									
	D2				47.50	1.00		Firm light grey CLAY with frequent lenses (up to 1x10mm) of orangish brown sand.		
PID 0.0ppm	B3 ES3									
	U4									
						(1.70)				
1.70 - 2.70	D5		100 N/A N/A							
		SPT(S) 2.70m, N=120 (8,8/50,,,70)			45.80	2.70		Strong grey medium grained fossiliferous LIMESTONE with very closely spaced smooth planar bedding fractured, brown stained.		
								From 3.10m to 3.20m becoming more weathered brown.		
2.70 - 4.00			100 81 81	140 200 340		(1.00)				
	C6				44.80	3.70		*At 3.65m, thin band of brown clay.*		
				60 300 400				Very strong creamish grey medium grained LIMESTONE with closely spaced yellow brown marl seams (5mm) and fine and medium grained sized inclusions. Very closely to widely spaced.		
	C7					(1.00)				
4.00 - 5.50			100 100 77		43.80	4.70		Very strong grey medium grained LIMESTONE with closely spaced marl. Seams of darker grey material. Closely to widely spaced fractures along seams.		
				120 200 480						
	C8					(1.30)				
5.50 - 6.00			100 40 0	100 100 180				*Between 5.50m and 6.00m heavily fractured, fractures infilled with sandy gravel and heavily brown stained.*		
					42.50	6.00		Stiff fissured grey slightly sandy CLAY with minor brown staining.		
						(0.70)				
6.00 - 7.00	C9		100 30 30		41.80	6.70		Extremely weak greenish grey MUDSTONE with extremely closely to very closely spaced thin bands (<5mm) and lenses of slightly stronger lighter grey siltstone. Medium spaced smooth planar bedding along siltstone seams		
		SPT(S) 7.00m, N=50 (8,9/13,17,16 ,4)								
7.00 - 8.50	C10		100 100 100							
				120 200 320		(5.25)				
	C11									
8.50 - 10.00			100 100 100							

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
10-05-2022	08:00			
10-05-2022	17:00	14.50	2.00	7.00
11-05-2022	08:00	14.50	2.00	4.70
11-05-2022	16:00	20.00		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	11.50		2%-2%	grey

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: BH002
Contract Number: JER9352	Start Date: 10/05/2022	End Date: 11/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 391221.5	Northing: 170665.0	Ground Level: 48.50mOD	Plant Used: Comacchio GEO 300
Logged By: IS/DN	Scale: 1:50	Sheet 2 of 2		
Weather: Sunny	Termination: Target depth achieved.	SPT Hammer: AR3407 Energy Ratio: 65.44%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 11.50	C12		100 100 100							
11.50 - 13.00	C13		100 30 30		36.55	11.95 (1.15)		Very stiff thinly laminated grey CLAY		
13.00 - 14.50	C14		100 87 87	None	35.40	13.10		Extremely weak green grey MUDSTONE with very closely spaced thin (<5mm) bands and lenses of slightly stronger lighter grey siltstone.		
14.50 - 16.00	C15		100 100 100	120 200 250		(3.75)				
16.00 - 16.90			100 89 83	None						
16.90 - 17.50	C16		100 37 25		31.65	16.85		Interbedded MUDSTONE and LIMESTONE. Mudstone is extremely weak green grey with very closely spaced bands (<5mm) and lenses of slightly stronger lighter grey siltstone. Limestone is very strong light grey fine grained with occasional fine and medium gravel sized shell fragments. Closely spaced rough planar bedding.		
17.50 - 19.00	C17		100 100 57	60 180 280		(1.80)				
19.00 - 19.10			100	40 50 50	29.85	18.65		Very strong light creamish brown medium grained fossiliferous oolitic LIMESTONE with closely spaced smooth planar bedding. *From 19.10m to 19.25m very closely spaced bands (<5mm) of grey clay.*		
19.10 - 20.00	C18		100 100 83	200 200 220		(1.35)		*From 19..45m to 19.60m becoming interbedded with grey clay with extremely closely spaced limestone .*		
					28.50	20.00		End of Borehole at 20.00m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
11.50	20.00		100%-100%	grey

Borehole Diameter	
Depth (m)	Dia (mm)

Casing Diameter	
Depth (m)	Dia (mm)

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			BH003
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	05/05/2022	06/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391344.0	Northing: 170655.0	Ground Level: 45.55mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: N/R, Energy Ratio: 82.34%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Strata Description
						(0.35)	Grass over brown slightly clayey sandy SILT. Frequent rootlets.
PID 0.0ppm	ES1				45.20	0.35	
	D1						Firm light orangish brown silty CLAY. Rare rootlets.
PID 0.0ppm	ES2					(0.85)	
	B2						
PID 0.0ppm	D3						
	ES3	SPT(S) 1.20m, N=9 (2,2/2,2,2,3)			44.35	1.20	
	D4						Orangish brown SAND & GRAVEL. Sand is fine to coarse, gravel is fine to coarse angular to subrounded flint, quartzite, sandstone and mudstone.
1.20 - 2.20			100 N/A N/A				
	B5					(1.90)	
	U6						
2.70 - 3.20			100 N/A N/A		42.45	3.10	
							Strong dark bluish grey fossilferous LIMESTONE.
	D7				42.25	3.30	
3.20 - 4.00		SPT(S) 3.60m, 50 (3,5/50 for 220mm)	100 11 0				Medium strong cream fossiliferous heavily fractured LIMESTONE, recovered as fine to coarse gravel.
	D8					(1.05)	
4.00 - 4.60			100 50 0				
	D9				41.20	4.35	
							Very strong grey medium grained LIMESTONE. Closely spaced moderately rough, planar bedding fractures with yellow staining along surfaces.
4.60 - 5.50			80 70 43			(1.45)	
	C10				39.75	5.80	
5.50 - 7.00			100 6 0				Very stiff greenish grey slightly sandy CLAY with brown discolouration throughout. Sand is fine.
	C11					(1.80)	
7.00 - 8.50			100 60 60		37.95	7.60	
							Weak greenish grey MUDSTONE with very closely spaced lenses of siltstone <2mm wide.
	C12			None		(1.70)	
	D13	SPT(S) 8.60m, 50 (9,15/50 for 140mm)					
8.50 - 10.00			100 100 100		36.25	9.30	
							Very stiff greenish grey slightly sandy CLAY. Sand is fine.
	C14					(0.55)	
					35.70	9.85	
							Weak greenish grey arenaceous MUDSTONE with very

Groundwater: Water Strike; Backfill/ Installation

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
05-05-2022	13:00	0.00		
05-05-2022	17:30	8.89	3.00	
06-05-2022	07:30	8.89	3.00	
06-05-2022	13:40	20.48		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	4.00	PLAIN	50
Pipe 1	4.00	7.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	5.50		100%-100%	brown
5.50	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.60			20	1.60	Very Slow

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			BH003
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	05/05/2022	06/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 391344.0	Northing: 170655.0	Ground Level: 45.55mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN	Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: N/R, Energy Ratio: 82.34%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
								closely to extremely closely spaced thin lenses of siltstone (<2mm).		
10.00 - 11.50	D15	SPT(S) 10.10m, 50 (9,14/50 for 185mm)	100 100 90	None		(2.35)				
	C16				33.35	12.20		Weak greenish grey MUDSTONE with closely spaced lenses of siltstone (2mm), tending to very stiff clay.		
11.50 - 13.50			100 100 100							
	C17			None		(1.25)				
					32.10	13.45		Very weak greenish grey arenaceous MUDSTONE with very closely spaced lenses of siltstone (2mm) and medium spaced smooth bedding.		
13.00 - 14.50			100 100 100							
	C18									
14.50 - 16.00			100 100 100	200 350 450		(2.80)				
	C19									
					29.30	16.25		Very weak thinly to medium interbedded MUDSTONE and LIMESTONE with closely spaced bands and lenses of siltstone (5mm). Limestone is medium strong to strong bluish grey with fossil fragments and smooth planar moderately wide bedding.		
16.00 - 17.50			93 87 73							
	C20			60 150 250		(1.85)				
17.50 - 19.00			100 100 83							
	C21				27.45	18.10		Very thinly to medium interbedded LIMESTONE and MUDSTONE. Limestone is very strong creamish grey speckled brown fine to medium grained oolitic with fossil fragments. Mudstone is extremely weak to weak greenish grey.		
				10 250 600		(2.40)				
19.00 - 20.50			100 100 77							
	C22									

Groundwater

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	4.00	PLAIN	50
Pipe 1	4.00	7.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.60			20	1.60	Very Slow

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: BH003
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 06/05/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 391344.0	Northing: 170655.0	Ground Level: 45.55mOD	Plant Used: Comacchio GEO 300	Logged By: IS/DN
					Scale: 1:50

Weather: Sunny | Termination: Target depth achieved. | SPT Hammer: N/R, Energy Ratio: 82.34%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					25.05	20.50		End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	4.00	PLAIN	50
Pipe 1	4.00	7.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.60			20	1.60	Very Slow

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Borehole ID: BH004
Contract Number: JER9352	Start Date: 13/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 3
Rotary Core Drilling Log	Easting: 392198.5	Northing: 170905.5	Ground Level: 51.60mOD	Plant Used: Comacchio 205	Logged By: LD/DN	Scale: 1:50
Weather: Rain+Cloudy	Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.40)		Grass over soft brown very sandy silty CLAY with frequent rootlets (2mm).		
PID 0.3ppm	ES1				51.20	0.40		Soft to firm grey and orange mottled very sandy very silty CLAY.		
	B1 D2									
PID 0.0ppm	ES2					(0.80)		*From 0.80m: Becoming very sandy.*		
	B3 D4									
PID 0.0ppm	B5 ES3 D6	SPT(C) 1.20m, N=12 (2,3/3,3,3,3)			50.40	1.20		Loose mottled light grey brown and orange brown very silty very sandy CLAY. Sand is fine and medium.		
	D7					(0.80)		*From 1.75m increased proportion of silt.*		
	D8 U-NR				49.60	2.00		Very stiff multicoloured with dark brown orange brown grey slightly sandy slightly gravelly CLAY with occasional rootlets (<2mm & 30mm length). Sand is fine and medium. Gravel is fine to medium subangular to subrounded quartzite, mudstone, sandstone, flint and calcareous material.		
					49.15	(0.45)				
	B9					2.45		Very soft mottled predominantly grey with light brown very sandy SILT. Sand is fine.		
	D10					(0.80)				
					48.35	3.25		Firm grey clayey SILT frequent fine to medium gravel sized shells and shell fragments. Sand is fine and medium.		
	D11	SPT(C) 3.65m, N=16 (2,2/3,4,4,5)						*From 3.70m becoming stiff.*		
4.10 - 4.60	D12	SPT(C) 4.60m, N=17 (2,3/4,4,4,5)	100 0 0			(2.80)				
4.60 - 6.10	C13 D14		100 0 0							
		SPT(C) 6.10m, 22 (2,2/22 for 255mm)			45.55	6.05		Extremely weak grey thinly laminated arenaceous silty MUDSTONE including frequent fine to medium gravel sized shell fragments.		
6.10 - 7.60	D15 C16		100 87 87	One planar bedding fracture.		(2.05)				
		SPT(C) 7.60m, 28 (4,6/28 for 250mm)			43.50	8.10		Stiff locally very stiff thinly laminated silty CLAY with frequent fine and medium gravel sized shells and shell fragments.		
7.60 - 9.10	C17 D18		100 0 0			(3.10)				
9.10 - 10.60	C19 D20	SPT(C) 9.10m, N=20 (2,3/3,5,5,7)	100 0 0							

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
19-04-2022	08:00			
19-04-2022	17:30	4.60	4.00	
20-04-2022	08:00	4.60	4.00	
20-04-2022	17:00	20.50	4.00	

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
2.65	20.50	AIR MIST	90%	Grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater encountered within the inspection pit

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			BH004
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	13/04/2022	21/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392198.5	Northing: 170905.5	Ground Level: 51.60mOD	Plant Used: Comacchio 205	Logged By: LD/DN	Scale: 1:50

Weather: Rain+Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
		SPT(C) 10.60m, N=19 (2,3/4,4,5,6)			40.40	11.20		Extremely weak grey thinly laminated arenaceous silty MUDSTONE with frequent fine and medium gravel sized shell fragments and shells.		
10.60 - 12.10	C21 D22		100 60 60							
		SPT(C) 12.10m, N=50 (3,6/9,16,19, 6)		No fractures .		(2.15)				
12.10 - 13.60	C23		100 100 97		38.25	13.35		Weak grey thinly laminated fossiliferous silty MUDSTONE. *From 13.5m to 14.05m rough planar bedding fractures with heavy concentration of shells along bedding plane.*		
		SPT(C) 13.60m, N=50 (4,8/12,18,14 ,6)		Two fractures		(0.85)		*From 14.0m medium sized gravel inclusions of subrounded siltstone.*		
13.60 - 15.10	C24		100 100 90	40 180 230	37.40	14.20		Extremely weak grey thinly laminated silty MUDSTONE with occasional firm gravel sized shells and shell fragments. Generally massive texture between laminations with closely spaced closed planar bedding fractures. *From 14.45m band of petrified wood preserved in half the core approximately 10mm in thickness. Gravel observed on outer edge and brown in colour, centre is black.*		
15.10 - 16.60	C25		100 100 100	70 200 400	36.25	15.35		Extremely grey thickly laminated fossiliferous arenaceous MUDSTONE. Shells are frequent and fine and medium gravel sized. Closely spaced closed planar bedding fractures. *At 16.70m band of shells and increased silt/sand content.*		
16.60 - 18.10	C26		100 100 100	140 400 600	34.75	16.85		Weak grey massive arenaceous MUDSTONE with infrequent fine gravel sized shell fragments with medium spaced closed smooth planar bedding fractures.		
18.10 - 19.60	C27		77 77 77			(3.45)		*At 19.50m becoming dark grey.*		
	C28			80 200 250						

Start & End of Shift Observations					Installation				
Date	Time	Depth (m)	Casing (m)	Water (m)	Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information					Borehole Diameter		Casing Diameter	
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater encountered within the inspection pit

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			BH004
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 3 of 3
JER9352	13/04/2022	21/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392198.5	Northing: 170905.5	Ground Level: 51.60mOD	Plant Used: Comacchio 205	Logged By: LD/DN	Scale: 1:50

Weather: Rain+Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.60 - 20.50			139 139 139		31.30 31.10	20.30 20.50		Medium strong grey fossiliferous arenaceous silty MUDSTONE. Shells are fine and medium gravel sized.. End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations					Installation				
Date	Time	Depth (m)	Casing (m)	Water (m)	Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information					Borehole Diameter		Casing Diameter	
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater encountered within the inspection pit

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			PWB_BH_01
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	22/04/2022	27/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392886.0	Northing: 171391.5	Ground Level: 61.40mOD	Plant Used: Comacchio GEO 300	Logged By: SD/DN	Scale: 1:50

Weather: Sunny, occasional cloud | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					61.25	0.15		Brown mottled light grey sandy SILT. Sand is fine and medium.		
PID 0.0ppm	ES1							Grey mottled light brown very silty CLAY.		
	B1 D2					(1.05)				
PID 0.0ppm	ES2									
	B3 D4									
PID 0.0ppm	ES3				60.20	1.20		Soft light brown grey mottled with orange brown slightly sandy CLAY. Sand is fine and medium.		
	U5									
						(1.10)				
1.70 - 2.70			95 N/A N/A							
	C6 D7	SPT(S) 2.70m, N=17 (2,2/3,4,5,5)			59.10	2.30		Firm brown silty CLAY.		
	D8					(1.15)				
	U9									
					57.95	3.45		Stiff grey thickly laminated CLAY with occasional fine gravel sized shells and rare fine and medium gravel sized selenite crystals.		
3.70 - 4.00			131							
	C10 D11					(2.25)				
4.00 - 5.50	D12	SPT(S) 4.70m, N=22 (2,3/4,5,6,7)	100 N/A N/A							
	D13 C14									
		SPT(S) 5.50m, N=29 (2,3/5,7,8,9)								
	D15				55.70	5.70		Extremely weak grey thinly laminated MUDSTONE with frequent fine and medium gravel sized shells and shell fragments. Shells include bivalves and ammonites.		
5.50 - 7.00	C16		100 57 57	One fracture closed bedding		(0.85)				
	D17				54.85	6.55		Very stiff locally stiff grey very thinly bedded CLAY with abundant fine to coarse gravel sized shells and shell fragments.		
		SPT(S) 7.00m, N=26 (3,3/4,6,7,9)								
	D18									
	D19		97 N/A N/A							
7.00 - 8.50	C20					(3.00)		*Between 7.85m bgl and 8.40m bgl very closely spaced fossiliferous (shell rich) bands (<5mm in thickness). Shells include bivalves and ammonites.*		
				N/A				*From 8.50m bgl shells are no longer abundant but frequent.*		
		SPT(S) 8.50m, N=19 (3,3/3,4,6,6)								
	D21									
	D22		73 N/A N/A							
8.50 - 10.00					51.85	9.55		AZCL		
						(0.45)				
					51.40	10.00				

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
22-04-2022	13:00			
22-04-2022	14:00	1.20	0.00	
25-04-2022	08:00	1.20	0.00	
25-04-2022	17:00	16.45	3.00	
26-04-2022	08:00	16.45	3.00	2.00
26-04-2022	17:00	17.50	3.00	6.00
27-04-2022	08:00	17.50	3.00	6.60

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	5.00	PLAIN	50
Pipe 1	5.00	9.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	3.20		100%-100%	brown
4.00	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			PWB_BH_01
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	22/04/2022	27/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392886.0	Northing: 171391.5	Ground Level: 61.40mOD	Plant Used: Comacchio GEO 300	Logged By: SD/DN	Scale: 1:50

Weather: Sunny, occasional cloud | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
10.00 - 10.75	D23	SPT(S) 10.00m, 50 (5,9/50 for 145mm)	100 27 N/A	Drilling Induced.				Strong grey fossiliferous medium grained LIMESTONE. Heavily fractured.		
10.75 - 11.00	C24		100			(1.50)				
11.00 - 11.50			60 N/A N/A							
11.50 - 13.00	D25 B26	SPT(S) 11.50m, N=31 (4,3/6,6,8,11)	80 N/A N/A		49.90	11.50 (1.60)		Grey very clayey very silty fine SAND with frequent fine and medium gravel sized shells and shell fragments.		
13.00 - 14.50	C27	SPT(S) 13.00m, N=33 (3,5/7,8,9,9)	100 N/A N/A		48.30 47.50	13.10 (0.80) 13.90 (0.80)		Very stiff grey clayey slightly sandy thickly bedded SILT with occasional fine and medium gravel sized shells and shell fragments. Very stiff grey slightly sandy CLAY with occasional fine and medium gravel sized shells and shell fragments and frequent fine and medium sand sized pyrite crystals. Sand is fine.		
14.50 - 16.00	D28 C29	SPT(S) 14.50m, N=37 (3,6/6,9,10,12)	100 47 47		46.70	14.70 (2.10)		Very stiff grey clayey slightly sandy SILT with occasional fine and medium gravel sized shell fragments. Sand is fine.		
16.00 - 17.50	D30 C31	SPT(S) 16.00m, N=42 (5,6/8,10,11,13)	100 N/A N/A	None.	44.60	16.80 (0.70)		Extremely weak grey arenaceous SILTSTONE with occasional fine and medium gravel sized shells and shell fragments.		
17.50 - 19.00	C32		100 N/A N/A		43.90	17.50 (3.00)		Very stiff grey silty slightly sandy thickly laminated CLAY with occasional fine and medium gravel sized shell fragments. *From 18.25m bgl becoming less silty/ slightly silty.*		
19.00 - 20.50	D33 C34	SPT(S) 19.00m, N=33 (5,6/7,8,8,10)	87 N/A N/A							

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
27-04-2022	15:30			

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	5.00	PLAIN	50
Pipe 1	5.00	9.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: PWB_BH_01
Contract Number: JER9352	Start Date: 22/04/2022	End Date: 27/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 392886.0	Northing: 171391.5	Ground Level: 61.40mOD	Plant Used: Comacchio GEO 300
Logged By: SD/DN	Scale: 1:50			Sheet 3 of 3
Weather: Sunny, occasional cloud	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					40.90	20.50		End of Borehole at 20.50m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	5.00	PLAIN	50
Pipe 1	5.00	9.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter	
Depth (m)	Dia (mm)

Casing Diameter	
Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: PWB_BH_02
Contract Number: JER9352	Start Date: 20/04/2022	End Date: 22/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 392918.0	Northing: 171383.0	Ground Level: 61.20mOD	Plant Used: Comacchio GEO 300
Logged By: SD/DN	Scale: 1:50			Sheet 1 of 2
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
PID 0.0ppm	ES1				60.95	0.25		Brown slightly sandy SILT with some roots and rootlets (<3mm). Sand is fine and medium.		
	B1 D2							Soft brown and light grey very silty CLAY.		
PID 0.0ppm	ES2									
	B3 D4									
PID 0.0ppm	ES3 U5					(2.95)				
1.70 - 2.70	D6 C7	SPT(S) 2.70m, N=19 (3,3/4,4,5,6)	10 N/A N/A							
2.70 - 3.70	D8 U9		10 N/A N/A		58.00	3.20		Stiff thinly laminated brown grey slightly sandy CLAY with frequent orange brown staining along sandy lenses (<2mm) and occasional band (<2mm) of yellow silt.		
					57.75	3.45		Firm thinly laminated grey slightly sandy CLAY with rare, selenite crystals (20mm x 15mm x 30mm)		
	D10 C11					(1.75)				
4.70 - 5.50	D12 D13	SPT(S) 4.70m, N=20 (2,2/4,4,6,6)	80 30 30		56.00	5.20		Extremely weak thickly laminated grey MUDSTONE tending to very stiff CLAY with frequent fine and medium gravel sized shell, fragments,		
5.50 - 7.00	C14 D15		93 93 93			(2.65)				
7.00 - 8.50	D16 D17 C18	SPT(S) 7.00m, N=27 (3,4/5,6,7,9)	90 90 97	100 750 900	53.35	7.85		Extremely weak to weak thickly laminated grey MUDSTONE with frequent fine to coarse gravel sized shell fragments and occasional bands of weak fossiliferous mudstone, (<10mm).		
8.50 - 10.00	D19 D20 C21	SPT(S) 8.50m, N=23 (3,4/5,4,7,7)	100 N/A N/A			(2.85)				

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
20-04-2022	08:00			
20-04-2022	17:00	11.50	10.00	
21-04-2022	08:00	11.50	10.00	
21-04-2022	17:00	20.00	11.00	
22-04-2022	07:20	20.00	11.00	5.40
22-04-2022	13:00	0.00		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	3.20		100%-100%	brown
4.70	20.00		100%-100%	grey

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: PWB_BH_02
Contract Number: JER9352	Start Date: 20/04/2022	End Date: 22/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 392918.0	Northing: 171383.0	Ground Level: 61.20mOD	Plant Used: Comacchio GEO 300
Logged By: SD/DN	Scale: 1:50			Sheet 2 of 2
Weather: Sunny	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D22	SPT(S) 10.00m, N=37 (4,5/8,10,9,10)	100 33 90		50.50	10.70		Grey silty fine SAND.		
10.00 - 11.50	B23					(0.80)				
	D24 D25	SPT(S) 11.50m, N=35 (3,5/7,7,8,13)	53 7 N/A		49.70	11.50		Soft grey slightly sandy silty CLAY with occasional fine and medium gravel sized shell and shell fragments.		
11.50 - 13.00					49.10 49.00	(0.60) 12.10 12.20		Medium strong grey fossiliferous argillaceous LIMESTONE. Shells are fine and medium gravel sized cream. AZCL		
					48.20	(0.80) 13.00		Extremely weak thinly laminated grey slightly sandy argillaceous SILTSTONE tending to very stiff slightly sandy very clayey SILT with frequent fine and medium gravel sized shells and shell fragments.		
13.00 - 14.50	C26 D27		103 103 N/A		47.50	(0.70) 13.70		Extremely weak thinly laminated grey slightly sandy arenaceous MUDSTONE with frequent fine and medium gravel shell fragments.		
14.50 - 16.00	D28 C29		100 100 100							
16.00 - 17.50	D30 C31	SPT(S) 16.00m, N=40 (3,6/8,9,11,12)	100 100 100	350 900 1050		(6.30)				
17.50 - 19.00	D32 D33 C34 D35	SPT(S) 17.50m, 50 (9,9/50 for 230mm)	100 100 100							
19.00 - 20.00	D36 C37 D38	SPT(S) 19.00m, 50 (5,8/50 for 295mm)	100 100 100		41.20	20.00		End of Borehole at 20.00m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council	Borehole ID: PWB_BH_03
	Contract Number: JER9352	Start Date: 27/04/2022	End Date: 29/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 3
Rotary Core Drilling Log	Easting: 392913.0	Northing: 171460.5	Ground Level: 57.10mOD	Plant Used: Comacchio GEO 300	Logged By: SD/DN	Scale: 1:50
Weather: Overcast		Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					56.95	0.15		Soft brown sandy SILT. Sand is fine to medium.		
PID 0.0ppm	ES1							Soft to firm brown mottled light grey silty CLAY.		
	B1 D2									
PID 0.0ppm	ES2					(1.30)				
	B3 D4									
PID 0.0ppm	ES3 U5				55.65	1.45		Brown mottled orange brown and grey slightly gravelly very clayey fine and medium SAND. Gravel is fine and medium subangular sandstone.		
	D6					(0.55)				
1.70 - 2.70	D7		100 N/A N/A		55.10	2.00		Firm light grey mottled orange brown and brown slightly sandy CLAY.		
						(1.20)		*From 2.60m becoming increasingly sandy.*		
	D8	SPT(S) 2.70m, N=9 (1,1/1,2,2,4)								
	U9 C10				53.90	3.20		Stiff dark brown slightly sandy CLAY with frequent medium gravel sized silty inclusions and infrequent root fragments (<3mm).		
						(0.50)		*At 3.30m and 3.50m bands of shellls and shell fragments.*		
					53.40	3.70		*From 3.50m becoming dark purplish brown.*		
3.70 - 4.70			100 N/A N/A			(1.20)		Stiff locally very stiff grey slightly sandy CLAY with occasional fine and medium gravel sized shell fragments.		
	D11	SPT(S) 4.70m, N=14 (1,3/4,3,3,4)	100		52.20	4.90				
4.70 - 5.50	C12		0 0		52.05	5.05		Weak grey thickly laminated arenaceous MUDSTONE with frequent fine and medium gravel sized shells and shell fragments.		
						(0.60)		Stiff locally very stiff grey slightly sandy CLAY with occasional fine and medium gravel sized shell fragments.		
			60		51.45	5.65		Soft grey very sandy CLAY.		
5.50 - 6.25	D13		33 0		51.25	5.85		AZCL		
					51.10	6.00		Very strong grey highly fossiliferous argillaceous LIMESTONE with closely spaced rough undulating tight bedding fractures.		
	C14		77	80 170		(0.75)				
6.25 - 7.00			63 52	260						
					50.35	6.75		Grey very clayey silty fine SAND.		
					50.25	6.85		AZCL		
		SPT(S) 7.00m, N=25 (1,4/5,6,7,7)			50.10	7.00		Stiff grey sandy CLAY with frequent fine to coarse gravel sized shells and shell fragments.		
	D15					(0.80)				
7.00 - 8.50	C16		93 9 9		49.30	7.80		Grey silty fine and medium SAND.		
	B17					(0.55)				
					48.75	8.35		Very strong grey fossiliferous argillaceous LIMESTONE with closely spaced smooth planar, partly open to open infilled joints 15° and filled with calcareous siltstone.		
8.50 - 8.90	C18		85 85 62	One fracture		(0.55)				
					48.20	8.90		Stiff locally very stiff grey sandy CLAY with frequent fine and medium sized shells and shell fragments.		
			100			(0.70)				
8.90 - 10.00			0 0		47.50	9.60		Stiff locally very stiff grey slightly sandy thickly laminated CLAY with occasional fine and medium gravel sized shells		
	C19					(0.80)				

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
27-04-2022	15:30			
27-04-2022	17:00	5.20	3.00	
28-04-2022	08:05	5.20	3.00	4.80
28-04-2022	17:00	20.50	3.00	5.70
29-04-2022	08:00	20.50	3.00	4.60
29-04-2022	10:15	0.00		

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	3.20		100%-100%	brown
4.70	20.50		100%-100%	grey

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: PWB_BH_03
Contract Number: JER9352	Start Date: 27/04/2022	End Date: 29/04/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 392913.0	Northing: 171460.5	Ground Level: 57.10mOD	Plant Used: Comacchio GEO 300
Logged By: SD/DN	Scale: 1:50			Sheet 2 of 3
Weather: Overcast	Termination: Target depth achieved.		SPT Hammer: AR3407 Energy Ratio: 65.44%	

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D20	SPT(S) 10.00m, N=32 (2,4/6,7,9,10)						and shell fragments.		
10.00 - 11.50			100 0 0		46.70	10.40		Very stiff grey sandy CLAY with frequent fine and medium gravel sized shells and shell fragments.		
	C21									
	D22	SPT(S) 11.50m, N=28 (2,2/4,6,8,10)				(2.45)				
11.50 - 13.00			100 10 10							
	C23									
					44.25	12.85		Extremely weak grey fossiliferous arenaceous MUDSTONE tending to very stiff sandy CLAY with fine and medium gravel sized fossil fragments.		
	D24	SPT(S) 13.00m, N=35 (2,7/6,9,9,11)		None		(0.90)				
	C25		100 47 47							
13.00 - 14.50					43.35	13.75		Very stiff grey thickly laminated slightly sandy CLAY.		
	D26	SPT(S) 14.50m, N=29 (2,2/5,5,7,12)								
14.50 - 16.00			100 0 0			(3.05)				
	C27									
	D28	SPT(S) 16.00m, N=22 (2,5/5,5,6,6)								
16.00 - 17.50			100 0 0		40.30	16.80		Very stiff grey sandy CLAY with frequent fine gravel sized shell fragments.		
	C29									
	D30	SPT(S) 17.50m, N=45 (5,6/8,11,12, 14)				(1.40)				
17.50 - 19.00			100 53 53		38.90	18.20		Extremely weak grey fossiliferous arenaceous thickly laminated MUDSTONE with fine and medium gravel sized shells and shell fragments, tending to very stiff sandy clay.		
	C31			None		(1.20)				
	D32	SPT(S) 19.00m, 50 (3,9/50 for 195mm)								
19.00 - 19.40	D33		100 0 0							
	D34				37.70	19.40		Stiff grey slightly sandy slightly gravelly thickly laminated CLAY. Gravel is fine and medium rounded siltstone.		
19.40 - 20.50			91 0 N/A			(1.10)				

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: PWB_BH_03
	Contract Number: JER9352	Start Date: 27/04/2022	End Date: 29/04/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 392913.0	Northing: 171460.5	Ground Level: 57.10mOD	Plant Used: Comacchio GEO 300	Logged By: SD/DN
					Scale: 1:50

Weather: Overcast | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					36.60	20.50		End of Borehole at 20.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			PWB_BH_04
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	29/04/2022	03/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392948.0	Northing: 171456.0	Ground Level: 56.95mOD	Plant Used: Comacchio GEO 300	Logged By: MC/DN	Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.35)		Grass over topsoil of brown clayey SILT with frequent rootlets (<1mm). One subangular coarse gravel sized quartzstone.		
PID 0.0ppm	ES1				56.60	0.35		Soft mottled orange greyish brown silty CLAY. *From 0.35m becoming firm with depth*		
	B1 D2					(0.35)				
PID 0.0ppm	ES2				56.25	0.70		Soft to firm mottled orangish grey silty CLAY with rare pockets of coarse gravel sized organic matter.		
	D3					(0.50)				
PID 0.0ppm	ES3 U4				55.75	1.20		Firm light grey mottled orangish brown and brown slightly sandy CLAY.		
	D5					(0.90)				
1.70 - 2.70	D6				54.85	2.10		Stiff brown slightly sandy CLAY.		
	D7	SPT(S) 2.70m, N=12 (1,1/2,3,3,4)				(1.30)				
	U8				53.55	3.40		Stiff dark brown slightly sandy CLAY with frequent fine gravel sized inclusions of creamy yellow silt and frequent fine and medium gravel sized selenite crystals.		
2.70 - 4.70	D9					(0.90)				
	D10				52.65	4.30		Stiff grey slightly sandy CLAY. Sand is fine.		
4.70 - 5.50	D11	SPT(S) 4.70m, N=13 (1,2/3,3,3,4)	38 38 N/A			(1.65)				
5.50 - 6.00	C12		90 90 16							
6.00 - 6.30			77		51.00	5.95		Very strong to extremely strong pale grey medium grained fossiliferous LIMESTONE, heavily fractured.		
6.30 - 6.45			87	Highly fractured within short runs						
6.45 - 6.55			100			(1.00)				
6.55 - 6.75			100							
6.75 - 7.00	C13		132	None.	50.00	6.95		Stiff grey sandy SILT with frequent fine and medium gravel sized shells and shell fragments.		
	B14 D15	SPT(S) 7.00m, N=18 (1,2/3,5,5,5)								
7.00 - 8.50			77 N/A N/A			(2.50)				
	D16	SPT(S) 8.50m, N=25 (4,5/6,5,5,9)								
8.50 - 10.00	C17		100 N/A N/A		47.50	9.45		Stiff locally very stiff grey slightly sandy silty CLAY with frequent fine and medium gravel sized shells and shell fragments.		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
29-04-2022	10:15			
29-04-2022	14:00	6.75	3.00	
03-05-2022	08:00	6.75	3.00	1.70
03-05-2022	15:45	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
1.20	3.20		100%-100%	brown
4.70	20.50		100%-100%	grey

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			PWB_BH_04
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	29/04/2022	03/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392948.0	Northing: 171456.0	Ground Level: 56.95mOD	Plant Used: Comacchio GEO 300	Logged By: MC/DN	Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3407 Energy Ratio: 65.44%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	D18	SPT(S) 10.00m, N=25 (4,5/5,5,6,9)				(1.90)				
	C19				45.60	11.35		Stiff grey sandy SILT with occasional fine and medium gravel sized shells and shell fragments.		
11.50 - 13.00	B20 D21	SPT(S) 11.50m, N=40 (3,4/7,9,15,9)	50 17 17			(1.15)				
				None.	44.45	12.50		Extremely weak grey fossiliferous arenaceous MUDSTONE tending to stiff sandy CLAY. Fossils are fine and medium gravel sized.		
13.00 - 14.50	D22 C23	SPT(S) 13.00m, N=49 (5,8/11,11,14 ,13)	50 25 25		43.20	(1.25) 13.75		Very stiff grey slightly sandy CLAY with occasional fossiliferous fine and medium gravel sized shells and shell fragments.		
14.50 - 16.00	D24 C25	SPT(S) 14.50m, N=30 (4,5/6,7,8,9)	50 N/A N/A	None.	41.25	(1.95) 15.70		Extremely thickly laminated weak grey MUDSTONE with occasional fine and medium gravel sized shells and fragments verging towards very stiff clay.		
16.00 - 17.50	D26 C27	SPT(S) 16.00m, N=38 (4,6/8,10,11, 9)	50 25 25		39.30	(1.95) 17.65		Extremely weak to weak grey fossiliferous arenaceous MUDSTONE shells are fine and medium gravel sized.		
17.50 - 19.00	D28 C29	SPT(S) 17.50m, 50 (5,8/50 for 225mm)	100 67 67	None.	38.65	(0.65) 18.30 (0.30)		Very stiff grey slightly sandy CLAY with frequent fine and medium gravel sized shells and shell fragments.		
					38.35	18.60		Extremely weak grey arenaceous MUDSTONE with frequent fine and medium gravel sized shells and shell fragments.		
19.00 - 20.50	D30	SPT(S) 19.00m, N=47 (2,4/7,13,17, 10)	100 27 27	None.	37.50	(0.85) 19.45 (1.05)		Very stiff grey slightly sandy CLAY locally with occasional fine and medium gravel sized shells and shell fragments.		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: PWB_BH_04
Contract Number: JER9352	Start Date: 29/04/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
Rotary Core Drilling Log	Easting: 392948.0	Northing: 171456.0	Ground Level: 56.95mOD	Plant Used: Comacchio GEO 300
Logged By: MC/DN	Scale: 1:50	Sheet 3 of 3		
Weather: Cloudy	Termination: Target depth achieved.	SPT Hammer: AR3407 Energy Ratio: 65.44%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C31				36.45	20.50		End of Borehole at 20.50m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			PWB_BH_05
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	29/04/2022	04/05/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392931.0	Northing: 171519.5	Ground Level: 52.70mOD	Plant Used: Comacchio 205	Logged By: MC/DN	Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.30)		Grass over brown clayey SILT with rare fine to coarse gravel sized red brick fragments and one coarse gravel sized subangular quartzstone.		
PID 0.0ppm	ES1				52.40	0.30		Soft to firm light brown orangish grey silty CLAY.		
	D1				52.25	0.45		Soft light brown orangish grey slightly sandy silty gravelly CLAY. Sand is coarse. Gravel is subangular to subrounded fine to coarse of ferric sandstone		
	B2							*From 0.80m to 1.20m with rare coarse gravel sized subangular to subrounded ferric sandstone gravel.*		
PID 0.0ppm	ES2					(0.75)				
	D3									
~~PID 0.0ppm~~	B4 ES3	SPT(C) 1.20m, N=8 (1,1/2,2,2,2)			51.50	1.20		Firm orange brown mottled light grey very sandy CLAY with rare medium gravel sized pockets of dark grey organic matter. Sand is fine and medium.		
1.20 - 2.20	D5		100 N/A N/A			(0.65)				
	D6				50.85	1.85		Orange brown locally spotted grey very clayey fine and medium SAND.		
		SPT(C) 2.20m, N=6 (1,1/2,1,1,2)			50.50	(0.35) 2.20		Soft extremely closely to very closely fissured dark grey CLAY with occasional medium gravel sized pockets and partings of light grey fine sand and rare fine and medium gravel sized fossil shells and shell fragments.		
2.20 - 3.20			50 N/A N/A					*From 3.20m becoming firm to stiff.*		
		SPT(C) 3.20m, N=14 (1,2/2,3,4,5)								
3.20 - 4.65	C7		100 100 100					*From 4.70m to 8.10m becoming becoming sandy. Sand is fine and medium.*		
		SPT(C) 4.65m, N=11 (1,2/2,2,3,4)				(5.90)				
4.65 - 6.15	C8		100 100 100					*At 5.55m a thin laminae of fine medium sand.*		
		SPT(C) 6.15m, N=15 (2,2/3,3,4,5)								
6.15 - 7.65	C9		90 90 90					*From 7.35m to 7.65m AZCL.*		
		SPT(C) 7.65m, N=18 (2,2/3,4,5,6)			44.60	8.10		Very stiff extremely to very closely fissured greenish grey CLAY with rare fine and medium gravel sized fossil shell fragments.		
7.65 - 9.15	C10		100 100 100					*At 8.45m a medium gravel sized pyritic inclusion.*		
		SPT(C) 9.15m, N=20 (2,2/4,4,5,7)								
9.15 - 10.65			90 90 90					*From 9.80m to 10.00m becoming sandy. Sand is fine and medium.*		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
29-04-2022	08:00	0.00		
29-04-2022	17:00	6.15	3.00	
03-05-2022	08:00	6.15	3.00	3.78
03-05-2022	17:00	18.15	3.00	
04-05-2022	08:00	18.15	3.00	5.60
04-05-2022	12:00	20.35		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.20	20.35	AIR MIST	90%-90%	Grey

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
20.35	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: PWB_BH_05
	Contract Number: JER9352	Start Date: 29/04/2022	End Date: 04/05/2022	Checked By: CW	Status: FINAL
					Sheet 2 of 3
Rotary Core Drilling Log	Easting: 392931.0	Northing: 171519.5	Ground Level: 52.70mOD	Plant Used: Comacchio 205	Logged By: MC/DN
					Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
	C11									
		SPT(C) 10.65m, N=35 (2,4/7,8,10,10)								
10.65 - 12.15			100 100 100							
	C12							From 12.05m to 13.65m becoming sandy. Sand is fine and medium.		
		SPT(C) 12.15m, N=41 (5,10/9,10,10,12)						From 12.20m to 13.65m with frequent fine to medium gravel sized fossil shells and shell fragments including gryphea sp and rare fine gravel sized pyritic inclusions.		
12.15 - 13.65			100 100 100							
	C13									
		SPT(C) 13.65m, N=34 (2,4/5,8,10,11)						From 13.65m to 14.90m becoming possibly thinly to thickly laminated.		
13.65 - 15.15			100 100 100							
	C14					(12.25)		From 14.90m becoming sandy. Sand is fine to medium with frequent fine and medium gravel sized fossil shells and shell fragments including gryphea sp and occasional medium gravel sized pockets of fine light grey sand.		
		SPT(C) 15.15m, N=42 (4,4/6,9,13,14)								
15.15 - 16.65	C15		93 93 93							
		SPT(C) 16.65m, N=50 (7,13/15,19,16,0)						From 16.50m to 20.35m occasional l fine and medium gravel sized pockets of fine light grey sand. At 16.55m rare fine gravel sized bioturbation features.		
16.65 - 18.15	C16		80 80 80							
								AZCL.		
		SPT(C) 18.15m, N=47 (3,5/8,12,12,15)								
18.15 - 19.65			100 100 100							
	C17							At 19.20m a coarse gravel sized strong rounded nodular concretion. From 19.20m to 19.30m non intact, broken along fissures and remoulded.		
		SPT(C) 19.65m, N=50						from 19.55m to 20.35m possibly thickly laminated to very thinly bedded.		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
20.35	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: PWB_BH_05
	Contract Number: JER9352	Start Date: 29/04/2022	End Date: 04/05/2022	Checked By: CW	Status: FINAL
					Sheet 3 of 3
Rotary Core Drilling Log	Easting: 392931.0	Northing: 171519.5	Ground Level: 52.70mOD	Plant Used: Comacchio 205	Logged By: MC/DN
					Scale: 1:50

Weather: Cloudy | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.65 - 20.35		(6,8/9,11,13, 17)	86		32.35	20.35		End of Borehole at 20.35m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
20.35	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			PWB_BH_06
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 3
JER9352	28/04/2022	29/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392965.5	Northing: 171513.5	Ground Level: 52.70mOD	Plant Used: Comacchio 205	Logged By: SD/DN	Scale: 1:50

Weather: Fair | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
						(0.40)		Brown sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is fine subangular brick/clay pipe fragments.		
PID 0.0ppm	ES1				52.30	0.40		Soft to firm brown motttled light grey slightly sandy CLAY. Sand is fine to coarse		
	B1 D2									
PID 0.0ppm	ES2					(0.80)		*From 0.90m becoming sandy.*		
	B3 D4									
~~PID 0.0ppm~~	ES3	SPT(S) 1.20m, N=7 (1,1/1,2,2,2)			51.50	1.20		Firm brown mottled grey and orangish brown sandy CLAY. Sand is fine and medium.		
	D5									
1.20 - 2.20	D6		85 N/A N/A			(0.70)				
	B7 D8				50.80	1.90 (0.30)		Orange brown silty fine and medium SAND.		
		SPT(S) 2.20m, N=5 (1,1/1,1,1,2)			50.50	2.20		Soft brownish grey mottled brown and orangish brown sandy CLAY. Sand is fine and medium		
	D9 D10					(0.55)				
2.20 - 3.20			55 N/A N/A		49.95	2.75		AZCL.		
						(0.45)				
		SPT(S) 3.20m, N=14 (1,2/2,3,4,5)			49.50	3.20		Stiff grey slightly sandy CLAY with occasional fine and medium gravel sized shell fragments. Sand is fine.		
	D11									
3.20 - 4.65	C12		100 N/A N/A			(1.30)				
					48.20	4.50		Stiff grey slightly sand silty CLAY with occasional fine and medium gravel sized shell fragments. Sand is fine.		
		SPT(S) 4.65m, N=10 (1,1/2,3,2,3)								
	D13									
4.65 - 6.15			100 N/A N/A			(2.05)				
	C14									
		SPT(S) 6.15m, N=15 (1,3/3,3,4,5)			46.15	6.55		Very stiff grey slightly sandy silty CLAY with frequent fine and medium gravel sized shells and shell fragments. Tending to extremely weak grey MUDSTONE.		
	D15					(0.45)				
6.15 - 7.65	C16		73 N/A N/A		45.70	7.00		Stiff grey slightly sandy clayey SILT. Sand is fine.		
					45.45	7.25		AZCL.		
						(0.40)				
		SPT(S) 7.65m, N=17 (1,3/3,3,5,6)			45.05	7.65		Stiff locally very stiff grey slightly sandy CLAY with occasional fine and medium gravel sized shell fragments.		
	D17									
7.65 - 9.15	C18		87 N/A N/A			(3.35)				
		SPT(S) 9.15m, N=18 (2,2/3,4,5,6)								
	D19									
9.15 - 10.65			93 N/A N/A					*Between 9.7m and 9.75m, band of grey very silty fine to medium SAND.*		
	C20									

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
28-04-2022	08:00			
28-04-2022	17:00	20.50	3.00	
29-04-2022	08:00	20.50	3.00	5.46
29-04-2022	17:00	0.00		

Installation

Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	3.00	PLAIN	50
Pipe 1	3.00	9.00	SLOTTED	50

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour
3.20	20.50	Air/Mist	90%-90%	grey

Borehole Diameter

Depth (m)	Dia (mm)
3.20	113
20.50	146

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			PWB_BH_06
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 2 of 3
JER9352	28/04/2022	29/04/2022	CW	FINAL	
Rotary Core Drilling Log	Easting: 392965.5	Northing: 171513.5	Ground Level: 52.70mOD	Plant Used: Comacchio 205	Logged By: SD/DN	Scale: 1:50

Weather: Fair | Termination: Target depth achieved. | SPT Hammer: AR3408 Energy Ratio: 63.28%

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					41.70	11.00		Extremely weak grey fossiliferous MUDSTONE.		
	D21	SPT(S) 10.65m, 50 (2,2/50 for 60mm)			41.60	11.10		Strong grey LIMESTONE with one suspected bedding fracture.		
	C22		43 17 0	One fracture	41.40	11.30		AZCL		
10.65 - 12.15						(0.85)				
		SPT(C) 12.15m, 50 (6,9/50 for 285mm)		None	40.55	12.15		Extremely weak grey arenaceous MUDSTONE with occasional fine and medium gravel sized shells and shell fragments.		
					40.10	12.60		Very stiff grey slightly sandy CLAY with infrequent fine and medium gravel sized shells and shell fragments.		
12.15 - 13.65			100 63 63			(0.55)				
	C23			Joints	39.55	13.15		Extremely weak grey fossiliferous arenaceous MUDSTONE. Shells are fine and medium gravel sized. *Between 13.15 and 13.8m, closely spaced rough undulating tight clean joints.* *Between 13.6m and 13.8m, very closely spaced rough planar tight bedding fractures with sandy CLAY.*		
					38.90	13.80		Very stiff grey CLAY tending to extremely weak mudstone.		
13.65 - 15.15			90 8 0			(1.35)				
	C23 C24				37.55	15.15		Extremely weak grey arenaceous MUDSTONE with frequent silty bands less than 2mm wide and occasional fine and medium gravel sized shells and shell fragments.		
				None		(1.05)				
15.15 - 16.65	C25		100 100 100		36.50	16.20		Weak grey fossiliferous arenaceous MUDSTONE. Shells are fine to coarse gravel sized.		
				None	36.25	16.45		Weak grey thickly laminated MUDSTONE with occasional fine and medium gravel sized shells and medium to closely spaced smooth planar tight clean bedding fractures.		
16.65 - 18.15	C26		100 100 100					*Between 17.6m and 18.20m, closely spaced rough undulating infilled bedding fracture infilled with sandy silt. Shells are frequent.*		
				150 350 500		(4.05)		*Becoming darker in colour and slightly harder and rare fine to medium gravel sized inclusions of weak siltstone..*		
	C27									
18.15 - 19.65			93 93 83							
	C28									

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	3.00	PLAIN	50
Pipe 1	3.00	9.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20	113		
20.50	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council	Borehole ID: PWB_BH_06
	Contract Number: JER9352	Start Date: 28/04/2022	End Date: 29/04/2022	Checked By: CW	Status: FINAL	Sheet 3 of 3
Rotary Core Drilling Log	Easting: 392965.5	Northing: 171513.5	Ground Level: 52.70mOD	Plant Used: Comacchio 205	Logged By: SD/DN	Scale: 1:50
Weather: Fair		Termination: Target depth achieved.		SPT Hammer: AR3408 Energy Ratio: 63.28%		

Samples & Core Recovery					Strata Details				Groundwater	
Depths	Type/ Ref	SPT	TCR/SCR/ RQD	Fracture Spacing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
19.65 - 20.50			100 100 100		32.20	20.50		End of Borehole at 20.50m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Dia (mm)
Pipe 1	0.00	3.00	PLAIN	50
Pipe 1	3.00	9.00	SLOTTED	50

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
3.20	113		
20.50	146		

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Fracture spacing reported in mm as minimum, average and maximum values. TCR, SCR and RQD reported in %. NDP = No Determination Possible. Numbers in descriptions relate to bedding spacing (min/avg/max).

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: WS001
Contract Number: JER9352	Start Date: 13/04/2022	End Date: 13/04/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 392473.5	Northing: 171114.0	Ground Level: 51.70mOD	Plant Used: Dando Terrier
Logged By: RT	Scale: 1:50			Sheet 1 of 1
Weather: Light rain showers	Termination: SPT test refusal.		SPT Hammer: N/R, Energy Ratio: 66.38%	

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.30	ES1			51.45	0.25		Soft brown slightly gravelly silty CLAY with occasional fine rootlets (<2mm). Gravel is fine and medium subrounded and subangular brick, concrete and linestone.		
0.50	D1		PID 0.30m, 0.0ppm				Firm yellowish brown mottled light grey very sandy silty CLAY.		
0.80	ES2								
1.00	B2		PID 0.80m, 0.1ppm						
1.15	ES3								
1.20	D3	SPT(S) 1.20m, N=4 (1,1/1,1,1,1)	PID 1.15m, 0.0ppm		(2.10)				
2.00 - 2.20	D4								
2.20 - 2.65	D5	SPT(S)							
2.35 - 3.20	B6	2.20m, N=13 (1,2/2,3,4,4)		49.35	2.35		Firm extremely closely fissured light bluish grey mottled orangish brown CLAY		
							From 2.50m to 2.70m with occasional coarse gravel sized pockets of very clayey fine and medium sand.		
2.85 - 2.95	ES4		PID 2.85m, 0.0ppm						
3.20 - 3.65	D7	SPT(S)			(1.65)		*From 3.20m becoming bluish grey.*		
3.20 - 3.70	B8	3.20m, N=11 (1,2/2,2,3,4)							
3.70 - 3.90	D9						*From 3.70m to 3.90m becoming very sandy with occasional fine and medium gravel sized fossil fragments. Sand is fine and medium.*		
		SPT(S) 3.90m, 50 (25 for 50mm/50 for 50mm)		47.70	4.00		*From 3.90m becoming well cemented.* End of Borehole at 4.00m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	0.70	PLAIN	50
1	0.70	3.90	SLOTTED	50

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	120	1.20	2.20	100
2	101	2.20	3.20	100
3	88	3.20	3.90	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		seepage

Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS002
Contract Number: JER9352	Start Date: 07/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 392542.0	Northing: 171026.0	Ground Level: 49.85mOD	Plant Used: Dando Terrier
Logged By: RT	Scale: 1:50	Sheet 1 of 1		
Weather: Variable	Termination: SPT test refusal.	SPT Hammer: N/R, Energy Ratio: 66.38%		

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				49.75	0.10		Firm friable light brown CLAY with occasional fine to medium rootlets and organic matter		
0.30	ES1						Firm extremely closely fissured yellowish brown mottled light grey sandy silty CLAY. Sand is fine and medium.		
0.50	D1		PID 0.30m, 0.0ppm						
0.80	ES2		HV 0.50m, 56, 72, 58 kPa						
1.00	B2		PID 0.80m, 0.0ppm						
1.00	D3								
1.15	ES3	SPT(S) 1.20m, N=7 (1,1/1,2,2,2)			(2.40)				
1.20	D4		PID 1.15m, 0.0ppm						
1.60	D5						*From 1.50m becoming slightly sandy. Sand is fine and medium.*		
2.20 - 2.65	D6	SPT(S) 2.20m, N=6 (1,1/1,1,2,2)	HV 2.10m, 32 kPa				*From 2.15m to 2.50m with occasional fine and medium gravel sized pockets of dark brown organic matter.*		
				47.35	2.50		Soft thinly laminated yellowish brown mottled grey very sandy CLAY with localised ferrous staining.		
2.80 - 3.00	ES4								
3.00 - 3.40	B7		PID 2.80m, 0.0ppm		(0.90)				
3.20 - 3.65	D8	SPT(S) 3.20m, N=11 (1,2/2,3,3,3)							
				46.45	3.40		Firm bluish grey locally mottled orange brown sandy silty CLAY with frequent medium gravel sized pockets of fine and medium sand.		
3.50 - 3.70	ES5		PID 3.50m, 0.0ppm						
3.80 - 4.20	B9				(0.88)				
4.20 - 4.28	D10	SPT(S) 4.20m, 50 (25 for 75mm/50 for 5mm)		45.57	4.28		*At 4.25m becoming well cemented.* End of Borehole at 4.28m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.
No groundwater seepage encountered. during drilling Water level standing at 1.95m on completion of hole.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
	127	1.20	2.20	95
	101	2.20	3.20	70
	88	3.20	4.20	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS003
	Contract Number: JER9352	Start Date: 07/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Windowless Borehole Log	Easting: 392652.5	Northing: 171138.5	Ground Level: 53.75mOD	Plant Used: Dando Terrier	Logged By: RT
					Scale: 1:50
Weather: Variable		Termination: Concrete Obstruction.			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				53.65	0.10		Soft dark greyish brown to light grey sandy gravelly CLAY with frequent fine rootlets. Sand is fine and medium. Gravel is fine and medium subrounded and rounded chert, flint and quartzite.		
							End of Borehole at 0.10m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:
Service pit refusing at 0.10m on concrete.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS003A
Contract Number: JER9352	Start Date: 13/04/2022	End Date: 13/04/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 392652.5	Northing: 171138.5	Ground Level: 53.60mOD	Plant Used: Dando Terrier.
Logged By: RT	Scale: 1:50	Sheet 1 of 1		
Weather: Variable	Termination: Required Depth.	SPT Hammer: N/R, Energy Ratio: 66.38%		

Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				53.43	0.17		Concrete		
0.30							Reddish brown slightly sandy GRAVEL with cobbles. Gravel is fine to coarse brick, concrete chert. Cobbles are brick.		
0.30	ES1				(0.63)				
0.50	D1		PID 0.30m, 0.2ppm						
			PID 0.50m, 2.2ppm						
0.80	ES2			52.80	0.80				
				52.70	0.90		Firm greenish grey friable CLAY with musty odour.		
1.00	B2						*From 0.80m to 1.20m with occasional tree roots and medium and coarse gravel sized pockets of dark grey organic matter, slight organic odour.*		
1.15	ES3	SPT(S)					Firm yellowish brown mottled light grey very sandy silty CLAY		
1.20	D3	1.20m, N=8 (1,1/1,2,2,3)	PID 1.15m, 8.0ppm						
1.70 - 1.80	D4						*From 1.70m becoming soft olive brown mottled light grey with occasional medium gravel sized pockets of very clayey fine sand.*		
2.20 - 2.65	D5	SPT(S)							
2.20 - 2.70	B6	2.20m, N=10 (1,2/2,2,3,3)			(2.80)		*From 2.0m to 2.70m with a medium bed of soft orangish brown mottled grey very sandy clay. Sand is fine and medium.*		
							At 2.70m tree root (<15mm).		
3.20 - 3.65	D7	SPT(S) 3.20m, N=17 (1,3/3,4,5,5)					*From 3.20m becoming stiff*		
				49.90	3.70		Stiff thinly laminated locally extremely closely fissured bluish grey silty CLAY.		
4.00 - 4.20	D8								
4.20 - 4.40	ES4	SPT(S)					*From 4.20m with occasional fine and medium gravel sized fossil shell fragments.*		
4.20 - 4.65	D9	4.20m, N=16							
4.20 - 5.20	B10	(2,3/3,4,4,5)	PID 4.20m, 0.9ppm						
5.20 - 5.65	D11	SPT(S) 5.20m, N=18 (1,3/3,4,4,7)							
					(4.50)				
6.20 - 6.65	D12	SPT(S)							
6.20 - 7.20	B13	6.20m, N=22 (2,3/4,5,6,7)							
7.10 - 7.80	D14	SPT(S) 7.20m, N=26 (2,3/4,9,6,7)							
				45.40	8.20		End of Borehole at 8.20m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Breaker utilised. WS003A completed at alternative location to WS003.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	100
2	113	2.20	3.20	100
3	98	3.20	4.20	100
4	84	4.20	5.20	100
5	84	5.20	6.20	10
6	84	6.20	7.20	0

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS004
Contract Number: JER9352	Start Date: 07/04/2022	End Date: 07/04/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 392652.0	Northing: 171081.5	Ground Level: 50.85mOD	Plant Used: Dando Terrier.
Logged By: RT	Scale: 1:50	Sheet 1 of 1		
Weather: Rain+Cloudy	Termination: SPT test refusal.	SPT Hammer: N/R, Energy Ratio: 66.38%		

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.30	ES1			50.60	0.25		Soft brown slightly sandy CLAY with frequent fine rootlets (<2mm).		
0.50	D1		PID 0.30m, 0.0ppm				Firm yellowish brown mottled light grey very sandy silty CLAY.		
0.80	ES2		HV 0.50m, 84, 86, 86 kPa						
1.00	B2		PID 0.80m, 0.0ppm						
1.00	D3				(1.75)				
1.15 - 2.00	ES3	SPT(S) 1.20m, N=10 (1,1/2,2,3,3)							
1.20 - 1.65	D4		PID 1.15m, 0.0ppm						
2.00 - 2.45	B5			48.85	2.00		Firm extremely closely fissured yellowish brown mottled light grey CLAY.		
2.20 - 2.65	D6	SPT(S) 2.20m, N=11 (1,2/2,3,3,3)	HV 2.15m, 72 kPa		(0.45)				
2.30	ES4		PID 2.30m, 0.0ppm	48.40	2.45		Firm thinly to thickly laminated dark grey locally mottled olive brown very sandy silty CLAY.		
					(0.75)				
3.20 - 3.65	D7	SPT(S) 3.20m, N=15 (1,3/3,4,4,4)	HV 3.15m, 90 kPa	47.65	3.20		Stiff thinly to thickly laminated dark grey locally mottled olive brown very sandy silty CLAY with abundant fine and medium gravel sized bivalve fossils.		
3.30 - 3.50	ES5		PID 3.30m, 0.0ppm						
3.70 - 4.20	B8								
3.80 - 4.00	D9								
4.20 - 4.65	D10	SPT(S) 4.20m, N=22 (2,4/4,6,5,7)	HV 4.15m, >140 kPa						
					(3.13)				
							At 5.0m with coarse gravel sized pockets of clayey fine and medium sand.		
5.20 - 5.65	D11	SPT(S) 5.20m, N=19 (2,4/4,4,5,6)							
5.20 - 5.90	B12								
5.90 - 6.20	D13						*From 5.90m becoming sandy with occasional medium gravel sized pockets of light grey medium sand.*		
6.20	D14	SPT(S) 6.20m, 50 (25 for 100mm/50 for 235mm)		44.52	6.33		*At 6.15m with a medium gravel sized pyritic inclusion.* End of Borehole at 6.33m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	50
1	1.00	6.20	SLOTTED	50

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	80
2	113	2.20	3.20	100
3	98	3.20	4.20	100
4	86	4.20	5.20	100
5	74	5.20	6.20	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Small seepage.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS005
	Contract Number: JER9352	Start Date: 08/04/2022	End Date: 08/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Windowless Borehole Log	Easting: 393615.5	Northing: 171079.5	Ground Level: 55.20mOD	Plant Used: Dando Terrier	Logged By: RT	Scale: 1:50
Weather: Cloudy, dry.		Termination: Required Depth.		SPT Hammer: N/R, Energy Ratio: 66.38%	

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.30)		Soft friable brown slightly sandy CLAY with frequent fine and medium rootlets and rare subangular brick gravel.		
0.30	ES1			54.90	0.30		Firm yellowish brown mottled orangish brown silty CLAY		
0.50	D1		PID 0.30m, 0.0ppm						
			HV 0.50m, 74, 78, 72 kPa						
0.80	ES2						*From 0.80m becoming light grey with frequent coarse sand to fine gravel sized shell fragments.*		
1.00	B2		PID 0.80m, 0.0ppm						
1.15 - 1.20	ES3	SPT(S)			(1.80)				
1.20 - 1.65	D3	1.20m, N=10 (1,2/2,2,3,3)	PID 1.15m, 0.0ppm						
1.80	D4						*From 1.80m to 2.00m with frequent white mottling (possible decomposed selenite).*		
			HV 2.10m, 70 kPa	53.10	2.10		Stiff extremely closely fissured dark brownish grey CLAY		
2.20 - 2.65	D5	SPT(S)					*From 2.10m to 3.20m with occasional fine and medium gravel sized pockets of coarse sand sized selenite crystals.*		
2.30 - 2.50	ES4	2.20m, N=19 (3,3/4,4,5,6)	PID 2.30m, 0.0ppm						
					(2.00)				
3.20 - 4.20	B6	SPT(S)					*At 3.20m slightly sandy silty CLAY.*		
3.20 - 3.65	D7	3.20m, N=21 (4,4/3,5,6,7)							
				51.10	4.10		Stiff extremely closely fissured bluish grey CLAY with frequent fine and medium sand sized shells and shell fragments.		
4.20 - 4.65	D8	SPT(S)							
4.50 - 4.70	ES5	4.20m, N=25 (5,5/6,6,5,8)	PID 4.50m, 0.0ppm						
5.00 - 5.20	D9								
5.20 - 6.20	B10	SPT(S)			(2.10)		*From 5.20m becoming thinly to thickly laminated.*		
5.20 - 5.65	D11	5.20m, N=27 (3,3/5,5,9,8)							
6.20 - 6.65	D12	SPT(S) 6.20m, N=37 (3,4/7,8,11,11)		49.00	6.20		Very stiff extremely closely fissured bluish grey CLAY with frequent fine and medium sand sized shells and shell fragments.		
7.00 - 7.20	D13		HV 7.10m, 130 kPa						
7.20 - 7.65	D14	SPT(S)			(1.90)				
7.20 - 8.10	B15	7.20m, N=34 (2,3/5,8,10,11)							
				47.10	8.10		End of Borehole at 8.10m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	100
2	113	2.20	3.20	100
3	98	3.20	4.20	100
4	84	4.20	5.20	100
5	76	5.20	6.20	100
6	98	6.20	7.20	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater strike encountered.

Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS006
Contract Number: JER9352	Start Date: 25/04/2022	End Date: 25/04/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 393623.0	Northing: 171106.0	Ground Level: 55.65mOD	Plant Used: Dando Terrier
Logged By: MC/RT	Scale: 1:50	Sheet 1 of 1		
Weather: Overcast	Termination: SPT test refusal.	SPT Hammer: N/R, Energy Ratio: 66.38%		

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.20	ES1		PID 0.20m, 0.0ppm	55.45	0.20		Grass over soft to firm brown sandy fine to coarse subangular and angular flint. GRAVEL. Sand is fine to coarse.		
0.50	D1			55.15	(0.30)		Soft to firm brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular and angular flint.		
0.50 - 0.60	B2				0.50				
0.80	ES2		PID 0.80m, 0.0ppm	54.80	(0.35)		Soft to firm mottled orange brown and mottled grey slightly sandy silty CLAY. Sand is medium and coarse.		
1.00	D3				0.85		*At 0.70m bgl becomes mottled orange grey*		
1.00 - 1.10	B4				(0.35)		Soft to firm mottled orange grey silty CLAY.		
1.20	ES3	SPT(S) 1.20m, N=7 (1,1/1,2,2,2)	PID 1.20m, 0.0ppm	54.45	1.20		*At 1.10m bgl becomes slightly sandy. Sand is fine to coarse.*		
				54.20	1.45		Firm extremely closely fissured greyish brown mottled orange CLAY.		
1.70							Very stiff thinly to thickly laminated locally extremely closely fissured dark greyish brown slightly sandy very silty CLAY.		
1.70 - 1.80	D5						*From 1.45m to 2.5 with occasional localised heavy ferrous staining along fissure faces.*		
2.00 - 2.20	ES4		PID 2.00m, 0.0ppm						
2.20 - 3.10	B6	SPT(S) 2.20m, N=15 (3,3/3,4,4,4)			(2.20)		*From 2.50m bgl with occasional medium gravel sized pockets of yellow silt.*		
3.10 - 3.20	D7	SPT(S) 3.20m, N=50 (5,10/10,10,15,15)					*From 3.10m to 3.20m becoming partially to well cemented extremely weak to very weak (possibly siltstone). With rare fine gravel bivalve fossil.*		
				52.00	3.65		End of Borehole at 3.65m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	50
1	1.00	3.20	SLOTTED	50

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1		1.20	2.20	100
2		2.20	3.20	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS007
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Windowless Borehole Log	Easting: 393271.5	Northing: 171050.0	Ground Level: 49.40mOD	Plant Used: Dando Terrier	Logged By: RT
					Scale: 1:50

Weather: Light rain showers | Termination: Required Depth. | SPT Hammer: N/R, Energy Ratio: 66.38%

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.30	ES1			49.20	0.20		Soft dark brown slightly sandy CLAY with frequent fine and medium rootlets. Sand is fine and medium.		
0.50	D1		PID 0.30m, 0.0ppm				Firm extremely closely fissured orangish brown mottled light grey slightly sandy CLAY with occasional medium gravel sized pockets of very clayey medium and coarse sand.		
0.80	ES2		HV 0.50m, 78, 80, 82 kPa						
1.00	B2		PID 0.80m, 0.0ppm						
1.15	ES3								
1.20 - 1.65	D3	SPT(S) 1.20m, N=10 (1,1/1,3,3,3)	PID 1.15m, 0.1ppm		(2.60)		*From 1.50-2.00m with frequent medium to coarse gravel sized pockets of coarse sand sized possibly decomposed selenite.*		
1.80 - 2.00	D4						*From 2.00m becoming light grey mottled yellowish brown.*		
2.20	B5	SPT(S) 2.20m, N=14 (1,2/3,3,3,5)	HV 2.10m, 92 kPa						
2.20	D6								
2.20 - 2.65	D5								
2.20 - 2.80	B6								
				46.60	2.80		Stiff thickly laminated bluish grey silty CLAY with partings of light grey silt and localised pyrite crystals.		
3.00 - 3.20	D7		HV 3.10m, 103 kPa						
3.20 - 3.65	D8	SPT(S) 3.20m, N=13 (1,1/2,3,3,5)	PID 3.20m, 0.5ppm				*From 3.20m becoming very stiff thinly to thickly laminated, locally very closely fissured with occasional fine and medium gravel sized bivalve pockets.*		
3.35 - 4.20	B9						*from 3.80-3.90m with a thin bed of thickly laminated foliated silt.*		
							from 3.90m to 4.00m with occasional coarse gravel sized angular fragments of well cemented silt.		
4.20 - 4.65	D10	SPT(S) 4.20m, N=18 (1,3/3,3,5,7)							
4.60 - 4.80	D11								
5.20 - 5.65	D12	SPT(S) 5.20m, N=34 (1,2/4,6,10,14)			(4.85)				
5.20 - 6.20	B13								
6.20 - 6.65	D14	SPT(S) 6.20m, N=26 (2,4/4,6,8,8)							
							From 6.50m to 6.70m with occasional medium gravel sized pockets of partially to well cemented silt.		
6.80 - 7.00	D15						*At 6.70m with a medium gravel sized fragment of fossilised wood.*		
7.20 - 7.65	D16	SPT(S) 7.20m, N=18 (2,2/3,5,4,6)							
				41.75	7.65		End of Borehole at 7.65m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:
Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	100
2	113	2.20	3.20	100
3	98	3.20	4.20	100
4	86	4.20	5.20	100
5	74	5.20	6.20	100
6	74	6.20	7.20	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
5.20			0		Damp.

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			WS008
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER9352	25/04/2022	25/04/2022	CW	FINAL	
Windowless Borehole Log	Easting: 393308.0	Northing: 171188.5	Ground Level: 53.45mOD	Plant Used: Dando Terrier	Logged By: MC	Scale: 1:50

Weather: Overcast | Termination: SPT test refusal. | SPT Hammer: N/R, Energy Ratio: 66.38%

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.35)		Grass over soft mottled orangish brown sandy CLAY. Sand is fine to coarse. Rare cobble sized claypipe/red brick fragments and cobbles of mudstone.		
0.30	ES1			53.10	0.35		Soft to firm mottled grey orangish light brown slightly sandy silty CLAY. Sand is fine to coarse.		
0.50	B1		PID 0.30m, 0.0ppm				*From 0.50m bgl becoming mottled brown orange and grey.*		
0.50	D2				(0.85)		*From 0.85m bgl rare pockets of fine to coarse sand (<50mm).*		
0.80	ES2								
1.00	D3		PID 0.80m, 0.0ppm						
1.00 - 1.10	B4								
1.20	B5	SPT(C) 1.20m, N=15 (3,4/3,4,4,4)		52.25	1.20		Soft light greyish brown mottled CLAY.		
1.20	ES3		PID 1.20m, 0.0ppm						
					(0.90)				
1.80	D6								
				51.35	2.10		Soft becoming firm brown slightly silty CLAY. Weathered with yellow and orange iron staining in slightly sandy sub horizontal layers in fabric of clay.		
2.20 - 2.60	B7	SPT(C) 2.20m, N=13 (1,2/4,4,3,2)							
					(0.90)				
2.60	D8								
				50.45	3.00		Firm grey slightly silty CLAY with occasional <30mm angular selenite crystals.		
3.20 - 3.70	B9	SPT(C) 3.20m, N=14 (2,2/2,4,4,4)							
3.90	D10								
		SPT(C) 4.20m, N=31 (4,4/6,7,8,10)			(2.57)		*From 4.40m bgl becoming stiff.*		
4.90	D11								
		SPT(C) 5.20m, 50 (7,7/50 for 225mm)		47.88	5.57		End of Borehole at 5.57m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:
Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	85
2	113	2.20	3.20	100
3	98	3.20	4.20	100
4	86	4.20	5.20	95

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Slow seepage.

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			WS009
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER9352	12/04/2022	12/04/2022	CW	FINAL	
Windowless Borehole Log	Easting: 393446.5	Northing: 171064.0	Ground Level: 51.95mOD	Plant Used: Dando Terrier	Logged By: RT	Scale: 1:50
Weather: Rain/Showers	Termination: Required Depth.	SPT Hammer: N/R, Energy Ratio: 66.38%			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.30)		Soft friable brown slightly sandy CLAY with frequent fine and medium rootlets and rare subangular coarse gravel sized brick fragments.		
0.30	ES1			51.65	0.30		Firm extremely closely to very closely fissured light grey mottled yellowish brown slightly silty CLAY.		
0.50	D1		PID 0.30m, 0.0ppm						
			HV 0.50m, 62, 64, 80 kPa						
0.80	ES2		PID 0.80m, 0.0ppm						
1.00	B2								
1.15	ES3	SPT(S)							
1.20 - 1.65	D3	1.20m, N=11 (1,1/2,3,2,4)	PID 1.15m, 0.0ppm						
1.60 - 1.80	D4				(2.80)		*From 1.70 to 2.10m with fine and medium gravel sized pockets of dark reddish brown ferrous staining.*		
							From 2.10m becoming stiff greyish brown.		
2.20 - 2.65	D5	SPT(S)							
2.20 - 3.10	B6	2.20m, N=17 (1,1/3,4,5,5)	HV 2.20m, 90 kPa				*From 2.50m with occasional medium gravel sized pockets of coarse sand sized decomposed selenite crystals.*		
							From 2.90 to 3.00m becoming mottled bluish grey with occasional medium gravel sized selenite crystals.		
			HV 3.10m, >140 kPa	48.85	3.10		Stiff thickly laminated bluish grey CLAY.		
3.20 - 3.65	D7	SPT(S) 3.20m, N=15 (1,2/3,4,4,4)					*From 3.10 to 4.20m with partings of light grey sand.*		
3.60 - 3.75	ES4		PID 3.60m, 0.0ppm				*From 3.70m with rare to occasional fine and medium gravel sized fossil shell fragments.*		
4.20		SPT(S)							
4.20 - 4.65	D8	4.20m, N=14							
4.20 - 5.20	B9	(1,1/2,4,4,4)							
5.20 - 5.65	D10	SPT(S) 5.20m, N=34 (1,5/7,7,9,11)					*From 5.20m Very stiff.*		
					(5.00)				
5.80 - 6.00	D11								
							From 6.10m to 8.10m becoming very closely to closely sheared.		
6.20 - 6.65	D12	SPT(S)							
6.20 - 7.20	B13	6.20m, N=25 (1,3/4,6,7,8)							
7.20 - 7.65	D14	SPT(S) 7.20m, N=26 (2,4/4,6,7,9)							
				43.85	8.10		End of Borehole at 8.10m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	50
1	1.00	8.10	SLOTTED	50

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	100
2	113	2.20	3.20	100
3	98	3.20	4.20	100
4	98	4.20	5.20	100
5	84	5.20	6.20	100
6	84	6.20	7.20	100

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			WS010
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER9352	27/04/2022	27/04/2022	CW	FINAL	
Windowless Borehole Log	Easting: 393575.5	Northing: 171496.5	Ground Level: 54.20mOD	Plant Used: Dando Terrier	Logged By: MC	Scale: 1:50

Weather: Overcast | Termination: SPT test refusal. | SPT Hammer: N/R, Energy Ratio: 66.38%

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.20	ES1		PID 0.30m, 0.0ppm	54.00	0.20		Grass over top soil of dark brown sandy CLAY with rare rootlets (<5mm). Sand is fine coarse.		
0.50	B1				(0.70)		Soft to firm light brown very sandy CLAY.		
0.50	D2								
0.80	ES2		PID 0.80m, 0.0ppm	53.30	0.90				
1.00	B3				(0.30)		Soft to firm light brown and grey very sandy CLAY rare decomposed rootlets (<5mm). Sand is fine to coarse.		
1.00	D4			53.00	1.20				
1.20	ES3	SPT(S) 1.20m, N=13 (2,3/4,3,3,3)	PID 1.20m, 0.0ppm				Firm to stiff mottled orangish grey CLAY. Partially weathered from staining with frequent roots (<3mm) and rootlets (<1mm).		
1.67 - 1.73	D5				(0.80)				
				52.20	2.00		Stiff light greyish brown slightly sandy CLAY with persistent orange brown staining along fractures/joints/bedding. Fractures with frequent yellow silty intrusions of fine and medium gravel sizing with fine and medium gravel sized selenite crystals.		
		SPT(S) 2.20m, N=18 (1,2/4,4,4,6)							
2.70 - 2.80	D6				(1.45)				
							From 3.00m bgl becoming grey.		
		SPT(S) 3.20m, N=21 (2,2/3,4,6,8)							
				50.75	3.45		Very stiff dark grey CLAY.		
					(0.35)				
				50.40	3.80		Very stiff dark grey thinly to thickly laminated CLAY verging towards extremely weak mudstone.		
4.10 - 4.15	D7				(0.60)		*At 4.00m bgl 10mm bands of fine to coarse gypsum crystals.* *At 4.10m bgl <20mm band of fine to coarse gypsum crystals.*		
		SPT(S) 4.20m, N=16 (2,4/4,4,4,4)		49.80	4.40		Very stiff dark grey CLAY with frequent shell fragments (<25mm).		
4.85 - 5.00	D8								
					(1.45)				
		SPT(S) 5.20m, N=40 (4,5/10,10,10 ,10)							
5.55 - 5.70	D9								
				48.35	5.85		AZCL		
		SPT(S) 6.20m, 50 (10,10/50 for 255mm)			(0.75)				
				47.60	6.60		End of Borehole at 6.60m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:
Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	90
2	101	2.20	3.20	100
3	88	3.20	4.20	100
4	88	4.20	5.20	100
5	76	5.20	6.20	65

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
4.20			0		Strike.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS011
	Contract Number: JER9352	Start Date: 11/04/2022	End Date: 11/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Windowless Borehole Log	Easting: 393672.0	Northing: 171436.0	Ground Level: 55.00mOD	Plant Used: Dando Terrier	Logged By: RT
					Scale: 1:50

Weather: Sunny with showers | Termination: Required Depth. | SPT Hammer: N/R, Energy Ratio: 66.38%

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.30	ES1						Firm dark brown sandy gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick, ash, coke, clinker, tile, limestone. Cobbles are subangular to well rounded brick, limestone and siltstone.		
0.50	D1		PID 0.30m, 0.0ppm		(1.00)				
0.80	ES2								
1.00	B2		PID 0.80m, 0.0ppm	54.00	1.00				
1.15	ES3	SPT(S) 1.20m, N=4 (1,1/1,1,1,1)		53.80	1.20		Firm orange brown mottled grey slightly gravelly CLAY. Gravel is fine and medium subangular brick and oolitic limestone.		
1.20 - 1.65	D3		PID 1.15m, 0.0ppm				Firm extremely closely fissured orange brown mottled grey silty CLAY		
1.20 - 2.00	B4				(0.90)				
1.70 - 1.80	ES4						*From 1.80m with occasional dark red ferrous staining.*		
			PID 1.70m, 0.0ppm						
			HV 2.10m, 90 kPa	52.90	2.10		Stiff extremely closely fissured greyish brown silty CLAY		
2.20 - 2.65	D5	SPT(S) 2.20m, N=13 (1,2/2,3,3,5)							
			PID 2.50m, 0.0ppm						
2.60 - 2.70	ES5								
3.00 - 3.20	D6						*From 2.90m becoming bluish grey with occasional medium gravel sized selenite crystals.*		
			HV 3.10m, 128 kPa				*At 2.95m medium gravel sized fragment of fossilised wood.*		
3.20 - 3.65	D7	SPT(S) 3.20m, N=11 (1,1/2,3,3,3)					*From 3.20m becoming thinly to thickly laminate with rare medium gravel sized fragments bivalve fossils.*		
3.20 - 4.20	B8						*At 3.25m with a cobble sized pocket of cemented silt.*		
3.50	D9								
			HV 4.10m, 112 kPa						
4.20 - 4.65	D10	SPT(S) 4.20m, N=18 (1,2/3,4,5,6)							
4.80 - 5.00	D11								
			HV 5.10m, 128 kPa		(6.00)				
5.20 - 5.65	D12	SPT(S) 5.20m, N=35 (1,3/4,10,10, 11)							
5.20 - 6.20	B13								
			HV 6.10m, 92 kPa						
6.20 - 6.65	D14	SPT(S) 6.20m, N=27 (1,4/5,7,7,8)							
6.90 - 7.20	D15						*From 6.80m becoming very stiff, very silty.*		
7.20	B16	SPT(S) 7.20m, N=33 (3,6/6,9,9,9)							
7.20	D15								
7.20 - 7.65	D16								
7.20 - 8.10	B17								
				46.90	8.10		End of Borehole at 8.10m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	2.00	PLAIN	50
1	2.00	8.00	SLOTTED	50

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	100
2	101	2.20	3.20	100
3	88	3.20	4.20	100
4	76	4.20	5.20	100
5	76	5.20	6.20	100
6	65	6.20	7.20	100

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			WS012
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER9352	11/04/2022	11/04/2022	CW	FINAL	
Windowless Borehole Log	Easting: 393684.5	Northing: 171374.5	Ground Level: 52.95mOD	Plant Used: Dando Terrier	Logged By: RT	Scale: 1:50

Weather: Sunny with showers | Termination: Required Depth. | SPT Hammer: N/R, Energy Ratio: 66.38%

Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					(0.30)	Soft friable brown sandy CLAY with frequent rootlets (5mm). Sand is fine and medium		
0.30	ES1			52.65	0.30			
0.50	D1		PID 0.30m, 0.0ppm			Soft orange brown mottled grey slightly sandy CLAY. Sand is fine and medium.		
0.80	ES2		HV 0.50m, 76, 62, 68 kPa					
1.00	B2		PID 0.80m, 0.0ppm			*From 0.90m to 1.10m with occasional coarse gravel sized pockets of fine and medium sand.*		
1.15	ES3	SPT(S)			(1.70)			
1.20 - 1.65	D3	1.20m, N=6 (1,1/1,1,2,2)	PID 1.15m, 0.0ppm					
2.00 - 2.30	D4		HV 2.00m, 62 kPa	50.95	2.00	Firm extremely closely fissured light bluish grey silty CLAY		
2.20 - 2.65	D5	SPT(S)				*With medium gravel sized pockets of coarse sand sized decomposed selenite.*		
2.20 - 3.20	B6	2.20m, N=8 (1,1/1,2,2,3)						
2.70 - 2.80	D7		PID 2.70m, 0.0ppm			*From 2.50m becoming stiff dark greyish brown locally with frequent coarse sand sized selenite crystals and occasional fine and medium gravel sized bivalve fossils.*		
3.20 - 3.65	D8	SPT(S) 3.20m, N=11 (1,1/2,2,3,4)						
3.80 - 4.00	D9							
4.20 - 4.65	D10	SPT(S)						
4.20 - 5.20	B11	4.20m, N=15 (1,3/3,3,4,5)				*From 4.50m becoming extremely closely fissured bluish grey with frequent fine and medium gravel sized bivalve fossils.*		
					(6.10)			
5.20 - 5.65	D12	SPT(S) 5.20m, N=23 (1,3/4,6,6,7)				*From 5.20m becoming very stiff.*		
5.80 - 6.00	D13							
6.20 - 6.45	D14	SPT(S)						
6.20 - 7.20	B15	6.20m, N=17 (1,2/4,4,4,5)						
7.20 - 7.65	B16	SPT(S) 7.20m, N=24 (1,2/4,5,7,8)				*From 7.20m locally sheared. sandy.*		
7.80 - 8.10	D17							
				44.85	8.10	End of Borehole at 8.10m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	120	1.20	2.20	75
2	101	2.20	3.20	100
3	88	3.20	4.20	100
4	76	4.20	5.20	100
5	76	5.20	6.20	100
6	65	6.20	7.20	100

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council	Borehole ID: WS013
Contract Number: JER9352	Start Date: 14/04/2022	End Date: 14/04/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 393842.0	Northing: 171393.0	Ground Level: 53.25mOD	Plant Used: Dando Terrier
Logged By: RT	Scale: 1:50			Sheet 1 of 1
Weather: Partly cloudy	Termination: SPT Test refusal		SPT Hammer: N/R, Energy Ratio: 66.38%	

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.30	ES1			53.00	0.25		Grass over firm dark brown sandy CLAY with localised red brown staining and occasional fine rootlets (<1mm)		
0.50	D1		PID 0.30m, 0.0ppm				Firm yellowish brown mottled light grey slightly sandy CLAY		
0.80	ES2		HV 0.50m, 82, 82, 88 kPa						
1.00	B2		PID 0.80m, 0.0ppm				*From 1.00m to 1.20m becoming slightly gravelly with occasional medium gravel sized pockets of fine and medium sand. Gravel is medium and coarse subrounded siltstone and limestone.*		
1.15	ES3								
1.20 - 1.65	D3	SPT(S) 1.20m, N=10 (1,1/1,2,3,4)	PID 1.15m, 0.0ppm		(2.35)				
2.00	B4						*From 2.00m becoming greyish brown mottled reddish brown with occasional fine gravel sized pockets of yellow silt and ferrous staining.*		
2.20	D5	SPT(S) 2.20m, N=13 (1,2/2,3,4,4)	HV 2.10m, 118 kPa				*From 2.15m to 2.60m with occasional fine and medium gravel sized selenite crystals.*		
							From 2.40m becoming extremely closely fissured.		
				50.65	2.60		Stiff extremely closely to very closely fissured bluish grey CLAY .		
2.80 - 2.95	D6						*From 2.60m to 3.10m with occasional medium and coarse gravel sized selenite crystals.*		
			HV 3.10m, 130 kPa				*From 3.00m becoming thickly laminated.*		
3.20 - 3.65	D7	SPT(S)							
3.30 - 3.45	ES4	3.20m, N=12							
3.45 - 4.20	B8	(2,2/2,2,4,4)	PID 3.30m, 0.0ppm				*From 3.40m locally sheared.*		
					(2.01)		*From 3.60m with rare coarse sand to fine gravel sized fossil shell fragments.*		
4.20 - 4.65	D9	SPT(S) 4.20m, N=17 (1,2/4,4,5,4)							
4.40 - 4.60	D10						*From 4.40m becoming very stiff and silty.*		
		SPT(S) 4.60m, 50 (25 for 5mm/50 for 5mm)		48.64	4.61		End of Borehole at 4.61m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	100
2	128	2.20	3.20	100
3	113	3.20	4.20	100
4	113	4.20	4.40	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Contract Name:		Client:			Borehole ID:
Chippenham Distributor Road		Wiltshire Council			WS014
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER9352	27/04/2022	27/04/2022	CW	FINAL	
Windowless Borehole Log	Easting: 393809.0	Northing: 171546.0	Ground Level: 57.75mOD	Plant Used: Dando Terrier	Logged By: MC	Scale: 1:50

Weather: Overcast | Termination: No recovery from 4.2m to 5.2m. | SPT Hammer: N/R, Energy Ratio: 66.38%

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.25	ES1		PID 0.25m, 0.0ppm		(0.45)		Grass over dark brown clayey SILT with rare gravel sized fine to coarse brick and lignite.		
0.50	B1			57.30	0.45		Soft to firm light brown mottled grey and orange silty CLAY. Silt content decreases with depth.		
0.50	D2								
0.80	ES2		PID 0.80m, 0.0ppm		(0.75)				
1.00	D3								
1.00 - 1.10	B4	SPT(S) 1.20m, N=4 (1,1/1,1,1,1)		56.55	1.20		Soft to firm mottled orange grey silty very sandy CLAY. Sand is fine and medium.		
1.20	ES3		PID 1.20m, 0.0ppm						
1.40 - 1.48	D5				(0.45)				
1.65 - 2.20	B6			56.10	1.65		Greyish reddish brown gravelly clayey fine and medium SAND. Gravel is fine to coarse subangular to subrounded limestone. *Between 1.70m bgl and 1.80m bgl sandy gravel.* *Between 2.20m bgl and 2.50m bgl SPT disturbed.*		
		SPT(S) 2.20m, N=11 (1,1/1,3,3,4)			(0.85)				
				55.25	2.50		Soft becoming firm dark bluish grey silty sandy CLAY. Sand is fine.		
2.98 - 3.05	D7				(0.70)				
		SPT(S) 3.20m, N=28 (2,4/6,6,6,10)		54.55	3.20		Orange brown grey clayey gravelly fine and medium SAND. Gravel is fine to coarse subangular to subrounded limestone and lithorelicts.		
					(0.80)				
				53.75	4.00		Firm dark bluish grey silty slightly sandy CLAY. Sand is fine.		
4.12 - 4.18	D8	SPT(S) 4.20m, N=29 (2,4/5,7,7,10)		53.55	4.20		AZCL		
					(1.00)				
				52.55	5.20		End of Borehole at 5.20m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation					
Ref	Top (m)	Base (m)	Type	Diameter (mm)	

Remarks:
Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1		1.20	2.20	80
2		2.20	3.20	95
3		3.20	4.20	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Seepage

Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS018
Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 394224.0	Northing: 171813.0	Ground Level: 55.90mOD	Plant Used: Hand Tools.
Logged By: MC	Scale: 1:50	Sheet 1 of 1		
Weather: Cloudy	Termination: Water flooding pit.			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				55.70	0.20		Soft brown slightly sandy gravelly CLAY with occasional rootlets (<5mm). Sand is fine to coarse. Gravel is medium and coarse subrounded to angular limestone and flint.		
					(0.55)		Orangish brown sandy fine to coarse subrounded to angular flint, limestone and brick GRAVEL.		
				55.15	0.75		End of Borehole at 0.75m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation					
Ref	Top (m)	Base (m)	Type	Diameter (mm)	

Remarks:

Water strike preventing further excavation. Location abandoned. No sampling or insitu testing completed.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.75			0		Fast seepage

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS018A
	Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Windowless Borehole Log	Easting: 394226.0	Northing: 171813.0	Ground Level: 55.95mOD	Plant Used: Hand Tools.	Logged By: MC
					Scale: 1:50
Weather: Cloudy		Termination: Concrete Obstruction			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.35)		Grass over dark brown clayey SILT with some coarse concrete and tarmac gravel.		
				55.60	0.35		End of Borehole at 0.35m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Position refusing on concrete. No sampling or insitu testing completed.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS018B
	Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Windowless Borehole Log	Easting: 394227.0	Northing: 171813.0	Ground Level: 55.95mOD	Plant Used: Hand Tools.	Logged By: MC
					Scale: 1:50
Weather: Cloudy		Termination: Concrete Obstruction			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.40)		Grass over dark brown clayey SILT with some coarse concrete and tarmac gravel.		
				55.55	0.40		End of Borehole at 0.40m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Position refusing on concrete. No sampling or insitu testing completed.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS018C
	Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Windowless Borehole Log	Easting: 394197.0	Northing: 171806.0	Ground Level: 56.20mOD	Plant Used: Hand Tools.	Logged By: MC
					Scale: 1:50
Weather: Cloudy		Termination: Concrete Obstruction			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
				55.95	0.25		Grass over dark brown clayey SILT with some medium and coarse concrete and tarmac gravel.		
							End of Borehole at 0.25m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Position refusing on concrete. No sampling or insitu testing completed.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS018D
	Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Windowless Borehole Log	Easting: 394196.0	Northing: 171804.0	Ground Level: 56.35mOD	Plant Used: Hand Tools.	Logged By: MC
					Scale: 1:50
Weather: Cloudy		Termination: Concrete Obstruction			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.35)		Grass over dark brown clayey SILT with some coarse concrete and tarmac and brick gravel.		
				56.00	0.35		End of Borehole at 0.35m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing

Depth (m)	Diameter (mm)

Remarks:

Position refusing on concrete. No sampling or insitu testing completed.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS018E
Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 394181.0	Northing: 171817.0	Ground Level: 56.40mOD	Plant Used: Hand Tools.
Logged By: MC	Scale: 1:50	Sheet 1 of 1		
Weather: Cloudy	Termination: Refusal on concrete.			

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.25	ES1		PID 0.25m, 0.0ppm	56.20	0.20		Grass over dark brown clayey SILT with roots (<5mm) and rootlets (<1mm).		
0.50	D1			56.05	0.35		Stiff brownish grey CLAY with occasional fine to coarse angular to rounded concrete gravel.		
0.50 - 0.60	B2				(0.35)		Brown gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded coarse concrete, brick and tarmac.		
				55.70	0.70		End of Borehole at 0.70m		

1 2 3 4 5 6 7 8 9 10

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)

Remarks:

Concrete slab encountered at 0.70m.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)

Casing	
Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS019
	Contract Number: JER9352	Start Date: 10/05/2022	End Date: 10/05/2022	Checked By: CW	Status: FINAL
Windowless Borehole Log	Easting: 394161.0	Northing: 171846.0	Ground Level: 57.10mOD	Plant Used: Dando Terrier	Logged By: MC
					Sheet 1 of 1
					Scale: 1:50

Weather: Rain+Cloudy | Termination: SPT Refusal. | SPT Hammer: N/R, Energy Ratio: 66.38%

Samples & In Situ Testing				Strata Details				Groundwater	
Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.15	ES1		PID 0.15m, 0.0ppm	56.95	0.15		Grass over dark brown SILT.		
0.50	D1				(0.45)		Firm light brown silty sandy gravelly CLAY. Sand is fine and medium. Gravel is fine to coarse angular to subrounded concrete and limestone.		
0.50 - 0.55	B2			56.50	0.60		Soft light brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded concrete.		
				56.30	0.80		Concrete		
				56.15	0.95		Soft brown mottled grey and orangish brown slightly sandy CLAY with frequent roots (<5mm), rootlets (<3mm) and decayed organic matter. Slight organic odour.		
1.20 - 1.65	D3	SPT(S) 1.20m, N=4 (1,1/1,1,1,1)							
1.40	D4				(1.15)				
				55.00	2.10		Stiff greyish brown mottled grey slightly sandy CLAY with occasional rootlets (<5mm).		
2.20 - 2.65	D5	SPT(S) 2.20m, N=11 (2,3/2,2,3,4)			(0.50)				
2.50	D6			54.50	2.60		Stiff locally very stiff grey slightly sandy CLAY.		
					(0.80)				
3.20 - 3.65	D7	SPT(S) 3.20m, N=57 (2,4/5,17,10, 25)					*From 3.4m becoming sandy.*		
3.30	D8			53.70	3.40		Stiff dark grey slightly sandy slightly gravelly CLAY with abundant fine to medium gravel sized shells and shell fragments and occasional decayed organic matter. Sand is fine. Gravel is angular fine to medium limestone.		
3.60	D9				(0.30)		*At 3.4m large 10mm band of decayed organic matter (lignite) abundant pyrite crystals fine to medium sand sized.*		
				53.40	3.70		End of Borehole at 3.70m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)

Installation				
Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	50
1	1.00	3.70	SLOTTED	50

Remarks:
Exploratory hole location CAT scanned and service plans inspected prior to drilling.

Windowless Sample Run Details				
Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	101	1.20	2.20	100
2	88	2.20	3.20	100

Casing	
Depth (m)	Diameter (mm)

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
			0		No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Borehole ID: WS020
	Contract Number: JER9352	Start Date: 14/04/2022	End Date: 14/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Windowless Borehole Log	Easting: 393903.5	Northing: 171531.5	Ground Level: 55.45mOD	Plant Used: Dando Terrier	Logged By: RT	Scale: 1:50
Weather: Dry, sunny.		Termination: Required Depth.		SPT Hammer: N/R, Energy Ratio: 66.38%	

Depths	Type/ Ref	SPT	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
					(0.30)		Grass over soft friable brown sandy CLAY with frequent rootlets (<1mm).		
0.30	ES1			55.15	0.30		*At 0.25m with medium gravel sized brick fragments.*		
0.50	D1		PID 0.30m, 0.0ppm				Firm extremely closely fissured yellowish brown mottled light grey silty CLAY.		
0.80	ES2		HV 0.50m, 62, 68, 74 kPa						
1.00	B2		PID 0.80m, 0.0ppm				*From 1.00m becoming light grey mottled yellow brown.*		
1.15	ES3	SPT(S)							
1.20 - 1.65	D3	1.20m, N=10 (1,2/2,2,3,3)	PID 1.15m, 0.0ppm						
					(2.80)				
1.90 - 2.10	D4						*From 1.80m becoming greenish brown with localised ferrous staining and medium gravel sized mudstone lithorelics.*		
2.20 - 2.65	D5	SPT(S)	HV 2.15m, 68 kPa						
2.20 - 3.00	B6	2.20m, N=11 (1,1/2,2,3,4)					*From 2.20m to 3.10m with occasional fine and medium gravel sized pockets of yellow silt. Becoming Stiff.*		
			HV 3.10m, 116 kPa	52.35	3.10				
3.20 - 3.65	D7	SPT(S) 3.20m, N=13 (1,1/2,3,4,4)					Firm extremely closely fissured thinly to thickly laminated bluish grey silty CLAY.		
3.60 - 3.80	ES4		PID 3.60m, 0.0ppm				*At 3.45m with a medium gravel sized selenite crystal.*		
			HV 4.10m, 102 kPa		(2.10)				
4.20 - 4.65	D8	SPT(S)					*From 4.20m with rare fine and medium gravel sized fossil fragments.*		
4.20 - 5.20	B9	4.20m, N=13 (2,2/2,3,4,4)							
5.20 - 5.65	D10	SPT(S) 5.20m, N=20 (2,3/4,5,5,6)		50.25	5.20		Stiff extremely closely fissured thinly to thickly laminated bluish grey silty CLAY.		
5.80	D11						*At 6.00m with fine gravel sized fragment of fossilised wood.*		
6.20 - 6.65	D12	SPT(S)							
6.20 - 7.20	B13	6.20m, N=27 (2,3/5,6,7,9)							
					(2.90)				
7.20 - 7.65	D14	SPT(S) 7.20m, N=21 (1,3/3,5,6,7)							
7.90 - 8.10	D15								
				47.35	8.10		End of Borehole at 8.10m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)

Installation

Ref	Top (m)	Base (m)	Type	Diameter (mm)
1	0.00	1.00	PLAIN	50
1	1.00	8.10	SLOTTED	50

Remarks:

No groundwater seepage encountered.

Windowless Sample Run Details

Test Number	Diameter (mm)	Depth Top (m)	Depth Base (m)	Recovery (%)
1	128	1.20	2.20	100
2	113	2.20	3.20	100
3	98	3.20	4.20	100
4	84	4.20	5.20	100
5	84	5.20	6.20	100
6	84	6.20	7.20	100

Casing

Depth (m)	Diameter (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

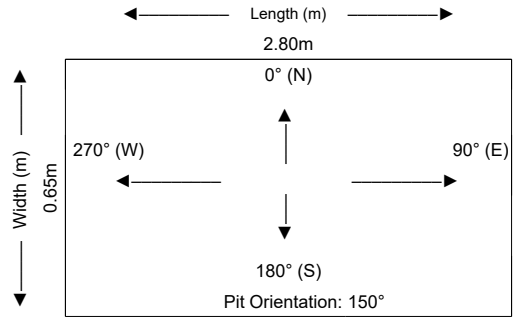
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_01
	Contract Number: JER9352	Start Date: 29/04/2022	End Date: 29/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 391555.0	Northing: 170636.5	Ground Level: 43.60mOD	Plant Used: 5t Tracked Excavator	Logged By: RT	Scale: 1:50
Weather: Cloudy	Hole Termination: Instability from groundwater.		Stability: Instability below 1.30m		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			43.45	0.15		Rough grass on light greyish brown slightly sandy friable SILT. Sand is fine to medium with rare medium subangular gravel of chert.		
0.30	ES1			(0.30)				
0.35	B1	PID 0.30m, 0.1ppm	43.15	0.45		Firm friable orangish brown sandy very clayey SILT. Sand is fine and medium.		
0.50	D2	HV 0.50m, 74, 62, 0.74 kPa		(0.35)				
0.80	ES2		42.80	0.80		Firm orangish brown slightly gravelly sandy CLAY. Sand is fine and medium. Gravel is medium and coarse of subangular chert with occasional fine to medium pockets of dark reddish brown ferrous staining.		
1.00	B3	PID 0.80m, 0.2ppm						
1.20	ES3			(0.70)		Light grey slightly clayey sandy GRAVEL with a low cobble content. Sand is fine to coarse. Gravel is fine to coarse well rounded to subangular, occasional tabular of mixed lithologies including chert, quartzite, possibly ironstone, calcarenite, shell detrital limestone. Cobbles of stone subangular limestone. Rare medium to coarse gravel sized pockets of soft sandy clay.		
		PID 1.20m, 0.1ppm						
1.50	D4		42.10	1.50		End of Trial Pit at 1.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 1.50m



General Remarks:

Soakaway test completed at 1.20m.

Water Strikes	
Strike (m)	Remarks
1.40	Slow seepage

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_02
	Contract Number: JER9352	Start Date: 06/04/2022	End Date: 06/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392649.5	Northing: 170879.5	Ground Level: 47.15mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50

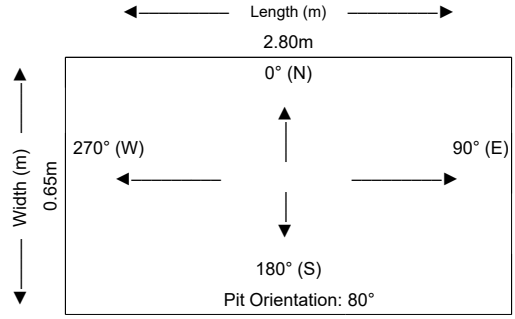
Weather: Cool, showers | Hole Termination: Target depth achieved. | Stability: Vertical and stable

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Soft brown silty friable CLAY with occasional fine rootlets (2mm) and rare subangular medium limestone gravel.		
0.30	ES1		46.80	0.35				
0.50	D1	PID 0.30m, 0.0ppm HV 0.50m, 100, 94, 94 kPa				Stiff extremely closely fissured yellowish brown mottled orange very sandy CLAY. Sand is medium.		
0.80	ES2	PID 0.80m, 0.0ppm				*from 0.70m with occasional coarse gravel to cobble sized pockets of light grey sandy clay.*		
1.00	B2			(1.35)				
1.00	D3							
1.20	ES3	HV 1.00m, 42, 46, 66 kPa PID 1.20m, 0.0ppm				*from 1.20m becoming soft locally very sandy.*		
1.50	D4							
			45.45	1.70		Soft orange brown mottled light grey slightly gravelly sandy CLAY, Sand is fine and medium. Gravel is fine occasionally medium subrounded and rounded chert.		
2.00	B5			(0.50)				
2.00	D6					*from 2.10m to 2.20m becoming olive brown mottled grey*		
2.20	ES4	PID 2.20m, 0.0ppm	44.95	2.20		Stiff extremely closely fissured light bluish grey mottled olive grey CLAY.		
2.50	D7							
2.50	ES5	HV 2.50m, 100, 72, 76 kPa PID 2.50m, 0.0ppm		(1.00)		*at 2.65m with a cobble sized tabular fossilised wood fragment with possible pyritic yellow discolouration.*		
3.00	B8							
3.00	D9	HV 3.00m, 94, 98, 110 kPa	43.95	3.20				
3.40	B10			(0.30)		Stiff bluish grey cemented sandy CLAY with abundant medium gravel to cobble sized bivalve fossils and fossilised wood. Sand is fine and medium.		
3.40	D11		43.65	3.50				
3.40	ES6	PID 3.40m, 0.0ppm				End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway not completed. Test completed in HP_TP_02a.

Water Strikes	
Strike (m)	Remarks
3.50	Seepage

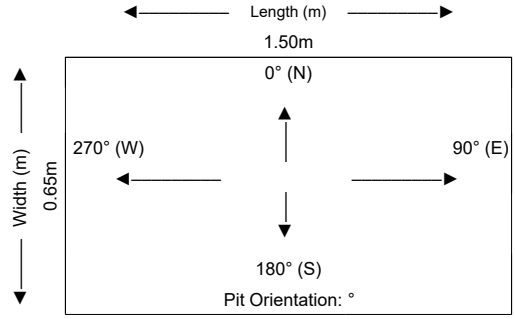
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_02a
	Contract Number: JER9352	Start Date: 28/04/2022	End Date: 28/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392650.5	Northing: 170877.5	Ground Level: 47.10mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Dry overcast		Hole Termination: Required depth achieved.		Stability: Vertical and stable.	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			46.75	(0.35) 0.35		Soft brown silty friable CLAY with occasional fine rootlets and rare subangular medium limestone gravel.		
				(1.35)		Stiff extremely closely fissured yellowish brown mottled orange slightly sandy CLAY. Sand is fine and medium.		
			45.40	1.70				
			45.10	(0.30) 2.00		Soft orange brown mottled light grey slightly gravelly sandy CLAY, Sand is fine to coarse. Gravel is fine and medium occasionally coarse subrounded and rounded chert.		
						End of Trial Pit at 2.00m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 2.00m



General Remarks:

Soakaway test terminated at 1m on client instruction due to slow progress. No insitu testing or sampling, samples recovered from HP_TP_02.

Water Strikes	
Strike (m)	Remarks

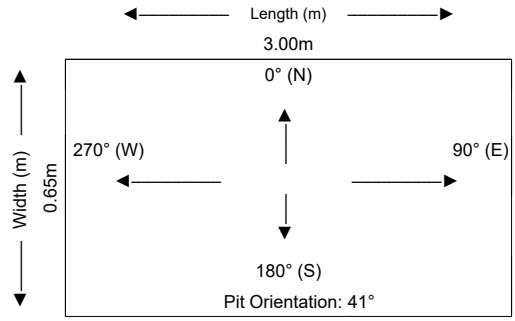
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_03
	Contract Number: JER9352	Start Date: 28/04/2022	End Date: 28/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392686.5	Northing: 170889.5	Ground Level: 47.65mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50

Weather: Partly cloudy | Hole Termination: Target depth achieved. | Stability: Major instability from 1.6m to 2.9m, stable below.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.30	ES1	PID 0.20m, 0.4ppm	47.40	0.25		Rough grass on firm light greyish brown silty CLAY with frequently fine and medium rootlets up to 2mm.		
0.50	D1	HV 0.50m, 56, 58, 64 kPa		(0.95)		Firm very closely to closely fissured fissured locally sheared light grey mottled orange CLAY.		
0.80	ES2	PID 0.80m, 0.1ppm						
1.00	B2	HV 1.00m, 60, 60, 54 kPa						
1.20	ES3	PID 1.20m, 0.0ppm	46.45	1.20		Firm orangish brown mottled grey sandy CLAY. Sand is fine and medium.		
1.50	D3	HV 1.50m, kPa				*Becoming very sandy with rare fine and medium subangular flint gravel. Sand is fine and medium occasionally coarse. Damp.*		
1.70	ES4	PID 1.70m, 0.0ppm						
2.00	B4	HV 2.00m, kPa		(1.50)				
2.50	D5	HV 2.50m, kPa				*Becoming light greyish brow*		
			44.95	2.70		Firm extremely closely fissured greyish brown locally mottled orangish brown CLAY with occasional medium gravel sized pockets of pale yellow silt.		
3.00	B6	HV 3.00m, 58, 64, 64 kPa		(0.60)		*With a thin bed of firm dark greyish brown possibly silty clay with rare medium gravel sized fossilised wood fragments.*		
			44.35	3.30		Stiff extremely closely fissured bluish grey CLAY.		
3.40	D7	HV 3.40m, 80, 74, 78 kPa	44.15	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test terminated at 1 hour due to slow progress.

Water Strikes	
Strike (m)	Remarks
2.00	Slow seepage
2.65	Slow groundwater ingress

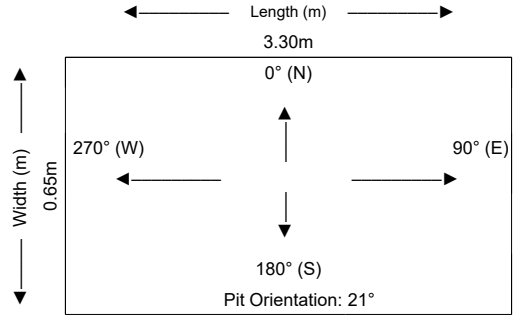
Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Trial Pit ID: HP_TP_04
Contract Number: JER9352	Start Date: 22/04/2022	End Date: 22/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 393017.5	Northing: 171512.0	Ground Level: 52.45mOD	Plant Used: 5t Tracked Excavator	Logged By: RT	Scale: 1:50
Weather: Rain+Cloudy	Hole Termination: Target depth achieved.		Stability: Minor instability from 1.70m to 2.40m.		

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
				(0.35)		Grass over firm friable light grey slightly sandy CLAY with frequent fine rootlets (<1mm).		
0.30	ES1		52.10	0.35		Firm very closely fissured light orangish brown mottled light grey slightly sandy CLAY. Sand is fine and medium.		
0.50	D1	PID 0.30m, 0.0ppm HV 0.50m, 88, 82, 82 kPa						
0.80	ES2	PID 0.80m, 0.0ppm				*From 0.90m with occasional medium gravel sixed pockets of very clayey fine and medium sand, rare fine gravel sized pockets of dark brown organic matter.*		
1.00	B2	HV 1.00m, 84, 88, 82 kPa		(1.35)				
1.20	ES3	PID 1.20m, 0.0ppm				*From 1.30m becoming light grey mottled orangish brown.*		
1.50	B3	HV 1.50m, 38, 38, 36 kPa						
			50.75	1.70		Orangish brown spotted light grey very clayey fine and medium SAND.		
2.00	D4			(0.70)		*From 2.10m becoming light grey.*		
2.00	ES4	PID 2.00m, 0.0ppm						
			50.05	2.40		Firm extremely closely to very closely fissured grey mottled olive brown very sandy CLAY with localised ferrous staining.		
2.50	D5	HV 2.50m, 38, 34, 38 kPa		(0.50)				
			49.55	2.90		Stiff extremely closely fissured light bluish grey slightly sandy very silty CLAY with occasional medium gravel sized pockets and lenses of fine and medium sand. Partings of sand along fissures.		
3.00	B6			(0.60)				
3.40	D7					*At 3.40m with strong rounded boulder sized nodular siltstone concretion and rare medium gravel sized bivalve and crinoid fossils and fine gravel sized pyritic inclusions.*		
3.40	ES5	HV 3.40m, 136, 120, >140 kPa PID 3.40m, 0.0ppm	48.95	3.50		End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.00m.

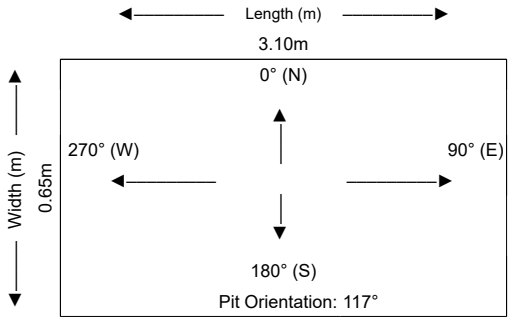
Water Strikes	
Strike (m)	Remarks
2.00	Slow seepage

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_05
	Contract Number: JER9352	Start Date: 20/04/2022	End Date: 20/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392994.5	Northing: 170721.5	Ground Level: 44.35mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather:		Hole Termination: Target depth achieved.		Stability: Vertical and Stable	

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
				(0.30)		Grass on soft brown slightly sandy slightly gravelly CLAY. Sand is fine and medium. Gravel is medium and coarse subangular and subrounded calcarenite. Frequent rootlets (<1mm)		
0.30	ES1		44.05	0.30				
0.50	D1	PID 0.30m, 0.0ppm		(0.40)		Soft orangish brown mottled grey slightly sandy CLAY with occasional ferrous staining. Sand is fine and medium.		
		HV 0.50m, 80, 76, 72 kPa	43.65	0.70		*From 0.60m to 0.70m with occasional fine and medium gravel sized calcareous nodules.*		
0.80	ES2	PID 0.80m, 0.0ppm				*0.60m to 1.20m with boulder sized discontinuous lenses of very clayey gravelly sand . Sand is fine and medium, gravel is medium and coarse subangular and subrounded chert and limestone.*		
1.00	B2	HV 1.00m, 100, 110, 110 kPa						
1.20	ES3	PID 1.20m, 0.0ppm		(1.20)		Soft extremely to very closely fissured locally sheared orangish brown mottled light grey sandy silty CLAY. Sand is fine and medium.		
1.50	D3	HV 1.50m, 74, 72, 60 kPa						
			42.45	1.90		Firm extremely closely fissured dark greyish brown silty CLAY with occasional coarse gravel sized pockets of medium sand sized selenite crystals.		
2.00	B4	HV 2.00m, 74, 70, 62 kPa				*From 2.20m with occasional medium gravel sized pockets of yellow silt.*		
2.50				(1.00)		*From 2.40m with rare medium gravel sized fossilised wood fragments.*		
2.50	D5							
2.50	ES4	PID 2.50m, 0.0ppm						
			41.45	2.90		Firm very closely fissured bluish grey slightly sandy silty CLAY with frequent medium and coarse gravel sized fossil shells and fragments.		
3.00	B6			(0.60)				
3.40	ES5					*From 3.40m with rare medium and coarse sized fossilised wood fragments.*		
3.50	D7	PID 3.40m, 0.0ppm	40.85	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 1.95m depth.

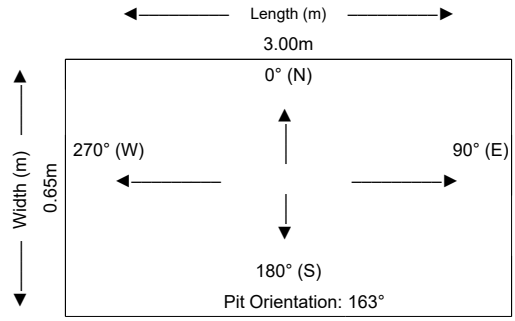
Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_06
	Contract Number: JER9352	Start Date: 25/04/2022	End Date: 25/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 393414.0	Northing: 170848.5	Ground Level: 45.35mOD	Plant Used: 5t Tracked Excavator	Logged By: RT	Scale: 1:50
Weather: Cloudy, dry.		Hole Termination: Target depth achieved.		Stability: Vertical and stable.		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.40)		Grass over firm friable brown slightly sandy CLAY with fine rootlets (<1mm) and rare fine and medium subangular ironstone and limestone gravel.		
0.30	ES1							
0.50	D1	PID 0.30m, 0.0ppm	44.95	0.40		Firm extremely to closely fissured orangish brown mottled grey slightly sandy CLAY.		
0.80	ES2					*From 0.50m becoming orangish brown.*		
1.00	B2	PID 0.80m, 0.1ppm						
1.00	D3							
1.20	ES3	HV 1.00m, 66, 70, 84 kPa						
		PID 1.20m, 0.0ppm						
1.50	D4			(2.30)				
						At 1.70m coarse gravel sized fossil wood fragment.		
						From 1.80m becoming light grey locally mottled orangish brown with abundant coarse sand sized decomposed selenite crystals.		
2.00	B5							
2.00	D6							
						From 2.30m with occasional medium gravel sized selenite crystals and fine and medium gravel sized pockets of yellow silt.		
2.50	D7							
			42.65	2.70		Stiff very closely fissured bluish grey CLAY with occasional fine to coarse gravel sized fossils and shell fragments, rare medium gravel sized selenite crystals.		
3.00	B8							
3.00	D9			(0.80)		*From 2.70m to 2.90m extremely closely fissured and dark greyish brown.*		
3.20	ES4					*From 3.20m becoming very stiff.*		
3.40	D10	PID 3.20m, 0.1ppm						
			41.85	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.00m. No groundwater seepage encountered. 1" plastic water pipe encountered at 0.65m.

Water Strikes	
Strike (m)	Remarks

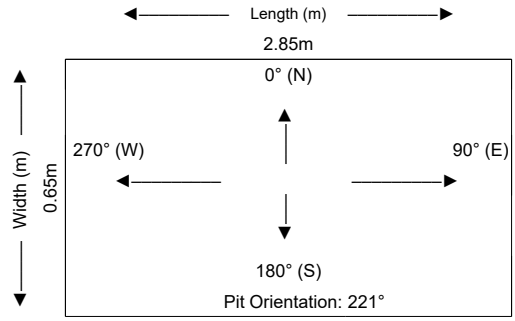
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_07
	Contract Number: JER9352	Start Date: 21/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 393723.5	Northing: 171273.5	Ground Level: 53.65mOD	Plant Used: 5t tracked Excavator	Logged By: RT
					Scale: 1:50

Weather: Cloudy, dry. | Hole Termination: Target depth achieved. | Stability: Vertical and stable

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
			53.45	0.20		Grass on firm light greyish brown friable CLAY with occasional fine rootlets (<1mm).		
0.30	ES1					Firm orangish brown locally mottled grey slightly sandy CLAY		
0.50	D1	PID 0.30m, 0.5ppm		(0.60)		*From 0.40m becoming slightly gravelly sandy. Sand is fine and medium. Gravel is medium to coarse subangular to subrounded chert and limestone.*		
0.80	ES2		52.85	0.80		Firm extremely closely fissured light grey mottled orangish brown CLAY with occasional coarse sand sized pockets of white silt and locally abundant fine and medium gravel sized shell fragments.		
1.00	B2	PID 0.80m, 0.8ppm						
1.20	ES3	HV 1.00m, 68, 80, 74 kPa PID 1.20m, 0.3ppm		(0.90)				
1.50	D3	HV 1.50m, 64, 66, 68 kPa						
			51.95	1.70		Stiff very closely fissured dark brownish grey CLAY, locally pyritic		
2.00	B4					*At 1.80m with a coarse gravel sized fossil wood fragment*		
2.30	ES4	PID 2.30m, 1.5ppm				*From 2.20m becoming very closely to closely fissured.*		
				(1.80)				
3.00	B5							
3.40	D6					*At 3.40m recovered as clayey sandy fine to coarse gravel.*		
			50.15	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.11m. Slow groundwater seepage at 3.2m standing at 3.2m after 15 minutes.

Water Strikes	
Strike (m)	Remarks
3.20	Slow seepage

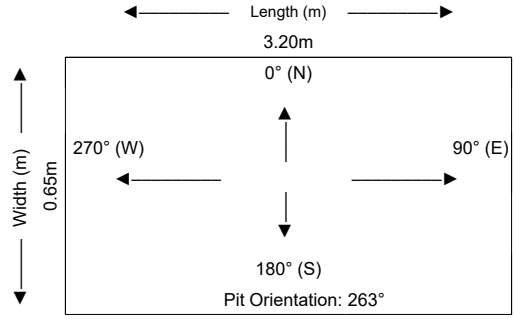
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: HP_TP_08
	Contract Number: JER9352	Start Date: 11/05/2022	End Date: 11/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 393908.5	Northing: 171379.0	Ground Level: 53.95mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50

Weather: Moderate rain | Hole Termination: Target depth achieved. | Stability: Vertical and stable

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Firm brown slightly sandy CLAY with frequent fine rootlets (<1mm) and localised ferrous staining. Sand is fine and medium.		
0.30	ES1		53.60	0.35				
0.50	B1	PID 0.30m, 0.0ppm		(0.35)		Firm orange brown locally mottled grey extremely closely fissured CLAY.		
0.50	D2		53.25	0.70				
0.80	ES2	HV 0.50m, 64, 60, 72, 60 kPa				Firm extremely closely to closely fissured locally sheared bluish grey locally mottled orangish brown slightly silty CLAY.		
1.00	B3	PID 0.80m, 0.0ppm				*with occasional coarse gravel sized pockets of coarse sand sized decomposed selenite crystals.*		
1.00	D4							
1.20	ES3	HV 1.00m, 62, 66, 74 kPa PID 1.20m, 0.0ppm						
1.50	D5	HV 1.50m, 68, 62, 56 kPa						
				(2.40)		*from 1.90m becoming extremely closely fissured.* *at 1.95m with a rounded boulder of strong siltstone.* *from 2.00m with medium gravel sized pockets of pale yellow silt.* *from 2.20m becoming bluish grey, stiff*		
2.00	B6							
2.00	D7							
2.50	D8					*from 2.40m becoming greyish brown with rare medium gravel sized selenite crystals*		
3.00	B9							
3.00	D10		50.85	3.10		Very stiff very closely fissured thickly laminated bluish grey CLAY with rare ammonite fossils and rare medium to coarse gravel sized selenite crystals.		
3.40	B11			(0.40)				
3.40	D12		50.45	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.00m.

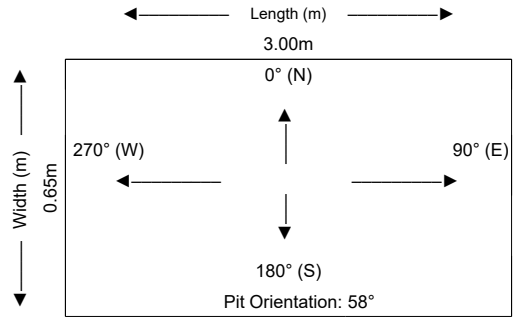
Water Strikes	
Strike (m)	Remarks
1.40	Minor seepage

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Trial Pit ID: HP_TP_09
Contract Number: JER9352	Start Date: 12/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 394334.5	Northing: 171683.5	Ground Level: 54.45mOD	Plant Used: 5t tracked Excavator	Logged By: RT	Scale: 1:50
Weather: Cloudy	Hole Termination: Target depth achieved./		Stability: Vertical and stable		

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.30	ES1		54.20	0.25		Stiff extremely closely fissured brown slightly sandy CLAY with occasional rootlets (<2mm) and rare medium subrounded limestone gravel.		
0.50	B1	PID 0.30m, 0.0ppm				Stiff extremely closely fissured orangish brown slightly sandy silty CLAY.		
0.50	D2					*from 0.40m extremely closely to very closely fissured, locally sheared.*		
0.80	ES2	HV 0.50m, 100, 106, 100 kPa						
1.00	B3	PID 0.80m, 0.0ppm		(1.55)		*from 0.90m becoming light grey locally mottled orangish brown. with abundant coarse sand to fine gravel sized shell fragments.*		
1.00	D4							
1.20	ES3	HV 1.00m, 50, 48, 46 kPa PID 1.20m, 0.0ppm						
1.50	D5	HV 1.50m, 40, 42, 50 kPa						
			52.65	1.80		Firm extremely closely to closely fissured dark greyish brown CLAY with occasional medium gravel sized pockets of coarse sand sized decomposed selenite, localised ferrous staining and organic odour.		
2.00	B6							
2.00	D7	HV 2.00m, 50, 58, 54 kPa						
2.50	D8			(1.70)		*from 2.50m becoming very stiff very closely fissured dark greyish brown to bluish grey.*		
3.00	B9							
3.00	D10					*from 3.20m thickly laminated.*		
3.40	D11		50.95	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.10m.

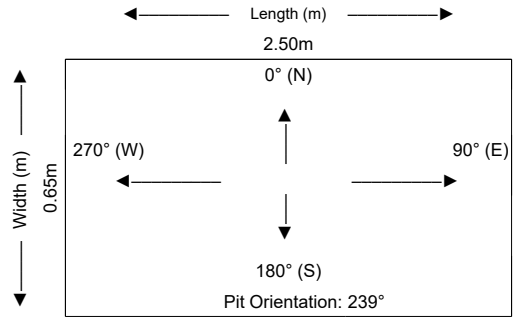
Water Strikes	
Strike (m)	Remarks
3.30	Strike

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP001
	Contract Number: JER9352	Start Date: 10/05/2022	End Date: 10/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 390877.5	Northing: 170665.5	Ground Level: 53.50mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Overcast, showers.		Hole Termination: Refusal on bedrock.		Stability: Vertical and stable	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.30	ES1		53.15	(0.35) 0.35		Grass on brown slighty sandy gravelly friable SILT. Sand is fine and medium. Gravel is mediuum and coarse subangular shelly limestone, occasional roadstone and rare fine gravel sized brick fragments		
0.50	B1	PID 0.30m, 0.0ppm				Medium strong pale yellowish grey thickly laminated to locally very thinly bedded shelly LIMESTONE. Fractures are extremely closely to very closely spaced subhorozontal discontinuous planar to undulating open to moderatly wide with yellowish and brown staining. Joints are closely spaced sub vertical to 80°.		
1.00	B2			(1.15)				
1.20	D3					*From 1.10m to 1.30m with a thin bed of firm yellowish brown slightly gravelly sandy clay. Sand is medium and coarse. Gravel is fine and medium subangular and subrounded limestone and shell fragments. Occasional fine gravel pockets of reddish brown staining.*		
1.20	ES2					*From 1.30m becoming moderately strong locally strong, pale grey*		
1.40	B4	PID 1.20m, 0.0ppm	52.00	1.50		End of Trial Pit at 1.50m		

Dimensions:

Final Depth: 1.50m



General Remarks:

Soakaway test completed at 1.50m depth.

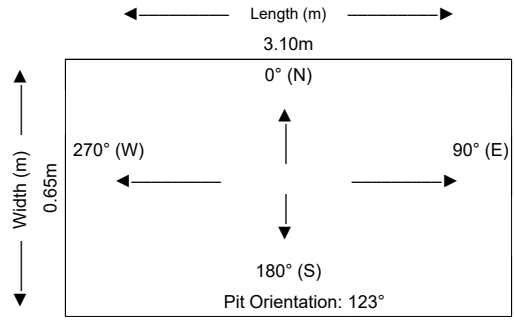
Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP002
	Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 391091.0	Northing: 170651.0	Ground Level: 49.35mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Sunny		Hole Termination: Refusal on bedrock.		Stability: Vertical and stable	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over firm friable brown slightly gravelly SILT with occasional rootlets (<1mm). Sand is fine and medium. Gravel is medium and coarse angular to subangular tile, brick and limestone.		
0.30	ES1		49.05	0.30		Firm friable yellowish brown slightly sandy SILT. Sand is fine and medium.		
0.50	D1	PID 0.30m, 0.9ppm						
0.80	ES2			(1.15)				
1.00	B2	PID 0.80m, 1.5ppm				*From 1.00m to 1.30m with frequent fine and medium gravel sized lithorelics.*		
1.00	D3							
1.20	ES3					*From 1.30m becoming gravelly. gravel is medium and coarse shelly limestone.*		
1.50	B4	PID 1.20m, 0.9ppm	47.90	1.45				
				(0.55)		Medium strong locally strong pale yellowish grey thickly laminated to very thinly bedded shelly limestone. Fractures are extremely closely to closely spaced sub horizontal to 20°. Infill of soft yellowish brown clay and localised brown staining and black spotting.		
2.00	B5		47.35	2.00		*From 1.60m becoming very thinly to thinly bedded.*		
2.00	D6					End of Trial Pit at 2.00m		

Dimensions:

Final Depth: 2.00m



General Remarks:

Single soakaway test completed at 2.00m. Additional tests completed in TP002A.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

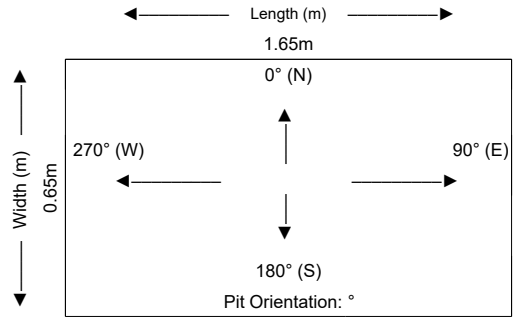
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP002A
	Contract Number: JER9352	Start Date: 04/05/2022	End Date: 04/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 391084.0	Northing: 170652.0	Ground Level: 49.35mOD	Plant Used: 5t tracked excavator	Logged By: RT
					Scale: 1:50
Weather: Sunny		Hole Termination: Target depth achieved.		Stability: Vertical and stable	

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
			49.05	(0.30) 0.30		Grass on firm friable brown slightly gravelly SILT with occasional rootlets (<1mm). Sand is fine and medium, Gravel is medium and coarse angular to subangular tile, brick and limestone.		
				(1.15)		Firm friable yellowish brown slightly sandy SILT. Sand is fine and medium.		
			47.90	1.45		Medium strong locally strong pale yellowish grey thickly laminated to very thinly bedded shelly limestone. Fractures are extremely closely to closely spaced sub horizontal to 20°. Infill of soft yellowish brown clay and localised brown staining and black spotting.		
			47.15	(0.75) 2.20		End of Trial Pit at 2.20m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 2.20m



General Remarks:

Soakaway tests completed at 2.20m. Sampling and insitu testing completed in TP002.

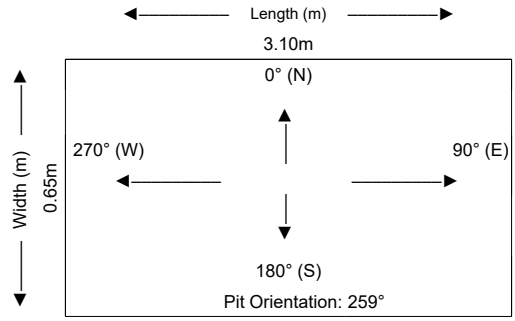
Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP003
	Contract Number: JER9352	Start Date: 03/05/2022	End Date: 03/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 391413.5	Northing: 170652.0	Ground Level: 44.90mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Rain+Cloudy		Hole Termination: Termination due to no progress.		Stability: Unstable below 1.90m Minor instability from 1.60m	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			44.80	0.10		Crop on firm friable light brown slightly sandy SILT with occasional fine and medium rootlets (<2mm).		
0.30	ES1					Firm yellowish brown slightly sandy clayey SILT with rare medium subrounded gravel of limestone.		
0.50	D1	PID 0.30m, 0.5ppm HV 0.50m, 84, >140, 132 kPa		(0.90)		*Becoming sandy locally mottled orangish brown.*		
0.80	ES2	PID 0.80m, 0.6ppm						
1.00	B2		43.90	1.00		Light yellowish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse of subangular to subrounded mixed lithologies including chert, flint, limestone.		
1.00	D3							
1.20	ES3	PID 1.20m, 0.4ppm		(0.70)				
1.50	D4							
			43.20	1.70		Orangish brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse. Subangular to subrounded of mixed lithologies including limestone, quartzite, shell detrital limestone, chert, flint.		
2.00	B5	PID 2.00m, 0.7ppm				*With closely spaced thick laminated and lenses of sandy clay.* *With low cobble content. Cobbles of subangular to subrounded strong shell detrital limestone and chert.*		
				(1.20)				
2.50	D6							
2.90	B7		42.00	2.90		End of Trial Pit at 2.90m		

Dimensions:

Final Depth: 2.90m



General Remarks:

Soakaway test terminated at 2 hours.

Water Strikes	
Strike (m)	Remarks
1.70	Slow groundwater ingress

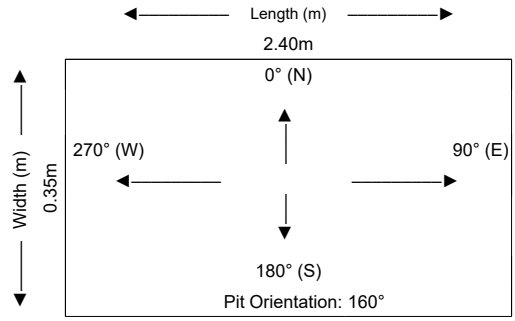
Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Trial Pit ID: TP004
Contract Number: JER9352	Start Date: 04/04/2022	End Date: 04/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 391775.0	Northing: 170722.5	Ground Level: 41.00mOD	Plant Used: 5t Tracked Excavator	Logged By: RT	Scale: 1:50
Weather: Variable	Hole Termination: Target depth achieved.		Stability: Vertical and stable.		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			40.75	0.25		Grass over dark brown sandy silty CLAY with fine rootlets (<2mm).		
0.30	ES1					Firm extremely closely fissured yellowish brown slightly sandy silty CLAY.		
0.50	D1	PID 0.30m, 0.0ppm HV 0.50m, 78, 90, 108 kPa				*From 0.25 to 0.60m silty.*		
0.80	ES2	PID 0.80m, 0.0ppm						
1.00 - 1.10	B2							
1.00 - 1.10	D3							
1.20	ES3	HV 1.00m, 59, 76, 52 kPa PID 1.20m, 0.0ppm		(2.35)		*At 1.20m with rare fine gravel sized wood fragments.* *From 1.20 to 1.60m becoming yellowish brown mottled light grey with occasional coarse sand sized pockets of orange silt.*		
1.50	D4	HV 1.50m, 52, 54, 56 kPa				*At 1.80m with rare fine gravel sized gastropod shells.* *From 1.80 to 2.60m with occasional fine and medium occasionally coarse gravel sized nodular calcareous inclusions.*		
2.00 - 2.10	B5							
2.00	D6	HV 2.00m, 52, 52, 50 kPa						
2.50	D7	HV 2.50m, 72, 68, 75 kPa	38.40	2.60		Stiff extremely to very closely fissured locally sheared bluish grey mottled yellowish brown silty CLAY.		
3.00 - 3.10	B8			(0.90)				
3.00	D9	HV 3.00m, 70, 54, 64 kPa						
3.40 - 3.50	D10	HV 3.40m, 52, 44, 42 kPa	37.50	3.50		*At 3.40m with a coarse gravel sized pocket of fibrous organic matter (degraded tree root)*		
						End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.0m

Water Strikes	
Strike (m)	Remarks
2.00	Slight seepage

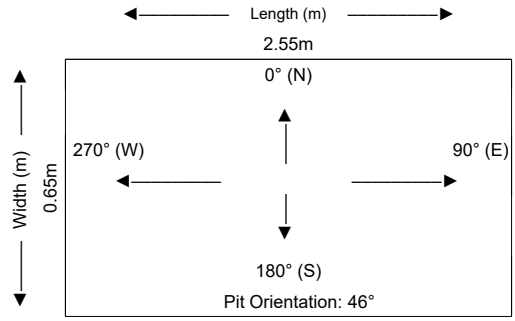
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP005
	Contract Number: JER9352	Start Date: 05/04/2022	End Date: 05/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392083.0	Northing: 170851.5	Ground Level: 51.90mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Cloudy		Hole Termination: Target depth achieved.		Stability: Vertical and Stable	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.15	ES1		51.75	0.15		Grass on Topsoil slightly gravelly with low cobble content. Gravel is medium and coarse subrounded and subangular brick, asphalt, roadstone. Cobbles are subangular brick, asphalt and limestone. Topsoil		
0.30	ES2	PID 0.15m, 0.0ppm	51.60	0.30		Stiff Yellowish brown mottled orangish brown sandy CLAY		
0.50	D1	PID 0.30m, 0.0ppm HV 0.50m, 122, 124, 90 kPa				*From 0.60m becoming light grey mottled orange.*		
0.80	ES3							
1.00	B2	PID 0.80m, 0.0ppm		(1.30)				
1.00	D3							
1.30	ES4	HV 1.00m, 52, 60, 50 kPa						
1.50	D4	PID 1.30m, 0.0ppm HV 1.50m, 52, 55, 82 kPa	50.30	1.60		Firm becoming stiff extremely closely fissured grey mottled pale yellow sandy CLAY		
2.00	B5							
2.00	D6							
2.10	ES5					*From 2.30m with medium gravel sized pockets of pale yellow silt. Becoming extremely to very closely fissured with ferrous staining along fissure surfaces.*		
2.50	D7	PID 2.10m, 0.0ppm		(1.60)		*From 2.80m with occasional fine to coarse gravel sized selenite crystals.*		
3.00	B8							
3.00	D9		48.70	3.20				
				(0.30)		Stiff bluish grey slightly sandy CLAY with abundant medium and coarse gravel sized bivalve fossils.		
3.50	B10		48.40	3.50				
3.50	D11					End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 1.5m. Hard digging from 2.80m depth.

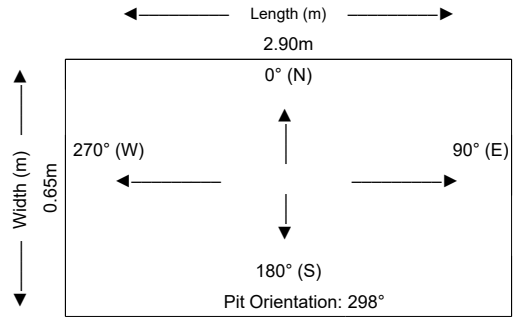
Water Strikes	
Strike (m)	Remarks
1.50	Seepage.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP006
	Contract Number: JER9352	Start Date: 05/04/2022	End Date: 05/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392362.0	Northing: 170989.0	Ground Level: 49.40mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Cloudy		Hole Termination: Target depth achieved.		Stability: Collapsing/unstable below 3.00m	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
		PID 0.00m, 0.0ppm		(0.30)		Firm brown slightly sandy friable CLAY with frequent fine rootlets (<2mm).		
0.30	ES1		49.10	0.30		Firm extremely closely to very closely fissure locally sheared yellowish brown mottled light grey sandy CLAY		
0.50	D1	HV 0.50m, 96, 100, 110 kPa		(0.70)				
0.80	ES2					*At 0.80m clay field drain*		
1.00	B2	PID 0.80m, 0.0ppm	48.40	1.00		Grey silty clayey gravelly fine and medium SAND. Partially cemented. Gravel is medium and coarse bivalve fossils.		
1.00	D3							
1.20	ES3	PID 1.20m, 0.0ppm						
1.50	D4	HV 1.50m, 56, 52, 46 kPa		(1.10)				
						From 1.80 to 2.10m with cobble sized pockets of very sandy Clay and localised pale yellowish mottling.		
2.00	B5		47.30	2.10		Bluish grey mottled orange brown clayey silty fine SAND.		
2.00	D6	HV 2.00m, 56, 54, 54 kPa				*From 2.25m becoming bluish grey*		
2.50	B7					*At 2.50m with medium gravel sized fossilised pyritic wood fragment.*		
2.50	D8							
2.60	ES4	PID 2.60m, 0.0ppm		(1.40)				
3.00	B9					*From 2.90m with occasional medium gravel sized bivalve fossils, locally pyritic.*		
3.00	D10							
3.40	D11	HV 3.40m, 50, 48, 64 kPa	45.90	3.50		*From 3.30m becoming sandy, extremely closely fissured.*		
						End of Trial Pit at 3.50m		
5.90	D13							

Dimensions:

Final Depth: 3.50m



General Remarks:

Insufficient time to complete soakaway test, trial pit repeated as TP006A.

Water Strikes	
Strike (m)	Remarks
3.00	slow ingress

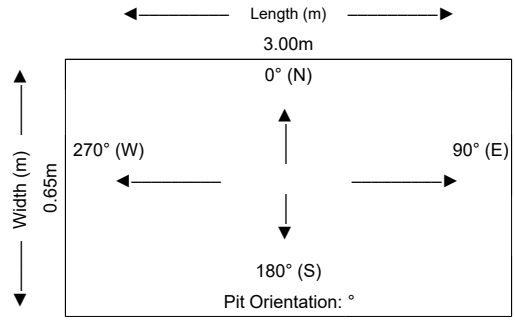
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP006A
	Contract Number: JER9352	Start Date: 06/04/2022	End Date: 06/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392362.5	Northing: 170988.0	Ground Level: 49.45mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Cloudy		Hole Termination: Target depth achieved.		Stability: Vertical and stable on excavation, then collapsing	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			49.15	(0.30) 0.30		Firm brown slightly sandy friable CLAY with frequent fine rootlets (<2mm).		
				(0.70)		Firm extremely closely to very closely fissure locally sheared yellowish brown mottled light grey sandy CLAY		
			48.45	1.00				
				(1.00)		Grey silty clayey gravelly fine and medium SAND. Partially cemented. Gravel is medium and coarse bivalve fossils.		
			47.45	2.00				
				(1.50)		Bluish grey mottled orange brown clayey silty fine SAND.		
			45.95	3.50		End of Trial Pit at 3.50m	▼	

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway testing not completed due to pit side collapses. Trial pit re-excavated as TP006B. Sampling and insitu testing completed in TP006.

Water Strikes	
Strike (m)	Remarks
3.50	Slight seepage.

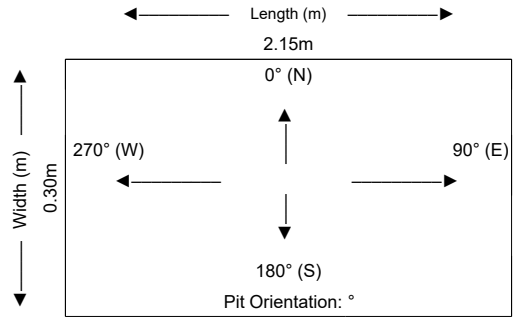
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP006B
	Contract Number: JER9352	Start Date: 06/04/2022	End Date: 06/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392369.0	Northing: 170990.5	Ground Level: 49.55mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Variable		Hole Termination: Target depth achieved.		Stability: Vertical and Stable	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			49.30	0.25		Firm brown slightly sandy friable CLAY with frequent fine rootlets and rare subangular to rounded medium and coarse limestone gravel.		
				(1.85)		Firm extremely closely fissured yellowish brown mottled orange sandy CLAY *From 0.80m with cobble sized pockets of light grey very clayey fine and medium sand.*		
			47.45	2.10				
				(0.40)		Firm light bluish grey mottled olive brown sandy CLAY. Sand is fine and medium. *From 2.30m becoming bluish grey very sandy.*		
			47.05	2.50		End of Trial Pit at 2.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 2.50m



General Remarks:

Soakaway test completed at 2.50m depth. No sampling or insitu testing completed.

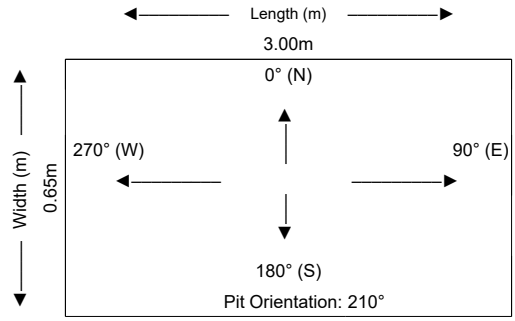
Water Strikes	
Strike (m)	Remarks
2.50	Seepage

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP007
	Contract Number: JER9352	Start Date: 27/04/2022	End Date: 27/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 392647.0	Northing: 171042.5	Ground Level: 49.55mOD	Plant Used: 5t Tracked excavator	Logged By: RT	Scale: 1:50
Weather: Overcast	Hole Termination: Target depth achieved.		Stability: Vertical and stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			49.45	0.10		Grass on firm brown slightly sandy silty CLAY with occasional fine rootlets (<1mm).		
0.30	ES1					Firm very closely fissured locally sheared slightly sandy orangish brown mottled greyish brown slightly sandy CLAY.		
0.50	D1	PID 0.30m, 0.1ppm HV 0.50m, 72, 78, 88 kPa						
0.80	ES2					*From 0.70m becoming very sandy. Sand is fine and medium.*		
1.00	B2	PID 0.80m, 0.0ppm		(1.60)				
1.00	D3							
1.20	ES3	HV 1.00m, 44, 54, 40 kPa PID 1.20m, 0.1ppm				*From 1.20m to 2.20m with occasional medium to coarse gravel sized calcareous nodular inclusions.*		
1.50	D4	HV 1.50m, 18, 18, 18 kPa				*From 1.60m becoming orangish brown.*		
			47.85	1.70		Firm light grey mottled orangish brown slightly sandy CLAY		
2.00	B5							
2.00	D6							
2.20	ES4	HV 2.00m, 78, 78, 80 kPa PID 2.20m, 0.2ppm		(1.00)		*From 2.20m becoming extremely closely fissured greyish brown, at 2.20m with a coarse gravel sized fragment of fossilised wood.*		
2.50	D7	HV 2.50m, 48, 52, 56 kPa						
			46.85	2.70		Stiff extremely closely to very closely fissured bluish grey CLAY with frequent fine to coarse gravel sized bivalve and shell fossil fragments.		
3.00	B8							
3.00	D9			(0.80)				
3.20	ES5	HV 3.00m, 70, 80, 76 kPa PID 3.20m, 0.2ppm				*From 3.20m with abundant fine to coarse fossil shell fragments.*		
3.40	D10							
			46.05	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 3.50m.

Water Strikes	
Strike (m)	Remarks
1.00	Slow seepage.

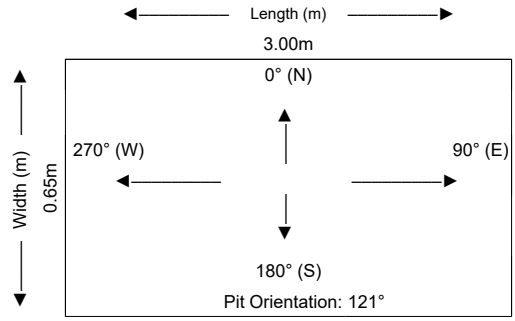
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP008
	Contract Number: JER9352	Start Date: 20/04/2022	End Date: 20/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 392838.0	Northing: 171281.0	Ground Level: 59.60mOD	Plant Used: 5t Tracked Excavator	Logged By: RT
					Scale: 1:50
Weather: Light rain showers		Hole Termination: Target depth achieved.		Stability: Vertical and Stable	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.30	ES1		59.35	0.25		Grass over soft brown slightly gravelly silty CLAY. Gravel is fine and medium angular brick roadstone pottery with rare fine gravel sized charcoal fragments.		
0.50	D1	PID 0.30m, 0.0ppm HV 0.50m, 64, 64, 62 kPa				Soft extremely closely to very closely fissured orangish brown mottled grey slightly silty CLAY.		
0.80	ES2	PID 0.80m, 0.0ppm				*At 0.80m field drain.*		
1.00	B2	HV 1.00m, 50, 66, 66 kPa						
1.20	ES3	PID 1.20m, 0.0ppm				*At 1.20m becoming firm.*		
1.50	D3	HV 1.50m, 90, 90, 92 kPa						
2.00	B4	HV 2.00m, 78, 92, 104 kPa		(3.25)		*From 1.80m to 3.00m with localised ferrous staining.* *With occasional medium gravel sized pockets of yellow silt.*		
2.50	D5					*From 2.40m becoming stiff, greyish brown.*		
3.00	B6					*From 2.80m becoming very stiff.* *From 3.00m with occasional coarse gravel sized selenite crystals, becoming bluish grey.*		
3.50	D7		56.10	3.50		End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.05m.

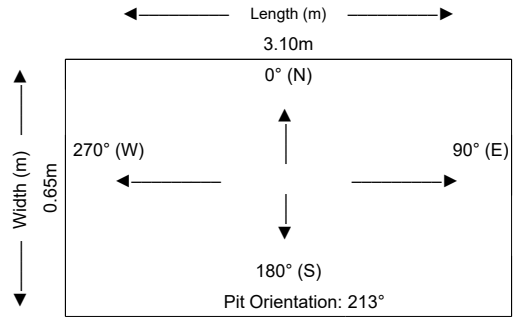
Water Strikes	
Strike (m)	Remarks
2.60	Slight seepage

Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Trial Pit ID: TP009
Contract Number: JER9352	Start Date: 27/04/2022	End Date: 27/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 392728.0	Northing: 171094.5	Ground Level: 52.05mOD	Plant Used: 5t Tracked excavator.	Logged By: RT	Scale: 1:50
Weather: Overcast	Hole Termination: Target depth achieved.		Stability: Minor instability 1.50-2.00m		

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
				(0.30)		Grass over firm brown slightly sandy silty CLAY with occasional fine to medium rootlets (<5mm) and rare subrounded coarse limestone gravel. Sand is fine and medium		
0.30	ES1		51.75	0.30				
0.50	D1	PID 0.30m, 0.1ppm				Firm extremely closely fissured greyish brown mottled orangish brown very sandy silty CLAY. Sand is fine and medium.		
		HV 0.50m, 78, 78, 88 kPa		(0.80)		*From 0.70m with occasional medium to coarse gravel sized pockets of light grey sand.*		
0.80	ES2	PID 0.80m, 0.3ppm						
1.00	B2					*From 1.00m becoming very sandy with localised ferrous staining and occasional coarse gravel sized well cemented pockets.*		
1.00	D3		50.95	1.10				
1.20	ES3	PID 1.20m, 0.0ppm				Firm extremely closely fissured locally sheared light grey mottled light orangish brown slightly sandy silty CLAY		
1.50	D4							
1.60	ES4	HV 1.50m, 84, 92, 94 kPa PID 1.60m, 0.1ppm		(1.30)		*From 1.80m with occasional medium gravel sized pockets of yellowish brown silt.*		
2.00	B5							
2.00	D6	HV 2.00m, 44, 52, 54 kPa						
			49.65	2.40		Stiff very closely fissured bluish grey CLAY with rare medium gravel sized selenite crystals.		
2.50	D7							
				(1.10)		*From 2.90m becoming very stiff thinly to thickly laminated.*		
3.00	B8							
3.00	D9							
3.00	ES5							
3.40	D10	HV 3.00m, 110, 114, 116 kPa PID 3.00m, 0.4ppm	48.55	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.05m. Slow groundwater ingress at 3.45m, level rising to 3.25m after 20 minutes.

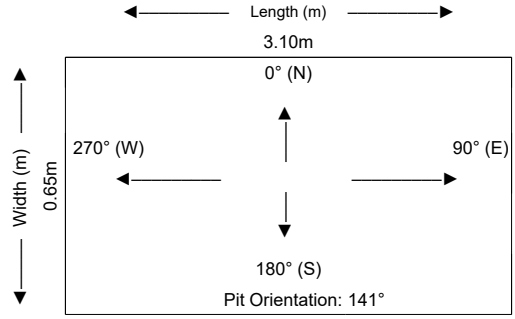
Water Strikes	
Strike (m)	Remarks
3.45	Slow ingress

Contract Name:		Client:			Trial Pit ID:
Chippenham Distributor Road		Wiltshire Council			TP010
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER9352	21/04/2022	21/04/2022	CW	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	392939.0	171027.5	49.20mOD	5t tracked Excavator	RT	1:50
Weather: Overcast	Hole Termination: Target depth achieved.		Stability: Vertical and Stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.30			48.95	0.25		Grass over firm light brown silty CLAY with occasional rootlets up to 1mm. Rare fine gravel sized charcoal fragments.		
0.30	ES1					Firm orange brown locally mottled grey very sandy silty CLAY with rare subrounded fine limestone gravel.		
0.50	D1	PID 0.30m, 0.0ppm HV 0.50m, 98, 94, 82 kPa						
0.80	ES2	PID 0.80m, 0.0ppm		(1.05)		*From 0.90m to 1.30m: Becoming slightly sandy with rare fine to medium gravel sized nodular calcareous inclusions.*		
1.00	B2							
1.00	B3					*From 1.20m to 1.30m: Very soft*		
1.20	ES3	HV 1.00m, 62, 76, 78 kPa PID 1.20m, 0.0ppm	47.90	1.30		Firm extremely closely to very closely fissured locally sheared light grey mottled orange brown silty CLAY.		
1.50	D3	HV 1.50m, 70, 62, 70 kPa		(0.90)				
2.00	B4							
2.20	ES4	HV 2.00m, 84, 84, 86 kPa PID 2.20m, 0.0ppm	47.00	2.20		Stiff thinly laminated possibly foliated dark greyish brown locally mottled pale yellow silty CLAY.		
2.50	D5					*From 2.50m to 3.50m: Becoming bluish grey.*		
2.70	ES5	PID 2.70m, 0.0ppm		(1.30)				
3.00	B6	HV 3.00m, 80, 80, 92 kPa				*From 3.00m to 3.50m: Becoming extremely closely to very closely fissured with occasional medium to coarse gravel sized fossil shells and shell fragments and ammonites.*		
3.40	D7		45.70	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test completed at 2.10m

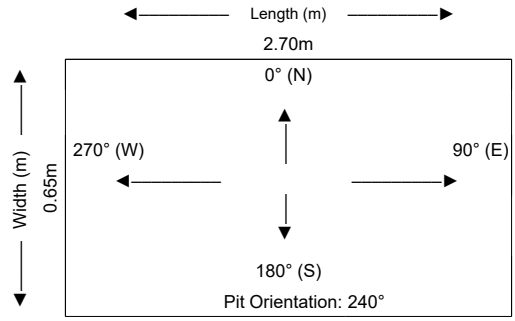
Water Strikes	
Strike (m)	Remarks
1.00	Damp.
2.00	Slow seepage.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP011
	Contract Number: JER9352	Start Date: 25/04/2022	End Date: 25/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 393490.0	Northing: 171000.5	Ground Level: 50.20mOD	Plant Used: 5t Tracked excavator.	Logged By: RT
					Scale: 1:50
Weather: Variable		Hole Termination: Target depth achieved.		Stability: Vertical and stable.	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			49.95	0.25		Grass on firm light greyb silty CLAY with occasional fine rootlets (>1mm) and rare subangular medium siltstone gravel		
0.30	ES1					Firm extremely closely fissured grey mottled orangish brown silty CLAY.		
0.50	D1	PID 0.30m, 0.0ppm HV 0.50m, 88, 84, 110 kPa						
0.80	ES2	PID 0.80m, 0.1ppm						
1.00	B2							
1.00	D3							
1.20	ES3	HV 1.00m, 88, 60, 60 kPa PID 1.20m, 0.3ppm						
1.50	D4	HV 1.50m, 54, 56, 56 kPa		(2.45)				
						From 1.80m with fine and medium gravel sized pockets of pale yellow silt and localised ferrous staining along fissures.		
2.00	B5							
2.00	D6							
2.30	ES4	HV 2.00m, 54, 62, 74 kPa PID 2.30m, 0.2ppm						
2.50	D7					*From 2.30m with occasional coarse sand sized to medium gravel sized selenite crystals.*		
			47.50	2.70		Stiff very closely fissured bluish grey silty CLAY with occasional fine and medium gravel sized fossil and shell fragments.		
3.00	B8					*From 2.70m to 2.90m with occasional medium gravel sized selenite crystals*		
3.00	D9			(0.80)				
						From 3.20m becoming very stiff, very closely to closely fissured.		
3.40	D10							
			46.70	3.50		*From 3.40m with rare medium to coarse gravel sized fossilised wood fragments.*		
						End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Soakaway test competed at 2.00m.

Water Strikes	
Strike (m)	Remarks
2.90	Slow seepage 2.90m to base.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP012
	Contract Number: JER9352	Start Date: 11/05/2022	End Date: 11/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 393974.5	Northing: 171431.5	Ground Level: 55.10mOD	Plant Used: 5t tracker excavator	Logged By: RT
					Scale: 1:50

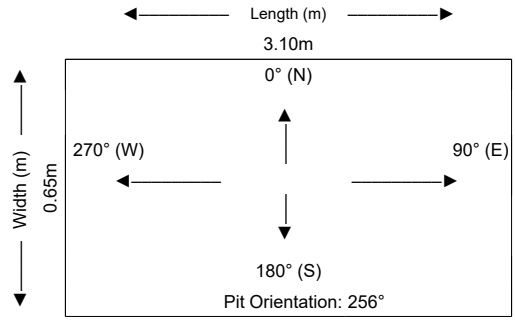
Weather: Moderate rain | Hole Termination: Target depth achieved. | Stability: Vertical and stable

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Firm friable dark greyish brown slightly sandy CLAY with frequent fine rootlets (<1mm). Sand is fine and medium.		
0.30	ES1		54.75	0.35				
0.50	B1	PID 0.30m, 0.0ppm				Firm extremely closely to very closely fissured locally sheared light grey mottled orange brown silty CLAY		
0.50	D2							
0.80	ES2	HV 0.50m, 62, 64, 56 kPa						
1.00	B3	PID 0.80m, 0.0ppm						
1.00	D4							
1.20	ES3	HV 1.00m, 52, 54, 54 kPa						
		PID 1.20m, 0.0ppm						
1.50	D5			(2.45)		*From 1.50m with fine and medium gravel sized lithorelics and localised ferrous staining.*		
		HV 1.50m, 56, 56, 54 kPa				*From 1.60m with occasional medium gravel sized pockets of pale yellow silt.*		
						From 1.80m becoming stiff greyish brown with abundant medium to coarse gravel sized pockets of yellow silt. Frequent reddish brown ferrous staining and occasional medium to coarse gravel sized pockets of coarse sands sized decomposed selenite crystals.		
2.00	B6							
2.00	D7							
2.50	D8							
			52.30	2.80				
3.00	B9					Very stiff very closely fissured bluish grey CLAY with occasional medium and coarse gravel sized selenite crystals and rare medium gravel sized fossils and wood fragments.		
3.00	D10			(0.70)				
		HV 3.00m, 96, 84, 90 kPa						
3.40	D11							
		HV 3.40m, 100, 88, 94 kPa	51.60	3.50		End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

Contract Name:		Client:			Trial Pit ID:
Chippenham Distributor Road		Wiltshire Council			TP013
Contract Number:	Start Date:	End Date:	Checked By:	Status:	Sheet 1 of 1
JER9352	11/05/2022	11/05/2022	CW	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Logged By:	Scale:
	394151.5	171511.0	55.10mOD	5t Tracked Excavator.	RT	1:50

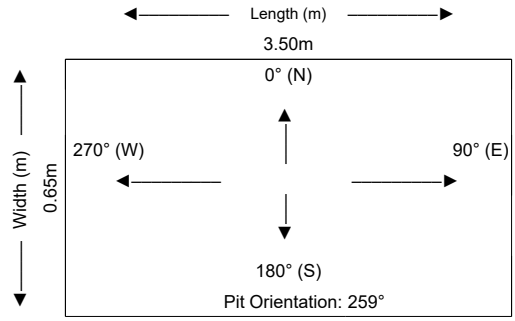
Weather: Moderate rain | Hole Termination: Target depth achieved. | Stability: Vertical and stable

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.30	ES1			(0.40)		Stiff light greyish brown slightly sandy friable CLAY with frequent rootlets (<1mm) and rare coarse subangular limestone gravel		
0.50	B1	PID 0.30m, 0.0ppm	54.70	0.40				
0.50	D2					Firm extremely closely to very closely fissured orangish brown mottled light grey silty CLAY.		
0.80	ES2	HV 0.50m, 76, 74, 82 kPa				*From 0.50m becoming locally sheared.*		
1.00	B3	PID 0.80m, 0.0ppm						
1.00	D4							
1.20	ES3	HV 1.00m, 74, 62, 94, 76 kPa						
		PID 1.20m, 0.0ppm						
1.50	D5			(2.30)		*From 1.40m with occasional medium gravel sized pockets of pale yellow silt.*		
		HV 1.50m, 64, 77, 64, 58 kPa				*From 1.60m becoming greyish brown with medium to coarse gravel sized lithorelics.*		
2.00	B6							
2.00	D7							
2.50	D8							
		HV 2.50m, 60, 60, 110 kPa	52.40	2.70		Very stiff very closely fissured thickly laminated bluish grey CLAY with occasional medium gravel sized selenite crystals and occasional medium and coarse gravel sized fossils.		
3.00	B9							
3.00	D10			(0.80)				
3.20	ES4	HV 3.00m, 114, 116, 118 kPa						
		PID 3.20m, 0.0ppm						
3.50	D11	HV 3.40m, 76, 112, 120 kPa	51.60	3.50		End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

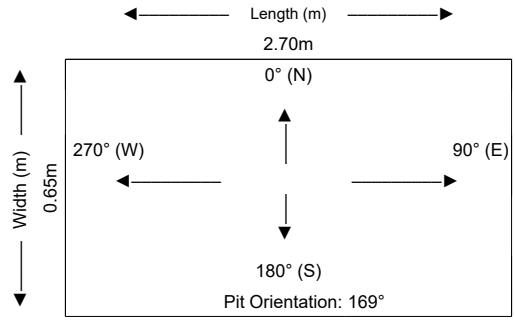
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP014
	Contract Number: JER9352	Start Date: 12/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 394235.5	Northing: 171568.5	Ground Level: 54.20mOD	Plant Used: 5t Tracked excavator	Logged By: RT	Scale: 1:50
Weather: Cloudy	Hole Termination: Target depth achieved.		Stability: Vertical and stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Stiff friable greyish brown slightly sandy CLAY with frequent fine rootlets (<1mm). Sand is fine and medium.		
0.30	ES1		53.90	0.30		Firm extremely closely to very closely fissured orangish brown mottled grey slightly sandy CLAY		
0.50	B1	PID 0.30m, 0.0ppm						
0.50	D2							
0.80	ES2	HV 0.50m, 74, 76, 70 kPa						
1.00	B3	PID 0.80m, 0.0ppm						
1.00	D4			(1.50)		*From 1.00m becoming locally sheared.*		
1.20	ES3	HV 1.00m, 42, 44, 46 kPa						
		PID 1.20m, 0.0ppm				*At 1.40m Field drain.*		
1.50	D5							
		HV 1.50m, 56, 52, 50 kPa				*From 1.70n with occasional medium to coarse gravel sixed pockets of coarse sand sized decomposed selenite crystals.*		
			52.40	1.80		Stiff very closely fissured greyish brown CLAY with frequent coarse sand sized to fine gravel sized selenite crystals.		
2.00	B6					*From 2.20m to 2.60m with occasional medium gravel sized pockets of pale yellow silt, becoming bluish grey.*		
2.00	D7	HV 2.00m, 50, 46, 46 kPa						
2.50	ES4							
		PID 2.50m, 0.0ppm		(1.70)				
3.00	B8					*From 3.00m with occasional medium gravel sized selenite crystals.*		
3.00	D9							
3.40	D10		50.70	3.50		End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

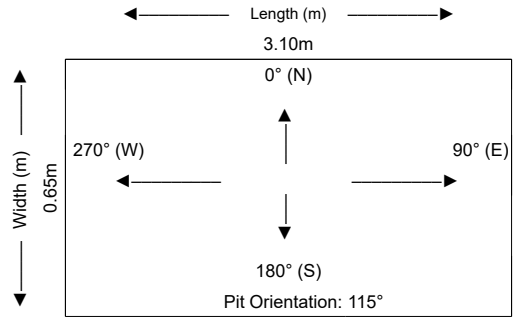
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP015
	Contract Number: JER9352	Start Date: 12/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 394240.5	Northing: 171776.0	Ground Level: 55.00mOD	Plant Used: 5t Tracked excavator	Logged By: RT
					Scale: 1:50
Weather: Cloudy		Hole Termination: Target depth achieved.		Stability: Vertical and stable.	

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.30	ES1	PID 0.30m, 0.0ppm	54.65	(0.35) 0.35		Stiff friable greyish brown slightly sandy CLAY with occasional fine rootlets (<1mm) and rare fine fine to coarse charcoal, subangular brick and iron nail.		
0.50	B1					Firm very closely locally extremely closely fissured locally sheared yellowish brown mottled grey silty CLAY.		
0.50	D2	HV 0.50m, 62, 74, 76 kPa						
0.80	ES2	PID 0.80m, 0.0ppm						
1.00	B3							
1.00	D4							
1.20	ES3	HV 1.00m, 60, 50, 54 kPa PID 1.20m, 0.0ppm						
1.50	D5	HV 1.50m, 48, 56, 58, 74 kPa		(2.75)				
2.00	B6					*From 1.90m becoming extremely closely fissured greyish brown with occasional medium gravel sized pockets of pale yellow silt and occasional reddish brown ferrous staining.*		
2.00	D7	HV 2.00m, 54, 50, 58 kPa						
2.50	D8					*From 2.60m with abundant medium gravel sized pockets of pale yellow silt and rare medium gravel sized selenite crystals. Becoming stiff.*		
3.00	B9							
3.00	D10	HV 3.00m, 82, 76, 88 kPa	51.90	3.10				
				(0.40)		Very stiff very closely fissured bluish grey CLAY with occasional medium gravel sized selenite crystals.		
			51.50	3.50		End of Trial Pit at 3.50m		

1 2 3 4 5 6 7

Dimensions:

Final Depth: 3.50m



General Remarks:

No groundwater seepage encountered.

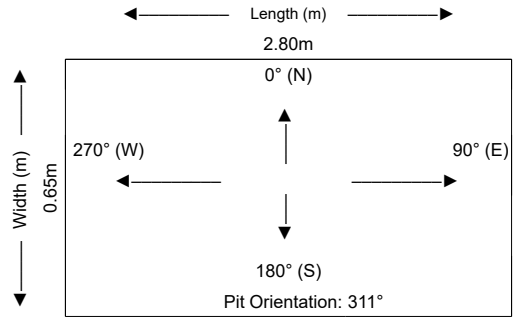
Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: TP016
	Contract Number: JER9352	Start Date: 12/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Trial Pit Log	Easting: 394373.5	Northing: 171740.5	Ground Level: 54.65mOD	Plant Used: 5t Tracked excavator	Logged By: RT
					Scale: 1:50
Weather: Cloudy		Hole Termination: Target depth achieved.		Stability: Vertical and stable	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Stiff friable greyish brown slightly sandy CLAY with occasional rootlets (<1mm) and rare coarse subrounded limestone gravel and rare brick fragments.		
0.30	ES1		54.30	0.35				
0.50	B1	PID 0.30m, 0.0ppm				Stiff extremely closely to very closely fissured locally sheared orangish brown locally greyish brown silty CLAY.		
0.50	D2							
0.80	ES2	HV 0.50m, 98, 106, 102 kPa		(0.85)				
1.00	B3	PID 0.80m, 0.0ppm						
1.00	D4							
1.20	ES3	HV 1.00m, 70, 62, 68 kPa	53.45	1.20		*From 1.10m with occasional medium gravel sized calcareous nodular inclusions.*		
		PID 1.20m, 0.0ppm				Firm very closely fissured locally sheared greyish brown CLAY with occasional fine to medium gravel sized pockets of light grey silt.		
1.50	D5							
		HV 1.50m, 40, 46, 52 kPa				*From 1.80m becoming olive brown thickly laminated with abundant medium gravel sized pockets of decomposed selenite.*		
2.00	B6					*From 1.90m with occasional medium to coarse fossil shells, thinly laminated.*		
2.00	D7							
		HV 2.00m, 54, 64, 72, 56 kPa		(2.30)				
2.50	D8					*At 2.40m boulder sized calcareous nodule.*		
3.00	B9							
3.00	D10					*From 3.00m with abundant medium to coarse gravel sized bivalve fossils*		
		HV 3.00m, 70, 80, 74 kPa						
3.40	D11							
			51.15	3.50		End of Trial Pit at 3.50m		

Dimensions:

Final Depth: 3.50m



General Remarks:

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Trial Pit ID: A350_CBR_01
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 390810.0	Northing: 170697.5	Ground Level: 54.30mOD	Plant Used: Hand tools.	Logged By: MC	Scale: 1:25
Weather: Mostly cloudy, occasional light rain		Hole Termination: Client agreed test depth.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.50)		Grass over brown clayey gravelly SILT. Gravel is fine to coarse subangular to subrounded limestone.		
0.50 0.50	B1 D2		53.80	0.50		End of Inspection Pit at 0.50m		

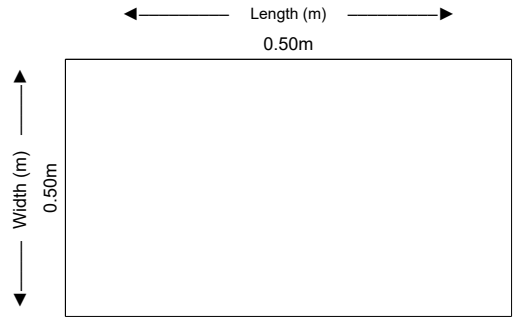
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Dimensions:

Final Depth: 0.50m



General Remarks:

4 x 4 Mounted CBR Test completed at 0.5m.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: A350_CBR_02
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391014.0	Northing: 170524.5	Ground Level: 55.45mOD	Plant Used: Hand tools	Logged By: MC
					Scale: 1:25

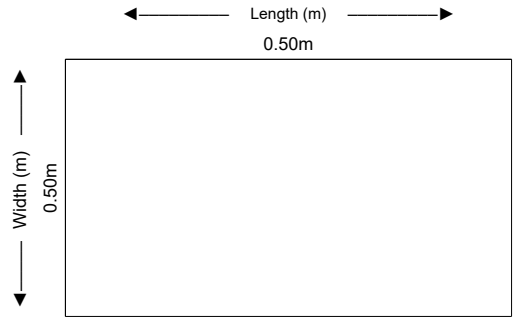
Weather: Mostly cloudy, occasional light rain

Hole Termination: Client agreed test depth.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
0.30 0.30	D1 ES1	PID 0.30m, 0.0ppm	55.15	(0.30) 0.30		Grass over brown clayey SILT with occasional roots (<5mm) and rootlets (<1mm). End of Inspection Pit at 0.30m		

Dimensions:

Final Depth: 0.30m



General Remarks:

4 x 4 Mounted CBR Test completed at 0.3m.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: A350_CBR_03
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 390939.5	Northing: 170482.0	Ground Level: 55.35mOD	Plant Used: Hand tools	Logged By: MC
					Scale: 1:25

Weather: Mostly cloudy, occasional light rain

Hole Termination: Client agreed test depth.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			55.15	0.20		Grass over dark brown gravelly clayey SILT. Gravel is subangular and subrounded brick, conrcete and tarmac.		
			54.95	0.40		Dark brown very gravelly clayey SILT. Gravel is subangular and subrounded brick, concrete and tarmac.		
0.50 0.50	B1 D2		54.75	0.60		Dark brown slightly sandy silty CLAY. Sand is fine to coarse.		
						End of Inspection Pit at 0.60m		

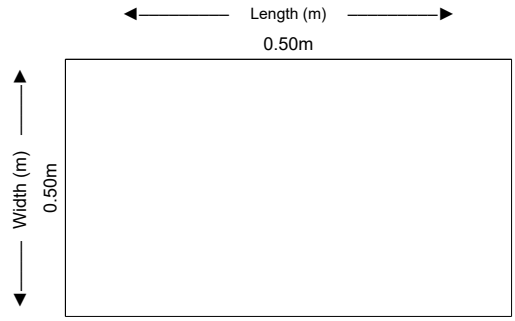
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Dimensions:

Final Depth: 0.60m



General Remarks:

4 x 4 Mounted CBR Test completed at 0.6m.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: A350_CBR_04
	Contract Number: JER9352	Start Date: 05/05/2022	End Date: 05/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 390963.5	Northing: 170378.0	Ground Level: 58.60mOD	Plant Used: Hand tools	Logged By: MC
					Scale: 1:25

Weather: Mostly cloudy, occasional light rain

Hole Termination: Client agreed test depth.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over brown silty gravelly CLAY. Gravel is subangular and subrounded fine to coarse concrete and tarmac.		
			58.30	0.30		Soft to firm grey mottled orangish brown silty CLAY.		
				(0.30)				
0.60	B1		58.00	0.60		End of Inspection Pit at 0.60m		
0.60	D2							

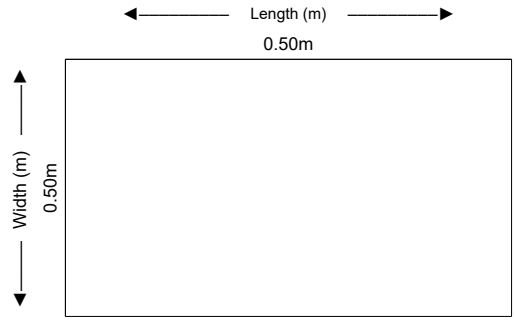
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Dimensions:

Final Depth: 0.60m



General Remarks:

4 x 4 Mounted CBR Test completed at 0.6m.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

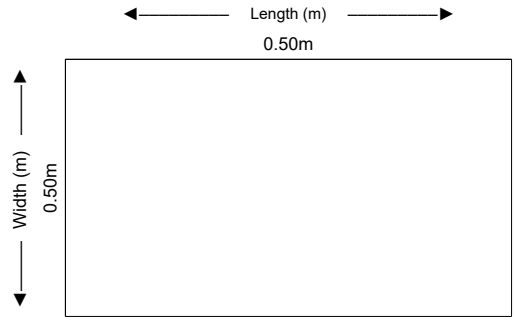
	Contract Name: Chippenham Distributor Road			Client: Wiltshire Council		Trial Pit ID: LR_CBR_01
	Contract Number: JER9352	Start Date: 06/05/2022	End Date: 06/05/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 394045.5	Northing: 171910.5	Ground Level: 57.05mOD	Plant Used: Hand tools.	Logged By: MC	Scale: 1:25
Weather: Mostly cloudy, occasional light rain		Hole Termination: Refusal on Made Ground				

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
			56.95	0.10		Grass over soft dark brown silty CLAY		
				(0.30)		Soft dark brown gravelly silty CLAY. Gravel is subangular and subrounded fine to coarse brick and concrete.		
			56.65	0.40		*At 0.40m, Brown clayey fine to coarse subangular and subrounded sandy concrete GRAVEL.*		
						End of Inspection Pit at 0.40m		

1 2 3

Dimensions:

Final Depth: 0.40m



General Remarks:

4 x 4 Track mounted CBR Test completed at 0.40m. No samples recovered.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: LR_CBR_02
	Contract Number: JER9352	Start Date: 06/05/2022	End Date: 06/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 394203.5	Northing: 171802.5	Ground Level: 56.60mOD	Plant Used: Hand tools	Logged By: MC
					Scale: 1:25
Weather: Mostly cloudy, occasional light rain		Hole Termination: Refusal on concrete			

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
			56.40	0.20		Grass over soft dark brown clayey gravelly SILT. Gravel is coarse angular concrete tarmac and brick.		
			56.20	0.40		Dark brown clayey very gravelly SILT. Gravel is fine to coarse subrounded brick, concrete and tarmac.		
						End of Inspection Pit at 0.40m		

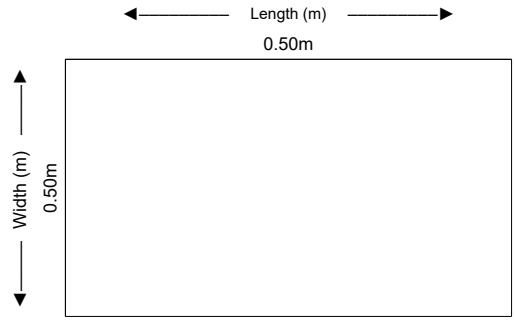
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Dimensions:

Final Depth: 0.40m



General Remarks:

CBR test not completed due to concrete slab. No samples recovered.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

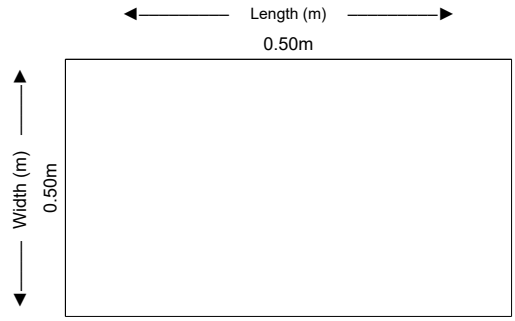
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: LR_CBR_03
	Contract Number: JER9352	Start Date: 06/05/2022	End Date: 06/05/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 394489.5	Northing: 171726.5	Ground Level: 54.85mOD	Plant Used: Hand tools.	Logged By: MC	Scale: 1:25
Weather: Mostly cloudy, occasional light rain		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over brown gravelly clayey SILT. Gravel is subangular and subrounded fine to coarse brick , charcoal and flint.		
0.30	ES1	PID 0.30m, 0.0ppm	54.55	0.30				
				(0.30)		Light brown sandy gravelly clayey SILT. Sand is fine to coarse. Gravel is fine to coarse flint and charcoal.		
						at 0.50m mottled orangish brown.		
			54.25	0.60				
			54.20	0.65		Reddish brown clayey gravelly fine to coarse SAND. Gravel is fine to coarse subangular and subrounded sandstone.		
						End of Inspection Pit at 0.65m		

1 2 3

Dimensions:

Final Depth: 0.65m



General Remarks:

CBR test completed at 0.65m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_01
	Contract Number: JER9352	Start Date: 14/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 391630.5	Northing: 170710.5	Ground Level: 40.50mOD	Plant Used: Hand tools.	Logged By: MC	Scale: 1:25
Weather: Cloudy, light rain.		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
						Grass over soft to firm brown sandy CLAY with occasional rootlets (<5mm). Sand is fine to coarse.		
0.25	ES1	PID 0.25m, 0.0ppm	40.25	0.25		Soft to firm light brown sandy CLAY with rare angular selenite crystals. Sand is fine to coarse.		
0.50	B1		40.05	0.45		Soft to firm light brown slightly sandy CLAY. Sand is fine to coarse.		
0.50	D2							
0.80	ES2	PID 0.80m, 0.0ppm	39.80	0.70		Soft to firm grey mottled light brown slightly sandy CLAY. Sand is fine to coarse.		
1.00	B3			(0.50)				
1.00	D4							
1.20	ES3	PID 1.20m, 0.0ppm	39.30	1.20		End of Inspection Pit at 1.20m		

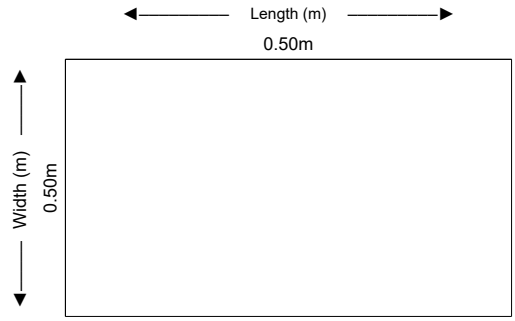
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_02
	Contract Number: JER9352	Start Date: 14/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391678.5	Northing: 170711.0	Ground Level: 41.00mOD	Plant Used: Hand tools.	Logged By: MC
					Scale: 1:25
Weather: Cloudy, light rain.		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.40)		Soft to firm brown sandy CLAY with occasional rootlets (<2mm). Sand is fine to coarse.		
			40.60	0.40				
0.50	B1					Soft to firm light brown sandy CLAY with fine shell fragments (2mm).		
0.50	D2			(0.30)				
0.50	ES1	PID 0.50m, 0.0ppm	40.30	0.70				
0.80	ES2	PID 0.80m, 0.0ppm				Soft to firm light brown slightly sandy CLAY. Sand is fine to coarse.		
				(0.50)				
1.00	B3							
1.00	D4					*At 1.10m pockets of weathered limestone sand.*		
1.20	ES3	PID 1.20m, 0.0ppm	39.80	1.20		End of Inspection Pit at 1.20m		

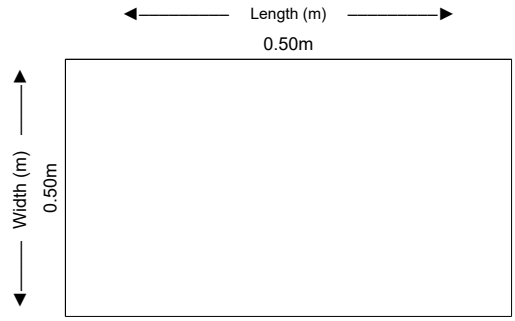
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_03
	Contract Number: JER9352	Start Date: 14/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 391698.5	Northing: 170732.5	Ground Level: 41.40mOD	Plant Used: Hand Tools.	Logged By: MC	Scale: 1:25
Weather: Cloudy, light rain.		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.50)		Grass over soft brown sandy CLAY with occasional rootlets (<5mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm						
0.50	D1		40.90	0.50		Soft light brown sandy CLAY. Sand is fine to coarse.		
0.50 - 0.60	B2							
			40.70	0.70		Soft to firm light brown sandy CLAY with occasional shell fragments (5mm). Sand is fine to coarse.		
0.80	ES2	PID 0.80m, 0.0ppm	40.50	0.90		Soft to firm light brown slightly sandy CLAY. Sand is fine to coarse.		
1.00	B3			(0.30)				
1.00	D4							
1.20	ES3	PID 1.20m, 0.0ppm	40.20	1.20		End of Inspection Pit at 1.20m		

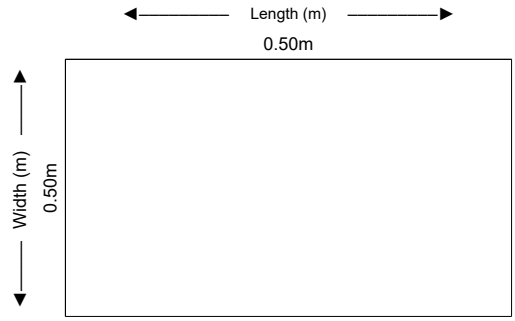
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_04
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391752.5	Northing: 170732.5	Ground Level: 41.10mOD	Plant Used: Hand tools.	Logged By: MC
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			40.85	0.25		Grass over soft dark brown slightly sandy CLAY. Sand is fine to coarse. Occasional rootlets (<5mm)		
0.30	ES1	PID 0.30m, 0.8ppm				Soft to firm light brown sandy CLAY. Sand is fine to coarse.		
0.50	B1							
0.50	D2			(0.75)				
0.80	ES2	PID 0.80m, 2.5ppm						
			40.10	1.00		Soft to firm light brown CLAY. Occasional lignite debris and shell fragments (<5mm)		
1.10	B3							
1.10	D4							
1.10	ES3	PID 1.10m, 5.3ppm	39.90	1.20		End of Inspection Pit at 1.20m		

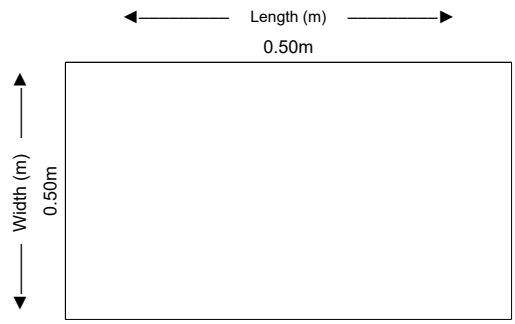
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_05
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391788.0	Northing: 170759.5	Ground Level: 41.05mOD	Plant Used: Hand tools.	Logged By: MC
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over soft dark brown sandy CLAY. Sand is fine to coarse with occasional rootlets (<5mm)		
0.30	ES1	PID 0.30m, 1.2ppm	40.75	0.30		Soft to firm light brown sandy CLAY. Sand is fine to coarse.		
0.50	B1							
0.50	D2			(0.55)				
0.80	ES2	PID 0.80m, 2.6ppm	40.20	0.85		Soft to firm light brown mottled orange and dark brown CLAY.		
				(0.35)				
1.20	B3		39.85	1.20		End of Inspection Pit at 1.20m		
1.20	D4							
1.20	ES3	PID 1.20m, 1.9ppm						

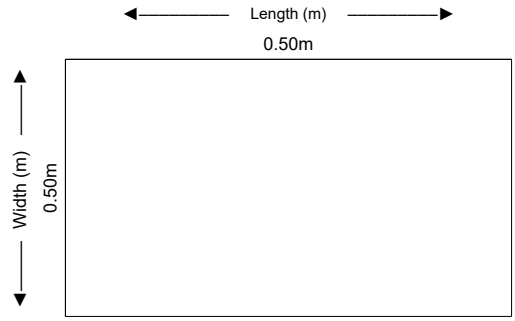
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_06
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391830.5	Northing: 170755.5	Ground Level: 40.85mOD	Plant Used: Hand tools.	Logged By: MC
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over soft dark brown sandy CLAY. Sand is fine to coarse with occasional rootlets (<5mm).		
0.30	ES1	PID 0.30m, 0.0ppm	40.55	0.30		Soft to firm light brown sandy CLAY. Sand is fine to coarse.		
0.50	B1							
0.50	D2			(0.55)				
0.80	ES2	PID 0.80m, 0.0ppm	40.00	0.85		Soft to firm light brown mottled orange and dark brown CLAY.		
				(0.35)				
1.20	B3		39.65	1.20		End of Inspection Pit at 1.20m		
1.20	D4							
1.20	ES3	PID 1.20m, 0.0ppm						

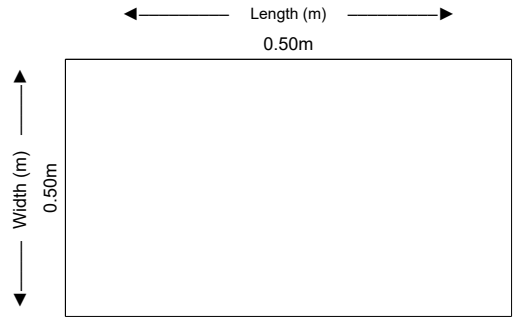
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_07
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391864.5	Northing: 170784.5	Ground Level: 41.05mOD	Plant Used: Hand tools.	Logged By: MC
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over soft brown sandy CLAY. Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	40.75	0.30		Soft to firm light brown slightly sandy CLAY with occasional shell fragments. Sand is fine to coarse.		
0.50	B1			(0.45)				
0.50	D2							
			40.30	0.75				
0.80	ES2	PID 0.80m, 0.0ppm				Soft to firm light brown mottled dark orange brown and brown CLAY with occasional shell fragments (<5mm).		
				(0.45)				
1.20	B3		39.85	1.20				
1.20	D4					End of Inspection Pit at 1.20m		
1.20	ES3	PID 1.20m, 0.0ppm						

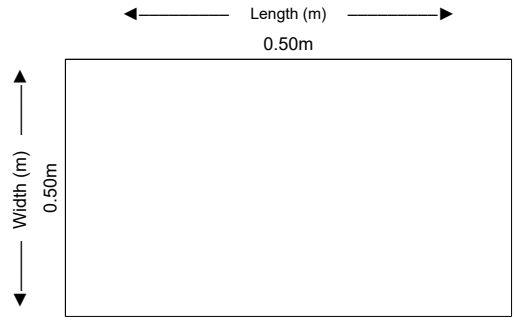
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

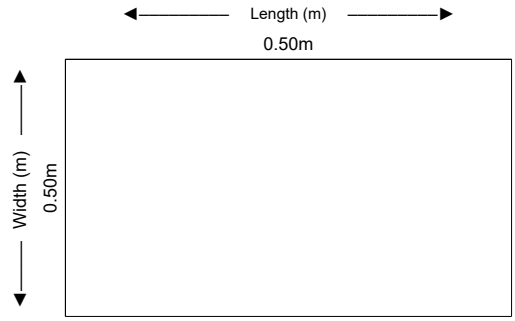
Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_08
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391906.0	Northing: 170780.5	Ground Level: 41.10mOD	Plant Used: Hand tools.	Logged By: MC
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Grass over soft dark brown sandy CLAY with occasional rootlets (<5mm) and rare subangular coarse limestone gravel. Sand is fine to coarse		
0.30	ES1	PID 0.30m, 0.0ppm	40.75	0.35				
0.50	B1			(0.30)		Soft to firm light brown slightly gravelly sandy CLAY. Gravel is fine to coarse subangular and subrounded mudstone and flint. Sand is fine to coarse.		
0.50	D2							
			40.45	0.65				
0.80	ES2	PID 0.80m, 0.0ppm		(0.35)		Soft to firm light orangish brown gravelly CLAY. Gravel is subangular and subrounded fine to coarse mudstone lignite and flint.		
			40.10	1.00			1	
1.20	B3		39.90	1.20		Light brown clayey sandy subangular and subrounded fine to coarse limestone lignite and flint GRAVEL. Sand is fine to coarse.		
1.20	D4					End of Inspection Pit at 1.20m		
1.20	ES3	PID 1.20m, 0.0ppm						
							2	
							3	

Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: AVC1_CPTU_09
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 19/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391947.5	Northing: 170812.0	Ground Level: 41.15mOD	Plant Used: Hand tools.	Logged By: MC
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			40.90	0.25		Grass over soft to firm brown sandy CLAY. Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm				Soft to firm light brown sandy CLAY. Sand is fine to coarse.		
0.50	B1							
0.50	D2			(0.60)				
0.80	ES2	PID 0.80m, 0.0ppm	40.30	0.85				
				(0.35)		Soft to firm light orangish brown mottled dark brown and brown slightly sandy CLAY. Sand is fine to coarse with rare lignite debris.		
1.20	B3		39.95	1.20				
1.20	D4					End of Inspection Pit at 1.20m		
1.20	ES3	PID 1.20m, 0.0ppm						

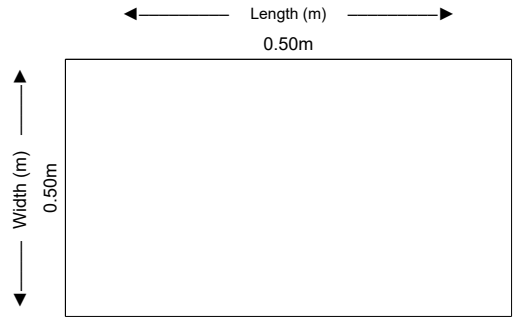
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Dimensions:

Final Depth: 1.20m



General Remarks:

No groundwater seepage encountered.

Water Strikes	
Strike (m)	Remarks

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: CPTU001
	Contract Number: JER9352	Start Date: 14/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 391150.5	Northing: 170673.5	Ground Level: 48.35mOD	Plant Used: Hand Tools.	Logged By: MC	Scale: 1:25
Weather: Sunny+Cloudy		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
						Grass over soft brown clayey fine to coarse SAND		
			48.15	0.20				
0.25	ES1	PID 0.25m, 0.0ppm				Light brown very clayey fine and medium SAND		
0.50	D1			(0.55)				
0.50 - 0.60	B2							
			47.60	0.75				
0.80	ES2	PID 0.80m, 0.0ppm				Soft light brown very sandy CLAY. Sand is fine and medium.		
				(0.40)		*From 0.90m with orangish mottling.*		
1.00	D3							
1.00 - 1.10	B4					*From 1.05m with orange and grey mottling.*		
			47.20	1.15				
1.20	ES3	PID 1.20m, 0.0ppm	47.15	1.20		Soft light brown mottled orangish grey slightly sandy CLAY. Sand is fine to coarse.		
						End of Inspection Pit at 1.20m		

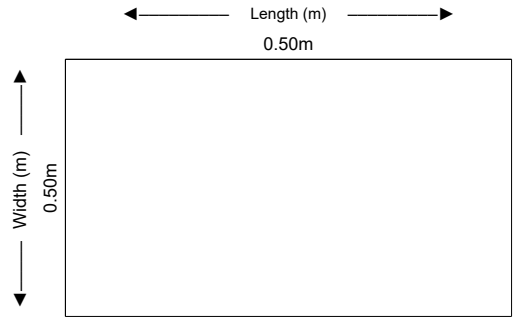
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Dimensions:

Final Depth: 1.20m



General Remarks:

Exploratory hole position CAT scanned and service plans inspected prior to drilling.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

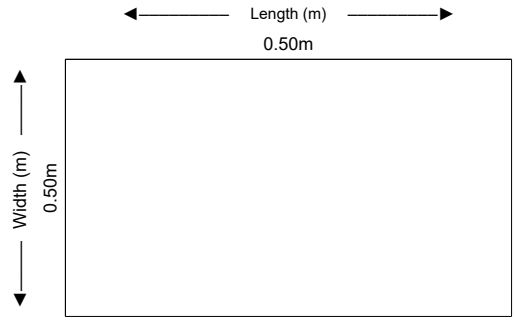
rps	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council			Trial Pit ID: CPTU002
	Contract Number: JER9352	Start Date: 14/04/2022	End Date: 21/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 391282.5	Northing: 170664.5	Ground Level: 46.50mOD	Plant Used: Hand Tools	Logged By: MC	Scale: 1:25
Weather: Sunny+Cloudy		Hole Termination: Target depth achieved.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			46.30	0.20		Grass over soft brown very sandy very silty CLAY with occasional rootlets (<2mm). Sand is fine and medium.		
0.30	ES1	PID 0.30m, 0.0ppm		(0.30)		Soft light brown very sandy CLAY		
0.50	B1		46.00	0.50		Soft to firm light brown mottled orangish brown sandy CLAY. Sand is fine to coarse.		
0.50	D2							
0.80	ES2	PID 0.80m, 0.0ppm		(0.70)				
1.00	B3					*From 1.00m with rare lignite fragments (up to 5mm).*		
1.00	D4							
1.20	ES3	PID 1.20m, 0.0ppm	45.30	1.20		End of Inspection Pit at 1.20m		

1 2 3

Dimensions:

Final Depth: 1.20m



General Remarks:

Exploratory hole position CAT scanned and service plans inspected prior to drilling.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: CPTU003
	Contract Number: JER9352	Start Date: 13/04/2022	End Date: 20/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 392271.0	Northing: 170957.0	Ground Level: 50.35mOD	Plant Used: Hand tools.	Logged By: EL
					Scale: 1:25
Weather: Rain+Cloudy		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			50.25	0.10		Grass over soft brown very sandy CLAY.		
						Brown clayey very silty fine to medium SAND.		
0.30	ES1	PID 0.30m, 0.1ppm	50.00	0.35		Soft orangish brown very sandy silty CLAY. Sand is fine and medium.		
0.50	B1							
0.50	D2		49.75	0.60		Soft to firm orange and grey sandy CLAY.		
0.80	ES2	PID 0.80m, 0.2ppm		(0.60)		*From 0.80 m: Becoming very sandy.*		
1.00	B3							
1.00	D4							
1.20	ES3	PID 1.20m, 0.2ppm	49.15	1.20		End of Inspection Pit at 1.20m		

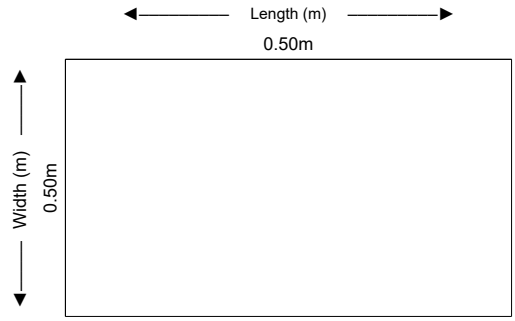
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Dimensions:

Final Depth: 1.20m



General Remarks:

Exploratory hole position CAT scanned and service plans inspected prior to drilling.

Water Strikes	
Strike (m)	Remarks
	No groundwater encountered within hand dug inspection pit

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: CPTU004
	Contract Number: JER9352	Start Date: 13/04/2022	End Date: 20/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 392765.5	Northing: 171161.0	Ground Level: 54.10mOD	Plant Used: Hand tools.	Logged By: EL	Scale: 1:25
Weather: Variable.		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Grass over soft brown slightly sandy CLAY with occasional rootlets (<5mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	53.75	0.35		Soft to firm grey mottled orangish brown CLAY		
0.50	D1							
0.80	ES2	PID 0.80m, 0.0ppm		(0.85)				
1.00	D2							
1.00	B3							
1.15 - 1.20	ES3	PID 1.15m, 0.0ppm	52.90	1.20		End of Inspection Pit at 1.20m		

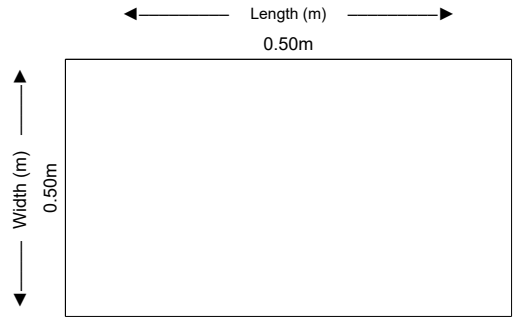
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Dimensions:

Final Depth: 1.20m



General Remarks:

Exploratory hole position CAT scanned and service plans inspected prior to drilling.

Water Strikes	
Strike (m)	Remarks
1.10	Slight seepage.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: CPTU005
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 20/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 393239.5	Northing: 171021.5	Ground Level: 48.75mOD	Plant Used: Hand Tools	Logged By: MC
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over firm brown slightly sandy CLAY. Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	48.45	0.30				
				(0.30)		Firm orangish brown mottled grey CLAY		
0.50	B1							
0.50	D2		48.15	0.60				
						Firm grey mottled orangish brown CLAY		
0.80	ES2	PID 0.80m, 0.0ppm		(0.60)				
1.10	D3							
1.10	ES3							
1.10	B4	PID 1.10m, 0.0ppm	47.55	1.20		End of Inspection Pit at 1.20m		

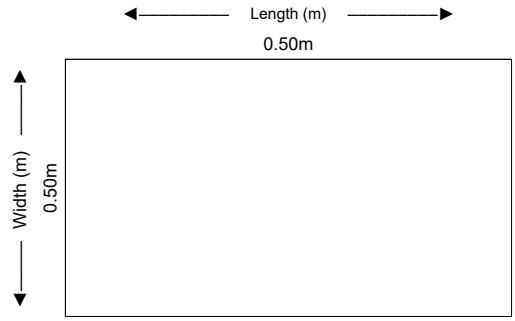
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Dimensions:

Final Depth: 1.20m



General Remarks:

Exploratory hole position CAT scanned and service plans inspected prior to drilling.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: CPTU006
	Contract Number: JER9352	Start Date: 20/04/2022	End Date: 20/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 393698.5	Northing: 171282.5	Ground Level: 53.75mOD	Plant Used: Hand tools.	Logged By: LD
					Scale: 1:25
Weather: Sunny		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Grass over soft brown sandy silty CLAY with frequent rootlets (<2mm). Sand is fine.		
0.30	ES1	PID 0.30m, 0.0ppm	53.40	0.35				
0.50	D1					Soft to firm grey mottled orangish brown slightly sandy silty CLAY with occasional rootlets (<2mm).		
0.50	B2							
0.80	ES2	PID 0.80m, 0.0ppm		(0.85)		*At 0.8m becoming slightly gravelly very sandy. Gravel is subangular and subrounded fine to coarse limestone.*		
1.00	D3							
1.00	B4							
1.20	ES3	PID 1.20m, 0.0ppm	52.55	1.20		End of Inspection Pit at 1.20m		

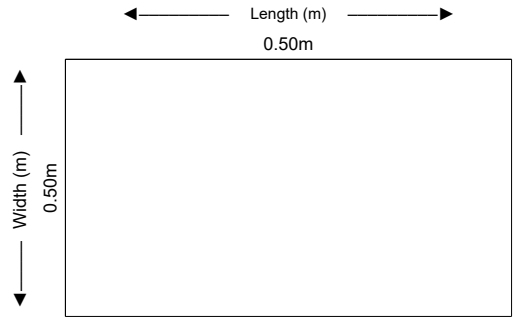
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Dimensions:

Final Depth: 1.20m



General Remarks:

Exploratory hole position CAT scanned and service plans inspected prior to drilling.

Water Strikes	
Strike (m)	Remarks
1.00	Slight seepage.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: CPTU007
	Contract Number: JER9352	Start Date: 13/04/2022	End Date: 20/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 394325.0	Northing: 171747.0	Ground Level: 54.60mOD	Plant Used: Hand Tools	Logged By: EL
					Scale: 1:25
Weather: Showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Grass over soft brown slightly sandy slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular fine to coarse sandstone, possible flint and rare clinker.		
0.30	ES1	PID 0.30m, 0.1ppm	54.25	0.35				
0.50	B1					Soft to firm orangish brown, orange and reddish brown mottled slightly sandy silty CLAY with occasional rootlets (<2mm).		
0.50	D2							
0.80	ES2	PID 0.80m, 0.1ppm		(0.85)				
						From 0.90 m: Becoming grey and orange with rare gravel and occasional fine to coarse gravel sized pockets of sand. Gravel is angular fine to coarse limestone.		
1.00	B3							
1.00	D4							
1.20	ES3	PID 1.20m, 0.1ppm	53.40	1.20		End of Inspection Pit at 1.20m		

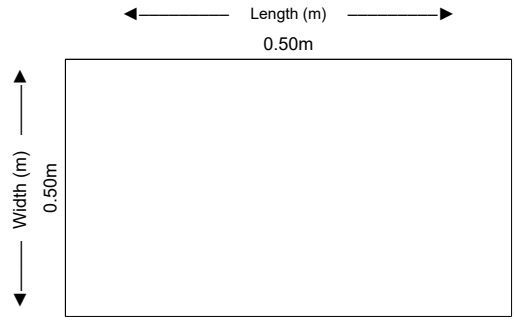
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Dimensions:

Final Depth: 1.20m



General Remarks:

Exploratory hole position CAT scanned and service plans inspected prior to drilling.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

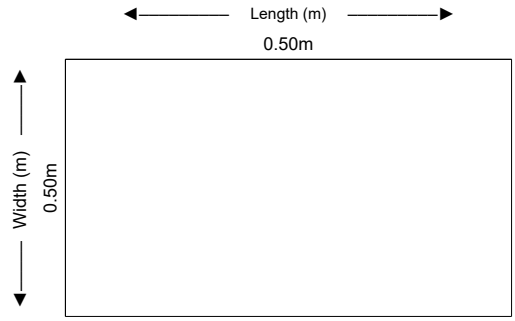
	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT001
	Contract Number: JER9352	Start Date: 12/05/2022	End Date: 12/05/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 390861.0	Northing: 170604.5	Ground Level: 53.95mOD	Plant Used: Hand tools.	Logged By: LD
					Scale: 1:25
Weather: Sunshine		Hole Termination: Refusal on bedrock.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.35)		Grass over soft brown slightly sandy Silt with frequent roots and rootlets (<3mm)		
0.30 0.35 - 0.40 0.35 - 0.40	ES1 B1 D2	PID 0.30m, 0.0ppm	53.60 53.55	0.35 0.40		Extremely weak off white LIMESTONE (recovered as angular and subangular fine to coarse gravel. End of Inspection Pit at 0.40m		

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Dimensions:

Final Depth: 0.40m



General Remarks:

Proposed insitu testing not completed due to shallow bedrock.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT002
	Contract Number: JER9352	Start Date: 11/04/2022	End Date: 11/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 390948.5	Northing: 170684.0	Ground Level: 51.75mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25
Weather: Cloudy		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over soft dark brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse. Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	51.45	0.30				
				(0.30)		Light grey slightly clayey GRAVEL. Gravel is subangular and angular fine to coarse limestone.		
0.50	ES2							
0.55 - 0.60	B1	PID 0.50m, 0.0ppm						
0.55 - 0.60	D2		51.15	0.60		End of Inspection Pit at 0.60m		

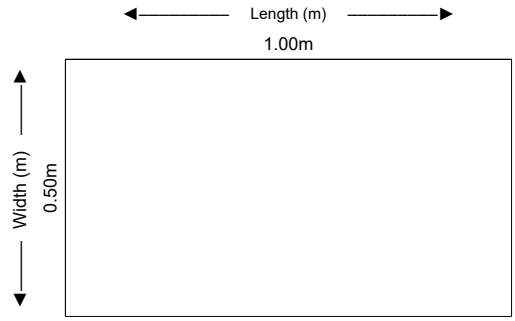
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT003
	Contract Number: JER9352	Start Date: 11/04/2022	End Date: 11/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 391413.5	Northing: 170663.5	Ground Level: 44.85mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25
Weather: Cloudy		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over soft brown slightly sandy CLAY. Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	44.55	0.30				
0.50	ES2			(0.30)		Soft to firm mottled light orangish brown slightly sandy CLAY. Sand is fine to coarse.		
0.55 - 0.60	D1	PID 0.50m, 0.0ppm						
0.55 - 0.60	B2		44.25	0.60		End of Inspection Pit at 0.60m		

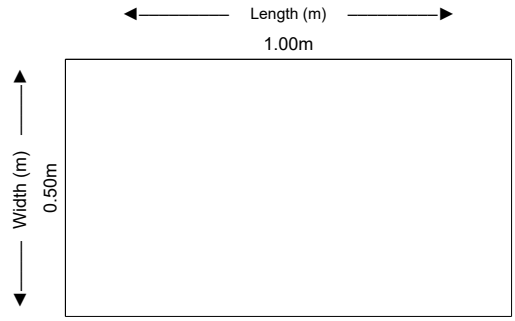
1

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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT004
	Contract Number: JER9352	Start Date: 11/04/2022	End Date: 11/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 392953.0	Northing: 171555.5	Ground Level: 51.05mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL	Scale: 1:25
Weather: Cloudy	Hole Termination: Target depth achieved.				

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			50.80	0.25		Grass over soft brown slightly sandy CLAY with occasional rootlets (<3mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm		(0.35)		Soft to firm grey mottled brown slightly gravelly CLAY. Gravel is subangular and angular fine to coarse limestone and flint.		
0.50	ES2							
0.55 - 0.60	D1	PID 0.50m, 0.0ppm						
0.55 - 0.60	B2		50.45	0.60		End of Inspection Pit at 0.60m		

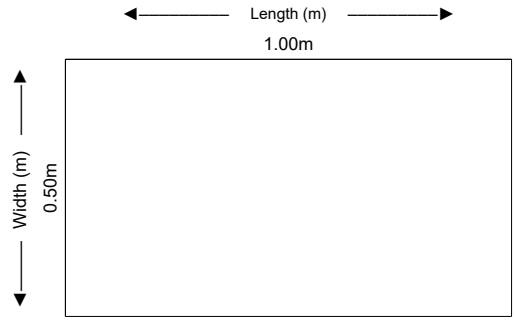
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT005
	Contract Number: JER9352	Start Date: 13/04/2022	End Date: 13/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 392745.5	Northing: 171180.5	Ground Level: 54.60mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25
Weather: Light rain showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.30)		Grass over brown slightly sandy CLAY with occasional rootlets (<2mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	54.30	0.30		Soft to firm grey mottled orangish brown slightly sandy CLAY. Sand is fine to coarse.		
0.50	ES2		54.10	0.50		Soft to firm grey mottled orangish brown CLAY.		
0.55 - 0.60	D1	PID 0.50m, 0.0ppm						
0.55 - 0.60	B2		54.00	0.60		End of Inspection Pit at 0.60m		

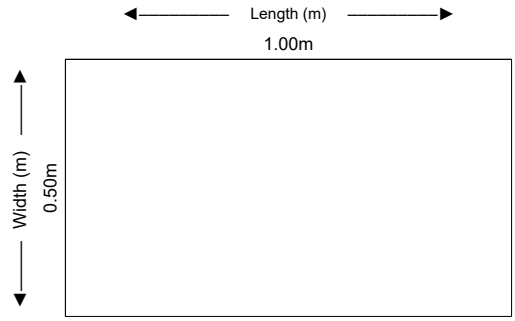
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT006
	Contract Number: JER9352	Start Date: 13/04/2022	End Date: 13/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 392792.5	Northing: 171167.5	Ground Level: 54.15mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25
Weather: Light rain showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			53.95	0.20		Grass over soft brown slightly sandy CLAY with occasional rootlets (<3mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm		(0.40)		Soft to firm grey mottled orangish brown CLAY.		
0.50	ES2	PID 0.50m, 0.0ppm	53.55	0.60		End of Inspection Pit at 0.60m		

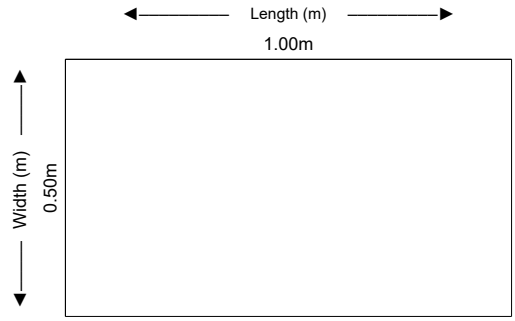
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT007
	Contract Number: JER9352	Start Date: 13/04/2022	End Date: 13/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 392767.5	Northing: 171135.5	Ground Level: 53.65mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25
Weather: Light rain showers		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			53.40	0.25		Grass over soft brown slightly sandy CLAY with occasional rootlets (<3mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm		(0.35)		Soft to firm grey mottled orangish brown CLAY with small pockets of organic matter (<15mm).		
0.50	ES2							
0.55 - 0.60	D1	PID 0.50m, 0.0ppm						
0.55 - 0.60	B2		53.05	0.60		End of Inspection Pit at 0.60m		

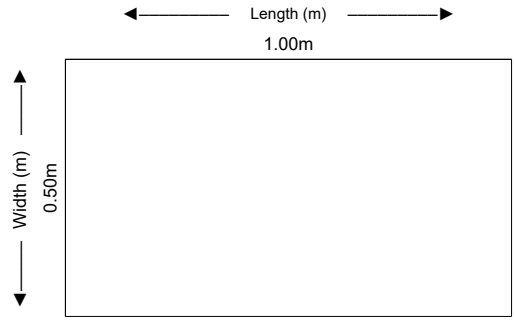
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT008
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 392882.0	Northing: 171098.0	Ground Level: 52.45mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25

Weather: Cloudy, cool, showers.

Hole Termination: Target depth achieved.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			52.20	0.25		Grass over soft dark brown slightly sandy CLAY. Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm		(0.35)		Soft brown mottled orangish brown sandy silty CLAY with rare rootlets (<2mm). Sand is fine and medium		
0.50	ES2							
0.55 - 0.60	D1	PID 0.50m, 0.0ppm						
0.55 - 0.60	B2		51.85	0.60		End of Inspection Pit at 0.60m		

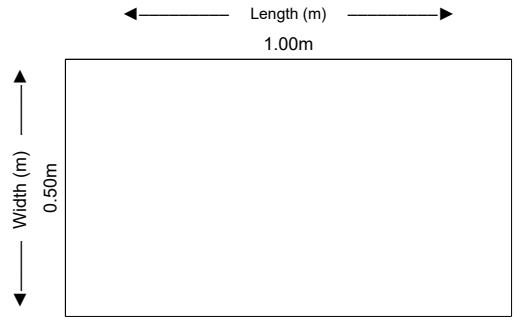
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT009
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 393270.5	Northing: 171025.0	Ground Level: 48.65mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25
Weather: Cloudy, cool, showers.		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			48.45	0.20		Grass over soft brown slightly sandy CLAY with occasional rootlets (<3mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	48.25	0.40		Soft grey mottled brown slightly sandy CLAY with rare rootlets (2mm). Sand is fine and medium.		
0.50	ES2					Soft to firm grey mottled orangish brown sandy very silty CLAY.		
0.55 - 0.60	B1	PID 0.50m, 0.0ppm						
0.55 - 0.60	D2		48.05	0.60		End of Inspection Pit at 0.60m		

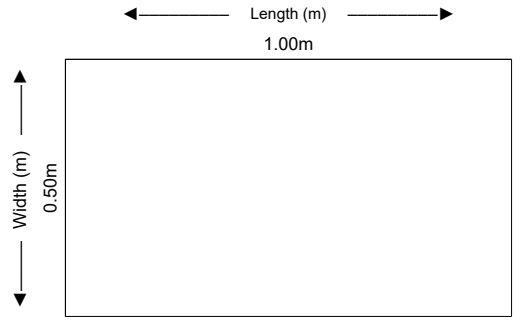
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT010
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL	Sheet 1 of 1
Inspection Pit Log	Easting: 393746.0	Northing: 171398.0	Ground Level: 54.20mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL	Scale: 1:25
Weather: Cloudy, cool, showers.		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
				(0.40)		Grass over soft brown slightly sandy CLAY with occasional rootlets (<3mm). Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm	53.80	0.40		Soft to firm grey mottled orangish brown CLAY.		
0.50	ES2							
0.55 - 0.60	B1	PID 0.50m, 0.0ppm						
0.55 - 0.60	D2		53.60	0.60		End of Inspection Pit at 0.60m		

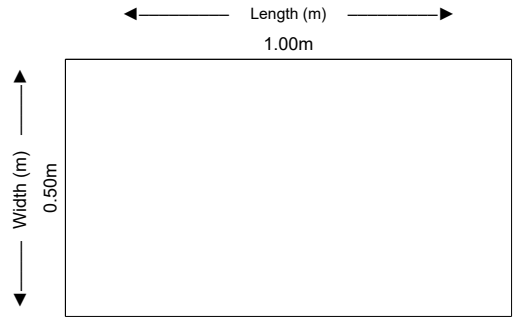
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT012
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 394306.5	Northing: 171756.5	Ground Level: 54.65mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25

Weather: Cloudy, cool, showers.

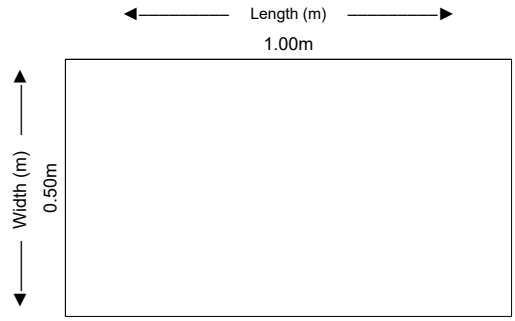
Hole Termination: Target depth achieved.

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			54.45	0.20		Grass over soft brown slightly sandy CLAY with occasional rootlets (<3mm) Sand is fine to coarse.		
0.30	ES1	PID 0.30m, 0.0ppm		(0.40)		Soft to firm grey mottled brown and orangeish brown sandy very silty CLAY. Sand is fine and medium. *From 0.40 to 0.60m with organic fragments (<30mm).*		
0.50	ES2							
0.55 - 0.60	B1	PID 0.50m, 0.0ppm						
0.55 - 0.60	D2		54.05	0.60		End of Inspection Pit at 0.60m		

1 2 3

Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: PLT013
	Contract Number: JER9352	Start Date: 12/04/2022	End Date: 12/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 394337.0	Northing: 171704.0	Ground Level: 54.45mOD	Plant Used: JCB86 C-1 Eco Tracked	Logged By: EL
					Scale: 1:25
Weather: Cloudy, cool, showers.		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		
			54.25	0.20		Grass over soft brown slightly sandy slightly gravelly CLAY with occasional rootlets (<3mm). Sand is fine to coarse. Gravel is angular and subangular limestone.		
0.30	ES1	PID 0.30m, 0.0ppm		(0.40)		Soft to firm grey mottled light brown CLAY with rare organic fragments (<30mm).		
0.50	ES2							
0.55 - 0.60	B1	PID 0.50m, 0.0ppm						
0.55 - 0.60	D2		53.85	0.60		End of Inspection Pit at 0.60m		

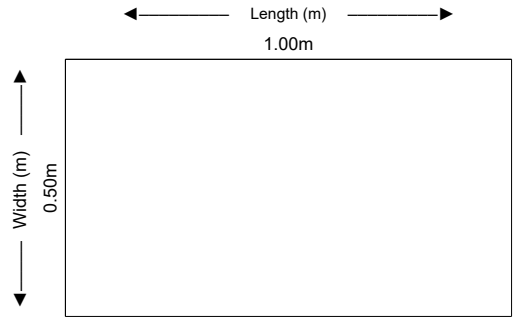
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Dimensions:

Final Depth: 0.60m



General Remarks:

Plate bearing test completed at 0.60m depth.

Water Strikes	
Strike (m)	Remarks
	No groundwater seepage encountered.

	Contract Name: Chippenham Distributor Road		Client: Wiltshire Council		Trial Pit ID: WS010A
	Contract Number: JER9352	Start Date: 28/04/2022	End Date: 28/04/2022	Checked By: CW	Status: FINAL
					Sheet 1 of 1
Inspection Pit Log	Easting: 393592.0	Northing: 171517.0	Ground Level: 52.00mOD	Plant Used: Hand Tools.	Logged By: MC
					Scale: 1:25
Weather: Overcast		Hole Termination: Target depth achieved.			

Samples & In Situ Testing			Strata Details					
Depths	Type/Ref	Testing	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
				(0.30)		Very soft dark brown organic peaty CLAY		
0.30	ES1	PID 0.30m, 0.0ppm	51.70	0.30		Soft light grey and orangish brown CLAY with rare cobble sized glass fragments		
0.50 0.50	B1 D2							
				(0.90)				
0.80	ES2	PID 0.80m, 0.0ppm						
1.00 - 1.10 1.00	B3 D4							
1.20	ES3	PID 1.20m, 0.0ppm	50.80	1.20		End of Inspection Pit at 1.20m		

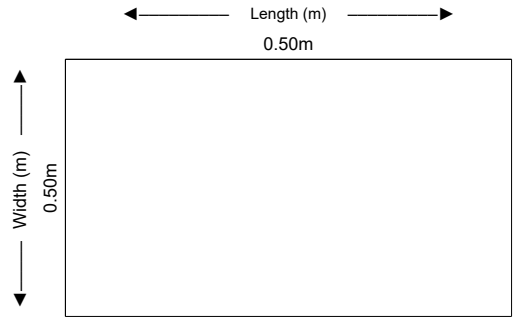
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Dimensions:

Final Depth: 1.20m



General Remarks:

Supplementary hand dug pit completed within former canal, inaccessible to drilling rig.

Water Strikes	
Strike (m)	Remarks
0.35	Medium flow.

Appendix B
SELECTED TRIAL PIT PHOTOGRAPHS



Plate 1: Precondition



Plate 2: Precondition



Plate 3: Northeast view



Plate 4: Southeast View



Plate 5: Southwest View



Plate 6: Northwest View



Plate 7: Spoil



Plate 8: Postcondition



Plate 9: Postcondition



Plate 10: Detail



Plate 1: Precondition



Plate 2: Precondition



Plate 3: North view



Plate 4: East View



Plate 5: South View



Plate 6: West View



Plate 7: Spoil



Plate 7: Post Condition



Plate 1: Precondition



Plate 2: Precondition



Plate 3: Northeast view



Plate 4: Southeast View



Plate 5: Spoil



Plate 6: Northwest View

*Southwest view not taken due to instability



Plate 7: Postcondition



Plate 8: Postcondition



Plate 7: Detail pit side collapse



Plate 1: Precondition



Plate 2: Precondition



Plate 3: North view



Plate 4: East View



Plate 5: South View



Plate 6: West View



Plate 7: Spoil



Plate 8: Postcondition



Plate 9: Postcondition





Plate 10 +11: Detail



Plate 1: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: North view



Plate 3: East View



Plate 4: South View



Plate 5: West View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition





Plate 9 +11: Detail



Plate 1: Precondition



Plate 2: Precondition



Plate 3: Northeast view



Plate 4: Southeast View



Plate 5: Southwest View



Plate 6: Northwest View



Plate 7: Spoil



Plate 8: Postcondition



Plate 9: Postcondition



Plate 1: Precondition



Plate 2:North View



Plate 3:



Plate 4:



Plate 5:



Plate 6: Spoil



Plate 2: Postcondition



Plate 3: Postcondition



Plate 1: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: Precondition



Plate 3: Northeast view



Plate 4: Southeast View



Plate 5: Southwest View



Plate 6: Northwest View



Plate 7: Spoil



Plate 8: Post Condition



Plate 1: Precondition



Plate 2: North view



Plate 3: East View



Plate 4: South View



Plate 5: West View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 9: Detail



Plate 1: North view



Plate 2: East View



Plate 3: South View



Plate 4: West View



Plate 5: Spoil



Plate 6: Postcondition







Plate 7,8,9: Detail: Top-East, Bottom-West, Right-South



Plate 1: Northeast view



Plate 2: Southeast View



Plate 3: Southwest View



Plate 4: Northwest View



Plate 5: Spoil



Plate 6: Postcondition



Plate 7: Detail: Northeast



Plate 1: Precondition



Plate 2: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Detail- Northeast



Plate 1: Precondition



Plate 2: Precondition



Plate 3: Postcondition



Plate 4: Postcondition

* Trial pit view photos corrupted



Plate 1: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 1: Precondition

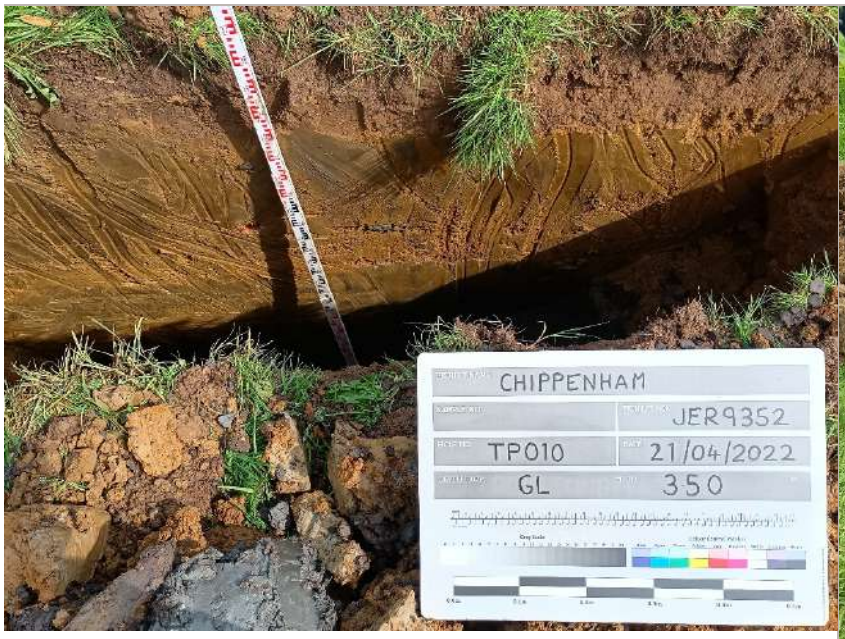


Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 9: Detail



Plate 1: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: North view



Plate 3: East View



Plate 4: South View



Plate 5: West View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: North view



Plate 3: East View



Plate 4: South View



Plate 5: West View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: North view



Plate 3: East View



Plate 4: South View



Plate 5: West View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition



Plate 1: Precondition



Plate 2: Northeast view



Plate 3: Southeast View



Plate 4: Southwest View



Plate 5: Northwest View



Plate 6: Spoil



Plate 7: Postcondition



Plate 8: Postcondition





Plate 9+10: Detail

Appendix C
SOAKAWAY RESULTS

SOIL INFILTRATION TEST RATE

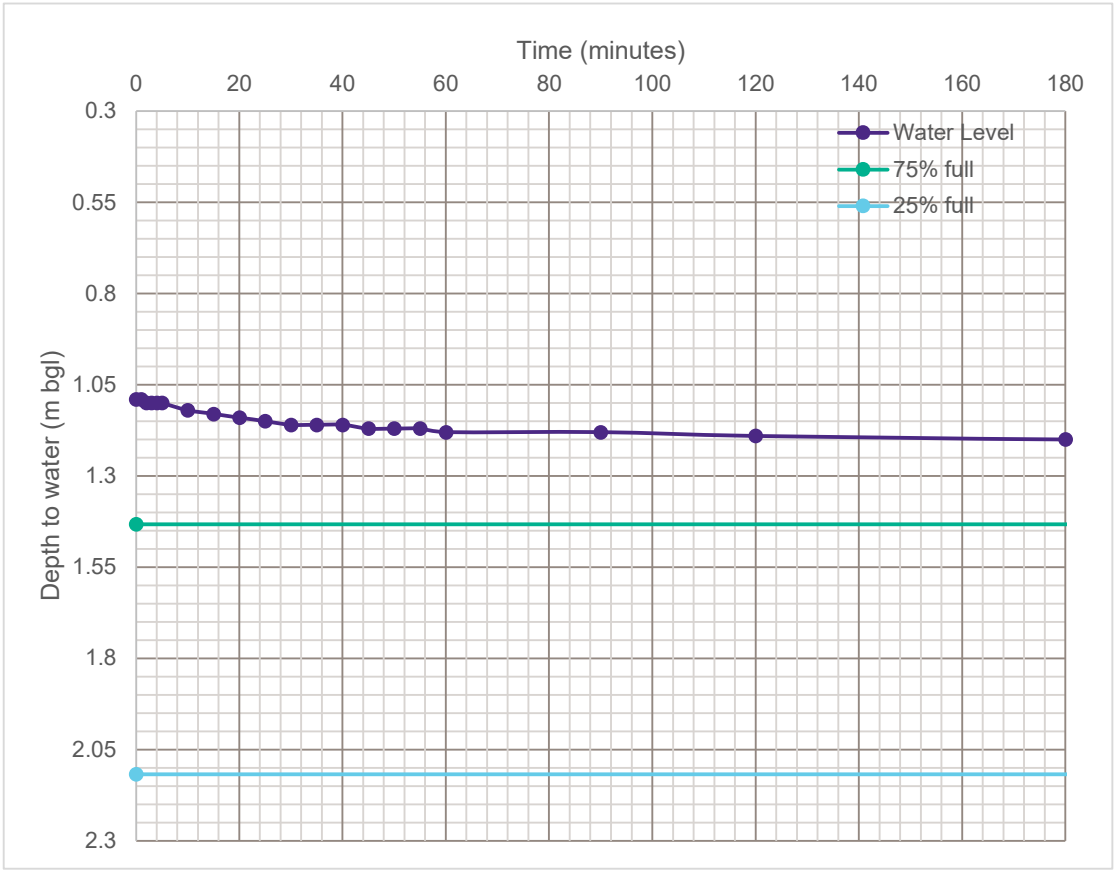
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road GI	Date:	29/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352	Test Pit Reference.:	HP_TP_01
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	1.50
Width	0.65
Length	2.80
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks:

Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

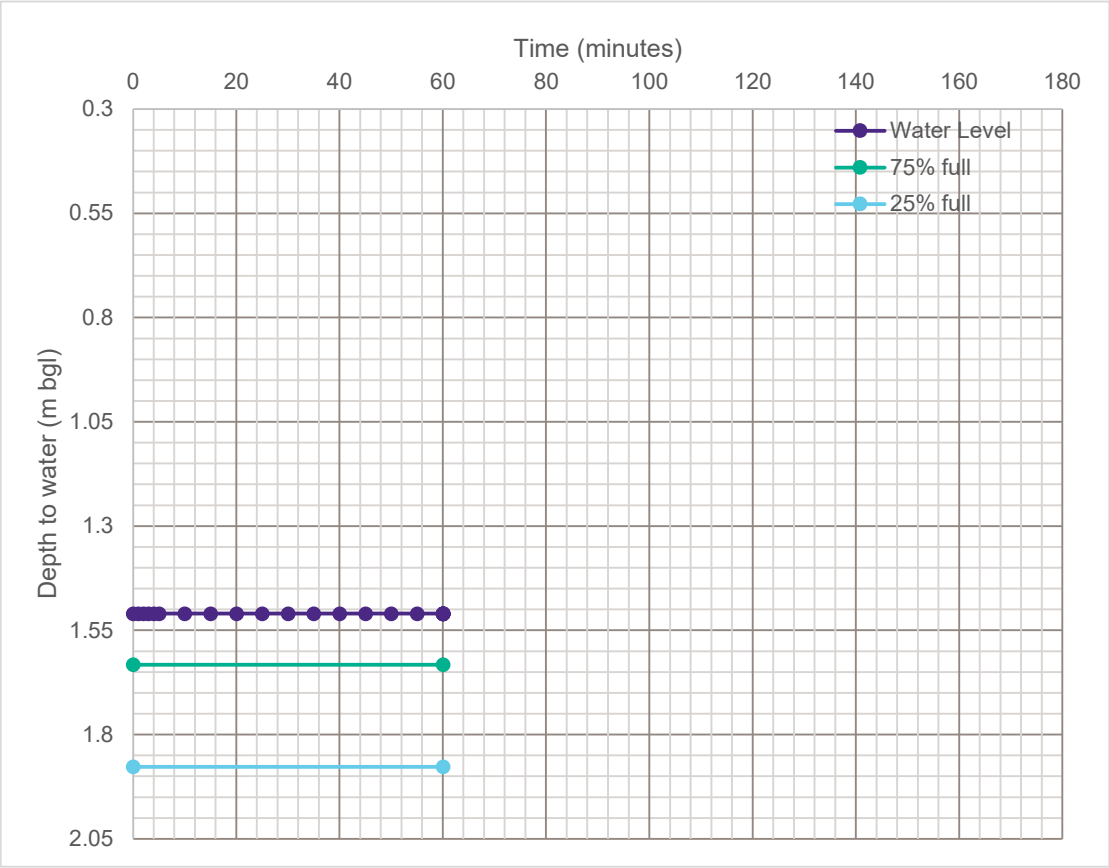
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	29/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	HP_TP_02a		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.50
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

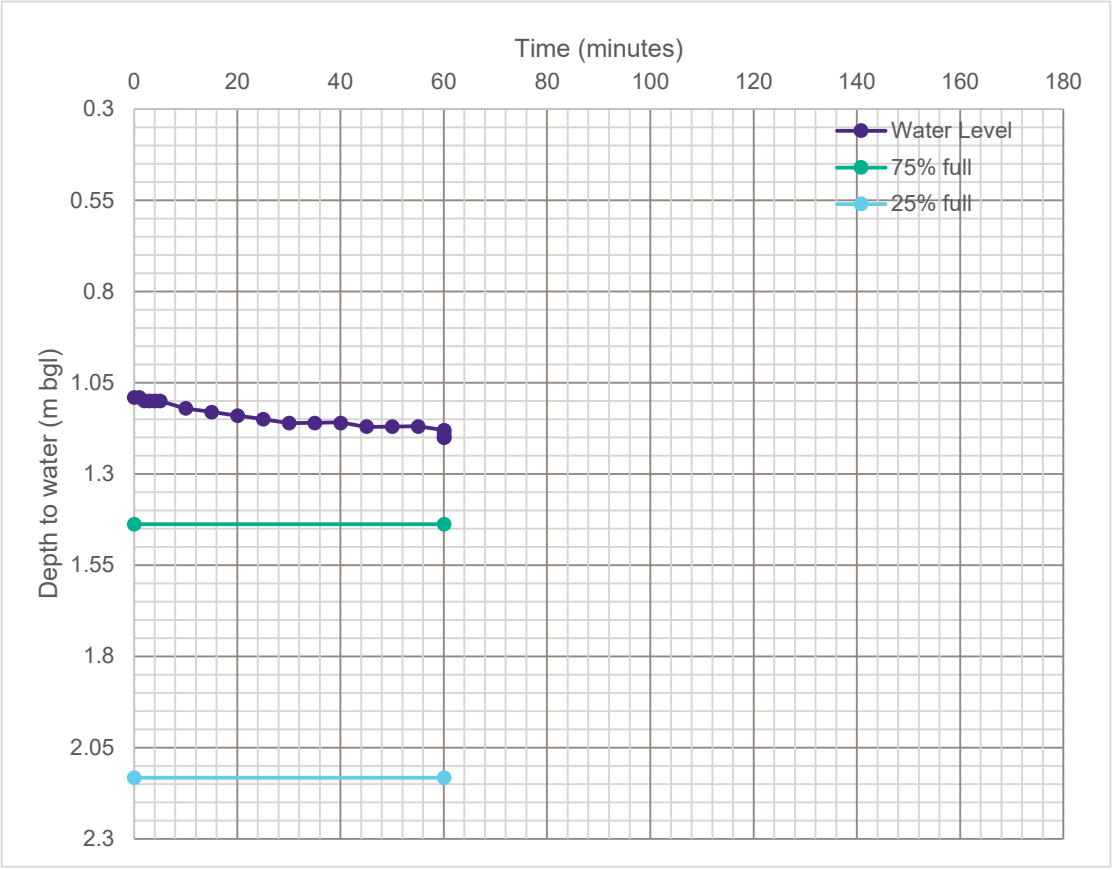
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	28/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	HP_TP_03		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.50
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

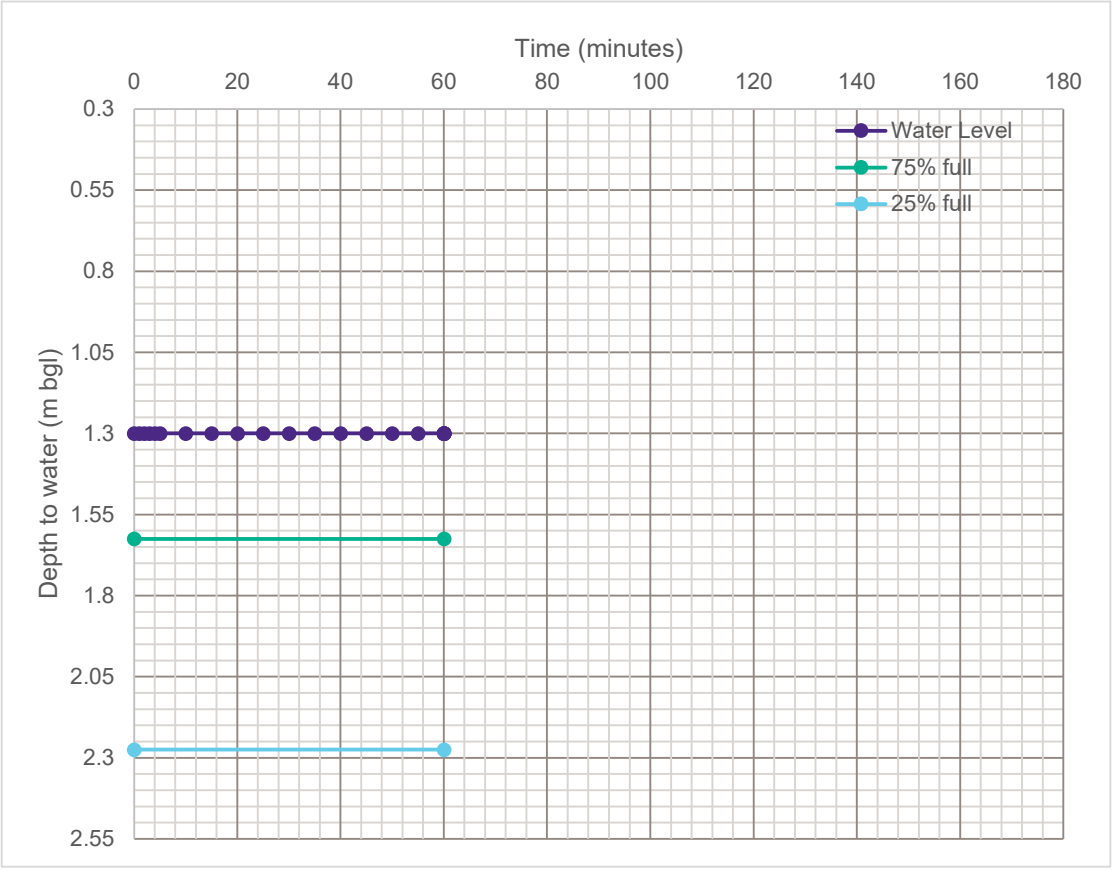
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	22/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	HP_TP_04		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.30
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

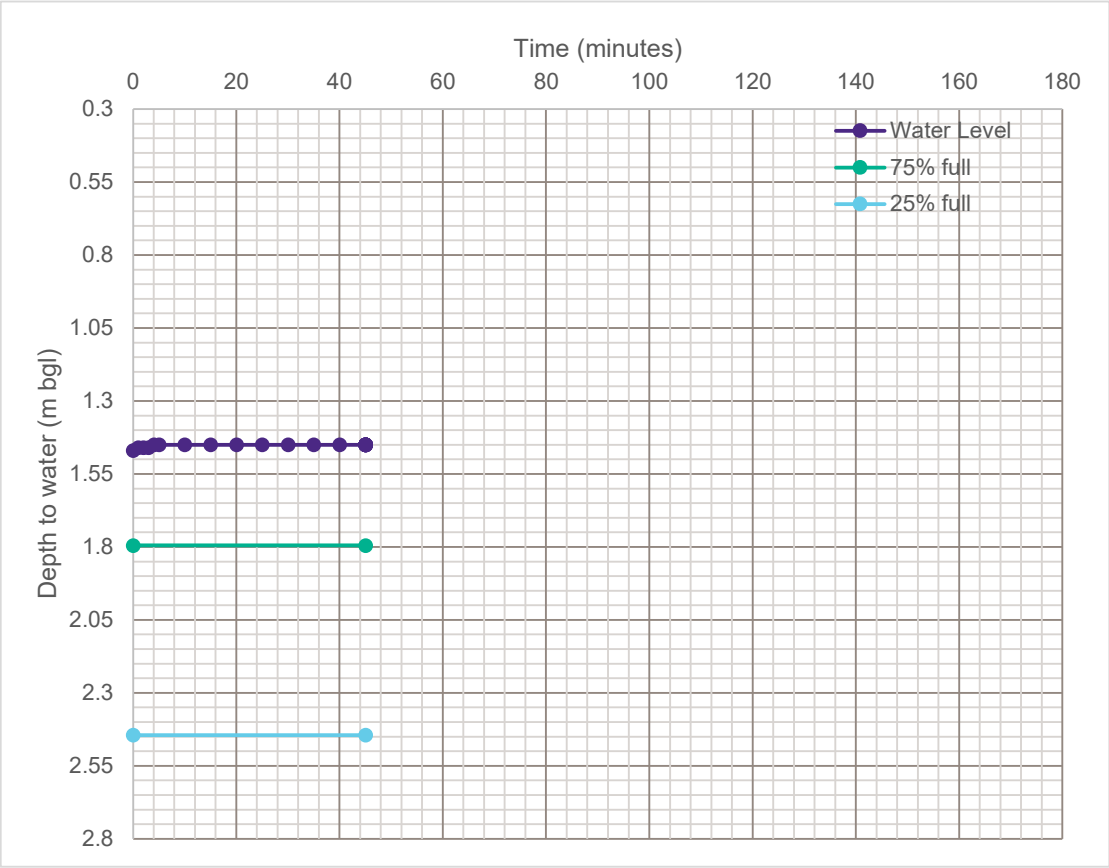
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	22/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	HP_TP_05		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	1.95
Width	0.65
Length	1.40
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

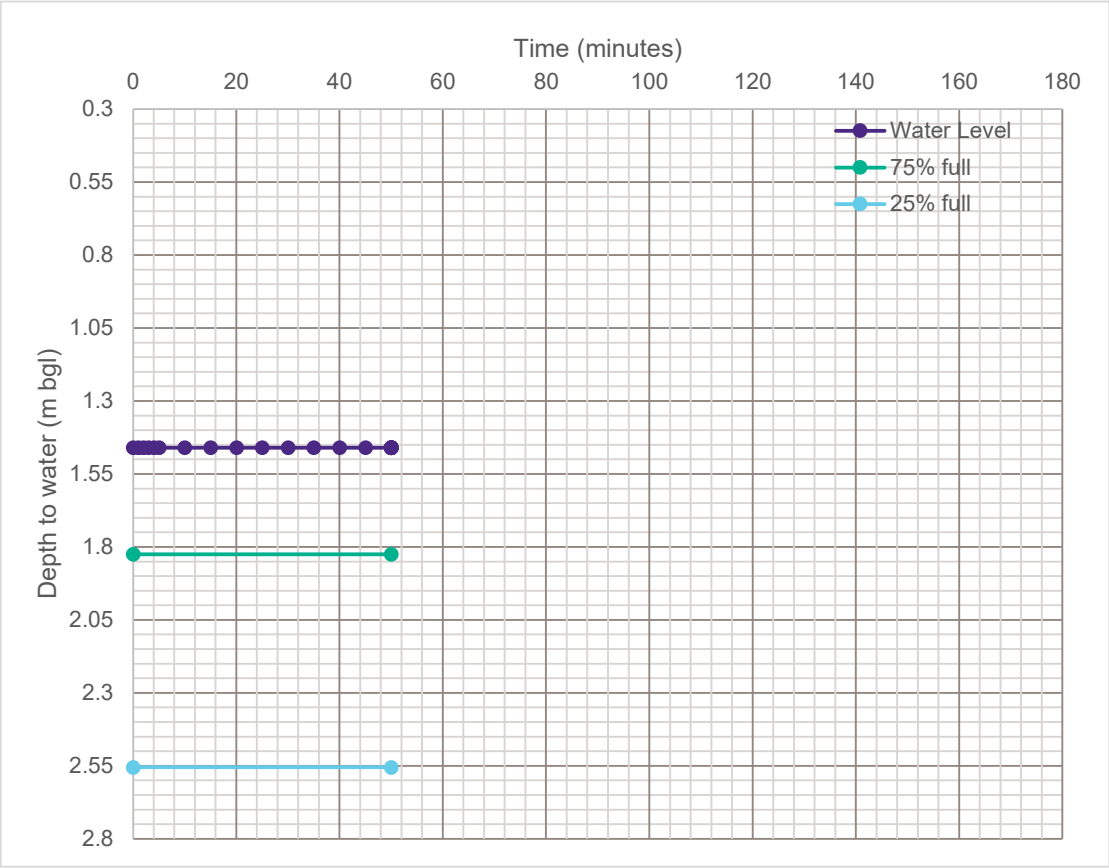
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	25/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352
		Test Pit Reference.:	HP_TP_06
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.25
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

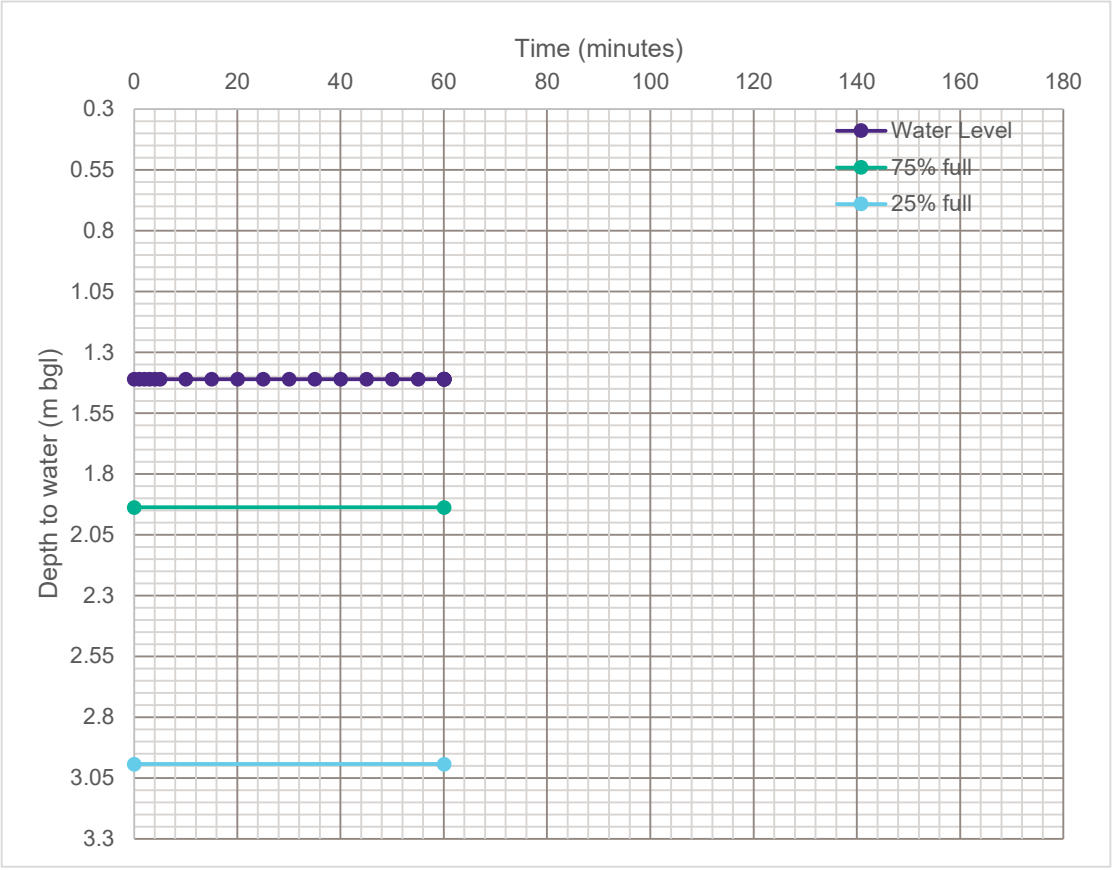
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	21/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	HP_TP_07		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.11
Width	0.65
Length	1.15
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

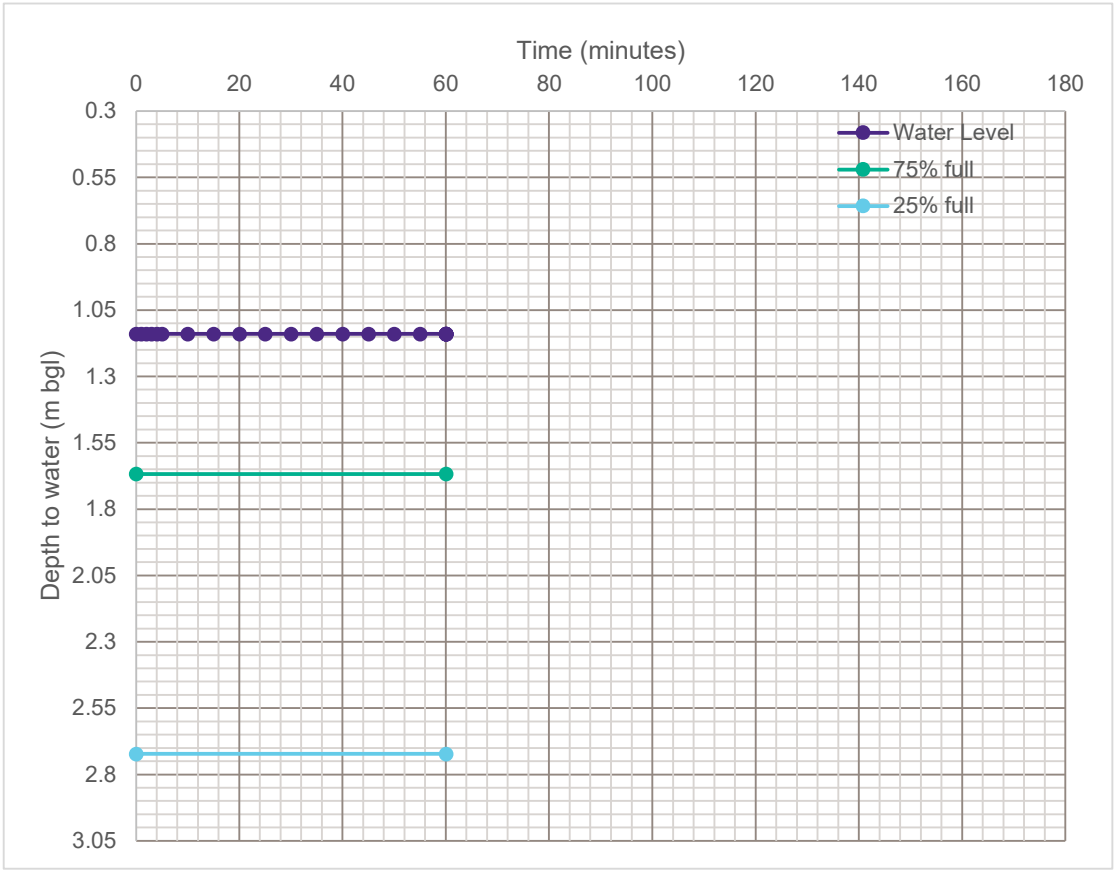
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	11/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
		Test Pit Reference.:	HP_TP_08
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.30
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

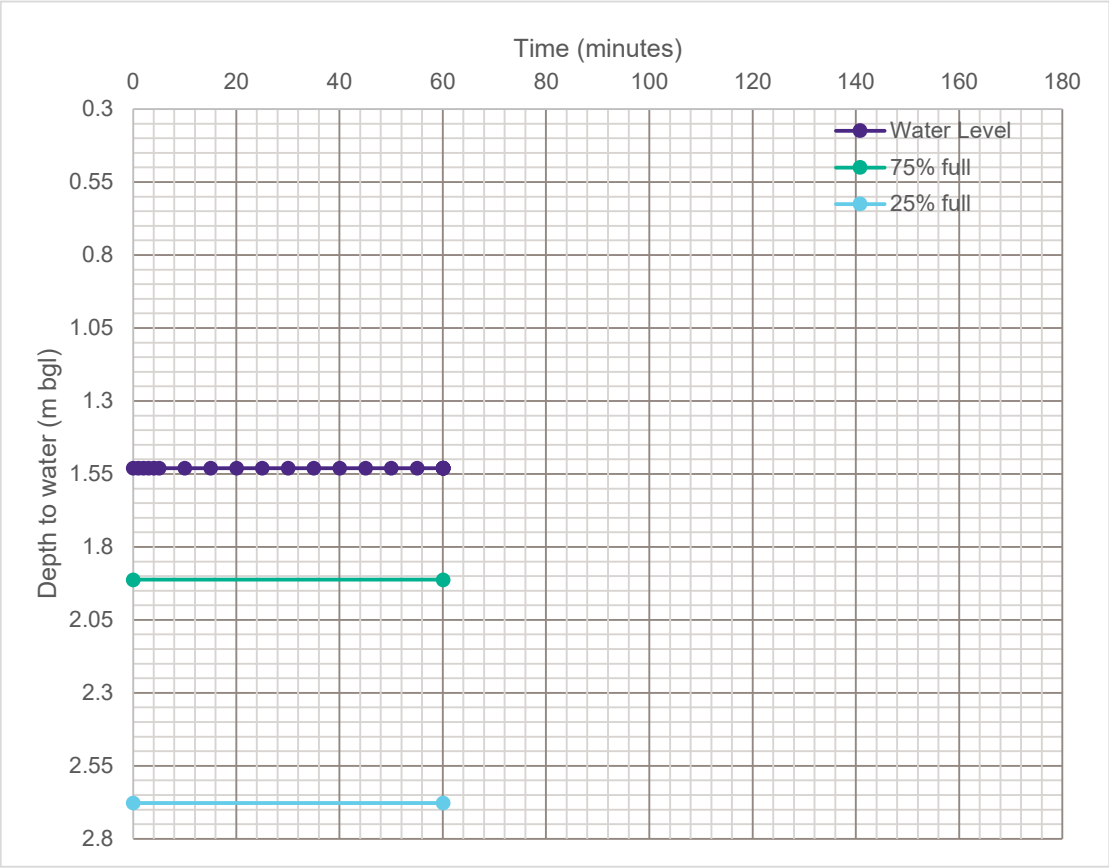
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	12/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	HP_TP_09		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.10
Width	0.70
Length	1.15
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

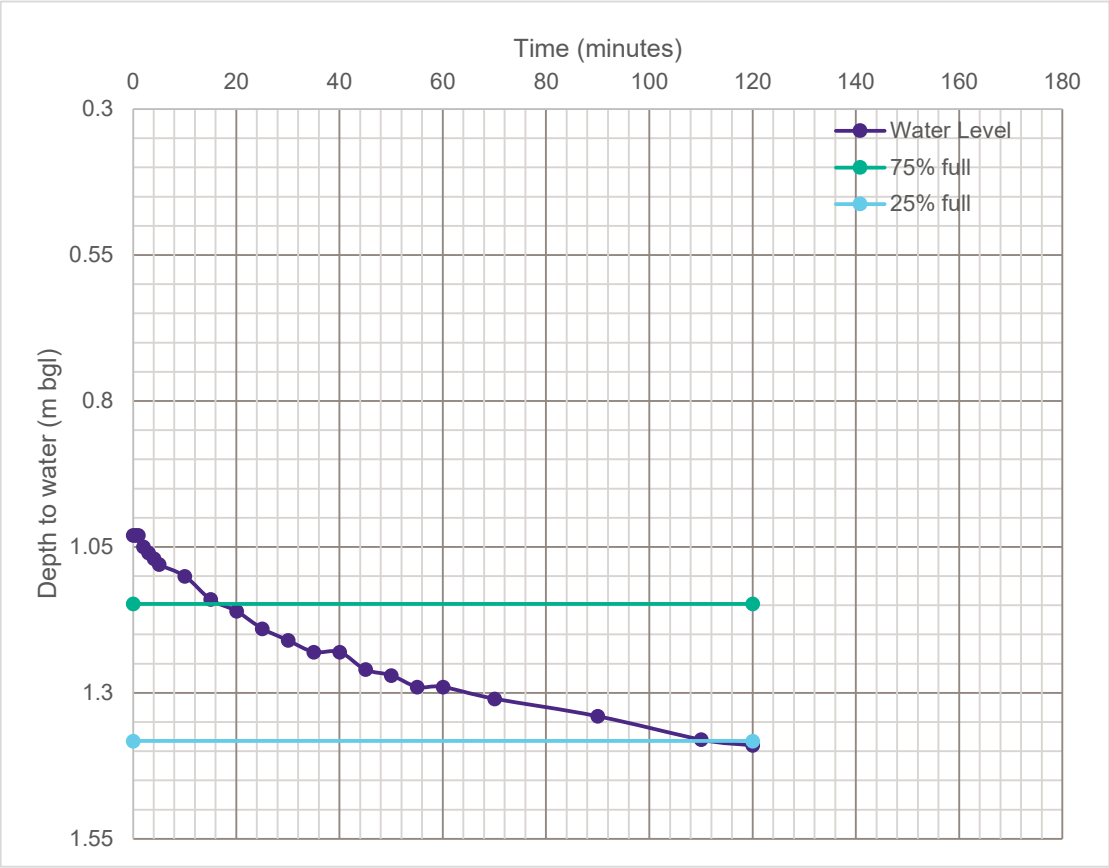
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	10/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP001		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.50
Width	0.65
Length	1.50
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
1.55E-05	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

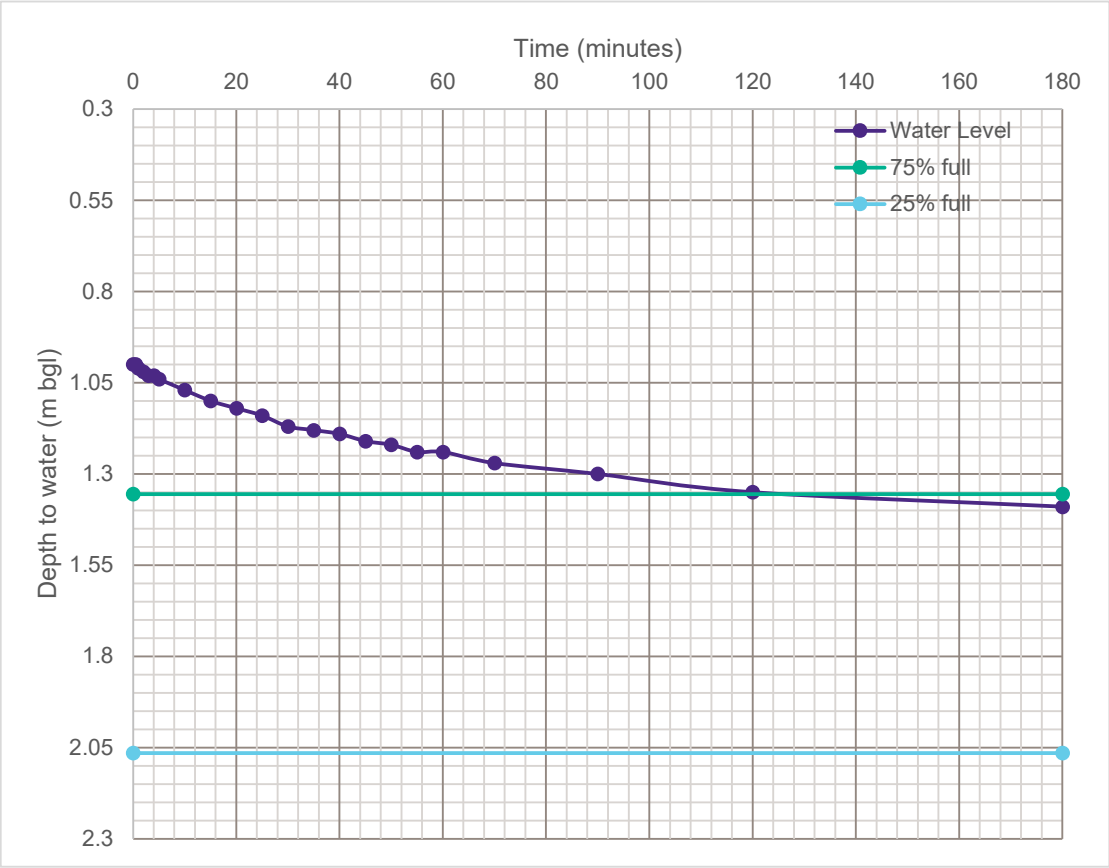
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	10/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP001		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	2

Pit Dimensions (m)	
Depth	2.50
Width	0.65
Length	1.50
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

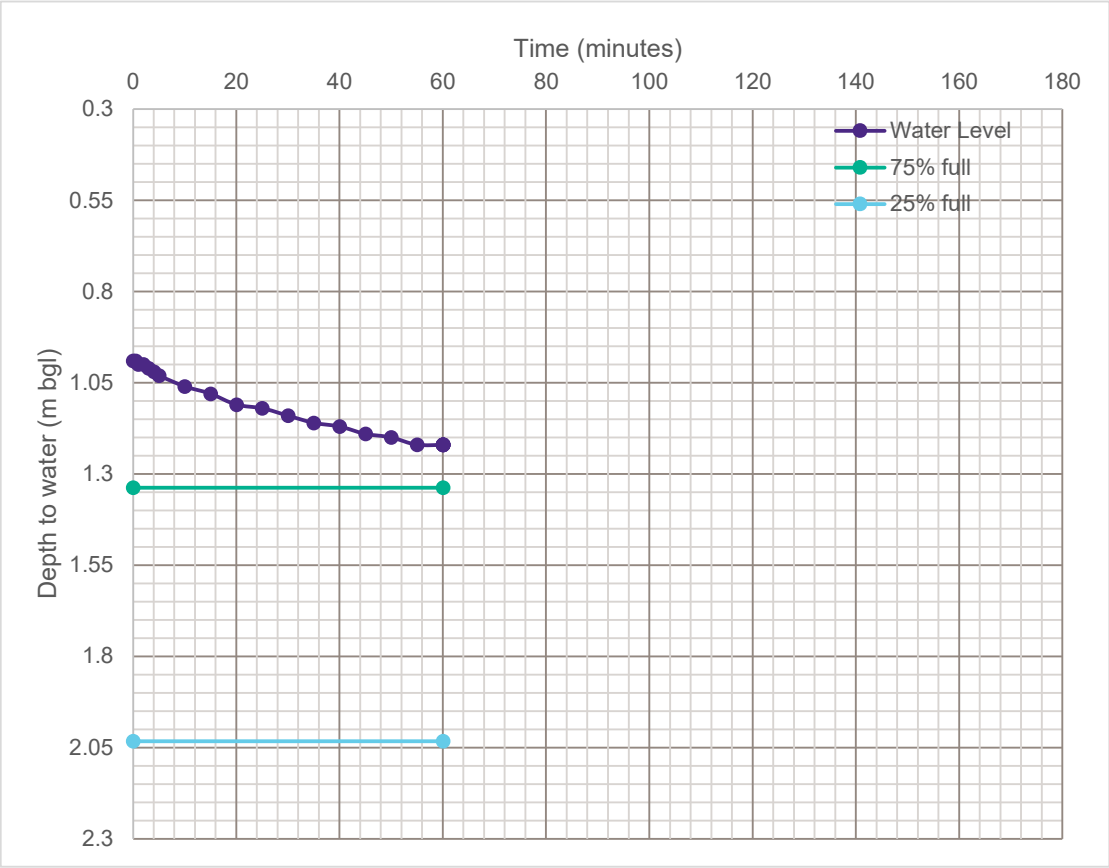
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	10/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP001		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	3

Pit Dimensions (m)	
Depth	2.50
Width	0.65
Length	1.50
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

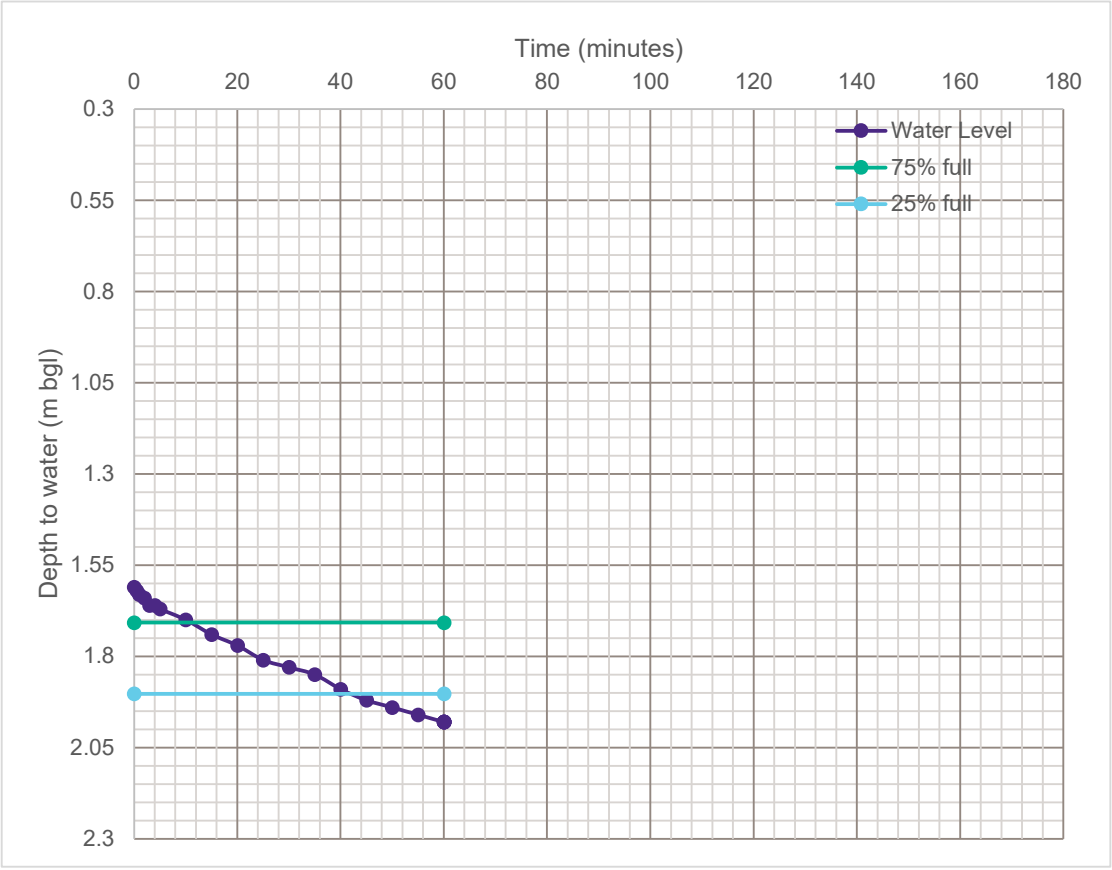
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road GI	Date:	03/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352	Test Pit Reference.:	TP002
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.30
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
5.49E-05	**m/s**



Remarks:

Repeat tests completed in TP002A.

SOIL INFILTRATION TEST RATE

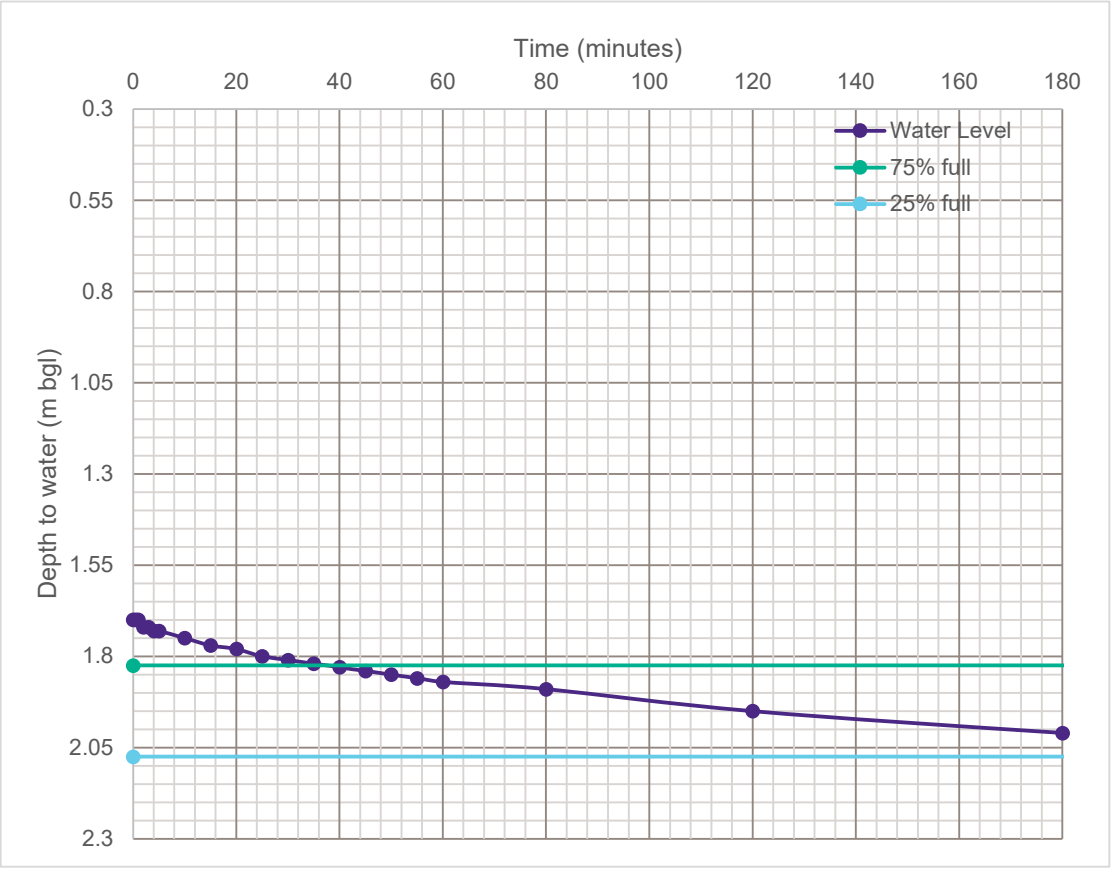
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	04/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP002a		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.20
Width	0.65
Length	1.65
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks:

SOIL INFILTRATION TEST RATE

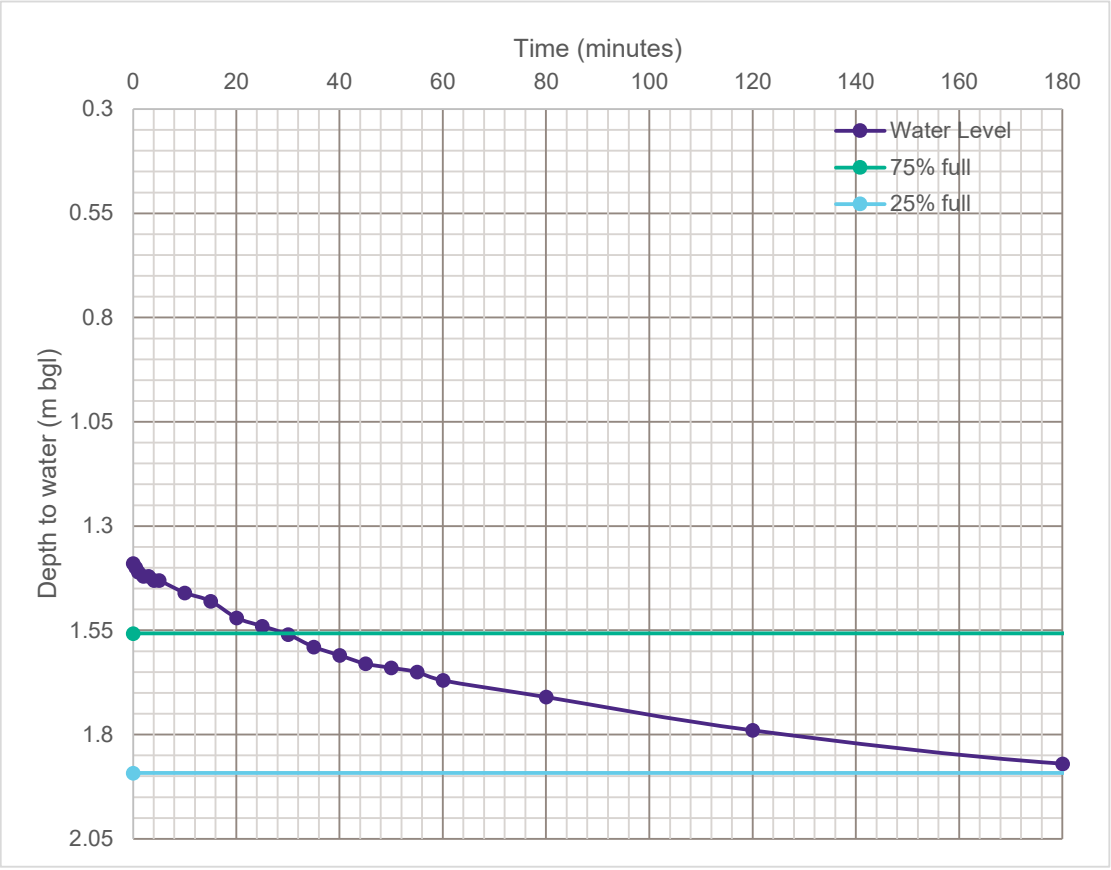
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	04/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP002a		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	2

Pit Dimensions (m)	
Depth	2.20
Width	0.65
Length	1.65
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks:

Insufficient fall in water to calculate infiltration rate.

SOIL INFILTRATION TEST RATE

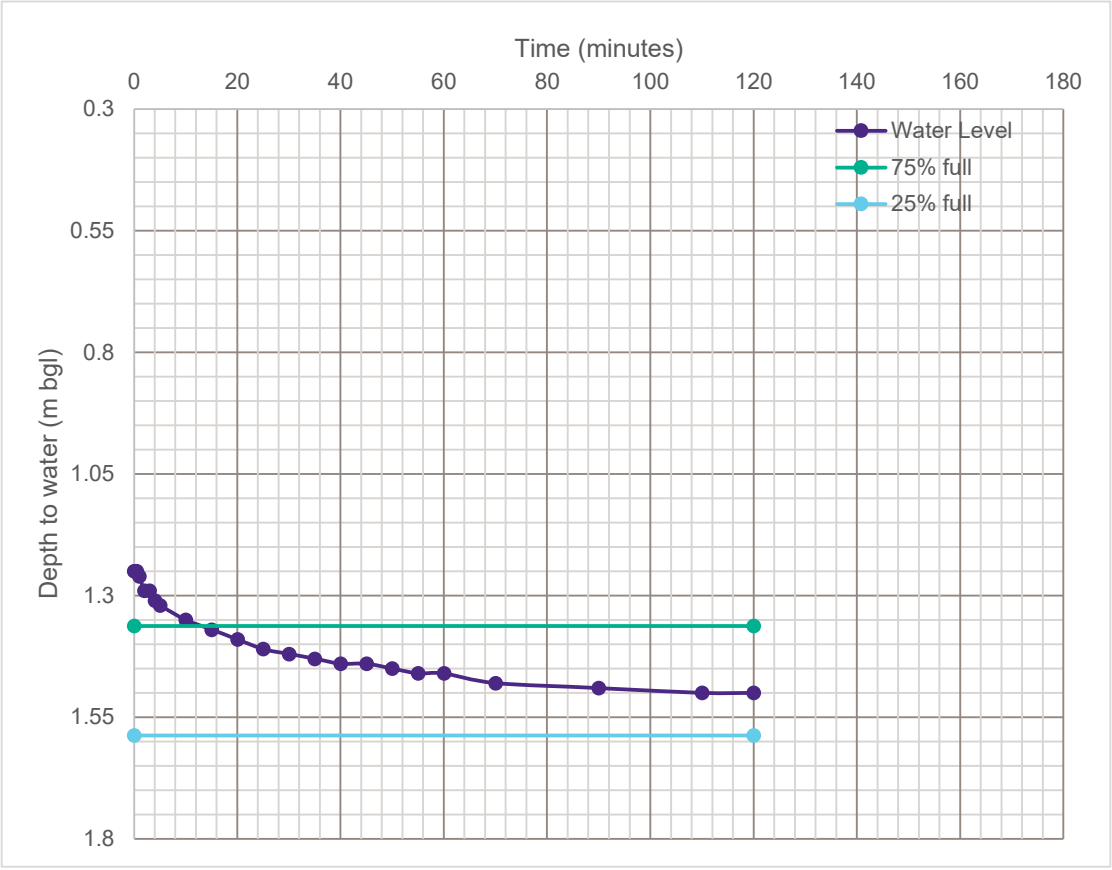
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road GI	Date:	03/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352	Test Pit Reference.:	TP003
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.50
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

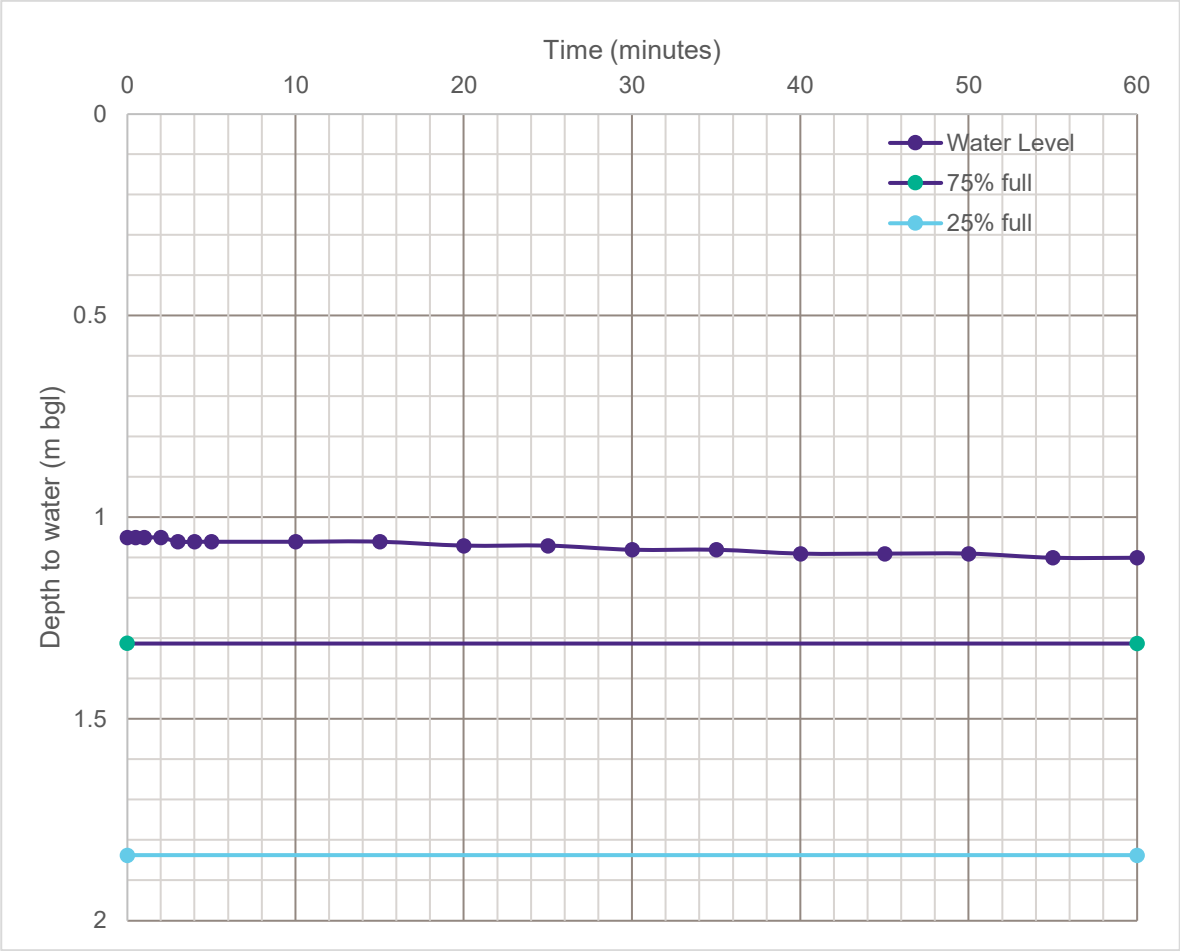
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road	Date:	04/04/2022
Client:	Wiltshire Council	Job Number:	JER9532	Test Pit Reference.:	TP004
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.35
Length	2.10
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
--.--	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

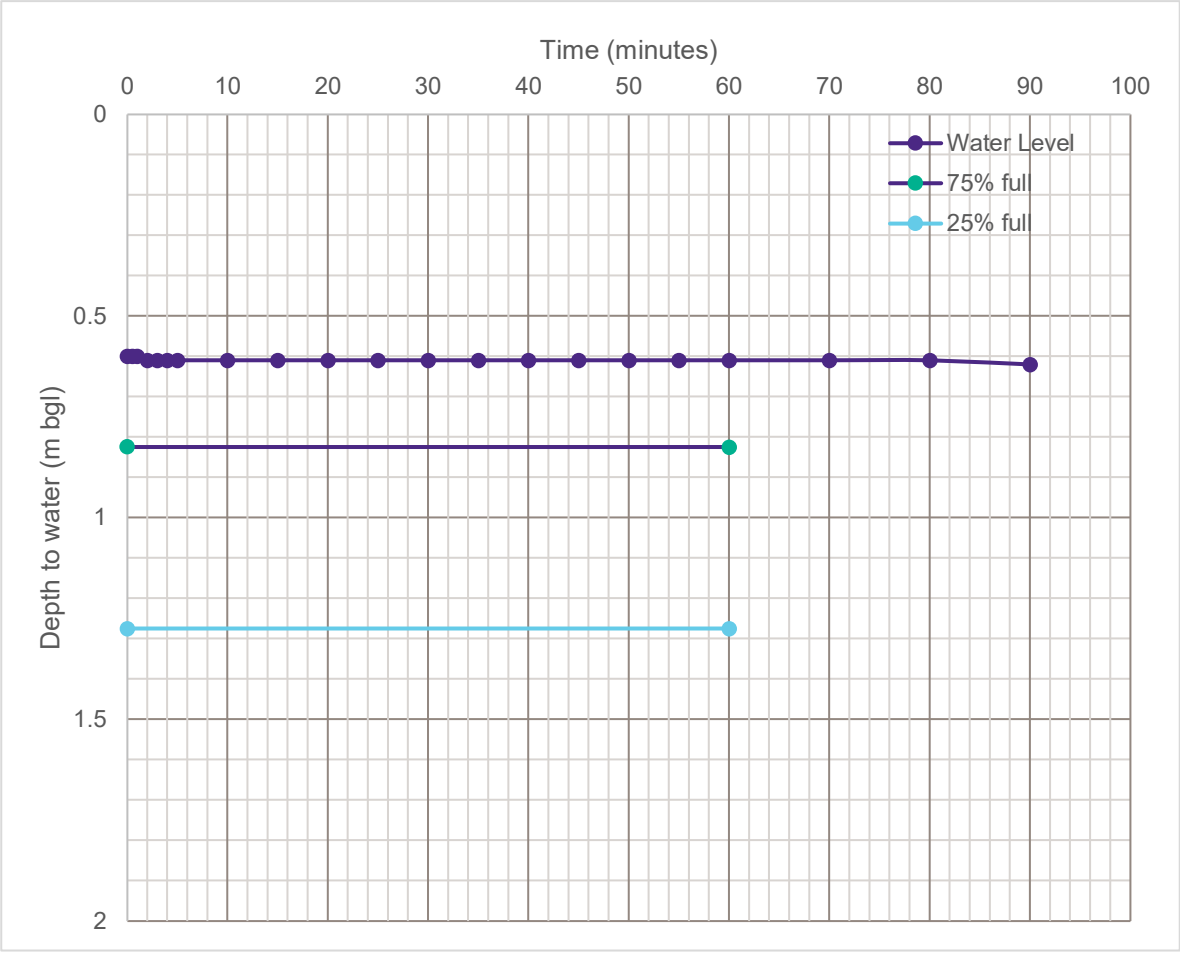
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road	Date:	05/04/2022
Client:	Wiltshire Council	Job Number:	JER9532
Test Pit Reference.:	TP005		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	1.50
Width	0.30
Length	2.15
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
--.--	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

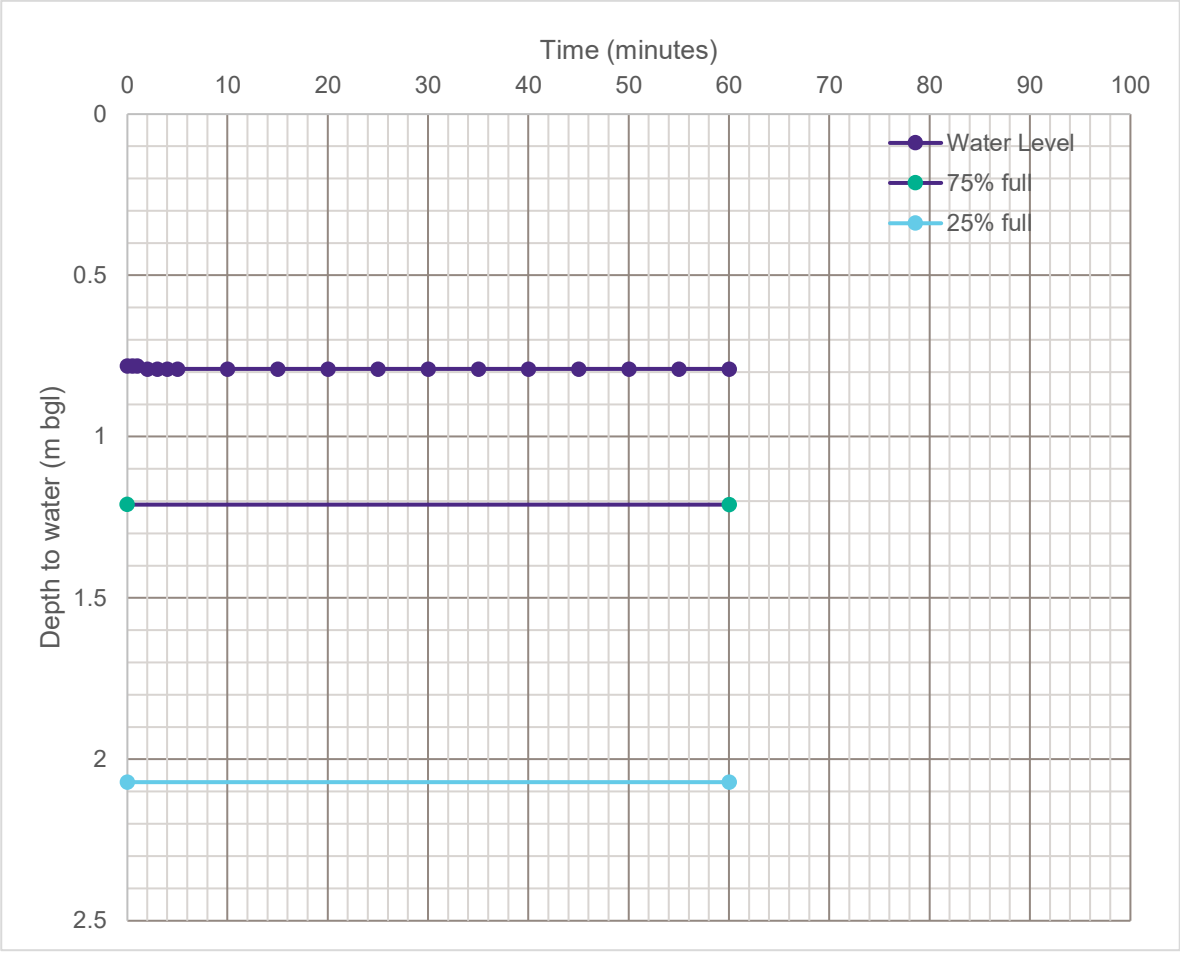
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road	Date:	06/04/2022
Client:	Wiltshire Council	Job Number:	JER9532	Test Pit Reference.:	TP006b
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	2.50
Width	0.30
Length	2.15
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

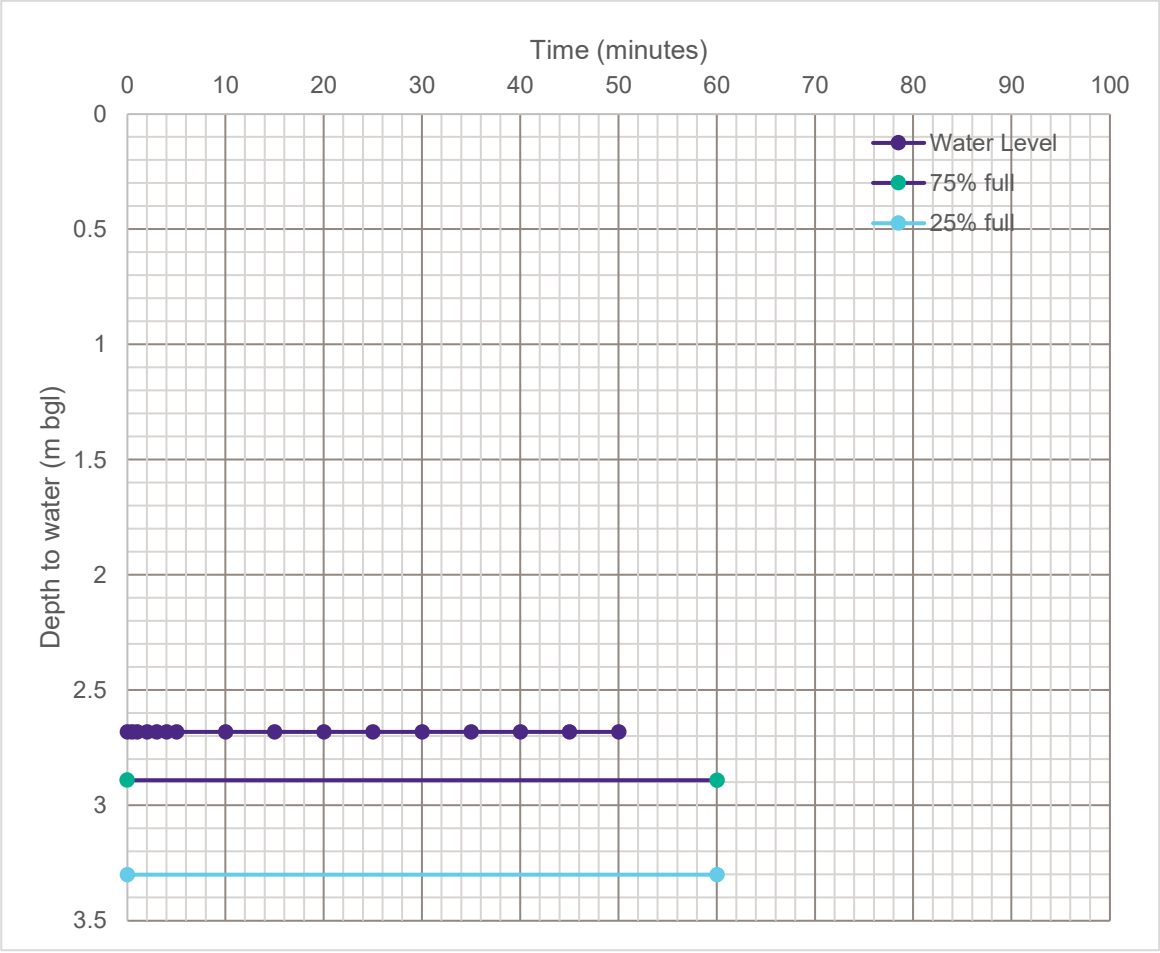
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road	Date:	27/04/2022
Client:	Wiltshire Council	Job Number:	JER9532
Test Pit Reference.:	TP007		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	3.50
Width	0.65
Length	1.40
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

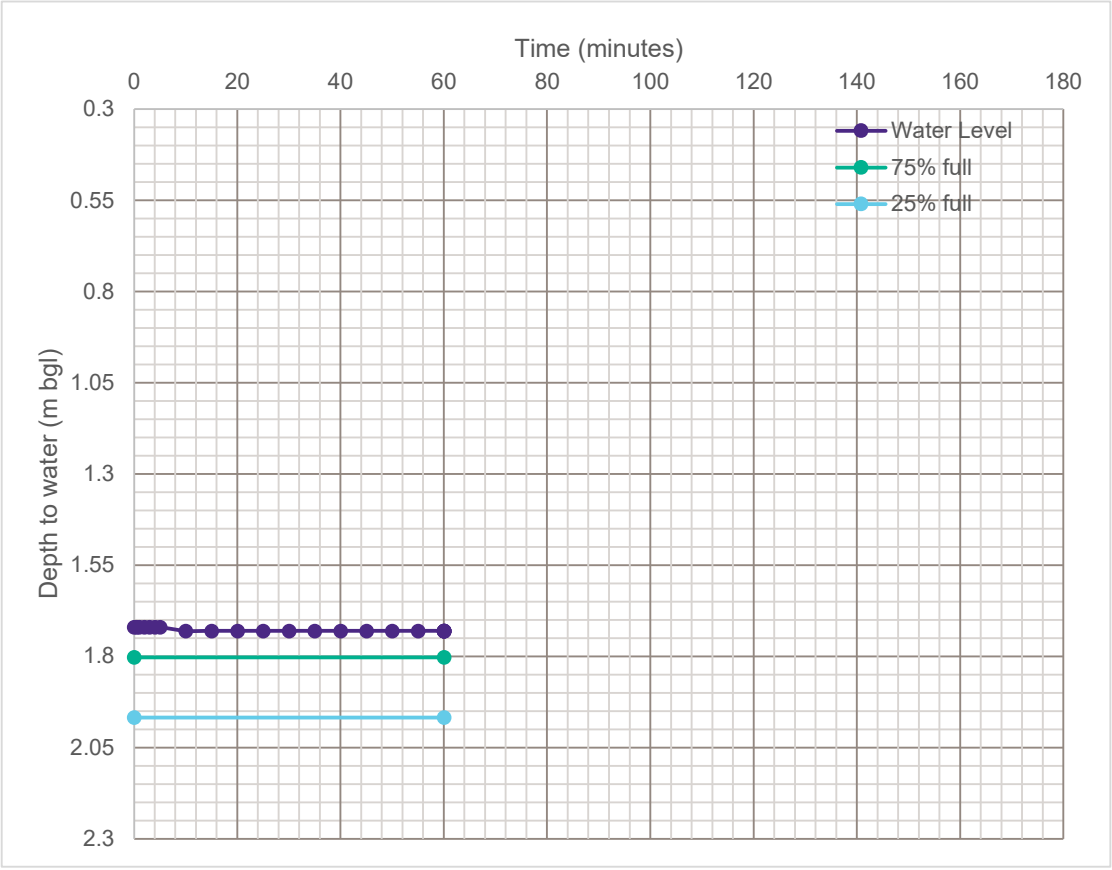
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	20/04/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP008		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.05
Width	0.65
Length	3.00
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

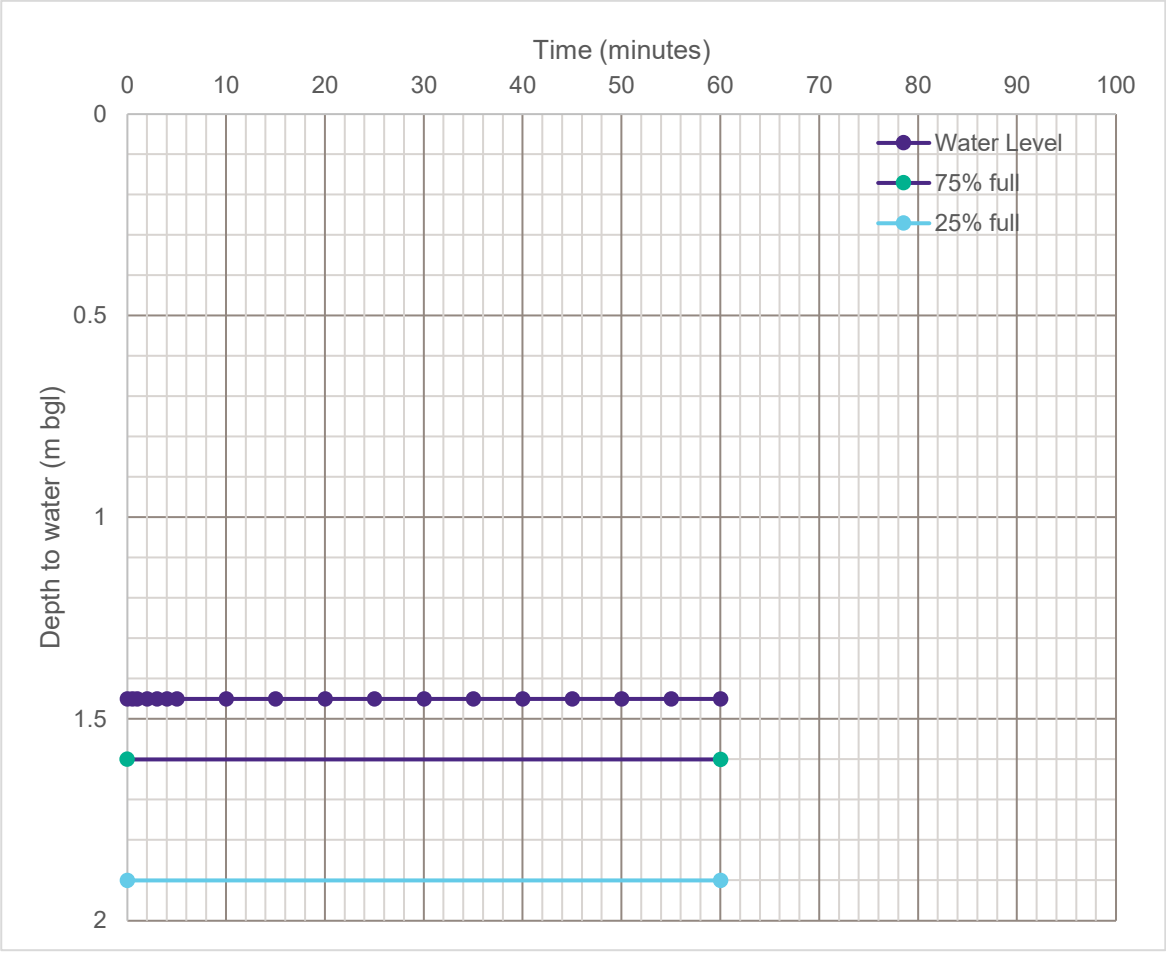
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road	Date:	27/04/2022
Client:	Wiltshire Council	Job Number:	JER9532
Test Pit Reference.:	TP009		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.05
Width	0.65
Length	1.35
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
1.70E-04	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

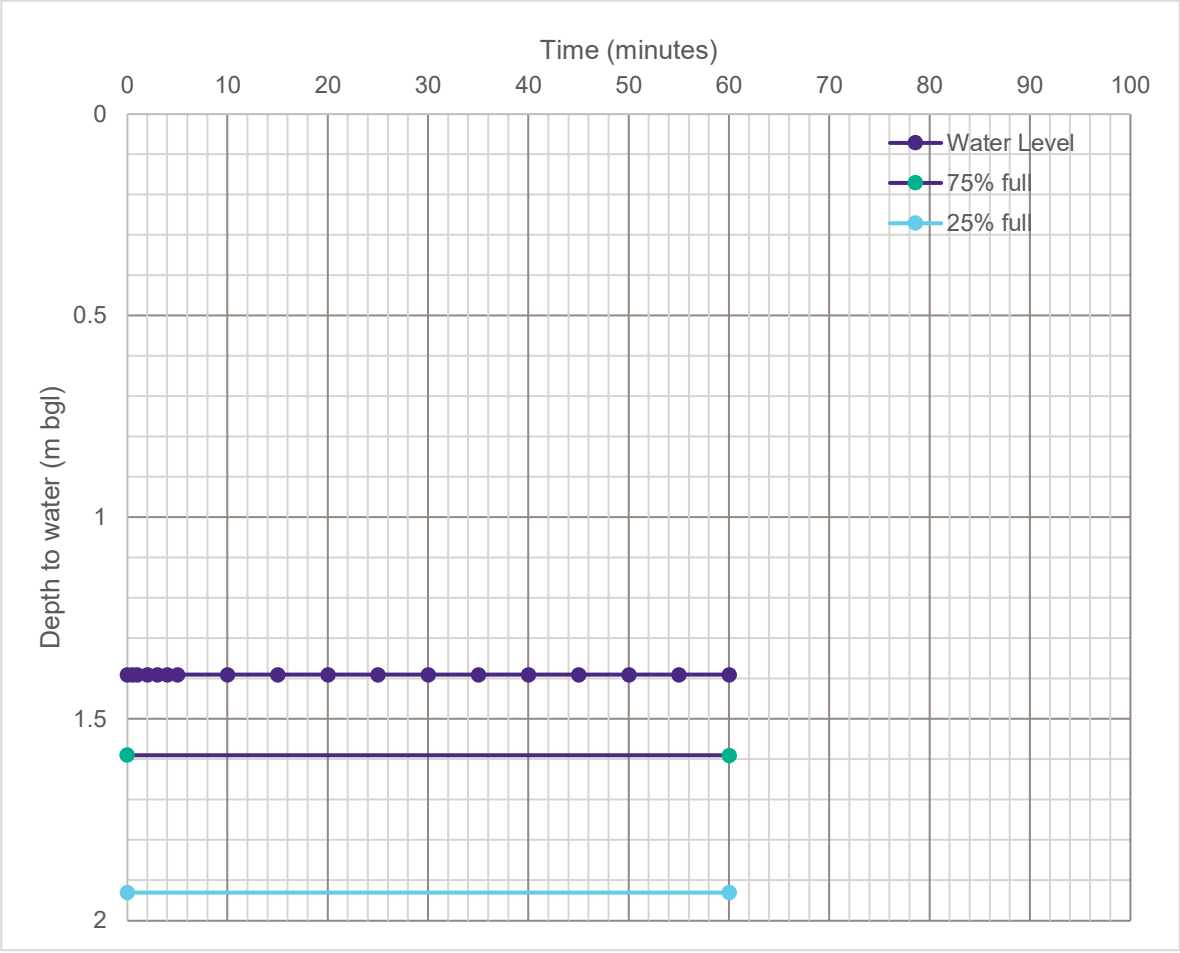
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road	Date:	21/04/2022
Client:	Wiltshire Council	Job Number:	JER9532	Test Pit Reference.:	TP010
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	2.10
Width	0.65
Length	1.40
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

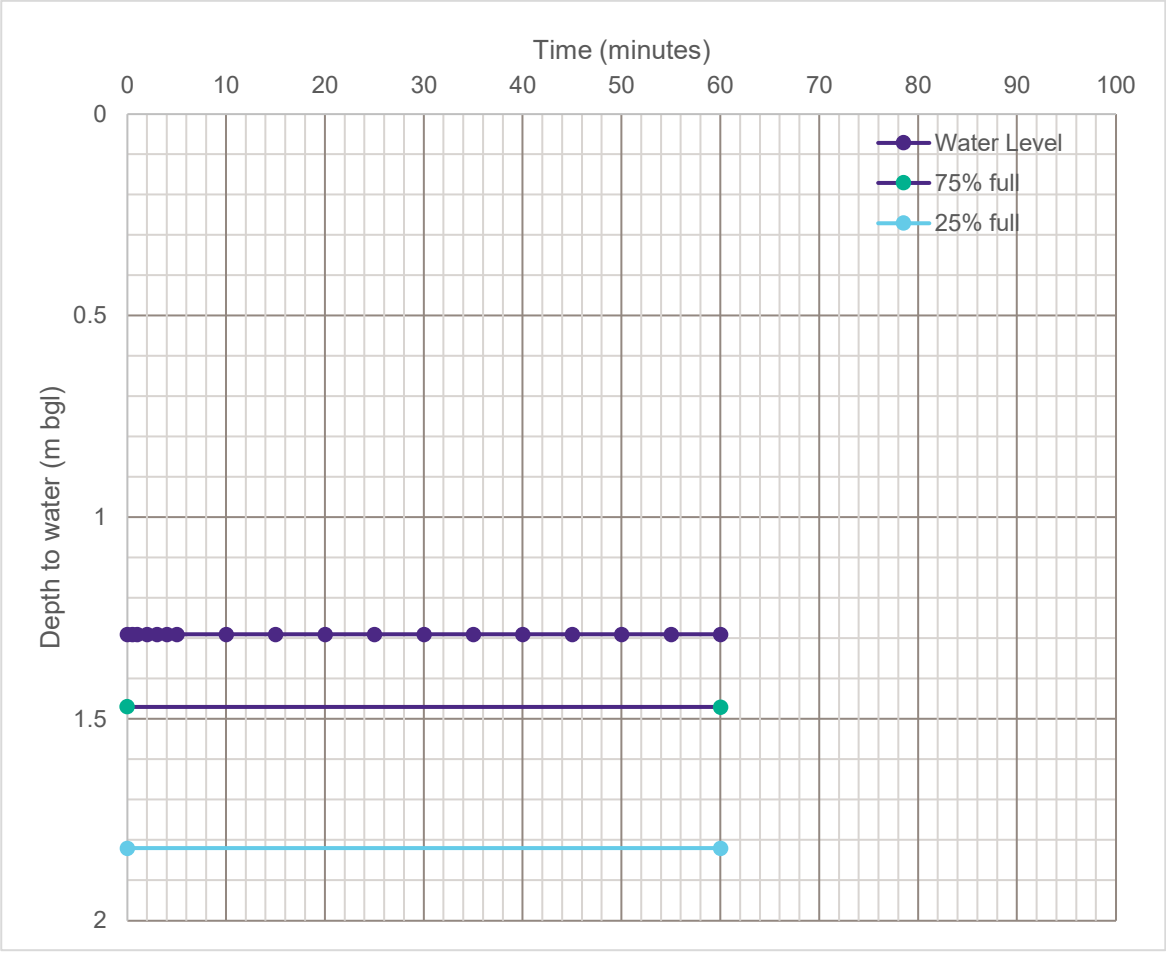
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road	Date:	25/04/2022
Client:	Wiltshire Council	Job Number:	JER9532	Test Pit Reference.:	TP011
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.20
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

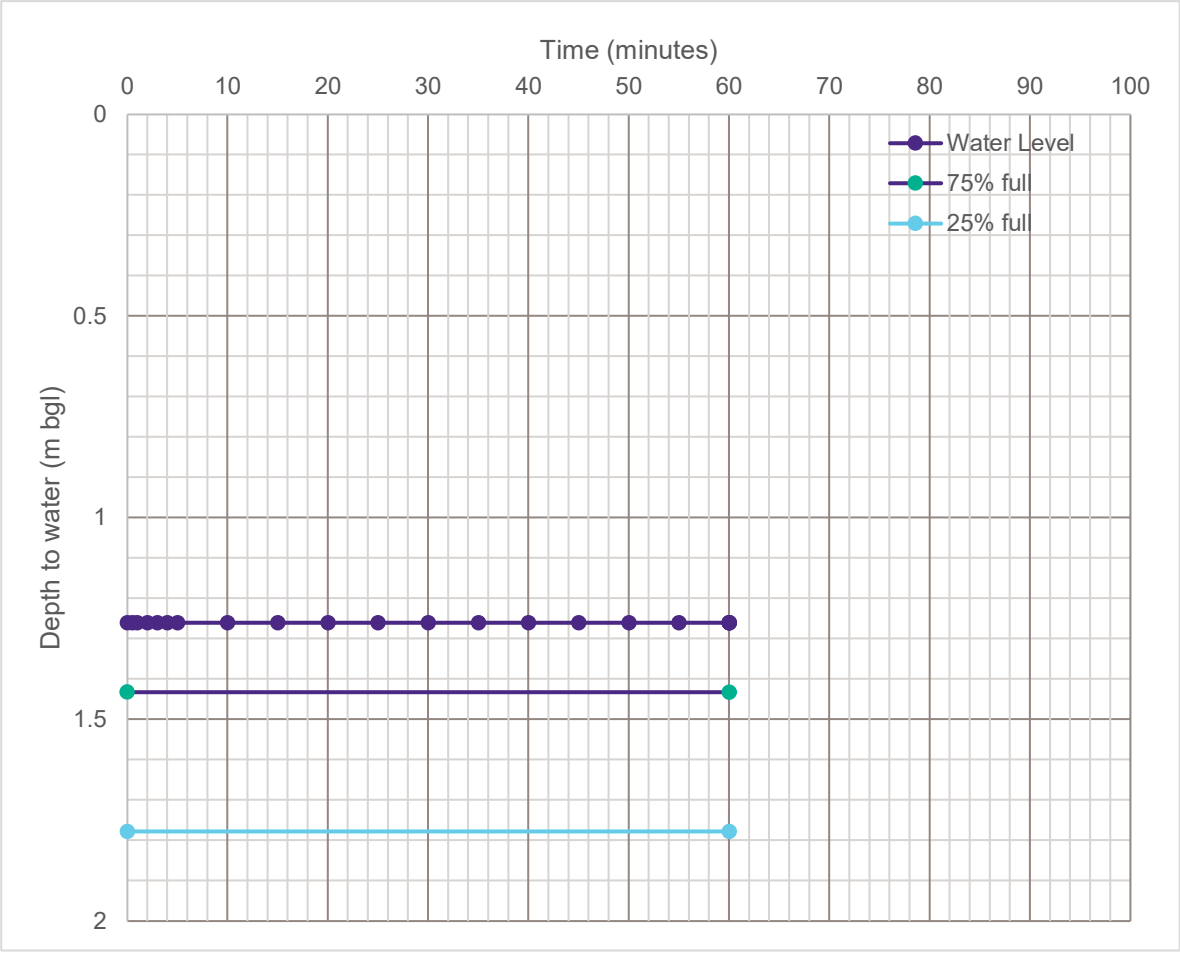
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road	Date:	11/05/2022
Client:	Wiltshire Council	Job Number:	JER9532	Test Pit Reference.:	TP012
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	1.95
Width	0.65
Length	1.30
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
--.--	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

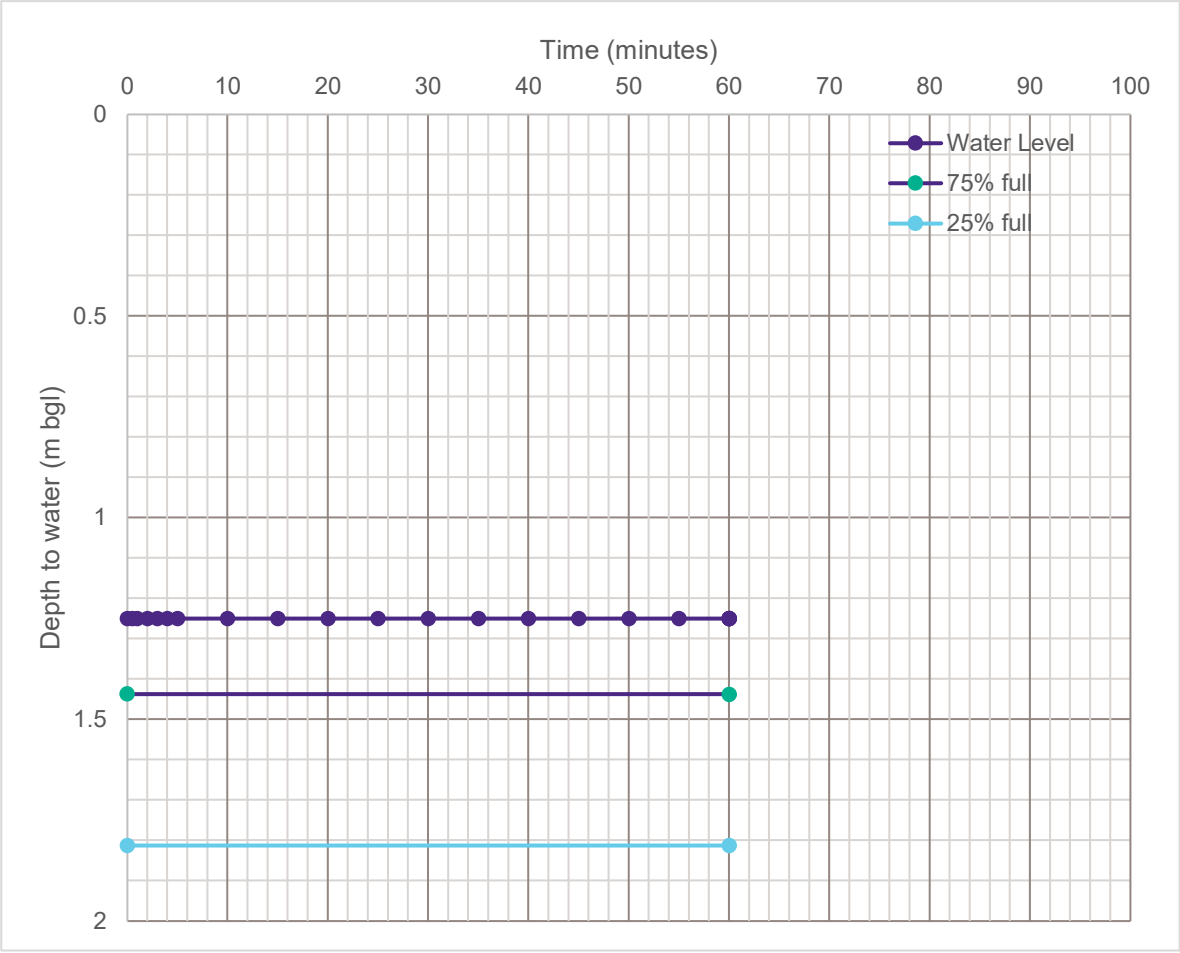
In accordance with BRE Digest 365 (2016)

		Job Name:	Chippenham Distributor Road	Date:	11/05/2022
Client:	Wiltshire Council	Job Number:	JER9532	Test Pit Reference.:	TP013
Trial pit filled with gravel to prevent instability in pit walls?:		No		Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.20
Height of pipe above ground level (if applicable)	0.00

Start % for calculations:	75% full
End % for calculations:	Extrapolated 25% full

Soil Infiltration Rate (f)	
--.--	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

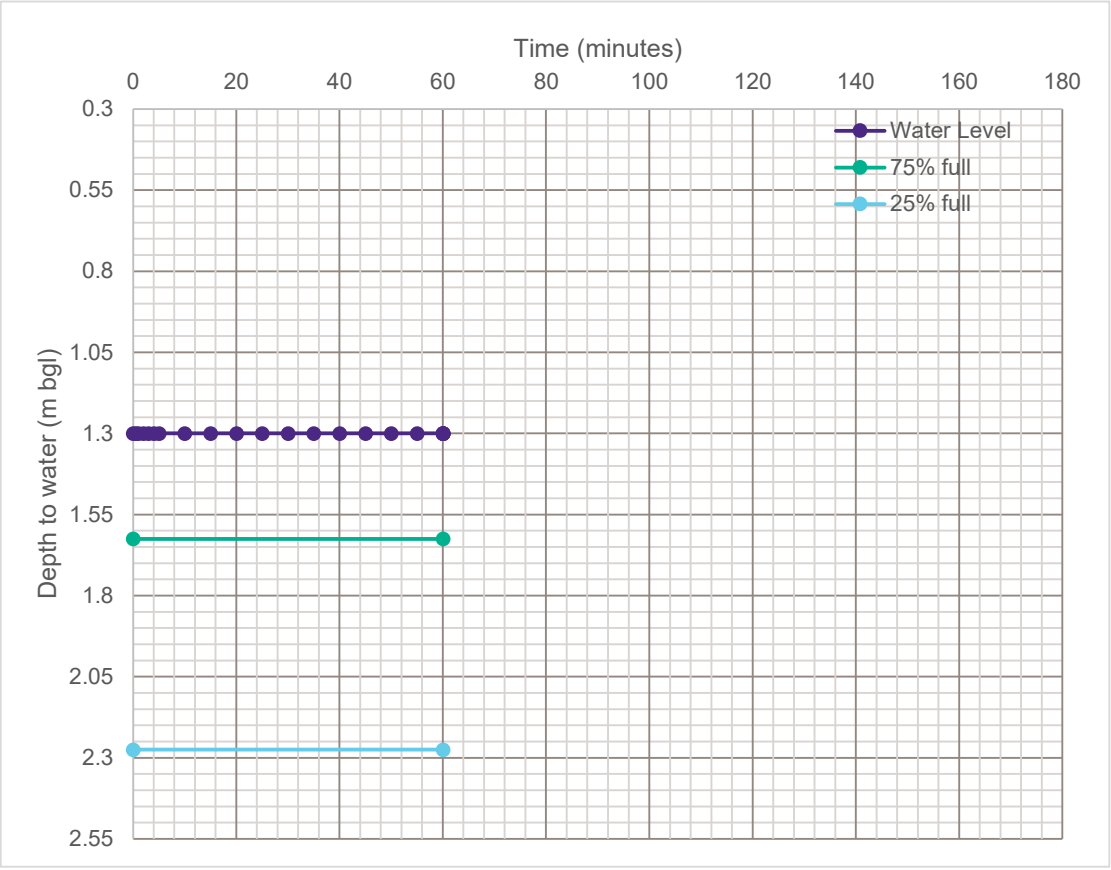
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	12/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP014		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.65
Length	1.30
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

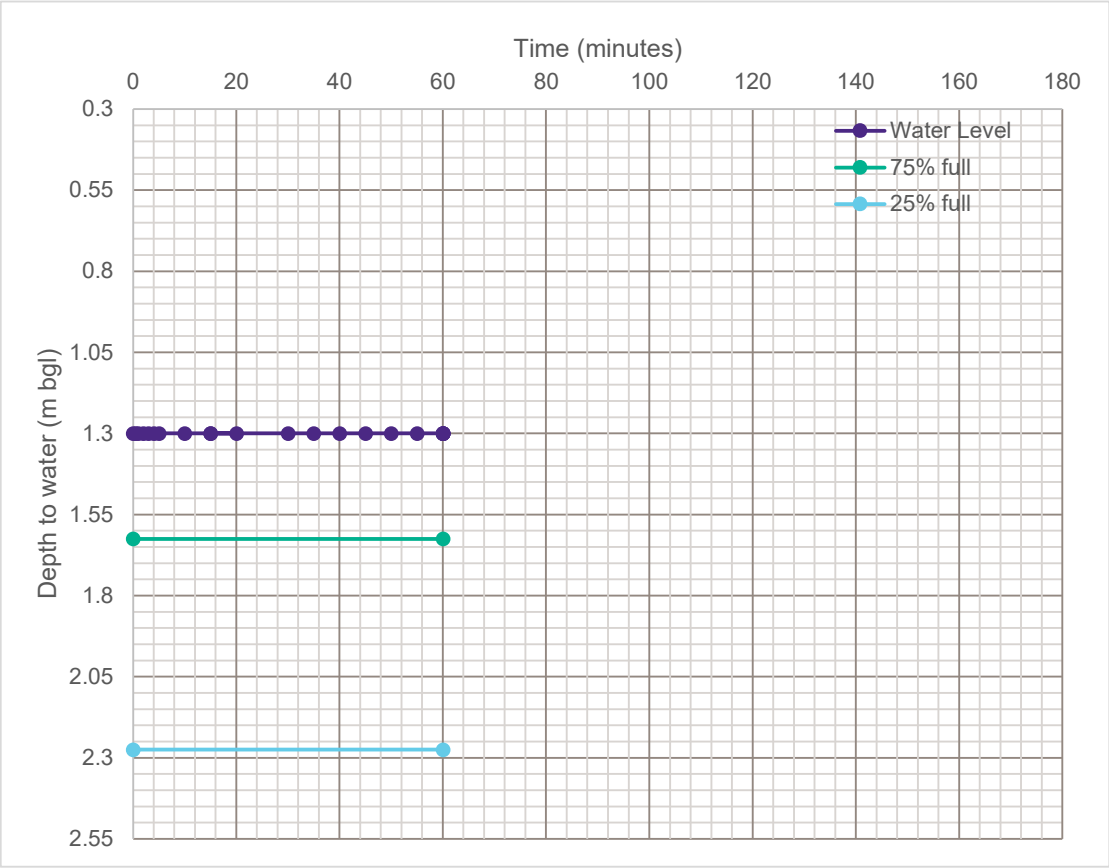
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	12/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP015		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.10
Width	0.65
Length	1.30
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

SOIL INFILTRATION TEST RATE

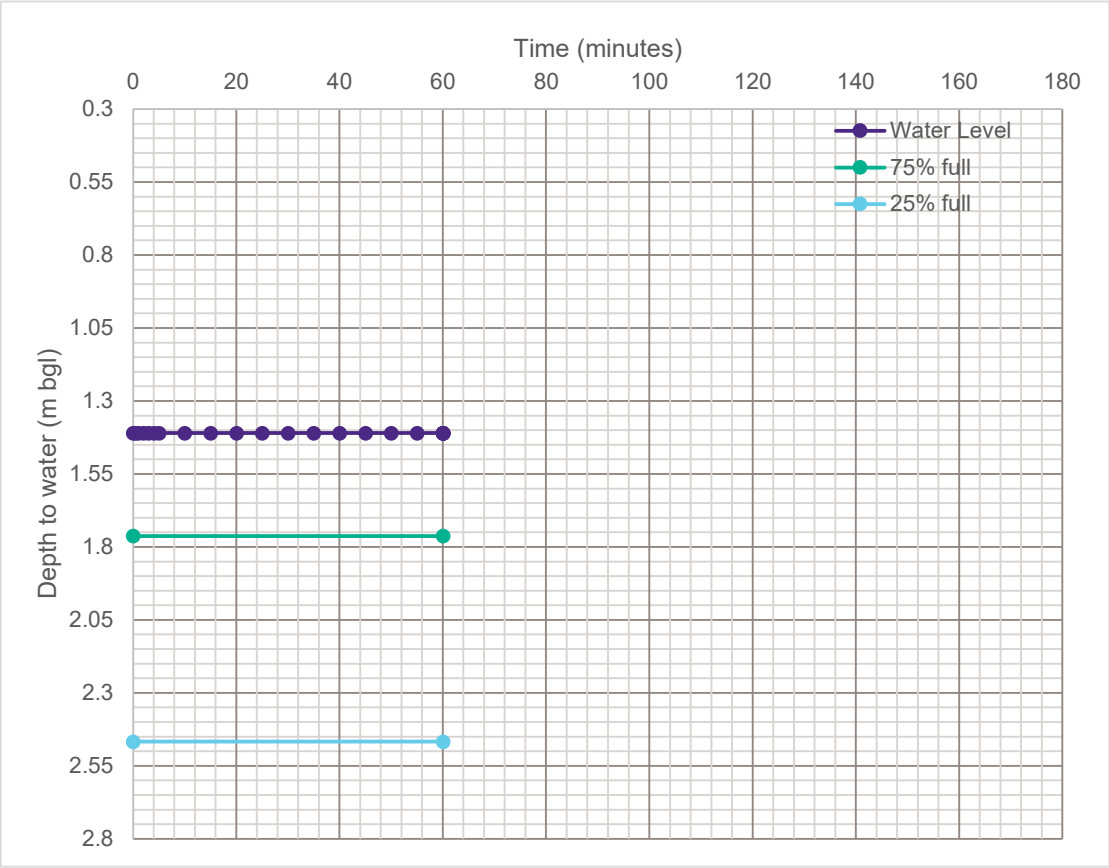
In accordance with BRE Digest 365 (2016)

Job Name:	Chippenham Distributor Road GI	Date:	12/05/2022
Client:	Wiltshire Council	Job Number:	JER 9352
Test Pit Reference.:	TP016		
Trial pit filled with gravel to prevent instability in pit walls?:	No	Test No.:	1

Pit Dimensions (m)	
Depth	2.00
Width	0.70
Length	1.30
Height of pipe above ground level (if applicable)	

Start % for calculations:	75% full
End % for calculations:	25% full

Soil Infiltration Rate (f)	
N/A	**m/s**



Remarks: Insufficient change in water level to calculate infiltration rate. Test ended with instruction from site engineer.

Appendix D
PLATE LOAD TEST RESULTS

Laboratory Report

2788

GEO Site & Testing Services Ltd

Contract Number: 58854

Client Ref:
Client PO:

Report Date: **14-04-2022**

Client **RPS Group**
St Annes House
Oxford Square
Oxford Street
Newbury
RG14 1JQ

Contract Title: **Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ**
For the attention of: **Chris Whale**

Date Received: **30-03-2022**
Date Completed: **14-04-2022**

Test Description	Qty
Day rate to provide Technician and equipment including mobilisation but excluding provision of machine as kentiledge (to be provided by others) & Determination of the vertical deformation and strength characteristics of soil by the plate loading test, using a 600 mm diameter steel plate. The test comprises 5 No. loading and 1 No. unloading cycles, as specified by the Client. As many tests are required by client that can be done in one day. - * UKAS	4

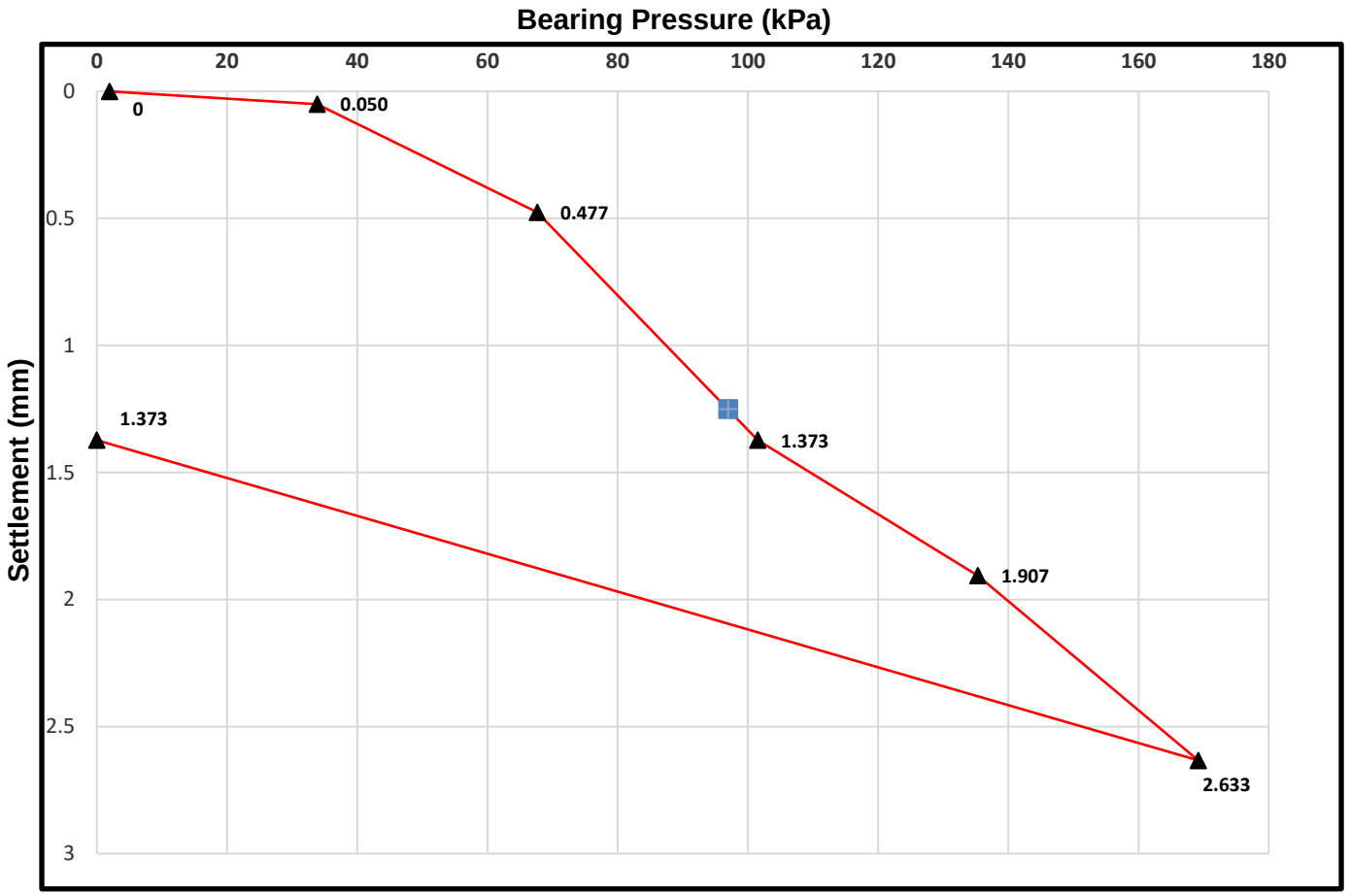
Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
- denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:
Emma Sharp (Business Support Manager) - Paul Evans (Director) - Richard John (Quality/Technical Manager)
Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager) - Wayne Honey (Quality Assistant / Administrator / Health and Safety Coordinator)

GEO Site & Testing Services Ltd
Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 002
Soil Description	Made Ground	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



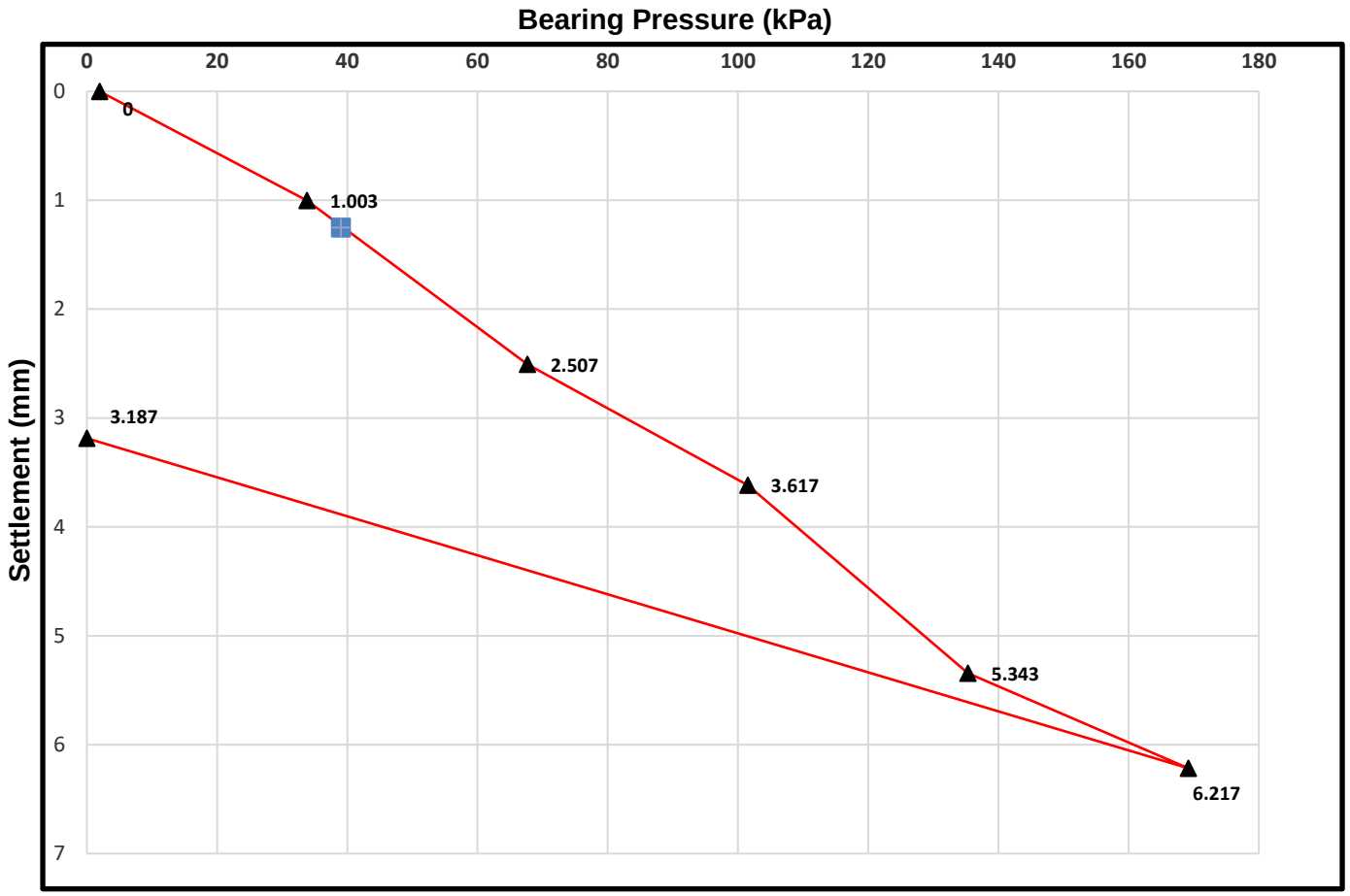
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**2.63**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**62.9**	**(kN/m2/mm)**
CBR Value	**8.0**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 003
Soil Description	Brown silty sandy CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



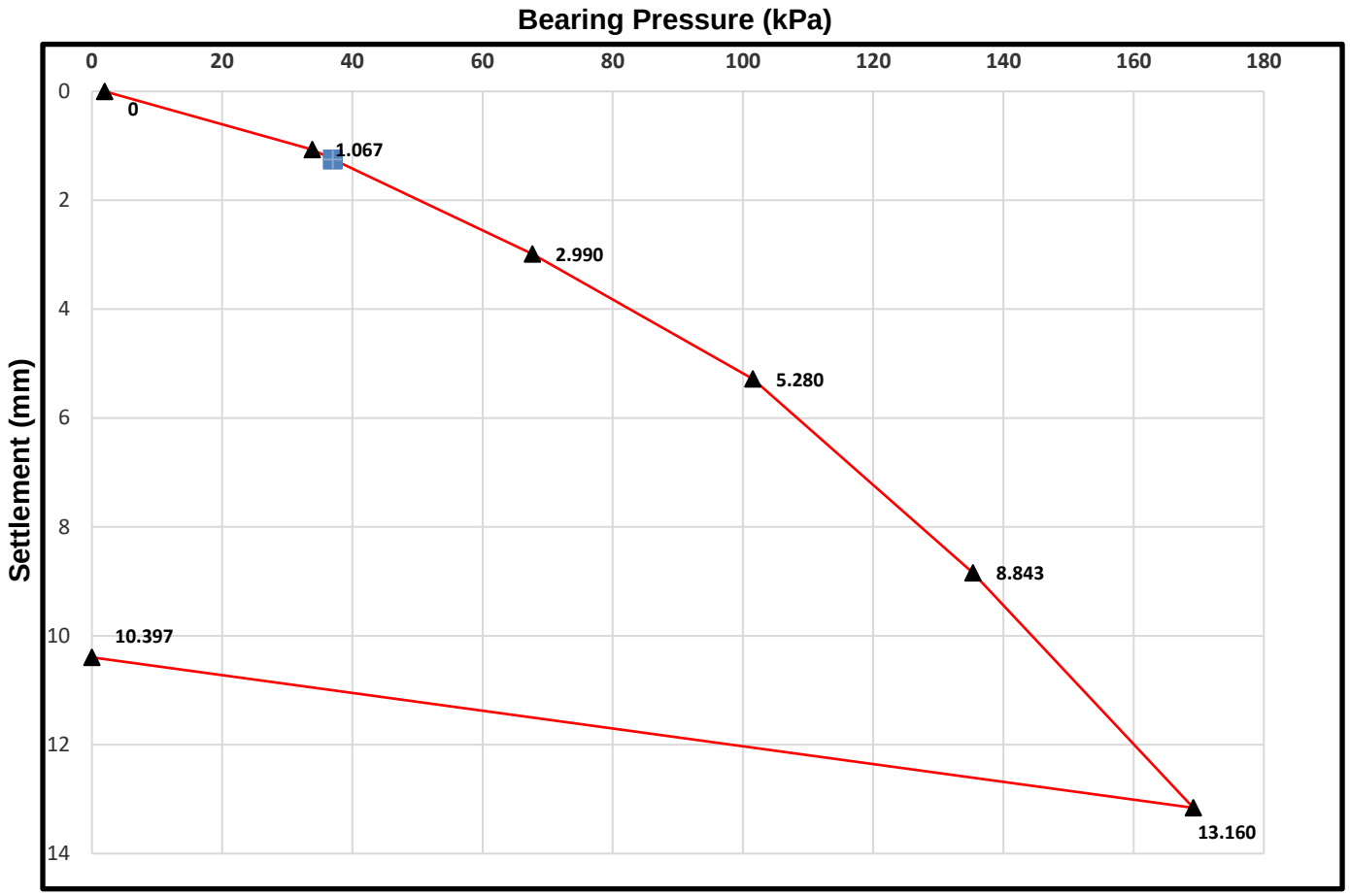
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**6.22**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**25.3**	**(kN/m2/mm)**
CBR Value	**1.6**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 004
Soil Description	Brown silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



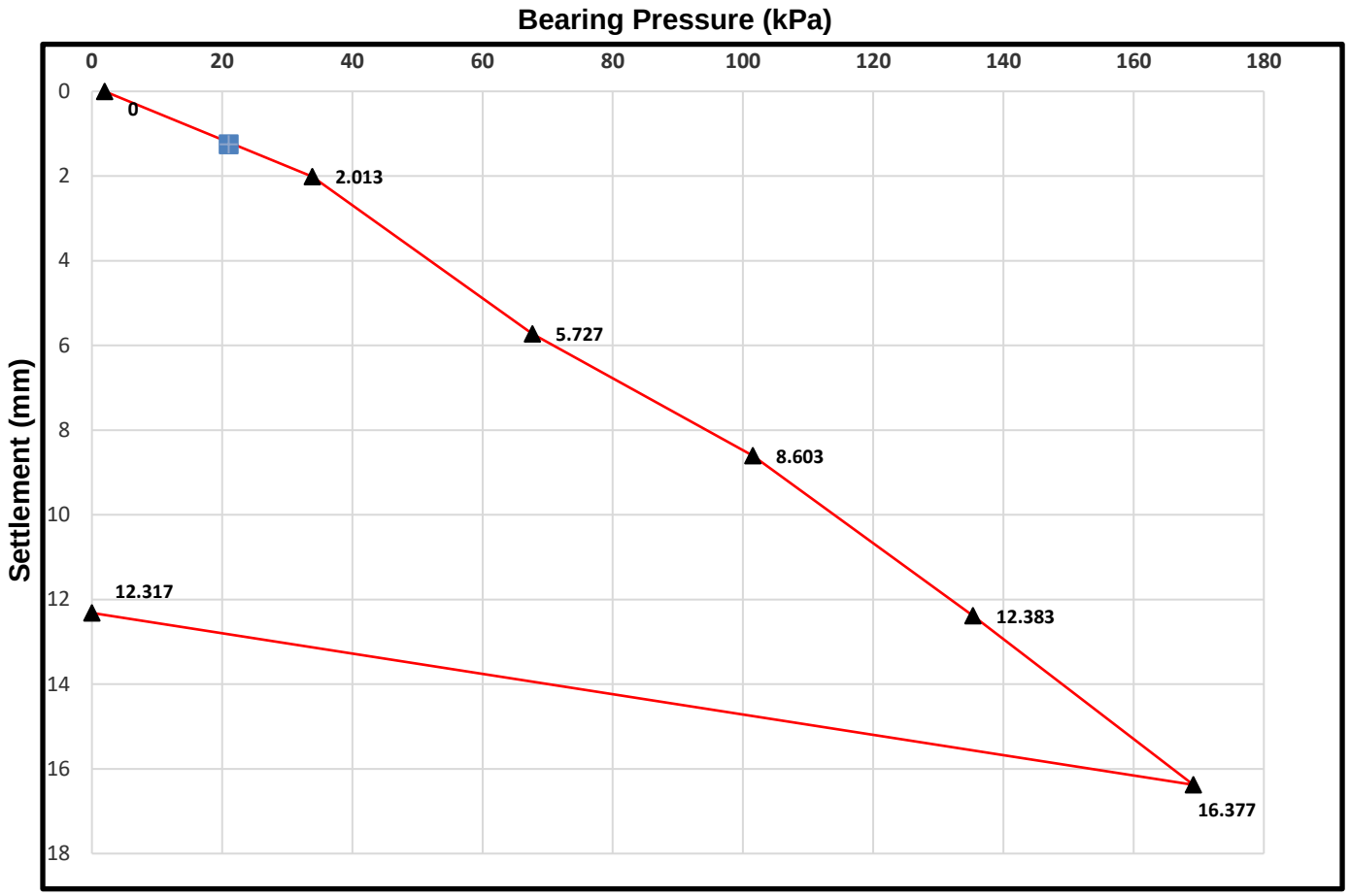
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**13.16**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**24.0**	**(kN/m2/mm)**
CBR Value	**1.5**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 005
Soil Description	Brown fine gravelly sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



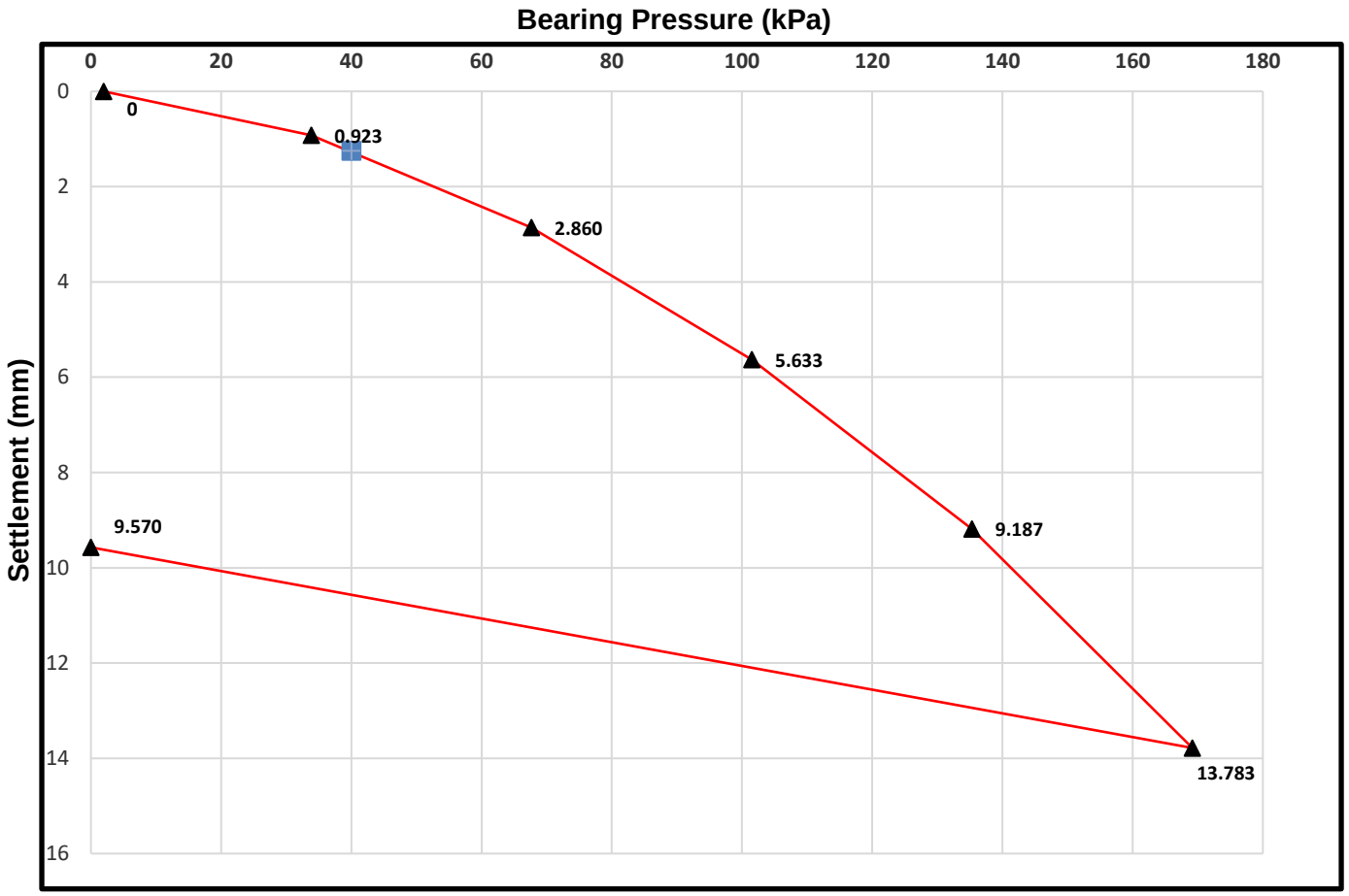
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**16.38**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**13.6**	**(kN/m2/mm)**
CBR Value	**0.6**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 006
Soil Description	Brown sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



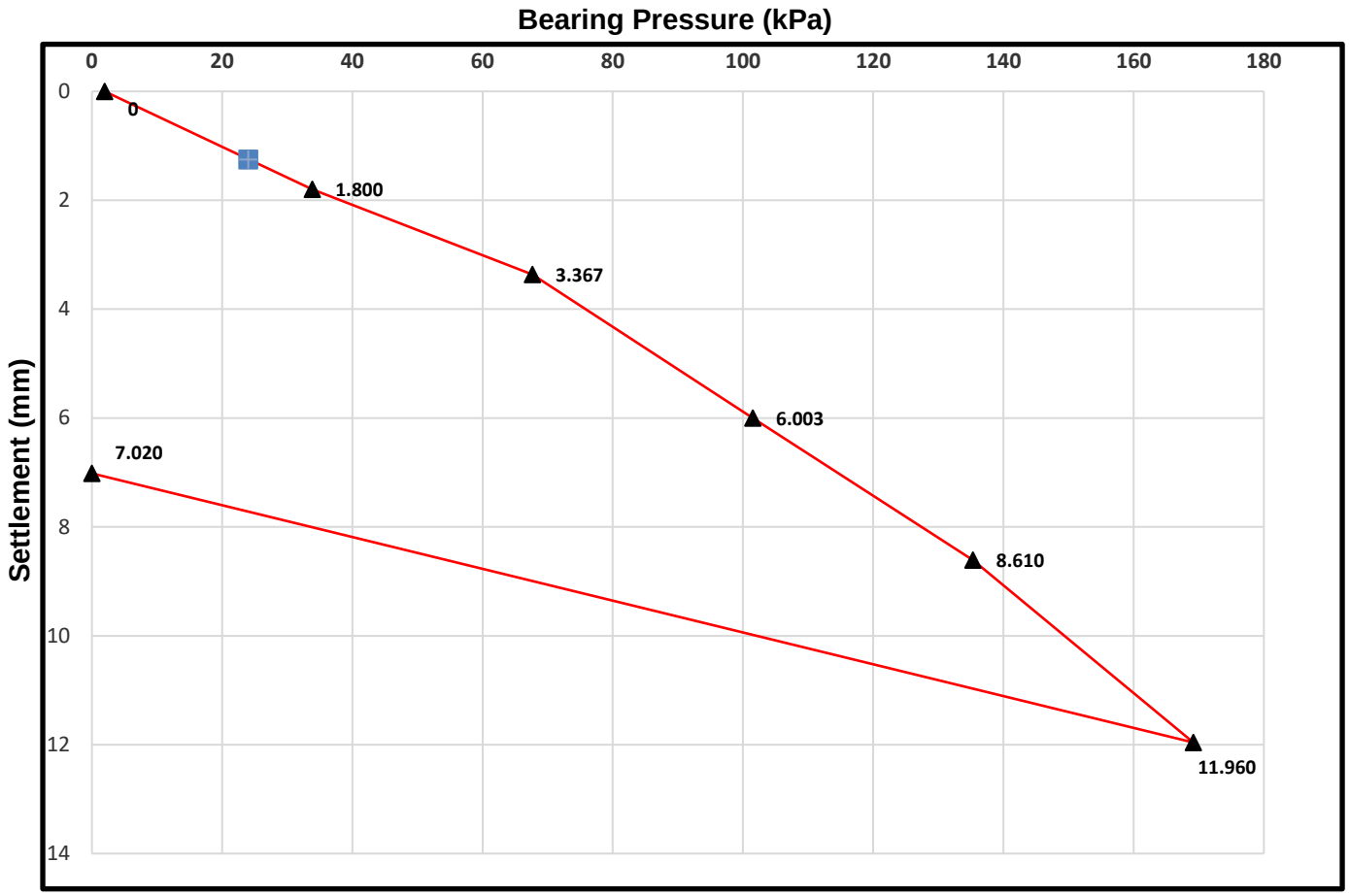
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**13.78**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**26.0**	**(kN/m2/mm)**
CBR Value	**1.7**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 007
Soil Description	Brown sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



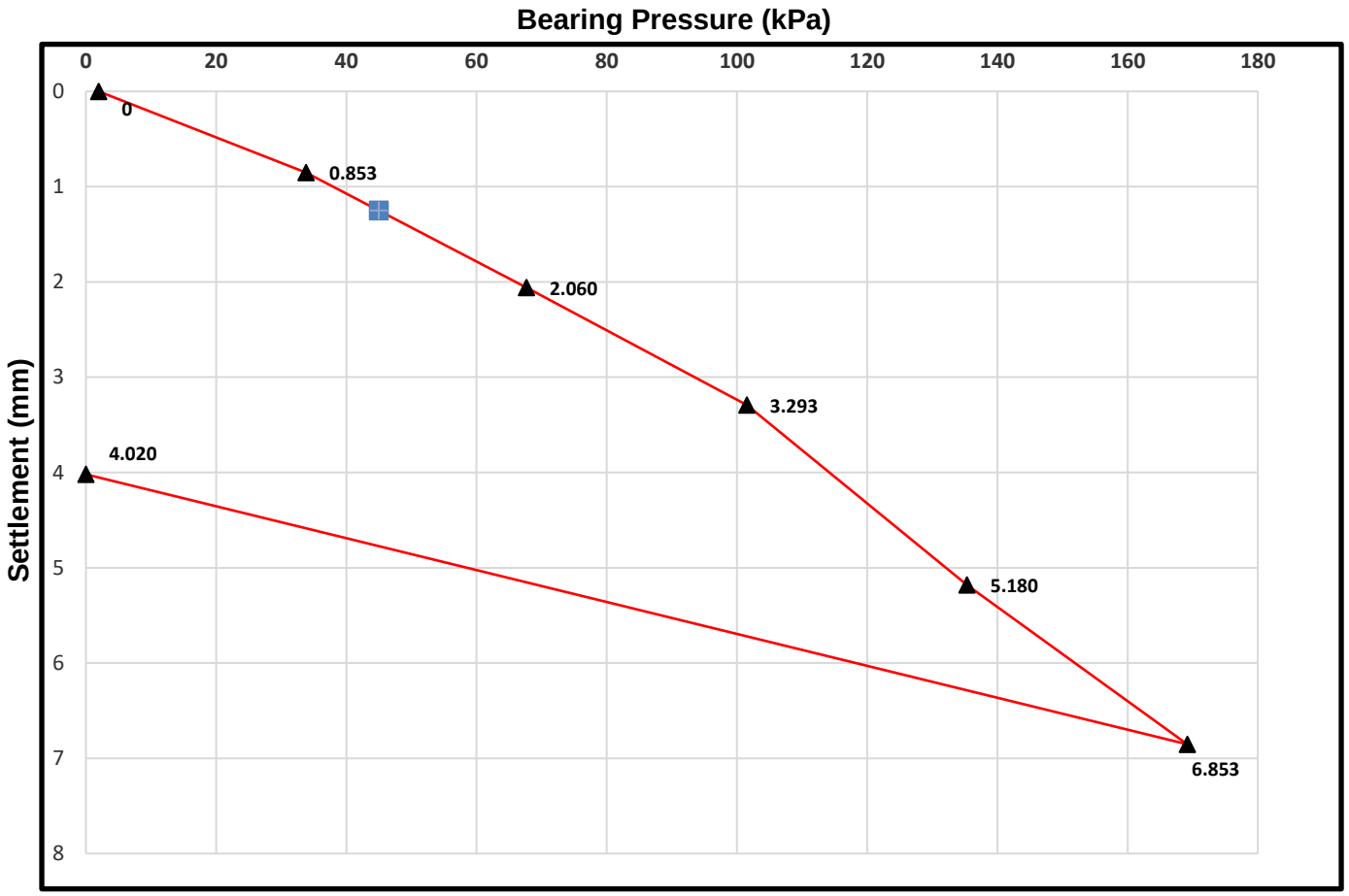
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**11.96**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**15.6**	**(kN/m2/mm)**
CBR Value	**0.7**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 008
Soil Description	Brown sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



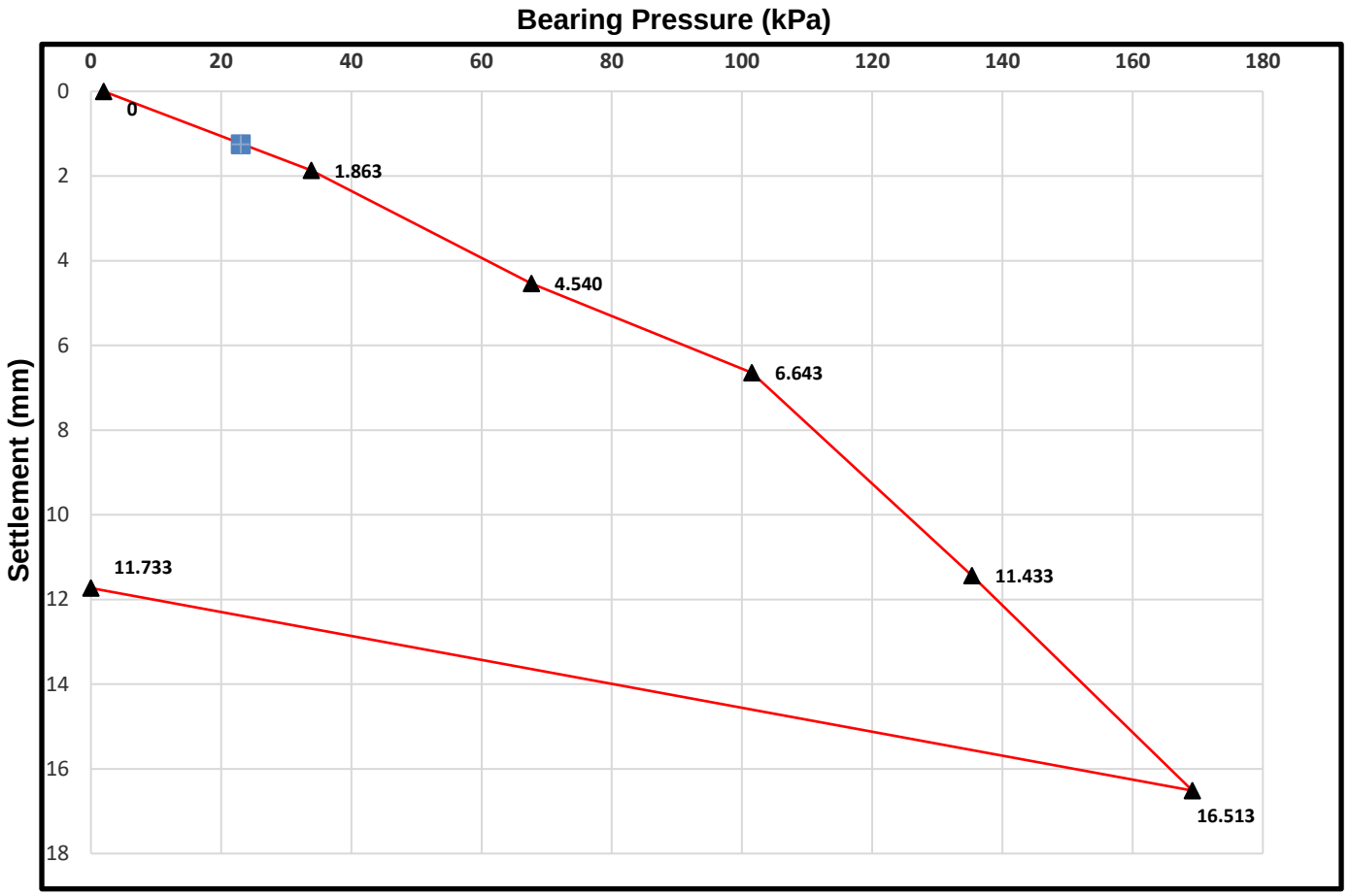
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**6.85**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**29.2**	**(kN/m2/mm)**
CBR Value	**2.1**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 009
Soil Description	Brown sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



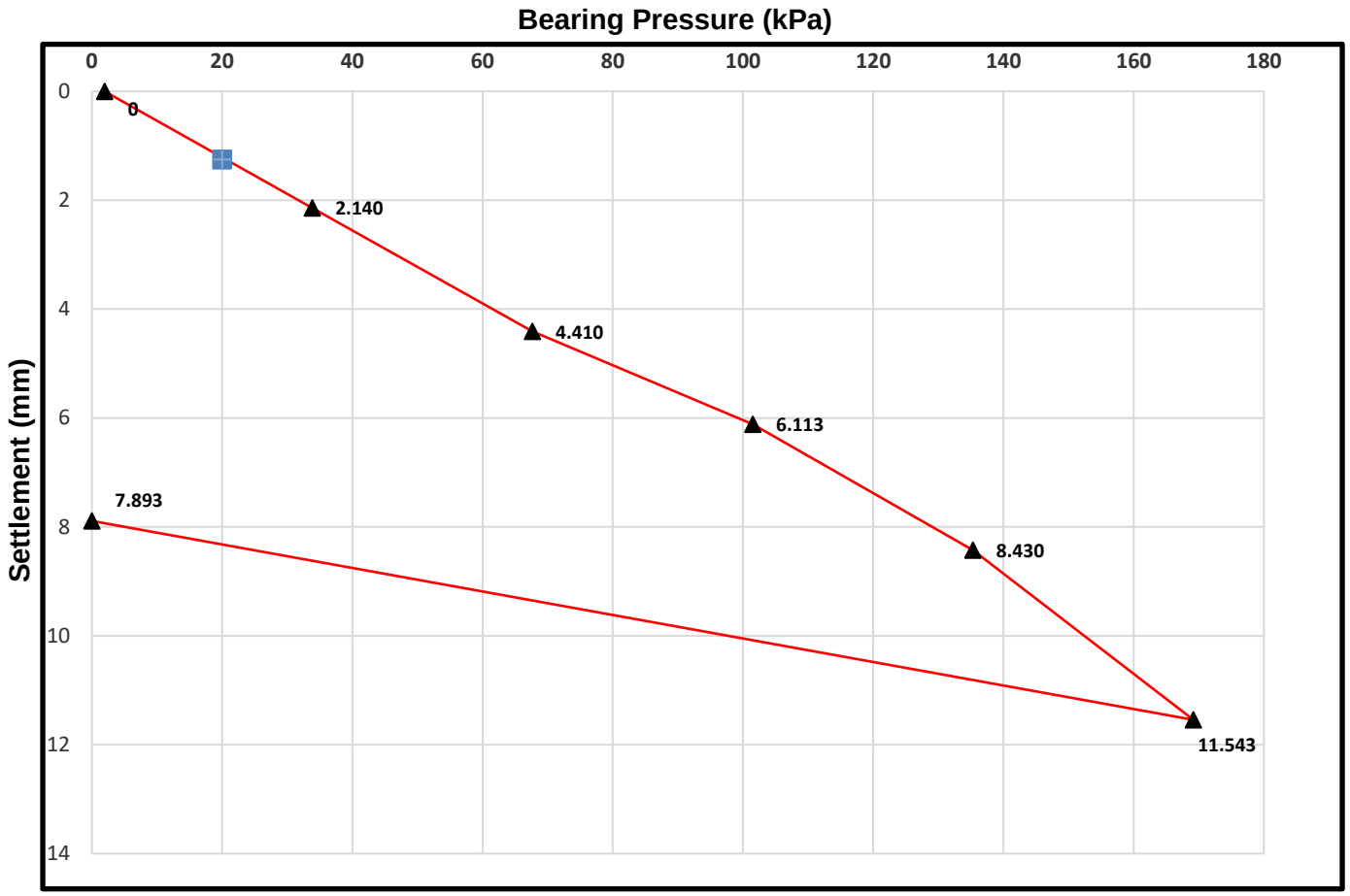
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**16.51**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**14.9**	**(kN/m2/mm)**
CBR Value	**0.7**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 010
Soil Description	Brown sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



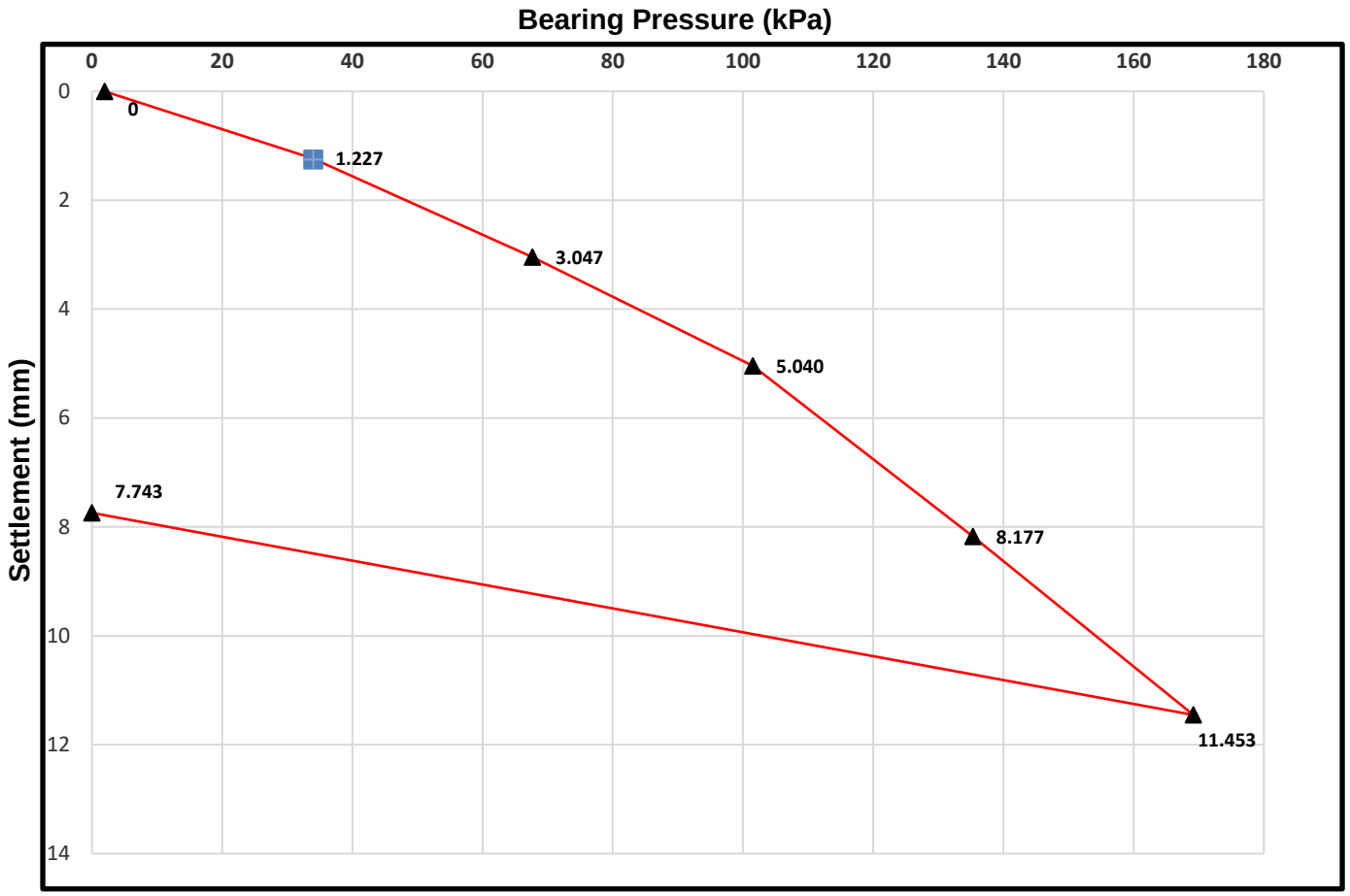
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**11.54**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**13.0**	**(kN/m2/mm)**
CBR Value	**0.5**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 012
Soil Description	Brown sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



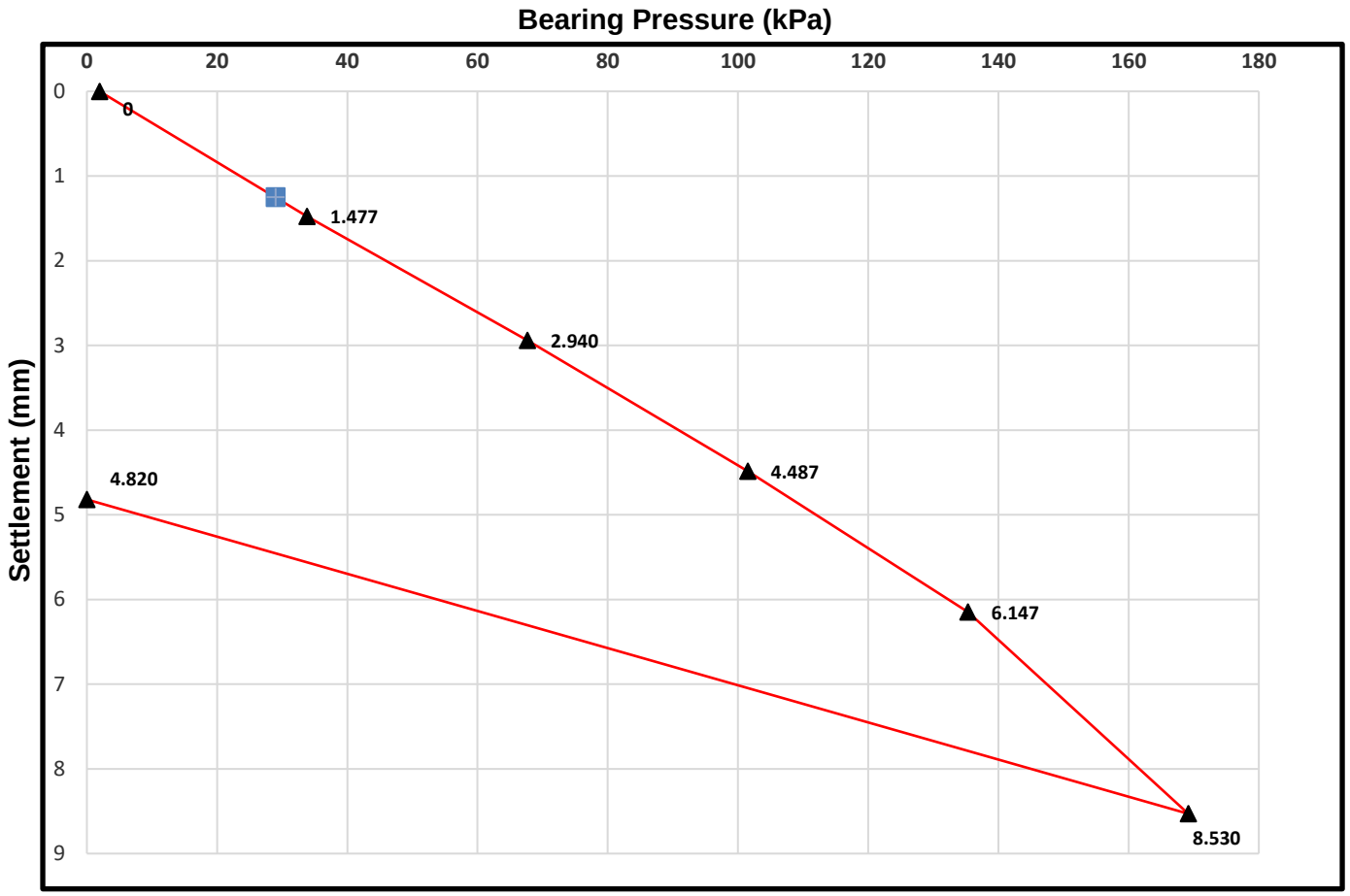
Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**11.45**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**22.1**	**(kN/m2/mm)**
CBR Value	**1.3**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

UKAS TESTING 2788

GSTL	Determination of the Vertical Deformation Tests BS 1377: Part 9: 1990 Clause 4.8	Contract Number	58854
		Client Reference	0
Client	RPS Group	Test Date	11-14/4/22
Site Location	Lower Lodge Farm, Lower Lodge, Chippenham	Test Location	PLT 013
Soil Description	Brown sandy silty CLAY	Test Depth (m)	0.60
		Kentledge Type	Tracked Excavator



Maximum Applied Pressure (kn/m2)	**169.18**	
Maximum Deformation (mm)	**8.53**	
Plate Area (m2)	**0.28805**	
Modulus of Subgrade Reaction (k762)	**18.8**	**(kN/m2/mm)**
CBR Value	**1.0**	**(%)**
Assumed Poissons Ratio	**0.25**	
Remarks		

CBR Values calculated in accordance with Highways Specification Document IAN 73/06 at the pressure at 1.25mm settlement

Test Operator	Checked and Authorised by		Shaun Thomas	
Dean Smith	Date	14/04/2022		

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Appendix E
CONE PENETRATION TEST RESULTS

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CHIPPENHAM

SOIL INVESTIGATION

CPT REPORT

Cone penetration testing
Parameter interpretation

Project Reference.: P-108001-1

Report Issue No.: 01 P-108001_01

PROJECT:	Chippenham

CLIENT:	RPS Group

FIELDWORK

CPT rig(s)	18.0-tonne track-truck mounted CPT unit (UK22)
Date fieldwork started	19th April 2022
Date fieldwork completed	22nd April 2022
Lankelma's representative	Paul Dimelow
Client's representative	Kristian James

DOCUMENT CHECKING

Action	Date	Name
Completed	22/04/2022	Christopher Player
Checked	22/04/2022	Joseph Hobbs
Approved	22/04/2022	Joseph Hobbs

Issue	Date	Status
01_01	22/04/2022	Final

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1 INTRODUCTION

At the request of RPS Group, a soils investigation was carried out on project *Chippenham*.

Site location:

(In the general region of)

Lodge Farm House
Lower Lodge
Chippenham
SN15 3QZ

2 DISCLAIMER

The investigation information, raw data and interpretations provided in this report are for the sole benefit of the Client identified at the front of the report.

Lankelma has exercised reasonable skill and care in the fieldwork and preparation of this report. This report has been completed based on information available to Lankelma at the time of preparation. The measurement and interpreted data in this report do not constitute recommendations for design purposes. An appropriately qualified person must review and interpret the data given in this report, together with any assumptions we have made that affect the data, before using the data for design or recommendation. Lankelma accepts no responsibility for the accuracy or suitability of any assumptions, derived soil parameters, soil classification descriptions or soil layer boundaries contained in this report.

3 COMPLETED WORKS

- 16 nr. cone penetration tests with pore pressure measurement (CPTu)
- Factual report including point data interpretation of selected parameters

Appendix A contains tabulated details of the works completed together with analysis results where applicable.

4 FIELDWORK GENERAL

Fieldwork was performed with an 18.0-tonne track-truck mounted CPT unit (UK22) equipped with a 17.5-tonne capacity hydraulic ram set.

The Client was responsible for the positioning and re-survey of all investigative locations.

The target depth for the investigation was 20 m below ground level. Table 1 details the final test depths and reasons for test termination (*refusal factor).* Where penetration refusal was encountered the termination depth was advised to, and agreed with, the Client's on-site representative.

5 CONE PENETRATION TESTS

Cone penetration testing was carried out in general accordance with BS ISO 22476-1:2012.

Penetrometer measurements included cone tip resistance, friction sleeve resistance and dynamic pore water pressure sampled at a 10 mm resolution.

Penetrometers were calibrated in accordance with ISO 376:2011. The management of calibration records is in accordance with ISO 10012. Copies of all calibration certificates for the cones used are provided in Appendix B.

The penetrometer used was a digital model (down-hole digitisation) with internal measurement of load cell temperature. The temperature data was used for QA during the test and QC during processing. The test operative aimed to keep the rate of temperature change to less than 0.5°/min in low strength soils to maintain acceptable measurement error. The temperature data can be used to assess ground temperature at depths where the cone has paused for more than 10 minutes with an accuracy of ~+- 0.5°.

The piezometer filter element was in the u_2 position and was vacuum saturated in a > 99.9% vacuum under 1000 cSt silicone oil for > 7 days prior to mobilisation. The pore pressure system was vacuum saturated in the disassembled state under 500 cSt glycerine oil (dipropylene glycol or propylene glycol) and assembled under oil prior to each test.

5.1 GLOSSARY OF CPT TERMS AND SYMBOLS

SYMBOLS & ABBREVIATIONS

B_q	**Pore pressure ratio.** The net pore pressure normalized with respect to the net cone resistance: $B_q = (u_2 - u_0)/(q_t - \sigma_v)$
F_r	**Normalised friction sleeve resistance:** $F_r = f_s / (q_c - \sigma_v)$
f_s	**Friction sleeve resistance:** The total frictional force acting on the friction sleeve, F_s, divided by its surface area A_s: $f_s = F_s/A_s$.
G	**Shear modulus**
g	**Gravitational constant:** g **=** 9.81 m/s^2
G_0	**Small strain shear modulus**
Gs	**Specific gravity of solids**
HOC	**Heavily overconsolidated**
I_c	**Soil Behaviour Type Index:** Continuous numerical representation of Robertson (1990) soil behaviour type classification chart.
LOC	**Lightly overconsolidated**
NC	**Normally consolidated**
OC	**Overconsolidated**
q_c	**Cone resistance:** The total force acting on the cone Q_c, divided by the projected area of the cone, A_c: $q_c = Q_c/A_c$.
Q_t	**Normalised cone resistance** (Method 1): $Q_t = (q_c - \sigma_v)/\sigma'v$

q_t	**Corrected tip resistance:** The cone tip resistance q_c corrected for pore water pressure effects on the cone shoulder.
$q_{t\text{-}net}$	**Net cone resistance:** $q_{t\text{-}net} = q_t - \sigma_v$. Where q_t is unavailable q_c is applied.
q_{t1}	**Normalised cone resistance** (Method 2): $q_{t1} = (q_t)/(\sigma'_v)^{0.5}(\frac{q_t}{\sigma_{atm}})/(\frac{\sigma_{v0}'}{\sigma_{atm}})^{0.5}$
R_f	**Friction ratio:** The ratio, expressed as a percentage, of the sleeve friction, f_s, to the cone resistance, q_c, at a given depth: $R_f = (f_s/q_c) \cdot 100$
SBT or SBTn	**Soil behaviour type classification**
u_0	**Equilibrium pore pressure**
u_2	**Pore pressure:** Dynamic pore pressure measured at the shoulder position (u_2) during penetration and during dissipation tests. $u_2 = \Delta u_2 + u_0$
Δu_2	**Excess pore pressure:** $\Delta u_2 = \Delta u_2 - u_0$
V_s, V_p	**Shear wave velocity, V_s, and pressure wave velocity, V_p.** Measured with use of a seismic receiver.
z	**Depth below ground level:** Depth as penetration length without correction for inclination, or true depth after correction for inclination.
Greek	
γ	**Unit weight of soil**
γ_w	**Unit weight of water**
ρ	**Volumetric mass density (or specific mass) of soil:** $\rho = \gamma/g$
σ_v	**Total overburden stress**
σ'_v	**Effective overburden stress**
σ_{atm}, **or,** P_a	**Reference atmospheric stress:** σ_{atm} **=** 101.3 kPa

TERMS

Cone or 'tip': The conical tip of the cone penetrometer.

Friction sleeve: The section of the cone penetrometer upon which the sleeve friction is measured, located behind the cone tip.

Piezocone: A cone penetrometer with a pore pressure sensor (u_2 or u_1)

Seismic cone: A cone penetrometer with a seismic receiver incorporated inside or behind.

Dynamic pore pressure: The pore pressure measured during penetration (u_2 or u_1) .

Soil behaviour type, or 'SBT': Soil classification scheme or classified soil type according to Robertson (1990, 2016) often abbreviated to SBT or according to normalised cone parameters SBTn.

Rod string: The series of hollow tube push rods that transmit force to the penetrometer.

5.2 CPT DATA REDUCTION AND PRESENTATION

The CPT results are presented in Appendix C. The corrected cone resistance (q_t), local side friction (f_s), dynamic pore water pressure (u_2), friction ratio (R_f) and inclination are all presented

against depth and elevation in accordance BS ISO 22476-1:2012. CPT data and the associated derived geotechnical parameters are included in the 4.0 data file provided.

The cone tip and sleeve force measurements were converted to pressure using the nominal dimensions of the penetrometer.

Zero load output values were recorded before and after each test. The set of zero values applied to the measurements (subtracted from the raw output measurement) were those deemed to be obtained at a temperature closest to ground temperature, or the average of the two sets where appropriate.

For tests performed with digital cones, the tip sleeve and pore pressure measurements were corrected for static and transient temperature effects using parameters obtained from the *TEMERATURE EFFECTS* section of the calibration certificate. For each CPT, the dataset was first grouped into penetration strokes (max 1.2 m) and then locally sub-grouped by tip resistance above and below 2 MPa. For each sub-group of qc < 2 MPa, the slope of the temperature (T) profile with time (t) was determined by regression to obtain the rate of temperature change $\Delta T/\Delta t$. For each recorded value, the static and transient temperature error component (apparent sensor output due to change in temperature) was subtracted from the reading.

For subtraction type cones incorporating traditional temperature compensation wiring in the strain gauge circuit, the residual apparent cone tip resistance ($q_{c:a}$) and sleeve resistance ($f_{s:a}$) due to static and transient temperature effects can be approximated by

$q_{c:a} = a(\Delta T/\Delta t) + b(\Delta T)$,

$f_{s:a} = a(\Delta T/\Delta t) + b(\Delta T) - q_{c:a}$

and

$u_a = b(\Delta T)$

Where $q_{c:a}$ is the apparent tip resistance, $f_{s:a}$ is the apparent sleeve resistance, a is the apparent resistance due to unit transient temperature change $\Delta T/\Delta t$, and b is the change in apparent resistance per unit static temperature change relative to the temperature of the penetrometer at the time of zero load output measurement. Note that for the piezometer sensor only the static temperature component is considered and is only applied to piezometer sensors without temperature compensation circuitry.

Parameter a is established by subjecting the cone to a positive and negative nominal temperature change (ΔT ~ +- 9°) in water and measuring the apparent output corresponding to the maximum rate of temperature change at the load cells. Parameter b is established by measuring the apparent output after the cone has temperature stabilised.

The temperature corrected tip ($q_{c:c}$), sleeve resistance ($f_{s:c}$) and pore pressure ($u_{:c}$) are then found from

$q_{c:c} = q_{c:m} - q_{c:a}$,

$f_{s:c} = f_{s:m} - f_{s:a}$

$u_{:c} = u_{:m} - u_{:a}$

Where subscript '$_{:m}$', denotes the field measured resistance/pressure as recorded in the raw data files.

Notes:

1. Depending on the temperature performance of the individual cone, temperature correction of the sleeve is often not warranted as it does not substantially improve accuracy. This is because for subtraction type cones the errors in the sleeve force largely cancel with errors in the tip force when they have the same sign.

2. There is currently no recognised nomenclature for CPT parameters with temperature correction applied during post processing. To avoid confusion the nomenclature is kept unchanged in the logs and AGS data (q_c/q_t, f_s, and u_2) and unless stated otherwise, temperature correction has been applied using the parameters reported in the calibration certificate.

For piezocone tests the total cone resistance (or 'corrected cone resistance') was calculated according to the formula

$$q_t = q_c + u_2 \times (1 - a)$$

Where a is the 'area ratio' and (1- a) is the proportion of cross-sectional area between the cone tip and penetrometer body where pore pressures (positive or negative) can act to add or subtract from the total external axial force on the tip. The difference between measured and corrected values is largest in low strength collapsible soils with large excess pore pressures. The percentage adjustment is described by the curves on the chart below for a = 0.8:

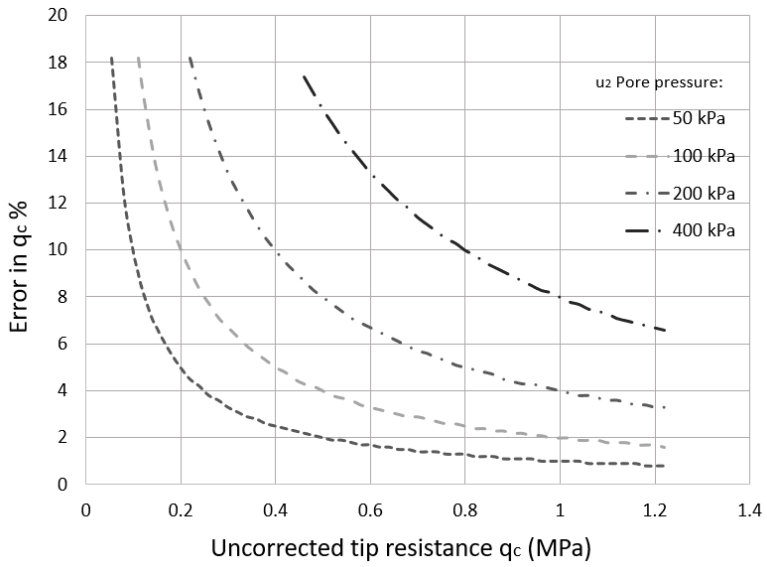


Figure 5-1 Uncorrected tip with measured tip resistance

Penetration length readings were corrected for inclination and sleeve readings were depth corrected for the dimensional offset between cone tip and sleeve during post processing. Rod spikes (artefacts of the pause for push rod addition) were filtered from the cone tip and sleeve data. The data was re-sampled from 10 mm resolution to 20 mm to reduce the size of the data set to a more manageable size for end users. A 20 mm resolution is well within the intrinsic influence zone of the cone tip measurement and the loss of meaningful resolution is negligible.

The raw data are presented in Appendix C. For piezocone tests q_t is reported on all logs, and q_c only appears in the digital AGS data.

Geotechnical parameters appropriate for drained and undrained cone penetration conditions were derived for corresponding drained and undrained derived soil behaviour types (SBTs) respectively, however, to account for uncertainty in the SBT correlation with drainage behaviour, all parameters were derived over a range of transitional soils within the range $2.4 < Ic < 2.7$ (see section 6.3).

In general, the engineering parameters derived for fine grain soils (undrained) are suitable for soils of both silicate and carbonate composition, whereas parameters derived for coarse soils are intended for non-cemented predominantly silicate composition.

5.3 IN-SITU STRESS CONDITIONS

An estimate of the equilibrium pore pressure and total and effective vertical stress states is required for derivation of many parameters obtained from the CPT and dissipation test.

The total vertical stress with depth was calculated as the sum of the calculated soil unit weight above a given depth. See section 5.4 for information on the empirical estimate of soil unit weight.

An arbitrary phreatic surface of 3.00 mBGL was applied in the calculation of effective stress.

Note: The term phreatic surface is used here, however when it is based on piezometer measurements (piezocone) it is assumed that the piezometric level (under hydrostatic conditions) and phreatic surface coincide. The phreatic or piezometric level reported is intended to provide information about the assumed pore pressure distribution and may not represent the true position of the groundwater table or perched water bodies. Complex groundwater pressure distributions will be applied if they are observed from the measurements and are sufficiently well defined.

5.4 SOIL UNIT WEIGHT

The soil unit weight was estimated using the following method proposed by Robertson (2010b).

$$\frac{y}{y_w} = 0.27\ Log(R_f) + 0.36\ (Log(q_t/R_f)) + 1.236$$

Throughout pre-drilled zones (inspection pits or drill-out) the soil was assigned a nominal unit weight of 17 kN/m^3.

For depths where the friction sleeve resistance measurement was less than zero due to measurement limitations, the friction sleeve resistance input parameter was substituted with a nominal 1.0 kPa resistance for the purpose of obtaining an approximate soil unit weight necessary for estimation of total vertical stress over the entire profile.

5.5 SOIL BEHAVIOUR TYPE

The data have been interpreted using 4 soil behaviour type schemes: Robertson (1990, 2010, 2016) and Schneider et al, 2008. The Robertson (1990) scheme is widely used and forms the bases of the layer analysis whereby the profile is split into zones of common classification. The Robertson (2010 & 2016) and Schneider at al methods are less widely used but can provide better or more relevant classification in many instances. Differences in classification between the Robetson 1990, 2016 and Schneider et al schemes can also help to identify significant structure/cementation (Robertson 2016).

A dedicated soil behaviour type comparison log is provided in Appendix D.

Robertson (1990, 2010)

The soil behaviour type (SBT) was interpreted using the Robertson (1990) classification system based on the normalised cone resistance (Qt) and normalised friction sleeve resistance (Fr) for silicate and organic soils.

While the classification based on normalised parameters is more accurate, particularly for NC soils exceeding 15 m depth, the classification is often significantly in error (artificially granular/drained) at shallow depth (< 1-3 m). The error at shallow depth is associated with the potentially large difference between the estimated vertical effective stress (applied in normalisation) and the unknown horizontal stress influencing penetration resistance.

Robertson (2010) proposed a non-normalised version of the 1990 chart which uses dimensionless cone resistance (q_c/Pa) and friction ratio (Rf). The classification according to this chart can be more reliable at shallow depth and has been plotted as an approximate SBT index (discussed below) for comparison to the normalised classification.

It should be noted that:

- The SBT classification provides a general soil type and tends to show biased towards the soil fraction that dominates the mechanical behaviour.
- If fine cohesive soils are dry and overconsolidated, the classification tends to shift towards a coarser soil type (or lower I_c index)

While the repeatability and behavioural bias of the SBT is usually beneficial, the classification is not always an appropriate substitute for classification based on particle size and plasticity index tests.

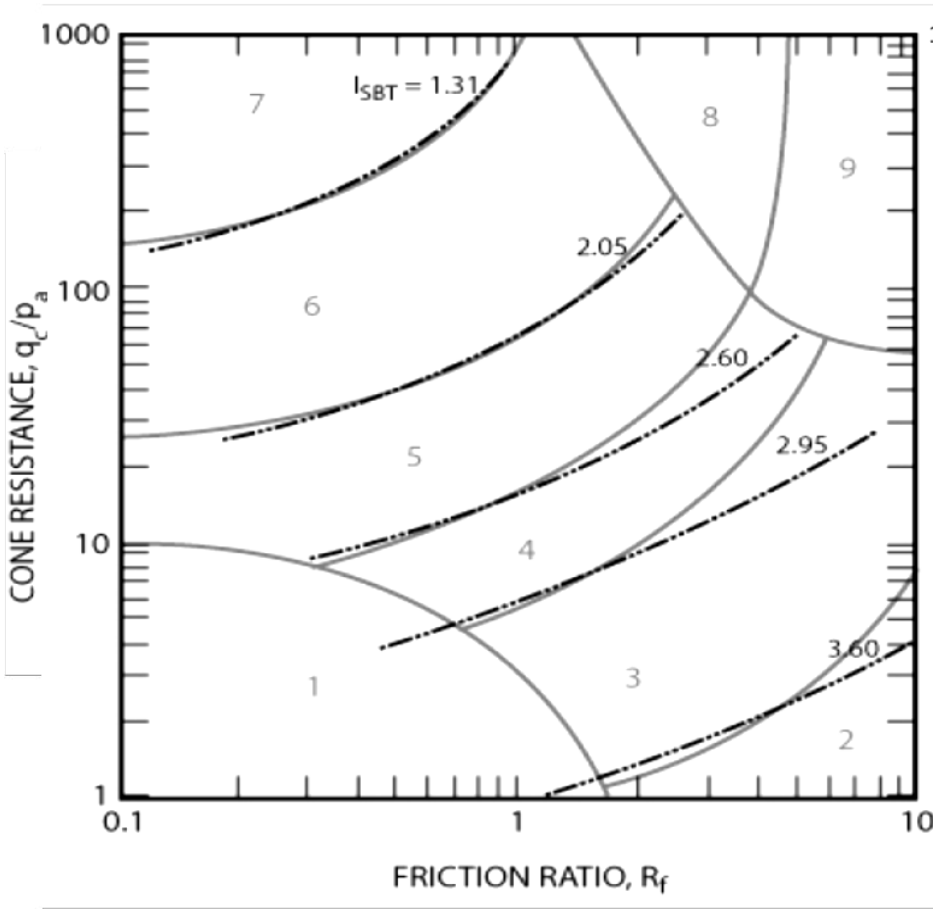


Figure 5-2 Non-normalised SBT chart by Robertson et al. (2010) based on dimensionless cone resistance (qc/Pa) and friction ration, Rf, showing contours of SBT index ISBT (denoted Ic on the test plots). The chart is also applicable to normalised tip (Q_t) and sleeve (F_r) values.

Table 1 Robertson (1990, 2010) soil behaviour type zone descriptions

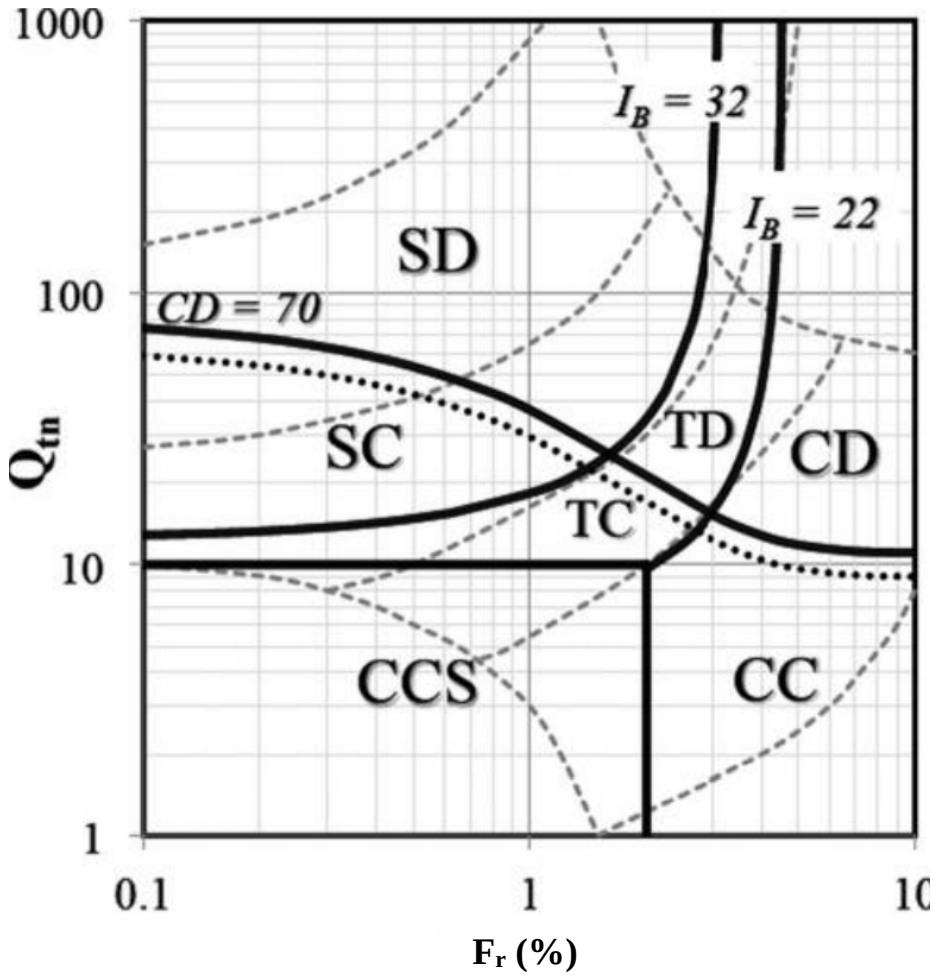
Zone	Soil Behaviour Type (SBT)		
1	Sensitive fine-grained	6	Sands - clean sand to silty sand
2	Organic soils	7	Gravelly sand to sand
3	Clays – clay to silty clay	8*	Very stiff/dense sand to clayey sand[1]
4	Silt mixtures - clayey silt to silty clay	9*	Very stiff fine grained[1]
5	Sand mixtures – silty sand to sandy silt	*Heavily overconsolidated or cemented*	

[1]Note zones 8 and 9 appear as *'Very stiff/dense sand to clayey sand – HOC or cemented'* and *'Very stiff fine grained – HOC or cemented'* within the soil unit descriptions of plots in Appendix D.

The results are presented in Appendix D.

Robertson 2016

Using the same Q_t - F_r space as above, Robertson (2016) proposed an alternative purely behavioural classification system that places less emphasis on classification according to composition/textural properties and more emphasis on mechanical behaviour – namely the tendency of the soil to dilate or collapse during large strain shear, and sensitivity.



Zone	Soil Behaviour Type (SBT)
CCS	Clay-like – contractive - sensitive
CC	Clay-like – Contractive
CD	Clay-like – Dilative
TC	Transitional - Contractive
TD	Transitional - Dilative
SC	Sand-like - Contractive
SD	Sand-like - Dilative

Figure 5-3 Robertson 2016 soil behaviour type classification chart and zone descriptions

Schneider *et al.* (2008)

Schneider *et al.* (2008) proposed a classification system based on the normalised pore pressure B_q and tip resistance Q_t. This system is particularly useful for soils of very low strength or that exhibit drainage behaviour or u_2 response inconsistent with the SBT derived from tip and sleeve measurements. However, for onshore CPTs care must be taken that the u_2 piezometer is not affected by desaturation and that the response is dynamic. A set of logs showing both the Robertson and Schneider et al. classification results are provided for comparison in Appendix D.

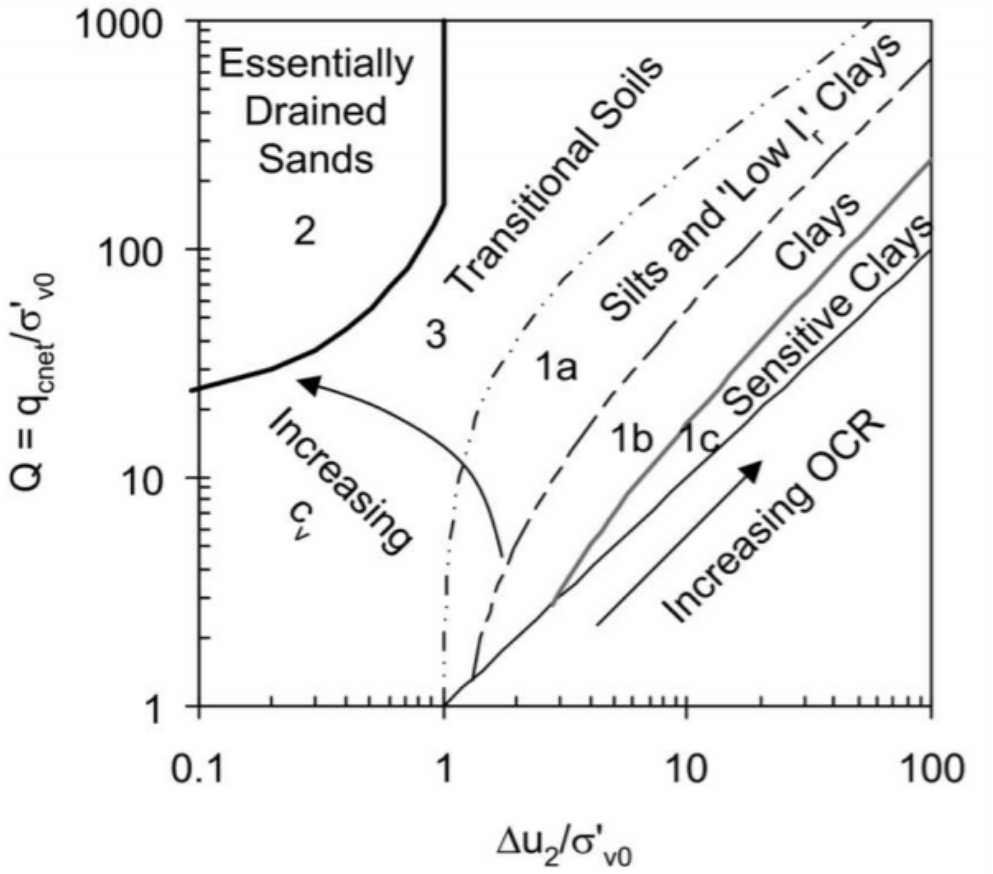


Figure 5-4 Schneider 2008 soil behaviour type classification chart and zone descriptions

Layer Analysis

The layer boundaries are manually interpreted based on broad changes in Robertson 1990 SBT classification or variance with depth. Once layer boundaries are defined, the SBT zones classified within each layer are listed together with the corresponding percentage of data points within the layer (excluding null/filtered data). The modal classification is reported in full, with abbreviated short descriptions for all secondary zones, for example - '*Clays – clay to silty clay [74%]; *Silt mixtures [20%]*', where the asterisk represents an abbreviation of the full description '*Silt mixtures – clayey silt to silty clay*'. It is important to consider that the classification zone boundaries do not exist in nature and small shifts in the cone response can lead to multiple classifications within layers of relatively uniform behaviour; especially were the layer data plot close to a zone junction and/or has spurious spikes or very thin layers. Therefore, some system to limit the number of classified zones is usually necessary for clarity in the plot. The logic used by Lankelma for each layer is:

For LT >= 1, C = 85
For 0.5 <= LT < 1, C = 75
For 0 < LT < 0.5, C = 65

Where
C = Minimum % SBT zone classification coverage within the layer
LT = Layer thickness (m)

For layers having a thickness of less than 1 m then 10% of data at the top and bottom of the layer are excluded to limit the effect of transition zone data (mobilised resistance influenced by overlying or underlying strata) being included in the classification.

The continuous SBT index I_c should be used to assess the classification distribution and variation not accounted for by the layer description.

5.6 SOIL BEHAVIOUR TYPE INDEX - I_c

The principal trend in soil behaviour type (SBT) variation can be expressed by a continuous index, I_c, proposed by Robertson and Wride (1998) based on a similar index proposed by Jefferies and Davies (1993). The index provides a continuous profile of SBT variation with depth for end-user analysis of soil units and variation within units. The equivalent non-normalised version proposed by Robertson (2010) is provided for comparison.

The basis of I_c and its approximation of the original chart classification zones may be seen from Figure 5-2. The method does not identify zones 1 (*sensitive fine grained)* or zones 8 & 9 (*heavily overconsolidated or cemented*).

Normalised SBT index I_c (Robertson and Wride, 1998)*:*

$$I_c = [(3.47 - \log Q_t)^2 + (logF_r + 1.22)^2]^{0.5}$$

Non-normalised SBT index I_c (Robertson, 2010)*:*

$$I_c = \left[\left(3.47 - \log\left(\frac{q_c}{\sigma_{atm}}\right)\right)^2 + (logR_f + 1.22)^2\right]^{0.5}$$

The normalised version if I_c is generally more accurate, while the non-normalised version is intended for compatibility with the non-normalised Robertson's (2010) SBT chart and may be more accurate at shallow depths in overconsolidated soils.

The results are presented in Appendix D.

5.7 RELATIVE DENSITY

The relative density of sands was calculated based on an empirical relationship proposed by Jamiolkowski *et al.* (2001) based on a large database of undisturbed frozen samples and calibration chamber tests. The expected accuracy may be evaluated from the figures presented below.

$$D_r = 100\left[0.268 \cdot \ln\left(\frac{q_t/\sigma_{atm}}{\sqrt{\sigma_{vo}'/\sigma_{atm}}}\right) - k\right]$$

k = Compressibility dependant constant can be taken as -0.675 for medium compressibility (applied value in our interpretation), <= 1 for high compressibility and >= 2 for compressible sands.

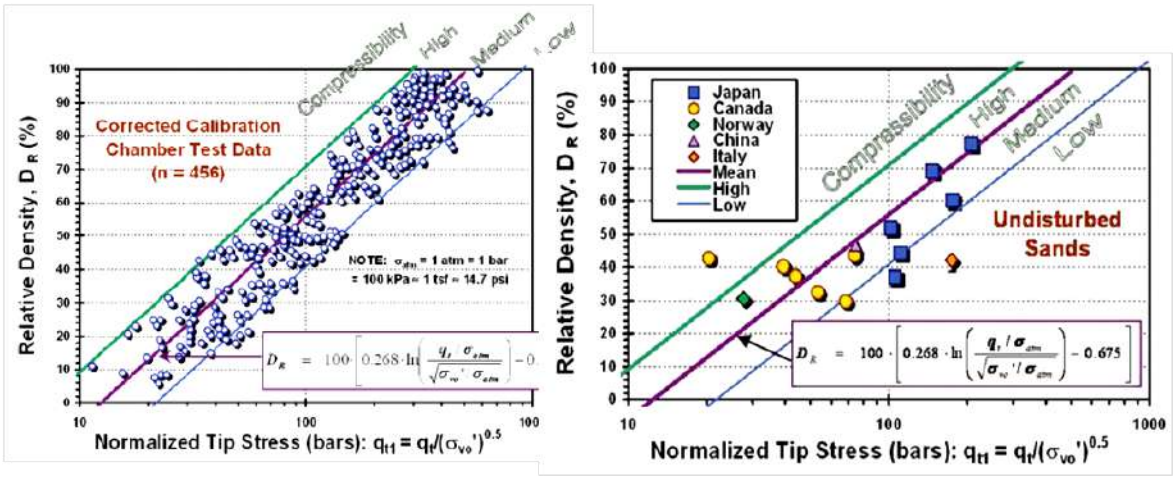


Figure 5-5 Relative density with normalised tip stress and sand compressibility from calibration chamber tests (left) and undisturbed frozen samples (right). Jamiolkowski *et al.* (2001). Reproduced from Mayne (2007).

The results are presented in Appendix F.

5.8 UNDRAINED SHEAR STRENGTH

The undrained shear strength s_u is usually estimated by the bearing capacity method, whereby the net tip resistance is divided by a factor N_k (Lunne *et al*, 1981):

$$s_u = \frac{q_c - \sigma_{v0}}{N_k}$$

Where N_k is an empirical factor which varies with soil type, stress history, structure/fabric, plasticity, and the mode of shear.

Mayne and Peuchen (2018) performed and evaluation of 407 high-quality undrained anisotropically consolidated triaxial compression tests (CAUC) with net tip resistance to proposed N_{kt} factors with regression analysis details for five categories of clays shown in Table 1.

Table 2 Summary of CAUC s_u versus q_{net} for clays. Reproduced from Mayne and Peuchen (2018).

Clay Group	Number of sites	Nr Data	Correlation Coefficient r^2	Factor N_{kt}	Mean Pore Pressure Parameter B_q
Offshore NC-LOC	17	115	0.98	12.32	0.51
Onshore NC-LOC	30	191	0.867	12	0.53
Sensitive NC-LOC	5	43	0.507	10.33	0.84
OC Intact	5	36	0.862	13.57	0.49
OC Fissured	5	22	0.393	22.47	-0.01
All clays	62	407	0.923	13.33	0.55

Alternatively, a variable N_{kt} factor can be estimated for the profile as a function of the pore pressure parameter B_q, applicable for B_q values of > -0.01. The following equation proposed by Mayne and Peuchen is based on the same database evaluation:

$$N_{kt} = 10.5 - 4.6 \cdot \ln(B_q + 0.1)$$

Where the pore pressure parameter B_q is the ratio of excess pore pressure to net tip resistance:

$$B_q = \frac{u_2 - u_0}{q_t - \sigma_{v0}}$$

The N_{kt} estimate has a standard error of 2.4 N_k and correlation coefficient of 0.645.

The estimate based on B_q is presented as 's_u5' on the parameter plots and is only suitable for tests that have a high-quality pore pressure data, often indicated by a positive, repeatable, and dynamic response.

Note: N_{kt} (with subscript 't') indicates a N_k factor that has been established using the corrected tip resistance q_t. N_{kt} can be applied to the uncorrected tip resistance q_c (non-piezocone tests) but results in a slightly lower estimate of s_u depending on the correction magnitude (q_c - q_t) in lower strength soils.

Undrained shear strengths corresponding to selected values of N_k are presented on the plots of Appendix D. *'s_u3'* on the logs (N_k = 15) has been included as a reference for comparison to traditionally applied N_k values of 15 and 20.

The results are presented in Appendix E.

5.9 OVERCONSOLIDATION RATIO

The preconsolidation stress σ_p' was calculated based on the method proposed by Mayne et al (2009):

$$\sigma_p' = k \cdot (q_t - \sigma_{vo})^{m\prime}$$

$$OCR = \sigma_p'/\sigma'_{v0}'$$

Mayne *et al* found that the trend with mean grain size followed a power law through the addition of exponent m' and that its value can be estimated by relation to soil behaviour type index I_c:

$$m' = 1 - \frac{0.28}{1 + \left(\frac{I_c}{2.65}\right)^{25}}$$

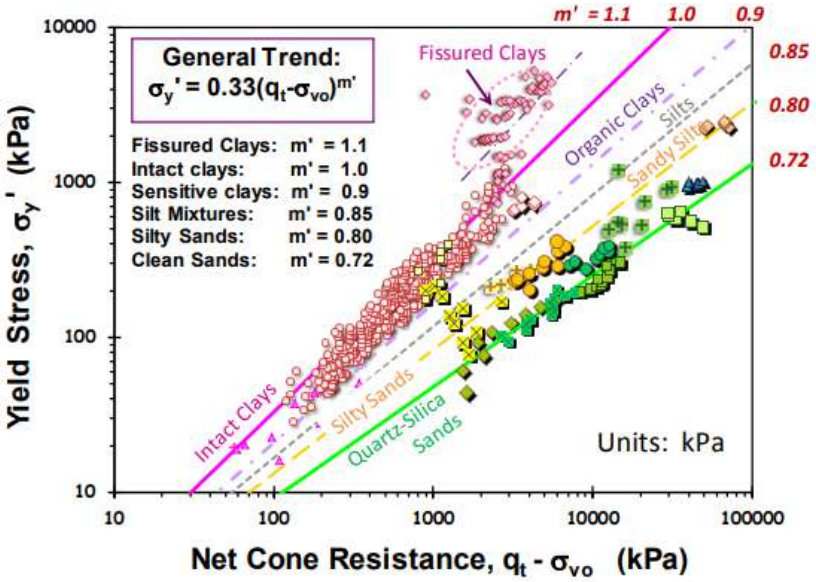


Figure 5-6 Preconsolidation stress with net cone resistance power law, reproduced from Mayne (2014).

An additional set of σ_p' and OCR values were calculated for m' = 1.1 to reflect the upper trend for over consolidated fissured clays not captured by the correlation with I_c.

The results are presented in Appendix E.

5.10 SPT N60 VALUES

Equivalent SPT N60 values, defined as the non-normalised SPT blow count over a 30 cm interval, were derived for two correlations.

Method 1 - Jefferies and Davies (1993) cited in Lunne *et al.* (1997):

$$N_{60} = \frac{q_t}{8.5 \cdot \sigma_{atm} \cdot \left(1 - \frac{I_c}{4.6}\right)}$$

Method 2 - Robertson (2012):

$$\frac{\left(\frac{q_t}{p_a}\right)}{N_{60}} = 10^{(1.268 - 0.2817 I_c)}$$

The correlations are intended for clays, silts and sands and not for carbonates or cemented geo-materials.

The results are presented in Appendix F.

5.11 FRICTION ANGLE

Sands

The peak friction angle of granular materials was calculated using the Kulhawy and Mayne (1990) method. The relationship is based on a calibration chamber database from 24 sands of varying mineralogy and is found from:

$$\phi' = 17.6 + 11.0 \cdot \log (q_{t1})$$

Where:

ϕ' = Peak friction angle (degrees)

q_{t1} = stress normalised cone resistance:

$$q_{t1} = \left(\frac{q_t}{\sigma_{atm}}\right) / \left(\frac{\sigma_{v0'}}{\sigma_{atm}}\right)^{0.5}$$

The presence of compressible minerals tends to reduce tip resistance resulting in lower estimate of friction angle, while very coarse (sand) or larger grain size tends to increase tip resistance resulting in higher estimate. Increased penetration resistance due to high k_0 conditions also results in an overestimate of friction angle.

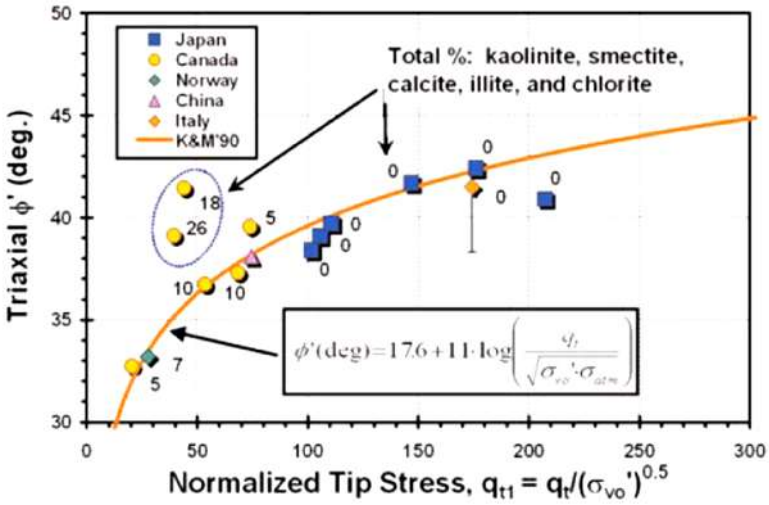


Figure 5-7 Peak triaxial friction angle from undisturbed sands with normalised cone resistance.

Fine grained soils

The effective friction angle for fine grained soils was calculated based on the Senneset *et al.* (1988, 1989) method by applying the approximate closed form solution by Mayne & Campanella (2005) as a direct function of the pore pressure parameter Bq and normalised tip resistance Q. The method is applicable where $0.1 < B_q < 1.0$ and $20° < \phi' < 45°$ and generally appropriate for non-cemented normally consolidated to lightly overconsolidated soils.

$$\phi' = 29.5° \, B_q^{0.121} [0.256 + 0.336 \, B_q + \log Q]$$

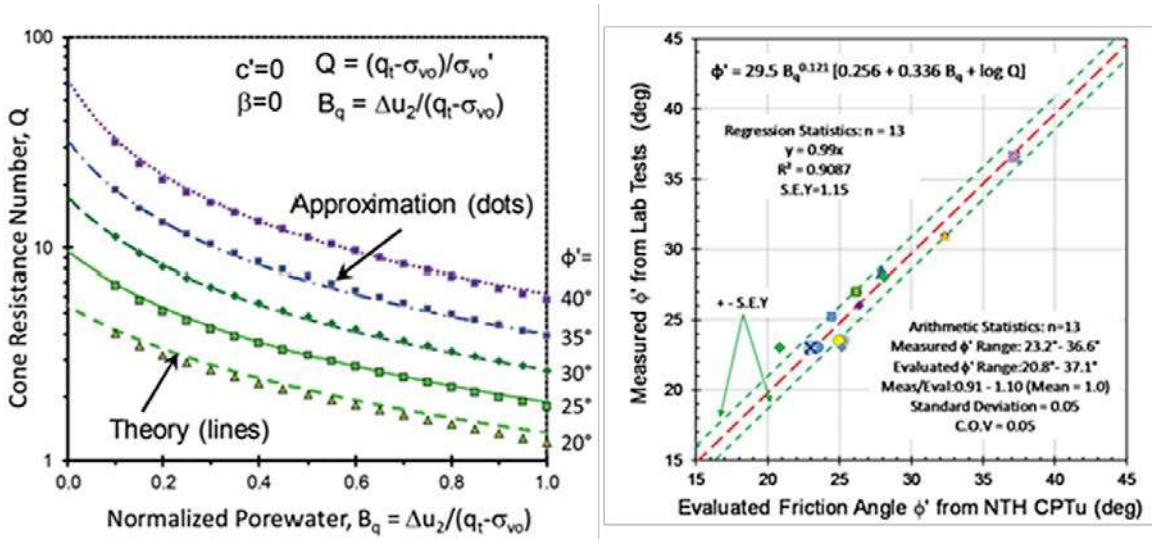


Figure 5-8 [Left] Theoretical curves with function approximation (dots) overlay [Right] calibration data from geotechnical centrifuge tests for a variety of soils. Redrawn from Ouyang & Mayne (2018).

The results are presented in Appendix F.

5.12 COEFFICIENT OF VOLUME CHANGE

Coefficient of volume change m_v defined as the inverse of the constrained modulus M, is evaluated for all soil types using the constrained modulus method proposed by Mayne (2006) cited in Mayne (2007). The value may be used to predict settlement at the end of primary consolidation and is applicable to the present state of vertical effective stress up to the pre-consolidation stress for overconsolidated soils.

$$m_v = \frac{1}{M}$$

Where:

$$M = \alpha \cdot (q_t - \sigma_v)$$

$$\alpha = 5$$

An alpha factor of 8.25 reported by Kulhawy & Mayne (1990) for fine grained soils appears to provide a better fit through the data for intact non-organic clays, reducing to around 1 to 2 for organic plastic clays.

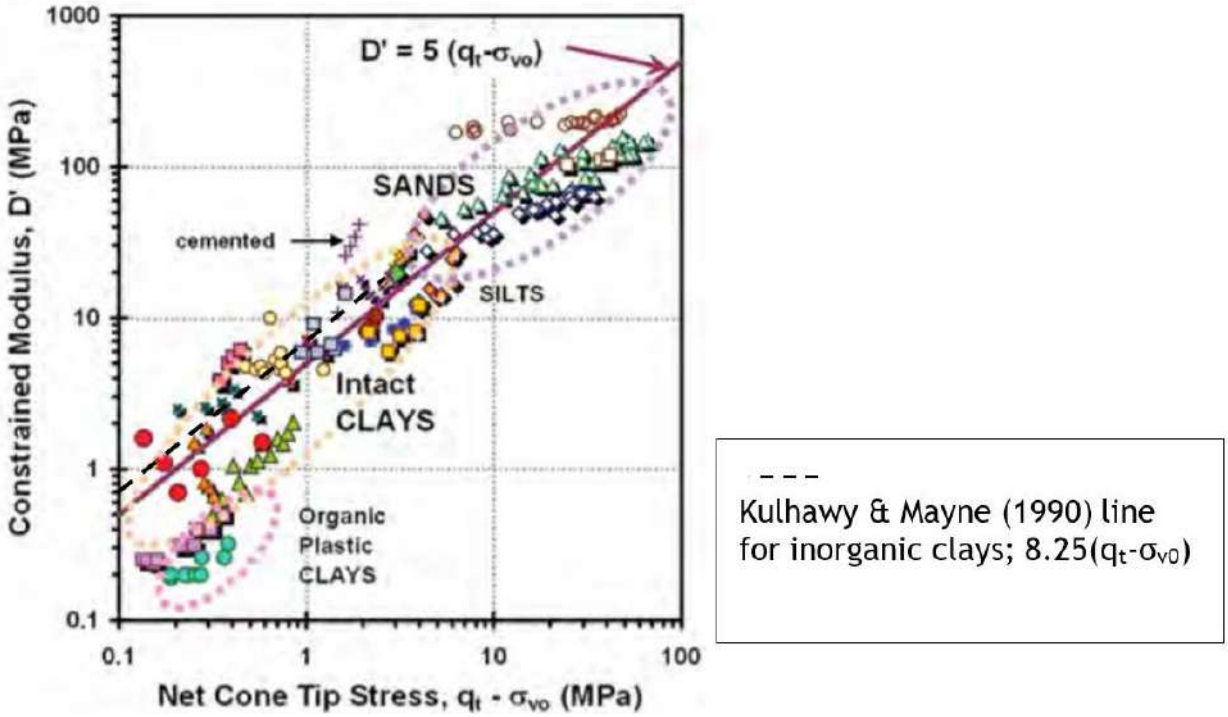


Figure 5-9 Constrained modulus of Mayne (2006). Annotated/redrawn from NCHRP Synthesis 368 (2007).

The results are presented in Appendix E.

5.13 YOUNG'S MODULUS

The secant Young's modulus E' at 25% mobilised shear strength (FOS = 4) was calculated according to the method proposed by Robertson (2009):

$E' = \alpha(q_t - \sigma_v)$
Where:

$\alpha = 0.015(10^{0.55\boldsymbol{Ic}+1.68})$

The method described by Robertson may be adapted to estimate E' for loading at different percentages of mobilised shear strength.

The results are presented in Appendix F.

6 CPT INTERPRETATION NOTES

Provided below is a non-exhaustive set of notes on interpretation of the acquired CPT data with reference to examples within the dataset where appropriate.

DRAINED AND UNDRAINED SOIL BEHAVIOUR

Geotechnical parameters appropriate for drained and undrained cone penetration conditions are derived for drained and undrained soil behaviour types (SBTs) respectively, however, to help mitigate the uncertainty in the SBT correlation with drainage behaviour, all parameters are derived over the Soil Behaviour Type range $2.4 < I_c < 2.7$. For partially drained conditions, error will be introduced within derived parameters.

Piezocone dynamic pore pressure and dissipation tests may be used to identify drainage conditions. Dissipation t_{50} values exceeding 50 seconds indicate undrained penetration behaviour based on the findings of Kim *et al.* (2008).

In partially drained materials the friction sleeve resistance may rise significantly immediately following a pause in penetration due to consolidation and increased effective stress on the friction sleeve.

DYNAMIC PORE PRESSURE u_2 (CPTu)

While the piezo system is saturated before use, testing through unsaturated soils may result in some degree of desaturation leading to a less accurate and more 'sluggish' pore pressure response. Desaturation can also occur during penetration due to suction pressure during dilative shear at the cone shoulder. Dissipation tests that are undertaken following desaturation are likely to have a more pronounced initial rise and some degree of error will be present in the analysis.

If the piezometer system becomes desaturated it may re-saturate at higher excess pressures later in the test as gas dissolves under pressure. The pore pressure response in saturated contractive soils should normally have a dynamic 'peaky' appearance.

The tip resistance in lower strength contractive soils without pore pressure measurement in the u_2 position is likely to be significantly lower (up to 20%, typically ~10%) than the equivalent corrected tip resistance depending on the magnitude of excess pore pressure generated during penetration.

CONE TIP AND SLEEVE OFFSET

The accuracy of the SBT over thin layers and at layer boundaries is sensitive to offset error in the friction ratio often resulting in sharp peaks or troughs at boundaries. The friction ratio is often inaccurate in heavily disturbed soils with a 'blocky' macro fabric. The last ~8 cm of data is also not included in the SBT material description as no friction sleeve measurements are recorded.

FRICTION SLEEVE DATA

There are three common causes of friction sleeve measurement error; 1) unequal pore pressure acting on the sleeve end areas as the sleeve passes though materials of different permeability and hence excess pore pressure Δu_2, often resulting in a negative/positive spike, 2) Accuracy limitations and temperature effects in very low strength or sensitive soils, and 3) error associated with bending strain that occurs while the cone inclination deviates rapidly. Temperature effects are generally mitigated by temperature stabilisation during the test and at the time of zero output measurement.

CONE TYPE

The reference cone type has a 10 cm^2 projected cone tip area and 150 cm^2 friction sleeve area, however it is common to use a larger 15 cm^2 cone with a 225 cm^2 friction sleeve area for improved sensitivity, temperature stability, damage prevention and penetration depth potential due to the higher bending strength. Use of a 15 cm^2 cone does however require higher penetration force (reaction force) for a given penetration pressure and produces more pronounced transitions zones and thin layer effects due to the larger influence zone.

TRANSITION ZONES AND THIN LAYER EFFECTS

During penetration at the boundary between soils of contrasting stiffness, a transition zone is often evident prior to mobilisation of the true soil stiffness. These should be cautiously ignored in assessment of soil behaviour type and parameter evaluation. Where the stiff layer is thin (<~1 m) mobilised resistance may be significantly less than that of an equivalent thick layer. The effect for thin low stiffness layers is less significant. Procedures for thin-layer effect correction are provided by Robertson and Wride (1998) and Boulanger & DeJong (2018).

GRAVELS

The presence of gravel or larger clasts in a soil is often characterised by short peaks in the CPT tip and sleeve readings, possibly with associate inclinometer ‘shake’ and/or short sharp reductions in pore water readings due to dilation effects. Frequent gravels in soft or loose soils may generate localised erroneous friction ratio values.

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APPENDICES

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APPENDIX A SUMMARY TABLES

Table 3 CPT summary

Location ID	Stroke number	Final depth (m)	Cone ID	Piezocone test	Pre-drilled (m)	Pre-drilling details	Rig	Primary refusal factor	Applied zero values: qc, fs, u2	Tip zero drift (kPa)	Sleeve zero drift (subtraction) (kPa)	Piezo zero drift (kPa)	Nr dissipation tests	Raw File Name	Easting (m)	Northing (m)	Elevation (m)	Date	Remarks
AVC1_CPTU_01	1	3.08	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Tip load	pre, pre, pre	-12.40	0.00	0.90		108001-V1-190422-UK22-LP81.L14	391630.743	170710.266	40.499	21/04/2022	
AVC1_CPTU_02	1	4.14	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	14.60	0.00	0.90		108001-V1-190422-UK22-LP81.L13	391678.494	170710.968	40.986	21/04/2022	
AVC1_CPTU_03	1	4.68	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	8.80	7.60	0.60		108001-V1-190422-UK22-LP81.L12	391698.452	170732.671	41.418	21/04/2022	
AVC1_CPTU_04	1	4.96	S15-CFIPT.1821	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	14.00	1.10	0.70		108001-V1-190422-UK22-LP81.L01	391752.340	170732.632	41.123	19/04/2022	
AVC1_CPTU_05	1	5.04	S15-CFIPT.1821	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	-6.20	1.90	0.40		108001-V1-190422-UK22-LP81.L02	391787.809	170759.334	41.030	19/04/2022	
AVC1_CPTU_06	1	4.82	S15-CFIPT.1821	YES	1.20	IP-BF	UK22	Lateral support	post, post, post	8.00	0.00	3.60		108001-V1-190422-UK22-LP81.L06	391830.697	170755.654	40.873	19/04/2022	
AVC1_CPTU_07	1	4.82	S15-CFIPT.1821	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	7.20	-0.40	-0.20		108001-V1-190422-UK22-LP81.L03	391864.549	170784.592	41.050	19/04/2022	
AVC1_CPTU_08	1	5.24	S15-CFIPT.1821	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	-8.60	-0.10	-5.20		108001-V1-190422-UK22-LP81.L05	391905.767	170780.346	41.078	19/04/2022	
AVC1_CPTU_09	1	6.26	S15-CFIPT.1821	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	-17.00	-0.60	-0.80		108001-V1-190422-UK22-LP81.L04	391947.406	170812.161	41.142	19/04/2022	
CPTU001	1	3.52	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Sleeve load	pre, pre, pre	-34.00	-1.60	-4.30		108001-V1-190422-UK22-LP81.L16	391150.606	170673.279	48.357	21/04/2022	
CPTU002	1	3.38	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Tip load	pre, pre, pre	2.40	0.50	0.10		108001-V1-190422-UK22-LP81.L15	391282.677	170664.573	46.520	21/04/2022	
CPTU003	1	13.40	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Total reaction force	pre, pre, pre	12.80	-1.80	-1.90		108001-V1-190422-UK22-LP81.L07	392271.234	170957.221	50.338	20/04/2022	
CPTU004	1	9.90	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Total reaction force	pre, pre, pre	-10.60	0.60	-0.90		108001-V1-190422-UK22-LP81.L08	392765.415	171160.838	54.121	20/04/2022	
CPTU005	1	8.52	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Total reaction force	pre, pre, pre	0.20	-2.50	-4.30		108001-V1-190422-UK22-LP81.L09	393239.268	171021.319	48.745	20/04/2022	
CPTU006	1	16.98	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Total reaction force	pre, pre, pre	0.20	-0.90	-1.80		108001-V1-190422-UK22-LP81.L10	393698.420	171282.403	53.736	20/04/2022	
CPTU007	1	16.02	S15-CFIPT.1854	YES	1.20	IP-BF	UK22	Total reaction force	pre, pre, pre	-29.20	-2.80	0.80		108001-V1-190422-UK22-LP81.L11	394325.179	171747.190	54.624	20/04/2022	

Note: Coordinates and levels have been provided by the Client for inclusion in this report.

CPT test plots are presented in Appendix C.

APPENDIX B GENERAL INFORMATION

LIST OF FIGURES

Cone calibration certificate: S15-CFIIP.1821

Cone calibration certificate: S15-CFIIP.1854

Data sheet: 18.0-tonne track-truck mounted CPT unit (UK22)

CERTIFICATE OF CALIBRATION

Certificate Number: 1379

Cone Serial Number: DS15-CFIIPT.1821

Instrument:	**Digital-Geopoint-S15-150kN-5MPa**	**Location:**	**Lankelma Calibration Laboratory**
Serial number:	**DS15-CFIIPT.1821**	**Temperature (°C):**	**16.4**
Manufacturer:	**Geopoint**	**Temperature change (°C):**	**0.06**
Calibration standard:	**Conforms to ISO 376:2011 & ISO 22476-1:2012**	**Calibration engineer:**	**T Conrad**
ISO 22476-1:2012 application class:	**Class 1**	**Calibration re-verification date:**	**00/01/1900**
Date of calibration:	**03/11/2021**	**Calibration verification completed:**	**pass**
Calibration expiry:	**02/05/2022**		

This calibration certificate is valid for 6 months, with a verification of the calibration being performed between 2 and 4 months from the date of calibration.

Calibration signed and dated by:	**Calibration checked and dated by:**	**Calibration verification signed and dated by:**
P Metcalf	A Harman	P Metcalf

REFERENCE INSTRUMENTS	SERIAL NUMBER	UNCERTAINTY OF RECORDED VALUE	CALIBRATION DATE
AM DSCCHA-100kN Load Cell	66914	0.02%	29/04/2021
AM DSCCHA-5kN Load Cell	0	0.05%	00/01/1900
Omega MMG750V	502273	0.01%	01/09/2021
Keithley 3706A Multimeter	4067652	10ppm	27/08/2021
LD Solar2-45	105775	0.04°	02/09/2020
ETI Ref Thermometer	D20345255	0.01°C	27/08/2021

The calibration tests were made in the Lankelma force standards machine. The applied forces of which are within an uncertainty of:
± 0.050 % of nominal value from 0.5kN up to 10kN, then 0.02% of nominal from 10kN up to 100kN.

MEASUREMENTS
1. The forces applied, and the resulting deflections are given in Tables 1. No corrections for temperature have been applied to these results.
2. The cone was loaded to full range 3 times for no less than 1 minute before calibration and after each rotation.
3. The cone was calibrated in low and high range using two reference load cells. The low range calibration consisted of a maximum load of 5kN with 4 sets of increasing forces and 2 sets of decreasing forces. The high range calibration consisted of a maximum load of 100kN with 3 sets of increasing forces and 2 sets of decreasing forces.
4. The difference in deflection for each applied force with rotation is the relative reproducibility error b, shown as a percentage of the recorded value and in units of pressure MPa. The uncertainty relating to the difference in deflection for increasing forces against degreasing forces is the reversibility uncertainty U_rev, shown as a percentage of the recorded value and in units of pressure MPa.
5. For each application of force, the coefficients of a linear and third order equation relating the estimate of the mean deflection as a function of the applied calibration force were calculated. Table 2.
6. The combined expanded uncertainty of deflection U for each force is shown as a percentage of the recorded value and in units of pressure MPa.
7. The coefficients of a third order equation relating a given applied force to the estimate of the mean deflection were also calculated. The coefficients are given in Table 3.
8. In use the forces acting on the sleeve load cell element are a combination of tip resistance and sleeve friction, with the tip resistance from the tip load cell element being subtracted to give the sleeve friction value. The resultant error values for differing tip and sleeve values are shown in Table 4.
* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

The calibration uncertainty is the uncertainty in the force value calculated from the interpolation equation at any deflection.

At each calibration point a combined standard uncertainty *uc* is calculated from the readings obtained during the calibration.

$$uc = \sqrt{\sum_{i=1}^{8} ui^2}$$

and

$$U = k \times uc$$

where

u1 is the standard uncertainty associated with the applied calibration force.
u2 is the standard uncertainty associated with the reproducibility of the calibration results.
u3 is the standard uncertainty associated with the repeatability of the calibration results.
u4 is the standard uncertainty associated with the resolution and noise of the system.
u5 is the standard uncertainty associated with the creep of the instrument.
u6 is the standard uncertainty associated with the drift in zero output.
u7 is the standard uncertainty associated with temperature of the instrument.
u8 is the standard uncertainty associated with interpolation best fit of the linear or 3rd order polynomial equation.

Symbols and their designations

Symbol	Designation
Ref LC	Reference load cell with calibration force in kN
cts	Counts. Base digital cone units.
0.1N	Interpolated digital cone units from counts
b	Relative reproducibility error
U_rev	Reversibility uncertainty
Uc	Combined standard uncertainty
Uc_sub	Combined standard uncertainty including sleeve subtraction
U	Combined expanded uncertainty
k=2	95% uncertainty coverage factor

Cone tempreture effect profile:

This section deals with the apparent pressure readings obtained from sensors due to static and transient temperature change. The parameters for post-processing temperature correction are established and the apparent pressures after correction are presented. Depending on the design or temperature performance, correction of the friction sleeve and/or piezometer readings may not be warranted

LANKELMA

CERTIFICATE OF CALIBRATION

Certificate Number: 1379

Cone Serial Number: DS15-CFIIPT.1821

CONE END RESISTANCE CALIBRATION

Table 1-a.

Low range calibration									High range calibration							
	Tip change In output (cts)				Reproducibility error *b*		Reversibility error *U_rev*			Tip change in output (cts)			Reproducibility error *b*		Reversibility error *U_rev*	
Ref LC	1	2	3	4					Ref LC	1	2	3				
(kN)	0°	120°	240°	240°	MPa	%	MPa	%	(kN)	0°	120°	240°	MPa	%	MPa	%
0.100	1.172E+05	1.134E+05	1.144E+05	1.144E+05	0.001	0.98			5.000	5.826E+06	5.827E+06	5.827E+06	0.000	0.00		
0.500	5.843E+05	5.812E+05	5.739E+05	5.779E+05	0.002	0.53			10.000	1.166E+07	1.165E+07	1.166E+07	0.000	0.01		
1.000	1.169E+06	1.164E+06	1.154E+06	1.157E+06	0.003	0.39			15.000	1.749E+07	1.748E+07	1.749E+07	0.001	0.01		
1.500	1.753E+06	1.749E+06	1.733E+06	1.737E+06	0.003	0.35			20.000	2.332E+07	2.332E+07	2.332E+07	0.001	0.01		
2.000	2.338E+06	2.332E+06	2.314E+06	2.317E+06	0.004	0.32			30.000	3.497E+07	3.497E+07	3.498E+07	0.001	0.00		
2.500	2.923E+06	2.916E+06	2.893E+06	2.897E+06	0.005	0.31			40.000	4.662E+07	4.662E+07	4.664E+07	0.003	0.01		
3.000	3.507E+06	3.500E+06	3.473E+06	3.478E+06	0.006	0.29			50.000	5.825E+07	5.825E+07	5.827E+07	0.004	0.01		
3.500	4.092E+06	4.083E+06	4.052E+06	4.059E+06	0.007	0.29			60.000	6.986E+07	6.986E+07	6.989E+07	0.005	0.01		
4.000	4.677E+06	4.668E+06	4.633E+06	4.639E+06	0.008	0.28			80.000	9.305E+07	9.304E+07	9.307E+07	0.006	0.01		
5.000	5.845E+06	5.836E+06	5.796E+06	5.798E+06	0.009	0.26			100.000	1.162E+08	1.162E+08	1.162E+08	0.009	0.01		
4.000	4.679E+06	4.671E+06			0.002	0.06	-0.001	-0.02	80.000	9.306E+07	9.305E+07		0.001	0.00	-0.003	-0.01
3.500	4.094E+06	4.086E+06			0.002	0.07	-0.001	-0.04	60.000	6.989E+07	6.990E+07		0.000	0.00	-0.011	-0.03
3.000	3.510E+06	3.502E+06			0.002	0.08	-0.001	-0.05	50.000	5.829E+07	5.829E+07		0.000	0.00	-0.014	-0.04
2.500	2.926E+06	2.918E+06			0.001	0.09	-0.001	-0.05	40.000	4.668E+07	4.667E+07		0.001	0.01	-0.018	-0.07
2.000	2.343E+06	2.334E+06			0.002	0.12	-0.001	-0.09	30.000	3.503E+07	3.503E+07		0.000	0.00	-0.019	-0.10
1.500	1.757E+06	1.751E+06			0.001	0.12	-0.001	-0.11	20.000	2.337E+07	2.337E+07		0.000	0.00	-0.017	-0.13
1.000	1.174E+06	1.167E+06			0.002	0.23	-0.001	-0.17	15.000	1.753E+07	1.753E+07		0.000	0.00	-0.016	-0.16
0.500	5.875E+05	5.828E+05			0.001	0.29	-0.001	-0.24	10.000	1.169E+07	1.169E+07		0.000	0.00	-0.012	-0.18
0.100	1.192E+05	1.160E+05			0.001	0.95	-0.001	-1.16	5.000	5.844E+06	5.846E+06		0.000	0.01	-0.006	-0.19

Table 2-a.

Low range calibration							
Reference output		Linear equation			3rd order equation		
Ref Load Cell Nom. (MPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** MPa	%	Equation output (0.1N)	Expanded uncertainty *U** MPa	%
0.067	1000	988	0.002	3.15	989	0.002	3.09
0.333	5000	4983	0.005	1.54	4970	0.006	1.77
0.667	10000	9991	0.006	0.95	9960	0.008	1.18
1.000	15000	14999	0.008	0.79	14951	0.010	1.00
1.333	20000	20008	0.009	0.68	19943	0.012	0.88
1.667	25000	25015	0.011	0.66	24933	0.014	0.85
2.000	30000	30025	0.012	0.61	29925	0.016	0.79
2.333	35000	35030	0.015	0.63	34914	0.019	0.80
2.667	40000	40049	0.016	0.60	39916	0.020	0.73
3.333	50000	50073	0.018	0.54	49908	0.022	0.65
2.667	40000	40178	0.024	0.91	40045	0.008	0.29
2.333	35000	35153	0.021	0.90	35036	0.007	0.29
2.000	30000	30134	0.018	0.92	30035	0.006	0.31
1.667	25000	25115	0.016	0.95	25032	0.006	0.34
1.333	20000	20100	0.014	1.05	20034	0.006	0.45
1.000	15000	15078	0.011	1.08	15029	0.005	0.49
0.667	10000	10059	0.009	1.29	10028	0.005	0.74
0.333	5000	5030	0.005	1.35	5016	0.003	0.88
0.067	1000	1011	0.002	3.19	1011	0.002	3.04

High range calibration							
Reference output		Linear equation			3rd order equation		
Ref Load Cell Nom. (MPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** MPa	%	Equation output (0.1N)	Expanded uncertainty *U** MPa	%
3.333	50000	50079	0.012	0.36	49914	0.013	0.38
6.667	100000	100183	0.026	0.40	99864	0.021	0.31
10.000	150000	150304	0.043	0.43	149848	0.025	0.25
13.333	200000	200419	0.059	0.45	199845	0.029	0.21
20.000	300000	300598	0.085	0.42	299850	0.035	0.17
26.667	400000	400742	0.106	0.40	399915	0.039	0.15
33.333	500000	500715	0.106	0.32	499919	0.048	0.14
40.000	600000	600541	0.091	0.23	599900	0.058	0.14
53.333	800000	799810	0.079	0.15	799901	0.075	0.14
66.667	1000000	998605	0.208	0.31	1000081	0.094	0.14
53.333	800000	799817	0.076	0.14	799908	0.073	0.14
40.000	600000	600743	0.113	0.28	600102	0.056	0.14
33.333	500000	501026	0.145	0.43	500231	0.055	0.16
26.667	400000	401157	0.159	0.60	400330	0.057	0.21
20.000	300000	301086	0.148	0.74	300336	0.052	0.26
13.333	200000	200850	0.116	0.87	200274	0.041	0.31
10.000	150000	150696	0.095	0.95	150238	0.035	0.35
6.667	100000	100498	0.068	1.02	100178	0.025	0.38
3.333	50000	50240	0.034	1.01	50075	0.011	0.33

Table 3-a. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

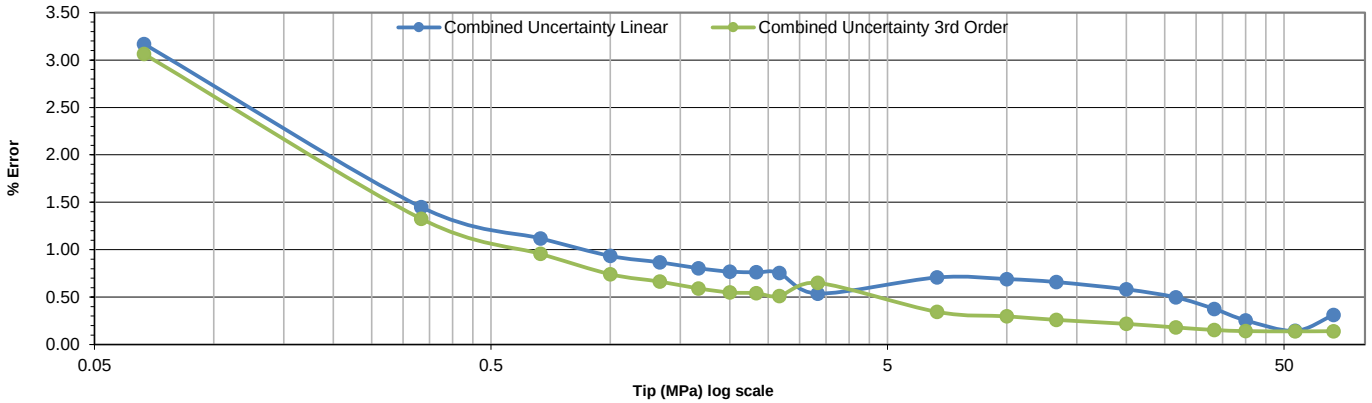
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	3.88055
a1	=	0.99649
a2	=	2.64968E-09
a3	=	2.34771E-15

Maximum tip zero drift during the calibration (MPa) =	0.001
Maximum load cell zero drift during the calibration (MPa) =	0.000
Factor used to convert from counts to 0.1N units =	0.0085950
Maximum tip full scale reading (MPa) =	100.00
Tip resolution (Pa) =	66.7
Tip area (cm^2) =	15
Tip area ratio factor =	0.781

COMBINED EXPANDED UNCERTAINTY TIP



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

LANKELMA

CERTIFICATE OF CALIBRATION

Certificate Number: 1379

Cone Serial Number: DS15-CFIIPT.1821

SLEEVE FRICTION CALIBRATION

Table1-b.

Low range calibration									High range calibration							
	Sleeve change In output (cts)				Reproducibility error *b*		Reversibility error *U_rev*			Sleeve change in output (cts)			Reproducibility error *b*		Reversibility error *U_rev*	
Ref LC	1	2	3	4					Ref LC	1	2	3				
(kN)	0°	120°	240°	240°	kPa	%	kPa	%	(kN)	0°	120°	240°	kPa	%	kPa	%
0.100	1.217E+05	1.191E+05	1.199E+05	1.199E+05	0.028	0.64			5.000	6.014E+06	6.018E+06	6.009E+06	0.101	0.05		
0.500	6.085E+05	6.023E+05	5.951E+05	5.989E+05	0.142	0.65			10.000	1.204E+07	1.204E+07	1.203E+07	0.119	0.03		
1.000	1.215E+06	1.204E+06	1.192E+06	1.197E+06	0.242	0.55			15.000	1.805E+07	1.806E+07	1.805E+07	0.105	0.02		
1.500	1.817E+06	1.808E+06	1.792E+06	1.796E+06	0.270	0.41			20.000	2.407E+07	2.407E+07	2.407E+07	0.080	0.01		
2.000	2.420E+06	2.410E+06	2.391E+06	2.396E+06	0.313	0.36			30.000	3.610E+07	3.611E+07	3.610E+07	0.118	0.01		
2.500	3.020E+06	3.011E+06	2.990E+06	2.995E+06	0.325	0.30			40.000	4.812E+07	4.813E+07	4.813E+07	0.116	0.01		
3.000	3.620E+06	3.613E+06	3.588E+06	3.593E+06	0.357	0.27			50.000	6.013E+07	6.014E+07	6.014E+07	0.168	0.01		
3.500	4.220E+06	4.214E+06	4.189E+06	4.193E+06	0.351	0.23			60.000	7.212E+07	7.214E+07	7.214E+07	0.214	0.01		
4.000	4.832E+06	4.815E+06	4.789E+06	4.794E+06	0.465	0.26			80.000	9.608E+07	9.609E+07	9.609E+07	0.201	0.01		
5.000	6.022E+06	6.018E+06	5.989E+06	5.991E+06	0.390	0.18			100.000	1.200E+08	1.200E+08	1.200E+08	0.312	0.01		
4.000	4.850E+06	4.823E+06			0.350	0.20	-0.268	-0.15	80.000	9.610E+07	9.612E+07		0.223	0.01	-0.584	-0.02
3.500	4.254E+06	4.219E+06			0.457	0.30	-0.408	-0.26	60.000	7.218E+07	7.219E+07		0.178	0.01	-1.135	-0.04
3.000	3.653E+06	3.616E+06			0.475	0.36	-0.384	-0.29	50.000	6.019E+07	6.020E+07		0.136	0.01	-1.281	-0.06
2.500	3.050E+06	3.012E+06			0.491	0.45	-0.333	-0.30	40.000	4.820E+07	4.820E+07		0.011	0.00	-1.445	-0.08
2.000	2.446E+06	2.410E+06			0.464	0.53	-0.269	-0.31	30.000	3.617E+07	3.618E+07		0.101	0.01	-1.464	-0.11
1.500	1.838E+06	1.806E+06			0.408	0.62	-0.200	-0.30	20.000	2.413E+07	2.414E+07		0.047	0.01	-1.330	-0.15
1.000	1.227E+06	1.204E+06			0.288	0.65	-0.126	-0.29	15.000	1.811E+07	1.811E+07		0.012	0.00	-1.150	-0.17
0.500	6.124E+05	6.011E+05			0.145	0.66	-0.029	-0.13	10.000	1.208E+07	1.208E+07		0.032	0.01	-0.921	-0.21
0.100	1.212E+05	1.188E+05			0.031	0.71	0.007	0.16	5.000	6.040E+06	6.042E+06		0.018	0.01	-0.525	-0.24

Table 2-b.

Low range calibration							
Reference output		Linear factor output			3rd order equation		
Ref Load Cell Nom. (kPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** kPa	%	Equation output (0.1N)	Expanded uncertainty *U** kPa	%
4	1000	1001	0.058	1.32	1001	0.058	1.32
22	5000	5011	0.333	1.51	4996	0.321	1.46
44	10000	10020	0.554	1.26	9989	0.533	1.21
66	15000	15028	0.637	0.96	14979	0.615	0.93
88	20000	20035	0.753	0.85	19969	0.741	0.84
110	25000	25029	0.774	0.70	24946	0.871	0.79
132	30000	30025	0.836	0.63	29925	1.040	0.79
154	35000	35024	0.825	0.53	34907	1.142	0.74
176	40000	40054	1.103	0.63	39921	1.215	0.69
220	50000	50023	0.875	0.40	49858	1.515	0.69
176	40000	40257	2.390	1.36	40124	1.327	0.75
154	35000	35263	2.513	1.63	35146	1.612	1.05
132	30000	30256	2.469	1.87	30156	1.698	1.28
110	25000	25232	2.282	2.07	25148	1.655	1.50
88	20000	20208	2.066	2.35	20141	1.569	1.78
66	15000	15164	1.670	2.53	15115	1.310	1.98
44	10000	10118	1.191	2.70	10086	0.956	2.17
22	5000	5051	0.534	2.42	5036	0.435	1.97
4	1000	999	0.064	1.45	999	0.064	1.45

High range calibration							
Reference output		Linear factor output			3rd order equation		
Ref Load Cell Nom. (kPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** kPa	%	Equation output (0.1N)	Expanded uncertainty *U** kPa	%
220	50000	50057	0.639	0.29	49891	1.037	0.47
441	100000	100158	1.544	0.35	99841	1.549	0.18
661	150000	150261	2.490	0.38	149811	1.926	0.15
881	200000	200357	3.394	0.39	199794	2.224	0.13
1322	300000	300516	4.923	0.37	299791	2.629	0.10
1762	400000	400617	5.948	0.34	399824	2.878	0.08
2203	500000	500586	5.976	0.27	499829	3.370	0.08
2643	600000	600430	5.237	0.20	599822	3.941	0.07
3524	800000	799793	5.142	0.15	799860	4.964	0.07
4405	1000000	998746	12.571	0.29	1000051	6.011	0.07
3524	800000	799999	4.731	0.13	800067	4.768	0.07
2643	600000	600851	8.298	0.31	600245	4.153	0.08
2203	500000	501071	9.890	0.45	500315	4.061	0.09
1762	400000	401176	10.622	0.60	400383	4.116	0.12
1322	300000	301113	9.963	0.75	300387	3.847	0.15
881	200000	200894	7.968	0.90	200330	3.140	0.18
661	150000	150736	6.549	0.99	150285	2.665	0.20
441	100000	100548	4.864	1.10	100230	2.112	0.24
220	50000	50284	2.526	1.15	50118	1.090	0.25

Table 3-b. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

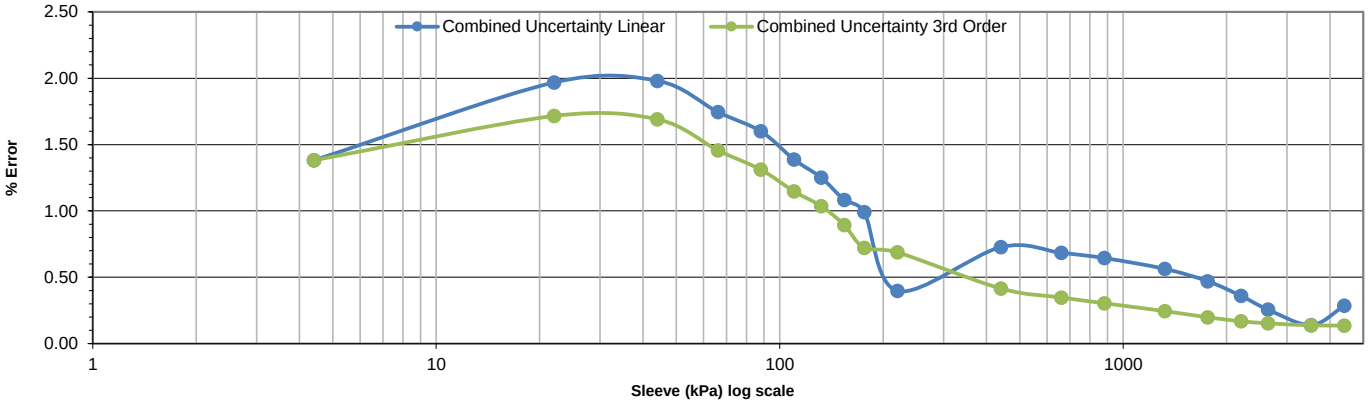
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	3.56638
a1	=	0.99646
a2	=	3.22622E-09
a3	=	1.62506E-15

Maximum sleeve zero drift during the calibration (kPa) =	0.031
Maximum load cell zero drift during the calibration (kPa) =	0.004
Factor used to convert from counts to 0.1N units =	0.0083237
Physical strength limited maximum sleeve reading (MPa) =	1.333
Sleeve resolution (Pa) =	4.4
Sleeve area (cm^2) =	227
Sleeve area ratio factor =	-0.002

COMBINED EXPANDED UNCERTAINTY SLEEVE



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

LANKELMA

CERTIFICATE OF CALIBRATION

Certificate Number: 1379

Cone Serial Number: DS15-CFIIPT.1821

Table 4-b Sleeve friction - tip subtraction combined standard uncertainty Uc_sub

Tip MPa	Sleeve linear equation subtraction error (%) Sleeve kPa → 4	22	44	66	110	154	220	661
0.07	3.0	1.4	1.2	1.0	0.8	0.6	0.2	0.4
0.33	9.2	2.7	1.8	1.4	1.0	0.8	0.7	0.4
0.67	16.2	4.1	2.5	1.9	1.3	1.0	0.5	0.4
1.00	20.8	5.0	3.0	2.2	1.5	1.1	0.6	0.4
1.67	28.1	6.5	3.7	2.7	1.8	1.3	0.7	0.5
2.33	33.0	7.4	4.2	3.0	2.0	1.5	0.8	0.5
3.33	24.1	5.7	3.3	2.4	1.6	1.2	0.7	0.4
10.00	103.7	21.6	11.3	7.7	4.8	3.5	2.3	0.8
13.33	131.1	27.1	14.0	12.3	5.9	4.3	3.6	1.2

Tip MPa	Sleeve 3rd order equation subtraction error (%) Sleeve kPa → 4	22	44	66	110	154	220	661
0.07	2.9	1.3	1.1	0.9	0.7	0.5	0.4	0.2
0.33	8.3	2.4	1.6	1.2	0.9	0.7	0.5	0.2
0.67	13.9	3.5	2.2	1.6	1.1	0.8	0.6	0.3
1.00	17.2	4.2	2.5	1.8	1.2	0.9	0.7	0.3
1.67	22.4	5.2	3.0	2.2	1.4	1.1	0.8	0.3
2.33	25.8	5.9	3.4	2.4	1.6	1.2	0.8	0.3
3.33	34.1	7.5	4.2	3.0	1.9	1.4	1.0	0.4
10.00	49.1	10.5	5.7	4.0	2.5	1.8	1.3	0.5
13.33	57.1	12.1	6.5	5.4	2.8	2.1	1.5	0.5

PORE PRESSURE CALIBRATION

Table1-c.

Ref PR (kPa)	PWP change in output (cts) 1 0°	2 120°	3 240°	Reproducibility error *b* kPa	%	Reversibility error *U_rev* kPa	%
100	4.461E+07	4.459E+07	4.454E+07	0.0	0.05		
200	8.911E+07	8.905E+07	8.908E+07	0.0	0.02		
400	1.780E+08	1.780E+08	1.779E+08	0.0	0.01		
600	2.667E+08	2.667E+08	2.668E+08	0.0	0.01		
800	3.553E+08	3.553E+08	3.554E+08	0.1	0.02		
1000	4.437E+08	4.436E+08	4.437E+08	0.1	0.01		
1500	6.637E+08	6.636E+08	6.637E+08	0.1	0.01		
2000	8.825E+08	8.824E+08	8.827E+08	0.2	0.01		
2500	1.100E+09	1.100E+09	1.100E+09	0.3	0.01		
3000	1.316E+09	1.316E+09	1.316E+09	0.3	0.01		
2500	1.100E+09	1.100E+09		0.1	0.00	-0.2	-0.01
2000	8.825E+08	8.825E+08		0.0	0.00	-0.1	0.00
1500	6.637E+08	6.638E+08		0.0	0.00	-0.1	-0.01
1000	4.438E+08	4.437E+08		0.0	0.00	-0.1	-0.01
800	3.554E+08	3.554E+08		0.0	0.00	-0.2	-0.02
600	2.668E+08	2.668E+08		0.0	0.01	-0.1	-0.02
400	1.781E+08	1.781E+08		0.0	0.00	-0.1	-0.03
200	8.901E+07	8.906E+07		0.0	0.02	0.1	0.03
100	4.464E+07	4.462E+07		0.0	0.02	0.0	-0.04

Table 2-c.

Reference output: Ref Pressure (kPa)	Ref Pressure (0.1Pa)	Linear factor output: Cone output (0.1Pa)	Expanded uncertainty *U** kPa	%	3rd order equation: Equation output (0.1N)	Expanded uncertainty *U** kPa	%
100	1000000	1015225	3.201	3.20	999405	0.214	0.21
200	2000000	2028771	5.820	2.91	1998693	0.373	0.19
400	4000000	4053037	10.677	2.67	3997584	0.688	0.17
600	6000000	6075040	15.100	2.52	5998437	0.778	0.13
800	8000000	8092596	18.613	2.33	7999159	0.991	0.12
1000	10000000	10104986	21.101	2.11	9999092	1.189	0.12
1500	15000000	15115948	23.361	1.56	14998415	1.784	0.12
2000	20000000	20099367	20.075	1.00	19998743	2.378	0.12
2500	25000000	25050330	10.532	0.42	24995942	3.074	0.12
3000	30000000	29975041	6.170	0.21	29997034	3.631	0.12
2500	25000000	25051514	10.797	0.43	24997141	2.979	0.12
2000	20000000	20098764	20.037	1.00	19998136	2.361	0.12
1500	15000000	15117116	23.738	1.58	14999583	1.751	0.12
1000	10000000	10106107	21.738	2.17	10000208	1.173	0.12
800	8000000	8093942	19.043	2.38	8000495	0.947	0.12
600	6000000	6076302	15.489	2.58	5999687	0.713	0.12
400	4000000	4055460	11.414	2.85	3999979	0.481	0.12
200	2000000	2027764	5.692	2.85	1997700	0.530	0.27
100	1000000	1016434	3.309	3.31	1000595	0.194	0.19

Table 3-c. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

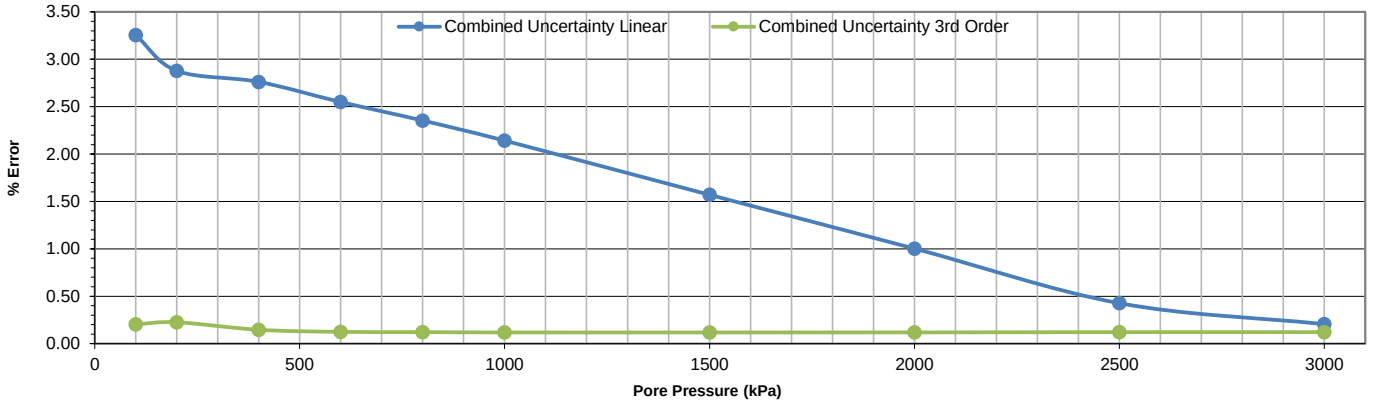
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	-516.52961
a1	=	0.98442
a2	=	4.91412E-10
a3	=	1.77653E-18

Maximum PWP zero drift during the calibration (kPa) =	0.06
Maximum reference zero drift during the calibration (kPa) =	0.049
Factor used to convert from counts to 0.1Pa units =	0.0227750
Maximum PWP full scale reading (kPa) =	5000
PWP resolution (Pa) =	0.1

COMBINED EXPANDED UNCERTAINTY PORE PRESSURE



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

LANKELMA

CERTIFICATE OF CALIBRATION

Certificate Number: 1379

Cone Serial Number: DS15-CFIIPT.1821

INCLINATION CALIBRATION

Ref Inclination (°C)	Cone inclination output X Inc (cts)	Y Inc (cts)
-25	-26039	-24525
0	-741	1939
25	24087	28672

Ref Inclination (°)	Cone inclination output X Inc (°)	Y Inc (°)
-25	-25.2	-24.9
0	0.0	0.0
25	24.8	25.1

	X inc	Y inc
Factor used to convert from counts to 0.1m° units =	9.97457104	9.39894615
Inclination error (°) =	0.2	0.1

TEMPERATURE CALIBRATION

Recorded temp (°C)	Cone output (cts)	
6.77	-219638226	
10.53	-172668181	
17.38	-84898258	
20.05	-50836859	
24.83	10859085	

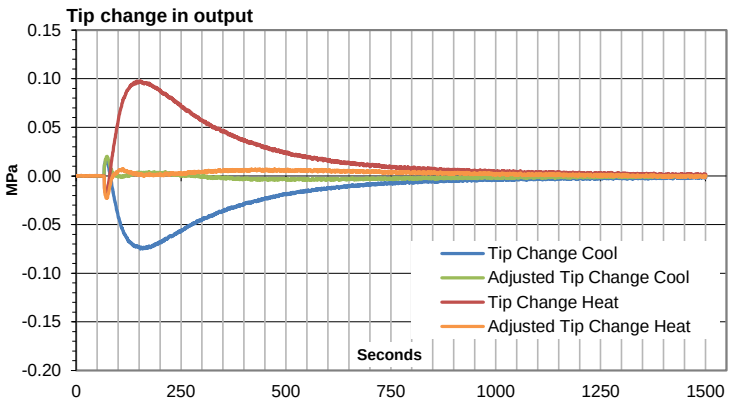
Recorded temp (°C)	Cone output (°C)	
6.77	6.82	
10.53	10.49	
17.38	17.36	
20.05	20.03	
24.83	24.86	

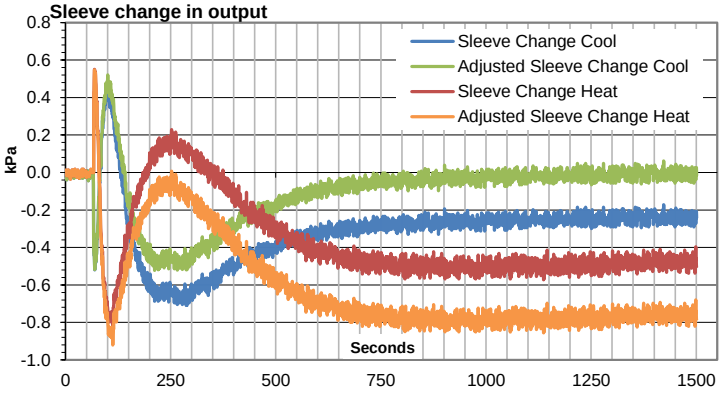
Factor used to convert from counts to 0.00001°C units =	0.000782717	
Temperature error (°C) =	0.04	

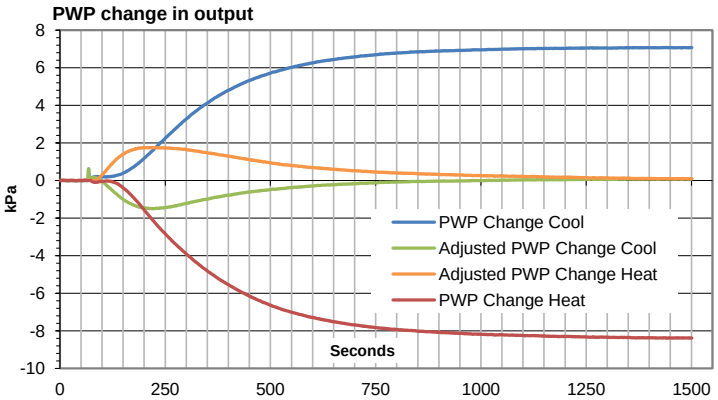
CONE TEMPERATURE EFFECT

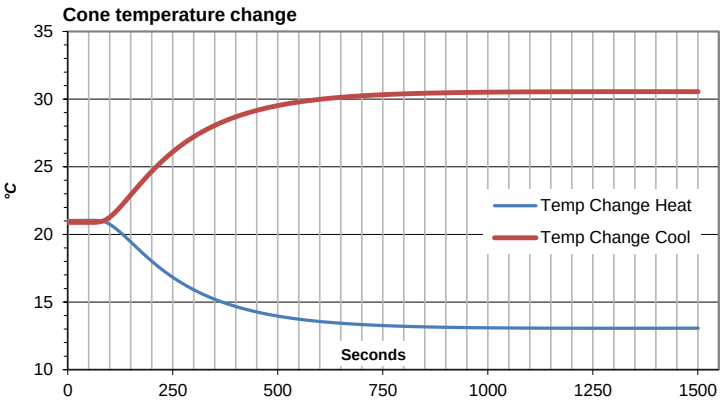
	Cooling	Heating
Start temperature =	21.04	20.89
End temperature =	13.06	30.55
Temperature change =	-7.98	9.67

	Cooling	Heating
Tip maximum rate of change (MPa/°C/min) =	0.042	0.045
Tip end change (MPa/°C) =	0.000	0.000
Adjusted tip end change (MPa/°C) =	0.000	0.000
Sleeve maximum rate of change (kPa/°C/min) =	3.02	2.81
Sleeve end change (kPa/°C) =	-0.03	-0.05
Adjusted sleeve end change (kPa/°C) =	0.00	-0.08
PWP end change (kPa/°C) =	0.89	-0.87
Adjusted PWP end change (kPa/°C) =	-0.01	0.01









CERTIFICATE OF CALIBRATION

Certificate Number: 1375

Cone Serial Number: DS15-CFIIPT.1854

Instrument:	**Digital-Geopoint-S15-150kN-2MPa**	**Location:**	**Lankelma Calibration Laboratory**
Serial number:	**DS15-CFIIPT.1854**	**Temperature (°C):**	**21.7**
Manufacturer:	**Geopoint**	**Temperature change (°C):**	**0.15**
Calibration standard:	**Conforms to ISO 376:2011 & ISO 22476-1:2012**	**Calibration engineer:**	**P Metcalf**
ISO 22476-1:2012 application class:	**Class 1**	**Calibration re-verification date:**	**18/03/2022**
Date of calibration:	**28/10/2021**	**Calibration verification completed:**	**pass**
Calibration expiry:	**27/04/2022**		

This calibration certificate is valid for 6 months, with a verification of the calibration being performed between 2 and 4 months from the date of calibration.

Calibration signed and dated by:	**Calibration checked and dated by:**	**Calibration verification signed and dated by:**
P Metcalf	A Harman	A Harman

REFERENCE INSTRUMENTS	SERIAL NUMBER	UNCERTAINTY OF RECORDED VALUE	CALIBRATION DATE
AM DSCCHA-100kN Load Cell	66914	0.02%	29/04/2021
AM DSCCHA-5kN Load Cell	0	0.05%	00/01/1900
Omega MMG750V	502273	0.01%	01/09/2021
Keithley 3706A Multimeter	4067652	10ppm	27/08/2021
LD Solar2-45	105775	0.04°	02/09/2020
ETI Ref Thermometer	D20345255	0.01°C	27/08/2021

The calibration tests were made in the Lankelma force standards machine. The applied forces of which are within an uncertainty of:
± 0.050 % of nominal value from 0.5kN up to 10kN, then 0.02% of nominal from 10kN up to 100kN.

MEASUREMENTS
1. The forces applied, and the resulting deflections are given in Tables 1. No corrections for temperature have been applied to these results.
2. The cone was loaded to full range 3 times for no less than 1 minute before calibration and after each rotation.
3. The cone was calibrated in low and high range using two reference load cells. The low range calibration consisted of a maximum load of 5kN with 4 sets of increasing forces and 2 sets of decreasing forces. The high range calibration consisted of a maximum load of 100kN with 3 sets of increasing forces and 2 sets of decreasing forces.
4. The difference in deflection for each applied force with rotation is the relative reproducibility error b, shown as a percentage of the recorded value and in units of pressure MPa. The uncertainty relating to the difference in deflection for increasing forces against degreasing forces is the reversibility uncertainty U_rev, shown as a percentage of the recorded value and in units of pressure MPa.
5. For each application of force, the coefficients of a linear and third order equation relating the estimate of the mean deflection as a function of the applied calibration force were calculated. Table 2.
6. The combined expanded uncertainty of deflection U for each force is shown as a percentage of the recorded value and in units of pressure MPa.
7. The coefficients of a third order equation relating a given applied force to the estimate of the mean deflection were also calculated. The coefficients are given in Table 3.
8. In use the forces acting on the sleeve load cell element are a combination of tip resistance and sleeve friction, with the tip resistance from the tip load cell element being subtracted to give the sleeve friction value. The resultant error values for differing tip and sleeve values are shown in Table 4.
* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

The calibration uncertainty is the uncertainty in the force value calculated from the interpolation equation at any deflection.

At each calibration point a combined standard uncertainty *uc* is calculated from the readings obtained during the calibration.

$$uc = \sqrt{\sum_{i=1}^{8} ui^2}$$

and

$$U = k \times uc$$

where

u1 is the standard uncertainty associated with the applied calibration force.
u2 is the standard uncertainty associated with the reproducibility of the calibration results.
u3 is the standard uncertainty associated with the repeatability of the calibration results.
u4 is the standard uncertainty associated with the resolution and noise of the system.
u5 is the standard uncertainty associated with the creep of the instrument.
u6 is the standard uncertainty associated with the drift in zero output.
u7 is the standard uncertainty associated with temperature of the instrument.
u8 is the standard uncertainty associated with interpolation best fit of the linear or 3rd order polynomial equation.

Symbols and their designations

Symbol	Designation
Ref LC	Reference load cell with calibration force in kN
cts	Counts. Base digital cone units.
0.1N	Interpolated digital cone units from counts
b	Relative reproducibility error
U_rev	Reversibility uncertainty
Uc	Combined standard uncertainty
Uc_sub	Combined standard uncertainty including sleeve subtraction
U	Combined expanded uncertainty
k=2	95% uncertainty coverage factor

Cone tempreture effect profile:

This section deals with the apparent pressure readings obtained from sensors due to static and transient temperature change. The parameters for post-processing temperature correction are established and the apparent pressures after correction are presented. Depending on the design or temperature performance, correction of the friction sleeve and/or piezometer readings may not be warranted

LANKELMA

CERTIFICATE OF CALIBRATION

Certificate Number: 1375

Cone Serial Number: DS15-CFIIPT.1854

CONE END RESISTANCE CALIBRATION

Table 1-a.

Low range calibration									High range calibration							
	Tip change In output (cts)				Reproducibility error *b*		Reversibility error *U_rev*			Tip change in output (cts)			Reproducibility error *b*		Reversibility error *U_rev*	
Ref LC	1	2	3	4					Ref LC	1	2	3				
(kN)	0°	120°	240°	240°	MPa	%	MPa	%	(kN)	0°	120°	240°	MPa	%	MPa	%
0.100	1.104E+05	1.102E+05	1.100E+05	1.100E+05	0.000	0.09			5.000	5.558E+06	5.559E+06	5.558E+06	0.000	0.01		
0.500	5.550E+05	5.547E+05	5.539E+05	5.544E+05	0.000	0.06			10.000	1.112E+07	1.112E+07	1.112E+07	0.001	0.01		
1.000	1.109E+06	1.109E+06	1.111E+06	1.109E+06	0.000	0.05			15.000	1.668E+07	1.669E+07	1.668E+07	0.001	0.01		
1.500	1.663E+06	1.665E+06	1.665E+06	1.664E+06	0.000	0.04			20.000	2.224E+07	2.224E+07	2.224E+07	0.000	0.00		
2.000	2.221E+06	2.220E+06	2.221E+06	2.220E+06	0.000	0.01			30.000	3.336E+07	3.336E+07	3.336E+07	0.001	0.00		
2.500	2.776E+06	2.777E+06	2.776E+06	2.776E+06	0.000	0.02			40.000	4.447E+07	4.446E+07	4.449E+07	0.005	0.02		
3.000	3.331E+06	3.332E+06	3.332E+06	3.332E+06	0.000	0.01			50.000	5.555E+07	5.556E+07	5.556E+07	0.001	0.00		
3.500	3.886E+06	3.887E+06	3.888E+06	3.888E+06	0.000	0.02			60.000	6.664E+07	6.664E+07	6.664E+07	0.001	0.00		
4.000	4.443E+06	4.443E+06	4.443E+06	4.443E+06	0.000	0.00			80.000	8.876E+07	8.877E+07	8.877E+07	0.001	0.00		
5.000	5.554E+06	5.555E+06	5.553E+06	5.555E+06	0.000	0.01			100.000	1.108E+08	1.109E+08	1.109E+08	0.002	0.00		
4.000	4.443E+06	4.443E+06			0.000	0.00	0.000	0.00	80.000	8.879E+07	8.879E+07		0.000	0.00	-0.009	-0.02
3.500	3.888E+06	3.889E+06			0.000	0.01	0.000	-0.02	60.000	6.667E+07	6.668E+07		0.001	0.00	-0.013	-0.03
3.000	3.332E+06	3.333E+06			0.000	0.01	0.000	-0.02	50.000	5.560E+07	5.560E+07		0.000	0.00	-0.015	-0.05
2.500	2.777E+06	2.779E+06			0.000	0.02	-0.001	-0.03	40.000	4.451E+07	4.451E+07		0.000	0.00	-0.016	-0.06
2.000	2.222E+06	2.222E+06			0.000	0.00	0.000	-0.04	30.000	3.341E+07	3.341E+07		0.000	0.00	-0.017	-0.08
1.500	1.666E+06	1.668E+06			0.000	0.03	-0.001	-0.10	20.000	2.229E+07	2.230E+07		0.002	0.02	-0.016	-0.12
1.000	1.111E+06	1.112E+06			0.000	0.03	-0.001	-0.12	15.000	1.673E+07	1.672E+07		0.001	0.01	-0.014	-0.14
0.500	5.563E+05	5.559E+05			0.000	0.02	0.000	-0.13	10.000	1.115E+07	1.115E+07		0.000	0.01	-0.011	-0.16
0.100	1.105E+05	1.113E+05			0.000	0.27	0.000	-0.33	5.000	5.580E+06	5.579E+06		0.000	0.00	-0.007	-0.22

Table 2-a.

Low range calibration							
Reference output		Linear equation			3rd order equation		
Ref Load Cell Nom. (MPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** MPa	%	Equation output (0.1N)	Expanded uncertainty *U** MPa	%
0.067	1000	993	0.001	1.49	997	0.001	0.76
0.333	5000	4997	0.001	0.26	4987	0.002	0.57
0.667	10000	9997	0.001	0.21	9970	0.004	0.63
1.000	15000	14996	0.002	0.18	14952	0.007	0.66
1.333	20000	20008	0.002	0.12	19947	0.007	0.54
1.667	25000	25012	0.002	0.14	24935	0.009	0.53
2.000	30000	30018	0.003	0.15	29925	0.010	0.51
2.333	35000	35025	0.004	0.17	34915	0.011	0.49
2.667	40000	40030	0.005	0.17	39905	0.013	0.48
3.333	50000	50041	0.011	0.34	49884	0.018	0.55
2.667	40000	40031	0.005	0.17	39906	0.013	0.48
2.333	35000	35033	0.005	0.20	34924	0.010	0.44
2.000	30000	30026	0.004	0.19	29933	0.009	0.46
1.667	25000	25029	0.004	0.25	24952	0.007	0.39
1.333	20000	20019	0.003	0.21	19959	0.006	0.42
1.000	15000	15017	0.003	0.26	14973	0.004	0.38
0.667	10000	10013	0.002	0.29	9986	0.002	0.31
0.333	5000	5010	0.001	0.45	5001	0.000	0.14
0.067	1000	999	0.000	0.65	1003	0.001	0.90

High range calibration							
Reference output		Linear equation			3rd order equation		
Ref Load Cell Nom. (MPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** MPa	%	Equation output (0.1N)	Expanded uncertainty *U** MPa	%
3.333	50000	50079	0.014	0.43	49922	0.014	0.43
6.667	100000	100217	0.031	0.47	99914	0.016	0.24
10.000	150000	150323	0.045	0.45	149893	0.019	0.19
13.333	200000	200411	0.057	0.43	199873	0.023	0.17
20.000	300000	300546	0.076	0.38	299858	0.027	0.14
26.667	400000	400696	0.096	0.36	399948	0.026	0.10
33.333	500000	500546	0.078	0.23	499839	0.035	0.10
40.000	600000	600406	0.063	0.16	599847	0.038	0.10
53.333	800000	799782	0.051	0.10	799873	0.046	0.09
66.667	1000000	998784	0.170	0.26	1000050	0.053	0.08
53.333	800000	799999	0.040	0.08	800092	0.042	0.08
40.000	600000	600735	0.103	0.26	600177	0.039	0.10
33.333	500000	500946	0.129	0.39	500240	0.041	0.12
26.667	400000	401041	0.141	0.53	400293	0.045	0.17
20.000	300000	300990	0.134	0.67	300301	0.044	0.22
13.333	200000	200833	0.112	0.84	200295	0.042	0.31
10.000	150000	150687	0.093	0.93	150256	0.036	0.36
6.667	100000	100494	0.067	1.01	100191	0.027	0.41
3.333	50000	50268	0.038	1.13	50111	0.018	0.53

Table 3-a. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

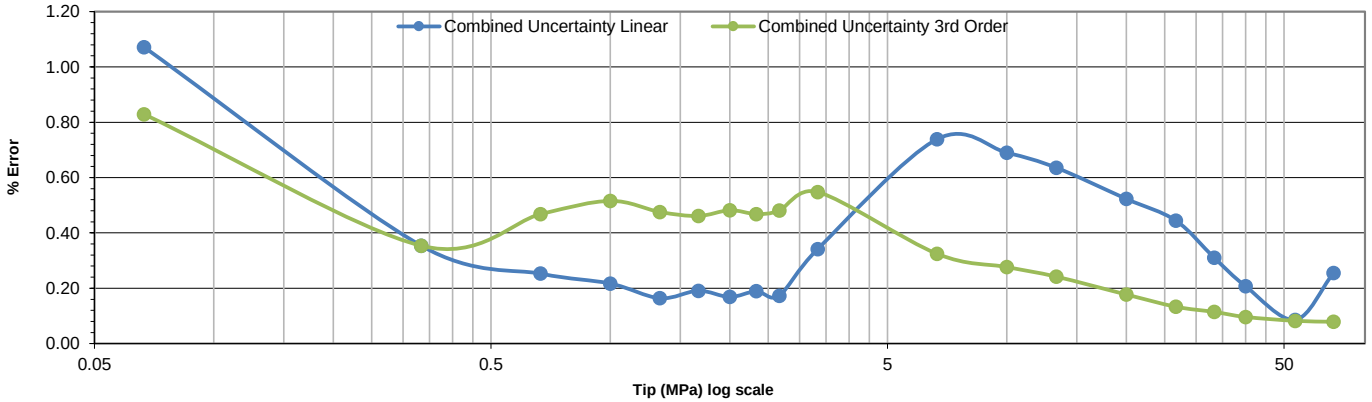
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	7.38080
a1	=	0.99655
a2	=	3.35721E-09
a3	=	1.35746E-15

Maximum tip zero drift during the calibration (MPa) =	0.001
Maximum load cell zero drift during the calibration (MPa) =	0.000
Factor used to convert from counts to 0.1N units =	0.0090098
Maximum tip full scale reading (MPa) =	100.00
Tip resolution (Pa) =	66.7
Tip area (cm^2) =	15
Tip area ratio factor =	0.785

COMBINED EXPANDED UNCERTAINTY TIP



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

LANKELMA

CERTIFICATE OF CALIBRATION

Certificate Number: 1375

Cone Serial Number: DS15-CFIIPT.1854

SLEEVE FRICTION CALIBRATION

Table1-b.

Low range calibration									High range calibration							
	Sleeve change In output (cts)				Reproducibility error *b*		Reversibility error *U_rev*			Sleeve change in output (cts)			Reproducibility error *b*		Reversibility error *U_rev*	
Ref LC	1	2	3	4					Ref LC	1	2	3				
(kN)	0°	120°	240°	240°	kPa	%	kPa	%	(kN)	0°	120°	240°	kPa	%	kPa	%
0.100	1.174E+05	1.161E+05	1.154E+05	1.154E+05	0.022	0.50			5.000	5.759E+06	5.759E+06	5.757E+06	0.025	0.01		
0.500	5.790E+05	5.772E+05	5.769E+05	5.765E+05	0.025	0.11			10.000	1.151E+07	1.151E+07	1.151E+07	0.024	0.01		
1.000	1.154E+06	1.154E+06	1.154E+06	1.154E+06	0.001	0.00			15.000	1.726E+07	1.727E+07	1.726E+07	0.032	0.00		
1.500	1.731E+06	1.731E+06	1.730E+06	1.731E+06	0.013	0.02			20.000	2.301E+07	2.301E+07	2.301E+07	0.006	0.00		
2.000	2.308E+06	2.306E+06	2.306E+06	2.307E+06	0.015	0.02			30.000	3.450E+07	3.450E+07	3.450E+07	0.027	0.00		
2.500	2.884E+06	2.884E+06	2.884E+06	2.884E+06	0.007	0.01			40.000	4.599E+07	4.598E+07	4.601E+07	0.343	0.02		
3.000	3.460E+06	3.461E+06	3.461E+06	3.460E+06	0.010	0.01			50.000	5.745E+07	5.745E+07	5.745E+07	0.034	0.00		
3.500	4.037E+06	4.037E+06	4.037E+06	4.037E+06	0.005	0.00			60.000	6.891E+07	6.892E+07	6.891E+07	0.078	0.00		
4.000	4.613E+06	4.612E+06	4.613E+06	4.613E+06	0.013	0.01			80.000	9.181E+07	9.182E+07	9.182E+07	0.092	0.00		
5.000	5.766E+06	5.765E+06	5.763E+06	5.765E+06	0.036	0.02			100.000	1.146E+08	1.146E+08	1.146E+08	0.097	0.00		
4.000	4.614E+06	4.613E+06			0.009	0.00	-0.020	-0.01	80.000	9.183E+07	9.183E+07		0.040	0.00	-0.208	-0.01
3.500	4.039E+06	4.038E+06			0.016	0.01	-0.032	-0.02	60.000	6.895E+07	6.896E+07		0.069	0.00	-0.951	-0.04
3.000	3.462E+06	3.462E+06			0.005	0.00	-0.036	-0.03	50.000	5.750E+07	5.751E+07		0.041	0.00	-1.186	-0.05
2.500	2.888E+06	2.887E+06			0.014	0.01	-0.077	-0.07	40.000	4.604E+07	4.604E+07		0.021	0.00	-1.171	-0.07
2.000	2.312E+06	2.311E+06			0.001	0.00	-0.099	-0.11	30.000	3.455E+07	3.456E+07		0.091	0.01	-1.149	-0.09
1.500	1.736E+06	1.735E+06			0.013	0.02	-0.093	-0.14	20.000	2.305E+07	2.306E+07		0.181	0.02	-1.010	-0.11
1.000	1.159E+06	1.158E+06			0.021	0.05	-0.090	-0.20	15.000	1.730E+07	1.730E+07		0.002	0.00	-0.852	-0.13
0.500	5.813E+05	5.806E+05			0.010	0.04	-0.062	-0.28	10.000	1.154E+07	1.154E+07		0.012	0.00	-0.668	-0.15
0.100	1.188E+05	1.176E+05			0.016	0.36	-0.033	-0.75	5.000	5.779E+06	5.779E+06		0.004	0.00	-0.430	-0.20

Table 2-b.

Low range calibration							
Reference output		Linear factor output			3rd order equation		
Ref Load Cell Nom. (kPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** kPa	%	Equation output (0.1N)	Expanded uncertainty *U** kPa	%
4	1000	1013	0.126	2.86	992	0.090	2.04
22	5000	5033	0.301	1.37	4993	0.094	0.43
44	10000	10056	0.502	1.14	9993	0.093	0.21
66	15000	15079	0.706	1.07	14994	0.105	0.16
88	20000	20099	0.878	1.00	19991	0.135	0.15
110	25000	25128	1.129	1.03	24998	0.108	0.10
132	30000	30151	1.339	1.01	30000	0.115	0.09
154	35000	35171	1.514	0.98	34999	0.124	0.08
176	40000	40192	1.697	0.96	39999	0.147	0.08
220	50000	50226	2.084	0.95	49991	0.633	0.29
176	40000	40199	1.758	1.00	40006	0.144	0.08
154	35000	35184	1.629	1.06	35012	0.161	0.10
132	30000	30166	1.463	1.11	30014	0.163	0.12
110	25000	25159	1.402	1.27	25029	0.274	0.25
88	20000	20140	1.234	1.40	20032	0.296	0.34
66	15000	15119	1.051	1.59	15033	0.304	0.46
44	10000	10092	0.817	1.85	10029	0.269	0.61
22	5000	5061	0.543	2.47	5021	0.193	0.88
4	1000	1030	0.269	6.10	1008	0.084	1.92

High range calibration							
Reference output		Linear factor output			3rd order equation		
Ref Load Cell Nom. (kPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** kPa	%	Equation output (0.1N)	Expanded uncertainty *U** kPa	%
220	50000	50174	1.658	0.75	49940	0.820	0.37
441	100000	100319	2.894	0.66	99900	1.120	0.13
661	150000	150420	3.788	0.57	149848	1.573	0.12
881	200000	200501	4.524	0.51	199807	1.969	0.11
1322	300000	300621	5.616	0.42	299772	2.385	0.09
1762	400000	400745	6.765	0.38	399856	2.085	0.06
2203	500000	500575	5.374	0.24	499758	2.790	0.06
2643	600000	600437	4.399	0.17	599799	2.769	0.05
3524	800000	800005	2.791	0.08	800021	2.797	0.04
4405	1000000	998909	10.203	0.23	999944	3.449	0.04
3524	800000	800083	2.743	0.08	800100	2.786	0.04
2643	600000	600806	7.380	0.28	600168	2.505	0.05
2203	500000	501040	9.325	0.42	500224	2.627	0.06
1762	400000	401128	10.043	0.57	400240	2.548	0.07
1322	300000	301078	9.571	0.72	300229	2.320	0.09
881	200000	200900	7.984	0.91	200205	2.035	0.12
661	150000	150758	6.721	1.02	150185	1.800	0.14
441	100000	100579	5.146	1.17	100160	1.558	0.18
220	50000	50349	3.137	1.42	50115	1.181	0.27

Table 3-b. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

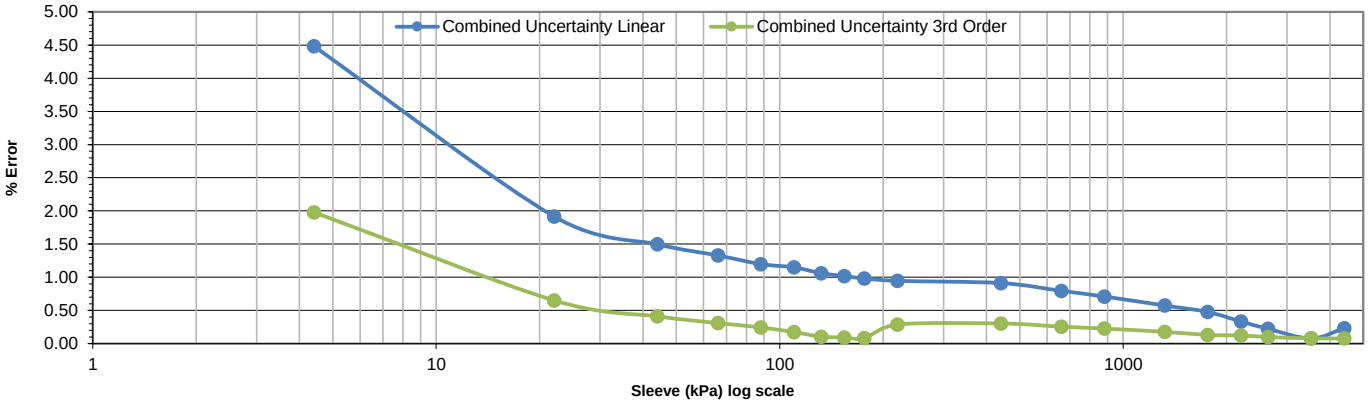
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	-16.91620
a1	=	0.99535
a2	=	6.48252E-09
a3	=	-7.76782E-16

Maximum sleeve zero drift during the calibration (kPa) =	0.061
Maximum load cell zero drift during the calibration (kPa) =	0.003
Factor used to convert from counts to 0.1N units =	0.0087129
Physical strength limited maximum sleeve reading (MPa) =	1.333
Sleeve resolution (Pa) =	4.4
Sleeve area (cm²) =	227
Sleeve area ratio factor =	-0.002

COMBINED EXPANDED UNCERTAINTY SLEEVE



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

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CERTIFICATE OF CALIBRATION

Certificate Number: 1375

Cone Serial Number: DS15-CFIIPT.1854

Table 4-b Sleeve friction - tip subtraction combined standard uncertainty Uc_sub

Tip MPa	Sleeve linear equation subtraction error (%) Sleeve kPa → 4	22	44	66	110	154	220	661
0.07	5.0	1.5	1.0	0.8	0.7	0.6	0.5	0.4
0.33	7.9	2.1	1.3	1.0	0.8	0.7	0.6	0.4
0.67	11.0	2.7	1.6	1.2	0.9	0.8	0.6	0.5
1.00	13.8	3.3	1.9	1.4	1.0	0.8	0.7	0.4
1.67	19.0	4.3	2.4	1.8	1.2	1.0	0.8	0.4
2.33	23.4	5.2	2.9	2.1	1.4	1.1	0.9	0.5
3.33	34.4	7.4	4.0	2.8	1.9	1.4	1.1	0.5
10.00	113.6	23.2	11.9	8.1	5.0	3.7	2.7	0.9
13.33	136.8	27.9	14.2	11.6	6.0	4.4	3.8	1.2

Tip MPa	Sleeve 3rd order equation subtraction error (%) Sleeve kPa → 4	22	44	66	110	154	220	661
0.07	2.4	0.6	0.3	0.2	0.1	0.1	0.2	0.1
0.33	3.5	0.8	0.5	0.3	0.2	0.1	0.2	0.1
0.67	5.4	1.2	0.6	0.4	0.3	0.2	0.2	0.2
1.00	7.2	1.6	0.8	0.6	0.3	0.2	0.3	0.2
1.67	8.9	1.9	1.0	0.7	0.4	0.3	0.3	0.2
2.33	10.8	2.3	1.2	0.8	0.5	0.3	0.3	0.2
3.33	21.9	4.5	2.3	1.5	0.9	0.6	0.6	0.3
10.00	40.9	8.3	4.2	2.8	1.7	1.2	0.9	0.4
13.33	47.9	9.7	4.9	3.7	2.0	1.4	1.1	0.4

PORE PRESSURE CALIBRATION

Table1-c.

Ref PR (kPa)	PWP change in output (cts) 1 0°	2 120°	3 240°	Reproducibility error *b* kPa	%	Reversibility error *U_rev* kPa	%
50	2.347E+07	2.342E+07	2.358E+07	0.1	0.20		
100	4.699E+07	4.702E+07	4.705E+07	0.0	0.04		
200	9.397E+07	9.395E+07	9.403E+07	0.1	0.03		
300	1.410E+08	1.409E+08	1.410E+08	0.1	0.03		
400	1.879E+08	1.878E+08	1.880E+08	0.1	0.02		
500	2.347E+08	2.347E+08	2.349E+08	0.1	0.02		
600	2.816E+08	2.815E+08	2.816E+08	0.0	0.01		
800	3.751E+08	3.751E+08	3.752E+08	0.1	0.01		
1000	4.685E+08	4.685E+08	4.685E+08	0.0	0.00		
1200	5.618E+08	5.618E+08	5.619E+08	0.0	0.00		
1000	4.686E+08	4.685E+08		0.1	0.01	-0.1	-0.01
800	3.752E+08	3.752E+08		0.1	0.01	-0.2	-0.02
600	2.816E+08	2.817E+08		0.0	0.01	-0.1	-0.01
500	2.349E+08	2.348E+08		0.0	0.00	-0.1	-0.03
400	1.879E+08	1.879E+08		0.0	0.00	0.0	-0.01
300	1.411E+08	1.410E+08		0.0	0.01	-0.1	-0.05
200	9.403E+07	9.412E+07		0.1	0.03	-0.1	-0.07
100	4.707E+07	4.700E+07		0.0	0.05	0.0	-0.03
50	2.350E+07	2.356E+07		0.1	0.10	-0.1	-0.22

Table 2-c.

Reference output: Ref Pressure (kPa)	Ref Pressure (0.1Pa)	Linear factor output: Cone output (0.1Pa)	Expanded uncertainty *U** kPa	%	3rd order equation: Equation output (0.1N)	Expanded uncertainty *U** kPa	%
50	500000	501587	0.519	1.04	499532	0.417	0.83
100	1000000	1004238	0.953	0.95	999955	0.393	0.39
200	2000000	2007072	1.515	0.76	1999070	0.500	0.25
300	3000000	3010678	2.230	0.74	2999900	0.556	0.19
400	4000000	4013126	2.722	0.68	4000491	0.646	0.16
500	5000000	5014106	2.933	0.59	5000503	0.768	0.15
600	6000000	6013375	2.844	0.47	5999661	0.921	0.15
800	8000000	8010738	2.481	0.31	7999248	1.241	0.16
1000	10000000	10005657	2.116	0.21	9999461	1.790	0.18
1200	12000000	11998633	3.470	0.29	12000567	3.461	0.29
1000	10000000	10007025	2.279	0.23	10000833	1.796	0.18
800	8000000	8012887	2.862	0.36	8001401	1.256	0.16
600	6000000	6014754	3.100	0.52	6001041	0.939	0.16
500	5000000	5015652	3.227	0.65	5002049	0.847	0.17
400	4000000	4013071	2.690	0.67	4000437	0.616	0.15
300	3000000	3012420	2.548	0.85	3001638	0.620	0.21
200	2000000	2009069	1.880	0.94	2001060	0.516	0.26
100	1000000	1004444	0.949	0.95	1000160	0.399	0.40
50	500000	502527	0.613	1.23	500468	0.379	0.76

Table 3-c. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

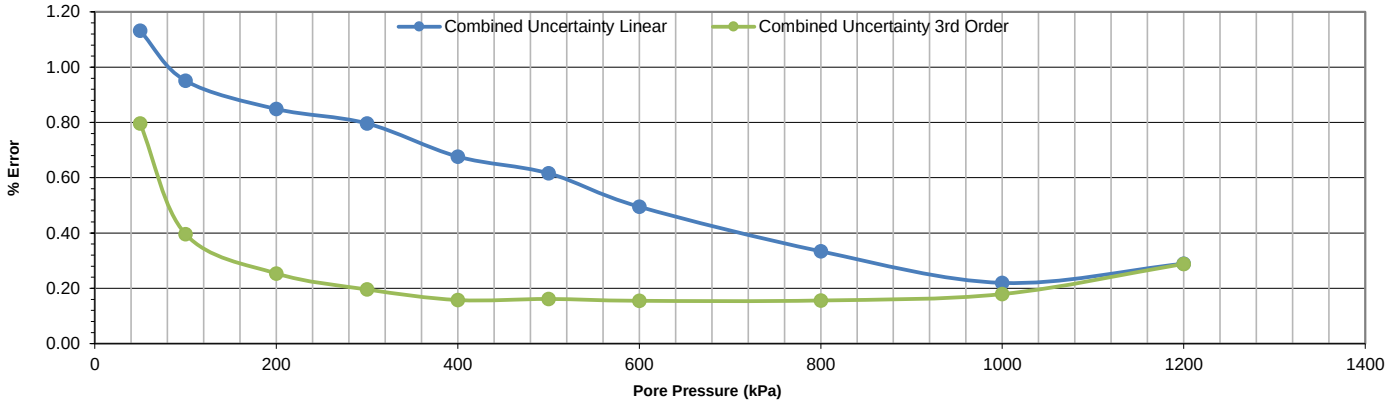
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	416.05308
a1	=	0.99483
a2	=	4.97838E-10
a3	=	-4.66894E-18

Maximum PWP zero drift during the calibration (kPa) =	0.05
Maximum reference zero drift during the calibration (kPa) =	0.045
Factor used to convert from counts to 0.1Pa units =	0.0213564
Maximum PWP full scale reading (kPa) =	2000
PWP resolution (Pa) =	0.1

COMBINED EXPANDED UNCERTAINTY PORE PRESSURE



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

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CERTIFICATE OF CALIBRATION

Certificate Number: 1375

Cone Serial Number: DS15-CFIIPT.1854

INCLINATION CALIBRATION

Ref Inclination (°C)	Cone inclination output X Inc (cts)	Y Inc (cts)
-25	-25091	-28478
0	342	-1825
25	26166	23962

Ref Inclination (°)	Cone inclination output X Inc (°)	Y Inc (°)
-25	-24.8	-25.4
0	0.0	0.0
25	25.2	24.6

	X inc	Y inc
Factor used to convert from counts to 0.1m° units =	9.754576	9.53383965
Inclination error (°) =	0.2	0.4

TEMPERATURE CALIBRATION

Recorded temp (°C)	Cone output 1 (cts)	
8.44	-191595595	
10.01	-171772437	
15.20	-106274260	
20.98	-32469045	
27.03	45871555	

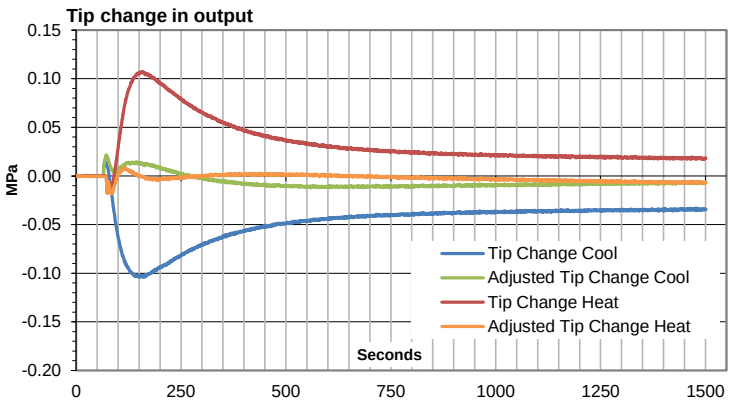
Recorded temp (°C)	Cone output 1 (°C)	
8.44	8.47	
10.01	10.02	
15.20	15.15	
20.98	20.94	
27.03	27.08	

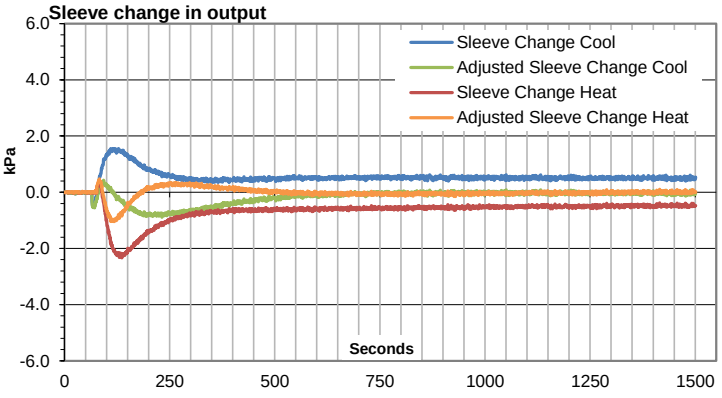
Factor used to convert from counts to 0.00001°C units =	0.000783562	
Temperature error (°C) =	0.05	

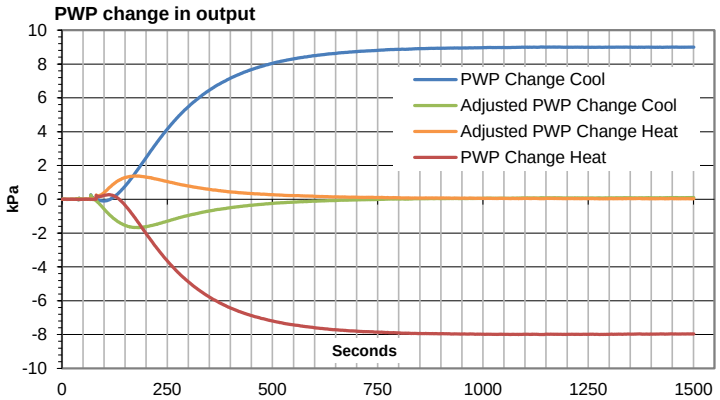
CONE TEMPERATURE EFFECT

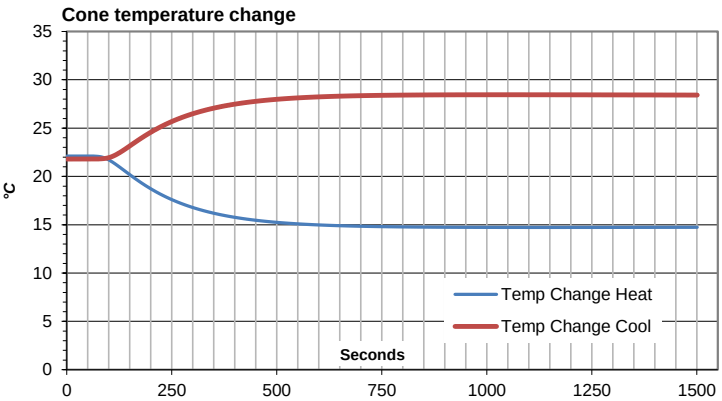
	Cooling	Heating
Start temperature =	22.11	21.80
End temperature =	14.72	28.45
Temperature change =	-7.38	6.65

	Cooling	Heating
Tip maximum rate of change (MPa/°C/min) =	0.053	0.059
Tip end change (MPa/°C) =	-0.005	0.003
Adjusted tip end change (MPa/°C) =	0.001	0.001
Sleeve maximum rate of change (kPa/°C/min) =	2.89	2.84
Sleeve end change (kPa/°C) =	0.07	-0.07
Adjusted sleeve end change (kPa/°C) =	0.00	0.00
PWP end change (kPa/°C) =	1.22	-1.20
Adjusted PWP end change (kPa/°C) =	-0.01	0.01









UK22
Track-truck

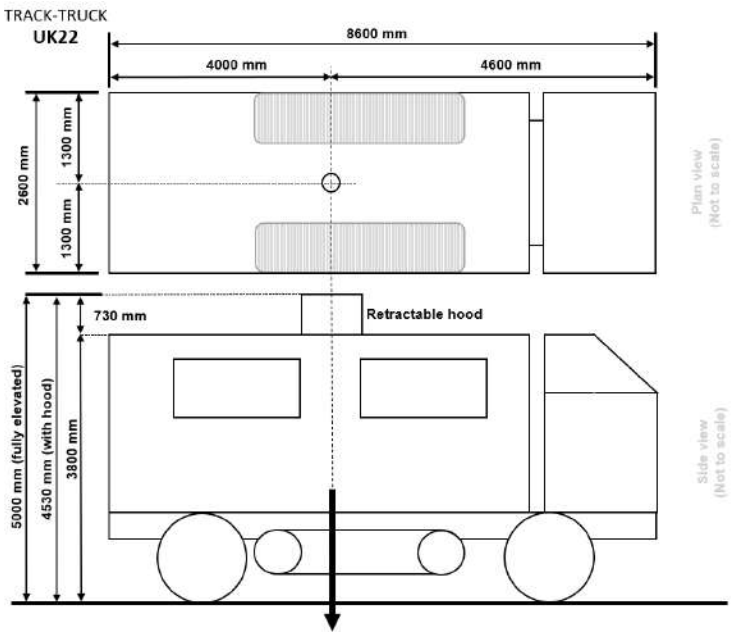


Rig weight	18 T
Max. operating ram capacity	200 kN
Max. travelling speed	4 km/h (tracking)
Track material	Composite
Track length	2800 mm
Track width	650 mm
Jack plate dimensions	Tracks act as jacks
Jack arrangements	1nr. on each side
Max. ground bearing pressure	76 kPa
Max. testing gradient	10 degrees
Max. traversing gradient	20 degrees (operator assessed)
Clamp arrangement	Automatic hydraulic
Ram stroke	1250 mm
Max. casing size	55 mm
Typical production	100 m+ of standard CPTu testing per day (depending on conditions and access)

The versatile track-truck is suitable for most geotechnical sites. The rig is driven to site as a self-contained HGV with composite tracks that can be deployed to cope with soft or uneven terrain.

Remote-controlled tracking to assist with manoeuvring onto location.

Complies with Euro 6 emission standards for use in London's low emissions zones (LEZ).



APPENDIX C CONE PENETRATION TEST RESULTS

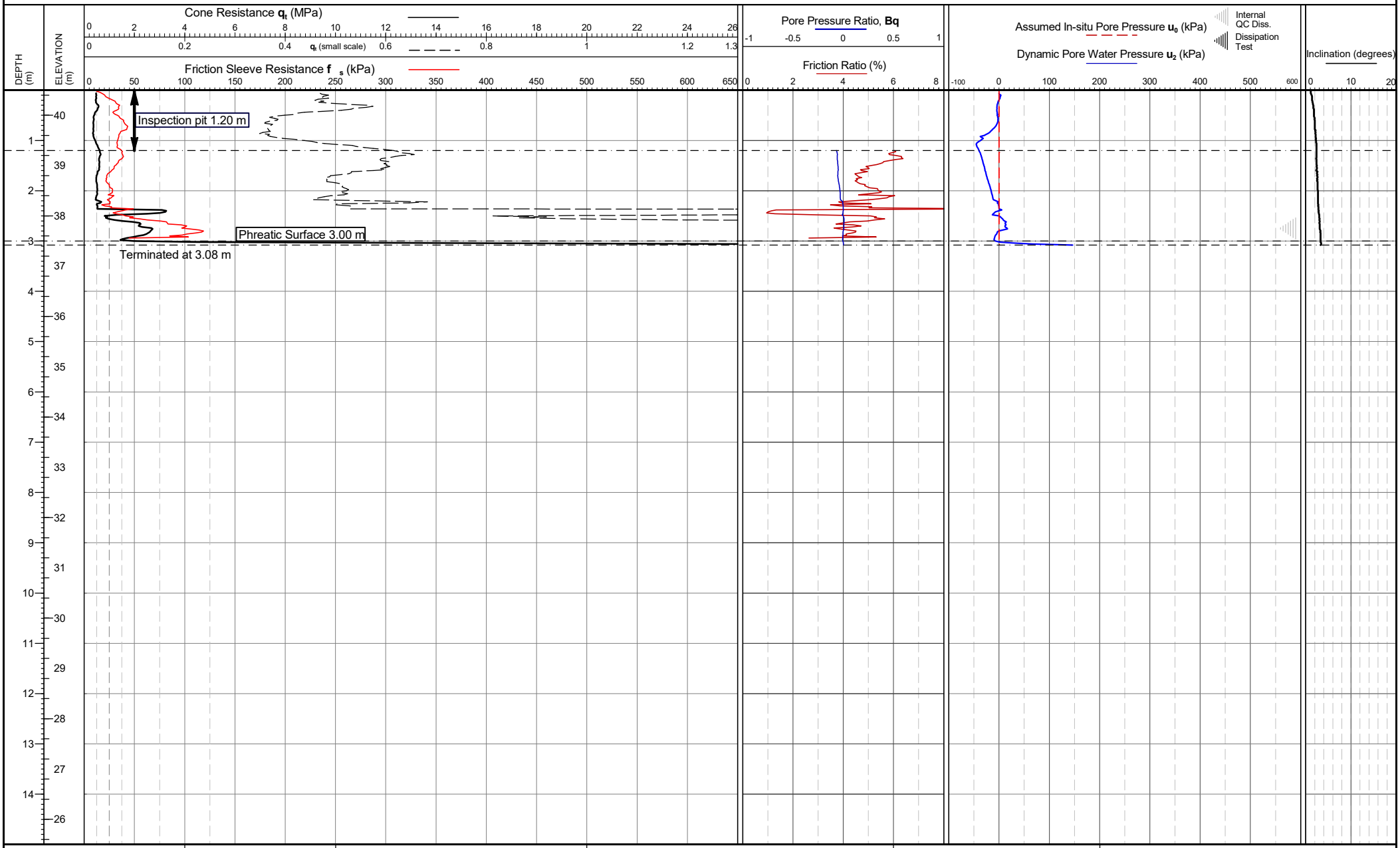
RAW DATA PLOTS

Plots are provided for all locations

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Chris Clarke
Rig Used: UK22
Date of test: 21/04/2022 10:25:27

Zero drift (Pre/post test)
q_c (kPa): -12.4
f_s (kPa): 0.0 ($f_{s\,drift}$ - $q_{c\,drift}$)
u_2 (kPa): 0.9

Location: Wiltshire, UK
Coordinates: 391630.743, 170710.266
Elevation: 40.499
Coordinate system:

Remarks:
*Phreatic surface origin: Arbitrary value

Termination Remark: Tip load

Date of plot: 22-04-22

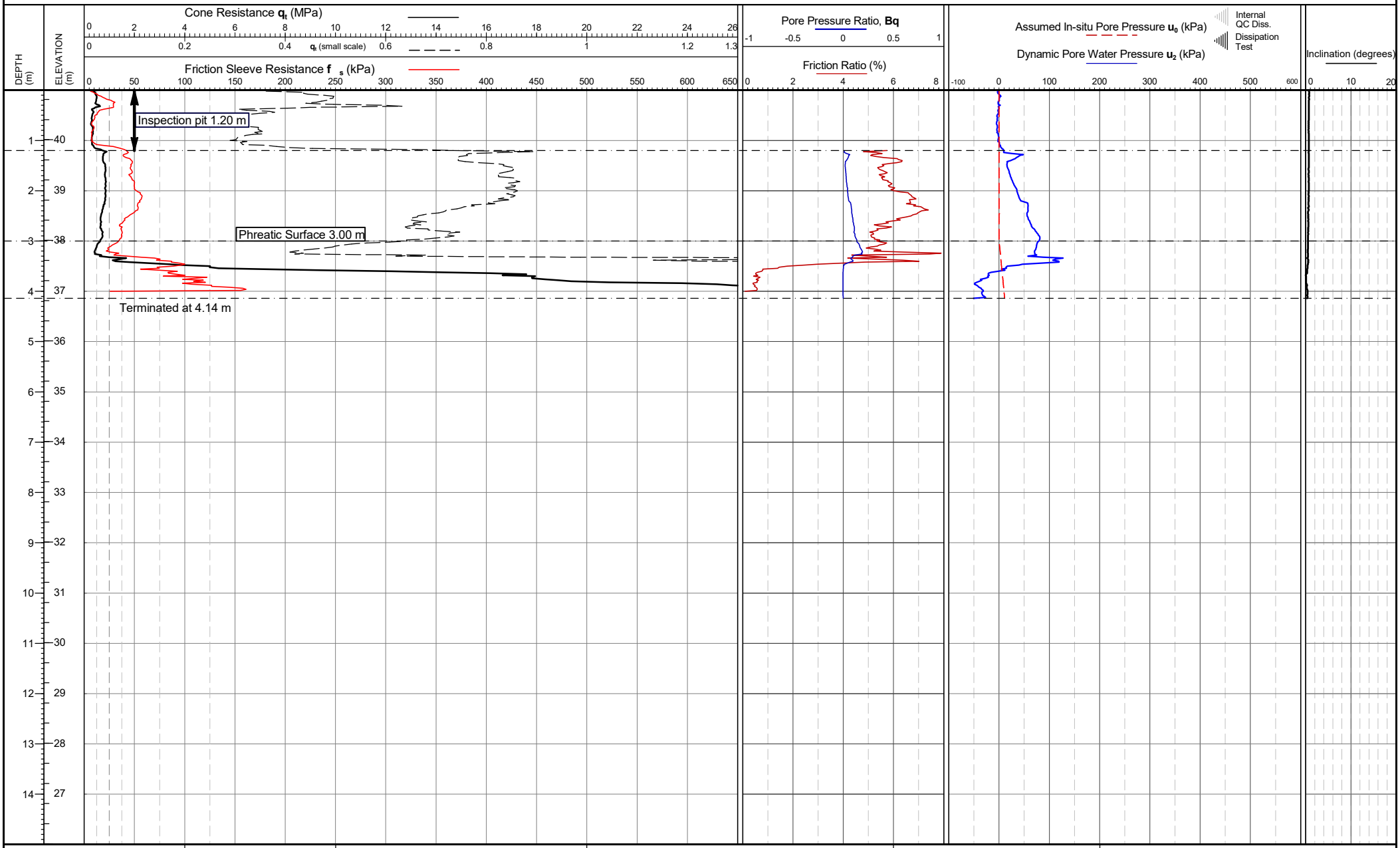
Lankelma Project Ref: P-108001-1

Checked by: Chris Player

TEST ID: AVC1_CPTU_01

Project: CHIPPENHAM

Client: RPS

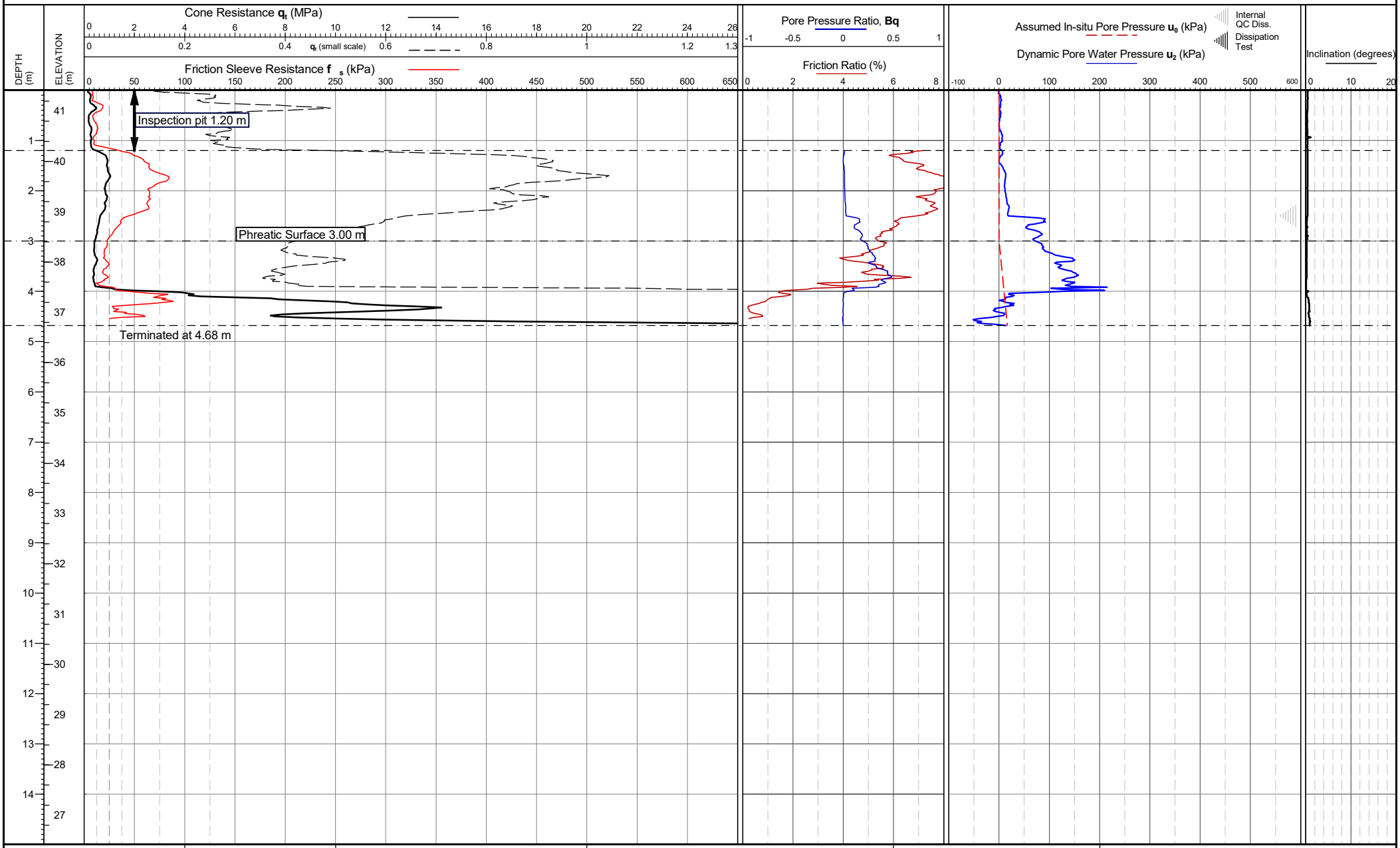


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/04/2022 09:54:49	Zero drift (Pre/post test) q_c (kPa): 14.6 f_s (kPa): 0.0 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.9	Location: Wiltshire, UK Coordinates: 391678.494, 170710.968 Elevation: 40.986 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_02

Project: CHIPPENHAM

Client: RPS



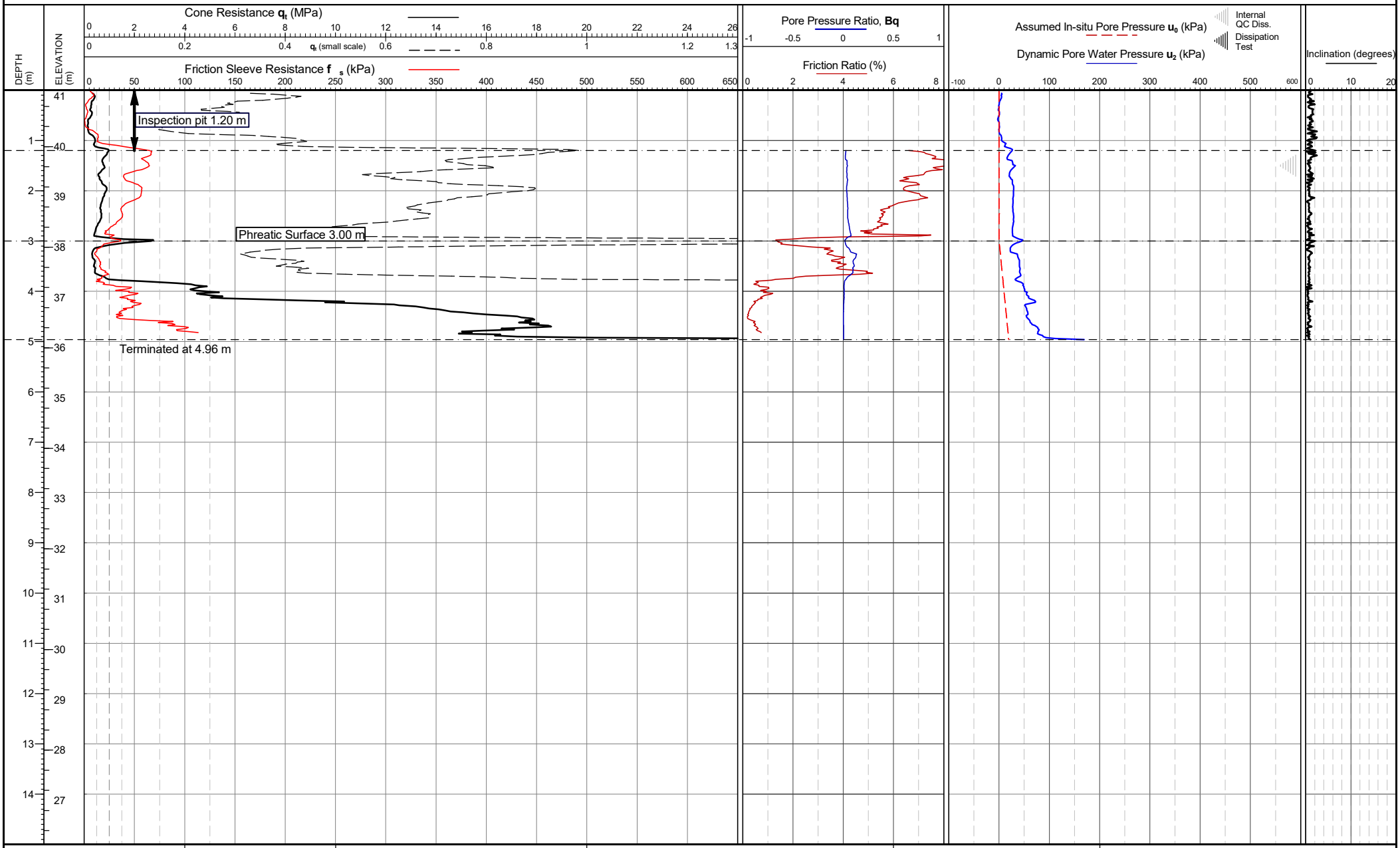
Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/04/2022 09:13:53	Zero drift (Pre/post test) q_c (kPa): 8.8 f_s (kPa): 7.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.6	Location: Wiltshire, UK Coordinates: 391698.452, 170732.671 Elevation: 41.418 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_03

LANKELMA

Project: CHIPPENHAM

Client: RPS

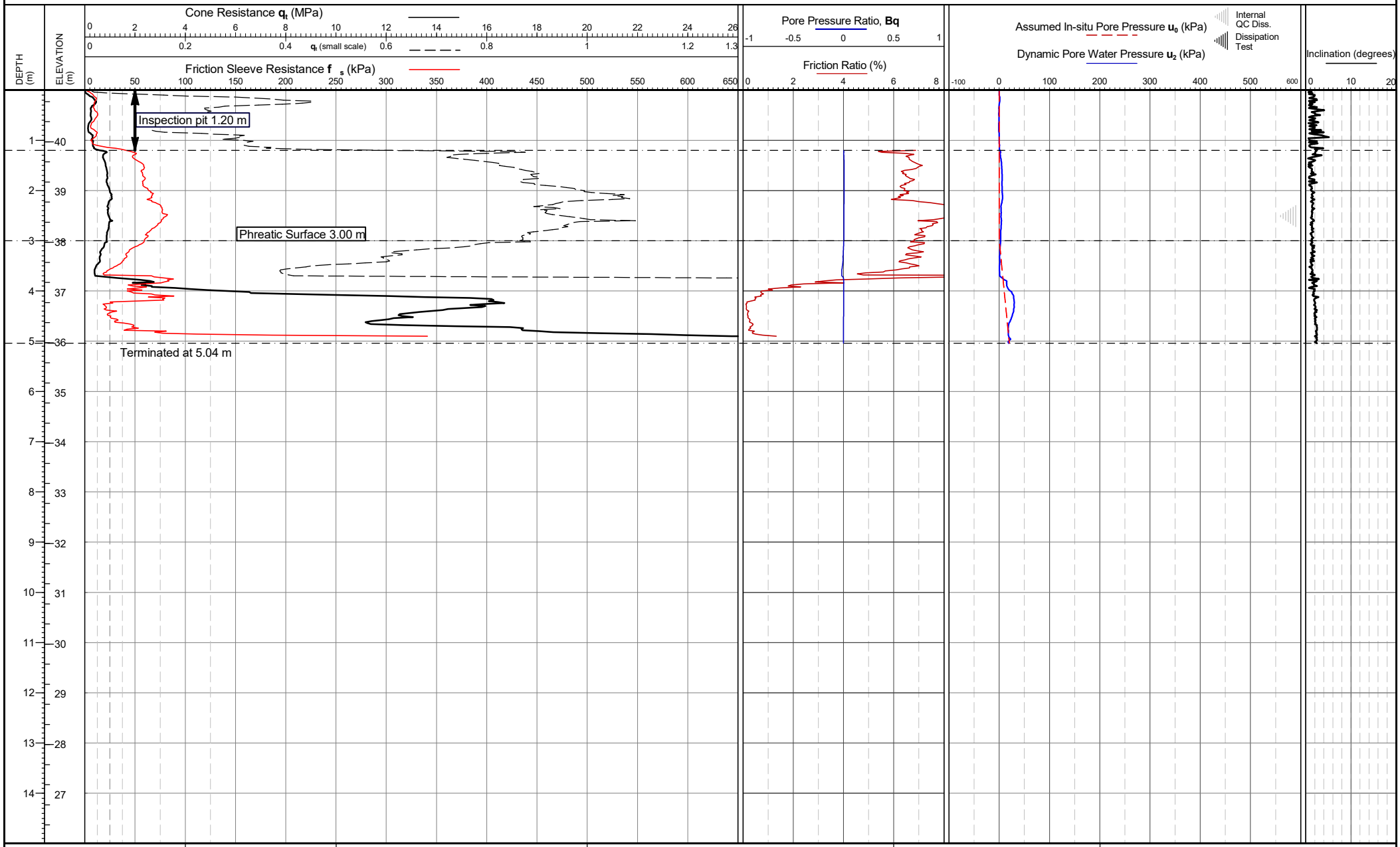


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 10:08:53	Zero drift (Pre/post test) q_c (kPa): 14.0 f_s (kPa): 1.1 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.7	Location: Wiltshire, UK Coordinates: 391752.34, 170732.632 Elevation: 41.123 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_04

Project: CHIPPENHAM

Client: RPS



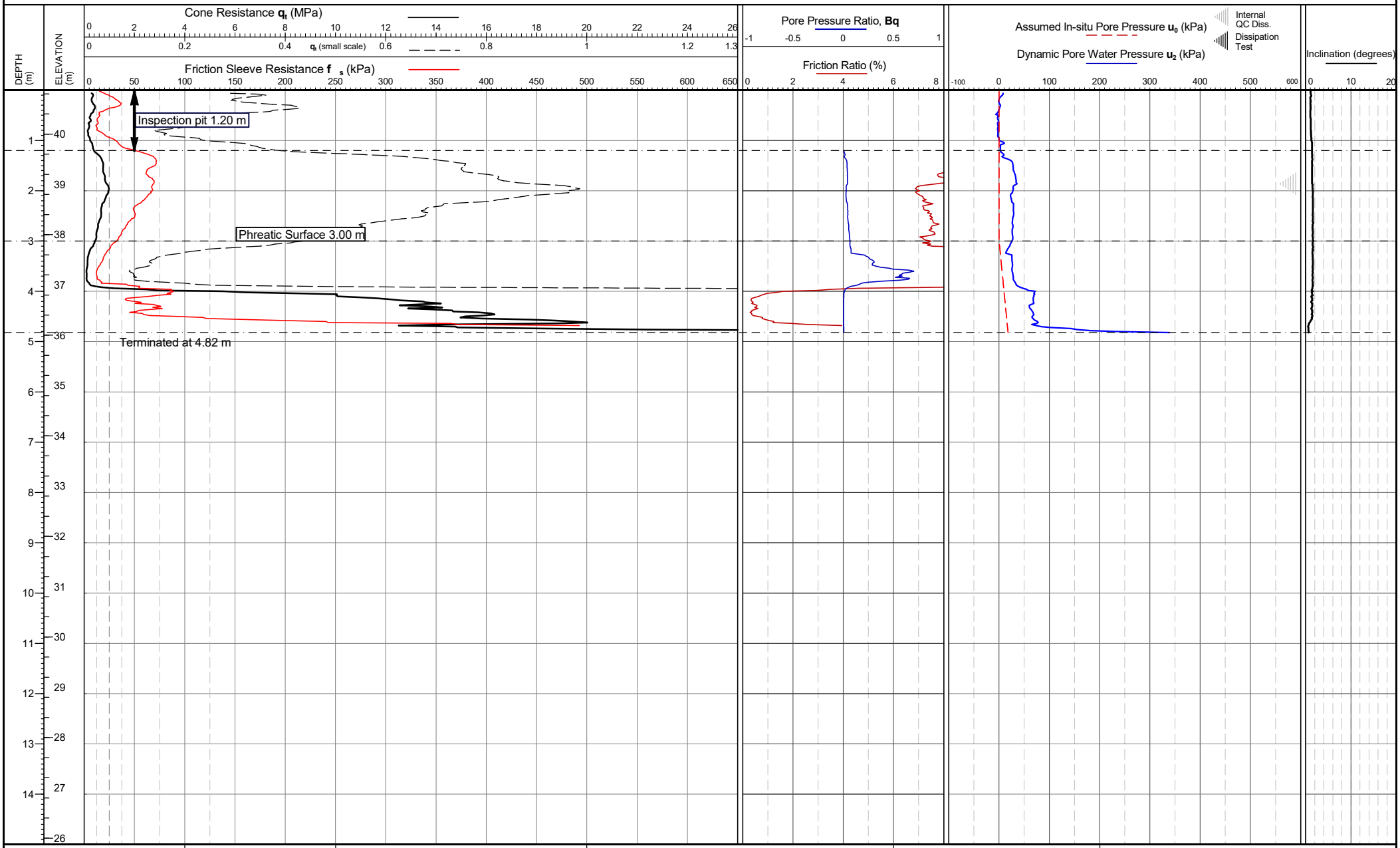
Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Chris Clarke Rig Used: UK22 Date of test: 19/04/2022 10:46:39	Zero drift (Pre/post test) q_c (kPa): -6.2 f_s (kPa): 1.9 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.4	Location: Wiltshire, UK Coordinates: 391787.809, 170759.334 Elevation: 41.03 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_05

LANKELMA

Project: CHIPPENHAM

Client: RPS

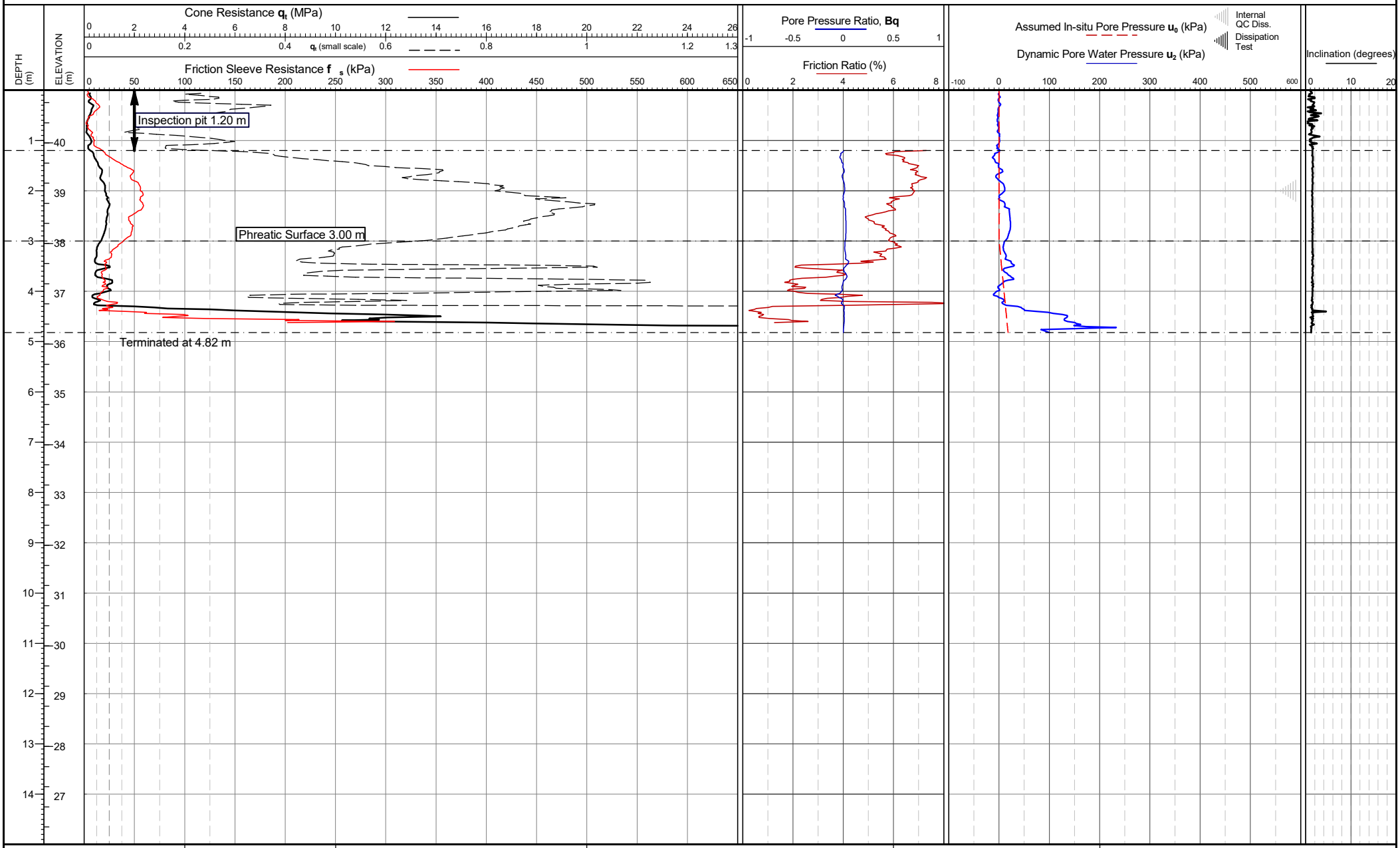


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 14:12:45	Zero drift (Pre/post test) q_c (kPa): 8.0 f_s (kPa): 0.0 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 3.6	Location: Wiltshire, UK Coordinates: 391830.697, 170755.654 Elevation: 40.873 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_06

Project: CHIPPENHAM

Client: RPS

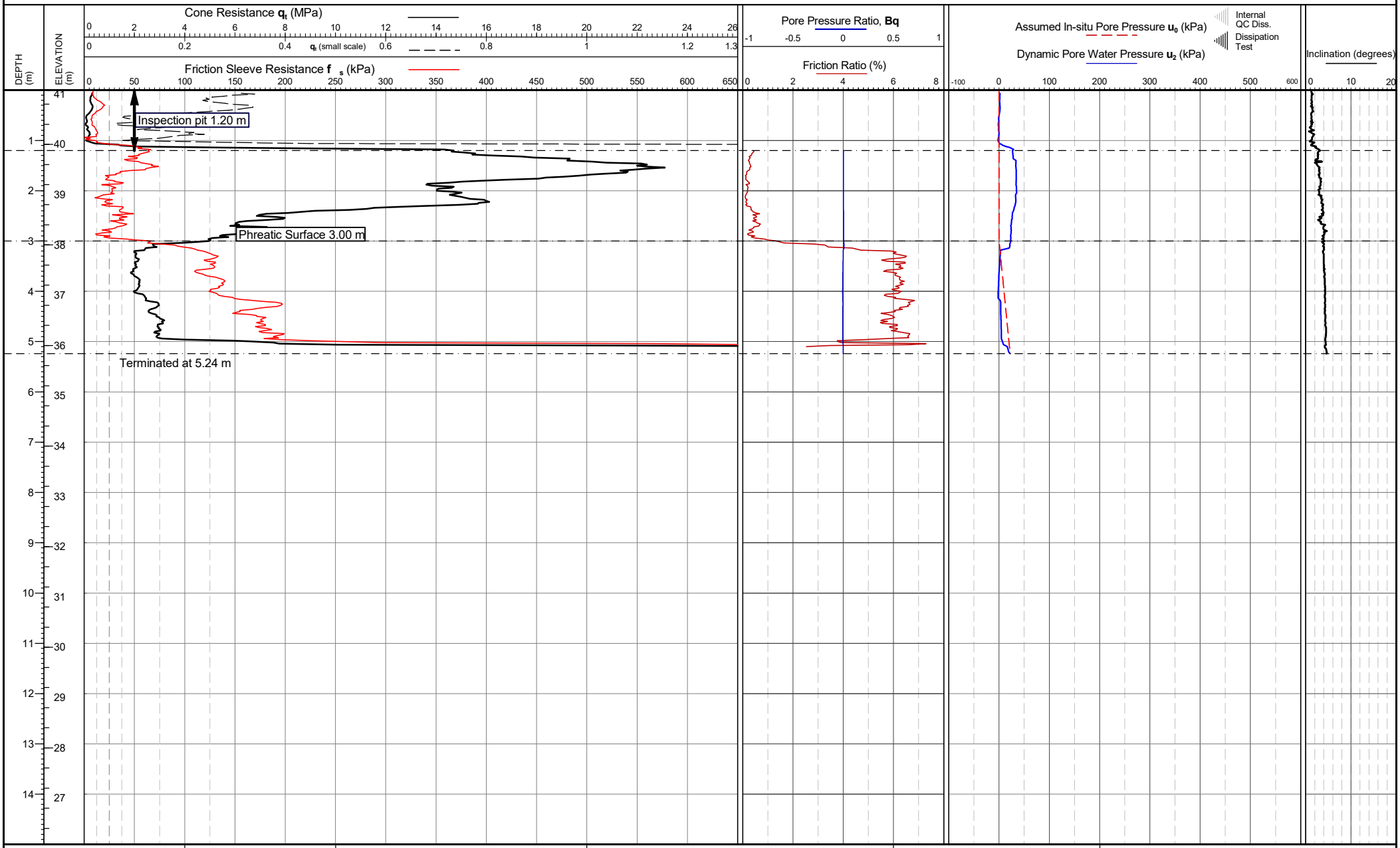


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 11:28:33	Zero drift (Pre/post test) q_c (kPa): 7.2 f_s (kPa): -0.4 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -0.2	Location: Wiltshire, UK Coordinates: 391864.549, 170784.592 Elevation: 41.05 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_07

Project: CHIPPENHAM

Client: RPS

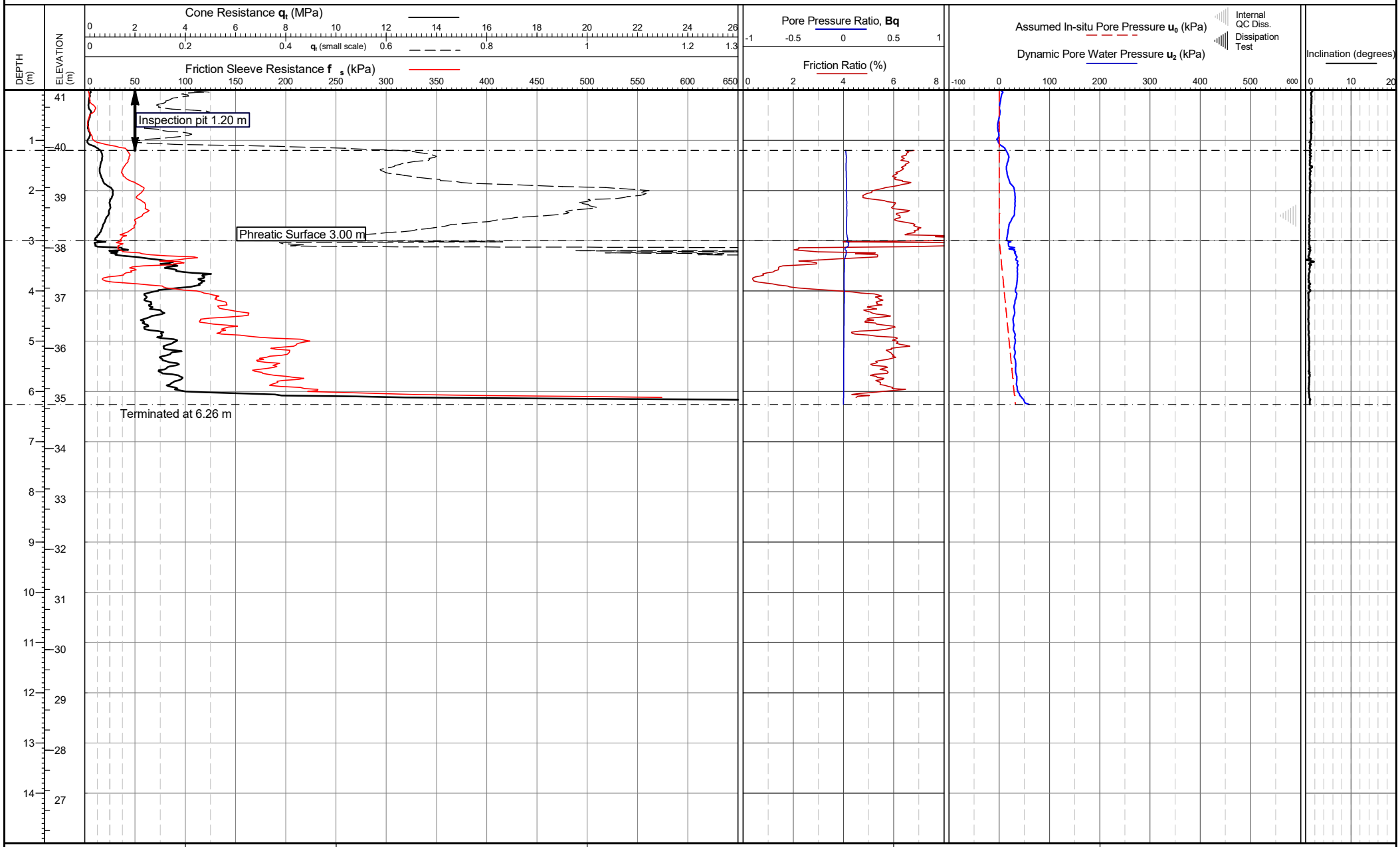


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 13:46:46	Zero drift (Pre/post test) q_c (kPa): -8.6 f_s (kPa): -0.1 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -5.2	Location: Wiltshire, UK Coordinates: 391905.767, 170780.346 Elevation: 41.078 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_08

Project: CHIPPENHAM

Client: RPS

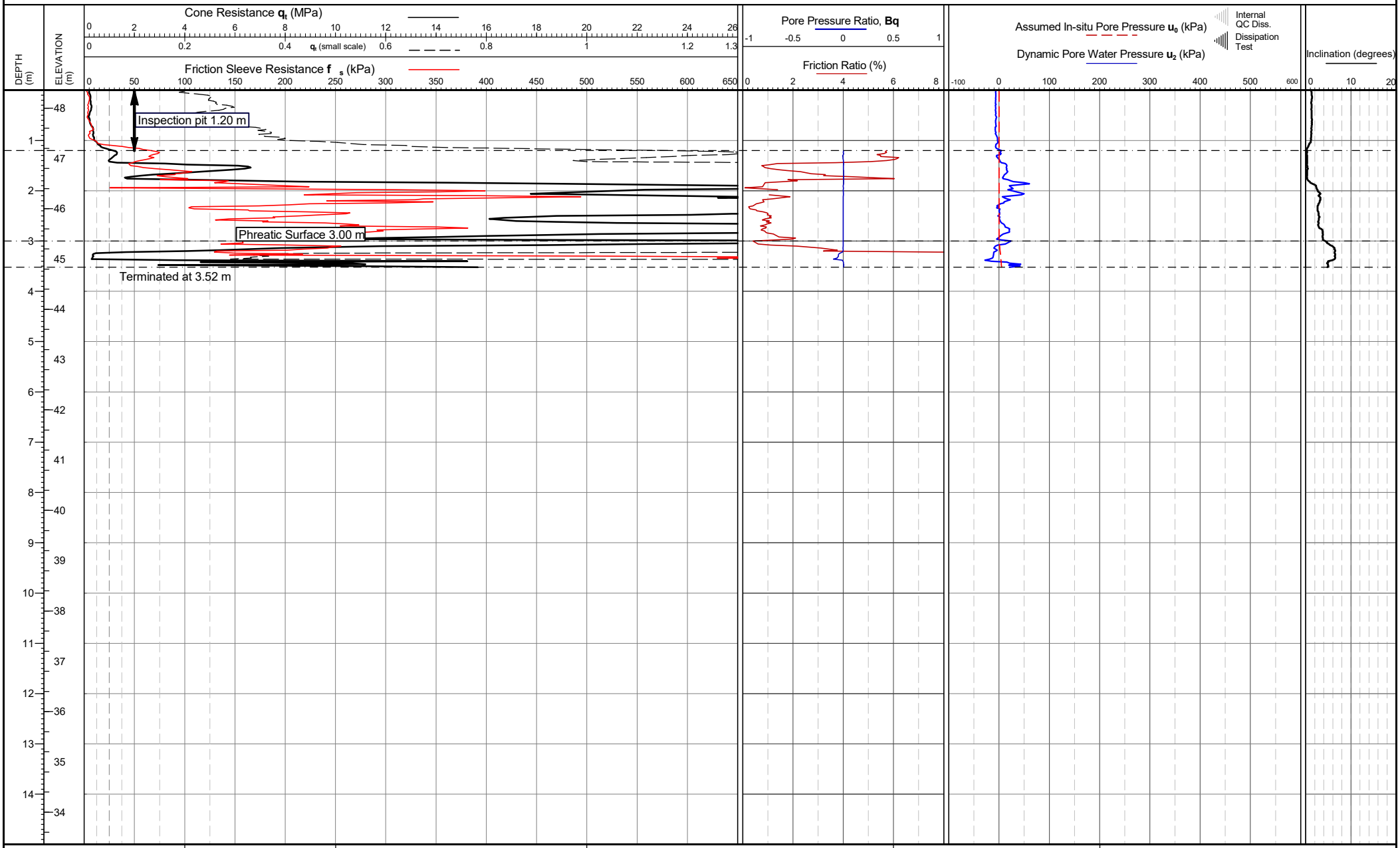


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 12:12:04	Zero drift (Pre/post test) q_c (kPa): -17.0 f_s (kPa): -0.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -0.8	Location: Wiltshire, UK Coordinates: 391947.406, 170812.161 Elevation: 41.142 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_09

Project: CHIPPENHAM

Client: RPS



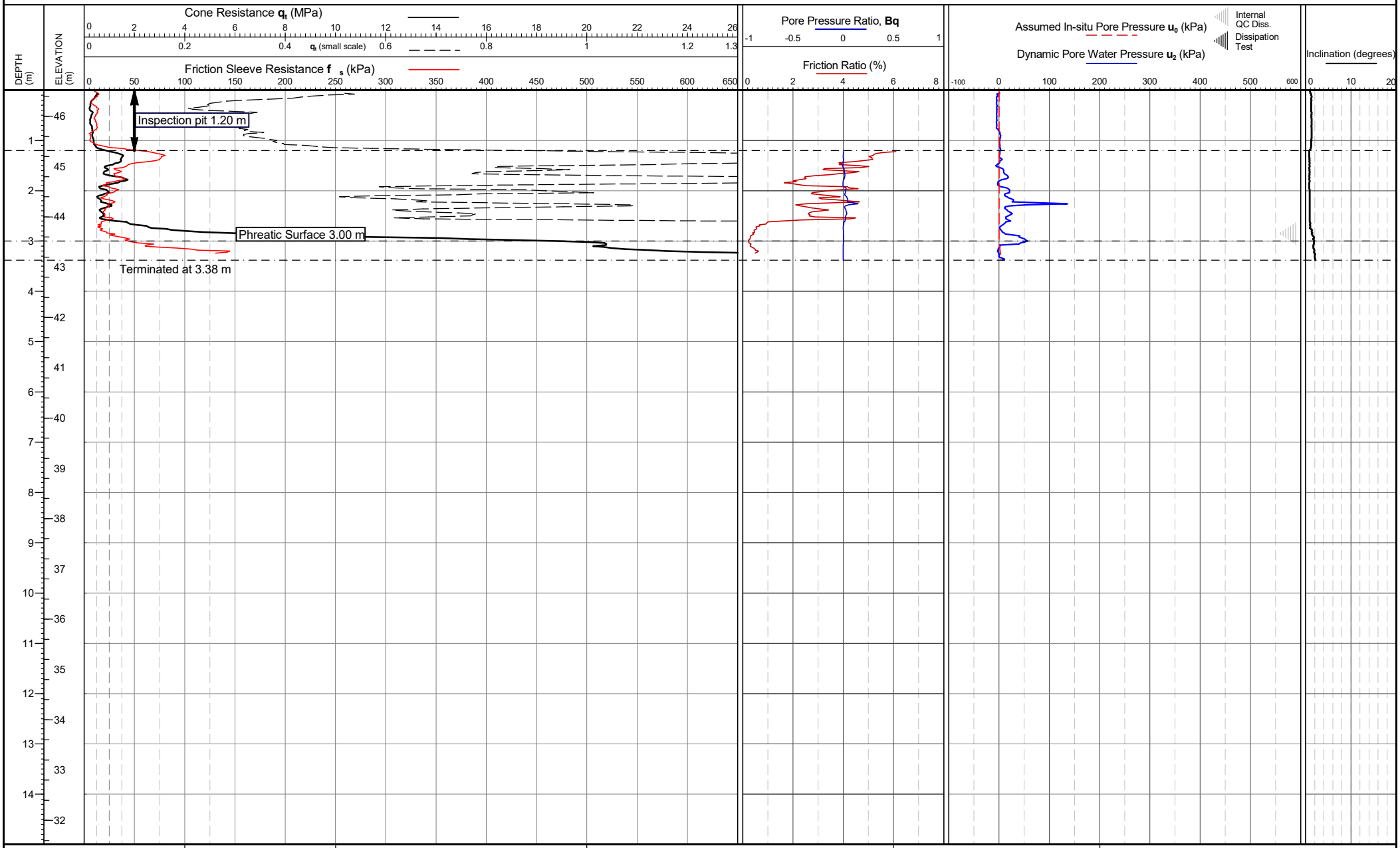
Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Chris Clarke Rig Used: UK22 Date of test: 21/04/2022 12:42:15	Zero drift (Pre/post test) q_c (kPa): -34.0 f_s (kPa): -1.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -4.3	Location: Wiltshire, UK Coordinates: 391150.606, 170673.279 Elevation: 48.357 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Sleeve load	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU001

LANKELMA

Project: CHIPPENHAM

Client: RPS



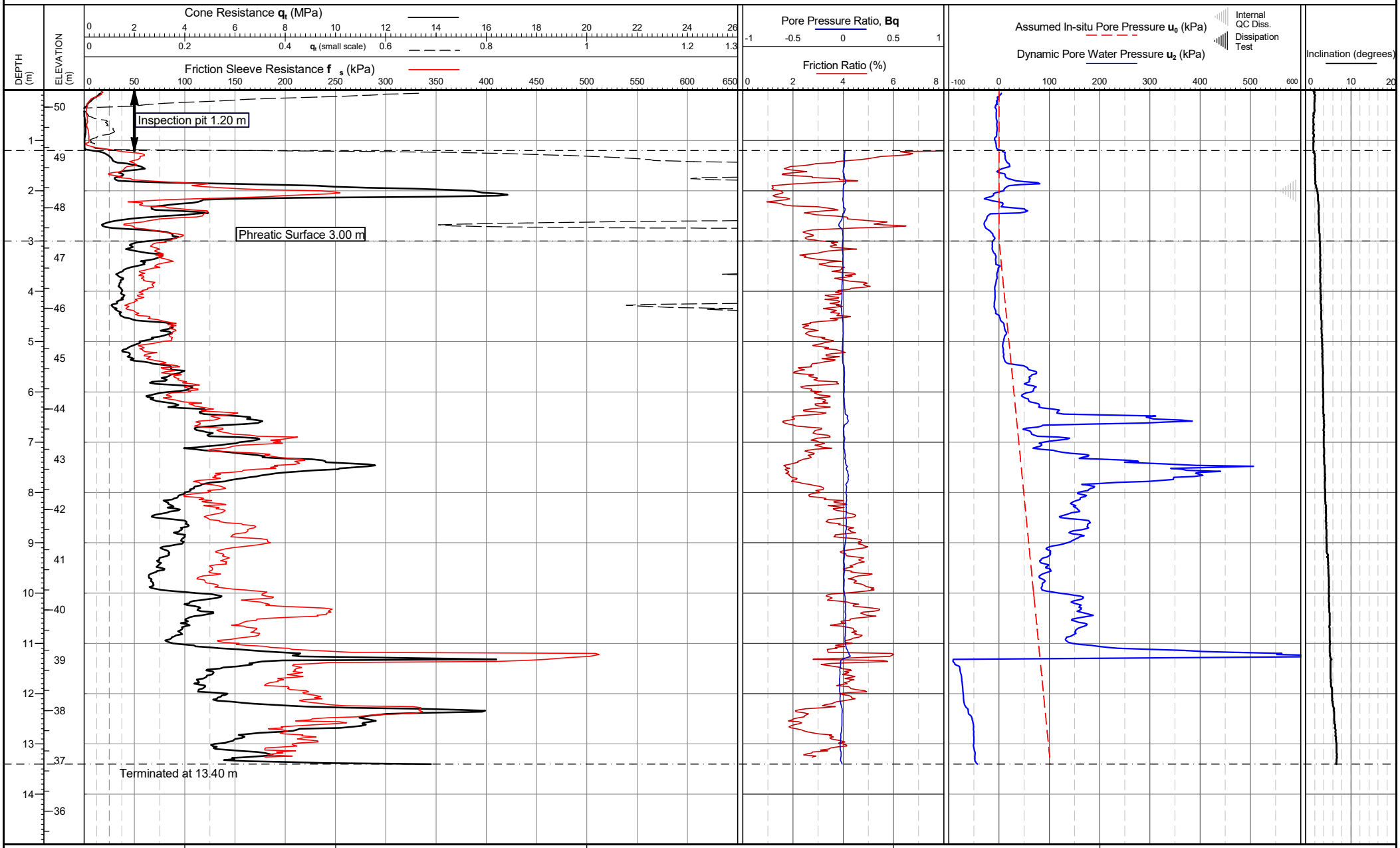
Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/04/2022 11:53:43	Zero drift (Pre/post test) q_c (kPa): 2.4 f_s (kPa): 0.5 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.1	Location: Wiltshire, UK Coordinates: 391282.677, 170664.573 Elevation: 46.52 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Tip load	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU002

LANKELMA

Project: CHIPPENHAM

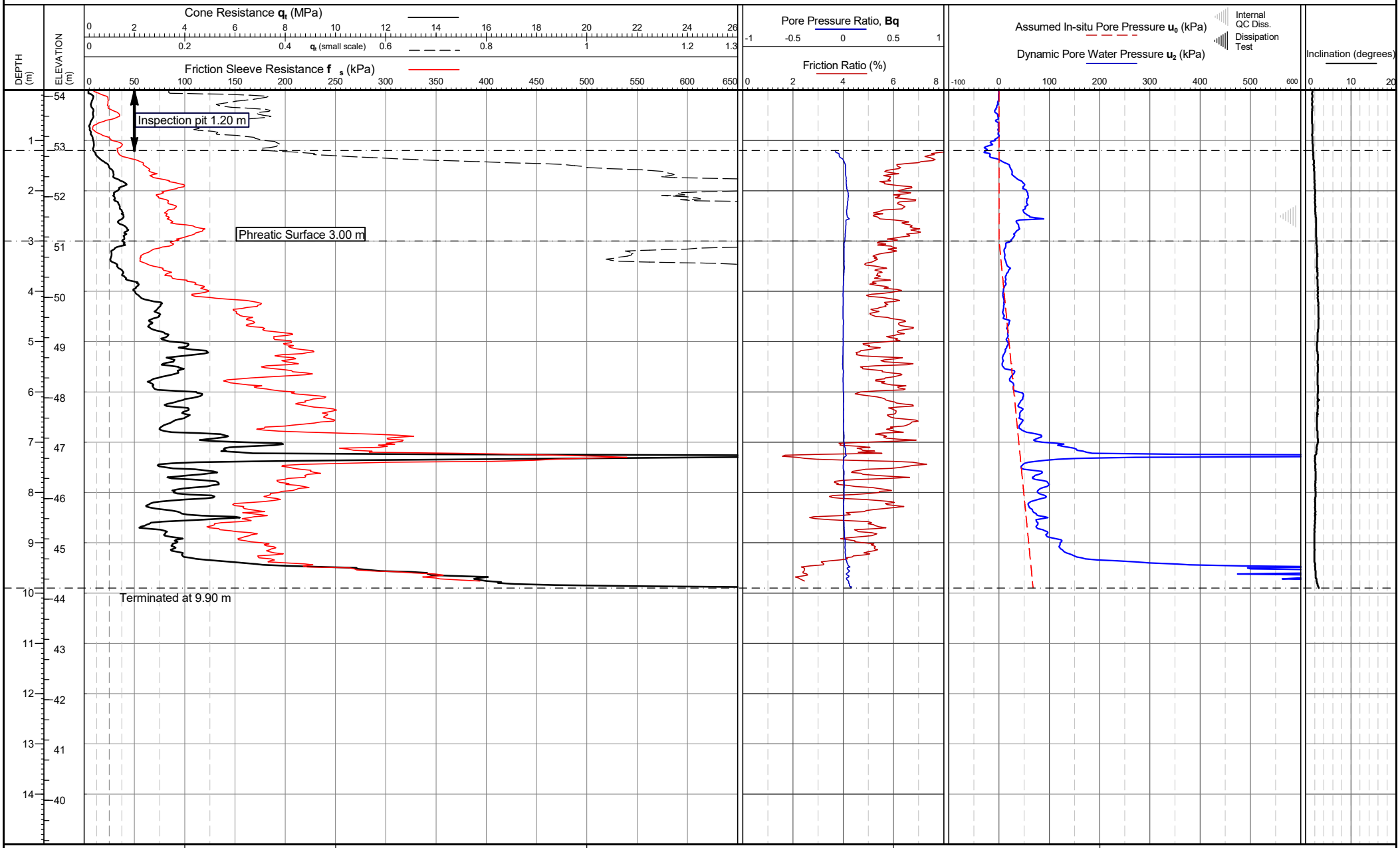
Client: RPS



Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 08:51:26	Zero drift (Pre/post test) q_c (kPa): 12.8 f_s (kPa): -1.8 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -1.9	Location: Wiltshire, UK Coordinates: 392271.234, 170957.221 Elevation: 50.338 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1	**TEST ID: CPTU003** Page 1 of 1

Project: CHIPPENHAM

Client: RPS



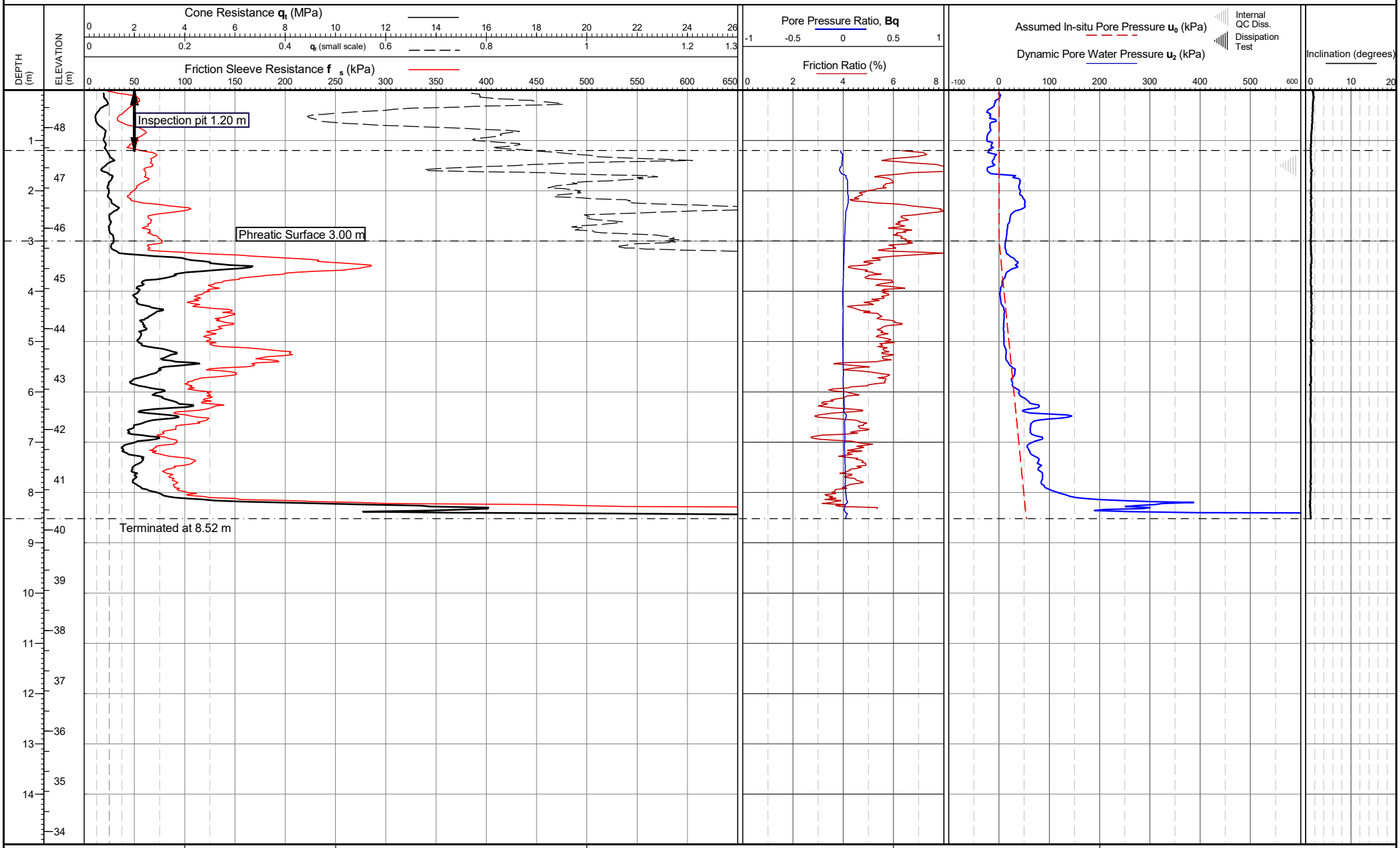
Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Chris Clarke Rig Used: UK22 Date of test: 20/04/2022 09:58:14	Zero drift (Pre/post test) q_c (kPa): -10.6 f_s (kPa): 0.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -0.9	Location: Wiltshire, UK Coordinates: 392765.415, 171160.838 Elevation: 54.121 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU004

LANKELMA

Project: CHIPPENHAM

Client: RPS



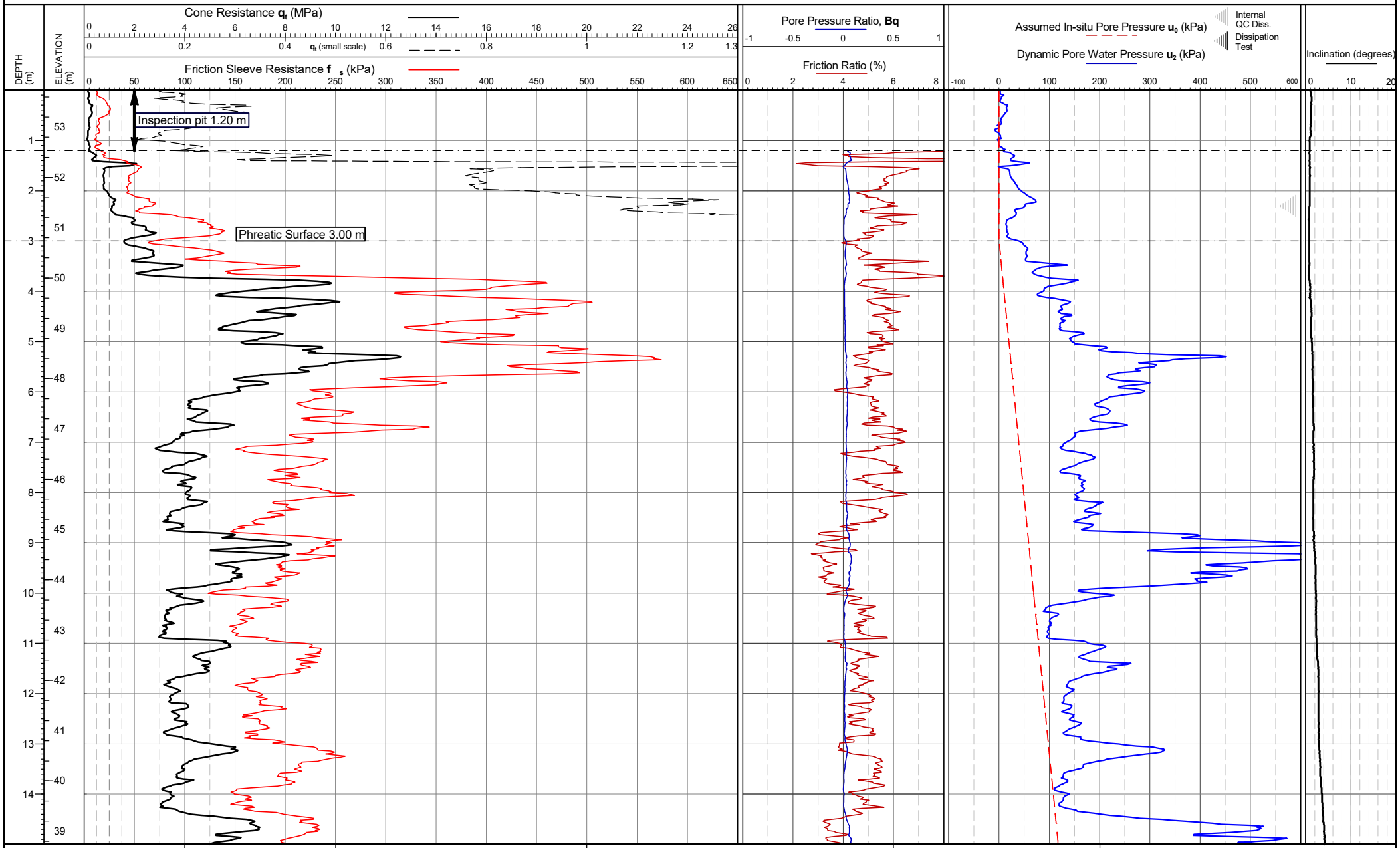
Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 11:11:10	Zero drift (Pre/post test) q_c (kPa): 0.2 f_s (kPa): -2.5 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -4.3	Location: Wiltshire, UK Coordinates: 393239.268, 171021.319 Elevation: 48.745 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU005

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 20/04/2022 14:04:02

Zero drift (Pre/post test)
q_c (kPa): 0.2
f_s (kPa): -0.9 ($f_{s\,drift}$ - $q_{c\,drift}$)
u_2 (kPa): -1.9

Location: Wiltshire, UK
Coordinates: 393698.42, 171282.403
Elevation: 53.736
Coordinate system:

Remarks:
*Phreatic surface origin: Arbitrary value

Termination Remark: Total reaction force

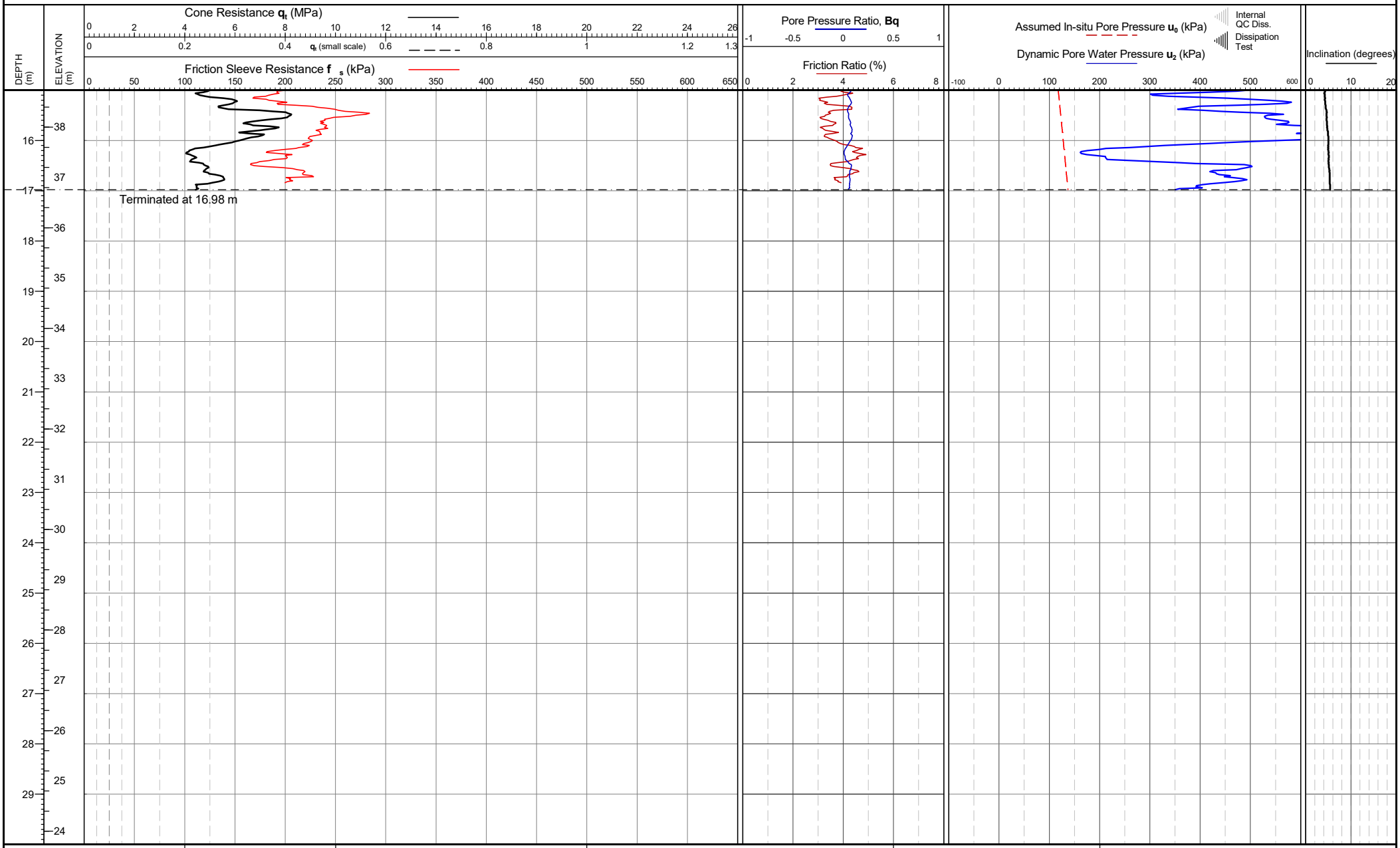
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: CPTU006

Project: CHIPPENHAM

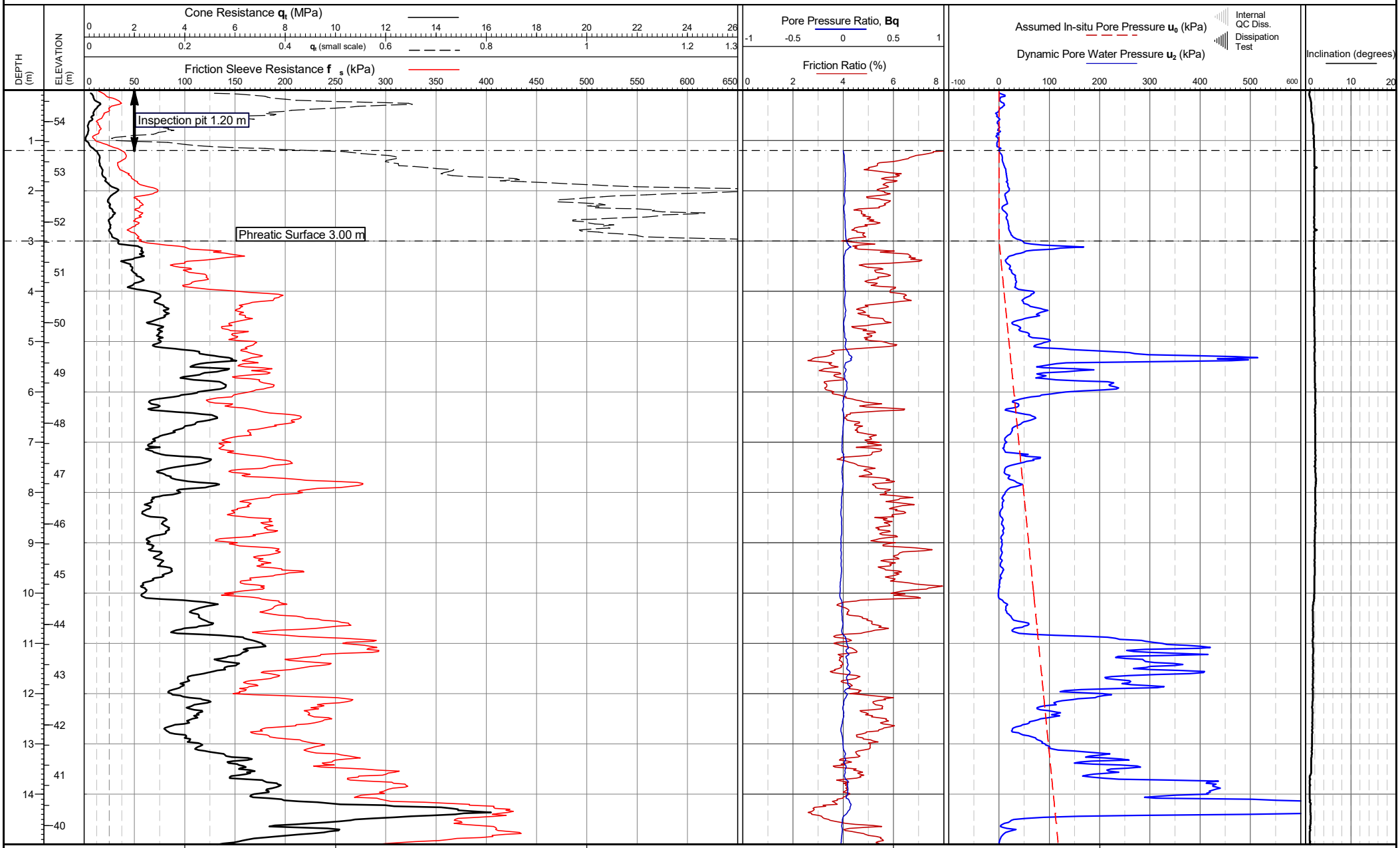
Client: RPS



Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 14:04:02	Zero drift (Pre/post test) q_c (kPa): 0.2 f_s (kPa): -0.9 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -1.9	Location: Wiltshire, UK Coordinates: 393698.42, 171282.403 Elevation: 53.736 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1	**TEST ID: CPTU006** Page 2 of 2

Project: CHIPPENHAM

Client: RPS

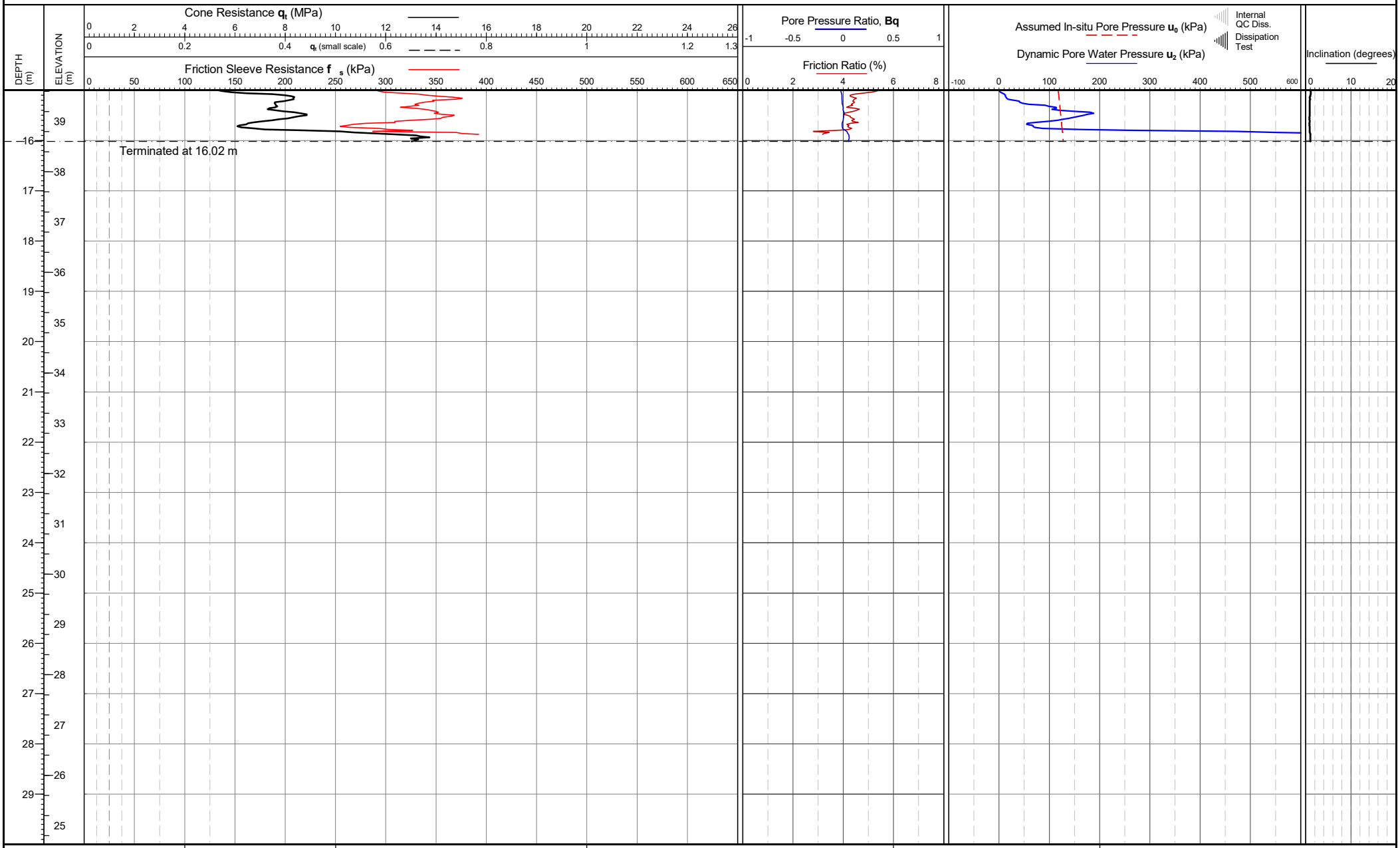


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 15:44:43	Zero drift (Pre/post test) q_c (kPa): -29.2 f_s (kPa): -2.8 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.8	Location: Wiltshire, UK Coordinates: 394325.179, 171747.19 Elevation: 54.624 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU007

Project: CHIPPENHAM

Client: RPS



Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 15:44:43	Zero drift (Pre/post test) q_c (kPa): -29.2 f_s (kPa): -2.8 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.8	Location: Wiltshire, UK Coordinates: 394325.179, 171747.19 Elevation: 54.624 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU007

APPENDIX D SBT MATERIAL DESCRIPTION RESULTS

SOIL BEHAVIOUR TYPE (SBT) DESCRIPTIONS
SCHNEIDER (2008)
ROBERTSON (2016)
ROBERTSON (2010) – NON-NORMALISED
ROBERTSON (1990)

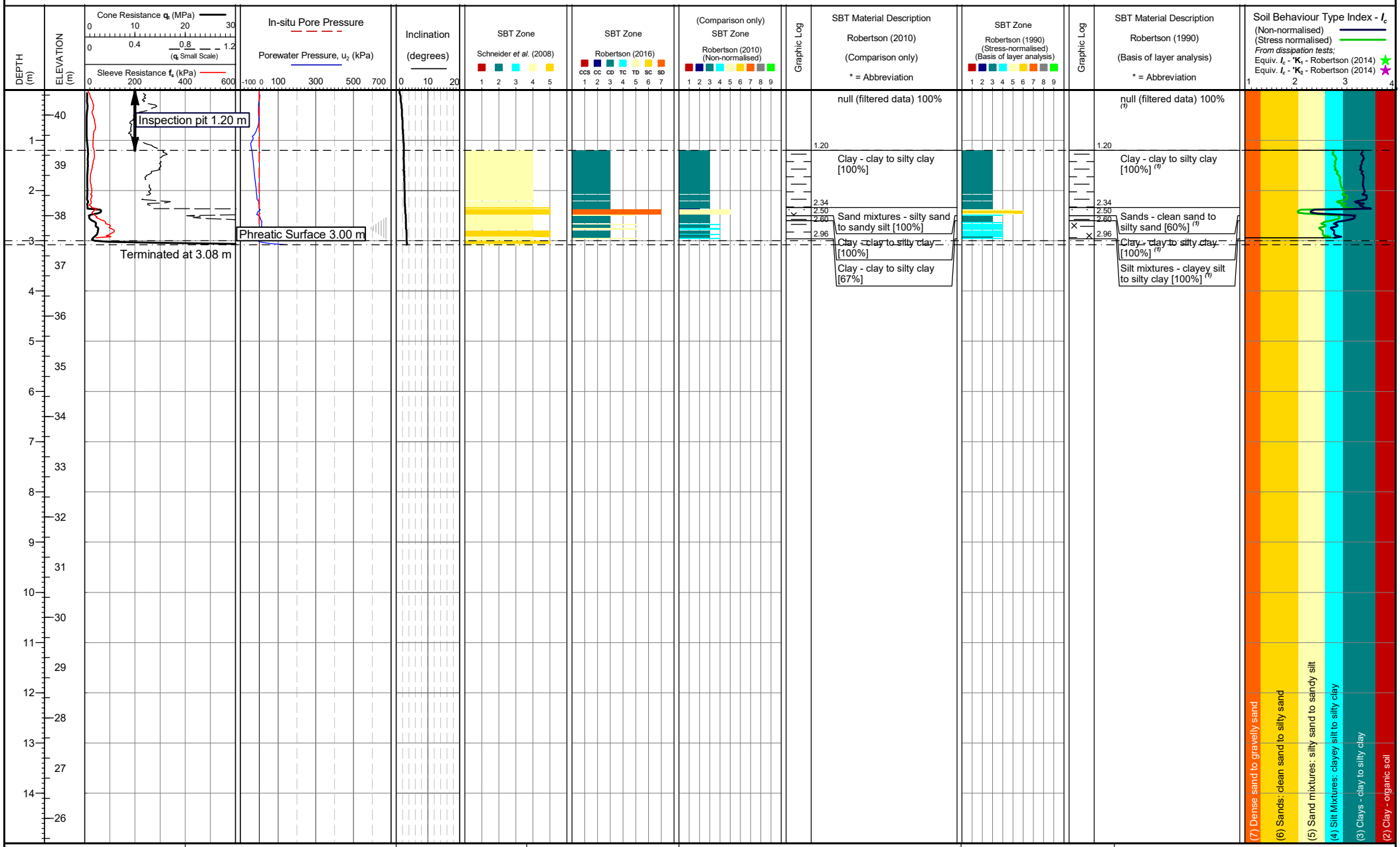
Plots are provided for all locations

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 21/04/2022 10:25:27

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391630.743, 170710.266
Elevation: 40.499

Schneider *et al.* (2008) Material Type
- 1 - (1c) Sensitive clays
- 2 - (1b) Clays
- 3 - (1a) Silts & low I, clays
- 4 - (3) Transitional soils
- 5 - (2) Essentially drained sands

Robertson (2016) Material Type
- 1 - **CCS** - Clay-like - Contractive - Sensitive
- 2 - **CC** - Clay-like - Contractive
- 3 - **CD** - Clay-like - Dilative
- 4 - **TC** - Transitional - Contractive
- 5 - **TD** - Transitional - Dilative
- 6 - **SC** - Sand-like - Contractive
- 7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
- 1 - Sensitive fine-grained
- 2 - Organic soils
- 3 - Clays - clay to silty clay
- 4 - Silt mixtures - clayey silt to silty clay
- 5 - Sand mixtures - silty sand to sandy silt
- 6 - Sands - clean sand to silty sand
- 7 - Gravelly sand to sand
- 8 - Very stiff/dense sand to clayey sand
- 9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss. | Dissipation Test

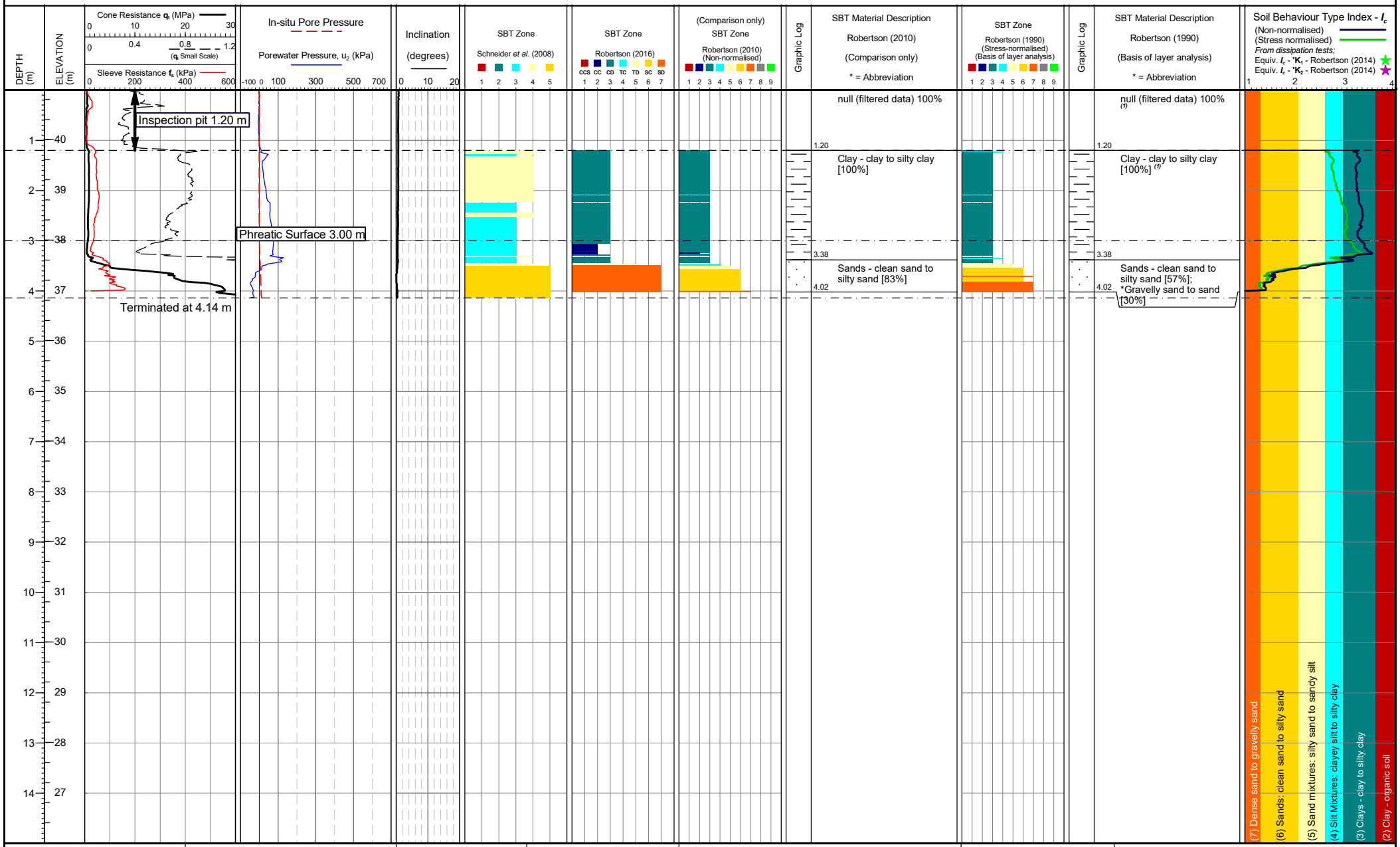
TEST ID: AVC1_CPTU_01

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 21/04/2022 09:54:49

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391678.494, 170710.968
Elevation: 40.986

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

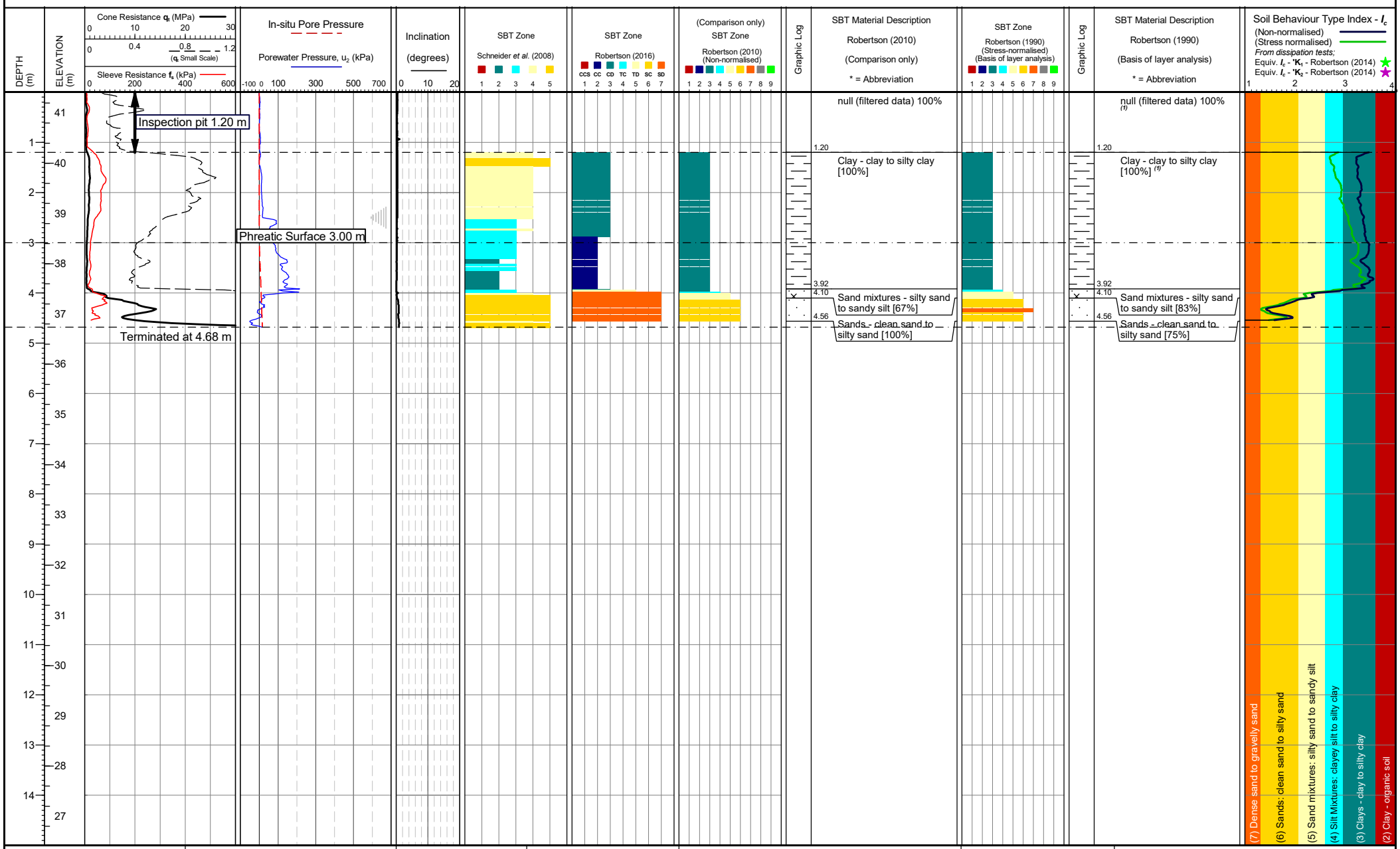
Internal QA Diss.
Dissipation Test

TEST ID: AVC1_CPTU_02

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 21/04/2022 09:13:53

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391698.452, 170732.671
Elevation: 41.418

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

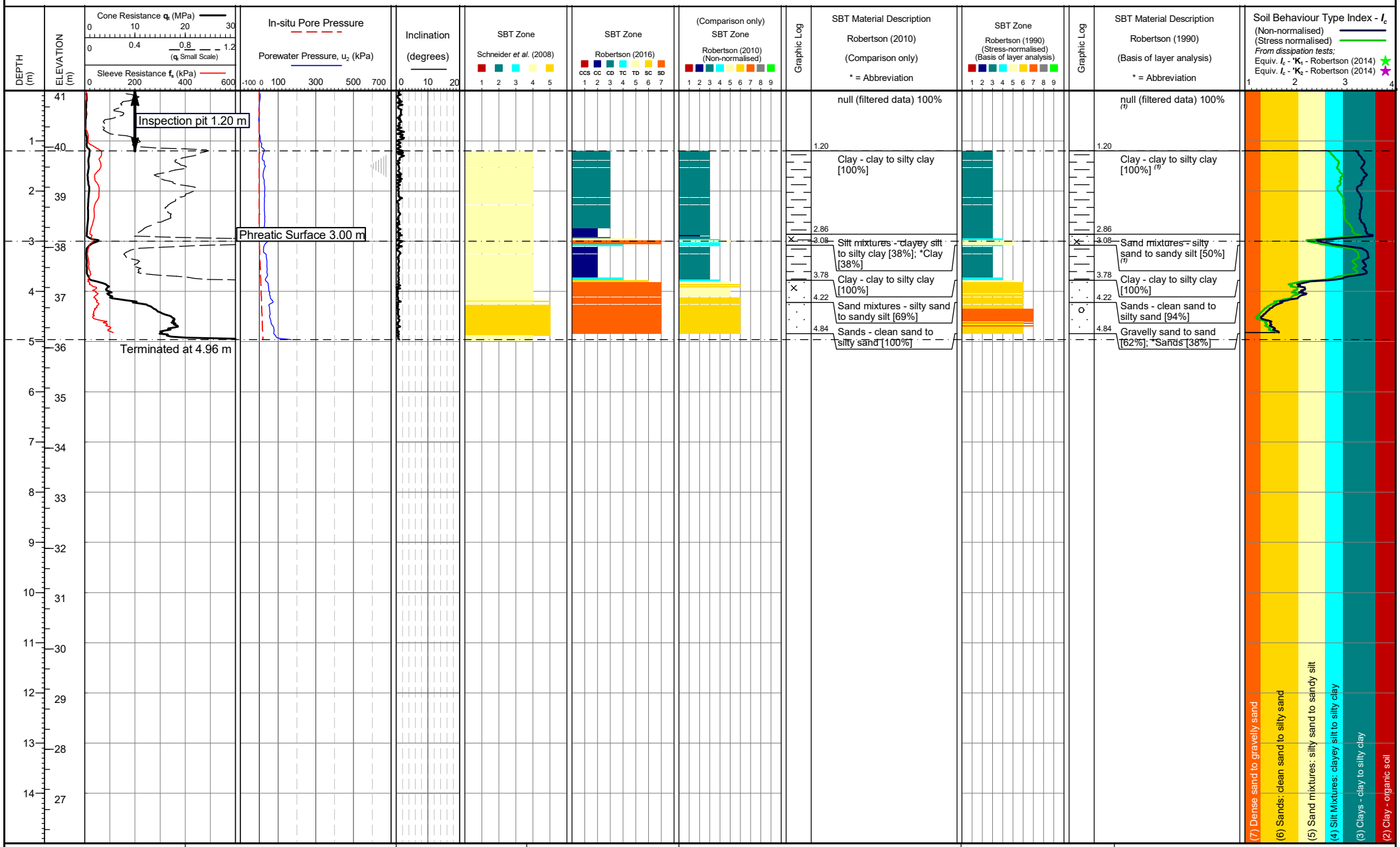
Internal QA Diss.
Dissipation Test

TEST ID: AVC1_CPTU_03

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1821
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 19/04/2022 10:08:53

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391752.34, 170732.632
Elevation: 41.123

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

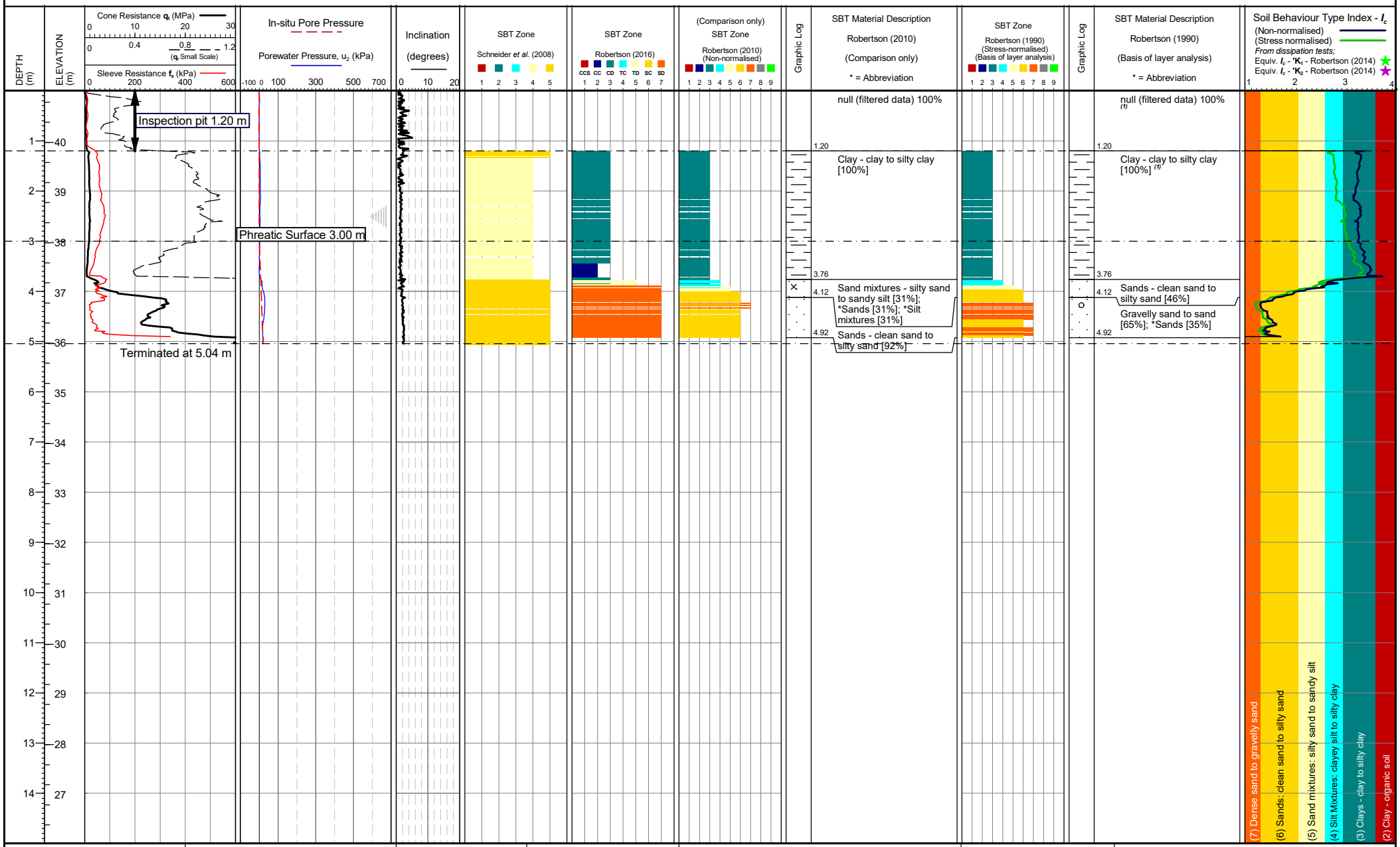
Internal QA Diss.
Dissipation Test

TEST ID: AVC1_CPTU_04

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1821
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 19/04/2022 10:46:39

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391787.809, 170759.334
Elevation: 41.03

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

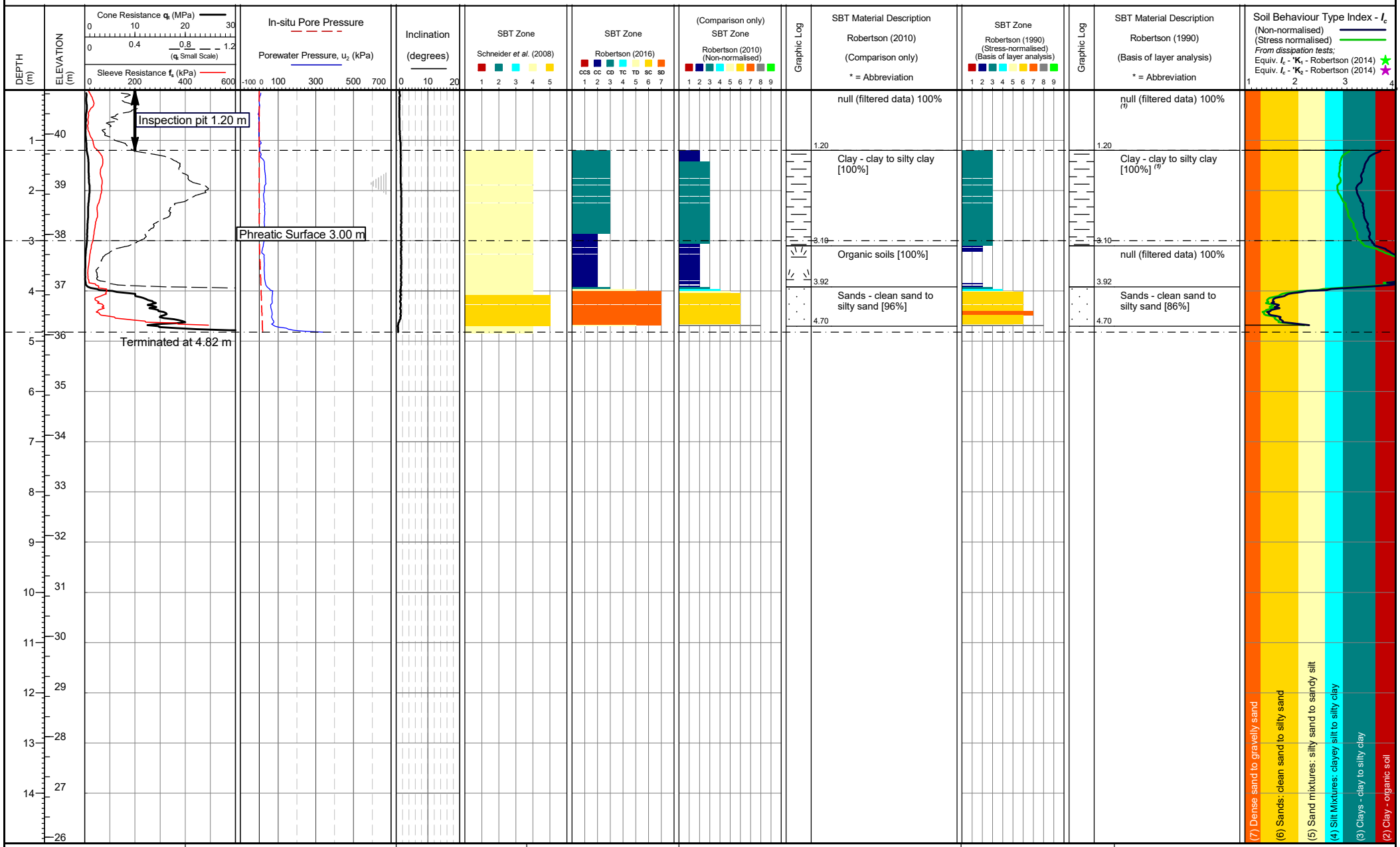
TEST ID: AVC1_CPTU_05

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1821
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 19/04/2022 14:12:45

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391830.697, 170755.654
Elevation: 40.873

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

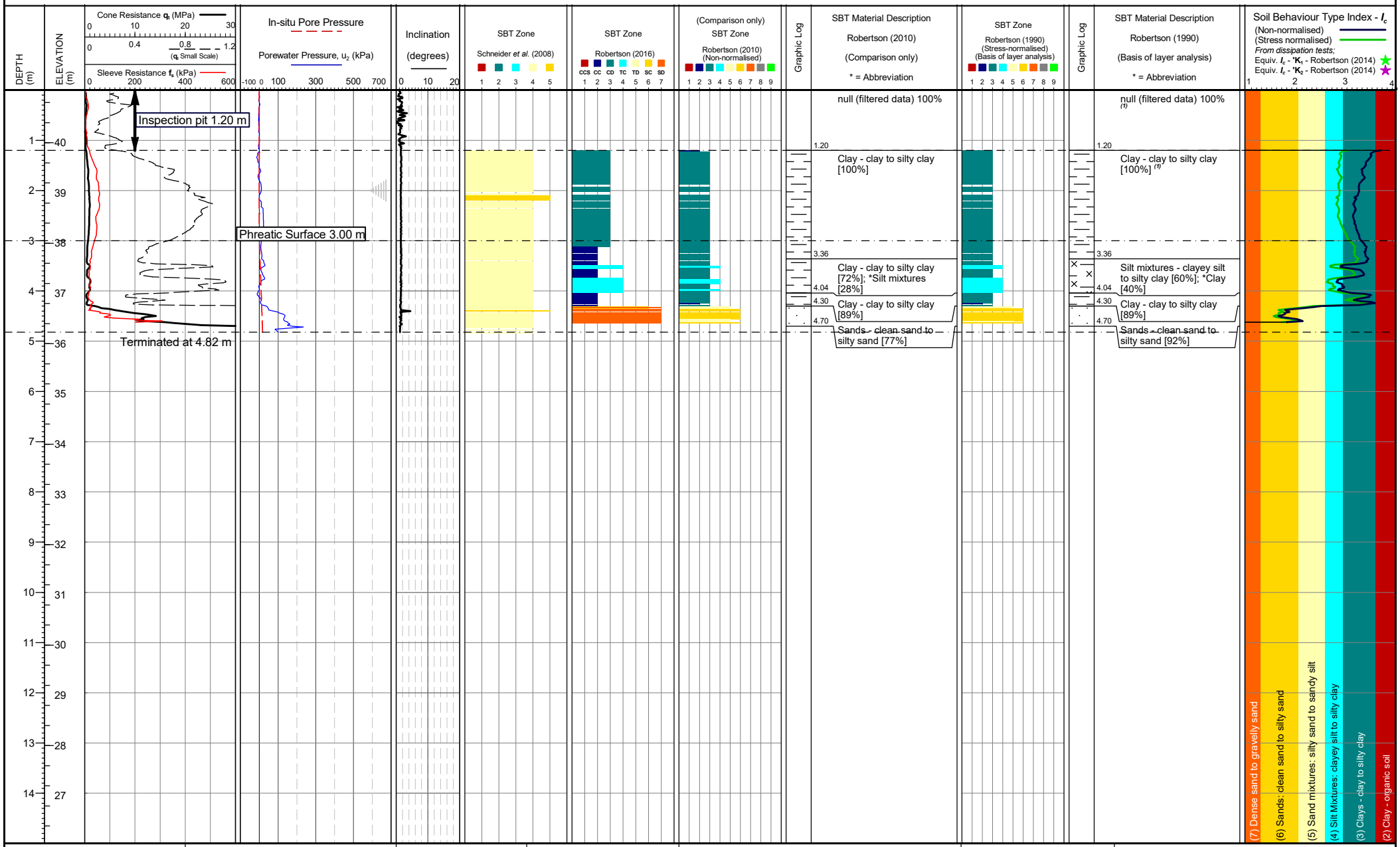
TEST ID: AVC1_CPTU_06

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1821
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 19/04/2022 11:28:33

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391864.549, 170784.592
Elevation: 41.05

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

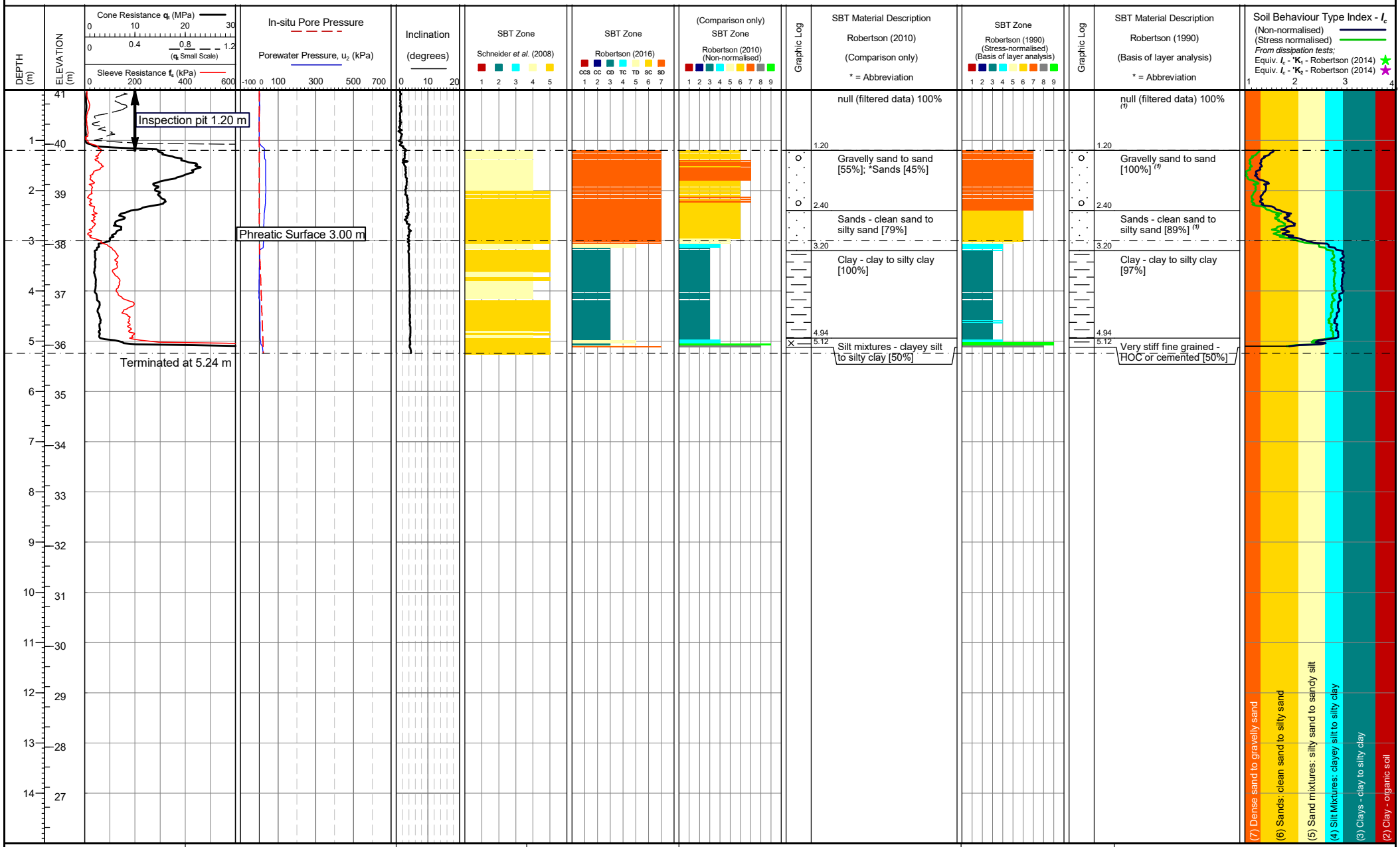
TEST ID: AVC1_CPTU_07

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1821
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 19/04/2022 13:46:46

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391905.767, 170780.346
Elevation: 41.078

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

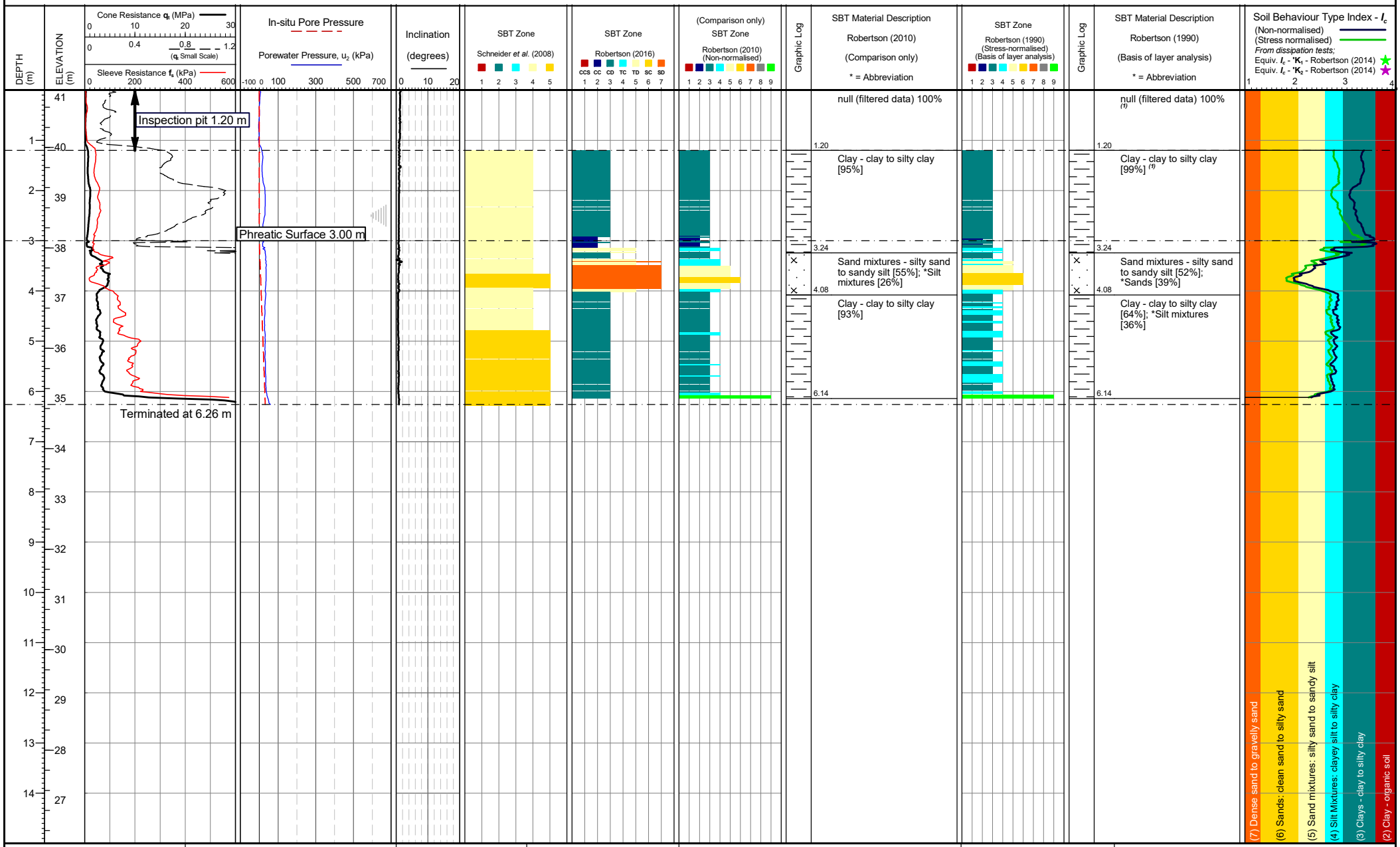
TEST ID: AVC1_CPTU_08

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1821
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 19/04/2022 12:12:04

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391947.406, 170812.161
Elevation: 41.142

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

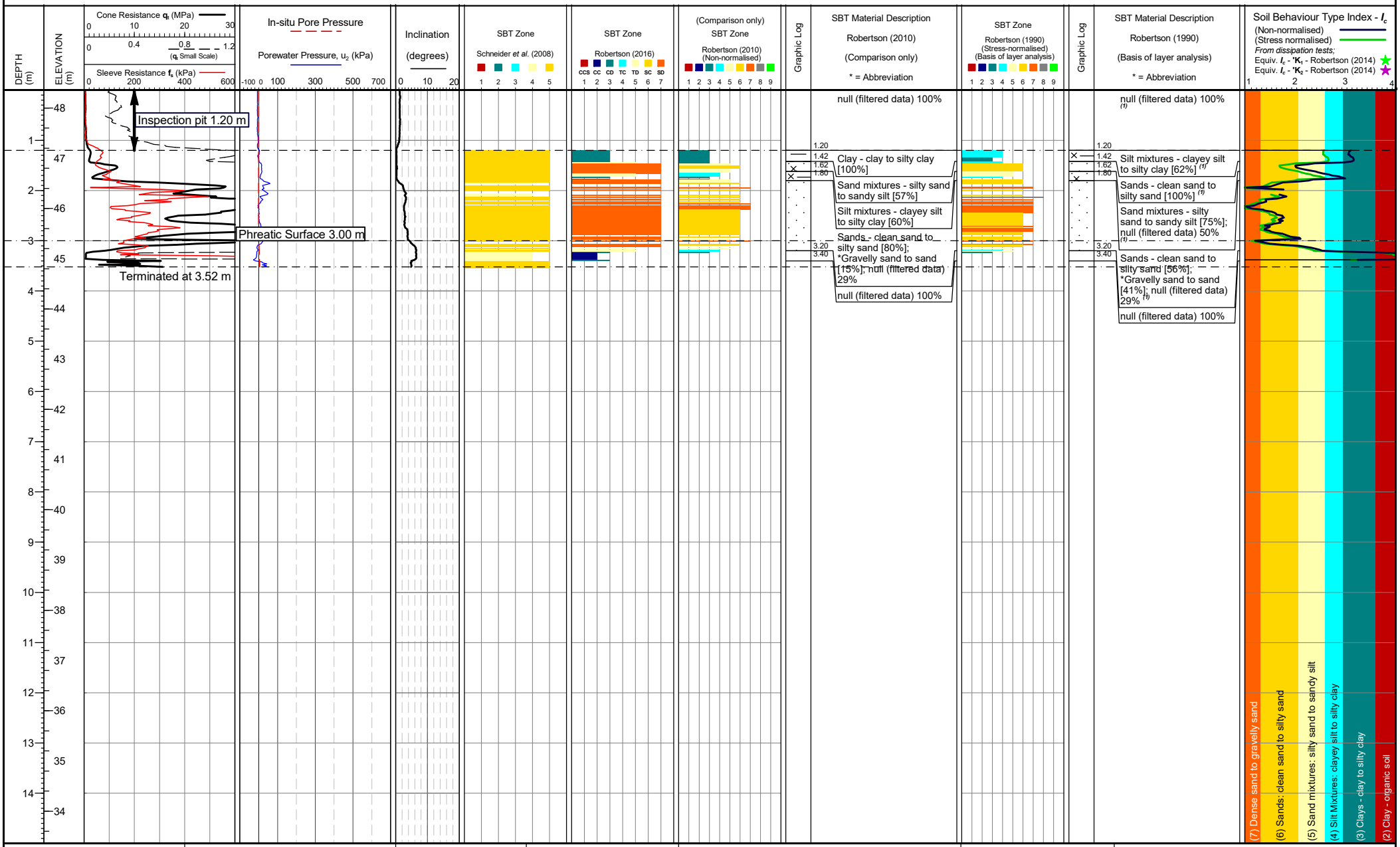
Internal QA Diss.
Dissipation Test

TEST ID: AVC1_CPTU_09

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 21/04/2022 12:42:15

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391150.606, 170673.279
Elevation: 48.357

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

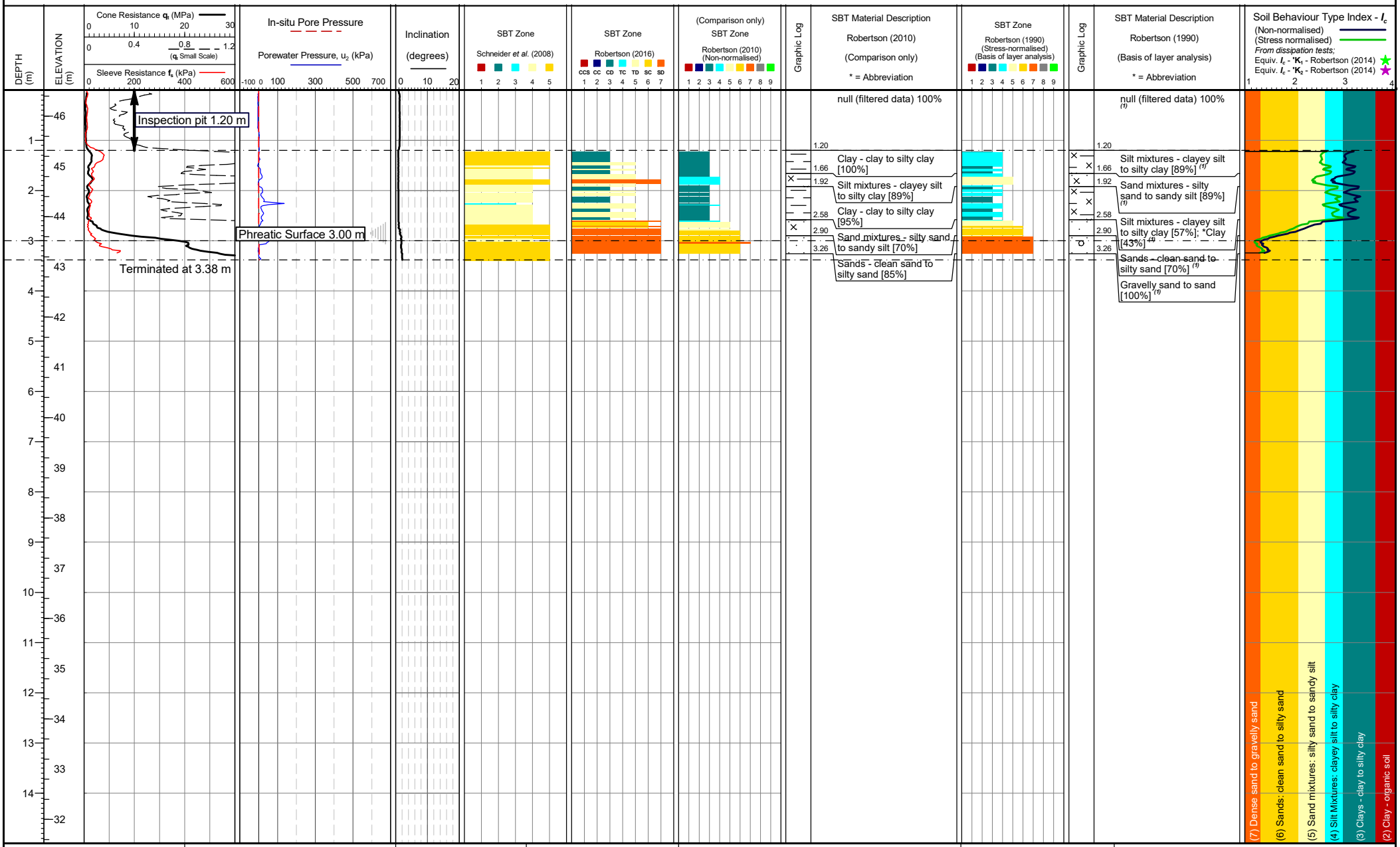
Internal QA Diss.
Dissipation Test

TEST ID: CPTU001

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 21/04/2022 11:53:43

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 391282.677, 170664.573
Elevation: 46.52

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

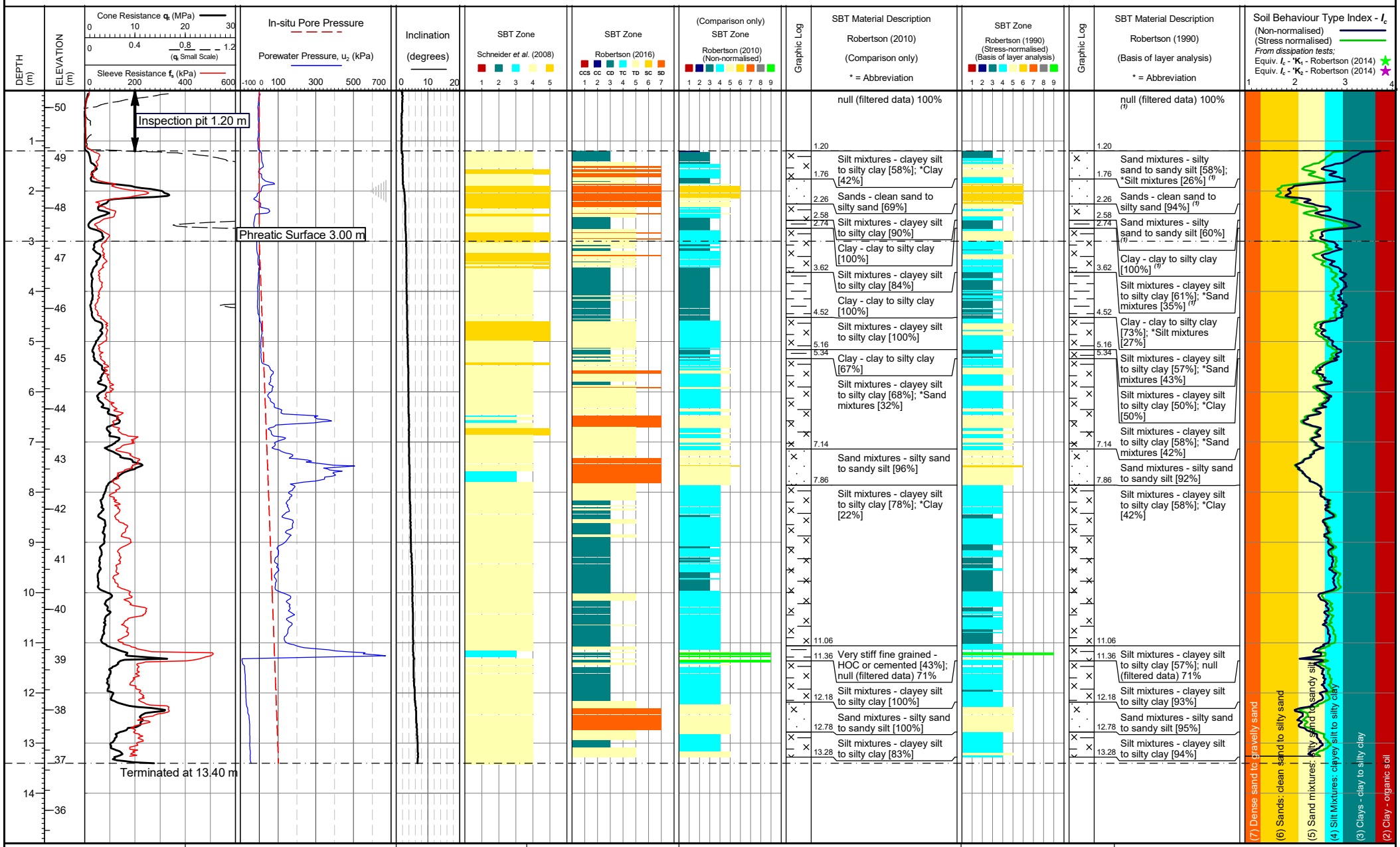
TEST ID: CPTU002

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 20/04/2022 08:51:26

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 392271.234, 170957.221
Elevation: 50.338

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

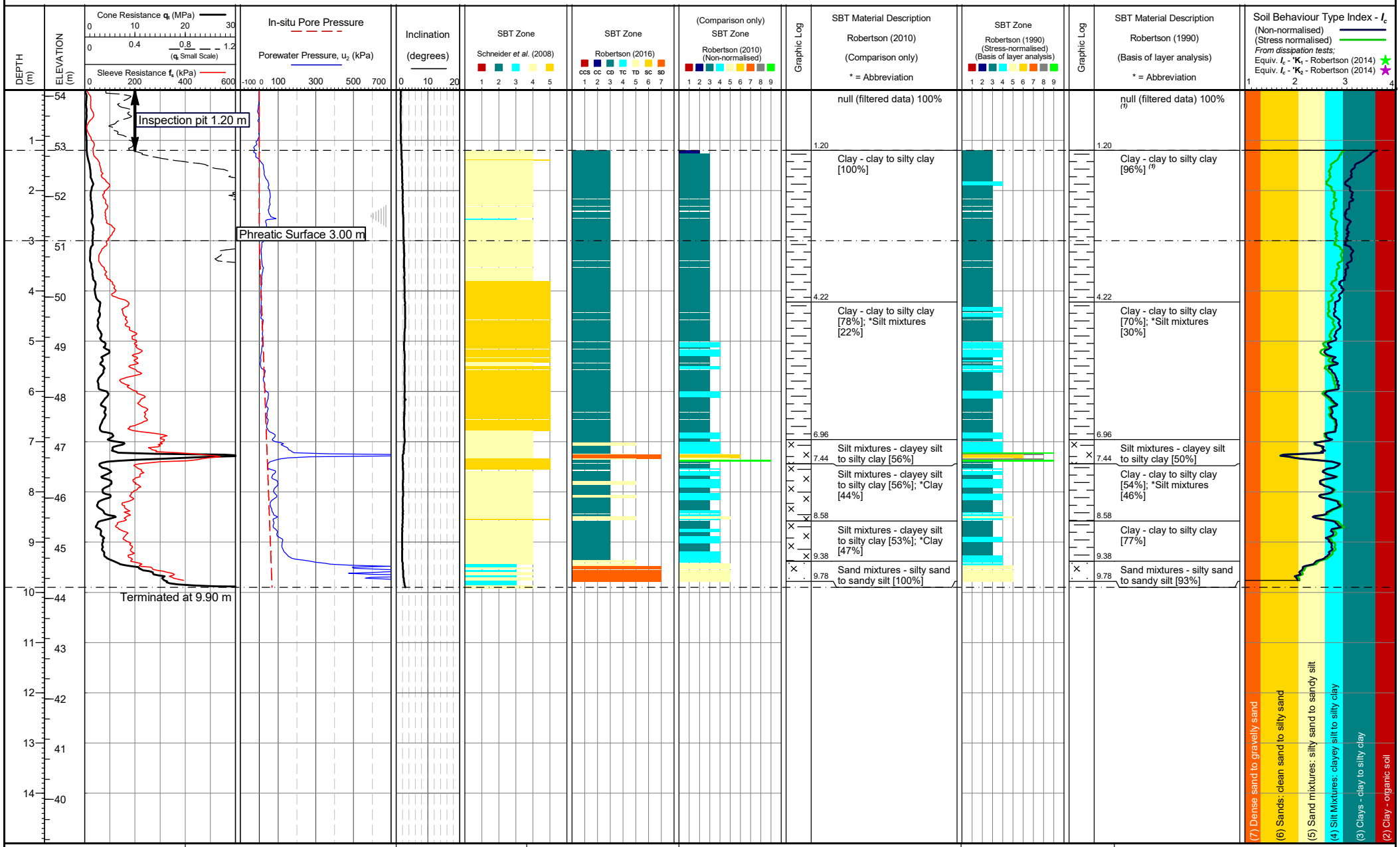
TEST ID: CPTU003

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 20/04/2022 09:58:14

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 392765.415, 171160.838
Elevation: 54.121

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

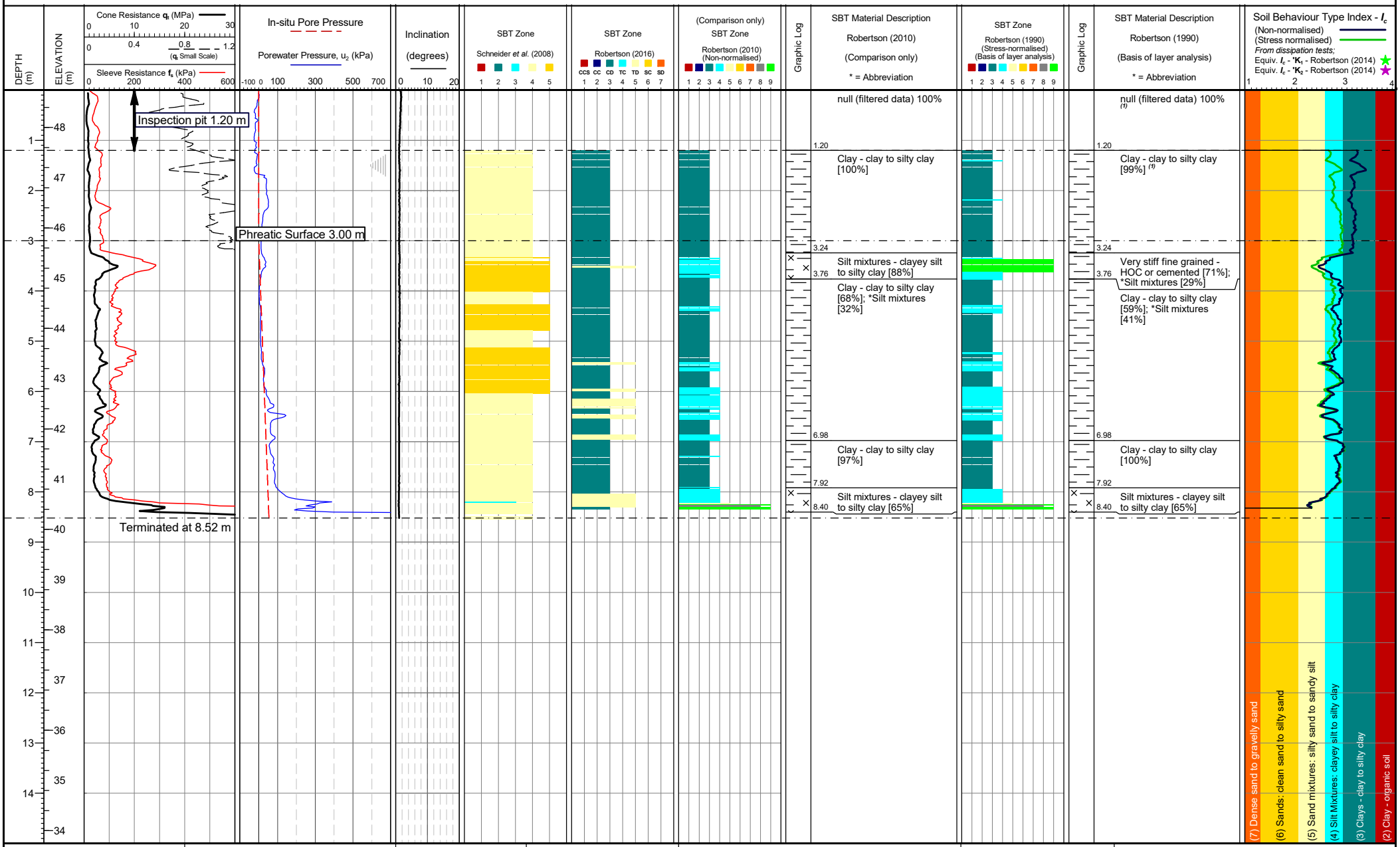
TEST ID: CPTU004

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 20/04/2022 11:11:10

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 393239.268, 171021.319
Elevation: 48.745

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

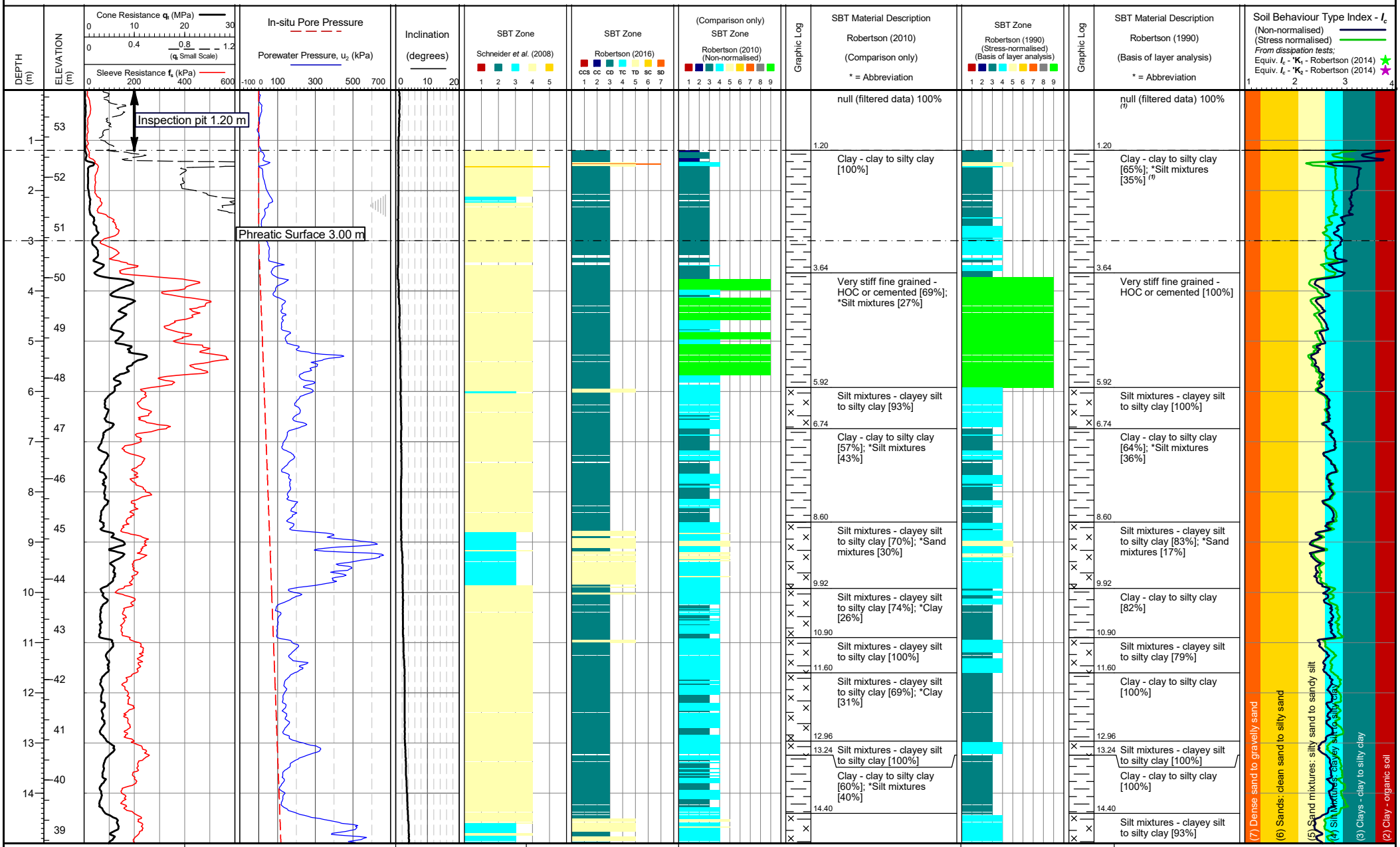
TEST ID: CPTU005

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 20/04/2022 14:04:02

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 393698.42, 171282.403
Elevation: 53.736

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

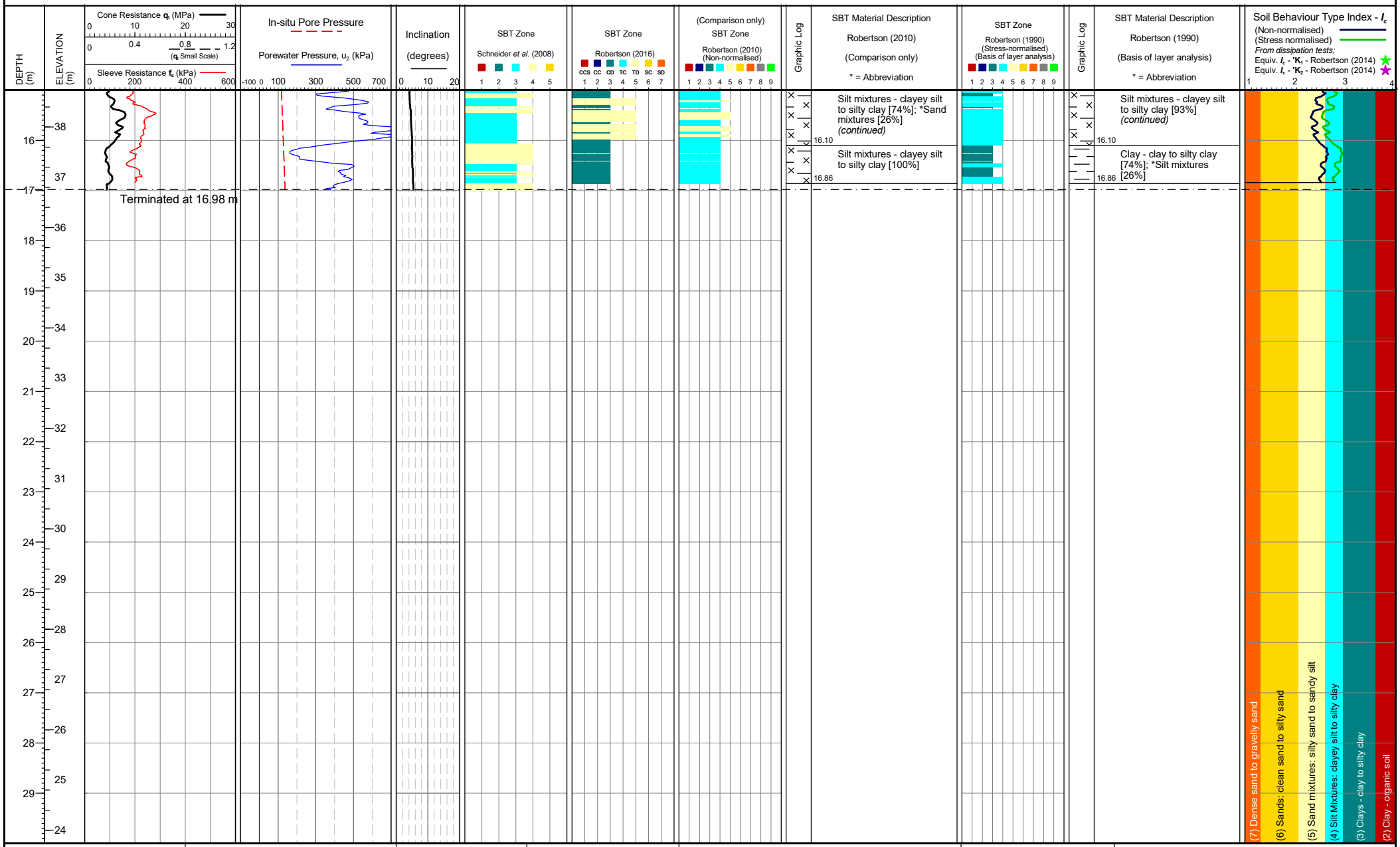
Internal QA Diss.
Dissipation Test

TEST ID: CPTU006

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 20/04/2022 14:04:02

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 393698.42, 171282.403
Elevation: 53.736

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

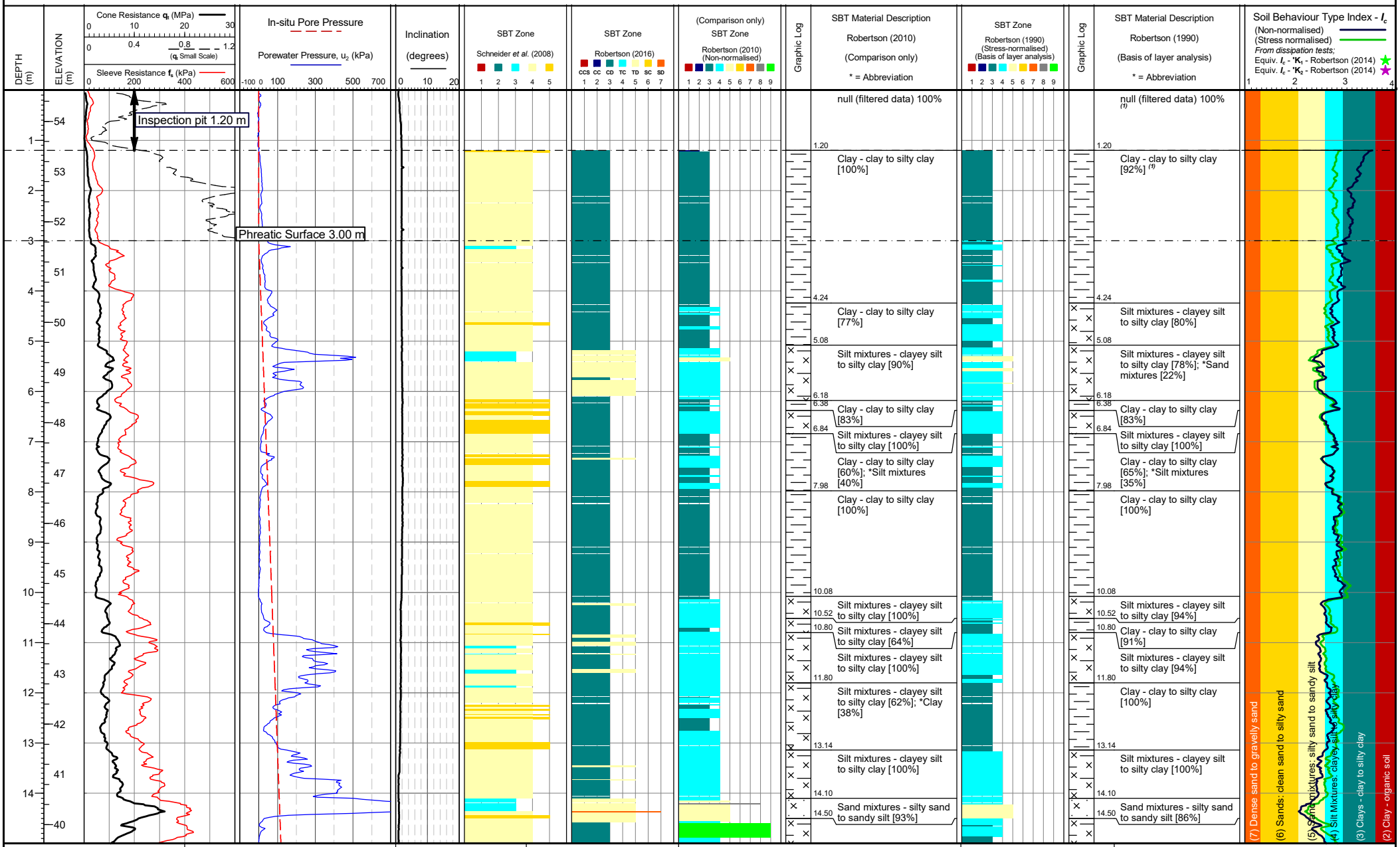
TEST ID: CPTU006

LANKELMA

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 20/04/2022 15:44:43

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 394325.179, 171747.19
Elevation: 54.624

Schneider *et al.* (2008) Material Type

1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type

1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type

1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(7) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

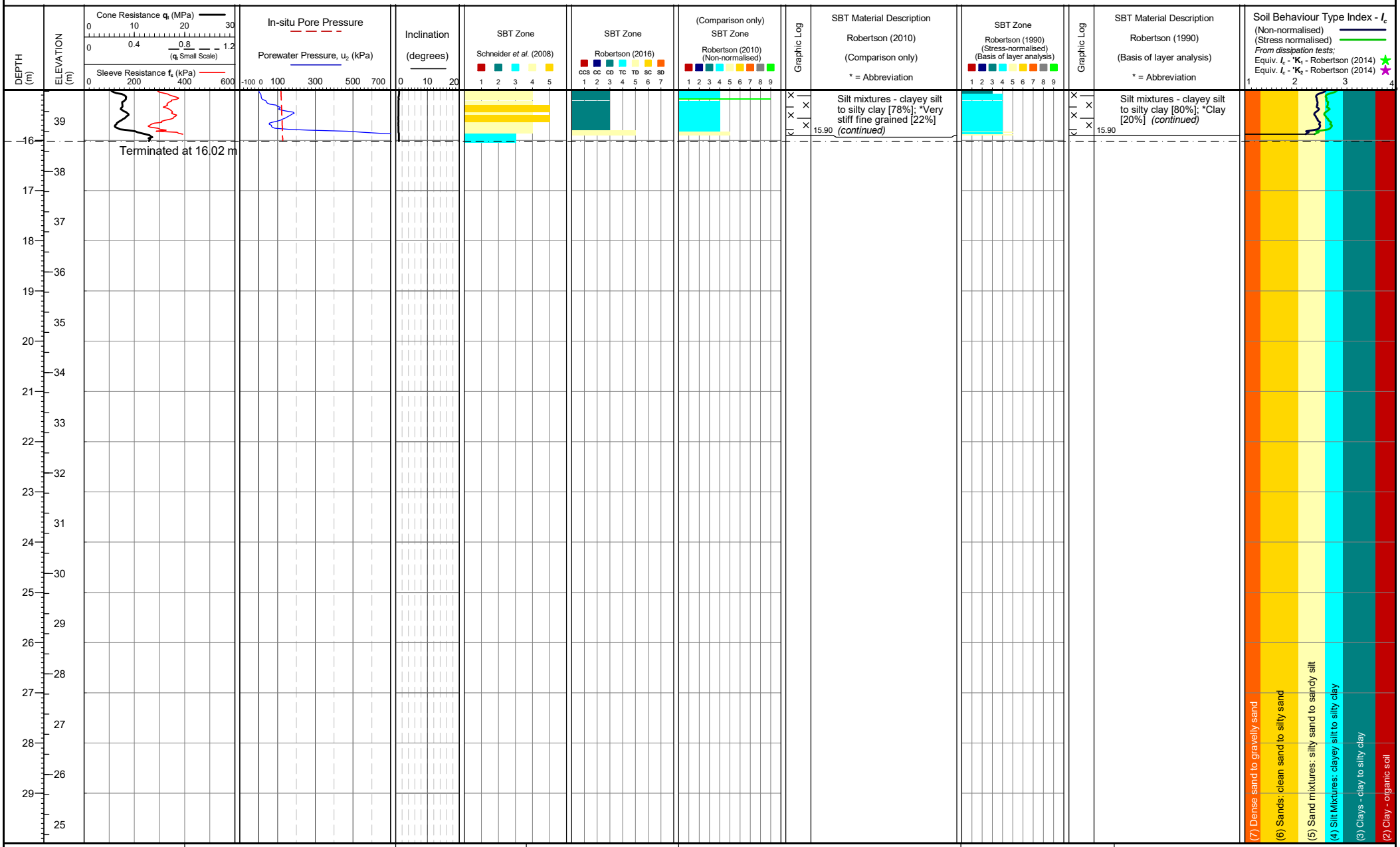
Internal QA Diss.
Dissipation Test

TEST ID: CPTU007

Project: CHIPPENHAM

Client: RPS

Lankelma Project Ref: P-108001-1



Cone area (mm2):
ConeID: S15-CFIPT.1854
Location: Wiltshire, UK
Rig Used: UK22
Date of test: 20/04/2022 15:44:43

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: 394325.179, 171747.19
Elevation: 54.624

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I, clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

TEST ID: CPTU007

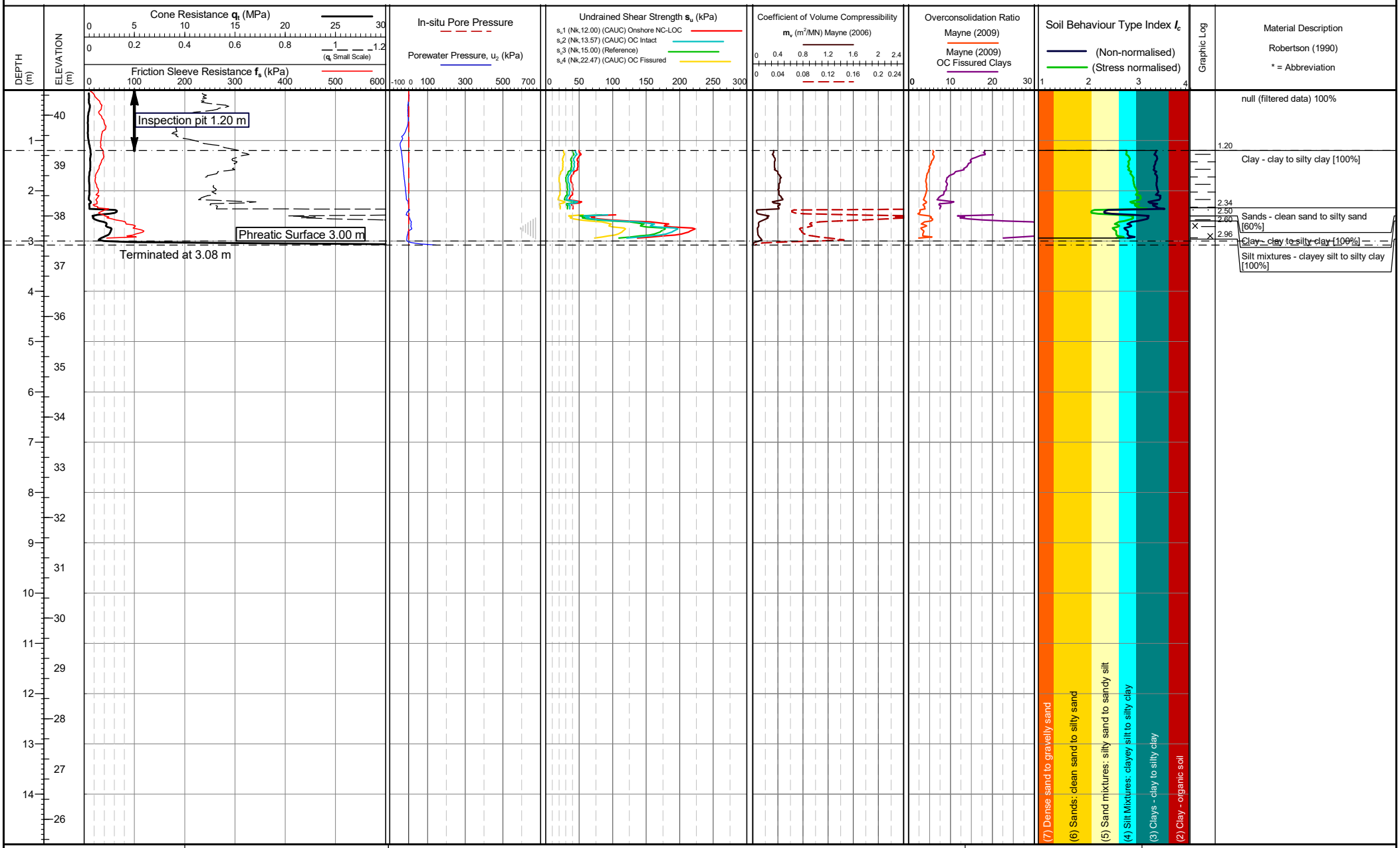
APPENDIX E UNDRAINED PARAMETER RESULTS

UNDRAINED SHEAR STRENGTH
COEFFICIENT OF VOLUME CHANGE
OVERCONSOLIDATION RATIO
SOIL BEHAVIOUR TYPE (SBT) DESCRIPTIONS

Plots are provided for all locations

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Chris Clarke
Rig Used: UK22
Date of test: 21/04/2022 10:25:27

Location: Wiltshire, UK
Coordinates: 391630.743, 170710.266
Elevation: 40.499
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Tip load

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

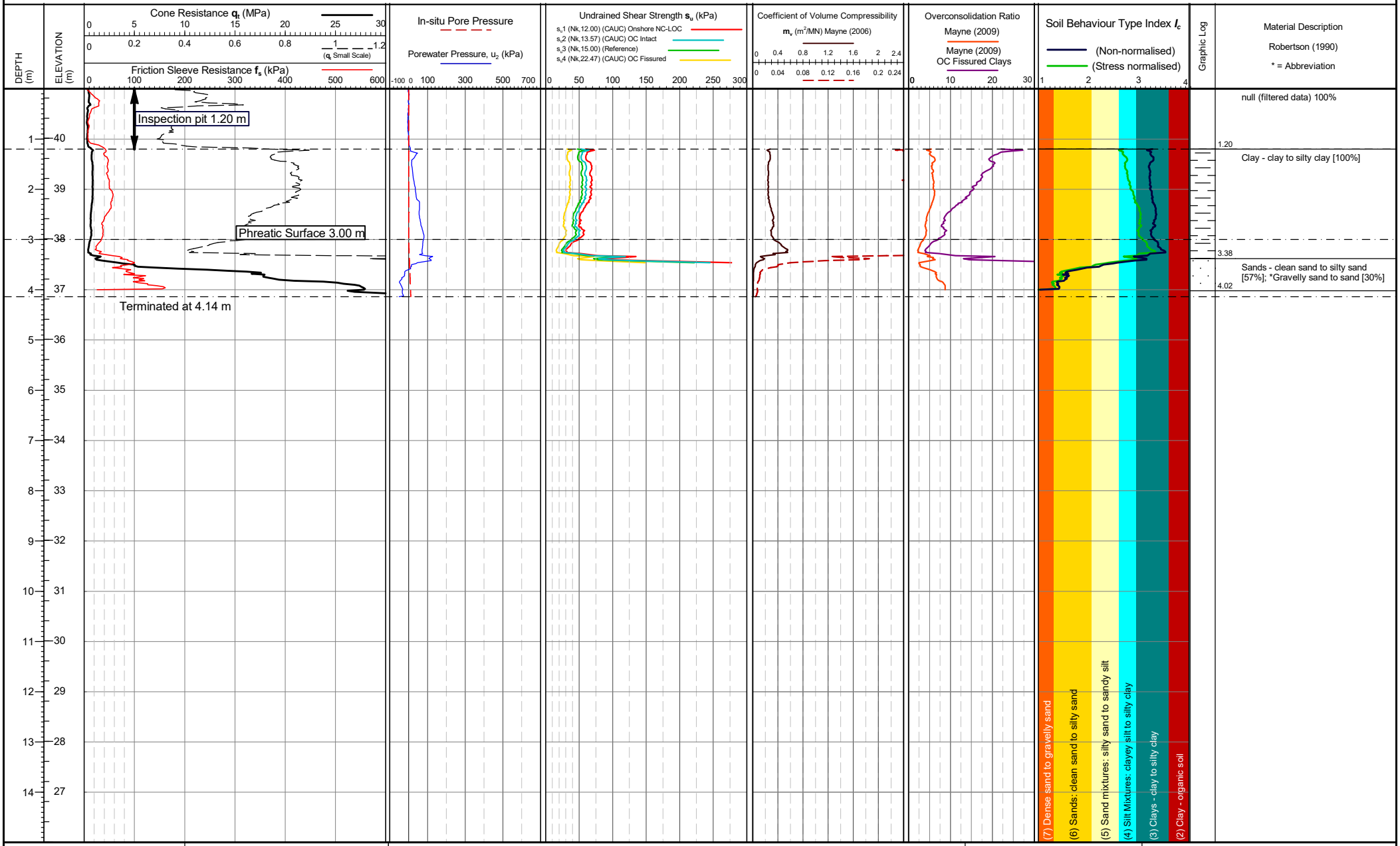
Checked by:
Chris Player

TEST ID: AVC1_CPTU_01

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/04/2022 09:54:49

Location: Wiltshire, UK
Coordinates: 391678.494, 170710.968
Elevation: 40.986
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

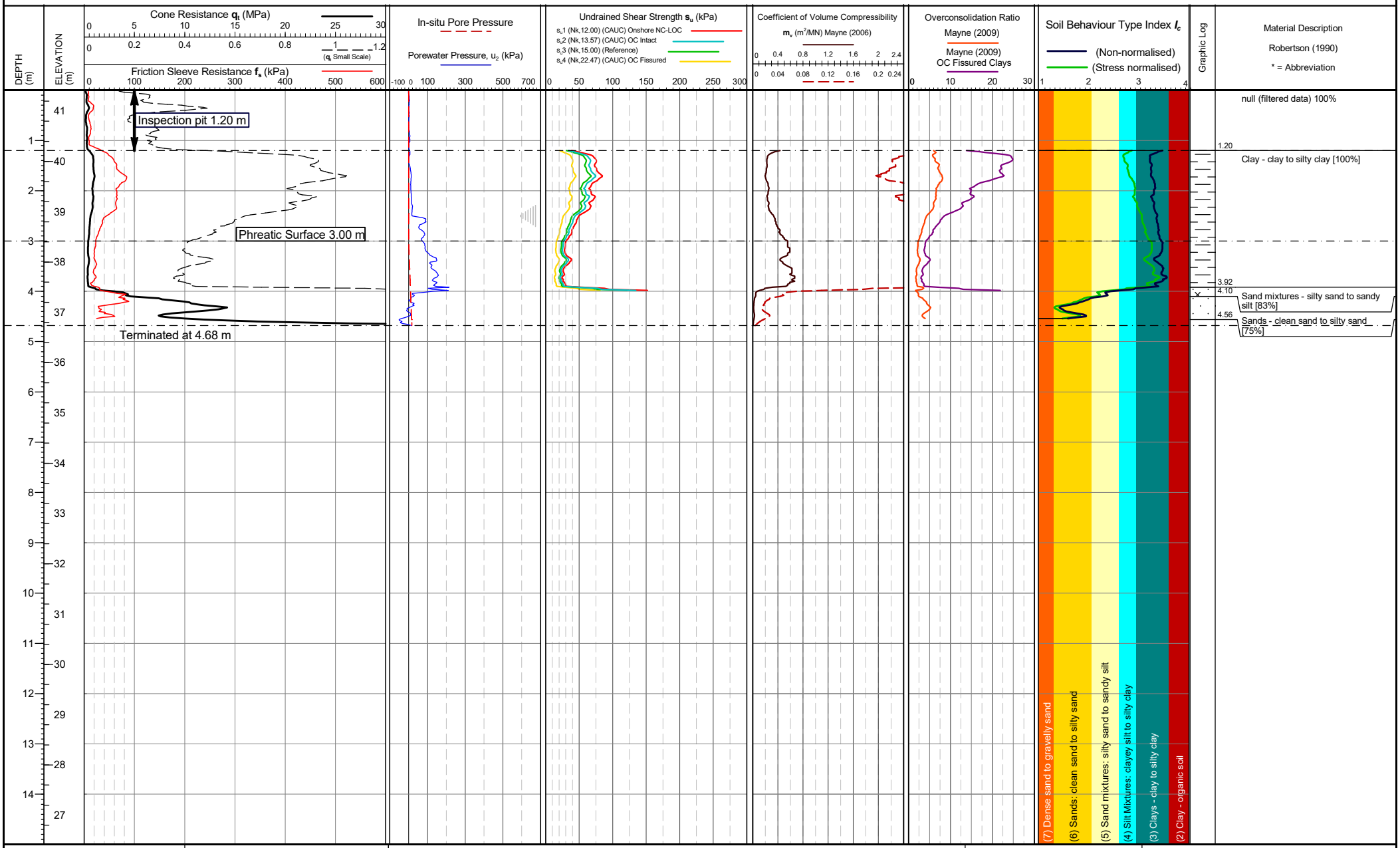
Lankelma Project Ref: P-108001-1

Checked by:
Chris Player

TEST ID: AVC1_CPTU_02

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/04/2022 09:13:53

Location: Wiltshire, UK
Coordinates: 391698.452, 170732.671
Elevation: 41.418
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

Lankelma Project Ref: P-108001-1

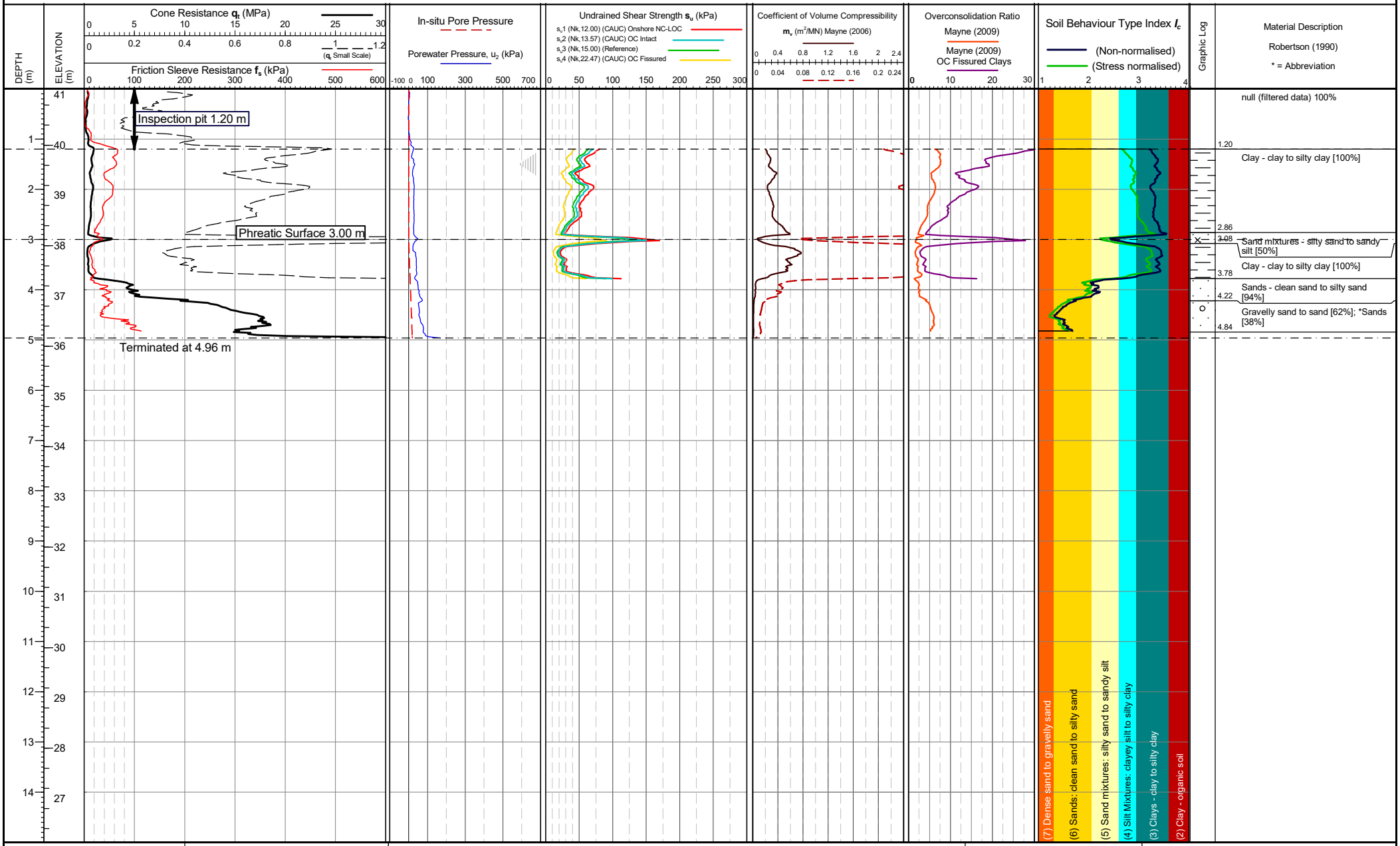
Checked by:
Chris Player

TEST ID: AVC1_CPTU_03

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1821
Operator: Rob Bennett
Rig Used: UK22
Date of test: 19/04/2022 10:08:53

Location: Wiltshire, UK
Coordinates: 391752.34, 170732.632
Elevation: 41.123
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

Checked by: Chris Player

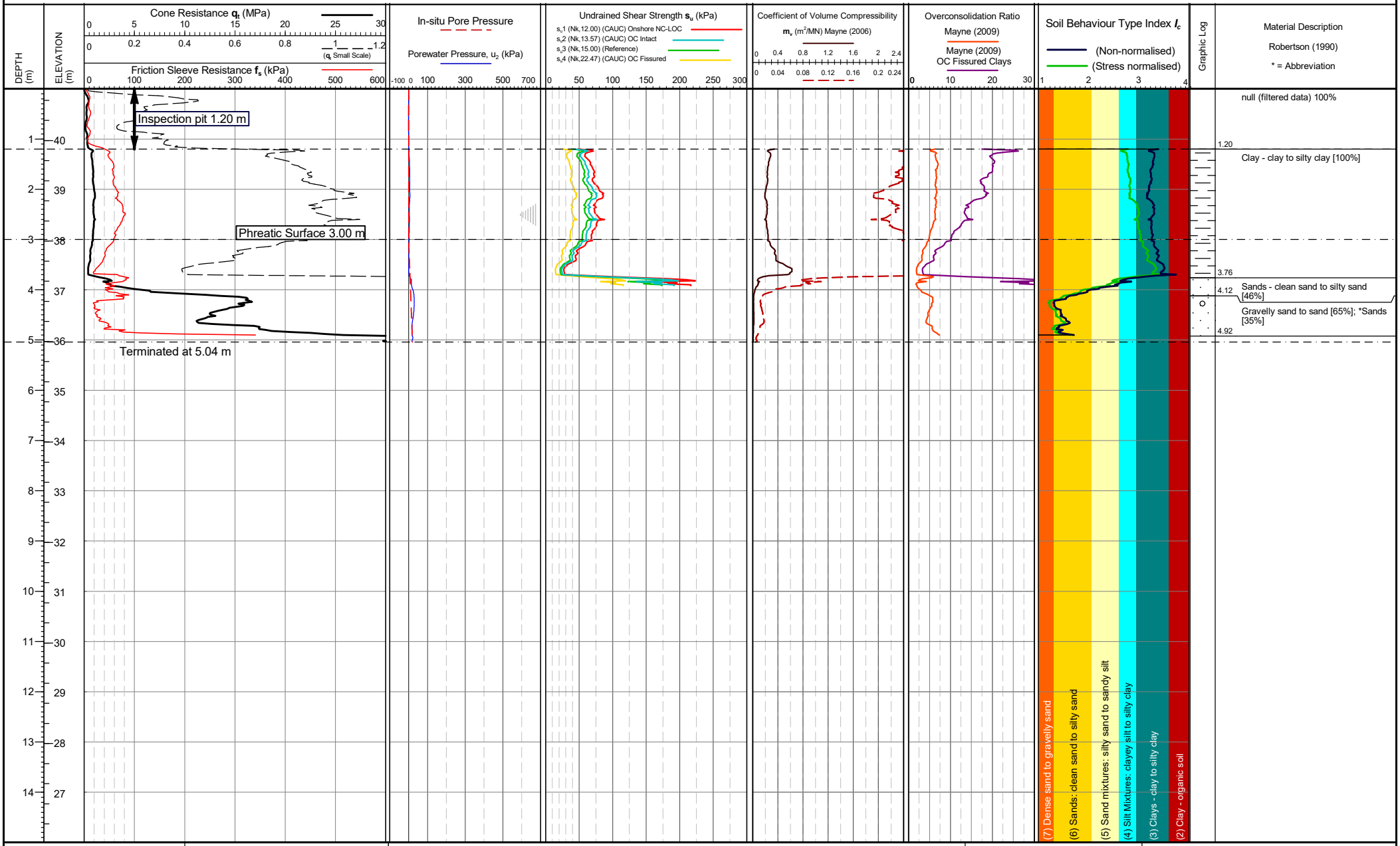
Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_04

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1821
Operator: Chris Clarke
Rig Used: UK22
Date of test: 19/04/2022 10:46:39

Location: Wiltshire, UK
Coordinates: 391787.809, 170759.334
Elevation: 41.03
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Checked by: Chris Player

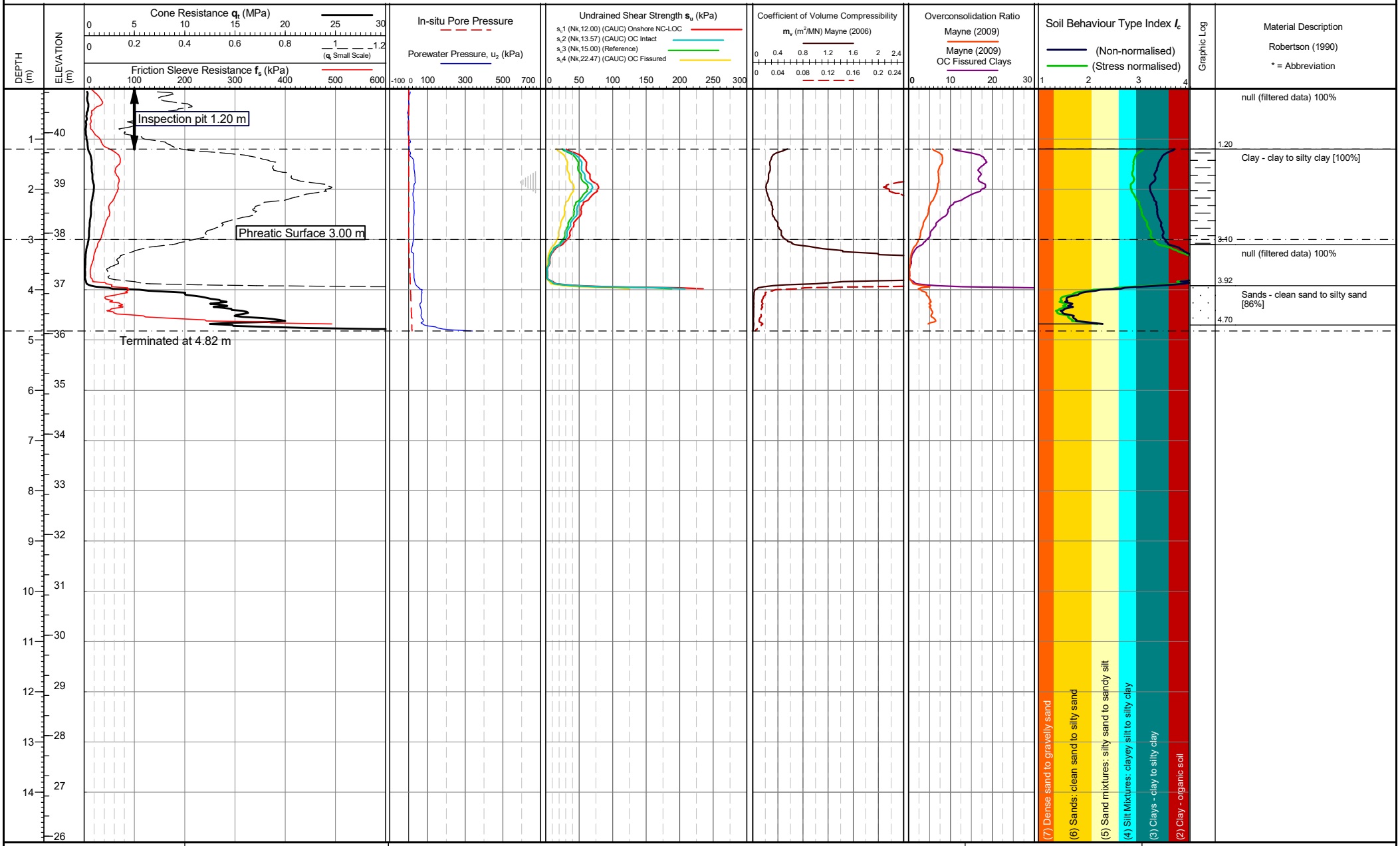
Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_05

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1821
Operator: Rob Bennett
Rig Used: UK22
Date of test: 19/04/2022 14:12:45

Location: Wiltshire, UK
Coordinates: 391830.697, 170755.654
Elevation: 40.873
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

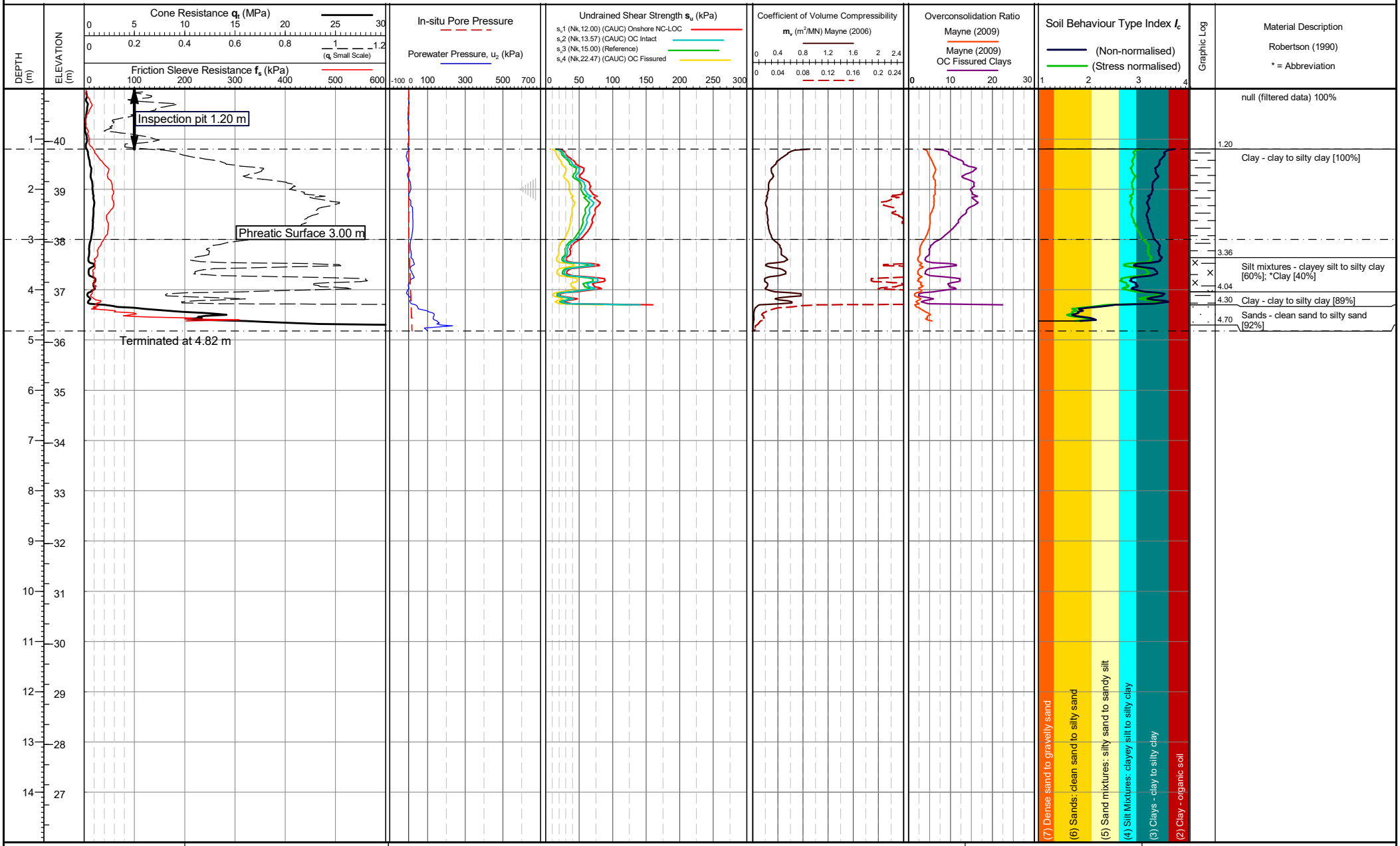
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_06

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1821
Operator: Rob Bennett
Rig Used: UK22
Date of test: 19/04/2022 11:28:33

Location: Wiltshire, UK
Coordinates: 391864.549, 170784.592
Elevation: 41.05
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

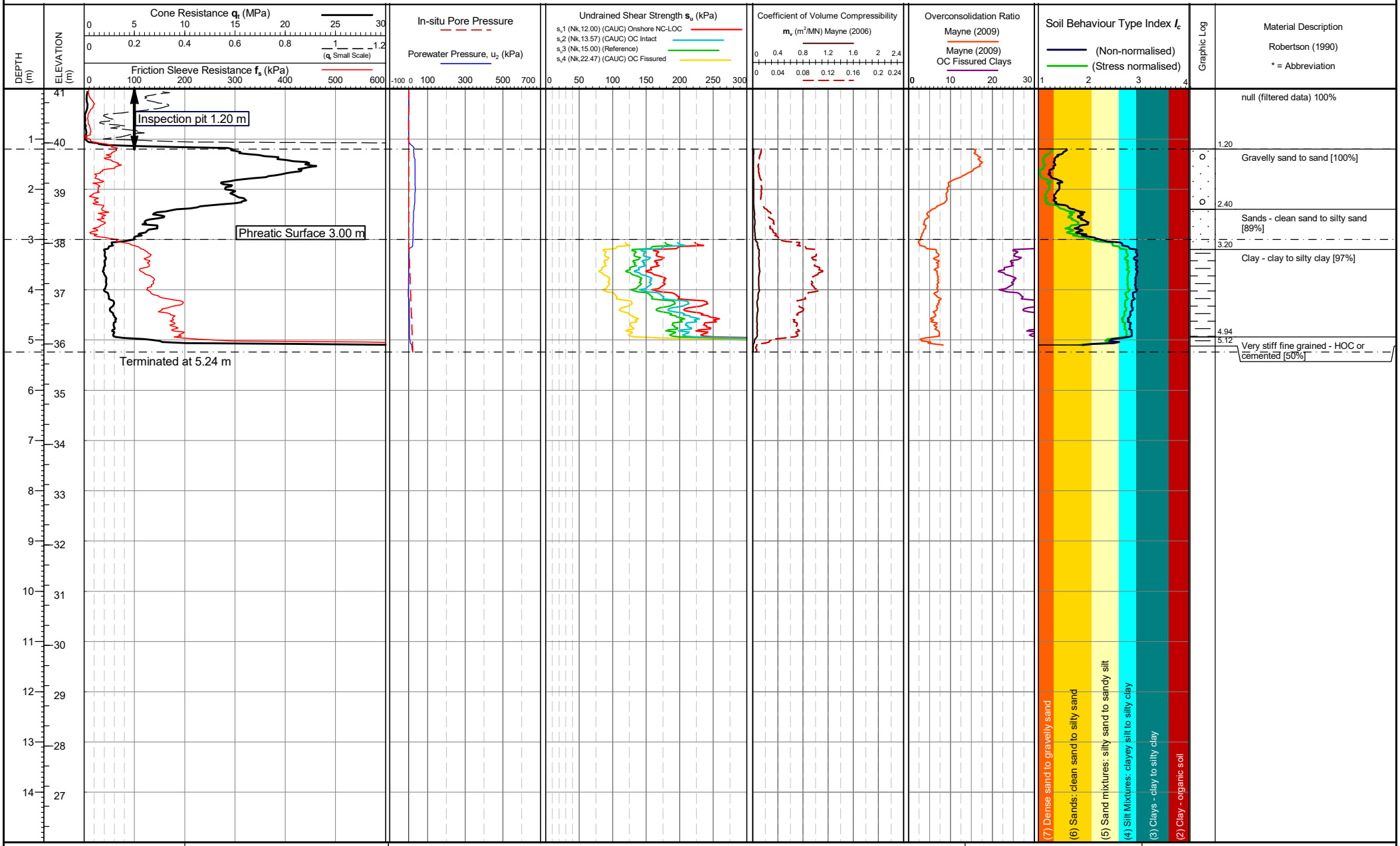
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_07

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1821
Operator: Rob Bennett
Rig Used: UK22
Date of test: 19/04/2022 13:46:46

Location: Wiltshire, UK
Coordinates: 391905.767, 170780.346
Elevation: 41.078
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

Checked by: Chris Player

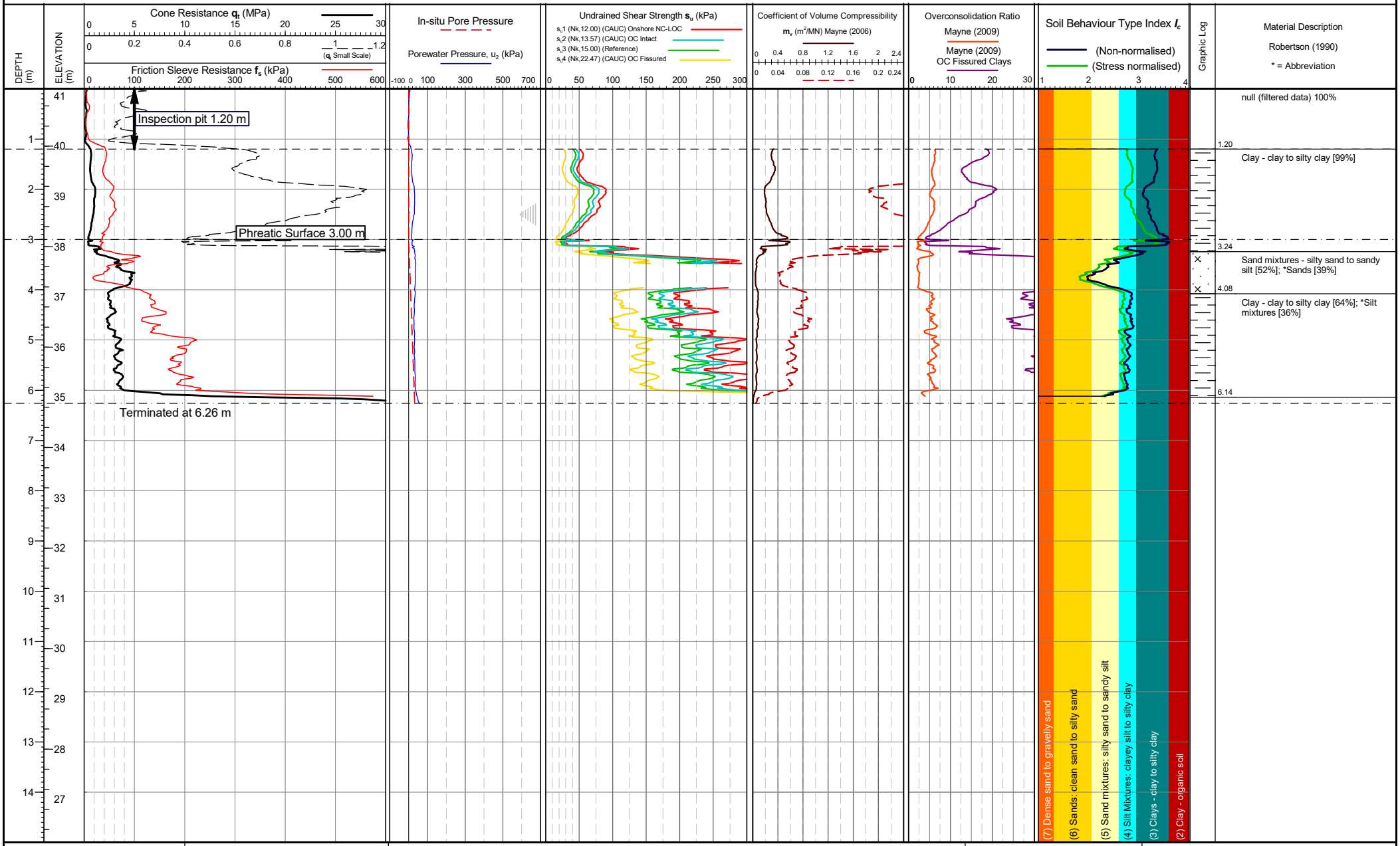
Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_08

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1821
Operator: Rob Bennett
Rig Used: UK22
Date of test: 19/04/2022 12:12:04

Location: Wiltshire, UK
Coordinates: 391947.406, 170812.161
Elevation: 41.142
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

Lankelma Project Ref: P-108001-1

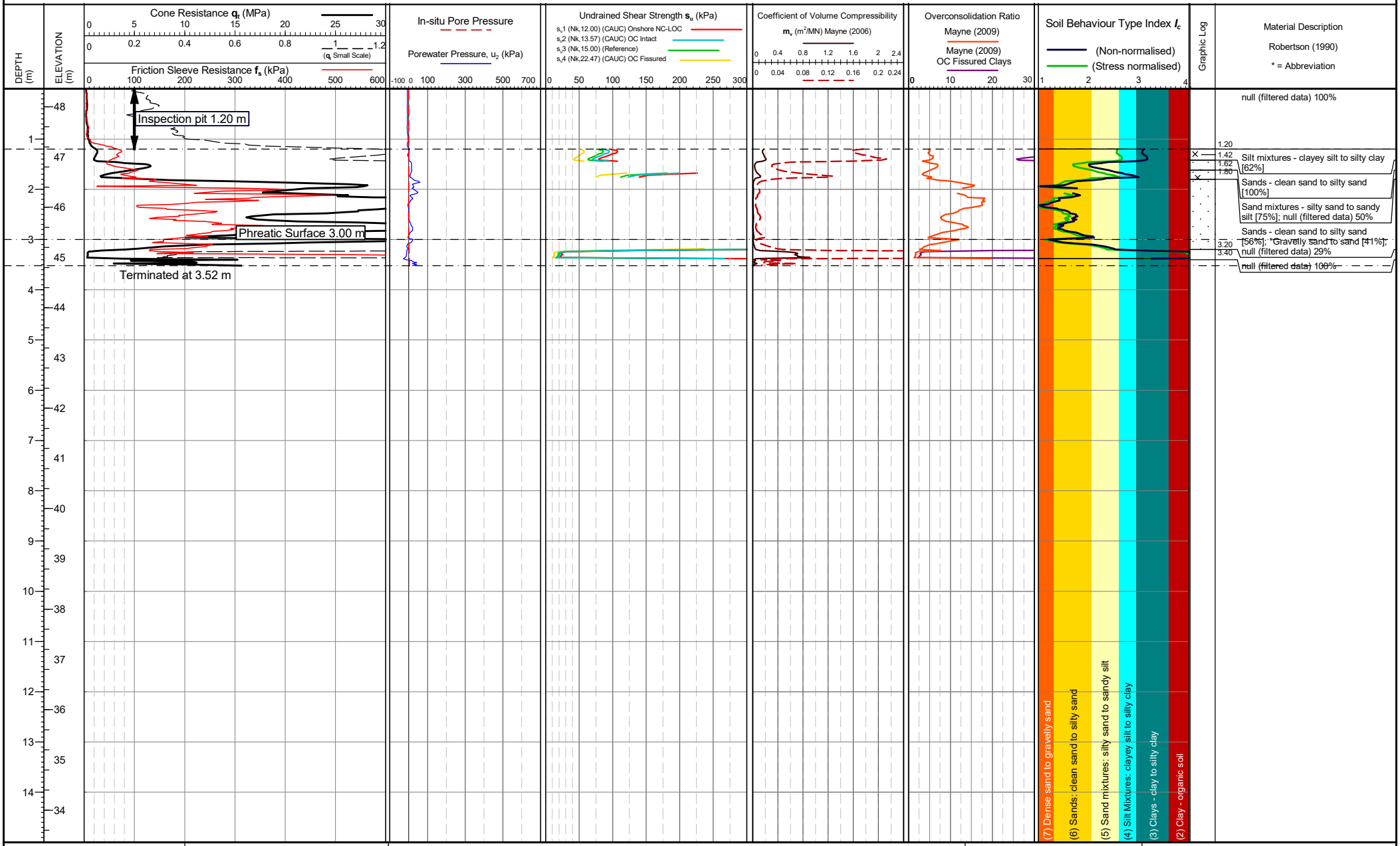
Checked by:
Chris Player

TEST ID: AVC1_CPTU_09

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Chris Clarke
Rig Used: UK22
Date of test: 21/04/2022 12:42:15

Location: Wiltshire, UK
Coordinates: 391150.606, 170673.279
Elevation: 48.357
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Sleeve load

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

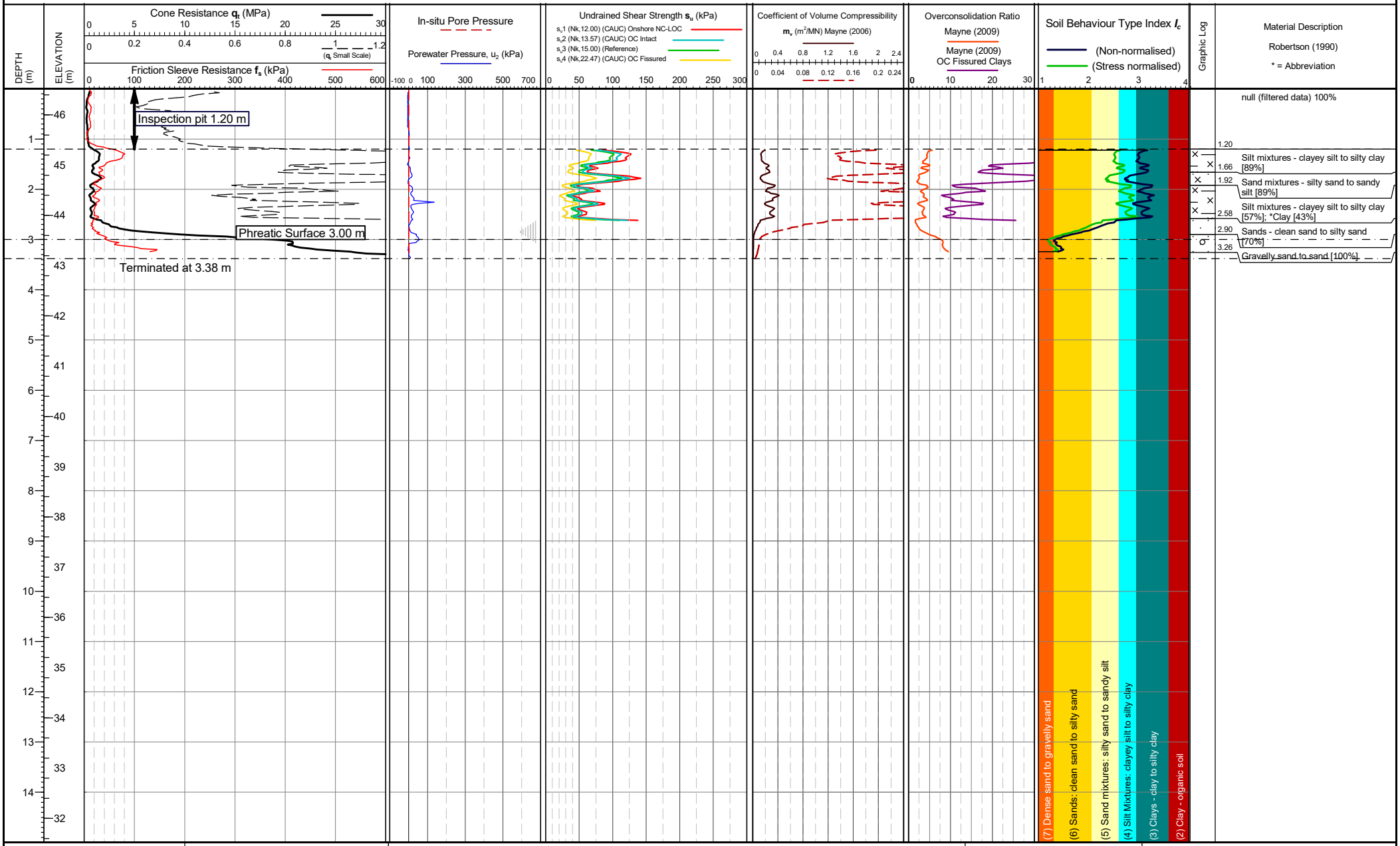
Checked by:
Chris Player

TEST ID: CPTU001

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/04/2022 11:53:43

Location: Wiltshire, UK
Coordinates: 391282.677, 170664.573
Elevation: 46.52
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Tip load

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

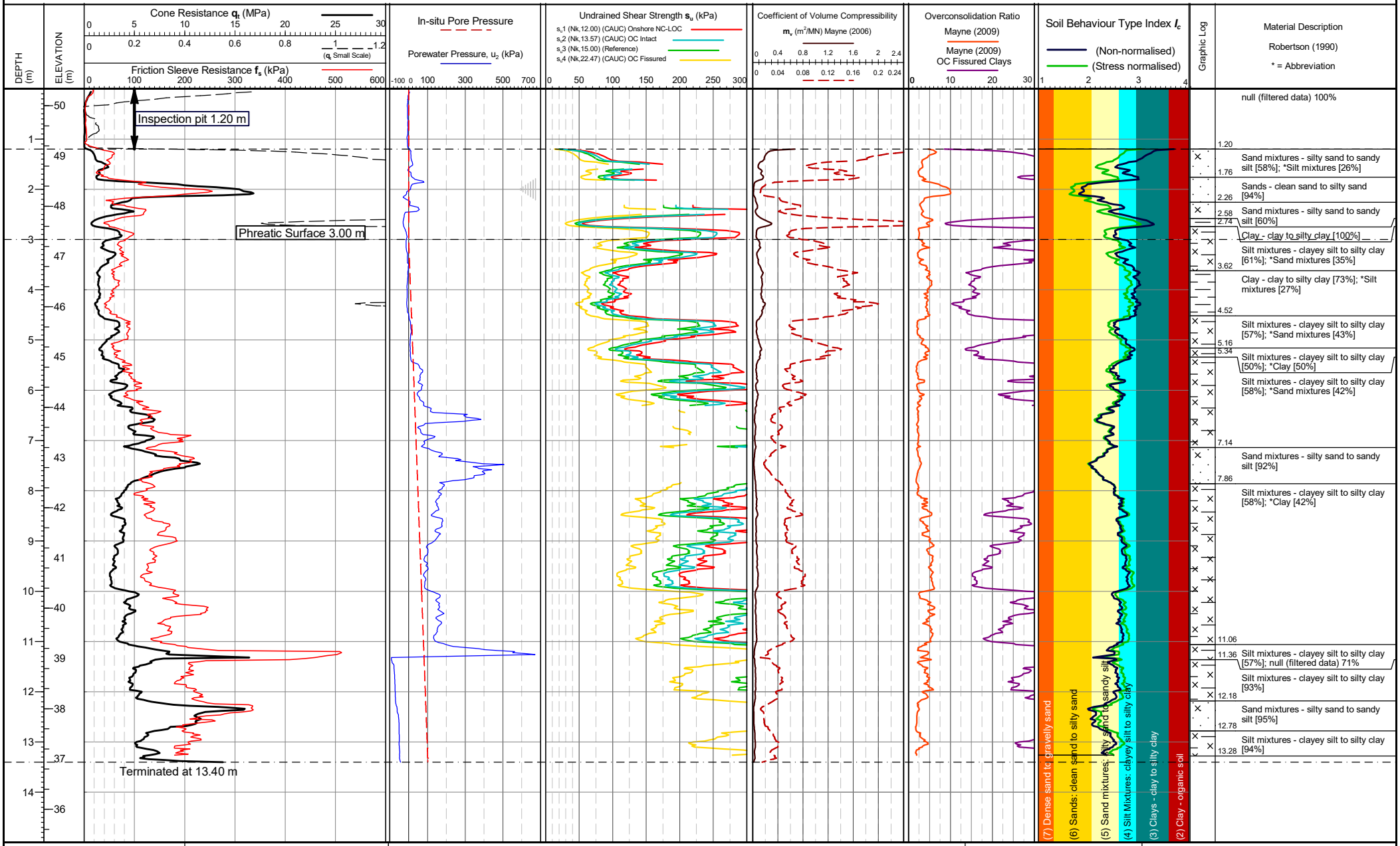
Checked by:
Chris Player

TEST ID: CPTU002

LANKELMA

Project: CHIPPENHAM

Client: RPS



null (filtered data) 100%

1.20 Sand mixtures - silty sand to sandy silt [58%]; *Silt mixtures [26%]

1.76 Sands - clean sand to silty sand [94%]

2.26 Sand mixtures - silty sand to sandy silt [60%]

2.58 Clay - clay to silty clay [100%]

2.74 Silt mixtures - clayey silt to silty clay [61%]; *Sand mixtures [35%]

3.62 Clay - clay to silty clay [73%]; *Silt mixtures [27%]

4.52 Silt mixtures - clayey silt to silty clay [57%]; *Sand mixtures [43%]

5.16 Silt mixtures - clayey silt to silty clay [50%]; *Clay [50%]

5.34 Silt mixtures - clayey silt to silty clay [58%]; *Sand mixtures [42%]

7.14 Sand mixtures - silty sand to sandy silt [92%]

7.86 Silt mixtures - clayey silt to silty clay [58%]; *Clay [42%]

11.06 Silt mixtures - clayey silt to silty clay [57%]; null (filtered data) 71%

11.36 Silt mixtures - clayey silt to silty clay [93%]

12.18 Sand mixtures - silty sand to sandy silt [95%]

12.78 Silt mixtures - clayey silt to silty clay [94%]

13.28

Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 20/04/2022 08:51:26

Location: Wiltshire, UK
Coordinates: 392271.234, 170957.221
Elevation: 50.338
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Total reaction force

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

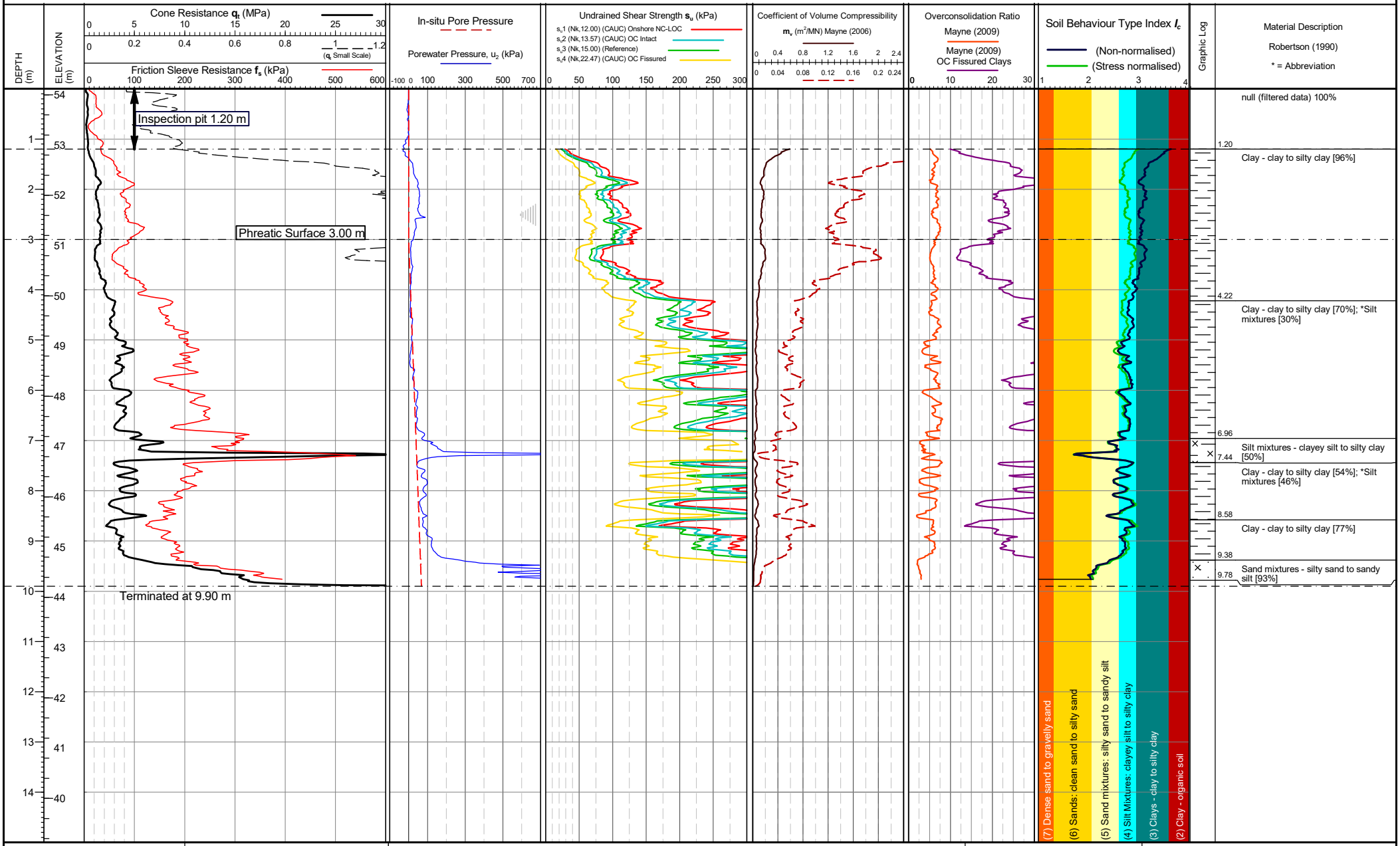
Checked by:
Chris Player

TEST ID: CPTU003

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Chris Clarke
Rig Used: UK22
Date of test: 20/04/2022 09:58:14

Location: Wiltshire, UK
Coordinates: 392765.415, 171160.838
Elevation: 54.121
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Total reaction force

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

Checked by: Chris Player

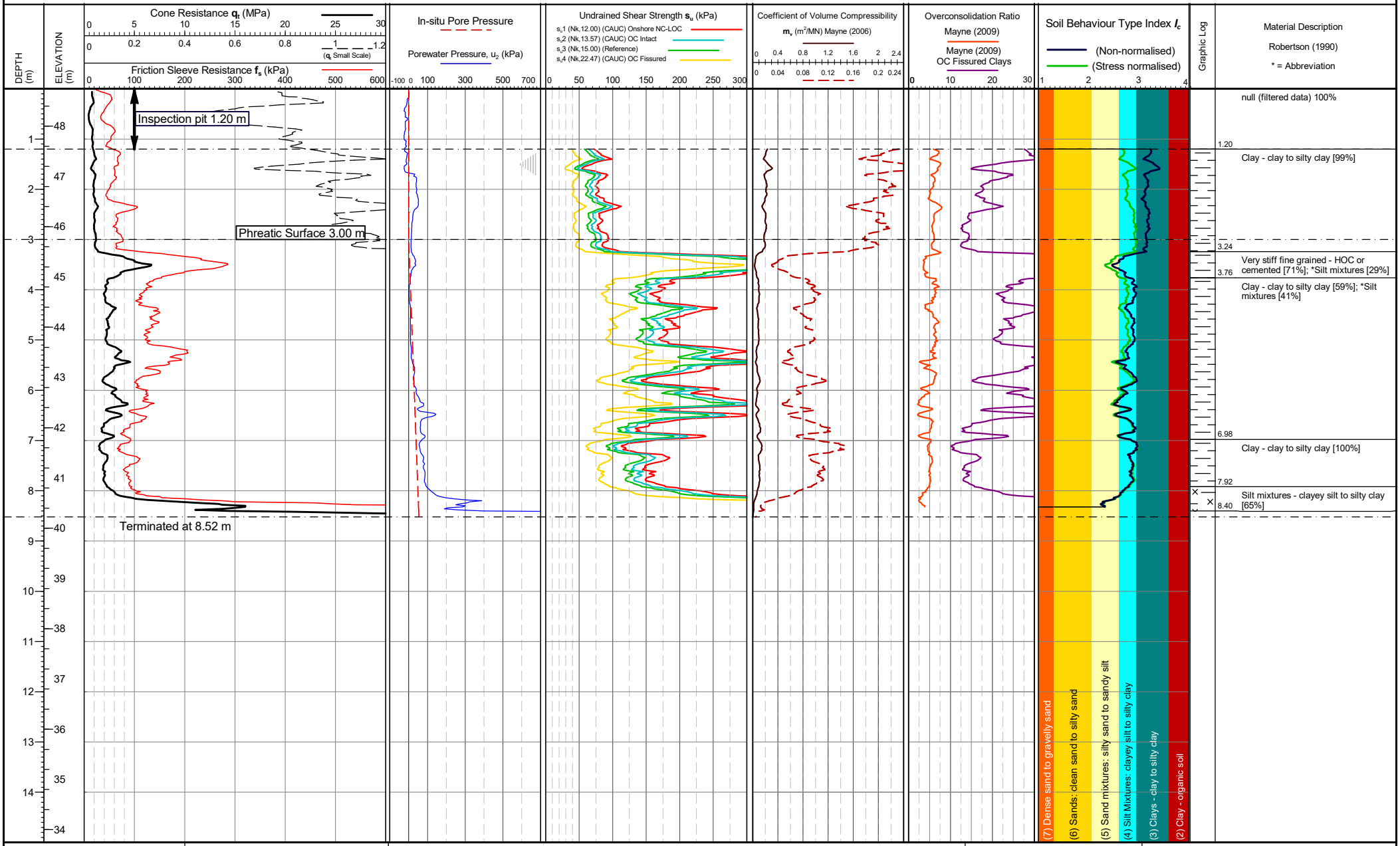
Lankelma Project Ref: P-108001-1

TEST ID: CPTU004

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 20/04/2022 11:11:10

Location: Wiltshire, UK
Coordinates: 393239.268, 171021.319
Elevation: 48.745
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Total reaction force

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

Lankelma Project Ref: P-108001-1

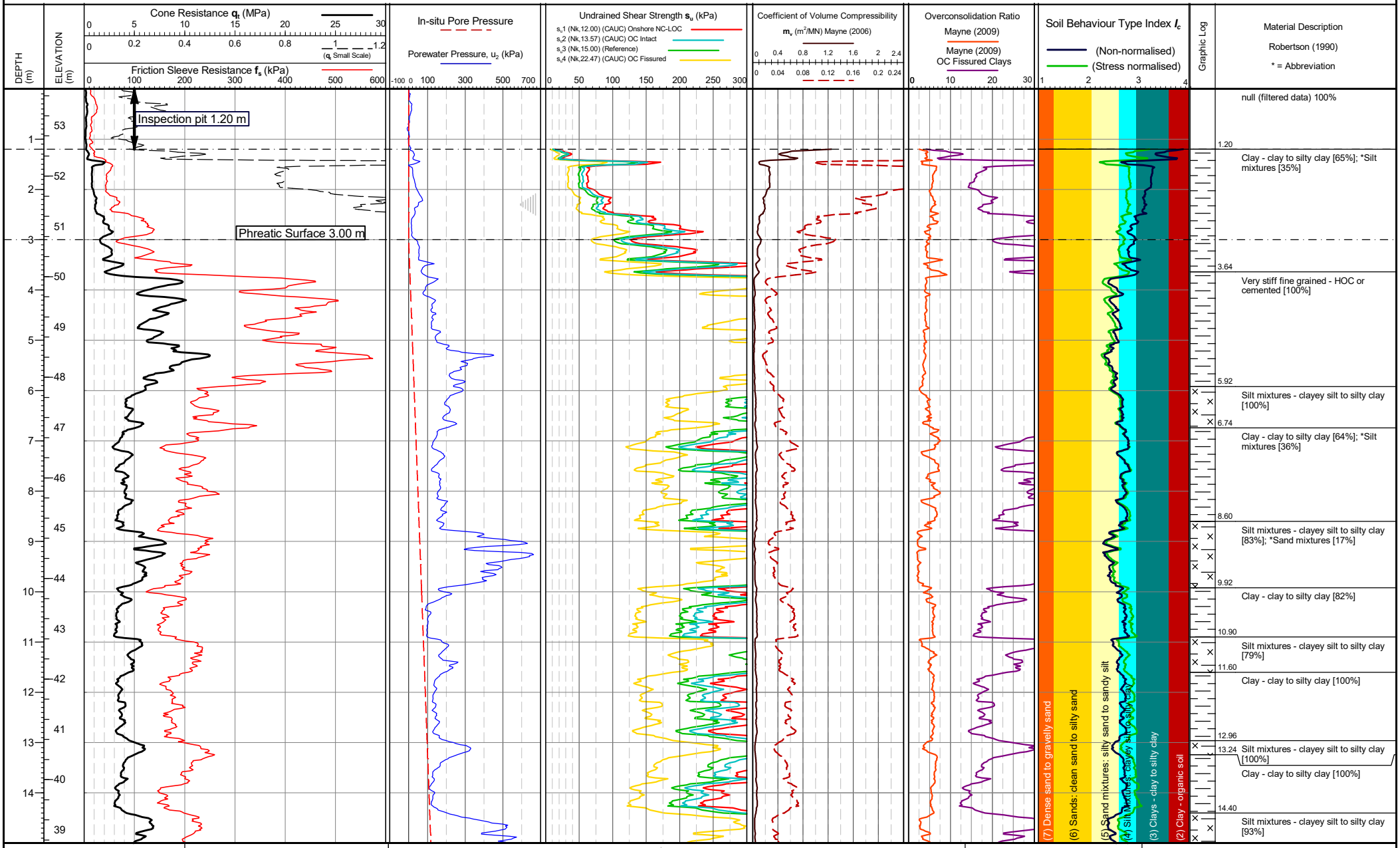
Checked by:
Chris Player

TEST ID: CPTU005

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 20/04/2022 14:04:02

Location: Wiltshire, UK
Coordinates: 393698.42, 171282.403
Elevation: 53.736
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Total reaction force

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

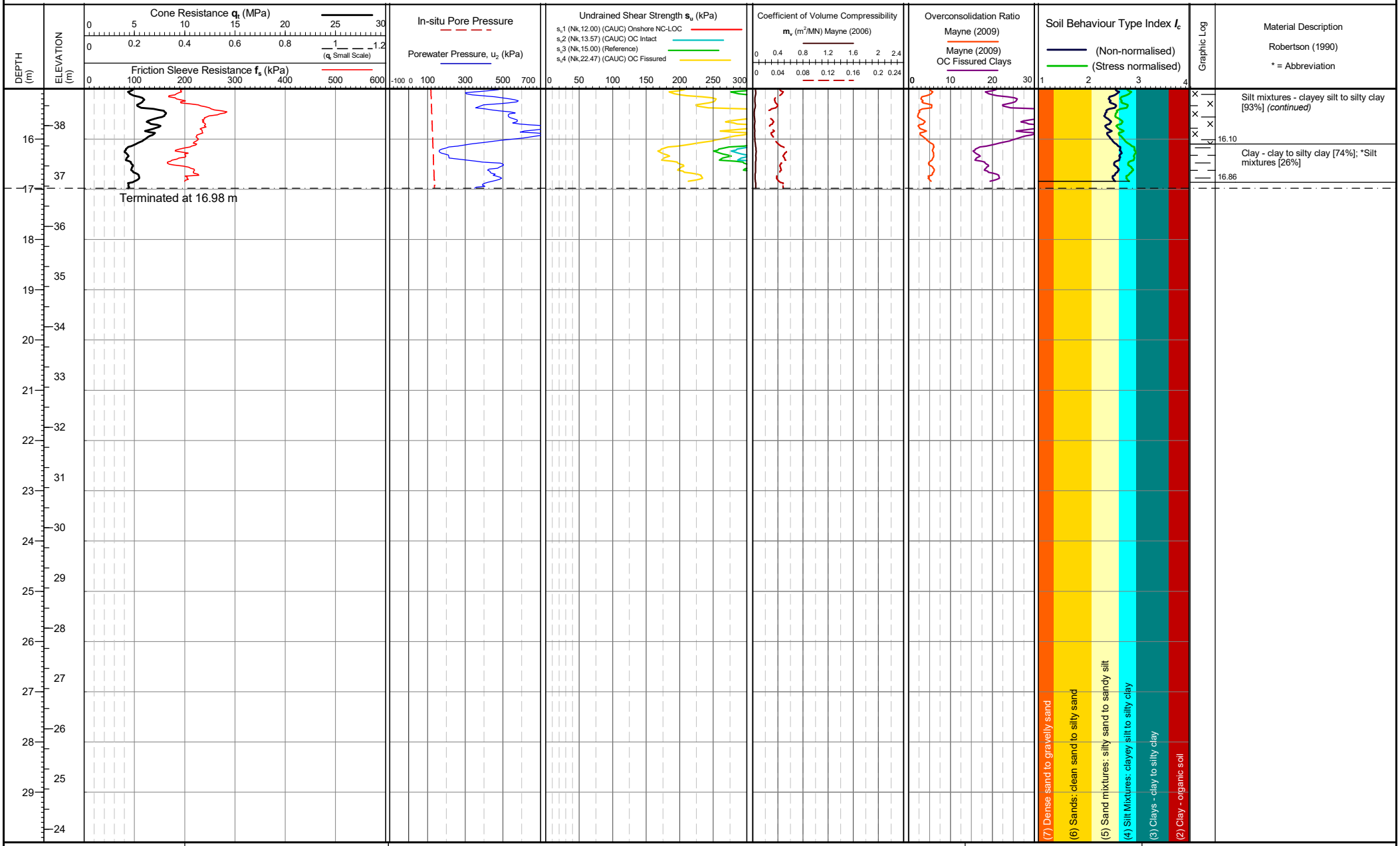
Checked by:
Chris Player

TEST ID: CPTU006

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 20/04/2022 14:04:02

Location: Wiltshire, UK
Coordinates: 393698.42, 171282.403
Elevation: 53.736
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Total reaction force

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

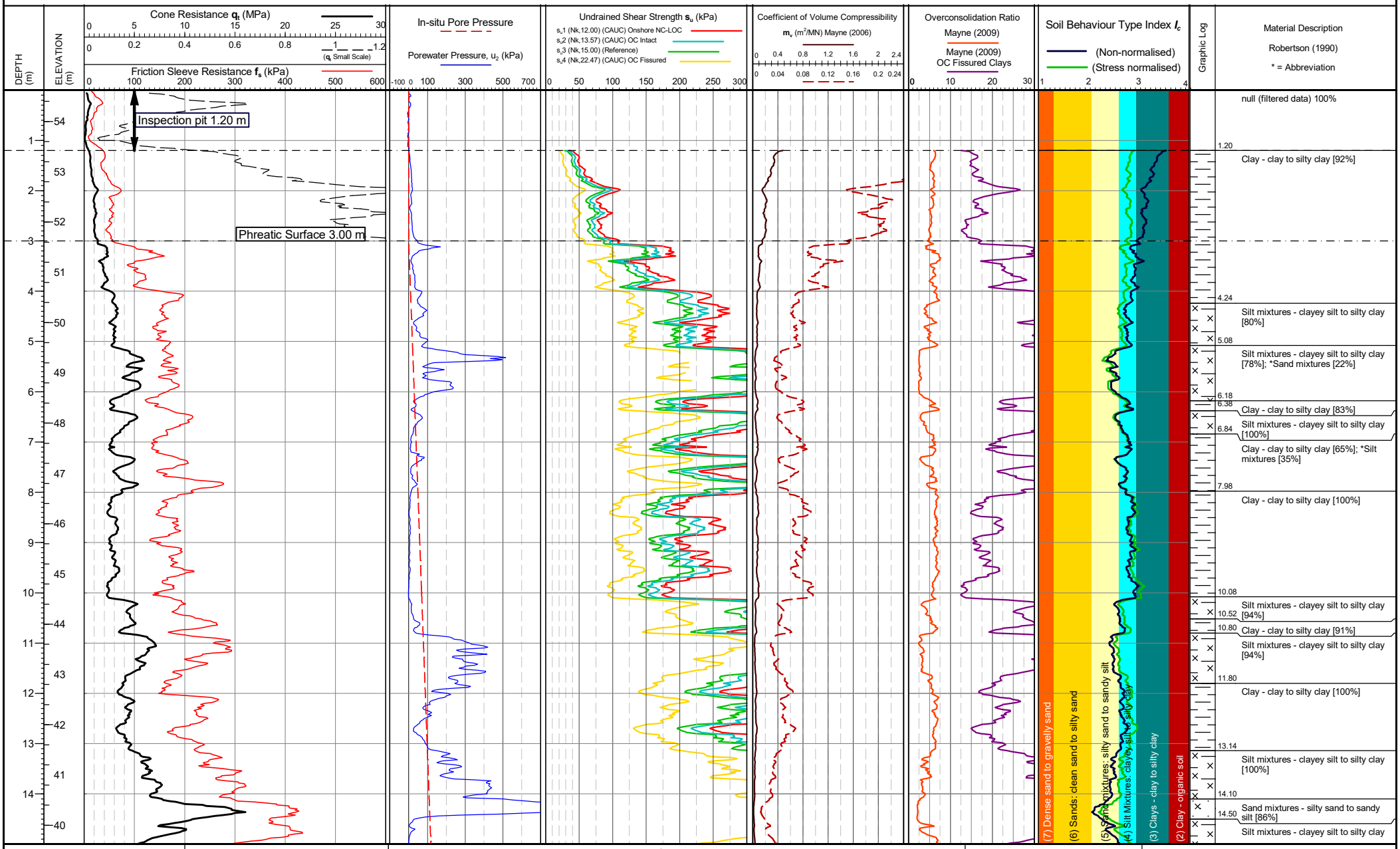
Checked by:
Chris Player

TEST ID: CPTU006

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 20/04/2022 15:44:43

Location: Wiltshire, UK
Coordinates: 394325.179, 171747.19
Elevation: 54.624
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Total reaction force

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

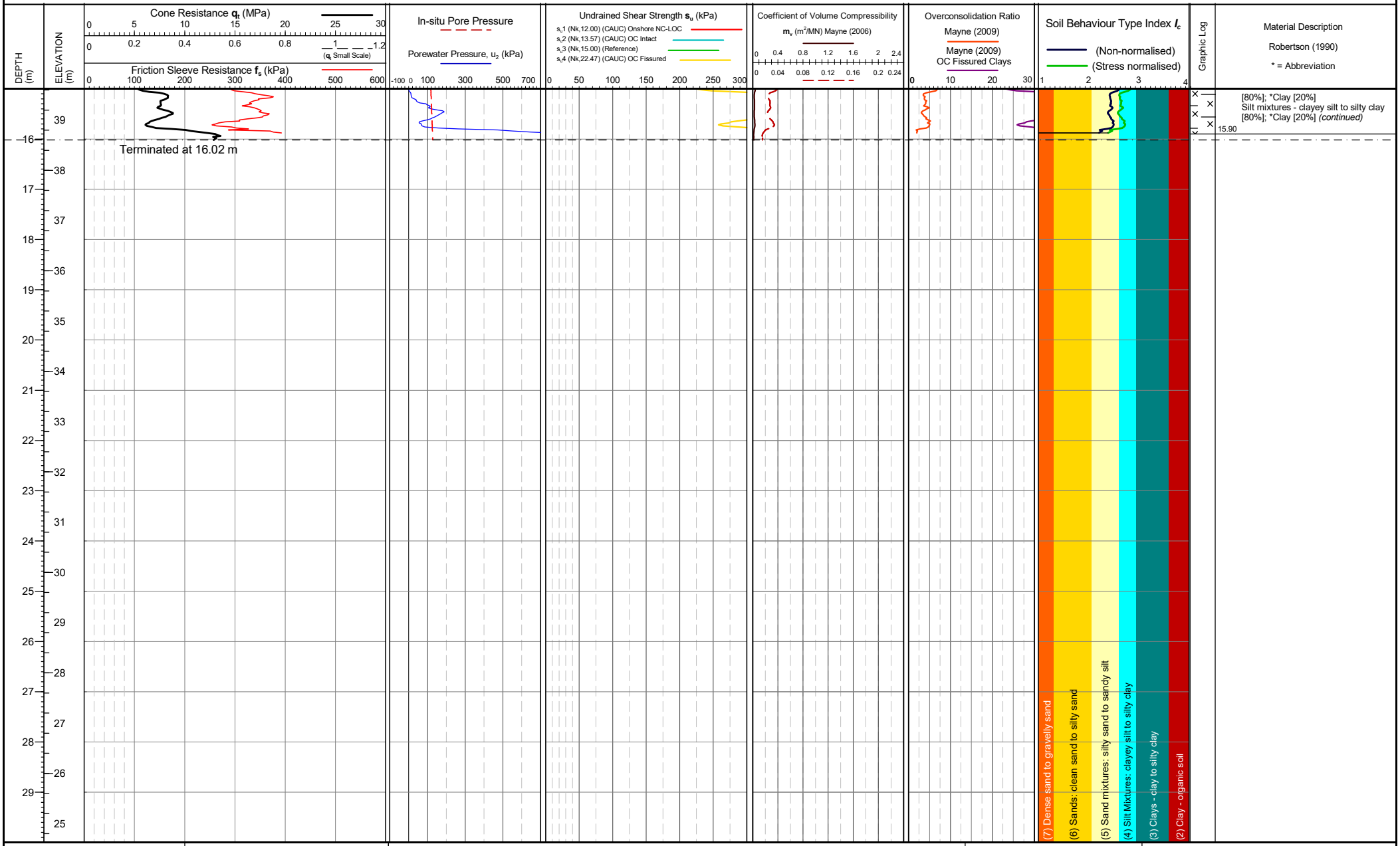
Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

Checked by:
Chris Player

TEST ID: CPTU007

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
ConeID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 20/04/2022 15:44:43

Location: Wiltshire, UK
Coordinates: 394325.179, 171747.19
Elevation: 54.624
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Total reaction force

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22

Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: CPTU007

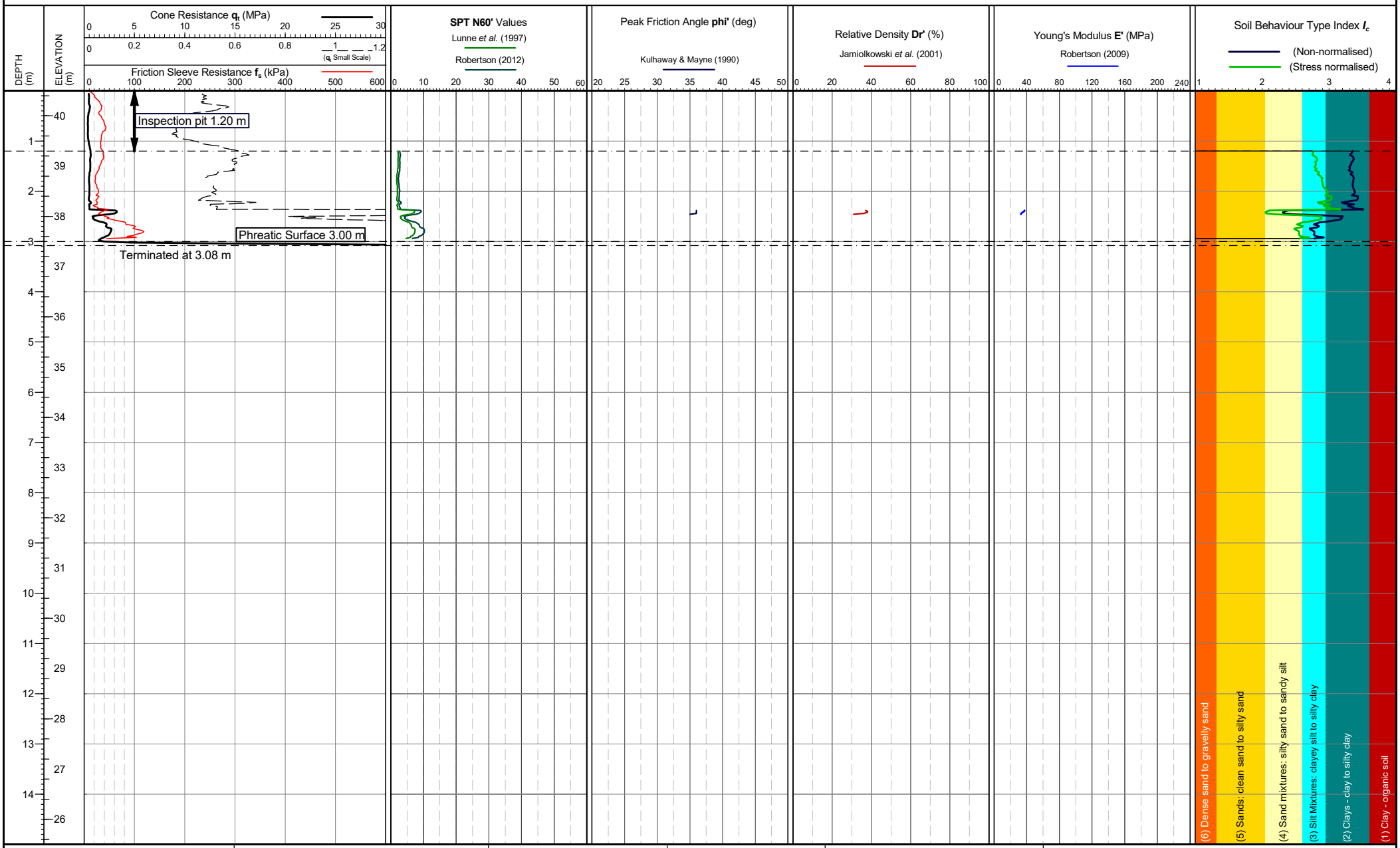
APPENDIX F DRAINED PARAMETER RESULTS

EQUIVALENT SPT N60 (ALL DRAINAGE CONDITIONS)
PEAK FRICTION ANGLE
RELATIVE DENSITY
YOUNG'S MODULUS

Plots are provided for all locations

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Chris Clarke
Date of test: 21/04/2022 10:25:27

Location: Wiltshire, UK
Coordinates: 391630.743, 170710.266
Elevation: 40.499
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

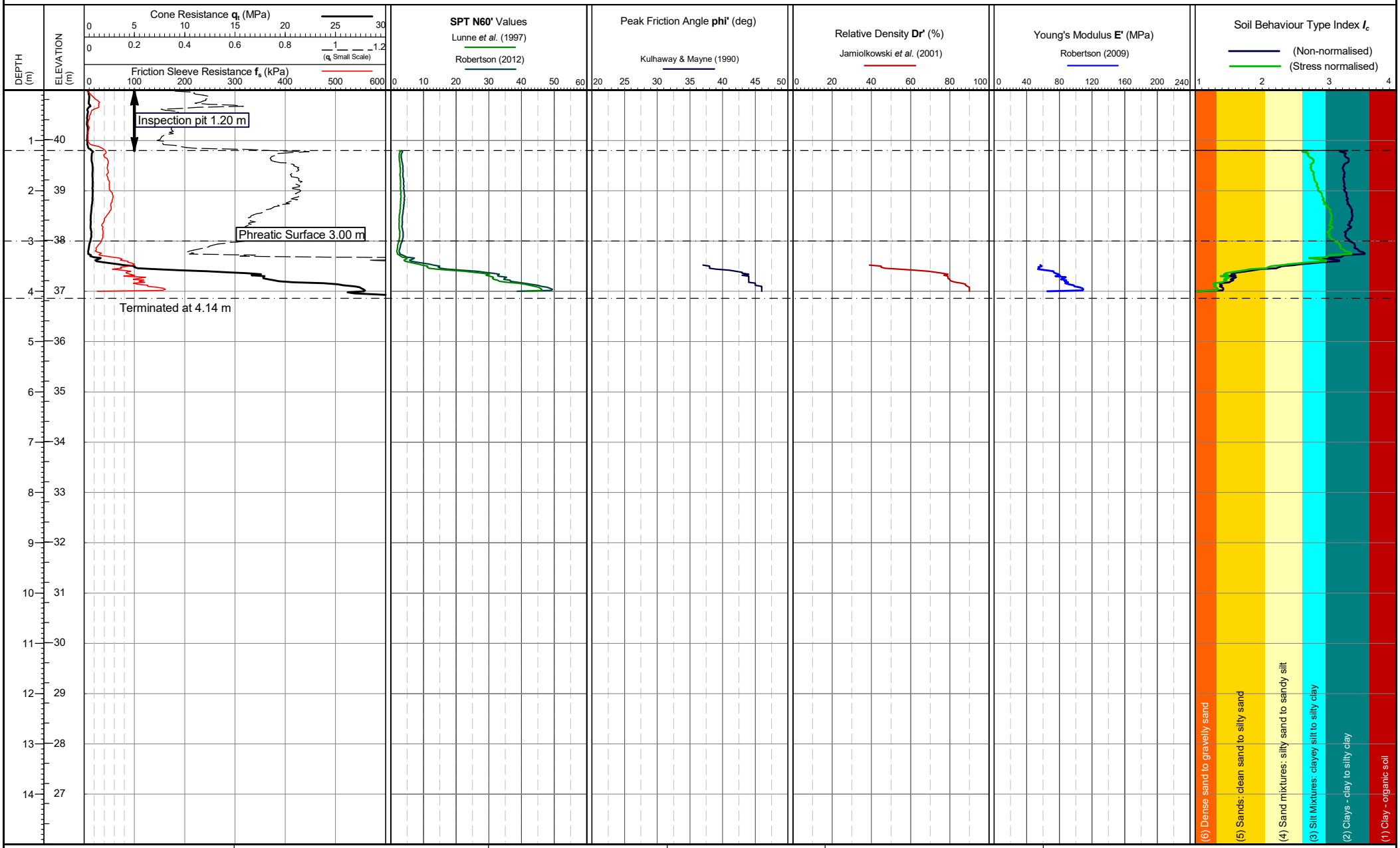
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_01

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 21/04/2022 09:54:49

Location: Wiltshire, UK
Coordinates: 391678.494, 170710.968
Elevation: 40.986
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

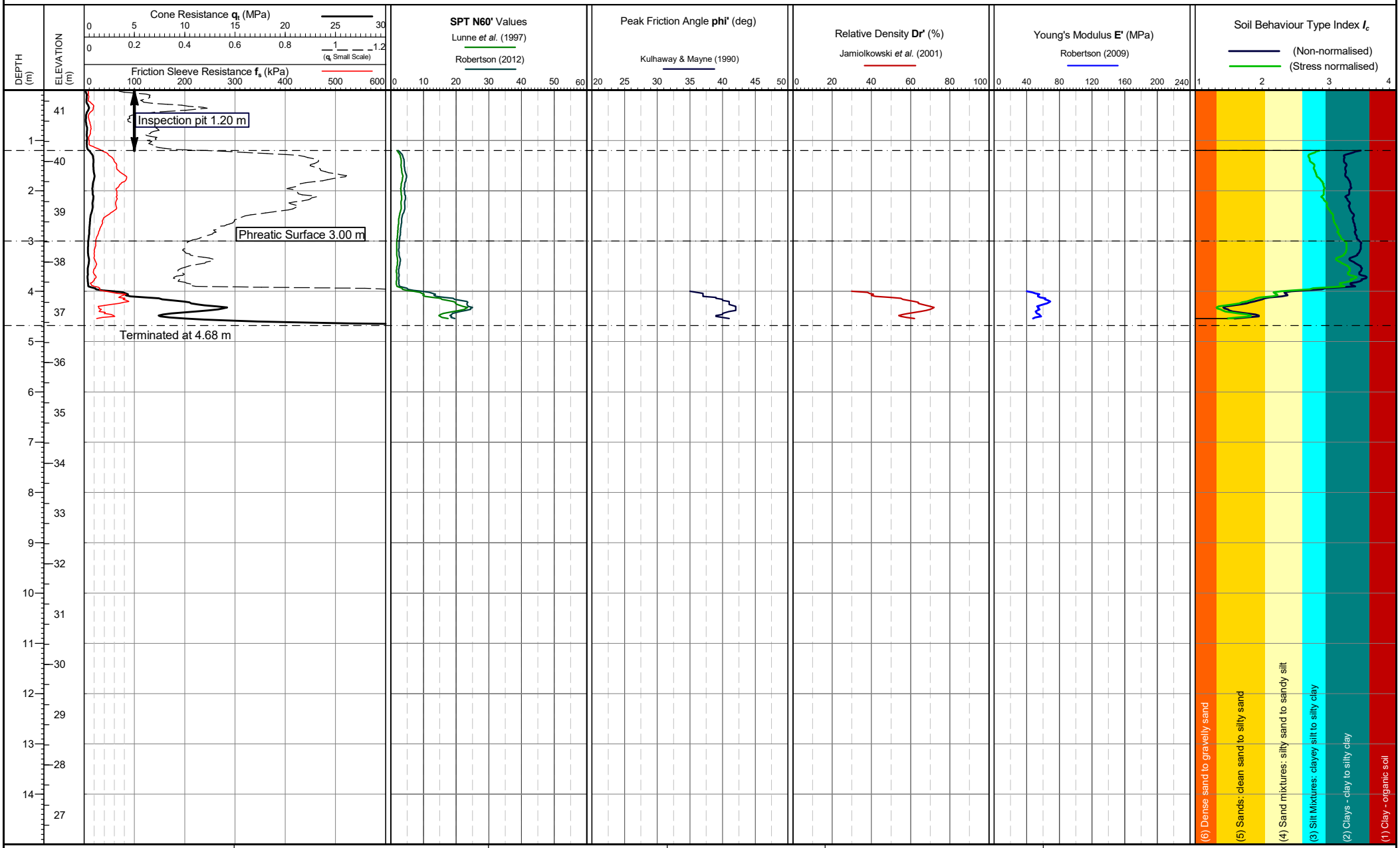
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_02

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 21/04/2022 09:13:53

Location: Wiltshire, UK
Coordinates: 391698.452, 170732.671
Elevation: 41.418
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

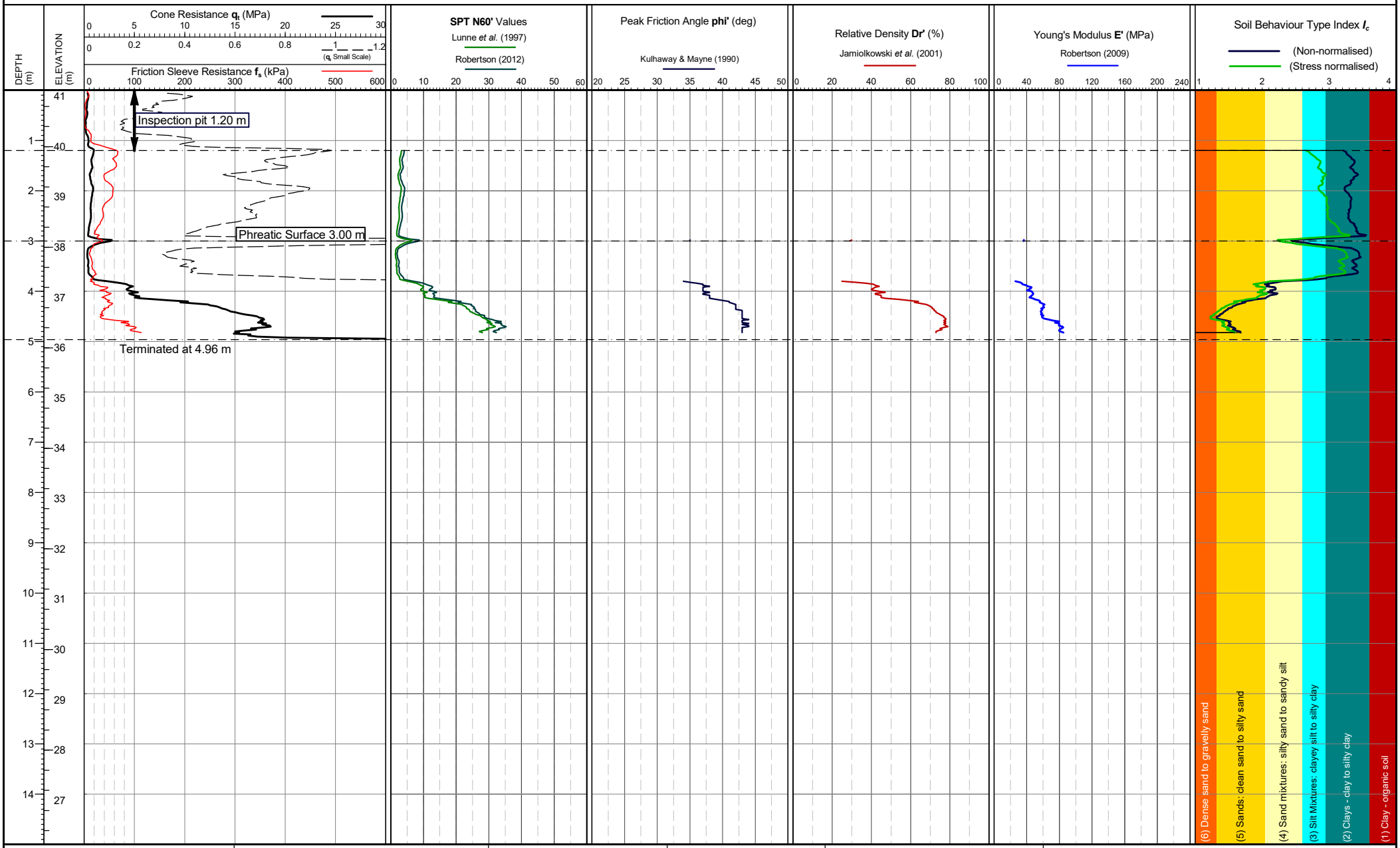
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_03

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1821
Operator: Rob Bennett
Date of test: 19/04/2022 10:08:53

Location: Wiltshire, UK
Coordinates: 391752.34, 170732.632
Elevation: 41.123
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

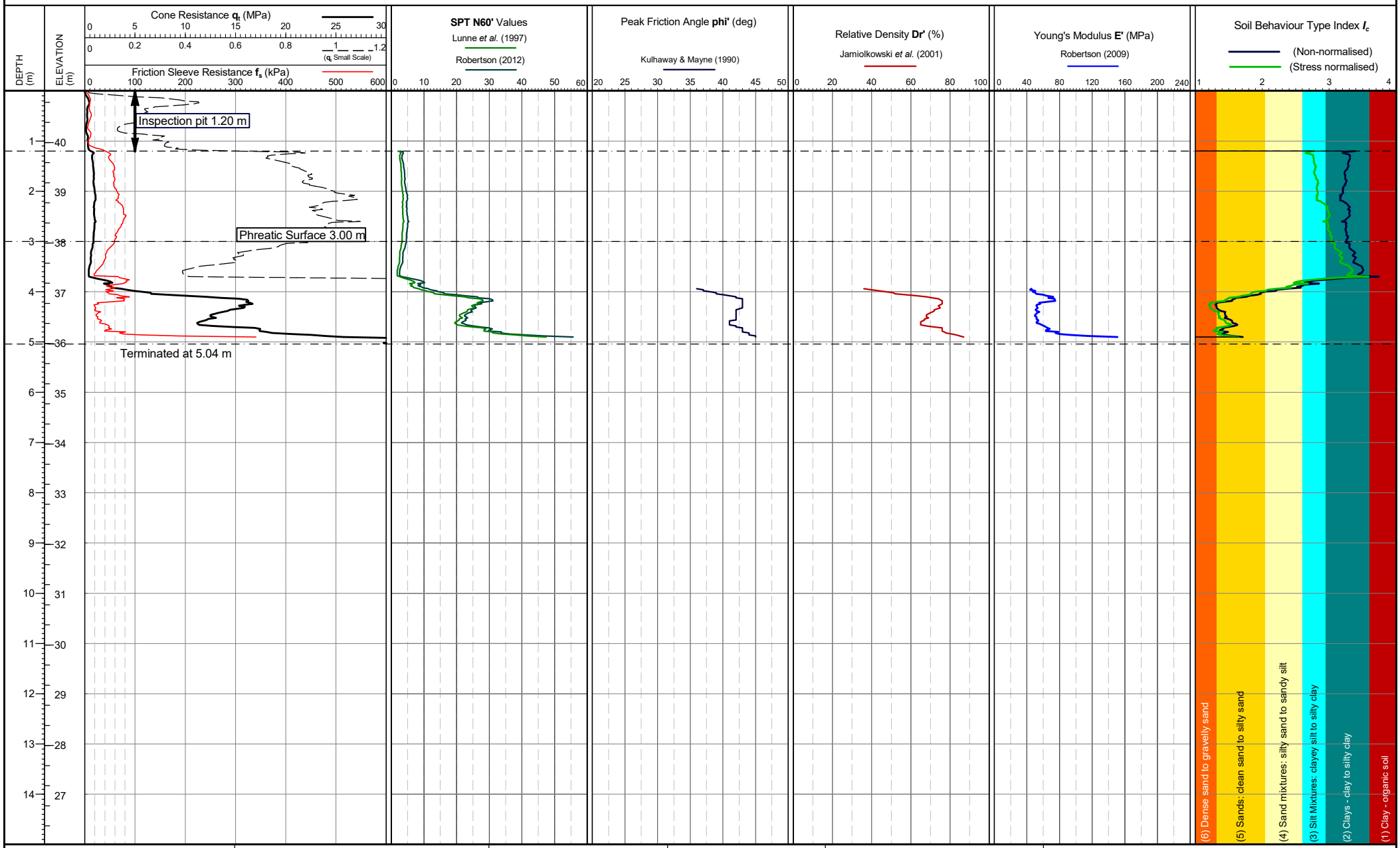
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_04

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1821
Operator: Chris Clarke
Date of test: 19/04/2022 10:46:39

Location: Wiltshire, UK
Coordinates: 391787.809, 170759.334
Elevation: 41.03
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

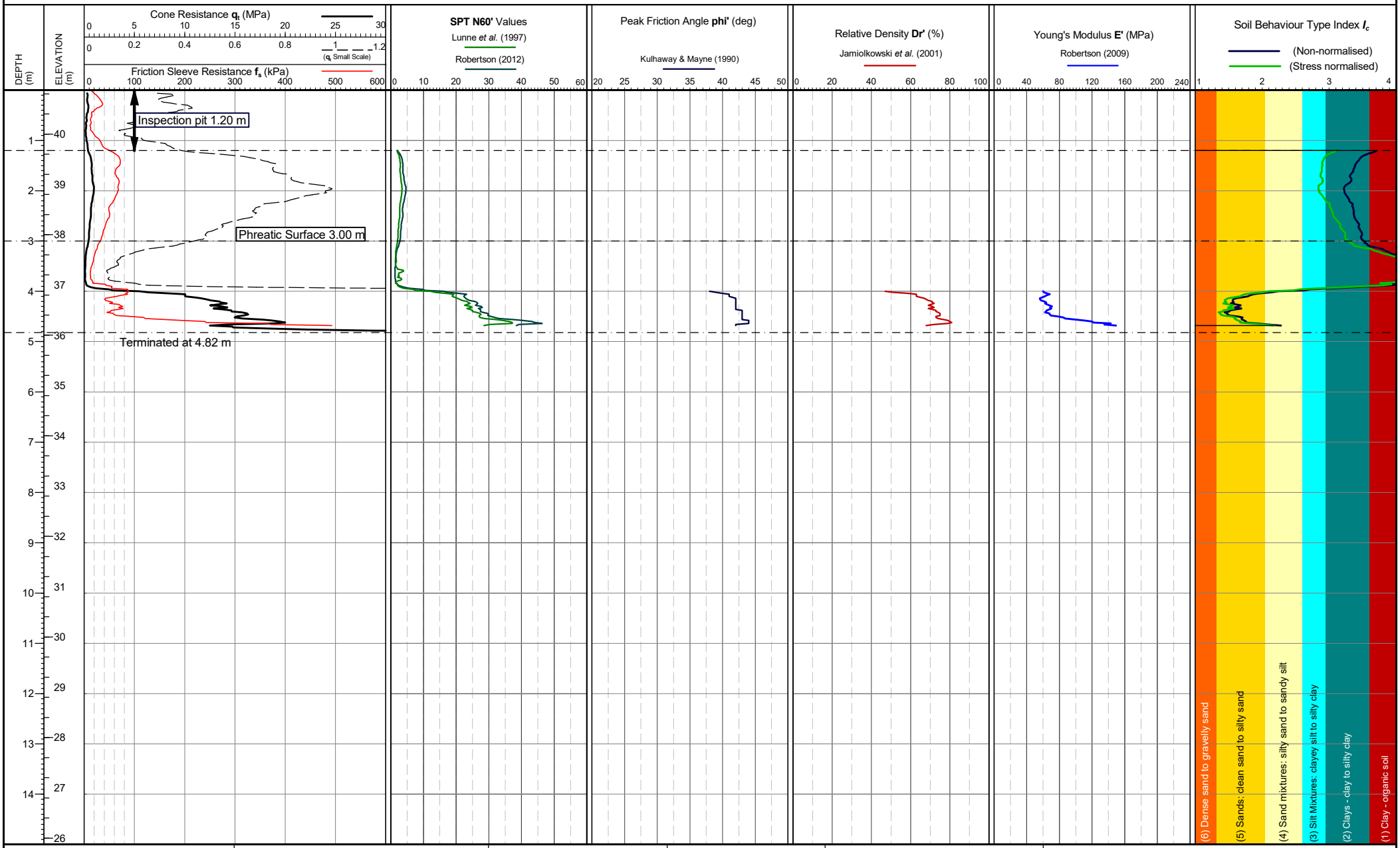
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_05

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1821
Operator: Rob Bennett
Date of test: 19/04/2022 14:12:45

Location: Wiltshire, UK
Coordinates: 391830.697, 170755.654
Elevation: 40.873
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

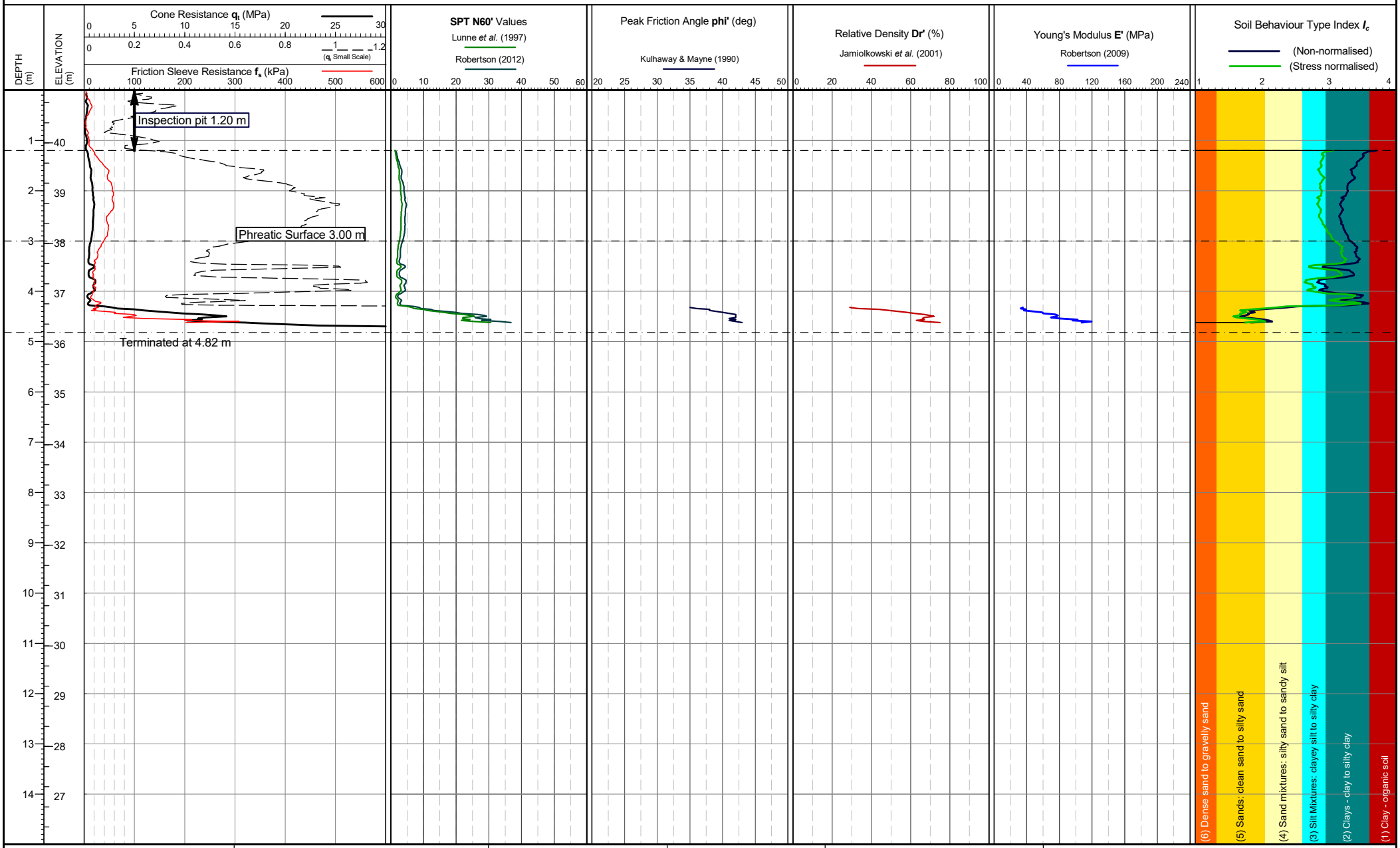
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_06

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1821
Operator: Rob Bennett
Date of test: 19/04/2022 11:28:33

Location: Wiltshire, UK
Coordinates: 391864.549, 170784.592
Elevation: 41.05
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

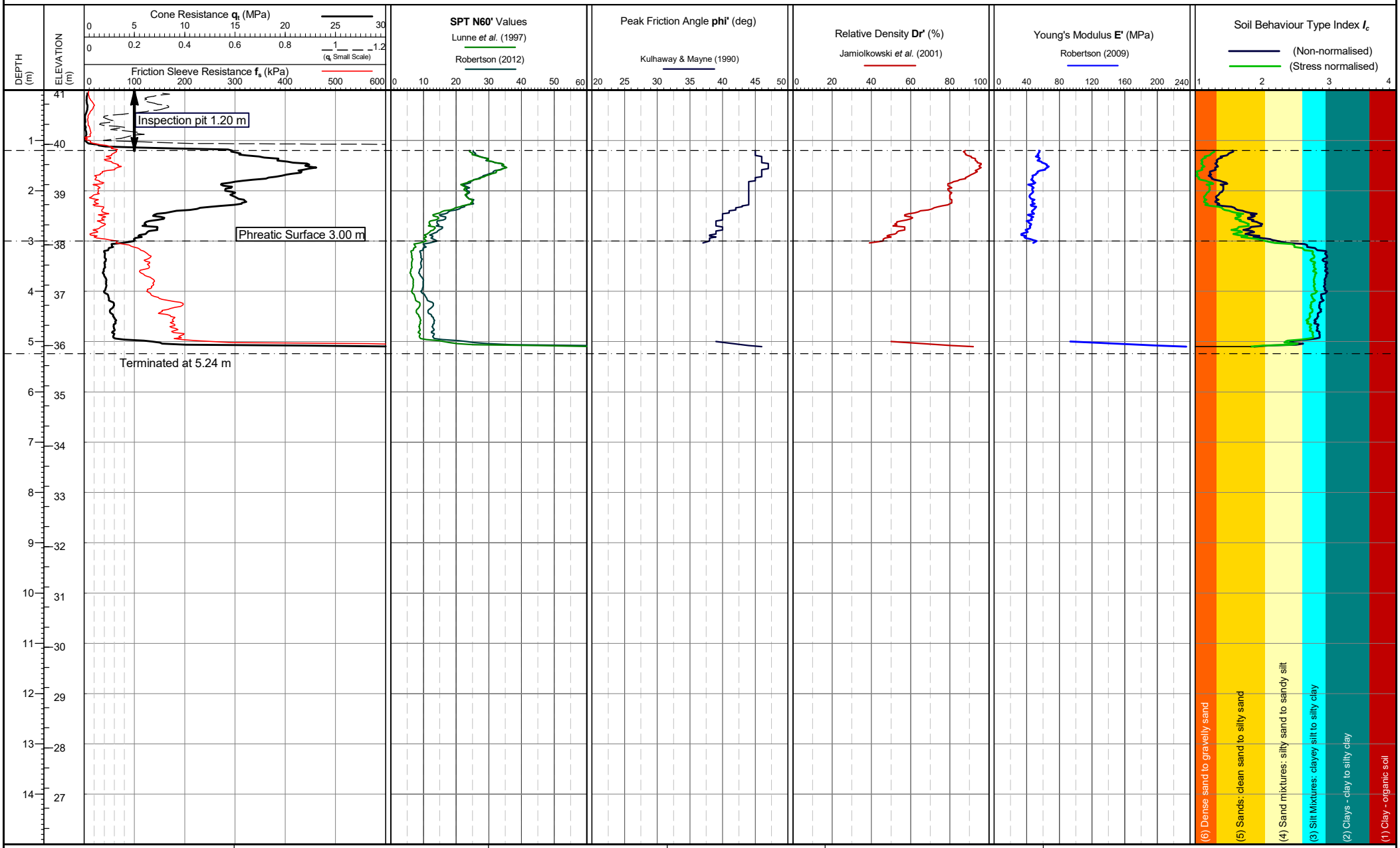
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_07

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1821
Operator: Rob Bennett
Date of test: 19/04/2022 13:46:46

Location: Wiltshire, UK
Coordinates: 391905.767, 170780.346
Elevation: 41.078
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

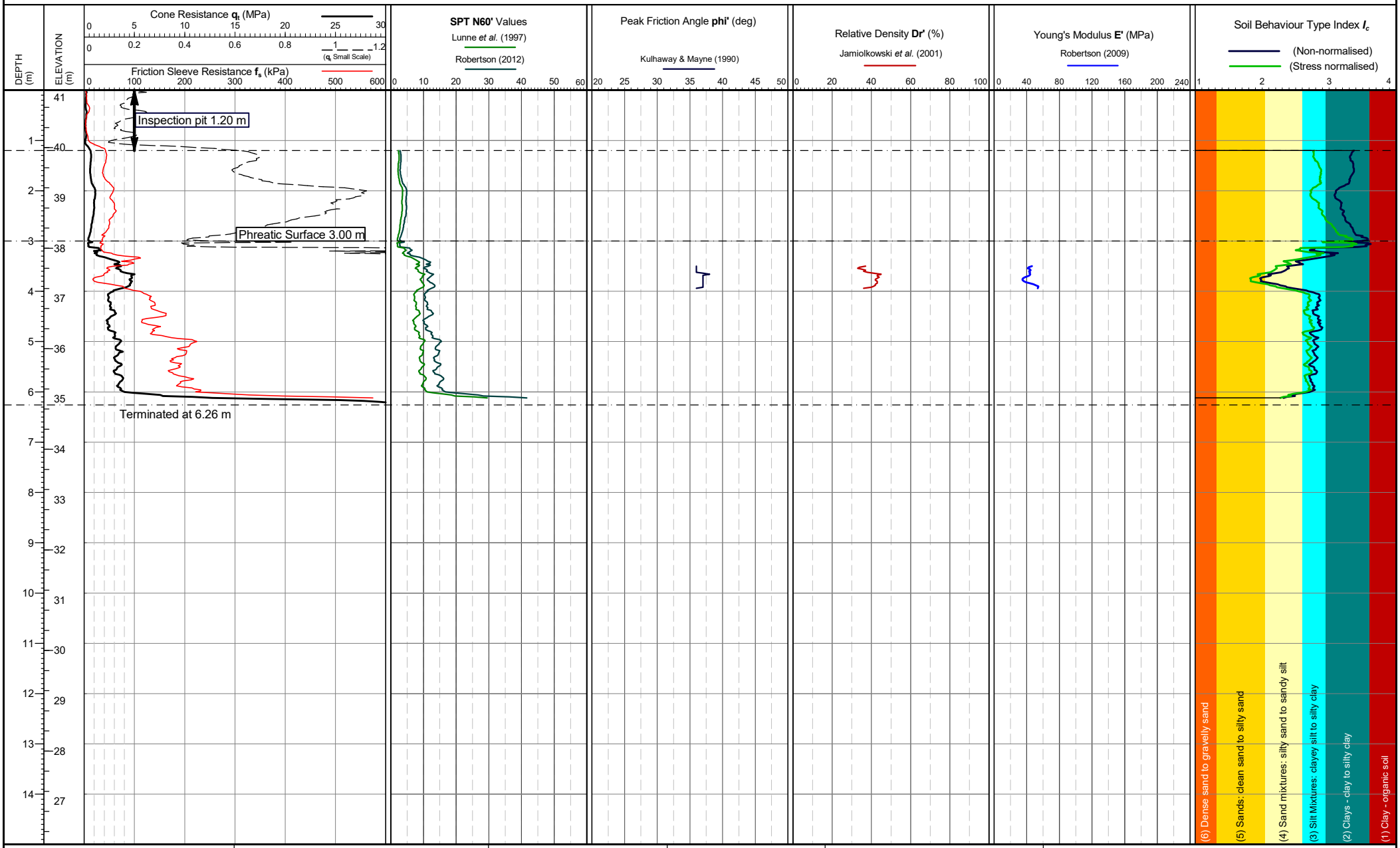
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_08

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1821
Operator: Rob Bennett
Date of test: 19/04/2022 12:12:04

Location: Wiltshire, UK
Coordinates: 391947.406, 170812.161
Elevation: 41.142
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

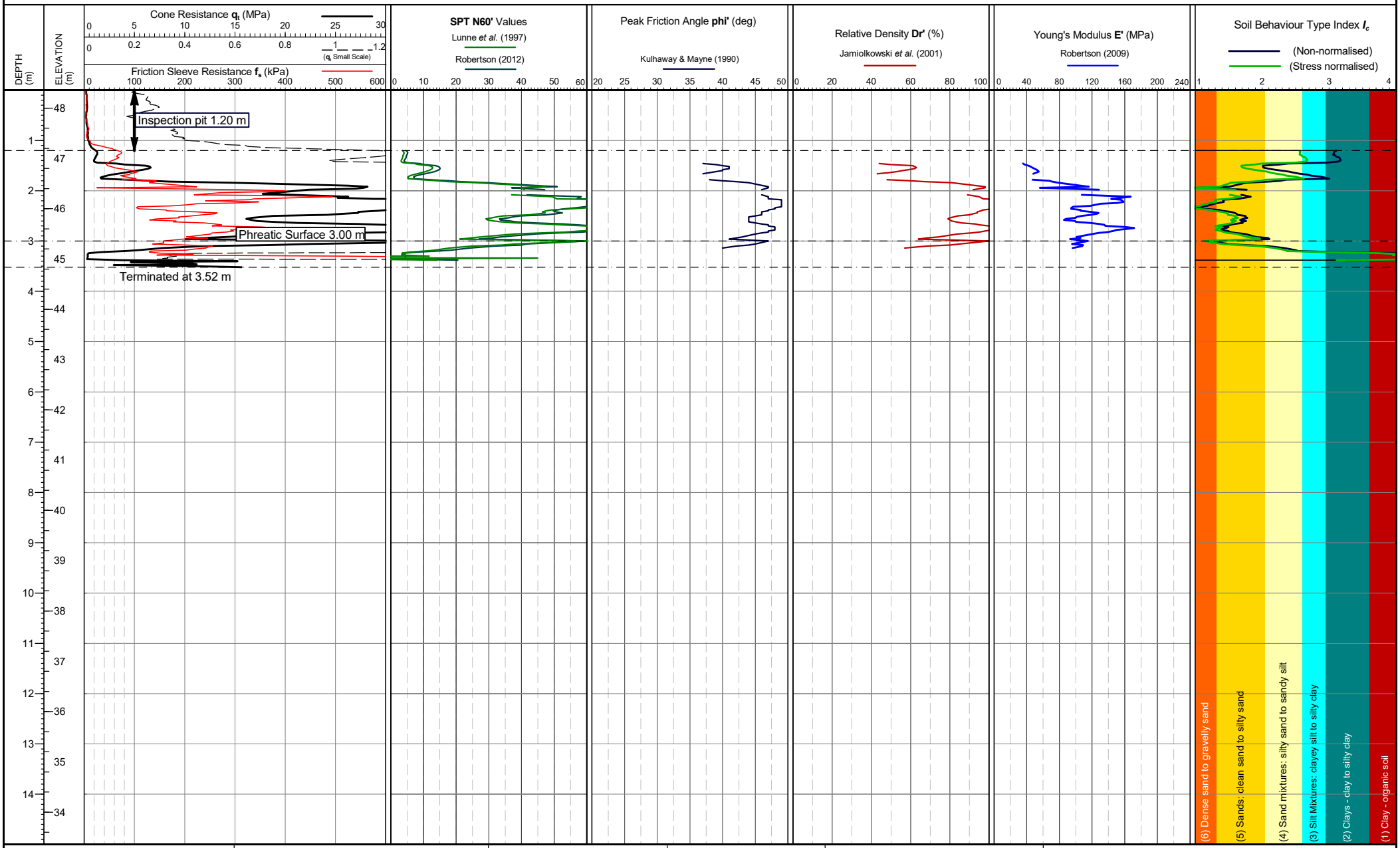
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_09

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Chris Clarke
Date of test: 21/04/2022 12:42:15

Location: Wiltshire, UK
Coordinates: 391150.606, 170673.279
Elevation: 48.357
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

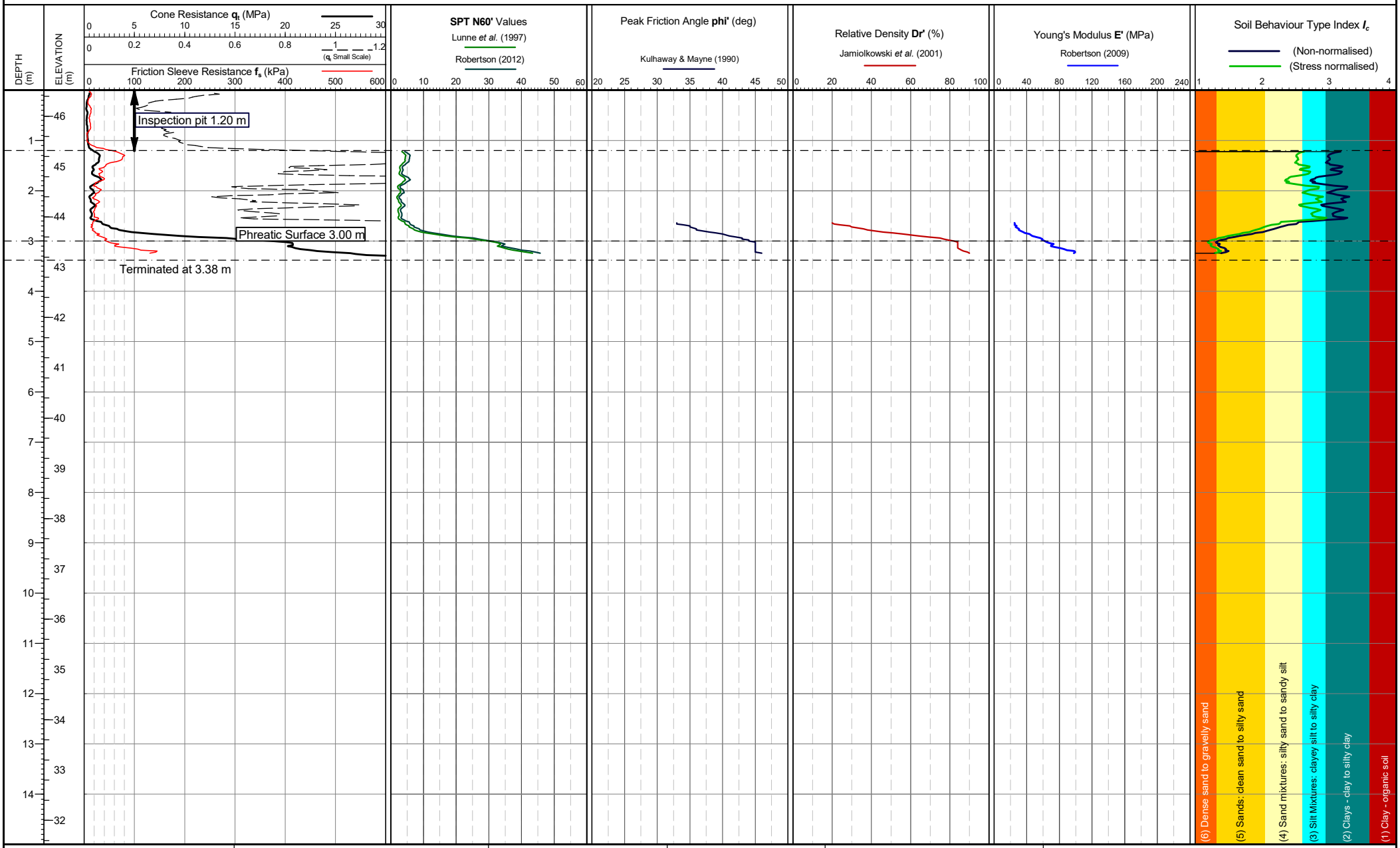
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: CPTU001

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 21/04/2022 11:53:43

Location: Wiltshire, UK
Coordinates: 391282.677, 170664.573
Elevation: 46.52
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Checked by: Chris Player

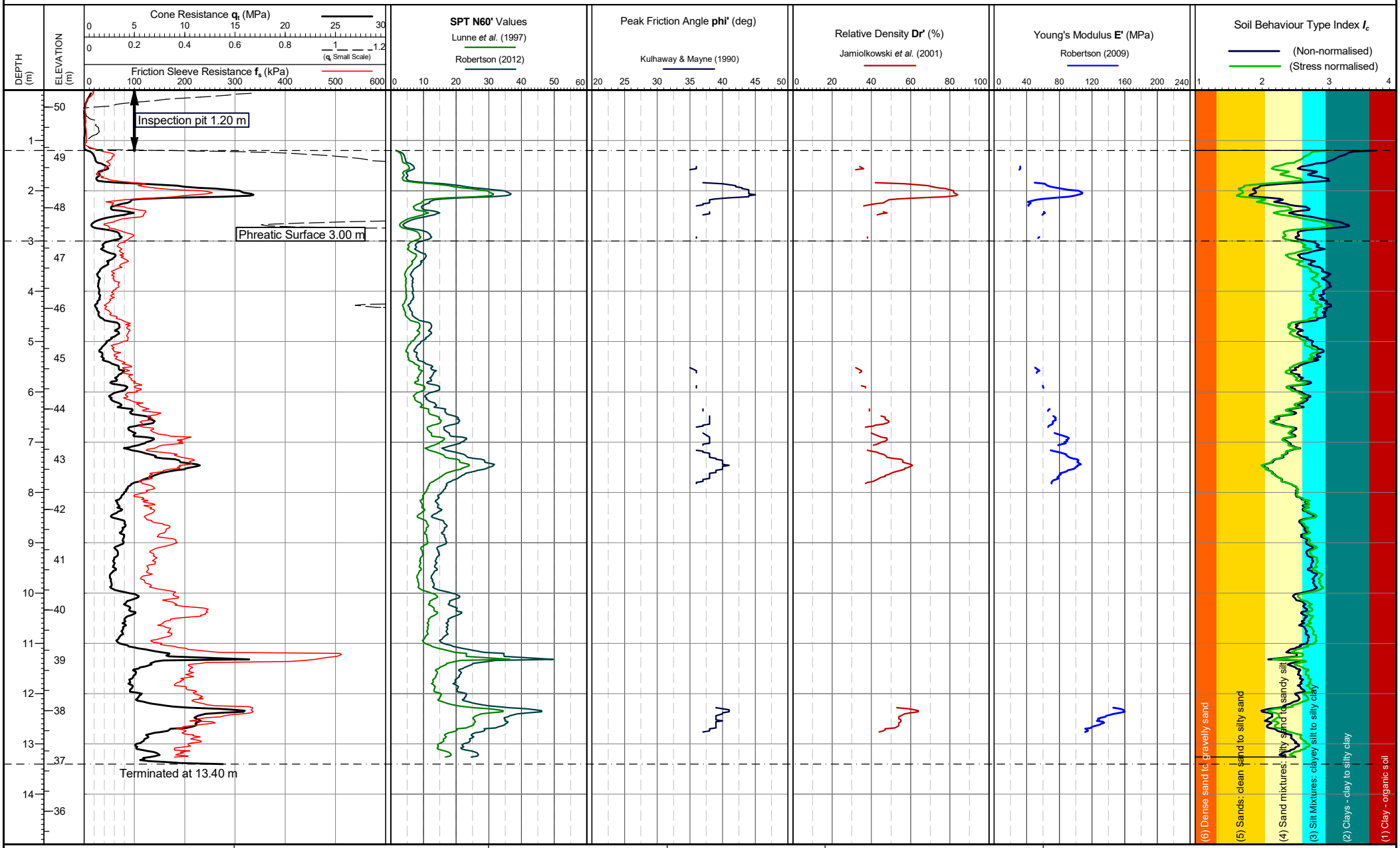
Lankelma Project Ref: P-108001-1

TEST ID: CPTU002

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 20/04/2022 08:51:26

Location: Wiltshire, UK
Coordinates: 392271.234, 170957.221
Elevation: 50.338
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Checked by: Chris Player

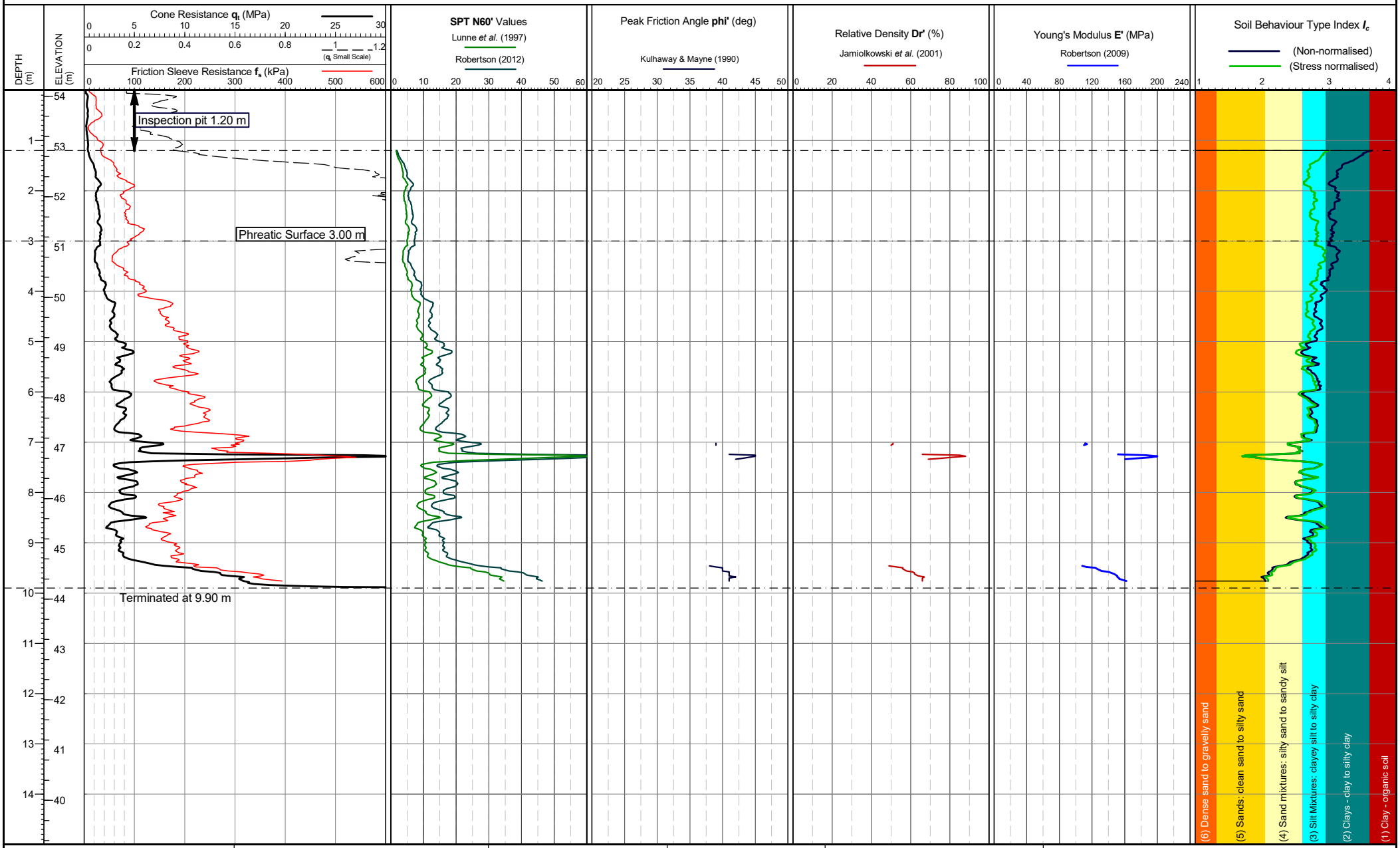
Lankelma Project Ref: P-108001-1

TEST ID: CPTU003

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Chris Clarke
Date of test: 20/04/2022 09:58:14

Location: Wiltshire, UK
Coordinates: 392765.415, 171160.838
Elevation: 54.121
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

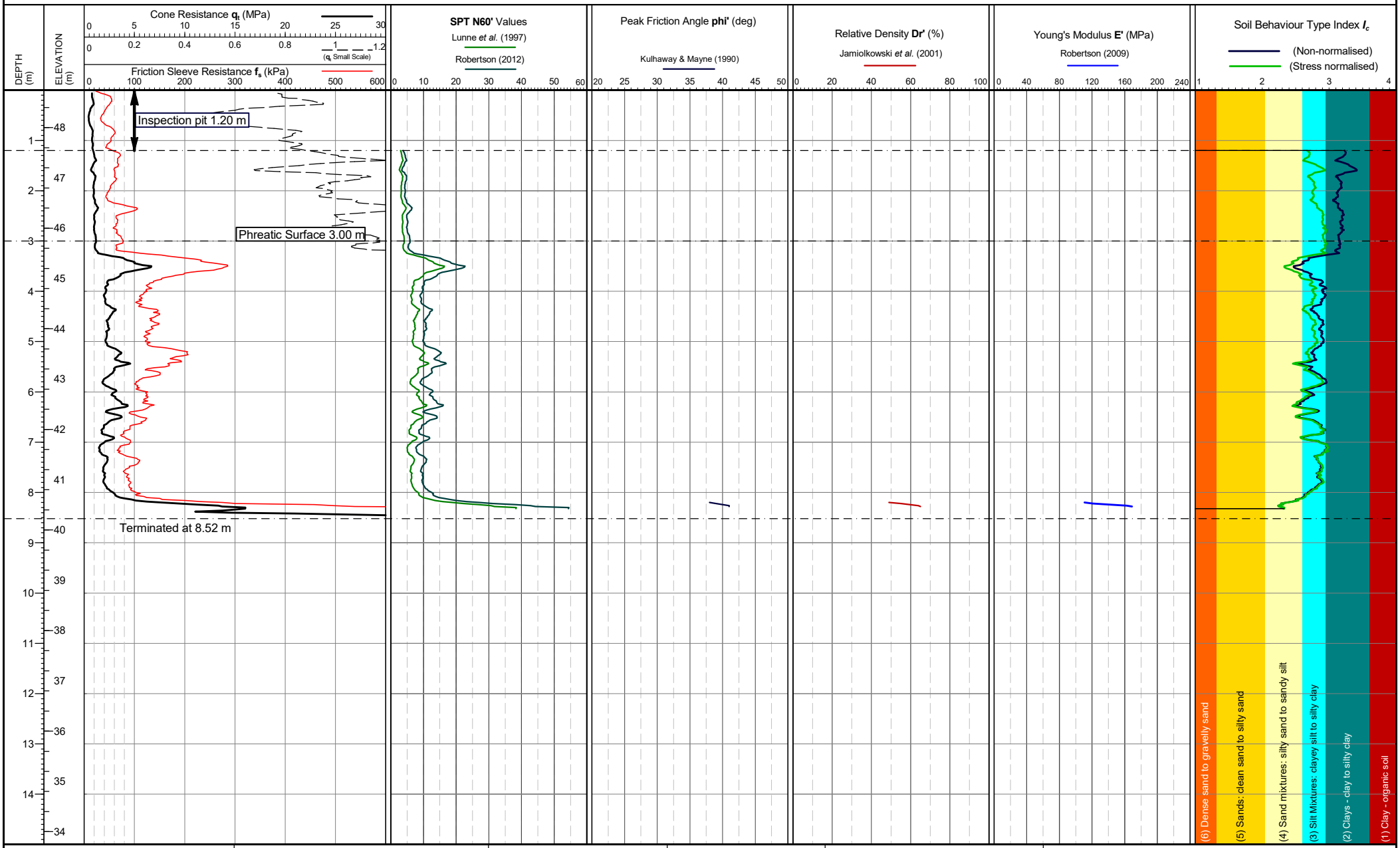
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: CPTU004

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 20/04/2022 11:11:10

Location: Wiltshire, UK
Coordinates: 393239.268, 171021.319
Elevation: 48.745
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Checked by: Chris Player

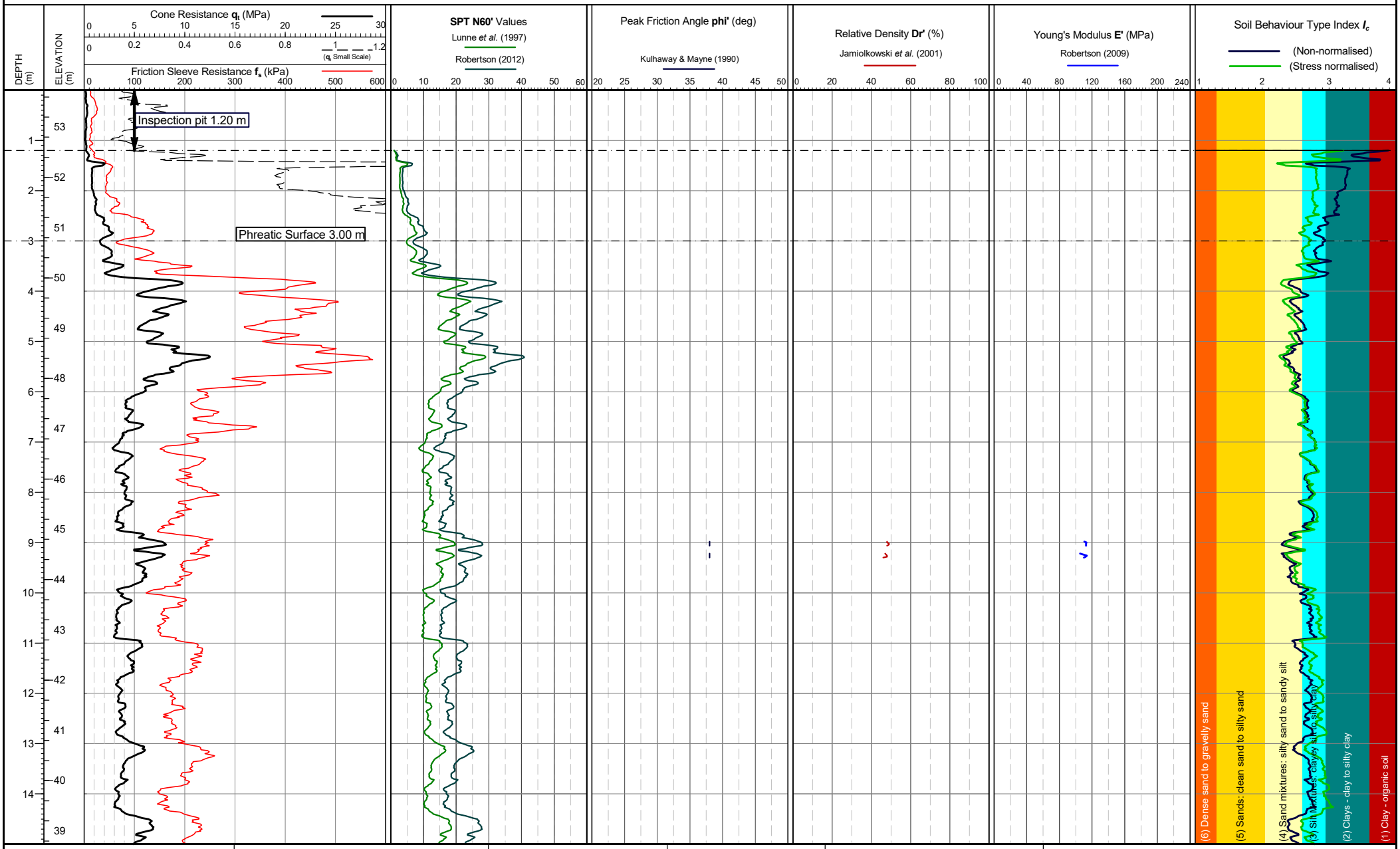
Lankelma Project Ref: P-108001-1

TEST ID: CPTU005

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 20/04/2022 14:04:02

Location: Wiltshire, UK
Coordinates: 393698.42, 171282.403
Elevation: 53.736
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

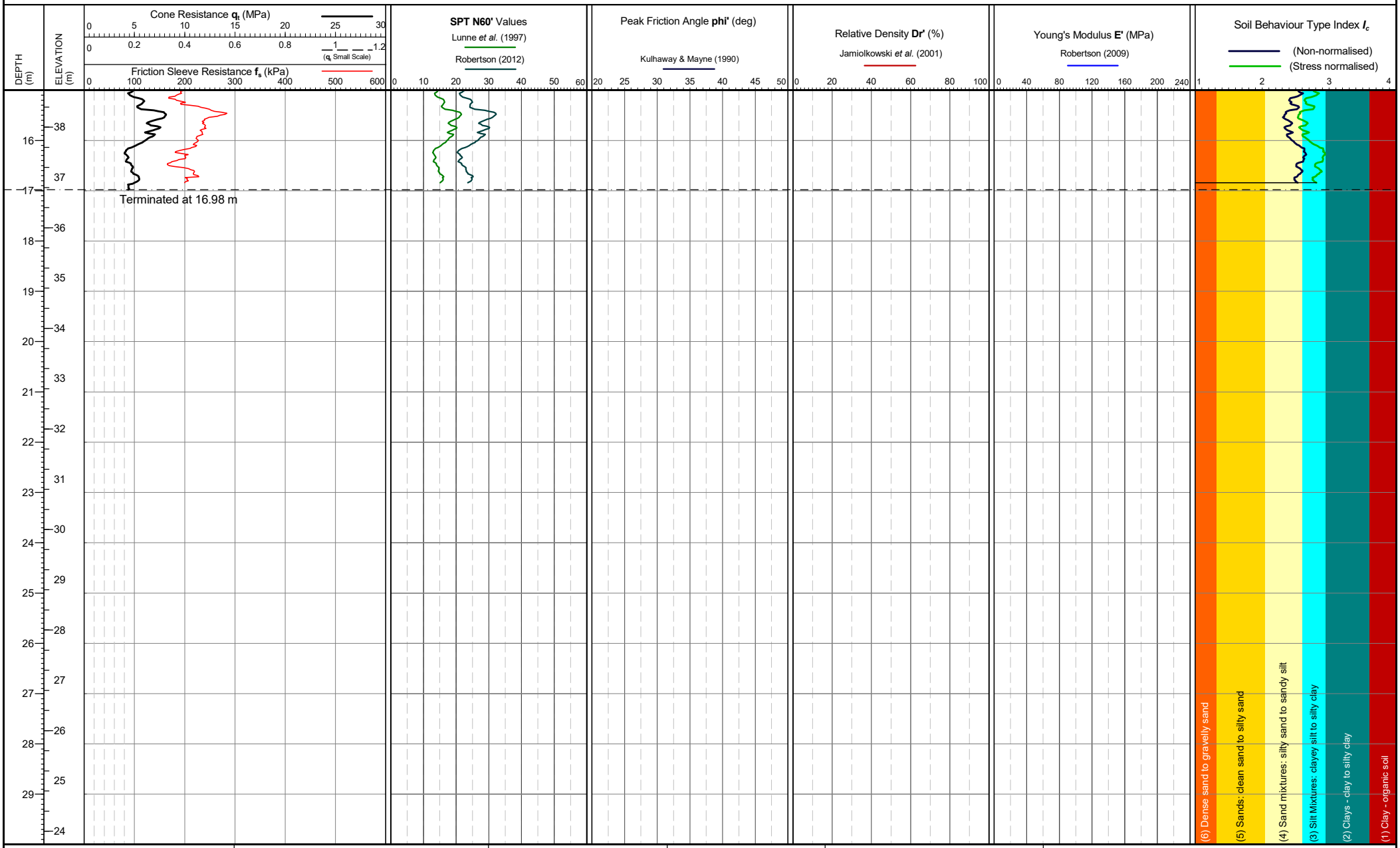
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: CPTU006

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 20/04/2022 14:04:02

Location: Wiltshire, UK
Coordinates: 393698.42, 171282.403
Elevation: 53.736
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

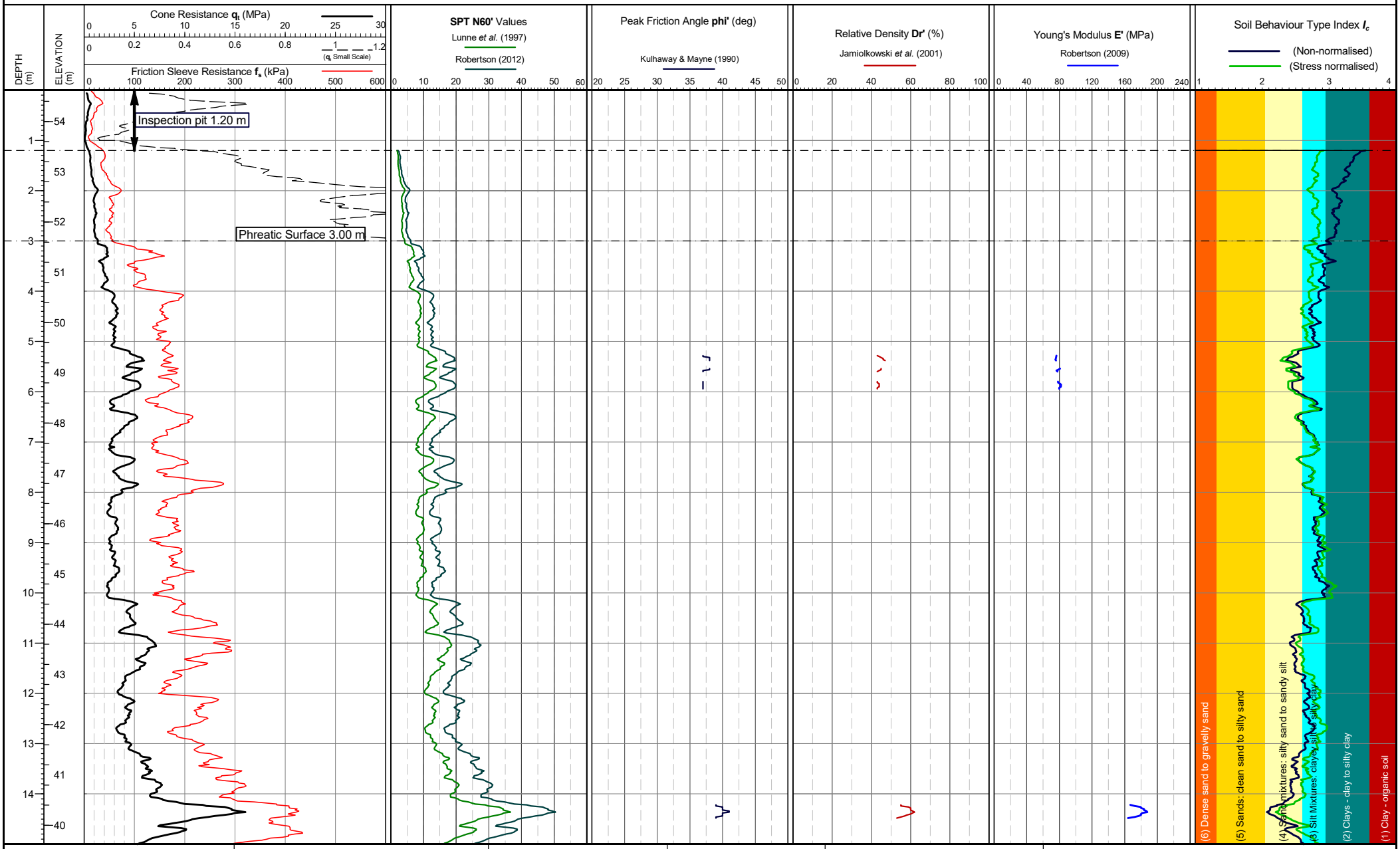
Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: CPTU006

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 20/04/2022 15:44:43

Location: Wiltshire, UK
Coordinates: 394325.179, 171747.19
Elevation: 54.624
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Checked by: Chris Player

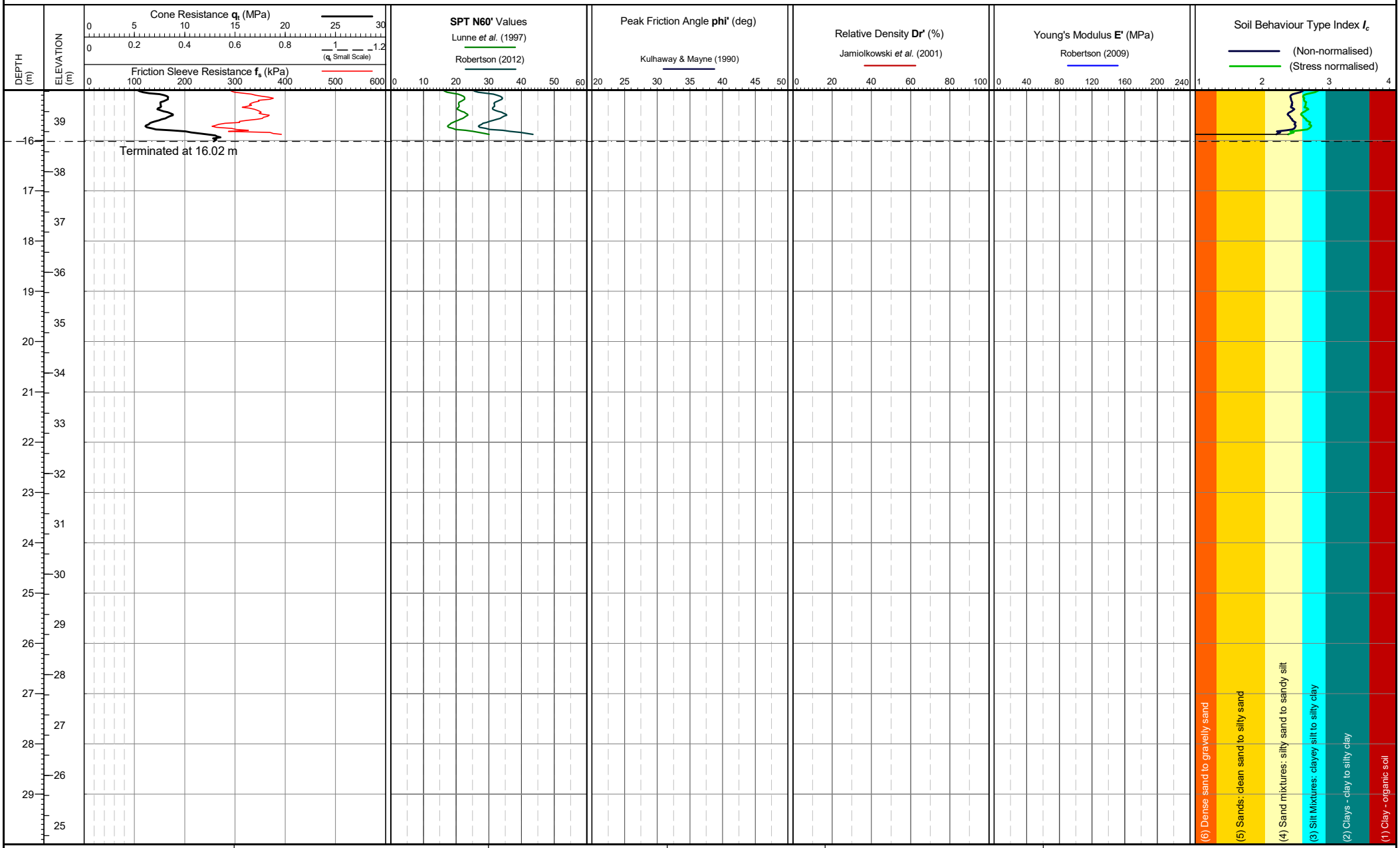
Lankelma Project Ref: P-108001-1

TEST ID: CPTU007

LANKELMA

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Date of test: 20/04/2022 15:44:43

Location: Wiltshire, UK
Coordinates: 394325.179, 171747.19
Elevation: 54.624
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 22-04-22
Checked by: Chris Player

Lankelma Project Ref: P-108001-1

TEST ID: CPTU007

APPENDIX G PENETROMETER TEMPERATURE RESULTS

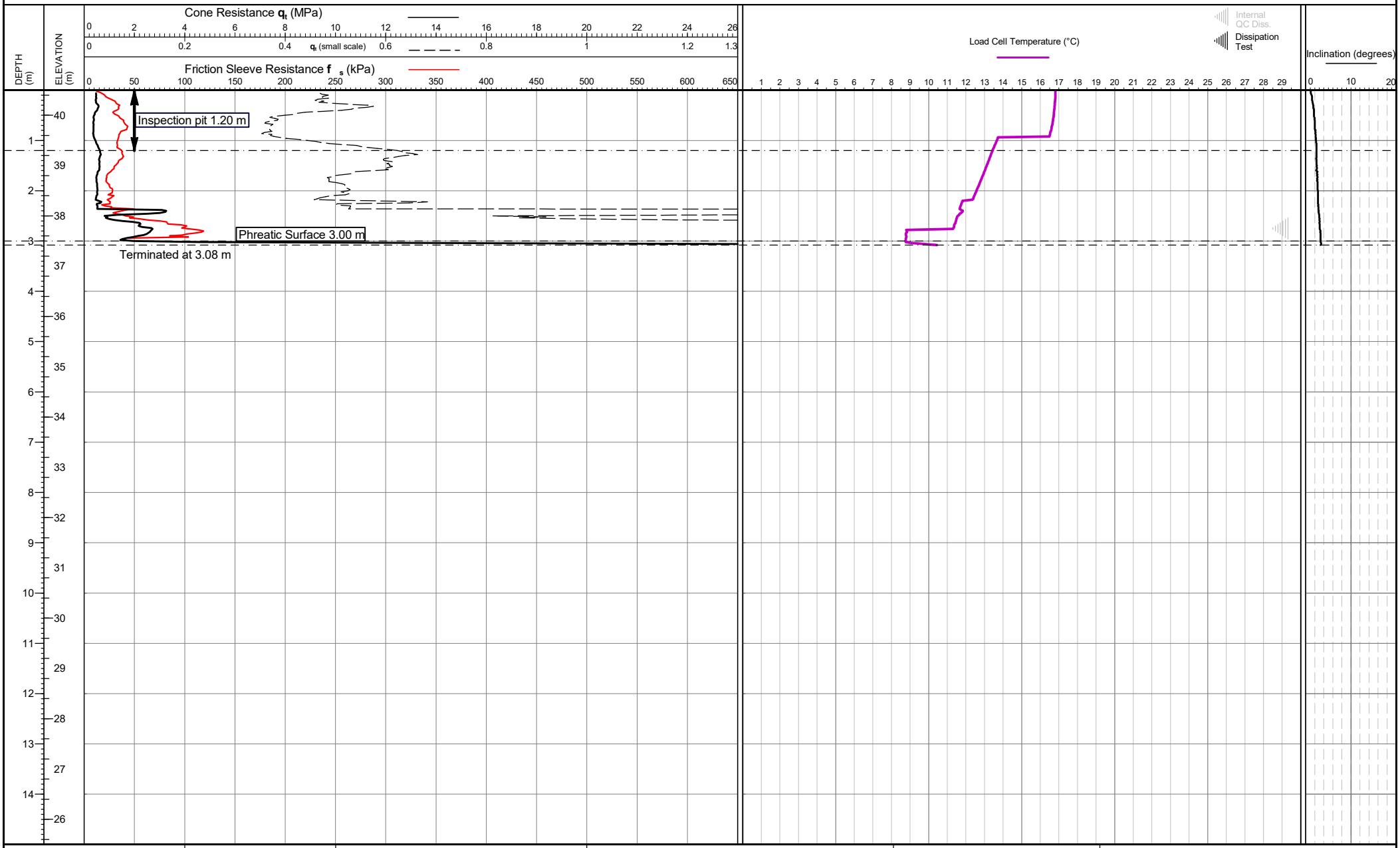
The temperature values in these logs represent the internal load cell temperature of the penetrometer and are used for QC purposes by comparison to the measured temperature response indicated on the calibration certificate. The CPT results have been corrected for transient and static temperature effects during post processing.

Ground temperature is only represented following a penetration pause of > 11 minutes.

Plots are provided for locations performed with a digital penetrometer measuring internal load cell temperature.

Project: CHIPPENHAM

Client: RPS

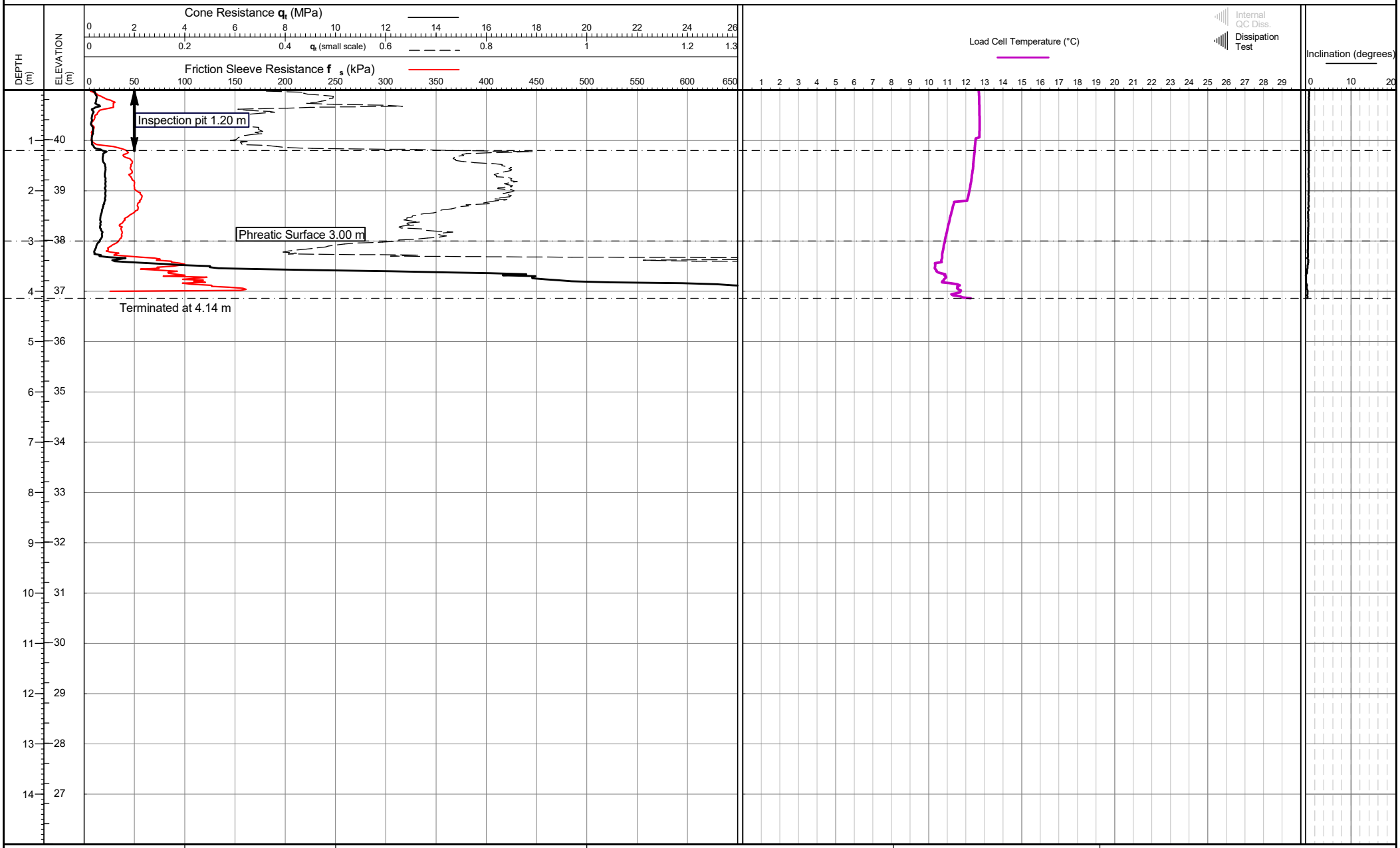


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Chris Clarke Rig Used: UK22 Date of test: 21/04/2022 10:25:27	Zero drift (Pre/post test) q_c (kPa): -12.4 f_s (kPa): 0.0 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.9	Location: Wiltshire, UK Coordinates: 391630.743, 170710.266 Elevation: 40.499 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Tip load	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_01

Project: CHIPPENHAM

Client: RPS



Cone area (mm2):
Cone ID: S15-CFIPT.1854
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/04/2022 09:54:49

Zero drift (Pre/post test)
q_c (kPa): 14.6
f_s (kPa): 0.0 ($f_{s\,drift}$ - $q_{c\,drift}$)
u_2 (kPa): 0.9

Location: Wiltshire, UK
Coordinates: 391678.494, 170710.968
Elevation: 40.986
Coordinate system:

Remarks:
*Phreatic surface origin: Arbitrary value

Termination Remark: Lateral support

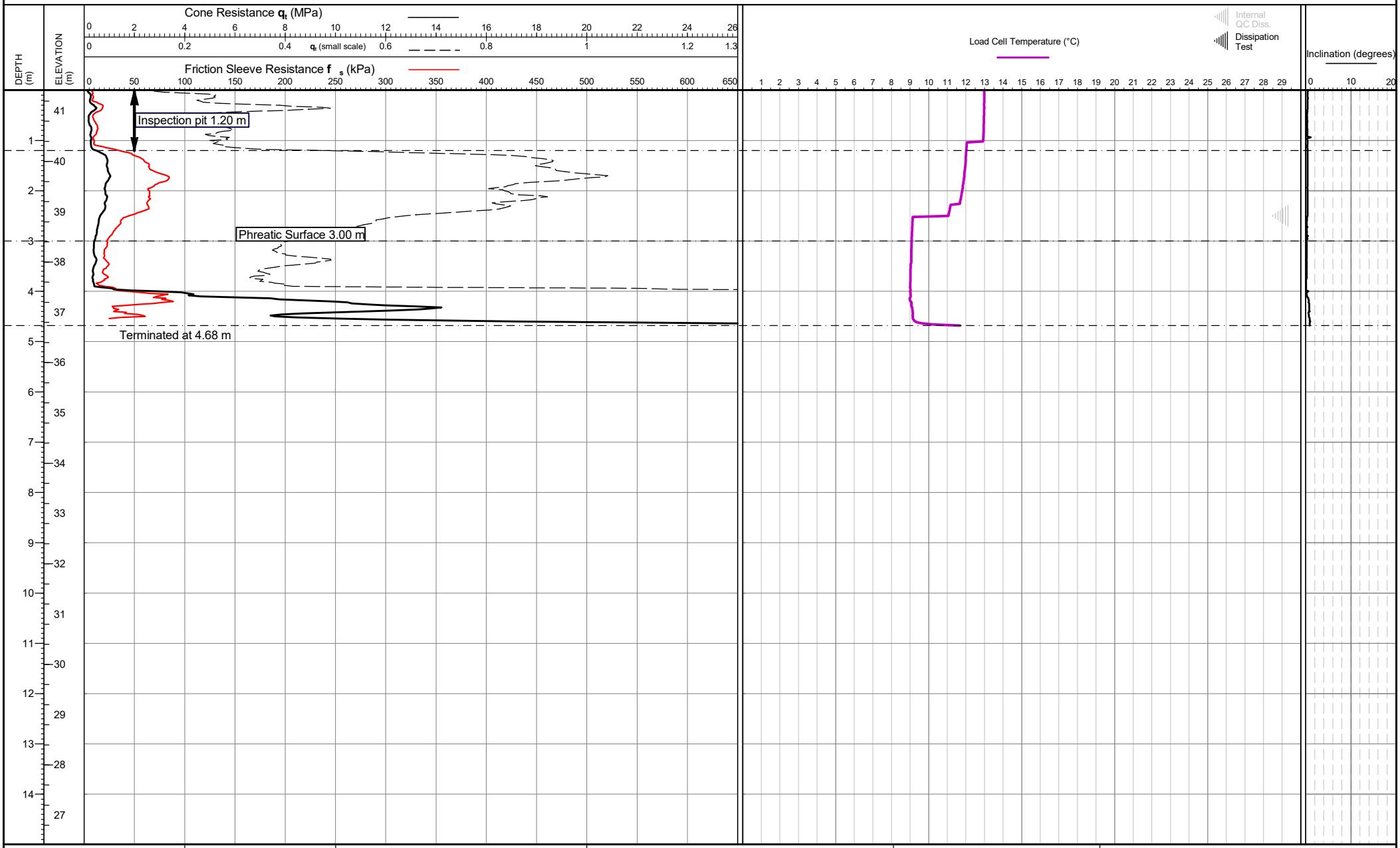
Date of plot: 22-04-22
Lankelma Project Ref: P-108001-1

Checked by: Chris Player

TEST ID: AVC1_CPTU_02

Project: CHIPPENHAM

Client: RPS

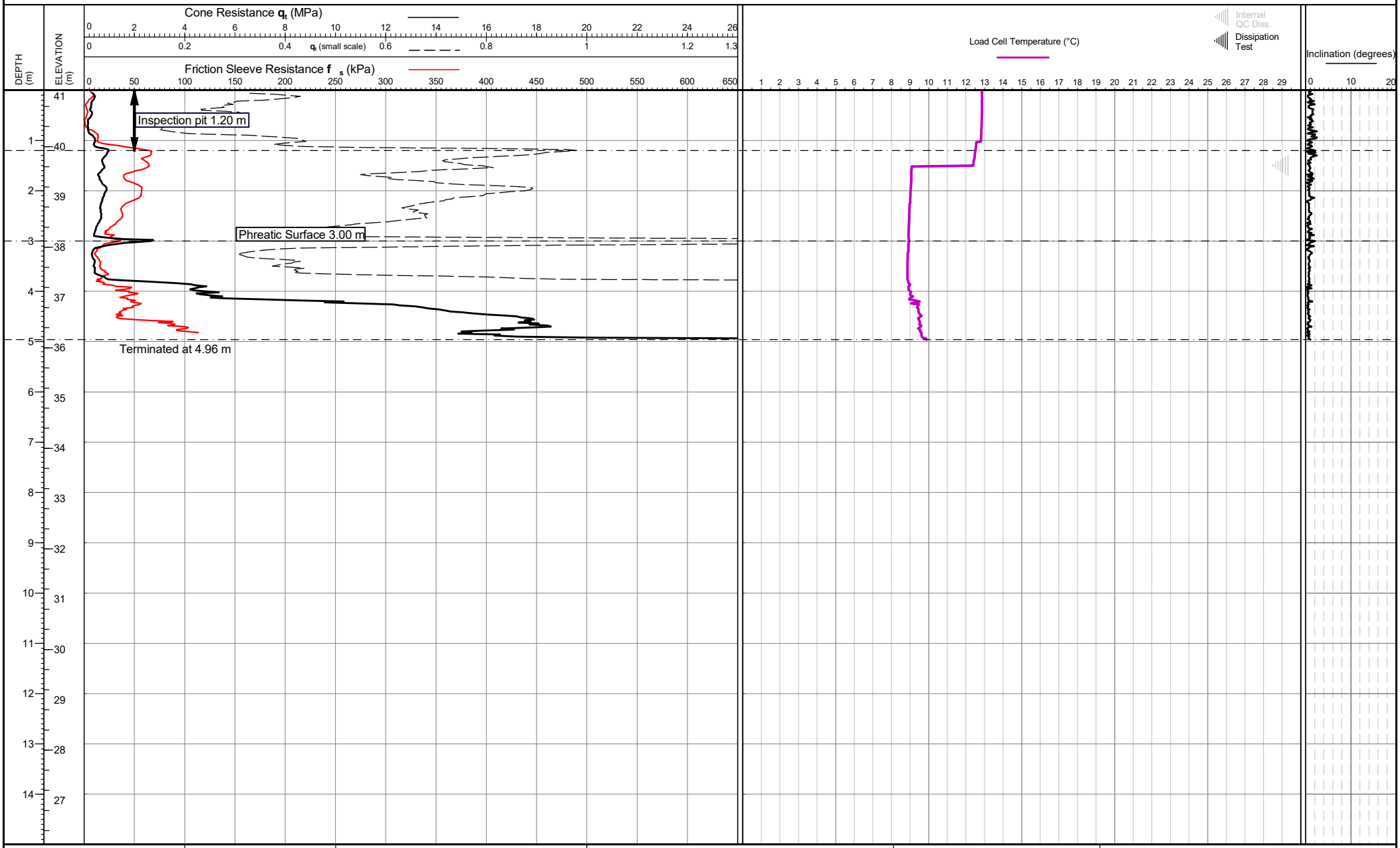


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/04/2022 09:13:53	Zero drift (Pre/post test) q_c (kPa): 8.8 f_s (kPa): 7.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.6	Location: Wiltshire, UK Coordinates: 391698.452, 170732.671 Elevation: 41.418 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_03

Project: CHIPPENHAM

Client: RPS

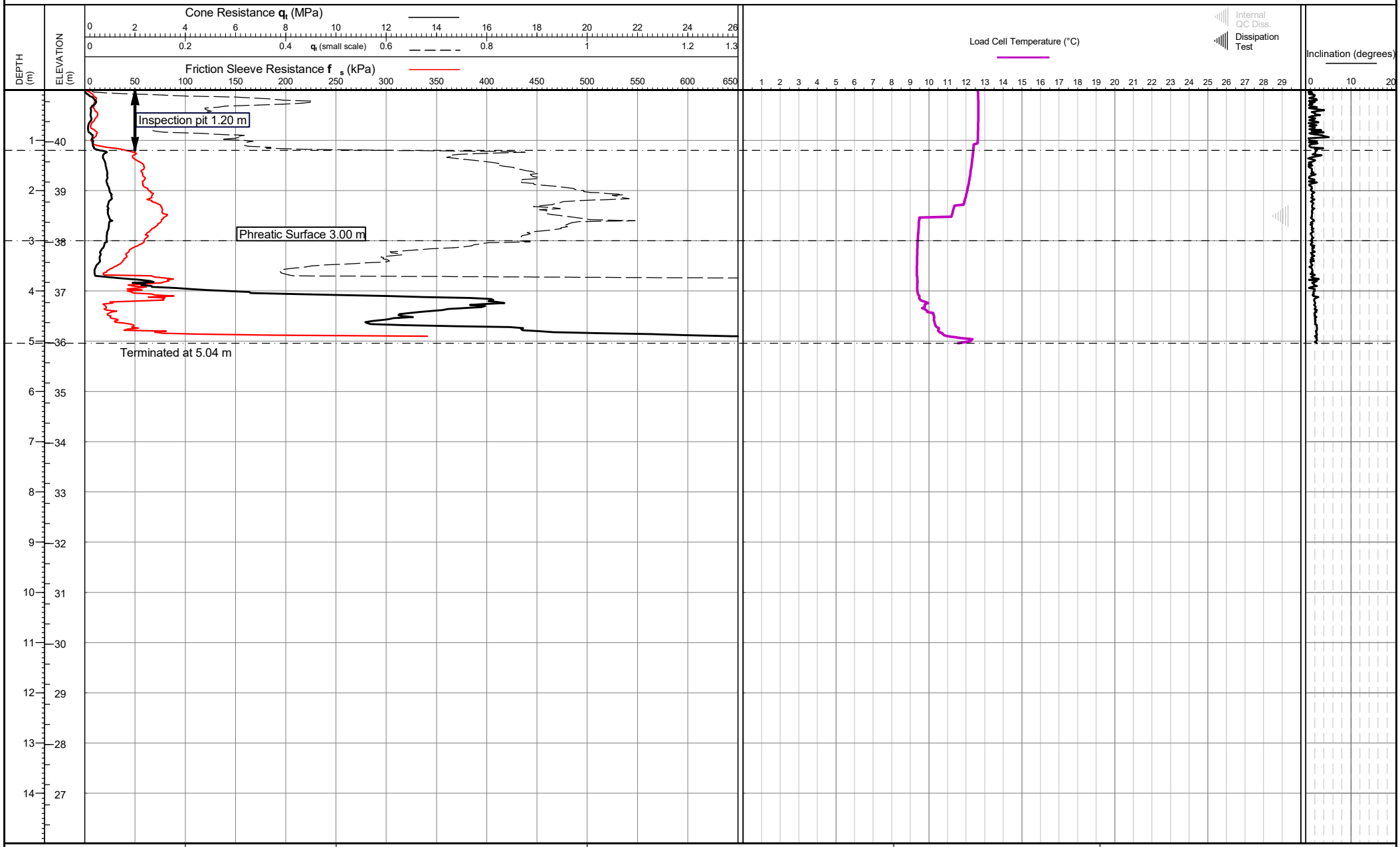


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 10:08:53	Zero drift (Pre/post test) q_c (kPa): 14.0 f_s (kPa): 1.1 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.7	Location: Wiltshire, UK Coordinates: 391752.34, 170732.632 Elevation: 41.123 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_04

Project: CHIPPENHAM

Client: RPS

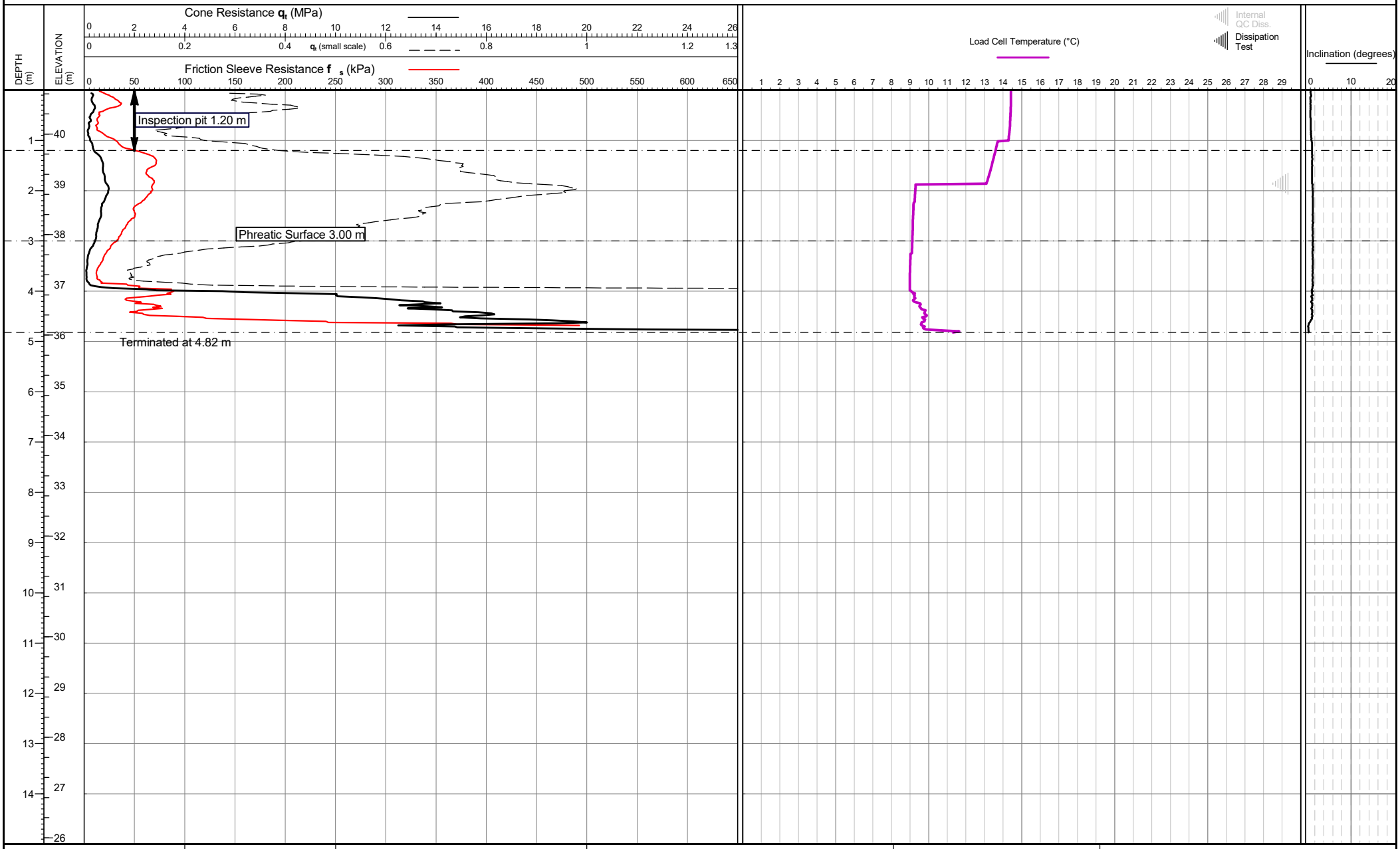


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Chris Clarke Rig Used: UK22 Date of test: 19/04/2022 10:46:39	Zero drift (Pre/post test) q_c (kPa): -6.2 f_s (kPa): 1.9 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.4	Location: Wiltshire, UK Coordinates: 391787.809, 170759.334 Elevation: 41.03 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_05

Project: CHIPPENHAM

Client: RPS

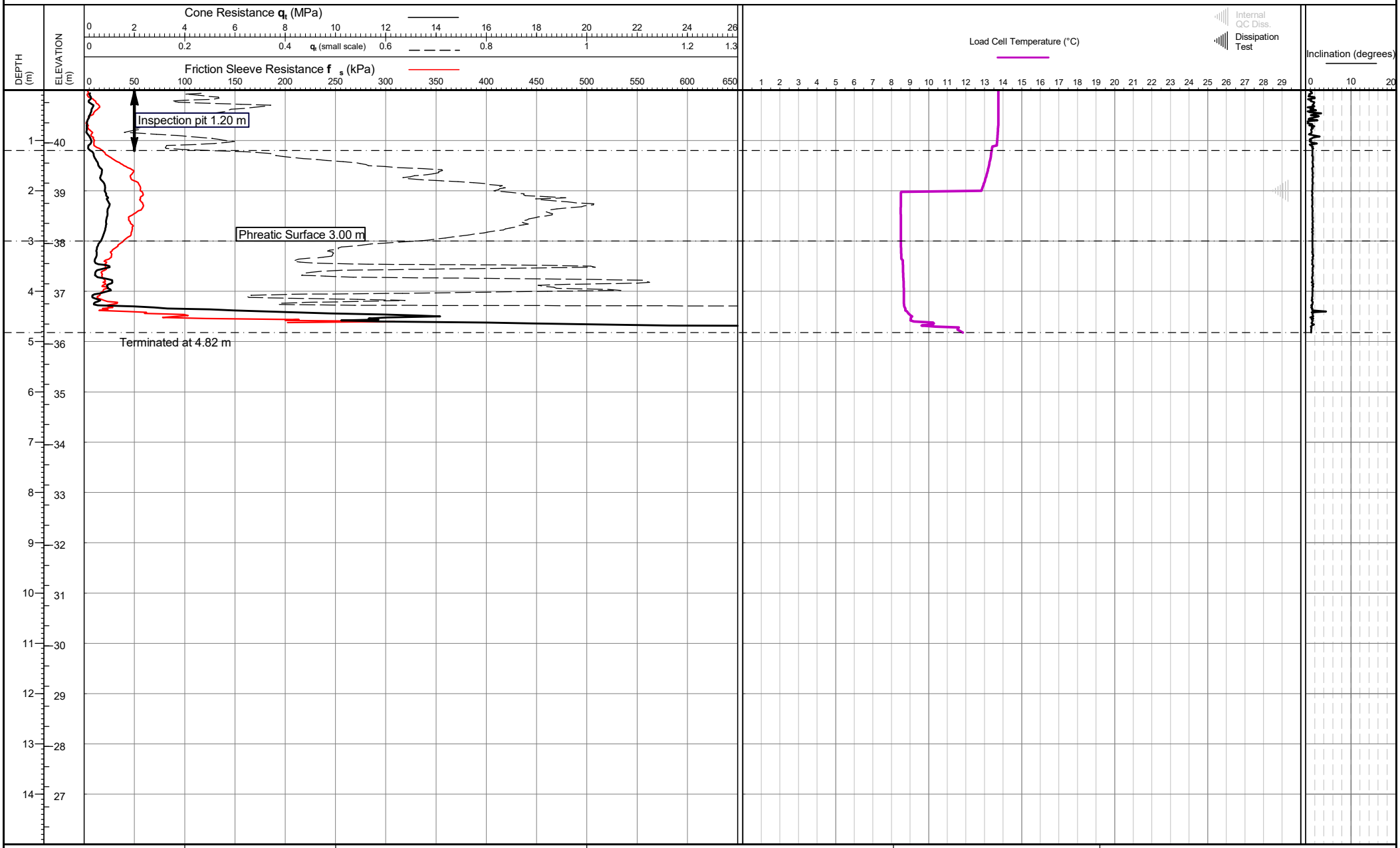


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 14:12:45	Zero drift (Pre/post test) q_c (kPa): 8.0 f_s (kPa): 0.0 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 3.6	Location: Wiltshire, UK Coordinates: 391830.697, 170755.654 Elevation: 40.873 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_06

Project: CHIPPENHAM

Client: RPS

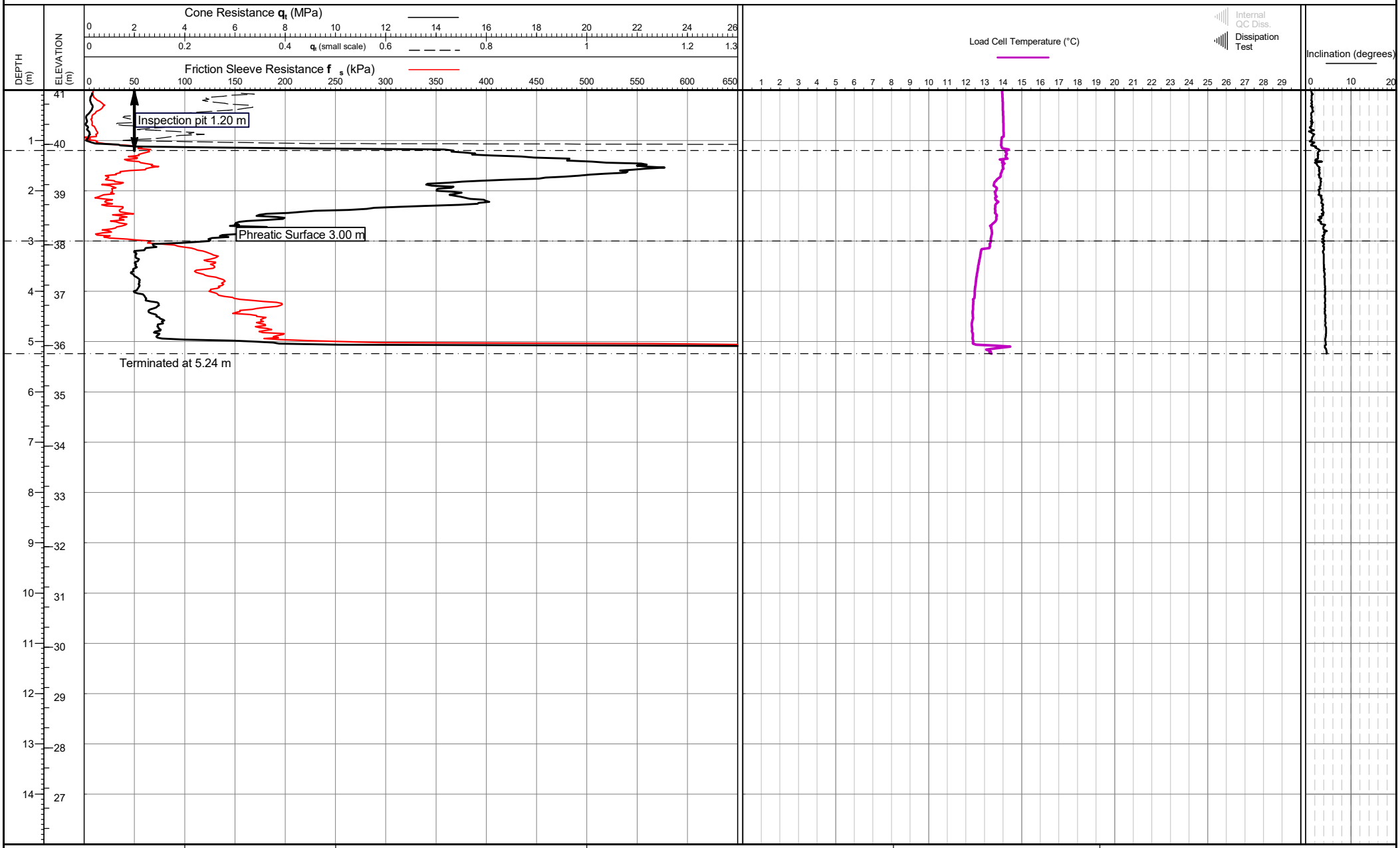


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 11:28:33	Zero drift (Pre/post test) q_c (kPa): 7.2 f_s (kPa): -0.4 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -0.2	Location: Wiltshire, UK Coordinates: 391864.549, 170784.592 Elevation: 41.05 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_07

Project: CHIPPENHAM

Client: RPS

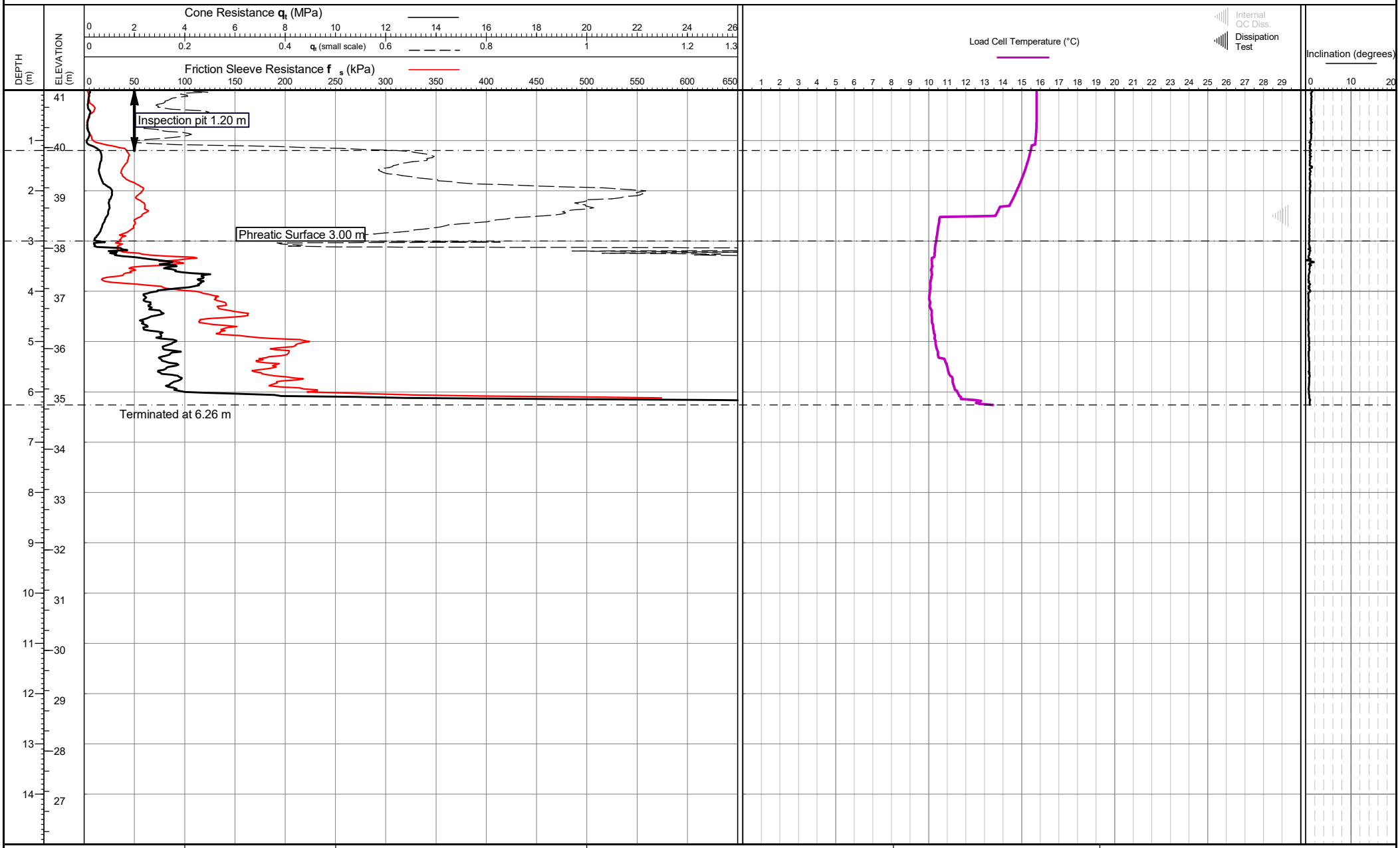


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 13:46:46	Zero drift (Pre/post test) q_c (kPa): -8.6 f_s (kPa): -0.1 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -5.2	Location: Wiltshire, UK Coordinates: 391905.767, 170780.346 Elevation: 41.078 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_08

Project: CHIPPENHAM

Client: RPS

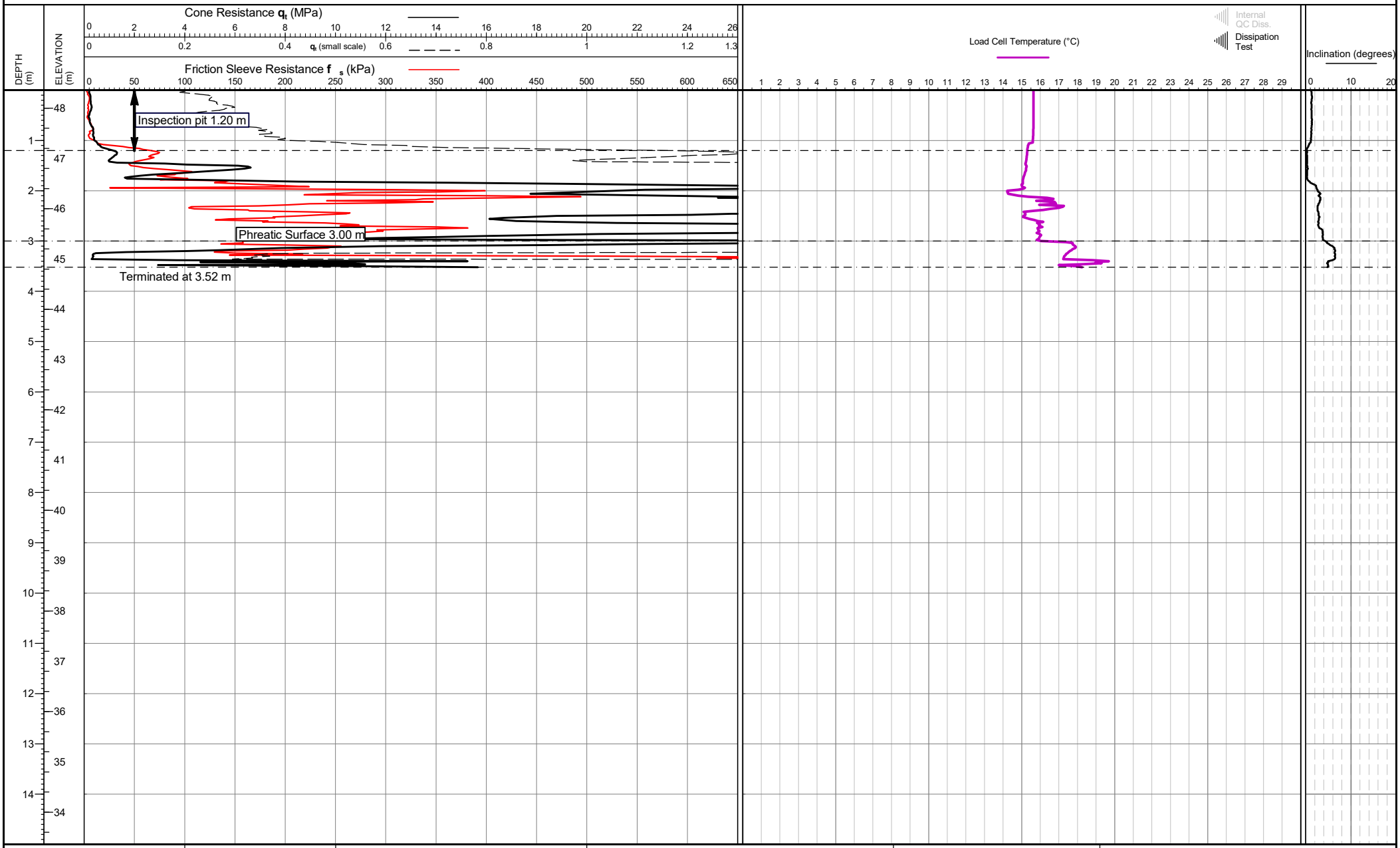


Cone area (mm2): Cone ID: S15-CFIPT.1821 Operator: Rob Bennett Rig Used: UK22 Date of test: 19/04/2022 12:12:04	Zero drift (Pre/post test) q_c (kPa): -17.0 f_s (kPa): -0.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -0.8	Location: Wiltshire, UK Coordinates: 391947.406, 170812.161 Elevation: 41.142 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: AVC1_CPTU_09

Project: CHIPPENHAM

Client: RPS

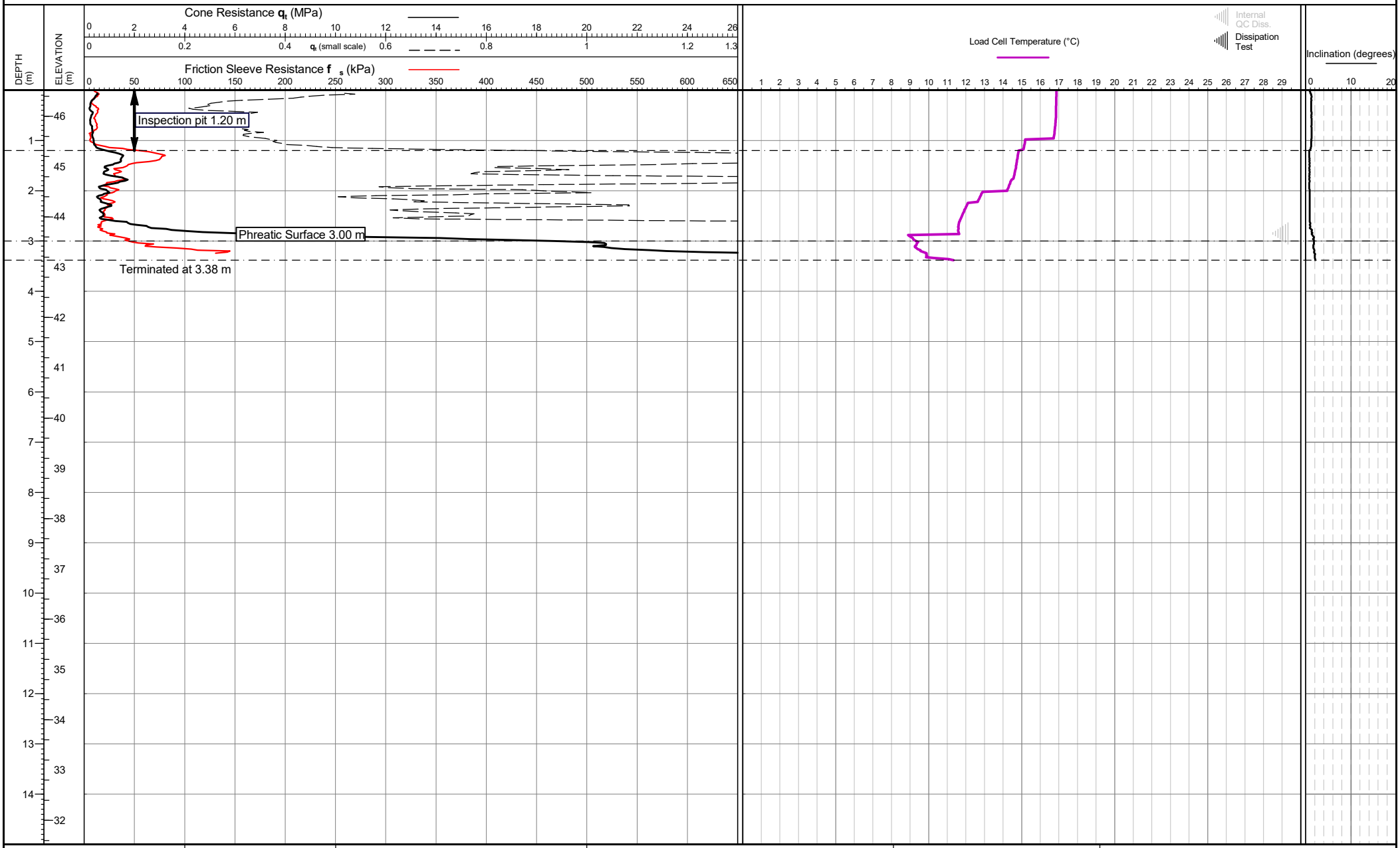


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Chris Clarke Rig Used: UK22 Date of test: 21/04/2022 12:42:15	Zero drift (Pre/post test) q_c (kPa): -34.0 f_s (kPa): -1.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -4.3	Location: Wiltshire, UK Coordinates: 391150.606, 170673.279 Elevation: 48.357 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Sleeve load	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU001

Project: CHIPPENHAM

Client: RPS

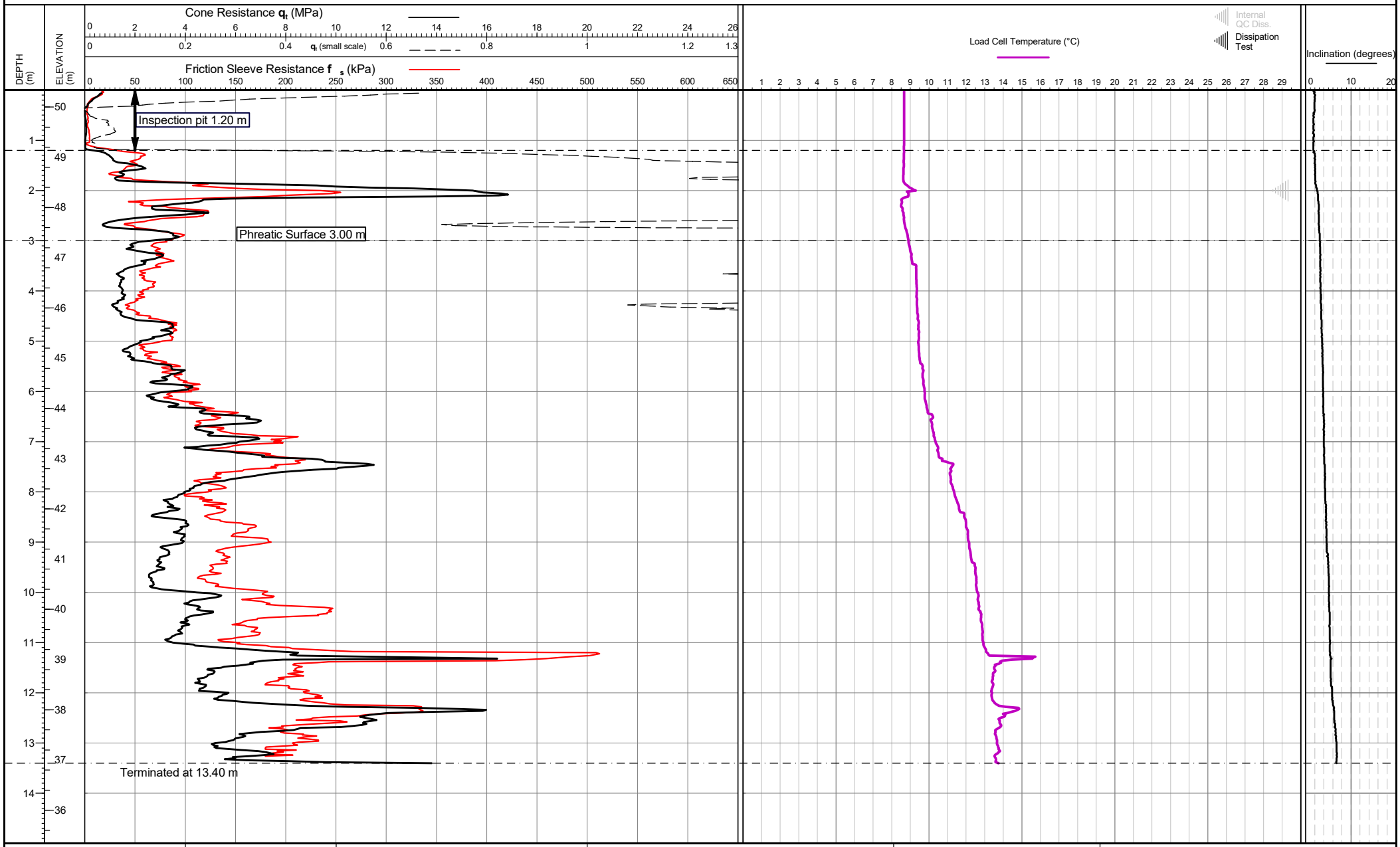


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/04/2022 11:53:43	Zero drift (Pre/post test) q_c (kPa): 2.4 f_s (kPa): 0.5 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.1	Location: Wiltshire, UK Coordinates: 391282.677, 170664.573 Elevation: 46.52 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Tip load	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU002

Project: CHIPPENHAM

Client: RPS

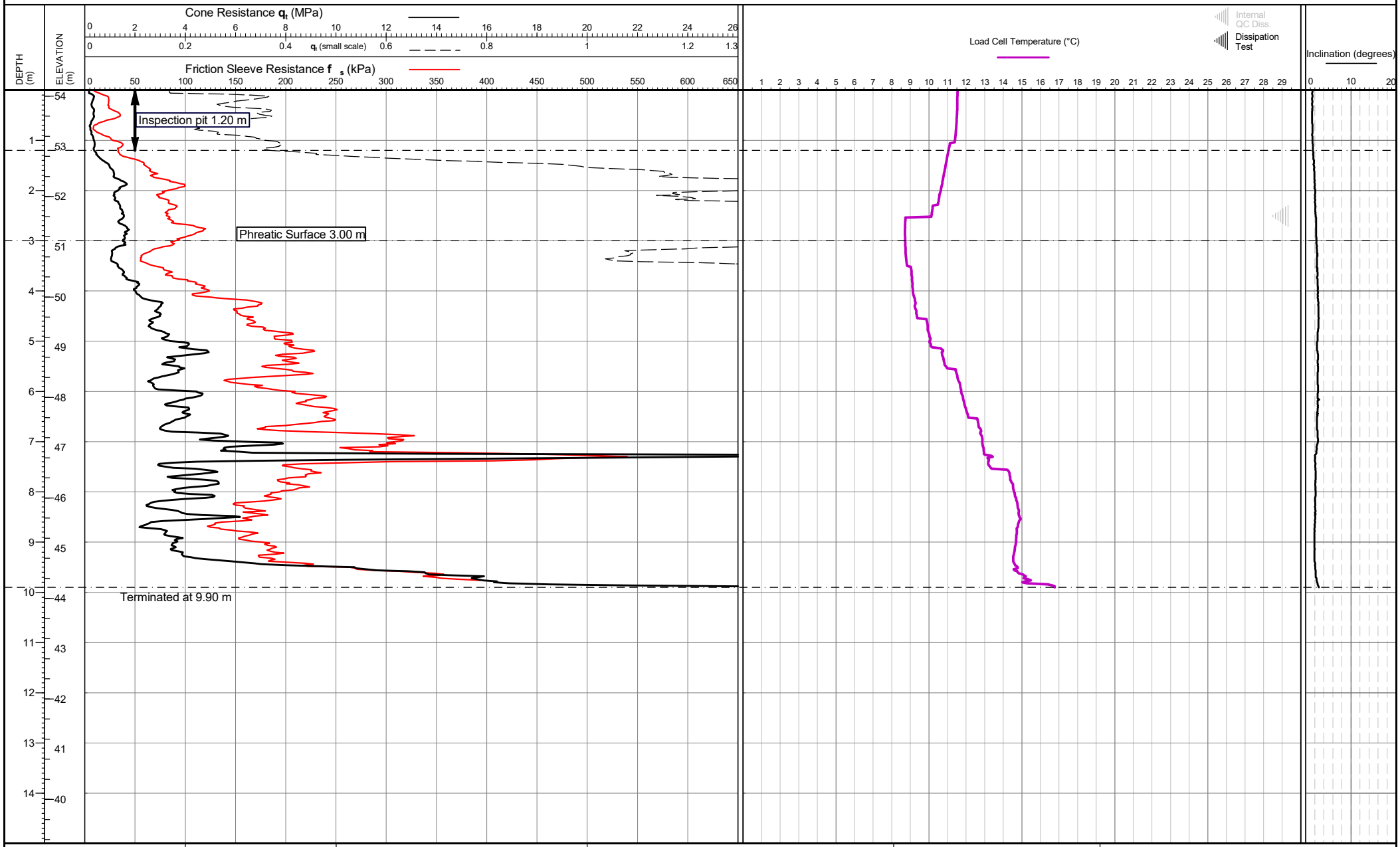


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 08:51:26	Zero drift (Pre/post test) q_c (kPa): 12.8 f_s (kPa): -1.8 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -1.9	Location: Wiltshire, UK Coordinates: 392271.234, 170957.221 Elevation: 50.338 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU003

Project: CHIPPENHAM

Client: RPS

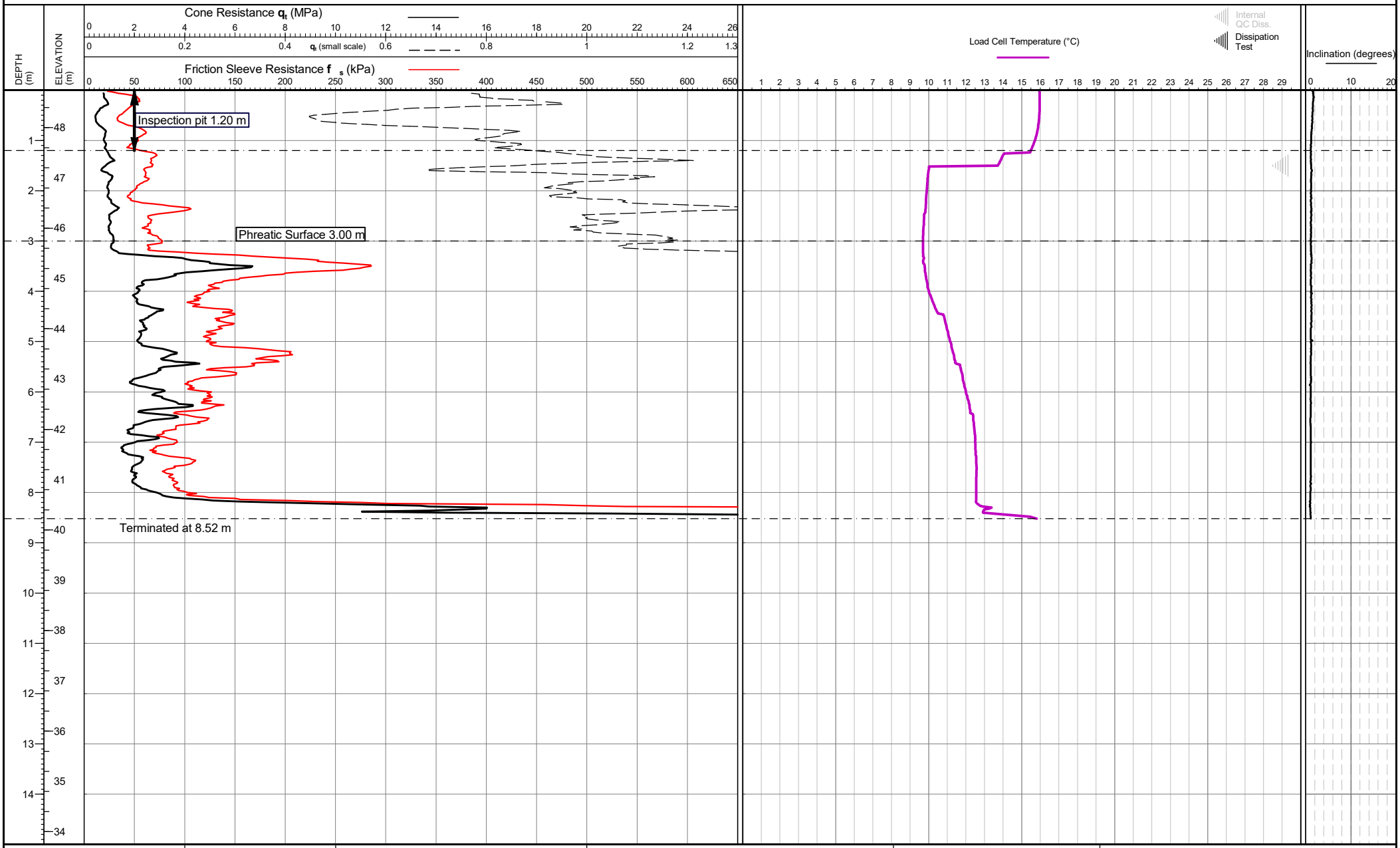


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Chris Clarke Rig Used: UK22 Date of test: 20/04/2022 09:58:14	Zero drift (Pre/post test) q_c (kPa): -10.6 f_s (kPa): 0.6 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -0.9	Location: Wiltshire, UK Coordinates: 392765.415, 171160.838 Elevation: 54.121 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU004

Project: CHIPPENHAM

Client: RPS

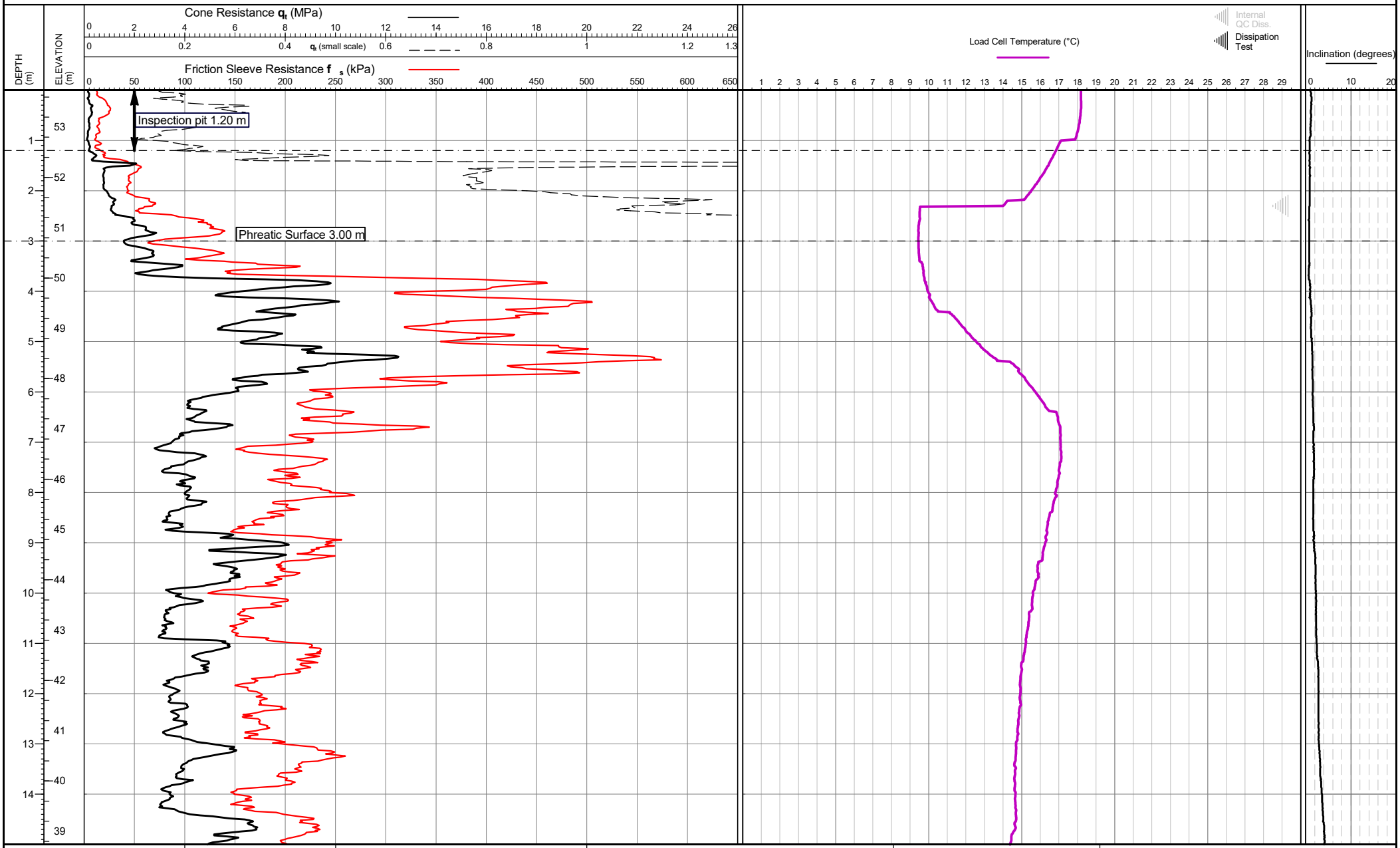


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 11:11:10	Zero drift (Pre/post test) q_c (kPa): 0.2 f_s (kPa): -2.5 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): -4.3	Location: Wiltshire, UK Coordinates: 393239.268, 171021.319 Elevation: 48.745 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU005

Project: CHIPPENHAM

Client: RPS

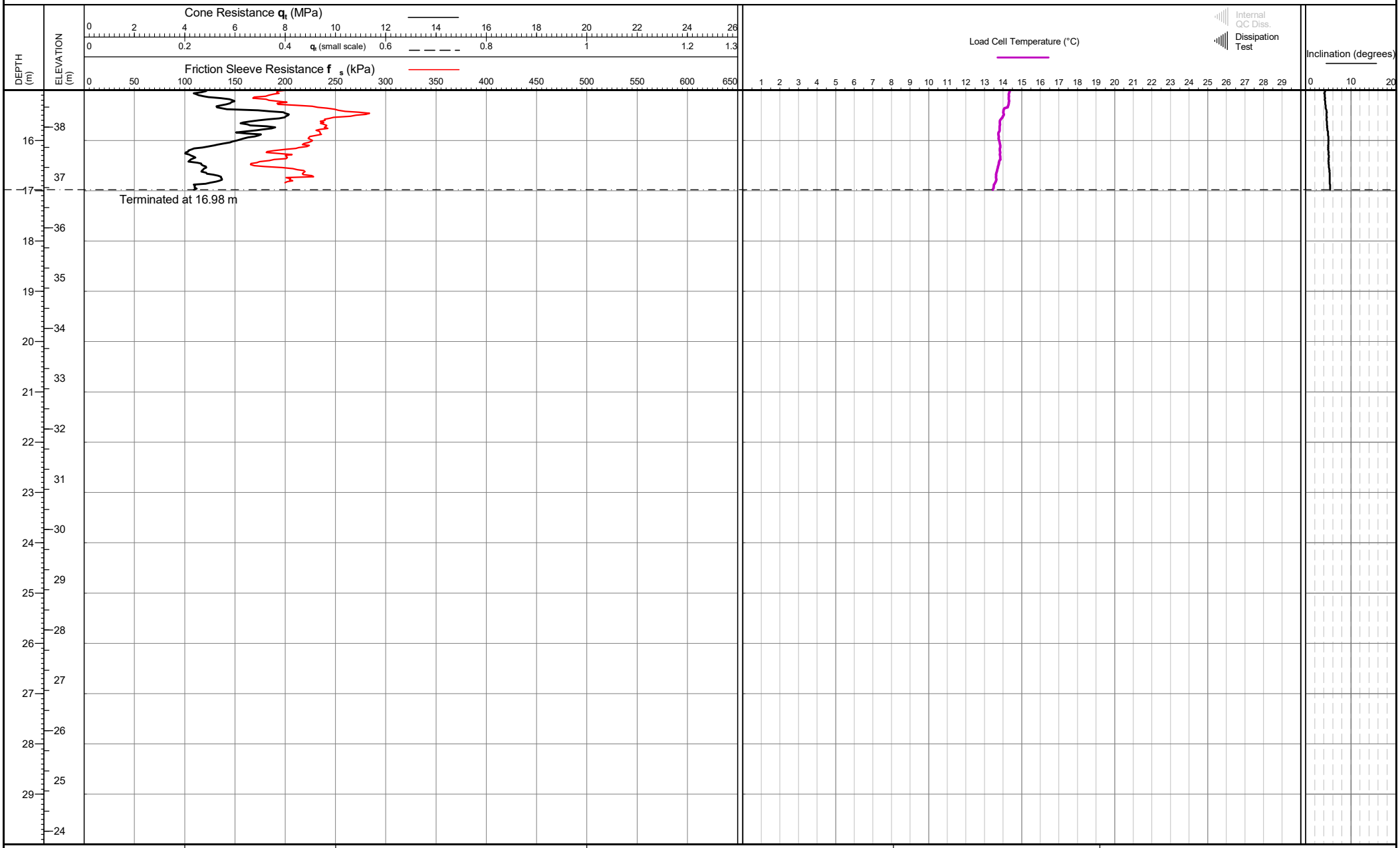


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 14:04:02	Zero drift (Pre/post test) q_c (kPa): 0.2 f_s (kPa): -0.9 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -1.9	Location: Wiltshire, UK Coordinates: 393698.42, 171282.403 Elevation: 53.736 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU006

Project: CHIPPENHAM

Client: RPS

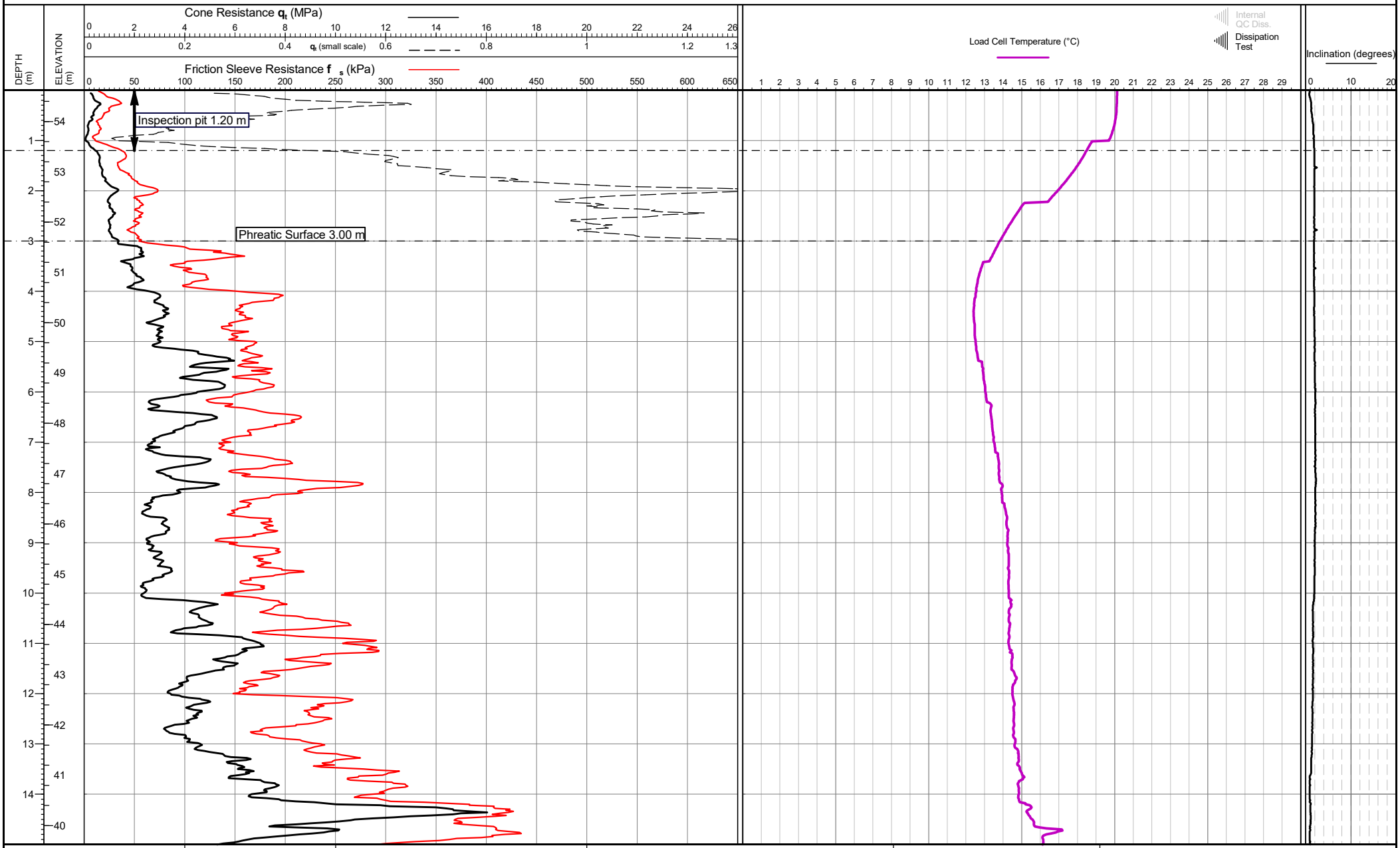


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 14:04:02	Zero drift (Pre/post test) q_c (kPa): 0.2 f_s (kPa): -0.9 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -1.9	Location: Wiltshire, UK Coordinates: 393698.42, 171282.403 Elevation: 53.736 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU006

Project: CHIPPENHAM

Client: RPS

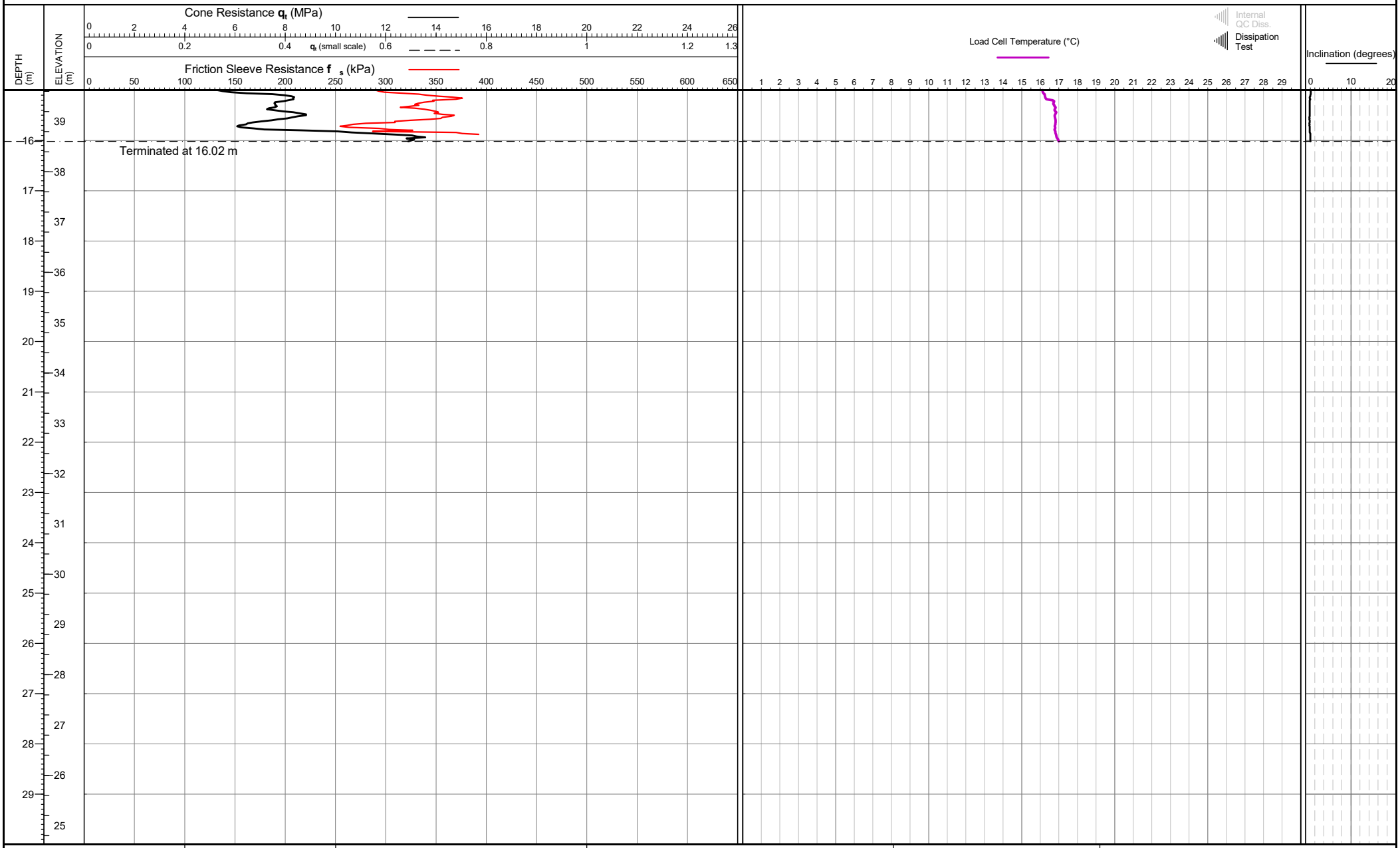


Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 15:44:43	Zero drift (Pre/post test) q_c (kPa): -29.2 f_s (kPa): -2.8 ($f_{s\,drift}$ - $q_{c\,drift}$) u_2 (kPa): 0.8	Location: Wiltshire, UK Coordinates: 394325.179, 171747.19 Elevation: 54.624 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU007

Project: CHIPPENHAM

Client: RPS



Cone area (mm2): Cone ID: S15-CFIPT.1854 Operator: Rob Bennett Rig Used: UK22 Date of test: 20/04/2022 15:44:43	Zero drift (Pre/post test) q_c (kPa): -29.2 f_s (kPa): -2.8 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.8	Location: Wiltshire, UK Coordinates: 394325.179, 171747.19 Elevation: 54.624 Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Total reaction force	Date of plot: 22-04-22 Checked by: Chris Player	Lankelma Project Ref: P-108001-1

TEST ID: CPTU007

Appendix F
CALIFORNIA BEARING RATIO TESTS

Laboratory Report

2788

GEO Site & Testing Services Ltd

Contract Number: 59407

Client Ref: **JER9352**
Client PO: **PO22-196**

Report Date: **10-05-2022**

Client **RPS Group**
St Annes House
Oxford Square
Oxford Street
Newbury
RG14 1JQ

Contract Title: **Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ**
For the attention of: **Chris Whale**

Date Received: **05-05-2022**
Date Completed: **10-05-2022**

Test Description	Qty
Determination of the in-situ California Bearing Ratio Rate includes mobilisation of technician and 4 x 4 and provision of equipment. BS 1377:1990 - Part 9 Cl 4.3 - * UKAS	2
Disposal of samples for job	1

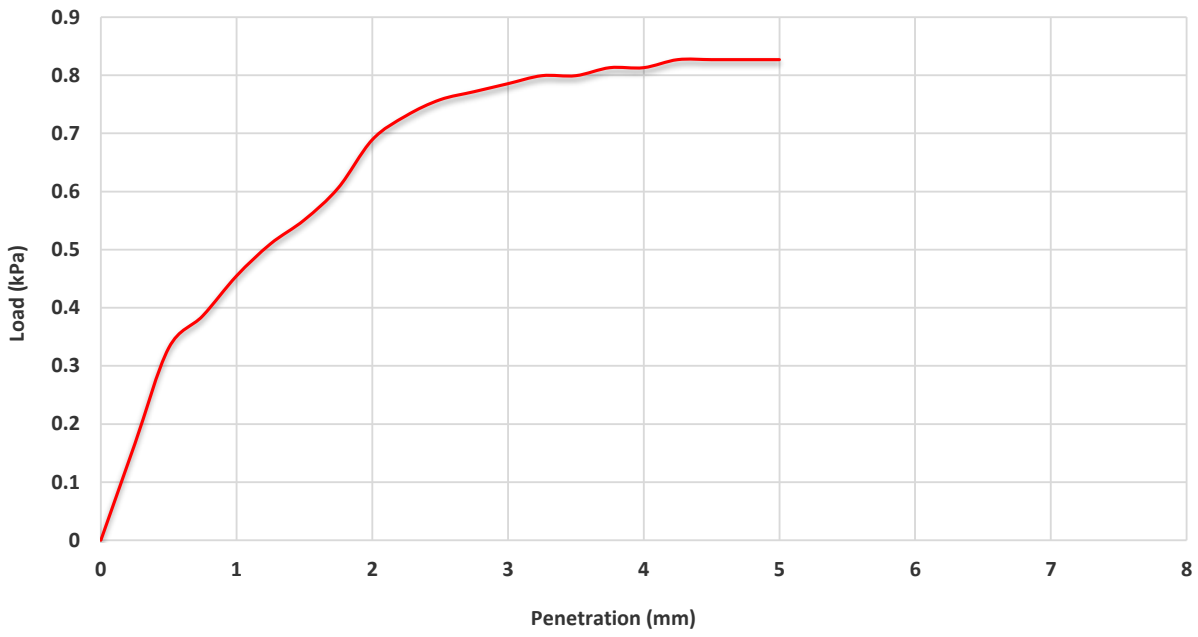
Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
- denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:
Emma Sharp (Business Support Manager) - Paul Evans (Director) - Richard John (Quality/Technical Manager)
Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager) - Wayne Honey (Quality Assistant / Administrator / Health and Safety Coordinator)

GEO Site & Testing Services Ltd
Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL	Determination of the Insitu California Bearing Ratio BS 1377: Part 9: 1990 Clause 4.3	Contract Number	59407
		Client Reference	JER9352
Client	RPS Group	Test Date	5-6/5/22
Site Location	Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ	Test Location	CBR 1
Sampling Method	BS 1377-1:1990 General requirements and sample preparation	Test Depth (m)	0.30
Soil Description	Brown sandy silty CLAY	Kentledge Type	Back of 4x4



C.B.R Value %	5.7

Weather Conditions	Dry
Surcharge (kg)	9
Material Above 20mm (est.)	N/A
Moisture Content (%)	20

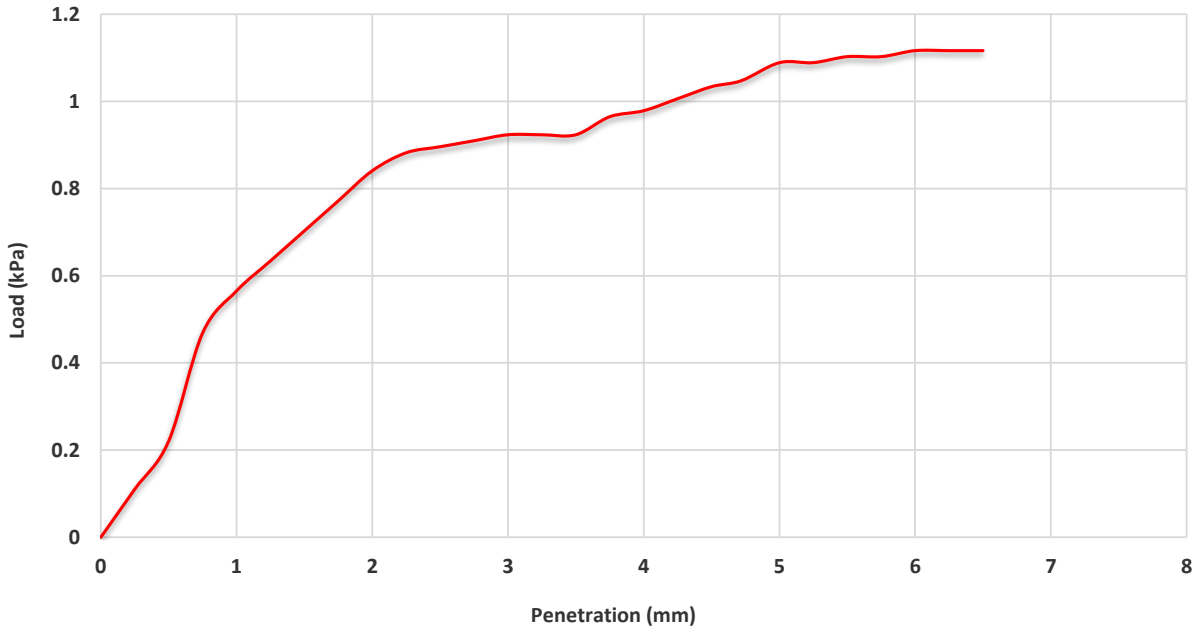
Remarks:

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Test Operator	Checked and Authorised by		Shaun Thomas
Daniel Underwood	Date	10/05/2022	

UKAS TESTING
2788

GSTL	Determination of the Insitu California Bearing Ratio BS 1377: Part 9: 1990 Clause 4.3	Contract Number	59407
		Client Reference	JER9352
Client	RPS Group	Test Date	5-6/5/22
Site Location	Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ	Test Location	CBR 2
Sampling Method	BS 1377-1:1990 General requirements and sample preparation	Test Depth (m)	0.60
Soil Description	Brown sandy silty CLAY	Kentledge Type	Back of 4x4



C.B.R Value %	6.8

Weather Conditions	Dry
Surcharge (kg)	9
Material Above 20mm (est.)	N/A
Moisture Content (%)	19

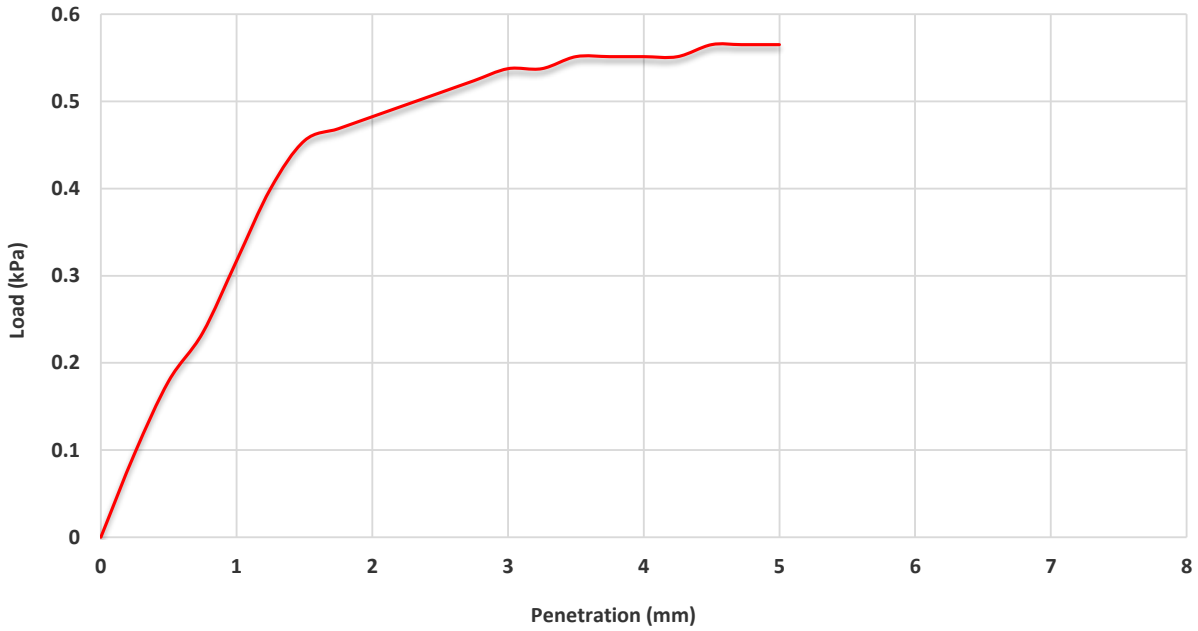
Remarks:

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory.

Test Operator	Checked and Authorised by		Shaun Thomas
Daniel Underwood	Date	10/05/2022	

UKAS TESTING
2788

GSTL	Determination of the Insitu California Bearing Ratio BS 1377: Part 9: 1990 Clause 4.3	Contract Number	59407
		Client Reference	JER9352
Client	RPS Group	Test Date	5-6/5/22
Site Location	Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ	Test Location	CBR 3
Sampling Method	BS 1377-1:1990 General requirements and sample preparation	Test Depth (m)	0.60
Soil Description	Brown sandy silty CLAY	Kentledge Type	Back of 4x4



C.B.R Value %	3.9

Weather Conditions	Dry
Surcharge (kg)	9
Material Above 20mm (est.)	N/A
Moisture Content (%)	19

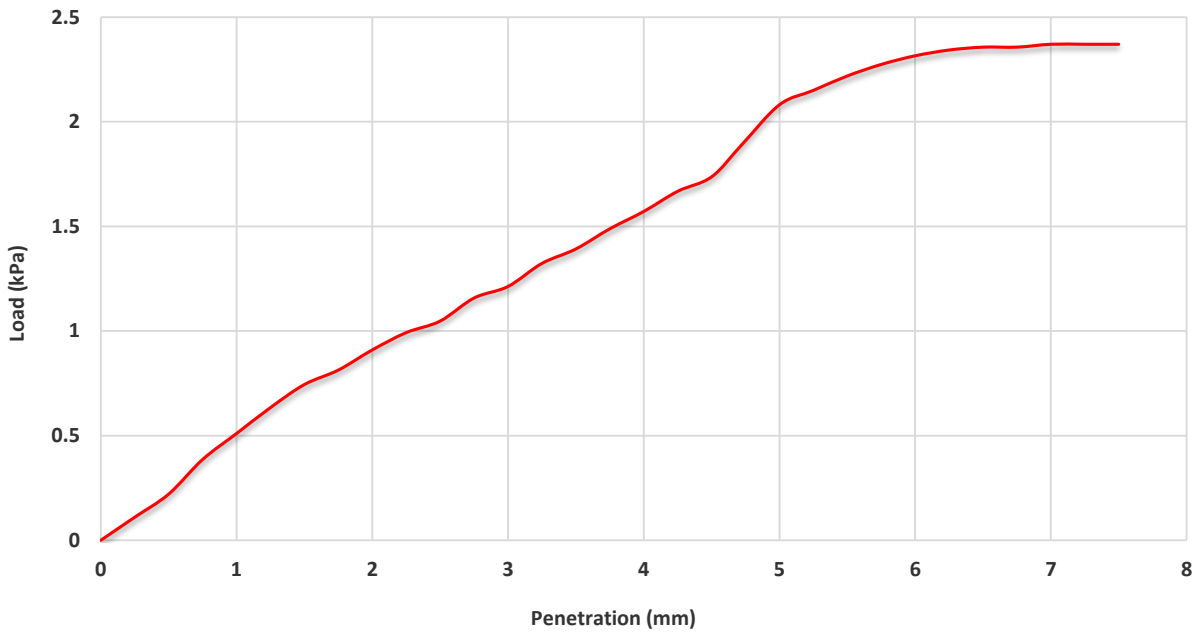
Remarks:

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory.

Test Operator	Checked and Authorised by		Shaun Thomas
Daniel Underwood	Date	10/05/2022	

UKAS TESTING
2788

GSTL	Determination of the Insitu California Bearing Ratio BS 1377: Part 9: 1990 Clause 4.3	Contract Number	59407
		Client Reference	JER9352
Client	RPS Group	Test Date	5-6/5/22
Site Location	Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ	Test Location	CBR 4
Sampling Method	BS 1377-1:1990 General requirements and sample preparation	Test Depth (m)	0.60
Soil Description	Brown sandy silty CLAY	Kentledge Type	Back of 4x4



C.B.R Value %	10.4

Weather Conditions	Dry
Surcharge (kg)	9
Material Above 20mm (est.)	N/A
Moisture Content (%)	15

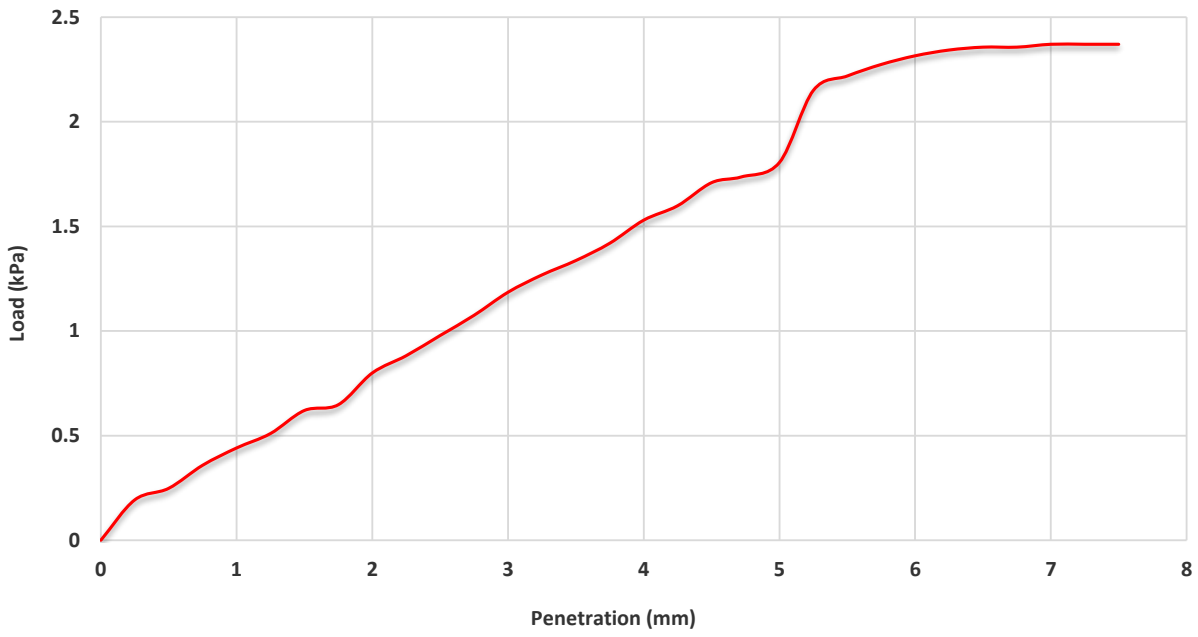
Remarks:

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Test Operator	Checked and Authorised by		Shaun Thomas
Daniel Underwood	Date	10/05/2022	

UKAS TESTING
2788

GSTL	Determination of the Insitu California Bearing Ratio BS 1377: Part 9: 1990 Clause 4.3	Contract Number	59407
		Client Reference	JER9352
Client	RPS Group	Test Date	5-6/5/22
Site Location	Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ	Test Location	CBR 5
Sampling Method	BS 1377-1:1990 General requirements and sample preparation	Test Depth (m)	0.20
Soil Description	Black clayey SILT	Kentledge Type	Back of 4x4



C.B.R Value %	9.0

Weather Conditions	Dry
Surcharge (kg)	9
Material Above 20mm (est.)	N/A
Moisture Content (%)	15

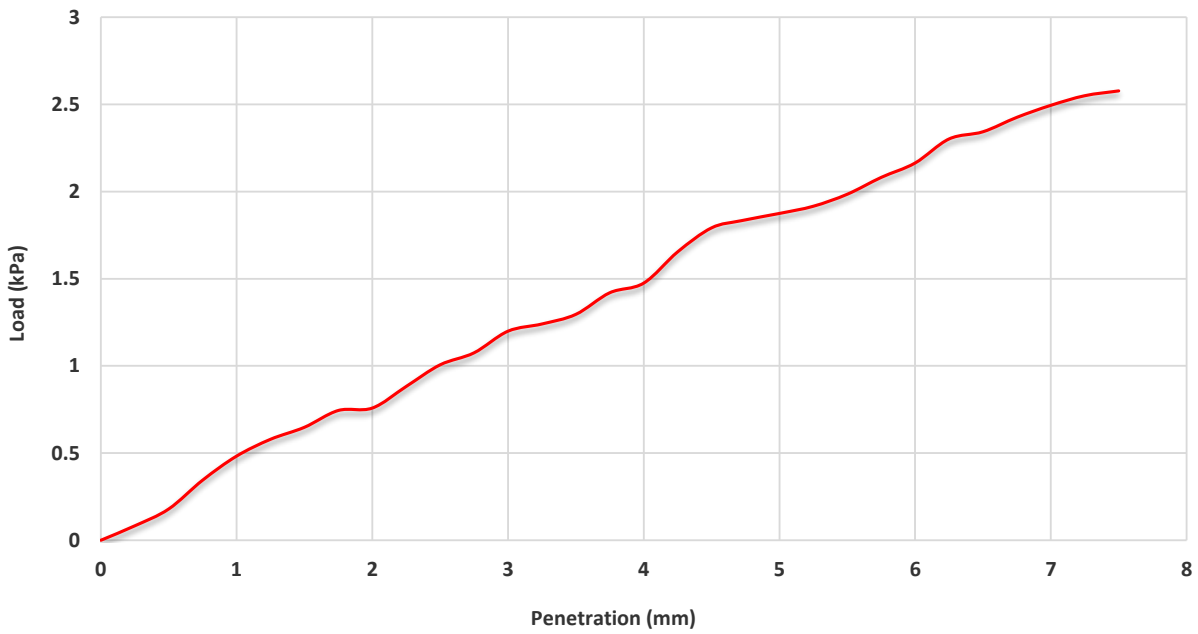
Remarks:

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Test Operator	Checked and Authorised by		Shaun Thomas
Daniel Underwood	Date	10/05/2022	

UKAS TESTING
2788

GSTL	Determination of the Insitu California Bearing Ratio BS 1377: Part 9: 1990 Clause 4.3	Contract Number	59407
		Client Reference	JER9352
Client	RPS Group	Test Date	5-6/5/22
Site Location	Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ	Test Location	CBR 6
Sampling Method	BS 1377-1:1990 General requirements and sample preparation	Test Depth (m)	0.20
Soil Description	Black clayey SILT	Kentledge Type	Back of 4x4



C.B.R Value %	9.4

Weather Conditions	Dry
Surcharge (kg)	9
Material Above 20mm (est.)	N/A
Moisture Content (%)	19

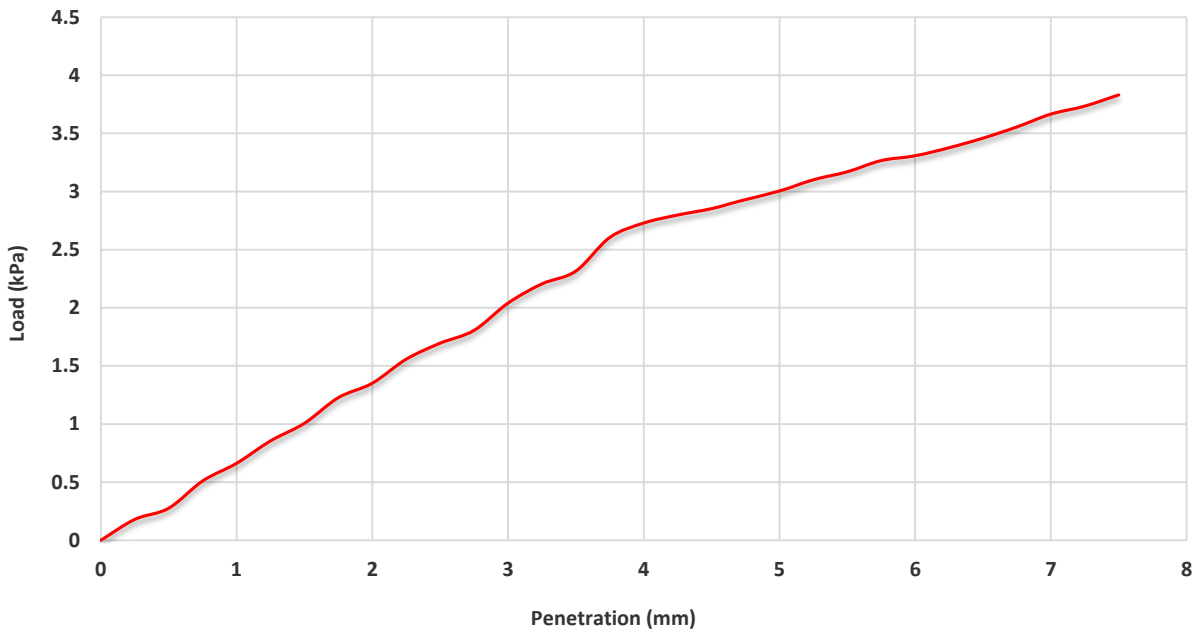
Remarks:

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory.

Test Operator	Checked and Authorised by		Shaun Thomas
Daniel Underwood	Date	10/05/2022	

UKAS TESTING
2788

GSTL	Determination of the Insitu California Bearing Ratio BS 1377: Part 9: 1990 Clause 4.3	Contract Number	59407
		Client Reference	JER9352
Client	RPS Group	Test Date	5-6/5/22
Site Location	Lower Lodge Farm, Lower Lodge, CHIPPENHAM, SN15 3QZ	Test Location	CBR 7
Sampling Method	BS 1377-1:1990 General requirements and sample preparation	Test Depth (m)	0.60
Soil Description	Brown sandy silty CLAY	Kentledge Type	Back of 4x4



C.B.R Value %	15.0

Weather Conditions	Dry
Surcharge (kg)	9
Material Above 20mm (est.)	N/A
Moisture Content (%)	17

Remarks:

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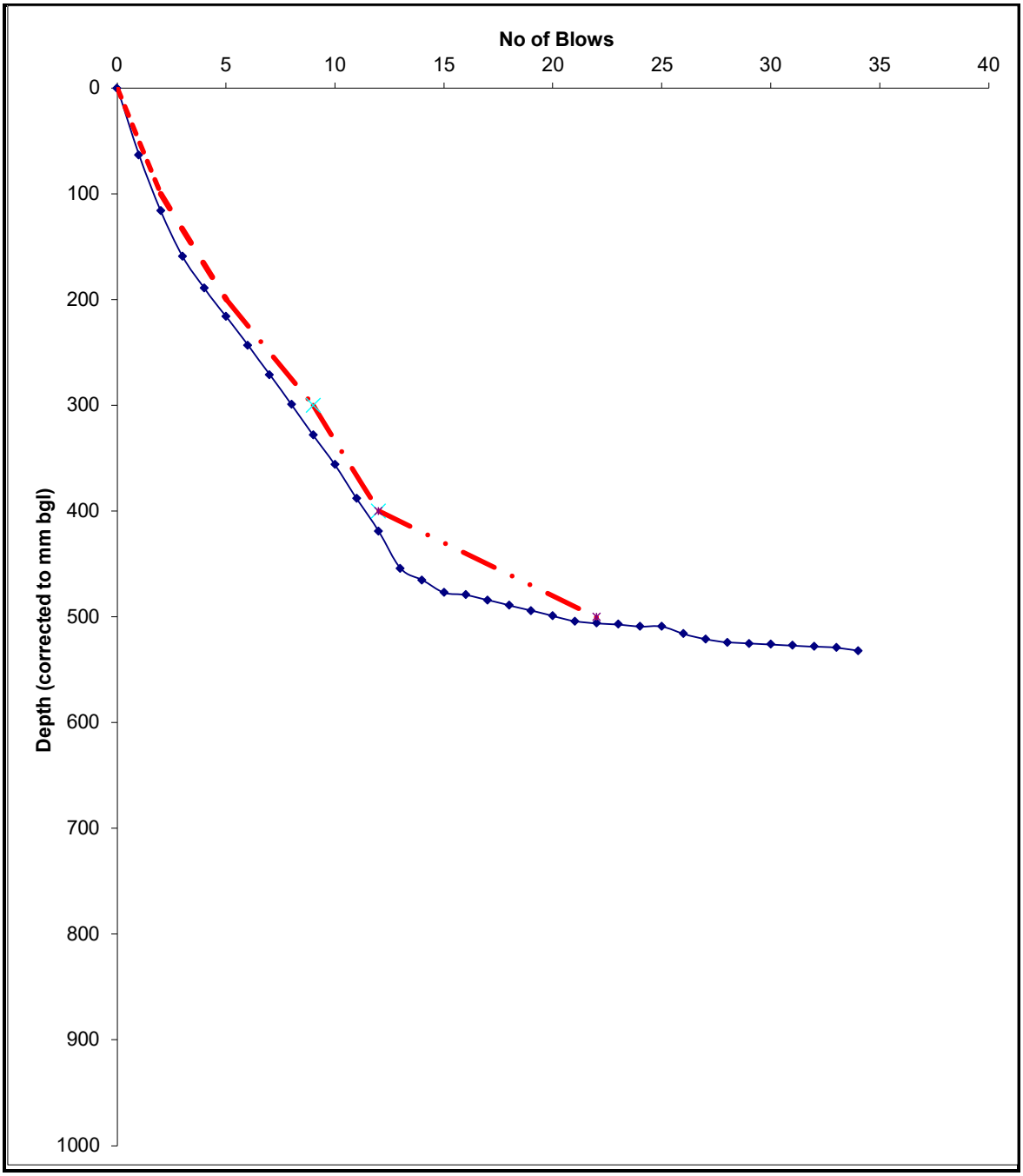
Test Operator	Checked and Authorised by		Shaun Thomas
Daniel Underwood	Date	10/05/2022	

UKAS TESTING
2788

Appendix G
LIGHT DYNAMIC CONE PENETROMETER TEST RESULTS

Test Location: DCP001
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

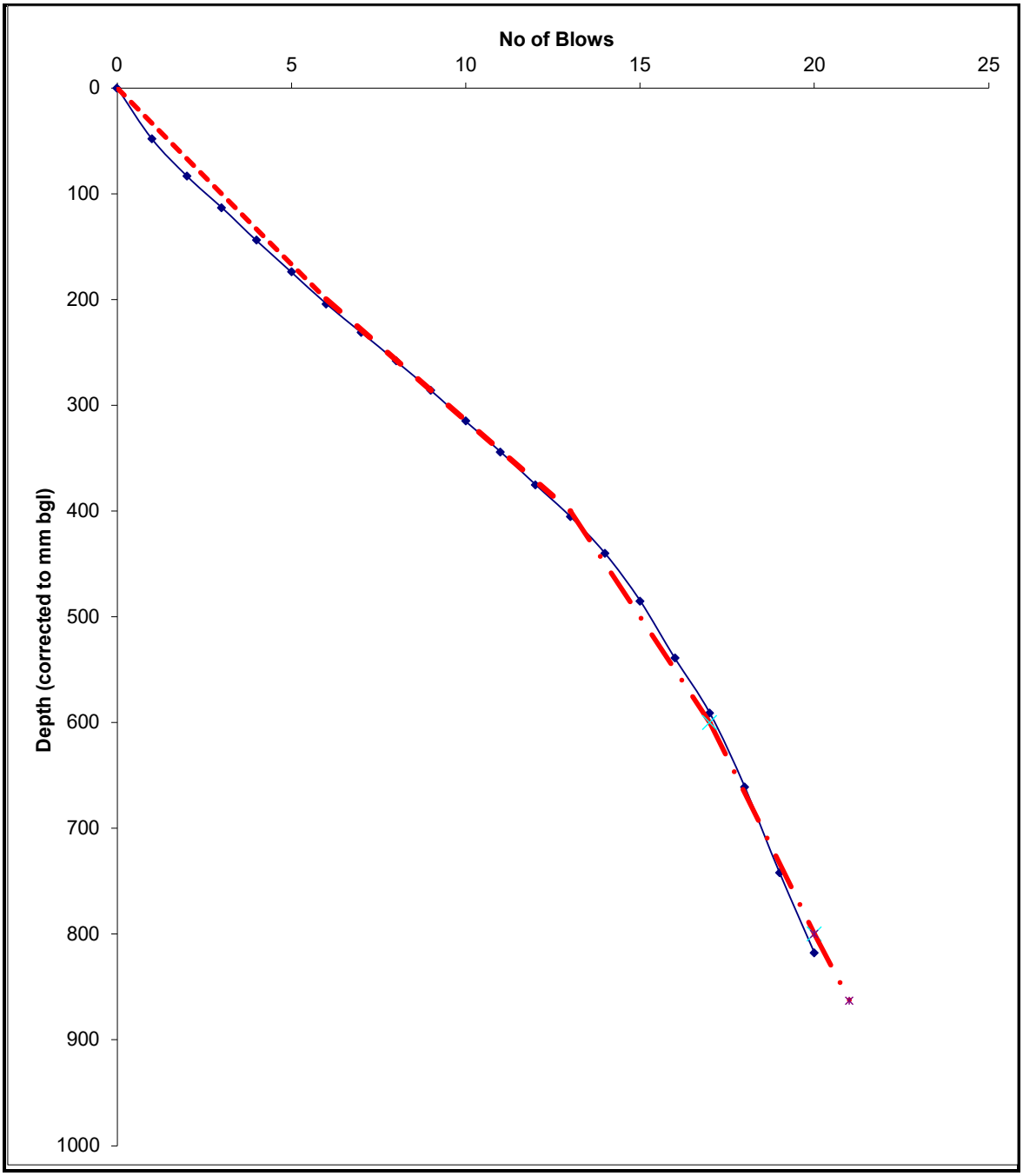


Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	50.00	0.00	0.10	0.457318394	2.87
2	33.33	0.10	0.20	0.682715206	4.82
3	25.00	0.20	0.30	0.842636789	6.96
4	33.33	0.30	0.40	0.682715206	4.82
5	10.00	0.40	0.50	1.352	22.49

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location: DCP002
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

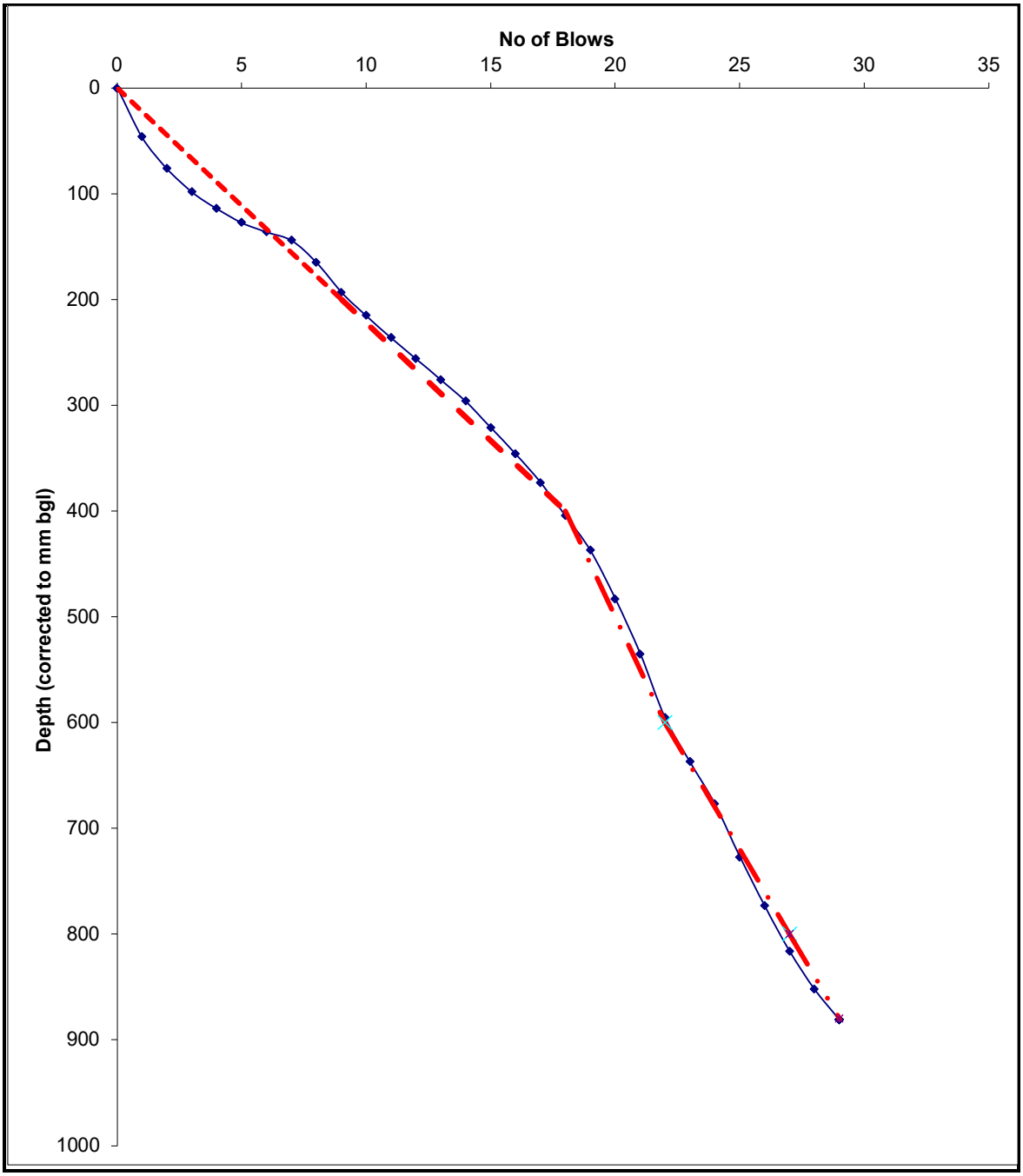


Assessment	mm/blow	depth (m bgl) from	depth (m bgl) to	Log10(CBR)	CBR (%)
1	33.33	0.00	0.20	0.682715206	4.82
2	28.57	0.20	0.40	0.768407097	5.87
3	50.00	0.40	0.60	0.457318394	2.87
4	66.67	0.60	0.80	0.297396812	1.98
5	63.00	0.80	0.86	0.328844097	2.13

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location: DCP003
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

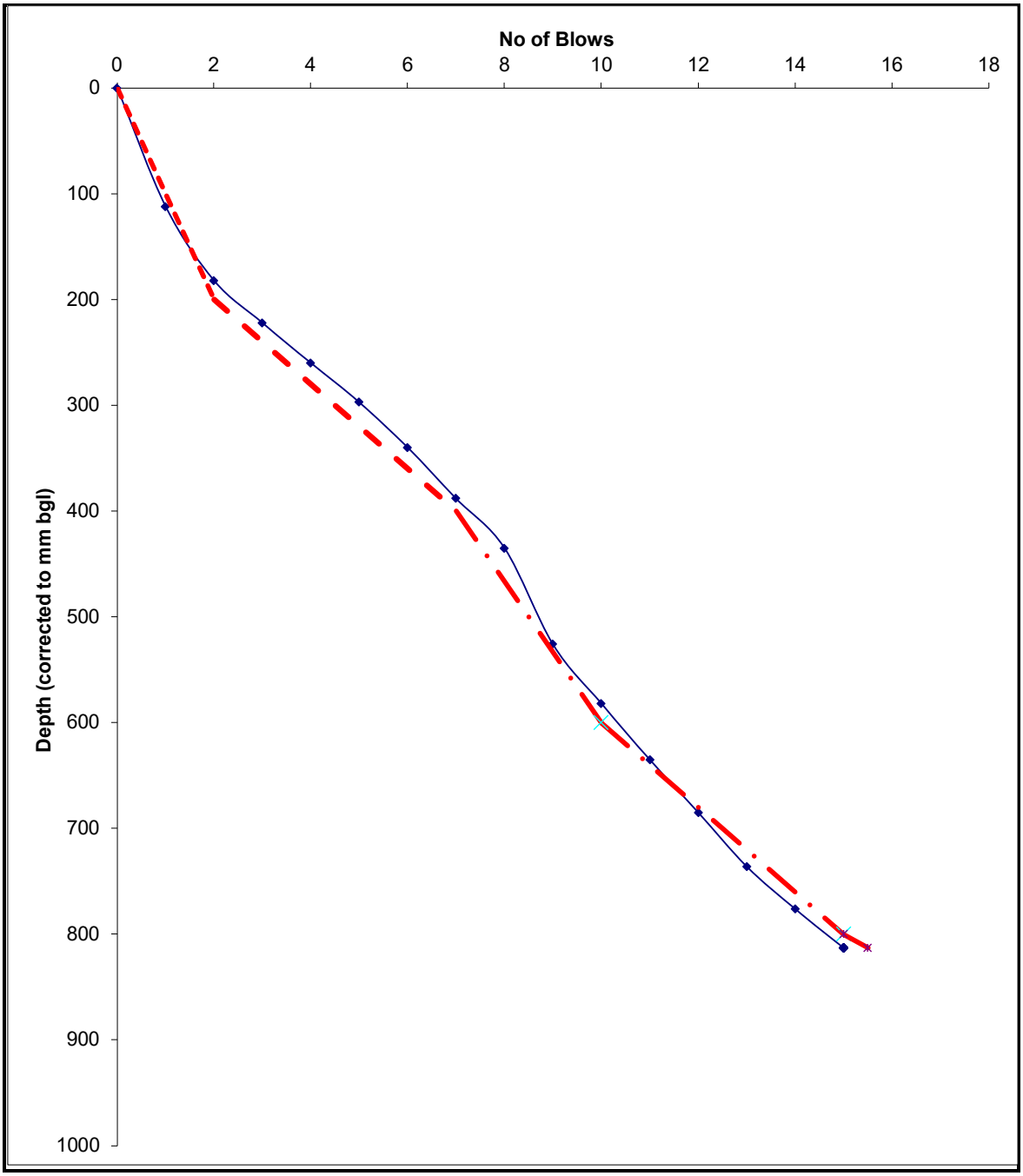


Assessment	mm/blow	depth (m bgl) from	depth (m bgl) to	Log10(CBR)	CBR (%)
1	22.22	0.00	0.20	0.908112018	8.09
2	22.22	0.20	0.40	0.908112018	8.09
3	50.00	0.40	0.60	0.457318394	2.87
4	40.00	0.60	0.80	0.581363211	3.81
5	40.00	0.80	0.88	0.581363211	3.81

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location: DCP004
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

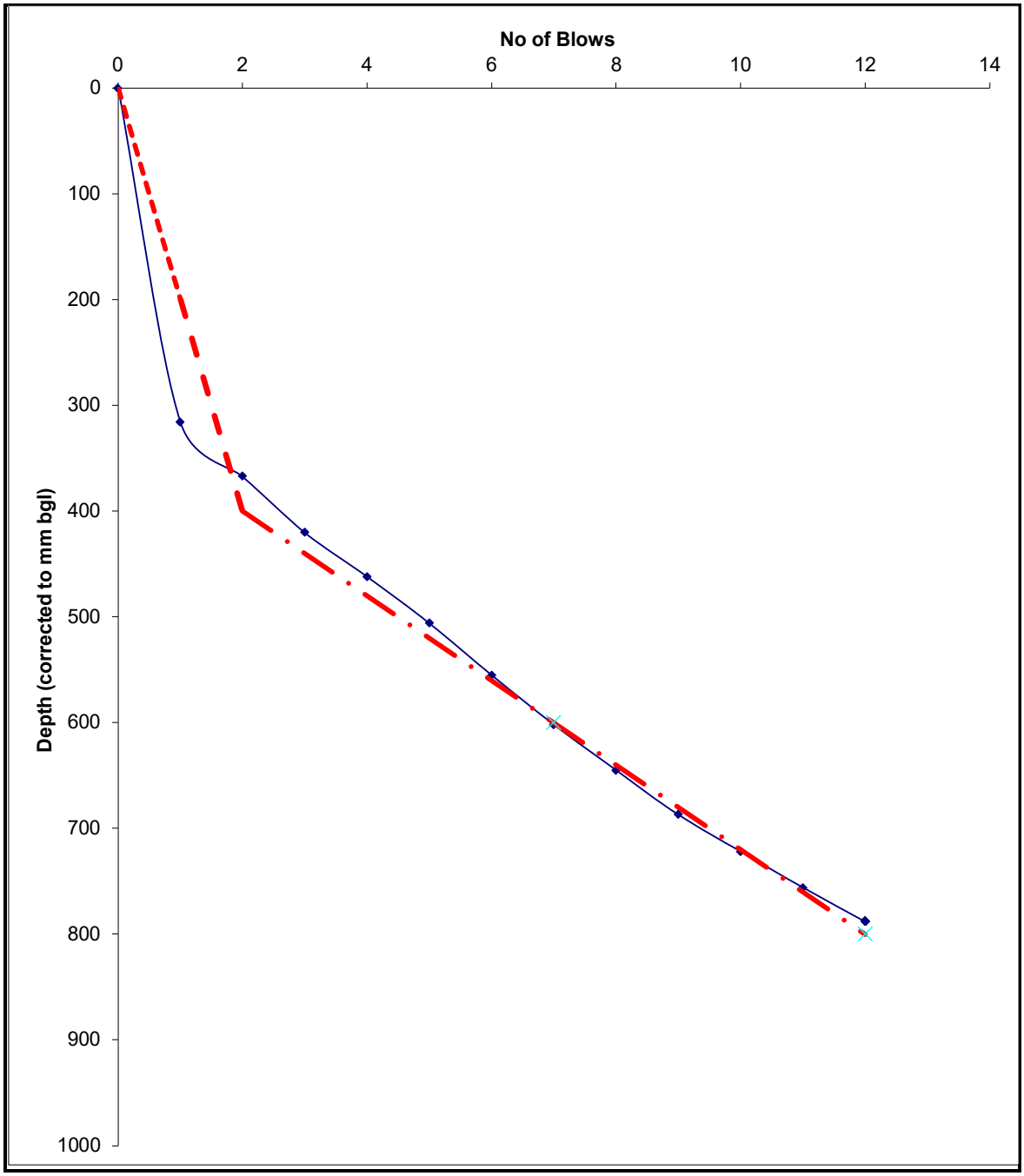


Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	100.00	0.00	0.20	0.072	1.18
2	40.00	0.20	0.40	0.581363211	3.81
3	66.67	0.40	0.60	0.297396812	1.98
4	40.00	0.60	0.80	0.581363211	3.81
5	26.00	0.80	0.81	0.820834115	6.62

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location: DCP005
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

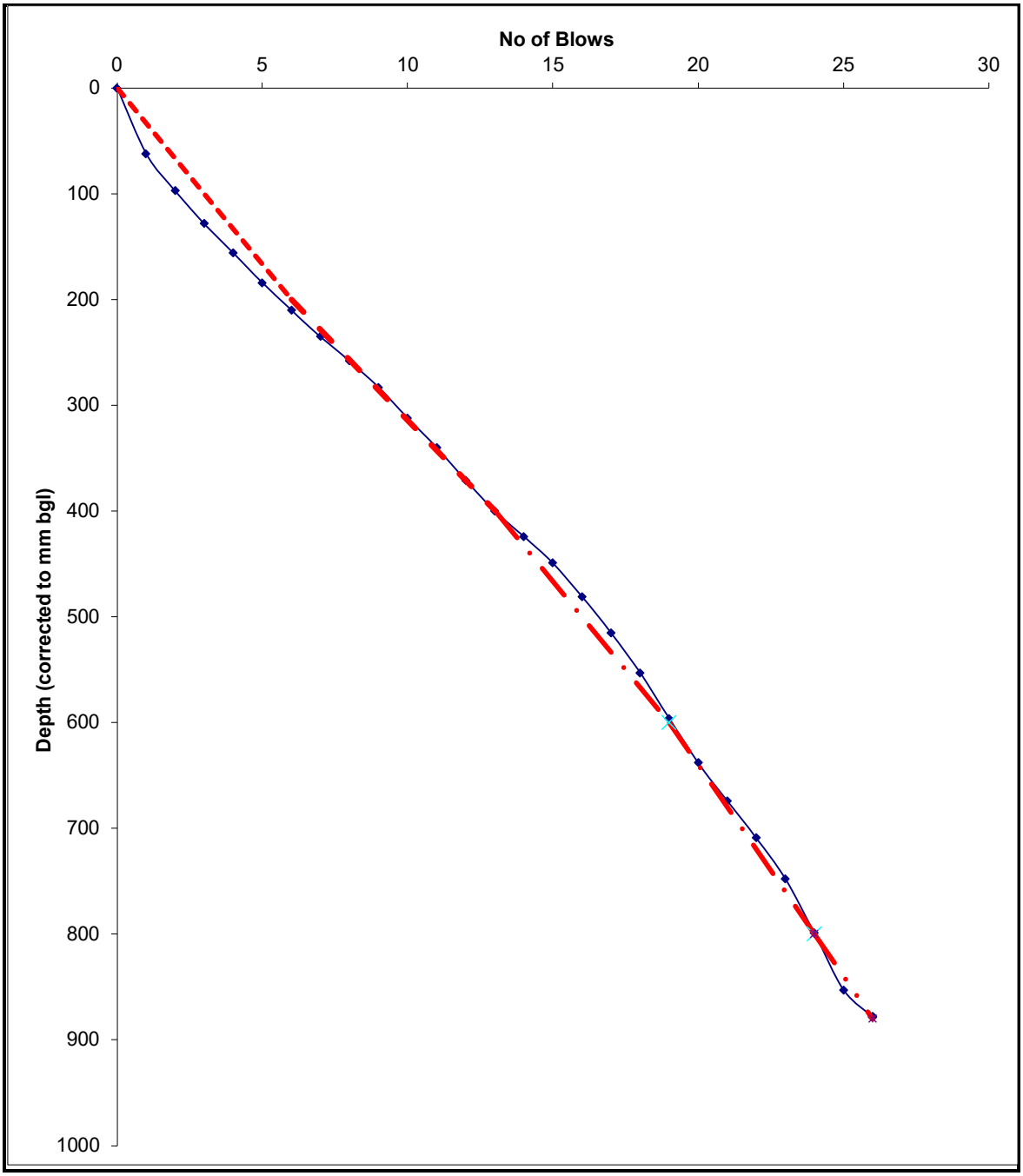


Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	200.00	0.00	0.20	-0.313318394	0.49
2	200.00	0.20	0.40	-0.313318394	0.49
3	40.00	0.40	0.60	0.581363211	3.81
4	40.00	0.60	0.80	0.581363211	3.81
5					

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location: DCP006
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

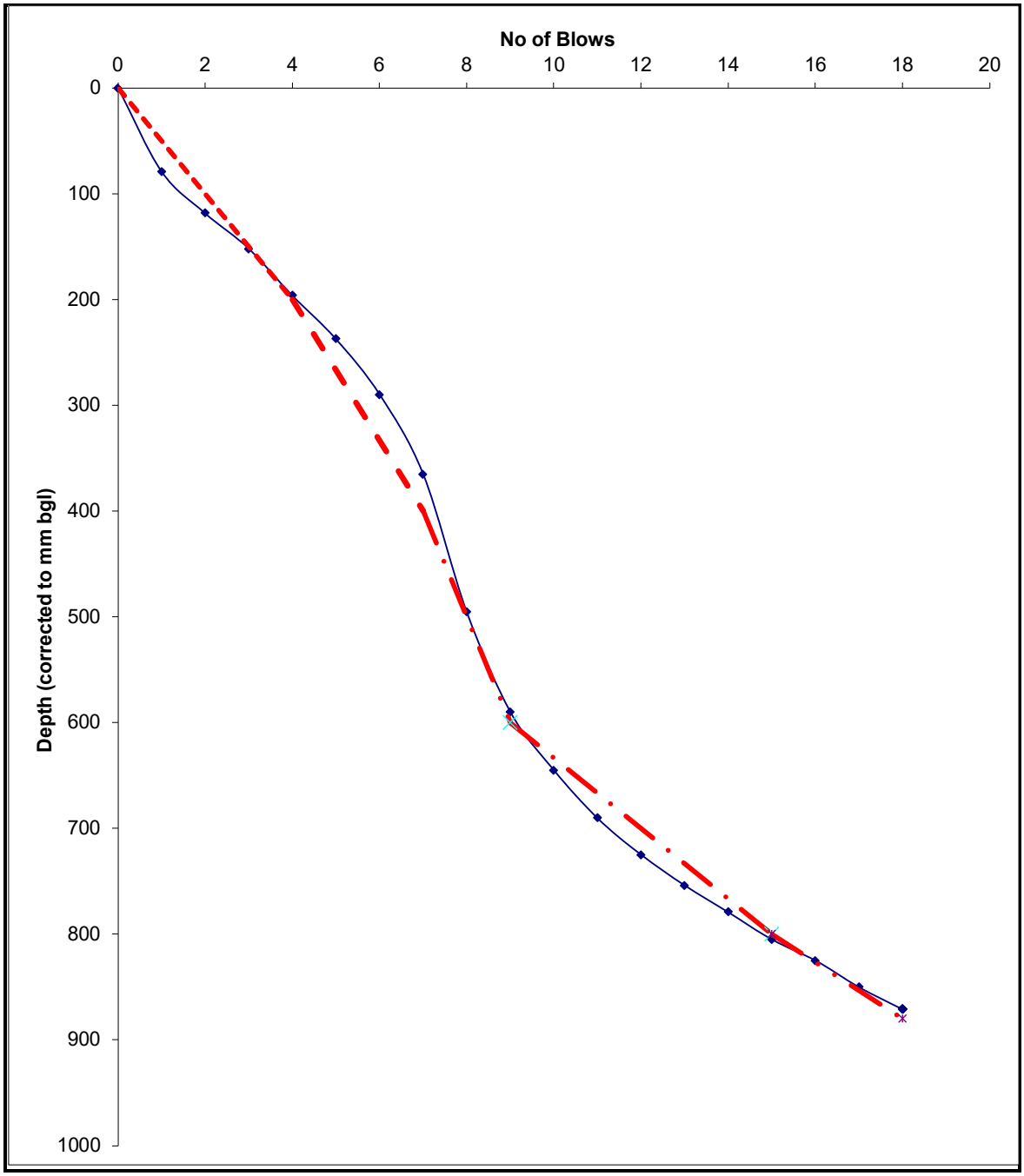


Assessment	mm/blow	depth (m bgl) from	depth (m bgl) to	Log10(CBR)	CBR (%)
1	33.33	0.00	0.20	0.682715206	4.82
2	28.57	0.20	0.40	0.768407097	5.87
3	33.33	0.40	0.60	0.682715206	4.82
4	40.00	0.60	0.80	0.581363211	3.81
5	40.00	0.80	0.88	0.581363211	3.81

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location: DCP007
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

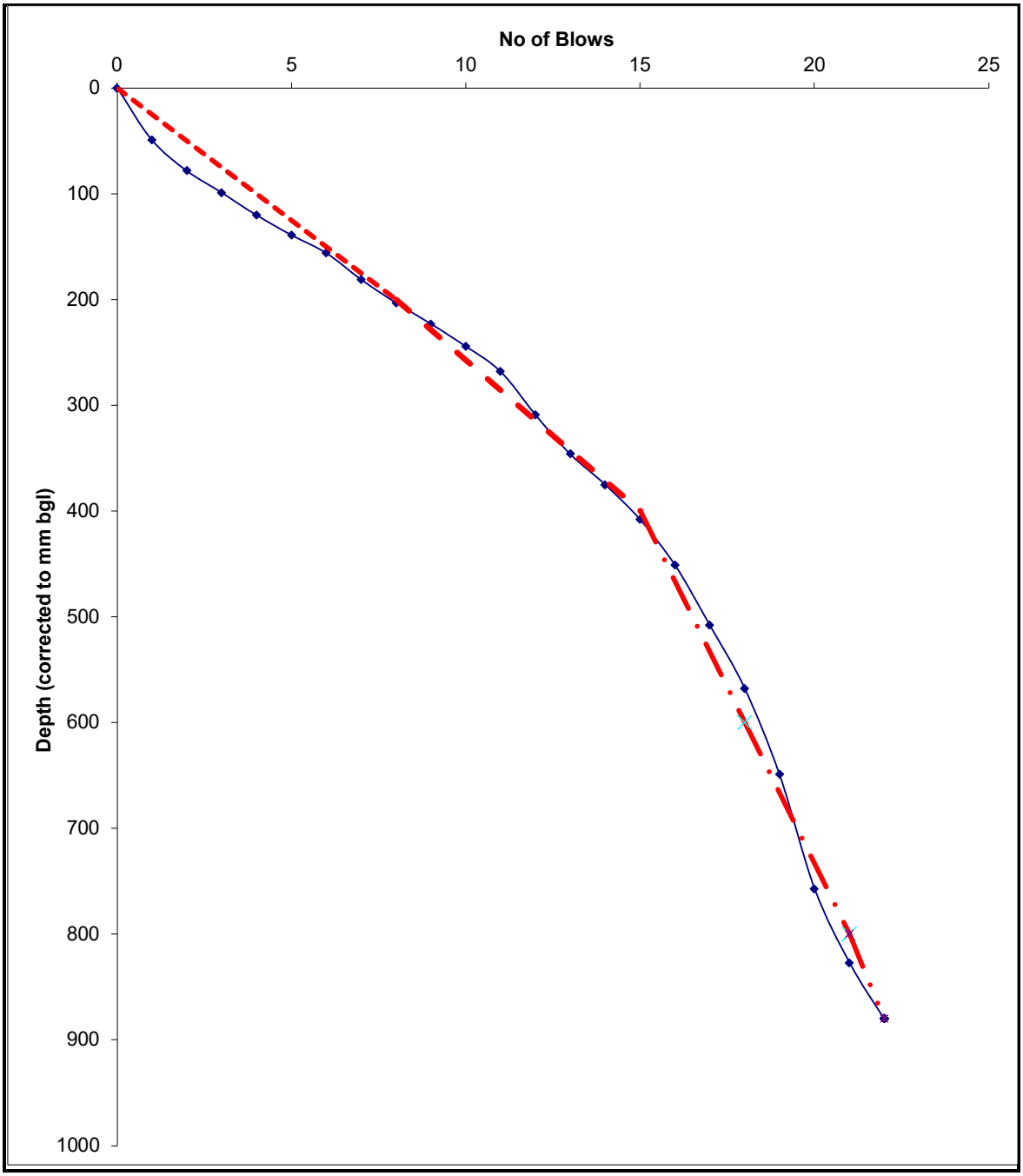


Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	50.00	0.00	0.20	0.457318394	2.87
2	66.67	0.20	0.40	0.297396812	1.98
3	100.00	0.40	0.60	0.072	1.18
4	33.33	0.60	0.80	0.682715206	4.82
5	26.67	0.80	0.88	0.806760023	6.41

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location: DCP008
DCP Test Number: 1
Project Number: JER9352
Project Name: Future Chippenham

Plot 1 - No of Blows versus Depth Profile

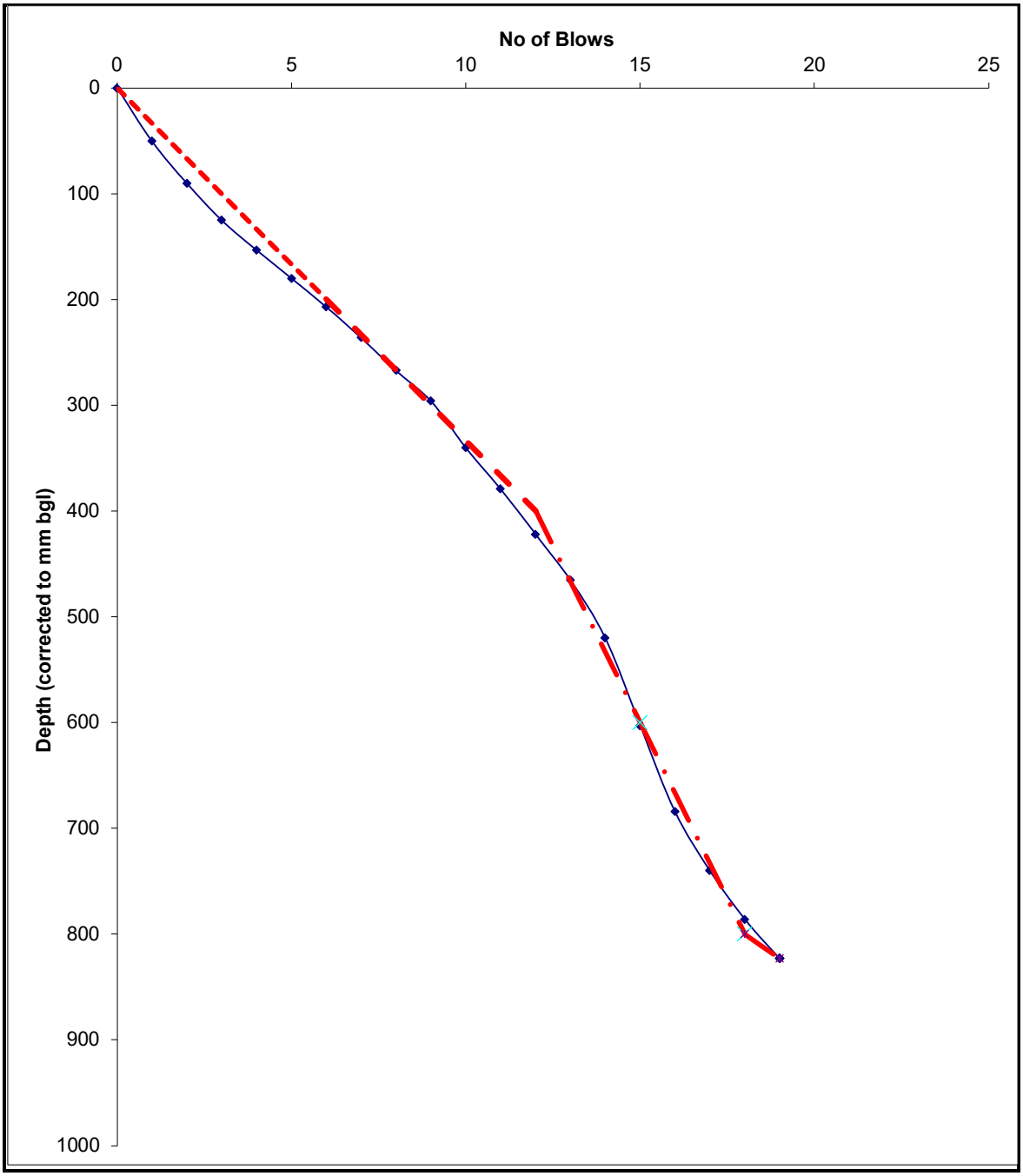


Assessment	mm/blow	depth (m bgl) from	depth (m bgl) to	Log10(CBR)	CBR (%)
1	25.00	0.00	0.20	0.842636789	6.96
2	28.57	0.20	0.40	0.768407097	5.87
3	66.67	0.40	0.60	0.297396812	1.98
4	66.67	0.60	0.80	0.297396812	1.98
5	80.00	0.80	0.88	0.196044817	1.57

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Test Location:	**DCP009**
DCP Test Number:	**1**
Project Number:	**JER9352**
Project Name:	**Future Chippenham**

Plot 1 - No of Blows versus Depth Profile



Assessment	mm/blow	depth (m bgl) from	depth (m bgl) to	Log10(CBR)	CBR (%)
1	33.33	0.00	0.20	0.682715206	4.82
2	33.33	0.20	0.40	0.682715206	4.82
3	66.67	0.40	0.60	0.297396812	1.98
4	66.67	0.60	0.80	0.297396812	1.98
5	23.00	0.80	0.82	0.88898837	7.74

-- indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and Vanheerden)

Appendix H
GAS & GROUNDWATER MONITORING RESULTS

					Gas Monitoring																					Groundwater monitoring						
					GOXP		GOXS	GCDP		GCDS	GCMP		GCMS	HYSP		HYSS	TGMP		TGMS	GMP	GFLO			GPRS	BAR			WDEP				
					%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	l/hr	l/hr	l/hr	pa	mbar	m below cover level	m	m below ground level	m below cover level	m below ground level	m below ground level	
					Peak	Min	Steady	Peak	Min	Steady	Peak	Min	Steady	Peak	Min	Steady	Peak	Min	Steady	Peak LEL	Peak		Steady									
Location ID	R	Location notes (e.g. Deep or Shallow, Diameter)	Date	Time	Oxygen (O_2)			Carbon Dioxide (CO_2)			Carbon Monoxide (CO)			Hydrogen Sulphide (H_2S)			Methane (CH_4)				Flow Rate			Diff. Pressure	Pressure	GW Level	Cover (mAGL)	GW Level	Depth to Base	Depth to Base	Install Depth (mbGL)	Additional notes / Comments
AVC1_BH_05	2		13/05/22	NR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.20	0.23	0.97	8.25	8.02	8.00	Development
AVC1_BH_05	2		17/05/22	11:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.00	0.24	0.76	8.07	7.83	8.00	Sampling
AVC1_BH_05	2		19/05/22	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.05	0.23	0.82	8.10	7.87	8.00	Sampling
AVC1_BH_05	3		09/06/22		19.9	19.8	19.8	0.0	0.0	0.0	--	--	--	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	1010	1.01	0.23	0.78	8.10	7.87	8.00	
AVC1_BH_05	5		22/08/22	10:34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.47	0.22	1.25	8.04	7.82	8.00	
AVC1_BH_05	4		07/07/22		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
AVC1_BH_08	2		17/05/22	09:55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.43	0.36		7.32		7.00	Sampling
AVC1_BH_08	3		09/06/22	14:40	21.2	21.1	21.1	0.1	0.1	0.1	5.0	ND	5.0	ND	ND	ND	ND	ND	ND	ND	3.0	ND	0.1	ND	1012	2.51	0.36	2.15		7.02	7.00	Gas and sample
AVC1_BH_08	4		07/07/22	13:30	20.7	20.1	20.2	0.7	0.1	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1016	1.14	0.36	0.78		7.81	7.00	
AVC1_BH_08	5		22/08/22		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
AVC1_BH_14	1		28/04/22	16:00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.38	0.31	5.07	20.00		20.00	Development
AVC1_BH_14	2		17/05/22	09:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.49	0.36	5.13	20.50		20.00	Sampling
AVC1_BH_14	3		09/06/22	14:30	20.7	20.4	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1012	5.47	0.35	5.12		20.08	20.00	
AVC1_BH_14	4	Not monitored due to cows	07/07/22		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
AVC1_BH_14	5	Not monitored due to cows	22/08/22		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
AVW_BH_02	1		28/04/22	14:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.66	0.31	0.35	4.30	3.99	5.00	Development
AVW_BH_02	2		16/05/22	11:00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.60	0.30	0.30	5.35	5.05	5.00	Sampling
AVW_BH_02	3		09/06/22	15:50	21.4	21.2	21.2	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4	0.1	0.3	ND	1011	0.54	0.3	0.24	5.36	5.06	5.00	
AVW_BH_02	4		07/07/22	12:00	20.7	20.6	20.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1014	0.41	0.30	0.11	5.35	5.05	5.00	
AVW_BH_02	5		22/08/22	12:34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.55	0.30	0.25	5.32	5.02	5.00	
AVW_BH_08	3		09/06/22	10:05	20.9	20.1	20.2	0.3	ND	0.3	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1009	2.07	0.23	1.84	15.17	14.94	15.00	
AVW_BH_08	4		07/07/22	NR	20.4	19.8	20.4	0.3	0.2	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	0.1	0.1	ND	1008	2.22	0.23	1.99	15.13	14.90	15.00	
AVW_BH_08	5		22/08/22	11:47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.41	0.23	2.18	15.28	15.05	15.00	
BH001	2		19/05/22	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.79	0.00	9.79	16.10		15.00	Development
BH001	3		09/06/22		20.1	18.8	20.1	0.0	0.0	0.0	--	--	--	--	--	--	--	--	--	--	0.0	0.0	0.0	--	1010	10.56	0.00	10.56			15.00	
BH001	4		07/07/22	NR	9.0	7.8	7.8	0.4	0.4	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.1	ND	ND	135.0	1025	10.22	0.00	10.22			15.00	
BH001	5		22/08/22	11:19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Dry	0.00			15.93	15.00	
BH003	5		22/08/22	10:41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.51	0.26	2.25	7.49	7.23	7.00	
BH003	2		17/05/22	11:55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.83	0.27	1.56	7.42	7.15	7.00	Sampling
BH003	3		09/06/22	--	20.5	20.1	20.1	0.0	0.0	0.0	--	--	--	--	--	--	--	--	--	--	0.0	0.0	0.0	--	1010	1.99	0.26	1.73	7.50	7.24	7.00	
BH003	4		07/07/22	NR	20.7	20.6	20.7	0.2	0.2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1027	2.25	0.26	1.99	7.53	7.27	7.00	
PWB_BH_01	1		28/04/22	14:55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.60	0.31	4.29	9.20		9.00	Development
PWB_BH_01	2		17/05/22	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.58	0.36	4.22	10.24		9.00	Sampling
PWB_BH_01	3		09/06/22	13:00	21.3	20.7	21.1	0.1	ND	ND	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9	ND	ND	ND	1009	4.46	0.36	4.10	9.88		9.00	
PWB_BH_01	4		07/07/22	11:20	20.8	20.4	20.6	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1004	4.56	0.36	4.20		9.84	9.00	
PWB_BH_01	5		22/08/22	12:15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.40	0.35	4.05	10.23	9.88	9.00	
PWB_BH_06	2		13/05/22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.67	0.27	1.40	9.10	8.83	9.00	Development
PWB_BH_06	2		17/05/22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.58	0.27	1.31	9.09	8.82	9.00	Sampling
PWB_BH_06	3		09/06/22	12:30	21.4	21.0	21.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1009	1.72	0.27	1.45	8.91	8.64	9.00	
PWB_BH_06	4		07/07/22	--	20.5	20.4	20.4	0.3	0.2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-4.0	ND	ND	ND	1025	1.72	0.27	1.45	8.42	8.15	9.00	
PWB_BH_06	5		22/08/22	12:12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.95	0.24	1.71	9.21	8.97	9.00	
WS001	1		28/04/22	10:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.43	0.40	1.03	1.78	1.38	**3.90**	Development
WS001	2		16/05/22	09:40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.16	0.42	0.74	3.75	3.33	3.90	Sampling
WS001	3		09/06/22	08:45	21.3	20.4	20.4	0.5	ND	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1011	1.60	0.44	1.16	3.76	3.32	3.90	
WS001	4		07/07/22	14:30	20.8	20.1	20.1	0.9	0.4	0.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1024	1.55	0.44	1.11	3.70	3.26	3.90	
WS001	5		22/08/22	12:47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.49	0.43	2.06	3.72	3.29	3.90	
WS004	2		16/05/22	15:15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.26	0.48		6.34		6.20	Sampling
WS004	3	Not monitored due to cows	09/06/22		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				6.20	
WS004	5	Not monitored due to cows	22/08/22		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			#VALUE!	6.20	
WS004	4	Not monitored due to cows	07/07/22		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
WS006	1		28/04/22	11:55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	0.31		3.72		**3.20**	Development
WS006	2		16/05/22	10:50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.11	0.37		3.40		3.20	Sampling
WS006	3		09/06/22	16:11	21.2	20.9	20.9	0.3	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	0.3	0.7	ND	1009			2.17		3.03	3.20	
WS006	4		07/07/22	11:45	20.7	20.3	20.4	0.5	ND	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1020			1.74		3.03	3.20	
WS006	5		22/08/22	12:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.90	0.35	1.55	3.51	3.16	3.20	
WS009	1		28/04/22	15:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.65	0.31	3.34	8.43		**8.10**	Development
WS009	2		16/05/22	10:25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.00	0.37	2.63	8.44		8.10	Sampling
WS009	3	Machinery parked	09/06/22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				8.10	
WS009	5		22/08/22	12:24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.74	0.37	1.37	8.38	8.01	8.10	
WS009	4		07/07/22	--	20.6	20.3	20.3	0.5	0.4	0.6	--	--	--	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	1025	1.72	0.38	1.34				
WS011	1		28/04/22	13:55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.27	0.40	0.87	8.46	8.06	8.00	Development
WS011	2		17/05/22	10:50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.49	0.44	1.05	8.45	8.01	8.00	Sampling
WS011	3		09/06/22	10:51	20.9	20.8	20.9	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	ND	ND	ND	1010	1.68	0.44	1.24	8.46	8.02	8.00	
WS011	4		07/07/22	NR	20.2	19.6	19.7	1.5	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	1008	2.45	0.43	2.02	8.54	8.11	8.00	
WS011	5		22/08/22	11:52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.21	0.42	1.79	8.50	8.08	8.00	
WS019	1		13/05/22	NR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.12	0.00	1.12	3.47	3.47	3.50	Development
WS019	2		16/05/22	13:45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.68	0.00	0.68	3.46	3.46	3.50	Sampling
WS019	3		09/06/22	09:45	21.2	21.1	21.1	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	ND	ND	1009	0.87	0.00	0.87	3.48	3.48	3.50	
WS019	4		07/07/22	11:00	20.8	20.3	20.7	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	983	1.14	0.00	1.14	3.47	3.47	3.50	
WS019	5		22/08/22	12:04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.49	0.00	1.49	3.48	3.48	3.50	
WS020	1		28/04/22	13:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.00	0.31	0.69	7.26	6.95	8.10	Development
WS020	2		16/05/22	13:15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.93	0.37	0.56	8.40	8.03	8.10	Sampling
WS020	3		09/06/22	11:30	21.2	21.1	21.1	ND	ND	ND	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	--	1009	1.13	0.37	0.76	8.31	7.94	8.10	
WS020	4		07/07/22	NR	20.6	20.6	20.6	0.5	0.2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.4	0.3	0.3	ND	988	1.36	0.37	0.99	8.31	7.94	8.10	
WS020	5		22/08/22	11:44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.66	0.36	1.30	8.33	7.97	8.10	

Appendix I
SOIL CHEMICAL RESULTS

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 June 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220514-83
Your Reference:	JER9352
Location:	Chippenham
Report No:	649231
Order Number:	PO22-197

We received 18 samples on Saturday May 14, 2022 and 1 of these samples were scheduled for analysis which was completed on Monday June 06, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26282443	AVW_BH_06		1.20	12/05/2022
26282432	AVW_BH_07		0.30	12/05/2022
26282433	AVW_BH_07		0.80	12/05/2022
26282435	AVW_BH_07		1.20	12/05/2022
26282436	HP_TP_09		0.30	12/05/2022
26282438	HP_TP_09		0.80	12/05/2022
26282439	HP_TP_09		1.20	12/05/2022
26282451	PLT001		0.30	12/05/2022
26282444	TP014		0.30	12/05/2022
26282445	TP014		0.80	12/05/2022
26282446	TP014		1.20	12/05/2022
26282447	TP014		2.50	12/05/2022
26282440	TP015		0.30	12/05/2022
26282441	TP015		0.80	12/05/2022
26282442	TP015		1.20	12/05/2022
26282448	TP016		0.30	12/05/2022
26282449	TP016		0.80	12/05/2022
26282450	TP016		1.20	12/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26282432		
Customer Sample Reference			AVW_BH_07		
AGS Reference					
Depth (m)			0.30		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1		X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1	X		
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X		
CEN Readings	All	NDPs: 0 Tests: 1	X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X	
Coronene	All	NDPs: 0 Tests: 1		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2	X	X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 1		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1	X		

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26282432		
Customer Sample Reference			AWW_BH_07		
AGS Reference					
Depth (m)			0.30		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 1	X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1	X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1	X		
pH	All	NDPs: 0 Tests: 1		X	
pH Value	All	NDPs: 0 Tests: 1	X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	
Sample description	All	NDPs: 0 Tests: 1		X	
Sulphide	All	NDPs: 0 Tests: 1	X		
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphate	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26282432	AVW_BH_07	0.30	Light Brown	Sandy Clay Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	AVW_BH_07
Depth (m)	0.30
Sample Type	Soil/Solid (S)
Date Sampled	12/05/2022
Sampled Time	.
Date Received	14/05/2022
SDG Ref	220514-83
Lab Sample No.(s)	26282432
AGS Reference	

Component	LOD/Units	Method	
Moisture Content Ratio (% of as received sample)	%	PM024	14
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M
Soil Organic Matter (SOM)	<0.35 %	TM132	1.78 #
pH	1 pH Units	TM133	7.47 @ M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #
Cyanide, Total	<1 mg/kg	TM153	<1 @ M
Cyanide, Free	<1 mg/kg	TM153	<1 @ M
Cyanide, Complex	<1 mg/kg	TM153	<1
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 @ M
Aluminium	<11 mg/kg	TM181	10800
Antimony	<0.6 mg/kg	TM181	<0.6 #
Arsenic	<0.6 mg/kg	TM181	9.23 M
Barium	<0.6 mg/kg	TM181	32.1 #
Beryllium	<0.01 mg/kg	TM181	0.626 M
Boron	<0.7 mg/kg	TM181	14.9 #
Cadmium	<0.02 mg/kg	TM181	1.12 M
Chromium	<0.9 mg/kg	TM181	7.58 M
Copper	<1.4 mg/kg	TM181	12.4 M
Iron	<1000 mg/kg	TM181	22400 #
Lead	<0.7 mg/kg	TM181	21.1 M
Manganese	<0.13 mg/kg	TM181	143 M
Mercury	<0.1 mg/kg	TM181	<0.1 M
Molybdenum	<0.1 mg/kg	TM181	1.01 #
Nickel	<0.2 mg/kg	TM181	15 M
Selenium	<1 mg/kg	TM181	<1 #
Vanadium	<0.2 mg/kg	TM181	26.3 #
Zinc	<1.9 mg/kg	TM181	799 M
Sulphate, Total	<48 mg/kg	TM221	1300 M
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234	2.01
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.025 M
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248	5.18
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	17900

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

		Customer Sample Ref.	AVW_BH_07
		Depth (m)	0.30
		Sample Type	Soil/Solid (S)
		Date Sampled	12/05/2022
		Sampled Time	.
		Date Received	14/05/2022
		SDG Ref	220514-83
		Lab Sample No.(s)	26282432
		AGS Reference	
Component	**LOD/Units**	**Method**	
Coronene	<200 µg/kg	TM410	<200

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	
			AVW_BH_07	
			Depth (m)	0.30
			Sample Type	Soil/Solid (S)
			Date Sampled	12/05/2022
			Sampled Time	.
			Date Received	14/05/2022
			SDG Ref	220514-83
			Lab Sample No.(s)	26282432
			AGS Reference	
Naphthalene-d8 % recovery**	%	TM218	94.2	
Acenaphthene-d10 % recovery**	%	TM218	95.7	
Phenanthrene-d10 % recovery**	%	TM218	95	
Chrysene-d12 % recovery**	%	TM218	90.9	
Perylene-d12 % recovery**	%	TM218	90.3	
Naphthalene	<9 µg/kg	TM218	25.7 M	
Acenaphthylene	<12 µg/kg	TM218	311 M	
Acenaphthene	<8 µg/kg	TM218	113 M	
Fluorene	<10 µg/kg	TM218	456 M	
Phenanthrene	<15 µg/kg	TM218	2670 M	
Anthracene	<16 µg/kg	TM218	988 M	
Fluoranthene	<17 µg/kg	TM218	3020 M	
Pyrene	<15 µg/kg	TM218	2270 M	
Benz(a)anthracene	<14 µg/kg	TM218	1820 M	
Chrysene	<10 µg/kg	TM218	1450 M	
Benzo(b)fluoranthene	<15 µg/kg	TM218	1540 M	
Benzo(k)fluoranthene	<14 µg/kg	TM218	668 M	
Benzo(a)pyrene	<15 µg/kg	TM218	1220 M	
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	625 M	
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	194 M	
Benzo(g,h,i)perylene	<24 µg/kg	TM218	495 M	
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	17900	

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. AVW_BH_07				
			Depth (m) 0.30				
			Sample Type Soil/Solid (S)				
			Date Sampled 12/05/2022				
			Sampled Time .				
			Date Received 14/05/2022				
			SDG Ref 220514-83				
			Lab Sample No.(s) 26282432				
			AGS Reference				
GRO Surrogate % recovery**	%	TM089	92.6				
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10				
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10				
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10				
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	3050 #				
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000				
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000				
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	11000				
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10				
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10				
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10				
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	6230 #				
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000				
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000				
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	7830				
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000				
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50				
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50				
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20				

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	AVW_BH_07
Depth (m)	0.30
Sample Type	Soil/Solid (S)
Date Sampled	12/05/2022
Sampled Time	.
Date Received	14/05/2022
SDG Ref	220514-83
Lab Sample No.(s)	26282432
AGS Reference	

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	113 @
Toluene-d8**	%	TM116	102 @
4-Bromofluorobenzene**	%	TM116	98.2 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 @ M
Benzene	<9 µg/kg	TM116	<180 @ M
Toluene	<7 µg/kg	TM116	<140 @ M
Ethylbenzene	<4 µg/kg	TM116	<80 @ M
p/m-Xylene	<10 µg/kg	TM116	<200 @ #
o-Xylene	<10 µg/kg	TM116	<200 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4 @
Sum of BTEX	<40 µg/kg	TM116	<800 @

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	AVW_BH_07	30/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	0.30										
Sample Type	SOLID										
Date Sampled	12/05/2022 00:00:00										
Date Receieved	14/05/2022 05:00:00										
SDG	220514-83										
Original Sample	26282432										
Method Number	TM048										

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.7
Particle Size <4mm	>95%		

Case	
SDG	220514-83
Lab Sample Number(s)	26282432
Sampled Date	12-May-2022
Customer Sample Ref.	AVW_BH_07
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.342	<0.01	3.42	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00144	<0.0005	0.0144	<0.005	-	-	-
Barium	0.28	<0.0002	2.8	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.436	<0.01	4.36	<0.1	-	-	-
Cadmium	0.000102	<0.00008	0.00102	<0.0008	-	-	-
Chromium	0.00101	<0.001	0.0101	<0.01	-	-	-
Copper	0.00393	<0.0003	0.0393	<0.003	-	-	-
Iron (Dis.Filt) mg/l	2.35	<0.019	23.5	<0.19	-	-	-
Lead	0.00216	<0.0002	0.0216	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00312	<0.0004	0.0312	<0.004	-	-	-
Phosphorus	0.0484	<0.01	0.484	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	0.0024	<0.001	0.024	<0.01	-	-	-
Zinc	0.121	<0.001	1.21	<0.01	-	-	-
Chloride	5	<2	50	<20	-	-	-
Nitrate as N	1.05	<0.07	10.5	<0.7	-	-	-
Sulphate (soluble)	9.1	<2	91	<20	-	-	-
Nitrite as N	0.0399	<0.0152	0.399	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Acenaphthylene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Naphthalene by GCMS	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Phenanthrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-

Leach Test Information

Date Prepared	25-May-2022
pH (pH Units)	8.56
Conductivity (µS/cm)	66.90
Temperature (°C)	19.20
Volume Leachant (Litres)	0.883

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CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.7
Particle Size <4mm	>95%		

Case	
SDG	220514-83
Lab Sample Number(s)	26282432
Sampled Date	12-May-2022
Customer Sample Ref.	AVW_BH_07
Depth (m)	0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(a)pyrene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(ghi)perylene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Chrysene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Fluorene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
PAH 16 EPA Total by GCMS	<0.00082	<0.00082	<0.0082	<0.0082	-	-	-
Pyrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-

Leach Test Information

Date Prepared	25-May-2022
pH (pH Units)	8.56
Conductivity (µS/cm)	66.90
Temperature (°C)	19.20
Volume Leachant (Litres)	0.883

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26282432
Customer Sample Ref.	AVW_BH_07
AGS Ref.	
Depth	0.30
Type	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	26-May-2022
Ammoniacal Nitrogen	30-May-2022
Anions by Kone (soil)	30-May-2022
Anions by Kone (w)	30-May-2022
Asbestos ID in Solid Samples	30-May-2022
CEN 10:1 Leachate (1 Stage)	26-May-2022
CEN Readings	28-May-2022
Conductivity (at 20 deg.C)	30-May-2022
Coronene	30-May-2022
Cyanide Comp/Free/Total/Thiocyanate	31-May-2022
Dissolved Metals by ICP-MS	30-May-2022
Easily Liberated Sulphide	30-May-2022
EPH CWG GC (S)	27-May-2022
GRO by GC-FID (S)	31-May-2022
Hexavalent Chromium (s)	27-May-2022
Hexavalent Chromium (w)	30-May-2022
Mercury Dissolved	30-May-2022
Metals in solid samples by OES	30-May-2022
Moisture at 105C	25-May-2022
Nitrite by Kone (w)	30-May-2022
PAH 16 & 17 Calc	27-May-2022
PAH by GCMS	27-May-2022
PAH Spec MS - Aqueous (W)	30-May-2022
pH	26-May-2022
pH Value	30-May-2022
Phenols by HPLC (S)	30-May-2022
Sample description	25-May-2022
Sulphide	30-May-2022
Total Organic Carbon	31-May-2022
Total Sulphate	30-May-2022
TPH CWG GC (S)	31-May-2022
VOC MS (S)	06-Jun-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2613
Ammoniacal Nitrogen as N	TM099	**100.4** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2681
Chloride	TM184	**98.6** 95.10 : 104.28
Sulphate (soluble)	TM184	**97.6** 91.99 : 109.30
TON as NO3	TM184	**98.5** 90.35 : 108.35

Coronene

Component	Method Code	QC 2601
Coronene RAW	TM410	**112.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2696	QC 2640
Free Cyanide	TM153		**95.15** 71.70 : 110.70
Free Cyanide (W)	TM227	**88.75** 80.33 : 126.33	
Thiocyanate	TM153		**96.79** 87.27 : 113.27
Thiocyanate (W)	TM227	**103.5** 87.50 : 116.00	
Total Cyanide	TM153		**99.3** 72.73 : 109.93
Total Cyanide (W)	TM227	**111.5** 83.75 : 121.25	

Dissolved Metals by ICP-MS

Component	Method Code	QC 2647
Aluminium	TM152	**101.67** 90.98 : 111.82
Antimony	TM152	**103.33** 90.44 : 113.04
Arsenic	TM152	**98.0** 94.87 : 109.67
Barium	TM152	**103.17** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2647
Beryllium	TM152	**99.0** 87.77 : 113.97
Bismuth	TM152	**103.17** 91.90 : 112.20
Borate	TM152	**100.62** 88.00 : 112.00
Boron	TM152	**100.67** 92.27 : 112.40
Cadmium	TM152	**101.33** 94.93 : 106.93
Calcium	TM152	**101.33** 95.14 : 110.01
Chromium	TM152	**100.0** 91.84 : 108.67
Cobalt	TM152	**100.5** 90.72 : 109.61
Copper	TM152	**100.67** 94.47 : 109.05
Iron	TM152	**100.67** 94.40 : 107.90
Lead	TM152	**103.83** 93.55 : 109.46
Lithium	TM152	**100.5** 91.62 : 113.12
Magnesium	TM152	**100.67** 92.30 : 110.57
Manganese	TM152	**101.0** 94.75 : 108.21
Molybdenum	TM152	**99.0** 93.55 : 107.66
Nickel	TM152	**101.0** 88.00 : 112.00
Phosphorus	TM152	**96.67** 92.51 : 109.27
Potassium	TM152	**102.0** 92.16 : 109.93
Selenium	TM152	**95.33** 91.58 : 115.98
Silver	TM152	**100.83** 92.75 : 111.05
Sodium	TM152	**100.67** 89.47 : 109.62
Strontium	TM152	**102.0** 95.40 : 109.43
Tellurium	TM152	**99.0** 93.32 : 114.66
Thallium	TM152	**99.5** 88.00 : 112.00
Tin	TM152	**104.17** 92.63 : 109.70
Titanium	TM152	**103.0** 95.08 : 109.28
Tungsten	TM152	**101.5** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2647
Uranium	TM152	**101.5** 88.00 : 112.00
Vanadium	TM152	**103.5** 88.00 : 112.00
Zinc	TM152	**98.33** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2651
Easily Liberated Sulphide	TM180	**100.26** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2620
QC	TM089	**83.58** 65.42 : 109.49

Hexavalent Chromium (s)

Component	Method Code	QC 2619
Hexavalent Chromium	TM151	**108.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2663
Hexavalent Chromium	TM241	**102.0** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2647
Mercury Dissolved (CVAF)	TM183	**88.6** 0.00 : 0.00

Metals in solid samples by OES

Metals in solid samples by OES

Component	Method Code	QC 2604
Aluminium	TM181	**114.04** 84.95 : 125.04
Antimony	TM181	**114.17** 91.44 : 127.13
Arsenic	TM181	**111.15** 95.27 : 120.80
Barium	TM181	**115.9** 94.57 : 124.93
Beryllium	TM181	**107.87** 85.72 : 122.69
Boron	TM181	**109.65** 91.59 : 122.22
Cadmium	TM181	**108.49** 87.31 : 121.62
Chromium	TM181	**98.78** 85.06 : 113.81
Cobalt	TM181	**101.82** 90.60 : 110.35
Copper	TM181	**95.09** 81.22 : 113.40
Iron	TM181	**110.09** 86.44 : 122.27
Lead	TM181	**105.45** 86.83 : 123.12
Manganese	TM181	**110.39** 89.22 : 121.75
Mercury	TM181	**108.79** 84.95 : 119.42
Molybdenum	TM181	**103.7** 85.98 : 123.80
Nickel	TM181	**105.64** 88.05 : 119.19
Phosphorus	TM181	**111.28** 90.13 : 121.54
Selenium	TM181	**112.09** 90.68 : 124.14
Strontium	TM181	**95.08** 80.65 : 106.55
Thallium	TM181	**107.38** 76.88 : 121.51
Tin	TM181	**105.64** 86.96 : 122.18
Titanium	TM181	**99.09** 77.07 : 118.83
Vanadium	TM181	**100.36** 84.00 : 115.50
Zinc	TM181	**105.64** 85.62 : 122.35

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2634
Acenaphthene	TM218	**89.0** 74.70 : 106.04
Acenaphthylene	TM218	**88.0** 73.12 : 105.14
Anthracene	TM218	**86.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**86.5** 69.31 : 119.18
Benzo(a)pyrene	TM218	**85.5** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**86.5** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**84.5** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**85.5** 69.98 : 116.49
Chrysene	TM218	**82.0** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**80.0** 64.54 : 115.22
Fluoranthene	TM218	**87.5** 72.56 : 111.70
Fluorene	TM218	**88.0** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**84.5** 61.22 : 113.25
Naphthalene	TM218	**90.0** 73.52 : 105.12
Phenanthrene	TM218	**90.0** 76.83 : 113.25
Pyrene	TM218	**84.5** 72.45 : 110.77

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2631
Acenaphthene by GCMS	TM178	**108.0** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**106.8** 96.80 : 118.40
Anthracene by GCMS	TM178	**105.2** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**102.8** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**104.8** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**97.2** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**98.4** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**111.6** 88.72 : 111.28
Chrysene by GCMS	TM178	**101.6** 88.68 : 116.92

PAH Spec MS - Aqueous (W)

		QC 2631
Dibenzo(ah)anthracene by GCMS	TM178	**101.6** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**113.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**112.8** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**101.2** 88.39 : 119.61
Naphthalene by GCMS	TM178	**107.6** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**103.6** 96.00 : 117.60
Pyrene by GCMS	TM178	**113.2** 91.00 : 120.20

pH

Component	Method Code	QC 2696
pH	TM133	**99.85** 96.92 : 102.20

pH Value

Component	Method Code	QC 2664
EC QC	TM256	**102.31** 95.52 : 108.13
pH	TM256	**100.0** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2659
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**51.95** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.03** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**50.31** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**51.66** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**49.48** 82.04 : 108.38

Sulphide

Sulphide

Component	Method Code	QC 2652
Sulphide	TM101	**97.33** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2658
Total Organic Carbon	TM132	**105.08** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2638
Total Sulphate	TM221	**107.58** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2603
1,1,1,2-tetrachloroethane	TM116	**99.0** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**101.0** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**91.6** 77.12 : 116.04
1,1-Dichloroethane	TM116	**107.0** 74.46 : 129.15
1,2-Dichloroethane	TM116	**104.2** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**103.8** 83.64 : 126.18
2-Chlorotoluene	TM116	**93.0** 68.55 : 109.58
4-Chlorotoluene	TM116	**85.4** 66.29 : 107.51
Benzene	TM116	**99.8** 88.60 : 113.80
Carbon Disulphide	TM116	**101.8** 74.91 : 122.14
Carbontetrachloride	TM116	**99.8** 80.31 : 124.50
Chlorobenzene	TM116	**100.8** 83.81 : 114.18
Chloroform	TM116	**107.6** 87.40 : 122.49

VOC MS (S)

		QC 2603
Chloromethane	TM116	**93.2** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**137.4** 80.67 : 126.72
Dibromomethane	TM116	**90.0** 73.23 : 118.35
Dichloromethane	TM116	**127.2** 81.11 : 133.25
Ethylbenzene	TM116	**89.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**83.8** 12.82 : 152.73
Isopropylbenzene	TM116	**82.2** 54.30 : 105.91
Naphthalene	TM116	**116.0** 80.86 : 128.81
o-Xylene	TM116	**84.4** 69.99 : 108.74
p/m-Xylene	TM116	**83.8** 68.32 : 108.91
Sec-Butylbenzene	TM116	**85.0** 38.50 : 101.50
Tetrachloroethene	TM116	**100.0** 76.95 : 121.02
Toluene	TM116	**89.0** 74.24 : 107.42
Trichloroethene	TM116	**92.0** 85.28 : 109.36
Trichlorofluoromethane	TM116	**118.8** 81.46 : 120.52
Vinyl Chloride	TM116	**98.2** 68.02 : 143.37

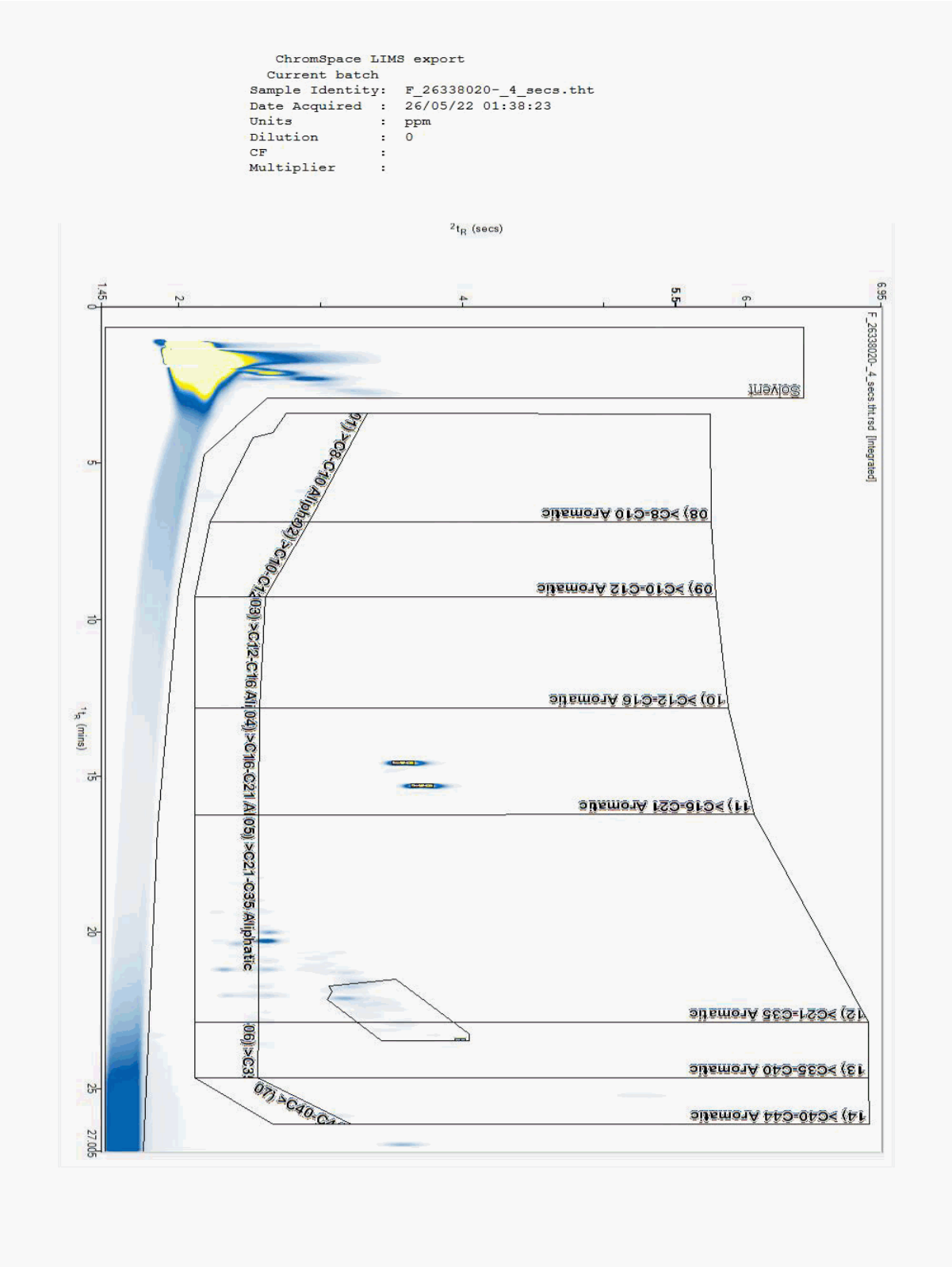
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26338020 **Depth :** 0.30
Sample ID : AVW_BH_07

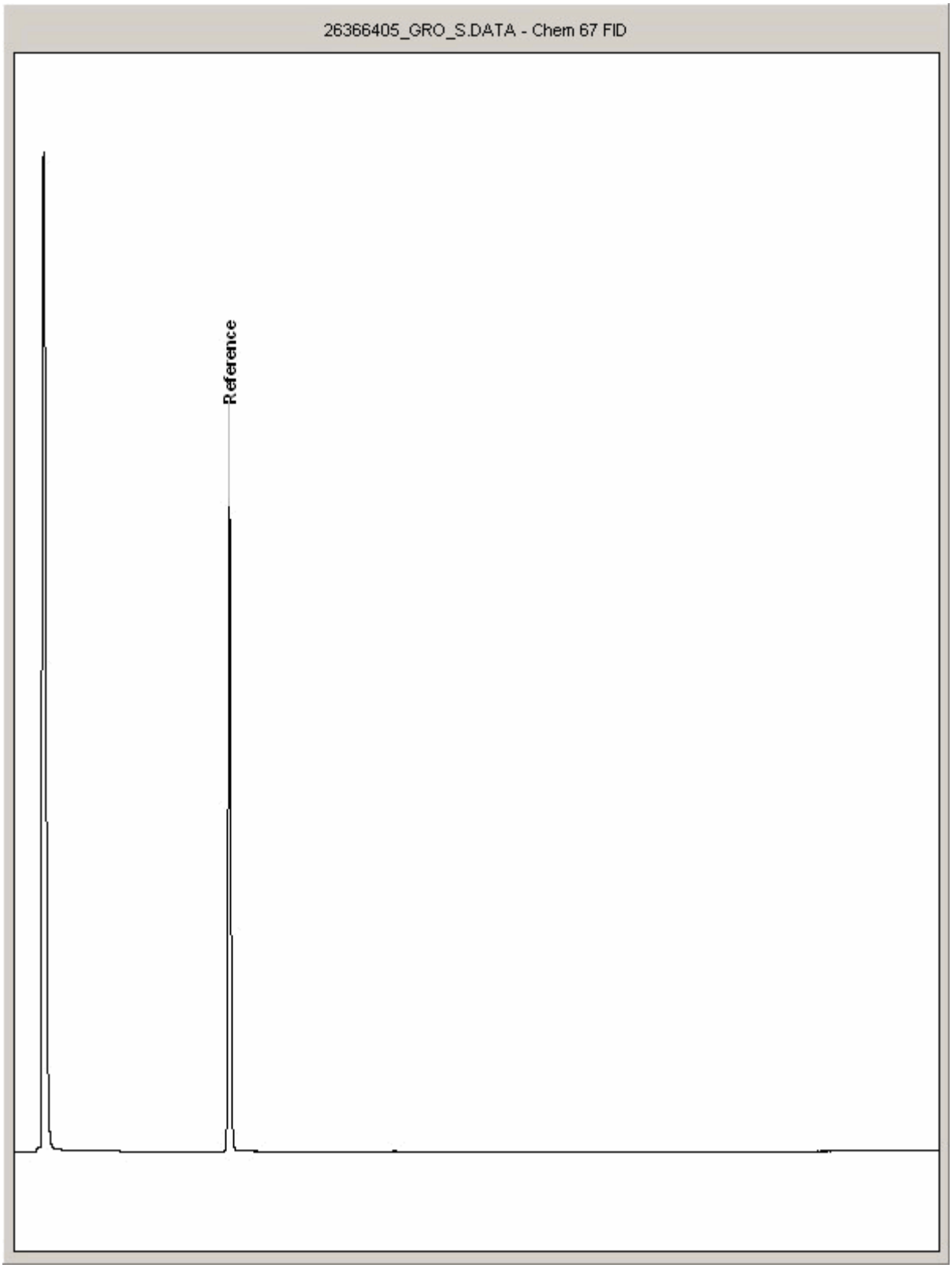


CERTIFICATE OF ANALYSIS

SDG: 220514-83 **Report Number:** 649231 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26366405 **Depth :** 0.30
Sample ID : AVW_BH_07



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 April 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220406-29
Your Reference:	
Location:	Chippenham
Report No:	643092
Order Number:	PO22-197

We received 11 samples on Tuesday April 05, 2022 and 1 of these samples were scheduled for analysis which was completed on Thursday April 21, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26088570	AVCI_BH09		0.30	05/04/2022
26088571	AVCI_BH09		0.80	05/04/2022
26088572	AVCI_BH09		1.20	05/04/2022
26088562	TP004		0.30	04/04/2022
26088563	TP004		0.80	04/04/2022
26088564	TP004		1.20	04/04/2022
26088565	TP005		0.15	05/04/2022
26088566	TP005		0.30	05/04/2022
26088567	TP005		0.80	05/04/2022
26088568	TP005		1.20	05/04/2022
26088569	TP005		2.10	05/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26088565		
Customer Sample Reference			TP005		
AGS Reference					
Depth (m)			0.15		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1		X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X	
Coronene	All	NDPs: 0 Tests: 1		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1		X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 1		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
pH	All	NDPs: 0 Tests: 1		X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26088565		
Customer Sample Reference			TP005		
AGS Reference					
Depth (m)			0.15		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Sample description	All	NDPs: 0 Tests: 1		X	
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphate	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26088565	TP005	0.15	Dark Brown	Sandy Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.			TP005					
Depth (m)			0.15					
Sample Type			Soil/Solid (S)					
Date Sampled			05/04/2022					
Sampled Time			.					
Date Received			05/04/2022					
SDG Ref			220406-29					
Lab Sample No.(s)			26088565					
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	8.1					
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
Soil Organic Matter (SOM)	<0.35 %	TM132	4.09 #					
pH	1 pH Units	TM133	8.13 M					
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #					
Cyanide, Total	<1 mg/kg	TM153	<1 @ M					
Cyanide, Free	<1 mg/kg	TM153	<1 @ M					
Cyanide, Complex	<1 mg/kg	TM153	<1					
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 @ M					
Aluminium	<11 mg/kg	TM181	4050					
Antimony	<0.6 mg/kg	TM181	<0.6 #					
Arsenic	<0.6 mg/kg	TM181	7.15 M					
Barium	<0.6 mg/kg	TM181	120 #					
Beryllium	<0.01 mg/kg	TM181	0.276 M					
Boron	<0.7 mg/kg	TM181	4.61 #					
Cadmium	<0.02 mg/kg	TM181	0.214 M					
Chromium	<0.9 mg/kg	TM181	3.92 M					
Copper	<1.4 mg/kg	TM181	7.47 M					
Iron	<1000 mg/kg	TM181	10100 #					
Lead	<0.7 mg/kg	TM181	16.5 M					
Manganese	<0.13 mg/kg	TM181	139 M					
Mercury	<0.1 mg/kg	TM181	<0.1 M					
Molybdenum	<0.1 mg/kg	TM181	0.608 #					
Nickel	<0.2 mg/kg	TM181	4.65 M					
Selenium	<1 mg/kg	TM181	1.3 #					
Vanadium	<0.2 mg/kg	TM181	13.5 #					
Zinc	<1.9 mg/kg	TM181	54.6 M					
Sulphate, Total	<48 mg/kg	TM221	325 M					
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234	2.03					
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	<0.004 M					
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248	4.6					
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	149000					

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Results Legend		Customer Sample Ref.	TP005
#	ISO17025 accredited.		
M	mCERTS accredited.		
aq	Aqueous / settled sample.	Depth (m)	0.15
diss.filt	Dissolved / filtered sample.	Sample Type	Soil/Solid (S)
tot.unfilt	Total / unfiltered sample.	Date Sampled	05/04/2022
*	Subcontracted - refer to subcontractor report for accreditation status.	Sampled Time	.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Date Received	05/04/2022
		SDG Ref	220406-29
(F)	Trigger breach confirmed	Lab Sample No.(s)	26088565
1-4+5@	Sample deviation (see appendix)	AGS Reference	

Component	LOD/Units	Method	
Coronene	<200 µg/kg	TM410	1260

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.			TP005
Depth (m)			0.15
Sample Type			Soil/Solid (S)
Date Sampled			05/04/2022
Sampled Time			.
Date Received			05/04/2022
SDG Ref			220406-29
Lab Sample No.(s)			26088565
AGS Reference			
Component	**LOD/Units**	**Method**	
Naphthalene-d8 % recovery**	%	TM218	97.2
Acenaphthene-d10 % recovery**	%	TM218	93.9
Phenanthrene-d10 % recovery**	%	TM218	97.2
Chrysene-d12 % recovery**	%	TM218	92.3
Perylene-d12 % recovery**	%	TM218	102
Naphthalene	<9 µg/kg	TM218	179 M
Acenaphthylene	<12 µg/kg	TM218	327 M
Acenaphthene	<8 µg/kg	TM218	1520 M
Fluorene	<10 µg/kg	TM218	1320 M
Phenanthrene	<15 µg/kg	TM218	23000 M
Anthracene	<16 µg/kg	TM218	5700 M
Fluoranthene	<17 µg/kg	TM218	28300 M
Pyrene	<15 µg/kg	TM218	23100 M
Benz(a)anthracene	<14 µg/kg	TM218	11100 M
Chrysene	<10 µg/kg	TM218	9430 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	13200 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	4740 M
Benzo(a)pyrene	<15 µg/kg	TM218	9920 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	7790 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	1410 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	6290 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	147000

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. TP005				
			Depth (m) 0.15				
			Sample Type Soil/Solid (S)				
			Date Sampled 05/04/2022				
			Sampled Time .				
			Date Received 05/04/2022				
			SDG Ref 220406-29				
			Lab Sample No.(s) 26088565				
			AGS Reference				
GRO Surrogate % recovery**	%	TM089	87.9 @				
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	5880 #				
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000				
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	6690				
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	154000				
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	20300 #				
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	112000 #				
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	14200				
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	2130				
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	147000				
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	154000				
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @				
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @				
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @				

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.			TP005
Depth (m)			0.15
Sample Type			Soil/Solid (S)
Date Sampled			05/04/2022
Sampled Time			.
Date Received			05/04/2022
SDG Ref			220406-29
Lab Sample No.(s)			26088565
AGS Reference			
Component	**LOD/Units**	**Method**	
Dibromofluoromethane**	%	TM116	102 @
Toluene-d8**	%	TM116	91.8 @
4-Bromofluorobenzene**	%	TM116	72.4 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	TP005 0.15	20/04/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	SOLID										
Sample Type	05/04/2022 00:00:00										
Date Sampled	05/04/2022 17:30:00										
Date Receieved	220406-29										
SDG	26088565										
Original Sample	TM048										
Method Number											

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26088565
Customer Sample Ref.	TP005
AGS Ref.	
Depth	0.15
Type	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	14-Apr-2022
Anions by Kone (soil)	20-Apr-2022
Asbestos ID in Solid Samples	20-Apr-2022
Conductivity (at 20 deg.C)	14-Apr-2022
Coronene	14-Apr-2022
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2022
Easily Liberated Sulphide	14-Apr-2022
EPH CWG GC (S)	13-Apr-2022
GRO by GC-FID (S)	20-Apr-2022
Hexavalent Chromium (s)	20-Apr-2022
Metals in solid samples by OES	20-Apr-2022
PAH 16 & 17 Calc	14-Apr-2022
PAH by GCMS	13-Apr-2022
pH	20-Apr-2022
Phenols by HPLC (S)	19-Apr-2022
Sample description	12-Apr-2022
Total Organic Carbon	20-Apr-2022
Total Sulphate	19-Apr-2022
TPH CWG GC (S)	20-Apr-2022
VOC MS (S)	20-Apr-2022

ASSOCIATED AQC DATA

Coronene

Component	Method Code	QC 2666
Coronene RAW	TM410	**80.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2638
Free Cyanide	TM153	**88.81** 77.50 : 118.90
Thiocyanate	TM153	**99.36** 95.27 : 112.47
Total Cyanide	TM153	**94.41** 80.07 : 114.07

Easily Liberated Sulphide

Component	Method Code	QC 2654
Easily Liberated Sulphide	TM180	**101.15** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2673
QC	TM089	**79.82** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2637
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40

Metals in solid samples by OES

Component	Method Code	QC 2619	QC 2630
Aluminium	TM181	**112.28** 84.95 : 125.04	**107.89** 87.31 : 119.03
Antimony	TM181	**116.14** 91.44 : 127.13	**116.14** 91.44 : 127.13
Arsenic	TM181	**111.49** 88.32 : 120.05	**112.84** 88.32 : 120.05

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Metals in solid samples by OES

		QC 2619	QC 2630
Barium	TM181	**110.77** 94.57 : 124.93	**112.82** 94.57 : 124.93
Beryllium	TM181	**109.04** 85.72 : 122.69	**110.2** 85.72 : 122.69
Boron	TM181	**110.61** 91.59 : 122.22	**102.89** 85.66 : 120.25
Cadmium	TM181	**107.75** 87.31 : 121.62	**110.33** 87.31 : 121.62
Chromium	TM181	**100.24** 85.06 : 113.81	**102.2** 85.06 : 113.81
Cobalt	TM181	**102.36** 90.60 : 110.35	**104.0** 92.91 : 111.38
Copper	TM181	**97.46** 81.22 : 113.40	**96.79** 81.22 : 113.40
Iron	TM181	**104.59** 86.44 : 122.27	**110.09** 86.44 : 122.27
Lead	TM181	**102.72** 86.83 : 123.12	**104.46** 86.83 : 123.12
Manganese	TM181	**113.2** 89.22 : 121.75	**111.52** 89.22 : 121.75
Mercury	TM181	**105.54** 84.95 : 119.42	**108.14** 84.95 : 119.42
Molybdenum	TM181	**106.06** 85.98 : 123.80	**106.4** 85.98 : 123.80
Nickel	TM181	**107.12** 88.05 : 119.19	**108.61** 88.05 : 119.19
Phosphorus	TM181	**111.45** 90.13 : 121.54	**111.28** 90.13 : 121.54
Selenium	TM181	**102.2** 90.68 : 124.14	**114.29** 88.10 : 117.92
Strontium	TM181	**96.64** 80.65 : 106.55	**94.85** 79.10 : 111.59
Thallium	TM181	**108.05** 76.88 : 121.51	**106.38** 84.67 : 122.64
Tin	TM181	**105.34** 86.96 : 122.18	**107.12** 86.96 : 122.18
Titanium	TM181	**109.09** 77.07 : 118.83	**97.27** 84.66 : 112.24
Vanadium	TM181	**107.19** 84.00 : 115.50	**98.92** 84.00 : 115.50
Zinc	TM181	**103.61** 85.62 : 122.35	**103.84** 85.63 : 122.36

PAH by GCMS

Component	Method Code	QC 2605
Acenaphthene	TM218	**92.5** 74.70 : 106.04
Acenaphthylene	TM218	**91.0** 73.12 : 105.14
Anthracene	TM218	**91.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**91.5** 69.31 : 119.18

PAH by GCMS

		QC 2605
Benzo(a)pyrene	TM218	**88.0** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**86.5** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**87.5** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**88.0** 69.98 : 116.49
Chrysene	TM218	**86.5** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**91.0** 64.54 : 115.22
Fluoranthene	TM218	**88.5** 72.56 : 111.70
Fluorene	TM218	**93.0** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**88.0** 61.22 : 113.25
Naphthalene	TM218	**88.0** 73.52 : 105.12
Phenanthrene	TM218	**91.5** 76.83 : 113.25
Pyrene	TM218	**85.0** 72.45 : 110.77

pH

Component	Method Code	QC 2664
pH	TM133	**98.97** 90.68 : 104.32

Phenols by HPLC (S)

Component	Method Code	QC 2650
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**50.65** 70.71 : 116.42
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**44.44** 74.25 : 110.18
Cresols by HPLC (S)	TM062 (S)	**49.69** 74.40 : 108.98
Phenol by HPLC (S)	TM062 (S)	**49.67** 73.05 : 108.98
Xylenols by HPLC (S)	TM062 (S)	**48.96** 76.56 : 106.38

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 2693
Total Organic Carbon	TM132	**99.22** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2680
Total Sulphate	TM221	**90.15** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2680
1,1,1,2-tetrachloroethane	TM116	**97.8** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**96.6** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**98.8** 77.12 : 116.04
1,1-Dichloroethane	TM116	**107.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**109.4** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**91.4** 83.64 : 126.18
2-Chlorotoluene	TM116	**88.0** 68.55 : 109.58
4-Chlorotoluene	TM116	**83.4** 66.29 : 107.51
Benzene	TM116	**102.2** 88.60 : 113.80
Carbon Disulphide	TM116	**89.4** 74.91 : 122.14
Carbontetrachloride	TM116	**92.4** 80.31 : 124.50
Chlorobenzene	TM116	**97.6** 83.81 : 114.18
Chloroform	TM116	**108.4** 87.40 : 122.49
Chloromethane	TM116	**74.6** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**106.4** 80.67 : 126.72
Dibromomethane	TM116	**107.6** 73.23 : 118.35
Dichloromethane	TM116	**112.8** 81.11 : 133.25

VOC MS (S)

		QC 2680
Ethylbenzene	TM116	**91.0** 75.92 : 110.41
Hexachlorobutadiene	TM116	**77.2** 12.82 : 152.73
Isopropylbenzene	TM116	**77.2** 54.30 : 105.91
Naphthalene	TM116	**97.0** 80.86 : 128.81
o-Xylene	TM116	**86.8** 69.99 : 108.74
p/m-Xylene	TM116	**85.9** 68.32 : 108.91
Sec-Butylbenzene	TM116	**64.2** 38.50 : 101.50
Tetrachloroethene	TM116	**94.2** 76.95 : 121.02
Toluene	TM116	**95.6** 74.24 : 107.42
Trichloroethene	TM116	**92.6** 85.28 : 109.36
Trichlorofluoromethane	TM116	**92.6** 81.46 : 120.52
Vinyl Chloride	TM116	**86.0** 68.02 : 143.37

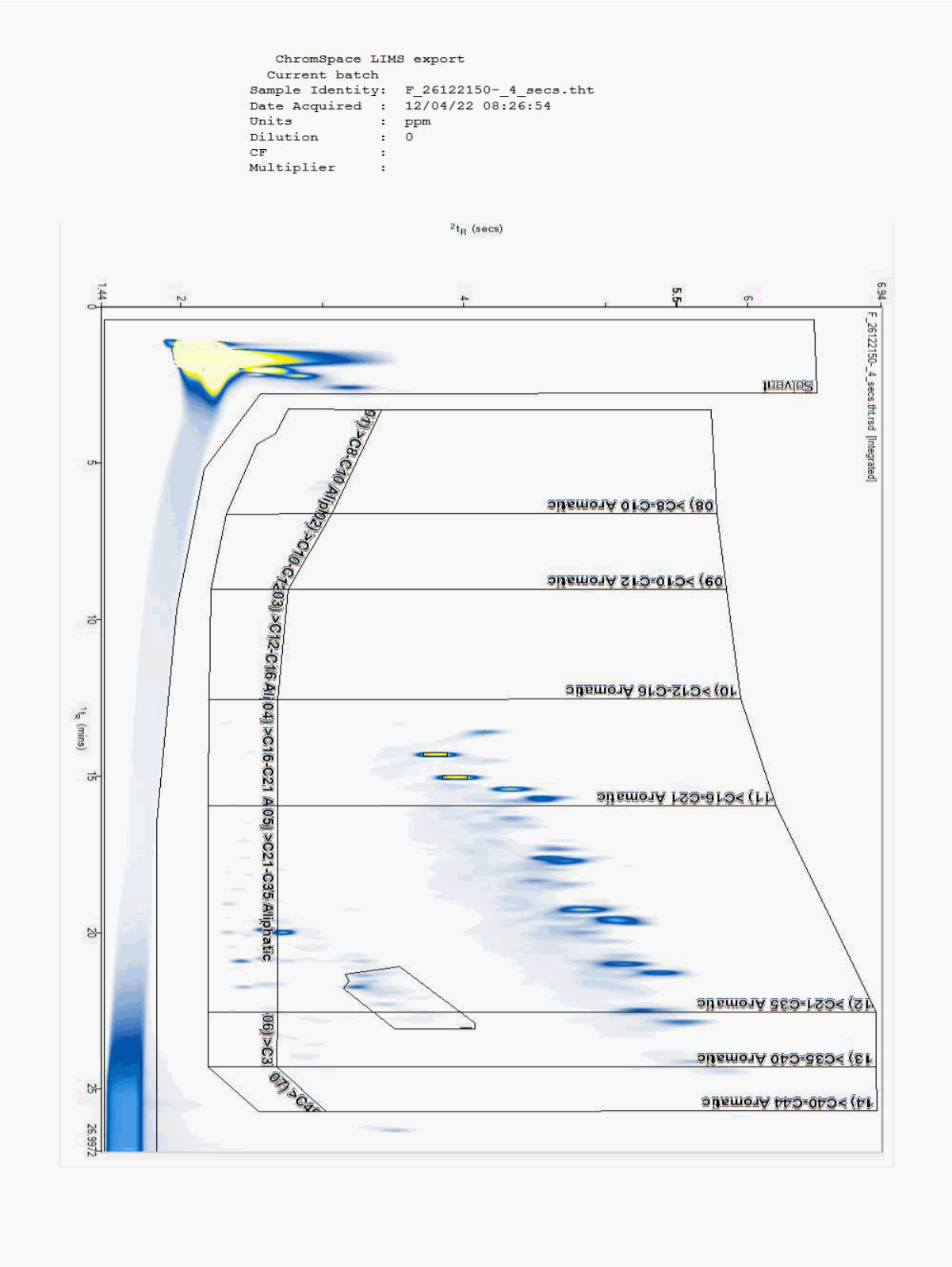
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26122150 **Depth :** 0.15
Sample ID : TP005

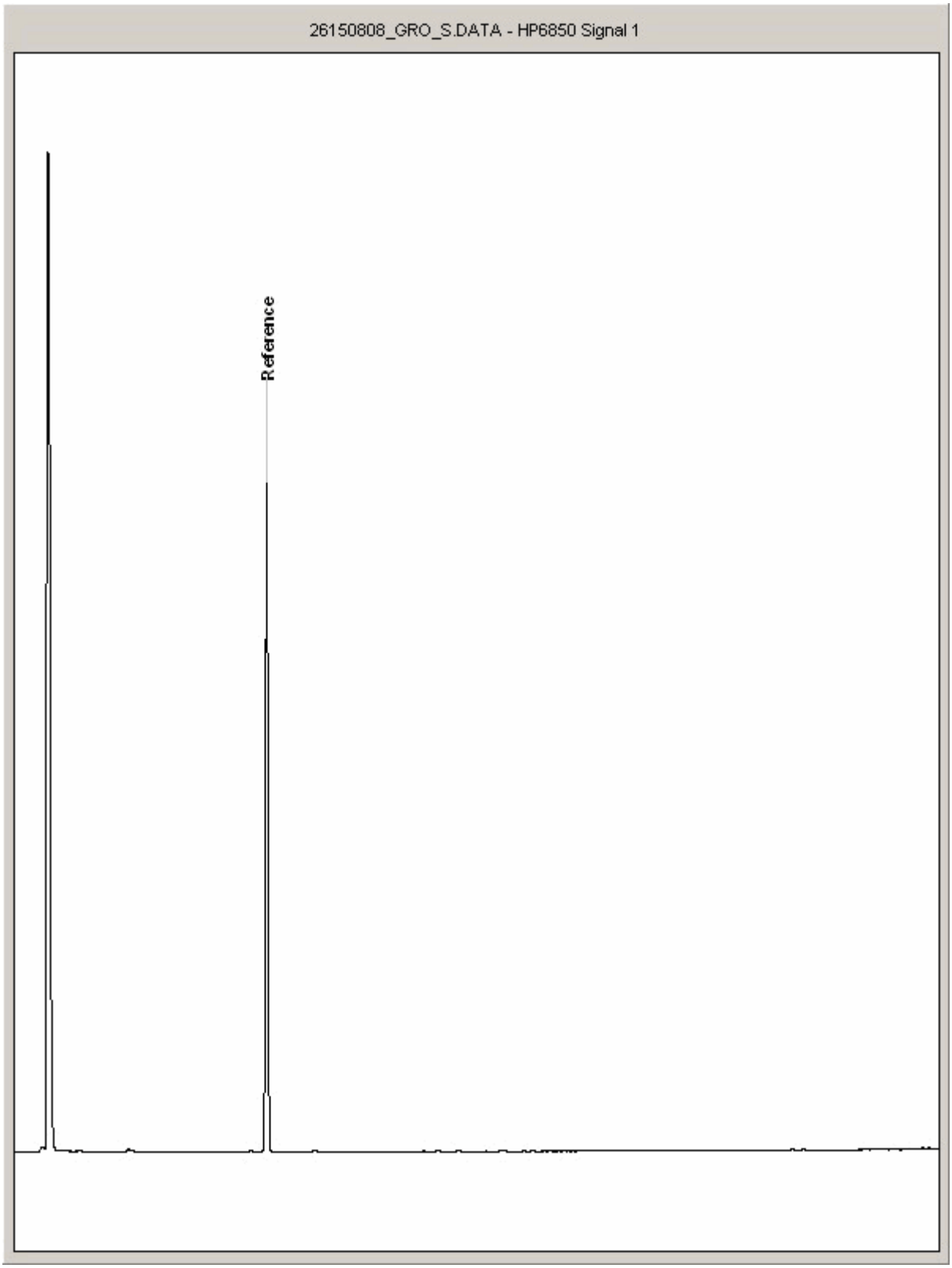


CERTIFICATE OF ANALYSIS

SDG: 220406-29 **Report Number:** 643092 **Superseded Report:**
Client Ref.: **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26150808 **Depth :** 0.15
Sample ID : TP005



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
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Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	09 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220407-148
Your Reference:	JER9352
Location:	Chippenham
Report No:	645199
Order Number:	PO22-197

This report has been revised and directly supersedes 643093 in its entirety.

We received 7 samples on Thursday April 07, 2022 and 2 of these samples were scheduled for analysis which was completed on Monday May 09, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26101551	ACC1-BH-08		0.30	05/04/2022
26101552	ACC1-BH-08		0.80	05/04/2022
26101553	ACC1-BH-08		1.20	05/04/2022
26101547	TP006		0.30	05/04/2022
26101548	TP006		0.80	05/04/2022
26101549	TP006		1.20	05/04/2022
26101550	TP006		2.60	05/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)							26101552				26101548
Customer Sample Reference							ACC1-BH-08				TP006
AGS Reference											
Depth (m)							0.80				0.80
Container							1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type							S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 2						X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1					X					
Anions by Kone (soil)	All	NDPs: 0 Tests: 2						X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1					X					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2					X			X		
CEN Readings	All	NDPs: 0 Tests: 1					X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2						X			X	
Coronene	All	NDPs: 0 Tests: 2						X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3					X	X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1					X					
Easily Liberated Sulphide	All	NDPs: 0 Tests: 2						X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 2						X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2							X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2						X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1					X					

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)									26101552		26101548
Customer Sample Reference									ACC1-BH-08		TP006
AGS Reference											
Depth (m)									0.80		0.80
Container									1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type									S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 1							X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 2								X			X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1							X					
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 2								X			X	
PAH by GCMS	All	NDPs: 0 Tests: 2								X			X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1							X					
pH	All	NDPs: 0 Tests: 2								X			X	
pH Value	All	NDPs: 0 Tests: 1							X					
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2								X			X	
Sample description	All	NDPs: 0 Tests: 2								X			X	
Sulphide	All	NDPs: 0 Tests: 1							X					
Total Organic Carbon	All	NDPs: 0 Tests: 2								X			X	
Total Sulphate	All	NDPs: 0 Tests: 2								X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 2								X			X	
VOC MS (S)	All	NDPs: 0 Tests: 2									X			X

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26101552	ACC1-BH-08	0.80	Dark Brown	Silty Clay Loam	Vegetation	None
26101548	TP006	0.80	Light Brown	Sandy Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.						
			ACC1-BH-08	TP006					
Depth (m)			0.80	0.80					
Sample Type			Soil/Solid (S)	Soil/Solid (S)					
Date Sampled			05/04/2022	05/04/2022					
Sampled Time			.	.					
Date Received			07/04/2022	07/04/2022					
SDG Ref			220407-148	220407-148					
Lab Sample No.(s)			26101552	26101548					
AGS Reference									
Moisture Content Ratio (% of as received sample)	%	PM024	13	22					
Phenol	mg/kg	TM062 (S)	<0.01 M	<0.01 @ M					
Soil Organic Matter (SOM)	%	TM132	2.12 #	<0.35 @ #					
pH	pH Units	TM133	8.29 M	7.74 @ M					
Chromium, Hexavalent	mg/kg	TM151	<0.6 #	<0.6 #					
Cyanide, Total	mg/kg	TM153	<1 @ M	<1 @ M					
Cyanide, Free	mg/kg	TM153	<1 @ M	<1 @ M					
Cyanide, Complex	mg/kg	TM153	<1	<1					
Sulphide, Easily liberated	mg/kg	TM180	<15 @ M	<15 @ M					
Aluminium	mg/kg	TM181	21100	14500					
Antimony	mg/kg	TM181	<0.6 #	<0.6 #					
Arsenic	mg/kg	TM181	13.8 M	19.4 M					
Barium	mg/kg	TM181	56.8 #	41.6 #					
Beryllium	mg/kg	TM181	1.1 M	1.19 M					
Boron	mg/kg	TM181	17.3 #	15.3 #					
Cadmium	mg/kg	TM181	<0.02 M	0.225 M					
Chromium	mg/kg	TM181	26.1 M	20.1 M					
Copper	mg/kg	TM181	13.7 M	12.6 M					
Iron	mg/kg	TM181	35200 #	33200 #					
Lead	mg/kg	TM181	12.7 M	16.4 M					
Manganese	mg/kg	TM181	618 M	486 M					
Mercury	mg/kg	TM181	<0.1 M	<0.1 @ M					
Molybdenum	mg/kg	TM181	0.365 #	1.9 #					
Nickel	mg/kg	TM181	24.3 M	66.6 M					
Selenium	mg/kg	TM181	<1 #	<1 #					
Vanadium	mg/kg	TM181	51.8 #	62.1 #					
Zinc	mg/kg	TM181	80.8 M	66 M					
Sulphate, Total	mg/kg	TM221	372 M	109 M					
Conductivity @ 20 deg.C	mS/cm	TM234	1.94	2					
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243	0.0157 M	0.0189 @ M					
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248	3.52	2.98					
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410	<318	<318					

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	ACC1-BH-08	TP006				
			Depth (m)	0.80	0.80				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	05/04/2022	05/04/2022				
			Sampled Time	.	.				
			Date Received	07/04/2022	07/04/2022				
			SDG Ref	220407-148	220407-148				
			Lab Sample No.(s)	26101552	26101548				
			AGS Reference						
Coronene	<200 µg/kg	TM410		<200	<200				

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.						
			ACC1-BH-08	TP006					
			Depth (m)	0.80	0.80				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	05/04/2022	05/04/2022				
			Sampled Time	.	.				
			Date Received	07/04/2022	07/04/2022				
			SDG Ref	220407-148	220407-148				
			Lab Sample No.(s)	26101552	26101548				
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218	89.5	91.5					
Acenaphthene-d10 % recovery**	%	TM218	87.8	90.7					
Phenanthrene-d10 % recovery**	%	TM218	86.7	90.2					
Chrysene-d12 % recovery**	%	TM218	88.7	92.7					
Perylene-d12 % recovery**	%	TM218	91.4	97.1					
Naphthalene	<9 µg/kg	TM218	<9 M	<9 @ M					
Acenaphthylene	<12 µg/kg	TM218	<12 M	<12 @ M					
Acenaphthene	<8 µg/kg	TM218	<8 M	<8 @ M					
Fluorene	<10 µg/kg	TM218	<10 M	<10 @ M					
Phenanthrene	<15 µg/kg	TM218	<15 M	<15 @ M					
Anthracene	<16 µg/kg	TM218	<16 M	<16 @ M					
Fluoranthene	<17 µg/kg	TM218	<17 M	<17 @ M					
Pyrene	<15 µg/kg	TM218	<15 M	<15 @ M					
Benz(a)anthracene	<14 µg/kg	TM218	<14 M	<14 @ M					
Chrysene	<10 µg/kg	TM218	<10 M	<10 @ M					
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M	<15 @ M					
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M	<14 @ M					
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M	<15 @ M					
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	<18 @ M					
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	<23 @ M					
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M	<24 @ M					
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<118					

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	ACC1-BH-08	TP006
Depth (m)	0.80	0.80
Sample Type	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	05/04/2022	05/04/2022
Sampled Time	.	.
Date Received	07/04/2022	07/04/2022
SDG Ref	220407-148	220407-148
Lab Sample No.(s)	26101552	26101548
AGS Reference		

Component	LOD/Units	Method		
GRO Surrogate % recovery**	%	TM089	111 @	107 @
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #	<1000 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #	<1000 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #	<1000 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	1200 #	<1000 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000	<1000 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000	<5000 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000	<10000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #	<1000 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #	<1000 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #	<1000 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #	<1000 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000	<5000
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000	<10000
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @	<20 @

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	ACC1-BH-08	TP006
Depth (m)	0.80	0.80
Sample Type	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	05/04/2022	05/04/2022
Sampled Time	.	.
Date Received	07/04/2022	07/04/2022
SDG Ref	220407-148	220407-148
Lab Sample No.(s)	26101552	26101548
AGS Reference		

Component	LOD/Units	Method		
Dibromofluoromethane**	%	TM116	121 @	102 @
Toluene-d8**	%	TM116	101 @	97.5 @
4-Bromofluorobenzene**	%	TM116	89.6 @	100 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	ACC1-BH-08 0.80 SOLID 05/04/2022 00:00:00 07/04/2022 05:00:00 220407-148 26101552 TM048	20/04/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP006 0.80 SOLID 05/04/2022 00:00:00 07/04/2022 05:00:00 220407-148 26101548 TM048	04/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.119	**Natural Moisture Content (%)**	31.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	75.8
Particle Size <4mm	>95%		

Case	
SDG	220407-148
Lab Sample Number(s)	26101552
Sampled Date	05-Apr-2022
Customer Sample Ref.	ACC1-BH-08
Depth (m)	0.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	<0.01	<0.01	<0.1	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00223	<0.0002	0.0223	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0194	<0.01	0.194	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0015	<0.0003	0.015	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.114	<0.019	1.14	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000727	<0.0004	0.00727	<0.004	-	-	-
Phosphorus	0.0479	<0.01	0.479	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00364	<0.001	0.0364	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Nitrate as N	0.659	<0.0677	6.59	<0.677	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	12-Apr-2022
pH (pH Units)	7.81
Conductivity (µS/cm)	117.00
Temperature (°C)	21.90
Volume Leachant (Litres)	0.872

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CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.119	**Natural Moisture Content (%)**	31.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	75.8
Particle Size <4mm	>95%		

Case	
SDG	220407-148
Lab Sample Number(s)	26101552
Sampled Date	05-Apr-2022
Customer Sample Ref.	ACC1-BH-08
Depth (m)	0.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	12-Apr-2022
pH (pH Units)	7.81
Conductivity (µS/cm)	117.00
Temperature (°C)	21.90
Volume Leachant (Litres)	0.872

09/05/2022 08:49:01

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26101552	26101548
Customer Sample Ref.	ACC1-BH-08	TP006
AGS Ref.		
Depth	0.80	0.80
Type	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	14-Apr-2022	04-May-2022
Ammoniacal Nitrogen	19-Apr-2022	
Anions by Kone (soil)	20-Apr-2022	03-May-2022
Anions by Kone (w)	19-Apr-2022	
Asbestos ID in Solid Samples	20-Apr-2022	04-May-2022
CEN 10:1 Leachate (1 Stage)	12-Apr-2022	
CEN Readings	14-Apr-2022	
Conductivity (at 20 deg.C)	14-Apr-2022	04-May-2022
Coronene	14-Apr-2022	03-May-2022
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2022	09-May-2022
Dissolved Metals by ICP-MS	20-Apr-2022	
Easily Liberated Sulphide	12-Apr-2022	29-Apr-2022
EPH CWG GC (S)	13-Apr-2022	03-May-2022
GRO by GC-FID (S)	19-Apr-2022	05-May-2022
Hexavalent Chromium (s)	20-Apr-2022	29-Apr-2022
Hexavalent Chromium (w)	19-Apr-2022	
Mercury Dissolved	19-Apr-2022	
Metals in solid samples by OES	20-Apr-2022	04-May-2022
Moisture at 105C	12-Apr-2022	
Nitrite by Kone (w)	19-Apr-2022	
PAH 16 & 17 Calc	14-Apr-2022	03-May-2022
PAH by GCMS	13-Apr-2022	03-May-2022
PAH Spec MS - Aqueous (W)	19-Apr-2022	
pH	20-Apr-2022	03-May-2022
pH Value	19-Apr-2022	
Phenols by HPLC (S)	19-Apr-2022	03-May-2022
Sample description	11-Apr-2022	28-Apr-2022
Sulphide	20-Apr-2022	
Total Organic Carbon	20-Apr-2022	05-May-2022
Total Sulphate	13-Apr-2022	04-May-2022
TPH CWG GC (S)	20-Apr-2022	05-May-2022
VOC MS (S)	20-Apr-2022	05-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2617
Ammoniacal Nitrogen as N	TM099	**97.6** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2639
Chloride	TM184	**104.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**100.8** 96.54 : 111.66
TON as NO3	TM184	**110.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2638	QC 2656
Coronene RAW	TM410	**90.0** 79.43 : 137.78	**112.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2655	QC 2638	QC 2606
Free Cyanide	TM153		**88.81** 77.50 : 118.90	**105.94** 77.50 : 118.90
Free Cyanide (W)	TM227	**88.25** 90.67 : 122.67		
Thiocyanate	TM153		**99.36** 95.27 : 112.47	**108.33** 92.20 : 113.40
Thiocyanate (W)	TM227	**111.0** 92.25 : 117.75		
Total Cyanide	TM153		**94.41** 80.07 : 114.07	**111.89** 80.07 : 114.07
Total Cyanide (W)	TM227	**107.75** 93.75 : 114.75		

Dissolved Metals by ICP-MS

Component	Method Code	QC 2620
Aluminium	TM152	**104.0** 90.98 : 111.82
Antimony	TM152	**102.67** 90.44 : 113.04
Arsenic	TM152	**101.33** 94.87 : 109.67
Barium	TM152	**107.67** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2620
Beryllium	TM152	**103.0** 87.77 : 113.97
Bismuth	TM152	**100.33** 91.90 : 112.20
Borate	TM152	**104.32** 88.00 : 112.00
Boron	TM152	**104.33** 92.27 : 112.40
Cadmium	TM152	**103.17** 96.43 : 110.53
Calcium	TM152	**100.67** 95.14 : 110.01
Chromium	TM152	**102.33** 91.84 : 108.67
Cobalt	TM152	**102.83** 90.72 : 109.61
Copper	TM152	**104.0** 94.47 : 109.05
Iron	TM152	**102.67** 94.40 : 107.90
Lead	TM152	**103.83** 93.55 : 109.46
Lithium	TM152	**103.5** 91.62 : 113.12
Magnesium	TM152	**102.0** 92.30 : 110.57
Manganese	TM152	**102.33** 94.75 : 108.21
Molybdenum	TM152	**101.0** 93.55 : 107.66
Nickel	TM152	**104.33** 88.00 : 112.00
Phosphorus	TM152	**101.33** 92.51 : 109.27
Potassium	TM152	**100.67** 92.16 : 109.93
Selenium	TM152	**101.83** 91.58 : 115.98
Silver	TM152	**101.83** 92.75 : 111.05
Sodium	TM152	**100.0** 89.47 : 109.62
Strontium	TM152	**104.0** 95.40 : 109.43
Tellurium	TM152	**103.33** 93.32 : 114.66
Thallium	TM152	**91.83** 88.00 : 112.00
Tin	TM152	**101.67** 92.63 : 109.70
Titanium	TM152	**102.5** 95.08 : 109.28
Tungsten	TM152	**98.67** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2620
Uranium	TM152	**101.67** 88.00 : 112.00
Vanadium	TM152	**104.33** 88.00 : 112.00
Zinc	TM152	**103.0** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2654	QC 2648
Easily Liberated Sulphide	TM180	**101.15** 51.10 : 121.66	**100.73** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2682	QC 2643
QC	TM089	**73.68** 65.42 : 109.49	**79.51** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2637	QC 2684
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40	**100.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2606
Hexavalent Chromium	TM241	**98.2** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2671
Mercury Dissolved (CVAF)	TM183	**93.1** 0.00 : 0.00

Metals in solid samples by OES

Metals in solid samples by OES

Component	Method Code	QC 2678	QC 2649
Aluminium	TM181	**109.65** 87.31 : 119.03	**110.53** 87.31 : 119.03
Antimony	TM181	**111.42** 91.44 : 127.13	**113.78** 91.44 : 127.14
Arsenic	TM181	**111.82** 88.32 : 120.05	**105.41** 88.33 : 120.06
Barium	TM181	**109.74** 94.57 : 124.93	**105.64** 94.57 : 124.93
Beryllium	TM181	**107.87** 85.72 : 122.69	**106.71** 85.73 : 122.70
Boron	TM181	**106.11** 85.66 : 120.25	**109.32** 85.66 : 120.24
Cadmium	TM181	**109.96** 87.31 : 121.62	**104.06** 87.30 : 121.60
Chromium	TM181	**101.46** 85.06 : 113.81	**99.02** 85.06 : 113.81
Cobalt	TM181	**101.45** 92.91 : 111.38	**102.55** 92.91 : 111.38
Copper	TM181	**95.09** 81.22 : 113.40	**91.37** 81.22 : 113.41
Iron	TM181	**110.09** 86.44 : 122.27	**106.42** 86.44 : 122.27
Lead	TM181	**102.97** 86.83 : 123.12	**110.4** 86.84 : 123.13
Manganese	TM181	**109.83** 89.22 : 121.75	**107.87** 89.22 : 121.75
Mercury	TM181	**106.84** 84.95 : 119.42	**103.58** 84.95 : 119.42
Molybdenum	TM181	**105.05** 85.98 : 123.80	**104.71** 85.97 : 123.79
Nickel	TM181	**108.61** 88.05 : 119.19	**110.68** 88.05 : 119.19
Phosphorus	TM181	**109.57** 90.13 : 121.54	**107.69** 90.13 : 121.54
Selenium	TM181	**111.72** 88.10 : 117.92	**103.66** 88.10 : 117.92
Strontium	TM181	**93.29** 79.10 : 111.59	**93.74** 79.10 : 111.59
Thallium	TM181	**105.03** 84.67 : 122.64	**108.05** 84.67 : 122.64
Tin	TM181	**105.64** 86.96 : 122.18	**103.86** 86.96 : 122.18
Titanium	TM181	**101.82** 84.66 : 112.24	**98.18** 84.66 : 112.24
Vanadium	TM181	**97.12** 84.00 : 115.50	**102.88** 84.00 : 115.50
Zinc	TM181	**103.61** 85.63 : 122.36	**105.19** 85.63 : 122.36

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2633	QC 2618
Acenaphthene	TM218	**88.0** 74.70 : 106.04	**93.0** 76.79 : 103.90
Acenaphthylene	TM218	**86.0** 73.12 : 105.14	**90.5** 74.19 : 106.17
Anthracene	TM218	**87.0** 73.99 : 113.85	**94.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**91.0** 69.31 : 119.18	**100.0** 73.77 : 119.26
Benzo(a)pyrene	TM218	**87.0** 66.97 : 114.92	**94.5** 73.20 : 114.18
Benzo(b)fluoranthene	TM218	**86.0** 67.41 : 114.46	**94.0** 75.36 : 117.58
Benzo(ghi)perylene	TM218	**85.5** 62.92 : 114.36	**92.0** 70.73 : 116.12
Benzo(k)fluoranthene	TM218	**86.5** 69.98 : 116.49	**93.5** 75.98 : 116.59
Chrysene	TM218	**86.0** 69.86 : 114.50	**96.0** 74.82 : 114.18
Dibenzo(ah)anthracene	TM218	**93.0** 64.54 : 115.22	**97.0** 69.17 : 115.30
Fluoranthene	TM218	**83.5** 72.56 : 111.70	**96.0** 66.06 : 114.63
Fluorene	TM218	**87.5** 79.13 : 111.49	**93.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**87.0** 61.22 : 113.25	**99.5** 70.26 : 117.95
Naphthalene	TM218	**87.5** 73.52 : 105.12	**88.0** 74.70 : 101.83
Phenanthrene	TM218	**87.5** 76.83 : 113.25	**95.0** 73.62 : 109.34
Pyrene	TM218	**83.0** 72.45 : 110.77	**92.5** 71.46 : 117.00

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2607
Acenaphthene by GCMS	TM178	**106.4** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**104.4** 96.80 : 118.40
Anthracene by GCMS	TM178	**102.0** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**103.6** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**103.2** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**101.6** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**105.2** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**102.4** 88.72 : 111.28
Chrysene by GCMS	TM178	**102.0** 88.68 : 116.92

PAH Spec MS - Aqueous (W)

		QC 2607
Dibenzo(ah)anthracene by GCMS	TM178	**100.8** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**103.2** 91.20 : 117.60
Fluorene by GCMS	TM178	**106.8** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**98.0** 88.39 : 119.61
Naphthalene by GCMS	TM178	**109.6** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**105.2** 96.00 : 117.60
Pyrene by GCMS	TM178	**104.8** 91.00 : 120.20

pH

Component	Method Code	QC 2664	QC 2694
pH	TM133	**98.97** 90.68 : 104.32	**99.56** 90.68 : 104.32

pH Value

Component	Method Code	QC 2662
pH	TM256	**100.27** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2645	QC 2621
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**52.6** 70.71 : 116.42	**51.3** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**46.2** 74.25 : 110.18	**45.03** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**50.94** 74.40 : 108.98	**49.06** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**52.32** 73.05 : 108.98	**50.99** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**49.79** 76.56 : 106.38	**49.27** 82.04 : 108.38

Sulphide

Sulphide

Component	Method Code	QC 2614
Sulphide	TM101	**102.0** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2691	QC 2679
Total Organic Carbon	TM132	**99.61** 80.47 : 113.28	**101.56** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2651	QC 2659
Total Sulphate	TM221	**99.24** 78.36 : 114.69	**102.27** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2684	QC 2691
1,1,1,2-tetrachloroethane	TM116	**93.4** 84.84 : 116.25	**110.2** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**94.6** 85.52 : 113.22	**102.2** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**88.0** 77.12 : 116.04	**94.8** 77.12 : 116.04
1,1-Dichloroethane	TM116	**100.2** 74.46 : 129.15	**102.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**97.4** 92.38 : 131.65	**113.2** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**98.6** 83.64 : 126.18	**98.4** 83.64 : 126.18
2-Chlorotoluene	TM116	**93.4** 68.55 : 109.58	**83.8** 68.55 : 109.58
4-Chlorotoluene	TM116	**91.2** 66.29 : 107.51	**85.2** 66.29 : 107.51
Benzene	TM116	**99.4** 88.60 : 113.80	**94.0** 88.60 : 113.80
Carbon Disulphide	TM116	**92.2** 74.91 : 122.14	**96.8** 74.91 : 122.14
Carbontetrachloride	TM116	**95.0** 80.31 : 124.50	**108.2** 80.31 : 124.50
Chlorobenzene	TM116	**97.0** 83.81 : 114.18	**100.2** 83.81 : 114.18
Chloroform	TM116	**99.0** 87.40 : 122.49	**102.4** 87.40 : 122.49

VOC MS (S)

		QC 2684	QC 2691
Chloromethane	TM116	**80.6** 63.11 : 124.36	**96.2** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**97.0** 80.67 : 126.72	**101.6** 80.67 : 126.72
Dibromomethane	TM116	**90.8** 73.23 : 118.35	**93.0** 73.23 : 118.35
Dichloromethane	TM116	**99.4** 81.11 : 133.25	**108.2** 81.11 : 133.25
Ethylbenzene	TM116	**95.0** 75.92 : 110.41	**86.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**112.8** 12.82 : 152.73	**80.4** 12.82 : 152.73
Isopropylbenzene	TM116	**92.4** 54.30 : 105.91	**76.0** 54.30 : 105.91
Naphthalene	TM116	**104.8** 80.86 : 128.81	**103.2** 80.86 : 128.81
o-Xylene	TM116	**88.2** 69.99 : 108.74	**83.2** 69.99 : 108.74
p/m-Xylene	TM116	**91.2** 68.32 : 108.91	**81.3** 68.32 : 108.91
Sec-Butylbenzene	TM116	**92.6** 38.50 : 101.50	**76.4** 38.50 : 101.50
Tetrachloroethene	TM116	**101.2** 76.95 : 121.02	**100.2** 76.95 : 121.02
Toluene	TM116	**91.6** 74.24 : 107.42	**86.0** 74.24 : 107.42
Trichloroethene	TM116	**91.6** 85.28 : 109.36	**100.2** 85.28 : 109.36
Trichlorofluoromethane	TM116	**94.4** 81.46 : 120.52	**109.2** 81.46 : 120.52
Vinyl Chloride	TM116	**89.8** 68.02 : 143.37	**102.2** 68.02 : 143.37

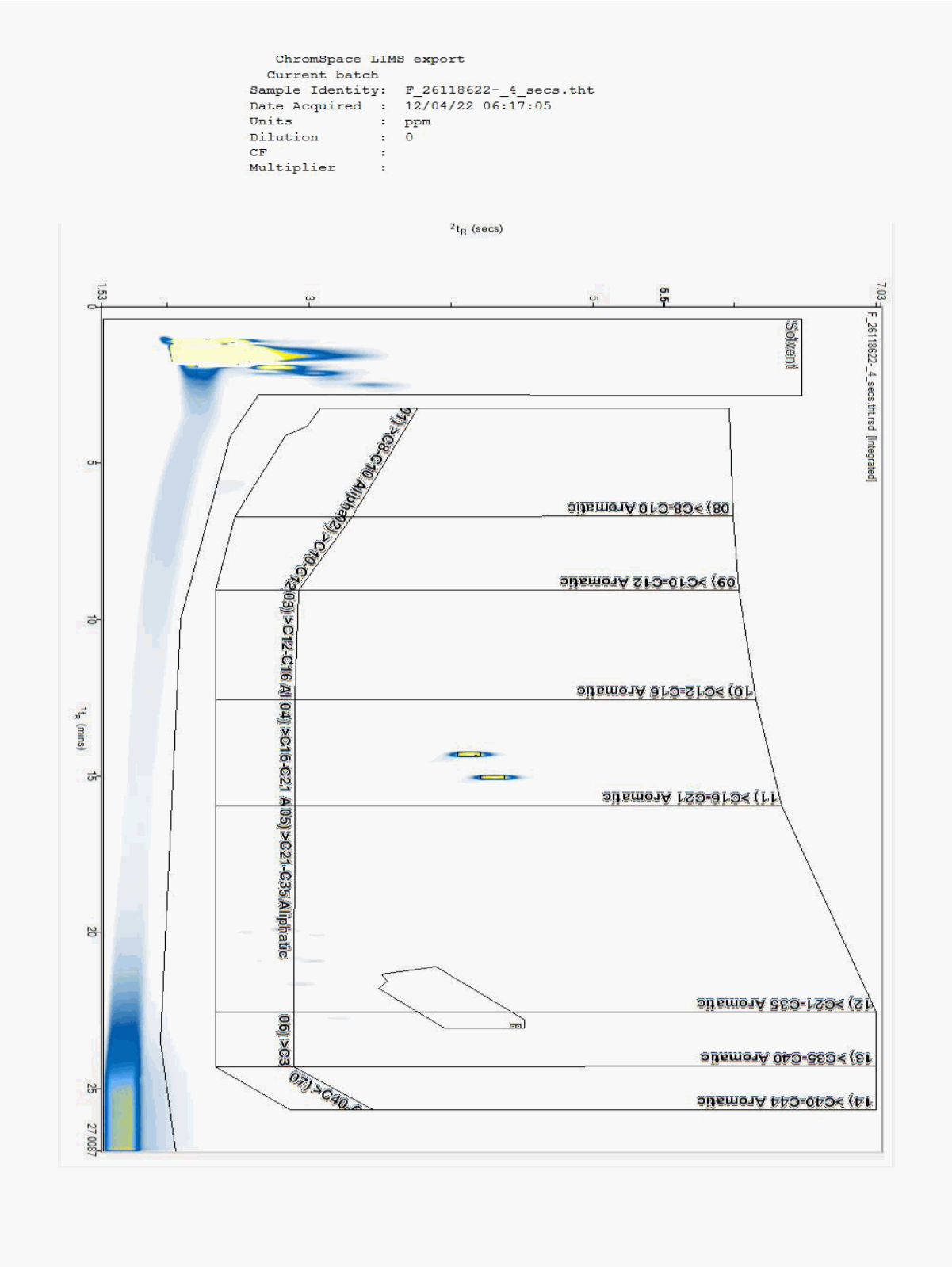
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26118622 **Depth :** 0.80
Sample ID : ACC1-BH-08



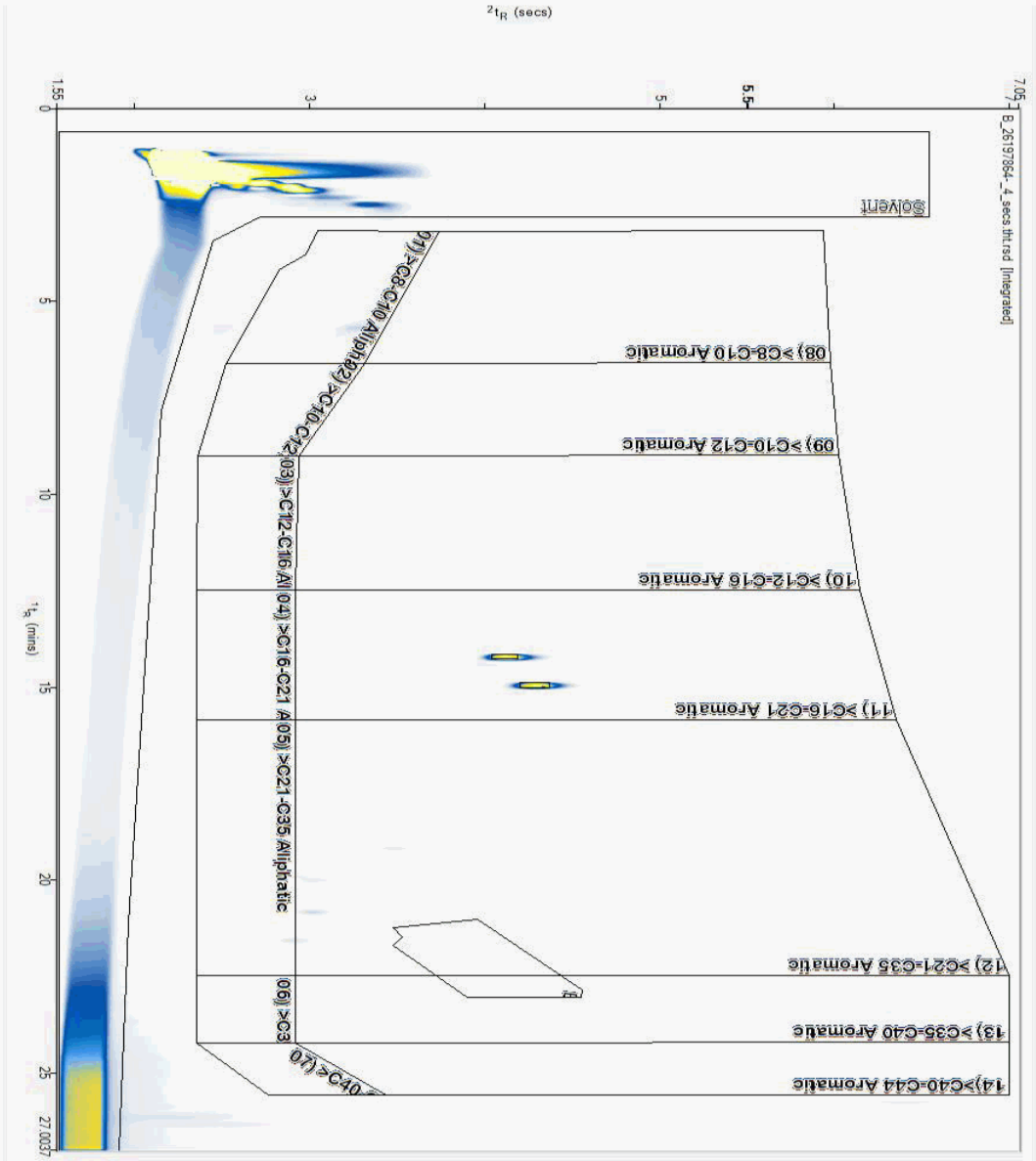
CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197864 **Depth :** 0.80
Sample ID : TP006

ChromSpace LIMS export
Current batch
Sample Identity: B_26197864-_4_secs.tht
Date Acquired : 29/04/22 11:54:50
Units : ppm
Dilution : 0
CF :
Multiplier :

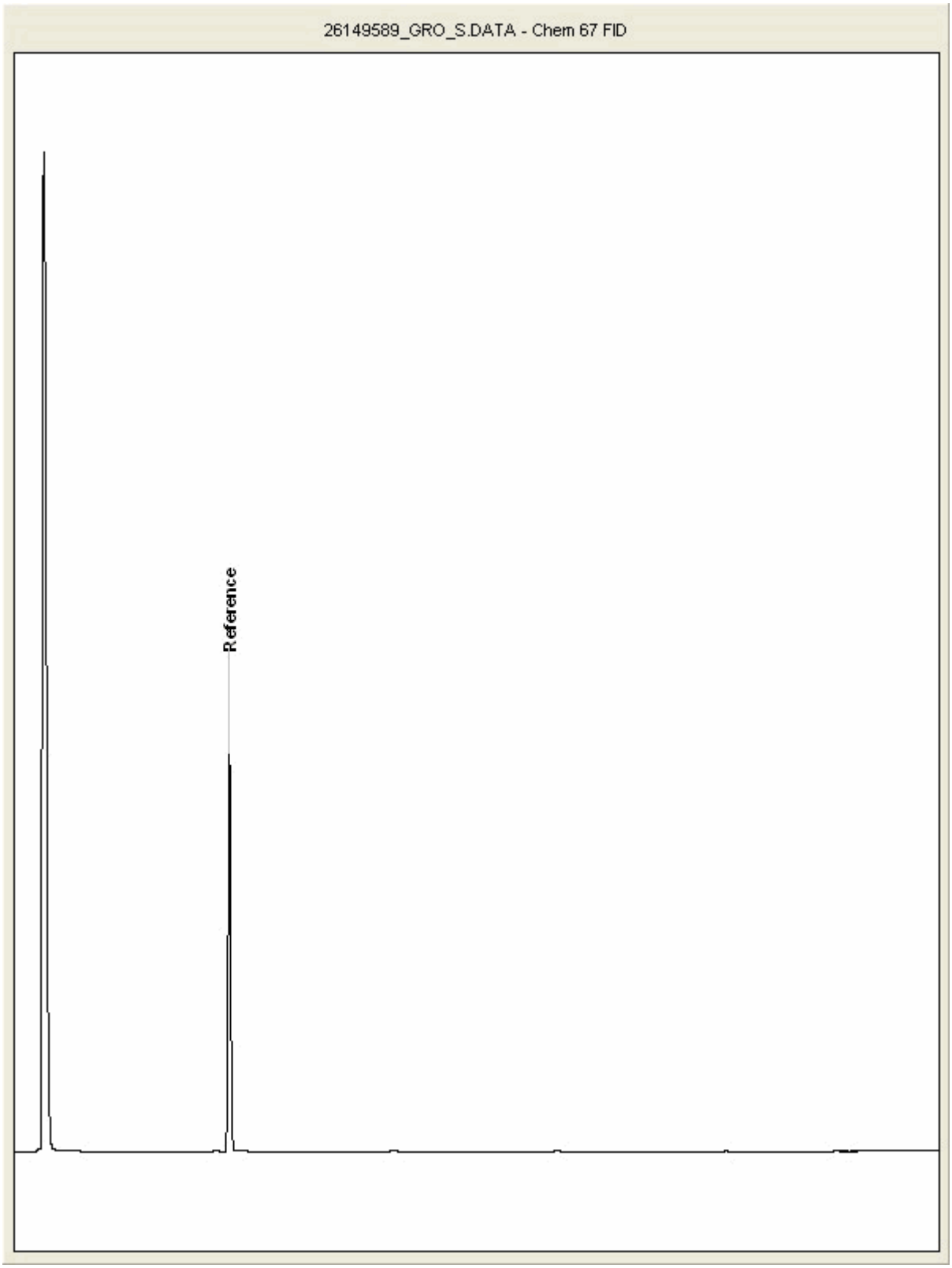


CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26149589 **Depth :** 0.80
Sample ID : ACC1-BH-08

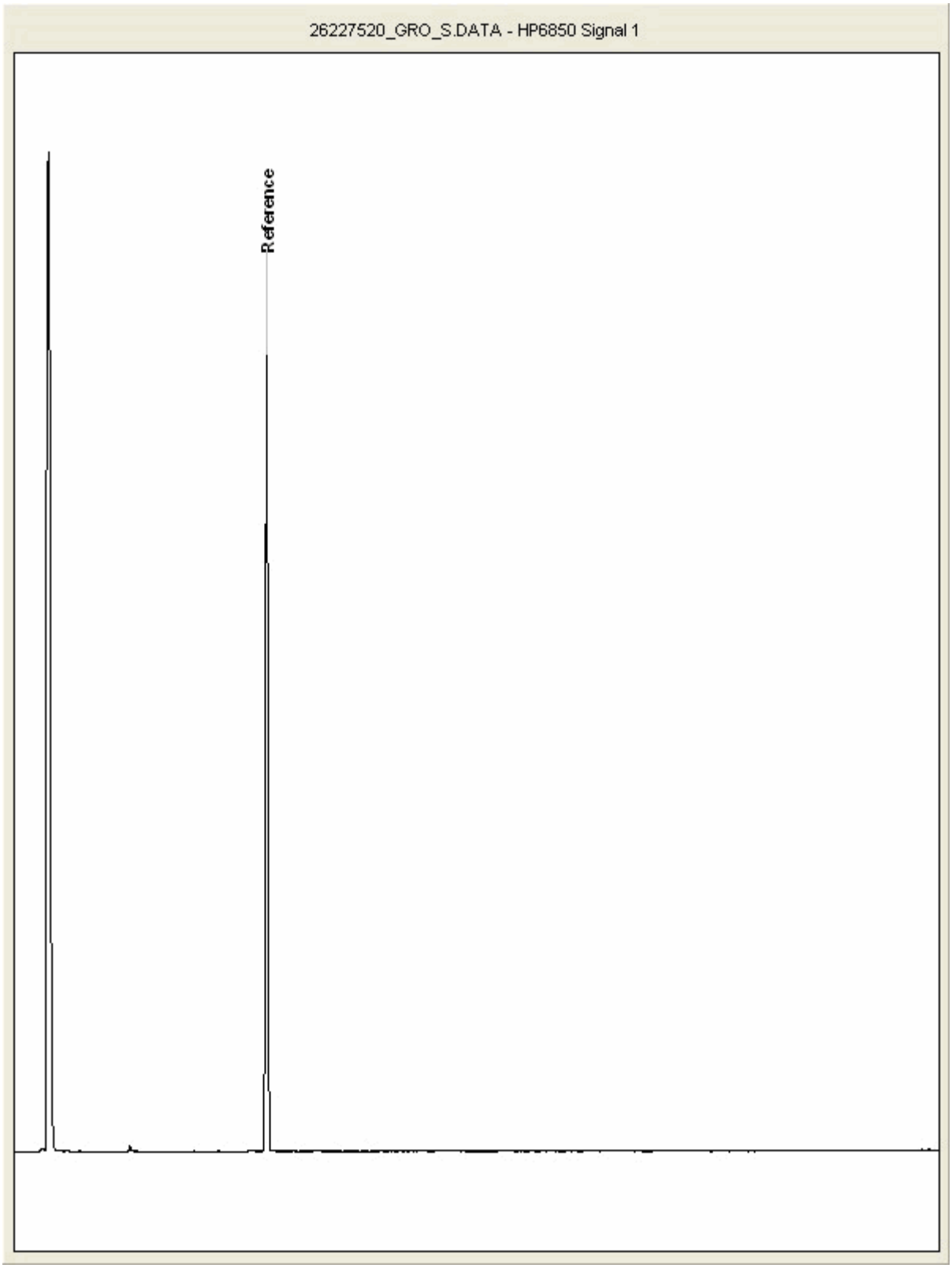


CERTIFICATE OF ANALYSIS

SDG: 220407-148 **Report Number:** 645199 **Superseded Report:** 643093
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26227520 **Depth :** 0.80
Sample ID : TP006



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	09 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220408-122
Your Reference:	JER9352
Location:	Chippenham
Report No:	645200
Order Number:	PO22-197

We received 9 samples on Friday April 08, 2022 and 1 of these samples were scheduled for analysis which was completed on Monday May 09, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26106462	HP_TP_02	ES1	0.30 - 0.30	06/04/2022
26106464	HP_TP_02	ES3	0.80 - 0.80	06/04/2022
26106461	HP_TP_02	ES6	1.20 - 1.20	06/04/2022
26106467	HP_TP_02	ES10	2.20 - 2.20	06/04/2022
26106465	HP_TP_02	ES12	2.50 - 2.60	06/04/2022
26106460	HP_TP_02	ES15	3.40 - 3.40	06/04/2022
26106463	MCI - BH - 07		0.30 - 0.30	06/04/2022
26106466	MCI - BH - 07		0.80 - 0.80	06/04/2022
26106468	MCI - BH - 07		1.00 - 1.00	06/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26106461			
Customer Sample Reference			HP_TP_02			
AGS Reference			ES6			
Depth (m)			1.20 - 1.20			
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	
Sample Type			S	S	S	
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1		X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1	X			
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X			
CEN Readings	All	NDPs: 0 Tests: 1	X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X		
Coronene	All	NDPs: 0 Tests: 1		X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2	X	X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X			
Easily Liberated Sulphide	All	NDPs: 0 Tests: 1		X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X		
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1	X			

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26106461		
Customer Sample Reference			HP_TP_02		
AGS Reference			ES6		
Depth (m)			1.20 - 1.20		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 1	X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1	X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1	X		
pH	All	NDPs: 0 Tests: 1		X	
pH Value	All	NDPs: 0 Tests: 1	X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	
Sample description	All	NDPs: 0 Tests: 1		X	
Sulphide	All	NDPs: 0 Tests: 1	X		
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphate	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26106461	HP_TP_02	1.20 - 1.20	Light Brown	Sandy Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Customer Sample Ref.			HP_TP_02					
Depth (m)			1.20 - 1.20					
Sample Type			Soil/Solid (S)					
Date Sampled			06/04/2022					
Sampled Time			.					
Date Received			08/04/2022					
SDG Ref			220408-122					
Lab Sample No.(s)			26106461					
AGS Reference			ES6					
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	15					
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M					
Soil Organic Matter (SOM)	<0.35 %	TM132	<0.35 @ #					
pH	1 pH Units	TM133	8.47 M					
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #					
Cyanide, Total	<1 mg/kg	TM153	<1 @ M					
Cyanide, Free	<1 mg/kg	TM153	<1 @ M					
Cyanide, Complex	<1 mg/kg	TM153	<1					
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 @ M					
Aluminium	<11 mg/kg	TM181	8600					
Antimony	<0.6 mg/kg	TM181	<0.6 #					
Arsenic	<0.6 mg/kg	TM181	14.5 M					
Barium	<0.6 mg/kg	TM181	30.7 #					
Beryllium	<0.01 mg/kg	TM181	0.671 M					
Boron	<0.7 mg/kg	TM181	19.8 #					
Cadmium	<0.02 mg/kg	TM181	0.0691 M					
Chromium	<0.9 mg/kg	TM181	15.2 M					
Copper	<1.4 mg/kg	TM181	8.95 M					
Iron	<1000 mg/kg	TM181	26000 #					
Lead	<0.7 mg/kg	TM181	11 M					
Manganese	<0.13 mg/kg	TM181	447 M					
Mercury	<0.1 mg/kg	TM181	<0.1 M					
Molybdenum	<0.1 mg/kg	TM181	1.36 #					
Nickel	<0.2 mg/kg	TM181	25.8 M					
Selenium	<1 mg/kg	TM181	<1 #					
Vanadium	<0.2 mg/kg	TM181	50.2 #					
Zinc	<1.9 mg/kg	TM181	44.1 M					
Sulphate, Total	<48 mg/kg	TM221	283 M					
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234	1.99					
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0153 @ M					
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248	4.39					
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318					

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend								
#	ISO17025 accredited.	Customer Sample Ref.	HP_TP_02					
M	mCERTS accredited.							
aq	Aqueous / settled sample.	Depth (m)	1.20 - 1.20					
diss.filt	Dissolved / filtered sample.	Sample Type	Soil/Solid (S)					
tot.unfilt	Total / unfiltered sample.	Date Sampled	06/04/2022					
*	Subcontracted - refer to subcontractor report for accreditation status.	Sampled Time	.					
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Date Received	08/04/2022					
		SDG Ref	220408-122					
(F)	Trigger breach confirmed	Lab Sample No.(s)	26106461					
1-4+5@	Sample deviation (see appendix)	AGS Reference	ES6					
Component		**LOD/Units**	**Method**					
Coronene		<200 µg/kg	TM410	<200				

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.			HP_TP_02
Depth (m)			1.20 - 1.20
Sample Type			Soil/Solid (S)
Date Sampled			06/04/2022
Sampled Time			.
Date Received			08/04/2022
SDG Ref			220408-122
Lab Sample No.(s)			26106461
AGS Reference			ES6
Component	**LOD/Units**	**Method**	
Naphthalene-d8 % recovery**	%	TM218	96.6
Acenaphthene-d10 % recovery**	%	TM218	96.4
Phenanthrene-d10 % recovery**	%	TM218	96.9
Chrysene-d12 % recovery**	%	TM218	104
Perylene-d12 % recovery**	%	TM218	99.2
Naphthalene	<9 µg/kg	TM218	<9 @ M
Acenaphthylene	<12 µg/kg	TM218	<12 @ M
Acenaphthene	<8 µg/kg	TM218	<8 @ M
Fluorene	<10 µg/kg	TM218	<10 @ M
Phenanthrene	<15 µg/kg	TM218	<15 @ M
Anthracene	<16 µg/kg	TM218	<16 @ M
Fluoranthene	<17 µg/kg	TM218	<17 @ M
Pyrene	<15 µg/kg	TM218	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218	<14 @ M
Chrysene	<10 µg/kg	TM218	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. HP_TP_02				
			Depth (m) 1.20 - 1.20				
			Sample Type Soil/Solid (S)				
			Date Sampled 06/04/2022				
			Sampled Time .				
			Date Received 08/04/2022				
			SDG Ref 220408-122				
			Lab Sample No.(s) 26106461				
			AGS Reference ES6				
GRO Surrogate % recovery**	%	TM089	108 @				
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @				
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000 @				
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000				
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000				
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000				
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @				
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @				
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @				

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.			HP_TP_02
Depth (m)			1.20 - 1.20
Sample Type			Soil/Solid (S)
Date Sampled			06/04/2022
Sampled Time			.
Date Received			08/04/2022
SDG Ref			220408-122
Lab Sample No.(s)			26106461
AGS Reference			ES6
Component	**LOD/Units**	**Method**	
Dibromofluoromethane**	%	TM116	102 @
Toluene-d8**	%	TM116	96.7 @
4-Bromofluorobenzene**	%	TM116	103 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	HP_TP_02ES6	04/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	1.20 - 1.20										
Sample Type	SOLID										
Date Sampled	06/04/2022 00:00:00										
Date Receieved	08/04/2022 05:00:00										
SDG	220408-122										
Original Sample	26106461										
Method Number	TM048										

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	22.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81.8
Particle Size <4mm	>95%		

Case	
SDG	220408-122
Lab Sample Number(s)	26106461
Sampled Date	06-Apr-2022
Customer Sample Ref.	HP_TP_02 ES6
Depth (m)	1.20 - 1.20

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	<0.01	<0.01	<0.1	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00244	<0.0002	0.0244	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0229	<0.01	0.229	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Iron (Dis.Filt) mg/l	<0.019	<0.019	<0.19	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	0.00516	<0.003	0.0516	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Phosphorus	0.0227	<0.01	0.227	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	2	<2	20	<20	-	-	-
Nitrate as N	1.82	<0.0677	18.2	<0.677	-	-	-
Sulphate (soluble)	2.5	<2	25	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	6.43
Conductivity (µS/cm)	95.60
Temperature (°C)	20.20
Volume Leachant (Litres)	0.880

09/05/2022 08:52:00

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	22.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81.8
Particle Size <4mm	>95%		

Case	
SDG	220408-122
Lab Sample Number(s)	26106461
Sampled Date	06-Apr-2022
Customer Sample Ref.	HP_TP_02 ES6
Depth (m)	1.20 - 1.20

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	6.43
Conductivity (µS/cm)	95.60
Temperature (°C)	20.20
Volume Leachant (Litres)	0.880

09/05/2022 08:52:00

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26106461
Customer Sample Ref.	HP_TP_02
AGS Ref.	ES6
Depth	1.20 - 1.20
Type	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	04-May-2022
Ammoniacal Nitrogen	05-May-2022
Anions by Kone (soil)	04-May-2022
Anions by Kone (w)	05-May-2022
Asbestos ID in Solid Samples	04-May-2022
CEN 10:1 Leachate (1 Stage)	30-Apr-2022
CEN Readings	04-May-2022
Conductivity (at 20 deg.C)	04-May-2022
Coronene	29-Apr-2022
Cyanide Comp/Free/Total/Thiocyanate	09-May-2022
Dissolved Metals by ICP-MS	05-May-2022
Easily Liberated Sulphide	29-Apr-2022
EPH CWG GC (S)	03-May-2022
GRO by GC-FID (S)	05-May-2022
Hexavalent Chromium (s)	29-Apr-2022
Hexavalent Chromium (w)	05-May-2022
Mercury Dissolved	05-May-2022
Metals in solid samples by OES	04-May-2022
Moisture at 105C	30-Apr-2022
Nitrite by Kone (w)	04-May-2022
PAH 16 & 17 Calc	29-Apr-2022
PAH by GCMS	29-Apr-2022
PAH Spec MS - Aqueous (W)	05-May-2022
pH	03-May-2022
pH Value	05-May-2022
Phenols by HPLC (S)	03-May-2022
Sample description	28-Apr-2022
Sulphide	05-May-2022
Total Organic Carbon	05-May-2022
Total Sulphate	04-May-2022
TPH CWG GC (S)	05-May-2022
VOC MS (S)	05-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2603
Ammoniacal Nitrogen as N	TM099	**96.8** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2607
Chloride	TM184	**106.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**103.2** 96.54 : 111.66
TON as NO3	TM184	**109.5** 100.65 : 111.75

Coronene

Component	Method Code	QC 2690
Coronene RAW	TM410	**96.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2606	QC 2628
Free Cyanide	TM153	**105.94** 77.50 : 118.90	
Free Cyanide (W)	TM227		**84.25** 80.33 : 126.33
Thiocyanate	TM153	**108.33** 92.20 : 113.40	
Thiocyanate (W)	TM227		**106.5** 84.05 : 116.45
Total Cyanide	TM153	**111.89** 80.07 : 114.07	
Total Cyanide (W)	TM227		**107.75** 79.19 : 117.11

Dissolved Metals by ICP-MS

Component	Method Code	QC 2616
Aluminium	TM152	**101.0** 90.98 : 111.82
Antimony	TM152	**102.17** 90.44 : 113.04
Arsenic	TM152	**103.5** 94.87 : 109.67
Barium	TM152	**103.67** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2616
Beryllium	TM152	**100.67** 87.77 : 113.97
Bismuth	TM152	**100.17** 91.90 : 112.20
Borate	TM152	**99.38** 88.00 : 112.00
Boron	TM152	**99.0** 92.27 : 112.40
Cadmium	TM152	**100.0** 96.43 : 110.53
Calcium	TM152	**103.33** 95.14 : 110.01
Chromium	TM152	**101.33** 91.84 : 108.67
Cobalt	TM152	**95.67** 90.72 : 109.61
Copper	TM152	**100.67** 94.47 : 109.05
Iron	TM152	**101.33** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46
Lithium	TM152	**100.33** 91.62 : 113.12
Magnesium	TM152	**104.67** 92.30 : 110.57
Manganese	TM152	**102.33** 94.75 : 108.21
Molybdenum	TM152	**98.33** 93.55 : 107.66
Nickel	TM152	**100.67** 88.00 : 112.00
Phosphorus	TM152	**103.67** 92.51 : 109.27
Potassium	TM152	**103.33** 92.16 : 109.93
Selenium	TM152	**103.83** 91.58 : 115.98
Silver	TM152	**101.67** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62
Strontium	TM152	**102.0** 95.40 : 109.43
Tellurium	TM152	**104.5** 93.32 : 114.66
Thallium	TM152	**107.83** 88.00 : 112.00
Tin	TM152	**99.67** 92.63 : 109.70
Titanium	TM152	**99.33** 95.08 : 109.28
Tungsten	TM152	**98.33** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2616
Uranium	TM152	**97.33** 88.00 : 112.00
Vanadium	TM152	**98.17** 88.00 : 112.00
Zinc	TM152	**102.0** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2648
Easily Liberated Sulphide	TM180	**100.73** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2643
QC	TM089	**79.51** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2684
Hexavalent Chromium	TM151	**100.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2698
Hexavalent Chromium	TM241	**98.2** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2637
Mercury Dissolved (CVAF)	TM183	**107.0** 69.30 : 128.70

Metals in solid samples by OES

Metals in solid samples by OES

Component	Method Code	QC 2649
Aluminium	TM181	**110.53** 87.31 : 119.03
Antimony	TM181	**113.78** 91.44 : 127.14
Arsenic	TM181	**105.41** 88.33 : 120.06
Barium	TM181	**105.64** 94.57 : 124.93
Beryllium	TM181	**106.71** 85.73 : 122.70
Boron	TM181	**109.32** 85.66 : 120.24
Cadmium	TM181	**104.06** 87.30 : 121.60
Chromium	TM181	**99.02** 85.06 : 113.81
Cobalt	TM181	**102.55** 92.91 : 111.38
Copper	TM181	**91.37** 81.22 : 113.41
Iron	TM181	**106.42** 86.44 : 122.27
Lead	TM181	**110.4** 86.84 : 123.13
Manganese	TM181	**107.87** 89.22 : 121.75
Mercury	TM181	**103.58** 84.95 : 119.42
Molybdenum	TM181	**104.71** 85.97 : 123.79
Nickel	TM181	**110.68** 88.05 : 119.19
Phosphorus	TM181	**107.69** 90.13 : 121.54
Selenium	TM181	**103.66** 88.10 : 117.92
Strontium	TM181	**93.74** 79.10 : 111.59
Thallium	TM181	**108.05** 84.67 : 122.64
Tin	TM181	**103.86** 86.96 : 122.18
Titanium	TM181	**98.18** 84.66 : 112.24
Vanadium	TM181	**102.88** 84.00 : 115.50
Zinc	TM181	**105.19** 85.63 : 122.36

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2652
Acenaphthene	TM218	**84.0** 74.70 : 106.04
Acenaphthylene	TM218	**84.0** 73.12 : 105.14
Anthracene	TM218	**83.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**86.0** 69.31 : 119.18
Benzo(a)pyrene	TM218	**78.0** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**80.0** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**72.0** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**79.0** 69.98 : 116.49
Chrysene	TM218	**83.0** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**77.0** 64.54 : 115.22
Fluoranthene	TM218	**82.0** 72.56 : 111.70
Fluorene	TM218	**84.5** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**75.5** 61.22 : 113.25
Naphthalene	TM218	**82.5** 73.52 : 105.12
Phenanthrene	TM218	**83.5** 76.83 : 113.25
Pyrene	TM218	**79.5** 72.45 : 110.77

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2623
Acenaphthene by GCMS	TM178	**109.2** 100.00 : 119.20
Acenaphthylene by GCMS	TM178	**107.2** 95.20 : 119.20
Anthracene by GCMS	TM178	**109.2** 91.60 : 113.20
Benz(a)anthracene by GCMS	TM178	**102.4** 90.40 : 119.20
Benzo(a)pyrene by GCMS	TM178	**108.0** 92.80 : 119.20
Benzo(b)fluoranthene by GCMS	TM178	**108.0** 89.60 : 120.80
Benzo(ghi)perylene by GCMS	TM178	**102.0** 93.20 : 117.20
Benzo(k)fluoranthene by GCMS	TM178	**106.8** 96.40 : 120.40
Chrysene by GCMS	TM178	**103.6** 96.40 : 125.20

PAH Spec MS - Aqueous (W)

		QC 2623
Dibenzo(ah)anthracene by GCMS	TM178	**103.2** 92.00 : 113.60
Fluoranthene by GCMS	TM178	**109.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**108.8** 95.60 : 122.00
Indeno(123cd)pyrene by GCMS	TM178	**106.8** 90.40 : 112.00
Naphthalene by GCMS	TM178	**110.4** 98.00 : 122.00
Phenanthrene by GCMS	TM178	**109.6** 94.00 : 120.40
Pyrene by GCMS	TM178	**108.8** 92.40 : 118.80

pH

Component	Method Code	QC 2694
pH	TM133	**99.56** 90.68 : 104.32

pH Value

Component	Method Code	QC 2612
pH	TM256	**100.94** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2621
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**51.3** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.03** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**49.06** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.99** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**49.27** 82.04 : 108.38

Sulphide

Sulphide

Component	Method Code	QC 2698
Sulphide	TM101	**106.67** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2679
Total Organic Carbon	TM132	**101.56** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2620
Total Sulphate	TM221	**102.27** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2691
1,1,1,2-tetrachloroethane	TM116	**110.2** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**102.2** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**94.8** 77.12 : 116.04
1,1-Dichloroethane	TM116	**102.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**113.2** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**98.4** 83.64 : 126.18
2-Chlorotoluene	TM116	**83.8** 68.55 : 109.58
4-Chlorotoluene	TM116	**85.2** 66.29 : 107.51
Benzene	TM116	**94.0** 88.60 : 113.80
Carbon Disulphide	TM116	**96.8** 74.91 : 122.14
Carbontetrachloride	TM116	**108.2** 80.31 : 124.50
Chlorobenzene	TM116	**100.2** 83.81 : 114.18
Chloroform	TM116	**102.4** 87.40 : 122.49

VOC MS (S)

		QC 2691
Chloromethane	TM116	**96.2** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**101.6** 80.67 : 126.72
Dibromomethane	TM116	**93.0** 73.23 : 118.35
Dichloromethane	TM116	**108.2** 81.11 : 133.25
Ethylbenzene	TM116	**86.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**80.4** 12.82 : 152.73
Isopropylbenzene	TM116	**76.0** 54.30 : 105.91
Naphthalene	TM116	**103.2** 80.86 : 128.81
o-Xylene	TM116	**83.2** 69.99 : 108.74
p/m-Xylene	TM116	**81.3** 68.32 : 108.91
Sec-Butylbenzene	TM116	**76.4** 38.50 : 101.50
Tetrachloroethene	TM116	**100.2** 76.95 : 121.02
Toluene	TM116	**86.0** 74.24 : 107.42
Trichloroethene	TM116	**100.2** 85.28 : 109.36
Trichlorofluoromethane	TM116	**109.2** 81.46 : 120.52
Vinyl Chloride	TM116	**102.2** 68.02 : 143.37

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

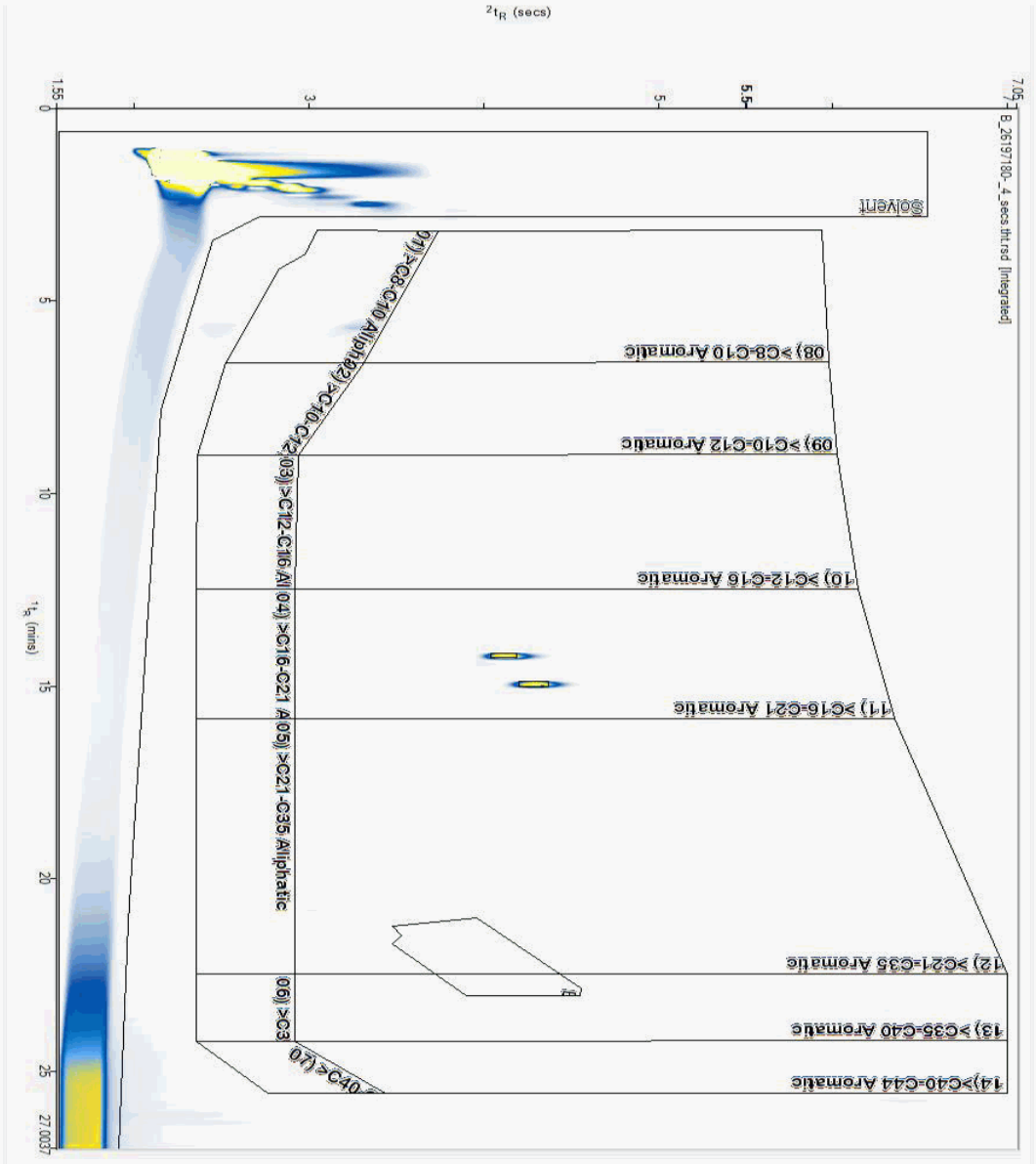
CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197180 **Depth :** 1.20 - 1.20
Sample ID : HP_TP_02

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_26197180-_4_secs.tht
Date Acquired   :  29/04/22 10:52:03
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

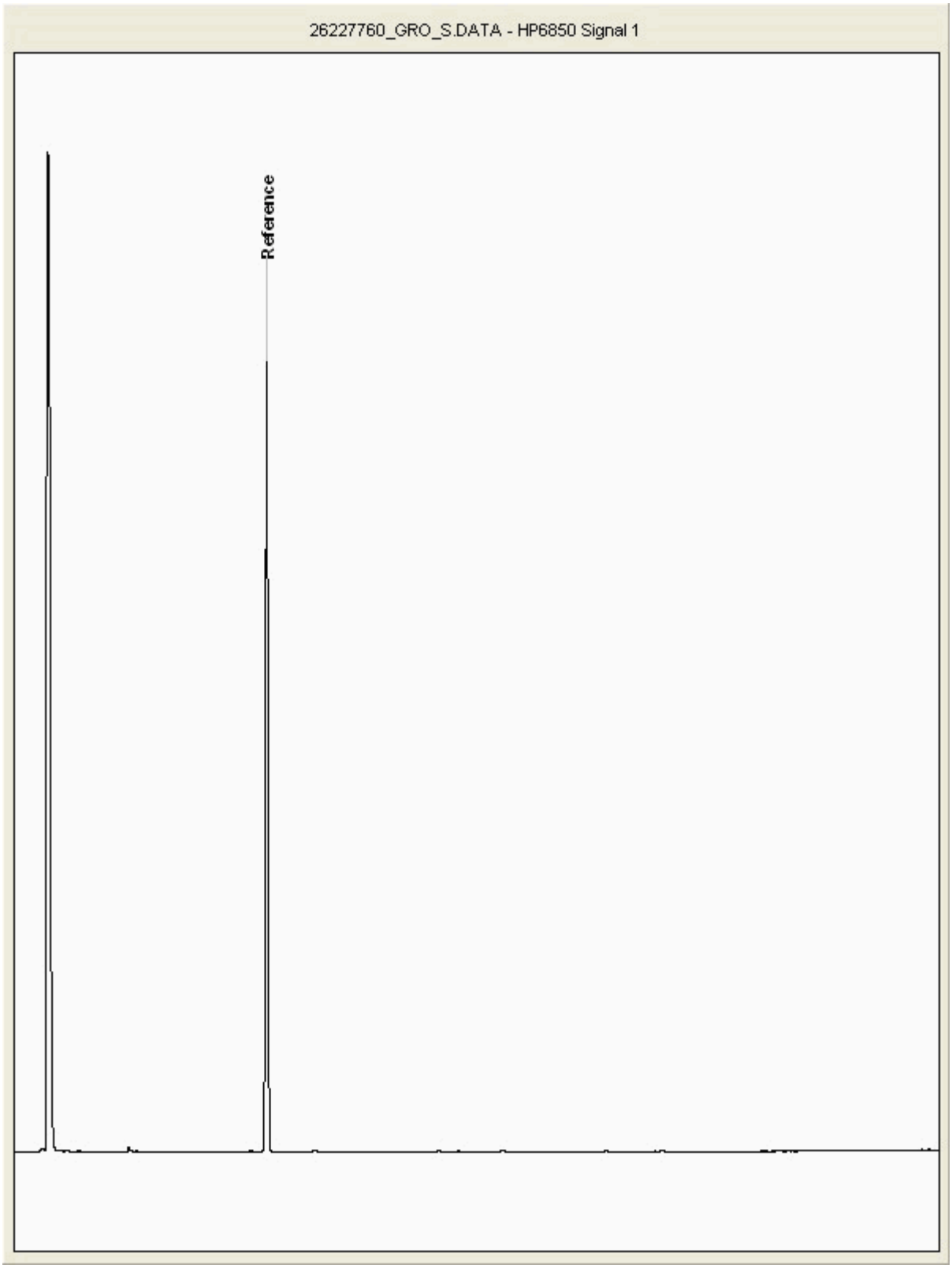


CERTIFICATE OF ANALYSIS

SDG: 220408-122 **Report Number:** 645200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26227760 **Depth :** 1.20 - 1.20
Sample ID : HP_TP_02



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
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Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220409-93
Your Reference:	JER9352
Location:	Chippenham
Report No:	645146
Order Number:	PO22-197

We received 13 samples on Saturday April 09, 2022 and 2 of these samples were scheduled for analysis which was completed on Friday May 06, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26114913	AUCL - BH - 10		0.30	07/04/2022
26114914	AUCL - BH - 10		0.80	07/04/2022
26114917	AUCL - BH - 10		1.20	07/04/2022
26114918	WS002 ES1		0.30	07/04/2022
26114920	WS002 ES3		0.80	07/04/2022
26114921	WS002 ES6		1.15	07/04/2022
26114922	WS002 ES8		2.80 - 3.00	08/04/2022
26114925	WS004 ES1		0.30	07/04/2022
26114926	WS004 ES3		0.80	07/04/2022
26114928	WS004 ES6		1.15	07/04/2022
26114929	WS004 ES8		2.30	07/04/2022
26114931	WS004 ES9		3.30 - 3.50	07/04/2022
26114923	WS002 ES10		3.50 - 3.70	07/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)					
			26114918			26114926		
			Customer Sample Reference					
			WS002 ES1			WS004 ES3		
			AGS Reference					
			Depth (m)					
			0.30			0.80		
			Container					
			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type					
			S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 2		X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1				X		
Anions by Kone (soil)	All	NDPs: 0 Tests: 2		X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1				X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X			X		
CEN Readings	All	NDPs: 0 Tests: 1				X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2		X			X	
Coronene	All	NDPs: 0 Tests: 2		X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3		X		X	X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1				X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 2		X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2		X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1				X		

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26114918				26114926				
Customer Sample Reference			WS002 ES1				WS004 ES3				
AGS Reference											
Depth (m)			0.30				0.80				
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)			
Sample Type			S	S	S	S	S	S			
Mercury Dissolved	All	NDPs: 0 Tests: 1				X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X			X				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1				X					
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 2		X			X				
PAH by GCMS	All	NDPs: 0 Tests: 2		X			X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1				X					
pH	All	NDPs: 0 Tests: 2		X			X				
pH Value	All	NDPs: 0 Tests: 1				X					
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2		X			X				
Sample description	All	NDPs: 0 Tests: 2		X			X				
Sulphide	All	NDPs: 0 Tests: 1				X					
Total Organic Carbon	All	NDPs: 0 Tests: 2		X			X				
Total Sulphate	All	NDPs: 0 Tests: 2		X			X				
TPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X				
VOC MS (S)	All	NDPs: 0 Tests: 2			X			X			

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26114918	WS002 ES1	0.30	Light Brown	Clay	Vegetation	None
26114926	WS004 ES3	0.80	Light Brown	Sandy Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS002 ES1	WS004 ES3				
			Depth (m)	0.30	0.80				
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)				
			Date Sampled	07/04/2022	07/04/2022				
			Sampled Time	.	.				
			Date Received	09/04/2022	09/04/2022				
			SDG Ref	220409-93	220409-93				
			Lab Sample No.(s)	26114918	26114926				
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		20	15				
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 @	<0.01 @				
Soil Organic Matter (SOM)	<0.35 %	TM132		0.929 @	0.522 @				
pH	1 pH Units	TM133		8.18	8.38				
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6	<0.6				
Cyanide, Total	<1 mg/kg	TM153		<1 @	<1 @				
Cyanide, Free	<1 mg/kg	TM153		<1 @	<1 @				
Cyanide, Complex	<1 mg/kg	TM153		<1	<1				
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @	<15 @				
Aluminium	<11 mg/kg	TM181		16000	12900				
Antimony	<0.6 mg/kg	TM181		<0.6	<0.6				
Arsenic	<0.6 mg/kg	TM181		8.16	12.7				
Barium	<0.6 mg/kg	TM181		35.8	33.9				
Beryllium	<0.01 mg/kg	TM181		0.748	1.1				
Boron	<0.7 mg/kg	TM181		10	12.9				
Cadmium	<0.02 mg/kg	TM181		<0.02	0.089				
Chromium	<0.9 mg/kg	TM181		21.2	18.9				
Copper	<1.4 mg/kg	TM181		9.19	12.5				
Iron	<1000 mg/kg	TM181		29300	32100				
Lead	<0.7 mg/kg	TM181		18.4	17.1				
Manganese	<0.13 mg/kg	TM181		142	265				
Mercury	<0.1 mg/kg	TM181		<0.1	<0.1				
Molybdenum	<0.1 mg/kg	TM181		2.17	1.91				
Nickel	<0.2 mg/kg	TM181		12.5	35.1				
Selenium	<1 mg/kg	TM181		<1	<1				
Vanadium	<0.2 mg/kg	TM181		35.8	42.4				
Zinc	<1.9 mg/kg	TM181		55.3	74.7				
Sulphate, Total	<48 mg/kg	TM221		233	93.5				
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234		2.47	2.01				
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0634	0.0224				
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248		2.95	4.26				
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318				

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS002 ES1	WS004 ES3
			Depth (m)	0.30	0.80
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)
			Date Sampled	07/04/2022	07/04/2022
			Sampled Time	.	.
			Date Received	09/04/2022	09/04/2022
			SDG Ref	220409-93	220409-93
			Lab Sample No.(s)	26114918	26114926
			AGS Reference		
Coronene	<200 µg/kg	TM410		<200	<200

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS002 ES1	WS004 ES3
Depth (m)	0.30	0.80
Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)
Date Sampled	07/04/2022	07/04/2022
Sampled Time	.	.
Date Received	09/04/2022	09/04/2022
SDG Ref	220409-93	220409-93
Lab Sample No.(s)	26114918	26114926
AGS Reference		

Component	LOD/Units	Method		
Naphthalene-d8 % recovery**	%	TM218	91.4	90.6
Acenaphthene-d10 % recovery**	%	TM218	92	89.9
Phenanthrene-d10 % recovery**	%	TM218	91	89
Chrysene-d12 % recovery**	%	TM218	84.5	91.4
Perylene-d12 % recovery**	%	TM218	84.8	93.9
Naphthalene	<9 µg/kg	TM218	<9 @	<9 @
Acenaphthylene	<12 µg/kg	TM218	<12 @	<12 @
Acenaphthene	<8 µg/kg	TM218	<8 @	<8 @
Fluorene	<10 µg/kg	TM218	<10 @	<10 @
Phenanthrene	<15 µg/kg	TM218	<15 @	<15 @
Anthracene	<16 µg/kg	TM218	<16 @	<16 @
Fluoranthene	<17 µg/kg	TM218	<17 @	<17 @
Pyrene	<15 µg/kg	TM218	<15 @	<15 @
Benz(a)anthracene	<14 µg/kg	TM218	<14 @	<14 @
Chrysene	<10 µg/kg	TM218	<10 @	<10 @
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @	<15 @
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @	<14 @
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @	<15 @
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @	<18 @
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @	<23 @
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @	<24 @
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<118

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.						
			WS002 ES1	WS004 ES3					
			Depth (m)	0.30	0.80				
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)				
			Date Sampled	07/04/2022	07/04/2022				
			Sampled Time	.	.				
			Date Received	09/04/2022	09/04/2022				
			SDG Ref	220409-93	220409-93				
			Lab Sample No.(s)	26114918	26114926				
			AGS Reference						
GRO Surrogate % recovery**	%	TM089	121 @	118 @					
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @					
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @					
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @					
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	1090 @	<1000 @					
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000 @	<5000 @					
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000	<10000					
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @					
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @					
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @					
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000	<5000					
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000	<10000					
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @					
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @					
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @	<20 @					

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS002 ES1	WS004 ES3			
			Depth (m)	0.30	0.80			
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)			
			Date Sampled	07/04/2022	07/04/2022			
			Sampled Time	.	.			
			Date Received	09/04/2022	09/04/2022			
			SDG Ref	220409-93	220409-93			
			Lab Sample No.(s)	26114918	26114926			
			AGS Reference					
Dibromofluoromethane**	%	TM116		104 @	102 @			
Toluene-d8**	%	TM116		93.8 @	97.3 @			
4-Bromofluorobenzene**	%	TM116		87.8 @	101 @			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 @	<10 @			
Benzene	<9 µg/kg	TM116		<9 @	<9 @			
Toluene	<7 µg/kg	TM116		<7 @	<7 @			
Ethylbenzene	<4 µg/kg	TM116		<4 @	<4 @			
p/m-Xylene	<10 µg/kg	TM116		<10 @	<10 @			
o-Xylene	<10 µg/kg	TM116		<10 @	<10 @			
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 @	<0.02 @			
Sum of BTEX	<40 µg/kg	TM116		<40 @	<40 @			

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS002 ES1 0.30 MISC_SOLID 07/04/2022 00:00:00 09/04/2022 05:00:00 220409-93 26114918 TM048	04/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS004 ES3 0.80 MISC_SOLID 07/04/2022 00:00:00 09/04/2022 05:00:00 220409-93 26114926 TM048	04/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	25.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79.5
Particle Size <4mm	>95%		

Case	
SDG	220409-93
Lab Sample Number(s)	26114926
Sampled Date	07-Apr-2022
Customer Sample Ref.	WS004 ES3
Depth (m)	0.80

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.0146	<0.01	0.146	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0015	<0.0002	0.015	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0257	<0.01	0.257	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.0912	<0.019	0.912	<0.19	-	-	-
Lead	0.000323	<0.0002	0.00323	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Phosphorus	0.021	<0.01	0.21	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	2.2	<2	22	<20	-	-	-
Nitrate as N	0.602	<0.0677	6.02	<0.677	-	-	-
Sulphate (soluble)	2.5	<2	25	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	0.00000532	<0.000005	0.0000532	<0.00005	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.54
Conductivity (µS/cm)	69.30
Temperature (°C)	19.50
Volume Leachant (Litres)	0.876

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CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	25.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79.5
Particle Size <4mm	>95%		

Case	
SDG	220409-93
Lab Sample Number(s)	26114926
Sampled Date	07-Apr-2022
Customer Sample Ref.	WS004 ES3
Depth (m)	0.80

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.54
Conductivity (µS/cm)	69.30
Temperature (°C)	19.50
Volume Leachant (Litres)	0.876

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26114918	26114926
Customer Sample Ref.	WS002 ES1	WS004 ES3
AGS Ref.		
Depth	0.30	0.80
Type	Unspecified So	Unspecified So
Ammoniacal N as NH4 in 2:1 extract	04-May-2022	04-May-2022
Ammoniacal Nitrogen		05-May-2022
Anions by Kone (soil)	03-May-2022	03-May-2022
Anions by Kone (w)		05-May-2022
Asbestos ID in Solid Samples	04-May-2022	04-May-2022
CEN 10:1 Leachate (1 Stage)		30-Apr-2022
CEN Readings		04-May-2022
Conductivity (at 20 deg.C)	04-May-2022	04-May-2022
Coronene	04-May-2022	03-May-2022
Cyanide Comp/Free/Total/Thiocyanate	05-May-2022	05-May-2022
Dissolved Metals by ICP-MS		05-May-2022
Easily Liberated Sulphide	03-May-2022	29-Apr-2022
EPH CWG GC (S)	04-May-2022	03-May-2022
GRO by GC-FID (S)	06-May-2022	05-May-2022
Hexavalent Chromium (s)	05-May-2022	29-Apr-2022
Hexavalent Chromium (w)		05-May-2022
Mercury Dissolved		05-May-2022
Metals in solid samples by OES	04-May-2022	04-May-2022
Moisture at 105C		30-Apr-2022
Nitrite by Kone (w)		04-May-2022
PAH 16 & 17 Calc	04-May-2022	03-May-2022
PAH by GCMS	04-May-2022	03-May-2022
PAH Spec MS - Aqueous (W)		05-May-2022
pH	03-May-2022	03-May-2022
pH Value		05-May-2022
Phenols by HPLC (S)	04-May-2022	03-May-2022
Sample description	29-Apr-2022	28-Apr-2022
Sulphide		05-May-2022
Total Organic Carbon	05-May-2022	05-May-2022
Total Sulphate	04-May-2022	04-May-2022
TPH CWG GC (S)	06-May-2022	06-May-2022
VOC MS (S)	05-May-2022	05-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2603
Ammoniacal Nitrogen as N	TM099	**96.8** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2607
Chloride	TM184	**106.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**103.2** 96.54 : 111.66
TON as NO3	TM184	**109.5** 100.65 : 111.75

Coronene

Component	Method Code	QC 2656	QC 2650
Coronene RAW	TM410	**112.5** 79.43 : 137.78	**131.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2683	QC 2614	QC 2628
Free Cyanide	TM153	**105.94** 77.50 : 118.90	**94.55** 77.50 : 118.90	
Free Cyanide (W)	TM227			**84.25** 80.33 : 126.33
Thiocyanate	TM153	**109.62** 92.20 : 113.40	**98.08** 92.20 : 113.40	
Thiocyanate (W)	TM227			**106.5** 84.05 : 116.45
Total Cyanide	TM153	**110.49** 80.07 : 114.07	**102.8** 80.07 : 114.07	
Total Cyanide (W)	TM227			**107.75** 79.19 : 117.11

Dissolved Metals by ICP-MS

Component	Method Code	QC 2616
Aluminium	TM152	**101.0** 90.98 : 111.82
Antimony	TM152	**102.17** 90.44 : 113.04
Arsenic	TM152	**103.5** 94.87 : 109.67
Barium	TM152	**103.67** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2616
Beryllium	TM152	**100.67** 87.77 : 113.97
Bismuth	TM152	**100.17** 91.90 : 112.20
Borate	TM152	**99.38** 88.00 : 112.00
Boron	TM152	**99.0** 92.27 : 112.40
Cadmium	TM152	**100.0** 96.43 : 110.53
Calcium	TM152	**103.33** 95.14 : 110.01
Chromium	TM152	**101.33** 91.84 : 108.67
Cobalt	TM152	**95.67** 90.72 : 109.61
Copper	TM152	**100.67** 94.47 : 109.05
Iron	TM152	**101.33** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46
Lithium	TM152	**100.33** 91.62 : 113.12
Magnesium	TM152	**104.67** 92.30 : 110.57
Manganese	TM152	**102.33** 94.75 : 108.21
Molybdenum	TM152	**98.33** 93.55 : 107.66
Nickel	TM152	**100.67** 88.00 : 112.00
Phosphorus	TM152	**103.67** 92.51 : 109.27
Potassium	TM152	**103.33** 92.16 : 109.93
Selenium	TM152	**103.83** 91.58 : 115.98
Silver	TM152	**101.67** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62
Strontium	TM152	**102.0** 95.40 : 109.43
Tellurium	TM152	**104.5** 93.32 : 114.66
Thallium	TM152	**107.83** 88.00 : 112.00
Tin	TM152	**99.67** 92.63 : 109.70
Titanium	TM152	**99.33** 95.08 : 109.28
Tungsten	TM152	**98.33** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2616
Uranium	TM152	**97.33** 88.00 : 112.00
Vanadium	TM152	**98.17** 88.00 : 112.00
Zinc	TM152	**102.0** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2648	QC 2692
Easily Liberated Sulphide	TM180	**100.73** 51.10 : 121.66	**106.78** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2653	QC 2635
QC	TM089	**77.75** 65.61 : 111.21	**74.93** 65.42 : 109.49

Hexavalent Chromium (s)

Component	Method Code	QC 2684	QC 2644
Hexavalent Chromium	TM151	**100.0** 83.40 : 113.40	**100.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2698
Hexavalent Chromium	TM241	**98.2** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2637
Mercury Dissolved (CVAF)	TM183	**107.0** 69.30 : 128.70

Metals in solid samples by OES

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Metals in solid samples by OES

Component	Method Code	QC 2666	QC 2649
Aluminium	TM181	**113.16** 84.95 : 125.04	**110.53** 87.31 : 119.03
Antimony	TM181	**117.32** 91.44 : 127.13	**113.78** 91.44 : 127.14
Arsenic	TM181	**112.16** 88.32 : 120.05	**105.41** 88.33 : 120.06
Barium	TM181	**109.74** 94.57 : 124.93	**105.64** 94.57 : 124.93
Beryllium	TM181	**111.08** 85.72 : 122.69	**106.71** 85.73 : 122.70
Boron	TM181	**112.22** 91.59 : 122.22	**109.32** 85.66 : 120.24
Cadmium	TM181	**111.81** 87.31 : 121.62	**104.06** 87.30 : 121.60
Chromium	TM181	**101.95** 85.06 : 113.81	**99.02** 85.06 : 113.81
Cobalt	TM181	**109.09** 90.60 : 110.35	**102.55** 92.91 : 111.38
Copper	TM181	**95.43** 81.22 : 113.40	**91.37** 81.22 : 113.41
Iron	TM181	**111.93** 86.44 : 122.27	**106.42** 86.44 : 122.27
Lead	TM181	**113.12** 86.83 : 123.12	**110.4** 86.84 : 123.13
Manganese	TM181	**112.08** 89.22 : 121.75	**107.87** 89.22 : 121.75
Mercury	TM181	**110.75** 84.95 : 119.42	**103.58** 84.95 : 119.42
Molybdenum	TM181	**110.1** 85.98 : 123.80	**104.71** 85.97 : 123.79
Nickel	TM181	**112.46** 88.05 : 119.19	**110.68** 88.05 : 119.19
Phosphorus	TM181	**113.68** 90.13 : 121.54	**107.69** 90.13 : 121.54
Selenium	TM181	**112.45** 90.68 : 124.14	**103.66** 88.10 : 117.92
Strontium	TM181	**96.2** 80.65 : 106.55	**93.74** 79.10 : 111.59
Thallium	TM181	**113.09** 76.88 : 121.51	**108.05** 84.67 : 122.64
Tin	TM181	**110.68** 86.96 : 122.18	**103.86** 86.96 : 122.18
Titanium	TM181	**99.09** 77.07 : 118.83	**98.18** 84.66 : 112.24
Vanadium	TM181	**104.32** 84.00 : 115.50	**102.88** 84.00 : 115.50
Zinc	TM181	**108.8** 85.62 : 122.35	**105.19** 85.63 : 122.36

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2618	QC 2698
Acenaphthene	TM218	**93.0** 76.79 : 103.90	**90.5** 74.70 : 106.04
Acenaphthylene	TM218	**90.5** 74.19 : 106.17	**90.0** 73.12 : 105.14
Anthracene	TM218	**94.0** 70.90 : 109.22	**88.5** 73.99 : 113.85
Benz(a)anthracene	TM218	**100.0** 73.77 : 119.26	**86.0** 69.31 : 119.18
Benzo(a)pyrene	TM218	**94.5** 73.20 : 114.18	**79.5** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**94.0** 75.36 : 117.58	**82.0** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**92.0** 70.73 : 116.12	**79.0** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**93.5** 75.98 : 116.59	**81.5** 69.98 : 116.49
Chrysene	TM218	**96.0** 74.82 : 114.18	**84.0** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**97.0** 69.17 : 115.30	**81.5** 64.54 : 115.22
Fluoranthene	TM218	**96.0** 66.06 : 114.63	**83.5** 72.56 : 111.70
Fluorene	TM218	**93.0** 76.66 : 107.56	**90.5** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**99.5** 70.26 : 117.95	**81.0** 61.22 : 113.25
Naphthalene	TM218	**88.0** 74.70 : 101.83	**87.0** 73.52 : 105.12
Phenanthrene	TM218	**95.0** 73.62 : 109.34	**89.5** 76.83 : 113.25
Pyrene	TM218	**92.5** 71.46 : 117.00	**81.5** 72.45 : 110.77

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2623
Acenaphthene by GCMS	TM178	**109.2** 100.00 : 119.20
Acenaphthylene by GCMS	TM178	**107.2** 95.20 : 119.20
Anthracene by GCMS	TM178	**109.2** 91.60 : 113.20
Benz(a)anthracene by GCMS	TM178	**102.4** 90.40 : 119.20
Benzo(a)pyrene by GCMS	TM178	**108.0** 92.80 : 119.20
Benzo(b)fluoranthene by GCMS	TM178	**108.0** 89.60 : 120.80
Benzo(ghi)perylene by GCMS	TM178	**102.0** 93.20 : 117.20
Benzo(k)fluoranthene by GCMS	TM178	**106.8** 96.40 : 120.40
Chrysene by GCMS	TM178	**103.6** 96.40 : 125.20

PAH Spec MS - Aqueous (W)

		QC 2623
Dibenzo(ah)anthracene by GCMS	TM178	**103.2** 92.00 : 113.60
Fluoranthene by GCMS	TM178	**109.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**108.8** 95.60 : 122.00
Indeno(123cd)pyrene by GCMS	TM178	**106.8** 90.40 : 112.00
Naphthalene by GCMS	TM178	**110.4** 98.00 : 122.00
Phenanthrene by GCMS	TM178	**109.6** 94.00 : 120.40
Pyrene by GCMS	TM178	**108.8** 92.40 : 118.80

pH

Component	Method Code	QC 2659	QC 2694
pH	TM133	**99.85** 90.68 : 104.32	**99.56** 90.68 : 104.32

pH Value

Component	Method Code	QC 2612
pH	TM256	**100.94** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2621	QC 2674
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**51.3** 69.38 : 125.27	**51.3** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.03** 69.79 : 122.84	**46.2** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**49.06** 77.98 : 111.41	**49.69** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.99** 67.94 : 117.69	**51.66** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**49.27** 82.04 : 108.38	**49.48** 82.04 : 108.38

Sulphide

Sulphide

Component	Method Code	QC 2698
Sulphide	TM101	**106.67** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2672
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2659
Total Sulphate	TM221	**102.27** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2685
1,1,1,2-tetrachloroethane	TM116	**111.4** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**99.2** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**92.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**95.6** 74.46 : 129.15
1,2-Dichloroethane	TM116	**111.2** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**99.0** 83.64 : 126.18
2-Chlorotoluene	TM116	**88.0** 68.55 : 109.58
4-Chlorotoluene	TM116	**84.4** 66.29 : 107.51
Benzene	TM116	**92.6** 88.60 : 113.80
Carbon Disulphide	TM116	**90.6** 74.91 : 122.14
Carbontetrachloride	TM116	**112.2** 80.31 : 124.50
Chlorobenzene	TM116	**97.2** 83.81 : 114.18
Chloroform	TM116	**99.4** 87.40 : 122.49

VOC MS (S)

		QC 2685
Chloromethane	TM116	**89.6** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**96.6** 80.67 : 126.72
Dibromomethane	TM116	**93.8** 73.23 : 118.35
Dichloromethane	TM116	**103.2** 81.11 : 133.25
Ethylbenzene	TM116	**87.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**78.4** 12.82 : 152.73
Isopropylbenzene	TM116	**77.0** 54.30 : 105.91
Naphthalene	TM116	**105.8** 80.86 : 128.81
o-Xylene	TM116	**85.0** 69.99 : 108.74
p/m-Xylene	TM116	**81.4** 68.32 : 108.91
Sec-Butylbenzene	TM116	**89.4** 38.50 : 101.50
Tetrachloroethene	TM116	**107.6** 76.95 : 121.02
Toluene	TM116	**82.4** 74.24 : 107.42
Trichloroethene	TM116	**97.0** 85.28 : 109.36
Trichlorofluoromethane	TM116	**107.4** 81.46 : 120.52
Vinyl Chloride	TM116	**95.4** 68.02 : 143.37

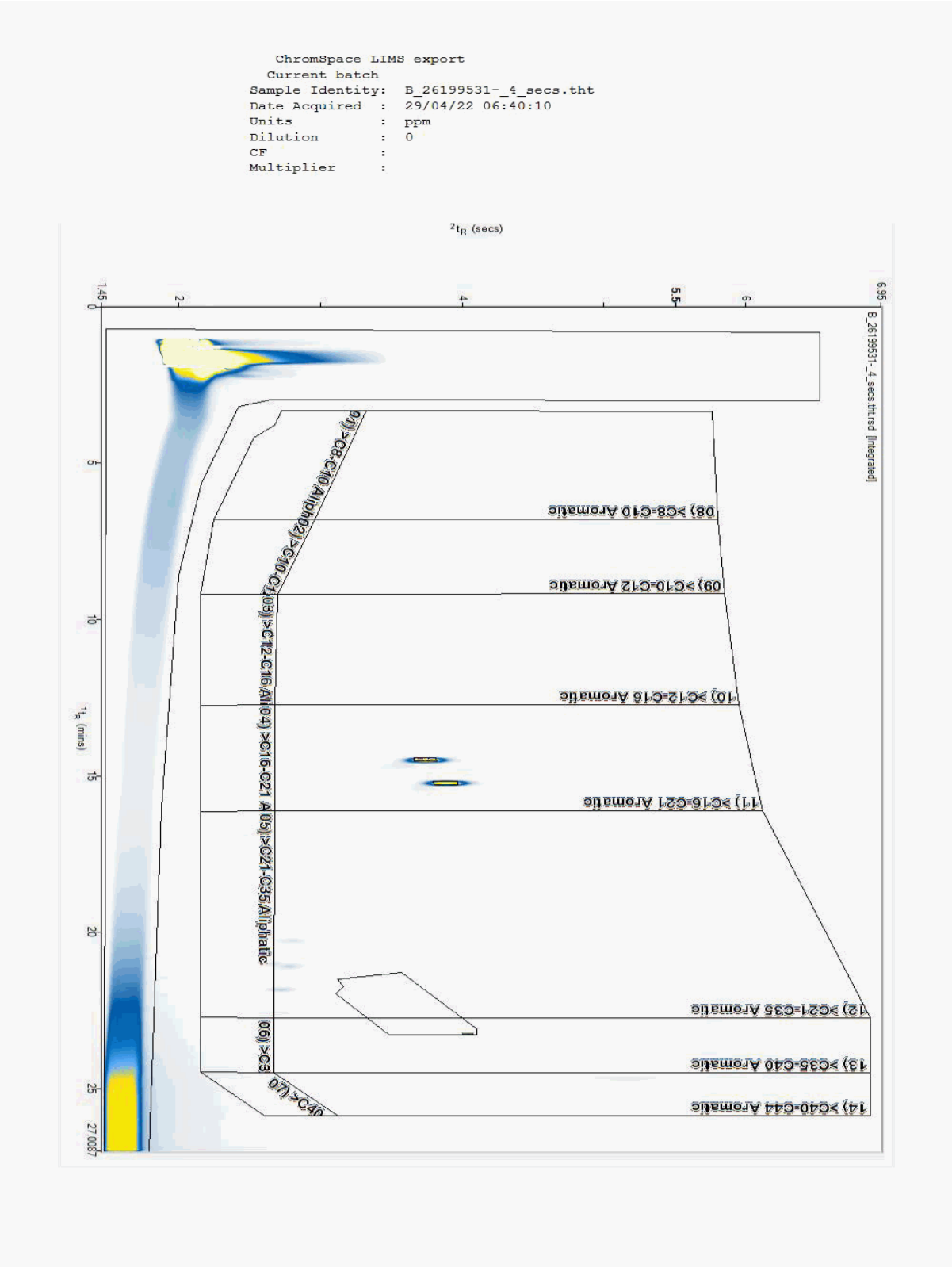
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26199531 **Depth :** 0.80
Sample ID : WS004 ES3

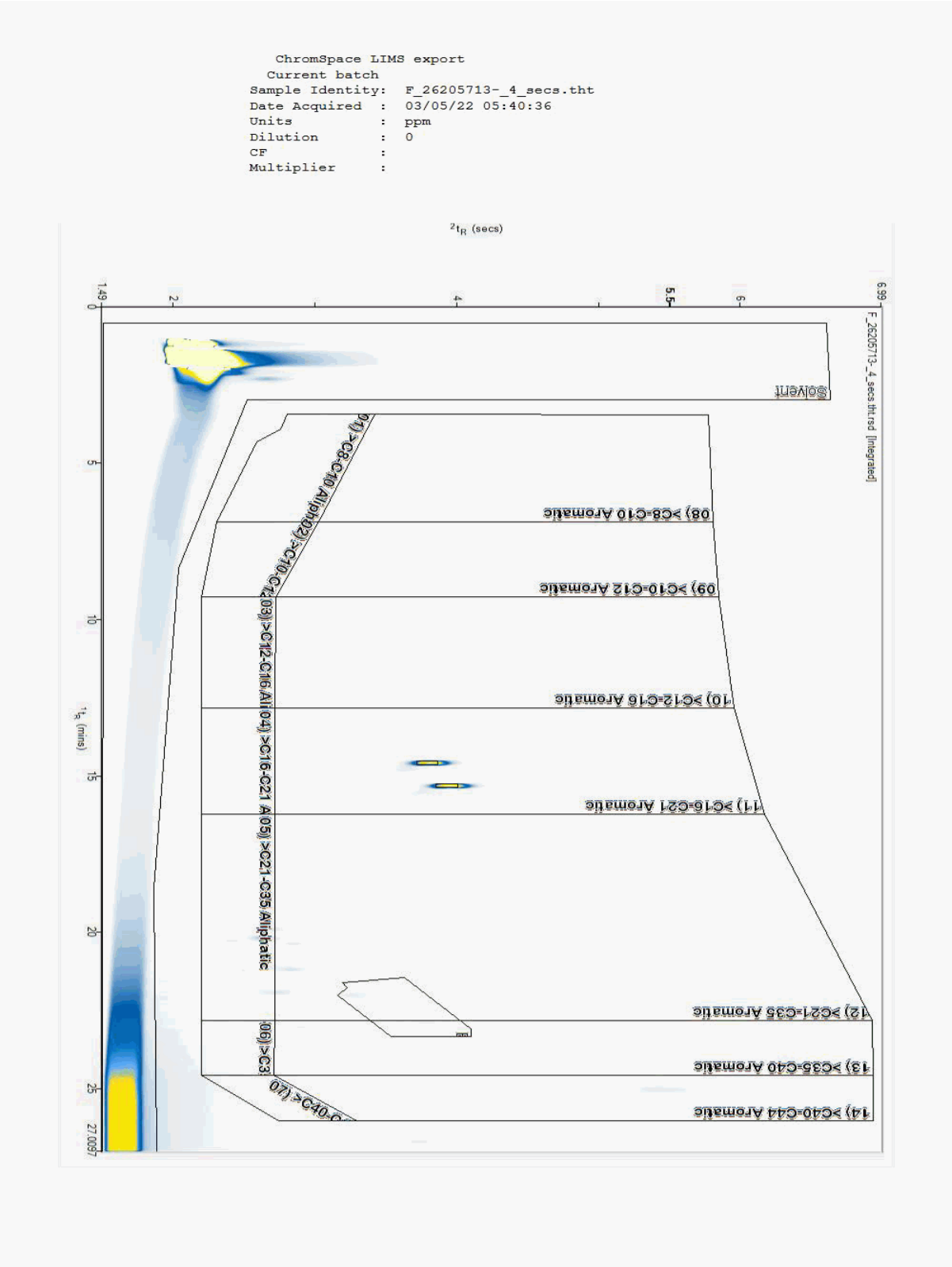


CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26205713 **Depth :** 0.30
Sample ID : WS002 ES1

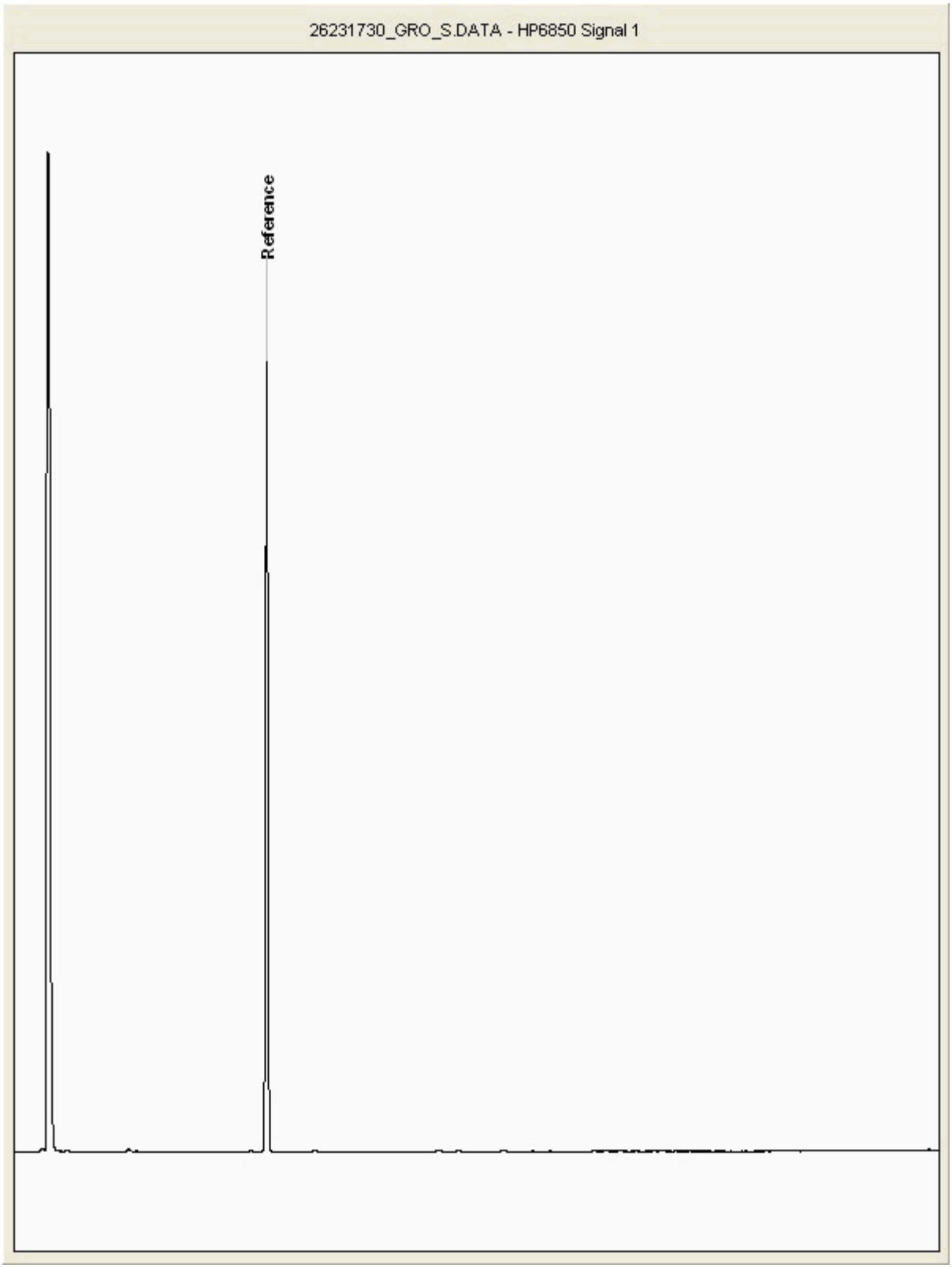


CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26231730 **Depth :** 0.80
Sample ID : WS004 ES3

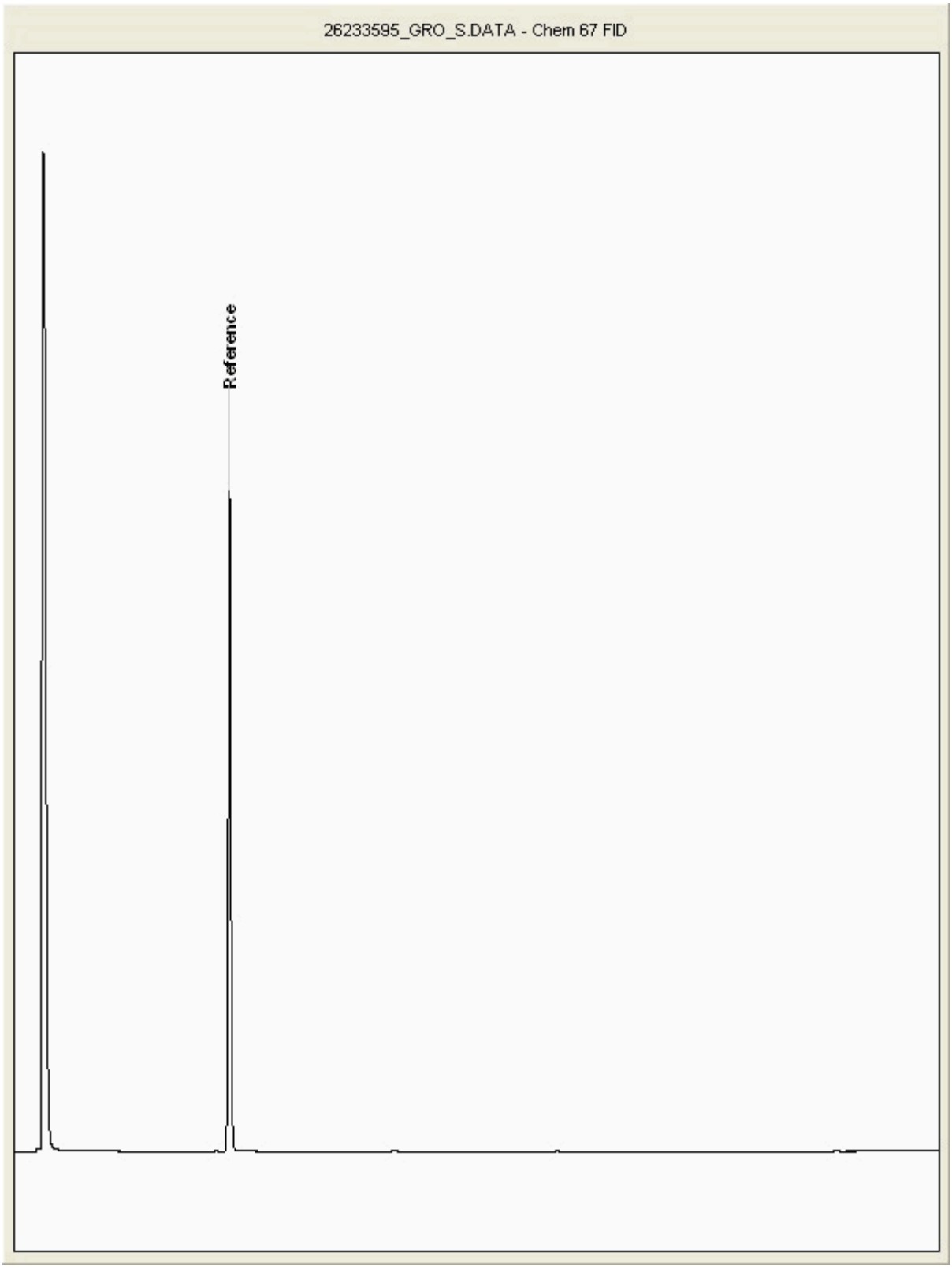


CERTIFICATE OF ANALYSIS

SDG: 220409-93 **Report Number:** 645146 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26233595 **Depth :** 0.30
Sample ID : WS002 ES1



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220412-48
Your Reference:	JER9352
Location:	Chippenham
Report No:	645080
Order Number:	PO22-197

We received 6 samples on Tuesday April 12, 2022 and 1 of these samples were scheduled for analysis which was completed on Friday May 06, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26124376	AUCL-BH_11		0.30	08/04/2022
26124377	AUCL-BH_11		0.80	08/04/2022
26124378	AUCL-BH_11		1.20	08/04/2022
26124379	WS005	ES1	0.30	08/04/2022
26124380	WS005	ES3	0.70 - 0.80	08/04/2022
26124381	WS005	ES6	1.15 - 1.20	08/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)		
			26124379		
			Customer Sample Reference		
			WS005		
			AGS Reference		
			ES1		
			Depth (m)		
			0.30		
			Container		
			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type		
			S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1		X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X	
Coronene	All	NDPs: 0 Tests: 1		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1		X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 1		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
pH	All	NDPs: 0 Tests: 1		X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26124379		
Customer Sample Reference			WS005		
AGS Reference			ES1		
Depth (m)			0.30		
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Sample description	All	NDPs: 0 Tests: 1		X	
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphate	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26124379	WS005	0.30	Dark Brown	Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS005
Depth (m)	0.30
Sample Type	Unspecified Solid (UNS)
Date Sampled	08/04/2022
Sampled Time	.
Date Received	12/04/2022
SDG Ref	220412-48
Lab Sample No.(s)	26124379
AGS Reference	ES1

Component	LOD/Units	Method	
Moisture Content Ratio (% of as received sample)	%	PM024	17
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @
Soil Organic Matter (SOM)	<0.35 %	TM132	0.957
pH	1 pH Units	TM133	7.98
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6
Cyanide, Total	<1 mg/kg	TM153	<1 @
Cyanide, Free	<1 mg/kg	TM153	<1 @
Cyanide, Complex	<1 mg/kg	TM153	<1
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 @
Aluminium	<11 mg/kg	TM181	16800
Antimony	<0.6 mg/kg	TM181	5.3
Arsenic	<0.6 mg/kg	TM181	152
Barium	<0.6 mg/kg	TM181	56.2
Beryllium	<0.01 mg/kg	TM181	2.64
Boron	<0.7 mg/kg	TM181	9.59
Cadmium	<0.02 mg/kg	TM181	2.08
Chromium	<0.9 mg/kg	TM181	14.5
Copper	<1.4 mg/kg	TM181	27.5
Iron	<1000 mg/kg	TM181	227000
Lead	<0.7 mg/kg	TM181	28.4
Manganese	<0.13 mg/kg	TM181	1150
Mercury	<0.1 mg/kg	TM181	0.146
Molybdenum	<0.1 mg/kg	TM181	7.73
Nickel	<0.2 mg/kg	TM181	123
Selenium	<1 mg/kg	TM181	<1
Vanadium	<0.2 mg/kg	TM181	81.8
Zinc	<1.9 mg/kg	TM181	278
Sulphate, Total	<48 mg/kg	TM221	155
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234	2
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0101
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248	3.65
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

		Customer Sample Ref.	WS005
		Depth (m)	0.30
		Sample Type	Unspecified Solid (UNS)
		Date Sampled	08/04/2022
		Sampled Time	.
		Date Received	12/04/2022
		SDG Ref	220412-48
		Lab Sample No.(s)	26124379
		AGS Reference	ES1
Component	**LOD/Units**	**Method**	
Coronene	<200 µg/kg	TM410	<200

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS005
Depth (m)	0.30
Sample Type	Unspecified Solid (UNS)
Date Sampled	08/04/2022
Sampled Time	.
Date Received	12/04/2022
SDG Ref	220412-48
Lab Sample No.(s)	26124379
AGS Reference	ES1

Component	LOD/Units	Method	
Naphthalene-d8 % recovery**	%	TM218	92.8
Acenaphthene-d10 % recovery**	%	TM218	93.4
Phenanthrene-d10 % recovery**	%	TM218	92.1
Chrysene-d12 % recovery**	%	TM218	93.5
Perylene-d12 % recovery**	%	TM218	95
Naphthalene	<9 µg/kg	TM218	<9 @
Acenaphthylene	<12 µg/kg	TM218	<12 @
Acenaphthene	<8 µg/kg	TM218	<8 @
Fluorene	<10 µg/kg	TM218	<10 @
Phenanthrene	<15 µg/kg	TM218	<15 @
Anthracene	<16 µg/kg	TM218	<16 @
Fluoranthene	<17 µg/kg	TM218	<17 @
Pyrene	<15 µg/kg	TM218	<15 @
Benz(a)anthracene	<14 µg/kg	TM218	<14 @
Chrysene	<10 µg/kg	TM218	<10 @
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. WS005				
			Depth (m) 0.30				
			Sample Type Unspecified Solid (UNS)				
			Date Sampled 08/04/2022				
			Sampled Time .				
			Date Received 12/04/2022				
			SDG Ref 220412-48				
			Lab Sample No.(s) 26124379				
			AGS Reference ES1				
GRO Surrogate % recovery**	%	TM089	87.8 @				
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @				
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @				
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @				
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @				
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @				
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000 @				
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000				
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000				
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000				
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @				
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @				
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @				

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS005
Depth (m)	0.30
Sample Type	Unspecified Solid (UNS)
Date Sampled	08/04/2022
Sampled Time	.
Date Received	12/04/2022
SDG Ref	220412-48
Lab Sample No.(s)	26124379
AGS Reference	ES1

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	113 @
Toluene-d8**	%	TM116	96.2 @
4-Bromofluorobenzene**	%	TM116	82.6 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @
Benzene	<9 µg/kg	TM116	<9 @
Toluene	<7 µg/kg	TM116	<7 @
Ethylbenzene	<4 µg/kg	TM116	<4 @
p/m-Xylene	<10 µg/kg	TM116	<10 @
o-Xylene	<10 µg/kg	TM116	<10 @
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	WS005ES1	04/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	0.30										
Sample Type	MISC_SOLID										
Date Sampled	08/04/2022 00:00:00										
Date Receieved	12/04/2022 05:00:00										
SDG	220412-48										
Original Sample	26124379										
Method Number	TM048										

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26124379
Customer Sample Ref.	WS005
AGS Ref.	ES1
Depth	0.30
Type	Unspecified So
Ammoniacal N as NH4 in 2:1 extract	04-May-2022
Anions by Kone (soil)	04-May-2022
Asbestos ID in Solid Samples	04-May-2022
Conductivity (at 20 deg.C)	04-May-2022
Coronene	03-May-2022
Cyanide Comp/Free/Total/Thiocyanate	04-May-2022
Easily Liberated Sulphide	03-May-2022
EPH CWG GC (S)	03-May-2022
GRO by GC-FID (S)	06-May-2022
Hexavalent Chromium (s)	04-May-2022
Metals in solid samples by OES	04-May-2022
PAH 16 & 17 Calc	03-May-2022
PAH by GCMS	03-May-2022
pH	03-May-2022
Phenols by HPLC (S)	03-May-2022
Sample description	28-Apr-2022
Total Organic Carbon	05-May-2022
Total Sulphate	04-May-2022
TPH CWG GC (S)	06-May-2022
VOC MS (S)	05-May-2022

ASSOCIATED AQC DATA

Anions by Kone (soil)

Component	Method Code	QC 2628
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**96.74** 84.22 : 110.23

Coronene

Component	Method Code	QC 2656
Coronene RAW	TM410	**112.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2683
Free Cyanide	TM153	**105.94** 77.50 : 118.90
Thiocyanate	TM153	**109.62** 92.20 : 113.40
Total Cyanide	TM153	**110.49** 80.07 : 114.07

Easily Liberated Sulphide

Component	Method Code	QC 2648
Easily Liberated Sulphide	TM180	**100.73** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2601
QC	TM089	**78.48** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2684
Hexavalent Chromium	TM151	**100.0** 83.40 : 113.40

Metals in solid samples by OES

Component	Method Code	QC 2666
Aluminium	TM181	**113.16** 84.95 : 125.04
Antimony	TM181	**117.32** 91.44 : 127.13
Arsenic	TM181	**112.16** 88.32 : 120.05
Barium	TM181	**109.74** 94.57 : 124.93
Beryllium	TM181	**111.08** 85.72 : 122.69
Boron	TM181	**112.22** 91.59 : 122.22
Cadmium	TM181	**111.81** 87.31 : 121.62
Chromium	TM181	**101.95** 85.06 : 113.81
Cobalt	TM181	**109.09** 90.60 : 110.35
Copper	TM181	**95.43** 81.22 : 113.40
Iron	TM181	**111.93** 86.44 : 122.27
Lead	TM181	**113.12** 86.83 : 123.12
Manganese	TM181	**112.08** 89.22 : 121.75
Mercury	TM181	**110.75** 84.95 : 119.42
Molybdenum	TM181	**110.1** 85.98 : 123.80
Nickel	TM181	**112.46** 88.05 : 119.19
Phosphorus	TM181	**113.68** 90.13 : 121.54
Selenium	TM181	**112.45** 90.68 : 124.14
Strontium	TM181	**96.2** 80.65 : 106.55
Thallium	TM181	**113.09** 76.88 : 121.51
Tin	TM181	**110.68** 86.96 : 122.18
Titanium	TM181	**99.09** 77.07 : 118.83
Vanadium	TM181	**104.32** 84.00 : 115.50
Zinc	TM181	**108.8** 85.62 : 122.35

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2618
Acenaphthene	TM218	**93.0** 76.79 : 103.90
Acenaphthylene	TM218	**90.5** 74.19 : 106.17
Anthracene	TM218	**94.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**100.0** 73.77 : 119.26
Benzo(a)pyrene	TM218	**94.5** 73.20 : 114.18
Benzo(b)fluoranthene	TM218	**94.0** 75.36 : 117.58
Benzo(ghi)perylene	TM218	**92.0** 70.73 : 116.12
Benzo(k)fluoranthene	TM218	**93.5** 75.98 : 116.59
Chrysene	TM218	**96.0** 74.82 : 114.18
Dibenzo(ah)anthracene	TM218	**97.0** 69.17 : 115.30
Fluoranthene	TM218	**96.0** 66.06 : 114.63
Fluorene	TM218	**93.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**99.5** 70.26 : 117.95
Naphthalene	TM218	**88.0** 74.70 : 101.83
Phenanthrene	TM218	**95.0** 73.62 : 109.34
Pyrene	TM218	**92.5** 71.46 : 117.00

pH

Component	Method Code	QC 2694
pH	TM133	**99.56** 90.68 : 104.32

Phenols by HPLC (S)

Component	Method Code	QC 2621
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**51.3** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.03** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**49.06** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.99** 67.94 : 117.69

Phenols by HPLC (S)

		QC 2621
Xylenols by HPLC (S)	TM062 (S)	**49.27** 82.04 : 108.38

Total Organic Carbon

Component	Method Code	QC 2672
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2659
Total Sulphate	TM221	**102.27** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2654
1,1,1,2-tetrachloroethane	TM116	**105.8** 88.29 : 116.31
1,1,1-Trichloroethane	TM116	**100.6** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**95.4** 81.29 : 113.79
1,1-Dichloroethane	TM116	**104.8** 91.34 : 123.49
1,2-Dichloroethane	TM116	**114.4** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**98.2** 80.81 : 125.07
2-Chlorotoluene	TM116	**82.8** 73.13 : 114.13
4-Chlorotoluene	TM116	**82.6** 68.66 : 109.13
Benzene	TM116	**97.0** 84.29 : 112.22
Carbon Disulphide	TM116	**100.4** 75.11 : 124.81
Carbontetrachloride	TM116	**102.6** 82.35 : 126.46
Chlorobenzene	TM116	**100.8** 82.88 : 122.42
Chloroform	TM116	**109.6** 90.35 : 120.38
Chloromethane	TM116	**101.2** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**97.8** 78.27 : 128.90

VOC MS (S)

		QC 2654
Dibromomethane	TM116	**97.2** 76.00 : 120.73
Dichloromethane	TM116	**115.2** 92.27 : 134.36
Ethylbenzene	TM116	**84.4** 70.95 : 113.07
Hexachlorobutadiene	TM116	**76.4** 14.55 : 147.92
Isopropylbenzene	TM116	**62.6** 52.00 : 108.19
Naphthalene	TM116	**94.6** 80.90 : 124.24
o-Xylene	TM116	**75.0** 68.34 : 101.99
p/m-Xylene	TM116	**81.8** 69.47 : 97.31
Sec-Butylbenzene	TM116	**61.6** 27.03 : 135.73
Tetrachloroethene	TM116	**101.0** 80.10 : 120.38
Toluene	TM116	**85.8** 82.44 : 103.50
Trichloroethene	TM116	**97.4** 79.80 : 112.33
Trichlorofluoromethane	TM116	**112.2** 83.13 : 123.97
Vinyl Chloride	TM116	**100.6** 69.66 : 136.55

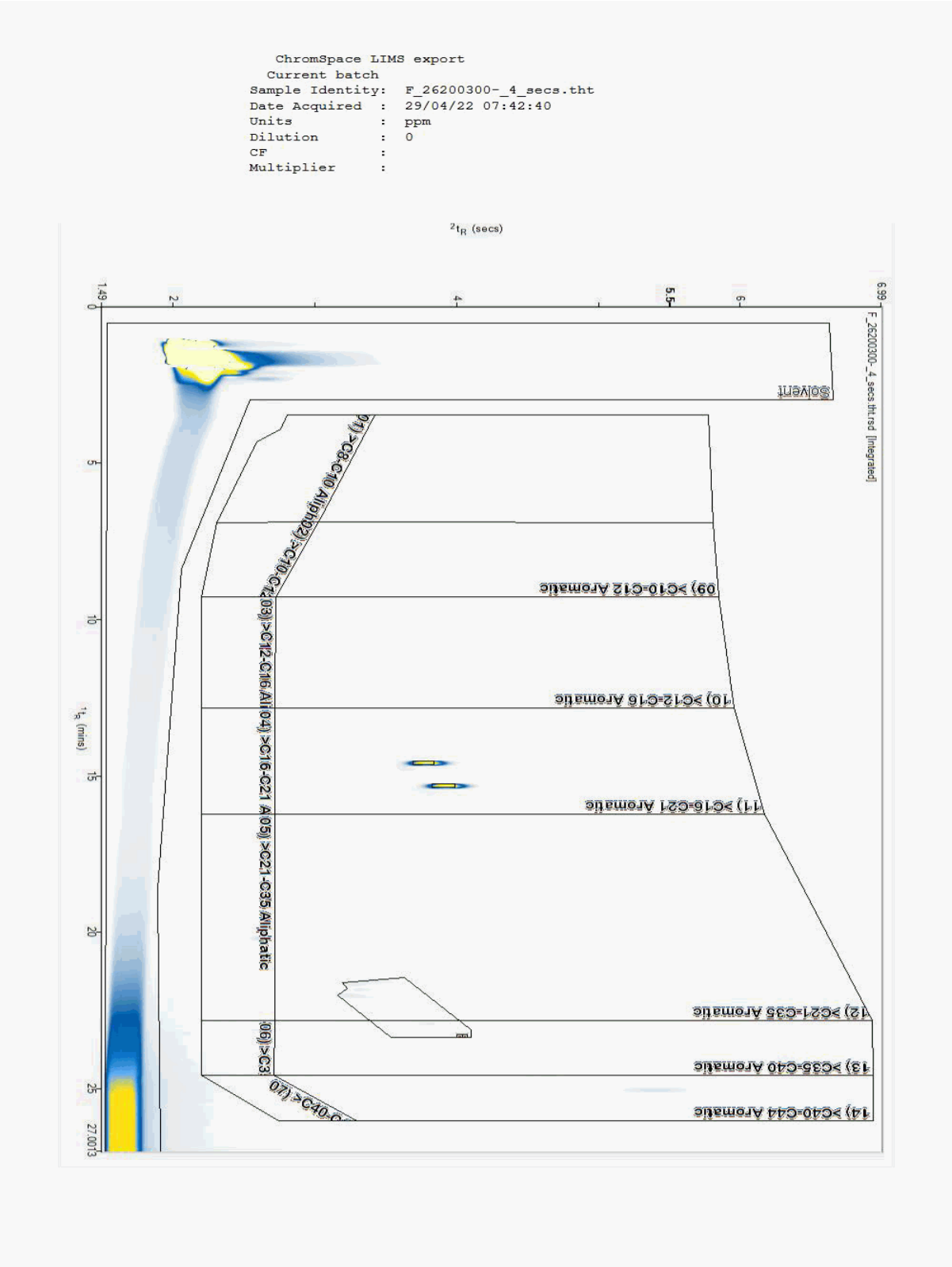
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26200300 **Depth :** 0.30
Sample ID : WS005

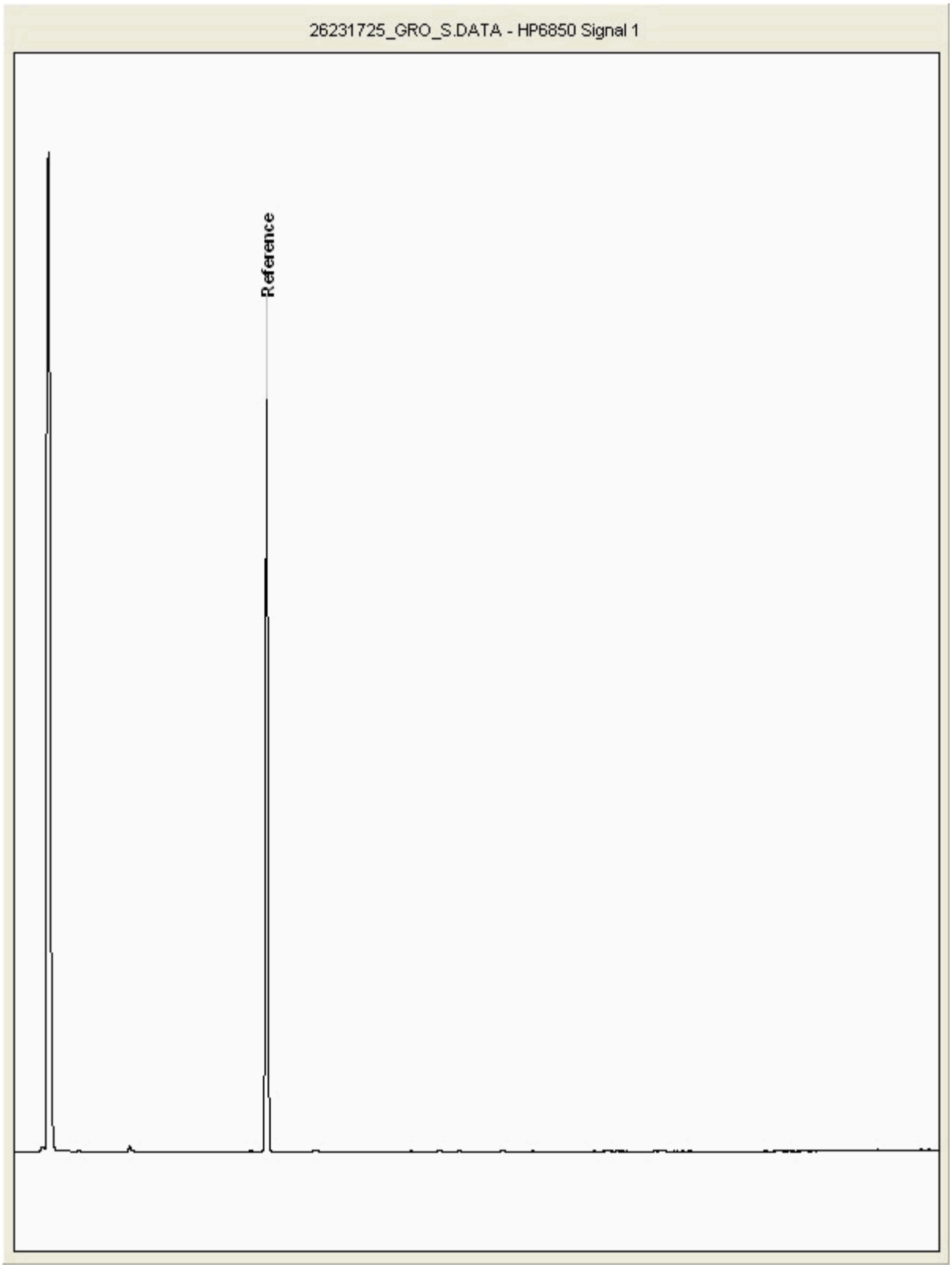


CERTIFICATE OF ANALYSIS

SDG: 220412-48 **Report Number:** 645080 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26231725 **Depth :** 0.30
Sample ID : WS005



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	09 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220415-75
Your Reference:	JER9352
Location:	Chippenham
Report No:	645201
Order Number:	PO22-197

We received 99 samples on Friday April 15, 2022 and 2 of these samples were scheduled for analysis which was completed on Monday May 09, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26144670	AVCI - BH14		0.25 - 0.25	12/04/2022
26144671	AVCI - BH14		0.80 - 0.80	12/04/2022
26144672	AVCI - BH14		1.20 - 1.20	12/04/2022
26144675	AVCI - CPT04		0.30 - 0.30	12/04/2022
26144674	AVCI - CPT04		0.80 - 0.80	12/04/2022
26144673	AVCI - CPT04		1.20 - 1.20	12/04/2022
26145347	AVCI - CPTU01	ES	0.25 - 0.25	14/04/2022
26145348	AVCI - CPTU01	ES	0.80 - 0.80	14/04/2022
26145350	AVCI - CPTU01	ES	1.20 - 1.20	14/04/2022
26144683	AVCI - CPTU02	ES	0.30 - 0.30	14/04/2022
26144684	AVCI - CPTU02	ES	0.80 - 0.80	14/04/2022
26144685	AVCI - CPTU02	ES	1.20 - 1.20	14/04/2022
26144682	AVCI - CPTU03	ES	0.30 - 0.30	14/04/2022
26144681	AVCI - CPTU03	ES	0.80 - 0.80	14/04/2022
26144680	AVCI - CPTU03	ES	1.20 - 1.20	14/04/2022
26145887	AVCI - CPTU005	ES	0.30 - 0.30	12/04/2022
26145888	AVCI - CPTU005	ES	0.80 - 0.80	12/04/2022
26145886	AVCI - CPTU005	ES	1.20 - 1.20	12/04/2022
26145366	AVCI - CPTU05	ES	0.30 - 0.30	12/04/2022
26145367	AVCI - CPTU05	ES	0.80 - 0.80	12/04/2022
26145365	AVCI - CPTU05	ES	1.20 - 1.20	12/04/2022
26145364	AVCI - CPTU06	ES	0.30 - 0.30	12/04/2022
26145362	AVCI - CPTU06	ES	0.80 - 0.80	12/04/2022
26145363	AVCI - CPTU06	ES	1.20 - 1.20	12/04/2022
26145884	AVCI - CPTU07	ES	0.30 - 0.30	12/04/2022
26145883	AVCI - CPTU07	ES	0.80 - 0.80	12/04/2022
26145885	AVCI - CPTU07	ES	1.20 - 1.20	12/04/2022
26145359	AVCI - CPTU08	ES	0.30 - 0.30	12/04/2022
26145361	AVCI - CPTU08	ES	0.80 - 0.80	12/04/2022
26145892	AVCI - CPTU08	ES	1.20 - 1.20	12/04/2022
26145370	AVCI - CPTU09	ES	0.30 - 0.30	12/04/2022
26145369	AVCI - CPTU09	ES	0.80 - 0.80	12/04/2022
26145368	AVCI - CPTU09	ES	1.20 - 1.20	12/04/2022
26145374	BH004	ES	0.30 - 0.30	13/04/2022
26145354	BH004	ES	0.30 - 0.30	13/04/2022
26145371	BH004	ES	0.80 - 0.80	13/04/2022
26145372	BH004	ES	1.20 - 1.20	13/04/2022
26145344	CPTU001	ES	0.30 - 0.30	14/04/2022
26145345	CPTU001	ES	0.80 - 0.80	14/04/2022
26145346	CPTU001	ES	1.20 - 1.20	14/04/2022
26145900	CPTU002	ES	0.30 - 0.30	14/04/2022
26145899	CPTU002	ES	0.80 - 0.80	14/04/2022
26145901	CPTU002	ES	1.20 - 1.20	14/04/2022
26146389	CPTU003	ES	0.80 - 0.80	13/04/2022
26145893	CPTU003	ES	1.20 - 1.20	13/04/2022
26145890	CPTU004	ES1	0.30 - 0.30	13/04/2022
26145891	CPTU004	ES2	0.80 - 0.80	13/04/2022
26145889	CPTU004	ES6	1.15 - 1.20	13/04/2022
26145353	CPTU007	ES	0.30 - 0.30	13/04/2022
26145352	CPTU007	ES	0.80 - 0.80	13/04/2022

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26145351	CPTU007	ES	1.20 - 1.20	13/04/2022
26144679	PLT002	ES1	0.30 - 0.30	11/04/2022
26144678	PLT002	ES2	0.50 - 0.50	11/04/2022
26146380	PLT003	ES1	0.30 - 0.30	11/04/2022
26146390	PLT003	ES1	0.50 - 0.50	11/04/2022
26144676	PLT003	ES2	0.50 - 0.50	11/04/2022
26145894	PLT004	ES1	0.30 - 0.30	11/04/2022
26144677	PLT004	ES2	0.50 - 0.50	11/04/2022
26146388	PLT005	ES1	0.30 - 0.30	13/04/2022
26146387	PLT005	ES2	0.50 - 0.50	13/04/2022
26146385	PLT006	ES1	0.30 - 0.30	13/04/2022
26146386	PLT006	ES2	0.50 - 0.50	13/04/2022
26146382	PLT007	ES1	0.30 - 0.30	13/04/2022
26146381	PLT007	ES2	0.50 - 0.50	13/04/2022
26145879	PLT008	ES1	0.30 - 0.30	12/04/2022
26145880	PLT008	ES2	0.50 - 0.50	12/04/2022
26145875	PLT009	ES1	0.30 - 0.30	12/04/2022
26145876	PLT009	ES2	0.50 - 0.50	12/04/2022
26145878	PLT010	ES1	0.30 - 0.30	12/04/2022
26145877	PLT010	ES2	0.50 - 0.50	12/04/2022
26146383	PLT012	ES1	0.30 - 0.30	12/04/2022
26146384	PLT012	ES2	0.50 - 0.50	12/04/2022
26145882	PLT013	ES1	0.30 - 0.30	12/04/2022
26145881	PLT013	ES2	0.50 - 0.50	12/04/2022
26144668	WS001		0.30 - 0.30	13/04/2022
26144664	WS001		0.80 - 0.80	13/04/2022
26144665	WS001		1.15 - 1.15	13/04/2022
26144667	WS001		2.85 - 2.95	13/04/2022
26146373	WS007	ES	0.30 - 0.30	12/04/2022
26146378	WS007	ES	0.80 - 0.80	12/04/2022
26146377	WS007	ES	1.15 - 1.15	12/04/2022
26146374	WS007	ES	3.20 - 3.35	12/04/2022
26146367	WS007	ES	3.20 - 3.65	12/04/2022
26146370	WS009	ES	0.30 - 0.30	12/04/2022
26146369	WS009	ES	0.80 - 0.80	12/04/2022
26146368	WS009	ES	1.15 - 1.15	12/04/2022
26146371	WS009	ES	3.60 - 3.75	12/04/2022
26145897	WS013	ES	0.30 - 0.30	14/04/2022
26145898	WS013	ES	0.80 - 0.80	14/04/2022
26145896	WS013	ES	1.15 - 1.15	14/04/2022
26145895	WS013	ES	3.30 - 3.45	14/04/2022
26145356	WS020	ES	0.30 - 0.30	14/04/2022
26145355	WS020	ES	0.80 - 0.80	14/04/2022
26145357	WS020	ES	1.15 - 1.15	14/04/2022
26145358	WS020	ES	3.60 - 3.80	14/04/2022
26144663	WS003A		0.30 - 0.30	13/04/2022
26144666	WS003A		0.80 - 0.80	13/04/2022
26144669	WS003A		1.15 - 1.15	13/04/2022
26144662	WS003A		4.20 - 4.40	13/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)					
			26146377			26146370		
			Customer Sample Reference					
			WS007			WS009		
			AGS Reference					
			ES			ES		
			Depth (m)					
			1.15 - 1.15			0.30 - 0.30		
			Container					
			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type					
			S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 2		X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1	X					
Anions by Kone (soil)	All	NDPs: 0 Tests: 2		X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X			X		
CEN Readings	All	NDPs: 0 Tests: 1	X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2		X			X	
Coronene	All	NDPs: 0 Tests: 2		X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3	X	X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X					
Easily Liberated Sulphide	All	NDPs: 0 Tests: 2		X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2		X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1	X					

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26146377				26146370				
Customer Sample Reference			WS007				WS009				
AGS Reference			ES				ES				
Depth (m)			1.15 - 1.15				0.30 - 0.30				
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)			
Sample Type			S	S	S	S	S	S			
Mercury Dissolved	All	NDPs: 0 Tests: 1	X								
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X			X				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1	X								
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 2		X			X				
PAH by GCMS	All	NDPs: 0 Tests: 2		X			X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1	X								
pH	All	NDPs: 0 Tests: 2		X			X				
pH Value	All	NDPs: 0 Tests: 1	X								
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2		X			X				
Sample description	All	NDPs: 0 Tests: 2		X			X				
Sulphide	All	NDPs: 0 Tests: 1	X								
Total Organic Carbon	All	NDPs: 0 Tests: 2		X			X				
Total Sulphate	All	NDPs: 0 Tests: 2		X			X				
TPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X				
VOC MS (S)	All	NDPs: 0 Tests: 2			X			X			

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26146377	WS007	1.15 - 1.15	Light Brown	Sandy Clay Loam	None	Stones
26146370	WS009	0.30 - 0.30	Light Brown	Sandy Clay Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS007	WS009
			Depth (m)	1.15 - 1.15	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/04/2022	12/04/2022
			Sampled Time	.	.
			Date Received	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75
			Lab Sample No.(s)	26146377	26146370
			AGS Reference	ES	ES
Moisture Content Ratio (% of as received sample)	%	PM024		14	19
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 @ M	<0.01 @ M
Soil Organic Matter (SOM)	<0.35 %	TM132		<0.35 #	4.26 #
pH	1 pH Units	TM133		7.76 M	7.29 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 @ M	1.41 @ M
Cyanide, Free	<1 mg/kg	TM153		<1 @ M	1.37 @ M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	<15 @ M
Aluminium	<11 mg/kg	TM181		17600	13300
Antimony	<0.6 mg/kg	TM181		<0.6 #	0.676 #
Arsenic	<0.6 mg/kg	TM181		16.1 M	9.28 M
Barium	<0.6 mg/kg	TM181		62.5 #	38.4 #
Beryllium	<0.01 mg/kg	TM181		1.48 M	0.687 M
Boron	<0.7 mg/kg	TM181		19 #	9.15 #
Cadmium	<0.02 mg/kg	TM181		0.231 M	0.217 M
Chromium	<0.9 mg/kg	TM181		25.4 M	24.3 M
Copper	<1.4 mg/kg	TM181		18 M	17.9 M
Iron	<1000 mg/kg	TM181		33000 #	23300 #
Lead	<0.7 mg/kg	TM181		18.4 M	39.6 M
Manganese	<0.13 mg/kg	TM181		447 M	445 M
Mercury	<0.1 mg/kg	TM181		<0.1 M	<0.1 M
Molybdenum	<0.1 mg/kg	TM181		2.2 #	3.93 #
Nickel	<0.2 mg/kg	TM181		67.2 M	16.8 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #
Vanadium	<0.2 mg/kg	TM181		52 #	32.4 #
Zinc	<1.9 mg/kg	TM181		99.7 M	83.7 M
Sulphate, Total	<48 mg/kg	TM221		417 M	597 M
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234		2.3	2.07
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0733 M	0.0272 M
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248		6.22	4.67
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS007	WS009
			Depth (m)	1.15 - 1.15	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/04/2022	12/04/2022
			Sampled Time	.	.
			Date Received	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75
			Lab Sample No.(s)	26146377	26146370
			AGS Reference	ES	ES
Coronene	<200 µg/kg	TM410		<200	<200

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS007	WS009
			Depth (m)	1.15 - 1.15	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/04/2022	12/04/2022
			Sampled Time	.	.
			Date Received	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75
			Lab Sample No.(s)	26146377	26146370
			AGS Reference	ES	ES
Naphthalene-d8 % recovery**	%	TM218		91.1	89.8
Acenaphthene-d10 % recovery**	%	TM218		91.8	88.6
Phenanthrene-d10 % recovery**	%	TM218		91.7	88.5
Chrysene-d12 % recovery**	%	TM218		94.2	89.4
Perylene-d12 % recovery**	%	TM218		95.4	91.8
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 @ M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 @ M
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 @ M
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 @ M
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 @ M
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 @ M
Fluoranthene	<17 µg/kg	TM218		<17 @ M	36.5 @ M
Pyrene	<15 µg/kg	TM218		<15 @ M	32.2 @ M
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	24 @ M
Chrysene	<10 µg/kg	TM218		<10 @ M	25.6 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	37.7 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	23.1 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	179

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.						
			WS007	WS009					
			Depth (m)	1.15 - 1.15	0.30 - 0.30				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	12/04/2022	12/04/2022				
			Sampled Time	.	.				
			Date Received	15/04/2022	15/04/2022				
			SDG Ref	220415-75	220415-75				
			Lab Sample No.(s)	26146377	26146370				
			AGS Reference	ES	ES				
GRO Surrogate % recovery**	%	TM089	121 @	80.9 @					
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @					
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @					
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @					
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #	<1000 @ #					
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #	<1000 @ #					
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #	<1000 @ #					
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #	11600 @ #					
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000 @	12200 @					
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000	16000					
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @					
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @					
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @					
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #	<1000 @ #					
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #	<1000 @ #					
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #	<1000 @ #					
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #	2130 @ #					
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	1470 @					
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @					
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000	<5000					
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000	12200					
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @					
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @					
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @	<20 @					

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS007	WS009
			Depth (m)	1.15 - 1.15	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/04/2022	12/04/2022
			Sampled Time	.	.
			Date Received	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75
			Lab Sample No.(s)	26146377	26146370
			AGS Reference	ES	ES
Dibromofluoromethane**	%	TM116		114 @	109 @
Toluene-d8**	%	TM116		98.3 @	94.3 @
4-Bromofluorobenzene**	%	TM116		90.8 @	99.9 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 @ M	<100 @ M
Benzene	<9 µg/kg	TM116		<9 @ M	<90 @ M
Toluene	<7 µg/kg	TM116		<7 @ M	<70 @ M
Ethylbenzene	<4 µg/kg	TM116		<4 @ M	<40 @ M
p/m-Xylene	<10 µg/kg	TM116		<10 @ #	<100 @ #
o-Xylene	<10 µg/kg	TM116		<10 @ M	<100 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 @	<0.2 @
Sum of BTEX	<40 µg/kg	TM116		<40 @	<400 @

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	WS007ES 1.15 - 1.15	04/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	SOLID										
Sample Type	12/04/2022 00:00:00										
Date Sampled	15/04/2022 05:00:00										
Date Receieved	220415-75										
SDG	26146377										
Original Sample	TM048										
Method Number											
Cust. Sample Ref.	WS009ES 0.30 - 0.30	04/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Depth (m)	SOLID										
Sample Type	12/04/2022 00:00:00										
Date Sampled	15/04/2022 05:00:00										
Date Receieved	220415-75										
SDG	26146370										
Original Sample	TM048										
Method Number											

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.117	**Natural Moisture Content (%)**	29.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26146377
Sampled Date	12-Apr-2022
Customer Sample Ref.	WS007 ESZ
Depth (m)	1.15 - 1.15

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	<0.01	<0.01	<0.1	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0105	<0.0002	0.105	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0608	<0.01	0.608	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Iron (Dis.Filt) mg/l	<0.019	<0.019	<0.19	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000784	<0.0004	0.00784	<0.004	-	-	-
Phosphorus	0.0182	<0.01	0.182	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00119	<0.001	0.0119	<0.01	-	-	-
Chloride	9.6	<2	96	<20	-	-	-
Nitrate as N	0.419	<0.0677	4.19	<0.677	-	-	-
Sulphate (soluble)	49	<2	490	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Naphthalene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Phenanthrene by GCMS	0.0000112	<0.00001	0.000112	<0.0001	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.38
Conductivity (µS/cm)	161.00
Temperature (°C)	19.00
Volume Leachant (Litres)	0.873

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CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.117	**Natural Moisture Content (%)**	29.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26146377
Sampled Date	12-Apr-2022
Customer Sample Ref.	WS007 ESZ
Depth (m)	1.15 - 1.15

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.00004	<0.00004	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Chrysene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluorene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
PAH 16 EPA Total by GCMS	<0.000164	<0.000164	<0.00164	<0.00164	-	-	-
Pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.38
Conductivity (µS/cm)	161.00
Temperature (°C)	19.00
Volume Leachant (Litres)	0.873

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26146377	26146370
Customer Sample Ref.	WS007	WS009
AGS Ref.	ES	ES
Depth	1.15 - 1.15	0.30 - 0.30
Type	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	04-May-2022	04-May-2022
Ammoniacal Nitrogen	05-May-2022	
Anions by Kone (soil)	04-May-2022	03-May-2022
Anions by Kone (w)	05-May-2022	
Asbestos ID in Solid Samples	04-May-2022	04-May-2022
CEN 10:1 Leachate (1 Stage)	30-Apr-2022	
CEN Readings	04-May-2022	
Conductivity (at 20 deg.C)	04-May-2022	04-May-2022
Coronene	03-May-2022	03-May-2022
Cyanide Comp/Free/Total/Thiocyanate	05-May-2022	09-May-2022
Dissolved Metals by ICP-MS	05-May-2022	
Easily Liberated Sulphide	29-Apr-2022	29-Apr-2022
EPH CWG GC (S)	03-May-2022	03-May-2022
GRO by GC-FID (S)	06-May-2022	06-May-2022
Hexavalent Chromium (s)	29-Apr-2022	29-Apr-2022
Hexavalent Chromium (w)	05-May-2022	
Mercury Dissolved	05-May-2022	
Metals in solid samples by OES	04-May-2022	04-May-2022
Moisture at 105C	30-Apr-2022	
Nitrite by Kone (w)	04-May-2022	
PAH 16 & 17 Calc	03-May-2022	03-May-2022
PAH by GCMS	03-May-2022	03-May-2022
PAH Spec MS - Aqueous (W)	05-May-2022	
pH	03-May-2022	03-May-2022
pH Value	05-May-2022	
Phenols by HPLC (S)	29-Apr-2022	03-May-2022
Sample description	28-Apr-2022	28-Apr-2022
Sulphide	05-May-2022	
Total Organic Carbon	05-May-2022	05-May-2022
Total Sulphate	04-May-2022	04-May-2022
TPH CWG GC (S)	06-May-2022	06-May-2022
VOC MS (S)	05-May-2022	06-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2603
Ammoniacal Nitrogen as N	TM099	**96.8** 90.84 : 105.72

Anions by Kone (soil)

Component	Method Code	QC 2628
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**96.74** 84.22 : 110.23

Anions by Kone (w)

Component	Method Code	QC 2607
Chloride	TM184	**106.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**103.2** 96.54 : 111.66
TON as NO3	TM184	**109.5** 100.65 : 111.75

Coronene

Component	Method Code	QC 2656
Coronene RAW	TM410	**112.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2683	QC 2606	QC 2628
Free Cyanide	TM153	**105.94** 77.50 : 118.90	**105.94** 77.50 : 118.90	
Free Cyanide (W)	TM227			**84.25** 80.33 : 126.33
Thiocyanate	TM153	**109.62** 92.20 : 113.40	**108.33** 92.20 : 113.40	
Thiocyanate (W)	TM227			**106.5** 84.05 : 116.45
Total Cyanide	TM153	**110.49** 80.07 : 114.07	**111.89** 80.07 : 114.07	
Total Cyanide (W)	TM227			**107.75** 79.19 : 117.11

Dissolved Metals by ICP-MS

Dissolved Metals by ICP-MS

Component	Method Code	QC 2616
Aluminium	TM152	**101.0** 90.98 : 111.82
Antimony	TM152	**102.17** 90.44 : 113.04
Arsenic	TM152	**103.5** 94.87 : 109.67
Barium	TM152	**103.67** 90.20 : 111.19
Beryllium	TM152	**100.67** 87.77 : 113.97
Bismuth	TM152	**100.17** 91.90 : 112.20
Borate	TM152	**99.38** 88.00 : 112.00
Boron	TM152	**99.0** 92.27 : 112.40
Cadmium	TM152	**100.0** 96.43 : 110.53
Calcium	TM152	**103.33** 95.14 : 110.01
Chromium	TM152	**101.33** 91.84 : 108.67
Cobalt	TM152	**95.67** 90.72 : 109.61
Copper	TM152	**100.67** 94.47 : 109.05
Iron	TM152	**101.33** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46
Lithium	TM152	**100.33** 91.62 : 113.12
Magnesium	TM152	**104.67** 92.30 : 110.57
Manganese	TM152	**102.33** 94.75 : 108.21
Molybdenum	TM152	**98.33** 93.55 : 107.66
Nickel	TM152	**100.67** 88.00 : 112.00
Phosphorus	TM152	**103.67** 92.51 : 109.27
Potassium	TM152	**103.33** 92.16 : 109.93
Selenium	TM152	**103.83** 91.58 : 115.98
Silver	TM152	**101.67** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62
Strontium	TM152	**102.0** 95.40 : 109.43
Tellurium	TM152	**104.5** 93.32 : 114.66

Dissolved Metals by ICP-MS

		QC 2616
Thallium	TM152	**107.83** 88.00 : 112.00
Tin	TM152	**99.67** 92.63 : 109.70
Titanium	TM152	**99.33** 95.08 : 109.28
Tungsten	TM152	**98.33** 94.68 : 107.68
Uranium	TM152	**97.33** 88.00 : 112.00
Vanadium	TM152	**98.17** 88.00 : 112.00
Zinc	TM152	**102.0** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2648
Easily Liberated Sulphide	TM180	**100.73** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2601
QC	TM089	**78.48** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2605
Hexavalent Chromium	TM151	**106.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2698
Hexavalent Chromium	TM241	**98.2** 94.17 : 106.17

Mercury Dissolved

Mercury Dissolved

Component	Method Code	QC 2637
Mercury Dissolved (CVAF)	TM183	**107.0** 69.30 : 128.70

Metals in solid samples by OES

Component	Method Code	QC 2649
Aluminium	TM181	**110.53** 87.31 : 119.03
Antimony	TM181	**113.78** 91.44 : 127.14
Arsenic	TM181	**105.41** 88.33 : 120.06
Barium	TM181	**105.64** 94.57 : 124.93
Beryllium	TM181	**106.71** 85.73 : 122.70
Boron	TM181	**109.32** 85.66 : 120.24
Cadmium	TM181	**104.06** 87.30 : 121.60
Chromium	TM181	**99.02** 85.06 : 113.81
Cobalt	TM181	**102.55** 92.91 : 111.38
Copper	TM181	**91.37** 81.22 : 113.41
Iron	TM181	**106.42** 86.44 : 122.27
Lead	TM181	**110.4** 86.84 : 123.13
Manganese	TM181	**107.87** 89.22 : 121.75
Mercury	TM181	**103.58** 84.95 : 119.42
Molybdenum	TM181	**104.71** 85.97 : 123.79
Nickel	TM181	**110.68** 88.05 : 119.19
Phosphorus	TM181	**107.69** 90.13 : 121.54
Selenium	TM181	**103.66** 88.10 : 117.92
Strontium	TM181	**93.74** 79.10 : 111.59
Thallium	TM181	**108.05** 84.67 : 122.64
Tin	TM181	**103.86** 86.96 : 122.18
Titanium	TM181	**98.18** 84.66 : 112.24

Metals in solid samples by OES

		QC 2649
Vanadium	TM181	**102.88** 84.00 : 115.50
Zinc	TM181	**105.19** 85.63 : 122.36

PAH by GCMS

Component	Method Code	QC 2618
Acenaphthene	TM218	**93.0** 76.79 : 103.90
Acenaphthylene	TM218	**90.5** 74.19 : 106.17
Anthracene	TM218	**94.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**100.0** 73.77 : 119.26
Benzo(a)pyrene	TM218	**94.5** 73.20 : 114.18
Benzo(b)fluoranthene	TM218	**94.0** 75.36 : 117.58
Benzo(ghi)perylene	TM218	**92.0** 70.73 : 116.12
Benzo(k)fluoranthene	TM218	**93.5** 75.98 : 116.59
Chrysene	TM218	**96.0** 74.82 : 114.18
Dibenzo(ah)anthracene	TM218	**97.0** 69.17 : 115.30
Fluoranthene	TM218	**96.0** 66.06 : 114.63
Fluorene	TM218	**93.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**99.5** 70.26 : 117.95
Naphthalene	TM218	**88.0** 74.70 : 101.83
Phenanthrene	TM218	**95.0** 73.62 : 109.34
Pyrene	TM218	**92.5** 71.46 : 117.00

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2623
Acenaphthene by GCMS	TM178	**109.2** 100.00 : 119.20
Acenaphthylene by GCMS	TM178	**107.2** 95.20 : 119.20
Anthracene by GCMS	TM178	**109.2** 91.60 : 113.20
Benz(a)anthracene by GCMS	TM178	**102.4** 90.40 : 119.20
Benzo(a)pyrene by GCMS	TM178	**108.0** 92.80 : 119.20

PAH Spec MS - Aqueous (W)

		QC 2623
Benzo(b)fluoranthene by GCMS	TM178	**108.0** 89.60 : 120.80
Benzo(ghi)perylene by GCMS	TM178	**102.0** 93.20 : 117.20
Benzo(k)fluoranthene by GCMS	TM178	**106.8** 96.40 : 120.40
Chrysene by GCMS	TM178	**103.6** 96.40 : 125.20
Dibenzo(ah)anthracene by GCMS	TM178	**103.2** 92.00 : 113.60
Fluoranthene by GCMS	TM178	**109.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**108.8** 95.60 : 122.00
Indeno(123cd)pyrene by GCMS	TM178	**106.8** 90.40 : 112.00
Naphthalene by GCMS	TM178	**110.4** 98.00 : 122.00
Phenanthrene by GCMS	TM178	**109.6** 94.00 : 120.40
Pyrene by GCMS	TM178	**108.8** 92.40 : 118.80

pH

Component	Method Code	QC 2694
pH	TM133	**99.56** 90.68 : 104.32

pH Value

Component	Method Code	QC 2612
pH	TM256	**100.94** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2656	QC 2621
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**50.0** 69.38 : 125.27	**51.3** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.03** 69.79 : 122.84	**45.03** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**47.81** 77.98 : 111.41	**49.06** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.33** 67.94 : 117.69	**50.99** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**48.23** 82.04 : 108.38	**49.27** 82.04 : 108.38

Sulphide

Component	Method Code	QC 2698
Sulphide	TM101	**106.67** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2672
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2620	QC 2659
Total Sulphate	TM221	**102.27** 78.36 : 114.69	**102.27** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2654	QC 2643
1,1,1,2-tetrachloroethane	TM116	**105.8** 88.29 : 116.31	**112.8** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**100.6** 88.34 : 114.50	**103.4** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**95.4** 81.29 : 113.79	**88.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**104.8** 91.34 : 123.49	**100.6** 74.46 : 129.15
1,2-Dichloroethane	TM116	**114.4** 90.04 : 132.28	**113.0** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**98.2** 80.81 : 125.07	**101.2** 83.64 : 126.18
2-Chlorotoluene	TM116	**82.8** 73.13 : 114.13	**92.2** 68.55 : 109.58
4-Chlorotoluene	TM116	**82.6** 68.66 : 109.13	**82.2** 66.29 : 107.51
Benzene	TM116	**97.0** 84.29 : 112.22	**93.8** 88.60 : 113.80
Carbon Disulphide	TM116	**100.4** 75.11 : 124.81	**98.0** 74.91 : 122.14
Carbontetrachloride	TM116	**102.6** 82.35 : 126.46	**111.2** 80.31 : 124.50
Chlorobenzene	TM116	**100.8** 82.88 : 122.42	**97.8** 83.81 : 114.18
Chloroform	TM116	**109.6** 90.35 : 120.38	**103.6** 87.40 : 122.49

VOC MS (S)

		QC 2654	QC 2643
Chloromethane	TM116	**101.2** 67.89 : 143.51	**96.6** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**97.8** 78.27 : 128.90	**103.0** 80.67 : 126.72
Dibromomethane	TM116	**97.2** 76.00 : 120.73	**97.2** 73.23 : 118.35
Dichloromethane	TM116	**115.2** 92.27 : 134.36	**107.6** 81.11 : 133.25
Ethylbenzene	TM116	**84.4** 70.95 : 113.07	**84.0** 75.92 : 110.41
Hexachlorobutadiene	TM116	**76.4** 14.55 : 147.92	**59.2** 12.82 : 152.73
Isopropylbenzene	TM116	**62.6** 52.00 : 108.19	**69.6** 54.30 : 105.91
Naphthalene	TM116	**94.6** 80.90 : 124.24	**110.2** 80.86 : 128.81
o-Xylene	TM116	**75.0** 68.34 : 101.99	**79.4** 69.99 : 108.74
p/m-Xylene	TM116	**81.8** 69.47 : 97.31	**78.8** 68.32 : 108.91
Sec-Butylbenzene	TM116	**61.6** 27.03 : 135.73	**60.6** 38.50 : 101.50
Tetrachloroethene	TM116	**101.0** 80.10 : 120.38	**102.2** 76.95 : 121.02
Toluene	TM116	**85.8** 82.44 : 103.50	**83.8** 74.24 : 107.42
Trichloroethene	TM116	**97.4** 79.80 : 112.33	**98.8** 85.28 : 109.36
Trichlorofluoromethane	TM116	**112.2** 83.13 : 123.97	**115.2** 81.46 : 120.52
Vinyl Chloride	TM116	**100.6** 69.66 : 136.55	**106.0** 68.02 : 143.37

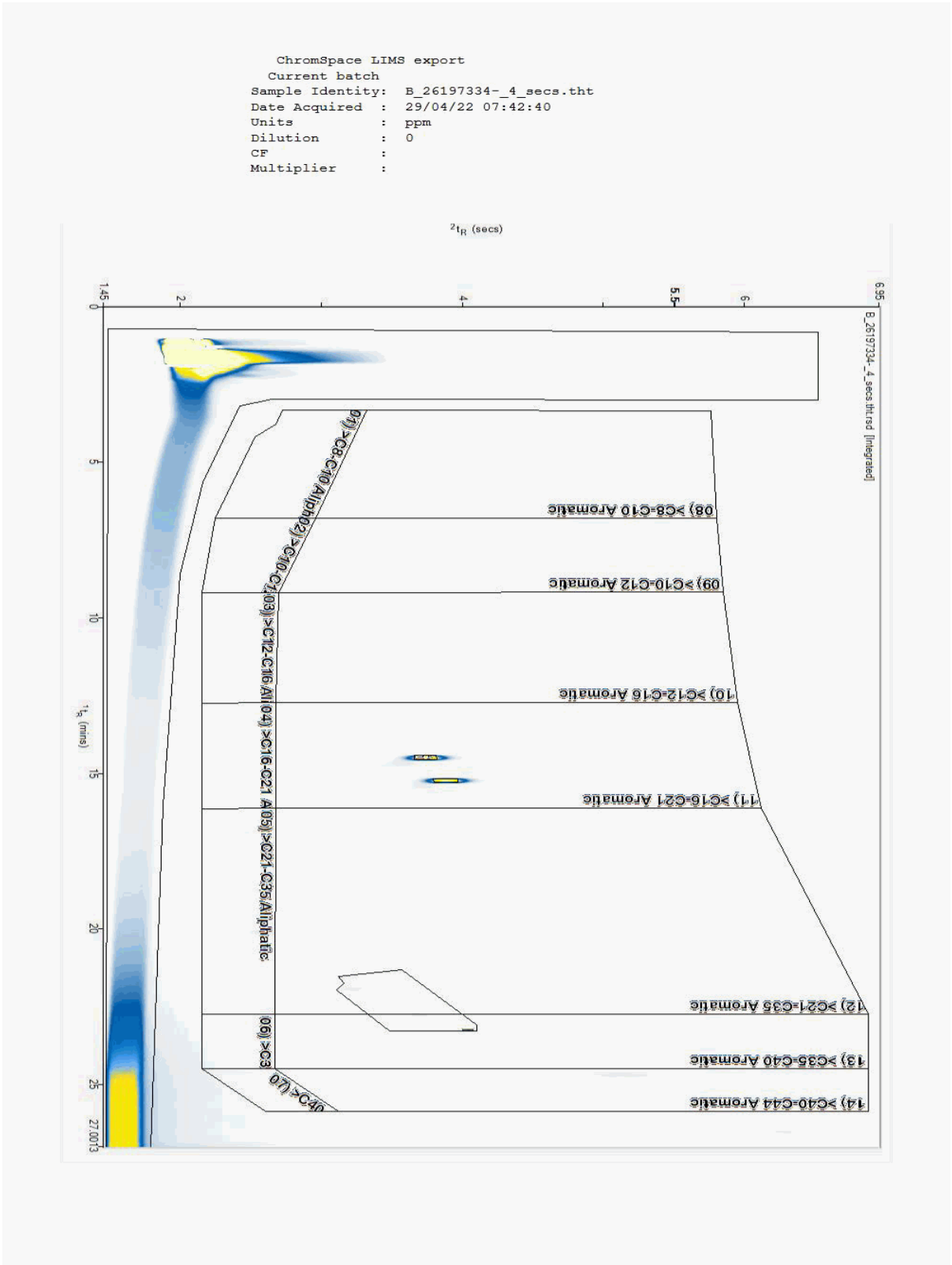
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197334 **Depth :** 1.15 - 1.15
Sample ID : WS007

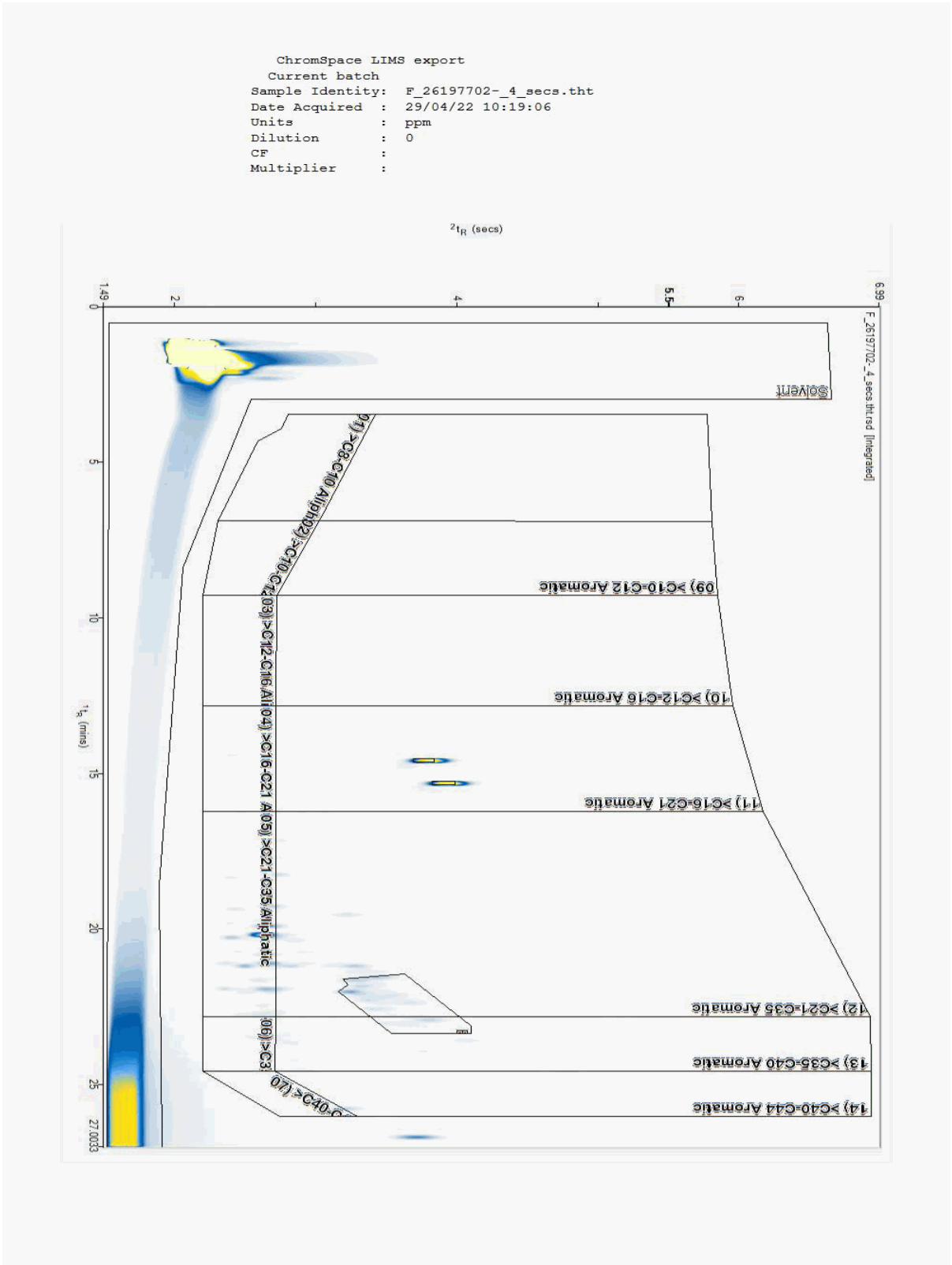


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197702 **Depth :** 0.30 - 0.30
Sample ID : WS009

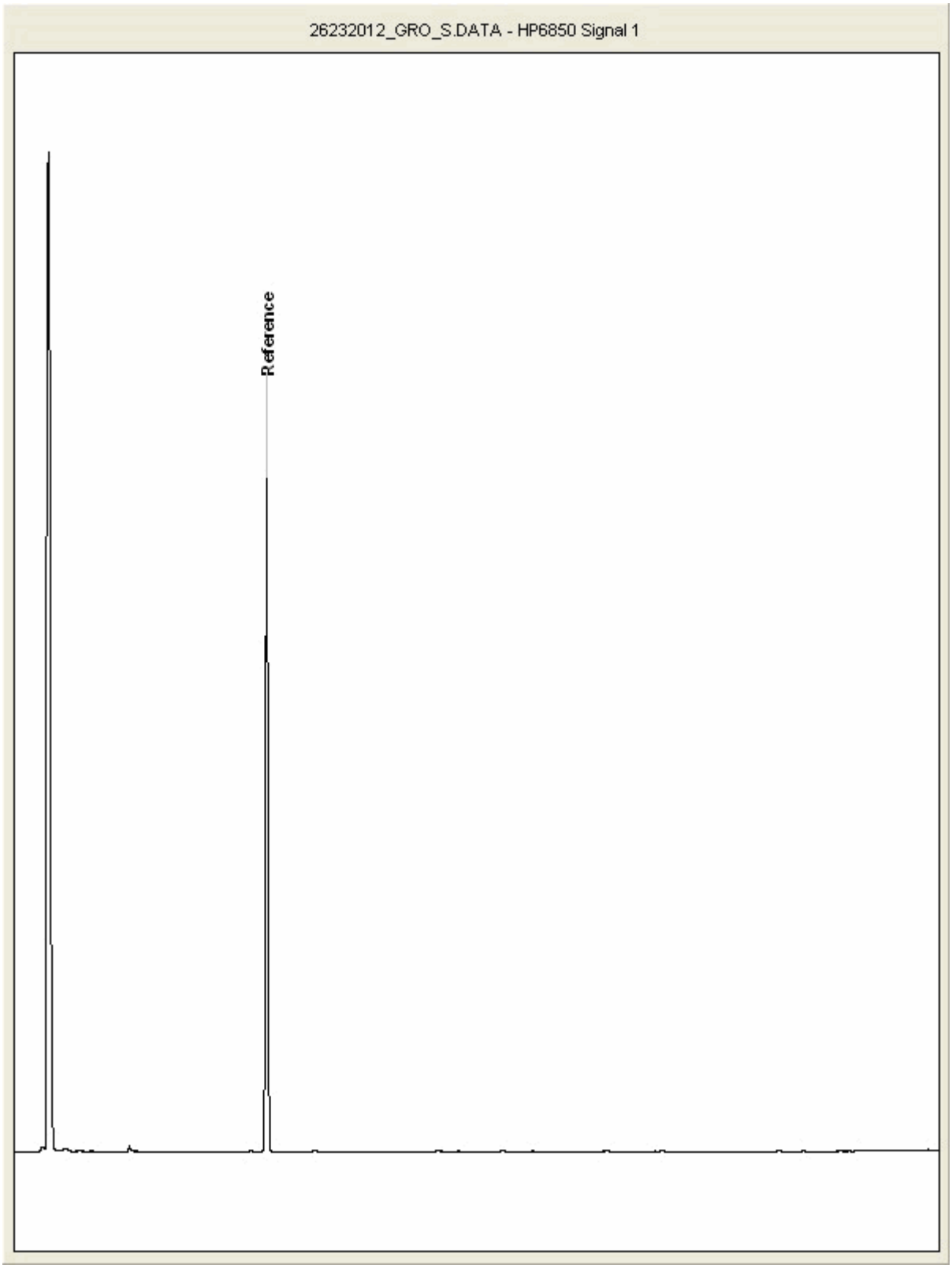


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26232012 **Depth :** 0.30 - 0.30
Sample ID : WS009

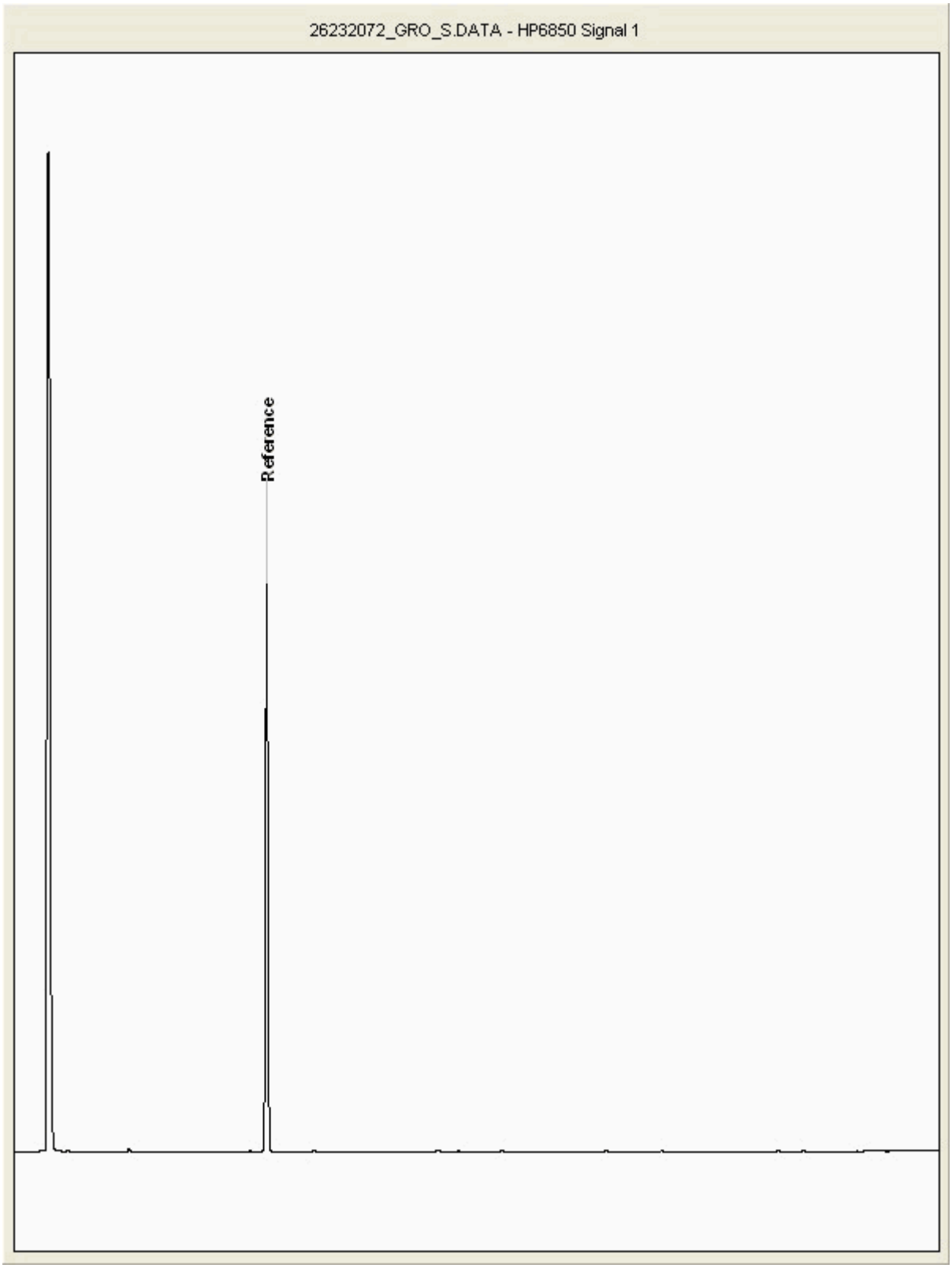


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 645201 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26232072 **Depth :** 1.15 - 1.15
Sample ID : WS007



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220415-75
Your Reference:	JER9352
Location:	Chippenham
Report No:	647100
Order Number:	PO22-197

This report has been revised and directly supersedes 645201 in its entirety.

We received 99 samples on Friday April 15, 2022 and 6 of these samples were scheduled for analysis which was completed on Thursday May 19, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26144670	AVCI - BH14		0.25 - 0.25	12/04/2022
26144671	AVCI - BH14		0.80 - 0.80	12/04/2022
26144672	AVCI - BH14		1.20 - 1.20	12/04/2022
26144675	AVCI - CPT04		0.30 - 0.30	12/04/2022
26144674	AVCI - CPT04		0.80 - 0.80	12/04/2022
26144673	AVCI - CPT04		1.20 - 1.20	12/04/2022
26145347	AVCI - CPTU01	ES	0.25 - 0.25	14/04/2022
26145348	AVCI - CPTU01	ES	0.80 - 0.80	14/04/2022
26145350	AVCI - CPTU01	ES	1.20 - 1.20	14/04/2022
26144683	AVCI - CPTU02	ES	0.30 - 0.30	14/04/2022
26144684	AVCI - CPTU02	ES	0.80 - 0.80	14/04/2022
26144685	AVCI - CPTU02	ES	1.20 - 1.20	14/04/2022
26144682	AVCI - CPTU03	ES	0.30 - 0.30	14/04/2022
26144681	AVCI - CPTU03	ES	0.80 - 0.80	14/04/2022
26144680	AVCI - CPTU03	ES	1.20 - 1.20	14/04/2022
26145887	AVCI - CPTU005	ES	0.30 - 0.30	12/04/2022
26145888	AVCI - CPTU005	ES	0.80 - 0.80	12/04/2022
26145886	AVCI - CPTU005	ES	1.20 - 1.20	12/04/2022
26145366	AVCI - CPTU05	ES	0.30 - 0.30	12/04/2022
26145367	AVCI - CPTU05	ES	0.80 - 0.80	12/04/2022
26145365	AVCI - CPTU05	ES	1.20 - 1.20	12/04/2022
26145364	AVCI - CPTU06	ES	0.30 - 0.30	12/04/2022
26145362	AVCI - CPTU06	ES	0.80 - 0.80	12/04/2022
26145363	AVCI - CPTU06	ES	1.20 - 1.20	12/04/2022
26145884	AVCI - CPTU07	ES	0.30 - 0.30	12/04/2022
26145883	AVCI - CPTU07	ES	0.80 - 0.80	12/04/2022
26145885	AVCI - CPTU07	ES	1.20 - 1.20	12/04/2022
26145359	AVCI - CPTU08	ES	0.30 - 0.30	12/04/2022
26145361	AVCI - CPTU08	ES	0.80 - 0.80	12/04/2022
26145892	AVCI - CPTU08	ES	1.20 - 1.20	12/04/2022
26145370	AVCI - CPTU09	ES	0.30 - 0.30	12/04/2022
26145369	AVCI - CPTU09	ES	0.80 - 0.80	12/04/2022
26145368	AVCI - CPTU09	ES	1.20 - 1.20	12/04/2022
26145374	BH004	ES	0.30 - 0.30	13/04/2022
26145354	BH004	ES	0.30 - 0.30	13/04/2022
26145371	BH004	ES	0.80 - 0.80	13/04/2022
26145372	BH004	ES	1.20 - 1.20	13/04/2022
26145344	CPTU001	ES	0.30 - 0.30	14/04/2022
26145345	CPTU001	ES	0.80 - 0.80	14/04/2022
26145346	CPTU001	ES	1.20 - 1.20	14/04/2022
26145900	CPTU002	ES	0.30 - 0.30	14/04/2022
26145899	CPTU002	ES	0.80 - 0.80	14/04/2022
26145901	CPTU002	ES	1.20 - 1.20	14/04/2022
26146389	CPTU003	ES	0.80 - 0.80	13/04/2022
26145893	CPTU003	ES	1.20 - 1.20	13/04/2022
26145890	CPTU004	ES1	0.30 - 0.30	13/04/2022
26145891	CPTU004	ES2	0.80 - 0.80	13/04/2022
26145889	CPTU004	ES6	1.15 - 1.20	13/04/2022
26145353	CPTU007	ES	0.30 - 0.30	13/04/2022
26145352	CPTU007	ES	0.80 - 0.80	13/04/2022

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26145351	CPTU007	ES	1.20 - 1.20	13/04/2022
26144679	PLT002	ES1	0.30 - 0.30	11/04/2022
26144678	PLT002	ES2	0.50 - 0.50	11/04/2022
26146380	PLT003	ES1	0.30 - 0.30	11/04/2022
26146390	PLT003	ES1	0.50 - 0.50	11/04/2022
26144676	PLT003	ES2	0.50 - 0.50	11/04/2022
26145894	PLT004	ES1	0.30 - 0.30	11/04/2022
26144677	PLT004	ES2	0.50 - 0.50	11/04/2022
26146388	PLT005	ES1	0.30 - 0.30	13/04/2022
26146387	PLT005	ES2	0.50 - 0.50	13/04/2022
26146385	PLT006	ES1	0.30 - 0.30	13/04/2022
26146386	PLT006	ES2	0.50 - 0.50	13/04/2022
26146382	PLT007	ES1	0.30 - 0.30	13/04/2022
26146381	PLT007	ES2	0.50 - 0.50	13/04/2022
26145879	PLT008	ES1	0.30 - 0.30	12/04/2022
26145880	PLT008	ES2	0.50 - 0.50	12/04/2022
26145875	PLT009	ES1	0.30 - 0.30	12/04/2022
26145876	PLT009	ES2	0.50 - 0.50	12/04/2022
26145878	PLT010	ES1	0.30 - 0.30	12/04/2022
26145877	PLT010	ES2	0.50 - 0.50	12/04/2022
26146383	PLT012	ES1	0.30 - 0.30	12/04/2022
26146384	PLT012	ES2	0.50 - 0.50	12/04/2022
26145882	PLT013	ES1	0.30 - 0.30	12/04/2022
26145881	PLT013	ES2	0.50 - 0.50	12/04/2022
26144668	WS001		0.30 - 0.30	13/04/2022
26144664	WS001		0.80 - 0.80	13/04/2022
26144665	WS001		1.15 - 1.15	13/04/2022
26144667	WS001		2.85 - 2.95	13/04/2022
26146373	WS007	ES	0.30 - 0.30	12/04/2022
26146378	WS007	ES	0.80 - 0.80	12/04/2022
26146377	WS007	ES	1.15 - 1.15	12/04/2022
26146374	WS007	ES	3.20 - 3.35	12/04/2022
26146367	WS007	ES	3.20 - 3.65	12/04/2022
26146370	WS009	ES	0.30 - 0.30	12/04/2022
26146369	WS009	ES	0.80 - 0.80	12/04/2022
26146368	WS009	ES	1.15 - 1.15	12/04/2022
26146371	WS009	ES	3.60 - 3.75	12/04/2022
26145897	WS013	ES	0.30 - 0.30	14/04/2022
26145898	WS013	ES	0.80 - 0.80	14/04/2022
26145896	WS013	ES	1.15 - 1.15	14/04/2022
26145895	WS013	ES	3.30 - 3.45	14/04/2022
26145356	WS020	ES	0.30 - 0.30	14/04/2022
26145355	WS020	ES	0.80 - 0.80	14/04/2022
26145357	WS020	ES	1.15 - 1.15	14/04/2022
26145358	WS020	ES	3.60 - 3.80	14/04/2022
26144663	WS003A		0.30 - 0.30	13/04/2022
26144666	WS003A		0.80 - 0.80	13/04/2022
26144669	WS003A		1.15 - 1.15	13/04/2022
26144662	WS003A		4.20 - 4.40	13/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26144665	26146377	26146370	26145898	26145355	26144663
			Customer Sample Reference	WS001	WS007	WS009	WS013	WS020	WS003A
			AGS Reference		ES	ES	ES	ES	
			Depth (m)	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
			Container	1kg TUB	250g Amber Jar (ALE210)	60ml Amber Glass Jar	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3		X			X								X							
Anions by Kone (soil)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 3		X			X								X							
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 6		X			X			X			X			X			X			
CEN Readings	All	NDPs: 0 Tests: 3		X			X								X							
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Coronene	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9		X	X		X	X			X			X		X	X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3		X			X								X							
Easily Liberated Sulphide	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 6				X			X			X			X			X				X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3		X			X								X							

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26144665	26146377	26146370	26145898	26145355	26144663
			Customer Sample Reference	WS001	WS007	WS009	WS013	WS020	WS003A
			AGS Reference		ES	ES	ES	ES	
			Depth (m)	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
			Container	1kg TUB	250g Amber Jar (ALE210)	60ml Amber Glass Jar	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 3		X			X									X						
Metals in solid samples by OES	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3		X			X									X						
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3		X			X									X						
pH	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
pH Value	All	NDPs: 0 Tests: 3		X			X									X						
Phenols by HPLC (S)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
Sulphide	All	NDPs: 0 Tests: 3		X			X									X						
Total Organic Carbon	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
Total Sulphate	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 6				X			X			X			X			X			X		X

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26144665	WS001	1.15 - 1.15	Light Brown	Sandy Clay	Vegetation	None
26146377	WS007	1.15 - 1.15	Light Brown	Sandy Clay Loam	None	Stones
26146370	WS009	0.30 - 0.30	Light Brown	Sandy Clay Loam	Stones	Vegetation
26145898	WS013	0.80 - 0.80	Dark Brown	Clay	None	None
26145355	WS020	0.80 - 0.80	Light Brown	Silty Clay	None	None
26144663	WS003A	0.30 - 0.30	Dark Brown	Loamy Sand	Stones	Brick

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS001	WS007	WS009	WS013	WS020	WS003A
			Depth (m)	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/04/2022	12/04/2022	12/04/2022	14/04/2022	14/04/2022	13/04/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75	220415-75	220415-75	220415-75	220415-75
			Lab Sample No.(s)	26144665	26146377	26146370	26145898	26145355	26144663
			AGS Reference		ES	ES	ES	ES	
Moisture Content Ratio (% of as received sample)	%	PM024		18	14	19	7.6	20	6.9
Phenol	mg/kg	TM062 (S)		<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M
Soil Organic Matter (SOM)	%	TM132		<0.35 @ #	<0.35 #	4.26 #	0.421 @ #	0.5 @ #	2.36 @ #
pH	pH Units	TM133		7.89 @ M	7.76 M	7.29 M	8.13 @ M	8.16 @ M	8.98 @ M
Chromium, Hexavalent	mg/kg	TM151		<0.6 @ #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 @ #
Cyanide, Total	mg/kg	TM153		<1 @ M	<1 @ M	1.41 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Free	mg/kg	TM153		<1 @ M	<1 @ M	1.37 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Complex	mg/kg	TM153		<1	<1	<1	<1	<1	<1
Sulphide, Easily liberated	mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M
Aluminium	mg/kg	TM181		14300	17600	13300	4660	28000	17300
Antimony	mg/kg	TM181		<0.6 #	<0.6 #	0.676 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	mg/kg	TM181		18.1 M	16.1 M	9.28 M	2.76 M	14.7 M	14.3 M
Barium	mg/kg	TM181		23.4 #	62.5 #	38.4 #	104 #	51.5 #	26 #
Beryllium	mg/kg	TM181		0.929 M	1.48 M	0.687 M	0.401 M	1.7 M	1.25 M
Boron	mg/kg	TM181		19.2 #	19 #	9.15 #	1.52 #	16.1 #	38.4 #
Cadmium	mg/kg	TM181		<0.02 M	0.231 M	0.217 M	<0.02 M	<0.02 M	<0.02 M
Chromium	mg/kg	TM181		20.4 M	25.4 M	24.3 M	9.37 M	30.9 M	25.2 M
Copper	mg/kg	TM181		13.5 M	18 M	17.9 M	8.9 M	21.5 M	15.3 M
Iron	mg/kg	TM181		34100 #	33000 #	23300 #	11700 #	48900 #	28600 #
Lead	mg/kg	TM181		15 M	18.4 M	39.6 M	17.6 M	14.7 M	14.5 M
Manganese	mg/kg	TM181		68.9 M	447 M	445 M	338 M	>500 M	210 M
Mercury	mg/kg	TM181		<0.1 @ M	<0.1 M	<0.1 M	<0.1 @ M	<0.1 @ M	<0.1 @ M
Molybdenum	mg/kg	TM181		1.86 #	2.2 #	3.93 #	0.33 #	2.39 #	0.132 #
Nickel	mg/kg	TM181		15.5 M	67.2 M	16.8 M	10.2 M	85.1 M	32.1 M
Selenium	mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	1.74 #	<1 #
Vanadium	mg/kg	TM181		57.3 #	52 #	32.4 #	17.9 #	49.8 #	43.3 #
Zinc	mg/kg	TM181		63.3 M	99.7 M	83.7 M	37.7 M	148 M	63.8 M
Sulphate, Total	mg/kg	TM221		154 M	417 M	597 M	411 M	446 M	1640 M
Conductivity @ 20 deg.C	mS/cm	TM234		2	2.3	2.07	2.02	2.38	2.01
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243		0.084 @ M	0.0733 M	0.0272 M	0.17 @ M	0.251 @ M	0.0806 @ M
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248		4.58	6.22	4.67	4.6	5.77	4.48
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410		<318	<318	<318	<318	<318	25100

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS001	WS007	WS009	WS013	WS020	WS003A
			Depth (m)	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/04/2022	12/04/2022	12/04/2022	14/04/2022	14/04/2022	13/04/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75	220415-75	220415-75	220415-75	220415-75
			Lab Sample No.(s)	26144665	26146377	26146370	26145898	26145355	26144663
			AGS Reference		ES	ES	ES	ES	
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	456

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS001	WS007	WS009	WS013	WS020	WS003A
			Depth (m)	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/04/2022	12/04/2022	12/04/2022	14/04/2022	14/04/2022	13/04/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75	220415-75	220415-75	220415-75	220415-75
			Lab Sample No.(s)	26144665	26146377	26146370	26145898	26145355	26144663
			AGS Reference		ES	ES	ES	ES	
Naphthalene-d8 % recovery**	%	TM218		95.7	91.1	89.8	95.3	93	95.7
Acenaphthene-d10 % recovery**	%	TM218		95.2	91.8	88.6	95.8	99.2	95.6
Phenanthrene-d10 % recovery**	%	TM218		95	91.7	88.5	95.5	100	97.8
Chrysene-d12 % recovery**	%	TM218		93.9	94.2	89.4	92.2	98.5	99
Perylene-d12 % recovery**	%	TM218		92.3	95.4	91.8	95.4	105	109
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 @ M	<9 @ M	<9 @ M	<9 @ M	<45 @ M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 @ M	<12 @ M	<12 @ M	<12 @ M	99 @ M
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 @ M	<8 @ M	<8 @ M	<8 @ M	88.6 @ M
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<10 @ M	104 @ M
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	1720 @ M
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 @ M	<16 @ M	<16 @ M	<16 @ M	562 @ M
Fluoranthene	<17 µg/kg	TM218		<17 @ M	<17 @ M	36.5 @ M	<17 @ M	<17 @ M	4210 @ M
Pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	32.2 @ M	<15 @ M	<15 @ M	3450 @ M
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	<14 @ M	24 @ M	<14 @ M	<14 @ M	2300 @ M
Chrysene	<10 µg/kg	TM218		<10 @ M	<10 @ M	25.6 @ M	<10 @ M	<10 @ M	2300 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	<15 @ M	37.7 @ M	<15 @ M	<15 @ M	2860 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<14 @ M	<14 @ M	<14 @ M	1070 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	23.1 @ M	<15 @ M	<15 @ M	2140 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 @ M	<18 @ M	<18 @ M	<18 @ M	1770 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 @ M	<23 @ M	<23 @ M	<23 @ M	409 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 @ M	<24 @ M	<24 @ M	<24 @ M	1580 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	179	<118	<118	24700

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS001	WS007	WS009	WS013	WS020	WS003A
			Depth (m)	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/04/2022	12/04/2022	12/04/2022	14/04/2022	14/04/2022	13/04/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75	220415-75	220415-75	220415-75	220415-75
			Lab Sample No.(s)	26144665	26146377	26146370	26145898	26145355	26144663
			AGS Reference		ES	ES	ES	ES	
GRO Surrogate % recovery**	%	TM089		96.6 2	121 @	80.9 @	122 @	103 @	85.7 @
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10 2	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10 2	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10 2	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#	16200 @#
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	11600 @#	<1000 @#	<1000 @#	35000 @#
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @	<1000 @	<1000 @	6580 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000 @	<5000 @	12200 @	<5000 @	<5000 @	58600 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		<10000	<10000	16000	<10000	<10000	134000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10 2	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10 2	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10 2	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	<1000 @#	<1000 @#	<1000 @#	3240 @#
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @#	<1000 @#	2130 @#	<1000 @#	<1000 @#	57500 @#
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	1470 @	<1000 @	<1000 @	14500 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @	<1000 @	<1000 @	3230 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	75400
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		<10000	<10000	12200	<10000	<10000	134000
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50 2	<50 @	<50 @	<50 @	<50 @	<50 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50 2	<50 @	<50 @	<50 @	<50 @	<50 @
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20 2	<20 @	<20 @	<20 @	<20 @	<20 @

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS001	WS007	WS009	WS013	WS020	WS003A
			Depth (m)	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/04/2022	12/04/2022	12/04/2022	14/04/2022	14/04/2022	13/04/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022	15/04/2022
			SDG Ref	220415-75	220415-75	220415-75	220415-75	220415-75	220415-75
			Lab Sample No.(s)	26144665	26146377	26146370	26145898	26145355	26144663
			AGS Reference		ES	ES	ES	ES	
Dibromofluoromethane**	%	TM116		114 2	114 @	109 @	99.9 @	106 @	106 @
Toluene-d8**	%	TM116		97.1 2	98.3 @	94.3 @	96.5 @	97.1 @	96.5 @
4-Bromofluorobenzene**	%	TM116		90.5 2	90.8 @	99.9 @	91.1 @	90 @	84.5 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 2 M	<10 @ M	<100 @ M	<10 @ M	<100 @ M	<10 @ M
Benzene	<9 µg/kg	TM116		<9 2 M	<9 @ M	<90 @ M	<9 @ M	<90 @ M	<9 @ M
Toluene	<7 µg/kg	TM116		<7 2 M	<7 @ M	<70 @ M	<7 @ M	<70 @ M	<7 @ M
Ethylbenzene	<4 µg/kg	TM116		<4 2 M	<4 @ M	<40 @ M	<4 @ M	<40 @ M	<4 @ M
p/m-Xylene	<10 µg/kg	TM116		<10 2 #	<10 @ #	<100 @ #	<10 @ #	<100 @ #	<10 @ #
o-Xylene	<10 µg/kg	TM116		<10 2 M	<10 @ M	<100 @ M	<10 @ M	<100 @ M	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 2	<0.02 @	<0.2 @	<0.02 @	<0.2 @	<0.02 @
Sum of BTEX	<40 µg/kg	TM116		<40 2	<40 @	<400 @	<40 @	<400 @	<40 @

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M *m*CERTS accredited.
***** Subcontracted test.
(F) Trigger breach confirmed
1-5&+§@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS001 1.15 - 1.15 SOLID 13/04/2022 00:00:00 15/04/2022 05:00:00 220415-75 26144665 TM048	16/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS007ES 1.15 - 1.15 SOLID 12/04/2022 00:00:00 15/04/2022 05:00:00 220415-75 26146377 TM048	04/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS009ES 0.30 - 0.30 SOLID 12/04/2022 00:00:00 15/04/2022 05:00:00 220415-75 26146370 TM048	04/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS013ES 0.80 - 0.80 SOLID 14/04/2022 00:00:00 15/04/2022 05:00:00 220415-75 26145898 TM048	16/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS020ES 0.80 - 0.80 SOLID 14/04/2022 00:00:00 15/04/2022 05:00:00 220415-75 26145355 TM048	16/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS003A 0.30 - 0.30 SOLID 13/04/2022 00:00:00 15/04/2022 05:00:00 220415-75 26144663 TM048	16/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.102	**Natural Moisture Content (%)**	14.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	87.7
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26144665
Sampled Date	13-Apr-2022
Customer Sample Ref.	WS001
Depth (m)	1.15 - 1.15

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.348	<0.01	3.48	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00289	<0.0005	0.0289	<0.005	-	-	-
Barium	0.172	<0.0002	1.72	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.295	<0.01	2.95	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00146	<0.001	0.0146	<0.01	-	-	-
Copper	0.00193	<0.0003	0.0193	<0.003	-	-	-
Iron (Dis.Filt) mg/l	3.14	<0.019	31.4	<0.19	-	-	-
Lead	0.00149	<0.0002	0.0149	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000965	<0.0004	0.00965	<0.004	-	-	-
Phosphorus	0.0721	<0.01	0.721	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	0.00442	<0.001	0.0442	<0.01	-	-	-
Zinc	0.0487	<0.001	0.487	<0.01	-	-	-
Chloride	9.4	<2	94	<20	-	-	-
Nitrate as N	0.568	<0.07	5.68	<0.7	-	-	-
Sulphate (soluble)	3.3	<2	33	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	0.0359	<0.01	0.359	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Naphthalene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Phenanthrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-

Leach Test Information

Date Prepared	13-May-2022
pH (pH Units)	6.08
Conductivity (µS/cm)	66.90
Temperature (°C)	20.90
Volume Leachant (Litres)	0.888

20/05/2022 05:04:09

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.102	**Natural Moisture Content (%)**	14.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	87.7
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26144665
Sampled Date	13-Apr-2022
Customer Sample Ref.	WS001
Depth (m)	1.15 - 1.15

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.00004	<0.00004	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Chrysene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluorene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
PAH 16 EPA Total by GCMS	<0.000164	<0.000164	<0.00164	<0.00164	-	-	-
Pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-

Leach Test Information

Date Prepared	13-May-2022
pH (pH Units)	6.08
Conductivity (µS/cm)	66.90
Temperature (°C)	20.90
Volume Leachant (Litres)	0.888

20/05/2022 05:04:09

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	26.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79.2
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26145355
Sampled Date	14-Apr-2022
Customer Sample Ref.	WS020 ESZ
Depth (m)	0.80 - 0.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.0474	<0.01	0.474	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000513	<0.0005	0.00513	<0.005	-	-	-
Barium	0.218	<0.0002	2.18	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.12	<0.01	1.2	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00261	<0.0003	0.0261	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.301	<0.019	3.01	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	0.00422	<0.003	0.0422	<0.03	-	-	-
Nickel	0.00227	<0.0004	0.0227	<0.004	-	-	-
Phosphorus	0.0266	<0.01	0.266	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0097	<0.001	0.097	<0.01	-	-	-
Chloride	14.3	<2	143	<20	-	-	-
Nitrate as N	0.517	<0.07	5.17	<0.7	-	-	-
Sulphate (soluble)	71.6	<2	716	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	0.0347	<0.01	0.347	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Naphthalene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Phenanthrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-

Leach Test Information

Date Prepared	13-May-2022
pH (pH Units)	7.15
Conductivity (µS/cm)	339.00
Temperature (°C)	20.80
Volume Leachant (Litres)	0.876

20/05/2022 05:04:09

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	26.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79.2
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26145355
Sampled Date	14-Apr-2022
Customer Sample Ref.	WS020 ESZ
Depth (m)	0.80 - 0.80

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.00004	<0.00004	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Chrysene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluorene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
PAH 16 EPA Total by GCMS	<0.000164	<0.000164	<0.00164	<0.00164	-	-	-
Pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-

Leach Test Information

Date Prepared	13-May-2022
pH (pH Units)	7.15
Conductivity (µS/cm)	339.00
Temperature (°C)	20.80
Volume Leachant (Litres)	0.876

20/05/2022 05:04:09

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.117	**Natural Moisture Content (%)**	29.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26146377
Sampled Date	12-Apr-2022
Customer Sample Ref.	WS007 ESZ
Depth (m)	1.15 - 1.15

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	<0.01	<0.01	<0.1	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0105	<0.0002	0.105	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0608	<0.01	0.608	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Iron (Dis.Filt) mg/l	<0.019	<0.019	<0.19	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000784	<0.0004	0.00784	<0.004	-	-	-
Phosphorus	0.0182	<0.01	0.182	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00119	<0.001	0.0119	<0.01	-	-	-
Chloride	9.6	<2	96	<20	-	-	-
Nitrate as N	0.419	<0.0677	4.19	<0.677	-	-	-
Sulphate (soluble)	49	<2	490	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Naphthalene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Phenanthrene by GCMS	0.0000112	<0.00001	0.000112	<0.0001	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.38
Conductivity (µS/cm)	161.00
Temperature (°C)	19.00
Volume Leachant (Litres)	0.873

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CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.117	**Natural Moisture Content (%)**	29.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77
Particle Size <4mm	>95%		

Case	
SDG	220415-75
Lab Sample Number(s)	26146377
Sampled Date	12-Apr-2022
Customer Sample Ref.	WS007 ESZ
Depth (m)	1.15 - 1.15

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.00004	<0.00004	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Chrysene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluorene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
PAH 16 EPA Total by GCMS	<0.000164	<0.000164	<0.00164	<0.00164	-	-	-
Pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.38
Conductivity (µS/cm)	161.00
Temperature (°C)	19.00
Volume Leachant (Litres)	0.873

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26144665	26146377	26146370	26145898	26145355	26144663
Customer Sample Ref.	WS001	WS007	WS009	WS013	WS020	WS003A
AGS Ref.		ES	ES	ES	ES	
Depth	1.15 - 1.15	1.15 - 1.15	0.30 - 0.30	0.80 - 0.80	0.80 - 0.80	0.30 - 0.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	13-May-2022	04-May-2022	04-May-2022	13-May-2022	13-May-2022	13-May-2022
Ammoniacal Nitrogen	17-May-2022	05-May-2022			17-May-2022	
Anions by Kone (soil)	17-May-2022	04-May-2022	03-May-2022	16-May-2022	17-May-2022	16-May-2022
Anions by Kone (w)	17-May-2022	05-May-2022			17-May-2022	
Asbestos ID in Solid Samples	16-May-2022	04-May-2022	04-May-2022	16-May-2022	16-May-2022	16-May-2022
CEN 10:1 Leachate (1 Stage)	13-May-2022	30-Apr-2022			13-May-2022	
CEN Readings	16-May-2022	04-May-2022			16-May-2022	
Conductivity (at 20 deg.C)	16-May-2022	04-May-2022	04-May-2022	16-May-2022	16-May-2022	16-May-2022
Coronene	17-May-2022	03-May-2022	03-May-2022	16-May-2022	17-May-2022	16-May-2022
Cyanide Comp/Free/Total/Thiocyanate	17-May-2022	05-May-2022	09-May-2022	17-May-2022	17-May-2022	17-May-2022
Dissolved Metals by ICP-MS	17-May-2022	05-May-2022			17-May-2022	
Easily Liberated Sulphide	17-May-2022	29-Apr-2022	29-Apr-2022	17-May-2022	17-May-2022	17-May-2022
EPH CWG GC (S)	17-May-2022	03-May-2022	03-May-2022	17-May-2022	17-May-2022	17-May-2022
GRO by GC-FID (S)	18-May-2022	06-May-2022	06-May-2022	19-May-2022	18-May-2022	
Hexavalent Chromium (s)	17-May-2022	29-Apr-2022	29-Apr-2022	14-May-2022	17-May-2022	14-May-2022
Hexavalent Chromium (w)	17-May-2022	05-May-2022			17-May-2022	
Mercury Dissolved	17-May-2022	05-May-2022			17-May-2022	
Metals in solid samples by OES	17-May-2022	04-May-2022	04-May-2022	17-May-2022	17-May-2022	17-May-2022
Moisture at 105C	13-May-2022	30-Apr-2022			13-May-2022	
Nitrite by Kone (w)	17-May-2022	04-May-2022			17-May-2022	
PAH 16 & 17 Calc	17-May-2022	03-May-2022	03-May-2022	14-May-2022	17-May-2022	16-May-2022
PAH by GCMS	17-May-2022	03-May-2022	03-May-2022	17-May-2022	17-May-2022	17-May-2022
PAH Spec MS - Aqueous (W)	16-May-2022	05-May-2022			17-May-2022	
pH	13-May-2022	03-May-2022	03-May-2022	13-May-2022	13-May-2022	13-May-2022
pH Value	17-May-2022	05-May-2022			17-May-2022	
Phenols by HPLC (S)	17-May-2022	29-Apr-2022	03-May-2022	16-May-2022	17-May-2022	16-May-2022
Sample description	12-May-2022	28-Apr-2022	28-Apr-2022	12-May-2022	12-May-2022	12-May-2022
Sulphide	17-May-2022	05-May-2022			17-May-2022	
Total Organic Carbon	19-May-2022	05-May-2022	05-May-2022	19-May-2022	19-May-2022	19-May-2022
Total Sulphate	17-May-2022	04-May-2022	04-May-2022	17-May-2022	17-May-2022	17-May-2022
TPH CWG GC (S)	18-May-2022	06-May-2022	06-May-2022	19-May-2022	18-May-2022	19-May-2022
VOC MS (S)	18-May-2022	05-May-2022	06-May-2022	18-May-2022	18-May-2022	18-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2603	QC 2686
Ammoniacal Nitrogen as N	TM099	**96.8** 90.84 : 105.72	**97.6** 90.84 : 105.72

Anions by Kone (soil)

Component	Method Code	QC 2628
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**96.74** 84.22 : 110.23

Anions by Kone (w)

Component	Method Code	QC 2607	QC 2603
Chloride	TM184	**106.0** 97.18 : 113.20	**107.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**103.2** 96.54 : 111.66	**102.0** 96.54 : 111.66
TON as NO3	TM184	**109.5** 100.65 : 111.75	**105.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2656	QC 2666
Coronene RAW	TM410	**112.5** 79.43 : 137.78	**84.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2683	QC 2606	QC 2628	QC 2649	QC 2652	QC 2660
Free Cyanide	TM153	**105.94** 77.50 : 118.90	**105.94** 77.50 : 118.90		**72.38** 71.70 : 110.70	**87.13** 71.70 : 110.70	
Free Cyanide (W)	TM227			**84.25** 80.33 : 126.33			**88.5** 80.33 : 126.33
Thiocyanate	TM153	**109.62** 92.20 : 113.40	**108.33** 92.20 : 113.40		**93.59** 87.27 : 113.27	**106.41** 87.27 : 113.27	
Thiocyanate (W)	TM227			**106.5** 84.05 : 116.45			**112.75** 87.50 : 116.00
Total Cyanide	TM153	**110.49** 80.07 : 114.07	**111.89** 80.07 : 114.07		**82.52** 72.73 : 109.93	**98.6** 72.73 : 109.93	
Total Cyanide (W)	TM227			**107.75** 79.19 : 117.11			**113.5** 83.75 : 121.25

Dissolved Metals by ICP-MS

Dissolved Metals by ICP-MS

Component	Method Code	QC 2616	QC 2601
Aluminium	TM152	**101.0** 90.98 : 111.82	**103.33** 90.98 : 111.82
Antimony	TM152	**102.17** 90.44 : 113.04	**101.83** 90.44 : 113.04
Arsenic	TM152	**103.5** 94.87 : 109.67	**103.67** 94.87 : 109.67
Barium	TM152	**103.67** 90.20 : 111.19	**100.17** 90.20 : 111.19
Beryllium	TM152	**100.67** 87.77 : 113.97	**105.67** 87.77 : 113.97
Bismuth	TM152	**100.17** 91.90 : 112.20	**102.5** 91.90 : 112.20
Borate	TM152	**99.38** 88.00 : 112.00	**104.32** 88.00 : 112.00
Boron	TM152	**99.0** 92.27 : 112.40	**104.33** 92.27 : 112.40
Cadmium	TM152	**100.0** 96.43 : 110.53	**104.0** 94.93 : 106.93
Calcium	TM152	**103.33** 95.14 : 110.01	**102.67** 95.14 : 110.01
Chromium	TM152	**101.33** 91.84 : 108.67	**104.17** 91.84 : 108.67
Cobalt	TM152	**95.67** 90.72 : 109.61	**104.5** 90.72 : 109.61
Copper	TM152	**100.67** 94.47 : 109.05	**104.17** 94.47 : 109.05
Iron	TM152	**101.33** 94.40 : 107.90	**104.67** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46	**100.83** 93.55 : 109.46
Lithium	TM152	**100.33** 91.62 : 113.12	**105.0** 91.62 : 113.12
Magnesium	TM152	**104.67** 92.30 : 110.57	**104.0** 92.30 : 110.57
Manganese	TM152	**102.33** 94.75 : 108.21	**104.33** 94.75 : 108.21
Molybdenum	TM152	**98.33** 93.55 : 107.66	**100.17** 93.55 : 107.66
Nickel	TM152	**100.67** 88.00 : 112.00	**105.5** 88.00 : 112.00
Phosphorus	TM152	**103.67** 92.51 : 109.27	**106.33** 92.51 : 109.27
Potassium	TM152	**103.33** 92.16 : 109.93	**103.33** 92.16 : 109.93
Selenium	TM152	**103.83** 91.58 : 115.98	**105.17** 91.58 : 115.98
Silver	TM152	**101.67** 92.75 : 111.05	**101.67** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62	**104.0** 89.47 : 109.62
Strontium	TM152	**102.0** 95.40 : 109.43	**101.33** 95.40 : 109.43
Tellurium	TM152	**104.5** 93.32 : 114.66	**103.5** 93.32 : 114.66

Dissolved Metals by ICP-MS

		QC 2616	QC 2601
Thallium	TM152	**107.83** 88.00 : 112.00	**100.33** 88.00 : 112.00
Tin	TM152	**99.67** 92.63 : 109.70	**101.33** 92.63 : 109.70
Titanium	TM152	**99.33** 95.08 : 109.28	**105.0** 95.08 : 109.28
Tungsten	TM152	**98.33** 94.68 : 107.68	**99.17** 94.68 : 107.68
Uranium	TM152	**97.33** 88.00 : 112.00	**100.17** 88.00 : 112.00
Vanadium	TM152	**98.17** 88.00 : 112.00	**102.5** 88.00 : 112.00
Zinc	TM152	**102.0** 95.31 : 110.74	**106.33** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2648	QC 2666	QC 2600
Easily Liberated Sulphide	TM180	**100.73** 51.10 : 121.66	**68.77** 51.10 : 121.66	**78.77** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2601	QC 2644	QC 2621	QC 2648	QC 2617
QC	TM089	**78.48** 65.61 : 111.21	**73.63** 65.61 : 111.21	**74.02** 65.61 : 111.21	**78.07** 65.61 : 111.21	**74.94** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2605	QC 2697	QC 2618	QC 2651
Hexavalent Chromium	TM151	**106.0** 83.40 : 113.40	**102.0** 83.40 : 113.40	**104.0** 83.40 : 113.40	**96.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2698	QC 2617
Hexavalent Chromium	TM241	**98.2** 94.17 : 106.17	**105.2** 94.17 : 106.17

Mercury Dissolved

Mercury Dissolved

Component	Method Code	QC 2637	QC 2605
Mercury Dissolved (CVAF)	TM183	**107.0** 69.30 : 128.70	**100.0** 0.00 : 0.00

Metals in solid samples by OES

Component	Method Code	QC 2649	QC 2667	QC 2689
Aluminium	TM181	**110.53** 87.31 : 119.03	**108.77** 84.95 : 125.04	**117.54** 84.95 : 125.04
Antimony	TM181	**113.78** 91.44 : 127.14	**120.08** 91.44 : 127.13	**114.96** 91.44 : 127.13
Arsenic	TM181	**105.41** 88.33 : 120.06	**110.81** 95.27 : 120.80	**110.81** 95.27 : 120.80
Barium	TM181	**105.64** 94.57 : 124.93	**113.85** 94.57 : 124.93	**109.74** 94.57 : 124.93
Beryllium	TM181	**106.71** 85.73 : 122.70	**110.79** 85.72 : 122.69	**108.16** 85.72 : 122.69
Boron	TM181	**109.32** 85.66 : 120.24	**109.32** 91.59 : 122.22	**108.04** 91.59 : 122.22
Cadmium	TM181	**104.06** 87.30 : 121.60	**108.86** 87.31 : 121.62	**108.12** 87.31 : 121.62
Chromium	TM181	**99.02** 85.06 : 113.81	**100.24** 85.06 : 113.81	**96.34** 85.06 : 113.81
Cobalt	TM181	**102.55** 92.91 : 111.38	**103.45** 90.60 : 110.35	**102.0** 90.60 : 110.35
Copper	TM181	**91.37** 81.22 : 113.41	**96.79** 81.22 : 113.40	**95.43** 81.22 : 113.40
Iron	TM181	**106.42** 86.44 : 122.27	**112.84** 86.44 : 122.27	**114.68** 86.44 : 122.27
Lead	TM181	**110.4** 86.84 : 123.13	**109.41** 86.83 : 123.12	**105.2** 86.83 : 123.12
Manganese	TM181	**107.87** 89.22 : 121.75	**110.39** 89.22 : 121.75	**108.43** 89.22 : 121.75
Mercury	TM181	**103.58** 84.95 : 119.42	**111.07** 84.95 : 119.42	**107.49** 84.95 : 119.42
Molybdenum	TM181	**104.71** 85.97 : 123.79	**106.4** 85.98 : 123.80	**104.71** 85.98 : 123.80
Nickel	TM181	**110.68** 88.05 : 119.19	**110.68** 88.05 : 119.19	**108.01** 88.05 : 119.19
Phosphorus	TM181	**107.69** 90.13 : 121.54	**105.98** 90.13 : 121.54	**105.64** 90.13 : 121.54
Selenium	TM181	**103.66** 88.10 : 117.92	**112.45** 90.68 : 124.14	**109.89** 90.68 : 124.14
Strontium	TM181	**93.74** 79.10 : 111.59	**96.64** 80.65 : 106.55	**94.63** 80.65 : 106.55
Thallium	TM181	**108.05** 84.67 : 122.64	**108.39** 76.88 : 121.51	**108.72** 76.88 : 121.51
Tin	TM181	**103.86** 86.96 : 122.18	**110.39** 86.96 : 122.18	**108.31** 86.96 : 122.18
Titanium	TM181	**98.18** 84.66 : 112.24	**101.82** 77.07 : 118.83	**97.27** 77.07 : 118.83

Metals in solid samples by OES

		QC 2649	QC 2667	QC 2689
Vanadium	TM181	**102.88** 84.00 : 115.50	**103.24** 84.00 : 115.50	**102.16** 84.00 : 115.50
Zinc	TM181	**105.19** 85.63 : 122.36	**108.35** 85.62 : 122.35	**105.64** 85.62 : 122.35

PAH by GCMS

Component	Method Code	QC 2618	QC 2632
Acenaphthene	TM218	**93.0** 76.79 : 103.90	**80.0** 74.70 : 106.04
Acenaphthylene	TM218	**90.5** 74.19 : 106.17	**79.0** 73.12 : 105.14
Anthracene	TM218	**94.0** 70.90 : 109.22	**79.5** 73.99 : 113.85
Benz(a)anthracene	TM218	**100.0** 73.77 : 119.26	**73.5** 69.31 : 119.18
Benzo(a)pyrene	TM218	**94.5** 73.20 : 114.18	**68.0** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**94.0** 75.36 : 117.58	**68.0** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**92.0** 70.73 : 116.12	**64.5** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**93.5** 75.98 : 116.59	**70.0** 69.98 : 116.49
Chrysene	TM218	**96.0** 74.82 : 114.18	**73.5** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**97.0** 69.17 : 115.30	**65.5** 64.54 : 115.22
Fluoranthene	TM218	**96.0** 66.06 : 114.63	**74.5** 72.56 : 111.70
Fluorene	TM218	**93.0** 76.66 : 107.56	**79.5** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**99.5** 70.26 : 117.95	**65.0** 61.22 : 113.25
Naphthalene	TM218	**88.0** 74.70 : 101.83	**80.5** 73.52 : 105.12
Phenanthrene	TM218	**95.0** 73.62 : 109.34	**79.0** 76.83 : 113.25
Pyrene	TM218	**92.5** 71.46 : 117.00	**72.5** 72.45 : 110.77

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2623	QC 2621	QC 2693
Acenaphthene by GCMS	TM178	**109.2** 100.00 : 119.20	**108.0** 98.40 : 117.60	**108.8** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**107.2** 95.20 : 119.20	**108.0** 96.80 : 118.40	**108.8** 96.80 : 118.40
Anthracene by GCMS	TM178	**109.2** 91.60 : 113.20	**106.0** 94.40 : 116.00	**108.0** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**102.4** 90.40 : 119.20	**102.0** 92.80 : 116.80	**106.8** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**108.0** 92.80 : 119.20	**101.6** 89.43 : 118.57	**103.6** 89.43 : 118.57

PAH Spec MS - Aqueous (W)

		QC 2623	QC 2621	QC 2693
Benzo(b)fluoranthene by GCMS	TM178	**108.0** 89.60 : 120.80	**101.2** 87.80 : 121.80	**104.4** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**102.0** 93.20 : 117.20	**99.6** 92.00 : 116.00	**100.0** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**106.8** 96.40 : 120.40	**111.2** 88.72 : 111.28	**112.8** 88.72 : 111.28
Chrysene by GCMS	TM178	**103.6** 96.40 : 125.20	**110.0** 88.68 : 116.92	**110.0** 88.68 : 116.92
Dibenzo(ah)anthracene by GCMS	TM178	**103.2** 92.00 : 113.60	**104.4** 86.24 : 118.56	**100.8** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**109.6** 91.20 : 117.60	**101.6** 91.20 : 117.60	**103.2** 91.20 : 117.60
Fluorene by GCMS	TM178	**108.8** 95.60 : 122.00	**105.6** 90.76 : 121.24	**108.0** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**106.8** 90.40 : 112.00	**103.6** 88.39 : 119.61	**97.2** 88.39 : 119.61
Naphthalene by GCMS	TM178	**110.4** 98.00 : 122.00	**105.2** 98.00 : 119.60	**108.0** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**109.6** 94.00 : 120.40	**105.2** 96.00 : 117.60	**105.6** 96.00 : 117.60
Pyrene by GCMS	TM178	**108.8** 92.40 : 118.80	**99.2** 91.00 : 120.20	**101.2** 91.00 : 120.20

pH

Component	Method Code	QC 2694	QC 2632
pH	TM133	**99.56** 90.68 : 104.32	**98.97** 96.92 : 102.20

pH Value

Component	Method Code	QC 2612	QC 2671
pH	TM256	**100.94** 99.20 : 102.41	**100.53** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2656	QC 2621	QC 2682
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**50.0** 69.38 : 125.27	**51.3** 69.38 : 125.27	**51.95** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.03** 69.79 : 122.84	**45.03** 69.79 : 122.84	**45.61** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**47.81** 77.98 : 111.41	**49.06** 77.98 : 111.41	**49.27** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.33** 67.94 : 117.69	**50.99** 67.94 : 117.69	**51.66** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**48.23** 82.04 : 108.38	**49.27** 82.04 : 108.38	**49.37** 82.04 : 108.38

Sulphide

Component	Method Code	QC 2698	QC 2624
Sulphide	TM101	**106.67** 88.67 : 116.67	**98.0** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2672	QC 2647	QC 2604
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28	**103.13** 80.47 : 113.28	**100.78** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2620	QC 2659	QC 2610
Total Sulphate	TM221	**102.27** 78.36 : 114.69	**102.27** 78.36 : 114.69	**106.06** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2654	QC 2643	QC 2649	QC 2619	QC 2612
1,1,1,2-tetrachloroethane	TM116	**105.8** 88.29 : 116.31	**112.8** 84.84 : 116.25	**99.4** 88.29 : 116.31	**96.8** 88.29 : 116.31	**96.2** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**100.6** 88.34 : 114.50	**103.4** 85.52 : 113.22	**97.4** 88.34 : 114.50	**101.2** 88.34 : 114.50	**100.4** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**95.4** 81.29 : 113.79	**88.0** 77.12 : 116.04	**89.6** 81.29 : 113.79	**95.6** 81.29 : 113.79	**97.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**104.8** 91.34 : 123.49	**100.6** 74.46 : 129.15	**104.0** 91.34 : 123.49	**109.6** 91.34 : 123.49	**111.8** 74.46 : 129.15
1,2-Dichloroethane	TM116	**114.4** 90.04 : 132.28	**113.0** 92.38 : 131.65	**106.8** 90.04 : 132.28	**113.0** 90.04 : 132.28	**103.2** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**98.2** 80.81 : 125.07	**101.2** 83.64 : 126.18	**106.4** 80.81 : 125.07	**99.4** 80.81 : 125.07	**117.4** 83.64 : 126.18
2-Chlorotoluene	TM116	**82.8** 73.13 : 114.13	**92.2** 68.55 : 109.58	**91.0** 73.13 : 114.13	**82.6** 73.13 : 114.13	**100.6** 68.55 : 109.58
4-Chlorotoluene	TM116	**82.6** 68.66 : 109.13	**82.2** 66.29 : 107.51	**87.6** 68.66 : 109.13	**80.6** 68.66 : 109.13	**99.2** 66.29 : 107.51
Benzene	TM116	**97.0** 84.29 : 112.22	**93.8** 88.60 : 113.80	**97.4** 84.29 : 112.22	**99.6** 84.29 : 112.22	**102.8** 88.60 : 113.80
Carbon Disulphide	TM116	**100.4** 75.11 : 124.81	**98.0** 74.91 : 122.14	**98.4** 75.11 : 124.81	**100.4** 75.11 : 124.81	**108.0** 74.91 : 122.14
Carbontetrachloride	TM116	**102.6** 82.35 : 126.46	**111.2** 80.31 : 124.50	**102.6** 82.35 : 126.46	**100.8** 82.35 : 126.46	**95.0** 80.31 : 124.50
Chlorobenzene	TM116	**100.8** 82.88 : 122.42	**97.8** 83.81 : 114.18	**101.6** 82.88 : 122.42	**98.4** 82.88 : 122.42	**102.4** 83.81 : 114.18
Chloroform	TM116	**109.6** 90.35 : 120.38	**103.6** 87.40 : 122.49	**107.0** 90.35 : 120.38	**110.4** 90.35 : 120.38	**107.2** 87.40 : 122.49

VOC MS (S)

		QC 2654	QC 2643	QC 2649	QC 2619	QC 2612
Chloromethane	TM116	**101.2** 67.89 : 143.51	**96.6** 63.11 : 124.36	**95.2** 67.89 : 143.51	**98.0** 67.89 : 143.51	**87.8** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**97.8** 78.27 : 128.90	**103.0** 80.67 : 126.72	**96.4** 78.27 : 128.90	**101.8** 78.27 : 128.90	**109.4** 80.67 : 126.72
Dibromomethane	TM116	**97.2** 76.00 : 120.73	**97.2** 73.23 : 118.35	**97.6** 76.00 : 120.73	**105.8** 76.00 : 120.73	**97.6** 73.23 : 118.35
Dichloromethane	TM116	**115.2** 92.27 : 134.36	**107.6** 81.11 : 133.25	**112.8** 92.27 : 134.36	**121.4** 92.27 : 134.36	**116.0** 81.11 : 133.25
Ethylbenzene	TM116	**84.4** 70.95 : 113.07	**84.0** 75.92 : 110.41	**89.8** 70.95 : 113.07	**81.4** 70.95 : 113.07	**95.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**76.4** 14.55 : 147.92	**59.2** 12.82 : 152.73	**108.4** 14.55 : 147.92	**45.4** 14.55 : 147.92	**144.8** 12.82 : 152.73
Isopropylbenzene	TM116	**62.6** 52.00 : 108.19	**69.6** 54.30 : 105.91	**79.8** 52.00 : 108.19	**60.6** 52.00 : 108.19	**92.0** 54.30 : 105.91
Naphthalene	TM116	**94.6** 80.90 : 124.24	**110.2** 80.86 : 128.81	**101.8** 80.90 : 124.24	**103.8** 80.90 : 124.24	**111.6** 80.86 : 128.81
o-Xylene	TM116	**75.0** 68.34 : 101.99	**79.4** 69.99 : 108.74	**79.2** 68.34 : 101.99	**73.2** 68.34 : 101.99	**91.0** 69.99 : 108.74
p/m-Xylene	TM116	**81.8** 69.47 : 97.31	**78.8** 68.32 : 108.91	**88.9** 69.47 : 97.31	**78.9** 69.47 : 97.31	**90.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**61.6** 27.03 : 135.73	**60.6** 38.50 : 101.50	**98.0** 27.03 : 135.73	**55.8** 27.03 : 135.73	**108.0** 38.50 : 101.50
Tetrachloroethene	TM116	**101.0** 80.10 : 120.38	**102.2** 76.95 : 121.02	**103.0** 80.10 : 120.38	**92.8** 80.10 : 120.38	**100.6** 76.95 : 121.02
Toluene	TM116	**85.8** 82.44 : 103.50	**83.8** 74.24 : 107.42	**89.0** 80.66 : 100.10	**90.4** 80.66 : 100.10	**94.2** 74.24 : 107.42
Trichloroethene	TM116	**97.4** 79.80 : 112.33	**98.8** 85.28 : 109.36	**89.8** 79.80 : 112.33	**89.8** 79.80 : 112.33	**95.4** 85.28 : 109.36
Trichlorofluoromethane	TM116	**112.2** 83.13 : 123.97	**115.2** 81.46 : 120.52	**107.0** 83.13 : 123.97	**109.6** 83.13 : 123.97	**99.6** 81.46 : 120.52
Vinyl Chloride	TM116	**100.6** 69.66 : 136.55	**106.0** 68.02 : 143.37	**94.8** 69.66 : 136.55	**99.0** 69.66 : 136.55	**93.6** 68.02 : 143.37

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

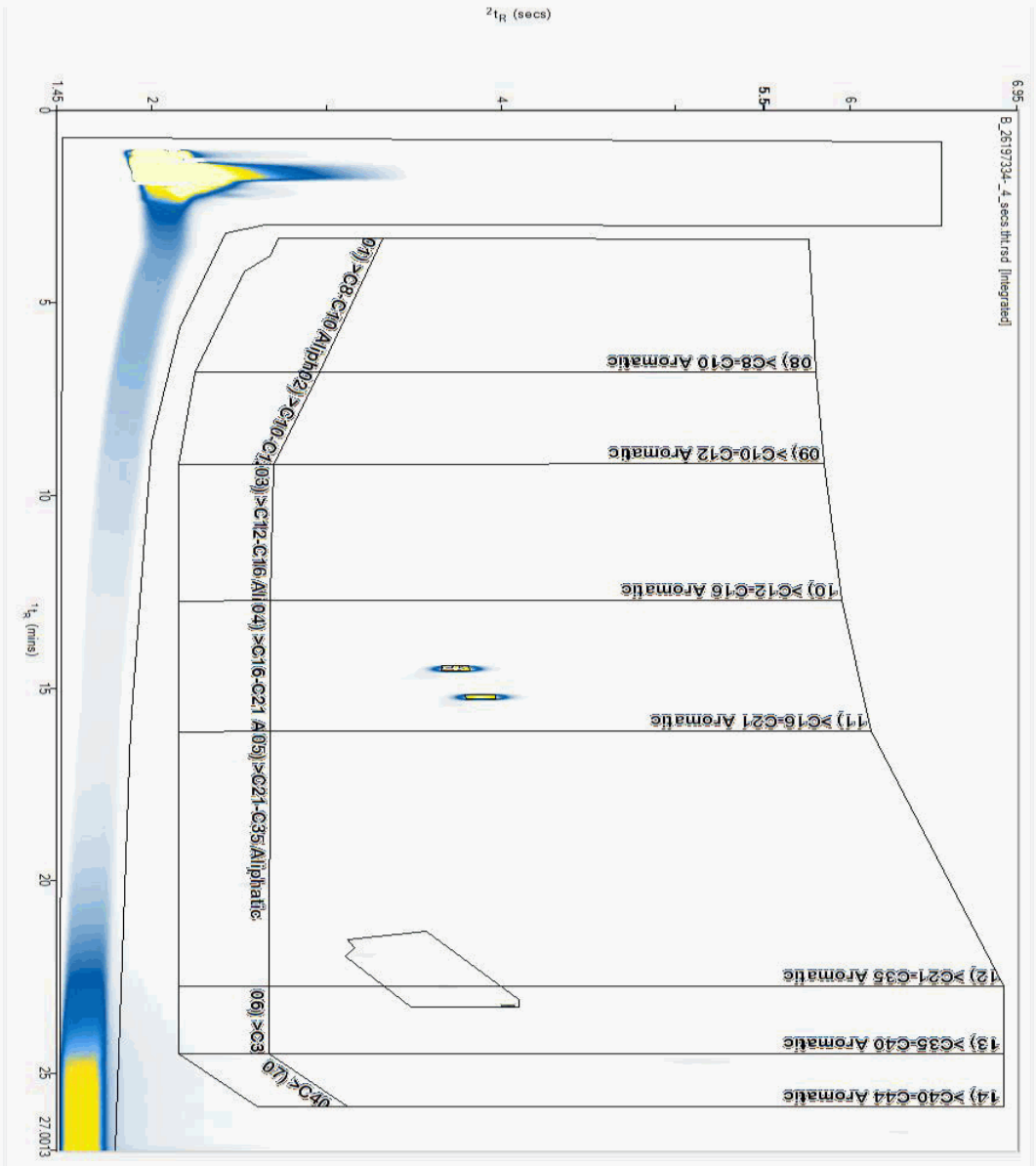
CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197334 **Depth :** 1.15 - 1.15
Sample ID : WS007

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 Current batch
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Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
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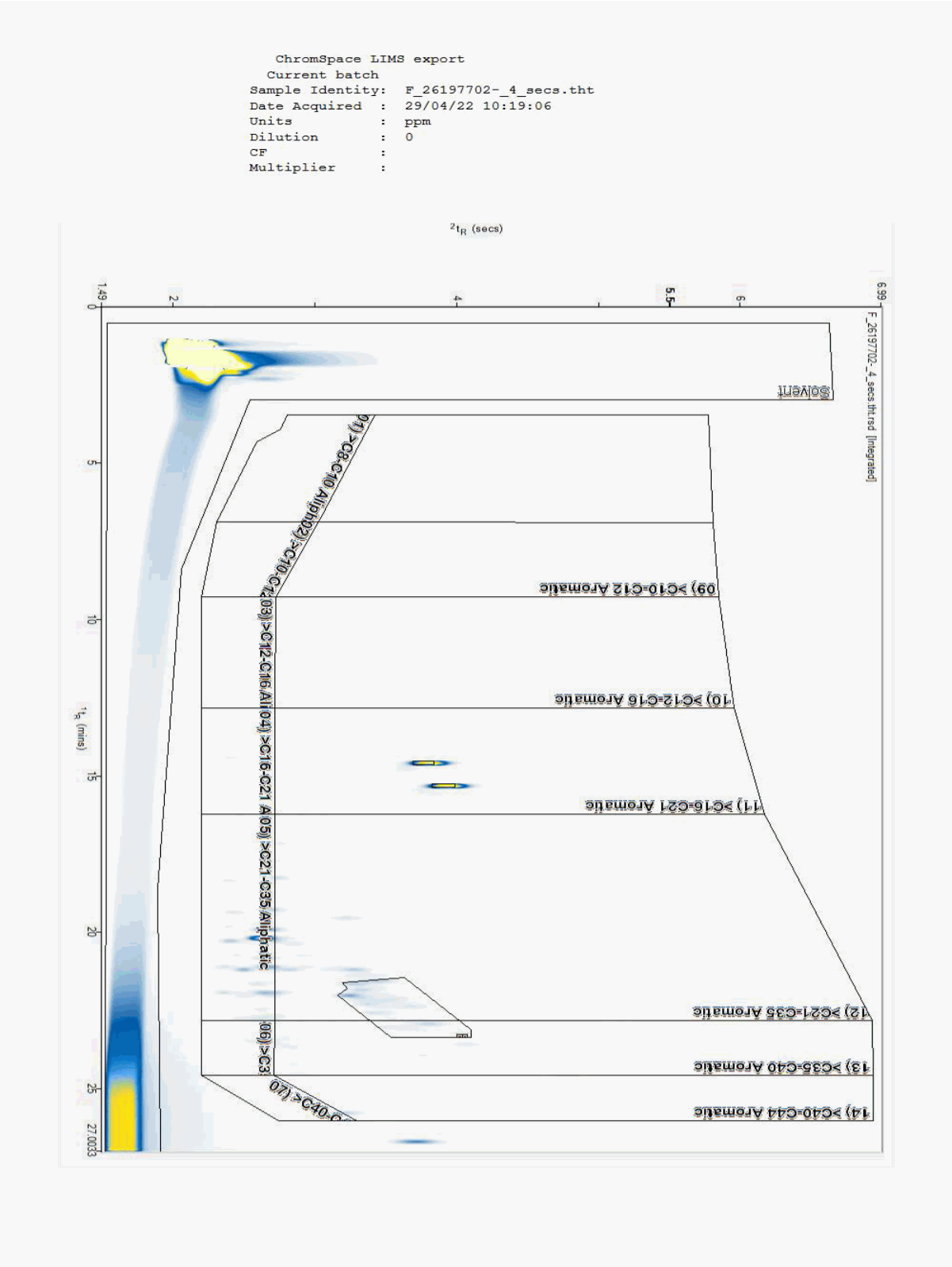


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197702 **Depth :** 0.30 - 0.30
Sample ID : WS009

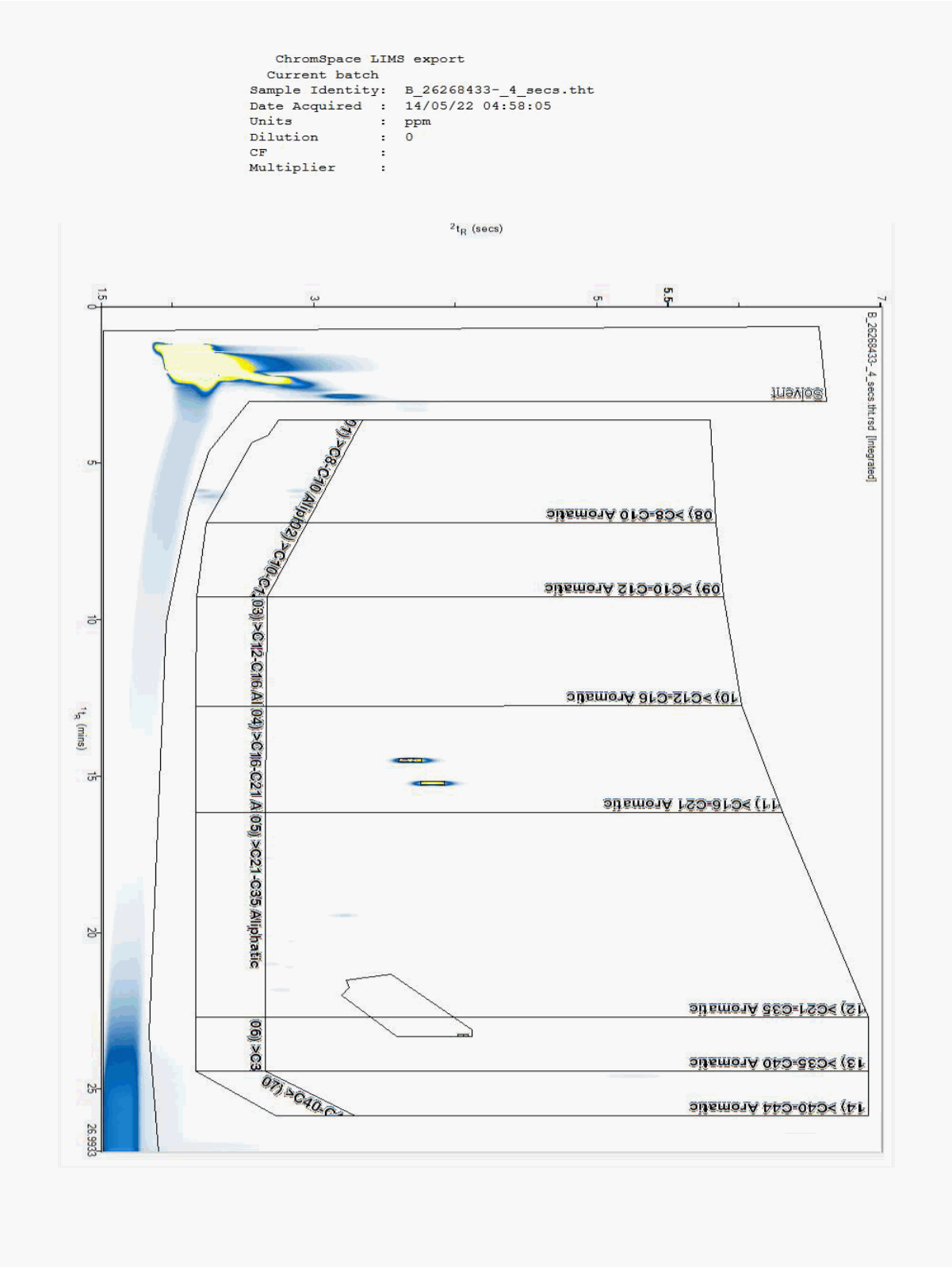


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26268433 **Depth :** 0.80 - 0.80
Sample ID : WS020



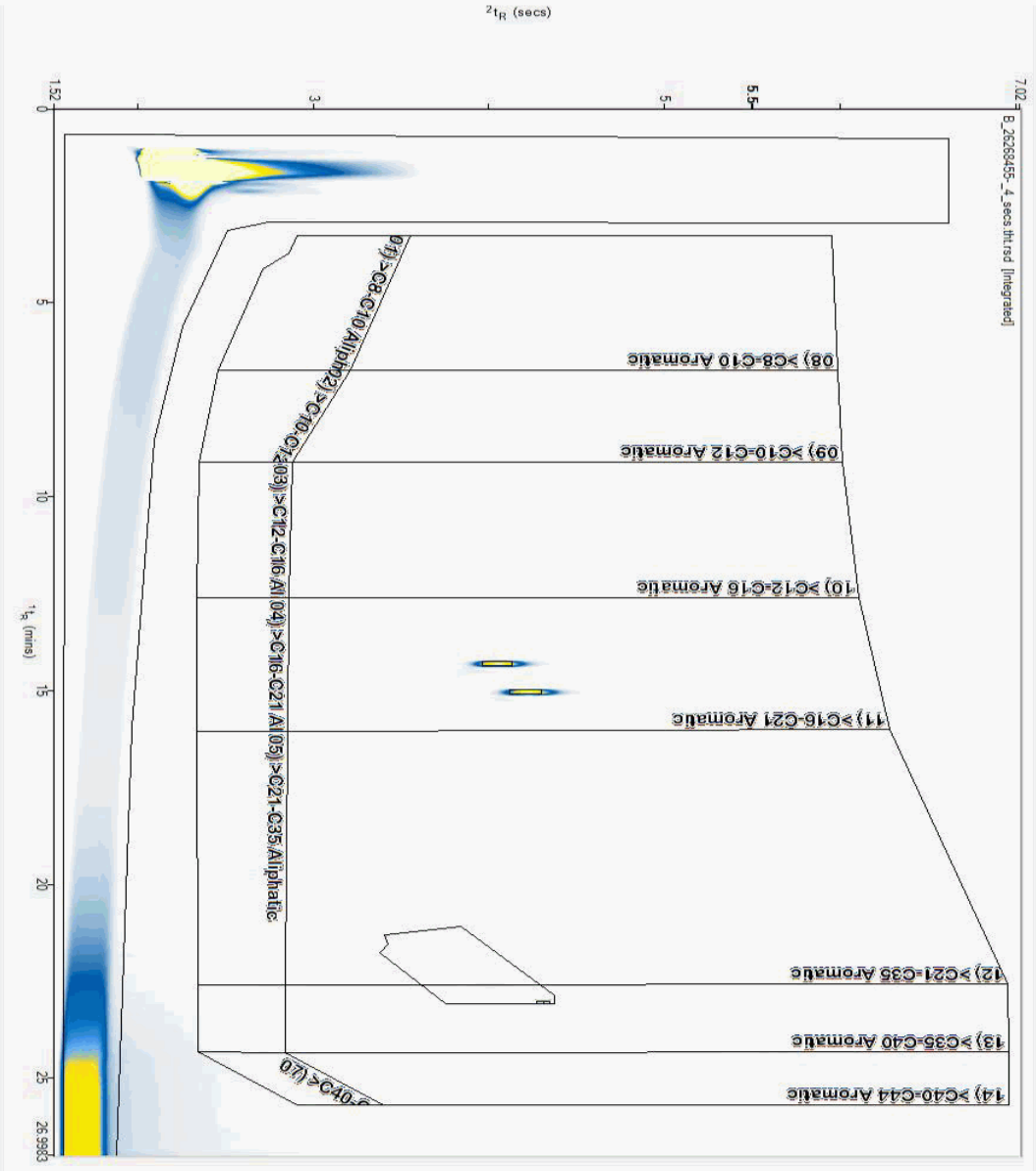
CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26268455 **Depth :** 1.15 - 1.15
Sample ID : WS001

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Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
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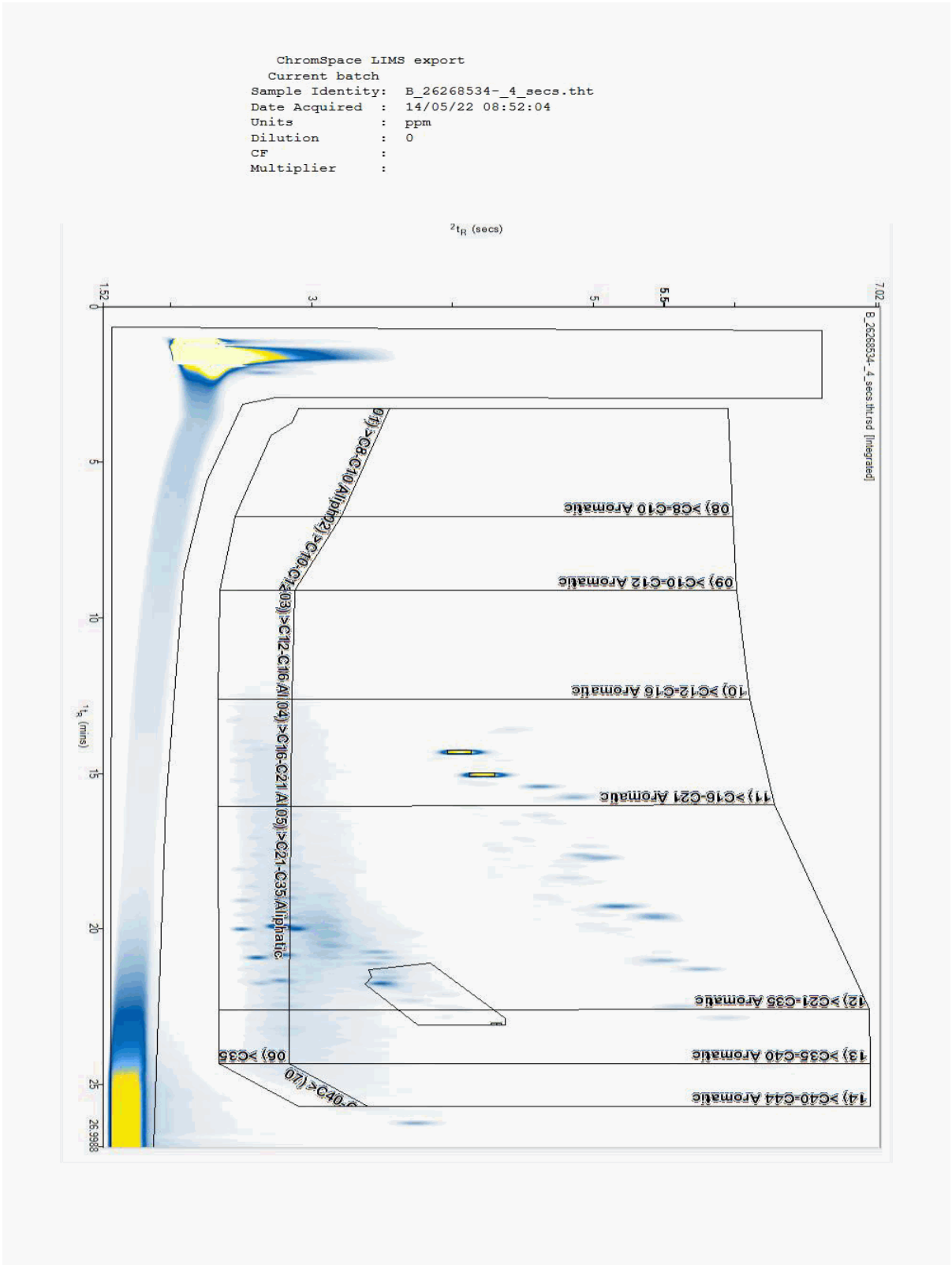


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26268534 **Depth :** 0.30 - 0.30
Sample ID : WS003A



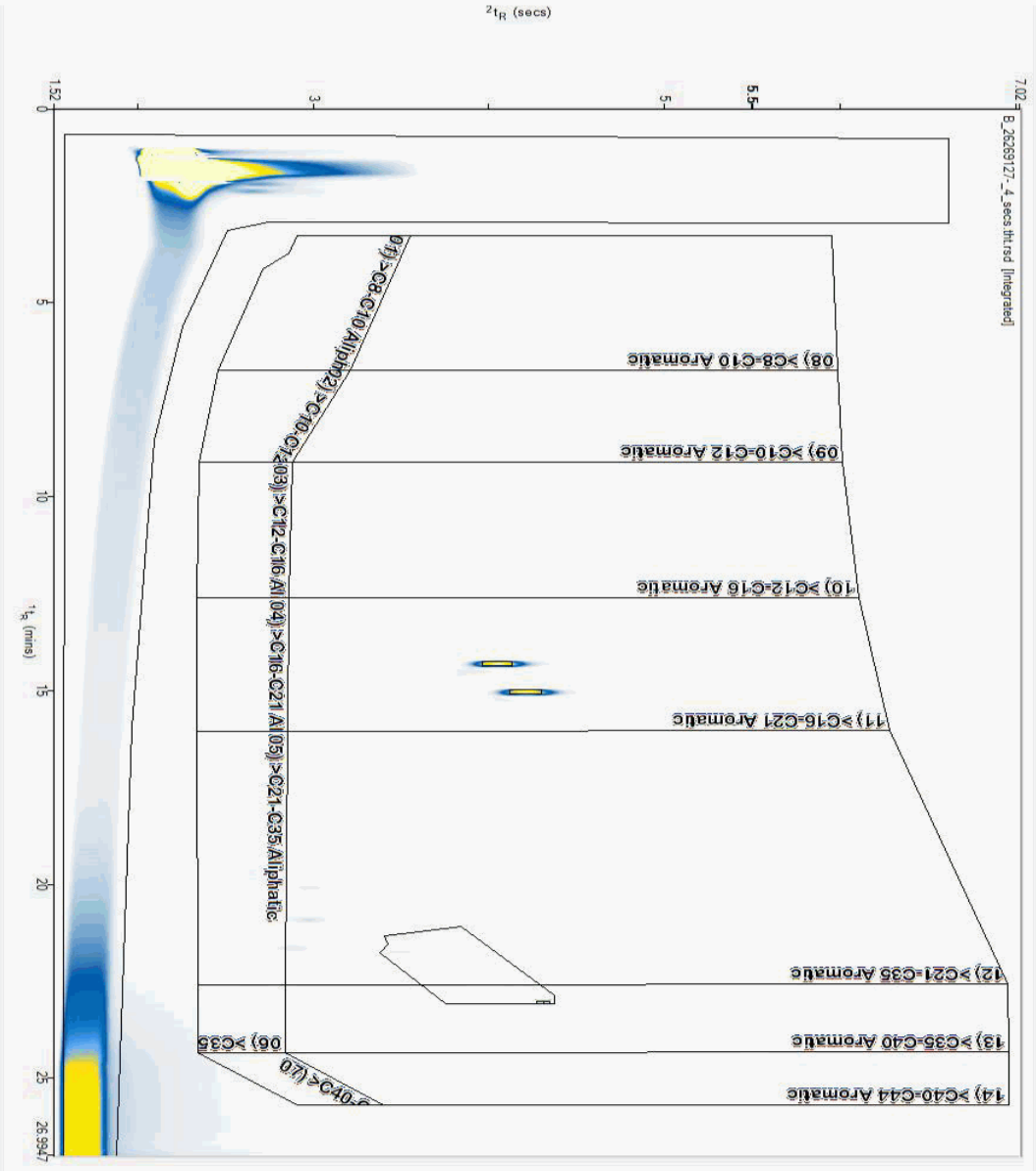
CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26269127 **Depth :** 0.80 - 0.80
Sample ID : WS013

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  Current batch
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Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
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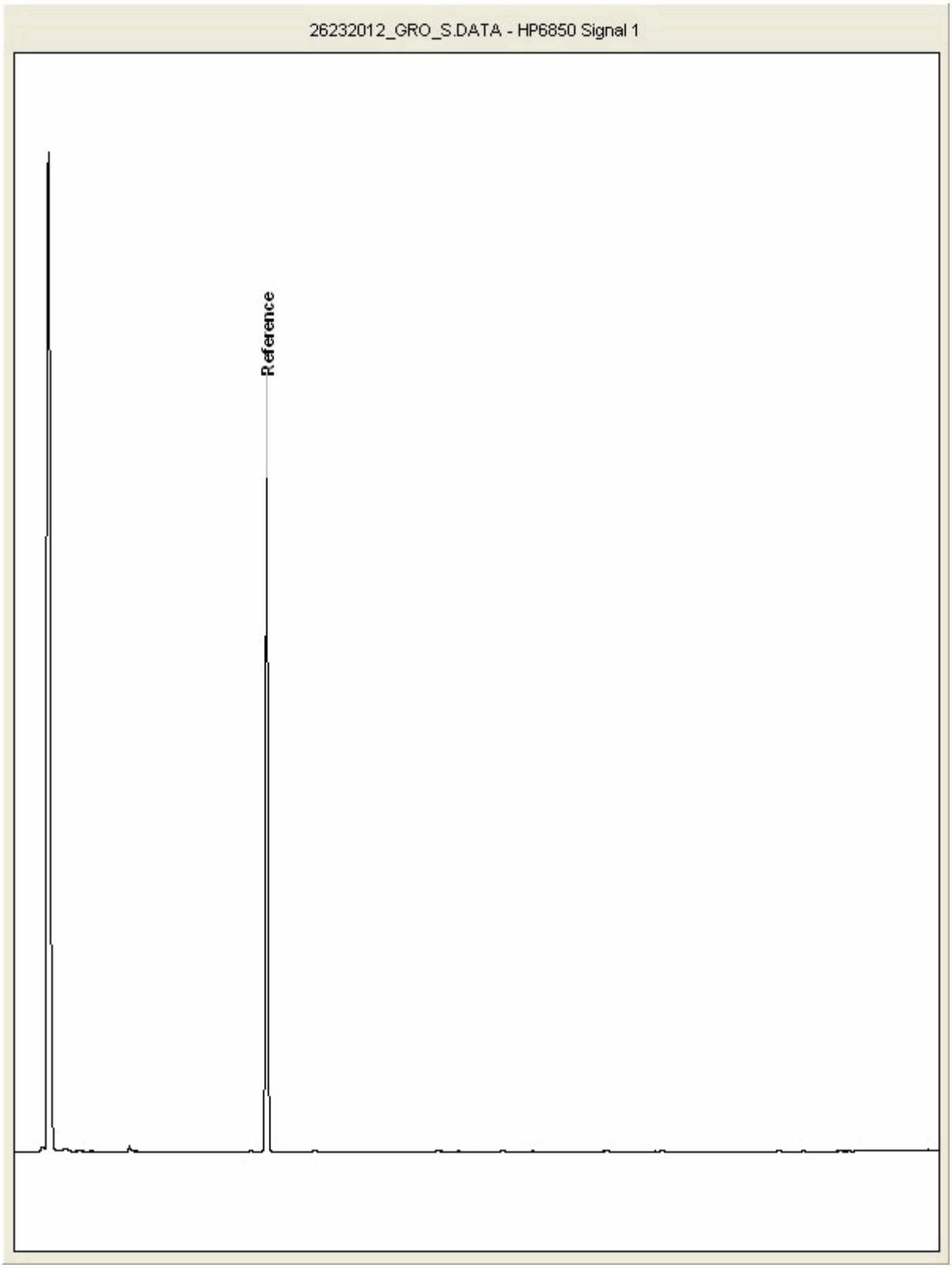


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26232012 **Depth :** 0.30 - 0.30
Sample ID : WS009

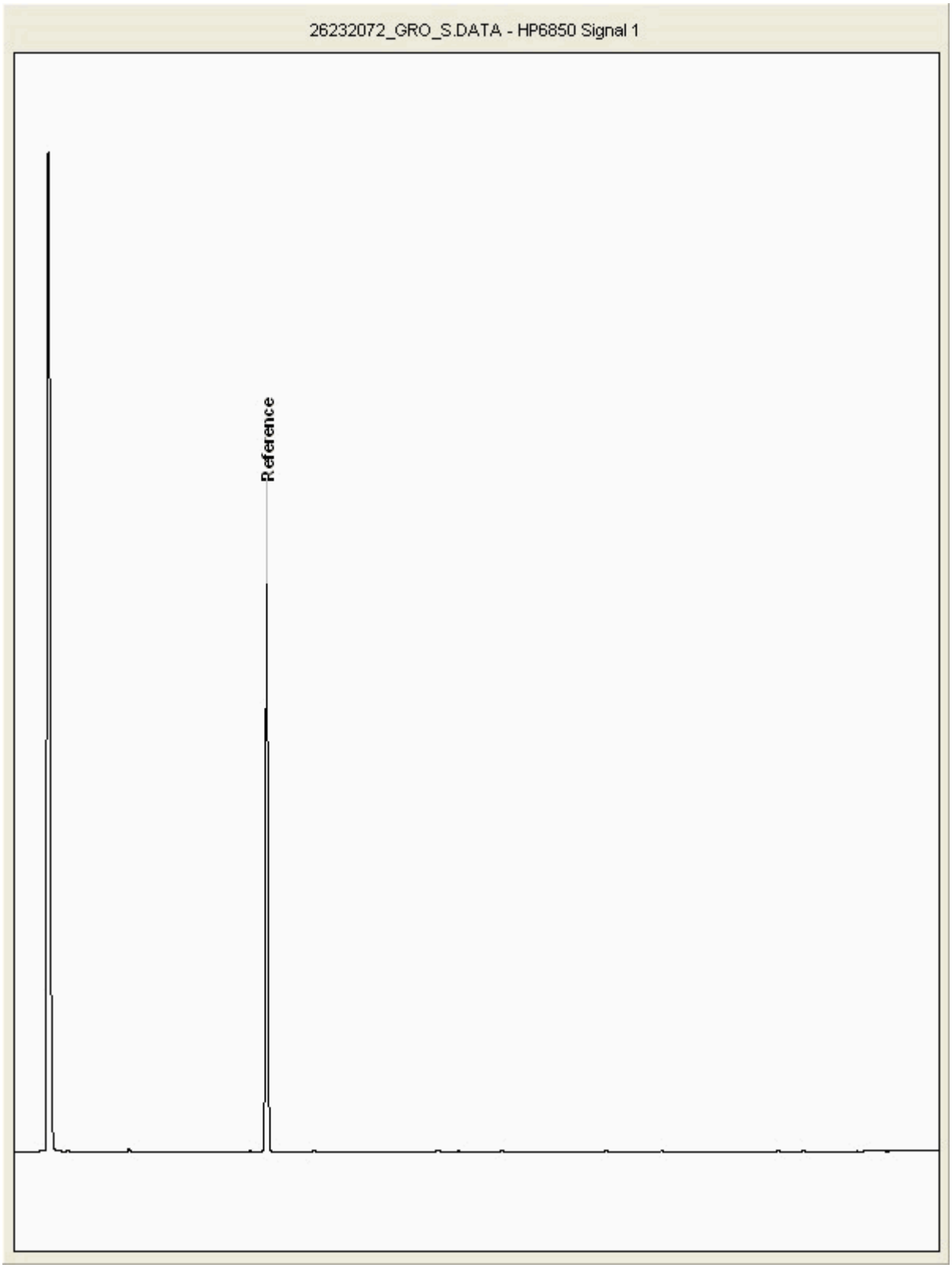


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26232072 **Depth :** 1.15 - 1.15
Sample ID : WS007

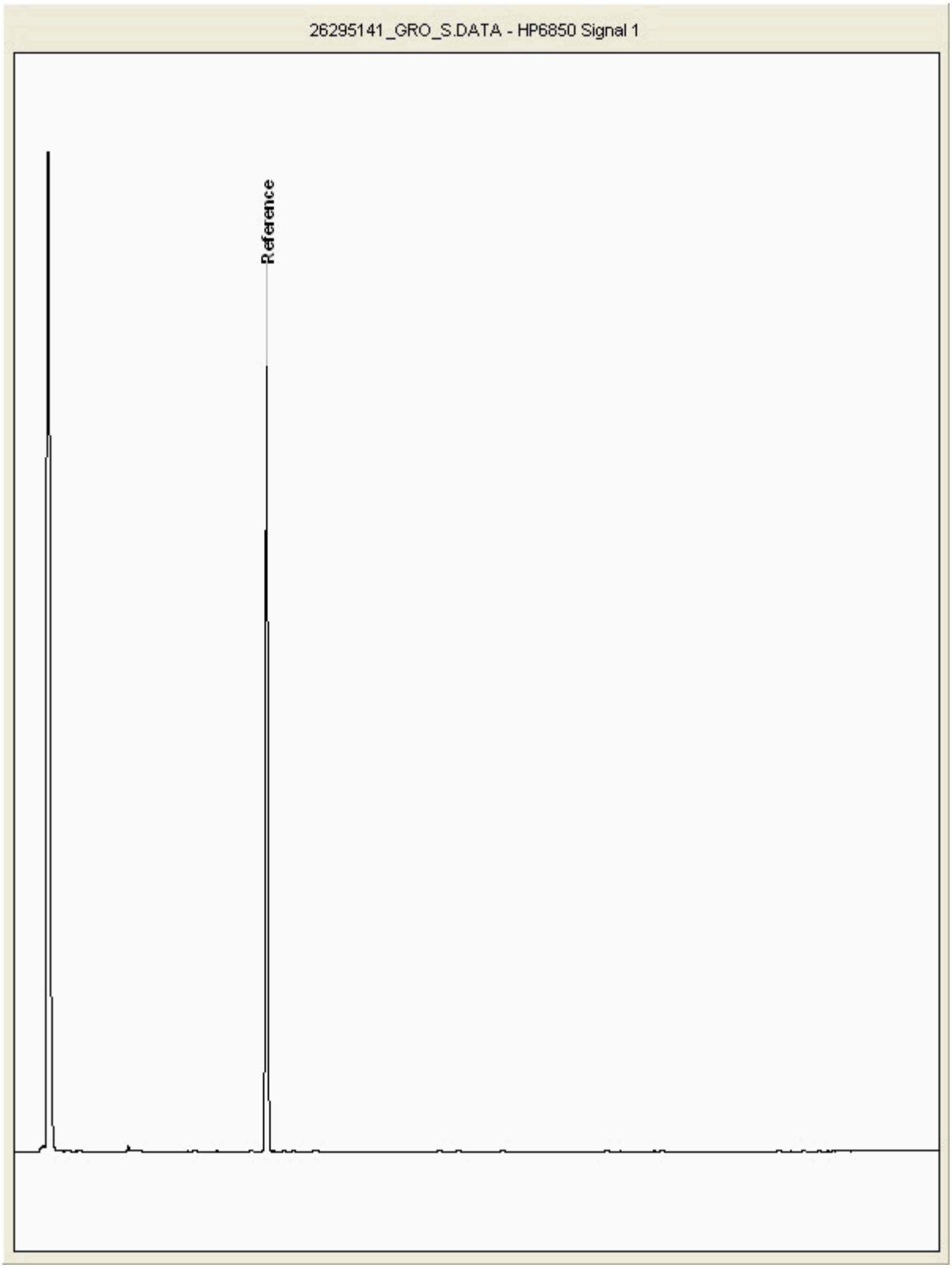


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295141 **Depth :** 0.80 - 0.80
Sample ID : WS020

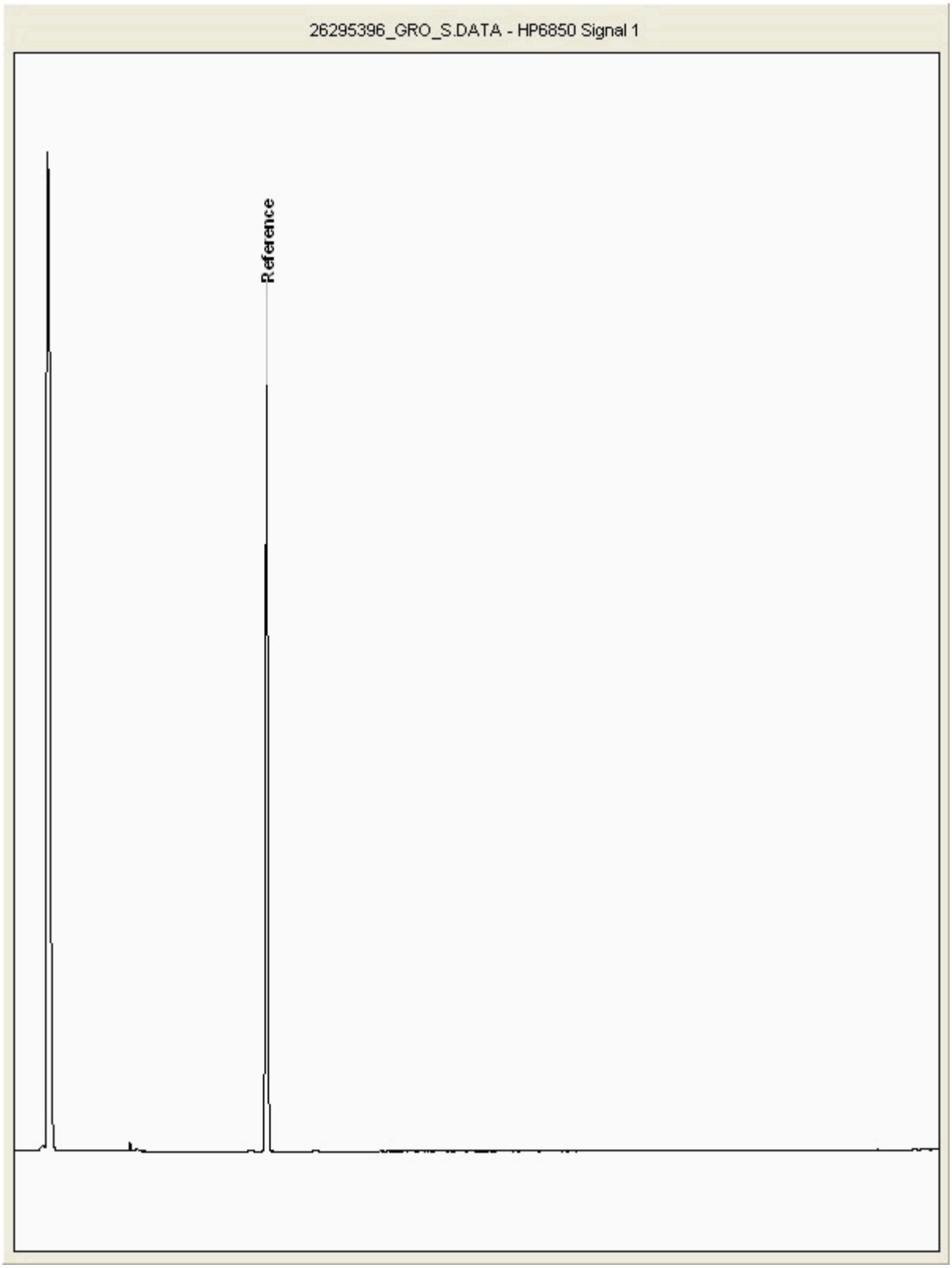


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295396 **Depth :** 1.15 - 1.15
Sample ID : WS001

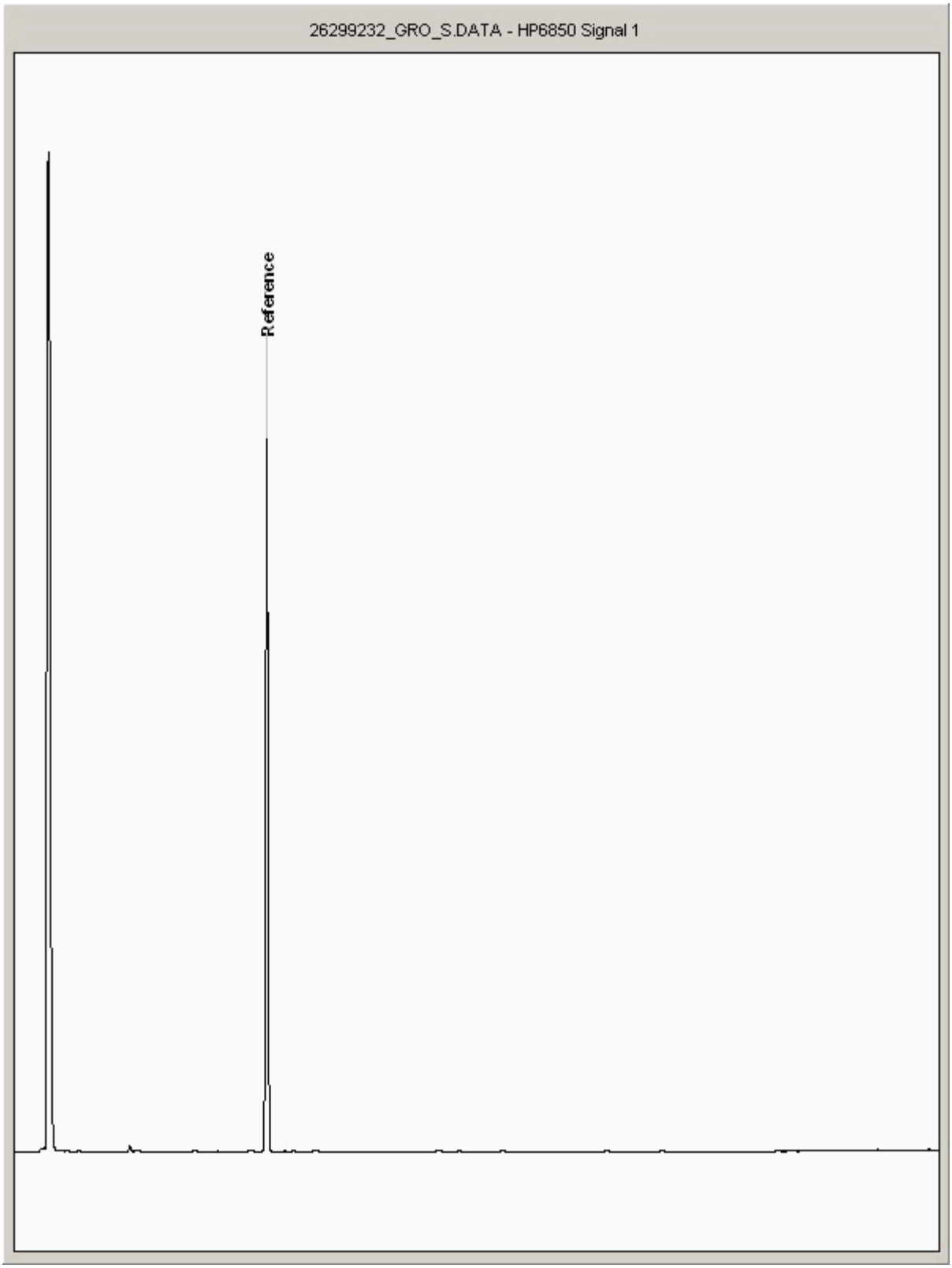


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26299232 **Depth :** 0.80 - 0.80
Sample ID : WS013

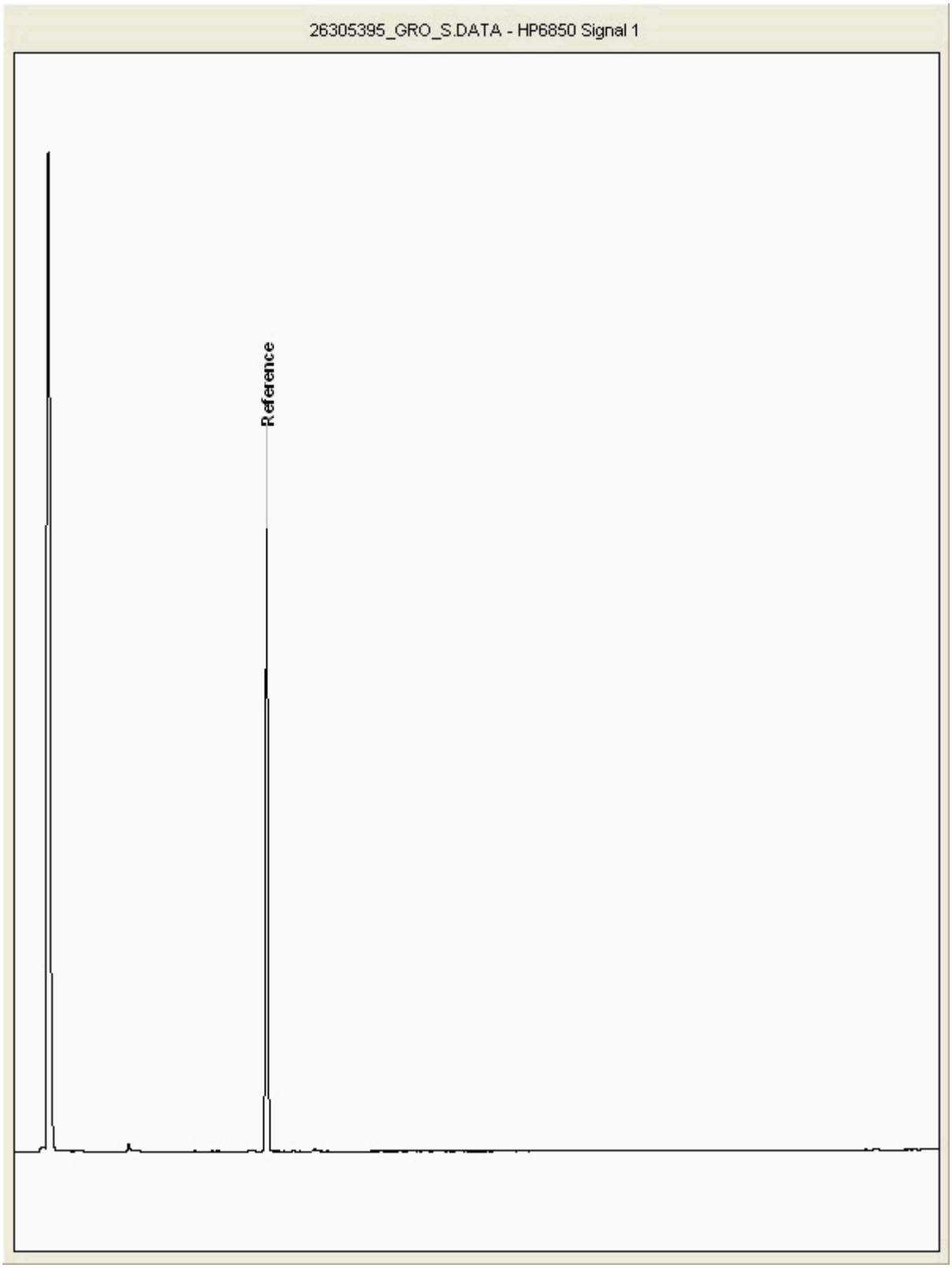


CERTIFICATE OF ANALYSIS

SDG: 220415-75 **Report Number:** 647100 **Superseded Report:** 645201
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26305395 **Depth :** 0.30 - 0.30
Sample ID : WS003A



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220422-156
Your Reference:	JER9352
Location:	Chippenham
Report No:	645139
Order Number:	PO22-197

We received 22 samples on Friday April 22, 2022 and 3 of these samples were scheduled for analysis which was completed on Friday May 06, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26172074	CPT0006	ES	0.30 - 0.30	20/04/2022
26172073	CPT0006	ES	0.80 - 0.80	20/04/2022
26172072	CPT0006	ES	1.20 - 1.20	20/04/2022
26172075	HP_TP_05	ES	0.30 - 0.30	20/04/2022
26172076	HP_TP_05	ES	0.80 - 0.80	20/04/2022
26172077	HP_TP_05	ES	1.20 - 1.20	20/04/2022
26172079	HP_TP_05	ES	2.50 - 2.50	20/04/2022
26172078	HP_TP_05	ES	3.40 - 3.40	20/04/2022
26172083	TP008	ES	0.30 - 0.30	20/04/2022
26172082	TP008	ES	0.80 - 0.80	20/04/2022
26172084	TP008	ES	1.20 - 1.20	20/04/2022
26172085	WS005	ES	2.30 - 2.50	08/04/2022
26172087	WS005	ES	4.50 - 4.70	08/04/2022
26172068	WS011	ES	0.30 - 0.30	11/04/2022
26172070	WS011	ES	0.80 - 0.80	11/04/2022
26172067	WS011	ES	1.15 - 1.15	11/04/2022
26172069	WS011	ES	1.70 - 1.80	11/04/2022
26172071	WS011	ES	2.60 - 2.70	11/04/2022
26172062	WS012	ES	0.30 - 0.30	11/04/2022
26172065	WS012	ES	0.80 - 0.80	11/04/2022
26172063	WS012	ES	1.15 - 1.15	11/04/2022
26172064	WS012	ES	2.70 - 2.80	11/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26172083			26172068			26172065		
			Customer Sample Reference	TP008			WS011			WS012		
			AGS Reference	ES			ES			ES		
			Depth (m)	0.30 - 0.30			0.30 - 0.30			0.80 - 0.80		
			Container	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 3			X			X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 2		X			X					
Anions by Kone (soil)	All	NDPs: 0 Tests: 3			X			X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 2		X			X					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3		X			X			X		
CEN Readings	All	NDPs: 0 Tests: 2		X			X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3			X			X			X	
Coronene	All	NDPs: 0 Tests: 3			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5		X	X		X	X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2		X			X					
Easily Liberated Sulphide	All	NDPs: 0 Tests: 3			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 3			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3				X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3			X			X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 2		X			X					

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26172083	26172068	26172065
Customer Sample Reference			TP008	WS011	WS012
AGS Reference			ES	ES	ES
Depth (m)			0.30 - 0.30	0.30 - 0.30	0.80 - 0.80
Container			1kg TUB / 250g Amber Jar (ALE210) / 60g VOC (ALE215) / 1kg TUB with Handle (ALE260) / 250g Amber Jar (ALE210) / 60g VOC (ALE215) / 1kg TUB with Handle (ALE260) / 250g Amber Jar (ALE210) / 60g VOC (ALE215)		
Sample Type			S / S / S / S / S / S / S / S / S		
Mercury Dissolved	All	NDPs: 0 Tests: 2	X / X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
Nitrite by Kone (w)	All	NDPs: 0 Tests: 2	X / X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
PAH by GCMS	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 2	X / X		
pH	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
pH Value	All	NDPs: 0 Tests: 2	X / X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
Sample description	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
Sulphide	All	NDPs: 0 Tests: 2	X / X		
Total Organic Carbon	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
Total Sulphate	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
TPH CWG GC (S)	All	NDPs: 0 Tests: 3	X / X	X / X	X / X
VOC MS (S)	All	NDPs: 0 Tests: 3	X / X	X / X	X / X

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26172083	TP008	0.30 - 0.30	Light Brown	Clay	None	Stones
26172068	WS011	0.30 - 0.30	Dark Brown	Sandy Clay Loam	Stones	Vegetation
26172065	WS012	0.80 - 0.80	Light Brown	Clay	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP008	WS011	WS012			
			Depth (m)	0.30 - 0.30	0.30 - 0.30	0.80 - 0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	20/04/2022	11/04/2022	11/04/2022			
			Sampled Time	.	.	.			
			Date Received	22/04/2022	22/04/2022	22/04/2022			
			SDG Ref	220422-156	220422-156	220422-156			
			Lab Sample No.(s)	26172083	26172068	26172065			
			AGS Reference	ES	ES	ES			
Moisture Content Ratio (% of as received sample)	%	PM024		20	22	17			
Phenol	mg/kg	TM062 (S)		<0.01 M	<0.01 @ M	<0.01 @ M			
Soil Organic Matter (SOM)	%	TM132		0.764 #	7.33 #	0.414 #			
pH	pH Units	TM133		8.2 M	8.17 M	7.59 M			
Chromium, Hexavalent	mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #			
Cyanide, Total	mg/kg	TM153		<1 M	<1 @ M	<1 @ M			
Cyanide, Free	mg/kg	TM153		<1 M	<1 @ M	<1 @ M			
Cyanide, Complex	mg/kg	TM153		<1	<1	<1			
Sulphide, Easily liberated	mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M			
Aluminium	mg/kg	TM181		23400	14600	20700			
Antimony	mg/kg	TM181		1.12 #	1.62 #	<0.6 #			
Arsenic	mg/kg	TM181		18.6 M	16.8 M	14 M			
Barium	mg/kg	TM181		36.2 #	182 #	49 #			
Beryllium	mg/kg	TM181		1.08 M	1.38 M	1.62 M			
Boron	mg/kg	TM181		12.5 #	16.8 #	16.9 #			
Cadmium	mg/kg	TM181		<0.02 M	0.282 M	0.332 M			
Chromium	mg/kg	TM181		26.3 M	14.9 M	31.1 M			
Copper	mg/kg	TM181		16.6 M	40.1 M	16.8 M			
Iron	mg/kg	TM181		67900 #	32600 #	35000 #			
Lead	mg/kg	TM181		20.5 M	68.2 M	19.6 M			
Manganese	mg/kg	TM181		110 M	249 M	588 M			
Mercury	mg/kg	TM181		<0.1 M	<0.1 M	<0.1 M			
Molybdenum	mg/kg	TM181		3.58 #	2.67 #	2.76 #			
Nickel	mg/kg	TM181		28.6 M	33 M	59.6 M			
Selenium	mg/kg	TM181		1.54 #	<1 #	<1 #			
Vanadium	mg/kg	TM181		53.9 #	39.5 #	53.5 #			
Zinc	mg/kg	TM181		95.4 M	129 M	145 M			
Sulphate, Total	mg/kg	TM221		172 M	1590 M	264 M			
Conductivity @ 20 deg.C	mS/cm	TM234		2.04	2	2.01			
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243		0.023 M	0.0343 M	0.0424 M			
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248		5.24	4.06	3.93			
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410		<318	9060	<318			

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP008	WS011	WS012			
			Depth (m)	0.30 - 0.30	0.30 - 0.30	0.80 - 0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	20/04/2022	11/04/2022	11/04/2022			
			Sampled Time	.	.	.			
			Date Received	22/04/2022	22/04/2022	22/04/2022			
			SDG Ref	220422-156	220422-156	220422-156			
			Lab Sample No.(s)	26172083	26172068	26172065			
			AGS Reference	ES	ES	ES			
Coronene	<200 µg/kg	TM410		<200	<200	<200			

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP008	WS011	WS012			
			Depth (m)	0.30 - 0.30	0.30 - 0.30	0.80 - 0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	20/04/2022	11/04/2022	11/04/2022			
			Sampled Time	.	.	.			
			Date Received	22/04/2022	22/04/2022	22/04/2022			
			SDG Ref	220422-156	220422-156	220422-156			
			Lab Sample No.(s)	26172083	26172068	26172065			
			AGS Reference	ES	ES	ES			
Naphthalene-d8 % recovery**	%	TM218		94.5	90.2	90.8			
Acenaphthene-d10 % recovery**	%	TM218		94.5	90.4	90			
Phenanthrene-d10 % recovery**	%	TM218		96.1	91.4	91.8			
Chrysene-d12 % recovery**	%	TM218		100	91.7	100			
Perylene-d12 % recovery**	%	TM218		94.2	89.3	108			
Naphthalene	<9 µg/kg	TM218		<9 M	29.1 @ M	<9 @ M			
Acenaphthylene	<12 µg/kg	TM218		<12 M	104 @ M	<12 @ M			
Acenaphthene	<8 µg/kg	TM218		<8 M	17.2 @ M	<8 @ M			
Fluorene	<10 µg/kg	TM218		<10 M	89.7 @ M	<10 @ M			
Phenanthrene	<15 µg/kg	TM218		<15 M	1430 @ M	<15 @ M			
Anthracene	<16 µg/kg	TM218		<16 M	295 @ M	<16 @ M			
Fluoranthene	<17 µg/kg	TM218		<17 M	1770 @ M	<17 @ M			
Pyrene	<15 µg/kg	TM218		<15 M	1300 @ M	<15 @ M			
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	789 @ M	<14 @ M			
Chrysene	<10 µg/kg	TM218		<10 M	649 @ M	<10 @ M			
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	858 @ M	<15 @ M			
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	320 @ M	<14 @ M			
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	577 @ M	<15 @ M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	434 @ M	<18 @ M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	67.2 @ M	<23 @ M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	333 @ M	<24 @ M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	9060	<118			

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP008	WS011	WS012			
			Depth (m)	0.30 - 0.30	0.30 - 0.30	0.80 - 0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	20/04/2022	11/04/2022	11/04/2022			
			Sampled Time	.	.	.			
			Date Received	22/04/2022	22/04/2022	22/04/2022			
			SDG Ref	220422-156	220422-156	220422-156			
			Lab Sample No.(s)	26172083	26172068	26172065			
			AGS Reference	ES	ES	ES			
GRO Surrogate % recovery**	%	TM089		102 @	84.3 @	105 @			
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 #	<1000 @ #	<1000 @ #			
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 #	<1000 @ #	<1000 @ #			
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 #	<1000 @ #	<1000 @ #			
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		1520 #	24700 @ #	<1000 @ #			
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000	3630 @	<1000 @			
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	28800 @	<5000 @			
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		<10000	42400	<10000			
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	<1000 @ #	<1000 @ #			
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	<1000 @ #	<1000 @ #			
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	1040 @ #	<1000 @ #			
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	11100 @ #	<1000 @ #			
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000	1520 @	<1000 @			
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000	<1000 @	<1000 @			
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	13600	<5000			
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		<10000	42400	<10000			
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20 @	<20 @	<20 @			

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.					
			TP008	WS011	WS012			
			Depth (m)	0.30 - 0.30	0.30 - 0.30	0.80 - 0.80		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	20/04/2022	11/04/2022	11/04/2022		
			Sampled Time	.	.	.		
			Date Received	22/04/2022	22/04/2022	22/04/2022		
			SDG Ref	220422-156	220422-156	220422-156		
			Lab Sample No.(s)	26172083	26172068	26172065		
			AGS Reference	ES	ES	ES		
Dibromofluoromethane**	%	TM116	113 @	108 @	103 @			
Toluene-d8**	%	TM116	97.3 @	96.2 @	98.5 @			
4-Bromofluorobenzene**	%	TM116	86.9 @	102 @	104 @			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M	<200 @ M	<10 @ M			
Benzene	<9 µg/kg	TM116	<9 @ M	<180 @ M	<9 @ M			
Toluene	<7 µg/kg	TM116	<7 @ M	<140 @ M	<7 @ M			
Ethylbenzene	<4 µg/kg	TM116	<4 @ M	<80 @ M	<4 @ M			
p/m-Xylene	<10 µg/kg	TM116	<10 @ #	<200 @ #	<10 @ #			
o-Xylene	<10 µg/kg	TM116	<10 @ M	<200 @ M	<10 @ M			
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @	<0.4 @	<0.02 @			
Sum of BTEX	<40 µg/kg	TM116	<40 @	<800 @	<40 @			

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP008ES 0.30 - 0.30 SOLID 20/04/2022 00:00:00 22/04/2022 05:00:00 220422-156 26172083 TM048	04/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS011ES 0.30 - 0.30 SOLID 11/04/2022 00:00:00 22/04/2022 05:00:00 220422-156 26172068 TM048	04/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS012ES 0.80 - 0.80 SOLID 11/04/2022 00:00:00 22/04/2022 05:00:00 220422-156 26172065 TM048	04/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.115	**Natural Moisture Content (%)**	28.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78
Particle Size <4mm	>95%		

Case	
SDG	220422-156
Lab Sample Number(s)	26172068
Sampled Date	11-Apr-2022
Customer Sample Ref.	WS011 ESZ
Depth (m)	0.30 - 0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.0101	<0.01	0.101	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00058	<0.0005	0.0058	<0.005	-	-	-
Barium	0.014	<0.0002	0.14	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0283	<0.01	0.283	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00245	<0.0003	0.0245	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.576	<0.019	5.76	<0.19	-	-	-
Lead	0.00027	<0.0002	0.0027	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	0.0116	<0.003	0.116	<0.03	-	-	-
Nickel	0.00125	<0.0004	0.0125	<0.004	-	-	-
Phosphorus	0.0183	<0.01	0.183	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00324	<0.001	0.0324	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Nitrate as N	0.779	<0.0677	7.79	<0.677	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	0.0000103	<0.000005	0.000103	<0.00005	-	-	-
Fluoranthene by GCMS	0.00000984	<0.000005	0.0000984	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	0.0000124	<0.000005	0.000124	<0.00005	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.93
Conductivity (µS/cm)	123.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.875

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CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.115	**Natural Moisture Content (%)**	28.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78
Particle Size <4mm	>95%		

Case	
SDG	220422-156
Lab Sample Number(s)	26172068
Sampled Date	11-Apr-2022
Customer Sample Ref.	WS011 ESZ
Depth (m)	0.30 - 0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	0.00000881	<0.000005	0.0000881	<0.00005	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	8.93
Conductivity (µS/cm)	123.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.875

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CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	26.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78.8
Particle Size <4mm	>95%		

Case	
SDG	220422-156
Lab Sample Number(s)	26172083
Sampled Date	20-Apr-2022
Customer Sample Ref.	TP008 ESZ
Depth (m)	0.30 - 0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.174	<0.01	1.74	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00118	<0.0005	0.0118	<0.005	-	-	-
Barium	0.00322	<0.0002	0.0322	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0208	<0.01	0.208	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00365	<0.0003	0.0365	<0.003	-	-	-
Iron (Dis.Filt) mg/l	2.16	<0.019	21.6	<0.19	-	-	-
Lead	0.00077	<0.0002	0.0077	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	0.00322	<0.003	0.0322	<0.03	-	-	-
Nickel	0.000758	<0.0004	0.00758	<0.004	-	-	-
Phosphorus	0.0407	<0.01	0.407	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	0.00153	<0.001	0.0153	<0.01	-	-	-
Zinc	0.00398	<0.001	0.0398	<0.01	-	-	-
Chloride	4.2	<2	42	<20	-	-	-
Nitrate as N	1.26	<0.0677	12.6	<0.677	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Acenaphthylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Naphthalene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Phenanthrene by GCMS	0.000012	<0.00001	0.00012	<0.0001	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	7.04
Conductivity (µS/cm)	108.00
Temperature (°C)	19.40
Volume Leachant (Litres)	0.876

06/05/2022 16:47:17

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	26.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78.8
Particle Size <4mm	>95%		

Case	
SDG	220422-156
Lab Sample Number(s)	26172083
Sampled Date	20-Apr-2022
Customer Sample Ref.	TP008 ESZ
Depth (m)	0.30 - 0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(a)pyrene by GCMS	<0.000004	<0.000004	<0.00004	<0.00004	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(ghi)perylene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Chrysene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Fluorene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
PAH 16 EPA Total by GCMS	<0.000164	<0.000164	<0.00164	<0.00164	-	-	-
Pyrene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-

Leach Test Information

Date Prepared	30-Apr-2022
pH (pH Units)	7.04
Conductivity (µS/cm)	108.00
Temperature (°C)	19.40
Volume Leachant (Litres)	0.876

06/05/2022 16:47:17

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26172083	26172068	26172065
Customer Sample Ref.	TP008	WS011	WS012
AGS Ref.	ES	ES	ES
Depth	0.30 - 0.30	0.30 - 0.30	0.80 - 0.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	04-May-2022	04-May-2022	04-May-2022
Ammoniacal Nitrogen	05-May-2022	05-May-2022	
Anions by Kone (soil)	04-May-2022	04-May-2022	04-May-2022
Anions by Kone (w)	05-May-2022	05-May-2022	
Asbestos ID in Solid Samples	04-May-2022	04-May-2022	04-May-2022
CEN 10:1 Leachate (1 Stage)	30-Apr-2022	30-Apr-2022	
CEN Readings	04-May-2022	04-May-2022	
Conductivity (at 20 deg.C)	04-May-2022	04-May-2022	04-May-2022
Coronene	29-Apr-2022	03-May-2022	03-May-2022
Cyanide Comp/Free/Total/Thiocyanate	06-May-2022	05-May-2022	04-May-2022
Dissolved Metals by ICP-MS	05-May-2022	05-May-2022	
Easily Liberated Sulphide	29-Apr-2022	03-May-2022	29-Apr-2022
EPH CWG GC (S)	03-May-2022	03-May-2022	03-May-2022
GRO by GC-FID (S)	06-May-2022	06-May-2022	05-May-2022
Hexavalent Chromium (s)	29-Apr-2022	29-Apr-2022	29-Apr-2022
Hexavalent Chromium (w)	05-May-2022	05-May-2022	
Mercury Dissolved	05-May-2022	05-May-2022	
Metals in solid samples by OES	04-May-2022	04-May-2022	04-May-2022
Moisture at 105C	30-Apr-2022	30-Apr-2022	
Nitrite by Kone (w)	05-May-2022	04-May-2022	
PAH 16 & 17 Calc	29-Apr-2022	03-May-2022	03-May-2022
PAH by GCMS	29-Apr-2022	03-May-2022	03-May-2022
PAH Spec MS - Aqueous (W)	05-May-2022	05-May-2022	
pH	03-May-2022	03-May-2022	03-May-2022
pH Value	06-May-2022	05-May-2022	
Phenols by HPLC (S)	29-Apr-2022	29-Apr-2022	03-May-2022
Sample description	28-Apr-2022	28-Apr-2022	28-Apr-2022
Sulphide	05-May-2022	05-May-2022	
Total Organic Carbon	05-May-2022	05-May-2022	05-May-2022
Total Sulphate	04-May-2022	04-May-2022	04-May-2022
TPH CWG GC (S)	06-May-2022	06-May-2022	05-May-2022
VOC MS (S)	05-May-2022	06-May-2022	05-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2603	QC 2611
Ammoniacal Nitrogen as N	TM099	**96.8** 90.84 : 105.72	**97.2** 90.84 : 105.72

Anions by Kone (soil)

Component	Method Code	QC 2628
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**96.74** 84.22 : 110.23

Anions by Kone (w)

Component	Method Code	QC 2607	QC 2669
Chloride	TM184	**106.0** 97.18 : 113.20	**106.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**103.2** 96.54 : 111.66	**103.2** 96.54 : 111.66
TON as NO3	TM184	**109.5** 100.65 : 111.75	**110.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2690	QC 2656
Coronene RAW	TM410	**96.5** 79.43 : 137.78	**112.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2683	QC 2628	QC 2638
Free Cyanide	TM153	**105.94** 77.50 : 118.90		
Free Cyanide (W)	TM227		**84.25** 80.33 : 126.33	**85.75** 80.33 : 126.33
Thiocyanate	TM153	**109.62** 92.20 : 113.40		
Thiocyanate (W)	TM227		**106.5** 84.05 : 116.45	**103.0** 84.05 : 116.45
Total Cyanide	TM153	**110.49** 80.07 : 114.07		
Total Cyanide (W)	TM227		**107.75** 79.19 : 117.11	**107.5** 79.19 : 117.11

Dissolved Metals by ICP-MS

Dissolved Metals by ICP-MS

Component	Method Code	QC 2616	QC 2649
Aluminium	TM152	**101.0** 90.98 : 111.82	**100.33** 90.98 : 111.82
Antimony	TM152	**102.17** 90.44 : 113.04	**100.0** 90.44 : 113.04
Arsenic	TM152	**103.5** 94.87 : 109.67	**101.33** 94.87 : 109.67
Barium	TM152	**103.67** 90.20 : 111.19	**100.67** 90.20 : 111.19
Beryllium	TM152	**100.67** 87.77 : 113.97	**101.0** 87.77 : 113.97
Bismuth	TM152	**100.17** 91.90 : 112.20	**98.83** 91.90 : 112.20
Borate	TM152	**99.38** 88.00 : 112.00	**99.38** 88.00 : 112.00
Boron	TM152	**99.0** 92.27 : 112.40	**99.33** 92.27 : 112.40
Cadmium	TM152	**100.0** 96.43 : 110.53	**100.0** 96.43 : 110.53
Calcium	TM152	**103.33** 95.14 : 110.01	**100.67** 95.14 : 110.01
Chromium	TM152	**101.33** 91.84 : 108.67	**98.67** 91.84 : 108.67
Cobalt	TM152	**95.67** 90.72 : 109.61	**93.17** 90.72 : 109.61
Copper	TM152	**100.67** 94.47 : 109.05	**98.67** 94.47 : 109.05
Iron	TM152	**101.33** 94.40 : 107.90	**98.67** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46	**97.67** 93.55 : 109.46
Lithium	TM152	**100.33** 91.62 : 113.12	**99.83** 91.62 : 113.12
Magnesium	TM152	**104.67** 92.30 : 110.57	**101.33** 92.30 : 110.57
Manganese	TM152	**102.33** 94.75 : 108.21	**100.0** 94.75 : 108.21
Molybdenum	TM152	**98.33** 93.55 : 107.66	**96.67** 93.55 : 107.66
Nickel	TM152	**100.67** 88.00 : 112.00	**98.67** 88.00 : 112.00
Phosphorus	TM152	**103.67** 92.51 : 109.27	**103.0** 92.51 : 109.27
Potassium	TM152	**103.33** 92.16 : 109.93	**102.0** 92.16 : 109.93
Selenium	TM152	**103.83** 91.58 : 115.98	**101.0** 91.58 : 115.98
Silver	TM152	**101.67** 92.75 : 111.05	**99.33** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62	**99.33** 89.47 : 109.62
Strontium	TM152	**102.0** 95.40 : 109.43	**102.33** 95.40 : 109.43
Tellurium	TM152	**104.5** 93.32 : 114.66	**102.67** 93.32 : 114.66

Dissolved Metals by ICP-MS

		QC 2616	QC 2649
Thallium	TM152	**107.83** 88.00 : 112.00	**102.67** 88.00 : 112.00
Tin	TM152	**99.67** 92.63 : 109.70	**98.17** 92.63 : 109.70
Titanium	TM152	**99.33** 95.08 : 109.28	**97.5** 95.08 : 109.28
Tungsten	TM152	**98.33** 94.68 : 107.68	**96.5** 94.68 : 107.68
Uranium	TM152	**97.33** 88.00 : 112.00	**96.17** 88.00 : 112.00
Vanadium	TM152	**98.17** 88.00 : 112.00	**97.83** 88.00 : 112.00
Zinc	TM152	**102.0** 95.31 : 110.74	**100.33** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2648	QC 2682
Easily Liberated Sulphide	TM180	**100.73** 51.10 : 121.66	**98.64** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2643	QC 2601
QC	TM089	**79.51** 65.61 : 111.21	**78.48** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2684	QC 2605
Hexavalent Chromium	TM151	**100.0** 83.40 : 113.40	**106.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2698
Hexavalent Chromium	TM241	**98.2** 94.17 : 106.17

Mercury Dissolved

Mercury Dissolved

Component	Method Code	QC 2637
Mercury Dissolved (CVAF)	TM183	**107.0** 69.30 : 128.70

Metals in solid samples by OES

Component	Method Code	QC 2649
Aluminium	TM181	**110.53** 87.31 : 119.03
Antimony	TM181	**113.78** 91.44 : 127.14
Arsenic	TM181	**105.41** 88.33 : 120.06
Barium	TM181	**105.64** 94.57 : 124.93
Beryllium	TM181	**106.71** 85.73 : 122.70
Boron	TM181	**109.32** 85.66 : 120.24
Cadmium	TM181	**104.06** 87.30 : 121.60
Chromium	TM181	**99.02** 85.06 : 113.81
Cobalt	TM181	**102.55** 92.91 : 111.38
Copper	TM181	**91.37** 81.22 : 113.41
Iron	TM181	**106.42** 86.44 : 122.27
Lead	TM181	**110.4** 86.84 : 123.13
Manganese	TM181	**107.87** 89.22 : 121.75
Mercury	TM181	**103.58** 84.95 : 119.42
Molybdenum	TM181	**104.71** 85.97 : 123.79
Nickel	TM181	**110.68** 88.05 : 119.19
Phosphorus	TM181	**107.69** 90.13 : 121.54
Selenium	TM181	**103.66** 88.10 : 117.92
Strontium	TM181	**93.74** 79.10 : 111.59
Thallium	TM181	**108.05** 84.67 : 122.64
Tin	TM181	**103.86** 86.96 : 122.18
Titanium	TM181	**98.18** 84.66 : 112.24

Metals in solid samples by OES

		QC 2649
Vanadium	TM181	**102.88** 84.00 : 115.50
Zinc	TM181	**105.19** 85.63 : 122.36

PAH by GCMS

Component	Method Code	QC 2652	QC 2618
Acenaphthene	TM218	**84.0** 74.70 : 106.04	**93.0** 76.79 : 103.90
Acenaphthylene	TM218	**84.0** 73.12 : 105.14	**90.5** 74.19 : 106.17
Anthracene	TM218	**83.0** 73.99 : 113.85	**94.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**86.0** 69.31 : 119.18	**100.0** 73.77 : 119.26
Benzo(a)pyrene	TM218	**78.0** 66.97 : 114.92	**94.5** 73.20 : 114.18
Benzo(b)fluoranthene	TM218	**80.0** 67.41 : 114.46	**94.0** 75.36 : 117.58
Benzo(ghi)perylene	TM218	**72.0** 62.92 : 114.36	**92.0** 70.73 : 116.12
Benzo(k)fluoranthene	TM218	**79.0** 69.98 : 116.49	**93.5** 75.98 : 116.59
Chrysene	TM218	**83.0** 69.86 : 114.50	**96.0** 74.82 : 114.18
Dibenzo(ah)anthracene	TM218	**77.0** 64.54 : 115.22	**97.0** 69.17 : 115.30
Fluoranthene	TM218	**82.0** 72.56 : 111.70	**96.0** 66.06 : 114.63
Fluorene	TM218	**84.5** 79.13 : 111.49	**93.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**75.5** 61.22 : 113.25	**99.5** 70.26 : 117.95
Naphthalene	TM218	**82.5** 73.52 : 105.12	**88.0** 74.70 : 101.83
Phenanthrene	TM218	**83.5** 76.83 : 113.25	**95.0** 73.62 : 109.34
Pyrene	TM218	**79.5** 72.45 : 110.77	**92.5** 71.46 : 117.00

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2623
Acenaphthene by GCMS	TM178	**109.2** 100.00 : 119.20
Acenaphthylene by GCMS	TM178	**107.2** 95.20 : 119.20
Anthracene by GCMS	TM178	**109.2** 91.60 : 113.20
Benz(a)anthracene by GCMS	TM178	**102.4** 90.40 : 119.20
Benzo(a)pyrene by GCMS	TM178	**108.0** 92.80 : 119.20

PAH Spec MS - Aqueous (W)

		QC 2623
Benzo(b)fluoranthene by GCMS	TM178	**108.0** 89.60 : 120.80
Benzo(ghi)perylene by GCMS	TM178	**102.0** 93.20 : 117.20
Benzo(k)fluoranthene by GCMS	TM178	**106.8** 96.40 : 120.40
Chrysene by GCMS	TM178	**103.6** 96.40 : 125.20
Dibenzo(ah)anthracene by GCMS	TM178	**103.2** 92.00 : 113.60
Fluoranthene by GCMS	TM178	**109.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**108.8** 95.60 : 122.00
Indeno(123cd)pyrene by GCMS	TM178	**106.8** 90.40 : 112.00
Naphthalene by GCMS	TM178	**110.4** 98.00 : 122.00
Phenanthrene by GCMS	TM178	**109.6** 94.00 : 120.40
Pyrene by GCMS	TM178	**108.8** 92.40 : 118.80

pH

Component	Method Code	QC 2694	QC 2693
pH	TM133	**99.56** 90.68 : 104.32	**99.27** 90.68 : 104.32

pH Value

Component	Method Code	QC 2612	QC 2693
pH	TM256	**100.94** 99.20 : 102.41	**100.4** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2656	QC 2621
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**50.0** 69.38 : 125.27	**51.3** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.03** 69.79 : 122.84	**45.03** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**47.81** 77.98 : 111.41	**49.06** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.33** 67.94 : 117.69	**50.99** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**48.23** 82.04 : 108.38	**49.27** 82.04 : 108.38

Sulphide

Component	Method Code	QC 2698
Sulphide	TM101	**106.67** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2672	QC 2679
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28	**101.56** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2620	QC 2659
Total Sulphate	TM221	**102.27** 78.36 : 114.69	**102.27** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2691	QC 2654	QC 2643
1,1,1,2-tetrachloroethane	TM116	**110.2** 84.84 : 116.25	**105.8** 88.29 : 116.31	**112.8** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**102.2** 85.52 : 113.22	**100.6** 88.34 : 114.50	**103.4** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**94.8** 77.12 : 116.04	**95.4** 81.29 : 113.79	**88.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**102.2** 74.46 : 129.15	**104.8** 91.34 : 123.49	**100.6** 74.46 : 129.15
1,2-Dichloroethane	TM116	**113.2** 92.38 : 131.65	**114.4** 90.04 : 132.28	**113.0** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**98.4** 83.64 : 126.18	**98.2** 80.81 : 125.07	**101.2** 83.64 : 126.18
2-Chlorotoluene	TM116	**83.8** 68.55 : 109.58	**82.8** 73.13 : 114.13	**92.2** 68.55 : 109.58
4-Chlorotoluene	TM116	**85.2** 66.29 : 107.51	**82.6** 68.66 : 109.13	**82.2** 66.29 : 107.51
Benzene	TM116	**94.0** 88.60 : 113.80	**97.0** 84.29 : 112.22	**93.8** 88.60 : 113.80
Carbon Disulphide	TM116	**96.8** 74.91 : 122.14	**100.4** 75.11 : 124.81	**98.0** 74.91 : 122.14
Carbontetrachloride	TM116	**108.2** 80.31 : 124.50	**102.6** 82.35 : 126.46	**111.2** 80.31 : 124.50
Chlorobenzene	TM116	**100.2** 83.81 : 114.18	**100.8** 82.88 : 122.42	**97.8** 83.81 : 114.18
Chloroform	TM116	**102.4** 87.40 : 122.49	**109.6** 90.35 : 120.38	**103.6** 87.40 : 122.49

VOC MS (S)

		QC 2691	QC 2654	QC 2643
Chloromethane	TM116	**96.2** 63.11 : 124.36	**101.2** 67.89 : 143.51	**96.6** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**101.6** 80.67 : 126.72	**97.8** 78.27 : 128.90	**103.0** 80.67 : 126.72
Dibromomethane	TM116	**93.0** 73.23 : 118.35	**97.2** 76.00 : 120.73	**97.2** 73.23 : 118.35
Dichloromethane	TM116	**108.2** 81.11 : 133.25	**115.2** 92.27 : 134.36	**107.6** 81.11 : 133.25
Ethylbenzene	TM116	**86.2** 75.92 : 110.41	**84.4** 70.95 : 113.07	**84.0** 75.92 : 110.41
Hexachlorobutadiene	TM116	**80.4** 12.82 : 152.73	**76.4** 14.55 : 147.92	**59.2** 12.82 : 152.73
Isopropylbenzene	TM116	**76.0** 54.30 : 105.91	**62.6** 52.00 : 108.19	**69.6** 54.30 : 105.91
Naphthalene	TM116	**103.2** 80.86 : 128.81	**94.6** 80.90 : 124.24	**110.2** 80.86 : 128.81
o-Xylene	TM116	**83.2** 69.99 : 108.74	**75.0** 68.34 : 101.99	**79.4** 69.99 : 108.74
p/m-Xylene	TM116	**81.3** 68.32 : 108.91	**81.8** 69.47 : 97.31	**78.8** 68.32 : 108.91
Sec-Butylbenzene	TM116	**76.4** 38.50 : 101.50	**61.6** 27.03 : 135.73	**60.6** 38.50 : 101.50
Tetrachloroethene	TM116	**100.2** 76.95 : 121.02	**101.0** 80.10 : 120.38	**102.2** 76.95 : 121.02
Toluene	TM116	**86.0** 74.24 : 107.42	**85.8** 82.44 : 103.50	**83.8** 74.24 : 107.42
Trichloroethene	TM116	**100.2** 85.28 : 109.36	**97.4** 79.80 : 112.33	**98.8** 85.28 : 109.36
Trichlorofluoromethane	TM116	**109.2** 81.46 : 120.52	**112.2** 83.13 : 123.97	**115.2** 81.46 : 120.52
Vinyl Chloride	TM116	**102.2** 68.02 : 143.37	**100.6** 69.66 : 136.55	**106.0** 68.02 : 143.37

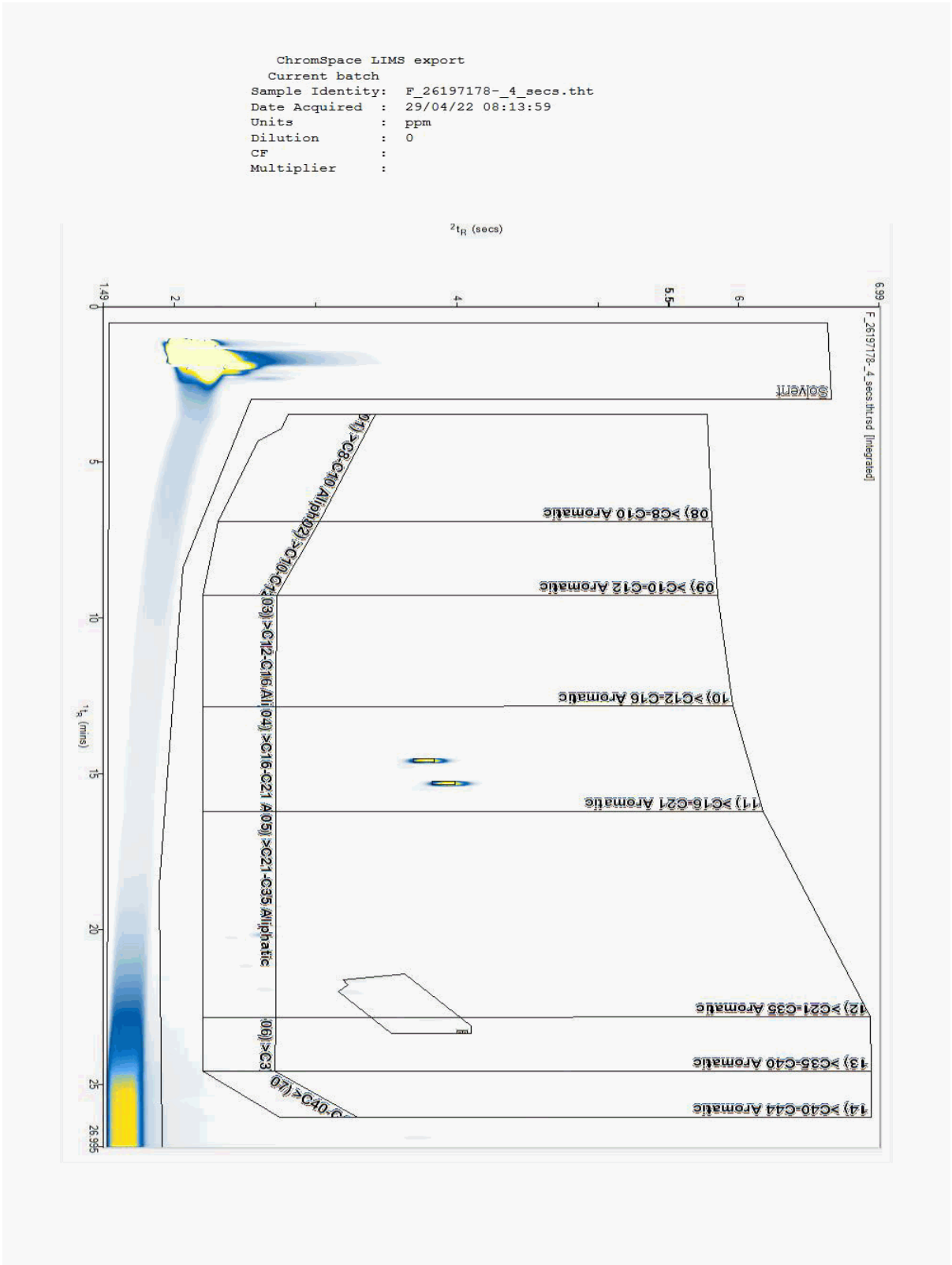
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197178 **Depth :** 0.30 - 0.30
Sample ID : TP008

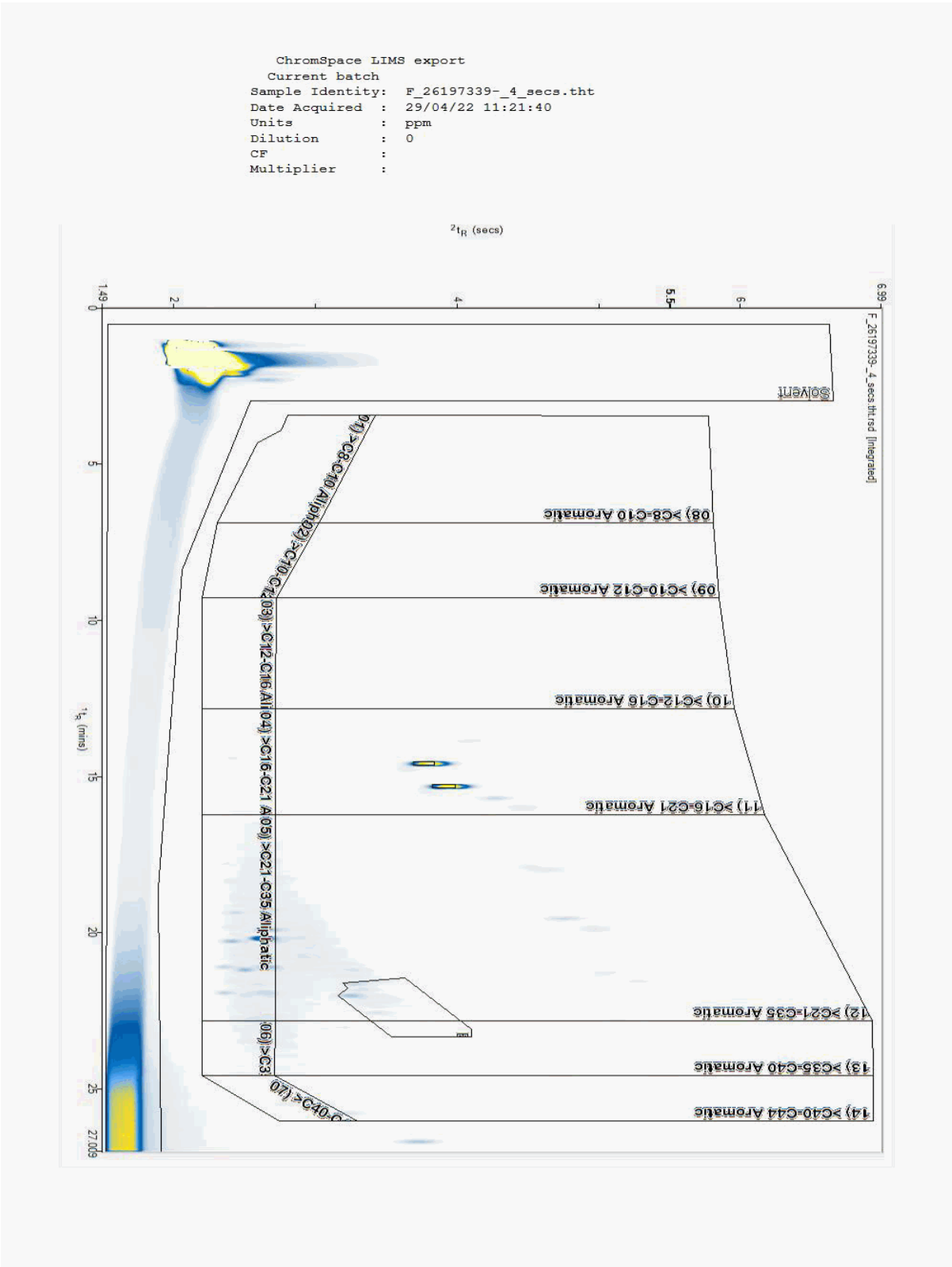


CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197339 **Depth :** 0.30 - 0.30
Sample ID : WS011

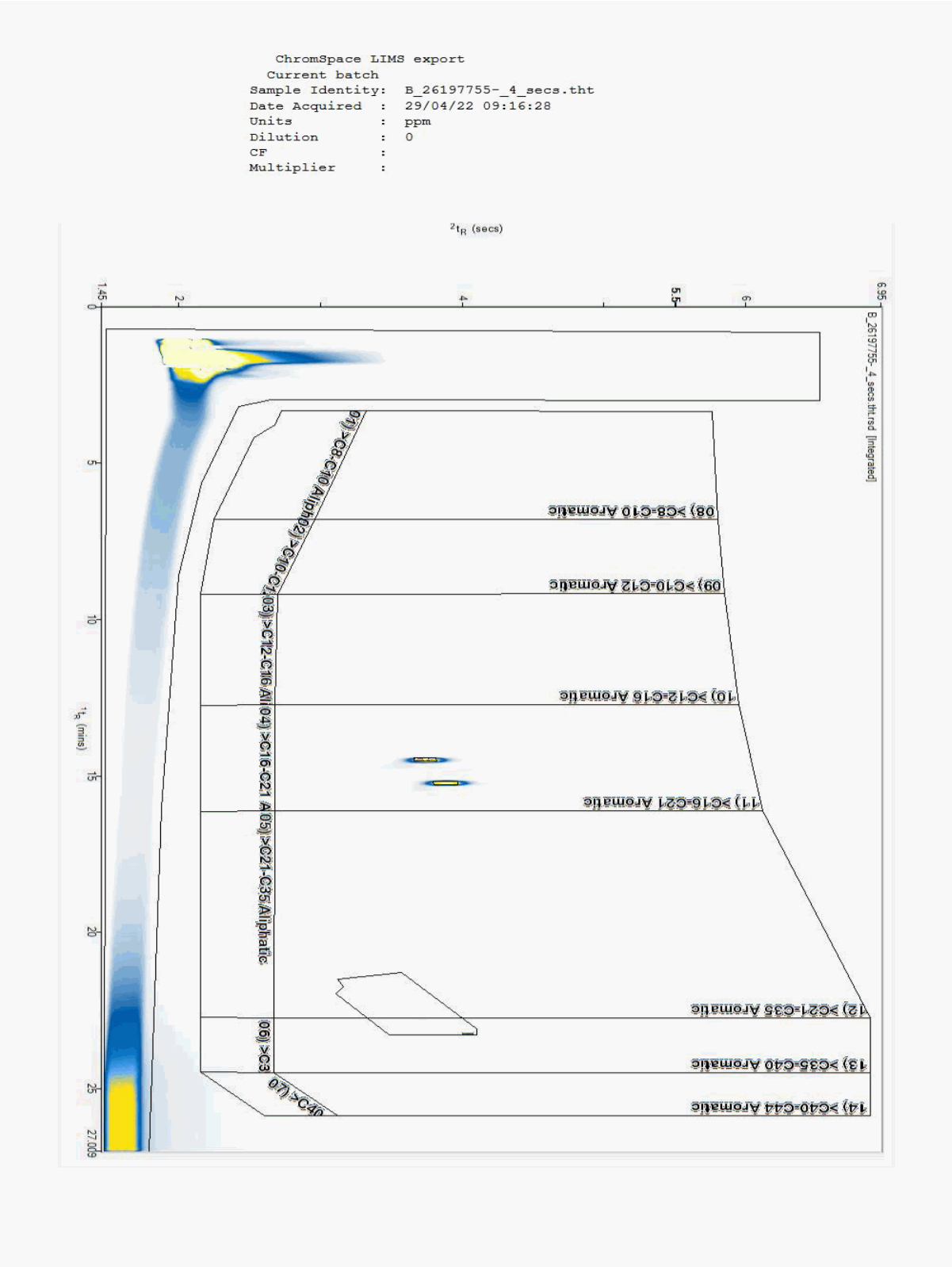


CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26197755 **Depth :** 0.80 - 0.80
Sample ID : WS012

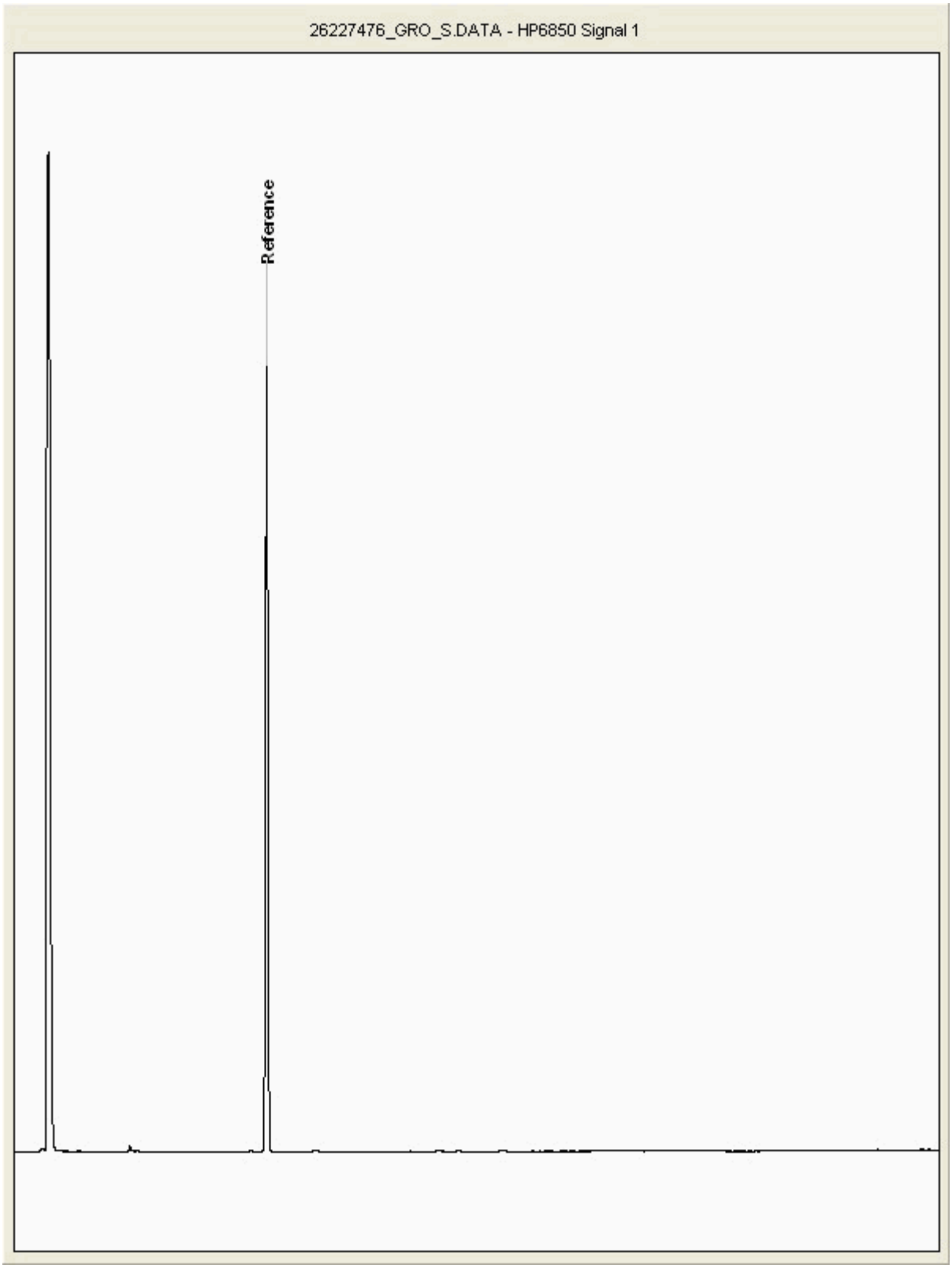


CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26227476 **Depth :** 0.80 - 0.80
Sample ID : WS012

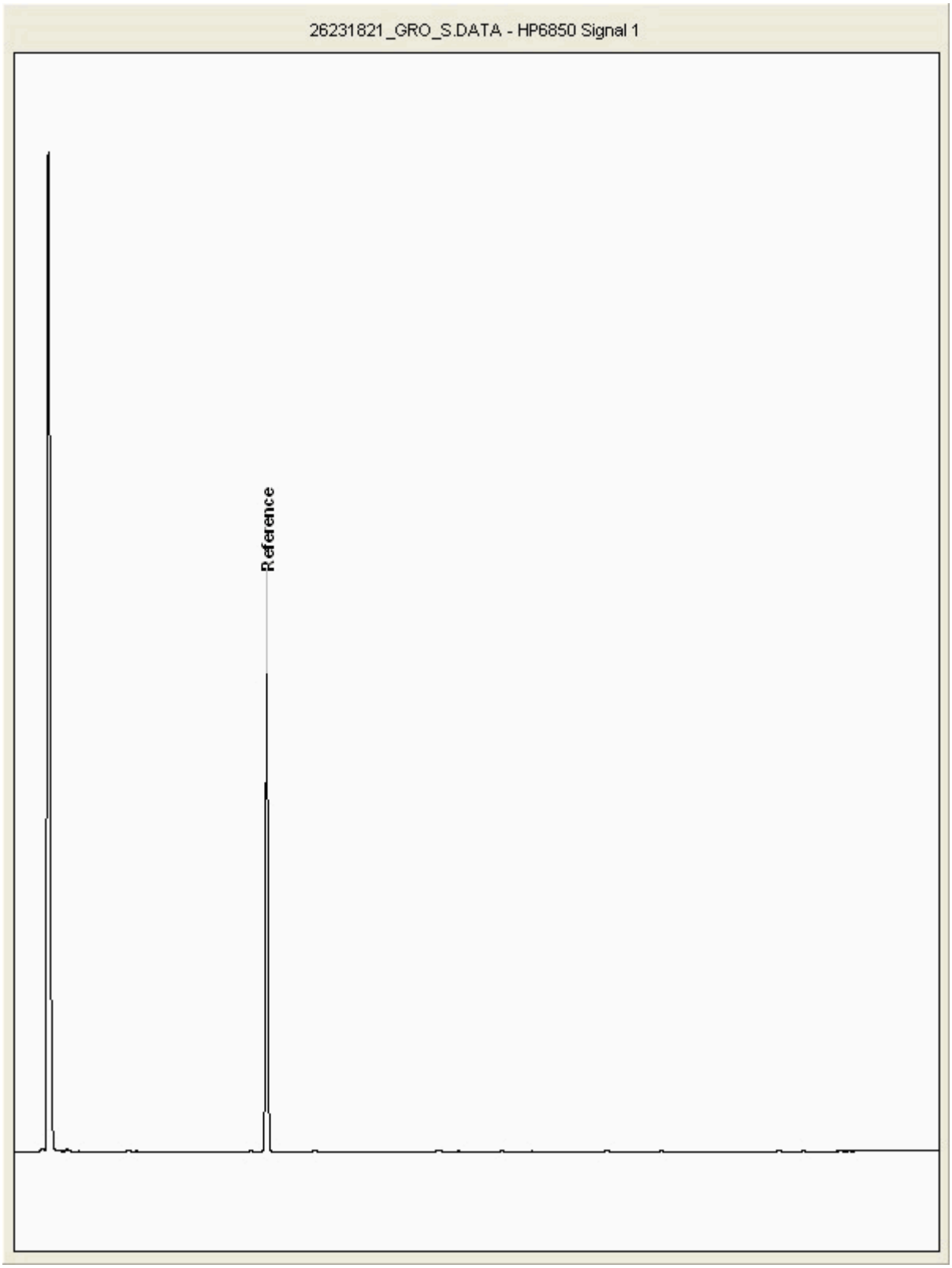


CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26231821 **Depth :** 0.30 - 0.30
Sample ID : WS011

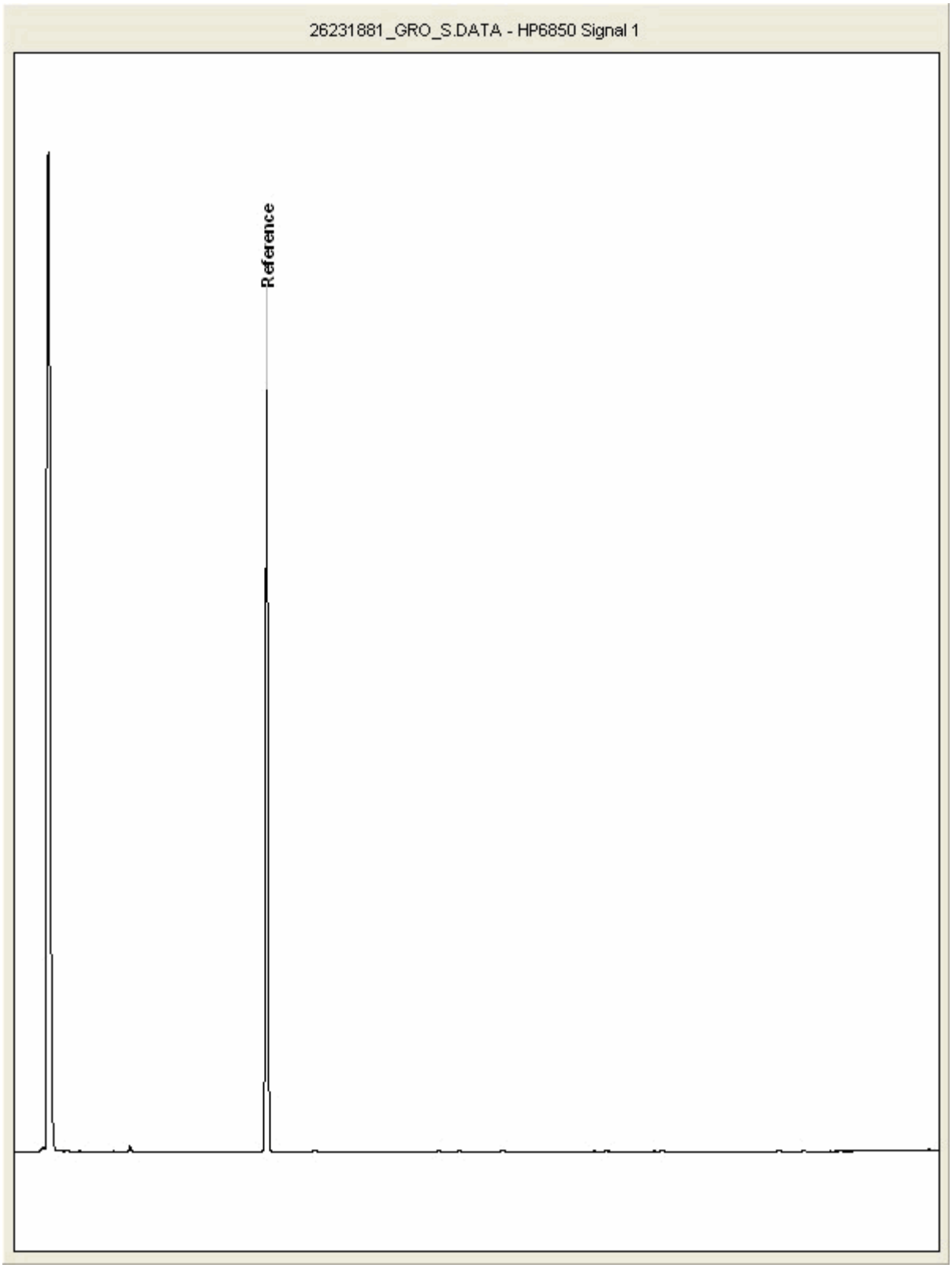


CERTIFICATE OF ANALYSIS

SDG: 220422-156 **Report Number:** 645139 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26231881 **Depth :** 0.30 - 0.30
Sample ID : TP008



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220423-72
Your Reference:	JER9352
Location:	Chippenham
Report No:	647101
Order Number:	PO22-197

We received 29 samples on Saturday April 23, 2022 and 3 of these samples were scheduled for analysis which was completed on Thursday May 19, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26173929	AVCI-BH-12		0.30	21/04/2022
26173930	AVCI-BH-12		0.80	21/04/2022
26173931	AVCI-BH-12		1.20	21/04/2022
26173936	AVCI-BH-13		0.30	21/04/2022
26173937	AVCI-BH-13		0.80	21/04/2022
26173938	AVCI-BH-13		1.20	21/04/2022
26173939	AVW-BH-01		0.30	21/04/2022
26173940	AVW-BH-01		0.80	21/04/2022
26173941	AVW-BH-01		1.20	21/04/2022
26173932	AVW-BH-02		0.30	21/04/2022
26173933	AVW-BH-02		0.80	21/04/2022
26173934	AVW-BH-02		1.15	21/04/2022
26173954	HP-TP-04		0.30	21/04/2022
26173955	HP-TP-04		0.80	21/04/2022
26173956	HP-TP-04		1.20	21/04/2022
26173958	HP-TP-04		2.00	21/04/2022
26173959	HP-TP-04		3.40	21/04/2022
26173942	HP-TP-07		0.30	21/04/2022
26173943	HP-TP-07		0.80	21/04/2022
26173944	HP-TP-07		1.20	21/04/2022
26173945	HP-TP-07		2.30	21/04/2022
26173946	PWD-BH-02		0.30	21/04/2022
26173947	PWD-BH-02		0.80	21/04/2022
26173948	PWD-BH-02		1.20	21/04/2022
26173949	TP10		0.30	21/04/2022
26173950	TP10		0.80	21/04/2022
26173951	TP10		1.20	21/04/2022
26173952	TP10		2.20	21/04/2022
26173953	TP10		2.70	21/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)		26173930		26173934		26173949	
			Customer Sample Reference		AVCI-BH-12		AVW-BH-02		TP10	
			AGS Reference							
			Depth (m)		0.80		1.15		0.30	
			Container		250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type		S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 3			X		X		X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 3			X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3			X		X		X	
Coronene	All	NDPs: 0 Tests: 3			X		X		X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 3			X		X		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 3			X		X		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3				X		X		X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3			X		X		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 3			X		X		X	
OC OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 1							X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 3			X		X		X	
PAH by GCMS	All	NDPs: 0 Tests: 3			X		X		X	
pH	All	NDPs: 0 Tests: 3			X		X		X	
Sample description	All	NDPs: 0 Tests: 3			X		X		X	
Total Organic Carbon	All	NDPs: 0 Tests: 3			X		X		X	

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)					
			26173930		26173934		26173949	
			Customer Sample Reference					
			AVCI-BH-12		AVW-BH-02		TP10	
			AGS Reference					
			Depth (m)					
			0.80		1.15		0.30	
			Container					
			250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type					
			S	S	S	S	S	S
Total Sulphate	All	NDPs: 0 Tests: 3	X		X		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 3	X		X		X	
VOC MS (S)	All	NDPs: 0 Tests: 3		X		X		X

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26173930	AVCI-BH-12	0.80	Dark Brown	Clay Loam	Vegetation	None
26173934	AVW-BH-02	1.15	Dark Brown	Sandy Clay	None	None
26173949	TP10	0.30	Dark Brown	Clay	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI-BH-12	AVW-BH-02	TP10			
			Depth (m)	0.80	1.15	0.30			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	21/04/2022	21/04/2022	21/04/2022			
			Sampled Time	.	.	.			
			Date Received	23/04/2022	23/04/2022	23/04/2022			
			SDG Ref	220423-72	220423-72	220423-72			
			Lab Sample No.(s)	26173930	26173934	26173949			
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		24	24	16			
Soil Organic Matter (SOM)	<0.35 %	TM132		2.43 #	4.84 #	0.779 #			
pH	1 pH Units	TM133		8.3 @ M	8.18 @ M	7.65 @ M			
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #			
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M			
Aluminium	<11 mg/kg	TM181		5150	4100	5930			
Antimony	<0.6 mg/kg	TM181		0.852 #	<0.6 #	<0.6 #			
Arsenic	<0.6 mg/kg	TM181		3.96 M	3.42 M	6.35 M			
Barium	<0.6 mg/kg	TM181		191 #	55 #	97.7 #			
Beryllium	<0.01 mg/kg	TM181		0.481 M		0.414 M			
Cadmium	<0.02 mg/kg	TM181		0.08 M	0.468 M	0.208 M			
Chromium	<0.9 mg/kg	TM181		11.2 M	10.4 M	10.2 M			
Copper	<1.4 mg/kg	TM181		12.6 M	9.15 M	20.8 M			
Iron	<1000 mg/kg	TM181		12200 #	12700 #	15500 #			
Lead	<0.7 mg/kg	TM181		155 M	24.7 M	30.3 M			
Manganese	<0.13 mg/kg	TM181		440 M	249 M	216 M			
Mercury	<0.1 mg/kg	TM181		0.242 M	<0.1 M	<0.1 M			
Molybdenum	<0.1 mg/kg	TM181		0.298 #	0.308 #	0.4 #			
Nickel	<0.2 mg/kg	TM181		12.4 M	8.85 M	12.1 M			
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #			
Vanadium	<0.2 mg/kg	TM181		17.9 #	17.9 #	19.3 #			
Zinc	<1.9 mg/kg	TM181		114 M	39.5 M	121 M			
Sulphate, Total	<48 mg/kg	TM221		332 M	767 M	<48 M			
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234		1.94	2.04	1.89			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0282 M	0.142 M	0.0133 M			
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248		2.83	4.23	2.76			
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318			
Coronene	<200 µg/kg	TM410		<200	<200	<200			

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP10
Depth (m)	0.30
Sample Type	Soil/Solid (S)
Date Sampled	21/04/2022
Sampled Time	.
Date Received	23/04/2022
SDG Ref	220423-72
Lab Sample No.(s)	26173949
AGS Reference	

Component	LOD/Units	Method	
Dichlorvos	<50 µg/kg	TM073	<50
Mevinphos	<50 µg/kg	TM073	<50
Tecnazene	<50 µg/kg	TM073	<50
Hexachlorobenzene	<50 µg/kg	TM073	<50
Trifluralin	<50 µg/kg	TM073	<50
Phorate	<50 µg/kg	TM073	<50
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50
Quintozene (PCNB)	<50 µg/kg	TM073	<50
Diazinon	<50 µg/kg	TM073	<50
Triallate	<50 µg/kg	TM073	<50
Etrimphos	<50 µg/kg	TM073	<50
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073	<50
Disulfoton	<50 µg/kg	TM073	<50
Propetamphos	<50 µg/kg	TM073	<50
Heptachlor	<50 µg/kg	TM073	<50
Chlorpyriphos methyl	<50 µg/kg	TM073	<50
Dimethoate	<50 µg/kg	TM073	<50
Aldrin	<50 µg/kg	TM073	<50
Chlorothalonil	<50 µg/kg	TM073	<50
Pirimiphos-methyl	<50 µg/kg	TM073	<50
Telodrin	<50 µg/kg	TM073	<50
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50
Chlorpyriphos	<50 µg/kg	TM073	<50
Methyl parathion	<50 µg/kg	TM073	<50
Isodrin	<50 µg/kg	TM073	<50
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50
Malathion	<50 µg/kg	TM073	<50
Fenthion	<50 µg/kg	TM073	<50
Fenitrothion	<50 µg/kg	TM073	<50
Heptachlor epoxide	<50 µg/kg	TM073	<50
Triadimefon	<50 µg/kg	TM073	<50
Pendimethalin	<50 µg/kg	TM073	<50

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP10
Depth (m)	0.30
Sample Type	Soil/Solid (S)
Date Sampled	21/04/2022
Sampled Time	.
Date Received	23/04/2022
SDG Ref	220423-72
Lab Sample No.(s)	26173949
AGS Reference	

Component	LOD/Units	Method	
Parathion	<50 µg/kg	TM073	<50
o,p-DDE	<50 µg/kg	TM073	<50
Chlorfenvinphos	<50 µg/kg	TM073	<50
Endosulphan I	<50 µg/kg	TM073	<50
Trans-chlordane	<50 µg/kg	TM073	<50
cis-Chlordane	<50 µg/kg	TM073	<50
p,p-DDE	<50 µg/kg	TM073	<50
Dieldrin	<50 µg/kg	TM073	<50
o,p'-DDD (TDE)	<50 µg/kg	TM073	<50
Endrin	<50 µg/kg	TM073	<50
o,p-DDT	<50 µg/kg	TM073	<50
p,p-TDE (DDD)	<50 µg/kg	TM073	<50
Ethion	<50 µg/kg	TM073	<50
Endosulphan II	<50 µg/kg	TM073	<50
p,p-DDT	<50 µg/kg	TM073	<50
Carbophenothion	<50 µg/kg	TM073	<50
o,p-Methoxychlor	<50 µg/kg	TM073	<50
Triazophos	<50 µg/kg	TM073	<50
p,p-Methoxychlor	<50 µg/kg	TM073	<50
Endosulphan sulphate	<50 µg/kg	TM073	<50
Permethrin I	<50 µg/kg	TM073	<50
Phosalone	<50 µg/kg	TM073	<50
Permethrin II	<50 µg/kg	TM073	<50
Azinphos-methyl	<50 µg/kg	TM073	<50
Azinphos-ethyl	<50 µg/kg	TM073	<50

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI-BH-12	AVW-BH-02	TP10			
			Depth (m)	0.80	1.15	0.30			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	21/04/2022	21/04/2022	21/04/2022			
			Sampled Time	.	.	.			
			Date Received	23/04/2022	23/04/2022	23/04/2022			
			SDG Ref	220423-72	220423-72	220423-72			
			Lab Sample No.(s)	26173930	26173934	26173949			
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		91.1	93.1	92.3			
Acenaphthene-d10 % recovery**	%	TM218		94.5	96.4	96.1			
Phenanthrene-d10 % recovery**	%	TM218		93.6	95.6	96.9			
Chrysene-d12 % recovery**	%	TM218		87.3	89.3	91.4			
Perylene-d12 % recovery**	%	TM218		91.7	95.4	99.8			
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 @ M	<9 @ M			
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 @ M	<12 @ M			
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 @ M	<8 @ M			
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M			
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 @ M	<16 @ M			
Fluoranthene	<17 µg/kg	TM218		<17 @ M	<17 @ M	<17 @ M			
Pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<14 @ M			
Chrysene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M			
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<14 @ M			
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 @ M	<18 @ M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 @ M	<23 @ M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 @ M	<24 @ M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118			

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI-BH-12	AVW-BH-02	TP10			
			Depth (m)	0.80	1.15	0.30			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	21/04/2022	21/04/2022	21/04/2022			
			Sampled Time	.	.	.			
			Date Received	23/04/2022	23/04/2022	23/04/2022			
			SDG Ref	220423-72	220423-72	220423-72			
			Lab Sample No.(s)	26173930	26173934	26173949			
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		91.9 @	87.3 @	128 @			
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		2410 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @			
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000 @	<5000 @	<5000 @			
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		<10000	<10000	<10000			
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	2060 @ #	<1000 @ #			
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @			
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @			
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	<5000	<5000			
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		<10000	<10000	<10000			
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20 @	<20 @	<20 @			

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI-BH-12	AVW-BH-02	TP10			
			Depth (m)	0.80	1.15	0.30			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	21/04/2022	21/04/2022	21/04/2022			
			Sampled Time	.	.	.			
			Date Received	23/04/2022	23/04/2022	23/04/2022			
			SDG Ref	220423-72	220423-72	220423-72			
			Lab Sample No.(s)	26173930	26173934	26173949			
			AGS Reference						
Dibromofluoromethane**	%	TM116		119 @	102 @	108 @			
Toluene-d8**	%	TM116		95.3 @	97.8 @	98.2 @			
4-Bromofluorobenzene**	%	TM116		76 @	95.9 @	86.6 @			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 @ M	<100 @ M	<10 @ M			
Benzene	<9 µg/kg	TM116		<9 @ M	<90 @ M	<9 @ M			
Toluene	<7 µg/kg	TM116		<7 @ M	<70 @ M	<7 @ M			
Ethylbenzene	<4 µg/kg	TM116		<4 @ M	<40 @ M	<4 @ M			
p/m-Xylene	<10 µg/kg	TM116		<10 @ #	<100 @ #	<10 @ #			
o-Xylene	<10 µg/kg	TM116		<10 @ M	<100 @ M	<10 @ M			
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 @	<0.2 @	<0.02 @			
Sum of BTEX	<40 µg/kg	TM116		<40 @	<400 @	<40 @			

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26173930	26173934	26173949
Customer Sample Ref.	AVCI-BH-12	AVW-BH-02	TP10
AGS Ref.			
Depth	0.80	1.15	0.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	12-May-2022	12-May-2022	12-May-2022
Anions by Kone (soil)	16-May-2022	16-May-2022	16-May-2022
Conductivity (at 20 deg.C)	16-May-2022	16-May-2022	16-May-2022
Coronene	13-May-2022	13-May-2022	13-May-2022
Easily Liberated Sulphide	13-May-2022	17-May-2022	13-May-2022
EPH CWG GC (S)	13-May-2022	13-May-2022	17-May-2022
GRO by GC-FID (S)	18-May-2022	18-May-2022	19-May-2022
Hexavalent Chromium (s)	13-May-2022	17-May-2022	17-May-2022
Metals in solid samples by OES	17-May-2022	17-May-2022	17-May-2022
OC OP Pesticides and Triazine Herb			17-May-2022
PAH 16 & 17 Calc	13-May-2022	13-May-2022	13-May-2022
PAH by GCMS	13-May-2022	13-May-2022	13-May-2022
pH	12-May-2022	13-May-2022	13-May-2022
Sample description	11-May-2022	11-May-2022	11-May-2022
Total Organic Carbon	19-May-2022	18-May-2022	19-May-2022
Total Sulphate	17-May-2022	17-May-2022	17-May-2022
TPH CWG GC (S)	18-May-2022	18-May-2022	19-May-2022
VOC MS (S)	18-May-2022	18-May-2022	18-May-2022

ASSOCIATED AQC DATA

Coronene

Component	Method Code	QC 2666
Coronene RAW	TM410	**84.0** 79.43 : 137.78

Easily Liberated Sulphide

Component	Method Code	QC 2666	QC 2600	QC 2672
Easily Liberated Sulphide	TM180	**68.77** 51.10 : 121.66	**78.77** 51.10 : 121.66	**85.13** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2621	QC 2617
QC	TM089	**74.02** 65.61 : 111.21	**74.94** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2608	QC 2643	QC 2648
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40	**108.0** 83.40 : 113.40	**104.0** 83.40 : 113.40

Metals in solid samples by OES

Component	Method Code	QC 2667
Aluminium	TM181	**108.77** 84.95 : 125.04
Antimony	TM181	**120.08** 91.44 : 127.13
Arsenic	TM181	**110.81** 95.27 : 120.80
Barium	TM181	**113.85** 94.57 : 124.93
Beryllium	TM181	**110.79** 85.72 : 122.69
Boron	TM181	**109.32** 91.59 : 122.22
Cadmium	TM181	**108.86** 87.31 : 121.62

Metals in solid samples by OES

		QC 2667
Chromium	TM181	**100.24** 85.06 : 113.81
Cobalt	TM181	**103.45** 90.60 : 110.35
Copper	TM181	**96.79** 81.22 : 113.40
Iron	TM181	**112.84** 86.44 : 122.27
Lead	TM181	**109.41** 86.83 : 123.12
Manganese	TM181	**110.39** 89.22 : 121.75
Mercury	TM181	**111.07** 84.95 : 119.42
Molybdenum	TM181	**106.4** 85.98 : 123.80
Nickel	TM181	**110.68** 88.05 : 119.19
Phosphorus	TM181	**105.98** 90.13 : 121.54
Selenium	TM181	**112.45** 90.68 : 124.14
Strontium	TM181	**96.64** 80.65 : 106.55
Thallium	TM181	**108.39** 76.88 : 121.51
Tin	TM181	**110.39** 86.96 : 122.18
Titanium	TM181	**101.82** 77.07 : 118.83
Vanadium	TM181	**103.24** 84.00 : 115.50
Zinc	TM181	**108.35** 85.62 : 122.35

OC OP Pesticides and Triazine Herb

Component	Method Code	QC 2620
Atrazine (Raw)	TM073	**100.28** 78.55 : 119.92
Azinphos methyl (Raw)	TM073	**149.46** 58.68 : 154.71
cis-Chlordane (Raw)	TM073	**117.0** 71.90 : 129.99
Diazinon (Raw)	TM073	**104.34** 70.00 : 130.00
Dichlorvos (Raw)	TM073	**105.33** 70.00 : 130.00
Dieldrin (Raw)	TM073	**131.18** 70.00 : 130.00
gamma-HCH (Lindane) (Raw)	TM073	**121.07** 71.48 : 129.99
Heptachlor (Raw)	TM073	**108.27** 66.39 : 134.63

OC OP Pesticides and Triazine Herb

		QC 2620
Hexachlorobenzene (Raw)	TM073	**107.43** 47.15 : 124.32
Malathion (Raw)	TM073	**112.51** 70.00 : 130.00
p,p-DDT (Raw)	TM073	**134.79** 70.00 : 130.00
Parathion (Raw)	TM073	**114.13** 64.13 : 127.88

PAH by GCMS

Component	Method Code	QC 2632
Acenaphthene	TM218	**80.0** 74.70 : 106.04
Acenaphthylene	TM218	**79.0** 73.12 : 105.14
Anthracene	TM218	**79.5** 73.99 : 113.85
Benz(a)anthracene	TM218	**73.5** 69.31 : 119.18
Benzo(a)pyrene	TM218	**68.0** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**68.0** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**64.5** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**70.0** 69.98 : 116.49
Chrysene	TM218	**73.5** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**65.5** 64.54 : 115.22
Fluoranthene	TM218	**74.5** 72.56 : 111.70
Fluorene	TM218	**79.5** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**65.0** 61.22 : 113.25
Naphthalene	TM218	**80.5** 73.52 : 105.12
Phenanthrene	TM218	**79.0** 76.83 : 113.25
Pyrene	TM218	**72.5** 72.45 : 110.77

pH

Component	Method Code	QC 2672	QC 2652
pH	TM133	**98.83** 96.92 : 102.20	**98.97** 96.92 : 102.20

Total Organic Carbon

Component	Method Code	QC 2617	QC 2647	QC 2675
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28	**103.13** 80.47 : 113.28	**99.61** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2610
Total Sulphate	TM221	**106.06** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2619	QC 2612
1,1,1,2-tetrachloroethane	TM116	**96.8** 88.29 : 116.31	**96.2** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**101.2** 88.34 : 114.50	**100.4** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**95.6** 81.29 : 113.79	**97.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**109.6** 91.34 : 123.49	**111.8** 74.46 : 129.15
1,2-Dichloroethane	TM116	**113.0** 90.04 : 132.28	**103.2** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**99.4** 80.81 : 125.07	**117.4** 83.64 : 126.18
2-Chlorotoluene	TM116	**82.6** 73.13 : 114.13	**100.6** 68.55 : 109.58
4-Chlorotoluene	TM116	**80.6** 68.66 : 109.13	**99.2** 66.29 : 107.51
Benzene	TM116	**99.6** 84.29 : 112.22	**102.8** 88.60 : 113.80
Carbon Disulphide	TM116	**100.4** 75.11 : 124.81	**108.0** 74.91 : 122.14
Carbontetrachloride	TM116	**100.8** 82.35 : 126.46	**95.0** 80.31 : 124.50
Chlorobenzene	TM116	**98.4** 82.88 : 122.42	**102.4** 83.81 : 114.18
Chloroform	TM116	**110.4** 90.35 : 120.38	**107.2** 87.40 : 122.49
Chloromethane	TM116	**98.0** 67.89 : 143.51	**87.8** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**101.8** 78.27 : 128.90	**109.4** 80.67 : 126.72
Dibromomethane	TM116	**105.8** 76.00 : 120.73	**97.6** 73.23 : 118.35
Dichloromethane	TM116	**121.4** 92.27 : 134.36	**116.0** 81.11 : 133.25

VOC MS (S)

		QC 2619	QC 2612
Ethylbenzene	TM116	**81.4** 70.95 : 113.07	**95.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**45.4** 14.55 : 147.92	**144.8** 12.82 : 152.73
Isopropylbenzene	TM116	**60.6** 52.00 : 108.19	**92.0** 54.30 : 105.91
Naphthalene	TM116	**103.8** 80.90 : 124.24	**111.6** 80.86 : 128.81
o-Xylene	TM116	**73.2** 68.34 : 101.99	**91.0** 69.99 : 108.74
p/m-Xylene	TM116	**78.9** 69.47 : 97.31	**90.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**55.8** 27.03 : 135.73	**108.0** 38.50 : 101.50
Tetrachloroethene	TM116	**92.8** 80.10 : 120.38	**100.6** 76.95 : 121.02
Toluene	TM116	**90.4** 80.66 : 100.10	**94.2** 74.24 : 107.42
Trichloroethene	TM116	**89.8** 79.80 : 112.33	**95.4** 85.28 : 109.36
Trichlorofluoromethane	TM116	**109.6** 83.13 : 123.97	**99.6** 81.46 : 120.52
Vinyl Chloride	TM116	**99.0** 69.66 : 136.55	**93.6** 68.02 : 143.37

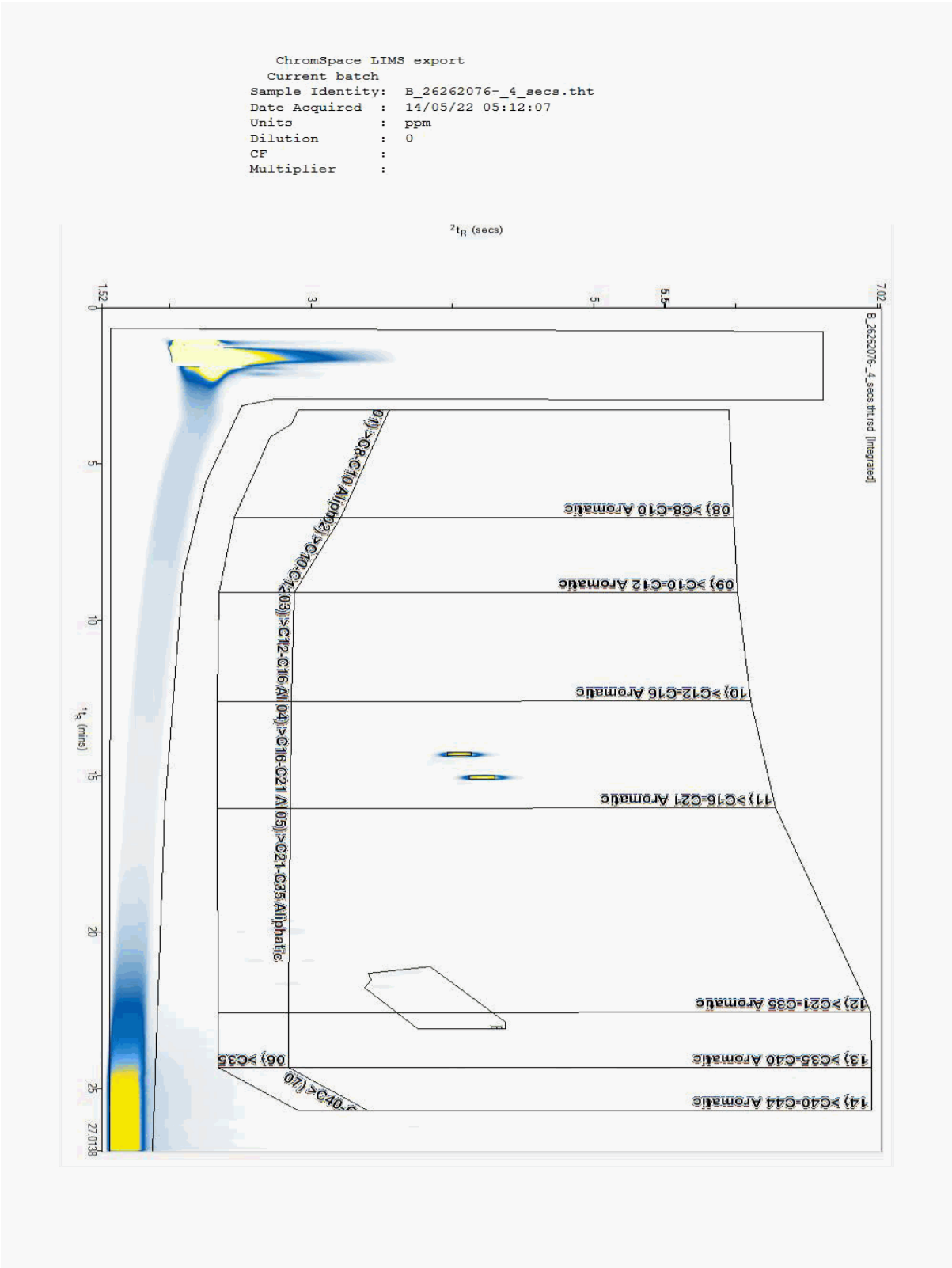
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26262076 **Depth :** 0.30
Sample ID : TP10



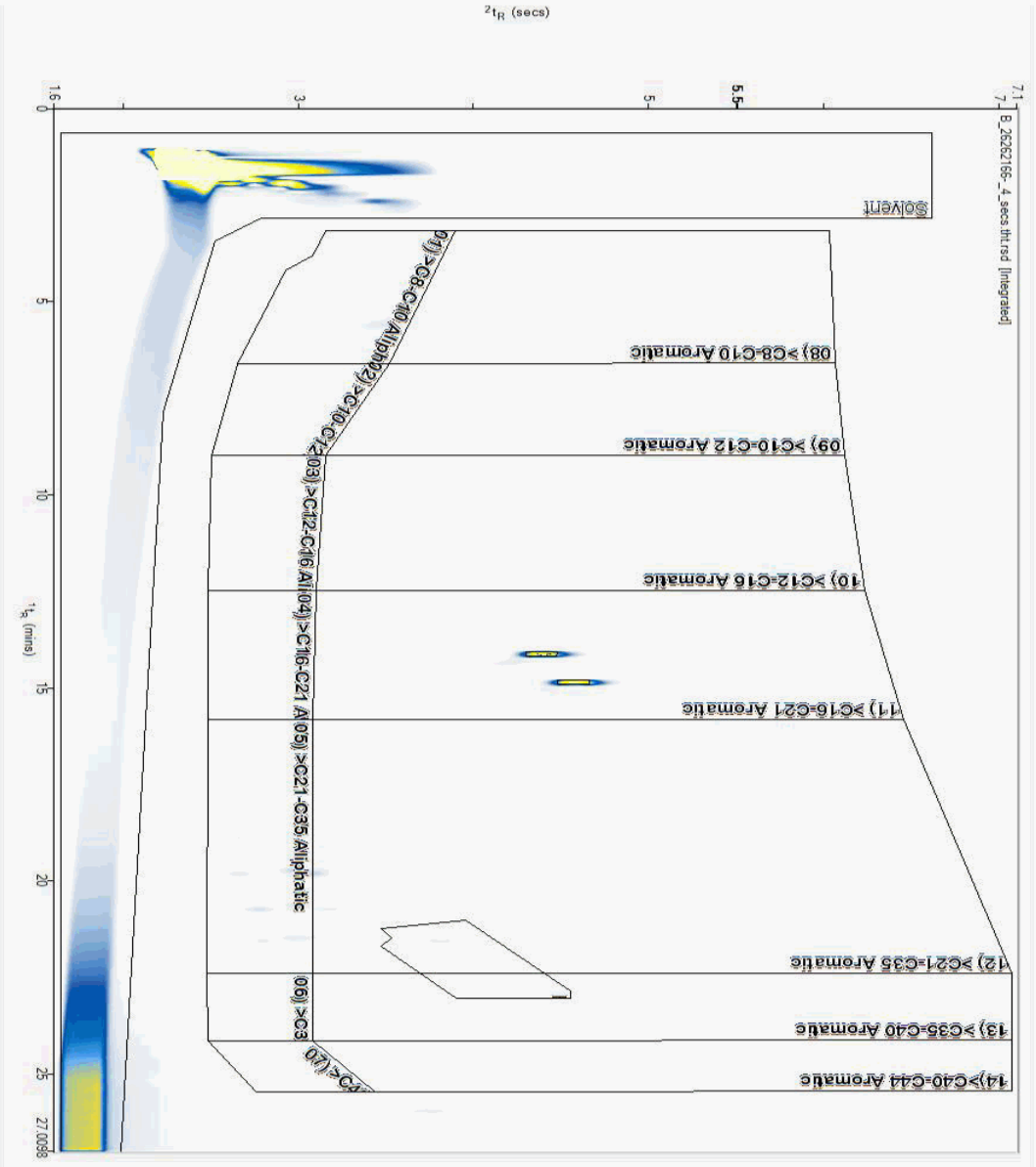
CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26262166 **Depth :** 0.80
Sample ID : AVCI-BH-12

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_26262166-_4_secs.tht
Date Acquired   :  12/05/22 06:59:43
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



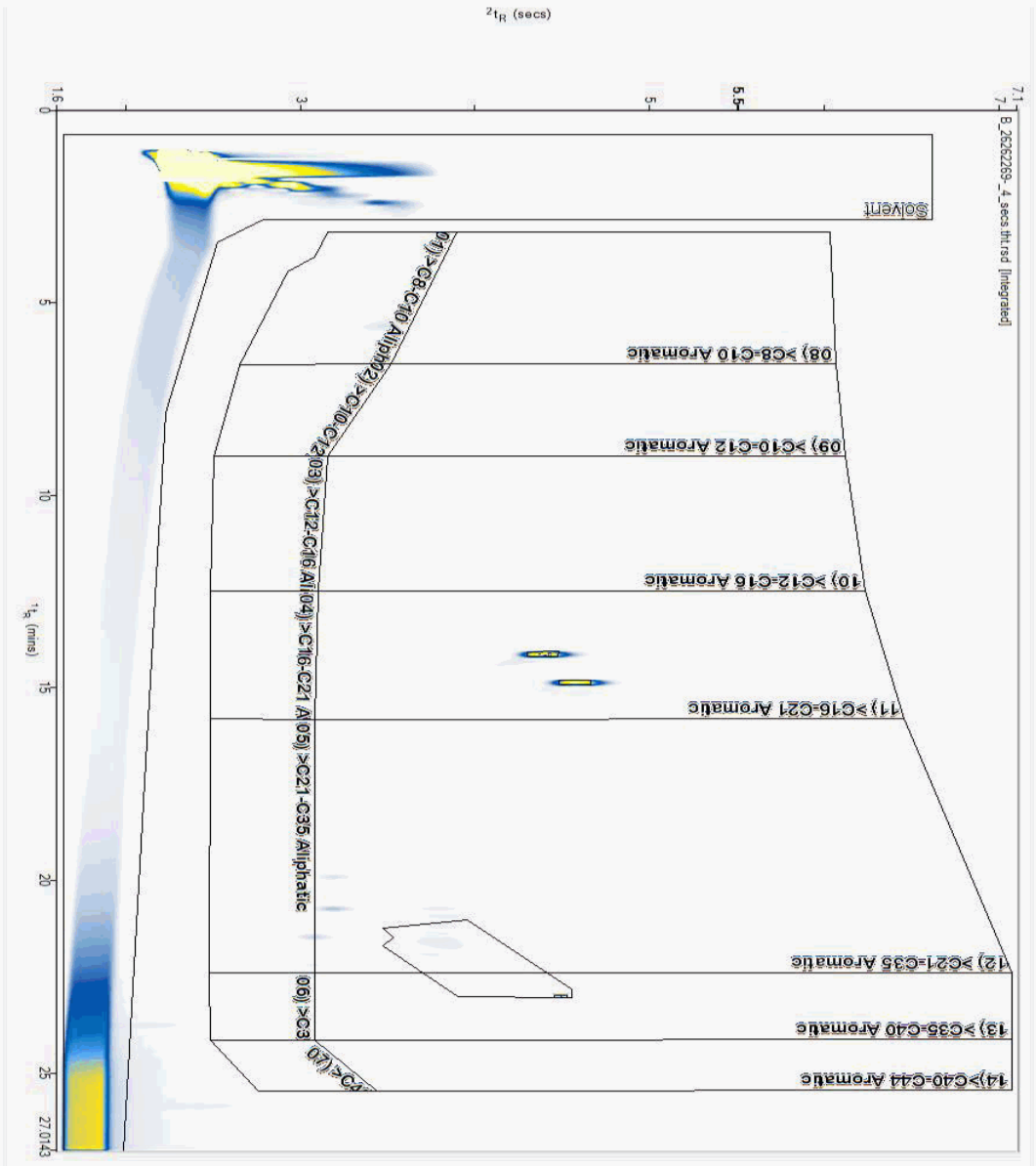
CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26262269 **Depth :** 1.15
Sample ID : AVW-BH-02

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_26262269-_4_secs.tht
Date Acquired   :  12/05/22 05:25:13
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

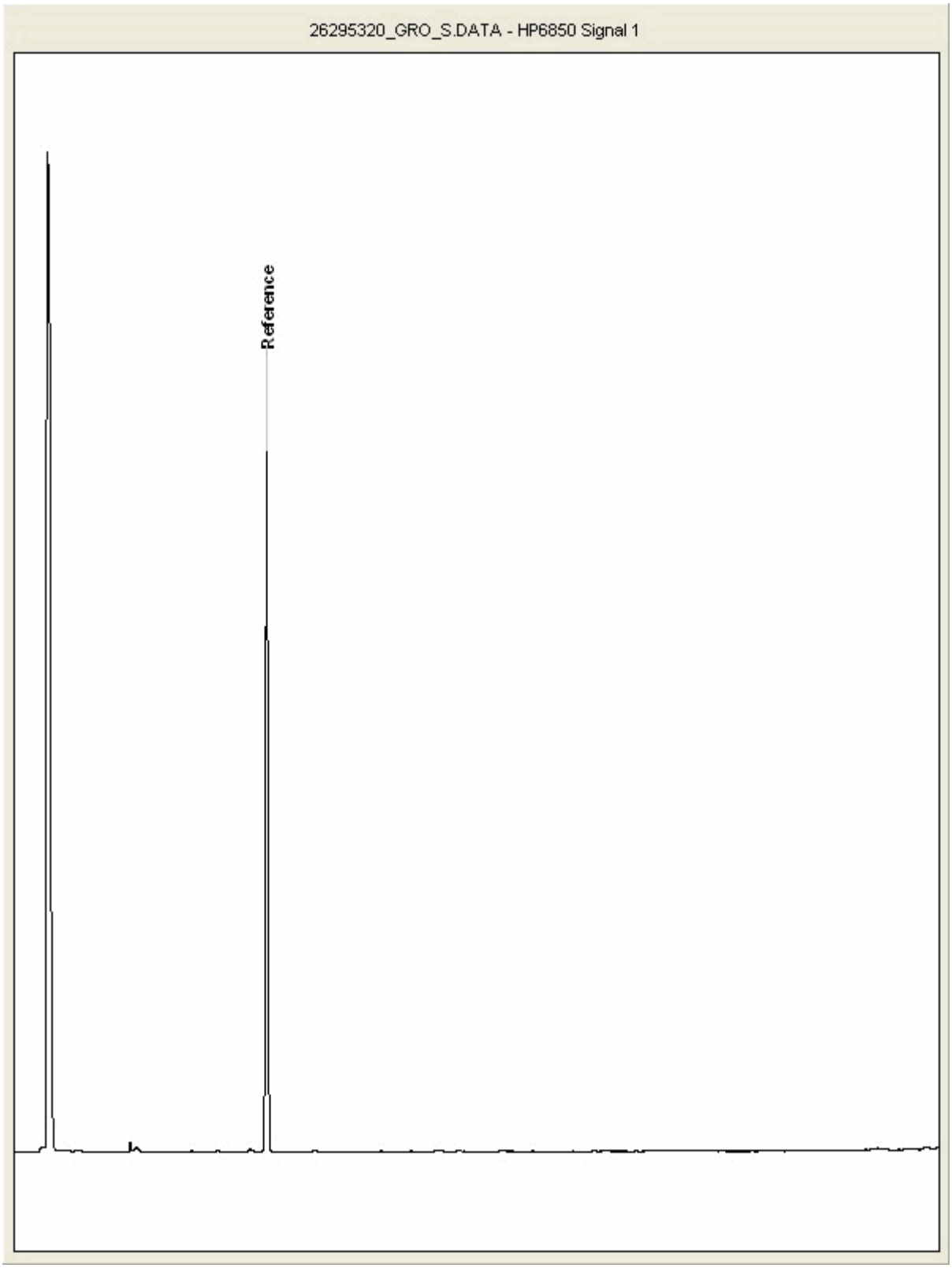


CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295320 **Depth :** 1.15
Sample ID : AVW-BH-02

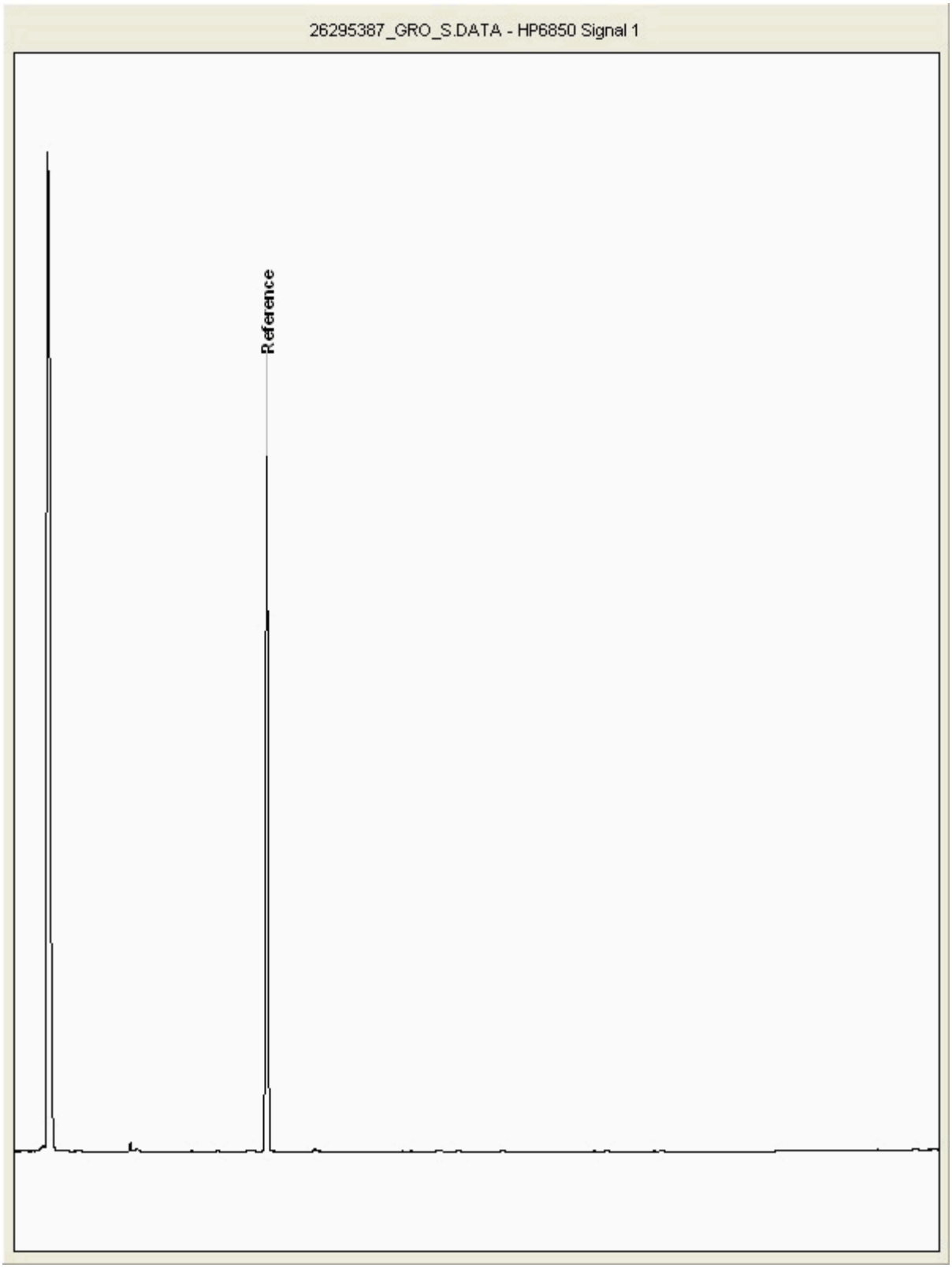


CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295387 **Depth :** 0.80
Sample ID : AVCI-BH-12

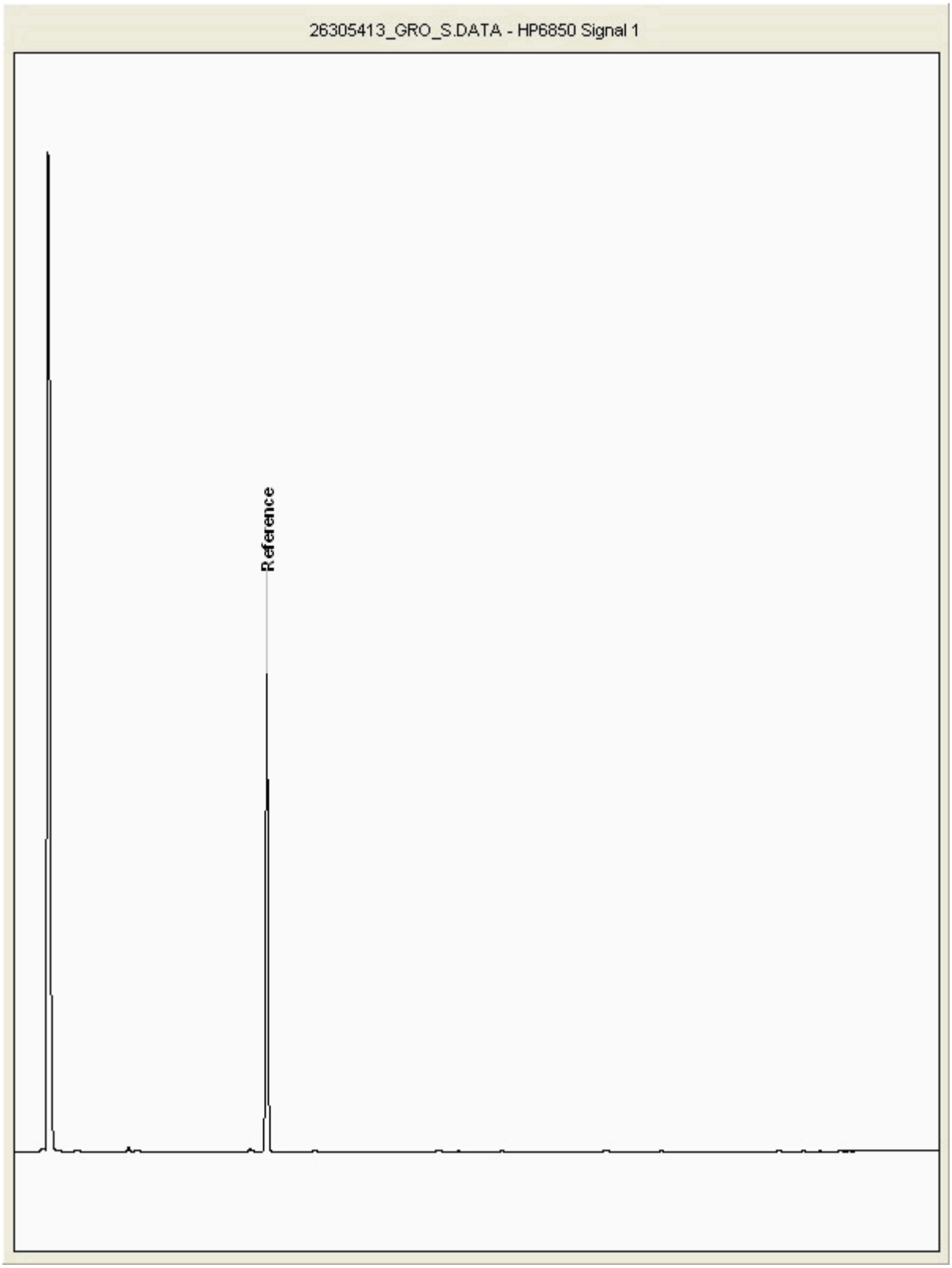


CERTIFICATE OF ANALYSIS

SDG: 220423-72 **Report Number:** 647101 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26305413 **Depth :** 0.30
Sample ID : TP10



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Deeside
CH5 3US
Tel: (01244) 528700
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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220427-124
Your Reference:	JER9352
Location:	Chippenham
Report No:	647200
Order Number:	PO22-197

We received 15 samples on Wednesday April 27, 2022 and 3 of these samples were scheduled for analysis which was completed on Friday May 20, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26193913	HP_TP_06		0.30	25/04/2022
26193914	HP_TP_06		0.80	25/04/2022
26193915	HP_TP_06		1.20	25/04/2022
26193916	HP_TP_06		3.20	25/04/2022
26193909	TP011	ES1	0.30	25/04/2022
26193910	TP011	ES2	0.80	25/04/2022
26193911	TP011	ES3	1.20	25/04/2022
26193912	TP011	ES4	2.30	25/04/2022
26193905	WS006	ES1	0.20	25/04/2022
26193906	WS006	ES2	0.80	25/04/2022
26193907	WS006	ES3	1.20	25/04/2022
26193908	WS006		2.00 - 2.20	25/04/2022
26193904	WS008	ES1	0.30	25/04/2022
26256199	WS008	ES2	0.80	25/04/2022
26256200	WS008	ES3	1.20	25/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)			26193910			26193906			26256199	
			Customer Sample Reference			TP011			WS006			WS008	
			AGS Reference			ES2			ES2			ES2	
			Depth (m)			0.80			0.80			0.80	
			Container	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 3			X			X			X	
Ammoniacal Nitrogen	All	NDPs: 1 Tests: 0					N					
Anions by Kone (soil)	All	NDPs: 0 Tests: 3			X			X			X	
Anions by Kone (w)	All	NDPs: 1 Tests: 0					N					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3		X			X			X		
CEN Readings	All	NDPs: 1 Tests: 0					N					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3			X			X			X	
Coronene	All	NDPs: 0 Tests: 3			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 1 Tests: 3			X		N	X			X	
Dissolved Metals by ICP-MS	All	NDPs: 1 Tests: 0					N					
Easily Liberated Sulphide	All	NDPs: 0 Tests: 3			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 3			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3				X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3			X			X			X	
Hexavalent Chromium (w)	All	NDPs: 1 Tests: 0					N					

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26193910			26193906			26256199		
Customer Sample Reference			TP011			WS006			WS008		
AGS Reference			ES2			ES2			ES2		
Depth (m)			0.80			0.80			0.80		
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 1 Tests: 0				N					
Metals in solid samples by OES	All	NDPs: 0 Tests: 3		X			X			X	
Nitrite by Kone (w)	All	NDPs: 1 Tests: 0				N					
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 3		X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 3		X			X			X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1				X					
pH	All	NDPs: 0 Tests: 3		X			X			X	
pH Value	All	NDPs: 1 Tests: 0				N					
Phenols by HPLC (S)	All	NDPs: 0 Tests: 3		X			X			X	
Sample description	All	NDPs: 0 Tests: 3		X			X			X	
Sulphide	All	NDPs: 1 Tests: 0				N					
Total Organic Carbon	All	NDPs: 0 Tests: 3		X			X			X	
Total Sulphate	All	NDPs: 0 Tests: 3		X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 3		X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 3			X			X			X

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26193910	TP011	0.80	Dark Brown	Clay	Vegetation	None
26193906	WS006	0.80	Light Brown	Clay	Vegetation	None
26256199	WS008	0.80	Light Brown	Clay	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP011	WS006	WS008			
			Depth (m)	0.80	0.80	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	25/04/2022	25/04/2022	25/04/2022			
			Sampled Time	.	.	.			
			Date Received	27/04/2022	27/04/2022	27/04/2022			
			SDG Ref	220427-124	220427-124	220427-124			
			Lab Sample No.(s)	26193910	26193906	26256199			
			AGS Reference	ES2	ES2	ES2			
Moisture Content Ratio (% of as received sample)	%	PM024		21	19	21			
Phenol	mg/kg	TM062 (S)		<0.01 @ M	<0.01 @ M	<0.01 @ M			
Soil Organic Matter (SOM)	%	TM132		0.898 #	0.893 #	0.64 #			
pH	pH Units	TM133		5.04 @ M	5.05 @ M	4.85 @ M			
Chromium, Hexavalent	mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #			
Cyanide, Total	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M			
Cyanide, Free	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M			
Cyanide, Complex	mg/kg	TM153		<1	<1	<1			
Sulphide, Easily liberated	mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M			
Aluminium	mg/kg	TM181		15900	23200	18500			
Antimony	mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #			
Arsenic	mg/kg	TM181		8.45 M	15.5 M	8.09 M			
Barium	mg/kg	TM181		29.1 #	49 #	34.6 #			
Beryllium	mg/kg	TM181		0.85 M	1.5 M	0.766 M			
Boron	mg/kg	TM181		11.7 #	17.9 #	14.9 #			
Cadmium	mg/kg	TM181		<0.02 M	0.0778 M	<0.02 M			
Chromium	mg/kg	TM181		26.3 M	48.6 M	28.3 M			
Copper	mg/kg	TM181		17.5 M	51 M	23.6 M			
Iron	mg/kg	TM181		28800 #	50100 #	37300 #			
Lead	mg/kg	TM181		14.6 M	16.5 M	15.6 M			
Manganese	mg/kg	TM181		64.9 M	61.7 M	41.3 M			
Mercury	mg/kg	TM181		<0.1 M	<0.1 M	<0.1 M			
Molybdenum	mg/kg	TM181		3.85 #	13.6 #	2.69 #			
Nickel	mg/kg	TM181		14 M	35.5 M	8.96 M			
Selenium	mg/kg	TM181		1.14 #	1.79 #	1.21 #			
Vanadium	mg/kg	TM181		32.3 #	65.4 #	34.9 #			
Zinc	mg/kg	TM181		63.6 M	162 M	39.9 M			
Sulphate, Total	mg/kg	TM221		463 M	305 M	500 M			
Conductivity @ 20 deg.C	mS/cm	TM234		1.85	1.76	1.75			
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243		0.113 M	0.0283 M	0.0162 M			
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248		6.29	3.62	6.09			
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410		<318	<318	<318			

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP011	WS006	WS008			
			Depth (m)	0.80	0.80	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	25/04/2022	25/04/2022	25/04/2022			
			Sampled Time	.	.	.			
			Date Received	27/04/2022	27/04/2022	27/04/2022			
			SDG Ref	220427-124	220427-124	220427-124			
			Lab Sample No.(s)	26193910	26193906	26256199			
			AGS Reference	ES2	ES2	ES2			
Coronene	<200 µg/kg	TM410		<200	<200	<200			

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP011	WS006	WS008			
			Depth (m)	0.80	0.80	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	25/04/2022	25/04/2022	25/04/2022			
			Sampled Time	.	.	.			
			Date Received	27/04/2022	27/04/2022	27/04/2022			
			SDG Ref	220427-124	220427-124	220427-124			
			Lab Sample No.(s)	26193910	26193906	26256199			
			AGS Reference	ES2	ES2	ES2			
Naphthalene-d8 % recovery**	%	TM218		82.4	84.3	83.1			
Acenaphthene-d10 % recovery**	%	TM218		90.3	93.4	92.8			
Phenanthrene-d10 % recovery**	%	TM218		95.9	100	99.4			
Chrysene-d12 % recovery**	%	TM218		86.1	90.8	89			
Perylene-d12 % recovery**	%	TM218		85.1	91.2	90.2			
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 @ M	<9 @ M			
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 @ M	<12 @ M			
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 @ M	<8 @ M			
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M			
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 @ M	<16 @ M			
Fluoranthene	<17 µg/kg	TM218		<17 @ M	<17 @ M	<17 @ M			
Pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<14 @ M			
Chrysene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M			
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<14 @ M			
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 @ M	<18 @ M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 @ M	<23 @ M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 @ M	<24 @ M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118			

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP011	WS006	WS008			
			Depth (m)	0.80	0.80	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	25/04/2022	25/04/2022	25/04/2022			
			Sampled Time	.	.	.			
			Date Received	27/04/2022	27/04/2022	27/04/2022			
			SDG Ref	220427-124	220427-124	220427-124			
			Lab Sample No.(s)	26193910	26193906	26256199			
			AGS Reference	ES2	ES2	ES2			
GRO Surrogate % recovery**	%	TM089		104 @	99.8 @	103 @			
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @			
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000 @	<5000 @	<5000 @			
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		<10000	<10000	<10000			
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #			
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	1260 @ #			
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @			
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @			
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	<5000	<5000			
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		<10000	<10000	<10000			
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20 @	<20 @	<20 @			

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP011	WS006	WS008
Depth (m)	0.80	0.80	0.80
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	25/04/2022	25/04/2022	25/04/2022
Sampled Time	.	.	.
Date Received	27/04/2022	27/04/2022	27/04/2022
SDG Ref	220427-124	220427-124	220427-124
Lab Sample No.(s)	26193910	26193906	26256199
AGS Reference	ES2	ES2	ES2

Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM116	125	@	117	@	116	@
Toluene-d8**	%	TM116	94.7	@	96	@	95.5	@
4-Bromofluorobenzene**	%	TM116	81.5	@	78.9	@	86.2	@
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10	@ M	<10	@ M	<10	@ M
Benzene	<9 µg/kg	TM116	<9	@ M	<9	@ M	<9	@ M
Toluene	<7 µg/kg	TM116	<7	@ M	<7	@ M	<7	@ M
Ethylbenzene	<4 µg/kg	TM116	<4	@ M	<4	@ M	<4	@ M
p/m-Xylene	<10 µg/kg	TM116	<10	@ #	<10	@ #	<10	@ #
o-Xylene	<10 µg/kg	TM116	<10	@ M	<10	@ M	<10	@ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	@	<0.02	@	<0.02	@
Sum of BTEX	<40 µg/kg	TM116	<40	@	<40	@	<40	@

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP011ES2 0.80 SOLID 25/04/2022 00:00:00 27/04/2022 05:00:00 220427-124 26193910 TM048	18/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS006ES2 0.80 SOLID 25/04/2022 00:00:00 27/04/2022 05:00:00 220427-124 26193906 TM048	18/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS008ES2 0.80 SOLID 25/04/2022 00:00:00 27/04/2022 05:00:00 220427-124 26256199 TM048	18/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	
Particle Size <4mm	>95%		

Case	
SDG	220427-124
Lab Sample Number(s)	26256199
Sampled Date	25-Apr-2022
Customer Sample Ref.	WS008 ES2
Depth (m)	0.80

Eluate Analysis	C_2 Concⁿ in 10:1 eluate (mg/l)		A_2 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	14-May-2022
pH (pH Units)	
Conductivity (µS/cm)	
Temperature (°C)	
Volume Leachant (Litres)	0.879

20/05/2022 12:12:19

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Notification of NDPs (No determination possible)

Date Received : 27/04/2022 15:50:36

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
26193906	WS006	0.80	Sulphide	Sample cannot be filtered
26193906	WS006	0.80	Mercury Dissolved	Sample cannot be filtered
26193906	WS006	0.80	Cyanide Comp/Free/Total/Thiocyanate	Sample cannot be filtered
26193906	WS006	0.80	Hexavalent Chromium (w)	Sample cannot be filtered
26193906	WS006	0.80	pH Value	Sample cannot be filtered
26193906	WS006	0.80	Dissolved Metals by ICP-MS	Sample cannot be filtered
26193906	WS006	0.80	Anions by Kone (w)	Sample cannot be filtered
26193906	WS006	0.80	Nitrite by Kone (w)	Sample cannot be filtered
26193906	WS006	0.80	Ammoniacal Nitrogen	Sample cannot be filtered
26193906	WS006	0.80	CEN Readings	Sample cannot be filtered

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26193910	26193906	26256199
Customer Sample Ref.	TP011	WS006	WS008
AGS Ref.	ES2	ES2	ES2
Depth	0.80	0.80	0.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	16-May-2022	16-May-2022	16-May-2022
Anions by Kone (soil)	17-May-2022	17-May-2022	17-May-2022
Asbestos ID in Solid Samples	18-May-2022	18-May-2022	18-May-2022
CEN 10:1 Leachate (1 Stage)		14-May-2022	
Conductivity (at 20 deg.C)	16-May-2022	16-May-2022	16-May-2022
Coronene	16-May-2022	16-May-2022	16-May-2022
Cyanide Comp/Free/Total/Thiocyanate	18-May-2022	18-May-2022	18-May-2022
Easily Liberated Sulphide	17-May-2022	17-May-2022	17-May-2022
EPH CWG GC (S)	17-May-2022	19-May-2022	17-May-2022
GRO by GC-FID (S)	20-May-2022	20-May-2022	20-May-2022
Hexavalent Chromium (s)	17-May-2022	17-May-2022	17-May-2022
Metals in solid samples by OES	17-May-2022	17-May-2022	17-May-2022
Moisture at 105C		14-May-2022	
PAH 16 & 17 Calc	17-May-2022	17-May-2022	17-May-2022
PAH by GCMS	17-May-2022	17-May-2022	17-May-2022
PAH Spec MS - Aqueous (W)		17-May-2022	
pH	16-May-2022	16-May-2022	16-May-2022
Phenols by HPLC (S)	17-May-2022	17-May-2022	17-May-2022
Sample description	13-May-2022	13-May-2022	13-May-2022
Total Organic Carbon	19-May-2022	19-May-2022	19-May-2022
Total Sulphate	17-May-2022	19-May-2022	19-May-2022
TPH CWG GC (S)	20-May-2022	20-May-2022	20-May-2022
VOC MS (S)	19-May-2022	19-May-2022	20-May-2022

ASSOCIATED AQC DATA

Coronene

Component	Method Code	QC 2606
Coronene RAW	TM410	**95.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2667
Free Cyanide	TM153	**94.55** 71.70 : 110.70
Thiocyanate	TM153	**101.92** 87.27 : 113.27
Total Cyanide	TM153	**102.8** 72.73 : 109.93

Easily Liberated Sulphide

Component	Method Code	QC 2672
Easily Liberated Sulphide	TM180	**85.13** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2671
QC	TM089	**85.26** 65.42 : 109.49

Hexavalent Chromium (s)

Component	Method Code	QC 2648
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40

Metals in solid samples by OES

Component	Method Code	QC 2689	QC 2608
Aluminium	TM181	**115.79** 84.95 : 125.04	**117.54** 84.95 : 125.04
Antimony	TM181	**124.8** 91.44 : 127.13	**115.35** 91.44 : 127.13
Arsenic	TM181	**115.88** 95.27 : 120.80	**112.16** 95.27 : 120.80

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Metals in solid samples by OES

		QC 2689	QC 2608
Barium	TM181	**118.97** 94.57 : 124.93	**109.74** 94.57 : 124.93
Beryllium	TM181	**114.87** 85.72 : 122.69	**109.33** 85.72 : 122.69
Boron	TM181	**113.83** 91.59 : 122.22	**109.0** 91.59 : 122.22
Cadmium	TM181	**112.92** 87.31 : 121.62	**108.86** 87.31 : 121.62
Chromium	TM181	**104.15** 85.06 : 113.81	**97.8** 85.06 : 113.81
Cobalt	TM181	**110.18** 90.60 : 110.35	**103.27** 90.60 : 110.35
Copper	TM181	**100.0** 81.22 : 113.40	**96.28** 81.22 : 113.40
Iron	TM181	**113.76** 86.44 : 122.27	**115.6** 86.44 : 122.27
Lead	TM181	**111.63** 86.83 : 123.12	**105.45** 86.83 : 123.12
Manganese	TM181	**114.33** 89.22 : 121.75	**109.27** 89.22 : 121.75
Mercury	TM181	**115.64** 84.95 : 119.42	**107.82** 84.95 : 119.42
Molybdenum	TM181	**110.1** 85.98 : 123.80	**106.4** 85.98 : 123.80
Nickel	TM181	**115.13** 88.05 : 119.19	**108.31** 88.05 : 119.19
Phosphorus	TM181	**109.74** 90.13 : 121.54	**106.84** 90.13 : 121.54
Selenium	TM181	**116.85** 90.68 : 124.14	**110.99** 90.68 : 124.14
Strontium	TM181	**100.22** 80.65 : 106.55	**95.08** 80.65 : 106.55
Thallium	TM181	**112.75** 76.88 : 121.51	**109.73** 76.88 : 121.51
Tin	TM181	**113.95** 86.96 : 122.18	**113.65** 86.96 : 122.18
Titanium	TM181	**102.73** 77.07 : 118.83	**96.36** 77.07 : 118.83
Vanadium	TM181	**107.19** 84.00 : 115.50	**103.24** 84.00 : 115.50
Zinc	TM181	**112.19** 85.62 : 122.35	**106.32** 85.62 : 122.35

PAH by GCMS

Component	Method Code	QC 2604
Acenaphthene	TM218	**95.0** 76.79 : 103.90
Acenaphthylene	TM218	**93.0** 74.19 : 106.17
Anthracene	TM218	**94.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**92.0** 73.77 : 119.26

PAH by GCMS

		QC 2604
Benzo(a)pyrene	TM218	**91.0** 73.20 : 114.18
Benzo(b)fluoranthene	TM218	**89.5** 75.36 : 117.58
Benzo(ghi)perylene	TM218	**84.5** 70.73 : 116.12
Benzo(k)fluoranthene	TM218	**90.5** 75.98 : 116.59
Chrysene	TM218	**88.5** 74.82 : 114.18
Dibenzo(ah)anthracene	TM218	**91.0** 69.17 : 115.30
Fluoranthene	TM218	**94.5** 66.06 : 114.63
Fluorene	TM218	**93.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**83.0** 70.26 : 117.95
Naphthalene	TM218	**89.5** 74.70 : 101.83
Phenanthrene	TM218	**94.5** 73.62 : 109.34
Pyrene	TM218	**92.5** 71.46 : 117.00

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2689
Acenaphthene by GCMS	TM178	**107.2** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**107.2** 96.80 : 118.40
Anthracene by GCMS	TM178	**105.2** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**101.2** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**99.6** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**96.0** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**99.6** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**112.0** 88.72 : 111.28
Chrysene by GCMS	TM178	**109.6** 88.68 : 116.92
Dibenzo(ah)anthracene by GCMS	TM178	**100.4** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**100.0** 91.20 : 117.60
Fluorene by GCMS	TM178	**105.6** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**96.4** 88.39 : 119.61

PAH Spec MS - Aqueous (W)

		QC 2689
Naphthalene by GCMS	TM178	**105.6** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**102.0** 96.00 : 117.60
Pyrene by GCMS	TM178	**99.6** 91.00 : 120.20

pH

Component	Method Code	QC 2640
pH	TM133	**98.38** 96.92 : 102.20

Phenols by HPLC (S)

Component	Method Code	QC 2662	QC 2690
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**52.6** 69.38 : 125.27	**51.95** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**46.2** 69.79 : 122.84	**45.61** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**50.1** 77.98 : 111.41	**49.27** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**52.32** 67.94 : 117.69	**51.66** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**50.1** 82.04 : 108.38	**49.48** 82.04 : 108.38

Total Organic Carbon

Component	Method Code	QC 2604	QC 2632
Total Organic Carbon	TM132	**100.78** 80.47 : 113.28	**103.13** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2610	QC 2653
Total Sulphate	TM221	**106.06** 78.36 : 114.69	**105.3** 78.36 : 114.69

VOC MS (S)

VOC MS (S)

Component	Method Code	QC 2664	QC 2694
1,1,1,2-tetrachloroethane	TM116	**97.8** 88.29 : 116.31	**93.0** 86.59 : 118.97
1,1,1-Trichloroethane	TM116	**105.4** 88.34 : 114.50	**100.0** 86.26 : 117.53
1,1,2-Trichloroethane	TM116	**90.6** 81.29 : 113.79	**91.2** 75.16 : 112.70
1,1-Dichloroethane	TM116	**114.8** 91.34 : 123.49	**112.2** 87.14 : 128.34
1,2-Dichloroethane	TM116	**108.6** 90.04 : 132.28	**115.8** 89.30 : 133.10
1,4-Dichlorobenzene	TM116	**103.6** 80.81 : 125.07	**103.8** 82.59 : 123.23
2-Chlorotoluene	TM116	**89.2** 73.13 : 114.13	**79.6** 66.81 : 118.43
4-Chlorotoluene	TM116	**87.2** 68.66 : 109.13	**82.0** 65.88 : 114.76
Benzene	TM116	**103.0** 84.29 : 112.22	**109.2** 93.16 : 123.63
Carbon Disulphide	TM116	**109.0** 75.11 : 124.81	**106.2** 75.11 : 124.81
Carbontetrachloride	TM116	**102.8** 82.35 : 126.46	**93.2** 82.06 : 121.42
Chlorobenzene	TM116	**98.4** 82.88 : 122.42	**94.2** 85.07 : 118.13
Chloroform	TM116	**113.2** 90.35 : 120.38	**113.6** 88.13 : 122.71
Chloromethane	TM116	**105.8** 67.89 : 143.51	**121.0** 61.62 : 145.66
Cis-1,2-Dichloroethene	TM116	**103.2** 78.27 : 128.90	**106.8** 88.41 : 121.33
Dibromomethane	TM116	**95.8** 76.00 : 120.73	**98.4** 77.47 : 121.29
Dichloromethane	TM116	**120.0** 97.64 : 133.75	**115.6** 87.89 : 134.72
Ethylbenzene	TM116	**85.6** 70.95 : 113.07	**85.6** 76.29 : 106.31
Hexachlorobutadiene	TM116	**74.0** 14.55 : 147.92	**62.8** 16.78 : 153.29
Isopropylbenzene	TM116	**74.0** 43.42 : 101.34	**69.2** 59.16 : 110.07
Naphthalene	TM116	**103.2** 80.90 : 124.24	**103.4** 79.29 : 125.59
o-Xylene	TM116	**75.8** 68.34 : 101.99	**78.4** 72.86 : 102.10
p/m-Xylene	TM116	**80.0** 69.47 : 97.31	**79.4** 68.99 : 102.40
Sec-Butylbenzene	TM116	**76.8** 27.03 : 135.73	**65.8** 44.71 : 117.87
Tetrachloroethene	TM116	**97.2** 80.10 : 120.38	**88.2** 77.82 : 125.00
Toluene	TM116	**88.8** 80.66 : 100.10	**91.2** 87.82 : 116.21
Trichloroethene	TM116	**91.8** 79.80 : 112.33	**95.2** 79.80 : 112.33

VOC MS (S)

		QC 2664	QC 2694
Trichlorofluoromethane	TM116	**115.4** 83.13 : 123.97	**105.2** 80.52 : 132.12
Vinyl Chloride	TM116	**109.8** 69.66 : 136.55	**104.6** 74.57 : 146.88

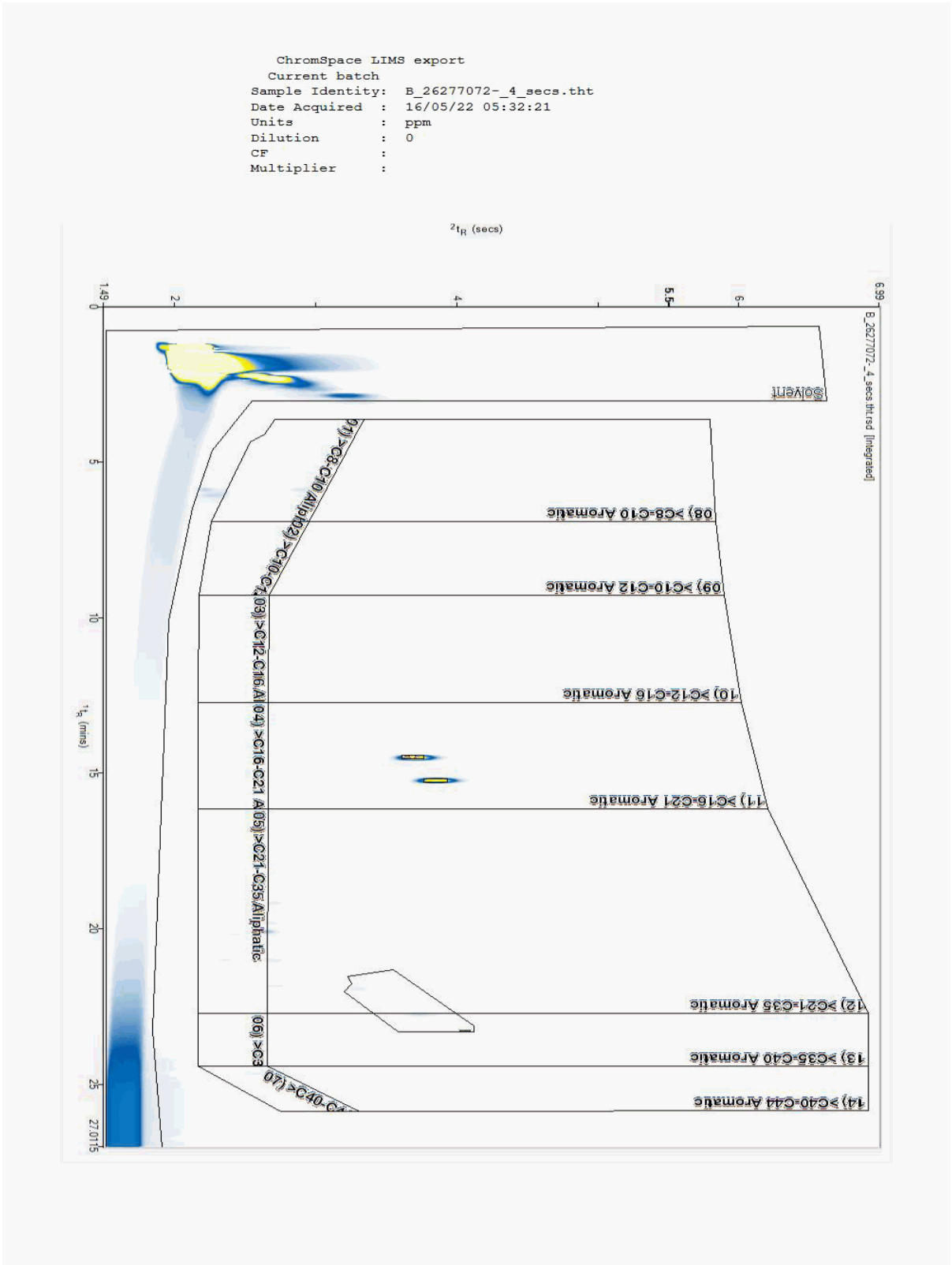
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26277072 **Depth :** 0.80
Sample ID : TP011

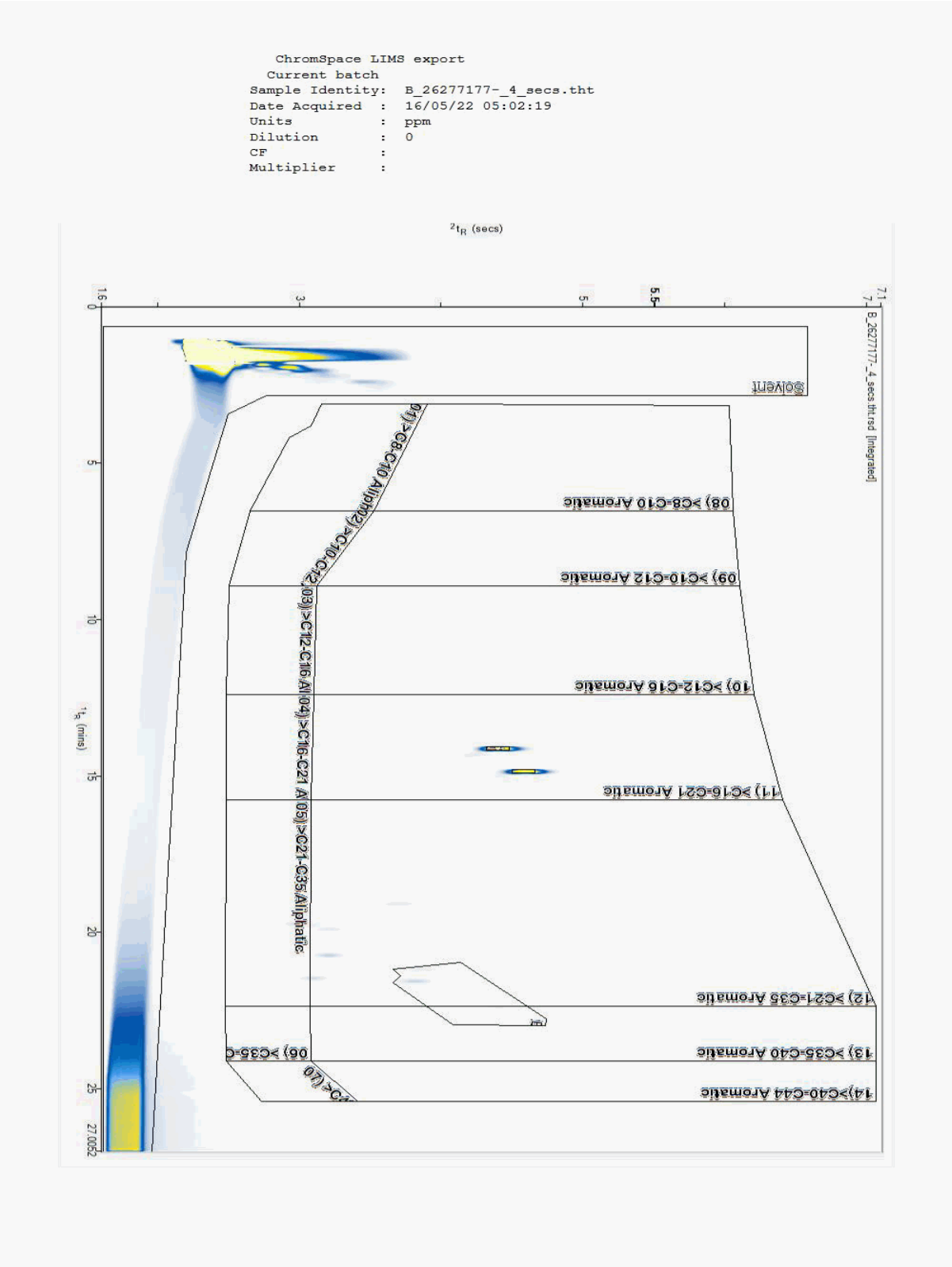


CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26277177 **Depth :** 0.80
Sample ID : WS008

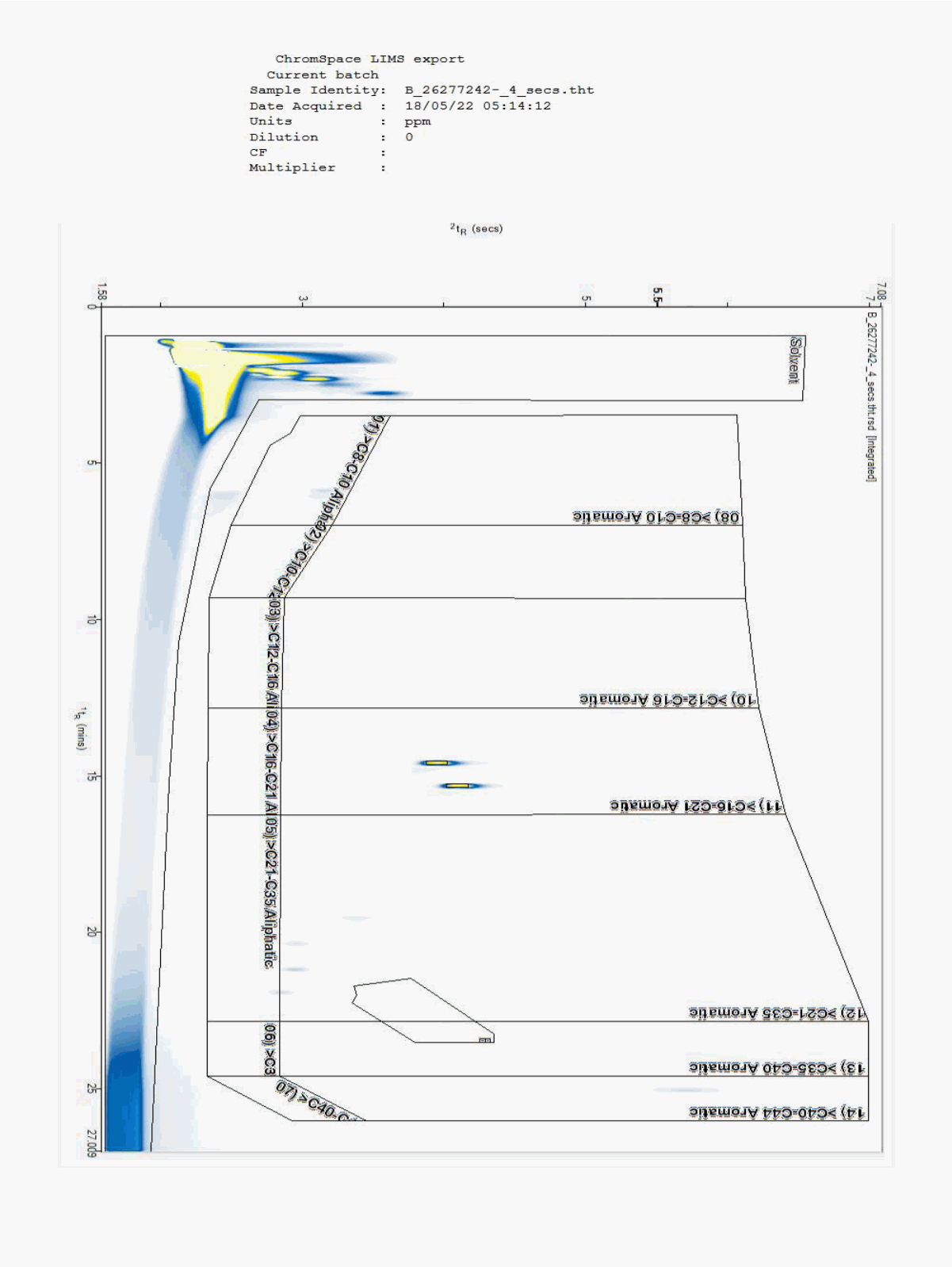


CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26277242 **Depth :** 0.80
Sample ID : WS006

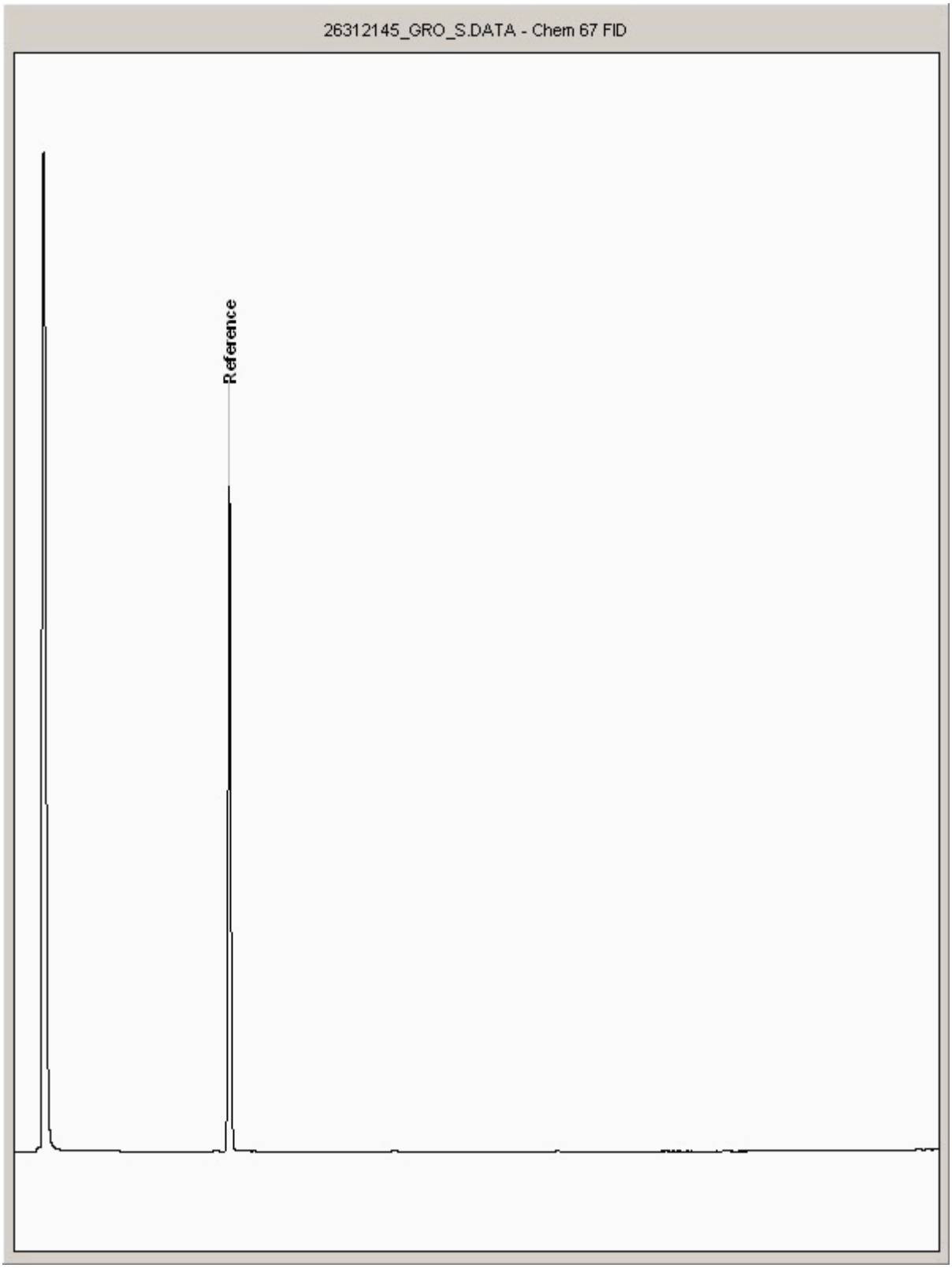


CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26312145 **Depth :** 0.80
Sample ID : TP011

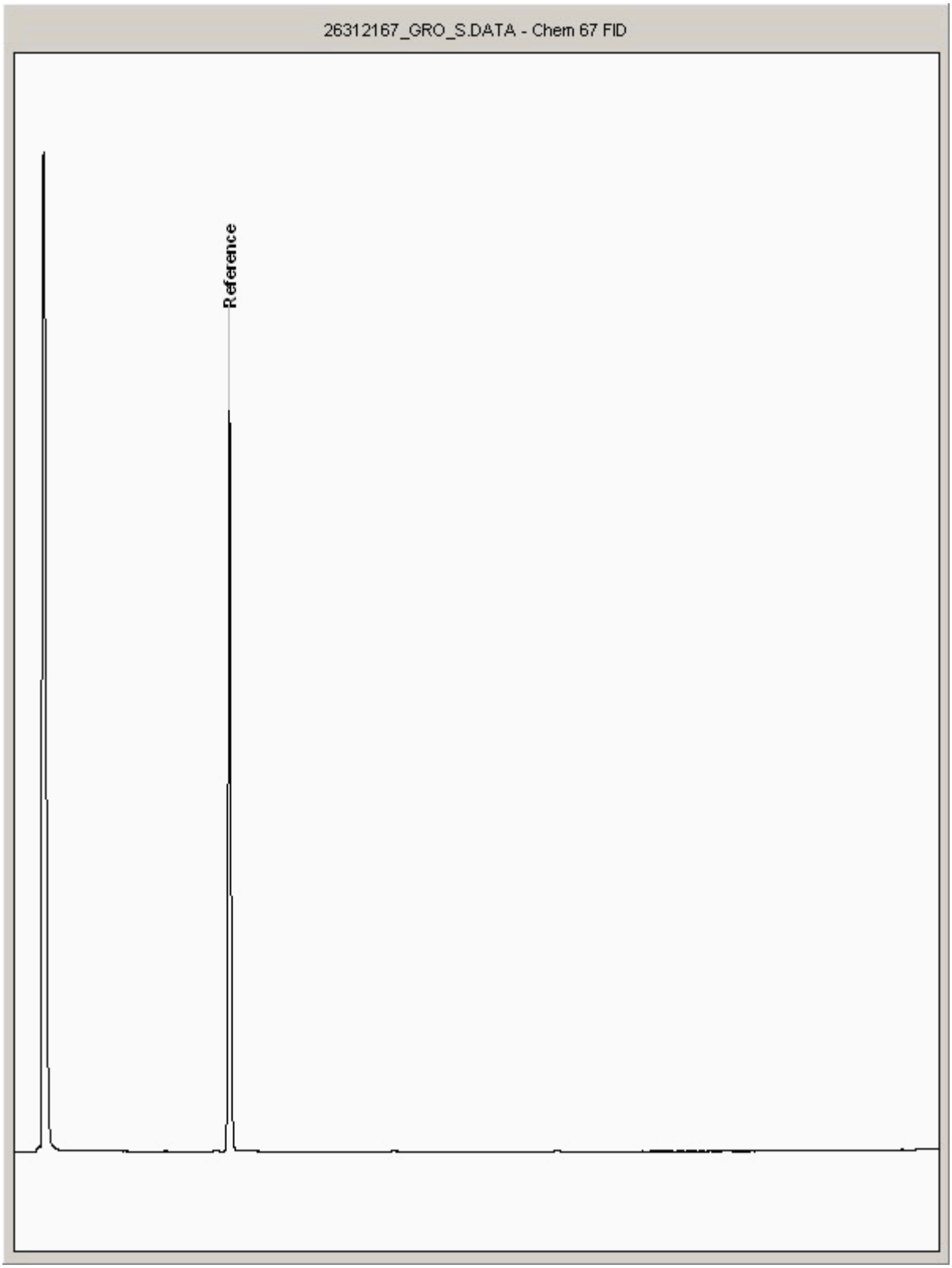


CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26312167 **Depth :** 0.80
Sample ID : WS006

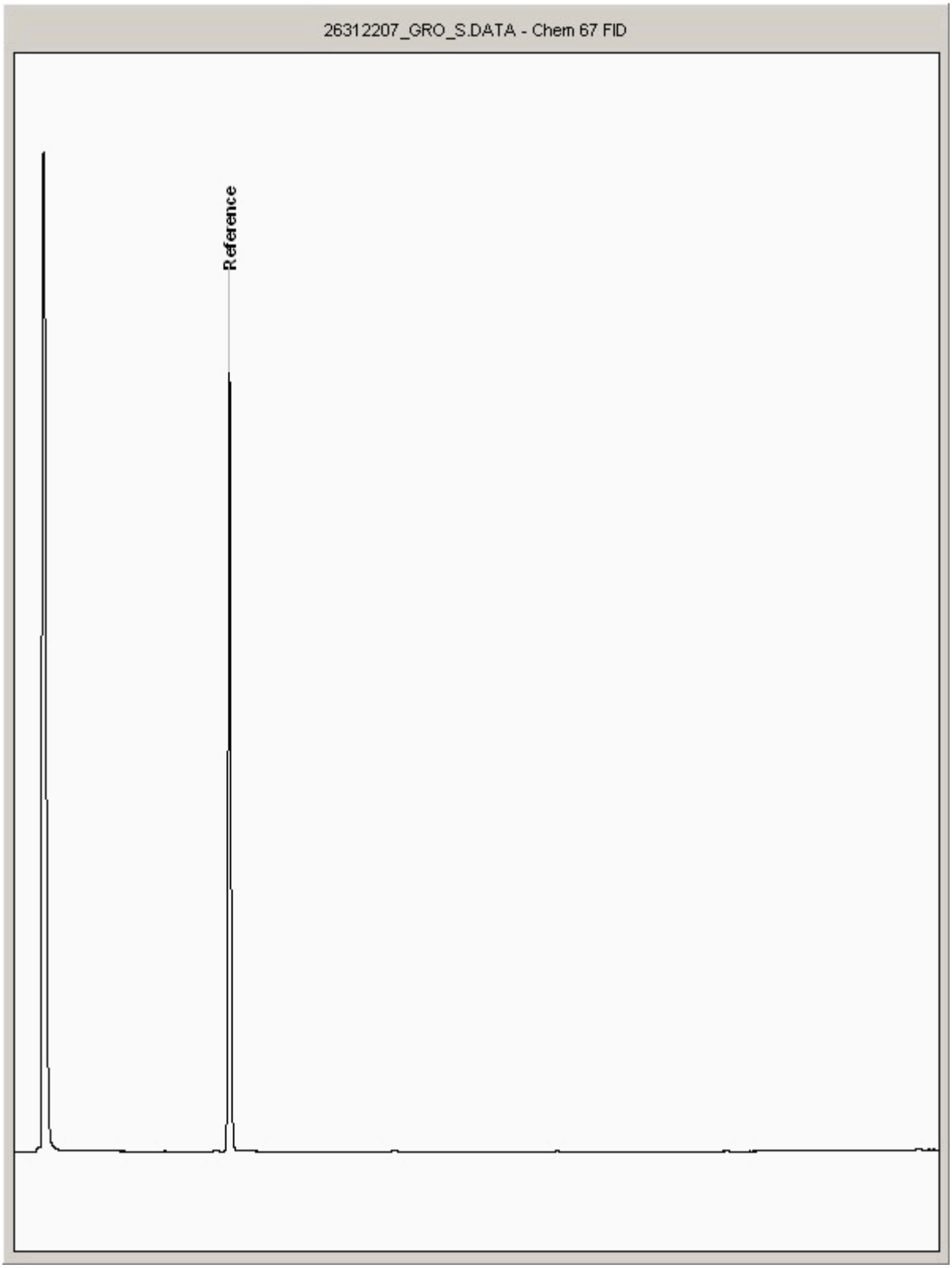


CERTIFICATE OF ANALYSIS

SDG: 220427-124 **Report Number:** 647200 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26312207 **Depth :** 0.80
Sample ID : WS008



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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email: hawardencustomerservices@alsglobal.com
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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	18 July 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220429-149
Your Reference:	JER9352
Location:	Chippenham
Report No:	654631
Order Number:	PO22-197

This report has been revised and directly supersedes 653954 in its entirety.

We received 20 samples on Friday April 29, 2022 and 4 of these samples were scheduled for analysis which was completed on Monday July 18, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26209267	PWB-BH-01		0.30	22/04/2022
26209270	PWB-BH-01		0.50	22/04/2022
26209269	PWB-BH-01		0.80	22/04/2022
26209268	PWB-BH-01		1.00	22/04/2022
26209266	PWB-BH-01		1.20	22/04/2022
26209271	TP007		0.30	27/04/2022
26209274	TP007		0.80	27/04/2022
26209275	TP007		1.20	27/04/2022
26209273	TP007		2.20	27/04/2022
26209272	TP007		3.20	27/04/2022
26209284	WS010		0.30	27/04/2022
26209283	WS010		0.80	27/04/2022
26209285	WS010		1.20	27/04/2022
26209279	WS014		0.15	27/04/2022
26209277	WS014		0.25	27/04/2022
26209276	WS014		0.80	27/04/2022
26209278	WS014		1.20	27/04/2022
26209281	WS010A		0.30	28/04/2022
26209282	WS010A		0.80	28/04/2022
26209280	WS010A		1.20	28/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)											
			26209267			26209285			26209277			26209282		
			Customer Sample Reference			PWB-BH-01			WS010			WS014			WS010A		
			AGS Reference														
			Depth (m)			0.30			1.20			0.25			0.80		
			Container	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 4		X			X			X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 2	X						X						
Anions by Kone (soil)	All	NDPs: 0 Tests: 4		X			X			X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 2	X						X						
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 4	X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 2	X						X						
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4		X			X			X			X	
Coronene	All	NDPs: 0 Tests: 4		X			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 6	X	X			X		X	X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2	X						X						
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4		X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 4		X			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4		X			X			X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 2	X						X						

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)											
			26209267			26209285			26209277			26209282		
			Customer Sample Reference			PWB-BH-01			WS010			WS014		
			AGS Reference											
			Depth (m)			0.30			1.20			0.25		
			Container	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 2		X						X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 4			X			X			X			X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 2		X						X					
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 4			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 4			X			X			X			X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 2		X						X					
pH	All	NDPs: 0 Tests: 4			X			X			X			X	
pH Value	All	NDPs: 0 Tests: 2		X						X					
Phenols by HPLC (S)	All	NDPs: 0 Tests: 4			X			X			X			X	
Sample description	All	NDPs: 0 Tests: 4			X			X			X			X	
Sulphide	All	NDPs: 0 Tests: 2		X						X					
Total Organic Carbon	All	NDPs: 0 Tests: 4			X			X			X			X	
Total Sulphate	All	NDPs: 0 Tests: 4			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 4			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 4				X			X			X			X

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26209267	PWB-BH-01	0.30	Light Brown	Clay	Vegetation	None
26209285	WS010	1.20	Dark Brown	Silty Clay Loam	Vegetation	None
26209277	WS014	0.25	Dark Brown	Sandy Loam	Stones	Vegetation
26209282	WS010A	0.80	Light Brown	Silty Clay	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Results Legend
ISO17025 accredited.
M *m*CERTS accredited.
aq Aqueous / settled sample.
diss.filt Dissolved / filtered sample.
tot.unfilt Total / unfiltered sample.
* Subcontracted - refer to subcontractor report for accreditation status.
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F) Trigger breach confirmed
1-4+5@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-01	WS010	WS014	WS010A		
			Depth (m)	0.30	1.20	0.25	0.80		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	22/04/2022	27/04/2022	27/04/2022	28/04/2022		
			Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
			Date Received	29/04/2022	29/04/2022	29/04/2022	29/04/2022		
			SDG Ref	220429-149	220429-149	220429-149	220429-149		
			Lab Sample No.(s)	26209267	26209285	26209277	26209282		
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		12	11	9.5	26		
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 @	<0.01 @	<0.01 @	<0.01 @		
Soil Organic Matter (SOM)	<0.35 %	TM132		2.71	0.967	4.31	1.23 @		
pH	1 pH Units	TM133		7.45 @	4.6 @	7.81 @	4.33 @		
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6	<0.6	<0.6	<0.6 @		
Cyanide, Total	<1 mg/kg	TM153		<1 @	<1 @	<1 @	1.69 @		
Cyanide, Free	<1 mg/kg	TM153		<1 @	<1 @	<1 @	<1 @		
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	1.58		
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @	<15 @	<15 @	<15 @		
Aluminium	<11 mg/kg	TM181		11900	19700	8320	11500		
Antimony	<0.6 mg/kg	TM181		<0.6	<0.6	<0.6	<0.6		
Arsenic	<0.6 mg/kg	TM181		12.8	9.85	7.58			
Barium	<0.6 mg/kg	TM181		56.2	19.7	55.7	37.1		
Beryllium	<0.01 mg/kg	TM181		0.762	0.806	0.54	0.59		
Boron	<0.7 mg/kg	TM181		6.51	14.5	7.14	15.9		
Cadmium	<0.02 mg/kg	TM181		0.0936	<0.02	0.199			
Chromium	<0.9 mg/kg	TM181		8.3	16.1	8.21			
Copper	<1.4 mg/kg	TM181		12.6	23.3	13.3			
Iron	<1000 mg/kg	TM181		26000	44800	14200	28600		
Lead	<0.7 mg/kg	TM181		35.9	11.7	43.4			
Manganese	<0.13 mg/kg	TM181		564	41.3	165	39.7		
Mercury	<0.1 mg/kg	TM181		<0.1	<0.1	<0.1			
Molybdenum	<0.1 mg/kg	TM181		1.8	2.82	0.812	2.2		
Nickel	<0.2 mg/kg	TM181		13	9.82	9.52			
Selenium	<1 mg/kg	TM181		1.49	1.52	<1			
Vanadium	<0.2 mg/kg	TM181		31.1	35.5	20.8			
Zinc	<1.9 mg/kg	TM181		56.1	63.9	65.9			
Sulphate, Total	<48 mg/kg	TM221		217	495	367	3090		
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234		1.97	1.85	2.04	2.57		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0109	0.0701	0.0048	0.205 @		
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248		4.14	5.59	3.2	7.06		
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		463	<318	1030	<318		

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-01	WS010	WS014	WS010A		
			Depth (m)	0.30	1.20	0.25	0.80		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	22/04/2022	27/04/2022	27/04/2022	28/04/2022		
			Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
			Date Received	29/04/2022	29/04/2022	29/04/2022	29/04/2022		
			SDG Ref	220429-149	220429-149	220429-149	220429-149		
			Lab Sample No.(s)	26209267	26209285	26209277	26209282		
			AGS Reference						
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200		

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-01	WS010	WS014	WS010A		
			Depth (m)	0.30	1.20	0.25	0.80		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	22/04/2022	27/04/2022	27/04/2022	28/04/2022		
			Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
			Date Received	29/04/2022	29/04/2022	29/04/2022	29/04/2022		
			SDG Ref	220429-149	220429-149	220429-149	220429-149		
			Lab Sample No.(s)	26209267	26209285	26209277	26209282		
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		95.7	90.4	93	89		
Acenaphthene-d10 % recovery**	%	TM218		95.5	91.8	94.7	89.7		
Phenanthrene-d10 % recovery**	%	TM218		95.5	95.6	97.3	90.8		
Chrysene-d12 % recovery**	%	TM218		94.6	93.1	95.1	80.6		
Perylene-d12 % recovery**	%	TM218		97.4	84.9	89.8	79.8		
Naphthalene	<9 µg/kg	TM218		<9 @	<9 @	<9 @	<9 @		
Acenaphthylene	<12 µg/kg	TM218		<12 @	<12 @	<12 @	<12 @		
Acenaphthene	<8 µg/kg	TM218		<8 @	<8 @	<8 @	<8 @		
Fluorene	<10 µg/kg	TM218		<10 @	<10 @	<10 @	<10 @		
Phenanthrene	<15 µg/kg	TM218		<15 @	<15 @	66 @	<15 @		
Anthracene	<16 µg/kg	TM218		<16 @	<16 @	18.8 @	<16 @		
Fluoranthene	<17 µg/kg	TM218		26.7 @	<17 @	160 @	<17 @		
Pyrene	<15 µg/kg	TM218		24.6 @	<15 @	139 @	<15 @		
Benz(a)anthracene	<14 µg/kg	TM218		38.9 @	<14 @	109 @	<14 @		
Chrysene	<10 µg/kg	TM218		37.5 @	<10 @	103 @	<10 @		
Benzo(b)fluoranthene	<15 µg/kg	TM218		56.4 @	<15 @	131 @	21.9 @		
Benzo(k)fluoranthene	<14 µg/kg	TM218		40.8 @	<14 @	31.2 @	<14 @		
Benzo(a)pyrene	<15 µg/kg	TM218		49.2 @	<15 @	114 @	<15 @		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		65.6 @	<18 @	80.6 @	<18 @		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		48 @	<23 @	<23 @	<23 @		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		75 @	<24 @	73.9 @	<24 @		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		463	<118	1030	<118		

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+S@ Sample deviation (see appendix)

Customer Sample Ref.			PWB-BH-01	WS010	WS014	WS010A		
Depth (m)			0.30	1.20	0.25	0.80		
Sample Type			Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
Date Sampled			22/04/2022	27/04/2022	27/04/2022	28/04/2022		
Sampled Time			00:00:00	00:00:00	00:00:00	00:00:00		
Date Received			29/04/2022	29/04/2022	29/04/2022	29/04/2022		
SDG Ref			220429-149	220429-149	220429-149	220429-149		
Lab Sample No.(s)			26209267	26209285	26209277	26209282		
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	101 @	100 @	89 @	119 @		
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @		
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @		
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @		
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	<1000 @	<1000 @		
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	<1000 @	<1000 @		
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	<1000 @	<1000 @		
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	5270 @	5280 @	19300 @	<1000 @		
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	1340 @	<1000 @		
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	6190 @	5580 @	21000 @	<5000 @		
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	11700	<10000	224000	<10000		
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @		
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @		
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @	<10 @	<10 @		
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	<1000 @	<1000 @		
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	3240 @	<1000 @		
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	39100 @	<1000 @		
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	4530 @	2020 @	137000 @	1720 @		
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	22600 @	<1000 @		
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @	<1000 @	3710 @	<1000 @		
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	5530	<5000	203000	<5000		
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	11700	<10000	224000	<10000		
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @	<50 @	<50 @		
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @	<50 @	<50 @		
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @	<20 @	<20 @	<20 @		

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-01	WS010	WS014	WS010A		
			Depth (m)	0.30	1.20	0.25	0.80		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	22/04/2022	27/04/2022	27/04/2022	28/04/2022		
			Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
			Date Received	29/04/2022	29/04/2022	29/04/2022	29/04/2022		
			SDG Ref	220429-149	220429-149	220429-149	220429-149		
			Lab Sample No.(s)	26209267	26209285	26209277	26209282		
			AGS Reference						
Dibromofluoromethane**	%	TM116		106 @	103 @	101 @	110 @		
Toluene-d8**	%	TM116		95 @	97.5 @	89.7 @	97.1 @		
4-Bromofluorobenzene**	%	TM116		86.4 @	91 @	76.6 @	84.4 @		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 @	<10 @	<10 @	<10 @		
Benzene	<9 µg/kg	TM116		<9 @	<9 @	<9 @	<9 @		
Toluene	<7 µg/kg	TM116		<7 @	<7 @	<7 @	<7 @		
Ethylbenzene	<4 µg/kg	TM116		<4 @	<4 @	<4 @	<4 @		
p/m-Xylene	<10 µg/kg	TM116		<10 @	<10 @	<10 @	<10 @		
o-Xylene	<10 µg/kg	TM116		<10 @	<10 @	<10 @	<10 @		
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 @	<0.02 @	<0.02 @	<0.02 @		
Sum of BTEX	<40 µg/kg	TM116		<40 @	<40 @	<40 @	<40 @		

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	PWB-BH-01 0.30 MISC_SOLID 22/04/2022 00:00:00 29/04/2022 05:00:00 220429-149 26209267 TM048	16/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS010 1.20 MISC_SOLID 27/04/2022 00:00:00 29/04/2022 05:00:00 220429-149 26209285 TM048	16/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS014 0.25 MISC_SOLID 27/04/2022 00:00:00 29/04/2022 05:00:00 220429-149 26209277 TM048	16/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS010A 0.80 MISC_SOLID 28/04/2022 00:00:00 29/04/2022 05:00:00 220429-149 26209282 TM048	13/07/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81.1
Particle Size <4mm	>95%		

Case	
SDG	220429-149
Lab Sample Number(s)	26209267
Sampled Date	22-Apr-2022
Customer Sample Ref.	PWB-BH-01
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	<0.01	<0.01	<0.1	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00132	<0.0002	0.0132	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0825	<0.01	0.825	<0.1	-	-	-
Cadmium	0.000162	<0.00008	0.00162	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.411	<0.019	4.11	<0.19	-	-	-
Lead	0.000476	<0.0002	0.00476	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00149	<0.0004	0.0149	<0.004	-	-	-
Phosphorus	<0.01	<0.01	<0.1	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.05	<0.001	0.5	<0.01	-	-	-
Chloride	2.1	<2	21	<20	-	-	-
Nitrate as N	0.461	<0.0677	4.61	<0.677	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	0.024	<0.0152	0.24	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	0.000161	<0.00005	0.00161	<0.0005	-	-	-
Acenaphthylene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Naphthalene by GCMS	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Phenanthrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	8.12
Conductivity (µS/cm)	35.70
Temperature (°C)	19.00
Volume Leachant (Litres)	0.879

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CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81.1
Particle Size <4mm	>95%		

Case	
SDG	220429-149
Lab Sample Number(s)	26209267
Sampled Date	22-Apr-2022
Customer Sample Ref.	PWB-BH-01
Depth (m)	0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(a)pyrene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(ghi)perylene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Chrysene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Fluorene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
PAH 16 EPA Total by GCMS	<0.00082	<0.00082	<0.0082	<0.0082	-	-	-
Pyrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	8.12
Conductivity (µS/cm)	35.70
Temperature (°C)	19.00
Volume Leachant (Litres)	0.879

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CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	21.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.2
Particle Size <4mm	>95%		

Case	
SDG	220429-149
Lab Sample Number(s)	26209277
Sampled Date	27-Apr-2022
Customer Sample Ref.	WS014
Depth (m)	0.25

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	0.0000122	<0.00001	0.000122	<0.0001	-	-	-
Aluminium	0.0577	<0.01	0.577	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0013	<0.0005	0.013	<0.005	-	-	-
Barium	0.0955	<0.0002	0.955	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.254	<0.01	2.54	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000618	<0.0003	0.00618	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.25	<0.019	2.5	<0.19	-	-	-
Lead	0.000975	<0.0002	0.00975	<0.002	-	-	-
Manganese	0.00311	<0.003	0.0311	<0.03	-	-	-
Molybdenum	0.00314	<0.003	0.0314	<0.03	-	-	-
Nickel	0.00187	<0.0004	0.0187	<0.004	-	-	-
Phosphorus	0.224	<0.01	2.24	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	0.0014	<0.001	0.014	<0.01	-	-	-
Zinc	0.167	<0.001	1.67	<0.01	-	-	-
Chloride	2.5	<2	25	<20	-	-	-
Nitrate as N	2.93	<0.0677	29.3	<0.677	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	0.115	<0.01	1.15	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	0.0000565	<0.00005	0.000565	<0.0005	-	-	-
Acenaphthylene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Anthracene by GCMS	0.0000717	<0.00005	0.000717	<0.0005	-	-	-
Fluoranthene by GCMS	0.000418	<0.00005	0.00418	<0.0005	-	-	-
Naphthalene by GCMS	0.000118	<0.0001	0.00118	<0.001	-	-	-
Phenanthrene by GCMS	0.000277	<0.00005	0.00277	<0.0005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.98
Conductivity (µS/cm)	107.00
Temperature (°C)	21.90
Volume Leachant (Litres)	0.880

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CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	21.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.2
Particle Size <4mm	>95%		

Case	
SDG	220429-149
Lab Sample Number(s)	26209277
Sampled Date	27-Apr-2022
Customer Sample Ref.	WS014
Depth (m)	0.25

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	0.000253	<0.00005	0.00253	<0.0005	-	-	-
Benzo(a)pyrene by GCMS	0.000368	<0.00002	0.00368	<0.0002	-	-	-
Benzo(b)fluoranthene by GCMS	0.000459	<0.00005	0.00459	<0.0005	-	-	-
Benzo(ghi)perylene by GCMS	0.000379	<0.00005	0.00379	<0.0005	-	-	-
Benzo(k)fluoranthene by GCMS	0.000244	<0.00005	0.00244	<0.0005	-	-	-
Chrysene by GCMS	0.000329	<0.00005	0.00329	<0.0005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Fluorene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Indeno(123cd)pyrene by GCMS	0.00027	<0.00005	0.0027	<0.0005	-	-	-
PAH 16 EPA Total by GCMS	0.00362	<0.00082	0.0362	<0.0082	-	-	-
Pyrene by GCMS	0.000377	<0.00005	0.00377	<0.0005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.98
Conductivity (µS/cm)	107.00
Temperature (°C)	21.90
Volume Leachant (Litres)	0.880

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26209267	26209285	26209277	26209282
Customer Sample Ref.	PWB-BH-01	WS010	WS014	WS010A
AGS Ref.				
Depth	0.30	1.20	0.25	0.80
Type	Unspecified So	Unspecified So	Unspecified So	Unspecified So
Ammoniacal N as NH4 in 2:1 extract	12-May-2022	12-May-2022	12-May-2022	12-Jul-2022
Ammoniacal Nitrogen	16-May-2022		16-May-2022	
Anions by Kone (soil)	16-May-2022	16-May-2022	16-May-2022	13-Jul-2022
Anions by Kone (w)	17-May-2022		17-May-2022	
Asbestos ID in Solid Samples	16-May-2022	16-May-2022	16-May-2022	13-Jul-2022
CEN 10:1 Leachate (1 Stage)	12-May-2022		12-May-2022	
CEN Readings	14-May-2022		14-May-2022	
Conductivity (at 20 deg.C)	16-May-2022	16-May-2022	16-May-2022	13-Jul-2022
Coronene	13-May-2022	16-May-2022	16-May-2022	08-Jul-2022
Cyanide Comp/Free/Total/Thiocyanate	17-May-2022	16-May-2022	17-May-2022	13-Jul-2022
Dissolved Metals by ICP-MS	16-May-2022		16-May-2022	
Easily Liberated Sulphide	13-May-2022	13-May-2022	13-May-2022	11-Jul-2022
EPH CWG GC (S)	13-May-2022	17-May-2022	17-May-2022	08-Jul-2022
GRO by GC-FID (S)	17-May-2022	17-May-2022	17-May-2022	18-Jul-2022
Hexavalent Chromium (s)	12-May-2022	12-May-2022	12-May-2022	08-Jul-2022
Hexavalent Chromium (w)	17-May-2022		17-May-2022	
Mercury Dissolved	16-May-2022		16-May-2022	
Metals in solid samples by OES	16-May-2022	16-May-2022	16-May-2022	12-Jul-2022
Moisture at 105C	11-May-2022		11-May-2022	
Nitrite by Kone (w)	17-May-2022		17-May-2022	
PAH 16 & 17 Calc	13-May-2022	12-May-2022	12-May-2022	08-Jul-2022
PAH by GCMS	13-May-2022	12-May-2022	12-May-2022	08-Jul-2022
PAH Spec MS - Aqueous (W)	16-May-2022		16-May-2022	
pH	13-May-2022	13-May-2022	13-May-2022	07-Jul-2022
pH Value	16-May-2022		16-May-2022	
Phenols by HPLC (S)	13-May-2022	13-May-2022	13-May-2022	13-Jul-2022
Sample description	11-May-2022	11-May-2022	11-May-2022	06-Jul-2022
Sulphide	17-May-2022		17-May-2022	
Total Organic Carbon	18-May-2022	18-May-2022	18-May-2022	12-Jul-2022
Total Sulphate	16-May-2022	16-May-2022	16-May-2022	11-Jul-2022
TPH CWG GC (S)	17-May-2022	17-May-2022	17-May-2022	18-Jul-2022
VOC MS (S)	17-May-2022	17-May-2022	17-May-2022	15-Jul-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2629
Ammoniacal Nitrogen as N	TM099	**97.6** 90.84 : 105.72

Anions by Kone (soil)

Component	Method Code	QC 2624
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**1.0** 79.99 : 117.30

Anions by Kone (w)

Component	Method Code	QC 2652
Chloride	TM184	**106.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**100.8** 96.54 : 111.66
TON as NO3	TM184	**104.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2657	QC 2666	QC 2641
Coronene RAW	TM410	**124.0** 79.43 : 137.78	**84.0** 79.43 : 137.78	**101.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2622	QC 2630	QC 2653
Free Cyanide	TM153	**84.85** 71.70 : 110.70		**92.87** 71.70 : 110.70
Free Cyanide (W)	TM227		**87.25** 80.33 : 126.33	
Thiocyanate	TM153	**88.46** 87.27 : 113.27		**98.72** 87.27 : 113.27
Thiocyanate (W)	TM227		**111.25** 87.50 : 116.00	
Total Cyanide	TM153	**88.11** 72.73 : 109.93		**98.6** 72.73 : 109.93
Total Cyanide (W)	TM227		**114.0** 83.75 : 121.25	

Dissolved Metals by ICP-MS

Dissolved Metals by ICP-MS

Component	Method Code	QC 2603
Aluminium	TM152	**103.67** 90.98 : 111.82
Antimony	TM152	**102.17** 90.44 : 113.04
Arsenic	TM152	**103.0** 94.87 : 109.67
Barium	TM152	**100.83** 90.20 : 111.19
Beryllium	TM152	**106.83** 87.77 : 113.97
Bismuth	TM152	**101.83** 91.90 : 112.20
Borate	TM152	**104.94** 88.00 : 112.00
Boron	TM152	**105.0** 92.27 : 112.40
Cadmium	TM152	**105.33** 94.93 : 106.93
Calcium	TM152	**101.33** 95.14 : 110.01
Chromium	TM152	**100.67** 91.84 : 108.67
Cobalt	TM152	**100.83** 90.72 : 109.61
Copper	TM152	**101.17** 94.47 : 109.05
Iron	TM152	**101.33** 94.40 : 107.90
Lead	TM152	**101.17** 93.55 : 109.46
Lithium	TM152	**105.33** 91.62 : 113.12
Magnesium	TM152	**101.33** 92.30 : 110.57
Manganese	TM152	**102.67** 94.75 : 108.21
Molybdenum	TM152	**99.67** 93.55 : 107.66
Nickel	TM152	**101.5** 88.00 : 112.00
Phosphorus	TM152	**103.67** 92.51 : 109.27
Potassium	TM152	**102.0** 92.16 : 109.93
Selenium	TM152	**106.67** 91.58 : 115.98
Silver	TM152	**101.83** 92.75 : 111.05
Sodium	TM152	**101.33** 89.47 : 109.62
Strontium	TM152	**104.0** 95.40 : 109.43
Tellurium	TM152	**104.67** 93.32 : 114.66

Dissolved Metals by ICP-MS

		QC 2603
Thallium	TM152	**97.5** 88.00 : 112.00
Tin	TM152	**101.17** 92.63 : 109.70
Titanium	TM152	**105.0** 95.08 : 109.28
Tungsten	TM152	**99.0** 94.68 : 107.68
Uranium	TM152	**100.0** 88.00 : 112.00
Vanadium	TM152	**96.5** 88.00 : 112.00
Zinc	TM152	**103.67** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2666	QC 2695
Easily Liberated Sulphide	TM180	**68.77** 51.10 : 121.66	**105.9** 51.10 : 121.66

EPH CWG GC (S)

Component	Method Code	QC 2673
EPH >C8-C40 Raw	TM414	**101.1** 76.59 : 118.03
Total Aliphatics Raw	TM414	**109.38** 74.89 : 118.76
Total Aromatics Raw	TM414	**98.25** 70.55 : 131.21

GRO by GC-FID (S)

Component	Method Code	QC 2671	QC 2655
QC	TM089	**76.67** 65.42 : 109.49	**73.36** 65.42 : 109.49

Hexavalent Chromium (s)

Component	Method Code	QC 2675	QC 2608	QC 2622
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40	**104.0** 83.40 : 113.40	**102.0** 88.20 : 118.20

Hexavalent Chromium (w)

CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Hexavalent Chromium (w)

Component	Method Code	QC 2617
Hexavalent Chromium	TM241	**105.2** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2680
Mercury Dissolved (CVAF)	TM183	**101.0** 0.00 : 0.00

Metals in solid samples by OES

Component	Method Code	QC 2640	QC 2664	QC 2627
Aluminium	TM181	**106.14** 84.95 : 125.04	**107.89** 84.95 : 125.04	**107.89** 84.95 : 125.04
Antimony	TM181	**114.17** 91.44 : 127.13	**116.14** 91.44 : 127.13	**109.84** 91.44 : 127.13
Arsenic	TM181	**116.22** 95.27 : 120.80	**112.16** 95.27 : 120.80	**116.55** 95.27 : 120.80
Barium	TM181	**108.72** 94.57 : 124.93	**112.82** 94.57 : 124.93	**111.79** 94.57 : 124.93
Beryllium	TM181	**109.62** 85.72 : 122.69	**110.79** 85.72 : 122.69	**108.45** 85.72 : 122.69
Boron	TM181	**108.36** 91.59 : 122.22	**110.61** 91.59 : 122.22	**110.93** 91.59 : 122.22
Cadmium	TM181	**110.7** 87.31 : 121.62	**108.49** 87.31 : 121.62	**112.92** 87.31 : 121.62
Chromium	TM181	**92.44** 85.06 : 113.81	**97.8** 85.06 : 113.81	**96.83** 85.06 : 113.81
Cobalt	TM181	**104.55** 90.60 : 110.35	**103.82** 90.60 : 110.35	**106.73** 90.60 : 110.35
Copper	TM181	**96.62** 81.22 : 113.40	**99.32** 81.22 : 113.40	**97.63** 81.22 : 113.40
Iron	TM181	**104.59** 86.44 : 122.27	**107.34** 86.44 : 122.27	**108.26** 86.44 : 122.27
Lead	TM181	**100.74** 86.83 : 123.12	**103.71** 86.83 : 123.12	**106.68** 86.83 : 123.12
Manganese	TM181	**113.2** 89.22 : 121.75	**110.67** 89.22 : 121.75	**109.55** 89.22 : 121.75
Mercury	TM181	**102.28** 84.95 : 119.42	**107.49** 84.95 : 119.42	**114.01** 84.95 : 119.42
Molybdenum	TM181	**107.74** 85.98 : 123.80	**105.72** 85.98 : 123.80	**105.05** 85.98 : 123.80
Nickel	TM181	**102.67** 88.05 : 119.19	**107.72** 88.05 : 119.19	**106.82** 88.05 : 119.19
Phosphorus	TM181	**124.27** 90.13 : 121.54	**109.23** 90.13 : 121.54	**109.91** 90.13 : 121.54

Metals in solid samples by OES

		QC 2640	QC 2664	QC 2627
Selenium	TM181	**112.09** 90.68 : 124.14	**110.99** 90.68 : 124.14	**114.29** 90.68 : 124.14
Strontium	TM181	**98.21** 80.65 : 106.55	**97.76** 80.65 : 106.55	**96.42** 80.65 : 106.55
Thallium	TM181	**112.75** 76.88 : 121.51	**108.05** 76.88 : 121.51	**112.42** 76.88 : 121.51
Tin	TM181	**107.12** 86.96 : 122.18	**108.01** 86.96 : 122.18	**106.53** 86.96 : 122.18
Titanium	TM181	**100.91** 77.07 : 118.83	**101.82** 77.07 : 118.83	**99.09** 77.07 : 118.83
Vanadium	TM181	**103.96** 84.00 : 115.50	**102.88** 84.00 : 115.50	**102.88** 84.00 : 115.50
Zinc	TM181	**104.51** 85.62 : 122.35	**106.32** 85.62 : 122.35	**107.0** 85.62 : 122.35

PAH by GCMS

Component	Method Code	QC 2694	QC 2632	QC 2666
Acenaphthene	TM218	**94.0** 73.47 : 109.80	**80.0** 74.70 : 106.04	**90.5** 76.79 : 103.90
Acenaphthylene	TM218	**91.5** 70.00 : 130.00	**79.0** 73.12 : 105.14	**89.0** 74.19 : 106.17
Anthracene	TM218	**92.5** 68.68 : 111.89	**79.5** 73.99 : 113.85	**90.5** 70.90 : 109.22
Benz(a)anthracene	TM218	**92.5** 68.12 : 118.39	**73.5** 69.31 : 119.18	**92.0** 73.77 : 119.26
Benzo(a)pyrene	TM218	**89.5** 71.72 : 115.31	**68.0** 66.97 : 114.92	**82.0** 73.20 : 114.18
Benzo(b)fluoranthene	TM218	**90.0** 66.89 : 120.40	**68.0** 67.41 : 114.46	**88.5** 75.36 : 117.58
Benzo(ghi)perylene	TM218	**81.0** 67.82 : 118.49	**64.5** 62.92 : 114.36	**80.0** 70.73 : 116.12
Benzo(k)fluoranthene	TM218	**90.5** 73.10 : 117.03	**70.0** 69.98 : 116.49	**87.5** 75.98 : 116.59
Chrysene	TM218	**90.0** 69.58 : 115.47	**73.5** 69.86 : 114.50	**88.0** 74.82 : 114.18
Dibenzo(ah)anthracene	TM218	**88.0** 67.32 : 121.35	**65.5** 64.54 : 115.22	**80.0** 69.17 : 115.30
Fluoranthene	TM218	**92.0** 64.99 : 117.80	**74.5** 72.56 : 111.70	**90.0** 66.06 : 114.63
Fluorene	TM218	**93.0** 73.81 : 108.66	**79.5** 79.13 : 111.49	**91.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**80.5** 68.91 : 117.62	**65.0** 61.22 : 113.25	**88.5** 70.26 : 117.95
Naphthalene	TM218	**92.5** 80.21 : 109.02	**80.5** 73.52 : 105.12	**91.5** 74.70 : 101.83
Phenanthrene	TM218	**96.0** 69.01 : 113.72	**79.0** 76.83 : 113.25	**91.0** 73.62 : 109.34
Pyrene	TM218	**90.0** 64.28 : 115.75	**72.5** 72.45 : 110.77	**89.5** 71.46 : 117.00

PAH Spec MS - Aqueous (W)

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2643
Acenaphthene by GCMS	TM178	**107.2** 100.00 : 119.20
Acenaphthylene by GCMS	TM178	**110.0** 95.20 : 119.20
Anthracene by GCMS	TM178	**106.4** 91.60 : 113.20
Benz(a)anthracene by GCMS	TM178	**96.0** 90.40 : 119.20
Benzo(a)pyrene by GCMS	TM178	**109.2** 92.80 : 119.20
Benzo(b)fluoranthene by GCMS	TM178	**94.4** 89.60 : 120.80
Benzo(ghi)perylene by GCMS	TM178	**106.8** 93.20 : 117.20
Benzo(k)fluoranthene by GCMS	TM178	**109.6** 96.40 : 120.40
Chrysene by GCMS	TM178	**106.4** 96.40 : 125.20
Dibenzo(ah)anthracene by GCMS	TM178	**100.4** 92.00 : 113.60
Fluoranthene by GCMS	TM178	**103.2** 91.20 : 117.60
Fluorene by GCMS	TM178	**103.2** 95.60 : 122.00
Indeno(123cd)pyrene by GCMS	TM178	**95.2** 90.40 : 112.00
Naphthalene by GCMS	TM178	**110.0** 98.00 : 122.00
Phenanthrene by GCMS	TM178	**108.4** 94.00 : 120.40
Pyrene by GCMS	TM178	**99.6** 92.40 : 118.80

pH

Component	Method Code	QC 2694	QC 2601	QC 2696
pH	TM133	**101.47** 96.92 : 102.20	**98.24** 96.92 : 102.20	**99.71** 96.92 : 102.20

pH Value

Component	Method Code	QC 2602
pH	TM256	**100.27** 99.20 : 102.41

Phenols by HPLC (S)

Phenols by HPLC (S)

Component	Method Code	QC 2648	QC 2653
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**51.95** 69.38 : 125.27	**49.35** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**46.2** 69.79 : 122.84	**45.03** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**49.69** 77.98 : 111.41	**47.81** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**52.98** 67.94 : 117.69	**50.33** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**49.79** 82.04 : 108.38	**48.12** 82.04 : 108.38

Sulphide

Component	Method Code	QC 2624
Sulphide	TM101	**98.0** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2648	QC 2675
Total Organic Carbon	TM132	**105.47** 80.47 : 113.28	**108.2** 86.33 : 116.80

Total Sulphate

Component	Method Code	QC 2605	QC 2610
Total Sulphate	TM221	**94.7** 78.36 : 114.69	**96.97** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2682	QC 2664
1,1,1,2-tetrachloroethane	TM116	**92.8** 84.84 : 116.25	**101.2** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**94.4** 85.52 : 113.22	**103.0** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**89.6** 77.12 : 116.04	**99.4** 77.12 : 116.04
1,1-Dichloroethane	TM116	**104.0** 74.46 : 129.15	**108.8** 74.46 : 129.15
1,2-Dichloroethane	TM116	**102.2** 92.38 : 131.65	**114.0** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**109.6** 83.64 : 126.18	**98.2** 76.78 : 122.98

VOC MS (S)

		QC 2682	QC 2664
2-Chlorotoluene	TM116	**102.6** 68.55 : 109.58	**95.6** 68.55 : 109.58
4-Chlorotoluene	TM116	**96.2** 66.29 : 107.51	**94.6** 66.29 : 107.51
Benzene	TM116	**99.6** 88.60 : 113.80	**105.6** 88.60 : 113.80
Carbon Disulphide	TM116	**101.4** 74.91 : 122.14	**102.4** 74.91 : 122.14
Carbontetrachloride	TM116	**96.2** 80.31 : 124.50	**106.0** 80.31 : 124.50
Chlorobenzene	TM116	**98.6** 83.81 : 114.18	**101.8** 83.81 : 114.18
Chloroform	TM116	**103.2** 87.40 : 122.49	**108.6** 87.40 : 122.49
Chloromethane	TM116	**85.0** 63.11 : 124.36	**109.2** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**100.2** 80.67 : 126.72	**108.8** 80.67 : 126.72
Dibromomethane	TM116	**88.4** 73.23 : 118.35	**100.4** 73.23 : 118.35
Dichloromethane	TM116	**107.2** 81.11 : 133.25	**116.8** 81.11 : 133.25
Ethylbenzene	TM116	**89.8** 75.92 : 110.41	**92.8** 75.92 : 110.41
Hexachlorobutadiene	TM116	**95.6** 12.82 : 152.73	**73.0** 12.82 : 152.73
Isopropylbenzene	TM116	**90.6** 54.30 : 105.91	**85.8** 54.30 : 105.91
Naphthalene	TM116	**107.2** 80.86 : 128.81	**101.6** 80.86 : 128.81
o-Xylene	TM116	**85.2** 69.99 : 108.74	**89.4** 69.99 : 108.74
p/m-Xylene	TM116	**85.3** 68.32 : 108.91	**89.7** 68.32 : 108.91
Sec-Butylbenzene	TM116	**97.6** 38.50 : 101.50	**83.6** 38.50 : 101.50
Tetrachloroethene	TM116	**101.0** 76.95 : 121.02	**99.0** 76.95 : 121.02
Toluene	TM116	**90.0** 74.24 : 107.42	**95.4** 74.24 : 107.42
Trichloroethene	TM116	**92.6** 85.28 : 109.36	**100.6** 85.28 : 109.36
Trichlorofluoromethane	TM116	**99.4** 81.46 : 120.52	**106.2** 81.46 : 120.52
Vinyl Chloride	TM116	**92.8** 68.02 : 143.37	**106.4** 68.02 : 143.37

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

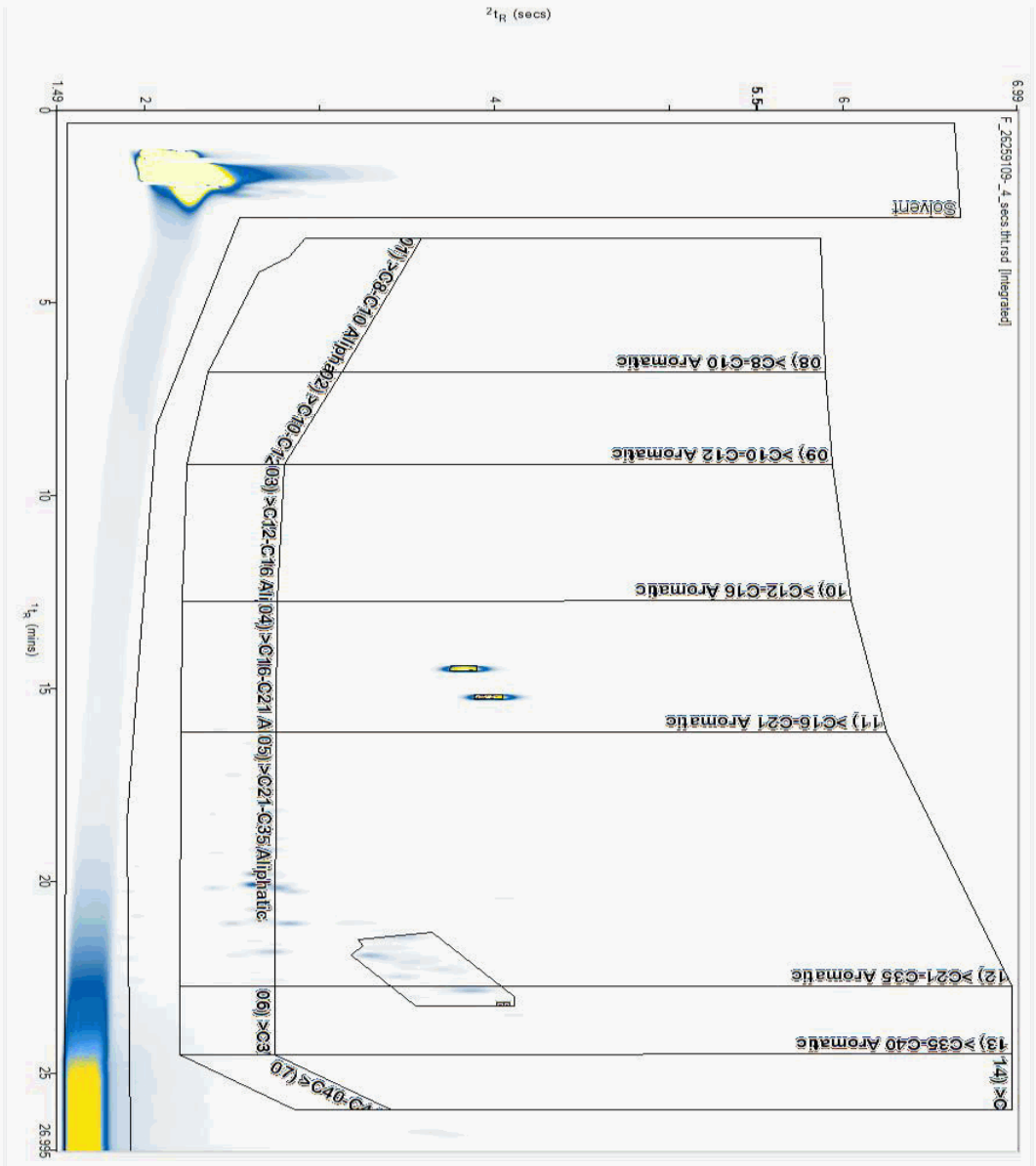
CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26259109 **Depth :** 1.20
Sample ID : WS010

```
  ChromSpace LIMS export
 Current batch
Sample Identity:  F_26259109-_4_secs.tht
Date Acquired   :  17/05/22 08:53:35
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

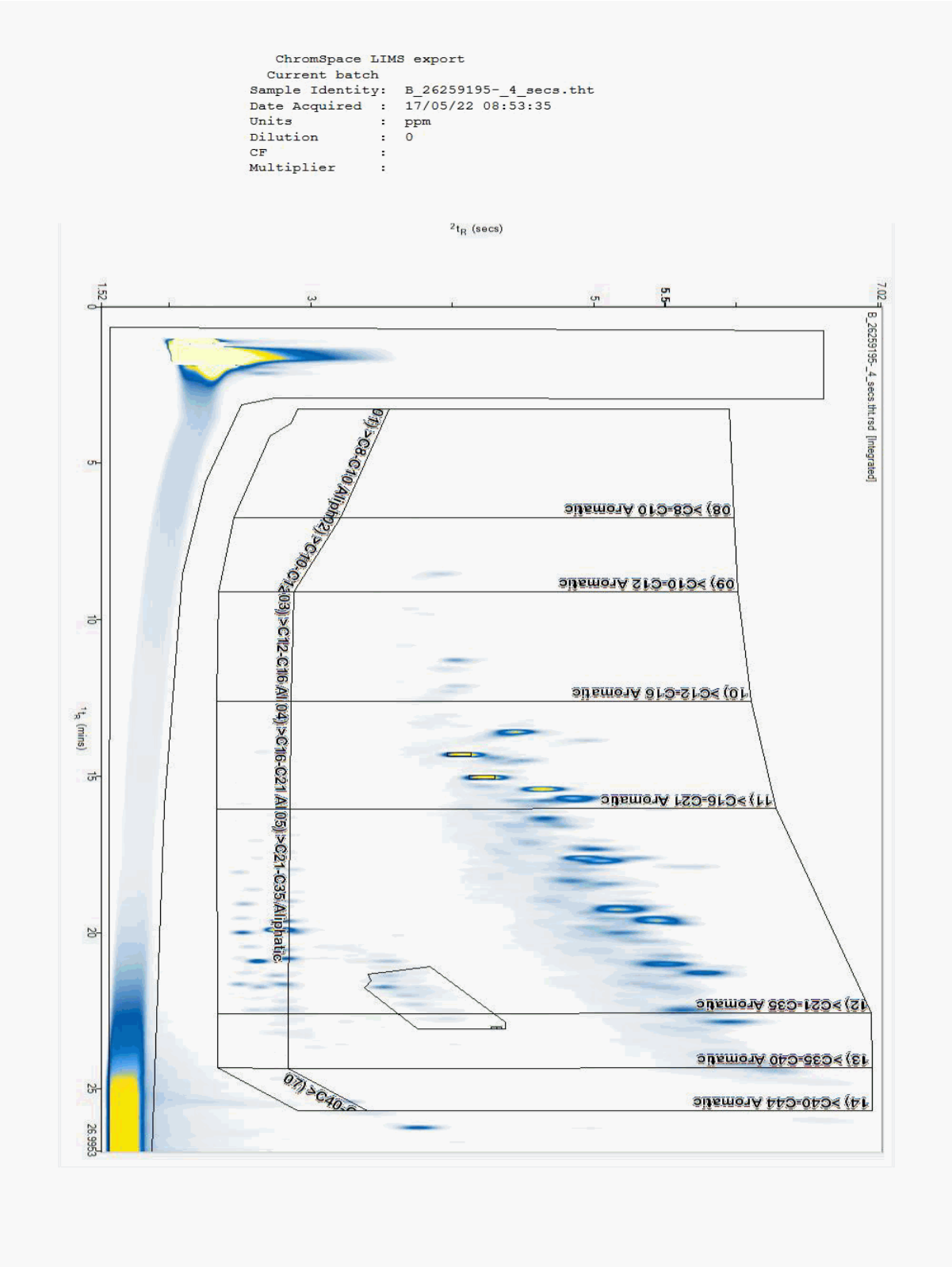


CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26259195 **Depth :** 0.25
Sample ID : WS014

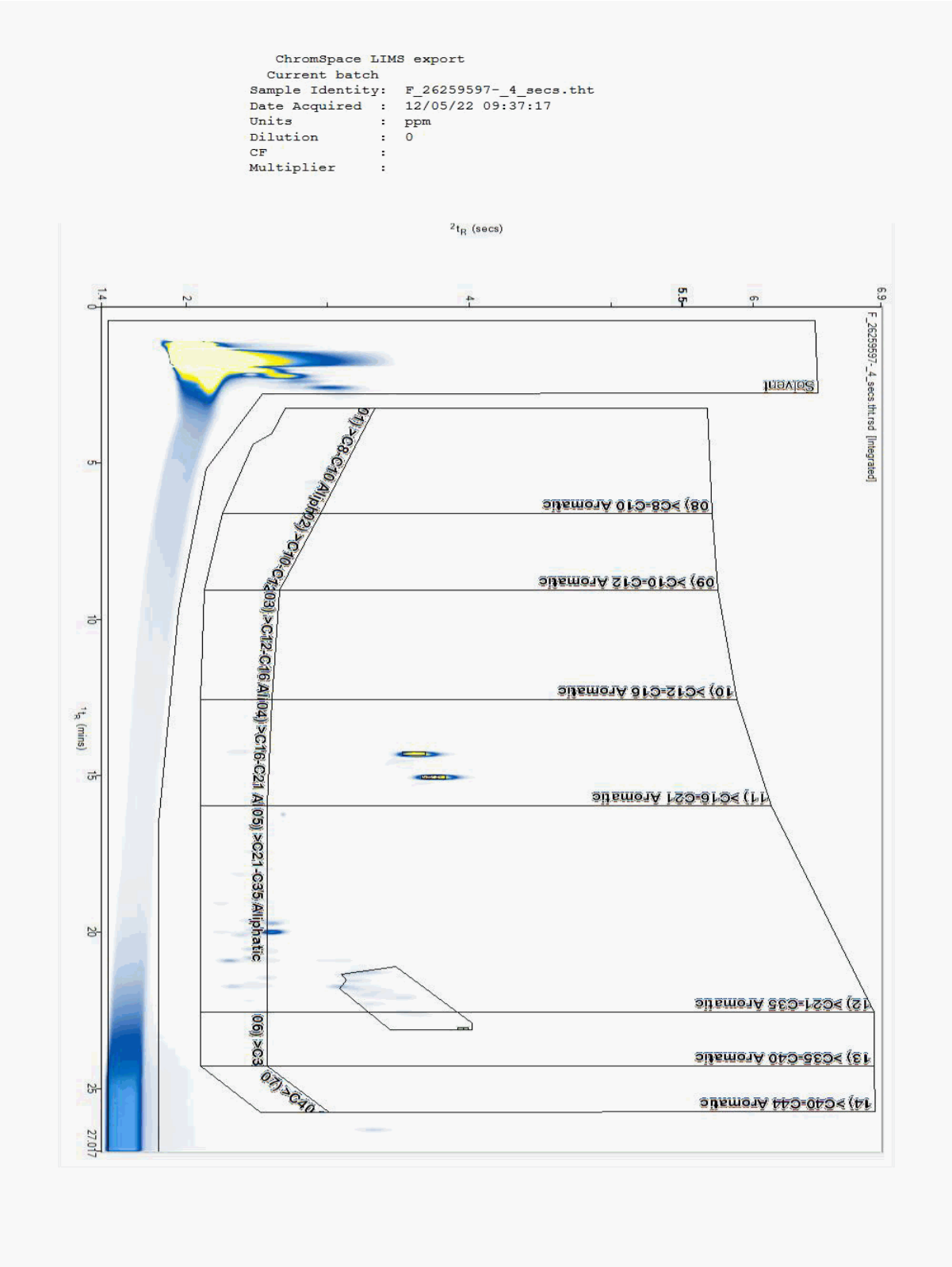


CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26259597 **Depth :** 0.30
Sample ID : PWB-BH-01



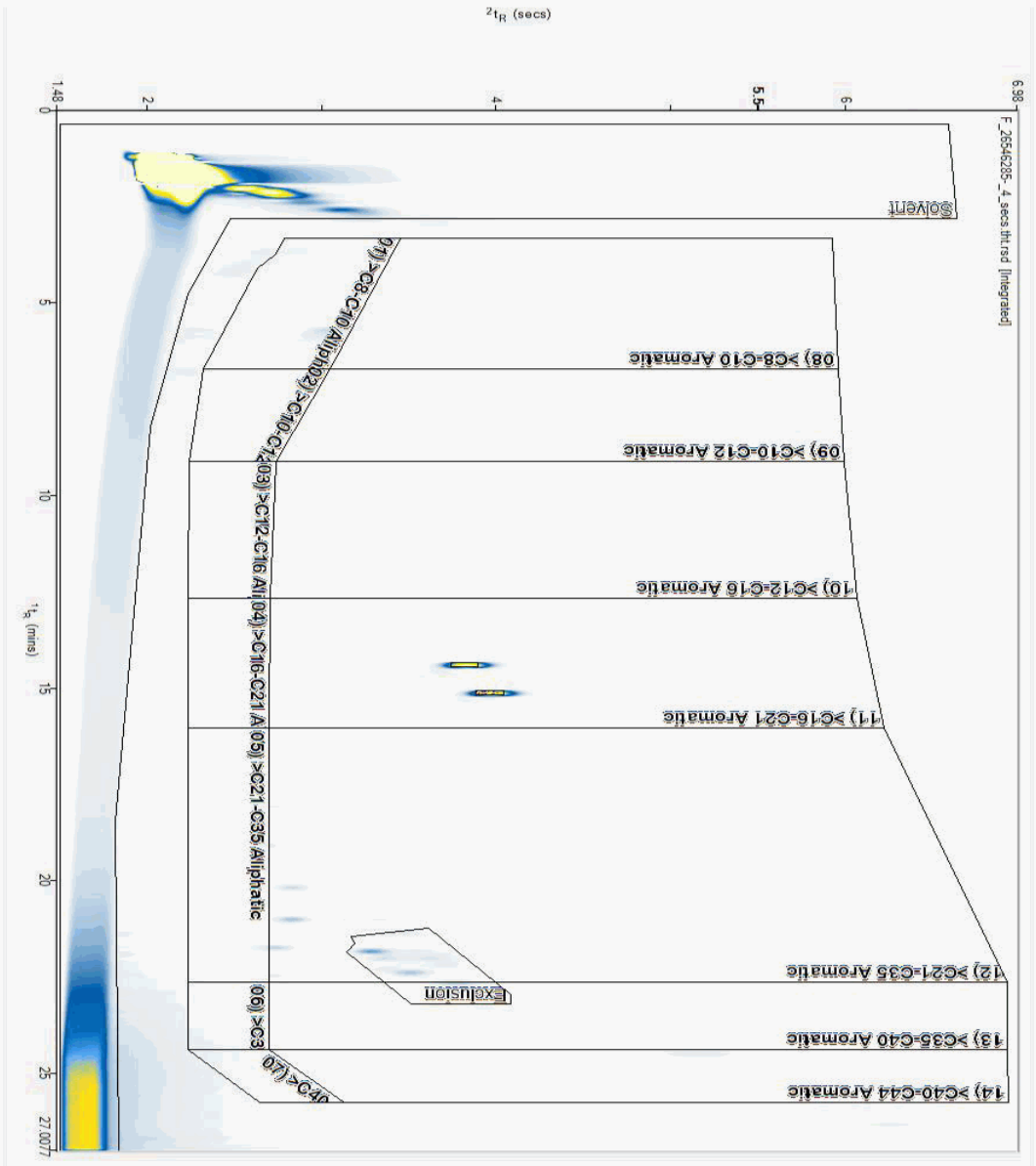
CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26546285 **Depth :** 0.80
Sample ID : WS010A

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_26546285-_4_secs.tht
Date Acquired   :  07/07/22 08:14:43
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

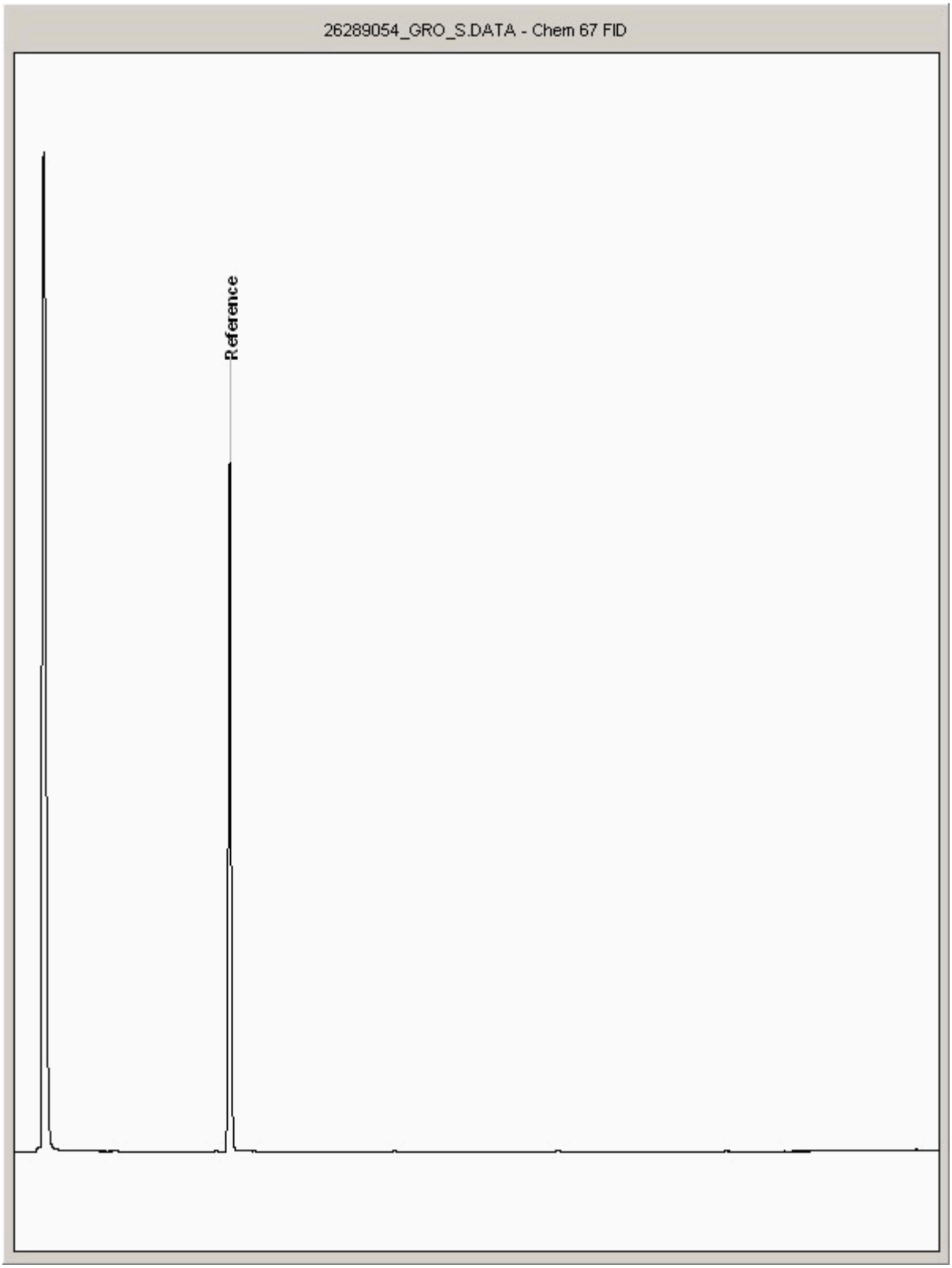


CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26289054 **Depth :** 0.30
Sample ID : PWB-BH-01

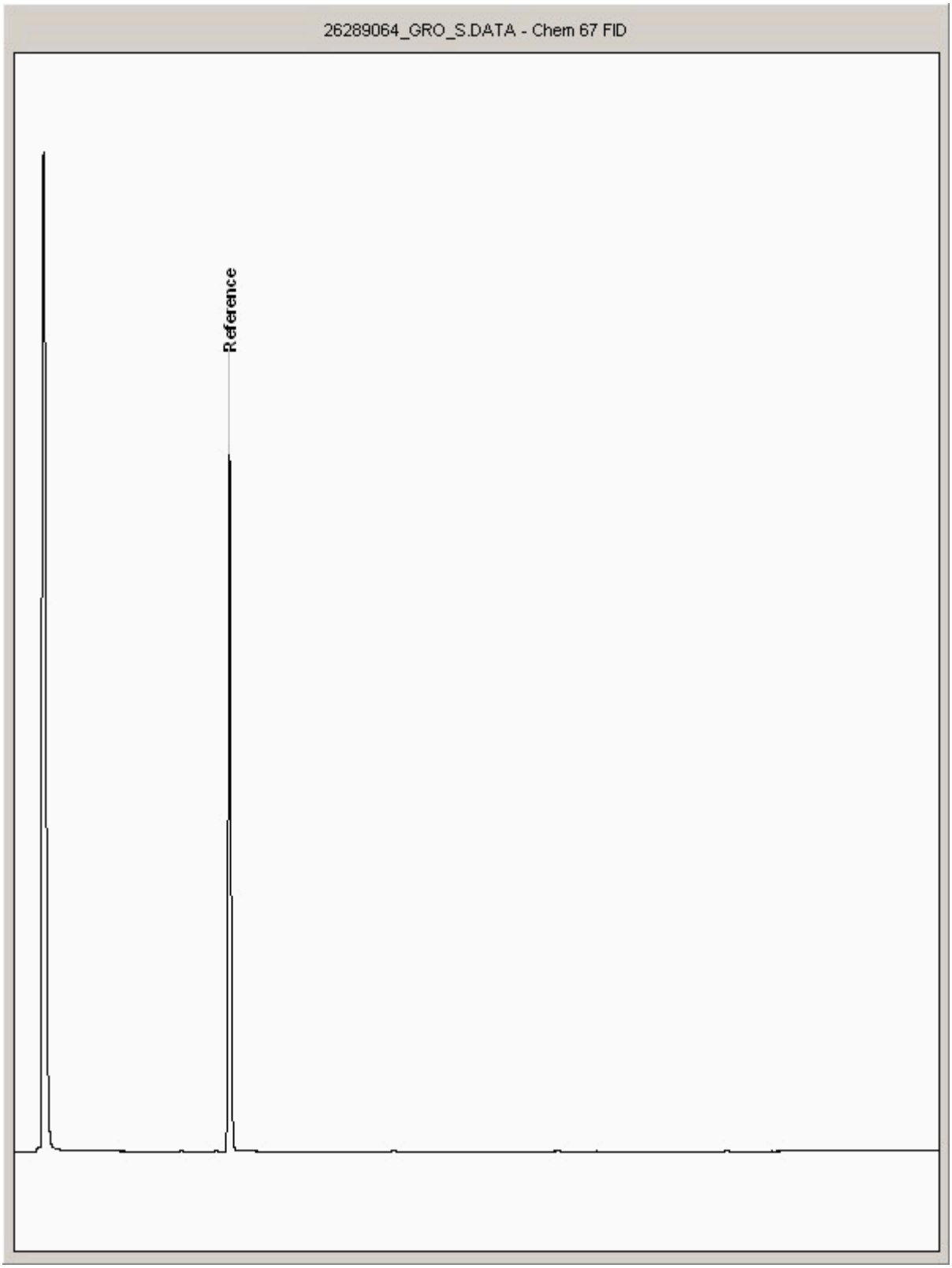


CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26289064 **Depth :** 1.20
Sample ID : WS010

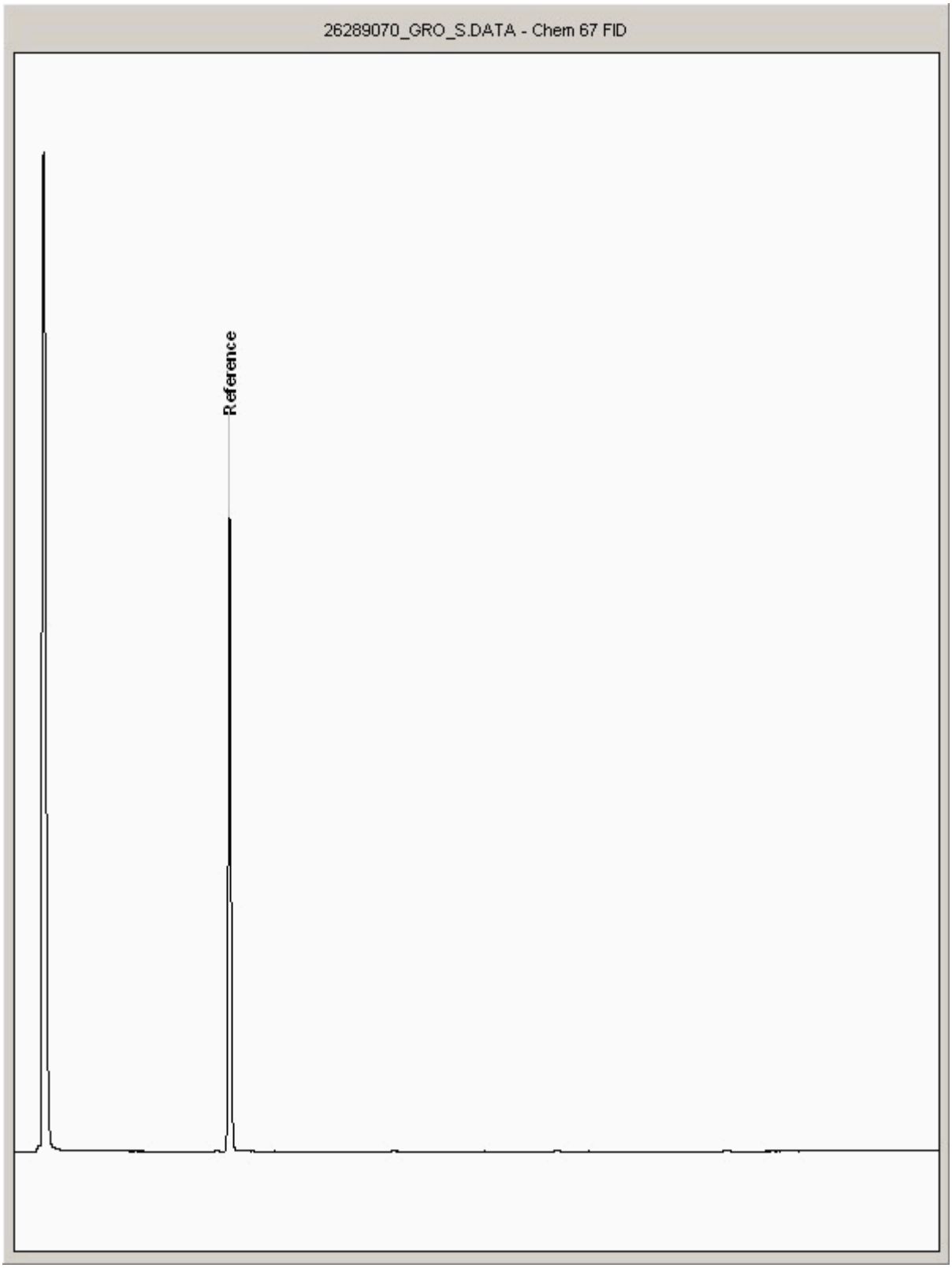


CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26289070 **Depth :** 0.25
Sample ID : WS014

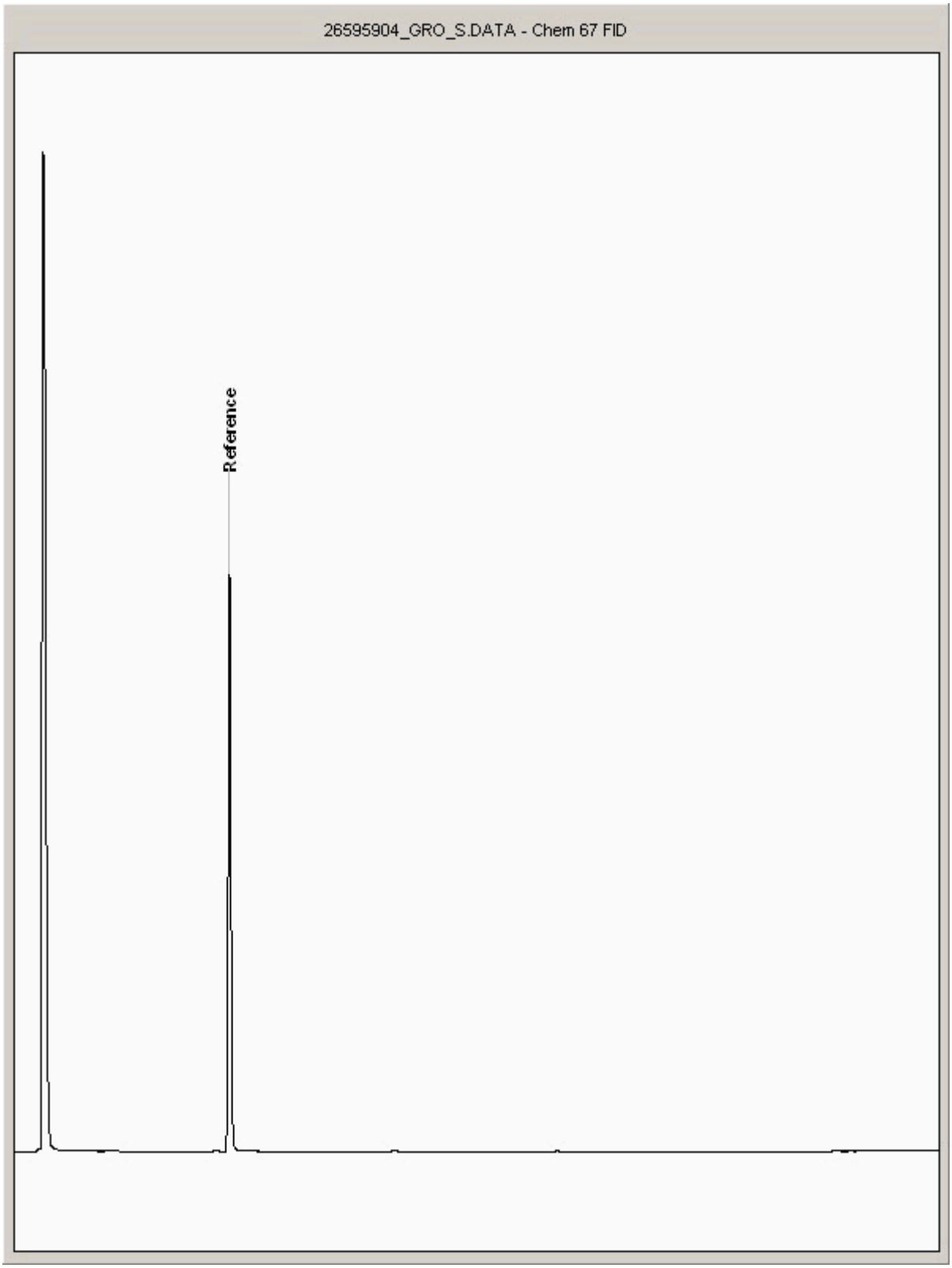


CERTIFICATE OF ANALYSIS

SDG: 220429-149 **Report Number:** 654631 **Superseded Report:** 653954
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26595904 **Depth :** 0.80
Sample ID : WS010A



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
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Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	18 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220430-117
Your Reference:	JER9352
Location:	Chippenham
Report No:	646847
Order Number:	PO22-197

We received 18 samples on Saturday April 30, 2022 and 2 of these samples were scheduled for analysis which was completed on Wednesday May 18, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26214830	HP_TP_01		0.30	29/04/2022
26214831	HP_TP_01		0.80	29/04/2022
26214832	HP_TP_01		1.20	29/04/2022
26214819	HP_TP_03		0.30	28/04/2022
26214821	HP_TP_03		0.80	28/04/2022
26214822	HP_TP_03		1.20	28/04/2022
26214824	HP_TP_03		1.70	28/04/2022
26214836	PWB-BH-04		0.30	29/04/2022
26214837	PWB-BH-04		0.80	29/04/2022
26214838	PWB-BH-04		1.20	29/04/2022
26214833	PWB-BH-05		0.30	29/04/2022
26214834	PWB-BH-05		0.80	29/04/2022
26214835	PWB-BH-05		1.20	29/04/2022
26214825	TP009		0.30	27/04/2022
26214826	TP009		0.80	27/04/2022
26214827	TP009		1.20	27/04/2022
26214828	TP009		1.60	27/04/2022
26214829	TP009		3.00	27/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)					
			26214838			26214834		
			Customer Sample Reference					
			PWB-BH-04			PWB-BH-05		
			AGS Reference					
			Depth (m)					
			1.20			0.80		
			Container					
			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type					
			S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 2		X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1				X		
Anions by Kone (soil)	All	NDPs: 0 Tests: 2		X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1				X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X			X		
CEN Readings	All	NDPs: 0 Tests: 1				X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2		X			X	
Coronene	All	NDPs: 0 Tests: 2		X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3		X		X	X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1				X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 2		X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2		X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1				X		

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26214838				26214834				
Customer Sample Reference			PWB-BH-04				PWB-BH-05				
AGS Reference											
Depth (m)			1.20				0.80				
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)			
Sample Type			S	S	S	S	S	S			
Mercury Dissolved	All	NDPs: 0 Tests: 1				X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X			X				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1				X					
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 2		X			X				
PAH by GCMS	All	NDPs: 0 Tests: 2		X			X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1				X					
pH	All	NDPs: 0 Tests: 2		X			X				
pH Value	All	NDPs: 0 Tests: 1				X					
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2		X			X				
Sample description	All	NDPs: 0 Tests: 2		X			X				
Sulphide	All	NDPs: 0 Tests: 1				X					
Total Organic Carbon	All	NDPs: 0 Tests: 2		X			X				
Total Sulphate	All	NDPs: 0 Tests: 2		X			X				
TPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X				
VOC MS (S)	All	NDPs: 0 Tests: 2			X			X			

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26214838	PWB-BH-04	1.20	Light Brown	Clay	Vegetation	None
26214834	PWB-BH-05	0.80	Light Brown	Clay	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-04	PWB-BH-05				
			Depth (m)	1.20	0.80				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	29/04/2022	29/04/2022				
			Sampled Time	.	.				
			Date Received	30/04/2022	30/04/2022				
			SDG Ref	220430-117	220430-117				
			Lab Sample No.(s)	26214838	26214834				
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		15	3.6				
Phenol	<0.01 mg/kg	TM062 (S)		<0.01	<0.01 M				
Soil Organic Matter (SOM)	<0.35 %	TM132		<0.35	<0.35 #				
pH	1 pH Units	TM133		5.47 @	7.64 @ M				
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6	<0.6 #				
Cyanide, Total	<1 mg/kg	TM153		<1 @	<1 @ M				
Cyanide, Free	<1 mg/kg	TM153		<1 @	<1 @ M				
Cyanide, Complex	<1 mg/kg	TM153		<1	<1				
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @	<15 @ M				
Aluminium	<11 mg/kg	TM181		11000	12800				
Antimony	<0.6 mg/kg	TM181		<0.6	<0.6 #				
Arsenic	<0.6 mg/kg	TM181		18.1	15.4 M				
Barium	<0.6 mg/kg	TM181		31.7	33.2 #				
Beryllium	<0.01 mg/kg	TM181		1.09	0.958 M				
Boron	<0.7 mg/kg	TM181		14.5	15.1 #				
Cadmium	<0.02 mg/kg	TM181		<0.02	<0.02 M				
Chromium	<0.9 mg/kg	TM181		19.1	20.6 M				
Copper	<1.4 mg/kg	TM181		17.6	15.1 M				
Iron	<1000 mg/kg	TM181		34600	34000 #				
Lead	<0.7 mg/kg	TM181		22.3	14.4 M				
Manganese	<0.13 mg/kg	TM181		80.2	66.5 M				
Mercury	<0.1 mg/kg	TM181		<0.1	<0.1 M				
Molybdenum	<0.1 mg/kg	TM181		1.99	1.48 #				
Nickel	<0.2 mg/kg	TM181		21.1	17 M				
Selenium	<1 mg/kg	TM181		<1	<1 #				
Vanadium	<0.2 mg/kg	TM181		51.9	49.4 #				
Zinc	<1.9 mg/kg	TM181		63.1	58.3 M				
Sulphate, Total	<48 mg/kg	TM221		138	<48 M				
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234		1.84	1.83				
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0289	0.0132 M				
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248		4.06	3.38				
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318				

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-04	PWB-BH-05
			Depth (m)	1.20	0.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/04/2022	29/04/2022
			Sampled Time	.	.
			Date Received	30/04/2022	30/04/2022
			SDG Ref	220430-117	220430-117
			Lab Sample No.(s)	26214838	26214834
			AGS Reference		
Coronene	<200 µg/kg	TM410		<200	<200

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	PWB-BH-04	PWB-BH-05
Depth (m)	1.20	0.80
Sample Type	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	29/04/2022	29/04/2022
Sampled Time	.	.
Date Received	30/04/2022	30/04/2022
SDG Ref	220430-117	220430-117
Lab Sample No.(s)	26214838	26214834
AGS Reference		

Component	LOD/Units	Method		
Naphthalene-d8 % recovery**	%	TM218	92	93.4
Acenaphthene-d10 % recovery**	%	TM218	95.9	96.1
Phenanthrene-d10 % recovery**	%	TM218	98	97.1
Chrysene-d12 % recovery**	%	TM218	89.4	88.9
Perylene-d12 % recovery**	%	TM218	96	94.9
Naphthalene	<9 µg/kg	TM218	<9 @	<9 @ M
Acenaphthylene	<12 µg/kg	TM218	<12 @	<12 @ M
Acenaphthene	<8 µg/kg	TM218	<8 @	<8 @ M
Fluorene	<10 µg/kg	TM218	<10 @	<10 @ M
Phenanthrene	<15 µg/kg	TM218	<15 @	<15 @ M
Anthracene	<16 µg/kg	TM218	<16 @	<16 @ M
Fluoranthene	<17 µg/kg	TM218	<17 @	<17 @ M
Pyrene	<15 µg/kg	TM218	<15 @	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218	<14 @	<14 @ M
Chrysene	<10 µg/kg	TM218	<10 @	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<118

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Customer Sample Ref.	PWB-BH-04	PWB-BH-05
Depth (m)	1.20	0.80
Sample Type	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	29/04/2022	29/04/2022
Sampled Time	.	.
Date Received	30/04/2022	30/04/2022
SDG Ref	220430-117	220430-117
Lab Sample No.(s)	26214838	26214834
AGS Reference		

Component	LOD/Units	Method		
GRO Surrogate % recovery**	%	TM089	94.9 @	101 @
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @	<10 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000	<1000
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000	<5000
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000	<10000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @	<10 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000 #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000	<1000
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000	<5000
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000	<10000
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @	<50 @
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @	<20 @

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.		
			PWB-BH-04	PWB-BH-05	
			Depth (m)	1.20	0.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/04/2022	29/04/2022
			Sampled Time	.	.
			Date Received	30/04/2022	30/04/2022
			SDG Ref	220430-117	220430-117
			Lab Sample No.(s)	26214838	26214834
			AGS Reference		
Dibromofluoromethane**	%	TM116	110 @	109 @	
Toluene-d8**	%	TM116	97.8 @	97.7 @	
4-Bromofluorobenzene**	%	TM116	88.4 @	90.1 @	
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @	<10 @ M	
Benzene	<9 µg/kg	TM116	<9 @	<9 @ M	
Toluene	<7 µg/kg	TM116	<7 @	<7 @ M	
Ethylbenzene	<4 µg/kg	TM116	<4 @	<4 @ M	
p/m-Xylene	<10 µg/kg	TM116	<10 @	<10 @ #	
o-Xylene	<10 µg/kg	TM116	<10 @	<10 @ M	
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @	<0.02 @	
Sum of BTEX	<40 µg/kg	TM116	<40 @	<40 @	

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	PWB-BH-04 1.20 SOLID 29/04/2022 00:00:00 30/04/2022 05:00:00 220430-117 26214838 TM048	16/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	PWB-BH-05 0.80 SOLID 29/04/2022 00:00:00 30/04/2022 05:00:00 220430-117 26214834 TM048	16/05/2022	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	22.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81.5
Particle Size <4mm	>95%		

Case	
SDG	220430-117
Lab Sample Number(s)	26214834
Sampled Date	29-Apr-2022
Customer Sample Ref.	PWB-BH-05
Depth (m)	0.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	<0.01	<0.01	<0.1	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0391	<0.0002	0.391	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0751	<0.01	0.751	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000645	<0.0003	0.00645	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.255	<0.019	2.55	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Phosphorus	0.0186	<0.01	0.186	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00674	<0.001	0.0674	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Nitrate as N	0.268	<0.07	2.68	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	0.0632	<0.01	0.632	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Acenaphthylene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Naphthalene by GCMS	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Phenanthrene by GCMS	0.000064	<0.00005	0.00064	<0.0005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.89
Conductivity (µS/cm)	33.50
Temperature (°C)	21.80
Volume Leachant (Litres)	0.880

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CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	22.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81.5
Particle Size <4mm	>95%		

Case	
SDG	220430-117
Lab Sample Number(s)	26214834
Sampled Date	29-Apr-2022
Customer Sample Ref.	PWB-BH-05
Depth (m)	0.80

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(a)pyrene by GCMS	<0.00002	<0.00002	<0.0002	<0.0002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(ghi)perylene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Chrysene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Fluorene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-
PAH 16 EPA Total by GCMS	<0.00082	<0.00082	<0.0082	<0.0082	-	-	-
Pyrene by GCMS	<0.00005	<0.00005	<0.0005	<0.0005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.89
Conductivity (µS/cm)	33.50
Temperature (°C)	21.80
Volume Leachant (Litres)	0.880

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26214838	26214834
Customer Sample Ref.	PWB-BH-04	PWB-BH-05
AGS Ref.		
Depth	1.20	0.80
Type	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	12-May-2022	12-May-2022
Ammoniacal Nitrogen		16-May-2022
Anions by Kone (soil)	16-May-2022	16-May-2022
Anions by Kone (w)		17-May-2022
Asbestos ID in Solid Samples	16-May-2022	16-May-2022
CEN 10:1 Leachate (1 Stage)		12-May-2022
CEN Readings		16-May-2022
Conductivity (at 20 deg.C)	16-May-2022	16-May-2022
Coronene	13-May-2022	13-May-2022
Cyanide Comp/Free/Total/Thiocyanate	16-May-2022	17-May-2022
Dissolved Metals by ICP-MS		17-May-2022
Easily Liberated Sulphide	13-May-2022	13-May-2022
EPH CWG GC (S)	13-May-2022	17-May-2022
GRO by GC-FID (S)	18-May-2022	18-May-2022
Hexavalent Chromium (s)	17-May-2022	12-May-2022
Hexavalent Chromium (w)		17-May-2022
Mercury Dissolved		17-May-2022
Metals in solid samples by OES	17-May-2022	17-May-2022
Moisture at 105C		11-May-2022
Nitrite by Kone (w)		17-May-2022
PAH 16 & 17 Calc	13-May-2022	13-May-2022
PAH by GCMS	13-May-2022	13-May-2022
PAH Spec MS - Aqueous (W)		16-May-2022
pH	13-May-2022	13-May-2022
pH Value		16-May-2022
Phenols by HPLC (S)	13-May-2022	13-May-2022
Sample description	11-May-2022	11-May-2022
Sulphide		17-May-2022
Total Organic Carbon	18-May-2022	18-May-2022
Total Sulphate	17-May-2022	17-May-2022
TPH CWG GC (S)	18-May-2022	18-May-2022
VOC MS (S)	18-May-2022	18-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2629
Ammoniacal Nitrogen as N	TM099	**97.6** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2652
Chloride	TM184	**106.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**100.8** 96.54 : 111.66
TON as NO3	TM184	**104.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2666
Coronene RAW	TM410	**84.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2628	QC 2630
Free Cyanide	TM153	**76.04** 71.70 : 110.70	
Free Cyanide (W)	TM227		**87.25** 80.33 : 126.33
Thiocyanate	TM153	**93.59** 87.27 : 113.27	
Thiocyanate (W)	TM227		**111.25** 87.50 : 116.00
Total Cyanide	TM153	**85.31** 72.73 : 109.93	
Total Cyanide (W)	TM227		**114.0** 83.75 : 121.25

Dissolved Metals by ICP-MS

Component	Method Code	QC 2624
Aluminium	TM152	**102.0** 90.98 : 111.82
Antimony	TM152	**100.5** 90.44 : 113.04
Arsenic	TM152	**101.83** 94.87 : 109.67
Barium	TM152	**99.5** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2624
Beryllium	TM152	**101.83** 87.77 : 113.97
Bismuth	TM152	**101.17** 91.90 : 112.20
Borate	TM152	**103.09** 88.00 : 112.00
Boron	TM152	**103.0** 92.27 : 112.40
Cadmium	TM152	**101.83** 94.93 : 106.93
Calcium	TM152	**102.0** 95.14 : 110.01
Chromium	TM152	**102.0** 91.84 : 108.67
Cobalt	TM152	**102.0** 90.72 : 109.61
Copper	TM152	**102.17** 94.47 : 109.05
Iron	TM152	**102.0** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46
Lithium	TM152	**101.67** 91.62 : 113.12
Magnesium	TM152	**101.33** 92.30 : 110.57
Manganese	TM152	**102.83** 94.75 : 108.21
Molybdenum	TM152	**100.33** 93.55 : 107.66
Nickel	TM152	**102.67** 88.00 : 112.00
Phosphorus	TM152	**102.0** 92.51 : 109.27
Potassium	TM152	**102.67** 92.16 : 109.93
Selenium	TM152	**104.0** 91.58 : 115.98
Silver	TM152	**100.83** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62
Strontium	TM152	**101.33** 95.40 : 109.43
Tellurium	TM152	**104.0** 93.32 : 114.66
Thallium	TM152	**100.83** 88.00 : 112.00
Tin	TM152	**100.67** 92.63 : 109.70
Titanium	TM152	**104.67** 95.08 : 109.28
Tungsten	TM152	**99.5** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2624
Uranium	TM152	**99.83** 88.00 : 112.00
Vanadium	TM152	**102.0** 88.00 : 112.00
Zinc	TM152	**104.67** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2666
Easily Liberated Sulphide	TM180	**68.77** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2621
QC	TM089	**74.02** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2643
Hexavalent Chromium	TM151	**108.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2617
Hexavalent Chromium	TM241	**105.2** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2605
Mercury Dissolved (CVAF)	TM183	**100.0** 0.00 : 0.00

Metals in solid samples by OES

Metals in solid samples by OES

Component	Method Code	QC 2650
Aluminium	TM181	**110.53** 84.95 : 125.04
Antimony	TM181	**119.29** 91.44 : 127.13
Arsenic	TM181	**112.16** 95.27 : 120.80
Barium	TM181	**112.82** 94.57 : 124.93
Beryllium	TM181	**111.08** 85.72 : 122.69
Boron	TM181	**111.58** 91.59 : 122.22
Cadmium	TM181	**109.59** 87.31 : 121.62
Chromium	TM181	**100.98** 85.06 : 113.81
Cobalt	TM181	**102.73** 90.60 : 110.35
Copper	TM181	**97.29** 81.22 : 113.40
Iron	TM181	**109.17** 86.44 : 122.27
Lead	TM181	**109.16** 86.83 : 123.12
Manganese	TM181	**110.39** 89.22 : 121.75
Mercury	TM181	**111.07** 84.95 : 119.42
Molybdenum	TM181	**107.41** 85.98 : 123.80
Nickel	TM181	**110.98** 88.05 : 119.19
Phosphorus	TM181	**106.5** 90.13 : 121.54
Selenium	TM181	**112.09** 90.68 : 124.14
Strontium	TM181	**97.32** 80.65 : 106.55
Thallium	TM181	**109.06** 76.88 : 121.51
Tin	TM181	**110.98** 86.96 : 122.18
Titanium	TM181	**101.82** 77.07 : 118.83
Vanadium	TM181	**104.68** 84.00 : 115.50
Zinc	TM181	**107.9** 85.62 : 122.35

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2632
Acenaphthene	TM218	**80.0** 74.70 : 106.04
Acenaphthylene	TM218	**79.0** 73.12 : 105.14
Anthracene	TM218	**79.5** 73.99 : 113.85
Benz(a)anthracene	TM218	**73.5** 69.31 : 119.18
Benzo(a)pyrene	TM218	**68.0** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**68.0** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**64.5** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**70.0** 69.98 : 116.49
Chrysene	TM218	**73.5** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**65.5** 64.54 : 115.22
Fluoranthene	TM218	**74.5** 72.56 : 111.70
Fluorene	TM218	**79.5** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**65.0** 61.22 : 113.25
Naphthalene	TM218	**80.5** 73.52 : 105.12
Phenanthrene	TM218	**79.0** 76.83 : 113.25
Pyrene	TM218	**72.5** 72.45 : 110.77

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2643
Acenaphthene by GCMS	TM178	**107.2** 100.00 : 119.20
Acenaphthylene by GCMS	TM178	**110.0** 95.20 : 119.20
Anthracene by GCMS	TM178	**106.4** 91.60 : 113.20
Benz(a)anthracene by GCMS	TM178	**96.0** 90.40 : 119.20
Benzo(a)pyrene by GCMS	TM178	**109.2** 92.80 : 119.20
Benzo(b)fluoranthene by GCMS	TM178	**94.4** 89.60 : 120.80
Benzo(ghi)perylene by GCMS	TM178	**106.8** 93.20 : 117.20
Benzo(k)fluoranthene by GCMS	TM178	**109.6** 96.40 : 120.40
Chrysene by GCMS	TM178	**106.4** 96.40 : 125.20

PAH Spec MS - Aqueous (W)

		QC 2643
Dibenzo(ah)anthracene by GCMS	TM178	**100.4** 92.00 : 113.60
Fluoranthene by GCMS	TM178	**103.2** 91.20 : 117.60
Fluorene by GCMS	TM178	**103.2** 95.60 : 122.00
Indeno(123cd)pyrene by GCMS	TM178	**95.2** 90.40 : 112.00
Naphthalene by GCMS	TM178	**110.0** 98.00 : 122.00
Phenanthrene by GCMS	TM178	**108.4** 94.00 : 120.40
Pyrene by GCMS	TM178	**99.6** 92.40 : 118.80

pH

Component	Method Code	QC 2607
pH	TM133	**101.03** 96.92 : 102.20

pH Value

Component	Method Code	QC 2602
pH	TM256	**100.27** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2638
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**50.65** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**44.44** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**48.43** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.33** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**48.85** 82.04 : 108.38

Sulphide

Sulphide

Component	Method Code	QC 2624
Sulphide	TM101	**98.0** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2672
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2610
Total Sulphate	TM221	**106.06** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2619
1,1,1,2-tetrachloroethane	TM116	**96.8** 88.29 : 116.31
1,1,1-Trichloroethane	TM116	**101.2** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**95.6** 81.29 : 113.79
1,1-Dichloroethane	TM116	**109.6** 91.34 : 123.49
1,2-Dichloroethane	TM116	**113.0** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**99.4** 80.81 : 125.07
2-Chlorotoluene	TM116	**82.6** 73.13 : 114.13
4-Chlorotoluene	TM116	**80.6** 68.66 : 109.13
Benzene	TM116	**99.6** 84.29 : 112.22
Carbon Disulphide	TM116	**100.4** 75.11 : 124.81
Carbontetrachloride	TM116	**100.8** 82.35 : 126.46
Chlorobenzene	TM116	**98.4** 82.88 : 122.42
Chloroform	TM116	**110.4** 90.35 : 120.38

VOC MS (S)

		QC 2619
Chloromethane	TM116	**98.0** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**101.8** 78.27 : 128.90
Dibromomethane	TM116	**105.8** 76.00 : 120.73
Dichloromethane	TM116	**121.4** 92.27 : 134.36
Ethylbenzene	TM116	**81.4** 70.95 : 113.07
Hexachlorobutadiene	TM116	**45.4** 14.55 : 147.92
Isopropylbenzene	TM116	**60.6** 52.00 : 108.19
Naphthalene	TM116	**103.8** 80.90 : 124.24
o-Xylene	TM116	**73.2** 68.34 : 101.99
p/m-Xylene	TM116	**78.9** 69.47 : 97.31
Sec-Butylbenzene	TM116	**55.8** 27.03 : 135.73
Tetrachloroethene	TM116	**92.8** 80.10 : 120.38
Toluene	TM116	**90.4** 80.66 : 100.10
Trichloroethene	TM116	**89.8** 79.80 : 112.33
Trichlorofluoromethane	TM116	**109.6** 83.13 : 123.97
Vinyl Chloride	TM116	**99.0** 69.66 : 136.55

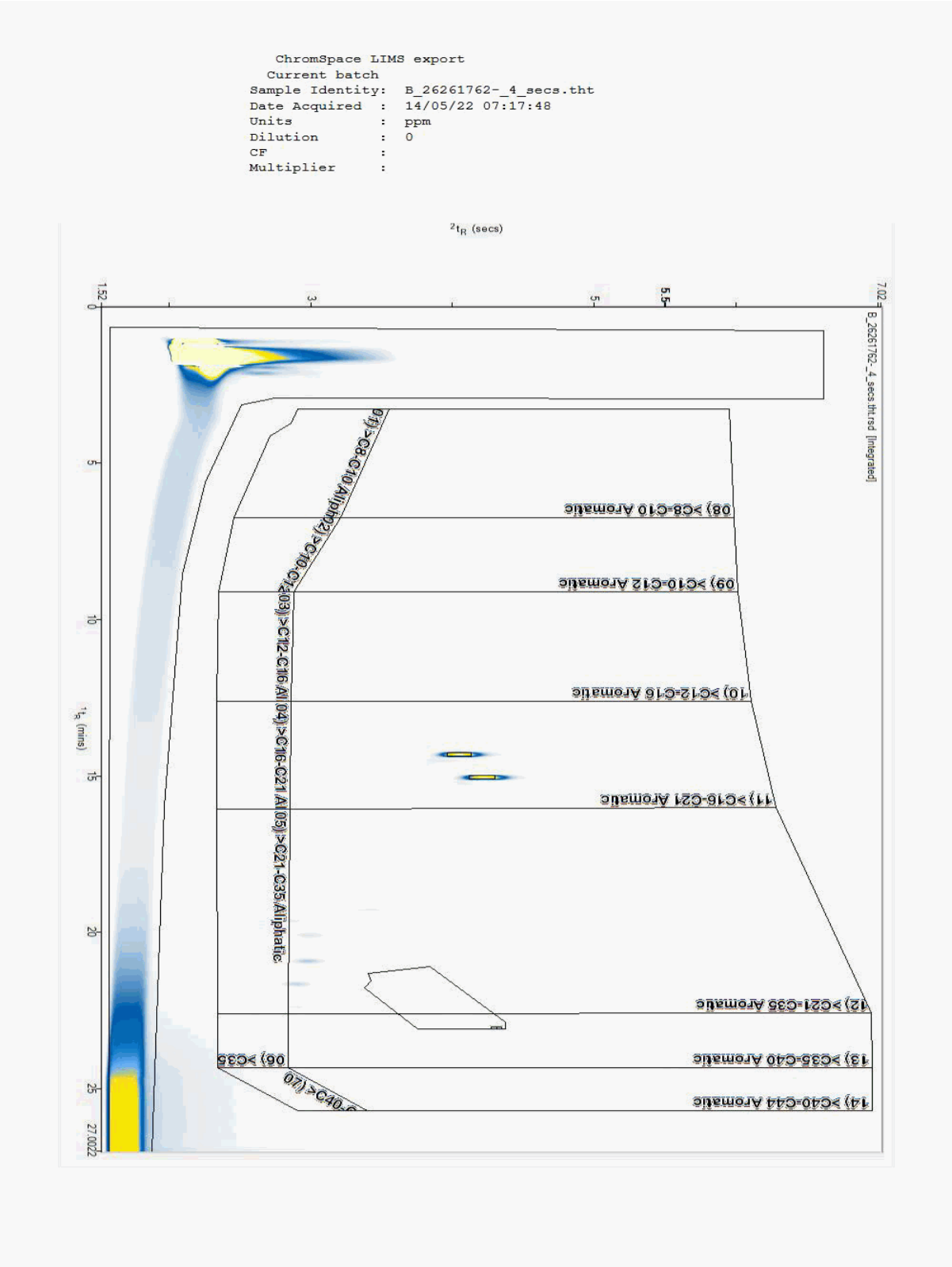
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26261762 **Depth :** 0.80
Sample ID : PWB-BH-05



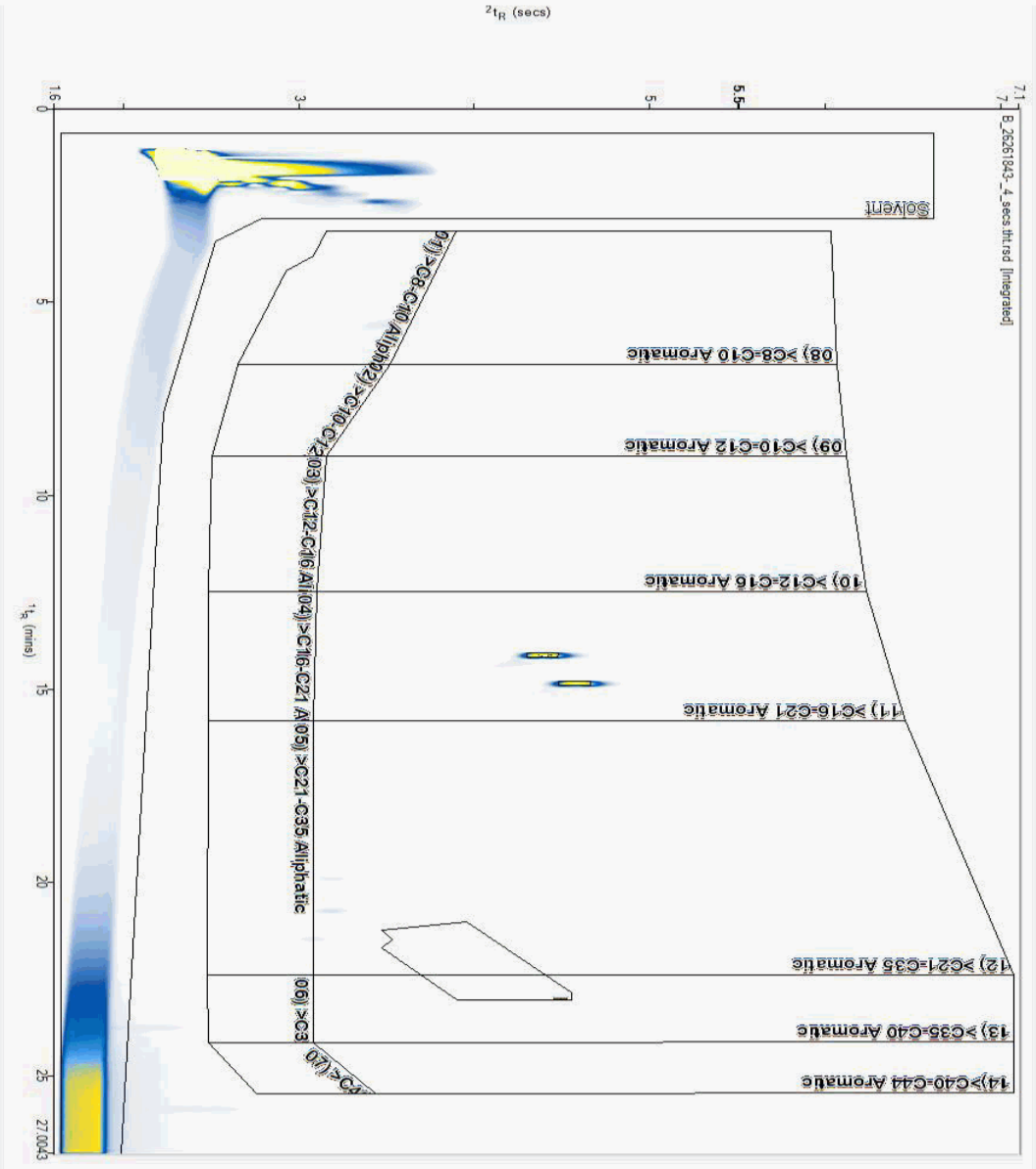
CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26261843 **Depth :** 1.20
Sample ID : PWB-BH-04

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_26261843-_4_secs.tht
Date Acquired   :  12/05/22 06:28:12
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

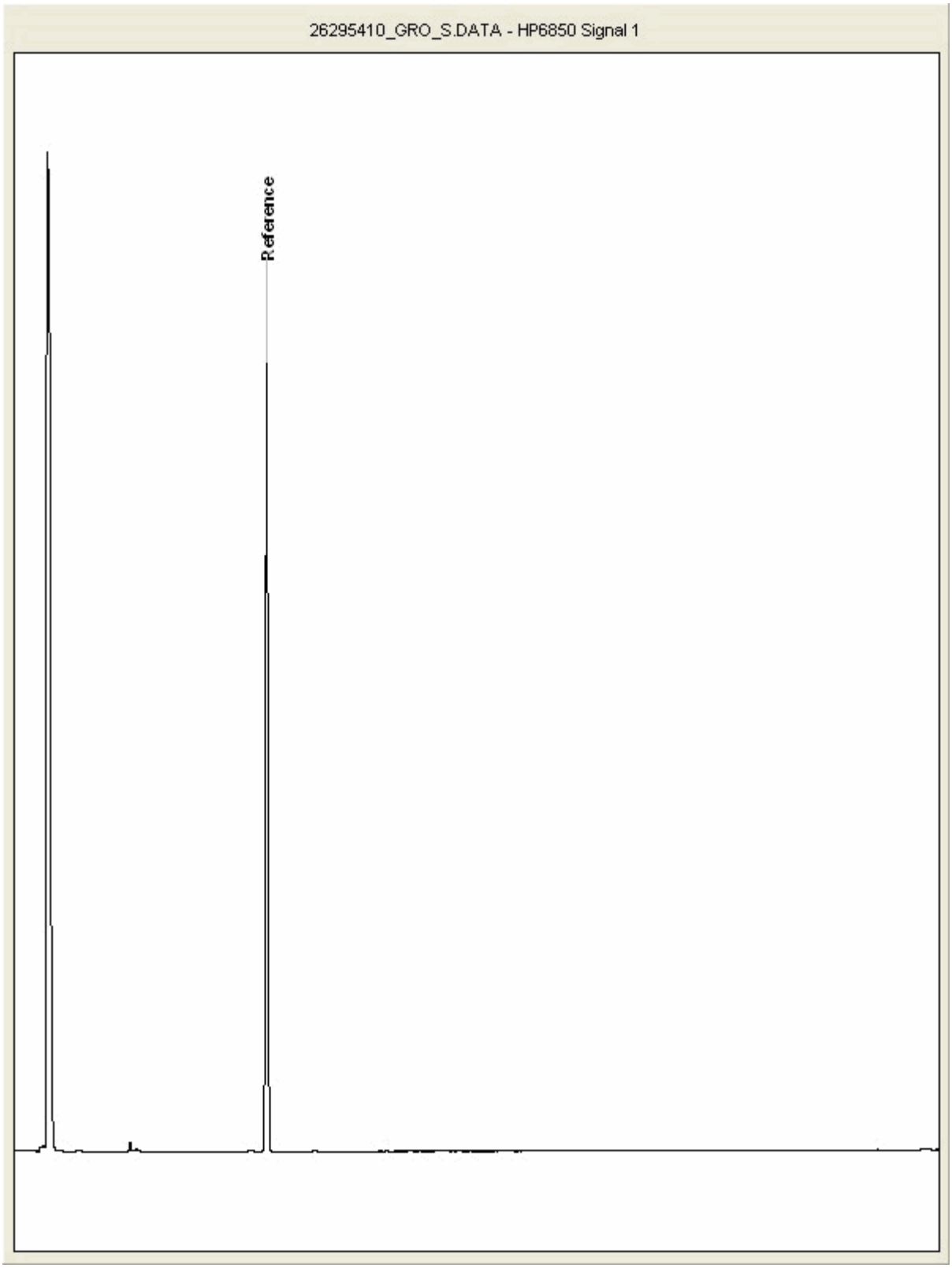


CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295410 **Depth :** 0.80
Sample ID : PWB-BH-05

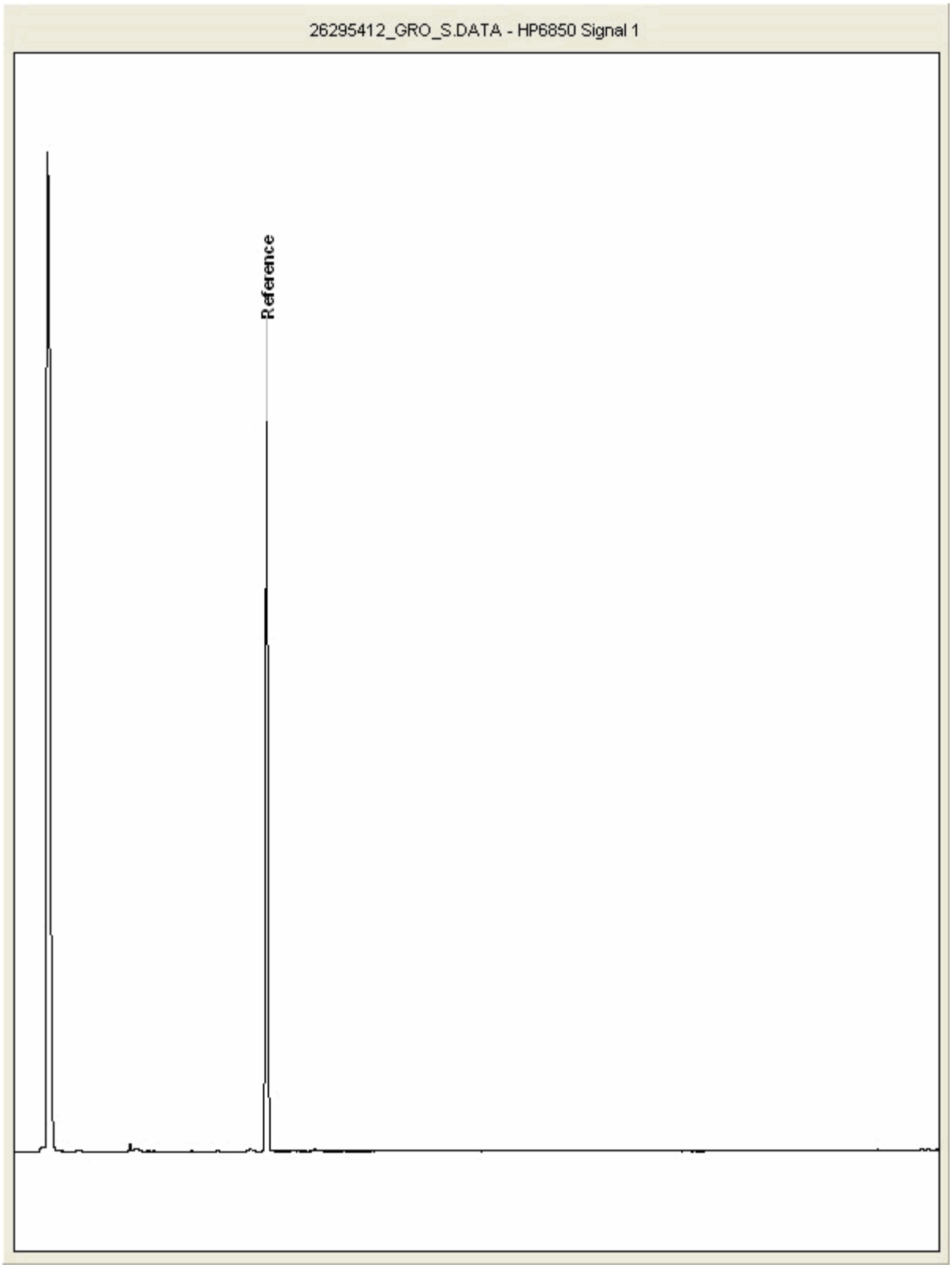


CERTIFICATE OF ANALYSIS

SDG: 220430-117 **Report Number:** 646847 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295412 **Depth :** 1.20
Sample ID : PWB-BH-04



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	18 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220506-130
Your Reference:	JER9352
Location:	Chippenham
Report No:	646851
Order Number:	PO22-197

We received 20 samples on Friday May 06, 2022 and 1 of these samples were scheduled for analysis which was completed on Wednesday May 18, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26237997	AVCI_BM_06		0.30	03/05/2022
26237998	AVCI_BM_06		0.80	03/05/2022
26237999	AVCI_BM_06		1.15 - 1.20	03/05/2022
26238016	AVM_BH_03		0.30	04/05/2022
26238017	AVM_BH_03		0.80	04/05/2022
26238018	AVM_BH_03		1.20	04/05/2022
26238006	PWB_BH_06		0.30	28/04/2022
26238007	PWB_BH_06		0.80	28/04/2022
26238008	PWB_BH_06		1.20	28/04/2022
26238000	PWB_BM_03		0.30	27/04/2022
26238001	PWB_BM_03		0.80	27/04/2022
26238002	PWB_BM_03		1.20	27/04/2022
26238003	TP002		0.30	03/05/2022
26238004	TP002		0.80	03/05/2022
26238005	TP002		1.20	03/05/2022
26238009	TP003		0.30	03/05/2022
26238010	TP003		0.80	03/05/2022
26238011	TP003		1.20	03/05/2022
26238012	TP003		2.00	03/05/2022
26238014	WS018E		0.25	03/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26238009			
Customer Sample Reference			TP003			
AGS Reference						
Depth (m)			0.30			
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	
Sample Type			S	S	S	
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1		X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1	X			
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X			
CEN Readings	All	NDPs: 0 Tests: 1	X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X		
Coronene	All	NDPs: 0 Tests: 1		X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2	X	X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X			
Easily Liberated Sulphide	All	NDPs: 0 Tests: 1		X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X		
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1	X			

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26238009		
Customer Sample Reference			TP003		
AGS Reference					
Depth (m)			0.30		
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 1	X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1	X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1	X		
pH	All	NDPs: 0 Tests: 1		X	
pH Value	All	NDPs: 0 Tests: 1	X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	
Sample description	All	NDPs: 0 Tests: 1		X	
Sulphide	All	NDPs: 0 Tests: 1	X		
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphate	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26238009	TP003	0.30	Dark Brown	Sandy Silt Loam	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.			TP003					
Depth (m)			0.30					
Sample Type			Soil/Solid (S)					
Date Sampled			03/05/2022					
Sampled Time			.					
Date Received			06/05/2022					
SDG Ref			220506-130					
Lab Sample No.(s)			26238009					
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	9.2					
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M					
Soil Organic Matter (SOM)	<0.35 %	TM132	2.31 #					
pH	1 pH Units	TM133	6.84 M					
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #					
Cyanide, Total	<1 mg/kg	TM153	<1 M					
Cyanide, Free	<1 mg/kg	TM153	<1 M					
Cyanide, Complex	<1 mg/kg	TM153	<1					
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 @ M					
Aluminium	<11 mg/kg	TM181	10800					
Antimony	<0.6 mg/kg	TM181	<0.6 #					
Arsenic	<0.6 mg/kg	TM181	14.1 M					
Barium	<0.6 mg/kg	TM181	51.8 #					
Beryllium	<0.01 mg/kg	TM181	0.807 M					
Boron	<0.7 mg/kg	TM181	7.35 #					
Cadmium	<0.02 mg/kg	TM181	0.0686 M					
Chromium	<0.9 mg/kg	TM181	15.8 M					
Copper	<1.4 mg/kg	TM181	7.29 M					
Iron	<1000 mg/kg	TM181	24400 #					
Lead	<0.7 mg/kg	TM181	21.5 M					
Manganese	<0.13 mg/kg	TM181	280 M					
Mercury	<0.1 mg/kg	TM181	<0.1 M					
Molybdenum	<0.1 mg/kg	TM181	0.69 #					
Nickel	<0.2 mg/kg	TM181	15.1 M					
Selenium	<1 mg/kg	TM181	<1 #					
Vanadium	<0.2 mg/kg	TM181	51.7 #					
Zinc	<1.9 mg/kg	TM181	45.2 M					
Sulphate, Total	<48 mg/kg	TM221	288 M					
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234	1.95					
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0189 M					
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248	3.16					
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318					

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend			
#	ISO17025 accredited.	Customer Sample Ref.	TP003
M	mCERTS accredited.		
aq	Aqueous / settled sample.		
diss.filt	Dissolved / filtered sample.	Depth (m)	0.30
tot.unfilt	Total / unfiltered sample.	Sample Type	Soil/Solid (S)
*	Subcontracted - refer to subcontractor report for accreditation status.	Date Sampled	03/05/2022
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Sampled Time	.
		Date Received	06/05/2022
		SDG Ref	220506-130
		Lab Sample No.(s)	26238009
(F)	Trigger breach confirmed	AGS Reference	
1-4+5@	Sample deviation (see appendix)		

Component	LOD/Units	Method	
Coronene	<200 µg/kg	TM410	<200

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP003
Depth (m)	0.30
Sample Type	Soil/Solid (S)
Date Sampled	03/05/2022
Sampled Time	.
Date Received	06/05/2022
SDG Ref	220506-130
Lab Sample No.(s)	26238009
AGS Reference	

Component	LOD/Units	Method	
Naphthalene-d8 % recovery**	%	TM218	95
Acenaphthene-d10 % recovery**	%	TM218	98
Phenanthrene-d10 % recovery**	%	TM218	99.5
Chrysene-d12 % recovery**	%	TM218	100
Perylene-d12 % recovery**	%	TM218	98.2
Naphthalene	<9 µg/kg	TM218	<9 M
Acenaphthylene	<12 µg/kg	TM218	<12 M
Acenaphthene	<8 µg/kg	TM218	<8 M
Fluorene	<10 µg/kg	TM218	<10 M
Phenanthrene	<15 µg/kg	TM218	<15 M
Anthracene	<16 µg/kg	TM218	<16 M
Fluoranthene	<17 µg/kg	TM218	<17 M
Pyrene	<15 µg/kg	TM218	<15 M
Benz(a)anthracene	<14 µg/kg	TM218	<14 M
Chrysene	<10 µg/kg	TM218	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. TP003				
			Depth (m) 0.30				
			Sample Type Soil/Solid (S)				
			Date Sampled 03/05/2022				
			Sampled Time .				
			Date Received 06/05/2022				
			SDG Ref 220506-130				
			Lab Sample No.(s) 26238009				
			AGS Reference				
GRO Surrogate % recovery**	%	TM089	94.6 @				
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 #				
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	15400 #				
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	1390				
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	17000				
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	22600				
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 #				
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	3570 #				
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	1840				
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000				
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	5580				
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	22600				
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @				
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @				
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @				

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP003
Depth (m)	0.30
Sample Type	Soil/Solid (S)
Date Sampled	03/05/2022
Sampled Time	.
Date Received	06/05/2022
SDG Ref	220506-130
Lab Sample No.(s)	26238009
AGS Reference	

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	108 @
Toluene-d8**	%	TM116	94.2 @
4-Bromofluorobenzene**	%	TM116	77.9 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	TP003 0.30	16/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	SOLID										
Sample Type	03/05/2022 00:00:00										
Date Sampled	06/05/2022 05:00:00										
Date Receieved	220506-130										
SDG	26238009										
Original Sample	TM048										
Method Number											

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.7
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26238009
Sampled Date	03-May-2022
Customer Sample Ref.	TP003
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	0.0000105	<0.00001	0.000105	<0.0001	-	-	-
Aluminium	0.254	<0.01	2.54	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000691	<0.0005	0.00691	<0.005	-	-	-
Barium	0.0447	<0.0002	0.447	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.16	<0.01	1.6	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00383	<0.001	0.0383	<0.01	-	-	-
Copper	0.00297	<0.0003	0.0297	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.904	<0.019	9.04	<0.19	-	-	-
Lead	0.000336	<0.0002	0.00336	<0.002	-	-	-
Manganese	0.00364	<0.003	0.0364	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00261	<0.0004	0.0261	<0.004	-	-	-
Phosphorus	0.0375	<0.01	0.375	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	0.00132	<0.001	0.0132	<0.01	-	-	-
Zinc	0.0434	<0.001	0.434	<0.01	-	-	-
Chloride	2.3	<2	23	<20	-	-	-
Nitrate as N	0.435	<0.07	4.35	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	0.0307	<0.01	0.307	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.86
Conductivity (µS/cm)	36.40
Temperature (°C)	21.40
Volume Leachant (Litres)	0.883

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CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.7
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26238009
Sampled Date	03-May-2022
Customer Sample Ref.	TP003
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.86
Conductivity (µS/cm)	36.40
Temperature (°C)	21.40
Volume Leachant (Litres)	0.883

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26238009
Customer Sample Ref.	TP003
AGS Ref.	
Depth	0.30
Type	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	12-May-2022
Ammoniacal Nitrogen	16-May-2022
Anions by Kone (soil)	16-May-2022
Anions by Kone (w)	17-May-2022
Asbestos ID in Solid Samples	16-May-2022
CEN 10:1 Leachate (1 Stage)	12-May-2022
CEN Readings	16-May-2022
Conductivity (at 20 deg.C)	16-May-2022
Coronene	16-May-2022
Cyanide Comp/Free/Total/Thiocyanate	17-May-2022
Dissolved Metals by ICP-MS	17-May-2022
Easily Liberated Sulphide	13-May-2022
EPH CWG GC (S)	17-May-2022
GRO by GC-FID (S)	18-May-2022
Hexavalent Chromium (s)	12-May-2022
Hexavalent Chromium (w)	17-May-2022
Mercury Dissolved	17-May-2022
Metals in solid samples by OES	17-May-2022
Moisture at 105C	11-May-2022
Nitrite by Kone (w)	17-May-2022
PAH 16 & 17 Calc	12-May-2022
PAH by GCMS	12-May-2022
PAH Spec MS - Aqueous (W)	17-May-2022
pH	13-May-2022
pH Value	16-May-2022
Phenols by HPLC (S)	13-May-2022
Sample description	11-May-2022
Sulphide	17-May-2022
Total Organic Carbon	18-May-2022
Total Sulphate	17-May-2022
TPH CWG GC (S)	18-May-2022
VOC MS (S)	18-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2629
Ammoniacal Nitrogen as N	TM099	**97.6** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2652
Chloride	TM184	**106.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**100.8** 96.54 : 111.66
TON as NO3	TM184	**104.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2657
Coronene RAW	TM410	**124.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2630
Free Cyanide (W)	TM227	**87.25** 80.33 : 126.33
Thiocyanate (W)	TM227	**111.25** 87.50 : 116.00
Total Cyanide (W)	TM227	**114.0** 83.75 : 121.25

Dissolved Metals by ICP-MS

Component	Method Code	QC 2624
Aluminium	TM152	**102.0** 90.98 : 111.82
Antimony	TM152	**100.5** 90.44 : 113.04
Arsenic	TM152	**101.83** 94.87 : 109.67
Barium	TM152	**99.5** 90.20 : 111.19
Beryllium	TM152	**101.83** 87.77 : 113.97
Bismuth	TM152	**101.17** 91.90 : 112.20
Borate	TM152	**103.09** 88.00 : 112.00

Dissolved Metals by ICP-MS

		QC 2624
Boron	TM152	**103.0** 92.27 : 112.40
Cadmium	TM152	**101.83** 94.93 : 106.93
Calcium	TM152	**102.0** 95.14 : 110.01
Chromium	TM152	**102.0** 91.84 : 108.67
Cobalt	TM152	**102.0** 90.72 : 109.61
Copper	TM152	**102.17** 94.47 : 109.05
Iron	TM152	**102.0** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46
Lithium	TM152	**101.67** 91.62 : 113.12
Magnesium	TM152	**101.33** 92.30 : 110.57
Manganese	TM152	**102.83** 94.75 : 108.21
Molybdenum	TM152	**100.33** 93.55 : 107.66
Nickel	TM152	**102.67** 88.00 : 112.00
Phosphorus	TM152	**102.0** 92.51 : 109.27
Potassium	TM152	**102.67** 92.16 : 109.93
Selenium	TM152	**104.0** 91.58 : 115.98
Silver	TM152	**100.83** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62
Strontium	TM152	**101.33** 95.40 : 109.43
Tellurium	TM152	**104.0** 93.32 : 114.66
Thallium	TM152	**100.83** 88.00 : 112.00
Tin	TM152	**100.67** 92.63 : 109.70
Titanium	TM152	**104.67** 95.08 : 109.28
Tungsten	TM152	**99.5** 94.68 : 107.68
Uranium	TM152	**99.83** 88.00 : 112.00
Vanadium	TM152	**102.0** 88.00 : 112.00
Zinc	TM152	**104.67** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2666
Easily Liberated Sulphide	TM180	**68.77** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2621
QC	TM089	**74.02** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2608
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2617
Hexavalent Chromium	TM241	**105.2** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2605
Mercury Dissolved (CVAF)	TM183	**100.0** 0.00 : 0.00

Metals in solid samples by OES

Component	Method Code	QC 2630
Aluminium	TM181	**115.79** 84.95 : 125.04
Antimony	TM181	**118.11** 91.44 : 127.13
Arsenic	TM181	**114.86** 95.27 : 120.80
Barium	TM181	**113.85** 94.57 : 124.93

Metals in solid samples by OES

		QC 2630
Beryllium	TM181	**113.7** 85.72 : 122.69
Boron	TM181	**110.61** 91.59 : 122.22
Cadmium	TM181	**112.55** 87.31 : 121.62
Chromium	TM181	**103.41** 85.06 : 113.81
Cobalt	TM181	**105.27** 90.60 : 110.35
Copper	TM181	**99.32** 81.22 : 113.40
Iron	TM181	**117.43** 86.44 : 122.27
Lead	TM181	**111.39** 86.83 : 123.12
Manganese	TM181	**113.2** 89.22 : 121.75
Mercury	TM181	**111.07** 84.95 : 119.42
Molybdenum	TM181	**109.43** 85.98 : 123.80
Nickel	TM181	**110.39** 88.05 : 119.19
Phosphorus	TM181	**109.74** 90.13 : 121.54
Selenium	TM181	**115.75** 90.68 : 124.14
Strontium	TM181	**98.43** 80.65 : 106.55
Thallium	TM181	**111.41** 76.88 : 121.51
Tin	TM181	**113.95** 86.96 : 122.18
Titanium	TM181	**98.18** 77.07 : 118.83
Vanadium	TM181	**103.6** 84.00 : 115.50
Zinc	TM181	**111.74** 85.62 : 122.35

PAH by GCMS

Component	Method Code	QC 2694
Acenaphthene	TM218	**94.0** 73.47 : 109.80
Acenaphthylene	TM218	**91.5** 70.00 : 130.00
Anthracene	TM218	**92.5** 68.68 : 111.89
Benz(a)anthracene	TM218	**92.5** 68.12 : 118.39
Benzo(a)pyrene	TM218	**89.5** 71.72 : 115.31

PAH by GCMS

		QC 2694
Benzo(b)fluoranthene	TM218	**90.0** 66.89 : 120.40
Benzo(ghi)perylene	TM218	**81.0** 67.82 : 118.49
Benzo(k)fluoranthene	TM218	**90.5** 73.10 : 117.03
Chrysene	TM218	**90.0** 69.58 : 115.47
Dibenzo(ah)anthracene	TM218	**88.0** 67.32 : 121.35
Fluoranthene	TM218	**92.0** 64.99 : 117.80
Fluorene	TM218	**93.0** 73.81 : 108.66
Indeno(123cd)pyrene	TM218	**80.5** 68.91 : 117.62
Naphthalene	TM218	**92.5** 80.21 : 109.02
Phenanthrene	TM218	**96.0** 69.01 : 113.72
Pyrene	TM218	**90.0** 64.28 : 115.75

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2693
Acenaphthene by GCMS	TM178	**108.8** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**108.8** 96.80 : 118.40
Anthracene by GCMS	TM178	**108.0** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**106.8** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**103.6** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**104.4** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**100.0** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**112.8** 88.72 : 111.28
Chrysene by GCMS	TM178	**110.0** 88.68 : 116.92
Dibenzo(ah)anthracene by GCMS	TM178	**100.8** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**103.2** 91.20 : 117.60
Fluorene by GCMS	TM178	**108.0** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**97.2** 88.39 : 119.61
Naphthalene by GCMS	TM178	**108.0** 98.00 : 119.60

PAH Spec MS - Aqueous (W)

		QC 2693
Phenanthrene by GCMS	TM178	**105.6** 96.00 : 117.60
Pyrene by GCMS	TM178	**101.2** 91.00 : 120.20

pH

Component	Method Code	QC 2607
pH	TM133	**101.03** 96.92 : 102.20

pH Value

Component	Method Code	QC 2602
pH	TM256	**100.27** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2638
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**50.65** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**44.44** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**48.43** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.33** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**48.85** 82.04 : 108.38

Sulphide

Component	Method Code	QC 2624
Sulphide	TM101	**98.0** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2672
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28

Total Organic Carbon

Total Sulphate

Component	Method Code	QC 2610
Total Sulphate	TM221	**106.06** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2619
1,1,1,2-tetrachloroethane	TM116	**96.8** 88.29 : 116.31
1,1,1-Trichloroethane	TM116	**101.2** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**95.6** 81.29 : 113.79
1,1-Dichloroethane	TM116	**109.6** 91.34 : 123.49
1,2-Dichloroethane	TM116	**113.0** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**99.4** 80.81 : 125.07
2-Chlorotoluene	TM116	**82.6** 73.13 : 114.13
4-Chlorotoluene	TM116	**80.6** 68.66 : 109.13
Benzene	TM116	**99.6** 84.29 : 112.22
Carbon Disulphide	TM116	**100.4** 75.11 : 124.81
Carbontetrachloride	TM116	**100.8** 82.35 : 126.46
Chlorobenzene	TM116	**98.4** 82.88 : 122.42
Chloroform	TM116	**110.4** 90.35 : 120.38
Chloromethane	TM116	**98.0** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**101.8** 78.27 : 128.90
Dibromomethane	TM116	**105.8** 76.00 : 120.73
Dichloromethane	TM116	**121.4** 92.27 : 134.36
Ethylbenzene	TM116	**81.4** 70.95 : 113.07
Hexachlorobutadiene	TM116	**45.4** 14.55 : 147.92
Isopropylbenzene	TM116	**60.6** 52.00 : 108.19
Naphthalene	TM116	**103.8** 80.90 : 124.24

VOC MS (S)

		QC 2619
o-Xylene	TM116	**73.2** 68.34 : 101.99
p/m-Xylene	TM116	**78.9** 69.47 : 97.31
Sec-Butylbenzene	TM116	**55.8** 27.03 : 135.73
Tetrachloroethene	TM116	**92.8** 80.10 : 120.38
Toluene	TM116	**90.4** 80.66 : 100.10
Trichloroethene	TM116	**89.8** 79.80 : 112.33
Trichlorofluoromethane	TM116	**109.6** 83.13 : 123.97
Vinyl Chloride	TM116	**99.0** 69.66 : 136.55

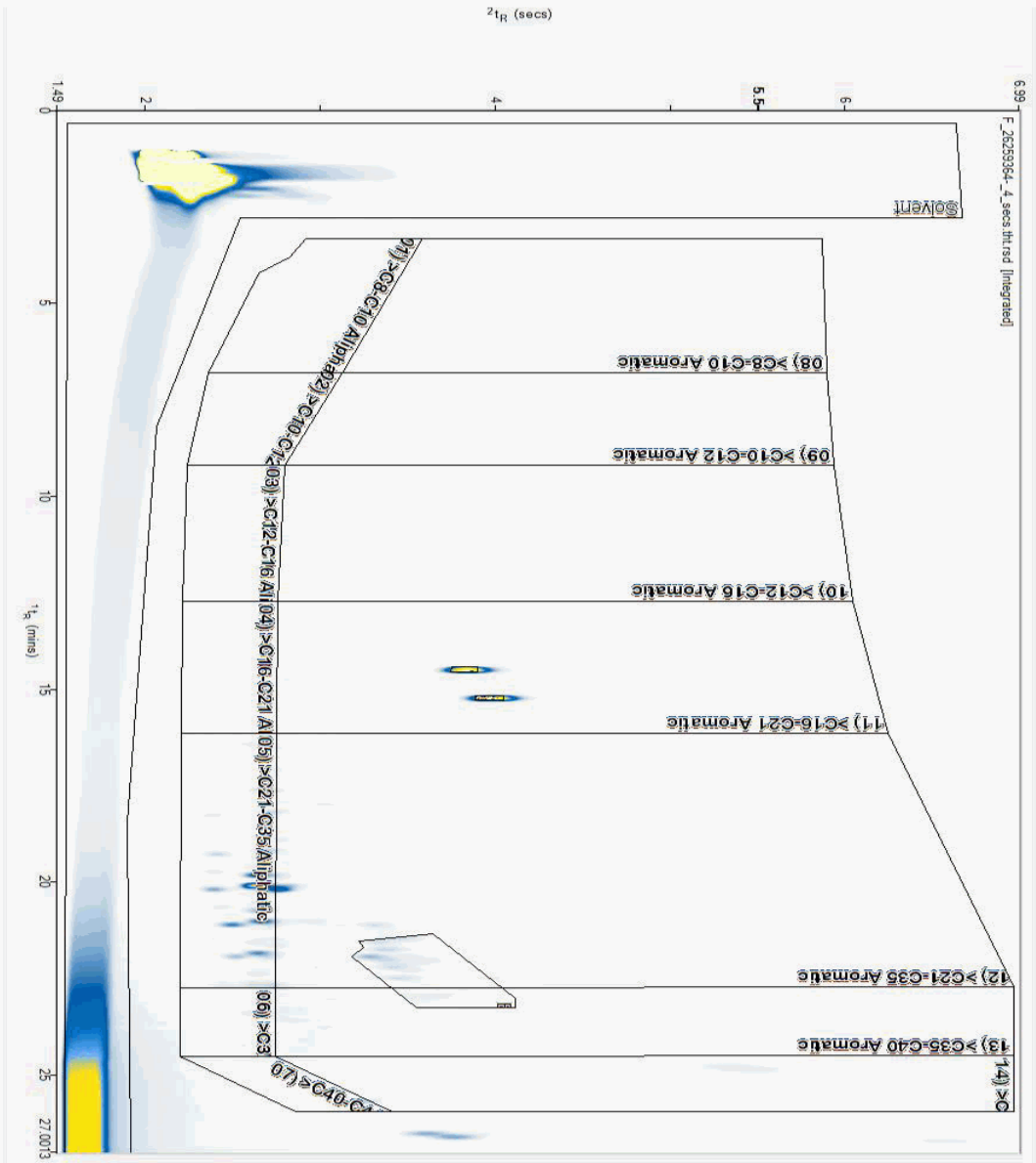
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26259364 **Depth :** 0.30
Sample ID : TP003

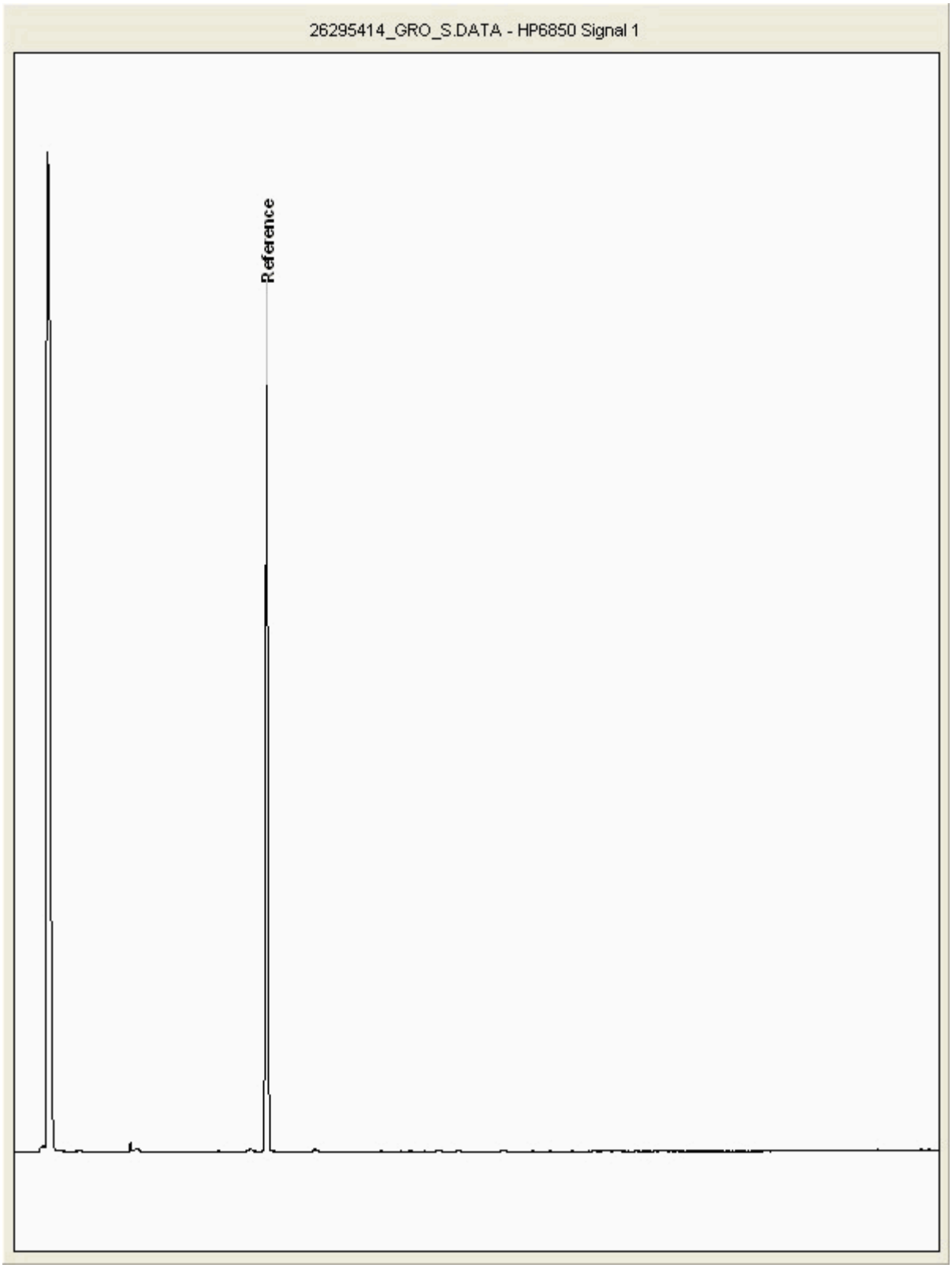


CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 646851 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295414 **Depth :** 0.30
Sample ID : TP003



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	08 June 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220506-130
Your Reference:	JER9352
Location:	Chippenham
Report No:	649530
Order Number:	PO22-197

This report has been revised and directly supersedes 648901 in its entirety.

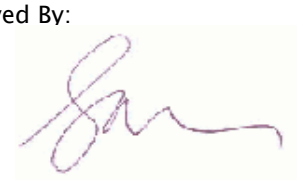
We received 20 samples on Friday May 06, 2022 and 5 of these samples were scheduled for analysis which was completed on Wednesday June 01, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan
Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26237997	AVCI_BH_06		0.30	03/05/2022
26237998	AVCI_BH_06		0.80	03/05/2022
26237999	AVCI_BH_06		1.15 - 1.20	03/05/2022
26238016	AVW_BH_03		0.30	04/05/2022
26238017	AVW_BH_03		0.80	04/05/2022
26238018	AVW_BH_03		1.20	04/05/2022
26238006	PWB_BH_06		0.30	28/04/2022
26238007	PWB_BH_06		0.80	28/04/2022
26238008	PWB_BH_06		1.20	28/04/2022
26238000	PWB_BM_03		0.30	27/04/2022
26238001	PWB_BM_03		0.80	27/04/2022
26238002	PWB_BM_03		1.20	27/04/2022
26238003	TP002		0.30	03/05/2022
26238004	TP002		0.80	03/05/2022
26238005	TP002		1.20	03/05/2022
26238009	TP003		0.30	03/05/2022
26238010	TP003		0.80	03/05/2022
26238011	TP003		1.20	03/05/2022
26238012	TP003		2.00	03/05/2022
26238014	WS018E		0.25	03/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26237997			26238016			26238003			26238009			26238014		
Customer Sample Reference			AVCI_BH_06			AVW_BH_03			TP002			TP003			WS018E		
AGS Reference																	
Depth (m)			0.30			0.30			0.30			0.30			0.25		
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 5		X			X			X			X			X	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3	X									X			X		
Anions by Kone (soil)	All	NDPs: 0 Tests: 5		X			X			X			X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 3	X									X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 5	X			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 3	X									X			X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 5		X			X			X			X			X	
Coronene	All	NDPs: 0 Tests: 5		X			X			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 8	X	X			X			X		X	X		X	X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3	X									X			X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 5		X			X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 5		X			X			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 5			X			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 5		X			X			X			X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3	X									X			X		

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Results Legend
X Test
N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26237997			26238016			26238003			26238009			26238014		
			Customer Sample Reference	AVCI_BH_06			AVW_BH_03			TP002			TP003			WS018E		
			AGS Reference															
			Depth (m)	0.30			0.30			0.30			0.30			0.25		
			Container	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 3		X									X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 5			X			X			X			X			X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3		X									X			X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 5			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 5			X			X			X			X			X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3		X									X			X		
pH	All	NDPs: 0 Tests: 5			X			X			X			X			X	
pH Value	All	NDPs: 0 Tests: 3		X									X			X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 5			X			X			X			X			X	
Sample description	All	NDPs: 0 Tests: 5			X			X			X			X			X	
Sulphide	All	NDPs: 0 Tests: 3		X									X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 5			X			X			X			X			X	
Total Sulphate	All	NDPs: 0 Tests: 5			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 5			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 5				X			X			X			X			X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26237997	AVCI_BH_06	0.30	Dark Brown	Clay Loam	Stones	Vegetation
26238016	AVW_BH_03	0.30	Light Brown	Clay	Stones	Vegetation
26238003	TP002	0.30	Light Brown	Sandy Silt Loam	Vegetation	None
26238009	TP003	0.30	Dark Brown	Sandy Silt Loam	Vegetation	None
26238014	WS018E	0.25	Light Brown	Sandy Clay Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Results Legend
ISO17025 accredited.
M *m*CERTS accredited.
aq Aqueous / settled sample.
diss.filt Dissolved / filtered sample.
tot.unfilt Total / unfiltered sample.
* Subcontracted - refer to subcontractor report for accreditation status.
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F) Trigger breach confirmed
1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI_BH_06	AVW_BH_03	TP002	TP003	WS018E
			Depth (m)	0.30	0.30	0.30	0.30	0.25
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	03/05/2022	04/05/2022	03/05/2022	03/05/2022	03/05/2022
			Sampled Time	00:00:00	.	.	.	.
			Date Received	06/05/2022	06/05/2022	06/05/2022	06/05/2022	06/05/2022
			SDG Ref	220506-130	220506-130	220506-130	220506-130	220506-130
			Lab Sample No.(s)	26237997	26238016	26238003	26238009	26238014
			AGS Reference					
Moisture Content Ratio (% of as received sample)	%	PM024		24	17	15	9.2	12
Phenol	mg/kg	TM062 (S)		<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 M	0.0114 @ M
Soil Organic Matter (SOM)	%	TM132		4.22 @ #	1.01 #	0.879 @ #	2.31 #	3.86 #
pH	pH Units	TM133		8.39 @ M	7.97 @ M	7.82 @ M	6.84 M	8.43 @ M
Chromium, Hexavalent	mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M	<1 M	<1 @ M
Cyanide, Free	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M	<1 M	<1 @ M
Cyanide, Complex	mg/kg	TM153		<1	<1	<1	<1	<1
Sulphide, Easily liberated	mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M
Aluminium	mg/kg	TM181		21200	15100	10300	10800	10300
Antimony	mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	mg/kg	TM181		17.4 M	14.5 M	20.5 M	14.1 M	9.16 M
Barium	mg/kg	TM181		67.7 #	43 #	39.2 #	51.8 #	53.9 #
Beryllium	mg/kg	TM181		1.17 M	1.22 M	0.806 M	0.807 M	0.677 M
Boron	mg/kg	TM181		17.5 #	11 #	7.98 #	7.35 #	10.5 #
Cadmium	mg/kg	TM181		0.77 M	0.658 M	0.686 M	0.0686 M	0.522 M
Chromium	mg/kg	TM181		15.9 M	15.9 M	5.55 M	15.8 M	11.5 M
Copper	mg/kg	TM181		18.5 M	10.2 M	8.78 M	7.29 M	16.2 M
Iron	mg/kg	TM181		26100 #	26200 #	28400 #	24400 #	20300 #
Lead	mg/kg	TM181		39.8 M	16.9 M	15.6 M	21.5 M	27.8 M
Manganese	mg/kg	TM181		527 M	273 M	634 M	280 M	294 M
Mercury	mg/kg	TM181		<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M
Molybdenum	mg/kg	TM181		0.483 #	2.52 #	1.35 #	0.69 #	1.41 #
Nickel	mg/kg	TM181		24.2 M	18.6 M	17.5 M	15.1 M	17.8 M
Selenium	mg/kg	TM181		1.48 #	<1 #	<1 #	<1 #	1.28 #
Vanadium	mg/kg	TM181		55.5 #	42.5 #	49.2 #	51.7 #	29.6 #
Zinc	mg/kg	TM181		90.4 M	78.4 M	49.7 M	45.2 M	73.1 M
Sulphate, Total	mg/kg	TM221		807 M	275 M	258 M	288 M	523 M
Conductivity @ 20 deg.C	mS/cm	TM234		2.03	2	1.96	1.95	2.08
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243		<0.004 M	0.0382 M	0.0152 M	0.0189 M	0.0111 M
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248		3.07	3.32	3.86	3.16	5.87
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410		581	<318	<318	<318	32900

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Results Legend		Customer Sample Ref.	AVCI_BH_06	AVW_BH_03	TP002	TP003	WS018E	
#	ISO17025 accredited.	Depth (m)	0.30	0.30	0.30	0.30	0.25	
M	mCERTS accredited.	Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	
aq	Aqueous / settled sample.	Date Sampled	03/05/2022	04/05/2022	03/05/2022	03/05/2022	03/05/2022	
diss.filt	Dissolved / filtered sample.	Sampled Time	00:00:00	.	.	.	.	
tot.unfilt	Total / unfiltered sample.	Date Received	06/05/2022	06/05/2022	06/05/2022	06/05/2022	06/05/2022	
*	Subcontracted - refer to subcontractor report for accreditation status.	SDG Ref	220506-130	220506-130	220506-130	220506-130	220506-130	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Lab Sample No.(s)	26237997	26238016	26238003	26238009	26238014	
(F)	Trigger breach confirmed	AGS Reference						
1-4+§@	Sample deviation (see appendix)							

Component	LOD/Units	Method						
Coronene	<200 µg/kg	TM410	<200	<200	<200	<200	988	

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI_BH_06	AVW_BH_03	TP002	TP003	WS018E
			Depth (m)	0.30	0.30	0.30	0.30	0.25
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	03/05/2022	04/05/2022	03/05/2022	03/05/2022	03/05/2022
			Sampled Time	00:00:00	.	.	.	.
			Date Received	06/05/2022	06/05/2022	06/05/2022	06/05/2022	06/05/2022
			SDG Ref	220506-130	220506-130	220506-130	220506-130	220506-130
			Lab Sample No.(s)	26237997	26238016	26238003	26238009	26238014
			AGS Reference					
Naphthalene-d8 % recovery**	%	TM218		81.7	81.8	100	95	83.9
Acenaphthene-d10 % recovery**	%	TM218		80.1	79.7	103	98	85
Phenanthrene-d10 % recovery**	%	TM218		81.5	81.2	107	99.5	89.9
Chrysene-d12 % recovery**	%	TM218		83.8	83.9	96.9	100	93.8
Perylene-d12 % recovery**	%	TM218		83.1	84.3	89.3	98.2	92.6
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 @ M	<9 @ M	<9 M	49.8 @ M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 @ M	<12 @ M	<12 M	345 @ M
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 @ M	<8 @ M	<8 M	56.5 @ M
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M	<10 M	116 @ M
Phenanthrene	<15 µg/kg	TM218		22.4 @ M	<15 @ M	<15 @ M	<15 M	1660 @ M
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 @ M	<16 @ M	<16 M	516 @ M
Fluoranthene	<17 µg/kg	TM218		82.9 @ M	<17 @ M	<17 @ M	<17 M	4990 @ M
Pyrene	<15 µg/kg	TM218		75.8 @ M	<15 @ M	<15 @ M	<15 M	4280 @ M
Benz(a)anthracene	<14 µg/kg	TM218		57.8 @ M	<14 @ M	<14 @ M	<14 M	2860 @ M
Chrysene	<10 µg/kg	TM218		54.4 @ M	<10 @ M	<10 @ M	<10 M	2670 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		88.2 @ M	<15 @ M	<15 @ M	<15 M	4040 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		32.6 @ M	<14 @ M	<14 @ M	<14 M	1500 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		65.4 @ M	<15 @ M	<15 @ M	<15 M	3220 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		53.7 @ M	<18 @ M	<18 @ M	<18 M	2790 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 @ M	<23 @ M	<23 M	471 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		48 @ M	<24 @ M	<24 @ M	<24 M	2380 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		581	<118	<118	<118	31900

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend
- # ISO17025 accredited.
- M *m*CERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI_BH_06	AVW_BH_03	TP002	TP003	WS018E
			Depth (m)	0.30	0.30	0.30	0.30	0.25
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	03/05/2022	04/05/2022	03/05/2022	03/05/2022	03/05/2022
			Sampled Time	00:00:00	.	.	.	.
			Date Received	06/05/2022	06/05/2022	06/05/2022	06/05/2022	06/05/2022
			SDG Ref	220506-130	220506-130	220506-130	220506-130	220506-130
			Lab Sample No.(s)	26237997	26238016	26238003	26238009	26238014
			AGS Reference					
GRO Surrogate % recovery**	%	TM089		96	110 @	106	94.6 @	82.2
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10	<10 @	<10	<10 @	<10
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10	<10 @	<10	<10 @	<10
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10	<10 @	<10	<10 @	<10
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		5810 @ #	2820 @ #	<1000 @ #	15400 #	9220 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @	1390	<1000 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		6010 @	<5000 @	<5000 @	17000	10800 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		<10000	<10000	<10000	22600	240000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10	<10 @	<10	<10 @	<10
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10	<10 @	<10	<10 @	<10
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10	<10 @	<10	<10 @	<10
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #	<1000 #	5750 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #	<1000 #	40500 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 @ #	<1000 @ #	3570 #	123000 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @	1840	60200 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000 @	<1000 @	<1000	21200 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	<5000	<5000	5580	230000
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		<10000	<10000	<10000	22600	240000
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50	<50 @	<50	<50 @	<50
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50	<50 @	<50	<50 @	<50
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20	<20 @	<20	<20 @	<20

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend
- # ISO17025 accredited.
- M *m*CERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVCI_BH_06	AVW_BH_03	TP002	TP003	WS018E
			Depth (m)	0.30	0.30	0.30	0.30	0.25
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	03/05/2022	04/05/2022	03/05/2022	03/05/2022	03/05/2022
			Sampled Time	00:00:00	.	.	.	.
			Date Received	06/05/2022	06/05/2022	06/05/2022	06/05/2022	06/05/2022
			SDG Ref	220506-130	220506-130	220506-130	220506-130	220506-130
			Lab Sample No.(s)	26237997	26238016	26238003	26238009	26238014
			AGS Reference					
Dibromofluoromethane**	%	TM116		116 @	111 @	110 @	108 @	115 @
Toluene-d8**	%	TM116		99.5 @	96.9 @	100 @	94.2 @	97.2 @
4-Bromofluorobenzene**	%	TM116		91.6 @	81 @	89.2 @	77.9 @	90.9 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<100 @ M	<10 @ M	<10 @ M	<10 @ M	<100 @ M
Benzene	<9 µg/kg	TM116		<90 @ M	<9 @ M	<9 @ M	<9 @ M	<90 @ M
Toluene	<7 µg/kg	TM116		<70 @ M	<7 @ M	<7 @ M	<7 @ M	<70 @ M
Ethylbenzene	<4 µg/kg	TM116		<40 @ M	<4 @ M	<4 @ M	<4 @ M	<40 @ M
p/m-Xylene	<10 µg/kg	TM116		<100 @ #	<10 @ #	<10 @ #	<10 @ #	<100 @ #
o-Xylene	<10 µg/kg	TM116		<100 @ M	<10 @ M	<10 @ M	<10 @ M	<100 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.2 @	<0.02 @	<0.02 @	<0.02 @	<0.2 @
Sum of BTEX	<40 µg/kg	TM116		<400 @	<40 @	<40 @	<40 @	<400 @

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	AVCI_BH_06 0.30 SOLID 03/05/2022 00:00:00 06/05/2022 05:00:00 220506-130 26237997 TM048	30/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	AVW_BH_03 0.30 SOLID 04/05/2022 00:00:00 06/05/2022 05:00:00 220506-130 26238016 TM048	30/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP002 0.30 SOLID 03/05/2022 00:00:00 06/05/2022 05:00:00 220506-130 26238003 TM048	30/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP003 0.30 SOLID 03/05/2022 00:00:00 06/05/2022 05:00:00 220506-130 26238009 TM048	16/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS018E 0.25 SOLID 03/05/2022 00:00:00 06/05/2022 05:00:00 220506-130 26238014 TM048	30/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220506-130 | Report Number: 649530 | Superseded Report: 648901
Client Ref.: JER9352 | Location: Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.129	**Natural Moisture Content (%)**	43.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	69.6
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26237997
Sampled Date	03-May-2022
Customer Sample Ref.	AVCI_BH_06
Depth (m)	0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.02	<0.01	0.2	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000526	<0.0005	0.00526	<0.005	-	-	-
Barium	0.00221	<0.0002	0.0221	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0226	<0.01	0.226	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00324	<0.0003	0.0324	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.264	<0.019	2.64	<0.19	-	-	-
Lead	0.000352	<0.0002	0.00352	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00171	<0.0004	0.0171	<0.004	-	-	-
Phosphorus	0.0406	<0.01	0.406	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00169	<0.001	0.0169	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Nitrate as N	1.7	<0.07	17	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	25-May-2022
pH (pH Units)	8.30
Conductivity (µS/cm)	117.00
Temperature (°C)	19.80
Volume Leachant (Litres)	0.861

08/06/2022 09:53:34

CERTIFICATE OF ANALYSIS

SDG: 220506-130 | Report Number: 649530 | Superseded Report: 648901
Client Ref.: JER9352 | Location: Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.129	**Natural Moisture Content (%)**	43.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	69.6
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26237997
Sampled Date	03-May-2022
Customer Sample Ref.	AVCI_BH_06
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	25-May-2022
pH (pH Units)	8.30
Conductivity (µS/cm)	117.00
Temperature (°C)	19.80
Volume Leachant (Litres)	0.861

08/06/2022 09:53:34

CERTIFICATE OF ANALYSIS

SDG: 220506-130 | Report Number: 649530 | Superseded Report: 648901
Client Ref.: JER9352 | Location: Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.7
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26238009
Sampled Date	03-May-2022
Customer Sample Ref.	TP003
Depth (m)	0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	0.0000105	<0.00001	0.000105	<0.0001	-	-	-
Aluminium	0.254	<0.01	2.54	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000691	<0.0005	0.00691	<0.005	-	-	-
Barium	0.0447	<0.0002	0.447	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.16	<0.01	1.6	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00383	<0.001	0.0383	<0.01	-	-	-
Copper	0.00297	<0.0003	0.0297	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.904	<0.019	9.04	<0.19	-	-	-
Lead	0.000336	<0.0002	0.00336	<0.002	-	-	-
Manganese	0.00364	<0.003	0.0364	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00261	<0.0004	0.0261	<0.004	-	-	-
Phosphorus	0.0375	<0.01	0.375	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	0.00132	<0.001	0.0132	<0.01	-	-	-
Zinc	0.0434	<0.001	0.434	<0.01	-	-	-
Chloride	2.3	<2	23	<20	-	-	-
Nitrate as N	0.435	<0.07	4.35	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	0.0307	<0.01	0.307	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.86
Conductivity (µS/cm)	36.40
Temperature (°C)	21.40
Volume Leachant (Litres)	0.883

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CERTIFICATE OF ANALYSIS

SDG: 220506-130 Report Number: 649530 Superseded Report: 648901
Client Ref.: JER9352 Location: Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.7
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26238009
Sampled Date	03-May-2022
Customer Sample Ref.	TP003
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	11-May-2022
pH (pH Units)	7.86
Conductivity (µS/cm)	36.40
Temperature (°C)	21.40
Volume Leachant (Litres)	0.883

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CERTIFICATE OF ANALYSIS

SDG: 220506-130 | Report Number: 649530 | Superseded Report: 648901
Client Ref.: JER9352 | Location: Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.120	**Natural Moisture Content (%)**	33.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74.8
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26238014
Sampled Date	03-May-2022
Customer Sample Ref.	WS018E
Depth (m)	0.25

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.0201	<0.01	0.201	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000685	<0.0005	0.00685	<0.005	-	-	-
Barium	0.104	<0.0002	1.04	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0636	<0.01	0.636	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00412	<0.0003	0.0412	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.188	<0.019	1.88	<0.19	-	-	-
Lead	0.000377	<0.0002	0.00377	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	0.0126	<0.003	0.126	<0.03	-	-	-
Nickel	0.00129	<0.0004	0.0129	<0.004	-	-	-
Phosphorus	0.0603	<0.01	0.603	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00336	<0.001	0.0336	<0.01	-	-	-
Chloride	4.6	<2	46	<20	-	-	-
Nitrate as N	1.44	<0.07	14.4	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	0.000016	<0.000005	0.00016	<0.00005	-	-	-
Fluoranthene by GCMS	0.0000331	<0.000005	0.000331	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	0.000017	<0.000005	0.00017	<0.00005	-	-	-

Leach Test Information

Date Prepared	25-May-2022
pH (pH Units)	8.23
Conductivity (µS/cm)	198.00
Temperature (°C)	19.70
Volume Leachant (Litres)	0.870

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CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.120	**Natural Moisture Content (%)**	33.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74.8
Particle Size <4mm	>95%		

Case	
SDG	220506-130
Lab Sample Number(s)	26238014
Sampled Date	03-May-2022
Customer Sample Ref.	WS018E
Depth (m)	0.25

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	0.0000098	<0.000005	0.000098	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	0.0000195	<0.000002	0.000195	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	0.0000295	<0.000005	0.000295	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	0.000037	<0.000005	0.00037	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	0.0000183	<0.000005	0.000183	<0.00005	-	-	-
Chrysene by GCMS	0.0000169	<0.000005	0.000169	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	0.000223	<0.000082	0.00223	<0.00082	-	-	-
Pyrene by GCMS	0.0000258	<0.000005	0.000258	<0.00005	-	-	-

Leach Test Information

Date Prepared	25-May-2022
pH (pH Units)	8.23
Conductivity (µS/cm)	198.00
Temperature (°C)	19.70
Volume Leachant (Litres)	0.870

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Test Completion Dates

Lab Sample No(s)	26237997	26238016	26238003	26238009	26238014
Customer Sample Ref.	AVCI_BH_06	AVW_BH_03	TP002	TP003	WS018E
AGS Ref.					
Depth	0.30	0.30	0.30	0.30	0.25
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	26-May-2022	26-May-2022	27-May-2022	12-May-2022	26-May-2022
Ammoniacal Nitrogen	30-May-2022			16-May-2022	30-May-2022
Anions by Kone (soil)	30-May-2022	30-May-2022	30-May-2022	16-May-2022	30-May-2022
Anions by Kone (w)	30-May-2022			17-May-2022	30-May-2022
Asbestos ID in Solid Samples	30-May-2022	30-May-2022	30-May-2022	16-May-2022	30-May-2022
CEN 10:1 Leachate (1 Stage)	26-May-2022			12-May-2022	26-May-2022
CEN Readings	28-May-2022			16-May-2022	28-May-2022
Conductivity (at 20 deg.C)	30-May-2022	30-May-2022	30-May-2022	16-May-2022	30-May-2022
Coronene	30-May-2022	30-May-2022	30-May-2022	16-May-2022	30-May-2022
Cyanide Comp/Free/Total/Thiocyanate	31-May-2022	30-May-2022	31-May-2022	17-May-2022	31-May-2022
Dissolved Metals by ICP-MS	30-May-2022			17-May-2022	30-May-2022
Easily Liberated Sulphide	30-May-2022	30-May-2022	30-May-2022	13-May-2022	30-May-2022
EPH CWG GC (S)	27-May-2022	27-May-2022	30-May-2022	17-May-2022	27-May-2022
GRO by GC-FID (S)	31-May-2022	01-Jun-2022	31-May-2022	18-May-2022	31-May-2022
Hexavalent Chromium (s)	27-May-2022	27-May-2022	30-May-2022	12-May-2022	27-May-2022
Hexavalent Chromium (w)	30-May-2022			17-May-2022	30-May-2022
Mercury Dissolved	30-May-2022			17-May-2022	30-May-2022
Metals in solid samples by OES	30-May-2022	30-May-2022	30-May-2022	17-May-2022	30-May-2022
Moisture at 105C	25-May-2022			11-May-2022	25-May-2022
Nitrite by Kone (w)	30-May-2022			17-May-2022	30-May-2022
PAH 16 & 17 Calc	30-May-2022	30-May-2022	30-May-2022	12-May-2022	30-May-2022
PAH by GCMS	27-May-2022	27-May-2022	27-May-2022	12-May-2022	27-May-2022
PAH Spec MS - Aqueous (W)	30-May-2022			17-May-2022	30-May-2022
pH	26-May-2022	26-May-2022	26-May-2022	13-May-2022	26-May-2022
pH Value	30-May-2022			16-May-2022	30-May-2022
Phenols by HPLC (S)	30-May-2022	30-May-2022	30-May-2022	13-May-2022	30-May-2022
Sample description	25-May-2022	25-May-2022	26-May-2022	11-May-2022	25-May-2022
Sulphide	30-May-2022			17-May-2022	30-May-2022
Total Organic Carbon	31-May-2022	31-May-2022	31-May-2022	18-May-2022	31-May-2022
Total Sulphate	30-May-2022	30-May-2022	30-May-2022	17-May-2022	30-May-2022
TPH CWG GC (S)	31-May-2022	01-Jun-2022	31-May-2022	18-May-2022	31-May-2022
VOC MS (S)	31-May-2022	31-May-2022	31-May-2022	18-May-2022	31-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2629	QC 2613
Ammoniacal Nitrogen as N	TM099	**97.6** 90.84 : 105.72	**100.4** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2652	QC 2681
Chloride	TM184	**106.0** 97.18 : 113.20	**98.6** 95.10 : 104.28
Sulphate (soluble)	TM184	**100.8** 96.54 : 111.66	**97.6** 91.99 : 109.30
TON as NO3	TM184	**104.0** 100.65 : 111.75	**98.5** 90.35 : 108.35

Coronene

Component	Method Code	QC 2657	QC 2649	QC 2614
Coronene RAW	TM410	**124.0** 79.43 : 137.78	**128.0** 79.43 : 137.78	**131.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2630	QC 2672	QC 2610	QC 2696
Free Cyanide	TM153		**88.81** 77.50 : 118.90	**95.45** 71.70 : 110.70	
Free Cyanide (W)	TM227	**87.25** 80.33 : 126.33			**88.75** 80.33 : 126.33
Thiocyanate	TM153		**98.72** 92.20 : 113.40	**106.41** 87.27 : 113.27	
Thiocyanate (W)	TM227	**111.25** 87.50 : 116.00			**103.5** 87.50 : 116.00
Total Cyanide	TM153		**92.31** 80.07 : 114.07	**102.8** 72.73 : 109.93	
Total Cyanide (W)	TM227	**114.0** 83.75 : 121.25			**111.5** 83.75 : 121.25

Dissolved Metals by ICP-MS

Component	Method Code	QC 2624	QC 2647
Aluminium	TM152	**102.0** 90.98 : 111.82	**101.67** 90.98 : 111.82
Antimony	TM152	**100.5** 90.44 : 113.04	**103.33** 90.44 : 113.04
Arsenic	TM152	**101.83** 94.87 : 109.67	**98.0** 94.87 : 109.67
Barium	TM152	**99.5** 90.20 : 111.19	**103.17** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2624	QC 2647
Beryllium	TM152	**101.83** 87.77 : 113.97	**99.0** 87.77 : 113.97
Bismuth	TM152	**101.17** 91.90 : 112.20	**103.17** 91.90 : 112.20
Borate	TM152	**103.09** 88.00 : 112.00	**100.62** 88.00 : 112.00
Boron	TM152	**103.0** 92.27 : 112.40	**100.67** 92.27 : 112.40
Cadmium	TM152	**101.83** 94.93 : 106.93	**101.33** 94.93 : 106.93
Calcium	TM152	**102.0** 95.14 : 110.01	**101.33** 95.14 : 110.01
Chromium	TM152	**102.0** 91.84 : 108.67	**100.0** 91.84 : 108.67
Cobalt	TM152	**102.0** 90.72 : 109.61	**100.5** 90.72 : 109.61
Copper	TM152	**102.17** 94.47 : 109.05	**100.67** 94.47 : 109.05
Iron	TM152	**102.0** 94.40 : 107.90	**100.67** 94.40 : 107.90
Lead	TM152	**100.33** 93.55 : 109.46	**103.83** 93.55 : 109.46
Lithium	TM152	**101.67** 91.62 : 113.12	**100.5** 91.62 : 113.12
Magnesium	TM152	**101.33** 92.30 : 110.57	**100.67** 92.30 : 110.57
Manganese	TM152	**102.83** 94.75 : 108.21	**101.0** 94.75 : 108.21
Molybdenum	TM152	**100.33** 93.55 : 107.66	**99.0** 93.55 : 107.66
Nickel	TM152	**102.67** 88.00 : 112.00	**101.0** 88.00 : 112.00
Phosphorus	TM152	**102.0** 92.51 : 109.27	**96.67** 92.51 : 109.27
Potassium	TM152	**102.67** 92.16 : 109.93	**102.0** 92.16 : 109.93
Selenium	TM152	**104.0** 91.58 : 115.98	**95.33** 91.58 : 115.98
Silver	TM152	**100.83** 92.75 : 111.05	**100.83** 92.75 : 111.05
Sodium	TM152	**102.67** 89.47 : 109.62	**100.67** 89.47 : 109.62
Strontium	TM152	**101.33** 95.40 : 109.43	**102.0** 95.40 : 109.43
Tellurium	TM152	**104.0** 93.32 : 114.66	**99.0** 93.32 : 114.66
Thallium	TM152	**100.83** 88.00 : 112.00	**99.5** 88.00 : 112.00
Tin	TM152	**100.67** 92.63 : 109.70	**104.17** 92.63 : 109.70
Titanium	TM152	**104.67** 95.08 : 109.28	**103.0** 95.08 : 109.28
Tungsten	TM152	**99.5** 94.68 : 107.68	**101.5** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2624	QC 2647
Uranium	TM152	**99.83** 88.00 : 112.00	**101.5** 88.00 : 112.00
Vanadium	TM152	**102.0** 88.00 : 112.00	**103.5** 88.00 : 112.00
Zinc	TM152	**104.67** 95.31 : 110.74	**98.33** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2666	QC 2651
Easily Liberated Sulphide	TM180	**68.77** 51.10 : 121.66	**100.26** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2621	QC 2620	QC 2646
QC	TM089	**74.02** 65.61 : 111.21	**83.58** 65.42 : 109.49	**81.57** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2608	QC 2619	QC 2675
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40	**108.0** 83.40 : 113.40	**106.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2617	QC 2663
Hexavalent Chromium	TM241	**105.2** 94.17 : 106.17	**102.0** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2605	QC 2647
Mercury Dissolved (CVAF)	TM183	**100.0** 0.00 : 0.00	**88.6** 0.00 : 0.00

Metals in solid samples by OES

Metals in solid samples by OES

Component	Method Code	QC 2630	QC 2604	QC 2615
Aluminium	TM181	**115.79** 84.95 : 125.04	**114.04** 84.95 : 125.04	**102.63** 84.95 : 125.04
Antimony	TM181	**118.11** 91.44 : 127.13	**114.17** 91.44 : 127.13	**114.96** 91.44 : 127.13
Arsenic	TM181	**114.86** 95.27 : 120.80	**111.15** 95.27 : 120.80	**110.47** 95.27 : 120.80
Barium	TM181	**113.85** 94.57 : 124.93	**115.9** 94.57 : 124.93	**108.72** 94.57 : 124.93
Beryllium	TM181	**113.7** 85.72 : 122.69	**107.87** 85.72 : 122.69	**108.75** 85.72 : 122.69
Boron	TM181	**110.61** 91.59 : 122.22	**109.65** 91.59 : 122.22	**106.75** 91.59 : 122.22
Cadmium	TM181	**112.55** 87.31 : 121.62	**108.49** 87.31 : 121.62	**106.27** 87.31 : 121.62
Chromium	TM181	**103.41** 85.06 : 113.81	**98.78** 85.06 : 113.81	**99.02** 85.06 : 113.81
Cobalt	TM181	**105.27** 90.60 : 110.35	**101.82** 90.60 : 110.35	**100.0** 90.60 : 110.35
Copper	TM181	**99.32** 81.22 : 113.40	**95.09** 81.22 : 113.40	**97.12** 81.22 : 113.40
Iron	TM181	**117.43** 86.44 : 122.27	**110.09** 86.44 : 122.27	**109.17** 86.44 : 122.27
Lead	TM181	**111.39** 86.83 : 123.12	**105.45** 86.83 : 123.12	**102.97** 86.83 : 123.12
Manganese	TM181	**113.2** 89.22 : 121.75	**110.39** 89.22 : 121.75	**110.67** 89.22 : 121.75
Mercury	TM181	**111.07** 84.95 : 119.42	**108.79** 84.95 : 119.42	**107.17** 84.95 : 119.42
Molybdenum	TM181	**109.43** 85.98 : 123.80	**103.7** 85.98 : 123.80	**105.05** 85.98 : 123.80
Nickel	TM181	**110.39** 88.05 : 119.19	**105.64** 88.05 : 119.19	**104.45** 88.05 : 119.19
Phosphorus	TM181	**109.74** 90.13 : 121.54	**111.28** 90.13 : 121.54	**110.94** 90.13 : 121.54
Selenium	TM181	**115.75** 90.68 : 124.14	**112.09** 90.68 : 124.14	**112.09** 90.68 : 124.14
Strontium	TM181	**98.43** 80.65 : 106.55	**95.08** 80.65 : 106.55	**94.63** 80.65 : 106.55
Thallium	TM181	**111.41** 76.88 : 121.51	**107.38** 76.88 : 121.51	**104.03** 76.88 : 121.51
Tin	TM181	**113.95** 86.96 : 122.18	**105.64** 86.96 : 122.18	**105.34** 86.96 : 122.18
Titanium	TM181	**98.18** 77.07 : 118.83	**99.09** 77.07 : 118.83	**99.09** 77.07 : 118.83
Vanadium	TM181	**103.6** 84.00 : 115.50	**100.36** 84.00 : 115.50	**101.44** 84.00 : 115.50
Zinc	TM181	**111.74** 85.62 : 122.35	**105.64** 85.62 : 122.35	**103.84** 85.62 : 122.35

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2694	QC 2658	QC 2635
Acenaphthene	TM218	**94.0** 73.47 : 109.80	**83.5** 76.79 : 103.90	**99.5** 73.47 : 109.80
Acenaphthylene	TM218	**91.5** 70.00 : 130.00	**80.0** 74.19 : 106.17	**102.5** 70.00 : 130.00
Anthracene	TM218	**92.5** 68.68 : 111.89	**84.5** 70.90 : 109.22	**107.5** 68.68 : 111.89
Benz(a)anthracene	TM218	**92.5** 68.12 : 118.39	**87.0** 73.77 : 119.26	**98.0** 68.12 : 118.39
Benzo(a)pyrene	TM218	**89.5** 71.72 : 115.31	**87.5** 73.20 : 114.18	**94.0** 71.72 : 115.31
Benzo(b)fluoranthene	TM218	**90.0** 66.89 : 120.40	**82.5** 75.36 : 117.58	**92.5** 66.89 : 120.40
Benzo(ghi)perylene	TM218	**81.0** 67.82 : 118.49	**86.5** 70.73 : 116.12	**96.0** 67.82 : 118.49
Benzo(k)fluoranthene	TM218	**90.5** 73.10 : 117.03	**87.5** 75.98 : 116.59	**94.5** 73.10 : 117.03
Chrysene	TM218	**90.0** 69.58 : 115.47	**87.0** 74.82 : 114.18	**92.5** 69.58 : 115.47
Dibenzo(ah)anthracene	TM218	**88.0** 67.32 : 121.35	**86.5** 69.17 : 115.30	**92.0** 67.32 : 121.35
Fluoranthene	TM218	**92.0** 64.99 : 117.80	**83.5** 66.06 : 114.63	**105.0** 64.99 : 117.80
Fluorene	TM218	**93.0** 73.81 : 108.66	**82.5** 76.66 : 107.56	**104.0** 73.81 : 108.66
Indeno(123cd)pyrene	TM218	**80.5** 68.91 : 117.62	**88.0** 70.26 : 117.95	**93.5** 68.91 : 117.62
Naphthalene	TM218	**92.5** 80.21 : 109.02	**82.5** 74.70 : 101.83	**101.0** 80.21 : 109.02
Phenanthrene	TM218	**96.0** 69.01 : 113.72	**83.0** 73.62 : 109.34	**105.0** 69.01 : 113.72
Pyrene	TM218	**90.0** 64.28 : 115.75	**83.0** 71.46 : 117.00	**104.5** 64.28 : 115.75

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2693	QC 2631
Acenaphthene by GCMS	TM178	**108.8** 98.40 : 117.60	**108.0** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**108.8** 96.80 : 118.40	**106.8** 96.80 : 118.40
Anthracene by GCMS	TM178	**108.0** 94.40 : 116.00	**105.2** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**106.8** 92.80 : 116.80	**102.8** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**103.6** 89.43 : 118.57	**104.8** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**104.4** 87.80 : 121.80	**97.2** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**100.0** 92.00 : 116.00	**98.4** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**112.8** 88.72 : 111.28	**111.6** 88.72 : 111.28
Chrysene by GCMS	TM178	**110.0** 88.68 : 116.92	**101.6** 88.68 : 116.92

PAH Spec MS - Aqueous (W)

		QC 2693	QC 2631
Dibenzo(ah)anthracene by GCMS	TM178	**100.8** 86.24 : 118.56	**101.6** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**103.2** 91.20 : 117.60	**113.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**108.0** 90.76 : 121.24	**112.8** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**97.2** 88.39 : 119.61	**101.2** 88.39 : 119.61
Naphthalene by GCMS	TM178	**108.0** 98.00 : 119.60	**107.6** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**105.6** 96.00 : 117.60	**103.6** 96.00 : 117.60
Pyrene by GCMS	TM178	**101.2** 91.00 : 120.20	**113.2** 91.00 : 120.20

pH

Component	Method Code	QC 2607	QC 2696	QC 2641
pH	TM133	**101.03** 96.92 : 102.20	**99.85** 96.92 : 102.20	**98.53** 96.92 : 102.20

pH Value

Component	Method Code	QC 2602	QC 2664
EC QC	TM256		**102.31** 95.52 : 108.13
pH	TM256	**100.27** 99.20 : 102.41	**100.0** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2638	QC 2639	QC 2614
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**50.65** 69.38 : 125.27	**51.95** 69.38 : 125.27	**53.25** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**44.44** 69.79 : 122.84	**45.61** 69.79 : 122.84	**47.37** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**48.43** 77.98 : 111.41	**49.69** 77.98 : 111.41	**51.57** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**50.33** 67.94 : 117.69	**50.99** 67.94 : 117.69	**53.64** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**48.85** 82.04 : 108.38	**49.27** 82.04 : 108.38	**50.73** 82.04 : 108.38

Sulphide

Sulphide

Component	Method Code	QC 2624	QC 2645	QC 2652
Sulphide	TM101	**98.0** 88.67 : 116.67	**97.33** 88.67 : 116.67	**97.33** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2672	QC 2658	QC 2679
Total Organic Carbon	TM132	**97.66** 80.47 : 113.28	**105.08** 80.47 : 113.28	**89.84** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2610	QC 2638	QC 2650
Total Sulphate	TM221	**106.06** 78.36 : 114.69	**107.58** 78.36 : 114.69	**103.79** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2619	QC 2622	QC 2676
1,1,1,2-tetrachloroethane	TM116	**96.8** 88.29 : 116.31	**94.0** 88.29 : 116.31	**100.6** 88.29 : 116.31
1,1,1-Trichloroethane	TM116	**101.2** 88.34 : 114.50	**97.6** 88.34 : 114.50	**106.8** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**95.6** 81.29 : 113.79	**90.0** 81.29 : 113.79	**92.0** 81.29 : 113.79
1,1-Dichloroethane	TM116	**109.6** 91.34 : 123.49	**103.2** 91.34 : 123.49	**111.8** 91.34 : 123.49
1,2-Dichloroethane	TM116	**113.0** 90.04 : 132.28	**108.4** 90.04 : 132.28	**110.4** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**99.4** 80.81 : 125.07	**97.4** 80.81 : 125.07	**113.0** 80.81 : 125.07
2-Chlorotoluene	TM116	**82.6** 73.13 : 114.13	**81.0** 73.13 : 114.13	**92.6** 73.13 : 114.13
4-Chlorotoluene	TM116	**80.6** 68.66 : 109.13	**81.8** 68.66 : 109.13	**93.2** 68.66 : 109.13
Benzene	TM116	**99.6** 84.29 : 112.22	**98.4** 84.29 : 112.22	**104.2** 84.29 : 112.22
Carbon Disulphide	TM116	**100.4** 75.11 : 124.81	**93.2** 75.11 : 124.81	**111.8** 75.11 : 124.81
Carbontetrachloride	TM116	**100.8** 82.35 : 126.46	**94.6** 82.35 : 126.46	**104.2** 82.35 : 126.46
Chlorobenzene	TM116	**98.4** 82.88 : 122.42	**96.2** 82.88 : 122.42	**104.2** 82.88 : 122.42
Chloroform	TM116	**110.4** 90.35 : 120.38	**106.8** 90.35 : 120.38	**114.0** 90.35 : 120.38

VOC MS (S)

		QC 2619	QC 2622	QC 2676
Chloromethane	TM116	**98.0** 67.89 : 143.51	**87.8** 67.89 : 143.51	**102.8** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**101.8** 78.27 : 128.90	**97.4** 78.27 : 128.90	**100.6** 78.27 : 128.90
Dibromomethane	TM116	**105.8** 76.00 : 120.73	**94.4** 76.00 : 120.73	**95.0** 76.00 : 120.73
Dichloromethane	TM116	**121.4** 92.27 : 134.36	**114.8** 97.64 : 133.75	**122.8** 97.64 : 133.75
Ethylbenzene	TM116	**81.4** 70.95 : 113.07	**83.6** 70.95 : 113.07	**94.2** 70.95 : 113.07
Hexachlorobutadiene	TM116	**45.4** 14.55 : 147.92	**75.2** 14.55 : 147.92	**94.8** 14.55 : 147.92
Isopropylbenzene	TM116	**60.6** 52.00 : 108.19	**68.8** 43.42 : 101.34	**82.8** 43.42 : 101.34
Naphthalene	TM116	**103.8** 80.90 : 124.24	**102.0** 80.90 : 124.24	**103.4** 80.90 : 124.24
o-Xylene	TM116	**73.2** 68.34 : 101.99	**72.8** 68.34 : 101.99	**82.6** 68.34 : 101.99
p/m-Xylene	TM116	**78.9** 69.47 : 97.31	**80.4** 69.47 : 97.31	**89.6** 69.47 : 97.31
Sec-Butylbenzene	TM116	**55.8** 27.03 : 135.73	**74.0** 27.03 : 135.73	**90.2** 27.03 : 135.73
Tetrachloroethene	TM116	**92.8** 80.10 : 120.38	**95.6** 80.10 : 120.38	**109.0** 80.10 : 120.38
Toluene	TM116	**90.4** 80.66 : 100.10	**88.6** 80.66 : 100.10	**95.6** 80.66 : 100.10
Trichloroethene	TM116	**89.8** 79.80 : 112.33	**89.2** 79.80 : 112.33	**96.8** 79.80 : 112.33
Trichlorofluoromethane	TM116	**109.6** 83.13 : 123.97	**104.2** 83.13 : 123.97	**116.0** 83.13 : 123.97
Vinyl Chloride	TM116	**99.0** 69.66 : 136.55	**94.2** 69.66 : 136.55	**107.4** 69.66 : 136.55

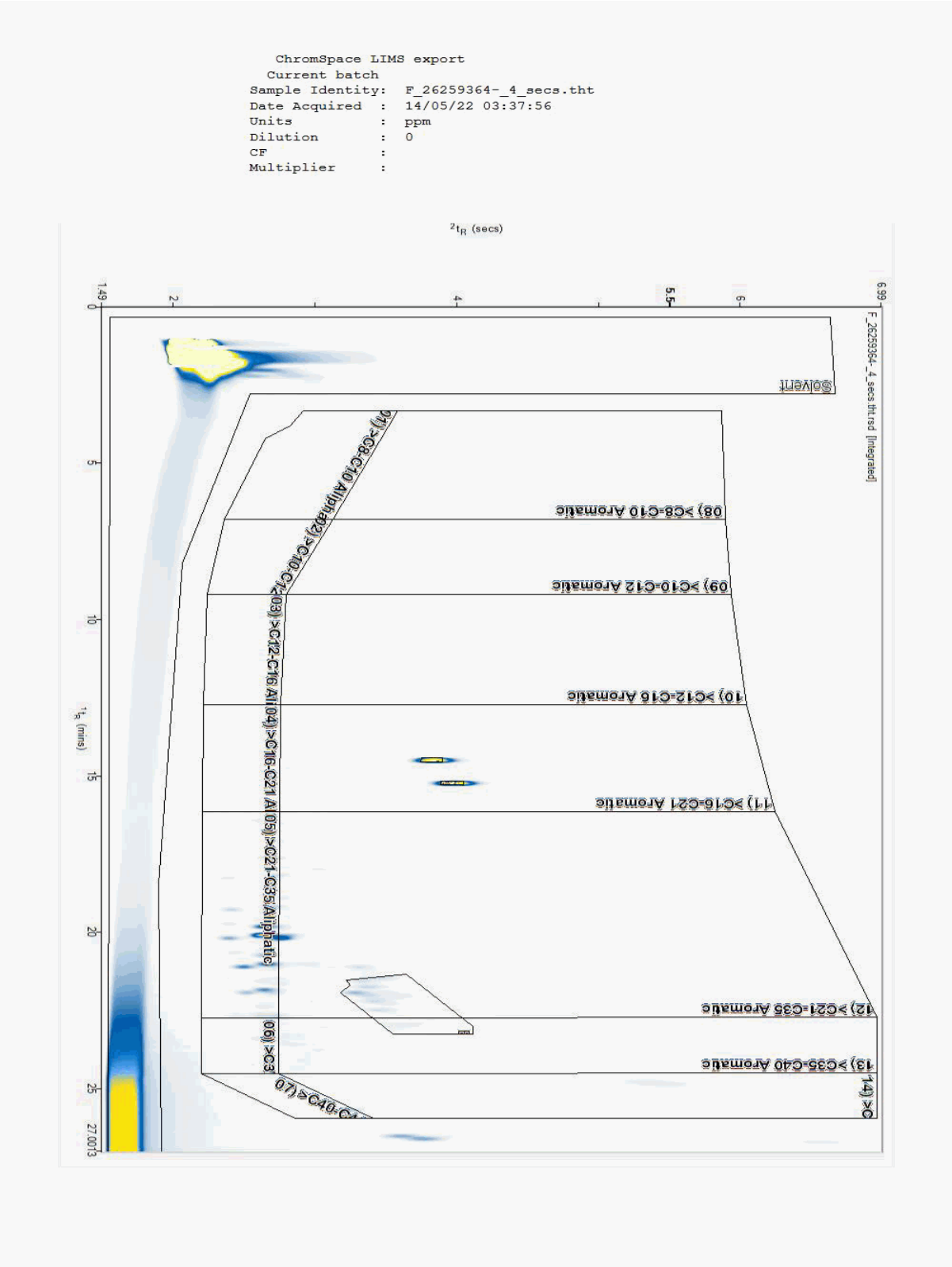
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26259364 **Depth :** 0.30
Sample ID : TP003



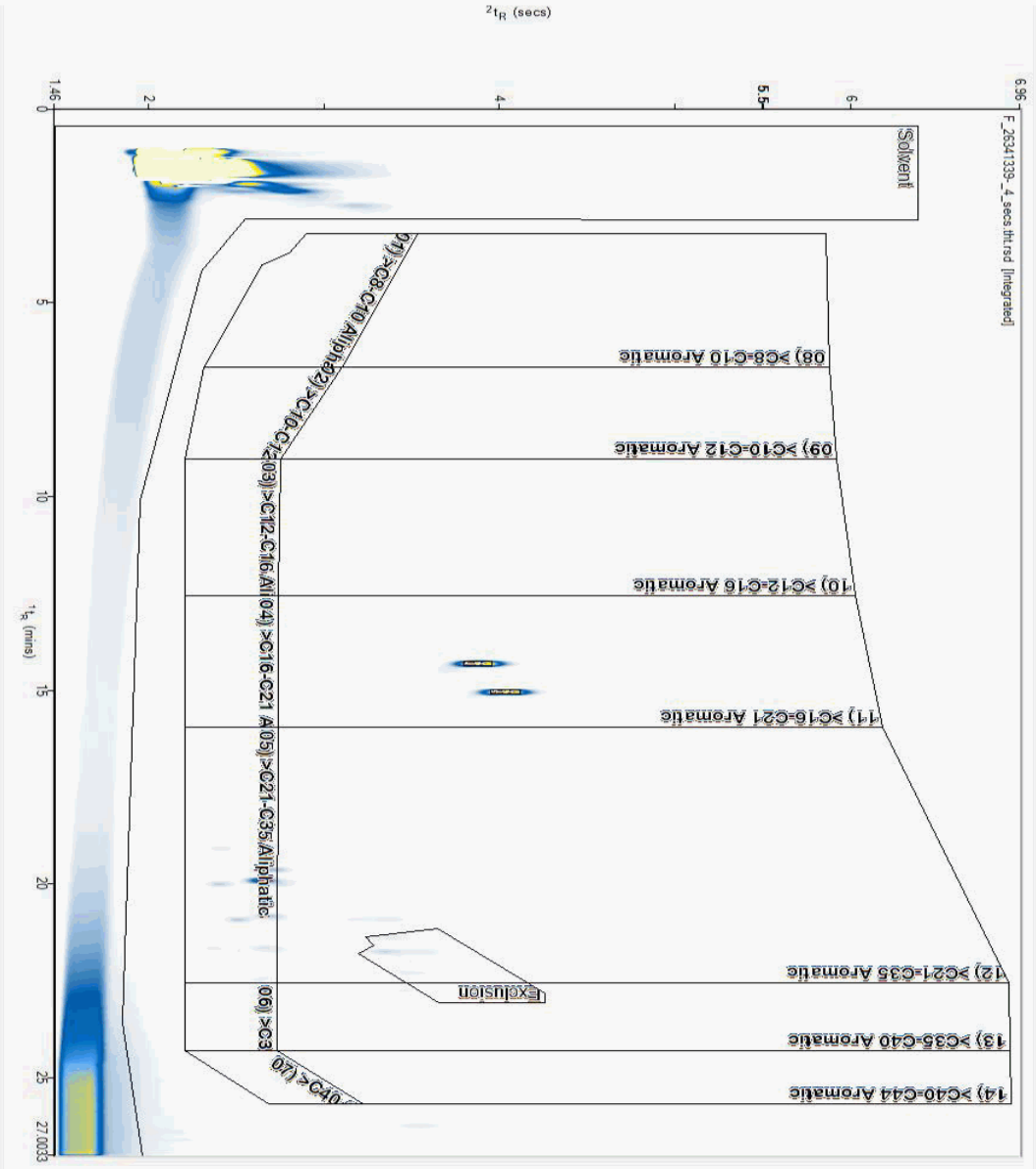
CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26341339 **Depth :** 0.30
Sample ID : AVCI_BH_06

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 Current batch
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Date Acquired  :  26/05/22 04:01:33
Units          :  ppm
Dilution       :  0
CF             :
Multiplier     :
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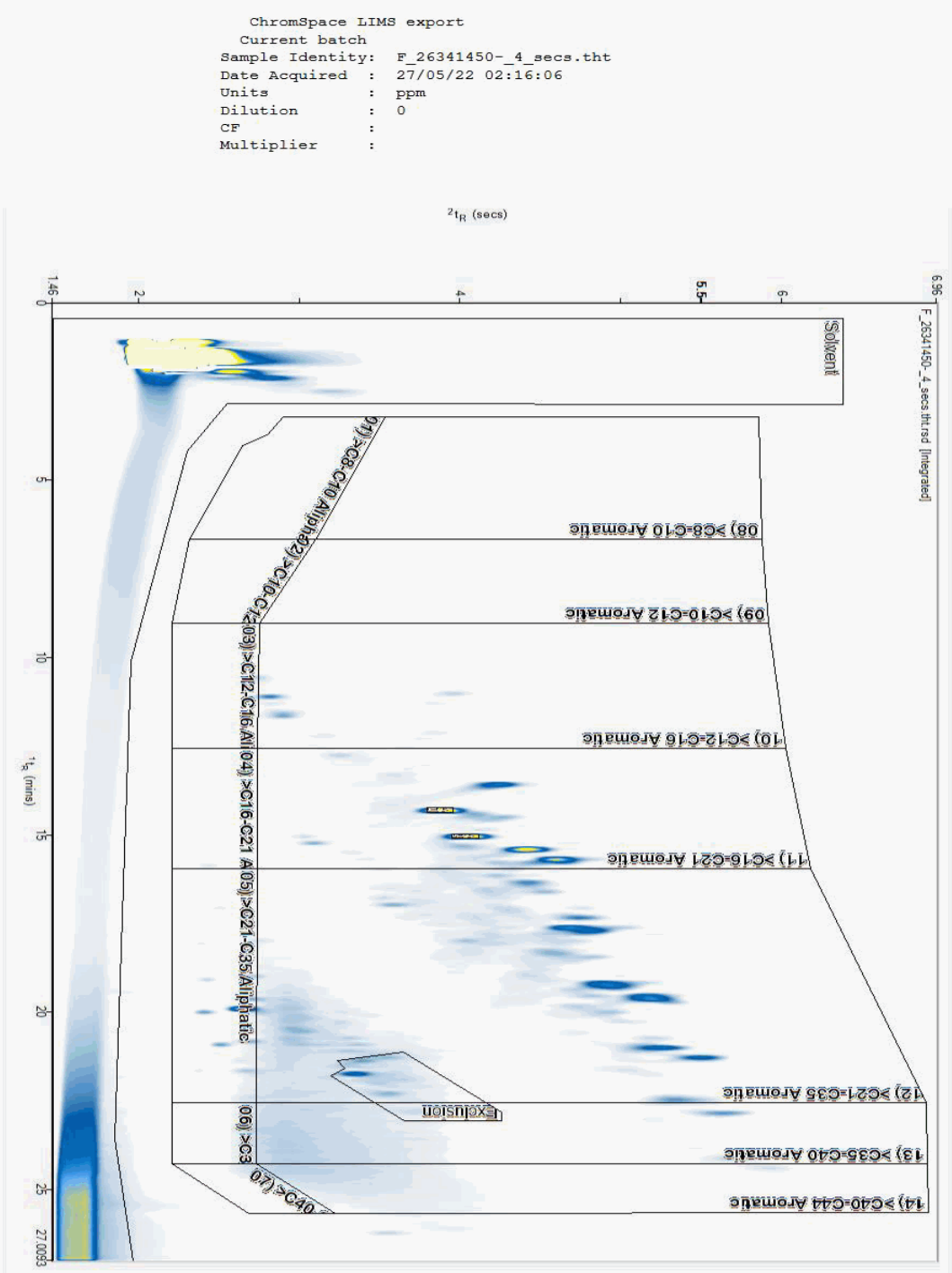


CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26341450 **Depth :** 0.25
Sample ID : WS018E

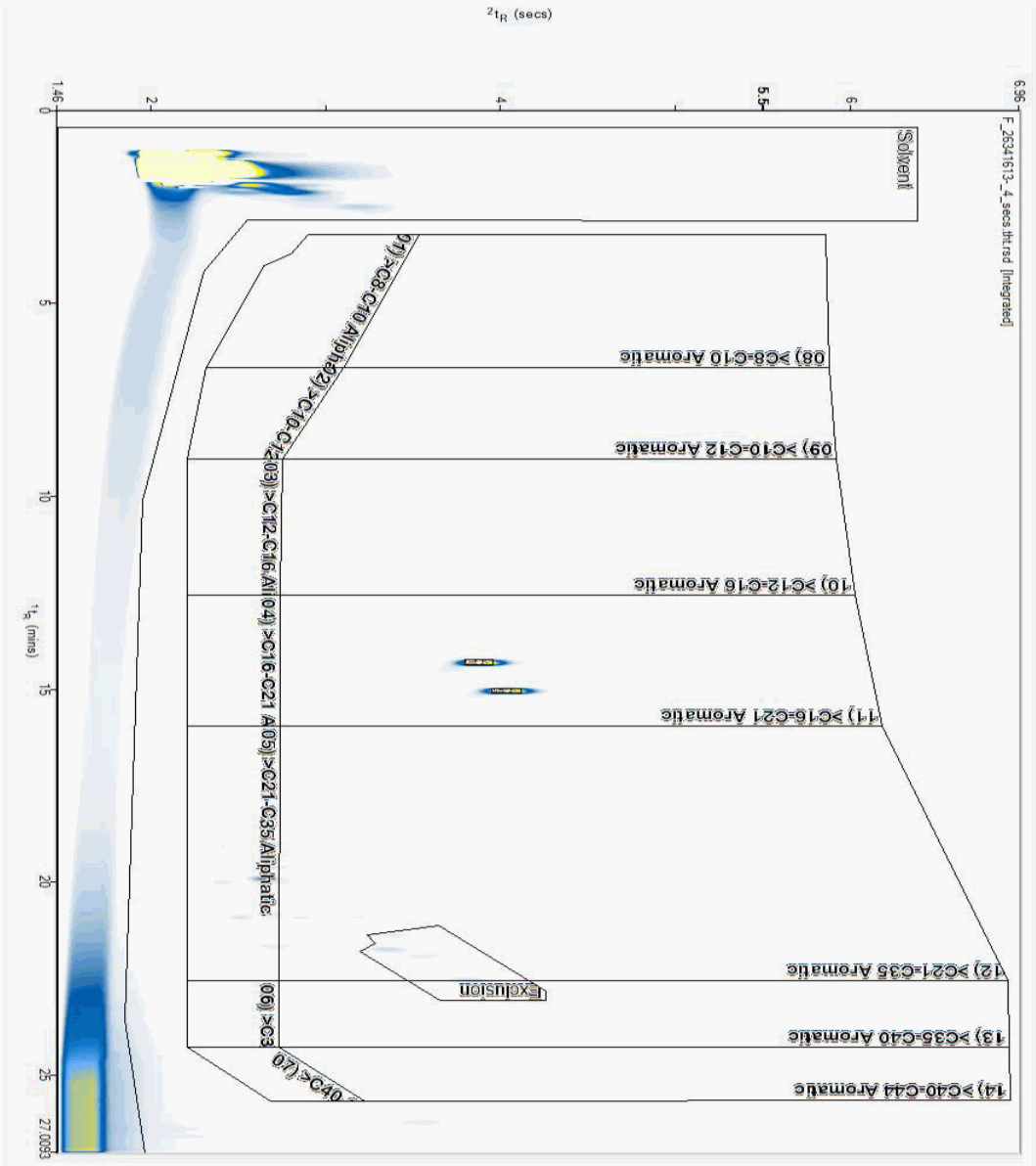


CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26341613 **Depth :** 0.30
Sample ID : AVW_BH_03

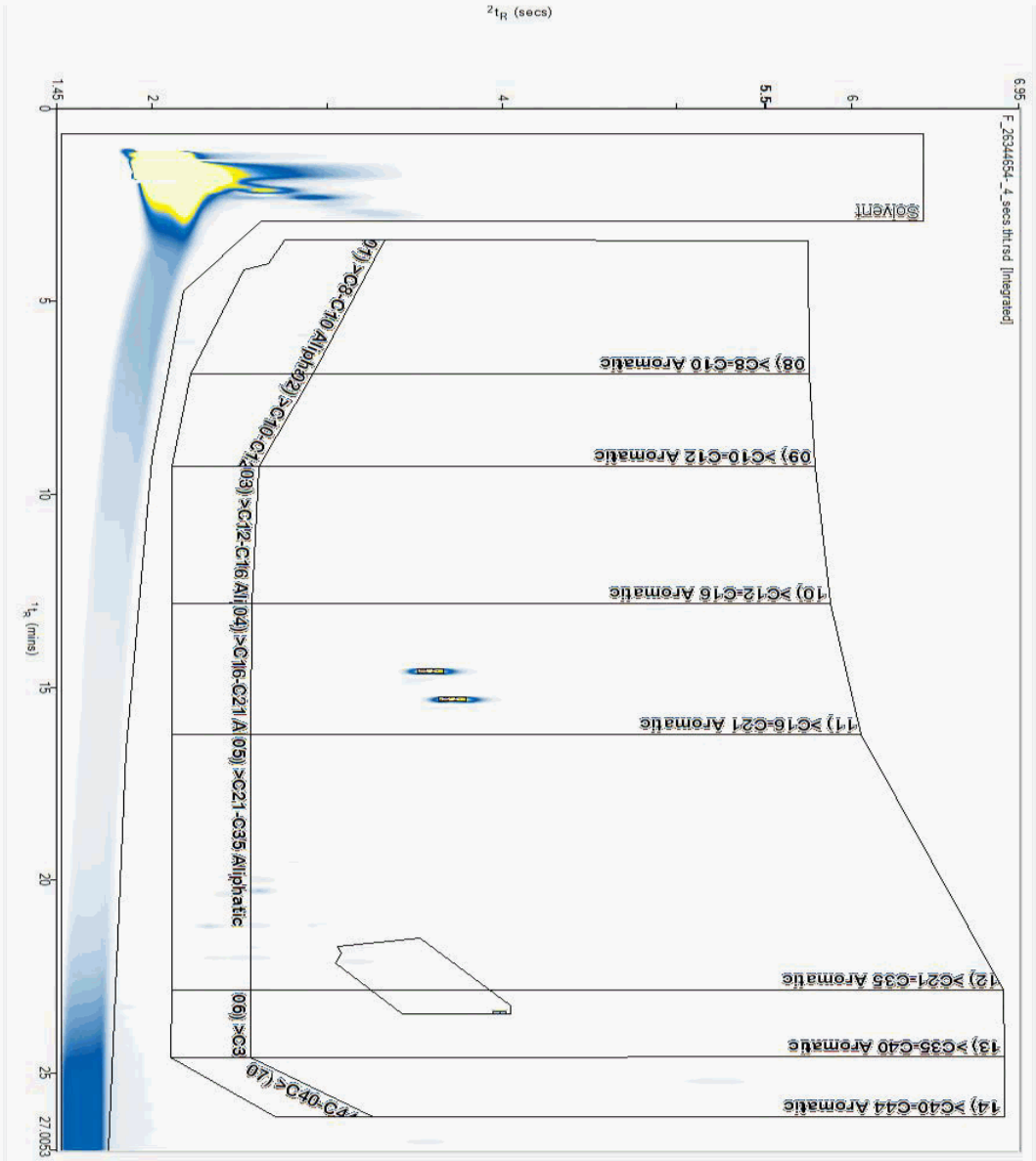


CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26344654 **Depth :** 0.30
Sample ID : TP002

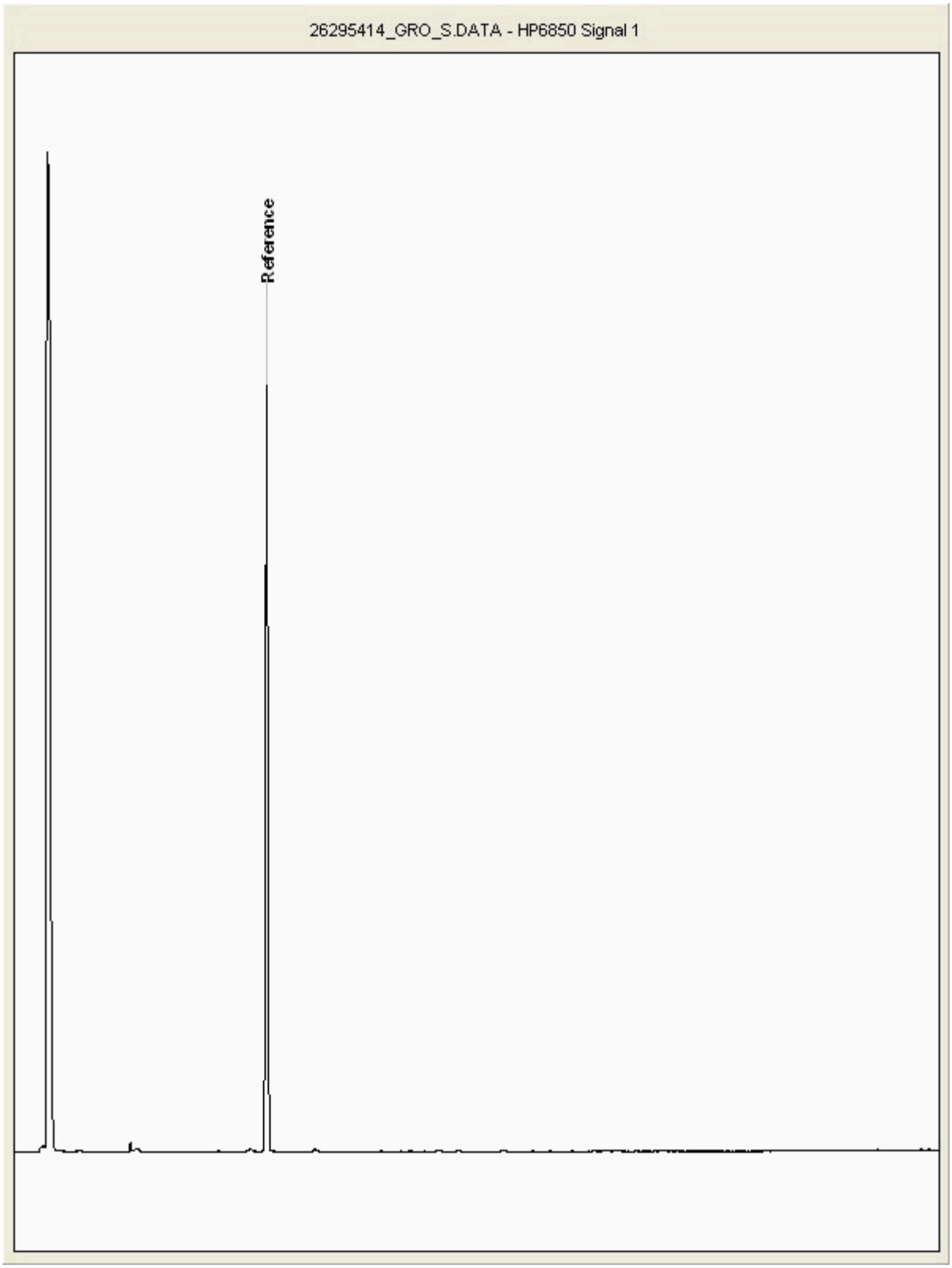


CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26295414 **Depth :** 0.30
Sample ID : TP003

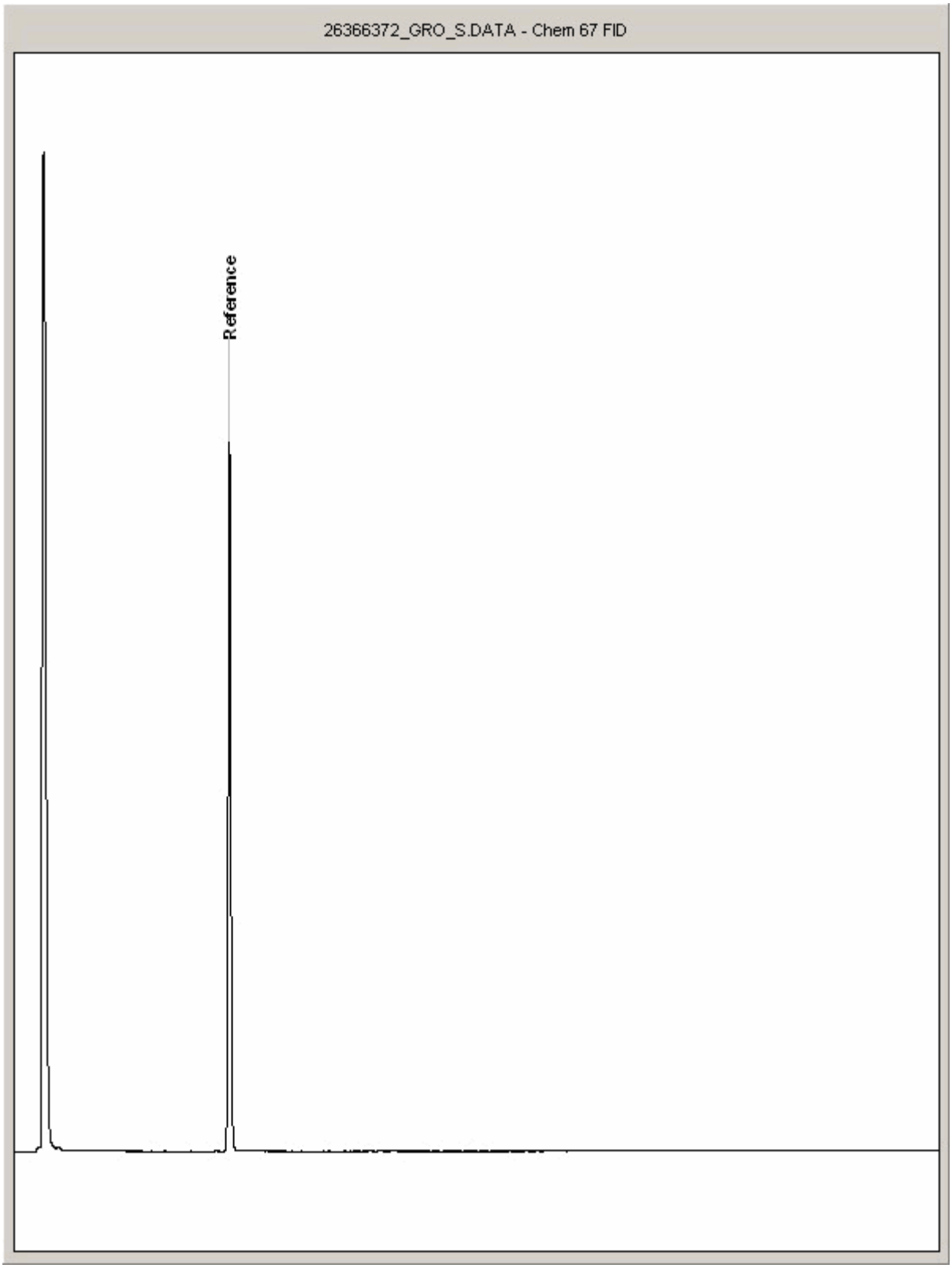


CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26366372 **Depth :** 0.30
Sample ID : AVCI_BH_06

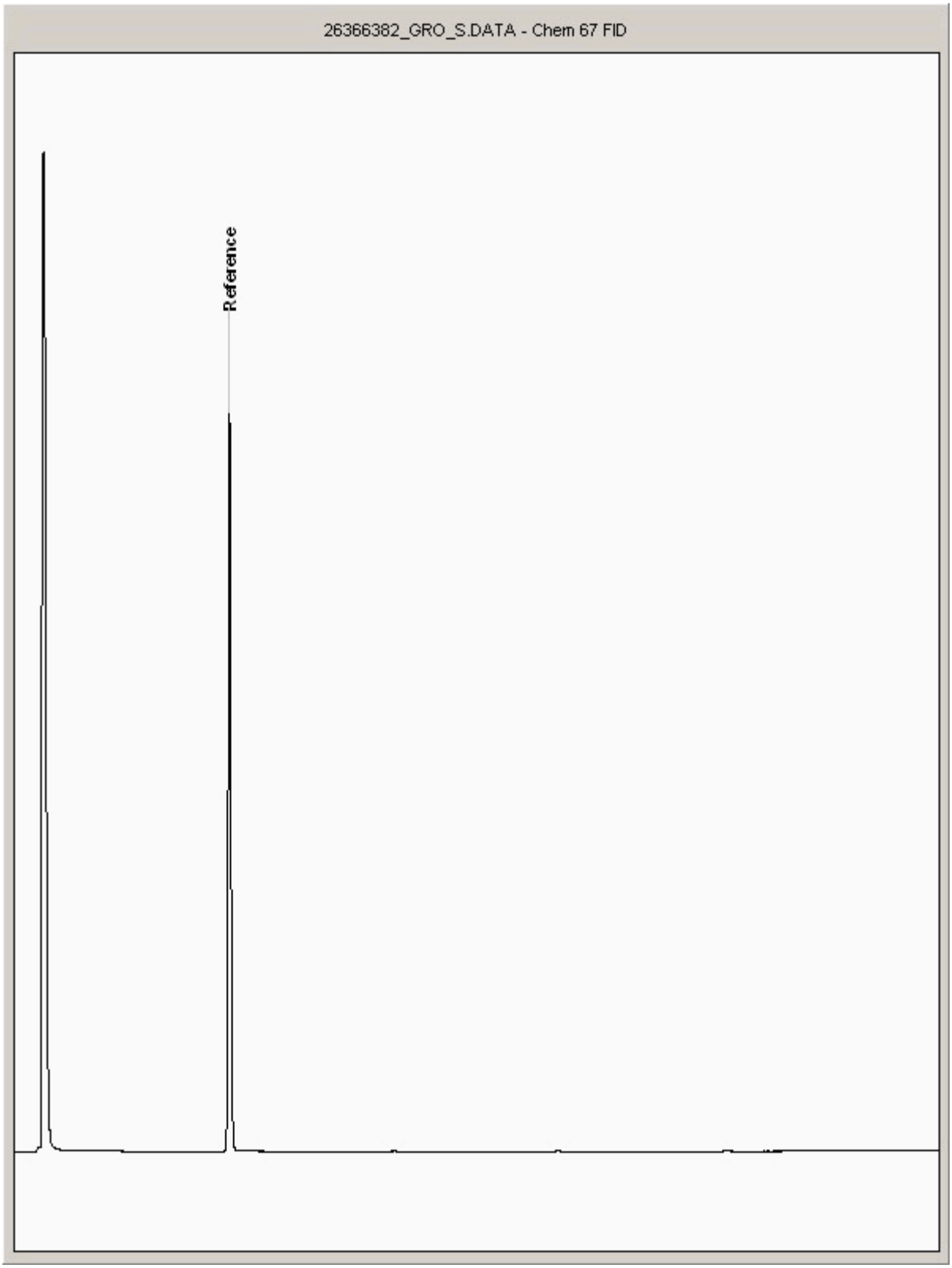


CERTIFICATE OF ANALYSIS

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Client Ref.: JER9352 **Location:** Chippenham

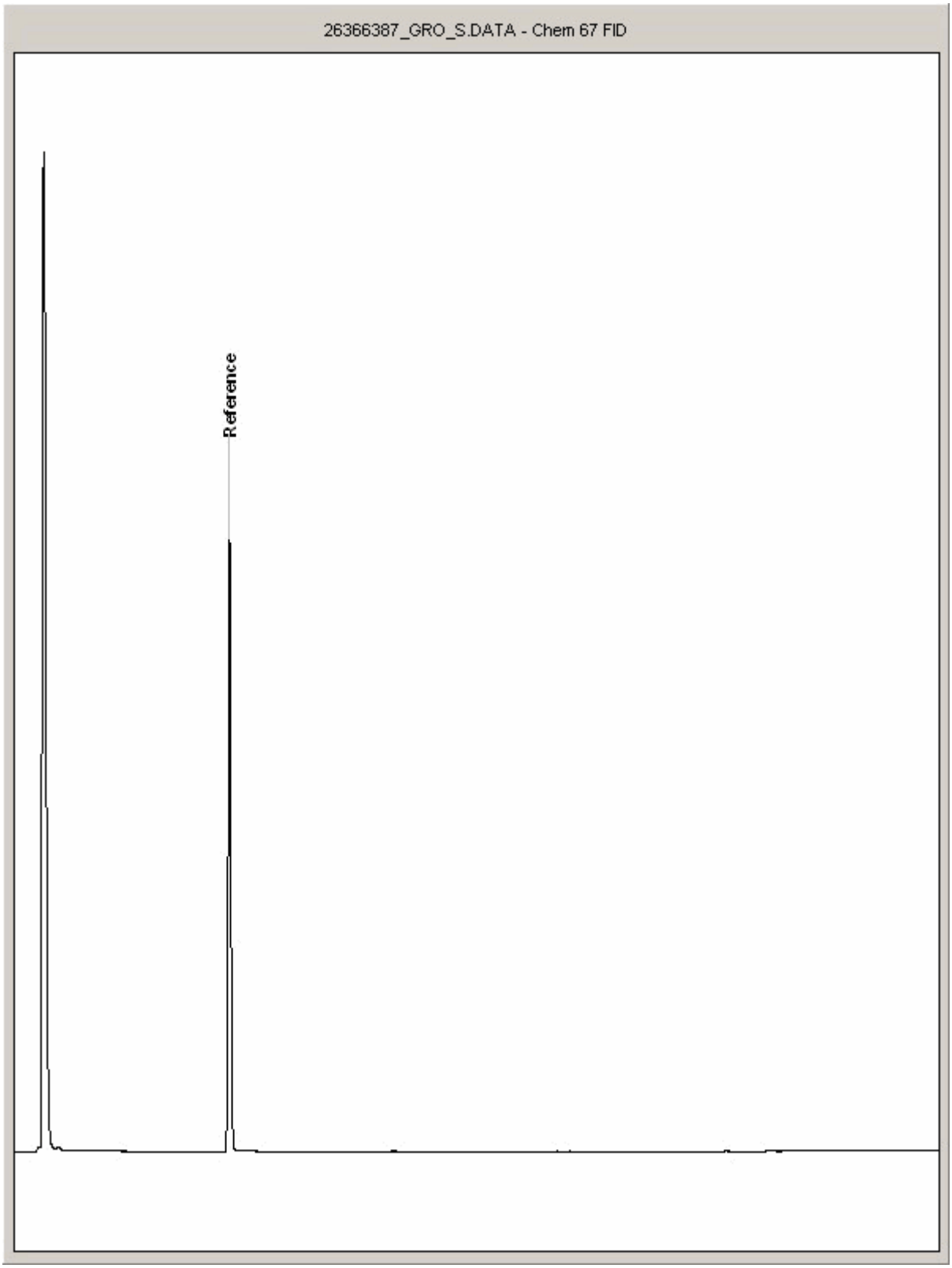
Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26366382 **Depth :** 0.30
Sample ID : TP002



Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26366387 **Depth :** 0.25
Sample ID : WS018E

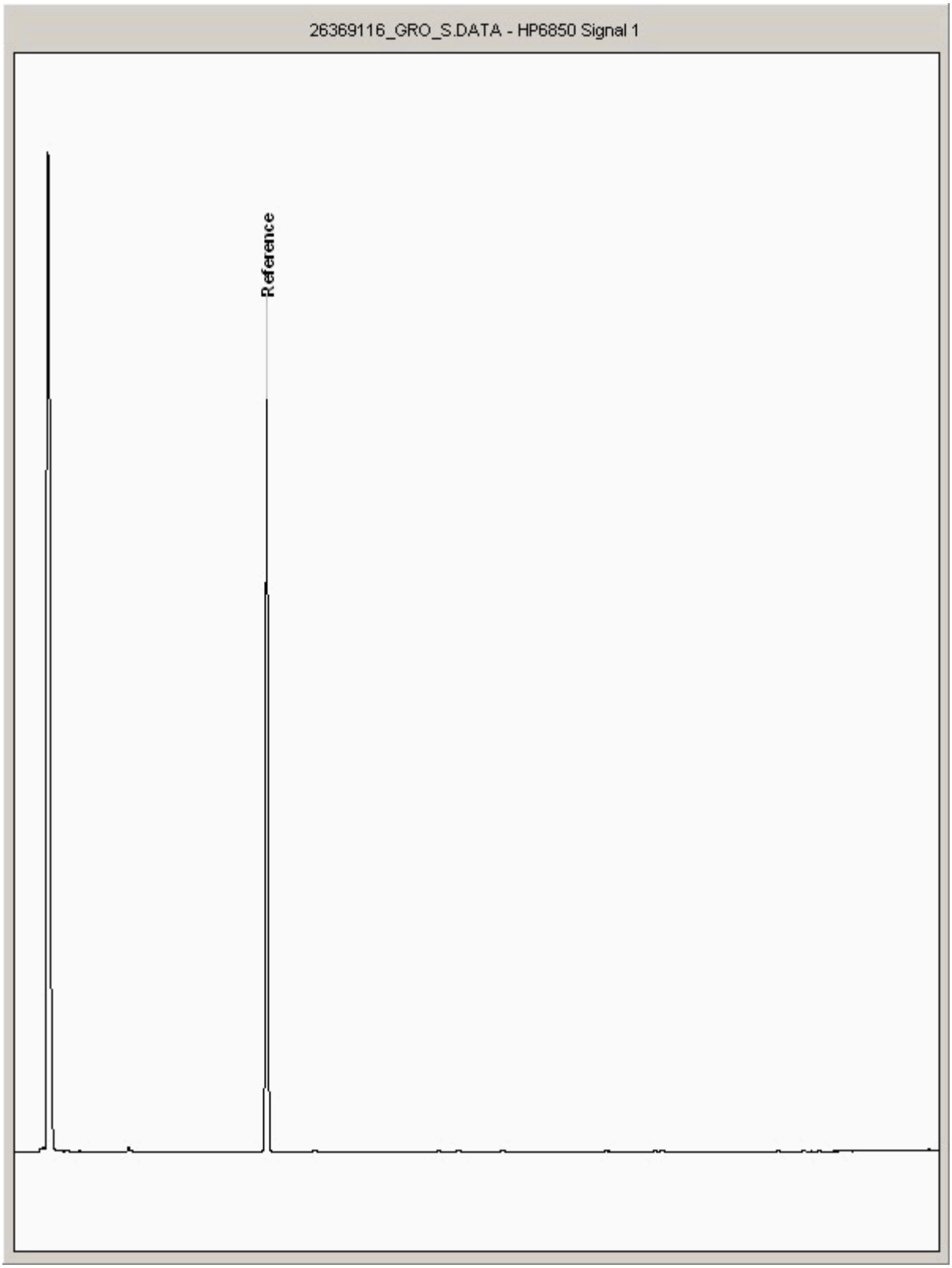


CERTIFICATE OF ANALYSIS

SDG: 220506-130 **Report Number:** 649530 **Superseded Report:** 648901
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26369116 **Depth :** 0.30
Sample ID : AVW_BH_03



ALS Environmental, Land	QF.7.5.1 Data Amendments Form (Issue No. 4)
	Date: 03/03/2020
	Issued and Authorised by Quality Manager

SDG	Sample Event	Sample ID	Date Amended	Amendment Reason	Previous Reference	New Reference	Supersedes Report
220506-130	26237997	AVCI_BM_06	08/06/2022	Sample ID Change	AVCI_BM_06	AVCI_BH_06	648901
220506-130	26237998	AVCI_BM_06	08/06/2022	Sample ID Change	AVCI_BM_06	AVCI_BH_06	648901
220506-130	26237999	AVCI_BM_06	08/06/2022	Sample ID Change	AVCI_BM_06	AVCI_BH_06	648901
220506-130	26238016	AVM_BH_03	08/06/2022	Sample ID Change	AVM_BH_03	AVW_BH_03	648901
220506-130	26238017	AVM_BH_03	08/06/2022	Sample ID Change	AVM_BH_03	AVW_BH_03	648901
220506-130	26238018	AVM_BH_03	08/06/2022	Sample ID Change	AVM_BH_03	AVW_BH_03	648901

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	01 June 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220507-95
Your Reference:	JER9352
Location:	Chippenham
Report No:	649082
Order Number:	PO22-197

This report has been revised and directly supersedes 648006 in its entirety.

We received 4 samples on Saturday May 07, 2022 and 1 of these samples were scheduled for analysis which was completed on Wednesday June 01, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26244072	BH003	ES	0.30	06/05/2022
26244073	BH003	ES	0.80	06/05/2022
26244074	BH003	ES	1.20	06/05/2022
26244075	WS018	ES	0.30	06/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26244073		
Customer Sample Reference			BH003		
AGS Reference			ES		
Depth (m)			0.80		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1		X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X	
Coronene	All	NDPs: 0 Tests: 1		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1		X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 1		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
pH	All	NDPs: 0 Tests: 1		X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26244073		
Customer Sample Reference			BH003		
AGS Reference			ES		
Depth (m)			0.80		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Sample description	All	NDPs: 0 Tests: 1		X	
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphate	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26244073	BH003	0.80	Light Brown	Sandy Clay	None	Stones

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	BH003
Customer Sample Ref.			BH003
Depth (m)			0.80
Sample Type			Soil/Solid (S)
Date Sampled			06/05/2022
Sampled Time			.
Date Received			07/05/2022
SDG Ref			220507-95
Lab Sample No.(s)			26244073
AGS Reference			ES
Moisture Content Ratio (% of as received sample)	%	PM024	15
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M
Soil Organic Matter (SOM)	<0.35 %	TM132	0.455 #
pH	1 pH Units	TM133	7.6 @ M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #
Cyanide, Total	<1 mg/kg	TM153	<1 @ M
Cyanide, Free	<1 mg/kg	TM153	<1 @ M
Cyanide, Complex	<1 mg/kg	TM153	<1
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 @ M
Aluminium	<11 mg/kg	TM181	13800
Antimony	<0.6 mg/kg	TM181	<0.6 #
Arsenic	<0.6 mg/kg	TM181	22.1 M
Barium	<0.6 mg/kg	TM181	55.2 #
Beryllium	<0.01 mg/kg	TM181	1.08 M
Boron	<0.7 mg/kg	TM181	14.5 #
Cadmium	<0.02 mg/kg	TM181	0.678 M
Chromium	<0.9 mg/kg	TM181	14.5 M
Copper	<1.4 mg/kg	TM181	11.9 M
Iron	<1000 mg/kg	TM181	34400 #
Lead	<0.7 mg/kg	TM181	14.4 M
Manganese	<0.13 mg/kg	TM181	632 M
Mercury	<0.1 mg/kg	TM181	<0.1 M
Molybdenum	<0.1 mg/kg	TM181	0.946 #
Nickel	<0.2 mg/kg	TM181	33.1 M
Selenium	<1 mg/kg	TM181	<1 #
Vanadium	<0.2 mg/kg	TM181	65.5 #
Zinc	<1.9 mg/kg	TM181	46.2 M
Sulphate, Total	<48 mg/kg	TM221	212 M
Conductivity @ 20 deg.C	<0.014 mS/cm	TM234	2
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0357 M
Ammoniacal N as NH4 in 2:1 extract	<0.5 mg/kg	TM248	2.86
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH003
Depth (m)	0.80
Sample Type	Soil/Solid (S)
Date Sampled	06/05/2022
Sampled Time	.
Date Received	07/05/2022
SDG Ref	220507-95
Lab Sample No.(s)	26244073
AGS Reference	ES

Component	LOD/Units	Method	
Coronene	<200 µg/kg	TM410	<200

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH003
Depth (m)	0.80
Sample Type	Soil/Solid (S)
Date Sampled	06/05/2022
Sampled Time	.
Date Received	07/05/2022
SDG Ref	220507-95
Lab Sample No.(s)	26244073
AGS Reference	ES

Component	LOD/Units	Method	
Naphthalene-d8 % recovery**	%	TM218	93.3
Acenaphthene-d10 % recovery**	%	TM218	96.5
Phenanthrene-d10 % recovery**	%	TM218	97
Chrysene-d12 % recovery**	%	TM218	92.2
Perylene-d12 % recovery**	%	TM218	95.5
Naphthalene	<9 µg/kg	TM218	<9 @ M
Acenaphthylene	<12 µg/kg	TM218	<12 @ M
Acenaphthene	<8 µg/kg	TM218	<8 @ M
Fluorene	<10 µg/kg	TM218	<10 @ M
Phenanthrene	<15 µg/kg	TM218	<15 @ M
Anthracene	<16 µg/kg	TM218	<16 @ M
Fluoranthene	<17 µg/kg	TM218	<17 @ M
Pyrene	<15 µg/kg	TM218	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218	<14 @ M
Chrysene	<10 µg/kg	TM218	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. BH003
			Depth (m) 0.80
			Sample Type Soil/Solid (S)
			Date Sampled 06/05/2022
			Sampled Time .
			Date Received 07/05/2022
			SDG Ref 220507-95
			Lab Sample No.(s) 26244073
			AGS Reference ES
GRO Surrogate % recovery**	%	TM089	130 @
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH003
Depth (m)	0.80
Sample Type	Soil/Solid (S)
Date Sampled	06/05/2022
Sampled Time	.
Date Received	07/05/2022
SDG Ref	220507-95
Lab Sample No.(s)	26244073
AGS Reference	ES

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	124 @
Toluene-d8**	%	TM116	101 @
4-Bromofluorobenzene**	%	TM116	97.5 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	BH003ES 0.80	30/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	SOLID										
Sample Type	06/05/2022 00:00:00										
Date Sampled	07/05/2022 05:00:00										
Date Receieved	220507-95										
SDG	26244073										
Original Sample	TM048										
Method Number											

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26244073
Customer Sample Ref.	BH003
AGS Ref.	ES
Depth	0.80
Type	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	25-May-2022
Anions by Kone (soil)	30-May-2022
Asbestos ID in Solid Samples	30-May-2022
Conductivity (at 20 deg.C)	30-May-2022
Coronene	30-May-2022
Cyanide Comp/Free/Total/Thiocyanate	31-May-2022
Easily Liberated Sulphide	30-May-2022
EPH CWG GC (S)	27-May-2022
GRO by GC-FID (S)	27-May-2022
Hexavalent Chromium (s)	01-Jun-2022
Metals in solid samples by OES	30-May-2022
PAH 16 & 17 Calc	27-May-2022
PAH by GCMS	30-May-2022
pH	26-May-2022
Phenols by HPLC (S)	27-May-2022
Sample description	24-May-2022
Total Organic Carbon	31-May-2022
Total Sulphate	30-May-2022
TPH CWG GC (S)	27-May-2022
VOC MS (S)	30-May-2022

ASSOCIATED AQC DATA

Coronene

Component	Method Code	QC 2630
Coronene RAW	TM410	**115.5** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2610
Free Cyanide	TM153	**95.45** 71.70 : 110.70
Thiocyanate	TM153	**106.41** 87.27 : 113.27
Total Cyanide	TM153	**102.8** 72.73 : 109.93

Easily Liberated Sulphide

Component	Method Code	QC 2690
Easily Liberated Sulphide	TM180	**104.84** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2631
QC	TM089	**70.77** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2611
Hexavalent Chromium	TM151	**102.0** 83.40 : 113.40

Metals in solid samples by OES

Component	Method Code	QC 2615
Aluminium	TM181	**102.63** 84.95 : 125.04
Antimony	TM181	**114.96** 91.44 : 127.13
Arsenic	TM181	**110.47** 95.27 : 120.80

Metals in solid samples by OES

		QC 2615
Barium	TM181	**108.72** 94.57 : 124.93
Beryllium	TM181	**108.75** 85.72 : 122.69
Boron	TM181	**106.75** 91.59 : 122.22
Cadmium	TM181	**106.27** 87.31 : 121.62
Chromium	TM181	**99.02** 85.06 : 113.81
Cobalt	TM181	**100.0** 90.60 : 110.35
Copper	TM181	**97.12** 81.22 : 113.40
Iron	TM181	**109.17** 86.44 : 122.27
Lead	TM181	**102.97** 86.83 : 123.12
Manganese	TM181	**110.67** 89.22 : 121.75
Mercury	TM181	**107.17** 84.95 : 119.42
Molybdenum	TM181	**105.05** 85.98 : 123.80
Nickel	TM181	**104.45** 88.05 : 119.19
Phosphorus	TM181	**110.94** 90.13 : 121.54
Selenium	TM181	**112.09** 90.68 : 124.14
Strontium	TM181	**94.63** 80.65 : 106.55
Thallium	TM181	**104.03** 76.88 : 121.51
Tin	TM181	**105.34** 86.96 : 122.18
Titanium	TM181	**99.09** 77.07 : 118.83
Vanadium	TM181	**101.44** 84.00 : 115.50
Zinc	TM181	**103.84** 85.62 : 122.35

PAH by GCMS

Component	Method Code	QC 2662
Acenaphthene	TM218	**87.5** 76.79 : 103.90
Acenaphthylene	TM218	**85.0** 74.19 : 106.17
Anthracene	TM218	**87.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**81.0** 73.77 : 119.26

PAH by GCMS

		QC 2662
Benzo(a)pyrene	TM218	**80.0** 73.20 : 114.18
Benzo(b)fluoranthene	TM218	**80.0** 75.36 : 117.58
Benzo(ghi)perylene	TM218	**83.0** 70.73 : 116.12
Benzo(k)fluoranthene	TM218	**81.5** 75.98 : 116.59
Chrysene	TM218	**80.5** 74.82 : 114.18
Dibenzo(ah)anthracene	TM218	**81.0** 69.17 : 115.30
Fluoranthene	TM218	**82.0** 66.06 : 114.63
Fluorene	TM218	**88.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**81.0** 70.26 : 117.95
Naphthalene	TM218	**85.0** 74.70 : 101.83
Phenanthrene	TM218	**86.0** 73.62 : 109.34
Pyrene	TM218	**81.5** 71.46 : 117.00

pH

Component	Method Code	QC 2621
pH	TM133	**99.27** 96.92 : 102.20

Phenols by HPLC (S)

Component	Method Code	QC 2616
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**53.25** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**49.71** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**52.19** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**54.3** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**53.85** 82.04 : 108.38

Total Organic Carbon

Total Organic Carbon

Component	Method Code	QC 2658
Total Organic Carbon	TM132	**105.08** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2638
Total Sulphate	TM221	**107.58** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2668
1,1,1,2-tetrachloroethane	TM116	**92.8** 88.29 : 116.31
1,1,1-Trichloroethane	TM116	**100.0** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**86.0** 81.29 : 113.79
1,1-Dichloroethane	TM116	**105.2** 91.34 : 123.49
1,2-Dichloroethane	TM116	**104.6** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**91.2** 80.81 : 125.07
2-Chlorotoluene	TM116	**78.0** 73.13 : 114.13
4-Chlorotoluene	TM116	**77.6** 68.66 : 109.13
Benzene	TM116	**99.8** 84.29 : 112.22
Carbon Disulphide	TM116	**97.6** 75.11 : 124.81
Carbontetrachloride	TM116	**94.0** 82.35 : 126.46
Chlorobenzene	TM116	**94.8** 82.88 : 122.42
Chloroform	TM116	**105.4** 90.35 : 120.38
Chloromethane	TM116	**96.2** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**97.0** 78.27 : 128.90
Dibromomethane	TM116	**88.2** 76.00 : 120.73
Dichloromethane	TM116	**112.2** 97.64 : 133.75

VOC MS (S)

		QC 2668
Ethylbenzene	TM116	**81.8** 70.95 : 113.07
Hexachlorobutadiene	TM116	**48.6** 14.55 : 147.92
Isopropylbenzene	TM116	**61.8** 43.42 : 101.34
Naphthalene	TM116	**94.8** 80.90 : 124.24
o-Xylene	TM116	**75.0** 68.34 : 101.99
p/m-Xylene	TM116	**77.5** 69.47 : 97.31
Sec-Butylbenzene	TM116	**56.0** 27.03 : 135.73
Tetrachloroethene	TM116	**92.8** 80.10 : 120.38
Toluene	TM116	**88.8** 80.66 : 100.10
Trichloroethene	TM116	**90.0** 79.80 : 112.33
Trichlorofluoromethane	TM116	**105.4** 83.13 : 123.97
Vinyl Chloride	TM116	**100.8** 69.66 : 136.55

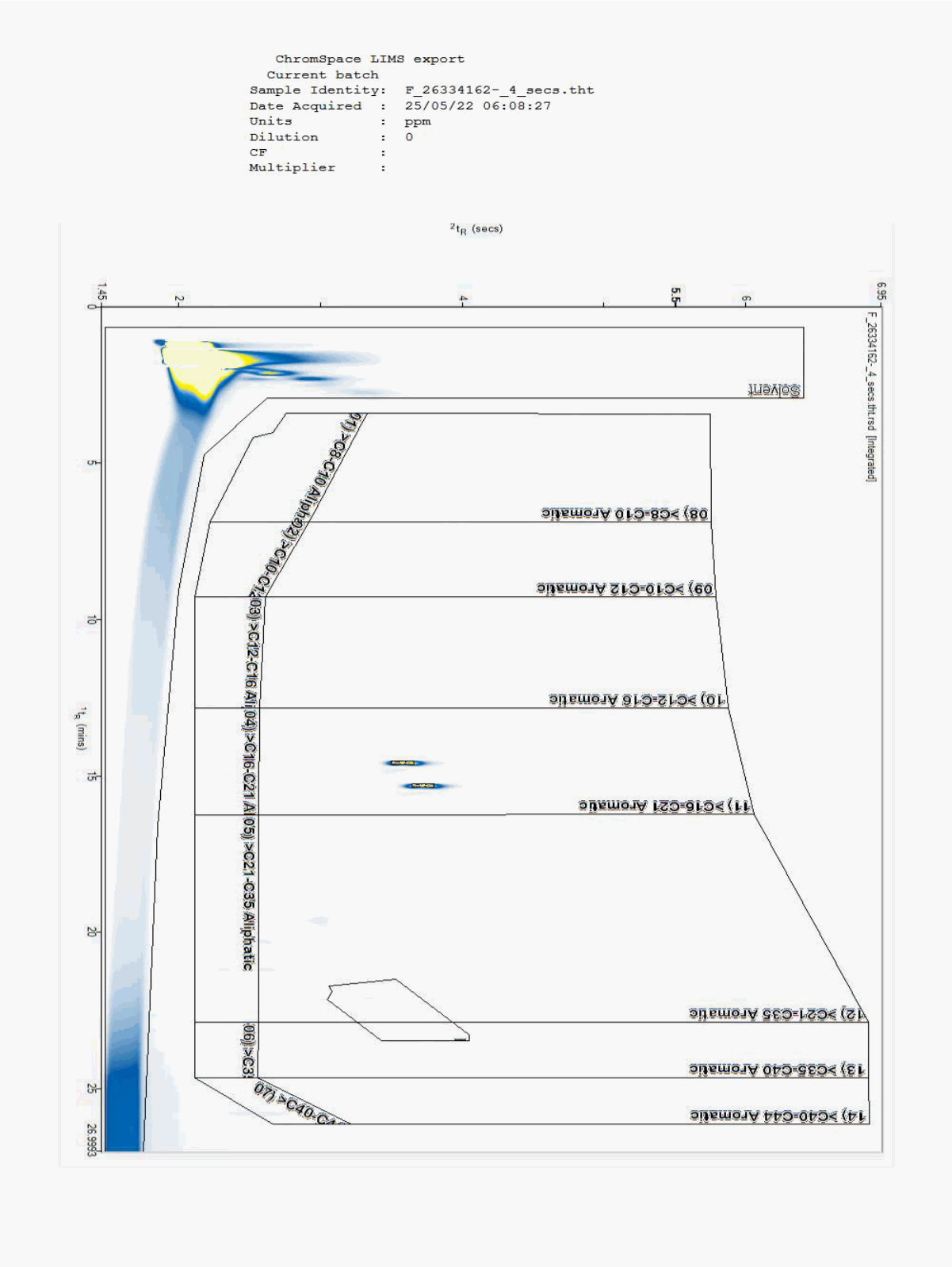
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26334162 **Depth :** 0.80
Sample ID : BH003

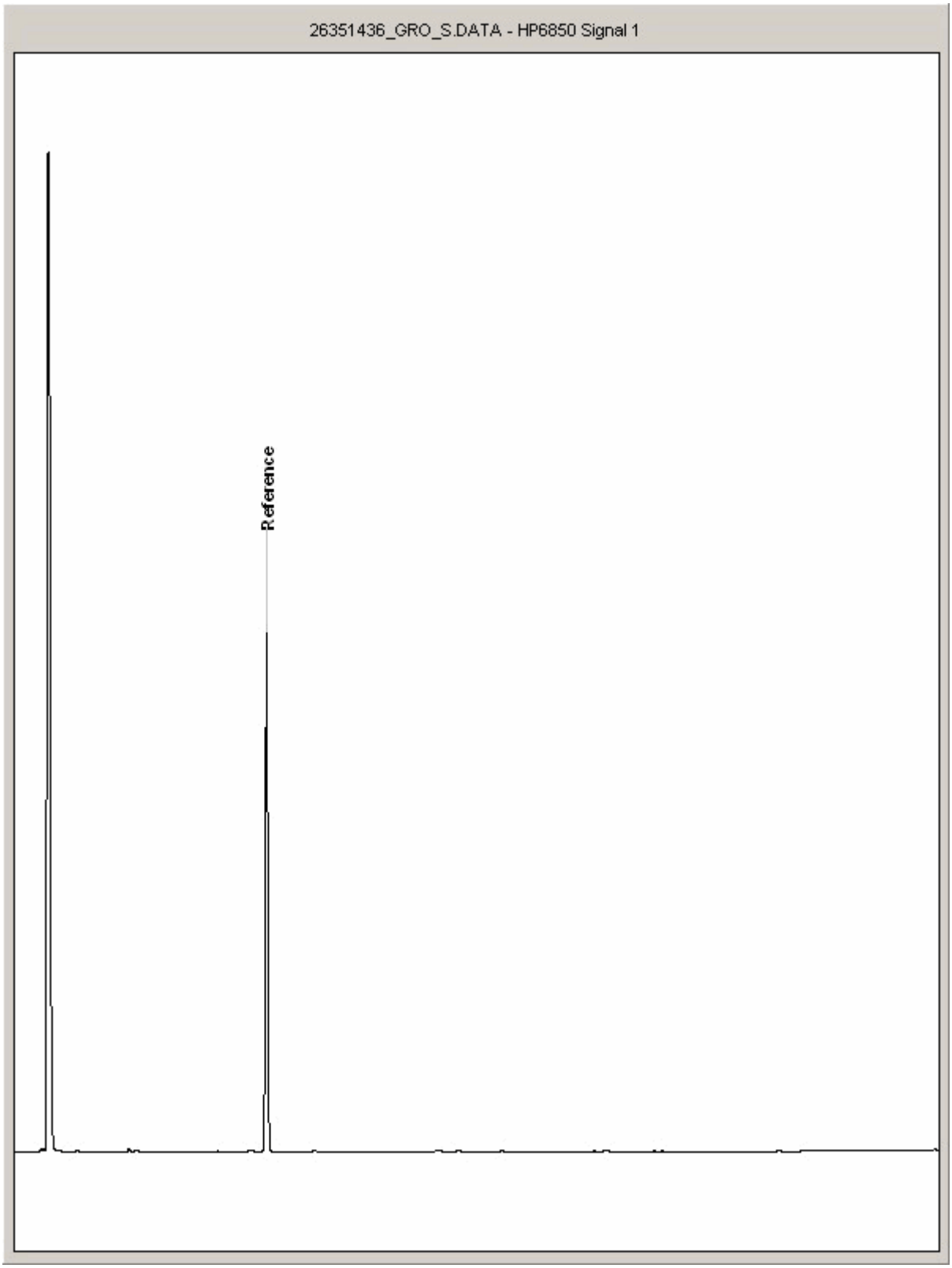


CERTIFICATE OF ANALYSIS

SDG: 220507-95 **Report Number:** 649082 **Superseded Report:** 648006
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26351436 **Depth :** 0.80
Sample ID : BH003



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	31 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220507-97
Your Reference:	JER9352
Location:	Chippenham
Report No:	648680
Order Number:	PO22-197

We received 6 samples on Saturday May 07, 2022 and 1 of these samples were scheduled for analysis which was completed on Monday May 30, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26244136	AVC1_BH_01		0.30	05/05/2022
26244137	AVC1_BH_01		0.80	05/05/2022
26244138	AVC1_BH_01		1.20	05/05/2022
26244139	AVC1_BH_03		0.30	05/05/2022
26244140	AVC1_BH_03		0.80	05/05/2022
26244142	AVC1_BH_03		1.20	05/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26244137			
Customer Sample Reference			AVC1_BH_01			
AGS Reference						
Depth (m)			0.80			
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	
Sample Type			S	S	S	
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 1		X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1	X			
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X			
CEN Readings	All	NDPs: 0 Tests: 1	X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X		
Coronene	All	NDPs: 0 Tests: 1		X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2	X	X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X			
Easily Liberated Sulphide	All	NDPs: 0 Tests: 1		X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X		
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1	X			

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26244137		
Customer Sample Reference			AVC1_BH_01		
AGS Reference					
Depth (m)			0.80		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 1	X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1	X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1	X		
pH	All	NDPs: 0 Tests: 1		X	
pH Value	All	NDPs: 0 Tests: 1	X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	
Sample description	All	NDPs: 0 Tests: 1		X	
Sulphide	All	NDPs: 0 Tests: 1	X		
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphate	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26244137	AVC1_BH_01	0.80	Light Brown	Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. AVC1_BH_01					
			Depth (m)	0.80				
			Sample Type	Soil/Solid (S)				
			Date Sampled	05/05/2022				
			Sampled Time	.				
			Date Received	07/05/2022				
			SDG Ref	220507-97				
			Lab Sample No.(s)	26244137				
			AGS Reference					
Moisture Content Ratio (% of as received sample)	%	PM024	14					
Phenol	mg/kg	TM062 (S)	<0.01 @ M					
Soil Organic Matter (SOM)	%	TM132	<0.35 #					
pH	pH Units	TM133	8.57 @ M					
Chromium, Hexavalent	mg/kg	TM151	<0.6 #					
Cyanide, Total	mg/kg	TM153	<1 @ M					
Cyanide, Free	mg/kg	TM153	<1 @ M					
Cyanide, Complex	mg/kg	TM153	<1					
Sulphide, Easily liberated	mg/kg	TM180	<15 @ M					
Aluminium	mg/kg	TM181	5190					
Antimony	mg/kg	TM181	<0.6 #					
Arsenic	mg/kg	TM181	26.1 M					
Barium	mg/kg	TM181	17.4 #					
Beryllium	mg/kg	TM181	0.76 M					
Boron	mg/kg	TM181	13.7 #					
Cadmium	mg/kg	TM181	0.61 M					
Chromium	mg/kg	TM181	<0.9 M					
Copper	mg/kg	TM181	5.12 M					
Iron	mg/kg	TM181	43600 #					
Lead	mg/kg	TM181	7.8 M					
Manganese	mg/kg	TM181	345 M					
Mercury	mg/kg	TM181	<0.1 M					
Molybdenum	mg/kg	TM181	0.738 #					
Nickel	mg/kg	TM181	19.3 M					
Selenium	mg/kg	TM181	<1 #					
Vanadium	mg/kg	TM181	78.5 #					
Zinc	mg/kg	TM181	40.1 M					
Sulphate, Total	mg/kg	TM221	435 M					
Conductivity @ 20 deg.C	mS/cm	TM234	1.94					
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243	0.0118 M					
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248	4.13					
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410	<318					

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend		Customer Sample Ref.	AVC1_BH_01
#	ISO17025 accredited.		
M	mCERTS accredited.		
aq	Aqueous / settled sample.	Depth (m)	0.80
diss.filt	Dissolved / filtered sample.	Sample Type	Soil/Solid (S)
tot.unfilt	Total / unfiltered sample.	Date Sampled	05/05/2022
*	Subcontracted - refer to subcontractor report for accreditation status.	Sampled Time	.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Date Received	07/05/2022
		SDG Ref	220507-97
		Lab Sample No.(s)	26244137
(F)	Trigger breach confirmed	AGS Reference	
1-4+5@	Sample deviation (see appendix)		

Component	LOD/Units	Method	
Coronene	<200 µg/kg	TM410	<200

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.			AVC1_BH_01					
Depth (m)			0.80					
Sample Type			Soil/Solid (S)					
Date Sampled			05/05/2022					
Sampled Time			.					
Date Received			07/05/2022					
SDG Ref			220507-97					
Lab Sample No.(s)			26244137					
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	97.1					
Acenaphthene-d10 % recovery**	%	TM218	101					
Phenanthrene-d10 % recovery**	%	TM218	103					
Chrysene-d12 % recovery**	%	TM218	103					
Perylene-d12 % recovery**	%	TM218	88.7					
Naphthalene	<9 µg/kg	TM218	<9 @ M					
Acenaphthylene	<12 µg/kg	TM218	<12 @ M					
Acenaphthene	<8 µg/kg	TM218	<8 @ M					
Fluorene	<10 µg/kg	TM218	<10 @ M					
Phenanthrene	<15 µg/kg	TM218	<15 @ M					
Anthracene	<16 µg/kg	TM218	<16 @ M					
Fluoranthene	<17 µg/kg	TM218	<17 @ M					
Pyrene	<15 µg/kg	TM218	<15 @ M					
Benz(a)anthracene	<14 µg/kg	TM218	<14 @ M					
Chrysene	<10 µg/kg	TM218	<10 @ M					
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @ M					
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @ M					
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @ M					
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @ M					
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M					
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @ M					
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118					

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. AVC1_BH_01				
			Depth (m) 0.80				
			Sample Type Soil/Solid (S)				
			Date Sampled 05/05/2022				
			Sampled Time .				
			Date Received 07/05/2022				
			SDG Ref 220507-97				
			Lab Sample No.(s) 26244137				
			AGS Reference				
GRO Surrogate % recovery**	%	TM089	107 @				
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089	<10 @				
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414	<1000 @				
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000 @				
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414	<10000				
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089	<10 @				
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @ #				
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414	<1000 @				
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414	<5000				
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414	<10000				
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089	<50 @				
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089	<50 @				
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089	<20 @				

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	AVC1_BH_01
Depth (m)	0.80
Sample Type	Soil/Solid (S)
Date Sampled	05/05/2022
Sampled Time	.
Date Received	07/05/2022
SDG Ref	220507-97
Lab Sample No.(s)	26244137
AGS Reference	

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	108 @
Toluene-d8**	%	TM116	98.5 @
4-Bromofluorobenzene**	%	TM116	91.7 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	AVC1_BH_01	27/05/2022	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	0.80										
Sample Type	SOLID										
Date Sampled	05/05/2022 00:00:00										
Date Receieved	07/05/2022 05:00:00										
SDG	220507-97										
Original Sample	26244137										
Method Number	TM048										

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84
Particle Size <4mm	>95%		

Case	
SDG	220507-97
Lab Sample Number(s)	26244137
Sampled Date	05-May-2022
Customer Sample Ref.	AVC1_BH_01
Depth (m)	0.80

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.0174	<0.01	0.174	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00249	<0.0002	0.0249	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	<0.01	<0.01	<0.1	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000503	<0.0003	0.00503	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.166	<0.019	1.66	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Phosphorus	<0.01	<0.01	<0.1	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Nitrate as N	1.04	<0.07	10.4	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.16
Conductivity (µS/cm)	100.00
Temperature (°C)	19.60
Volume Leachant (Litres)	0.883

31/05/2022 05:03:12

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84
Particle Size <4mm	>95%		

Case	
SDG	220507-97
Lab Sample Number(s)	26244137
Sampled Date	05-May-2022
Customer Sample Ref.	AVC1_BH_01
Depth (m)	0.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.16
Conductivity (µS/cm)	100.00
Temperature (°C)	19.60
Volume Leachant (Litres)	0.883

31/05/2022 05:03:12

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26244137
Customer Sample Ref.	AVC1_BH_01
AGS Ref.	
Depth	0.80
Type	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	26-May-2022
Ammoniacal Nitrogen	27-May-2022
Anions by Kone (soil)	25-May-2022
Anions by Kone (w)	27-May-2022
Asbestos ID in Solid Samples	27-May-2022
CEN 10:1 Leachate (1 Stage)	24-May-2022
CEN Readings	26-May-2022
Conductivity (at 20 deg.C)	25-May-2022
Coronene	25-May-2022
Cyanide Comp/Free/Total/Thiocyanate	30-May-2022
Dissolved Metals by ICP-MS	27-May-2022
Easily Liberated Sulphide	25-May-2022
EPH CWG GC (S)	25-May-2022
GRO by GC-FID (S)	27-May-2022
Hexavalent Chromium (s)	26-May-2022
Hexavalent Chromium (w)	27-May-2022
Mercury Dissolved	27-May-2022
Metals in solid samples by OES	26-May-2022
Moisture at 105C	23-May-2022
Nitrite by Kone (w)	27-May-2022
PAH 16 & 17 Calc	25-May-2022
PAH by GCMS	25-May-2022
PAH Spec MS - Aqueous (W)	27-May-2022
pH	25-May-2022
pH Value	27-May-2022
Phenols by HPLC (S)	25-May-2022
Sample description	23-May-2022
Sulphide	27-May-2022
Total Organic Carbon	26-May-2022
Total Sulphate	25-May-2022
TPH CWG GC (S)	27-May-2022
VOC MS (S)	30-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2680
Ammoniacal Nitrogen as N	TM099	**99.2** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2688
Chloride	TM184	**109.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**104.8** 96.54 : 111.66
TON as NO3	TM184	**109.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2672
Coronene RAW	TM410	**103.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2637	QC 2644
Free Cyanide	TM153	**84.75** 77.50 : 118.90	
Free Cyanide (W)	TM227		**87.25** 102.00 : 124.00
Thiocyanate	TM153	**97.44** 92.20 : 113.40	
Thiocyanate (W)	TM227		**106.75** 92.25 : 117.75
Total Cyanide	TM153	**88.81** 80.07 : 114.07	
Total Cyanide (W)	TM227		**105.0** 93.75 : 114.75

Dissolved Metals by ICP-MS

Component	Method Code	QC 2650
Aluminium	TM152	**101.0** 90.98 : 111.82
Antimony	TM152	**101.67** 90.44 : 113.04
Arsenic	TM152	**97.83** 94.87 : 109.67
Barium	TM152	**102.33** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2650
Beryllium	TM152	**98.5** 87.77 : 113.97
Bismuth	TM152	**99.5** 91.90 : 112.20
Borate	TM152	**101.23** 88.00 : 112.00
Boron	TM152	**101.0** 92.27 : 112.40
Cadmium	TM152	**99.33** 94.93 : 106.93
Calcium	TM152	**102.0** 95.14 : 110.01
Chromium	TM152	**99.67** 91.84 : 108.67
Cobalt	TM152	**99.33** 90.72 : 109.61
Copper	TM152	**101.0** 94.47 : 109.05
Iron	TM152	**100.0** 94.40 : 107.90
Lead	TM152	**100.83** 93.55 : 109.46
Lithium	TM152	**101.5** 91.62 : 113.12
Magnesium	TM152	**100.67** 92.30 : 110.57
Manganese	TM152	**101.17** 94.75 : 108.21
Molybdenum	TM152	**100.33** 93.55 : 107.66
Nickel	TM152	**99.83** 88.00 : 112.00
Phosphorus	TM152	**96.67** 92.51 : 109.27
Potassium	TM152	**102.0** 92.16 : 109.93
Selenium	TM152	**94.0** 91.58 : 115.98
Silver	TM152	**101.5** 92.75 : 111.05
Sodium	TM152	**101.33** 89.47 : 109.62
Strontium	TM152	**103.67** 95.40 : 109.43
Tellurium	TM152	**96.33** 93.32 : 114.66
Thallium	TM152	**95.33** 88.00 : 112.00
Tin	TM152	**103.17** 92.63 : 109.70
Titanium	TM152	**103.17** 95.08 : 109.28
Tungsten	TM152	**99.83** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2650
Uranium	TM152	**101.0** 88.00 : 112.00
Vanadium	TM152	**101.17** 88.00 : 112.00
Zinc	TM152	**98.33** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2690
Easily Liberated Sulphide	TM180	**104.84** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2631
QC	TM089	**70.77** 65.61 : 111.21

Hexavalent Chromium (s)

Component	Method Code	QC 2620
Hexavalent Chromium	TM151	**106.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2618
Hexavalent Chromium	TM241	**101.8** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2659
Mercury Dissolved (CVAF)	TM183	**93.0** 0.00 : 0.00

Metals in solid samples by OES

Metals in solid samples by OES

Component	Method Code	QC 2680
Aluminium	TM181	**108.77** 84.95 : 125.04
Antimony	TM181	**114.17** 91.44 : 127.13
Arsenic	TM181	**112.84** 95.27 : 120.80
Barium	TM181	**114.87** 94.57 : 124.93
Beryllium	TM181	**110.2** 85.72 : 122.69
Boron	TM181	**109.32** 91.59 : 122.22
Cadmium	TM181	**108.86** 87.31 : 121.62
Chromium	TM181	**99.76** 85.06 : 113.81
Cobalt	TM181	**103.09** 90.60 : 110.35
Copper	TM181	**98.31** 81.22 : 113.40
Iron	TM181	**108.26** 86.44 : 122.27
Lead	TM181	**107.67** 86.83 : 123.12
Manganese	TM181	**112.08** 89.22 : 121.75
Mercury	TM181	**108.47** 84.95 : 119.42
Molybdenum	TM181	**105.72** 85.98 : 123.80
Nickel	TM181	**105.93** 88.05 : 119.19
Phosphorus	TM181	**108.55** 90.13 : 121.54
Selenium	TM181	**112.09** 90.68 : 124.14
Strontium	TM181	**97.76** 80.65 : 106.55
Thallium	TM181	**105.7** 76.88 : 121.51
Tin	TM181	**106.53** 86.96 : 122.18
Titanium	TM181	**98.18** 77.07 : 118.83
Vanadium	TM181	**103.24** 84.00 : 115.50
Zinc	TM181	**106.09** 85.62 : 122.35

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2654
Acenaphthene	TM218	**94.0** 73.47 : 109.80
Acenaphthylene	TM218	**97.5** 70.00 : 130.00
Anthracene	TM218	**98.0** 68.68 : 111.89
Benz(a)anthracene	TM218	**96.5** 68.12 : 118.39
Benzo(a)pyrene	TM218	**86.5** 71.72 : 115.31
Benzo(b)fluoranthene	TM218	**88.0** 66.89 : 120.40
Benzo(ghi)perylene	TM218	**80.5** 67.82 : 118.49
Benzo(k)fluoranthene	TM218	**89.0** 73.10 : 117.03
Chrysene	TM218	**94.0** 69.58 : 115.47
Dibenzo(ah)anthracene	TM218	**83.5** 67.32 : 121.35
Fluoranthene	TM218	**100.5** 64.99 : 117.80
Fluorene	TM218	**98.5** 73.81 : 108.66
Indeno(123cd)pyrene	TM218	**81.5** 68.91 : 117.62
Naphthalene	TM218	**96.0** 80.21 : 109.02
Phenanthrene	TM218	**100.0** 69.01 : 113.72
Pyrene	TM218	**99.5** 64.28 : 115.75

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2610
Acenaphthene by GCMS	TM178	**109.2** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**109.2** 96.80 : 118.40
Anthracene by GCMS	TM178	**106.0** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**105.2** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**101.2** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**105.2** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**97.2** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**102.8** 88.72 : 111.28
Chrysene by GCMS	TM178	**104.8** 88.68 : 116.92

PAH Spec MS - Aqueous (W)

		QC 2610
Dibenzo(ah)anthracene by GCMS	TM178	**99.6** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**104.0** 91.20 : 117.60
Fluorene by GCMS	TM178	**107.2** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**106.0** 88.39 : 119.61
Naphthalene by GCMS	TM178	**106.0** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**106.4** 96.00 : 117.60
Pyrene by GCMS	TM178	**103.2** 91.00 : 120.20

pH

Component	Method Code	QC 2628
pH	TM133	**101.76** 96.92 : 102.20

pH Value

Component	Method Code	QC 2668
pH	TM256	**100.53** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2644
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**52.6** 70.71 : 116.42
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.61** 74.25 : 110.18
Cresols by HPLC (S)	TM062 (S)	**51.15** 74.40 : 108.98
Phenol by HPLC (S)	TM062 (S)	**52.32** 73.05 : 108.98
Xylenols by HPLC (S)	TM062 (S)	**50.1** 76.56 : 106.38

Sulphide

Sulphide

Component	Method Code	QC 2644
Sulphide	TM101	**97.33** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2679
Total Organic Carbon	TM132	**102.73** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2622
Total Sulphate	TM221	**93.18** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2668
1,1,1,2-tetrachloroethane	TM116	**92.8** 88.29 : 116.31
1,1,1-Trichloroethane	TM116	**100.0** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**86.0** 81.29 : 113.79
1,1-Dichloroethane	TM116	**105.2** 91.34 : 123.49
1,2-Dichloroethane	TM116	**104.6** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**91.2** 80.81 : 125.07
2-Chlorotoluene	TM116	**78.0** 73.13 : 114.13
4-Chlorotoluene	TM116	**77.6** 68.66 : 109.13
Benzene	TM116	**99.8** 84.29 : 112.22
Carbon Disulphide	TM116	**97.6** 75.11 : 124.81
Carbontetrachloride	TM116	**94.0** 82.35 : 126.46
Chlorobenzene	TM116	**94.8** 82.88 : 122.42
Chloroform	TM116	**105.4** 90.35 : 120.38

VOC MS (S)

		QC 2668
Chloromethane	TM116	**96.2** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**97.0** 78.27 : 128.90
Dibromomethane	TM116	**88.2** 76.00 : 120.73
Dichloromethane	TM116	**112.2** 97.64 : 133.75
Ethylbenzene	TM116	**81.8** 70.95 : 113.07
Hexachlorobutadiene	TM116	**48.6** 14.55 : 147.92
Isopropylbenzene	TM116	**61.8** 43.42 : 101.34
Naphthalene	TM116	**94.8** 80.90 : 124.24
o-Xylene	TM116	**75.0** 68.34 : 101.99
p/m-Xylene	TM116	**77.5** 69.47 : 97.31
Sec-Butylbenzene	TM116	**56.0** 27.03 : 135.73
Tetrachloroethene	TM116	**92.8** 80.10 : 120.38
Toluene	TM116	**88.8** 80.66 : 100.10
Trichloroethene	TM116	**90.0** 79.80 : 112.33
Trichlorofluoromethane	TM116	**105.4** 83.13 : 123.97
Vinyl Chloride	TM116	**100.8** 69.66 : 136.55

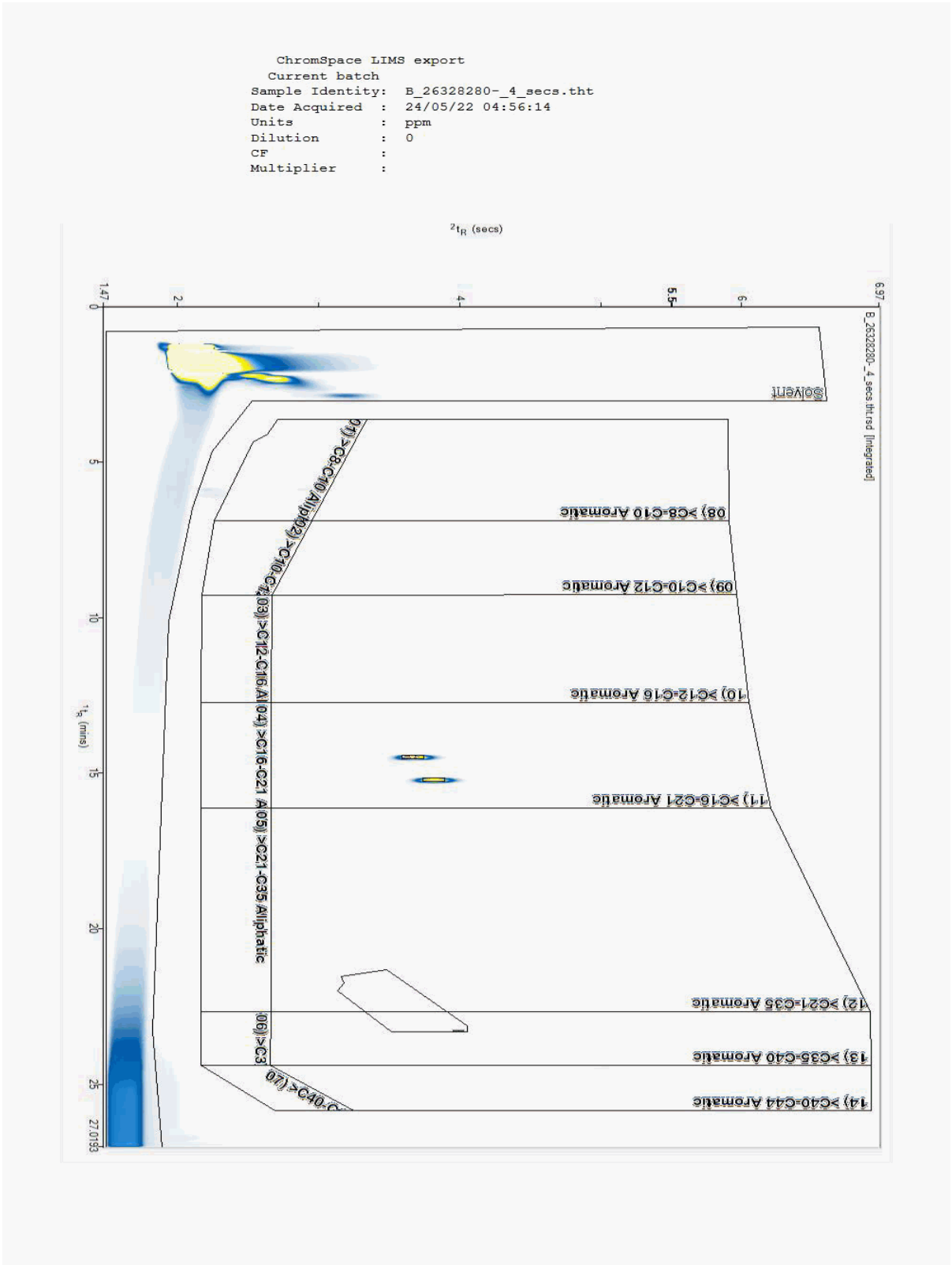
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26328280 **Depth :** 0.80
Sample ID : AVC1_BH_01

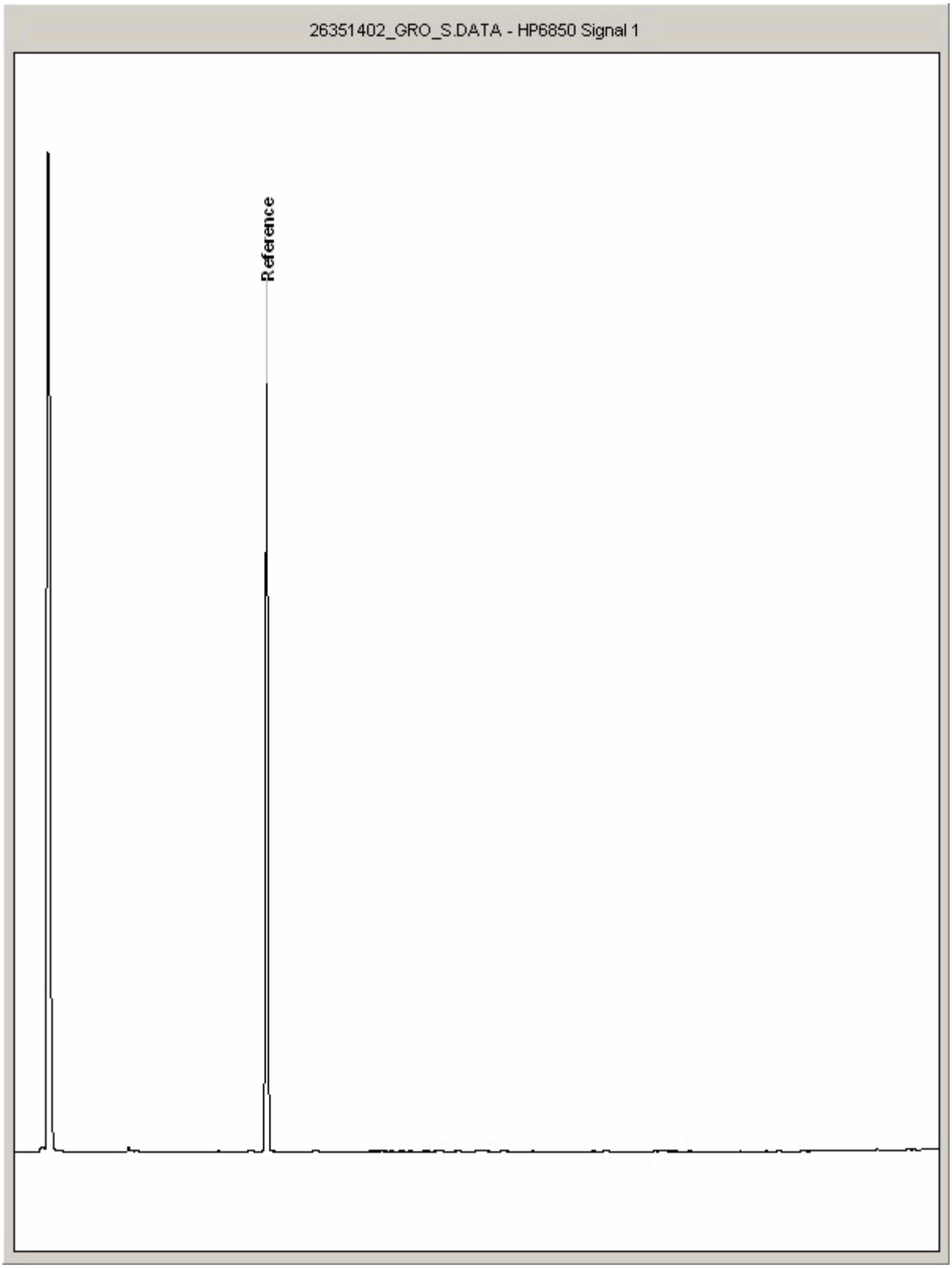


CERTIFICATE OF ANALYSIS

SDG: 220507-97 **Report Number:** 648680 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26351402 **Depth :** 0.80
Sample ID : AVC1_BH_01



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	31 May 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220514-82
Your Reference:	JER9352
Location:	Chippenham
Report No:	648711
Order Number:	PO22-197

We received 30 samples on Friday May 13, 2022 and 9 of these samples were scheduled for analysis which was completed on Tuesday May 31, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26282148	AVW_BH_05		0.30	09/05/2022
26282149	AVW_BH_05		0.80	09/05/2022
26282150	AVW_BH_05		1.20	09/05/2022
26282134	AVW_BH_06		0.30	11/05/2022
26282133	AVW_BH_06		0.80	11/05/2022
26282132	AVW_BH_06		1.20	10/05/2022
26282123	AVW_BH_08		0.30	10/05/2022
26282122	AVW_BH_08		0.80	10/05/2022
26282121	AVW_BH_08		1.20	10/05/2022
26282141	AWCI_BH_04		0.30	09/05/2022
26282140	AWCI_BH_04		0.80	09/05/2022
26282139	AWCI_BH_04		1.20	09/05/2022
26282128	BH001		0.30	11/05/2022
26282131	BH002		0.30	10/05/2022
26282130	BH002		0.80	10/05/2022
26282129	BH002		1.20	10/05/2022
26282145	HP_TP08		0.30	11/05/2022
26282144	HP_TP08		0.80	11/05/2022
26282143	HP_TP08		1.20	11/05/2022
26282142	HP_TP08		3.40	11/05/2022
26282146	TP001		0.30	10/05/2022
26282147	TP001		1.20	10/05/2022
26282127	TP012		0.30	11/05/2022
26282126	TP012		0.80	11/05/2022
26282125	TP012		1.20	11/05/2022
26282124	TP012		3.40	11/05/2022
26282138	TP013		0.30	11/05/2022
26282137	TP013		0.80	11/05/2022
26282136	TP013		1.20	11/05/2022
26282135	TP013		3.20	11/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26282148	26282133	26282122	26282139	26282128	26282129	26282146	26282125
			Customer Sample Reference	AWW_BH_05	AWW_BH_06	AWW_BH_08	AWCL_BH_04	BH001	BH002	TP001	TP012
			AGS Reference								
			Depth (m)	0.30	0.80	0.80	1.20	0.30	1.20	0.30	1.20
			Container	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 9			X			X			X		X			X			X			X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 4		X													X			X					
Anions by Kone (soil)	All	NDPs: 0 Tests: 9			X			X			X		X			X			X			X		
Anions by Kone (w)	All	NDPs: 0 Tests: 4		X													X			X					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 9		X			X			X			X		X			X			X				X
CEN Readings	All	NDPs: 0 Tests: 4		X													X			X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9			X			X			X		X			X			X			X		
Coronene	All	NDPs: 0 Tests: 9			X			X			X		X			X			X			X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 13		X	X			X			X		X			X		X	X		X	X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 4		X													X			X					
Easily Liberated Sulphide	All	NDPs: 0 Tests: 9			X			X			X		X			X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 9			X			X			X		X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 9				X			X			X		X			X			X			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 9			X			X			X		X			X			X			X		
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 4		X													X			X					

26282137					
TP013					
0.80					
60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE260)	60g VOC (ALE215)	250g Amber Jar (ALE210)	
S	S	S	S	S	
	X			X	
		X			
	X			X	
		X			
		X			
		X			
	X			X	
	X			X	
	X	X		X	
		X			
	X			X	
	X			X	
X			X		
	X			X	
		X			

26282125					
TP012					
1.20					
250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	
S	S	S	S	S	
X			X		
		X			
X			X		
		X			
		X			
		X			
X			X		
X			X		
X		X	X		
		X			
X			X		
X			X		
	X			X	
X			X		
		X			

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26282148	26282133	26282122	26282139	26282128	26282129	26282146	26282125
			Customer Sample Reference	AWW_BH_05	AWW_BH_06	AWW_BH_08	AWCL_BH_04	BH001	BH002	TP001	TP012
			AGS Reference								
			Depth (m)	0.30	0.80	0.80	1.20	0.30	1.20	0.30	1.20
			Container	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 4		X							X							X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 4		X							X							X			X			
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 4		X							X							X			X			
pH	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
pH Value	All	NDPs: 0 Tests: 4		X							X							X			X			
Phenols by HPLC (S)	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
Sample description	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
Sulphide	All	NDPs: 0 Tests: 4		X							X							X			X			
Total Organic Carbon	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
Total Sulphate	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 9			X			X			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 9				X			X			X			X			X			X			X	

26282137					
TP013					
0.80					
60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE260)	60g VOC (ALE215)	250g Amber Jar (ALE210)	
S	S	S	S	S	
		X			
	X			X	
		X			
	X			X	
	X			X	
		X			
	X			X	
		X			
	X			X	
	X			X	
	X			X	
			X		X

26282125					
TP012					
1.20					
250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	
S	S	S	S	S	
X					
X					
X					
X					
X					
X					
X					
X					
	X				

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26282148	AVW_BH_05	0.30	Light Brown	Sandy Loam	Stones	None
26282133	AVW_BH_06	0.80	Light Brown	Sandy Clay	None	None
26282122	AVW_BH_08	0.80	Light Brown	Sandy Clay	Stones	None
26282139	AWCI_BH_04	1.20	Light Brown	Sandy Clay	Stones	None
26282128	BH001	0.30	Light Brown	Sandy Loam	Stones	Vegetation
26282129	BH002	1.20	Light Brown	Sandy Clay	None	None
26282146	TP001	0.30	Dark Brown	Sandy Clay Loam	Stones	Vegetation
26282125	TP012	1.20	Light Brown	Sandy Clay	None	None
26282137	TP013	0.80	Light Brown	Sandy Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVW_BH_05	AVW_BH_06	AVW_BH_08	AWCI_BH_04	BH001	BH002
			Depth (m)	0.30	0.80	0.80	1.20	0.30	1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/05/2022	11/05/2022	10/05/2022	09/05/2022	11/05/2022	10/05/2022
			Sampled Time	00:00:00	.	.	.	.	.
			Date Received	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
			SDG Ref	220514-82	220514-82	220514-82	220514-82	220514-82	220514-82
			Lab Sample No.(s)	26282148	26282133	26282122	26282139	26282128	26282129
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		13	16	13	17	13	20
Phenol	mg/kg	TM062 (S)		<0.01 @ M	<0.01 M	<0.01 @ M	<0.01 @ M	<0.01 M	<0.01 @ M
Soil Organic Matter (SOM)	%	TM132		2.86 #	0.569 #	<0.35 #	<0.35 #	3.12 #	0.522 #
pH	pH Units	TM133		7.21 @ M	5.67 @ M	8.05 @ M	8.61 @ M	8.25 @ M	7.34 @ M
Chromium, Hexavalent	mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Free	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Complex	mg/kg	TM153		<1	<1	<1	<1	<1	<1
Sulphide, Easily liberated	mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M
Aluminium	mg/kg	TM181		11500	24000	18200	6710	11200	20200
Antimony	mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	mg/kg	TM181		12.8 M	8.3 M	14 M	50.1 M	21 M	7.49 M
Barium	mg/kg	TM181		43.1 #	141 #	50.4 #	37.5 #	71.9 #	43.6 #
Beryllium	mg/kg	TM181		0.688 M	1.79 M	1.5 M	1.22 M	0.819 M	1.59 M
Boron	mg/kg	TM181		15.5 #	18.4 #	19.9 #	17.6 #	9.53 #	20.9 #
Cadmium	mg/kg	TM181		0.616 M	0.506 M	1.04 M	1.08 M	0.755 M	0.312 M
Chromium	mg/kg	TM181		7.08 M	25.6 M	22.7 M	<0.9 M	9.43 M	19.8 M
Copper	mg/kg	TM181		13.9 M	24.7 M	23.1 M	12.2 M	17.2 M	19.4 M
Iron	mg/kg	TM181		37600 #	37500 #	35700 #	90700 #	31100 #	22600 #
Lead	mg/kg	TM181		21.5 M	17.1 M	16.7 M	11.6 M	29.8 M	18.8 M
Manganese	mg/kg	TM181		299 M	80.2 M	906 M	1050 M	843 M	98.7 M
Mercury	mg/kg	TM181		<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M
Molybdenum	mg/kg	TM181		2.39 #	1.89 #	3.03 #	2.14 #	1.02 #	0.639 #
Nickel	mg/kg	TM181		19.9 M	79.9 M	62.2 M	31.7 M	16.6 M	32.1 M
Selenium	mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Vanadium	mg/kg	TM181		37.4 #	38.4 #	49.5 #	124 #	53.5 #	35.2 #
Zinc	mg/kg	TM181		70.8 M	175 M	92.3 M	78 M	85.9 M	80 M
Sulphate, Total	mg/kg	TM221		1450 M	552 M	62.7 M	519 M	332 M	61.3 M
Conductivity @ 20 deg.C	mS/cm	TM234		1.92	1.93	1.92	1.95	1.98	1.91
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243		0.0257 M	0.122 M	0.0827 M	0.0104 M	<0.004 M	0.023 M
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248		3.33	4.98	4.82	5.35	4.19	3.38
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410		<318	<318	<318	<318	2980	<318

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVW_BH_05	AVW_BH_06	AVW_BH_08	AWCI_BH_04	BH001	BH002
			Depth (m)	0.30	0.80	0.80	1.20	0.30	1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/05/2022	11/05/2022	10/05/2022	09/05/2022	11/05/2022	10/05/2022
			Sampled Time	00:00:00	.	.	.	.	.
			Date Received	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
			SDG Ref	220514-82	220514-82	220514-82	220514-82	220514-82	220514-82
			Lab Sample No.(s)	26282148	26282133	26282122	26282139	26282128	26282129
			AGS Reference						
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP001	TP012	TP013			
			Depth (m)	0.30	1.20	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	10/05/2022	11/05/2022	11/05/2022			
			Sampled Time	00:00:00	.	.			
			Date Received	13/05/2022	13/05/2022	13/05/2022			
			SDG Ref	220514-82	220514-82	220514-82			
			Lab Sample No.(s)	26282146	26282125	26282137			
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		13	16	16			
Phenol	mg/kg	TM062 (S)		<0.01 @ M	<0.01 M	<0.01 M			
Soil Organic Matter (SOM)	%	TM132		5.33 #	0.562 #	0.414 #			
pH	pH Units	TM133		7.96 @ M	7.3 @ M	6.14 @ M			
Chromium, Hexavalent	mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #			
Cyanide, Total	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M			
Cyanide, Free	mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M			
Cyanide, Complex	mg/kg	TM153		<1	<1	<1			
Sulphide, Easily liberated	mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M			
Aluminium	mg/kg	TM181		13300	15200	14900			
Antimony	mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #			
Arsenic	mg/kg	TM181		37.3 M	6.97 M	9.47 M			
Barium	mg/kg	TM181		94.9 #	26.2 #	34.7 #			
Beryllium	mg/kg	TM181		0.912 M	0.896 M	1 M			
Boron	mg/kg	TM181		9.45 #	13.3 #	13.4 #			
Cadmium	mg/kg	TM181		0.157 M	0.329 M	0.439 M			
Chromium	mg/kg	TM181		2.13 M	25.5 M	19 M			
Copper	mg/kg	TM181		17.6 M	19.7 M	19.7 M			
Iron	mg/kg	TM181		45100 #	17800 #	31700 #			
Lead	mg/kg	TM181		31 M	20.6 M	15.2 M			
Manganese	mg/kg	TM181		1800 M	51.4 M	51.5 M			
Mercury	mg/kg	TM181		<0.1 M	<0.1 M	<0.1 M			
Molybdenum	mg/kg	TM181		1.73 #	3.05 #	5.64 #			
Nickel	mg/kg	TM181		23.3 M	20.9 M	23.8 M			
Selenium	mg/kg	TM181		2.54 #	1.27 #	<1 #			
Vanadium	mg/kg	TM181		61.9 #	35 #	29.9 #			
Zinc	mg/kg	TM181		97.7 M	66.9 M	85.6 M			
Sulphate, Total	mg/kg	TM221		731 M	305 M	384 M			
Conductivity @ 20 deg.C	mS/cm	TM234		1.99	2.05	1.88			
Water Soluble Sulphate as SO4 2:1 Extract	g/l	TM243		0.0045 M	0.174 M	0.0484 M			
Ammoniacal N as NH4 in 2:1 extract	mg/kg	TM248		4.53	4.13	4.7			
PAH, Total Detected USEPA 16 + Coronene	µg/kg	TM410		770	<318	<318			

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP001	TP012	TP013
Depth (m)	0.30	1.20	0.80
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	10/05/2022	11/05/2022	11/05/2022
Sampled Time	00:00:00	.	.
Date Received	13/05/2022	13/05/2022	13/05/2022
SDG Ref	220514-82	220514-82	220514-82
Lab Sample No.(s)	26282146	26282125	26282137
AGS Reference			

Component	LOD/Units	Method						
Coronene	<200 µg/kg	TM410	<200	<200	<200			

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVW_BH_05	AVW_BH_06	AVW_BH_08	AWCI_BH_04	BH001	BH002
			Depth (m)	0.30	0.80	0.80	1.20	0.30	1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/05/2022	11/05/2022	10/05/2022	09/05/2022	11/05/2022	10/05/2022
			Sampled Time	00:00:00	.	.	.	.	.
			Date Received	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
			SDG Ref	220514-82	220514-82	220514-82	220514-82	220514-82	220514-82
			Lab Sample No.(s)	26282148	26282133	26282122	26282139	26282128	26282129
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		97.8	99.4	96.4	98.8	99.3	96.4
Acenaphthene-d10 % recovery**	%	TM218		101	103	102	102	104	101
Phenanthrene-d10 % recovery**	%	TM218		101	106	101	105	106	102
Chrysene-d12 % recovery**	%	TM218		103	106	102	107	103	103
Perylene-d12 % recovery**	%	TM218		89.4	93	88.2	91.2	88.5	90.3
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 M	<9 @ M	<9 @ M	<9 M	<9 @ M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 M	<12 @ M	<12 @ M	32.2 M	<12 @ M
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 M	<8 @ M	<8 @ M	<8 M	<8 @ M
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 M	<10 @ M	<10 @ M	<10 M	<10 @ M
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 @ M	<15 @ M	113 M	<15 @ M
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 M	<16 @ M	<16 @ M	41.2 M	<16 @ M
Fluoranthene	<17 µg/kg	TM218		<17 @ M	<17 M	<17 @ M	<17 @ M	474 M	<17 @ M
Pyrene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 @ M	<15 @ M	419 M	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	<14 M	<14 @ M	<14 @ M	260 M	<14 @ M
Chrysene	<10 µg/kg	TM218		<10 @ M	<10 M	<10 @ M	<10 @ M	255 M	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 @ M	<15 @ M	409 M	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 M	<14 @ M	<14 @ M	159 M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 @ M	<15 @ M	288 M	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 M	<18 @ M	<18 @ M	259 M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 M	<23 @ M	<23 @ M	42.8 M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 M	<24 @ M	<24 @ M	229 M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	2980	<118

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP001	TP012	TP013			
			Depth (m)	0.30	1.20	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	10/05/2022	11/05/2022	11/05/2022			
			Sampled Time	00:00:00	.	.			
			Date Received	13/05/2022	13/05/2022	13/05/2022			
			SDG Ref	220514-82	220514-82	220514-82			
			Lab Sample No.(s)	26282146	26282125	26282137			
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		89.5	98.3	96.6			
Acenaphthene-d10 % recovery**	%	TM218		98.2	102	101			
Phenanthrene-d10 % recovery**	%	TM218		107	104	102			
Chrysene-d12 % recovery**	%	TM218		101	102	104			
Perylene-d12 % recovery**	%	TM218		99.2	90.6	91.1			
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 M	<9 M			
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 M	<12 M			
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 M	<8 M			
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 M	<10 M			
Phenanthrene	<15 µg/kg	TM218		33.5 @ M	<15 M	<15 M			
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 M	<16 M			
Fluoranthene	<17 µg/kg	TM218		123 @ M	<17 M	<17 M			
Pyrene	<15 µg/kg	TM218		109 @ M	<15 M	<15 M			
Benz(a)anthracene	<14 µg/kg	TM218		64.3 @ M	<14 M	<14 M			
Chrysene	<10 µg/kg	TM218		69.7 @ M	<10 M	<10 M			
Benzo(b)fluoranthene	<15 µg/kg	TM218		118 @ M	<15 M	<15 M			
Benzo(k)fluoranthene	<14 µg/kg	TM218		41.3 @ M	<14 M	<14 M			
Benzo(a)pyrene	<15 µg/kg	TM218		80.8 @ M	<15 M	<15 M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		68 @ M	<18 M	<18 M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 M	<23 M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218		62.1 @ M	<24 M	<24 M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		770	<118	<118			

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVW_BH_05	AVW_BH_06	AVW_BH_08	AWCI_BH_04	BH001	BH002
			Depth (m)	0.30	0.80	0.80	1.20	0.30	1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/05/2022	11/05/2022	10/05/2022	09/05/2022	11/05/2022	10/05/2022
			Sampled Time	00:00:00	.	.	.	.	.
			Date Received	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
			SDG Ref	220514-82	220514-82	220514-82	220514-82	220514-82	220514-82
			Lab Sample No.(s)	26282148	26282133	26282122	26282139	26282128	26282129
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		133 4 @	127 @	96.9 @	148 4 @	91.5 @	95.7 @
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10 4 @	<10 @	<10 @	<10 4 @	<10 @	<10 @
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10 4 @	<10 @	<10 @	<10 4 @	<10 @	<10 @
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10 4 @	<10 @	<10 @	<10 4 @	<10 @	<10 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		7430 @ #	<1000 #	<1000 @ #	<1000 @ #	6020 #	<1000 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @	<1000	<1000 @	<1000 @	<1000	<1000 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		8570 @	<5000	<5000 @	<5000 @	6310	<5000 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		14500	<10000	<10000	<10000	15800	<10000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10 4 @	<10 @	<10 @	<10 4 @	<10 @	<10 @
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10 4 @	<10 @	<10 @	<10 4 @	<10 @	<10 @
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10 4 @	<10 @	<10 @	<10 4 @	<10 @	<10 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 @ #	<1000 @ #	<1000 #	<1000 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		4740 @ #	<1000 #	<1000 @ #	<1000 @ #	7490 #	<1000 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000	<1000 @	<1000 @	1380	<1000 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000	<1000 @	<1000 @	<1000	<1000 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		5880	<5000	<5000	<5000	9470	<5000
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		14500	<10000	<10000	<10000	15800	<10000
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50 4 @	<50 @	<50 @	<50 4 @	<50 @	<50 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50 4 @	<50 @	<50 @	<50 4 @	<50 @	<50 @
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20 4 @	<20 @	<20 @	<20 4 @	<20 @	<20 @

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP001	TP012	TP013			
			Depth (m)	0.30	1.20	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	10/05/2022	11/05/2022	11/05/2022			
			Sampled Time	00:00:00	.	.			
			Date Received	13/05/2022	13/05/2022	13/05/2022			
			SDG Ref	220514-82	220514-82	220514-82			
			Lab Sample No.(s)	26282146	26282125	26282137			
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		100 @	108 @	101 @			
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 #			
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 #			
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 #			
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		11400 @ #	1110 #	<1000 #			
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 @	<1000	<1000			
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		12500 @	<5000	<5000			
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		21900	<10000	<10000			
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10 @	<10 @	<10 @			
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 #			
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 #			
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @ #	<1000 #	<1000 #			
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		7650 @ #	<1000 #	1100 #			
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		1380 @	<1000	<1000			
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 @	<1000	<1000			
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		9360	<5000	<5000			
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		21900	<10000	<10000			
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50 @	<50 @	<50 @			
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20 @	<20 @	<20 @			

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVW_BH_05	AVW_BH_06	AVW_BH_08	AWCI_BH_04	BH001	BH002
			Depth (m)	0.30	0.80	0.80	1.20	0.30	1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/05/2022	11/05/2022	10/05/2022	09/05/2022	11/05/2022	10/05/2022
			Sampled Time	00:00:00	.	.	.	.	.
			Date Received	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
			SDG Ref	220514-82	220514-82	220514-82	220514-82	220514-82	220514-82
			Lab Sample No.(s)	26282148	26282133	26282122	26282139	26282128	26282129
			AGS Reference						
Dibromofluoromethane**	%	TM116		111 @	111 @	111 @	120 @	110 @	115 @
Toluene-d8**	%	TM116		98.3 @	104 @	100 @	95.9 @	103 @	97 @
4-Bromofluorobenzene**	%	TM116		76.3 @	88.4 @	92.5 @	95.7 @	91.3 @	85.1 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M
Benzene	<9 µg/kg	TM116		<9 @ M	<9 @ M	<9 @ M	<9 @ M	<90 @ M	<9 @ M
Toluene	<7 µg/kg	TM116		<7 @ M	<7 @ M	<7 @ M	<7 @ M	<70 @ M	<7 @ M
Ethylbenzene	<4 µg/kg	TM116		<4 @ M	<4 @ M	<4 @ M	<4 @ M	<40 @ M	<4 @ M
p/m-Xylene	<10 µg/kg	TM116		<10 @ #	<10 @ #	<10 @ #	<10 @ #	<100 @ #	<10 @ #
o-Xylene	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<100 @ M	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 @	<0.02 @	<0.02 @	<0.02 @	<0.2 @	<0.02 @
Sum of BTEX	<40 µg/kg	TM116		<40 @	<40 @	<40 @	<40 @	<400 @	<40 @

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP001	TP012	TP013			
			Depth (m)	0.30	1.20	0.80			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	10/05/2022	11/05/2022	11/05/2022			
			Sampled Time	00:00:00	.	.			
			Date Received	13/05/2022	13/05/2022	13/05/2022			
			SDG Ref	220514-82	220514-82	220514-82			
			Lab Sample No.(s)	26282146	26282125	26282137			
			AGS Reference						
Dibromofluoromethane**	%	TM116		114 @	110 @	109 @			
Toluene-d8**	%	TM116		98.9 @	101 @	103 @			
4-Bromofluorobenzene**	%	TM116		95.8 @	89.1 @	92.7 @			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<200 @ M	<10 @ M	<10 @ M			
Benzene	<9 µg/kg	TM116		<180 @ M	<9 @ M	<9 @ M			
Toluene	<7 µg/kg	TM116		<140 @ M	<7 @ M	<7 @ M			
Ethylbenzene	<4 µg/kg	TM116		<80 @ M	<4 @ M	<4 @ M			
p/m-Xylene	<10 µg/kg	TM116		<200 @ #	<10 @ #	<10 @ #			
o-Xylene	<10 µg/kg	TM116		<200 @ M	<10 @ M	<10 @ M			
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.4 @	<0.02 @	<0.02 @			
Sum of BTEX	<40 µg/kg	TM116		<800 @	<40 @	<40 @			

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	AVW_BH_05 0.30 SOLID 09/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282148 TM048	27/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	AVW_BH_06 0.80 SOLID 11/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282133 TM048	27/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	AVW_BH_08 0.80 SOLID 10/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282122 TM048	26/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	AWCI_BH_04 1.20 SOLID 09/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282139 TM048	27/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH001 0.30 SOLID 11/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282128 TM048	27/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH002 1.20 SOLID 10/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282129 TM048	27/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP001 0.30 SOLID 10/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282146 TM048	27/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP012 1.20 SOLID 11/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282125 TM048	27/05/2022	Joanne Furnivall	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP013 0.80 SOLID 11/05/2022 00:00:00 13/05/2022 05:00:00 220514-82 26282137 TM048	27/05/2022	Emily Anderton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.096	**Natural Moisture Content (%)**	6.38
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282129
Sampled Date	10-May-2022
Customer Sample Ref.	BH002
Depth (m)	1.20

Eluate Analysis	C_2 Concⁿ in 10:1 eluate (mg/l)		A_2 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.114	<0.01	1.14	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.014	<0.0002	0.14	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.127	<0.01	1.27	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000322	<0.0003	0.00322	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.116	<0.019	1.16	<0.19	-	-	-
Lead	0.000896	<0.0002	0.00896	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Phosphorus	0.0193	<0.01	0.193	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	0.00155	<0.001	0.0155	<0.01	-	-	-
Zinc	0.0103	<0.001	0.103	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Nitrate as N	0.322	<0.07	3.22	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	0.0407	<0.01	0.407	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.08
Conductivity (µS/cm)	44.40
Temperature (°C)	19.20
Volume Leachant (Litres)	0.894

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CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.096	**Natural Moisture Content (%)**	6.38
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282129
Sampled Date	10-May-2022
Customer Sample Ref.	BH002
Depth (m)	1.20

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.08
Conductivity (µS/cm)	44.40
Temperature (°C)	19.20
Volume Leachant (Litres)	0.894

31/05/2022 10:38:03

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	6.01
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.3
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282137
Sampled Date	11-May-2022
Customer Sample Ref.	TP013
Depth (m)	0.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.0401	<0.01	0.401	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0604	<0.0002	0.604	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.119	<0.01	1.19	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.0016	<0.001	0.016	<0.01	-	-	-
Copper	0.000468	<0.0003	0.00468	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.124	<0.019	1.24	<0.19	-	-	-
Lead	0.000314	<0.0002	0.00314	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000453	<0.0004	0.00453	<0.004	-	-	-
Phosphorus	0.0147	<0.01	0.147	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0328	<0.001	0.328	<0.01	-	-	-
Chloride	2.3	<2	23	<20	-	-	-
Nitrate as N	0.214	<0.07	2.14	<0.7	-	-	-
Sulphate (soluble)	11.8	<2	118	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.17
Conductivity (µS/cm)	34.80
Temperature (°C)	20.60
Volume Leachant (Litres)	0.895

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CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	6.01
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.3
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282137
Sampled Date	11-May-2022
Customer Sample Ref.	TP013
Depth (m)	0.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.17
Conductivity (µS/cm)	34.80
Temperature (°C)	20.60
Volume Leachant (Litres)	0.895

31/05/2022 10:38:03

CERTIFICATE OF ANALYSIS

SDG: 220514-82 | Report Number: 648711 | Superseded Report:
Client Ref.: JER9352 | Location: Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	11
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.1
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282146
Sampled Date	10-May-2022
Customer Sample Ref.	TP001
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	<0.01	<0.01	<0.1	<0.1	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00084	<0.0005	0.0084	<0.005	-	-	-
Barium	0.00225	<0.0002	0.0225	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	<0.01	<0.01	<0.1	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00231	<0.0003	0.0231	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.35	<0.019	3.5	<0.19	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000641	<0.0004	0.00641	<0.004	-	-	-
Phosphorus	0.0737	<0.01	0.737	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Nitrate as N	1.05	<0.07	10.5	<0.7	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Nitrite as N	0.285	<0.0152	2.85	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.18
Conductivity (µS/cm)	146.00
Temperature (°C)	19.60
Volume Leachant (Litres)	0.890

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CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	11
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.1
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282146
Sampled Date	10-May-2022
Customer Sample Ref.	TP001
Depth (m)	0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	8.18
Conductivity (µS/cm)	146.00
Temperature (°C)	19.60
Volume Leachant (Litres)	0.890

31/05/2022 10:38:03

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.097	**Natural Moisture Content (%)**	7.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	92.7
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282148
Sampled Date	09-May-2022
Customer Sample Ref.	AVW_BH_05
Depth (m)	0.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ammoniacal Nitrogen as N	<0.2	<0.2	<2	<2	-	-	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-	-	-
Complex Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Free Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Aluminium	0.0427	<0.01	0.427	<0.1	-	-	-
Antimony	0.00406	<0.001	0.0406	<0.01	-	-	-
Arsenic	0.000626	<0.0005	0.00626	<0.005	-	-	-
Barium	0.0243	<0.0002	0.243	<0.002	-	-	-
Beryllium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Boron	0.0835	<0.01	0.835	<0.1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.0021	<0.001	0.021	<0.01	-	-	-
Copper	0.0033	<0.0003	0.033	<0.003	-	-	-
Iron (Dis.Filt) mg/l	0.571	<0.019	5.71	<0.19	-	-	-
Lead	0.0025	<0.0002	0.025	<0.002	-	-	-
Manganese	<0.003	<0.003	<0.03	<0.03	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00194	<0.0004	0.0194	<0.004	-	-	-
Phosphorus	0.0508	<0.01	0.508	<0.1	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Vanadium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0125	<0.001	0.125	<0.01	-	-	-
Chloride	2.2	<2	22	<20	-	-	-
Nitrate as N	1.61	<0.07	16.1	<0.7	-	-	-
Sulphate (soluble)	2.7	<2	27	<20	-	-	-
Nitrite as N	<0.0152	<0.0152	<0.152	<0.152	-	-	-
Sulphide	<0.01	<0.01	<0.1	<0.1	-	-	-
PAH Spec MS - Aqueous (W)							
Acenaphthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Acenaphthylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluoranthene by GCMS	0.0000057	<0.000005	0.000057	<0.00005	-	-	-
Naphthalene by GCMS	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Phenanthrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	7.44
Conductivity (µS/cm)	55.00
Temperature (°C)	20.50
Volume Leachant (Litres)	0.893

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CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Chippenham
Mass Sample taken (kg)	0.097	**Natural Moisture Content (%)**	7.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	92.7
Particle Size <4mm	>95%		

Case	
SDG	220514-82
Lab Sample Number(s)	26282148
Sampled Date	09-May-2022
Customer Sample Ref.	AVW_BH_05
Depth (m)	0.30

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
PAH Spec MS - Aqueous (W)							
Benz(a)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(a)pyrene by GCMS	<0.000002	<0.000002	<0.00002	<0.00002	-	-	-
Benzo(b)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(ghi)perylene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Benzo(k)fluoranthene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Chrysene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Dibenzo(ah)anthracene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Fluorene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
Indeno(123cd)pyrene by GCMS	<0.000005	<0.000005	<0.00005	<0.00005	-	-	-
PAH 16 EPA Total by GCMS	<0.000082	<0.000082	<0.00082	<0.00082	-	-	-
Pyrene by GCMS	0.0000052	<0.000005	0.000052	<0.00005	-	-	-

Leach Test Information

Date Prepared	23-May-2022
pH (pH Units)	7.44
Conductivity (µS/cm)	55.00
Temperature (°C)	20.50
Volume Leachant (Litres)	0.893

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM234	The measurement of Electrical Conductivity and the Laboratory Determination of the pH value of Natural, Treated and Waste Waters. HMSO, 1978. ISBN 011 751428 4.	Determination of Electrical Conductivity of Soils Extracted with Calcium Sulphate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26282148	26282133	26282122	26282139	26282128	26282129	26282146	26282125	26282137
Customer Sample Ref.	AVW_BH_05	AVW_BH_06	AVW_BH_08	AWCI_BH_04	BH001	BH002	TP001	TP012	TP013
AGS Ref.									
Depth	0.30	0.80	0.80	1.20	0.30	1.20	0.30	1.20	0.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Ammoniacal N as NH4 in 2:1 extract	26-May-2022	25-May-2022	26-May-2022	25-May-2022	26-May-2022	26-May-2022	25-May-2022	25-May-2022	25-May-2022
Ammoniacal Nitrogen	26-May-2022					27-May-2022	27-May-2022		26-May-2022
Anions by Kone (soil)	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	26-May-2022	25-May-2022	26-May-2022
Anions by Kone (w)	26-May-2022					27-May-2022	27-May-2022		26-May-2022
Asbestos ID in Solid Samples	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022
CEN 10:1 Leachate (1 Stage)	24-May-2022					24-May-2022	24-May-2022		24-May-2022
CEN Readings	26-May-2022					26-May-2022	26-May-2022		26-May-2022
Conductivity (at 20 deg.C)	27-May-2022	25-May-2022	25-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022	27-May-2022
Coronene	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	26-May-2022	25-May-2022	25-May-2022
Cyanide Comp/Free/Total/Thiocyanate	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	31-May-2022	30-May-2022	30-May-2022	30-May-2022
Dissolved Metals by ICP-MS	27-May-2022					27-May-2022	27-May-2022		27-May-2022
Easily Liberated Sulphide	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	27-May-2022	25-May-2022	25-May-2022
EPH CWG GC (S)	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	26-May-2022	25-May-2022	25-May-2022
GRO by GC-FID (S)	31-May-2022	31-May-2022	31-May-2022		27-May-2022	27-May-2022	31-May-2022	31-May-2022	31-May-2022
Hexavalent Chromium (s)	26-May-2022	26-May-2022	26-May-2022	26-May-2022	26-May-2022	26-May-2022	26-May-2022	26-May-2022	26-May-2022
Hexavalent Chromium (w)	27-May-2022					27-May-2022	27-May-2022		27-May-2022
Mercury Dissolved	27-May-2022					27-May-2022	27-May-2022		27-May-2022
Metals in solid samples by OES	26-May-2022	26-May-2022	26-May-2022	26-May-2022	27-May-2022	26-May-2022	27-May-2022	26-May-2022	26-May-2022
Moisture at 105C	23-May-2022					23-May-2022	23-May-2022		23-May-2022
Nitrite by Kone (w)	26-May-2022					27-May-2022	27-May-2022		26-May-2022
PAH 16 & 17 Calc	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	26-May-2022	25-May-2022	25-May-2022
PAH by GCMS	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022
PAH Spec MS - Aqueous (W)	27-May-2022					27-May-2022	27-May-2022		27-May-2022
pH	25-May-2022	25-May-2022	25-May-2022	25-May-2022	26-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022
pH Value	27-May-2022					27-May-2022	27-May-2022		27-May-2022
Phenols by HPLC (S)	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	26-May-2022	25-May-2022	25-May-2022
Sample description	23-May-2022	23-May-2022	23-May-2022	23-May-2022	23-May-2022	23-May-2022	24-May-2022	23-May-2022	23-May-2022
Sulphide	27-May-2022					27-May-2022	27-May-2022		27-May-2022
Total Organic Carbon	26-May-2022	26-May-2022	26-May-2022	27-May-2022	26-May-2022	26-May-2022	27-May-2022	26-May-2022	27-May-2022
Total Sulphate	25-May-2022	25-May-2022	25-May-2022	25-May-2022	25-May-2022	27-May-2022	27-May-2022	25-May-2022	27-May-2022
TPH CWG GC (S)	31-May-2022	31-May-2022	31-May-2022	31-May-2022	27-May-2022	27-May-2022	31-May-2022	31-May-2022	31-May-2022
VOC MS (S)	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	26-May-2022	31-May-2022	30-May-2022	30-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2611	QC 2680
Ammoniacal Nitrogen as N	TM099	**99.2** 90.84 : 105.72	**99.2** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2620	QC 2688
Chloride	TM184	**101.0** 95.10 : 104.28	**109.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**102.8** 91.99 : 109.30	**104.8** 96.54 : 111.66
TON as NO3	TM184	**101.5** 90.35 : 108.35	**109.0** 100.65 : 111.75

Coronene

Component	Method Code	QC 2672	QC 2608
Coronene RAW	TM410	**103.0** 79.43 : 137.78	**115.0** 79.43 : 137.78

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2687	QC 2672	QC 2637	QC 2672	QC 2644	QC 2696
Free Cyanide	TM153	**92.48** 77.50 : 118.90	**89.41** 77.50 : 118.90	**84.75** 77.50 : 118.90	**88.81** 77.50 : 118.90		
Free Cyanide (W)	TM227					**87.25** 102.00 : 124.00	**88.75** 80.33 : 126.33
Thiocyanate	TM153	**103.21** 92.20 : 113.40	**100.64** 92.20 : 113.40	**97.44** 92.20 : 113.40	**98.72** 92.20 : 113.40		
Thiocyanate (W)	TM227					**106.75** 92.25 : 117.75	**103.5** 87.50 : 116.00
Total Cyanide	TM153	**95.8** 80.07 : 114.07	**95.8** 80.07 : 114.07	**88.81** 80.07 : 114.07	**92.31** 80.07 : 114.07		
Total Cyanide (W)	TM227					**105.0** 93.75 : 114.75	**111.5** 83.75 : 121.25

Dissolved Metals by ICP-MS

Component	Method Code	QC 2691	QC 2650
Aluminium	TM152	**101.0** 90.98 : 111.82	**101.0** 90.98 : 111.82
Antimony	TM152	**101.67** 90.44 : 113.04	**101.67** 90.44 : 113.04
Arsenic	TM152	**99.0** 94.87 : 109.67	**97.83** 94.87 : 109.67
Barium	TM152	**101.83** 90.20 : 111.19	**102.33** 90.20 : 111.19

Dissolved Metals by ICP-MS

		QC 2691	QC 2650
Beryllium	TM152	**98.5** 87.77 : 113.97	**98.5** 87.77 : 113.97
Bismuth	TM152	**99.33** 91.90 : 112.20	**99.5** 91.90 : 112.20
Borate	TM152	**100.62** 88.00 : 112.00	**101.23** 88.00 : 112.00
Boron	TM152	**100.67** 92.27 : 112.40	**101.0** 92.27 : 112.40
Cadmium	TM152	**100.0** 94.93 : 106.93	**99.33** 94.93 : 106.93
Calcium	TM152	**100.0** 95.14 : 110.01	**102.0** 95.14 : 110.01
Chromium	TM152	**99.83** 91.84 : 108.67	**99.67** 91.84 : 108.67
Cobalt	TM152	**100.33** 90.72 : 109.61	**99.33** 90.72 : 109.61
Copper	TM152	**100.83** 94.47 : 109.05	**101.0** 94.47 : 109.05
Iron	TM152	**100.0** 94.40 : 107.90	**100.0** 94.40 : 107.90
Lead	TM152	**99.83** 93.55 : 109.46	**100.83** 93.55 : 109.46
Lithium	TM152	**100.83** 91.62 : 113.12	**101.5** 91.62 : 113.12
Magnesium	TM152	**100.0** 92.30 : 110.57	**100.67** 92.30 : 110.57
Manganese	TM152	**100.17** 94.75 : 108.21	**101.17** 94.75 : 108.21
Molybdenum	TM152	**99.33** 93.55 : 107.66	**100.33** 93.55 : 107.66
Nickel	TM152	**100.83** 88.00 : 112.00	**99.83** 88.00 : 112.00
Phosphorus	TM152	**94.83** 92.51 : 109.27	**96.67** 92.51 : 109.27
Potassium	TM152	**100.67** 92.16 : 109.93	**102.0** 92.16 : 109.93
Selenium	TM152	**95.83** 91.58 : 115.98	**94.0** 91.58 : 115.98
Silver	TM152	**100.33** 92.75 : 111.05	**101.5** 92.75 : 111.05
Sodium	TM152	**100.0** 89.47 : 109.62	**101.33** 89.47 : 109.62
Strontium	TM152	**102.33** 95.40 : 109.43	**103.67** 95.40 : 109.43
Tellurium	TM152	**97.0** 93.32 : 114.66	**96.33** 93.32 : 114.66
Thallium	TM152	**95.33** 88.00 : 112.00	**95.33** 88.00 : 112.00
Tin	TM152	**102.33** 92.63 : 109.70	**103.17** 92.63 : 109.70
Titanium	TM152	**101.5** 95.08 : 109.28	**103.17** 95.08 : 109.28
Tungsten	TM152	**99.17** 94.68 : 107.68	**99.83** 94.68 : 107.68

Dissolved Metals by ICP-MS

		QC 2691	QC 2650
Uranium	TM152	**100.83** 88.00 : 112.00	**101.0** 88.00 : 112.00
Vanadium	TM152	**101.5** 88.00 : 112.00	**101.17** 88.00 : 112.00
Zinc	TM152	**98.67** 95.31 : 110.74	**98.33** 95.31 : 110.74

Easily Liberated Sulphide

Component	Method Code	QC 2690
Easily Liberated Sulphide	TM180	**104.84** 51.10 : 121.66

GRO by GC-FID (S)

Component	Method Code	QC 2655	QC 2610	QC 2650
QC	TM089	**79.21** 65.42 : 109.49	**78.36** 65.42 : 109.49	**79.33** 65.42 : 109.49

Hexavalent Chromium (s)

Component	Method Code	QC 2662	QC 2689	QC 2620	QC 2643
Hexavalent Chromium	TM151	**104.0** 83.40 : 113.40	**106.0** 83.40 : 113.40	**106.0** 83.40 : 113.40	**104.0** 83.40 : 113.40

Hexavalent Chromium (w)

Component	Method Code	QC 2618
Hexavalent Chromium	TM241	**101.8** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2659	QC 2668
Mercury Dissolved (CVAF)	TM183	**93.0** 0.00 : 0.00	**92.4** 0.00 : 0.00

Metals in solid samples by OES

Metals in solid samples by OES

Component	Method Code	QC 2614	QC 2642	QC 2681
Aluminium	TM181	**106.14** 84.95 : 125.04	**105.26** 84.95 : 125.04	**101.75** 84.95 : 125.04
Antimony	TM181	**113.39** 91.44 : 127.13	**112.99** 91.44 : 127.13	**106.69** 91.44 : 127.13
Arsenic	TM181	**110.47** 95.27 : 120.80	**109.8** 95.27 : 120.80	**109.46** 95.27 : 120.80
Barium	TM181	**114.87** 94.57 : 124.93	**113.85** 94.57 : 124.93	**110.77** 94.57 : 124.93
Beryllium	TM181	**106.71** 85.72 : 122.69	**108.16** 85.72 : 122.69	**105.54** 85.72 : 122.69
Boron	TM181	**105.47** 91.59 : 122.22	**106.43** 91.59 : 122.22	**103.54** 91.59 : 122.22
Cadmium	TM181	**106.64** 87.31 : 121.62	**105.9** 87.31 : 121.62	**105.54** 87.31 : 121.62
Chromium	TM181	**94.39** 85.06 : 113.81	**93.66** 85.06 : 113.81	**94.88** 85.06 : 113.81
Cobalt	TM181	**100.73** 90.60 : 110.35	**100.55** 90.60 : 110.35	**100.18** 90.60 : 110.35
Copper	TM181	**97.29** 81.22 : 113.40	**99.15** 81.22 : 113.40	**94.25** 81.22 : 113.40
Iron	TM181	**107.34** 86.44 : 122.27	**105.5** 86.44 : 122.27	**101.83** 86.44 : 122.27
Lead	TM181	**104.46** 86.83 : 123.12	**104.46** 86.83 : 123.12	**100.99** 86.83 : 123.12
Manganese	TM181	**107.58** 89.22 : 121.75	**109.55** 89.22 : 121.75	**107.3** 89.22 : 121.75
Mercury	TM181	**106.84** 84.95 : 119.42	**106.19** 84.95 : 119.42	**105.54** 84.95 : 119.42
Molybdenum	TM181	**104.38** 85.98 : 123.80	**104.71** 85.98 : 123.80	**100.67** 85.98 : 123.80
Nickel	TM181	**103.86** 88.05 : 119.19	**103.26** 88.05 : 119.19	**104.45** 88.05 : 119.19
Phosphorus	TM181	**106.15** 90.13 : 121.54	**105.13** 90.13 : 121.54	**105.64** 90.13 : 121.54
Selenium	TM181	**112.45** 90.68 : 124.14	**113.19** 90.68 : 124.14	**107.69** 90.68 : 124.14
Strontium	TM181	**94.18** 80.65 : 106.55	**95.97** 80.65 : 106.55	**93.29** 80.65 : 106.55
Thallium	TM181	**105.7** 76.88 : 121.51	**104.36** 76.88 : 121.51	**105.7** 76.88 : 121.51
Tin	TM181	**105.04** 86.96 : 122.18	**105.34** 86.96 : 122.18	**103.26** 86.96 : 122.18
Titanium	TM181	**94.55** 77.07 : 118.83	**92.73** 77.07 : 118.83	**95.45** 77.07 : 118.83
Vanadium	TM181	**101.08** 84.00 : 115.50	**103.6** 84.00 : 115.50	**100.0** 84.00 : 115.50
Zinc	TM181	**103.16** 85.62 : 122.35	**104.97** 85.62 : 122.35	**100.45** 85.62 : 122.35

PAH by GCMS

PAH by GCMS

Component	Method Code	QC 2654	QC 2654
Acenaphthene	TM218	**94.0** 73.47 : 109.80	**86.5** 74.70 : 106.04
Acenaphthylene	TM218	**97.5** 70.00 : 130.00	**84.5** 73.12 : 105.14
Anthracene	TM218	**98.0** 68.68 : 111.89	**92.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**96.5** 68.12 : 118.39	**88.5** 69.31 : 119.18
Benzo(a)pyrene	TM218	**86.5** 71.72 : 115.31	**87.0** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**88.0** 66.89 : 120.40	**88.5** 67.41 : 114.46
Benzo(ghi)perylene	TM218	**80.5** 67.82 : 118.49	**80.5** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**89.0** 73.10 : 117.03	**83.0** 69.98 : 116.49
Chrysene	TM218	**94.0** 69.58 : 115.47	**84.5** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**83.5** 67.32 : 121.35	**80.0** 64.54 : 115.22
Fluoranthene	TM218	**100.5** 64.99 : 117.80	**90.0** 72.56 : 111.70
Fluorene	TM218	**98.5** 73.81 : 108.66	**89.0** 79.13 : 111.49
Indeno(123cd)pyrene	TM218	**81.5** 68.91 : 117.62	**79.5** 61.22 : 113.25
Naphthalene	TM218	**96.0** 80.21 : 109.02	**81.0** 73.52 : 105.12
Phenanthrene	TM218	**100.0** 69.01 : 113.72	**91.5** 76.83 : 113.25
Pyrene	TM218	**99.5** 64.28 : 115.75	**88.5** 72.45 : 110.77

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2610	QC 2610
Acenaphthene by GCMS	TM178	**110.8** 98.40 : 117.60	**109.2** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**109.6** 96.80 : 118.40	**109.2** 96.80 : 118.40
Anthracene by GCMS	TM178	**108.0** 94.40 : 116.00	**106.0** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**106.8** 92.80 : 116.80	**105.2** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**103.2** 89.43 : 118.57	**101.2** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**110.4** 87.80 : 121.80	**105.2** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**98.8** 92.00 : 116.00	**97.2** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**110.8** 88.72 : 111.28	**102.8** 88.72 : 111.28
Chrysene by GCMS	TM178	**106.4** 88.68 : 116.92	**104.8** 88.68 : 116.92

PAH Spec MS - Aqueous (W)

		QC 2610	QC 2610
Dibenzo(ah)anthracene by GCMS	TM178	**103.6** 86.24 : 118.56	**99.6** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**110.4** 91.20 : 117.60	**104.0** 91.20 : 117.60
Fluorene by GCMS	TM178	**110.4** 90.76 : 121.24	**107.2** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**100.8** 88.39 : 119.61	**106.0** 88.39 : 119.61
Naphthalene by GCMS	TM178	**108.0** 98.00 : 119.60	**106.0** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**108.4** 96.00 : 117.60	**106.4** 96.00 : 117.60
Pyrene by GCMS	TM178	**111.2** 91.00 : 120.20	**103.2** 91.00 : 120.20

pH

Component	Method Code	QC 2619	QC 2628	QC 2645
pH	TM133	**97.94** 96.92 : 102.20	**101.76** 96.92 : 102.20	**97.94** 96.92 : 102.20

pH Value

Component	Method Code	QC 2668
pH	TM256	**100.53** 99.20 : 102.41

Phenols by HPLC (S)

Component	Method Code	QC 2644	QC 2659	QC 2616
2.3.5 Trimethyl-Phenol by HPLC (S)	TM062 (S)	**52.6** 70.71 : 116.42	**52.6** 68.54 : 123.77	**53.25** 69.38 : 125.27
2-Isopropyl Phenol by HPLC (S)	TM062 (S)	**45.61** 74.25 : 110.18	**47.37** 68.54 : 123.77	**49.71** 69.79 : 122.84
Cresols by HPLC (S)	TM062 (S)	**51.15** 74.40 : 108.98	**50.94** 75.30 : 111.16	**52.19** 77.98 : 111.41
Phenol by HPLC (S)	TM062 (S)	**52.32** 73.05 : 108.98	**52.32** 57.49 : 129.34	**54.3** 67.94 : 117.69
Xylenols by HPLC (S)	TM062 (S)	**50.1** 76.56 : 106.38	**50.1** 77.42 : 114.62	**53.85** 82.04 : 108.38

Sulphide

Sulphide

Component	Method Code	QC 2644	QC 2645
Sulphide	TM101	**97.33** 88.67 : 116.67	**98.0** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2661	QC 2679	QC 2643	QC 2651
Total Organic Carbon	TM132	**100.39** 80.47 : 113.28	**102.73** 80.47 : 113.28	**105.08** 80.47 : 113.28	**101.95** 80.47 : 113.28

Total Sulphate

Component	Method Code	QC 2622	QC 2619
Total Sulphate	TM221	**93.18** 78.36 : 114.69	**91.67** 78.36 : 114.69

VOC MS (S)

Component	Method Code	QC 2668	QC 2677	QC 2622	QC 2622
1,1,1,2-tetrachloroethane	TM116	**96.4** 88.29 : 116.31	**97.0** 86.59 : 118.97	**93.8** 86.59 : 118.97	**94.0** 88.29 : 116.31
1,1,1-Trichloroethane	TM116	**104.8** 88.34 : 114.50	**97.6** 86.26 : 117.53	**100.0** 86.26 : 117.53	**97.6** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**92.8** 81.29 : 113.79	**95.6** 75.16 : 112.70	**95.2** 75.16 : 112.70	**90.0** 81.29 : 113.79
1,1-Dichloroethane	TM116	**115.6** 91.34 : 123.49	**105.8** 87.14 : 128.34	**111.4** 87.14 : 128.34	**103.2** 91.34 : 123.49
1,2-Dichloroethane	TM116	**110.2** 90.04 : 132.28	**104.4** 89.30 : 133.10	**108.0** 89.30 : 133.10	**108.4** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**94.0** 80.81 : 125.07	**102.4** 82.59 : 123.23	**98.0** 82.59 : 123.23	**97.4** 80.81 : 125.07
2-Chlorotoluene	TM116	**76.8** 73.13 : 114.13	**105.6** 66.81 : 118.43	**95.8** 66.81 : 118.43	**81.0** 73.13 : 114.13
4-Chlorotoluene	TM116	**75.6** 68.66 : 109.13	**102.8** 65.88 : 114.76	**91.0** 65.88 : 114.76	**81.8** 68.66 : 109.13
Benzene	TM116	**101.2** 84.29 : 112.22	**98.0** 93.16 : 123.63	**101.4** 93.16 : 123.63	**98.4** 84.29 : 112.22
Carbon Disulphide	TM116	**97.6** 75.11 : 124.81	**103.0** 75.11 : 124.81	**103.4** 75.11 : 124.81	**93.2** 75.11 : 124.81
Carbontetrachloride	TM116	**104.8** 82.35 : 126.46	**96.6** 82.06 : 121.42	**100.8** 82.06 : 121.42	**94.6** 82.35 : 126.46
Chlorobenzene	TM116	**97.0** 82.88 : 122.42	**97.0** 85.07 : 118.13	**93.6** 85.07 : 118.13	**96.2** 82.88 : 122.42
Chloroform	TM116	**113.6** 90.35 : 120.38	**101.2** 88.13 : 122.71	**105.4** 88.13 : 122.71	**106.8** 90.35 : 120.38

VOC MS (S)

		QC 2668	QC 2677	QC 2622	QC 2622
Chloromethane	TM116	**102.4** 67.89 : 143.51	**96.4** 61.62 : 145.66	**109.0** 61.62 : 145.66	**87.8** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**100.2** 78.27 : 128.90	**98.0** 88.41 : 121.33	**101.6** 88.41 : 121.33	**97.4** 78.27 : 128.90
Dibromomethane	TM116	**98.6** 76.00 : 120.73	**88.2** 77.47 : 121.29	**93.2** 77.47 : 121.29	**94.4** 76.00 : 120.73
Dichloromethane	TM116	**122.8** 97.64 : 133.75	**114.2** 87.89 : 134.72	**112.6** 87.89 : 134.72	**114.8** 97.64 : 133.75
Ethylbenzene	TM116	**80.2** 70.95 : 113.07	**92.2** 76.29 : 106.31	**88.0** 76.29 : 106.31	**83.6** 70.95 : 113.07
Hexachlorobutadiene	TM116	**31.6** 14.55 : 147.92	**98.4** 16.78 : 153.29	**67.4** 16.78 : 153.29	**75.2** 14.55 : 147.92
Isopropylbenzene	TM116	**55.0** 43.42 : 101.34	**84.8** 59.16 : 110.07	**81.2** 59.16 : 110.07	**68.8** 43.42 : 101.34
Naphthalene	TM116	**96.4** 80.90 : 124.24	**109.4** 79.29 : 125.59	**108.6** 79.29 : 125.59	**102.0** 80.90 : 124.24
o-Xylene	TM116	**70.2** 68.34 : 101.99	**84.8** 72.86 : 102.10	**77.0** 72.86 : 102.10	**72.8** 68.34 : 101.99
p/m-Xylene	TM116	**75.3** 69.47 : 97.31	**83.6** 68.99 : 102.40	**78.7** 68.99 : 102.40	**80.4** 69.47 : 97.31
Sec-Butylbenzene	TM116	**44.2** 27.03 : 135.73	**94.6** 44.71 : 117.87	**78.6** 44.71 : 117.87	**74.0** 27.03 : 135.73
Tetrachloroethene	TM116	**92.2** 80.10 : 120.38	**104.2** 77.82 : 125.00	**97.0** 77.82 : 125.00	**95.6** 80.10 : 120.38
Toluene	TM116	**89.2** 80.66 : 100.10	**97.4** 87.82 : 116.21	**97.8** 87.82 : 116.21	**88.6** 80.66 : 100.10
Trichloroethene	TM116	**90.0** 79.80 : 112.33	**92.4** 79.80 : 112.33	**94.4** 79.80 : 112.33	**89.2** 79.80 : 112.33
Trichlorofluoromethane	TM116	**117.4** 83.13 : 123.97	**101.8** 80.52 : 132.12	**106.4** 80.52 : 132.12	**104.2** 83.13 : 123.97
Vinyl Chloride	TM116	**104.6** 69.66 : 136.55	**103.6** 74.57 : 146.88	**106.6** 74.57 : 146.88	**94.2** 69.66 : 136.55

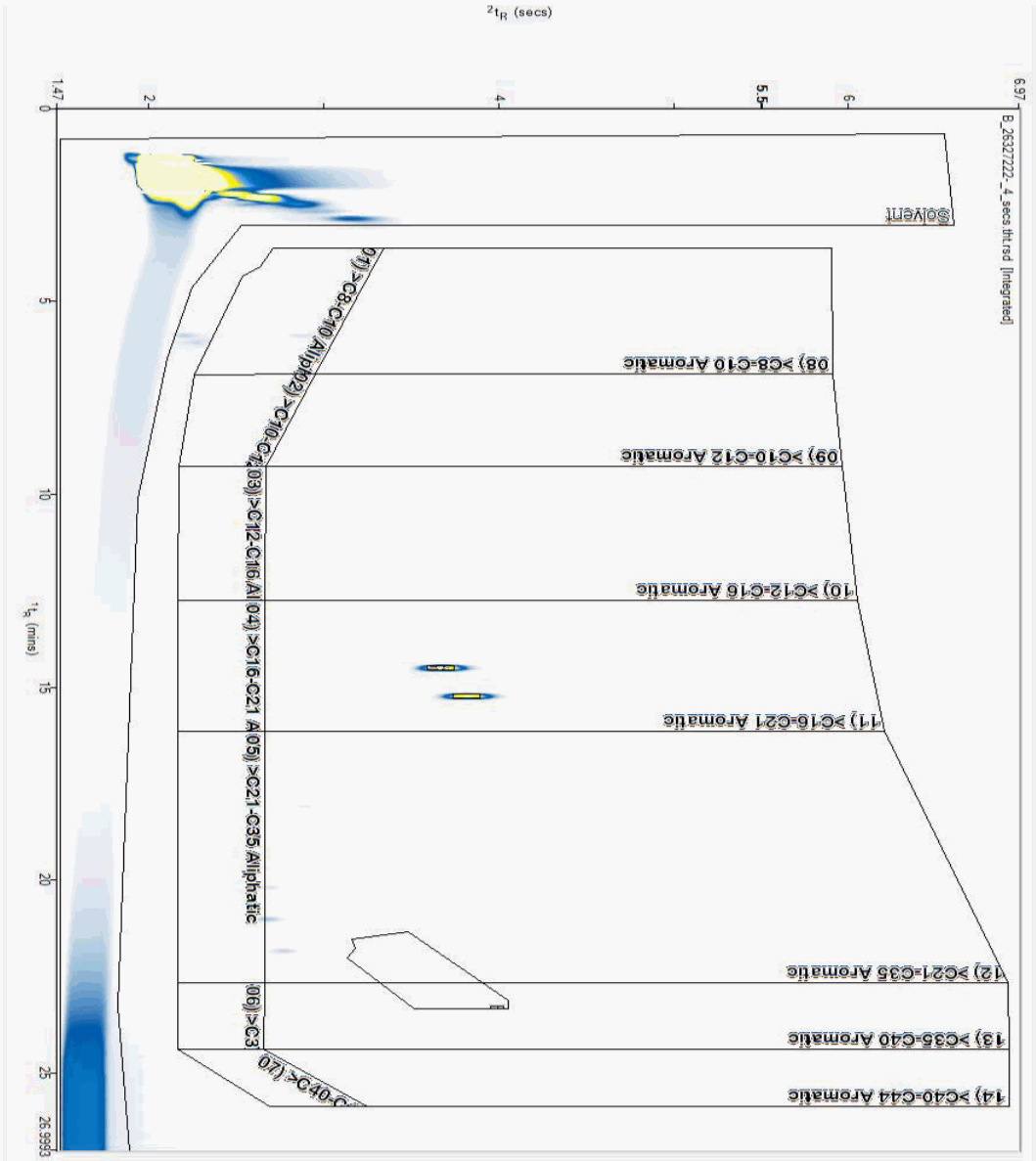
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26327222 **Depth :** 0.80
Sample ID : TP013

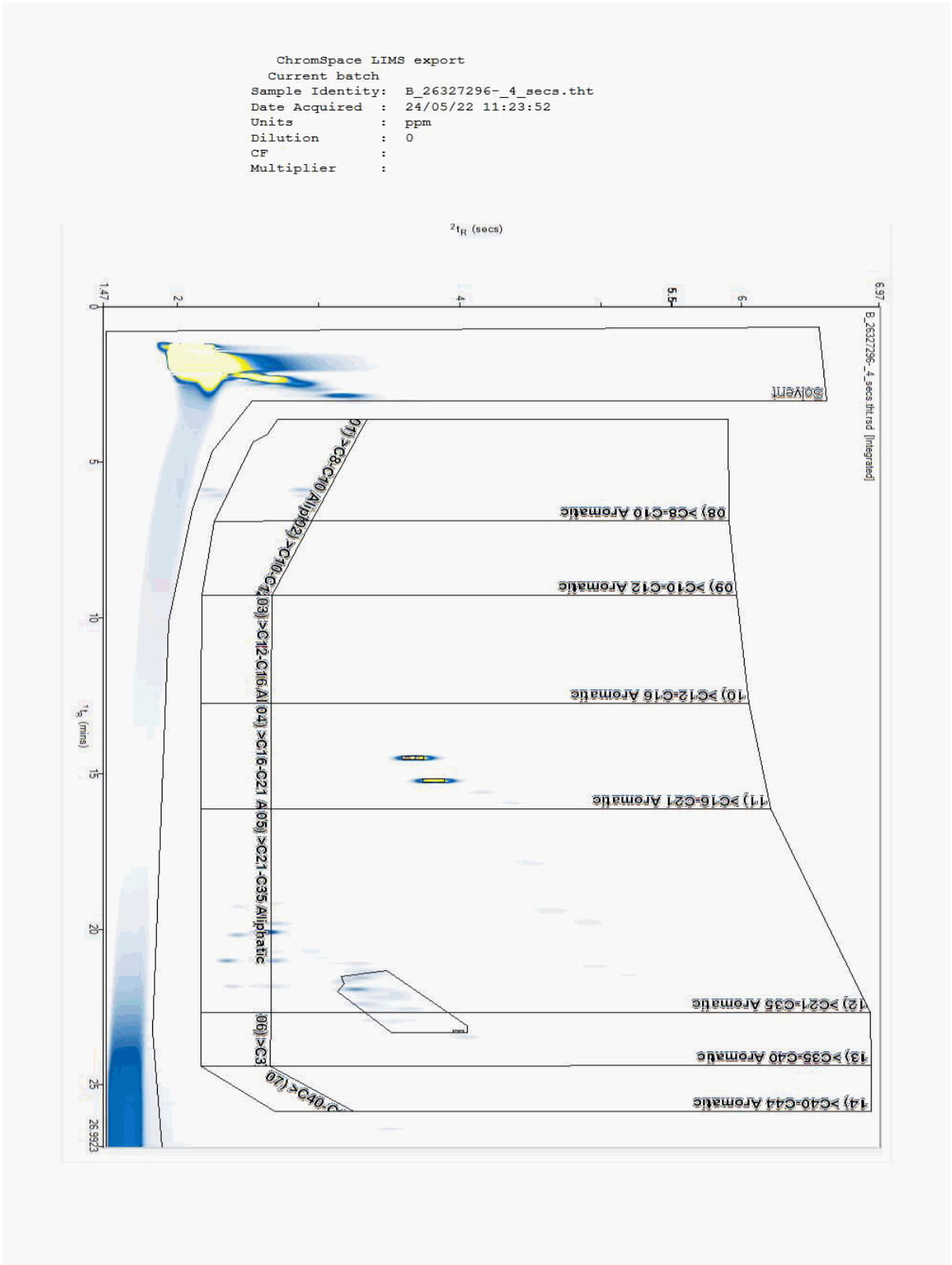


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26327296 **Depth :** 0.30
Sample ID : BH001

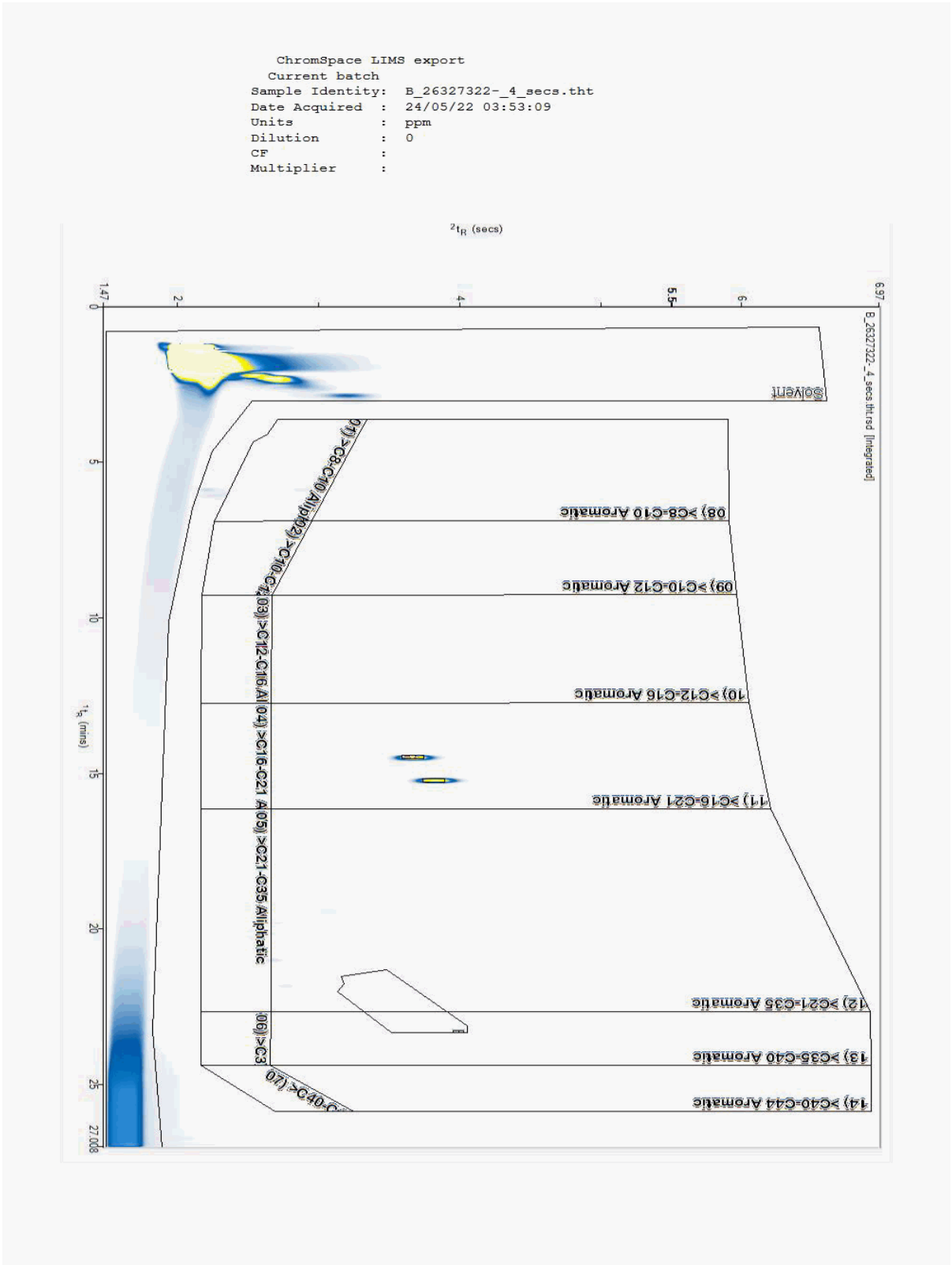


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26327322 **Depth :** 1.20
Sample ID : BH002

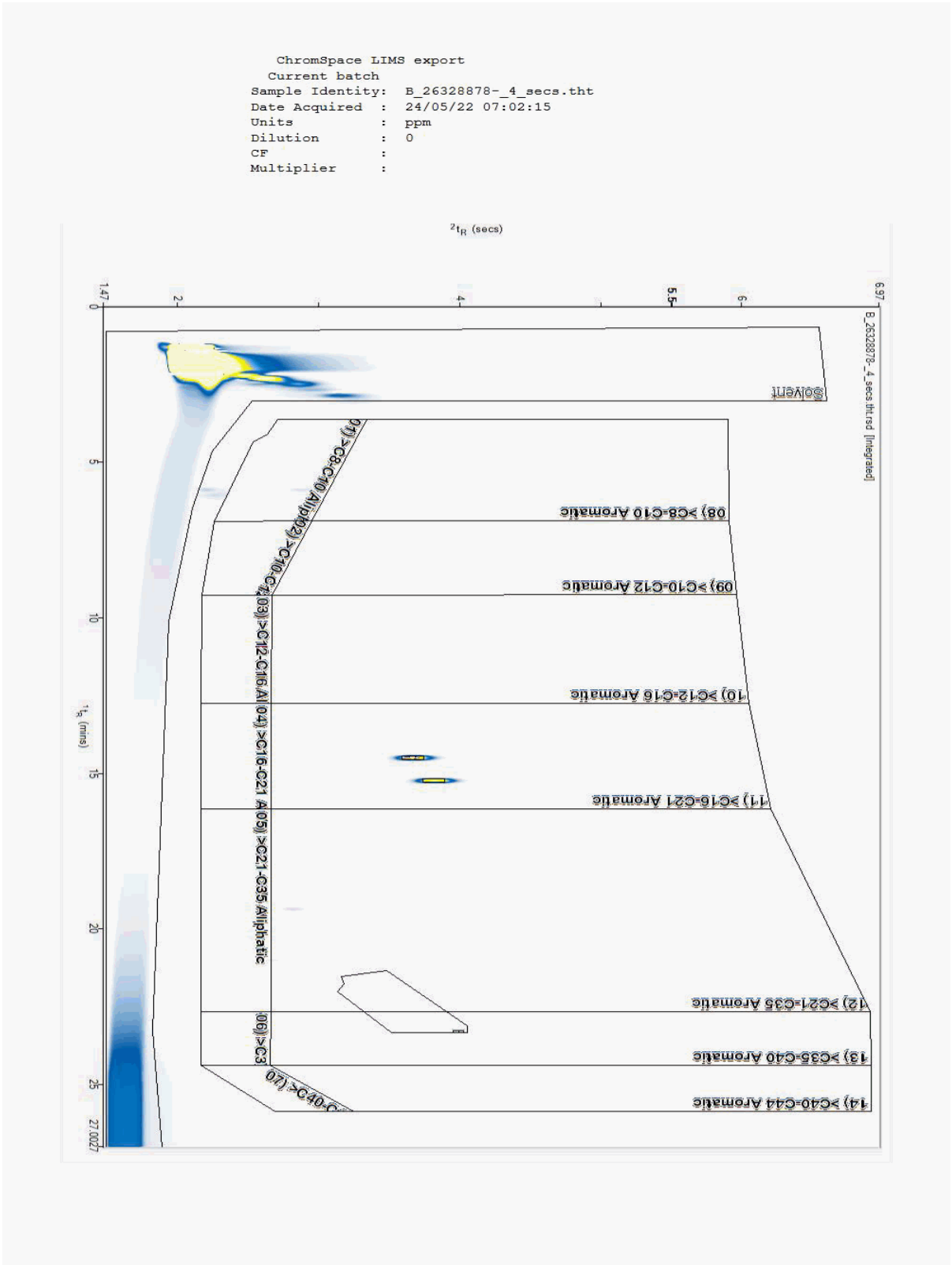


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26328878 **Depth :** 0.80
Sample ID : AVW_BH_08

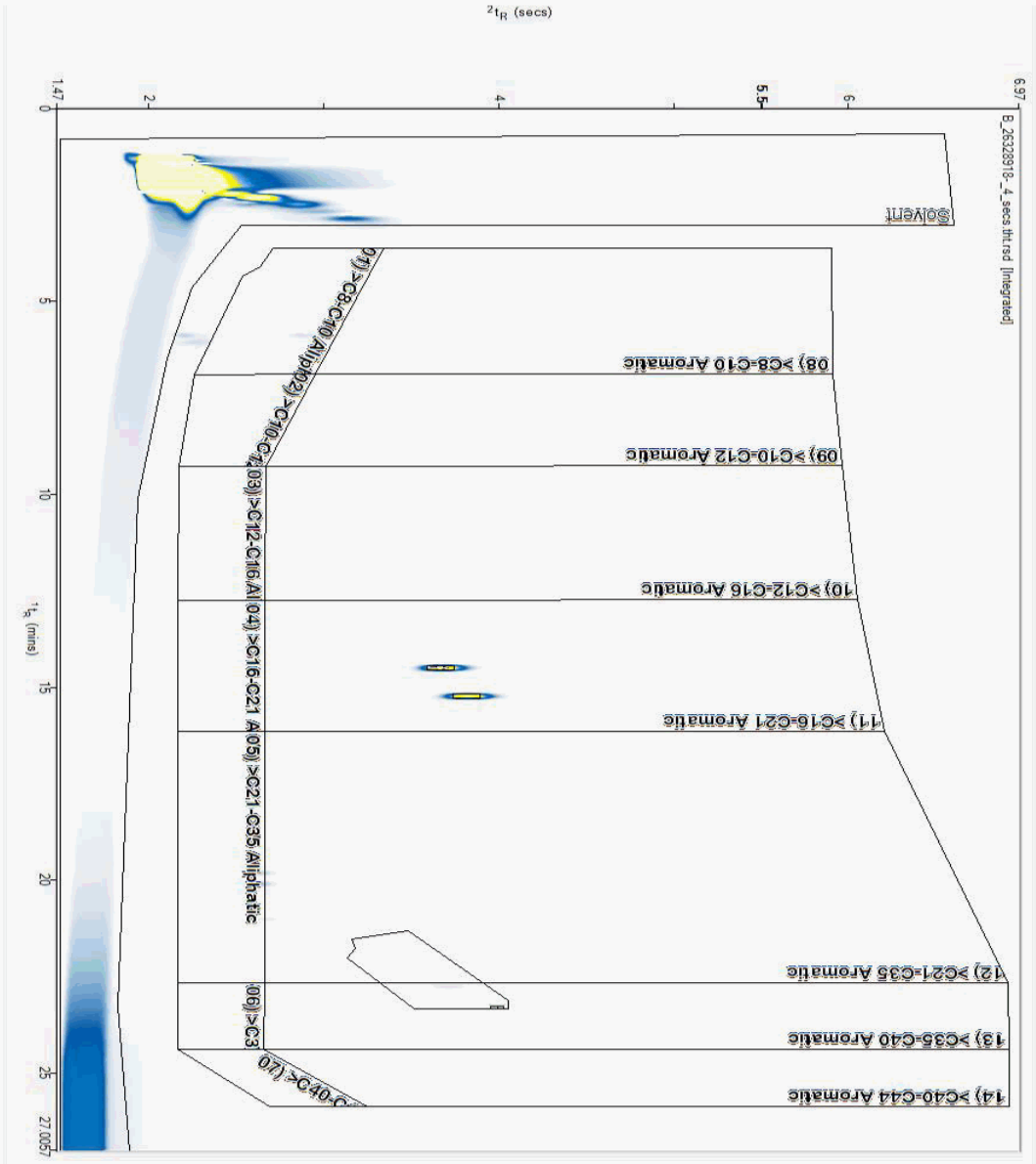


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26328918 **Depth :** 1.20
Sample ID : TP012

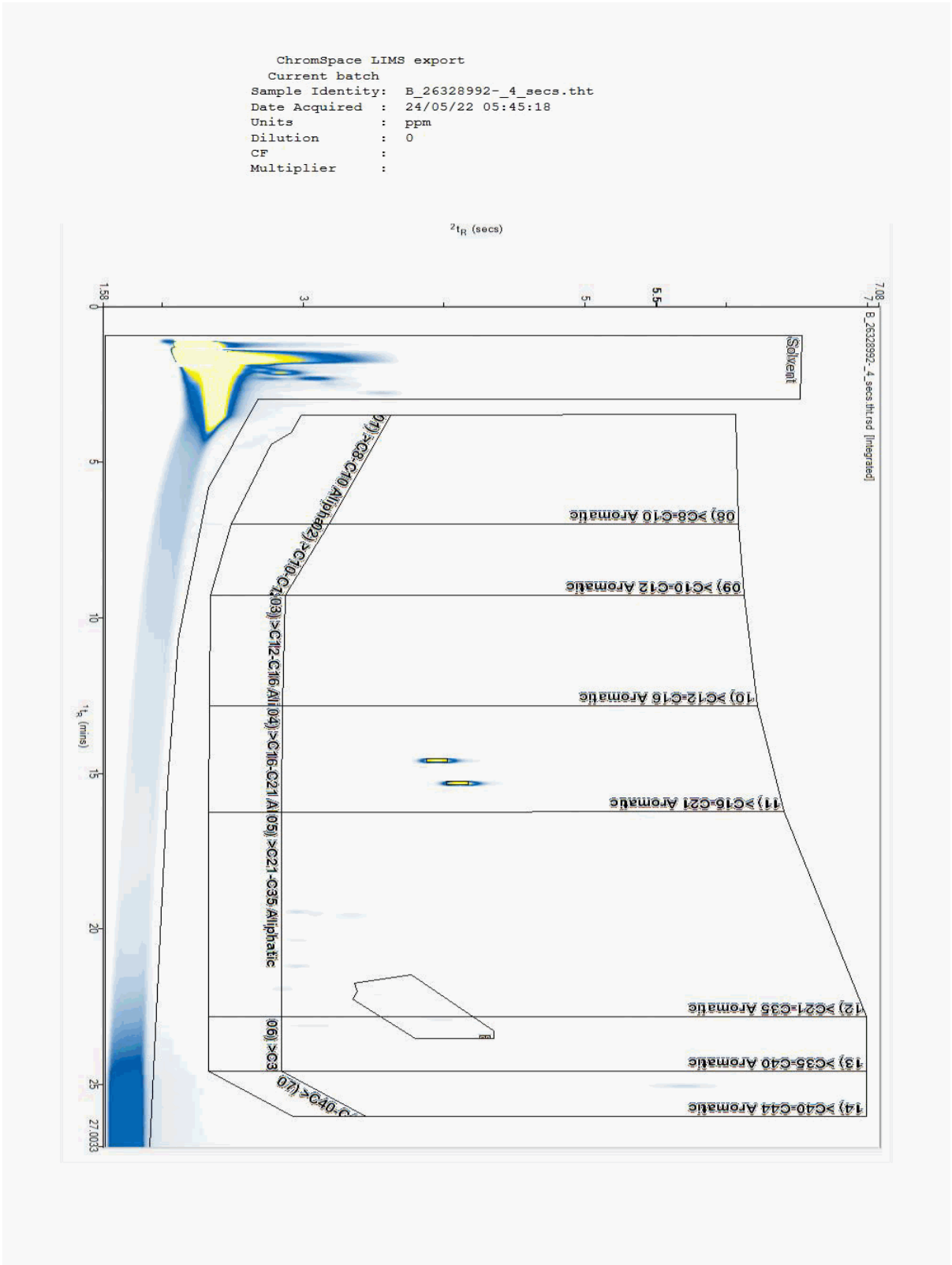


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26328992 **Depth :** 0.80
Sample ID : AVW_BH_06

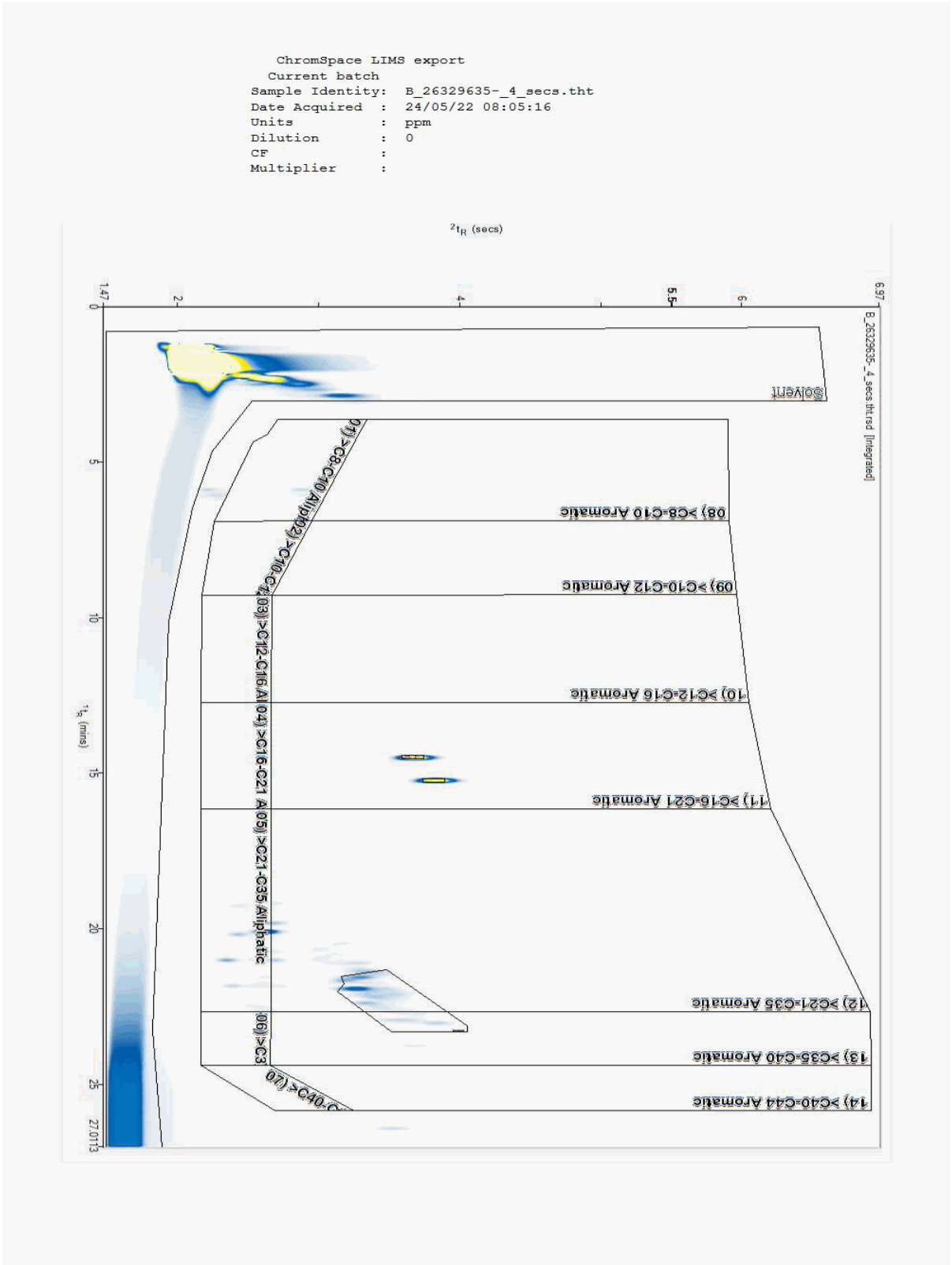


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26329635 **Depth :** 0.30
Sample ID : AVW_BH_05

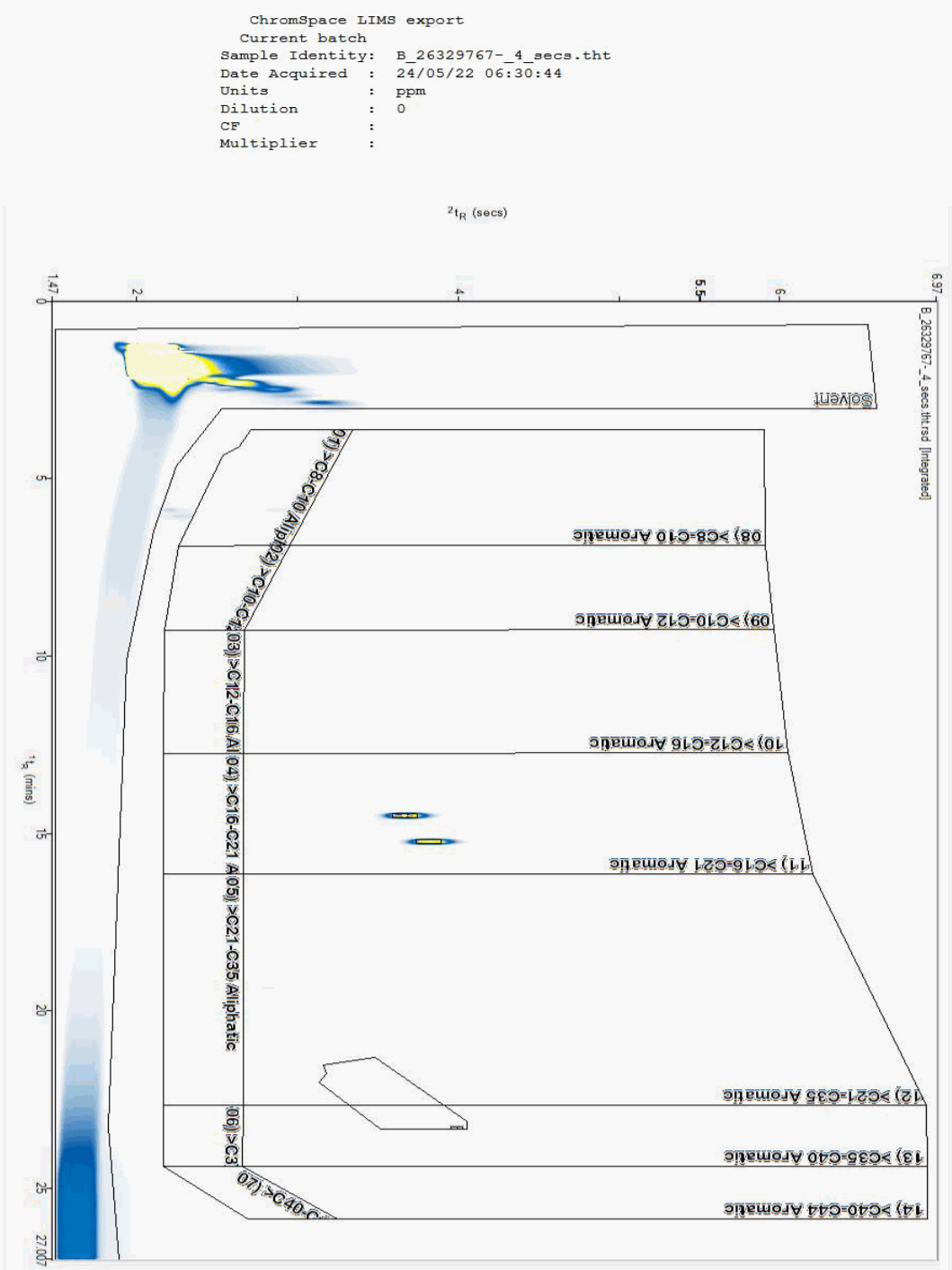


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26329767 **Depth :** 1.20
Sample ID : AWCI_BH_04

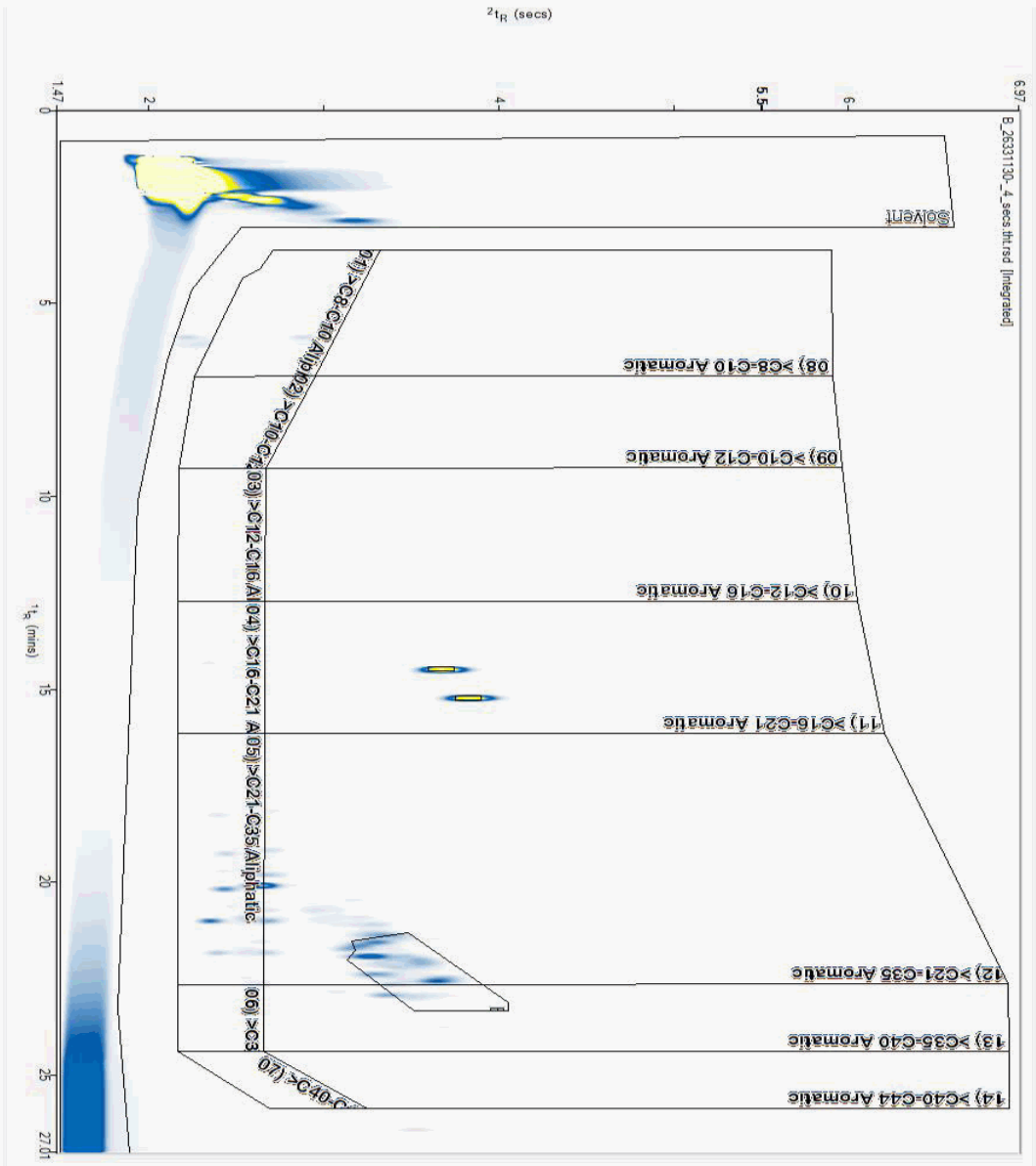


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 26331130 **Depth :** 0.30
Sample ID : TP001

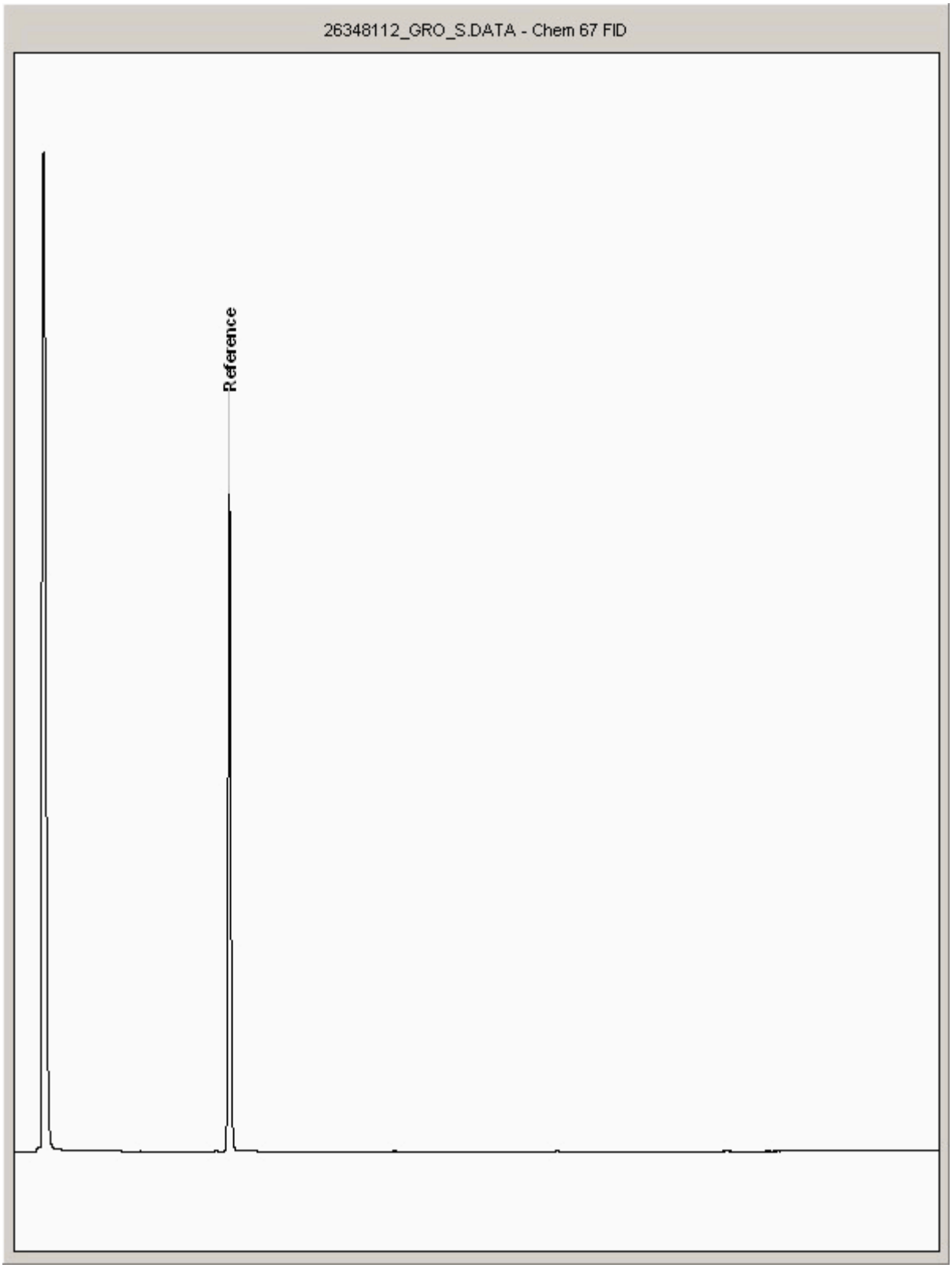


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26348112 **Depth :** 0.30
Sample ID : BH001

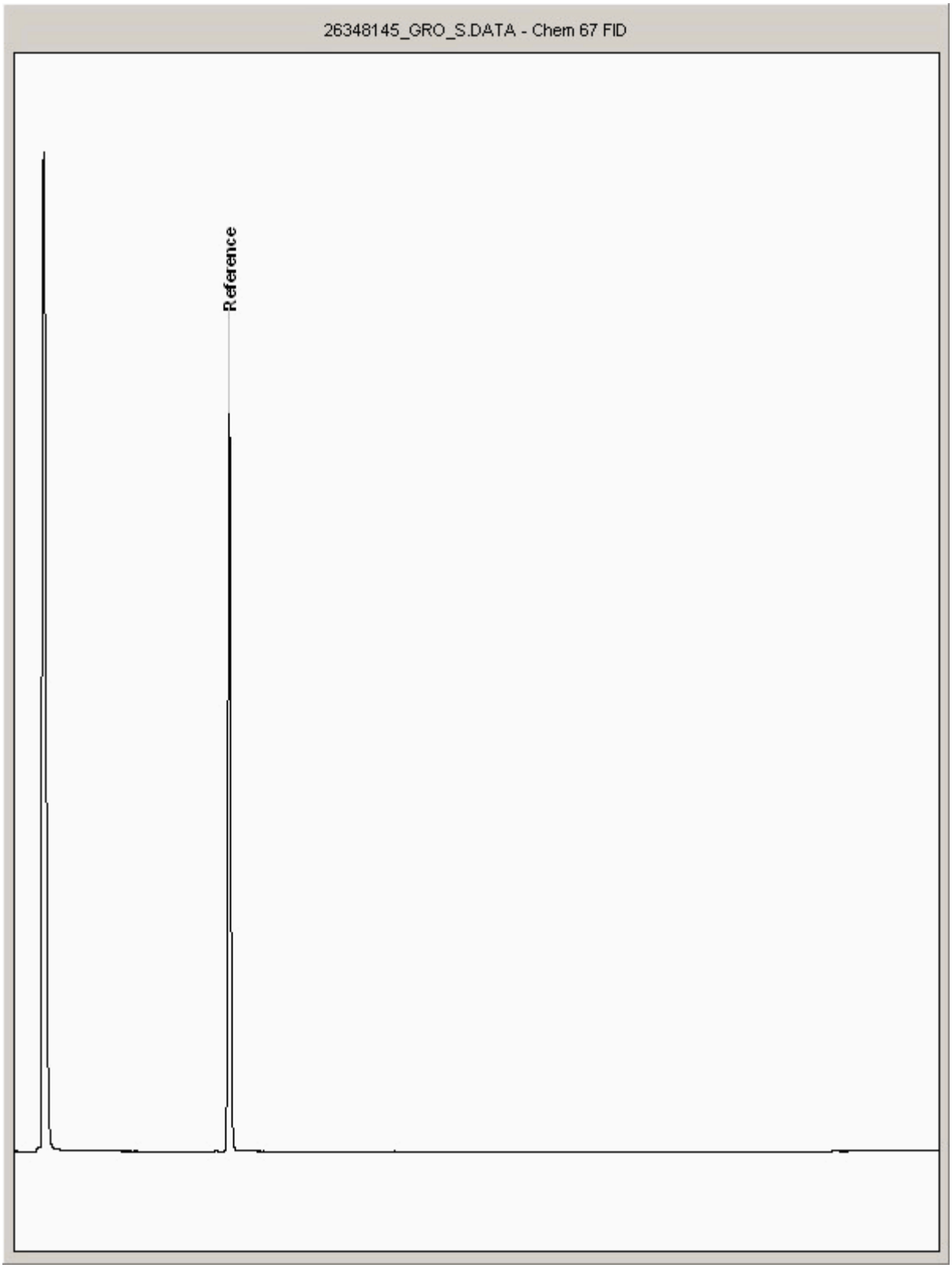


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26348145 **Depth :** 1.20
Sample ID : BH002

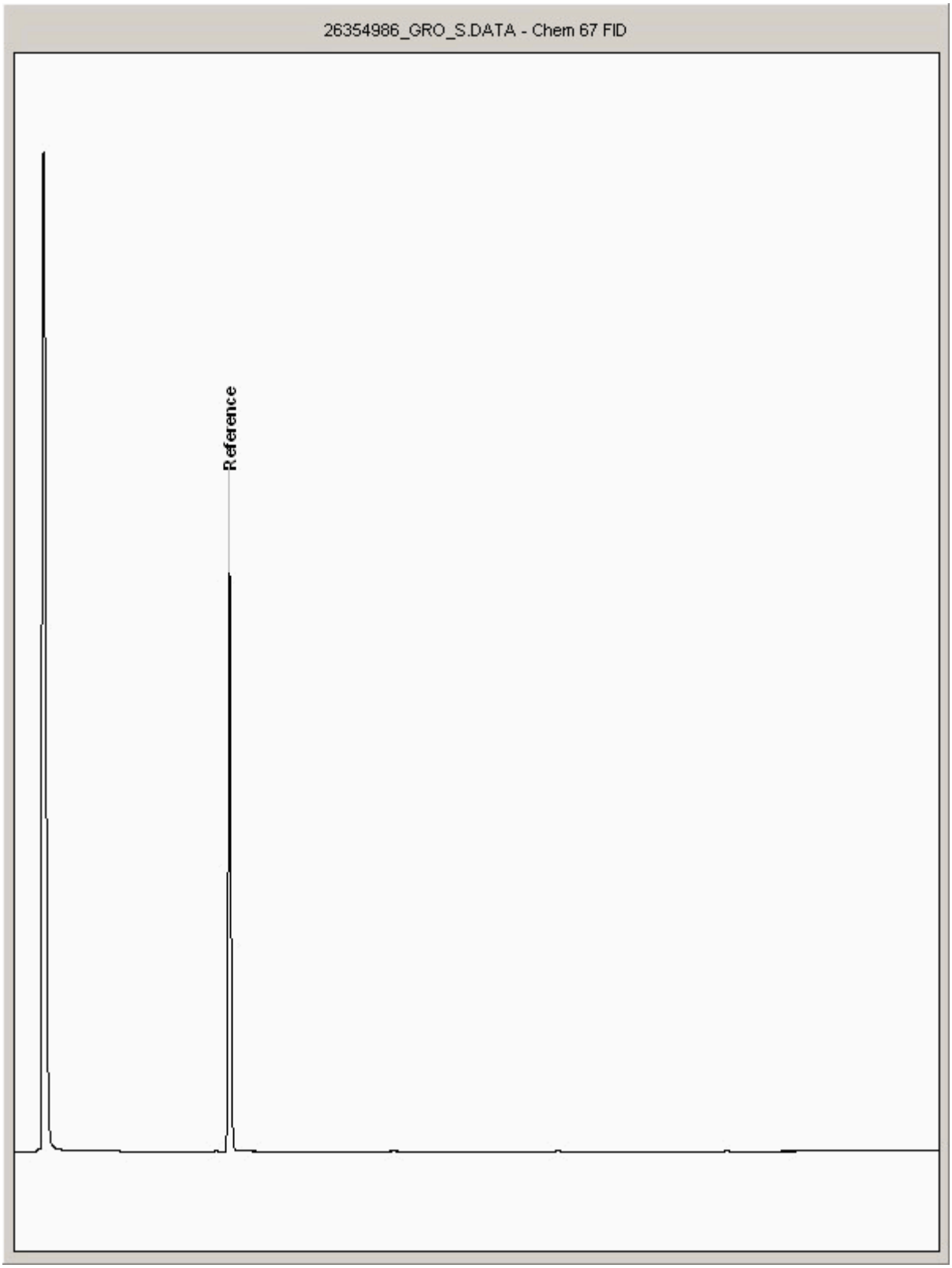


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26354986 **Depth :** 0.30
Sample ID : TP001

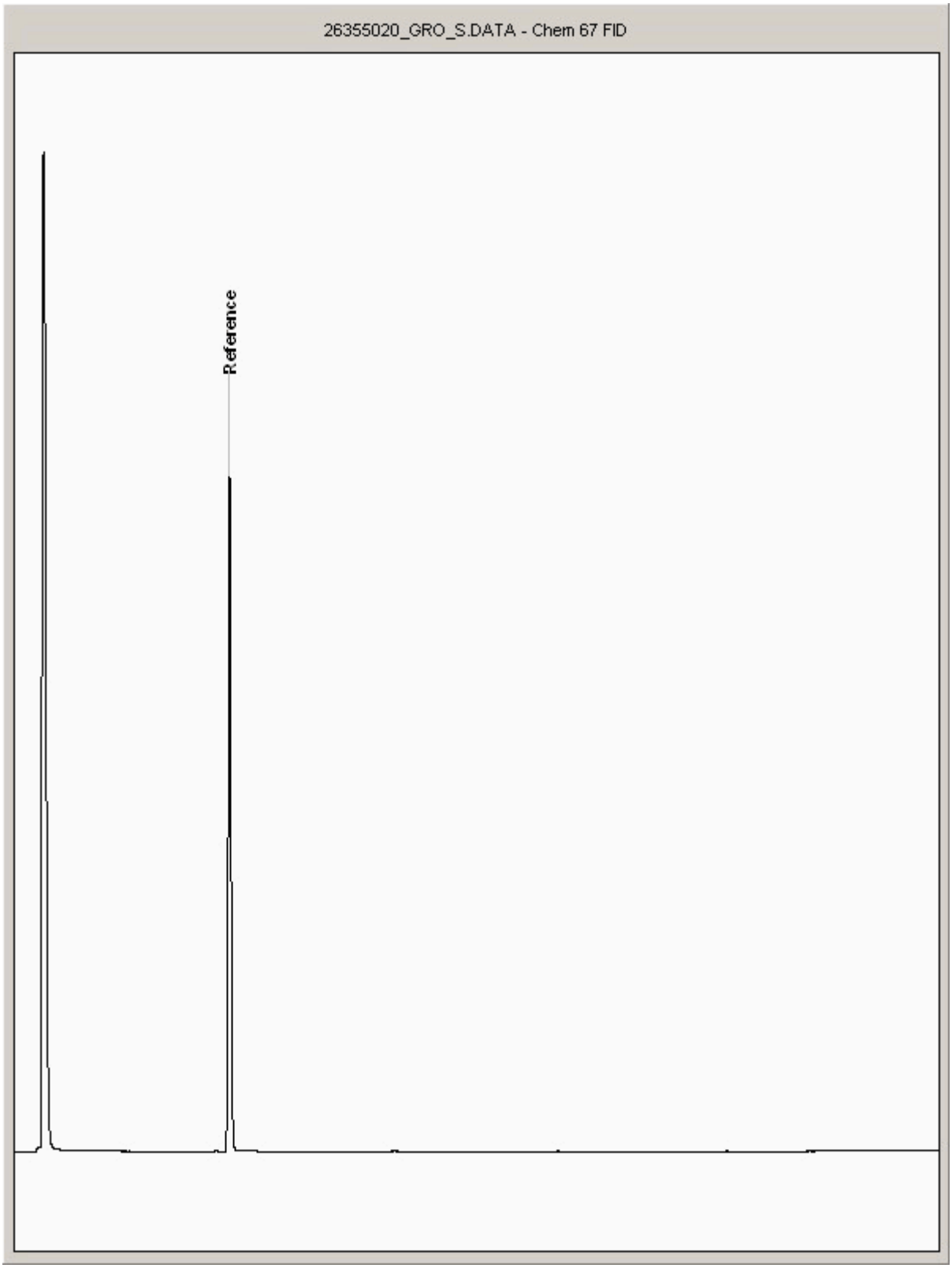


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26355020 **Depth :** 0.80
Sample ID : AVW_BH_08

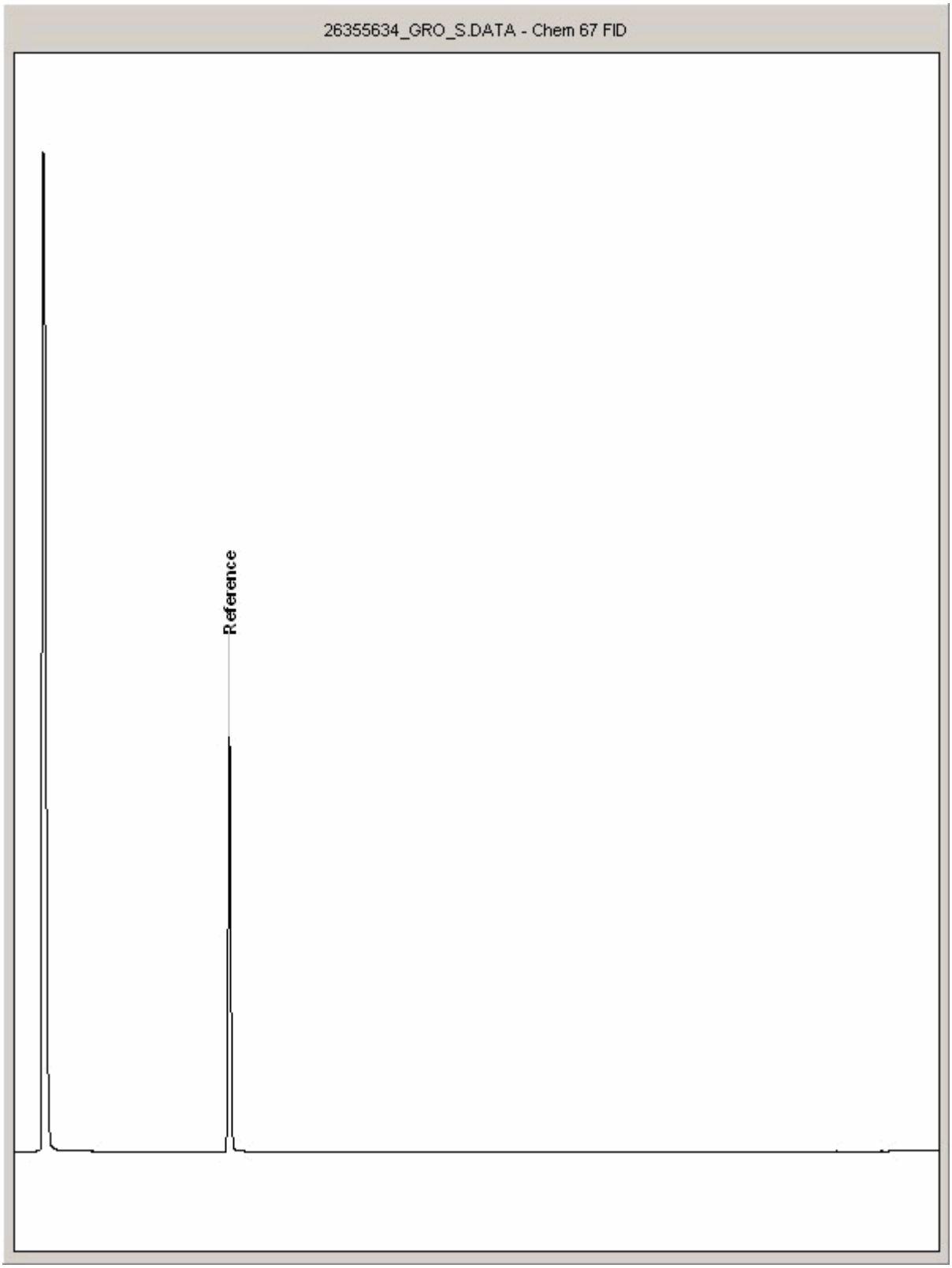


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26355634 **Depth :** 0.30
Sample ID : AVW_BH_05

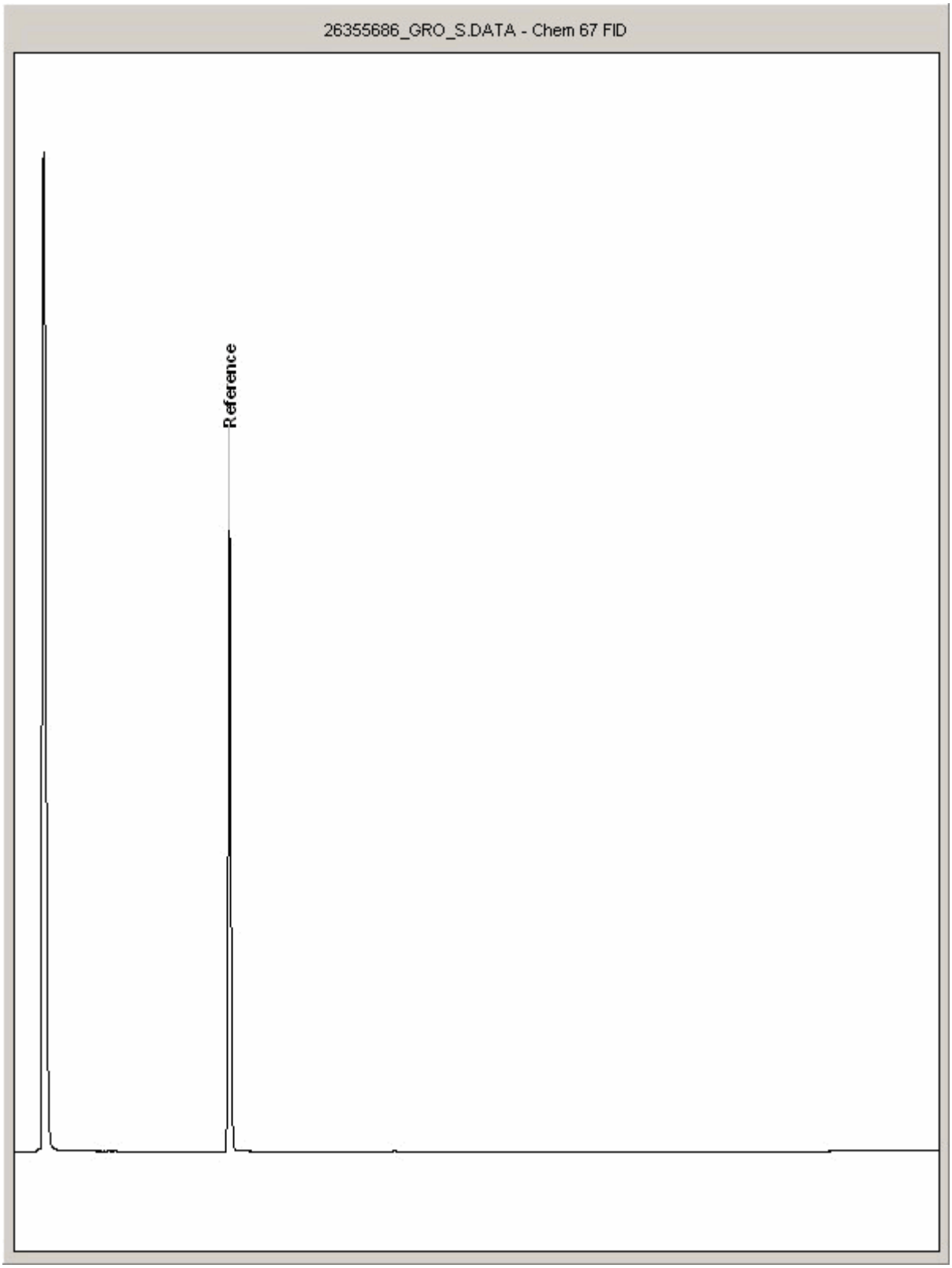


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26355686 **Depth :** 1.20
Sample ID : TP012

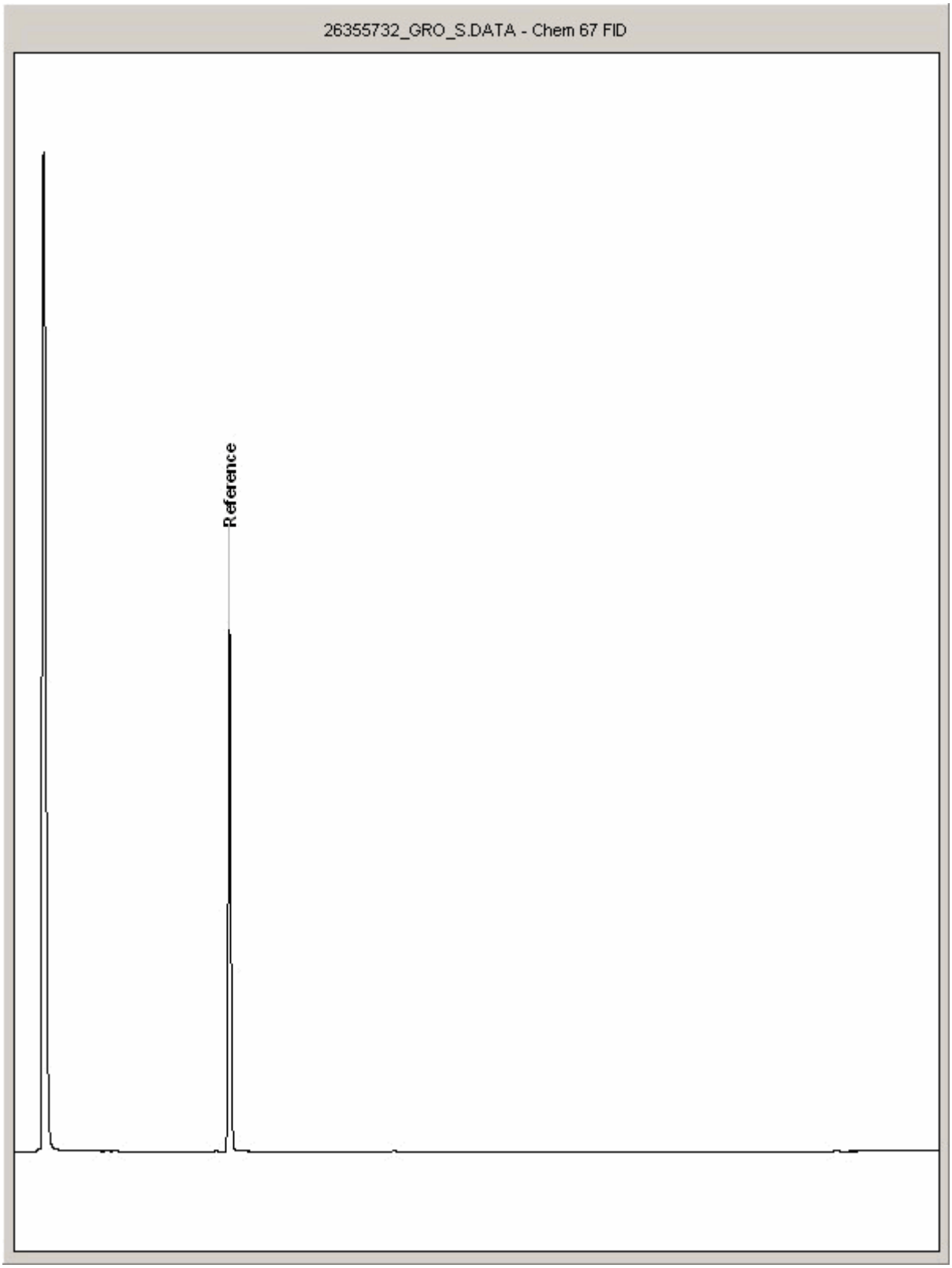


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26355732 **Depth :** 0.80
Sample ID : TP013

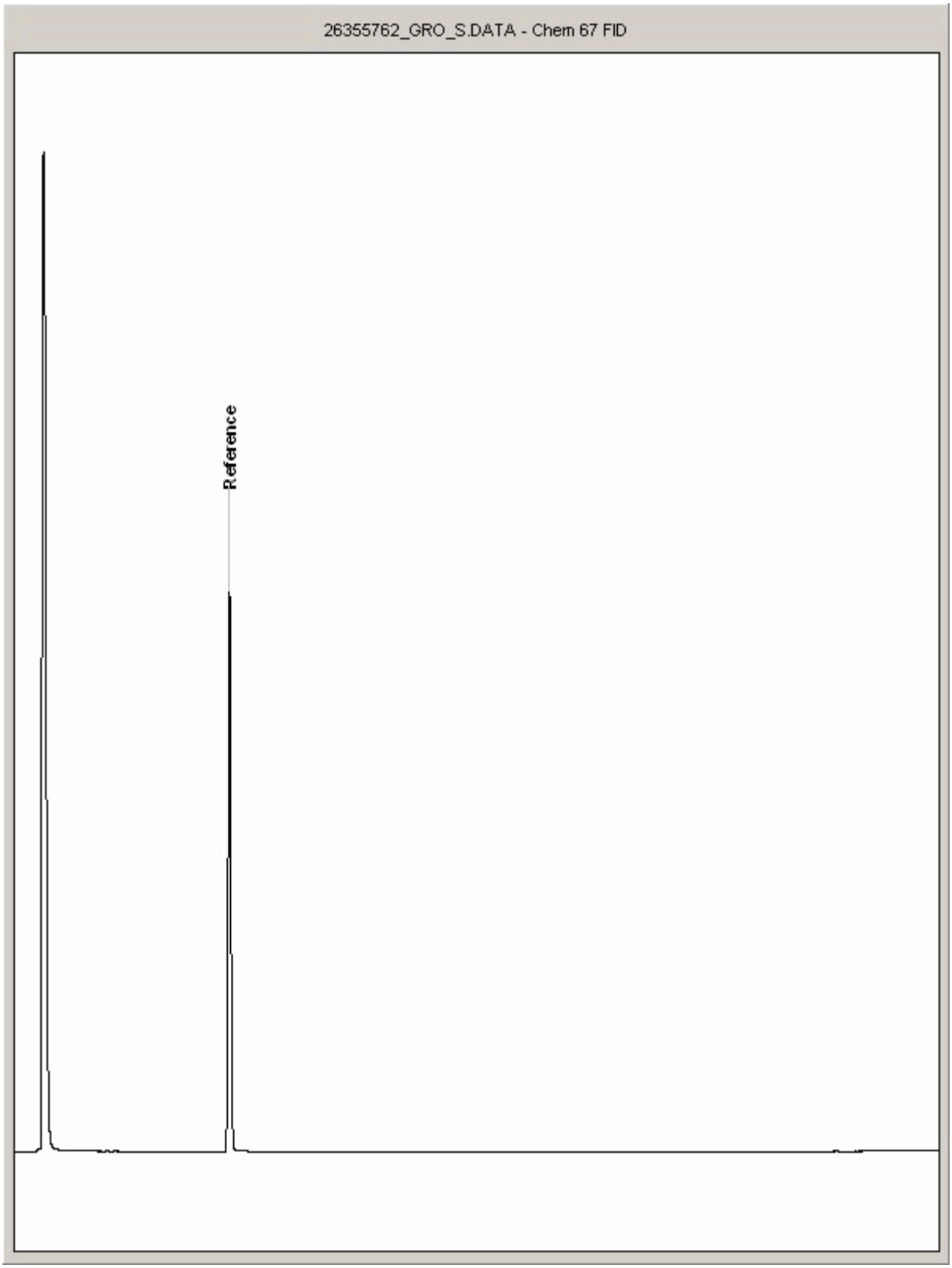


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26355762 **Depth :** 0.80
Sample ID : AVW_BH_06

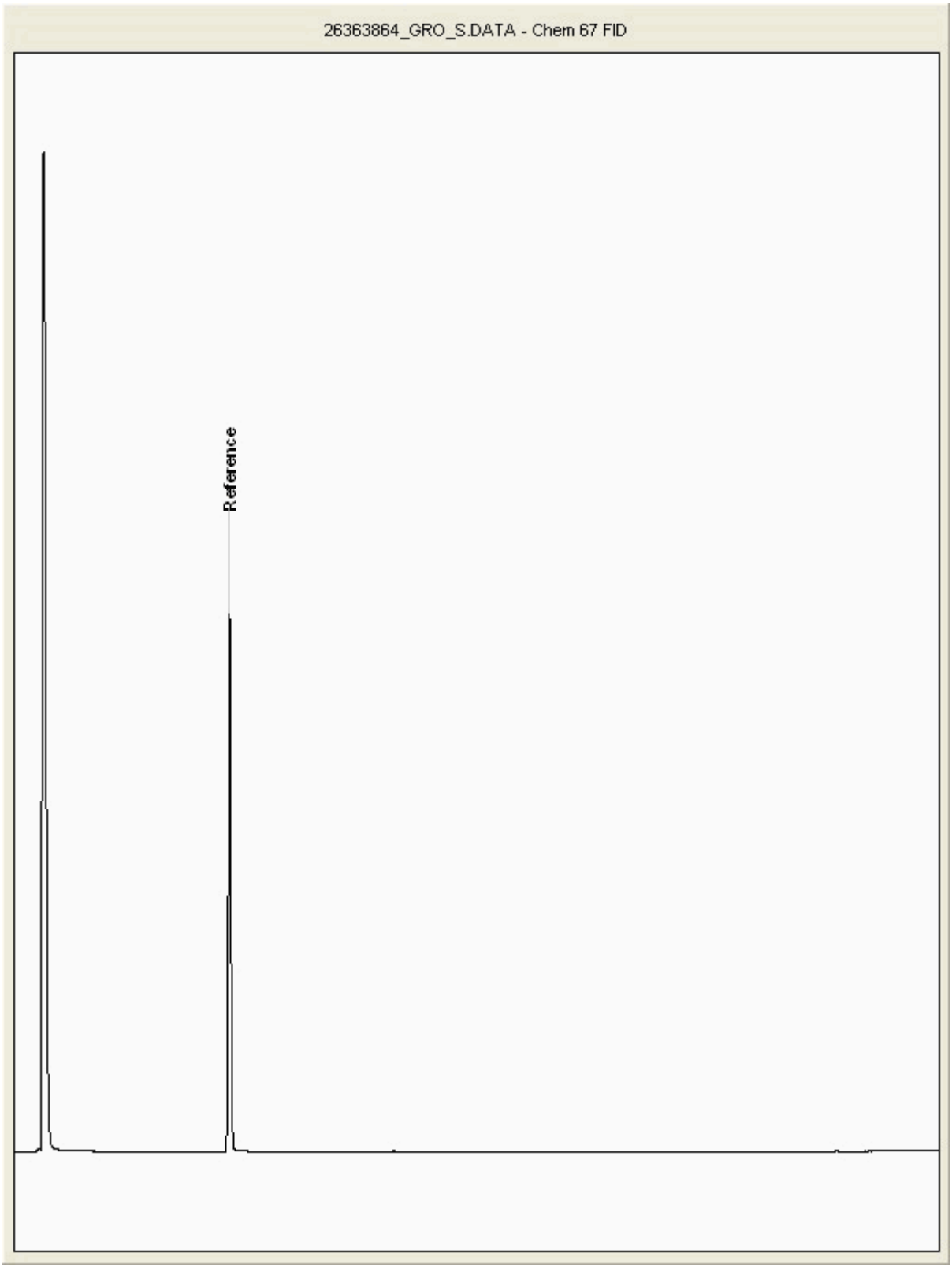


CERTIFICATE OF ANALYSIS

SDG: 220514-82 **Report Number:** 648711 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 26363864 **Depth :** 1.20
Sample ID : AWCI_BH_04



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix J
WATER CHEMICAL RESULTS

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	01 June 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220519-78
Your Reference:	JER9352
Location:	Chippenham
Report No:	649083
Order Number:	PO22-197

We received 7 samples on Thursday May 19, 2022 and 7 of these samples were scheduled for analysis which was completed on Wednesday June 01, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26305917	AVC1-BH-05		5.00	17/05/2022
26305912	AVC1-BH-08		5.50	17/05/2022
26305911	AVC1-BH-14		7.50	17/05/2022
26305918	BH003		4.00	17/05/2022
26305909	PWB-BH-02		5.50	17/05/2022
26305908	PWB-BH-06		5.00	17/05/2022
26305913	WS011		3.50	17/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26305917							26305912							26305911							26305918		
Customer Sample Reference			AVC1-BH-05							AVC1-BH-08							AVC1-BH-14							BH003		
AGS Reference																										
Depth (m)			5.00							5.50							7.50							4.00		
Container			1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)			
Sample Type			UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 7			X						X						X						X			
Anions by Kone (w)	All	NDPs: 0 Tests: 7		X						X						X						X				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 7					X						X						X							
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7				X						X						X								
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 7	X						X						X						X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 7	X						X						X						X					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 7						X						X						X						
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 7		X						X						X						X				
Mercury Dissolved	All	NDPs: 0 Tests: 7				X						X						X								
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 7	X						X						X						X					
pH Value	All	NDPs: 0 Tests: 7		X						X						X						X				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 7			X						X						X						X			
Sulphide	All	NDPs: 0 Tests: 7		X						X						X						X				
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 7			X						X						X						X			
TPH CWG (W)	All	NDPs: 0 Tests: 7	X						X						X						X					

26305913	WS011		3.50	HNO3 Filtered (ALE204)	UNL					X						X							
				H2SO4 (ALE244)	UNL		X														X		X	
				500ml Plastic (ALE208)	UNL			X							X				X			X		
				1000ml glass bottle (ALE220)	UNL						X		X					X						X
26305908	PWB-BH-06		5.00	Vial (ALE297)	UNL									X									
				NaOH (ALE245)	UNL				X															
				HNO3 Filtered (ALE204)	UNL					X						X								
				H2SO4 (ALE244)	UNL		X														X		X	
				500ml Plastic (ALE208)	UNL			X							X				X			X		
				1000ml glass bottle (ALE220)	UNL						X		X					X						X
26305909	PWB-BH-02		5.50	Vial (ALE297)	UNL									X									
				NaOH (ALE245)	UNL				X															
				HNO3 Filtered (ALE204)	UNL					X						X								
				H2SO4 (ALE244)	UNL		X														X		X	
				500ml Plastic (ALE208)	UNL			X							X				X			X		
				1000ml glass bottle (ALE220)	UNL						X		X					X						X
26305918	BH003		4.00	Vial (ALE297)	UNL									X									
				NaOH (ALE245)	UNL				X															
				HNO3 Filtered (ALE204)	UNL					X						X								

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26305917	26305912	26305911	26305918
Customer Sample Reference			AVC1-BH-05	AVC1-BH-08	AVC1-BH-14	BH003
AGS Reference						
Depth (m)			5.00	5.50	7.50	4.00
Container			1000ml glass bottle (ALE220)	1000ml glass bottle (ALE220)	1000ml glass bottle (ALE220)	1000ml glass bottle (ALE220)
			500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)
			H2SO4 (ALE244)	H2SO4 (ALE244)	H2SO4 (ALE244)	H2SO4 (ALE244)
			HNO3 Filtered (ALE204)	HNO3 Filtered (ALE204)	HNO3 Filtered (ALE204)	
			NaOH (ALE245)	NaOH (ALE245)	NaOH (ALE245)	
			Vial (ALE297)	Vial (ALE297)	Vial (ALE297)	
Sample Type			UNL	UNL	UNL	UNL
VOC MS (W)	All	NDPs: 0 Tests: 7	X	X	X	

26305913	WS011		3.50	HNO3 Filtered (ALE204)	UNL		
				H2SO4 (ALE244)	UNL		
				500ml Plastic (ALE208)	UNL		
				1000ml glass bottle (ALE220)	UNL		
26305908	PWB-BH-06		5.00	Vial (ALE297)	UNL		X
				NaOH (ALE245)	UNL		
				HNO3 Filtered (ALE204)	UNL		
				H2SO4 (ALE244)	UNL		
				500ml Plastic (ALE208)	UNL		
				1000ml glass bottle (ALE220)	UNL		
26305909	PWB-BH-02		5.50	Vial (ALE297)	UNL		X
				NaOH (ALE245)	UNL		
				HNO3 Filtered (ALE204)	UNL		
				H2SO4 (ALE244)	UNL		
				500ml Plastic (ALE208)	UNL		
				1000ml glass bottle (ALE220)	UNL		
26305918	BH003		4.00	Vial (ALE297)	UNL		X
				NaOH (ALE245)	UNL		
				HNO3 Filtered (ALE204)	UNL		

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26305913	
			Customer Sample Reference	WS011	
			AGS Reference		
			Depth (m)	3.50	
			Container	NaOH (ALE245)	Vial (ALE297)
			Sample Type	UNL	UNL
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 7		X	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 7			X
VOC MS (W)	All	NDPs: 0 Tests: 7			X

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-05	AVC1-BH-08	AVC1-BH-14	BH003	PWB-BH-02	PWB-BH-06
			Depth (m)	5.00	5.50	7.50	4.00	5.50	5.00
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022
			SDG Ref	220519-78	220519-78	220519-78	220519-78	220519-78	220519-78
			Lab Sample No.(s)	26305917	26305912	26305911	26305918	26305909	26305908
			AGS Reference						
Organic Carbon, Total	<3 mg/l	TM090		12.1 @	<3 @	3.87 @	<3 @	11.6 @	3.23 @
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1.13	<0.2	<0.2	<0.2	0.775	<0.2
Ammoniacal Nitrogen as NH3	<0.2 mg/l	TM099		1.38	<0.2	<0.2	<0.2	0.941	<0.2
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099		1.45	<0.3	<0.3	<0.3	0.996	<0.3
Sulphide	<0.01 mg/l	TM101		<0.01 2	<0.01 2	<0.01 2	<0.01 2	<0.01 2	<0.01 2
Aluminium (diss.filt)	<10 µg/l	TM152		1290	<10	12.6	<10	<10	10.4
Antimony (diss.filt)	<1 µg/l	TM152		<1	<1	1.12	<1	<1	<1
Arsenic (diss.filt)	<0.5 µg/l	TM152		2.47	1.79	1.9	<0.5	0.607	0.941
Barium (diss.filt)	<0.2 µg/l	TM152		23.2	75.4	18.8	27.4	11.6	15.4
Beryllium (diss.filt)	<0.1 µg/l	TM152		0.103	<0.1	<0.1	<0.1	<0.1	<0.1
Boron (diss.filt)	<10 µg/l	TM152		38.2	257	3090	75	869	595
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08	<0.08	<0.08	<0.08	<0.08	0.207
Chromium (diss.filt)	<1 µg/l	TM152		1.82	<1	<1	<1	<1	<1
Copper (diss.filt)	<0.3 µg/l	TM152		3.3	0.475	1.63	<0.3	<0.3	2.46
Lead (diss.filt)	<0.2 µg/l	TM152		1.72	<0.2	<0.2	<0.2	<0.2	<0.2
Molybdenum (diss.filt)	<3 µg/l	TM152		<3	<3	8.33	<3	<3	<3
Nickel (diss.filt)	<0.4 µg/l	TM152		7.77	2.53	34	11.5	22.1	37.2
Phosphorus (diss.filt)	<10 µg/l	TM152		92.6	16.2	<10	<10	<10	<10
Selenium (diss.filt)	<1 µg/l	TM152		<1	<1	<1	<1	<1	<1
Vanadium (diss.filt)	<1 µg/l	TM152		3.21	<1	<1	<1	<1	<1
Zinc (diss.filt)	<1 µg/l	TM152		15.2	5.3	8.44	1.86	1.89	17.2
Iron (Dis.Filt)	<0.019 mg/l	TM152		1.95	0.524	<0.019	<0.019	24.5	0.025
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphate	<2 mg/l	TM184		1150	70.2	1090	55.1	1360	395
Chloride	<2 mg/l	TM184		119	39.7	1790	33.1	180	61.7
Nitrate as NO3	<0.3 mg/l	TM184		1.46	<0.3	<0.3	53.3	<0.3	<0.3
Cyanide, Total	<0.05 mg/l	TM227		<0.05 @	<0.05 @	<0.05 @	<0.05 @	<0.05 @	<0.05 @
Cyanide, Free	<0.05 mg/l	TM227		<0.05 @	<0.05 @	<0.05 @	<0.05 @	<0.05 @	<0.05 @
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
pH	<1 pH Units	TM256		6.64	7.17	7.65	7.25	6.61	7.12
Phenol	<0.002 mg/l	TM259		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259		<0.006	<0.006	<0.006	<0.006	<0.006	<0.006

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	AVC1-BH-05	AVC1-BH-08	AVC1-BH-14	BH003	PWB-BH-02	PWB-BH-06
Customer Sample Ref.								
Depth (m)			5.00	5.50	7.50	4.00	5.50	5.00
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
Date Sampled			17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022
Sampled Time			.	.	.	.	.	.
Date Received			19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022
SDG Ref			220519-78	220519-78	220519-78	220519-78	220519-78	220519-78
Lab Sample No.(s)			26305917	26305912	26305911	26305918	26305909	26305908
AGS Reference								
Xylenols	<0.008 mg/l	TM259	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	
			Depth (m)	3.50
			Sample Type	Unspecified Liquid (UNL)
			Date Sampled	17/05/2022
			Sampled Time	.
			Date Received	19/05/2022
			SDG Ref	220519-78
			Lab Sample No.(s)	26305913
			AGS Reference	WS011
Organic Carbon, Total	<3 mg/l	TM090	4.57 @	
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2	
Ammoniacal Nitrogen as NH3	<0.2 mg/l	TM099	<0.2	
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	<0.3	
Sulphide	<0.01 mg/l	TM101	<0.01 2	
Aluminium (diss.filt)	<10 µg/l	TM152	<10	
Antimony (diss.filt)	<1 µg/l	TM152	<1	
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.39	
Barium (diss.filt)	<0.2 µg/l	TM152	17.4	
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1	
Boron (diss.filt)	<10 µg/l	TM152	34.3	
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	
Chromium (diss.filt)	<1 µg/l	TM152	<1	
Copper (diss.filt)	<0.3 µg/l	TM152	0.853	
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	
Molybdenum (diss.filt)	<3 µg/l	TM152	<3	
Nickel (diss.filt)	<0.4 µg/l	TM152	6.09	
Phosphorus (diss.filt)	<10 µg/l	TM152	<10	
Selenium (diss.filt)	<1 µg/l	TM152	<1	
Vanadium (diss.filt)	<1 µg/l	TM152	<1	
Zinc (diss.filt)	<1 µg/l	TM152	7.25	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.235	
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	
Sulphate	<2 mg/l	TM184	56.4	
Chloride	<2 mg/l	TM184	26.8	
Nitrate as NO3	<0.3 mg/l	TM184	<0.3	
Cyanide, Total	<0.05 mg/l	TM227	<0.05 @	
Cyanide, Free	<0.05 mg/l	TM227	<0.05 @	
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03	
pH	<1 pH Units	TM256	7.1	
Phenol	<0.002 mg/l	TM259	<0.002	
Cresols	<0.006 mg/l	TM259	<0.006	

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

		Customer Sample Ref.	WS011
		Depth (m)	3.50
		Sample Type	Unspecified Liquid (UNL)
		Date Sampled	17/05/2022
		Sampled Time	.
		Date Received	19/05/2022
		SDG Ref	220519-78
		Lab Sample No.(s)	26305913
		AGS Reference	
Component	**LOD/Units**	**Method**	
Xylenols	<0.008 mg/l	TM259	<0.008
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-05	AVC1-BH-08	AVC1-BH-14	BH003	PWB-BH-02	PWB-BH-06
			Depth (m)	5.00	5.50	7.50	4.00	5.50	5.00
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022
			SDG Ref	220519-78	220519-78	220519-78	220519-78	220519-78	220519-78
			Lab Sample No.(s)	26305917	26305912	26305911	26305918	26305909	26305908
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 @	<0.01 @	<0.01 @	<0.01 @	0.0156 @	<0.01 @
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	0.00902 @	<0.005 @
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 @	<0.002 @	<0.002 @	<0.002 @	<0.002 @	<0.002 @
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 @	<0.082 @	<0.082 @	<0.082 @	<0.082 @	<0.082 @

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS011
Depth (m)	3.50
Sample Type	Unspecified Liquid (UNL)
Date Sampled	17/05/2022
Sampled Time	.
Date Received	19/05/2022
SDG Ref	220519-78
Lab Sample No.(s)	26305913
AGS Reference	

Component	LOD/Units	Method	
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 @
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 @
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 @
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 @
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 @
Fluorene (aq)	<0.005 µg/l	TM178	<0.005 @
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 @
Pyrene (aq)	<0.005 µg/l	TM178	<0.005 @
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002 @
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005 @
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005 @
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082 @

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-05	AVC1-BH-08	AVC1-BH-14	BH003	PWB-BH-02	PWB-BH-06
			Depth (m)	5.00	5.50	7.50	4.00	5.50	5.00
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022
			SDG Ref	220519-78	220519-78	220519-78	220519-78	220519-78	220519-78
			Lab Sample No.(s)	26305917	26305912	26305911	26305918	26305909	26305908
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		97 @	92 @	84 @	70 @	81 @	85 @
GRO >C5-C12	<50 µg/l	TM245		<50 @	<50 @	<50 @	<50 @	<50 @	<50 @
Aliphatics >C5-C6	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C6-C8	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C8-C10	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C10-C12	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC7-EC8	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC8-EC10	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC10-EC12	<10 µg/l	TM245		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS011
Depth (m)	3.50
Sample Type	Unspecified Liquid (UNL)
Date Sampled	17/05/2022
Sampled Time	.
Date Received	19/05/2022
SDG Ref	220519-78
Lab Sample No.(s)	26305913
AGS Reference	

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM245	85 @
GRO >C5-C12	<50 µg/l	TM245	<50 @
Aliphatics >C5-C6	<10 µg/l	TM245	<10 @
Aliphatics >C6-C8	<10 µg/l	TM245	<10 @
Aliphatics >C8-C10	<10 µg/l	TM245	<10 @
Aliphatics >C10-C12	<10 µg/l	TM245	<10 @
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10 @
Aromatics >EC7-EC8	<10 µg/l	TM245	<10 @
Aromatics >EC8-EC10	<10 µg/l	TM245	<10 @
Aromatics >EC10-EC12	<10 µg/l	TM245	<10 @
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-05	AVC1-BH-08	AVC1-BH-14	BH003	PWB-BH-02	PWB-BH-06
			Depth (m)	5.00	5.50	7.50	4.00	5.50	5.00
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022	17/05/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022	19/05/2022
			SDG Ref	220519-78	220519-78	220519-78	220519-78	220519-78	220519-78
			Lab Sample No.(s)	26305917	26305912	26305911	26305918	26305909	26305908
			AGS Reference						
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Ethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
m,p-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
o-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2	<2
Sum of BTEX	<5 µg/l	TM208		<5	<5	<5	<5	<5	<5

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS011
Depth (m)	3.50
Sample Type	Unspecified Liquid (UNL)
Date Sampled	17/05/2022
Sampled Time	.
Date Received	19/05/2022
SDG Ref	220519-78
Lab Sample No.(s)	26305913
AGS Reference	

Component	LOD/Units	Method	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1
Benzene	<1 µg/l	TM208	<1
Toluene	<1 µg/l	TM208	<1
Ethylbenzene	<1 µg/l	TM208	<1
m,p-Xylene	<1 µg/l	TM208	<1
o-Xylene	<1 µg/l	TM208	<1
Sum of detected Xylenes	<2 µg/l	TM208	<2
Sum of BTEX	<5 µg/l	TM208	<5

Table of Results - Appendix

Method No	Reference	Description
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26305917	26305912	26305911	26305918	26305909	26305908	26305913
Customer Sample Ref.	AVC1-BH-05	AVC1-BH-08	AVC1-BH-14	BH003	PWB-BH-02	PWB-BH-06	WS011
AGS Ref.							
Depth	5.00	5.50	7.50	4.00	5.50	5.00	3.50
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Ammoniacal Nitrogen	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
Anions by Kone (w)	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
Cyanide Comp/Free/Total/Thiocyanate	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022
Dissolved Metals by ICP-MS	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022
EPH CWG (Aliphatic) Aqueous GC (W)	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022
EPH CWG (Aromatic) Aqueous GC (W)	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022
GRO by GC-FID (W)	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022
Hexavalent Chromium (w)	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022
Mercury Dissolved	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022	31-May-2022
Nitrite by Kone (w)	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
PAH Spec MS - Aqueous (W)	31-May-2022	01-Jun-2022	31-May-2022	01-Jun-2022	01-Jun-2022	31-May-2022	01-Jun-2022
pH Value	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
Phenols by HPLC (W)	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
Sulphide	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022
Total Organic and Inorganic Carbon	28-May-2022	28-May-2022	28-May-2022	28-May-2022	28-May-2022	28-May-2022	28-May-2022
TPH CWG (W)	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022
VOC MS (W)	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	31-May-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2600	QC 2629
Ammoniacal Nitrogen as N	TM099	**100.8** 90.84 : 105.72	**100.4** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2681	QC 2695
Chloride	TM184	**98.6** 95.10 : 104.28	**98.8** 95.10 : 104.28
Sulphate (soluble)	TM184	**97.6** 91.99 : 109.30	**96.8** 91.99 : 109.30
TON as NO3	TM184	**98.5** 90.35 : 108.35	**98.0** 90.35 : 108.35

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2659
Free Cyanide (W)	TM227	**86.5** 80.33 : 126.33
Thiocyanate (W)	TM227	**105.0** 87.50 : 116.00
Total Cyanide (W)	TM227	**115.25** 83.75 : 121.25

Dissolved Metals by ICP-MS

Component	Method Code	QC 2602	QC 2697
Aluminium	TM152	**99.33** 90.98 : 111.82	**101.0** 90.98 : 111.82
Antimony	TM152	**102.83** 90.44 : 113.04	**99.83** 90.44 : 113.04
Arsenic	TM152	**99.67** 94.87 : 109.67	**98.0** 94.87 : 109.67
Barium	TM152	**105.0** 90.20 : 111.19	**100.33** 90.20 : 111.19
Beryllium	TM152	**98.83** 87.77 : 113.97	**100.0** 87.77 : 113.97
Bismuth	TM152	**102.33** 91.90 : 112.20	**100.0** 91.90 : 112.20
Borate	TM152	**96.91** 88.00 : 112.00	**101.23** 88.00 : 112.00
Boron	TM152	**97.0** 92.27 : 112.40	**101.33** 92.27 : 112.40
Cadmium	TM152	**99.17** 94.93 : 106.93	**97.67** 94.93 : 106.93
Calcium	TM152	**100.67** 95.14 : 110.01	**100.67** 95.14 : 110.01
Chromium	TM152	**98.33** 91.84 : 108.67	**99.0** 91.84 : 108.67
Cobalt	TM152	**98.67** 90.72 : 109.61	**97.17** 90.72 : 109.61

Dissolved Metals by ICP-MS

		QC 2602	QC 2697
Copper	TM152	**99.33** 94.47 : 109.05	**99.67** 94.47 : 109.05
Iron	TM152	**97.33** 94.40 : 107.90	**99.33** 94.40 : 107.90
Lead	TM152	**102.83** 93.55 : 109.46	**101.17** 93.55 : 109.46
Lithium	TM152	**97.0** 91.62 : 113.12	**101.5** 91.62 : 113.12
Magnesium	TM152	**95.33** 92.30 : 110.57	**99.33** 92.30 : 110.57
Manganese	TM152	**98.67** 94.75 : 108.21	**99.17** 94.75 : 108.21
Molybdenum	TM152	**98.67** 93.55 : 107.66	**99.33** 93.55 : 107.66
Nickel	TM152	**99.5** 88.00 : 112.00	**99.83** 88.00 : 112.00
Phosphorus	TM152	**95.0** 92.51 : 109.27	**96.17** 92.51 : 109.27
Potassium	TM152	**100.0** 92.16 : 109.93	**100.67** 92.16 : 109.93
Selenium	TM152	**97.0** 91.58 : 115.98	**96.67** 91.58 : 115.98
Silver	TM152	**100.5** 92.75 : 111.05	**100.5** 92.75 : 111.05
Sodium	TM152	**95.33** 89.47 : 109.62	**99.33** 89.47 : 109.62
Strontium	TM152	**101.67** 95.40 : 109.43	**100.67** 95.40 : 109.43
Tellurium	TM152	**99.67** 93.32 : 114.66	**99.17** 93.32 : 114.66
Thallium	TM152	**99.17** 88.00 : 112.00	**91.67** 88.00 : 112.00
Tin	TM152	**104.5** 92.63 : 109.70	**100.33** 92.63 : 109.70
Titanium	TM152	**101.5** 95.08 : 109.28	**99.83** 95.08 : 109.28
Tungsten	TM152	**102.17** 94.68 : 107.68	**99.67** 94.68 : 107.68
Uranium	TM152	**101.0** 88.00 : 112.00	**102.0** 88.00 : 112.00
Vanadium	TM152	**100.83** 88.00 : 112.00	**104.83** 88.00 : 112.00
Zinc	TM152	**97.33** 95.31 : 110.74	**98.67** 95.31 : 110.74

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 2637	QC 2616
Total Aliphatics >C10-C40	TM174	**112.54** 68.59 : 134.82	**115.35** 65.58 : 141.57

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 2653	QC 2642
Total Aromatics >EC10-EC40	TM174	**80.98** 60.75 : 129.09	**88.78** 60.75 : 129.09

GRO by GC-FID (W)

Component	Method Code	QC 2646	QC 2625
Benzene by GC	TM245	**100.0** 79.13 : 118.84	**104.5** 83.48 : 117.21
Ethylbenzene by GC	TM245	**100.5** 79.54 : 115.99	**105.0** 84.11 : 114.89
m & p Xylene by GC	TM245	**99.75** 78.44 : 116.32	**105.0** 83.73 : 116.33
MTBE GC-FID	TM245	**97.0** 81.43 : 120.09	**102.5** 84.42 : 117.50
o Xylene by GC	TM245	**100.5** 76.85 : 120.29	**106.0** 85.03 : 117.59
QC	TM245	**78.46** 59.97 : 121.29	**67.79** 51.91 : 123.63
Toluene by GC	TM245	**100.0** 79.00 : 121.96	**105.0** 84.73 : 116.85

Hexavalent Chromium (w)

Component	Method Code	QC 2666
Hexavalent Chromium	TM241	**101.4** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2673	QC 2692
Mercury Dissolved (CVAF)	TM183	**91.9** 0.00 : 0.00	**96.2** 0.00 : 0.00

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2670	QC 2668
Acenaphthene by GCMS	TM178	**114.4** 100.00 : 119.20	**110.8** 100.00 : 119.20
Acenaphthylene by GCMS	TM178	**109.6** 95.20 : 119.20	**110.4** 95.20 : 119.20
Anthracene by GCMS	TM178	**106.8** 91.60 : 113.20	**109.6** 91.60 : 113.20
Benz(a)anthracene by GCMS	TM178	**108.4** 90.40 : 119.20	**107.6** 90.40 : 119.20

PAH Spec MS - Aqueous (W)

		QC 2670	QC 2668
Benzo(a)pyrene by GCMS	TM178	**110.0** 92.80 : 119.20	**107.2** 92.80 : 119.20
Benzo(b)fluoranthene by GCMS	TM178	**102.4** 89.60 : 120.80	**100.0** 89.60 : 120.80
Benzo(ghi)perylene by GCMS	TM178	**101.2** 93.20 : 117.20	**104.4** 93.20 : 117.20
Benzo(k)fluoranthene by GCMS	TM178	**110.0** 96.40 : 120.40	**106.0** 96.40 : 120.40
Chrysene by GCMS	TM178	**107.2** 96.40 : 125.20	**103.2** 96.40 : 125.20
Dibenzo(ah)anthracene by GCMS	TM178	**99.6** 92.00 : 113.60	**104.8** 92.00 : 113.60
Fluoranthene by GCMS	TM178	**113.6** 91.20 : 117.60	**113.2** 91.20 : 117.60
Fluorene by GCMS	TM178	**116.8** 95.60 : 122.00	**111.2** 95.60 : 122.00
Indeno(123cd)pyrene by GCMS	TM178	**105.2** 90.40 : 112.00	**107.6** 90.40 : 112.00
Naphthalene by GCMS	TM178	**109.6** 98.00 : 122.00	**110.8** 98.00 : 122.00
Phenanthrene by GCMS	TM178	**110.4** 94.00 : 120.40	**110.0** 94.00 : 120.40
Pyrene by GCMS	TM178	**111.2** 92.40 : 118.80	**111.2** 92.40 : 118.80

pH Value

Component	Method Code	QC 2660	QC 2663
pH	TM256	**100.0** 99.20 : 102.41	**100.27** 99.20 : 102.41

Phenols by HPLC (W)

Component	Method Code	QC 2609
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**103.52** 76.00 : 124.00
2-Isopropyl Phenol by HPLC (W)	TM259	**99.43** 76.00 : 124.00
Cresols by HPLC (W)	TM259	**103.29** 76.00 : 124.00
Napthol by HPLC (W)	TM259	**95.7** 76.00 : 124.00
Phenol by HPLC (W)	TM259	**98.3** 76.00 : 124.00
Xylenols by HPLC (W)	TM259	**100.95** 76.00 : 124.00

Sulphide

Sulphide

Component	Method Code	QC 2675	QC 2626
Sulphide	TM101	**97.33** 88.67 : 116.67	**98.0** 88.67 : 116.67

Total Organic and Inorganic Carbon

Component	Method Code	QC 2627
Total Organic Carbon	TM090	**104.0** 97.55 : 107.55

VOC MS (W)

Component	Method Code	QC 2640	QC 2612
1,1,1,2-Tetrachloroethane	TM208	**95.0** 87.71 : 111.59	**95.5** 87.71 : 111.59
1,1,1-Trichloroethane	TM208	**97.5** 82.66 : 112.06	**96.0** 82.66 : 112.06
1,1-Dichloroethane	TM208	**99.0** 79.99 : 118.57	**95.5** 79.99 : 118.57
1,2-Dichloroethane	TM208	**94.0** 79.35 : 124.02	**92.5** 79.35 : 124.02
2-Chlorotoluene	TM208	**97.0** 79.67 : 114.74	**98.0** 79.67 : 114.74
4-Chlorotoluene	TM208	**98.0** 80.15 : 113.42	**98.5** 80.15 : 113.42
Benzene	TM208	**100.5** 82.83 : 120.87	**96.5** 82.83 : 120.87
Bromomethane	TM208	**87.5** 78.77 : 123.20	**90.0** 78.77 : 123.20
Carbontetrachloride	TM208	**100.0** 79.73 : 118.91	**99.0** 79.73 : 118.91
Chlorobenzene	TM208	**97.5** 88.28 : 110.81	**98.0** 88.28 : 110.81
Chloroform	TM208	**100.0** 82.31 : 120.71	**98.0** 82.31 : 120.71
Chloromethane	TM208	**89.5** 62.46 : 124.98	**88.5** 62.46 : 124.98
Cis-1,2-Dichloroethene	TM208	**98.0** 83.75 : 118.91	**98.5** 83.75 : 118.91
Dichloromethane	TM208	**98.0** 81.20 : 120.83	**97.0** 81.20 : 120.83
Ethylbenzene	TM208	**96.5** 80.54 : 112.31	**95.0** 80.54 : 112.31
Hexachlorobutadiene	TM208	**89.0** 69.97 : 112.81	**90.0** 69.97 : 112.81
o-Xylene	TM208	**97.5** 87.93 : 111.69	**98.0** 87.93 : 111.69

VOC MS (W)

		QC 2640	QC 2612
p/m-Xylene	TM208	**97.0** 83.09 : 113.86	**96.5** 83.09 : 113.86
Tert-butyl methyl ether	TM208	**97.0** 70.94 : 119.66	**91.0** 70.94 : 119.66
Tetrachloroethene	TM208	**97.5** 84.41 : 112.73	**98.5** 84.41 : 112.73
Toluene	TM208	**97.5** 81.59 : 111.56	**96.5** 81.59 : 111.56
Trichloroethene	TM208	**94.0** 87.31 : 112.54	**94.0** 87.31 : 112.54
Vinyl Chloride	TM208	**90.5** 71.92 : 126.73	**90.0** 71.92 : 126.73

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

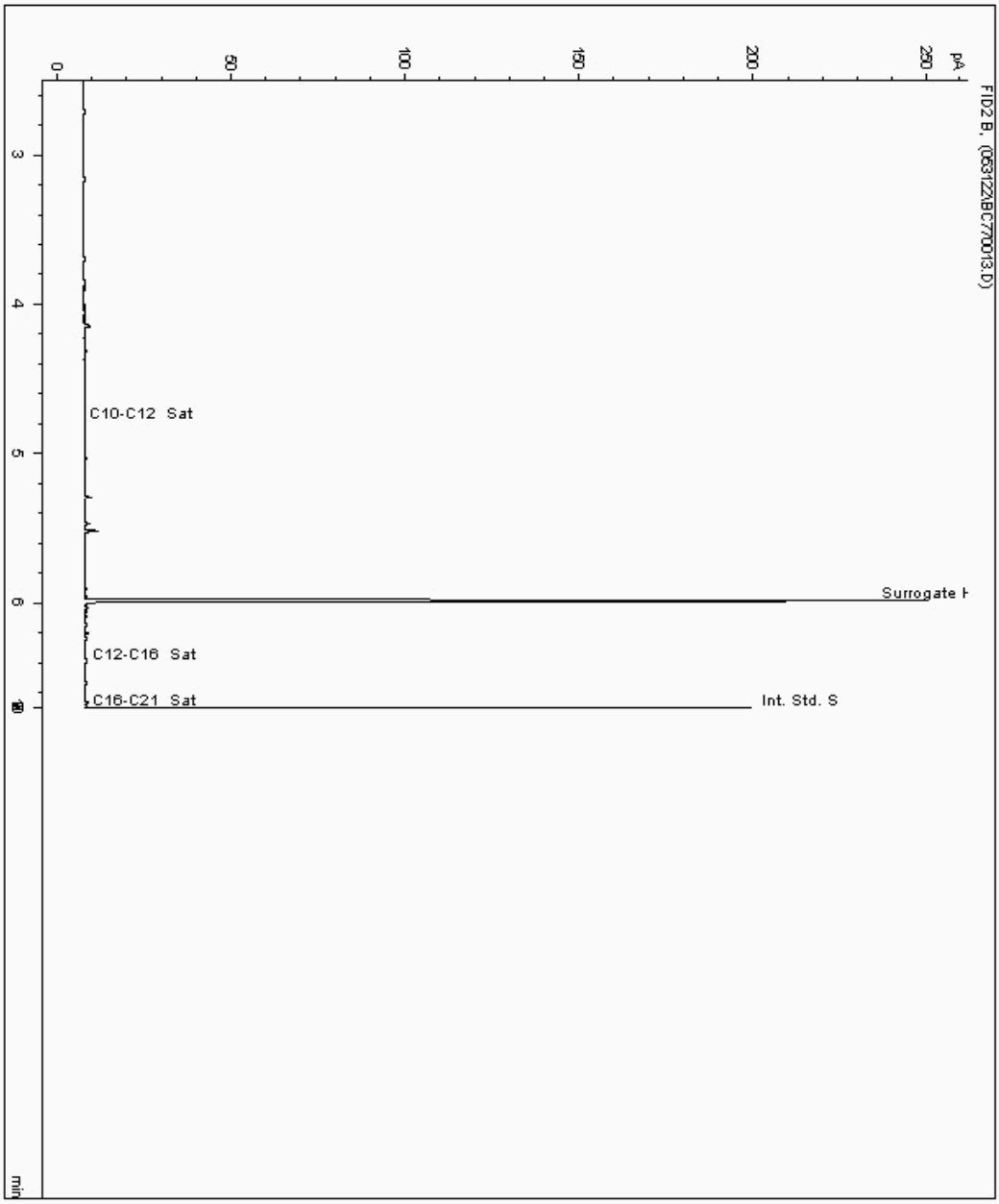
SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26355024 **Depth :** 3.50
Sample ID : WS011

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24580453-
Date Acquired : 5/31/2022 3:52:53 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

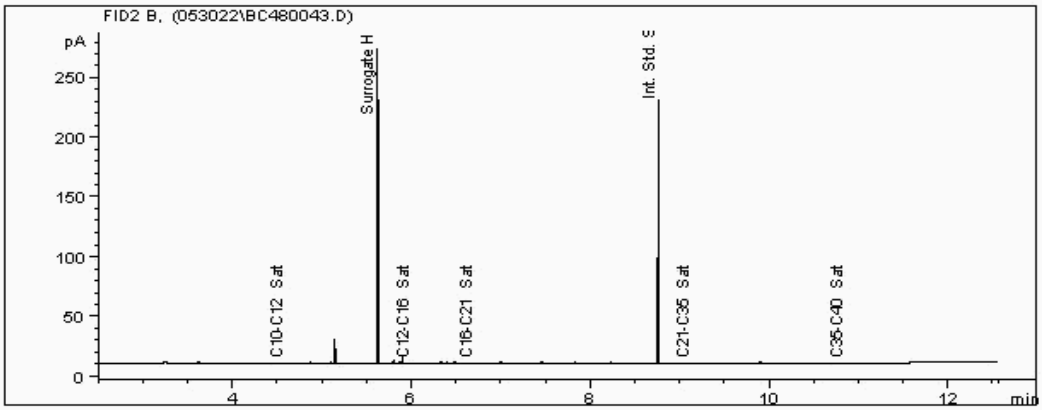
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26355028 **Depth :** 5.00
Sample ID : AVC1-BH-05

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24580480-
Date Acquired : 31/05/2022 08:22:16 PM
Units : ppb
Dilution : SE AVC1-BH-05[5.00] ->
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	218.2	0.238
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	176.8	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	394.9	

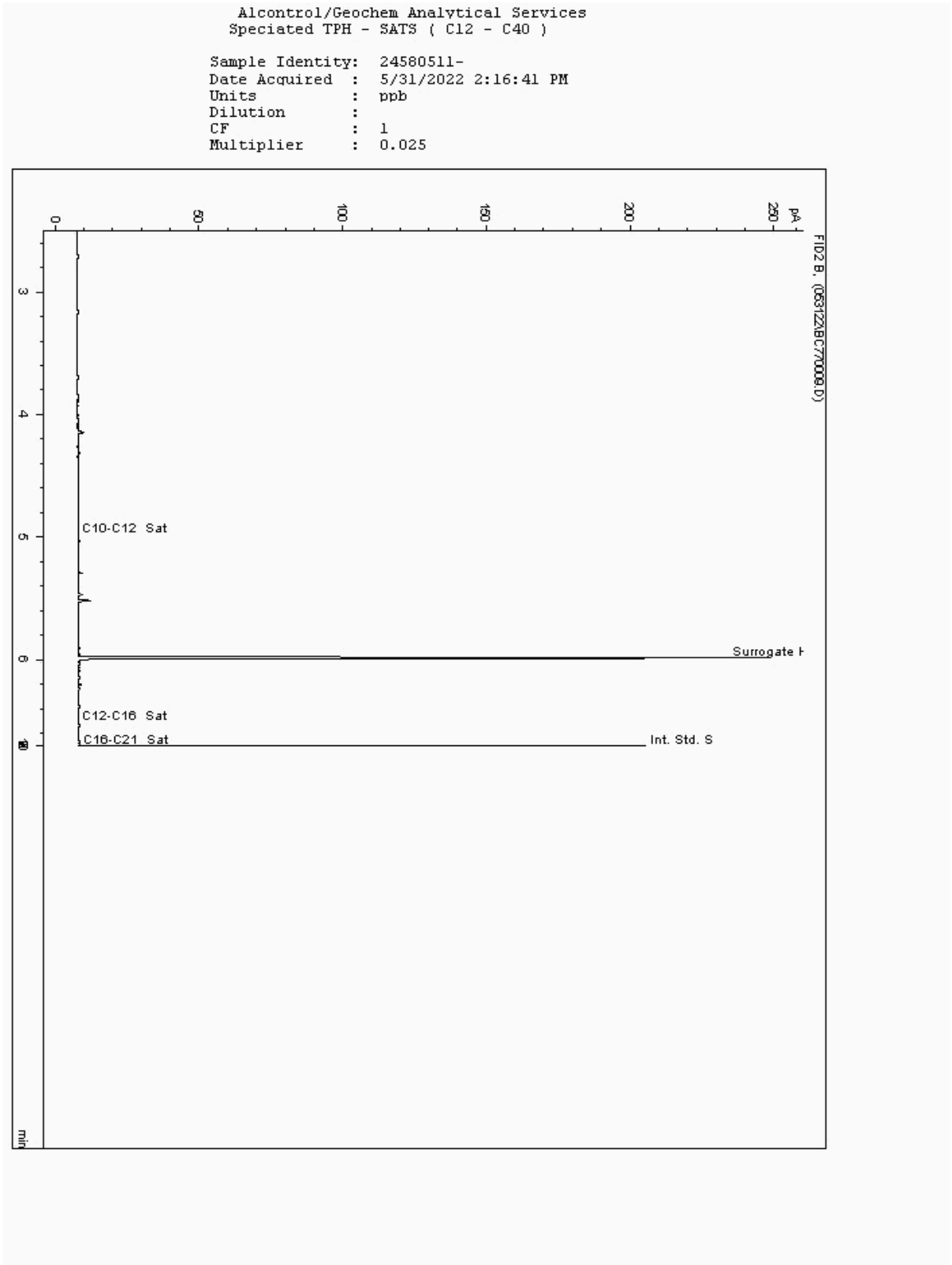


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26355032 **Depth :** 4.00
Sample ID : BH003



CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

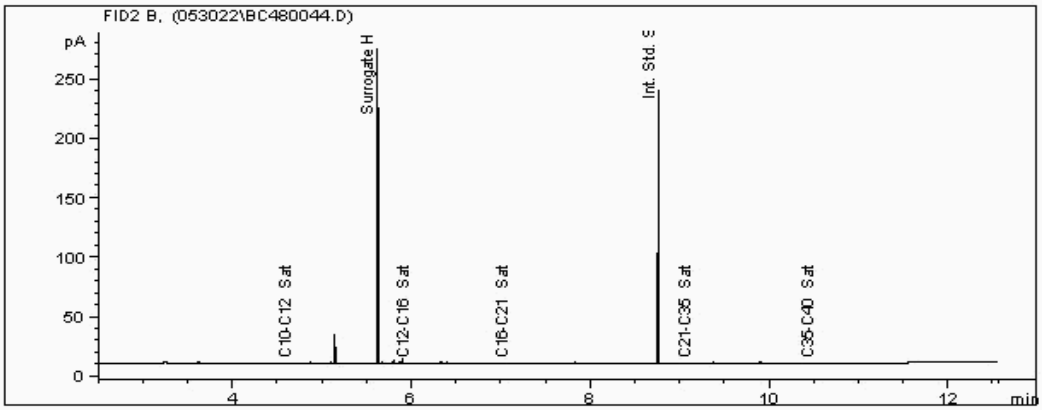
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26355035 **Depth :** 5.00
Sample ID : PWB-BH-06

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24580333-
Date Acquired : 31/05/2022 08:45:14 PM
Units : ppb
Dilution : SE PWB-BH-06[5.00] ->
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	217.4	0.234
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	178.6	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	396.0	



CERTIFICATE OF ANALYSIS

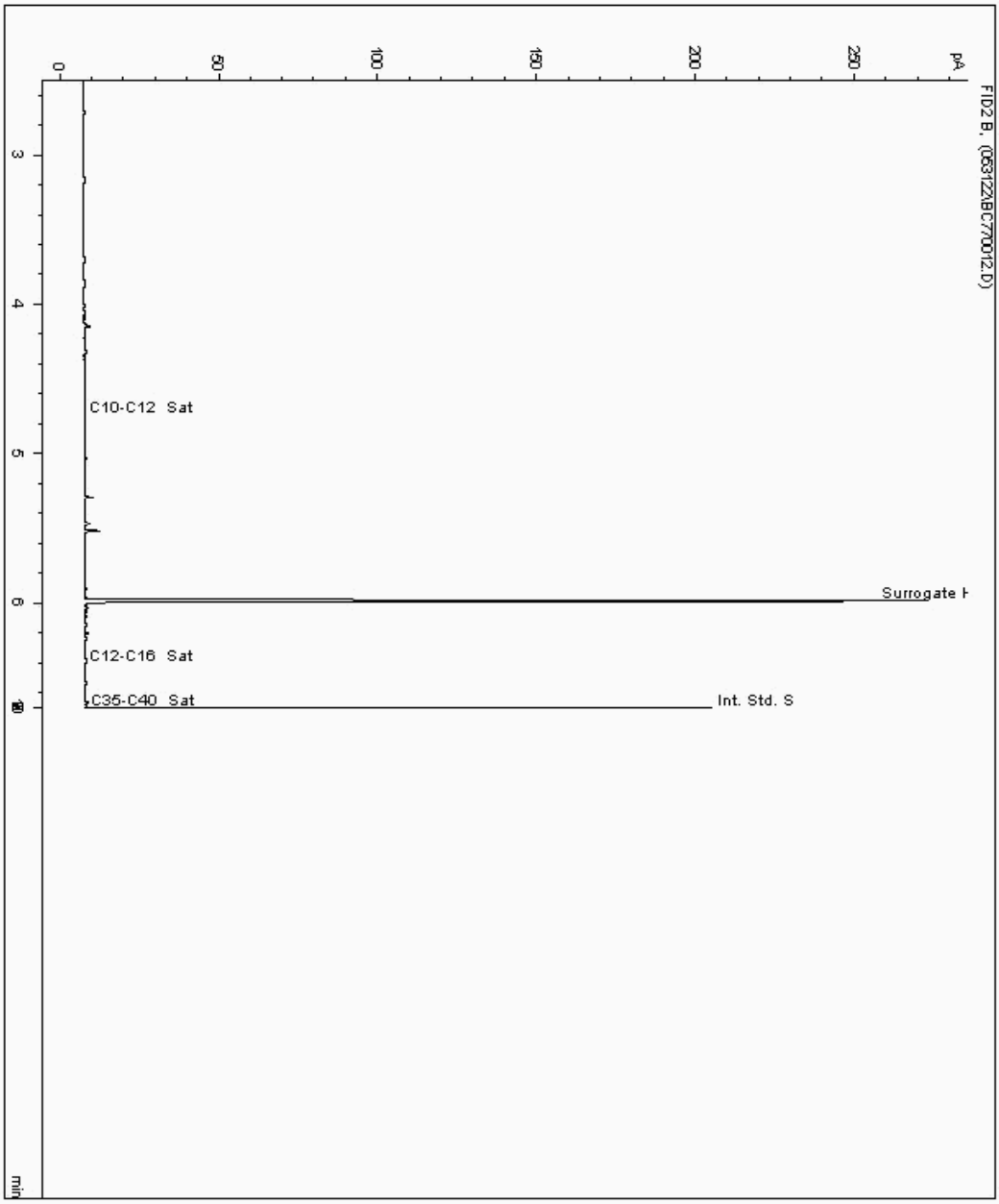
SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26355039 **Depth :** 5.50
Sample ID : PWB-BH-02

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24580360-
Date Acquired : 5/31/2022 3:28:49 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



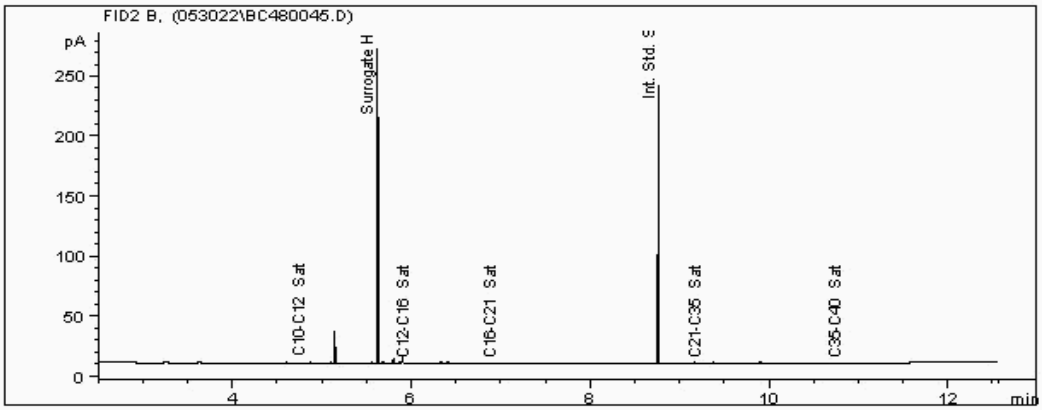
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26355043 **Depth :** 7.50
Sample ID : AVC1-BH-14

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24580393-
Date Acquired : 31/05/2022 09:08:23 PM
Units : ppb
Dilution : SE AVC1-BH-14[7.50] ->
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	219.9	0.239
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	177.3	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	397.2	

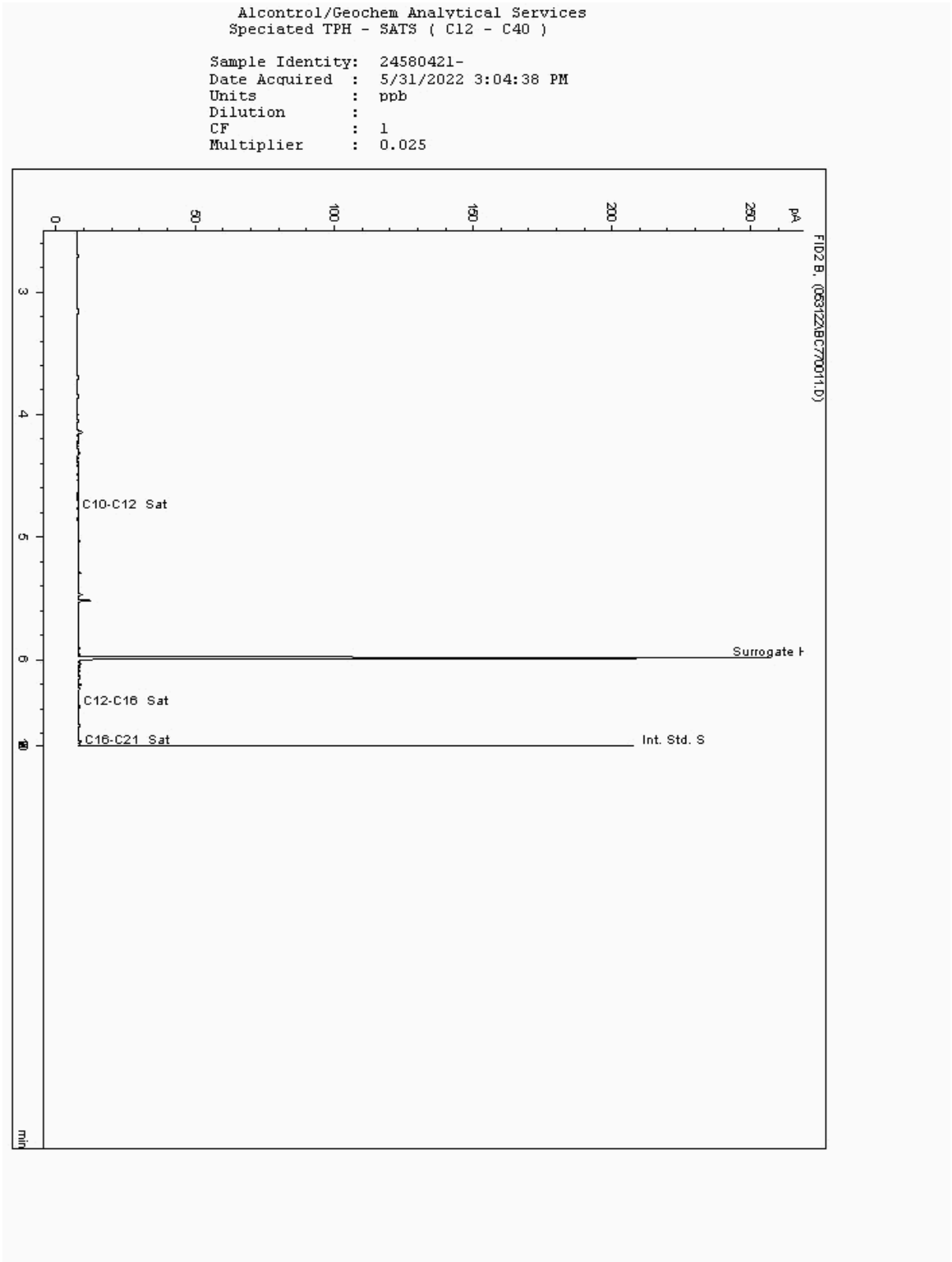


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26355049 **Depth :** 5.50
Sample ID : AVC1-BH-08



CERTIFICATE OF ANALYSIS

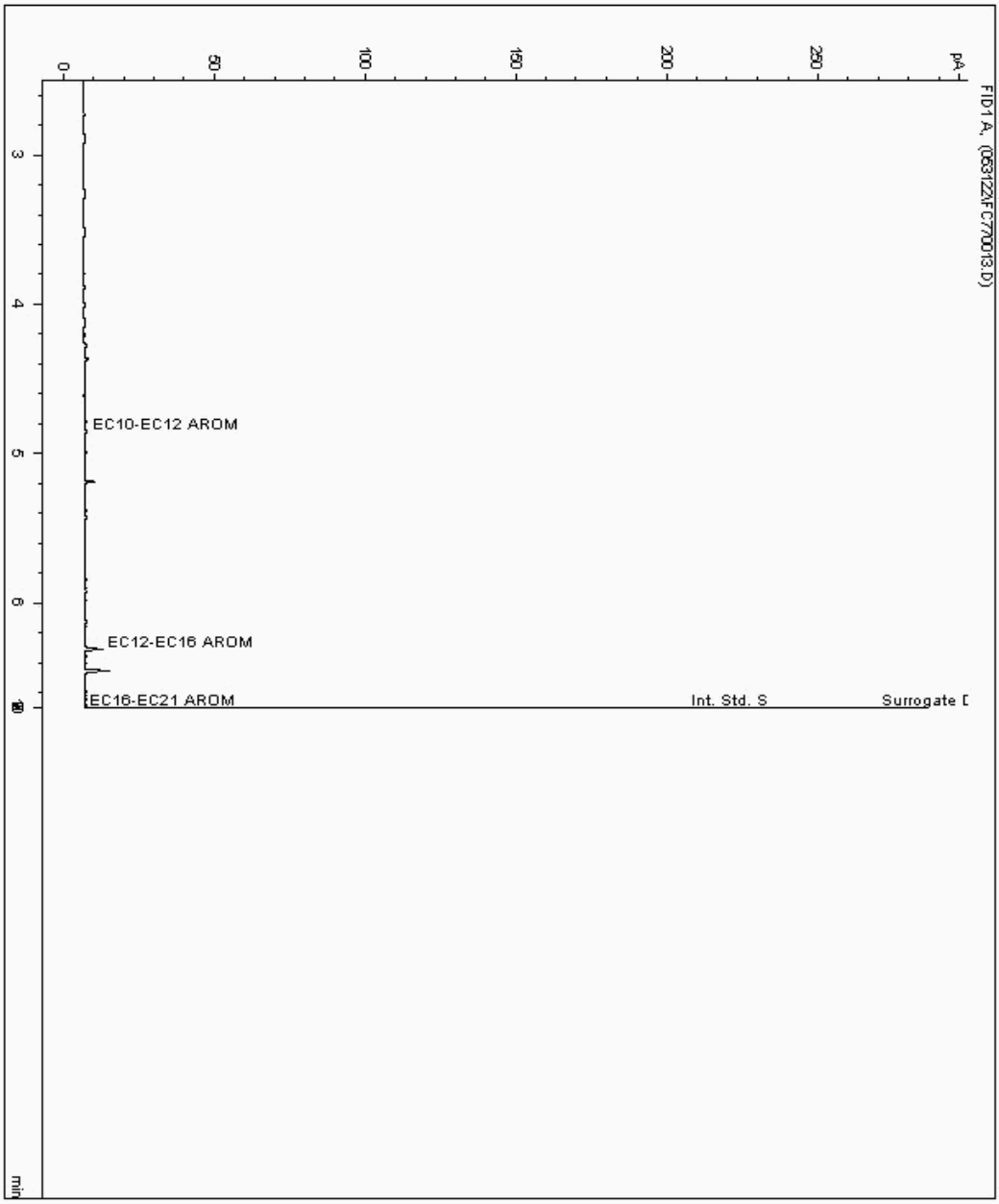
SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26355024 **Depth :** 3.50
Sample ID : WS011

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24580454-
Date Acquired : 5/31/2022 3:52:53 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

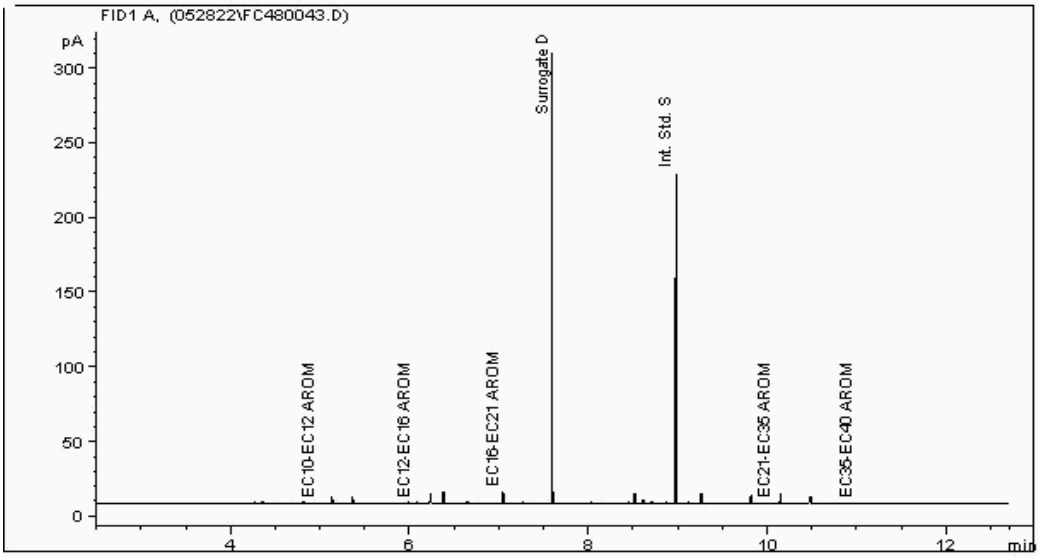
SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26355028 **Depth :** 5.00
Sample ID : AVC1-BH-05

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 24563344-
Date Acquired : 29/05/2022 01:29:10 PM
Units : ppb
Dilution : SE OUTFALL[] ->
CF : 1
Multiplier : 0.025

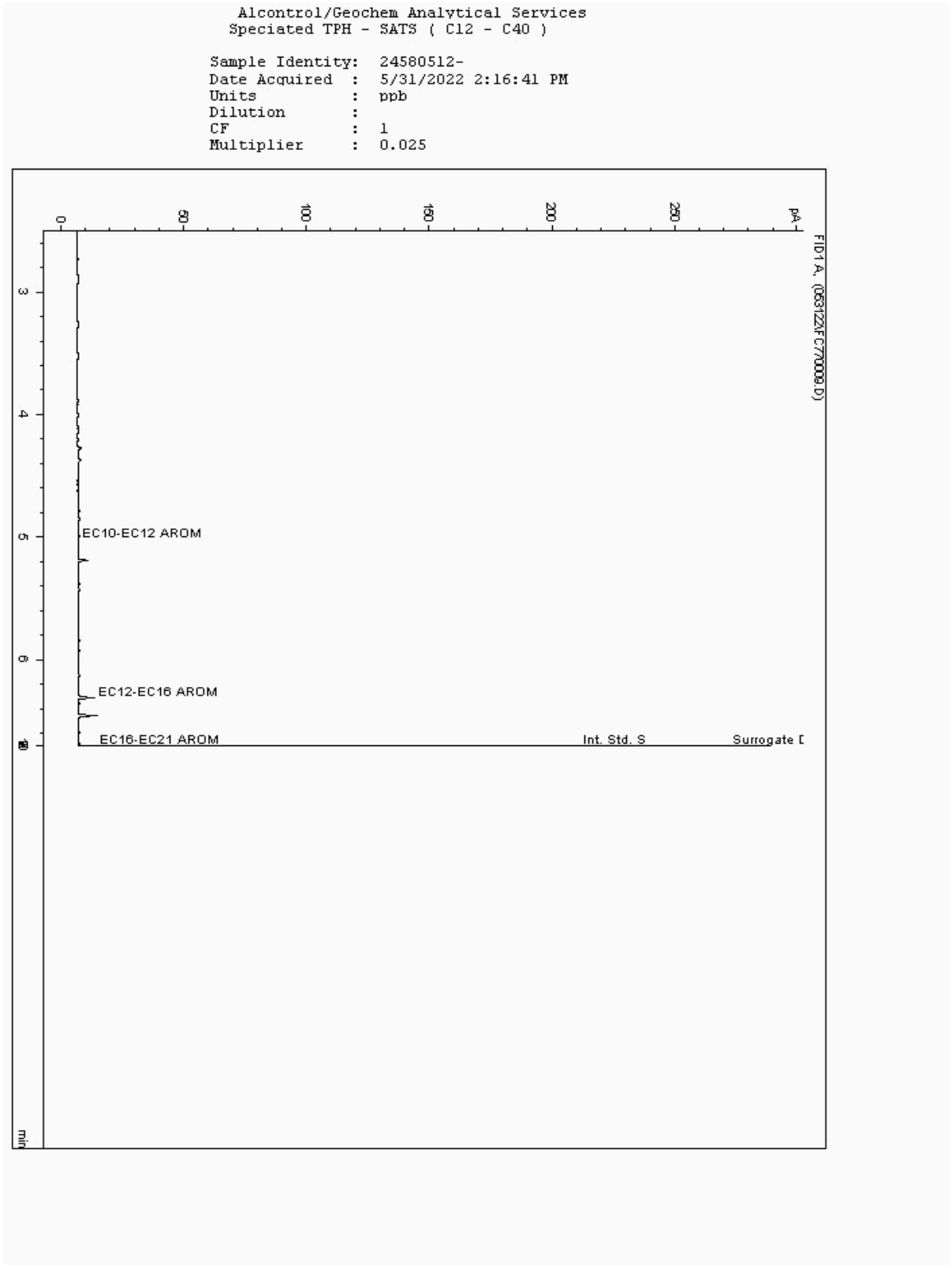


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26355032 **Depth :** 4.00
Sample ID : BH003



CERTIFICATE OF ANALYSIS

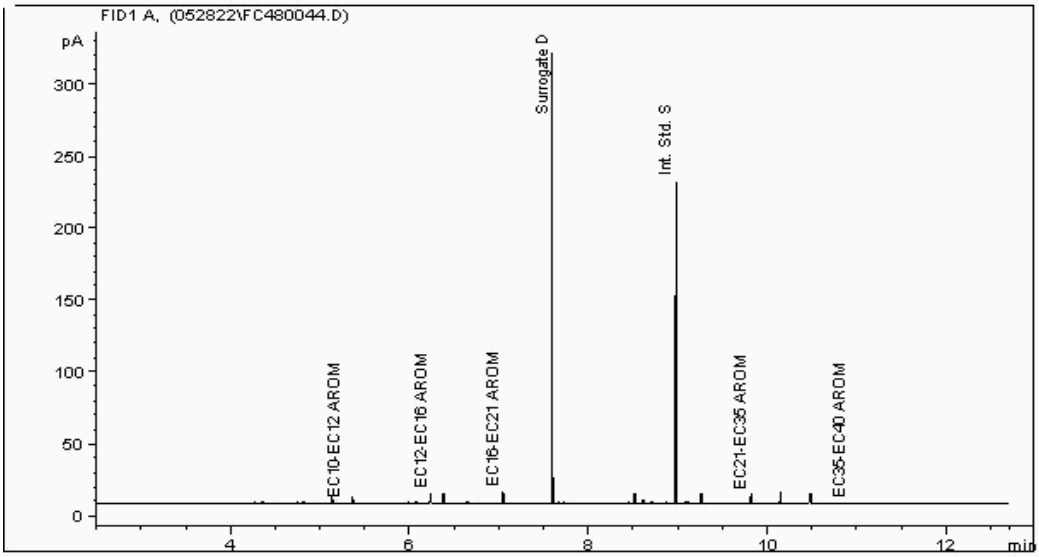
SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26355035 **Depth :** 5.00
Sample ID : PWB-BH-06

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 24548688-
Date Acquired : 29/05/2022 01:52:30 PM
Units : ppb
Dilution : SE GAC INLET[0.00 - 0.00] ->
CF : 1
Multiplier : 0.030

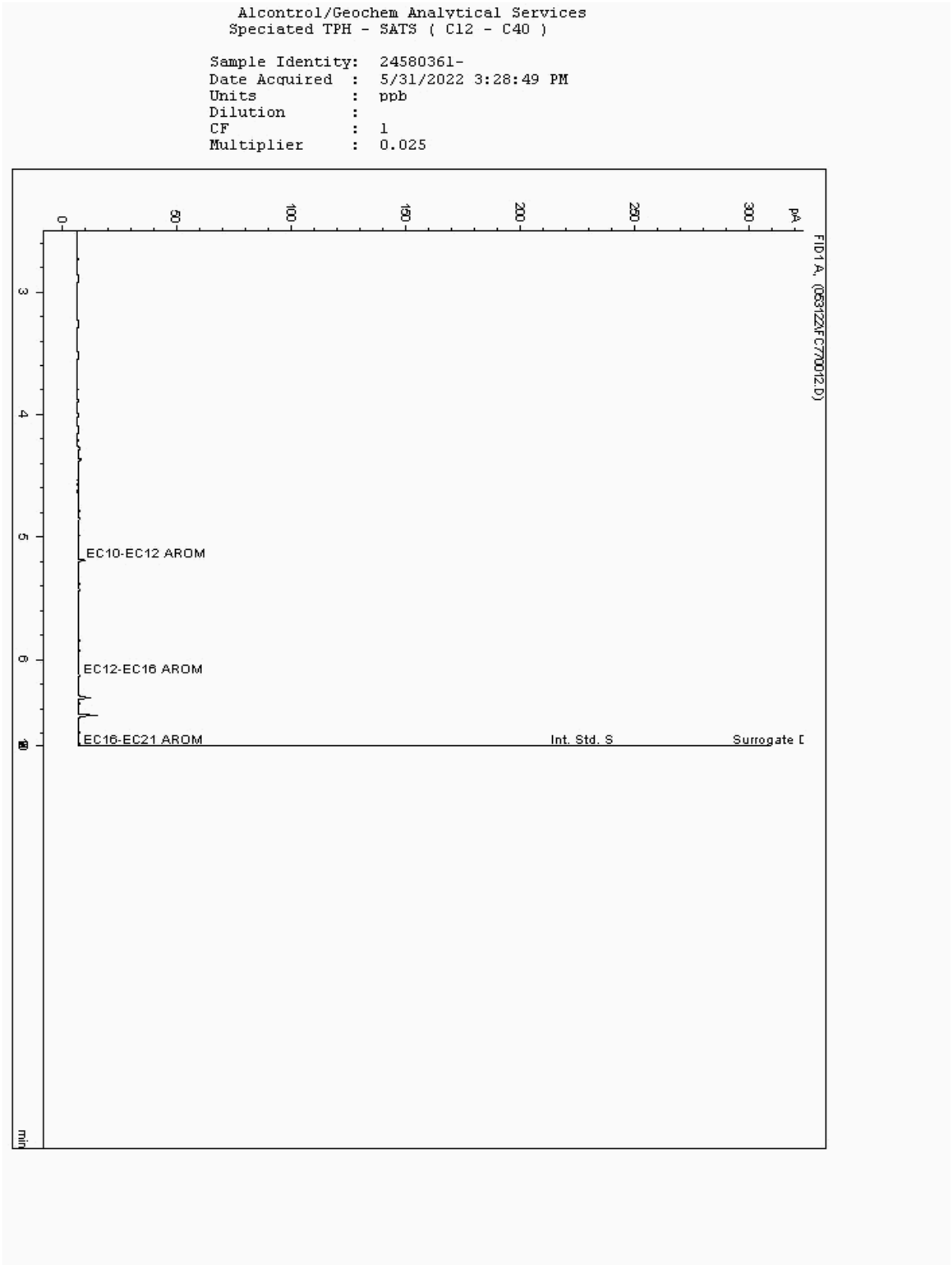


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26355039 **Depth :** 5.50
Sample ID : PWB-BH-02



CERTIFICATE OF ANALYSIS

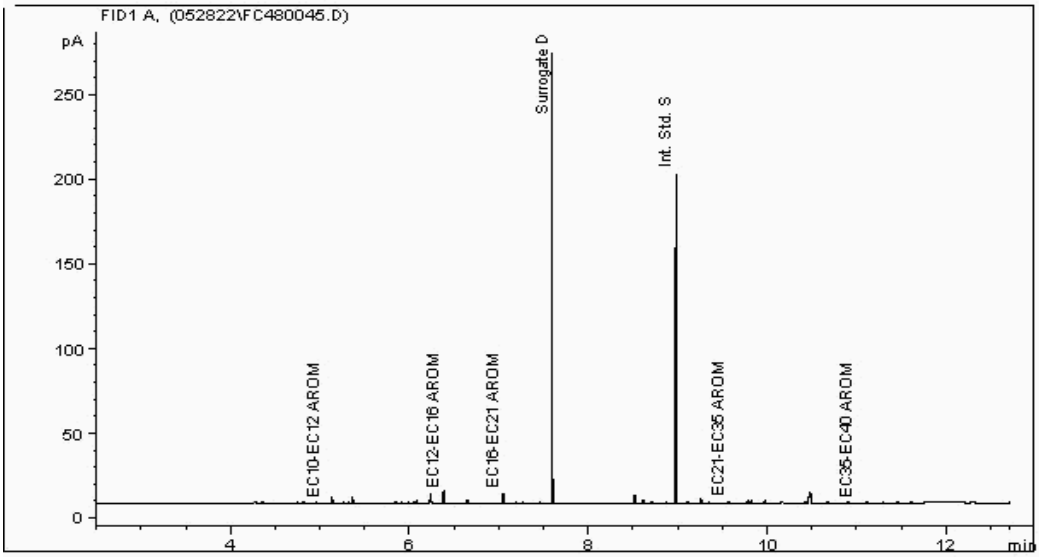
SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26355043 **Depth :** 7.50
Sample ID : AVC1-BH-14

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 2457564l-
Date Acquired : 29/05/2022 02:16:05 PM
Units : ppb
Dilution : SE BH07031[2.94] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

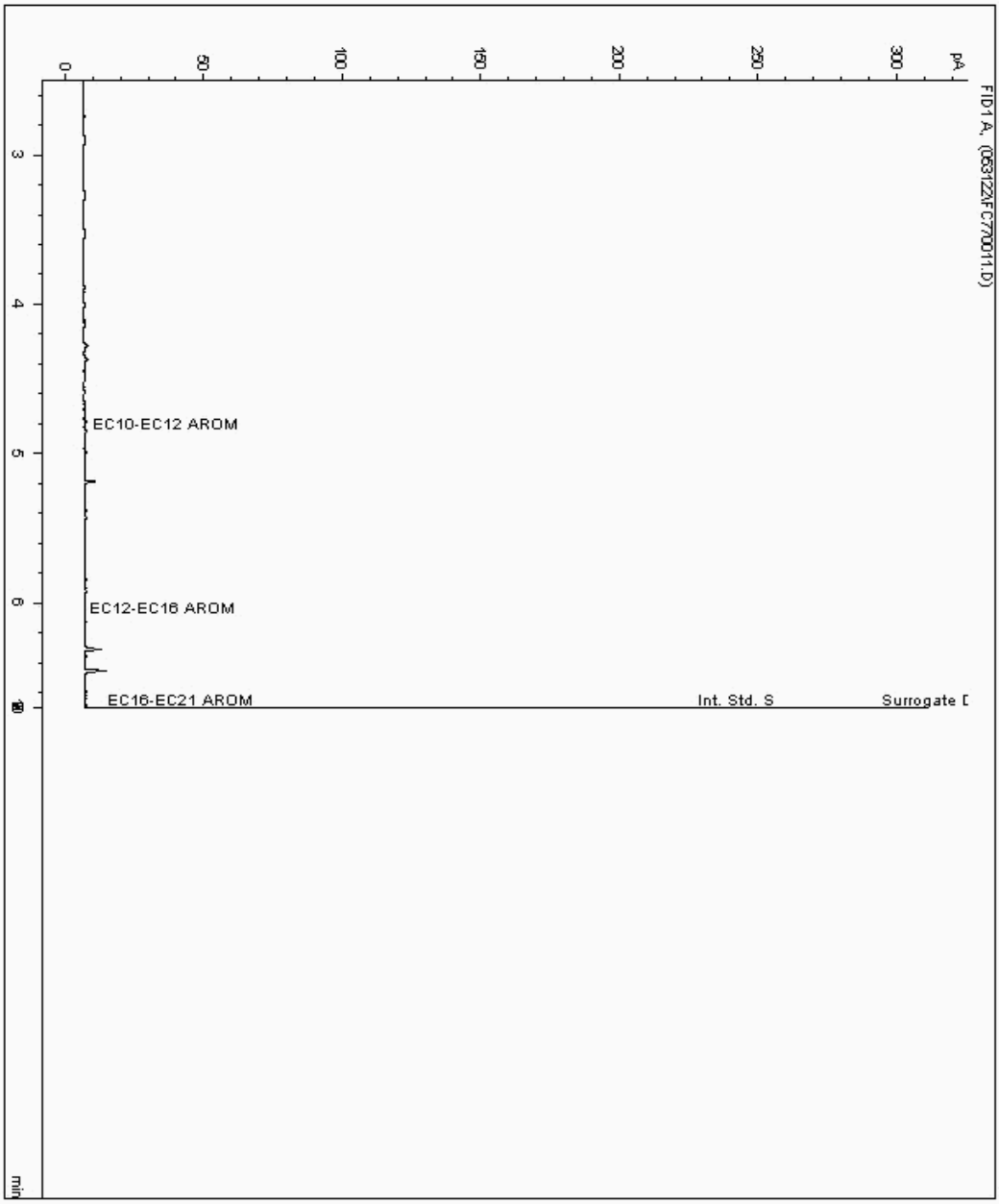
SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26355049 **Depth :** 5.50
Sample ID : AVC1-BH-08

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24580422-
Date Acquired : 5/31/2022 3:04:38 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

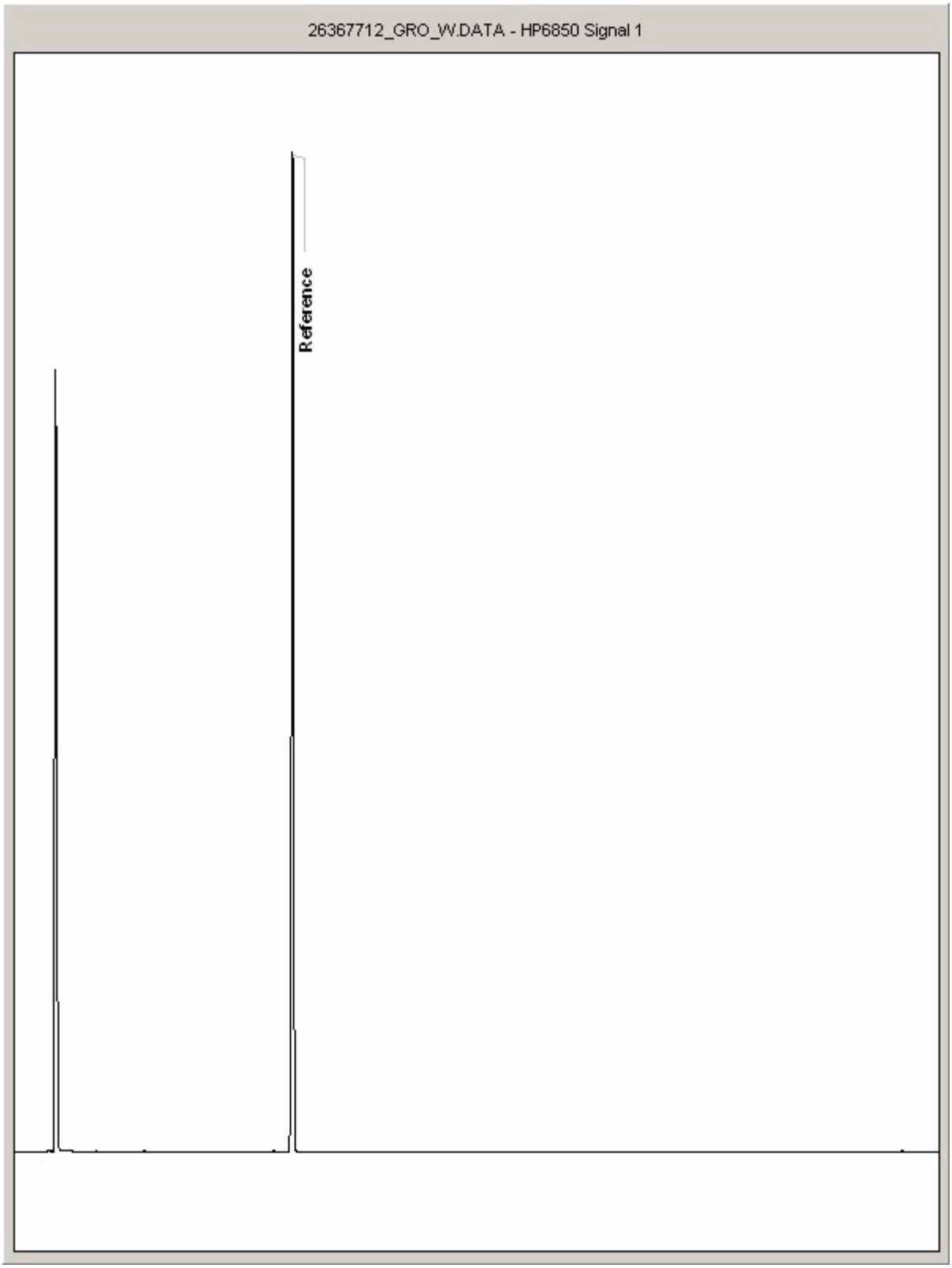


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26367712 **Depth :** 3.50
Sample ID : WS011

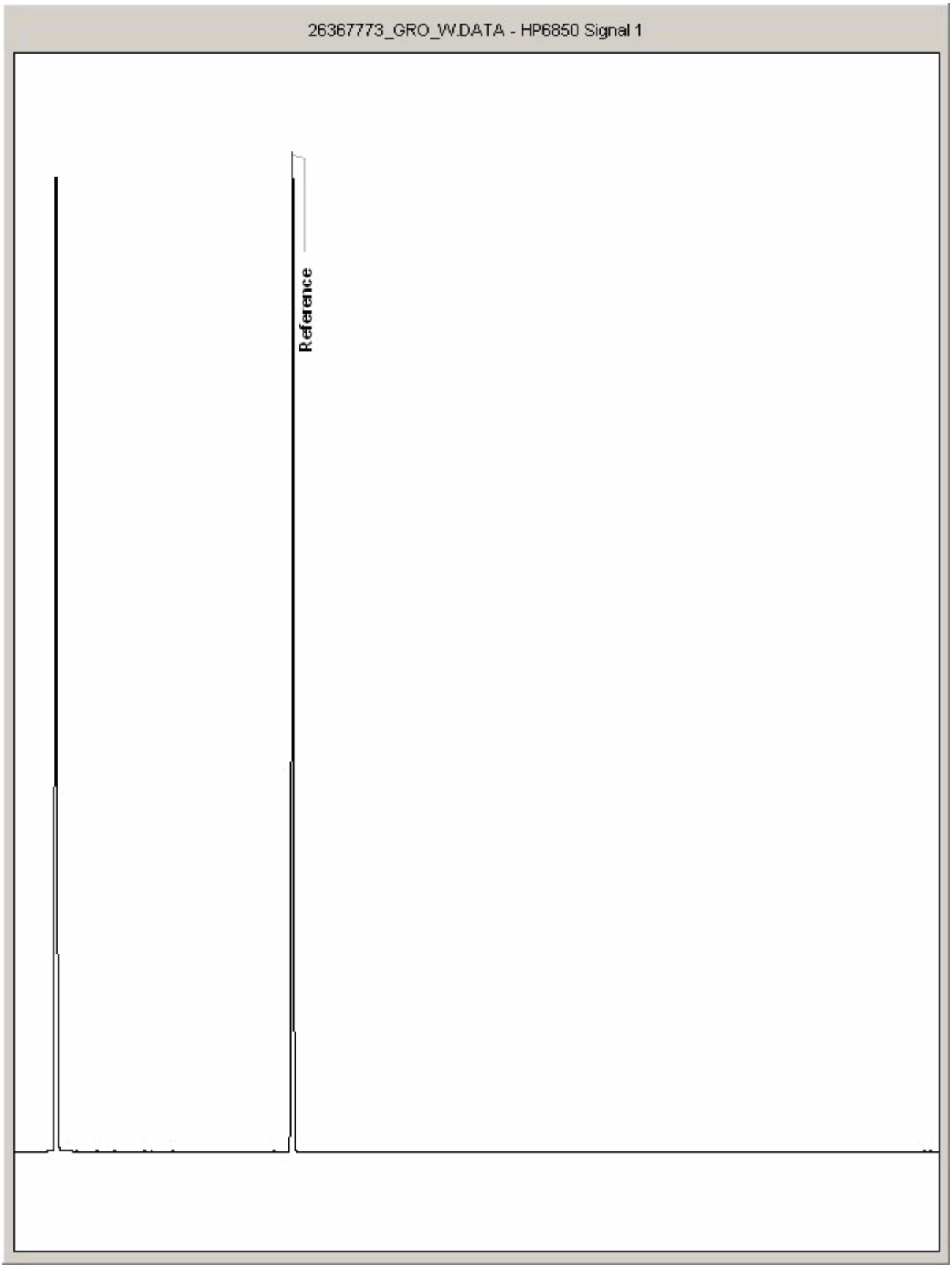


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26367773 **Depth :** 4.00
Sample ID : BH003

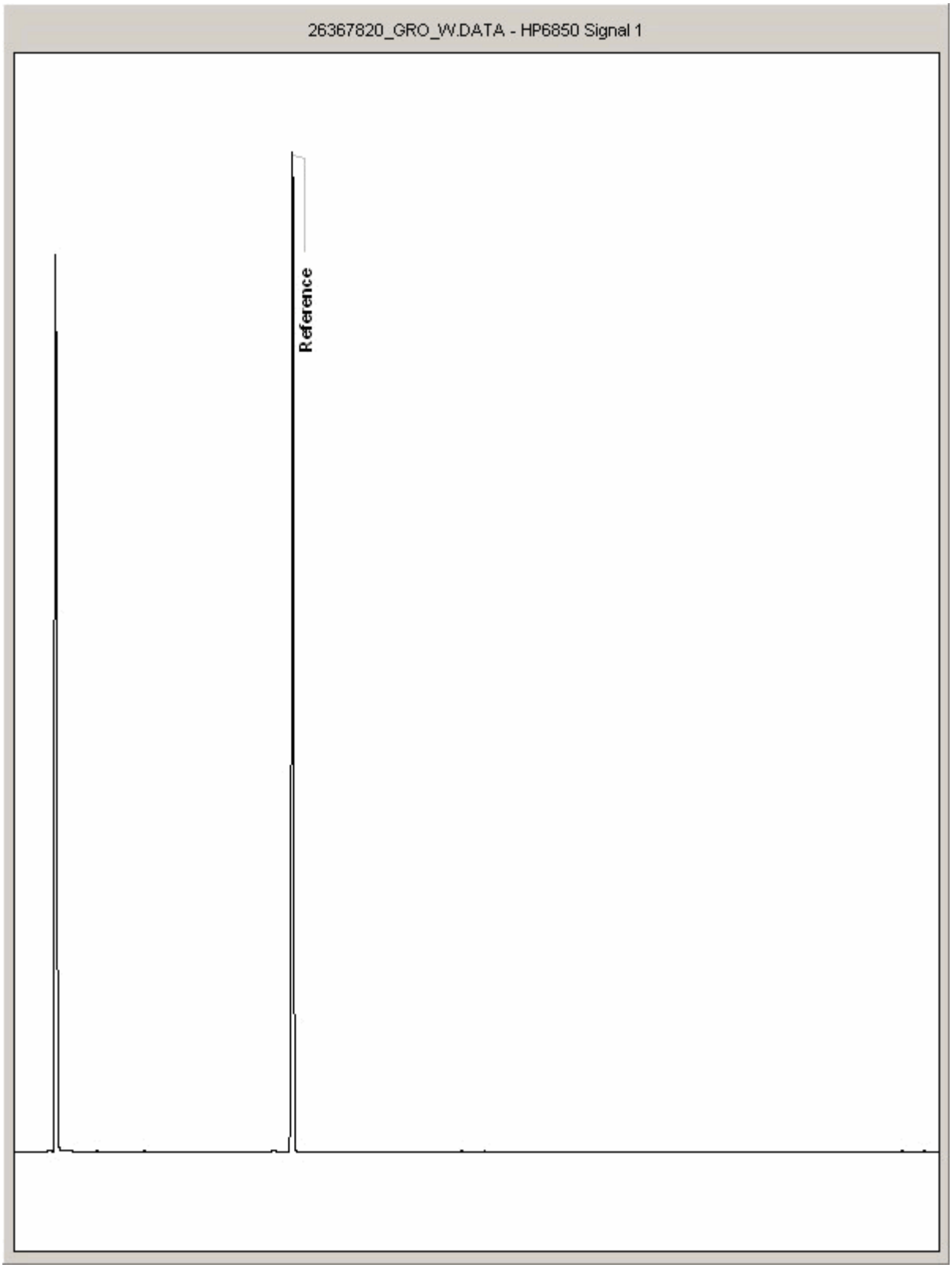


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26367820 **Depth :** 5.50
Sample ID : PWB-BH-02

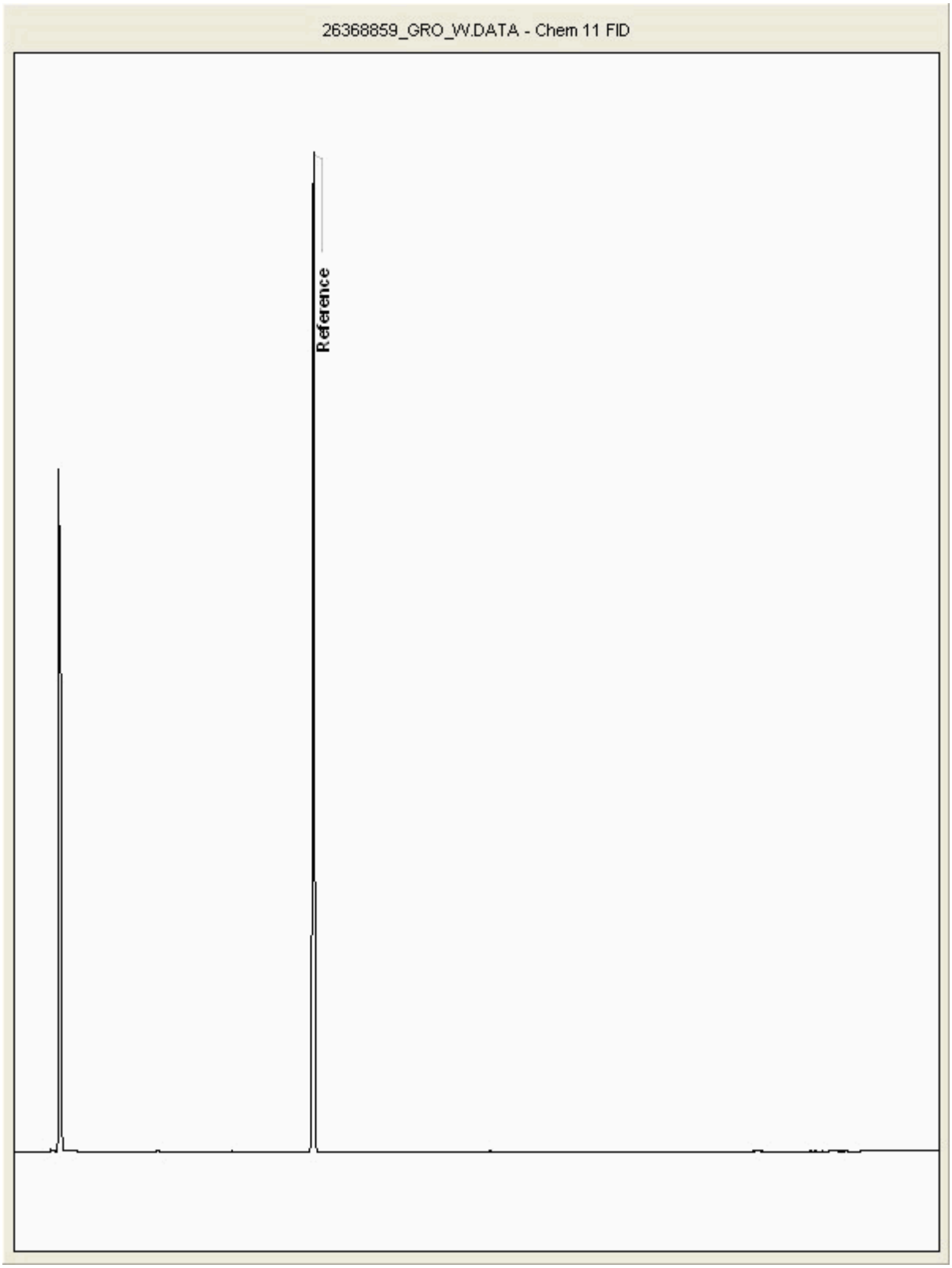


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26368859 **Depth :** 5.00
Sample ID : AVC1-BH-05

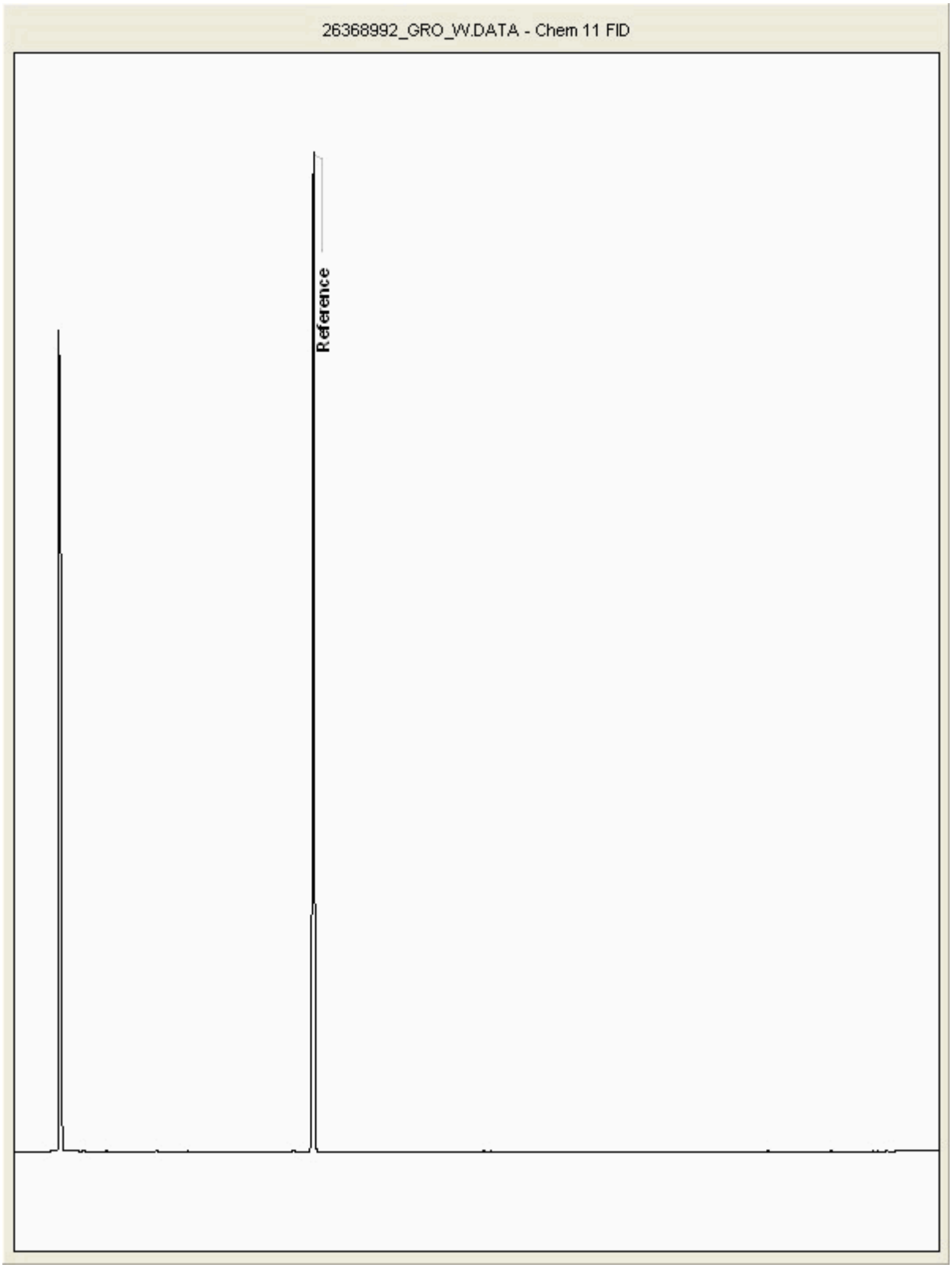


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26368992 **Depth :** 5.00
Sample ID : PWB-BH-06

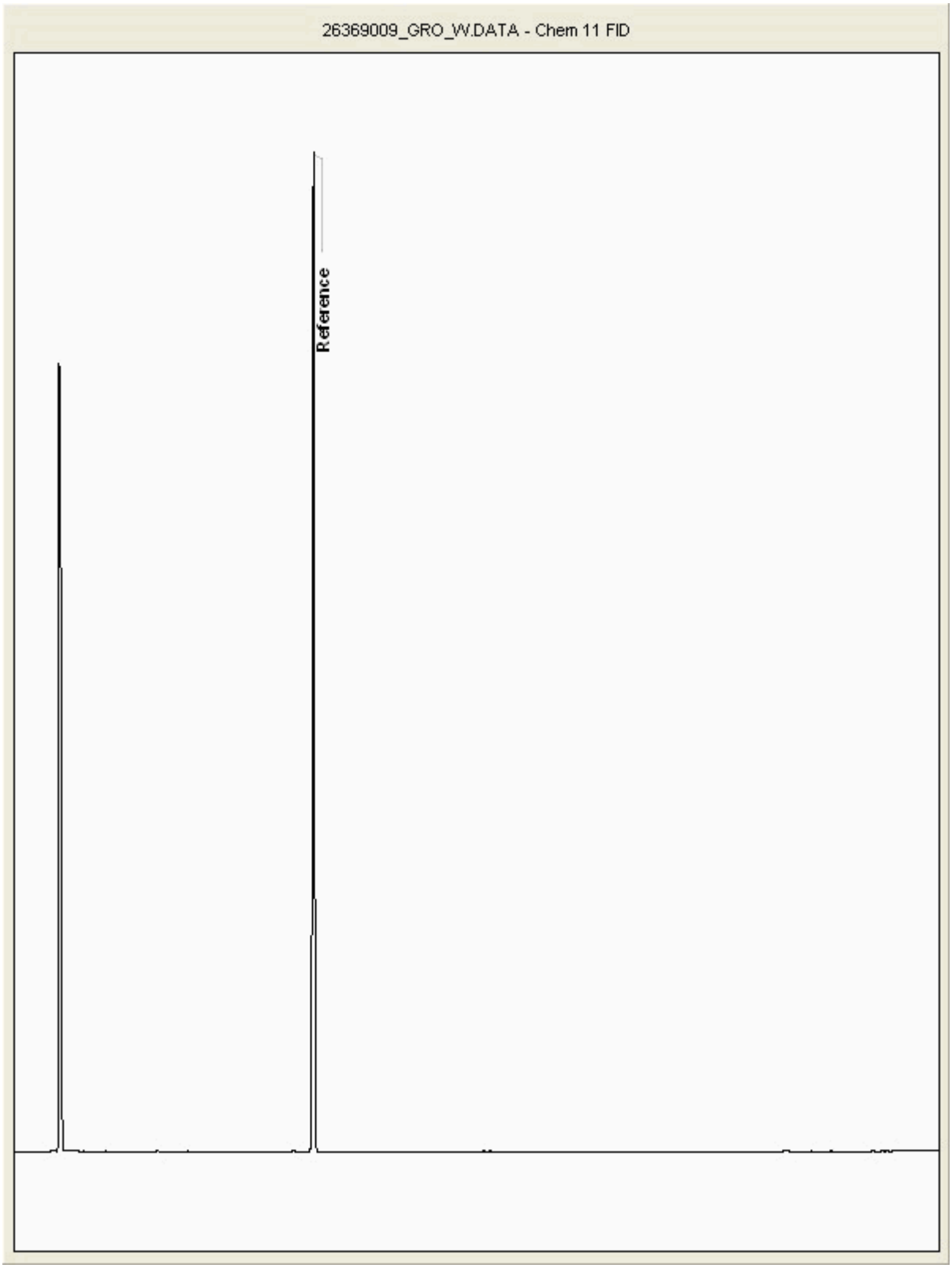


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26369009 **Depth :** 7.50
Sample ID : AVC1-BH-14

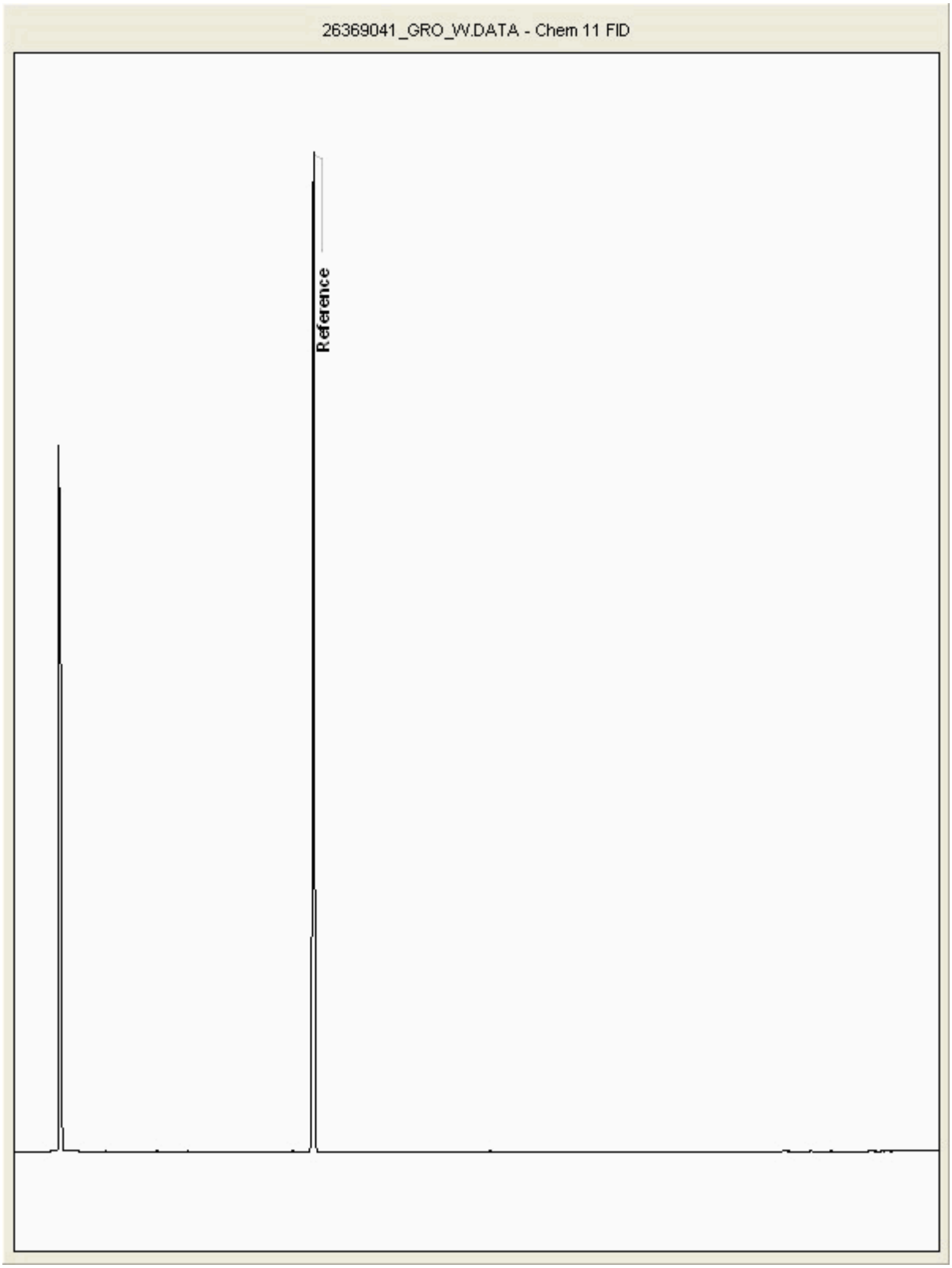


CERTIFICATE OF ANALYSIS

SDG: 220519-78 **Report Number:** 649083 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26369041 **Depth :** 5.50
Sample ID : AVC1-BH-08



Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

RPS Consultants Ltd
260 Park Avenue
Aztec West
Almondsbury
Bristol
BS32 4SY

Attention: Lauren Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 June 2022
Customer:	RPS Consultants Ltd
Sample Delivery Group (SDG):	220611-76
Your Reference:	JER9352
Location:	Chippenham
Report No:	651260
Order Number:	

We received 16 samples on Saturday June 11, 2022 and 13 of these samples were scheduled for analysis which was completed on Monday June 20, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26416329	AVC1-BH-08			09/06/2022
26416323	AVON			09/06/2022
26416330	AVW-BH-08			09/06/2022
26416332	AWB-BH-02			09/06/2022
26416321	BH001			09/06/2022
26416322	BH003		1.73	09/06/2022
26416319	BH-15		0.30	
26416324	C-MOORE			09/06/2022
26416333	NO ID			
26416328	PWB-BH-01			09/06/2022
26416331	PWB-BH-06			09/06/2022
26416320	WS001			09/06/2022
26416325	WS009			09/06/2022
26416326	WS011		3.00	09/06/2022
26416318	WS019		0.50	27/04/2022
26416327	WS020			09/06/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26416329	26416323	26416330	26416332	26416321	26416322	26416324
			Customer Sample Reference	AVC1-BH-08	AVON	AVW-BH-08	AWB-BH-02	BH001	BH003	C-MOORE
			AGS Reference							
			Depth (m)						1.73	
			Container	0.5l glass bottle (ALE227)	Vial (ALE297)	0.5l glass bottle (ALE227)	1plastic (ALE221)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml Amber Gl. PTFE/PE	Vial (ALE297)	250ml Amber Gl. PTFE/PE	Vial (ALE297)	0.5l glass bottle (ALE227)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	Vial (ALE297)	0.5l glass bottle (ALE227)	1plastic (ALE221)	HNO3 Unfiltered (ALE204)
			Sample Type	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 11		X				X			X			X				X				
Anions by Kone (w)	All	NDPs: 0 Tests: 11		X				X			X			X				X				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 11		X				X			X			X				X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 13		X				X	X		X			X				X				X	
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 2				X															X		
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 11		X					X		X				X				X				
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 11		X					X		X				X				X				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 11			X					X		X				X				X			
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 11		X				X			X			X				X				
Mercury Dissolved	All	NDPs: 0 Tests: 11		X				X			X			X				X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11		X					X		X				X				X				
pH Value	All	NDPs: 0 Tests: 13		X			X		X		X			X				X				X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 11		X				X			X			X				X				
Sulphide	All	NDPs: 0 Tests: 11		X				X			X			X				X				
Total Metals by ICP-MS	All	NDPs: 0 Tests: 2							X														X

26416327	WS020			Vial (ALE297)	UNL										x								
				0.5l glass bottle (ALE227)	UNL	x	x	x	x		x	x		x	x	x	x	x	x	x			
26416326	WS011		3.00	Vial (ALE297)	UNL										x								
				250ml Amber Gl. PTFE/PE	UNL	x	x	x	x		x	x		x	x	x	x	x	x	x			
26416325	WS009			Vial (ALE297)	UNL										x								
				250ml Amber Gl. PTFE/PE	UNL						x	x				x							
				0.5l glass bottle (ALE227)	UNL	x	x	x	x					x	x		x	x	x	x			
26416320	WS001			Vial (ALE297)	UNL										x								
				250ml Amber Gl. PTFE/PE	UNL						x	x				x							
				1lplastic (ALE221)	UNL	x	x	x	x					x	x		x	x	x	x			
				0.5l glass bottle (ALE227)	UNL																		
26416331	PWB-BH-06			Vial (ALE297)	UNL										x								
				0.5l glass bottle (ALE227)	UNL	x	x	x	x		x	x		x	x	x	x	x	x	x			
26416328	PWB-BH-01			Vial (ALE297)	UNL										x								
				0.5l glass bottle (ALE227)	UNL	x	x	x	x		x	x		x	x	x	x	x	x	x			

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	26416329	26416323	26416330	26416332	26416321	26416322	26416324
			Customer Sample Reference	AVC1-BH-08	AVON	AVW-BH-08	AWB-BH-02	BH001	BH003	C-MOORE
			AGS Reference							
			Depth (m)						1.73	
			Container	0.5l glass bottle (ALE227)	Vial (ALE297)	0.5l glass bottle (ALE227)	1l plastic (ALE221)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml Amber Gl. PTFE/PE	Vial (ALE297)	250ml Amber Gl. PTFE/PE	Vial (ALE297)	0.5l glass bottle (ALE227)	1l plastic (ALE221)	250ml Amber Gl. PTFE/PE	Vial (ALE297)	0.5l glass bottle (ALE227)	1l plastic (ALE221)	HNO3 Unfiltered (ALE204)
			Sample Type	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 11		X					X		X			X				X				
TPH CWG (W)	All	NDPs: 0 Tests: 11		X					X		X		X					X				
VOC MS (W)	All	NDPs: 0 Tests: 11			X					X		X				X				X		

26416327	WS020			Vial (ALE297)	UNL				X
				0.5l glass bottle (ALE227)	UNL		X		X
26416326	WS011		3.00	Vial (ALE297)	UNL				X
				250ml Amber Gl. PTFE/PE	UNL		X		X
26416325	WS009			Vial (ALE297)	UNL				X
				250ml Amber Gl. PTFE/PE	UNL				
				0.5l glass bottle (ALE227)	UNL		X		X
26416320	WS001			Vial (ALE297)	UNL				X
				250ml Amber Gl. PTFE/PE	UNL				
				1lplastic (ALE221)	UNL		X		
				0.5l glass bottle (ALE227)	UNL				X
26416331	PWB-BH-06			Vial (ALE297)	UNL				X
				0.5l glass bottle (ALE227)	UNL		X		X
26416328	PWB-BH-01			Vial (ALE297)	UNL				X
				0.5l glass bottle (ALE227)	UNL		X		X

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-08	AVON	AVW-BH-08	AWB-BH-02	BH001	BH003
			Depth (m)	.	.	.	.	.	1.73
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416329	26416323	26416330	26416332	26416321	26416322
			AGS Reference						
Carbon, Organic (diss.filt)	<3 mg/l	TM090			4.87				
Organic Carbon, Total	<3 mg/l	TM090		3.56 2		8.96 2	62.7 2	5.37 2	<3 2
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		0.386 2		2.31 2	1.83 2	<0.2 2	<0.2 2
Ammoniacal Nitrogen as NH3	<0.2 mg/l	TM099		0.469 2		2.8 2	2.22 2	<0.2 2	<0.2 2
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099		0.496 2		2.97 2	2.35 2	<0.3 2	<0.3 2
Sulphide	<0.01 mg/l	TM101		<0.01 2		<0.01 2	<0.01 2	<0.01 2	<0.01 2
Aluminium (diss.filt)	<10 µg/l	TM152		11.1 2		48.5 2	<10 2	<10 2	<10 2
Antimony (diss.filt)	<1 µg/l	TM152		<1 2		1.27 2	<1 2	<1 2	<1 2
Arsenic (diss.filt)	<0.5 µg/l	TM152		0.795 2		1.62 2	0.775 2	3.59 2	<0.5 2
Barium (diss.filt)	<0.2 µg/l	TM152		74 2		45 2	12.3 2	10.9 2	26.7 2
Beryllium (diss.filt)	<0.1 µg/l	TM152		<0.1 2		<0.1 2	<0.1 2	<0.1 2	<0.1 2
Boron (diss.filt)	<10 µg/l	TM152		274 2		3260 2	621 2	1660 2	31.2 2
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2		0.0953 2	<0.08 2	<0.08 2	<0.08 2
Chromium (diss.filt)	<1 µg/l	TM152		<1 2		<1 2	<1 2	<1 2	<1 2
Copper (diss.filt)	<0.3 µg/l	TM152		0.479 2		0.752 2	0.688 2	1.28 2	1.93 2
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 2		<0.2 2	<0.2 2	<0.2 2	<0.2 2
Molybdenum (diss.filt)	<3 µg/l	TM152		<3 2		20.8 2	12.7 2	9.3 2	<3 2
Nickel (diss.filt)	<0.4 µg/l	TM152		1.87 2		63 2	36.1 2	21.7 2	1.59 2
Phosphorus (diss.filt)	<10 µg/l	TM152		<10 2		<10 2	<10 2	<10 2	<10 2
Selenium (diss.filt)	<1 µg/l	TM152		1.94 2		11.1 2	<1 2	3.39 2	<1 2
Vanadium (diss.filt)	<1 µg/l	TM152		1.59 2		<1 2	<1 2	1.44 2	<1 2
Zinc (diss.filt)	<1 µg/l	TM152		1.34 2		1.96 2	4.24 2	2.73 2	11.7 2
Calcium (Dis.Filt)	<0.2 mg/l	TM152			117 2				
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019 2		<0.019 2	7.78 2	<0.019 2	<0.019 2
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM152			342 2				
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 2		<0.01 2	<0.01 2	<0.01 2	<0.01 2
Sulphate	<2 mg/l	TM184		72.3		1010	1720	204	40.1
Chloride	<2 mg/l	TM184		39.2		1530	84.3	46.4	29.9
Nitrate as NO3	<0.3 mg/l	TM184		<0.3 @		<0.3 @	<0.3 @	<0.3 @	51.1 @
Cyanide, Total	<0.05 mg/l	TM227		<0.05 2		<0.05 2	<0.05 2	<0.05 2	<0.05 2
Cyanide, Free	<0.05 mg/l	TM227		<0.05 2		<0.05 2	<0.05 2	<0.05 2	<0.05 2
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03		<0.03	<0.03	<0.03	<0.03

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-08	AVON	AVW-BH-08	AWB-BH-02	BH001	BH003
			Depth (m)	.	.	.	.	.	1.73
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416329	26416323	26416330	26416332	26416321	26416322
			AGS Reference						
pH	<1 pH Units	TM256		7.23	8.01	7.58	6.21	8	7.29
Phenol	<0.002 mg/l	TM259		<0.002 2		<0.002 2	<0.002 2	<0.002 2	<0.002 2
Cresols	<0.006 mg/l	TM259		<0.006 2		<0.006 2	<0.006 2	<0.006 2	<0.006 2
Xylenols	<0.008 mg/l	TM259		<0.008 2		<0.008 2	<0.008 2	<0.008 2	<0.008 2
Phenols, Total Detected monohydric	<0.016 mg/l	TM259		<0.016 2		<0.016 2	<0.016 2	<0.016 2	<0.016 2

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	C-MOORE	PWB-BH-01	PWB-BH-06	WS001	WS009	WS011
			Depth (m)	.	.	.	.	.	3.00
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416324	26416328	26416331	26416320	26416325	26416326
			AGS Reference						
Carbon, Organic (diss.filt)	<3 mg/l	TM090		15.2					
Organic Carbon, Total	<3 mg/l	TM090			12.1 2	8.97 2	7.9 2	19.5 2	13.2 2
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099			0.858 2	1.12 2	<0.2 2	0.758 2	1.15 2
Ammoniacal Nitrogen as NH3	<0.2 mg/l	TM099			1.04 2	1.36 2	<0.2 2	0.92 2	1.4 2
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099			1.1 2	1.44 2	<0.3 2	0.975 2	1.48 2
Sulphide	<0.01 mg/l	TM101			<0.01 2	<0.01 2	<0.01 2	<0.01 2	<0.01 2
Aluminium (diss.filt)	<10 µg/l	TM152			<10 2	<10 2	36.6 2	3100 2	<10 2
Antimony (diss.filt)	<1 µg/l	TM152			<1 2	1.18 2	<1 2	<6 2	<1 2
Arsenic (diss.filt)	<0.5 µg/l	TM152			<0.5 2	2.07 2	0.605 2	<3 2	0.712 2
Barium (diss.filt)	<0.2 µg/l	TM152			11 2	22 2	8.22 2	28.6 2	15.1 2
Beryllium (diss.filt)	<0.1 µg/l	TM152			<0.1 2	<0.1 2	<0.1 2	2.8 2	<0.1 2
Boron (diss.filt)	<10 µg/l	TM152			930 2	2160 2	134 2	844 2	1630 2
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08 2	0.342 2	0.639 2	5.84 2	0.525 2
Chromium (diss.filt)	<1 µg/l	TM152			<1 2	<1 2	<1 2	<6 2	<1 2
Copper (diss.filt)	<0.3 µg/l	TM152			<0.3 2	1.08 2	2.6 2	39.6 2	3.41 2
Lead (diss.filt)	<0.2 µg/l	TM152			<0.2 2	<0.2 2	<0.2 2	<1.2 2	<0.2 2
Molybdenum (diss.filt)	<3 µg/l	TM152			<3 2	5.12 2	<3 2	<18 2	<3 2
Nickel (diss.filt)	<0.4 µg/l	TM152			17.1 2	42.8 2	47.3 2	609 2	91.7 2
Phosphorus (diss.filt)	<10 µg/l	TM152			<10 2	<10 2	<10 2	<60 2	<10 2
Selenium (diss.filt)	<1 µg/l	TM152			<1 2	1.19 2	<1 2	<6 2	<1 2
Vanadium (diss.filt)	<1 µg/l	TM152			<1 2	<1 2	<1 2	<6 2	<1 2
Zinc (diss.filt)	<1 µg/l	TM152			1.84 2	4.52 2	32.3 2	1010 2	46.3 2
Calcium (Dis.Filt)	<0.2 mg/l	TM152		131 2					
Iron (Dis.Filt)	<0.019 mg/l	TM152			4.85 2	<0.019 2	0.0771 2	8.48 2	0.021 2
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM152		402					
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01 2	<0.01 2	<0.01 2	<0.01 2	<0.01 2
Sulphate	<2 mg/l	TM184			1380	557	204	1550	1240
Chloride	<2 mg/l	TM184			190	145	95.5	207	160
Nitrate as NO3	<0.3 mg/l	TM184			<0.3 @	<0.3 @	14.6 @	<0.3 @	<0.3 @
Cyanide, Total	<0.05 mg/l	TM227			<0.05 2	<0.05 2	<0.05 2	<0.05 2	<0.05 2
Cyanide, Free	<0.05 mg/l	TM227			<0.05 2	<0.05 2	<0.05 2	<0.05 2	<0.05 2
Chromium, Hexavalent	<0.03 mg/l	TM241			<0.03	<0.03	<0.03	<0.03	<0.03

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	C-MOORE	PWB-BH-01	PWB-BH-06	WS001	WS009	WS011
			Depth (m)	.	.	.	.	.	3.00
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416324	26416328	26416331	26416320	26416325	26416326
			AGS Reference						
pH	<1 pH Units	TM256		7.47	6.66	7.42	6.19	4.2	6.69
Phenol	<0.002 mg/l	TM259			<0.002 2	<0.002 2	<0.002 2	<0.002 2	<0.002 2
Cresols	<0.006 mg/l	TM259			<0.006 2	<0.006 2	<0.006 2	<0.006 2	<0.006 2
Xylenols	<0.008 mg/l	TM259			<0.008 2	<0.008 2	<0.008 2	<0.008 2	<0.008 2
Phenols, Total Detected monohydric	<0.016 mg/l	TM259			<0.016 2	<0.016 2	<0.016 2	<0.016 2	<0.016 2

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. WS020	Depth (m) .	Sample Type Unspecified Liquid (UNL)	Date Sampled 09/06/2022	Sampled Time .	Date Received 11/06/2022	SDG Ref 220611-76	Lab Sample No.(s) 26416327	AGS Reference
Organic Carbon, Total	<3 mg/l	TM090	14.6 2								
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	1.62 2								
Ammoniacal Nitrogen as NH3	<0.2 mg/l	TM099	1.97 2								
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	2.08 2								
Sulphide	<0.01 mg/l	TM101	<0.01 2								
Aluminium (diss.filt)	<10 µg/l	TM152	78.9 2								
Antimony (diss.filt)	<1 µg/l	TM152	36.9 2								
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.27 2								
Barium (diss.filt)	<0.2 µg/l	TM152	36.1 2								
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1 2								
Boron (diss.filt)	<10 µg/l	TM152	2670 2								
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 2								
Chromium (diss.filt)	<1 µg/l	TM152	<1 2								
Copper (diss.filt)	<0.3 µg/l	TM152	2.61 2								
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2 2								
Molybdenum (diss.filt)	<3 µg/l	TM152	7.16 2								
Nickel (diss.filt)	<0.4 µg/l	TM152	4.41 2								
Phosphorus (diss.filt)	<10 µg/l	TM152	<10 2								
Selenium (diss.filt)	<1 µg/l	TM152	<1 2								
Vanadium (diss.filt)	<1 µg/l	TM152	2.3 2								
Zinc (diss.filt)	<1 µg/l	TM152	<1 2								
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019 2								
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 2								
Sulphate	<2 mg/l	TM184	1910								
Chloride	<2 mg/l	TM184	463								
Nitrate as NO3	<0.3 mg/l	TM184	<0.3 @								
Cyanide, Total	<0.05 mg/l	TM227	<0.05 2								
Cyanide, Free	<0.05 mg/l	TM227	<0.05 2								
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03								
pH	<1 pH Units	TM256	8.03								
Phenol	<0.002 mg/l	TM259	<0.002 2								
Cresols	<0.006 mg/l	TM259	<0.006 2								

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Results Legend		Customer Sample Ref.	WS020
#	ISO17025 accredited.		
M	mCERTS accredited.		
aq	Aqueous / settled sample.	Depth (m)	.
diss.filt	Dissolved / filtered sample.	Sample Type	Unspecified Liquid (UNL)
tot.unfilt	Total / unfiltered sample.	Date Sampled	09/06/2022
*	Subcontracted - refer to subcontractor report for accreditation status.	Sampled Time	.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Date Received	11/06/2022
		SDG Ref	220611-76
(F)	Trigger breach confirmed	Lab Sample No.(s)	26416327
1-4+5@	Sample deviation (see appendix)	AGS Reference	

Component	LOD/Units	Method		
Xylenols	<0.008 mg/l	TM259	<0.008	2
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	2

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-08	AVW-BH-08	AWB-BH-02	BH001	BH003	PWB-BH-01
			Depth (m)	.	.	.	.	1.73	.
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416329	26416330	26416332	26416321	26416322	26416328
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.04	0.0631	0.0132	<0.01	<0.01	<0.01
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.02	0.124	<0.005	<0.005	<0.005	<0.005
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.02	<0.02	<0.005	<0.005	<0.005	<0.005
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.02	<0.02	0.00824	<0.005	0.0114	<0.005
Anthracene (aq)	<0.005 µg/l	TM178		<0.02	<0.02	<0.005	<0.005	<0.005	<0.005
Phenanthrene (aq)	<0.005 µg/l	TM178		0.029	0.215	0.0111	<0.005	0.0175	0.0063
Fluorene (aq)	<0.005 µg/l	TM178		<0.02	<0.02	<0.005	<0.005	<0.005	<0.005
Chrysene (aq)	<0.005 µg/l	TM178		<0.02	0.134	<0.005	<0.005	<0.005	<0.005
Pyrene (aq)	<0.005 µg/l	TM178		<0.02	<0.02	0.0109	<0.005	0.00709	<0.005
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.02	0.0865	<0.005	<0.005	<0.005	<0.005
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.02	0.257	<0.005	<0.005	<0.005	<0.005
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.02	0.09	<0.005	<0.005	<0.005	<0.005
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.008	0.157	<0.002	<0.002	<0.002	<0.002
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.02	<0.02	<0.005	<0.005	<0.005	<0.005
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.02	0.159	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.02	0.191	<0.005	<0.005	<0.005	<0.005
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.328	1.48	<0.082	<0.082	<0.082	<0.082

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-06	WS001	WS009	WS011	WS020
			Depth (m)	.	.	.	3.00	.
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416331	26416320	26416325	26416326	26416327
			AGS Reference					
Naphthalene (aq)	<0.01 µg/l	TM178		<0.04	0.0267	0.09	0.0221	0.289
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.02	<0.01	<0.005	<0.01	0.128
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.02	<0.01	<0.005	<0.01	<0.02
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.02	0.0357	0.0149	0.139	0.324
Anthracene (aq)	<0.005 µg/l	TM178		<0.02	<0.01	<0.005	0.0144	0.109
Phenanthrene (aq)	<0.005 µg/l	TM178		0.123	0.0359	0.0234	0.0832	0.454
Fluorene (aq)	<0.005 µg/l	TM178		<0.02	<0.01	<0.005	0.0177	0.131
Chrysene (aq)	<0.005 µg/l	TM178		0.05	0.0157	<0.005	0.0935	<0.02
Pyrene (aq)	<0.005 µg/l	TM178		<0.02	0.0363	0.0125	0.13	0.467
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		0.0452	0.0187	<0.005	0.0811	<0.02
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		0.165	0.045	<0.005	0.172	0.336
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		0.0501	0.0182	<0.005	0.0982	0.113
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.008	<0.004	<0.002	0.101	0.253
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.02	<0.01	<0.005	<0.01	<0.02
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		0.0702	0.0353	<0.005	0.0852	0.186
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.02	<0.01	<0.005	<0.01	0.203
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		0.503	0.268	0.141	1.04	2.99

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-08	AVW-BH-08	AWB-BH-02	BH001	BH003	PWB-BH-01
			Depth (m)	.	.	.	.	1.73	.
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416329	26416330	26416332	26416321	26416322	26416328
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		109	106	100	104	96	107
GRO >C5-C12	<50 µg/l	TM245		<50	<50	<50	<50	<50	<50
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<40	<40	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<40	<40	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		194	339	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		194	339	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<40	<40	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<40	<40	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<40	<40	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<40	<40	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		194	339	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		194	339	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+S@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-06	WS001	WS009	WS011	WS020
			Depth (m)	.	.	.	3.00	.
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416331	26416320	26416325	26416326	26416327
			AGS Reference					
GRO Surrogate % recovery**	%	TM245		106	94	96	107	111
GRO >C5-C12	<50 µg/l	TM245		<50	<50	<50	<50	<50
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<40	<20	<10	<20	149
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		563	43	<10	85	2430
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		613	52	11	434	2390
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		1180	95	11	519	4970
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<40	<20	<10	<20	<40
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<40	<20	<10	<20	<40
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<40	<20	<10	<20	<40
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<40	<20	<10	<20	<40
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		1180	95	11	519	4970
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		1180	95	11	519	4820

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	AVC1-BH-08	AVW-BH-08	AWB-BH-02	BH001	BH003	PWB-BH-01
			Depth (m)	.	.	.	.	1.73	.
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416329	26416330	26416332	26416321	26416322	26416328
			AGS Reference						
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Ethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
m,p-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
o-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2	<2
Sum of BTEX	<5 µg/l	TM208		<5	<5	<5	<5	<5	<5

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PWB-BH-06	WS001	WS009	WS011	WS020
			Depth (m)	.	.	.	3.00	.
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
			Date Sampled	09/06/2022	09/06/2022	09/06/2022	09/06/2022	09/06/2022
			Sampled Time	.	.	.	.	.
			Date Received	11/06/2022	11/06/2022	11/06/2022	11/06/2022	11/06/2022
			SDG Ref	220611-76	220611-76	220611-76	220611-76	220611-76
			Lab Sample No.(s)	26416331	26416320	26416325	26416326	26416327
			AGS Reference					
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208		<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208		<1	<1	<1	<1	<1
Ethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1
m,p-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1
o-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2
Sum of BTEX	<5 µg/l	TM208		<5	<5	<5	<5	<5

Table of Results - Appendix

Method No	Reference	Description
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Test Completion Dates

Lab Sample No(s)	26416329	26416323	26416330	26416332	26416321	26416322	26416324	26416328	26416331	26416320
Customer Sample Ref.	AVC1-BH-08	AVON	AVW-BH-08	AWB-BH-02	BH001	BH003	C-MOORE	PWB-BH-01	PWB-BH-06	WS001
AGS Ref.										
Depth						1.73				
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Ammoniacal Nitrogen	15-Jun-2022		15-Jun-2022	15-Jun-2022	14-Jun-2022	14-Jun-2022		15-Jun-2022	15-Jun-2022	14-Jun-2022
Anions by Kone (w)	14-Jun-2022		16-Jun-2022	16-Jun-2022	14-Jun-2022	16-Jun-2022		16-Jun-2022	16-Jun-2022	16-Jun-2022
Cyanide Comp/Free/Total/Thiocyanate	15-Jun-2022		17-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022		15-Jun-2022	15-Jun-2022	15-Jun-2022
Dissolved Metals by ICP-MS	15-Jun-2022	20-Jun-2022	17-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022
Dissolved Organic/Inorganic Carbon		15-Jun-2022					15-Jun-2022			
EPH CWG (Aliphatic) Aqueous GC (W)	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022
EPH CWG (Aromatic) Aqueous GC (W)	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022
GRO by GC-FID (W)	16-Jun-2022		16-Jun-2022	16-Jun-2022	16-Jun-2022	16-Jun-2022		16-Jun-2022	16-Jun-2022	16-Jun-2022
Hexavalent Chromium (w)	14-Jun-2022		16-Jun-2022	14-Jun-2022	14-Jun-2022	14-Jun-2022		14-Jun-2022	14-Jun-2022	14-Jun-2022
Mercury Dissolved	15-Jun-2022		20-Jun-2022	16-Jun-2022	15-Jun-2022	15-Jun-2022		16-Jun-2022	15-Jun-2022	15-Jun-2022
Nitrite by Kone (w)	14-Jun-2022		15-Jun-2022	14-Jun-2022	14-Jun-2022	14-Jun-2022		14-Jun-2022	14-Jun-2022	14-Jun-2022
PAH Spec MS - Aqueous (W)	16-Jun-2022		16-Jun-2022	16-Jun-2022	16-Jun-2022	16-Jun-2022		16-Jun-2022	16-Jun-2022	16-Jun-2022
pH Value	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022
Phenols by HPLC (W)	15-Jun-2022		16-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022		15-Jun-2022	15-Jun-2022	15-Jun-2022
Sulphide	15-Jun-2022		15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022		15-Jun-2022	15-Jun-2022	15-Jun-2022
Total Metals by ICP-MS		20-Jun-2022					15-Jun-2022			
Total Organic and Inorganic Carbon	15-Jun-2022		15-Jun-2022	15-Jun-2022	15-Jun-2022	15-Jun-2022		15-Jun-2022	15-Jun-2022	15-Jun-2022
TPH CWG (W)	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022
VOC MS (W)	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022		17-Jun-2022	17-Jun-2022	17-Jun-2022

Lab Sample No(s)	26416325	26416326	26416327
Customer Sample Ref.	WS009	WS011	WS020
AGS Ref.			
Depth		3.00	
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq
Ammoniacal Nitrogen	15-Jun-2022	14-Jun-2022	15-Jun-2022
Anions by Kone (w)	14-Jun-2022	14-Jun-2022	16-Jun-2022
Cyanide Comp/Free/Total/Thiocyanate	17-Jun-2022	15-Jun-2022	17-Jun-2022
Dissolved Metals by ICP-MS	15-Jun-2022	15-Jun-2022	15-Jun-2022
EPH CWG (Aliphatic) Aqueous GC (W)	17-Jun-2022	17-Jun-2022	17-Jun-2022
EPH CWG (Aromatic) Aqueous GC (W)	17-Jun-2022	17-Jun-2022	17-Jun-2022
GRO by GC-FID (W)	16-Jun-2022	16-Jun-2022	16-Jun-2022
Hexavalent Chromium (w)	14-Jun-2022	14-Jun-2022	14-Jun-2022
Mercury Dissolved	15-Jun-2022	15-Jun-2022	15-Jun-2022
Nitrite by Kone (w)	14-Jun-2022	14-Jun-2022	14-Jun-2022
PAH Spec MS - Aqueous (W)	16-Jun-2022	16-Jun-2022	16-Jun-2022
pH Value	15-Jun-2022	15-Jun-2022	15-Jun-2022
Phenols by HPLC (W)	15-Jun-2022	15-Jun-2022	15-Jun-2022
Sulphide	15-Jun-2022	15-Jun-2022	15-Jun-2022
Total Organic and Inorganic Carbon	15-Jun-2022	15-Jun-2022	15-Jun-2022
TPH CWG (W)	17-Jun-2022	17-Jun-2022	17-Jun-2022
VOC MS (W)	17-Jun-2022	17-Jun-2022	17-Jun-2022

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2610	QC 2613	QC 2623	QC 2652
Ammoniacal Nitrogen as N	TM099	**99.2** 90.84 : 105.72	**96.8** 90.84 : 105.72	**100.4** 90.84 : 105.72	**100.0** 90.84 : 105.72

Anions by Kone (w)

Component	Method Code	QC 2642	QC 2613
Chloride	TM184	**107.0** 97.18 : 113.20	**109.0** 97.18 : 113.20
Sulphate (soluble)	TM184	**104.8** 96.54 : 111.66	**104.8** 96.54 : 111.66
TON as NO3	TM184	**110.0** 100.65 : 111.75	**109.0** 100.65 : 111.75

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2626	QC 2638	QC 2638
Free Cyanide (W)	TM227	**79.75** 80.33 : 126.33	**79.5** 80.33 : 126.33	**79.0** 102.00 : 124.00
Thiocyanate (W)	TM227	**105.0** 87.50 : 116.00	**104.75** 87.50 : 116.00	**104.25** 92.25 : 117.75
Total Cyanide (W)	TM227	**99.5** 83.75 : 121.25	**100.5** 83.75 : 121.25	**101.0** 93.75 : 114.75

Dissolved Metals by ICP-MS

Component	Method Code	QC 2666	QC 2618	QC 2658	QC 2648
Aluminium	TM152	**99.33** 90.98 : 111.82	**100.0** 90.98 : 111.82	**100.0** 90.98 : 111.82	**99.33** 90.98 : 111.82
Antimony	TM152	**98.0** 90.44 : 113.04	**97.83** 90.44 : 113.04	**101.0** 90.44 : 113.04	**100.5** 90.44 : 113.04
Arsenic	TM152	**98.83** 94.87 : 109.67	**98.67** 94.87 : 109.67	**101.0** 94.87 : 109.67	**100.33** 94.87 : 109.67
Barium	TM152	**101.17** 90.20 : 111.19	**101.5** 90.20 : 111.19	**99.33** 90.20 : 111.19	**99.5** 90.20 : 111.19
Beryllium	TM152	**98.33** 87.77 : 113.97	**100.5** 87.77 : 113.97	**100.33** 87.77 : 113.97	**101.33** 87.77 : 113.97
Bismuth	TM152	**98.5** 91.90 : 112.20	**97.17** 91.90 : 112.20	**100.67** 91.90 : 112.20	**99.33** 91.90 : 112.20
Borate	TM152	**100.62** 88.00 : 112.00	**101.85** 88.00 : 112.00	**100.0** 88.00 : 112.00	**103.09** 88.00 : 112.00
Boron	TM152	**100.67** 92.27 : 112.40	**102.0** 92.27 : 112.40	**100.33** 92.27 : 112.40	**103.0** 92.27 : 112.40
Cadmium	TM152	**100.17** 94.93 : 106.93	**99.5** 94.93 : 106.93	**101.33** 94.93 : 106.93	**101.83** 94.93 : 106.93
Calcium	TM152	**100.0** 95.14 : 110.01	**99.33** 95.14 : 110.01	**102.67** 95.14 : 110.01	**100.0** 95.14 : 110.01
Chromium	TM152	**96.33** 91.84 : 108.67	**96.67** 91.84 : 108.67	**100.33** 91.84 : 108.67	**100.17** 91.84 : 108.67
Cobalt	TM152	**97.0** 90.72 : 109.61	**96.67** 90.72 : 109.61	**100.67** 90.72 : 109.61	**100.33** 90.72 : 109.61

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Dissolved Metals by ICP-MS

		QC 2666	QC 2618	QC 2658	QC 2648
Copper	TM152	**97.67** 94.47 : 109.05	**96.67** 94.47 : 109.05	**101.67** 94.47 : 109.05	**100.5** 94.47 : 109.05
Iron	TM152	**97.33** 94.40 : 107.90	**96.67** 94.40 : 107.90	**100.0** 94.40 : 107.90	**100.67** 94.40 : 107.90
Lead	TM152	**99.0** 93.55 : 109.46	**98.5** 93.55 : 109.46	**101.33** 93.55 : 109.46	**100.33** 93.55 : 109.46
Lithium	TM152	**96.17** 91.62 : 113.12	**98.17** 91.62 : 113.12	**99.33** 91.62 : 113.12	**101.17** 91.62 : 113.12
Magnesium	TM152	**98.0** 92.30 : 110.57	**98.0** 92.30 : 110.57	**102.0** 92.30 : 110.57	**101.33** 92.30 : 110.57
Manganese	TM152	**98.17** 94.75 : 108.21	**97.67** 94.75 : 108.21	**100.17** 94.75 : 108.21	**100.67** 94.75 : 108.21
Molybdenum	TM152	**96.17** 93.55 : 107.66	**95.33** 93.55 : 107.66	**98.33** 93.55 : 107.66	**97.5** 93.55 : 107.66
Nickel	TM152	**97.67** 88.00 : 112.00	**97.67** 88.00 : 112.00	**102.83** 88.00 : 112.00	**100.67** 88.00 : 112.00
Phosphorus	TM152	**98.67** 92.51 : 109.27	**98.0** 92.51 : 109.27	**100.67** 92.51 : 109.27	**99.67** 92.51 : 109.27
Potassium	TM152	**102.67** 92.16 : 109.93	**101.33** 92.16 : 109.93	**101.33** 92.16 : 109.93	**100.67** 92.16 : 109.93
Selenium	TM152	**101.17** 91.58 : 115.98	**100.67** 91.58 : 115.98	**99.33** 91.58 : 115.98	**102.83** 91.58 : 115.98
Silver	TM152	**98.33** 92.75 : 111.05	**99.0** 92.75 : 111.05	**99.67** 92.75 : 111.05	**99.83** 92.75 : 111.05
Sodium	TM152	**97.33** 89.47 : 109.62	**97.33** 89.47 : 109.62	**101.33** 89.47 : 109.62	**101.33** 89.47 : 109.62
Strontium	TM152	**98.33** 95.40 : 109.43	**99.33** 95.40 : 109.43	**101.67** 95.40 : 109.43	**100.0** 95.40 : 109.43
Tellurium	TM152	**102.83** 93.32 : 114.66	**100.67** 93.32 : 114.66	**98.67** 93.32 : 114.66	**101.5** 93.32 : 114.66
Thallium	TM152	**89.17** 88.00 : 112.00	**89.33** 88.00 : 112.00	**94.0** 88.00 : 112.00	**94.33** 88.00 : 112.00
Tin	TM152	**98.5** 92.63 : 109.70	**98.5** 92.63 : 109.70	**99.83** 92.63 : 109.70	**100.83** 92.63 : 109.70
Titanium	TM152	**100.67** 95.08 : 109.28	**98.83** 95.08 : 109.28	**101.0** 95.08 : 109.28	**100.33** 95.08 : 109.28
Tungsten	TM152	**98.33** 94.68 : 107.68	**100.17** 94.68 : 107.68	**98.83** 94.68 : 107.68	**97.33** 94.68 : 107.68
Uranium	TM152	**98.0** 88.00 : 112.00	**95.17** 88.00 : 112.00	**98.0** 88.00 : 112.00	**98.5** 88.00 : 112.00
Vanadium	TM152	**104.17** 88.00 : 112.00	**100.17** 88.00 : 112.00	**101.17** 88.00 : 112.00	**101.0** 88.00 : 112.00
Zinc	TM152	**99.0** 95.31 : 110.74	**99.33** 95.31 : 110.74	**102.0** 95.31 : 110.74	**102.0** 95.31 : 110.74

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 2691
Dissolved Inorganic Carbon	TM090	**105.83** 93.58 : 112.28
Dissolved Organic Carbon	TM090	**103.83** 97.42 : 107.52

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 2672	QC 2629
Total Aliphatics >C10-C40	TM174	**117.16** 68.59 : 134.82	**94.55** 65.58 : 141.57

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 2686	QC 2645
Total Aromatics >EC10-EC40	TM174	**88.78** 60.75 : 129.09	**86.59** 60.75 : 129.09

GRO by GC-FID (W)

Component	Method Code	QC 2650	QC 2650
Benzene by GC	TM245	**95.5** 79.13 : 118.84	**94.5** 83.48 : 117.21
Ethylbenzene by GC	TM245	**94.5** 79.54 : 115.99	**95.0** 84.11 : 114.89
m & p Xylene by GC	TM245	**94.5** 78.44 : 116.32	**95.5** 83.73 : 116.33
MTBE GC-FID	TM245	**101.5** 81.43 : 120.09	**99.0** 84.42 : 117.50
o Xylene by GC	TM245	**94.0** 76.85 : 120.29	**94.0** 85.03 : 117.59
QC	TM245	**84.59** 59.97 : 121.29	**71.1** 51.91 : 123.63
Toluene by GC	TM245	**95.0** 79.00 : 121.96	**95.0** 84.73 : 116.85

Hexavalent Chromium (w)

Component	Method Code	QC 2606	QC 2661
Hexavalent Chromium	TM241	**104.0** 94.17 : 106.17	**100.6** 94.17 : 106.17

Mercury Dissolved

Component	Method Code	QC 2617	QC 2602	QC 2615	QC 2682
Mercury Dissolved (CVAF)	TM183	**113.0** 0.00 : 0.00	**103.0** 0.00 : 0.00	**105.0** 0.00 : 0.00	**101.0** 0.00 : 0.00

PAH Spec MS - Aqueous (W)

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2697	QC 2665
Acenaphthene by GCMS	TM178	**115.2** 100.00 : 119.20	**109.6** 98.40 : 117.60
Acenaphthylene by GCMS	TM178	**114.4** 95.20 : 119.20	**110.8** 96.80 : 118.40
Anthracene by GCMS	TM178	**107.6** 91.60 : 113.20	**107.6** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**113.6** 90.40 : 119.20	**107.6** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**110.0** 92.80 : 119.20	**100.0** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**102.8** 89.60 : 120.80	**108.0** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**104.0** 93.20 : 117.20	**99.2** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**108.8** 96.40 : 120.40	**98.8** 88.72 : 111.28
Chrysene by GCMS	TM178	**102.4** 96.40 : 125.20	**103.2** 88.68 : 116.92
Dibenzo(ah)anthracene by GCMS	TM178	**105.6** 92.00 : 113.60	**103.2** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**112.0** 91.20 : 117.60	**103.2** 91.20 : 117.60
Fluorene by GCMS	TM178	**113.6** 95.60 : 122.00	**108.4** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**102.8** 90.40 : 112.00	**110.0** 88.39 : 119.61
Naphthalene by GCMS	TM178	**115.2** 98.00 : 122.00	**107.2** 98.00 : 119.60
Phenanthrene by GCMS	TM178	**111.2** 94.00 : 120.40	**107.2** 96.00 : 117.60
Pyrene by GCMS	TM178	**109.2** 92.40 : 118.80	**101.6** 91.00 : 120.20

pH Value

Component	Method Code	QC 2663	QC 2666	QC 2669	QC 2675
pH	TM256	**99.87** 99.20 : 102.41	**100.27** 99.20 : 102.41	**100.4** 99.20 : 102.41	**100.67** 99.20 : 102.41

Phenols by HPLC (W)

Component	Method Code	QC 2630	QC 2626	QC 2669	QC 2685
2.3.5 Trimethyl-Phenol by HPLC (W)	TM259	**101.56** 76.00 : 124.00	**97.66** 76.00 : 124.00	**99.61** 73.97 : 135.63	**101.56** 76.00 : 124.00
2-Isopropyl Phenol by HPLC (W)	TM259	**97.51** 76.00 : 124.00	**91.78** 76.00 : 124.00	**93.69** 80.00 : 116.00	**99.43** 76.00 : 124.00
Cresols by HPLC (W)	TM259	**101.32** 76.00 : 124.00	**97.37** 76.00 : 124.00	**99.34** 85.46 : 124.01	**101.97** 76.00 : 124.00
Napthol by HPLC (W)	TM259	**91.8** 76.00 : 124.00	**85.94** 76.00 : 124.00	**89.84** 75.83 : 130.17	**91.8** 76.00 : 124.00

Phenols by HPLC (W)

		QC 2630	QC 2626	QC 2669	QC 2685
Phenol by HPLC (W)	TM259	**96.41** 76.00 : 124.00	**94.52** 76.00 : 124.00	**92.63** 82.00 : 118.00	**96.41** 76.00 : 124.00
Xylenols by HPLC (W)	TM259	**99.68** 76.00 : 124.00	**95.25** 76.00 : 124.00	**96.84** 88.33 : 112.33	**100.63** 76.00 : 124.00

Sulphide

Component	Method Code	QC 2664	QC 2651	QC 2660
Sulphide	TM101	**100.0** 88.67 : 116.67	**99.33** 88.67 : 116.67	**100.67** 88.67 : 116.67

Total Metals by ICP-MS

Component	Method Code	QC 2696	QC 2680
Aluminium	TM152	**100.33** 88.99 : 114.16	**106.67** 88.99 : 114.16
Antimony	TM152	**98.67** 93.05 : 123.32	**105.33** 93.05 : 123.32
Arsenic	TM152	**99.0** 97.95 : 112.90	**104.0** 97.95 : 112.90
Barium	TM152	**101.17** 95.11 : 116.80	**107.67** 95.11 : 116.80
Beryllium	TM152	**100.83** 96.06 : 116.39	**107.33** 96.06 : 116.39
Bismuth	TM152	**97.5** 93.21 : 113.89	**106.33** 93.21 : 113.89
Boron	TM152	**104.67** 86.68 : 117.67	**108.0** 86.68 : 117.67
Cadmium	TM152	**99.5** 96.08 : 112.92	**103.83** 96.08 : 112.92
Calcium	TM152	**102.0** 95.17 : 121.17	**104.67** 95.17 : 121.17
Chromium	TM152	**98.83** 97.65 : 111.90	**103.33** 97.65 : 111.90
Cobalt	TM152	**98.67** 96.52 : 113.04	**102.67** 96.52 : 113.04
Copper	TM152	**98.67** 97.32 : 113.53	**103.83** 97.32 : 113.53
Iron	TM152	**99.33** 96.27 : 111.69	**102.67** 96.27 : 111.69
Lead	TM152	**99.17** 96.90 : 113.51	**105.17** 96.90 : 113.51
Lithium	TM152	**100.83** 94.68 : 116.74	**106.67** 94.68 : 116.74
Magnesium	TM152	**104.0** 92.42 : 114.10	**107.33** 92.42 : 114.10
Manganese	TM152	**100.67** 97.04 : 112.45	**103.17** 97.04 : 112.45
Molybdenum	TM152	**96.5** 90.74 : 110.67	**102.83** 90.74 : 110.67

Total Metals by ICP-MS

		QC 2696	QC 2680
Nickel	TM152	**98.83** 97.57 : 113.15	**103.5** 97.57 : 113.15
Phosphorus	TM152	**101.0** 96.28 : 113.79	**103.83** 96.28 : 113.79
Potassium	TM152	**104.67** 96.14 : 114.83	**106.67** 96.14 : 114.83
Selenium	TM152	**102.0** 96.70 : 113.86	**100.83** 96.70 : 113.86
Silver	TM152	**97.0** 82.13 : 120.33	**103.0** 82.13 : 120.33
Sodium	TM152	**104.0** 92.77 : 115.64	**106.67** 92.77 : 115.64
Strontium	TM152	**104.33** 90.72 : 114.82	**105.67** 90.72 : 114.82
Tellurium	TM152	**99.67** 95.55 : 115.82	**105.5** 95.55 : 115.82
Thallium	TM152	**91.5** 80.92 : 114.72	**103.67** 80.92 : 114.72
Tin	TM152	**97.17** 96.04 : 111.04	**104.67** 96.04 : 111.04
Titanium	TM152	**100.67** 96.48 : 114.94	**105.67** 96.48 : 114.94
Uranium	TM152	**96.5** 95.56 : 112.07	**104.83** 95.56 : 112.07
Vanadium	TM152	**94.83** 88.43 : 114.30	**101.5** 88.43 : 114.30
Zinc	TM152	**101.0** 97.95 : 113.95	**103.0** 97.95 : 113.95

Total Organic and Inorganic Carbon

Component	Method Code	QC 2664	QC 2659	QC 2639	QC 2646
Total Organic Carbon	TM090	**103.5** 97.55 : 107.55	**98.83** 82.63 : 116.15	**100.33** 82.63 : 116.15	**103.5** 97.55 : 107.55

VOC MS (W)

Component	Method Code	QC 2654
1,1,1,2-Tetrachloroethane	TM208	**105.5** 87.71 : 111.59
1,1,1-Trichloroethane	TM208	**110.5** 82.66 : 112.06
1,1-Dichloroethane	TM208	**120.5** 79.99 : 118.57
1,2-Dichloroethane	TM208	**115.5** 79.35 : 124.02
2-Chlorotoluene	TM208	**105.5** 79.67 : 114.74
4-Chlorotoluene	TM208	**105.0** 80.15 : 113.42

VOC MS (W)

		QC 2654
Benzene	TM208	**117.0** 82.83 : 120.87
Bromomethane	TM208	**100.5** 78.77 : 123.20
Carbontetrachloride	TM208	**112.0** 79.73 : 118.91
Chlorobenzene	TM208	**111.0** 88.28 : 110.81
Chloroform	TM208	**115.0** 82.31 : 120.71
Chloromethane	TM208	**104.0** 62.46 : 124.98
Cis-1,2-Dichloroethene	TM208	**114.0** 83.75 : 118.91
Dichloromethane	TM208	**111.0** 81.20 : 120.83
Ethylbenzene	TM208	**108.5** 80.54 : 112.31
Hexachlorobutadiene	TM208	**84.5** 69.97 : 112.81
o-Xylene	TM208	**108.5** 87.93 : 111.69
p/m-Xylene	TM208	**108.75** 83.09 : 113.86
Tert-butyl methyl ether	TM208	**120.0** 70.94 : 119.66
Tetrachloroethene	TM208	**102.5** 84.41 : 112.73
Toluene	TM208	**108.0** 81.59 : 111.56
Trichloroethene	TM208	**104.5** 87.31 : 112.54
Vinyl Chloride	TM208	**105.5** 71.92 : 126.73

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

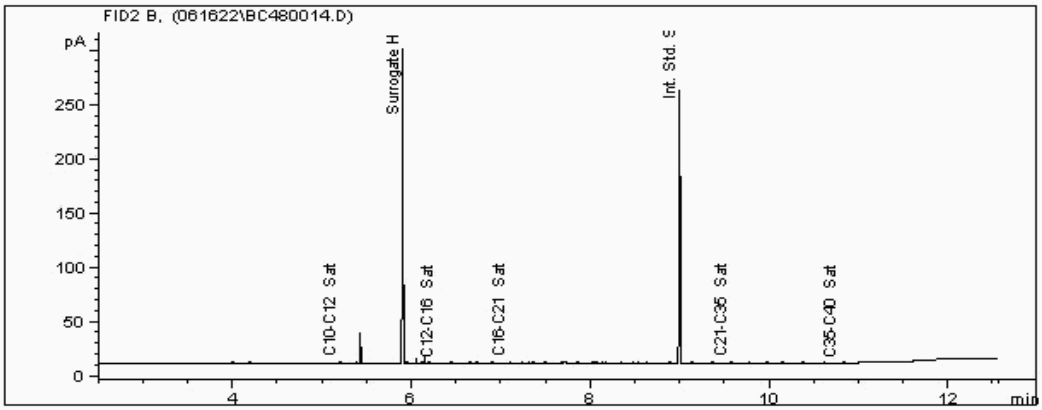
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26423354 **Depth :**
Sample ID : WS001

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642033-
Date Acquired : 16/06/2022 18:33:35 PM
Units : ppb
Dilution : SE WS001[] ->
CF : 1
Multiplier : 0.050

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	206.6	0.444
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	18.8	0.043
5	Int. Std. S	199.5	0.500
6	C21-C35 Sat	21.7	0.052
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	446.7	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

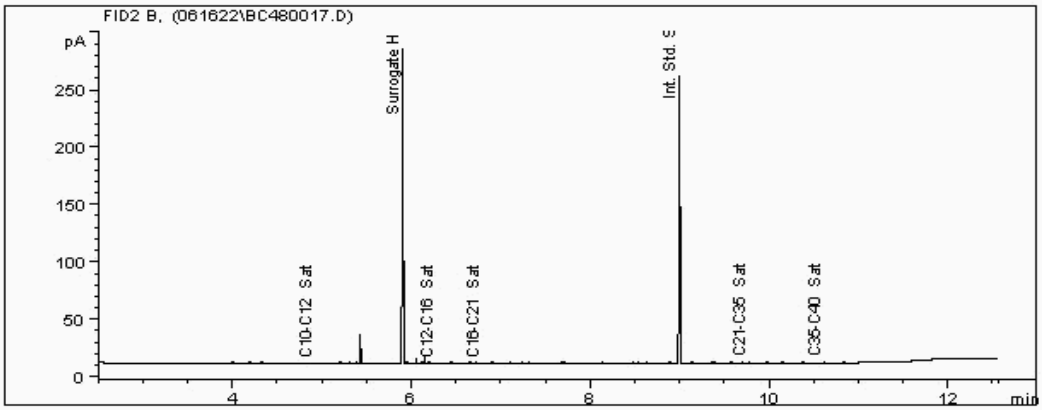
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26423355 **Depth :** 1.73
Sample ID : BH003

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642075-
Date Acquired : 16/06/2022 19:42:41 PM
Units : ppb
Dilution : SE BH003[1.73] ->
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	201.8	0.221
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	195.5	0.250
6	C21-C35 Sat	5.4	0.007
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	402.7	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

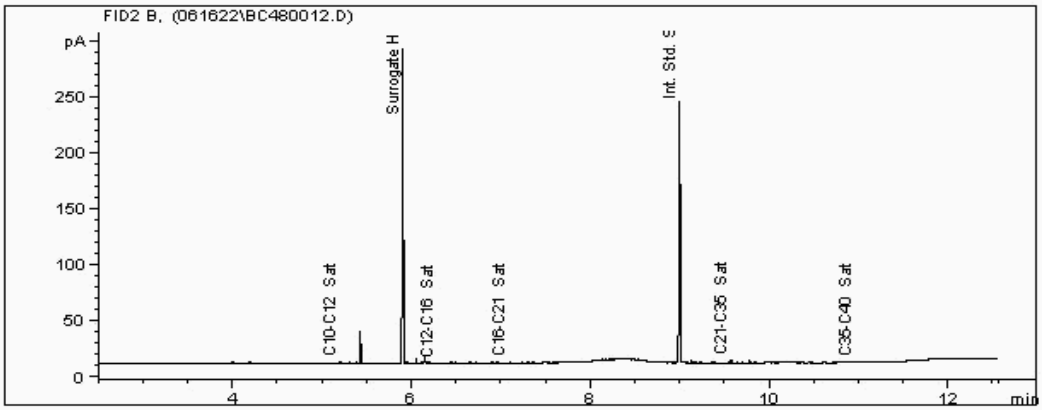
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26423358 **Depth :** 3.00
Sample ID : WS011

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642119-
Date Acquired : 16/06/2022 17:47:10 PM
Units : ppb
Dilution : SE WS011[3.00] ->
CF : 1
Multiplier : 0.050

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	205.9	0.463
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	35.8	0.085
5	Int. Std. S	190.7	0.500
6	C21-C35 Sat	174.4	0.434
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	606.8	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

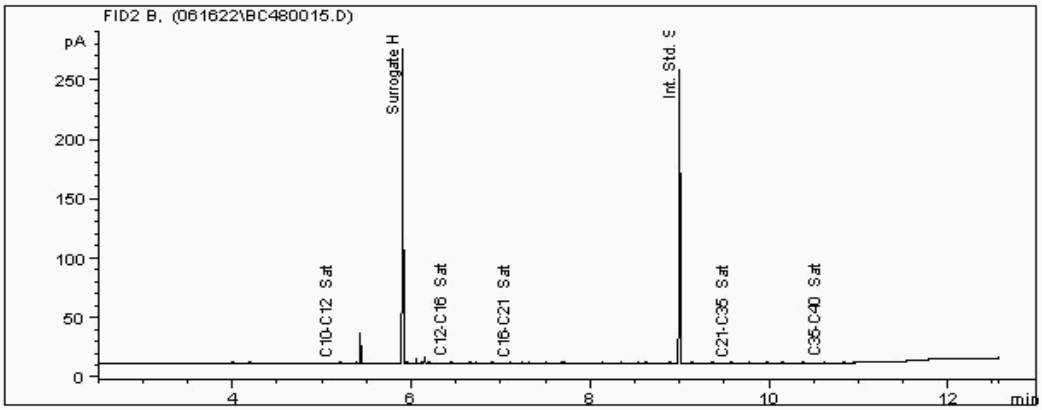
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26423368 **Depth :**
Sample ID : WS009

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642101-
Date Acquired : 16/06/2022 18:56:37 PM
Units : ppb
Dilution : SE WS009[] ->
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	193.4	0.222
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	4.4	0.005
5	Int. Std. S	186.6	0.250
6	C21-C35 Sat	8.3	0.011
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	392.8	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

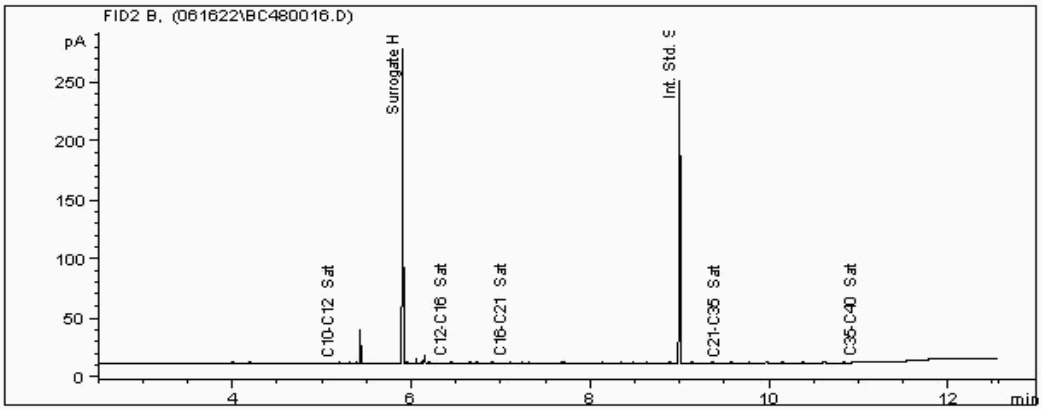
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26423369 **Depth :**
Sample ID : BH001

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642054-
Date Acquired : 16/06/2022 19:19:32 PM
Units : ppb
Dilution : SE BH001[] ->
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	197.7	0.222
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	191.3	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	388.9	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

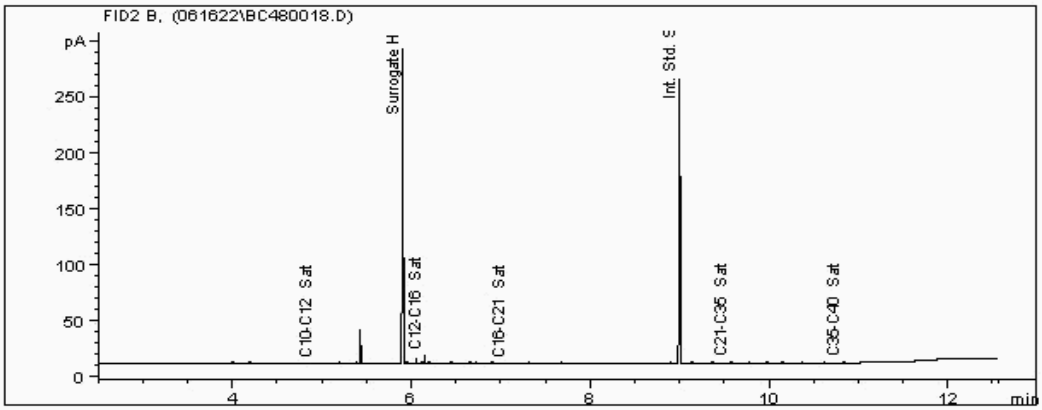
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26424126 **Depth :**
Sample ID : AWB-BH-02

Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642243-
Date Acquired : 16/06/2022 20:05:36 PM
Units : ppb
Dilution : SE AWB-BH-02[1] ->
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	204.4	0.225
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	194.6	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
	Total Peak Area	399.0	



CERTIFICATE OF ANALYSIS

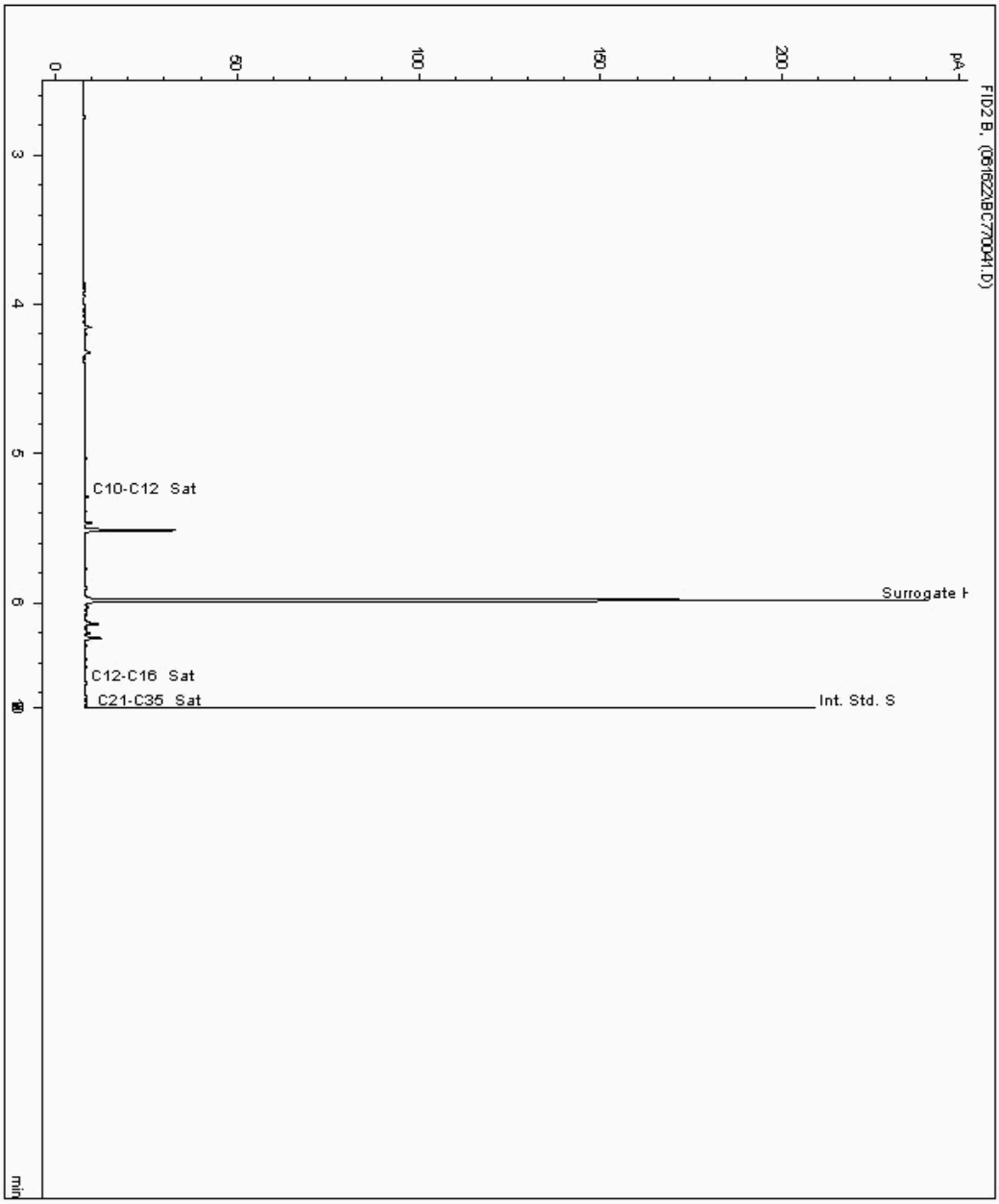
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26424200 **Depth :**
Sample ID : AVW-BH-08

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642207-
Date Acquired : 6/17/2022 5:41:30 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.100



CERTIFICATE OF ANALYSIS

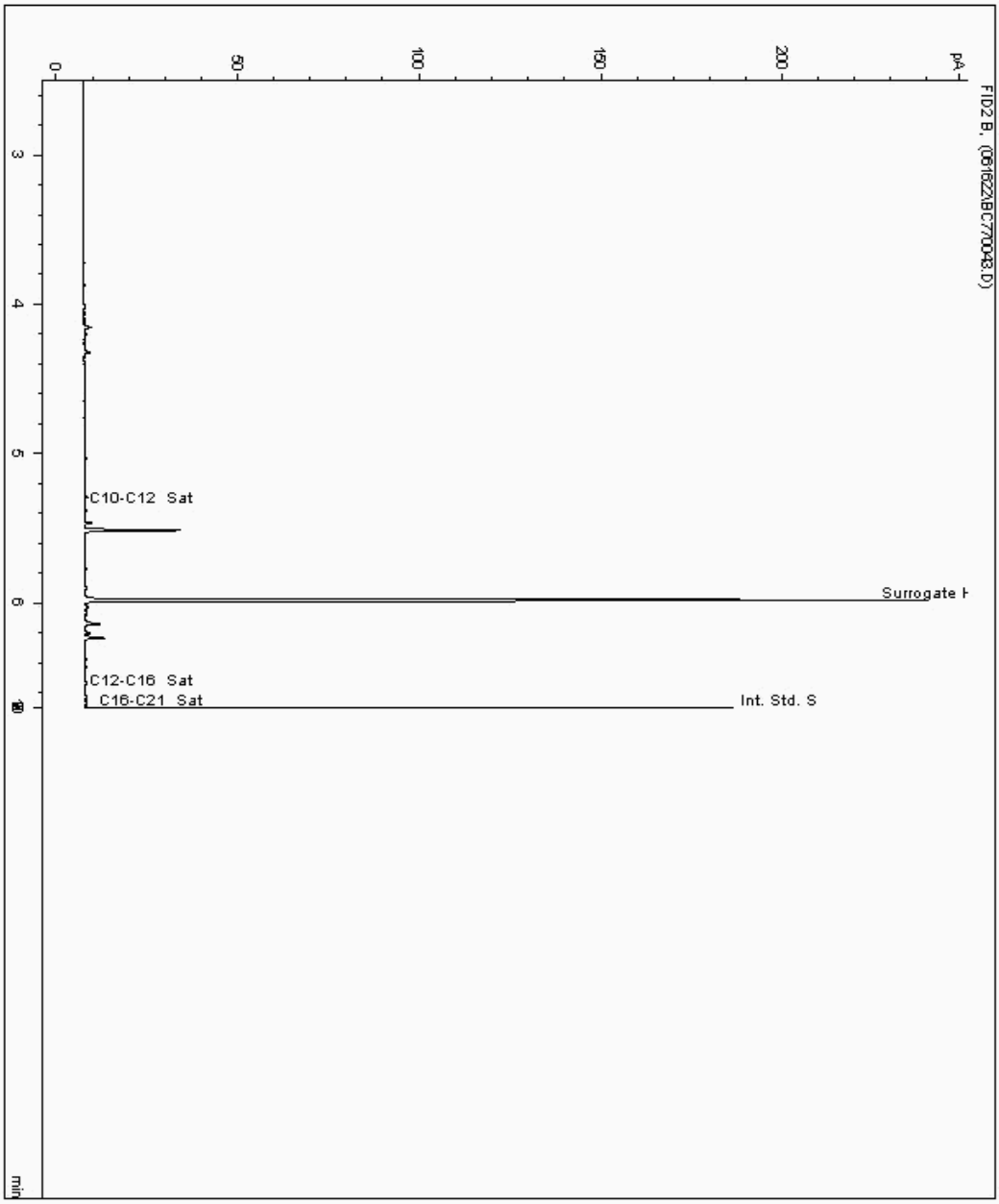
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26424297 **Depth :**
Sample ID : PWB-BH-06

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642225-
Date Acquired : 6/17/2022 6:28:56 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.100



CERTIFICATE OF ANALYSIS

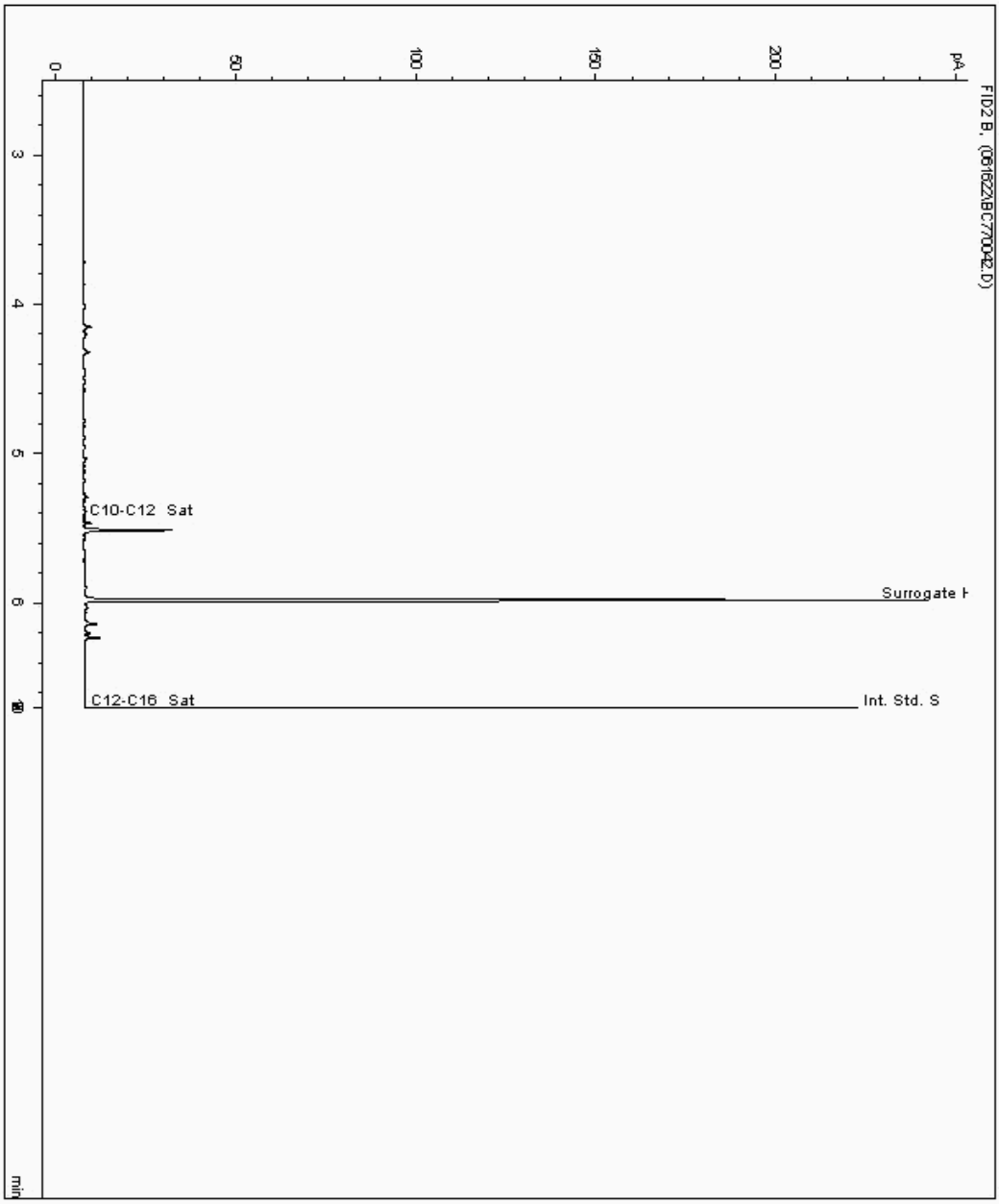
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26424426 **Depth :**
Sample ID : PWB-BH-01

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642163-
Date Acquired : 6/17/2022 6:05:16 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

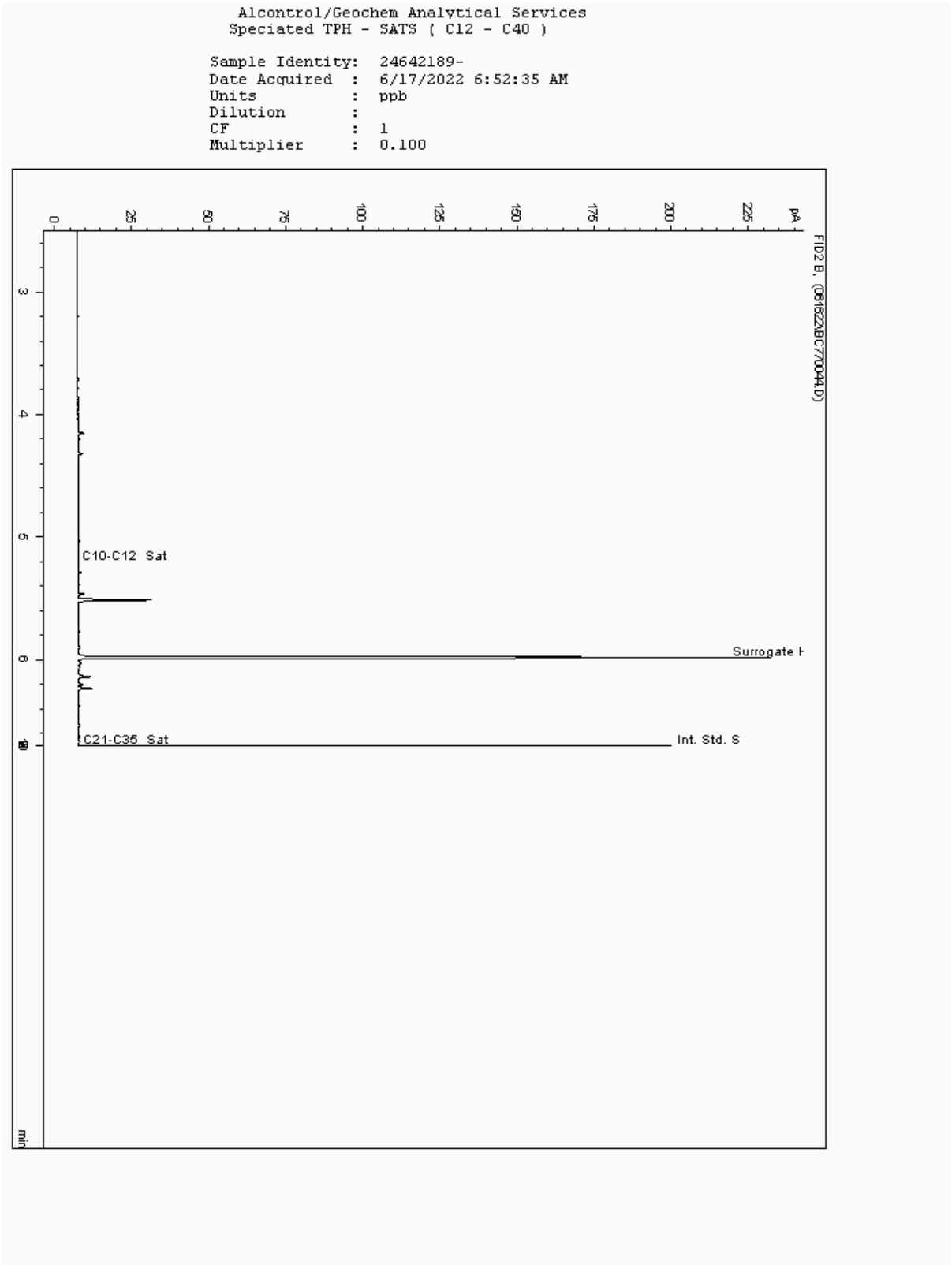


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26424480 **Depth :**
Sample ID : AVC1-BH-08



CERTIFICATE OF ANALYSIS

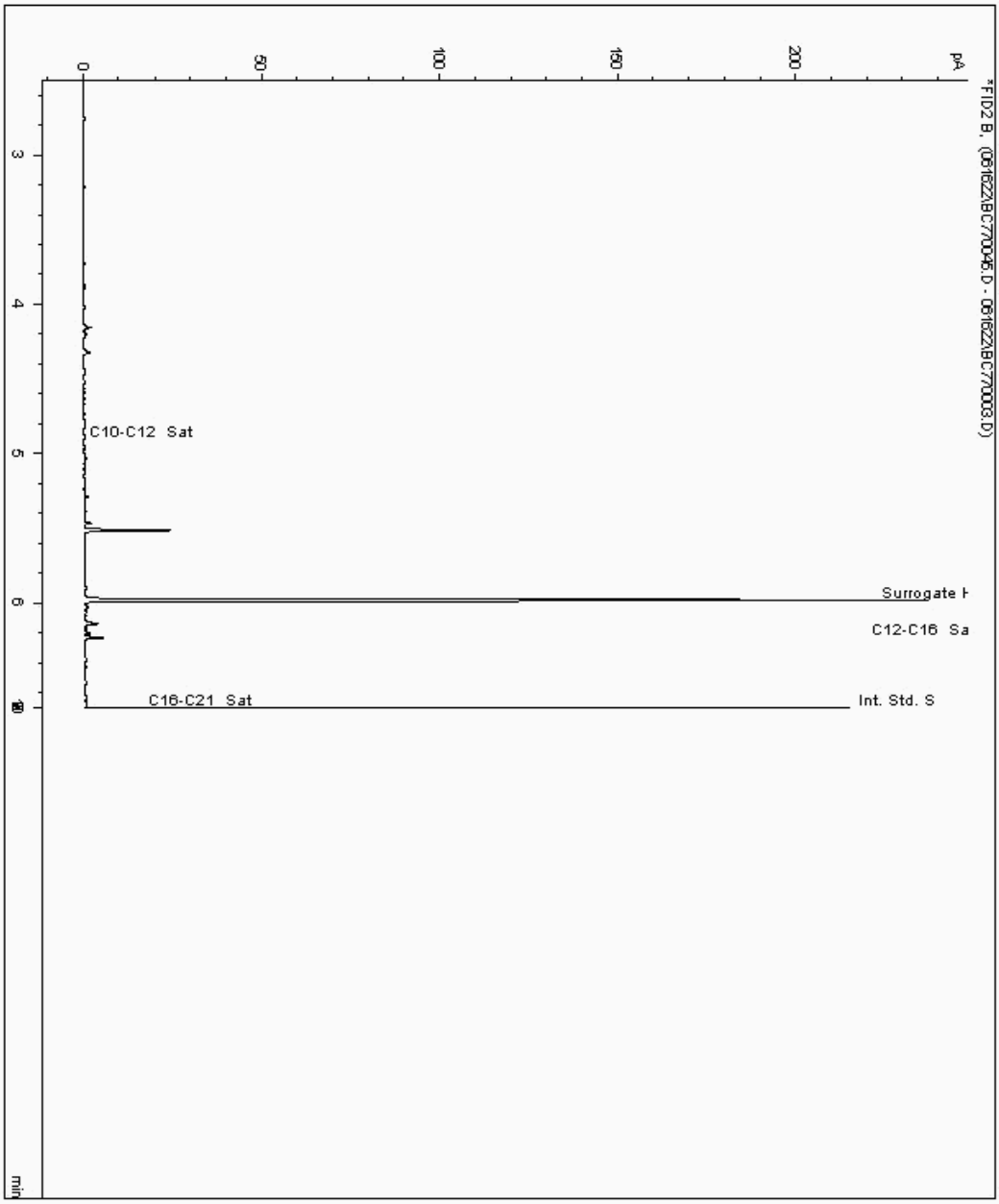
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 26424571 **Depth :**
Sample ID : WS020

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642137-
Date Acquired : 6/17/2022 7:16:25 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.100



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

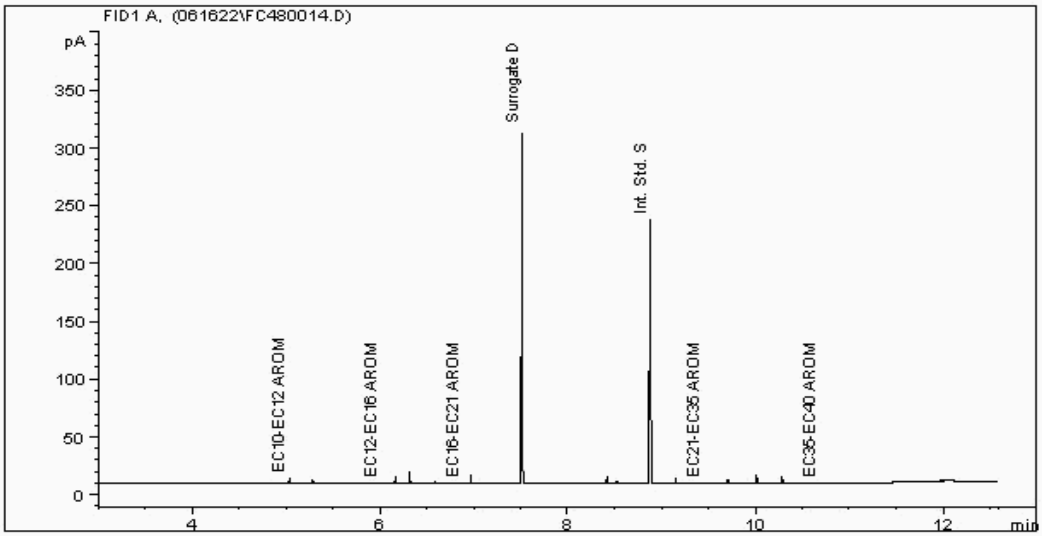
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26423354 **Depth :**
Sample ID : WS001

Speciated TPH - AROM (C12 - C40)

Sample Identity: 24642034-
Date Acquired : 16/06/2022 18:33:35 PM
Units : ppb
Dilution: SE WS001[] ->

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	5.8	0.014
4	Surrogate D	188.9	0.461
5	Int. Std. S	181.6	0.500
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
	Total Peak Area	376.2	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

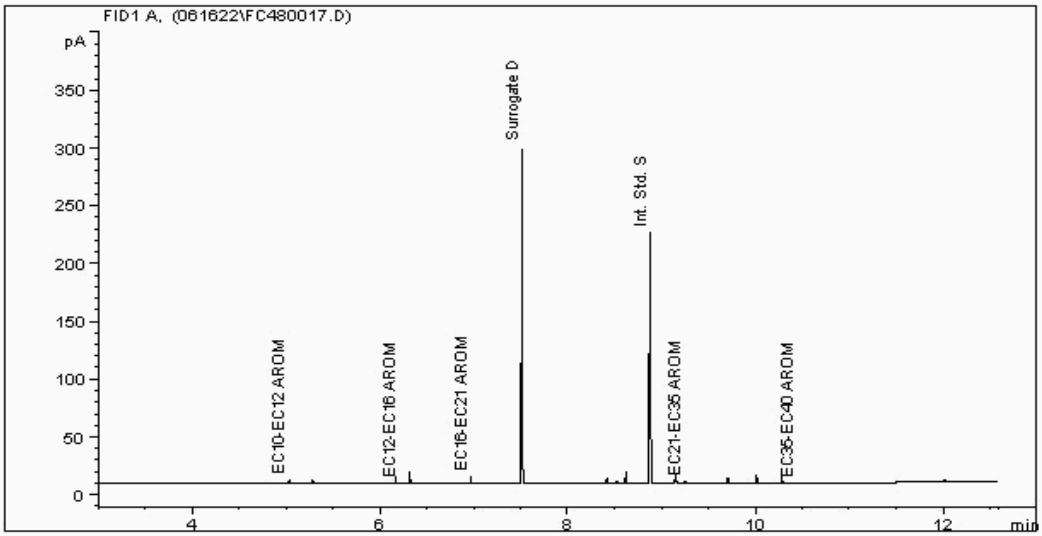
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26423355 **Depth :** 1.73
Sample ID : BH003

Speciated TPH - AROM (C12 - C40)

Sample Identity: 24642076-
Date Acquired : 16/06/2022 19:42:41 PM
Units : ppb
Dilution: SE BH003[1.73] ->

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	181.1	0.231
5	Int. Std. S	174.1	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
	Total Peak Area	355.3	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

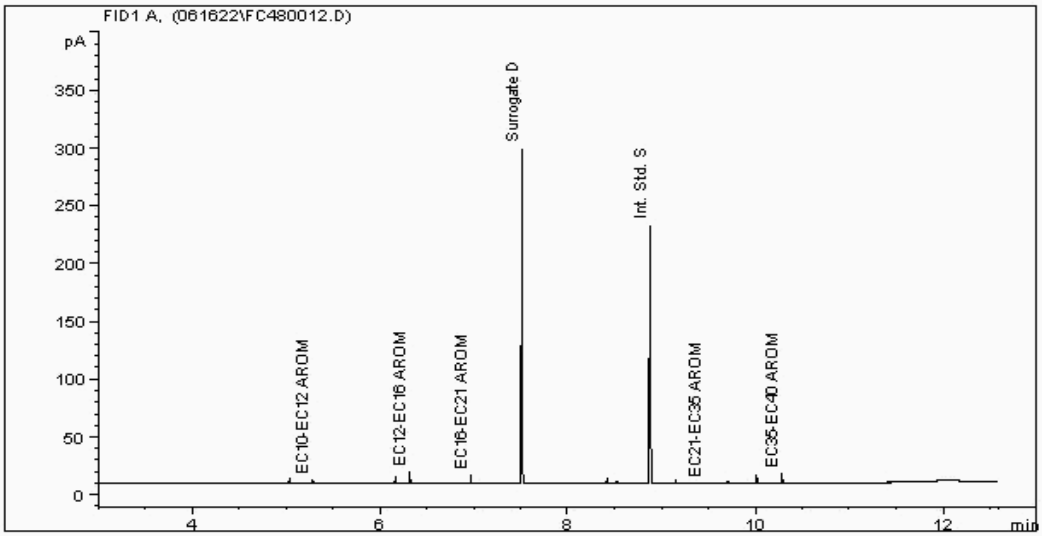
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26423358 **Depth :** 3.00
Sample ID : WS011

Speciated TPH - AROM (C12 - C40)

Sample Identity: 24642120-
Date Acquired : 16/06/2022 17:47:10 PM
Units : ppb
Dilution: SE WS011[3.00] ->

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	181.8	0.469
5	Int. Std. S	172.0	0.500
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
	Total Peak Area	353.8	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

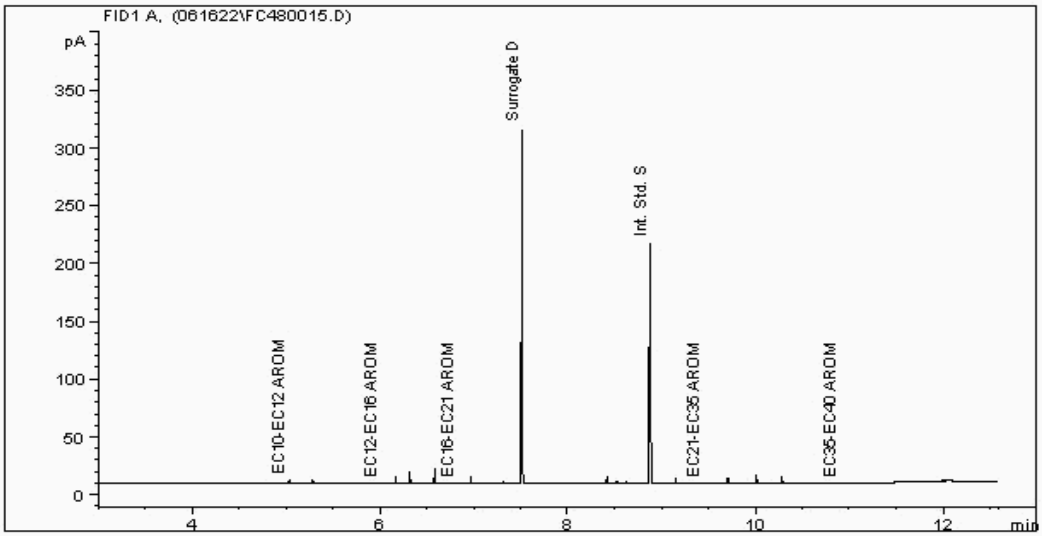
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26423368 **Depth :**
Sample ID : WS009

Speciated TPH - AROM (C12 - C40)

Sample Identity: 24642102-
Date Acquired : 16/06/2022 18:56:37 PM
Units : ppb
Dilution: SE WS009[] ->

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	5.6	0.007
4	Surrogate D	183.2	0.234
5	Int. Std. S	173.9	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
	Total Peak Area	362.7	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

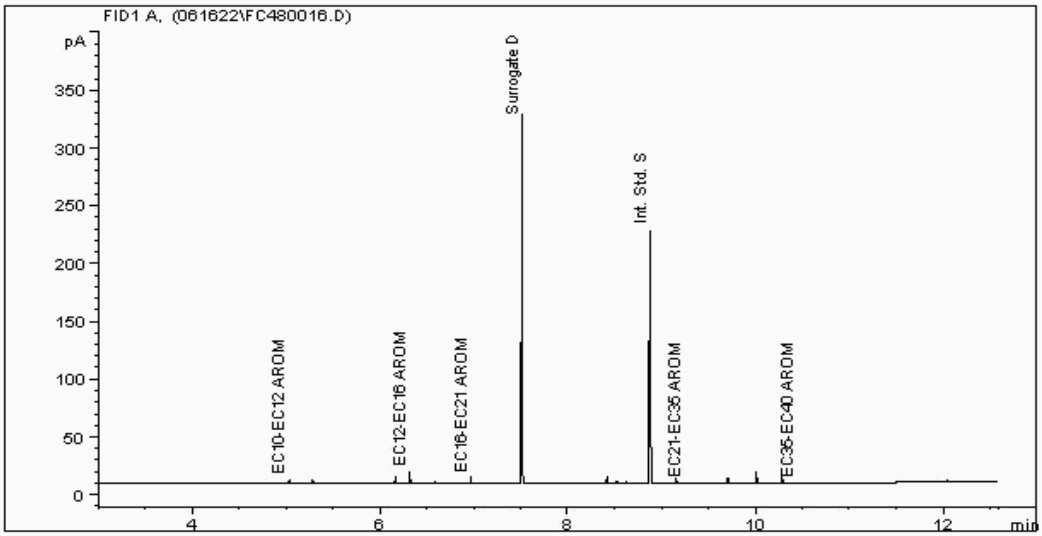
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26423369 **Depth :**
Sample ID : BH001

Speciated TPH - AROM (C12 - C40)

Sample Identity: 24642055-
Date Acquired : 16/06/2022 19:19:32 PM
Units : ppb
Dilution: SE BH001[] ->

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	186.2	0.233
5	Int. Std. S	176.9	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
	Total Peak Area	363.1	



CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

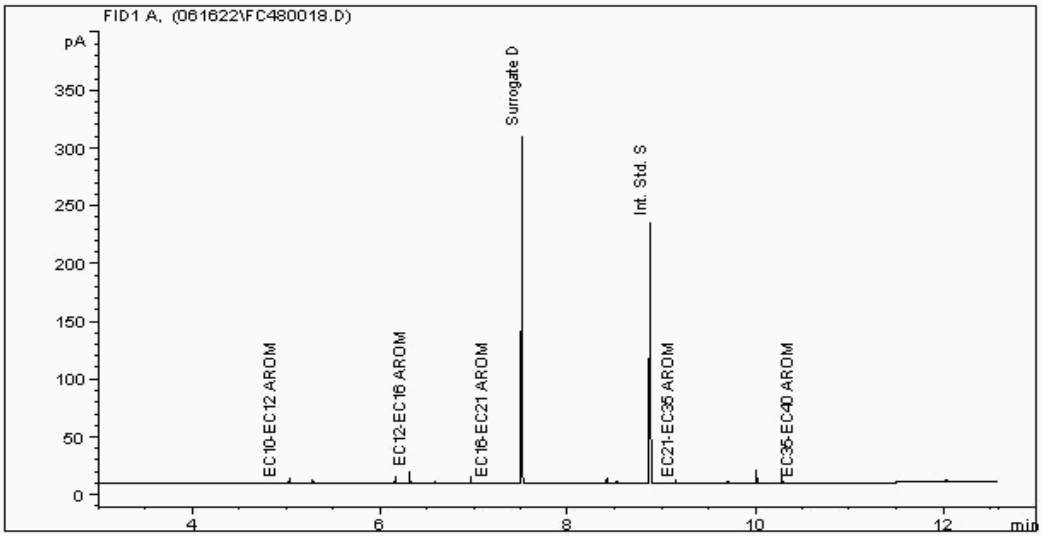
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26424126 **Depth :**
Sample ID : AWB-BH-02

Speciated TPH - AROM (C12 - C40)

Sample Identity: 24642244-
Date Acquired : 16/06/2022 20:05:36 PM
Units : ppb
Dilution: SE AWB-BH-02[] ->

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	183.2	0.229
5	Int. Std. S	177.4	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
	Total Peak Area	360.5	



CERTIFICATE OF ANALYSIS

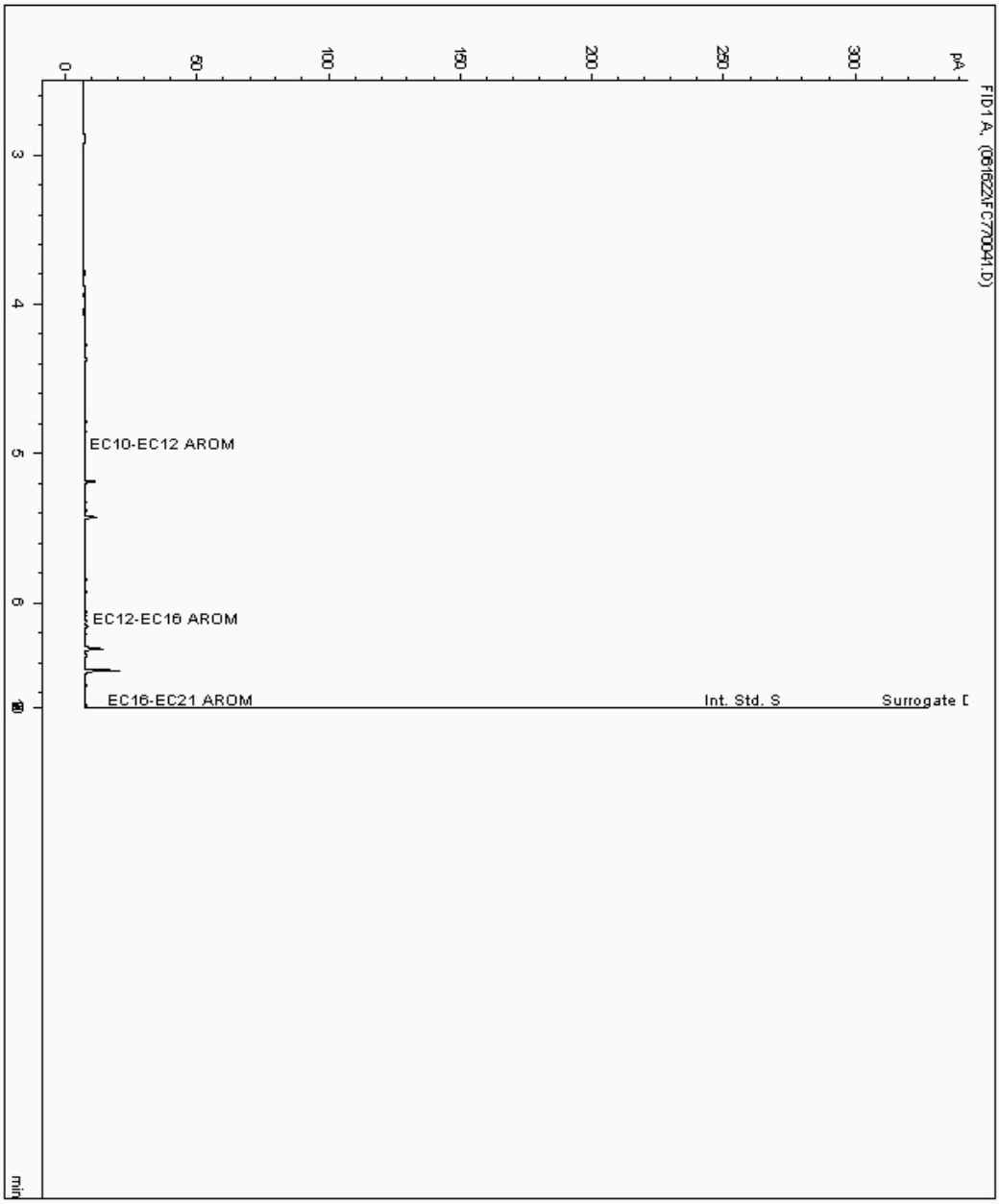
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26424200 **Depth :**
Sample ID : AVW-BH-08

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642208-
Date Acquired : 6/17/2022 5:41:30 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.100



CERTIFICATE OF ANALYSIS

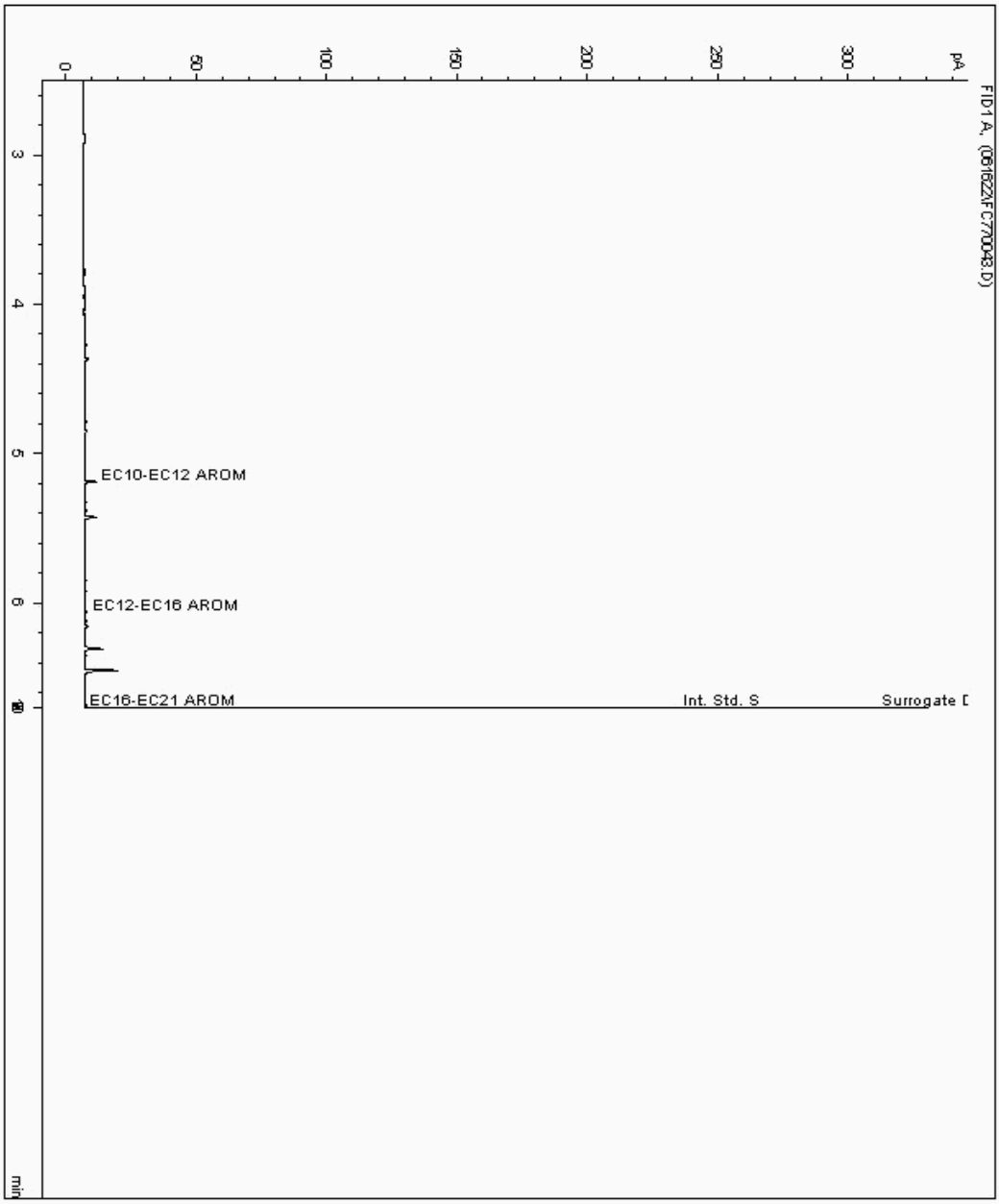
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26424297 **Depth :**
Sample ID : PWB-BH-06

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642226-
Date Acquired : 6/17/2022 6:28:56 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.100



CERTIFICATE OF ANALYSIS

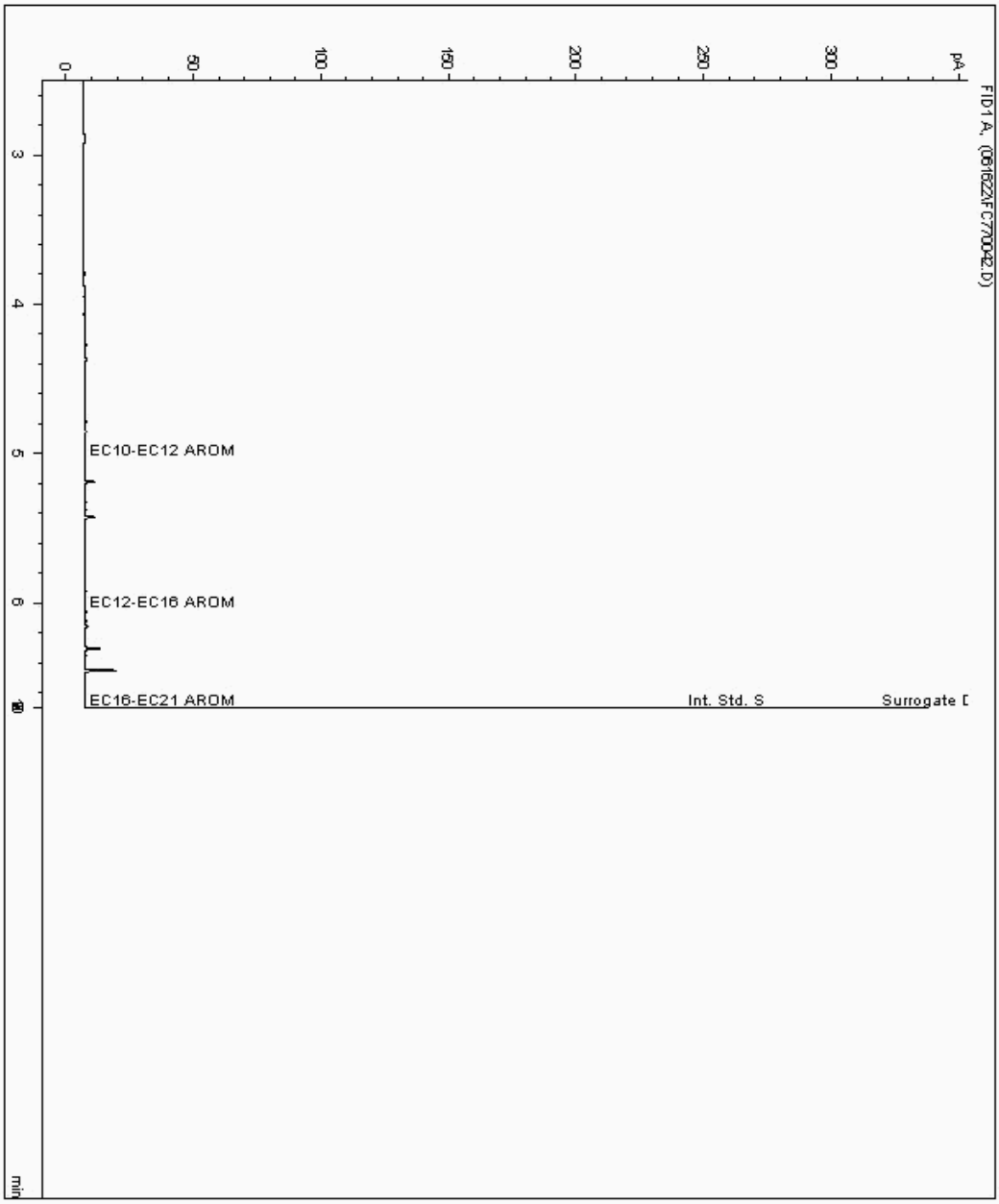
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26424426 **Depth :**
Sample ID : PWB-BH-01

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642164-
Date Acquired : 6/17/2022 6:05:16 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

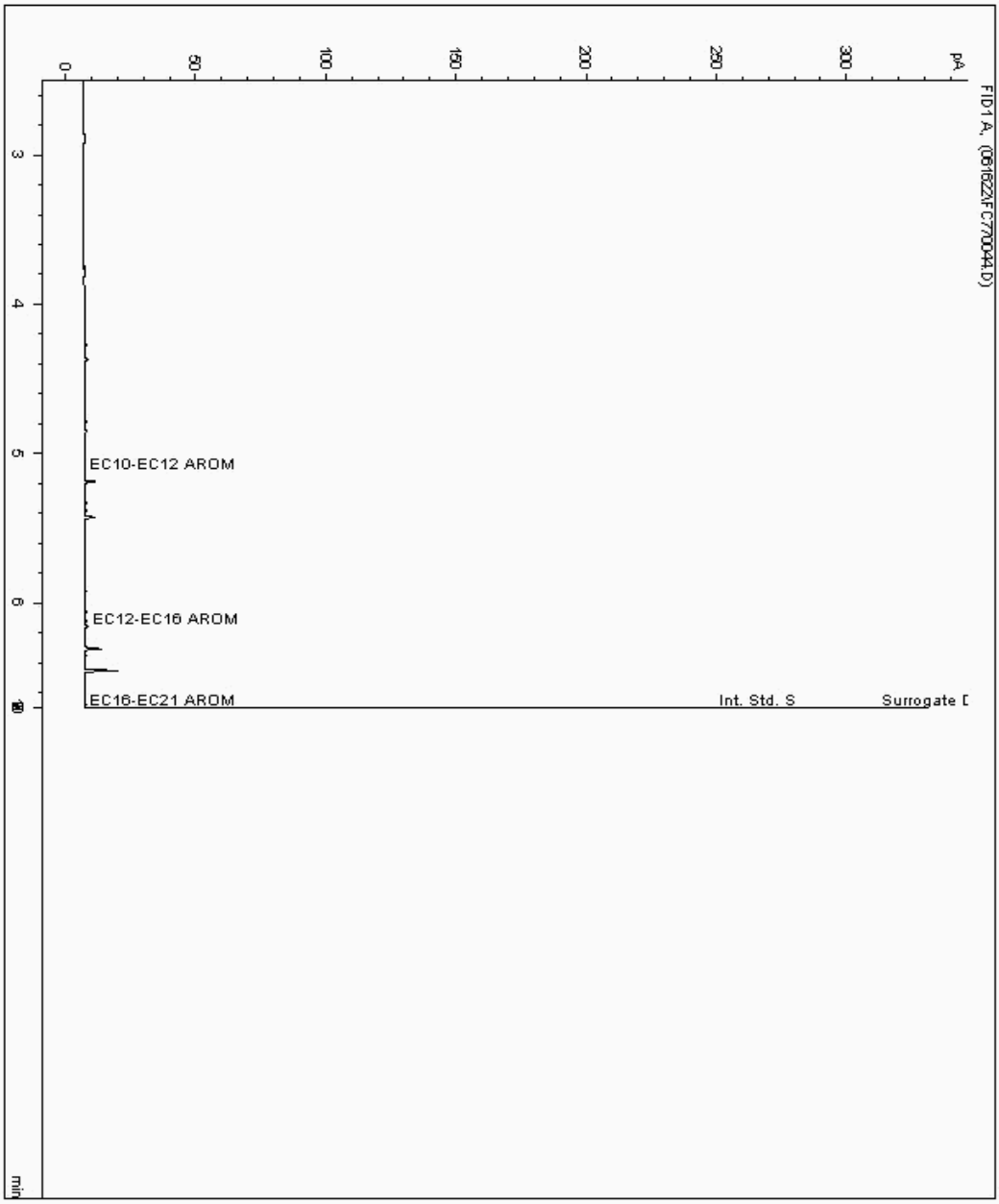
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26424480 **Depth :**
Sample ID : AVC1-BH-08

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642190-
Date Acquired : 6/17/2022 6:52:35 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.100



CERTIFICATE OF ANALYSIS

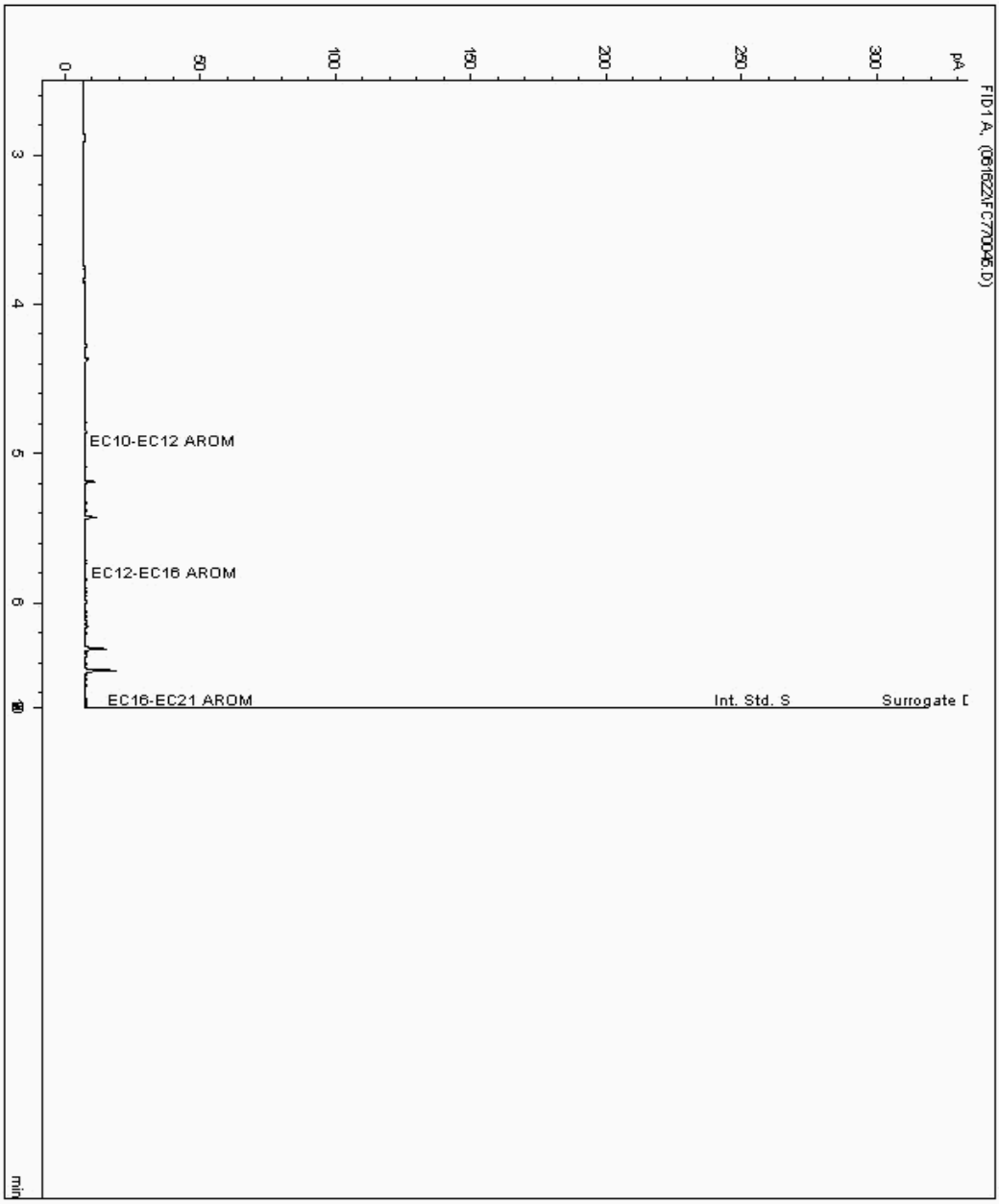
SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 26424571 **Depth :**
Sample ID : WS020

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 24642138-
Date Acquired : 6/17/2022 7:16:25 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.100

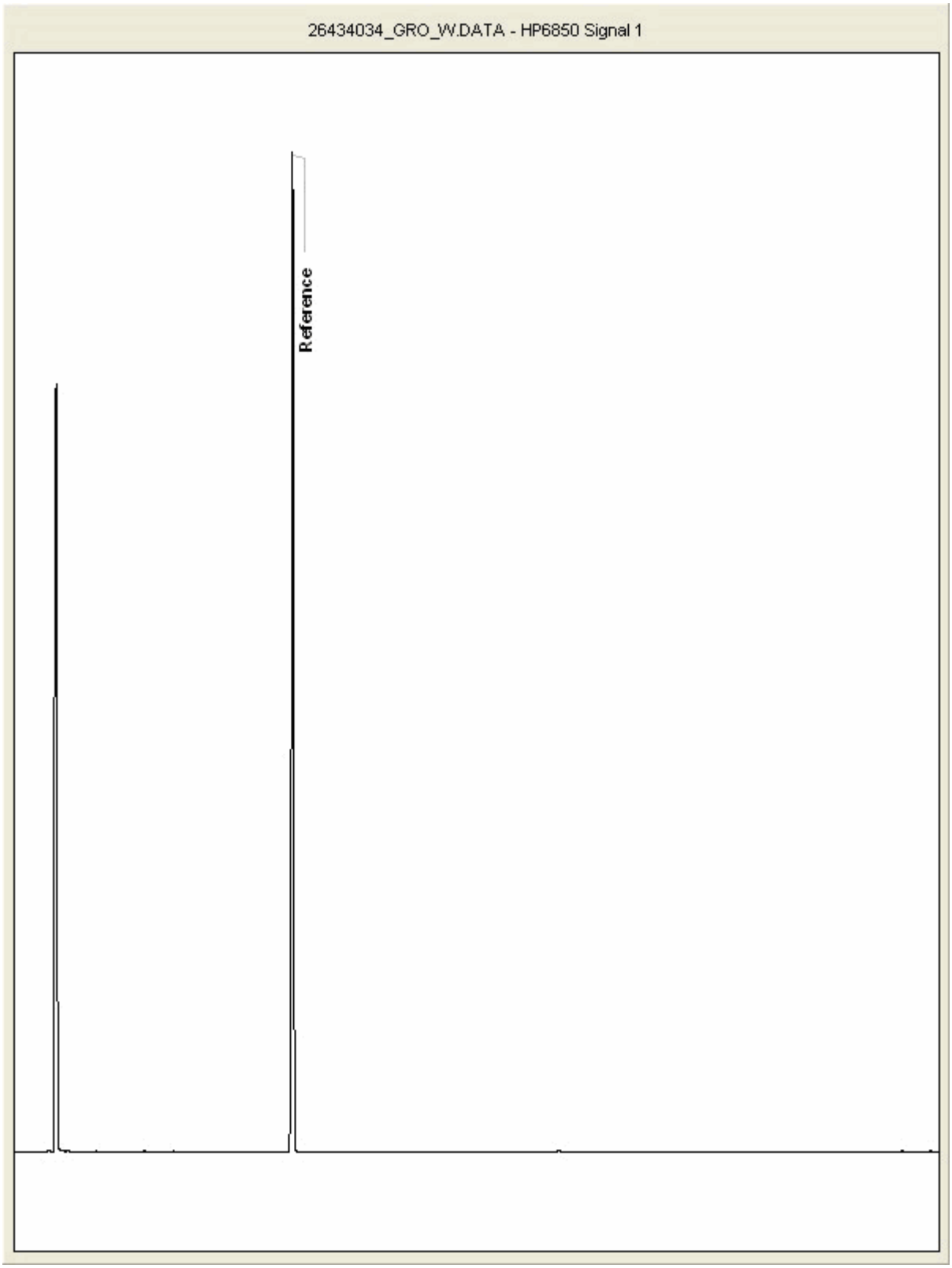


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434034 **Depth :**
Sample ID : WS009

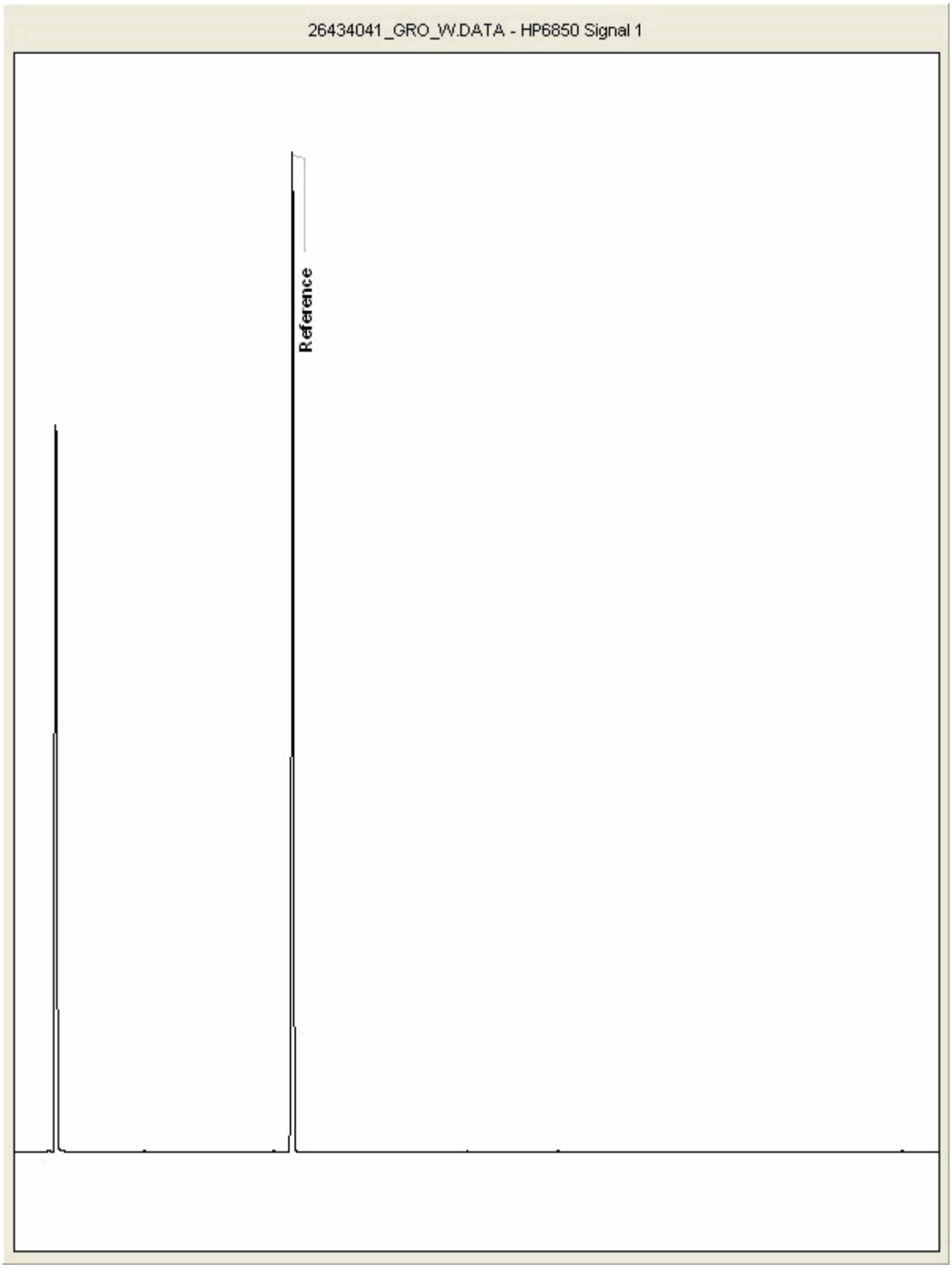


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434041 **Depth :**
Sample ID : WS001

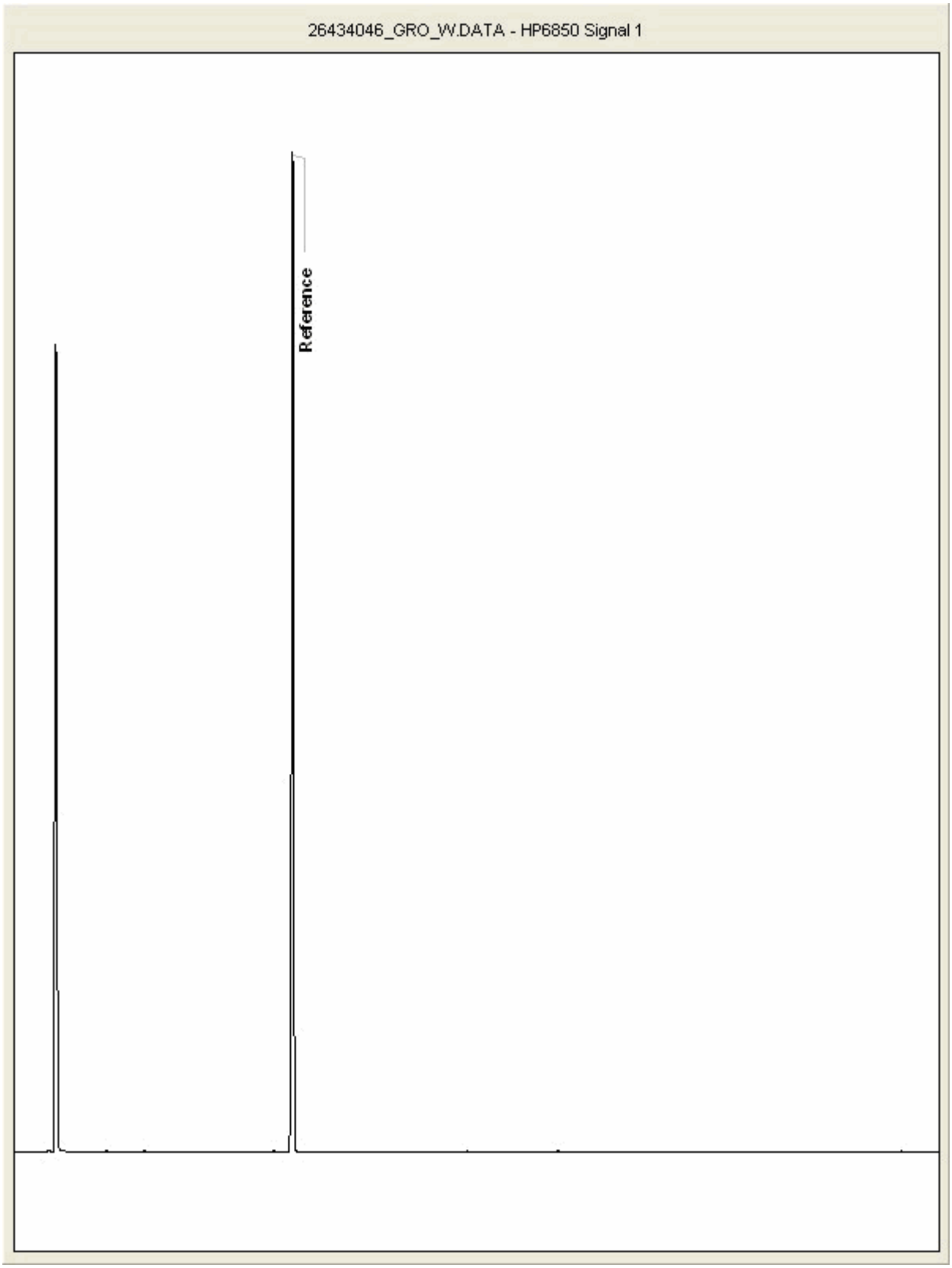


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434046 **Depth :** 1.73
Sample ID : BH003

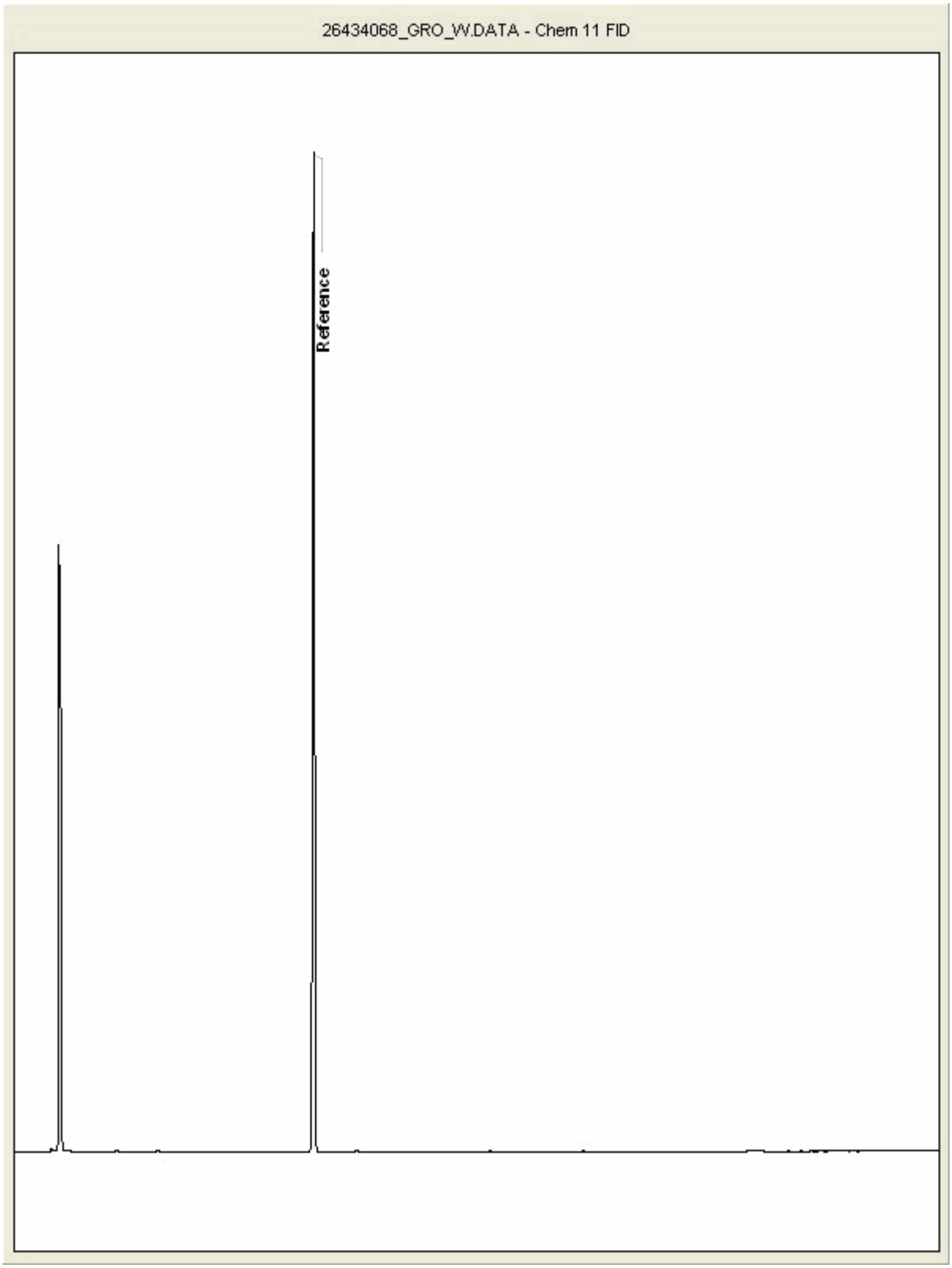


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434068 **Depth :**
Sample ID : BH001

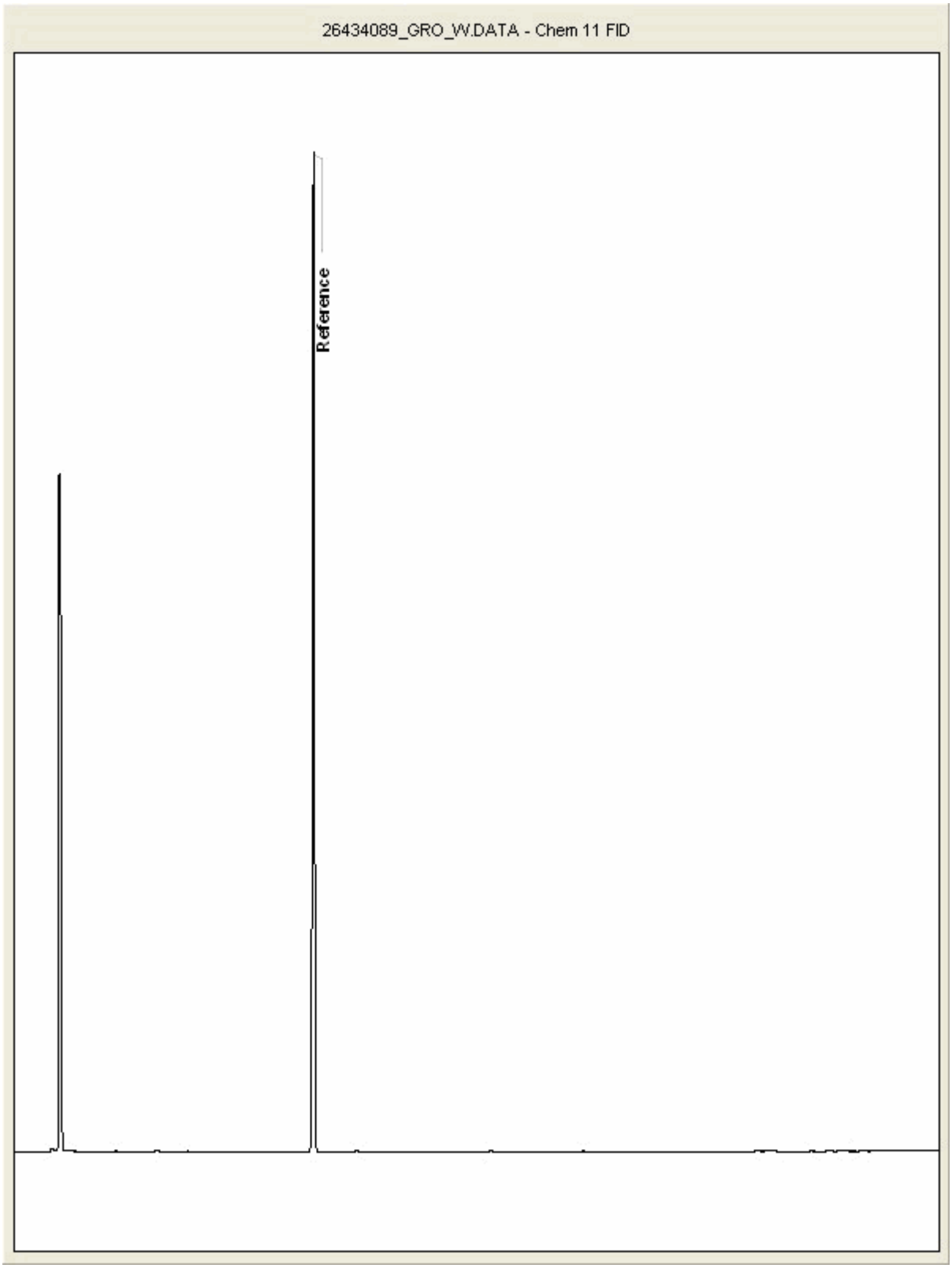


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434089 **Depth :** 3.00
Sample ID : WS011

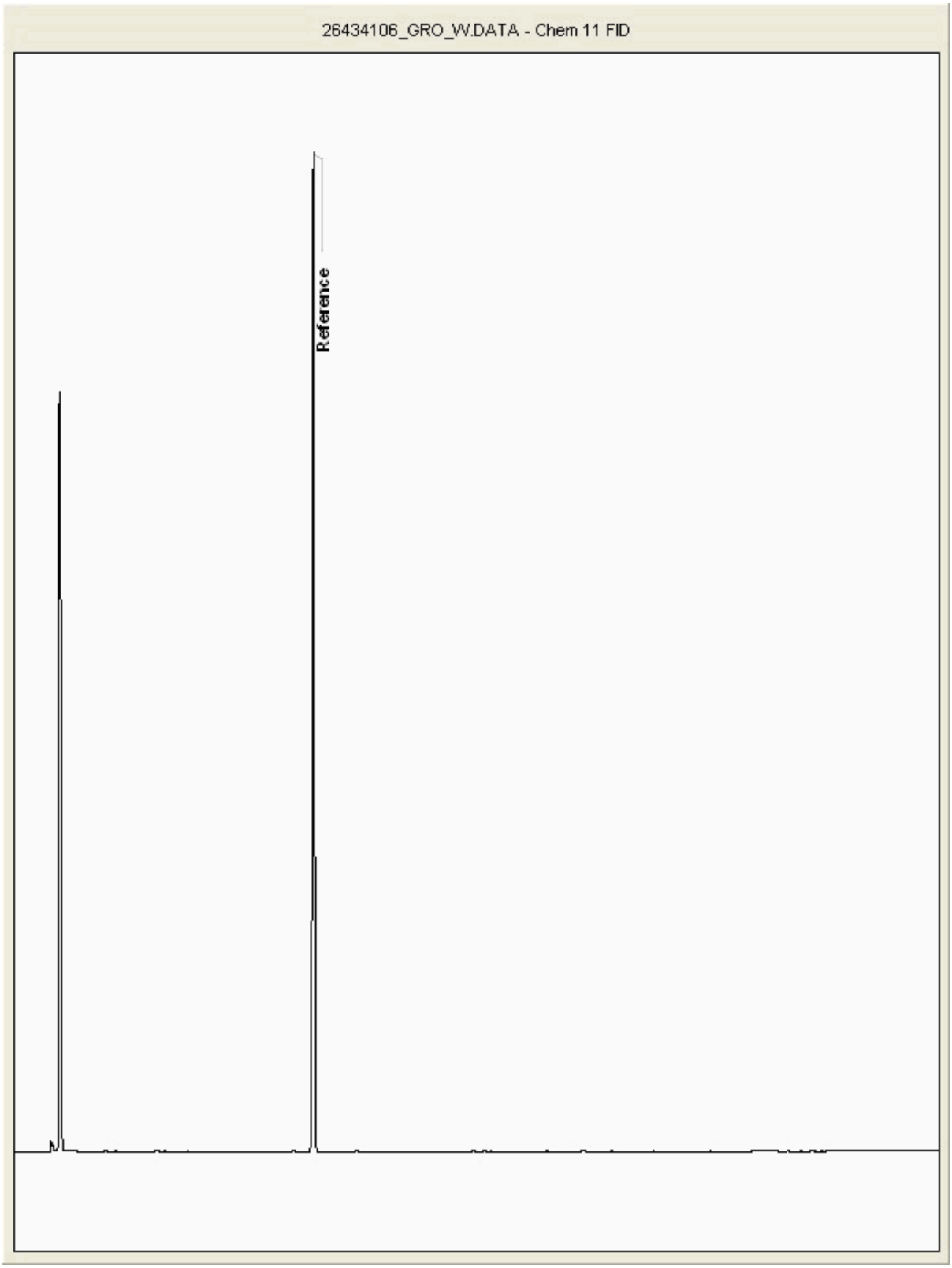


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434106 **Depth :**
Sample ID : AWB-BH-02

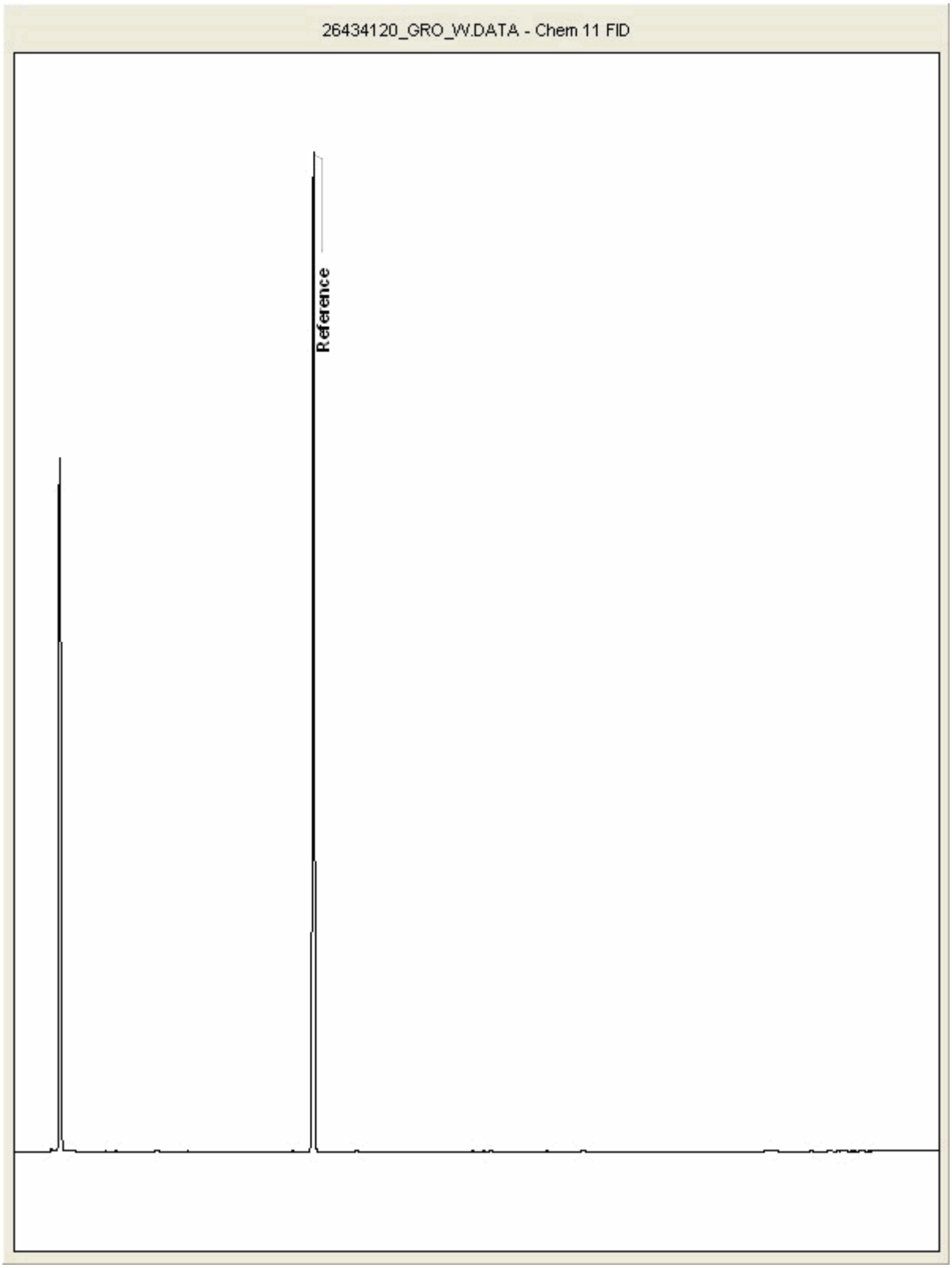


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434120 **Depth :**
Sample ID : PWB-BH-01

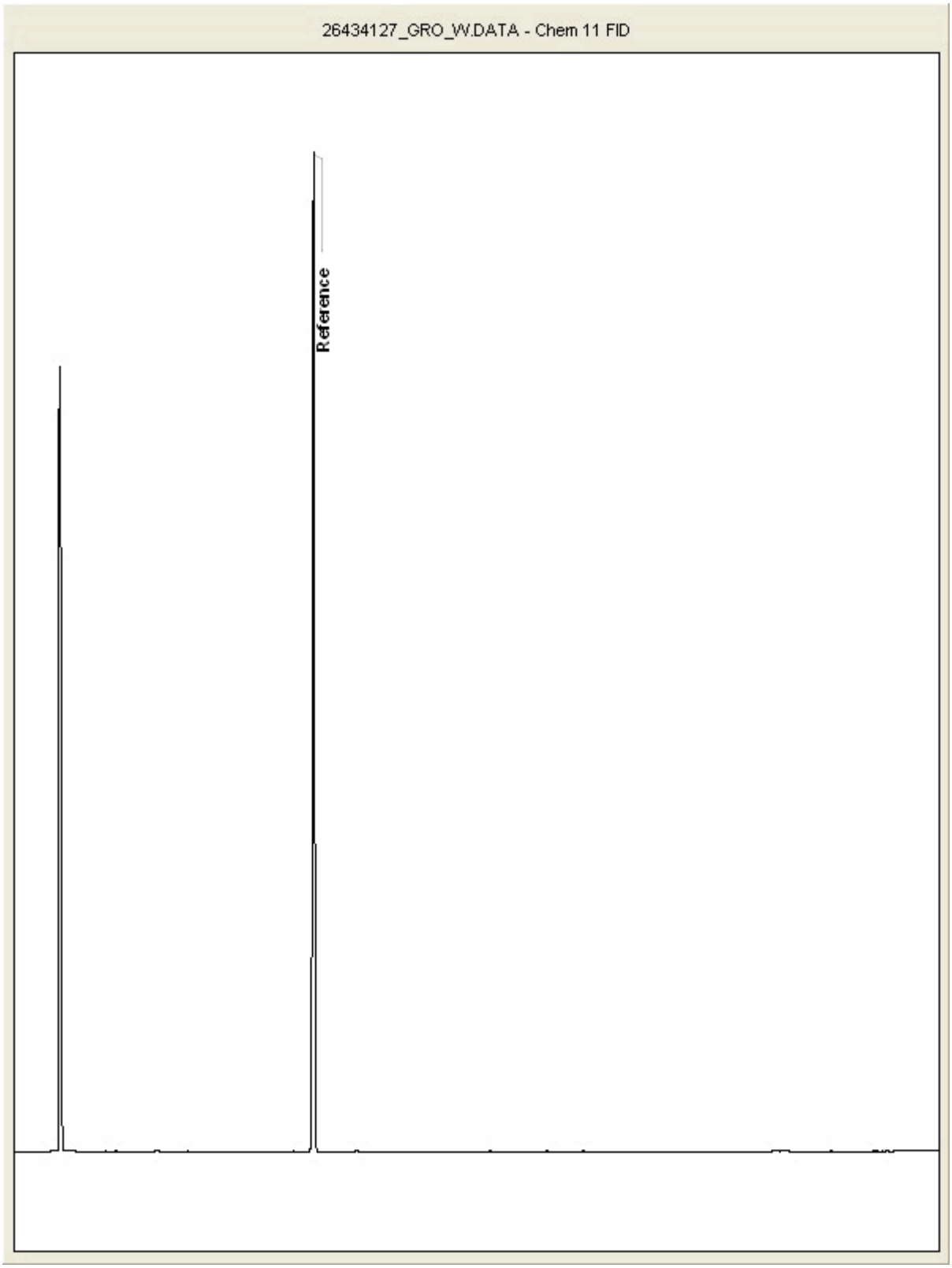


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434127 **Depth :**
Sample ID : WS020

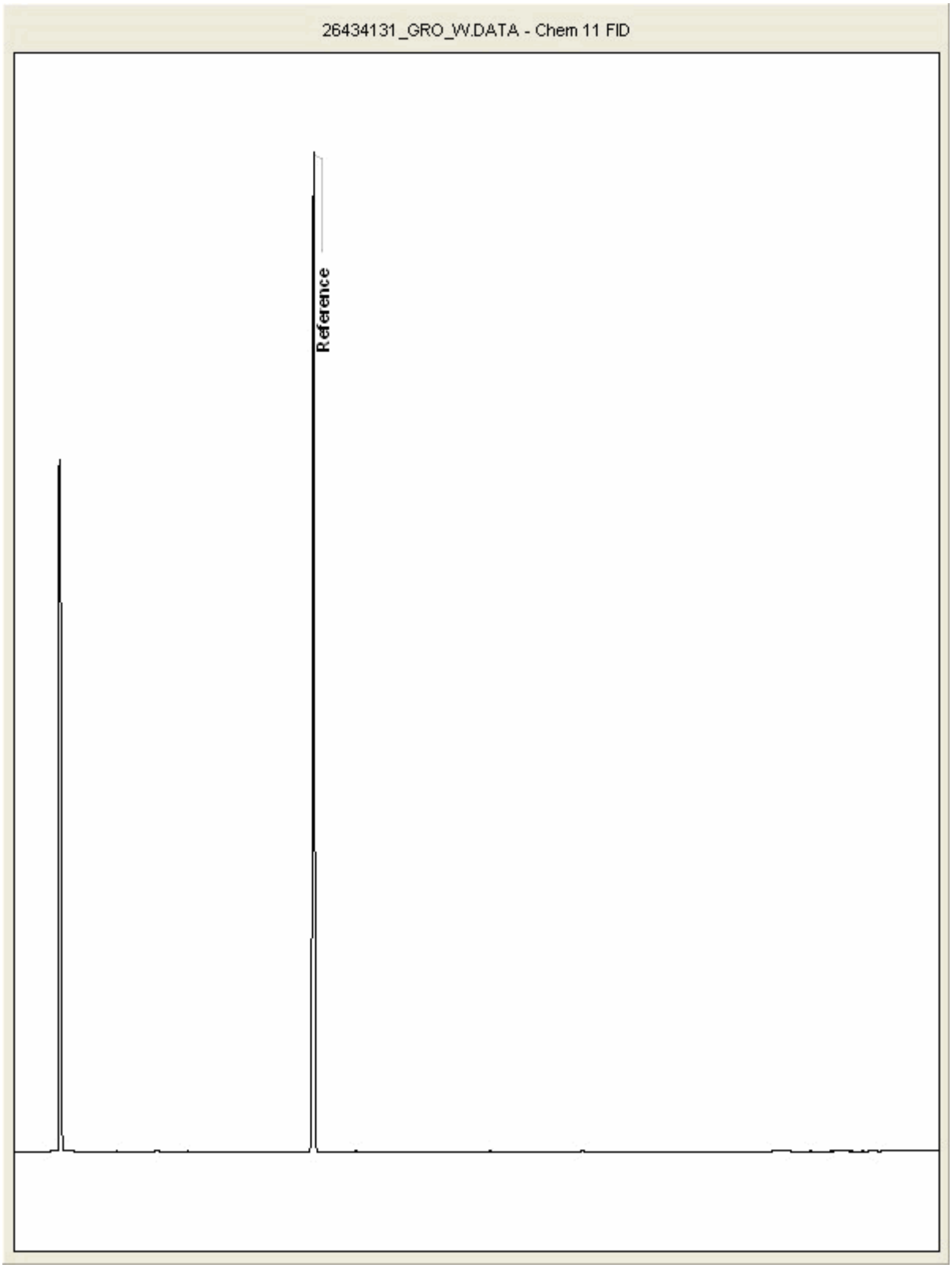


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434131 **Depth :**
Sample ID : AVC1-BH-08

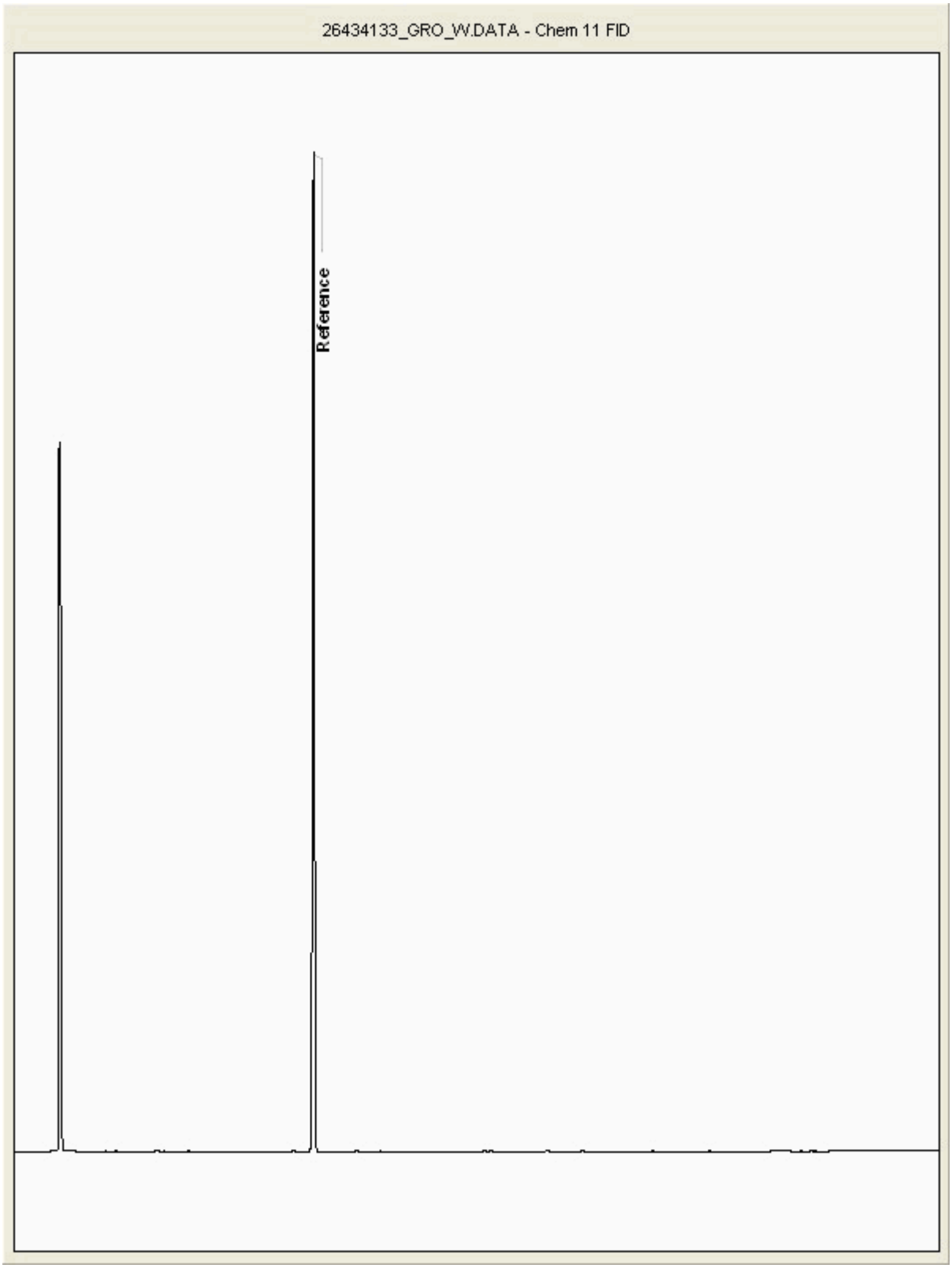


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434133 **Depth :**
Sample ID : PWB-BH-06

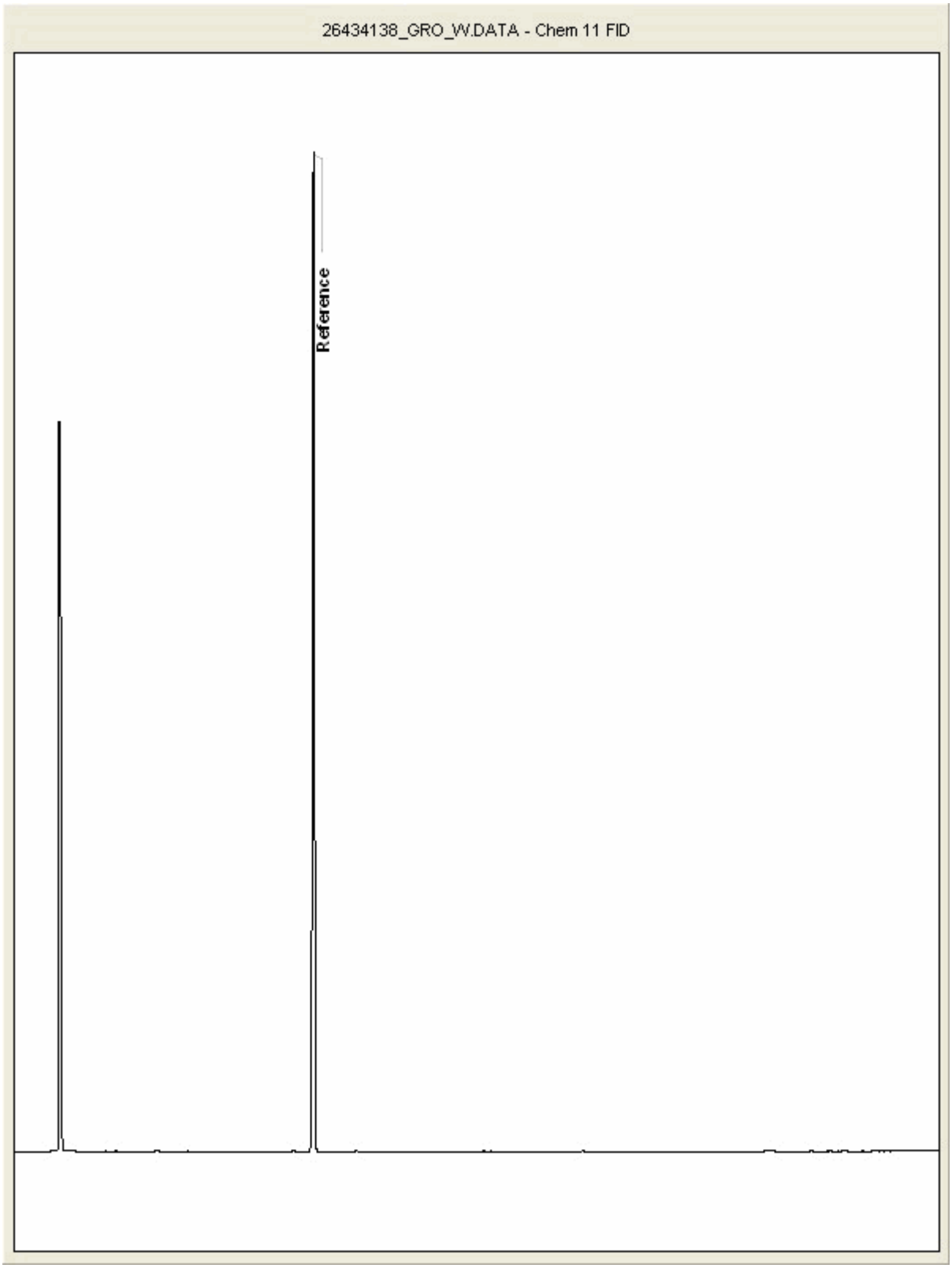


CERTIFICATE OF ANALYSIS

SDG: 220611-76 **Report Number:** 651260 **Superseded Report:**
Client Ref.: JER9352 **Location:** Chippenham

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 26434138 **Depth :**
Sample ID : AVW-BH-08



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix K
GEOTECHNICAL LABORATORY RESULTS

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	60027
Site Name	Future Chippenham
Client Reference	JER9352

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVW_BH_05	1	D	0.50	-		Brown silty CLAY
AVW_BH_05	3	B	1.00	-		Brown fine to coarse sandy silty CLAY
AVW_BH_05	5	D	1.50	-		Brown silty CLAY
AVW_BH_05	8	D	3.20	-		Brown silty CLAY
AVW_BH_05	11	C	5.20	-		Grey silty CLAY
AVW_BH_05	12	D	6.15	-		Grey brown silty CLAY
AVW_BH_05	16	D	9.15	-		Grey silty CLAY
AVW_BH_05	20	D	12.15	-		Grey sandy silty CLAY
AVW_BH_05	22	C	14.10	-		Grey silty CLAY
AVW_BH_05	23	C	15.55	-		Grey silty CLAY
AVW_BH_05	26	C	19.80	-		Brown sandy silty CLAY
PWB_BH_05	2	B	0.50	-		Brown slightly gravelly fine to coarse sandy silty CLAY
PWB_BH_05	1	D	0.50	-		Brown silty CLAY
PWB_BH_05	4	B	1.00	-		Brown grey fine gravelly silty CLAY
PWB_BH_05	5	D	1.40	-		Brown sandy silty CLAY
PWB_BH_05	6	D	1.90	-		Brown silty sandy CLAY
PWB_BH_05	7	C	4.05	-		Grey silty CLAY
PWB_BH_05	9	C	6.75	-		Grey silty CLAY
PWB_BH_05	10	C	8.10	-		Brown silty CLAY
PWB_BH_05	12	C	11.80	-		Grey sandy silty CLAY
PWB_BH_05	16	C	17.25	-		Brown silty CLAY
AVC1_BH_03	1	D	0.50	-		Brown silty CLAY
AVC1_BH_03	3	B	1.00	-		Brown fine to medium gravelly fine to coarse sandy silty CLAY
AVC1_BH_03	2	D	1.00	-		Brown sandy gravelly silty CLAY
AVC1_BH_03	5	D	1.60	-		Brown silty CLAY
AVC1_BH_03	6	UT	2.20	-		Grey silty CLAY
AVC1_BH_03	7	D	3.20	-		Grey silty CLAY
AVC1_BH_03	12	C	7.90	-		Brown silty CLAY
AVC1_BH_04	1	D	0.50	-		Brown sandy silty CLAY
AVC1_BH_04	3	D	1.00	-		Brown gravelly sandy silty CLAY
AVC1_BH_04	2	B	1.00	-		Brown clayey/silty fine to coarse sandy fine to coarse GRAVEL
AVC1_BH_04	6	UT	2.20	-		Grey silty CLAY
AVC1_BH_04	7	D	3.50	-		Brown sandy silty CLAY
AVC1_BH_06	3	B	1.00	-		Brown fine to coarse sandy silty CLAY
AVC1_BH_06	2	D	1.00	-		Brown silty CLAY
AVC1_BH_06	5	D	1.40	-		Brown silty CLAY
AVC1_BH_06	6	UT	2.20	-		Brown grey silty CLAY
AVC1_BH_06	7	D	2.60	-		Brown silty CLAY
AVC1_BH_06	8	D	3.40	-		Brown silty CLAY
AVC1_BH_06	10	B	3.60	-		Brown silty/clayey fine to coarse sandy fine to medium GRAVEL
AVC1_BH_09	1	D	0.50	-		Brown silty CLAY
AVC1_BH_09	3	D	2.50	-		Brown silty CLAY
AVC1_BH_09	4	UT	2.70	-		Grey silty CLAY
AVC1_BH_09	5	D	3.45	-		Brown clayey SILT
AVC1_BH_09	8	D	3.85	-		Brown silty clayey PEAT
AVC1_BH_09	9	B	4.00	-		Brown clayey/silty fine to coarse sandy fine to coarse GRAVEL (PEAT)

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	60027
Site Name	Future Chippenham
Client Reference	JER9352

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVC1_BH_09	12	D	5.85	-		Brown sandy silty CLAY
AVC1_BH_09	15	C	9.30	-		Grey silty CLAY
HP_TP_05	1	D	0.50	-		Brown sandy silty CLAY
HP_TP_05	2	B	1.00	-		Brown fine to medium gravelly fine to coarse sandy silty CLAY
HP_TP_05	3	D	1.50	-		Brown silty CLAY
HP_TP_05	4	B	2.00	-		Brown slightly gravelly fine to coarse sandy silty CLAY
HP_TP_05	6	B	3.00	-		Grey fine to coarse sandy silty CLAY
HP_TP_05	7	D	3.50	-		Grey silty CLAY
TP008	1	D	0.50	-		Brown silty CLAY
TP008	2	B	1.00	-		Brown slightly gravelly slightly sandy silty CLAY
TP008	5	D	2.50	-		Brown silty CLAY
TP008	6	B	3.00	-		Brown fine to coarse sandy silty CLAY
WS006	1	D	0.50	-		Brown silty CLAY
WS006	2	B	0.50	-		Brown slightly gravelly fine to coarse sandy silty CLAY
WS006	3	D	1.00	-		Brown silty CLAY
WS006	4	B	1.00	-		Brown grey slightly sandy silty CLAY
WS006	6	B	2.20	-		Brown slightly gravelly fine to coarse sandy silty CLAY
WS006	7	D	3.10	-		Brown silty CLAY
WS007	1	D	0.50	-		Brown sandy silty CLAY
WS007	2	B	1.00	-		Brown fine gravelly fine to coarse sandy silty CLAY
WS007	5	B	2.20	-		Brown fine to coarse sandy silty CLAY
WS007	6	D	2.20	-		Brown silty CLAY
WS007	10	D	4.20	-		Brown silty CLAY
WS007	13	B	5.20	-		Brown grey slightly gravelly sandy silty CLAY
WS009	2	B	1.00	-		Brown slightly gravelly fine to coarse sandy silty CLAY
WS009	3	D	1.20	-		Brown silty CLAY
WS009	7	D	3.20	-		Brown silty CLAY
WS009	9	B	4.20	-		Brown slightly sandy silty CLAY
WS009	11	D	5.80	-		Grey silty CLAY
WS009	13	B	6.20	-		Grey silty CLAY
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GSTL

Natural Moisture Content
(BS 1377:1990 - Part 2 : 3.2)
DESCRIPTIONS

Contract Number	59343
Site Name	Future Chippenham
Date Tested	26/05/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
WS013	1	D	0.50	-		Brown silty CLAY
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Operators	Checked	31/05/2022	Richard John (Advanced Testing Manager)
Clayton Jenkins	Approved	31/05/2022	Paul Evans (Quality/Technical Manager)

UKAS TESTING 2788

GSTL	**Natural Moisture Content** **(BS 1377:1990 - Part 2 : 3.2)**	
Contract Number	59343	
Site Name	Future Chippenham	
Date Tested	26/05/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Remarks
WS013	1	D	0.50	-		18	
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Operators	Checked	31/05/2022	Richard John (Advanced Testing Manager)
Clayton Jenkins	Approved	31/05/2022	Paul Evans (Quality/Technical Manager)

UKAS TESTING 2788

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59343	
Site Name	Future Chippenham	
Date Tested	24/05/2022	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
TP004	4	D	1.50	-		Brown silty CLAY
TP004	9	D	3.00	-		Brown clayey SILT
TP005	1	D	0.50	-		Brown fine to medium gravelly sandy silty CLAY
TP005	6	D	2.00	-		Brown sandy silty CLAY
TP005	11	D	3.50	-		Grey silty sandy CLAY
WS002	3	D	1.00	-		Brown silty CLAY
WS002	8	D	3.20	-		Brown fine to medium gravelly sandy silty CLAY
WS002	10	D	4.20	-		Brown silty fine to medium gravelly CLAY
WS004	2	D	1.00	-		Brown sandy silty CLAY
WS004	6	D	2.20	-		Brown fine to medium gravelly sandy silty CLAY
WS004	9	D	3.80	-		Grey silty CLAY
TP006	3	D	1.00	-		Brown slightly clayey sandy fine to medium GRAVEL
TP006	10	D	3.00	-		Dark grey slightly clayey SAND
AVC1_BH_08	3	D	0.50	-		Brown silty CLAY
AVC1_BH_08	8	D	1.20	-		Brown silty CLAY
AVC1_BH_08	11	D	2.20	-		Brown silty CLAY
WS011	3	D	1.20	-		Brown silty CLAY
WS011	8	B	3.20	-		Brown silty CLAY
WS011	15	D	7.20	-		Dark grey chalky silty CLAY
WS012	3	D	1.20	-		Brown silty CLAY
WS012	5	D	2.20	-		Brown clayey SILT
WS012	17	D	7.80	-		Dark grey silty CLAY
PL T005	1	D	0.55	-		Brown silty CLAY
PL T008	1	D	0.55	-		Brown sandy silty CLAY

Operators	Checked	30/05/2022	Richard John (Advanced Testing Manager)
** Please Select Operator **	Approved	30/05/2022	Paul Evans (Quality/Technical Manager)

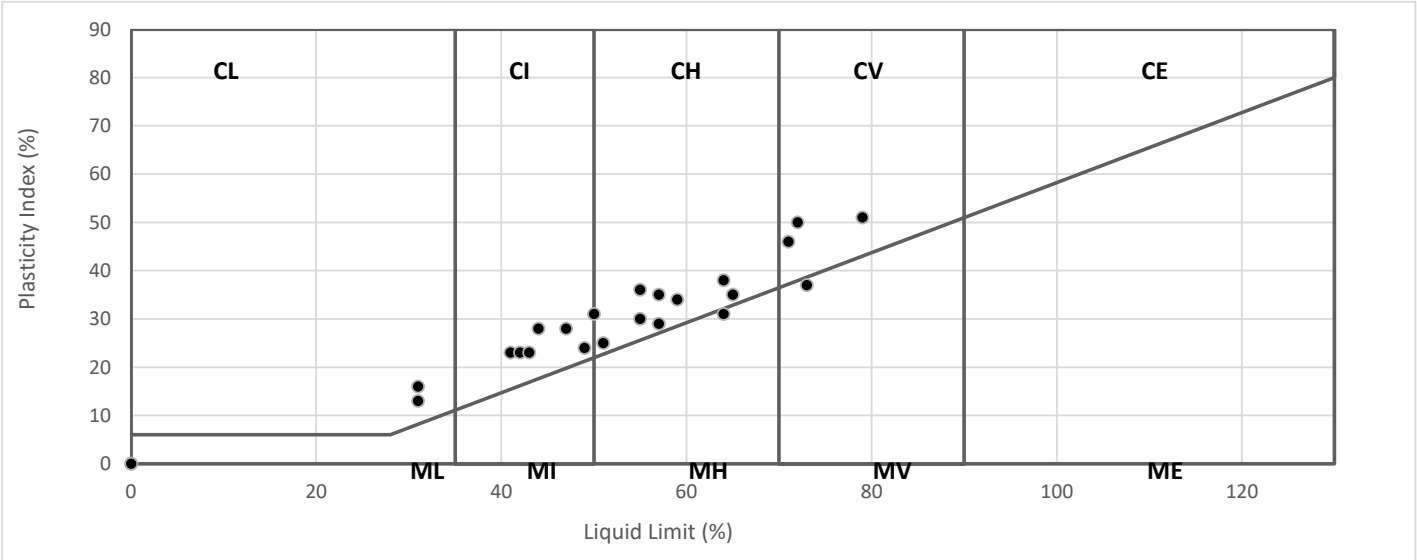
UKAS TESTING
2788

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59343	
Project Location	Future Chippenham	
Date Tested	24/05/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
TP004	4	D	1.50	-		40	64	26	38	100	CH High Plasticity
TP004	9	D	3.00	-		44	73	36	37	100	MV Very High Plasticity
TP005	1	D	0.50	-		19	31	18	13	90	CL Low Plasticity
TP005	6	D	2.00	-		19	41	18	23	100	CI Intermediate Plasticity
TP005	11	D	3.50	-		13	44	16	28	100	CI Intermediate Plasticity
WS002	3	D	1.00	-		33	51	26	25	100	CH High Plasticity
WS002	8	D	3.20	-		28	57	22	35	90	CH High Plasticity
WS002	10	D	4.20	-		23	55	19	36	90	CH High Plasticity
WS004	2	D	1.00	-		21	47	19	28	100	CI Intermediate Plasticity
WS004	6	D	2.20	-		35	57	28	29	90	CH High Plasticity
WS004	9	D	3.80	-		22	50	19	31	100	CI/H Inter/High Plasticity
TP006	3	D	1.00	-		5.8		NP		10	
TP006	10	D	3.00	-		17		NP		100	
AVC1_BH_08	3	D	0.50	-		34	65	30	35	100	CH High Plasticity
AVC1_BH_08	8	D	1.20	-		36	55	25	30	100	CH High Plasticity
AVC1_BH_08	11	D	2.20	-		30	49	25	24	100	CI Intermediate Plasticity
WS011	3	D	1.20	-		40	59	25	34	100	CH High Plasticity
WS011	8	B	3.20	-		29	72	22	50	100	CV Very High Plasticity
WS011	15	D	7.20	-		17	31	15	16	100	CL Low Plasticity
WS012	3	D	1.20	-		34	79	28	51	100	CV Very High Plasticity
WS012	5	D	2.20	-		48	64	33	31	100	MH High Plasticity
WS012	17	D	7.80	-		24	42	19	23	100	CI Intermediate Plasticity
PL T005	1	D	0.55	-		39	71	25	46	100	CV Very High Plasticity
PL T008	1	D	0.55	-		21	43	20	23	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	30/05/2022	Richard John (Advanced Testing Manager)
** Please Select Operator **	Approved	30/05/2022	Paul Evans (Quality/Technical Manager)

UKAS TESTING
2788

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59343	
Site Name	Future Chippenham	
Date Tested	24/05/2022	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
PLT009	2	D	0.55	-		Brown silty CLAY
CPTU003	2	D	0.50	-		Brown sandy silty CLAY
CPTU003	4	D	1.00	-		Brown sandy silty CLAY
CPTU004	2	D	1.00	-		Brown silty CLAY
HP_TP_02	3	D	1.00	-		Brown sandy silty CLAY
HP_TP_02	6	D	2.00	-		Brown sandy silty CLAY
HP_TP_02	11	D	3.40	-		Brown gravelly sandy silty CLAY
PLT012	2	D	0.55	-		Brown silty CLAY
WS005	3	ES	1.15	-		Brown silty CLAY
WS005	7	D	3.20	-		Brown silty CLAY
WS005	14	D	7.20	-		Brown silty CLAY
HP_TP_04	1	D	0.50	-		Brown silty CLAY
HP_TP_04	4	D	2.00	-		Brown sandy silty CLAY
HP_TP_07	1	D	0.50	-		Brown sandy silty CLAY
HP_TP_07	5	B	3.00	-		Brown silty CLAY
TP010	1	D	0.50	-		Brown sandy silty CLAY
TP010	3	D	1.50	-		Brown silty CLAY
TP010	7	D	3.40	-		Grey silty CLAY
WS001	4	D	2.00	-		Brown silty CLAY
WS001	8	D	3.20	-		Brown silty CLAY
WS003A	1	D	0.50	-		Brown silty CLAY
WS003A	5	D	2.20	-		Brown sandy silty CLAY
WS003A	8	D	4.00	-		Grey silty CLAY
WS003A	12	D	6.20	-		Grey silty CLAY

Operators	Checked	30/05/2022	Richard John (Advanced Testing Manager)
** Please Select Operator **	Approved	30/05/2022	Paul Evans (Quality/Technical Manager)

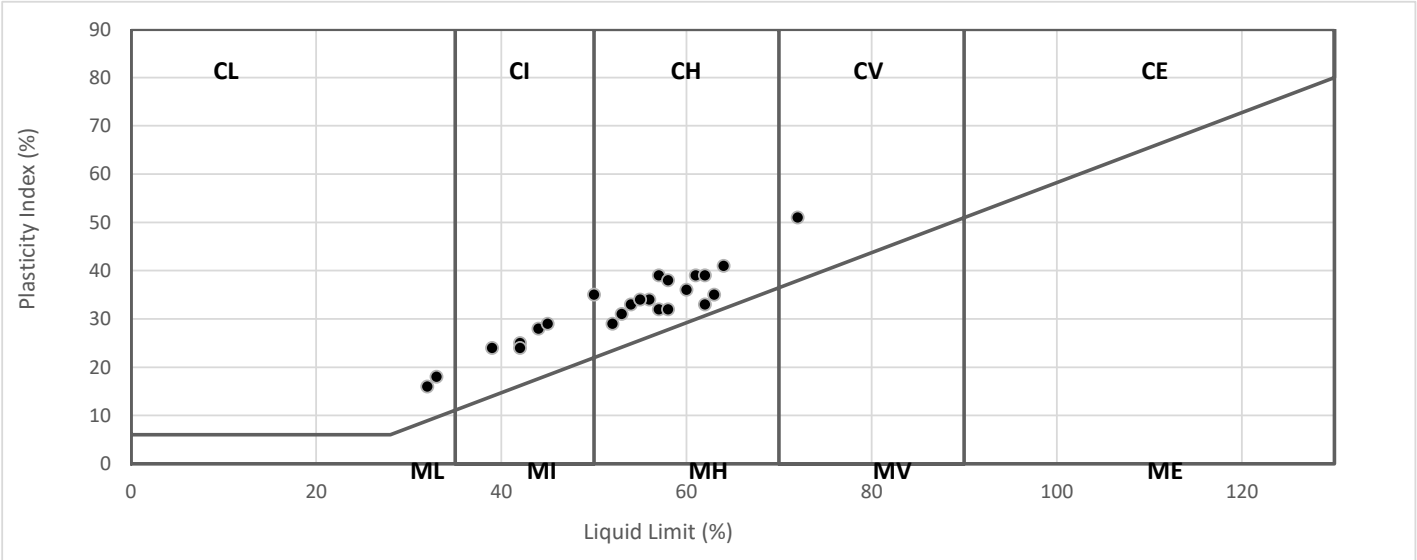
UKAS TESTING
2788

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59343	
Project Location	Future Chippenham	
Date Tested	24/05/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
PLT009	2	D	0.55	-		29	57	25	32	100	CH High Plasticity
CPTU003	2	D	0.50	-		25	56	22	34	100	CH High Plasticity
CPTU003	4	D	1.00	-		20	42	17	25	100	CI Intermediate Plasticity
CPTU004	2	D	1.00	-		25	61	22	39	100	CH High Plasticity
HP_TP_02	3	D	1.00	-		22	44	16	28	100	CI Intermediate Plasticity
HP_TP_02	6	D	2.00	-		22	42	18	24	100	CI Intermediate Plasticity
HP_TP_02	11	D	3.40	-		11	33	15	18	92	CL Low Plasticity
PLT012	2	D	0.55	-		30	72	21	51	100	CV Very High Plasticity
WS005	3	ES	1.15	-		30	52	23	29	100	CH High Plasticity
WS005	7	D	3.20	-		34	58	26	32	100	CH High Plasticity
WS005	14	D	7.20	-		23	54	21	33	100	CH High Plasticity
HP_TP_04	1	D	0.50	-		21	57	18	39	100	CH High Plasticity
HP_TP_04	4	D	2.00	-		18	50	15	35	100	CI/H Inter/High Plasticity
HP_TP_07	1	D	0.50	-		17	32	16	16	100	CL Low Plasticity
HP_TP_07	5	B	3.00	-		29	53	22	31	100	CH High Plasticity
TP010	1	D	0.50	-		16	39	15	24	100	CI Intermediate Plasticity
TP010	3	D	1.50	-		32	63	28	35	100	CH High Plasticity
TP010	7	D	3.40	-		24	55	21	34	100	CH High Plasticity
WS001	4	D	2.00	-		25	58	20	38	100	CH High Plasticity
WS001	8	D	3.20	-		30	60	24	36	100	CH High Plasticity
WS003A	1	D	0.50	-		35	62	29	33	100	CH High Plasticity
WS003A	5	D	2.20	-		22	45	16	29	100	CI Intermediate Plasticity
WS003A	8	D	4.00	-		29	64	23	41	100	CH High Plasticity
WS003A	12	D	6.20	-		25	62	23	39	100	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	30/05/2022	Richard John (Advanced Testing Manager)
** Please Select Operator **	Approved	30/05/2022	Paul Evans (Quality/Technical Manager)

UKAS TESTING
2788

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59343	
Site Name	Future Chippenham	
Date Tested	24/05/2022	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
WS013	4	D	2.20	-		Brown silty CLAY
WS013	9	D	4.20	-		Brown silty CLAY
WS020	1	D	0.50	-		Brown silty CLAY
WS020	4	D	1.90	-		Brown silty CLAY
WS020	7	D	3.20	-		Brown silty CLAY
WS020	14	D	7.20	-		Brown silty CLAY
AVC1_BH_07	3	D	0.50	-		Brown sandy silty CLAY
AVC1_BH_07	7	D	1.70	-		Brown silty CLAY
AVC1_BH_07	13	D	3.50	-		Brown silty CLAY
AVC1_BH_15	2	D	1.00	-		Brown silty CLAY
AVC1_BH_15	3	B	1.20	-		Greyish slightly sandy brown silty CLAY
AVC1_BH_15	4	D	2.30	-		Brown sandy silty CLAY
AVC1_BH_15	7	D	4.10	-		Grey silty CLAY
AVC1_BH_15	11	D	6.40	-		Brown silty CLAY
HP_TP_06	3	D	1.00	-		Brown silty CLAY
HP_TP_06	9	D	3.00	-		Brown silty CLAY
TP007	3	D	1.00	-		Brown sandy silty CLAY
TP007	9	D	3.00	-		Grey silty CLAY
TP009	1	D	0.50	-		Brown silty CLAY
TP009	6	D	2.00	-		Brown silty CLAY
TP011	3	D	1.00	-		Brown silty CLAY
TP011	9	D	3.00	-		Grey silty CLAY
				-		
				-		

Operators	Checked	31/05/2022	Richard John (Advanced Testing Manager)
** Please Select Operator **	Approved	31/05/2022	Paul Evans (Quality/Technical Manager)

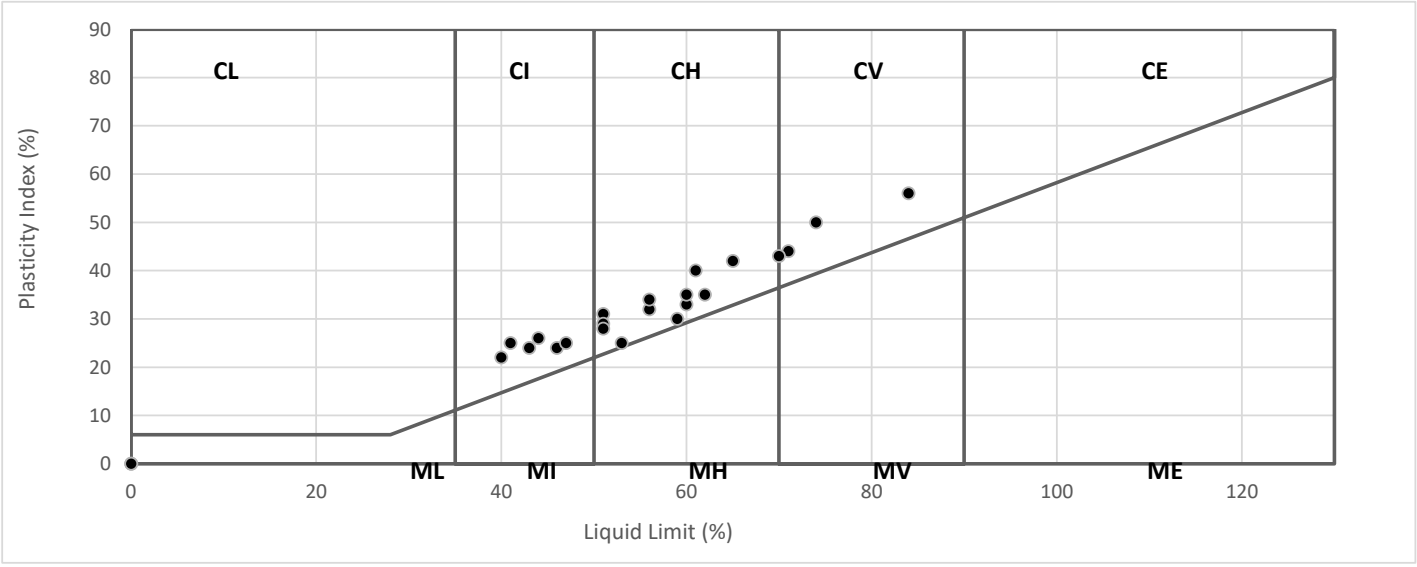
UKAS TESTING
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GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59343	
Project Location	Future Chippenham	
Date Tested	24/05/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
WS013	4	D	2.20	-		38	60	27	33	100	CH High Plasticity
WS013	9	D	4.20	-		32	56	24	32	100	CH High Plasticity
WS020	1	D	0.50	-		38	59	29	30	100	CH High Plasticity
WS020	4	D	1.90	-		36	84	28	56	100	CV Very High Plasticity
WS020	7	D	3.20	-		29	71	27	44	100	CV Very High Plasticity
WS020	14	D	7.20	-		23	51	20	31	100	CH High Plasticity
AVC1_BH_07	3	D	0.50	-		27	46	22	24	100	CI Intermediate Plasticity
AVC1_BH_07	7	D	1.70	-		24	51	22	29	100	CH High Plasticity
AVC1_BH_07	13	D	3.50	-		36	53	28	25	100	CH High Plasticity
AVC1_BH_15	2	D	1.00	-		29	62	27	35	100	CH High Plasticity
AVC1_BH_15	3	B	1.20	-		24	40	18	22	99	CI Intermediate Plasticity
AVC1_BH_15	4	D	2.30	-		19	41	16	25	100	CI Intermediate Plasticity
AVC1_BH_15	7	D	4.10	-		21	43	19	24	100	CI Intermediate Plasticity
AVC1_BH_15	11	D	6.40	-		17	44	18	26	100	CI Intermediate Plasticity
HP_TP_06	3	D	1.00	-		29	74	24	50	100	CV Very High Plasticity
HP_TP_06	9	D	3.00	-		25	65	23	42	100	CH High Plasticity
TP007	3	D	1.00	-		23	47	22	25	100	CI Intermediate Plasticity
TP007	9	D	3.00	-		25	51	23	28	100	CH High Plasticity
TP009	1	D	0.50	-		30	61	21	40	100	CH High Plasticity
TP009	6	D	2.00	-		33	70	27	43	100	CH/V High/HighPlasticity
TP011	3	D	1.00	-		34	60	25	35	100	CH High Plasticity
TP011	9	D	3.00	-		26	56	22	34	100	CH High Plasticity
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	31/05/2022	Richard John (Advanced Testing Manager)
** Please Select Operator **	Approved	31/05/2022	Paul Evans (Quality/Technical Manager)

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GEOTECHNICAL SITE & TESTING LABORATORIES

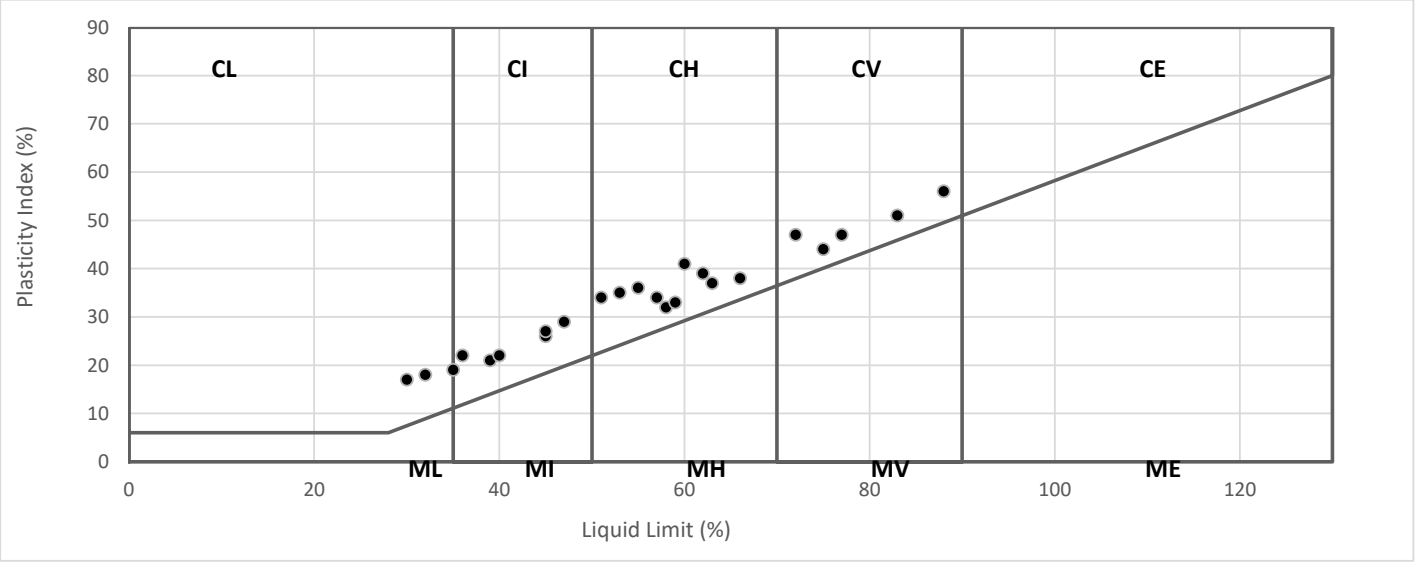
NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)

Contract Number	60027
Project Location	Future Chippenham
Date Tested	07/07/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
AVW_BH_05	1	D	0.50	-		31	72	25	47	100	CV Very High Plasticity
AVW_BH_05	5	D	1.50	-		25	57	23	34	100	CH High Plasticity
AVW_BH_05	8	D	3.20	-		35	58	26	32	100	CH High Plasticity
AVW_BH_05	12	D	6.15	-		10	32	14	18	100	CL Low Plasticity
AVW_BH_05	16	D	9.15	-		38	66	28	38	100	CH High Plasticity
AVW_BH_05	2	D	12.15	-		14	36	14	22	100	CI Intermediate Plasticity
AVW_BH_05	26	C	19.80	-		22	39	18	21	100	CI Intermediate Plasticity
PWB_BH_05	1	D	0.50	-		34	63	26	37	100	CH High Plasticity
PWB_BH_05	5	D	1.40	-		20	47	18	29	100	CI Intermediate Plasticity
PWB_BH_05	6	D	1.90	-		22	45	19	26	100	CI Intermediate Plasticity
PWB_BH_05	10	C	8.10	-		20	53	18	35	100	CH High Plasticity
PWB_BH_05	16	C	17.25	-		19	55	19	36	100	CH High Plasticity
AVC1_BH_03	1	D	0.50	-		37	59	26	33	100	CH High Plasticity
AVC1_BH_03	2	D	1.00	-		19	45	18	27	64	CI Intermediate Plasticity
AVC1_BH_03	5	D	1.60	-		25	60	19	41	100	CH High Plasticity
AVC1_BH_03	7	D	3.20	-		30	62	23	39	100	CH High Plasticity
AVC1_BH_03	12	C	7.90	-		19	51	17	34	100	CH High Plasticity
AVC1_BH_04	1	D	0.50	-		22	40	18	22	100	CI Intermediate Plasticity
AVC1_BH_04	3	D	1.00	-		14	30	13	17	80	CL Low Plasticity
AVC1_BH_04	7	D	3.50	-		13	35	16	19	100	CL/I Low/Inter. Plasticity
AVC1_BH_06	2	D	1.00	-		37	88	32	56	100	CV Very High Plasticity
AVC1_BH_06	5	D	1.40	-		33	77	30	47	100	CV Very High Plasticity
AVC1_BH_06	7	D	2.60	-		69	75	31	44	100	CV Very High Plasticity
AVC1_BH_06	8	D	3.40	-		75	83	32	51	100	CV Very High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators
Clayton Jenkins

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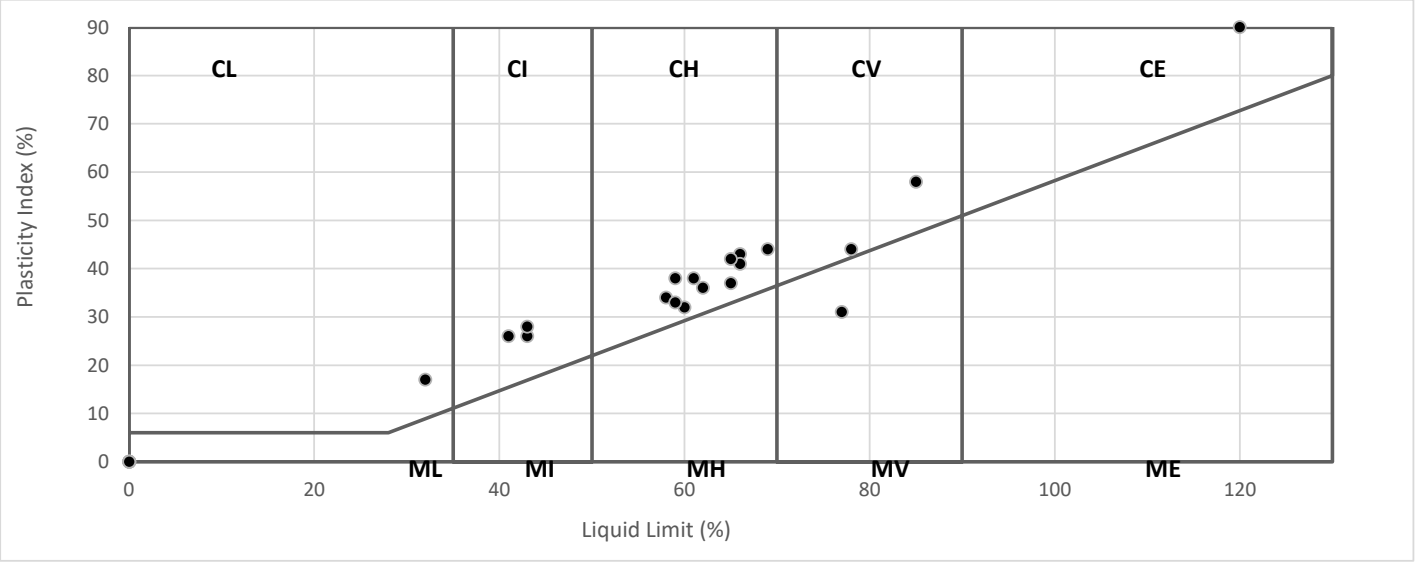
NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)

Contract Number	60027
Project Location	Future Chippenham
Date Tested	07/07/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
AVC1_BH_09	1	D	0.50	-		35	60	28	32	100	CH High Plasticity
AVC1_BH_09	3	D	2.50	-		30	58	24	34	100	CH High Plasticity
AVC1_BH_09	5	D	3.45	-		54	77	46	31	100	MV Very High Plasticity
AVC1_BH_09	8	D	3.85	-		104	120	30	90	100	CE Extremely High Plasticity
AVC1_BH_09	12	D	5.85	-		19	43	17	26	100	CI Intermediate Plasticity
HP_TP_05	1	D	0.50	-		17	43	15	28	100	CI Intermediate Plasticity
HP_TP_05	3	D	1.50	-		5.0	32	15	17	100	CL Low Plasticity
HP_TP_05	7	D	3.50	-		25	59	21	38	100	CH High Plasticity
TP008	1	D	0.50	-		28	62	26	36	100	CH High Plasticity
TP008	5	D	2.50	-		27	66	23	43	100	CH High Plasticity
WS006	1	D	0.50	-		41	65	28	37	100	CH High Plasticity
WS006	3	D	1.00	-		35	85	27	58	100	CV Very High Plasticity
WS006	7	D	3.10	-		35	66	25	41	100	CH High Plasticity
WS007	1	D	0.50	-		18	41	15	26	100	CI Intermediate Plasticity
WS007	6	D	2.20	-		30	65	23	42	100	CH High Plasticity
WS007	10	D	4.20	-		33	59	26	33	100	CH High Plasticity
WS009	3	D	1.20	-		37	78	34	44	100	CV Very High Plasticity
WS009	7	D	3.20	-		26	61	23	38	100	CH High Plasticity
WS009	11	D	5.80	-		26	69	25	44	100	CH High Plasticity
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Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

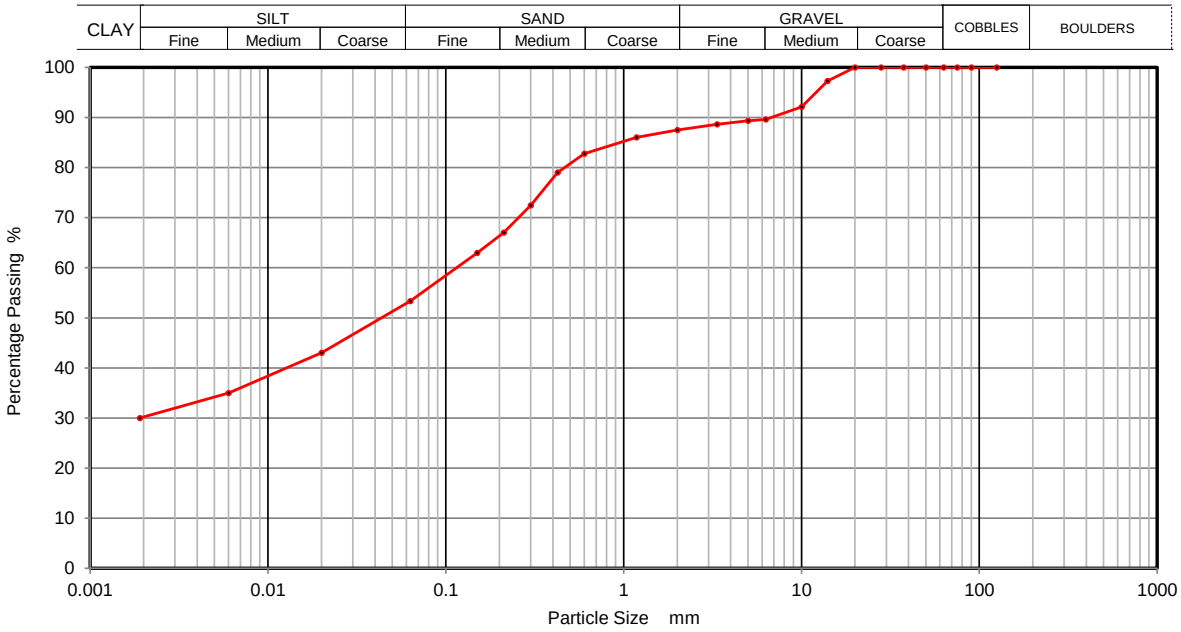
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators
Clayton Jenkins

UKAS TESTING
2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_03
Site Name	Future Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	43
90	100	0.0060	35
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	92		
6.3	90		
5	89		
3.35	89		
2	87		
1.18	86		
0.6	83		
0.425	79		
0.3	72		
0.212	67		
0.15	63		
0.063	53		

Sample Proportions	% dry mass
Cobbles	0
Gravel	13
Sand	34
Silt	23
Clay	30

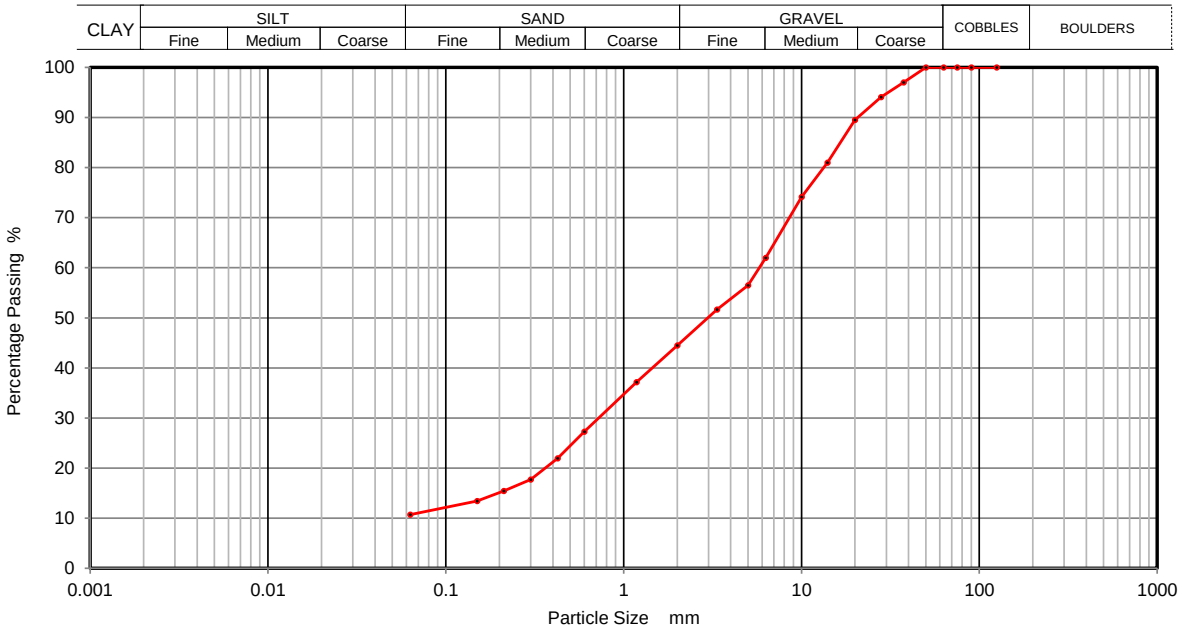
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_04
Site Name	Future Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	94		
20	90		
14	81		
10	74		
6.3	62		
5	57		
3.35	52		
2	44		
1.18	37		
0.6	27		
0.425	22		
0.3	18		
0.212	15		
0.15	13		
0.063	11		

Sample Proportions	% dry mass
Cobbles	0
Gravel	56
Sand	33
Silt and Clay	11

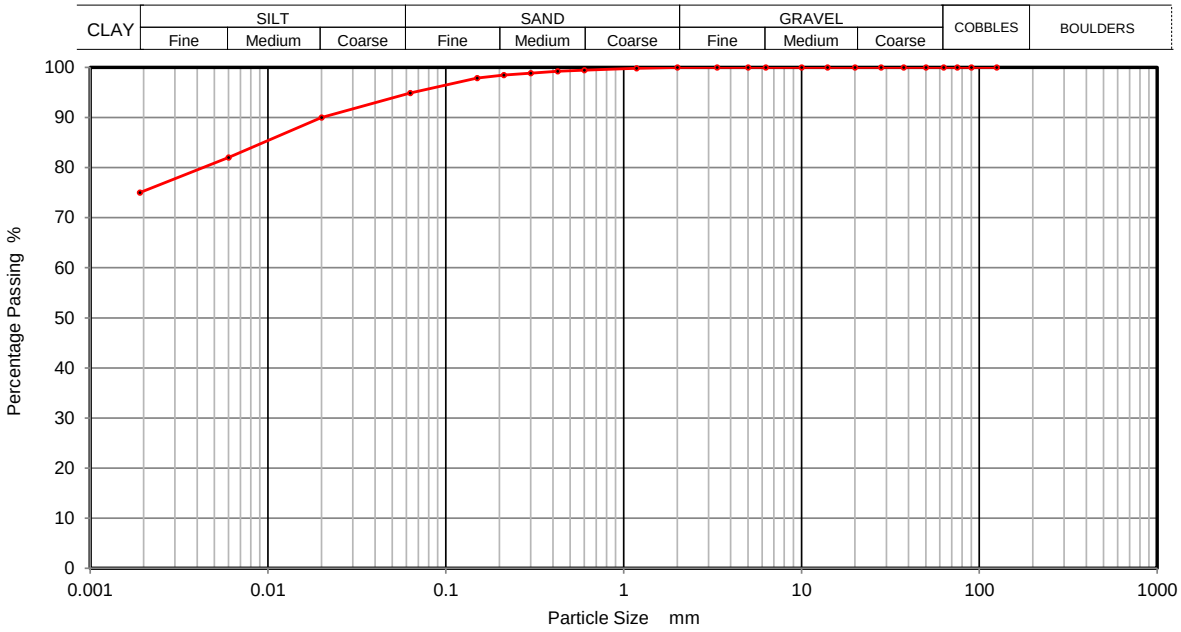
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_06
Site Name	Future Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	90
90	100	0.0060	82
75	100	0.0020	75
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	98		
0.15	98		
0.063	95		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	5
Silt	20
Clay	75

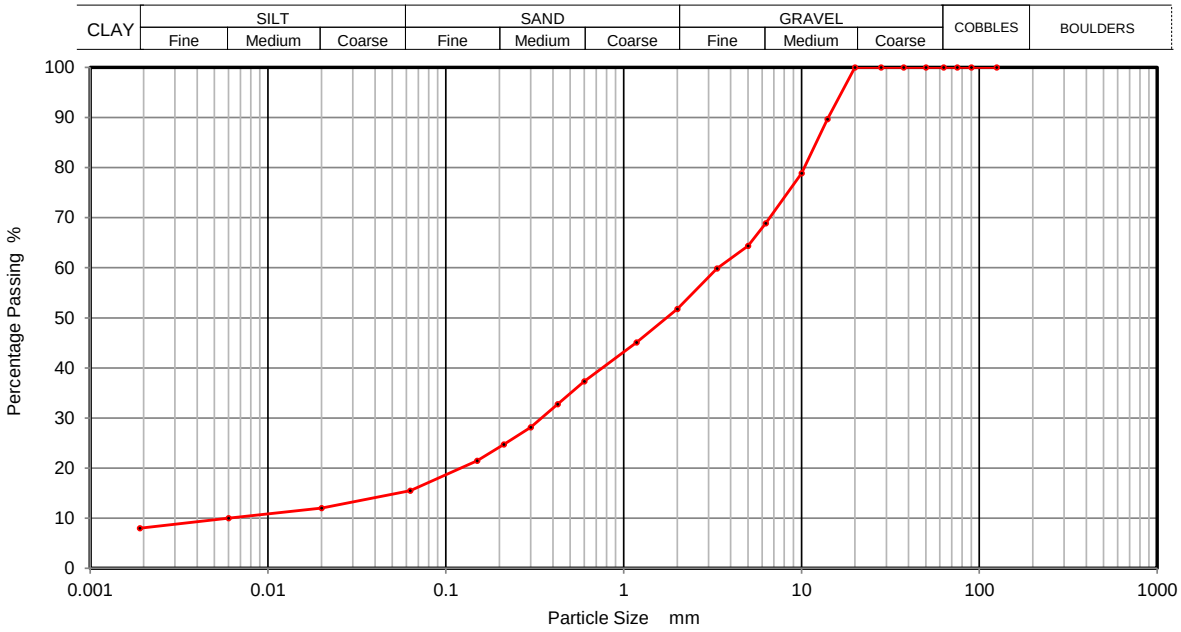
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_06
Site Name	Future Chippenham	Sample No.	10
Soil Description	*See sample description sheet	Depth Top	3.60
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	12
90	100	0.0060	10
75	100	0.0020	8
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	90		
10	79		
6.3	69		
5	64		
3.35	60		
2	52		
1.18	45		
0.6	37		
0.425	33		
0.3	28		
0.212	25		
0.15	21		
0.063	16		

Sample Proportions	% dry mass
Cobbles	0
Gravel	48
Sand	36
Silt	8
Clay	8

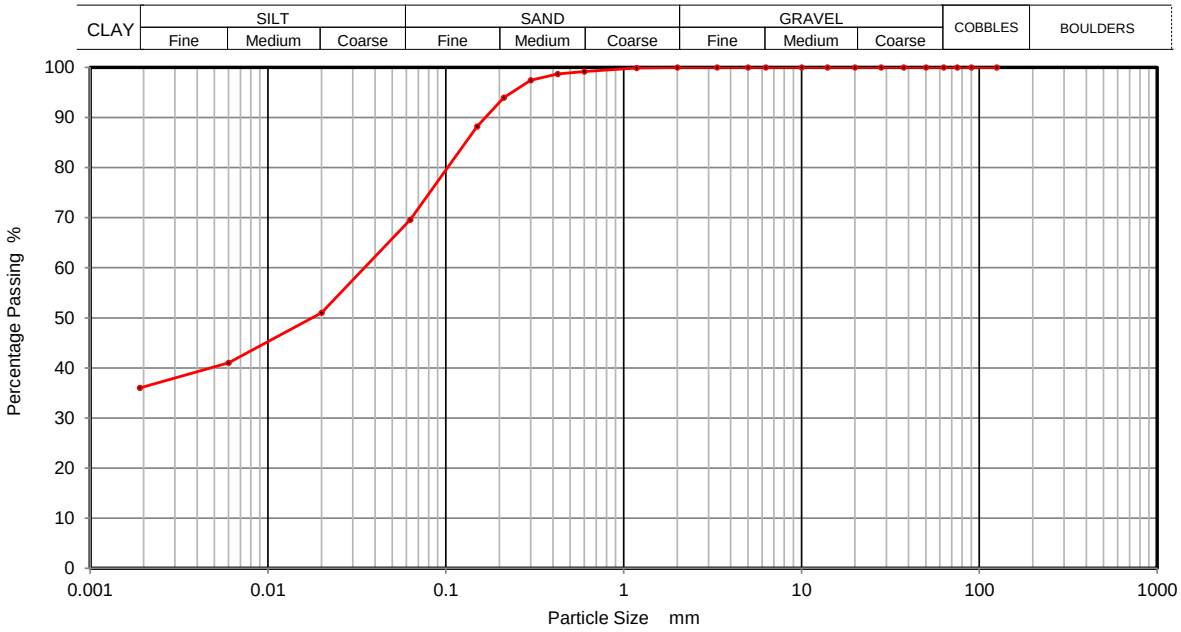
Remarks

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Operator
David Edwards

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_07
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	0.80
		Depth Base	
Date Tested	27/05/2022	Sample Type	ES



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	51
90	100	0.0060	41
75	100	0.0020	36
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	97		
0.212	94		
0.15	88		
0.063	70		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	30
Silt	34
Clay	36

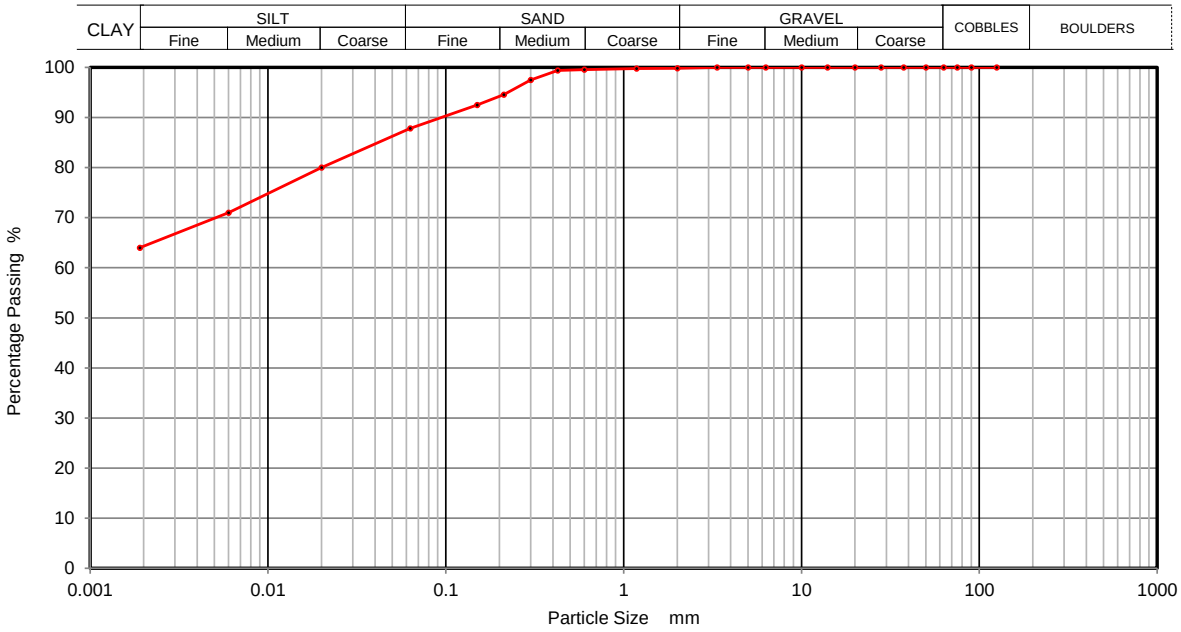
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_07
Site Name	Future Chippenham	Sample No.	9
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	2.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	80
90	100	0.0060	71
75	100	0.0020	64
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	97		
0.212	95		
0.15	92		
0.063	88		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	12
Silt	24
Clay	64

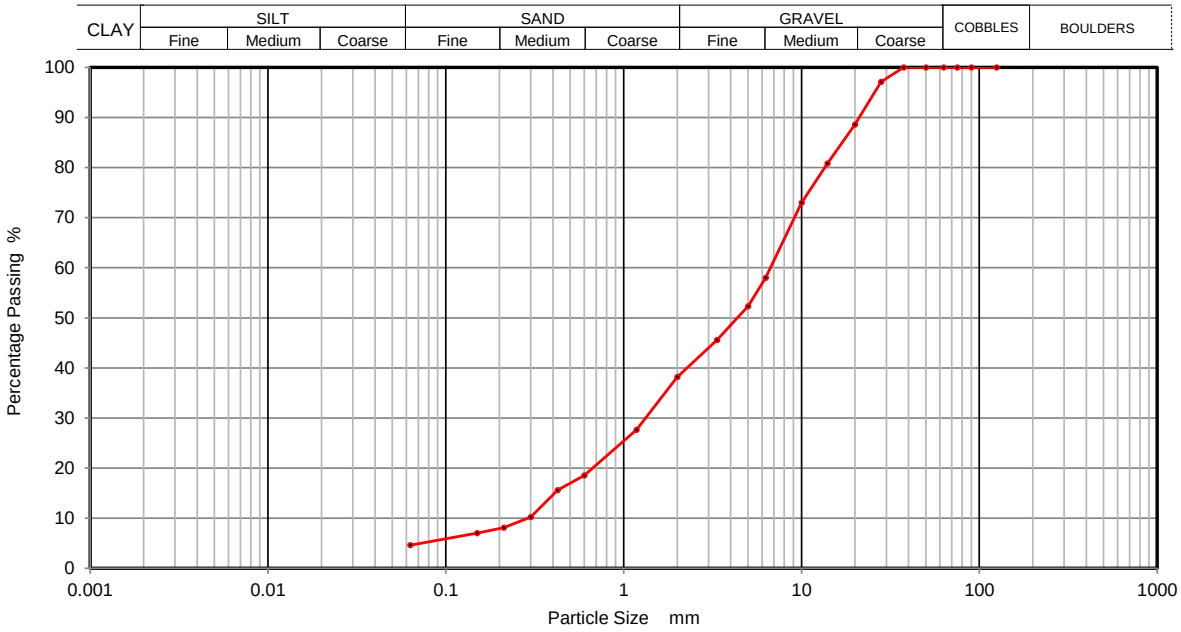
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_07
Site Name	Future Chippenham	Sample No.	16
Soil Description	Brown clayey/silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	4.75
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	89		
14	81		
10	73		
6.3	58		
5	52		
3.35	46		
2	38		
1.18	28		
0.6	19		
0.425	16		
0.3	10		
0.212	8		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Cobbles	0
Gravel	62
Sand	33
Silt and Clay	5

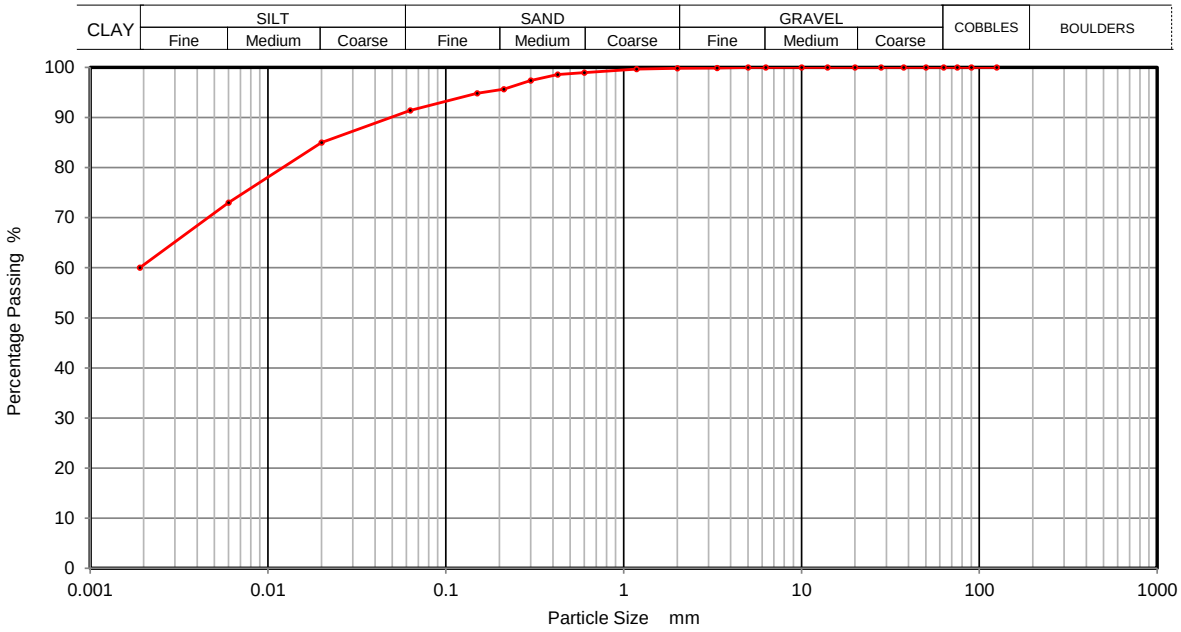
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_08
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	0.30
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	73
75	100	0.0020	60
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	97		
0.212	96		
0.15	95		
0.063	91		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	9
Silt	31
Clay	60

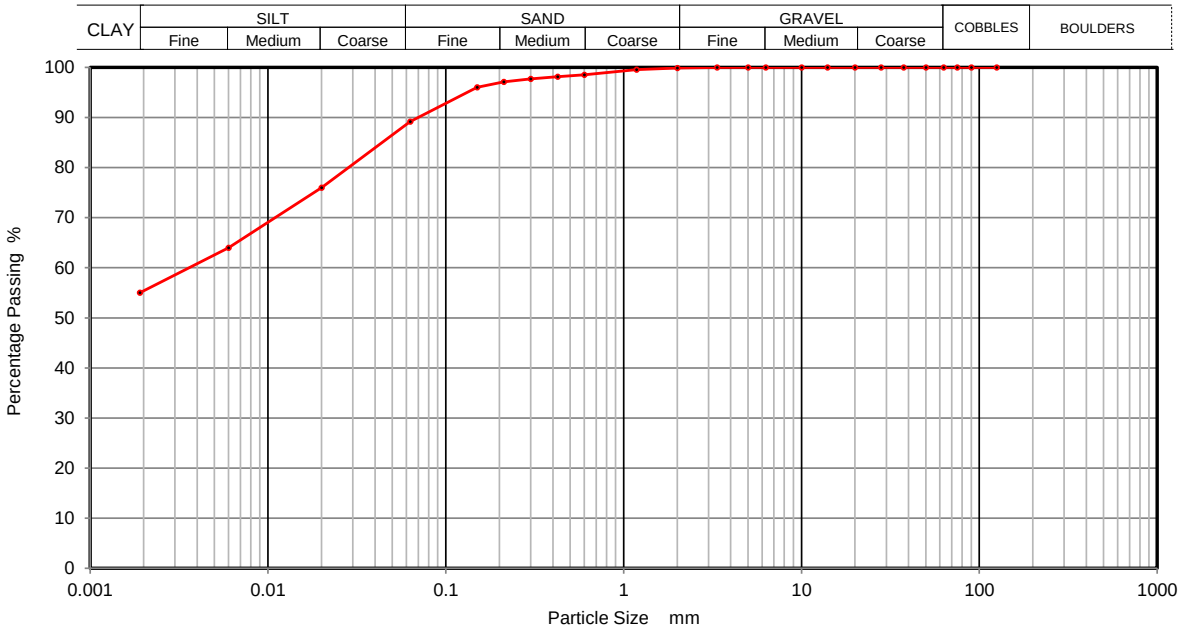
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_08
Site Name	Future Chippenham	Sample No.	7
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	1.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	76
90	100	0.0060	64
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	98		
0.3	98		
0.212	97		
0.15	96		
0.063	89		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	11
Silt	34
Clay	55

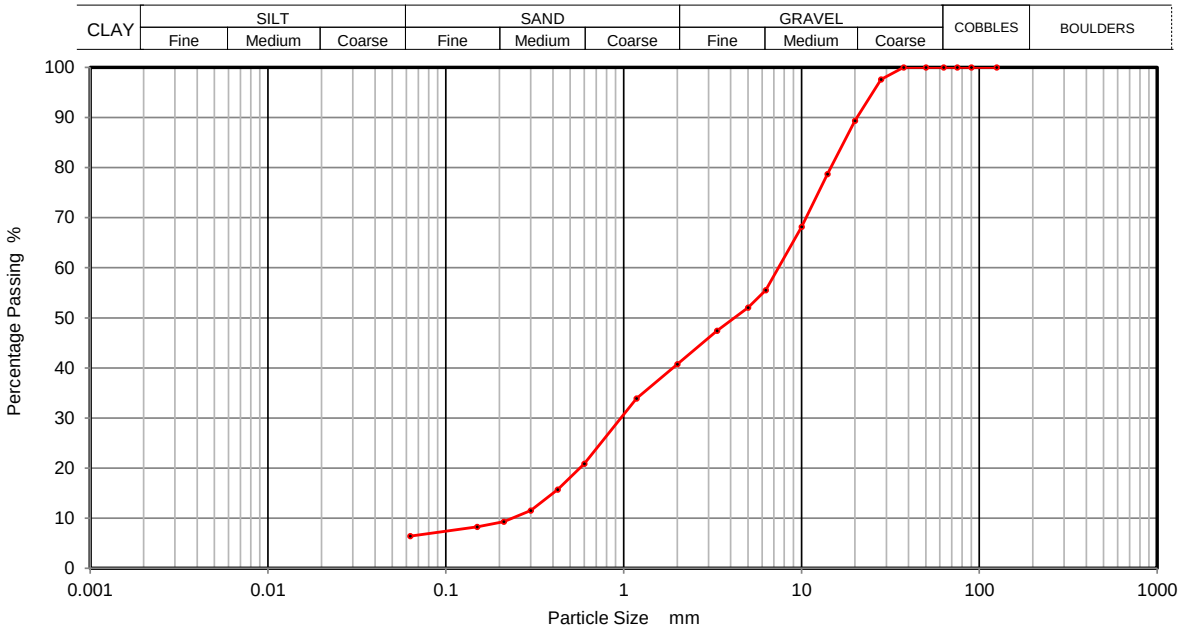
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_08
Site Name	Future Chippenham	Sample No.	14
Soil Description	Grey clayey/silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	3.70
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	89		
14	79		
10	68		
6.3	56		
5	52		
3.35	47		
2	41		
1.18	34		
0.6	21		
0.425	16		
0.3	12		
0.212	9		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Cobbles	0
Gravel	59
Sand	35
Silt and Clay	6

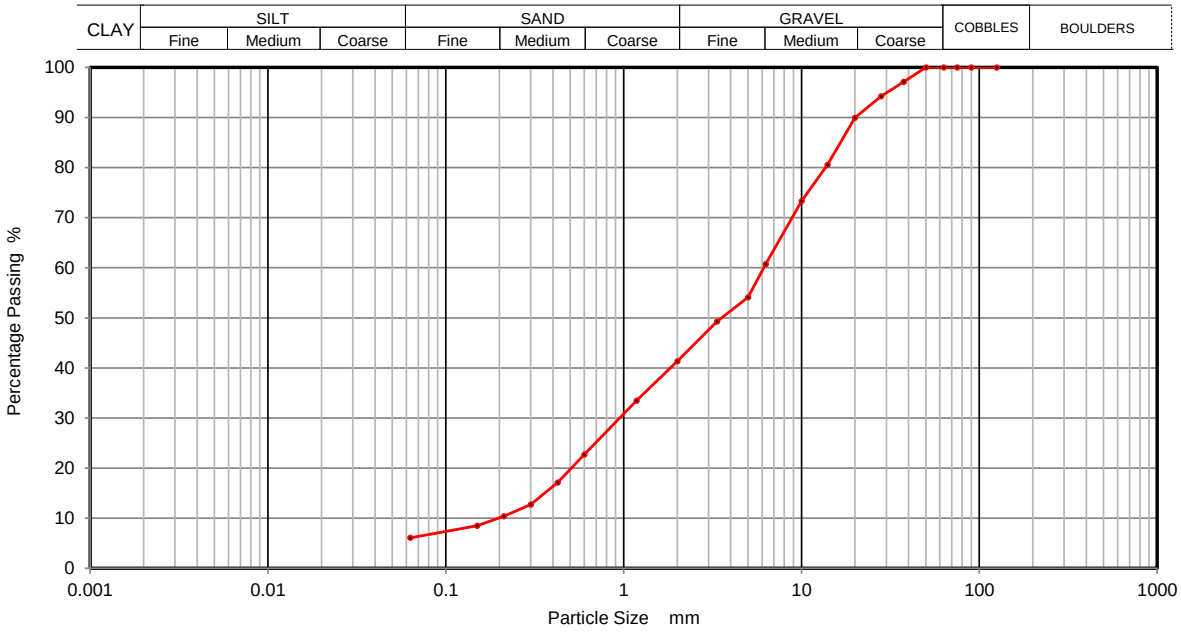
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_09
Site Name	Future Chippenham	Sample No.	9
Soil Description	*See sample description sheet	Depth Top	4.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	94		
20	90		
14	81		
10	73		
6.3	61		
5	54		
3.35	49		
2	41		
1.18	33		
0.6	23		
0.425	17		
0.3	13		
0.212	10		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Cobbles	0
Gravel	59
Sand	35
Silt and Clay	6

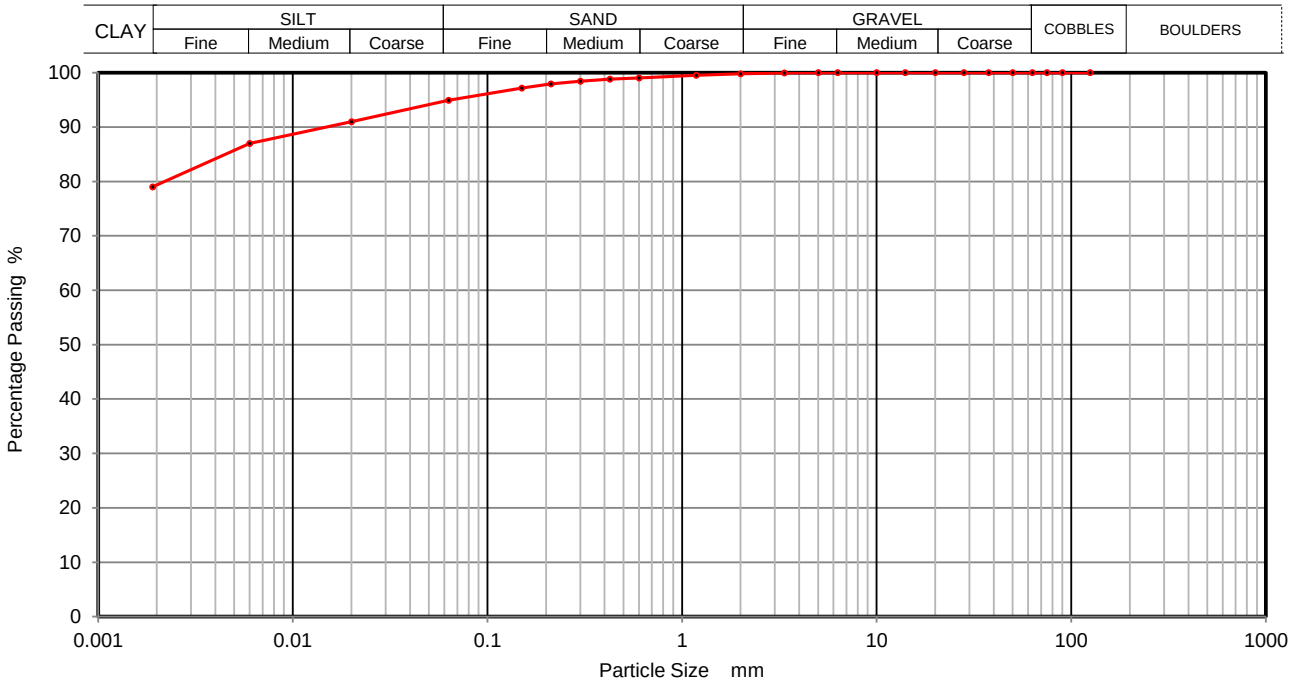
Remarks

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Operator
David Edwards

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_15
Site Name	Future Chippenham	Sample No.	3
Soil Description	Greyish slightly sandybrown silty CLAY	Depth Top	1.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	91
90	100	0.0060	87
75	100	0.0020	79
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	97		
0.063	95		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	5
Silt	16
Clay	79

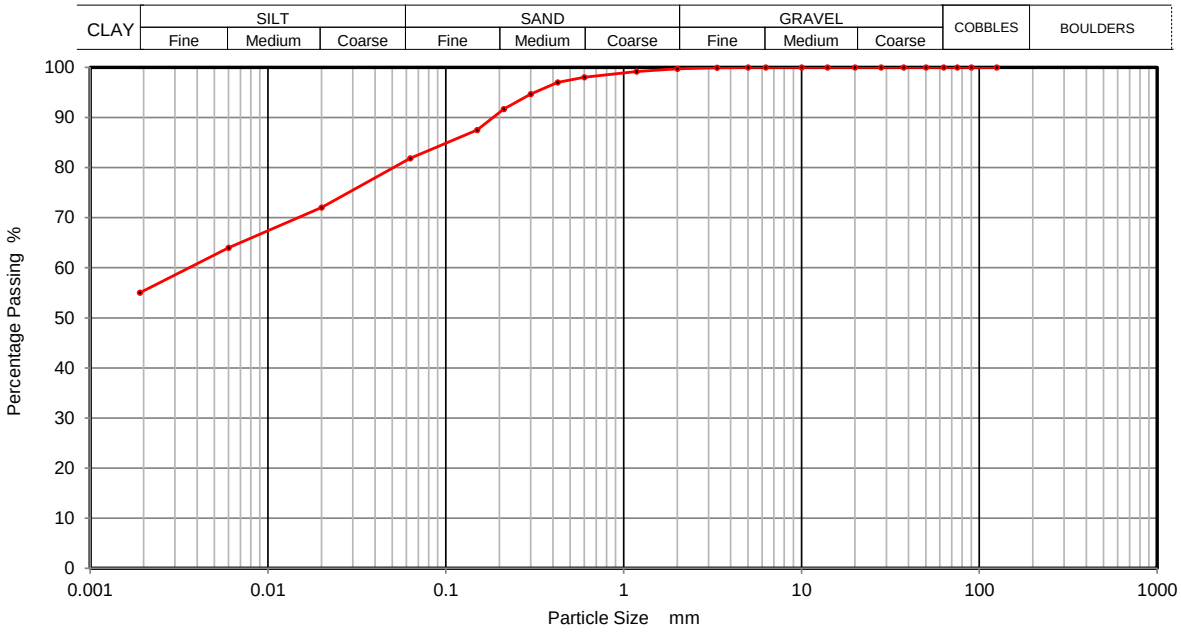
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	30/05/2022	Richard John	
David	Approved	31/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	AVW_BH_05
Site Name	Future Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	72
90	100	0.0060	64
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	95		
0.212	92		
0.15	87		
0.063	82		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	18
Silt	27
Clay	55

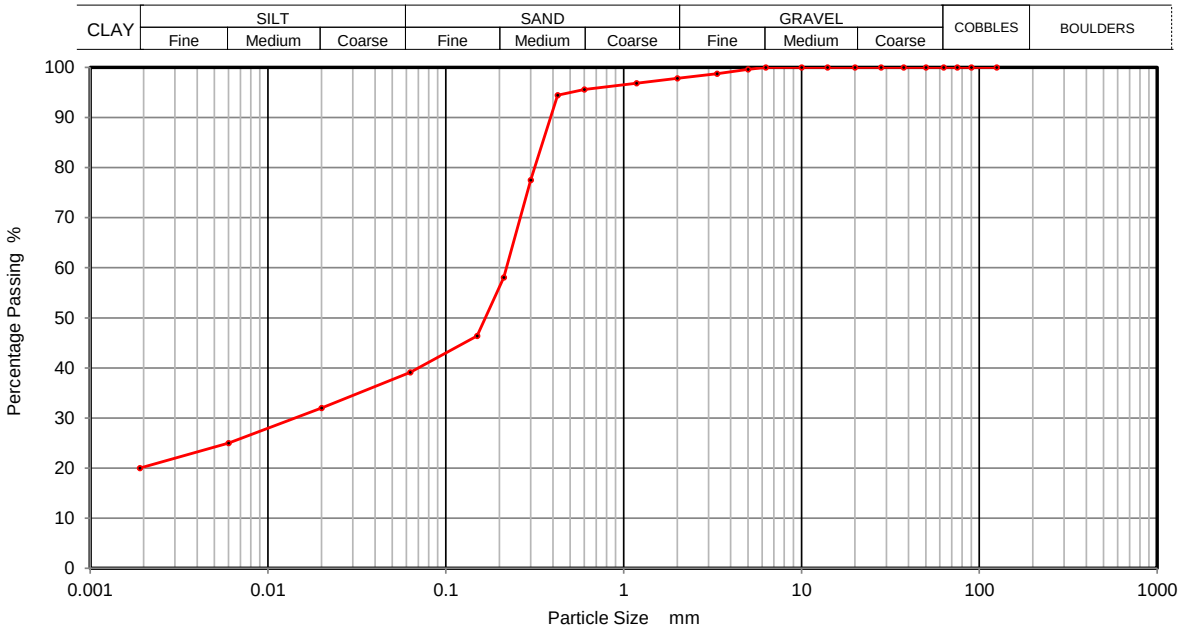
Remarks

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Operator
David Edwards

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	CPTU003
Site Name	Future Chippenham	Sample No.	1
Soil Description	Brown slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	0.50
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	32
90	100	0.0060	25
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98		
1.18	97		
0.6	96		
0.425	94		
0.3	77		
0.212	58		
0.15	46		
0.063	39		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	59
Silt	19
Clay	20

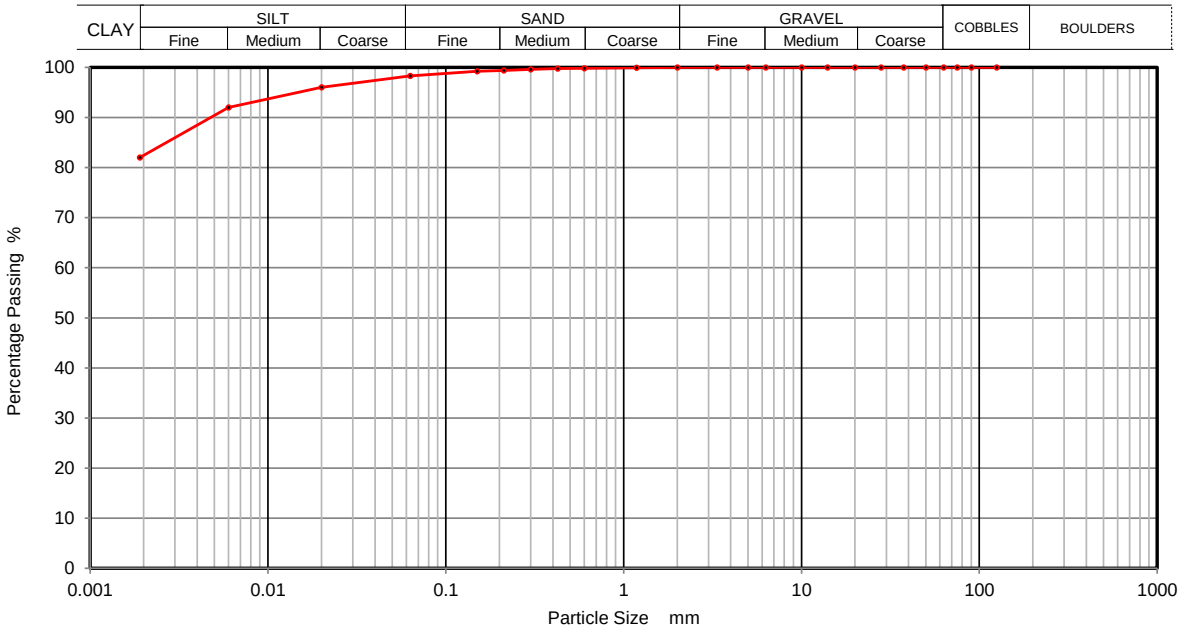
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	CPTU004
Site Name	Future Chippenham	Sample No.	3
Soil Description	Brown slightly sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	96
90	100	0.0060	92
75	100	0.0020	82
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	2
Silt	16
Clay	82

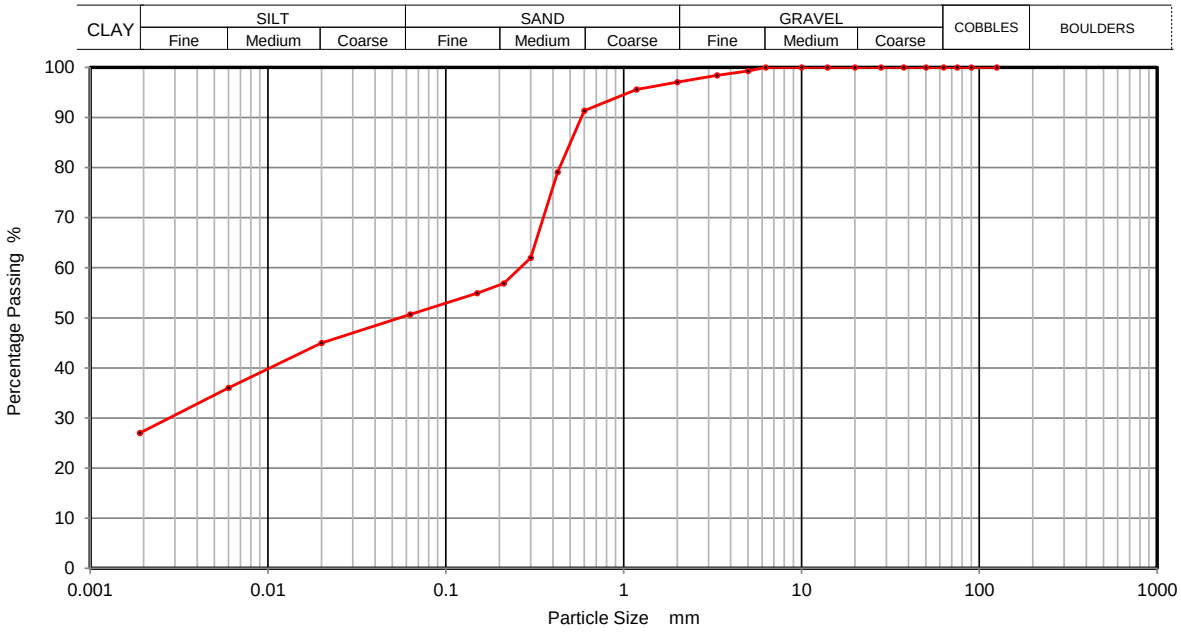
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	HP_TP_02
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	45
90	100	0.0060	36
75	100	0.0020	27
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	91		
0.425	79		
0.3	62		
0.212	57		
0.15	55		
0.063	51		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	46
Silt	24
Clay	27

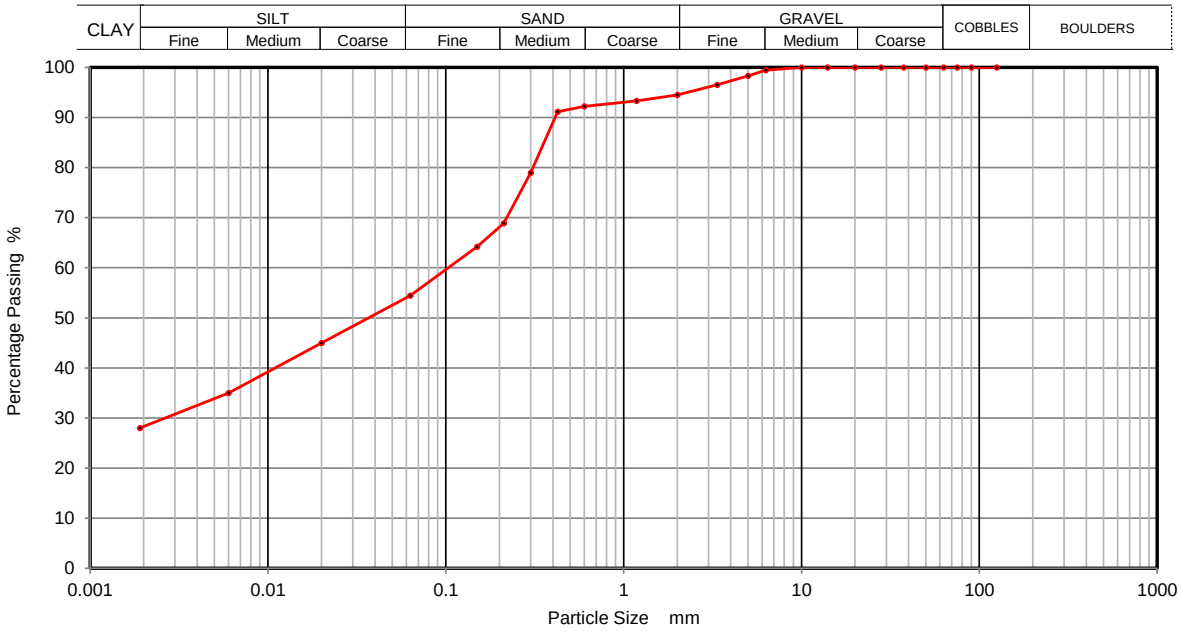
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	HP_TP_02
Site Name	Future Chippenham	Sample No.	5
Soil Description	Brown fine to medium gravelly fine to coarse sandy silty CLAY	Depth Top	2.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	45
90	100	0.0060	35
75	100	0.0020	28
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	98		
3.35	97		
2	95		
1.18	93		
0.6	92		
0.425	91		
0.3	79		
0.212	69		
0.15	64		
0.063	54		

Sample Proportions	% dry mass
Cobbles	0
Gravel	5
Sand	41
Silt	26
Clay	28

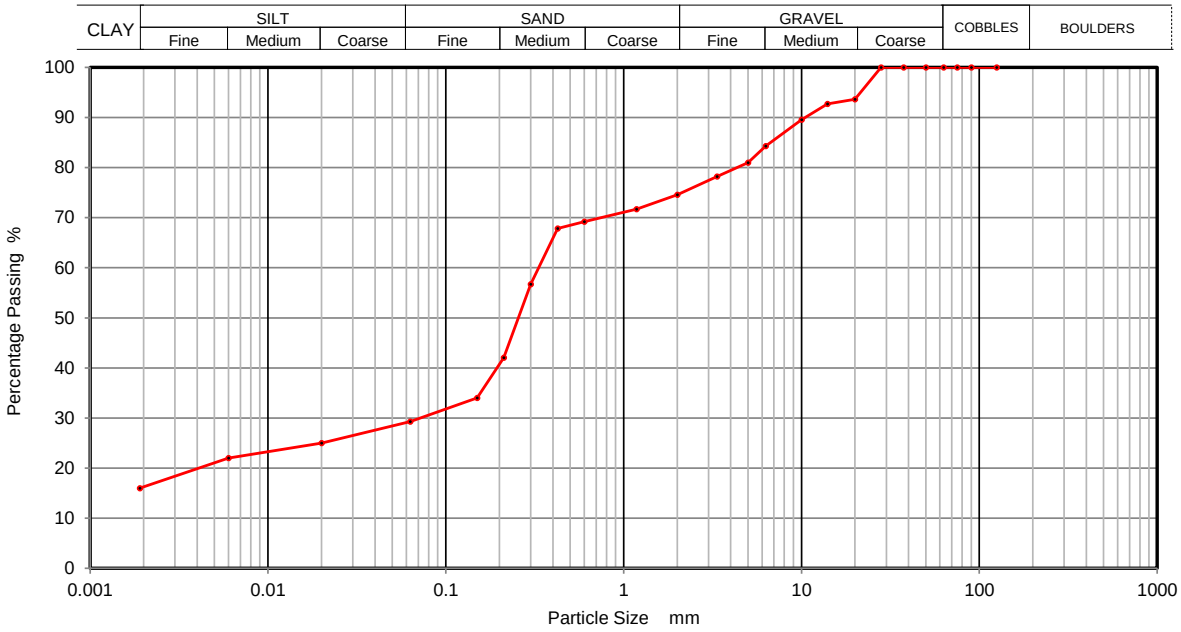
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	HP_TP_02
Site Name	Future Chippenham	Sample No.	10
Soil Description	Grey silty clayey fine to coarse gravelly fine to coarse SAND	Depth Top	3.40
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	25
90	100	0.0060	22
75	100	0.0020	16
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	93		
10	90		
6.3	84		
5	81		
3.35	78		
2	75		
1.18	72		
0.6	69		
0.425	68		
0.3	57		
0.212	42		
0.15	34		
0.063	29		

Sample Proportions	% dry mass
Cobbles	0
Gravel	25
Sand	46
Silt	13
Clay	16

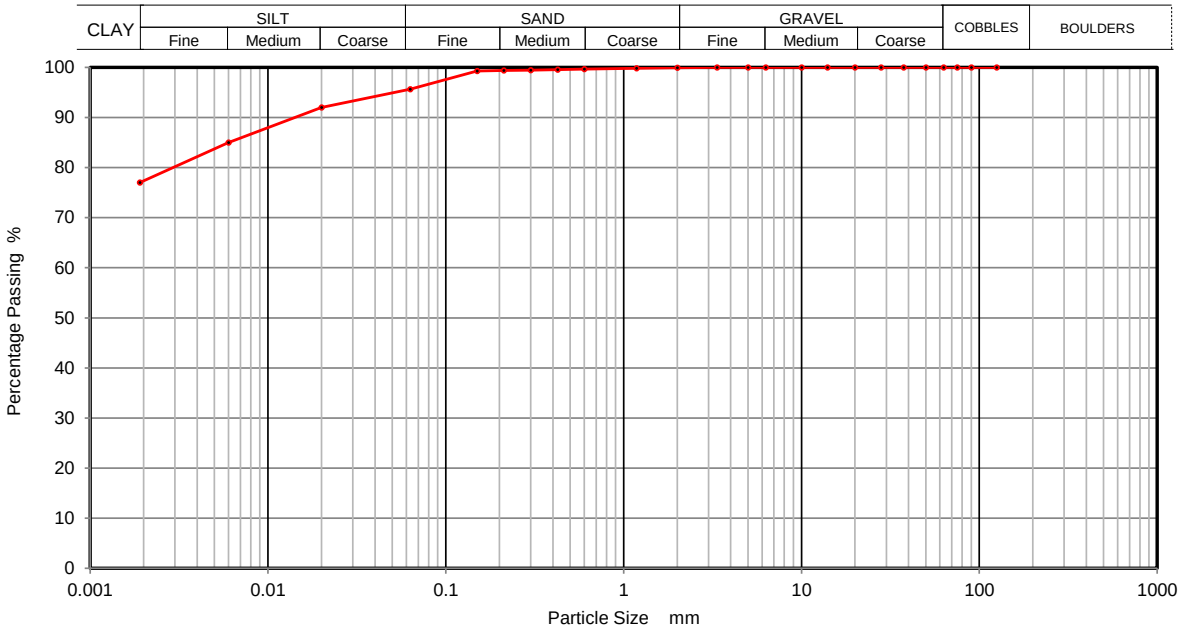
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	HP_TP_04
Site Name	Future Chippenham	Sample No.	2
Soil Description	Grey slightly sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	85
75	100	0.0020	77
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	19
Clay	77

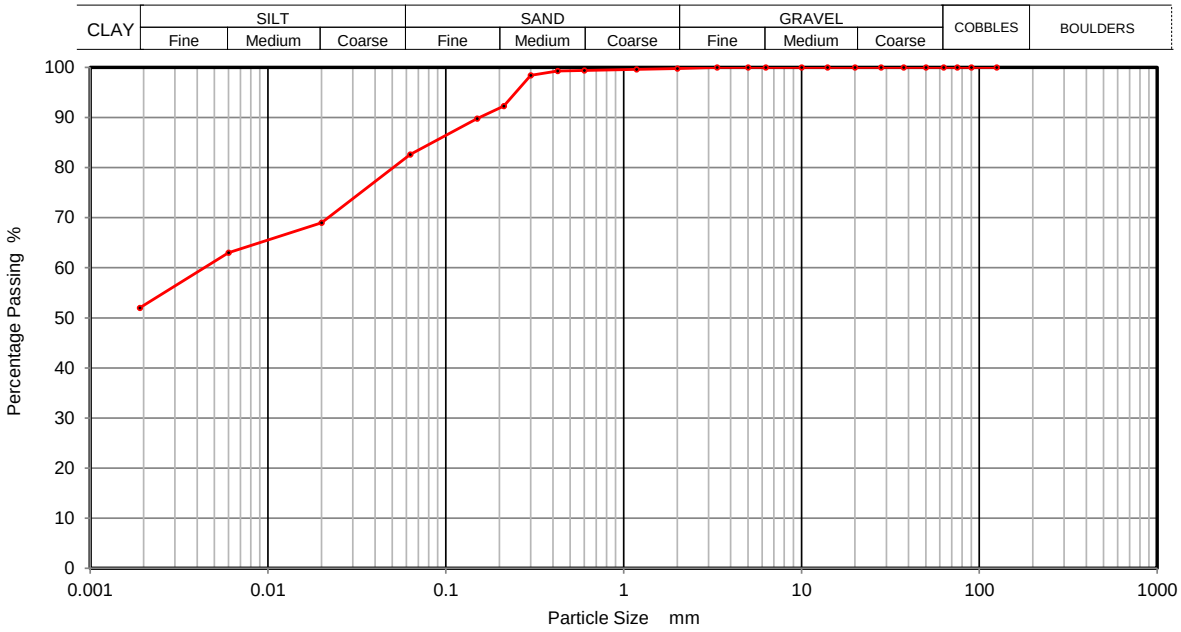
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	05/07/2022	Richard John	
David	Approved	06/07/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	HP_TP_04
Site Name	Future Chippenham	Sample No.	6
Soil Description	Grey fine to coarse sandy silty CLAY	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	69
90	100	0.0060	63
75	100	0.0020	52
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	98		
0.212	92		
0.15	90		
0.063	83		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	17
Silt	31
Clay	52

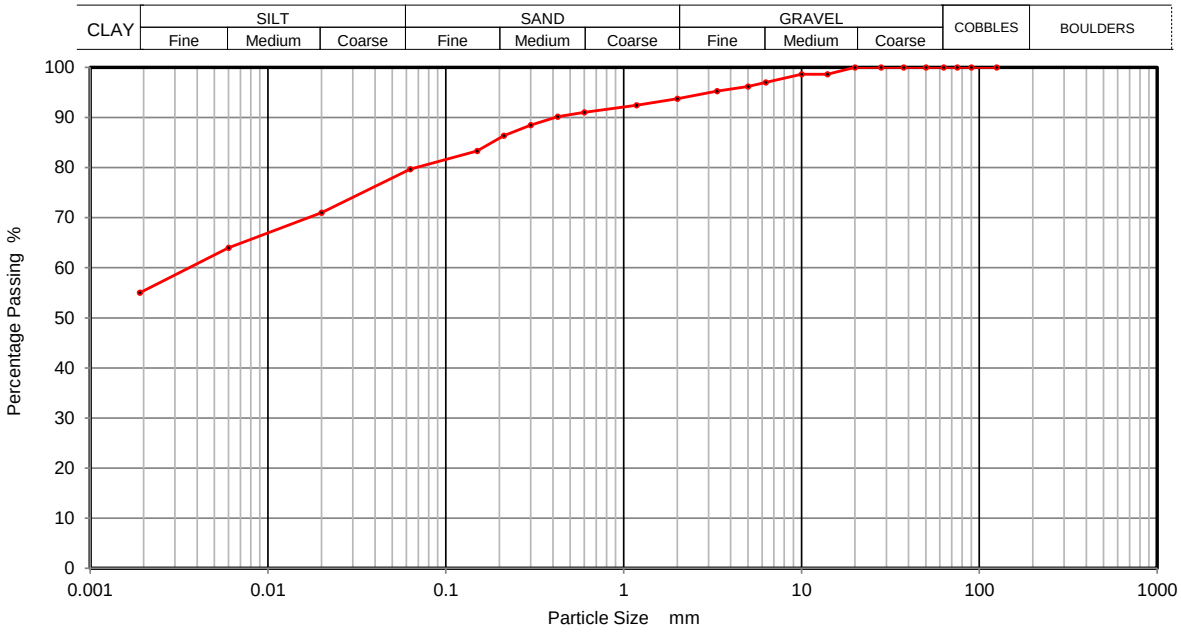
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	HP_TP_05
Site Name	Future Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	71
90	100	0.0060	64
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	97		
5	96		
3.35	95		
2	94		
1.18	92		
0.6	91		
0.425	90		
0.3	88		
0.212	86		
0.15	83		
0.063	80		

Sample Proportions	% dry mass
Cobbles	0
Gravel	6
Sand	14
Silt	25
Clay	55

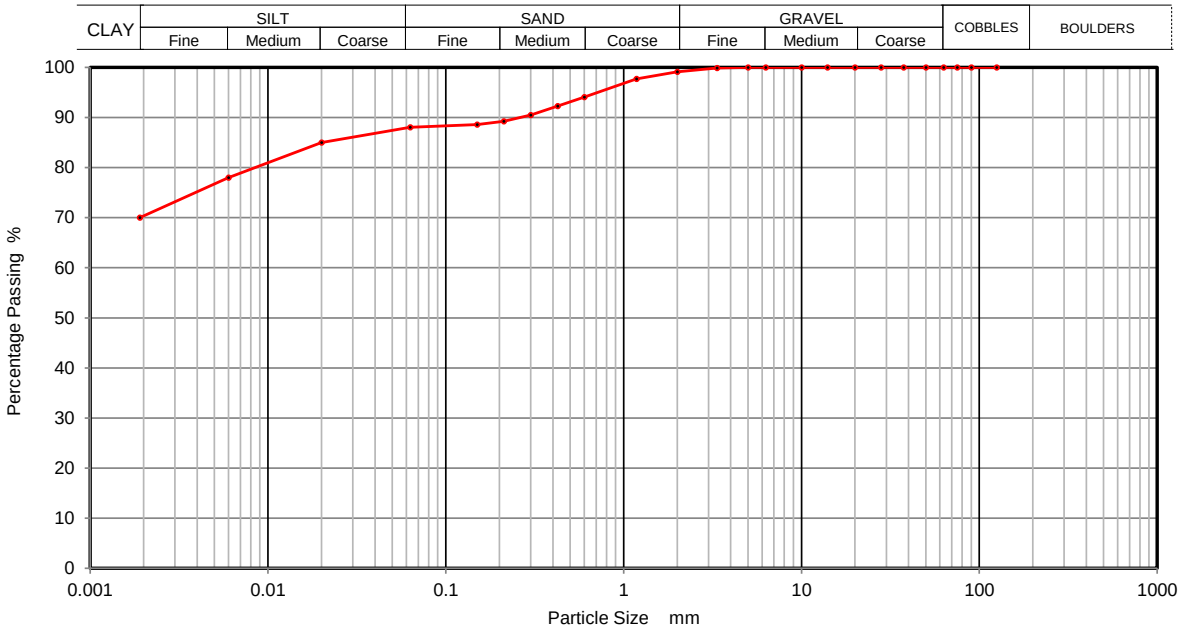
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	HP_TP_05
Site Name	Future Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	2.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	78
75	100	0.0020	70
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	94		
0.425	92		
0.3	90		
0.212	89		
0.15	89		
0.063	88		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	11
Silt	18
Clay	70

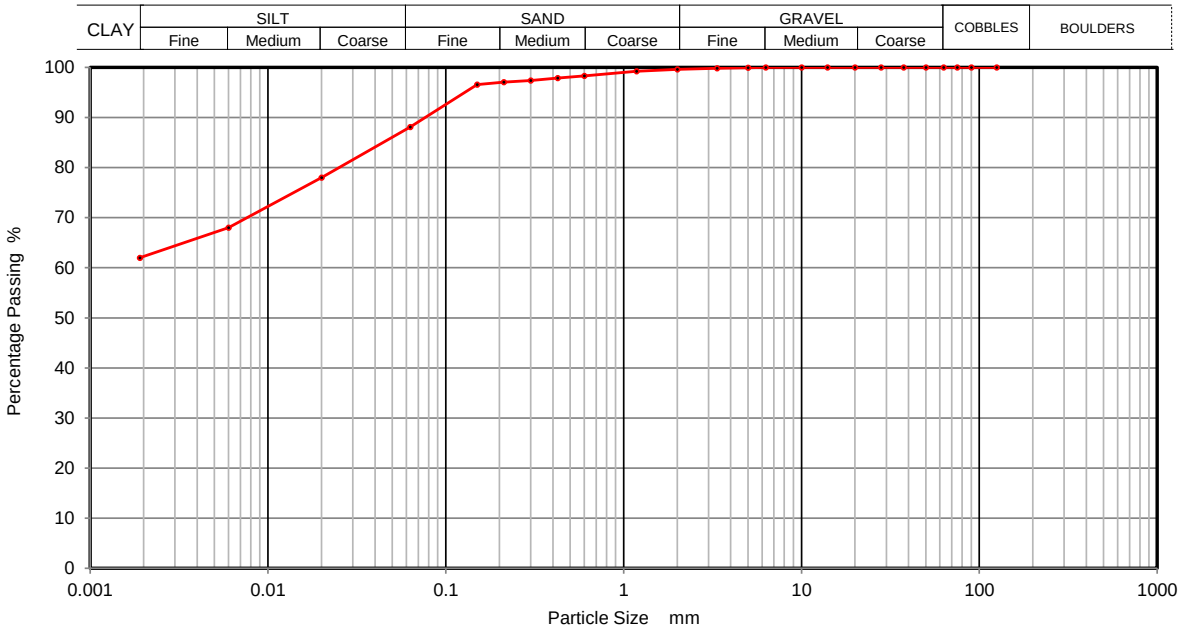
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	HP_TP_05
Site Name	Future Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	3.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	78
90	100	0.0060	68
75	100	0.0020	62
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	98		
0.3	97		
0.212	97		
0.15	97		
0.063	88		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	12
Silt	26
Clay	62

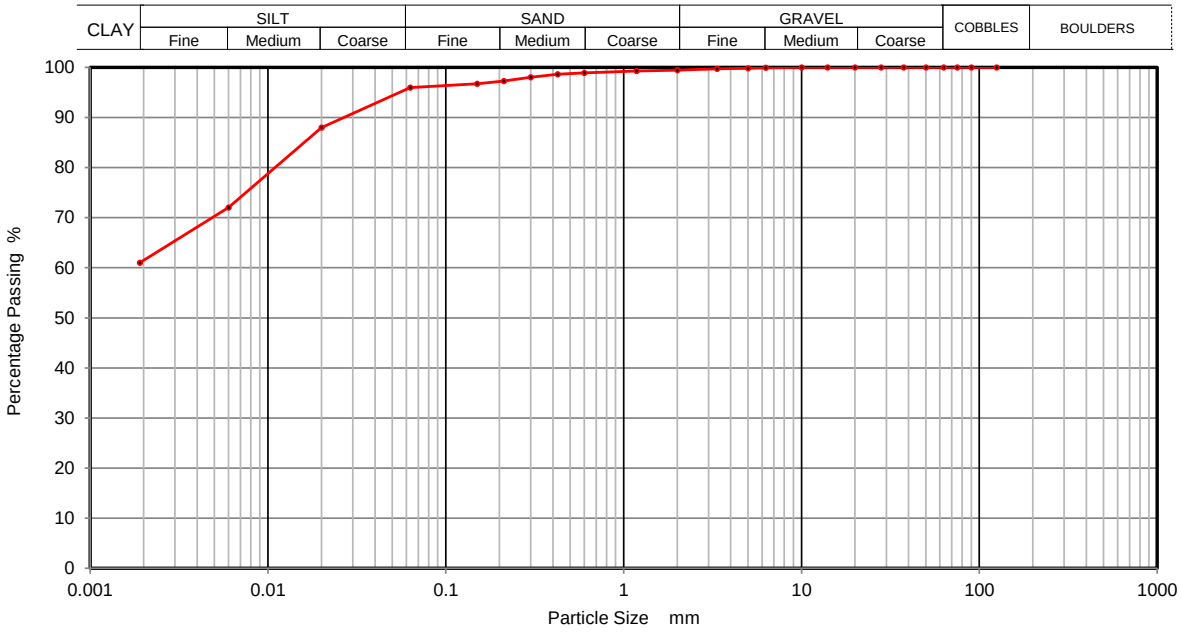
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	HP_TP_06
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly fine to medium gravelly fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	88
90	100	0.0060	72
75	100	0.0020	61
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	97		
0.15	97		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	3
Silt	35
Clay	61

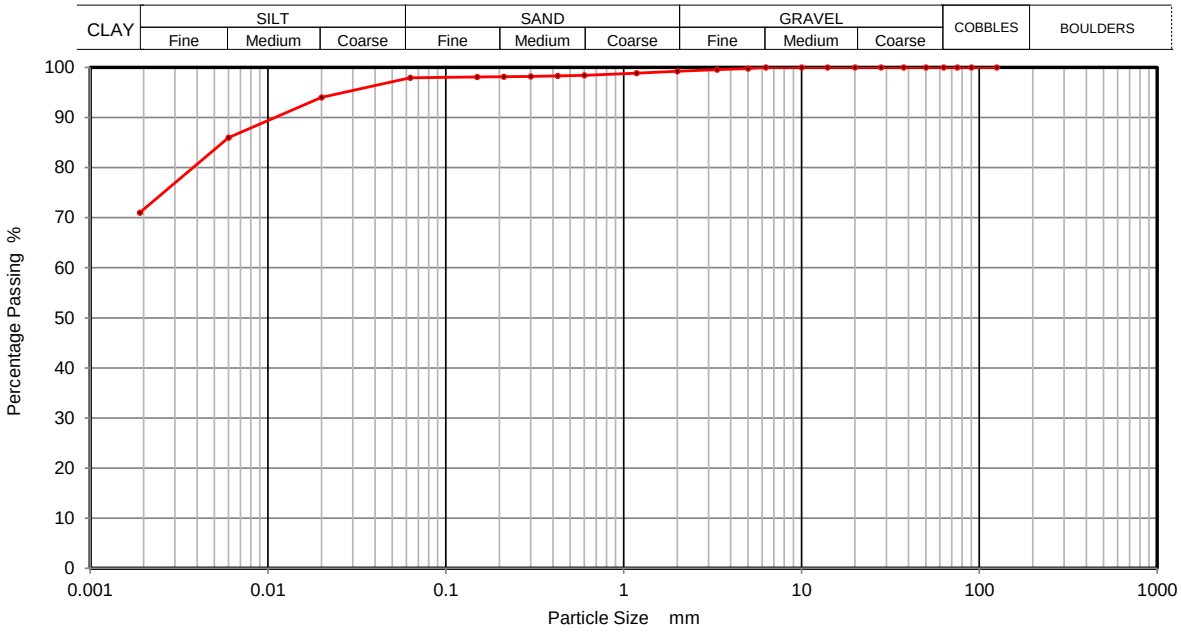
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	HP_TP_06
Site Name	Future Chippenham	Sample No.	8
Soil Description	Grey slightly gravelly slightly sandy silty CLAY	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	94
90	100	0.0060	86
75	100	0.0020	71
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	98		
0.3	98		
0.212	98		
0.15	98		
0.063	98		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	1
Silt	27
Clay	71

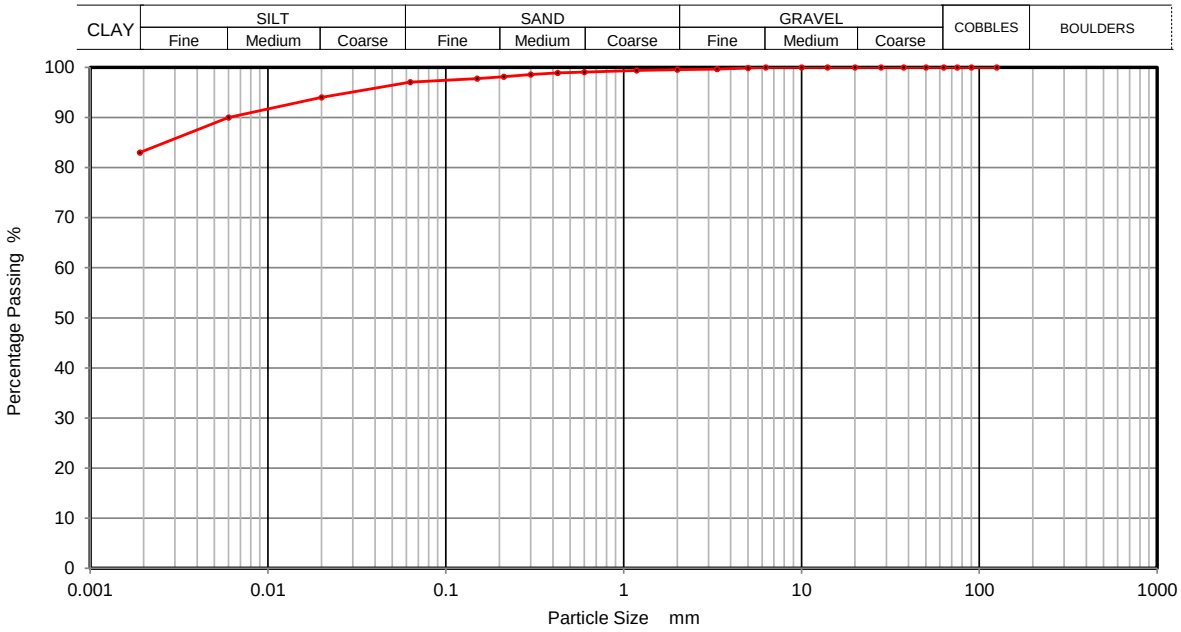
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	HP_TP_07
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	94
90	100	0.0060	90
75	100	0.0020	83
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	99		
0.3	99		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	3
Silt	14
Clay	83

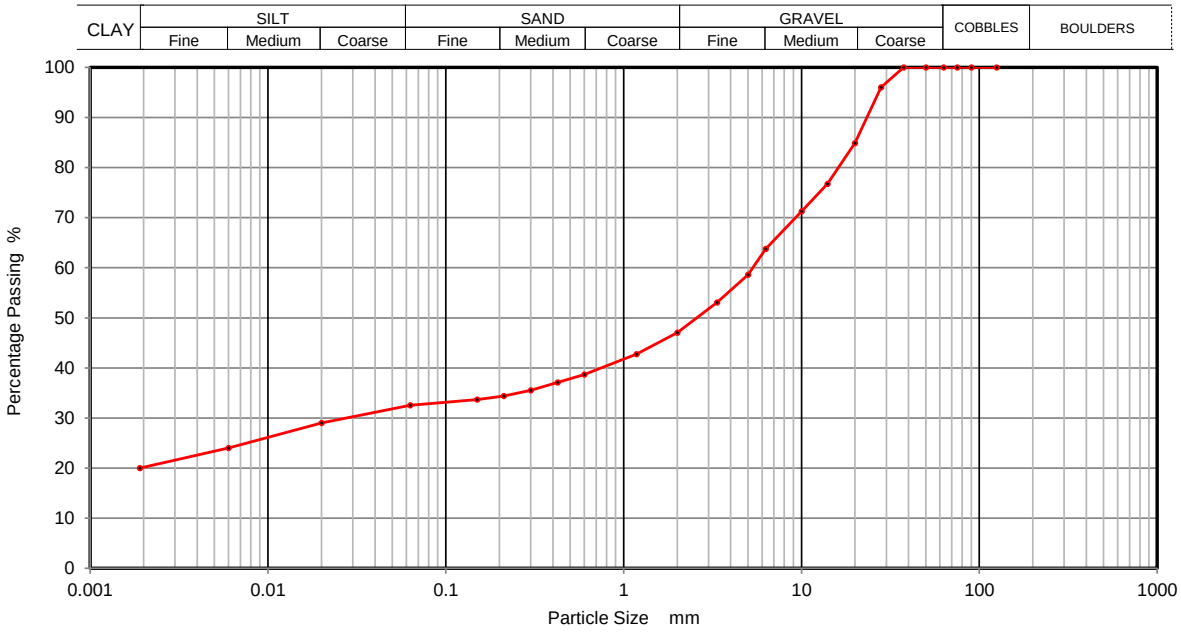
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	HP_TP_07
Site Name	Future Chippenham	Sample No.	
Soil Description	Brown chalky silty fine to coarse sandy clayey fine to coarse GRAVEL	Depth Top	3.40
		Depth Base	
Date Tested	27/05/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	29
90	100	0.0060	24
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	96		
20	85		
14	77		
10	71		
6.3	64		
5	59		
3.35	53		
2	47		
1.18	43		
0.6	39		
0.425	37		
0.3	36		
0.212	34		
0.15	34		
0.063	33		

Sample Proportions	% dry mass
Cobbles	0
Gravel	53
Sand	14
Silt	13
Clay	20

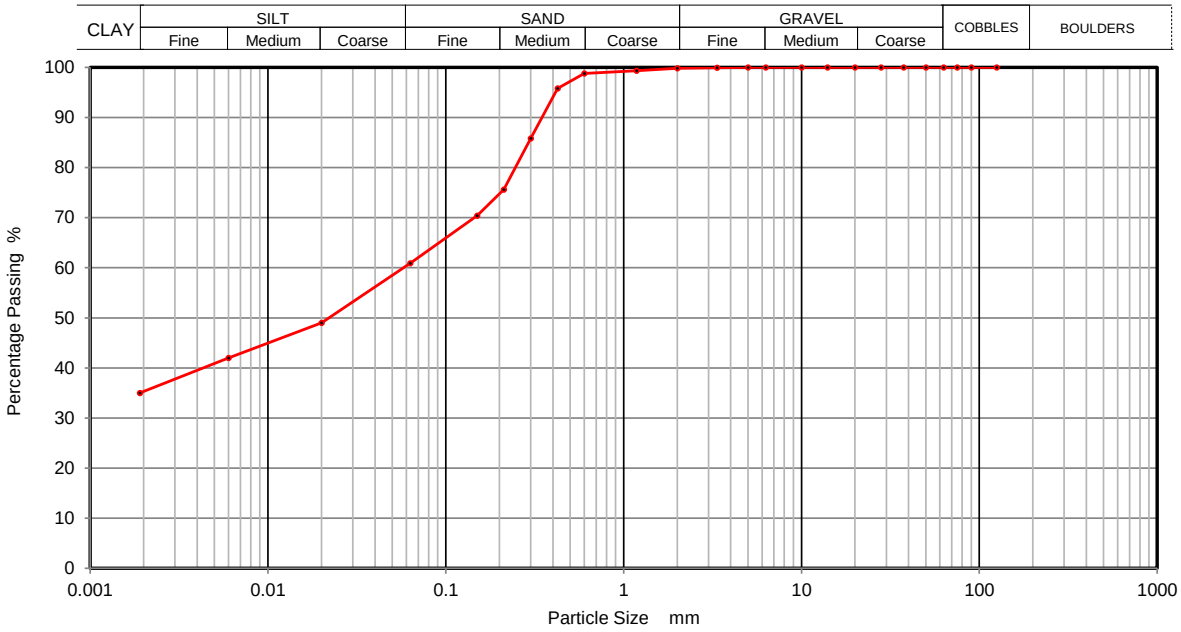
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	PLT008
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	0.55
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	49
90	100	0.0060	42
75	100	0.0020	35
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	96		
0.3	86		
0.212	76		
0.15	70		
0.063	61		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	39
Silt	26
Clay	35

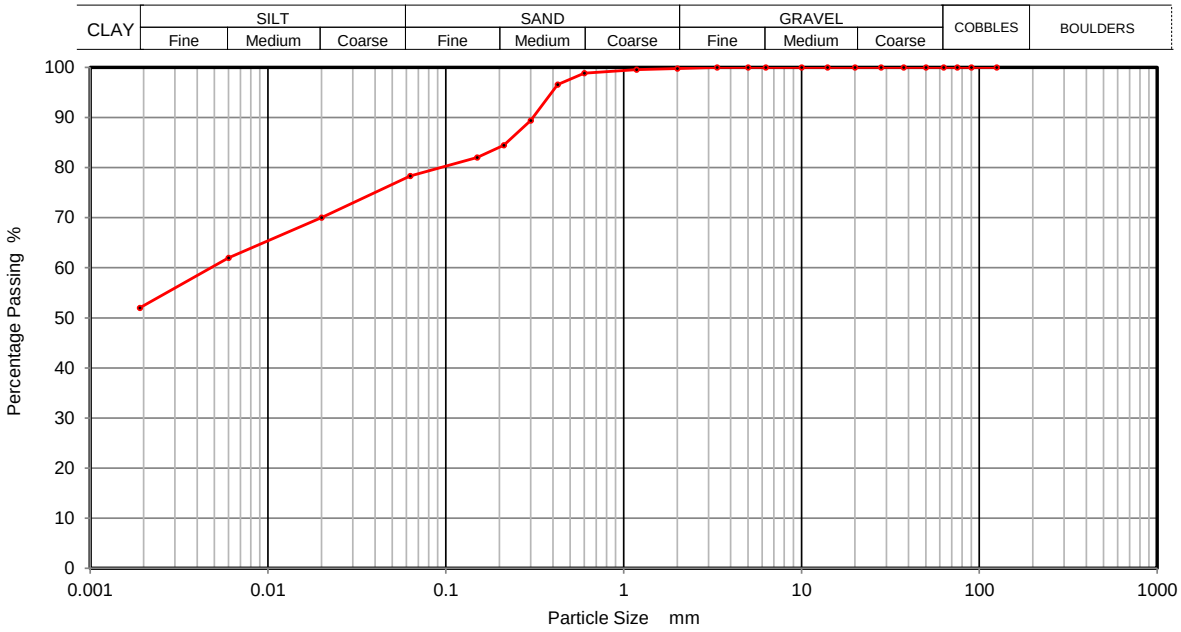
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	PLT009
Site Name	Future Chippenham	Sample No.	1
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	0.55
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	70
90	100	0.0060	62
75	100	0.0020	52
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	97		
0.3	89		
0.212	84		
0.15	82		
0.063	78		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	22
Silt	26
Clay	52

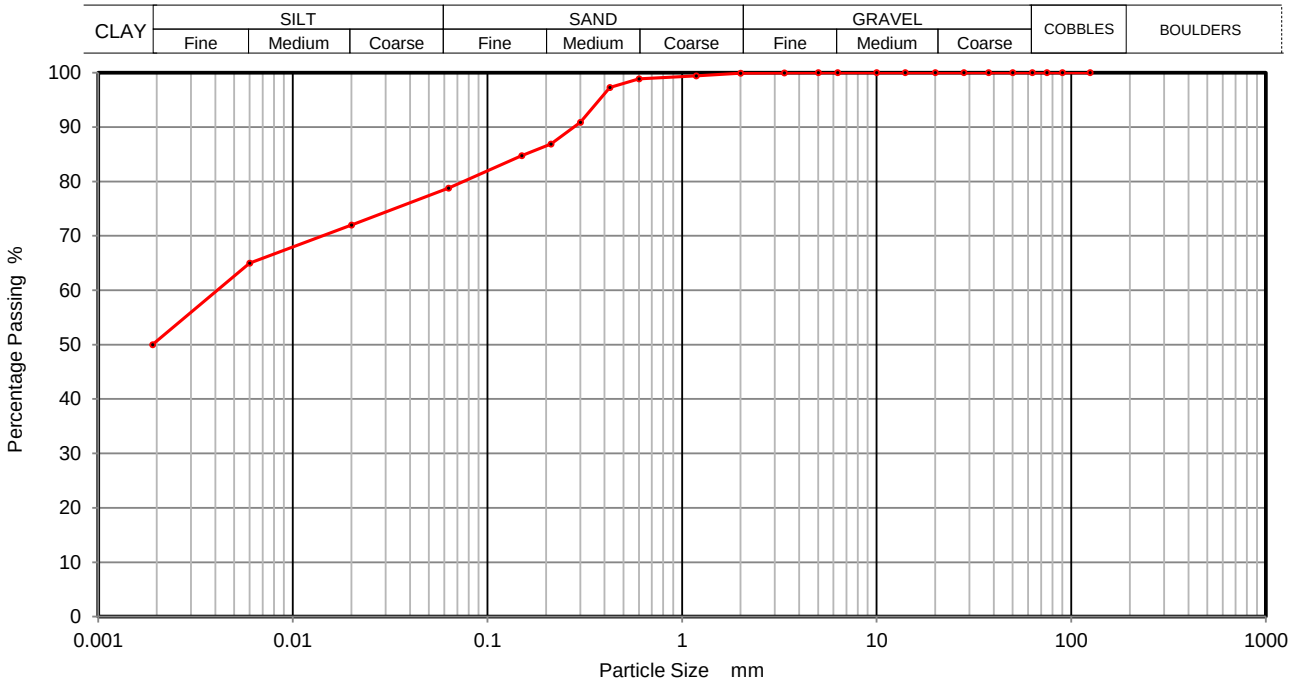
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	PLT012
Site Name	Future Chippenham	Sample No.	1
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	0.55
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	72
90	100	0.0060	65
75	100	0.0020	50
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	97		
0.3	91		
0.212	87		
0.15	85		
0.063	79		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	21
Silt	29
Clay	50

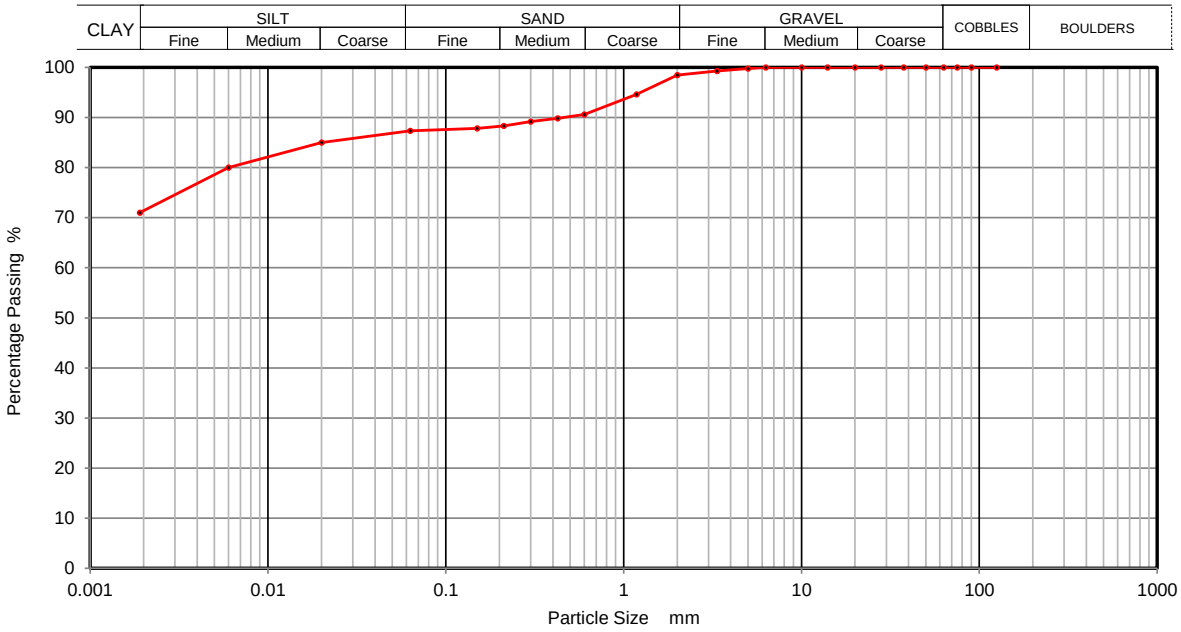
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	30/05/2022	Richard John	
David	Approved	31/05/2022	Paul Evans	

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2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	PWB_BH_05
Site Name	Future Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	80
75	100	0.0020	71
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98		
1.18	95		
0.6	91		
0.425	90		
0.3	89		
0.212	88		
0.15	88		
0.063	87		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	11
Silt	16
Clay	71

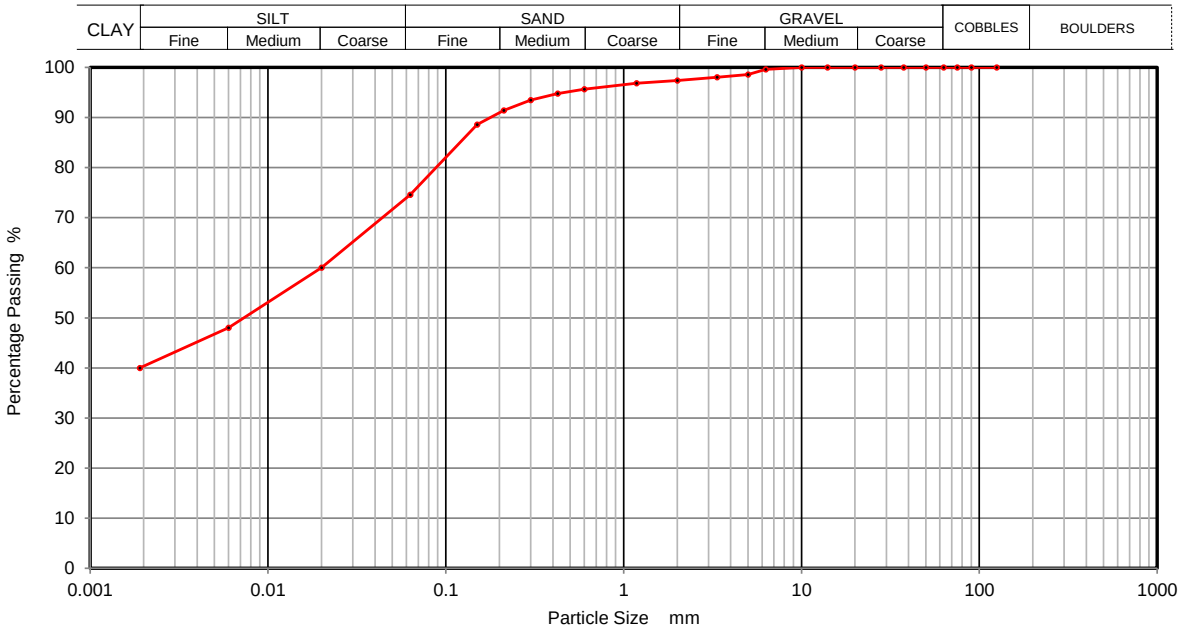
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP004
Site Name	Future Chippenham	Sample No.	5
Soil Description	Brown slightly fine to medium gravelly fine to coarse sandy silty CLAY	Depth Top	2.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	60
90	100	0.0060	48
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	98		
2	97		
1.18	97		
0.6	96		
0.425	95		
0.3	93		
0.212	91		
0.15	89		
0.063	75		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	22
Silt	35
Clay	40

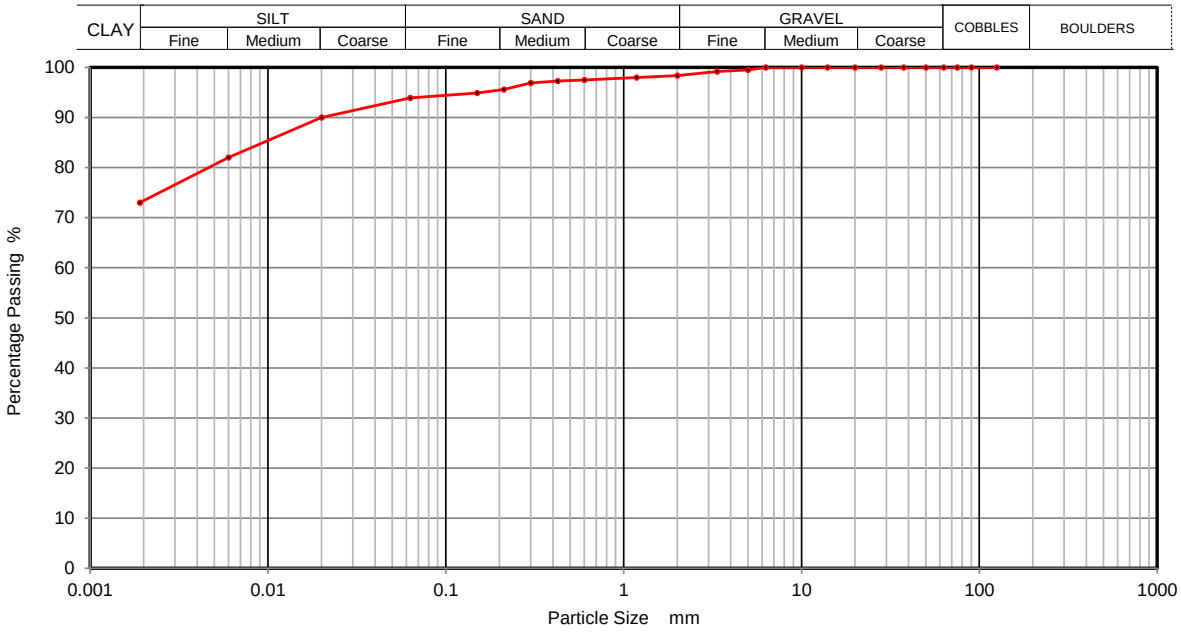
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP004
Site Name	Future Chippenham	Sample No.	8
Soil Description	Brown slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	90
90	100	0.0060	82
75	100	0.0020	73
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	98		
1.18	98		
0.6	97		
0.425	97		
0.3	97		
0.212	96		
0.15	95		
0.063	94		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	4
Silt	21
Clay	73

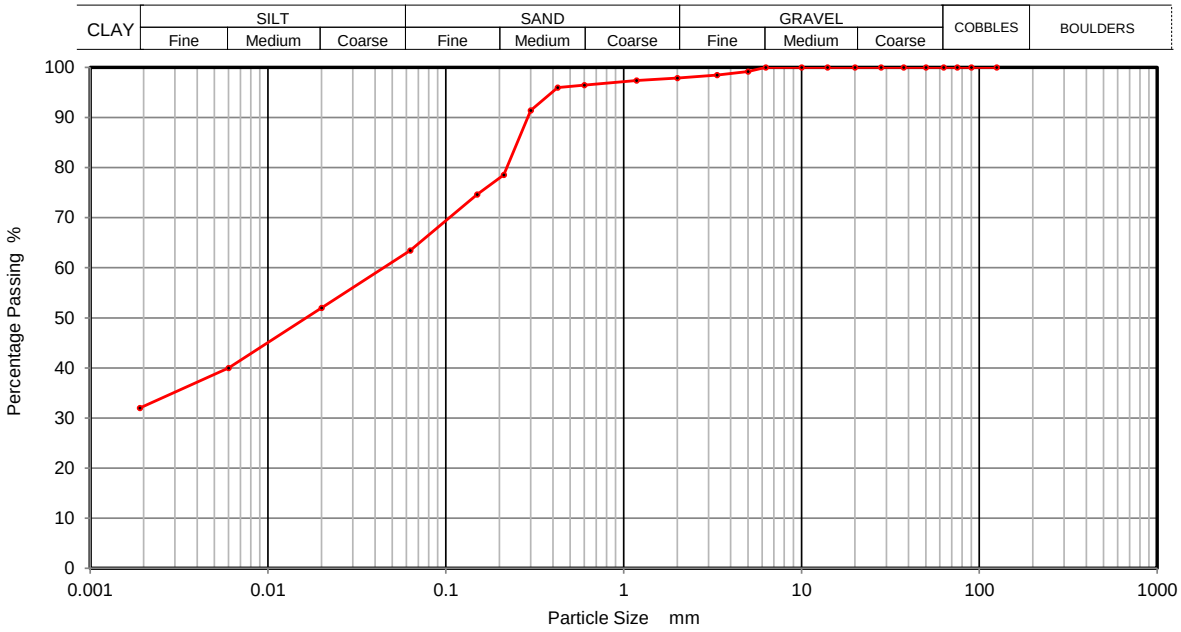
Remarks

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David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP005
Site Name	Future Chippenham	Sample No.	5
Soil Description	Grey slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	2.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	52
90	100	0.0060	40
75	100	0.0020	32
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	98		
2	98		
1.18	97		
0.6	96		
0.425	96		
0.3	91		
0.212	79		
0.15	75		
0.063	63		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	35
Silt	31
Clay	32

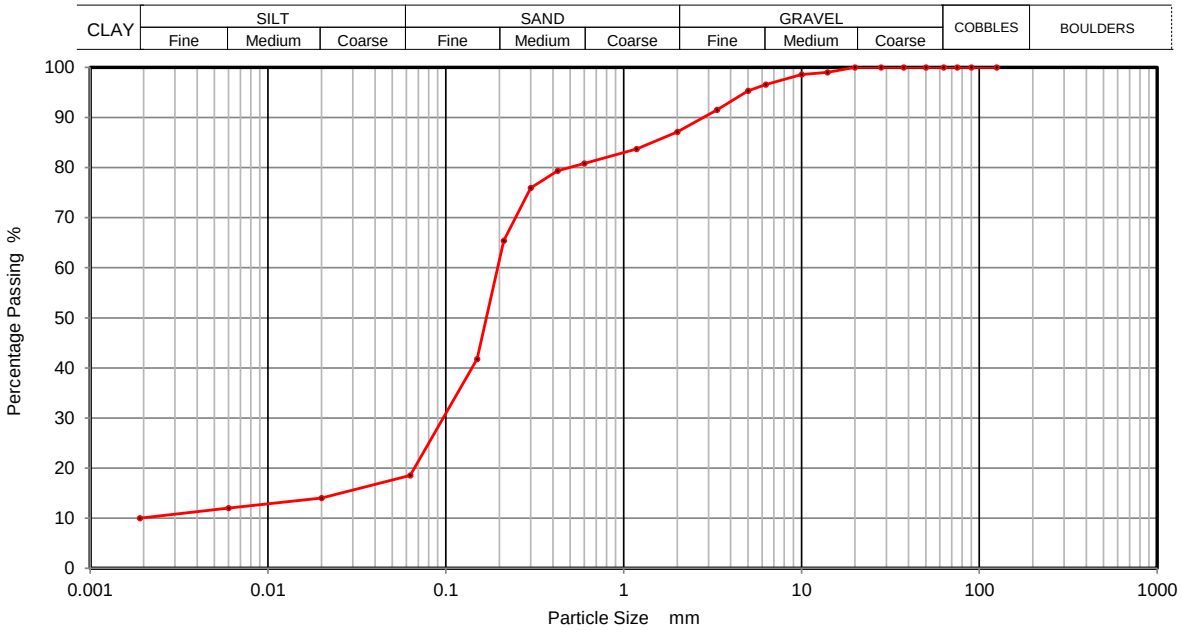
Remarks

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David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP006
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown silty clayey fine to medium gravelly fine to coarse SAND	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	14
90	100	0.0060	12
75	100	0.0020	10
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	97		
5	95		
3.35	92		
2	87		
1.18	84		
0.6	81		
0.425	79		
0.3	76		
0.212	65		
0.15	42		
0.063	19		

Sample Proportions	% dry mass
Cobbles	0
Gravel	13
Sand	68
Silt	9
Clay	10

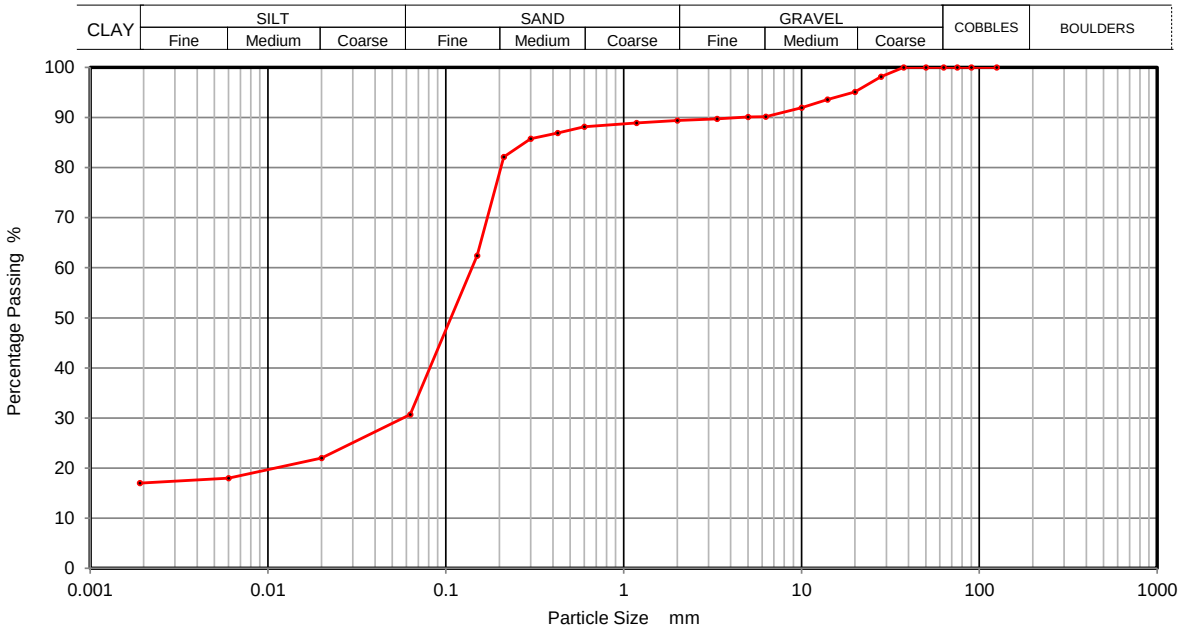
Remarks

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David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP006
Site Name	Future Chippenham	Sample No.	9
Soil Description	Grey fine to coarse gravelly silty clayey fine to coarse SAND	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	22
90	100	0.0060	18
75	100	0.0020	17
63	100		
50	100		
37.5	100		
28	98		
20	95		
14	94		
10	92		
6.3	90		
5	90		
3.35	90		
2	89		
1.18	89		
0.6	88		
0.425	87		
0.3	86		
0.212	82		
0.15	62		
0.063	31		

Sample Proportions	% dry mass
Cobbles	0
Gravel	11
Sand	58
Silt	14
Clay	17

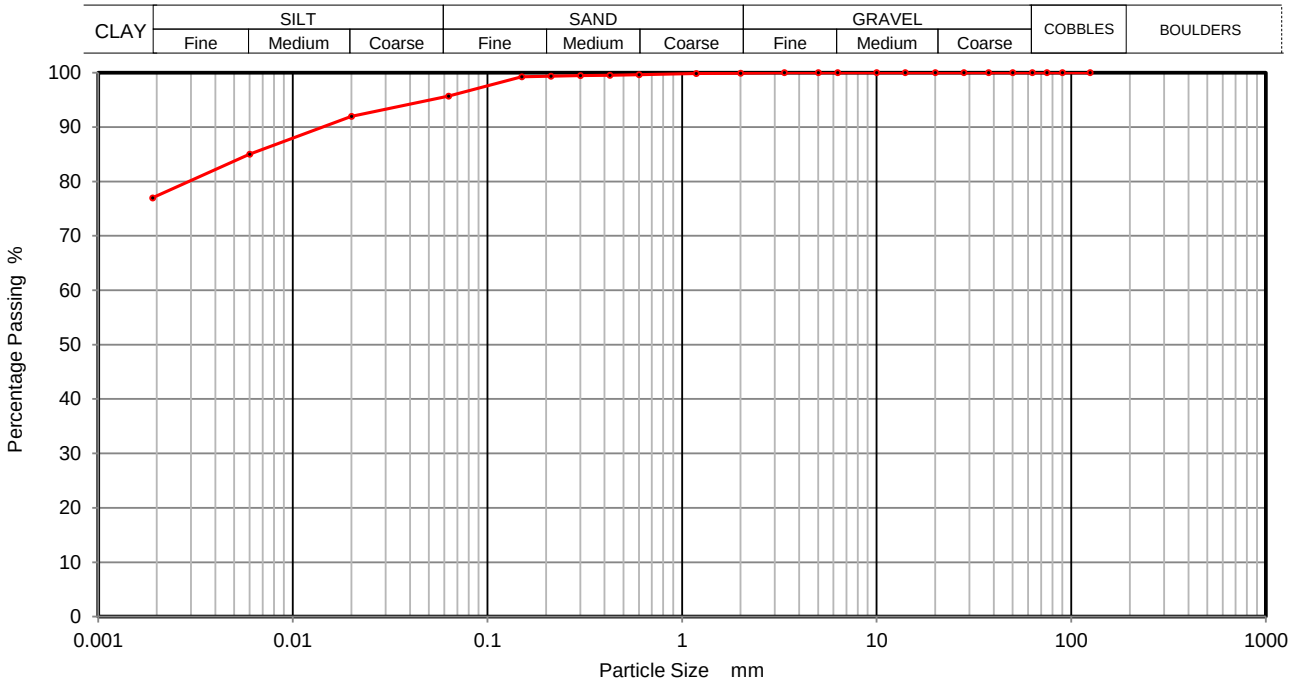
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	TP006
Site Name	Future Chippenham	Sample No.	13
Soil Description	Grey slightly sandy silty CLAY	Depth Top	5.90
		Depth Base	
Date Tested	27/05/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	85
75	100	0.0020	77
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	19
Clay	77

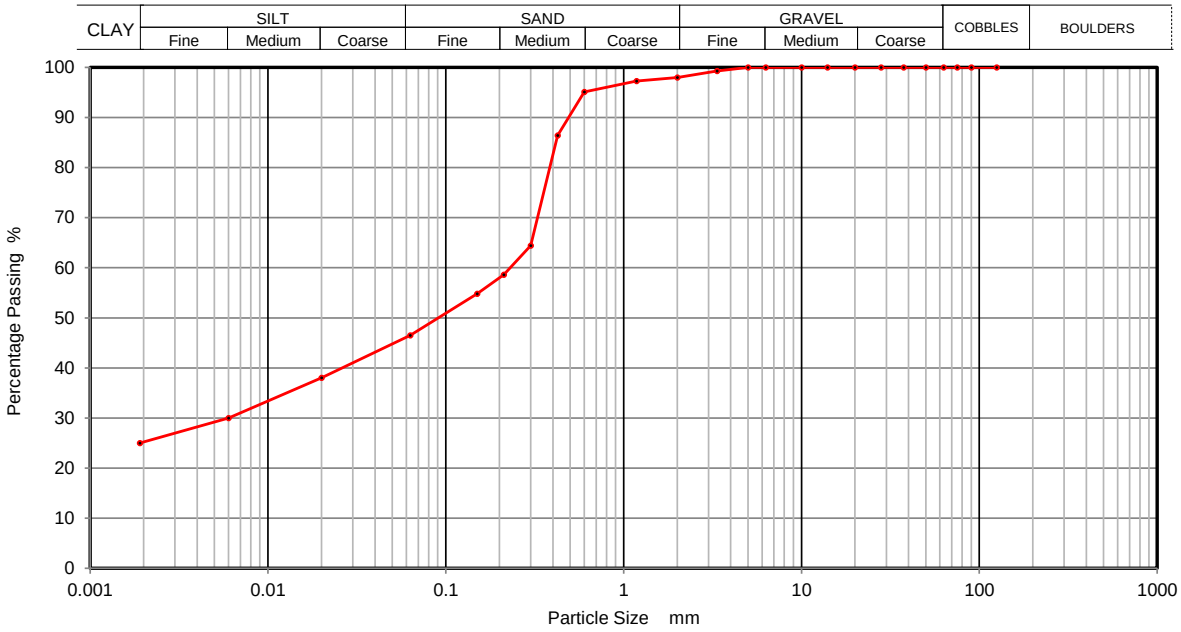
Remarks

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Operator	Checked	30/05/2022	Richard John	
David	Approved	31/05/2022	Paul Evans	D P Evans

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP007
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	38
90	100	0.0060	30
75	100	0.0020	25
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98		
1.18	97		
0.6	95		
0.425	86		
0.3	64		
0.212	59		
0.15	55		
0.063	46		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	52
Silt	21
Clay	25

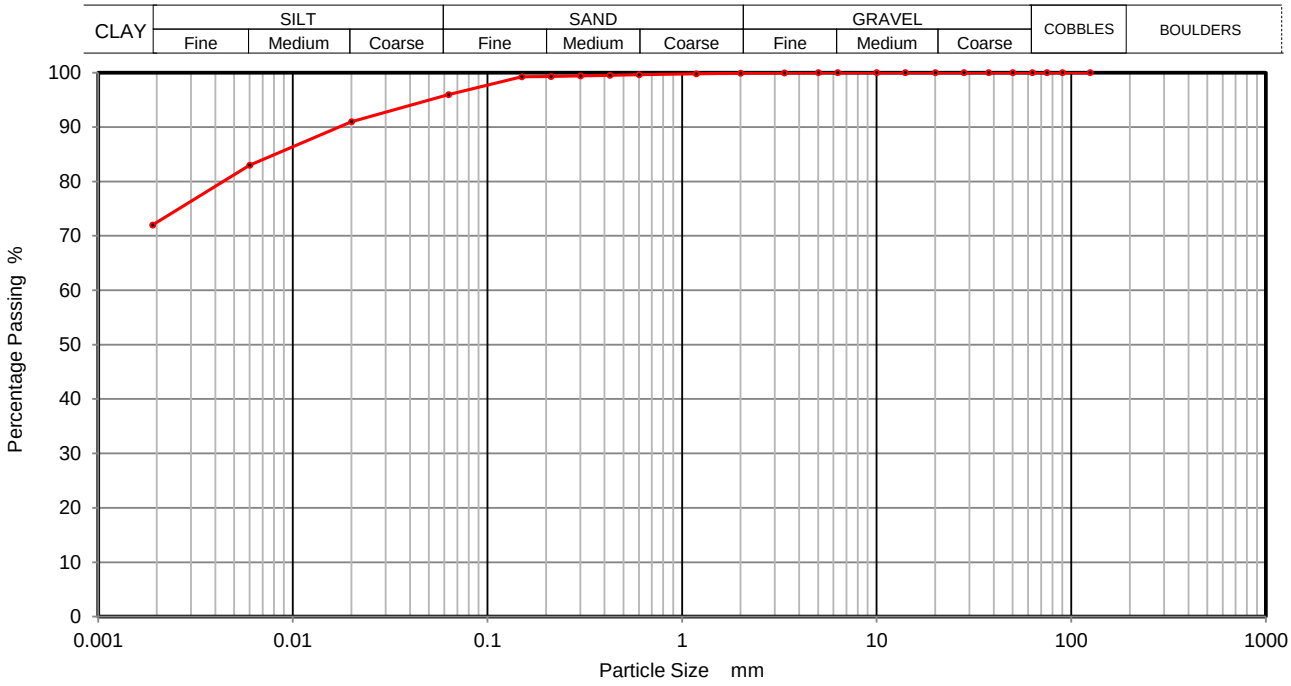
Remarks

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David	Approved	30/05/2022	Paul Evans	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	TP007
Site Name	Future Chippenham	Sample No.	8
Soil Description	Grey slightly sandy silty CLAY	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	91
90	100	0.0060	83
75	100	0.0020	72
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	24
Clay	72

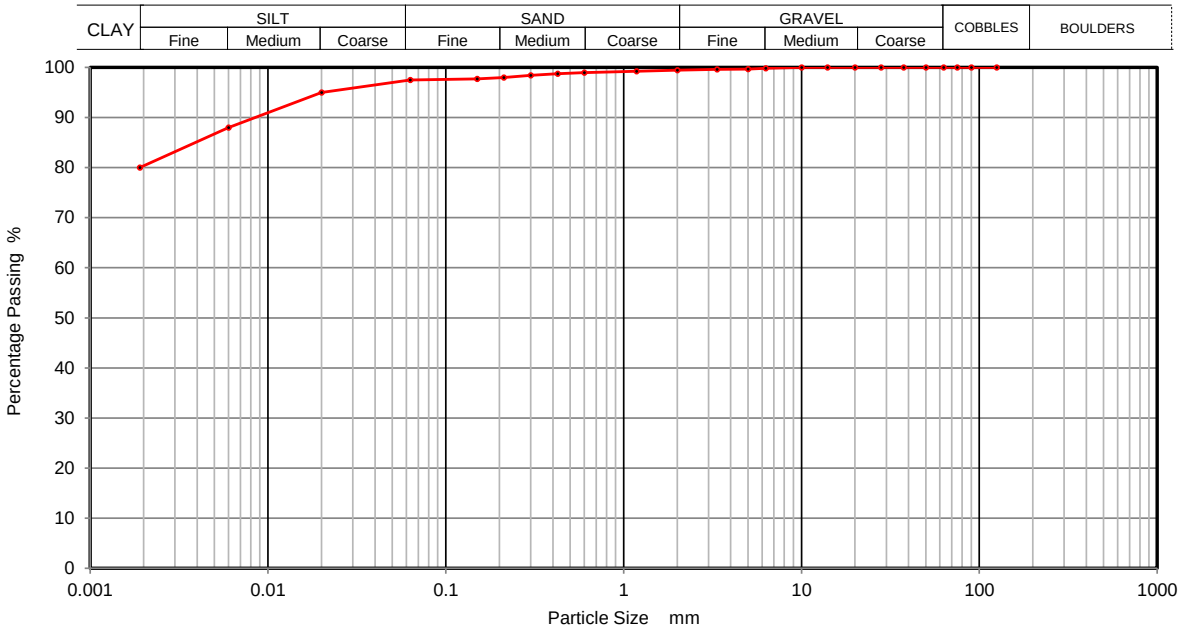
Remarks

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Operator	Checked	30/05/2022	Richard John	
David	Approved	31/05/2022	Paul Evans	

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	TP008
Site Name	Future Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	88
75	100	0.0020	80
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	98		
0.063	98		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	1
Silt	18
Clay	80

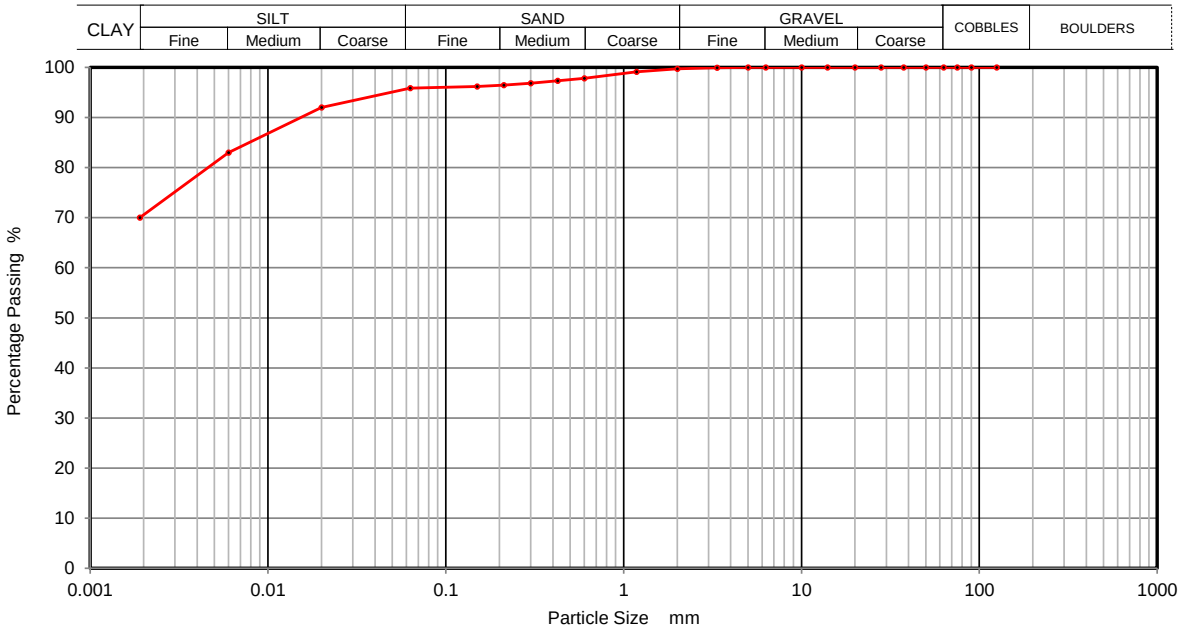
Remarks

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Operator
David Edwards

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	TP008
Site Name	Future Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	3.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	83
75	100	0.0020	70
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	97		
0.212	96		
0.15	96		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	26
Clay	70

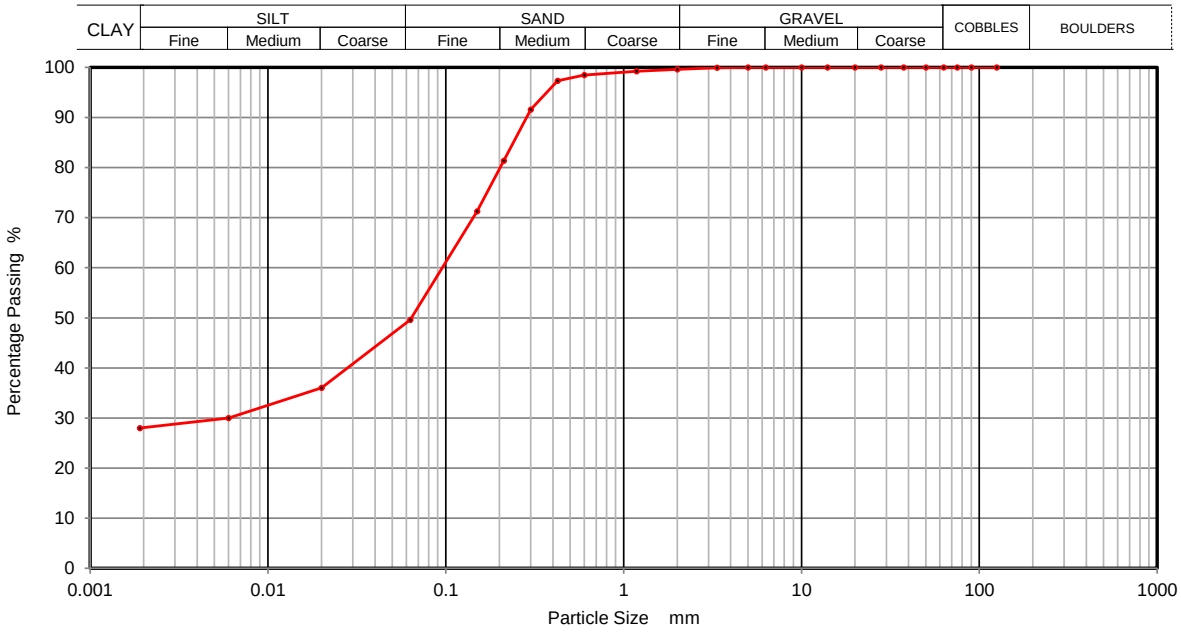
Remarks

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Operator
David Edwards

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP009
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	36
90	100	0.0060	30
75	100	0.0020	28
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	92		
0.212	81		
0.15	71		
0.063	50		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	50
Silt	22
Clay	28

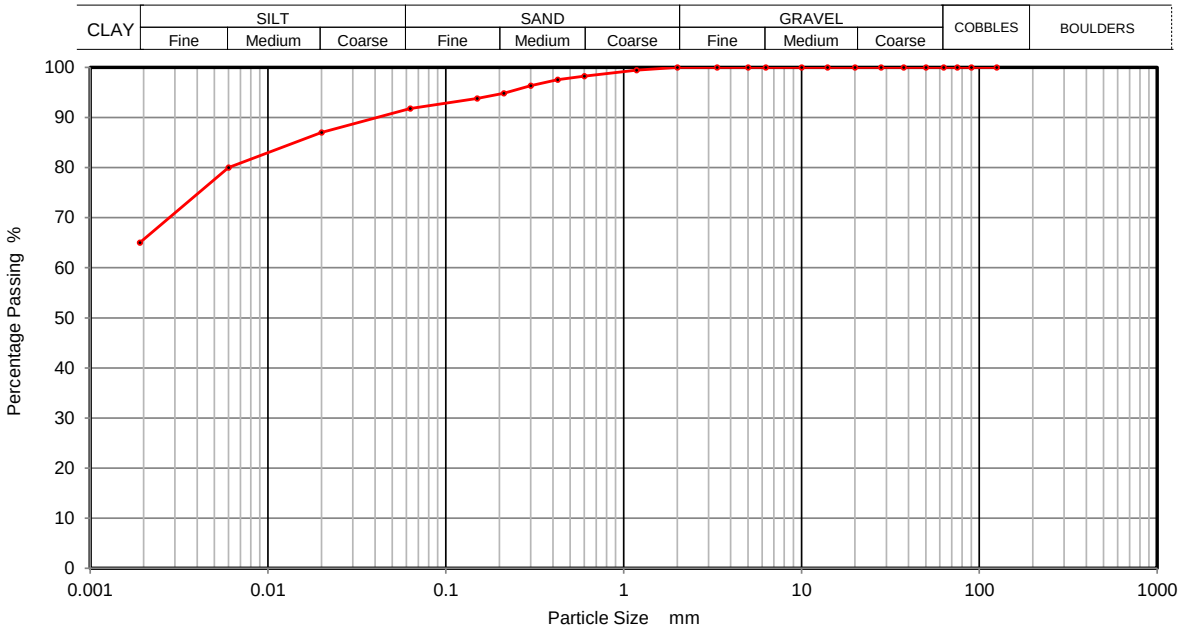
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	TP009
Site Name	Future Chippenham	Sample No.	5
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	2.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	87
90	100	0.0060	80
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	98		
0.3	96		
0.212	95		
0.15	94		
0.063	92		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	8
Silt	27
Clay	65

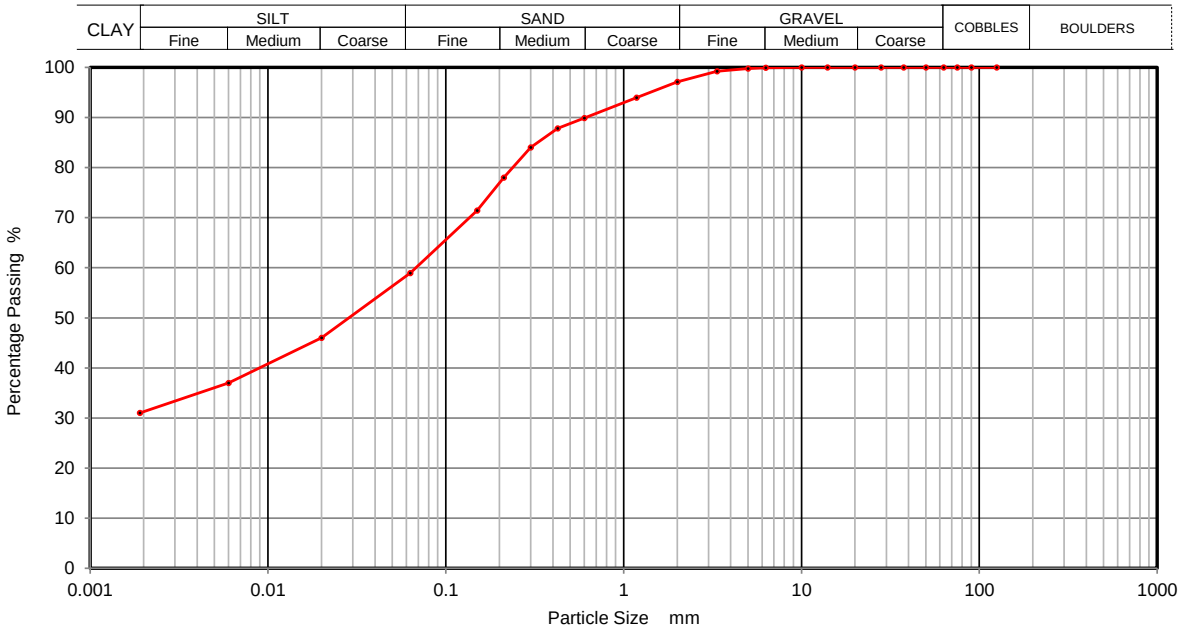
Remarks

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David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP010
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly fine to medium gravelly fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	46
90	100	0.0060	37
75	100	0.0020	31
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	97		
1.18	94		
0.6	90		
0.425	88		
0.3	84		
0.212	78		
0.15	71		
0.063	59		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	38
Silt	28
Clay	31

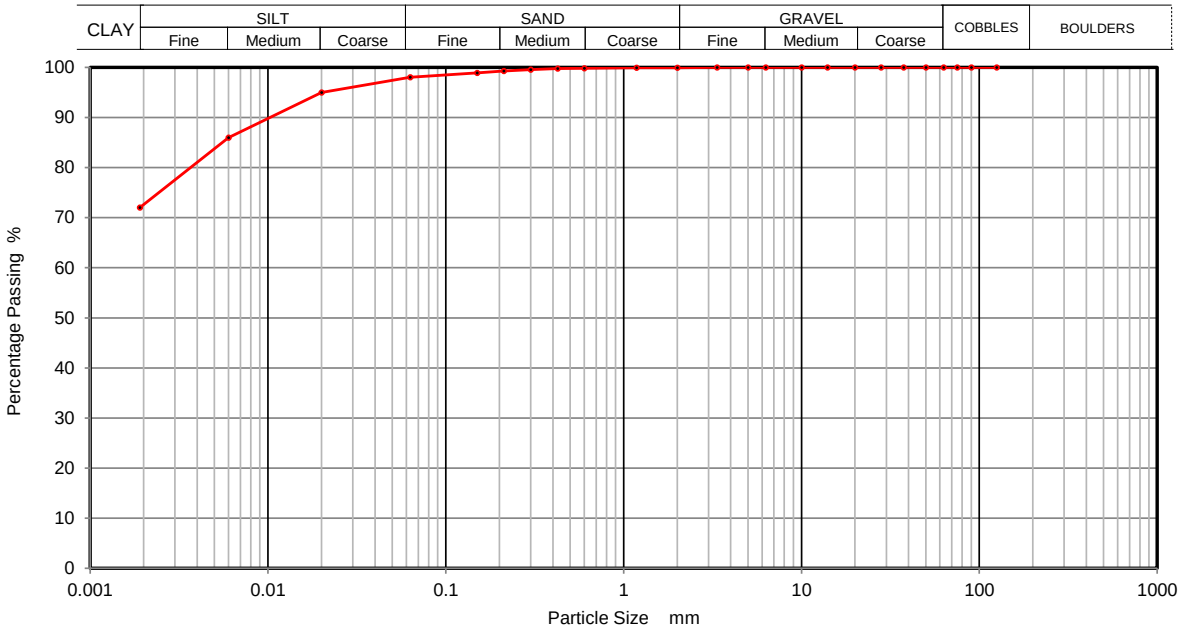
Remarks

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David	Approved	31/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP010
Site Name	Future Chippenham	Sample No.	4
Soil Description	Brown slightly sandy silty CLAY	Depth Top	2.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	86
75	100	0.0020	72
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	2
Silt	26
Clay	72

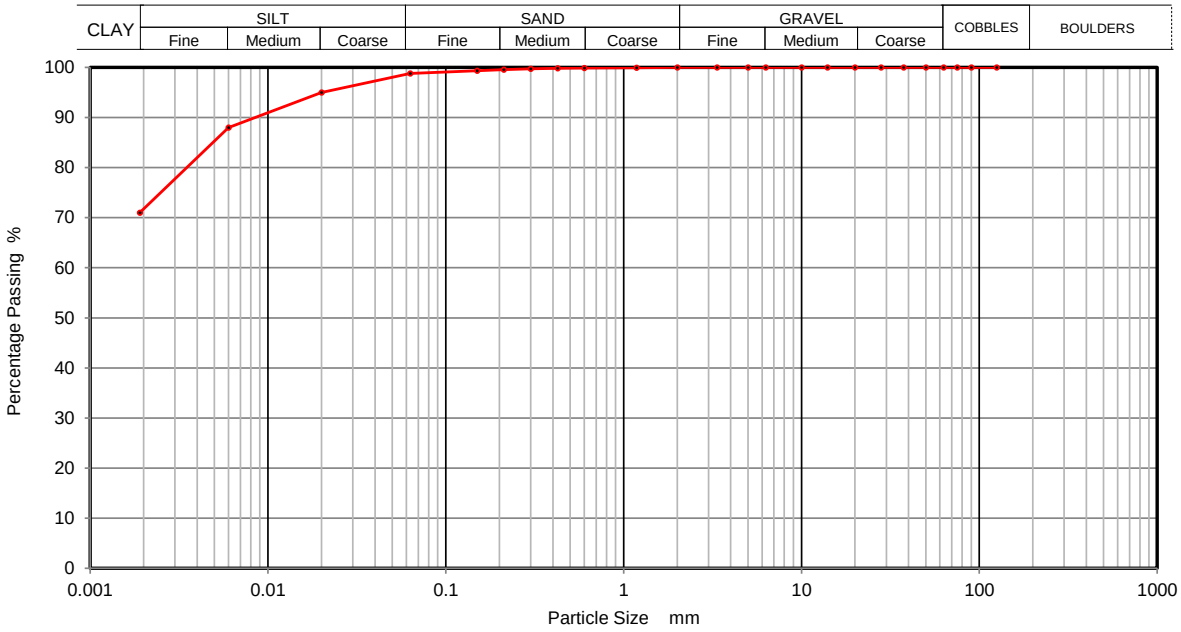
Remarks

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David	Approved	30/05/2022	Paul Evans	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	TP010
Site Name	Future Chippenham	Sample No.	6
Soil Description	Grey slightly sandy silty CLAY	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	88
75	100	0.0020	71
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	28
Clay	71

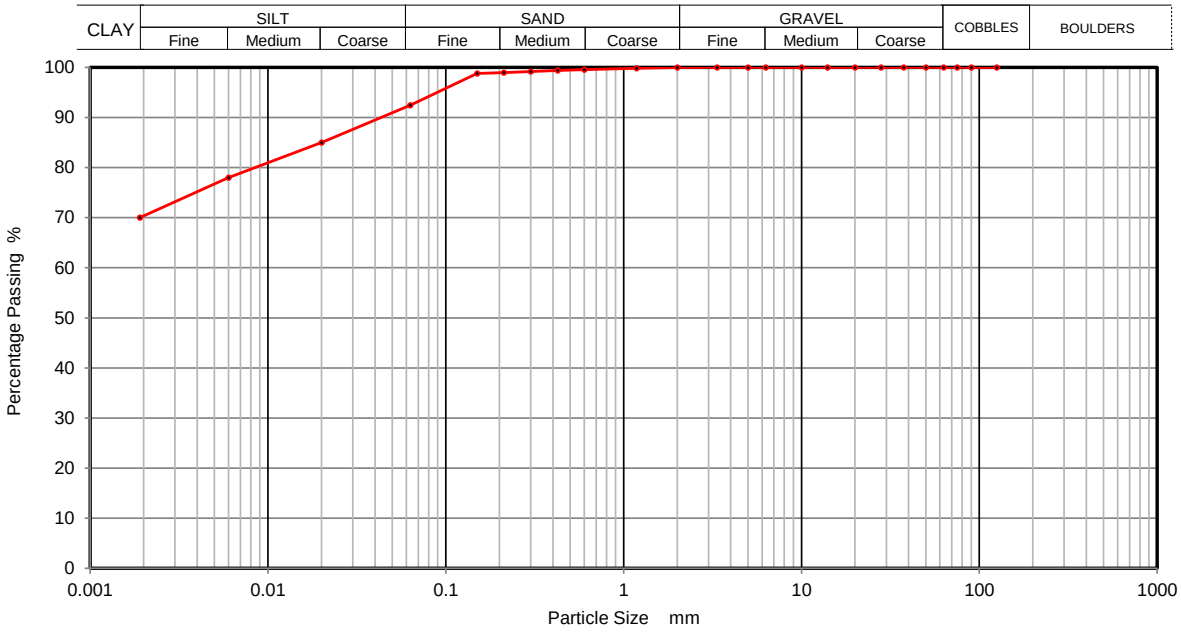
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP011
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	78
75	100	0.0020	70
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	92		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	8
Silt	22
Clay	70

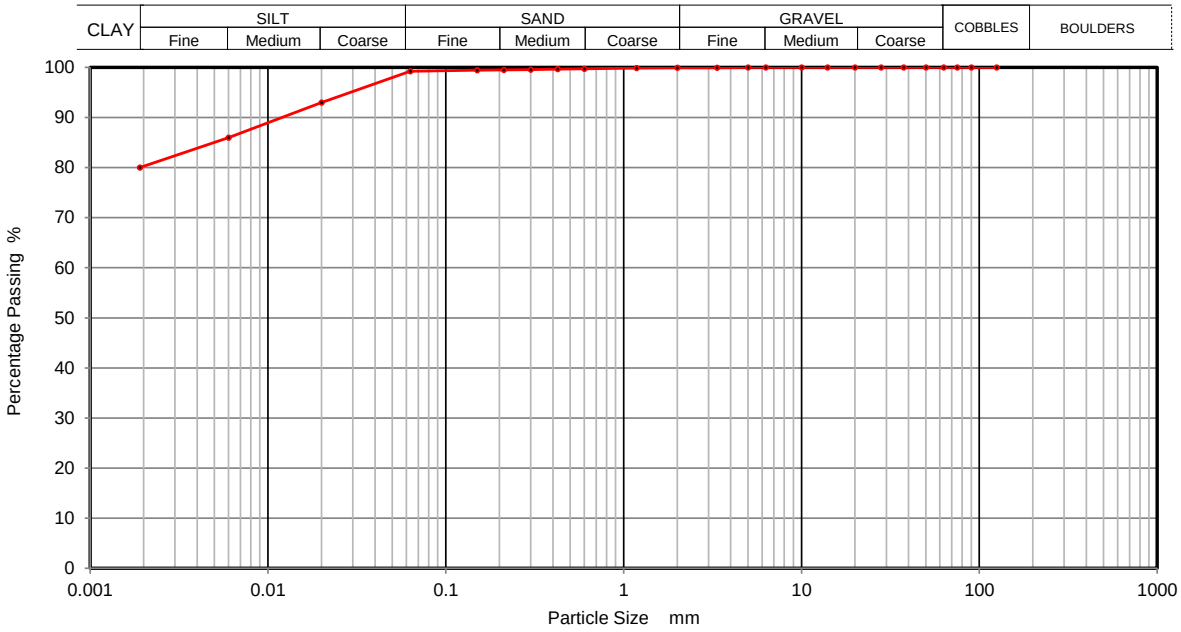
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	TP011
Site Name	Future Chippenham	Sample No.	8
Soil Description	Grey slightly sandy silty CLAY	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	93
90	100	0.0060	86
75	100	0.0020	80
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	19
Clay	80

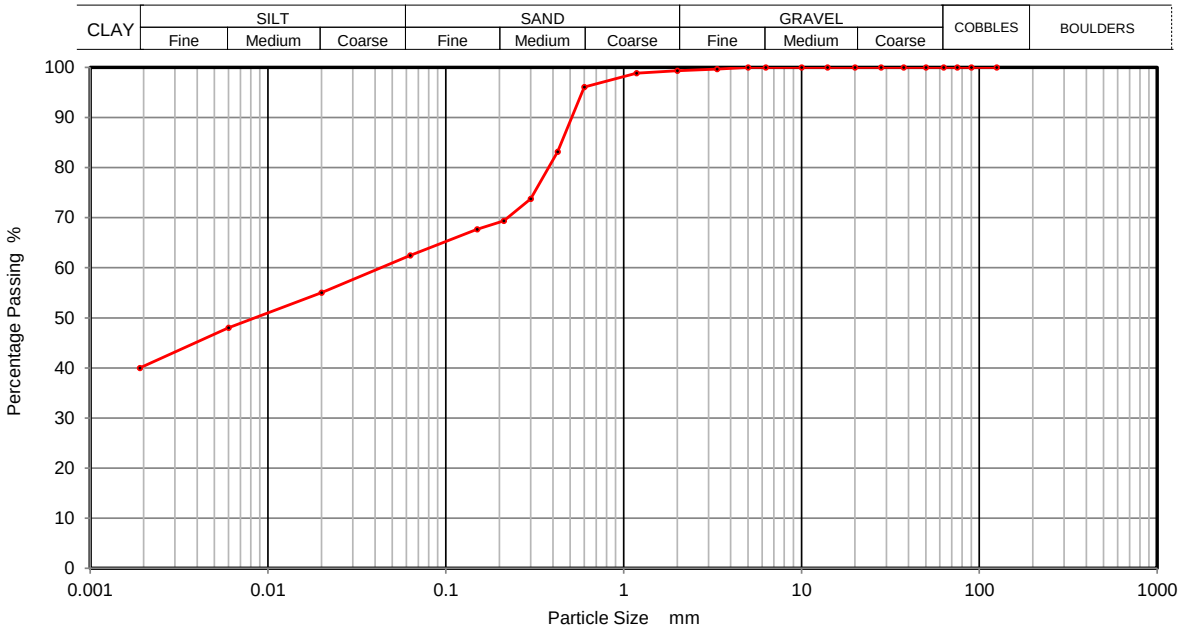
Remarks

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David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS001
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	55
90	100	0.0060	48
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	96		
0.425	83		
0.3	74		
0.212	69		
0.15	68		
0.063	62		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	37
Silt	22
Clay	40

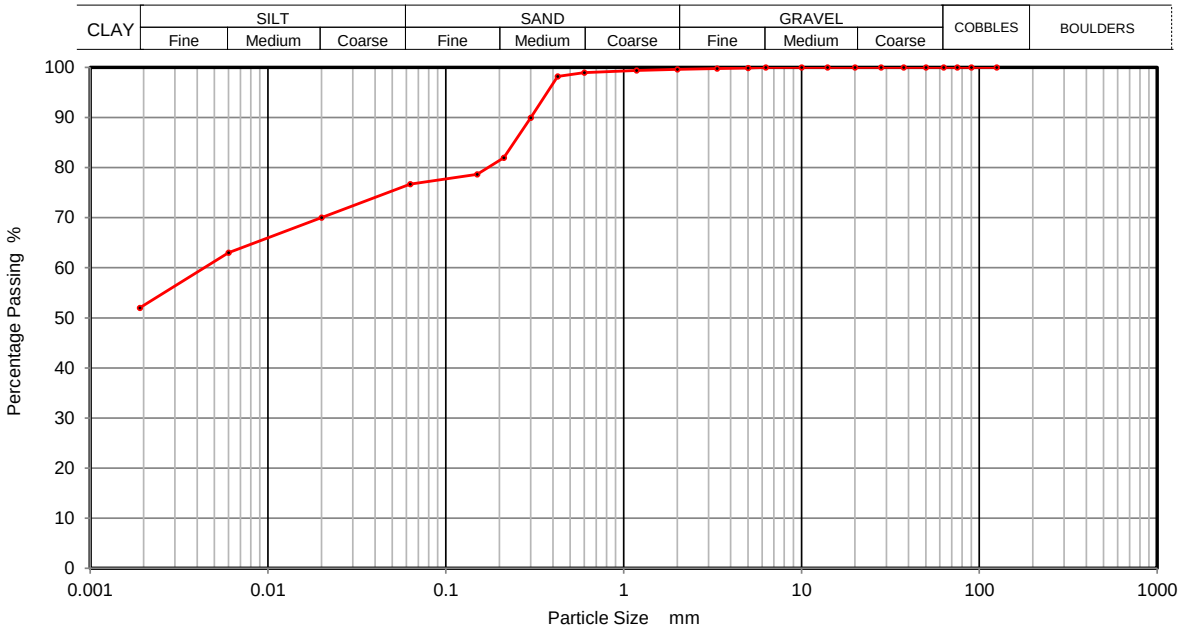
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS001
Site Name	Future Chippenham	Sample No.	7
Soil Description	Grey fine to coarse sandy silty CLAY	Depth Top	3.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	70
90	100	0.0060	63
75	100	0.0020	52
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	90		
0.212	82		
0.15	79		
0.063	77		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	23
Silt	25
Clay	52

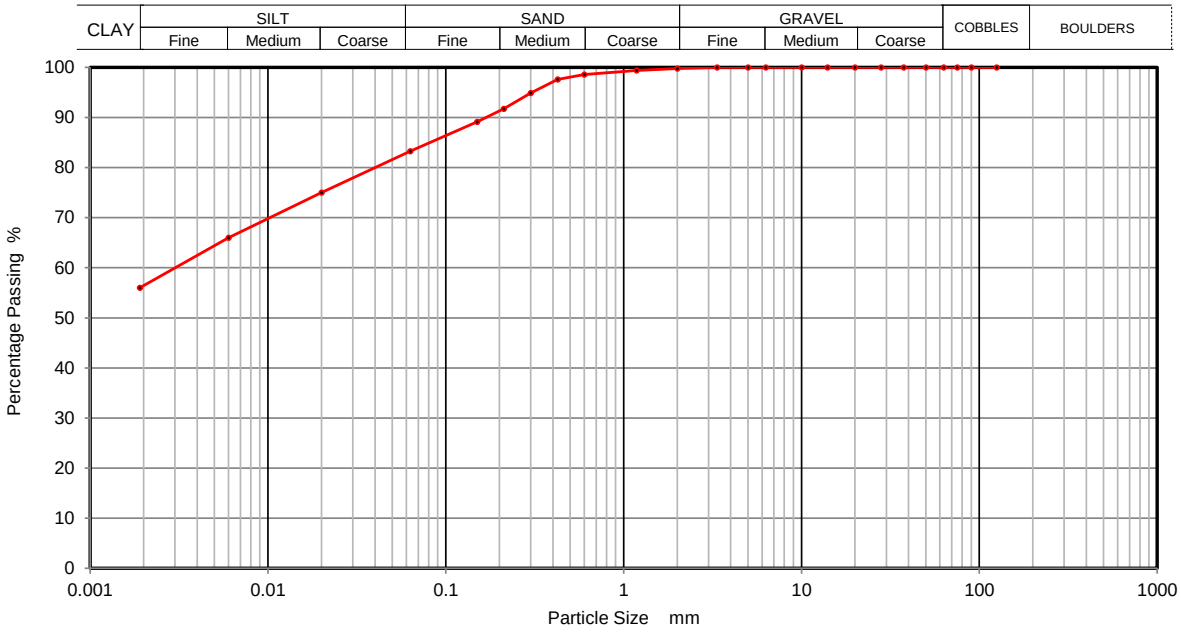
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS002
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	75
90	100	0.0060	66
75	100	0.0020	56
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	95		
0.212	92		
0.15	89		
0.063	83		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	17
Silt	27
Clay	56

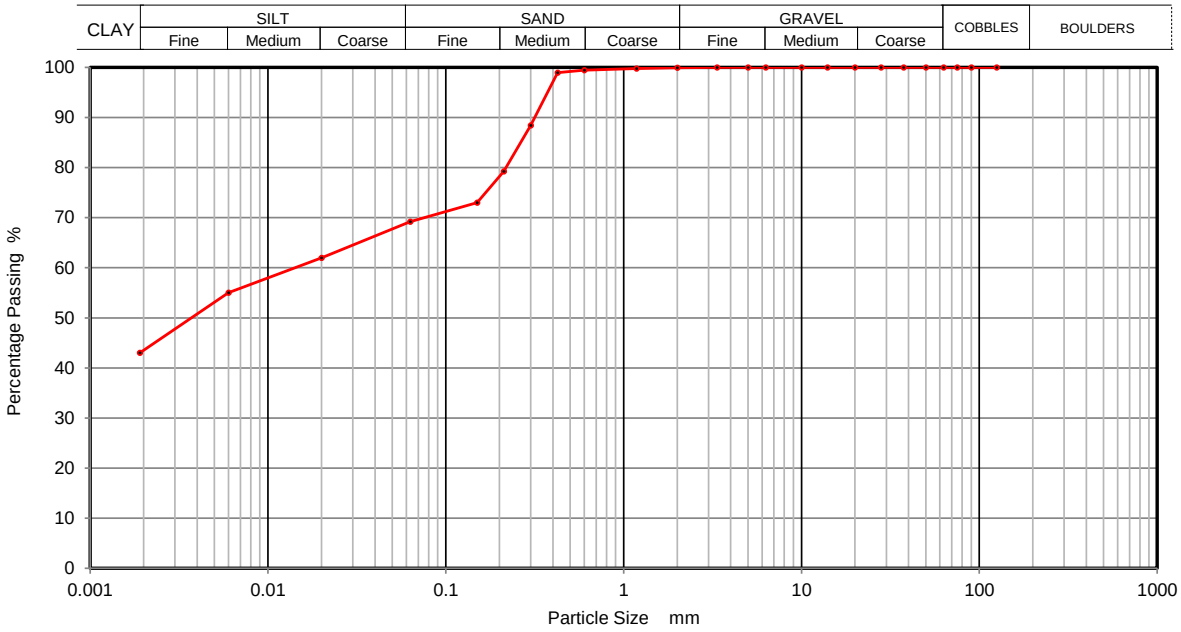
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS002
Site Name	Future Chippenham	Sample No.	9
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	3.80
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	62
90	100	0.0060	55
75	100	0.0020	43
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	88		
0.212	79		
0.15	73		
0.063	69		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	31
Silt	26
Clay	43

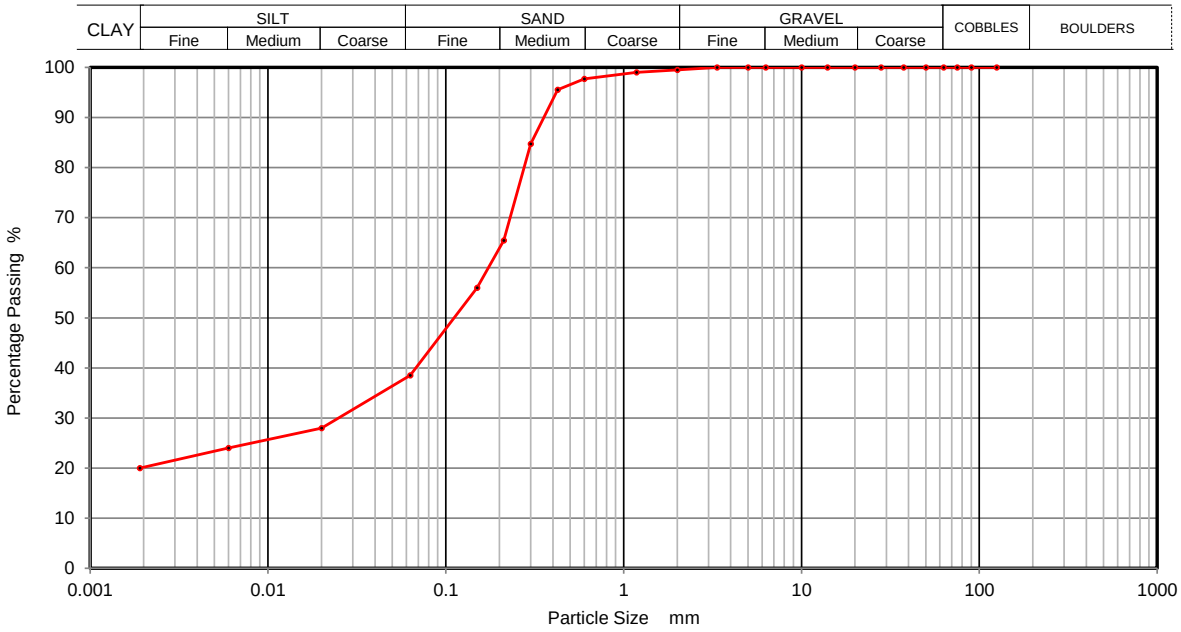
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS003A
Site Name	Future Chippenham	Sample No.	6
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	2.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	28
90	100	0.0060	24
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	96		
0.3	85		
0.212	65		
0.15	56		
0.063	39		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	61
Silt	19
Clay	20

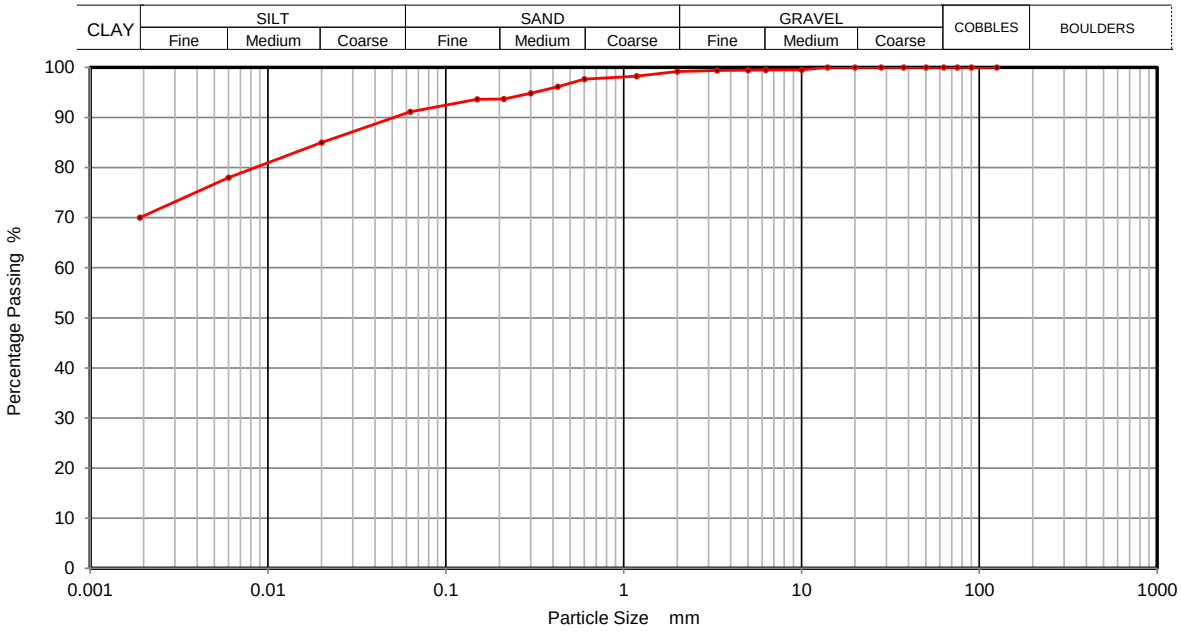
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS003A
Site Name	Future Chippenham	Sample No.	10
Soil Description	Grey slightly fine to medium gravelly fine to coarse sandy silty CLAY	Depth Top	4.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	78
75	100	0.0020	70
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	96		
0.3	95		
0.212	94		
0.15	94		
0.063	91		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	8
Silt	21
Clay	70

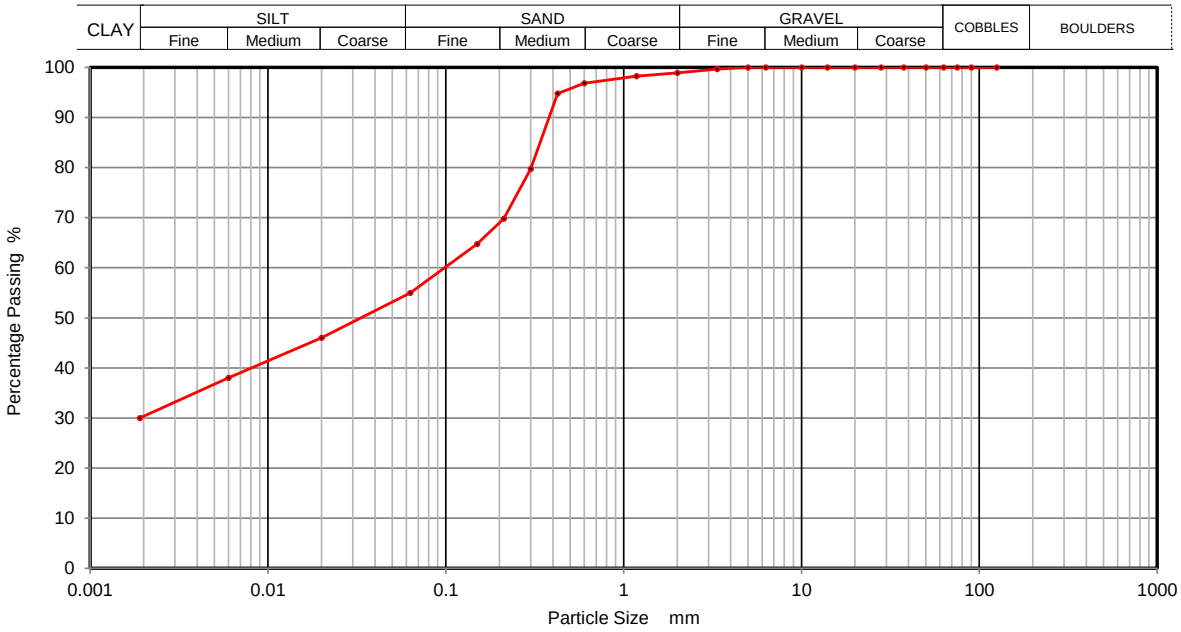
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS004
Site Name	Future Chippenham	Sample No.	3
Soil Description	Brown slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	46
90	100	0.0060	38
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	97		
0.425	95		
0.3	80		
0.212	70		
0.15	65		
0.063	55		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	44
Silt	25
Clay	30

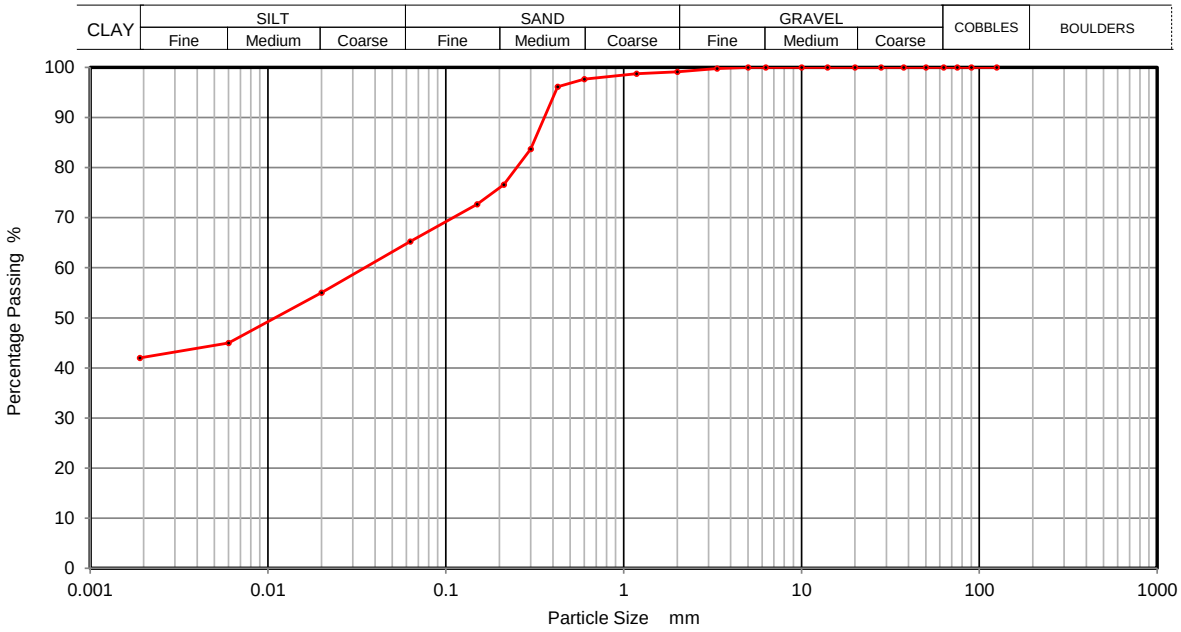
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS004
Site Name	Future Chippenham	Sample No.	13
Soil Description	Grey slightly gravelly fine to coarse sandy silty CLAY	Depth Top	5.90
		Depth Base	
Date Tested	27/05/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	55
90	100	0.0060	45
75	100	0.0020	42
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	96		
0.3	84		
0.212	77		
0.15	73		
0.063	65		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	34
Silt	23
Clay	42

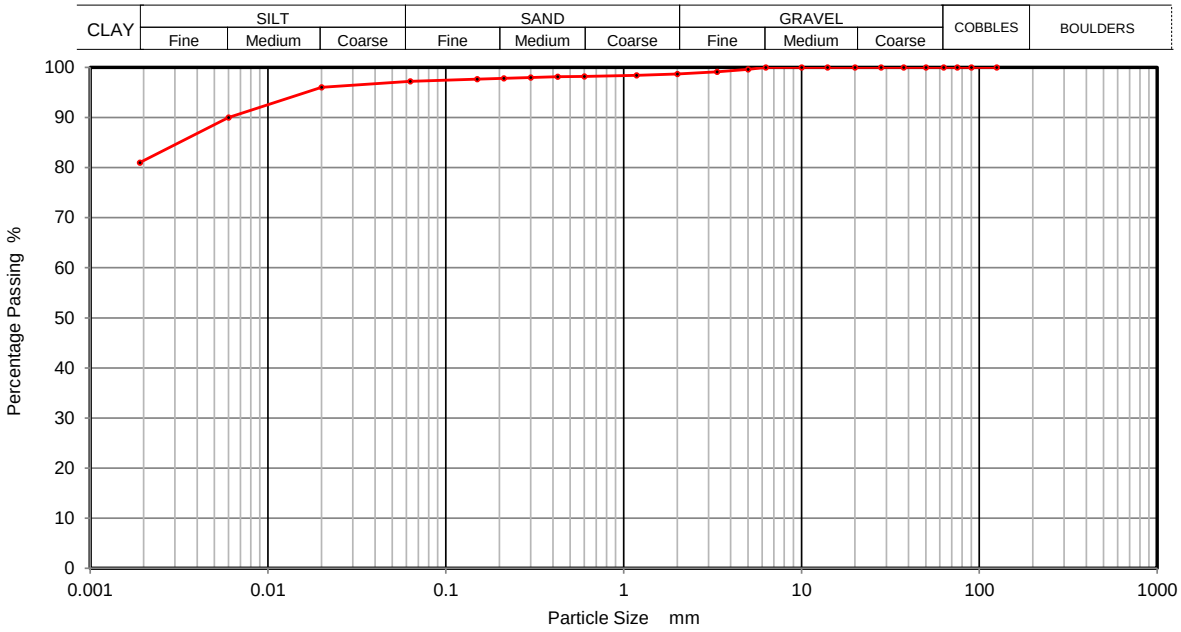
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	30/05/2022	Richard John	
David	Approved	31/05/2022	Paul Evans	

UKAS TESTING
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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS005
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly fine gravelly sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	96
90	100	0.0060	90
75	100	0.0020	81
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	98		
0.3	98		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	2
Silt	16
Clay	81

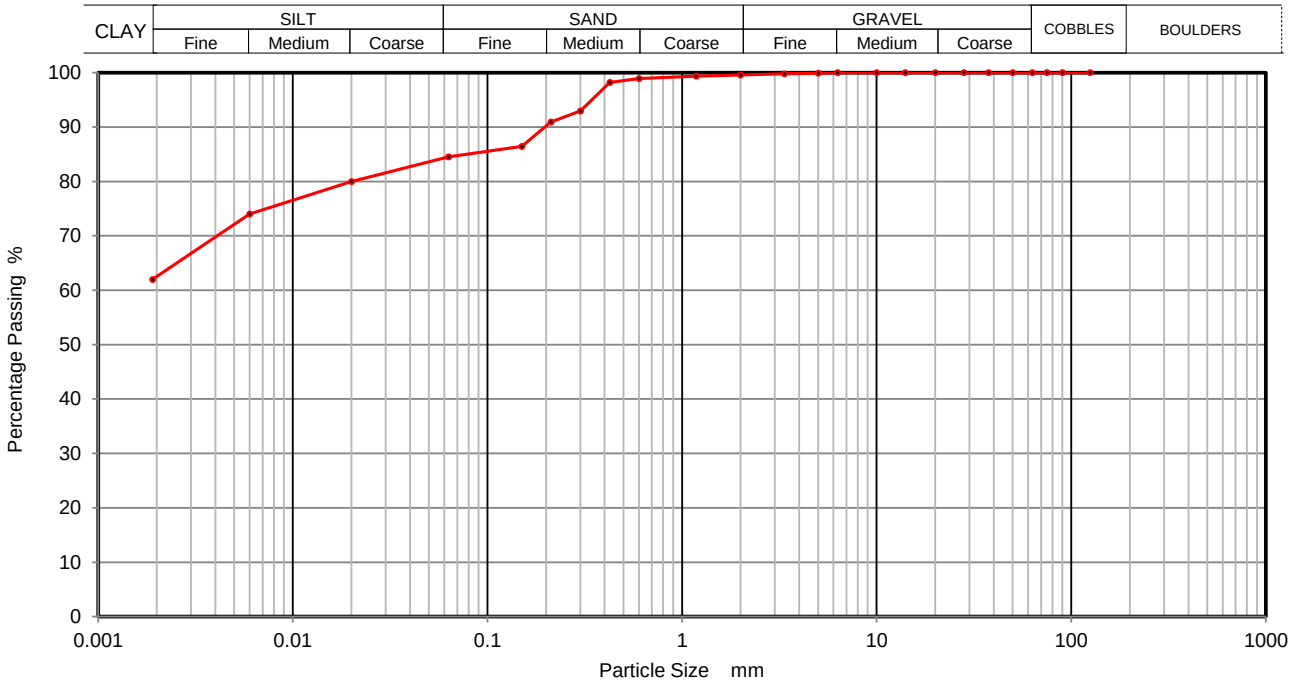
Remarks

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Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	WS005
Site Name	Future Chippenham	Sample No.	6
Soil Description	Brown slightly fine to coarse sandy silty CLAY	Depth Top	3.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	80
90	100	0.0060	74
75	100	0.0020	62
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	93		
0.212	91		
0.15	86		
0.063	85		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	15
Silt	23
Clay	62

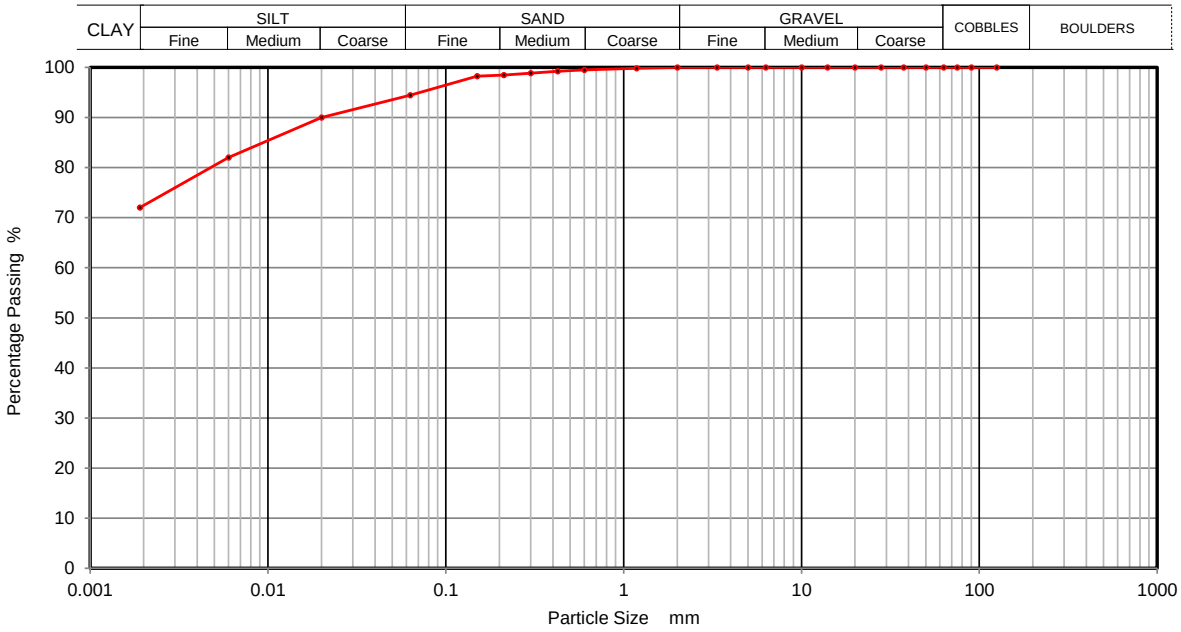
Remarks

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Operator	Checked	30/05/2022	Richard John	
David	Approved	31/05/2022	Paul Evans	

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GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS005
Site Name	Future Chippenham	Sample No.	15
Soil Description	Grey fine to coarse sandy silty CLAY	Depth Top	7.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	90
90	100	0.0060	82
75	100	0.0020	72
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	98		
0.15	98		
0.063	94		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	6
Silt	22
Clay	72

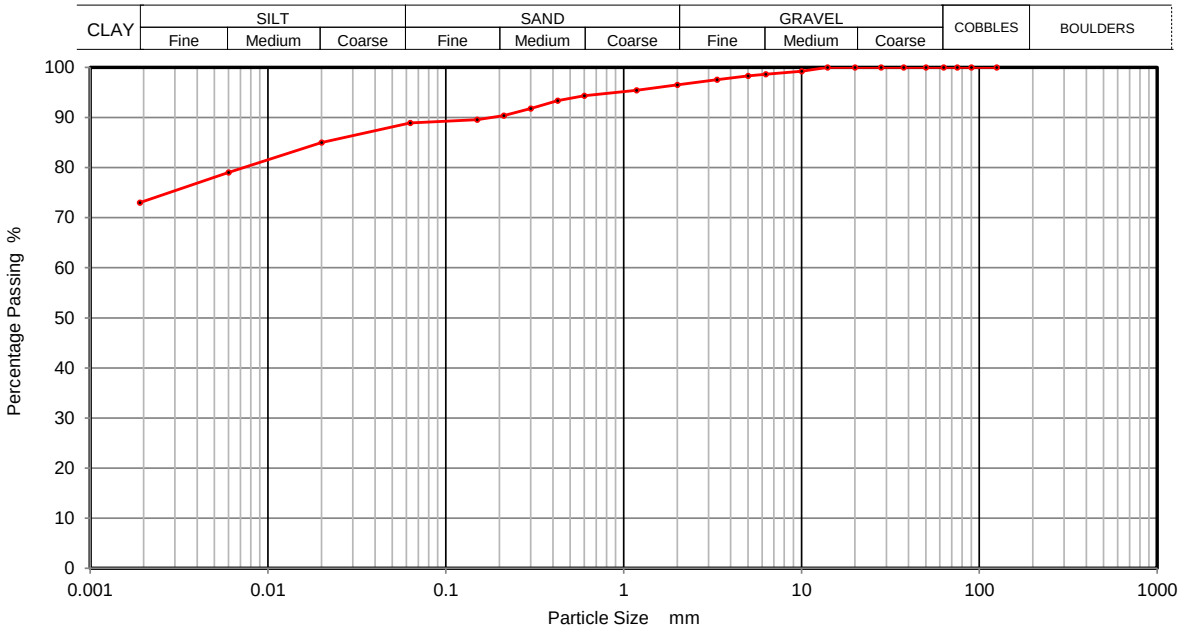
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS006
Site Name	Future Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	79
75	100	0.0020	73
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	98		
3.35	98		
2	97		
1.18	95		
0.6	94		
0.425	93		
0.3	92		
0.212	90		
0.15	90		
0.063	89		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	8
Silt	16
Clay	73

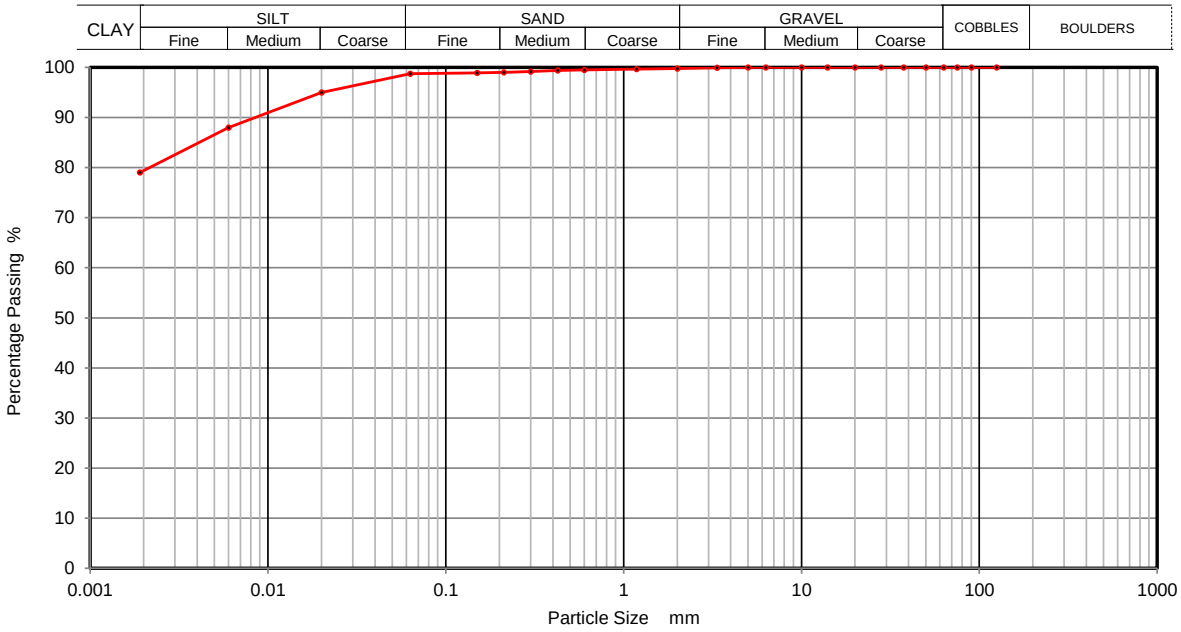
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS006
Site Name	Future Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	88
75	100	0.0020	79
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	20
Clay	79

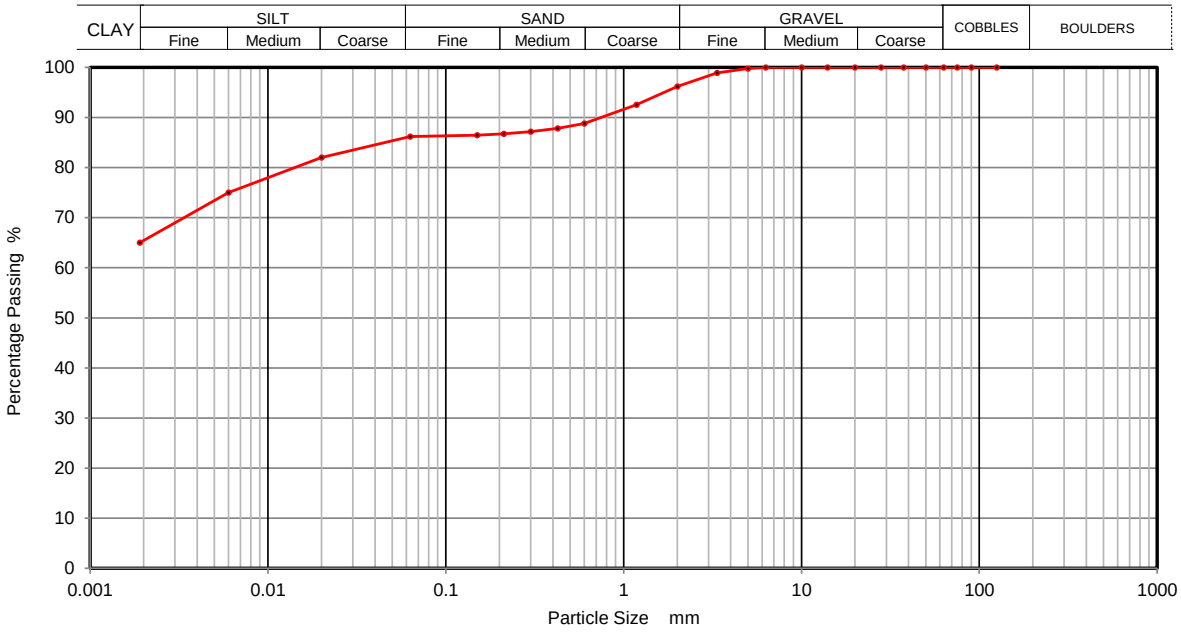
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS006
Site Name	Future Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	2.20
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	82
90	100	0.0060	75
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	96		
1.18	93		
0.6	89		
0.425	88		
0.3	87		
0.212	87		
0.15	86		
0.063	86		

Sample Proportions	% dry mass
Cobbles	0
Gravel	4
Sand	10
Silt	21
Clay	65

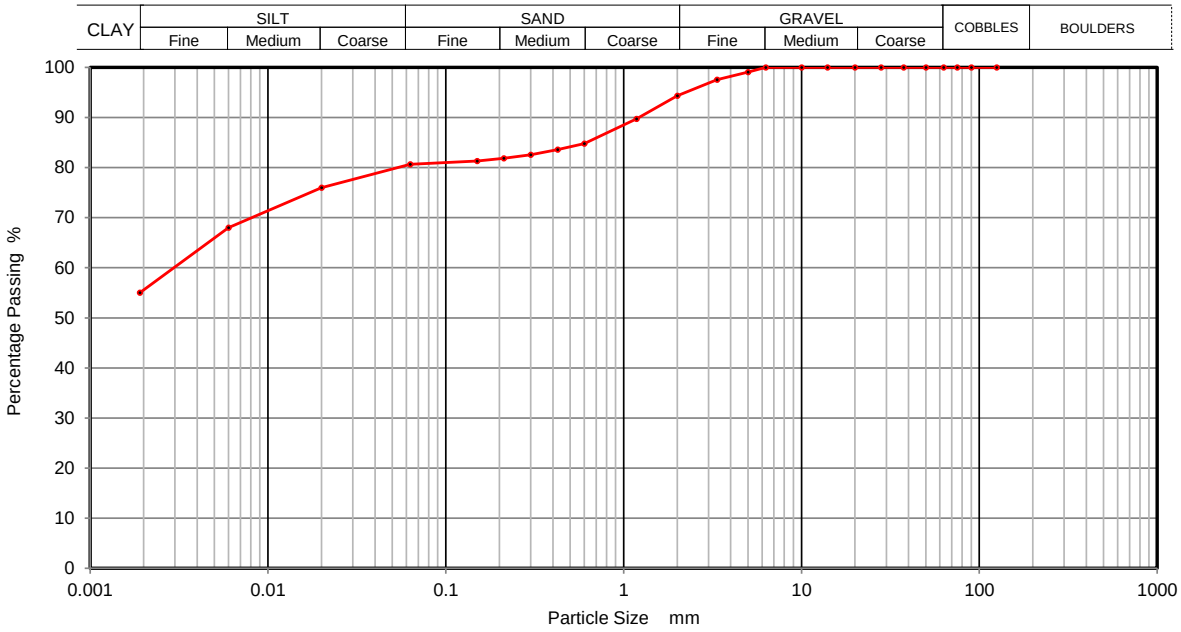
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

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2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS007
Site Name	Future Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	76
90	100	0.0060	68
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	98		
2	94		
1.18	90		
0.6	85		
0.425	84		
0.3	83		
0.212	82		
0.15	81		
0.063	81		

Sample Proportions	% dry mass
Cobbles	0
Gravel	6
Sand	13
Silt	26
Clay	55

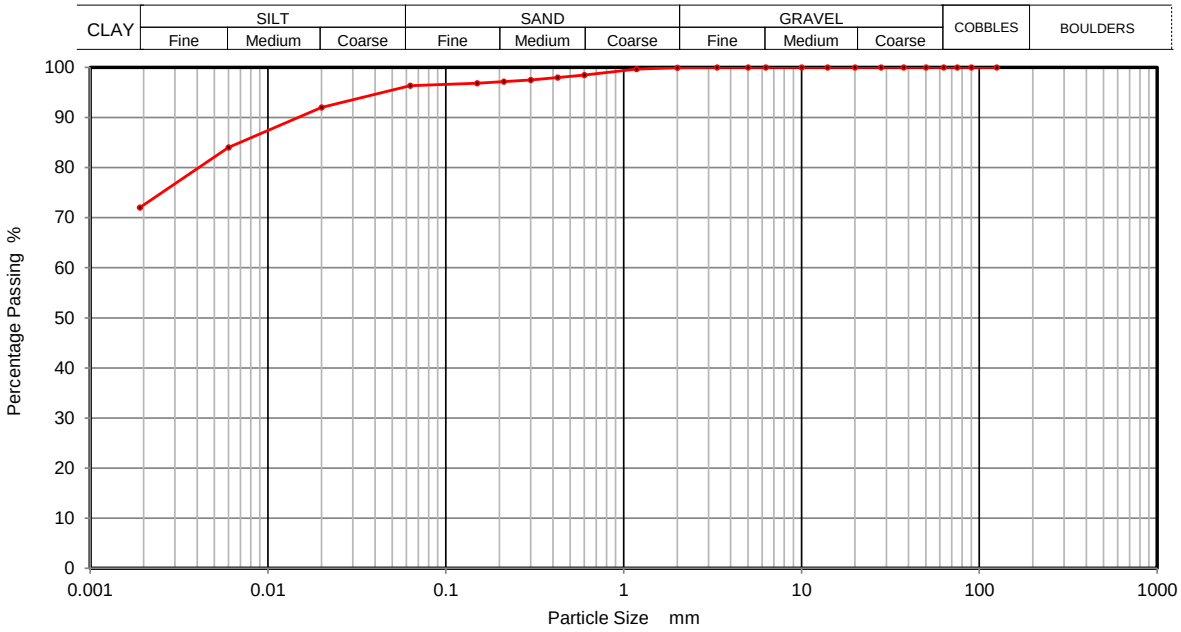
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS007
Site Name	Future Chippenham	Sample No.	5
Soil Description	*See sample description sheet	Depth Top	2.20
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	84
75	100	0.0020	72
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	98		
0.425	98		
0.3	97		
0.212	97		
0.15	97		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	24
Clay	72

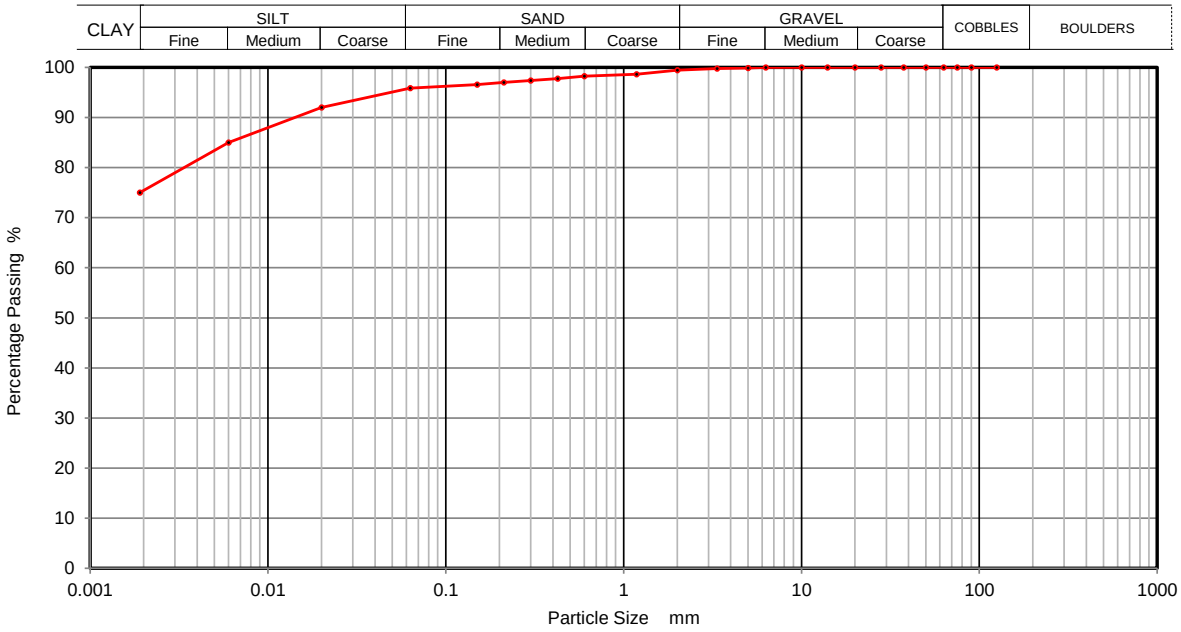
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS007
Site Name	Future Chippenham	Sample No.	13
Soil Description	*See sample description sheet	Depth Top	5.20
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	85
75	100	0.0020	75
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	98		
0.3	97		
0.212	97		
0.15	97		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	3
Silt	21
Clay	75

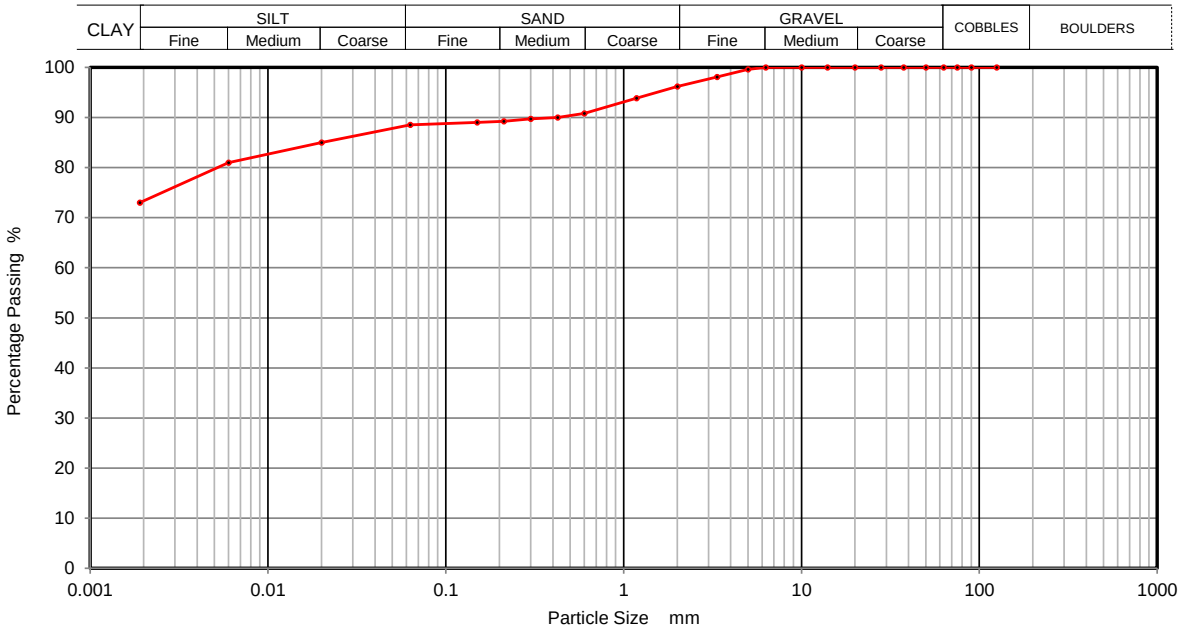
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS009
Site Name	Future Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	81
75	100	0.0020	73
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	98		
2	96		
1.18	94		
0.6	91		
0.425	90		
0.3	90		
0.212	89		
0.15	89		
0.063	89		

Sample Proportions	% dry mass
Cobbles	0
Gravel	4
Sand	7
Silt	16
Clay	73

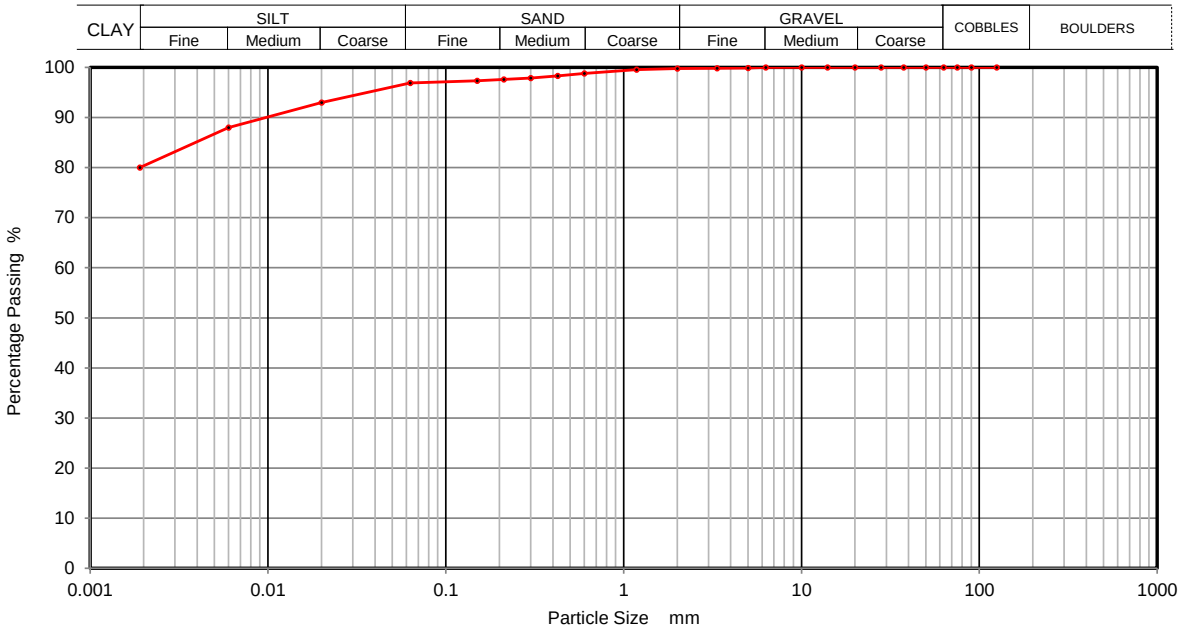
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS009
Site Name	Future Chippenham	Sample No.	9
Soil Description	*See sample description sheet	Depth Top	4.20
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	93
90	100	0.0060	88
75	100	0.0020	80
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	98		
0.3	98		
0.212	98		
0.15	97		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	3
Silt	17
Clay	80

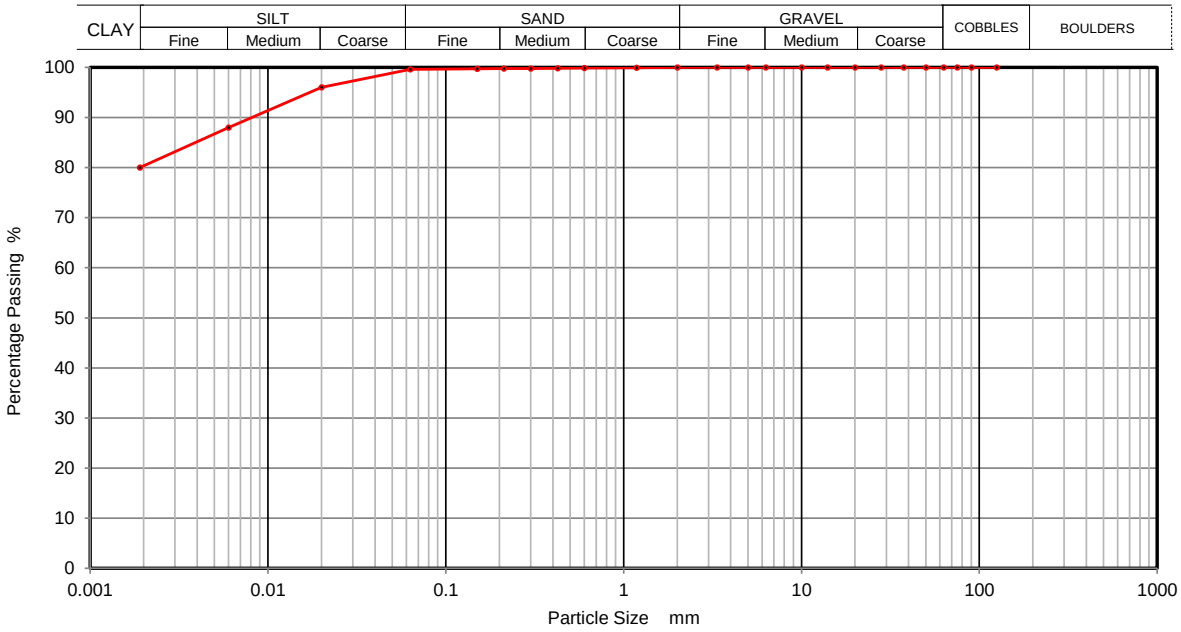
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	60027
		Borehole/Pit No.	WS009
Site Name	Future Chippenham	Sample No.	13
Soil Description	*See sample description sheet	Depth Top	6.20
		Depth Base	
Date Tested	13/07/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	96
90	100	0.0060	88
75	100	0.0020	80
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	100		
0.063	100		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	0
Silt	20
Clay	80

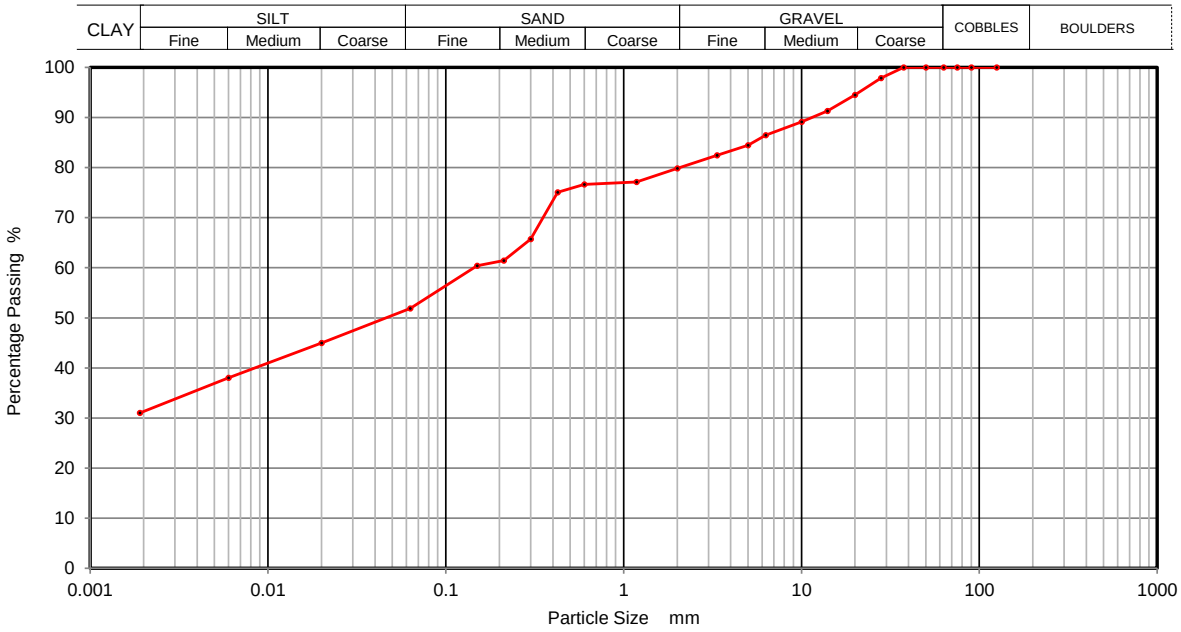
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

UKAS TESTING
2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS011
Site Name	Future Chippenham	Sample No.	1
Soil Description	Brown fine to coarse gravelly fine to coarse sandy silty CLAY	Depth Top	0.50
		Depth Base	
Date Tested	27/05/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	45
90	100	0.0060	38
75	100	0.0020	31
63	100		
50	100		
37.5	100		
28	98		
20	94		
14	91		
10	89		
6.3	86		
5	84		
3.35	82		
2	80		
1.18	77		
0.6	77		
0.425	75		
0.3	66		
0.212	61		
0.15	60		
0.063	52		

Sample Proportions	% dry mass
Cobbles	0
Gravel	20
Sand	28
Silt	21
Clay	31

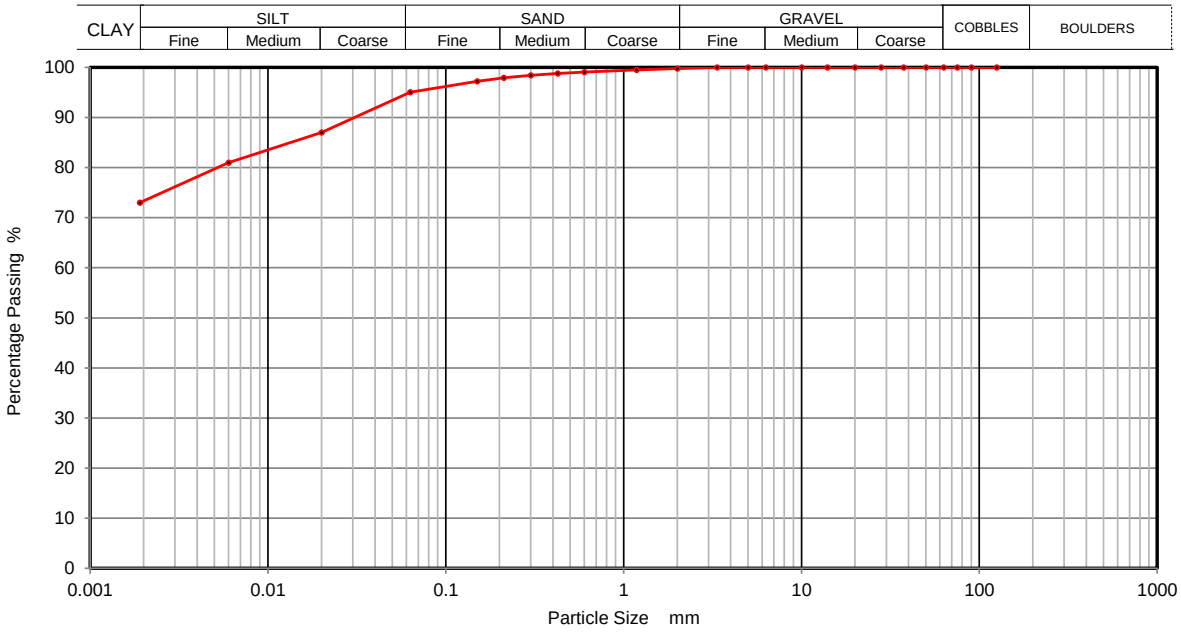
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS011
Site Name	Future Chippenham	Sample No.	4
Soil Description	Brown fine to coarse sandy silty CLAY	Depth Top	1.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	87
90	100	0.0060	81
75	100	0.0020	73
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	97		
0.063	95		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	5
Silt	22
Clay	73

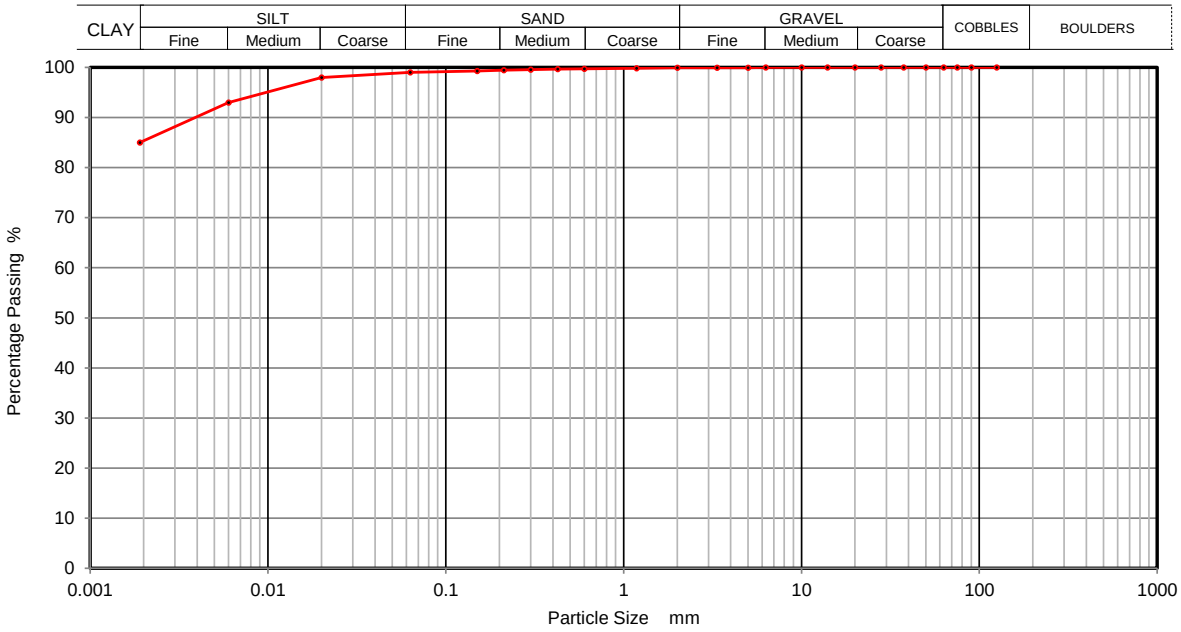
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS011
Site Name	Future Chippenham	Sample No.	6
Soil Description	Grey slightly sandy chalky silty CLAY	Depth Top	3.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	98
90	100	0.0060	93
75	100	0.0020	85
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	14
Clay	85

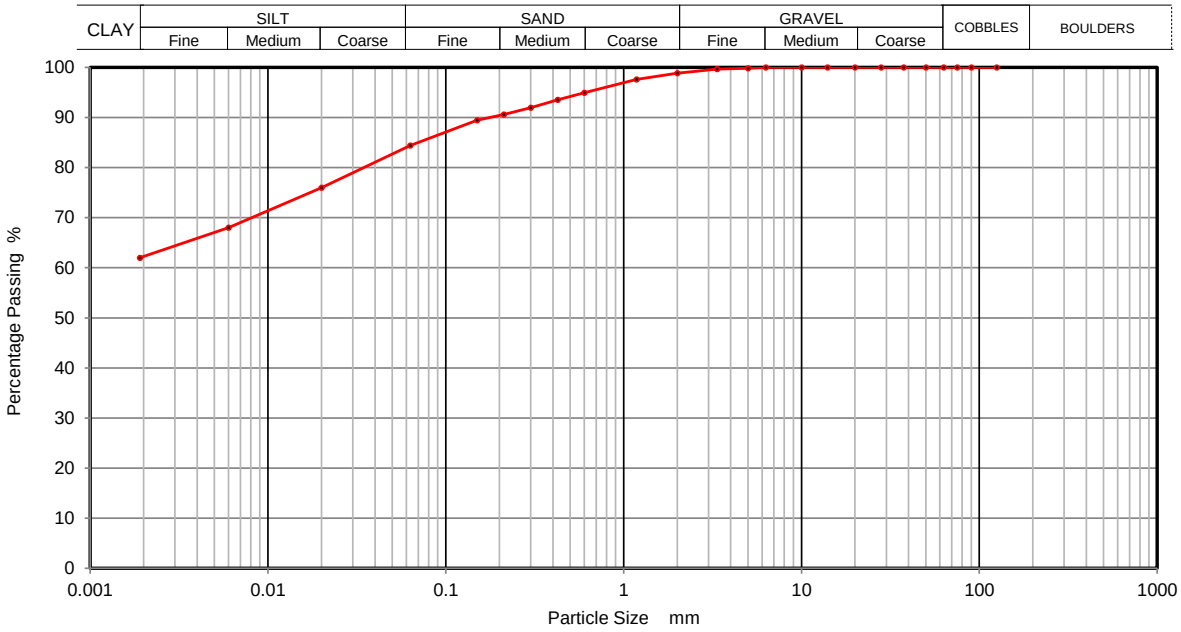
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS011
Site Name	Future Chippenham	Sample No.	16
Soil Description	Grey slightly gravelly fine to coarse sandy silty CLAY	Depth Top	7.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	76
90	100	0.0060	68
75	100	0.0020	62
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	95		
0.425	94		
0.3	92		
0.212	91		
0.15	89		
0.063	84		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	15
Silt	22
Clay	62

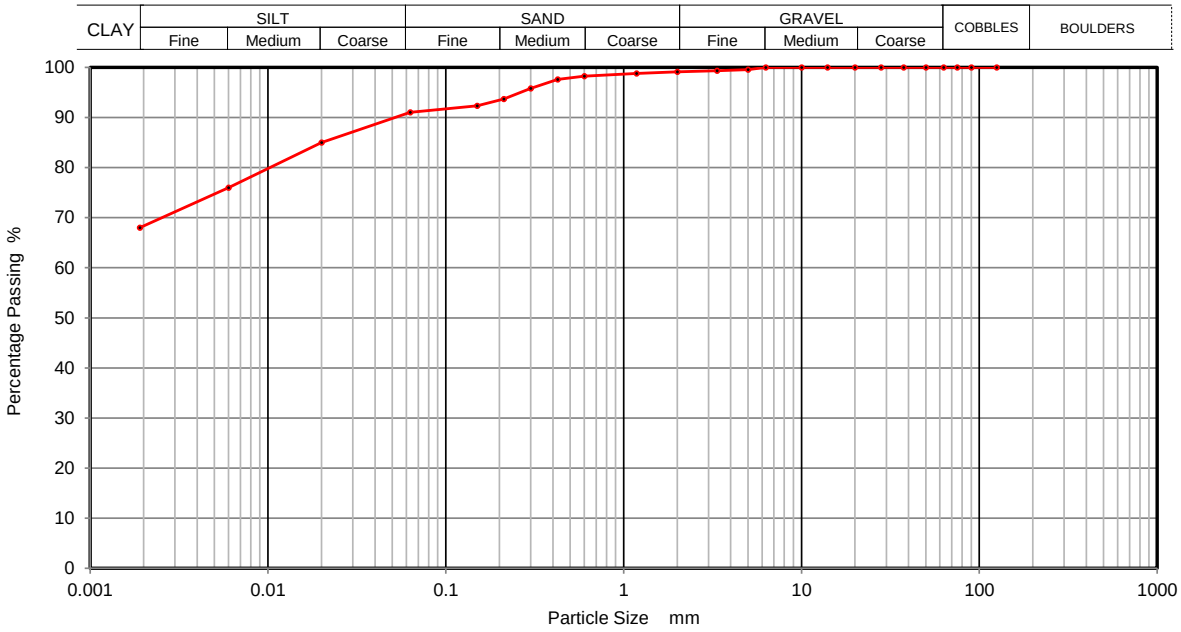
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS012
Site Name	Future Chippenham	Sample No.	2
Soil Description	Brown slightly fine gravelly fine to coarse sandy silty CLAY	Depth Top	1.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	76
75	100	0.0020	68
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	99		
0.6	98		
0.425	98		
0.3	96		
0.212	94		
0.15	92		
0.063	91		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	8
Silt	23
Clay	68

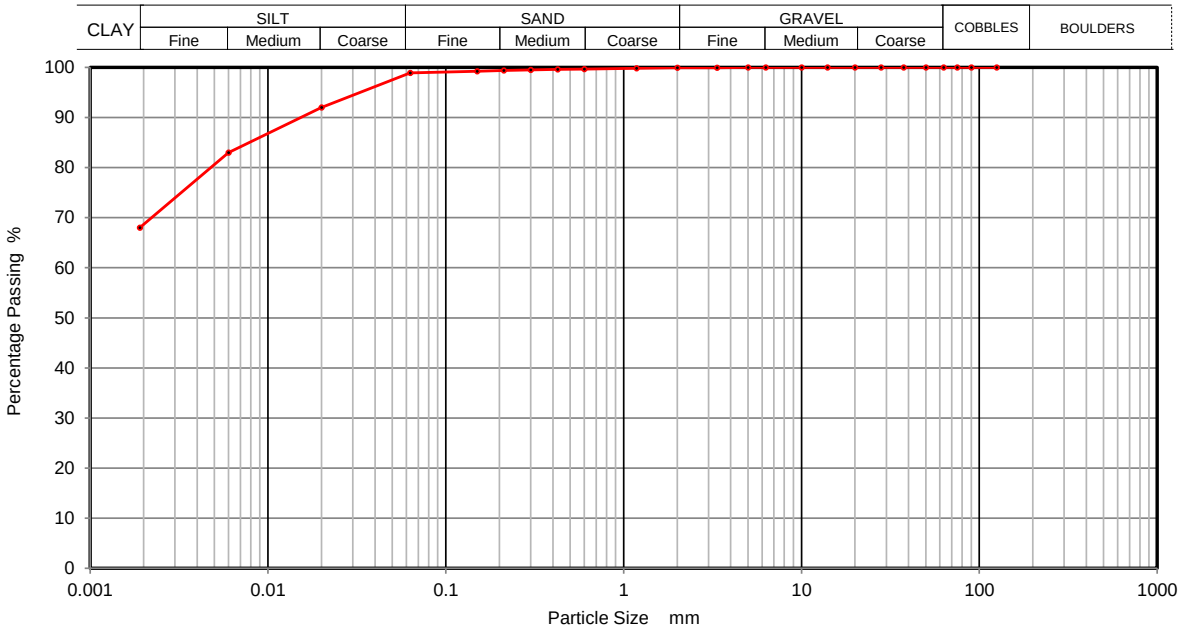
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS012
Site Name	Future Chippenham	Sample No.	6
Soil Description	Brown slightly sandy chalky silty CLAY	Depth Top	2.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	83
75	100	0.0020	68
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	31
Clay	68

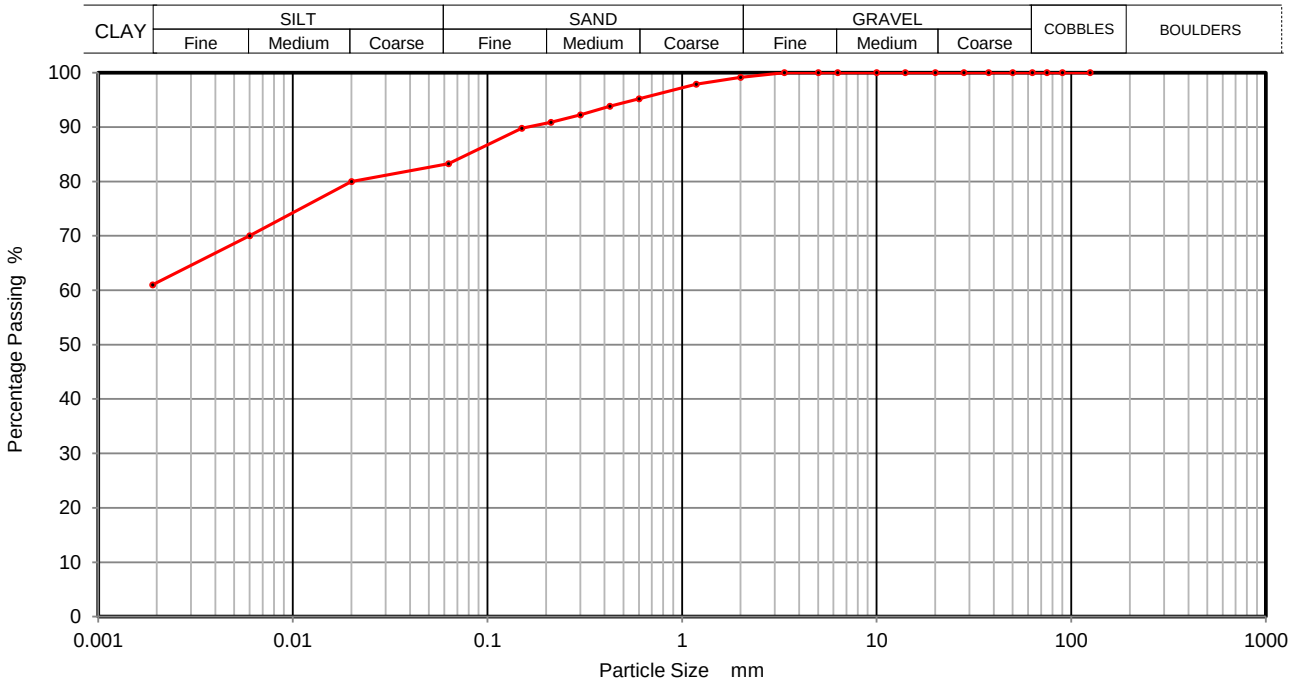
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4	Contract Number	59343
		Borehole/Pit No.	WS012
Site Name	Future Chippenham	Sample No.	16
Soil Description	Dark grey slightly fine to coarse sandy silty CLAY	Depth Top	7.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	80
90	100	0.0060	70
75	100	0.0020	61
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	95		
0.425	94		
0.3	92		
0.212	91		
0.15	90		
0.063	83		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	16
Silt	22
Clay	61

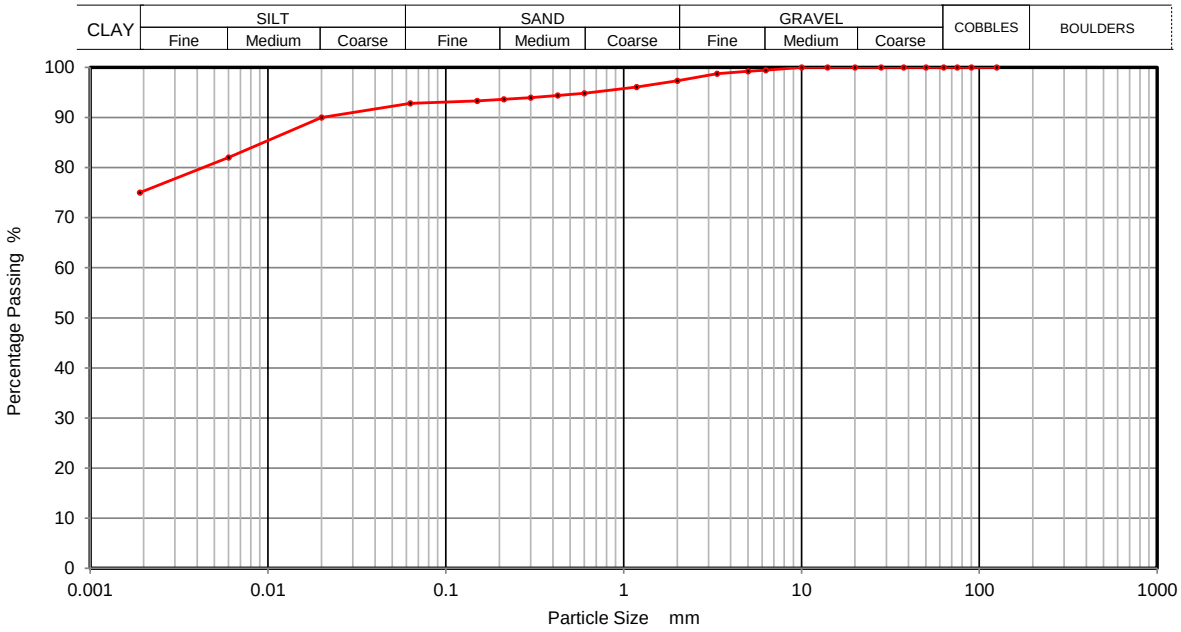
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	30/05/2022	Richard John	
David	Approved	31/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS013
Site Name	Future Chippenham	Sample No.	5
Soil Description	Brown slightly fine to medium gravelly fine to coarse sandy silty CLAY	Depth Top	2.00
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	90
90	100	0.0060	82
75	100	0.0020	75
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	94		
0.212	94		
0.15	93		
0.063	93		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	4
Silt	18
Clay	75

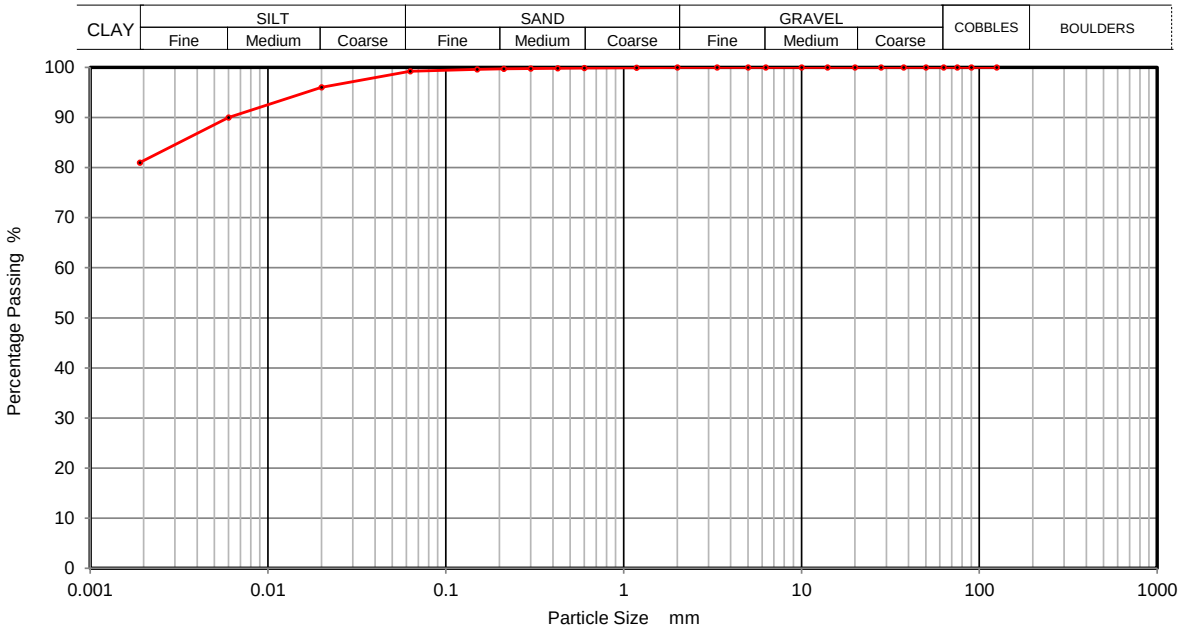
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS013
Site Name	Future Chippenham	Sample No.	8
Soil Description	Grey slightly sandy silty CLAY	Depth Top	3.45
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	96
90	100	0.0060	90
75	100	0.0020	81
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	100		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	18
Clay	81

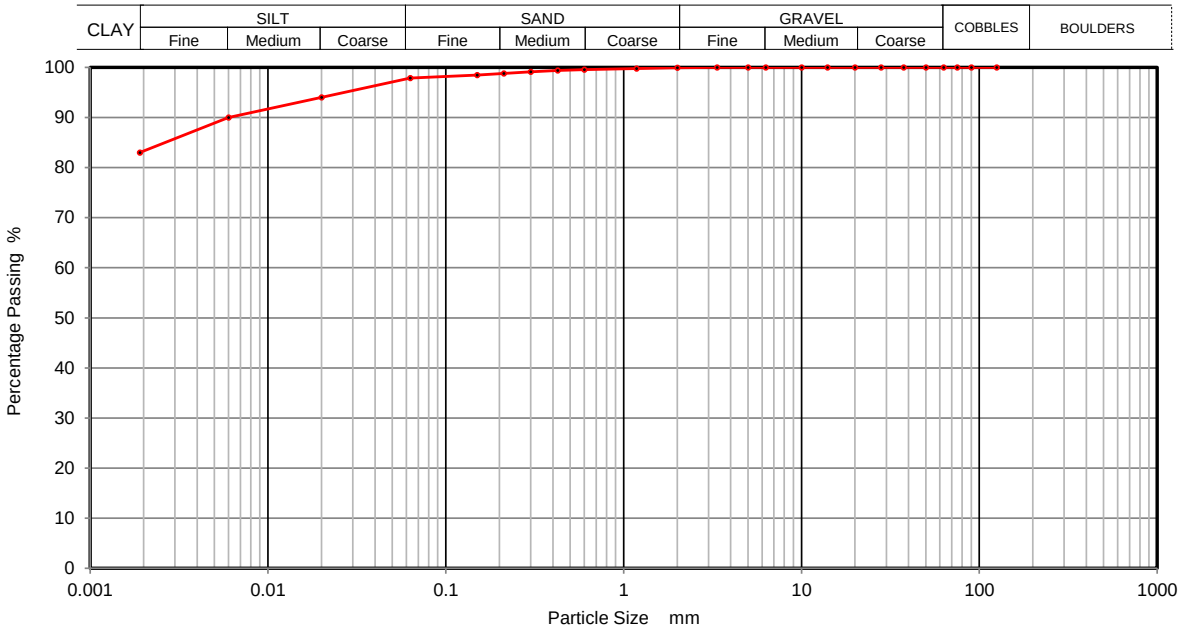
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS020
Site Name	Future Chippenham	Sample No.	6
Soil Description	Brown slightly sandy silty CLAY	Depth Top	2.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	94
90	100	0.0060	90
75	100	0.0020	83
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	99		
0.212	99		
0.15	98		
0.063	98		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	2
Silt	15
Clay	83

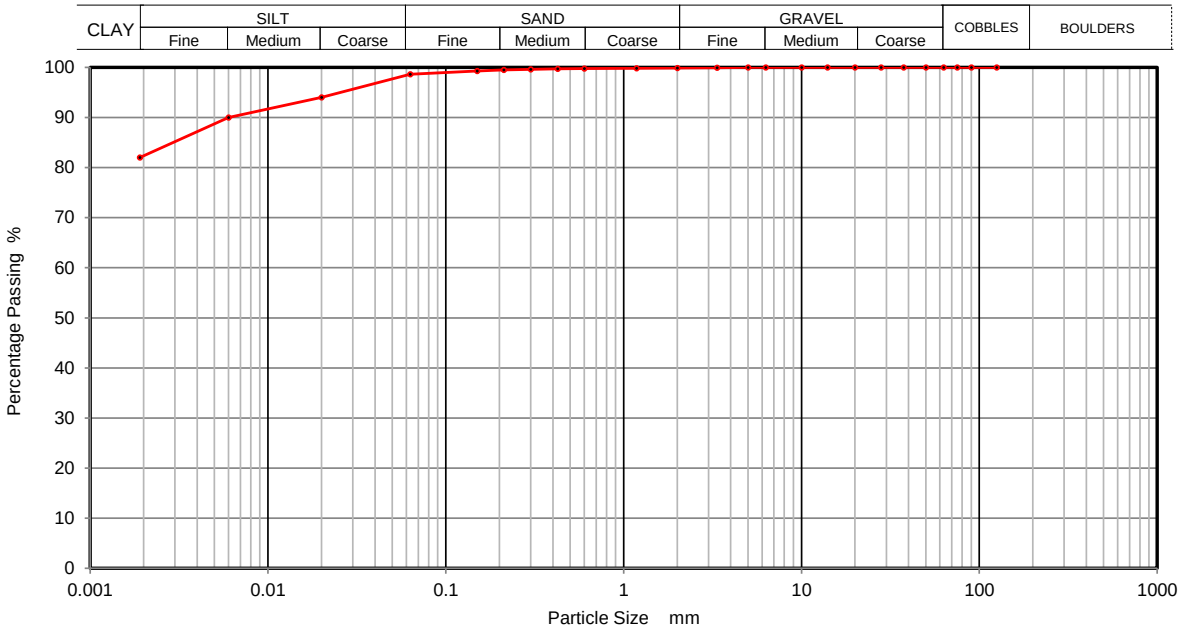
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59343
		Borehole/Pit No.	WS020
Site Name	Future Chippenham	Sample No.	9
Soil Description	Grey slightly sandy silty CLAY	Depth Top	4.20
		Depth Base	
Date Tested	27/05/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	94
90	100	0.0060	90
75	100	0.0020	82
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	17
Clay	82

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	29/05/2022	Richard John	
David	Approved	30/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

PARTICLE DENSITY BY GAS JAR
(BS 1377 : PART 2 : 8.2 : 1990)

Contract Number	59343
Project Location	Future Chippenham
Date Tested	26/05/2022

Hole Reference	Sample Number	Sample Type	Depth (m)							Particle Density		Remarks
TP005	2	B	1.00	-						2.62		
TP006	7	B	2.50	-						2.64		
				-								
				-								
				-								
				-								
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Key	Reported As
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Particle Density	Mg/m^3
Air Voids	%

Operators				
Conal Aliffe				

UKAS TESTING
2788

GSTL

SUMMARY OF SOIL DENSITY TESTS
(BS 1377 : PART 2 : 7.2 : 1990)

Contract Number	59343
Site Name	Future Chippenham
Date Tested	24/05/2022

Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content	Bulk Density	Dry Density	Compaction Method /Natural Condition		Estimated Air Voids	Remarks
TP010	4	B	2.00	-		29	1.88	1.46	2.5kg Rammer			
TP011	8	B	3.00	-		30	1.81	1.39	2.5kg Rammer			
				-								
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Key	Reported As
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Particle Density	Mg/m^3
Air Voids	%

Operators	Checked	30/05/2022	Richard John	
Conor	Approved	31/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

SUMMARY OF SOIL DENSITY TESTS
BS EN ISO 17892-2:2014

Contract Number	**60027**
Site Name	**Future Chippenham**
Date Tested	**13/07/2022**

Hole Reference	Sample Number	Sample Type	Depth (m)			Water Content	Bulk Density	Dry Density	Compaction Method /Natural Condition		Estimated Air Voids	Remarks
AVW_BH_05	23	C	15.55	-		12.7	1.96	1.74	Natural			
PWB_BH_05	9	C	8.10	-		17.9	2.01	1.70	Natural			
AVC1_BH_03	12	C	7.90	-		19.1	1.81	1.52	Natural			
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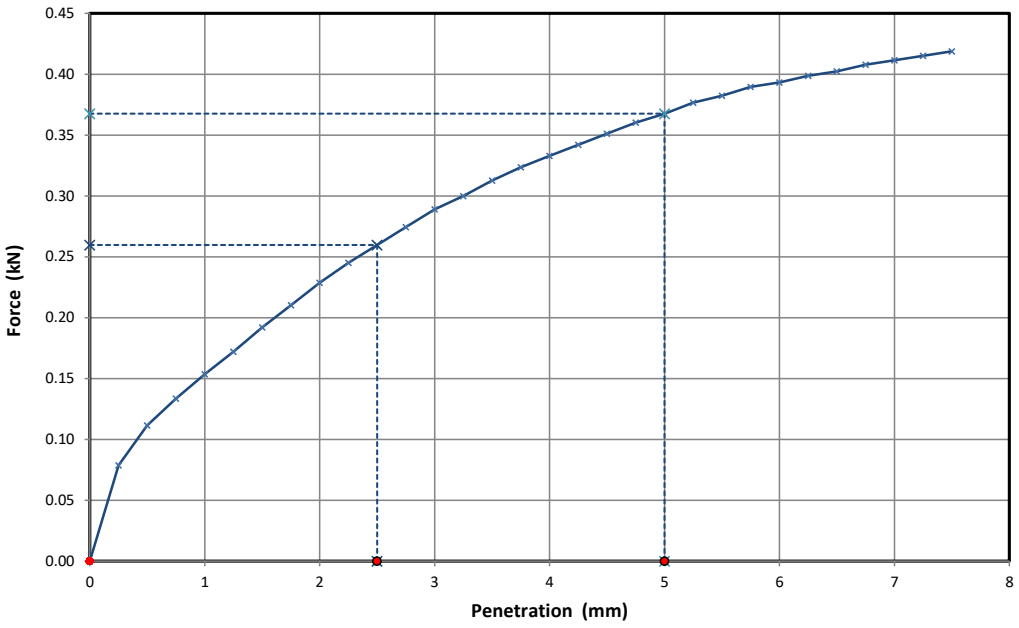
Key	Reported As
Water Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Particle Density	Mg/m^3
Air Voids	%

***For sample descriptions please see sample descriptions sheet.**

Operators
Conal

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2788

GSTL	California Bearing Ratio BS 1377: Part 4: 1990 Clause 7	Contract Number	59434
		Borehole/Pit No.	CPTU004
Site Name	Future Chippenham	Sample No.	3
Soil Description	Brown slightly sandy silty CLAY	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Retained 20mm (%)	0	Sample Type	B
Date Tested	25/05/2022		



Initial Sample Conditions	
Moisture Content (%)	35
Moisture Top (%)	35
Moisture Bottom (%)	
Bulk Density (Mg/m3)	1.84
Dry Density (Mg/m3)	1.36

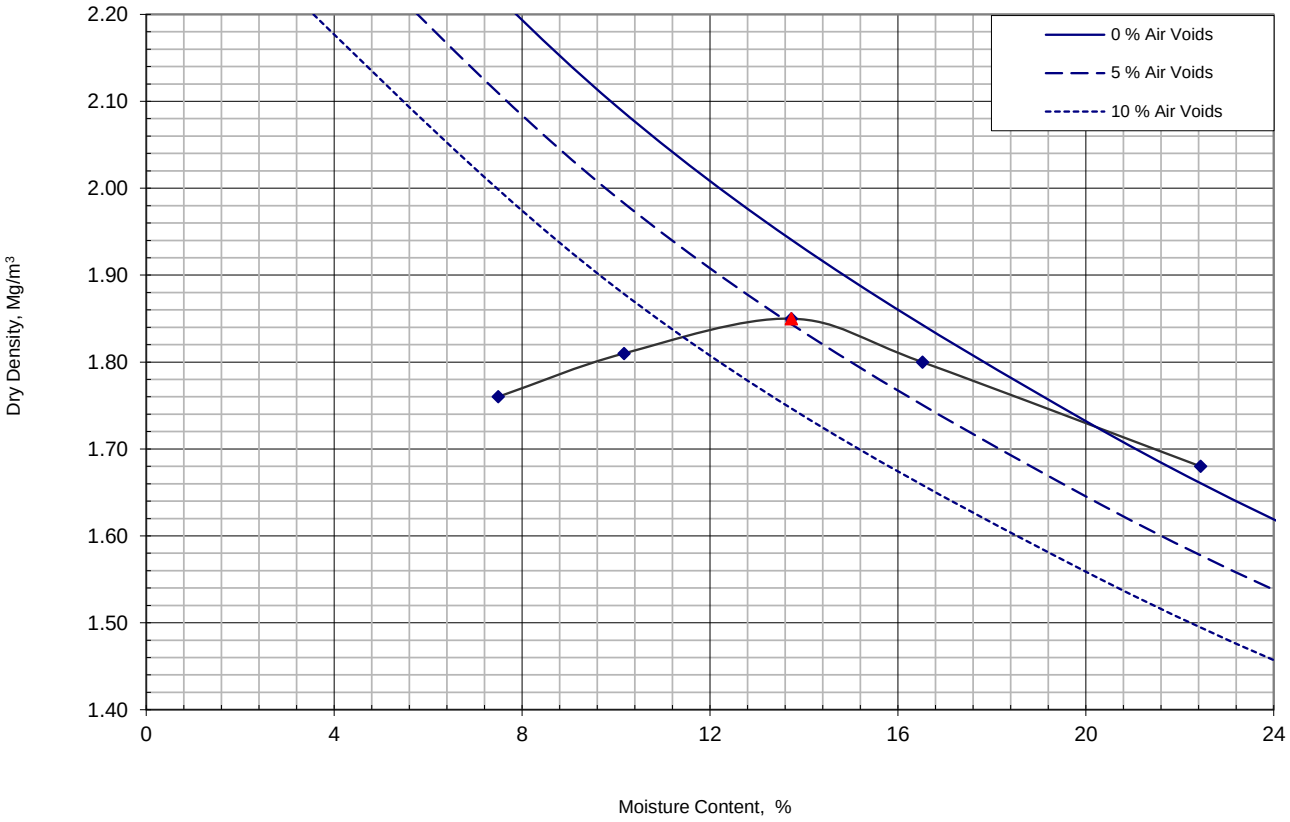
Specified Testing Parameters	
Surcharge (Kg)	2
Soaking Time (hours)	N/A
Swelling (mm)	N/A
Remarks	

CBR Test Values			
2.5mm Top	2	2.5mm Bottom	
5mm Top	1.8	5mm Bottom	
CBR Value %	**2**	**CBR Value %**	

Operators	Checked	30/05/2022	Richard John	
Conor	Approved	31/05/2022	Paul Evans	

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	60027
		Borehole / Pit No	AVC1_BH_04
Project Location	Future Chippenham	Sample No	2
Date Tested	13/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



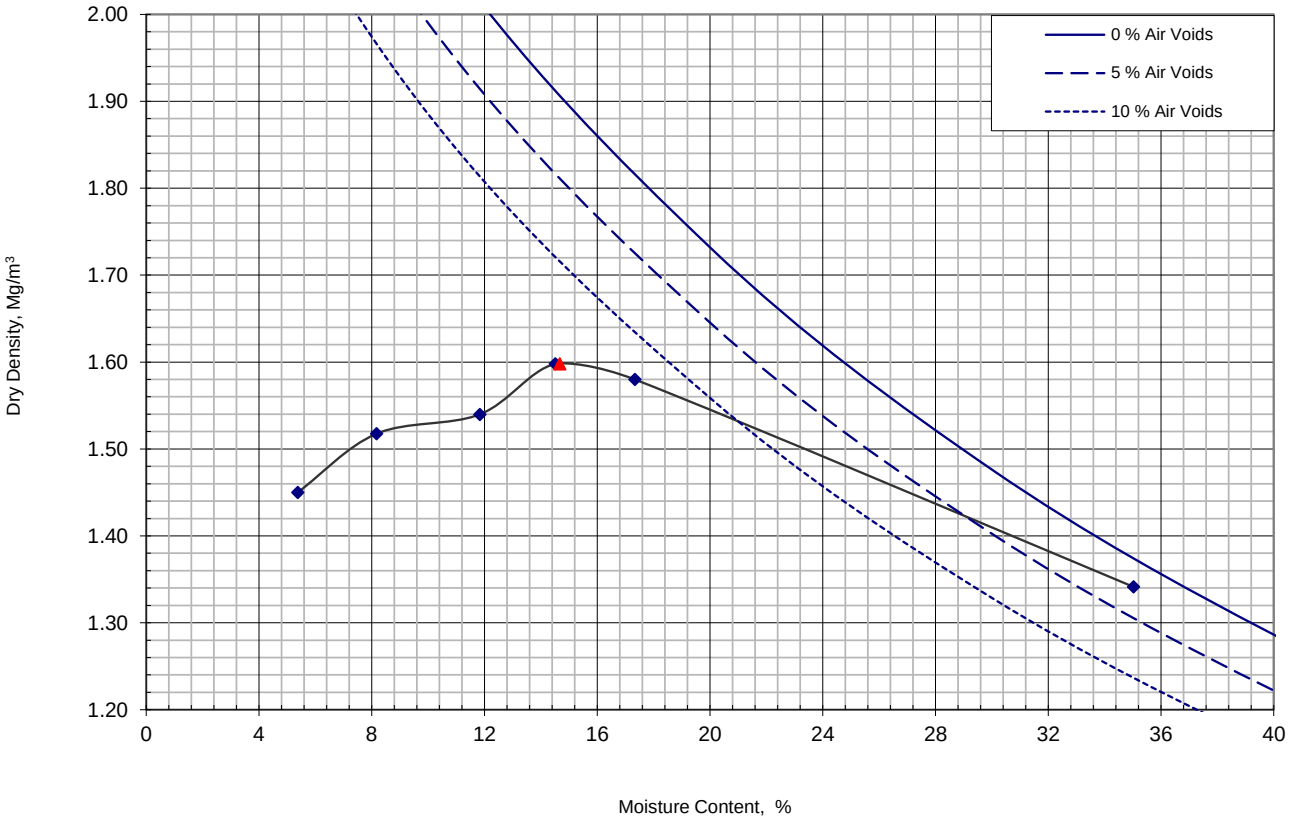
Compaction Point	1	2	3	4	5							
Moisture Content	7.5	10	14	17	22							
Bulk Density	1.89	1.99	2.10	2.10	2.06							
Dry Density	1.76	1.81	1.85	1.80	1.68							

Initial Moisture Content	22	%
Maximum Dry Density	1.85	Mg/m3
Optimum Moisture Content	14	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	3	%
Material Retained 20mm	7	%

Operator
Conor

UKAS TESTING 2788

GSTL	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	59343
		Borehole / Pit No	AVC1_BH_07
Project Location	Future Chippenham	Sample No	9
Date Tested	26/05/2022	Depth Top	2.20
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	Brown fine to coarse sandy silty CLAY		



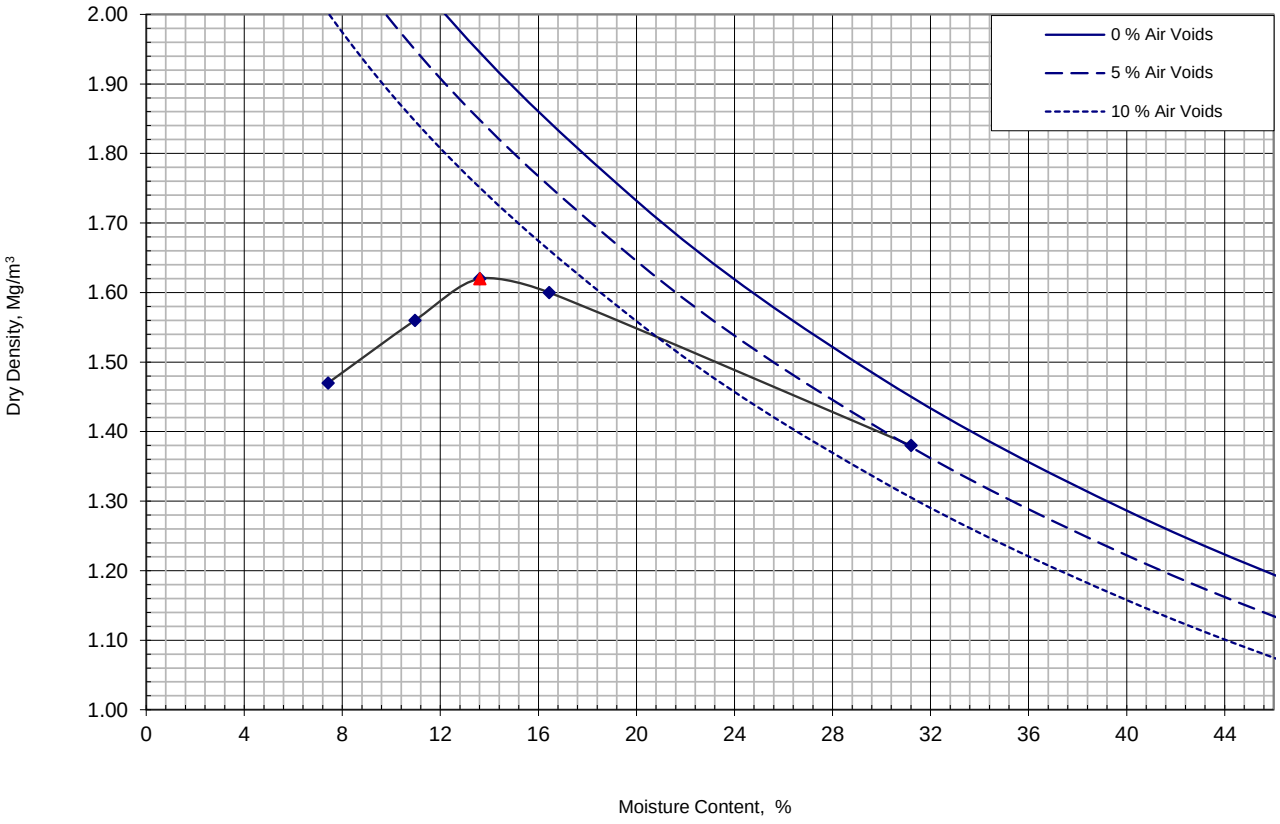
Compaction Point	1	2	3	4	5	6						
Moisture Content	5.4	8.2	12	15	17	35						
Bulk Density	1.53	1.64	1.72	1.83	1.85	1.81						
Dry Density	1.45	1.52	1.54	1.60	1.58	1.34						

Initial Moisture Content	35	%
Maximum Dry Density	1.60	Mg/m3
Optimum Moisture Content	15	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator	Checked	30/05/2022	Richard John	
Conor	Approved	31/05/2022	Paul Evans	

UKAS TESTING
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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	60027
		Borehole / Pit No	PWB_BH_05
Project Location	Future Chippenham	Sample No	4
Date Tested	13/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



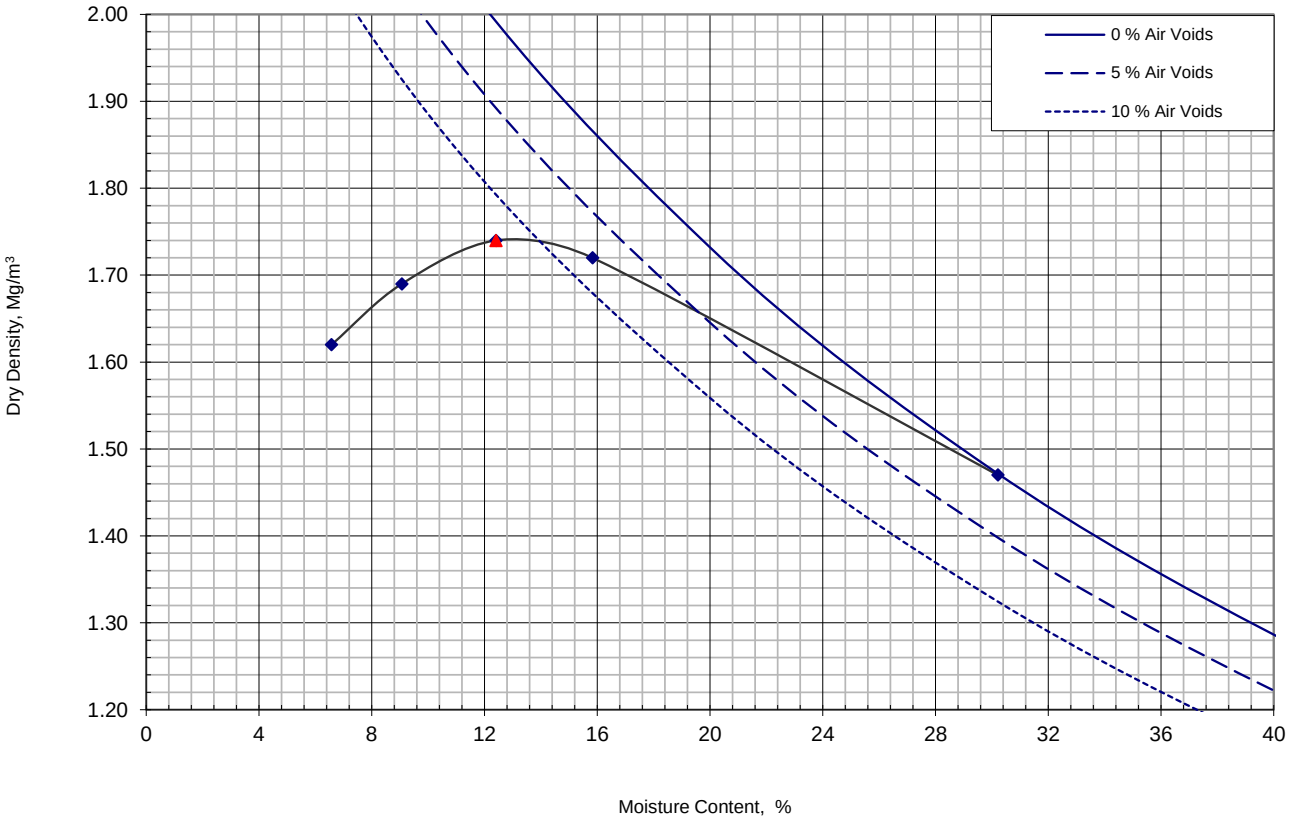
Compaction Point	1	2	3	4	5							
Moisture Content	7.4	11	14	16	31							
Bulk Density	1.58	1.73	1.84	1.86	1.81							
Dry Density	1.47	1.56	1.62	1.60	1.38							

Initial Moisture Content	31	%
Maximum Dry Density	1.62	Mg/m3
Optimum Moisture Content	14	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

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Operator
Conor

GSTL	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	59343
		Borehole / Pit No	TP007
Project Location	Future Chippenham	Sample No	5
Date Tested	26/05/2022	Depth Top	2.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	Greyish brown sandy silty CLAY		



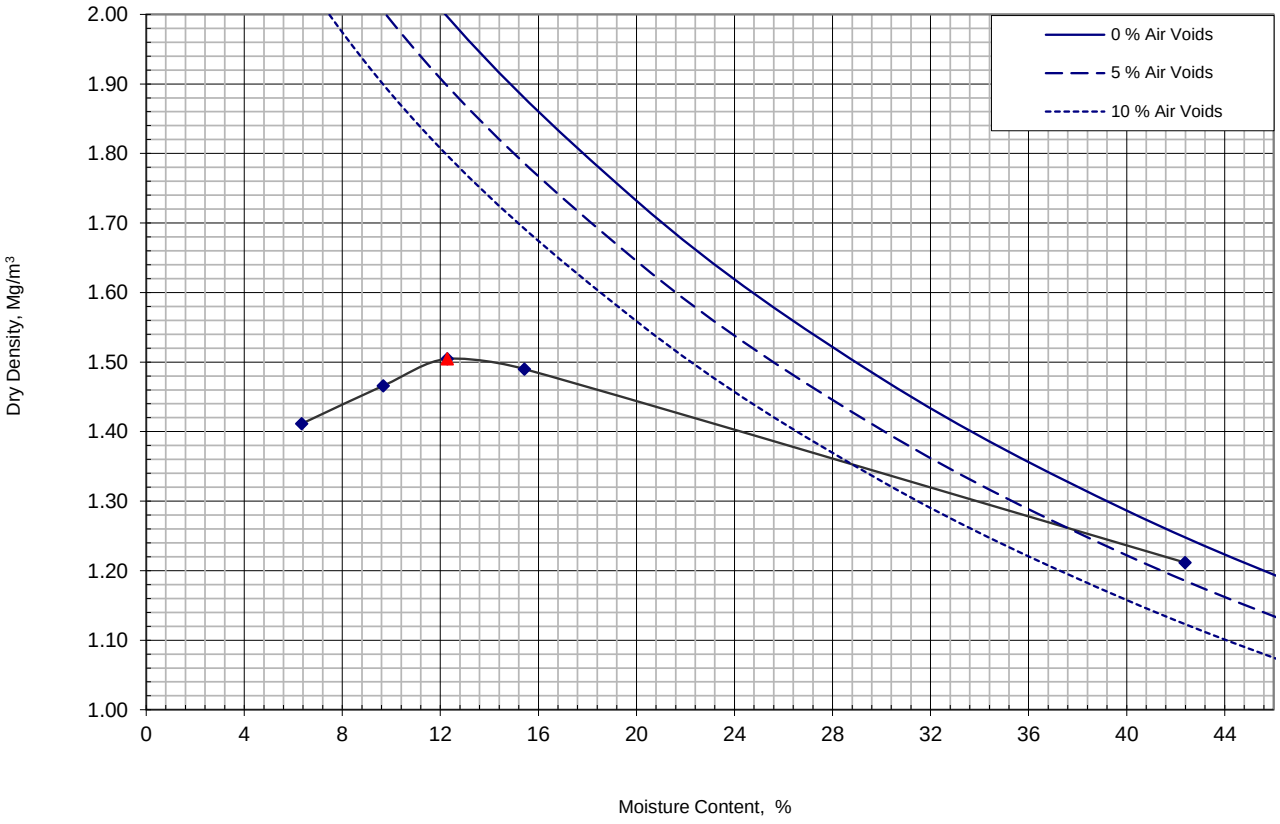
Compaction Point	1	2	3	4	5							
Moisture Content	6.6	9.1	12	16	30							
Bulk Density	1.73	1.84	1.96	1.99	1.91							
Dry Density	1.62	1.69	1.74	1.72	1.47							

Initial Moisture Content	30	%
Maximum Dry Density	1.74	Mg/m3
Optimum Moisture Content	12	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator	Checked	30/05/2022	Richard John	
Conor	Approved	31/05/2022	Paul Evans	

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	60027
		Borehole / Pit No	WS009
Project Location	Future Chippenham	Sample No	2
Date Tested	13/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



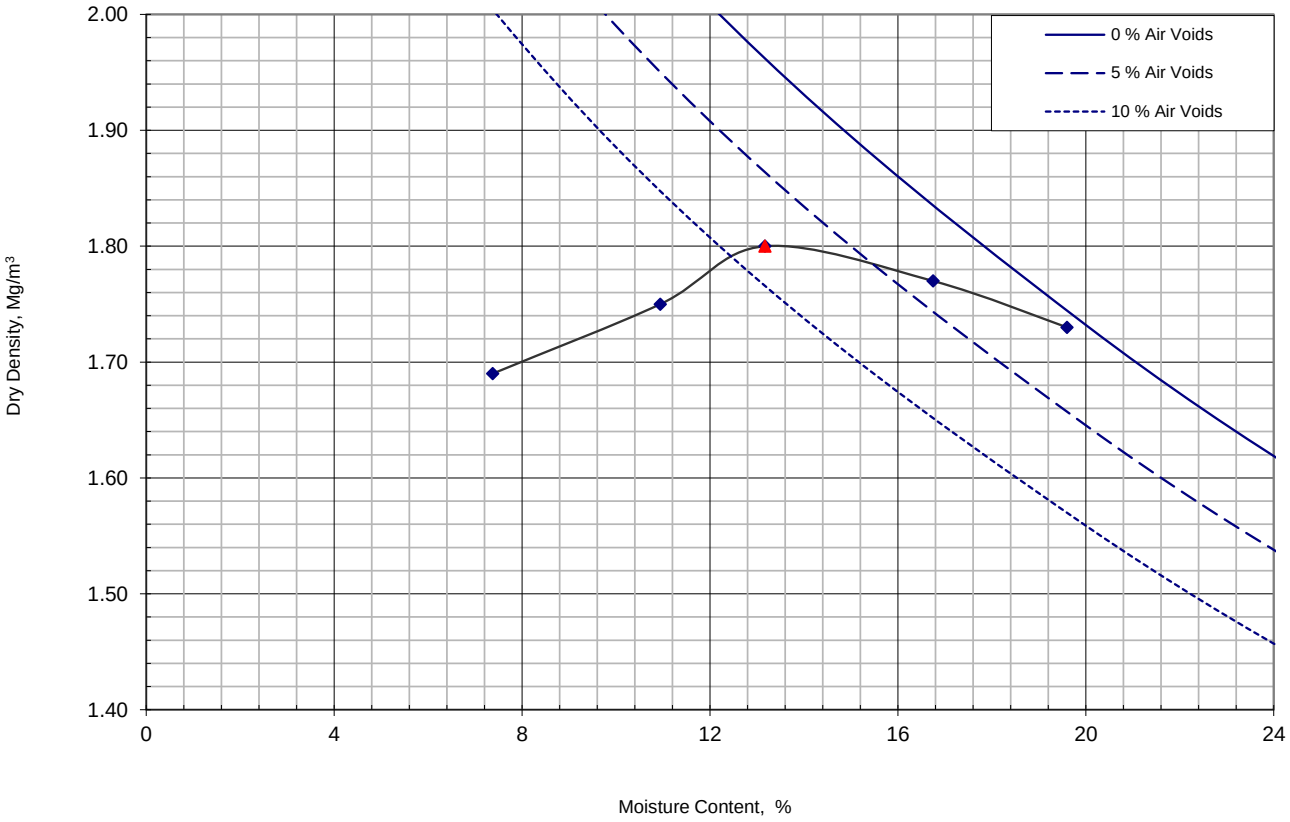
Compaction Point	1	2	3	4	5							
Moisture Content	6.3	9.7	12	15	42							
Bulk Density	1.50	1.61	1.69	1.72	1.73							
Dry Density	1.41	1.47	1.50	1.49	1.21							

Initial Moisture Content	42	%
Maximum Dry Density	1.50	Mg/m3
Optimum Moisture Content	12	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator
Conor

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GSTL	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	59343
		Borehole / Pit No	WS013
Project Location	Future Chippenham	Sample No	2
Date Tested	26/05/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	Brown fine gravelly sandy silty CLAY		



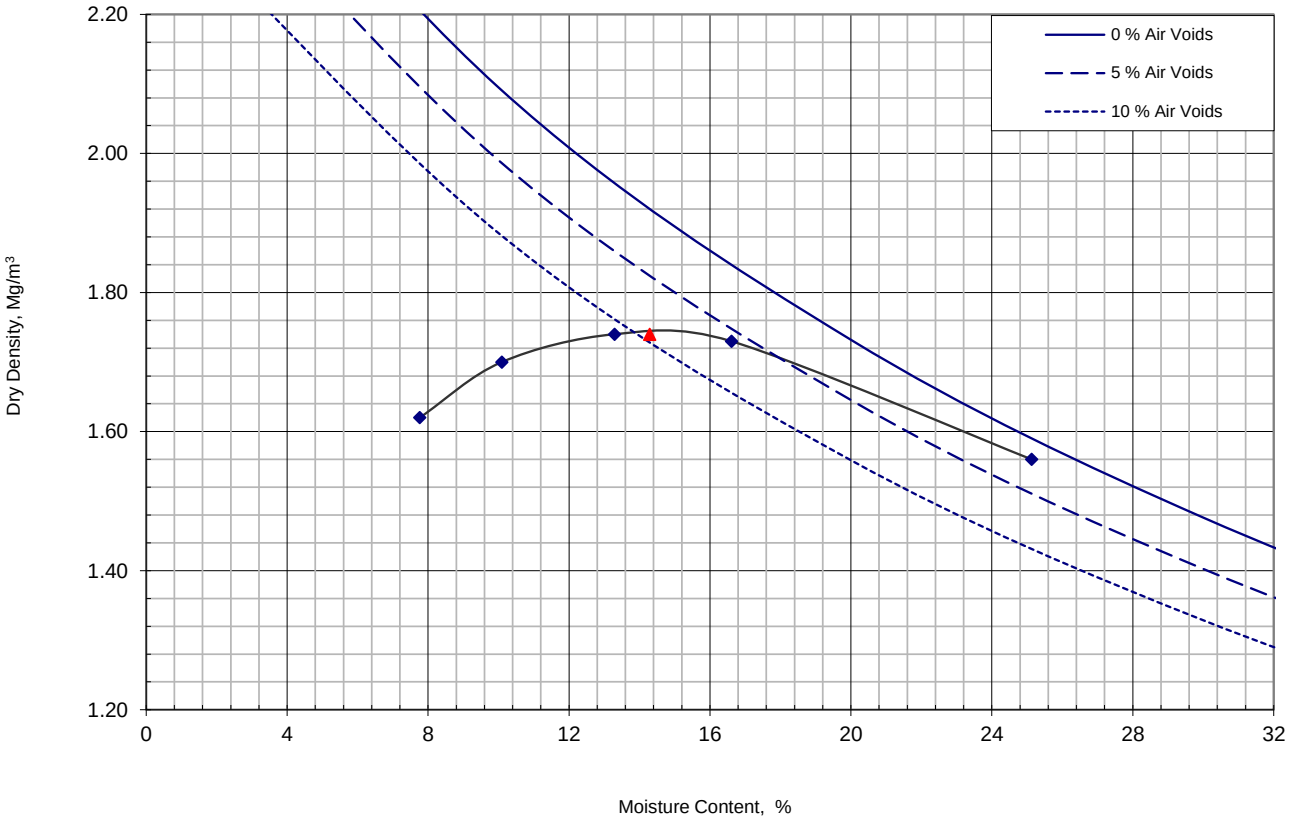
Compaction Point	1	2	3	4	5							
Moisture Content	7.4	11	13	17	20							
Bulk Density	1.81	1.94	2.04	2.07	2.07							
Dry Density	1.69	1.75	1.80	1.77	1.73							

Initial Moisture Content	17	%
Maximum Dry Density	1.80	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator	Checked	30/05/2022	Richard John	
Conor	Approved	31/05/2022	Paul Evans	

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GSTL	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	59343
		Borehole / Pit No	WS020
Project Location	Future Chippenham	Sample No	6
Date Tested	26/05/2022	Depth Top	2.20
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	Brown slightly sandy silty CLAY		



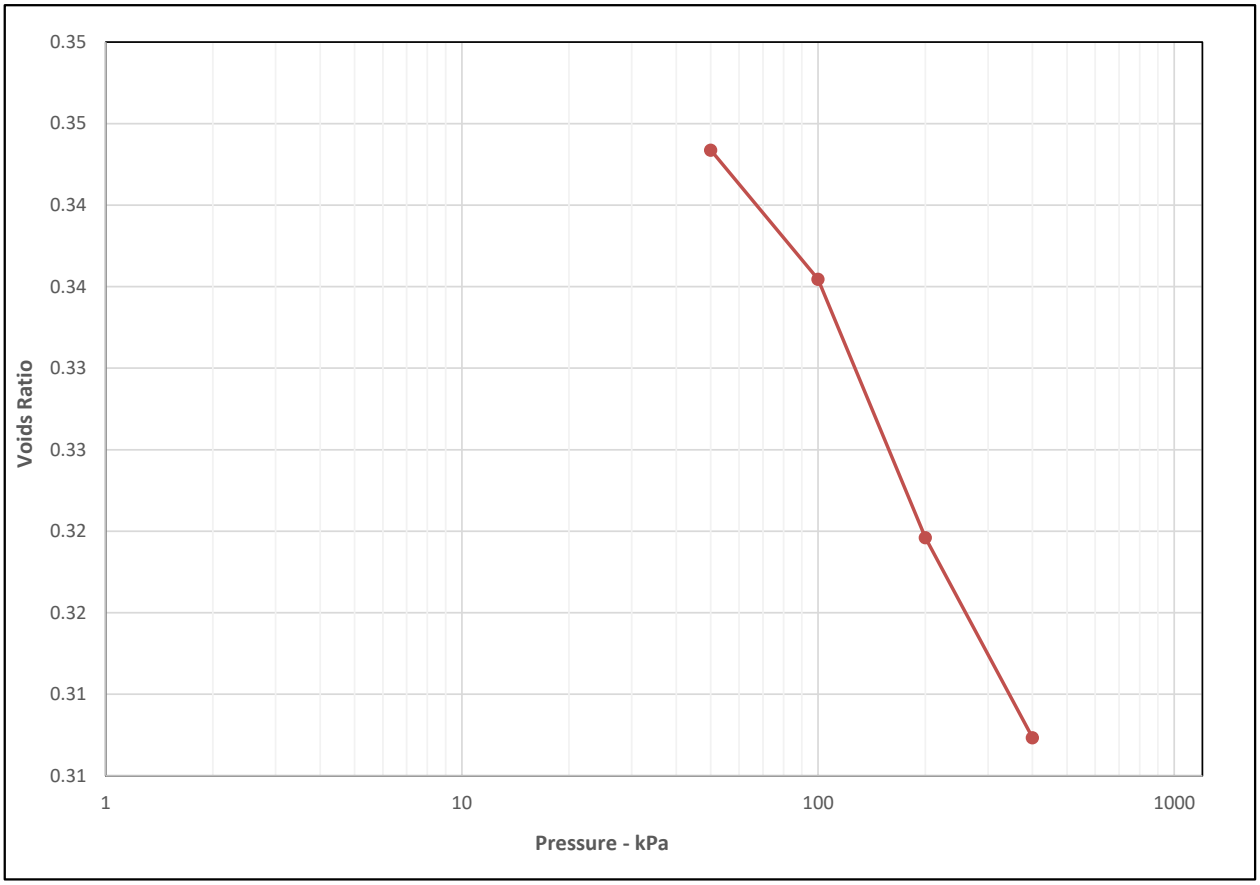
Compaction Point	1	2	3	4	5							
Moisture Content	7.8	10	13	17	25							
Bulk Density	1.75	1.87	1.97	2.02	1.95							
Dry Density	1.62	1.70	1.74	1.73	1.56							

Initial Moisture Content	25	%
Maximum Dry Density	1.74	Mg/m3
Optimum Moisture Content	14	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator	Checked	30/05/2022	Richard John	
Conor	Approved	31/05/2022	Paul Evans	

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GSTL	ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3	Contract Number	59343
		Borehole/Trialpit No.	AVC1_BH_07
Site Name	Future Chippenham	Sample No.	15
Soil Description	Grey gravelly silty CLAY	Depth Top (m)	4.15
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	12/05/2022		

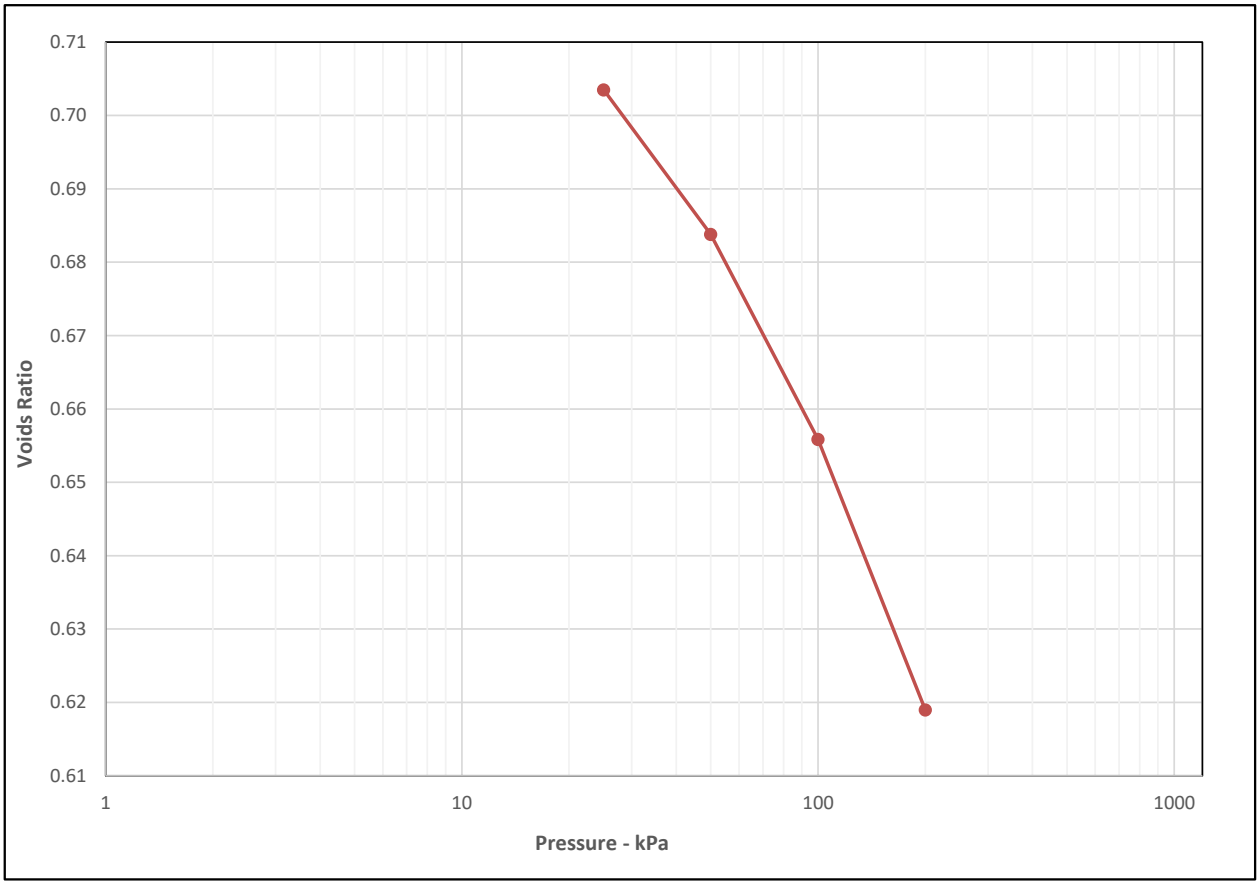


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	17	0	-	50	0.2	16		-			
Bulk Density (Mg/m3)	2.29	50	-	100	0.12	16		-			
Dry Density (Mg/m3)	1.95	100	-	200	0.12	10		-			
Voids Ratio	0.3590	200	-	400	0.05	16.0		-			
Degree of saturation	127.9		-					-			
Height (mm)	19.73		-					-			
Diameter (mm)	75.1		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators	Checked	30/05/2022	Richard John	
Wayne W	Approved	31/05/2022	Paul Evans	

UKAS TESTING
2788

GSTL	ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3	Contract Number	59343
		Borehole/Trialpit No.	AVC1_BH_15
Site Name	Future Chippenham	Sample No.	5
Soil Description	Greyish brown silty CLAY	Depth Top (m)	2.40
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	C
Date Tested	12/05/2022		

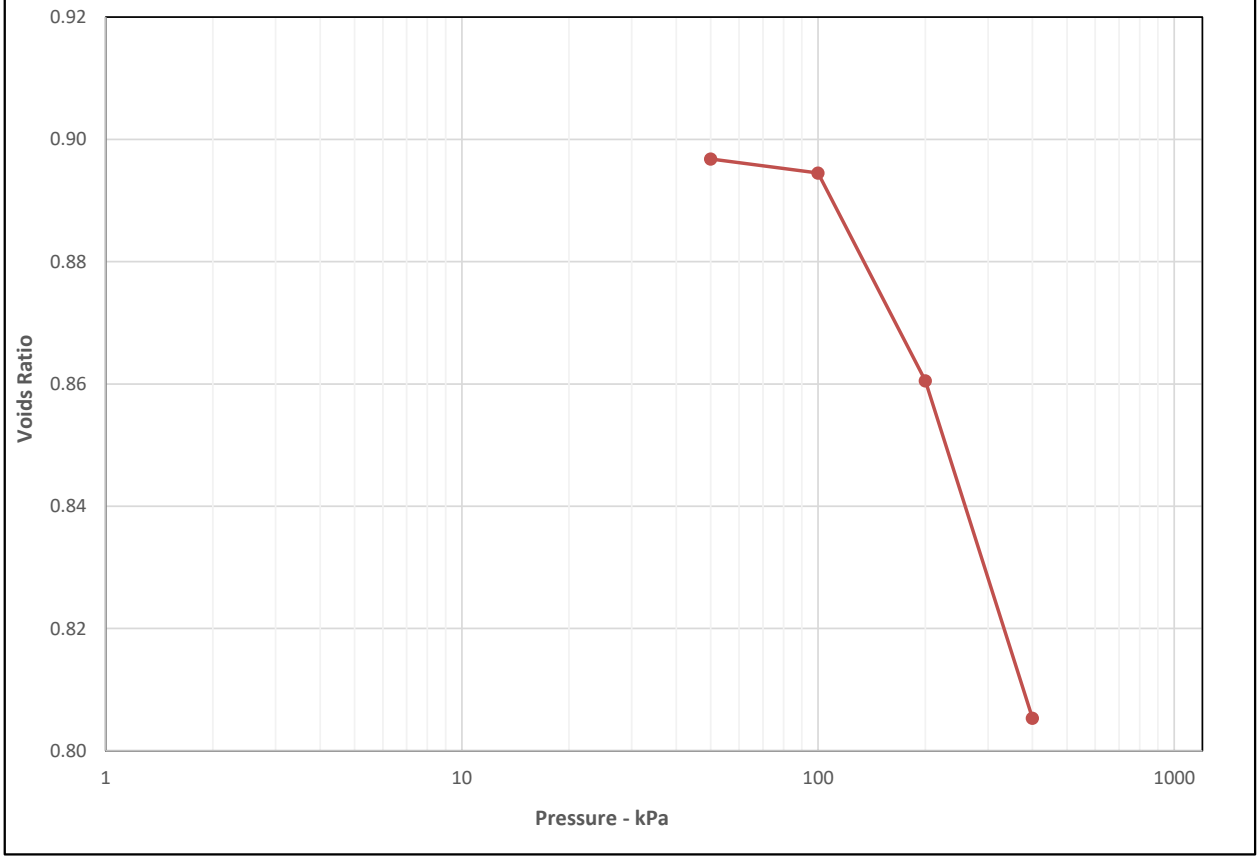


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	29	0	-	25	0.5	3.5		-			
Bulk Density (Mg/m3)	1.98	25	-	50	0.46	2.3		-			
Dry Density (Mg/m3)	1.54	50	-	100	0.33	4.6		-			
Voids Ratio	0.7244	100	-	200	0.22	0.5		-			
Degree of saturation	105.8		-					-			
Height (mm)	19.61		-					-			
Diameter (mm)	74.92		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators	Checked	30/05/2022	Richard John	
Wayne W	Approved	31/05/2022	Paul Evans	D P Evans

UKAS TESTING
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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	60027
		Borehole/Trialpit No.	AVC1_BH_06
Site Name	Future Chippenham	Sample No.	6
Soil Description	*See Sample Description Sheet	Depth Top (m)	2.20
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	UT
Date Tested	22/06/2022		

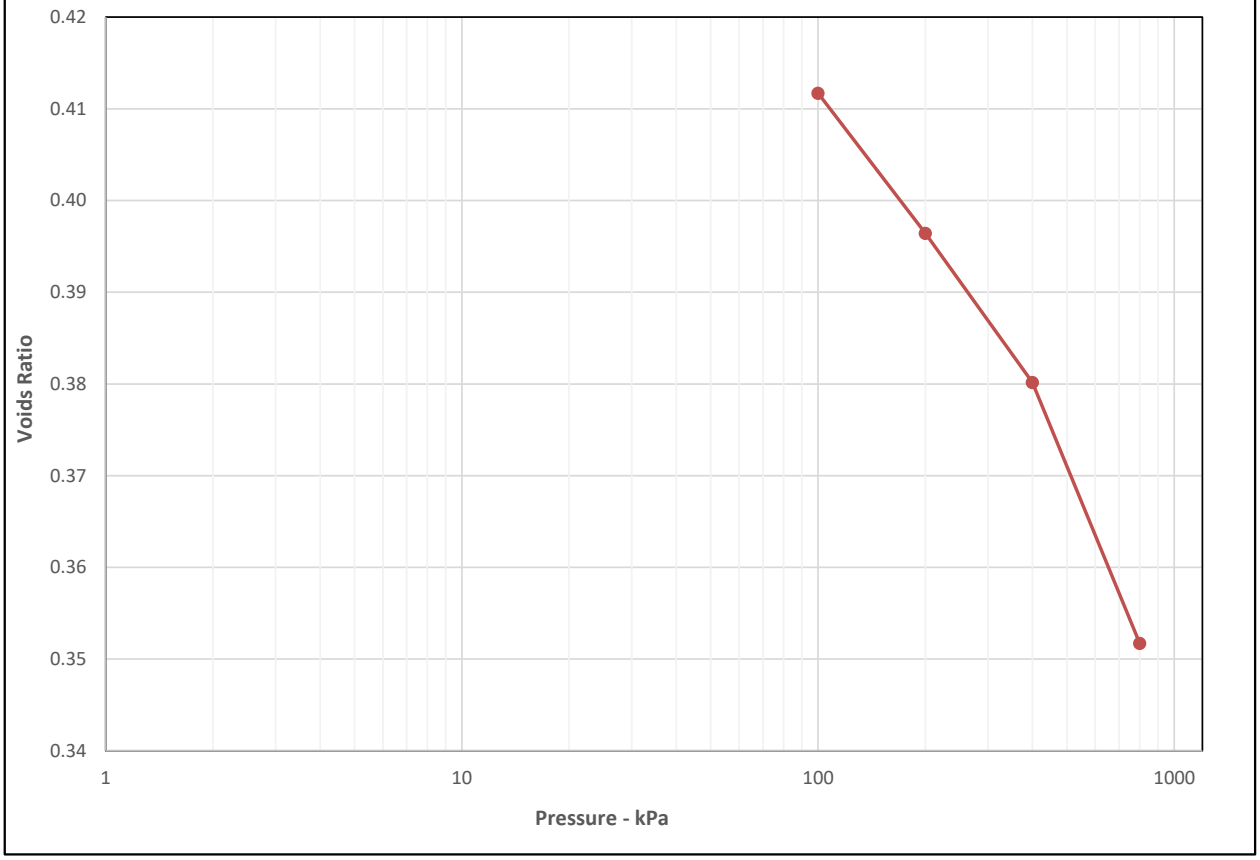


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	35	0	-	50	0.1	17		-			
Bulk Density (Mg/m3)	1.88	50	-	100	0.024	4.3		-			
Dry Density (Mg/m3)	1.39	100	-	200	0.18	6.8		-			
Voids Ratio	0.9039	200	-	400	0.15	1.6		-			
Degree of saturation	103.6		-					-			
Height (mm)	19.8		-					-			
Diameter (mm)	75.11		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators
Wayne W

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	60027
		Borehole/Trialpit No.	PWB_BH_05
Site Name	Future Chippenham	Sample No.	7
Soil Description	*See Sample Description Sheet	Depth Top (m)	4.05
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	C
Date Tested	22/06/2022		

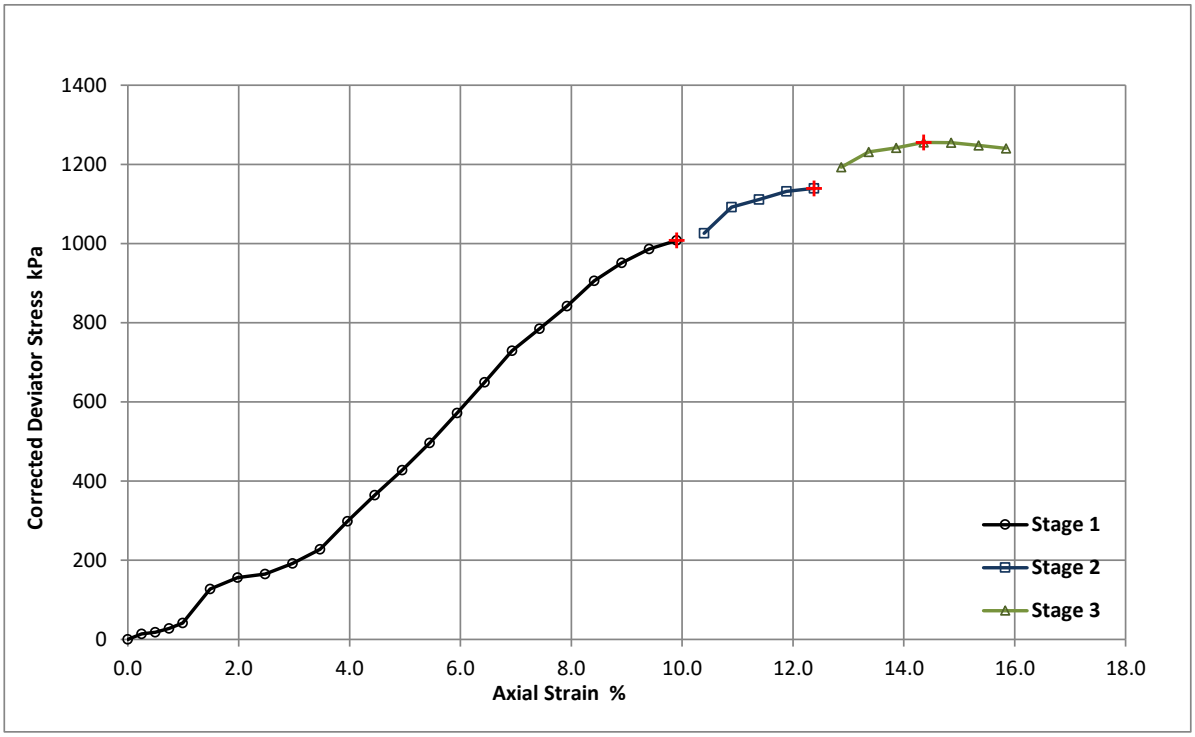


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	17	0	-	100	0.1	6.7		-			
Bulk Density (Mg/m3)	2.19	100	-	200	0.11	2.7		-			
Dry Density (Mg/m3)	1.86	200	-	400	0.058	0.46		-			
Voids Ratio	0.4226	400	-	800	0.05	0.3		-			
Degree of saturation	109.5		-					-			
Height (mm)	18.81		-					-			
Diameter (mm)	75.09		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators
Wayne W

UKAS TESTING 2788

GSTL	Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_07
Site Name	Future Chippenham	Sample No.	14
Soil Description	Light grey silty CLAY	Depth Top	10.50
		Depth Base	
Date Tested	20/05/2022	Sample Type	C
		Technician	Jordan

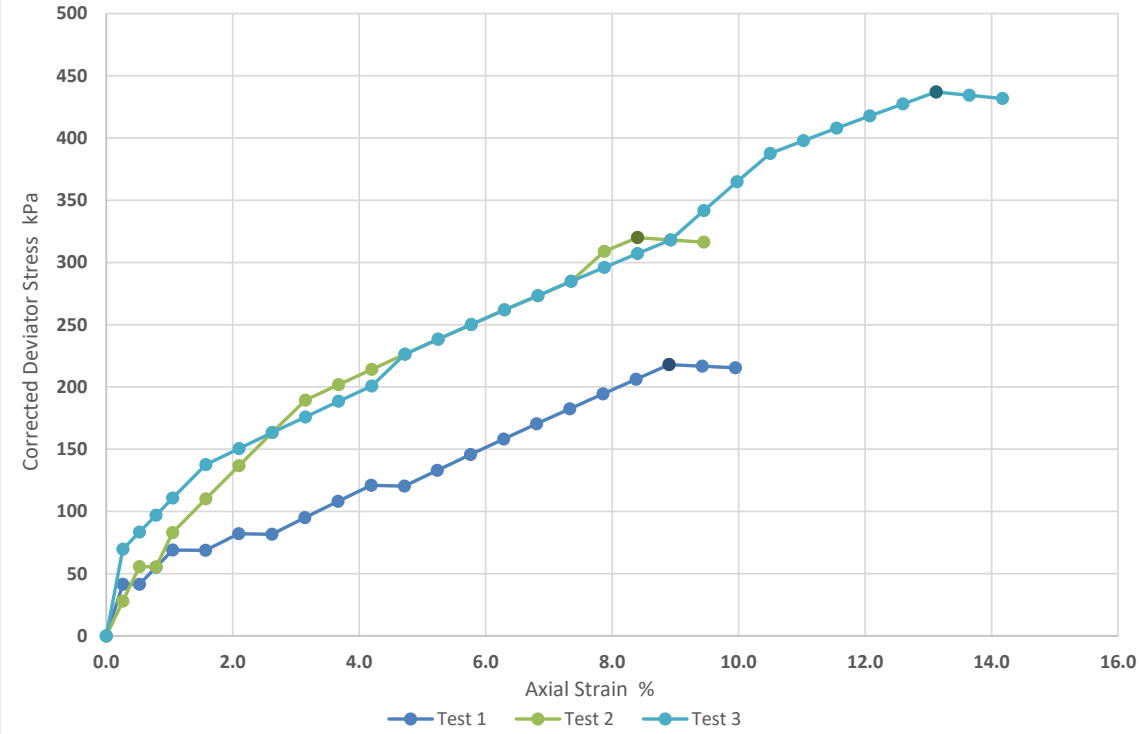


Moisture Content (%)	19		
Bulk Density (Mg/m^3)	2.35		
Dry Density (Mg/m^3)	1.97		
Specimen Length (mm)	202		
Specimen Diamteter (mm)	101		
Cell Pressures (kPa)	200	400	800
Deviator Stress (kPa)	1008	1139	1255
Undrained Shear Strength (kPa)	504	570	628
Failure Strain (%)	9.9	12	14
Mode Of Failure	Brittle		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

Checked	30/05/2022	Richard John	
Approved	31/05/2022	Paul Evans	

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GSTL	Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_07
Site Name	Future Chippenham	Sample No.	6
Soil Description	Greyish brown silty CLAY	Depth Top	1.20
		Depth Base	
Date Tested	19/05/2022	Sample Type	U
		Technician	Jordan

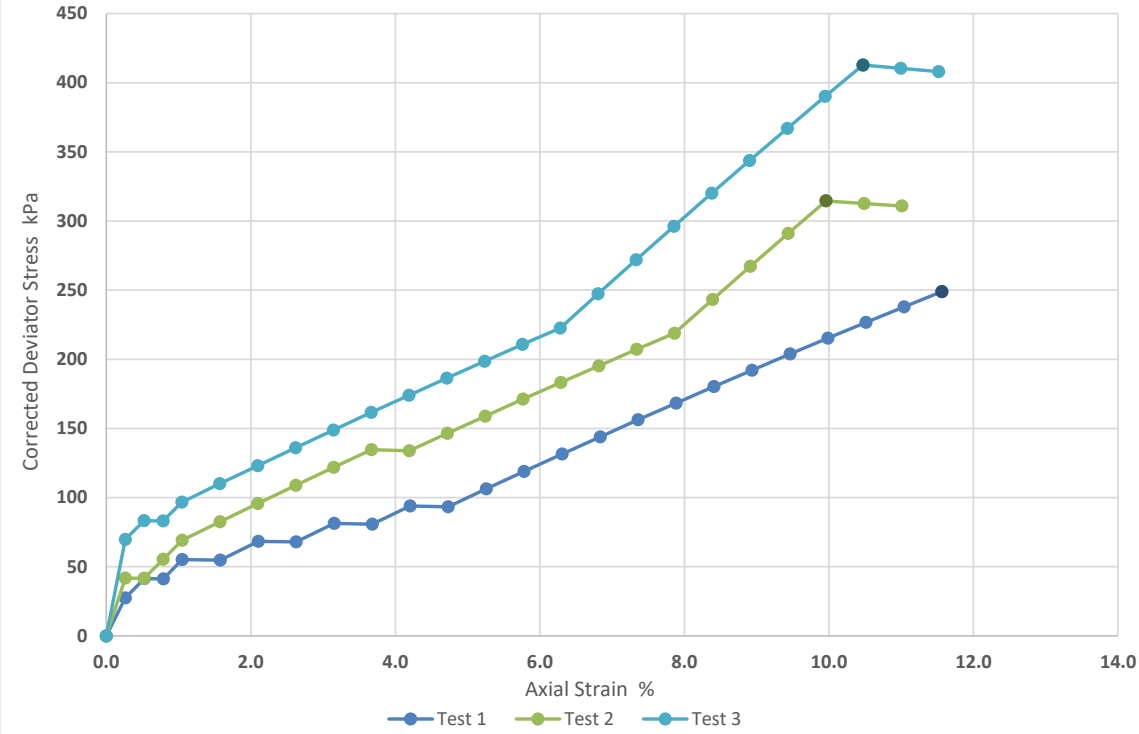


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	12	12	12
Bulk Density (Mg/m^3)	1.88	2.07	1.95
Dry Density (Mg/m^3)	1.68	1.85	1.74
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	10	20	40
Deviator Stress (kPa)	218	320	437
Undrained Shear Strength (kPa)	109	160	218
Failure Strain (%)	8.9	8.4	13
Mode Of Failure	Compound	Compound	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.96	1.97	1.97

Checked	30/05/2022	Richard John	
Approved	31/05/2022	Paul Evans	

UKAS TESTING 2788

GSTL	Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_08
Site Name	Future Chippenham	Sample No.	6
Soil Description	Brownish grey silty CLAY	Depth Top	1.20
		Depth Base	
Date Tested	19/05/2022	Sample Type	U
		Technician	Jordan

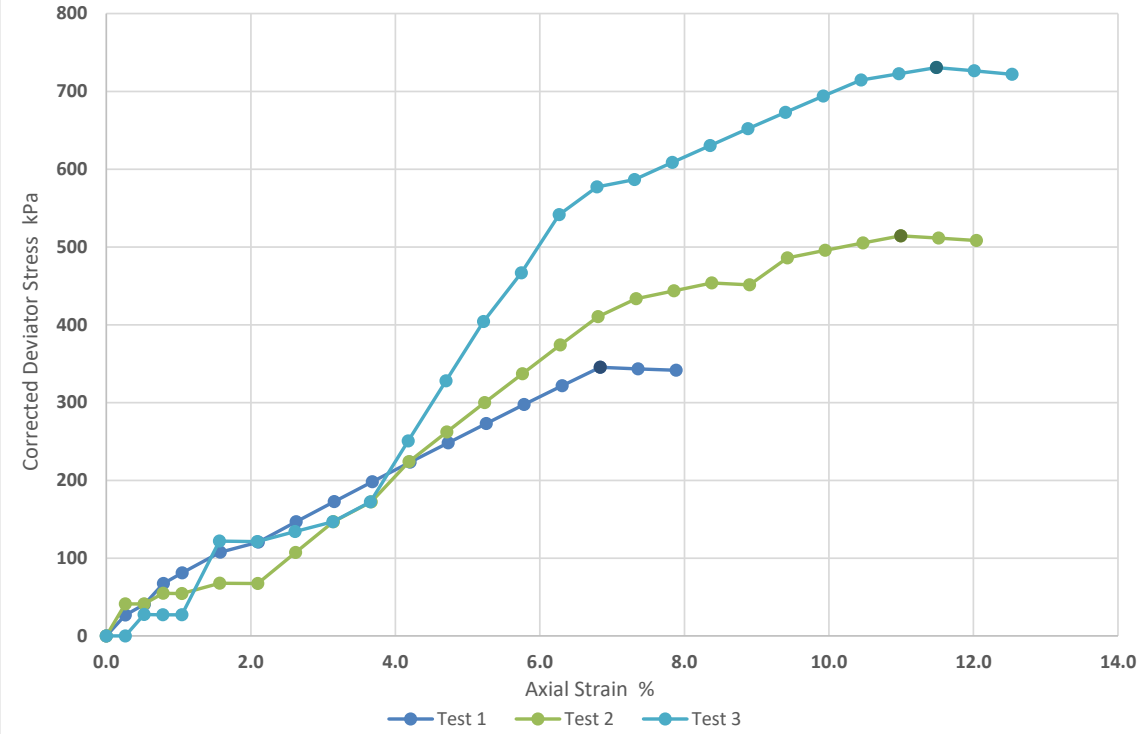


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	34	34	34
Bulk Density (Mg/m^3)	1.81	1.82	1.78
Dry Density (Mg/m^3)	1.36	1.37	1.33
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	10	20	40
Deviator Stress (kPa)	249	315	413
Undrained Shear Strength (kPa)	124	157	206
Failure Strain (%)	12	10.0	10
Mode Of Failure	Compound	Compound	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.96

Checked	30/05/2022	Richard John	
Approved	31/05/2022	Paul Evans	

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GSTL	Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure	Contract Number	59343
		Borehole/Pit No.	AVC1_BH_15
Site Name	Future Chippenham	Sample No.	9
Soil Description	Grey silty CLAY	Depth Top	5.40
		Depth Base	
Date Tested	19/05/2022	Sample Type	C
		Technician	Jordan

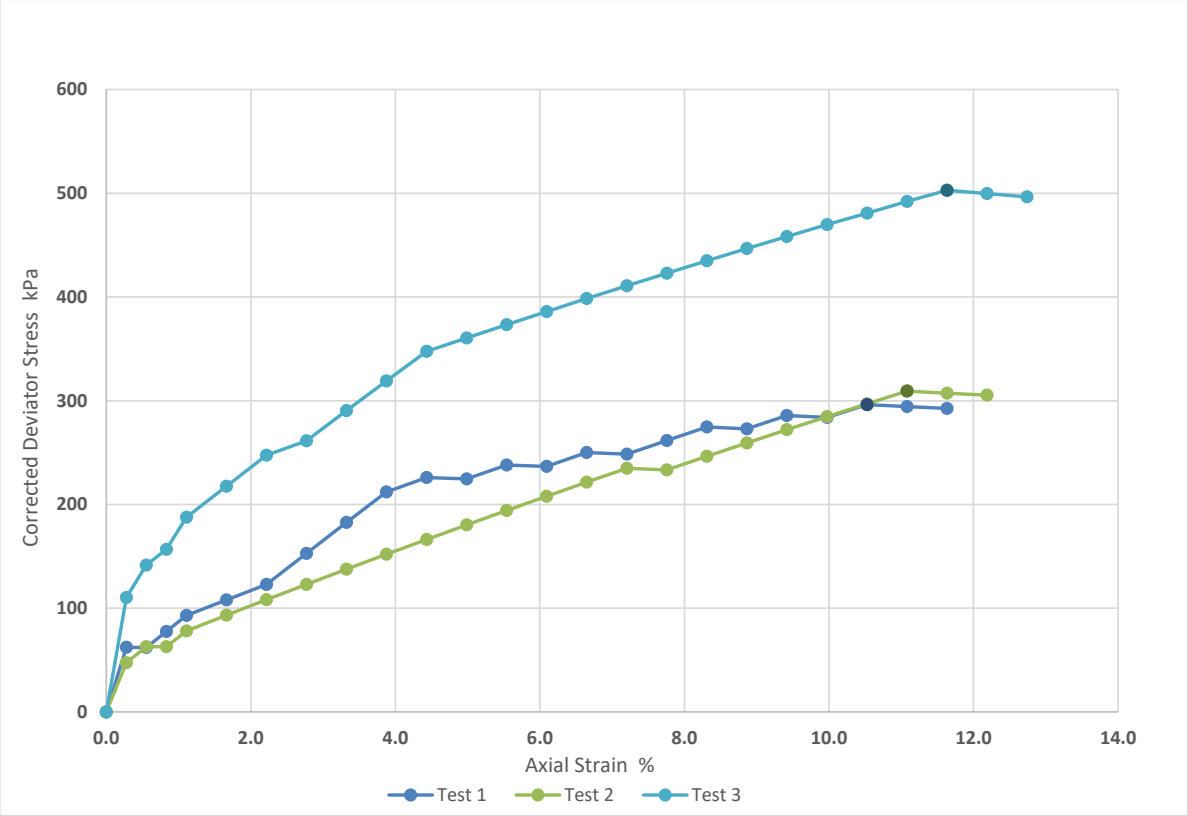


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	24	24	24
Bulk Density (Mg/m^3)	1.87	1.94	1.82
Dry Density (Mg/m^3)	1.50	1.56	1.46
Specimen Length (mm)	76	76	77
Specimen Diamteter (mm)	39	39	39
Cell Pressures (kPa)	100	200	400
Deviator Stress (kPa)	345	514	731
Undrained Shear Strength (kPa)	173	257	365
Failure Strain (%)	6.8	11	11
Mode Of Failure	Compound	Compound	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.96	1.96

Checked	30/05/2022	Richard John	
Approved	31/05/2022	Paul Evans	

UKAS TESTING
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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_03
Site Name	Future Chippenham	Sample No.	6
Soil Description	*See Sample Description Sheet	Depth Top	2.20
		Depth Base	
Date Tested	07/07/2022	Sample Type	U
		Technician	Jordan

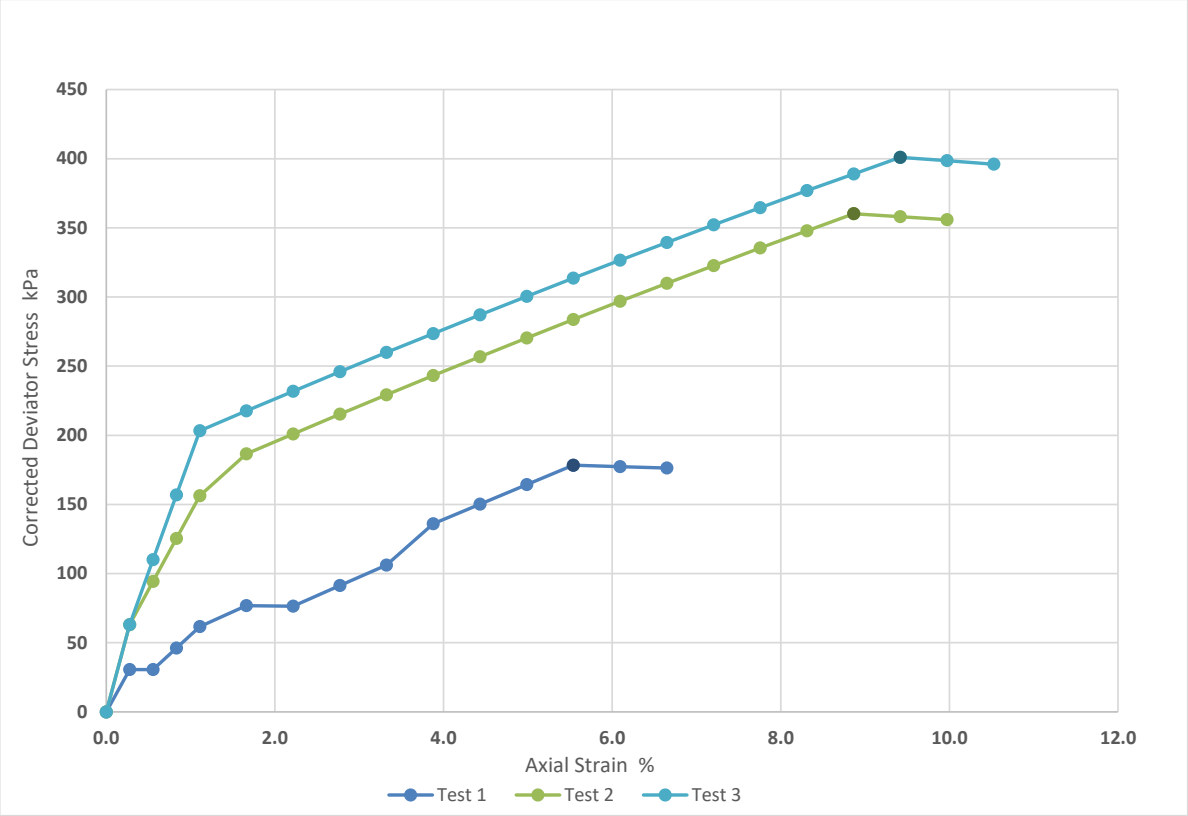


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	25	25	25
Bulk Density (Mg/m^3)	1.91	1.82	1.94
Dry Density (Mg/m^3)	1.53	1.46	1.55
Specimen Length (mm)	72	72	72
Specimen Diamteter (mm)	36	36	36
Cell Pressures (kPa)	20	40	80
Deviator Stress (kPa)	296	309	503
Undrained Shear Strength (kPa)	148	155	251
Failure Strain (%)	11	11	12
Mode Of Failure	Plastic	Plastic	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	2.08	2.08	2.08

Checked
Approved

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_04
Site Name	Future Chippenham	Sample No.	6
Soil Description	*See Sample Description Sheet	Depth Top	2.20
		Depth Base	
Date Tested	07/07/2022	Sample Type	U
		Technician	Jordan

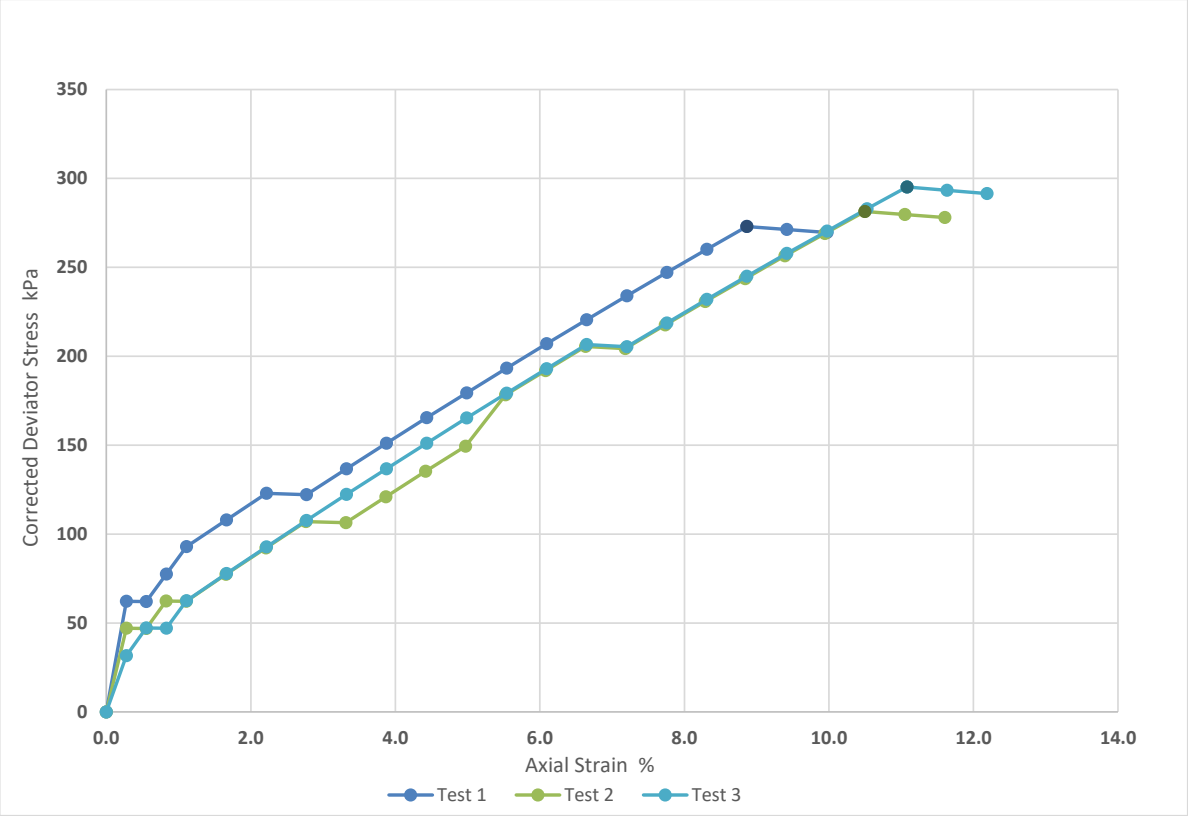


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	25	25	25
Bulk Density (Mg/m^3)	1.86	1.88	1.91
Dry Density (Mg/m^3)	1.49	1.51	1.53
Specimen Length (mm)	72	72	72
Specimen Diamteter (mm)	36	36	36
Cell Pressures (kPa)	20	40	80
Deviator Stress (kPa)	178	360	401
Undrained Shear Strength (kPa)	89	180	200
Failure Strain (%)	5.5	8.9	9.4
Mode Of Failure	Plastic	Plastic	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	2.08	2.08	2.08

Checked
Approved

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_09
Site Name	Future Chippenham	Sample No.	4
Soil Description	*See Sample Description Sheet	Depth Top	2.70
		Depth Base	
Date Tested	07/07/2022	Sample Type	U
		Technician	Jordan

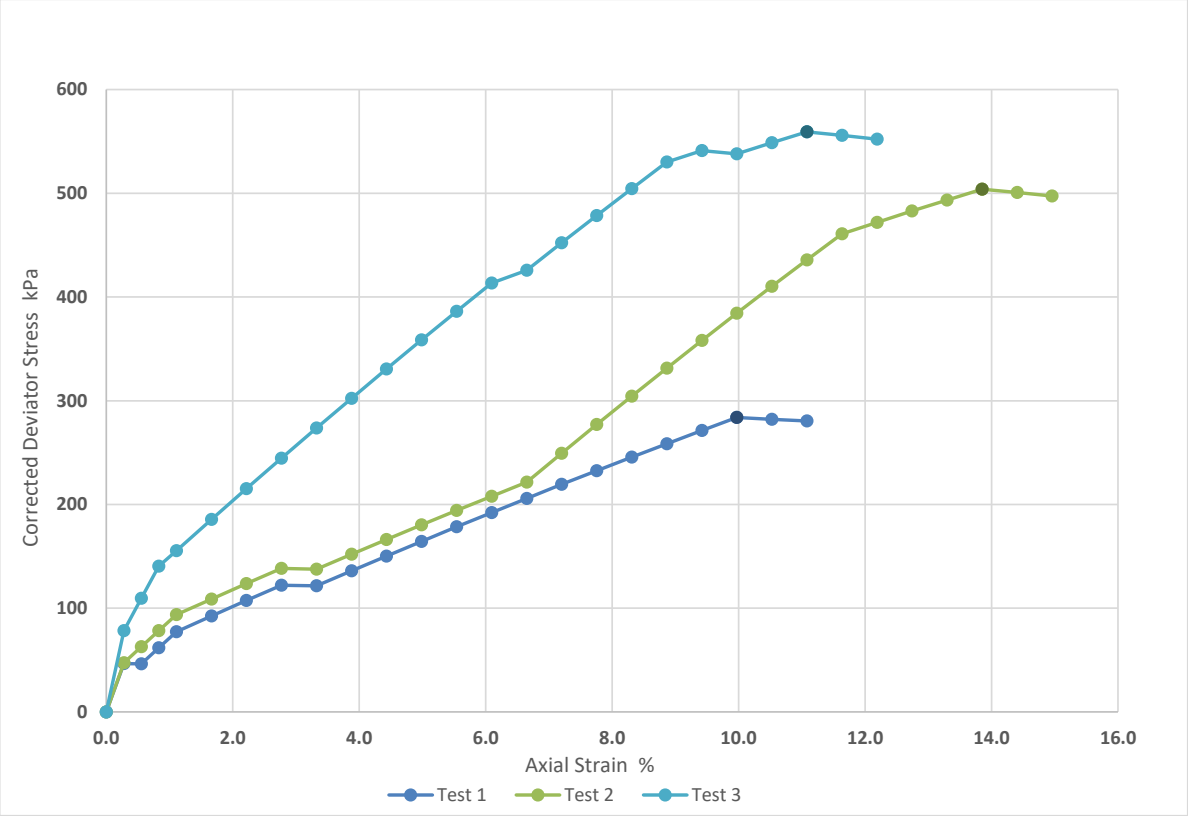


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	26	26	26
Bulk Density (Mg/m^3)	1.91	1.85	1.93
Dry Density (Mg/m^3)	1.52	1.47	1.53
Specimen Length (mm)	72	72	72
Specimen Diamteter (mm)	36	36	36
Cell Pressures (kPa)	20	40	80
Deviator Stress (kPa)	273	281	295
Undrained Shear Strength (kPa)	136	141	148
Failure Strain (%)	8.9	10	11
Mode Of Failure	Brittle	Brittle	Brittle
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	2.08	2.07	2.08

Checked
Approved

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	60027
		Borehole/Pit No.	AVC1_BH_09
Site Name	Future Chippenham	Sample No.	15
Soil Description	*See Sample Description Sheet	Depth Top	9.30
		Depth Base	
Date Tested	07/07/2022	Sample Type	C
		Technician	Jordan

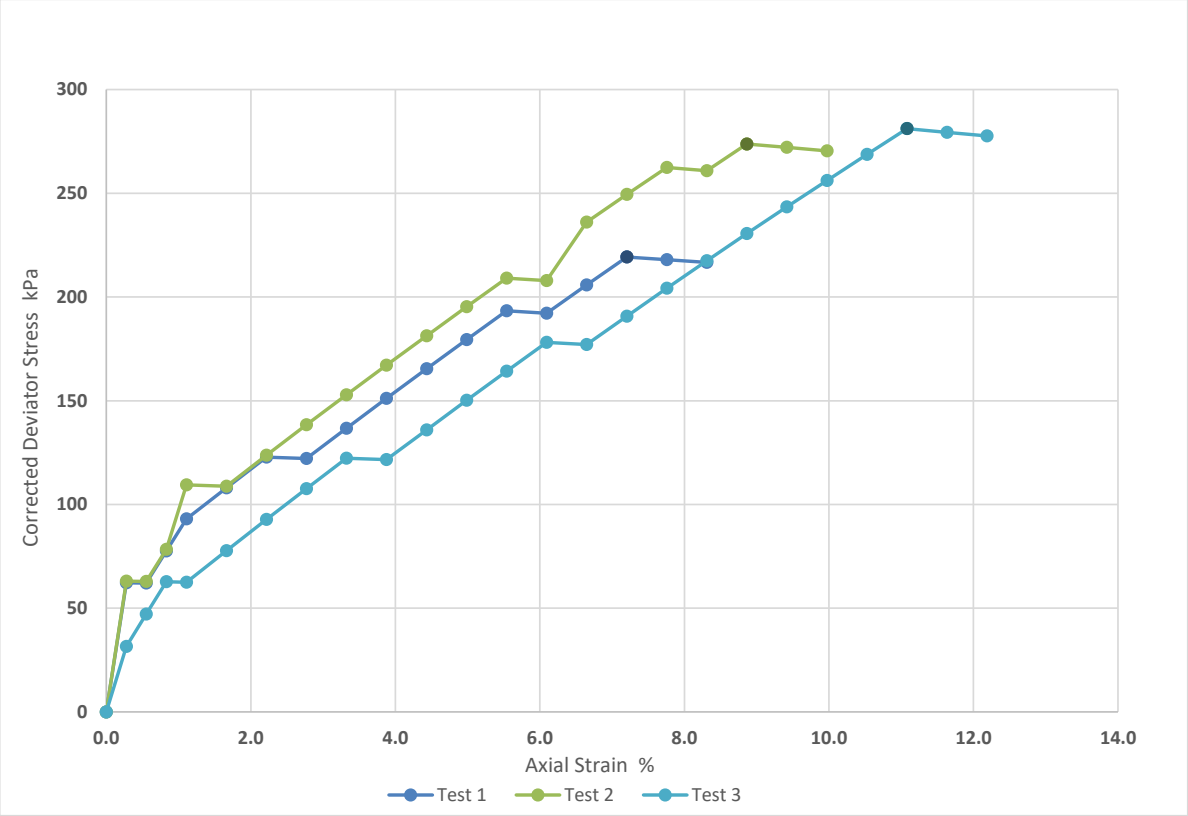


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	24	24	24
Bulk Density (Mg/m^3)	1.79	1.94	2.04
Dry Density (Mg/m^3)	1.44	1.57	1.64
Specimen Length (mm)	72	72	72
Specimen Diamteter (mm)	36	36	36
Cell Pressures (kPa)	90	180	360
Deviator Stress (kPa)	284	504	559
Undrained Shear Strength (kPa)	142	252	280
Failure Strain (%)	10.0	14	11
Mode Of Failure	Plastic	Plastic	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	2.08	2.08	2.08

Checked
Approved

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	60027
		Borehole/Pit No.	AVW_BH_05
Site Name	Future Chippenham	Sample No.	11
Soil Description	*See Sample Description Sheet	Depth Top	5.20
		Depth Base	
Date Tested	07/07/2022	Sample Type	U
		Technician	Jordan

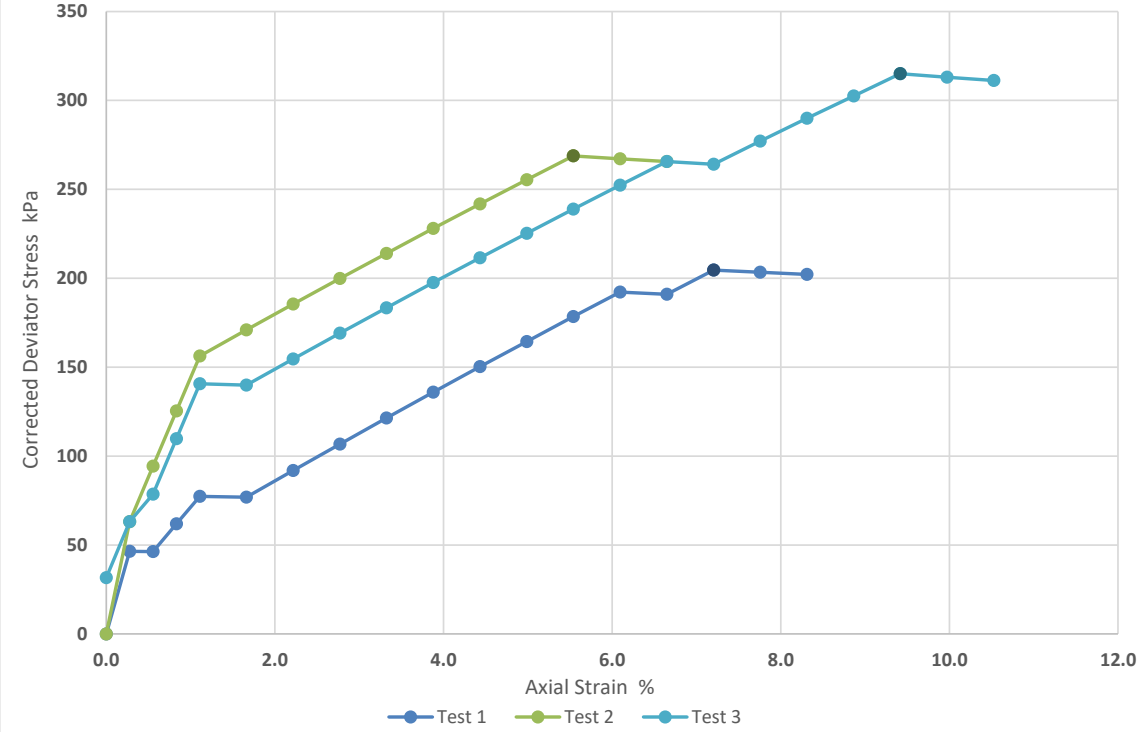


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	25	25	25
Bulk Density (Mg/m^3)	1.81	1.72	1.82
Dry Density (Mg/m^3)	1.45	1.37	1.45
Specimen Length (mm)	72	72	72
Specimen Diamteter (mm)	36	36	36
Cell Pressures (kPa)	50	100	150
Deviator Stress (kPa)	219	274	281
Undrained Shear Strength (kPa)	110	137	141
Failure Strain (%)	7.2	8.9	11
Mode Of Failure	Plastic	Compound	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	2.08	2.08	2.08

Checked
Approved

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	60027
		Borehole/Pit No.	AVW_BH_05
Site Name	Future Chippenham	Sample No.	22
Soil Description	*See Sample Description Sheet	Depth Top	14.10
		Depth Base	
Date Tested	07/07/2022	Sample Type	U
		Technician	Jordan

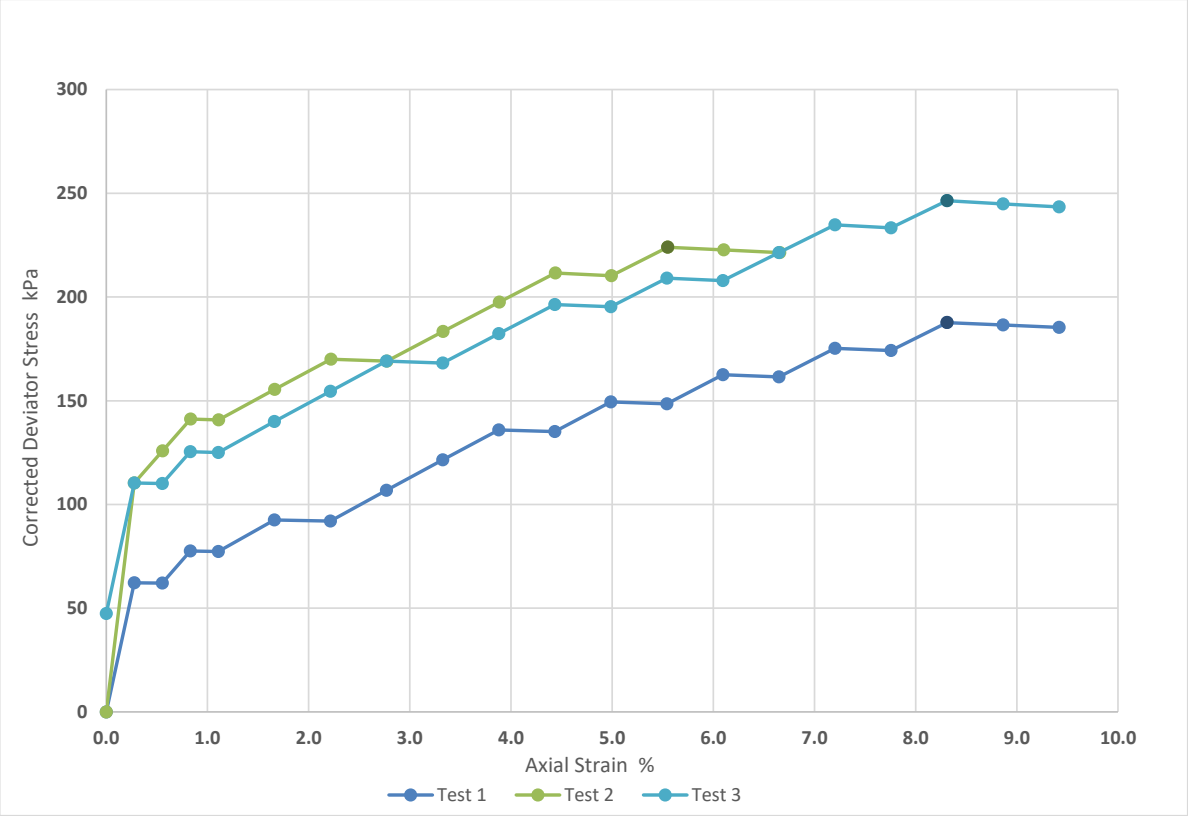


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	15	15	15
Bulk Density (Mg/m^3)	1.74	1.81	1.84
Dry Density (Mg/m^3)	1.50	1.57	1.59
Specimen Length (mm)	72	72	72
Specimen Diamteter (mm)	36	36	36
Cell Pressures (kPa)	100	200	300
Deviator Stress (kPa)	205	269	315
Undrained Shear Strength (kPa)	102	134	158
Failure Strain (%)	7.2	5.5	9.4
Mode Of Failure	Plastic	Plastic	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	2.08	2.08	2.08

Checked
Approved

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	60027
		Borehole/Pit No.	PWB_BH_05
Site Name	Future Chippenham	Sample No.	9
Soil Description	*See Sample Description Sheet	Depth Top	6.75
		Depth Base	
Date Tested	07/07/2022	Sample Type	U
		Technician	Jordan



	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	17	17	17
Bulk Density (Mg/m^3)	1.89	1.74	1.79
Dry Density (Mg/m^3)	1.62	1.50	1.54
Specimen Length (mm)	72	72	72
Specimen Diamteter (mm)	36	36	36
Cell Pressures (kPa)	60	120	180
Deviator Stress (kPa)	188	224	246
Undrained Shear Strength (kPa)	94	112	123
Failure Strain (%)	8.3	5.5	8.3
Mode Of Failure	Compound	Compound	Brittle
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	2.08	2.08	2.08

Checked
Approved

UKAS TESTING
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Test Report: Direct Shearbox Test

BS1377:Part 7:4.5 :1990.

Borehole:	AVC1_BH_08	Depth (m) from:	1.20
Sample Number :	13	Depth (m) to:	0.00

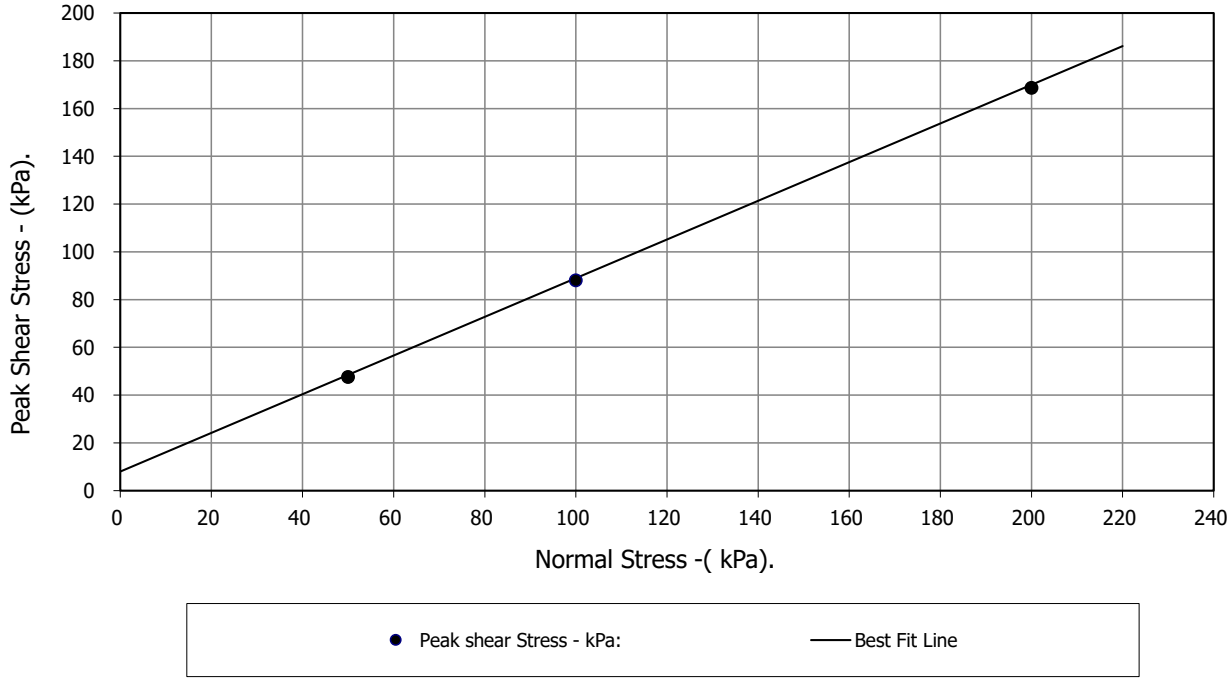
Sample Type:	B
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Tested:	Submerged, Remoulded material above 2.00mm removed

Sample Description:
Brown coarse SAND

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	23.73	23.73	23.73
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	10	10	10
Bulk Density - Mg/m3:	1.39	1.39	1.38
Dry Density - Mg/m3:	1.26	1.26	1.25
Voids Ratio:	1.1108	1.1094	1.1122
Degree of Saturation - %:	24.64	24.68	24.61
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	23.08	22.75	22.40
Shear			
Rate of Horizontal Displacement (mm/min)	0.500	0.500	0.500
Horizontal Displacement at Peak Shear Stress (mm)	7.52	9.25	10.72
Peak shear Stress - kPa:	48	88	169

PEAK	
Angle of Shearing Resistance:(θ)	**39**
Effective Cohesion - kPa:	**8.0**

FAILURE CONDITIONS



R.John 26/08/2022 Approved Page 1 by: Date

R.John 26/08/2022 Checked Page 1 by: Date

UKAS TESTING 2788

Contract No.:
59343

Future Chippenham

Client Ref Number:
JER9352

GSTL GEO SITE & TESTING SERVICES LTD

QSHEARBOX

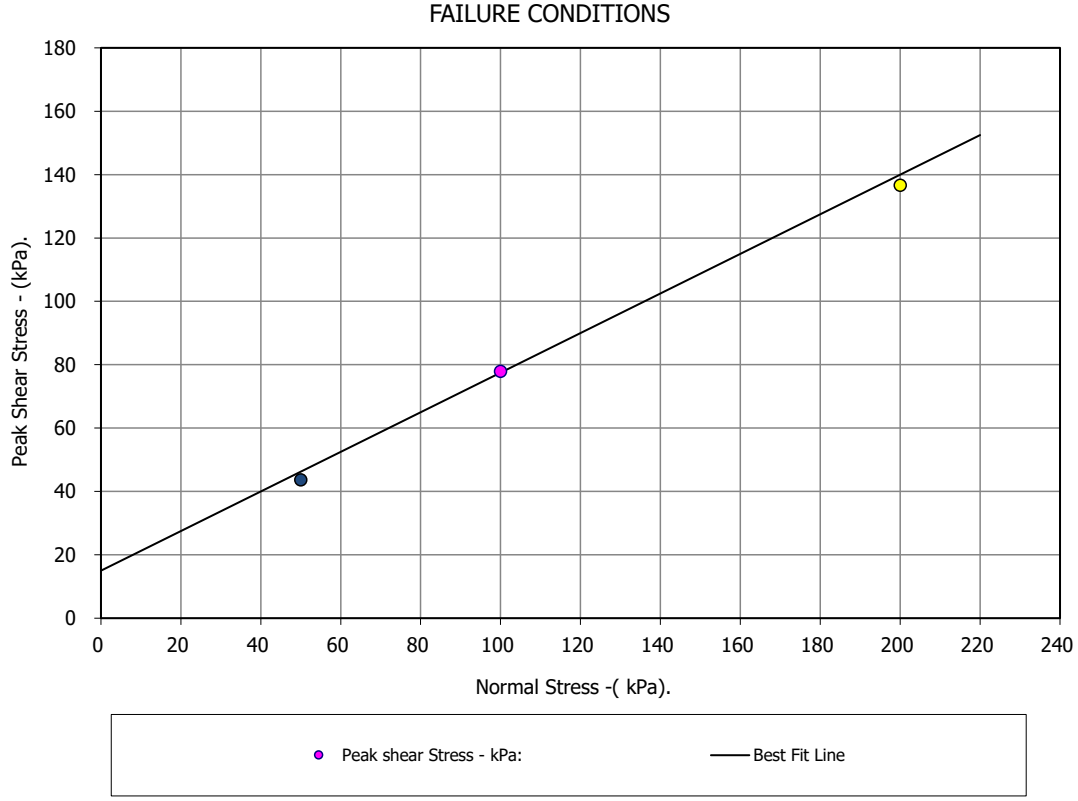
Borehole Number:	AVC1_BH_07	Depth from (m):	4.15
Sample Number :	15.0		

Sample Type:	B
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.

Sample Description:
Brown sandy CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	24.98	24.98	24.98
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	31	31	31
Bulk Density - Mg/m3:	1.96	1.96	1.96
Dry Density - Mg/m3:	1.49	1.49	1.49
Voids Ratio:	0.7770	0.7753	0.7773
Degree of Saturation - %:	107.20	107.44	107.16
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.83	21.77	19.94
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	12.43	10.26	7.65
Peak shear Stress - kPa:	44	78	137

PEAK	
Angle of Shearing Resistance:(θ)	**32.0**
Effective Cohesion - kPa:	**15**



Contract No.:
59343

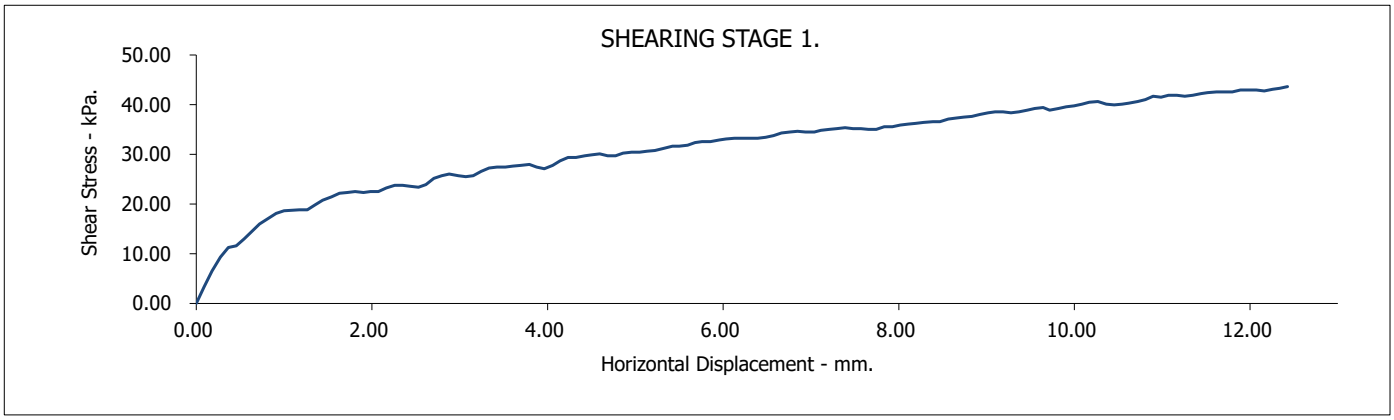
Future Chippenham

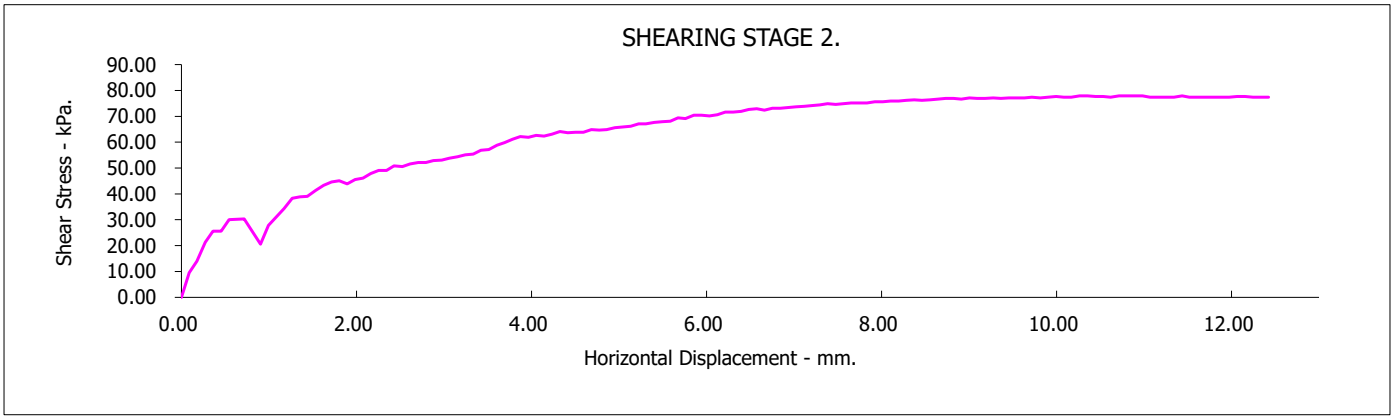
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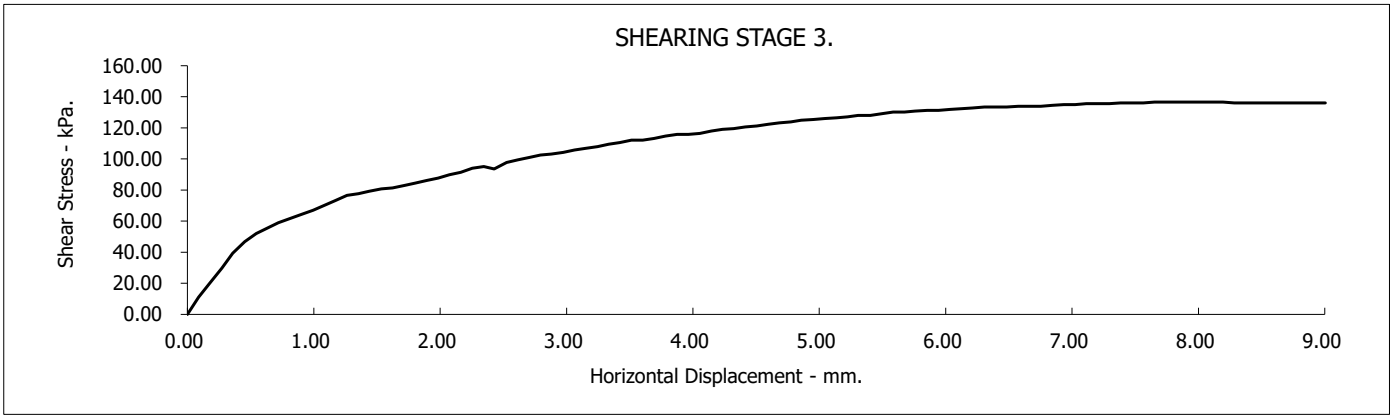
JER9352

GSTL
GEO SITE & TESTING SERVICES LTD

Borehole Number:	AVC1_BH_07	Depth from (m):	4.15
Sample Number :	15	Depth to (m):	







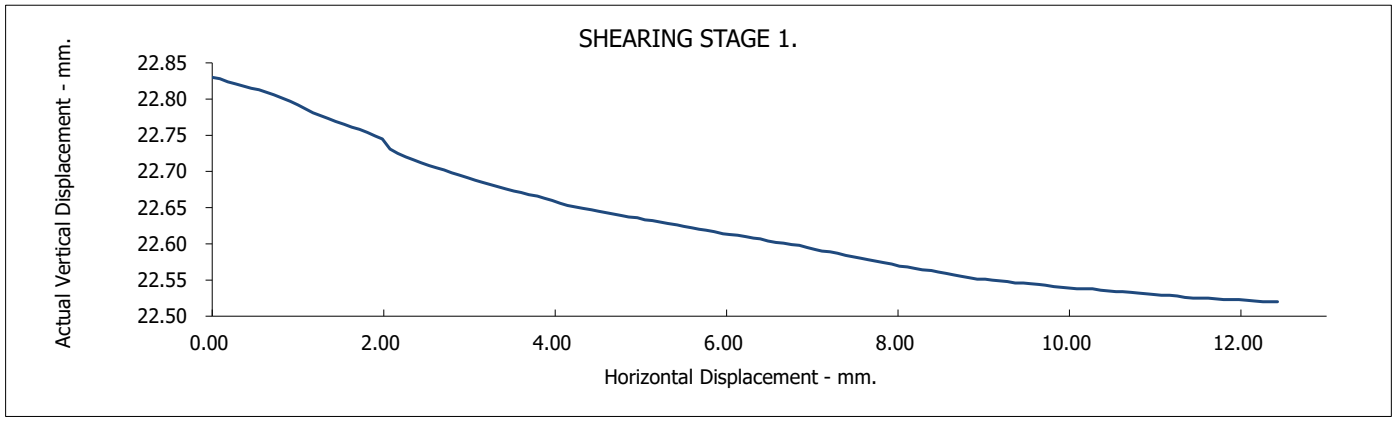
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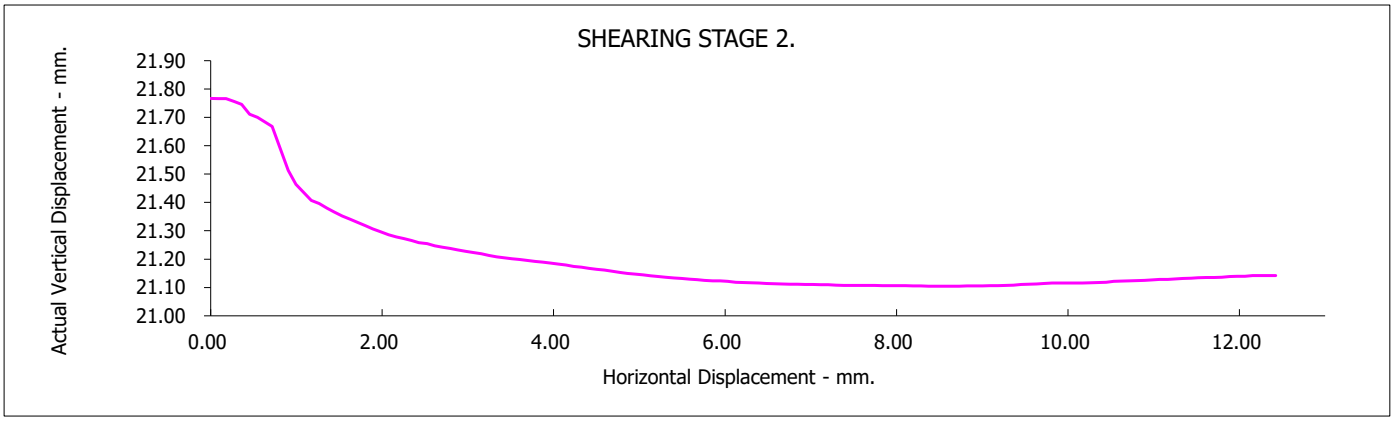
Contract No.:
59343

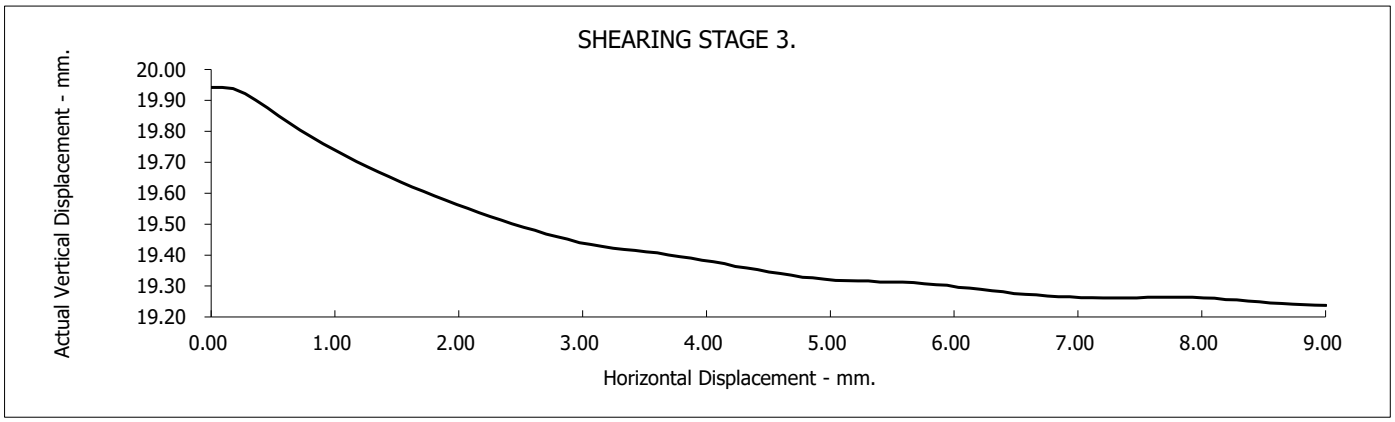
Client Ref Number:
JER9352

Figure.

Borehole Number:	AVC1_BH_07	Depth from (m):	4.15
Sample Number :	15	Depth to (m):	





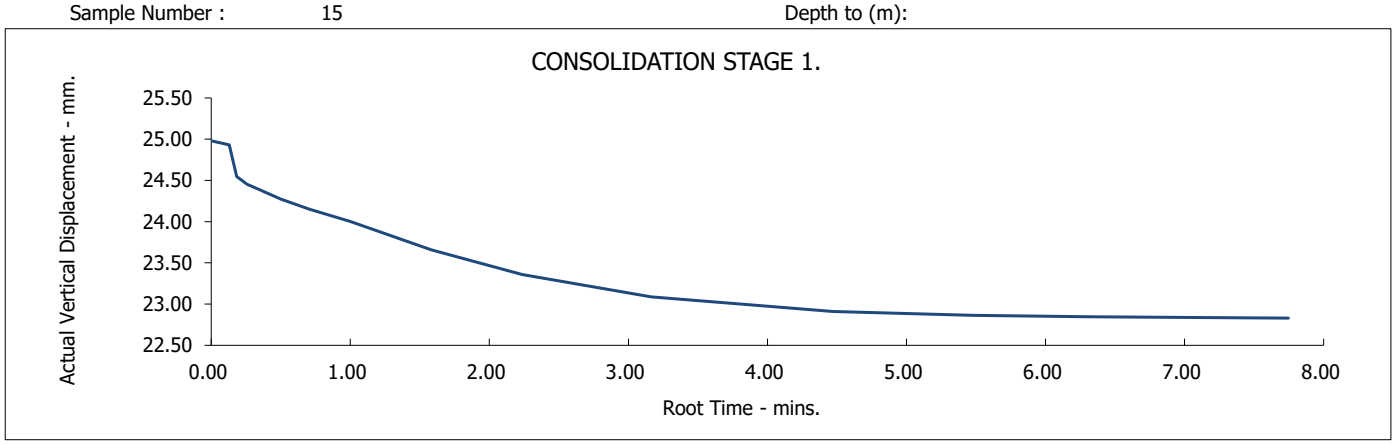


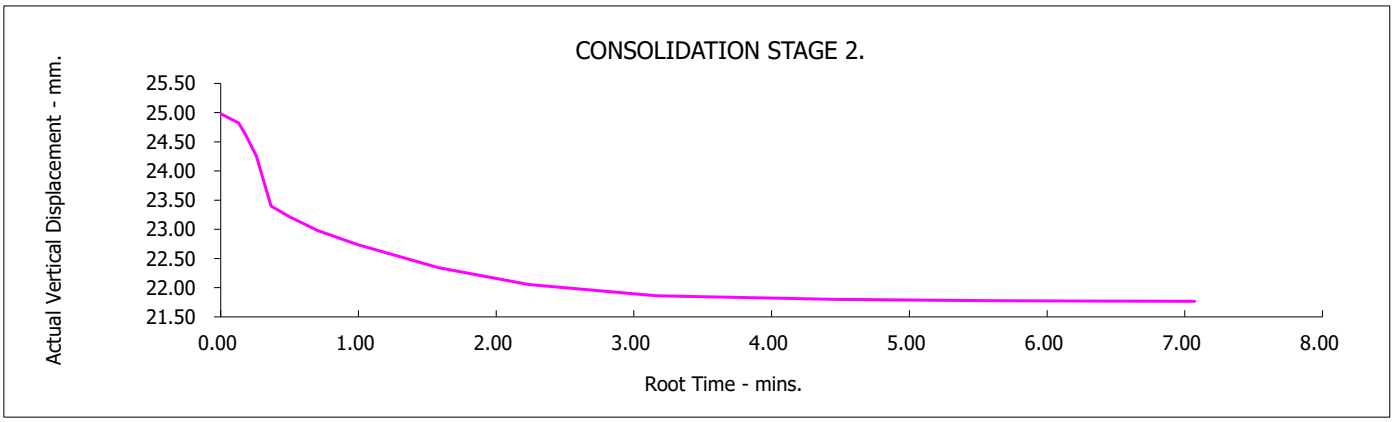
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59343

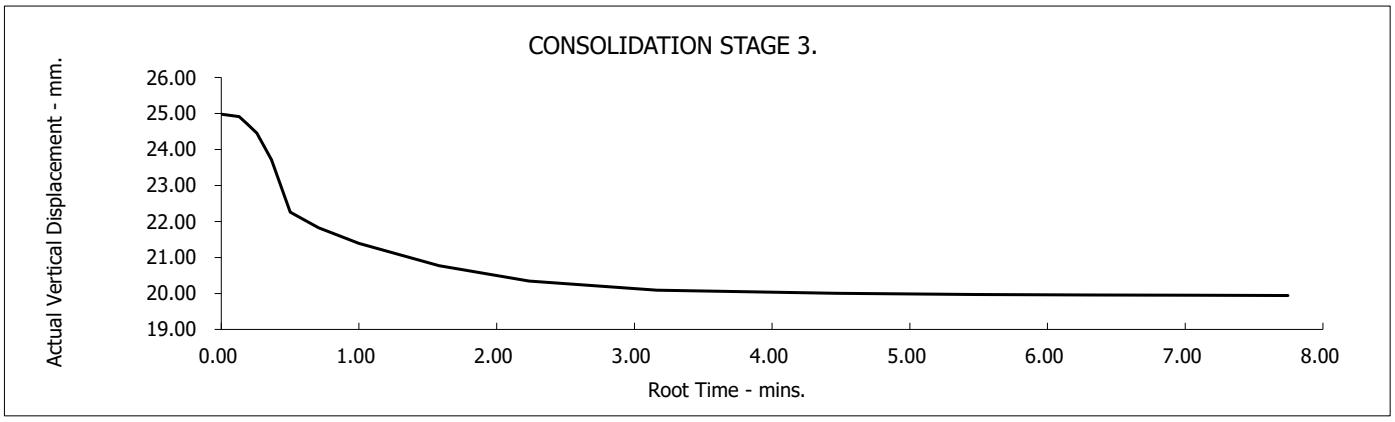
Future Chippenham

Client Ref Number:
JER9352

Borehole Number:	AVC1_BH_07	Depth from (m):	4.15
Sample Number :	15	Depth to (m):	







UKAS TESTING 2788

Checked Pages 1-4 by: 26/08/2022 Date: Approved Pages 1-4 by: 26/08/2022 Date

Contract No.: **59343**

Future Chippenham

Client Ref Number: **JER9352**

Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

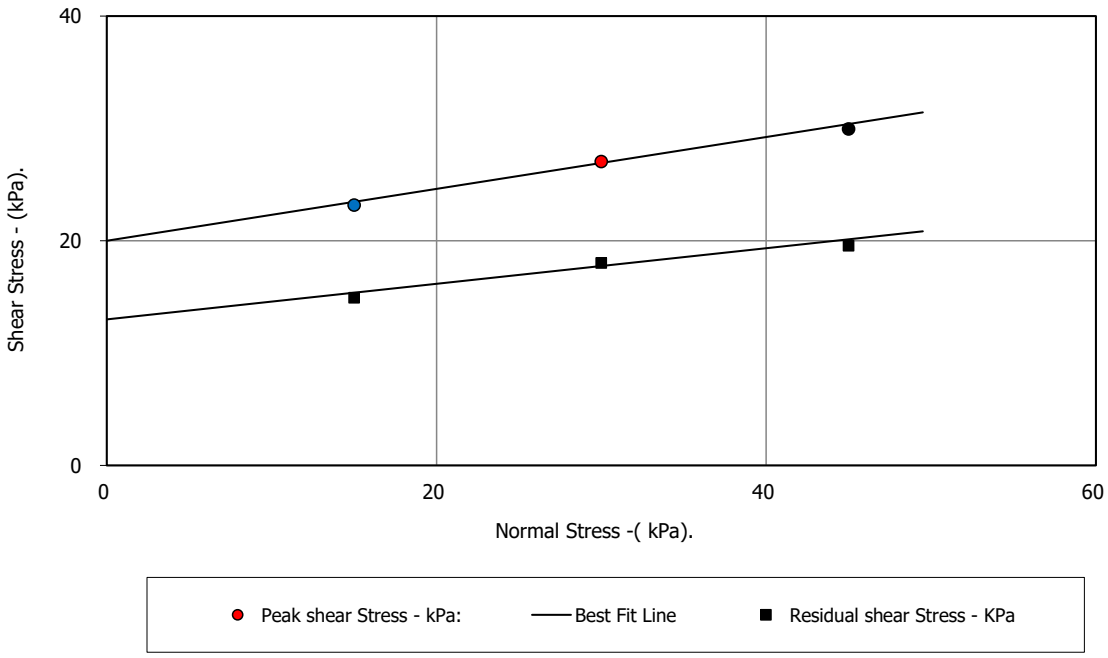
Hole Number:	WS007	Depth from (m):	1.00
Sample Number:	2		
Sample Type: B	Remoulded (Light Tamping) material above 2mm removed		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Conditions:	Submerged		

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	24.98	24.98	24.98
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	21	21	21
Bulk Density - Mg/m3:	2.01	2.01	2.01
Dry Density - Mg/m3:	1.65	1.65	1.65
Voids Ratio:	0.6038	0.6026	0.6025
Normal Pressure- kPa	15	30	45
Consolidation			
Consolidated Height - mm:	24.79	24.18	24.54
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	7.65	7.11	1.44
Peak shear Stress - kPa:	23	27	30
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	16.38	16.20	16.02
Residual shear Stress - kPa:	15	18	20

PEAK	
Angle of Shearing Resistance:(θ)	**13.0**
Effective Cohesion - kPa:	**20**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**9.0**
Effective Cohesion - kPa:	**13**

Failure Conditions



Contract No.:
60027

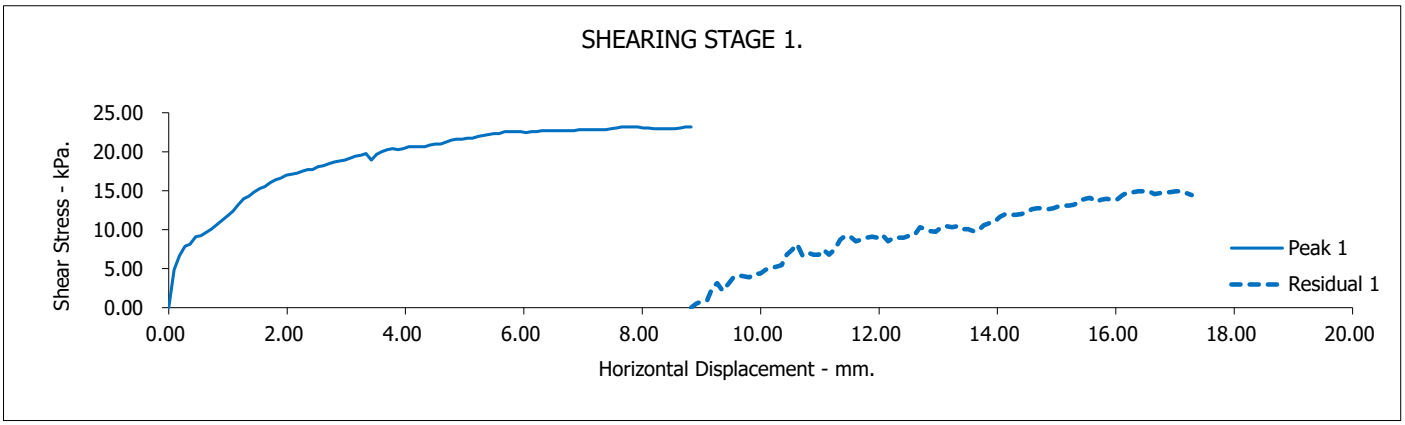
Future Chippenham

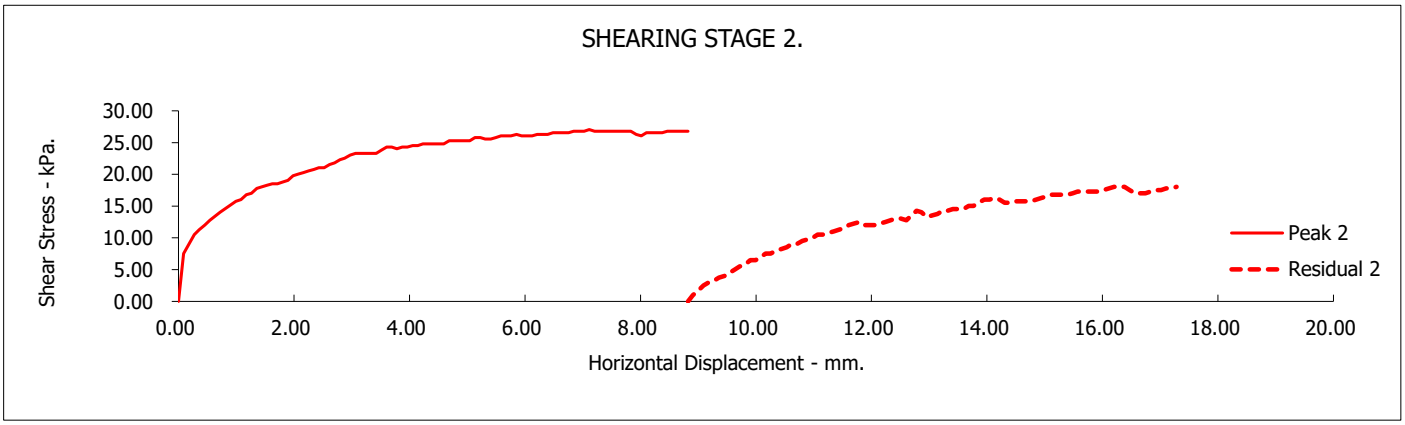
Client Ref Number:
JER9352

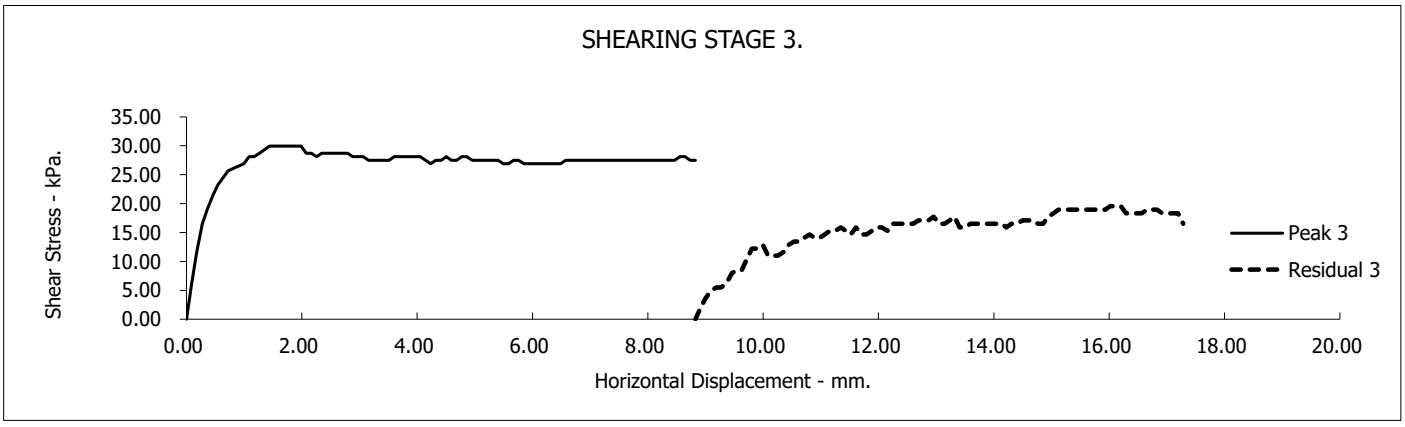
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number:	WS007	Depth (m):	1.00







Future Chippenham

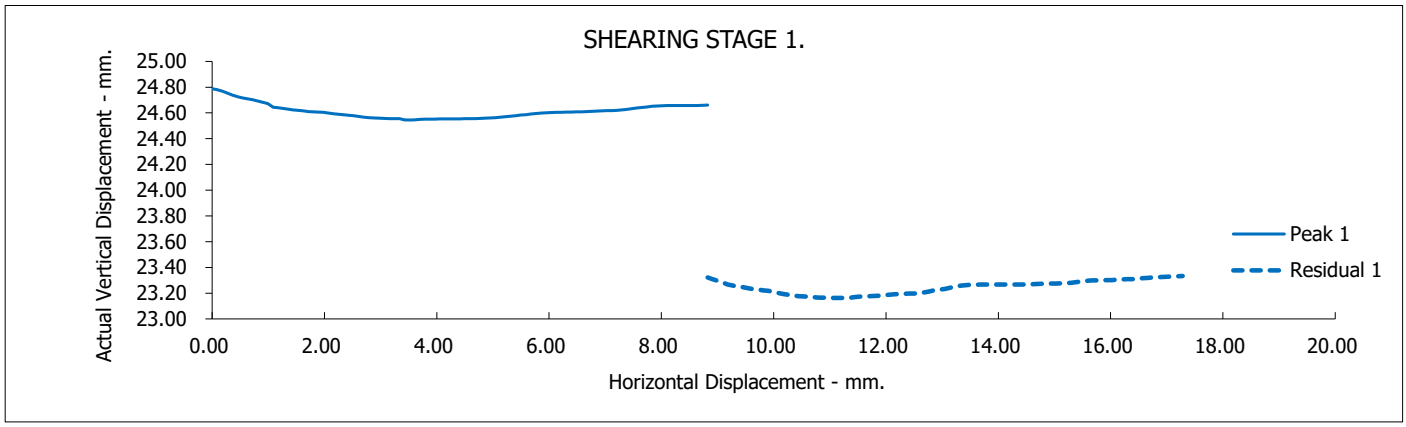
Contract No.:
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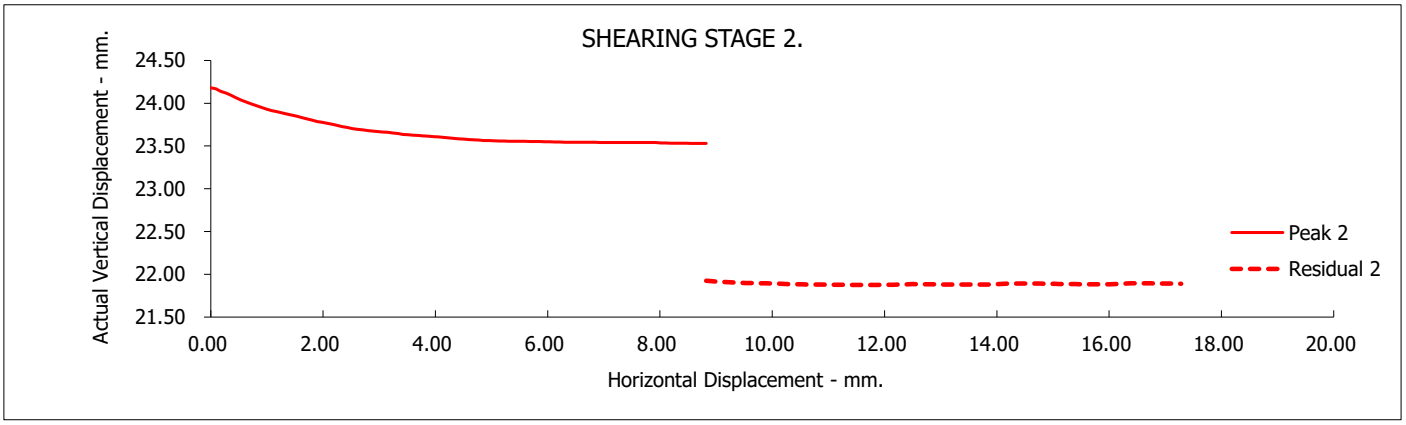
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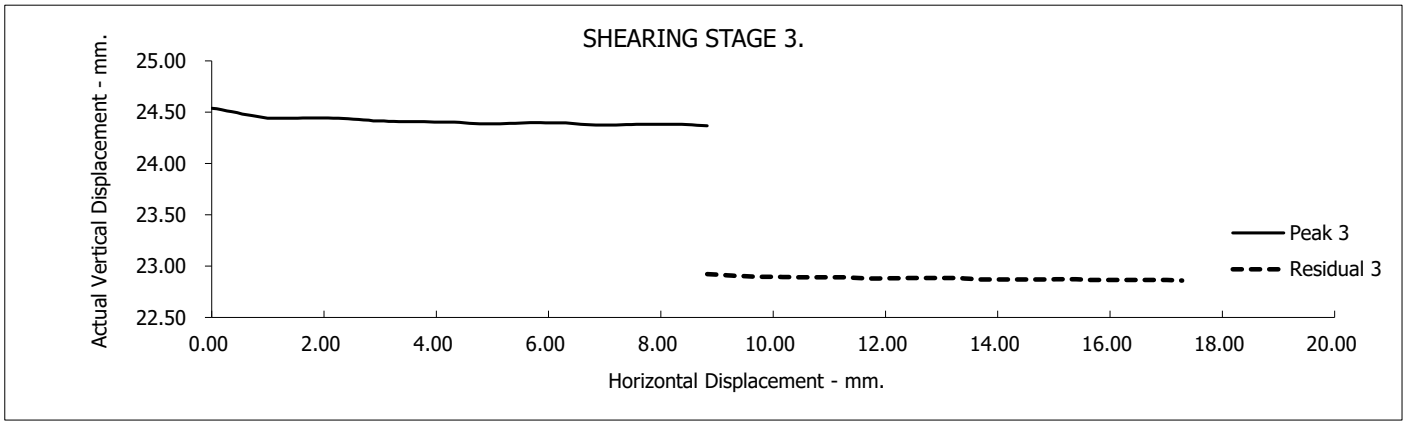
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: WS007 Depth (m): 1.00







Future Chippenham

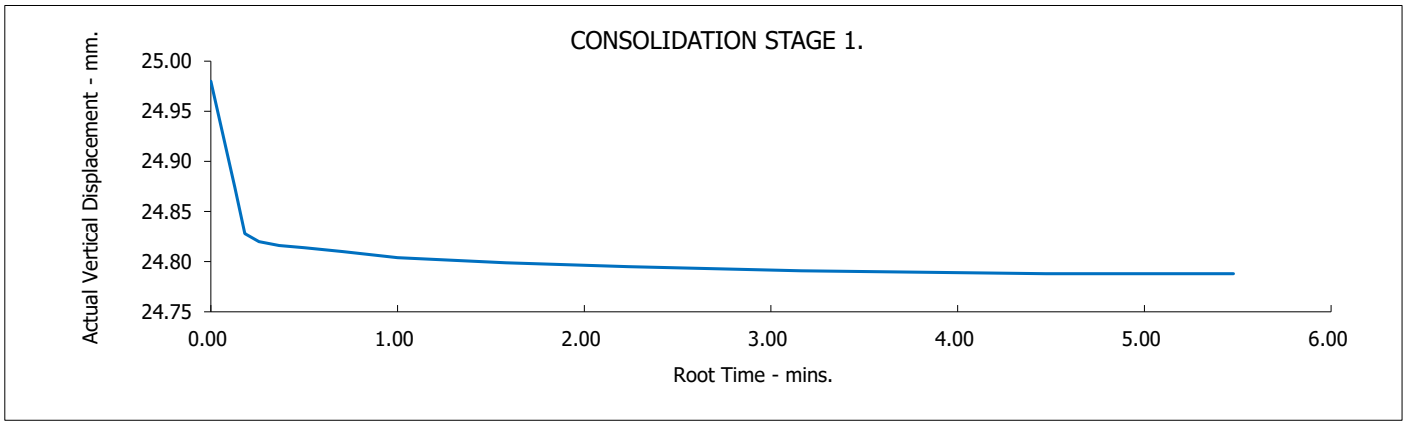
Contract No.:
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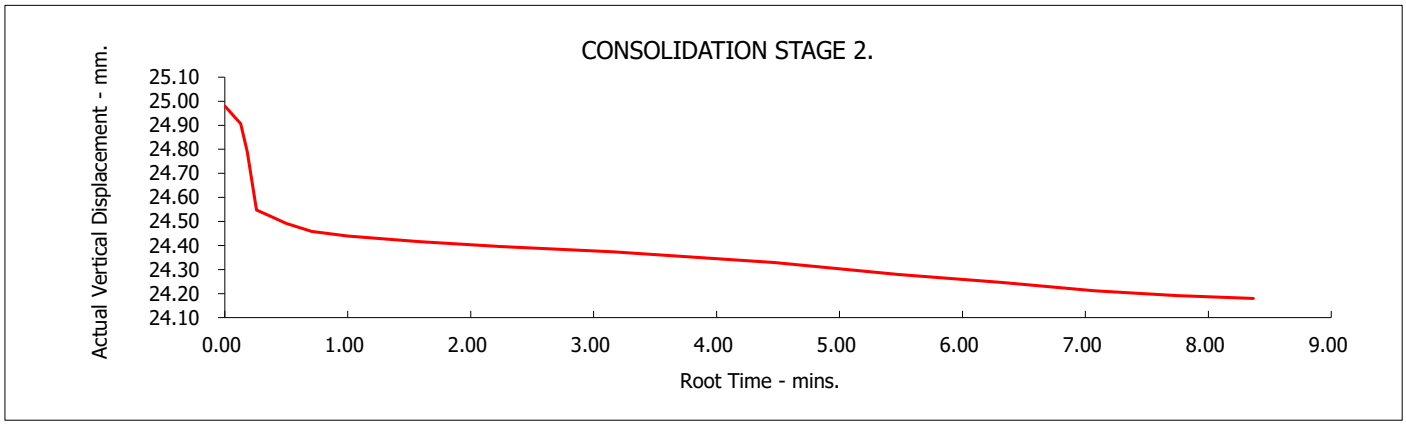
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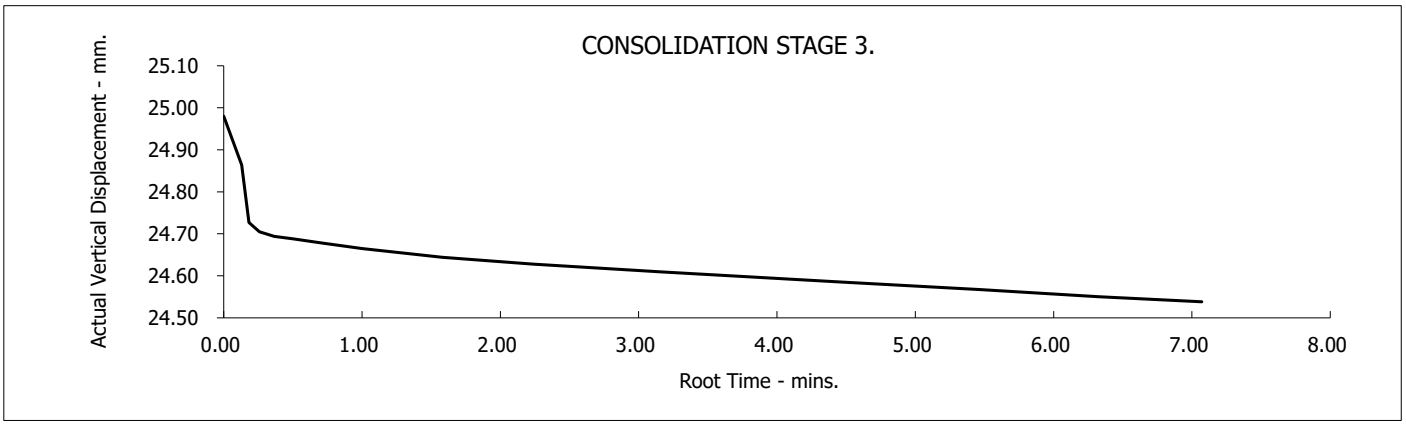
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: WS007 Depth (m): 1.00







R.John
Checked Pages 1-4 by: 19/07/2022 Date

R.John
Approved Pages 1-4 by: 19/07/2022

UKAS TESTING 2788

Contract No.:
60027

Future Chippenham

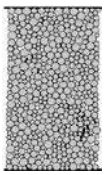
Client Ref Number:
JER9352

Effective Stress Triaxial Compression

Consolidated Drained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			1.2
Description			Greyish Brown, Silty, CLAY
Type			U
Initial Sample Length	L_0	(mm)	210.1
Initial Sample Diameter	D_0	(mm)	105.1
Initial Sample Weight	W_0	(gr)	3650.5
Initial Bulk Density	ρ_0	(Mg/m3)	2.00
Particle Density (Assumed)	ρ_s	(Mg/m3)	2.65

Initial Conditions

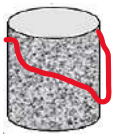
			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	710	720	790	
Initial Back Pressure	U_{bi}	(kPa)	700	700	750	
Strain Rate	m_s	(mm/min)	0.02691	0.00420	0.02455	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	19			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.69			
Initial Voids Ratio	e_i	.	0.569			
Initial Degree of Saturation	S_i	(%)	87			
B Value	B	.	0.99			

Final Conditions

Final Moisture	ω_f	(%)	20			
Final Dry Density	ρ_{df}	(Mg/m3)	1.43			
Final Voids Ratio	e_f	.	0.850			
Final Degree of Saturation	S_f	(%)	61.9			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	1.65	8.46	19.97	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	32.1	35.3	42.0	
Minor Stress At Failure	σ_3'	(kPa)	10.2	20.0	39.7	
Major Stress At Failure	σ_1'	(kPa)	42.3	55.3	81.7	
Principal Stress At Failure	σ_1'/σ_3'		4.155	2.763	2.058	
PwP At Failure Criteria	u_f		698.6	700.0	748.0	

Notes

Side Drains Used During Testing
Side drain correction at failure 3.33kpa
Membrane correction at failure 0.17kpa



Brittle

Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 3
		Test Date	10/05/2022
Site Reference		Borehole	AVC1BH15
Jobfile	59343	Sample	1
Client	RPS Group	Depth	1.2

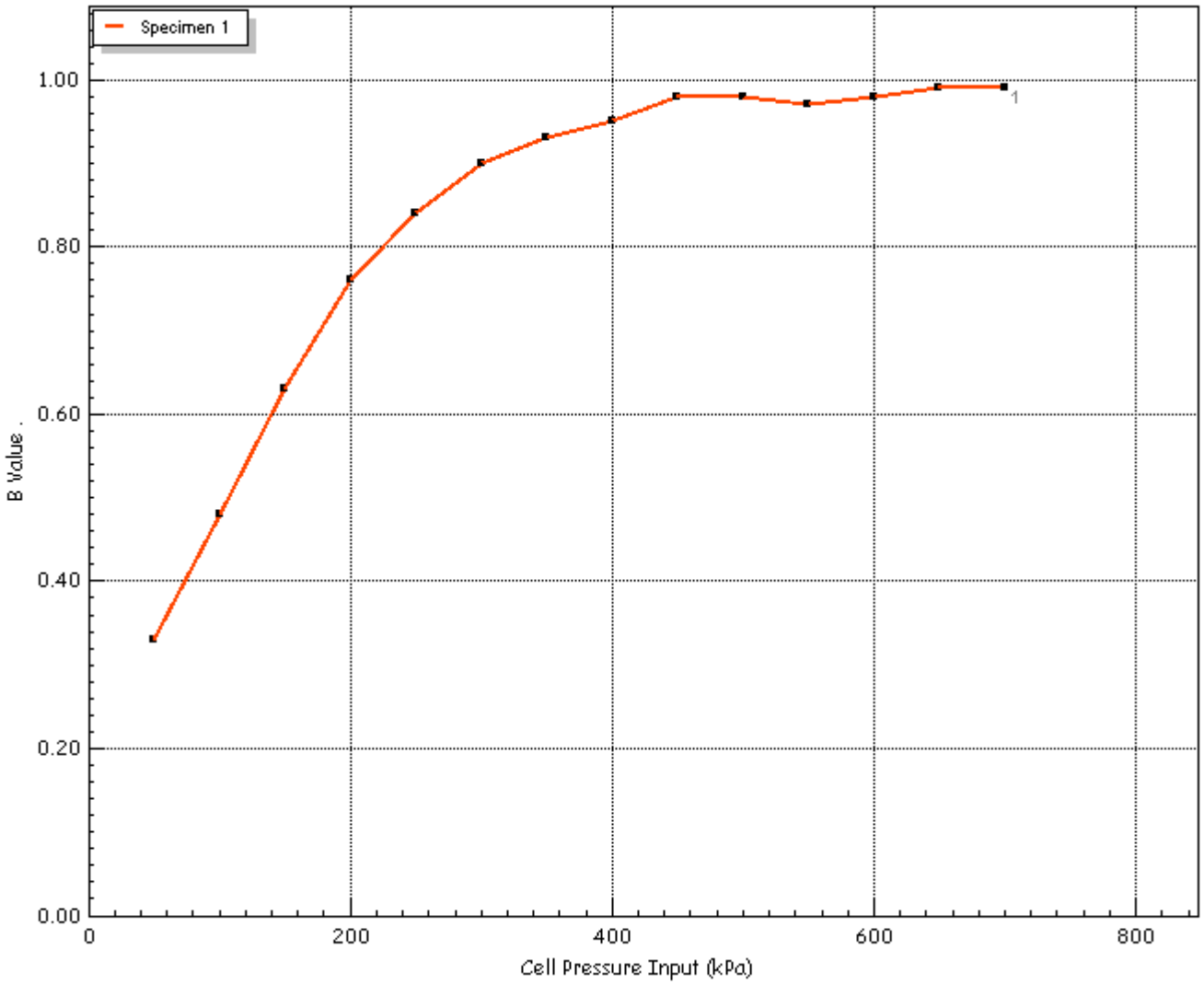
Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Drained

Saturation Plots

Saturation Method at constant moisture content			
Cell Pressure Input	σ	(kPa)	700
Pore Water Pressure Input	u pwp	(kPa)	694
B Value	B	.	0.99



Test Method	BS1377-8 : 1990 : Clause 8			Test Name	Cell 3
Database: .\SQLEXPRESS \ Effective 100				Test Date	10/05/2022
Site Reference				Borehole	AVC1BH15
Jobfile	59343			Sample	1
Client	RPS Group			Depth	1.2
Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Drained

Consolidation Plots

Initial Conditions

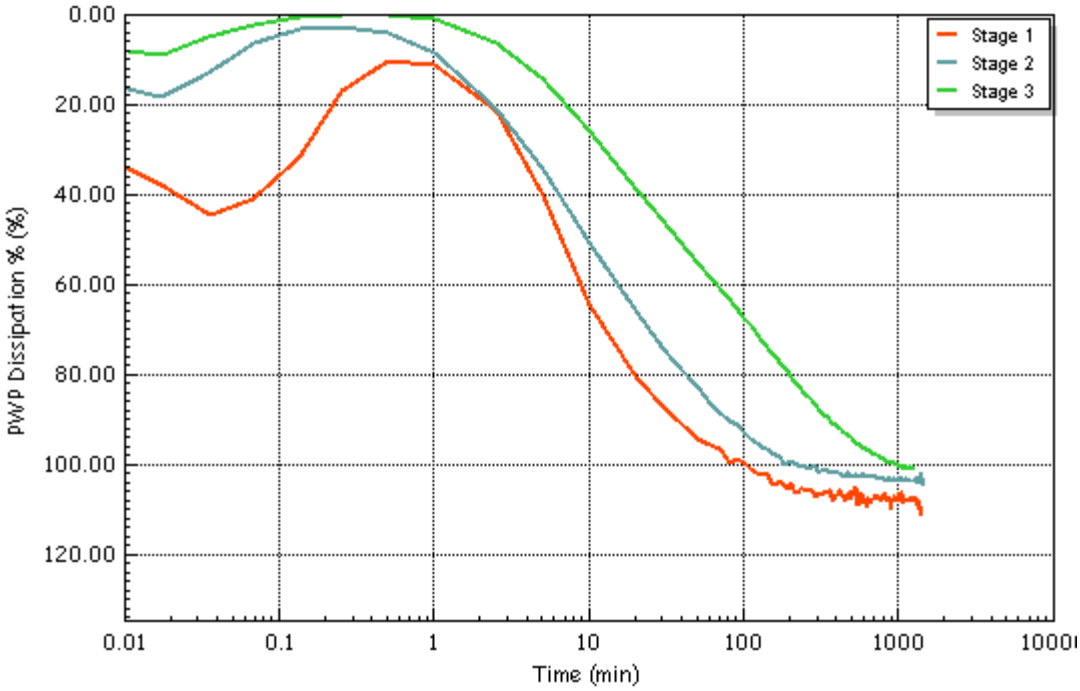
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	710	720	790
Initial Back Pressure	u_{bi}	(kPa)	700	700	750
Pore Water Pressure Input	u_{pwp}	(kPa)	704	707	767
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	111.16	103.92	101.07
Volumetric Strain	ε_v%	(%)	0.44	0.41	0.78
Corrected Length	L_C	(mm)	209.8	198.4	191.4
Corrected Area	A_C	(cm2)	86.50	91.10	93.70
Corrected Volume	V_C	(cc)	1814.630	1807.210	1793.014
t100	t_{100}	(min)	27.84	168.61	27.84
Consolidation	c_V	(m2/year)	8.2	1.4	8.2
Compressibility	m_V	(m2/MN)	1.06	0.54	0.45
Test Time	t_F	(h:m:s)	06:29:45	39:20:32	06:29:45
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02691	0.00420	0.02455

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 3
Database: .\SQLEXPRESS \ Effective 100		Test Date	10/05/2022
Site Reference		Borehole	AVC1BH15
Jobfile	59343	Sample	1
Client	RPS Group	Depth	1.2

Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Drained

Consolidation Plots

Initial Conditions

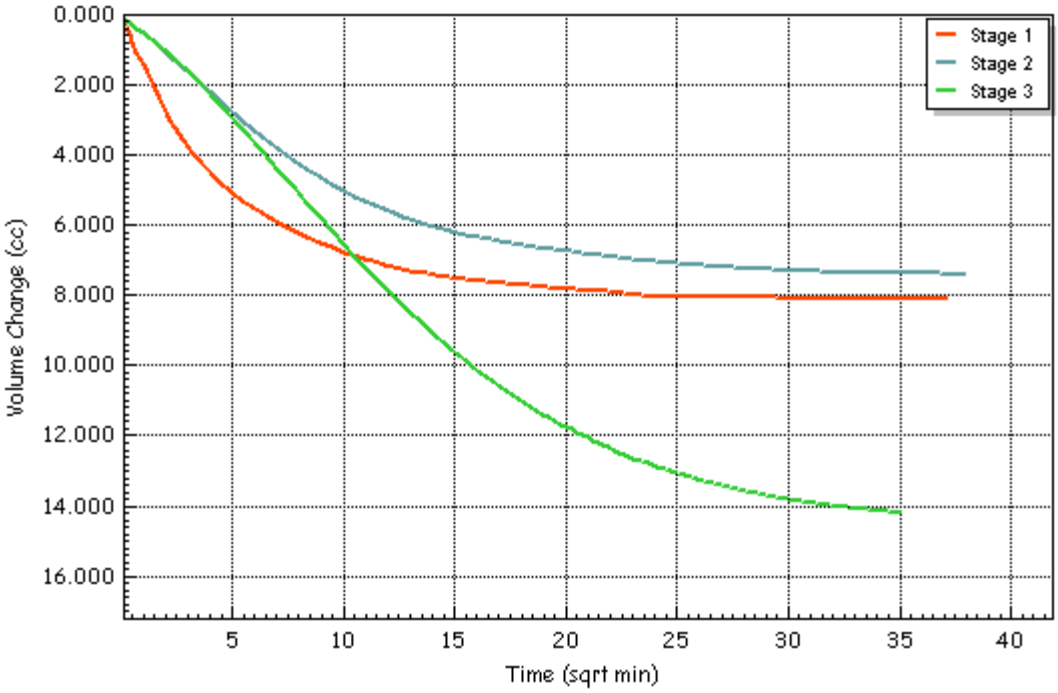
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	710	720	790
Initial Back Pressure	u_{bi}	(kPa)	700	700	750
Pore Water Pressure Input	u_{pwp}	(kPa)	704	707	767
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	111.16	103.92	101.07
Volumetric Strain	ε_v%	(%)	0.44	0.41	0.78
Corrected Length	L_C	(mm)	209.8	198.4	191.4
Corrected Area	A_C	(cm2)	86.50	91.10	93.70
Corrected Volume	V_C	(cc)	1814.630	1807.210	1793.014
t100	t_{100}	(min)	27.84	168.61	27.84
Consolidation	c_V	(m2/year)	8.2	1.4	8.2
Compressibility	m_V	(m2/MN)	1.06	0.5	0.45
Test Time	t_F	(h:m:s)	06:29:45	39:20:32	06:29:45
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02691	0.00420	0.02455

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 3
Database: .\SQLEXPRESS \ Effective 100		Test Date	10/05/2022
Site Reference		Borehole	AVC1BH15
Jobfile	59343	Sample	1
Client	RPS Group	Depth	1.2

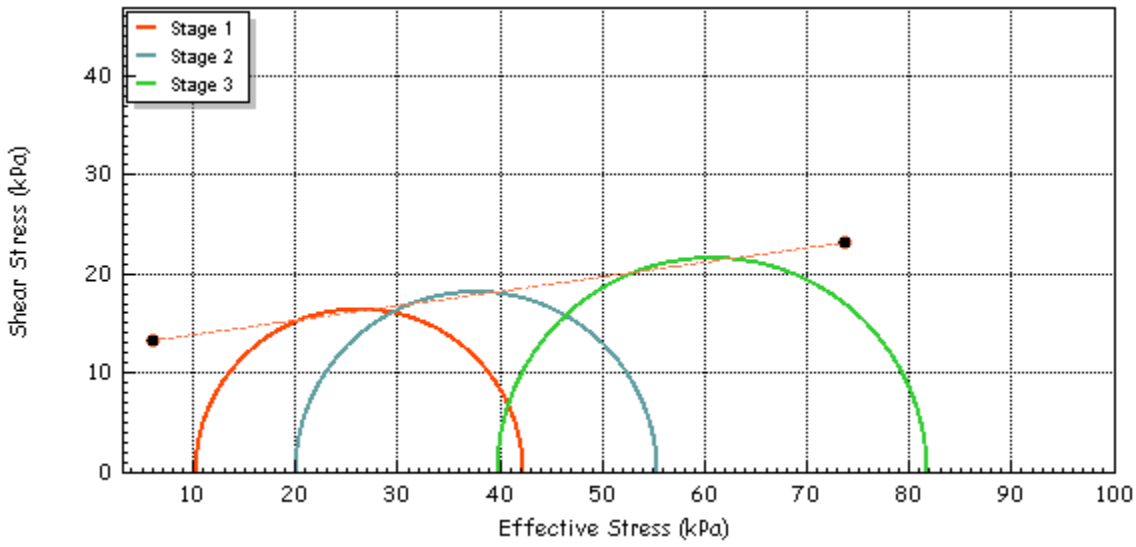
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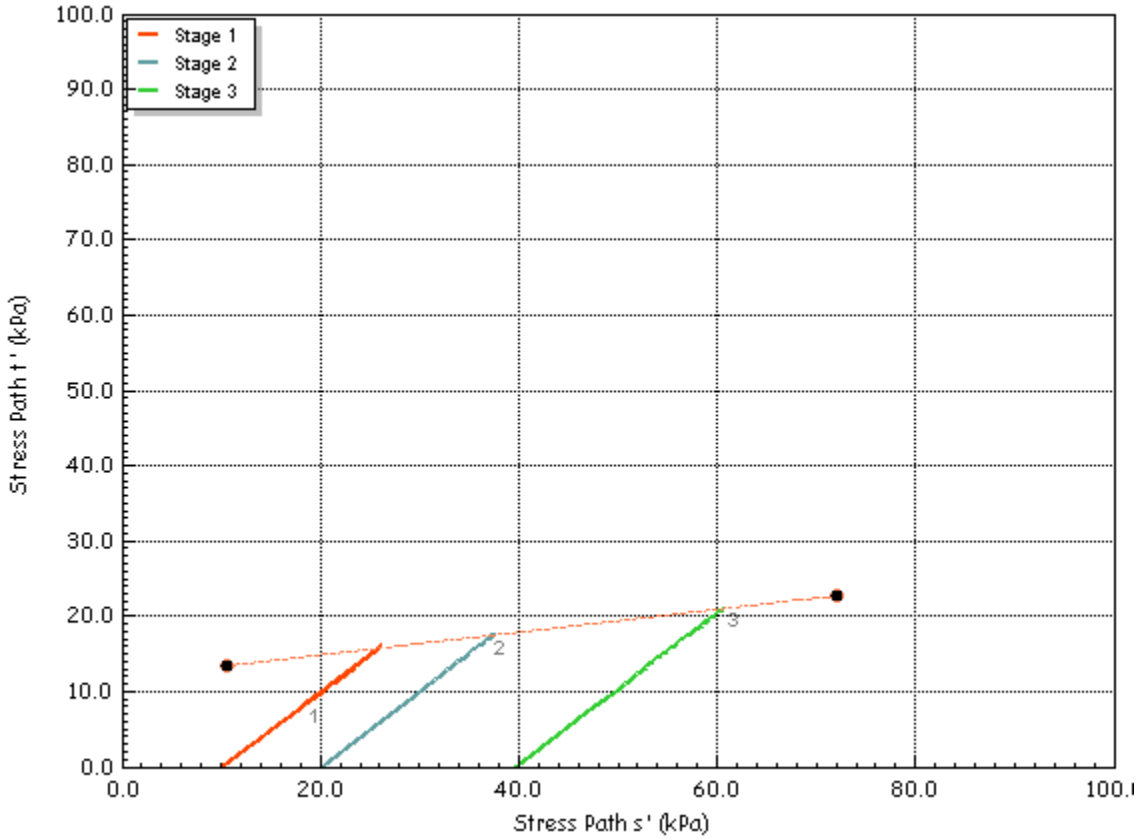
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	12.40	Effective Cohesion	c'	(kPa)	12.40
Effective Friction	ϕ'	(deg)	8.4	Effective Friction	ϕ'	(deg)	8.4



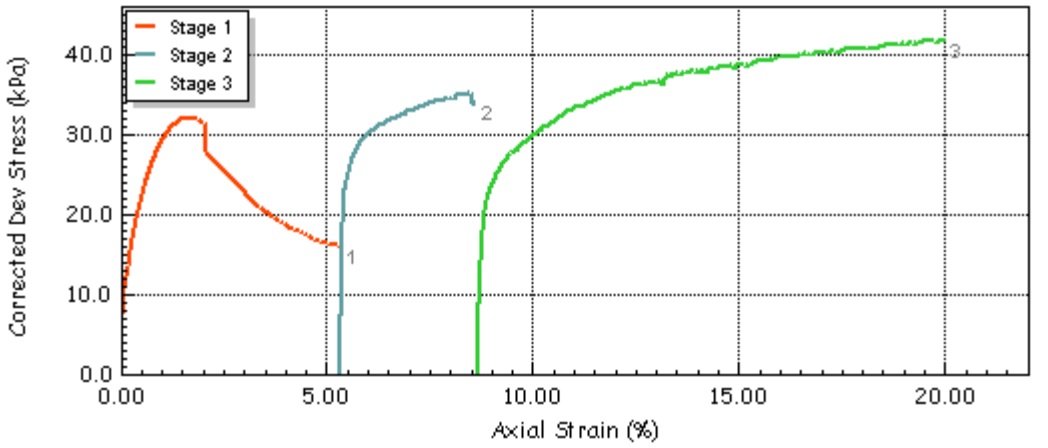


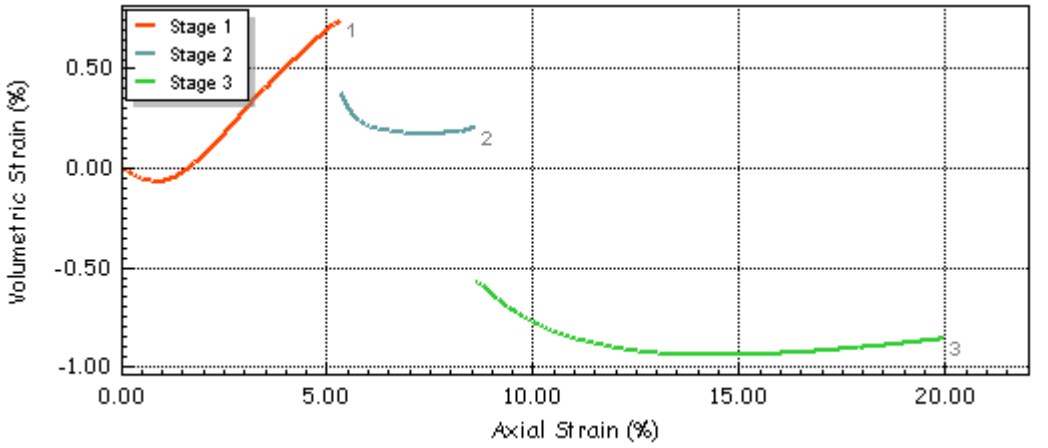
GSTL	Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 3	
	Database: .\SQLEXPRESS \ Effective 100		Test Date	10/05/2022	
	Site Reference		Borehole	AVC1BH15	
	Jobfile	59343	Sample	1	
	Client	RPS Group	Depth	1.2	
	Operator	D.Hammond	Checked	R.John	Approved R.John

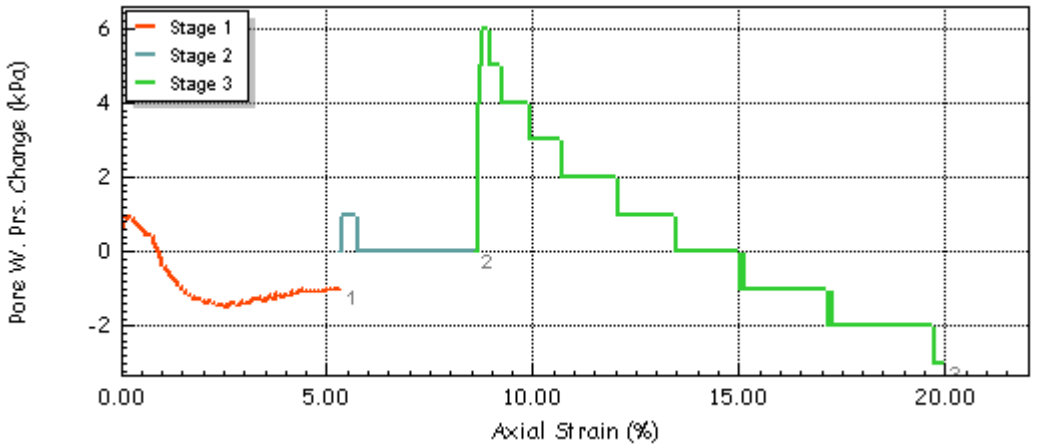
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 3	
	Database: .\SQLEXPRESS \ Effective 100		Test Date	10/05/2022	
	Site Reference		Borehole	AVC1BH15	
	Jobfile	59343	Sample	1	
	Client	RPS Group	Depth	1.2	
	Operator	D.Hammond	Checked	R.John	Approved R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			11.8-12.15
Description			Grey, Slightly Sandy, Silty, CLAY
Type			U
Initial Sample Length	L_0	(mm)	212.5
Initial Sample Diameter	D_0	(mm)	103.1
Initial Sample Weight	W_0	(gr)	3662.3
Initial Bulk Density	ρ_0	(Mg/m3)	2.06
Particle Density (Assumed)	ρ_s	(Mg/m3)	2.65

Initial Conditions

			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	700	800	800	
Initial Back Pressure	U_{bi}	(kPa)	600	600	500	
Strain Rate	m_s	(mm/min)	0.08789	0.00264	0.07402	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	17			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.77			
Initial Voids Ratio	e_i	.	0.501			
Initial Degree of Saturation	S_i	(%)	90			
B Value	B	.	0.95			

Final Conditions

Final Moisture	ω_f	(%)	17
Final Dry Density	ρ_{df}	(Mg/m3)	1.84
Final Voids Ratio	e_f	.	0.444
Final Degree of Saturation	S_f	(%)	100.0

			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	9.14	11.34	16.90	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	95.5	120.8	151.2	
Minor Stress At Failure	σ_3'	(kPa)	36.0	119.0	211.0	
Major Stress At Failure	σ_1'	(kPa)	131.5	239.8	362.2	
Principal Stress At Failure	σ_1'/σ_3'		3.653	2.015	1.717	
PwP At Failure Criteria	u_f		664.0	681.0	589.0	

Notes

Side Drains Used During Testing

	1	2	3
Side Drain Correction at Failure (kpa)	3.39	3.39	3.39
Membrane Correction at Failure (kpa)	0.81	0.95	1.30



Compound

Test Method	BS1377-8 : 1990 : Clause 7		Test Name	Cell 6	
Database: .\SQLEXPRESS \ Test 1			Test Date	11/07/2022	
Site Reference			Borehole	PWBBH05	
Jobfile	60027		Sample	12	
Client	RPS Group		Depth	11.8-12.15	
Operator	D.Hammond	Checked	R.John	Approved	R.John

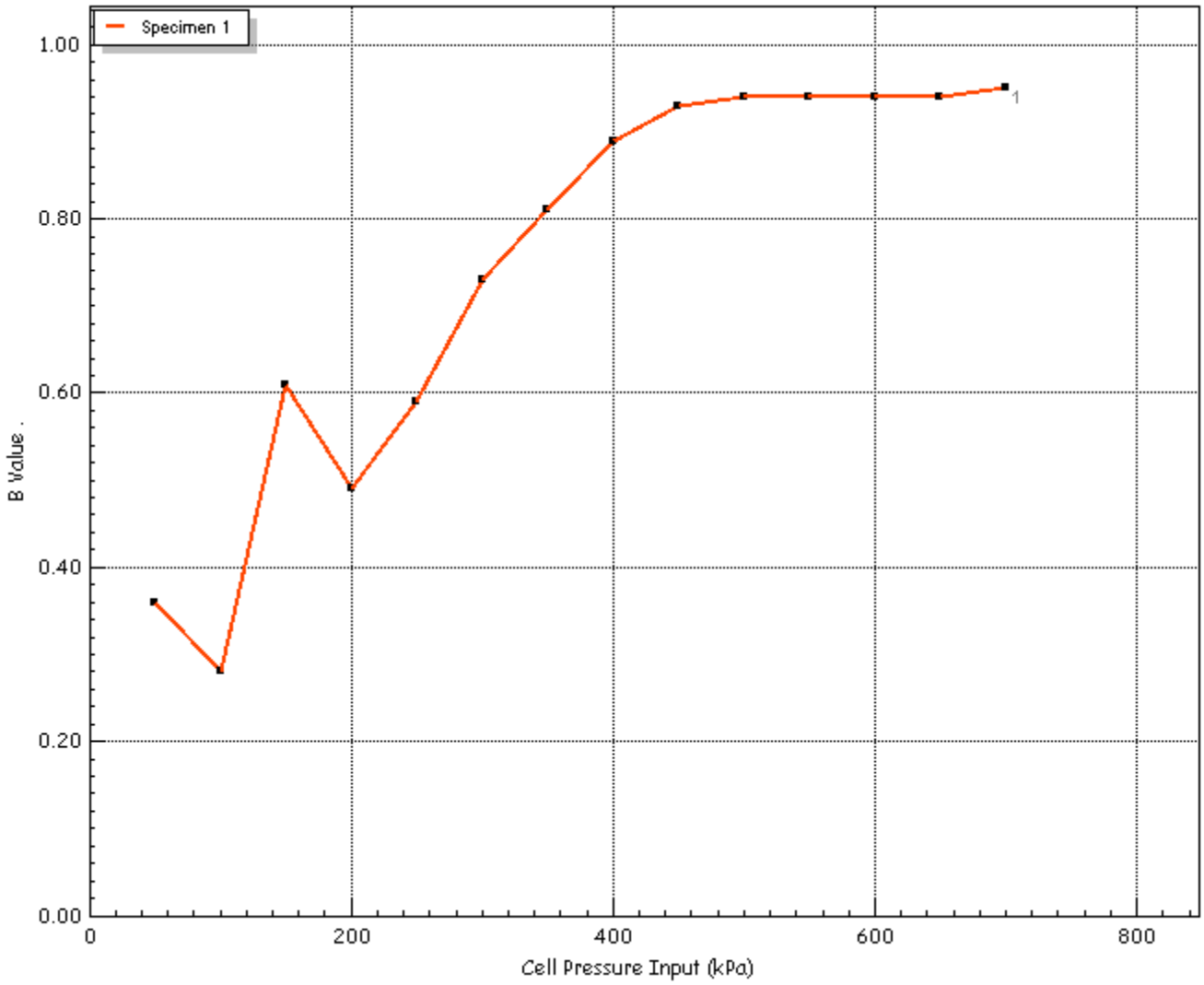
UKAS TESTING 2788

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method at Constant Moisture Content			
Cell Pressure Input	σ	(kPa)	700
Pore Water Pressure Input	u_{pwp}	(kPa)	692
B Value	B	.	0.95



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 6
Database: .\SQLEXPRESS \ Test 1				Test Date	11/07/2022
Site Reference				Borehole	PWBBH05
Jobfile	60027			Sample	12
Client	RPS Group			Depth	11.8-12.15
Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

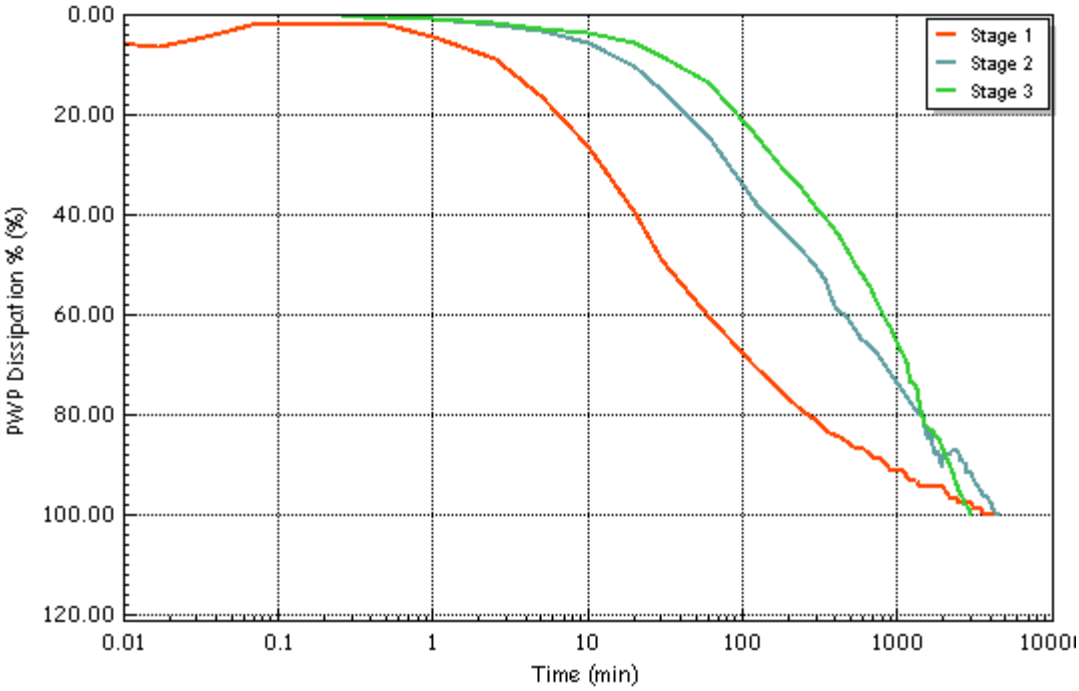
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	700	800	800
Initial Back Pressure	u_{bi}	(kPa)	600	600	500
Pore Water Pressure Input	u_{pwp}	(kPa)	691	685	603
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	99.97	100.00	99.94
Volumetric Strain	ε_v%	(%)	2.22	0.81	0.77
Corrected Length	L_C	(mm)	210.9	189.3	177.7
Corrected Area	A_C	(cm2)	82.25	90.86	96.06
Corrected Volume	V_C	(cc)	1734.585	1720.162	1706.541
t100	t_{100}	(min)	27.84	1994.29	27.84
Consolidation	c_V	(m2/year)	7.9	0.11	7.9
Compressibility	m_V	(m2/MN)	0.24	0.096	0.075
Test Time	t_F	(h:m:s)	02:00:00	59:49:43	02:00:00
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.08789	0.00264	0.07402

Notes

Side drains were used during test



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 6
Database: .\SQLEXPRESS \ Test 1		Test Date	11/07/2022
Site Reference		Borehole	PWBBH05
Jobfile	60027	Sample	12
Client	RPS Group	Depth	11.8-12.15

Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

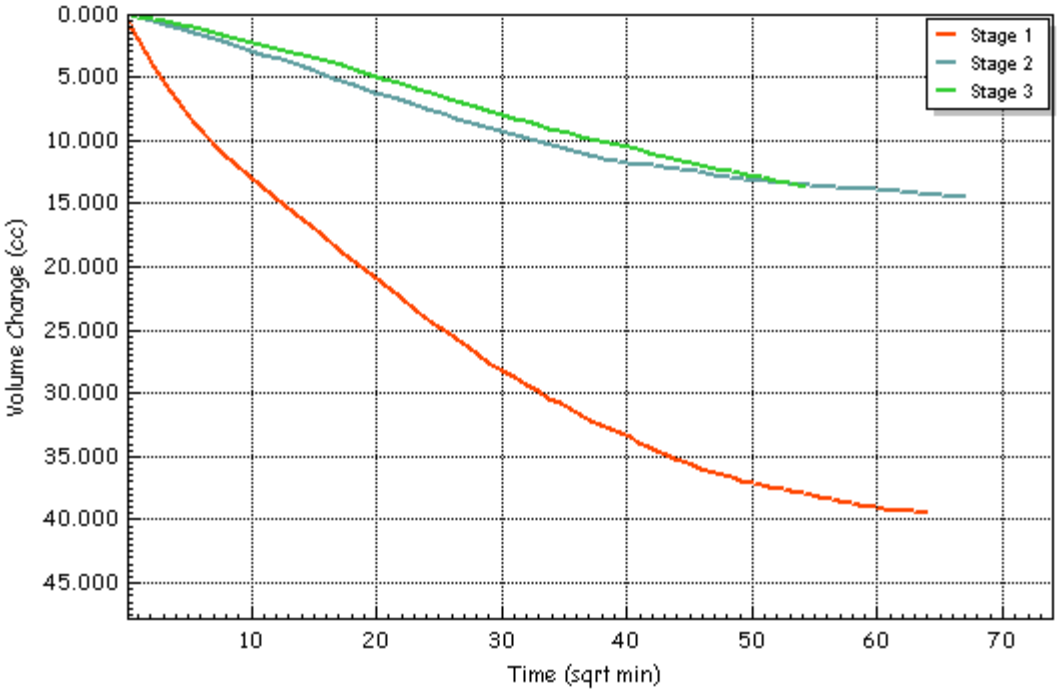
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	700	800	800
Initial Back Pressure	u_{bi}	(kPa)	600	600	500
Pore Water Pressure Input	u_{pwp}	(kPa)	691	685	603
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	99.97	100.00	99.94
Volumetric Strain	ε_v%	(%)	2.22	0.81	0.77
Corrected Length	L_C	(mm)	210.9	189.3	177.7
Corrected Area	A_C	(cm2)	82.25	90.86	96.06
Corrected Volume	V_C	(cc)	1734.585	1720.162	1706.541
t100	t_{100}	(min)	27.84	1994.29	27.84
Consolidation	c_V	(m2/year)	7.9	0.11	7.9
Compressibility	m_V	(m2/MN)	0.24	0.096	0.075
Test Time	t_F	(h:m:s)	02:00:00	59:49:43	02:00:00
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.08789	0.00264	0.07402

Notes

Side drains were used during test



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 6
Database: .\SQLEXPRESS \ Test 1		Test Date	11/07/2022
Site Reference		Borehole	PWBBH05
Jobfile	60027	Sample	12
Client	RPS Group	Depth	11.8-12.15

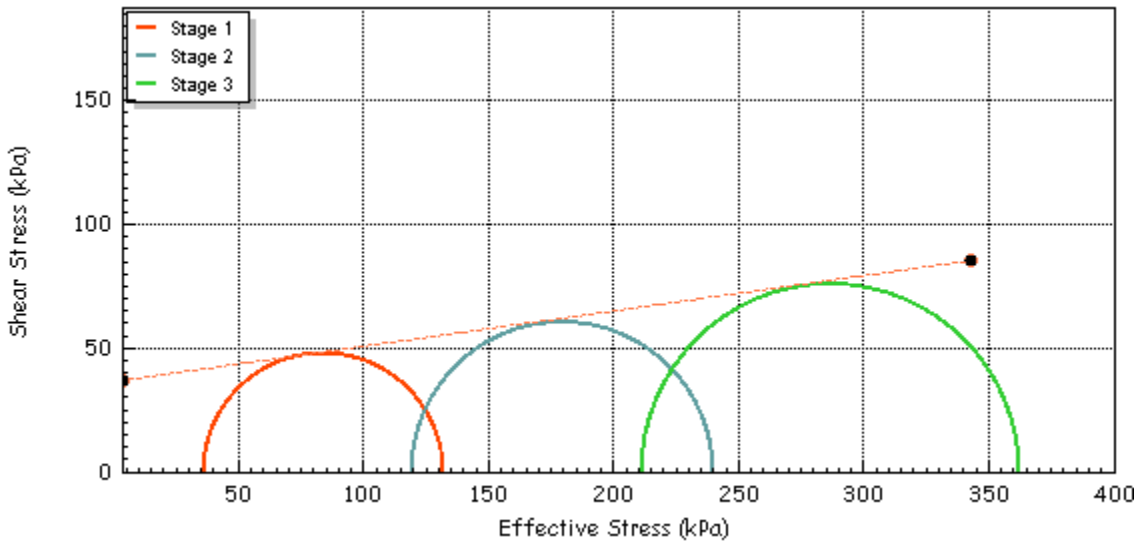
Operator	D.Hammond	Checked	R.John	Approved	R.John

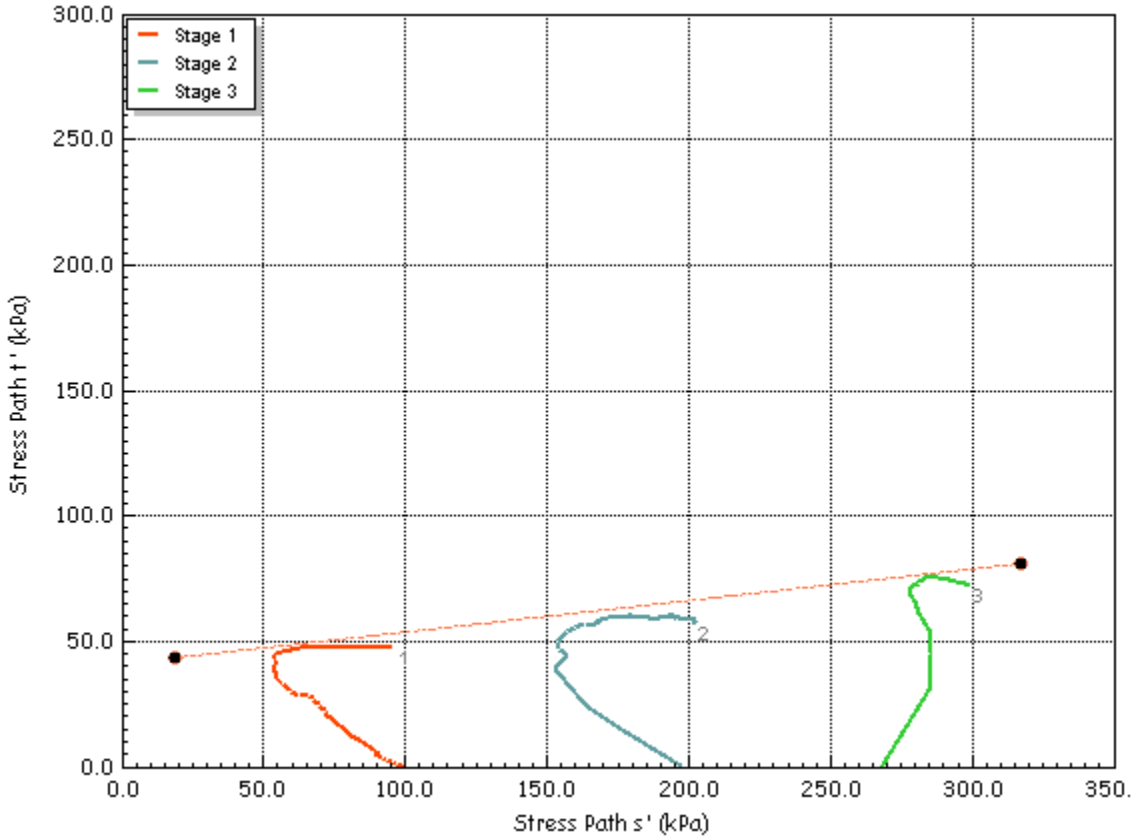
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	36.67	Effective Cohesion	c'	(kPa)	41.15
Effective Friction	ϕ'	(deg)	8.1	Effective Friction	ϕ'	(deg)	7.2



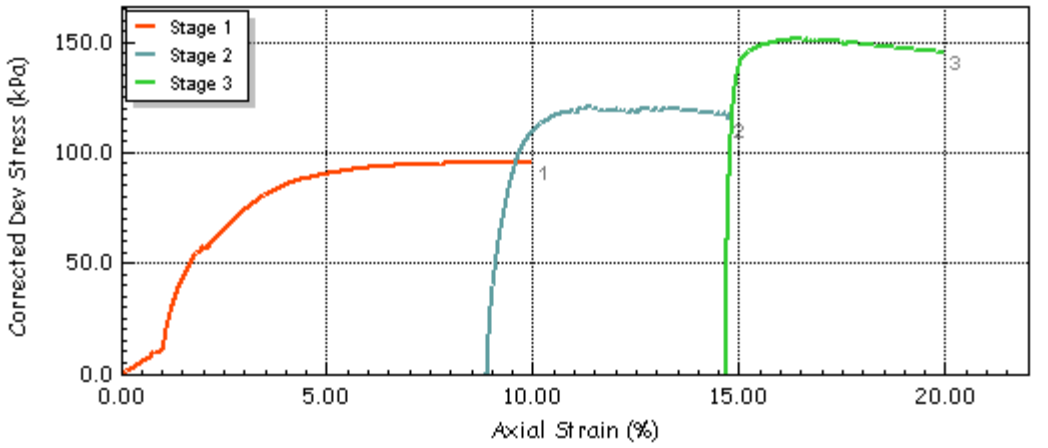


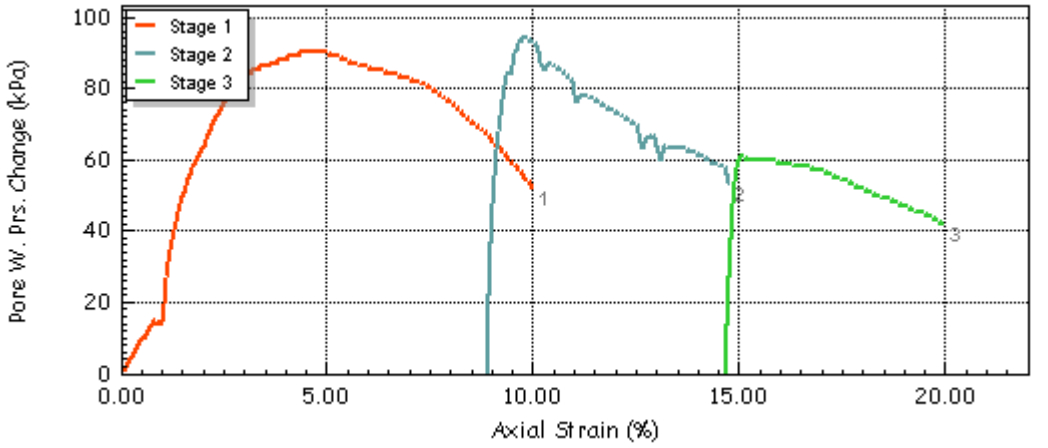
GSTL	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 6	
	Database: .\SQLEXPRESS \ Test 1		Test Date	11/07/2022	
	Site Reference		Borehole	PWBBH05	
	Jobfile	60027	Sample	12	
	Client	RPS Group	Depth	11.8-12.15	
	Operator	D.Hammond	Checked	R.John	Approved R.John

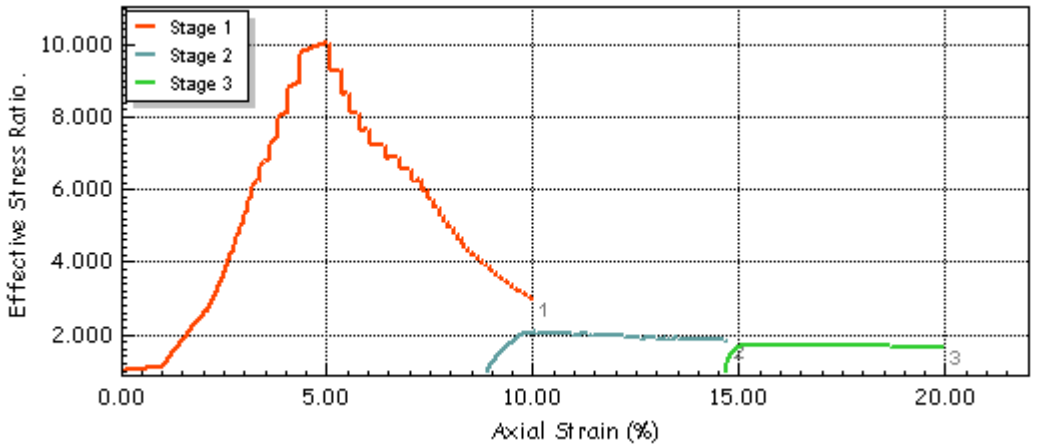
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







Test Method	BS1377-8 : 1990 : Clause 7		Test Name	Cell 6	
Database: .\SQLEXPRESS \ Test 1			Test Date	11/07/2022	
Site Reference			Borehole	PWBBH05	
Jobfile	60027		Sample	12	
Client	RPS Group		Depth	11.8-12.15	
Operator	D.Hammond	Checked	R.John	Approved	R.John

GSTL	Determination of the water content of a aggregate (BS EN 1097-5:2008)	
Contract Number	**59343**	
Site Name	**Future Chippenham**	
Date Tested	**12/05/2022**	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVC1_BH_15	21	C	13.70	-	14.00	SILTSTONE
				-		
				-		
				-		
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Operators	Checked	31/05/2022	Wayne Honey (Administrative/Quality Assistant)
Conor Davison	Approved	31/05/2022	Paul Evans (Quality/Technical Manager)

GSTL	Determination of the water content of a aggregate (BS EN 1097-5:2008)	
Contract Number	**59343**	
Site Name	**Future Chippenham**	
Date Tested	**12/05/2022**	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Remarks
AVC1_BH_15	21	C	13.70	-	14.00	6.5	
				-			
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Operators	Checked	31/05/2022	Wayne Honey (Administrative/Quality Assistant)
Conor Davison	Approved	31/05/2022	Paul Evans (Quality/Technical Manager)

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Determination of the water content of Rock (ISRM)

Contract Number	**60027**
Site Name	**Future Chippenham**
Date Tested	**22/06/2022**

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVC1_BH_03	8	D	3.60	-		Mudstone
AVC1_BH_03	13	D	8.60	-		Mudstone
AVC1_BH_04	12	D	7.20	-		Mudstone
AVC1_BH_06	6	D	4.60	-		Mudstone
AVC1_BH_09	17	C	10.70	-		Mudstone

Operators			
Julian			

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Determination of the water content of Rock (ISRM)**	
Contract Number	**60027**	
Site Name	**Future Chippenham**	
Date Tested	**22/06/2022**	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Remarks
AVC1_BH_03	8	D	3.60	-		11	
AVC1_BH_03	13	D	8.60	-		14	
AVC1_BH_04	12	D	7.20	-		18	
AVC1_BH_06	6	D	4.60	-		1.4	
AVC1_BH_09	17	C	10.70	-		14	
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Operators			
Julian			

GSTL	Determination of Unconfined Compressive Strength ISRM Suggested Methods Vol 16, No. 2, pp. 135-140 1979	
Contract Number	59343	
Site Name	Future Chippenham	
Sample Preperation	Sawing and Grinding	
Date Tested	12/05/2022	

Hole Reference	Depth (m)			Diameter	Length	Initial Mass	Moisture Content	Bulk Density	Dry Density	Load Failure	Maximum Strength	Type of Failure
AVC1_BH_07	6.11		6.26	102.1	152.9	3152.5	4.0	2.52	2.42	140.3	17.1	Axial Splitting
AVC1_BH_07	9.12		9.38	100	255.4	4050.0	28	2.02	1.58	5.1	0.6	Multiple Fracture
AVC1_BH_07	13.41		13.66	100.5	252.9	4408.5	16	2.20	1.90	7.4	0.9	Multiple Fracture
AVC1_BH_07	18.85		19.11	100.9	255.3	4660.0	12	2.28	2.03	11.2	1.4	Multiple Fracture
AVC1_BH_15	6.70			100.1	209.7	3767.0	14	2.28	2.00	8.7	1.1	Multiple Fracture
AVC1_BH_15	11.30		11.50	101	192.4	3921.5	8.0	2.54	2.36	27.1	3.4	Multiple Fracture
AVC1_BH_15	12.81		13.07	102.3	255.9	4766.5	14	2.27	1.99	5.3	0.6	Multiple Fracture
AVC1_BH_15	16.36		16.62	102.2	256.1	4639.0	16	2.21	1.90	14.6	1.8	Multiple Fracture
AVC1_BH_15	19.51		19.77	102.4	256.1	4948.5	10	2.35	2.13	17.8	2.2	Multiple Fracture

Key	Reported As
Diameter	mm
Length	mm
Initial Mass	g
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Load Failure	kN
Maximum Strength	MPa

Operators	Checked	30/05/2022	Emma Sharp	
Julian	Approved	31/05/2022	Paul Evans	

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Determination of Unconfined Compressive Strength
ISRM Suggested Methods Vol 16, No. 2, pp. 135-140 1979

Contract Number	60027
Site Name	Future Chippenham
Sample Preperation	Sawing and Grinding
Date Tested	22/06/2022

Hole Reference	Depth (m)			Diameter	Length	Initial Mass	Moisture Content	Bulk Density	Dry Density	Load Failure	Maximum Strength	Type of Failure
AVW_BH_05	17.03		17.29	100.7	256	4616.0	13	2.26	2.00	12.9	1.6	Axial Splitting
AVW_BH_05	11.41		11.64	102	225.4	4810.0	1.7	2.61	2.57	217.2	26.6	Single Shear
AVC1_BH_03	3.81		4.05	101.9	243.2	4767.0	8.2	2.40	2.22	9.8	1.2	Multiple Fracture
AVC1_BH_03	13.31		13.57	101.6	256.1	4479.0	17	2.16	1.84	7.3	0.9	Multiple Fracture
AVC1_BH_03	18.45		18.65	101.7	220.4	3974.0	16	2.22	1.91	12.0	1.5	Multiple Fracture
AVC1_BH_04	4.92		5.18	101.4	256.2	5356.5	3.1	2.59	2.51	226.6	28.1	Single Shear
AVC1_BH_04	8.31		8.57	101.6	257.1	4801.0	16	2.30	1.98	7.9	1.0	Multiple Fracture
AVC1_BH_04	9.06		9.32	101.8	257.5	4656.5	17	2.22	1.89	7.5	0.9	Multiple Fracture
AVC1_BH_04	13.76		14.02	101.3	255.9	4510.0	18	2.19	1.85	11.9	1.5	Multiple Fracture
AVC1_BH_04	19.62		19.87	101.8	256	4749.5	12	2.28	2.04	10.5	1.3	Multiple Fracture
AVC1_BH_06	8.95		9.21	102	255.8	4704.0	16	2.25	1.94	6.4	0.8	Multiple Fracture
AVC1_BH_06	14.32		14.58	101.8	255.3	4454.5	19	2.14	1.80	7.2	0.9	Multiple Fracture
AVC1_BH_06	17.76		18.02	102.1	255.4	4750.5	13	2.27	2.00	12.7	1.6	Multiple Fracture
AVC1_BH_09	11.82		12.08	100.6	256	4728.5	12	2.32	2.07	8.8	1.1	Multiple Fracture
AVC1_BH_09	17.01		17.27	102.3	255.2	4720.5	13	2.25	1.99	12.0	1.5	Multiple Fracture

Key	Reported As
Diameter	mm
Length	mm
Initial Mass	g
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Load Failure	kN
Maximum Strength	MPa

Operators				
Julian Jones				

GSTL	Point Load Test Int. J. Rock Mech. Sci. & Geomech. Abstr. Vol. 22, No. 2, pp. 51 - 60, 1985.	
Contract Number	59343	
Site Name	Future Chippenham	
Sample Type	Core	
Date Tested	12/05/2022	
	*Please note that GSTL is not accredited for the water content of rock	

Hole Reference	Depth (m)			Test Type		Width	Platen Seperation	Failure Load	Equivalent Diameter	Point Load	Size Factor	Point Load Index	Moisture Content	Description	Angle Between Plane of Anisotropy & Core Axis	Type of Anisotropy (Bedding or Cleavage)
				d / a / b / i	I //											
AVC1_BH_07	11.80	-	11.86	a		101	57	0.43	85.62	0.06	1.27	0.07	19.0	MUDSTONE		
AVC1_BH_07	11.86	-	11.91	a		101	51	0.43	80.98	0.07	1.24	0.08	15.0	MUDSTONE		
AVC1_BH_07	11.91	-	11.98	a		100	69	0.87	93.73	0.10	1.33	0.13	11.7	MUDSTONE		
AVC1_BH_07	11.98	-	12.04	a		100	64	0.40	90.27	0.05	1.30	0.06	16.2	MUDSTONE		
AVC1_BH_07	12.04	-	12.10	a		100	64	0.18	90.27	0.02	1.30	0.03	14.5	MUDSTONE		
AVC1_BH_07	17.95	-	18.00	a		100	54	0.56	82.92	0.08	1.26	0.10	13.4	MUDSTONE		
AVC1_BH_07	18.00	-	18.05	a		101	53	0.82	82.56	0.12	1.25	0.15	13.1	MUDSTONE		
AVC1_BH_07	18.05	-	18.11	a		101	62	0.83	89.29	0.10	1.30	0.14	12.8	MUDSTONE		
AVC1_BH_07	18.11	-	18.17	a		101	56	0.65	84.86	0.09	1.27	0.11	13.9	MUDSTONE		
AVC1_BH_07	18.17	-	18.24	a		101	70	0.95	94.88	0.11	1.33	0.14	12.0	MUDSTONE		
AVC1_BH_15	8.00	-	8.05	a		102	49	11.83	79.77	1.86	1.23	2.29	2.7	SILTSTONE		
AVC1_BH_15	8.05	-	8.10	a		102	46	10.54	77.29	1.76	1.22	2.15	3.3	SILTSTONE		
AVC1_BH_15	8.10	-	8.15	a		102	47	10.51	78.13	1.72	1.22	2.11	3.7	SILTSTONE		
AVC1_BH_15	8.15	-	8.25	d			102	13.42		1.29	1.38	1.78	3.5	SILTSTONE		
AVC1_BH_15	8.19	-	8.25	a		102	61	9.23	89.01	1.16	1.30	1.51	4.4	SILTSTONE		

Key	Reported As
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operators	Checked	30/05/2022	Emma Sharp	
JJ	Approved	31/05/2022	Paul Evans	

UKAS TESTING 2788

Point Load Test

The complete ISRM suggested methods for rock characterization, testing and monitoring 1974-2006
Determining Point Load Strength

Contract Number	60027
Site Name	Future Chippenham
Sample Type	Core
Date Tested	23/06/2022

*Please note that GSTL is not accredited for the water content of rock

Hole Reference	Depth (m)			Test Type d / a / b / i	Test Type I //	Width	Platen Seperation	Failure Load	Equivalent Diameter	Point Load	Size Factor	Point Load Index	Moisture Content	Description	Angle Between Plane of Anisotropy & Core Axis	Type of Anisotropy (Bedding or Cleavage)
AVC1_BH_04	6.75	-	7.00	d			102	15.70		1.51	1.38	2.08	2.1	SILTSTONE		
AVC1_BH_04	16.60	-	16.65	a		102	54	0.74	83.74	0.11	1.26	0.13	15.0	MUDSTONE		
AVC1_BH_04	16.65	-	16.70	a		102	52	0.79	82.18	0.12	1.25	0.15	13.2	MUDSTONE		
AVC1_BH_04	16.70	-	16.76	a		102	63	1.15	90.45	0.14	1.31	0.18	11.0	MUDSTONE		
AVC1_BH_04	16.76	-	16.81	a		102	54	0.97	83.74	0.14	1.26	0.17	12.2	MUDSTONE		
AVC1_BH_04	16.81	-	16.86	a		102	48	0.60	78.95	0.10	1.23	0.12	12.8	MUDSTONE		
AVC1_BH_04	16.86	-	16.90	a		102	46	0.80	77.29	0.13	1.22	0.16	12.4	MUDSTONE		
AVC1_BH_09	7.90	-	7.95	a		102	52	10.19	82.18	1.51	1.25	1.89	3.8	SILTSTONE		
AVC1_BH_09	7.95	-	8.00	a		102	47	10.88	78.13	1.78	1.22	2.18	2.7	SILTSTONE		
AVC1_BH_09	8.00	-	8.05	a		102	54	12.38	83.74	1.77	1.26	2.23	2.7	SILTSTONE		
AVC1_BH_09	8.05	-	8.10	a		102	53	11.02	82.96	1.60	1.26	2.01	3.3	SILTSTONE		
AVC1_BH_09	15.45	-	15.50	a		102	50	0.54	80.58	0.08	1.24	0.10	17.7	MUDSTONE		
AVC1_BH_09	15.50	-	15.56	a		102	56	0.70	85.28	0.10	1.27	0.12	17.7	MUDSTONE		
AVC1_BH_09	15.56	-	15.62	a		102	60	0.48	88.27	0.06	1.29	0.08	17.6	MUDSTONE		
AVC1_BH_09	15.62	-	15.68	a		102	58	0.45	86.79	0.06	1.28	0.08	17.6	MUDSTONE		
AVC1_BH_09	15.68	-	15.75	a		1022	74	0.55	310.31	0.01	2.27	0.01	18.1	MUDSTONE		
AVC1_BH_09	19.00	-	19.06	a		102	55	0.49	84.52	0.07	1.27	0.09	14.7	MUDSTONE		
AVC1_BH_09	19.06	-	19.11	a		102	53	0.64	82.96	0.09	1.26	0.12	12.9	MUDSTONE		
AVC1_BH_09	19.11	-	19.16	a		102	54	0.66	83.74	0.09	1.26	0.12	14.4	MUDSTONE		
AVC1_BH_09	19.16	-	19.22	a		102	60	0.71	88.27	0.09	1.29	0.12	14.8	MUDSTONE		
AVC1_BH_09	19.22	-	19.28	a		102	64	0.60	91.17	0.07	1.31	0.09	16.3	MUDSTONE		
AVC1_BH_03	9.45	-	9.58	d			102	0.24		0.02	1.38	0.03	22.5	MUDSTONE		
AVC1_BH_06	6.20	-	6.31	d			102	14.07		1.35	1.38	1.86	2.1	SILTSTONE		
AVC1_BH_09	5.00	-	5.11	d			102	8.04		0.77	1.38	1.07	2.2	SILTSTONE		

Key	Reported As
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operators				
Julian Jones				

UKAS TESTING 2788

2531

ANALYTICAL TEST REPORT

Contract no: 109475

Contract name: Future Chippenham

Client reference: 20191665A

Clients name: Geo Site & Testing Services

Clients address: Unit 3 and 4 Heol Aur
Dafen Industrial Estate, Dafen
Llanelli, Carmarthenshire
SA14 8QN

Samples received: 19 May 2022

Analysis started: 19 May 2022

Analysis completed: 26 May 2022

Report issued: 26 May 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Megan Harris

Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			109475-1	109475-2	109475-3	109475-4	109475-5	109475-6
Sample id			AVC-1-BH07	AVC-1-BH07	AVC-1-BH07	AVC-1-BH07	AVC-1-BH08	AVC-1-BH15
Depth (m)			1.70	2.20	3.20	4.75	1.20	2.30
Sample Type			D7	B9	D12	B16	D8	D4
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	8.1	-	-	-	8.0	-
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	22	-	-	-	48	-
Sulphate (total)	CE062 [U]	mg/kg SO_4	400	-	-	-	768	-
Sulphate (total)	CE062 [U]	% w/w SO_4	0.04	-	-	-	0.08	-
Sulphur (total)	CE119	mg/kg S	252	-	-	-	823	-
Sulphur (total)	CE119	% w/w S	0.03	-	-	-	0.08	-
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.4	1.0	2.7	-	0.2
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	0.6	1.7	4.6	-	0.4

Chemtech Environmental Limited

SOILS

Lab number			109475-7	109475-8	109475-9	109475-10	109475-11	109475-12
Sample id			AVC-1-BH15	HP-TP02	HP-TP02	HP-TP04	HP-TP04	HP-TP06
Depth (m)			5.30	1.00	1.50	0.50	1.50	1.50
Sample Type			D8	B2	D4	D1	B3	D4
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	7.4	-	8.2	7.8	-	8.1
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	1154	-	39	14	-	1906
Sulphate (total)	CE062 U	mg/kg SO_4	2309	-	414	134	-	28299
Sulphate (total)	CE062 U	% w/w SO_4	0.23	-	0.04	0.01	-	2.83
Sulphur (total)	CE119	mg/kg S	15390	-	360	131	-	9216
Sulphur (total)	CE119	% w/w S	1.54	-	0.04	0.01	-	0.92
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.3	-	-	0.3	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	0.5	-	-	0.4	-

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SOILS

Lab number			109475-13	109475-14	109475-15	109475-16	109475-17	109475-18
Sample id			HP-TP06	HP-TP07	HP-TP07	TP004	TP005	TP005
Depth (m)			2.00	0.50	2.00	3.00	1.00	2.00
Sample Type			B5	D	B4	D9	B2	D6
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	-	6.5	4.3	7.0	-	5.0
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	-	1677	1905	1560	-	696
Sulphate (total)	CE062 [U]	mg/kg SO_4	-	8504	113901	5702	-	5561
Sulphate (total)	CE062 [U]	% w/w SO_4	-	0.85	11.39	0.57	-	0.56
Sulphur (total)	CE119	mg/kg S	-	2588	33049	1603	-	1848
Sulphur (total)	CE119	% w/w S	-	0.26	3.30	0.16	-	0.18
Total Organic Carbon (TOC)	CE197	% w/w C	0.9	-	-	-	0.4	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.6	-	-	-	0.7	-

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SOILS

Lab number			109475-19	109475-20	109475-21	109475-22	109475-23	109475-24
Sample id			TP006	TP006	TP007	TP009	TP009	TP010
Depth (m)			2.00	2.50	2.00	1.50	2.00	1.00
Sample Type			D6	D8	D6	D4	B5	B2
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	-	4.5	3.6	3.6	-	-
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	-	942	320	215	-	-
Sulphate (total)	CE062 [U]	mg/kg SO_4	-	2889	10260	8418	-	-
Sulphate (total)	CE062 [U]	% w/w SO_4	-	0.29	1.03	0.84	-	-
Sulphur (total)	CE119	mg/kg S	-	9439	4453	3117	-	-
Sulphur (total)	CE119	% w/w S	-	0.94	0.45	0.31	-	-
Total Organic Carbon (TOC)	CE197	% w/w C	0.2	-	-	-	0.6	7.0
Estimate of OMC (calculated from TOC)	CE197	% w/w	0.4	-	-	-	1.1	12.1

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SOILS

Lab number			109475-25	109475-26	109475-27	109475-28	109475-29	109475-30
Sample id			TP010	TP011	TP011	WS001	WS001	WS002
Depth (m)			2.50	3.00	3.40	1.20	2.00	1.20
Sample Type			D5	B8	D	D3	D4	D4
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	7.3	-	5.9	6.0	-	6.0
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	95	-	2100	1514	-	252
Sulphate (total)	CE062 U	mg/kg SO_4	871	-	30211	4103	-	638
Sulphate (total)	CE062 U	% w/w SO_4	0.09	-	3.02	0.41	-	0.06
Sulphur (total)	CE119	mg/kg S	712	-	30052	2889	-	668
Sulphur (total)	CE119	% w/w S	0.07	-	3.01	0.29	-	0.07
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.4	-	-	0.4	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	0.8	-	-	0.6	-

Chemtech Environmental Limited

SOILS

Lab number			109475-31	109475-32	109475-33	109475-34	109475-35	109475-36
Sample id			WS002	WS003A	WS004	WS004	WS005	WS005
Depth (m)			2.20	1.20	1.00	1.20	2.20	3.20
Sample Type			D6	D3	B3	D4	D5	B6
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	-	7.5	-	8.1	4.3	-
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	-	60	-	351	964	-
Sulphate (total)	CE062 [U]	mg/kg SO_4	-	325	-	4114	3604	-
Sulphate (total)	CE062 [U]	% w/w SO_4	-	0.03	-	0.41	0.36	-
Sulphur (total)	CE119	mg/kg S	-	204	-	9673	3907	-
Sulphur (total)	CE119	% w/w S	-	0.02	-	0.97	0.39	-
Total Organic Carbon (TOC)	CE197	% w/w C	0.3	0.4	0.4	-	-	1.0
Estimate of OMC (calculated from TOC)	CE197	% w/w	0.5	0.7	0.8	-	-	1.8

Chemtech Environmental Limited

SOILS

Lab number			109475-37	109475-38	109475-39	109475-40	109475-41	109475-42
Sample id			WS011	WS011	WS012	WS012	WS020	WS020
Depth (m)			1.00	3.20	1.00	4.20	1.00	5.80
Sample Type			B2	D7	B2	D10	B2	D11
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	-	6.9	-	7.0	-	7.4
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	-	1989	-	1235	-	2740
Sulphate (total)	CE062 [U]	mg/kg SO_4	-	4045	-	2068	-	5364
Sulphate (total)	CE062 [U]	% w/w SO_4	-	0.40	-	0.21	-	0.54
Sulphur (total)	CE119	mg/kg S	-	14176	-	24918	-	23011
Sulphur (total)	CE119	% w/w S	-	1.42	-	2.49	-	2.30
Total Organic Carbon (TOC)	CE197	% w/w C	1.7	-	2.0	-	0.6	2.0
Estimate of OMC (calculated from TOC)	CE197	% w/w	2.9	-	3.5	-	1.0	3.4

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	0.01	% w/w SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
109475-1	AVC-1-BH07	1.70	Y	All (NSD)
109475-5	AVC-1-BH08	1.20	Y	All (NSD)
109475-7	AVC-1-BH15	5.30	Y	All (NSD)
109475-9	HP-TP02	1.50	Y	All (NSD)
109475-10	HP-TP04	0.50	Y	All (NSD)
109475-12	HP-TP06	1.50	Y	All (NSD)
109475-14	HP-TP07	0.50	Y	All (NSD)
109475-15	HP-TP07	2.00	Y	All (NSD)
109475-16	TP004	3.00	Y	All (NSD)
109475-18	TP005	2.00	Y	All (NSD)
109475-20	TP006	2.50	Y	All (NSD)
109475-21	TP007	2.00	Y	All (NSD)
109475-22	TP009	1.50	Y	All (NSD)
109475-25	TP010	2.50	Y	All (NSD)
109475-27	TP011	3.40	Y	All (NSD)
109475-28	WS001	1.20	Y	All (NSD)
109475-30	WS002	1.20	Y	All (NSD)
109475-32	WS003A	1.20	Y	All (NSD)
109475-34	WS004	1.20	Y	All (NSD)
109475-35	WS005	2.20	Y	All (NSD)
109475-38	WS011	3.20	Y	All (NSD)
109475-40	WS012	4.20	Y	All (NSD)
109475-42	WS020	5.80	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.
For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones, where applicable.

2531

ANALYTICAL TEST REPORT

Contract no: 110677

Contract name: Future Chippenham

Client reference: 20191665A

Clients name: Geo Site & Testing Services

Clients address: Unit 3 and 4 Heol Aur
Dafen Industrial Estate, Dafen
Llanelli, Carmarthenshire
SA14 8QN

Samples received: 22 June 2022

Analysis started: 22 June 2022

Analysis completed: 29 June 2022

Report issued: 29 June 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Will Fardon

Technical Director

Chemtech Environmental Limited

SOILS

Lab number			110677-1	110677-2	110677-3	110677-4	110677-5	110677-6
Sample id			AVC1-BH03	AVC1-BH04	AVC1-BH06	AVC1-BH06	AVC1-BH09	AVC1-BH09
Depth (m)			1.20	1.20	0.50	1.20	0.50	3.70
Sample Type			D4	D4	D1	D4	D1	D7
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	7.3	7.2	-	7.6	-	7.9
Magnesium (2:1 water soluble)	CE061	mg/l Mg	11	11	-	-	-	-
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	3.5	2.3	-	-	-	-
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	1.7	<1	-	-	-	-
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	811	991	-	127	-	483
Sulphate (total)	CE062 [U]	mg/kg SO_4	2121	2230	-	678	-	1925
Sulphate (total)	CE062 [U]	% w/w SO_4	0.21	0.22	-	0.07	-	0.19
Sulphur (total)	CE119	mg/kg S	7062	12495	-	531	-	1497
Sulphur (total)	CE119	% w/w S	0.71	1.25	-	0.05	-	0.15
Total Organic Carbon (TOC)	CE197	% w/w C	-	-	2.3	-	1.9	0.7
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	-	4.0	-	3.3	1.2

Chemtech Environmental Limited

SOILS

Lab number			110677-7	110677-8	110677-9	110677-10	110677-11	110677-12
Sample id			AVW-BH05	HP-TP05	PWB-BH05	PWB-BH05	TP008	WS006
Depth (m)			1.00	2.50	1.00	1.40	1.50	1.70
Sample Type			D2	D5	D3	D5	D3	D5
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	7.8	7.3	-	8.1	5.0	-
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	-	-	-	-	-
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	-	-	-	-	-	-
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	-	-	-	-	-	-
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	145	1801	-	229	107	-
Sulphate (total)	CE062 [U]	mg/kg SO_4	478	37232	-	170	1394	-
Sulphate (total)	CE062 [U]	% w/w SO_4	0.05	3.72	-	0.02	0.14	-
Sulphur (total)	CE119	mg/kg S	290	10024	-	100	540	-
Sulphur (total)	CE119	% w/w S	0.03	1.00	-	<0.01	0.05	-
Total Organic Carbon (TOC)	CE197	% w/w C	0.7	2.6	0.2	-	0.5	3.7
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.3	4.4	0.4	-	0.9	6.3

Chemtech Environmental Limited

SOILS

Lab number			110677-13	110677-14	110677-15
Sample id			WS007	WS007	WS009
Depth (m)			3.20	6.80	4.20
Sample Type			D8	D15	D8
Date sampled			-	-	-
Test	**Method**	**Units**			
pH	CE004 [U]	units	7.1	-	-
Magnesium (2:1 water soluble)	CE061	mg/l Mg	-	-	-
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	-	-	-
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	-	-	-
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	105	-	-
Sulphate (total)	CE062 [U]	mg/kg SO_4	1192	-	-
Sulphate (total)	CE062 [U]	% w/w SO_4	0.12	-	-
Sulphur (total)	CE119	mg/kg S	24392	-	-
Sulphur (total)	CE119	% w/w S	2.44	-	-
Total Organic Carbon (TOC)	CE197	% w/w C	-	2.2	3.2
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	3.8	5.6

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	0.01	% w/w SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
110677-1	AVC1-BH03	1.20	Y	All (NSD)
110677-2	AVC1-BH04	1.20	Y	All (NSD)
110677-4	AVC1-BH06	1.20	Y	All (NSD)
110677-6	AVC1-BH09	3.70	Y	All (NSD)
110677-7	AVW-BH05	1.00	Y	All (NSD)
110677-8	HP-TP05	2.50	Y	All (NSD)
110677-10	PWB-BH05	1.40	Y	All (NSD)
110677-11	TP008	1.50	Y	All (NSD)
110677-13	WS007	3.20	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.
For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones, where applicable.

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	59564
Site Name	Chippenham
Client Reference	JER9532

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
HP_TP_01	1	B	0.35	-		Brown fine to coarse sandy silty CLAY
HP_TP_01	2	D	0.50	-		Brown sandy silty CLAY
HP_TP_01	3	B	1.00	-		Brown slightly gravelly fine to coarse sandy silty CLAY
HP_TP_01	4	D	1.50	-		Brown sandy silty CLAY
HP_TP_03	1	D	0.50	-		Brown silty CLAY
HP_TP_03	3	D	1.50	-		Brown silty CLAY
HP_TP_03	6	B	3.00	-		Brown slightly sandy silty CLAY
TP003		D	0.50	-		Brown sandy GRAVEL
TP003		D	1.50	-		Brown silty CLAY
TP003		D	2.50	-		Brown silty CLAY
WS008	1	B	0.50	-		Brown slightly gravelly fine to coarse sandy silty CLAY
WS008	2	D	0.50	-		Brown silty CLAY
WS008	7	B	2.20	-		Brown slightly gravelly sandy silty CLAY
WS008	8	D	2.60	-		Brown silty CLAY
WS008	9	B	3.20	-		Brown slightly sandy silty CLAY
WS008	10	D	3.90	-		Brown silty CLAY
WS010	1	B	0.50	-		Brown slightly gravelly sandy silty CLAY
WS010	2	D	0.50	-		Brown sandy silty CLAY
WS014	2	D	0.50	-		Brown silty CLAY
WS014	1	B	0.50	-		Brown slightly gravelly fine to coarse sandy silty CLAY
WS014	6	B	1.65	-		Brown silty/clayey fine to medium gravelly fine to coarse SAND
AVC1_BH_10	3	D	0.50	-		Brown silty CLAY
AVC1_BH_10	2	B	0.50	-		Brown slightly sandy silty CLAY
AVC1_BH_10	6	UT	1.20	-		Brown silty CLAY
AVC1_BH_10	7	D	2.40	-		Brown silty CLAY (containing peat)
AVC1_BH_10	9	UT	3.20	-		Brown silty CLAY
AVC1_BH_10	11	D	4.10	-		Brown silty CLAY
AVC1_BH_10	12	B	4.35	-		Grey black clayey/silty fine to coarse sandy fine to coarse GRAVEL (Peat)
AVC1_BH_11	5	B	1.00	-		Brown fine to coarse sandy silty CLAY
AVC1_BH_11	4	D	1.00	-		Brown silty CLAY
AVC1_BH_11	9	D	3.00	-		Brown silty CLAY
AVC1_BH_11	10	UT	3.20	-		Brown silty CLAY
AVC1_BH_11	12	B	4.40	-		Grey chalky clayey/silty fine to coarse sandy fine to coarse GRAVEL
AVC1_BH_11	14	D	6.10	-		Brown silty CLAY
AVC1_BH_11	17	D	9.50	-		Brown silty CLAY
AVC1_BH_12	1	B	0.50	-		Brown slightly sandy silty CLAY
AVC1_BH_12	2	D	0.50	-		Brown silty CLAY
AVC1_BH_12	5	UT	1.20	-		Brown grey gravelly silty CLAY
AVC1_BH_12	6	B	1.70	-		Brown clayey/silty fine to coarse sandy fine to coarse GRAVEL
AVC1_BH_12	7	D	2.60	-		Brown sandy GRAVEL
AVC1_BH_12	11	D	4.05	-		Brown silty CLAY
AVC1_BH_12	19	D	11.00	-		Grey silty CLAY
AVC1_BH_13	4	B	1.00	-		Brown fine to coarse sandy silty CLAY
AVC1_BH_13	5	D	1.00	-		Brown silty CLAY
AVC1_BH_13	6	UT	1.20	-		Brown sandy silty CLAY
AVC1_BH_13	8	D	2.70	-		Brown silty CLAY
AVC1_BH_13	10	B	4.00	-		Brown chalky clayey/silty fine to coarse sandy fine to coarse GRAVEL
AVC1_BH_13	11	D	4.20	-		Brown sandy gravelly CLAY
AVC1_BH_13	13	D	5.50	-		Brown silty CLAY

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	59564
Site Name	Chippenham
Client Reference	JER9532

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
BH004	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
BH004	2	D	0.50	-		Brown sandy silty CLAY
BH004	5	B	1.20	-		Brown fine to coarse sandy silty CLAY
BH004	6	D	1.40	-		Grey sandy silty CLAY
BH004	8	D	2.10	-		Brown sandy silty CLAY
BH004	9	B	2.65	-		Brown grey fine to coarse sandy silty CLAY
BH004	10	D	2.85	-		Brown silty CLAY
BH004	11	D	3.60	-		Grey slightly gravelly silty CLAY
BH004	13	C	5.10	-		Grey silty CLAY
BH004	14	D	5.40	-		Brown silty CLAY
BH004	17	C	8.20	-		Grey silty CLAY
BH004	18	D	8.50	-		Grey silty CLAY
BH004	20	D	10.00	-		Grey silty CLAY
PWB_BH_01	3	B	1.00	-		Brown slightly gravelly sandy silty CLAY
PWB_BH_01	4	D	1.00	-		Brown silty CLAY
PWB_BH_01	5	UT	1.20	-		Brown sandy silty CLAY
PWB_BH_01	7	D	2.65	-		Brown slightly sandy silty CLAY
PWB_BH_01	8	D	2.70	-		Brown silty CLAY
PWB_BH_01	9	UT	3.20	-		Dark grey gravelly silty CLAY
PWB_BH_01	12	D	4.70	-		Brown silty CLAY
PWB_BH_01	19	D	7.60	-		Brown silty CLAY
PWB_BH_01	26	B	11.50	-		Brown slightly gravelly fine to coarse sandy silty CLAY
PWB_BH_01	25	D	11.50	-		Brown silty CLAY
PWB_BH_01	27	C	13.95	-		Brown sandy silty CLAY
PWB_BH_01	28	D	14.50	-		Brown silty CLAY
PWB_BH_01	29	C	15.50	-		Grey silty CLAY
PWB_BH_01	30	D	16.00	-		Grey slightly gravelly fine to coarse sandy silty CLAY
PWB_BH_01	32	C	18.30	-		Brown silty CLAY
PWB_BH_01	33	D	19.00	-		Grey silty CLAY
PWB_BH_02	4	D	1.00	-		Brown clayey SILT
PWB_BH_02	3	B	1.00	-		Brown slightly sandy clayey SILT
PWB_BH_02	5	UT	1.20	-		Brown grey silty CLAY
PWB_BH_02	9	UT	3.20	-		Brown grey silty CLAY
PWB_BH_02	10	D	4.40	-		Brown silty CLAY
PWB_BH_02	11	C	4.50	-		Grey silty CLAY
PWB_BH_02	13	D	5.40	-		Grey silty CLAY
PWB_BH_02	19	D	8.50	-		Brown silty CLAY
PWB_BH_02	24	B	10.50	-		Grey slightly gravelly clayey silty fine to coarse SAND
PWB_BH_02	25	D	11.50	-		Grey sandy silty CLAY
PWB_BH_02	29	D	15.50	-		Brown sandy silty CLAY
PWB_BH_02	36	D	18.80	-		Brown silty CLAY
TP002	1	D	0.50	-		Brown sandy silty CLAY
TP002	2	B	1.00	-		Brown fine to coarse sandy silty CLAY
TP002	6	B	2.00	-		Brown slightly sandy slightly clayey/silty fine to coarse GRAVEL (with many cobbles)
TP012	2	D	0.50	-		Brown silty CLAY
TP012	1	B	0.50	-		Brown slightly sandy silty CLAY
TP012	3	B	1.00	-		Greyish brown silty CLAY
TP012	5	D	1.50	-		Brown sandy silty CLAY
TP012	7	D	2.00	-		Brown silty CLAY

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GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	59564
Site Name	Chippenham
Client Reference	JER9532

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
TP012	10	D	3.00	-		Brown silty CLAY
TP013	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
TP013	2	D	0.50	-		Brown silty CLAY
TP013	7	D	2.00	-		Brown silty CLAY
TP013	9	B	3.00	-		Brown slightly sandy silty CLAY
TP013	11	D	3.50	-		Brown silty CLAY
AVC1_BH_01	3	D	1.00	-		Brown sandy gravelly silty CLAY
AVC1_BH_01	2	B	1.00	-		Brown fine to coarse gravelly silty CLAY
AVC1_BH_01	5	B	1.20	-		Brown silty clayey fine to coarse gravelly fine to coarse SAND
AVC1_BH_01	6	D	2.20	-		Brown silty CLAY
AVC1_BH_01	7	UT	2.80	-		Dark grey fine to medium gravelly silty CLAY
AVC1_BH_01	9	D	4.30	-		Grey silty CLAY
AVC1_BH_01	16	D	10.00	-		Grey sandy silty CLAY
AVC1_BH_01	19	D	11.50	-		Brown sandy silty CLAY
AVC1_BH_02	1	D	0.50	-		Brown sandy silty CLAY
AVC1_BH_02	3	D	1.00	-		Brown sandy silty CLAY
AVC1_BH_02	2	B	1.00	-		Brown slightly gravelly fine to coarse sandy silty CLAY
AVC1_BH_02	5	D	1.20	-		Brown sandy clayey silty GRAVEL
AVC1_BH_02	4	B	1.20	-		Brown clayey/silty fine to coarse sandy fine to coarse GRAVEL
AVC1_BH_02	7	UT	2.80	-		Grey silty CLAY
AVC1_BH_02	10	D	4.30	-		Brown sandy silty CLAY
AVC1_BH_02	13	D	8.50	-		Brown sandy silty CLAY
AVC1_BH_02	17	D	11.50	-		Brown sandy silty CLAY
AVC1_BH_05	1	D	0.50	-		Brown silty CLAY
AVC1_BH_05	3	B	1.00	-		Brown slightly fine to medium gravelly fine to coarse sandy silty CLAY
AVC1_BH_05	2	D	1.00	-		Brown silty CLAY
AVC1_BH_05	4	D	1.20	-		Brown fine to coarse sandy silty CLAY
AVC1_BH_05	5	D	1.50	-		Brown silty CLAY
AVC1_BH_05	6	UT	2.20	-		Brown grey fine to medium gravelly silty CLAY
AVC1_BH_05	9	D	3.10	-		Brown gravelly sandy silty CLAY
AVC1_BH_05	13	D	7.20	-		Brown sandy silty CLAY
AVC1_BH_05	15	D	8.70	-		Grey silty CLAY
AVC1_BH_14	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
AVC1_BH_14	2	D	0.50	-		Brown silty CLAY
AVC1_BH_14	3	UT	1.20	-		Brown grey silty CLAY
AVC1_BH_14	4	B	1.20	-		Brown fine to coarse sandy silty CLAY
AVC1_BH_14	5	D	1.20	-		Brown silty CLAY
AVC1_BH_14	8	D	2.80	-		Brown silty CLAY
AVC1_BH_14	9	C	3.00	-		Brown CLAY
AVC1_BH_14	11	C	4.70	-		Grey brown silty CLAY
AVC1_BH_14	12	D	5.00	-		Grey silty CLAY
AVC1_BH_14	13	C	5.95	-		Grey silty CLAY
AVC1_BH_14	15	C	7.45	-		Brown CLAY
AVC1_BH_14	16	D	8.00	-		Grey silty CLAY
AVC1_BH_14	18	D	9.50	-		Brown silty CLAY
AVC1_BH_14	22	D	12.50	-		Brown sandy silty CLAY
AVC1_BH_14	26	D	17.00	-		Grey clayey SILT
AVW_BH_03	1	B	0.50	-		Brown slightly gravelly fine to coarse sandy silty CLAY

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GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	59564
Site Name	Chippenham
Client Reference	JER9532

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVW_BH_03	2	D	0.50	-		Brown silty CLAY
AVW_BH_03	5	D	1.20	-		Brown silty CLAY
AVW_BH_03	7	D	1.70	-		Brown fine to medium gravelly fine to coarse sandy silty CLAY
AVW_BH_03	8	D	2.10	-		Black silty clayey fine to coarse sandy fine to coarse GRAVEL
AVW_BH_03	9	D	2.20	-		Brown clayey SILT
AVW_BH_03	12	D	4.60	-		Brown clayey SILT
AVW_BH_03	13	C	6.95	-		Grey silty CLAY
AVW_BH_03	17	C	12.95	-		Grey silty CLAY
AVW_BH_02	1	D	0.50	-		Brown silty CLAY
AVW_BH_02	3	B	1.00	-		Greyish brown silty CLAY
AVW_BH_02	4	D	1.30	-		Brown slightly fine to medium gravelly fine to coarse sandy silty CLAY
AVW_BH_01	1	D	0.50	-		Brown silty CLAY
AVW_BH_01	4	D	1.20	-		Brown fine to coarse gravelly fine to coarse sandy silty CLAY
AVW_BH_01	6	D	2.20	-		Brown silty CLAY
AVW_BH_01	17	C	10.40	-		Grey silty CLAY
AVW_BH_01	19	C	11.65	-		Grey brown silty CLAY
AVW_BH_01	22	C	16.05	-		Brown silty CLAY
PWB_BH_04	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
PWB_BH_04	2	D	0.50	-		Brown silty CLAY
PWB_BH_04	3	D	1.00	-		Brown silty CLAY
PWB_BH_04	4	UT	1.20	-		Brown grey silty CLAY
PWB_BH_04	5	D	1.70	-		Brown silty CLAY
PWB_BH_04	8	UT	3.20	-		Brown silty CLAY
PWB_BH_04	10	D	4.40	-		Brown silty CLAY
PWB_BH_04	15	D	7.00	-		Brown sandy silty CLAY
PWB_BH_04	14	B	7.00	-		Grey fine to coarse sandy silty CLAY
PWB_BH_04	17	C	9.05	-		Brown silty CLAY
PWB_BH_04	20	B	11.50	-		Grey fine to coarse sandy silty CLAY
PWB_BH_04	22	D	13.00	-		Brown sandy silty CLAY
PWB_BH_04	23	C	13.95	-		Grey brown silty CLAY
PWB_BH_04	24	D	14.50	-		Brown sandy silty CLAY
PWB_BH_04	28	D	17.50	-		Brown sandy silty CLAY
PWB_BH_04	30	D	19.00	-		Grey sandy silty CLAY
PWB_BH_03	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
PWB_BH_03	2	D	0.50	-		Brown silty CLAY
PWB_BH_03	5	UT	1.20	-		Greyish brown silty CLAY
PWB_BH_03	6	D	1.80	-		Brown silty CLAY
PWB_BH_03	7	D	2.30	-		Brown silty CLAY
PWB_BH_03	10	C	3.30	-		Grey brown silty CLAY
PWB_BH_03	11	D	4.70	-		Brown silty CLAY
PWB_BH_03	13	D	6.00	-		Brown GRAVEL
PWB_BH_03	17	B	7.80	-		Grey slightly fine to medium gravelly fine to coarse sandy silty CLAY
PWB_BH_03	20	D	10.00	-		Brown sandy silty CLAY
PWB_BH_03	24	D	13.00	-		Brown silty CLAY
PWB_BH_03	28	D	16.00	-		Brown silty CLAY
PWB_BH_03	33	D	19.00	-		Brown sandy silty CLAY
PWB_BH_03	34	D	19.40	-		Grey sandy silty CLAY
AVW_BH_04	1	D	0.50	-		Brown silty CLAY

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GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	59564
Site Name	Chippenham
Client Reference	JER9532

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVW_BH_04	3	B	1.00	-		Brown slightly sandy silty CLAY
AVW_BH_04	5	D	1.80	-		Brown silty CLAY
AVW_BH_04	9	D	4.25	-		Brown silty CLAY
AVW_BH_04	12	D	6.15	-		Brown silty CLAY
AVW_BH_04	13	C	7.10	-		Grey silty CLAY
AVW_BH_04	15	C	8.20	-		Grey brown silty CLAY
AVW_BH_04	18	D	10.65	-		Brown sandy silty CLAY
AVW_BH_04	24	D	15.15	-		Brown silty CLAY
AVW_BH_04	29	D	18.50	-		Brown silty CLAY
AVW_BH_06	2	B	1.00	-		Brown fine to coarse sandy silty CLAY
AVW_BH_06	3	D	1.00	-		Brown silty CLAY
AVW_BH_06	6	D	2.00	-		Brown slightly gravelly fine to coarse sandy silty CLAY
AVW_BH_06	7	D	2.20	-		Brown silty CLAY
AVW_BH_06	13	D	6.15	-		Brown silty CLAY
AVW_BH_06	16	C	8.55	-		Brown silty CLAY
AVW_BH_06	17	D	9.80	-		Grey silty CLAY
AVW_BH_06	20	D	12.70	-		Black slightly fine gravelly sandy silty CLAY
AVW_BH_06	21	C	14.05	-		Grey silty CLAY
AVW_BH_06	23	C	17.55	-		Grey brown silty CLAY
AVW_BH_06	25	C	19.95	-		Grey silty CLAY
BH003	1	D	0.50	-		Brown silty CLAY
BH003	2	B	1.00	-		Brown fine to medium gravelly fine to coarse sandy silty CLAY
BH003	4	D	1.20	-		Brown silty CLAY
BH003	5	B	1.20	-		Brown fine to coarse sandy silty CLAY
BH003	11	C	6.50	-		Grey silty CLAY
PWB_BH_06	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
PWB_BH_06	2	D	0.50	-		Brown sandy silty CLAY
PWB_BH_06	3	B	1.00	-		Brown silty sandy CLAY
PWB_BH_06	5	D	1.20	-		Brown silty CLAY
PWB_BH_06	7	D	2.00	-		Brown fine to coarse sandy silty CLAY
PWB_BH_06	10	D	3.20	-		Brown silty CLAY
PWB_BH_06	13	C	5.55	-		Grey silty CLAY
PWB_BH_06	14	D	6.15	-		Brown sandy silty CLAY
PWB_BH_06	17	C	8.25	-		Brown grey silty CLAY
PWB_BH_06	18	D	9.15	-		Grey silty CLAY
PWB_BH_06	23	C	14.65	-		Brown CLAY
CPTU001	1	D	0.50	-		Brown sandy silty CLAY
CPTU001	2	B	0.50	-		Brown fine to coarse sandy silty CLAY
CPTU001	3	D	1.00	-		Brown silty CLAY
CPTU001	4	B	1.00	-		Brown fine to coarse sandy silty CLAY
CPTU002	2	D	0.50	-		Brown sandy silty CLAY
CPTU002	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
HP_TP_08	1	D	0.50	-		Brown silty CLAY
HP_TP_08	4	D	1.00	-		Brown silty CLAY
HP_TP_08	3	B	1.00	-		Brown slightly sandy silty CLAY
HP_TP_08	6	B	2.00	-		Brown grey silty CLAY
HP_TP_08	7	D	2.00	-		Brown silty CLAY
HP_TP_08	11	B	3.40	-		Brown silty CLAY
HP_TP_09	1	B	0.50	-		Brown slightly fine to medium gravelly sandy silty CLAY

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GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	59564
Site Name	Chippenham
Client Reference	JER9532

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
HP_TP_09	2	D	0.50	-		Brown silty CLAY
HP_TP_09	3	B	1.00	-		Grey brown silty CLAY
HP_TP_09	6	B	2.00	-		Brown fine to coarse sandy silty CLAY
HP_TP_09	7	D	2.00	-		Brown silty CLAY
TP014	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
TP014	2	D	0.50	-		Brown silty CLAY
TP014	7	D	2.00	-		Brown silty CLAY
TP014	6	B	2.00	-		Brown fine to coarse sandy silty CLAY
TP015	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
TP015	1	D	0.50	-		Brown silty CLAY
TP015	5	D	1.50	-		Brown silty CLAY
TP015	6	B	2.00	-		Brown fine to coarse sandy silty CLAY
TP015	10	D	3.00	-		Brown silty CLAY
TP016	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
TP016	2	D	0.50	-		Brown silty CLAY
TP016	3	B	1.00	-		Brown fine to coarse sandy silty CLAY
TP016	4	D	1.00	-		Brown silty CLAY
TP016	7	D	2.00	-		Brown silty CLAY
TP016	6	B	2.00			Brown silty CLAY
TP016	11	D	3.40	-		Brown silty CLAY
BH001	3	D	2.40	-		Grey silty CLAY
BH002	1	D	0.50	-		Brown sandy silty CLAY
BH002	2	D	1.00	-		Brown silty CLAY
BH002	3	B	1.00	-		Brown fine gravelly fine to coarse sandy silty CLAY
BH002	4	UT	1.20	-		Brown silty CLAY
BH002	5	D	2.00	-		Brown sandy silty CLAY
BH002	13	C	12.60	-		Grey silty CLAY
AVW_BH_07	2	D	0.50	-		Brown silty CLAY
AVW_BH_07	1	B	0.50	-		Brown slightly fine to medium gravelly fine to coarse sandy silty CLAY
AVW_BH_07	3	B	1.00	-		Brown silty CLAY
AVW_BH_07	4	D	1.00	-		Brown fine to coarse sandy silty CLAY
AVW_BH_07	7	D	2.60	-		Brown silty CLAY
AVW_BH_07	9	C	4.00	-		Grey silty CLAY
AVW_BH_07	10	D	4.30	-		Brown silty CLAY
AVW_BH_07	11	C	4.90	-		Grey brown silty CLAY
AVW_BH_07	13	C	6.60	-		Brown silty CLAY
AVW_BH_07	15	D	9.45	-		Brown silty CLAY
AVW_BH_07	18	D	13.00	-		Grey sandy silty CLAY
AVW_BH_07	20	C	15.85	-		Grey silty sandy CLAY
AVW_BH_07	21	C	16.85	-		Grey silty CLAY
AVW_BH_07	23	C	19.65	-		Brown silty CLAY
AVW_BH_08	2	D	1.00	-		Brown silty CLAY
AVW_BH_08	3	B	1.00	-		Brown slightly sandy silty CLAY
AVW_BH_08	4	UT	1.20	-		Brown grey silty CLAY
AVW_BH_08	6	D	2.50	-		Brown silty CLAY
AVW_BH_08	8	C	3.75	-		Grey silty CLAY
AVW_BH_08	10	C	5.80	-		Brown silty CLAY
AVW_BH_08	13	D	7.50	-		Brown silty CLAY
AVW_BH_08	15	D	9.00	-		Brown silty CLAY
AVW_BH_08	16	C	9.75	-		Dark grey silty CLAY

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GEOTECHNICAL SITE & TESTING LABORATORIES

Summary of Soil Descriptions

Contract Number	59564
Site Name	Chippenham
Client Reference	JER9532

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVW_BH_08	20	D	12.00	-		Grey silty CLAY
AVW_BH_08	21	C	13.20	-		Grey sandy silty CLAY
AVW_BH_08	24	C	16.20	-		Grey silty sandy CLAY
WS018E	2	D	0.50	-		Brown sandy gravelly silty CLAY
WS018E	1	B	0.50	-		Brown fine to coarse gravelly fine to coarse sandy silty CLAY
WS019	1	B	0.50	-		Brown fine to coarse sandy silty CLAY
WS019	2	D	0.50	-		Brown sandy silty CLAY
WS019	4	D	1.40	-		Brown silty CLAY
WS019	6	D	2.50	-		Brown silty CLAY
WS019	9	D	3.60	-		Brown sandy silty CLAY
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Natural Moisture Content
(BS 1377:1990 - Part 2 : 3.2)

Contract Number	59564	
Site Name	Chippenham	
Date Tested	14/06/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Remarks
AVC1_BH_11	12	B	4.40	-		24	
AVC1_BH_13	11	D	4.20	-		20	
BH004	6	D	1.40	-		23	
PWB_BH_01	25	D	11.50	-		22	
AVC1_BH_01	9	D	4.30	-		23	
AVW_BH_03	2	D	0.50	-		23	
AVW_BH_01	4	D	1.20	-		23	
AVW_BH_01	6	D	2.20	-		28	
PWB_BH_03	17	B	7.80	-		15	
AVW_BH_06	17	D	9.80	-		20	
PWB_BH_06	7	D	2.00	-		18	
CPTU001	1	D	0.50	-		20	
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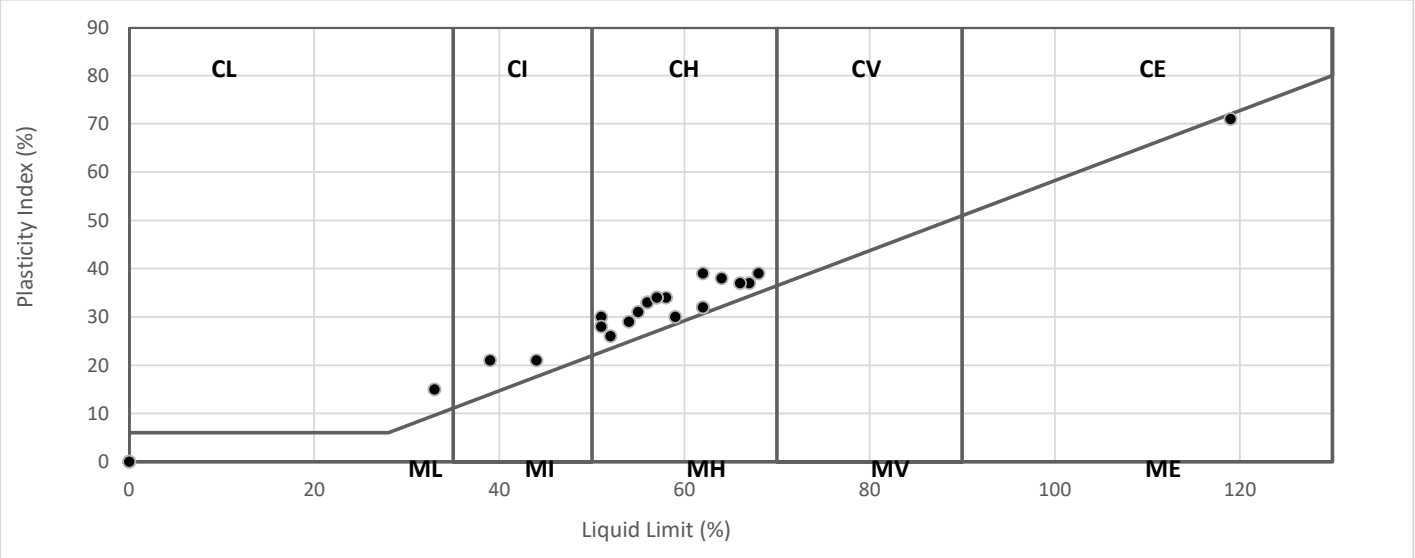
NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)

Contract Number	59564
Project Location	Chippenham
Date Tested	15/06/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
HP_TP_01	2	D	0.50	-		16	39	18	21	100	CI Intermediate Plasticity
HP_TP_01	4	D	1.50	-		21	44	23	21	100	CI Intermediate Plasticity
HP_TP_03	1	D	0.50	-		36	62	30	32	100	CH High Plasticity
HP_TP_03	3	D	1.50	-		22	55	24	31	100	CH High Plasticity
HP_TP_03	6	B	3.00	-		26	51	21	30	100	CH High Plasticity
TP003		D	0.50	-		18		NP		10	
TP003		D	1.50	-		27	58	24	34	100	CH High Plasticity
TP003		D	2.50	-		30	62	23	39	100	CH High Plasticity
WS008	2	D	0.50	-		33	52	26	26	100	CH High Plasticity
WS008	8	D	2.60	-		33	64	26	38	100	CH High Plasticity
WS008	10	D	3.90	-		29	57	23	34	100	CH High Plasticity
WS010	2	D	0.50	-		15	33	18	15	100	CL Low Plasticity
WS014	2	D	0.50	-		25	56	23	33	100	CH High Plasticity
AVC1_BH_10	3	D	0.50	-		35	59	29	30	100	CH High Plasticity
AVC1_BH_10	7	D	2.40	-		115	119	48	71	100	ME Extremely High Plasticity
AVC1_BH_10	11	D	4.10	-		33	62	30	32	100	CH High Plasticity
AVC1_BH_11	4	D	1.00	-		37	67	30	37	100	CH High Plasticity
AVC1_BH_11	9	D	3.00	-		47	68	29	39	100	CH High Plasticity
AVC1_BH_11	14	D	6.10	-		20	51	23	28	100	CH High Plasticity
AVC1_BH_11	17	D	9.50	-		24	56	23	33	100	CH High Plasticity
AVC1_BH_12	2	D	0.50	-		37	66	29	37	100	CH High Plasticity
AVC1_BH_12	7	D	2.60	-		16		NP		10	
AVC1_BH_12	11	D	4.05	-		27	57	23	34	100	CH High Plasticity
AVC1_BH_12	19	D	11.00	-		21	54	25	29	100	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



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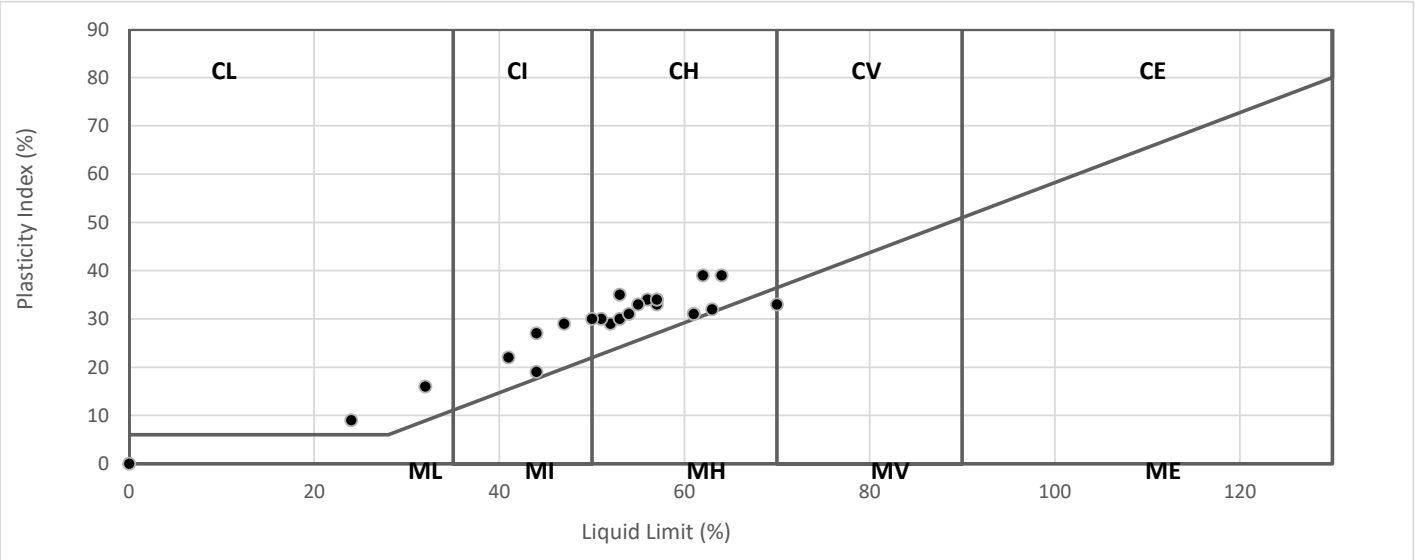
NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)

Contract Number	59564
Project Location	Chippenham
Date Tested	15/06/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
AVC1_BH_13	5	D	1.00	-		43	61	30	31	100	CH High Plasticity
AVC1_BH_13	8	D	2.70	-		46	63	31	32	100	CH High Plasticity
AVC1_BH_13	13	D	5.50	-		21	62	23	39	100	CH High Plasticity
BH004	2	D	0.50	-		22	44	25	19	100	CI Intermediate Plasticity
BH004	8	D	2.10	-		24	52	23	29	100	CH High Plasticity
BH004	10	D	2.85	-		30	64	25	39	100	CH High Plasticity
BH004	14	D	5.40	-		20	47	18	29	100	CI Intermediate Plasticity
BH004	18	D	8.50	-		21	53	18	35	100	CH High Plasticity
BH004	20	D	10.00	-		9.4	24	15	9	100	CL Low Plasticity
PWB_BH_01	3	B	1.00	-		26	57	24	33	98	CH High Plasticity
PWB_BH_01	4	D	1.00	-		27	57	23	34	100	CH High Plasticity
PWB_BH_01	8	D	2.70	-		34	61	30	31	100	CH High Plasticity
PWB_BH_01	12	D	4.70	-		26	51	21	30	100	CH High Plasticity
PWB_BH_01	19	D	7.60	-		24	56	22	34	100	CH High Plasticity
PWB_BH_01	27	C	13.95	-		17	41	19	22	100	CI Intermediate Plasticity
PWB_BH_01	28	D	14.50	-		23	50	20	30	100	CI/H Inter/High Plasticity
PWB_BH_01	33	D	19.00	-		22	53	23	30	100	CH High Plasticity
PWB_BH_02	4	D	1.00	-		59	70	37	33	100	MH/V High/HighPlasticity
PWB_BH_02	10	D	4.40	-		24	57	23	34	100	CH High Plasticity
PWB_BH_02	13	D	5.40	-		25	55	22	33	100	CH High Plasticity
PWB_BH_02	19	D	8.50	-		20	54	23	31	100	CH High Plasticity
PWB_BH_02	24	B	10.50	-		23		NP		90	
PWB_BH_02	25	D	11.50	-		13	32	16	16	100	CL Low Plasticity
PWB_BH_02	29	D	15.50	-		15	44	17	27	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



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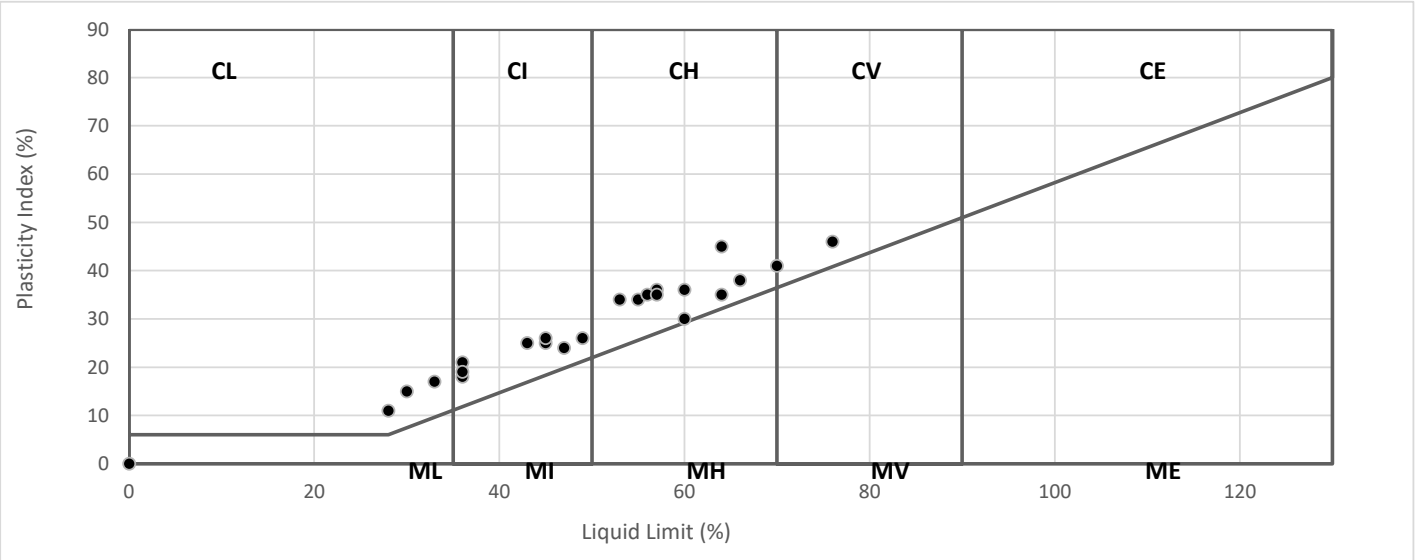
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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59564	
Project Location	Chippenham	
Date Tested	15/06/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
PWB_BH_02	36	D	18.80	-		15	28	17	11	100	CL Low Plasticity
TP002	1	D	0.50	-		19	47	23	24	100	CI Intermediate Plasticity
TP012	2	D	0.50	-		34	76	30	46	100	CV Very High Plasticity
TP012	7	D	2.00	-		33	70	29	41	100	CH/V High/HighPlasticity
TP012	10	D	3.00	-		27	60	24	36	100	CH High Plasticity
TP013	2	D	0.50	-		20	64	19	45	100	CH High Plasticity
TP013	7	D	2.00	-		26	55	21	34	100	CH High Plasticity
TP013	11	D	3.50	-		26	57	21	36	100	CH High Plasticity
AVC1_BH_01	3	D	1.00	-		17	36	15	21	64	CI Intermediate Plasticity
AVC1_BH_01	6	D	2.20	-		40	64	29	35	100	CH High Plasticity
AVC1_BH_01	16	D	10.00	-		12	30	15	15	100	CL Low Plasticity
AVC1_BH_01	19	D	11.50	-		14	36	18	18	100	CI Intermediate Plasticity
AVC1_BH_02	1	D	0.50	-		22	49	23	26	100	CI Intermediate Plasticity
AVC1_BH_02	3	D	1.00	-		15	43	18	25	100	CI Intermediate Plasticity
AVC1_BH_02	5	D	1.20	-		14		NP		40	
AVC1_BH_02	10	D	4.30	-		24	53	19	34	100	CH High Plasticity
AVC1_BH_02	13	D	8.50	-		19	56	21	35	100	CH High Plasticity
AVC1_BH_02	17	D	11.50	-		16	45	20	25	100	CI Intermediate Plasticity
AVC1_BH_05	1	D	0.50	-		37	60	30	30	100	CH High Plasticity
AVC1_BH_05	2	D	1.00	-		32	66	28	38	100	CH High Plasticity
AVC1_BH_05	5	D	1.50	-		26	57	22	35	100	CH High Plasticity
AVC1_BH_05	9	D	3.10	-		14	36	17	19	89	CI Intermediate Plasticity
AVC1_BH_05	13	D	7.20	-		17	33	16	17	100	CL Low Plasticity
AVC1_BH_05	15	D	8.70	-		18	45	19	26	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



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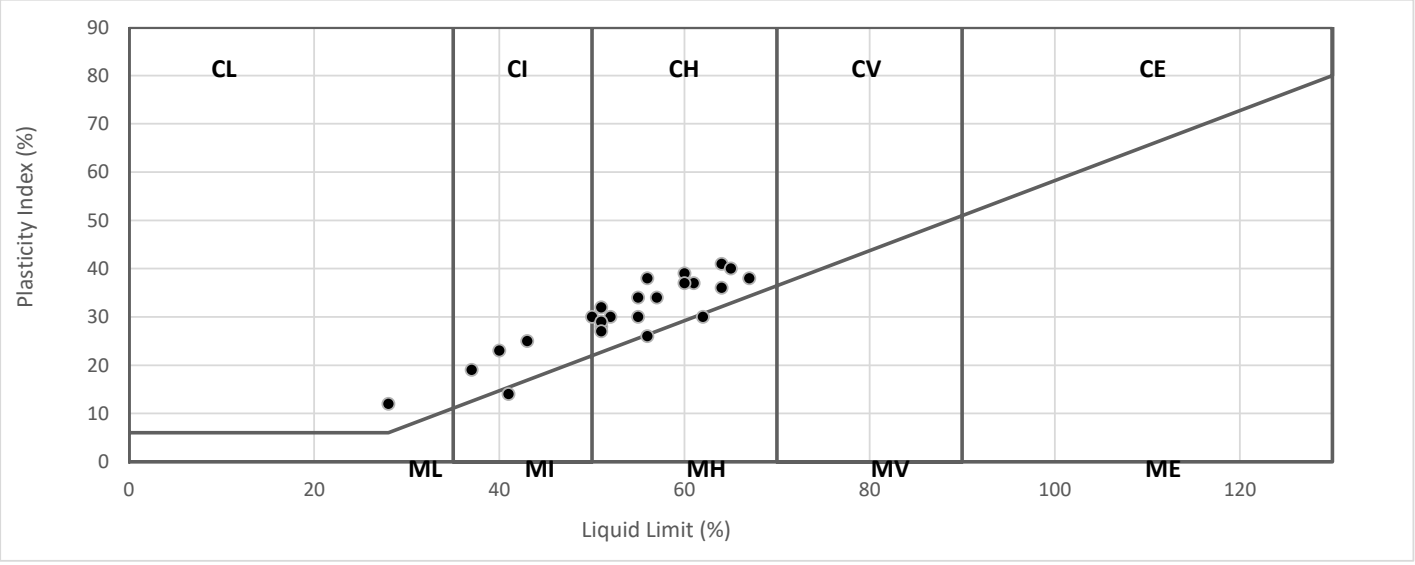
NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)

Contract Number	59564
Project Location	Chippenham
Date Tested	15/06/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
AVC1_BH_14	2	D	0.50	-		22	50	20	30	100	CI/H Inter/High Plasticity
AVC1_BH_14	5	D	1.20	-		20	55	21	34	100	CH High Plasticity
AVC1_BH_14	8	D	2.80	-		27	52	22	30	100	CH High Plasticity
AVC1_BH_14	12	D	5.00	-		22	51	23	28	100	CH High Plasticity
AVC1_BH_14	16	D	8.00	-		23	51	19	32	100	CH High Plasticity
AVC1_BH_14	18	D	9.50	-		20	51	22	29	100	CH High Plasticity
AVC1_BH_14	22	D	12.50	-		13	28	16	12	100	CL Low Plasticity
AVC1_BH_14	26	D	17.00	-		20	62	32	30	100	MH High Plasticity
AVW_BH_03	5	D	1.20	-		41	64	28	36	100	CH High Plasticity
AVW_BH_03	9	D	2.20	-		33	56	30	26	100	MH High Plasticity
AVW_BH_03	12	D	4.60	-		24	41	27	14	100	MI Intermediate Plasticity
AVW_BH_02	1	D	0.50	-		39	67	29	38	100	CH High Plasticity
AVW_BH_01	1	D	0.50	-		31	61	24	37	100	CH High Plasticity
PWB_BH_04	2	D	0.50	-		25	60	21	39	100	CH High Plasticity
PWB_BH_04	3	D	1.00	-		25	64	23	41	100	CH High Plasticity
PWB_BH_04	5	D	1.70	-		30	55	25	30	100	CH High Plasticity
PWB_BH_04	10	D	4.40	-		21	56	18	38	100	CH High Plasticity
PWB_BH_04	15	D	7.00	-		15	40	17	23	100	CI Intermediate Plasticity
PWB_BH_04	22	D	13.00	-		16	43	18	25	100	CI Intermediate Plasticity
PWB_BH_04	24	D	14.50	-		19	51	24	27	100	CH High Plasticity
PWB_BH_04	28	D	17.50	-		20	57	23	34	100	CH High Plasticity
PWB_BH_04	30	D	19.00	-		15	37	18	19	100	CI Intermediate Plasticity
PWB_BH_03	2	D	0.50	-		27	60	23	37	100	CH High Plasticity
PWB_BH_03	7	D	2.30	-		32	65	25	40	100	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
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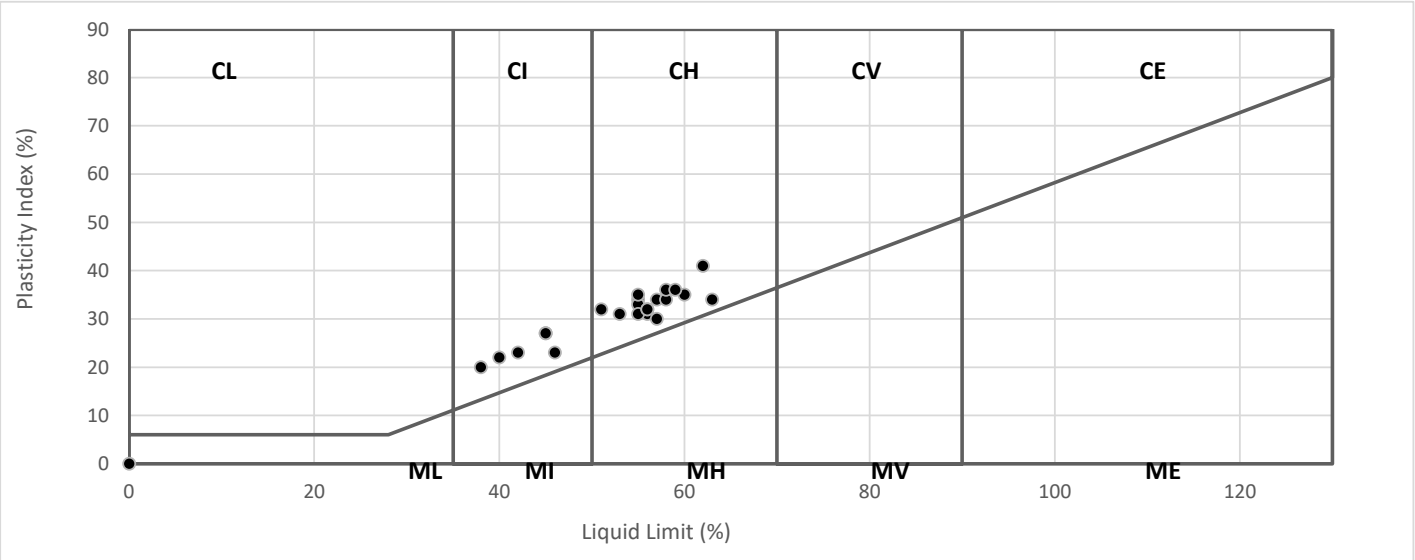
NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)

Contract Number	59564
Project Location	Chippenham
Date Tested	15/06/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
PWB_BH_03	11	D	4.70	-		26	57	23	34	100	CH High Plasticity
PWB_BH_03	13	D	6.00	-		4.7		NP		0	
PWB_BH_03	20	D	10.00	-		16	45	18	27	100	CI Intermediate Plasticity
PWB_BH_03	24	D	13.00	-		30	60	25	35	100	CH High Plasticity
PWB_BH_03	28	D	16.00	-		24	55	21	34	100	CH High Plasticity
PWB_BH_03	33	D	19.00	-		14	38	18	20	100	CI Intermediate Plasticity
PWB_BH_03	34	D	19.40	-		18	55	22	33	100	CH High Plasticity
AVW_BH_04	1	D	0.50	-		23	62	21	41	100	CH High Plasticity
AVW_BH_04	3	B	1.00	-		30	58	24	34	99	CH High Plasticity
AVW_BH_04	5	D	1.80	-		41	63	29	34	100	CH High Plasticity
AVW_BH_04	9	D	4.25	-		29	56	25	31	100	CH High Plasticity
AVW_BH_04	12	D	6.15	-		26	55	24	31	100	CH High Plasticity
AVW_BH_04	18	D	10.65	-		19	40	18	22	100	CI Intermediate Plasticity
AVW_BH_04	24	D	15.15	-		20	53	22	31	100	CH High Plasticity
AVW_BH_04	29	D	18.50	-		31	57	27	30	100	CH High Plasticity
AVW_BH_06	3	D	1.00	-		22	56	24	32	100	CH High Plasticity
AVW_BH_06	7	D	2.20	-		31	56	24	32	100	CH High Plasticity
AVW_BH_06	13	D	6.15	-		26	58	22	36	100	CH High Plasticity
AVW_BH_06	20	D	12.70	-		17	42	19	23	96	CI Intermediate Plasticity
BH003	1	D	0.50	-		22	55	20	35	100	CH High Plasticity
BH003	4	D	1.20	-		16	45	18	27	94	CI Intermediate Plasticity
PWB_BH_06	2	D	0.50	-		21	46	23	23	100	CI Intermediate Plasticity
PWB_BH_06	5	D	1.20	-		23	51	19	32	100	CH High Plasticity
PWB_BH_06	10	D	3.20	-		19	59	23	36	100	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
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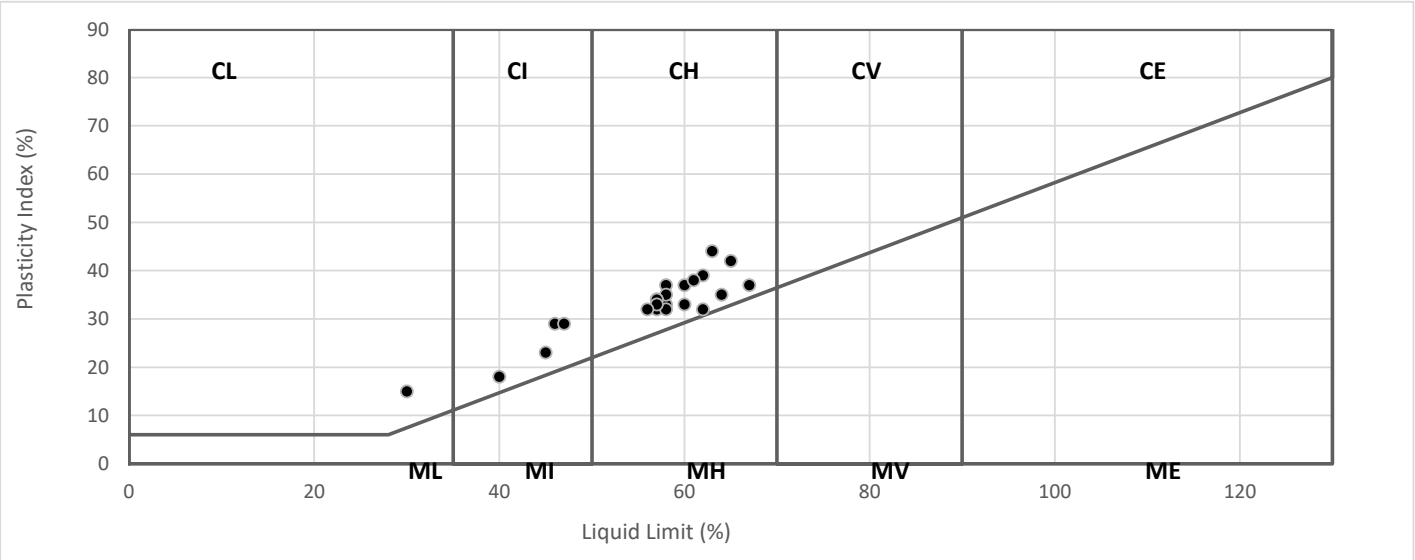
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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	59564	
Project Location	Chippenham	
Date Tested	15/06/2022	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
PWB_BH_06	14	D	6.15	-		17	46	17	29	100	CI Intermediate Plasticity
PWB_BH_06	18	D	9.15	-		23	58	21	37	100	CH High Plasticity
CPTU001	3	D	1.00	-		21	47	18	29	100	CI Intermediate Plasticity
CPTU002	2	D	0.50	-		20	45	22	23	100	CI Intermediate Plasticity
HP_TP_08	1	D	0.50	-		46	67	30	37	100	CH High Plasticity
HP_TP_08	4	D	1.00	-		31	62	23	39	100	CH High Plasticity
HP_TP_08	7	D	2.00	-		25	57	23	34	100	CH High Plasticity
HP_TP_08	11	B	3.40	-		30	58	25	33	100	CH High Plasticity
HP_TP_09	2	D	0.50	-		23	63	19	44	100	CH High Plasticity
HP_TP_09	7	D	2.00	-		39	62	30	32	100	CH High Plasticity
TP014	2	D	0.50	-		33	65	23	42	100	CH High Plasticity
TP014	7	D	2.00	-		27	58	23	35	100	CH High Plasticity
TP015	2	D	0.50	-		31	57	25	32	100	CH High Plasticity
TP015	5	D	1.50	-		30	57	23	34	100	CH High Plasticity
TP015	10	D	3.00	-		30	60	27	33	100	CH High Plasticity
TP016	2	D	0.50	-		30	58	26	32	100	CH High Plasticity
TP016	4	D	1.00	-		25	57	23	34	100	CH High Plasticity
TP016	7	D	2.00	-		41	64	29	35	100	CH High Plasticity
TP016	11	D	3.40	-		29	57	24	33	100	CH High Plasticity
BH001	3	D	2.40	-		18	56	24	32	100	CH High Plasticity
BH002	1	D	0.50	-		19	40	22	18	100	CI Intermediate Plasticity
BH002	2	D	1.00	-		27	60	23	37	100	CH High Plasticity
BH002	5	D	2.00	-		12	30	15	15	100	CL Low Plasticity
AVW_BH_07	2	D	0.50	-		28	61	23	38	100	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



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GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

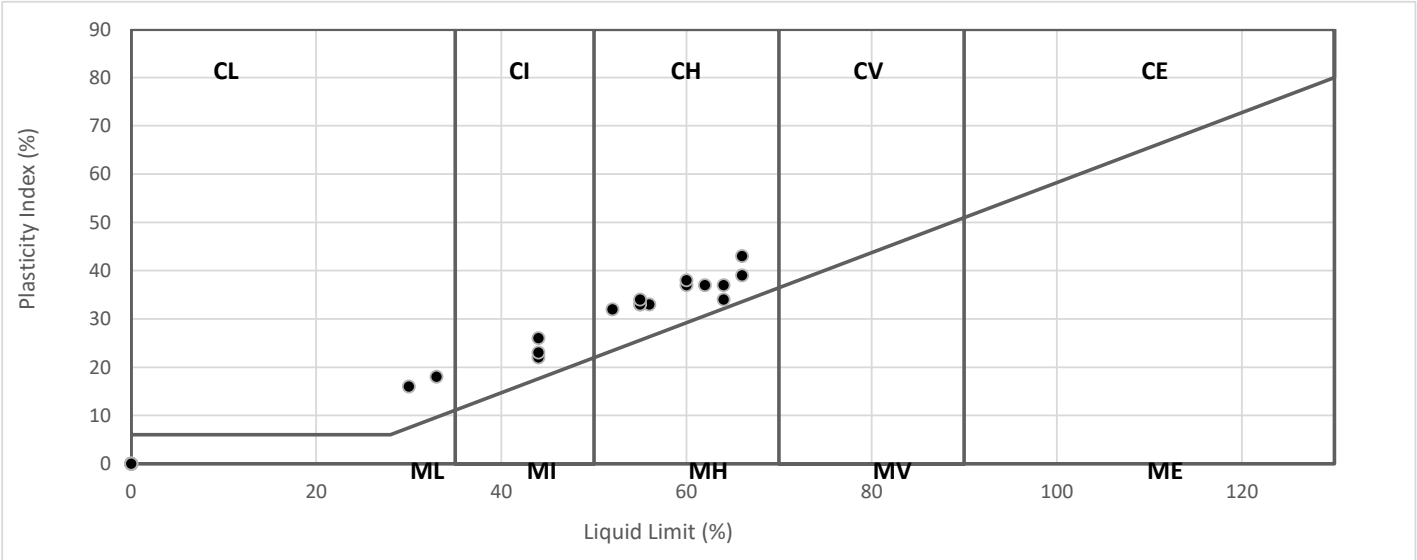
NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)

Contract Number	59564
Project Location	Chippenham
Date Tested	15/06/2022

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
AVW_BH_07	4	D	1.00	-		44	64	30	34	100	CH High Plasticity
AVW_BH_07	7	D	2.60	-		29	66	23	43	100	CH High Plasticity
AVW_BH_07	10	D	4.30	-		30	62	25	37	100	CH High Plasticity
AVW_BH_07	13	C	6.60	-		19	55	22	33	100	CH High Plasticity
AVW_BH_07	15	D	9.45	-		23	52	20	32	100	CH High Plasticity
AVW_BH_07	18	D	13.00	-		17	44	22	22	100	CI Intermediate Plasticity
AVW_BH_07	23	C	19.65	-		15	44	18	26	100	CI Intermediate Plasticity
AVW_BH_08	2	D	1.00	-		32	64	27	37	100	CH High Plasticity
AVW_BH_08	6	D	2.50	-		27	60	23	37	100	CH High Plasticity
AVW_BH_08	13	D	7.50	-		26	56	23	33	100	CH High Plasticity
AVW_BH_08	15	D	9.00	-		25	60	22	38	100	CH High Plasticity
AVW_BH_08	20	D	12.00	-		26	55	22	33	100	CH High Plasticity
WS018E	2	D	0.50	-		16	33	15	18	88	CL Low Plasticity
WS019	2	D	0.50	-		18	44	21	23	100	CI Intermediate Plasticity
WS019	4	D	1.40	-		26	55	21	34	100	CH High Plasticity
WS019	6	D	2.50	-		31	66	27	39	100	CH High Plasticity
WS019	9	D	3.60	-		12	30	14	16	100	CL Low Plasticity
				-							
				-							
				-							
				-							
				-							
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

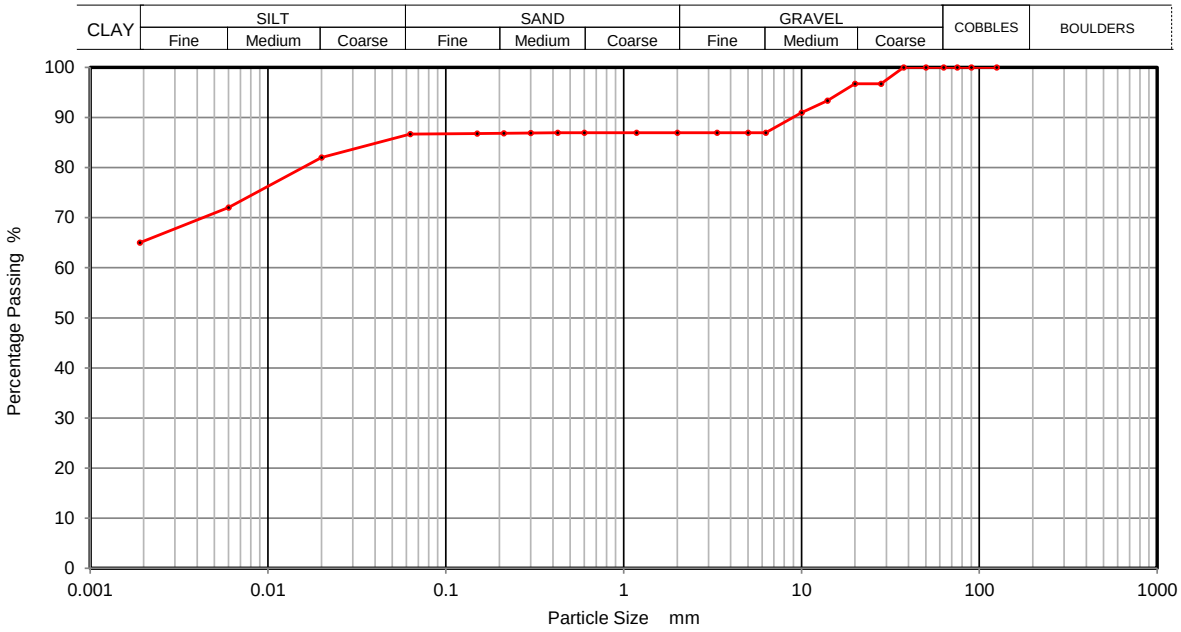
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators			
Clayton Jenkins			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_01
Site Name	Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	82
90	100	0.0060	72
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	97		
20	97		
14	93		
10	91		
6.3	87		
5	87		
3.35	87		
2	87		
1.18	87		
0.6	87		
0.425	87		
0.3	87		
0.212	87		
0.15	87		
0.063	87		

Sample Proportions	% dry mass
Cobbles	0
Gravel	13
Sand	0
Silt	22
Clay	65

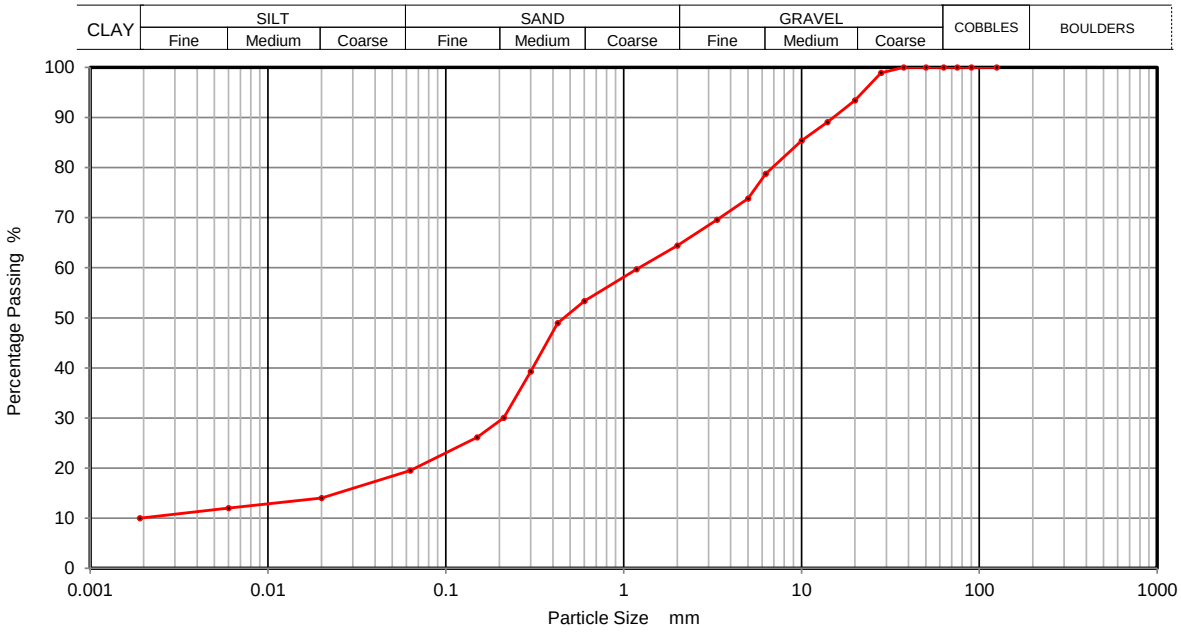
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_01
Site Name	Chippenham	Sample No.	5
Soil Description	*See sample description sheet	Depth Top	1.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	14
90	100	0.0060	12
75	100	0.0020	10
63	100		
50	100		
37.5	100		
28	99		
20	93		
14	89		
10	85		
6.3	79		
5	74		
3.35	70		
2	64		
1.18	60		
0.6	53		
0.425	49		
0.3	39		
0.212	30		
0.15	26		
0.063	19		

Sample Proportions	% dry mass
Cobbles	0
Gravel	36
Sand	45
Silt	9
Clay	10

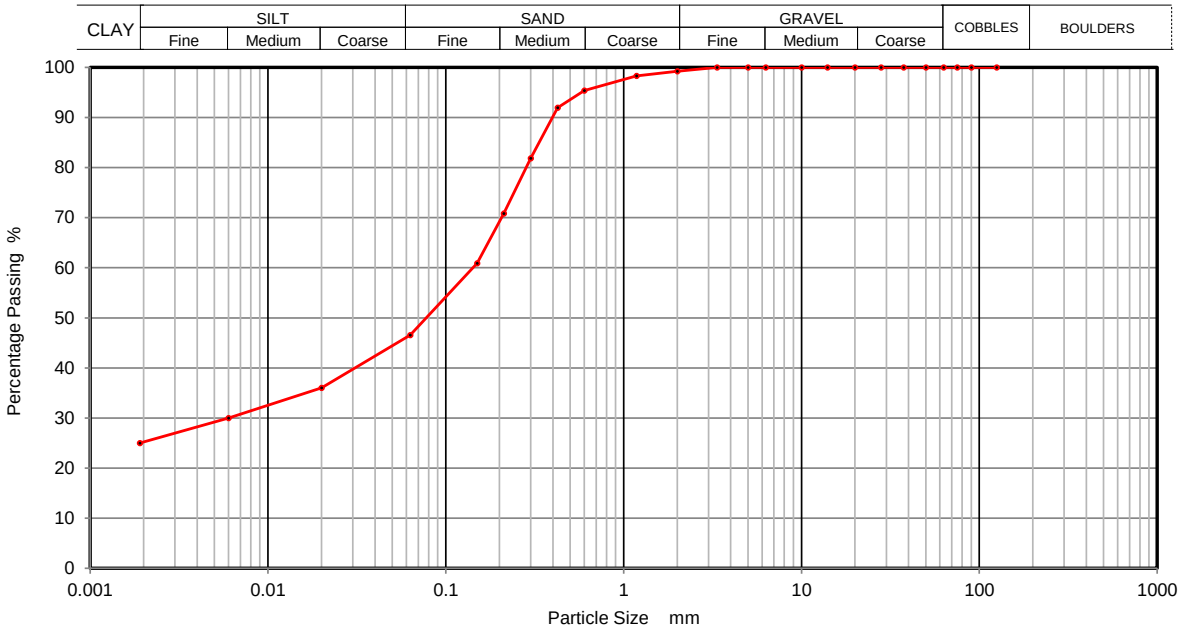
Remarks

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Operator				
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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_02
Site Name	Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	36
90	100	0.0060	30
75	100	0.0020	25
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	95		
0.425	92		
0.3	82		
0.212	71		
0.15	61		
0.063	47		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	52
Silt	22
Clay	25

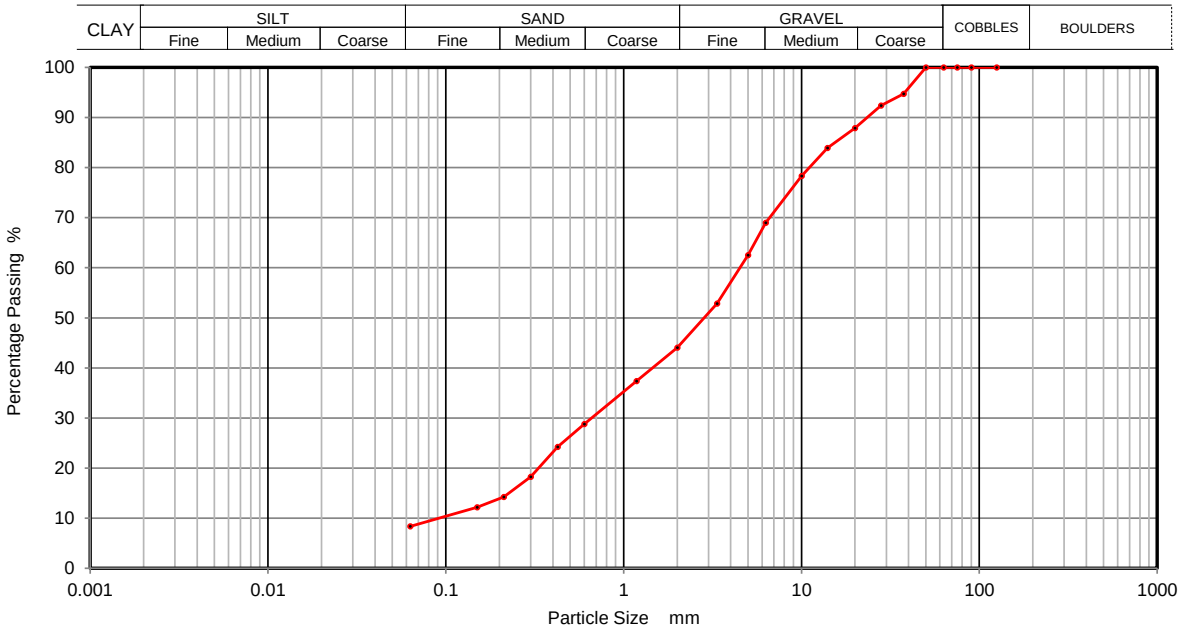
Remarks

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David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_02
Site Name	Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	92		
20	88		
14	84		
10	78		
6.3	69		
5	63		
3.35	53		
2	44		
1.18	37		
0.6	29		
0.425	24		
0.3	18		
0.212	14		
0.15	12		
0.063	8		

Sample Proportions	% dry mass
Cobbles	0
Gravel	56
Sand	36
Silt and Clay	8

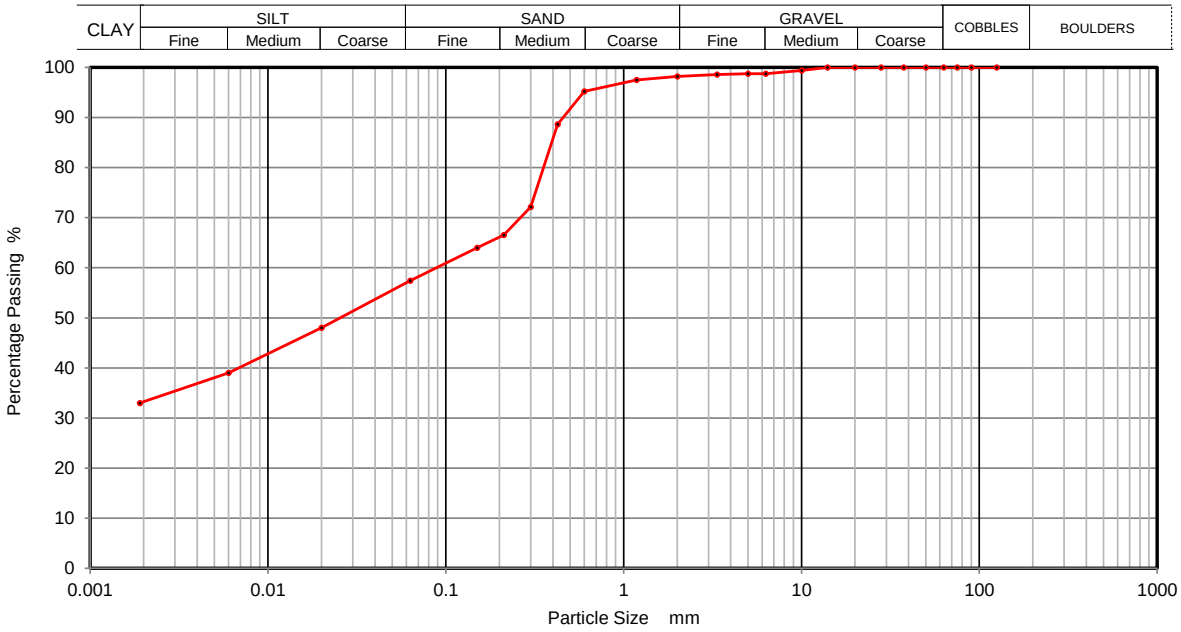
Remarks

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Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_05
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	48
90	100	0.0060	39
75	100	0.0020	33
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	99		
3.35	99		
2	98		
1.18	98		
0.6	95		
0.425	89		
0.3	72		
0.212	67		
0.15	64		
0.063	57		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	41
Silt	24
Clay	33

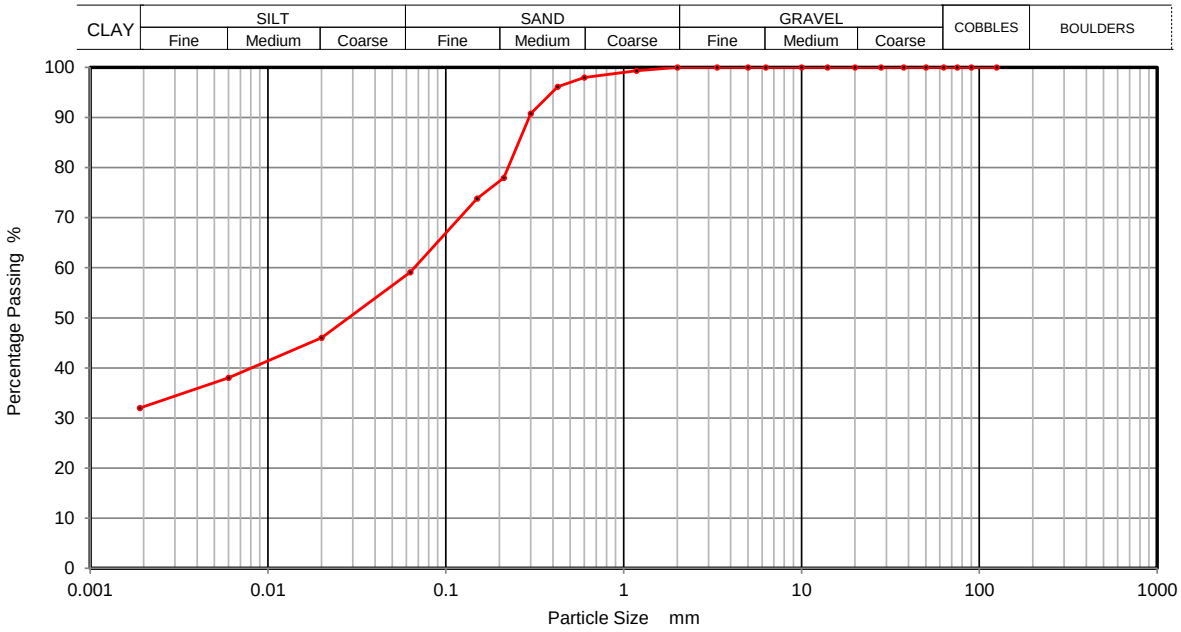
Remarks

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Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_05
Site Name	Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	46
90	100	0.0060	38
75	100	0.0020	32
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	96		
0.3	91		
0.212	78		
0.15	74		
0.063	59		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	41
Silt	27
Clay	32

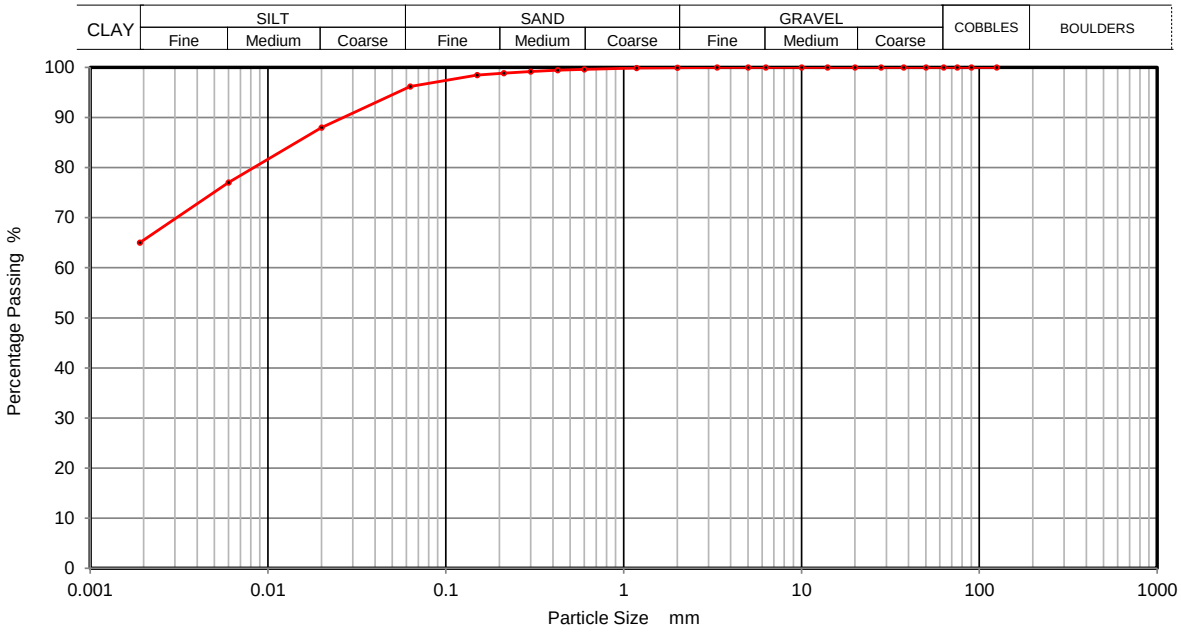
Remarks

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David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_10
Site Name	Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	88
90	100	0.0060	77
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	99		
0.212	99		
0.15	98		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	31
Clay	65

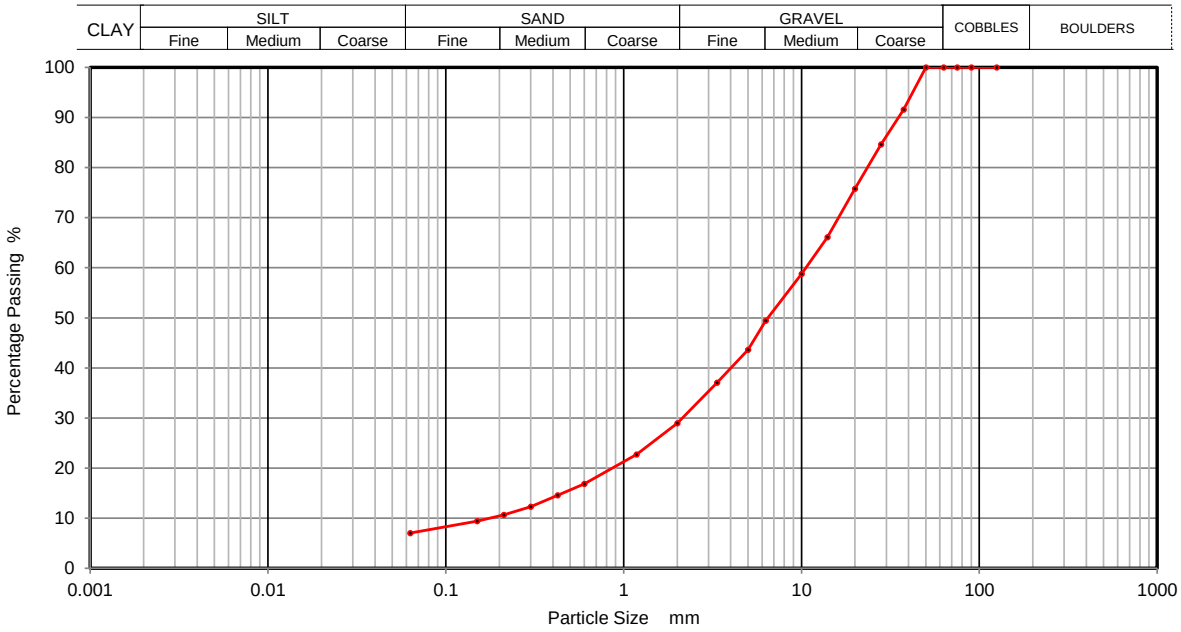
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_10
Site Name	Chippenham	Sample No.	12
Soil Description	*See sample description sheet	Depth Top	4.35
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	85		
20	76		
14	66		
10	59		
6.3	49		
5	44		
3.35	37		
2	29		
1.18	23		
0.6	17		
0.425	15		
0.3	12		
0.212	11		
0.15	9		
0.063	7		

Sample Proportions	% dry mass
Cobbles	0
Gravel	71
Sand	22
Silt and Clay	7

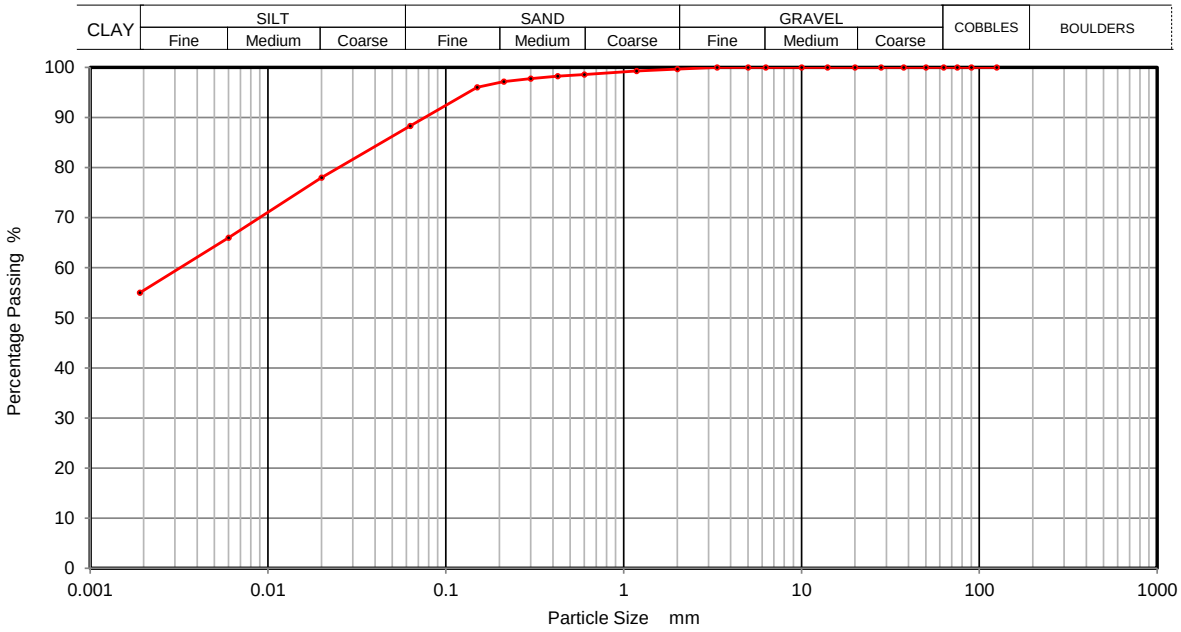
Remarks

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Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_11
Site Name	Chippenham	Sample No.	5
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	78
90	100	0.0060	66
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	98		
0.212	97		
0.15	96		
0.063	88		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	12
Silt	33
Clay	55

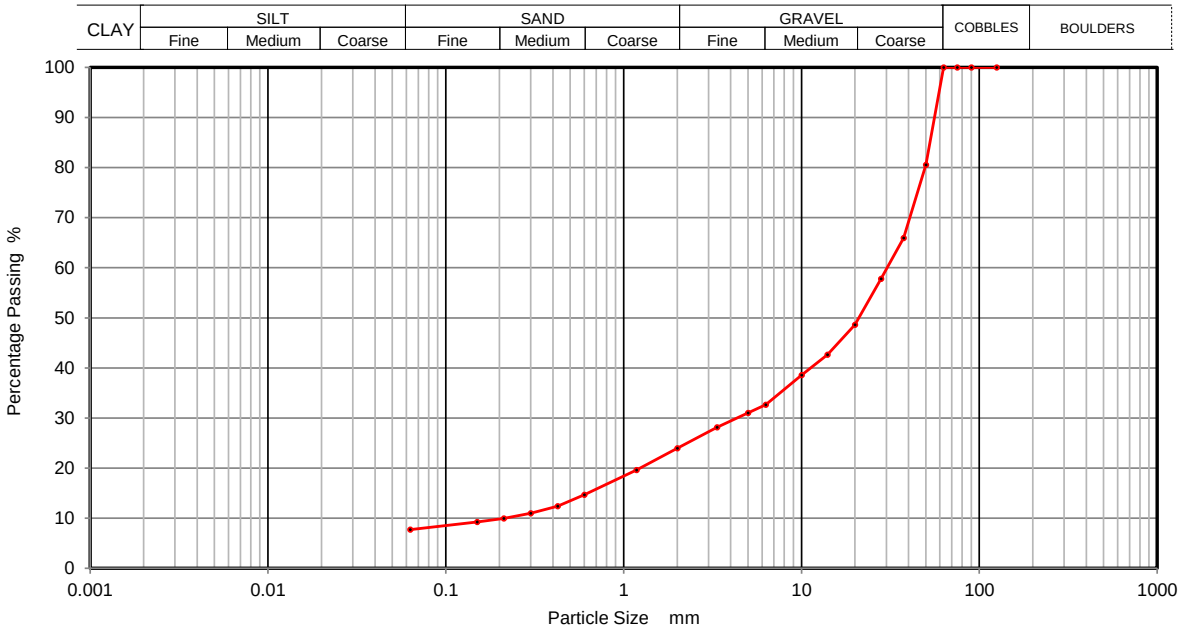
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_11
Site Name	Chippenham	Sample No.	12
Soil Description	*See sample description sheet	Depth Top	4.40
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	81		
37.5	66		
28	58		
20	49		
14	43		
10	39		
6.3	33		
5	31		
3.35	28		
2	24		
1.18	20		
0.6	15		
0.425	12		
0.3	11		
0.212	10		
0.15	9		
0.063	8		

Sample Proportions	% dry mass
Cobbles	0
Gravel	76
Sand	16
Silt and Clay	8

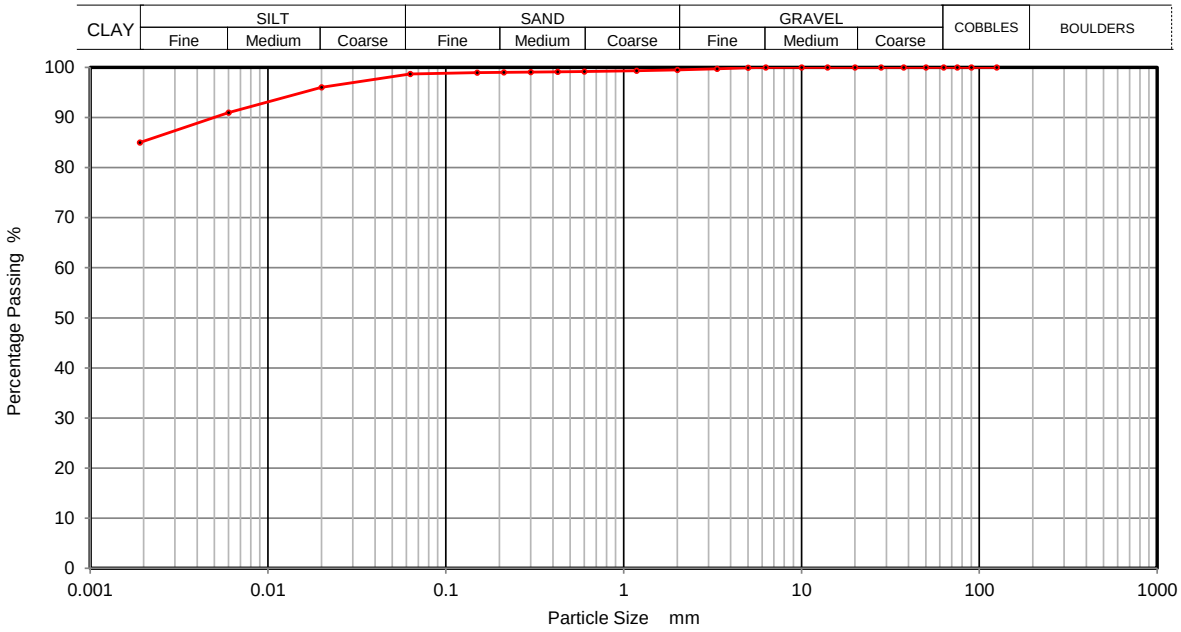
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_12
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	96
90	100	0.0060	91
75	100	0.0020	85
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	14
Clay	85

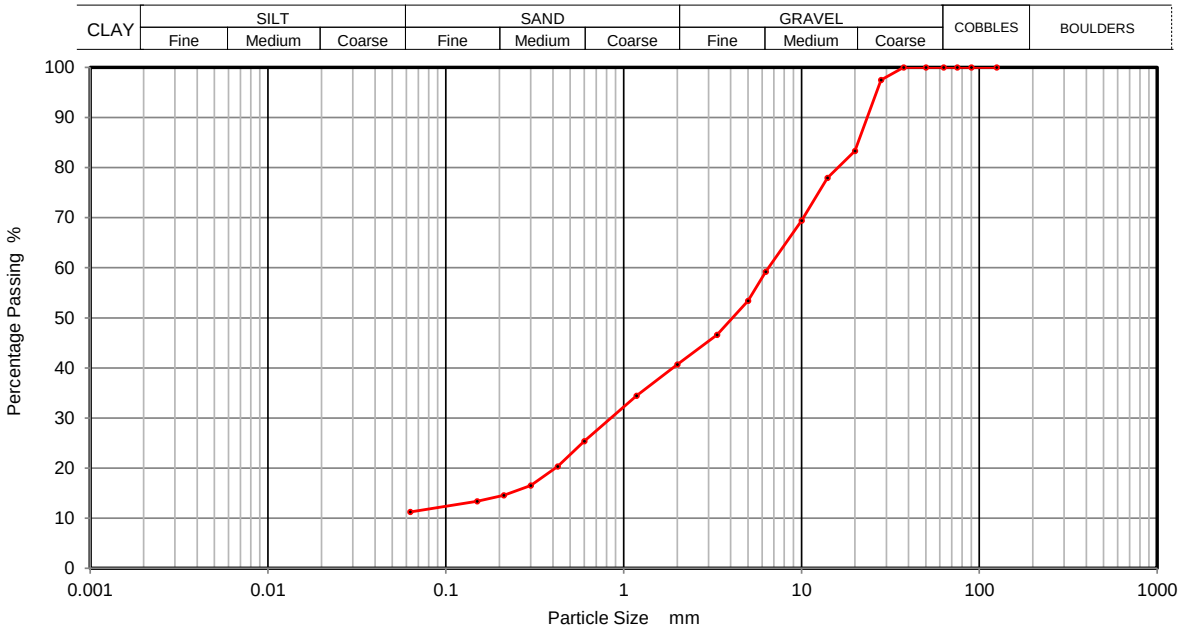
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_12
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	1.70
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	83		
14	78		
10	69		
6.3	59		
5	53		
3.35	47		
2	41		
1.18	34		
0.6	25		
0.425	20		
0.3	17		
0.212	15		
0.15	13		
0.063	11		

Sample Proportions	% dry mass
Cobbles	0
Gravel	59
Sand	30
Silt and Clay	11

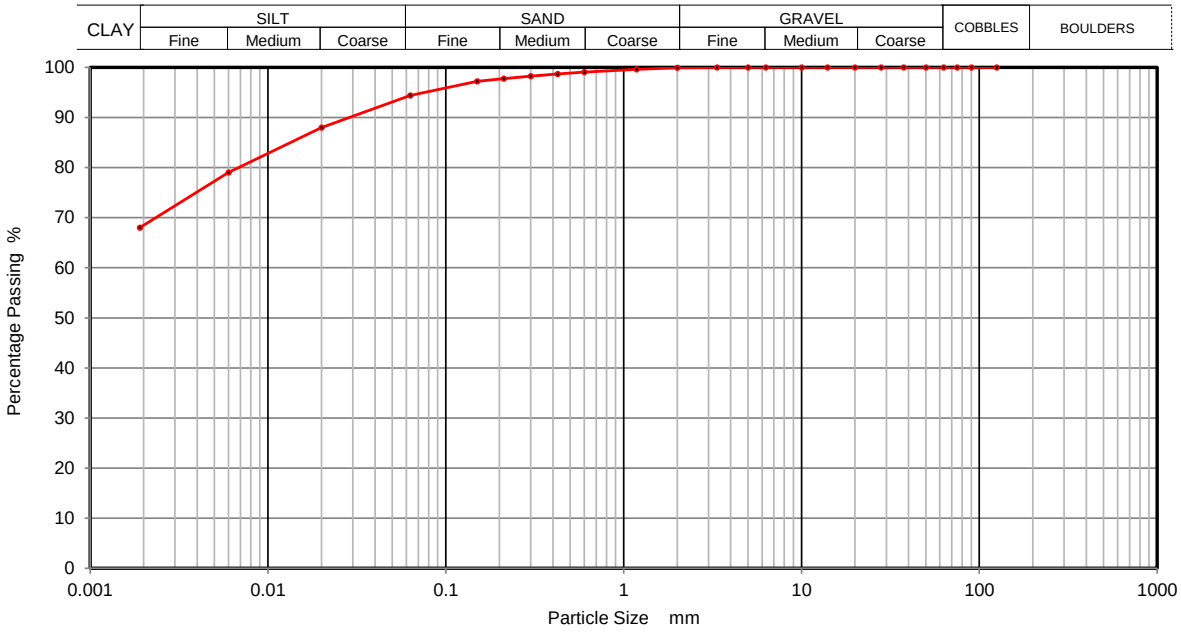
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_13
Site Name	Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	88
90	100	0.0060	79
75	100	0.0020	68
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	97		
0.063	94		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	6
Silt	26
Clay	68

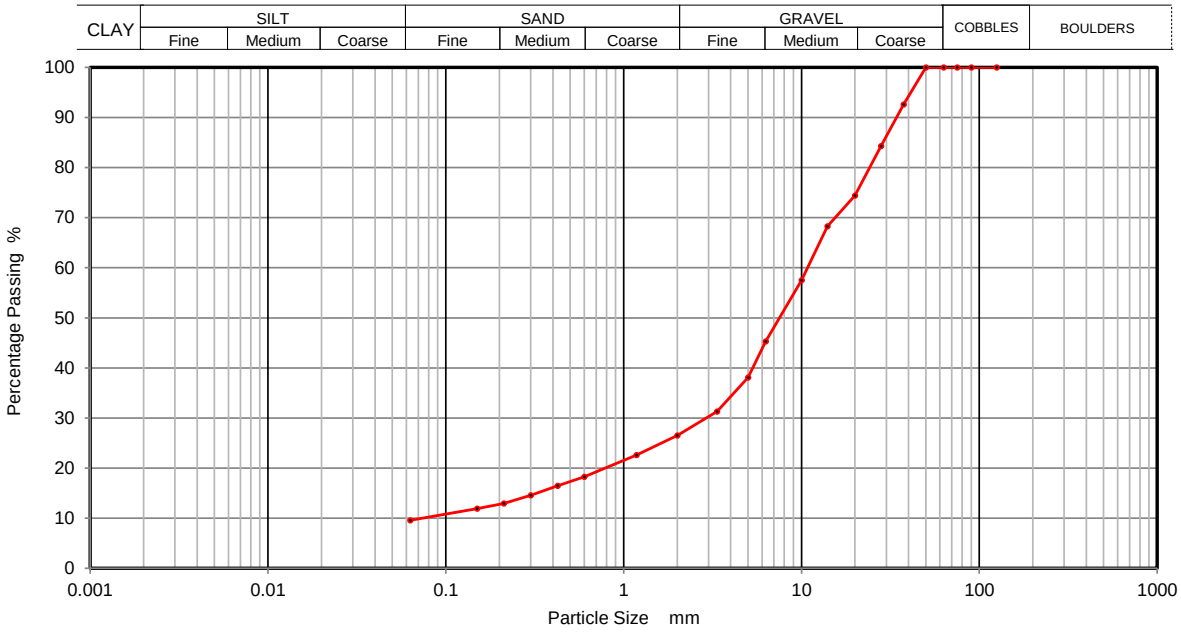
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_13
Site Name	Chippenham	Sample No.	10
Soil Description	*See sample description sheet	Depth Top	4.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	84		
20	74		
14	68		
10	58		
6.3	45		
5	38		
3.35	31		
2	27		
1.18	23		
0.6	18		
0.425	16		
0.3	15		
0.212	13		
0.15	12		
0.063	10		

Sample Proportions	% dry mass
Cobbles	0
Gravel	73
Sand	17
Silt and Clay	10

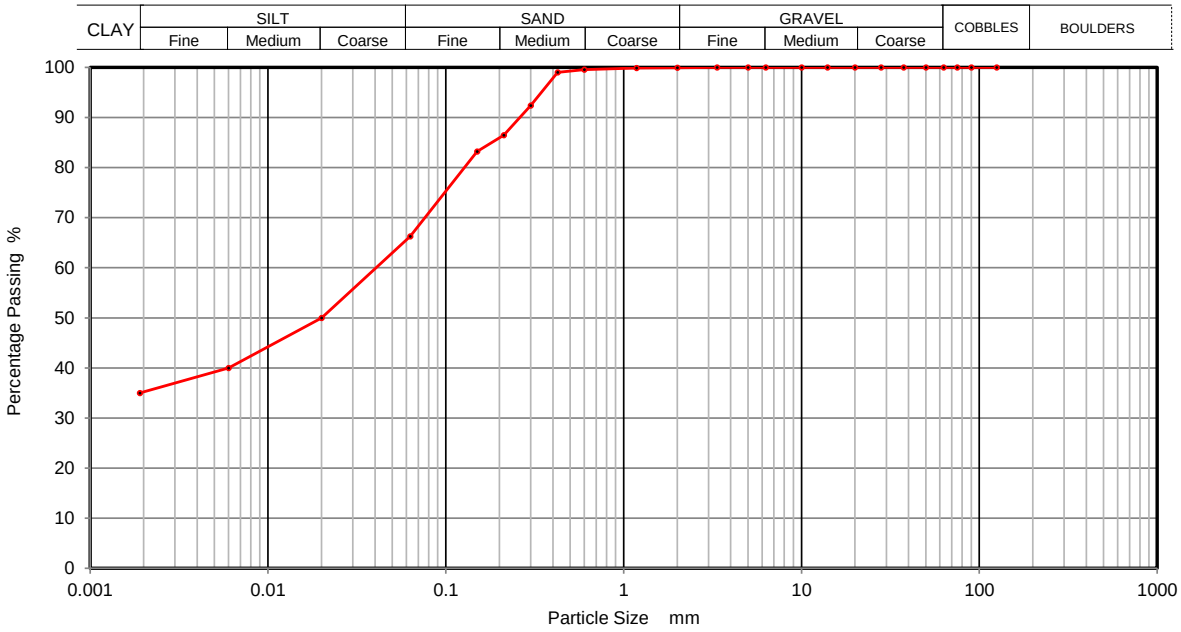
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_14
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	50
90	100	0.0060	40
75	100	0.0020	35
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	92		
0.212	86		
0.15	83		
0.063	66		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	34
Silt	31
Clay	35

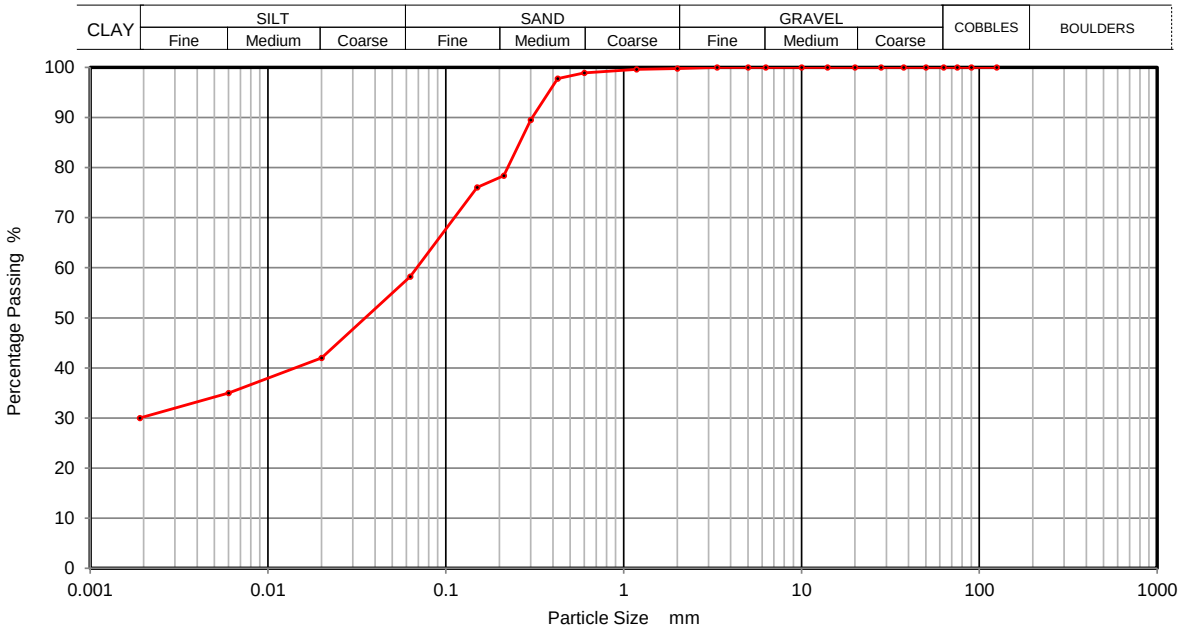
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_14
Site Name	Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	42
90	100	0.0060	35
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	98		
0.3	90		
0.212	78		
0.15	76		
0.063	58		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	42
Silt	28
Clay	30

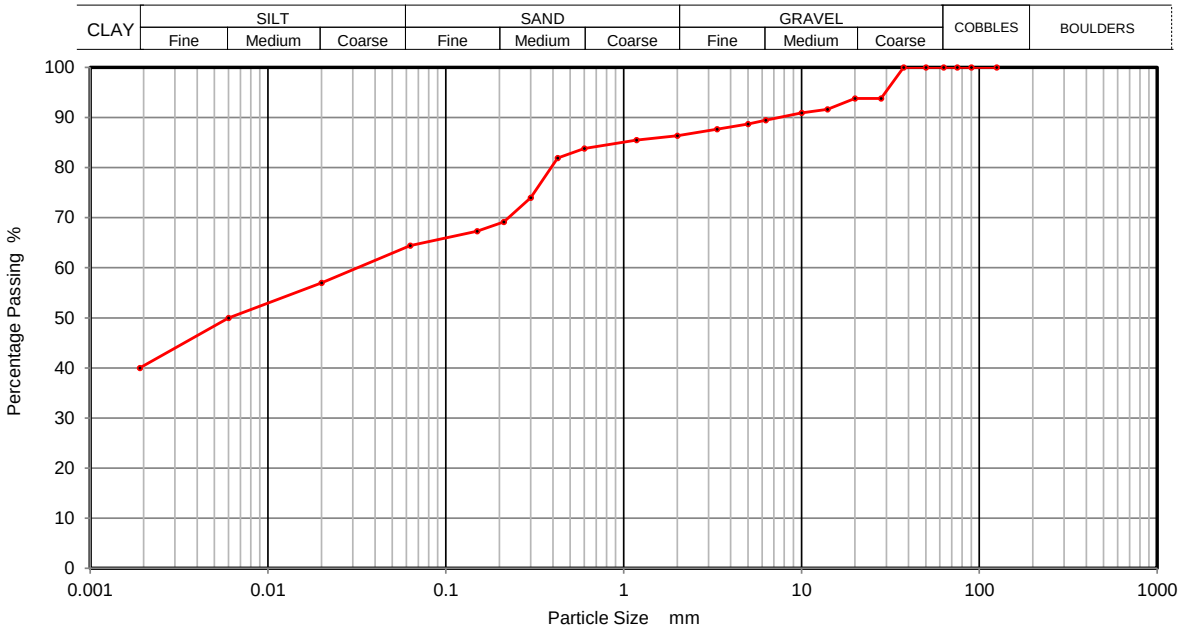
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_01
Site Name	Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	57
90	100	0.0060	50
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	94		
20	94		
14	92		
10	91		
6.3	89		
5	89		
3.35	88		
2	86		
1.18	85		
0.6	84		
0.425	82		
0.3	74		
0.212	69		
0.15	67		
0.063	64		

Sample Proportions	% dry mass
Cobbles	0
Gravel	14
Sand	22
Silt	24
Clay	40

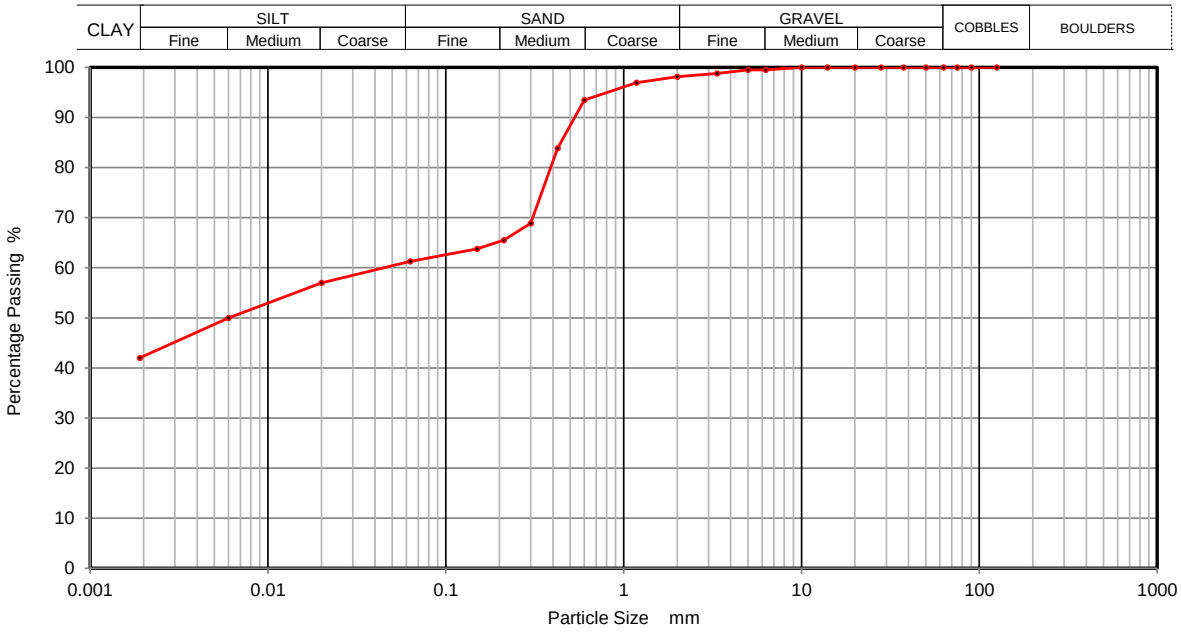
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_02
Site Name	Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.30
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	57
90	100	0.0060	50
75	100	0.0020	42
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	98		
1.18	97		
0.6	93		
0.425	84		
0.3	69		
0.212	66		
0.15	64		
0.063	61		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	37
Silt	19
Clay	42

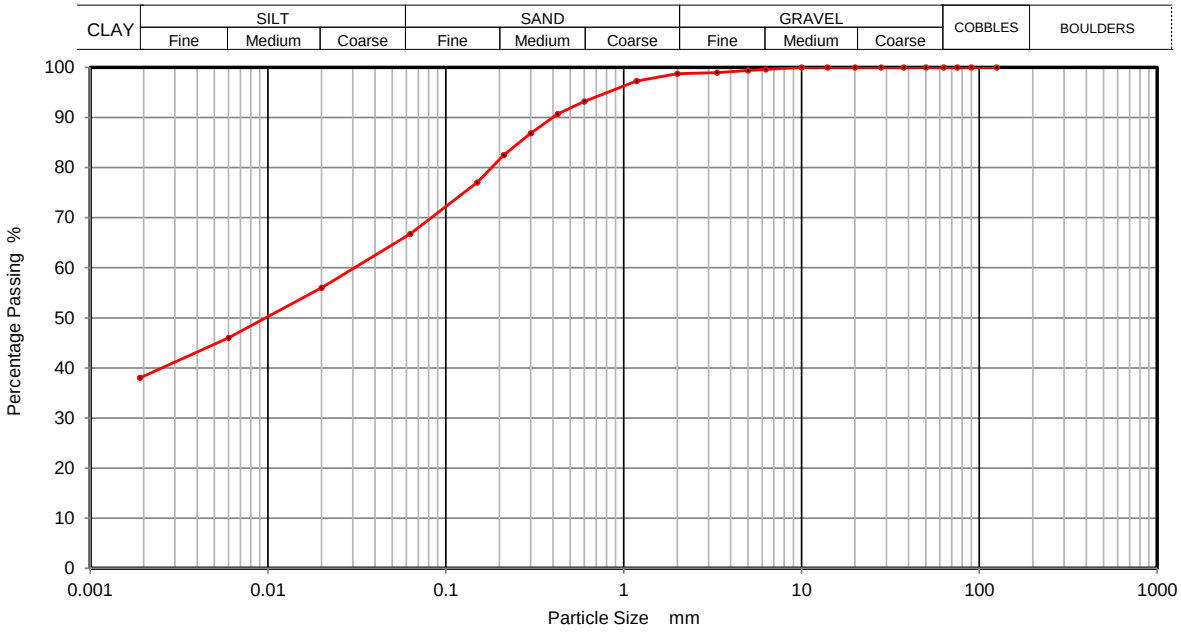
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_03
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	56
90	100	0.0060	46
75	100	0.0020	38
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	97		
0.6	93		
0.425	91		
0.3	87		
0.212	82		
0.15	77		
0.063	67		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	32
Silt	29
Clay	38

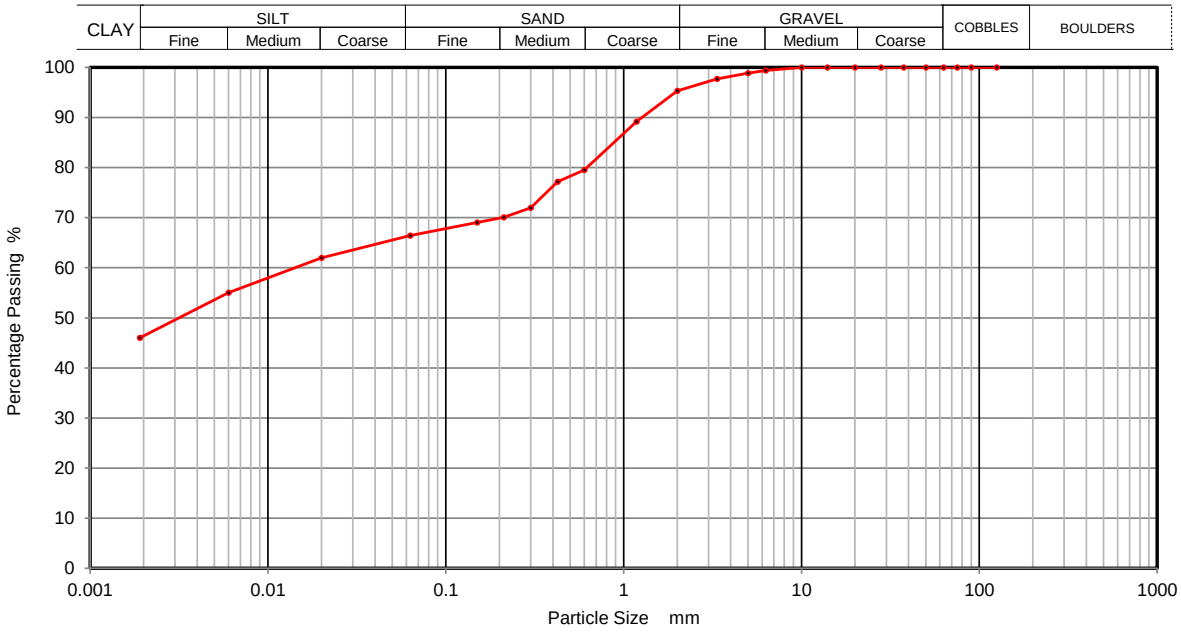
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_03
Site Name	Chippenham	Sample No.	7
Soil Description	*See sample description sheet	Depth Top	1.70
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	62
90	100	0.0060	55
75	100	0.0020	46
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	95		
1.18	89		
0.6	80		
0.425	77		
0.3	72		
0.212	70		
0.15	69		
0.063	66		

Sample Proportions	% dry mass
Cobbles	0
Gravel	5
Sand	29
Silt	20
Clay	46

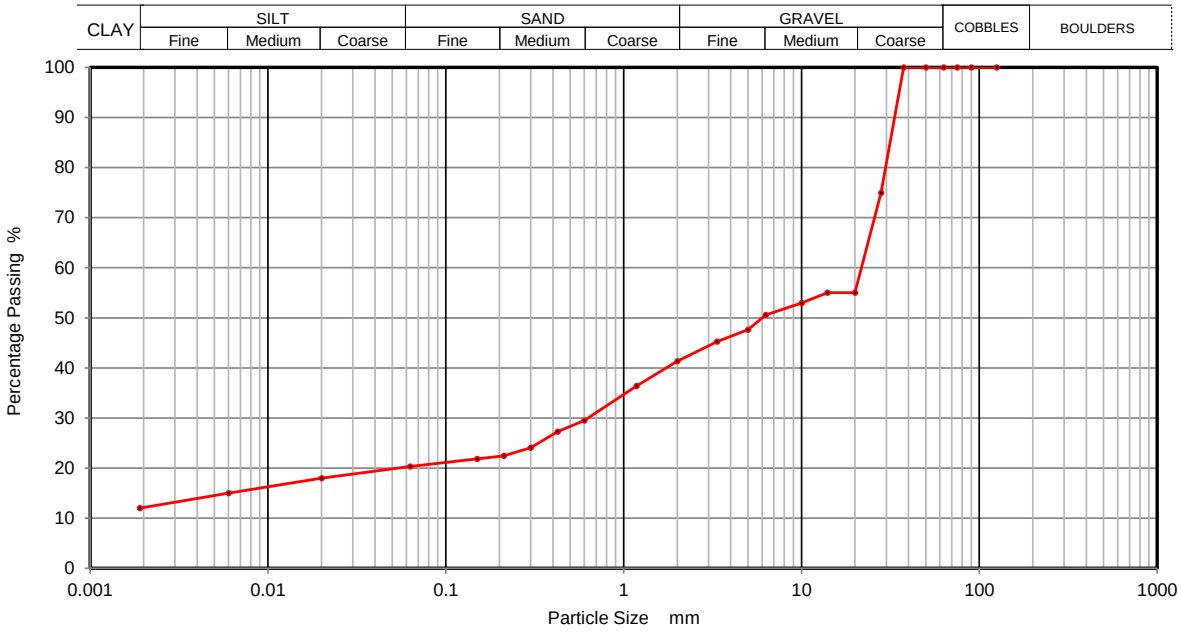
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_03
Site Name	Chippenham	Sample No.	8
Soil Description	*See sample description sheet	Depth Top	2.10
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	18
90	100	0.0060	15
75	100	0.0020	12
63	100		
50	100		
37.5	100		
28	75		
20	55		
14	55		
10	53		
6.3	51		
5	48		
3.35	45		
2	41		
1.18	36		
0.6	30		
0.425	27		
0.3	24		
0.212	22		
0.15	22		
0.063	20		

Sample Proportions	% dry mass
Cobbles	0
Gravel	59
Sand	21
Silt	8
Clay	12

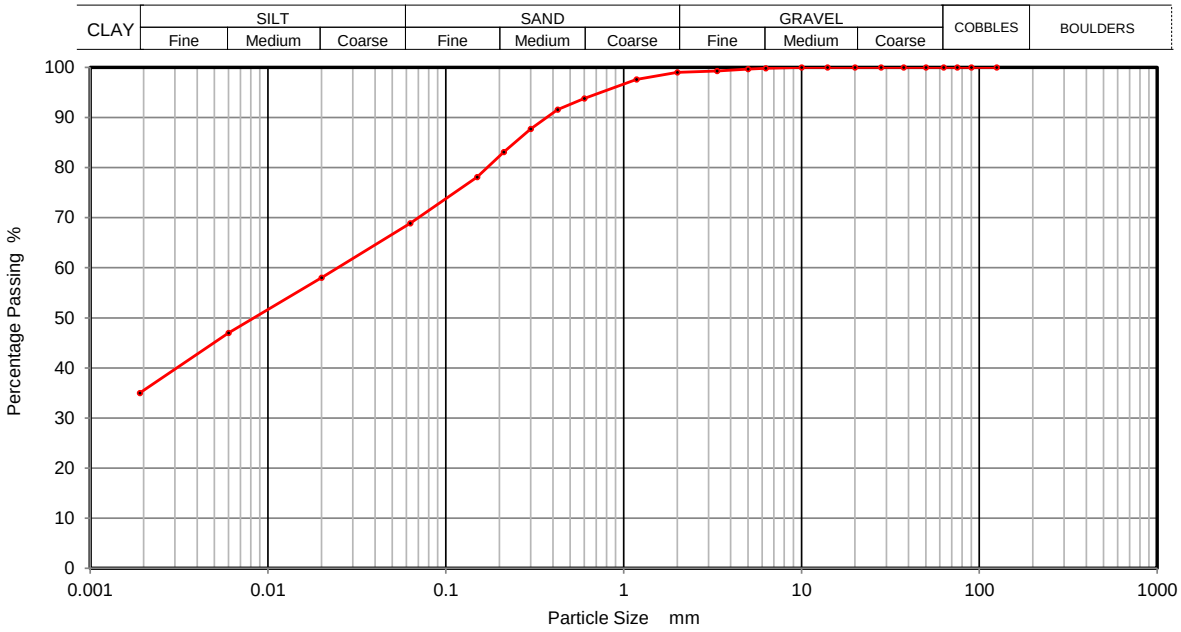
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_07
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	58
90	100	0.0060	47
75	100	0.0020	35
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	94		
0.425	92		
0.3	88		
0.212	83		
0.15	78		
0.063	69		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	30
Silt	34
Clay	35

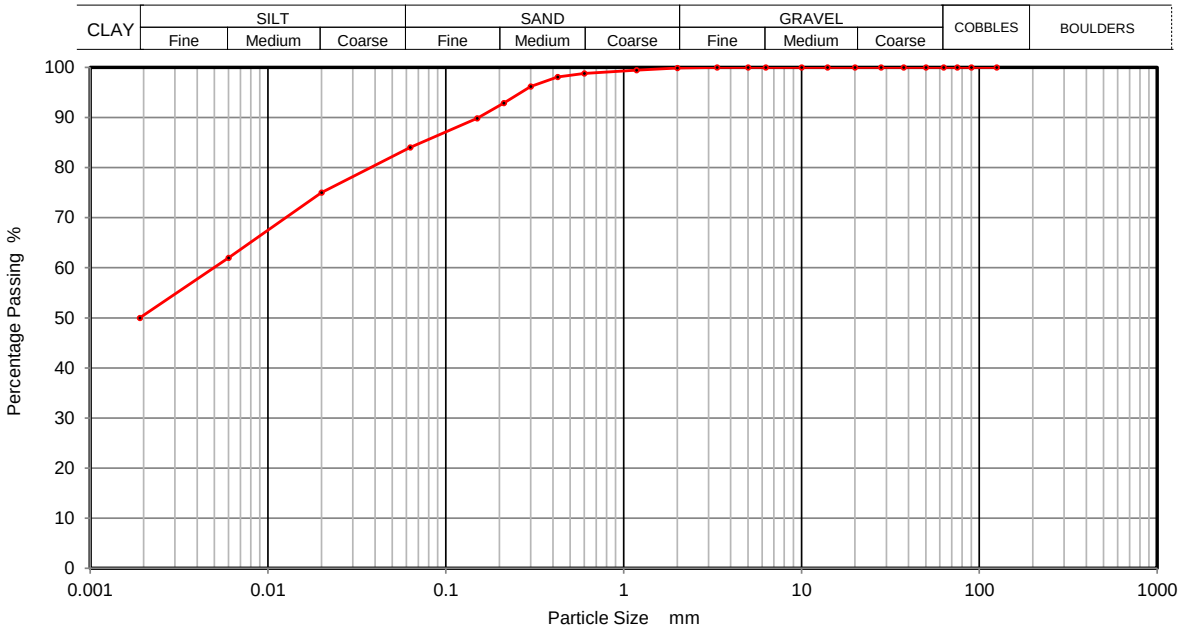
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_07
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	75
90	100	0.0060	62
75	100	0.0020	50
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	96		
0.212	93		
0.15	90		
0.063	84		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	16
Silt	34
Clay	50

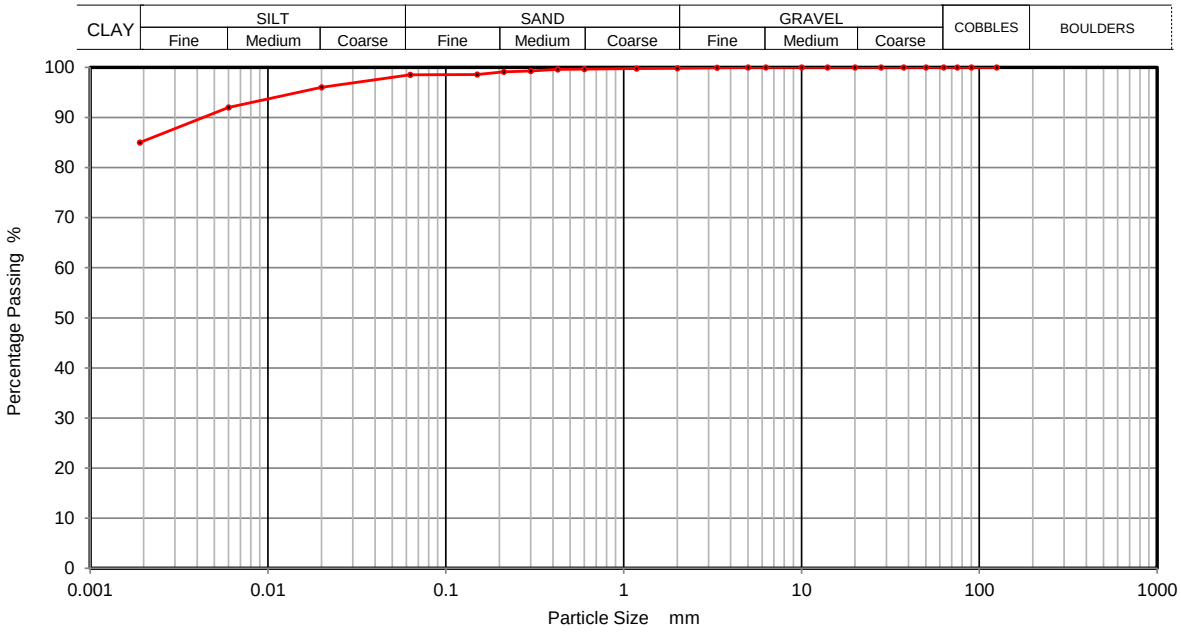
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_08
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	96
90	100	0.0060	92
75	100	0.0020	85
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	14
Clay	85

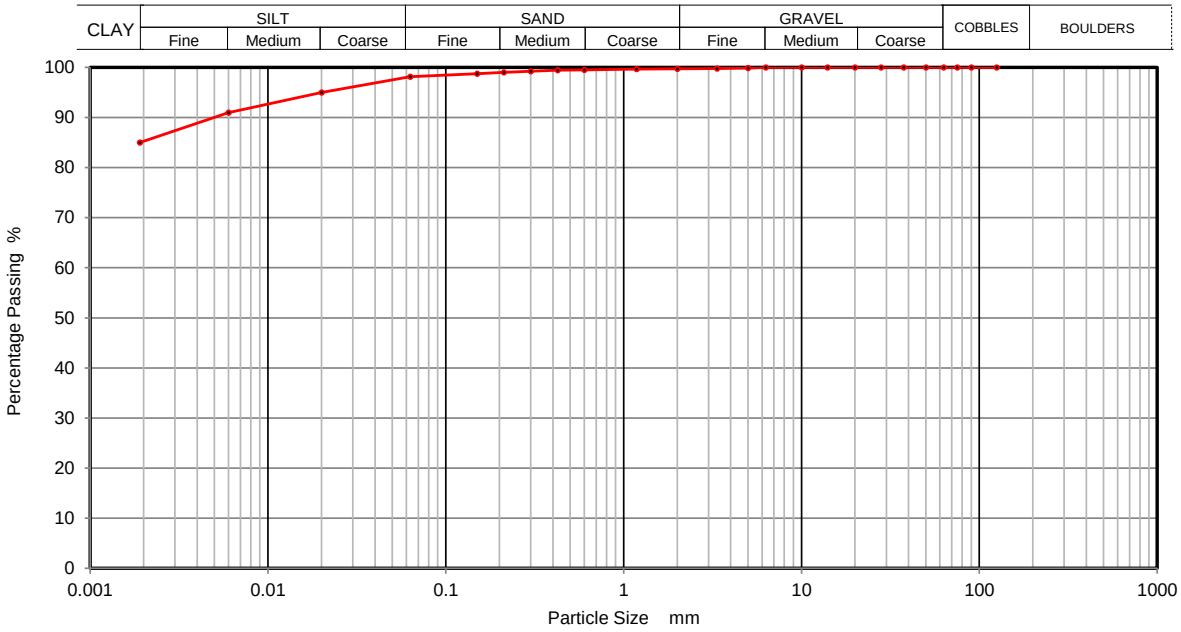
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_04
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	91
75	100	0.0020	85
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	2
Silt	13
Clay	85

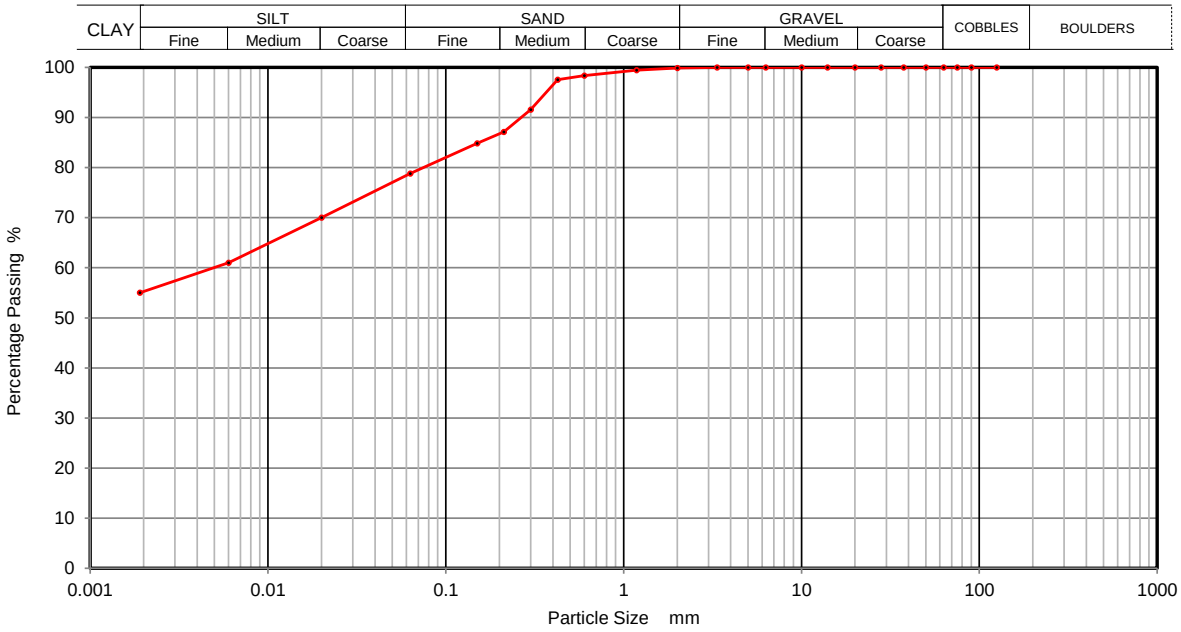
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_06
Site Name	Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	70
90	100	0.0060	61
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	98		
0.3	92		
0.212	87		
0.15	85		
0.063	79		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	21
Silt	24
Clay	55

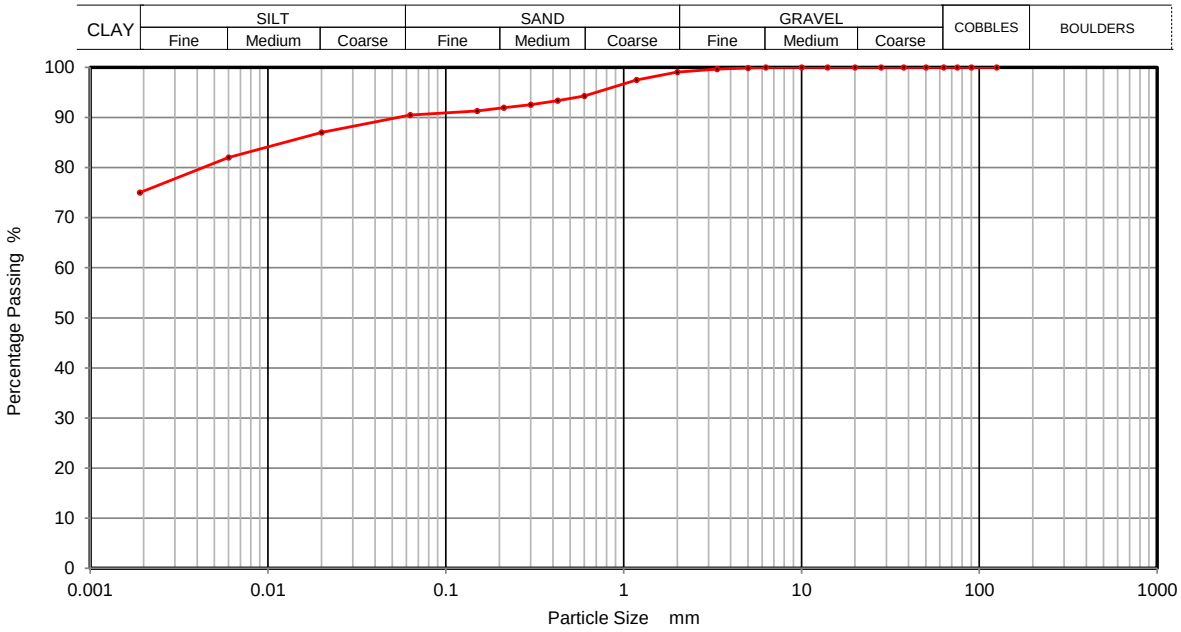
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_06
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	2.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	87
90	100	0.0060	82
75	100	0.0020	75
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	97		
0.6	94		
0.425	93		
0.3	93		
0.212	92		
0.15	91		
0.063	90		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	9
Silt	15
Clay	75

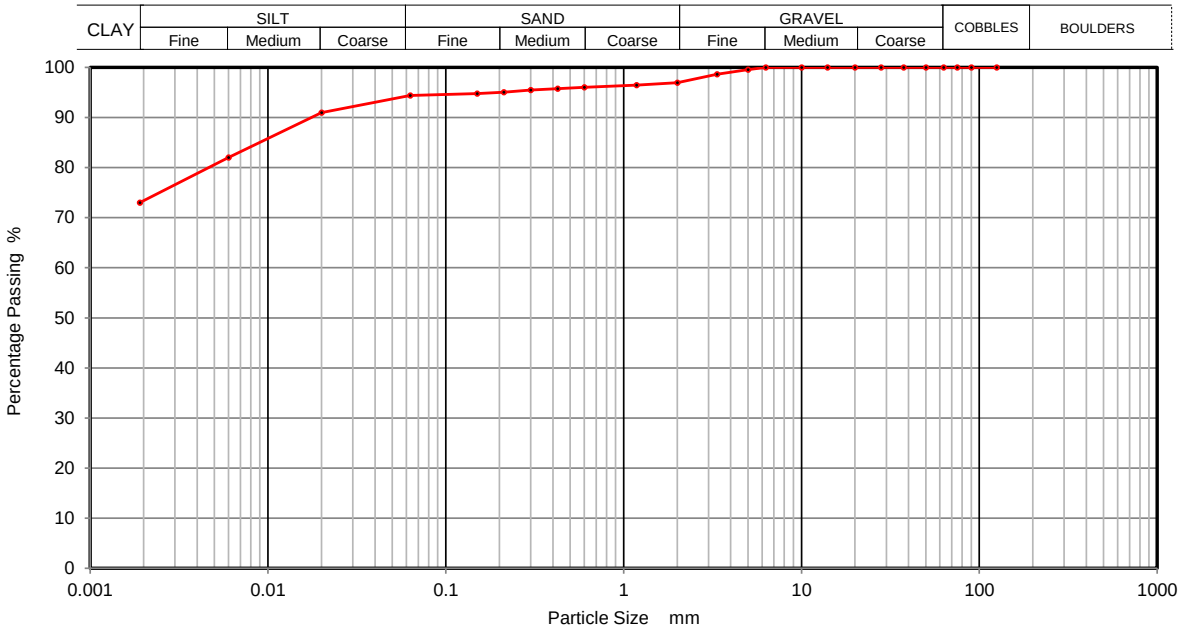
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_06
Site Name	Chippenham	Sample No.	20
Soil Description	*See sample description sheet	Depth Top	12.70
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	91
90	100	0.0060	82
75	100	0.0020	73
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	97		
1.18	96		
0.6	96		
0.425	96		
0.3	95		
0.212	95		
0.15	95		
0.063	94		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	3
Silt	21
Clay	73

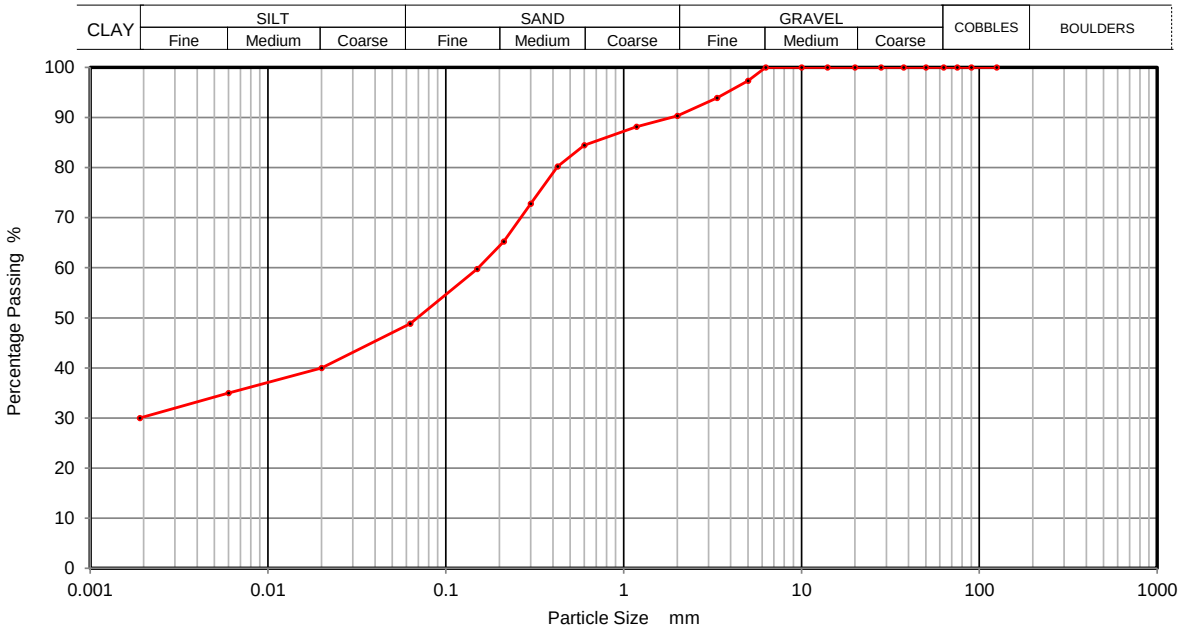
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	BH002
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	40
90	100	0.0060	35
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	97		
3.35	94		
2	90		
1.18	88		
0.6	84		
0.425	80		
0.3	73		
0.212	65		
0.15	60		
0.063	49		

Sample Proportions	% dry mass
Cobbles	0
Gravel	10
Sand	41
Silt	19
Clay	30

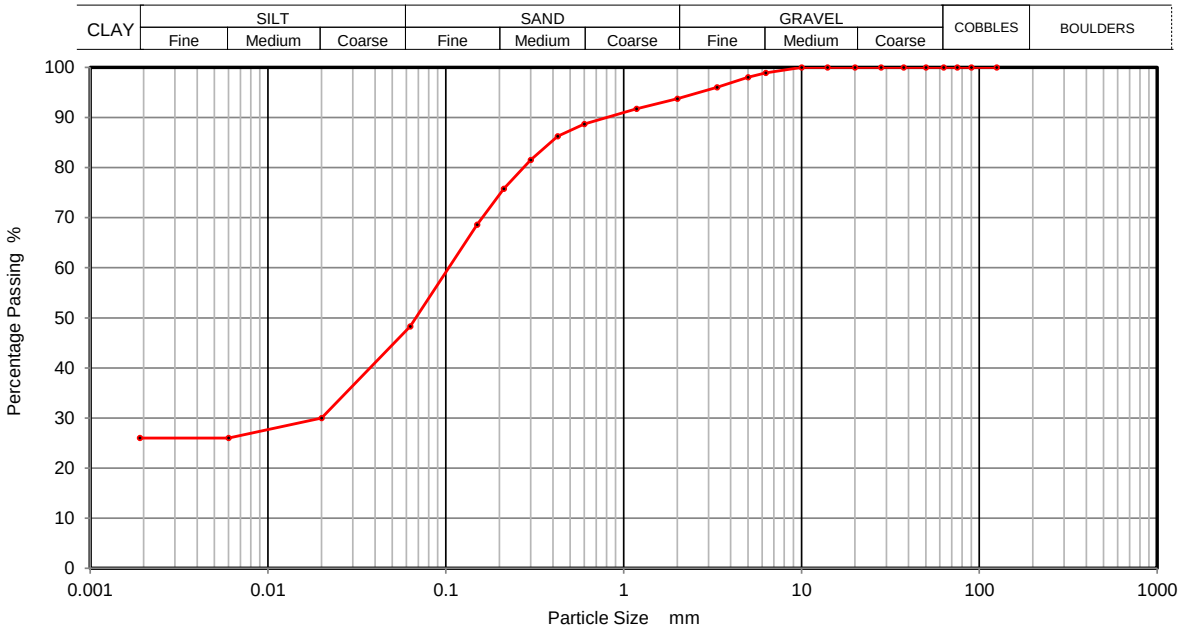
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	BH003
Site Name	Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	30
90	100	0.0060	26
75	100	0.0020	26
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	98		
3.35	96		
2	94		
1.18	92		
0.6	89		
0.425	86		
0.3	82		
0.212	76		
0.15	69		
0.063	48		

Sample Proportions	% dry mass
Cobbles	0
Gravel	6
Sand	46
Silt	22
Clay	26

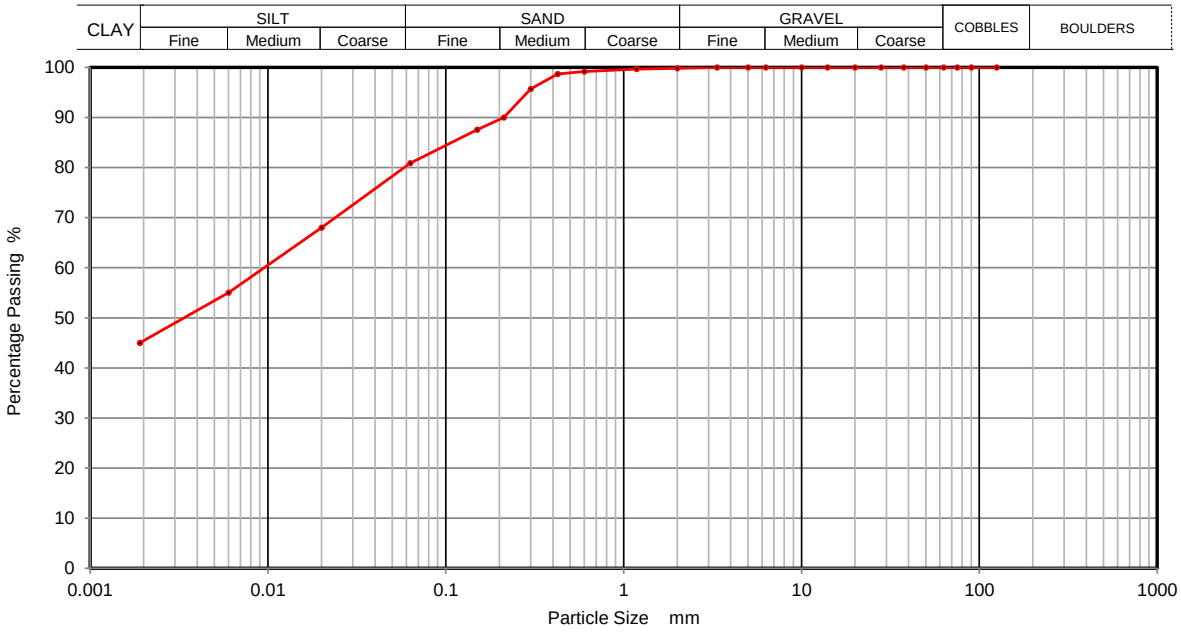
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	BH003
Site Name	Chippenham	Sample No.	5
Soil Description	*See sample description sheet	Depth Top	1.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	68
90	100	0.0060	55
75	100	0.0020	45
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	96		
0.212	90		
0.15	88		
0.063	81		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	19
Silt	36
Clay	45

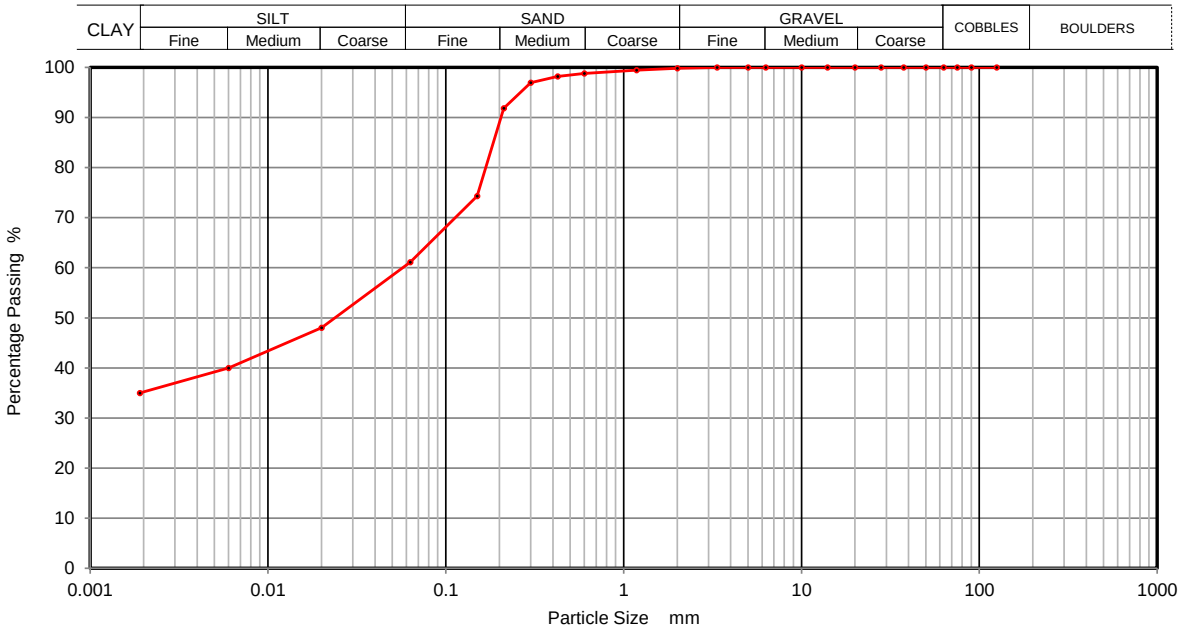
Remarks

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Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	BH004
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	48
90	100	0.0060	40
75	100	0.0020	35
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	97		
0.212	92		
0.15	74		
0.063	61		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	39
Silt	26
Clay	35

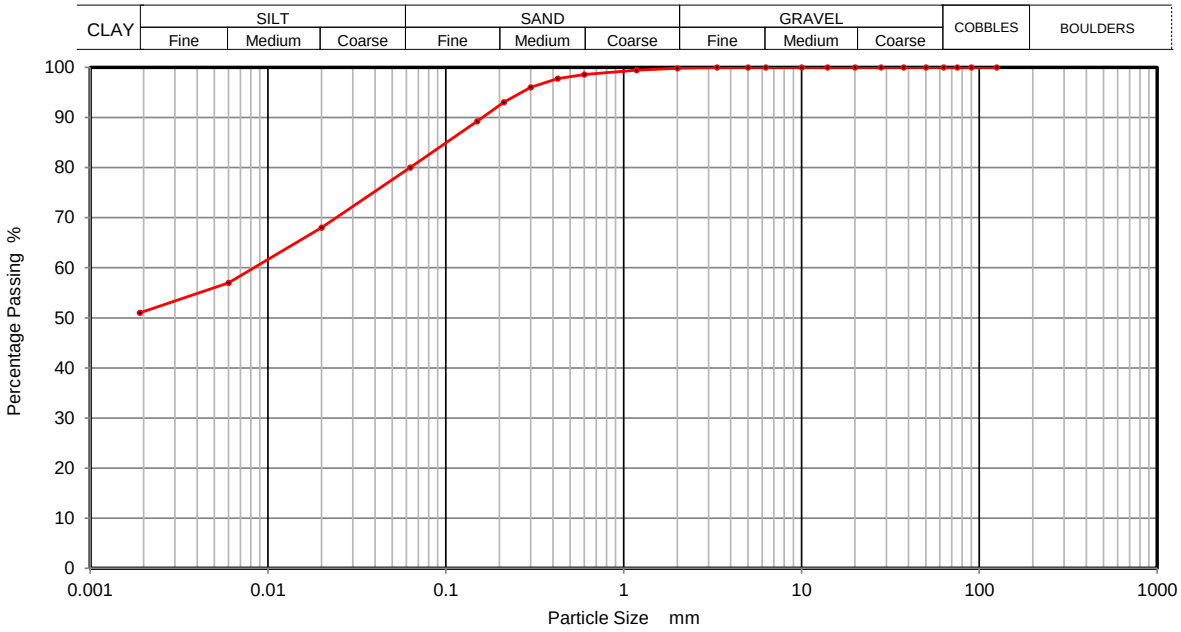
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	BH004
Site Name	Chippenham	Sample No.	5
Soil Description	*See sample description sheet	Depth Top	1.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	68
90	100	0.0060	57
75	100	0.0020	51
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	96		
0.212	93		
0.15	89		
0.063	80		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	20
Silt	29
Clay	51

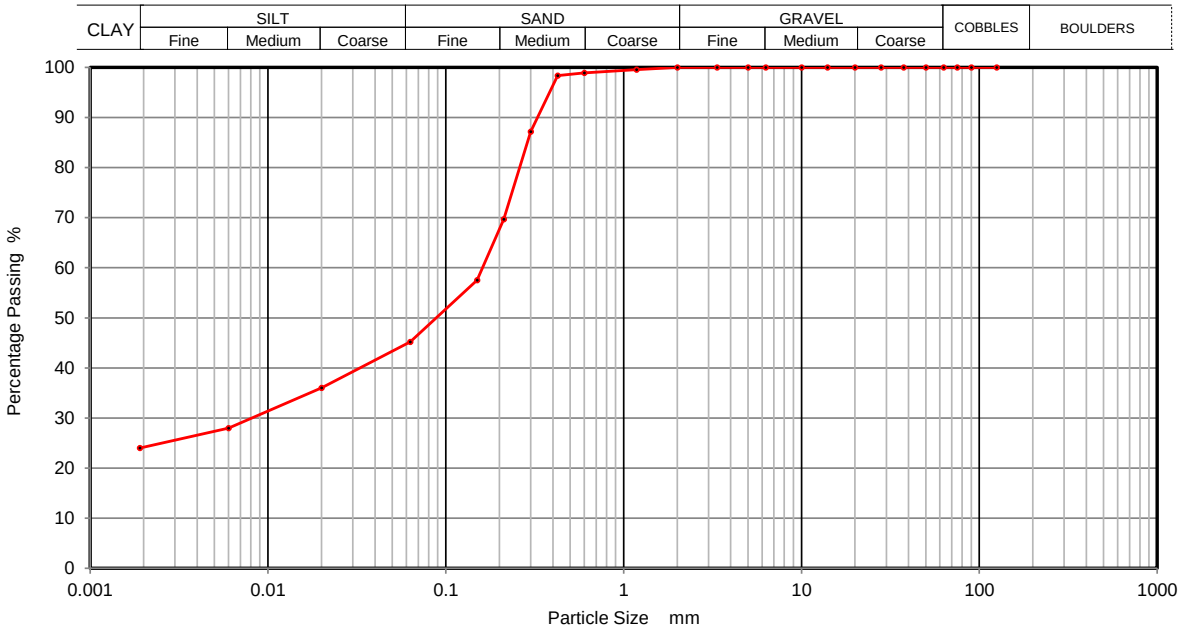
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	BH004
Site Name	Chippenham	Sample No.	9
Soil Description	*See sample description sheet	Depth Top	2.65
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	36
90	100	0.0060	28
75	100	0.0020	24
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	98		
0.3	87		
0.212	70		
0.15	58		
0.063	45		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	55
Silt	21
Clay	24

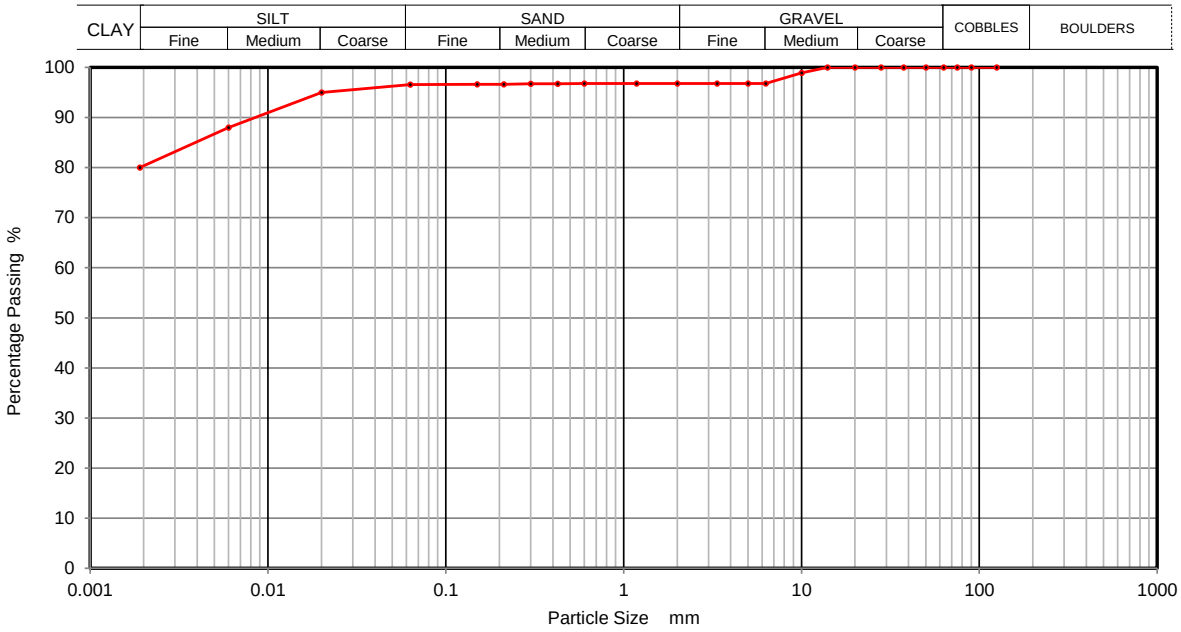
Remarks

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Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	BH004
Site Name	Chippenham	Sample No.	11
Soil Description	*See sample description sheet	Depth Top	3.60
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	88
75	100	0.0020	80
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	97		
5	97		
3.35	97		
2	97		
1.18	97		
0.6	97		
0.425	97		
0.3	97		
0.212	97		
0.15	97		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	0
Silt	17
Clay	80

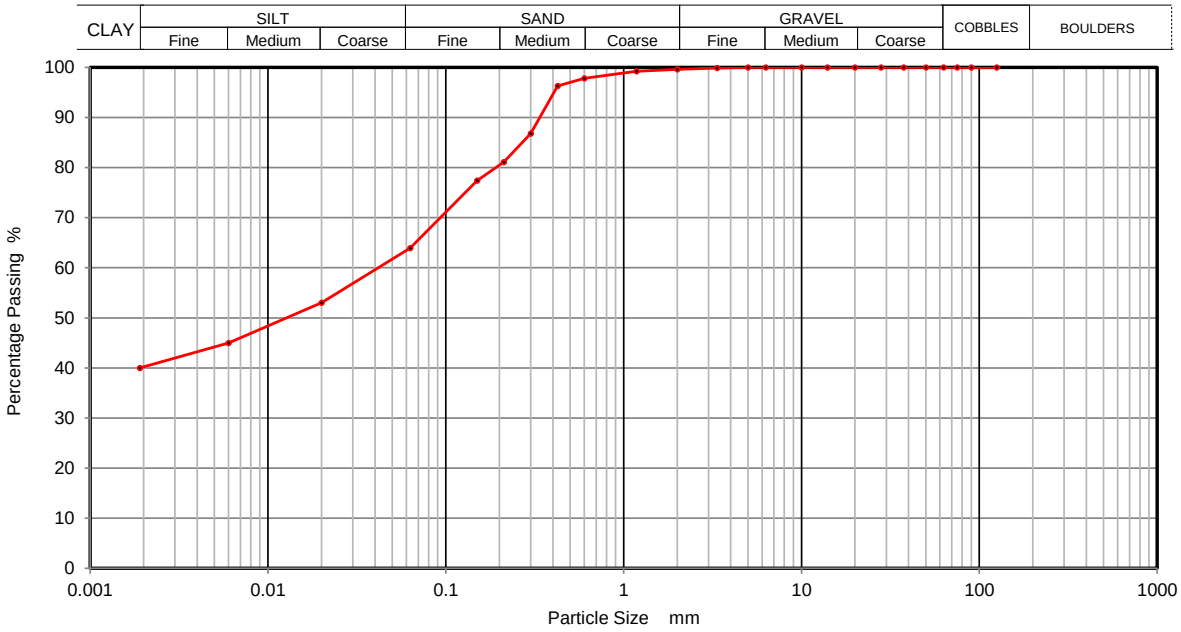
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	CPT001
Site Name	Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	53
90	100	0.0060	45
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	96		
0.3	87		
0.212	81		
0.15	77		
0.063	64		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	36
Silt	24
Clay	40

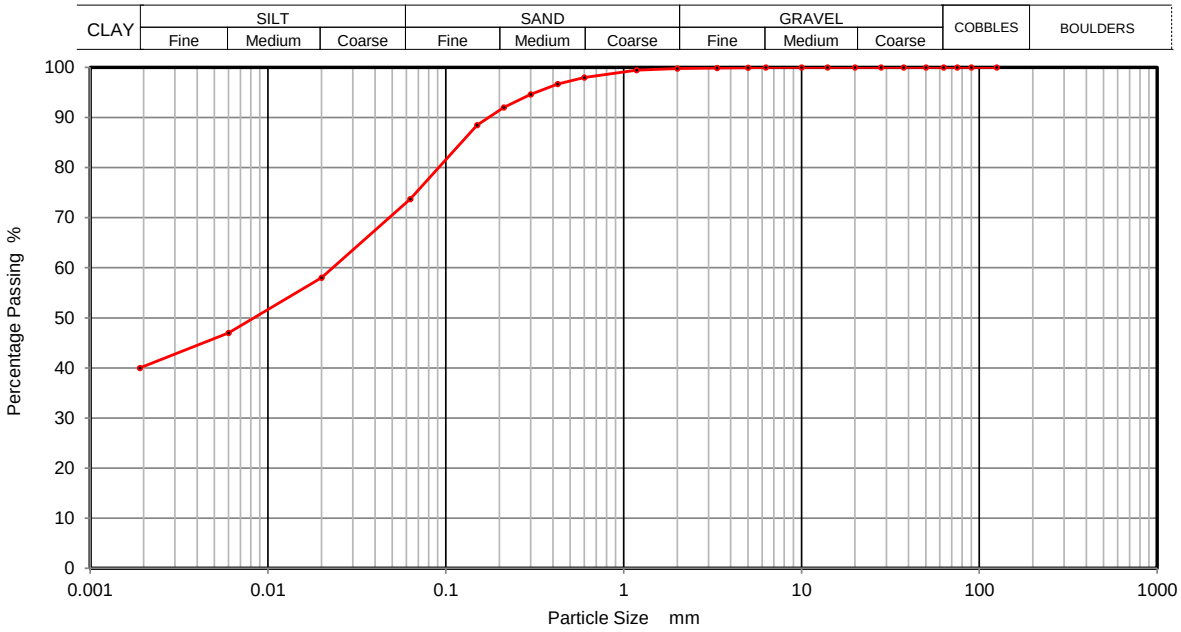
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	CPT001
Site Name	Chippenham	Sample No.	4
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	58
90	100	0.0060	47
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	95		
0.212	92		
0.15	88		
0.063	74		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	26
Silt	34
Clay	40

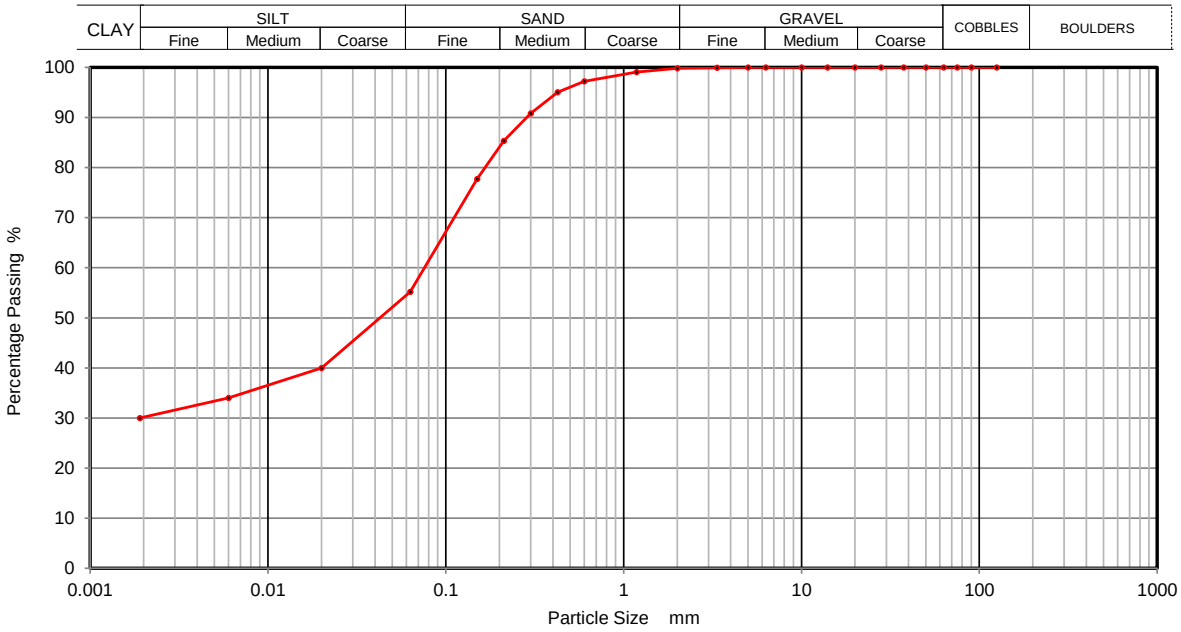
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	CPT002
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	40
90	100	0.0060	34
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	97		
0.425	95		
0.3	91		
0.212	85		
0.15	78		
0.063	55		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	45
Silt	25
Clay	30

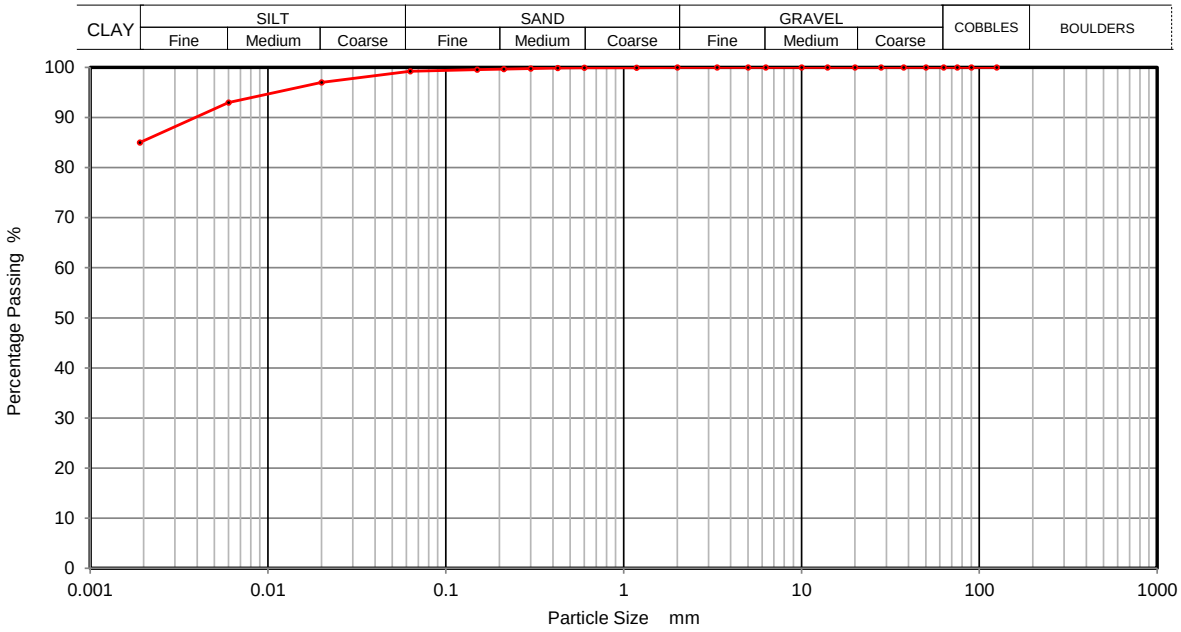
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	HP_TP_08
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	97
90	100	0.0060	93
75	100	0.0020	85
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	100		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	14
Clay	85

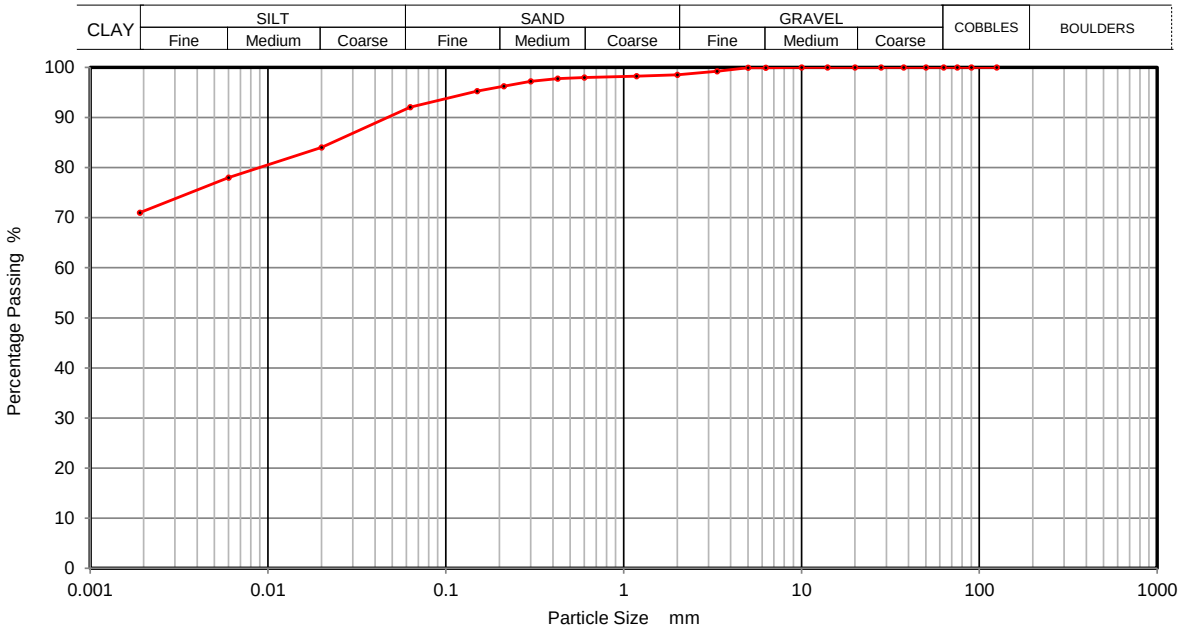
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	HP_TP_09
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	84
90	100	0.0060	78
75	100	0.0020	71
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	98		
0.3	97		
0.212	96		
0.15	95		
0.063	92		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	7
Silt	21
Clay	71

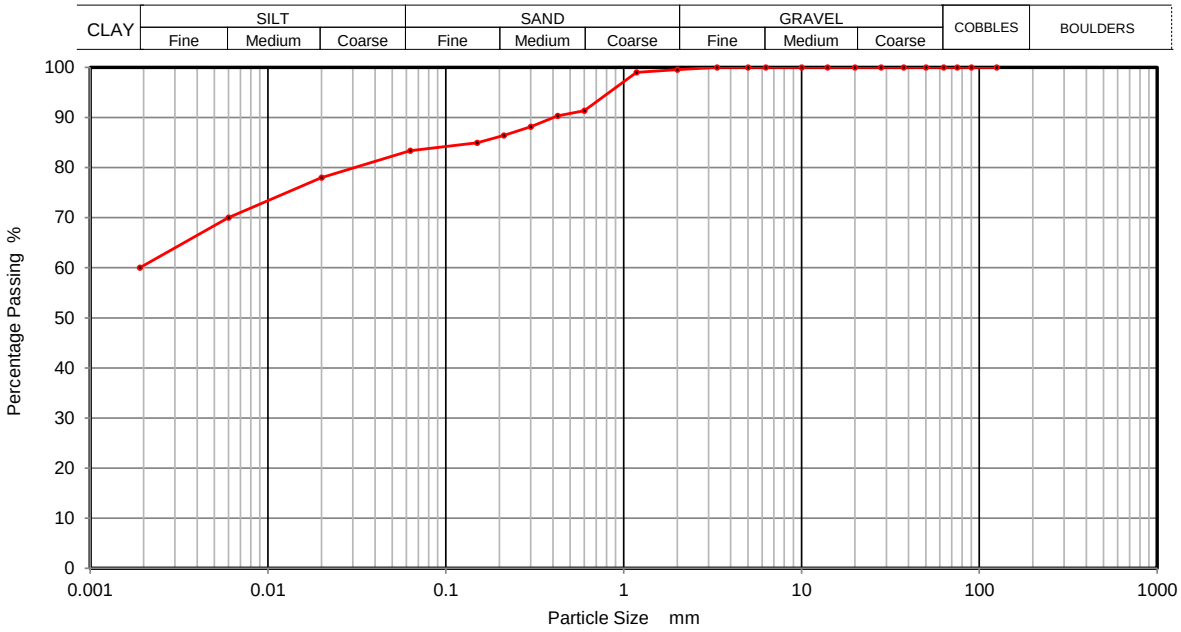
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	HP_TP_09
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	2.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	78
90	100	0.0060	70
75	100	0.0020	60
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	91		
0.425	90		
0.3	88		
0.212	86		
0.15	85		
0.063	83		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	17
Silt	23
Clay	60

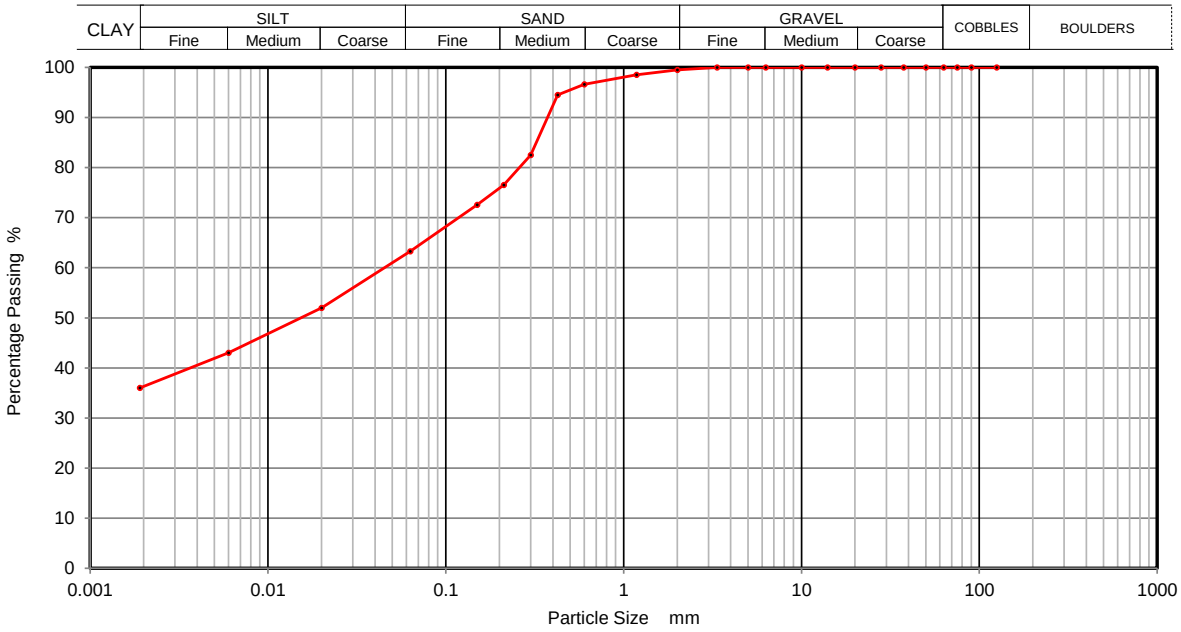
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	HP_TP_01
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.35
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	52
90	100	0.0060	43
75	100	0.0020	36
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	98		
0.6	97		
0.425	94		
0.3	82		
0.212	77		
0.15	73		
0.063	63		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	37
Silt	27
Clay	36

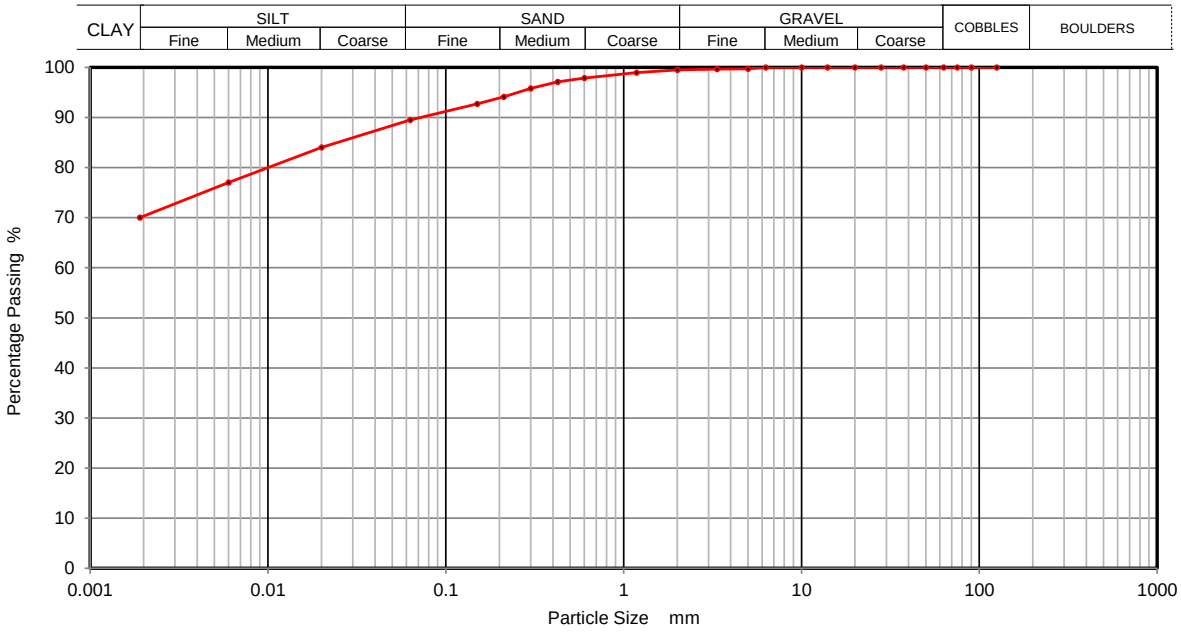
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	HP_TP_01
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	84
90	100	0.0060	77
75	100	0.0020	70
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	97		
0.3	96		
0.212	94		
0.15	93		
0.063	90		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	9
Silt	20
Clay	70

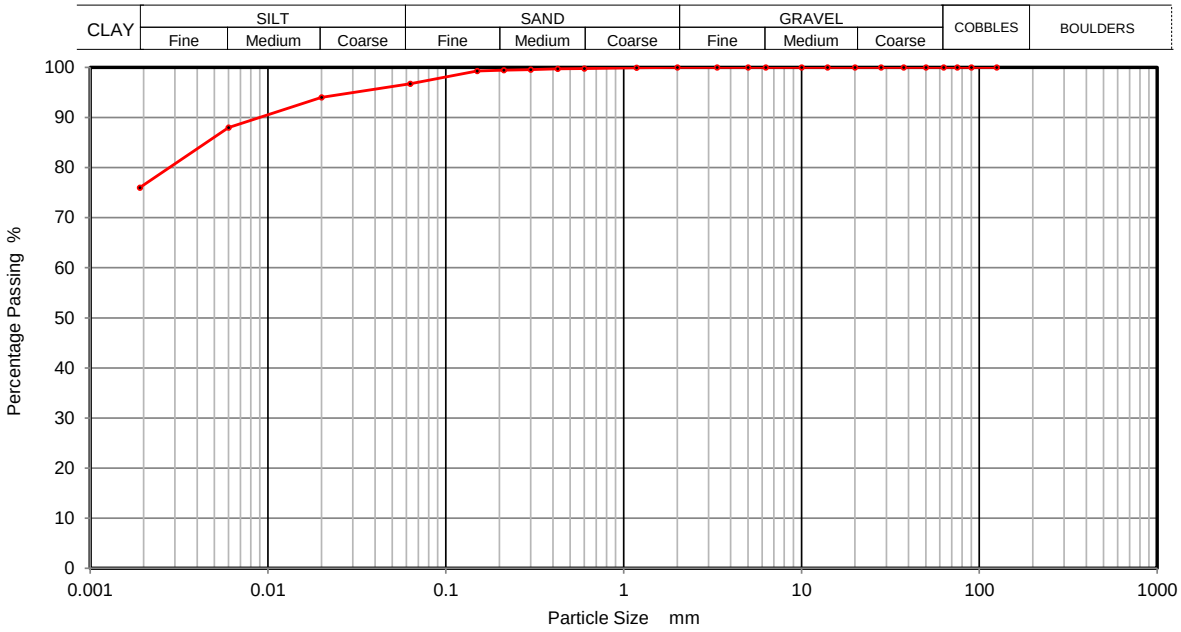
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	HP_TP_03
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	3.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	94
90	100	0.0060	88
75	100	0.0020	76
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	3
Silt	21
Clay	76

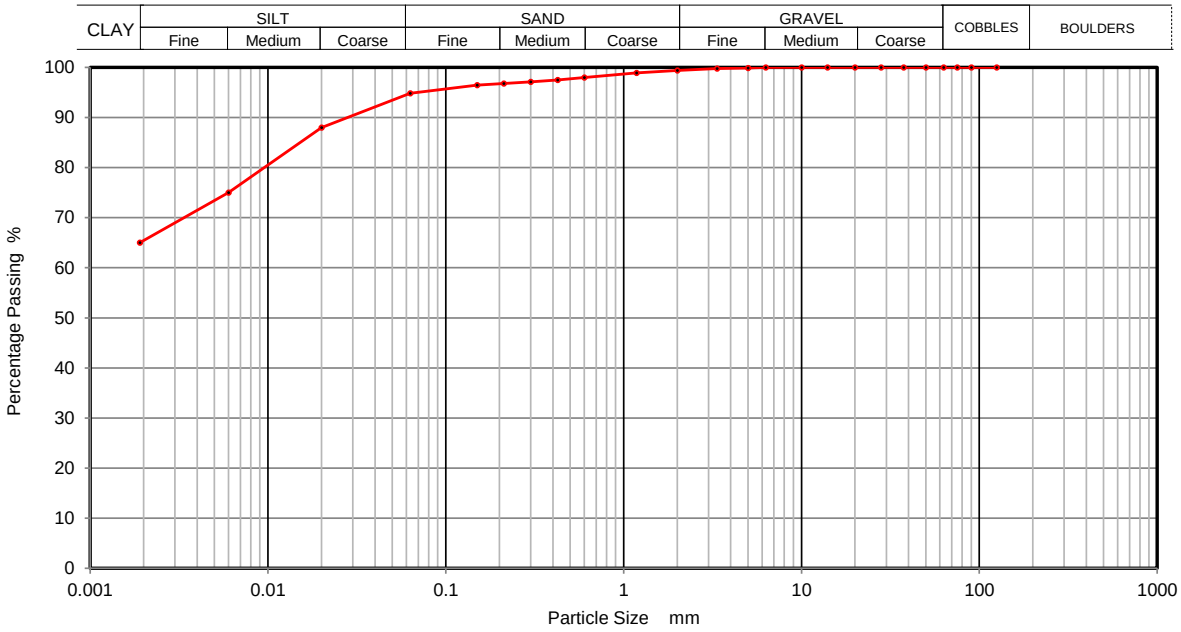
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_01
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	88
90	100	0.0060	75
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	98		
0.3	97		
0.212	97		
0.15	96		
0.063	95		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	4
Silt	30
Clay	65

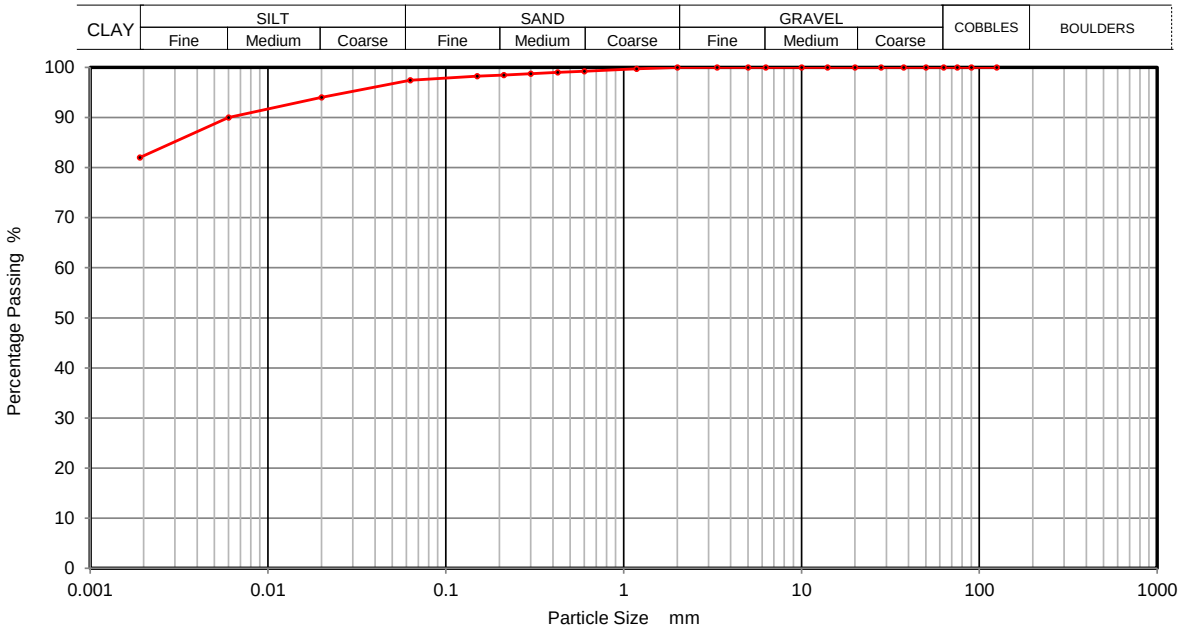
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_01
Site Name	Chippenham	Sample No.	7
Soil Description	*See sample description sheet	Depth Top	2.65
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	94
90	100	0.0060	90
75	100	0.0020	82
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	3
Silt	15
Clay	82

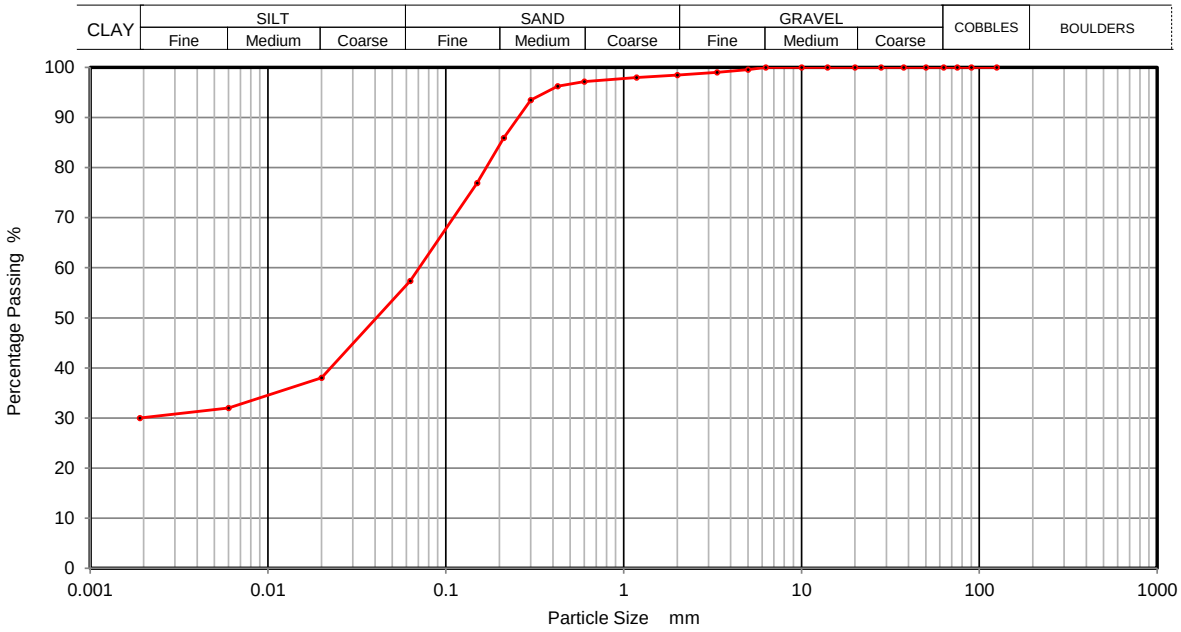
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_01
Site Name	Chippenham	Sample No.	26
Soil Description	*See sample description sheet	Depth Top	11.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	38
90	100	0.0060	32
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98		
1.18	98		
0.6	97		
0.425	96		
0.3	93		
0.212	86		
0.15	77		
0.063	57		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	41
Silt	27
Clay	30

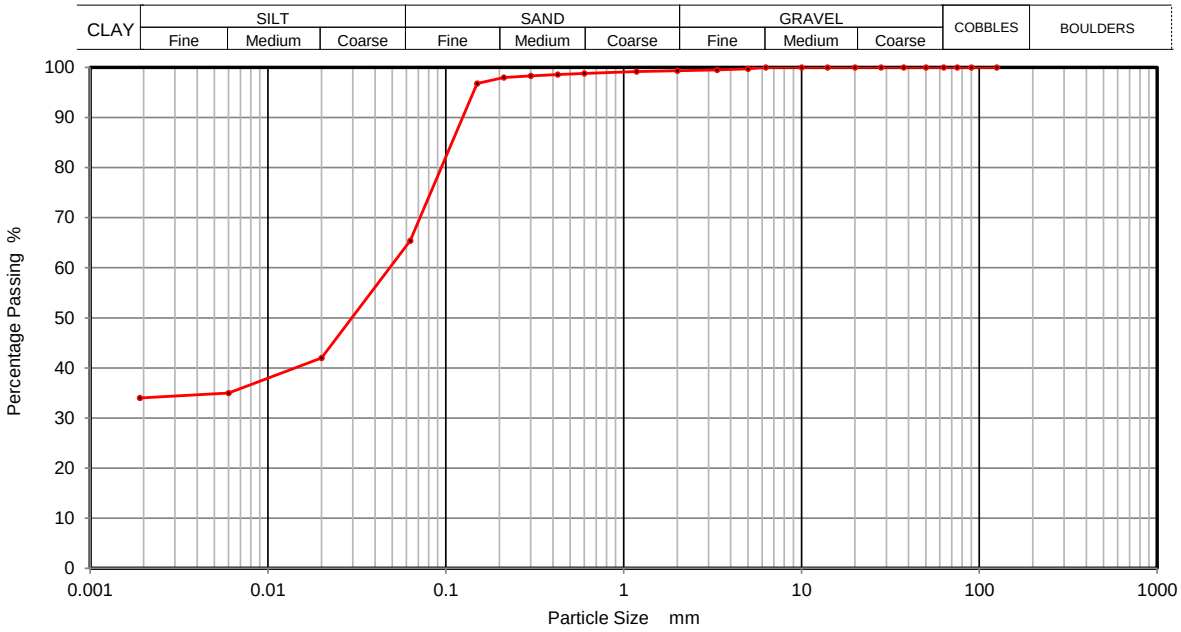
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_01
Site Name	Chippenham	Sample No.	30
Soil Description	*See sample description sheet	Depth Top	16.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	42
90	100	0.0060	35
75	100	0.0020	34
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	97		
0.063	65		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	34
Silt	31
Clay	34

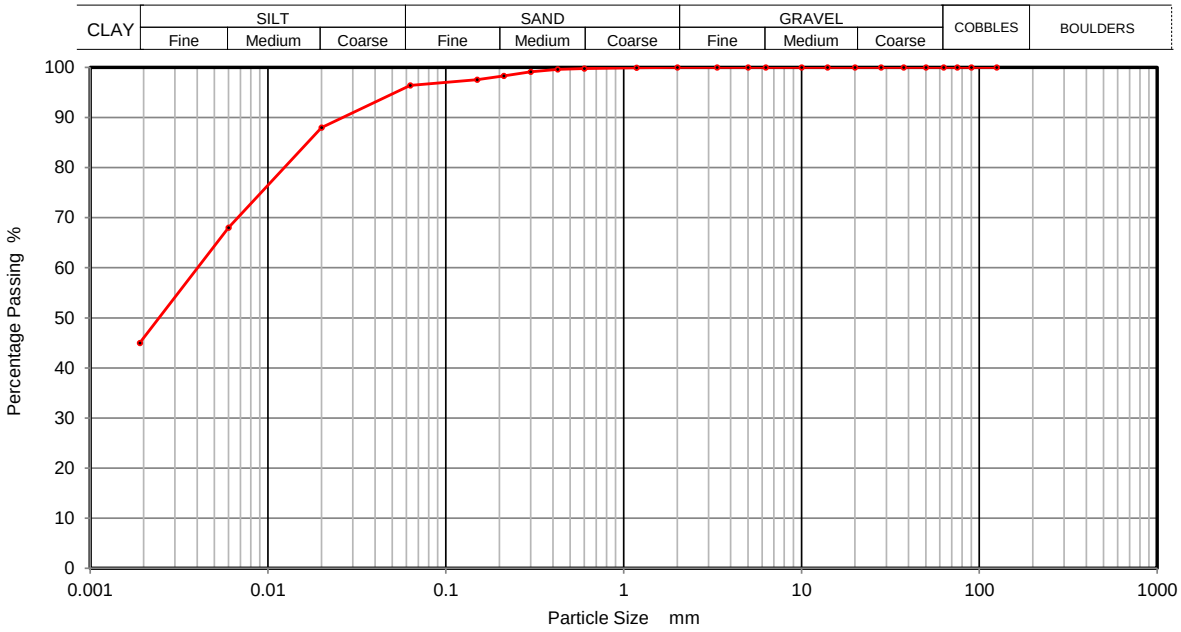
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_02
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	88
90	100	0.0060	68
75	100	0.0020	45
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	98		
0.15	98		
0.063	96		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	4
Silt	51
Clay	45

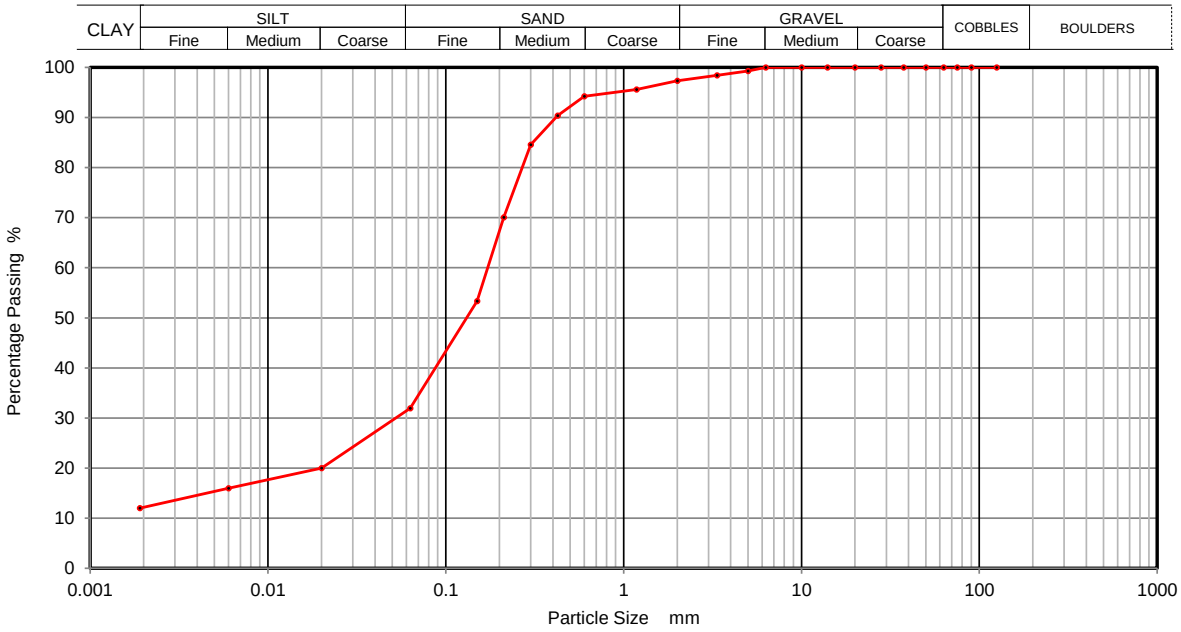
Remarks

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Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_02
Site Name	Chippenham	Sample No.	24
Soil Description	*See sample description sheet	Depth Top	10.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	20
90	100	0.0060	16
75	100	0.0020	12
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	94		
0.425	90		
0.3	85		
0.212	70		
0.15	53		
0.063	32		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	65
Silt	20
Clay	12

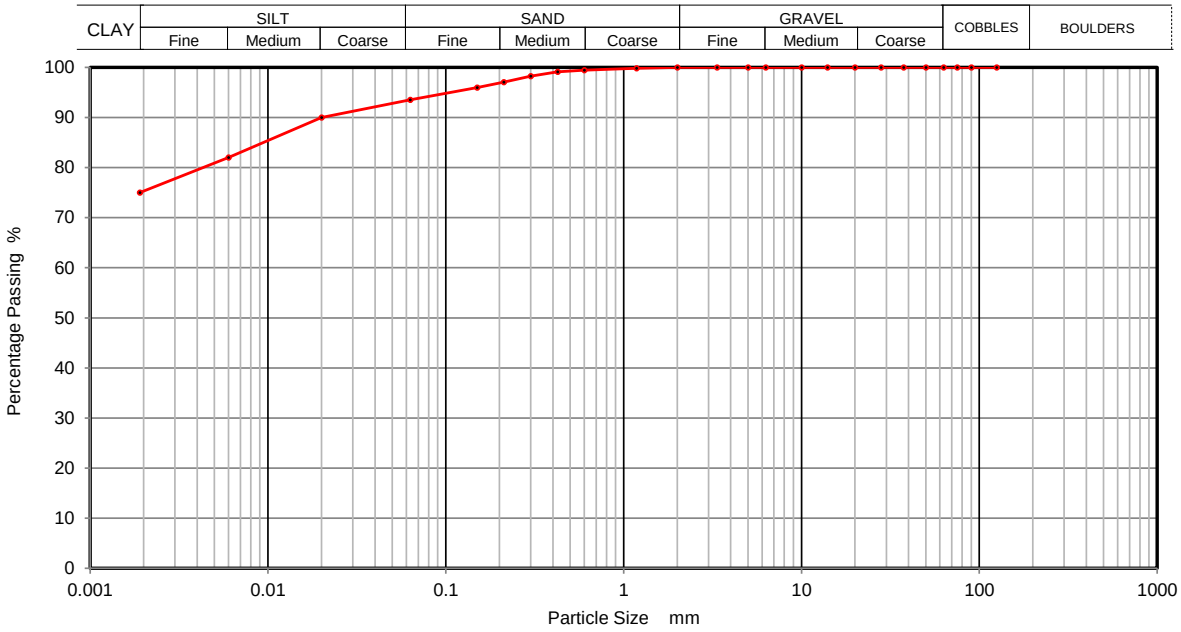
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_03
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	90
90	100	0.0060	82
75	100	0.0020	75
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	98		
0.212	97		
0.15	96		
0.063	94		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	6
Silt	19
Clay	75

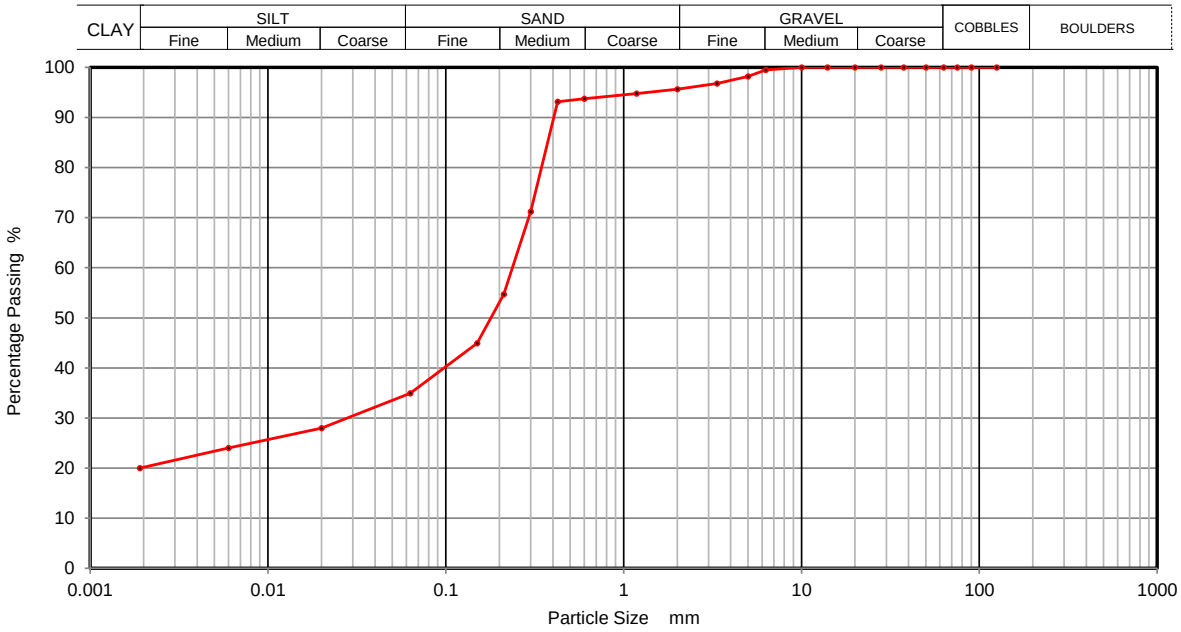
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_03
Site Name	Chippenham	Sample No.	17
Soil Description	*See sample description sheet	Depth Top	7.80
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	28
90	100	0.0060	24
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	98		
3.35	97		
2	96		
1.18	95		
0.6	94		
0.425	93		
0.3	71		
0.212	55		
0.15	45		
0.063	35		

Sample Proportions	% dry mass
Cobbles	0
Gravel	4
Sand	61
Silt	15
Clay	20

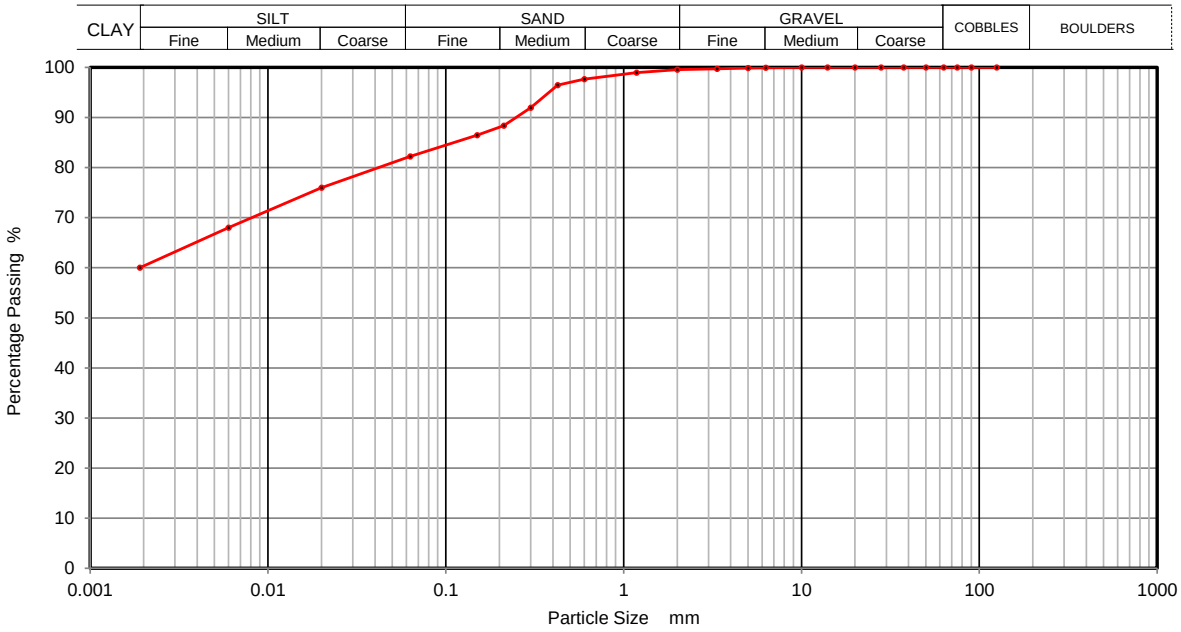
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_04
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	76
90	100	0.0060	68
75	100	0.0020	60
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	96		
0.3	92		
0.212	88		
0.15	86		
0.063	82		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	18
Silt	22
Clay	60

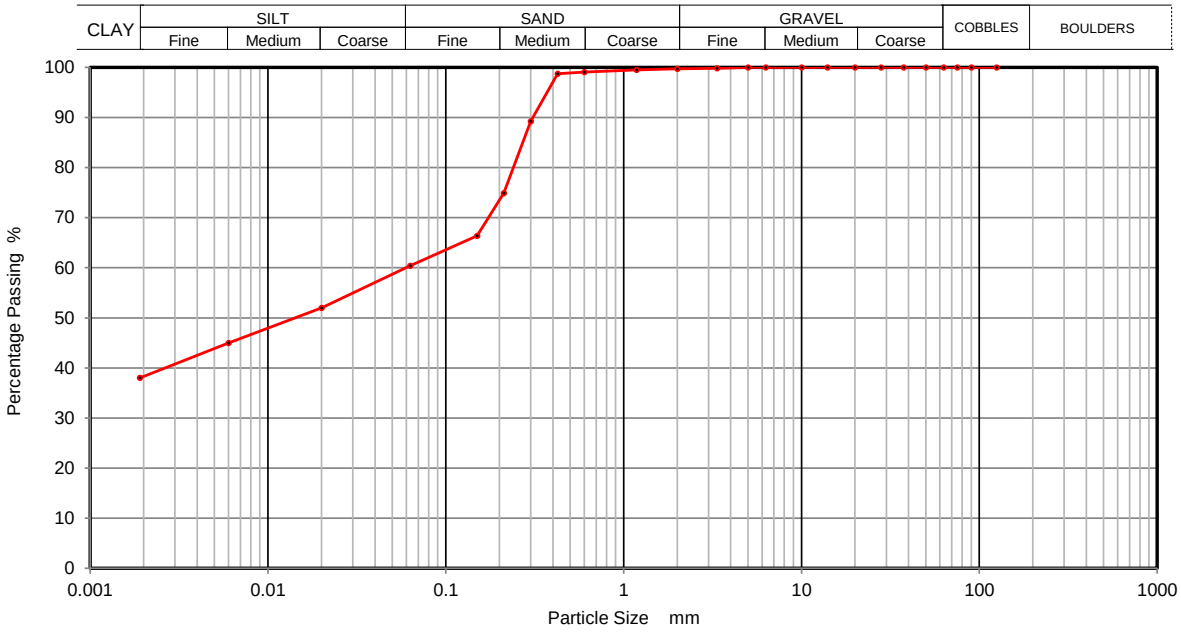
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_04
Site Name	Chippenham	Sample No.	14
Soil Description	*See sample description sheet	Depth Top	7.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	52
90	100	0.0060	45
75	100	0.0020	38
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	89		
0.212	75		
0.15	66		
0.063	60		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	40
Silt	22
Clay	38

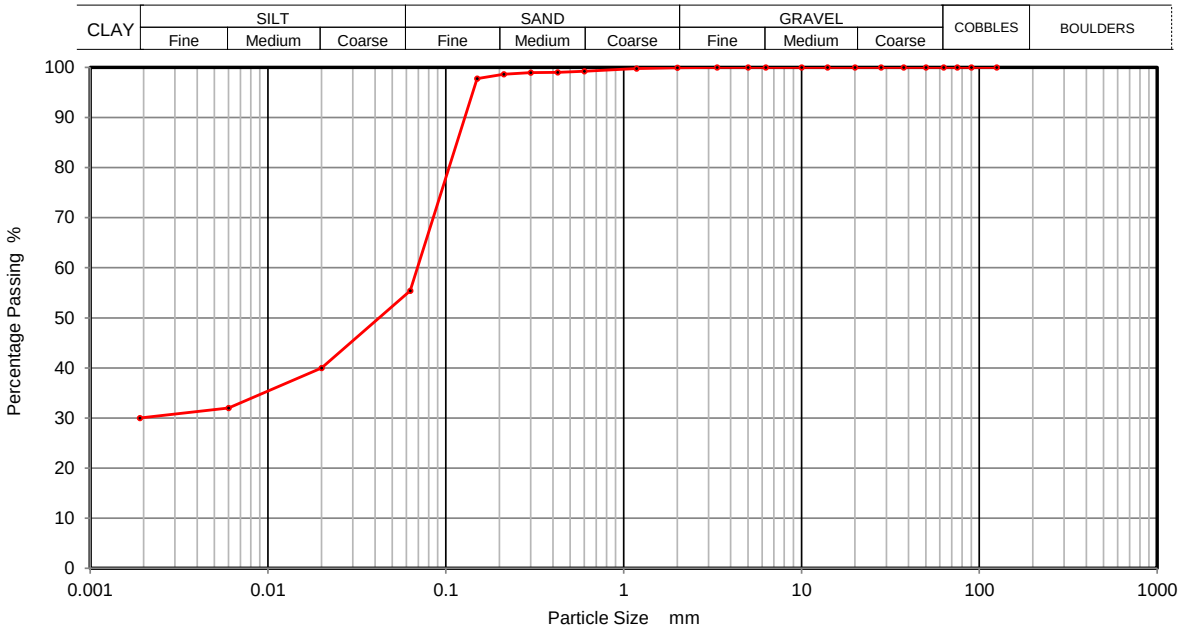
Remarks

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Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_04
Site Name	Chippenham	Sample No.	20
Soil Description	*See sample description sheet	Depth Top	11.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	40
90	100	0.0060	32
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	98		
0.063	55		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	45
Silt	25
Clay	30

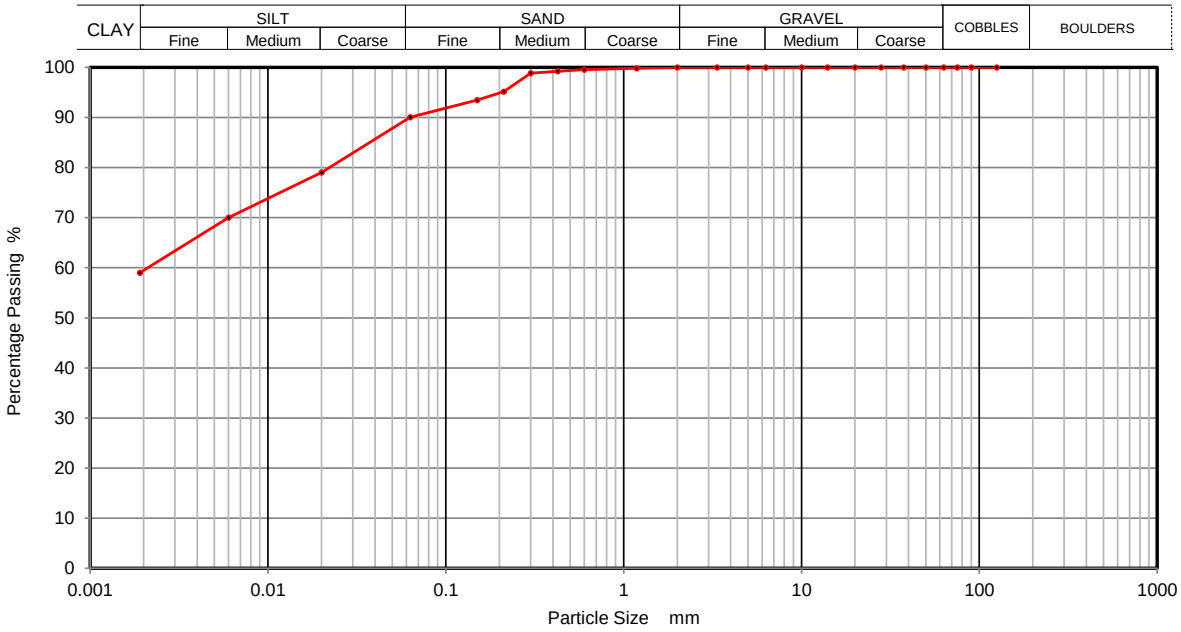
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_06
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	79
90	100	0.0060	70
75	100	0.0020	59
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	99		
0.212	95		
0.15	93		
0.063	90		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	10
Silt	31
Clay	59

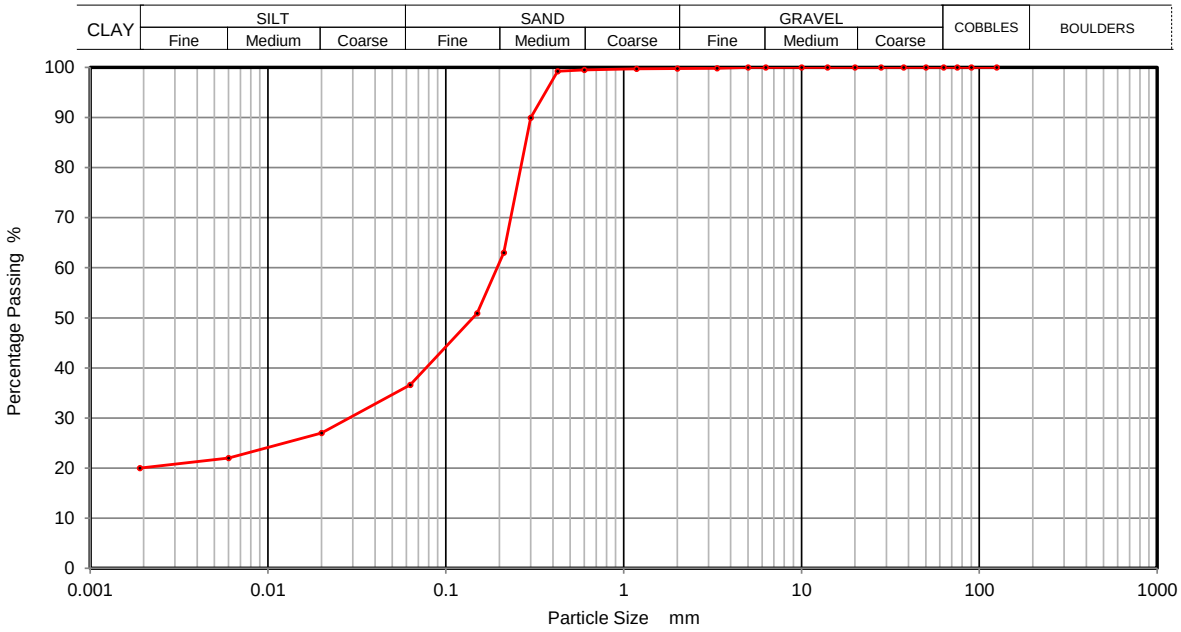
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_06
Site Name	Chippenham	Sample No.	7
Soil Description	*See sample description sheet	Depth Top	2.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	27
90	100	0.0060	22
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	90		
0.212	63		
0.15	51		
0.063	37		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	63
Silt	17
Clay	20

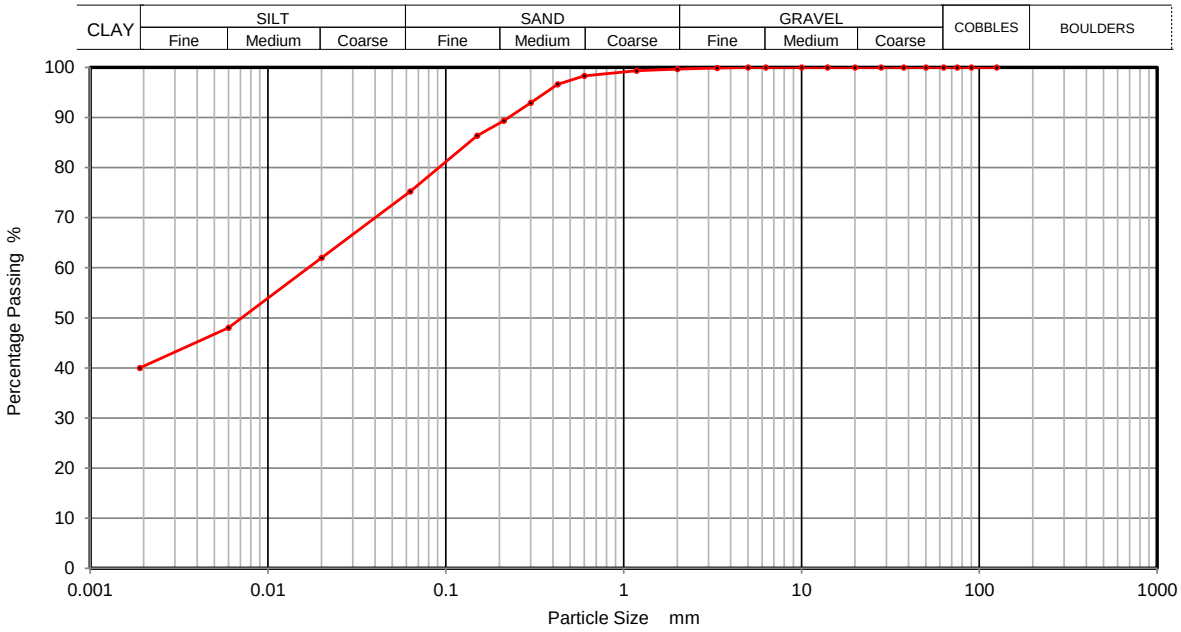
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP002
Site Name	Chippenham	Sample No.	2
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	62
90	100	0.0060	48
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	93		
0.212	89		
0.15	86		
0.063	75		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	25
Silt	35
Clay	40

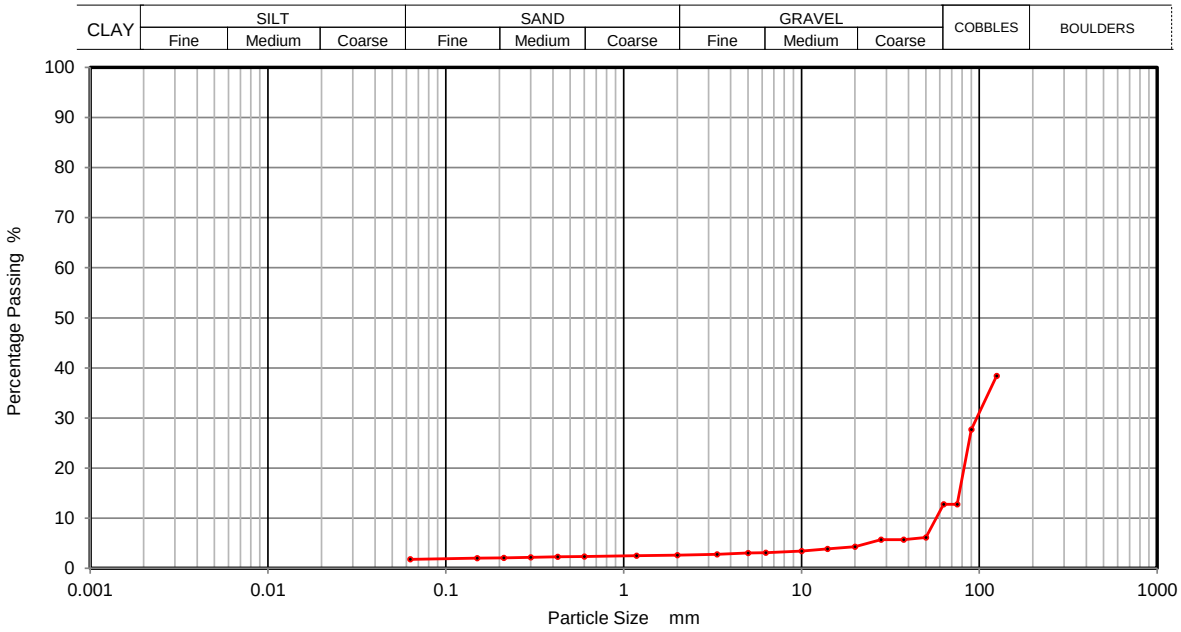
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59564
		Borehole/Pit No.	TP002
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	2.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	38		
90	28		
75	13		
63	13		
50	6		
37.5	6		
28	6		
20	4		
14	4		
10	3		
6.3	3		
5	3		
3.35	3		
2	3		
1.18	3		
0.6	2		
0.425	2		
0.3	2		
0.212	2		
0.15	2		
0.063	2		

Sample Proportions	% dry mass
Cobbles	87
Gravel	10
Sand	1
Silt and Clay	2

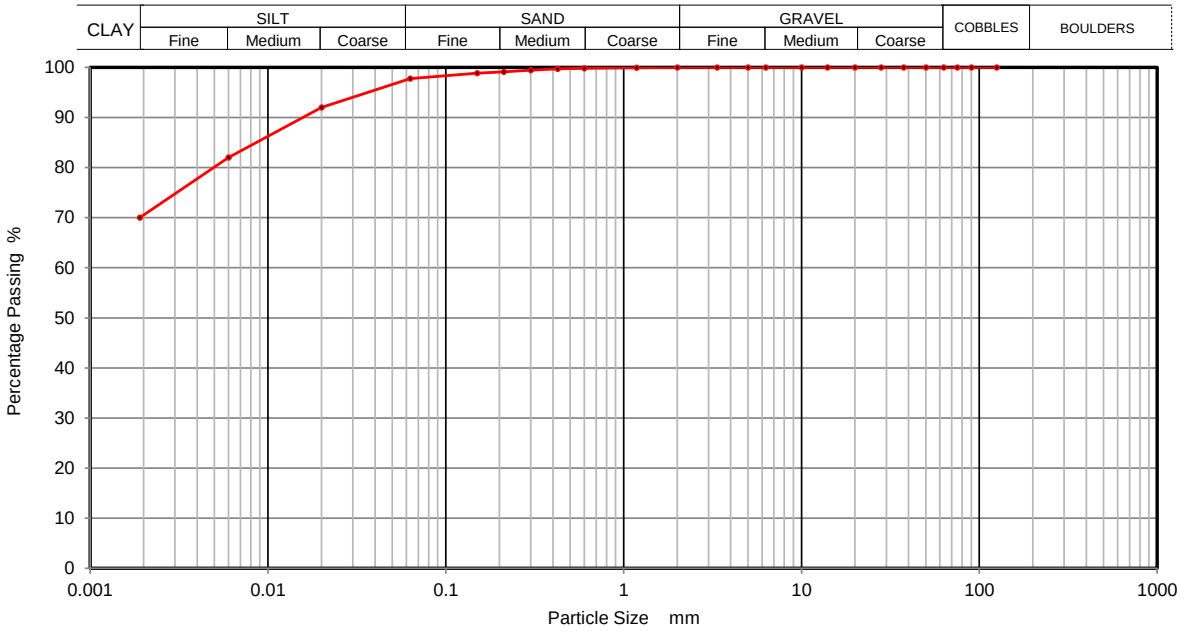
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP012
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	82
75	100	0.0020	70
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	2
Silt	28
Clay	70

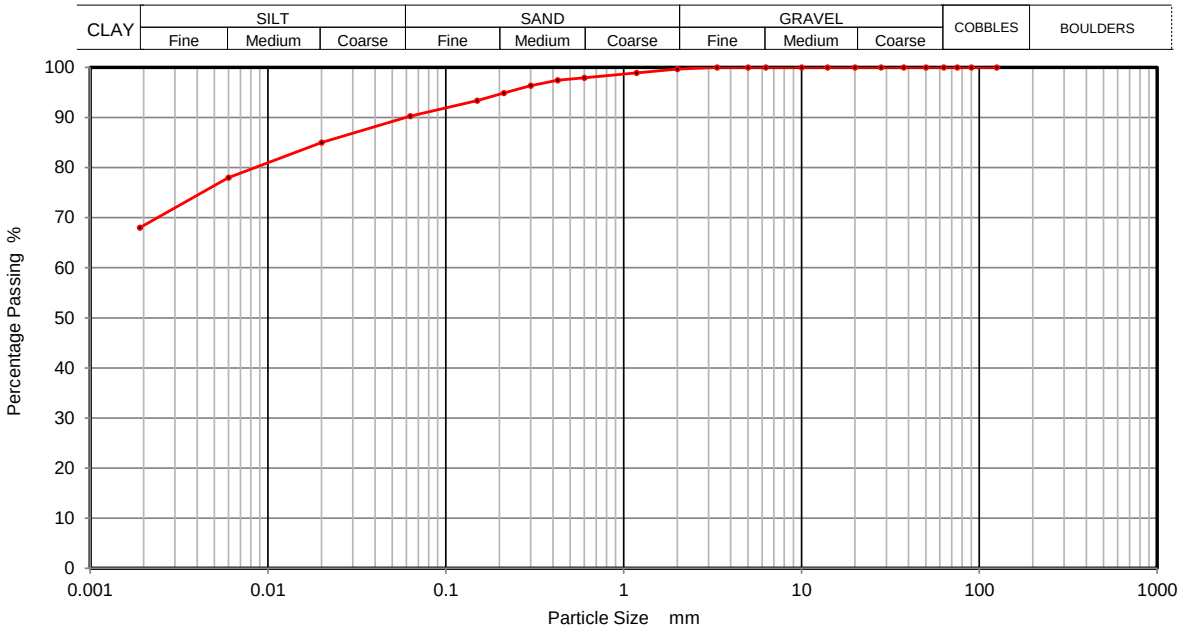
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP012
Site Name	Chippenham	Sample No.	5
Soil Description	*See sample description sheet	Depth Top	1.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	78
75	100	0.0020	68
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	96		
0.212	95		
0.15	93		
0.063	90		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	10
Silt	22
Clay	68

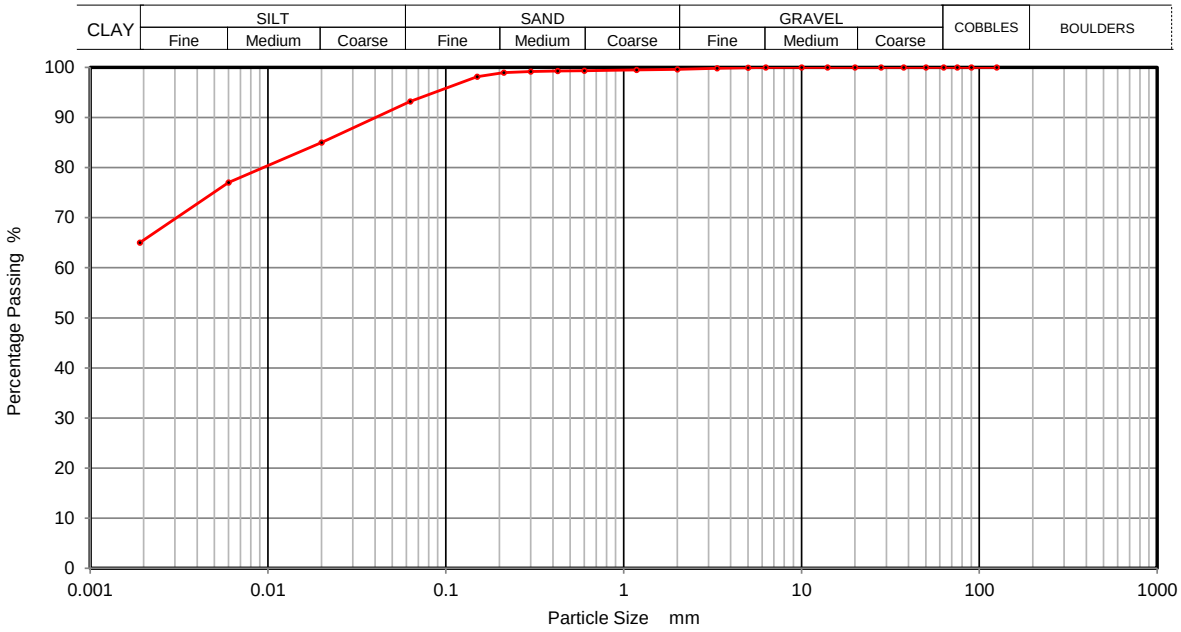
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP013
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	77
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	98		
0.063	93		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	7
Silt	28
Clay	65

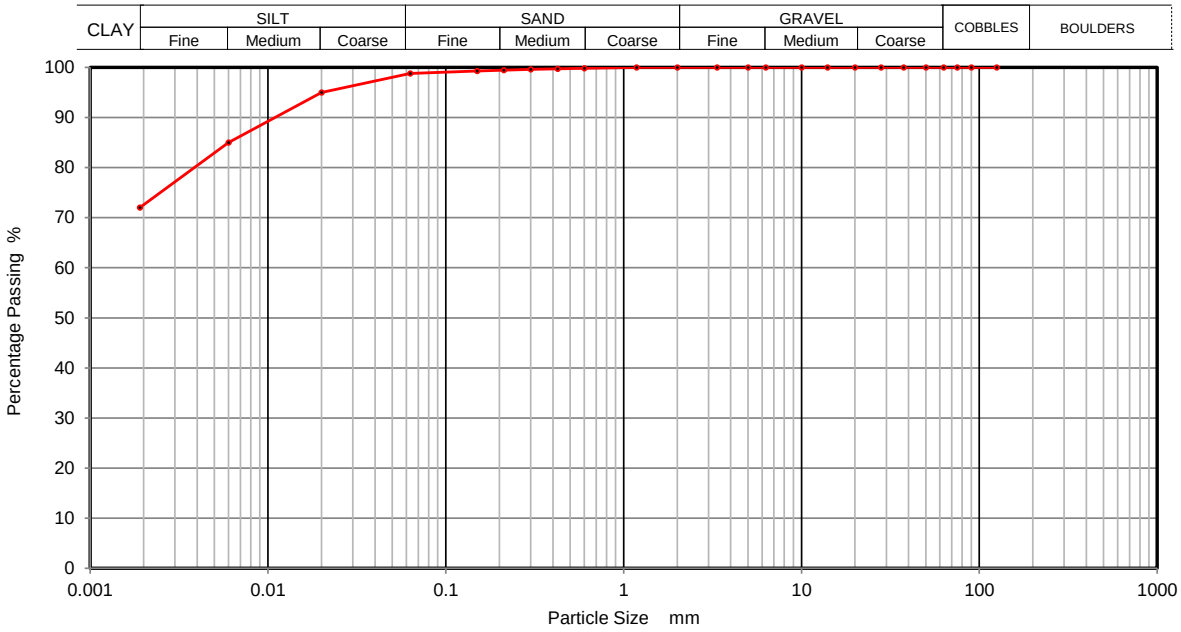
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP013
Site Name	Chippenham	Sample No.	9
Soil Description	*See sample description sheet	Depth Top	3.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	85
75	100	0.0020	72
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	27
Clay	72

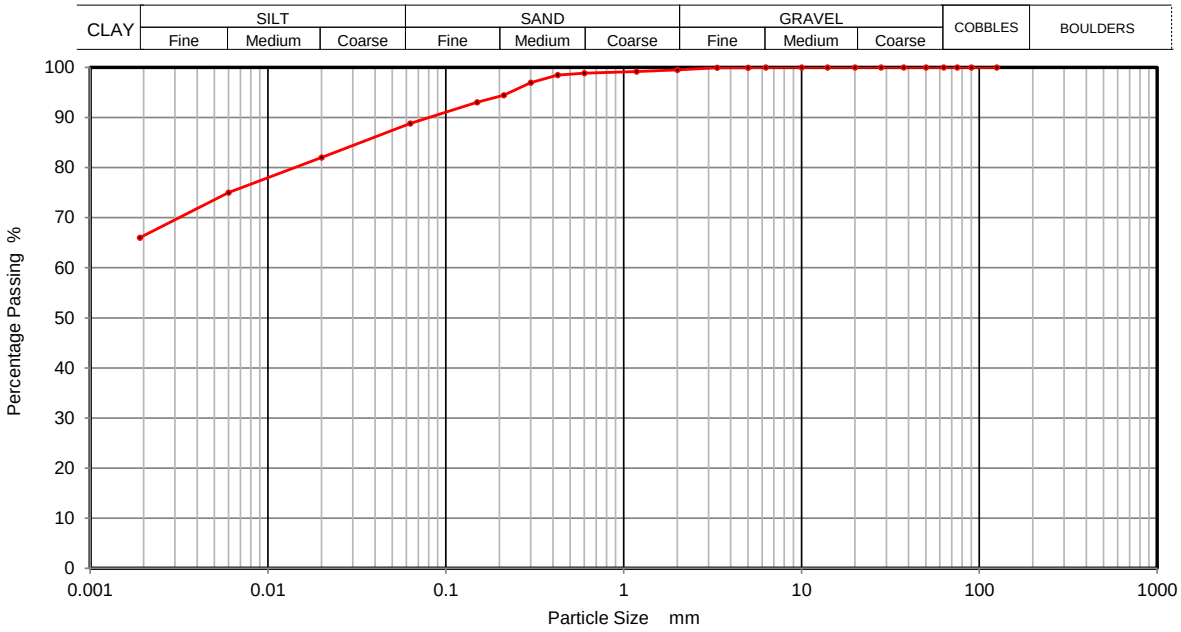
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP014
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	82
90	100	0.0060	75
75	100	0.0020	66
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	97		
0.212	94		
0.15	93		
0.063	89		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	11
Silt	23
Clay	66

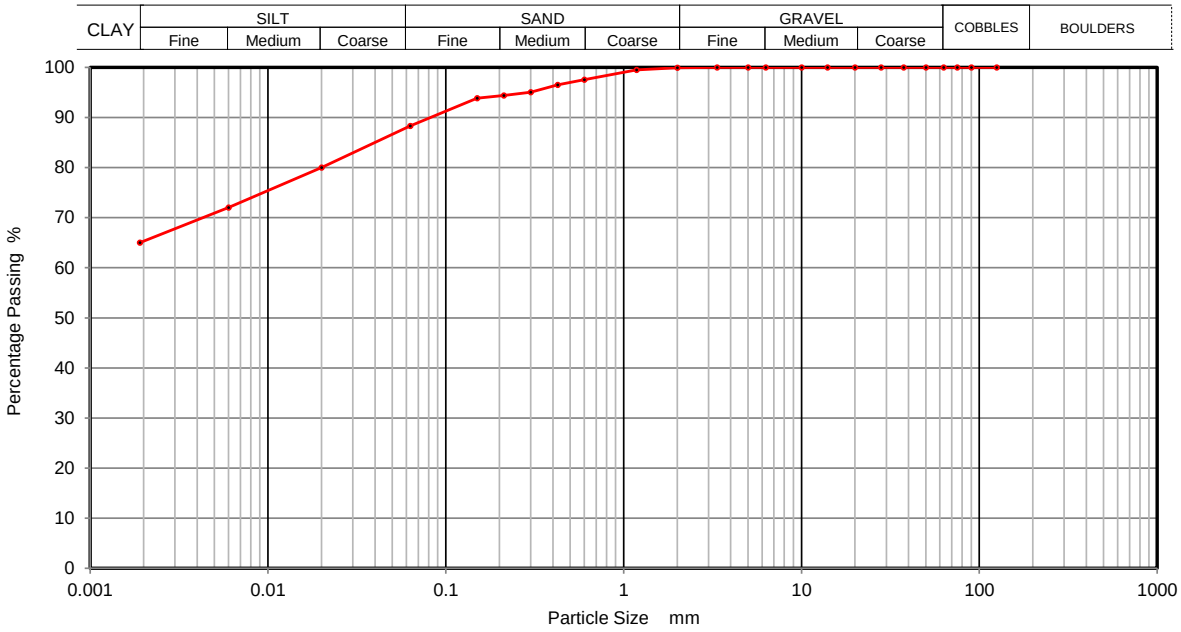
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP014
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	2.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	80
90	100	0.0060	72
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	98		
0.425	96		
0.3	95		
0.212	94		
0.15	94		
0.063	88		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	12
Silt	23
Clay	65

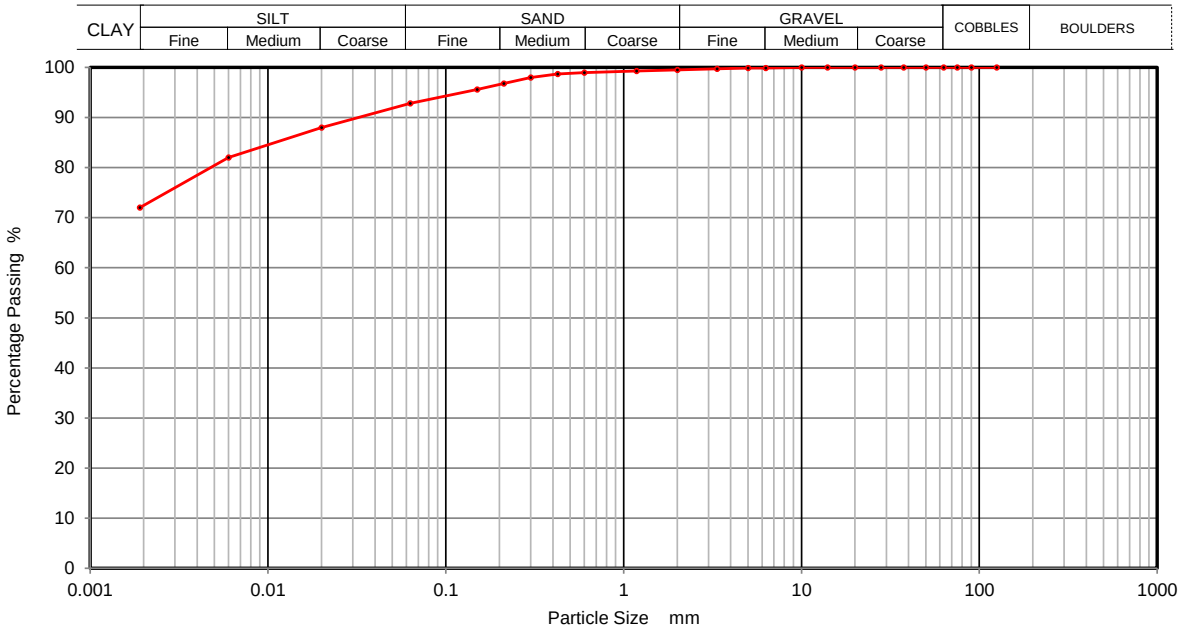
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP015
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	88
90	100	0.0060	82
75	100	0.0020	72
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	97		
0.15	96		
0.063	93		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	7
Silt	21
Clay	72

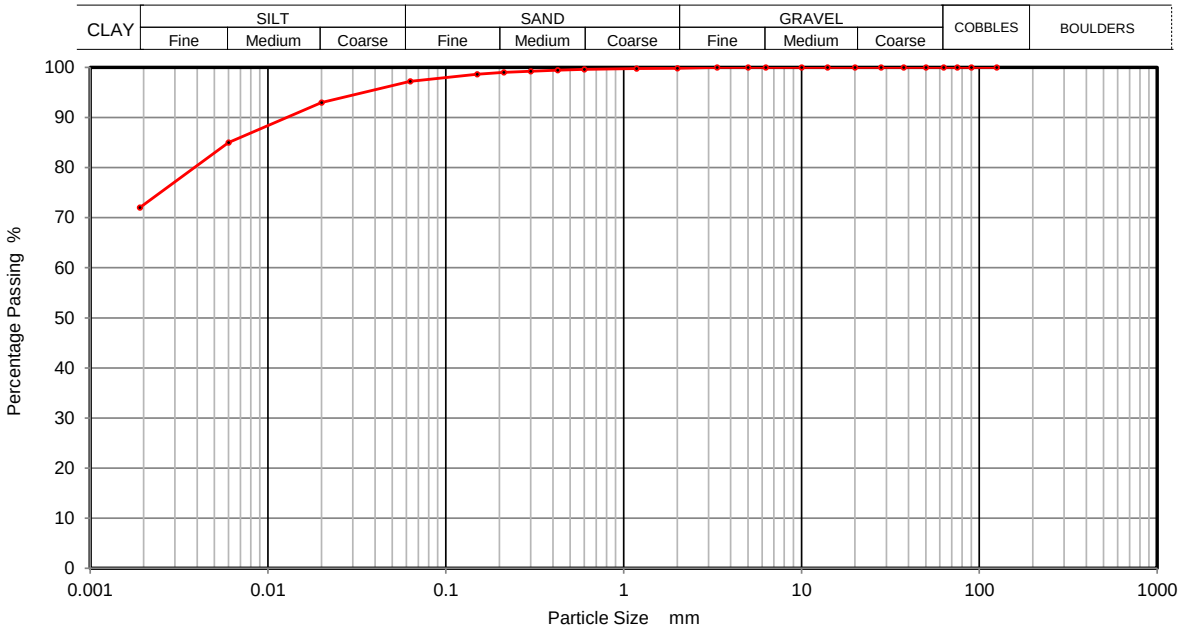
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP015
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	2.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	93
90	100	0.0060	85
75	100	0.0020	72
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	3
Silt	25
Clay	72

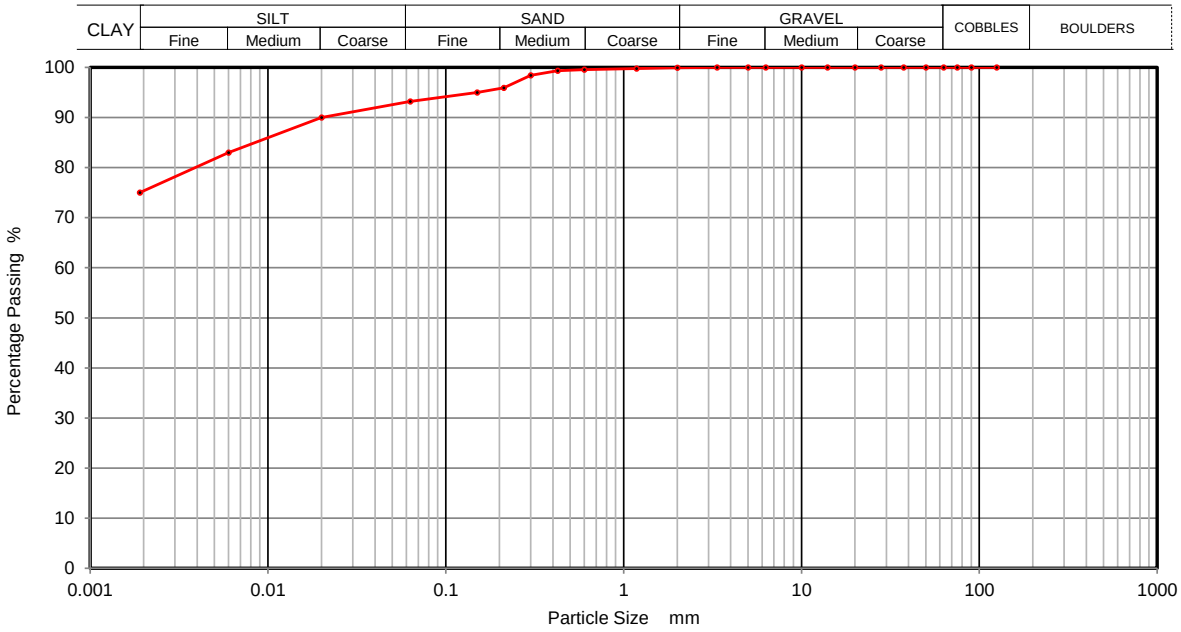
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP016
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	90
90	100	0.0060	83
75	100	0.0020	75
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	98		
0.212	96		
0.15	95		
0.063	93		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	7
Silt	18
Clay	75

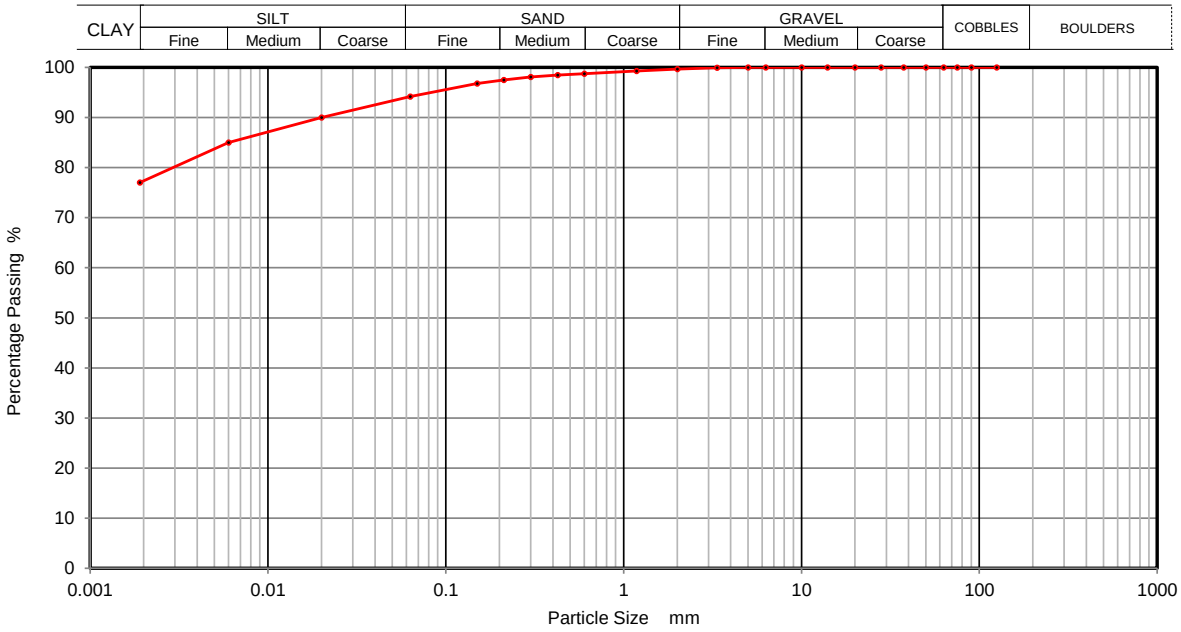
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	TP016
Site Name	Chippenham	Sample No.	3
Soil Description	*See sample description sheet	Depth Top	1.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	90
90	100	0.0060	85
75	100	0.0020	77
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	98		
0.212	97		
0.15	97		
0.063	94		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	6
Silt	17
Clay	77

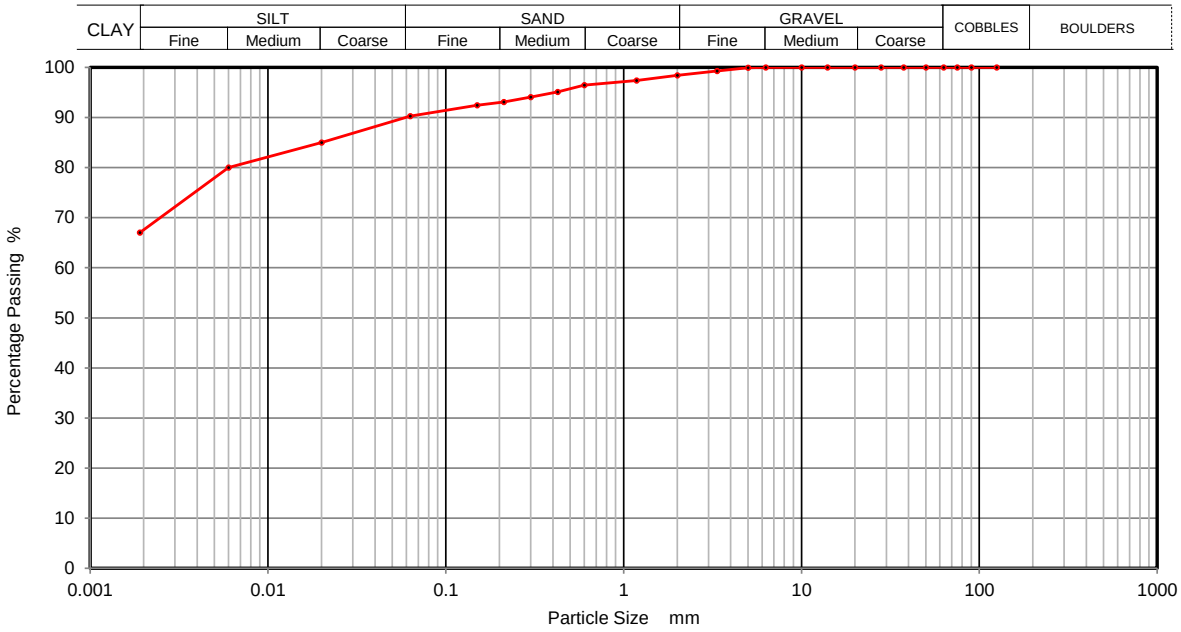
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	WS008
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	85
90	100	0.0060	80
75	100	0.0020	67
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98		
1.18	97		
0.6	96		
0.425	95		
0.3	94		
0.212	93		
0.15	92		
0.063	90		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	8
Silt	23
Clay	67

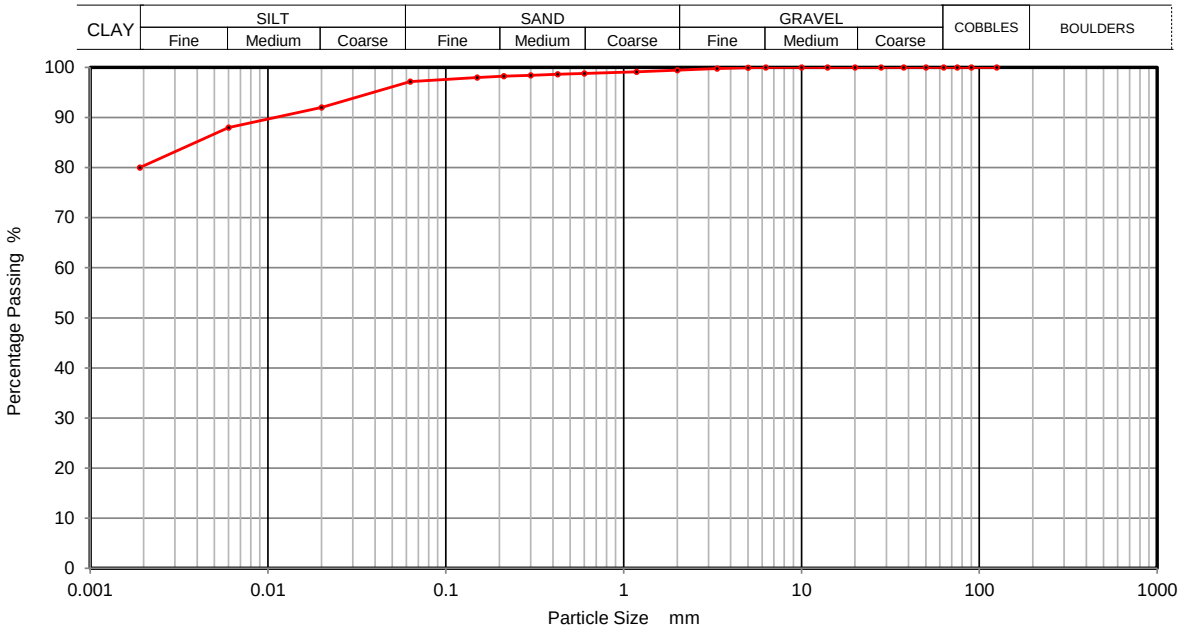
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	WS008
Site Name	Chippenham	Sample No.	7
Soil Description	*See sample description sheet	Depth Top	2.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	92
90	100	0.0060	88
75	100	0.0020	80
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	2
Silt	17
Clay	80

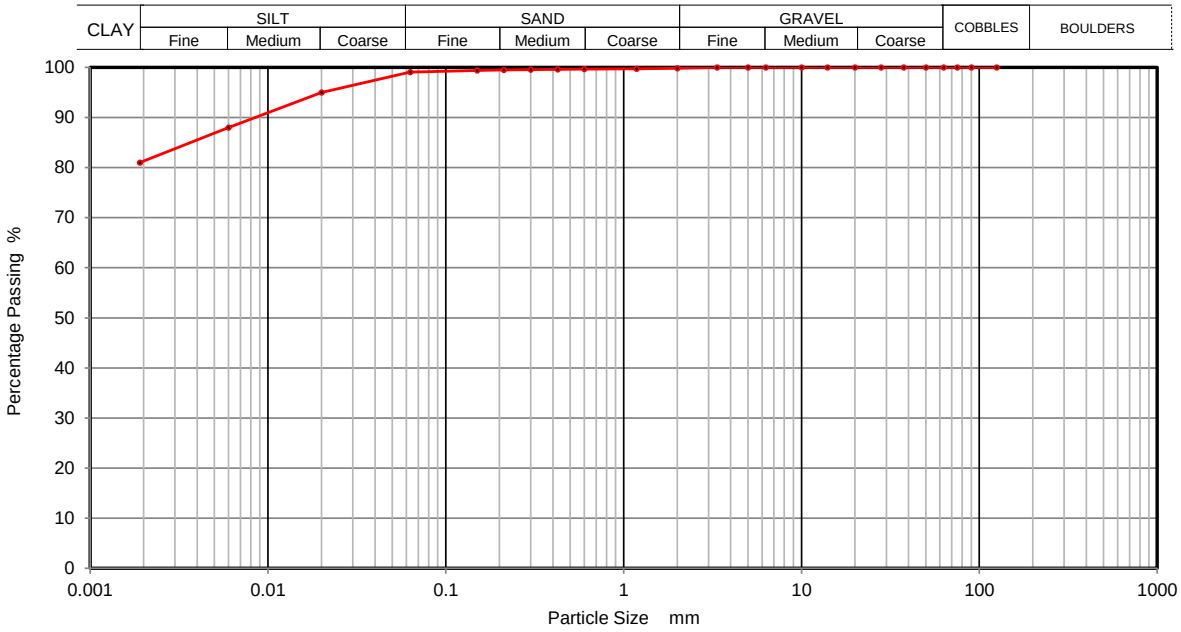
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	WS008
Site Name	Chippenham	Sample No.	9
Soil Description	*See sample description sheet	Depth Top	3.20
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	95
90	100	0.0060	88
75	100	0.0020	81
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	1
Silt	18
Clay	81

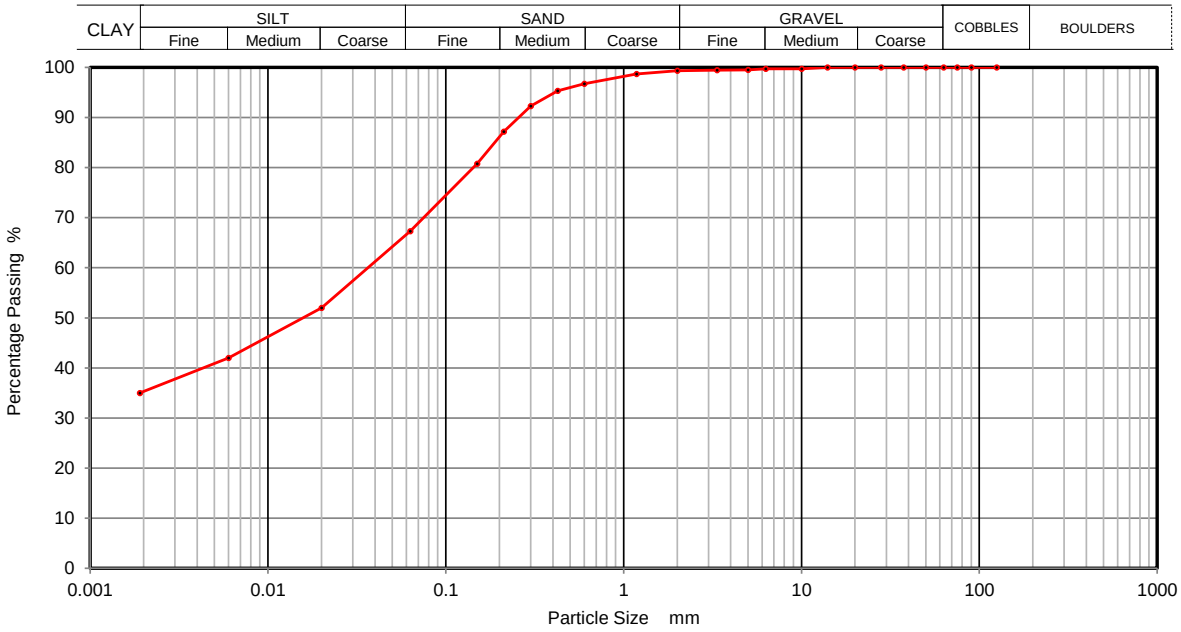
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	WS010
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	52
90	100	0.0060	42
75	100	0.0020	35
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	99		
0.6	97		
0.425	95		
0.3	92		
0.212	87		
0.15	81		
0.063	67		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	32
Silt	32
Clay	35

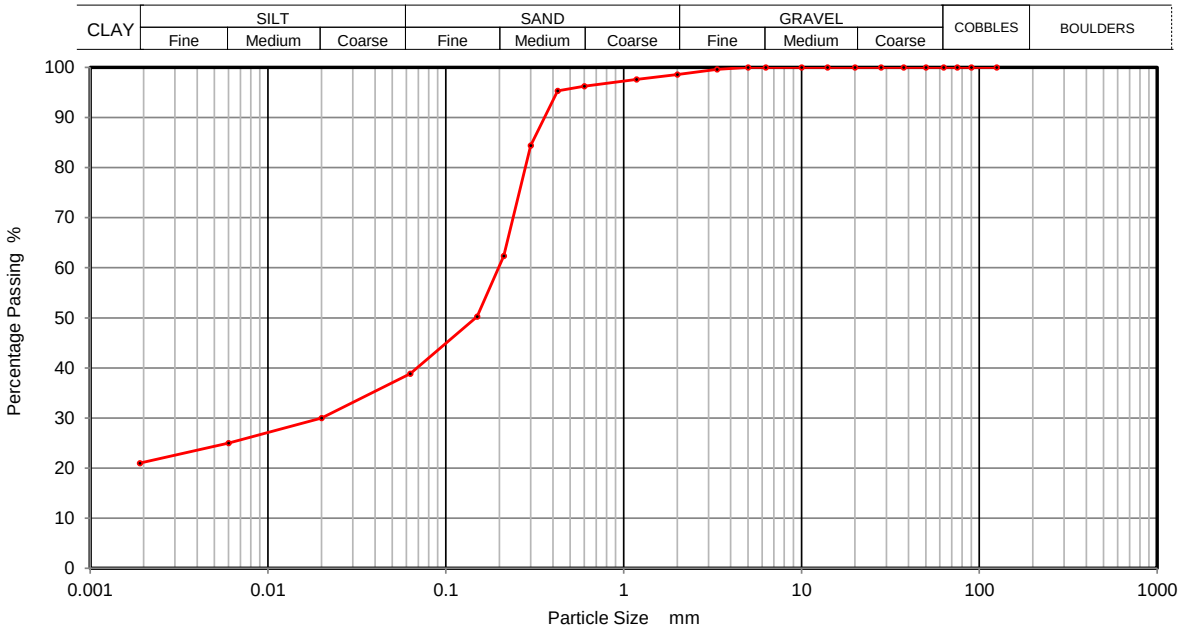
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	WS014
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	30
90	100	0.0060	25
75	100	0.0020	21
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	96		
0.425	95		
0.3	84		
0.212	62		
0.15	50		
0.063	39		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	60
Silt	18
Clay	21

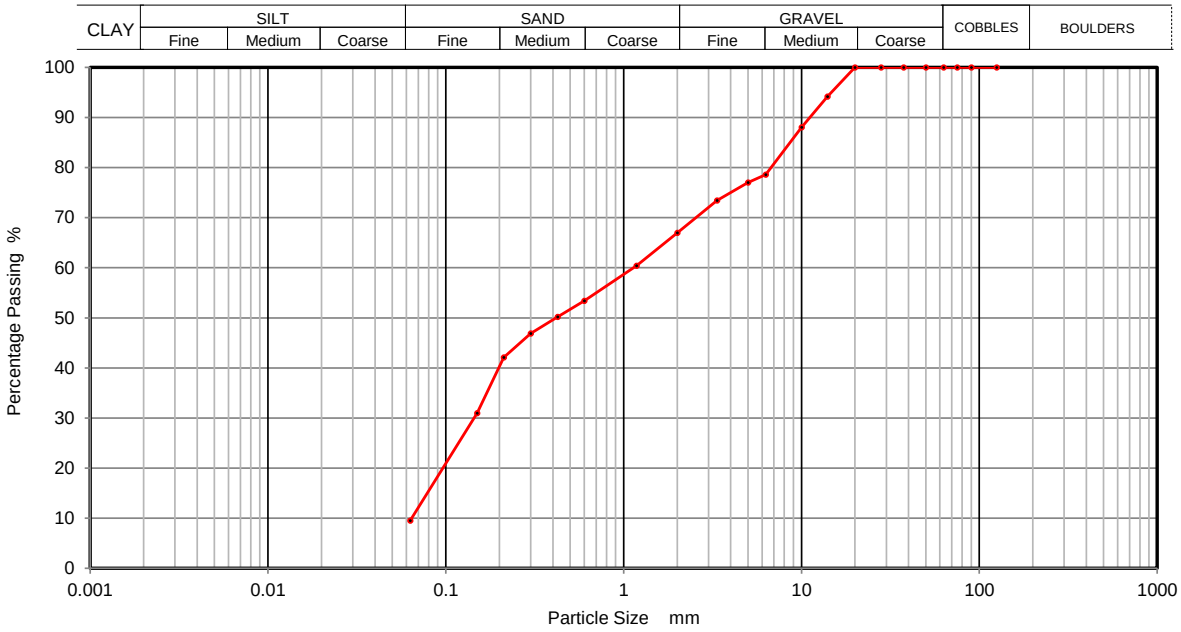
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	59564
		Borehole/Pit No.	WS014
Site Name	Chippenham	Sample No.	6
Soil Description	*See sample description sheet	Depth Top	1.65
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	88		
6.3	79		
5	77		
3.35	73		
2	67		
1.18	60		
0.6	53		
0.425	50		
0.3	47		
0.212	42		
0.15	31		
0.063	10		

Sample Proportions	% dry mass
Cobbles	0
Gravel	33
Sand	57
Silt and Clay	10

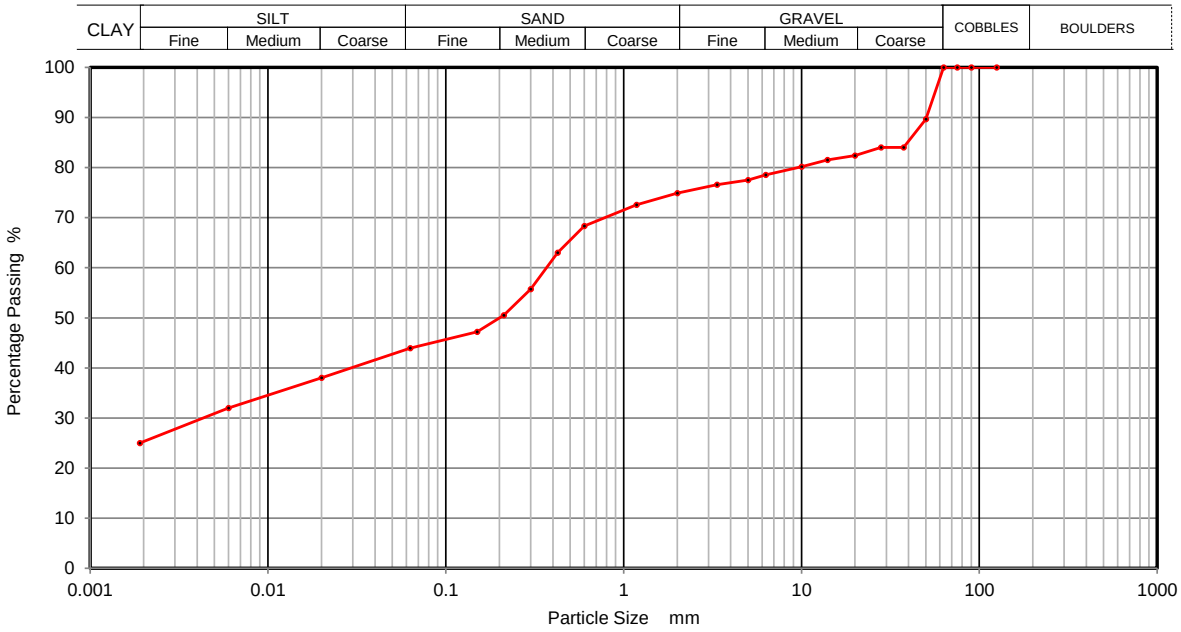
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	WS018E
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	38
90	100	0.0060	32
75	100	0.0020	25
63	100		
50	90		
37.5	84		
28	84		
20	82		
14	82		
10	80		
6.3	79		
5	77		
3.35	77		
2	75		
1.18	73		
0.6	68		
0.425	63		
0.3	56		
0.212	51		
0.15	47		
0.063	44		

Sample Proportions	% dry mass
Cobbles	0
Gravel	25
Sand	31
Silt	19
Clay	25

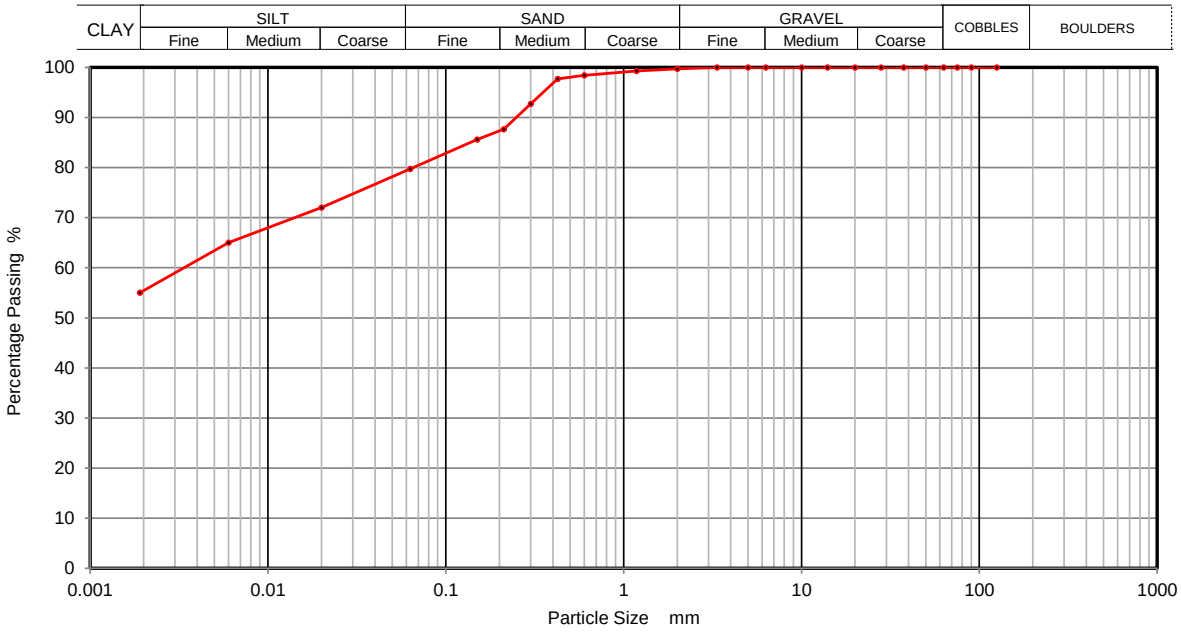
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**	Contract Number	59564
		Borehole/Pit No.	WS019
Site Name	Chippenham	Sample No.	1
Soil Description	*See sample description sheet	Depth Top	0.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	72
90	100	0.0060	65
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	98		
0.3	93		
0.212	88		
0.15	86		
0.063	80		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	20
Silt	25
Clay	55

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator				
David Edwards				

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GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

SUMMARY OF SOIL DENSITY TESTS
BS EN ISO 17892-2:2014

Contract Number	**59564**
Site Name	**Chippenham**
Date Tested	**04/07/2022**

Hole Reference	Sample Number	Sample Type	Depth (m)			Water Content	Bulk Density	Dry Density	Compaction Method /Natural Condition		Estimated Air Voids	Remarks
AVC1_BH_11	10	U	3.20	-		16.0	1.68	1.45	Natural			
AVC1_BH_12	5	U	1.20	-		21.0	2.11	1.74	Natural			
BH004	13	C	5.10	-		17.0	1.79	1.53	Natural			
PWB_BH_01	5	UT	1.20	-								
PWB_BH_02	11	C	4.50	-		23.0	1.99	1.62	Natural			
AVC1_BH_14	11	C	4.70	-		18.6	1.99	1.68	Natural			
AVW_BH_03	17	C	12.95	-		23.0	2.10	1.71	Natural			
AVW_BH_01	19	C	11.65	-		19.6	1.93	1.62	Natural			
PWB_BH_04	23	C	13.95	-		15.2	2.05	1.78	Natural			
PWB_BH_03	10	C	3.30	-		22.0	1.98	1.62	Natural			
AVW_BH_04	15	C	8.20	-		20.2	1.99	1.66	Natural			
AVW_BH_06	23	C	17.55	-		12.3	2.20	1.96	Natural			
AVW_BH_07	11	C	4.90	-		20.3	2.01	1.67	Natural			
AVW_BH_07	13	C	6.60	-		18.9	1.98	1.67	Natural			
AVW_BH_07	21	C	16.85	-		13.6	2.16	1.90	Natural			
AVW_BH_07	23	C	19.65	-		15.2	2.07	1.80	Natural			
AVW_BH_08	10	C	5.80	-		22.8	2.00	1.63	Natural			
AVW_BH_08	21	C	13.20	-		15.0	1.88	1.63	Natural			
				-								
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Key	Reported As
Water Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Particle Density	Mg/m^3
Air Voids	%

***For sample descriptions please see sample descriptions sheet.**

Operators
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GEOTECHNICAL SITE & TESTING LABORATORIES

PARTICLE DENSITY BY GAS JAR
(BS 1377 : PART 2 : 8.2 : 1990)

Contract Number	59564
Project Location	Chippenham
Date Tested	07/07/2022

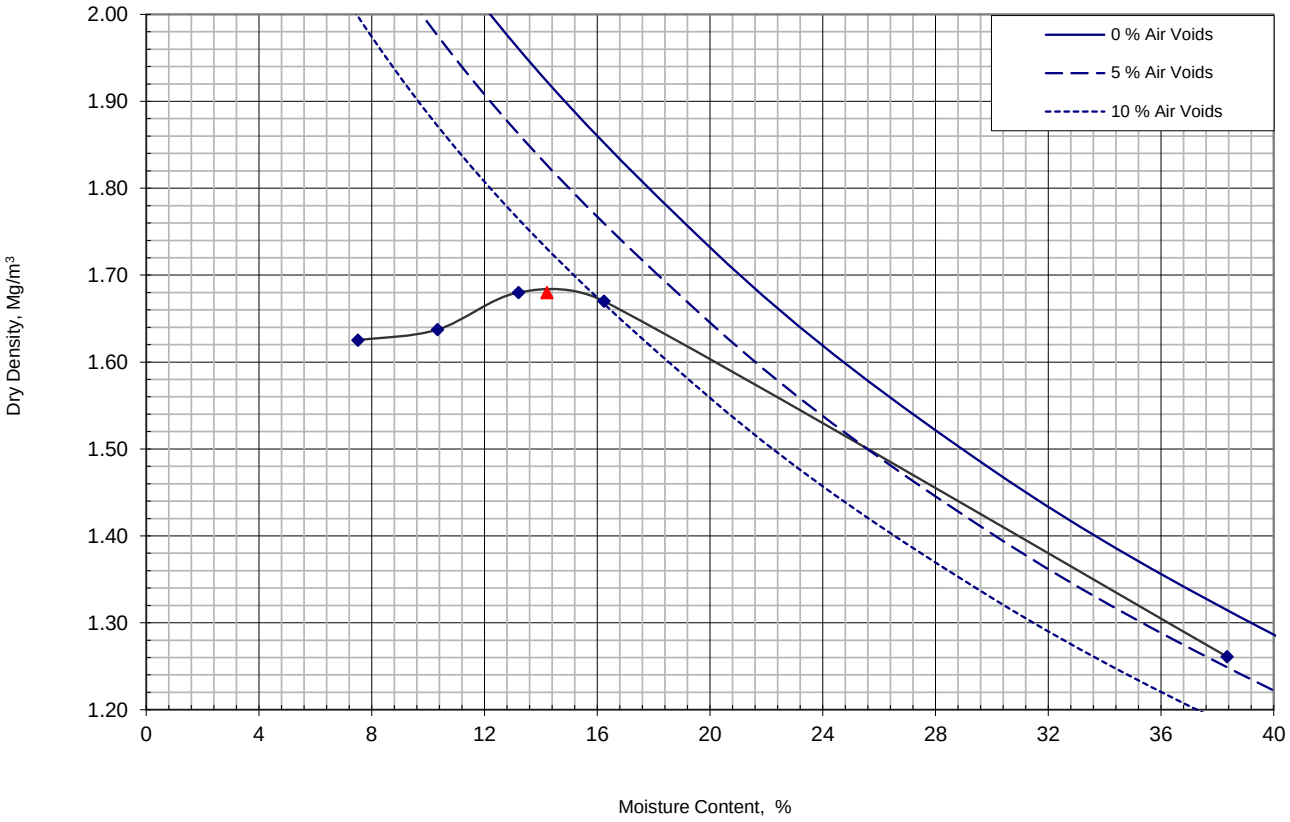
Hole Reference	Sample Number	Sample Type	Depth (m)							Particle Density		Remarks
AVC1_BH_12	12	D	4.15	-						2.61		
BH004	6	D	1.40	-						2.59		
PWB_BH_01	25	D	11.50	-						2.65		
AVC1_BH_01	9	D	4.30	-						2.63		
AVC1_BH_14	18	D	9.50	-						2.62		
WS018E	2	D	0.50	-						2.58		
				-								
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Key	Reported As
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Particle Density	Mg/m^3
Air Voids	%

Operators
Conal Aliffe

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	AVC1_BH_13
Project Location	Chippenham	Sample No	4
Date Tested	04/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



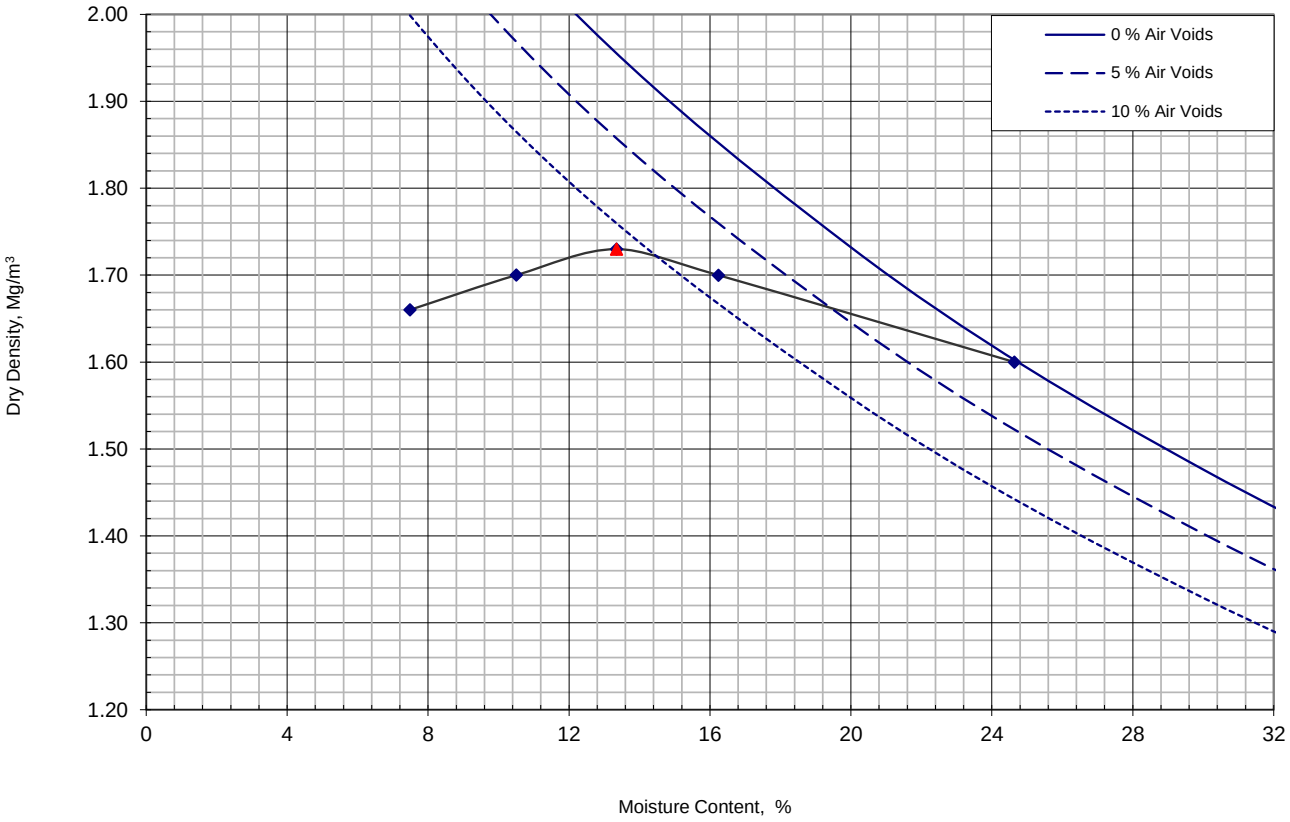
Compaction Point	1	2	3	4	5							
Moisture Content	7.5	10	13	16	38							
Bulk Density	1.75	1.81	1.90	1.94	1.74							
Dry Density	1.63	1.64	1.68	1.67	1.26							

Initial Moisture Content	38	%
Maximum Dry Density	1.68	Mg/m3
Optimum Moisture Content	14	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	AVW_BH_02
Project Location	Chippenham	Sample No	3
Date Tested	04/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



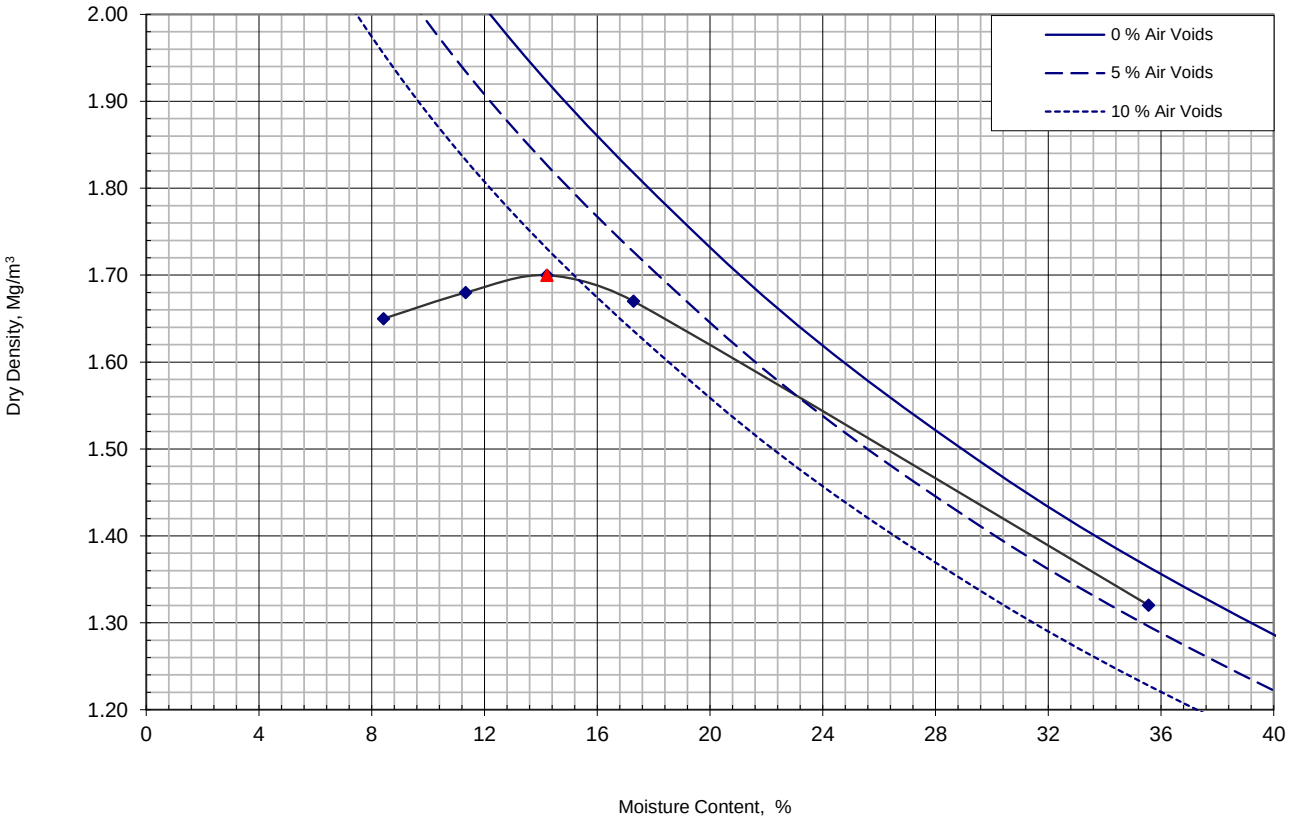
Compaction Point	1	2	3	4	5							
Moisture Content	7.5	11	13	16	25							
Bulk Density	1.78	1.88	1.96	1.98	1.99							
Dry Density	1.66	1.70	1.73	1.70	1.60							

Initial Moisture Content	25	%
Maximum Dry Density	1.73	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	AVW_BH_04
Project Location	Chippenham	Sample No	3
Date Tested	04/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



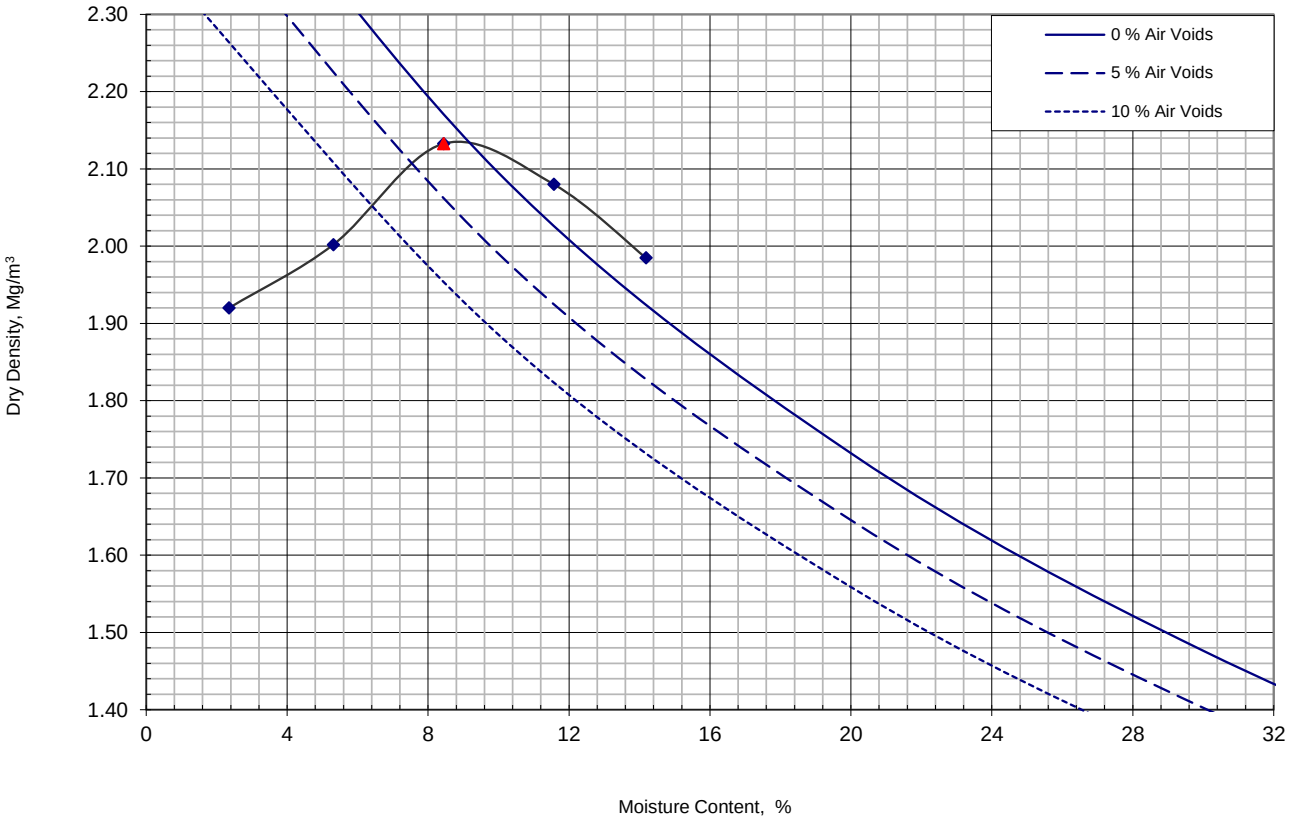
Compaction Point	1	2	3	4	5							
Moisture Content	8.4	11	14	17	36							
Bulk Density	1.79	1.87	1.94	1.96	1.79							
Dry Density	1.65	1.68	1.70	1.67	1.32							

Initial Moisture Content	36	%
Maximum Dry Density	1.70	Mg/m3
Optimum Moisture Content	14	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	BH003
Project Location	Chippenham	Sample No	5
Date Tested	04/07/2022	Depth Top	1.20
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



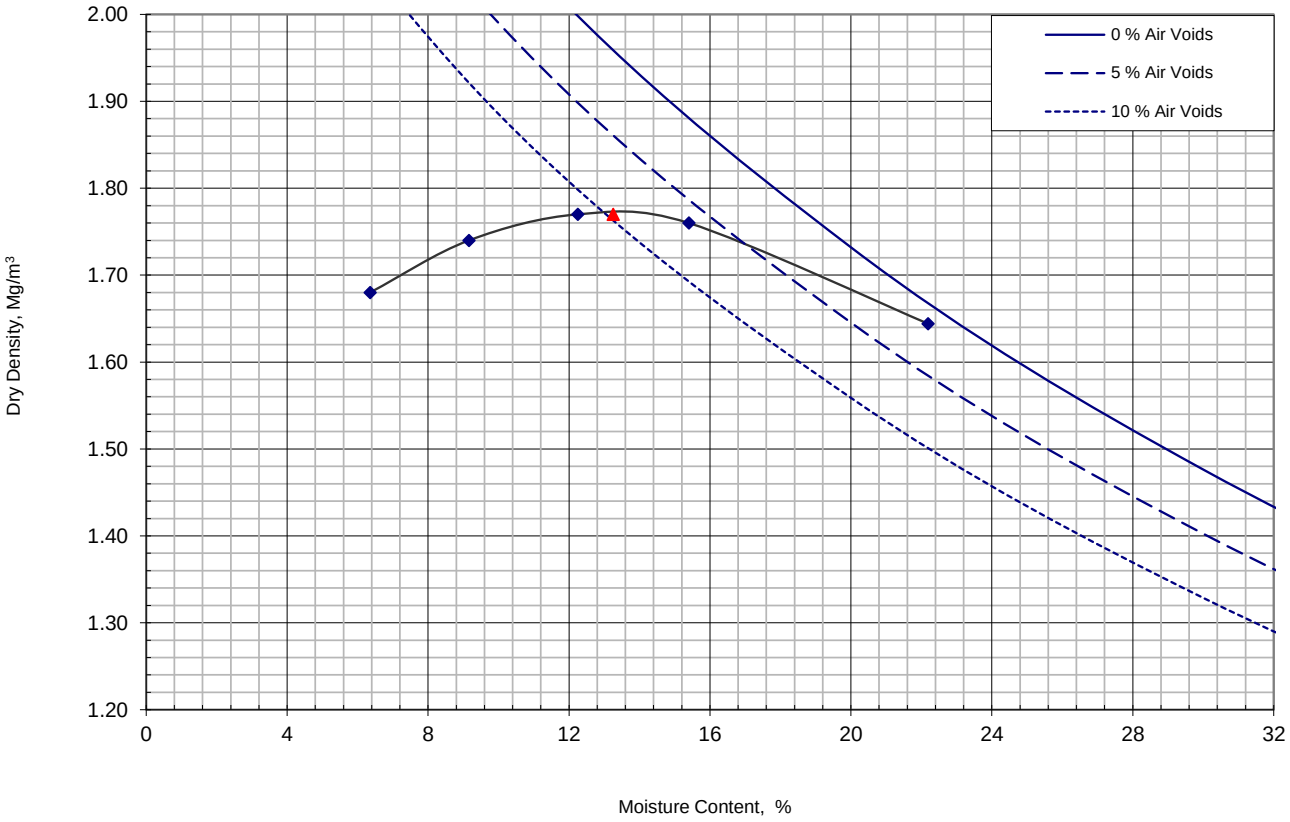
Compaction Point	1	2	3	4	5							
Moisture Content	2.4	5.3	8.4	12	14							
Bulk Density	1.97	2.11	2.31	2.32	2.27							
Dry Density	1.92	2.00	2.13	2.08	1.98							

Initial Moisture Content	14	%
Maximum Dry Density	2.13	Mg/m3
Optimum Moisture Content	8.4	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	BH004
Project Location	Chippenham	Sample No	1
Date Tested	04/07/2022	Depth Top	0.50
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



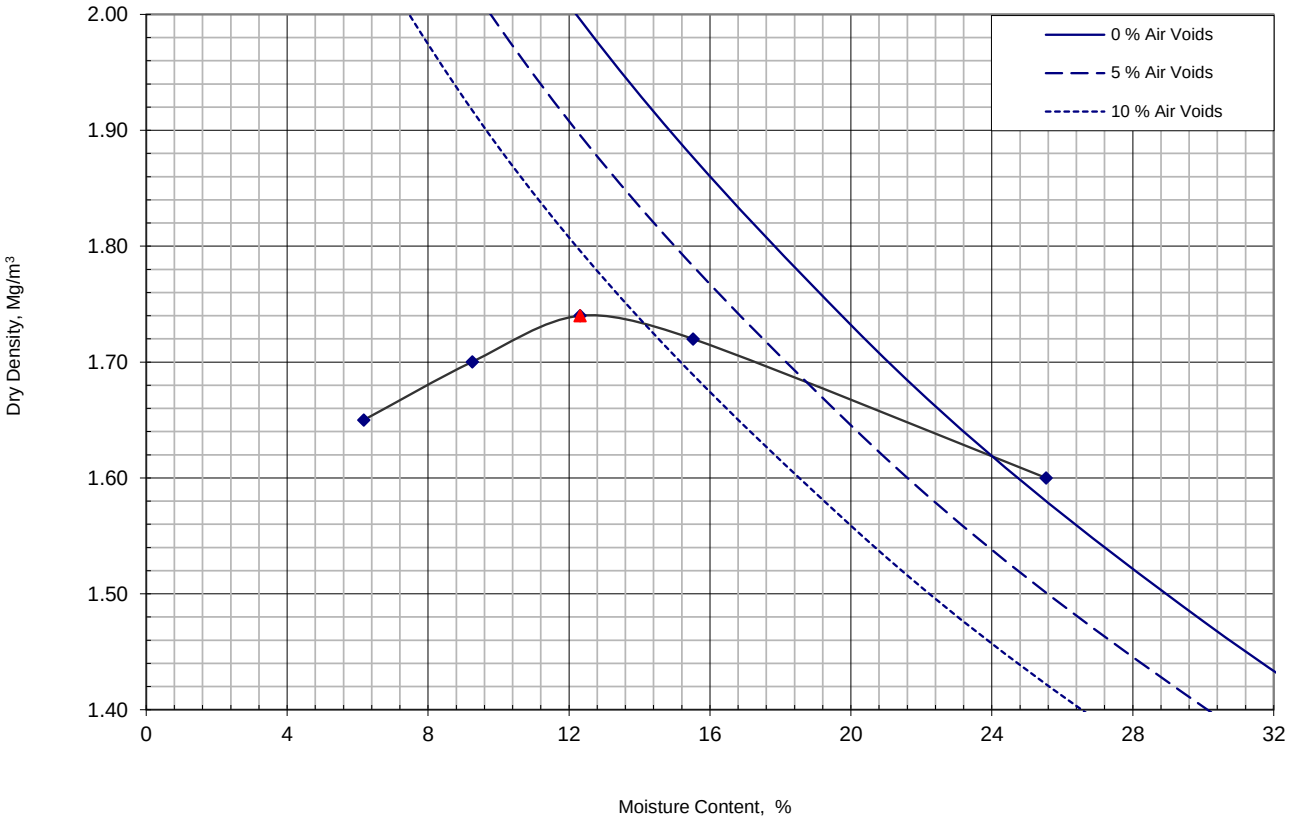
Compaction Point	1	2	3	4	5							
Moisture Content	6.4	9.2	12	15	22							
Bulk Density	1.79	1.90	1.99	2.03	2.01							
Dry Density	1.68	1.74	1.77	1.76	1.64							

Initial Moisture Content	22	%
Maximum Dry Density	1.77	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	HP_TP_08
Project Location	Chippenham	Sample No	6
Date Tested	04/07/2022	Depth Top	2.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



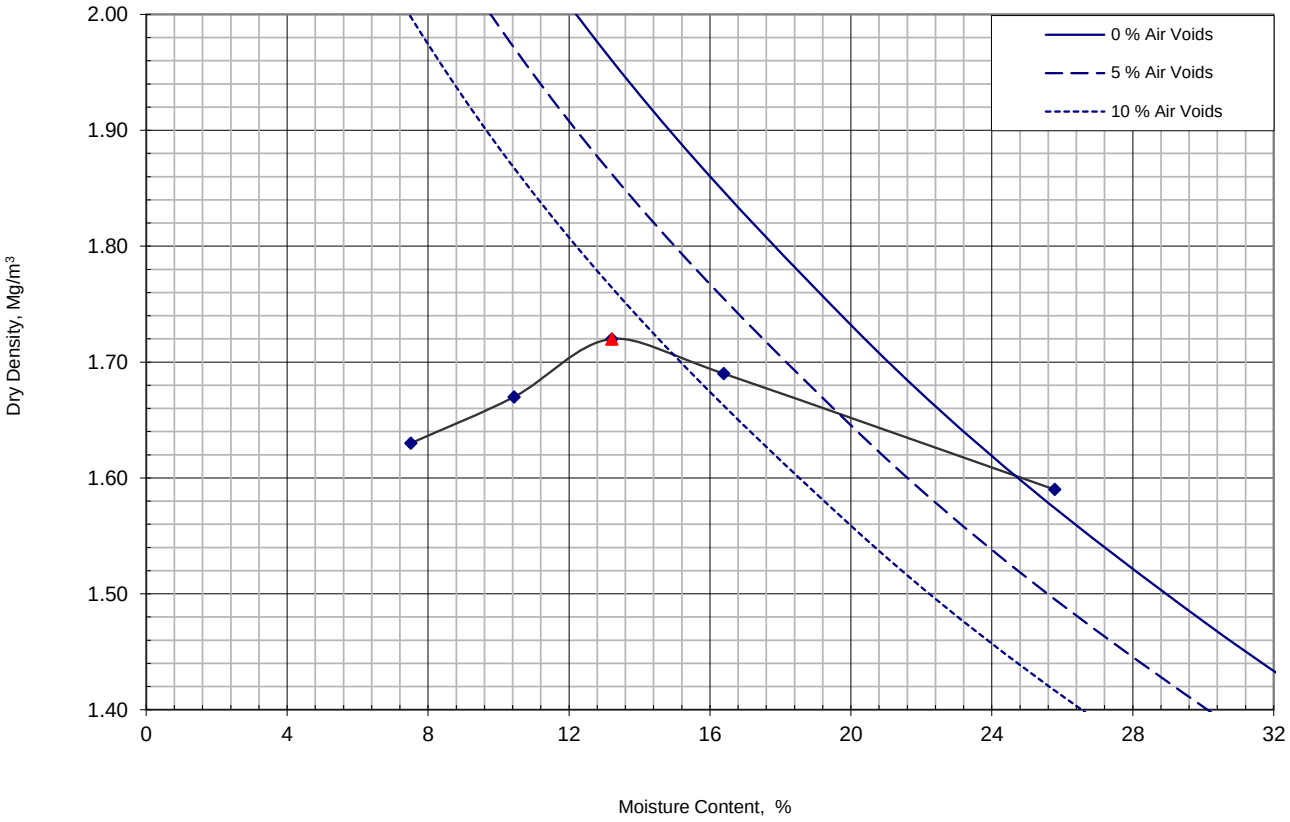
Compaction Point	1	2	3	4	5							
Moisture Content	6.2	9.3	12	16	26							
Bulk Density	1.75	1.86	1.95	1.99	2.01							
Dry Density	1.65	1.70	1.74	1.72	1.60							

Initial Moisture Content	26	%
Maximum Dry Density	1.74	Mg/m3
Optimum Moisture Content	12	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	HP_TP_09
Project Location	Chippenham	Sample No	3
Date Tested	04/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



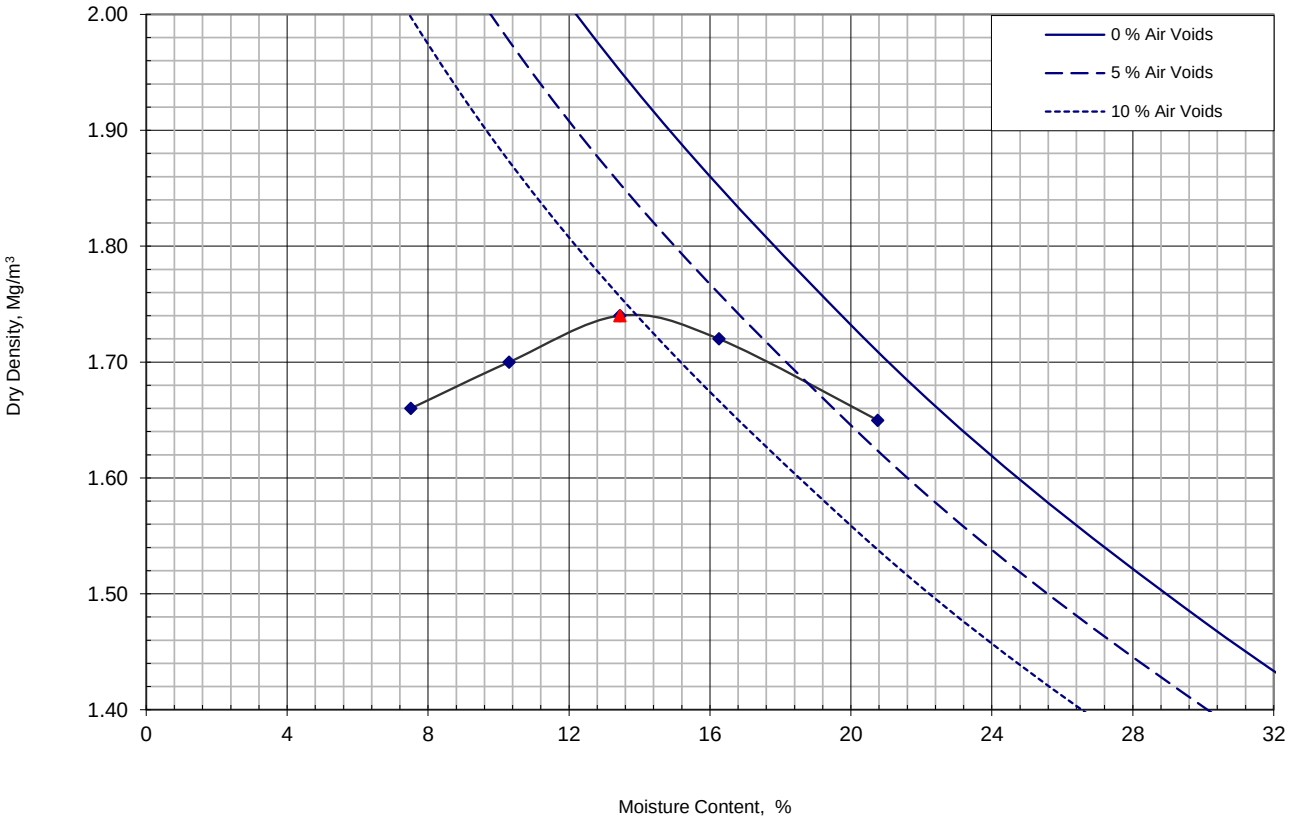
Compaction Point	1	2	3	4	5							
Moisture Content	7.5	10	13	16	26							
Bulk Density	1.75	1.84	1.95	1.97	2.00							
Dry Density	1.63	1.67	1.72	1.69	1.59							

Initial Moisture Content	26	%
Maximum Dry Density	1.72	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	PWB_BH_06
Project Location	Chippenham	Sample No	3
Date Tested	04/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



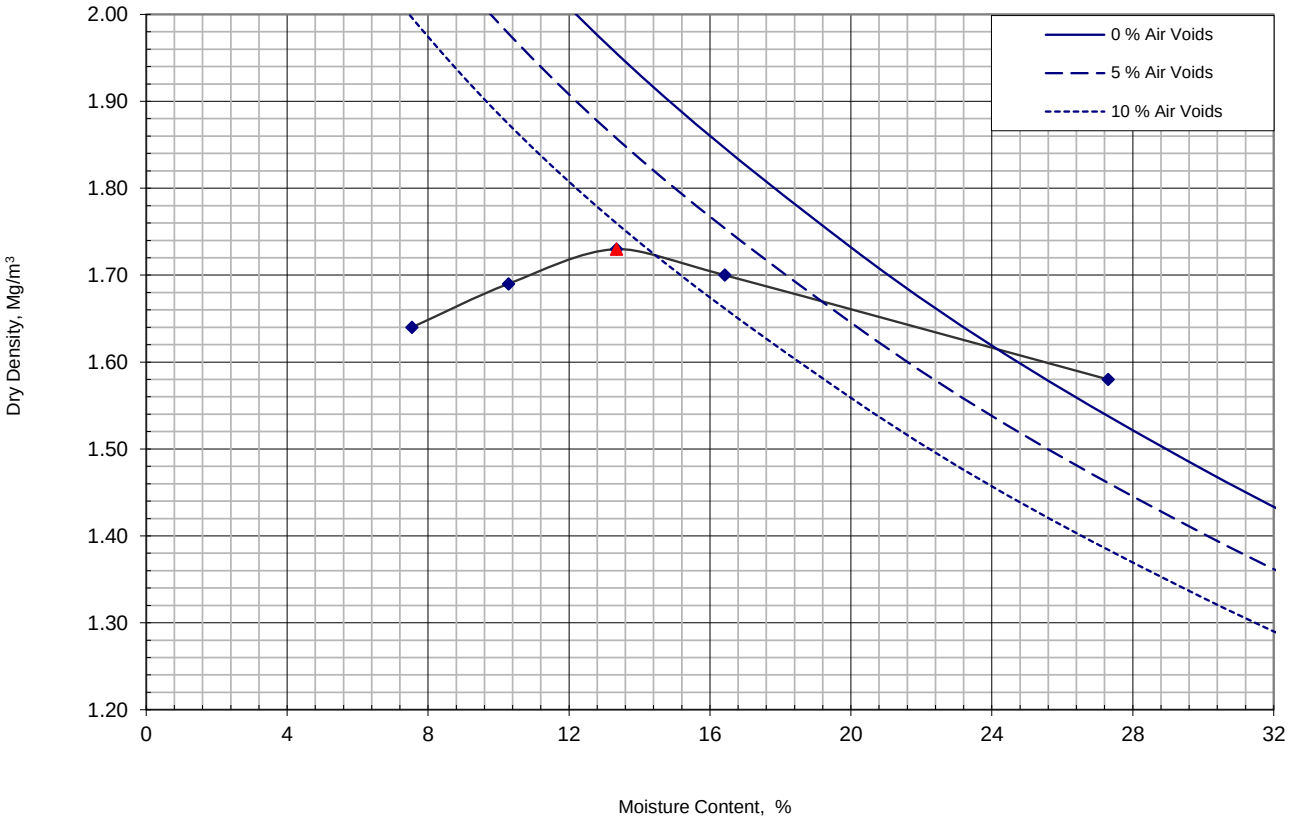
Compaction Point	1	2	3	4	5							
Moisture Content	7.5	10	13	16	21							
Bulk Density	1.78	1.88	1.97	2.00	1.99							
Dry Density	1.66	1.70	1.74	1.72	1.65							

Initial Moisture Content	21	%
Maximum Dry Density	1.74	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	TP012
Project Location	Chippenham	Sample No	3
Date Tested	04/07/2022	Depth Top	1.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



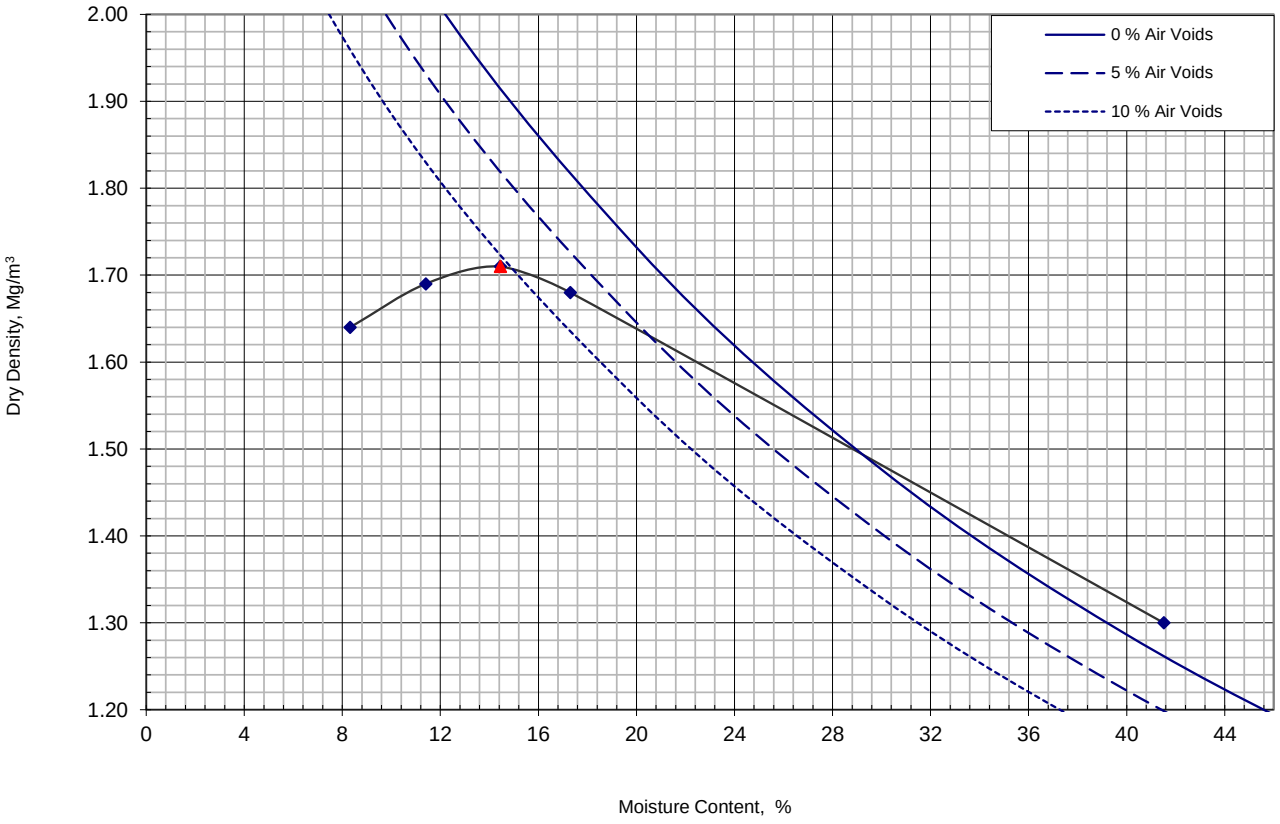
Compaction Point	1	2	3	4	5							
Moisture Content	7.5	10	13	16	27							
Bulk Density	1.76	1.86	1.96	1.98	2.01							
Dry Density	1.64	1.69	1.73	1.70	1.58							

Initial Moisture Content	27	%
Maximum Dry Density	1.73	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	TP016
Project Location	Chippenham	Sample No	6
Date Tested	04/07/2022	Depth Top	2.00
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



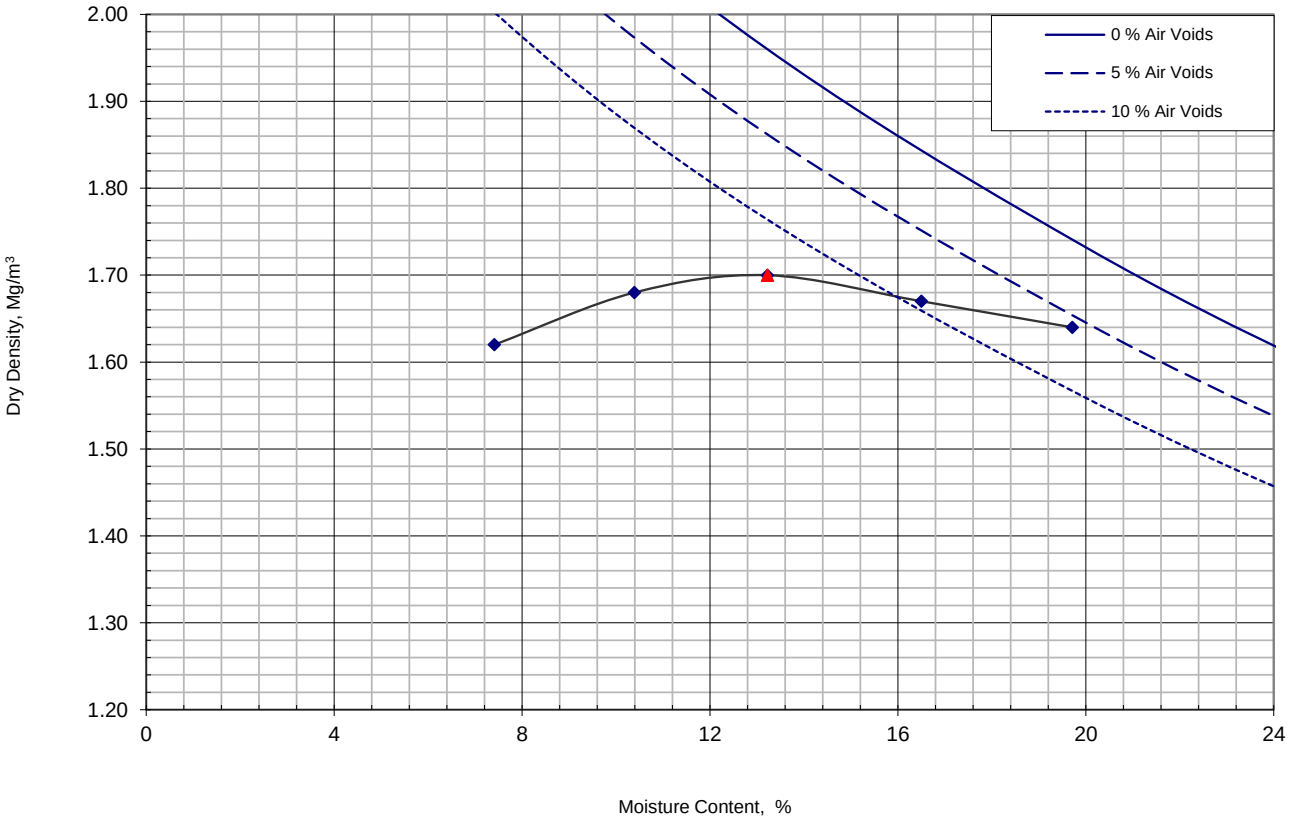
Compaction Point	1	2	3	4	5							
Moisture Content	8.3	11	14	17	42							
Bulk Density	1.78	1.88	1.96	1.97	1.84							
Dry Density	1.64	1.69	1.71	1.68	1.30							

Initial Moisture Content	42	%
Maximum Dry Density	1.71	Mg/m3
Optimum Moisture Content	14	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Dry Density / Moisture Content Relationship BS 1377:Part 4:1990**	Contract Number	59564
		Borehole / Pit No	WS014
Project Location	Chippenham	Sample No	1
Date Tested	04/07/2022	Depth Top	0.50
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



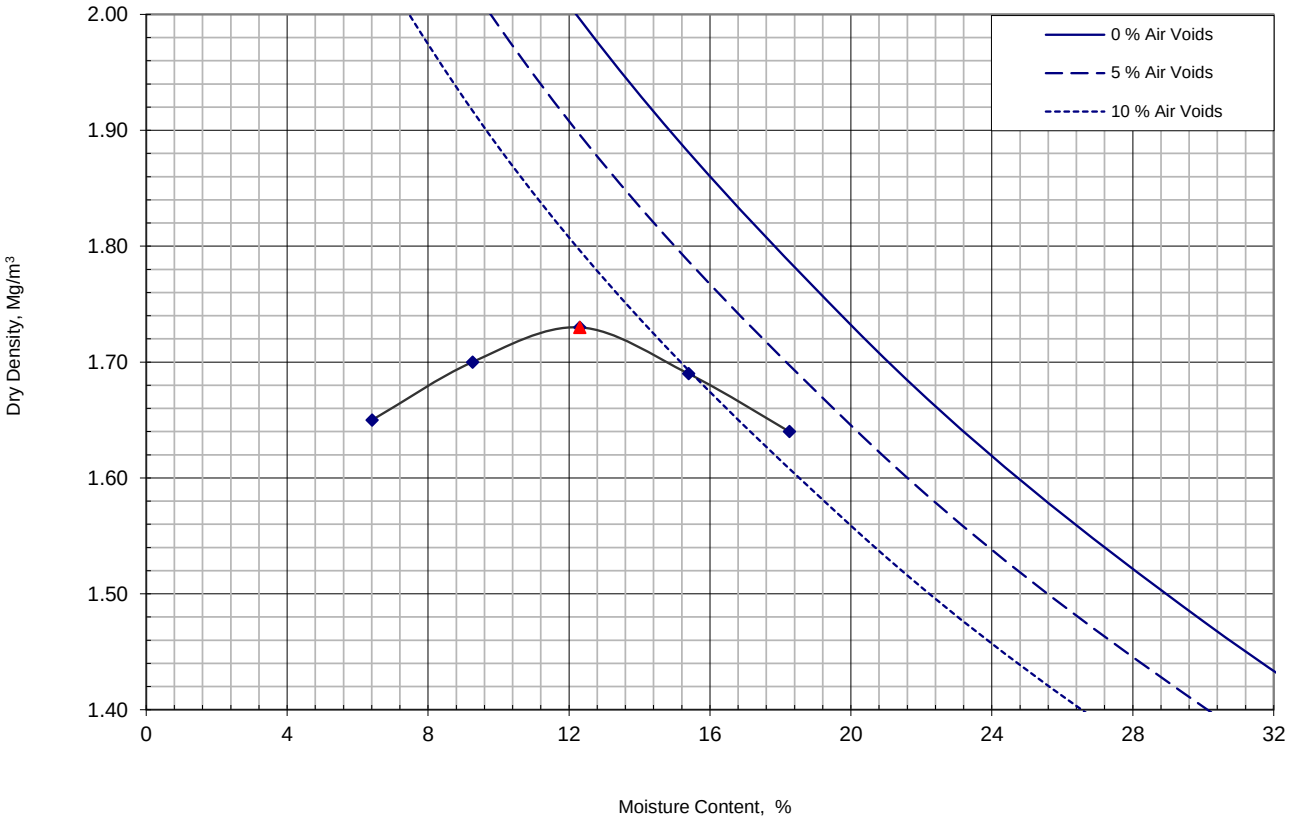
Compaction Point	1	2	3	4	5							
Moisture Content	7.4	10	13	17	20							
Bulk Density	1.74	1.85	1.92	1.95	1.96							
Dry Density	1.62	1.68	1.70	1.67	1.64							

Initial Moisture Content	20	%
Maximum Dry Density	1.70	Mg/m3
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	Dry Density / Moisture Content Relationship BS 1377:Part 4:1990	Contract Number	59564
		Borehole / Pit No	WS019
Project Location	Chippenham	Sample No	1
Date Tested	04/07/2022	Depth Top	0.50
Compaction Method	2.5 Kg Rammer	Depth Base	
Compaction Clause	BS1377:Part 4:1990, Clause 3.3	Sample Type	B
Sample Description	*See Sample Description Sheet		



Compaction Point	1	2	3	4	5							
Moisture Content	6.4	9.3	12	15	18							
Bulk Density	1.76	1.86	1.94	1.95	1.94							
Dry Density	1.65	1.70	1.73	1.69	1.64							

Initial Moisture Content	18	%
Maximum Dry Density	1.73	Mg/m3
Optimum Moisture Content	12	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator				
Conor				

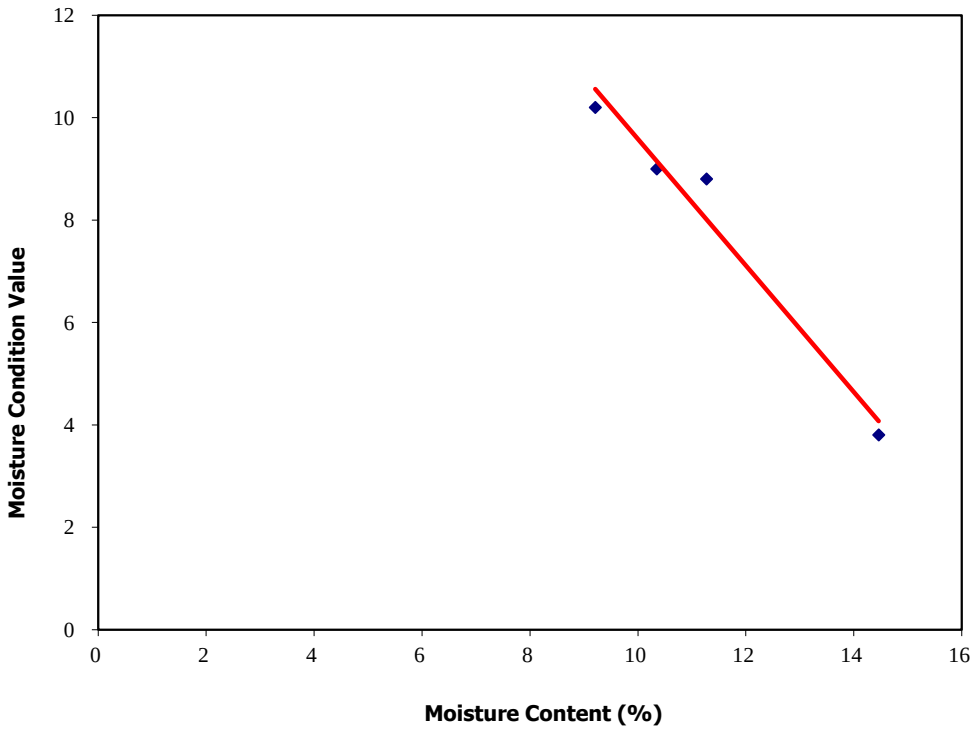
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Moisture Condition Value Calibration

BS 1377:Part 4:1990

Client ref:	JER9532
Location:	Chippenham
Contract Number:	59564
Hole Number:	AVC1_BH_12
Sample Number:	6
Depth Top(m):	1.70
Depth Bottom(m):	
Sample Type	B
Date Tested:	05/07/2022
Technician:	Conor

Initial Moisture Content (%).:	14
Single/Separate Samples Tested.	Single
Material Retained on the 20mm BS Test Sieve (%):	17



Test Results.

Test Number.	1	2	3	4	5
Moisture Content (%).	9.2	10	11	14	0.0
MCV	10.2	9.0	8.8	3.8	0.0

*** reading unobtainable.**

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

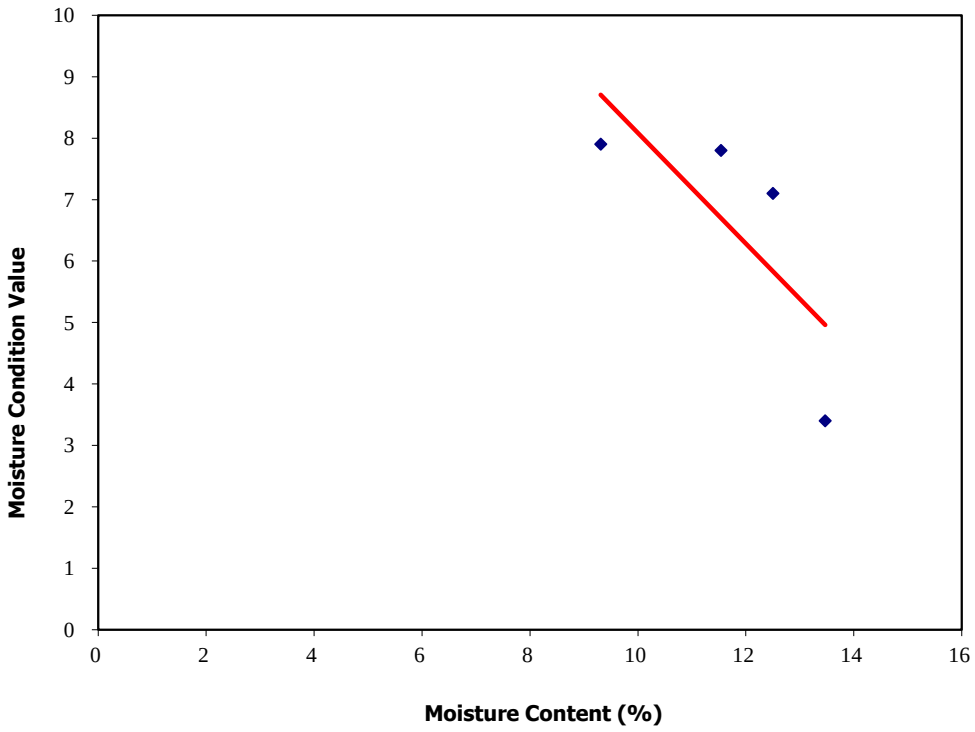
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Moisture Condition Value Calibration

BS 1377:Part 4:1990

Client ref:	JER9532
Location:	Chippenham
Contract Number:	59564
Hole Number:	HP_TP_01
Sample Number:	3
Depth Top(m):	1.00
Depth Bottom(m):	
Sample Type	B
Date Tested:	05/07/2022
Technician:	Conor

Initial Moisture Content (%).:	12
Single/Separate Samples Tested.	Single
Material Retained on the 20mm BS Test Sieve (%):	0



Test Results.

Test Number.	1	2	3	4	5
Moisture Content (%).	9.3	12	13	13	0.0
MCV	7.9	7.8	7.1	3.4	0.0

*** reading unobtainable.**

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

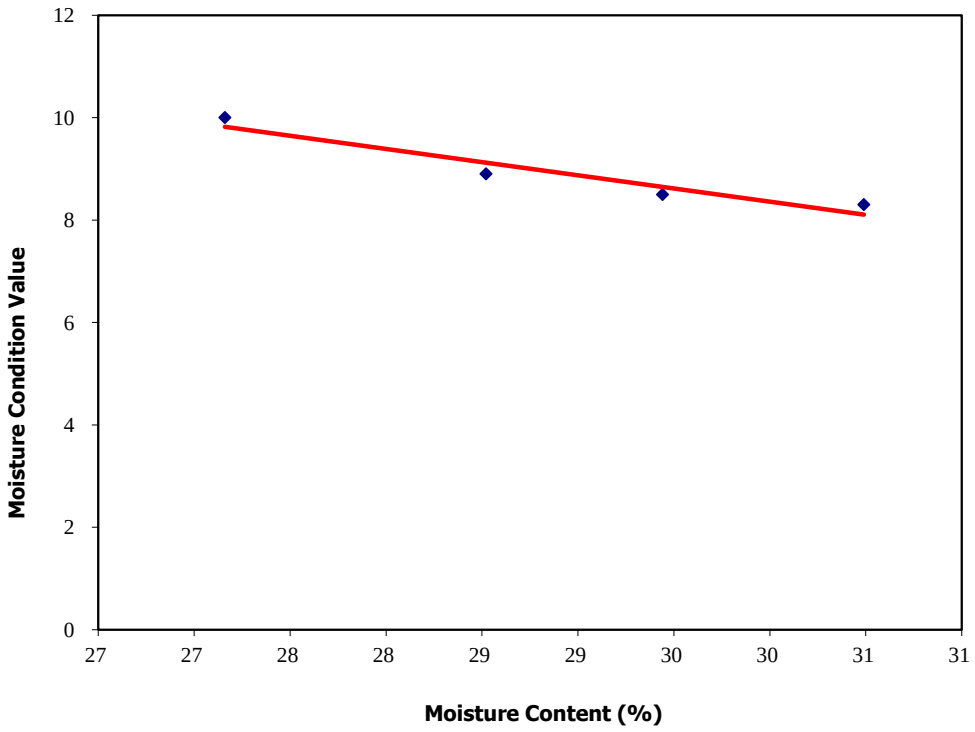
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Moisture Condition Value Calibration

BS 1377:Part 4:1990

Client ref:	JER9532
Location:	Chippenham
Contract Number:	59564
Hole Number:	TP013
Sample Number:	9
Depth Top(m):	3.00
Depth Bottom(m):	
Sample Type	B
Date Tested:	05/07/2022
Technician:	Conor

Initial Moisture Content (%).:	27
Single/Separate Samples Tested.	Single
Material Retained on the 20mm BS Test Sieve (%):	0



Test Results.

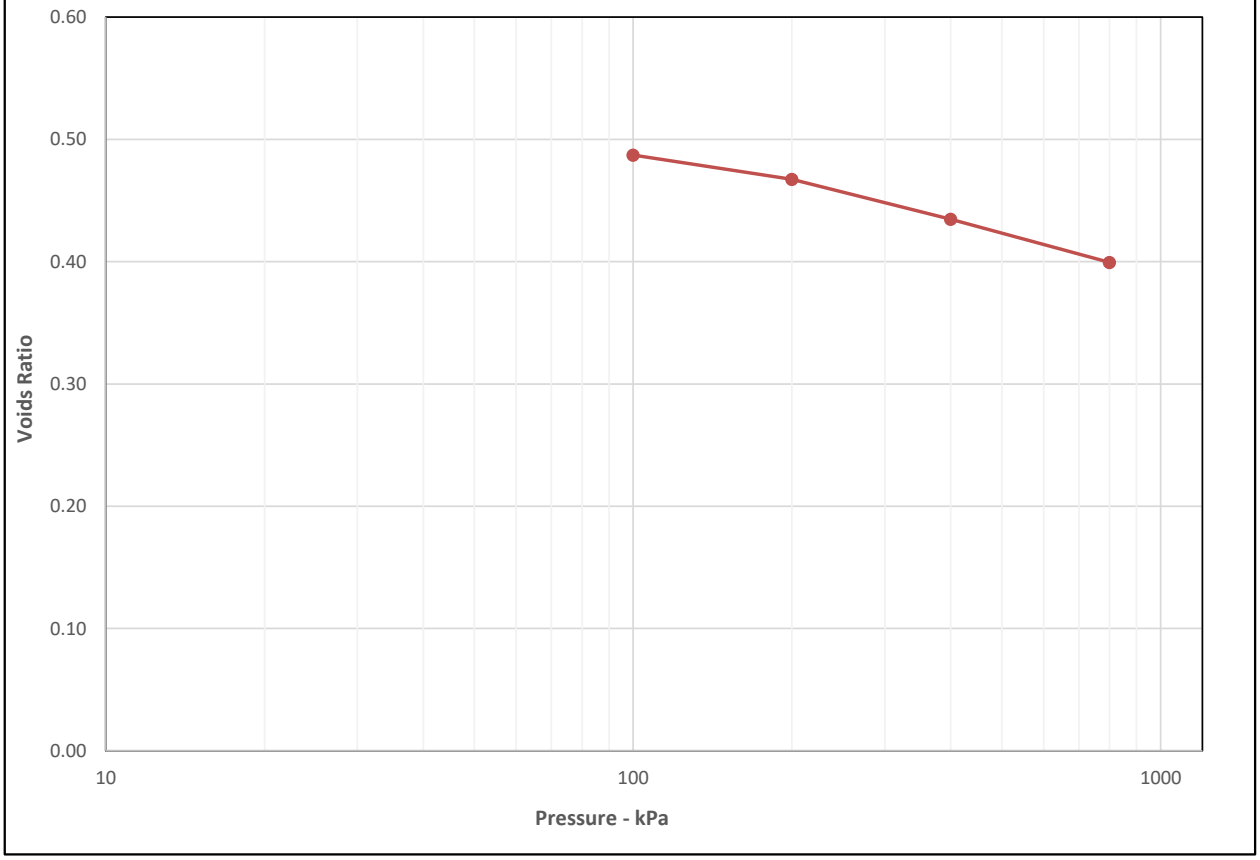
Test Number.	1	2	3	4	5
Moisture Content (%).	27	29	29	30	0.0
MCV	10.0	8.9	8.5	8.3	0.0

*** reading unobtainable.**

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	BH004
Site Name	Chippenham	Sample No.	17
Soil Description	Greyish brown silty CLAY.	Depth Top (m)	8.20
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

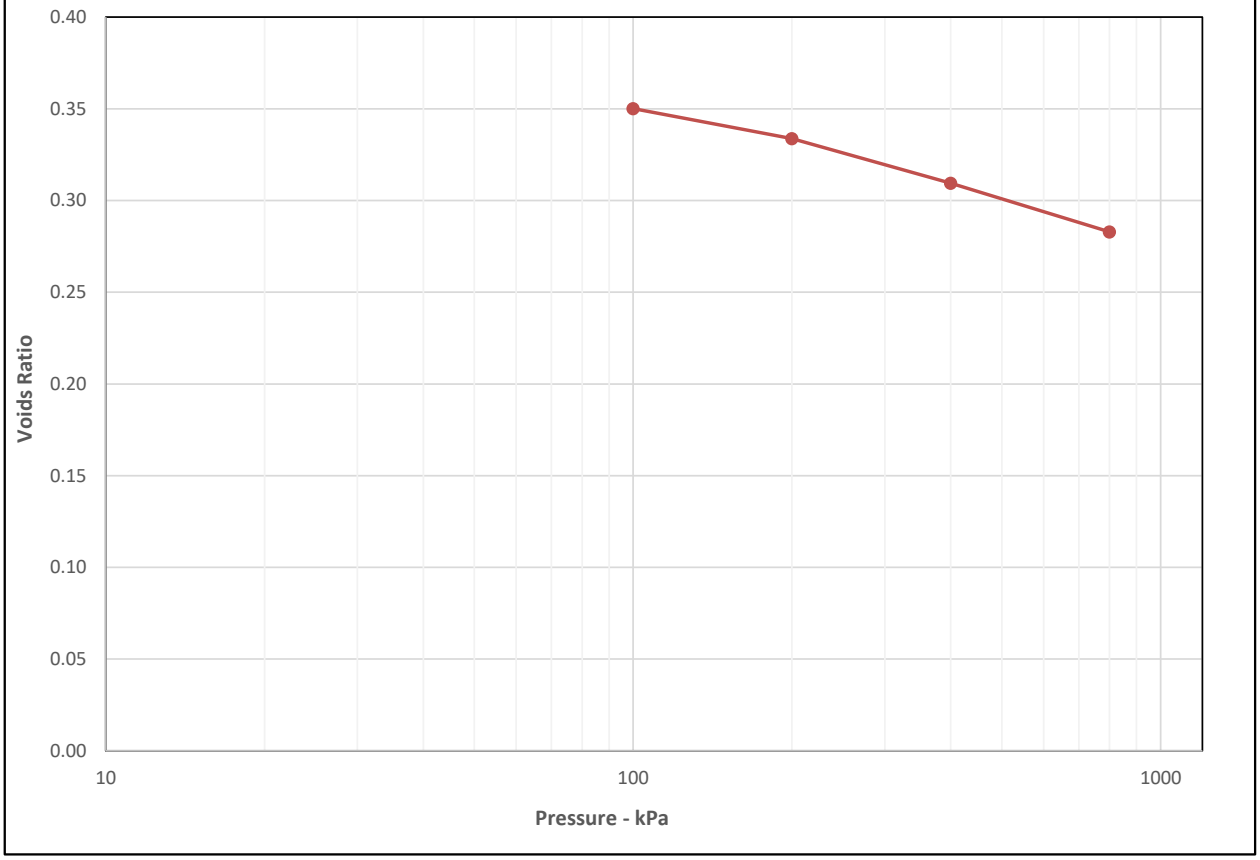


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	21	0	-	100	0.1	10		-			
Bulk Density (Mg/m3)	2.14	100	-	200	0.13	4.9		-			
Dry Density (Mg/m3)	1.77	200	-	400	0.11	6.6		-			
Voids Ratio	0.4948	400	-	800	0.06	2.3		-			
Degree of saturation	111.6		-					-			
Height (mm)	19.73		-					-			
Diameter (mm)	75.1		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVW_BH_06
Site Name	Chippenham	Sample No.	21
Soil Description	Greyish brown silty CLAY.	Depth Top (m)	14.05
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	C
Date Tested	20/06/2022		

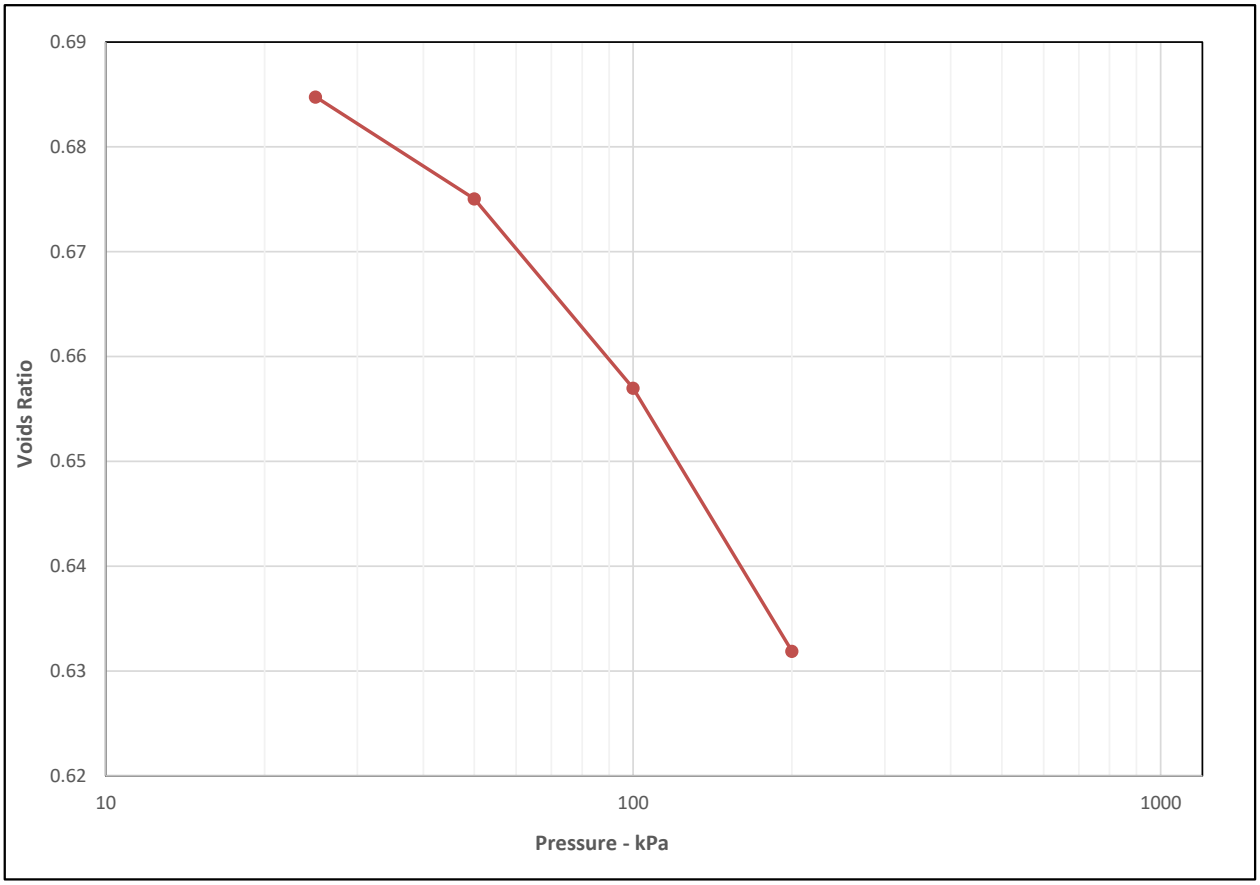


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	17	0	-	100	0.1	10		-			
Bulk Density (Mg/m3)	2.27	100	-	200	0.12	5.7		-			
Dry Density (Mg/m3)	1.95	200	-	400	0.091	6.5		-			
Voids Ratio	0.3597	400	-	800	0.05	6.3		-			
Degree of saturation	123.1		-					-			
Height (mm)	19.1		-					-			
Diameter (mm)	76.27		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST** **BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVW_BH_07
Site Name	Chippenham	Sample No.	8
Soil Description	Greyish brown silty CLAY.	Depth Top (m)	2.70
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	C
Date Tested	20/06/2022		

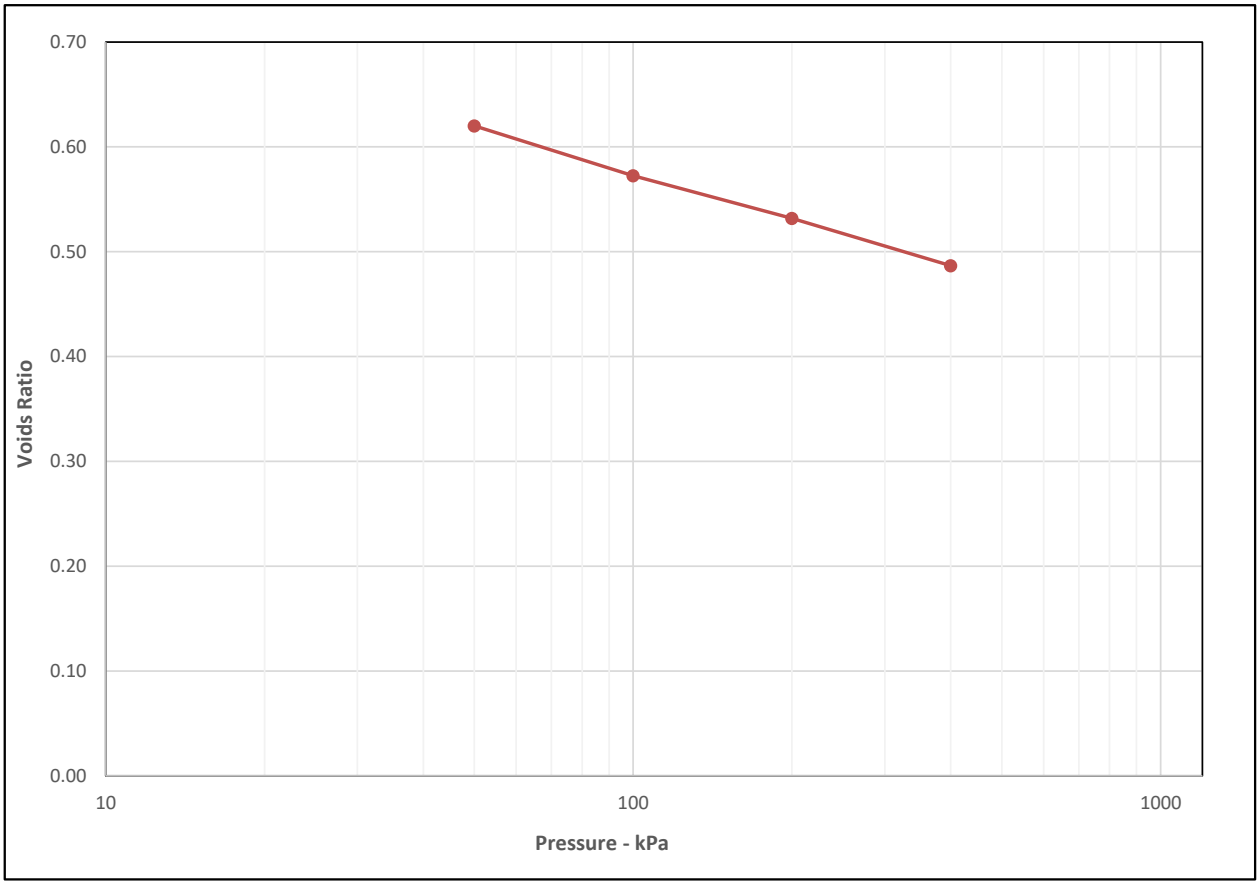


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	27	0	-	25	0.0	10		-			
Bulk Density (Mg/m3)	2.00	25	-	50	0.23	6.7		-			
Dry Density (Mg/m3)	1.57	50	-	100	0.22	0.65		-			
Voids Ratio	0.6862	100	-	200	0.15	1.6		-			
Degree of saturation	104.8		-					-			
Height (mm)	19.61		-					-			
Diameter (mm)	74.92		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVW_BH_08
Site Name	Chippenham	Sample No.	8
Soil Description	Greyish brown silty CLAY.	Depth Top (m)	3.75
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	C
Date Tested	20/06/2022		

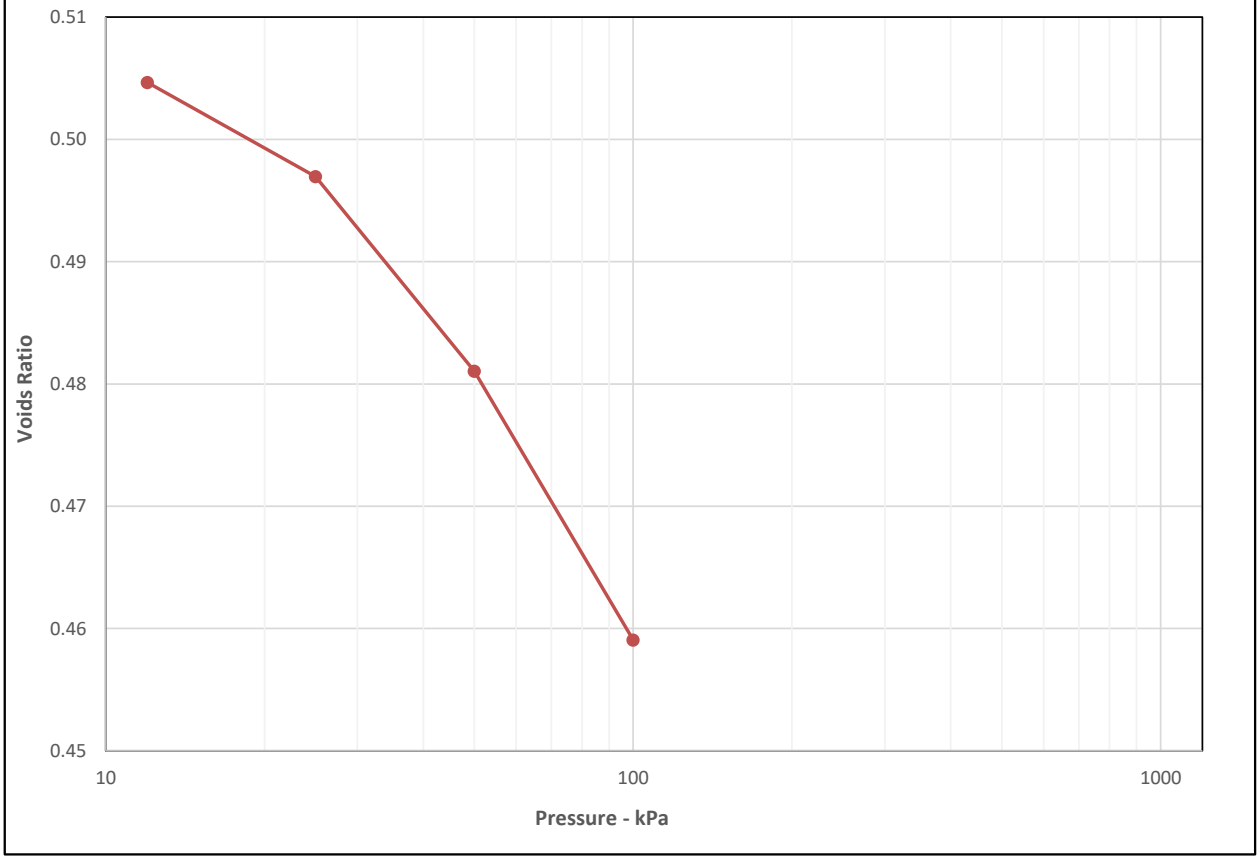


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	26	0	-	50	0.1	8.8		-			
Bulk Density (Mg/m3)	2.04	50	-	100	0.59	0.25		-			
Dry Density (Mg/m3)	1.62	100	-	200	0.26	0.35		-			
Voids Ratio	0.6311	200	-	400	0.15	0.5		-			
Degree of saturation	107.8		-					-			
Height (mm)	18.72		-					-			
Diameter (mm)	75.1		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVC1_BH_12
Site Name	Chippenham	Sample No.	5
Soil Description	Greyish brown mottled fine gravelly silty CLAY.	Depth Top (m)	1.20
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

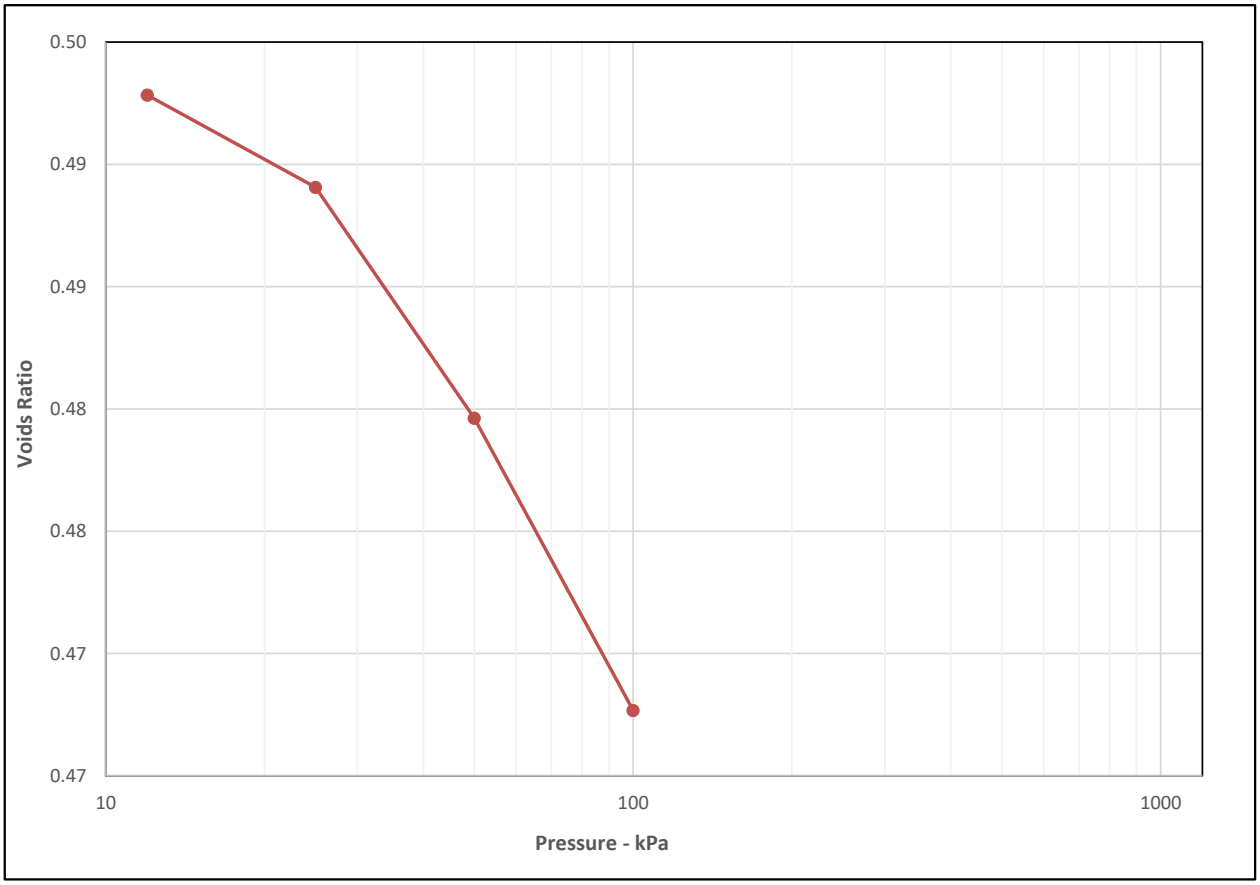


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	21	0	-	12	0.6	6.9		-			
Bulk Density (Mg/m3)	2.11	12	-	25	0.39	2.6		-			
Dry Density (Mg/m3)	1.75	25	-	50	0.43	2.5		-			
Voids Ratio	0.5152	50	-	100	0.30	9.8		-			
Degree of saturation	105.6		-					-			
Height (mm)	19.71		-					-			
Diameter (mm)	75.25		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVC1_BH_14
Site Name	Chippenham	Sample No.	3
Soil Description	Greyish brown mottled silty CLAY.	Depth Top (m)	1.20
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

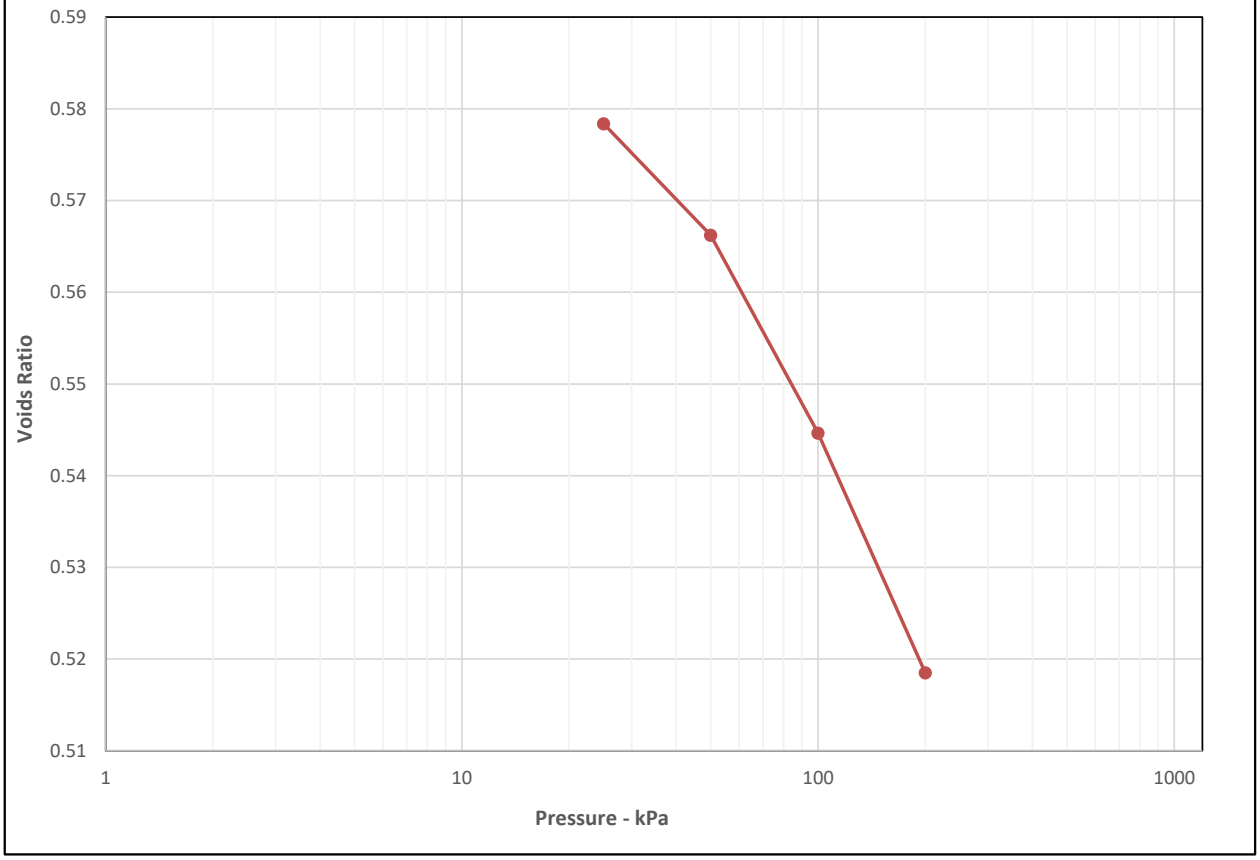


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	19	0	-	12	Swell	Stage		-			
Bulk Density (Mg/m3)	2.12	12	-	25	0.19	10		-			
Dry Density (Mg/m3)	1.78	25	-	50	0.25	17		-			
Voids Ratio	0.4901	50	-	100	0.16	6.8		-			
Degree of saturation	104.2		-					-			
Height (mm)	20.2		-					-			
Diameter (mm)	75.1		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVC1_BH_02
Site Name	Chippenham	Sample No.	7
Soil Description	Greyish brown silty CLAY	Depth Top (m)	2.80
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

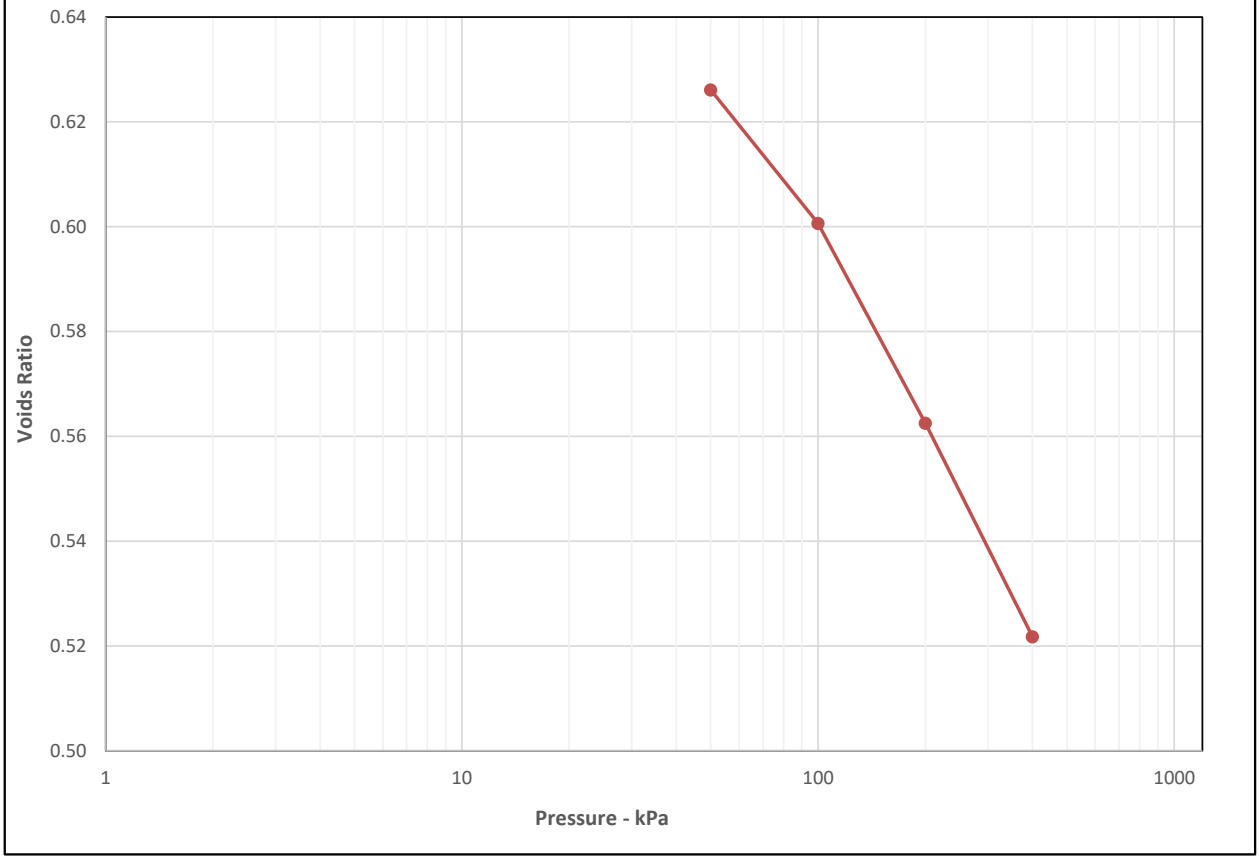


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	26	0	-	25	1.3	140		-			
Bulk Density (Mg/m3)	2.04	25	-	50	0.31	93		-			
Dry Density (Mg/m3)	1.62	50	-	100	0.28	140		-			
Voids Ratio	0.6328	100	-	200	0.17	150.0		-			
Degree of saturation	106.9		-					-			
Height (mm)	20		-					-			
Diameter (mm)	75		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST** **BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVW_BH_04
Site Name	Chippenham	Sample No.	13
Soil Description	Greyish brown silty CLAY	Depth Top (m)	7.10
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

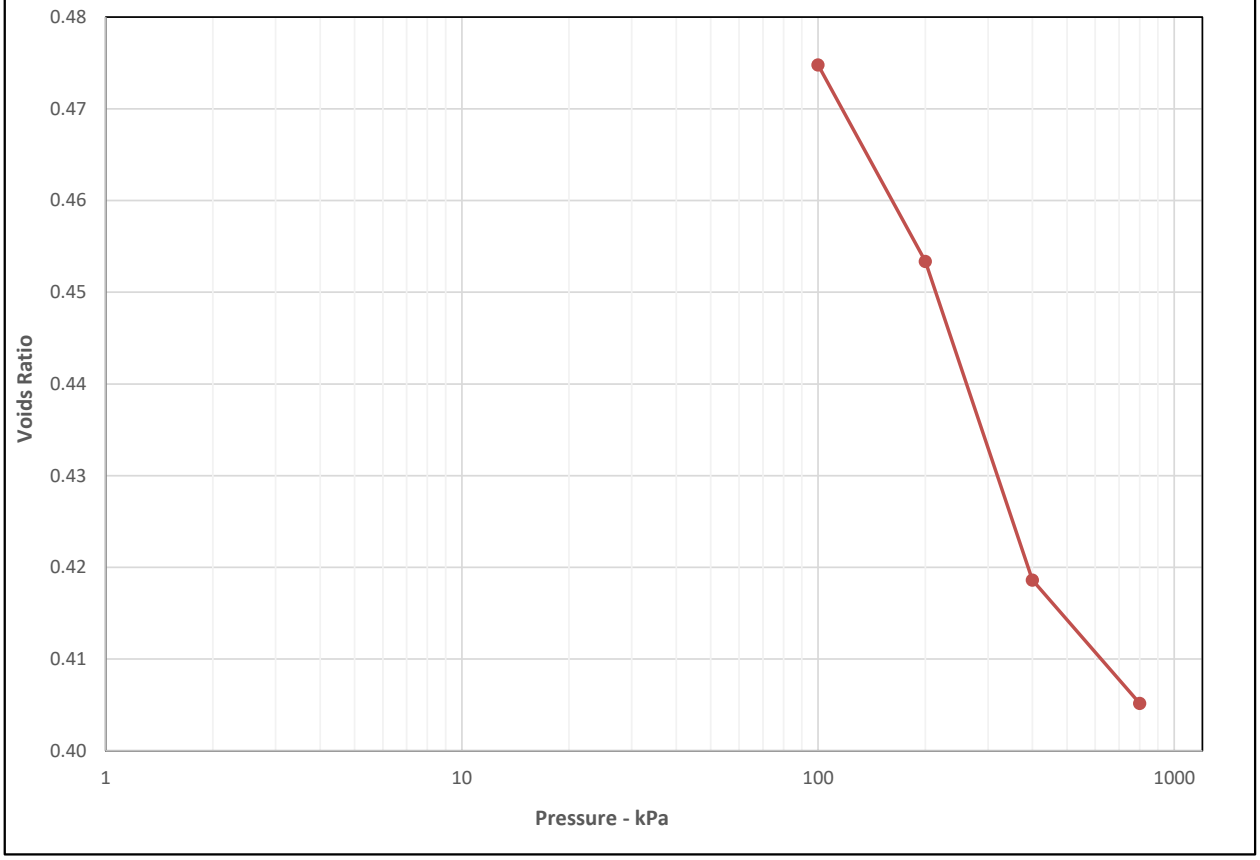


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	27	0	-	50	0.9	160		-			
Bulk Density (Mg/m3)	1.97	50	-	100	0.31	72		-			
Dry Density (Mg/m3)	1.55	100	-	200	0.24	64		-			
Voids Ratio	0.7057	200	-	400	0.13	190.0		-			
Degree of saturation	100.6		-					-			
Height (mm)	20		-					-			
Diameter (mm)	75		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING
2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	AVW_BH_03
Site Name	Chippenham	Sample No.	17
Soil Description	Greyish brown silty CLAY	Depth Top (m)	12.95
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

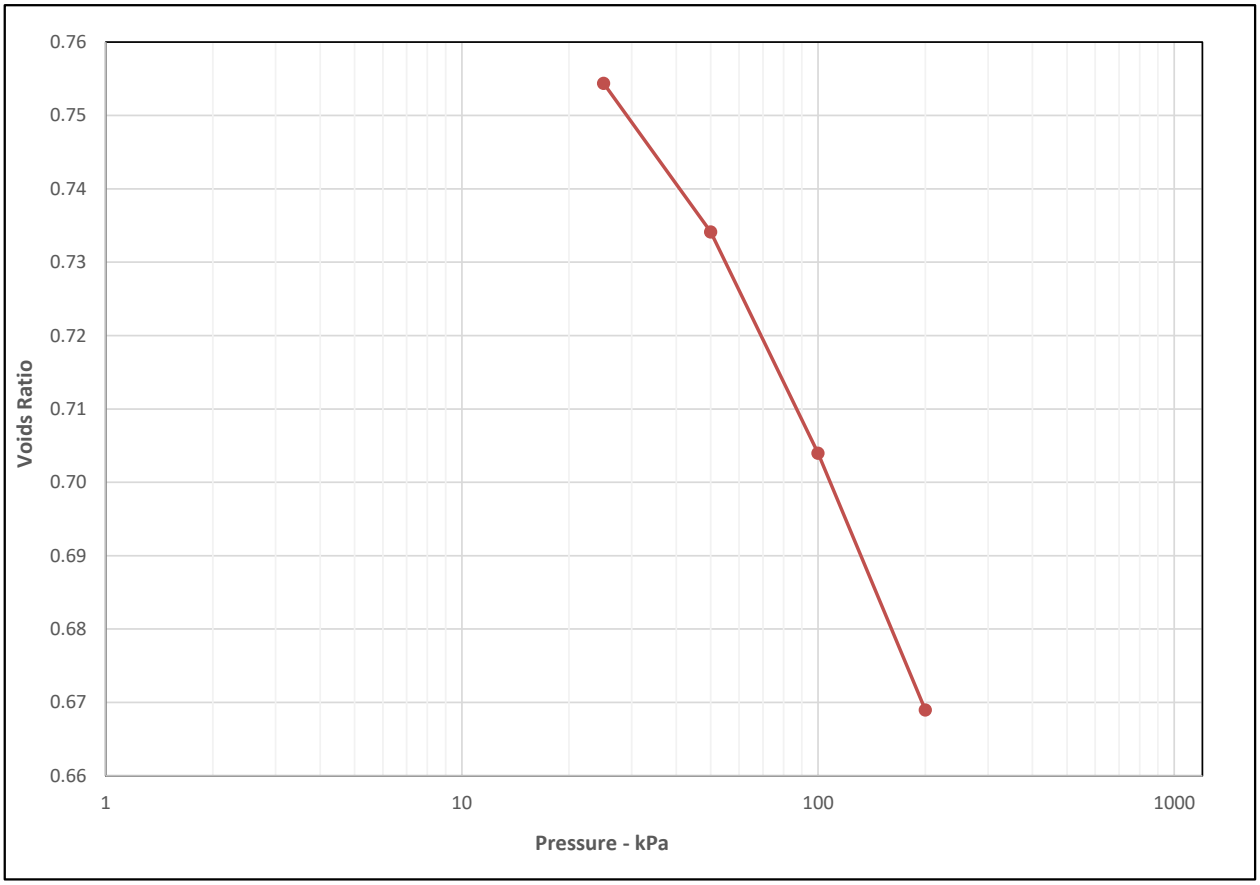


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	23	0	-	100	0.5	75		-			
Bulk Density (Mg/m3)	2.10	100	-	200	0.15	70		-			
Dry Density (Mg/m3)	1.71	200	-	400	0.12	160		-			
Voids Ratio	0.5470	400	-	800	0.02	91.0		-			
Degree of saturation	109.8		-					-			
Height (mm)	20		-					-			
Diameter (mm)	75		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST** **BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	PWB_BH_02
Site Name	Chippenham	Sample No.	5
Soil Description	Greyish brown mottled silty CLAY	Depth Top (m)	1.20
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

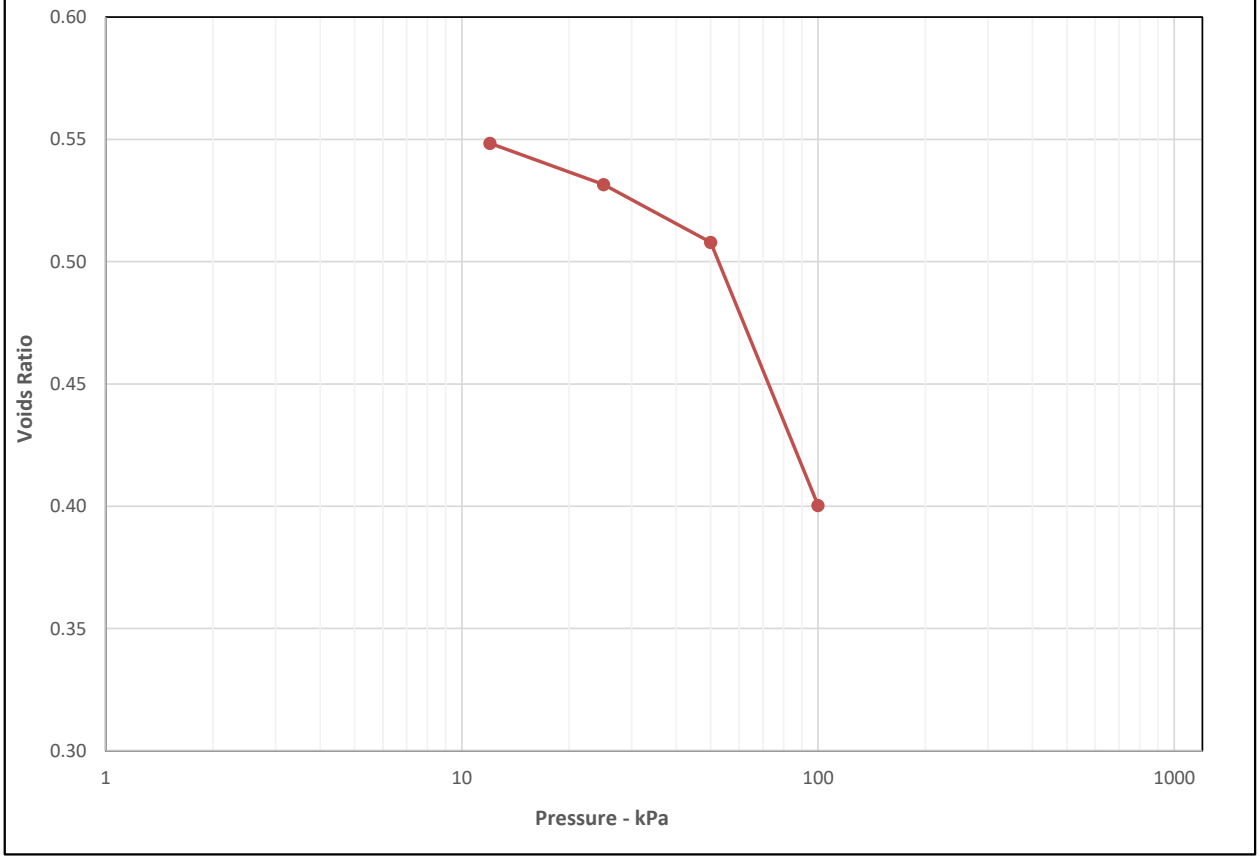


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	35	0	-	25	2.4	270		-			
Bulk Density (Mg/m3)	1.92	25	-	50	0.46	160		-			
Dry Density (Mg/m3)	1.42	50	-	100	0.35	250		-			
Voids Ratio	0.8662	100	-	200	0.21	130.0		-			
Degree of saturation	107.3		-					-			
Height (mm)	20		-					-			
Diameter (mm)	75		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**ONE DIMENSIONAL CONSOLIDATION TEST BS1377:Part 5:1990, clause 3**	Contract Number	59564
		Borehole/Trialpit No.	PWB_BH_04
Site Name	Chippenham	Sample No.	4
Soil Description	Greyish brown silty CLAY	Depth Top (m)	1.20
		Depth Base (m)	
Lab Temperature	20°c	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	20/06/2022		

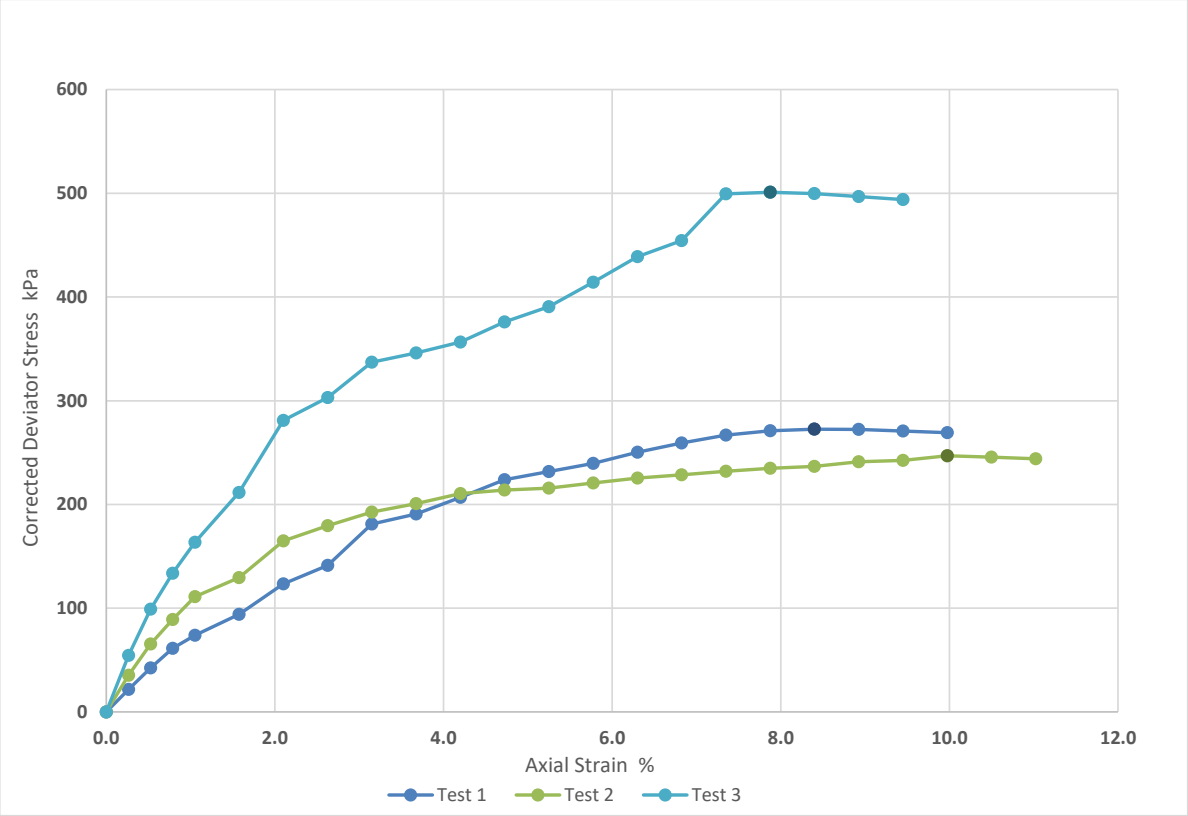


Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	24	0	-	12	2.3	110		-			
Bulk Density (Mg/m3)	2.06	12	-	25	0.83	50		-			
Dry Density (Mg/m3)	1.66	25	-	50	0.62	190		-			
Voids Ratio	0.5931	50	-	100	1.40	170.0		-			
Degree of saturation	107.2		-					-			
Height (mm)	20		-					-			
Diameter (mm)	75		-					-			
Particle Density (Mg/m3)	2.65		-					-			

Operators				
Wayne W				

UKAS TESTING 2788

GSTL	Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_14
Site Name	Chippenham	Sample No.	13
Soil Description	*See Sample Description Sheet	Depth Top	5.95
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

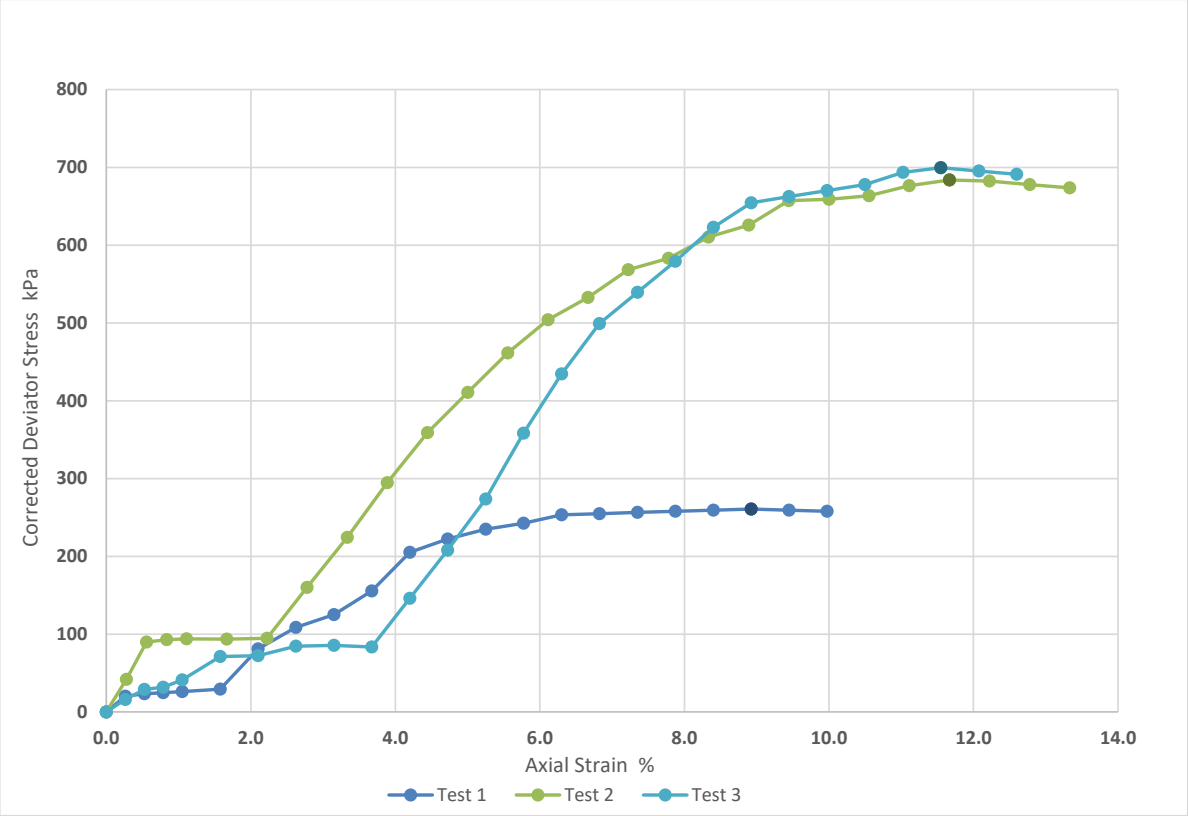


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	21	21	21
Bulk Density (Mg/m^3)	1.79	1.75	1.73
Dry Density (Mg/m^3)	1.48	1.45	1.43
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	50	100	150
Deviator Stress (kPa)	273	247	501
Undrained Shear Strength (kPa)	136	123	250
Failure Strain (%)	8.4	10.0	7.9
Mode Of Failure	Plastic	Plastic	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_01
Site Name	Chippenham	Sample No.	17
Soil Description	*See Sample Description Sheet	Depth Top	10.40
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

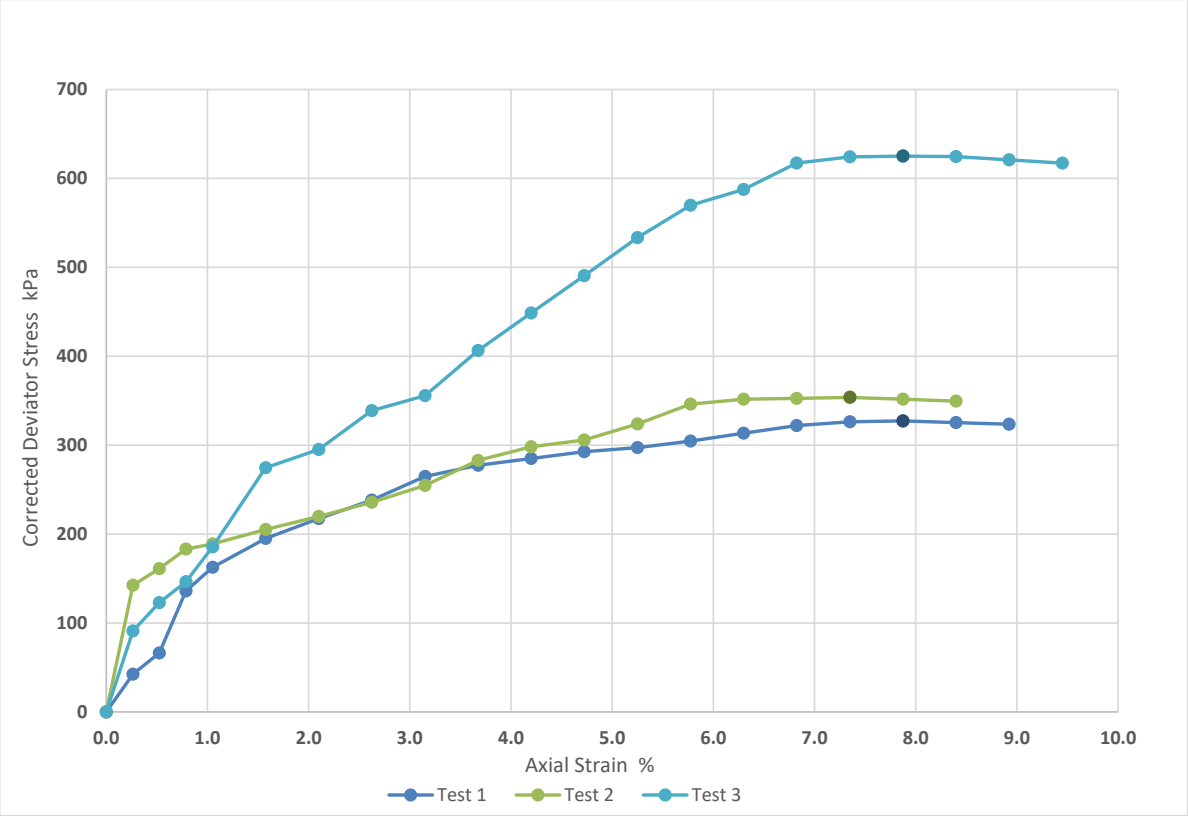


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	20	20	20
Bulk Density (Mg/m^3)	1.70	1.86	1.86
Dry Density (Mg/m^3)	1.41	1.54	1.54
Specimen Length (mm)	76	72	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	100	200	300
Deviator Stress (kPa)	261	684	699
Undrained Shear Strength (kPa)	130	342	350
Failure Strain (%)	8.9	12	12
Mode Of Failure	Compound	Compound	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	2.08	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_03
Site Name	Chippenham	Sample No.	13
Soil Description	*See Sample Description Sheet	Depth Top	6.95
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

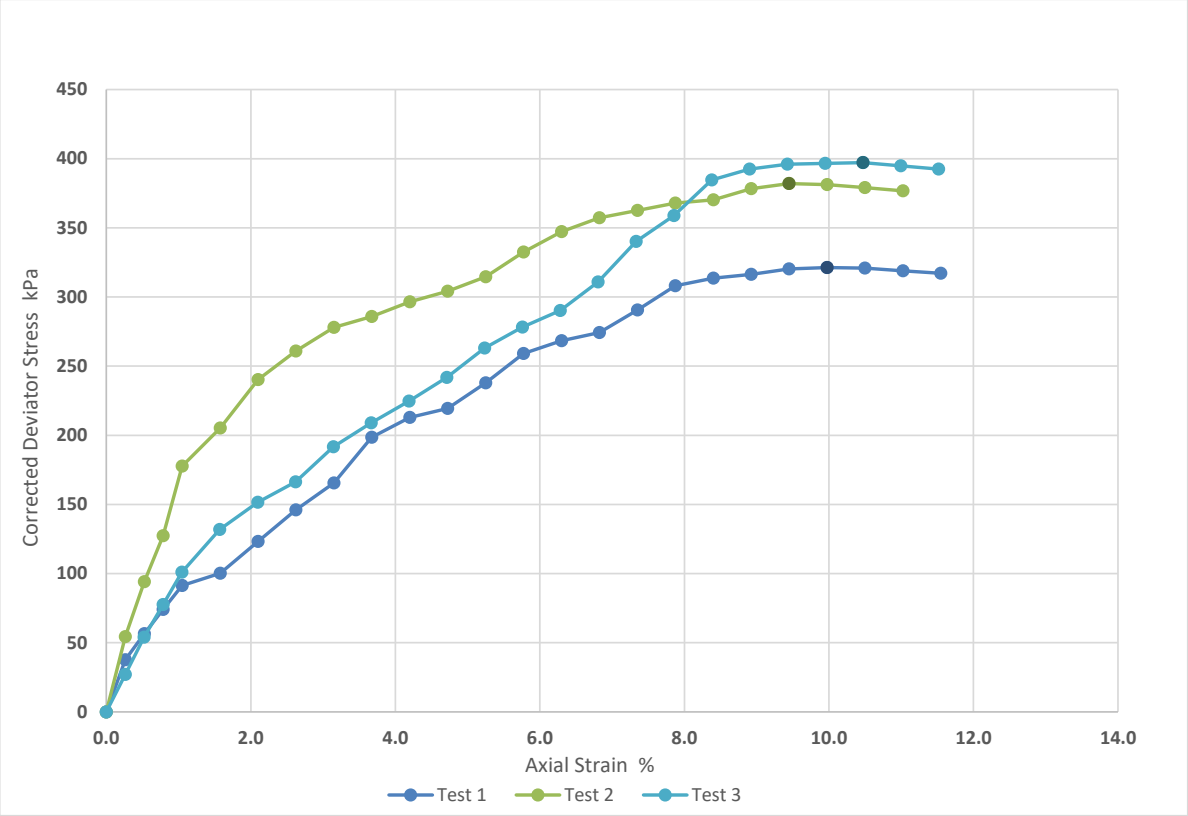


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	25	25	25
Bulk Density (Mg/m^3)	1.78	1.80	1.87
Dry Density (Mg/m^3)	1.43	1.44	1.50
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	100	200	400
Deviator Stress (kPa)	327	354	625
Undrained Shear Strength (kPa)	164	177	313
Failure Strain (%)	7.9	7.3	7.9
Mode Of Failure	Plastic	Plastic	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_06
Site Name	Chippenham	Sample No.	16
Soil Description	*See Sample Description Sheet	Depth Top	8.55
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

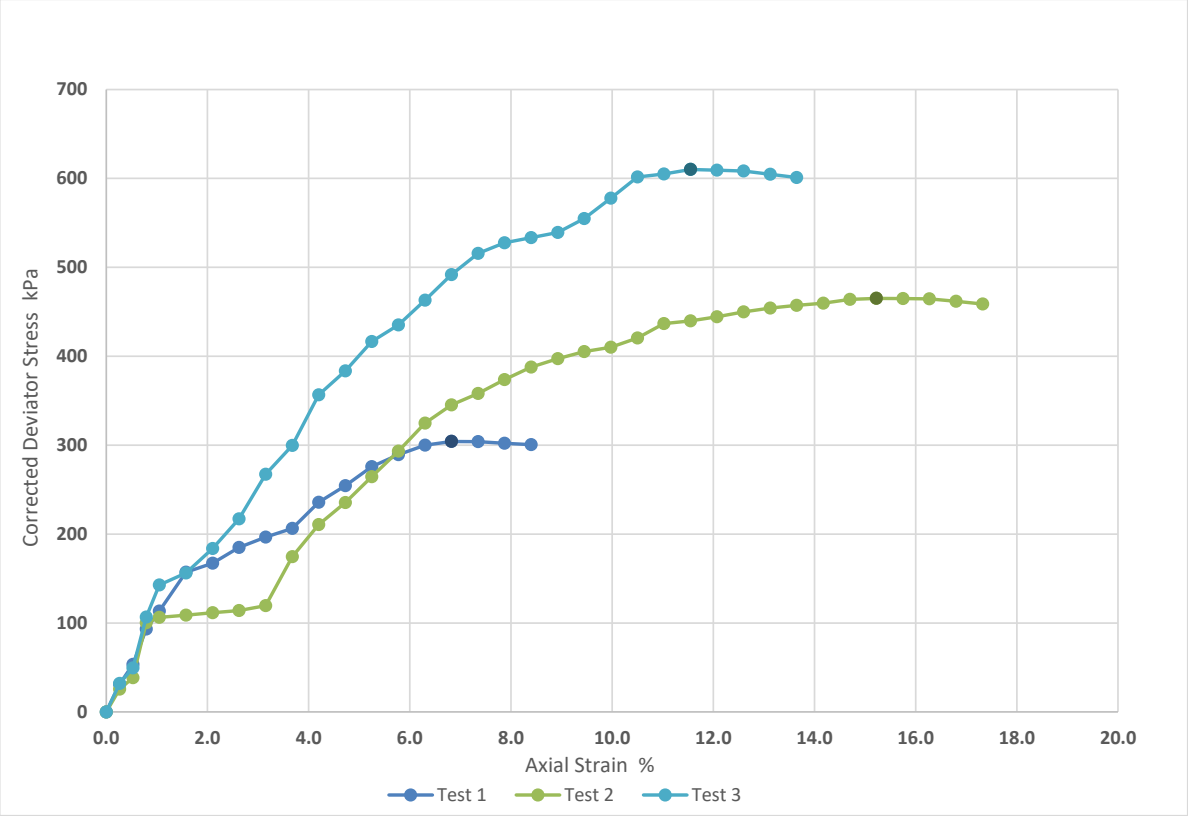


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	27	27	27
Bulk Density (Mg/m^3)	1.52	1.58	1.68
Dry Density (Mg/m^3)	1.19	1.24	1.31
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	60	120	180
Deviator Stress (kPa)	321	382	397
Undrained Shear Strength (kPa)	161	191	199
Failure Strain (%)	10.0	9.4	10
Mode Of Failure	Compound	Compound	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.96

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_06
Site Name	Chippenham	Sample No.	25
Soil Description	*See Sample Description Sheet	Depth Top	19.95
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

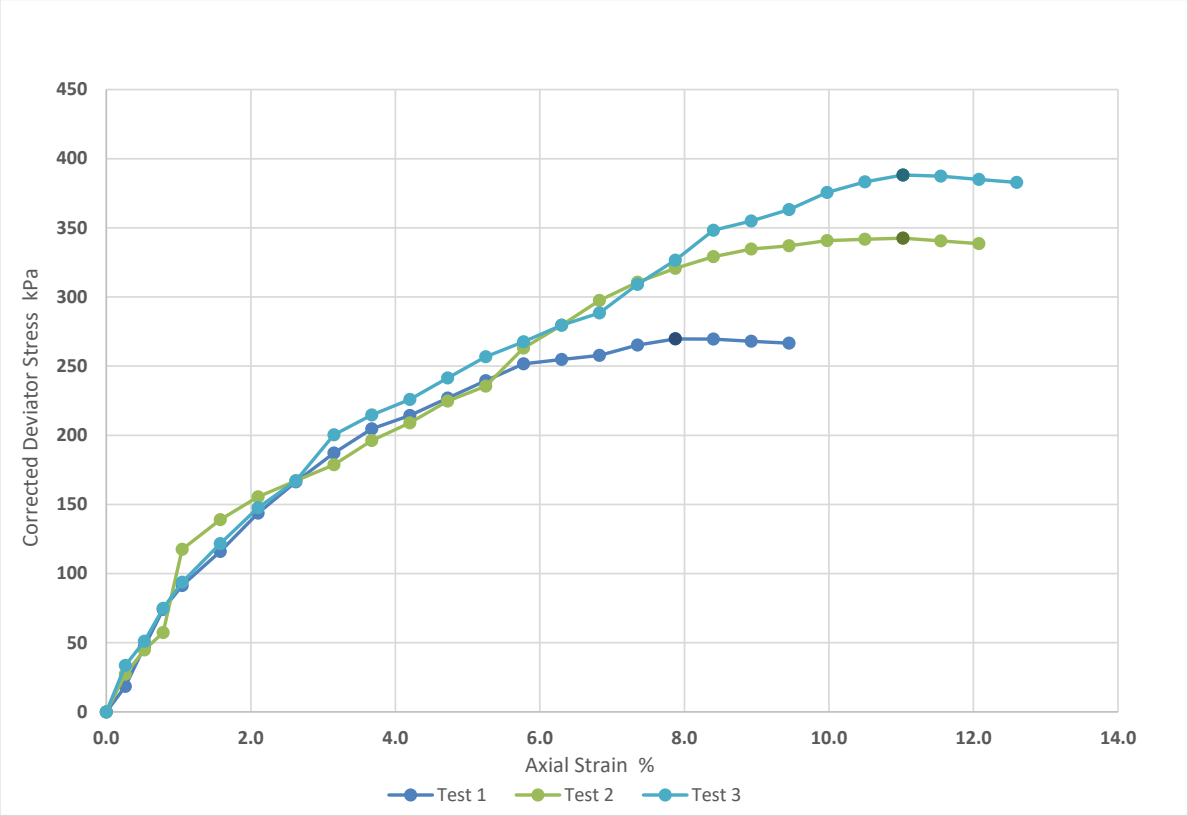


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	17	17	17
Bulk Density (Mg/m^3)	1.72	1.74	1.75
Dry Density (Mg/m^3)	1.47	1.48	1.49
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	180	360	540
Deviator Stress (kPa)	304	465	610
Undrained Shear Strength (kPa)	152	233	305
Failure Strain (%)	6.8	15	12
Mode Of Failure	Compound	Compound	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	AVW_BH_07
Site Name	Chippenham	Sample No.	9
Soil Description	*See Sample Description Sheet	Depth Top	4.00
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

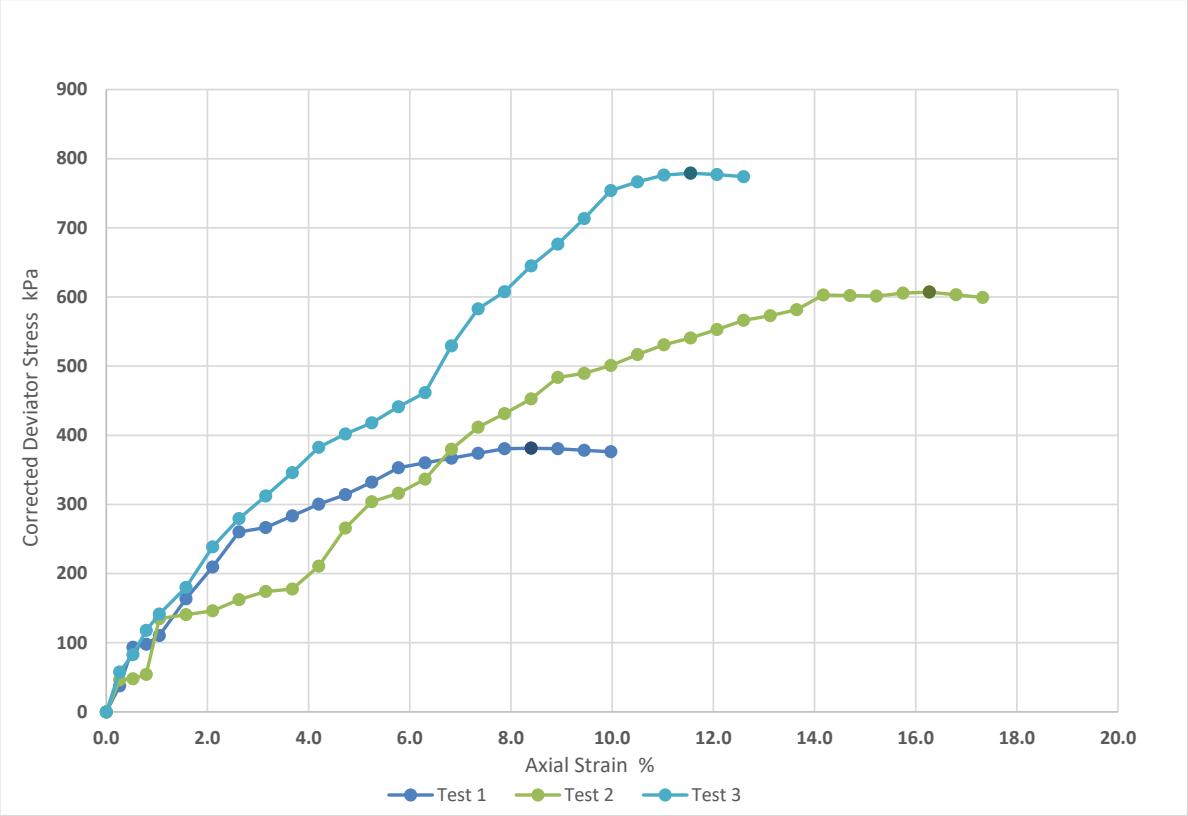


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	28	28	28
Bulk Density (Mg/m^3)	1.81	1.81	1.89
Dry Density (Mg/m^3)	1.42	1.42	1.48
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	40	80	120
Deviator Stress (kPa)	270	343	388
Undrained Shear Strength (kPa)	135	171	194
Failure Strain (%)	7.9	11	11
Mode Of Failure	Compound	Plastic	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	BH002
Site Name	Chippenham	Sample No.	13
Soil Description	*See Sample Description Sheet	Depth Top	12.60
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

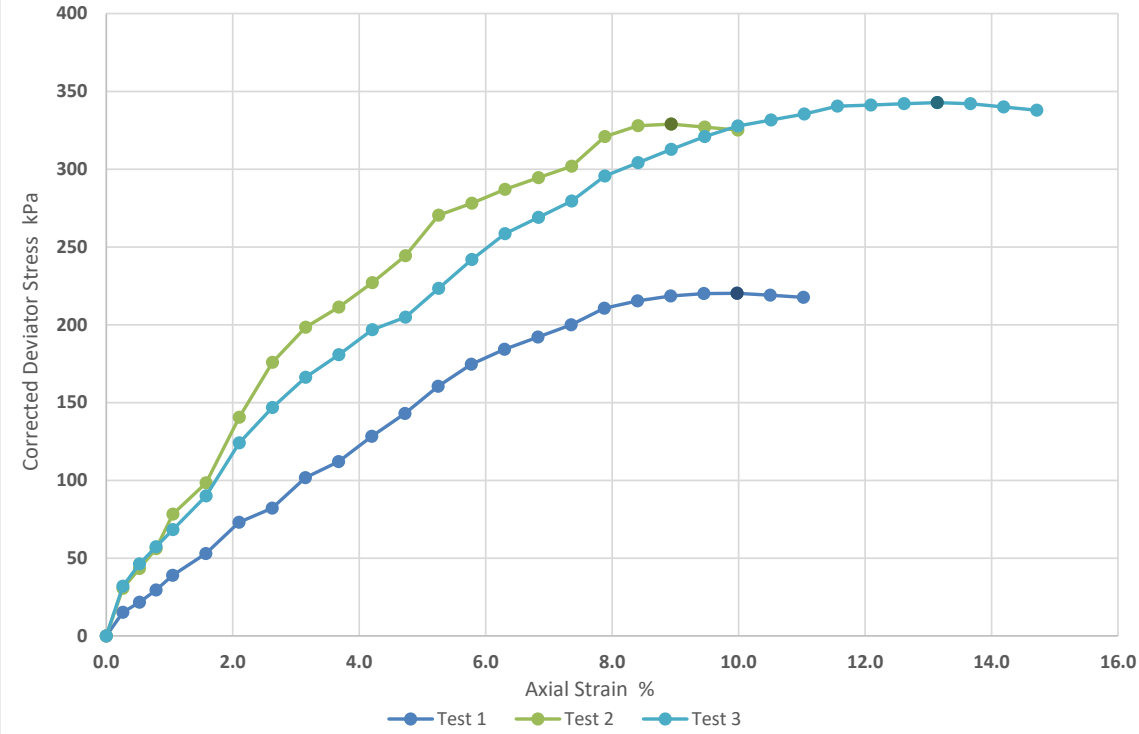


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	19	19	19
Bulk Density (Mg/m^3)	1.95	1.89	1.98
Dry Density (Mg/m^3)	1.64	1.59	1.67
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	150	300	450
Deviator Stress (kPa)	381	607	779
Undrained Shear Strength (kPa)	191	304	389
Failure Strain (%)	8.4	16	12
Mode Of Failure	Compound	Plastic	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	BH003
Site Name	Chippenham	Sample No.	11
Soil Description	*See Sample Description Sheet	Depth Top	6.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

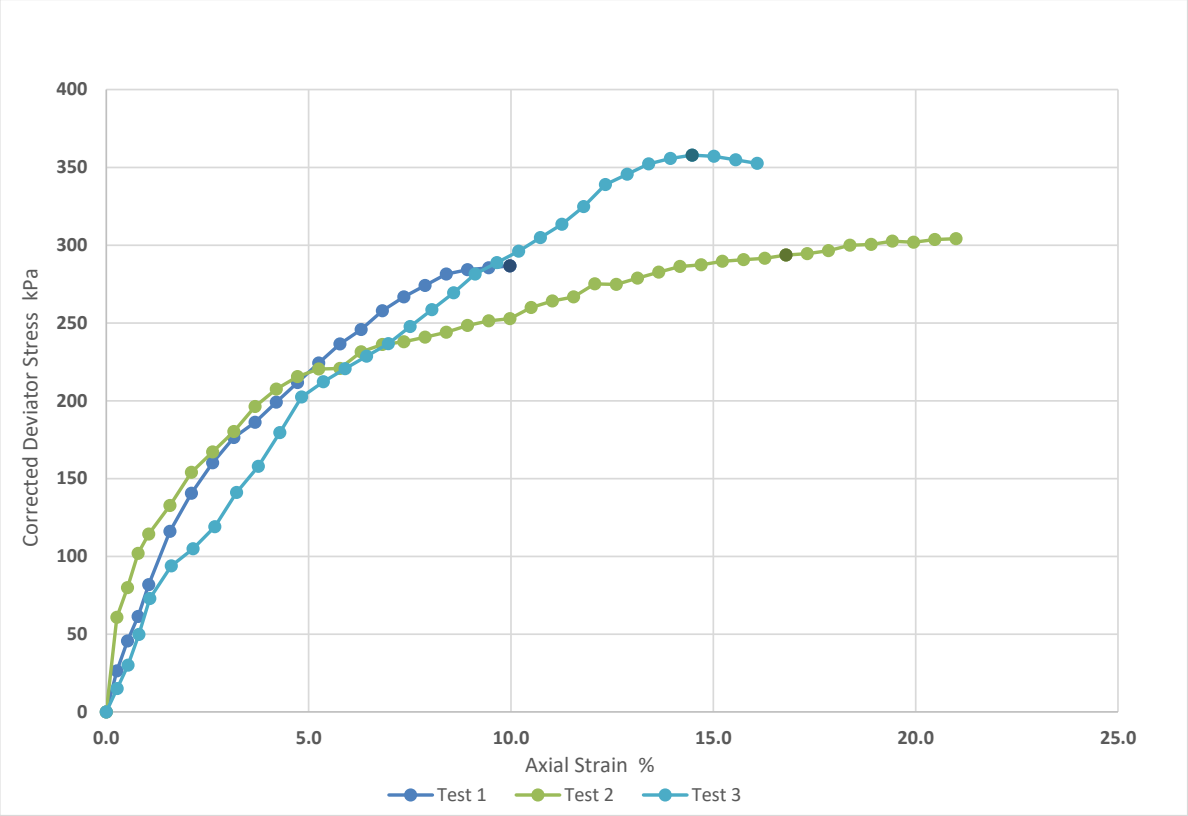


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	23	23	23
Bulk Density (Mg/m^3)	1.81	1.86	1.96
Dry Density (Mg/m^3)	1.47	1.51	1.60
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	60	120	180
Deviator Stress (kPa)	220	329	343
Undrained Shear Strength (kPa)	110	164	171
Failure Strain (%)	10.0	8.9	13
Mode Of Failure	Plastic	Plastic	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	BH004
Site Name	Chippenham	Sample No.	13
Soil Description	*See Sample Description Sheet	Depth Top	5.10
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

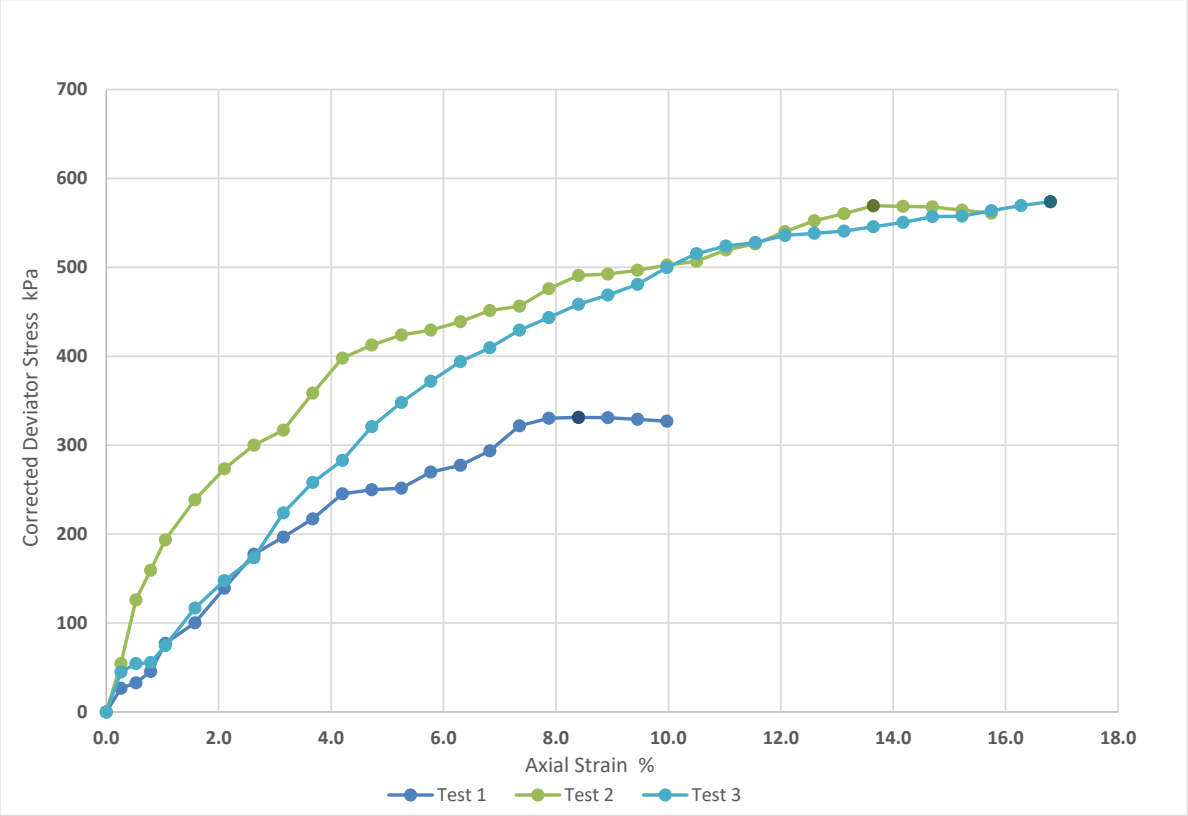


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	17	17	17
Bulk Density (Mg/m^3)	1.79	1.78	1.78
Dry Density (Mg/m^3)	1.54	1.52	1.53
Specimen Length (mm)	76	76	75
Specimen Diamteter (mm)	38	38	37
Cell Pressures (kPa)	40	80	120
Deviator Stress (kPa)	287	294	358
Undrained Shear Strength (kPa)	143	147	179
Failure Strain (%)	10.0	17	14
Mode Of Failure	Plastic	Plastic	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	2.01

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_01
Site Name	Chippenham	Sample No.	29
Soil Description	*See Sample Description Sheet	Depth Top	15.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

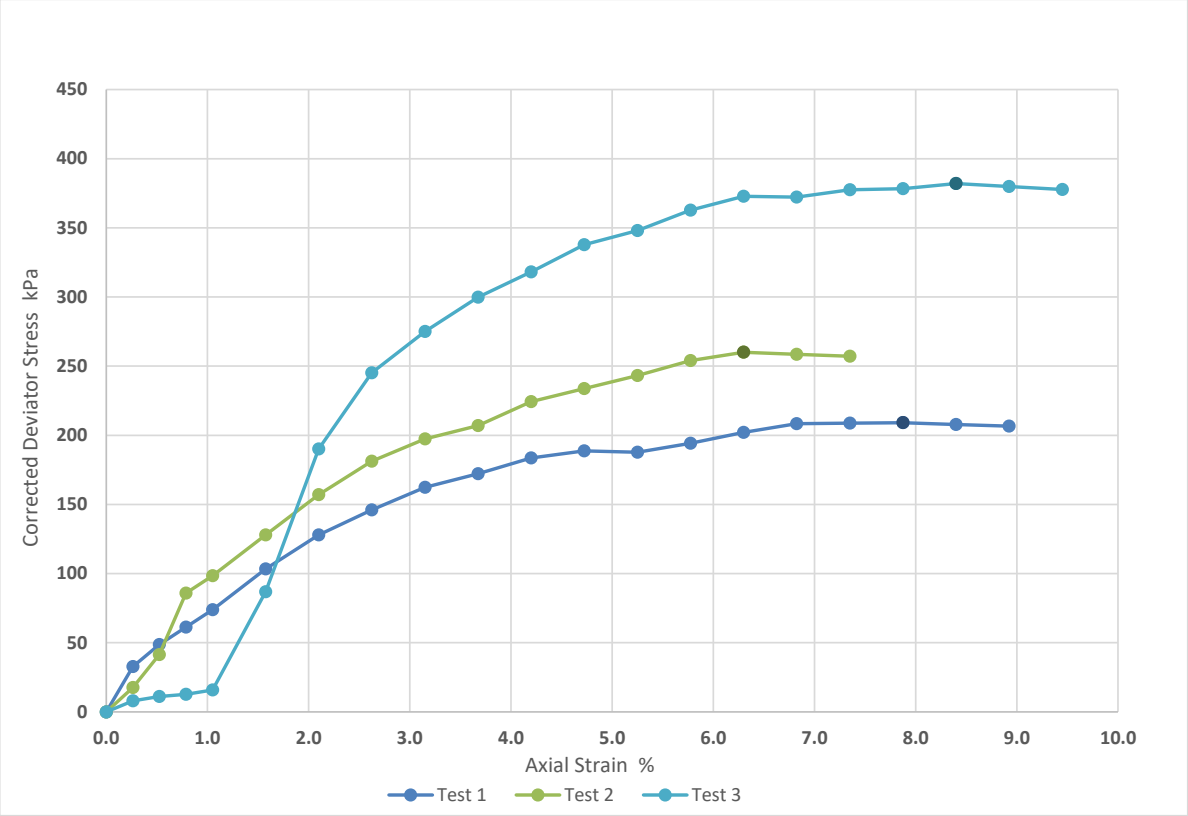


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	15	15	15
Bulk Density (Mg/m^3)	1.81	1.78	1.73
Dry Density (Mg/m^3)	1.58	1.55	1.50
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	300	600	900
Deviator Stress (kPa)	331	569	574
Undrained Shear Strength (kPa)	166	285	287
Failure Strain (%)	8.4	14	17
Mode Of Failure	Compound	Plastic	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	PWP_BH_02
Site Name	Chippenham	Sample No.	11
Soil Description	*See Sample Description Sheet	Depth Top	4.50
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

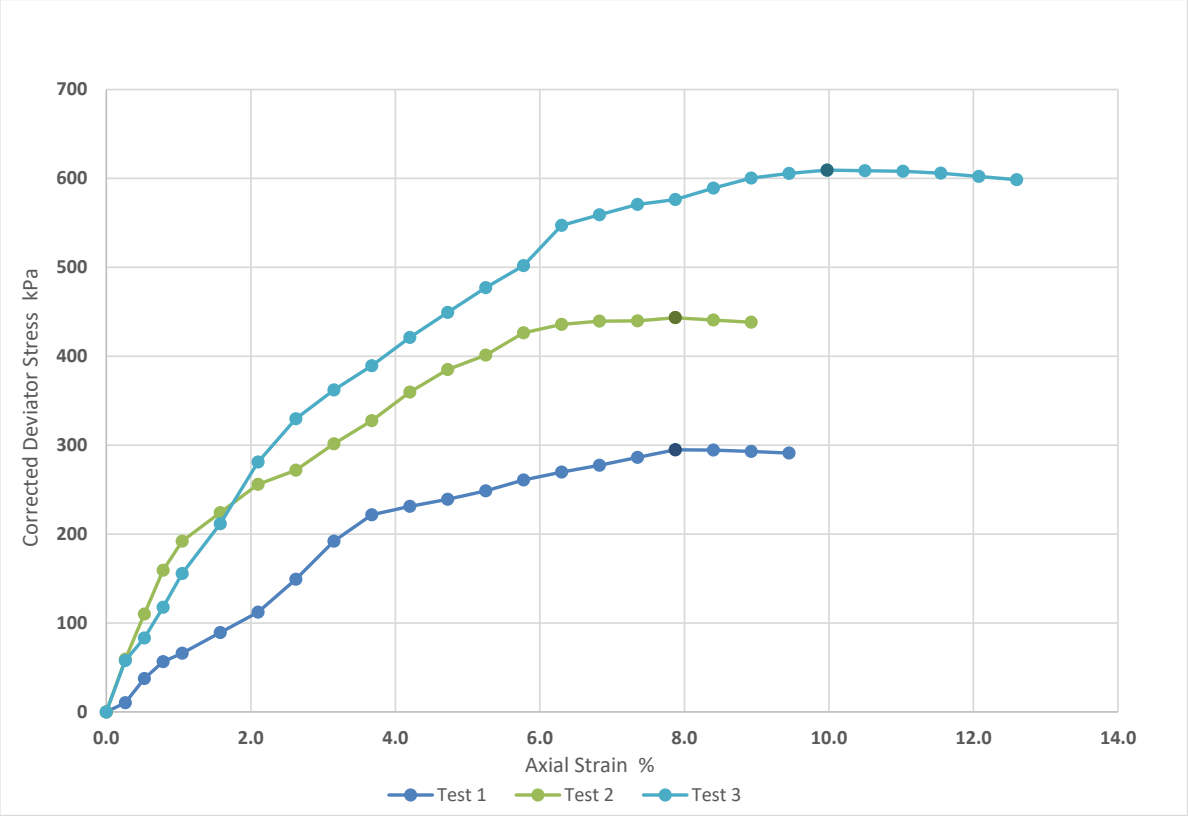


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	23	23	23
Bulk Density (Mg/m^3)	1.99	1.97	1.96
Dry Density (Mg/m^3)	1.62	1.60	1.60
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	60	120	180
Deviator Stress (kPa)	209	260	382
Undrained Shear Strength (kPa)	105	130	191
Failure Strain (%)	7.9	6.3	8.4
Mode Of Failure	Plastic	Compound	Plastic
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Undrained Shear Strength in Triaxial Compression BS1377 : Part7 : Clause 8 : 1991 Set of Three 38 mm without the measurement of Pore Pressure**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_06
Site Name	Chippenham	Sample No.	13
Soil Description	*See Sample Description Sheet	Depth Top	5.55
		Depth Base	
Date Tested	24/06/2022	Sample Type	C
		Technician	Jordan

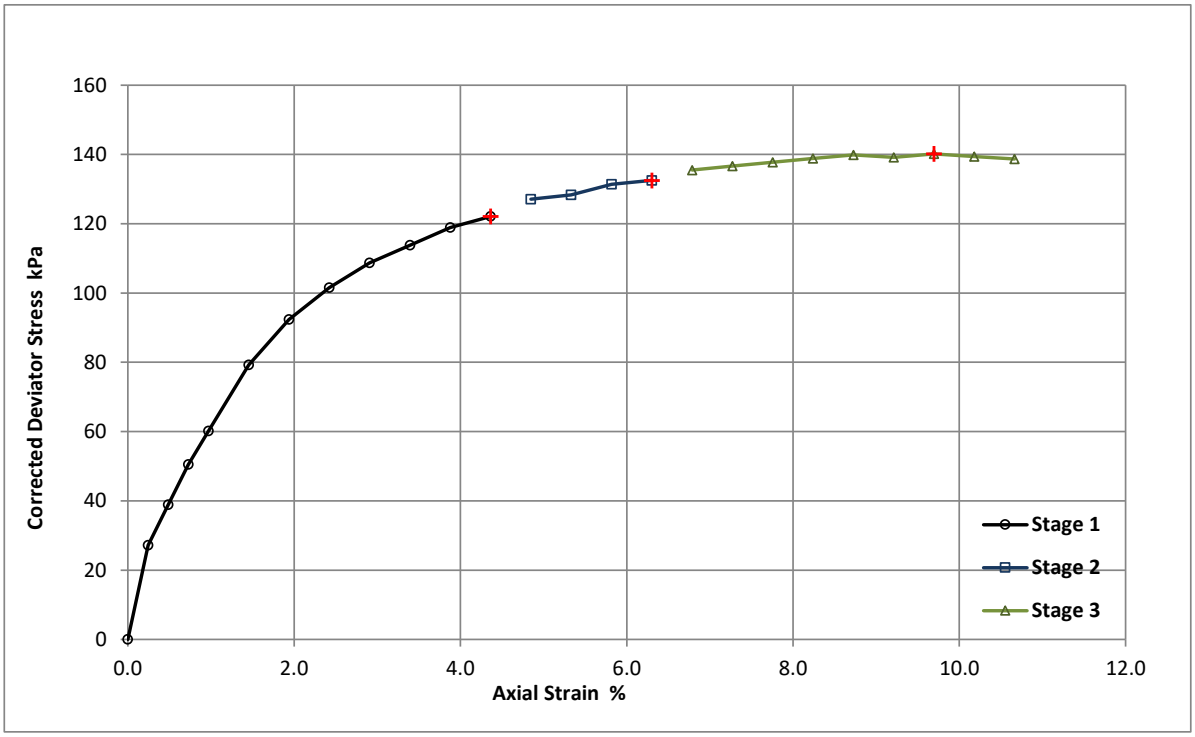


	Specimen 1	Specimen 2	Specimen 3
Moisture Content (%)	16	16	16
Bulk Density (Mg/m^3)	1.75	1.98	1.89
Dry Density (Mg/m^3)	1.50	1.70	1.62
Specimen Length (mm)	76	76	76
Specimen Diamteter (mm)	38	38	38
Cell Pressures (kPa)	50	100	150
Deviator Stress (kPa)	295	443	609
Undrained Shear Strength (kPa)	147	222	305
Failure Strain (%)	7.9	7.9	10.0
Mode Of Failure	Compound	Plastic	Compound
Membrane Used/Thickness	Rubber/0.3mm	Rubber/0.3mm	Rubber/0.3mm
Rate of Strain (%/min)	1.97	1.97	1.97

Checked			
Approved			

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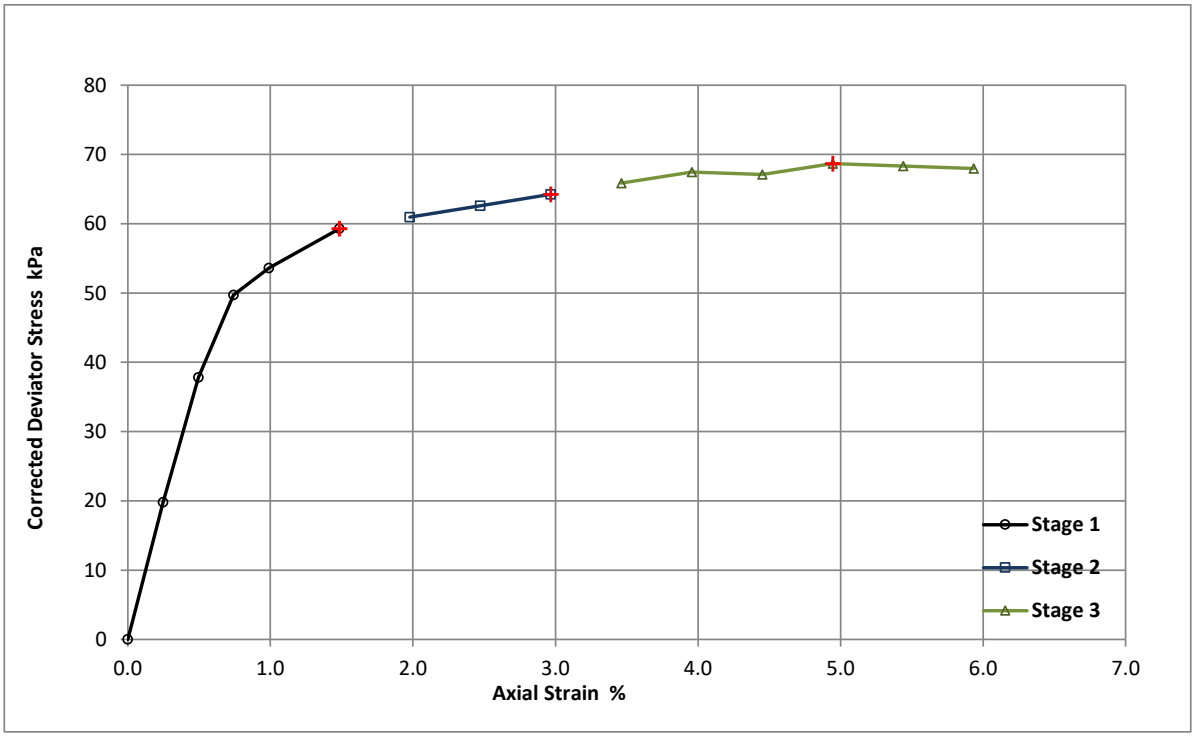
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_01
Site Name	Chippenham	Sample No.	7
Soil Description	*See Sample Description Sheet	Depth Top	2.80
		Depth Base	
Date Tested	23/06/2022	Sample Type	U
		Technician	Jordan



Moisture Content (%)	27		
Bulk Density (Mg/m^3)	2.06		
Dry Density (Mg/m^3)	1.62		
Specimen Length (mm)	206.3		
Specimen Diamteter (mm)	102.3		
Cell Pressures (kPa)	25	50	75
Deviator Stress (kPa)	122	133	140
Undrained Shear Strength (kPa)	61	66	70
Failure Strain (%)	4.4	6.3	9.7
Mode Of Failure	Plastic		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

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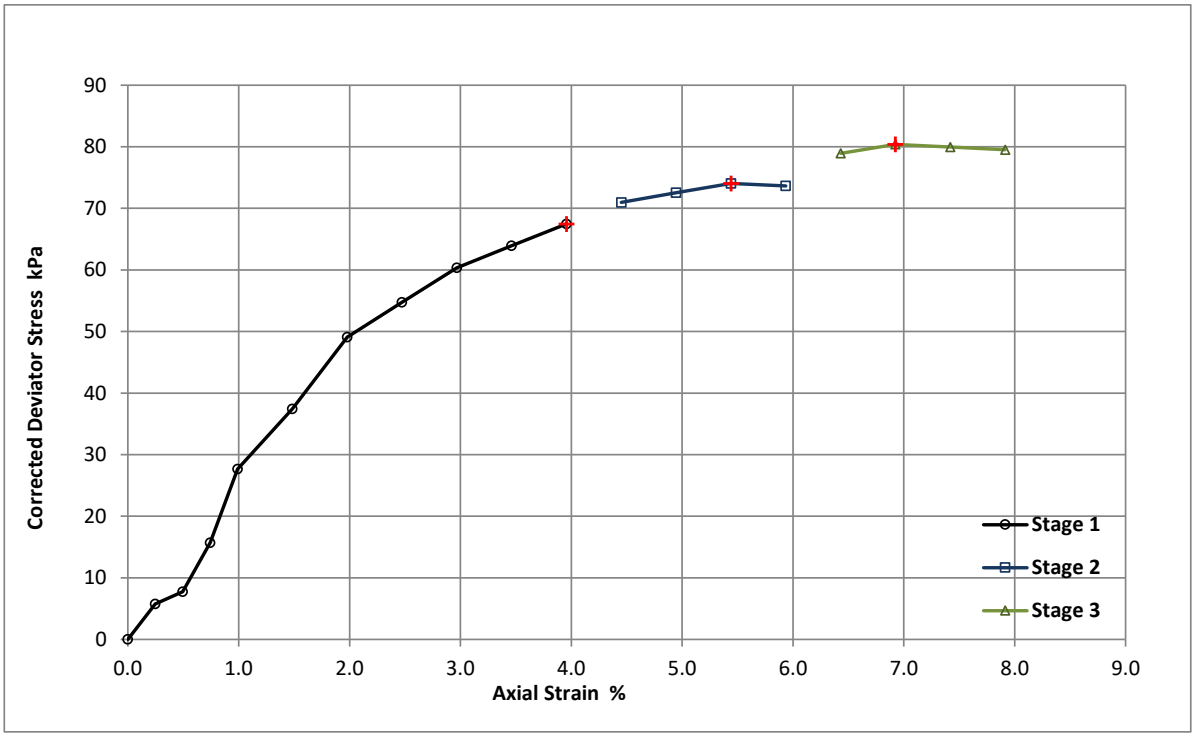
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9**	Contract Number	59564
		Borehole/Pit No.	AVC1_BH_10
Site Name	Chippenham	Sample No.	6
Soil Description	*See Sample Description Sheet	Depth Top	1.20
		Depth Base	
Date Tested	23/06/2022	Sample Type	U
		Technician	Jordan



Moisture Content (%)	31		
Bulk Density (Mg/m^3)	1.94		
Dry Density (Mg/m^3)	1.48		
Specimen Length (mm)	202.2		
Specimen Diamteter (mm)	101.1		
Cell Pressures (kPa)	10	20	40
Deviator Stress (kPa)	59	64	69
Undrained Shear Strength (kPa)	30	32	34
Failure Strain (%)	1.5	3.0	4.9
Mode Of Failure	Compound		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

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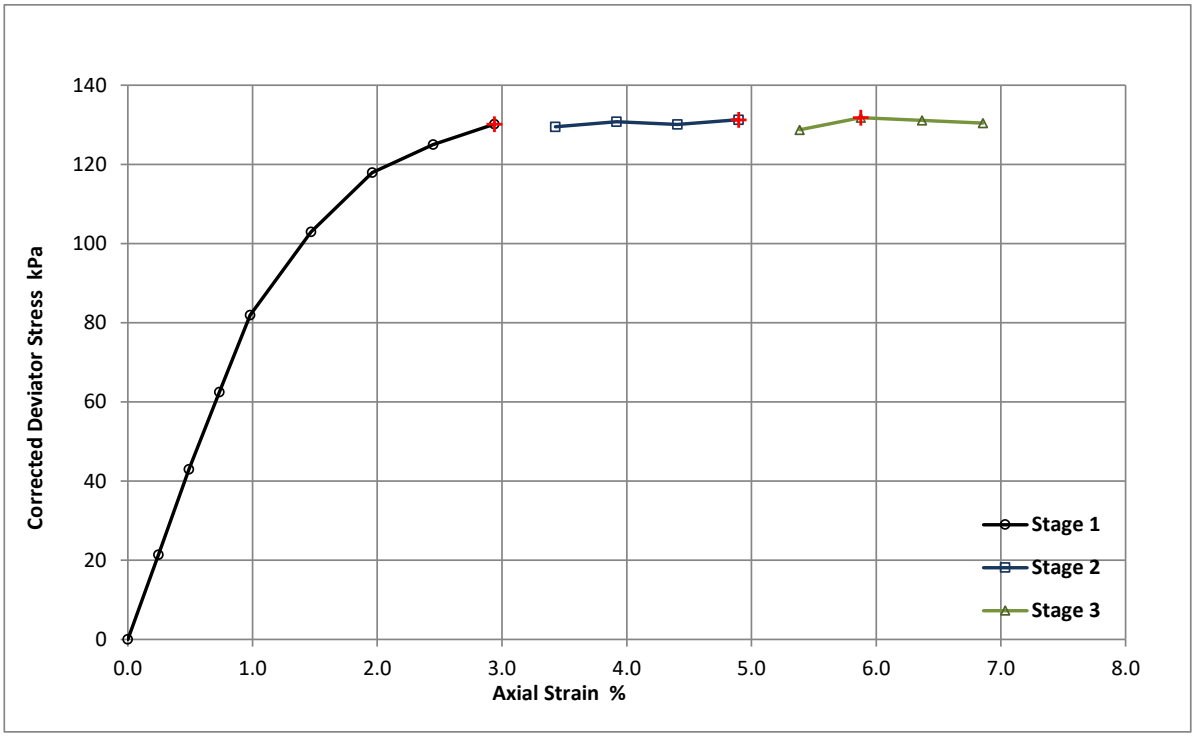
GSTL	Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9	Contract Number	59564
		Borehole/Pit No.	AVW_BH_08
Site Name	Chippenham	Sample No.	4
Soil Description	*See Sample Description Sheet	Depth Top	1.20
		Depth Base	
Date Tested	22/06/2022	Sample Type	U
		Technician	Jordan



Moisture Content (%)	26		
Bulk Density (Mg/m^3)	2.12		
Dry Density (Mg/m^3)	1.69		
Specimen Length (mm)	202.2		
Specimen Diamteter (mm)	101.1		
Cell Pressures (kPa)	10	20	40
Deviator Stress (kPa)	67	74	80
Undrained Shear Strength (kPa)	34	37	40
Failure Strain (%)	4.0	5.4	6.9
Mode Of Failure	Plastic		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

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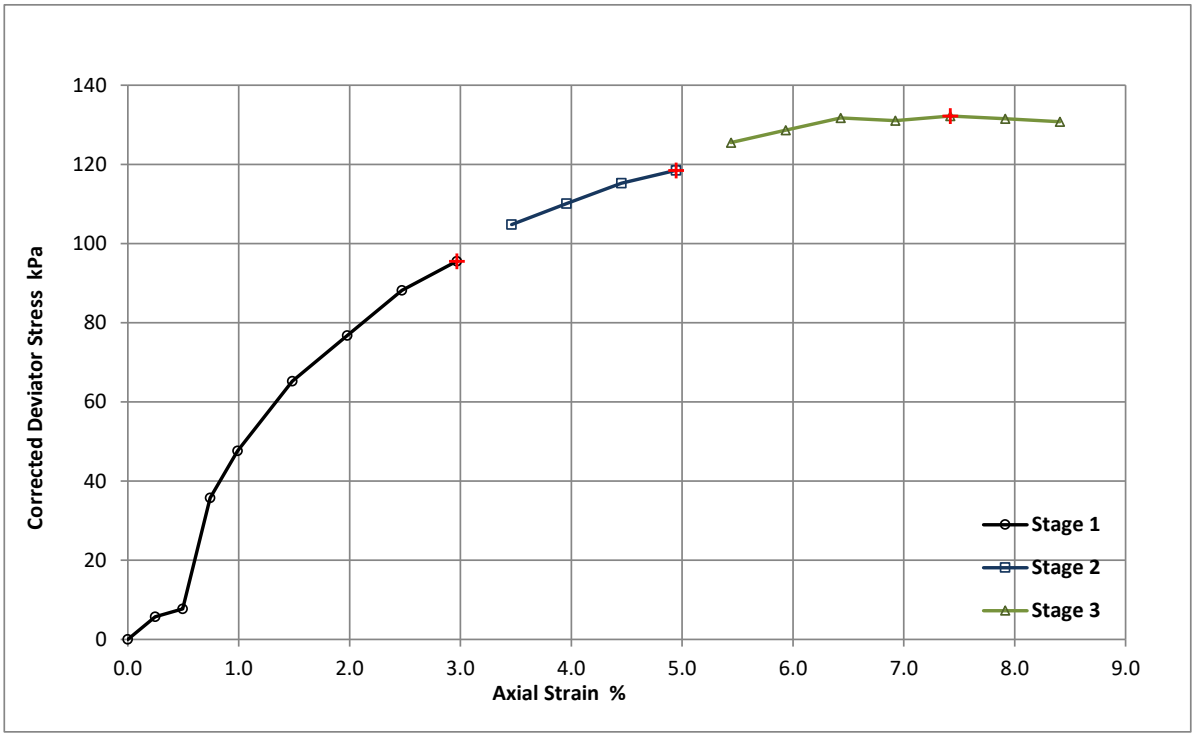
GSTL	Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9	Contract Number	59564
		Borehole/Pit No.	AVW_BH_08
Site Name	Chippenham	Sample No.	16
Soil Description	*See Sample Description Sheet	Depth Top	9.75
		Depth Base	
Date Tested	22/06/2022	Sample Type	C
		Technician	Jordan



Moisture Content (%)	16		
Bulk Density (Mg/m^3)	2.07		
Dry Density (Mg/m^3)	1.79		
Specimen Length (mm)	204.2		
Specimen Diamteter (mm)	102.1		
Cell Pressures (kPa)	80	160	240
Deviator Stress (kPa)	130	131	132
Undrained Shear Strength (kPa)	65	66	66
Failure Strain (%)	2.9	4.9	5.9
Mode Of Failure	Compound		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

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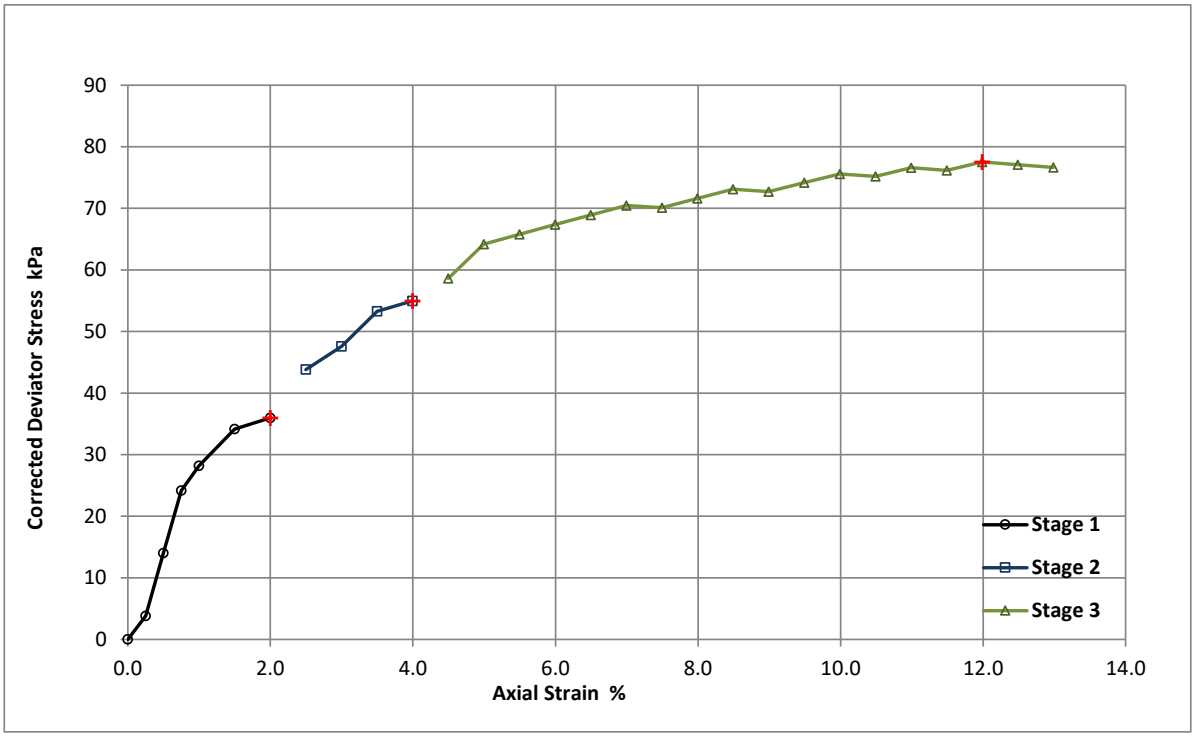
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_01
Site Name	Chippenham	Sample No.	9
Soil Description	*See Sample Description Sheet	Depth Top	3.20
		Depth Base	
Date Tested	22/06/2022	Sample Type	U
		Technician	Jordan



Moisture Content (%)	16		
Bulk Density (Mg/m^3)	2.03		
Dry Density (Mg/m^3)	1.75		
Specimen Length (mm)	202.2		
Specimen Diamteter (mm)	101.1		
Cell Pressures (kPa)	30	60	90
Deviator Stress (kPa)	96	119	132
Undrained Shear Strength (kPa)	48	59	66
Failure Strain (%)	3.0	4.9	7.4
Mode Of Failure	Plastic		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

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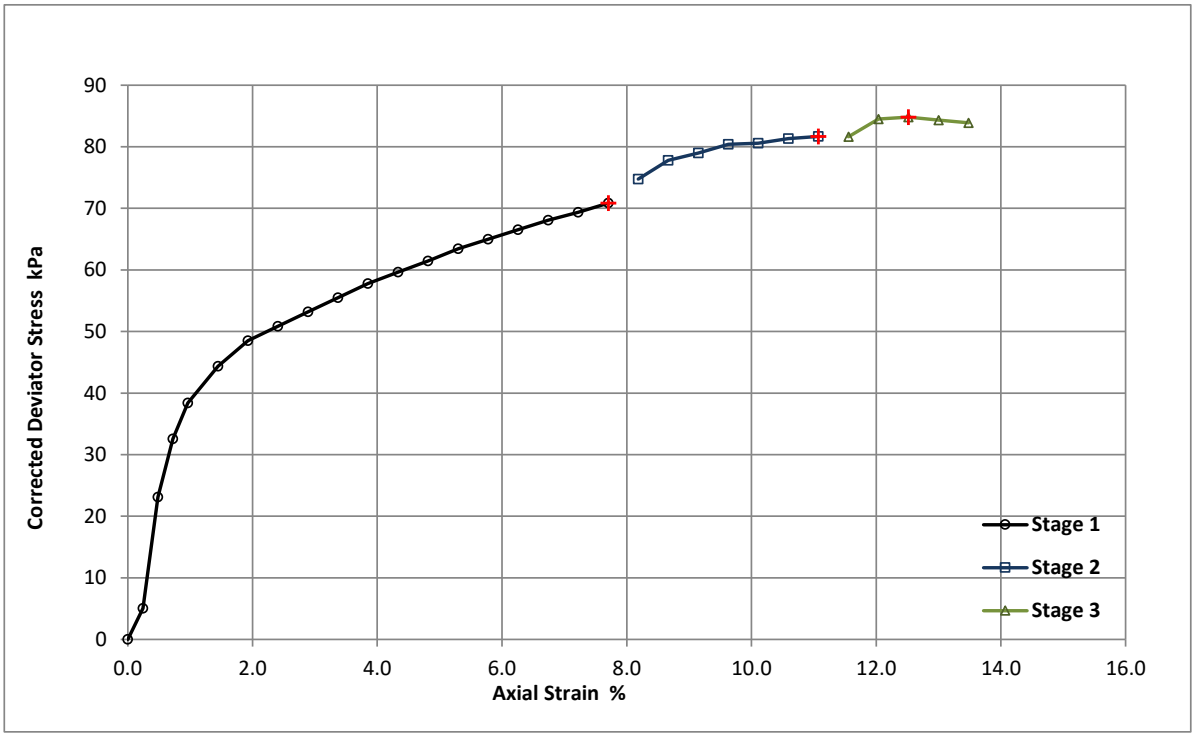
GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_03
Site Name	Chippenham	Sample No.	5
Soil Description	*See Sample Description Sheet	Depth Top	1.20
		Depth Base	
Date Tested	22/06/2022	Sample Type	U
		Technician	Jordan



Moisture Content (%)	18		
Bulk Density (Mg/m^3)	2.29		
Dry Density (Mg/m^3)	1.95		
Specimen Length (mm)	200.2		
Specimen Diamteter (mm)	100.1		
Cell Pressures (kPa)	10	20	40
Deviator Stress (kPa)	36	55	78
Undrained Shear Strength (kPa)	18	27	39
Failure Strain (%)	2.0	4.0	12
Mode Of Failure	Compound		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Multi Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 9**	Contract Number	59564
		Borehole/Pit No.	PWB_BH_04
Site Name	Chippenham	Sample No.	8
Soil Description	*See Sample Description Sheet	Depth Top	3.20
		Depth Base	
Date Tested	22/06/2022	Sample Type	U
		Technician	Jordan



Moisture Content (%)	13		
Bulk Density (Mg/m^3)	1.86		
Dry Density (Mg/m^3)	1.64		
Specimen Length (mm)	207.7		
Specimen Diamteter (mm)	102.4		
Cell Pressures (kPa)	30	60	120
Deviator Stress (kPa)	71	82	85
Undrained Shear Strength (kPa)	35	41	42
Failure Strain (%)	7.7	11	13
Mode Of Failure	Plastic		
Membrane Used/Thickness	Rubber/0.3mm		
Rate of Strain (%/min)	3.00		

UKAS TESTING 2788

Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	AVC BH11	Depth from (m):	3.20
Sample Number:	10		

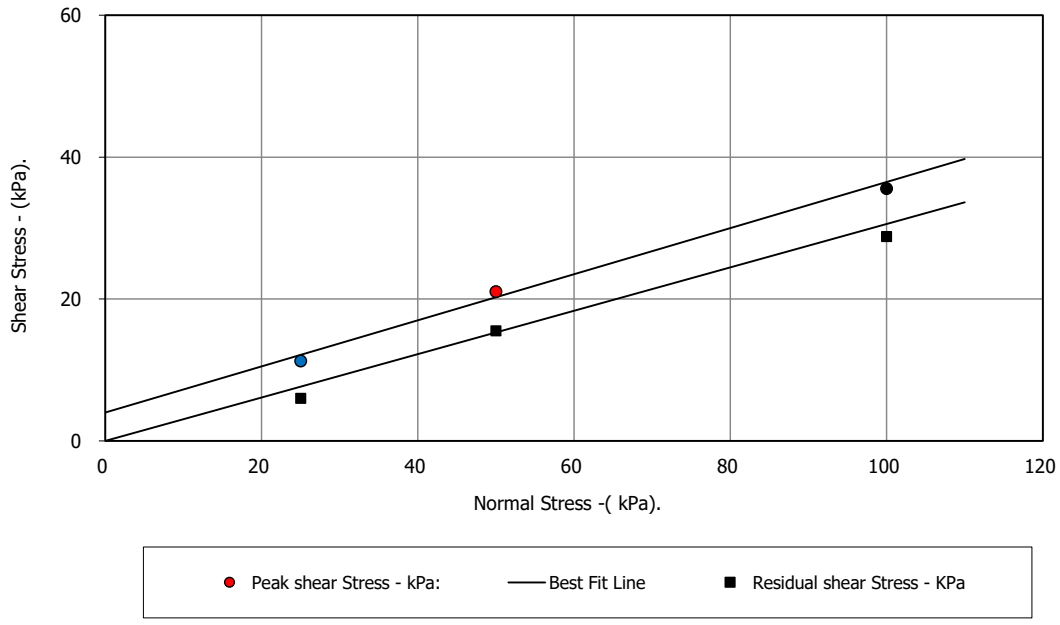
Sample Type: B	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	58	58	58
Bulk Density - Mg/m3:	1.67	1.68	1.67
Dry Density - Mg/m3:	1.06	1.06	1.06
Voids Ratio:	1.4982	1.4960	1.4975
Normal Pressure- kPa	25	50	100
Consolidation			
Consolidated Height - mm:	23.50	22.03	21.07
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	6.21	2.79	8.10
Peak shear Stress - kPa:	11	21	36
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	16.29	13.50	16.74
Residual shear Stress - kPa:	6	16	29

PEAK	
Angle of Shearing Resistance:(θ)	**18.0**
Effective Cohesion - kPa:	**4.0**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**17.0**
Effective Cohesion - kPa:	**0.0**

Failure Conditions



Chippenham

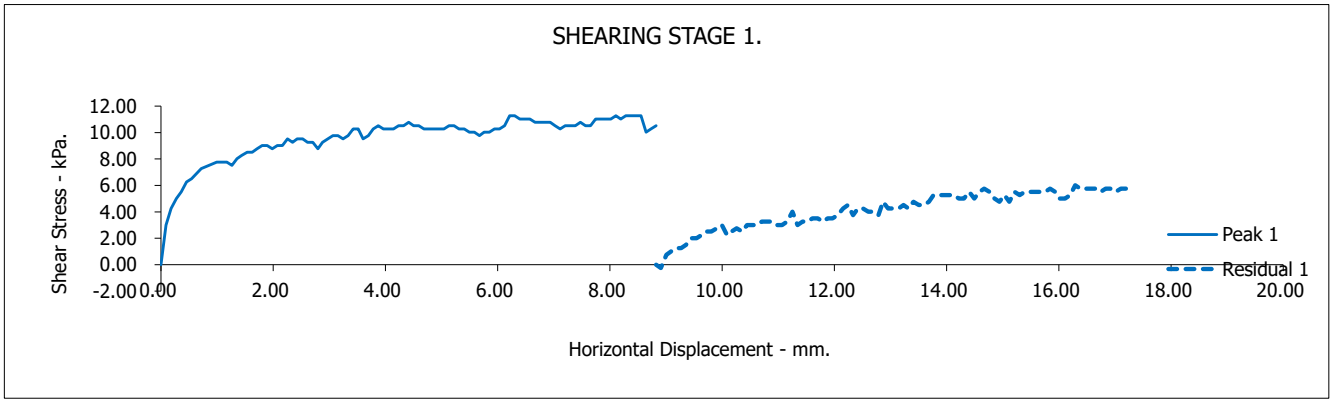
Contract No.:
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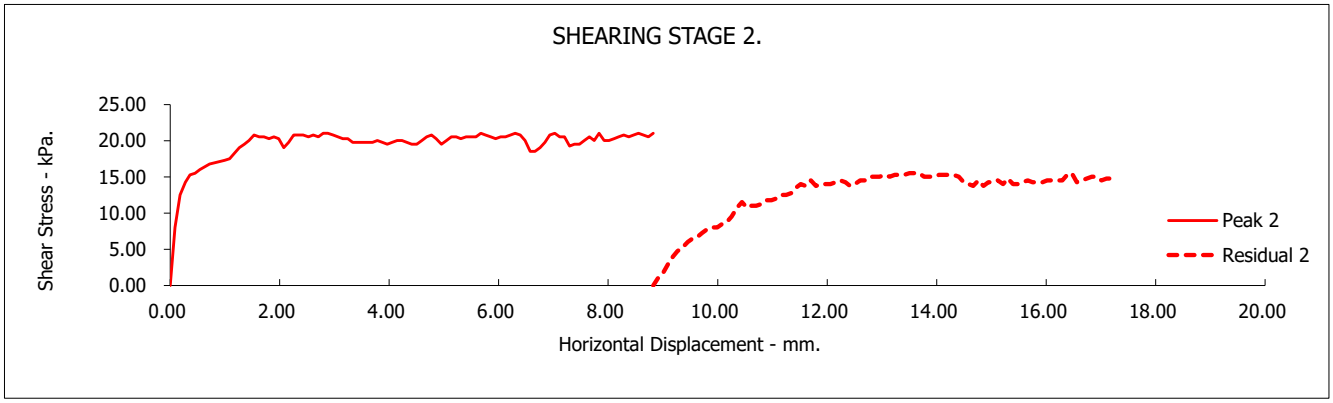
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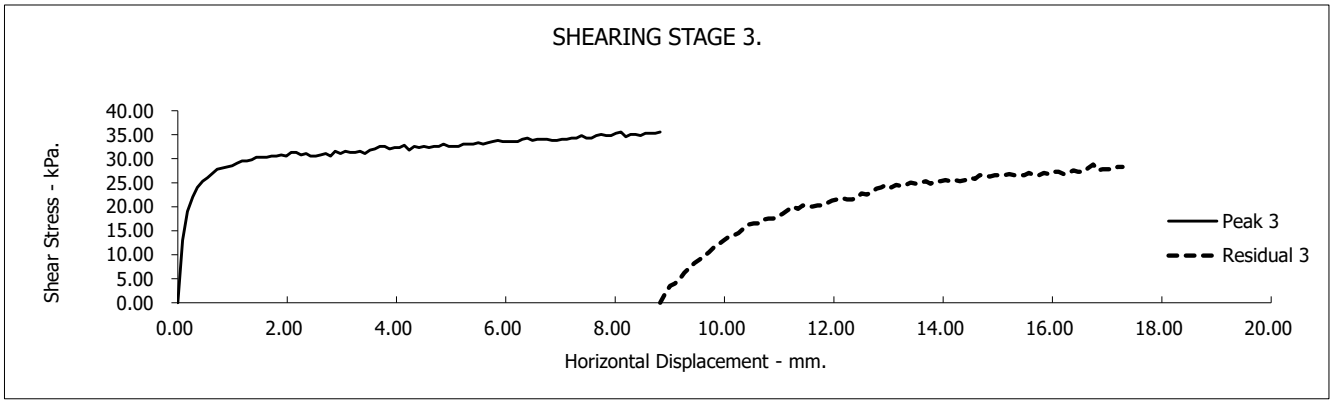
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC BH11 Depth (m): 3.20







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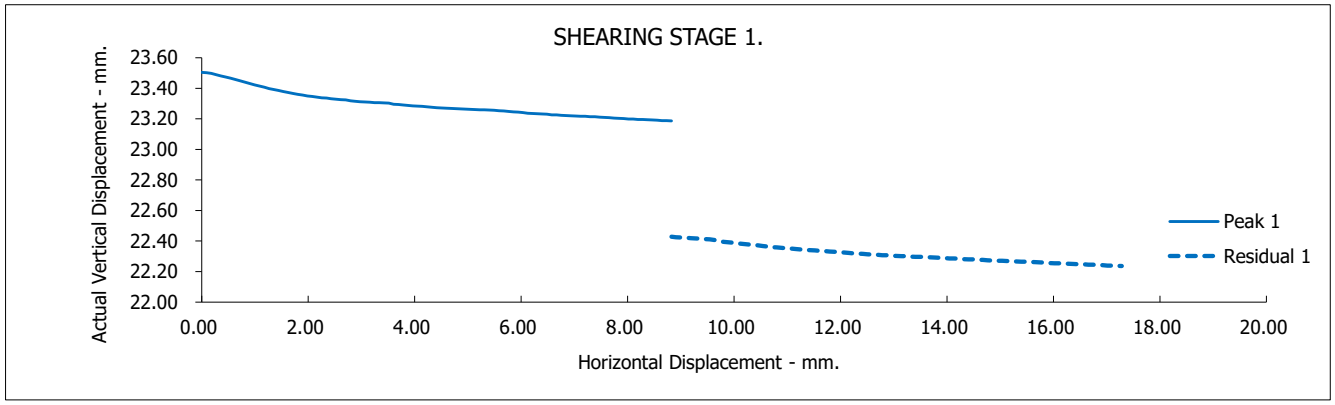
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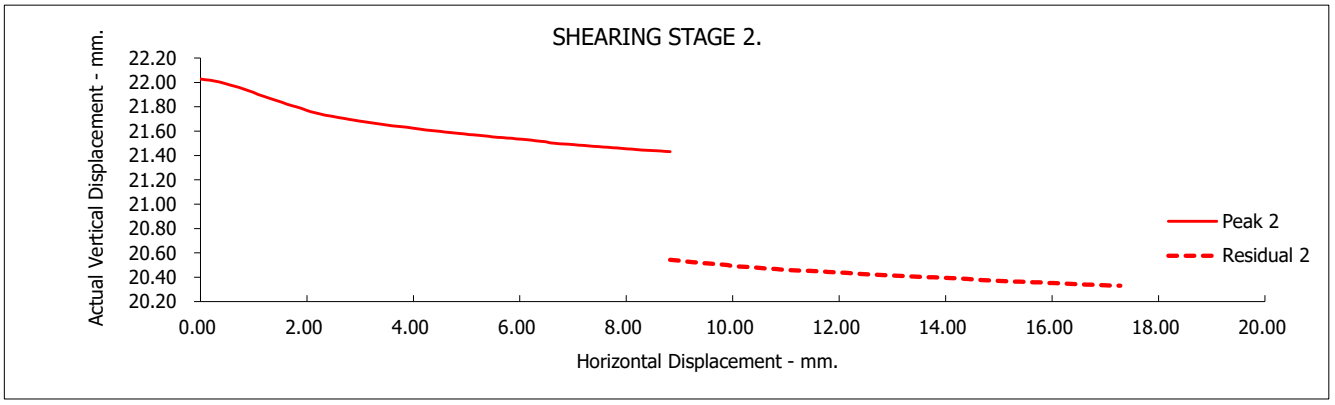
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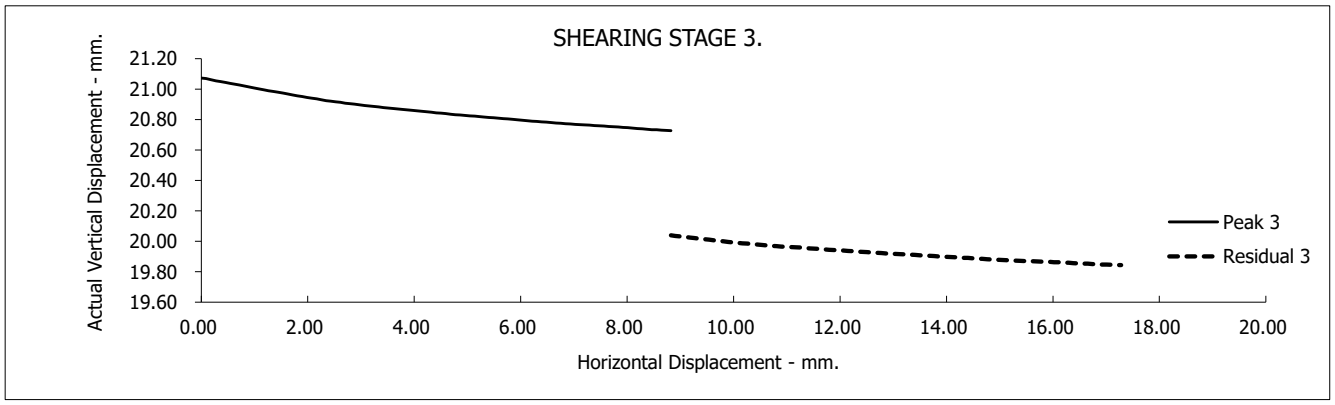
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC BH11 Depth (m): 3.20







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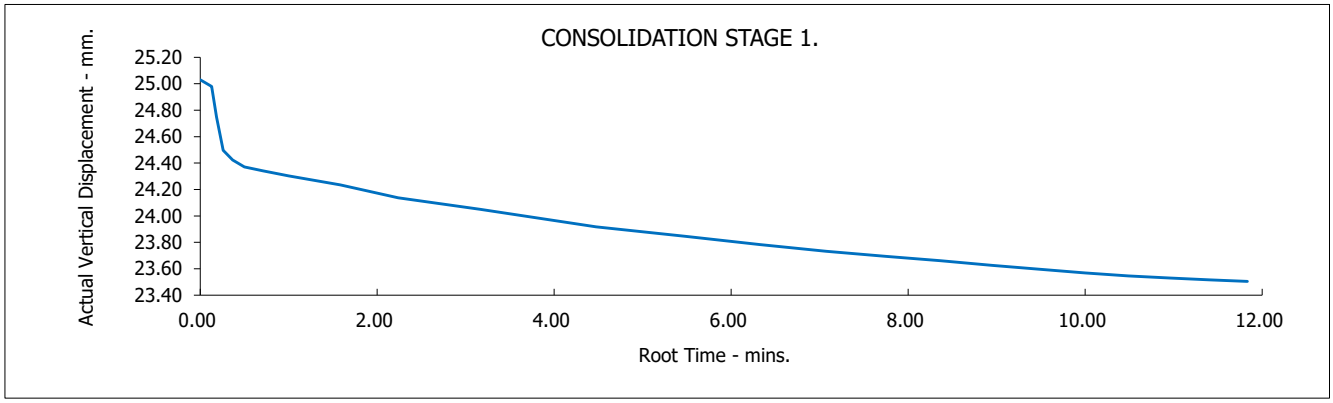
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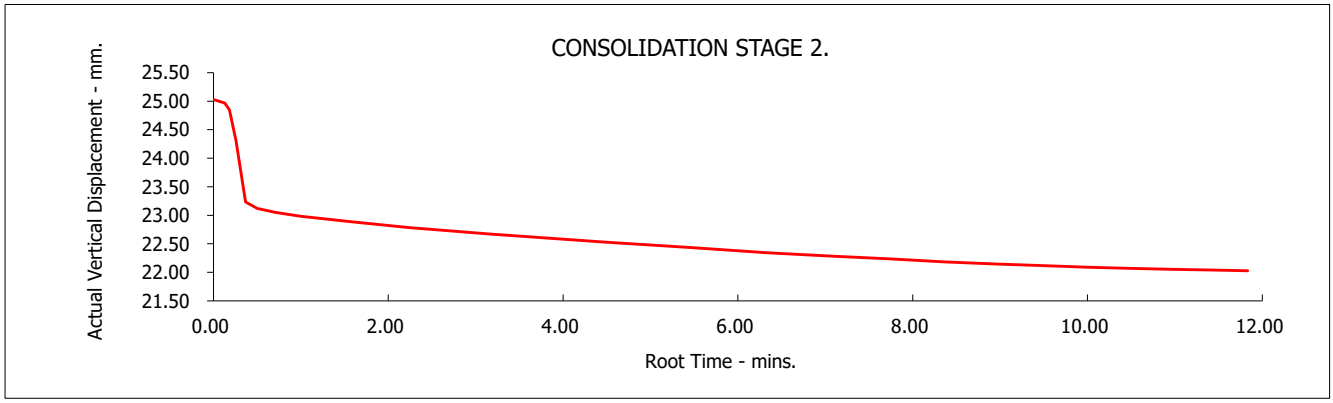
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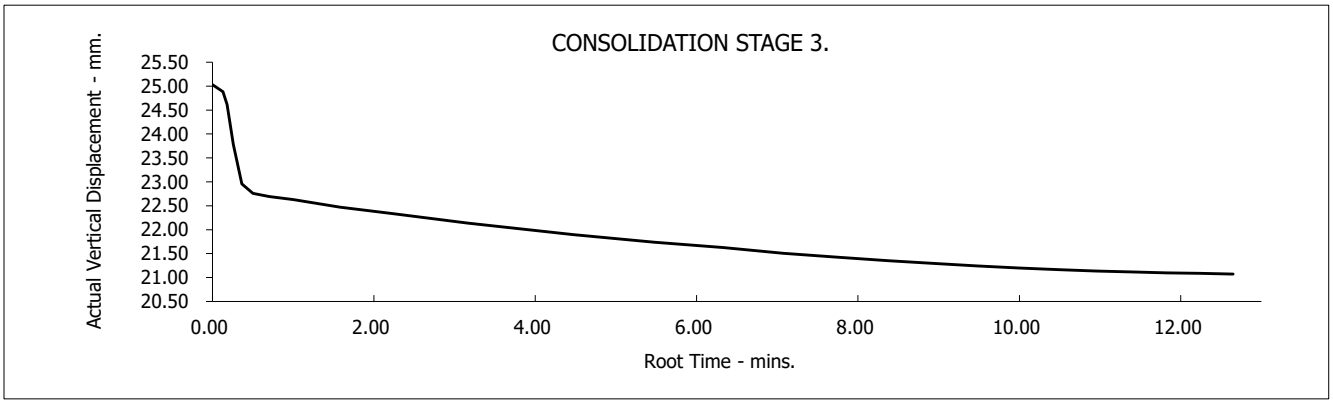
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number:	AVC BH11	Depth (m):	3.20







R.John
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01/07/2022
Date

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Approved Pages 1-4 by:

01/07/2022

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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	AVC1 BH14	Depth from (m):	3.00
Sample Number:	9		

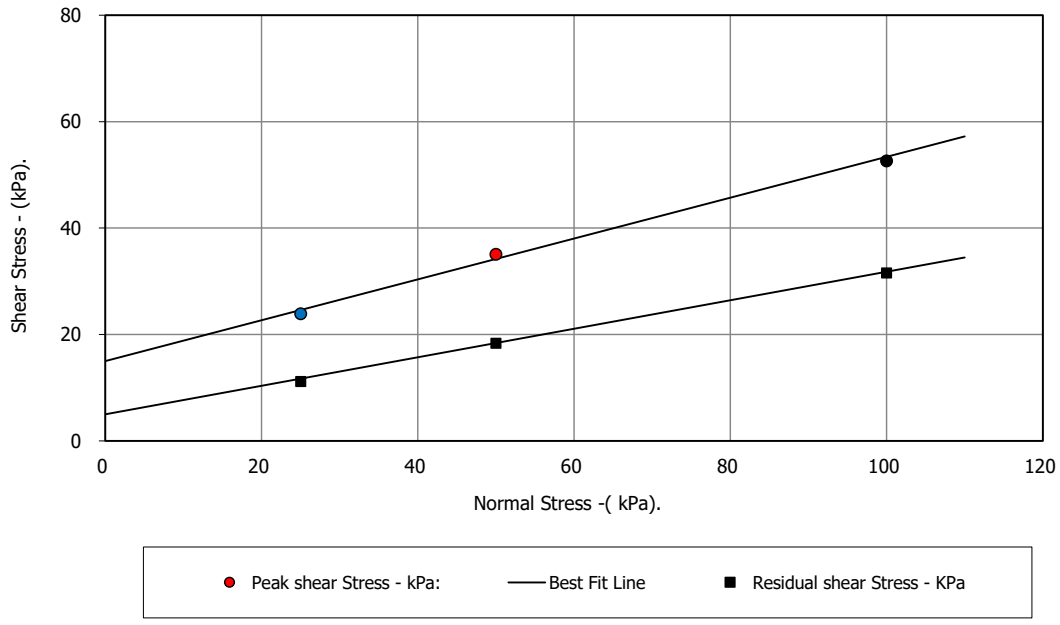
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	21	21	21
Bulk Density - Mg/m3:	1.97	1.98	1.98
Dry Density - Mg/m3:	1.63	1.63	1.63
Voids Ratio:	0.6247	0.6235	0.6234
Normal Pressure- kPa	25	50	100
Consolidation			
Consolidated Height - mm:	22.97	21.66	21.42
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	3.15	6.30	5.50
Peak shear Stress - kPa:	24	35	53
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	16.11	17.19	14.85
Residual shear Stress - kPa:	11	18	32

PEAK	
Angle of Shearing Resistance:(θ)	**21.0**
Effective Cohesion - kPa:	**15**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**15.0**
Effective Cohesion - kPa:	**5.0**

Failure Conditions



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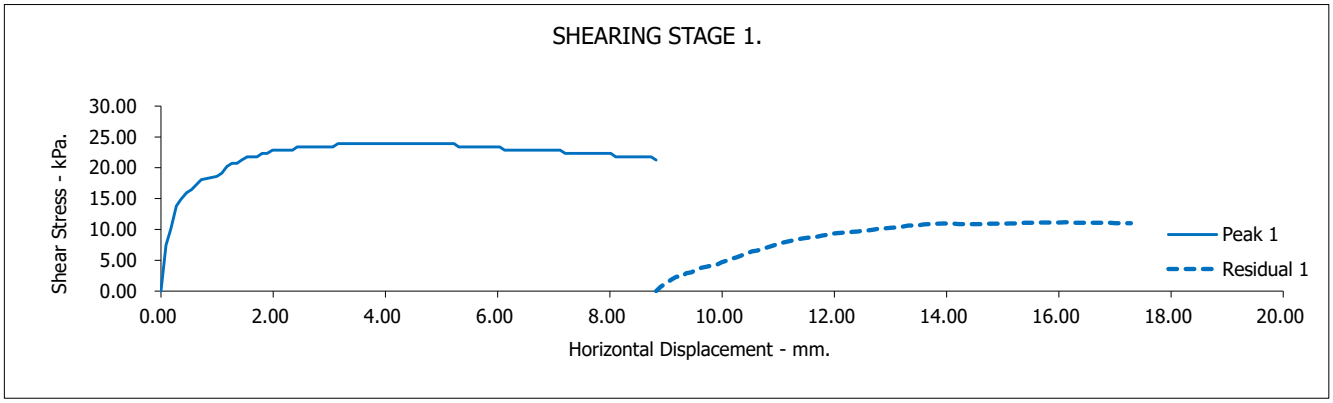
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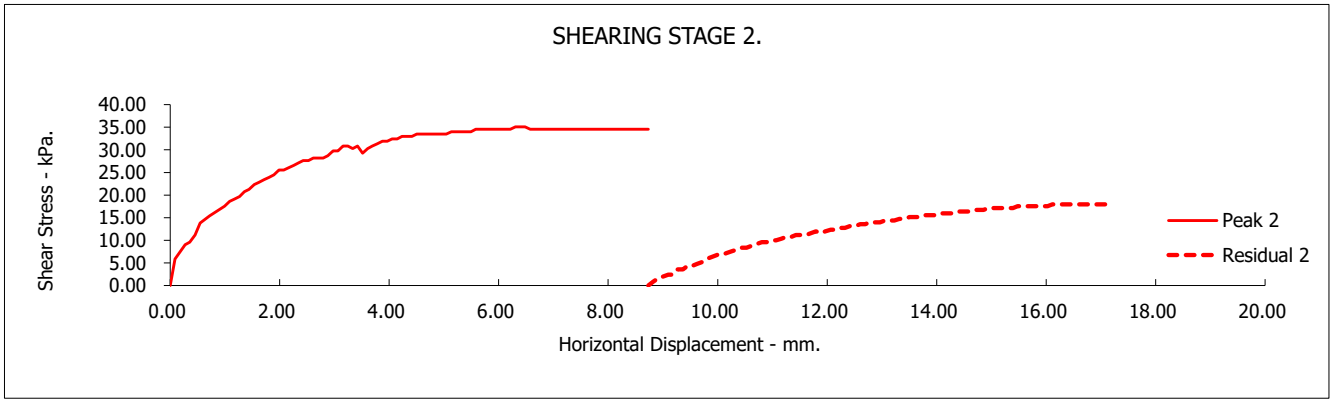
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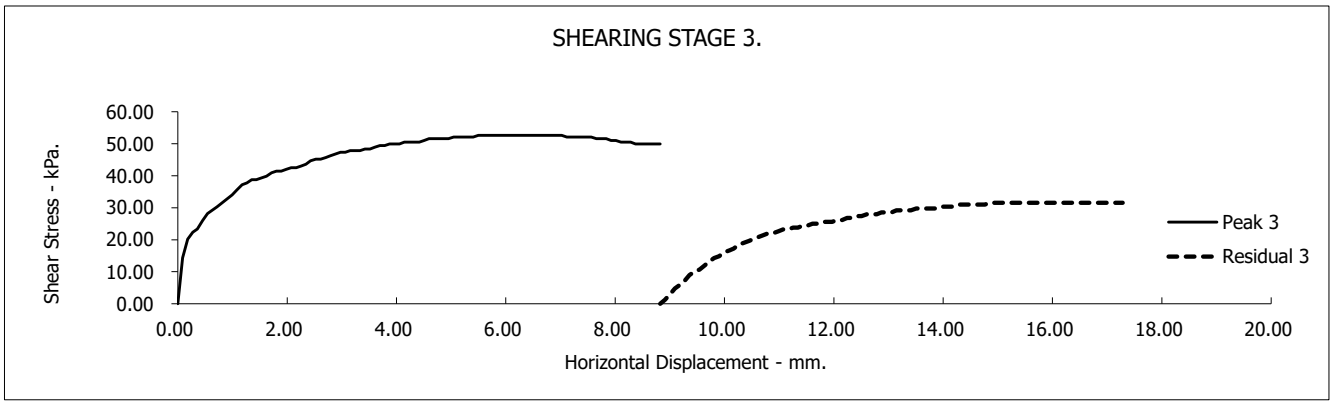
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC1 BH14 Depth (m): 3.00







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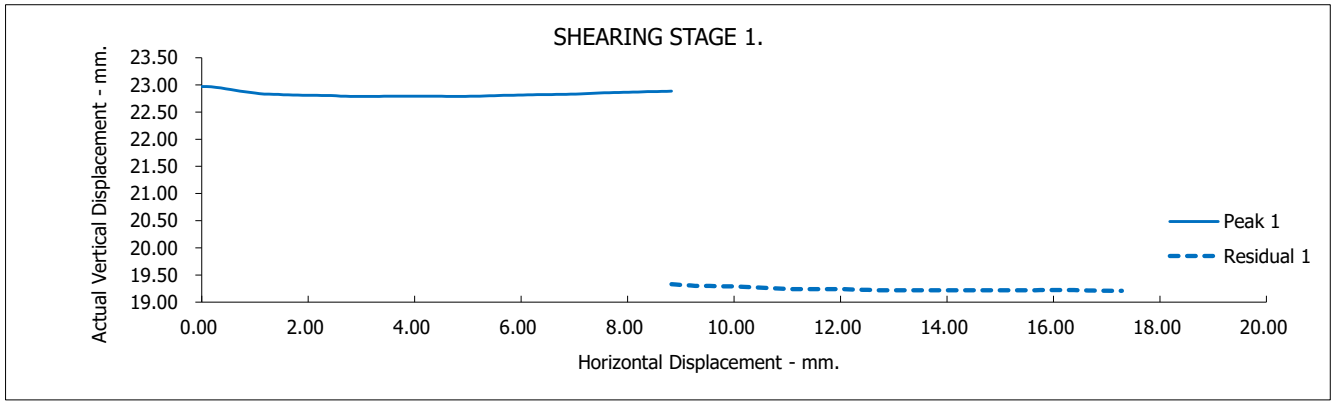
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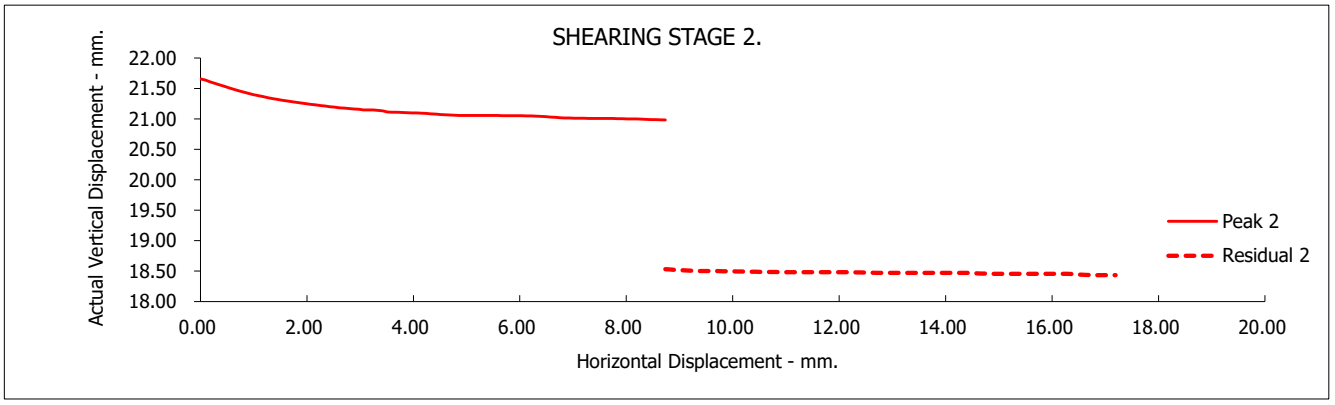
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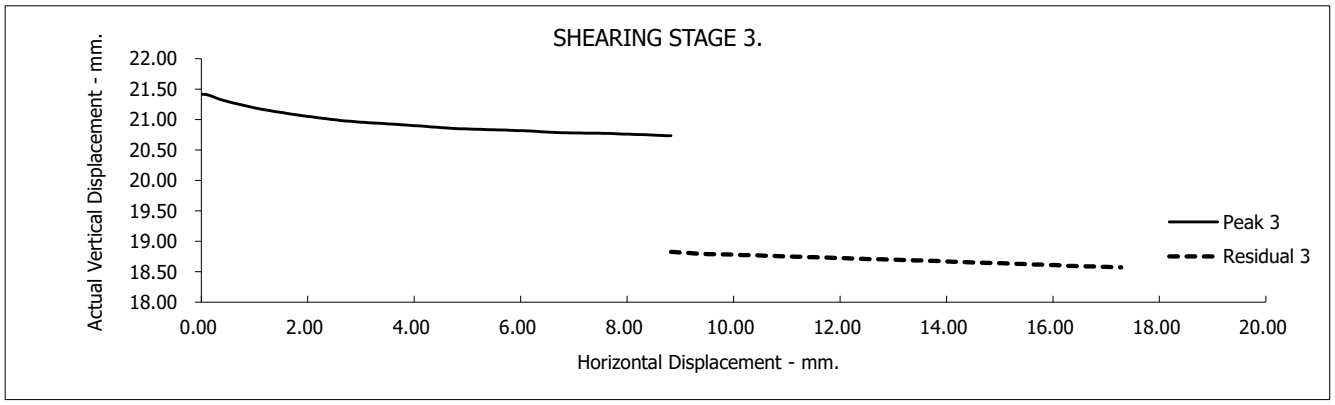
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC1 BH14 Depth (m): 3.00







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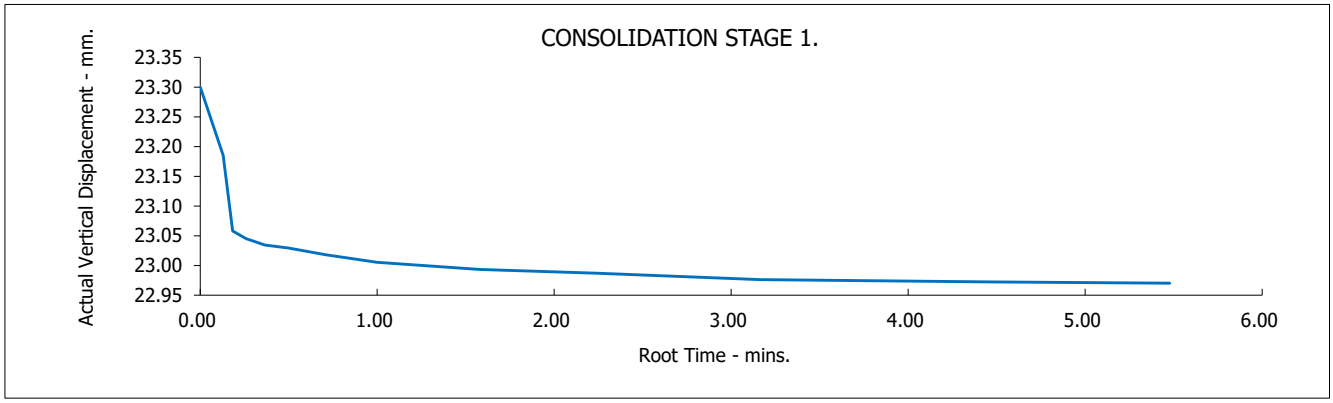
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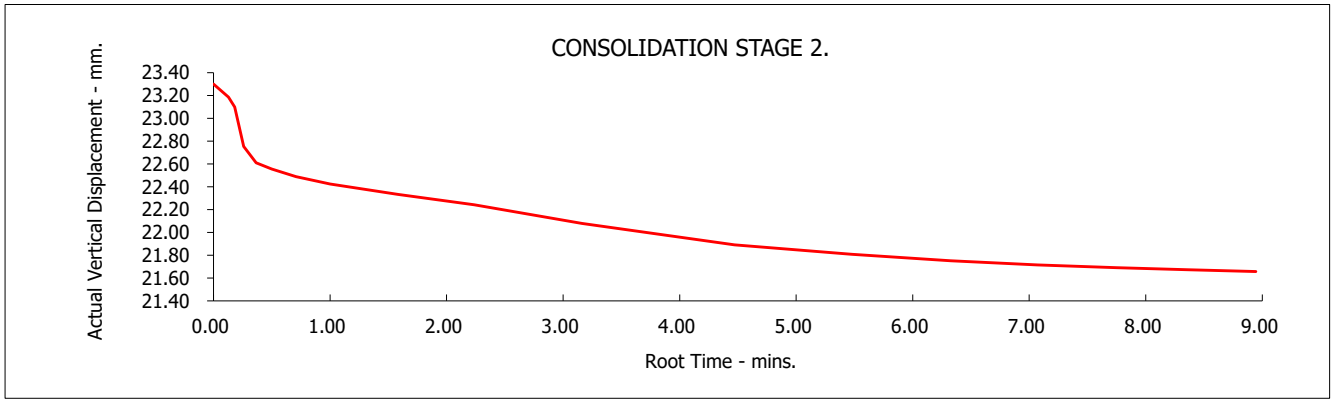
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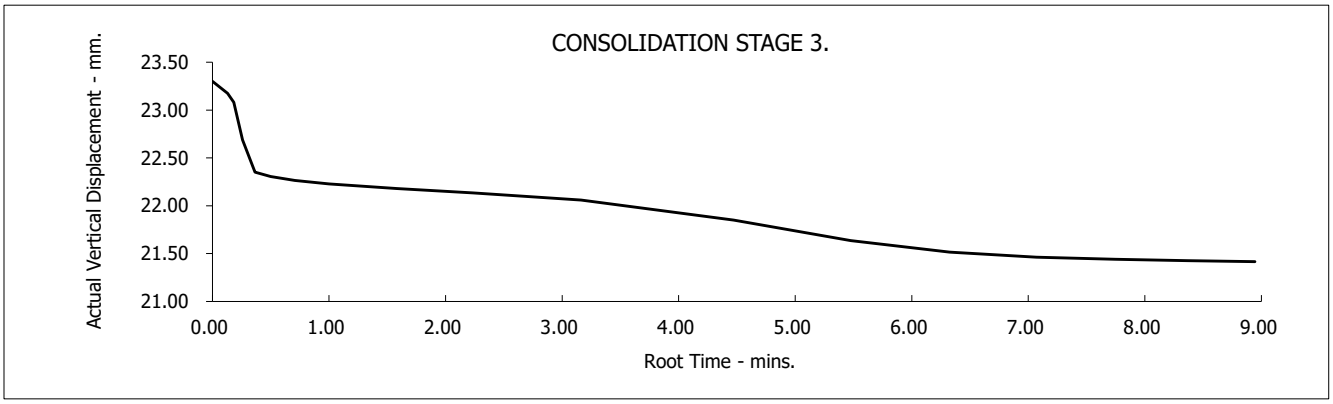
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC1 BH14 Depth (m): 3.00







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Approved Pages 1-4 by: 01/07/2022

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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

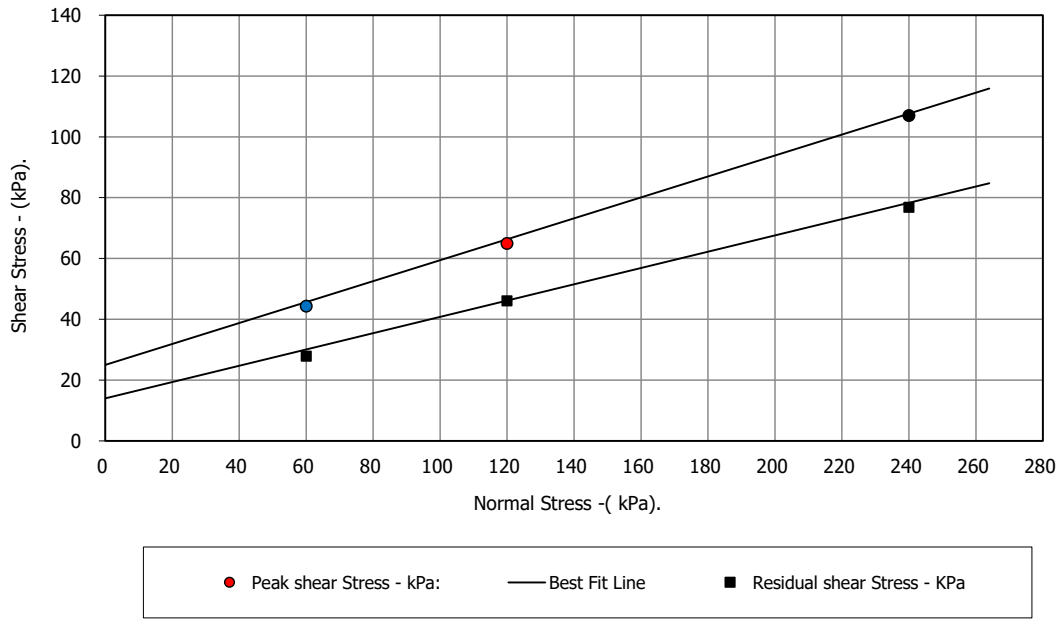
BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	AVC1 BH14	Depth from (m):	7.45
Sample Number:	15		
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Conditions:	Submerged		
Sample Description: **Brown CLAY**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	24.98	24.98	24.98
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	17	17	17
Bulk Density - Mg/m3:	1.72	1.72	1.72
Dry Density - Mg/m3:	1.46	1.47	1.46
Voids Ratio:	0.8105	0.8078	0.8101
Normal Pressure- kPa	60	120	240
Consolidation			
Consolidated Height - mm:	23.82	22.27	19.47
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	7.56	5.76	7.92
Peak shear Stress - kPa:	44	65	107
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	16.12	17.55	17.11
Residual shear Stress - kPa:	28	46	77

PEAK	
Angle of Shearing Resistance:(θ)	**19.0**
Effective Cohesion - kPa:	**25**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**15.0**
Effective Cohesion - kPa:	**14**

Failure Conditions



Chippenham

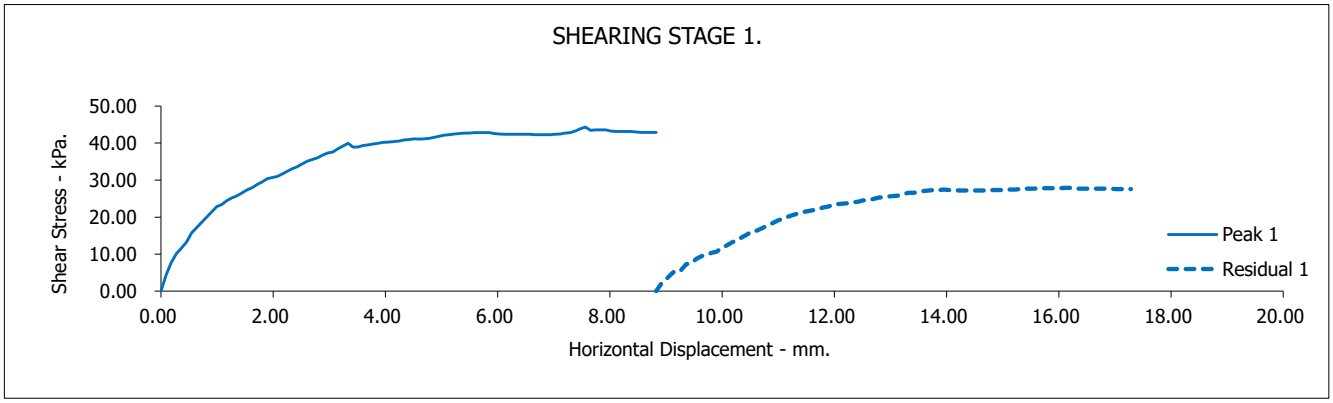
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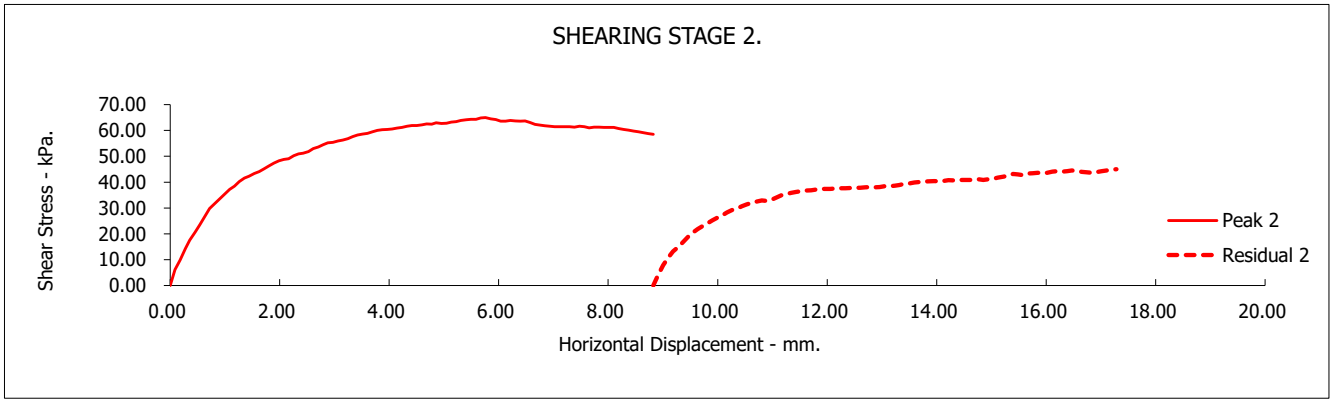
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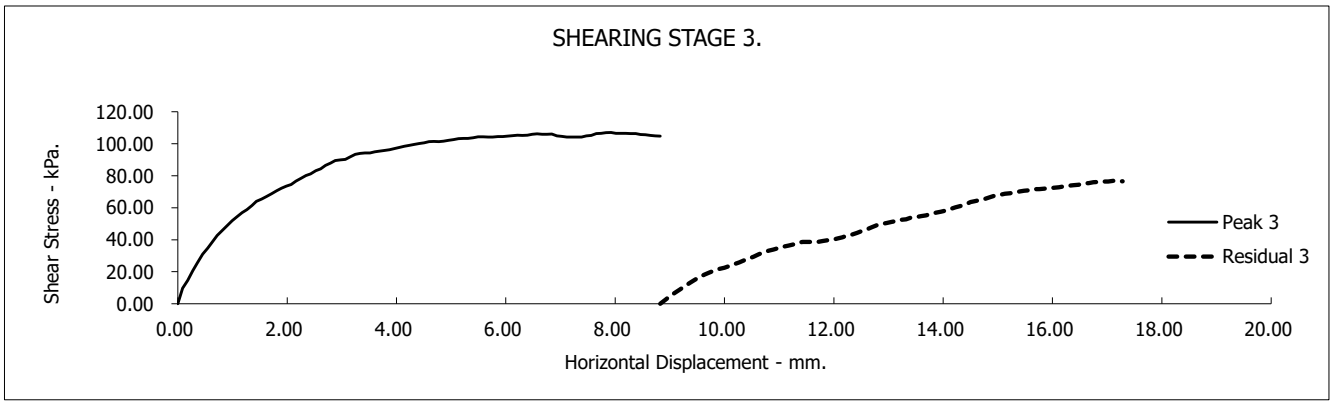
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC1 BH14 Depth (m): 7.45







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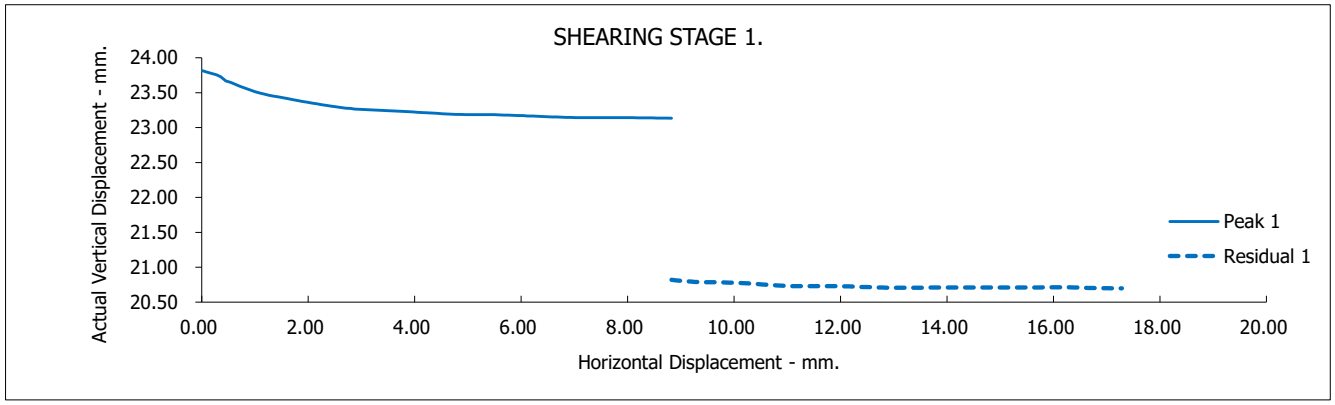
Contract No.:
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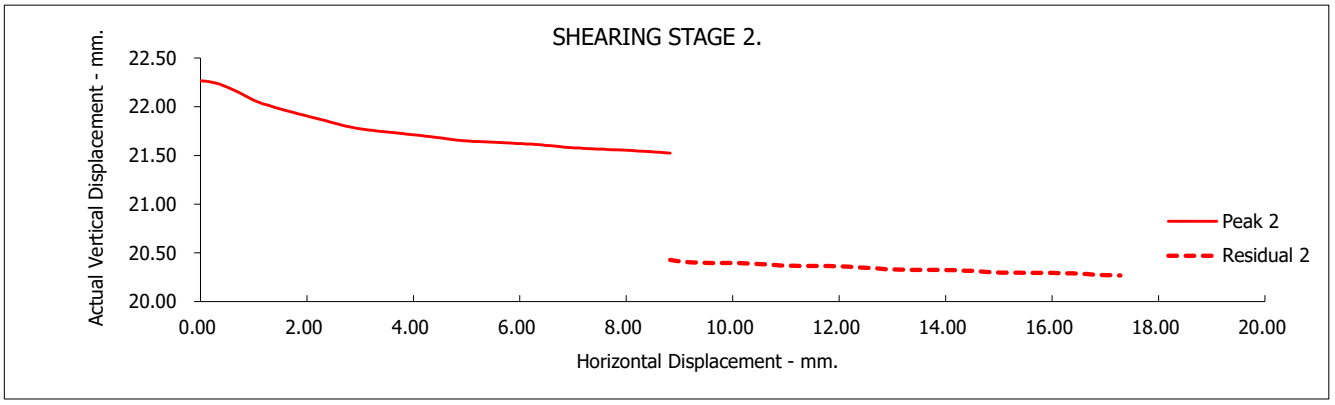
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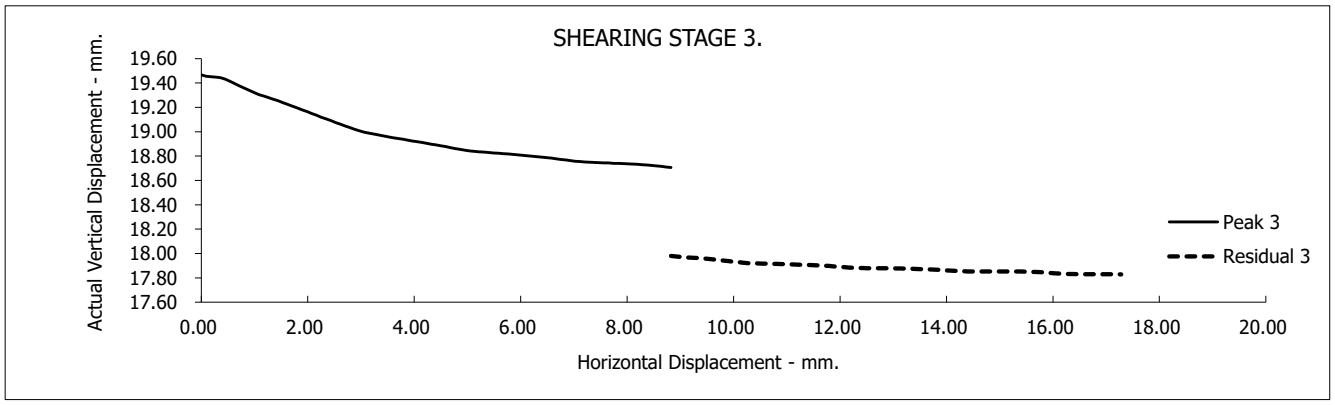
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC1 BH14 Depth (m): 7.45







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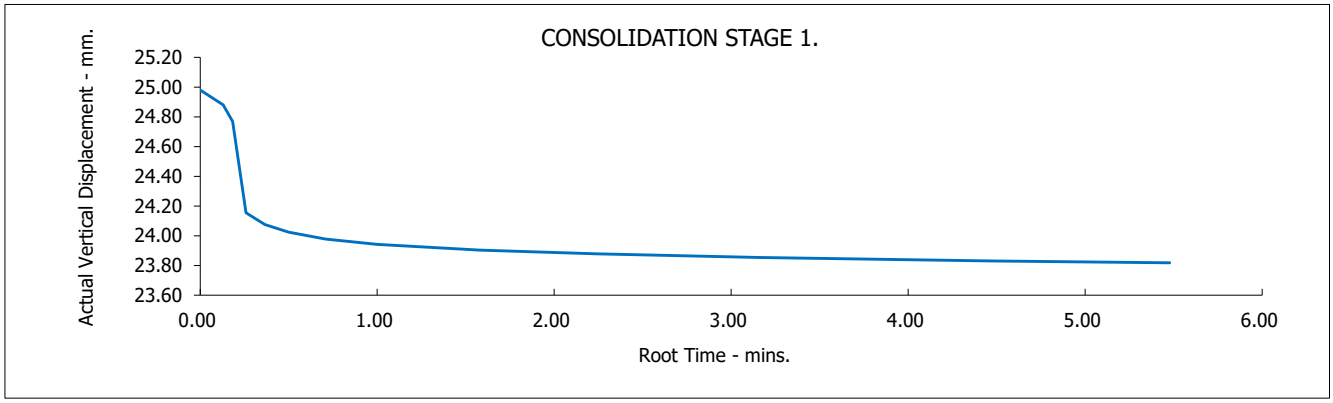
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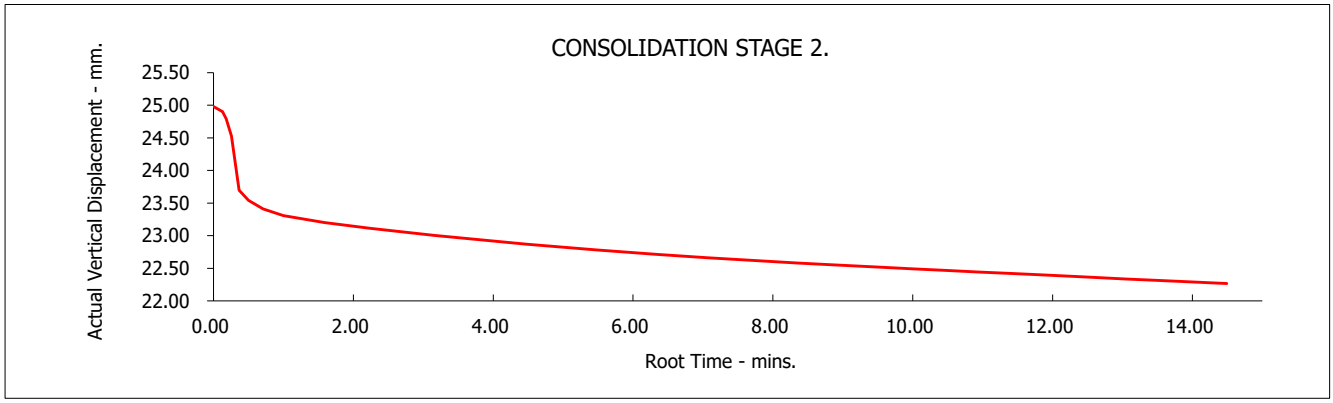
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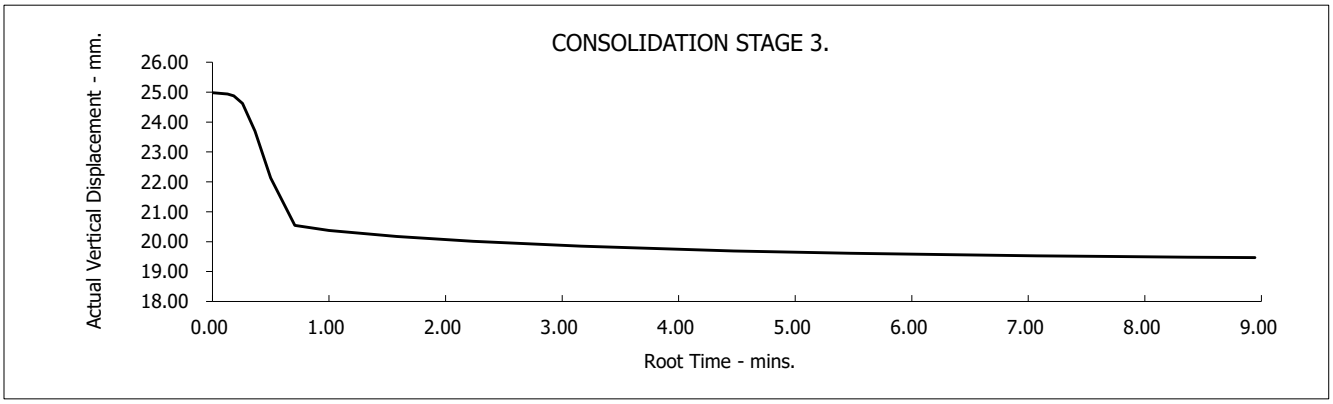
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVC1 BH14 Depth (m): 7.45







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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	PWB BH03	Depth from (m):	1.80
Sample Number:	6		

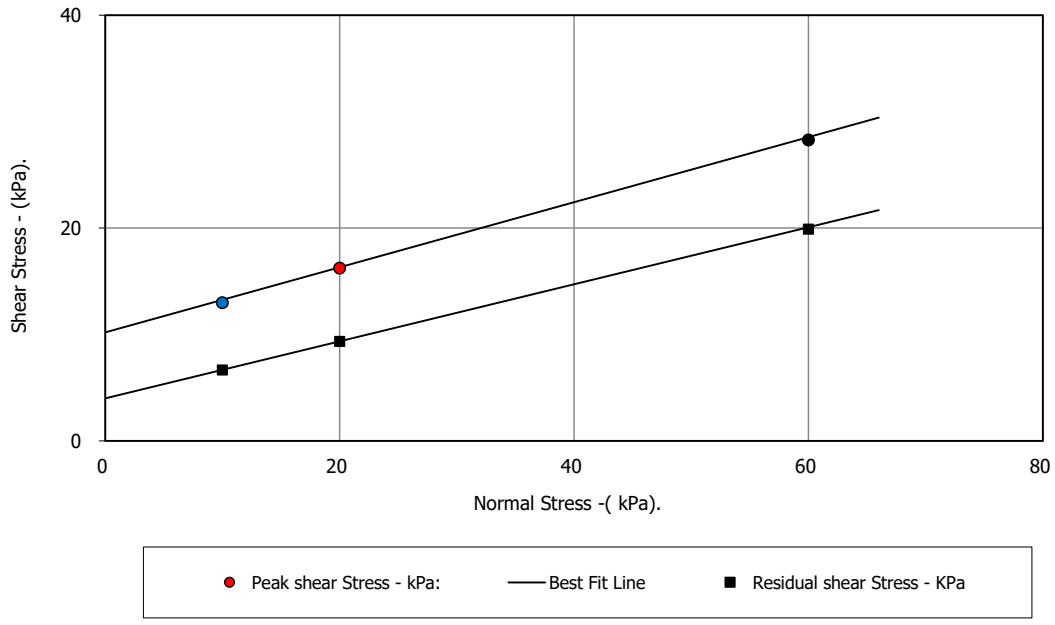
Sample Type: D	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	24.98	24.98	24.98
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	20	20	20
Bulk Density - Mg/m3:	2.05	2.05	2.05
Dry Density - Mg/m3:	1.71	1.71	1.71
Voids Ratio:	0.5497	0.5489	0.5498
Normal Pressure- kPa	10	20	60
Consolidation			
Consolidated Height - mm:	24.91	24.80	23.67
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	6.48	7.11	8.83
Peak shear Stress - kPa:	13	16	28
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	17.46	17.01	14.95
Residual shear Stress - kPa:	7	9	20

PEAK	
Angle of Shearing Resistance:(θ)	**17.0**
Effective Cohesion - kPa:	**10**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**15.0**
Effective Cohesion - kPa:	**4.0**

Failure Conditions



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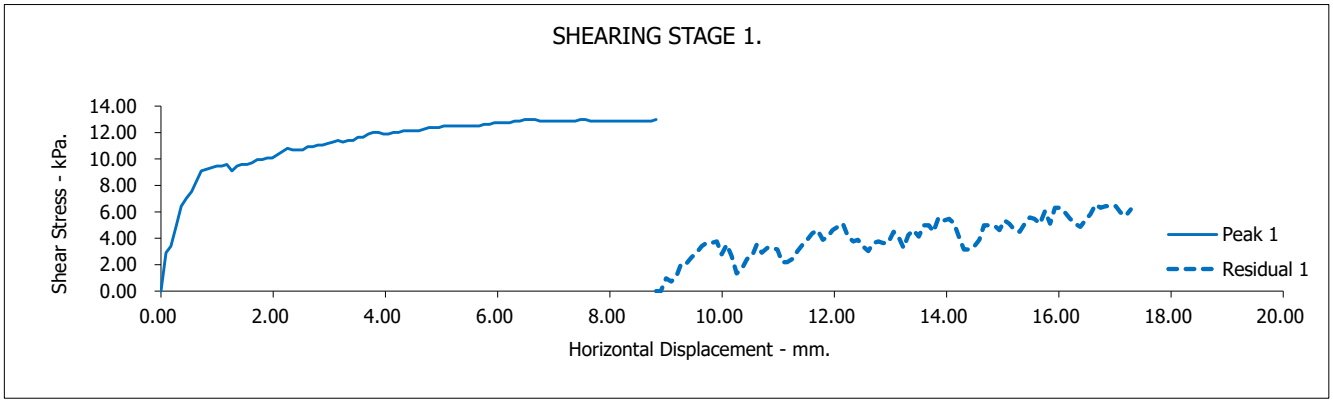
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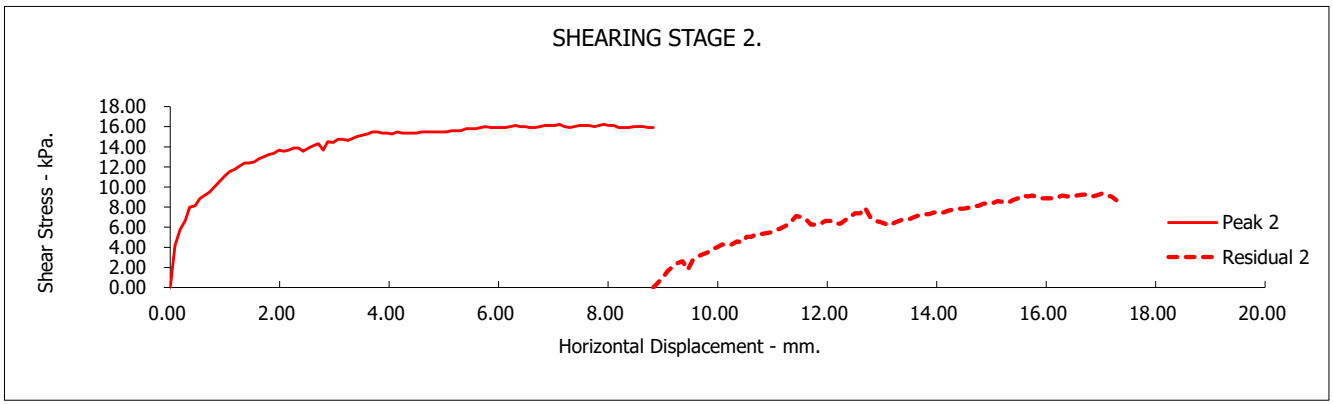
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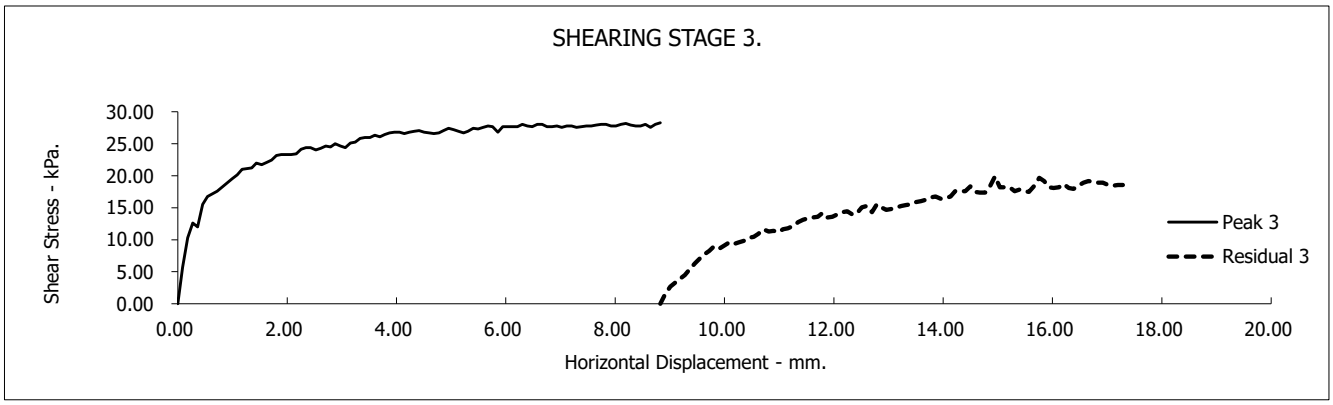
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH03 Depth (m): 1.80







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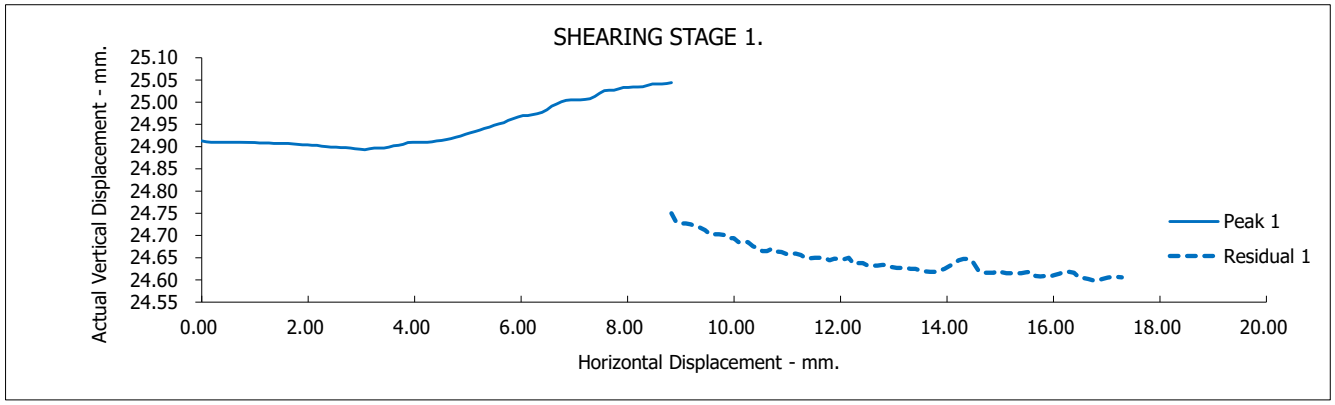
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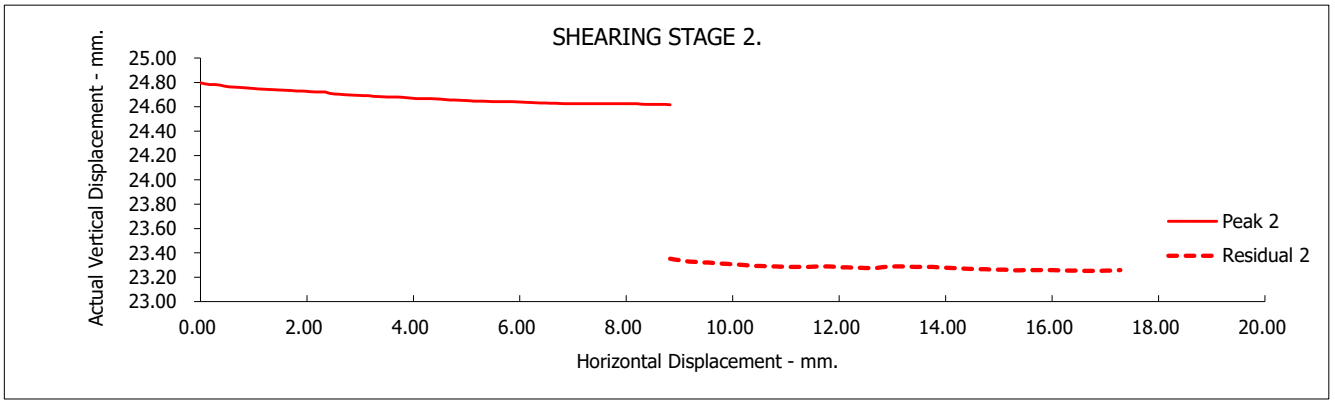
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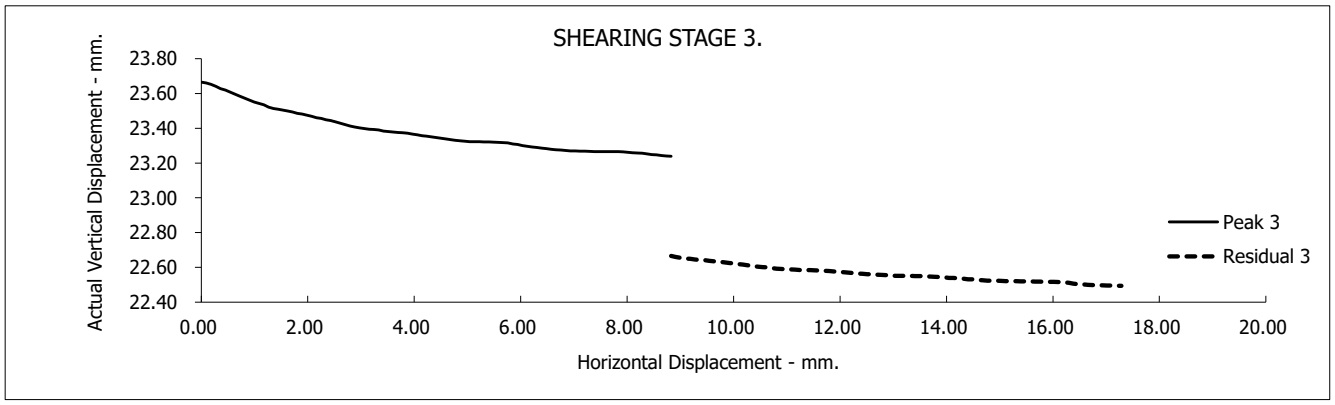
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH03 Depth (m): 1.80







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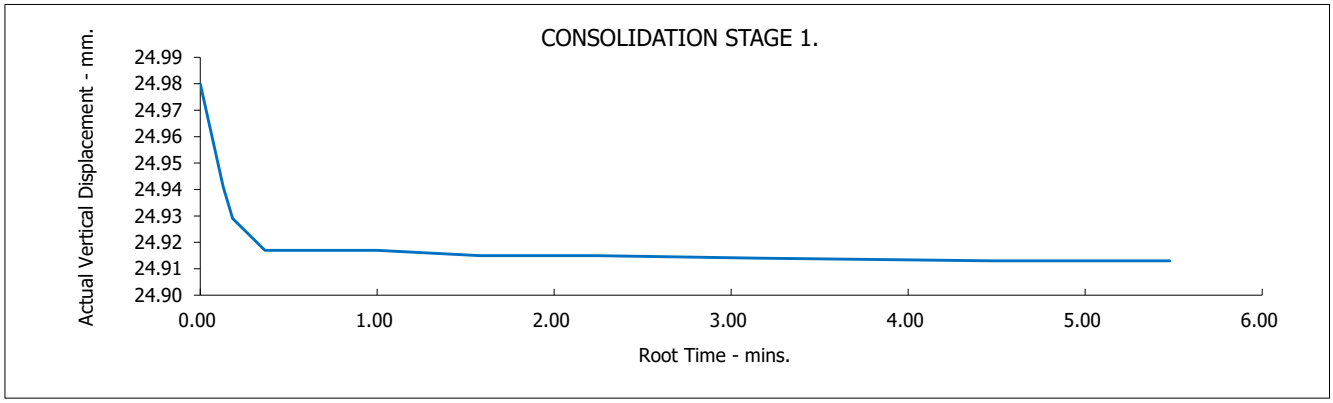
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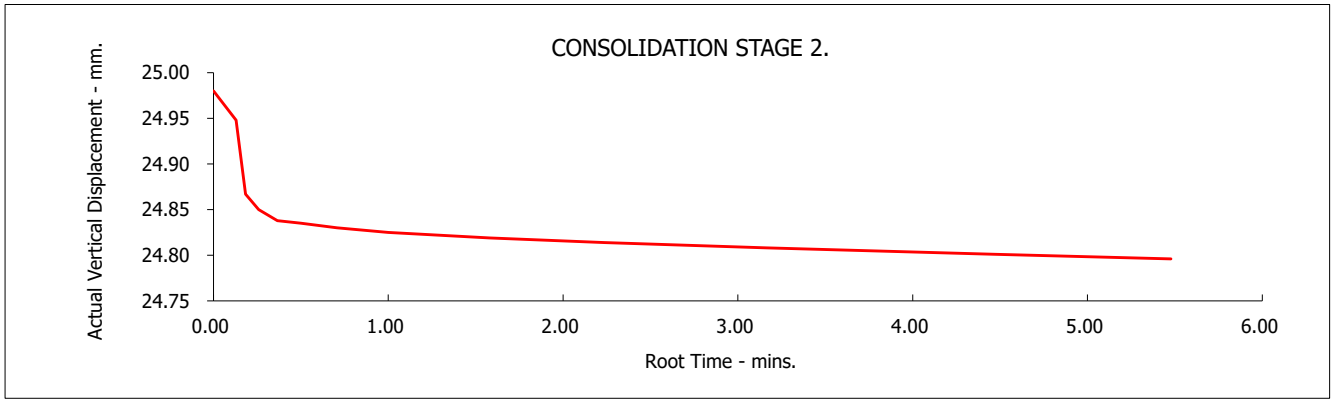
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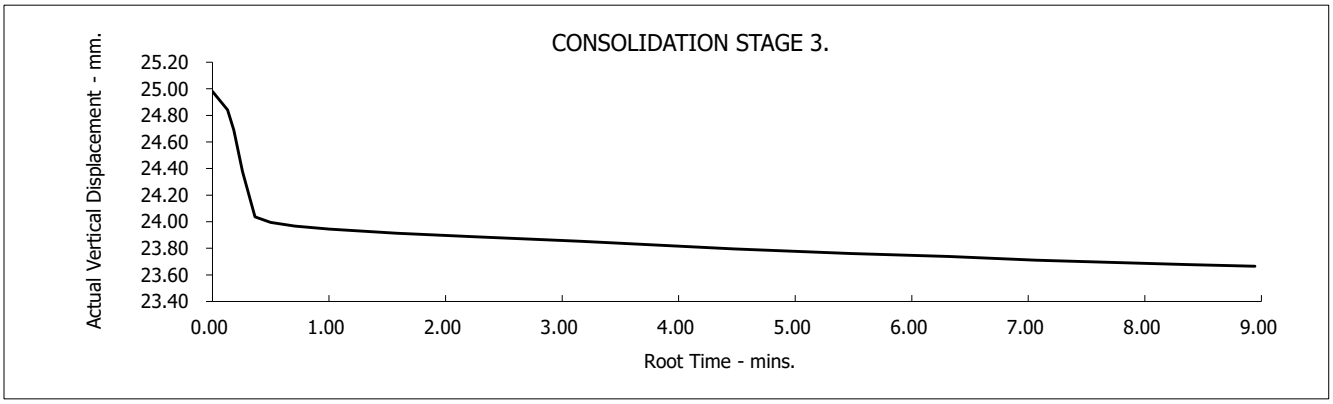
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number:	PWB BH03	Depth (m):	1.80







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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	PWB BH04	Depth from (m):	9.05
Sample Number:	17		

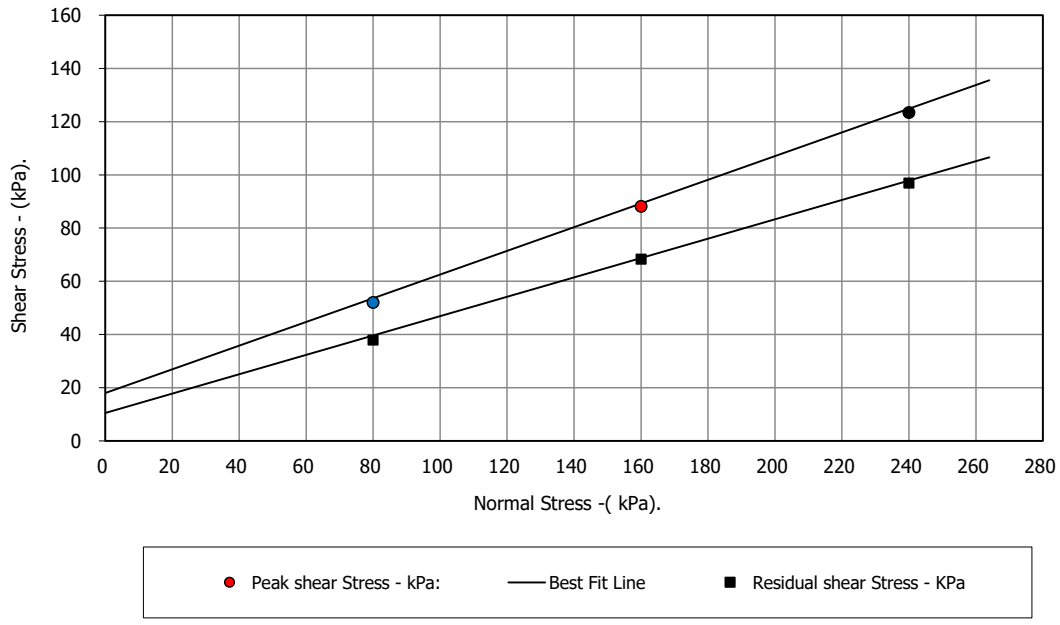
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	13	13	13
Bulk Density - Mg/m3:	1.83	1.83	1.83
Dry Density - Mg/m3:	1.61	1.61	1.61
Voids Ratio:	0.6439	0.6448	0.6433
Normal Pressure- kPa	80	160	240
Consolidation			
Consolidated Height - mm:	23.86	22.48	21.92
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	6.39	8.82	8.73
Peak shear Stress - kPa:	52	88	123
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	17.20	17.01	17.29
Residual shear Stress - kPa:	38	68	97

PEAK	
Angle of Shearing Resistance:(θ)	**24.0**
Effective Cohesion - kPa:	**18**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**20.0**
Effective Cohesion - kPa:	**11**

Failure Conditions



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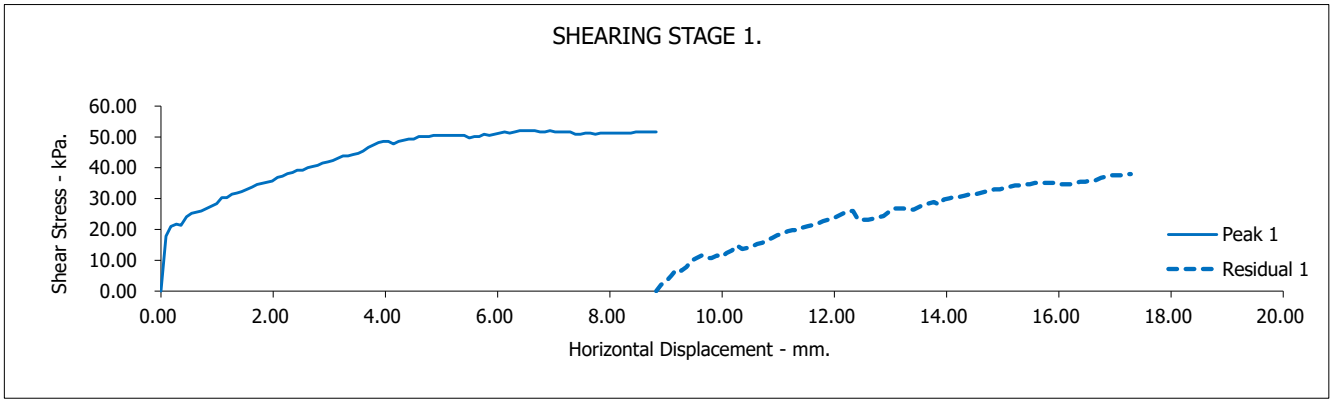
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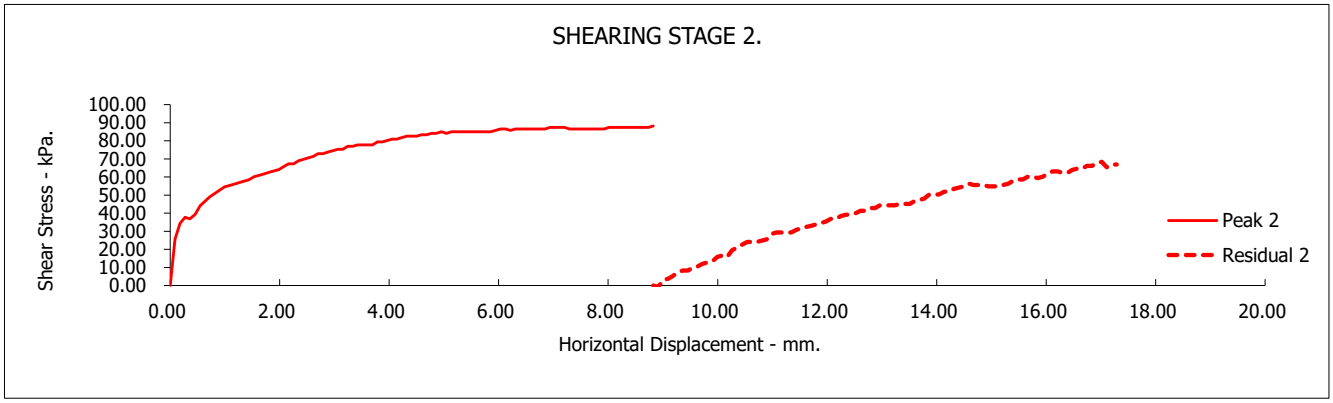
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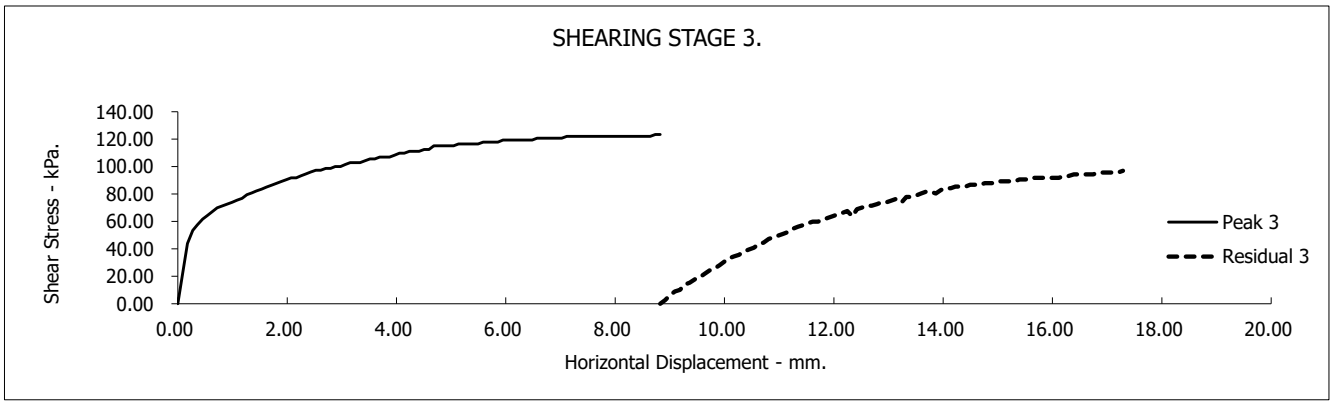
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH04 Depth (m): 9.05







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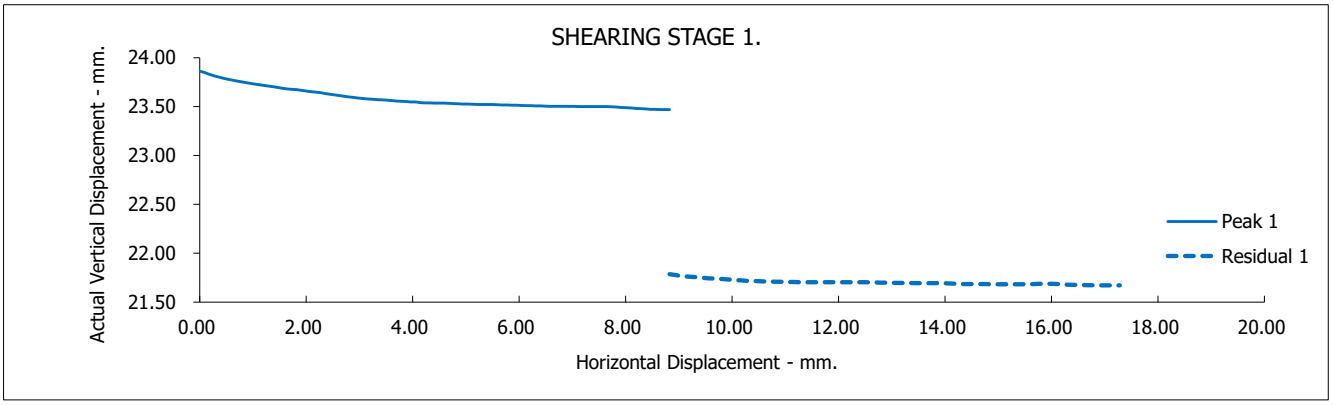
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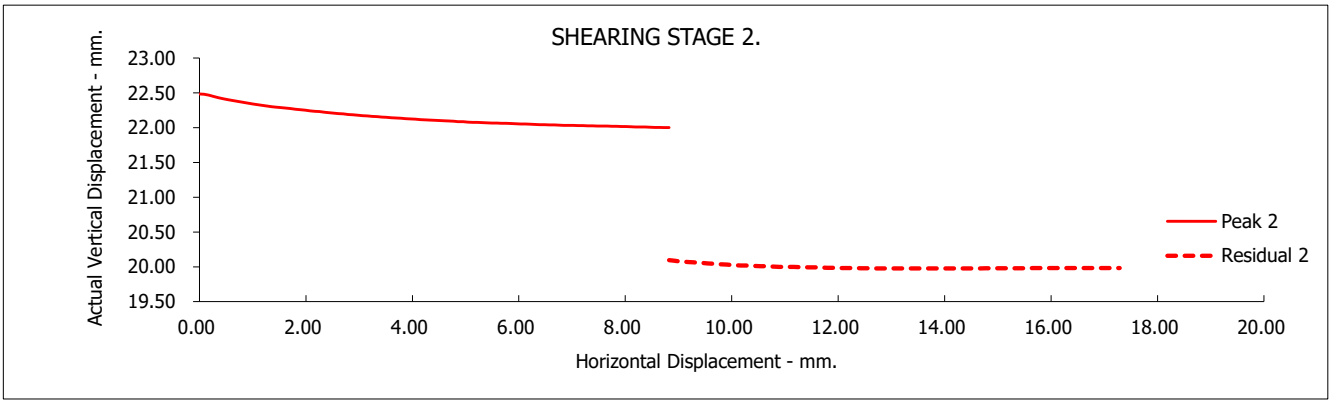
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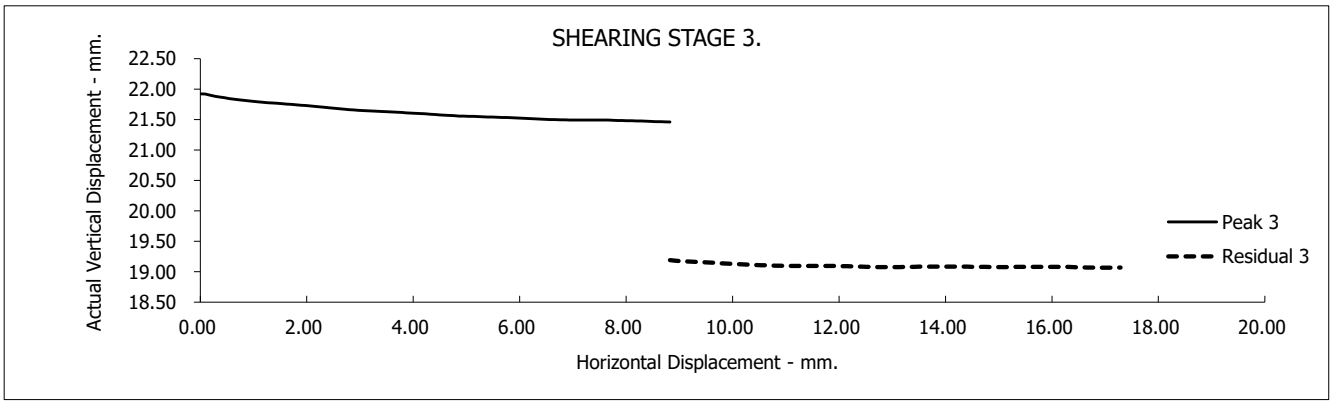
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH04 Depth (m): 9.05







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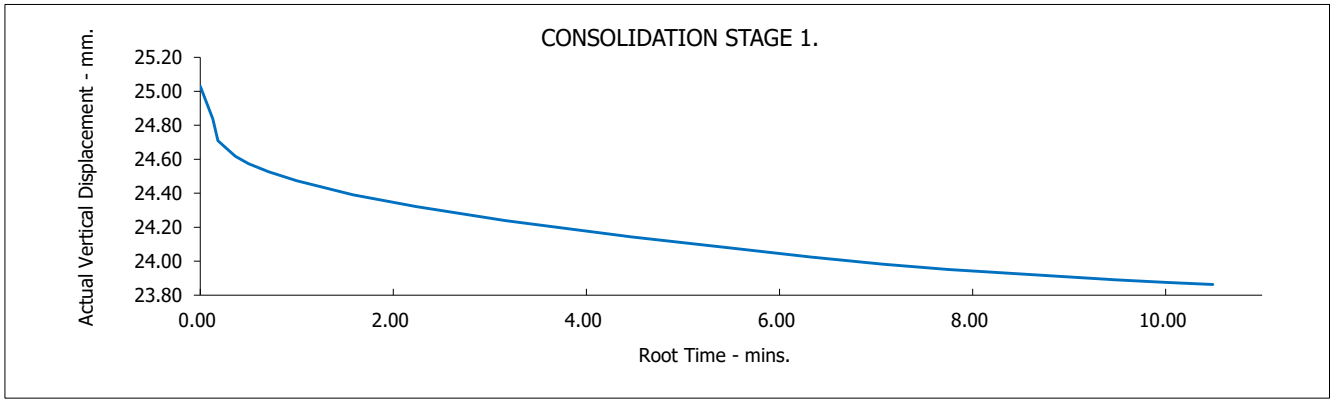
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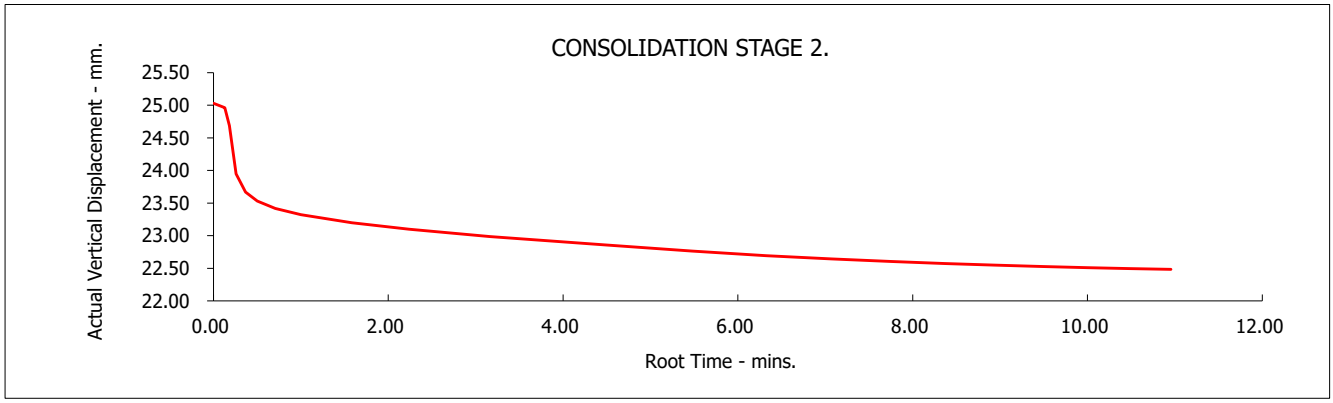
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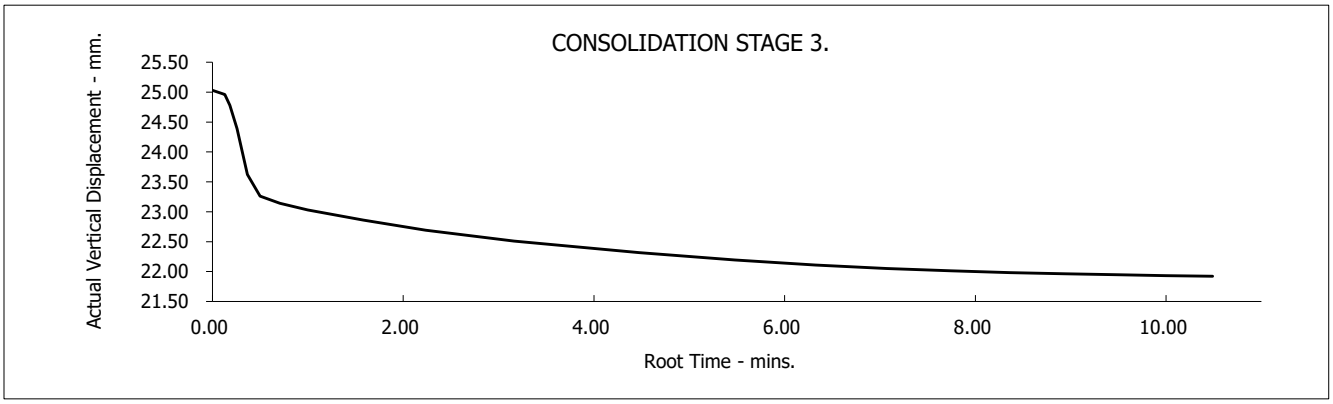
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH04 Depth (m): 9.05







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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	PWR BH01	Depth from (m):	11.50
Sample Number:	26		

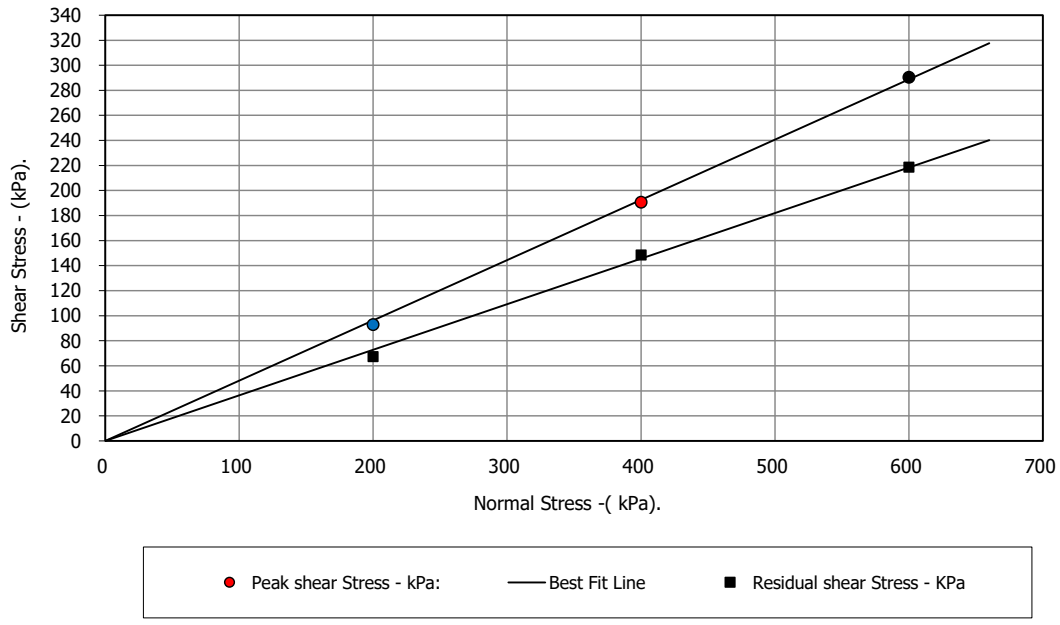
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown silty CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	18	18	18
Bulk Density - Mg/m3:	2.05	2.05	2.05
Dry Density - Mg/m3:	1.73	1.73	1.73
Voids Ratio:	0.5330	0.5333	0.5327
Normal Pressure- kPa	200	400	600
Consolidation			
Consolidated Height - mm:	21.38	20.51	20.70
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	3.69	3.33	8.64
Peak shear Stress - kPa:	93	191	291
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	17.46	16.83	17.55
Residual shear Stress - kPa:	67	148	219

PEAK	
Angle of Shearing Resistance:(θ)	**25.5**
Effective Cohesion - kPa:	**0.0**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**20.0**
Effective Cohesion - kPa:	**0.0**

Failure Conditions



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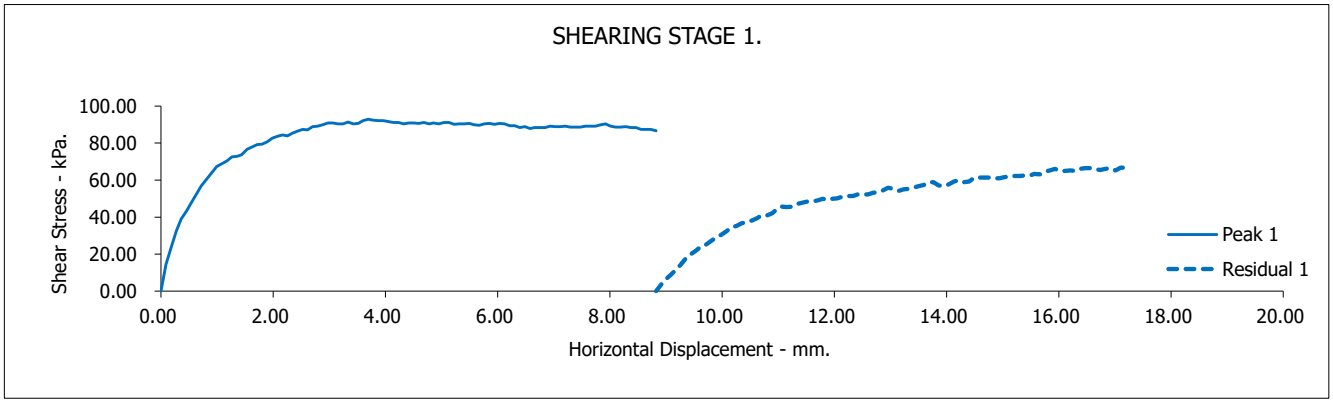
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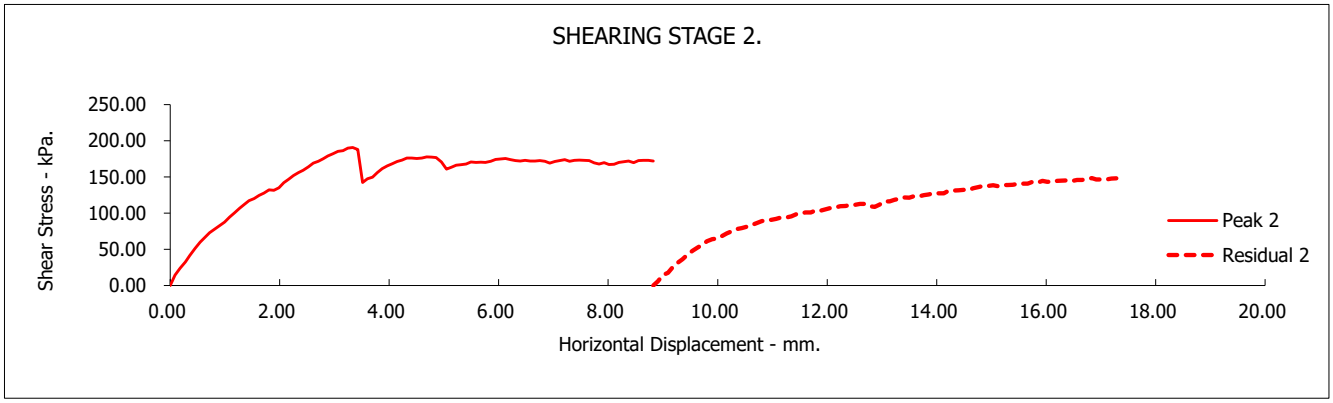
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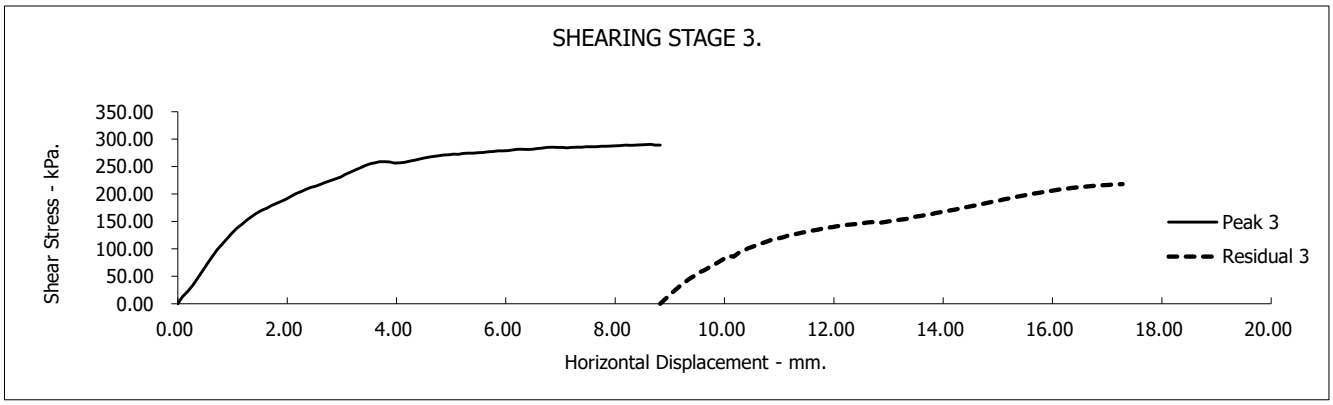
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWR BH01 Depth (m): 11.50







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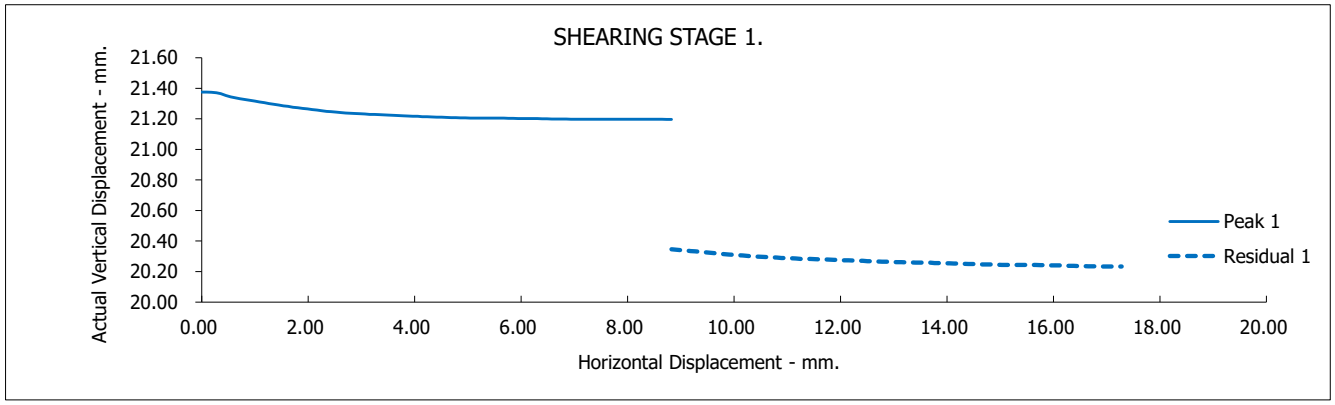
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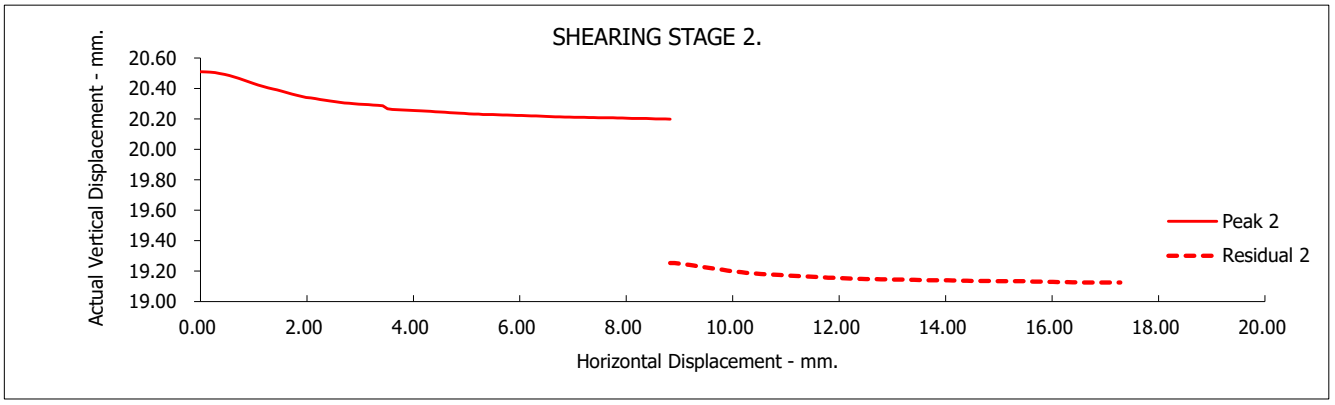
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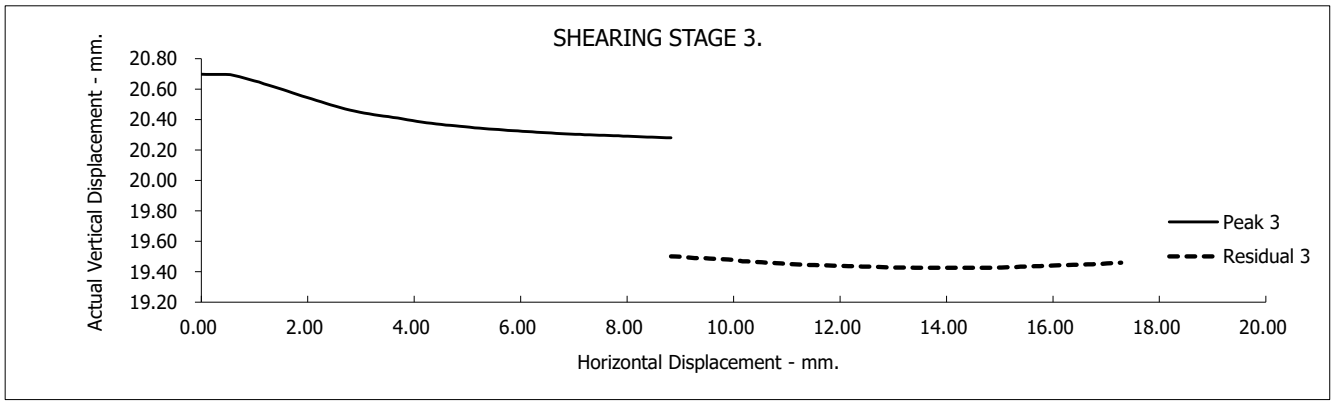
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWR BH01 Depth (m): 11.50







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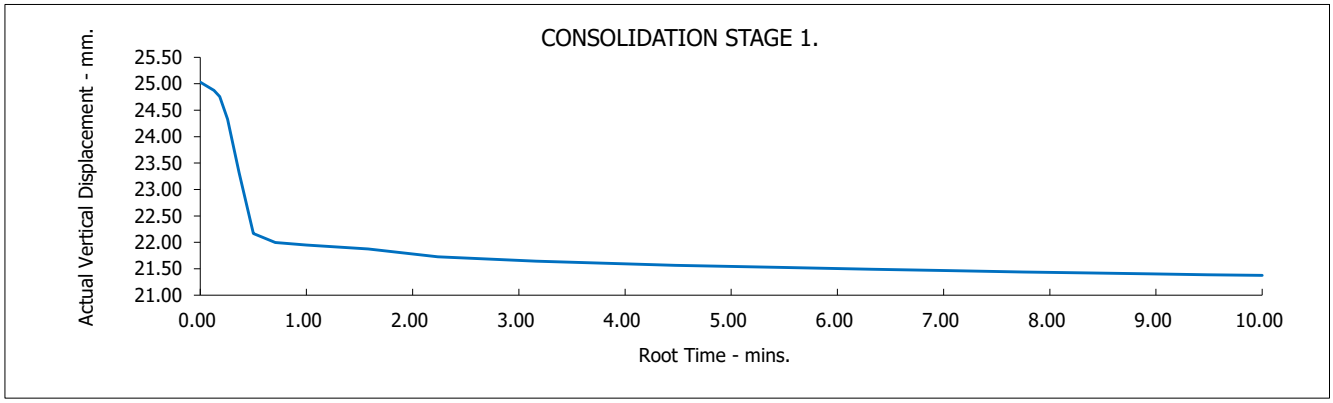
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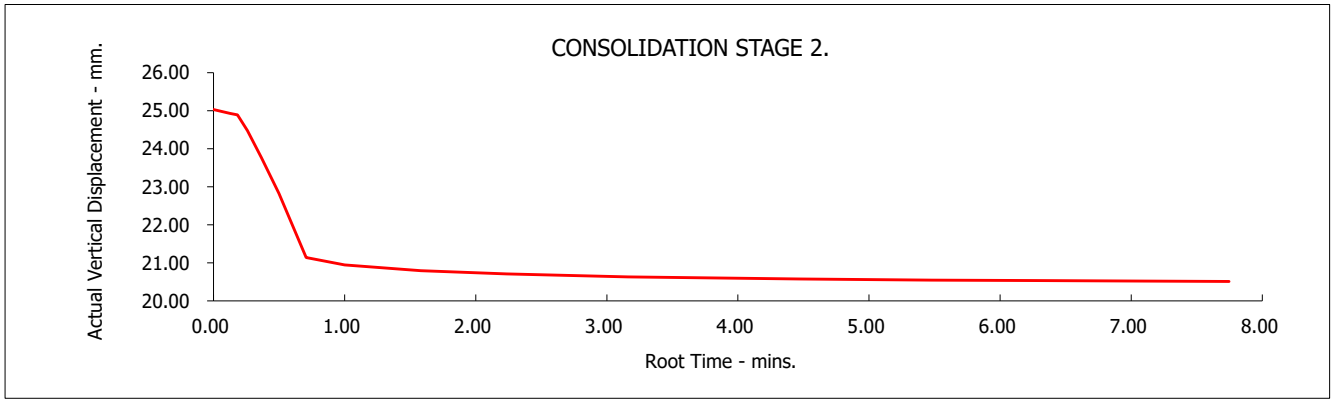
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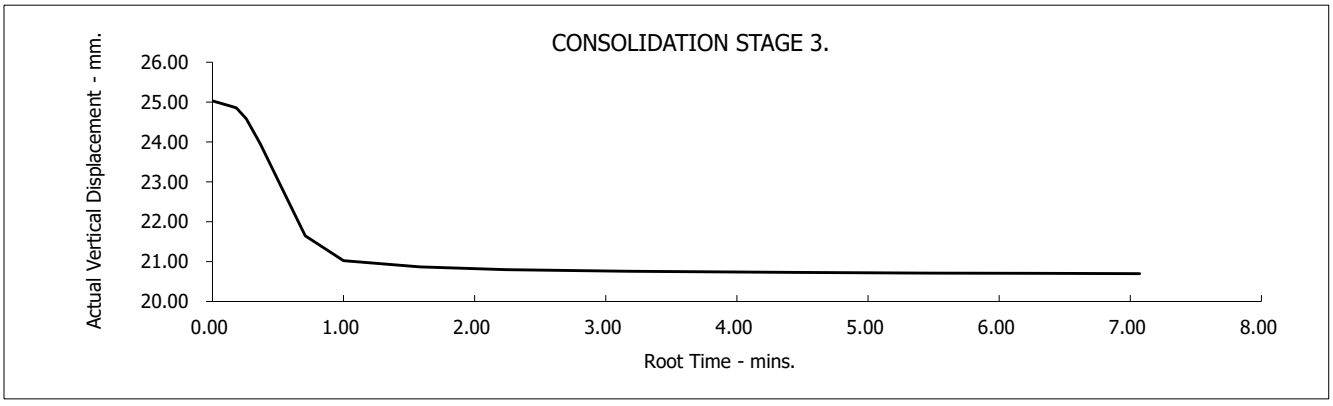
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWR BH01 Depth (m): 11.50







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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	PWR BH01	Depth from (m):	11.50
Sample Number:	26		

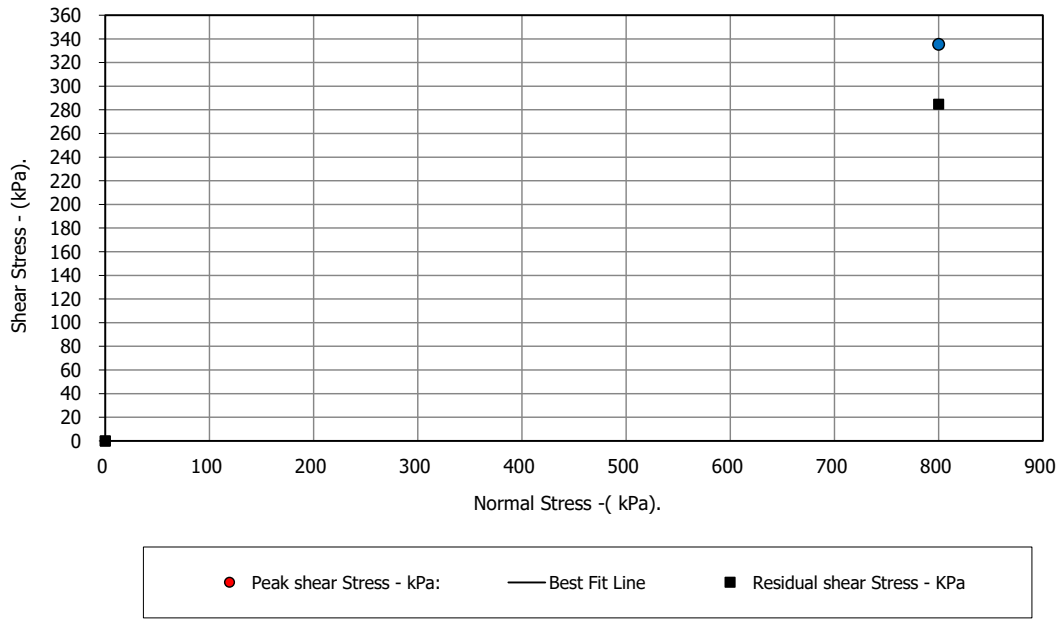
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown silty CLAY

STAGE	**1**		
Initial Conditions			
Height - mm:	25.03		
Length - mm:	60.00		
Moisture Content - %:	18		
Bulk Density - Mg/m3:	2.05		
Dry Density - Mg/m3:	1.73		
Voids Ratio:	0.5317		
Normal Pressure- kPa	800		
Consolidation			
Consolidated Height - mm:	19.27		
Peak Shear			
Rate of Strain (mm/min)	0.200		
Displacement at peak shear stress (mm)	8.82		
Peak shear Stress - kPa:	335		
Residual Shear			
Rate of Strain (mm/min)	0.200		
Displacement at peak shear stress (mm)	15.66		
Residual shear Stress - kPa:	285		

PEAK	
Angle of Shearing Resistance:(θ)	**0.0**
Effective Cohesion - kPa:	**0.0**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**0.0**
Effective Cohesion - kPa:	**0.0**

Failure Conditions



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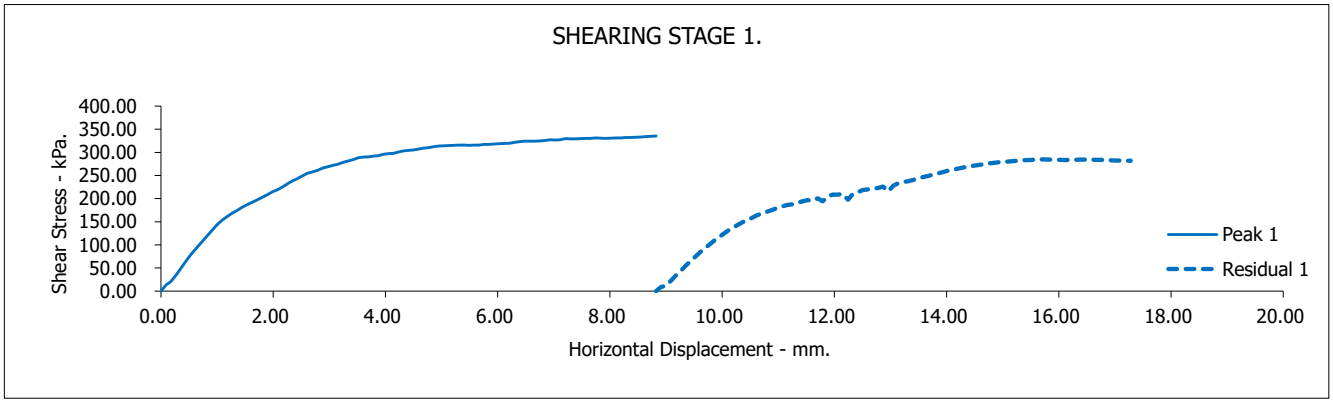
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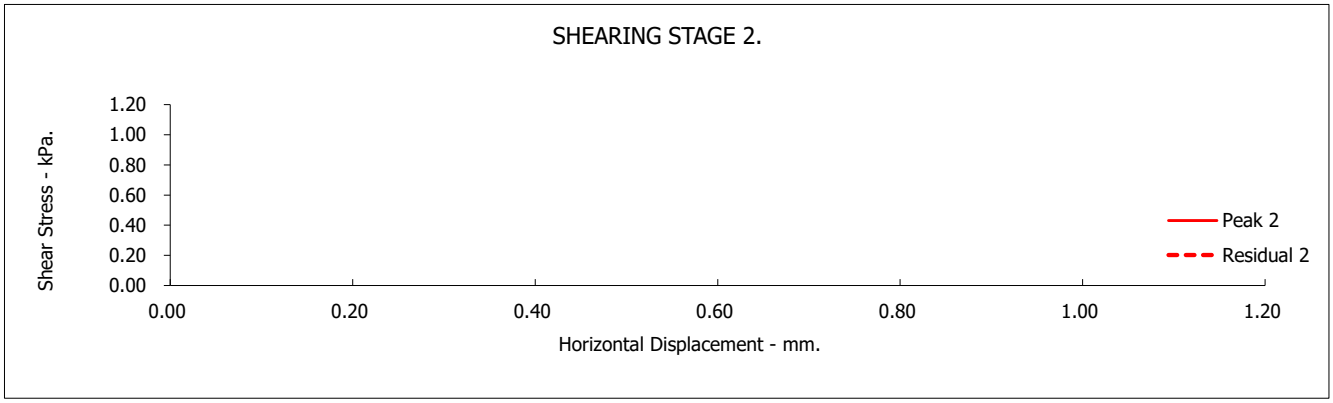
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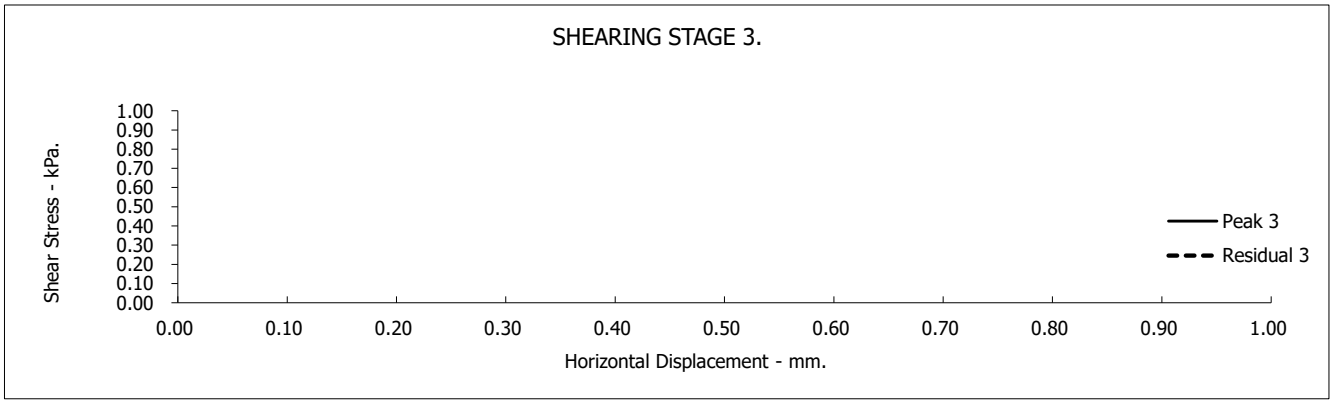
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWR BH01 Depth (m): 11.50







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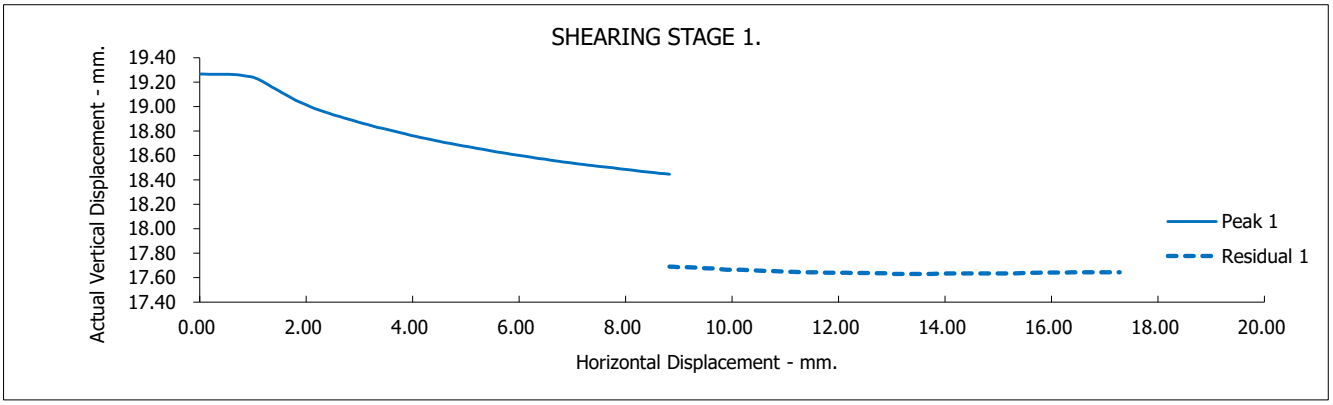
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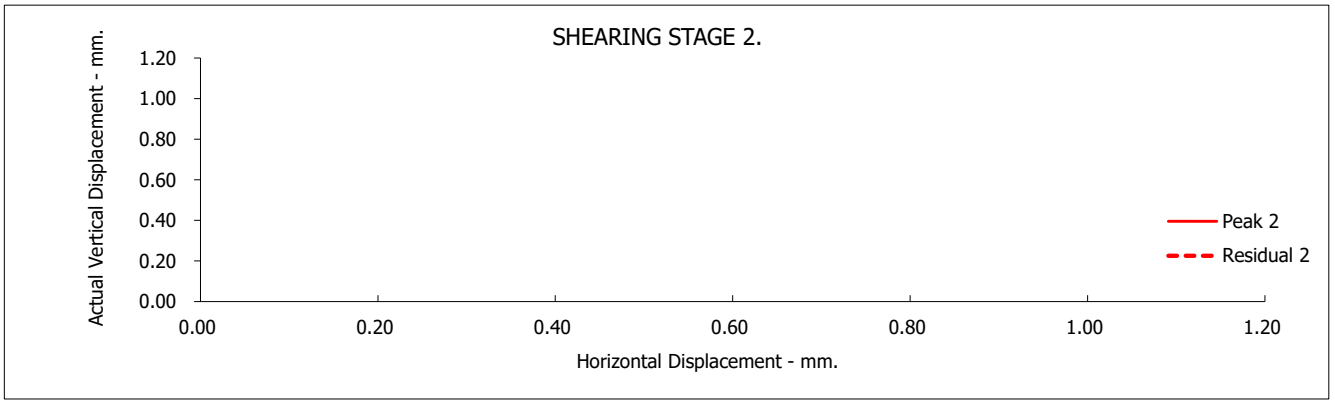
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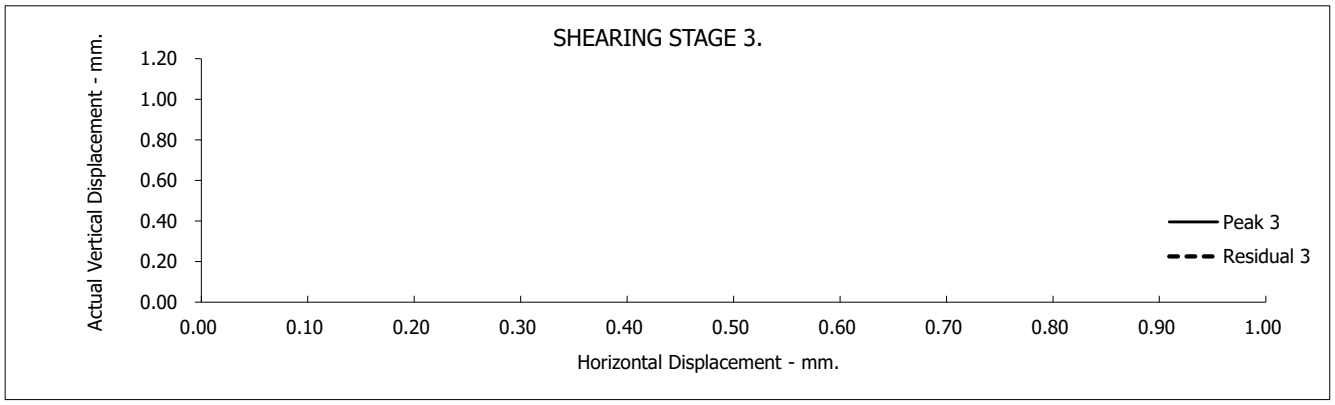
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWR BH01 Depth (m): 11.50







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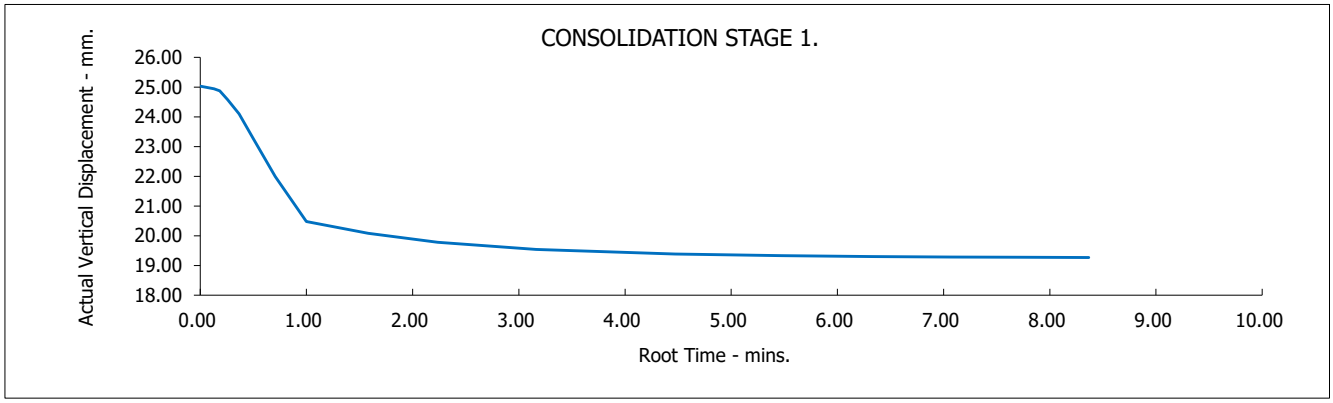
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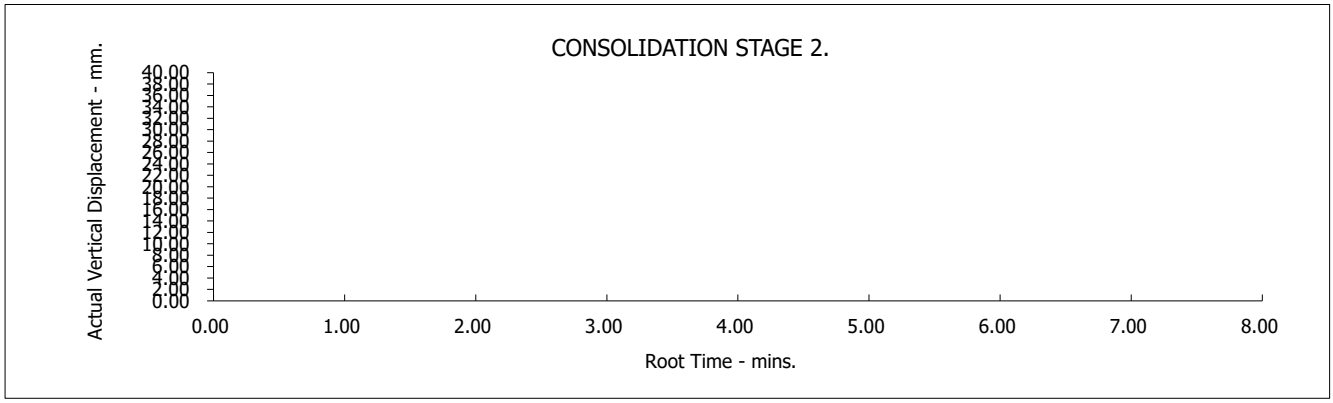
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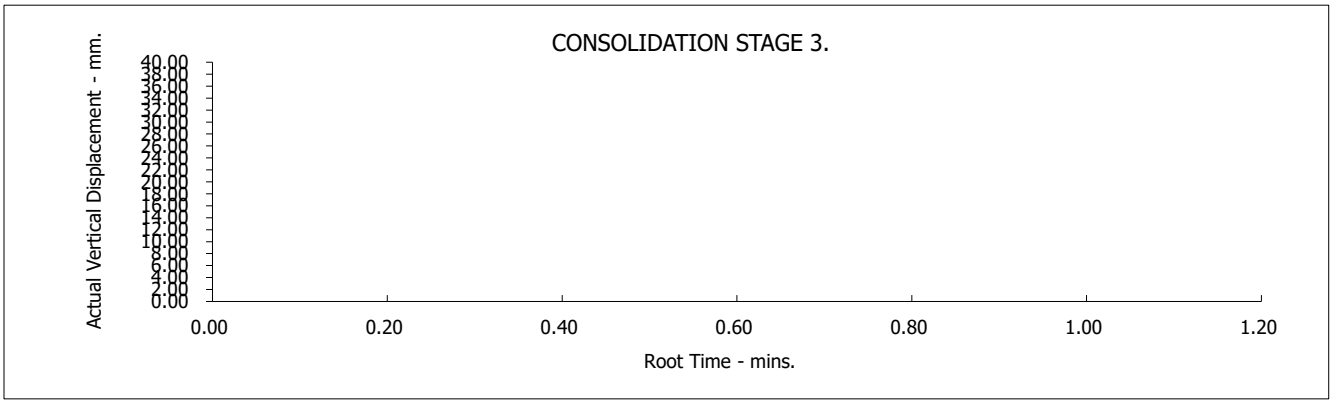
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWR BH01 Depth (m): 11.50







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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	PWB BH06	Depth from (m):	14.65
Sample Number:	23		

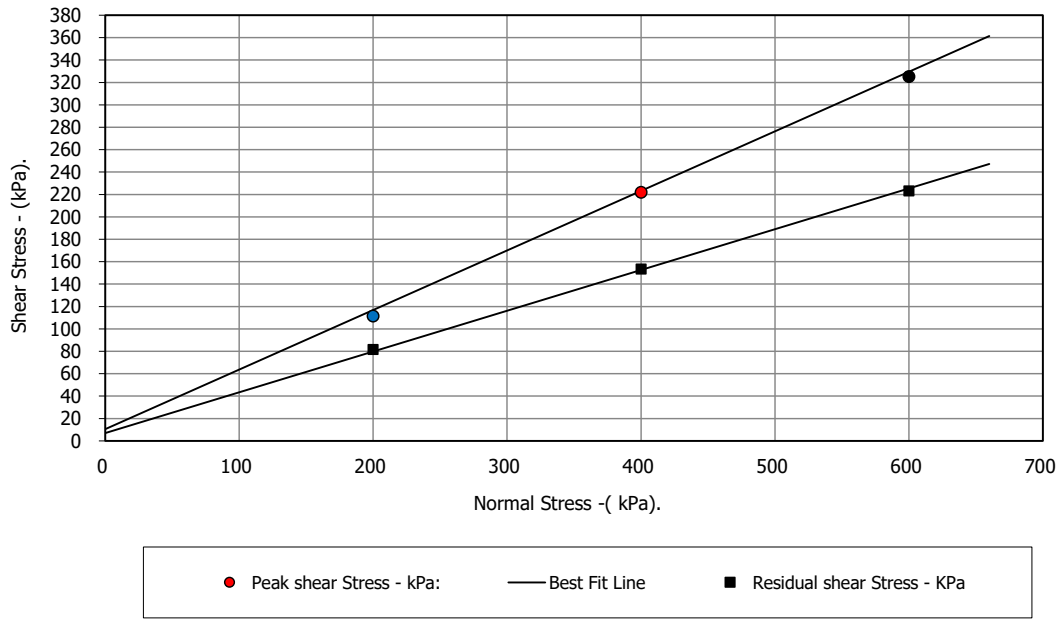
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	21	21	21
Bulk Density - Mg/m3:	1.67	1.67	1.67
Dry Density - Mg/m3:	1.38	1.38	1.38
Voids Ratio:	0.9229	0.9224	0.9218
Normal Pressure- kPa	200	400	600
Consolidation			
Consolidated Height - mm:	25.03	25.03	25.03
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	8.11	4.24	4.86
Peak shear Stress - kPa:	111	222	325
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	16.84	16.92	16.11
Residual shear Stress - kPa:	82	153	223

PEAK	
Angle of Shearing Resistance:(θ)	**28.0**
Effective Cohesion - kPa:	**11**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**20.0**
Effective Cohesion - kPa:	**7.0**

Failure Conditions



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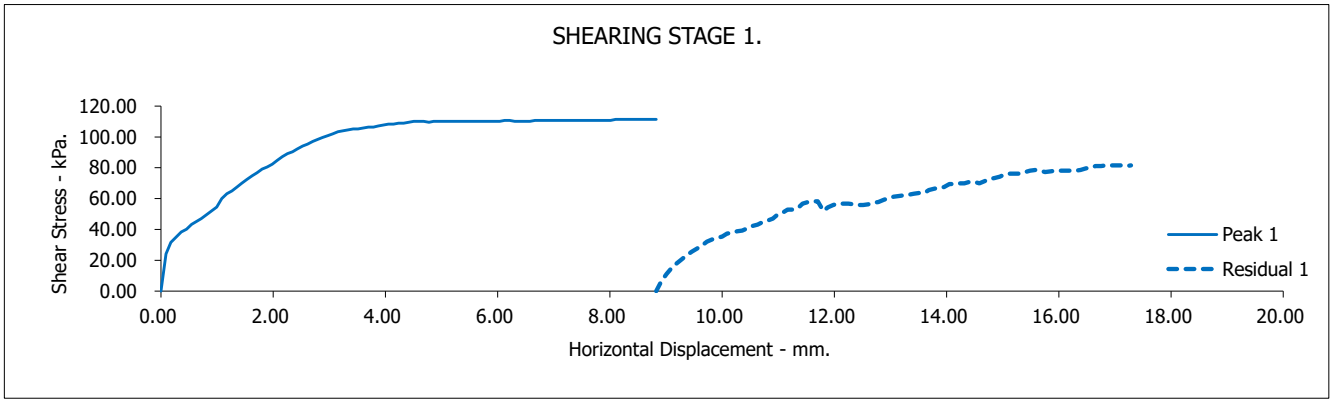
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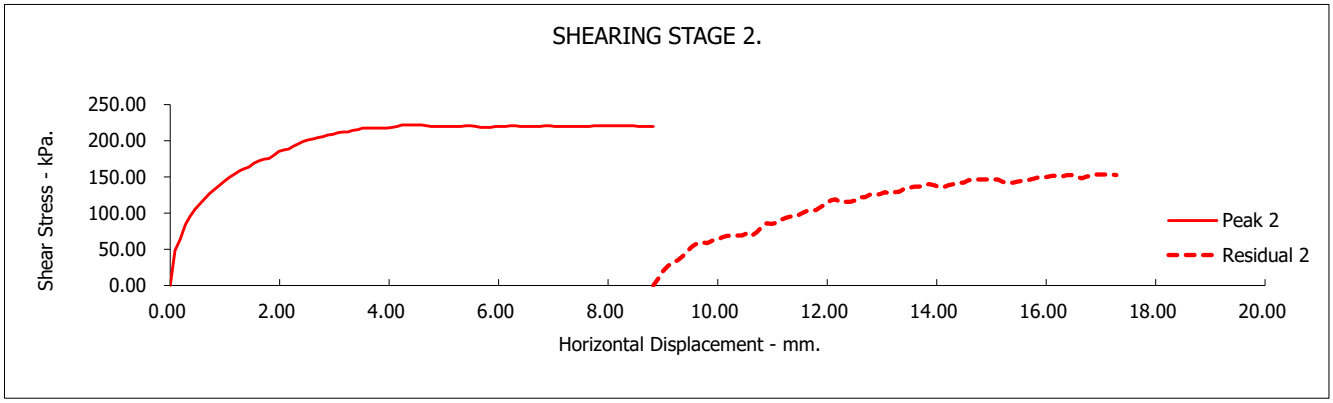
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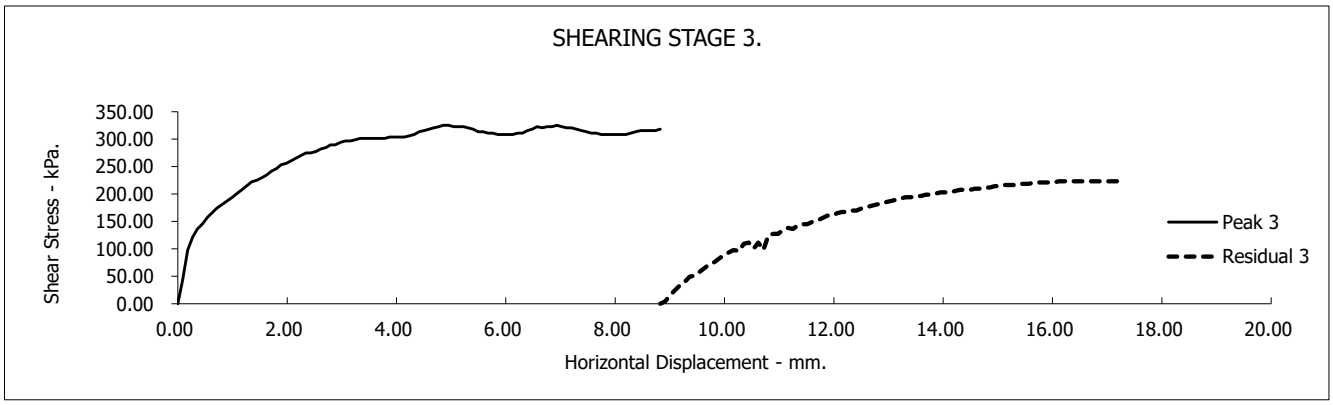
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH06 Depth (m): 14.65







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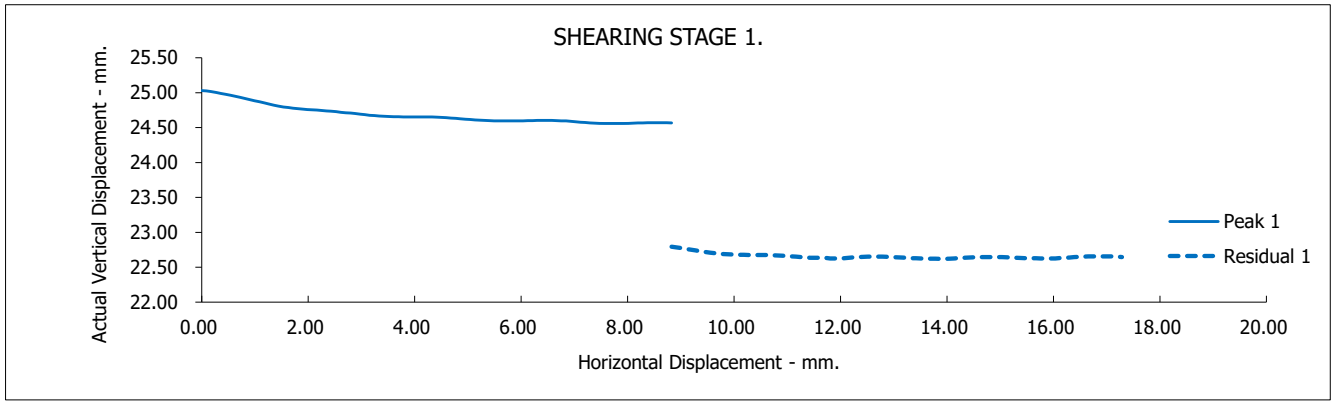
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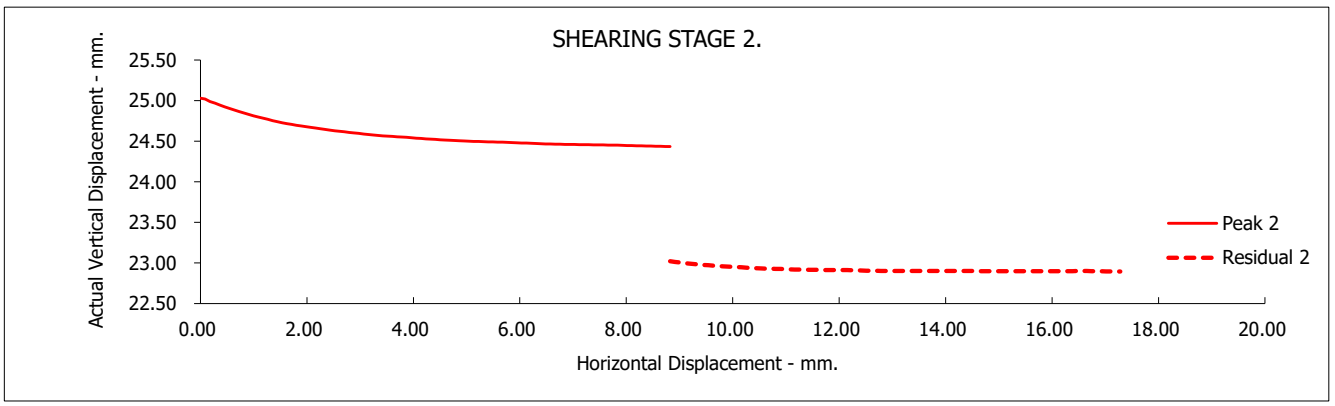
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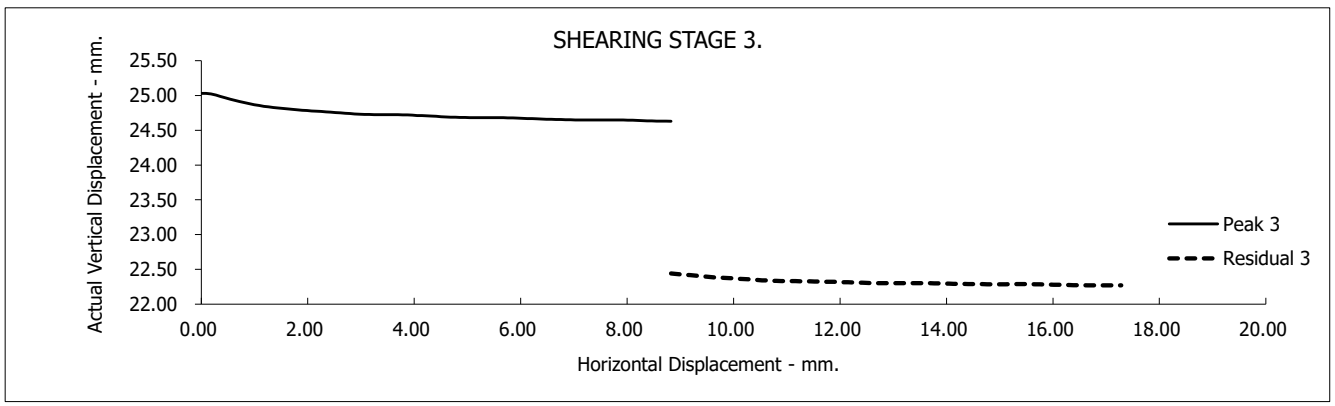
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH06 Depth (m): 14.65







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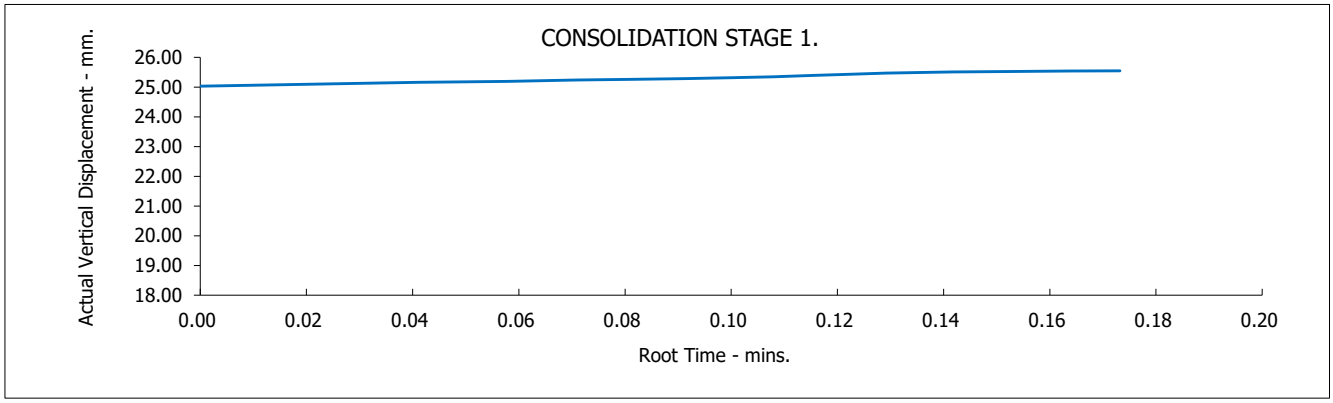
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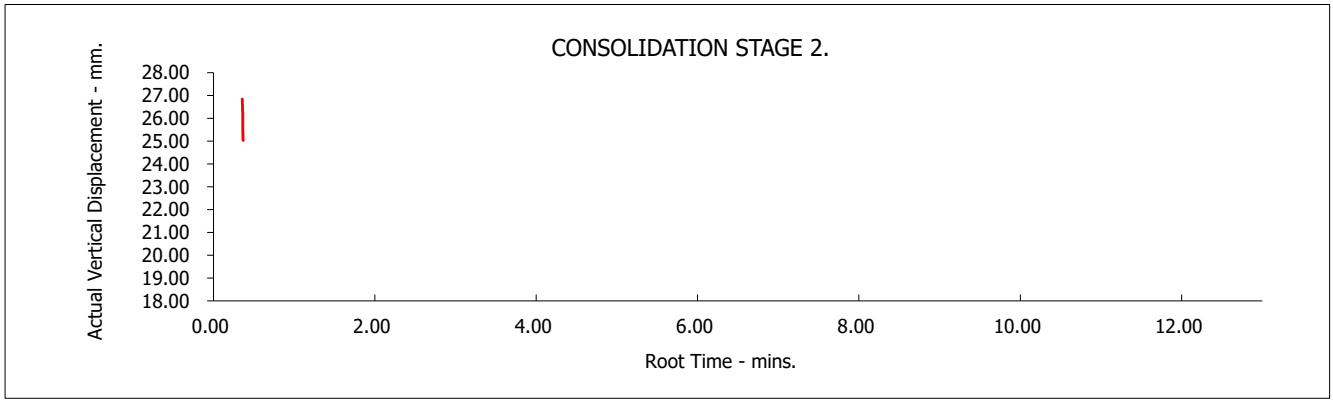
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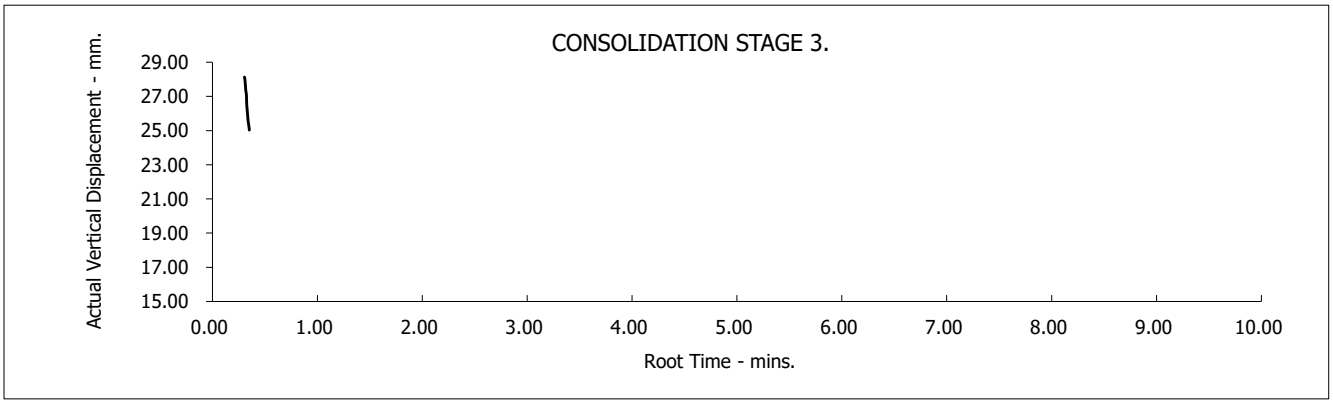
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: PWB BH06 Depth (m): 14.65







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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	AVW BH01	Depth from (m):	16.05
Sample Number:	32		

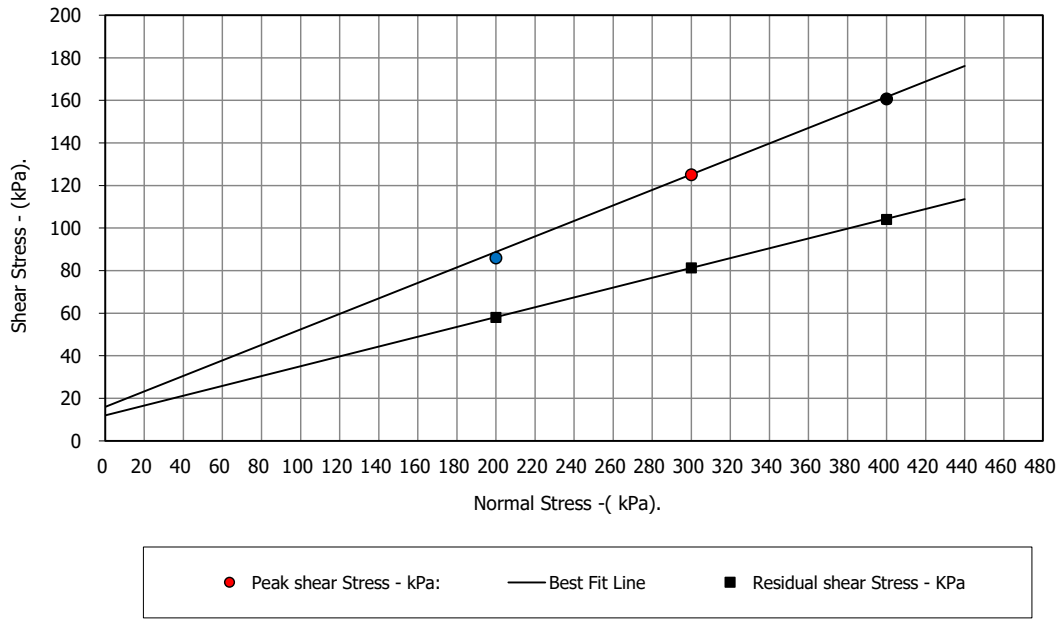
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	18	18	18
Bulk Density - Mg/m3:	1.55	1.55	1.55
Dry Density - Mg/m3:	1.30	1.31	1.31
Voids Ratio:	1.0311	1.0296	1.0285
Normal Pressure- kPa	200	300	400
Consolidation			
Consolidated Height - mm:	19.10	18.36	16.27
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	4.68	3.42	4.50
Peak shear Stress - kPa:	86	125	161
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	16.29	16.20	17.20
Residual shear Stress - kPa:	58	81	104

PEAK	
Angle of Shearing Resistance:(θ)	**20.0**
Effective Cohesion - kPa:	**16**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**13.0**
Effective Cohesion - kPa:	**12**

Failure Conditions



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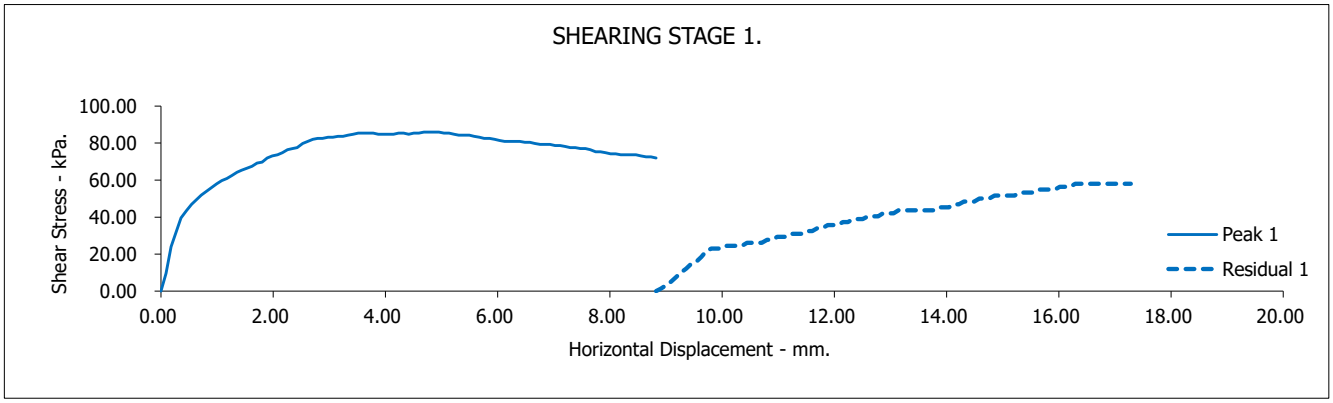
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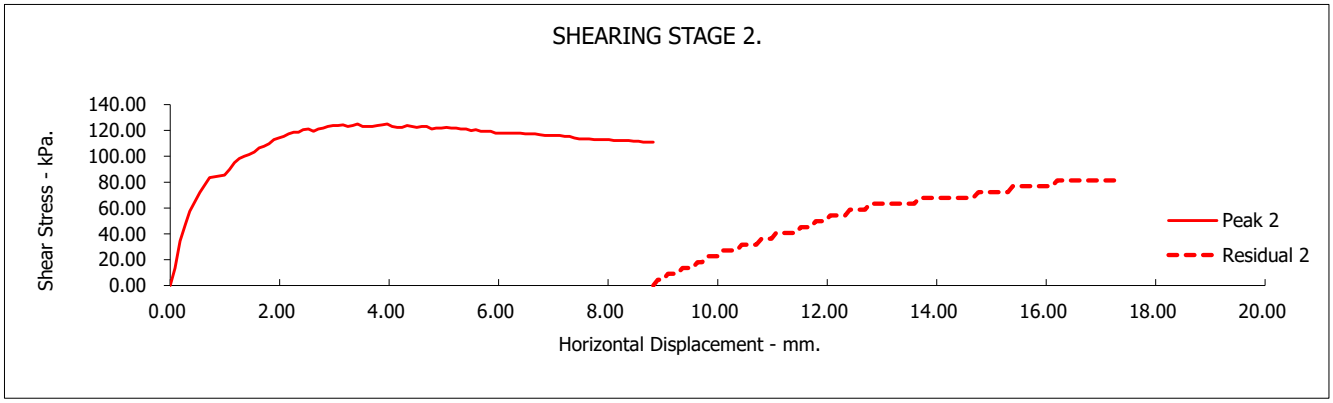
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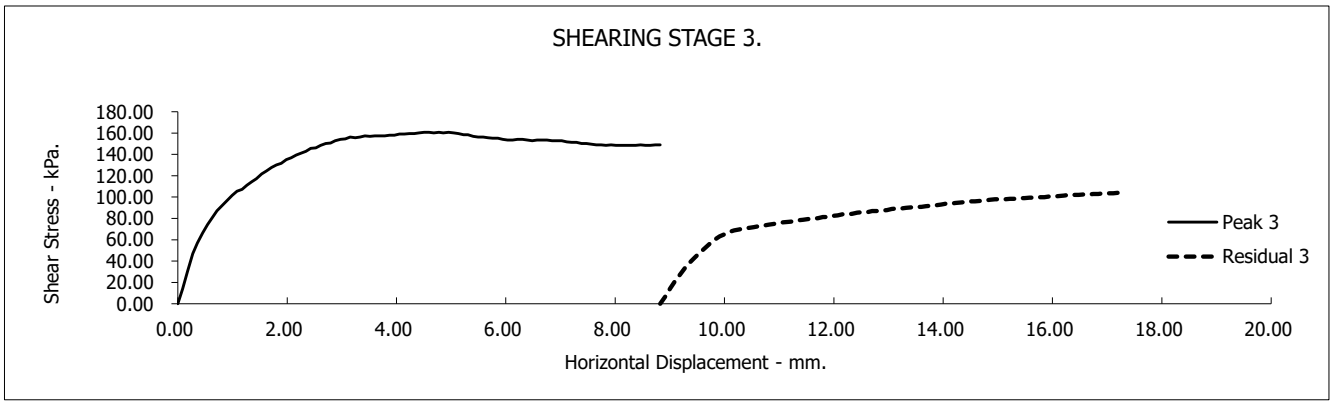
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVW BH01 Depth (m): 16.05







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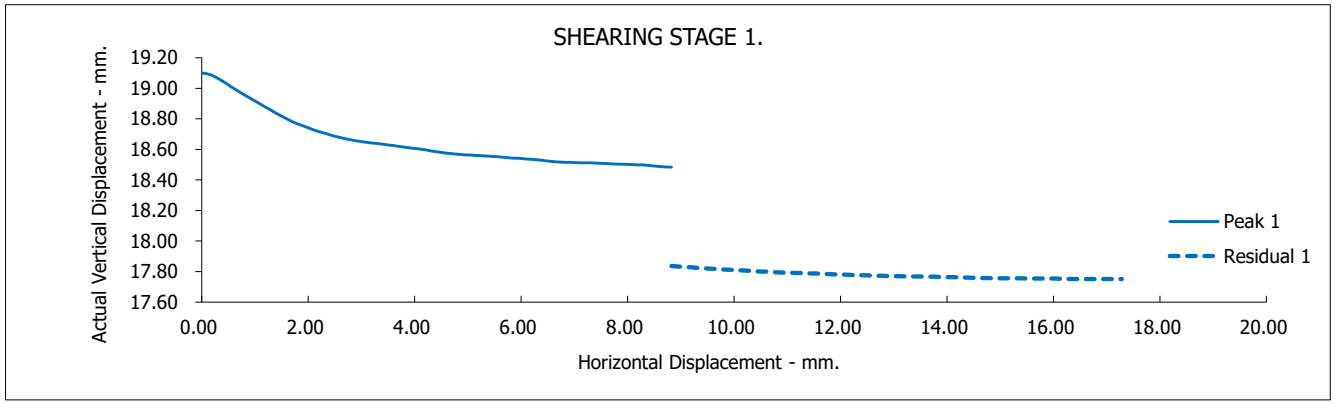
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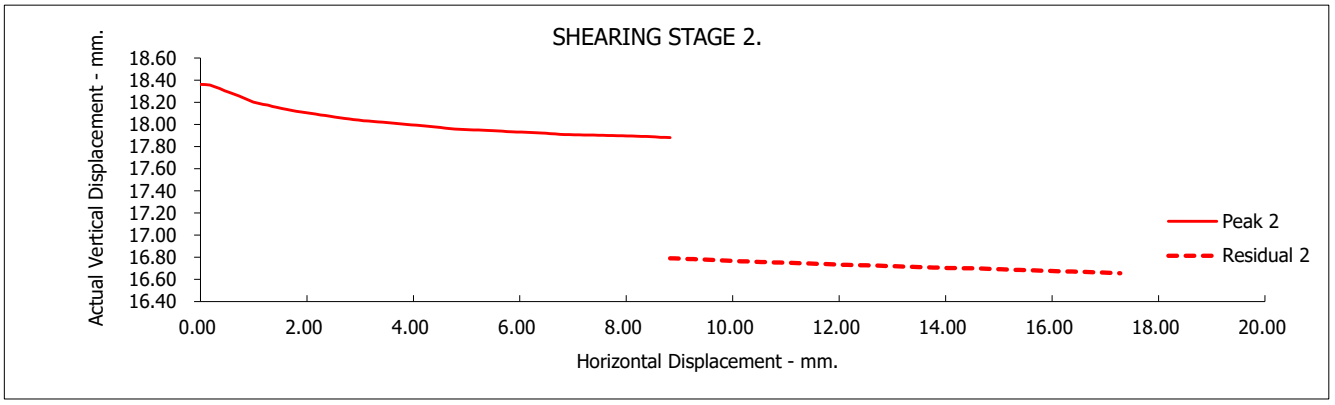
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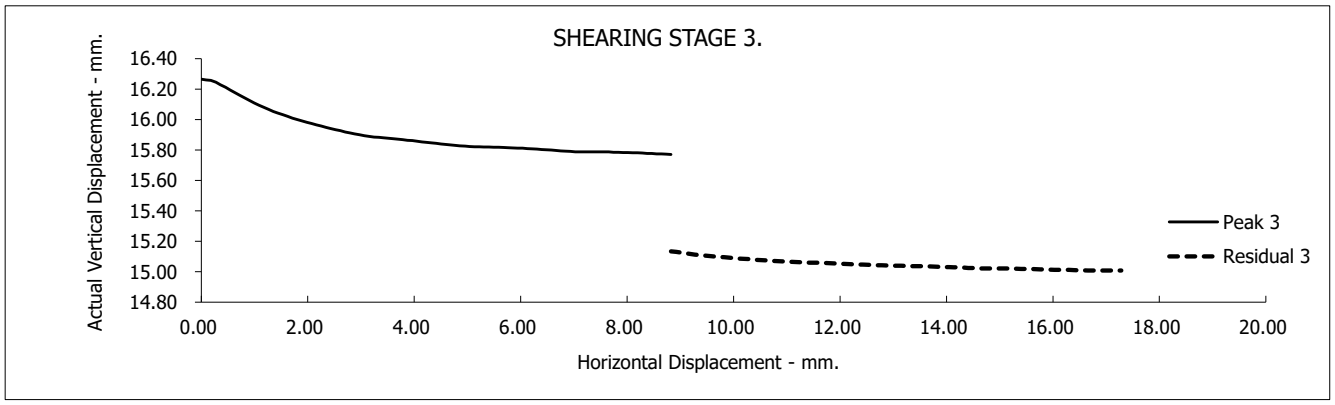
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVW BH01 Depth (m): 16.05







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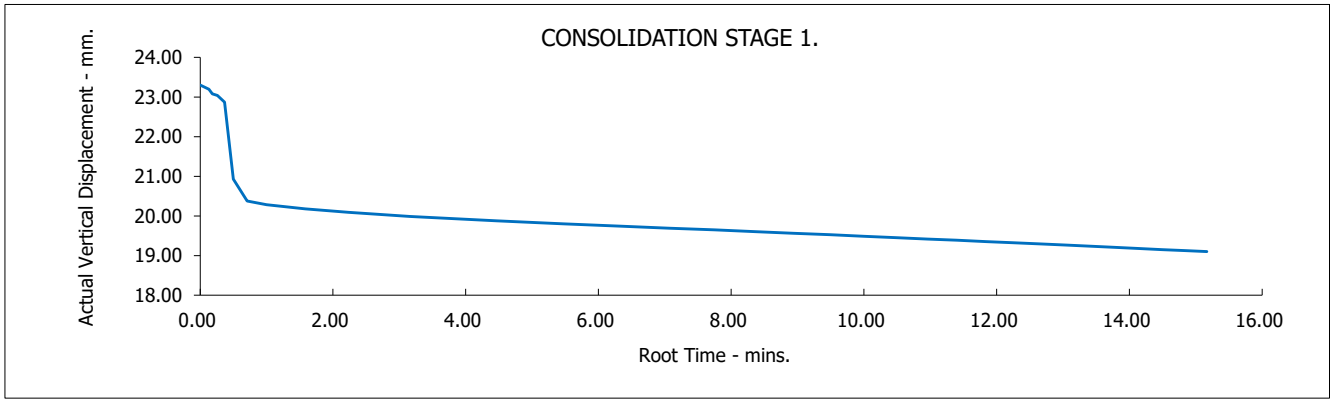
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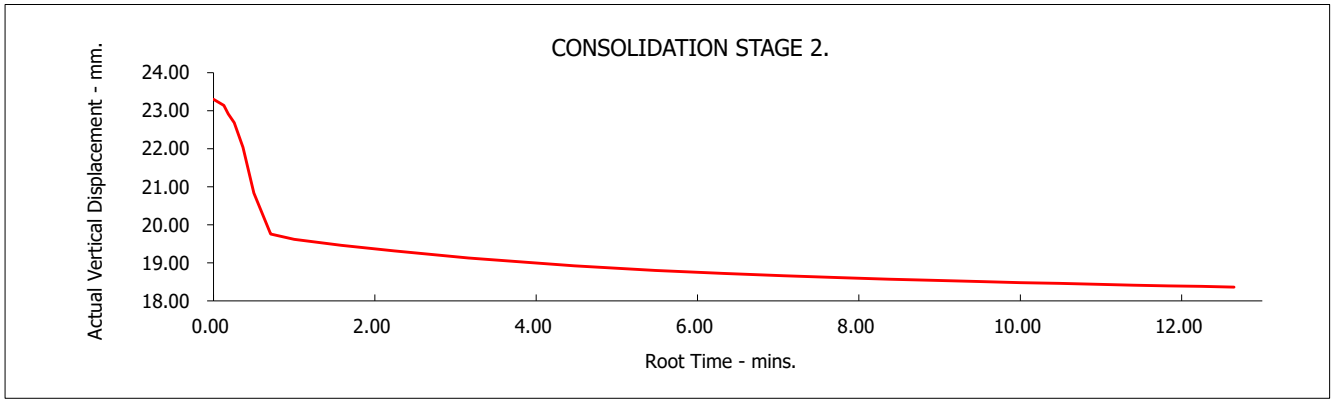
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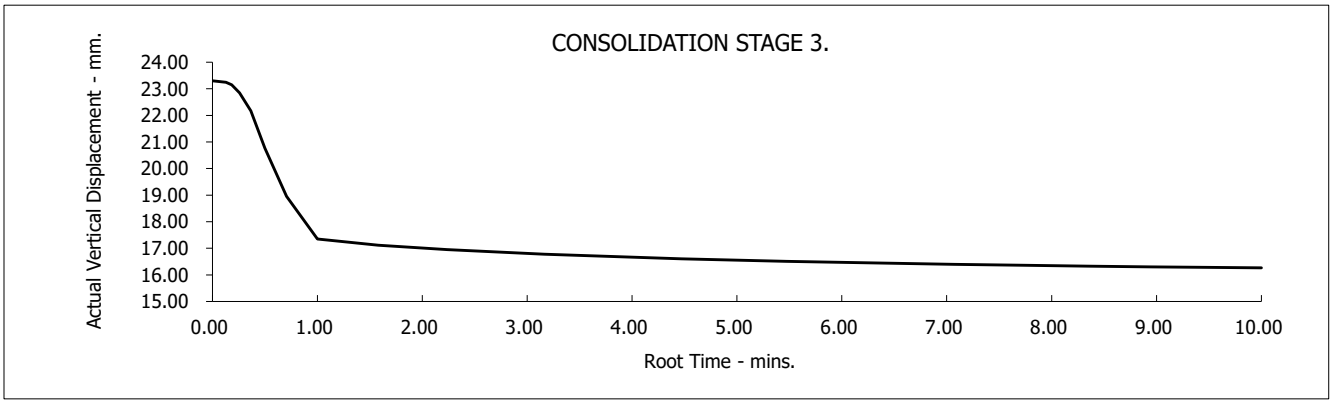
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVW BH01 Depth (m): 16.05







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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	AVW BH01	Depth from (m):	16.05
Sample Number:	32		

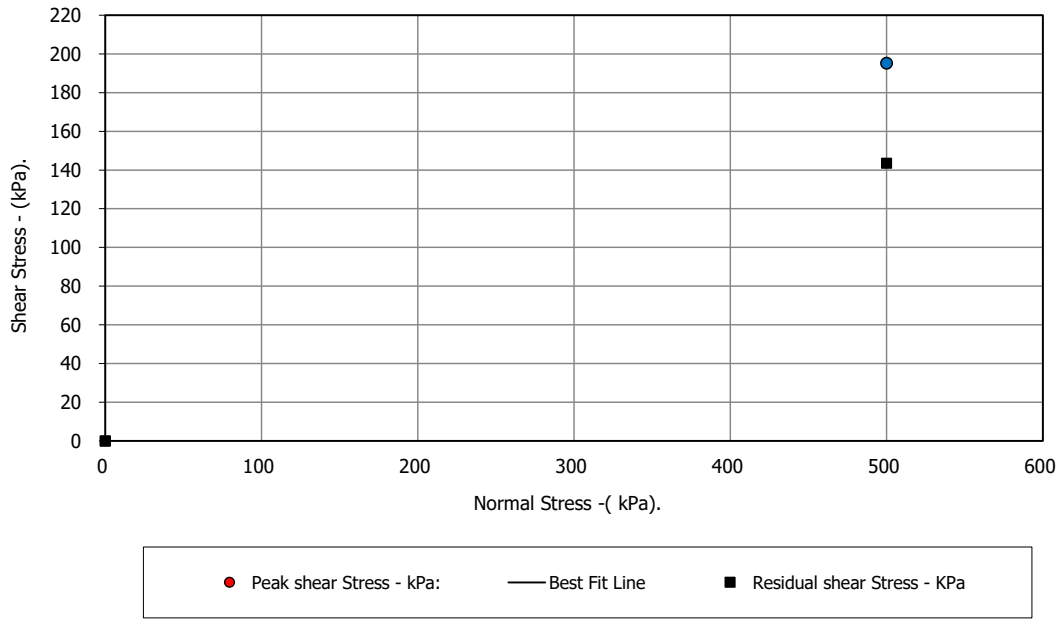
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	23.30		
Length - mm:	60.00		
Moisture Content - %:	18		
Bulk Density - Mg/m3:	1.55		
Dry Density - Mg/m3:	1.30		
Voids Ratio:	1.0322		
Normal Pressure- kPa	500		
Consolidation			
Consolidated Height - mm:	19.10		
Peak Shear			
Rate of Strain (mm/min)	0.200		
Displacement at peak shear stress (mm)	4.86		
Peak shear Stress - kPa:	195		
Residual Shear			
Rate of Strain (mm/min)	0.200		
Displacement at peak shear stress (mm)	16.11		
Residual shear Stress - kPa:	144		

PEAK	
Angle of Shearing Resistance:(θ)	
Effective Cohesion - kPa:	
RESIDUAL	
Angle of Shearing Resistance:(θ)	
Effective Cohesion - kPa:	

Failure Conditions



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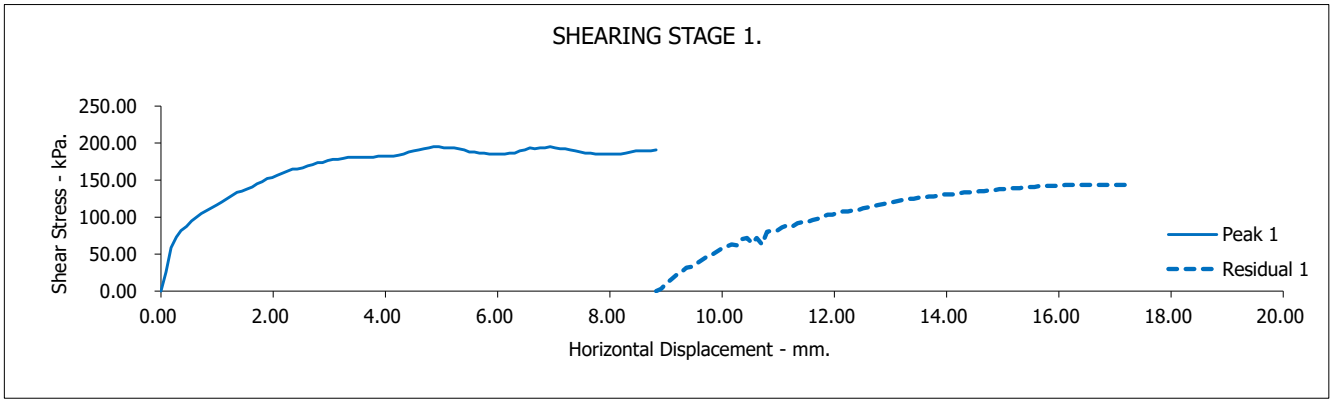
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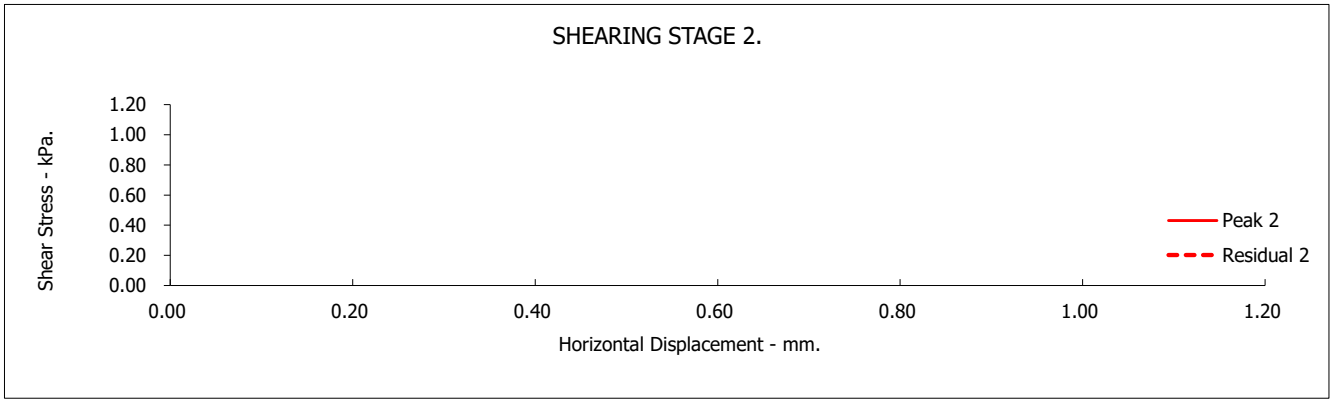
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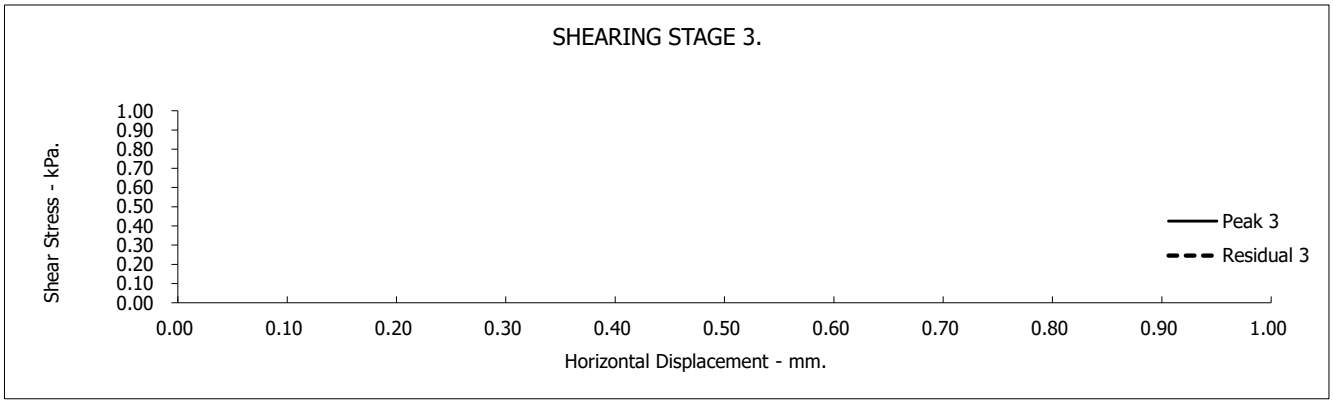
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVW BH01 Depth (m): 16.05







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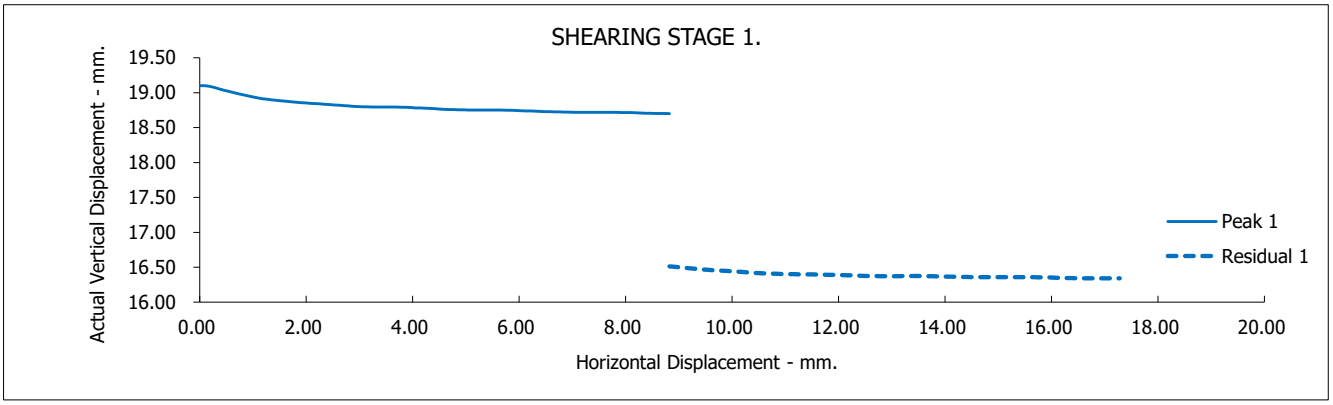
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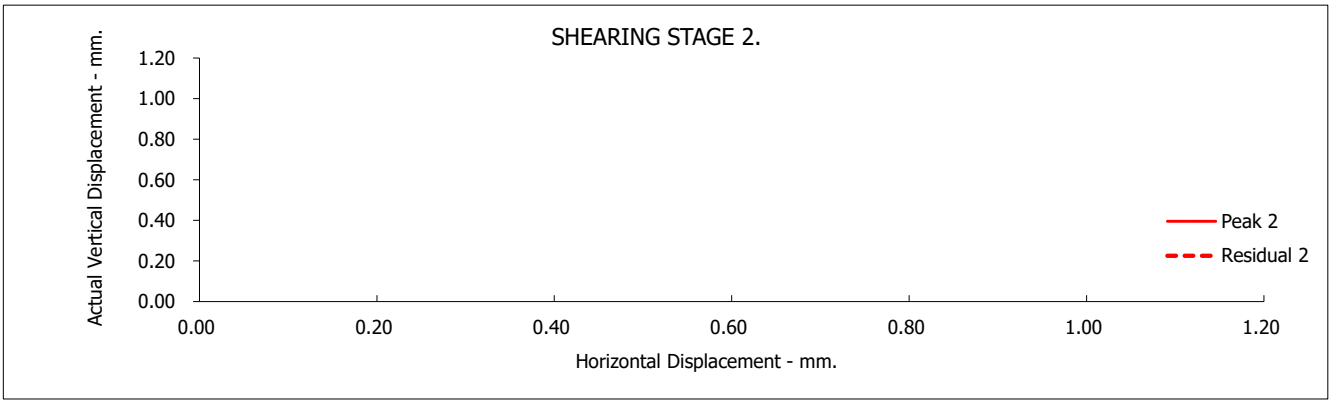
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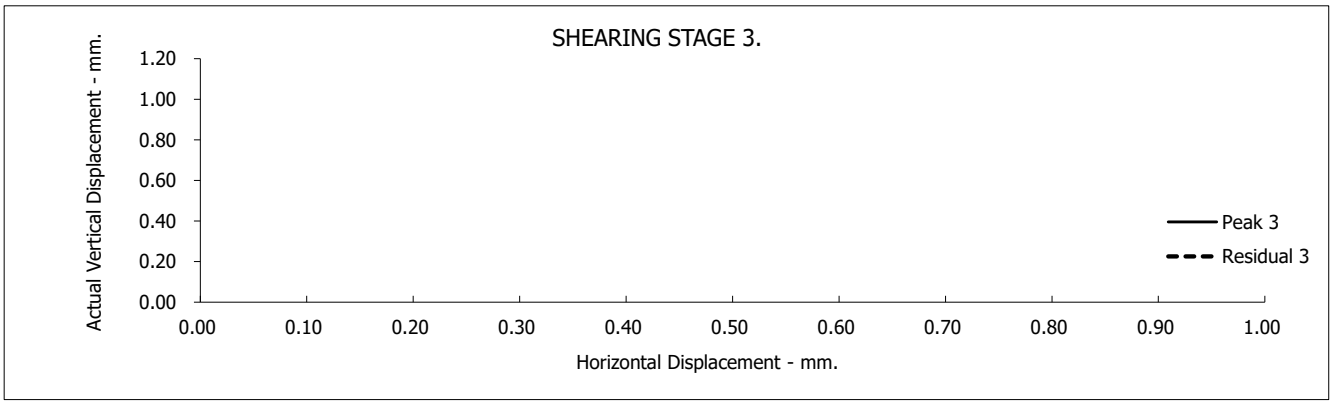
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVW BH01 Depth (m): 16.05







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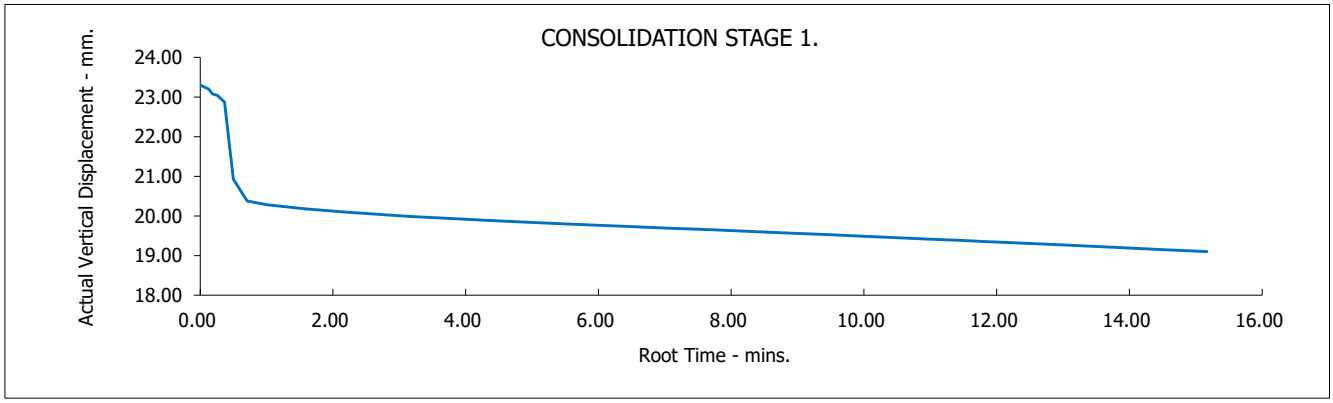
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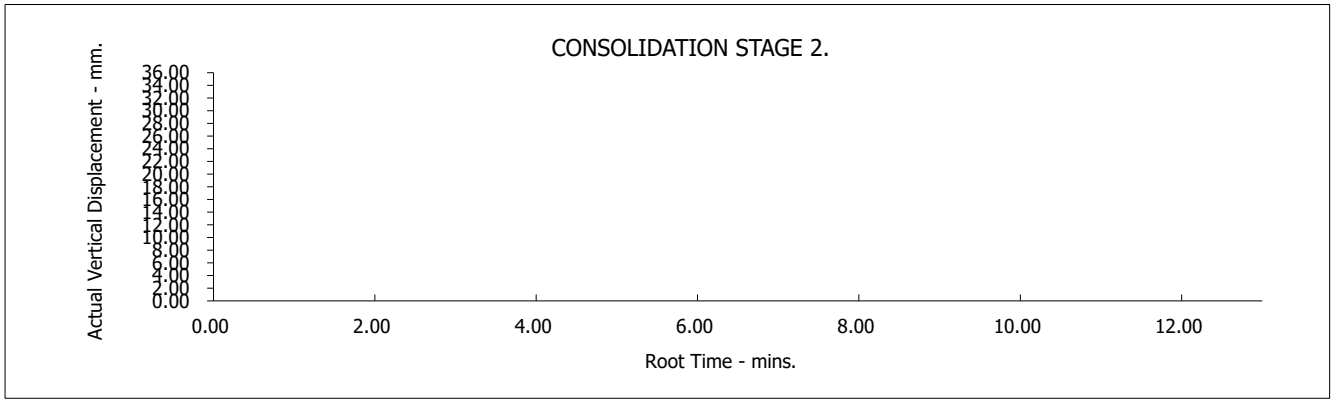
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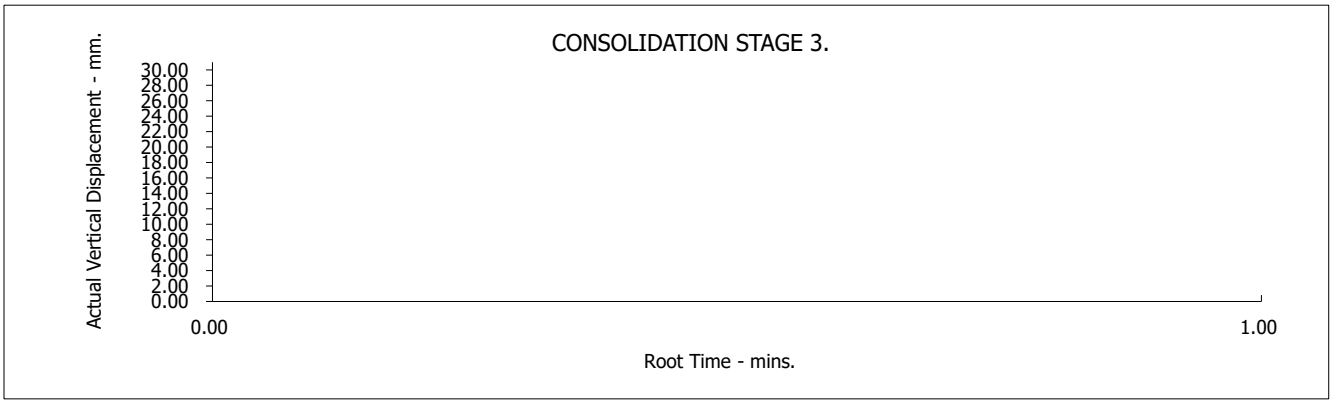
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: AVW BH01 Depth (m): 16.05







R.John
Checked Pages 1-4 by: 01/07/2022 Date

R.John
Approved Pages 1-4 by: 01/07/2022

Chippenham

UKAS TESTING 2788

Contract No.:
59564

Client Ref Number:
JER9532

Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole Number:	BH004	Depth from (m):	1.20
Sample Number:	5		

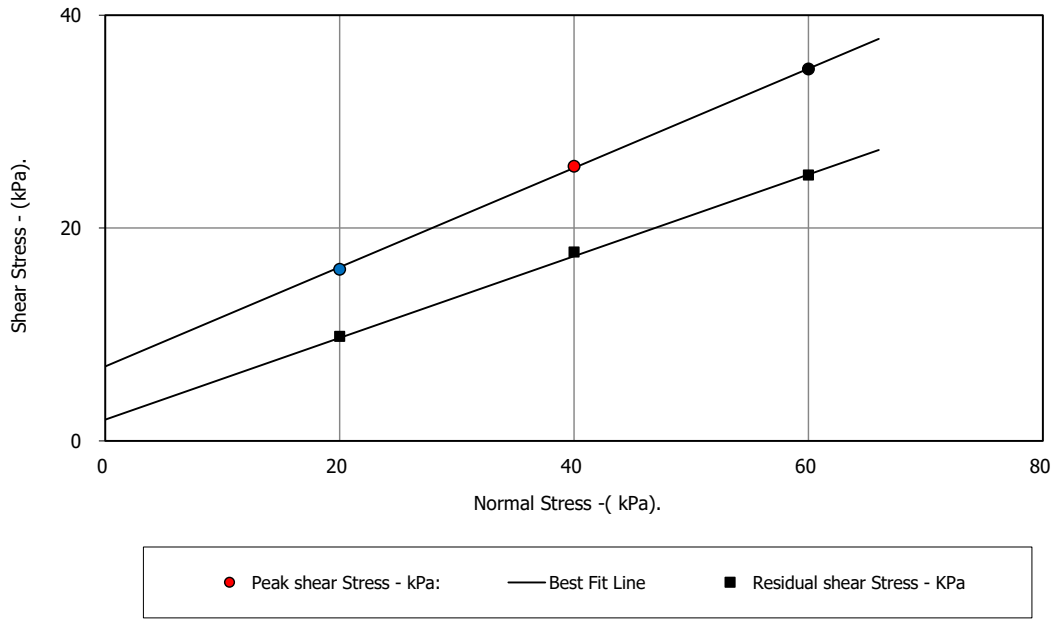
Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	24.98	24.98	24.98
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	20	20	20
Bulk Density - Mg/m3:	2.03	1.69	1.69
Dry Density - Mg/m3:	1.69	1.41	1.41
Voids Ratio:	0.5726	0.8844	0.8838
Normal Pressure- kPa	20	40	60
Consolidation			
Consolidated Height - mm:	24.71	23.88	23.61
Peak Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	4.68	7.38	7.83
Peak shear Stress - kPa:	16	26	35
Residual Shear			
Rate of Strain (mm/min)	0.200	0.200	0.200
Displacement at peak shear stress (mm)	16.84	17.37	16.92
Residual shear Stress - kPa:	10	18	25

PEAK	
Angle of Shearing Resistance:(θ)	**25.0**
Effective Cohesion - kPa:	**7.0**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**21.0**
Effective Cohesion - kPa:	**2.0**

Failure Conditions



Chippenham

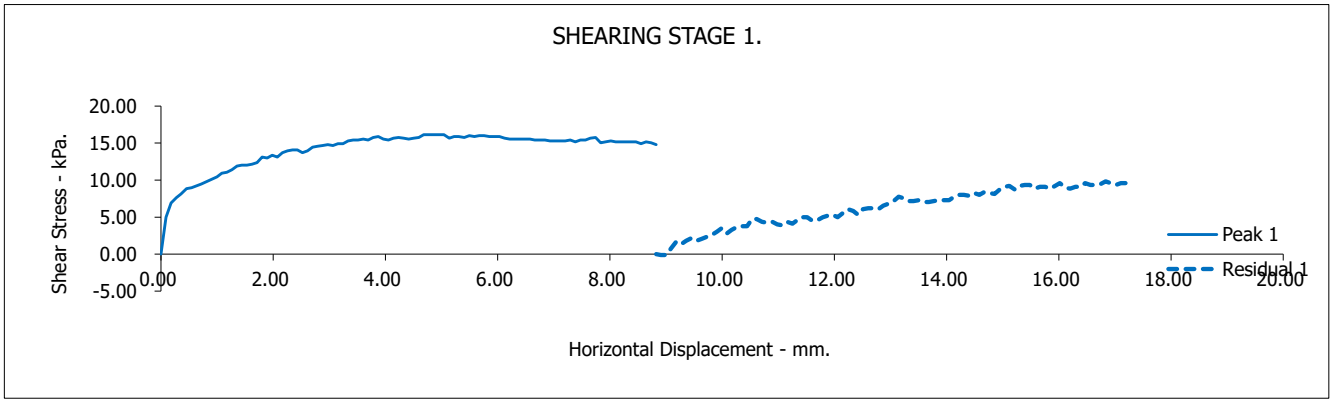
Contract No.:
59564

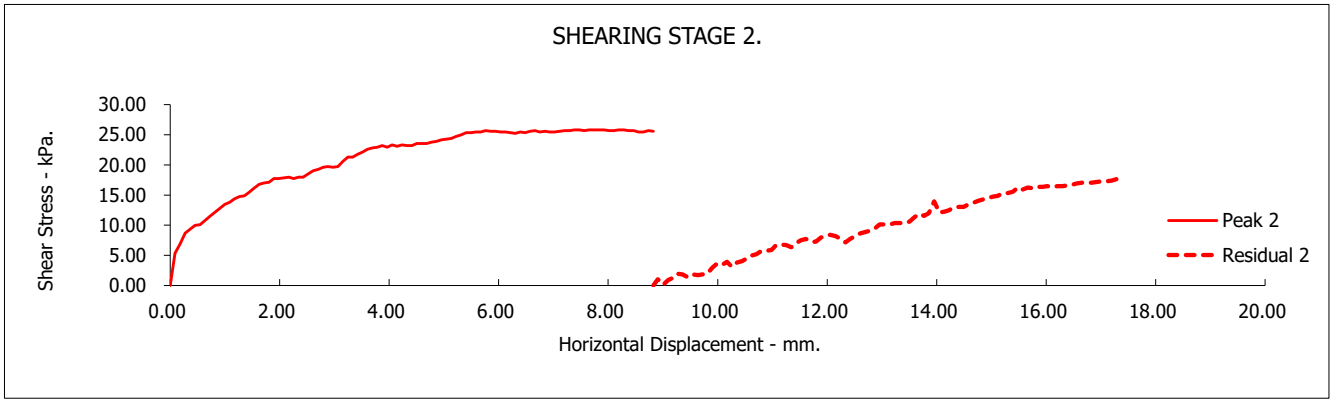
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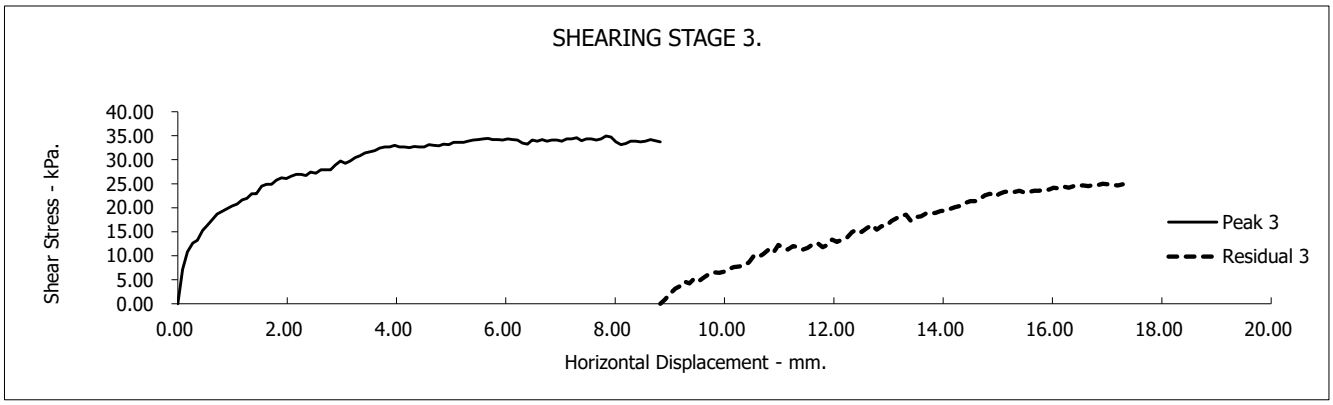
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: BH004 Depth (m): 1.20







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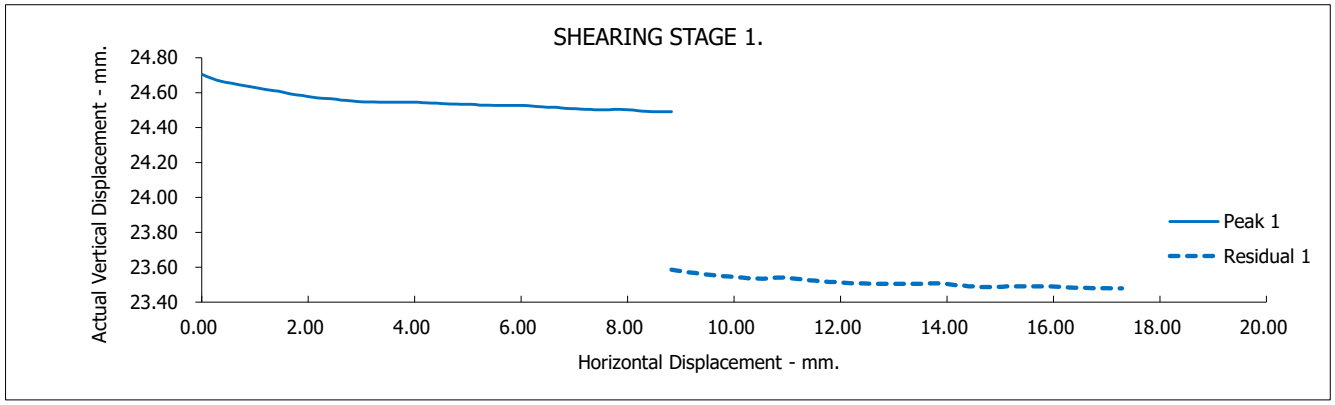
Contract No.:
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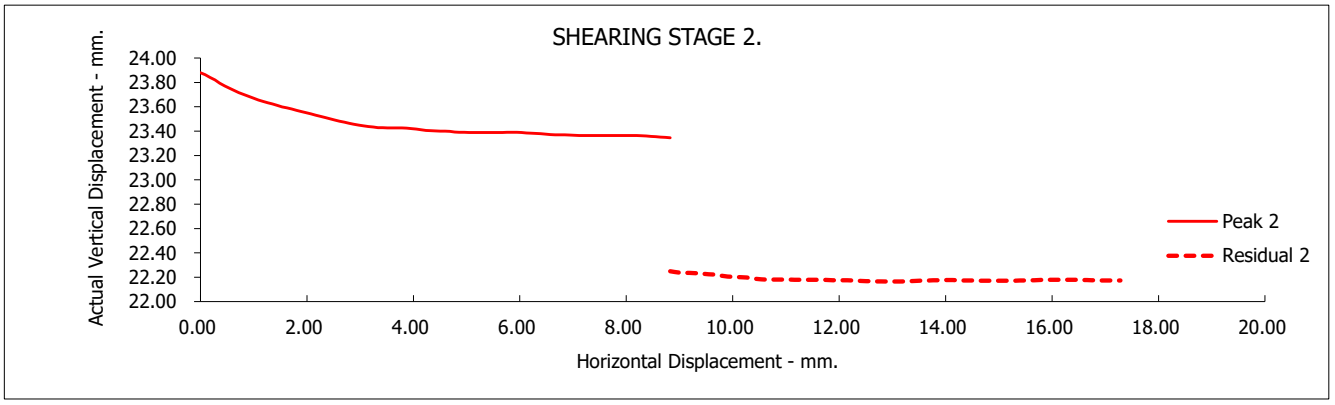
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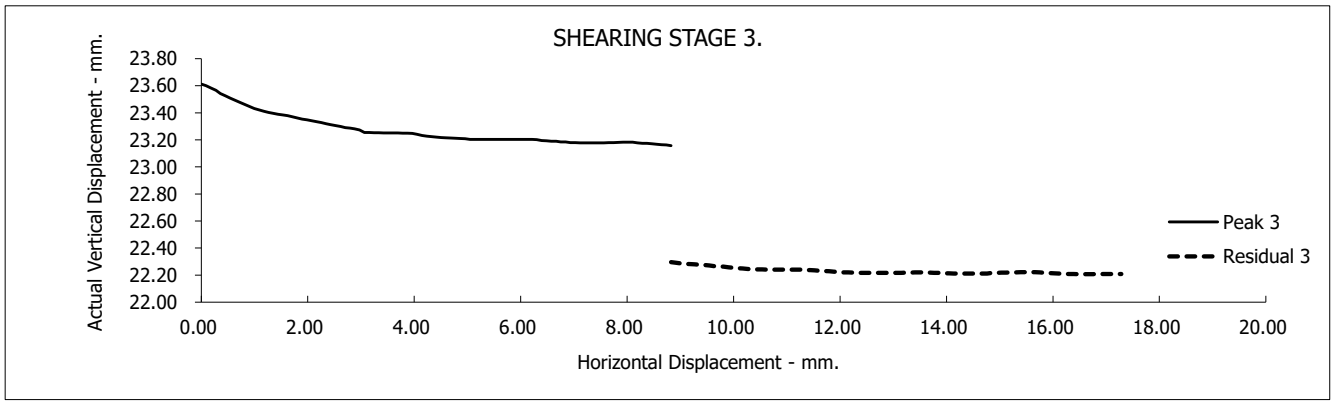
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: BH004 Depth (m): 1.20







Chippenham

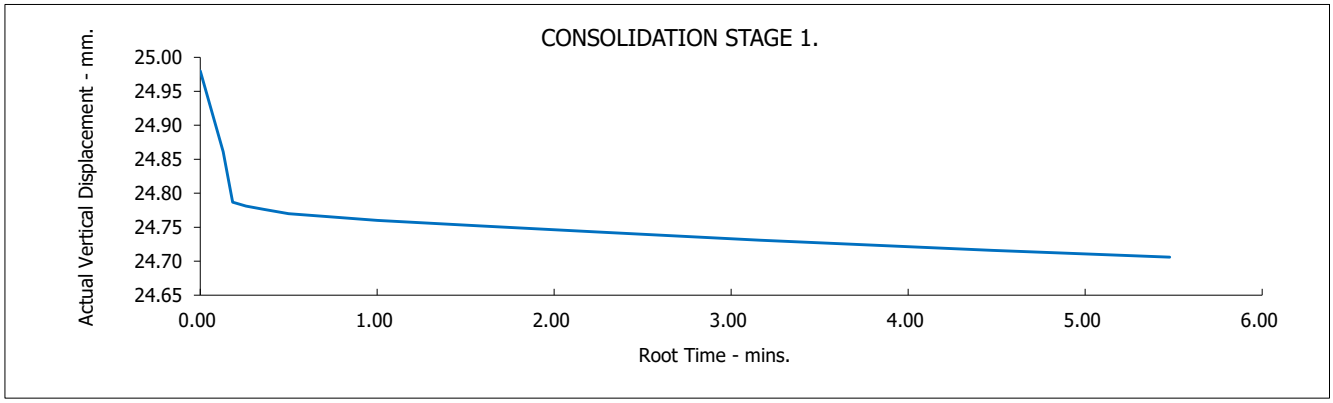
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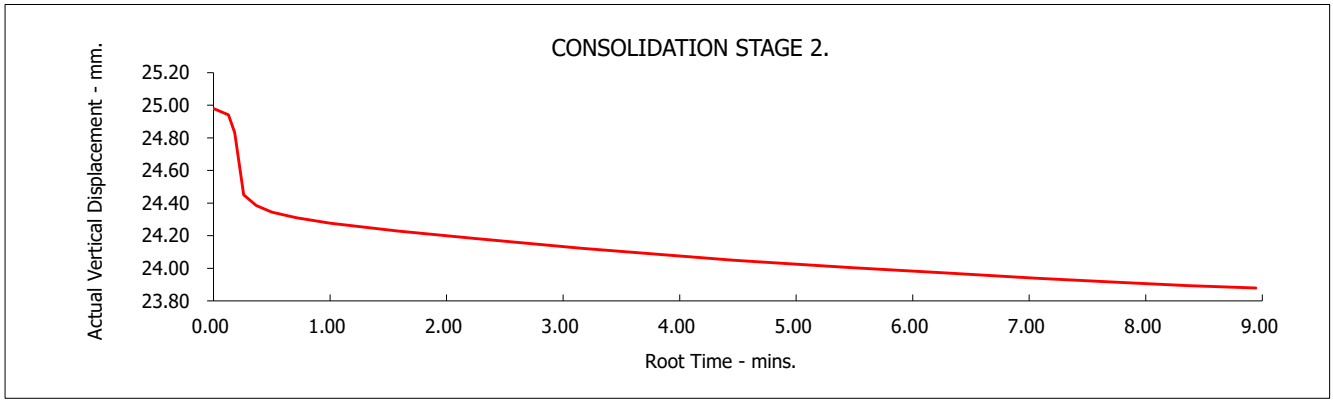
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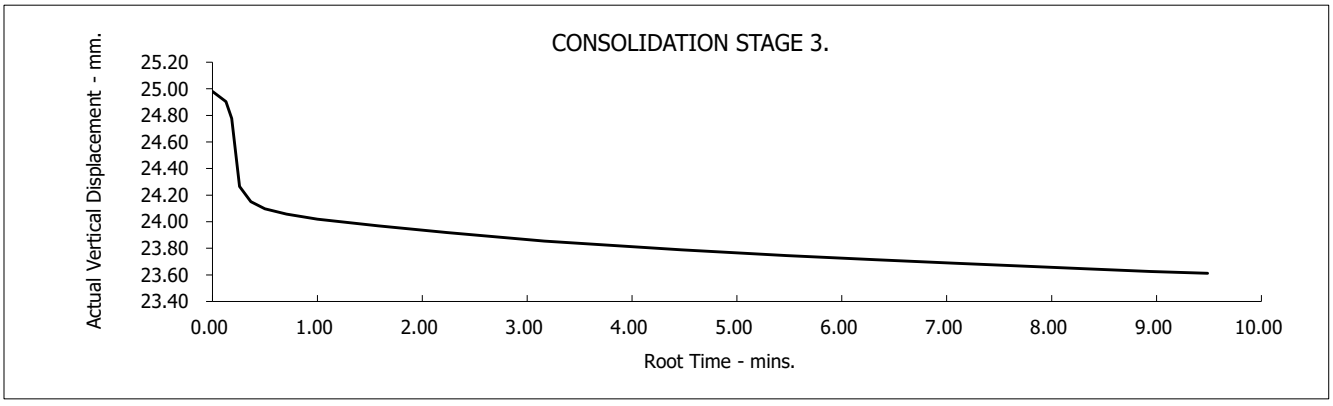
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number:	BH004	Depth (m):	1.20







R.John
Checked Pages 1-4 by:

01/07/2022
Date

R.John
Approved Pages 1-4 by:

01/07/2022

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UKAS TESTING
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Contract No.:
59564

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Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

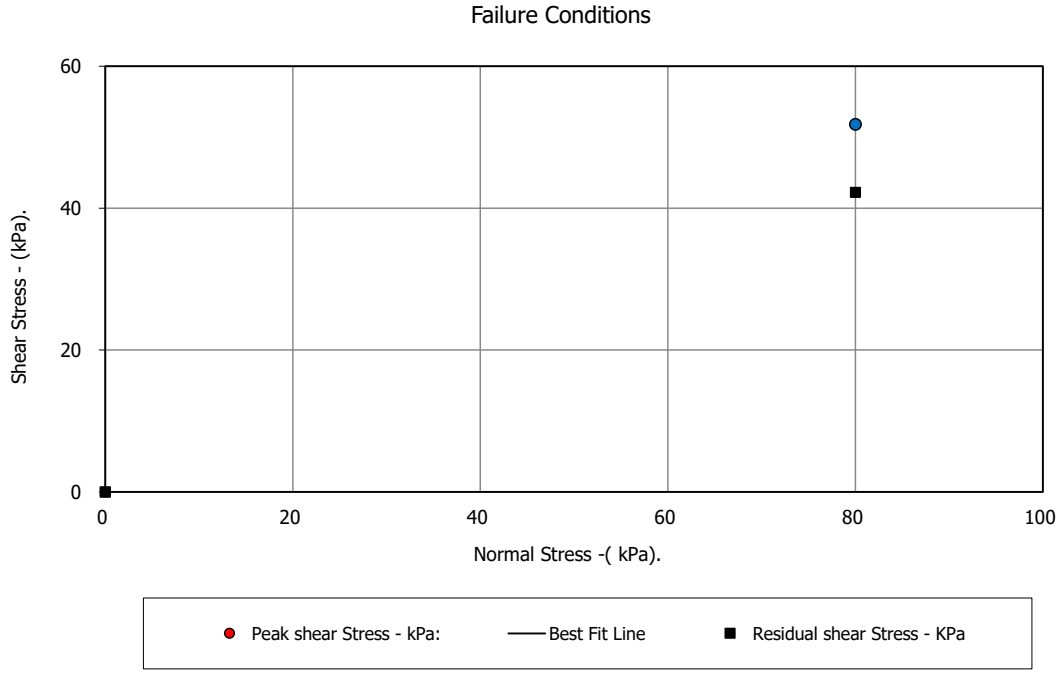
Hole Number:	BH004	Depth from (m):	1.20
Sample Number:	5		

Sample Type: C	Remoulded (Light Tamping) material above 2mm removed
Particle Density - Mg/m3:	2.65 (Assumed)
Specimen Conditions:	Submerged

Sample Description:
Brown CLAY

STAGE	**1**		
Initial Conditions			
Height - mm:	24.98		
Length - mm:	60.00		
Moisture Content - %:	20		
Bulk Density - Mg/m3:	2.03		
Dry Density - Mg/m3:	1.69		
Voids Ratio:	0.5697		
Normal Pressure- kPa	80		
Consolidation			
Consolidated Height - mm:	23.15		
Peak Shear			
Rate of Strain (mm/min)	0.200		
Displacement at peak shear stress (mm)	6.12		
Peak shear Stress - kPa:	52		
Residual Shear			
Rate of Strain (mm/min)	0.200		
Displacement at peak shear stress (mm)	17.55		
Residual shear Stress - kPa:	42		

PEAK	
Angle of Shearing Resistance:(θ)	**0.0**
Effective Cohesion - kPa:	**0.0**
RESIDUAL	
Angle of Shearing Resistance:(θ)	**0.0**
Effective Cohesion - kPa:	**0.0**



Chippenham

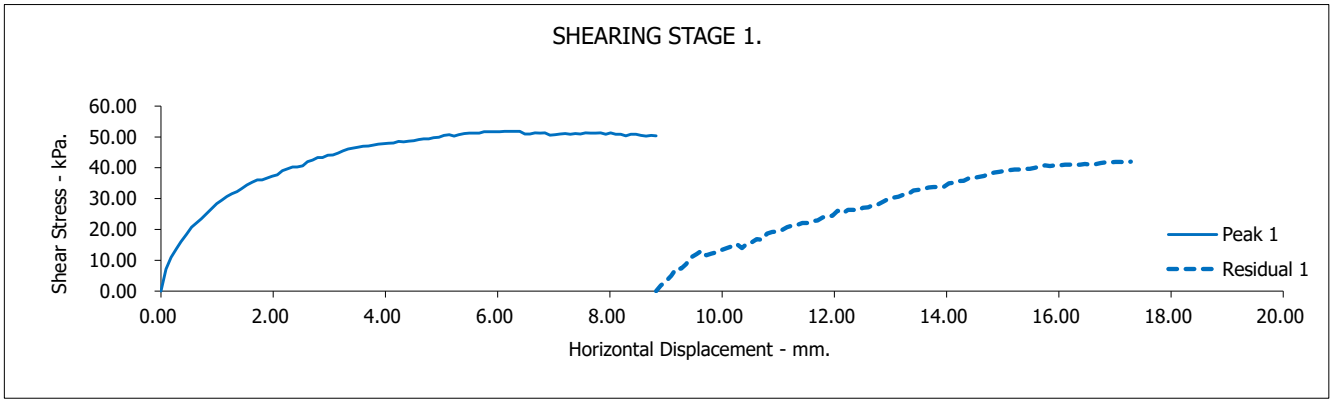
Contract No.:
59564

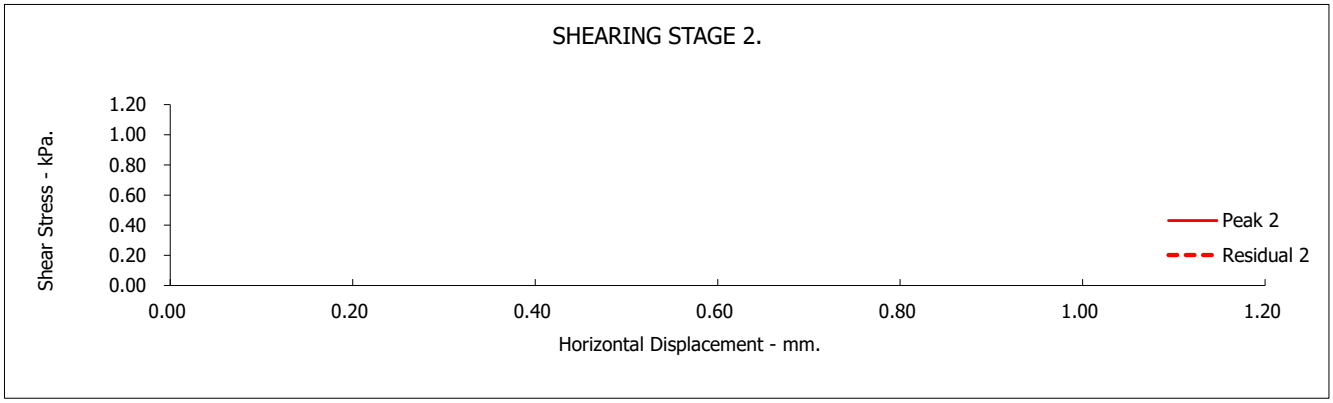
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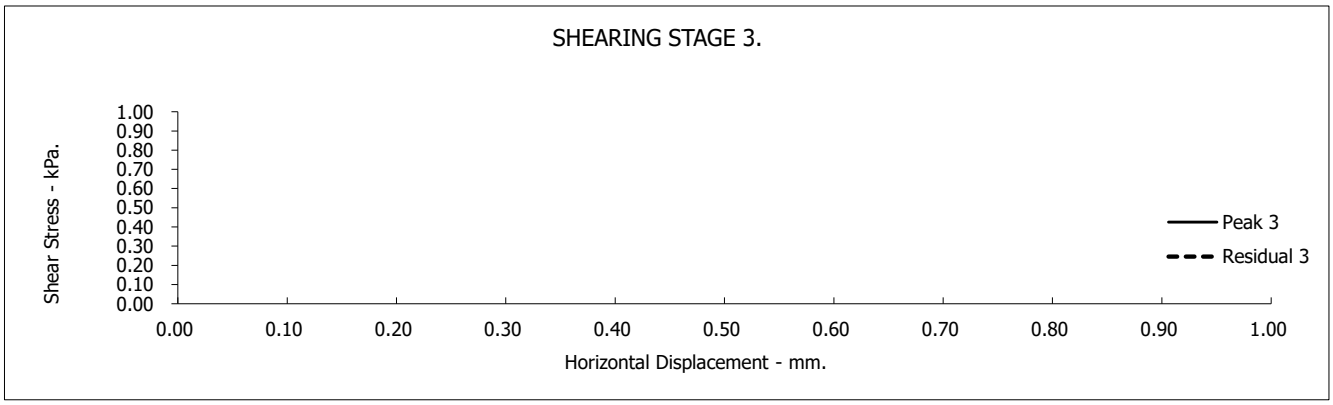
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: BH004 Depth (m): 1.20







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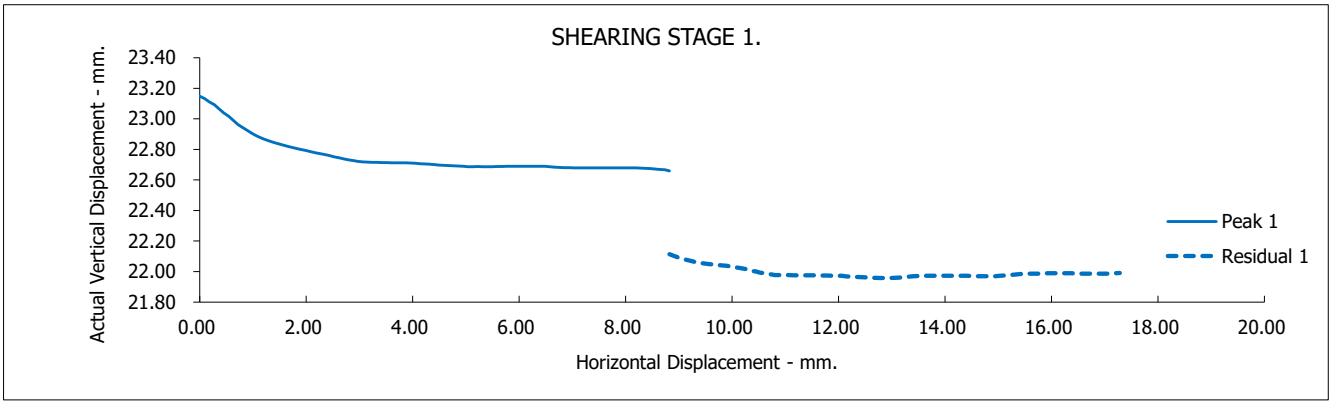
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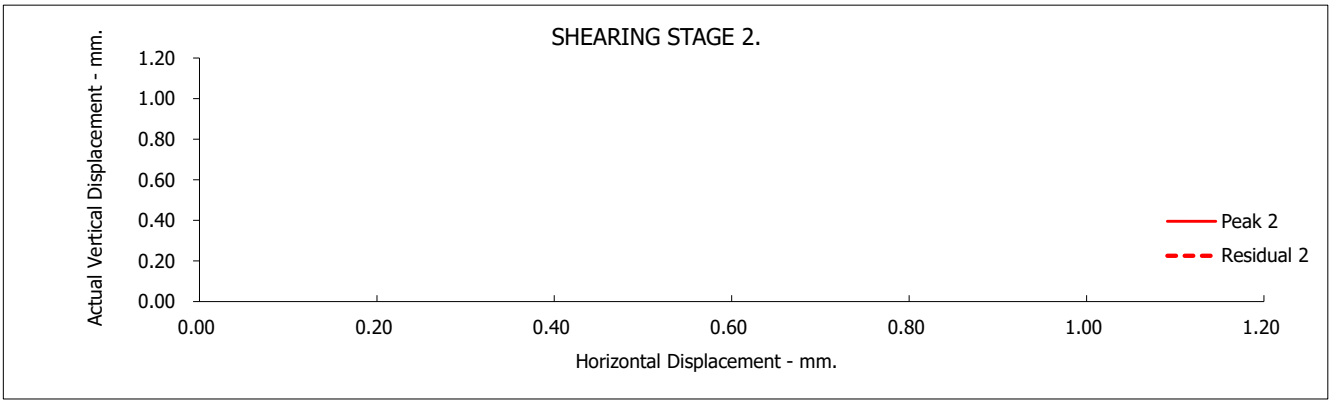
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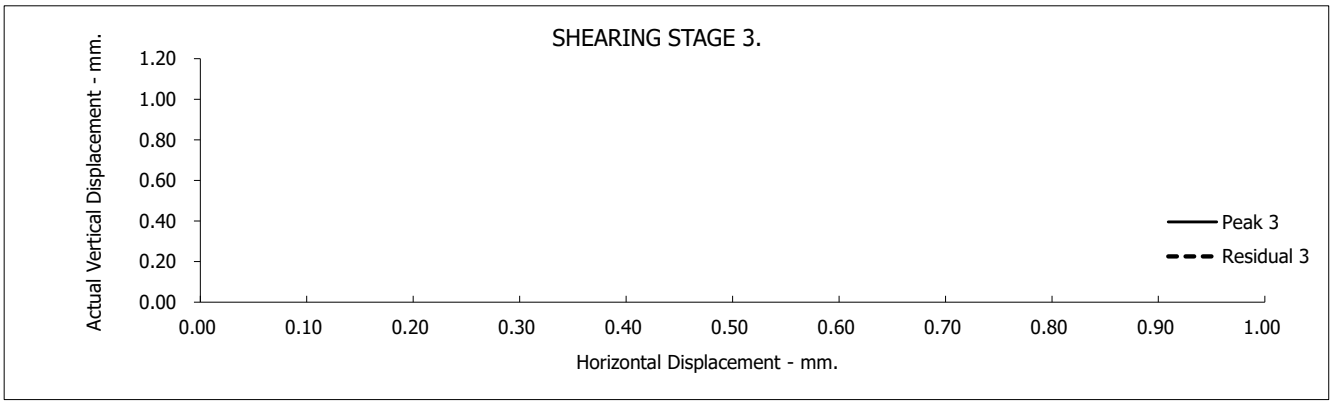
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: BH004 Depth (m): 1.20







Chippenham

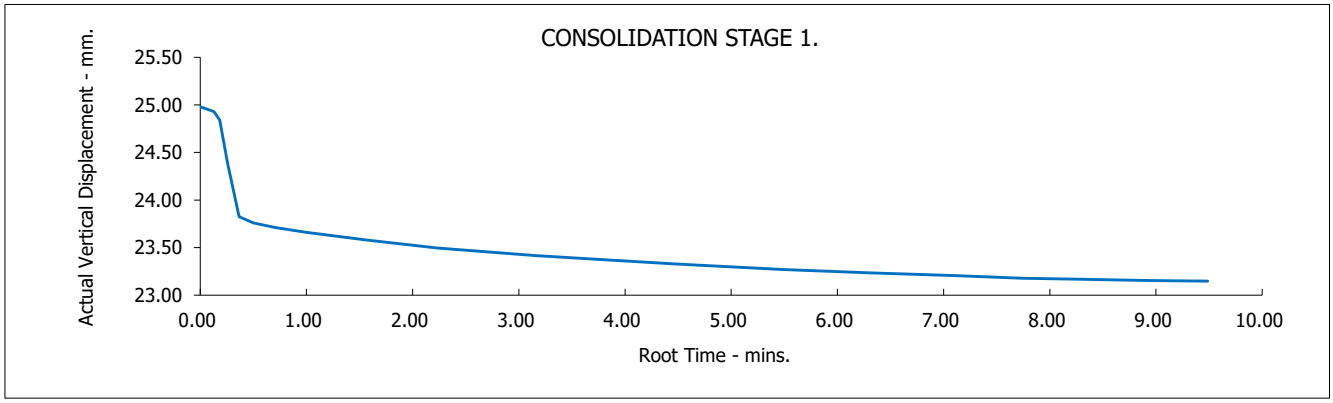
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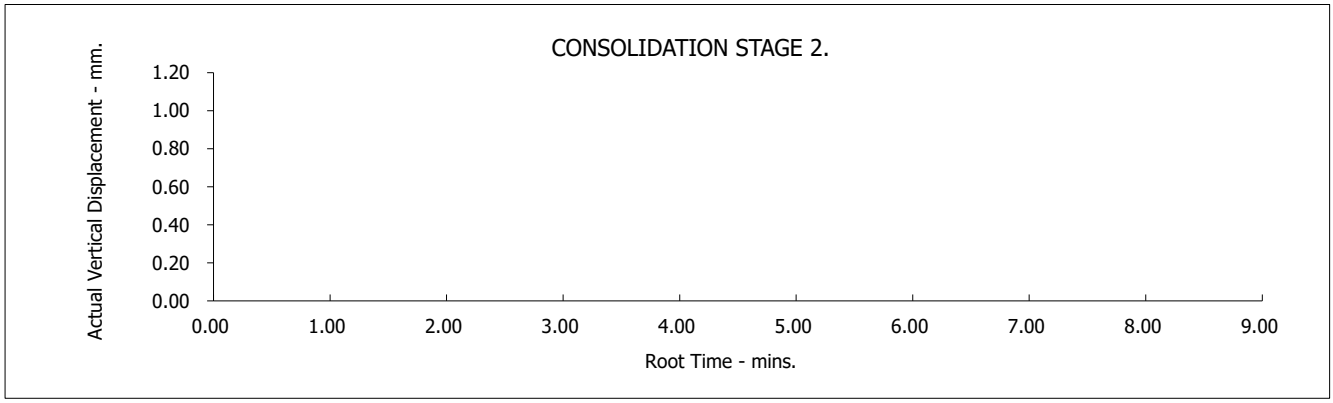
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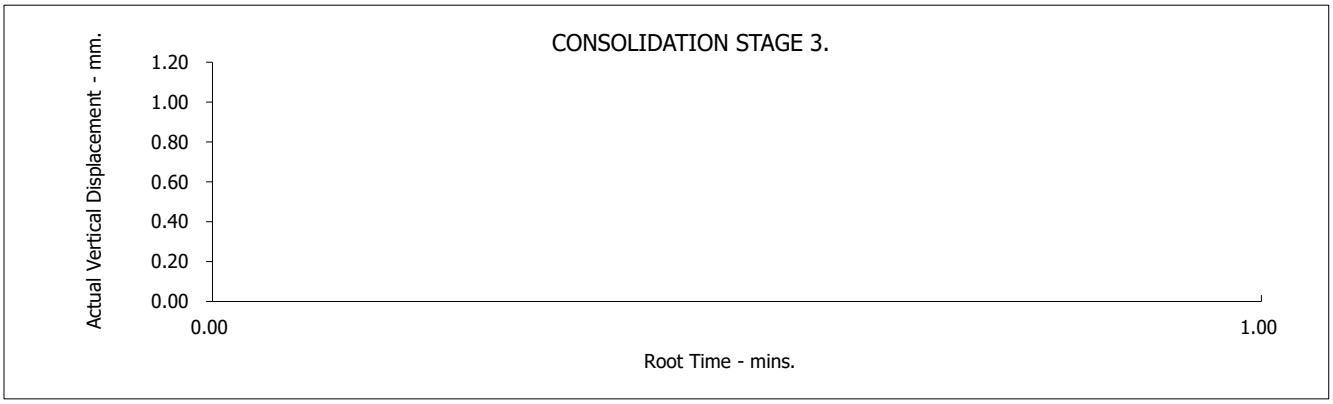
Test Report: CONSOLIDATED DRAINED PEAK AND RESIDUAL SHEARBOX TEST.

BS1377:Part 7.4.5.5 Shearing: multi-reversal test :1990

Hole/Sample Number: BH004 Depth (m): 1.20







R.John
Checked Pages 1-4 by: 01/07/2022
Date

R.John
Approved Pages 1-4 by: 01/07/2022

Chippenham

UKAS TESTING 2788

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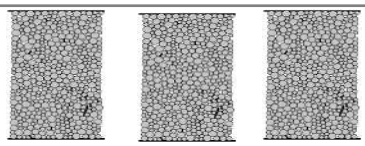
Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details

sketch showing specimen location in original sample



Depth
Description
Type

			Spm. 1	2	3
Initial Sample Length	L_0	(mm)	76.2	75.8	76.1
Initial Sample Diameter	D_0	(mm)	38.5	38.7	38.7
Initial Sample Weight	W_0	(gr)	187.2	188.5	187.7
Initial Bulk Density	ρ_0	(Mg/m3)	2.11	2.11	2.10
Particle Density	ρ_s	(Mg/m3)	2.65	2.65	2.65

Initial Conditions

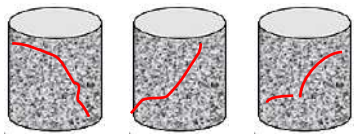
			Spm. 1	2	3
Initial Cell Pressure	σ_{3i}	(kPa)	1180	1199	1600
Initial Back Pressure	U_{bi}	(kPa)	850	550	650
Strain Rate	m_s	(mm/min)	0.02996	0.00290	0.00286
Membrane Thickness	m_b	(mm)	0.400	0.400	0.400
Displacement Input	L_{IP}	(mm)	CH 2	CH 2	CH 2
Load Input	N_{IP}	(N)	CH 1	CH 1	CH 1
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3	CH 3	CH 3
Sample Volume	V	(cc)	CH 6	CH 6	CH 6
Initial Moisture	ω_i	(%)	17	16	17
Initial Dry Density	ρ_{di}	(Mg/m3)	1.80	1.82	1.80
Initial Voids Ratio	e_i	.	0.472	0.459	0.473
Initial Degree of Saturation	S_i	(%)	97	95	93
B Value	B	.	0.98	1.00	0.96

Final Conditions

			Spm. 1	2	3
Final Moisture	ω_f	(%)	21	21	19
Final Dry Density	ρ_{df}	(Mg/m3)	2.17	2.16	1.95
Final Voids Ratio	e_f	.	0.223	0.230	0.358
Final Degree of Saturation	S_f	(%)	100.0	100.0	100.0
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress
Strain At Failure	ε_f	(%)	10.76	14.01	11.30
Stress At Failure	$(\sigma_1-\sigma_3)_f$	(kPa)	299.1	594.0	675.4
Minor Stress At Failure	σ_3'	(kPa)	220.4	511.9	618.1
Major Stress At Failure	σ_1'	(kPa)	519.5	1105.9	1293.4
Principal Stress At Failure	σ_1'/σ_3'	(kPa)	2.357	2.160	2.093
PwP At Failure Criteria	u_f	(kPa)	959.7	696.7	982.1

Notes

Side Drains Used During Testing	1	2	3
Side drain correction at failure	9.87	9.82	9.82kpa
Membrane correction at failure	2.44	2.97	2.52kpa



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 9
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	16/06/2022
Site Reference				Borehole	PWBBH01
Jobfile	59564			Sample	32
Client	RPS Group			Depth	
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

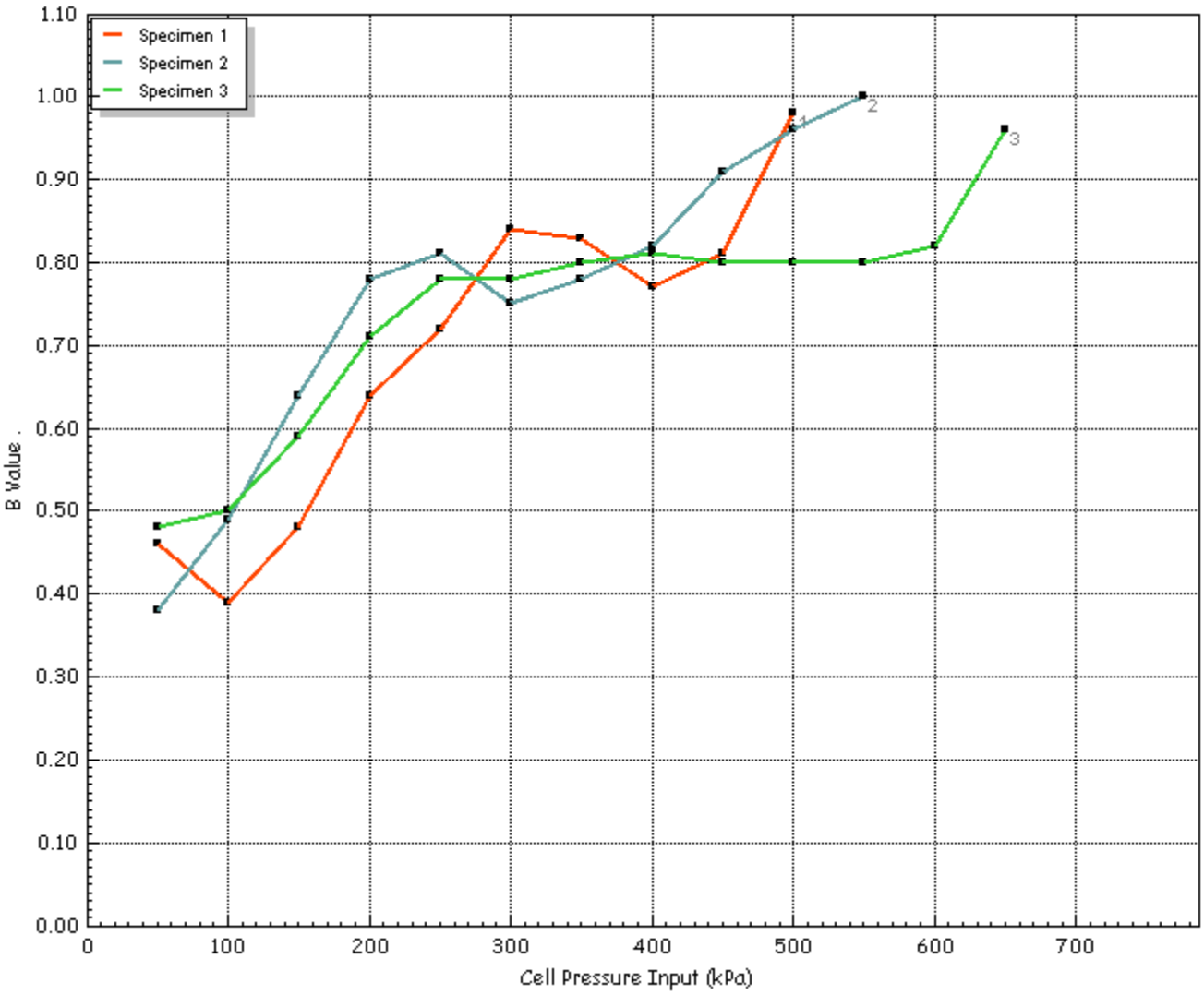
*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

			Spm. 1	2	3
Saturation Method at constant moisture content					
Cell Pressure Input	σ	(kPa)	500	550	650
Pore Water Pressure	u pwp	(kPa)	492	532	643
Input B Value	B	.	0.98	1.00	0.96



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 9
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	16/06/2022
Site Reference				Borehole	PWBBH01
Jobfile	59564			Sample	32
Client	RPS Group			Depth	
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

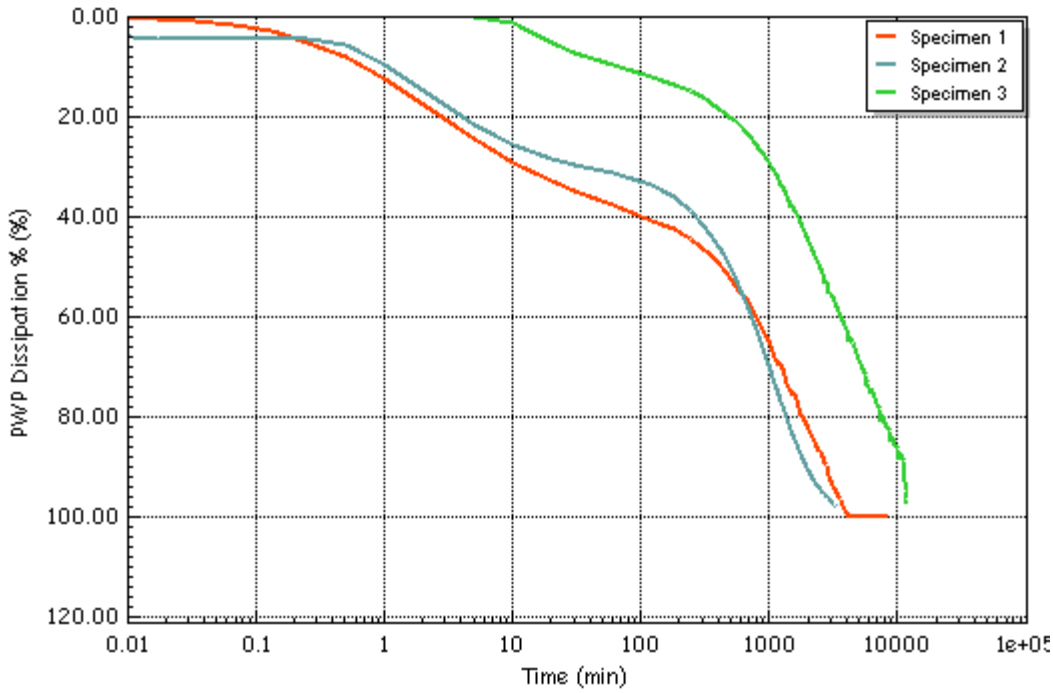
Consolidation Plots

Initial Conditions			Spm. 1	2	3
Initial Cell Pressure	σ_3	(kPa)	830	1200	1600
Initial Back Pressure	u_{bi}	(kPa)	500	550	650
Pore Water Pressure Input	u_{pwp}	(kPa)	823	1174	1593
Drainage Method			Radial+One End	Radial+One End	Radial+One End

Final Conditions			Spm. 1	2	3
PWP Dissipation %	U%	(%)	100.00	97.99	97.35
Volumetric Strain	ε_v%	(%)	16.92	15.75	22.58
Corrected Length	L_C	(mm)	71.9	71.8	70.4
Corrected Area	A_C	(cm2)	10.33	10.53	9.99
Corrected Volume	V_C	(cc)	73.702	75.122	69.303
t100	t_{100}	(min)	27.84	688.23	683.72
Consolidation	c_V	(m2/year)	1.118	0.046	0.046
Compressibility	m_V	(m2/MN)	0.524	0.258	0.246
Test Time	t_F	(h:m:s)	02:00:00	20:38:48	20:30:41
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02996	0.00290	0.00286

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 9
Database: .\SQLEXPRESS \ VJTECH Database		Test Date	16/06/2022
Site Reference		Borehole	PWBBH01
Jobfile	59564	Sample	32
Client	RPS Group	Depth	
Operator	*D Hammond	Checked	*R.John
		Approved	*R.John

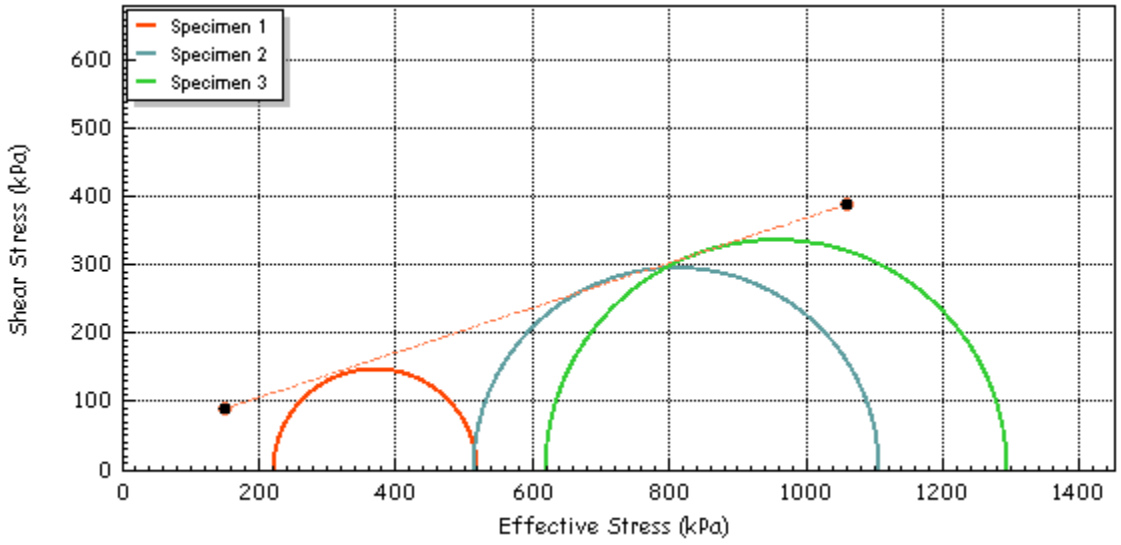
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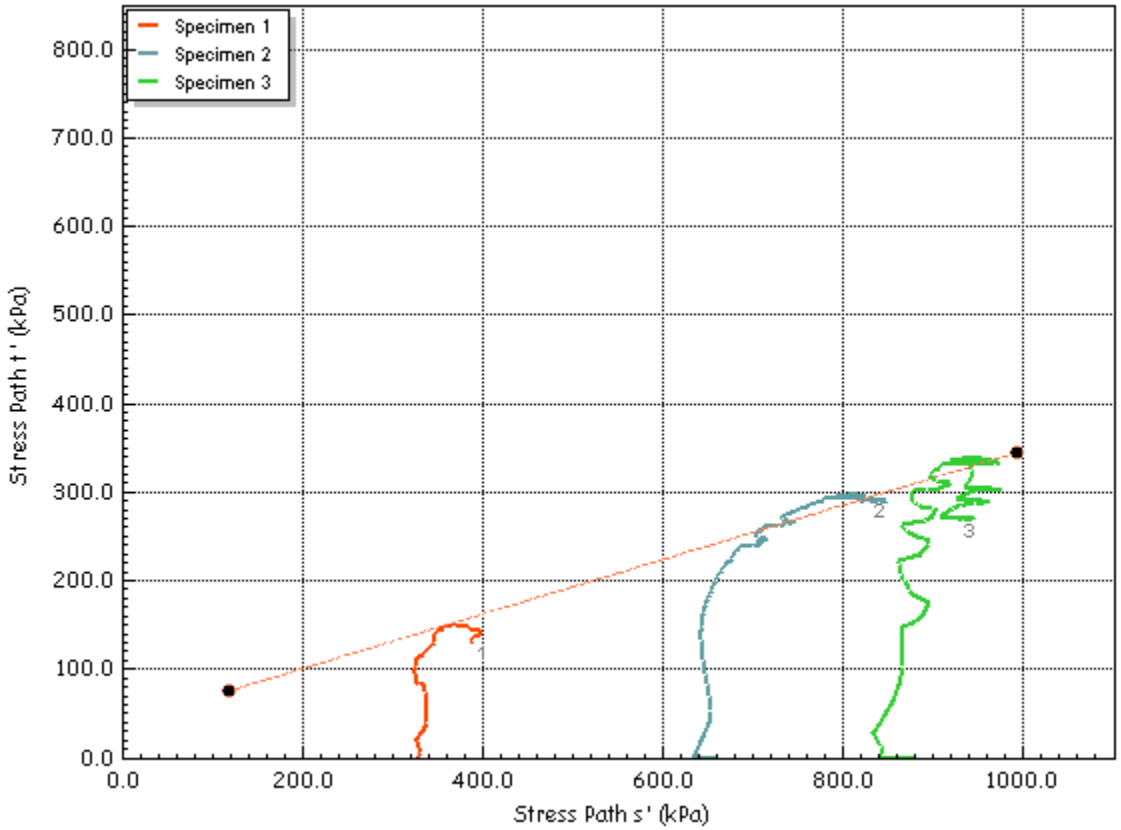
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	38.27	Effective Cohesion	c'	(kPa)	38.27
Effective Friction	ϕ'	(deg)	18.3	Effective Friction	ϕ'	(deg)	18.3





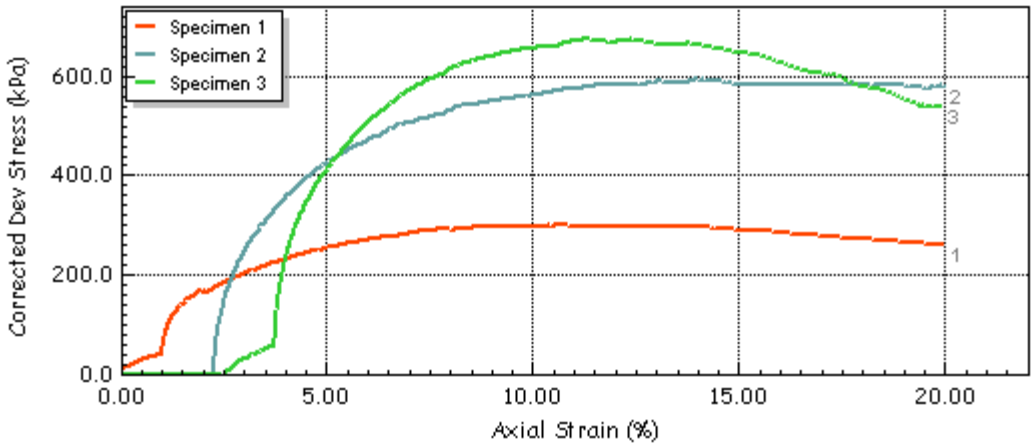
Test Method	BS1377-8 : 1990 : Clause 7		Test Name	Cell 9	
Database: .\SQLEXPRESS \ VJTECH Database			Test Date	16/06/2022	
Site Reference			Borehole	PWBBH01	
Jobfile	59564		Sample	32	
Client	RPS Group		Depth		
Operator	*D Hammond	Checked *R.John		Approved	*R.John

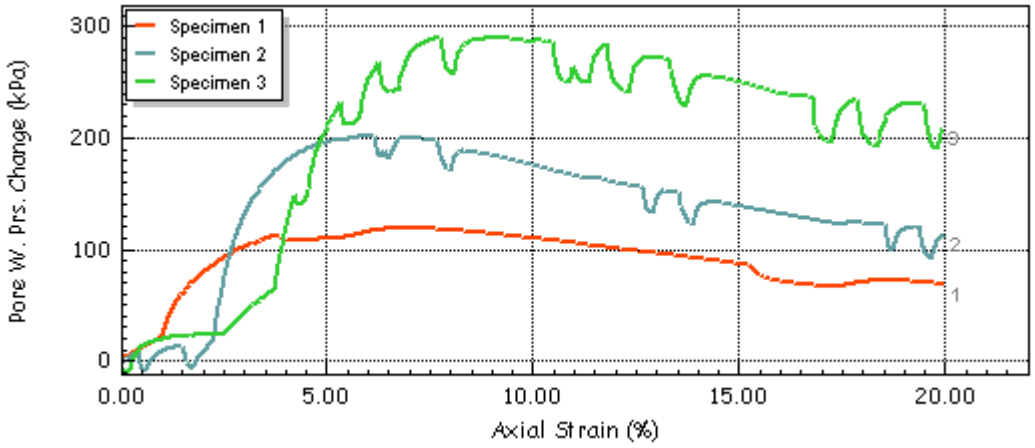
*GSTL

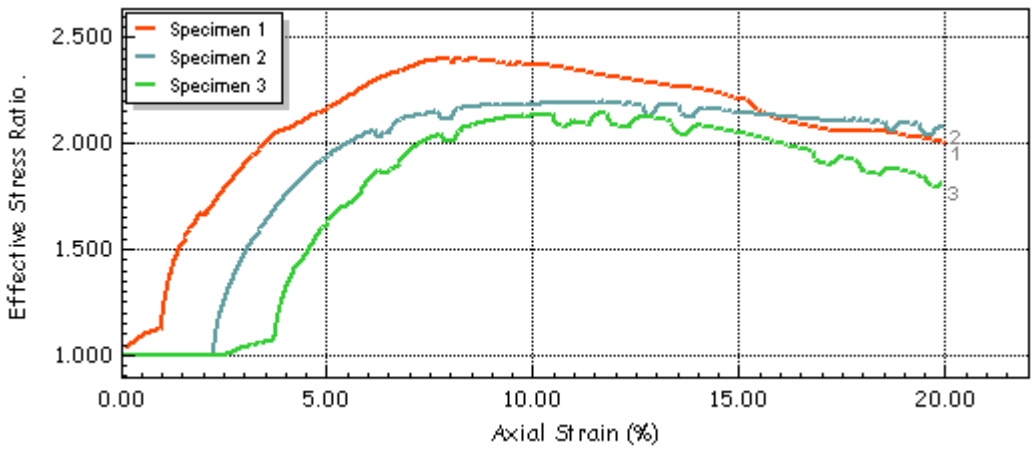
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 9	
	Database: .\SQLEXPRESS \ VJTECH Database		Test Date	16/06/2022	
	Site Reference		Borehole	PWBBH01	
	Jobfile	59564	Sample	32	
	Client	RPS Group	Depth		
	Operator	*D Hammond	Checked	*R.John	Approved *R.John

*GSTL

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Determination of the water content of Rock (ISRM)**	
Contract Number	**59564**	
Site Name	**Chippenham**	
Date Tested	**30/05/2022**	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
AVC1_BH_10	15	C	7.70	-		SILTSTONE
AVC1_BH_13	23	D	11.50	-		MUDSTONE
BH004	11	C	19.70	-		MUDSTONE
AVC1_BH_01	17	C	10.20	-		MUDSTONE
AVC1_BH_01	25	C	19.10	-		MUDSTONE
AVW_BH_02	7	D	3.85	-		MUDSTONE
AVW_BH_02	20	C	16.00	-		MUDSTONE
AVW_BH_01	10	D	4.15	-		MUDSTONE
AVW_BH_01	23	C	17.85	-		MUDSTONE
BH003	8	D	3.60	-		SILTSTONE
BH003	13	D	8.60	-		MUDSTONE
PWB_BH_06	26	C	18.50	-		MUDSTONE
BH001	1	D	0.80	-		SILTSTONE
BH001	6	D	4.00	-		MUDSTONE
BH001	16	C	17.05	-		SILTSTONE
BH002	18	C	19.75	-		SILTSTONE
AVW_BH_07	16	C	10.85	-		SILTSTONE
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
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				-		
				-		
				-		
				-		

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GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Determination of the water content of Rock (ISRM)

Contract Number	**59564**
Site Name	**Chippenham**
Date Tested	**30/05/2022**

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Remarks
AVC1_BH_10	15	C	7.70	-		3.3	
AVC1_BH_13	23	D	11.50	-		16	
BH004	11	C	19.70	-		20	
AVC1_BH_01	17	C	10.20	-		11	
AVC1_BH_01	25	C	19.10	-		12	
AVW_BH_02	7	D	3.85	-		25	
AVW_BH_02	20	C	16.00	-		19	
AVW_BH_01	10	D	4.15	-		23	
AVW_BH_01	23	C	17.85	-		22	
BH003	8	D	3.60	-		4.5	
BH003	13	D	8.60	-		16	
PWB_BH_06	26	C	0.80	-		20	
BH001	1	D	4.00	-		4.5	
BH001	6	D	4.00	-		21	
BH001	16	C	17.05	-		6.0	
BH002	18	C	19.75	-		2.2	
AVW_BH_07	16	C	10.85	-		5.5	
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
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				-			
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				-			
				-			
				-			
				-			

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GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Determination of Unconfined Compressive Strength
ISRM Suggested Methods Vol 16, No. 2, pp. 135-140 1979

Contract Number	59564
Site Name	Chippenham
Sample Preperation	Sawing and Grinding
Date Tested	15/06/2022

Hole Reference	Depth (m)		Diameter	Length	Initial Mass	Moisture Content	Bulk Density	Dry Density	Load Failure	Maximum Strength	Type of Failure
AVC1_BH_11	7.10		101.9	255.6	5366.5	3.0	2.57	2.50	164.4	20.2	Axial Splitting
AVC1_BH_11	12.20		101.3	255	4643.5	14	2.26	1.98	7.0	0.9	Multiple Fracture
AVC1_BH_11	18.50		102.2	255.1	4576.0	15	2.19	1.91	12.4	1.5	Multiple Fracture
AVC1_BH_12	5.80		101.9	255.1	5545.5	1.6	2.67	2.62	187.2	23.0	Axial Splitting
AVC1_BH_12	8.45		102	256.1	5466.0	3.3	2.61	2.53	122.1	14.9	Multiple Fracture
AVC1_BH_12	17.70		101	256.5	4586.0	16	2.23	1.93	13.8	1.7	Multiple Fracture
AVC1_BH_13	6.75		102	254	5519.0	2.2	2.66	2.60	285.3	34.9	Axial Splitting
AVC1_BH_13	13.95		102.1	256.8	5041.0	11	2.40	2.16	26.7	3.3	Axial Splitting
BH004	6.75		100.5	256	4500.5	13	2.22	1.95	6.4	0.8	Multiple Fracture
PWB_BH_01	16.95		102.1	252.2	4652.0	14	2.25	1.97	7.2	0.9	Multiple Fracture
PWB_BH_02	9.70		101.1	251.4	4201.0	23	2.08	1.69	5.0	0.6	Multiple Fracture
PWB_BH_02	14.15		102	253.1	4662.0	16	2.25	1.94	8.1	1.0	Multiple Fracture
PWB_BH_02	19.60		102	257.3	4451.0	22	2.12	1.74	4.5	0.6	Multiple Fracture
AVC1_BH_01	4.80		100.7	252.3	4792.5	11	2.38	2.14	6.2	0.8	Multiple Fracture
AVC1_BH_01	6.50		101.9	256.3	5541.0	3.1	2.65	2.57	199.3	24.4	Axial Splitting
AVC1_BH_01	9.65		102.2	257.4	4828.5	16	2.29	1.98	8.3	1.0	Multiple Fracture
AVC1_BH_02	6.75		102	251.9	5121.0	7.3	2.49	2.32	64.1	7.8	Single Shear
AVC1_BH_02	9.70		101.9	229.5	4162.0	16	2.22	1.92	7.3	0.9	Multiple Fracture
AVC1_BH_02	14.80		101.8	249.2	4430.0	18	2.18	1.85	9.3	1.1	Multiple Fracture
AVC1_BH_02	19.00		101.9	258	4849.5	12	2.30	2.06	14.9	1.8	Multiple Fracture
AVC1_BH_05	5.05		101.7	257.2	5344.5	4.0	2.56	2.46	154.9	19.1	Single Shear
AVC1_BH_14	13.18		102	256.5	5523.0	2.9	2.63	2.56	272.0	33.3	Axial Splitting
AVC1_BH_14	16.70		100.8	256.4	4542.5	18	2.22	1.89	5.0	0.6	Multiple Fracture
AVW_BH_03	9.95		100.1	256	4216.0	18	2.09	1.77	4.5	0.6	Multiple Fracture

Key	Reported As
Diameter	mm
Length	mm
Initial Mass	g
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Load Failure	kN
Maximum Strength	MPa

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GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	**Determination of Unconfined Compressive Strength** **ISRM Suggested Methods Vol 16, No. 2, pp. 135-140 1979**	
Contract Number	59564	
Site Name	Chippenham	
Sample Preperation	Sawing and Grinding	
Date Tested	15/06/2022	

Hole Reference	Depth (m)		Diameter	Length	Initial Mass	Moisture Content	Bulk Density	Dry Density	Load Failure	Maximum Strength	Type of Failure
AVW_BH_03	19.75		100.4	255.9	3942.5	24	1.95	1.58	7.8	1.0	Axial Splitting
AVW_BH_02	19.10		101	238.5	3734.0	21	1.95	1.61	10.9	1.4	Multiple Fracture
PWB_BH_03	6.25		102.1	256.6	5430.0	2.4	2.58	2.52	107.2	13.1	Axial Splitting
PWB_BH_03	9.70		101.9	255.7	4596.5	16	2.20	1.89	5.6	0.7	Multiple Fracture
BH003	11.05		102.5	256	4565.5	17	2.16	1.84	6.7	0.8	Multiple Fracture
BH003	19.75		102	239.5	4981.0	5.3	2.54	2.42	53.9	6.6	Single Shear
PWB_BH_06	13.15		100.2	254.8	4612.0	16	2.30	1.99	8.0	1.0	Multiple Fracture
BH001	3.75		101.6	251.1	4335.5	23	2.13	1.73	5.8	0.7	Multiple Fracture
BH001	9.40		102	254.8	4571.5	18	2.20	1.86	16.1	2.0	Multiple Fracture
BH001	10.75		101.7	256.1	4641.0	16	2.23	1.93	14.2	1.7	Multiple Fracture
BH001	17.05		101.8	222.6	4384.0	3.8	2.42	2.33	88.7	10.9	Axial Splitting
BH002	6.30		101.6	221.6	3840.0	19	2.14	1.79	6.4	0.8	Multiple Fracture
AVW_BH_08	19.60		101.7	256.4	4414.0	20	2.12	1.77	5.5	0.7	Multiple Fracture

Key	**Reported As**
Diameter	mm
Length	mm
Initial Mass	g
Moisture Content	%
Bulk Density	Mg/m^3
Dry Density	Mg/m^3
Load Failure	kN
Maximum Strength	MPa

Operators				
Julian Jones				

Point Load Test

The complete ISRM suggested methods for rock characterization, testing and monitoring 1974-2006
Determining Point Load Strength

Contract Number	59564
Site Name	Chippenham
Sample Type	Core
Date Tested	30/05/2022

*Please note that GSTL is not accredited for the water content of rock

Hole Reference	Depth (m)			Test Type		Width	Platen Seperation	Failure Load	Equivalent Diameter	Point Load	Size Factor	Point Load Index	Moisture Content	Description	Angle Between Plane of Anisotropy & Core Axis	Type of Anisotropy (Bedding or Cleavage)
				d / a / b / i	I //											
AVC1_BH_10	14.70	-	14.75	a		101	51	0.46	80.98	0.07	1.24	0.09	17.6	MUDSTONE		
AVC1_BH_10	14.75	-	14.80	a		101	54	0.41	83.33	0.06	1.26	0.07	16.3	MUDSTONE		
AVC1_BH_10	14.80	-	14.85	a		101	52	0.51	81.77	0.08	1.25	0.10	17.0	MUDSTONE		
AVC1_BH_10	14.85	-	14.90	a		101	46	0.43	76.91	0.07	1.21	0.09	17.4	MUDSTONE		
AVC1_BH_10	14.90	-	14.95	a		101	46	0.39	76.91	0.07	1.21	0.08	16.5	MUDSTONE		
AVC1_BH_12	12.25	-	12.31	a		101	63	0.28	90.01	0.03	1.30	0.04	14.4	MUDSTONE		
AVC1_BH_12	12.31	-	12.36	a		101	51	0.37	80.98	0.06	1.24	0.07	14.0	MUDSTONE		
AVC1_BH_12	12.36	-	12.40	a		101	44	0.77	75.22	0.14	1.20	0.16	12.6	MUDSTONE		
AVC1_BH_12	12.40	-	12.44	a		101	41	0.56	72.61	0.11	1.18	0.13	14.5	MUDSTONE		
AVC1_BH_12	12.44	-	12.47	a		101	31	0.61	63.14	0.15	1.11	0.17	13.6	MUDSTONE		
AVC1_BH_13	16.55	-	16.64	d			102	0.86		0.08	1.38	0.11	15.5	MUDSTONE		
AVC1_BH_13	16.64	-	16.69	a		102	47	0.66	78.13	0.11	1.22	0.13	16.2	MUDSTONE		
AVC1_BH_13	16.69	-	16.74	a		102	54	0.73	83.74	0.10	1.26	0.13	16.2	MUDSTONE		
AVC1_BH_13	16.74	-	16.79	a		102	53	0.77	82.96	0.11	1.26	0.14	15.4	MUDSTONE		
AVC1_BH_13	16.79	-	16.85	a		102	56	0.72	85.28	0.10	1.27	0.13	15.0	MUDSTONE		
BH004	9.65	-	9.95	d			100	0.44		0.04	1.37	0.06	23.6	MUDSTONE		
BH004	19.15	-	19.45	d			100	0.27		0.03	1.37	0.04	18.5	MUDSTONE		
PWB_BH_01	4.40	-	4.45	a		96	46	0.14	74.98	0.02	1.20	0.03	25.3	CLAY		
PWB_BH_01	4.45	-	4.50	a		97	49	0.17	77.79	0.03	1.22	0.03	22.6	CLAY		
PWB_BH_01	4.50	-	4.55	a		97	53	0.17	80.91	0.03	1.24	0.03	24.4	CLAY		
PWB_BH_01	4.55	-	4.60	a		97	45	0.13	74.55	0.02	1.20	0.03	24.8	CLAY		
PWB_BH_01	4.60	-	4.65	a		97	48	0.17	76.99	0.03	1.21	0.03	25.2	CLAY		
PWB_BH_01	6.15	-	6.19	a		101	44	0.31	75.22	0.05	1.20	0.07	25.0	CLAY		
PWB_BH_01	6.19	-	6.24	a		101	47	0.31	77.74	0.05	1.22	0.06	23.4	CLAY		
PWB_BH_01	6.24	-	6.29	a		101	45	0.28	76.07	0.05	1.21	0.06	25.4	CLAY		
PWB_BH_01	6.29	-	6.33	a		101	41	0.23	72.61	0.04	1.18	0.05	23.8	CLAY		
PWB_BH_01	6.33	-	6.37	a		101	43	0.24	74.36	0.04	1.20	0.05	24.9	CLAY		
PWB_BH_01	19.70	-	19.75	a		102	47	0.20	78.13	0.03	1.22	0.04	16.9	CLAY		
PWB_BH_01	19.75	-	19.80	a		102	54	0.21	83.74	0.03	1.26	0.04	18.6	CLAY		
PWB_BH_01	19.80	-	19.85	a		102	46	0.18	77.29	0.03	1.22	0.04	20.7	CLAY		
PWB_BH_01	19.85	-	19.90	a		102	50	0.32	80.58	0.05	1.24	0.06	21.3	CLAY		
PWB_BH_01	19.90	-	19.95	a		102	55	0.30	84.52	0.04	1.27	0.05	23.0	CLAY		
PWB_BH_02	6.60	-	6.66	a		101	62	0.31	89.29	0.04	1.30	0.05	24.3	CLAY		
PWB_BH_02	6.66	-	6.71	a		101	50	0.12	80.19	0.02	1.24	0.02	24.6	CLAY		
PWB_BH_02	6.71	-	6.76	a		101	49	0.17	79.38	0.03	1.23	0.03	25.4	CLAY		
PWB_BH_02	6.76	-	6.82	a		101	59	0.23	87.10	0.03	1.28	0.04	24.5	CLAY		
PWB_BH_02	6.82	-	6.87	a		101	48	0.17	78.57	0.03	1.23	0.03	22.1	CLAY		
TP001	1.40	-		i		110	56	9.48	88.56	1.21	1.29	1.56	3.5	SILTSTONE		
TP002	2.00	-		i		156	37	3.44	85.73	0.47	1.27	0.60	4.2	SILTSTONE		
AVC1_BH_02	11.90	-	12.15	d			101	0.49		0.05	1.37	0.07	14.6	CLAY		
AVC1_BH_02	17.00	-	17.20	d			101	0.77		0.08	1.37	0.10	13.2	CLAY		
AVC1_BH_05	3.70	-	3.85	d			101	18.34		1.80	1.37	2.47	3.6	SILTSTONE		
AVC1_BH_05	12.30	-	12.60	d			102	0.79		0.08	1.38	0.10	17.8	MUDSTONE		
AVC1_BH_05	20.10	-	20.16	a		102	63	10.04	90.45	1.23	1.31	1.60	2.9	SILTSTONE		
AVC1_BH_05	20.16	-	20.22	a		102	58	5.67	86.79	0.75	1.28	0.97	3.6	SILTSTONE		
AVC1_BH_05	20.22	-	20.27	a		102	53	0.49	82.96	0.07	1.26	0.09	17.6	MUDSTONE		
AVC1_BH_05	20.27	-	20.33	a		102	64	0.58	91.17	0.07	1.31	0.09	16.0	MUDSTONE		
AVC1_BH_05	20.33	-	20.39	a		102	63	2.08	90.45	0.25	1.31	0.33	9.3	MUDSTONE		
AVC1_BH_14	14.45	-	14.80	d			102	16.42		1.58	1.38	2.18	4.2	SILTSTONE		
AVC1_BH_14	18.20	-	18.26	i		101	66	0.49	92.13	0.06	1.32	0.08	15.1	MUDSTONE		
AVC1_BH_14	18.26	-	18.32	i		101	64	0.98	90.72	0.12	1.31	0.16	14.6	MUDSTONE		
AVC1_BH_14	18.32	-	18.40	i		101	63	0.77	90.01	0.09	1.30	0.12	15.0	MUDSTONE		
AVC1_BH_14	18.40	-	18.45	i		101	63	0.81	90.01	0.10	1.30	0.13	15.6	MUDSTONE		
AVC1_BH_14	18.45	-	18.50	a		101	51	0.57	80.98	0.09	1.24	0.11	15.5	MUDSTONE		
AVW_BH_02	12.25	-	12.45	d			102	13.71		1.32	1.38	1.82	1.9	SILTSTONE		
AVW_BH_01	8.50	-		i		100	56	0.18	84.44	0.02	1.27	0.03	23.3	MUDSTONE		
PWB_BH_03	5.05	-	5.10	a		102	50	0.26	80.58	0.04	1.24	0.05	21.3	CLAY		
PWB_BH_03	5.10	-	5.15	a		102	48	0.21	78.95	0.03	1.23	0.04	23.0	CLAY		
PWB_BH_03	5.15	-	5.20	a		102	46	0.18	77.29	0.03	1.22	0.04	24.1	CLAY		
PWB_BH_03	5.20	-	5.25	a		102	49	0.17	79.77	0.03	1.23	0.03	23.0	CLAY		

Key	Reported As
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operators				
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UKAS TESTING 2788

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GEOTECHNICAL SITE & TESTING LABORATORIES

Point Load Test

The complete ISRM suggested methods for rock characterization, testing and monitoring 1974-2006
Determining Point Load Strength

Contract Number	59564
Site Name	Chippenham
Sample Type	Core
Date Tested	30/05/2022

*Please note that GSTL is not accredited for the water content of rock

Hole Reference	Depth (m)			Test Type d / a / b / i	Test Type I //	Width	Platen Seperation	Failure Load	Equivalent Diameter	Point Load	Size Factor	Point Load Index	Moisture Content	Description	Angle Between Plane of Anisotropy & Core Axis	Type of Anisotropy (Bedding or Cleavage)
PWB_BH_03	5.25	-	5.30	a		102	52	0.15	82.18	0.02	1.25	0.03	23.5	CLAY		
PWB_BH_03	8.65	-	8.80	d			102	33.18		3.19	1.38	4.40	0.9	SILTSTONE		
BH003	14.15	-	14.21	a		102	61	0.33	89.01	0.04	1.30	0.05	17.9	MUDSTONE		
BH003	14.21	-	14.27	a		102	59	0.28	87.53	0.04	1.29	0.05	16.8	MUDSTONE		
BH003	14.27	-	14.33	a		102	63	0.31	90.45	0.04	1.31	0.05	16.7	MUDSTONE		
BH003	14.33	-	14.39	a		102	57	0.27	86.04	0.04	1.28	0.05	16.3	MUDSTONE		
BH003	14.39	-	14.45	a		102	64	0.33	91.17	0.04	1.31	0.05	15.7	MUDSTONE		
BH003	17.30	-	17.34	a		102	41	0.61	72.97	0.12	1.19	0.14	10.6	MUDSTONE		
BH003	17.34	-	17.38	a		102	39	0.54	71.17	0.11	1.17	0.12	9.9	MUDSTONE		
BH003	17.38	-	17.42	a		102	44	0.77	75.59	0.13	1.20	0.16	13.7	MUDSTONE		
BH003	17.42	-	14.46	a		102	40	0.60	72.08	0.12	1.18	0.14	12.6	MUDSTONE		
BH003	17.46	-	17.50	a		102	38	0.54	70.25	0.11	1.17	0.13	8.8	MUDSTONE		
BH003	12.70	-	13.00	d			102	0.63		0.06	1.38	0.08	18.4	MUDSTONE		
PWB_BH_06	11.10	-	11.20	i		96	74	17.53	95.11	1.94	1.34	2.59	2.3	SILTSTONE		
BH001	19.15	-	19.20	a		102	53	4.14	82.96	0.60	1.26	0.75	8.1	SILTSTONE		
BH001	19.20	-	19.26	a		102	59	7.65	87.53	1.00	1.29	1.28	5.0	SILTSTONE		
BH001	19.26	-	19.34	a		102	75	9.38	98.69	0.96	1.36	1.31	5.7	SILTSTONE		
BH001	19.34	-	19.40	a		102	56	4.02	85.28	0.55	1.27	0.70	9.0	SILTSTONE		
BH001	19.40	-	19.45	a		102	54	3.68	83.74	0.52	1.26	0.66	10.1	SILTSTONE		
BH002	5.20	-	5.25	a		102	51	10.67	81.38	1.61	1.25	2.01	5.0	SILTSTONE		
BH002	5.25	-	5.31	a		102	59	11.90	87.53	1.55	1.29	2.00	4.8	SILTSTONE		
BH002	5.31	-	5.37	i		62	57	5.70	67.08	1.27	1.14	1.45	3.8	SILTSTONE		
BH002	5.37	-	5.43	i		56	71	10.63	71.15	2.10	1.17	2.46	3.5	SILTSTONE		
BH002	5.43	-	5.50	i		67	72	15.49	78.37	2.52	1.22	3.09	3.1	SILTSTONE		
BH002	10.55	-	10.61	a		102	62	0.16	89.73	0.02	1.30	0.03	16.2	MUDSTONE		
BH002	10.61	-	10.66	a		102	54	0.17	83.74	0.02	1.26	0.03	19.1	MUDSTONE		
BH002	10.66	-	10.73	a		102	66	0.24	92.58	0.03	1.32	0.04	17.5	MUDSTONE		
BH002	10.73	-	10.77	a		102	42	0.15	73.85	0.03	1.19	0.03	21.3	MUDSTONE		
BH002	10.77	-	10.81	a		102	38	0.14	70.25	0.03	1.17	0.03	18.1	MUDSTONE		
BH002	18.35	-	18.50	d			102	11.71		1.13	1.38	1.55	2.7	SILTSTONE		
AVC1_BH_10	6.05	-	6.18	d			102	12.13		1.17	1.38	1.61	4.3	SILTSTONE		
AVC1_BH_10	12.80	-	12.90	d			102	1.02		0.10	1.38	0.14	13.9	MUDSTONE		
AVC1_BH_10	19.55	-	19.70	d			102	0.51		0.05	1.38	0.07	9.5	MUDSTONE		
BH004	19.70	-	19.76	a		102	57	0.13	86.04	0.02	1.28	0.02	19.6	MUDSTONE		
PWB_BH_01	10.75	-	10.85	a		102	89	25.04	107.51	2.17	1.41	3.06	0.9	SILTSTONE		
AVC1_BH_01	11.15	-	11.30	d			102	0.56		0.05	1.38	0.07	10.8	MUDSTONE		
AVC1_BH_01	18.20	-	18.37	d			102	1.64		0.16	1.38	0.22	8.8	MUDSTONE		
AVC1_BH_05	8.20	-	8.30	d			102	1.12		0.11	1.38	0.15	4.7	SILTSTONE		
AVC1_BH_05	17.05	-	17.20	d			102	0.71		0.07	1.38	0.09	14.2	MUDSTONE		
AVW_BH_02	8.05	-	8.20	d			101	0.32		0.03	1.37	0.04	20.5	MUDSTONE		
AVW_BH_01	5.95	-	6.05	d			102	0.30		0.03	1.38	0.04	24.5	MUDSTONE		
AVW_BH_01	19.50	-	19.60	d			102	11.10		1.07	1.38	1.47	2.1	SILTSTONE		
PWB_BH_04	17.20	-	17.25	a		100	58	0.41	85.93	0.06	1.28	0.07	15.7	MUDSTONE		
PWB_BH_03	13.50	-	13.65	d			102	0.51		0.05	1.38	0.07	11.9	MUDSTONE		
PWB_BH_03	18.40	-	18.50	d			100	0.56		0.06	1.37	0.08	15.7	MUDSTONE		
AVW_BH_04	11.25	-	11.38	d			99	0.69		0.07	1.36	0.10	17.1	MUDSTONE		
AVW_BH_04	19.20	-	19.32	d			101	0.35		0.03	1.37	0.05	20.5	MUDSTONE		
PWB_BH_06	19.90	-	20.05	d			100	0.09		0.01	1.37	0.01	20.1	MUDSTONE		
BH001	15.40	-	15.55	d			102	0.76		0.07	1.38	0.10	15.2	MUDSTONE		
BH002	3.50	-	3.65	d			102	3.76		0.36	1.38	0.50	4.2	SILTSTONE		
BH002	15.10	-	15.27	d			102	0.42		0.04	1.38	0.06	14.7	MUDSTONE		
BH002	17.30	-	17.45	d			102	1.61		0.15	1.38	0.21	8.8	MUDSTONE		
BH002	19.75	-	19.84	a		102	86	13.73	105.68	1.23	1.40	1.72	4.8	SILTSTONE		
		-														
		-														
		-														
		-														
		-														
		-														
		-														

Key	Reported As
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operators				
Julian Jones				

UKAS TESTING
2788

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			2.2-2.6
Description			Brownish Grey, Fine to Medium Gravel, Silty, CLAY
Type			U
Initial Sample Length	L_0	(mm)	211.8
Initial Sample Diameter	D_0	(mm)	105.0
Initial Sample Weight	W_0	(gr)	3253.3
Initial Bulk Density	ρ_0	(Mg/m3)	1.77
Particle Density (Assumed)	ρ_s	(Mg/m3)	2.65

Initial Conditions

			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	320	340	380	
Initial Back Pressure	U_{bi}	(kPa)	300	300	300	
Strain Rate	m_s	(mm/min)	0.00726	0.00174	0.07526	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	36			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.30			
Initial Voids Ratio	e_i	.	1.039			
Initial Degree of Saturation	S_i	(%)	93			
B Value	B	.	0.98			

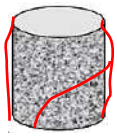
Final Conditions

Final Moisture	ω_f	(%)	33			
Final Dry Density	ρ_{df}	(Mg/m3)	1.36			
Final Voids Ratio	e_f	.	0.951			
Final Degree of Saturation	S_f	(%)	91.2			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	6.90	12.28	14.27	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	19.6	31.4	47.1	
Minor Stress At Failure	σ_3'	(kPa)	9.0	26.9	53.0	
Major Stress At Failure	σ_1'	(kPa)	28.6	58.3	100.1	
Principal Stress At Failure	σ_1'/σ_3'		3.173	2.166	1.889	
PwP At Failure Criteria	u_f		311.0	313.0	327.0	

Notes

Side Drains Used During Testing

	1	2	3
Side Drain Correction at Failure (kpa)	3.33	3.33	3.33
Membrane Correction at Failure (kpa)	0.66	0.99	1.11



Compound

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 7
Database: .\SQLEXPRESS \ Test 1		Test Date	11/07/2022
Site Reference		Borehole	AVCIBH05
Jobfile	59564	Sample	6
Client	RPS Group	Depth	2.2-2.6

Operator	D.Hammond	Checked	R.John	Approved	R.John

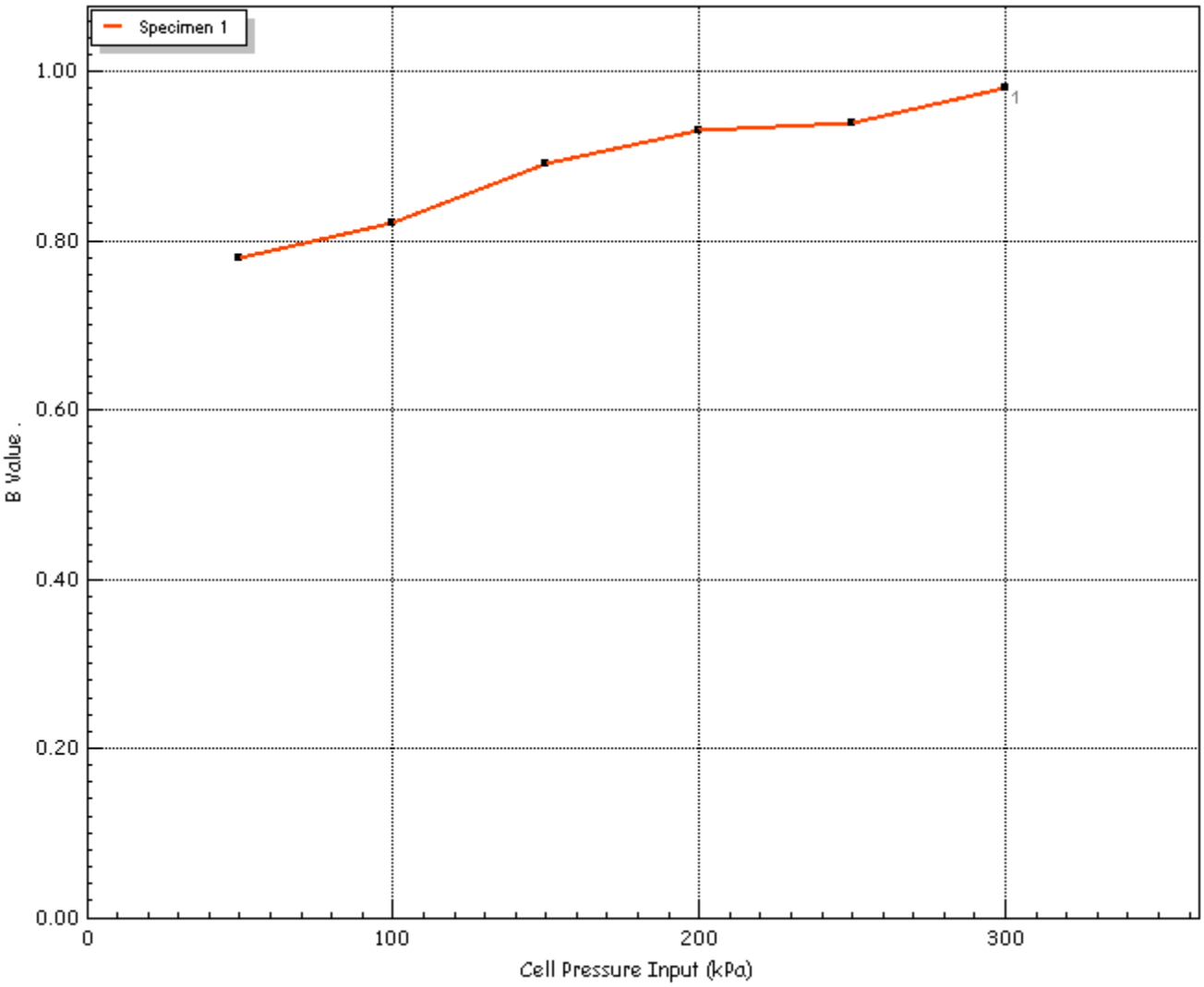
UKAS TESTING 2788

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method at Constant Moisture Content			
Cell Pressure Input	σ	(kPa)	300
Pore Water Pressure Input	u_{pwp}	(kPa)	288
B Value	B	.	0.98



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 7
Database: .\SQLEXPRESS \ Test 1				Test Date	11/07/2022
Site Reference				Borehole	AVCIBH05
Jobfile	59564			Sample	6
Client	RPS Group			Depth	2.2-2.6
Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

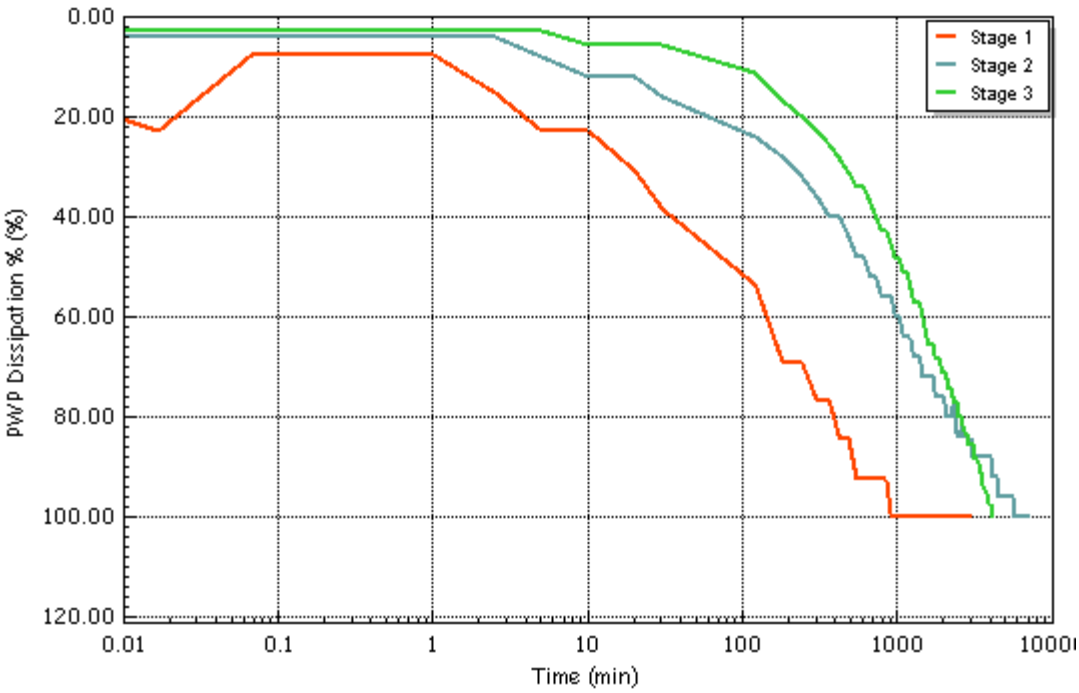
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	320	340	380
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	313	325	335
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	100.00	100.00
Volumetric Strain	ε_v%	(%)	0.86	1.73	1.74
Corrected Length	L_C	(mm)	211.2	189.0	180.6
Corrected Area	A_C	(cm2)	86.10	94.54	97.17
Corrected Volume	V_C	(cc)	1818.287	1786.499	1754.679
t100	t_{100}	(min)	808.56	3023.60	27.84
Consolidation	c_V	(m2/year)	0.28	0.075	8.2
Compressibility	m_V	(m2/MN)	0.66	0.69	0.50
Test Time	t_F	(h:m:s)	24:15:24	90:42:28	02:00:00
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00726	0.00174	0.07525

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 7
Database: .\SQLEXPRESS \ Test 1		Test Date	11/07/2022
Site Reference		Borehole	AVCIBH05
Jobfile	59564	Sample	6
Client	RPS Group	Depth	2.2-2.6

Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

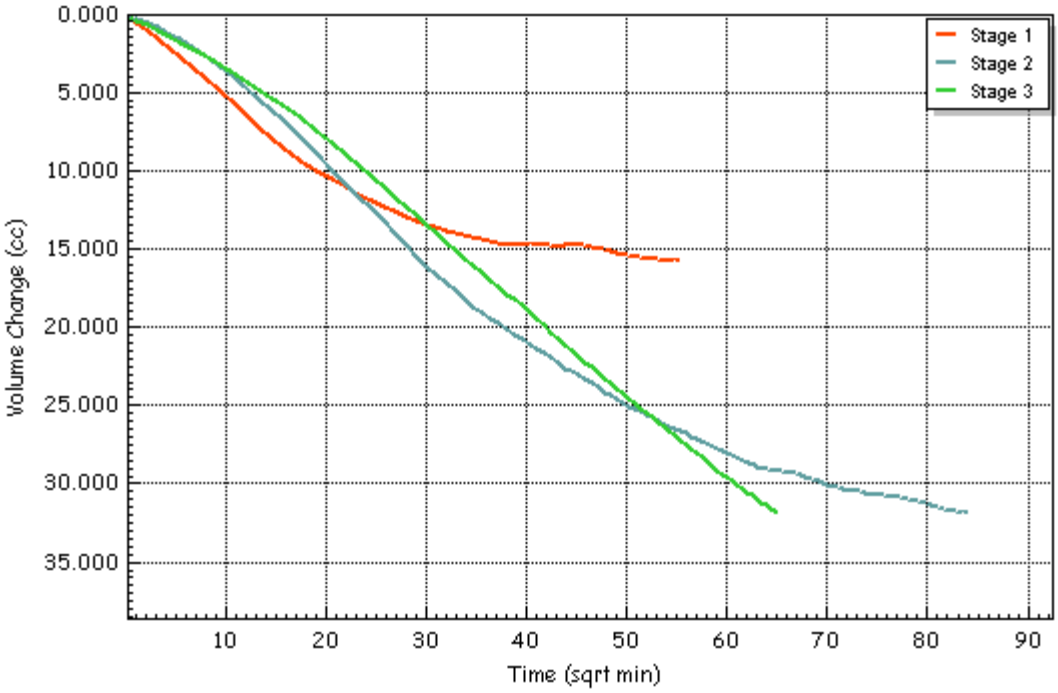
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	320	340	380
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	313	325	335
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	100.00	100.00
Volumetric Strain	ε_v%	(%)	0.86	1.73	1.74
Corrected Length	L_C	(mm)	211.2	189.0	180.6
Corrected Area	A_C	(cm2)	86.10	94.54	97.17
Corrected Volume	V_C	(cc)	1818.287	1786.499	1754.679
t100	t_{100}	(min)	808.56	3023.60	27.84
Consolidation	c_V	(m2/year)	0.28	0.075	8.2
Compressibility	m_V	(m2/MN)	0.66	0.69	0.50
Test Time	t_F	(h:m:s)	24:15:24	90:42:28	02:00:00
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00726	0.00174	0.07525

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 7
Database: .\SQLEXPRESS \ Test 1		Test Date	11/07/2022
Site Reference		Borehole	AVCIBH05
Jobfile	59564	Sample	6
Client	RPS Group	Depth	2.2-2.6

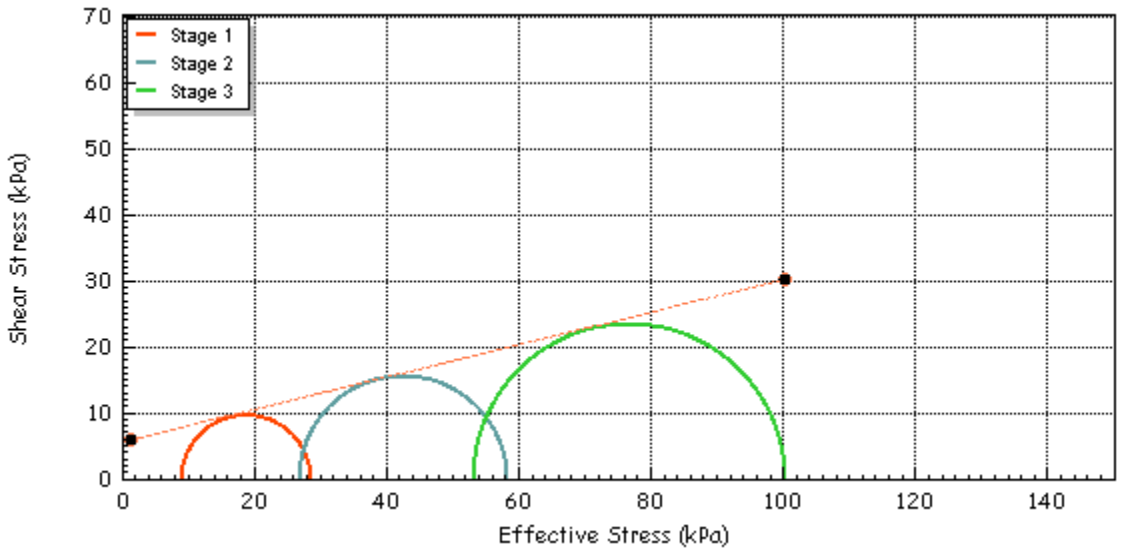
Operator	D.Hammond	Checked	R.John	Approved	R.John

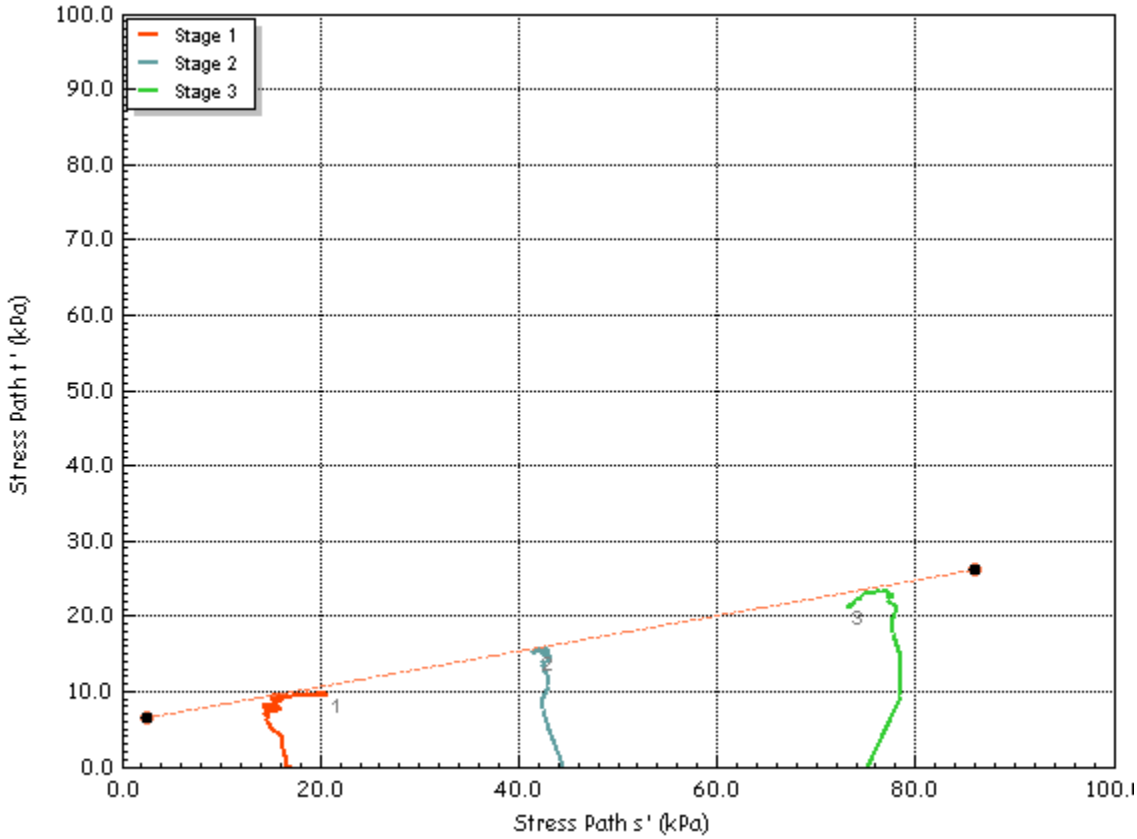
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	5.61	Effective Cohesion	c'	(kPa)	6.20
Effective Friction	ϕ'	(deg)	13.8	Effective Friction	ϕ'	(deg)	13.6



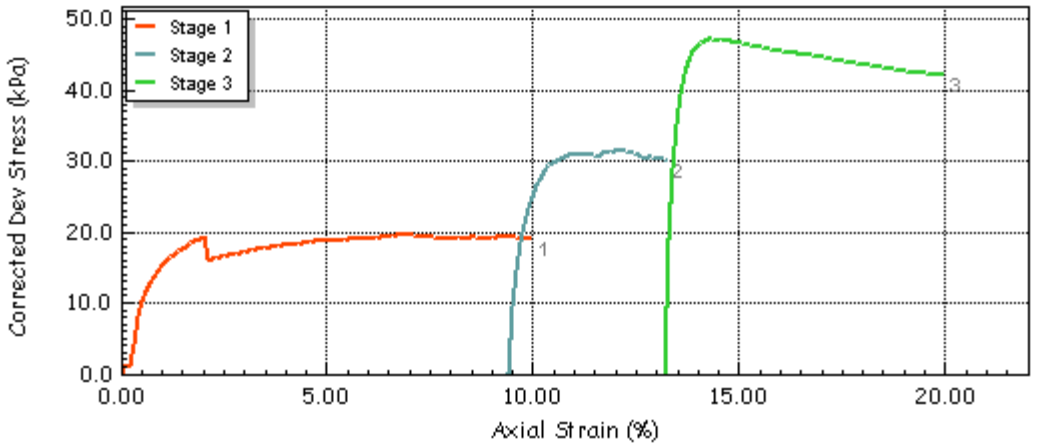


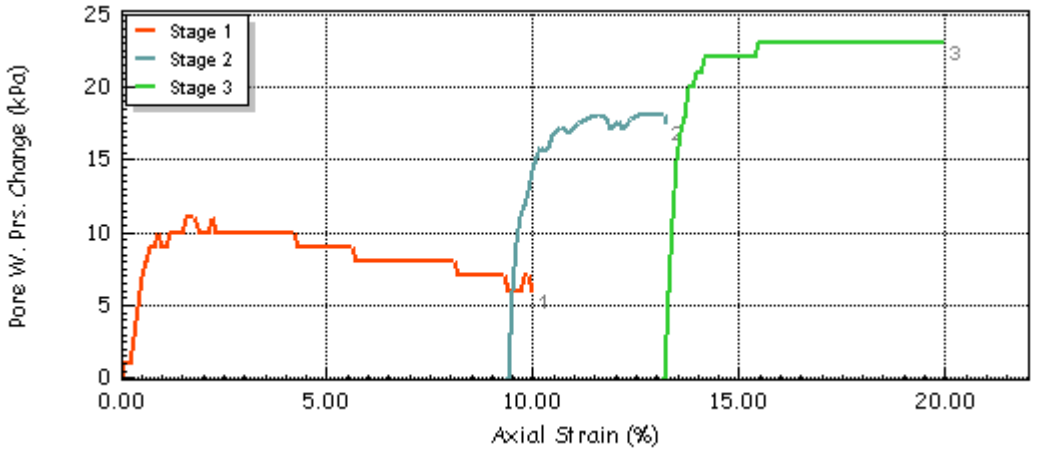
Test Method	BS1377-8 : 1990 : Clause 7		Test Name	Cell 7	
Database: .\SQLEXPRESS \ Test 1			Test Date	11/07/2022	
Site Reference			Borehole	AVCIBH05	
Jobfile	59564		Sample	6	
Client	RPS Group		Depth	2.2-2.6	
Operator	D.Hammond	Checked	R.John	Approved	R.John

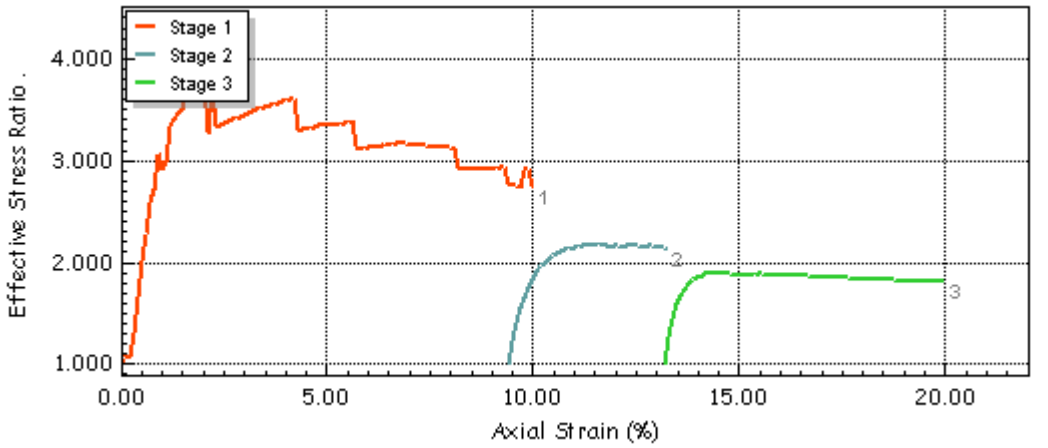
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 7	
	Database: .\SQLEXPRESS \ Test 1		Test Date	11/07/2022	
	Site Reference		Borehole	AVCIBH05	
	Jobfile	59564	Sample	6	
	Client	RPS Group	Depth	2.2-2.6	
	Operator	D.Hammond	Checked	R.John	Approved R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			15.85-16.15
Description			Grey, Silty, Sandy, CLAY (Shell Fragments)
Type			U
Initial Sample Length	L_0	(mm)	211.5
Initial Sample Diameter	D_0	(mm)	104.7
Initial Sample Weight	W_0	(gr)	3869.9
Initial Bulk Density	ρ_0	(Mg/m3)	2.13
Particle Density (Assumed)	ρ_s	(Mg/m3)	2.65

Initial Conditions

			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	900	1050	1200	
Initial Back Pressure	U_{bi}	(kPa)	750	750	750	
Strain Rate	m_s	(mm/min)	0.00354	0.05000	0.04153	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	14			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.86			
Initial Voids Ratio	e_i	.	0.422			
Initial Degree of Saturation	S_i	(%)	88			
B Value	B	.	1.09			

Final Conditions

Final Moisture	ω_f	(%)	14
Final Dry Density	ρ_{df}	(Mg/m3)	2.04
Final Voids Ratio	e_f	.	0.298
Final Degree of Saturation	S_f	(%)	100.0

			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	4.39	14.99	20.00	
Stress At Failure	$(\sigma_1-\sigma_3)_f$	(kPa)	171.5	261.7	381.2	
Minor Stress At Failure	σ_3'	(kPa)	117.4	231.5	414.2	
Major Stress At Failure	σ_1'	(kPa)	288.9	493.2	795.5	
Principal Stress At Failure	σ_1'/σ_3'		2.461	2.131	1.920	
PwP At Failure Criteria	u_f		787.6	818.8	790.8	

Notes

Side Drains Used During Testing

	1	2	3
Side Drain Correction at Failure (kpa)	3.34	3.34	3.34
Membrane Correction at Failure (kpa)	0.46	1.16	1.47



Compound

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 8
Database: .\SQLEXPRESS \ Test 1		Test Date	29/06/2022
Site Reference		Borehole	AVWBH07
Jobfile	59564	Sample	20
Client	RPS Group	Depth	15.85-16.15

Operator	Checked	Approved
D.Hammond	R.John	R.John

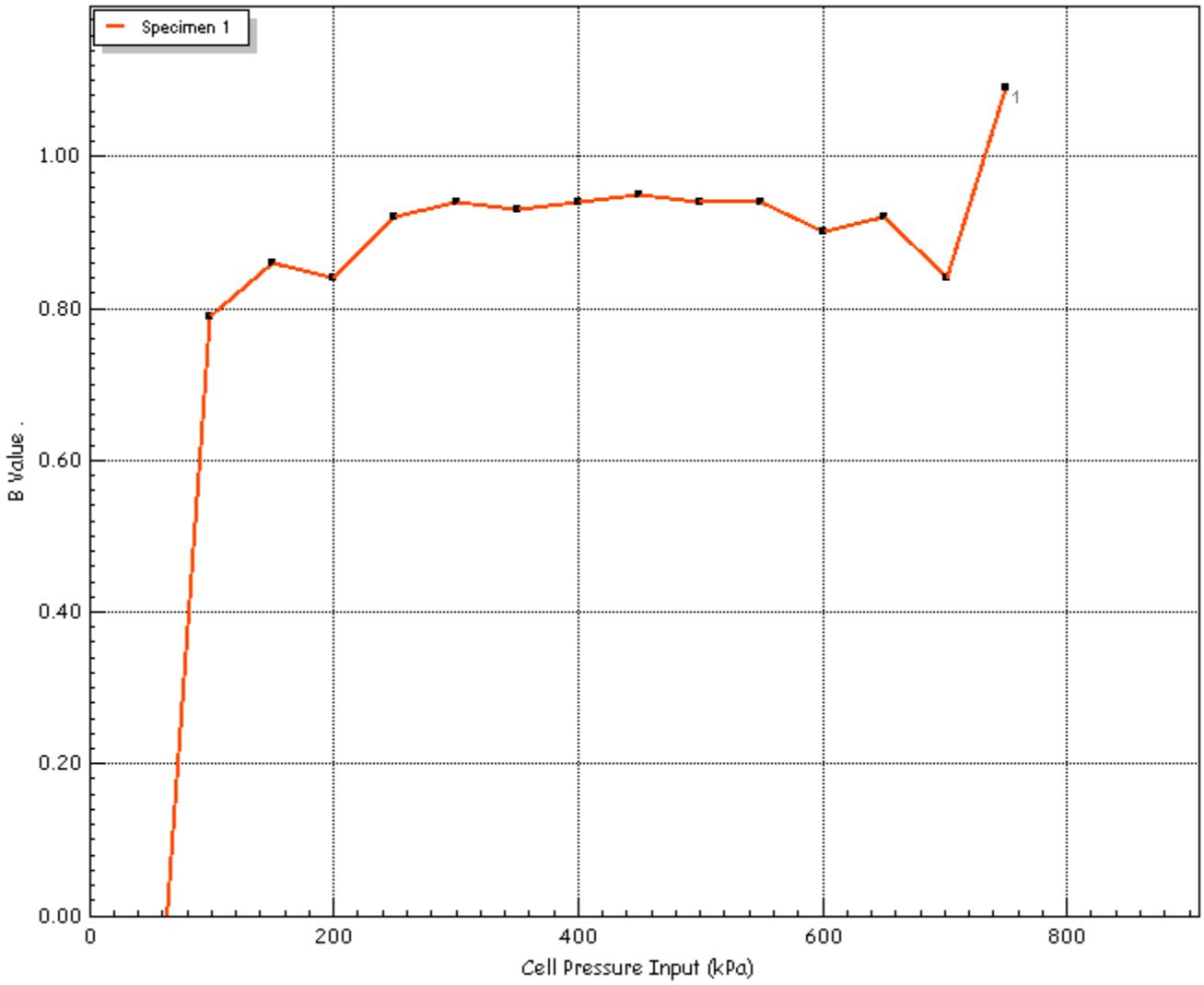
UKAS TESTING 2788

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method at Constant Moisture Content			
Cell Pressure Input	σ	(kPa)	750
Pore Water Pressure Input	u_{pwp}	(kPa)	722
B Value	B	.	1.09



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 8
Database: .\SQLEXPRESS \ Test 1				Test Date	29/06/2022
Site Reference				Borehole	AVWBH07
Jobfile	59564			Sample	20
Client	RPS Group			Depth	15.85-16.15
Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

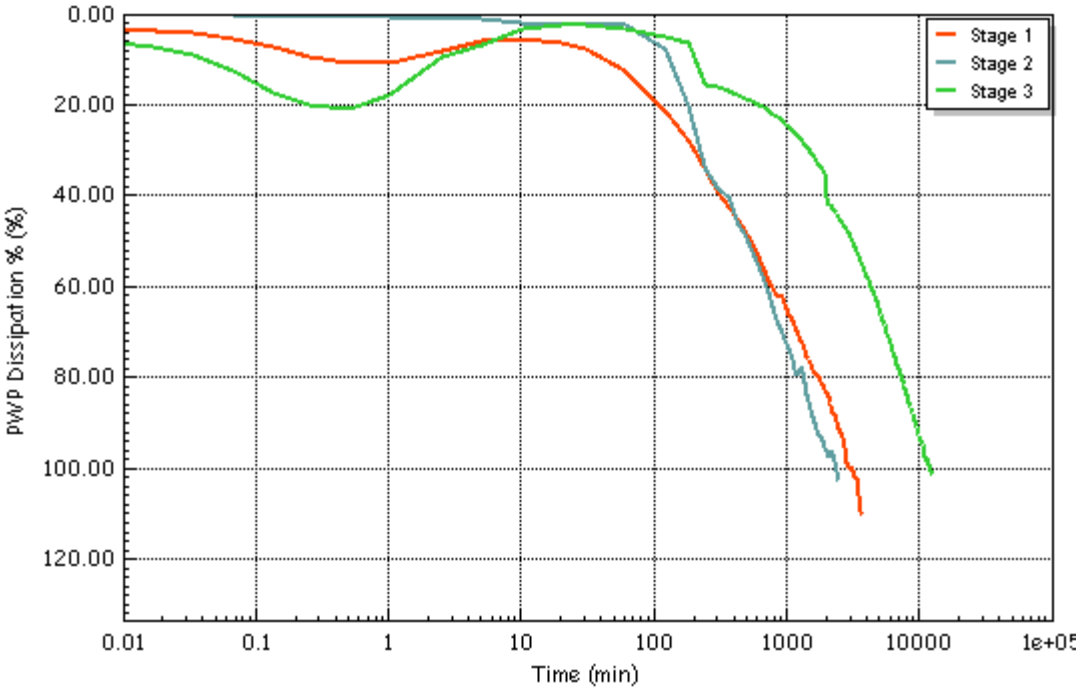
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	900	1050	1200
Initial Back Pressure	u_{bi}	(kPa)	750	750	750
Pore Water Pressure Input	u_{pwp}	(kPa)	865	910	1076
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	110.08	102.56	101.24
Volumetric Strain	ε_v%	(%)	2.75	0.53	5.49
Corrected Length	L_C	(mm)	209.6	199.1	175.6
Corrected Area	A_C	(cm2)	84.52	88.47	94.70
Corrected Volume	V_C	(cc)	1770.873	1761.204	1661.305
t100	t_{100}	(min)	1646.44	27.84	120.00
Consolidation	c_V	(m2/year)	0.14	8.1	1.9
Compressibility	m_V	(m2/MN)	0.22	0.033	0.17
Test Time	t_F	(h:m:s)	49:23:35	02:00:00	03:36:00
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00354	0.08295	0.04064

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 8
Database: .\SQLEXPRESS \ Test 1		Test Date	29/06/2022
Site Reference		Borehole	AVWBH07
Jobfile	59564	Sample	20
Client	RPS Group	Depth	15.85-16.15

Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

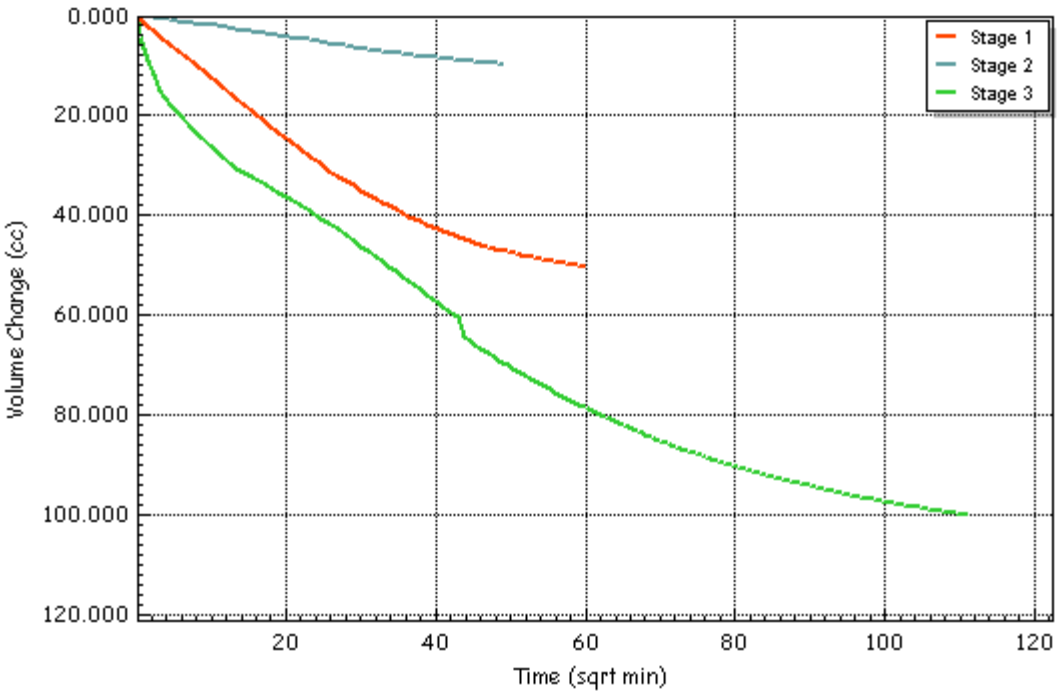
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	900	1050	1200
Initial Back Pressure	u_{bi}	(kPa)	750	750	750
Pore Water Pressure Input	u_{pwp}	(kPa)	865	910	1076
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	110.08	102.56	101.24
Volumetric Strain	ε_v%	(%)	2.75	0.53	5.49
Corrected Length	L_C	(mm)	209.6	199.1	175.6
Corrected Area	A_C	(cm2)	84.52	88.47	94.70
Corrected Volume	V_C	(cc)	1770.873	1761.204	1661.305
t100	t_{100}	(min)	1646.44	27.84	120.00
Consolidation	c_V	(m2/year)	0.14	8.1	1.9
Compressibility	m_V	(m2/MN)	0.22	0.033	0.17
Test Time	t_F	(h:m:s)	49:23:35	02:00:00	03:36:00
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00354	0.08295	0.04064

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 8
Database: .\SQLEXPRESS \ Test 1		Test Date	29/06/2022
Site Reference		Borehole	AVWBH07
Jobfile	59564	Sample	20
Client	RPS Group	Depth	15.85-16.15

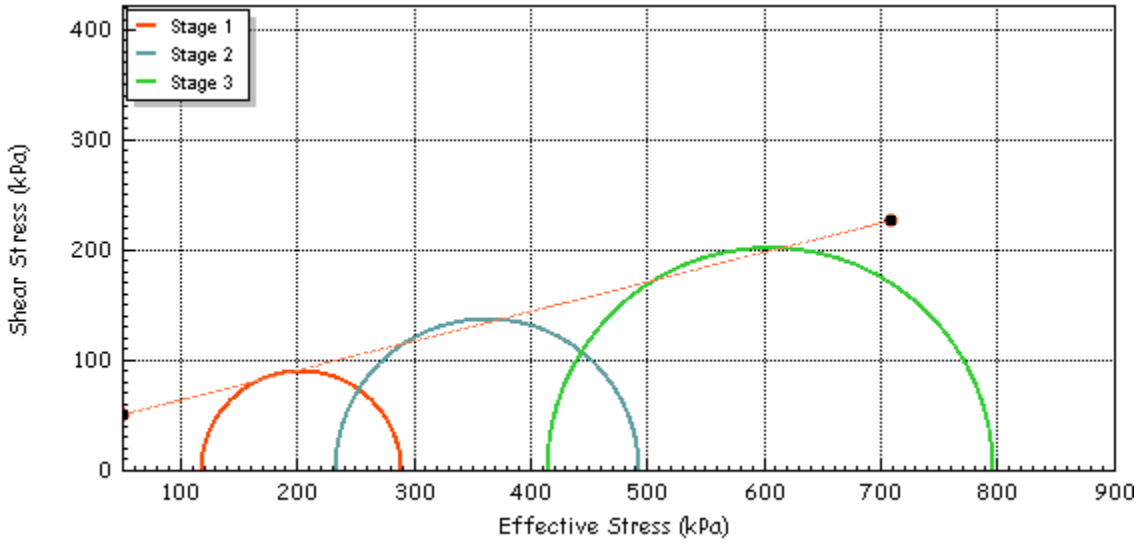
Operator	D.Hammond	Checked	R.John	Approved	R.John

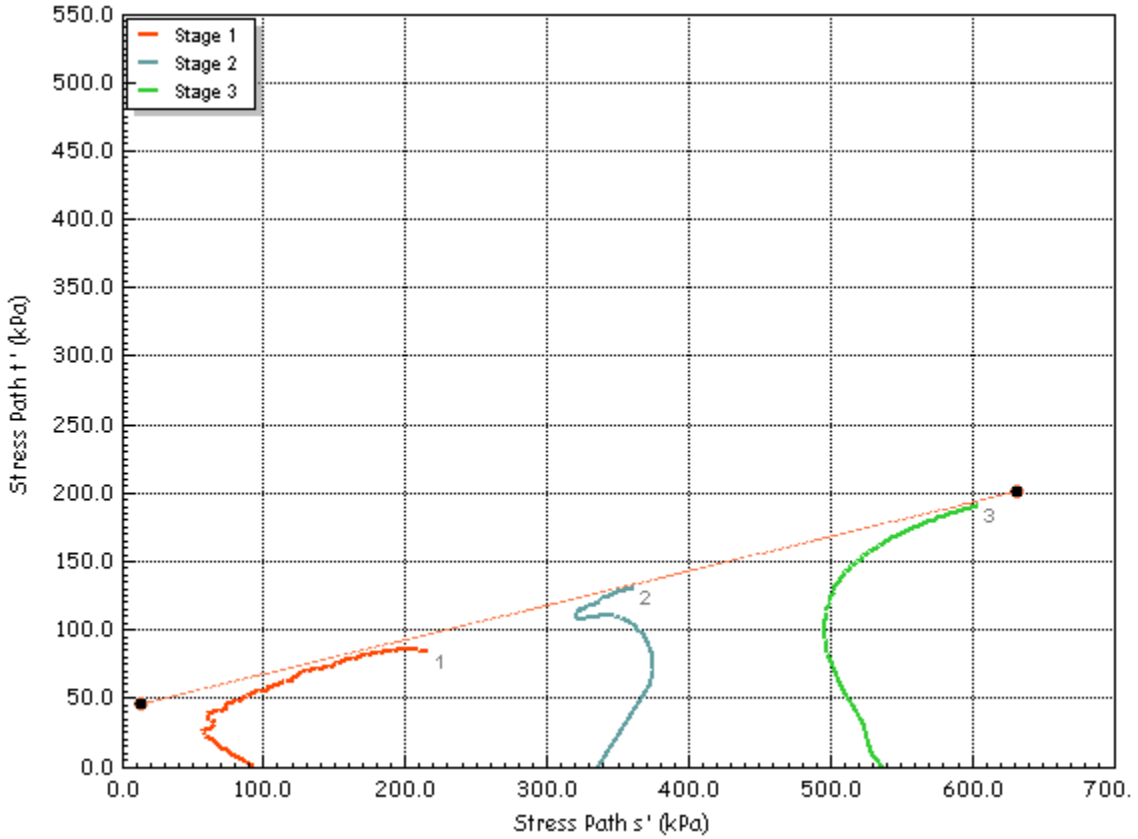
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	37.12	Effective Cohesion	c'	(kPa)	44.06
Effective Friction	ϕ'	(deg)	14.9	Effective Friction	ϕ'	(deg)	14.6



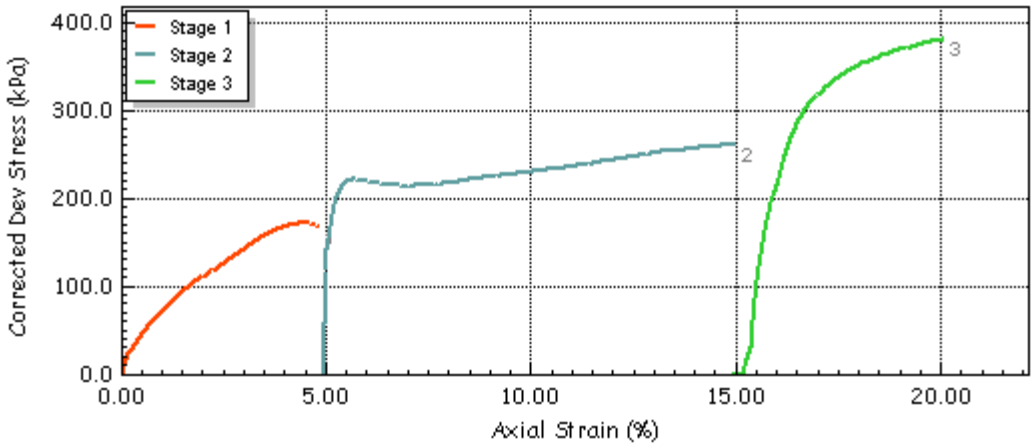


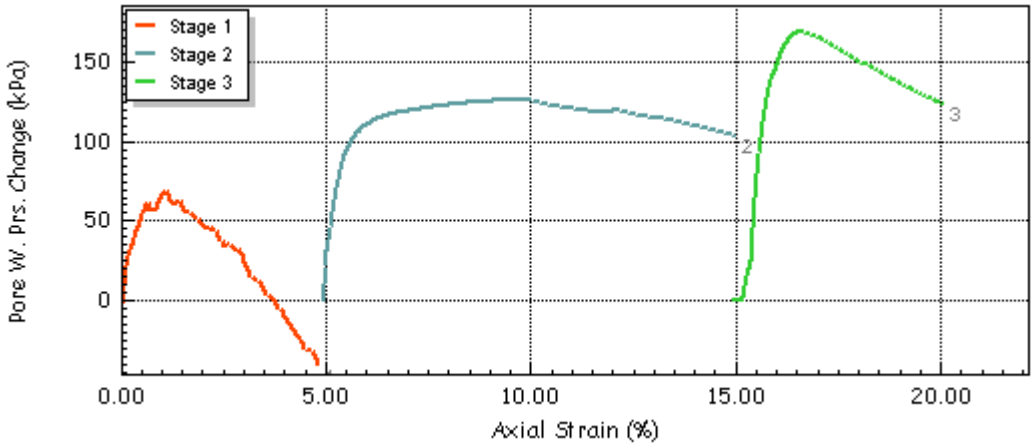
Test Method	BS1377-8 : 1990 : Clause 7		Test Name	Cell 8	
Database: .\SQLEXPRESS \ Test 1			Test Date	29/06/2022	
Site Reference			Borehole	AVWBH07	
Jobfile	59564		Sample	20	
Client	RPS Group		Depth	15.85-16.15	
Operator	D.Hammond	Checked R.John		Approved	R.John

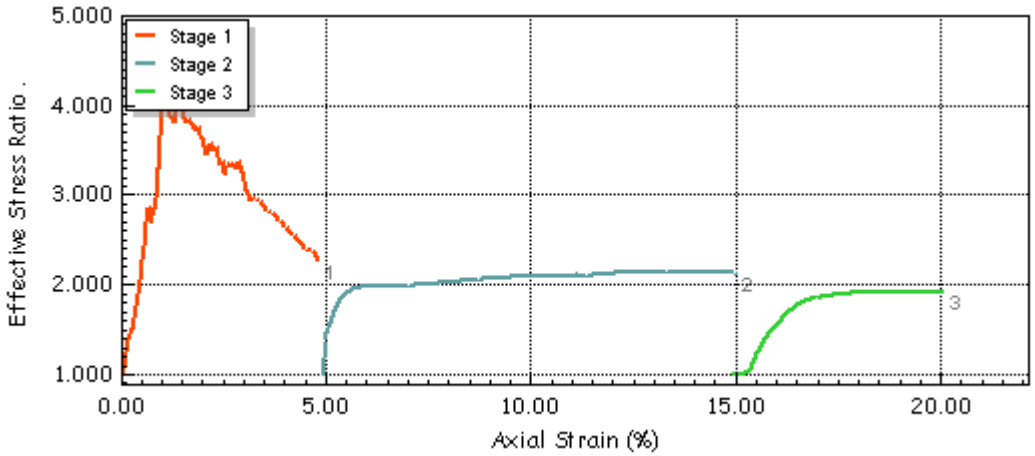
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 8	
	Database: .\SQLEXPRESS \ Test 1		Test Date	29/06/2022	
	Site Reference		Borehole	AVWBH07	
	Jobfile	59564	Sample	20	
	Client	RPS Group	Depth	15.85-16.15	
	Operator	D.Hammond	Checked	R.John	Approved R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			16.2-16.5
Description			Grey, Silty, Sandy, CLAY (Shell Fragments)
Type			U
Initial Sample Length	L_0	(mm)	212.4
Initial Sample Diameter	D_0	(mm)	104.2
Initial Sample Weight	W_0	(gr)	3942.8
Initial Bulk Density	ρ_0	(Mg/m3)	2.18
Particle Density (Assumed)	ρ_s	(Mg/m3)	2.65

Initial Conditions

			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	550	750	950	
Initial Back Pressure	U_{bi}	(kPa)	350	350	350	
Strain Rate	m_s	(mm/min)	0.08756	0.08418	0.00593	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	12			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.95			
Initial Voids Ratio	e_i	.	0.360			
Initial Degree of Saturation	S_i	(%)	86			
B Value	B	.	0.95			

Final Conditions

Final Moisture	ω_f	(%)	11
Final Dry Density	ρ_{df}	(Mg/m3)	2.05
Final Voids Ratio	e_f	.	0.291
Final Degree of Saturation	S_f	(%)	100.0

			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	3.45	4.90	5.40	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	565.9	735.3	938.1	
Minor Stress At Failure	σ_3'	(kPa)	85.0	367.9	686.5	
Major Stress At Failure	σ_1'	(kPa)	650.9	1103.2	1624.6	
Principal Stress At Failure	σ_1'/σ_3'		7.658	2.999	2.366	
PwP At Failure Criteria	u_f		473.0	382.1	263.5	

Notes

Side Drains Used During Testing	1	2	3
Side Drain Correction at Failure (kpa)	3.65	3.65	3.65
Membrane Correction at Failure (kpa)	0.36	0.51	0.57



Compound

Test Method	BS1377-8 : 1990 : Clause 7		Test Name	Cell 12	
Database: .\SQLEXPRESS \ VJTECH Database			Test Date	14/07/2022	
Site Reference			Borehole	AVWBH08	
Jobfile	59564		Sample	24	
Client	RPS Group		Depth	16.2-16.5	
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

UKAS TESTING 2788

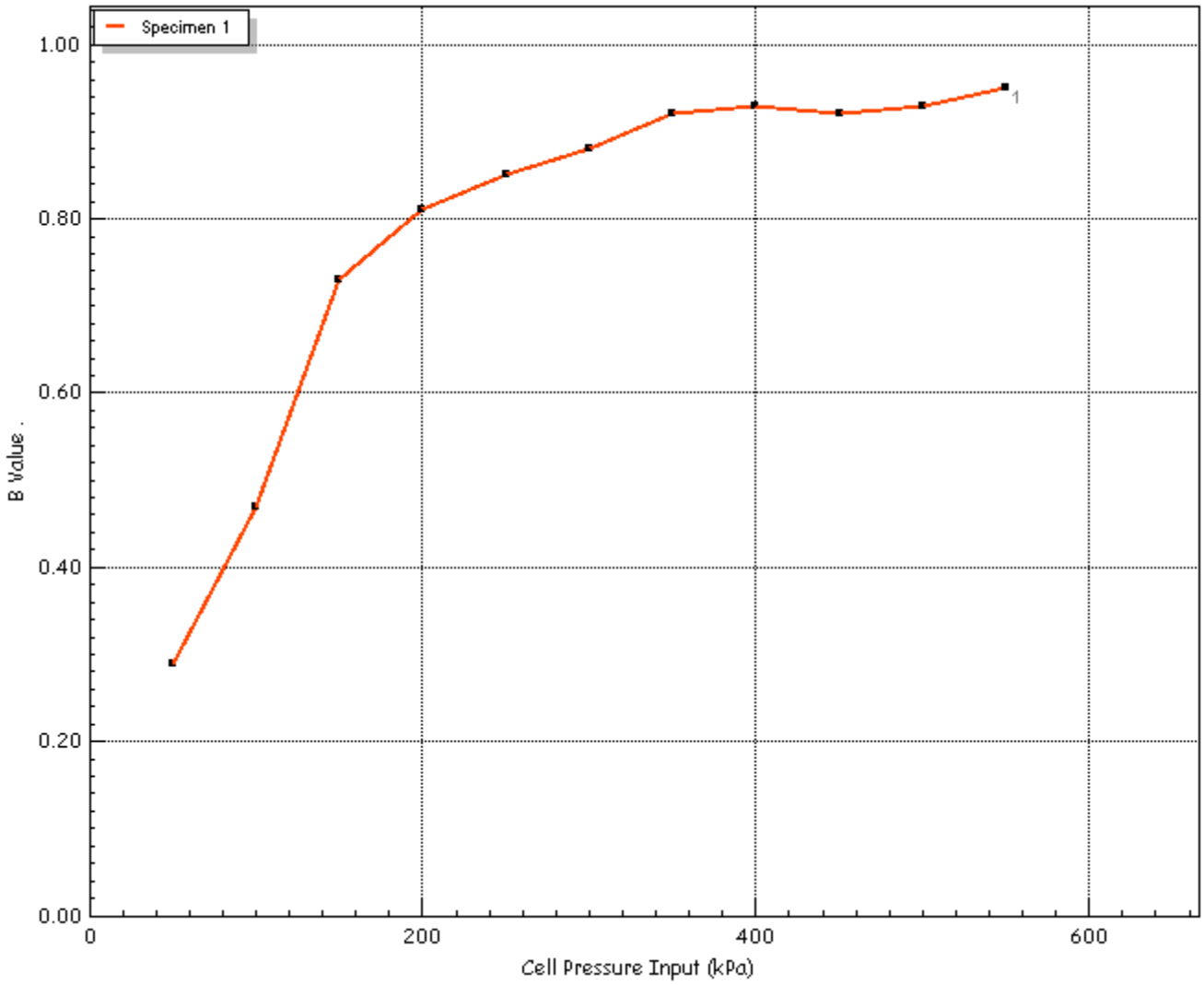
*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method at Constant Moisture Content			
Cell Pressure Input	σ	(kPa)	550
Pore Water Pressure Input	u_{pwp}	(kPa)	536
B Value	B	.	0.95



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	14/07/2022
Site Reference				Borehole	AVWBH08
Jobfile	59564			Sample	24
Client	RPS Group			Depth	16.2-16.5
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

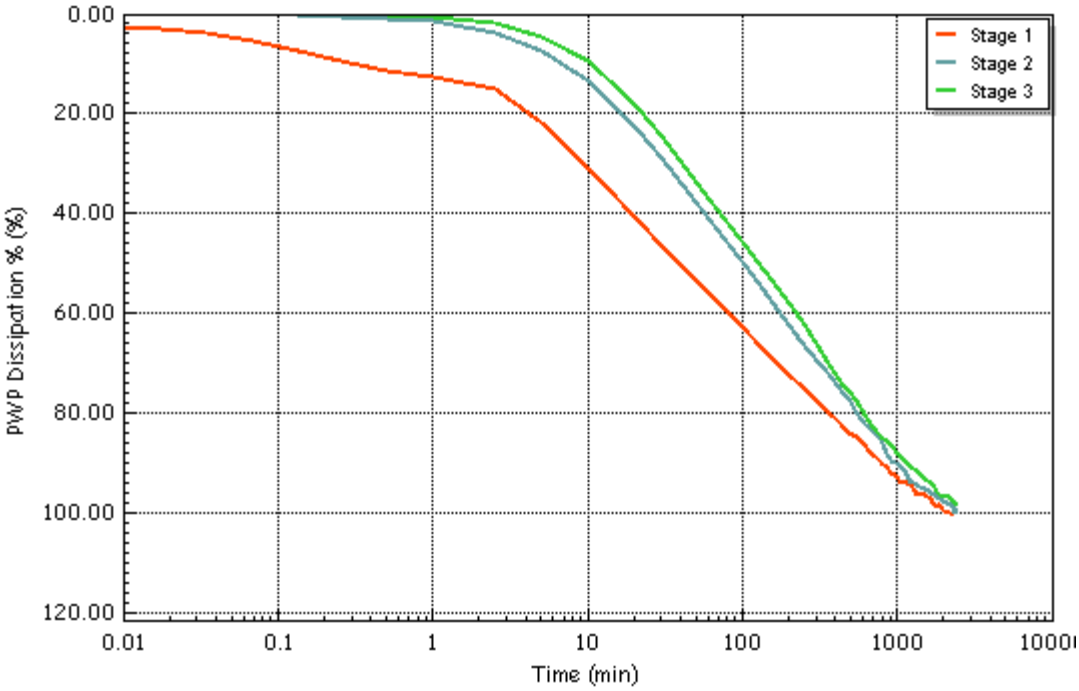
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	550	749	951
Initial Back Pressure	u_{bi}	(kPa)	350	350	350
Pore Water Pressure Input	u_{pwp}	(kPa)	536	557	623
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.17	99.50	98.18
Volumetric Strain	ε_v%	(%)	3.18	1.23	0.72
Corrected Length	L_C	(mm)	210.1	202.0	195.9
Corrected Area	A_C	(cm2)	83.47	85.70	87.73
Corrected Volume	V_C	(cc)	1753.585	1731.393	1718.365
t100	t_{100}	(min)	27.84	27.84	918.18
Consolidation	c_V	(m2/year)	8.1	8.1	0.24
Compressibility	m_V	(m2/MN)	0.17	0.059	0.027
Test Time	t_F	(h:m:s)	02:00:00	02:00:00	27:32:43
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.08756	0.08418	0.00593

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	14/07/2022
Site Reference				Borehole	AVWBH08
Jobfile	59564			Sample	24
Client	RPS Group			Depth	16.2-16.5
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

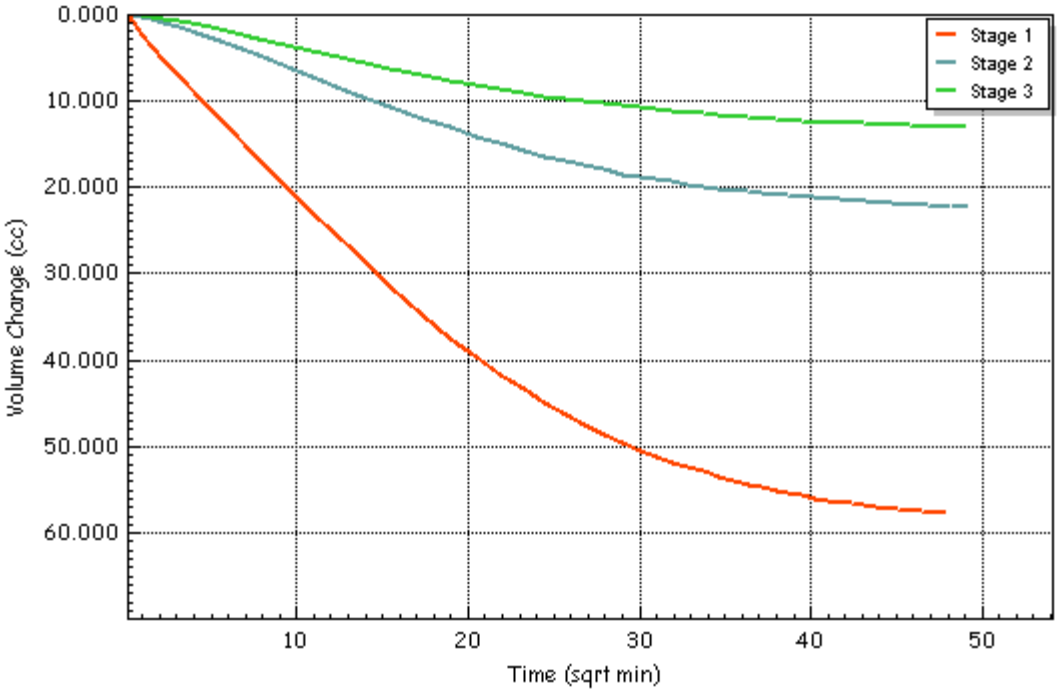
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	550	749	951
Initial Back Pressure	u_{bi}	(kPa)	350	350	350
Pore Water Pressure Input	u_{pwp}	(kPa)	536	557	623
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.17	99.50	98.18
Volumetric Strain	ε_v%	(%)	3.18	1.23	0.72
Corrected Length	L_C	(mm)	210.1	202.0	195.9
Corrected Area	A_C	(cm2)	83.47	85.70	87.73
Corrected Volume	V_C	(cc)	1753.585	1731.393	1718.365
t100	t_{100}	(min)	27.84	27.84	918.18
Consolidation	c_V	(m2/year)	8.1	8.1	0.24
Compressibility	m_V	(m2/MN)	0.17	0.059	0.027
Test Time	t_F	(h:m:s)	02:00:00	02:00:00	27:32:43
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.08756	0.08418	0.00593

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database		Test Date	14/07/2022
Site Reference		Borehole	AVWBH08
Jobfile	59564	Sample	24
Client	RPS Group	Depth	16.2-16.5

Operator	*D Hammond	Checked	*R.John	Approved	*R.John

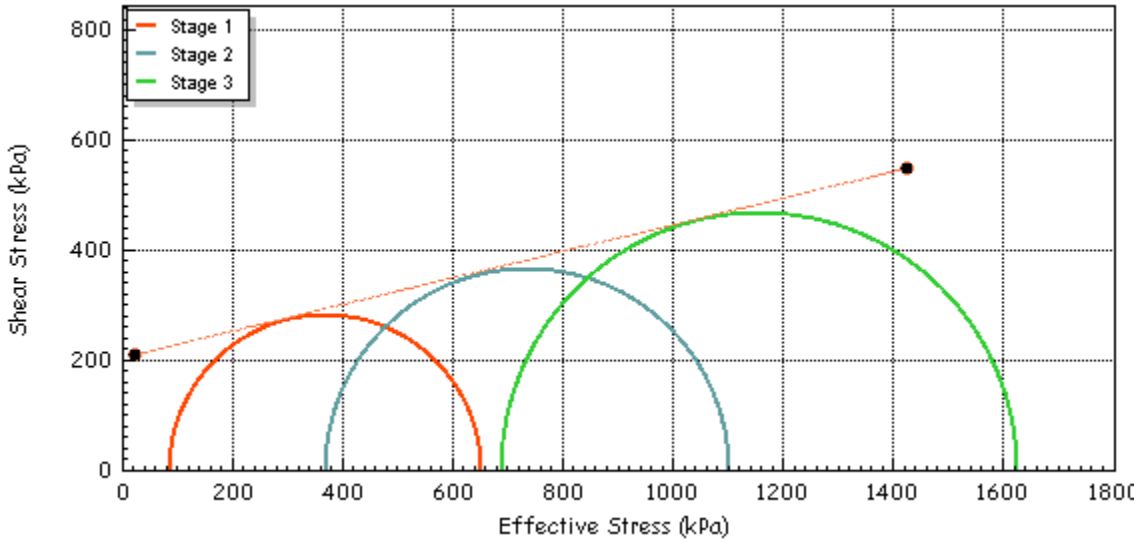
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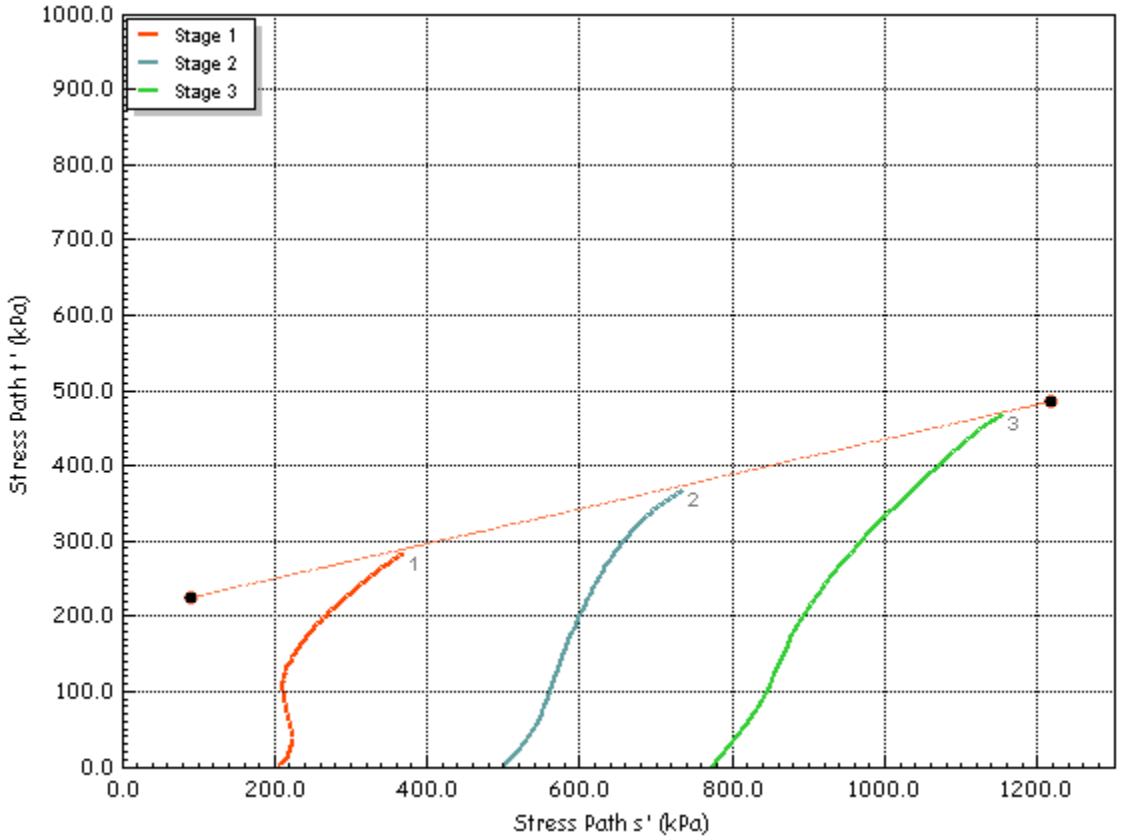
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	205.31	Effective Cohesion	c'	(kPa)	209.39
Effective Friction	ϕ'	(deg)	13.6	Effective Friction	ϕ'	(deg)	13.4





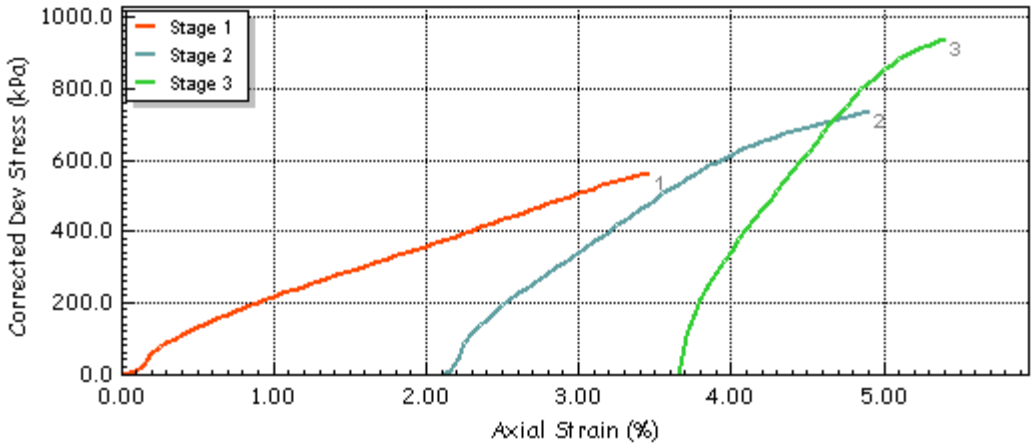
Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	14/07/2022
Site Reference				Borehole	AVWBH08
Jobfile	59564			Sample	24
Client	RPS Group			Depth	16.2-16.5
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

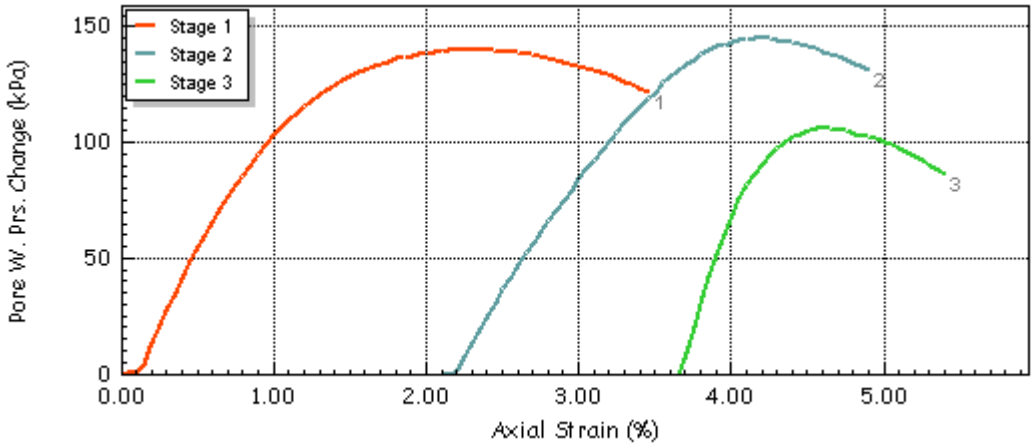
*GSTL

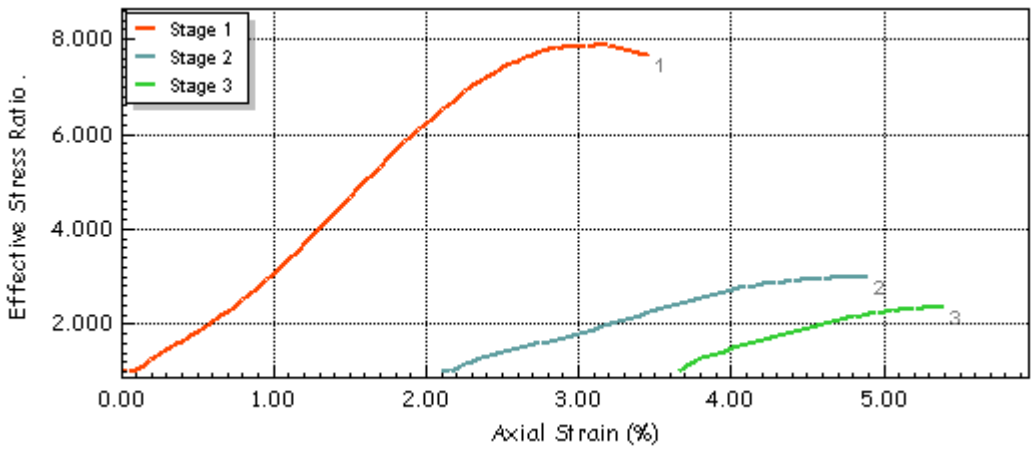
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 12	
	Database: .\SQLEXPRESS \ VJTECH Database		Test Date	14/07/2022	
	Site Reference		Borehole	AVWBH08	
	Jobfile	59564	Sample	24	
	Client	RPS Group	Depth	16.2-16.5	
	Operator	*D Hammond	Checked	*R.John	Approved *R.John

*GSTL

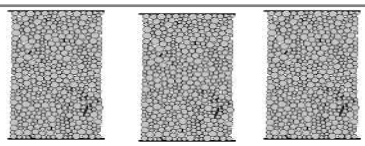
Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details

sketch showing specimen location in original sample



Depth
Description
Type

			Spm. 1	2	3
Initial Sample Length	L_0	(mm)	76.2	75.8	76.1
Initial Sample Diameter	D_0	(mm)	38.5	38.7	38.7
Initial Sample Weight	W_0	(gr)	187.2	188.5	187.7
Initial Bulk Density	ρ_0	(Mg/m3)	2.11	2.11	2.10
Particle Density	ρ_s	(Mg/m3)	2.65	2.65	2.65

Initial Conditions

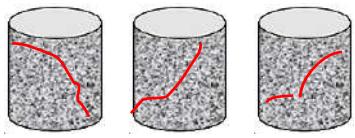
			Spm. 1	2	3
Initial Cell Pressure	σ_{3i}	(kPa)	1180	1199	1600
Initial Back Pressure	U_{bi}	(kPa)	850	550	650
Strain Rate	m_s	(mm/min)	0.02996	0.00290	0.00286
Membrane Thickness	m_b	(mm)	0.400	0.400	0.400
Displacement Input	L_{IP}	(mm)	CH 2	CH 2	CH 2
Load Input	N_{IP}	(N)	CH 1	CH 1	CH 1
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3	CH 3	CH 3
Sample Volume	V	(cc)	CH 6	CH 6	CH 6
Initial Moisture	ω_i	(%)	17	16	17
Initial Dry Density	ρ_{di}	(Mg/m3)	1.80	1.82	1.80
Initial Voids Ratio	e_i	.	0.472	0.459	0.473
Initial Degree of Saturation	S_i	(%)	97	95	93
B Value	B	.	0.98	1.00	0.96

Final Conditions

			Spm. 1	2	3
Final Moisture	ω_f	(%)	21	21	19
Final Dry Density	ρ_{df}	(Mg/m3)	2.17	2.16	1.95
Final Voids Ratio	e_f	.	0.223	0.230	0.358
Final Degree of Saturation	S_f	(%)	100.0	100.0	100.0
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress
Strain At Failure	ε_f	(%)	10.76	14.01	11.30
Stress At Failure	$(\sigma_1-\sigma_3)_f$	(kPa)	299.1	594.0	675.4
Minor Stress At Failure	σ_3'	(kPa)	220.4	511.9	618.1
Major Stress At Failure	σ_1'	(kPa)	519.5	1105.9	1293.4
Principal Stress At Failure	σ_1'/σ_3'	(kPa)	2.357	2.160	2.093
PwP At Failure Criteria	u_f	(kPa)	959.7	696.7	982.1

Notes

Side Drains Used During Testing	1	2	3
Side drain correction at failure	9.87	9.82	9.82kpa
Membrane correction at failure	2.44	2.97	2.52kpa



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 9
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	16/06/2022
Site Reference				Borehole	PWBBH01
Jobfile	59564			Sample	32
Client	RPS Group			Depth	
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

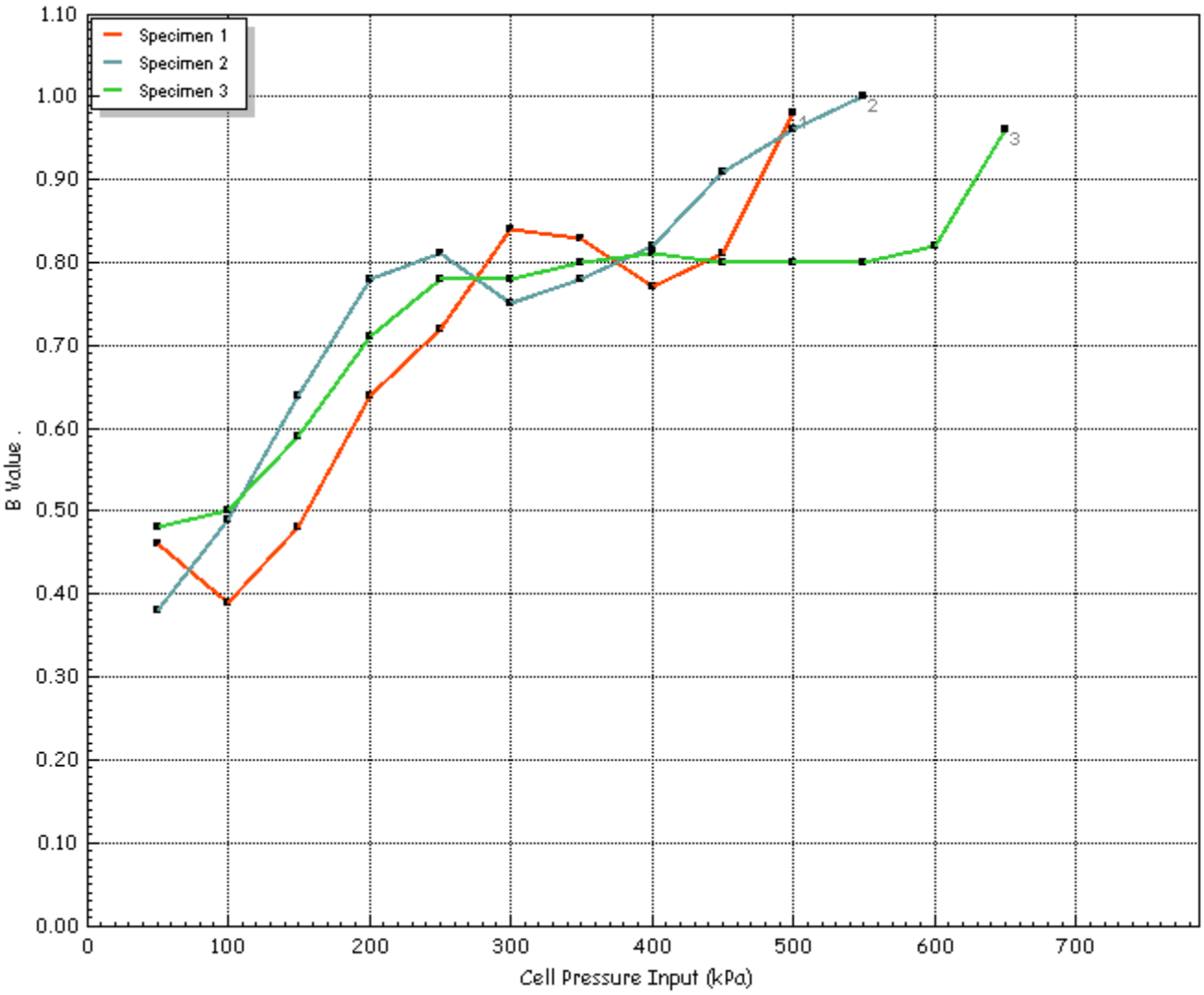
*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

			Spm. 1	2	3
Saturation Method at constant moisture content					
Cell Pressure Input	σ	(kPa)	500	550	650
Pore Water Pressure	u pwp	(kPa)	492	532	643
Input B Value	B	.	0.98	1.00	0.96



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 9
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	16/06/2022
Site Reference				Borehole	PWBBH01
Jobfile	59564			Sample	32
Client	RPS Group			Depth	
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

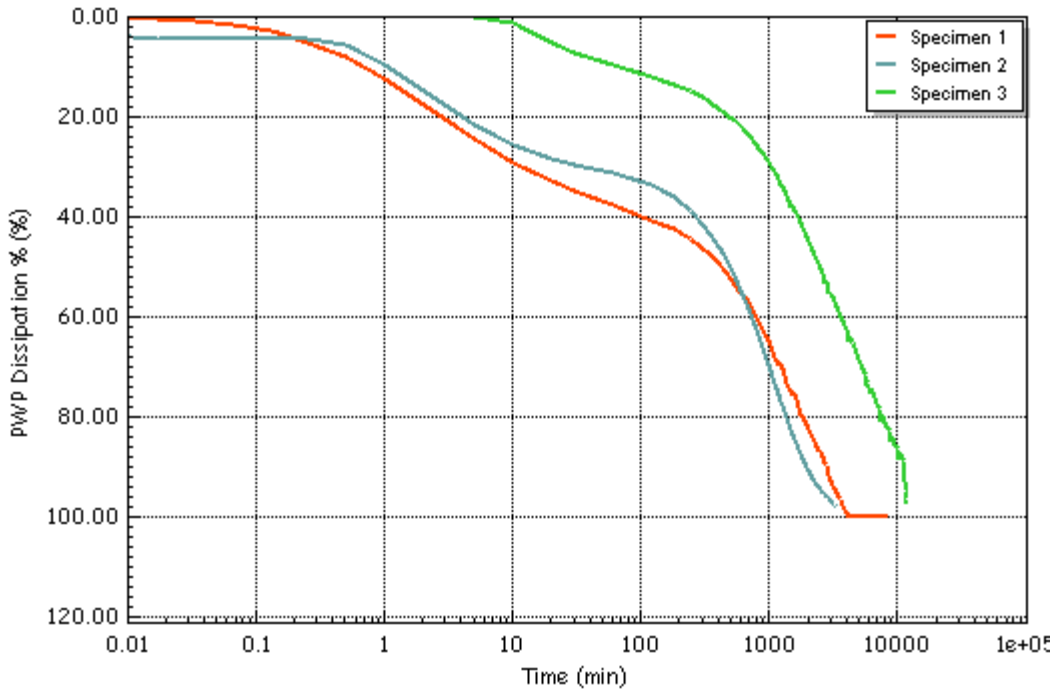
Consolidation Plots

Initial Conditions			Spm. 1	2	3
Initial Cell Pressure	σ_3	(kPa)	830	1200	1600
Initial Back Pressure	u_{bi}	(kPa)	500	550	650
Pore Water Pressure Input	u_{pwp}	(kPa)	823	1174	1593
Drainage Method			Radial+One End	Radial+One End	Radial+One End

Final Conditions			Spm. 1	2	3
PWP Dissipation %	U%	(%)	100.00	97.99	97.35
Volumetric Strain	ε_v%	(%)	16.92	15.75	22.58
Corrected Length	L_C	(mm)	71.9	71.8	70.4
Corrected Area	A_C	(cm2)	10.33	10.53	9.99
Corrected Volume	V_C	(cc)	73.702	75.122	69.303
t100	t_{100}	(min)	27.84	688.23	683.72
Consolidation	c_V	(m2/year)	1.118	0.046	0.046
Compressibility	m_V	(m2/MN)	0.524	0.258	0.246
Test Time	t_F	(h:m:s)	02:00:00	20:38:48	20:30:41
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02996	0.00290	0.00286

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 9
Database: .\SQLEXPRESS \ VJTECH Database		Test Date	16/06/2022
Site Reference		Borehole	PWBBH01
Jobfile	59564	Sample	32
Client	RPS Group	Depth	
Operator	*D Hammond	Checked	*R.John
		Approved	*R.John

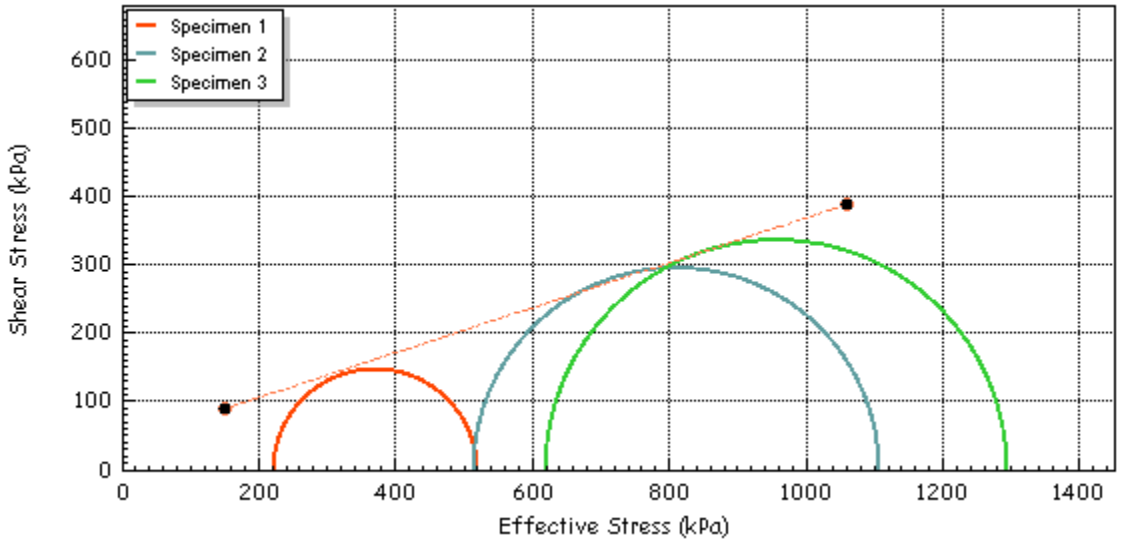
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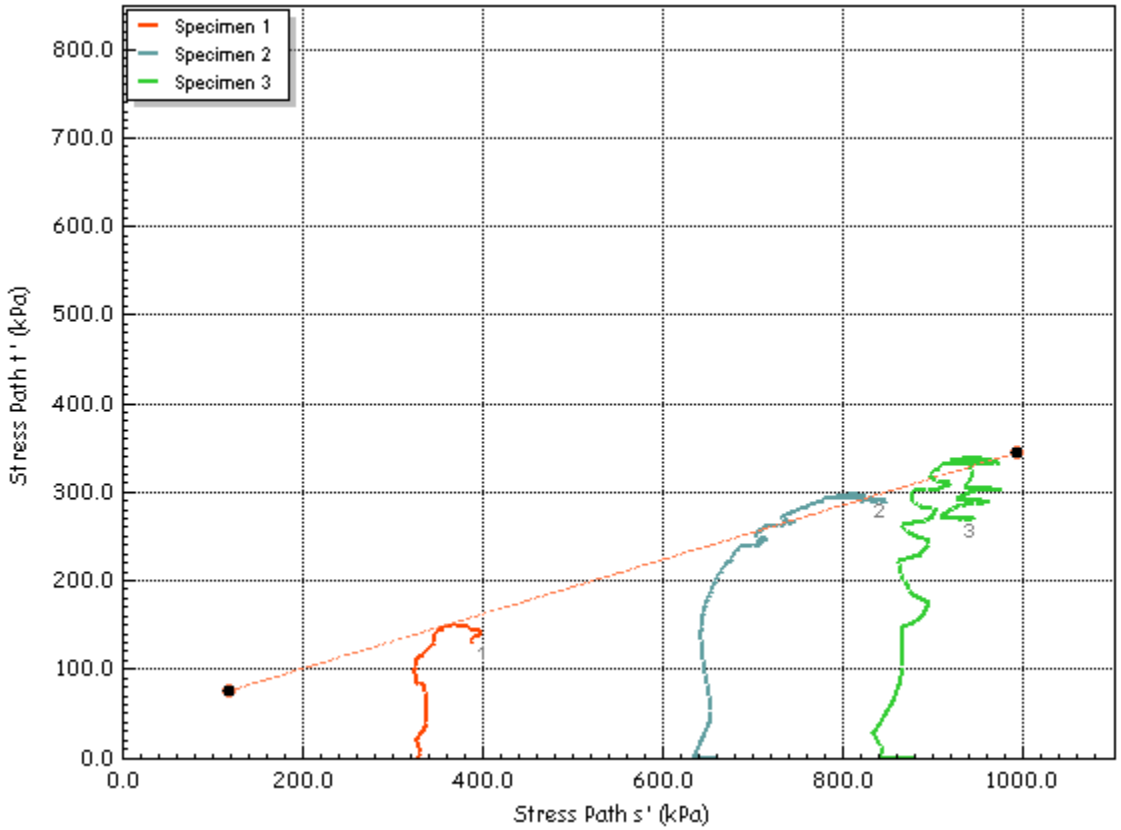
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	38.27	Effective Cohesion	c'	(kPa)	38.27
Effective Friction	ϕ'	(deg)	18.3	Effective Friction	ϕ'	(deg)	18.3





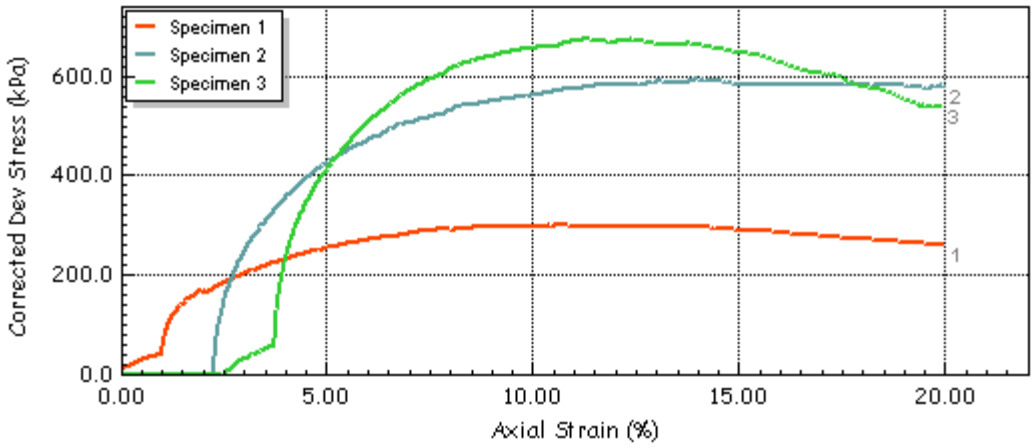
Test Method	BS1377-8 : 1990 : Clause 7		Test Name	Cell 9	
Database: .\SQLEXPRESS \ VJTECH Database			Test Date	16/06/2022	
Site Reference			Borehole	PWBBH01	
Jobfile	59564		Sample	32	
Client	RPS Group		Depth		
Operator	*D Hammond	Checked *R.John		Approved	*R.John

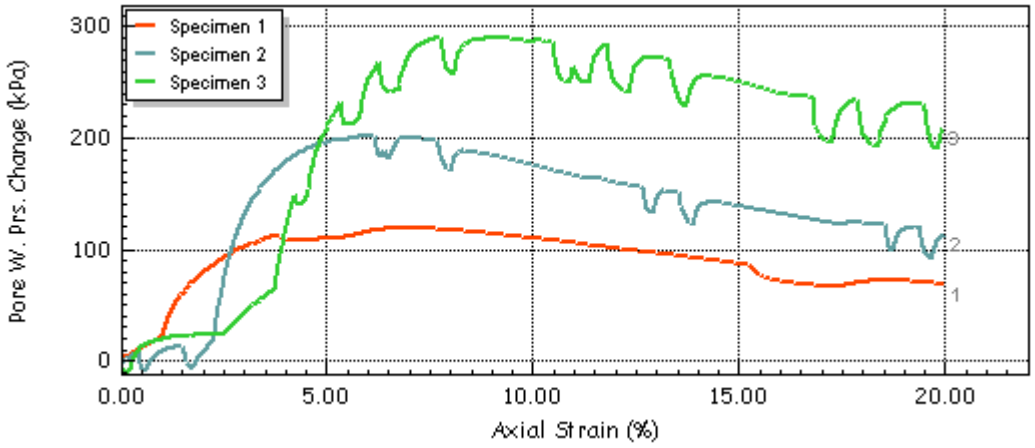
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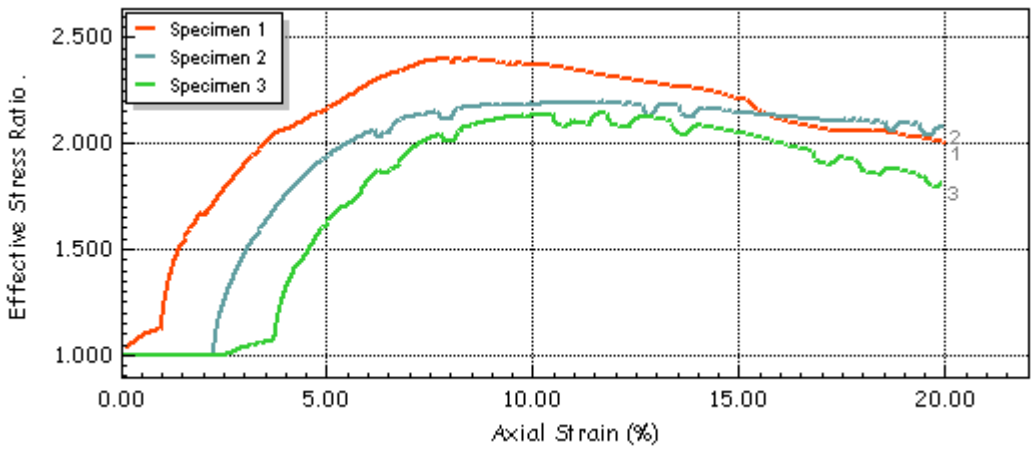
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 9	
	Database: .\SQLEXPRESS \ VJTECH Database		Test Date	16/06/2022	
	Site Reference		Borehole	PWBBH01	
	Jobfile	59564	Sample	32	
	Client	RPS Group	Depth		
	Operator	*D Hammond	Checked	*R.John	Approved *R.John

*GSTL

Effective Stress Triaxial Compression

Consolidated Drained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			3.2
Description			Brownish Grey, Silty, CLAY
Type			U
Initial Sample Length	L_0	(mm)	211.9
Initial Sample Diameter	D_0	(mm)	104.3
Initial Sample Weight	W_0	(gr)	3527.3
Initial Bulk Density	ρ_0	(Mg/m3)	1.95
Particle Density (Assumed)	ρ_s	(Mg/m3)	2.65

Initial Conditions

			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	330	360	420	
Initial Back Pressure	U_{bi}	(kPa)	300	300	300	
Strain Rate	m_s	(mm/min)	0.00066	0.00019	0.02530	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	21			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.61			
Initial Voids Ratio	e_i	.	0.650			
Initial Degree of Saturation	S_i	(%)	87			
B Value	B	.	1.06			

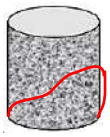
Final Conditions

Final Moisture	ω_f	(%)	20			
Final Dry Density	ρ_{df}	(Mg/m3)	1.68			
Final Voids Ratio	e_f	.	0.573			
Final Degree of Saturation	S_f	(%)	92.8			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	1.99	5.02	7.88	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	31.1	48.8	71.5	
Minor Stress At Failure	σ_3'	(kPa)	35.0	61.0	99.0	
Major Stress At Failure	σ_1'	(kPa)	66.1	109.8	170.5	
Principal Stress At Failure	σ_1'/σ_3'		1.890	1.800	1.722	
PwP At Failure Criteria	u_f		296.0	299.0	338.0	

Notes

Side Drains Used During Testing

	1	2	3
Side Drain Correction at Failure (kpa)	3.36	3.36	3.36
Membrane Correctioin at Failure (kpa)	0.21	0.54	0.72



Compound

Test Method	BS1377-8 : 1990 : Clause 8		Test Name	Cell 4	
Database: .\SQLEXPRESS \ Effective 100			Test Date	27/06/2022	
Site Reference			Borehole	PWBBH02	
Jobfile	59564		Sample	9	
Client	RPS Group		Depth	3.2	
Operator	D.Hammond	Checked	R.John	Approved	R.John

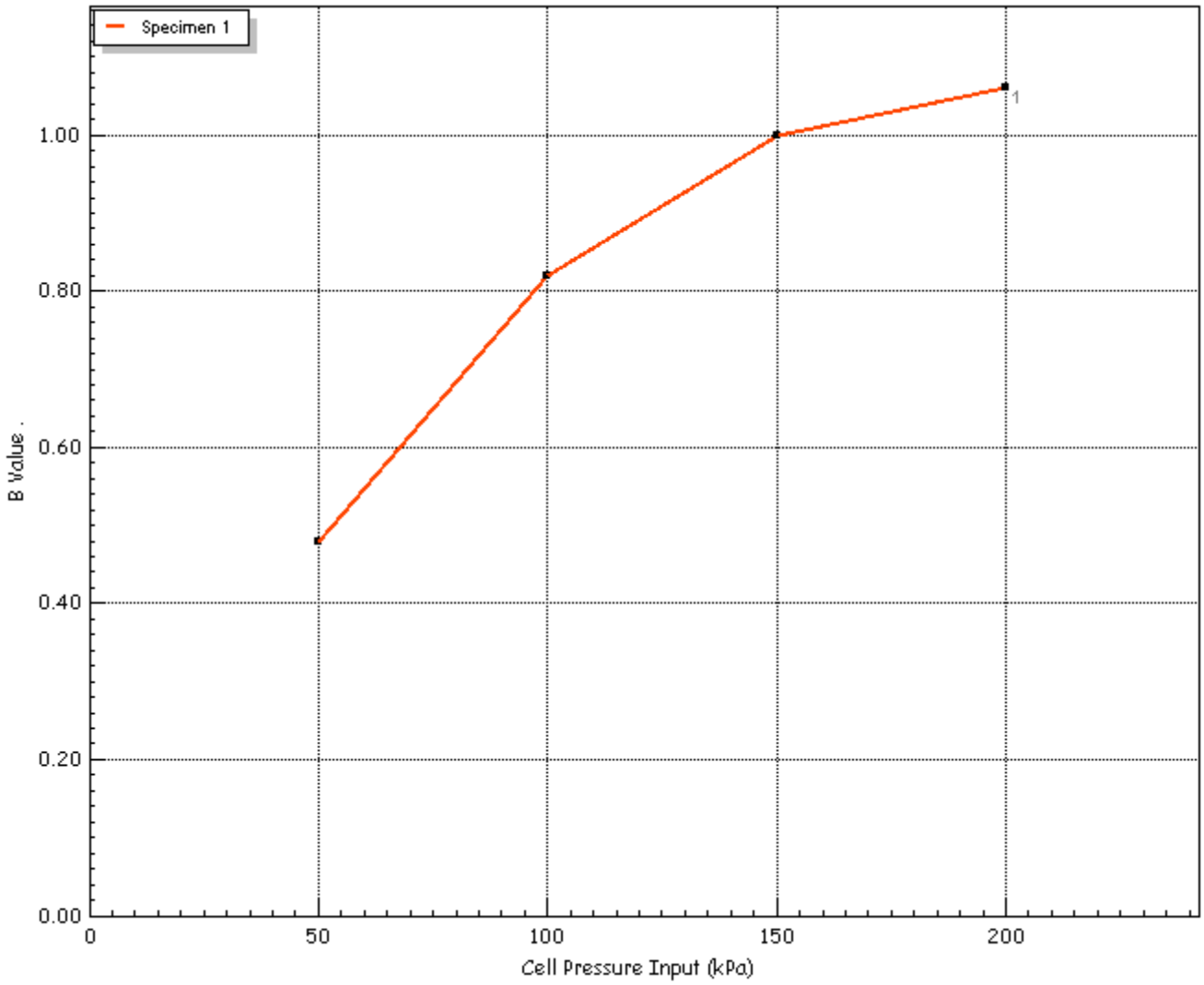
UKAS TESTING 2788

Effective Stress Triaxial Compression

Consolidated Drained

Saturation Plots

Saturation Method at Constant Moisture Content			
Cell Pressure Input	σ	(kPa)	200
Pore Water Pressure Input	u_{pwp}	(kPa)	187
B Value	B	.	1.06



Test Method	BS1377-8 : 1990 : Clause 8			Test Name	Cell 4
Database: .\SQLEXPRESS \ Effective 100				Test Date	27/06/2022
Site Reference				Borehole	PWBBH02
Jobfile	59564			Sample	9
Client	RPS Group			Depth	3.2
Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Drained

Consolidation Plots

Initial Conditions

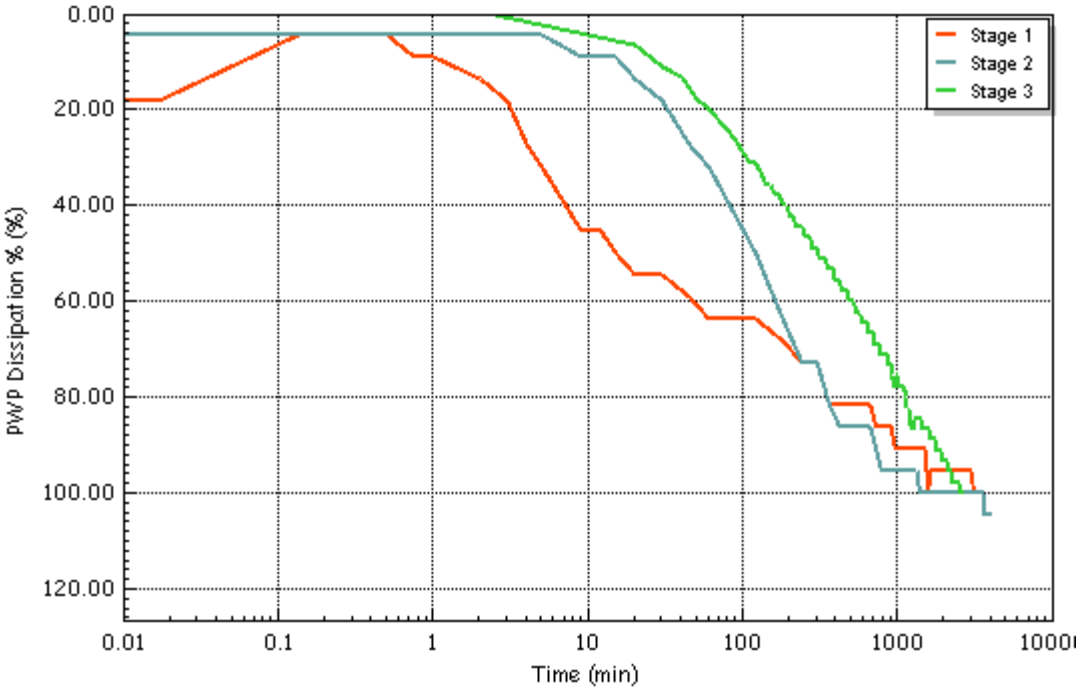
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	330	360	420
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	322	322	345
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	104.55	100.00
Volumetric Strain	ε_v%	(%)	2.41	1.38	0.86
Corrected Length	L_C	(mm)	210.2	200.8	197.2
Corrected Area	A_C	(cm2)	84.07	86.74	87.52
Corrected Volume	V_C	(cc)	1766.888	1741.839	1726.213
t100	t_{100}	(min)	1133.96	3793.09	27.84
Consolidation	c_V	(m2/year)	0.20	0.059	8.1
Compressibility	m_V	(m2/MN)	1.1	0.60	0.19
Test Time	t_F	(h:m:s)	264:35:22	885:03:13	06:29:45
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00066	0.00019	0.02530

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 4
Database: .\SQLEXPRESS \ Effective 100		Test Date	27/06/2022
Site Reference		Borehole	PWBBH02
Jobfile	59564	Sample	9
Client	RPS Group	Depth	3.2

Operator	D.Hammond	Checked	R.John	Approved	R.John

Effective Stress Triaxial Compression

Consolidated Drained

Consolidation Plots

Initial Conditions

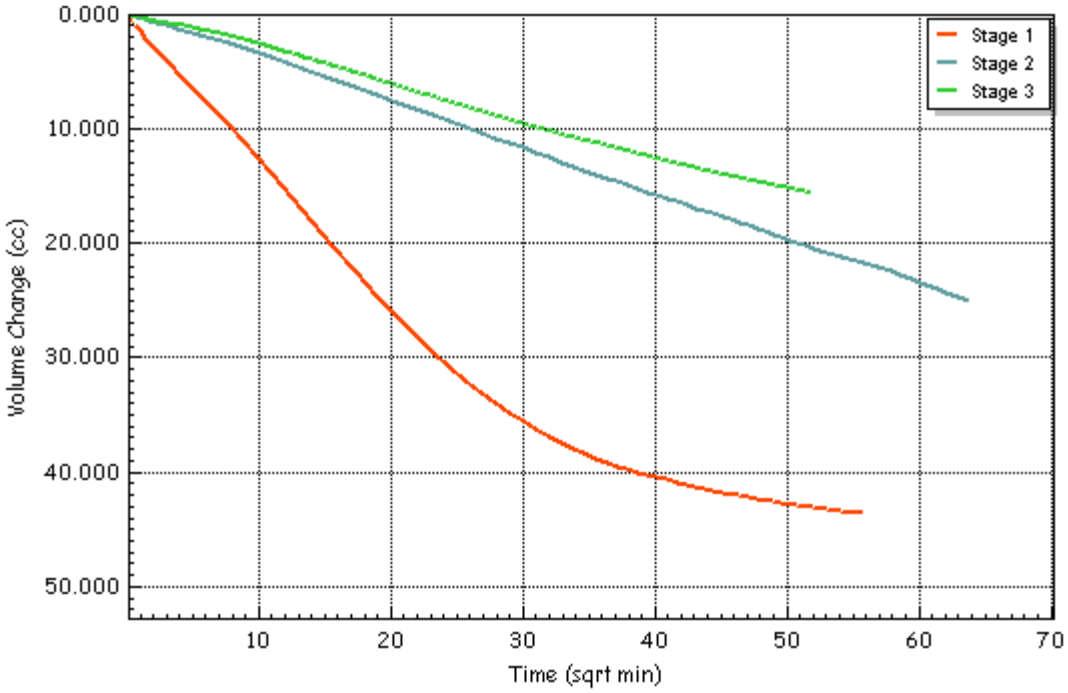
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	330	360	420
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	322	322	345
Drainage Method			Radial+One End		

Final Conditions

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t100	t_{100}	(min)	1133.96	3793.09	27.84
Consolidation	c_V	(m2/year)	0.20	0.059	8.1
Compressibility	m_V	(m2/MN)	1.1	0.60	0.19
Test Time	t_F	(h:m:s)	264:35:22	885:03:13	06:29:45
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00066	0.00019	0.02530

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 4
Database: .\SQLEXPRESS \ Effective 100		Test Date	27/06/2022
Site Reference		Borehole	PWBBH02
Jobfile	59564	Sample	9
Client	RPS Group	Depth	3.2

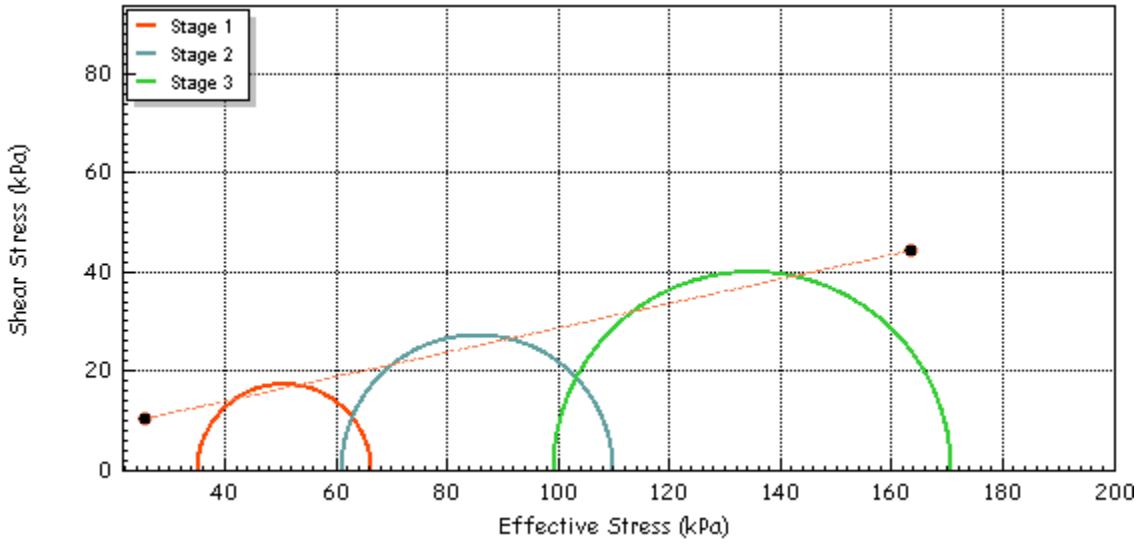
Operator	D.Hammond	Checked	R.John	Approved	R.John

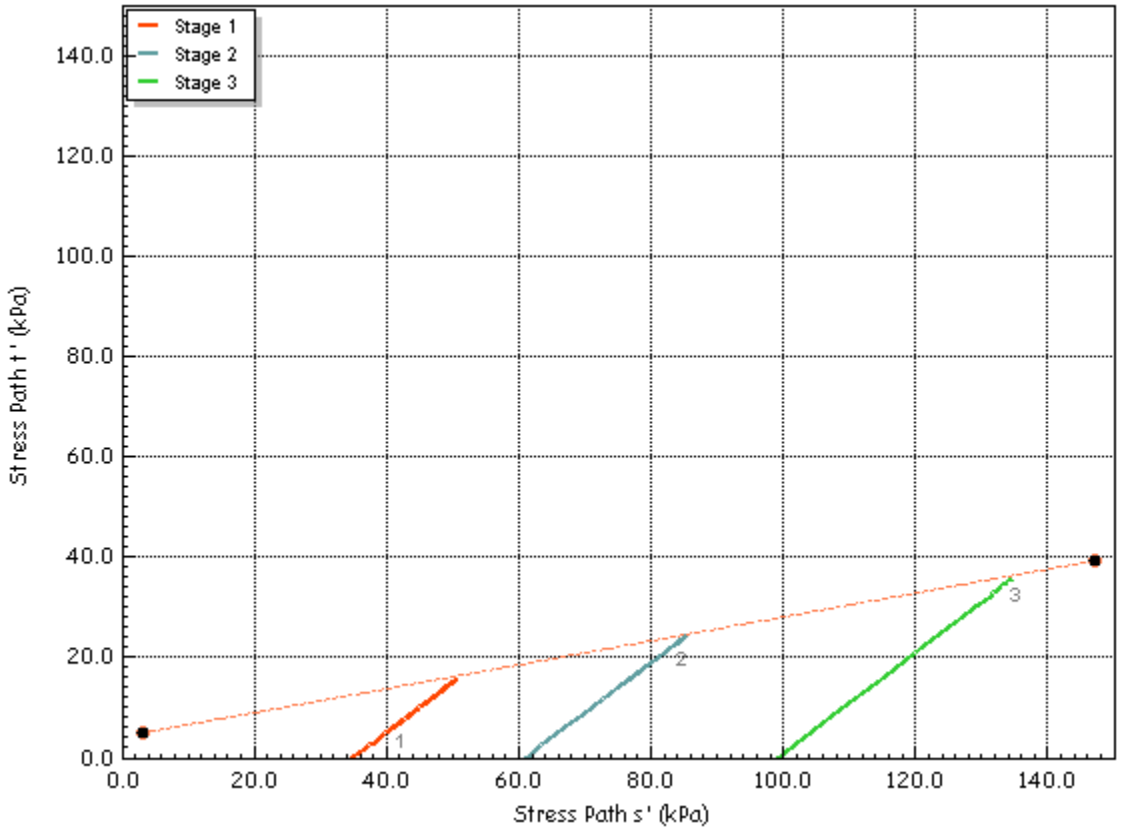
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	4.18	Effective Cohesion	c'	(kPa)	4.18
Effective Friction	ϕ'	(deg)	13.8	Effective Friction	ϕ'	(deg)	13.9



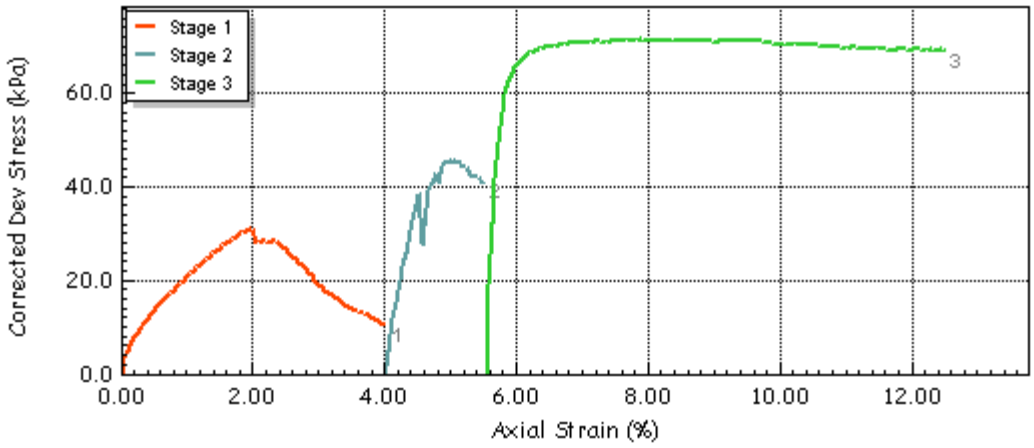


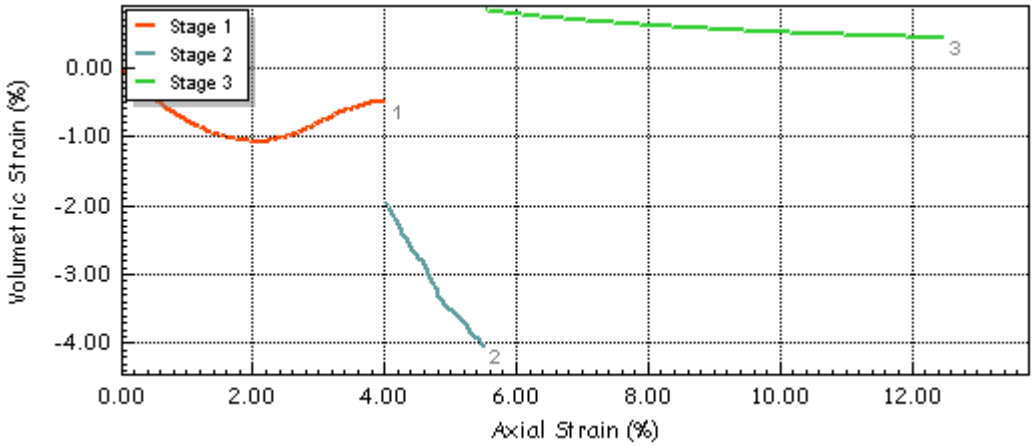
GSTL	Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 4	
	Database: .\SQLEXPRESS \ Effective 100		Test Date	27/06/2022	
	Site Reference		Borehole	PWBBH02	
	Jobfile	59564	Sample	9	
	Client	RPS Group	Depth	3.2	
	Operator	D.Hammond	Checked	R.John	Approved R.John

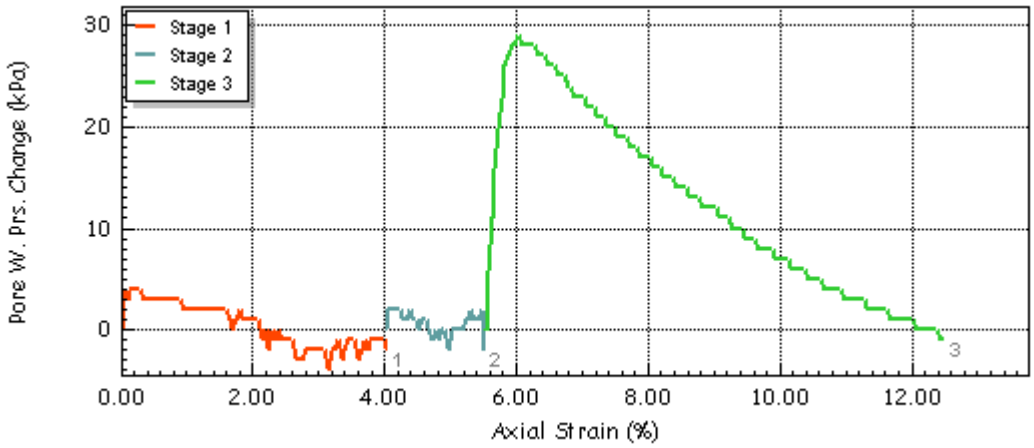
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 8	Test Name	Cell 4	
	Database: .\SQLEXPRESS \ Effective 100		Test Date	27/06/2022	
	Site Reference		Borehole	PWBBH02	
	Jobfile	59564	Sample	9	
	Client	RPS Group	Depth	3.2	
	Operator	D.Hammond	Checked	R.John	Approved R.John

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			8.25-8.55
Description			Brownish Grey, Silty, CLAY
Type			U
Initial Sample Length	L_0	(mm)	210.9
Initial Sample Diameter	D_0	(mm)	100.4
Initial Sample Weight	W_0	(gr)	3464.9
Initial Bulk Density	ρ_0	(Mg/m3)	2.08
Particle Density (Assumed)	ρ_s	(Mg/m3)	2.65

Initial Conditions

			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	930	1059	1190	
Initial Back Pressure	U_{bi}	(kPa)	850	900	950	
Strain Rate	m_s	(mm/min)	0.02460	0.01311	0.00987	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	23			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.69			
Initial Voids Ratio	e_i	.	0.568			
Initial Degree of Saturation	S_i	(%)	100			
B Value	B	.	0.98			

Final Conditions

Final Moisture	ω_f	(%)	25
Final Dry Density	ρ_{df}	(Mg/m3)	1.75
Final Voids Ratio	e_f	.	0.517
Final Degree of Saturation	S_f	(%)	100.0

			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	1.94	14.12	17.01	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	90.9	116.5	132.2	
Minor Stress At Failure	σ_3'	(kPa)	32.0	106.5	188.0	
Major Stress At Failure	σ_1'	(kPa)	122.9	223.0	320.2	
Principal Stress At Failure	σ_1'/σ_3'		3.839	2.095	1.703	
PwP At Failure Criteria	u_f		898.0	953.5	1001.0	

Notes

Side Drains Used During Testing

	1	2	3
Side Drain Correction at Failure (kpa)	3.78	3.78	3.78
Membrane Correction at Failure (kpa)	0.27	1.15	1.34



Brittle

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database		Test Date	27/06/2022
Site Reference		Borehole	PWBBH06
Jobfile	59564	Sample	17
Client	RPS Group	Depth	8.25-8.55

Operator	Checked	Approved
*D Hammond	*R.John	*R.John

UKAS TESTING 2788

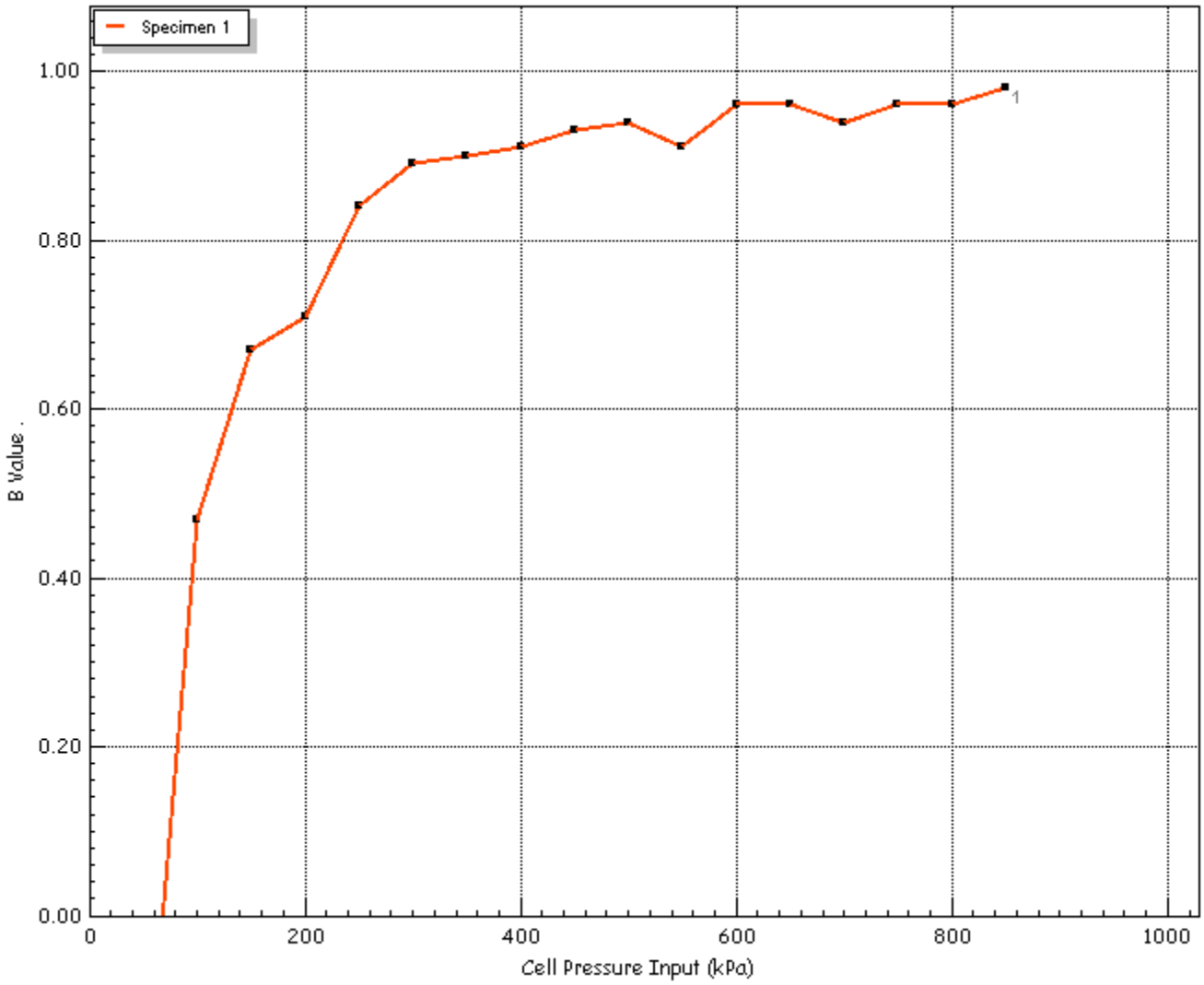
*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method at Constant Moisture Content			
Cell Pressure Input	σ	(kPa)	850
Pore Water Pressure Input	u_{pwp}	(kPa)	840
B Value	B	.	0.98



Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	27/06/2022
Site Reference				Borehole	PWBBH06
Jobfile	59564			Sample	17
Client	RPS Group			Depth	8.25-8.55
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

*GSTL

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

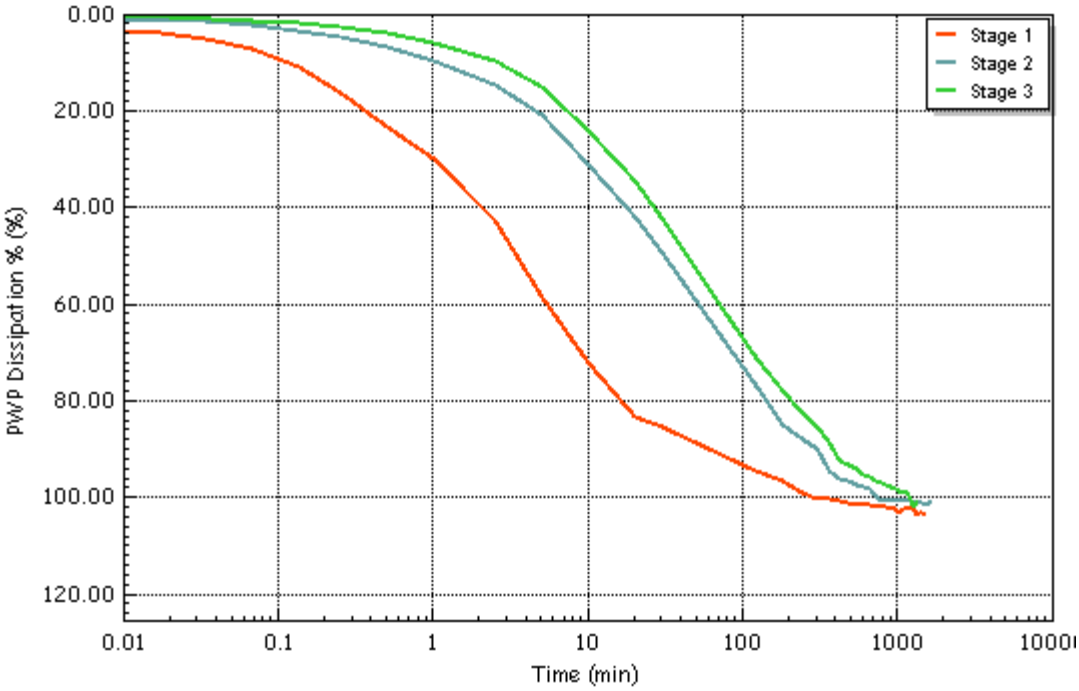
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	930	1061	1191
Initial Back Pressure	u_{bi}	(kPa)	850	902	950
Pore Water Pressure Input	u_{pwp}	(kPa)	916	986	1064
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	103.52	101.16	101.22
Volumetric Strain	ε_v%	(%)	1.15	1.10	1.03
Corrected Length	L_C	(mm)	210.1	188.4	178.0
Corrected Area	A_C	(cm2)	78.56	86.64	90.75
Corrected Volume	V_C	(cc)	1650.474	1632.121	1614.939
t100	t_{100}	(min)	237.21	399.15	500.80
Consolidation	c_V	(m2/year)	0.88	0.52	0.42
Compressibility	m_V	(m2/MN)	0.17	0.13	0.089
Test Time	t_F	(h:m:s)	07:06:58	11:58:28	15:01:26
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02460	0.01311	0.00987

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database		Test Date	27/06/2022
Site Reference		Borehole	PWBBH06
Jobfile	59564	Sample	17
Client	RPS Group	Depth	8.25-8.55

Operator	*D Hammond	Checked	*R.John	Approved	*R.John

**GSTL*

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions

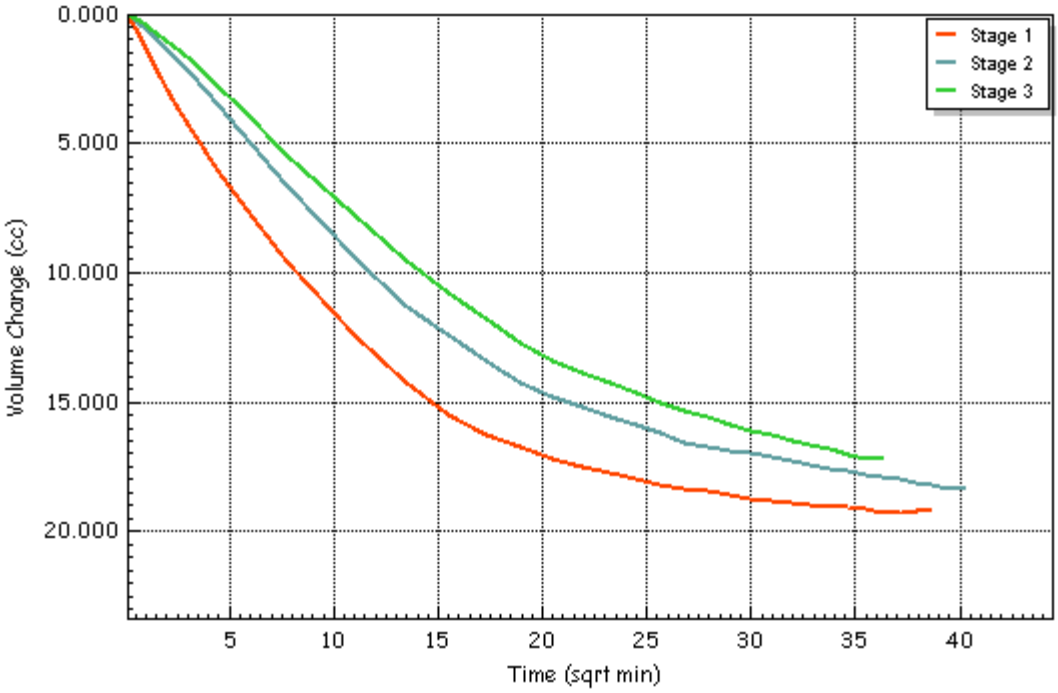
			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	930	1061	1191
Initial Back Pressure	u_{bi}	(kPa)	850	902	950
Pore Water Pressure Input	u_{pwp}	(kPa)	916	986	1064
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	103.52	101.16	101.22
Volumetric Strain	ε_v%	(%)	1.15	1.10	1.03
Corrected Length	L_C	(mm)	210.1	188.4	178.0
Corrected Area	A_C	(cm2)	78.56	86.64	90.75
Corrected Volume	V_C	(cc)	1650.474	1632.121	1614.939
t100	t_{100}	(min)	237.21	399.15	500.80
Consolidation	c_V	(m2/year)	0.88	0.52	0.42
Compressibility	m_V	(m2/MN)	0.17	0.13	0.089
Test Time	t_F	(h:m:s)	07:06:58	11:58:28	15:01:26
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02460	0.01311	0.00987

Notes

Side Drains Used During Testing



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database		Test Date	27/06/2022
Site Reference		Borehole	PWBBH06
Jobfile	59564	Sample	17
Client	RPS Group	Depth	8.25-8.55

Operator	*D Hammond	Checked	*R.John	Approved	*R.John

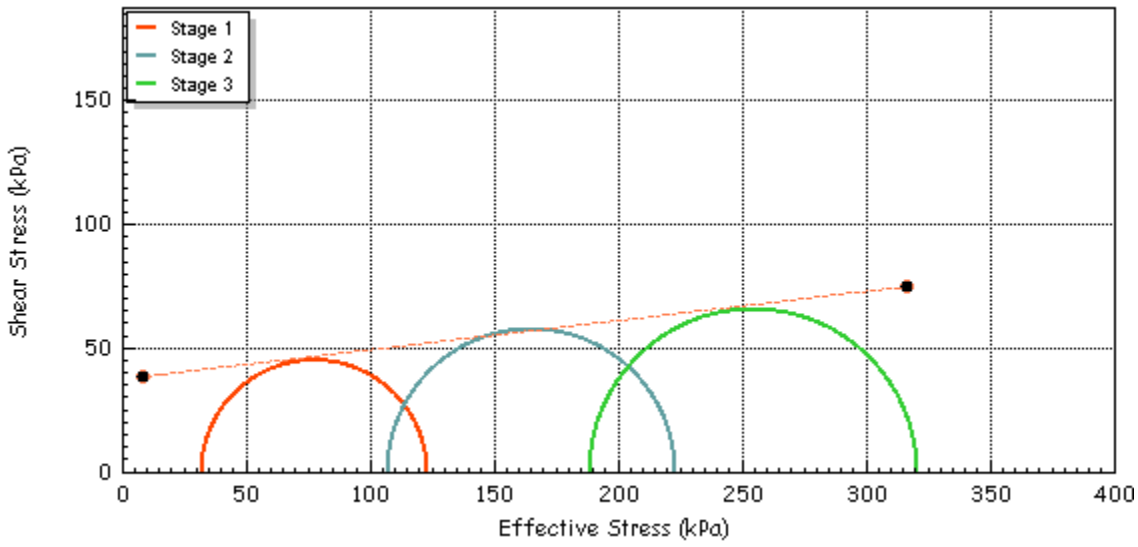
**GSTL*

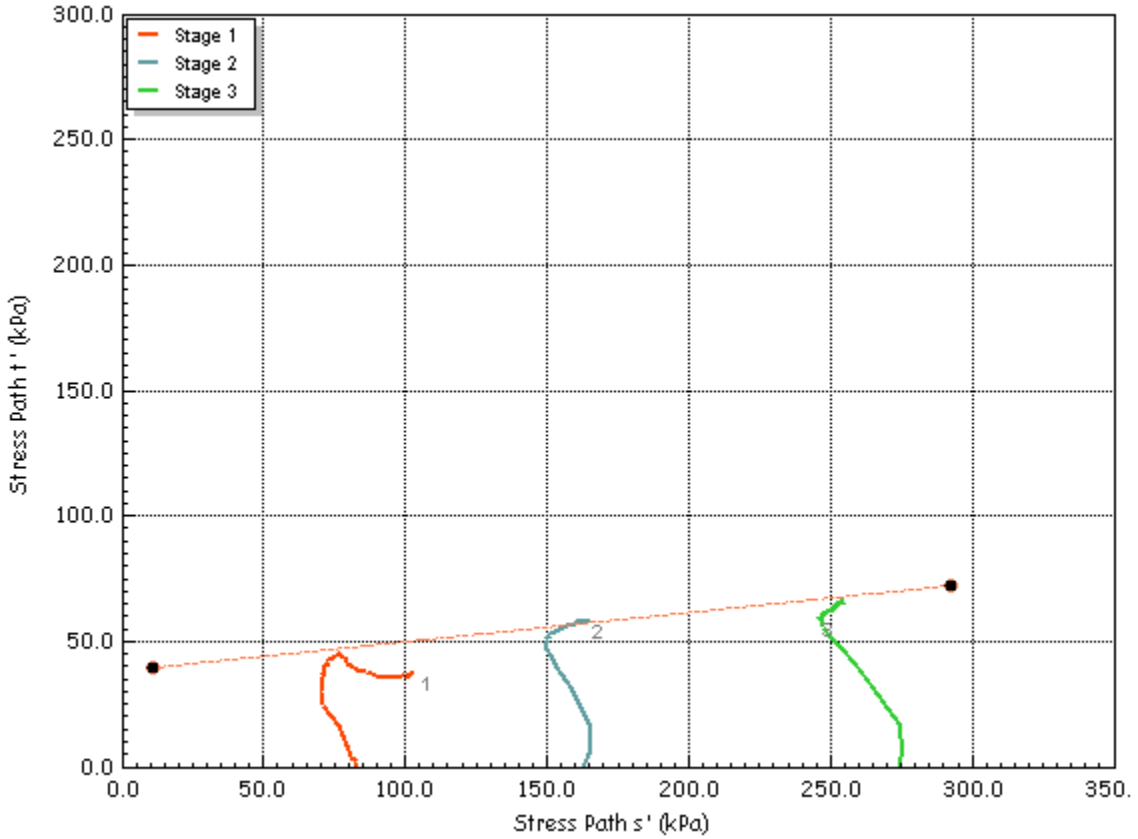
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective Cohesion	c'	(kPa)	37.12	Effective Cohesion	c'	(kPa)	38.71
Effective Friction	ϕ'	(deg)	6.8	Effective Friction	ϕ'	(deg)	6.7





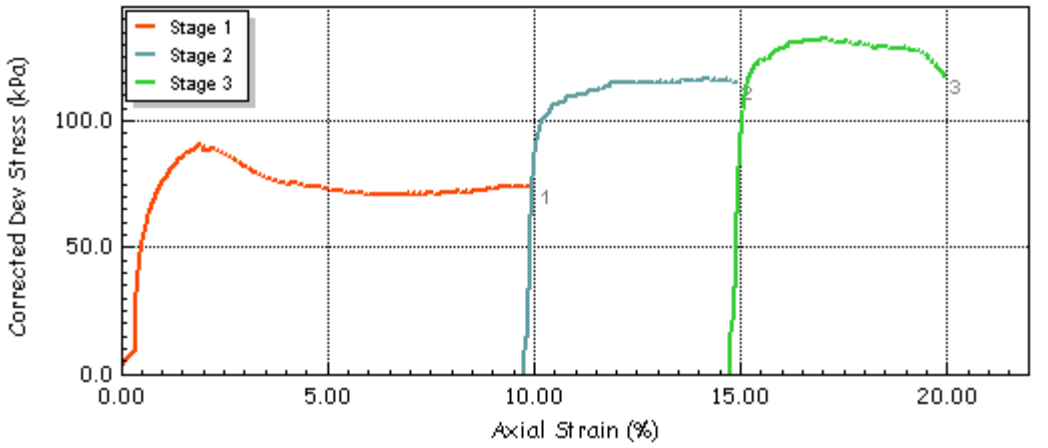
Test Method	BS1377-8 : 1990 : Clause 7			Test Name	Cell 12
Database: .\SQLEXPRESS \ VJTECH Database				Test Date	27/06/2022
Site Reference				Borehole	PWBBH06
Jobfile	59564			Sample	17
Client	RPS Group			Depth	8.25-8.55
Operator	*D Hammond	Checked	*R.John	Approved	*R.John

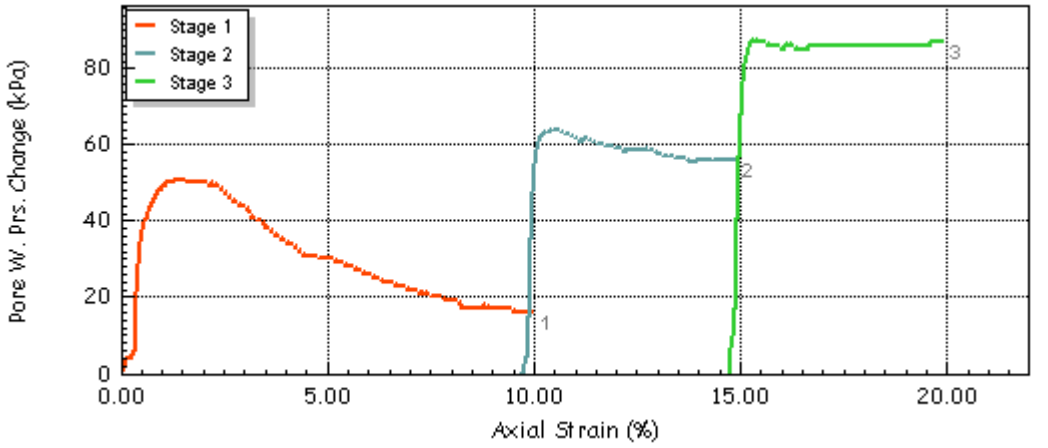
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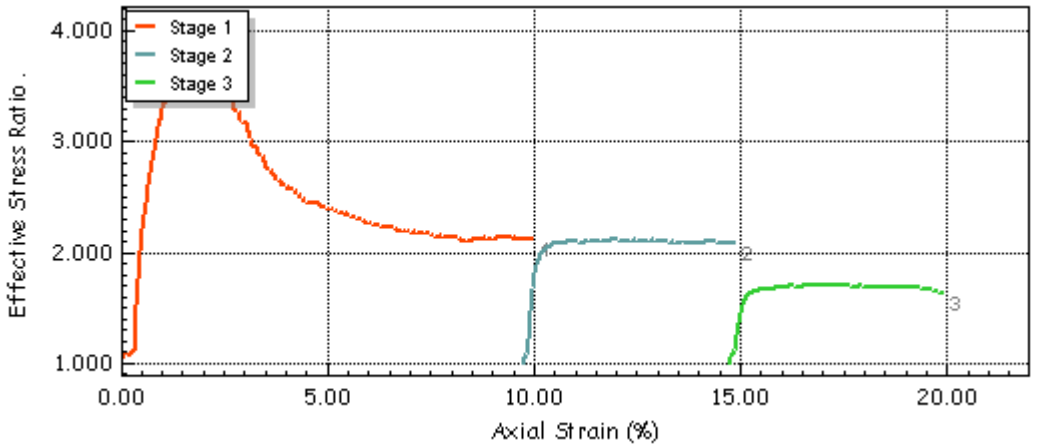
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







GSTL	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	Cell 12	
	Database: .\SQLEXPRESS \ VJTECH Database		Test Date	27/06/2022	
	Site Reference		Borehole	PWBBH06	
	Jobfile	59564	Sample	17	
	Client	RPS Group	Depth	8.25-8.55	
	Operator	*D Hammond	Checked	*R.John	Approved *R.John

*GSTL

LABORATORY REPORT

4043

Contract Number: PSL22/4724

Report Date: 28 July 2022

Client's Reference: 59564

Client Name: GSTL Ltd
Unit 4 Heol Aur Industrial Estate
Dafen
Carmarthenshire
SA14 8QN

For the attention of: Paul Evans

Contract Title: Chippenham

Date Received: 14/7/2022
Date Commenced: 14/7/2022
Date Completed: 28/7/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)
L Knight (Senior Technician)
S Eyre (Senior Technician)
D Burton (Advanced Testing Manager)

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awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
AVCI_BH_13	6	UT	1.20	1.60	Brown sandy silty CLAY.
PWB_BH_01	5	UT	1.20	1.60	Brown sandy silty CLAY.
BH002	4	UT	1.20	1.60	Brown silty CLAY.
AVCI_BH_10	9	UT	3.20	3.70	Brown silty CLAY.

UKAS TESTING
4043

PSL
Professional Soils Laboratory

Chippenham

Contract No:
PSL22/4724
Client Ref:
59564

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details				
	Depth		1.20-1.60m	
	Description		See summary of soil descriptions.	
	Type		Undisturbed, vertical orientation.	
	Initial Sample Length	L_0	(mm)	211.6
	Initial Sample Diameter	D_0	(mm)	105.3
	Initial Sample Weight	W_0	(gr)	3143.5
sketch showing specimen location in original sample	Initial Bulk Density	ρ_0	(Mg/m3)	1.71
	Particle Density	ρ_s	(Mg/m3)	2.66

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	510	520	540	
Initial Back Pressure	U_{bi}	(kPa)	500	500	500	
Membrane Thickness	m_b	(mm)	0.600			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 1			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 2			
Initial Moisture	ω_i	(%)	45			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.18			
Initial Voids Ratio	e_i	.	1.261			
Initial Degree of Saturation	S_i	(%)	95			
B Value	B	.	0.95			

Final Conditions						
Final Moisture	ω_f	(%)	45			
Final Dry Density	ρ_{df}	(Mg/m3)	1.19			
Final Voids Ratio	e_f	.	1.235			
Final Degree of Saturation	S_f	(%)	97.4			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	1.14	1.95	6.22	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	26.6	33.6	47.3	
Minor Stress At Failure	σ_3'	(kPa)	8.1	12.6	21.0	
Major Stress At Failure	σ_1'	(kPa)	34.7	46.2	68.3	
Principal Stress Ratio At Failure	σ_1'/σ_3'		4.288	3.668	3.254	

Notes



Plastic

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_13 1.20-1.60m 6UT
		Test Date	17/07/2022
		Borehole	AVCI_BH_13
Jobfile	Chippenham	Sample	1.20-1.60m 6UT
Client	GSTL	Depth	1.20-1.60m

UKAS TESTING 4043

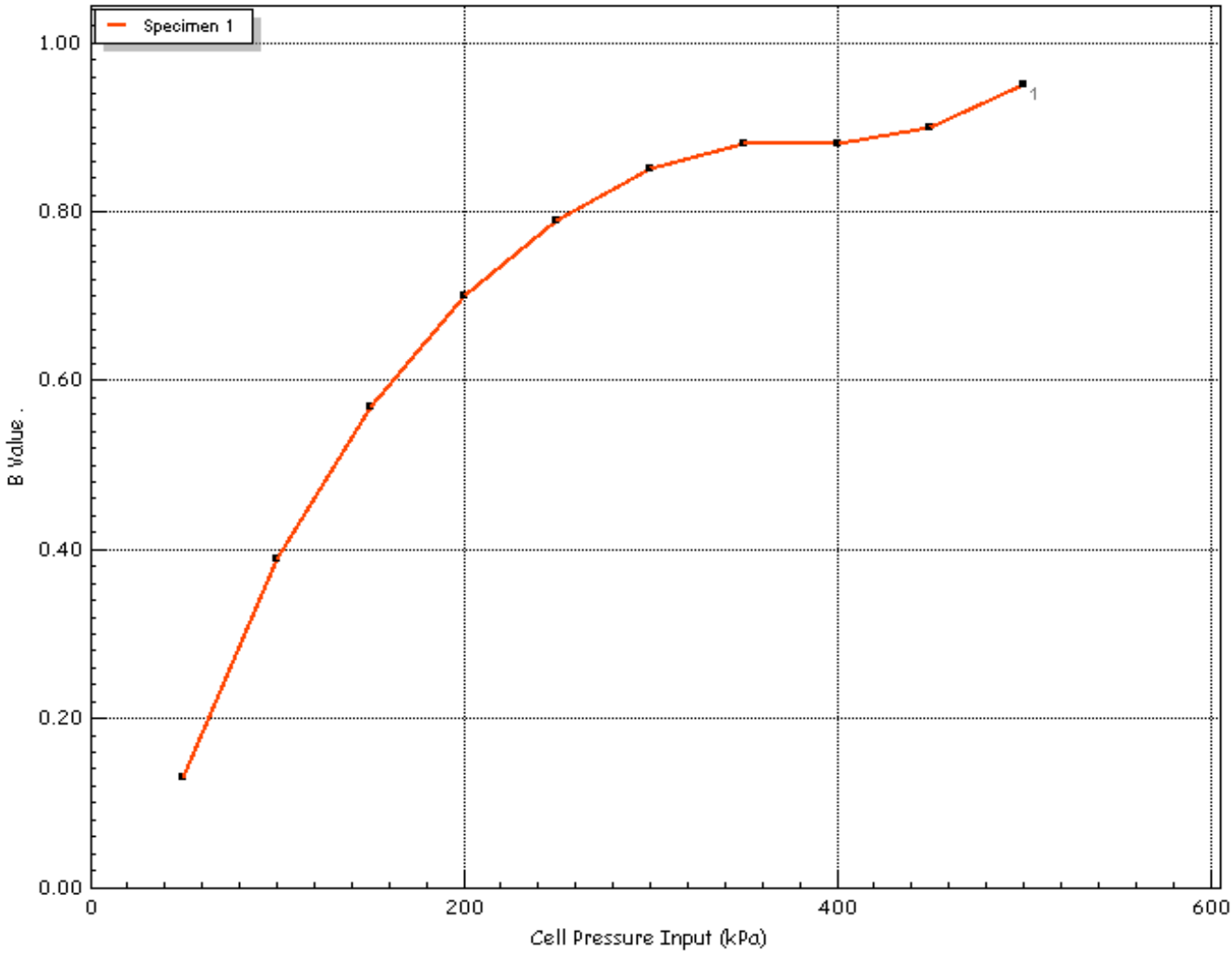
PSL Professional Soils Laboratory

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	500
Pore Water Pressure Input	u pwp	(kPa)	486
B Value	B	.	0.95



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_13 1.20-1.60m 6UT
		Test Date	17/07/2022
		Borehole	AVCI_BH_13
Jobfile	Chippenham	Sample	1.20-1.60m 6UT
Client	GSTL	Depth	1.20-1.60m

UKAS TESTING 4043

PSL Process and Soils Laboratory

Effective Stress Triaxial Compression

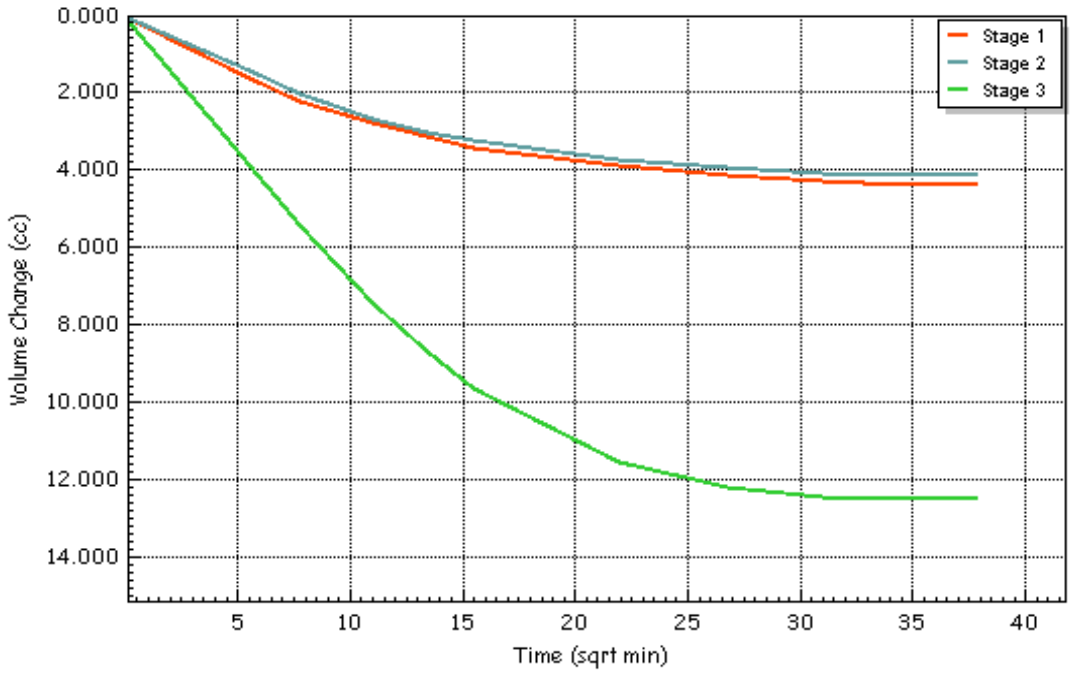
Consolidated Undrained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	510	520	540
Initial Back Pressure	u_{bi}	(kPa)	500	500	500
Pore Water Pressure Input	u_{pwp}	(kPa)	503	512	524
Drainage Method			Radial+One End		

Final Conditions			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	100.00	100.00
Volumetric Strain	ε_v%	(%)	0.24	0.46	1.14
Corrected Length	L_C	(mm)	211.4	208.7	205.3
Corrected Area	A_C	(cm2)	86.95	87.68	88.31
Corrected Volume	V_C	(cc)	1838.344	1834.224	1821.707
T100 Time to Failure	t_{100}	(min)	223.97	243.95	318.13
Consolidation	c_v	(m2/year)	1.022	0.939	0.720
Compressibility	m_v	(m2/MN)	0.366	0.982	0.637
Test Time	t_F	(h:m:s)	06:43:08	07:19:06	09:32:38
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02622	0.02622	0.02622

Notes



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_13 1.20-1.60m 6UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	AVCI_BH_13
Client	GSTL	Sample	1.20-1.60m 6UT
		Depth	1.20-1.60m

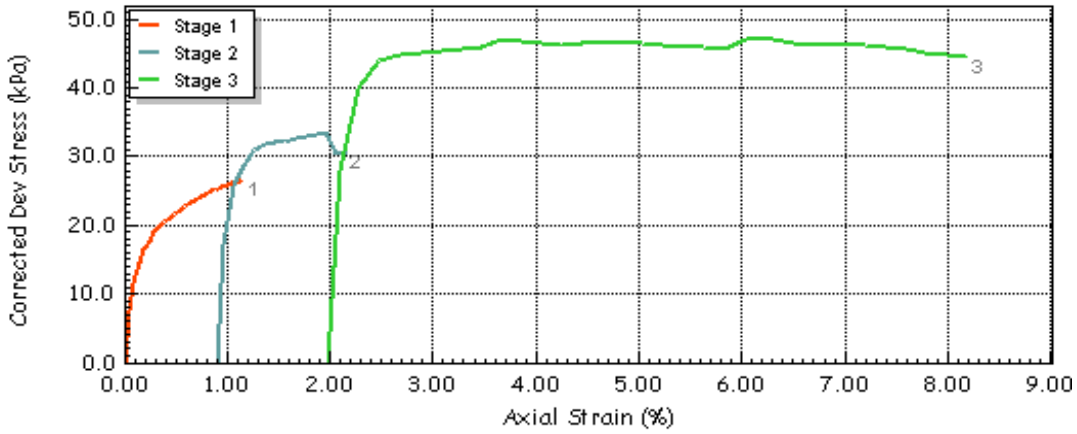
UKAS TESTING 4043

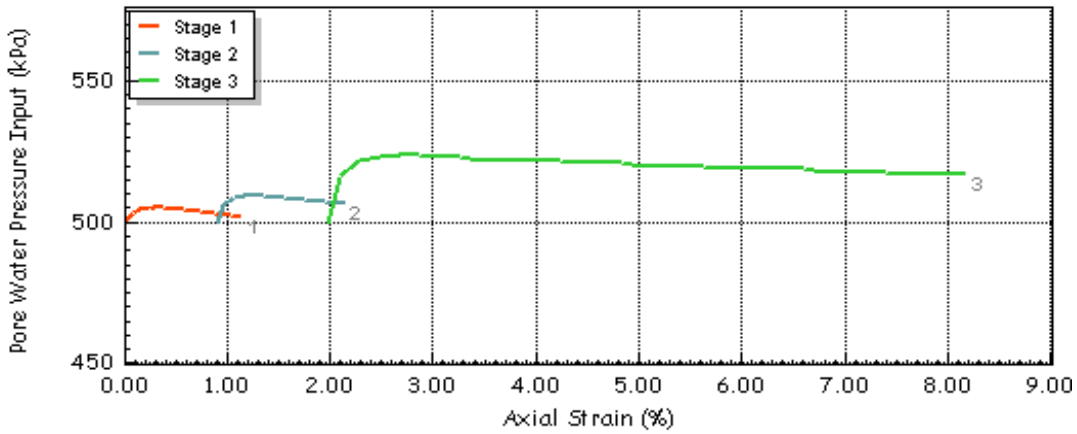
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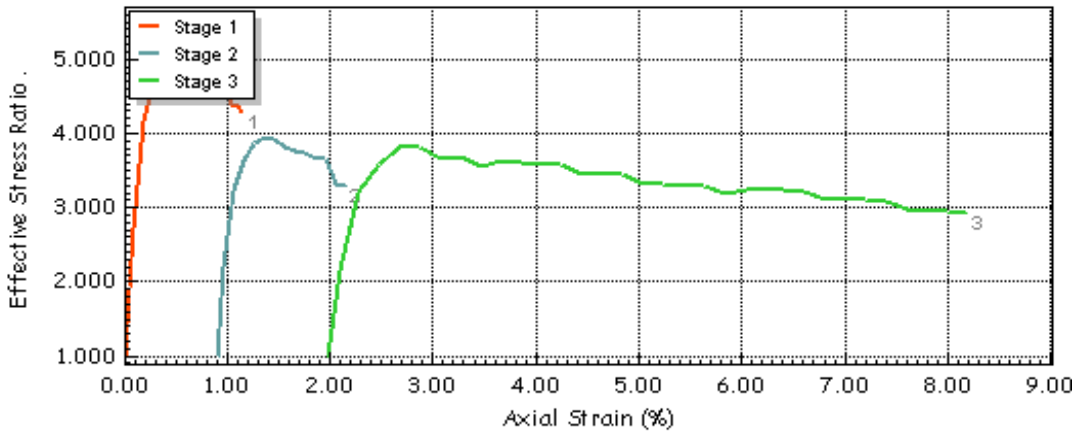
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







UKAS TESTING 4043	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_13 1.20-1.60m 6UT
			Test Date	17/07/2022
	Jobfile	Chippenham	Borehole	AVCI_BH_13
			Sample	1.20-1.60m 6UT
	Client	GSTL	Depth	1.20-1.60m

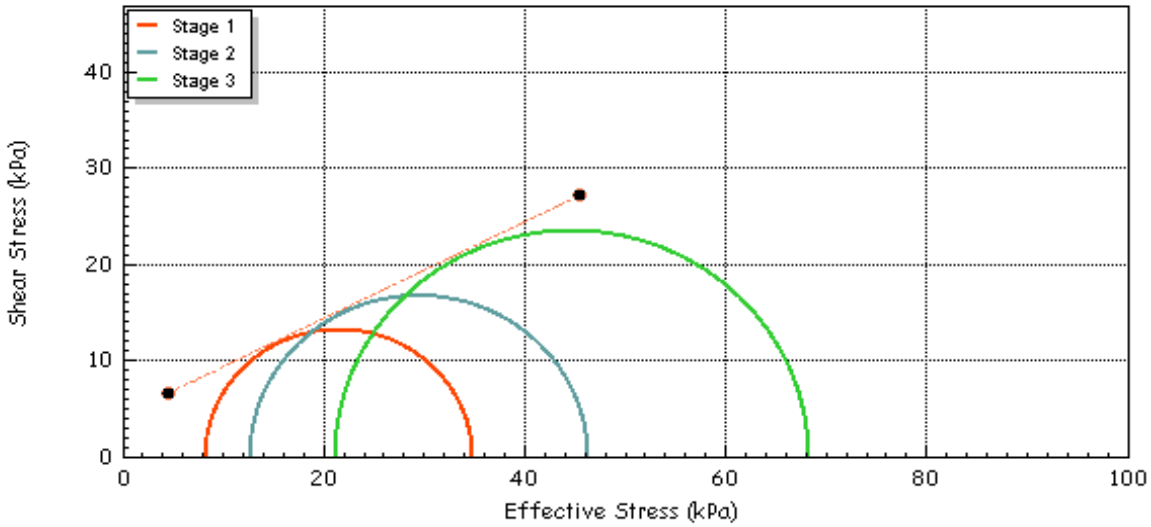
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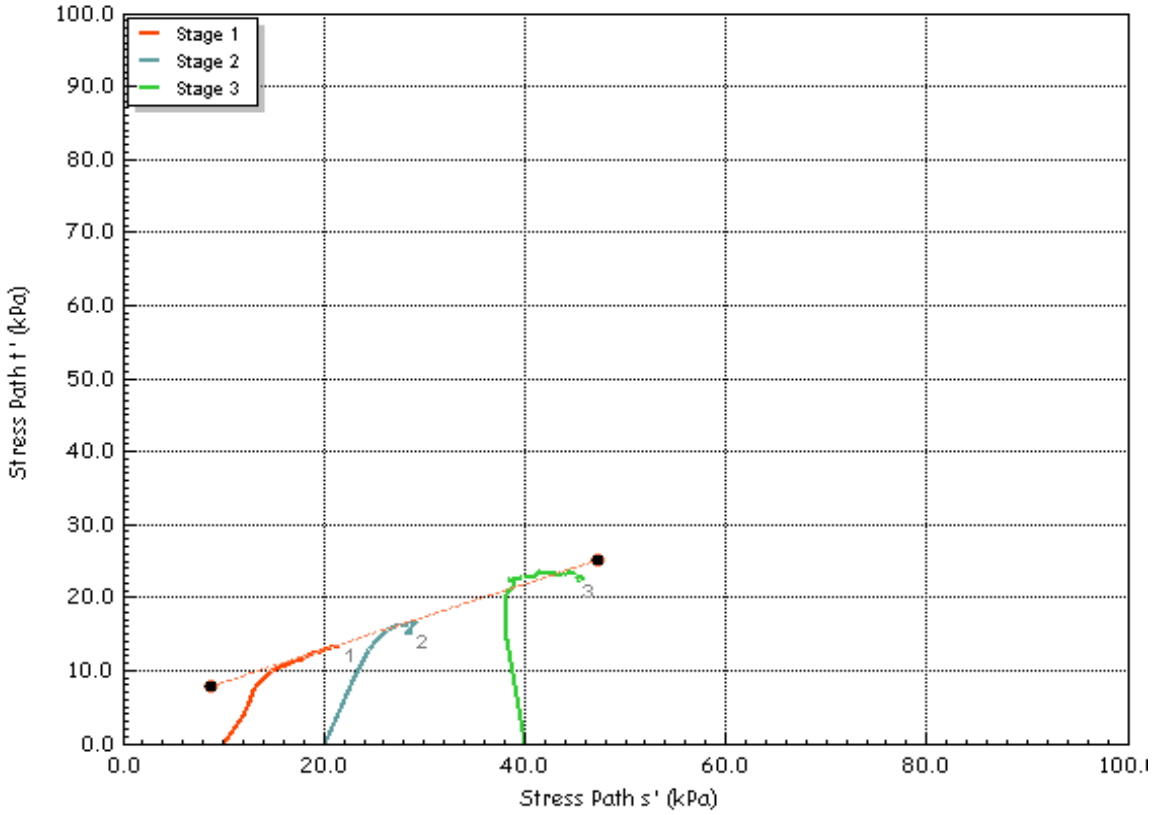
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	4.32	Effective Cohesion	c'	(kPa)	4.32
Effective Friction	ϕ'	(deg)	26.7	Effective Friction	ϕ'	(deg)	26.7





Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_13 1.20-1.60m 6UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	AVCI_BH_13
Client	GSTL	Sample	1.20-1.60m 6UT
		Depth	1.20-1.60m

UKAS TESTING 4043

PSL Process and Soils Laboratory

Effective Stress Triaxial Compression

Consolidated Drained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			1.20-1.60m
Description			See summary of soil descriptions.
Type			Undisturbed, vertical orientation.
Initial Sample Length	L_0	(mm)	211.8
Initial Sample Diameter	D_0	(mm)	104.8
Initial Sample Weight	W_0	(gr)	3443.9
Initial Bulk Density	ρ_0	(Mg/m3)	1.89
Particle Density	ρ_s	(Mg/m3)	2.66

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	880	910	970	
Initial Back Pressure	U_{bi}	(kPa)	850	850	850	
Membrane Thickness	m_b	(mm)	0.600			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 2			
Initial Moisture	ω_i	(%)	29			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.46			
Initial Voids Ratio	e_i	.	0.825			
Initial Degree of Saturation	S_i	(%)	95			
B Value	B	.	0.95			

Final Conditions						
Final Moisture	ω_f	(%)	28			
Final Dry Density	ρ_{df}	(Mg/m3)	1.48			
Final Voids Ratio	e_f	.	0.798			
Final Degree of Saturation	S_f	(%)	93.4			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	1.85	5.80	8.43	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	70.8	130.3	245.5	
Minor Stress At Failure	σ_3'	(kPa)	30.0	60.0	120.0	
Major Stress At Failure	σ_1'	(kPa)	100.8	190.3	365.5	
Principal Stress Ratio At Failure	σ_1'/σ_3'		3.358	3.172	3.046	

Notes



Plastic

UKAS TESTING 4043

Test Method	BS1377-8 : 1990 : Clause 8	Test Name	PWB_BH_01 1.20-1.60m 5UT
		Test Date	17/07/2022
		Borehole	PWB_BH_01
Jobfile	Chippenham	Sample	1.20-1.60m 5UT
Client	GSTL	Depth	1.20-1.60m

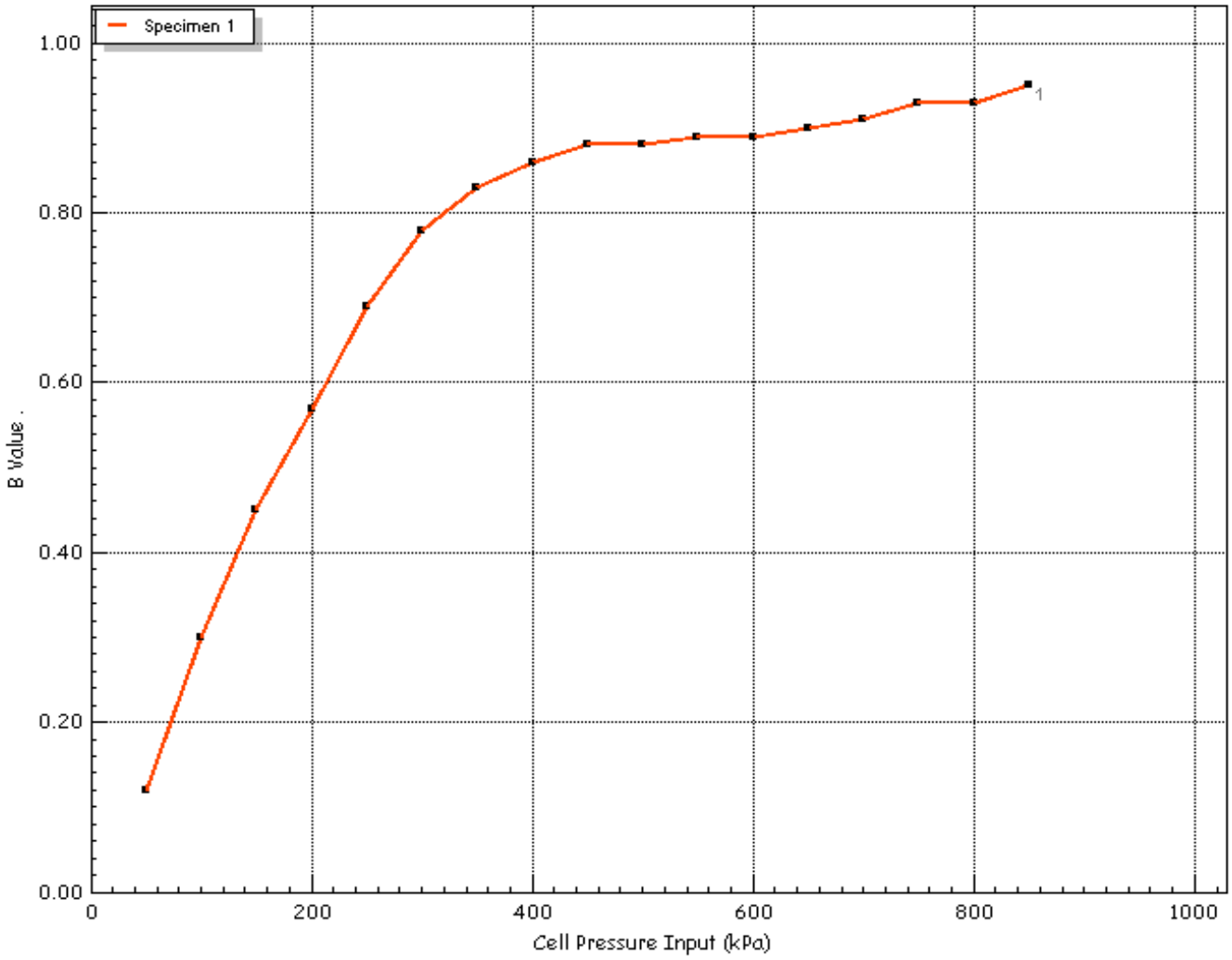
PSL Professional Soils Laboratory

Effective Stress Triaxial Compression

Consolidated Drained

Saturation Plots

Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	850
Pore Water Pressure Input	u pwp	(kPa)	834
B Value	B	.	0.95



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	PWB_BH_01 1.20-1.60m 5UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	PWB_BH_01
Client	GSTL	Sample	1.20-1.60m 5UT
		Depth	1.20-1.60m

UKAS TESTING 4043

PSL Process and Soils Laboratory

Effective Stress Triaxial Compression

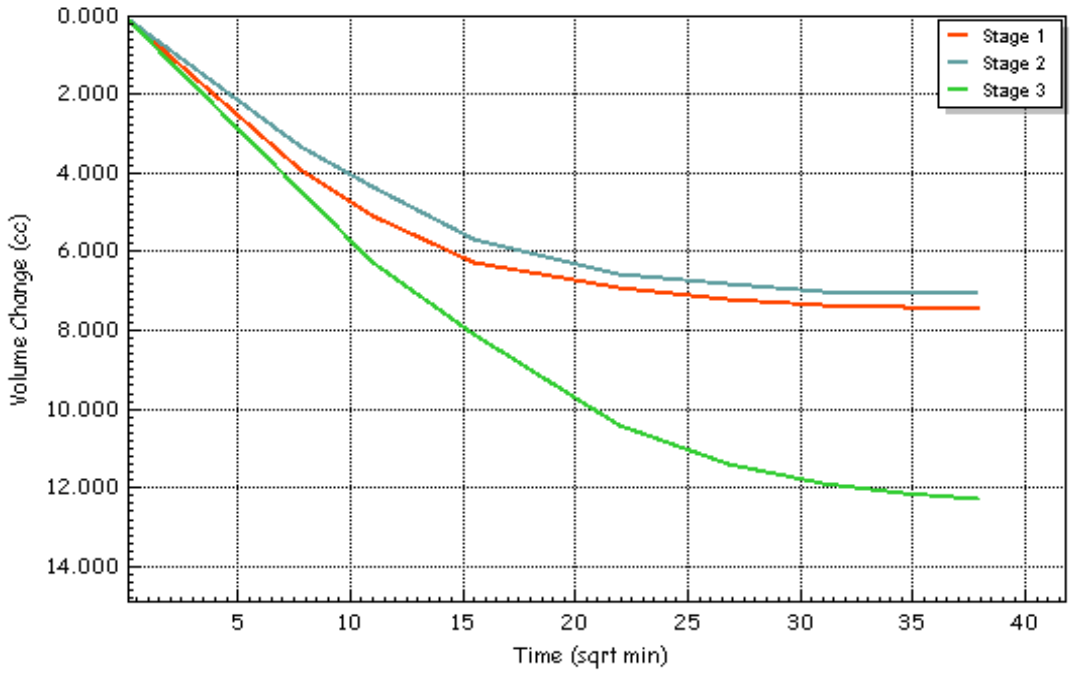
Consolidated Drained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	880	910	970
Initial Back Pressure	u_{bi}	(kPa)	850	850	850
Pore Water Pressure Input	u_{pwp}	(kPa)	858	862	878
Drainage Method			Radial+One End		

Final Conditions			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	100.00	100.00
Volumetric Strain	ε_v%	(%)	0.41	0.79	1.47
Corrected Length	L_C	(mm)	211.5	206.9	196.8
Corrected Area	A_C	(cm2)	86.03	87.23	90.76
Corrected Volume	V_C	(cc)	1819.545	1812.492	1800.206
T100 Time to Failure	t_{100}	(min)	213.25	262.86	459.22
Consolidation	c_v	(m2/year)	1.064	0.863	0.494
Compressibility	m_v	(m2/MN)	0.492	0.679	0.520
Test Time	t_F	(h:m:s)	49:45:30	61:20:02	107:09:04
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00354	0.00354	0.00354

Notes



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	PWB_BH_01 1.20-1.60m 5UT
		Test Date	17/07/2022
		Borehole	PWB_BH_01
Jobfile	Chippenham	Sample	1.20-1.60m 5UT
Client	GSTL	Depth	1.20-1.60m

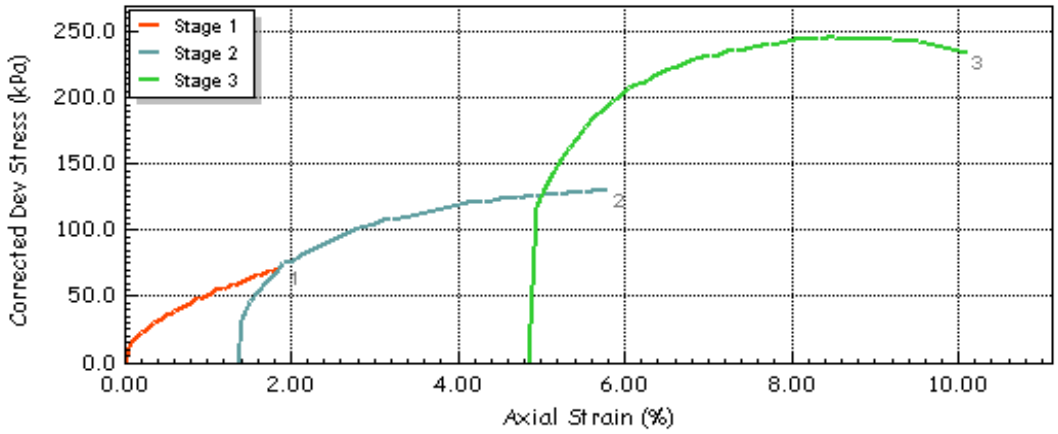
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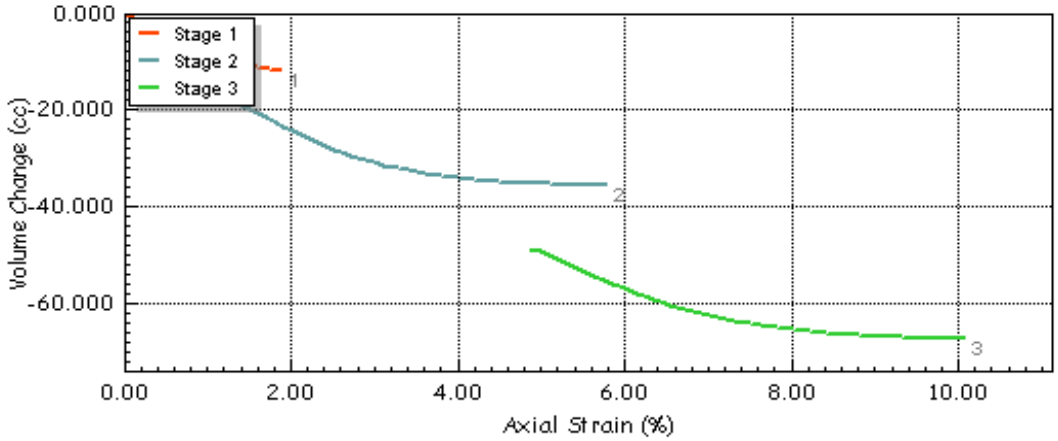
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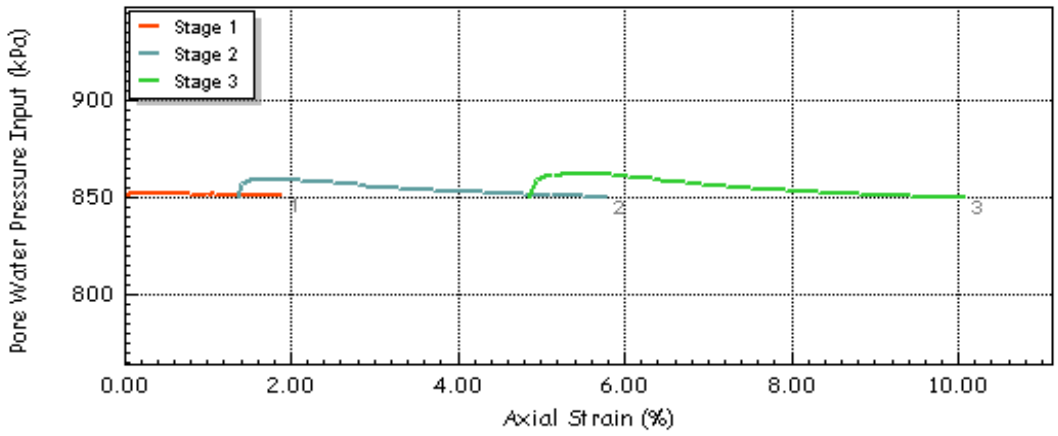
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots







UKAS TESTING 4043	Test Method	BS1377-8 : 1990 : Clause 8	Test Name	PWB_BH_01 1.20-1.60m 5UT
			Test Date	17/07/2022
	Jobfile	Chippenham	Borehole	PWB_BH_01
	Client	GSTL	Sample	1.20-1.60m 5UT
			Depth	1.20-1.60m

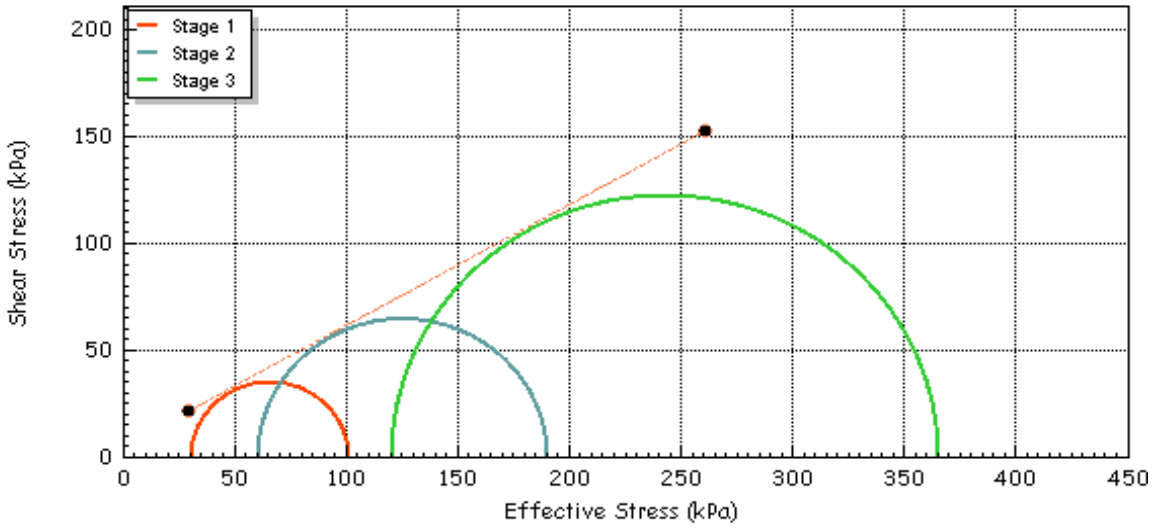
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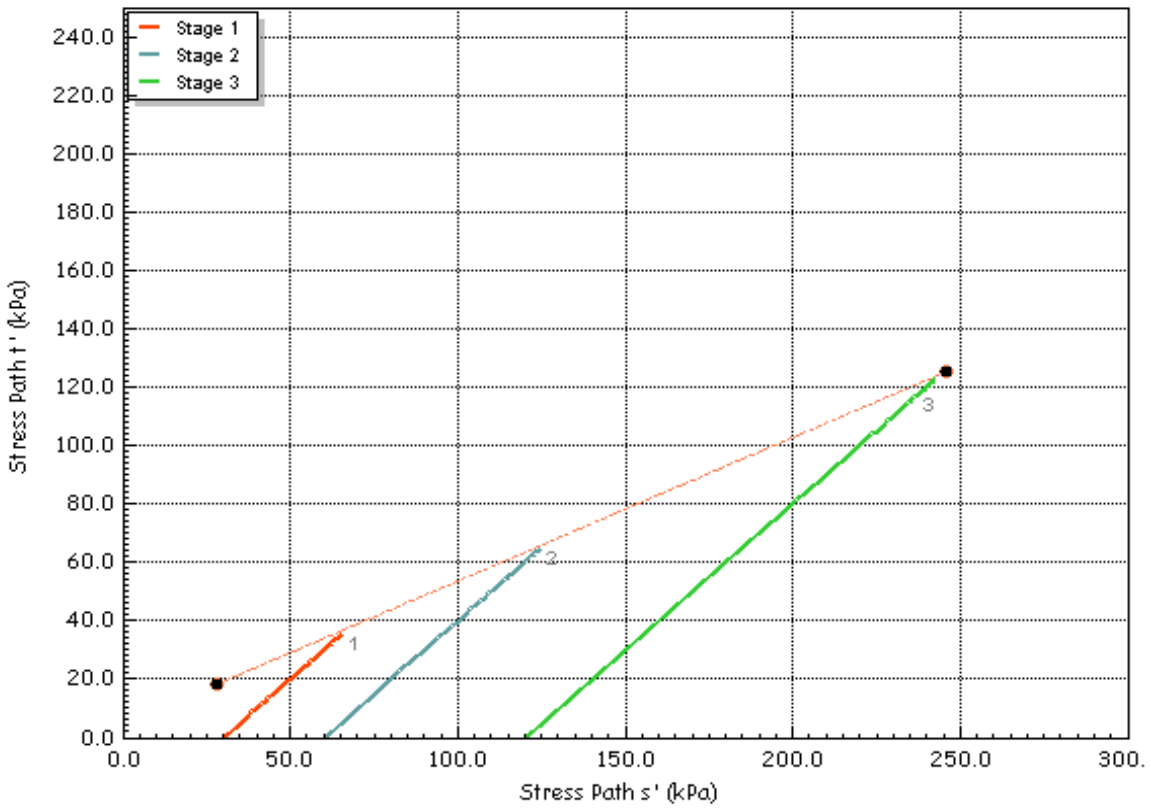
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots

Effective	c'	(kPa)	5.17	Effective Cohesion	c'	(kPa)	5.17
Effective Friction	ϕ'	(deg)	29.5	Effective Friction	ϕ'	(deg)	29.5





Test Method	BS1377-8 : 1990 : Clause 8	Test Name	PWB_BH_01 1.20-1.60m 5UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	PWB_BH_01
Client	GSTL	Sample	1.20-1.60m 5UT
		Depth	1.20-1.60m

UKAS TESTING 4043

PSL Process and Soils Laboratory

Effective Stress Triaxial Compression

Consolidated Drained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth			
Description			
Type			
Initial Sample Length	L_0	(mm)	211.3
Initial Sample Diameter	D_0	(mm)	105.1
Initial Sample Weight	W_0	(gr)	3331.0
Initial Bulk Density	ρ_0	(Mg/m3)	1.82
Particle Density	ρ_s	(Mg/m3)	2.66

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	1065	1080	1095	
Initial Back Pressure	U_{bi}	(kPa)	1050	1050	1050	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 2			
Initial Moisture	ω_i	(%)	34			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.35			
Initial Voids Ratio	e_i	.	0.966			
Initial Degree of Saturation	S_i	(%)	94			
B Value	B	.	0.96			

Final Conditions						
Final Moisture	ω_f	(%)	36			
Final Dry Density	ρ_{df}	(Mg/m3)	1.36			
Final Voids Ratio	e_f	.	0.954			
Final Degree of Saturation	S_f	(%)	99.1			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	1.87	3.50	7.93	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	29.1	43.4	58.1	
Minor Stress At Failure	σ_3'	(kPa)	15.0	30.0	45.0	
Major Stress At Failure	σ_1'	(kPa)	44.1	73.4	103.1	
Principal Stress Ratio At Failure	σ_1'/σ_3'		2.943	2.447	2.292	

Notes



Plastic

UKAS TESTING 4043

Test Method	BS1377-8 : 1990 : Clause 8	Test Name	BH002 1.20-1.60m 4UT
		Test Date	17/07/2022
		Borehole	BH002
Jobfile	Chippenham	Sample	1.20-1.60m 4UT
Client	GSTL	Depth	

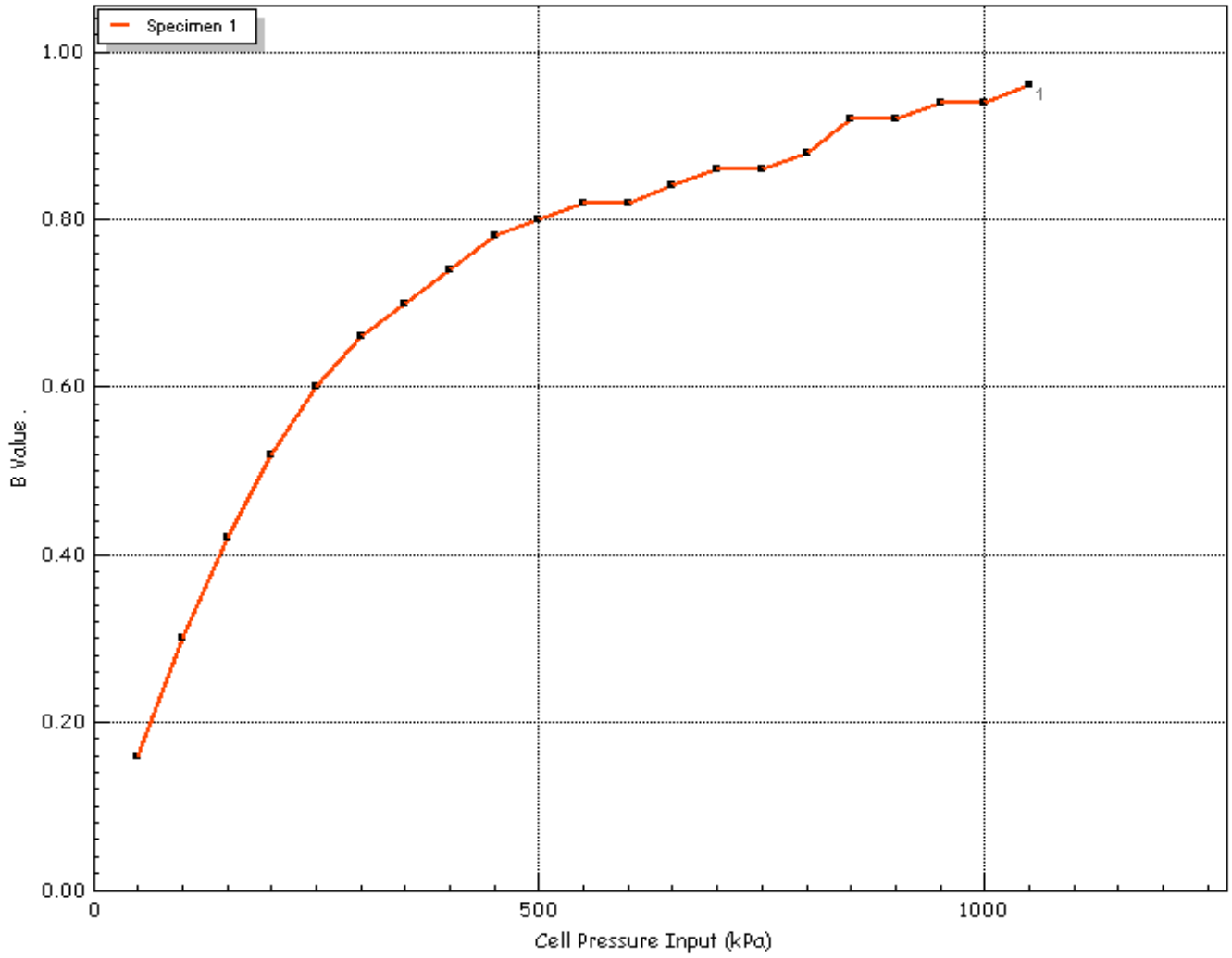
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Effective Stress Triaxial Compression

Consolidated Drained

Saturation Plots

Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	1050
Pore Water Pressure Input	u pwp	(kPa)	1030
B Value	B	.	0.96



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	BH002 1.20-1.60m 4UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	BH002
Client	GSTL	Sample	1.20-1.60m 4UT
		Depth	

UKAS TESTING 4043

PSL Process and Soils Laboratory

Effective Stress Triaxial Compression

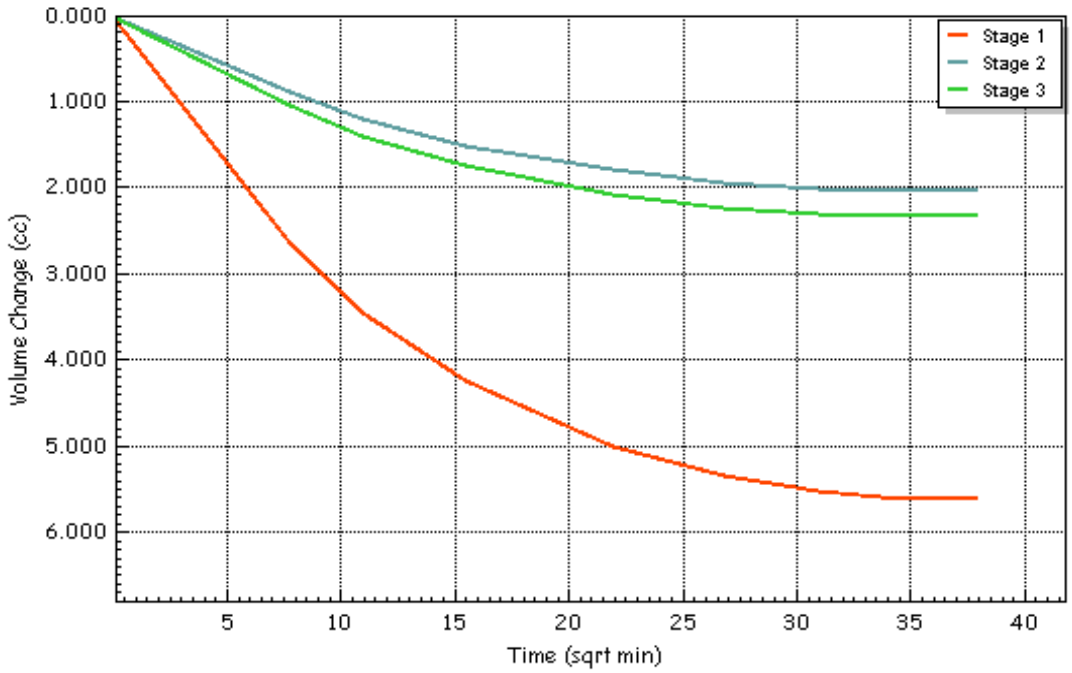
Consolidated Drained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	1065	1080	1095
Initial Back Pressure	u_{bi}	(kPa)	1050	1050	1050
Pore Water Pressure Input	u_{pwp}	(kPa)	1054	1063	1074
Drainage Method			Radial+One End		

Final Conditions			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	100.00	100.00
Volumetric Strain	ε_v%	(%)	0.31	0.11	0.13
Corrected Length	L_C	(mm)	211.1	206.7	202.4
Corrected Area	A_C	(cm2)	86.58	88.30	90.07
Corrected Volume	V_C	(cc)	1827.521	1825.477	1823.147
t100	t_{100}	(min)	267.14	314.11	291.39
Consolidation	c_v	(m2/year)	0.854	0.726	0.783
Compressibility	m_v	(m2/MN)	0.161	0.279	1.271
Test Time	t_F	(h:m:s)	62:19:57	73:17:32	67:59:27
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00282	0.00282	0.00282

Notes



Test Method	BS1377-8 : 1990 : Clause 8	Test Name	BH002 1.20-1.60m 4UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	BH002
Client	GSTL	Sample	1.20-1.60m 4UT
		Depth	

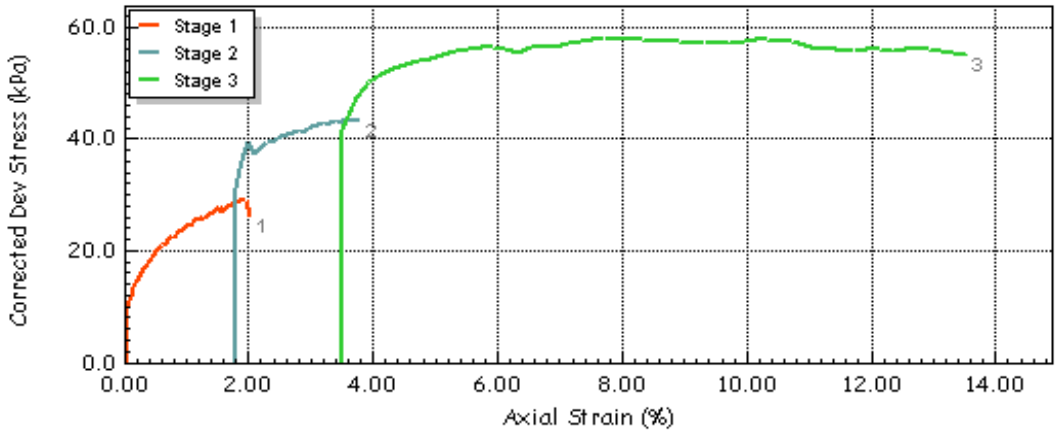
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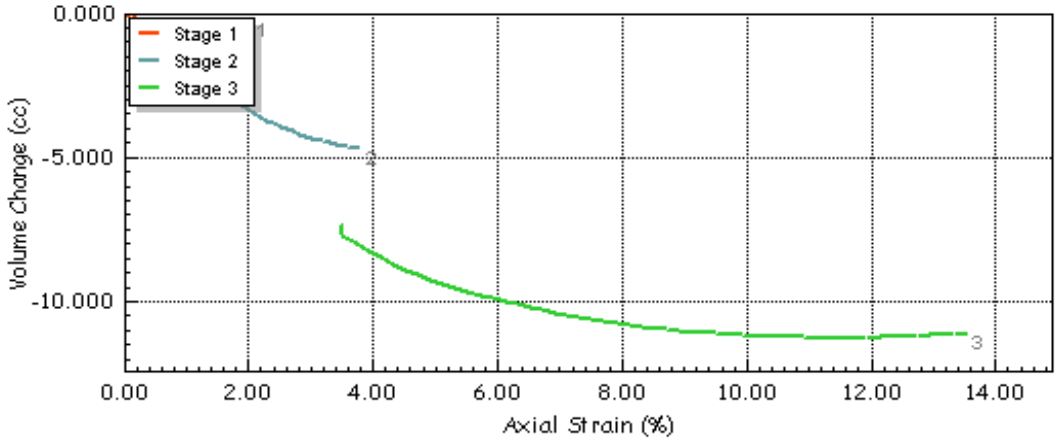
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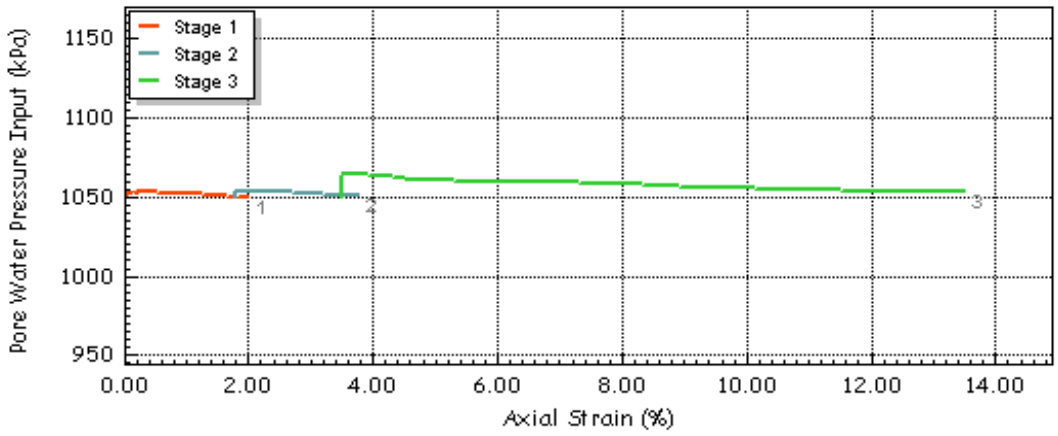
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots







Test Method	BS1377-8 : 1990 : Clause 8	Test Name	BH002 1.20-1.60m 4UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	BH002
Client	GSTL	Sample	1.20-1.60m 4UT
		Depth	

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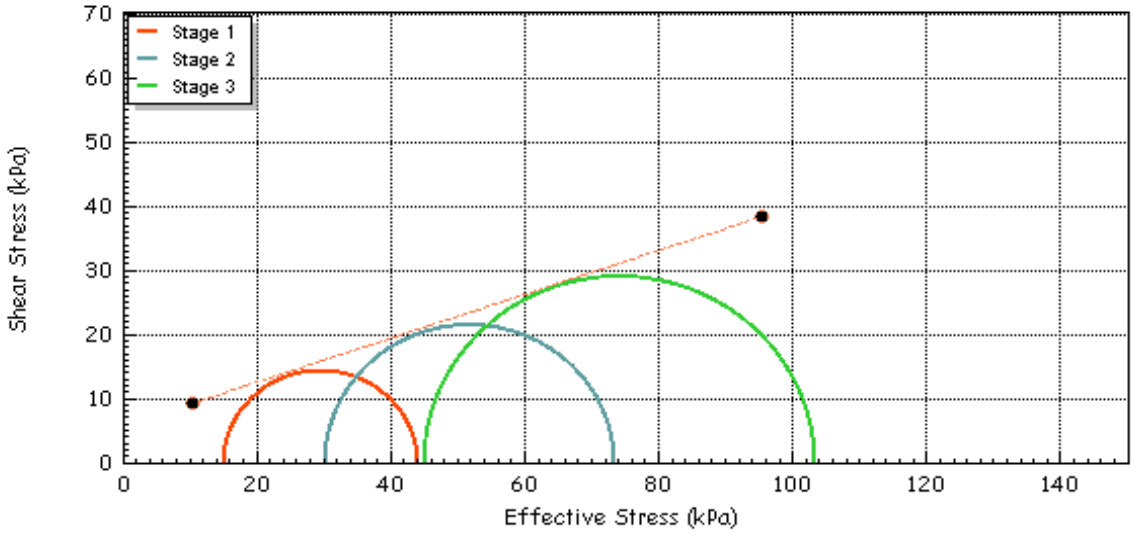
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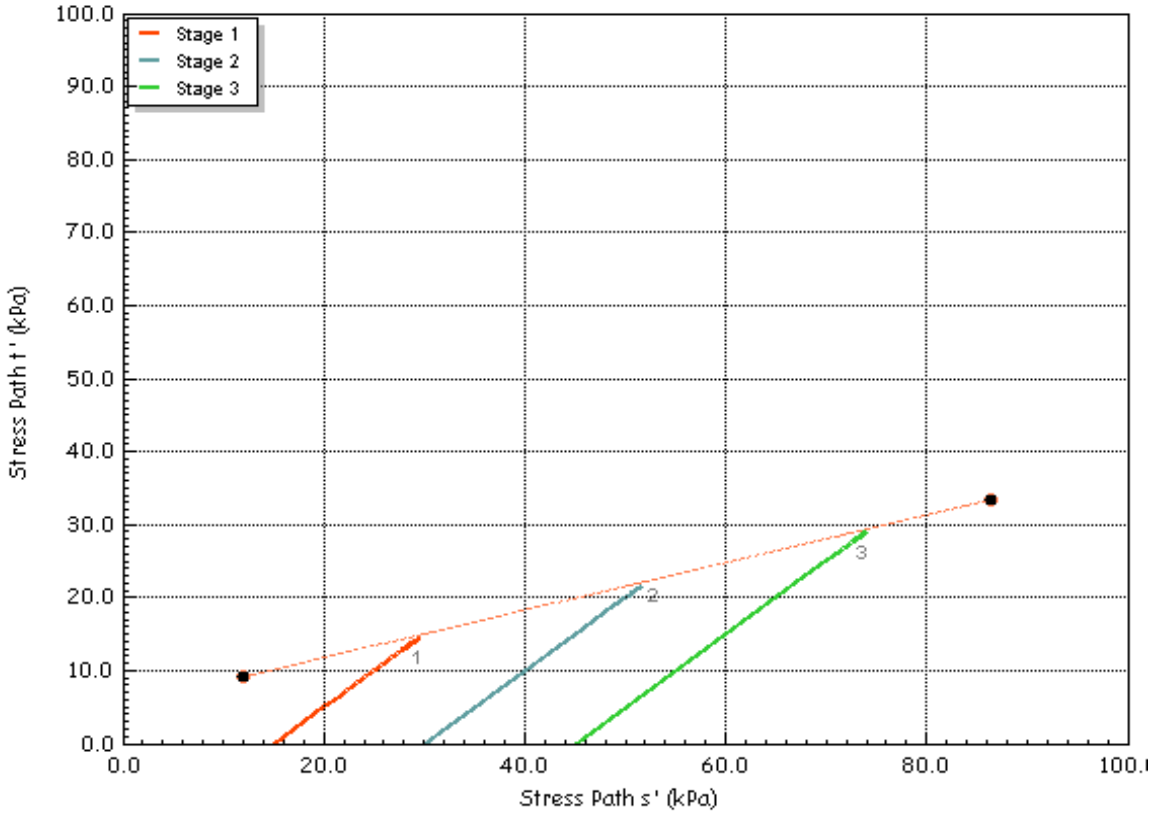
Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots

Effective	c'	(kPa)	5.74	Effective Cohesion	c'	(kPa)	5.74
Effective Friction	ϕ'	(deg)	19.0	Effective Friction	ϕ'	(deg)	19.0





Test Method	BS1377-8 : 1990 : Clause 8	Test Name	BH002 1.20-1.60m 4UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	BH002
Client	GSTL	Sample	1.20-1.60m 4UT
		Depth	

UKAS TESTING 4043

PSL Process and Soils Laboratory

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details



sketch showing specimen location in original sample

Depth		3.20-3.70m	
Description		See summary of soil descriptions.	
Type		Undisturbed, vertical orientation.	
Initial Sample Length	L_0	(mm)	211.7
Initial Sample Diameter	D_0	(mm)	104.9
Initial Sample Weight	W_0	(gr)	3022.9
Initial Bulk Density	ρ_0	(Mg/m3)	1.65
Particle Density	ρ_s	(Mg/m3)	2.66

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	430	460	520	
Initial Back Pressure	U_{bi}	(kPa)	400	400	400	
Membrane Thickness	m_b	(mm)	0.600			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 2			
Initial Moisture	ω_i	(%)	54			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.08			
Initial Voids Ratio	e_i	.	1.474			
Initial Degree of Saturation	S_i	(%)	97			
B Value	B	.	0.96			

Final Conditions						
Final Moisture	ω_f	(%)	49			
Final Dry Density	ρ_{df}	(Mg/m3)	1.13			
Final Voids Ratio	e_f	.	1.358			
Final Degree of Saturation	S_f	(%)	96.0			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε_f	(%)	1.98	3.84	7.05	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	40.2	53.2	93.7	
Minor Stress At Failure	σ_3'	(kPa)	15.0	26.0	60.0	
Major Stress At Failure	σ_1'	(kPa)	55.2	79.2	153.7	
Principal Stress Ratio At Failure	σ_1'/σ_3'		3.682	3.048	2.562	

Notes



Plastic

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_10 3.20-3.70m 9UT
		Test Date	17/07/2022
		Borehole	AVCI_BH_10
Jobfile	Chippenham	Sample	3.20-3.70m 9UT
Client	GSTL	Depth	3.20-3.70m

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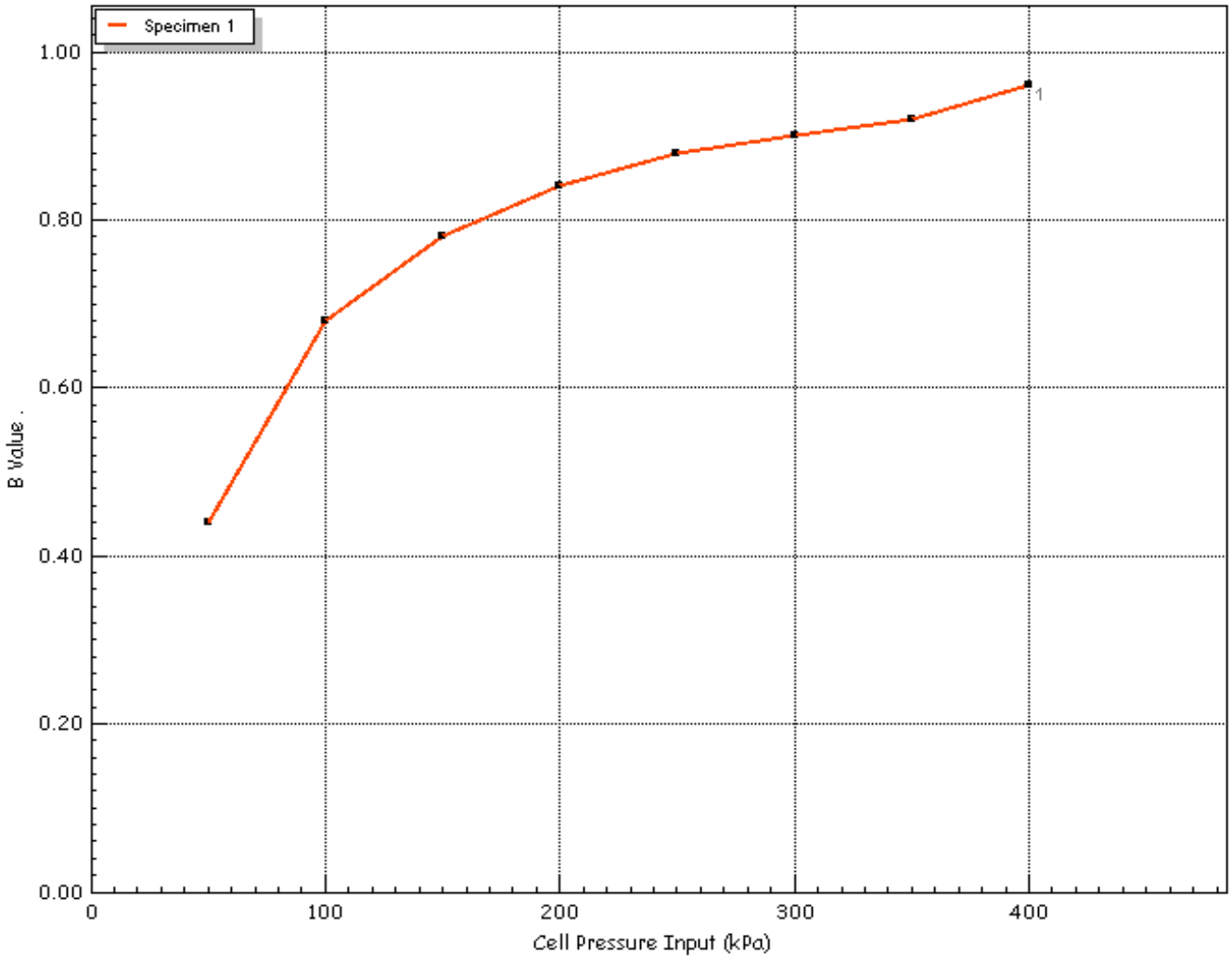
PSL Professional Soils Laboratory

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	400
Pore Water Pressure Input	u pwp	(kPa)	384
B Value	B	.	0.96



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_10 3.20-3.70m 9UT
		Test Date	17/07/2022
		Borehole	AVCI_BH_10
Jobfile	Chippenham	Sample	3.20-3.70m 9UT
Client	GSTL	Depth	3.20-3.70m

UKAS TESTING 4043

PSL Process and Soils Laboratory

Effective Stress Triaxial Compression

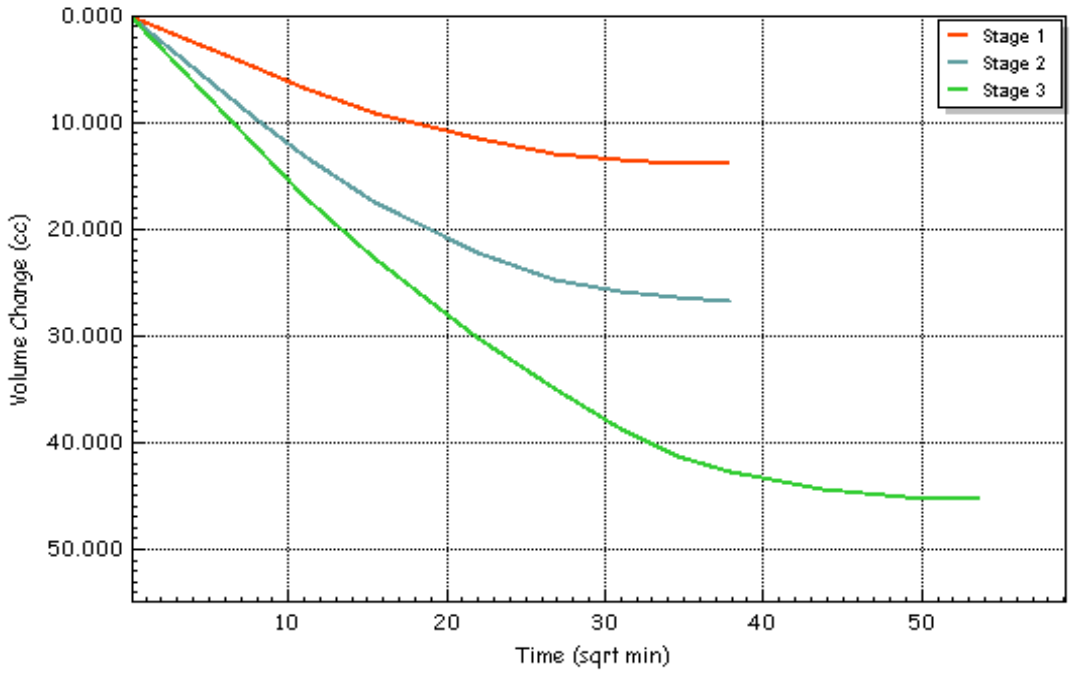
Consolidated Undrained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	430	460	520
Initial Back Pressure	u_{bi}	(kPa)	400	400	400
Pore Water Pressure Input	u_{pwp}	(kPa)	411	434	470
Drainage Method			Radial+One End		

Final Conditions			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	100.00	100.00
Volumetric Strain	ε_v%	(%)	0.76	2.22	4.70
Corrected Length	L_C	(mm)	211.2	204.9	197.8
Corrected Area	A_C	(cm2)	85.99	86.64	86.17
Corrected Volume	V_C	(cc)	1815.708	1789.007	1743.710
T100 Time to Failure	t_{100}	(min)	504.27	531.31	837.31
Consolidation	c_V	(m2/year)	0.451	0.428	0.271
Compressibility	m_V	(m2/MN)	0.691	0.653	0.671
Test Time	t_F	(h:m:s)	15:07:41	15:56:21	25:07:09
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.01163	0.01163	0.01163

Notes



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_10 3.20-3.70m 9UT
		Test Date	17/07/2022
		Borehole	AVCI_BH_10
Jobfile	Chippenham	Sample	3.20-3.70m 9UT
Client	GSTL	Depth	3.20-3.70m

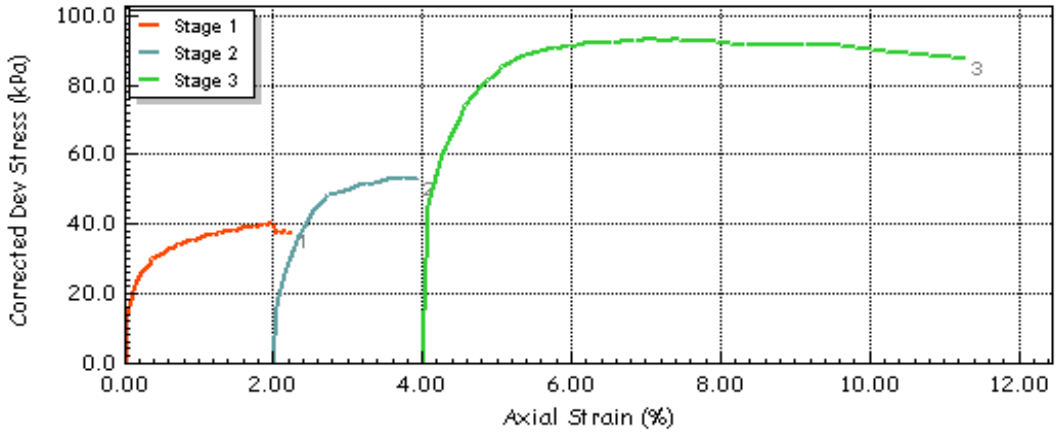
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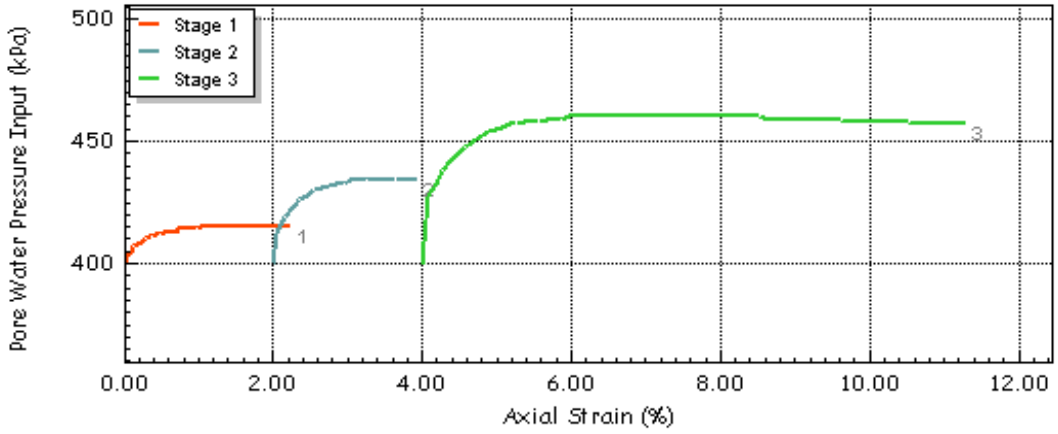
PSL Process and Soils Laboratory

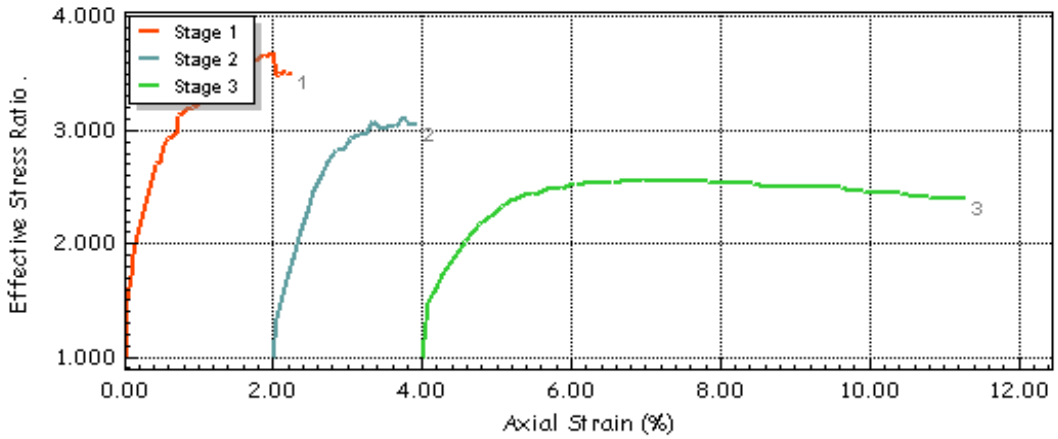
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







UKAS TESTING 4043	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_10 3.20-3.70m 9UT
			Test Date	17/07/2022
	Jobfile	Chippenham	Borehole	AVCI_BH_10
	Client	GSTL	Sample	3.20-3.70m 9UT
			Depth	3.20-3.70m

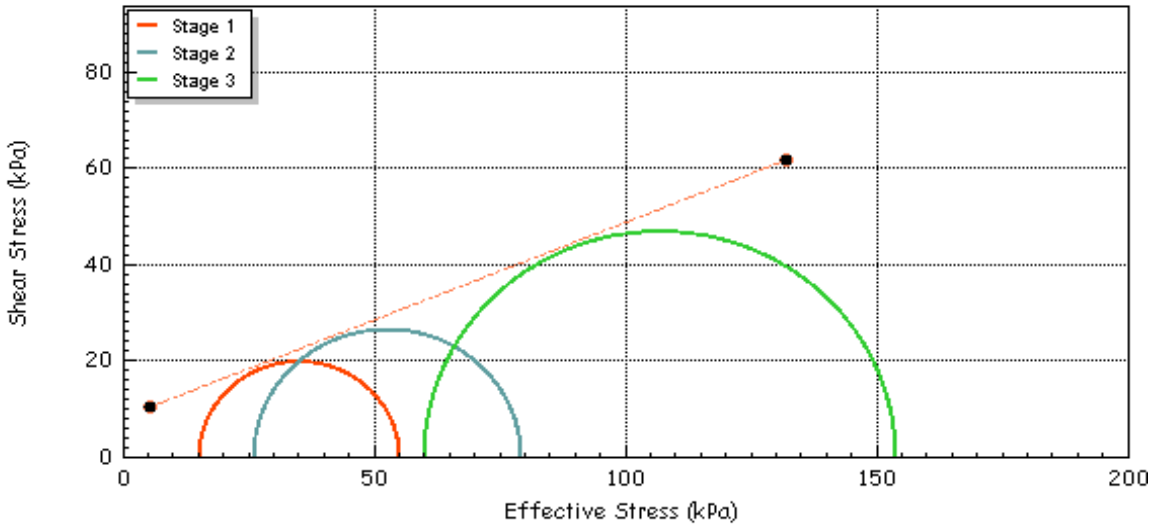
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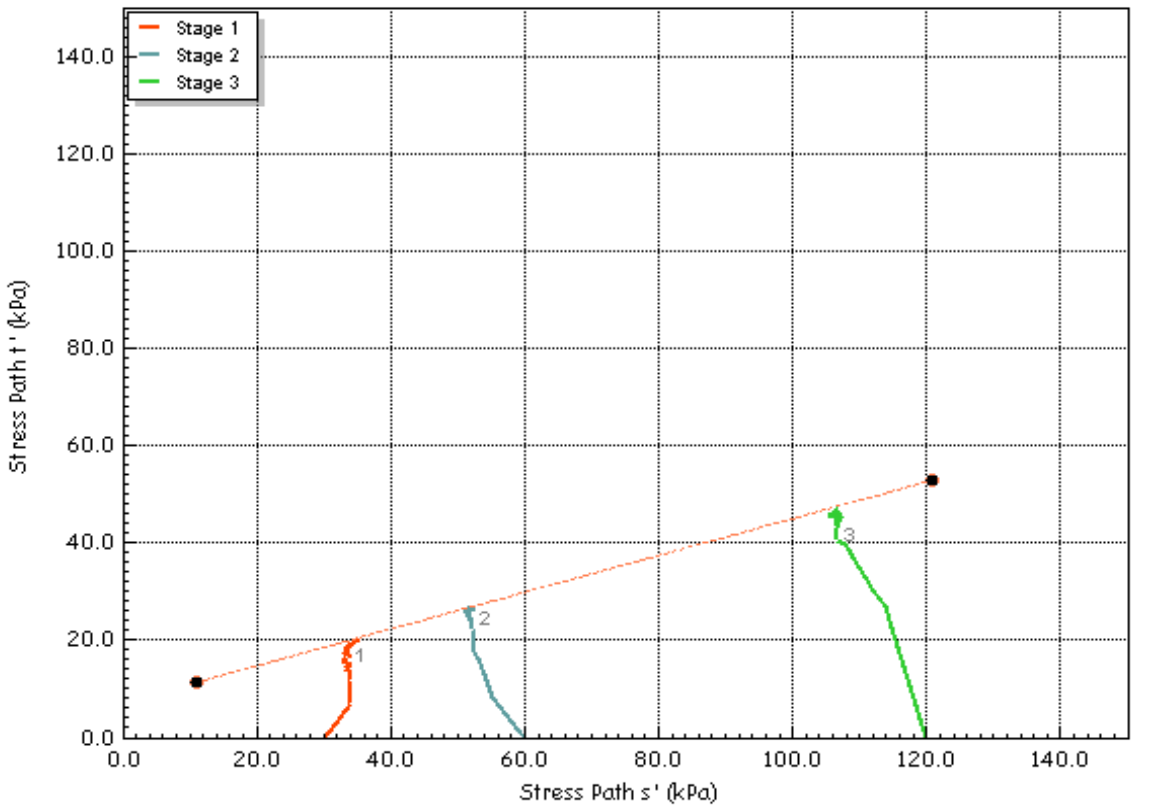
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	7.98	Effective Cohesion	c'	(kPa)	7.98
Effective Friction	ϕ'	(deg)	22.1	Effective Friction	ϕ'	(deg)	22.1





Test Method	BS1377-8 : 1990 : Clause 7	Test Name	AVCI_BH_10 3.20-3.70m 9UT
		Test Date	17/07/2022
Jobfile	Chippenham	Borehole	AVCI_BH_10
Client	GSTL	Sample	3.20-3.70m 9UT
		Depth	3.20-3.70m

UKAS TESTING 4043

PSL Process and Soils Laboratory

2531

ANALYTICAL TEST REPORT

Contract no: 110386

Contract name: Future Chippenham

Client reference: JER9532

Clients name: Geo Site & Testing Services

Clients address: Unit 3 and 4 Heol Aur
Dafen Industrial Estate, Dafen
Llanelli, Carmarthenshire
SA14 8QN

Samples received: 15 June 2022

Analysis started: 15 June 2022

Analysis completed: 23 June 2022

Report issued: 23 June 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Rachael Burton

Reporting Team Lead

Chemtech Environmental Limited

SOILS

Lab number			110386-1	110386-2	110386-3	110386-4	110386-5	110386-6
Sample id			AVC1-BH01	AVC1-BH01	AVC1-BH02	AVC1-BH05	AVC1-BH10	AVC1-BH10
Depth (m)			1.20	2.20	1.00	1.20	1.00	2.70
Sample Type			D4	D6	D3	D4	B4	D8
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	8.9	-	-	8.1	-	8.2
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	39	-	-	20	-	27
Sulphate (total)	CE062 U	mg/kg SO_4	1001	-	-	150	-	337
Sulphate (total)	CE062 U	% w/w SO_4	0.10	-	-	0.02	-	0.03
Sulphur (total)	CE119	mg/kg S	754	-	-	118	-	172
Sulphur (total)	CE119	% w/w S	0.08	-	-	0.01	-	0.02
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.5	0.4	-	1.5	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	0.9	0.7	-	2.5	-

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SOILS

Lab number			110386-7	110386-8	110386-9	110386-10	110386-11	110386-12
Sample id			AVC1-BH10	AVC1-BH11	AVC1-BH11	AVC1-BH11	AVC1-BH12	AVC1-BH12
Depth (m)			4.35	0.50	2.00	3.00	1.10	2.60
Sample Type			B12	D3	D7	D9	D4	D7
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	-	-	8.2	-	-	8.6
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	-	-	32	-	-	13
Sulphate (total)	CE062 [U]	mg/kg SO_4	-	-	490	-	-	772
Sulphate (total)	CE062 [U]	% w/w SO_4	-	-	0.05	-	-	0.08
Sulphur (total)	CE119	mg/kg S	-	-	251	-	-	427
Sulphur (total)	CE119	% w/w S	-	-	0.03	-	-	0.04
Total Organic Carbon (TOC)	CE197	% w/w C	1.0	2.9	-	0.7	0.8	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.6	4.9	-	1.2	1.4	-

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SOILS

Lab number			110386-13	110386-14	110386-15	110386-16	110386-17	110386-18
Sample id			AVC1-BH13	AVC1-BH13	AVC1-BH13	AVC1-BH14	BH001	BH002
Depth (m)			2.40	5.50	10.00	2.60	2.40	1.00
Sample Type			D7	D13	D20	D7	D3	D20
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	-	8.1	-	5.0	7.4	7.4
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	-	634	-	2136	1538	143
Sulphate (total)	CE062 U	mg/kg SO_4	-		-		5725	
Sulphate (total)	CE062 U	% w/w SO_4	-	0.00	-	0.00	0.57	0.00
Sulphur (total)	CE119	mg/kg S	-		-		5580	
Sulphur (total)	CE119	% w/w S	-	<0.01	-	<0.01	0.56	<0.01
Total Organic Carbon (TOC)	CE197	% w/w C	1.0	-	0.5	-	-	0.5
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.6	-	0.8	-	-	0.8

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SOILS

Lab number			110386-19	110386-20	110386-21	110386-22	110386-23	110386-24
Sample id			BH003	BH003	BH004	BH004	BH004	AVW-BH01
Depth (m)			0.50	1.00	1.00	2.10	6.70	0.50
Sample Type			D1	D3	D4	D8	D15	D1
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	-	7.9	-	-	7.4	-
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	-	20	-	-	1131	-
Sulphate (total)	CE062 U	mg/kg SO_4	-	228	-	-		-
Sulphate (total)	CE062 U	% w/w SO_4	-	0.02	-	-	0.00	-
Sulphur (total)	CE119	mg/kg S	-	164	-	-		-
Sulphur (total)	CE119	% w/w S	-	0.02	-	-	<0.01	-
Total Organic Carbon (TOC)	CE197	% w/w C	0.5	-	0.3	0.2	-	0.7
Estimate of OMC (calculated from TOC)	CE197	% w/w	0.8	-	0.4	0.3	-	1.3

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SOILS

Lab number			110386-25	110386-26	110386-27	110386-28	110386-29	110386-30
Sample id			AVW-BH01	AVW-BH02	AVW-BH03	AVW-BH03	AVW-BH03	AVW-BH04
Depth (m)			2.20	1.30	0.50	1.00	2.10	1.80
Sample Type			D6	D4	D2	D4	D8	D5
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	-	-	-	7.9	-	-
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	-	-	-	219	-	-
Sulphate (total)	CE062 U	mg/kg SO_4	-	-	-	616	-	-
Sulphate (total)	CE062 U	% w/w SO_4	-	-	-	0.06	-	-
Sulphur (total)	CE119	mg/kg S	-	-	-	383	-	-
Sulphur (total)	CE119	% w/w S	-	-	-	0.04	-	-
Total Organic Carbon (TOC)	CE197	% w/w C	4.2	1.8	3.8	-	11.4	4.5
Estimate of OMC (calculated from TOC)	CE197	% w/w	7.2	3.1	6.5	-	19.6	7.7

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SOILS

Lab number			110386-31	110386-32	110386-33	110386-34	110386-35	110386-36
Sample id			AVW-BH04	AVW-BH06	AVW-BH06	AVW-BH06	AVW-BH07	AVW-BH07
Depth (m)			4.65	1.20	1.30	2.95	1.00	2.00
Sample Type			D10	D4	D5	D8	D4	D6
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	7.6	7.4	-	4.6	-	4.4
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	2616	2102	-	2469	-	269
Sulphate (total)	CE062 U	mg/kg SO_4	22587	6638	-	21115	-	3168
Sulphate (total)	CE062 U	% w/w SO_4	2.26	0.66	-	2.11	-	0.32
Sulphur (total)	CE119	mg/kg S	19278	4089	-	13724	-	1086
Sulphur (total)	CE119	% w/w S	1.93	0.41	-	1.37	-	0.11
Total Organic Carbon (TOC)	CE197	% w/w C	-	-	0.3	-	0.6	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	-	0.6	-	1.0	-

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SOILS

Lab number			110386-37	110386-38	110386-39	110386-40	110386-41	110386-42
Sample id			AVW-BH08	PWB-BH01	PWB-BH01	PWB-BH02	PWB-BH02	PWB-BH03
Depth (m)			2.50	1.00	2.70	1.00	2.40	0.50
Sample Type			D6	D4	D8	D4	D6	D2
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	-	-	4.2	-	4.2	-
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	-	-	1884	-	151	-
Sulphate (total)	CE062 U	mg/kg SO_4	-	-		-	2202	-
Sulphate (total)	CE062 U	% w/w SO_4	-	-	0.00	-	0.22	-
Sulphur (total)	CE119	mg/kg S	-	-		-	1139	-
Sulphur (total)	CE119	% w/w S	-	-	<0.01	-	0.11	-
Total Organic Carbon (TOC)	CE197	% w/w C	2.3	0.4	-	0.4	-	0.6
Estimate of OMC (calculated from TOC)	CE197	% w/w	3.9	0.7	-	0.7	-	1.0

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SOILS

Lab number			110386-43	110386-44	110386-45	110386-46	110386-47	110386-48
Sample id			PWB-BH03	PWB-BH03	PWB-BH04	PWB-BH06	PWB-BH06	PWB-BH06
Depth (m)			2.30	3.20	1.70	0.50	1.60	2.20
Sample Type			D7	UT9	D5	D2	D6	D8
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	6.3	-	6.3	-	-	8.3
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	42	-	173	-	-	122
Sulphate (total)	CE062 U	mg/kg SO_4	1154	-	5435	-	-	482
Sulphate (total)	CE062 U	% w/w SO_4	0.12	-	0.54	-	-	0.05
Sulphur (total)	CE119	mg/kg S	409	-	1868	-	-	208
Sulphur (total)	CE119	% w/w S	0.04	-	0.19	-	-	0.02
Total Organic Carbon (TOC)	CE197	% w/w C	-	1.8	0.3	0.2	0.2	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	3.2	0.6	0.4	0.4	-

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SOILS

Lab number			110386-49	110386-50	110386-51	110386-52	110386-53	110386-54
Sample id			CPTU001	HP-TP08	HP-TP09	HP-TP09	TP014	TP014
Depth (m)			1.00	1.50	1.00	1.50	0.50	1.00
Sample Type			D1	D5	D4	D5	D2	D4
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 [U]	units	-	-	-	7.6	-	7.6
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	-	-	-	2003	-	544
Sulphate (total)	CE062 [U]	mg/kg SO_4	-	-	-	86986	-	1193
Sulphate (total)	CE062 [U]	% w/w SO_4	-	-	-	8.70	-	0.12
Sulphur (total)	CE119	mg/kg S	-	-	-	21529	-	403
Sulphur (total)	CE119	% w/w S	-	-	-	2.15	-	0.04
Total Organic Carbon (TOC)	CE197	% w/w C	0.4	0.2	1.1	-	0.6	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	0.7	0.4	1.8	-	1.0	-

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SOILS

Lab number			110386-55	110386-56	110386-57	110386-58	110386-59	110386-60
Sample id			TP015	TP015	TP015	TP016	TP016	TP002
Depth (m)			1.00	1.50	3.00	1.00	3.00	1.00
Sample Type			D4	D5	D10	D4	D10	D1
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	7.9	-	5.3	-	6.7	-
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	79	-	368	-	2427	-
Sulphate (total)	CE062 U	mg/kg SO_4	478	-	3194	-	20721	-
Sulphate (total)	CE062 U	% w/w SO_4	0.05	-	0.32	-	2.07	-
Sulphur (total)	CE119	mg/kg S	221	-	1824	-	12659	-
Sulphur (total)	CE119	% w/w S	0.02	-	0.18	-	1.27	-
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.8	-	0.5	-	1.0
Estimate of OMC (calculated from TOC)	CE197	% w/w	-	1.4	-	0.9	-	1.8

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SOILS

Lab number			110386-61	110386-62	110386-63	110386-64	110386-65	110386-66
Sample id			TP012	TP012	TP013	TP003	TP003	WS008
Depth (m)			0.50	1.00	0.50	2.00	2.50	1.00
Sample Type			B2	B3	D2	B	D	D4
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	-	4.1	-	-	4.5	4.5
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	-	2370	-	-	355	46
Sulphate (total)	CE062 U	mg/kg SO_4	-	5348	-	-	12378	521
Sulphate (total)	CE062 U	% w/w SO_4	-	0.53	-	-	1.24	0.05
Sulphur (total)	CE119	mg/kg S	-	4529	-	-	3353	442
Sulphur (total)	CE119	% w/w S	-	0.45	-	-	0.34	0.04
Total Organic Carbon (TOC)	CE197	% w/w C	0.8	-	0.4	0.2	-	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.3	-	0.6	0.3	-	-

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SOILS

Lab number			110386-67	110386-68	110386-69	110386-70	110386-71	110386-72
Sample id			WS008	WS010	WS014	WS018E	WS019	WS019
Depth (m)			1.20	1.00	1.00	0.50	0.50	3.30
Sample Type			B5	B4	B3	D2	D2	D8
Date sampled			-	-	-	-	-	-
Test	**Method**	**Units**						
pH	CE004 U	units	-	-	-	-	3.9	-
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	-	-	-	-	346	-
Sulphate (total)	CE062 U	mg/kg SO_4	-	-	-	-	768	-
Sulphate (total)	CE062 U	% w/w SO_4	-	-	-	-	0.08	-
Sulphur (total)	CE119	mg/kg S	-	-	-	-	381	-
Sulphur (total)	CE119	% w/w S	-	-	-	-	0.04	-
Total Organic Carbon (TOC)	CE197	% w/w C	0.6	1.3	0.3	1.5	-	1.2
Estimate of OMC (calculated from TOC)	CE197	% w/w	1.0	2.2	0.6	2.6	-	2.0

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SOILS

Lab number			110386-73
Sample id			WS019
Depth (m)			3.60
Sample Type			D9
Date sampled			-
Test	**Method**	**Units**	
pH	CE004 U	units	5.1
Sulphate (2:1 water soluble)	CE061 U	mg/l SO_4	1771
Sulphate (total)	CE062 U	mg/kg SO_4	4930
Sulphate (total)	CE062 U	% w/w SO_4	0.49
Sulphur (total)	CE119	mg/kg S	23992
Sulphur (total)	CE119	% w/w S	2.40
Total Organic Carbon (TOC)	CE197	% w/w C	-
Estimate of OMC (calculated from TOC)	CE197	% w/w	-

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	0.01	% w/w SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w

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DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
110386-1	AVC1-BH01	1.20	Y	All (NSD)
110386-4	AVC1-BH05	1.20	Y	All (NSD)
110386-6	AVC1-BH10	2.70	Y	All (NSD)
110386-9	AVC1-BH11	2.00	Y	All (NSD)
110386-12	AVC1-BH12	2.60	Y	All (NSD)
110386-14	AVC1-BH13	5.50	Y	All (NSD)
110386-16	AVC1-BH14	2.60	Y	All (NSD)
110386-17	BH001	2.40	Y	All (NSD)
110386-18	BH002	1.00	Y	All (NSD)
110386-20	BH003	1.00	Y	All (NSD)
110386-23	BH004	6.70	Y	All (NSD)
110386-28	AVW-BH03	1.00	Y	All (NSD)
110386-31	AVW-BH04	4.65	Y	All (NSD)
110386-32	AVW-BH06	1.20	Y	All (NSD)
110386-34	AVW-BH06	2.95	Y	All (NSD)
110386-36	AVW-BH07	2.00	Y	All (NSD)
110386-39	PWB-BH01	2.70	Y	All (NSD)
110386-41	PWB-BH02	2.40	Y	All (NSD)
110386-43	PWB-BH03	2.30	Y	All (NSD)
110386-45	PWB-BH04	1.70	Y	All (NSD)
110386-48	PWB-BH06	2.20	Y	All (NSD)
110386-52	HP-TP09	1.50	Y	All (NSD)
110386-54	TP014	1.00	Y	All (NSD)
110386-55	TP015	1.00	Y	All (NSD)
110386-57	TP015	3.00	Y	All (NSD)
110386-59	TP016	3.00	Y	All (NSD)
110386-62	TP012	1.00	Y	All (NSD)
110386-65	TP003	2.50	Y	All (NSD)
110386-66	WS008	1.00	Y	All (NSD)
110386-71	WS019	0.50	Y	All (NSD)

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DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
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Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
110386-73	WS019	3.60	Y	All (NSD)

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ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.
For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones, where applicable.

CHIPPENHAM DISTRIBUTOR ROAD

Factual Report

2022-08-30

JER9352

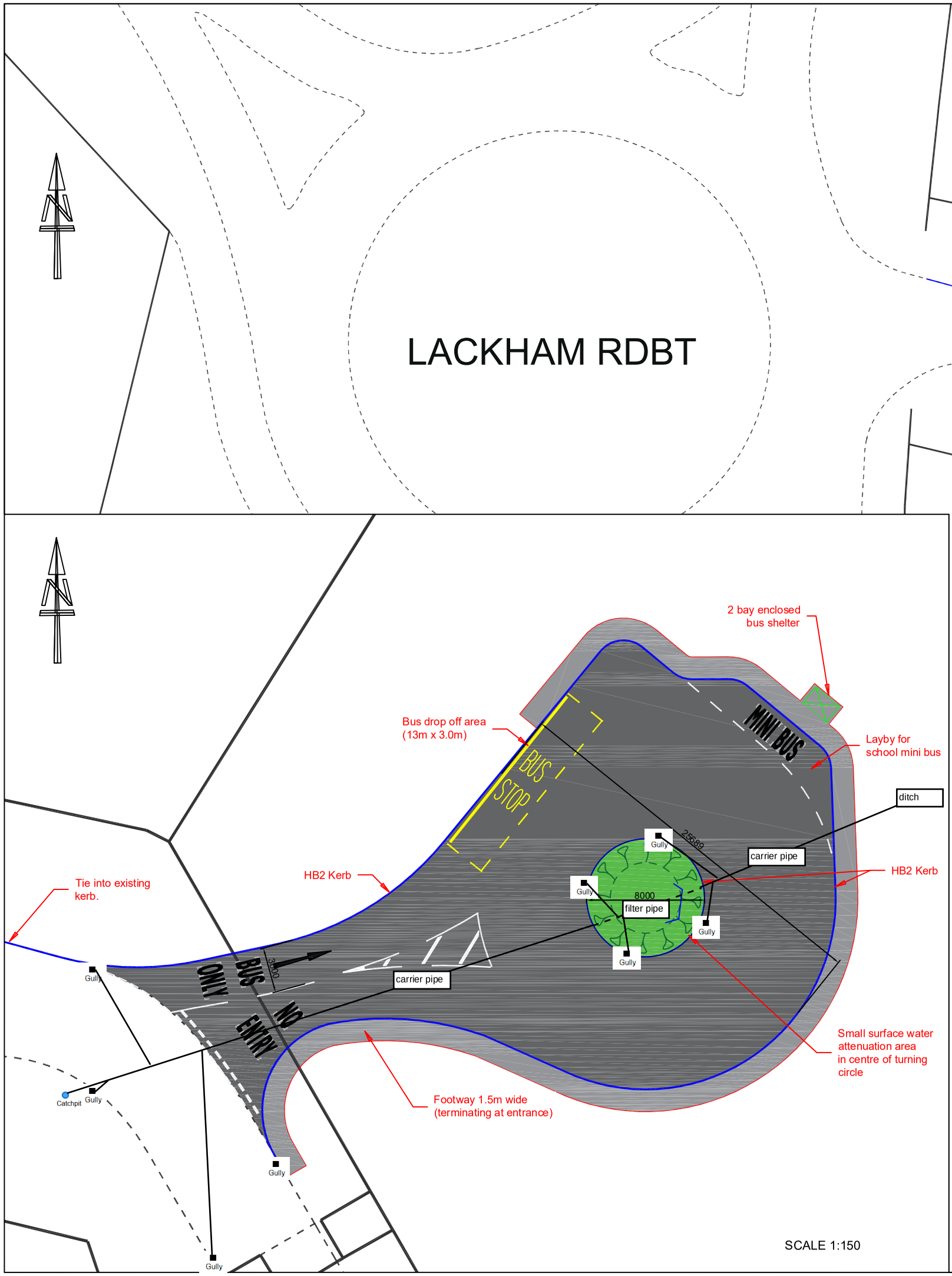
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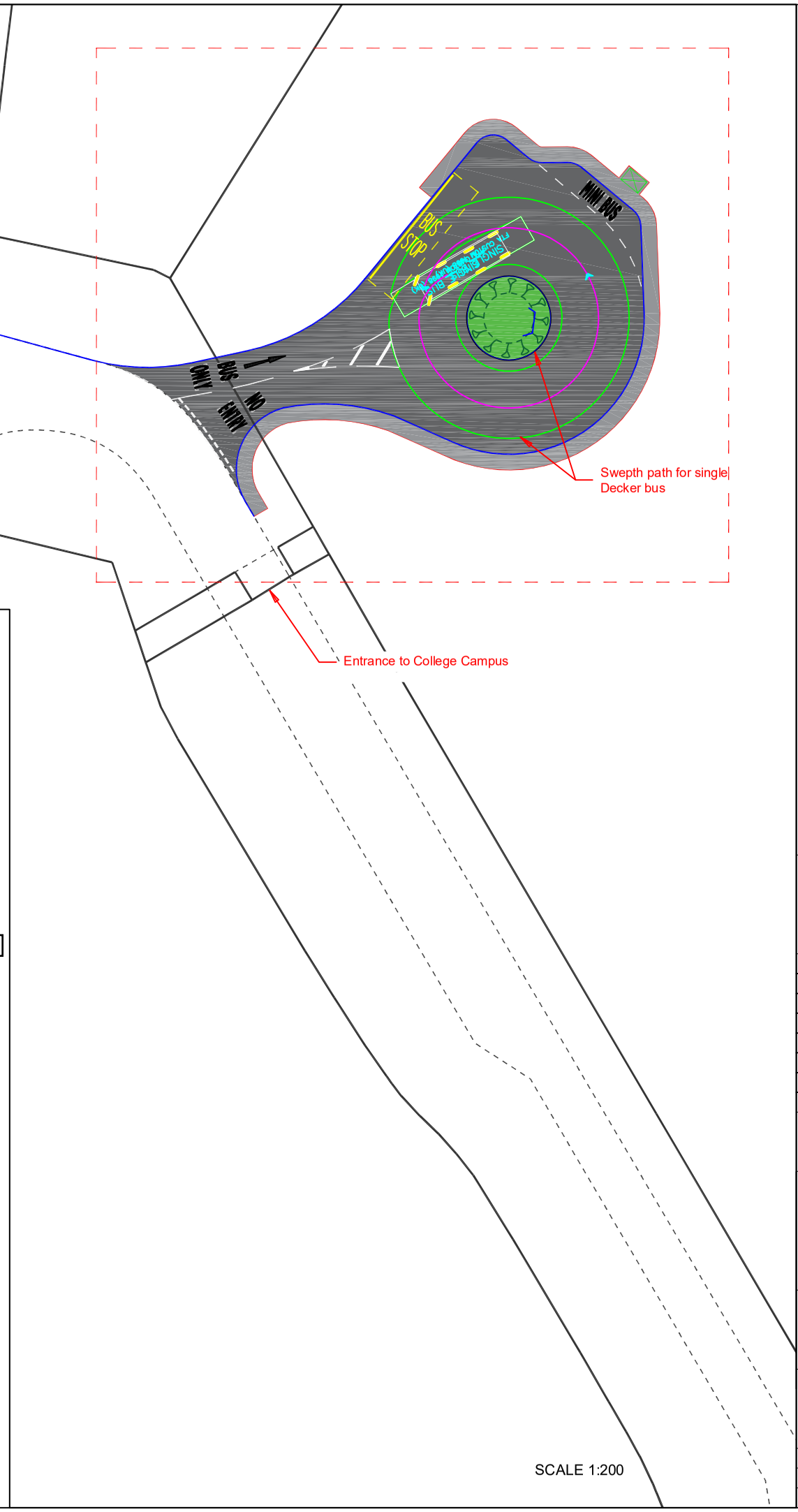
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APPENDIX B: DRAINAGE DESIGN DECISIONS

LACKHAM RDBT





NOTES:

- Pre-cast concrete Kerb Type HB2
- Pre-cast concrete edging Type EF
- Full depth carriageway construction
- Full depth footway construction
- Topsoil / Seeded area
- 'Arun' 2 bay bus RTPI shelter, full end panel.

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REV	DATE	DRAWN	CHECK	APPRV	DESCRIPTION
F					
E					
D					
C					
B					
A					
O	29/02/24	MJR	GTR	GTR	ORIGINAL

DRAWING PURPOSE:

DRAFT

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Traffic & Network Management
County Hall, Bythesea Road, Trowbridge
Wiltshire, BA14 8JD
Tel: 0300 4560100
Website: www.wiltshire.gov.uk

PROJECT:

LACKHAM COLLEGE, CHIPPENHAM
PROPOSED BUS DROP OFF / TURNING PROVISION

DRAWING TITLE:

GENERAL ARRANGEMENT

SCALES:	AS SHOWN	SHEET SIZE:	A1
DRAWING No.	MR/MISC/LACKHAM/D003	REVISION:	0
FILE REF:			

Design Decisions: Greenfield Runoff Rate Estimation

Total Site Area (ha) = 0.09

Results

Method	IH124	
Flow rate 1 year (l/s)	0.01	l/s
Flow rate 2 year (l/s)	0.01	l/s
Flow rate 10 years (l/s)	0.02	l/s
Flow rate 30 years (l/s)	0.03	l/s
Flow rate 100 years (l/s)	0.04	l/s
Flow rate 200 years (l/s)	0.04	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

"The calculated greenfield runoff rate is below 1 l/s; a minimum discharge rate of 1l/s is proposed as the lowest practicable rate, in agreement with standard industry practice."

Design Decisions: Storage Volume Estimate Tool

Total Site Area (ha) = 0.09

Storage design parameters

Storage base shape	Circular
Storage design depth (m)	1
Storage side slope (1 in x)	1 in 3
Storage voids ratio (%)	100% (all voids)
Storage volume design return period (years)	1:30 years

Rainfall and runoff

Rainfall input type	Generic rainfall CSV file
	design_rainfall_grid.csv
Climate change allowance factor	145%

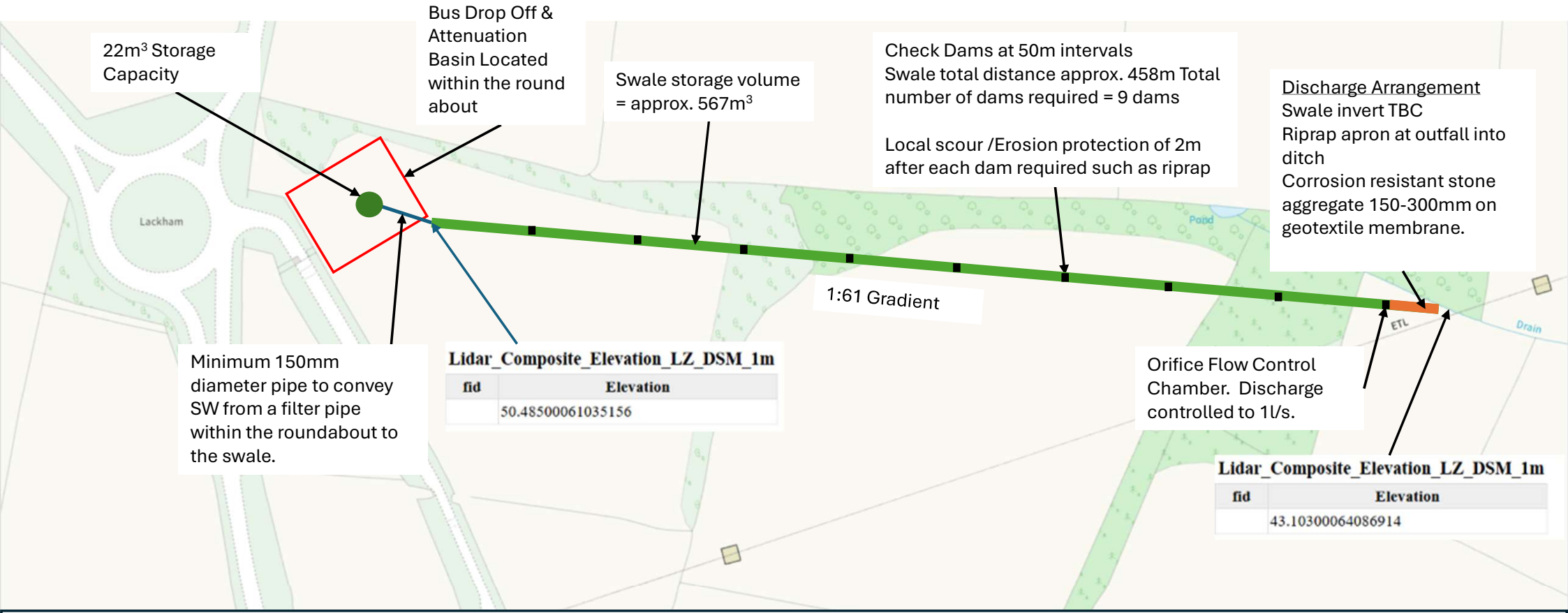
Return Period (years)	Critical Duration (minutes)	Peak Flow Rate (l/s)	Max Depth (m)	Max water volume (m^3)	Max storage volume (m^3)
1	180	0.2	0.57	28	28
2	180	0.2	0.65	34	34
5	180	0.2	0.78	45	45
10	180	0.2	0.87	53	53
30	180	0.2	1.00	67	67
100	180	0.2	1.10	79	79
200	180	0.2	1.17	87	87

Please note runoff estimation and storage volume estimation are subject to uncertainty. Storage volume results are therefore reported to the nearest 1 m^3 value, unless storage volumes are less than 10 m^3, in which case, storage volumes are provided to 1 decimal place.

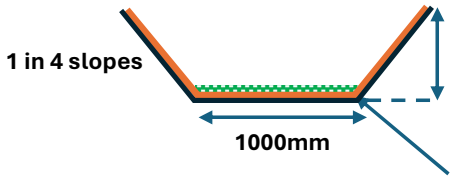
Notes:

- For actual design latest rainfall data will be required. These are the values used for this calculation. This will be part of the information downloaded from FEH website.

Storage volume required to be 80m^3 to allow for freeboard.



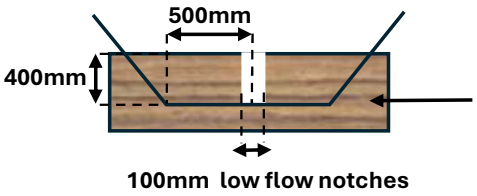
Conveyance Swale Cross section



Total Swale Depth = 600mm
Freeboard = 150mm
Design water depth = 450mm

Pollution hazard level is classed as medium. Swale lining required

Conveyance Swale Cross section with check dam



For check dam Anchoring
Minimum 150mm extension into side slopes (min 300mm)
Minimum 150mm founded into the ground

Design Decisions: Onsite Attenuation Requirements

1. Storage provided within the roundabout green space

Roundabout green area diameter: ≈ 8.0m

Side slopes: 1 in 3

Maximum practical depth: 1.0m

Storage achieved

Volume: Approx. 22m^3

This is effectively the maximum usable surface storage achievable within the roundabout without compromising safety, visibility

2. Remaining storage requirement

Total required attenuation: 80m^3

Provided in roundabout basin: Approx. 22m^3

Remaining volume to be provided: 58m^3

SuDS Element	Storage (Approx.)
Pond Roundabout	22 m^3
Swale	58 m^3
Total	80 m^3

Notes:

1. Having two SuDS features helps with meeting the Pollution Mitigation Matrix requirements. Which is the water treatment required by Pre-App planning comments

Design Decisions: Swale Requirements

Swale will be designed with a trapezoidal cross section

Geometry of the swale cross-section

Base width (b) =1.0m
Side slopes =1m vertical : 4m horizontal
Water depth (d) =0.45m
Length (L) =458m

Top width (T) $=1+2(h\times d)$
$=1+2(4\times 0.45)$
T =4.6m

Cross-sectional Area For a Trapezoid

A $=\frac{(b+T)}{2}\times d$

A $=\frac{(1+4.6)}{2}0.45$

A $=\frac{5.6}{2}\times 0.45 = 2.8\times 0.45$

$=1.26m^2$

Swale Volume (V) $=A\times L$
$=1.26\times 458$
$=577.08m^3$

Swale Gradient

Starting Level = 50.48m AOD
Level at Discharge = 43.10m AOD
Swale Length = 458m

Gradient $= Fall \div Distance$
$= (50.48 - 43.10) \div 458$
$= 0.01611$

Gradient = 1 in 62

Steep swale gradient therefore check dams are proposed to reduce the velocity within the swale.

Design water depth = 0.45m

Check dam height =0.45m

Spacing required $=\frac{\text{Check dam height}}{\text{Longitudinal gradient}}$
$=\frac{0.45}{0.01611}$
=27.93m

Number of check dams $=\frac{577.08}{27.93}$
$= 20.66$

Number of check dams = 20