

Land at Gate Farm, High
Street, Sutton Benger
Flood Risk Assessment &
Drainage Strategy

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Flood Risk Assessment & Drainage Strategy

For

Gleeson Land

14 Nov 2025

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Executive Summary

Client	Gleeson Land
Planning Authority	Wiltshire Council
Lead Local Flood Authority (LLFA)	Wiltshire Council
Local Sewerage Undertaker	Wessex Water
Location	OS GR: E: 393999; N: 178513. Land at Gate Farm, High Street, Sutton Benger Postcode: SN15 4NW
Site area	4.97 ha
Current land use	Greenfield
Development Proposals	Outline planning application (with all matters reserved except means of access, from the B4069) for up to 90 no. (class C3) residential dwellings (including 40% affordable dwellings) including the creation of new vehicular access (from the B4069), pedestrian and cycle paths, parking spaces, public open space, biodiversity enhancement, landscape planting, surface water attenuation, associated infrastructure and other associated works.
Flood Zone (Tidal/Fluvial)	Flood Zone 1
Pluvial Flood Risk	Low – EA mapping shows no significant surface water flow routes affecting the site.
Groundwater Flood Risk	Groundwater flooding is likely to occur, particularly in close proximity to the watercourse to the north during winter months or after heavy prolonged rainfall events.
Infrastructure Flood Risk	Low – Site is outside all reservoir flood extents.
Existing Surface Water Drainage Regime	Surface water runoff to the watercourse to the north and infiltration occurring across the site.
Existing Foul Water Drainage Regime	225 mm public foul sewer crossing the site, operated by Wessex Water.

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Greenfield Runoff Rate	Qbar = 1.6 l/s/ha
Climate Change Allowance	40%
Proposed Surface Water Strategy	Surface water runoff from the proposed development will be managed by either collection within permeable paving or direct discharge to the gravity drainage network. Runoff will then be conveyed through a series attenuation basins and swales prior to a controlled discharge into the main river.
Proposed Foul Water Strategy	Gravity foul network connecting to the existing 225 mm Wessex Water sewer on-site.

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1 Introduction

1.1 Terms of Reference

- 1.1.1 Rodgers Leask Ltd has been commissioned by Gleeson Land to prepare a Flood Risk Assessment and Drainage Strategy for the proposed development at Land at Gate Farm, High Street, Sutton Benger.
- 1.1.2 This report has been commissioned in support of an outline planning application to Wiltshire Council. Outline planning application (with all matters reserved except means of access, from the B4069) for up to 90 no. (class C3) residential dwellings (including 40% affordable dwellings) including the creation of new vehicular access (from the B4069), pedestrian and cycle paths, parking spaces, public open space, biodiversity enhancement, landscape planting, surface water attenuation, associated infrastructure and other associated works. A copy of the proposed site layout can be found in **Appendix A**.
- 1.1.3 Wiltshire Council are the Lead Local Flood Authority (LLFA), responsible for local flood risk management, including surface water, groundwater, and ordinary watercourses within the region. Wiltshire Council have published a Strategic Flood Risk Assessment (SFRA) which includes Level 1 and Level 2 assessments, as well as supplementary guidance for developers. These documents, along with local planning policy and drainage guidance, have been reviewed as part of the preparation of this report.
- 1.1.4 The Environment Agency website has been consulted regarding the Flood Zone and the risk of flooding of the site.
- 1.1.5 This report has been produced on behalf of the client, and no responsibility is accepted to any third party for all or any part. This report should not be relied upon or transferred to any other parties without the express written authorisation of Rodgers Leask Ltd.

1.2 Legislation and Guidance

- 1.2.1 This report has been prepared in accordance with the Department for Communities and Local Government (DCLG) National Planning Policy Guidance, and the publication 'National Planning Policy Framework' published 27th March 2012, updated most recently on 17th August 2026.
- 1.2.2 Planning Practice Guidance was published on 29th November 2016 (updated on 24th June 2021). It contains guidance on Flood Risk and Coastal Change.

1.2.3 The latest version of Planning Policy Statement 25 was released on the 29th March 2010 and is now superseded by the NPPF.

1.2.4 NPPF can be downloaded free of charge from the internet at the following link:

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf>

1.3 Approach to the Assessment

1.3.1 This assessment seeks to consider the risks of flooding both to the site and to the wider area as a consequence of the development proposal. This also requires an assessment of the development constraints of the site and the opportunities offered by the existing infrastructure and natural environment in order to propose a strategy by which the site can be developed both economically and sustainably. This assessment draws upon our investigations regarding the local area.

1.4 Documents Reviewed

- Topographical Survey drawing
- Soilsmap Soil Viewer website
- British Geological Survey website
- Environment Agency website
- Wiltshire Council Level 1 Strategic Flood Risk Assessment
- Wiltshire Council Level 2 Strategic Flood Risk Assessment
- Wiltshire Council Drainage Guidance
- Wiltshire Local Flood Risk Management Strategy
- Wiltshire Council Groundwater Management Strategy 2016

2 Background Information

2.1 Site Location, Description and Details

2.1.1 Figure 2.1 below indicates the location of the site.



Figure 2.1 Land at Gate Farm, Sutton Benger – Site Location Plan

- 2.1.2 The site, as outlined above in Figure 2.1, has an overall area of approximately 4.97ha and is located immediately north of the B4069 approximately 500m to the west of the centre of Sutton Benger. Approximately centred at OS GR:E393999; N: 178513, with the nearest postcode of SN15 4NW.
- 2.1.3 The site is currently greenfield.
- 2.1.4 A topographical survey of the site area has been undertaken and is included in **Appendix B**.
- 2.1.5 The site is bordered by a main river to the northern boundary. The topography of the site generally slopes from south to north, with the highest point located in the southwestern corner at approximately 64.50 AOD, and the lowest point near the northeastern boundary adjacent to the watercourse, at around 57.75 AOD. This gradient directs surface water naturally toward the northern boundary.

2.2 Ground Conditions

- 2.2.1 A review of the Soilscales soil viewer indicates that the site comprises freely draining lime-rich loamy soils. These soils are typically well-drained and loamy in texture, with good permeability and a natural outfall to underlying chalk or limestone groundwater.
- 2.2.2 A review of the British Geological Survey's Geology Viewer map indicates that the site is underlain by bedrock geology of the Kellaways Sand Member, comprising pale grey silicate sandstone and siltstone with interbedded sandy and silty mudstone. This is a sedimentary bedrock of Callovian Age, typically weakly cemented but locally forming harder dogger bands. In the northeastern extent of the site, this bedrock is overlain by superficial River Terrace Deposits (Type 1), consisting of sand and gravel with occasional lenses of silt, clay, or peat. These geological conditions suggest a potentially moderate to high permeability profile depending on local cementation and saturation.
- 2.2.3 A Ground Investigation report has been prepared by Rodgers Leask (March 2026) can be found in **Appendix G**.
- 2.2.4 The ground conditions encountered during the ground investigation are as follows:
- Topsoil – comprising grass over brown slightly sandy slightly gravelly clay – encountered in all locations to a maximum depth of 0.30m bgl;
 - Kellaways sand member – typically comprising very soft to very stiff light brown sandy clay; or medium dense sandy gravel; or medium dense gravelly sand; or firm reddish brown slightly sandy slightly gravelly clay – encountered in all locations to a maximum depth of 4.10m bgl, except at SA01, TP03, TP013;
 - Alluvium – typically comprising firm to stiff grey mottled orangish brown clay – encountered only in WS01 to a maximum depth of 5.00m bgl.
 - River Terrace Deposits – typically comprising firm light brown sandy gravelly clay; or loose to medium dense light brown slightly clayey very sandy gravel; or medium dense light brown silty sandy gravel – encountered in SA01, TP03, TP13, WS02, and WS05 to a maximum depth of 2.85m bgl.
 - Made ground was not encountered during the intrusive works.

- 2.2.5 Infiltration testing was undertaken on the site in October 2025, and an infiltration rate of 1.47×10^{-5} m/s in the north-eastern corner of the site within the River Terrace Deposits. Groundwater seepage was not encountered to a depth of 1m bgl.
- 2.2.6 Groundwater level monitoring was undertaken throughout the winter months of 2025/2026 and recorded shallow groundwater. Refer to Table 3.4 in the Ground Investigation report for the Groundwater monitoring results.

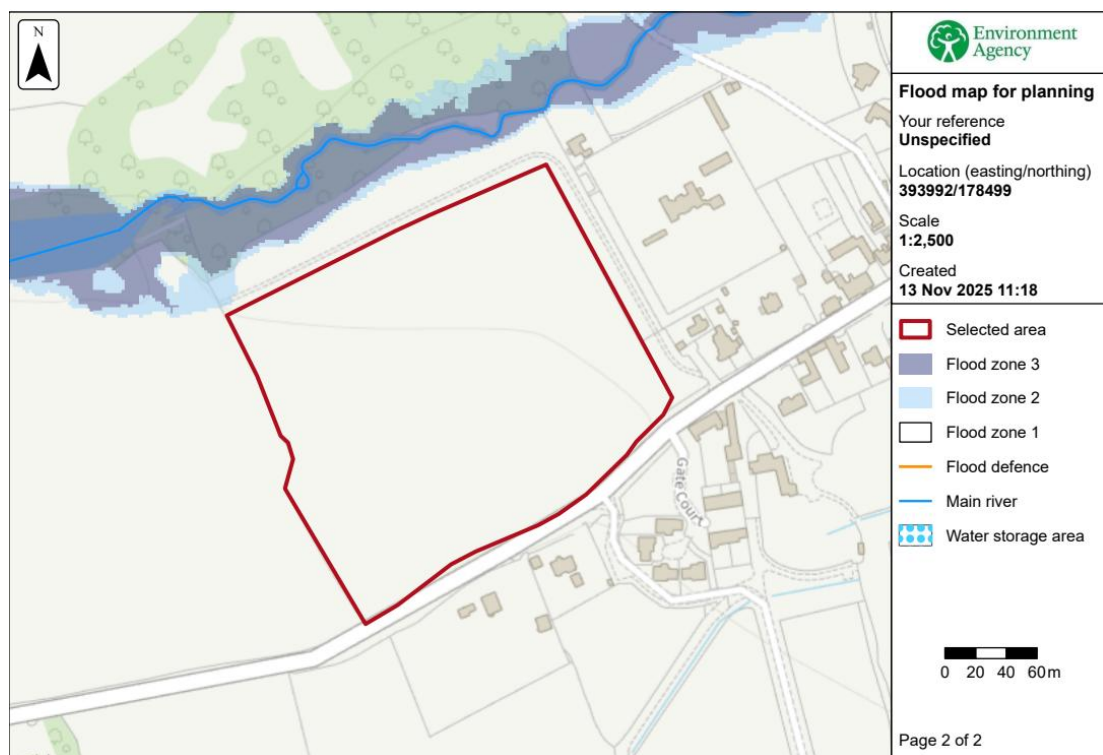
2.3 Drainage Catchment Context

- 2.3.1 The site is located within the wider catchment of the River Avon, with greenfield runoff naturally draining northwards toward the adjacent main river along the northern boundary. Local infiltration also occurs across the site.
- 2.3.2 Under existing conditions, the main river acts as the downstream receptor for any surface-water runoff that does not infiltrate naturally within the site.
- 2.3.3 The Wessex Water sewer records are included in **Appendix D**. The records indicate the presence of a 225mm diameter public foul sewer running across the central portion of the site.
- 2.3.4 The existing greenfield site drains toward the watercourse with localised infiltration; therefore the proposed development site will discharge to the river to mimic the existing drainage regime.

3 Assessment of Flood Risk

3.1 Flood Risk from Fluvial Sources

- 3.1.1 The application site lies wholly within Flood Zone 1, indicating a low probability of fluvial flooding. Flood Zones 2 and 3 are restricted to land immediately north of the site boundary and are associated with the adjacent main river. No part of the proposed built development encroaches into these higher-risk areas, ensuring that residential and other vulnerable uses remain entirely within Flood Zone 1. A snapshot of the Environment Agency Flood Map for Planning is provided in Figure 3.1.



- 3.1.2 As such the site is not considered to be at risk of flooding from fluvial sources. Full product 4 data can be found in **Appendix I**.

3.2 Development Description and Planning Context

- 3.2.1 Outline planning application (with all matters reserved except means of access, from the B4069) for up to 90 no. (class C3) residential dwellings (including 40% affordable dwellings) including the creation of new vehicular access (from the B4069), pedestrian and cycle paths, parking spaces, public open space, biodiversity enhancement, landscape planting,

surface water attenuation, associated infrastructure and other associated works. A proposed site layout is included in **Appendix A**.

- 3.2.2 The design life of the proposed development is considered to be 100 years due to its residential nature.
- 3.2.3 In accordance with the NPPF Table 2 Flood Risk Vulnerability Classification (shown below in Figure 3.2), the vulnerability of the development is deemed 'More Vulnerable'.

More vulnerable

- Hospitals
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non-residential uses for health services, nurseries and educational establishments.
- Landfill* and sites used for waste management facilities for hazardous waste.
- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Figure 3.2 Extract from NPPF Table 2 "Flood Risk Vulnerability Classification"

- 3.2.4 Table 3 of the NPPF Planning Practice Guidance (extract below in Figure 3.3) indicates the compatibility of vulnerability classes and flood zones. All forms of development are appropriate in Flood Zone 1 and therefore the proposed development is considered acceptable.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Figure 3.3 Extract of Table 3 of the NPPF Planning Practice Guidance

3.3 Flood Risk from Tidal Sources

- 3.3.1 At the lowest point the site has an elevation more than 57.75m above mean sea level. The site is therefore not considered to be at risk of flooding from tidal sources.

3.4 Flood Risk from Pluvial Sources (Surface Water)

- 3.4.1 A review of the Environment Agency's mapping indicates that the site is predominantly at low risk of surface water flooding in the 1 in 1000-year event. Mapping of the extent of surface water flood risk is shown in Figure 3.4.

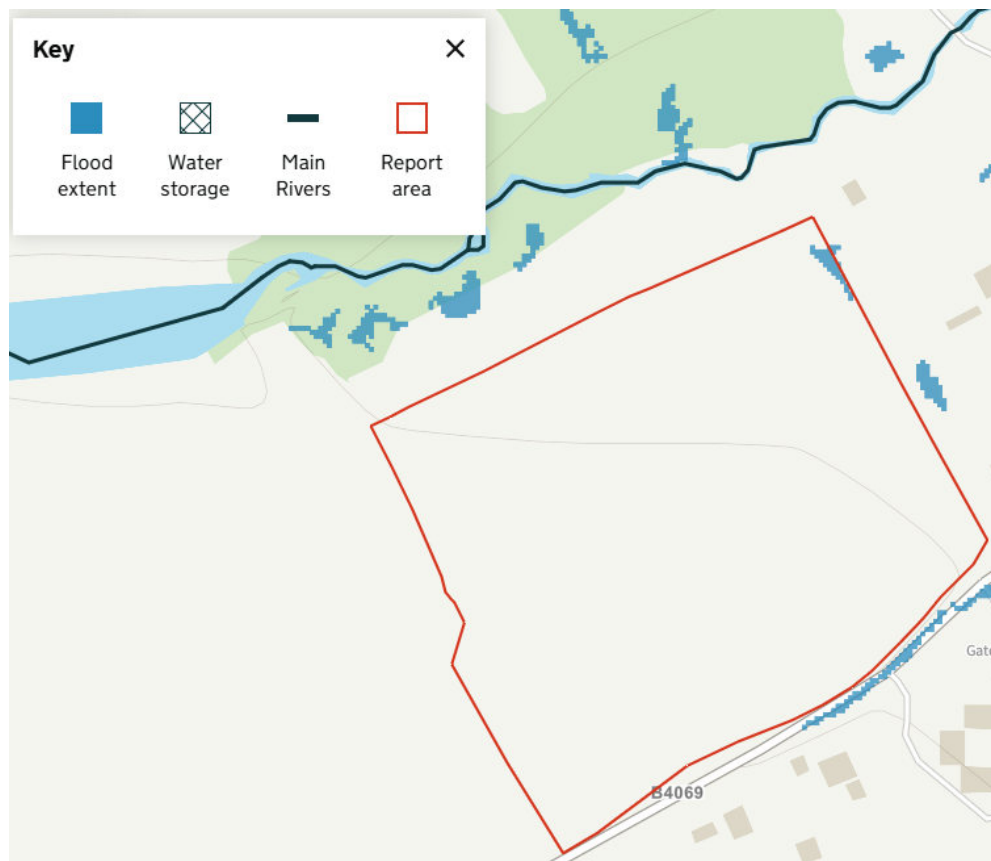


Figure 3.4 EA Surface Water Flood Risk Map

- 3.4.2 The Environment Agency surface water flood mapping shows that the site is predominantly at low risk of surface water flooding.
- 3.4.3 Mapped surface water ponding and flow paths are limited to off-site areas along the adjacent main river corridor and isolated low points within the Sutton Benger settlement, with no overland flow routes directed towards the site or its boundaries.
- 3.4.4 A small, isolated area of minor surface-water flood risk is shown on EA mapping at the southern site boundary within the B4069. This represents shallow, low-hazard ponding associated with the existing road corridor rather than overland flow routes towards the site. A further very small patch of shallow surface-water ponding is also shown within the north-eastern corner of the site boundary; this lies within open land and does not coincide with any proposed built development or internal access routes.
- 3.4.5 A proportionate review confirms that the proposed site layout, access design, levels strategy, and drainage proposals will ensure that occupiers and users remain safe from both current and future surface-water flood

risk for the lifetime of the development. The minor mapped areas of surface water risk do not affect the developable area, do not pose a hazard to safe access/egress, and are mitigated through the proposed positive drainage and exceedance routing, without increasing flood risk elsewhere. On this basis, no further mitigation or sequential testing is required in relation to these isolated features.

- 3.4.6 Accordingly, the residual risk of surface water flooding to the site is low, and no dedicated surface-water flood mitigation is required beyond the implementation of an appropriate drainage strategy.

3.5 Flood Risk from Ground Water

- 3.5.1 The Ground Investigation report prepared by Rodgers Leask (March 2026) includes groundwater level monitoring over the winter months of 2025/2026, this recorded shallow groundwater. Results showed groundwater levels as high as surface level in some of the monitoring locations.
- 3.5.2 Therefore, it is likely that groundwater flooding could occur, particularly in close proximity to the watercourse to the north during winter months or after heavy prolonged rainfall events. Refer to **Section 8.3** for mitigation and management of the residual risks from groundwater flooding.

3.6 Flood Risk from Infrastructure

- 3.6.1 The Environment Agency's online flood mapping shows that the site is outside of the area at risk of flooding from reservoirs. An extract of the mapping is shown in Figure 3.5 below.



Figure 3.5 EA Reservoir Flood Risk Map

- 3.6.2 Based on the above, the site is considered to be at low risk of flooding from the failure of infrastructure.

3.7 Strategic Flood Risk Assessment & Local Authority Documentation

- 3.7.1 The Wiltshire Council Local Flood Risk Management Strategy has been reviewed for any information to the site.
- 3.7.2 The Wiltshire Council Level 1 and 2 Strategic Flood Risk Assessment documents have also been reviewed.
- 3.7.3 Wiltshire Council SuDS and drainage guidance has been consulted to ensure the development complies with local requirements.

3.8 Sequential and Exception Test Requirements

- 3.8.1 Section F5: The sequential test Paragraph 1 of the NPPF states “The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Where the test applies, development proposals should not be located in areas at risk of flooding where alternative sites, appropriate for the development, are reasonably available in areas with a lower risk of flooding. The area to which the test is applied should not be greater than the anticipated catchment of the development in terms of its likely occupiers or users.”

-
- 3.8.2 Paragraph 2 states “The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, other than for:
- a. Sites allocated in the development plan which were subject to the sequential test during plan preparation;
 - b. Sites where a site-specific flood risk assessment demonstrates clearly that:
 - i. No built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk); or
 - ii. Where the site would be at risk of surface water flooding only, the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development without increasing flood risk elsewhere in accordance with policy F7.
 - c. For the following types of development:
 - i. Householder development;
 - ii. Small non-residential extensions (with a footprint of less than 250m²); and
 - iii. Changes of use, other than changes of use to a caravan, camping or chalet site, or to a mobile home or park home site.”
- 3.8.3 Paragraph 3 states “The strategic flood risk assessment covering the area of the proposed development and the Flood Map for Planning should provide the evidential basis for applying the sequential test.”
- 3.8.4 The PPG sets out the principles of the Sequential and Exception Tests and what is required to pass them when proposing new development in an area at risk of flooding. Paragraph 027 of the PPG states that “In applying paragraph 175 a proportionate approach should be taken. Where a site specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied.” The Sequential Test aims to promote development in areas of

low flood risk. The Exception Test is triggered when development cannot be located within an area of suitably low risk flood risk.

- 3.8.5 The Exception Test requires a demonstration that flood risk to people and property can be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available. Essentially, the Exception Test requires the proposed development to show that it will provide wider sustainability benefits to the community that outweigh flood risk, and that it will remain safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.
- 3.8.6 As such, section 3.8 in this report provides evidence that a sequential approach has been taken to the development site itself.
- 3.8.7 An extract of PPG Table 2 is provided in Figure 3.6 which identifies that an Exception Test is not required for more vulnerable development located within Flood Zone 1.

	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b	Exception Test required*	X	X	X	✓*

**Figure 3.6 Extract of Flood Risk Vulnerability and Flood Zone
'Incompatibility' (Flood Risk & Coastal Change PPG Table 2)**

- 3.8.8 Whilst a small, isolated area of surface water risk is shown, this does not affect the developable area and is fully mitigated through the following measures
- All vulnerable development and internal access routes are located entirely within Flood Zone 1 and outside any mapped surface water flow paths or ponding areas.
 - Finished Floor Levels will be raised a minimum of 150mm above surrounding ground levels to provide resilience against extreme rainfall events.

- A drainage strategy is proposed, with runoff managed through an permeable paving, swales and attenuation basins designed to accommodate up to and including the 1 in 100-year +40% climate change event, ensuring no increase in flood risk elsewhere.
- Exceedance flows will be directed away from buildings and toward the attenuation basin and adjacent green spaces, ensuring that any overland flow routing is safely managed within landscaped areas.

3.8.9 It is therefore considered that a sequential approach has been applied to the proposed development site and neither a formal Sequential Test, nor Exception Test, is required.

4 Surface Water Drainage Strategy

4.1 Hierarchy of drainage

4.1.1 In accordance with National Planning Policy Guidance, surface water runoff should be discharged from sites as high up the following hierarchy as practically possible:

1. Discharge into the ground
2. Discharge to a watercourse
3. Discharge to a surface water sewer
4. Discharge to a combined water sewer

4.1.2 Infiltration testing was undertaken in the north-east, in the approximate location of the proposed basin and recorded an infiltration rate of 1.47×10^{-5} m/s, within the River Terrace Deposits. However, groundwater level monitoring has been undertaken over the winter months of 2025/2026, and shallow groundwater levels were recorded, with the highest being to ground level. Therefore, it is not possible to achieve 1m of freeboard below the base of an infiltration basin (assumed to be 1m below existing ground levels).

4.1.3 Therefore, it is not feasible to use infiltration as a method of surface water discharge.

4.1.4 Discharge to the EA main river to the north is the next feasible option of surface water discharge.

- 4.1.5 In accordance with the SuDS hierarchy, surface water runoff from the proposed development will be managed by either collection within permeable paving or direct discharge to the gravity drainage network. Runoff will then be conveyed through a series of attenuation basins and swales prior to a controlled discharge to the adjacent main river is proposed.

4.2 Existing Runoff Rate

The site is currently greenfield. Runoff rates have been calculated using the Greenfield Runoff Tool found on the UK SuDS website. The Greenfield runoff tool calculations can be referenced at **Appendix E**.

- 4.2.1 The Greenfield runoff (FEH statistical 2025) rates for 1 hectare are as follows:

Storm Event (yr)	QBar	1	30	100
Discharge l/s/ha	1.6	1.2	3.1	3.9

4.3 Design considerations

- 4.3.1 The proposed surface water drainage network has been designed to safely convey runoff from the proposed development. This will be managed by either collection within permeable paving or direct discharge to the gravity drainage network. Runoff will then be conveyed through a series of online attenuation basins and swales before discharging in the north-eastern corner of the site. A controlled discharge from attenuation basin 2 to the adjacent main river is proposed. The pipe network accommodates the 1 in 2-year rainfall event without surcharging.
- 4.3.2 The system will accommodate the 1 in 30-year rainfall event without any surface water flooding of external areas.
- 4.3.3 For the 1 in 100-year + 40% climate-change event, runoff is stored and conveyed through basins and swales before discharging to the adjacent watercourse to the north via a flow control.
- 4.3.4 Exceedance flows above the design event will be routed through landscaped areas and road corridors toward low-risk areas within the site boundary, ensuring that no exceedance flow is directed off-site. Overland exceedance flow routes are shown on the drainage strategy drawing in **Appendix C**.
- 4.3.5 The proposed impermeable area for the development has been calculated as 2.07ha

- 4.3.6 A 100-year design life has been adopted, consistent with the residential nature of the development.
- 4.3.7 A 10% allowance for urban creep has been applied to private impermeable areas to maintain long-term network resilience and accommodate potential future hard surfacing expansion.
- 4.3.8 Drainage simulations have been modelled using FEH statistical 2025 rainfall data with summer and winter CV values of 1.0.

4.4 Description of Proposed SuDS

- 4.4.1 The proposed surface-water drainage strategy has been developed in accordance with the SuDS hierarchy, the National Planning Policy Framework (NPPF), National standard for sustainable drainage systems (SuDS) and Wiltshire Council LLFA Guidance. Discharge to a watercourse has been prioritised as the primary means of surface-water disposal.
- 4.4.2 Sustainable Urban Drainage Systems (SuDS) are a range of techniques that aim to mimic the way rainfall drains in natural systems, reducing the hydraulic and hydrological impact of development on the local area and downstream catchments. At this outline stage, the following SuDS source-control measures have been considered and there is potential for them to be incorporated into the drainage strategy where practicable.
 - Swales – will be provided where sufficient space is available, these will be utilised for conveyance, treatment and storage.
 - Permeable paving – provided on all large, shared drives areas.
 - Bioretention planters – will be provided as on-plot SuDS source control within front gardens if required.
 - Raingardens – will be provided as on-plot SuDS source control within front gardens and the LEAP area if required.
- 4.4.3 The above SuDS source-control measures such as permeable paving, rain gardens and bioretention planters remain under consideration and will be developed further at detailed design stage, subject to buildability and land-take constraints.
- 4.4.4 Surface water runoff from roofs, roads and paved areas will be collected within permeable paving or directly discharge to the gravity drainage network. Runoff will then be conveyed through a series of basins and swales. A controlled discharge from attenuation basin 2 will discharge to the adjacent main river.

- 4.4.5 A surface water drainage area plan can be found in **Appendix H**.
- 4.4.6 The attenuation basins form the primary SuDS features for the development, providing a significant amount of storage. The basins have been sized to accommodate runoff from storm events up to and including the 1 in 100-year + 40% climate-change allowance. Flows from the southern half of the development will be restricted from basin 1 at a controlled discharge rate of 1.5 l/s. Final discharge into the main river will be restricted to 2.32 l/s.
- 4.4.7 The 2.32 l/s discharge rate is calculated by multiplying the existing Qbar rate and the proposed impermeable area then providing a 30% betterment.
- 4.4.8 A copy of the proposed drainage strategy drawing, showing the surface water sewer layout, indicative SuDS source control features, attenuation basin, and outfall location, is included in **Appendix C**.
- 4.4.9 At this stage the strategy remains indicative, with final SuDS components to be confirmed during detailed design in agreement with Wiltshire Council.
- 4.4.10 Maintenance access to the basin, associated pipework, and SuDS components will be provided in accordance with CIRIA C753 and DCG requirements. A site-specific maintenance schedule will accompany the detailed design stage to ensure long-term performance.

4.5 Water Quantity

- 4.5.1 The proposed surface water system has been designed to incorporate sufficient storage within the attenuation basins to accommodate rainfall events up to and including the 1 in 100 year plus 40% climate change event.
- 4.5.2 Surface water network modelling has been undertaken to determine the storage volume within the basin and to assess the performance of the system. A full set of the modelling results can be found in **Appendix F**.
- 4.5.3 The modelling has been based on impermeable areas measured from the site proposal, including a 10% urban-creep allowance.
- 4.5.4 A summary table of the required storage is provided in Table 1 below.

SuDS Feature	Imp Area (ha) + UC	Attenuation Volume (m ³)
Attenuation Basin 1	0.8	669

Attenuation Basin 2	1.27	1561
Total	2.07	2230

Table 1 – Volume Summary

4.5.5 Attenuation basin 1 has been designed with 1 in 3 side slopes and a maximum design water depth of 1.22m. A minimum 0.3m of freeboard above the maximum water level has been allowed for.

4.5.6 Attenuation basin 2 has been designed with 1 in 3 side slopes and a maximum design water depth of 1.52m. A minimum 0.3m of freeboard above the maximum water level has been allowed for.

4.5.7 In addition to storage to accommodate rainfall events up to and including the 1 in 100 year plus 40% climate change event, storage to retain the first 5mm of rainfall for the majority of rainfall events is also required to comply with the national standards for sustainable drainage systems standard 2: management of everyday rainfall (interception).

4.5.8 A summary table of the required storage is provided in Table 2 below.

SuDS Feature	Imp Area (ha) + UC	Runoff volume for the first 5mm of rainfall (m³)	Attenuation Volume provided (m³)
Permeable Paving	0.42	21.0 (self contained)	21.0 (self contained)
Swales and basins	1.65	82.5	83

Table 2 – First 5mm of Rainfall Volume Summary

4.5.9 The permeable paving is capable of intercepting runoff from its associated impermeable area of 0.42 ha. This equates to a required storage volume of 21m³, which can be fully accommodated within the permeable paving system. Consequently, the impermeable area draining to the permeable paving can be deducted from the overall site impermeable area.

4.5.10 The remaining impermeable area of 1.65 ha is intercepted by swales and basins, which require a combined storage volume of 82.5 m³ to retain the first 5 mm of rainfall for the majority of rainfall events. This storage requirement is provided within the swales and basins.

4.5.11 The proposed source control measures are therefore considered to provide sufficient storage capacity to retain the first 5 mm of rainfall on-site for the majority of rainfall events; however, this assessment is subject to detailed design, and the final arrangement, sizing, and performance of

the measures will be developed and confirmed at the detailed design stage.

4.6 Water Quality

- 4.6.1 A water-quality assessment has been undertaken to ensure that runoff from the proposed development receives appropriate treatment prior to discharge, in accordance with CIRIA C753 and the National Standards for sustainable drainage systems (SuDS) - Standard 4 (Water Quality).
- 4.6.2 The three step simple index approach, as outlined in 'The SuDS Manual' CIRIA C753 Box 26.2 has been used within this report to assess the pollution hazard and the treatment provided by the proposed SuDS components.
- 4.6.3 Step 1 requires pollution hazard indices to be assigned for the proposed land use as defined in Table 26.2 of Ciria C753. The most onerous proposed land use for the development site has been assessed to be '*individual driveways, residential car parks, low traffic roads and non-residential car parks with infrequent change (schools/offices)*'. The commensurate pollution hazard indices are set out in Table 3.

Land Use	Pollution Hazard Level	Total Suspended Solids	Metals	Hydro-carbons
Residential highways and parking	Low	0.5	0.4	0.4

Table 3 – Pollution hazard indices

- 4.6.4 Step 2 requires an assessment of the SuDS pollution mitigation index which is compared with the pollution hazard index from step 1. Where flows pass through more than one feature the mitigation index of subsequent SuDS features is halved. These have been set out in Table 4.

SuDS Feature or treatment train	Total Suspended Solids	Metals	Hydro-carbons
Attenuation Basin	0.4	0.4	0.4
Swale	0.25	0.3	0.3
Permeable paving	0.35	0.3	0.35
<i>Greater than or equal to hazard index?</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>

Table 4 – Pollution mitigation indices

- 4.6.5 As all treatment combinations provide mitigation indices greater than the hazard indices the proposed surface water drainage strategy is considered to provide sufficient water quality treatment for the site prior to disposal off site.

4.7 Amenity Value

- 4.7.1 In line with the guidance document 'Water.People.Places' and best practice, SuDS features should provide amenity value to local residents by offering multi-functionality, visual character, accessibility and legibility/engagement opportunities.
- 4.7.2 The SuDS features have been carefully designed to be integrated into the open space area of the site. Planting should be used to enhance the character of the attenuation basins, swales and raingardens if required, as well as support biodiversity and support water quality treatment.
- 4.7.3 The attenuation basin will be adjacent to the watercourse and overlooked by a significant number of dwellings. Due to the clear visibility, there will be inherent safety and security benefits.
- 4.7.4 For educational purposes, information boards can be located at access points to the attenuation basin which explain what they should look like in typical conditions as well as in extreme wet weather conditions. They can also display safety advice and information about wildlife.

4.8 Biodiversity Opportunities

- 4.8.1 The proposed attenuation basins and swales will offer significant opportunities to support biodiversity through habitat provision, connectivity and resilience.
- 4.8.2 The attenuation basins and swales will provide water quality treatment, as outlined in Section 4.6, which will reduce contaminants and could help promote habitat creation.
- 4.8.3 The attenuation basins and swales will be planted with suitable species of shrubs and wildflower. Species should be water and drought tolerant.

4.9 Exceedance Flows

- 4.9.1 The effects of flooding caused by extreme rainfall events beyond those that have been reasonably allowed for, or caused by a blockage, can be

mitigated by utilising roads and public open space to retain and direct surface water away from dwellings.

- 4.9.2 The drainage strategy plan indicates the overland exceedance flow routes in **Appendix C**.

5 Compliance with Standards

- 5.1.1 The proposed Flood Risk Assessment and Drainage Strategy has been developed in full accordance with the National Standards for Sustainable Drainage Systems (SuDS) (2025), relevant local authority guidance, the SuDS hierarchy, and best practice set out in CIRIA C753.
- 5.1.2 The strategy adopts a SuDS-led, multi-stage treatment train comprising permeable paving, swales and attenuation basins, delivering effective management of surface water runoff in terms of quantity, quality, amenity, biodiversity and long-term resilience.
- 5.1.3 Compliance with the individual SuDS standards is summarised as follows:
- 5.1.4 Standard 1: Runoff destinations - Surface water runoff is discharged following the SuDS hierarchy. Infiltration was investigated and discounted due to shallow groundwater levels. The next preferred option, controlled discharge to the adjacent main river, has been adopted. This replicates the existing greenfield drainage regime without increasing flood risk elsewhere. Refer to **Section 4.1** of this report for further details.
- 5.1.5 Standard 2: Management of everyday rainfall (interception) - Everyday rainfall is managed at source through permeable paving and upstream SuDS features (swales), providing interception, attenuation and initial treatment prior to conveyance. This reduces runoff volumes, flow rates and water treatment for frequent rainfall events. Refer to the drainage strategy drawing in **Appendix C** for further details.
- 5.1.6 Standard 3: Management of extreme rainfall and flooding - The drainage system has been designed to safely manage rainfall events up to and including the 1 in 100 year plus 40% climate change allowance. Exceedance routing is incorporated to direct flows away from buildings and towards landscaped areas and the attenuation basin, ensuring safe flood conveyance without off-site impacts. Refer to the drainage strategy drawing in **Appendix C** for the overland exceedance flow routes.
- 5.1.7 Standard 4: Water quality - Water quality has been assessed using the CIRIA C753 Simple Index Approach. The proposed SuDS treatment train (permeable paving, swales and attenuation basins) provides sufficient mitigation for land use of 'Residential highways and parking' for suspended solids, metals and hydrocarbons prior to discharge, achieving compliance with water-quality objectives. Refer to **Section 4.6** of this report for further details.

- 5.1.8 Standard 5: Amenity - SuDS features have been integrated into public open space and landscaped areas, providing visual amenity, passive recreation benefits and opportunities for education and engagement, whilst maintaining appropriate levels of public safety. Refer to **Section 4.7** of this report for further details.
- 5.1.9 Standard 6: Biodiversity - The swales and attenuation basin provide opportunities for habitat creation and ecological enhancement through appropriate planting and connectivity with the adjacent watercourse corridor, supporting biodiversity and contributing to wider environmental objectives. Refer to **Section 4.8** of this report for further details.
- 5.1.10 Standard 7: Design for construction, operation, maintenance and structural integrity - The drainage infrastructure has been designed to ensure long-term functionality and resilience. Maintenance access is provided to all SuDS components, and inspection and maintenance regimes are set out in accordance with CIRIA C753. The system is suitable for adoption and long-term management, ensuring performance throughout the lifetime of the development. Refer to **Section 7** of this report for further details.
- 5.1.11 Overall, the proposed drainage strategy delivers a robust, sustainable and policy-compliant solution that effectively manages flood risk, protects downstream receptors, and delivers multi-functional benefits in accordance with the National SuDS Standards (2025).

6 Foul Water Drainage Strategy

- 6.1.1 The Wessex Water Sewer records for the site locality can be found in **Appendix D**.
- 6.1.2 Foul water from the proposed development will discharge to the existing 225mm diameter public foul sewer that crosses the site, as confirmed by Wessex Water's planning liaison response in **Appendix D**. Wessex Water have confirmed that they will accommodate domestic foul flows from the development on a size-for-size connection basis, subject to application and technical agreement.
- 6.1.3 A gravity foul drainage network will collect flows from all dwellings and convey them to the agreed point of connection within the public sewer. No surface water, land drainage, or groundwater will be discharged into the foul system, in accordance with Wessex Water requirements and Building Regulations Part H.
- 6.1.4 The foul network will be offered for adoption by Wessex Water under a Section 104 agreement, with all sewers, manholes, and connection details designed in accordance with the Design and Construction Guidance (DCG). Wessex Water will maintain the adopted infrastructure following completion.
- 6.1.5 The location and levels of the existing foul water public sewer have been taken from a CCTV survey undertaken by Draintech Surveys Ltd (March 2026). Refer to Appendix J for further details.
- 6.1.6 A copy of the proposed drainage strategy plan indicating the schematic foul water sewer design and outfall points can be found in **Appendix C**.

7 Drainage Maintenance

7.1 Adoption and Responsibilities

- 7.1.1 It is proposed for all foul water sewers to be offered for adoption by Wessex Water under a Section 104 application.
- 7.1.2 It is proposed for all surface water sewers to be offered for adoption by Wessex Water under a Section 104 application.
- 7.1.3 The open SuDs features will be maintained by either Wessex Water or the site wide management company.

7.2 Maintenance Requirements

- 7.2.1 To promote the functioning of the SuDS system in perpetuity a robust inspection and maintenance regime must be adhered to. This should be based on recommendations in CIRIA 753.
- 7.2.2 The maintenance and inspection regime for the attenuation basin should include, but not be limited to:
 - Removal of litter and debris – Monthly
 - Cutting of path grass/vegetation – Monthly in season
 - Cutting of meadow grass – Half yearly
 - Inspection of inlets and outlets for blockages – Monthly
 - Check function of penstocks/flap valves – Monthly
 - Inspection integrity of fencing/gratings – Half yearly
 - Inspection and removal of silt build-up at inlet and outlet – Monthly
 - Management of nuisance vegetation – Monthly
 - Replanting of damaged vegetation – As required.

8 Mitigation and Management of Residual Risks

8.1 Access to and Egress from the site

- 8.1.1 Access to and egress from the site will be taken from High Street (B4069) to the south of the site. All access routes are located within Flood Zone 1 and are therefore considered to provide safe and suitable access to and from the site during all flood events.

8.2 Finished Floor Levels (FFLs)

- 8.2.1 It is recommended that Finished Floor Levels (FFLs) across the site are set a minimum of 150 mm above proposed adjacent ground levels to provide resilience to surface-water flooding. While Flood Zones 2 and 3 associated with the main river lie outside the red line boundary, the proposed development platform will remain at least 600 mm above the nearest fluvial flood zone extents, ensuring an appropriate margin of safety and confirming that the fluvial flood risk does not influence the site layout.

8.3 Groundwater Flooding

- 8.3.1 Groundwater level monitoring was undertaken during the winter months of 2025/2026 to characterise seasonal groundwater conditions. The results identified shallow groundwater, with peak levels recorded at or close to existing ground level. These conditions indicate a potential risk of groundwater emergence and groundwater-induced uplift pressures. Consequently, the potential risk of flotation affecting the primary attenuation feature shall be considered at the detailed design stage, and appropriate mitigation measures shall be incorporated.
- 8.3.2 While shallow groundwater has been recorded this can be managed through lined attenuation features, positive drainage, and raised finished floor levels in line with **Section 8.2** above.

9 Conclusion

- 9.1.1 The proposed surface-water drainage strategy has been designed in accordance with the SuDS hierarchy, the National Planning Policy Framework (NPPF), National standards for sustainable drainage systems (SuDS), Wiltshire Council LLFA guidance, and CIRIA C753 – The SuDS Manual.
- 9.1.2 Surface water runoff from the proposed development will be managed by either collection within permeable paving or direct discharge to the gravity drainage network. Runoff will then be conveyed through a series of swales and attenuation basins. A controlled discharge at a rate of 2.32 l/s from the attenuation basin to the adjacent main river is proposed providing 30% betterment on the Greenfield runoff rate.
- 9.1.3 All runoff from roofs, roads, and paved areas will be conveyed by a gravity drainage network through the swales to the attenuation basins, where it will be stored during storm events and outfall to the adjacent watercourse to the north. This ensures that surface-water runoff discharges at a rate that provides 30% betterment over the Greenfield runoff rate for the site and ensures that flood risk is not increased.
- 9.1.4 The proposed drainage system incorporates appropriate SuDS components and provides sufficient treatment in accordance with CIRIA C753 and the national standards for sustainable drainage systems (SuDS), ensuring the effective management of both water quantity and water quality prior to discharge.
- 9.1.5 Foul flows will be conveyed via a gravity foul network discharging to the existing 225 mm Wessex Water foul sewer that crosses the site, with acceptance confirmed in principle through the Developer Enquiry process.
- 9.1.6 A detailed flood-risk assessment has been undertaken, confirming that the site lies entirely within Flood Zone 1, with low risk from all other assessed flood sources.
- 9.1.7 The proposed development will not increase flood risk to adjacent land or downstream receptors. The use of on-site attenuation, exceedance routing, and a robust long-term maintenance regime ensures that the development remains safe, compliant, and sustainable in flood-risk terms.

Appendix A - Proposed Site Layout



The scaling of this drawing cannot be assured

Revision	Date	Drn	Ckd
G	Layout updated following comments	18.08.26	M.D. F.N.

- Site Boundary
- Dwelling House
- Gardens
- Primary Vehicular Route
- Key Space Shared Surface
- Shared Surface
- Lane / Private Drive
- Parking
- Footpath
- Play Space
- Attenuation Basin and Swale
- Proposed Tree Planting
- Existing Tree Planting

Project
Sutton Benger

Drawing Title
Illustrative Site Layout

Date
31.07.25

Scale
1:1,250 @A2

Drawn by
M.D.

Check by
F.N./S.B.

Project No
333102291

Drawing No
STN-GEN-SW-DR-MP-06G

Revision

01020304050m

Stantec

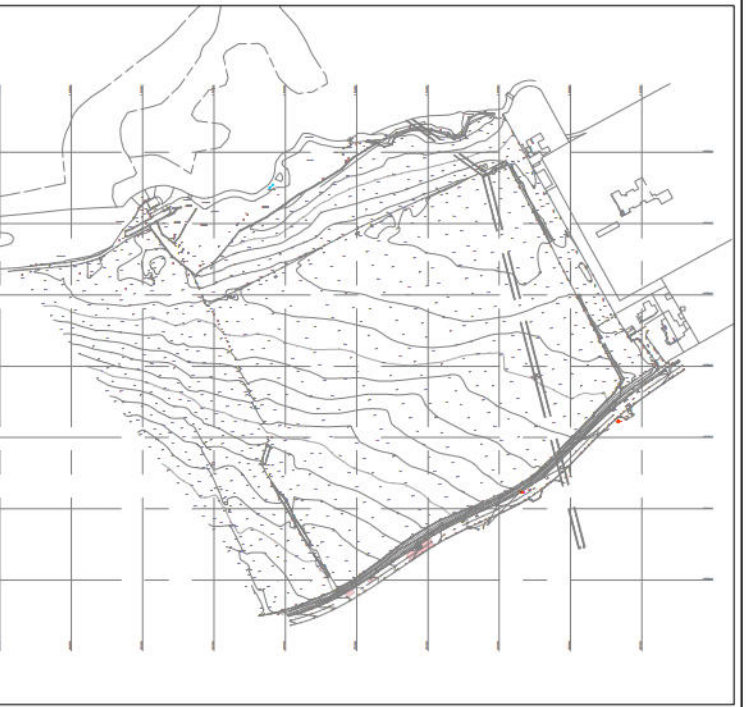
Stantec UK Limited
The Blade
Abbey Square
Reading
RG1 3BE
T: 0118 9430 000

stantec.com\uk

Appendix B- Topographical Survey

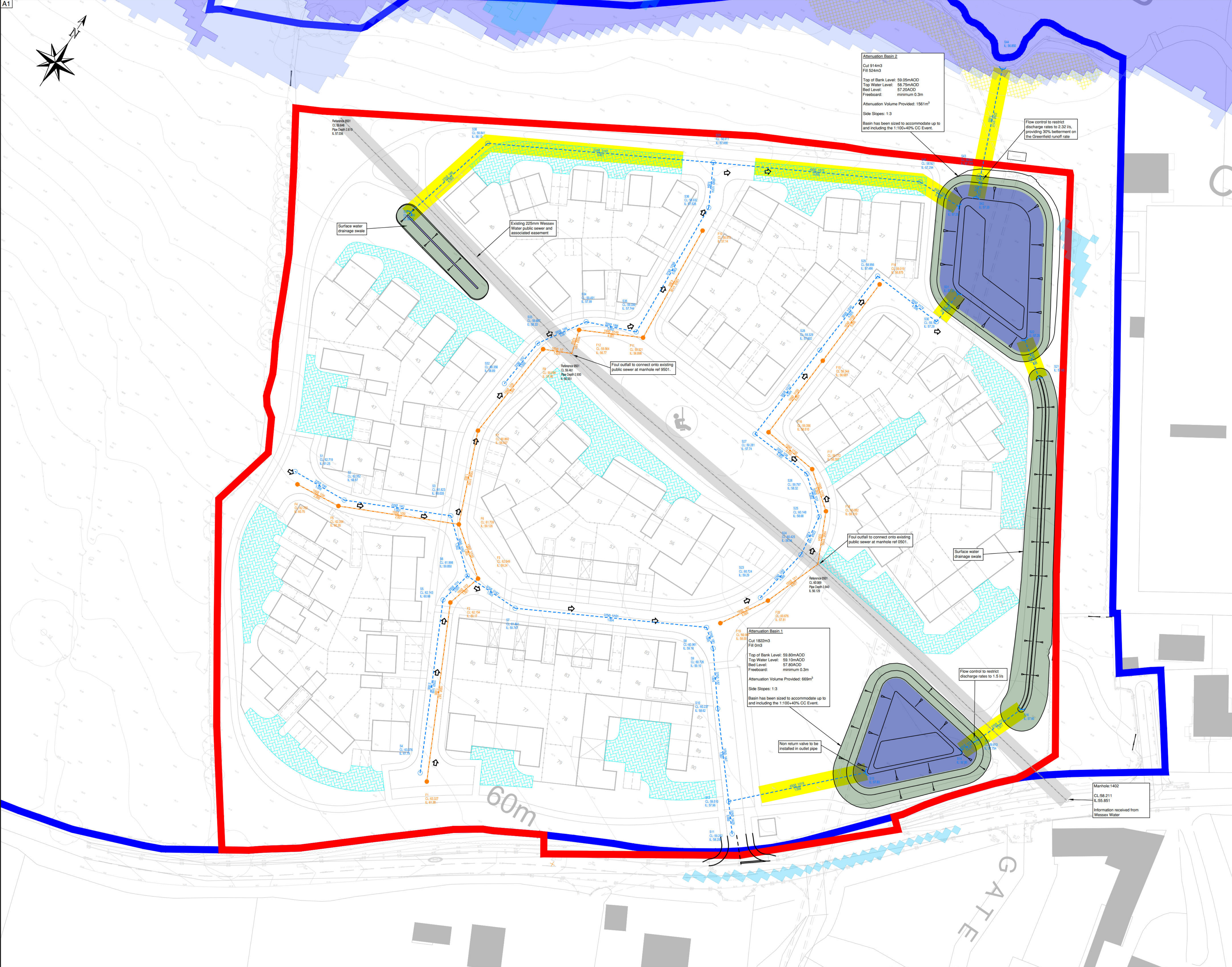


GENERAL NOTES				
1. The contractor is to check and verify all buildings and site dimensions and levels, including existing sewer invert levels, before works start on site. The contractor is to comply in all aspects with the current building legislation, British Standards, building regulations etc.				
2. Positions of existing services/statutory undertakers apparatus adjacent to or crossing proposed excavations are to be checked by the contractor prior to starting work. Utility locations shown are to be verified by the contractor prior to commencement of work.				
3. This drawing is to be read in conjunction with and checked against all other drawings, engineering details, specifications and any structural, geotechnical or other specialist document provided.				
4. Any anomaly or contradictions between any of the above is to be reported immediately to Corner Point Surveys Ltd.				
5. This survey has been undertaken to OS National Grid & Datum (OSTN15) with a calculated local scale factor for this location.				
LEGEND				
BUILDINGS	CANOPY DOWNPIPE DOORLINE WINDOW LINE AIRCO BARRIER BARRIER BRICK WALL CLOSE BOARD FENCE HEDGE BANK BASE BANK TOP BUILDING LAMP POST TACTILE PAING DROP KERB FOOTPATH ROAD SIGN AC/DRAIN CABLE TV ELECTRICITY BOX EARTH ROD FIRE HYDRANT GULLY	CPY GUT PFL VP AB BAR PWF CBF RW HLS BS TS BD TP LP TPV DKB FO IP RS TW BT IC EB SR PH WM DU	EV GUT PFL VP HORSING / HERRAS POST & RAIL FENCE STONE WALL RETAINING WALL TREES CLUSTER VEGETATION TELECOM POST HERB BASE LAMP POST REFLECTOR POST TACTILE PAING MANHOLE INSPECTION CHAMBER MANHOLE SLOT DRAIN STOP VALVE WATER METER	EAVES GUTTER ROOF LINE VENT PIPE STONE STAIRS ROSE LEVEL SOFFIT LEVEL UNABLE TO LIFT UNABLE TO SURVEY WATER LEVEL CONTROL STATION DRAINER GATE
BOUNDARIES	BOUNDARY	BOUNDARY	BOUNDARY	BOUNDARY
TOPOGRAPHY	TOPOGRAPHY	TOPOGRAPHY	TOPOGRAPHY	TOPOGRAPHY
STREET	STREET	STREET	STREET	STREET
FURNITURE	FURNITURE	FURNITURE	FURNITURE	FURNITURE
UTILITIES	UTILITIES	UTILITIES	UTILITIES	UTILITIES
STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE
GENERAL	GENERAL	GENERAL	GENERAL	GENERAL



Rev	Date	Description	By
Dimensions to be verified on site. This drawing should not be scaled. Use figure dimensions only. Any discrepancies should be referred to the Engineer prior to work being put in hand. This drawing is copyright.			
 THE SURVEY ASSOCIATION FULL MEMBER			
 Corner Point Surveys Limited Culverhouse House, Village Way Culverhouse Business Park Cardiff CF15 1HG 020 22 985 100 correspondence@cornerpointsurveys.co.uk www.cornerpointsurveys.co.uk			
Date: gleeson Land Promoting Land. Unlocking Value.			
Project: SUTTON BENDER			
Title: TOPOGRAPHICAL SURVEY			
Drawing Name: INFORMATION			
Drawn by: JPW	Presented by: JPW	Checked by: ACV	Date: MAY25
Project No: S25048	Drawing No: 001	Scale & A4 size: 1:500	Revision: 0

Appendix C – Drainage Strategy Plan



GENERAL NOTES

- Scale to be used for planning purposes only
- This drawing is to be read in conjunction with all other relevant drawings and details.
- Should there be any conflict between the details indicated on this drawing and those on other drawings the Engineer should be informed PRIOR to construction on site.
- Until technical approval has been obtained from the relevant Authority, it should be understood that all drawings issued are Preliminary and NOT for construction. Should the Contractor commence site works prior to such approval being provided it is entirely at their own risk.
- Sketch proposals are for illustrative purposes only and as such are subject to detailed site investigation including ground conditions, contaminants, drainage, design and planning / density negotiations.
- All dimensions are in metres unless otherwise stated.
- The Rodgers Leask Designer's Risk Assessment(s) for this project must be reviewed PRIOR to the commencement of any works on site.

Key:

- Site Boundary
- Wider Land Holding
- Indicative Surface Water Sewer Network
- Indicative Foul Water Sewer Network
- Proposed Sewer Easements
- Existing Sewer Easement
- 8m No Activity Zone from Main River
- Flood Zone 2
- Flood Zone 3
- Surface Water Flooding
- Exceedance Overland Flow Route
- Proposed Attenuation Basin subject to detailed design
- Proposed Permeable Paving subject to detailed design

Health and safety symbols refer to reference numbers indicated on Designers Risk Assessment number: 25317-RL-25-XX-HS-C-0001

Health & Safety Information Key

- Used to provide design specific safety information that may not be obvious to a competent contractor but may be useful.
- Used to restrict/prevent a possible action, e.g. stop construction traffic from entering an area
- Used to warn of significant design hazards, adding recommendations
- Used to encourage a positive action, e.g. use of robust protection for inspection chambers

P12	16.09.26	Updated to suit Gleeson Land comments.	JB	TN
P11	14.09.26	Flow rates updated.	JEB	TN
P10	08.09.26	Flow rates updated to FEH 2025	JEB	TN
P09	27.08.26	Updated to latest housing layout	JEB	TN
P08	05.05.26	Headwall locations corrected	JEB	TN
P07	01.05.26	Updated to suit Gleeson Land comments	JB	TN
P06	30.04.26	Updated to suit Gleeson Land comments	JB	TN
P05	24.04.26	Updated to suit Gleeson Land comments	JB	NF
P04	16.04.26	Updated in response to LLFA's comments	JB	TN
P03	02.12.25	Updated key and flood zone transparency	KN	TN
P02	28.11.25	Updated to suit infiltration.	JEB	TN
P01	21.11.25	New layout added.	JEB	TN
Rev	Date	Amendments	By	Chk



Client
GLEESON LAND

Project
LAND AT GATE FARM,
HIGH STREET,
SUTTON BINGER
Drawing Title
DRAINAGE STRATEGY

Status
PLANNING

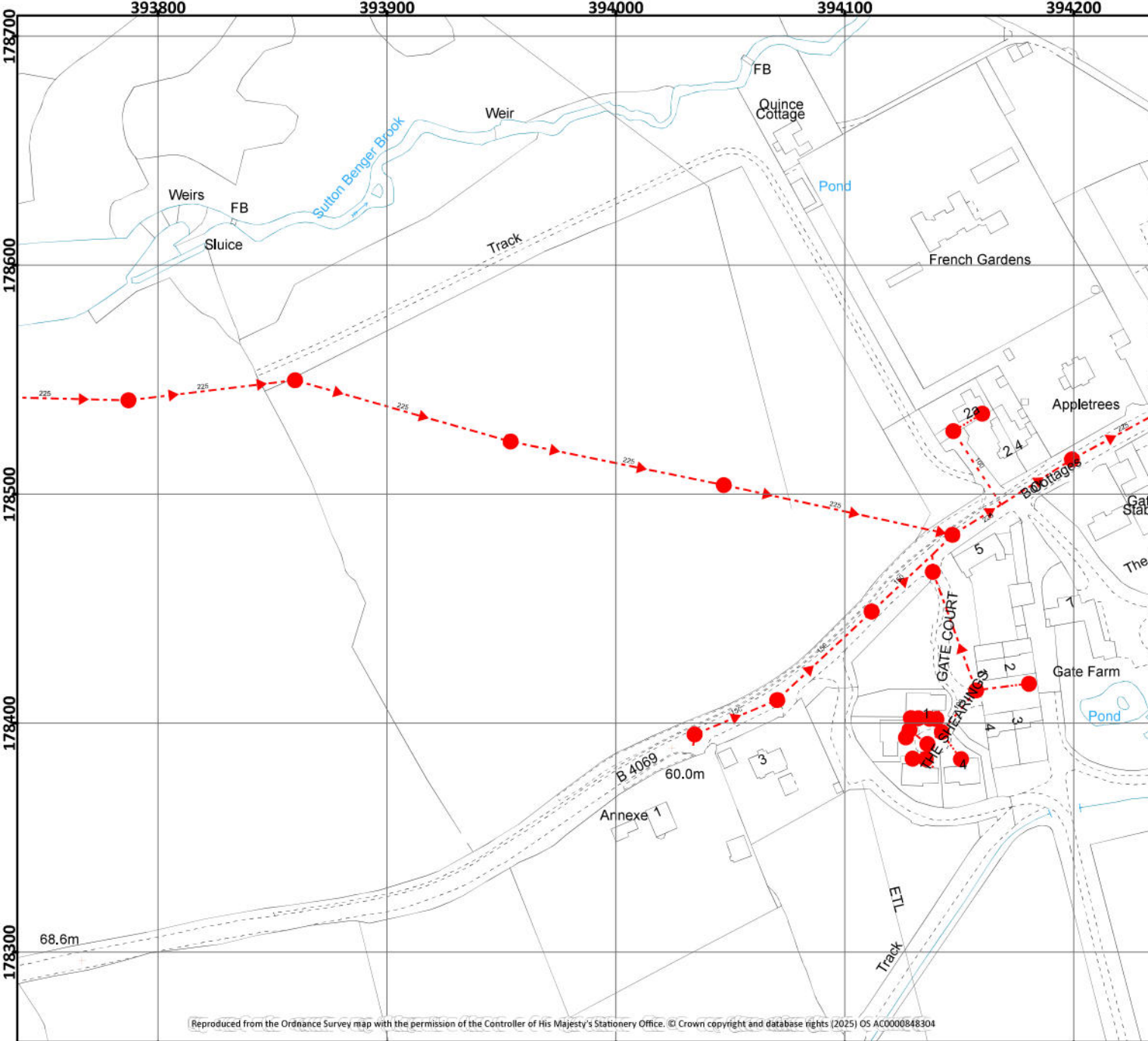
Scale
1:500
Drawn
JEB
Checked
TN
Date
07/11/25

Drawing Number
25317-RL-22-XX-DR-C-2000
Revision
P12

BIM Drawing Reference

Scale Bar
1:500
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Appendix D - Wessex Water Development Enquiry & Sewer Records



Reproduced from the Ordnance Survey map with the permission of the Controller of His Majesty's Stationery Office. © Crown copyright and database rights (2025) OS AC0000848304

WASTE

PUBLIC SEWERS

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Rising Main
- Standby Rising Main
- Syphon
- Overflow
- Use Unknown

OTHER STRUCTURES

- Attenuation Tank
- Storage Tank
- Chamber
- Tunnel
- Interceptor
- Thrust Block
- Kiosk

NON-PUBLIC SEWERS & PIPELINES

- Private Sewer/Drain
- Highway Drain
- Culverted Watercourse
- Abandoned Sewer
- Status Unknown
- Section 104 - Foul
- Section 104 - Surface
- Section 104 - Combined
- Private Rising Main
- Effluent Disposal Main
- Cable

STRUCTURES

- Manhole - Foul
- Manhole - Surface
- Manhole - Combined
- Outfall
- Inlet
- Lamphole
- Bifurcation - Foul
- Bifurcation - Surface
- Bifurcation - Combined
- Combined Sewage Overflow
- Pumping Station - Surface
- Pumping Stn - Foul/Combined
- Gully
- Vent Column
- Telemetry Point
- Rodding Eye
- Catchpit
- Flushing Chamber
- Soakaway
- Non Return Valve
- Air Valve
- Washout
- Hatch Box

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

SUPPLY

WATER MAINS

- Distribution Main
- Washout Main
- Raw Water Main
- Abandoned Main
- Private Main

FITTINGS

- Fire Hydrant
- Washout Hydrant
- Other Fitting

Wessex Water
YTL GROUP



Printed: 07/05/2025

Map Scale - 1:2,500

Information in this plan is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. Building over or near Wessex Water's apparatus is not normally permitted.

From: [Stella Davies](#)
Sent on: 08 July 2025 13:02:19
To: [Kamil Nawaz](#)
Subject: WW Dev Resp ST97NW/ 39 1Land North of High St, Sutton Benger 90 dwellings -drainage
Attachments: WW Dev Map ST97NW_391 Land North of High St, Sutton Benger.pdf (1.07 MB)

Follow up: Follow up

ALERT: External email. Check the address. Think before you click links and attachments.

Dear Mr Nawaz,

Thank you for your recent online enquiry reading provision of foul drainage and water supply for the proposed up to 90 dwelling development at the above site.

Please note that following Assets are located within the red line boundary of the proposed site:

Existing Apparatus

Apparatus Type

225 mm dia gravity foul sewer main

Stand -off either side

min stand-off 3m either side

Note: There must be no buildings or structures within the minimum stand-off zones either side of the pipes. This includes no surface water attenuation features or associated earthworks in the easement strip, changes in ground levels resulting in additional loading or excavation. No tree planting within 6 metres
The sewers and associated easement strips must not run through enclosed private rear gardens.
Public manholes and sewers must remain in open access areas or public highways. Wessex Water require unrestricted access to maintain and repair our apparatus.
All apparatus must be accurately located and marked on site. Apparatus and easement corridors must be clearly marked on all development drawings to ensure there are no conflicts with buildings or within rear garden boundaries.

Water Supply – Point of Connection

A development of this scale requires a water main connection with a minimum diameter of 90 mm.

The nearest suitable point of connection for the proposal is the 125mm dia Water Main in High Street.

Please note that the cost of any new connection or the upsizing of the existing main must be borne by the developer. Wessex Water can provide a point of connection for new water mains to be laid into the development site, either through a Section 41 agreement or a self-lay arrangement.

Developers may connect to our water network on a 'size for size' basis at their cost and Wessex Water will undertake any network reinforcement that may be required to accommodate granted development, this is funded through our infrastructure charging arrangements.

For more details and guidance for applying to connect to our networks please see our website:

<https://www.wessexwater.co.uk/services/building-and-developing/building-multiple-properties-or-large-developments>

Foul Drainage

Wessex Water will accommodate domestic type foul flows in the public foul sewer with connections made on a size for size basis, Developers fund the cost of connecting to the nearest 'size for size' sewer and Wessex Water will manage the sewer network to accommodate foul flows from granted development. We fund this through our infrastructure charging arrangements.

The most appropriate point for connection from the site would be 225mm diameter public foul sewer crossing the site. The point of connection to the public network is by application and agreement with Wessex Water and subject to satisfactory engineering proposals constructed to current adoptable standards. The developer should contact the local development team development.north@wessexwater.co.uk to agree proposals for the Section 104 adoption or Section 106 connection and submit details for technical review prior to construction. We will not accept foul connections from below ground level, foul flows from below ground level must be pumped to ground level prior to connection to the public foul sewer.

Please Note: No surface water runoff or land drainage will be accepted into the foul sewer either directly or indirectly.

Surface Water Drainage

Surface water must be disposed of via the SuDS Hierarchy which is subject to Building Regulations and NPPF.

No surface water runoff, land drainage or ground water will be accepted into a public sewer that carries sewerage, either directly or indirectly.

The National Planning Policy Framework (NPPF) mandates that Sustainable Drainage Systems (SuDS) must be incorporated into new developments to manage surface water runoff, mitigate flood risks, and provide additional benefits, including enhanced water quality and green spaces. However, the proposed surface water drainage strategy fails to meet NPPF requirements regarding SuDS and sustainable development. Additionally, it omits compliance with the surface water discharge hierarchy.

In line with the drainage hierarchy outlined in Approved Document H of the Building Regulations, Planning Practice Guidance, and the necessity to address water scarcity, all surface water runoff should aim to be discharged as high up the following hierarchy as feasible:

- Rainwater reuse through harvesting or greywater recycling
- An adequate soakaway or other infiltration system
- A hybrid solution involving infiltration and discharge to a surface water body
- Discharge directly to a surface water body (e.g., an ordinary watercourse)
- Discharge to a surface water sewer, highway drain, or other drainage system

Proposed surface water strategy to be agreed with LLFA. Review of the mapping indicates presence of land drainage features in the vicinity of the site.

Wessex Water statement on surface water discharge can be accessed via the following link:

<https://developerservices.wessexwater.co.uk/media/m4rjrfmg/wwds-dev063p-rainwater-drainage-policy.pdf>

Please Note: No surface water runoff or land drainage will be accepted into the foul sewer either directly or indirectly.

Note: These comments are based upon known circumstances prevailing at the time of writing. A review of the contents of this email is required where 18 months or more have elapsed since issue or in the light of significant changes likely to impact upon the response (e.g. changes in development numbers or phasing). Please email review requests to planning.liaison@wessexwater.co.uk

Best Regards,

Stella Davies
Senior Planning Liaison Engineer



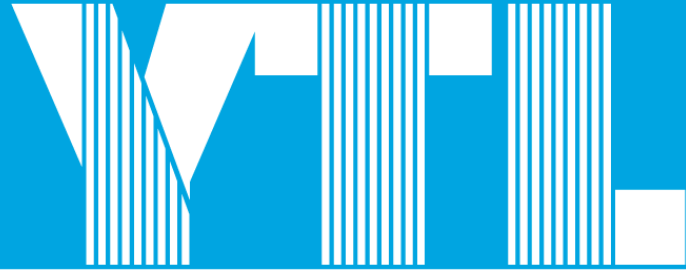
Wessex Water
YTL GROUP

Wessex Water
Operations Centre, Claverton Down, Bath BA2 7WW

Web ytl.com | wessexwater.co.uk



Wessex Water
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FOR YOU. FOR LIFE

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This email is being sent to you on behalf of Wessex Water Limited, a company registered in England and Wales with number 02366633. Its registered office is Wessex Water Operations Centre, Claverton Down Road, Claverton Down, Bath, BA2 7WW.

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This email is being sent to you on behalf of Wessex Water Services Limited, a company registered in England and Wales with number 02366648. The registered office is Wessex Water Operations Centre, Claverton Down Road, Claverton Down, Bath, BA2 7WW.

Appendix E – Greenfield Runoff Tool

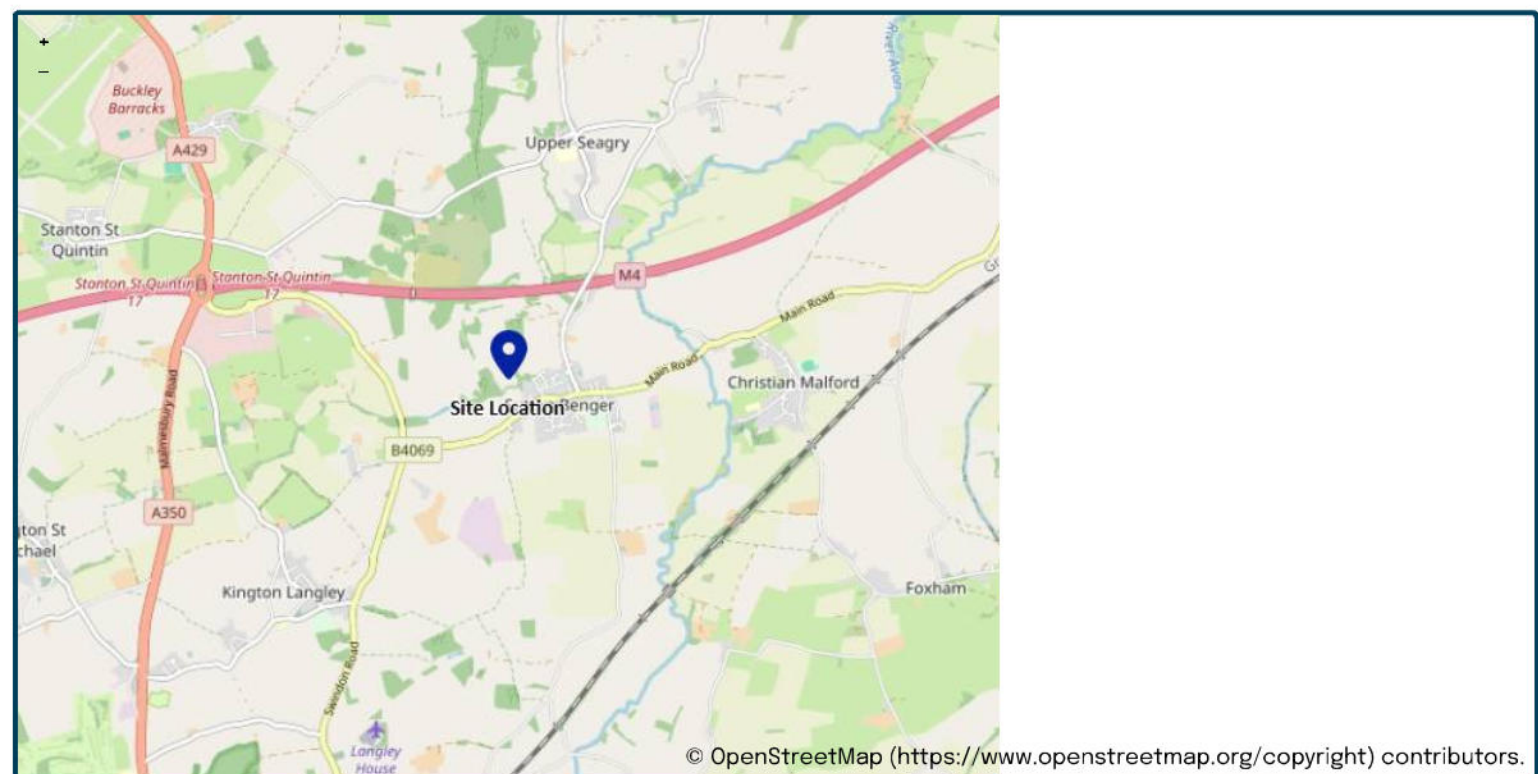
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	08/09/2026
Calculated by	TN
Reference	Sutton Benger
Model version	2.2.3

Location

Site name	Sutton Benger
Site location	Sutton Benger



Site easting (British National Grid)	394127
Site northing (British National Grid)	178636

Site details

Total site area (ha)	1	ha
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Greenfield runoff

Method

Method	FEH statistical (2025)
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FEH statistical (2025)

	My value	Map value
SAAR9120 (mm)	791	mm
BFIHOST19scaled	0.713	
QMed-QBar conversion	1.075	☒ 1.075
QMed (l/s)	1.5	l/s
QBar (FEH statistical 2025) (l/s)	1.6	l/s

Growth curve factors

	My value	Map value
Hydrological region	8	☒ 8
1 year growth factor	0.78	
2 year growth factor	0.93	
10 year growth factor	1.49	
30 year growth factor	1.95	
100 year growth factor	2.43	
200 year growth factor	2.78	

Results

Method	FEH statistical (2025)	
Flow rate 1 year (l/s)	1.2	l/s
Flow rate 2 year (l/s)	1.5	l/s
Flow rate 10 years (l/s)	2.4	l/s
Flow rate 30 years (l/s)	3.1	l/s
Flow rate 100 years (l/s)	3.9	l/s
Flow rate 200 years (l/s)	4.4	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.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix F - Hydraulic Modelling Results

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S1	0.025	1350	Type C	62.719	61.250	1.244	393900.300	178451.672
S2	0.129	1350	Type C	62.352	60.870	1.257	393917.103	178451.626
S3	0.076	1350	Type C	61.623	60.035	1.288	393946.808	178463.375
S4	0.123	1350	Type C	63.376	61.790	1.361	393977.012	178392.886
S5	0.104	1350	Type C	62.143	60.660	1.183	393957.239	178440.689
S6	0.028	1350	Type B	61.998	59.850	1.773	393959.954	178450.425
S7	0.130	1350	Type B	61.841	59.747	1.719	393976.999	178449.207
S8	0.030	1350	Type C	60.961	59.180	1.406	394028.970	178472.644
S9	0.014	1350	Type C	60.726	59.100	1.251	394033.764	178468.230
S10	0.070	1350	Type C	60.237	58.620	1.242	394043.875	178453.447
S11	0.029	1350	Type C	59.252	58.208	0.819	394066.137	178423.424
S12	0.076	1350	Type C	59.510	57.960	1.100	394060.406	178431.276
S13	0.000	---	Type C	59.813	57.830	1.533	394091.310	178459.022
S14	0.000	---	Type B	60.200	57.800	1.950	394112.762	178479.032
S15	0.000	2400	Type B	59.968	57.754	1.990	394116.550	178486.639
S16	0.000	---	Unknown	59.600	57.600	1.775	394121.884	178498.313
S17	0.000	1200	Unknown	59.450	57.582	0.968	394120.314	178505.931
S18	0.091	1800	Type C	59.200	57.531	0.769	394109.328	178529.319
S19	0.000	1800	Type C	59.000	57.471	0.629	394095.548	178555.853
S20	0.000	1800	Type C	59.000	57.419	0.681	394083.850	178579.129
S21	0.000	---	Type C	59.000	57.400	1.450	394077.379	178585.869
S22	0.000	---	Type C	59.050	57.250	1.650	394068.107	178593.494
S32	0.102	1350	Type C	60.356	58.890	1.241	393940.959	178505.269
S33	0.028	1350	Type C	59.887	58.330	1.257	393943.574	178520.542
S34	0.046	1350	Type C	59.491	57.990	1.201	393952.781	178533.202
S35	0.048	1350	Type C	59.330	57.744	1.211	393967.141	178538.027
S36	0.027	1350	Type C	58.932	57.526	0.956	393967.356	178580.647
S37	0.138	---	Type C	59.800	58.600	0.975	393891.527	178535.253
S38	0.000	1350	Type C	59.841	58.130	1.486	393901.107	178564.438
S39	0.132	1350	Type C	58.911	57.490	0.971	393961.846	178592.916
S40	0.037	1350	Type C	58.921	57.294	1.178	394017.771	178618.566
S41	0.080	---	Type C	59.050	57.250	1.350	394031.387	178617.959
S23	0.035	1350	Type C	60.724	59.290	1.209	394038.360	178488.258
S24	0.086	1350	Type C	60.425	58.940	1.260	394042.408	178505.249
S25	0.000	1350	Type C	60.148	58.680	1.243	394041.497	178517.757
S26	0.028	1350	Type C	59.797	58.320	1.252	394031.976	178526.872
S27	0.066	1350	Type C	59.281	57.740	1.241	394012.733	178529.455
S28	0.106	1350	Type C	59.325	57.602	1.423	394016.988	178560.514
S29	0.067	1350	Type C	58.956	57.486	1.171	394020.827	178588.139
S30	0.119	1350	Type C	58.907	57.290	1.242	394041.659	178585.339
S31	0.000	---	Unknown	59.050	57.250	1.425	394043.190	178595.925
S42	0.000	---	Unknown	59.050	57.200	1.400	394034.233	178622.324
S43	0.000	2400	Type B	59.050	57.149	1.676	394031.615	178629.500
S44	0.000	---	Type C	55.500	56.850	-1.575	394022.078	178659.911

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S1	61.250	S2	60.870	Circ	225	16.803	44	0.600	1.244	1.257
1.001	S2	60.870	S3	60.110	Circ	225	31.944	42	0.600	1.257	1.288
1.002	S3	60.035	S6	59.925	Circ	300	18.453	167	0.600	1.288	1.773
2.000	S4	61.790	S5	60.735	Circ	225	51.732	49	0.600	1.361	1.183
2.001	S5	60.660	S6	59.925	Circ	300	10.107	14	0.600	1.183	1.773
1.003	S6	59.850	S7	59.747	Circ	375	17.088	167	0.600	1.773	1.719
1.004	S7	59.747	S8	59.180	Circ	375	57.012	101	0.600	1.719	1.406
1.005	S8	59.180	S9	59.100	Circ	375	6.516	81	0.600	1.406	1.251
1.006	S9	59.100	S10	58.620	Circ	375	17.910	37	0.600	1.251	1.242
1.007	S10	58.620	S12	58.035	Circ	375	27.656	47	0.600	1.242	1.100
3.000	S11	58.208	S12	58.185	Circ	225	9.721	429	0.600	0.819	1.100
1.008	S12	57.960	S13	57.830	Circ	450	41.532	319	0.600	1.100	1.533
1.009	S13	57.830	S14	57.800	Circ	750	29.335	978	0.600	1.233	1.650

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.010	S14	57.800	S15	57.754	Circ	450	8.499	184	0.600	1.950	1.765
1.011	S15	57.754	S16	57.600	Circ	225	12.835	83	0.600	1.990	1.775
1.012	S16	57.600	S17	57.582	Circ	900	7.778	439	0.600	1.100	0.968
1.013	S17	57.582	S18	57.531	Circ	900	25.840	500	0.600	0.968	0.769
1.014	S18	57.531	S19	57.471	Circ	900	29.898	500	0.600	0.769	0.629
1.015	S19	57.471	S20	57.419	Circ	900	26.051	500	0.600	0.629	0.681
1.016	S20	57.419	S21	57.400	Circ	900	9.343	500	0.600	0.681	0.700
1.017	S21	57.400	S22	57.250	Circ	150	12.004	80	0.600	1.450	1.650
1.018	S22	57.250	S42	57.200	Circ	750	44.481	890	0.600	1.050	1.100
4.000	S32	58.890	S33	58.405	Circ	225	15.495	32	0.600	1.241	1.257
4.001	S33	58.330	S34	57.990	Circ	300	15.654	46	0.600	1.257	1.201
4.002	S34	57.990	S35	57.819	Circ	300	15.149	88	0.600	1.201	1.211
4.003	S35	57.744	S36	57.601	Circ	375	42.621	299	0.600	1.211	0.956
4.004	S36	57.526	S39	57.490	Circ	450	13.450	374	0.600	0.956	0.970
5.000	S37	58.600	S38	58.130	Circ	225	30.718	65	0.600	0.975	1.486
5.001	S38	58.130	S39	57.715	Circ	225	67.084	162	0.600	1.486	0.971
4.005	S39	57.490	S40	57.294	Circ	450	61.527	313	0.600	0.970	1.178
4.006	S40	57.294	S41	57.250	Circ	450	13.629	313	0.600	1.178	1.350
4.007	S41	57.250	S42	57.200	Circ	750	5.211	104	0.600	1.050	1.100
6.000	S23	59.290	S24	58.940	Circ	225	17.466	50	0.600	1.209	1.260
6.001	S24	58.940	S25	58.680	Circ	225	12.541	48	0.600	1.260	1.243
6.002	S25	58.680	S26	58.320	Circ	225	13.180	37	0.600	1.243	1.252
6.003	S26	58.320	S27	57.815	Circ	225	19.416	38	0.600	1.252	1.241
6.004	S27	57.740	S28	57.602	Circ	300	31.350	227	0.600	1.241	1.423
6.005	S28	57.602	S29	57.486	Circ	300	27.891	240	0.600	1.423	1.171
6.006	S29	57.486	S30	57.365	Circ	300	21.019	174	0.600	1.171	1.242
6.007	S30	57.290	S31	57.250	Circ	375	10.696	267	0.600	1.242	1.425
6.008	S31	57.250	S42	57.200	Circ	750	27.877	558	0.600	1.050	1.100
1.019	S42	57.200	S43	57.149	Circ	450	7.639	149	0.600	1.400	1.451
1.020	S43	57.149	S44	56.850	Circ	225	31.872	106	0.600	1.676	-1.575

Outfall Details

Outfall Manhole S44 : Free Discharge

Flow Control Details

Controls within Manhole S13

Flap Valve Control

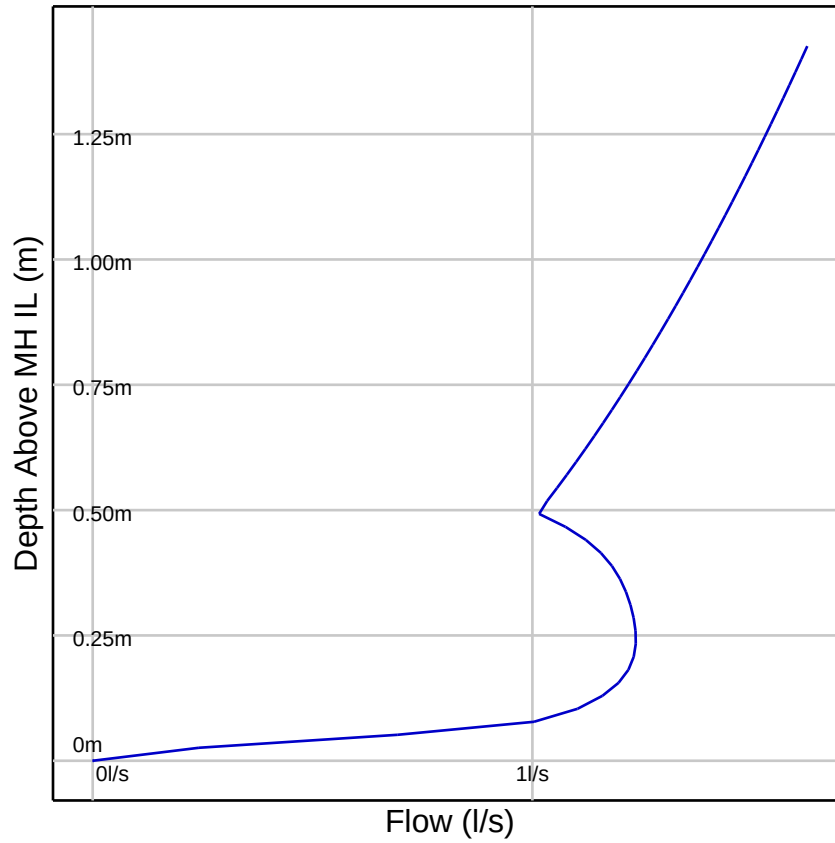
Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.750	0.600

Controls within Manhole S14

Hydro-Brake® Optimum Control

Model Ref	Design Depth (m)	Design Flow (l/s)	Invert Offset (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0055-1500-1200-1500	1.200	1.500	0.000	0.242	1.235	0.493	1.011

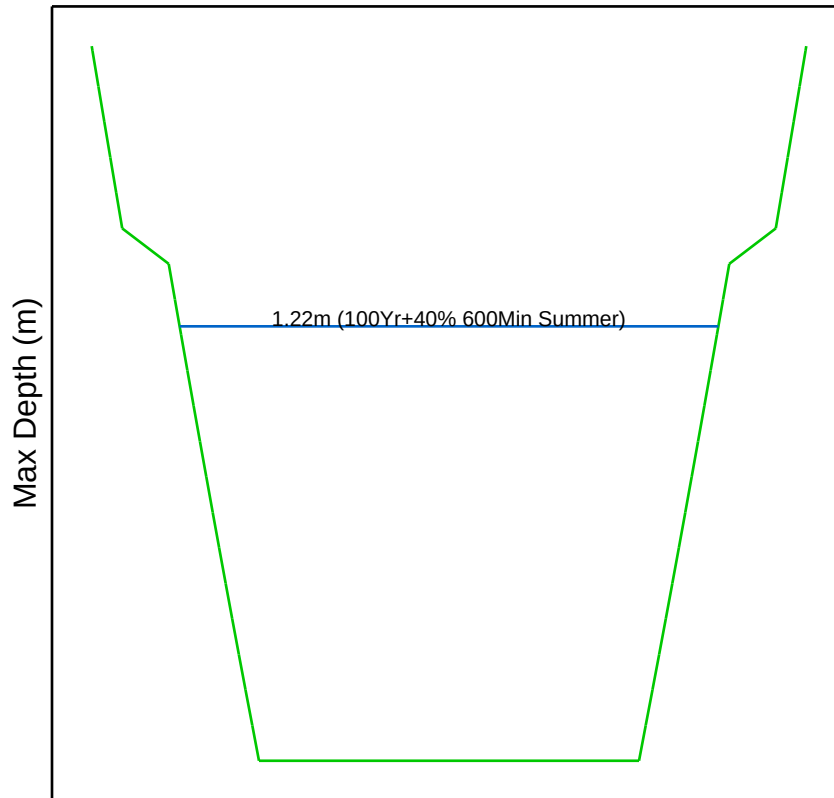
Hydro-Brake® Optimum Control from S14 to S15



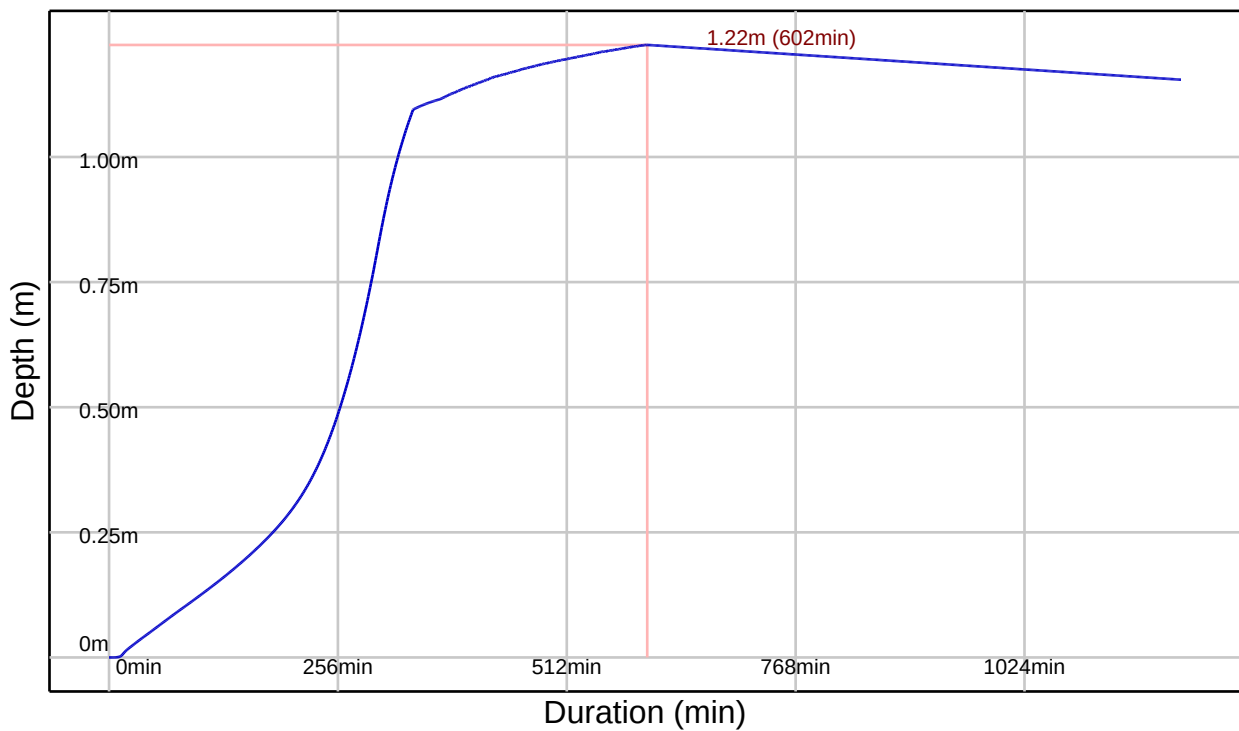
Pond Structure at Manhole S14

Pond Invert (m)	Max Depth (m)	Volume To Water Level (m3)	Water Level (m)	Freeboard (m)	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
57.800	2.013	669.349	59.100	0.713	0.00000000	0.00000000	2.00

Pond Depth/Area Diagram at S14



Pond 1 at S14 (100Yr+40% 600Min Summer)



Controls within Manhole S21

Orifice Control

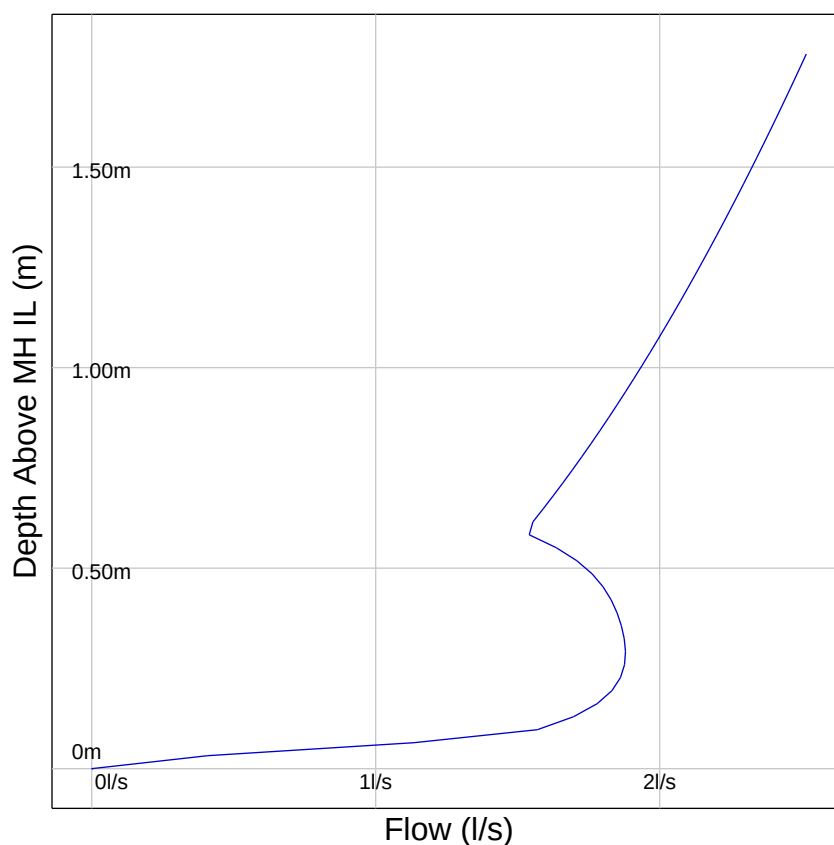
Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.000	0.075	0.600

Controls within Manhole S42

Hydro-Brake® Optimum Control

Model Ref	Design Depth (m)	Design Flow (l/s)	Invert Offset (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0066-2320-1500-2320	1.500	2.320	0.000	0.288	1.880	0.588	1.522

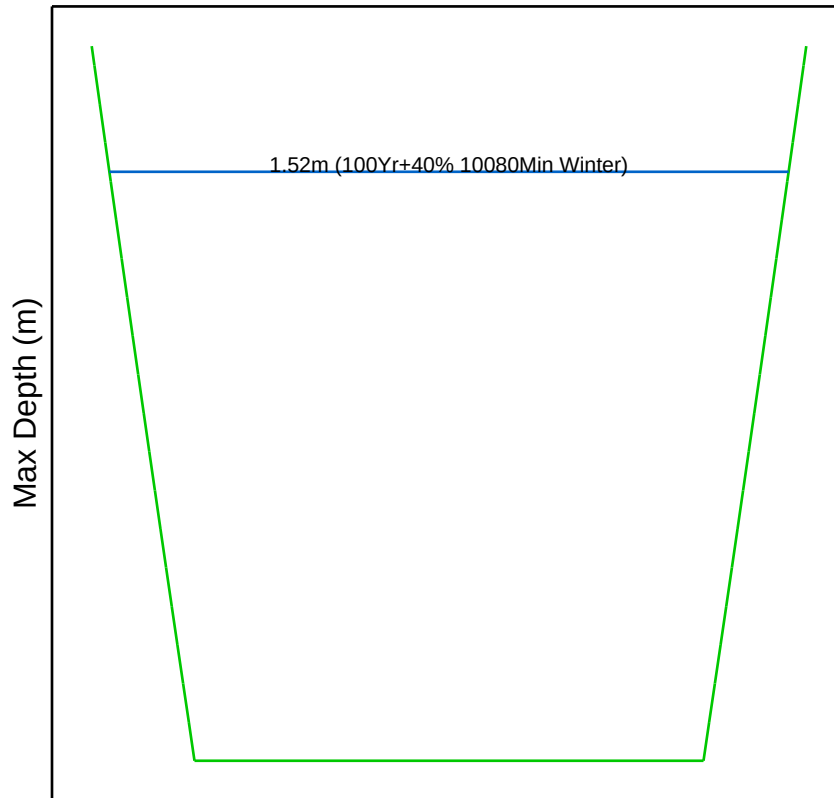
Hydro-Brake® Optimum Control from S42 to S43



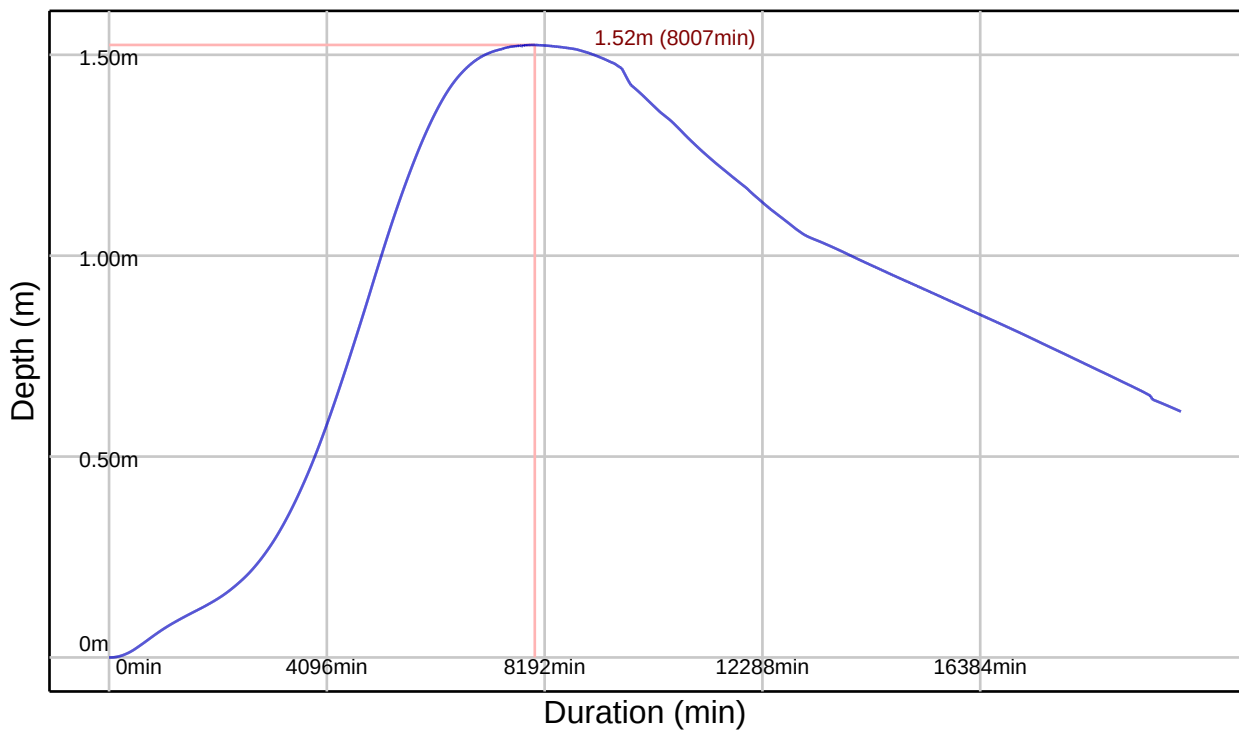
Pond Structure at Manhole S42

Pond Invert (m)	Max Depth (m)	Volume To Water Level (m3)	Water Level (m)	Freeboard (m)	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
57.200	1.850	1561.407	58.750	0.300	0.00000000	0.00000000	2.00

Pond Depth/Area Diagram at S42



Pond 2 at S42 (100Yr+40% 10080Min Winter)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_394500_178500_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (100, +40%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Item Volume Continuity Errors
100Yr+40% 60Min Winter	51.205	0.00	2.02	
100Yr+40% 60Min Summer	51.205	0.00	2.25	
100Yr+40% 120Min Winter	31.080	0.00	3.12	
100Yr+40% 120Min Summer	31.080	0.00	5.69	S13 60.72m3, S22 9.80m3, S19 9.23m3, S20 6.48m3, S17 4.09m3
100Yr+40% 180Min Winter	23.358	0.00	4.17	
100Yr+40% 180Min Summer	23.358	0.00	5.36	S13 72.10m3, S19 11.25m3, S22 10.48m3, S20 8.37m3, S17 5.40m3
100Yr+40% 240Min Winter	19.180	0.00	5.58	S13 76.64m3, S19 12.67m3, S22 10.90m3, S20 8.41m3, S17 5.20m3
100Yr+40% 240Min Summer	19.180	0.00	6.00	S13 85.81m3, S19 12.68m3, S22 10.92m3, S20 8.33m3, S17 5.08m3
100Yr+40% 360Min Summer	14.566	0.00	7.76	S13 116.68m3, S19 14.79m3, S22 11.38m3, S20 10.17m3, S17 6.63m3
100Yr+40% 360Min Winter	14.566	0.00	8.36	S13 132.10m3, S19 14.53m3, S22 11.28m3, S20 10.02m3, S17 6.79m3
100Yr+40% 480Min Summer	11.992	0.00	10.68	S13 156.37m3, S20 22.28m3, S19 16.40m3, S14 15.79m3, S22 11.79m3
100Yr+40% 480Min Winter	11.992	0.00	11.98	S13 180.60m3, S20 20.32m3, S19 16.60m3, S14 14.69m3, S22 11.86m3
100Yr+40% 600Min Summer	10.296	0.00	12.20	S13 177.23m3, S14 39.04m3, S21 11.07m3, S17 8.70m3
100Yr+40% 600Min Winter	10.296	0.00	14.41	S13 234.09m3, S14 38.06m3, S21 9.36m3, S17 8.23m3
100Yr+40% 720Min Winter	9.068	0.00	17.61	S13 301.53m3, S19 29.23m3, S14 29.03m3, S21 21.57m3
100Yr+40% 720Min Summer	9.068	0.00	14.60	S13 239.18m3, S14 31.18m3, S20 21.58m3, S21 20.45m3
100Yr+40% 960Min Summer	7.383	0.00	16.92	S13 283.91m3, S19 63.56m3, S21 27.02m3, S20 17.85m3
100Yr+40% 960Min Winter	7.383	0.00	19.13	S13 353.48m3, S19 62.56m3, S21 25.91m3, S20 15.74m3
100Yr+40% 1440Min Summer	5.431	0.00	21.89	S13 395.56m3, S19 82.70m3, S21 72.62m3, S20 17.43m3
100Yr+40% 1440Min Winter	5.431	0.00	21.89	S13 390.70m3, S19 79.92m3, S21 70.76m3, S20 19.80m3
100Yr+40% 2160Min Summer	3.925	0.00	24.75	S13 454.15m3, S21 106.92m3, S19 82.64m3, S14 31.84m3
100Yr+40% 2160Min Winter	3.925	0.00	24.93	S13 450.34m3, S21 109.25m3, S19 74.93m3, S14 37.47m3
100Yr+40% 2880Min Summer	3.080	0.00	22.48	S13 492.08m3, S19 229.61m3, S18 -207.23m3, S15 140.30m3, S20 100.87m3
100Yr+40% 2880Min Winter	3.080	0.00	23.31	S13 511.62m3, S19 219.42m3, S18 -189.12m3, S21 129.27m3, S15 124.09m3
100Yr+40% 4320Min Summer	2.176	0.00	23.90	S13 571.09m3, S19 246.00m3, S18 -214.38m3, S21 196.47m3, S15 132.60m3
100Yr+40% 4320Min Winter	2.176	0.00	28.53	S13 578.97m3, S21 146.66m3, S14 100.33m3, S19 92.26m3
100Yr+40% 5760Min Summer	1.705	0.00	27.40	S13 643.59m3, S21 133.46m3, S14 110.36m3, S19 75.08m3
100Yr+40% 5760Min Winter	1.705	0.00	29.38	S13 756.38m3, S21 122.01m3, S14 121.59m3, S19 65.89m3
100Yr+40% 7200Min Summer	1.428	0.00	27.24	S13 693.78m3, S21 180.49m3, S14 106.95m3, S16 77.21m3
100Yr+40% 7200Min Winter	1.428	0.00	28.23	S13 621.00m3, S21 117.46m3, S14 115.97m3
100Yr+40% 8640Min Summer	1.251	0.00	26.13	S13 784.42m3, S21 131.14m3, S14 104.49m3, S19 73.34m3
100Yr+40% 8640Min Winter	1.251	0.00	27.74	S13 656.44m3, S14 110.46m3, S21 91.34m3
100Yr+40% 10080Min Winter	1.130	0.00	27.89	S13 726.24m3, S14 113.58m3, S21 93.61m3
100Yr+40% 10080Min Summer	1.130	0.00	26.03	S13 728.69m3, S14 97.58m3, S21 71.00m3

Simulation Results

Return Period (yrs) + Climate Change (%):

100yr+40%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S1	60 min Summer	33	61.574	0.324	10.303		Surcharged
S2	60 min Summer	33	61.564	0.694	63.478		Surcharged
S3	60 min Summer	33	61.131	1.096	91.412		Surcharged
S4	60 min Summer	31	61.943	0.153	59.721		OK
S5	60 min Summer	33	61.084	0.424	94.745		Surcharged
S6	60 min Summer	33	61.000	1.151	194.064		Surcharged
S7	60 min Summer	33	60.819	1.071	245.610		Surcharged
S8	60 min Summer	34	59.993	0.813	250.841		Surcharged
S9	60 min Summer	34	59.837	0.737	257.074		Surcharged
S10	60 min Summer	34	59.497	0.877	282.313		Surcharged
S11	600 min Summer	578	59.048	0.841	3.279		Flood Risk
S12	600 min Summer	578	59.021	1.061	9.693		Surcharged
S13	600 min Summer	624	59.019	1.189	0.941		Surcharged
S14	600 min Summer	601	59.024	1.224	0.000		Surcharged
S15	2880 min Summer	2910	58.891	1.137	0.057		Surcharged
S16	4320 min Summer	4368	59.232	1.632	0.000		Surcharged
S17	4320 min Winter	3664	58.764	1.182	2.301		Surcharged
S18	4320 min Summer	4369	58.798	1.267	0.000		Surcharged
S19	4320 min Summer	4371	58.795	1.325	0.474		Flood Risk
S20	4320 min Summer	4370	58.801	1.382	0.076		Flood Risk
S21	5760 min Winter	5566	58.789	1.389	0.000		Flood Risk
S22	10080 min Winter	7828	58.727	1.477	0.662		Surcharged
S32	60 min Summer	31	59.010	0.120	49.171		OK
S33	10080 min Winter	7784	58.775	0.445	0.234		Surcharged
S34	10080 min Winter	7784	58.775	0.785	1.043		Surcharged
S35	10080 min Winter	7784	58.774	1.030	1.418		Surcharged
S36	10080 min Winter	7783	58.773	1.247	0.784		Flood Risk
S37	60 min Summer	32	59.184	0.584	63.664		Surcharged
S38	60 min Summer	33	58.805	0.675	58.314		Surcharged
S39	10080 min Winter	7783	58.773	1.283	0.822		Flood Risk
S40	10080 min Winter	7780	58.771	1.478	0.796		Flood Risk
S41	5760 min Summer	5050	58.905	1.655	0.144		Flood Risk
S23	60 min Summer	31	59.361	0.071	16.890		OK
S24	60 min Summer	33	59.340	0.400	49.861		Surcharged
S25	60 min Summer	33	59.219	0.539	49.610		Surcharged
S26	60 min Summer	33	59.094	0.774	60.428		Surcharged
S27	60 min Summer	33	58.828	1.088	87.079		Surcharged
S28	10080 min Winter	7793	58.726	1.124	0.704		Surcharged
S29	10080 min Winter	7793	58.725	1.240	0.863		Flood Risk
S30	10080 min Winter	7906	58.725	1.435	0.535		Flood Risk
S31	10080 min Winter	7906	58.725	1.475	0.484		Surcharged
S42	10080 min Winter	7949	58.725	1.525	4.045		Surcharged
S43	10080 min Winter	7950	57.181	0.033	2.323		OK
S44	10080 min Winter	7950	56.882	0.032	2.323		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	60 min Summer	36	S1	S2	0.225	0.599	14.560	0.186	OK
1.001	60 min Summer	30	S2	S3	0.225	1.989	65.647	0.816	OK
1.002	60 min Summer	34	S3	S6	0.300	1.271	89.854	1.049	Surcharged
2.000	60 min Summer	32	S4	S5	0.185	2.086	60.494	0.813	OK
2.001	60 min Summer	32	S5	S6	0.300	2.341	106.253	0.353	Surcharged
1.003	60 min Summer	33	S6	S7	0.375	1.740	192.131	1.245	Surcharged
1.004	60 min Summer	33	S7	S8	0.375	2.192	242.115	1.214	Surcharged
1.005	60 min Summer	34	S8	S9	0.375	2.444	251.997	1.137	Surcharged
1.006	60 min Summer	34	S9	S10	0.375	2.561	257.593	0.784	Surcharged
1.007	60 min Summer	34	S10	S12	0.375	2.563	283.078	0.971	Surcharged

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
3.000	600 min Summer	376	S11	S12	0.225	0.447	17.774	0.717	OK
1.008	60 min Summer	33	S12	S13	0.450	2.037	323.917	1.802	OK
1.009	60 min Summer	47	S13	S14	0.750	1.719	310.652	0.795	Surcharged
1.010	7200 min Summer	10825	S14	S15	0.450	0.422	7.743	0.033	OK
1.011	2880 min Summer	2831	S15	S16	0.225	0.679	27.006	0.475	OK
1.012	2880 min Summer	2807	S16	S17	0.900	0.271	74.777	0.079	OK
1.013	2880 min Summer	2854	S17	S18	0.900	0.235	27.288	0.031	OK
1.014	2880 min Summer	2831	S18	S19	0.900	0.294	33.071	0.037	OK
1.015	2880 min Winter	2657	S19	S20	0.900	0.212	19.587	0.022	OK
1.016	7200 min Summer	8597	S20	S21	0.900	0.114	47.471	0.054	OK
1.017	60 min Summer	32	S21	S22	0.150	0.841	6.135	0.309	Surcharged
1.018	7200 min Summer	5155	S22	S42	0.750	0.124	10.751	0.026	Surcharged
4.000	10080 min Winter	6473	S32	S33	0.118	0.740	0.798	0.009	OK
4.001	10080 min Winter	7786	S33	S34	0.300	0.524	8.468	0.052	Surcharged
4.002	600 min Summer	486	S34	S35	0.300	1.269	19.663	0.166	Surcharged
4.003	240 min Summer	238	S35	S36	0.375	1.015	45.999	0.400	Surcharged
4.004	180 min Summer	137	S36	S39	0.450	0.622	60.913	0.367	OK
5.000	60 min Summer	31	S37	S38	0.225	1.614	64.166	0.997	OK
5.001	600 min Summer	602	S38	S39	0.225	0.944	15.514	0.381	OK
4.005	120 min Summer	109	S39	S40	0.450	1.212	163.723	0.901	OK
4.006	60 min Summer	39	S40	S41	0.450	1.836	242.485	1.335	OK
4.007	180 min Summer	151	S41	S42	0.750	1.473	150.059	0.124	Surcharged
6.000	60 min Summer	31	S23	S24	0.148	0.833	16.890	0.229	OK
6.001	60 min Summer	31	S24	S25	0.225	2.042	54.766	0.730	OK
6.002	60 min Summer	30	S25	S26	0.225	1.894	50.555	0.587	OK
6.003	1440 min Summer	1288	S26	S27	0.225	1.322	8.793	0.105	OK
6.004	60 min Summer	34	S27	S28	0.300	1.248	88.226	1.203	Surcharged
6.005	60 min Summer	33	S28	S29	0.300	1.857	131.292	1.841	Surcharged
6.006	60 min Summer	33	S29	S30	0.300	2.255	159.430	1.900	Surcharged
6.007	60 min Summer	34	S30	S31	0.375	1.947	212.496	1.747	Surcharged
6.008	180 min Summer	151	S31	S42	0.750	1.067	114.876	0.221	Surcharged
1.019	10080 min Winter	7964	S42	S43	0.030	0.499	2.323	0.009	OK
1.020	10080 min Winter	7950	S43	S44	0.032	0.660	2.323	0.046	OK

Appendix G – Ground Investigation report

**Land at Gate Farm,
High Street, Sutton Benger**
Ground Investigation
Report

Land at Gate Farm
High Street, Sutton Benger

Ground Investigation Report

For

Gleeson Land

DATE: April 2026

REV: P04

Document Reference & Control

Project Name: Land at Gate Farm, High Street, Sutton Benger

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Report Title: Ground Investigation Report

Client: Gleeson Land

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Report Status: P04

Approval Status	Name & Position
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Revision Status	Date	Summary of Revision
P01	30/03/26	First Issue
P02	23/04/26	Incorporating client comments
P03	24/04/26	CBR recommendations updated
P04	28/04/26	Minor Amendments

Executive Summary

This presents the salient points of the report and should not be referred to in isolation.

Instruction	In October 2025, Gleeson Land commissioned Rodgers Leask Ltd (RLL) to undertake a ground investigation and prepare a Ground Investigation Report (GIR) for Land at Gate Farm, High Street, Sutton Benger (the Site)
Scope of Works	▪ A review of the Phase 1 Desk Study (which contains environmental searches) and existing third-party ground investigation data. ▪ An intrusive ground investigation comprising windowless sampling boreholes, trial pits, soakaways and TRL DCPs. ▪ Chemical and geotechnical testing on samples collected during the investigation. ▪ Preliminary ground gas monitoring. ▪ A generic quantitative risk assessment of the chemical status of the soils and groundwater in relation to the Conceptual Model. ▪ Assessment of the geotechnical ground conditions and recommendations for foundations, floor slabs, buried concrete, earthworks and abnormal ground related construction issues. ▪ Additional groundwater level monitoring over the winter period.
Proposed Development	Outline planning permission (with all matters reserved except means of access, from the B4069) for up to 90 no. (class C3) residential dwellings (including 40% affordable dwellings) including the creation of new vehicular access (from the B4069), pedestrian and cycle paths, parking spaces, public open space, biodiversity enhancement, landscape planting, surface water attenuation, associated infrastructure and other associated works.
Site Location and Description	The Site is located to the north of the B4069 within the village of Sutton Benger, approximately 7km north-east of Chippenham. The Site is approximately centred on National Grid Reference 393999E, 178513N, with the nearest postcode being SN15 4RE. The Site has a roughly rectangular outline and covers an area of approximately 4.97 hectares (ha). It comprises agricultural fields and is accessed via a track and gated entrance located in the eastern corner of Site, off the B4069.
History	The Site has remained greenfield agricultural land throughout the available mapping record.
Published Geology, Hydrogeology & Hydrology	No Made Ground was encountered during the intrusive investigation. According to published geological records, the Site is underlain by the Kellaways Sand Member, comprising of sandstone. River Terrace Deposits, consisting of sand and gravel, are associated with areas closest to the eastern boundary of the Site. Alluvium, comprising clay, silt and sand, are associated with areas closest to the northern boundary.

	Kellaways Sand Member is classified as a Secondary A aquifer in the northern half of the Site and is classified as an Unproductive in the south half. The superficial deposits are classified as a Secondary A aquifer. A normal fault is recorded in the wider vicinity, trending southwest to northeast approximately 182 m northwest of the Site. Two WFD surface water body catchments are present on the Site and are associated with two rivers. One relates to the River Avon (Tetbury Avon within the river Marden catchment), and the other is associated with Sutton Benger Brook within the River Avon (Bristol catchment). Both watercourses are located along the northern boundary of the Site. The northern boundary of the Site lies within flood zones 2 and 3, associated with the watercourse immediately to the north. The Site lies within a groundwater Source Protection Zone (SPZ) Zone 2c (outer catchment within confined aquifer).
Ground Conditions Encountered	■ The following ground conditions were encountered during the works: ■ TOPSOIL comprising grass over brown slightly sandy slightly gravelly clay - encountered in all locations to a maximum depth of 0.30m bgl; ■ KELLAWAYS SAND MEMBER typically comprising very soft to very stiff light brown sandy CLAY; or medium dense sandy GRAVEL; or medium dense gravelly SAND; or firm reddish brown slightly sandy slightly gravelly CLAY - encountered in all locations to a maximum depth of 4.10m bgl, except at SA01, TP03, TP013; ■ ALLUVIUM typically comprising firm to stiff grey mottled orangish brown clay – encountered only in WS01 to a maximum depth of 5.00m bgl. ■ RIVER TERRACE DEPOSITS typically comprising firm light brown sandy gravelly CLAY; or loose to medium dense light brown slightly clayey very sandy GRAVEL; or medium dense light brown silty sandy GRAVEL – encountered in SA01, TP03, TP13, WS03, and WS05 to a maximum depth of 2.85m bgl. Made Ground was not encountered during the intrusive works.
Contamination Issues	No visual or olfactory indications of contamination was observed during the investigation. Chemical testing undertaken on soils across the Site indicate no elevated concentrations of contaminants above S4UL for residential development with homegrown produce.
Ground Gas/Radon	Gas: Based on the gas monitoring completed to date, monitoring wells indicate an initial CS-1 classification. Gas protections measures are therefore not considered necessary at this stage. Radon: Online UK radon mapping indicates that the Site is located within an area where less than 1% of dwellings are affected by radon. Accordingly, no radon protection measures are required within the floor slab of the proposed dwellings or extensions.

Foundations	Generally, the site is suitable for conventional strip or trench fill foundations excavated into the firm to stiff clay or medium dense sand and gravel of the Kellaways Formation where an allowable bearing pressure of 100 kPa should be achievable. Depending on the final development layout, a piled foundation maybe required for some of the plots located in the vicinity of TP07-TP12 & WS04 located in the southwest of the site where the Kellaway Formation was recorded to be soft. This area is highlighted on drawing 25317-RLL-25-XX-DR-O-003 P3 located in Appendix A. If piling is required then to confirm deeper ground conditions for pile design, some further ground investigation comprising combined percussive and rotary boreholes is recommended, with the boreholes drilled to depths of circa 20m. In situ Standard Penetration Tests should be conducted during forwarding of the boreholes and collected soil samples submitted for appropriate geotechnical laboratory testing.
Mining	There are no records of mining on Site or within 500m of its boundary.
Buried Concrete Classification	A Design Sulphate (DS) class of DS-1 and Aggressive Chemical Environment for Concrete (ACEC) class of AC-1 should be adopted for the Site.
Soakaway Testing	SA01 was positioned in the location of the proposed infiltration basin. At SA01, an effective depth of 25% was achieved, with infiltration rates of 1.43×10^{-5} m/s for the first test, and 1.50×10^{-5} m/s for the second (albeit extrapolated). The results of the groundwater level monitoring over the winter months of 2025/2026 recorded shallow groundwater, therefore it is not possible to achieve 1m of freeboard below the base of the infiltration basin (assumed to be 1m below existing ground levels). Therefore on this basis the site should be positively drained to the watercourse on the northern site boundary.
Waste Management	Reference should be made to the RLL Site specific Waste Management Strategy (ref. 25317-25-XX-RP-O-0007 dated November 2025.)
Recommendations for Further Works	▪ A copy of this report, particularly the chemical testing, should be issued to the local contaminated land officer to confirm that they agree that the material on Site is classified as non-hazardous and can be disposed off Site as this classification, if required. ▪ A copy of this report should be issued to the LPA to discharge any prestart Site planning conditions; ▪ A tree survey maybe required, extending beyond the Site boundaries, to inform foundation design; ▪ An ecology survey maybe required, covering the Site and adjacent areas; ▪ An Earthworks Specification will be required for any proposed earthworks;

	▪ Additional geotechnical testing will be required for any cut materials that are to be re-used in earthworks, or for any material to be imported to Site; ▪ Confirm with the local water supply company that the Site is suitable for standard PE water supply pipework; ▪ A CL:AIRE approved Materials Management Plan (MMP) will be required for the re-use of soils on Site; ▪ In-situ CBR testing will be required to inform road and hardstanding design. ▪ 20m deep dynamic sample/rotary boreholes in the southwest of the site to confirm design information for a piled foundation solution.
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Appendices

Appendix A: Drawings

Appendix B: Exploratory Hole Logs

Appendix C: Gas Monitoring

Appendix D: Soakaway Data

Appendix E: TRL DCP Data

Appendix F: Chemical Data

Appendix G: Geotechnical Data

1.0 Introduction

1.1. Terms of Reference

In October 2025, Gleeson Land commissioned Rodgers Leask Ltd (RLL) to undertake a ground investigation and prepare a Ground Investigation Report (GIR) for a Site at Gate Farm, High Street, Sutton Benger.

A Site Location Plan and Site Boundary Plan are included in **Appendix A**. The area included within the red line boundary is hereafter referred to as the 'Site'.

1.2. Proposed Development

It is understood that the Site has outline planning permission (with all matters reserved except means of access, from the B4069) for up to 90 no. (class C3) residential dwellings (including 40% affordable dwellings) including the creation of new vehicular access (from the B4069), pedestrian and cycle paths, parking spaces, public open space, biodiversity enhancement, landscape planting, surface water attenuation, associated infrastructure and other associated works.

A copy of the Illustrative Site Layout (drawing STN-GEN-SW-DR-MP-06 A) is included in **Appendix A**.

1.3. Objectives and Scope of the Report

The objectives and scope of the investigation were defined within the RLL Fee Proposal reference RL/P25-317/002 dated 18 November 2025. In order to achieve the outline objectives, the scope of this study comprise:

- A review of the Phase 1 Desk Study (which contains environmental searches) and existing third-party ground investigation data.
- An intrusive ground investigation comprising windowless sampling boreholes, trial pits, soakaways and TRL DCPs.
- Chemical and geotechnical testing on samples collected during the investigation.
- Preliminary ground gas monitoring.
- A generic quantitative risk assessment of the chemical status of the soils and groundwater in relation to the Conceptual Model.
- Assessment of the geotechnical ground conditions and recommendations for foundations, floor slabs, buried concrete, earthworks and abnormal ground related construction issues.

Subsequent to the ground investigation a programme of long term groundwater level monitoring was undertaken over the winter of 2025/2026.

1.4. Sources of Information

The following documents and data sources have been reviewed in preparation of this GIR and should be read in conjunction with this report:

- Phase 1 Geo-Environmental Desk Study, RLL, ref. 25317-RLL-25-XX-RP-O-0001 dated September 2025.
- Waste Management Strategy, RLL, ref. 25317-25-XX-RP-O-0007 dated November 2025.

1.5. Limitations and Confidentiality

All conclusions and recommendations made within this report are based upon and limited to the factual information obtained as part of this investigation. No responsibility can be taken by RLL for information obtained by third parties, and it has been assumed that all third-party information provided is true and correct.

No liability can be accepted for conditions not revealed within the exploratory holes or pits undertaken by this investigation. The exploratory points cover only a small proportion of the total Site area. RLL has where necessary undertaken extrapolation between locations and no responsibility can be taken for different conditions which may occur between locations.

RLL has undertaken the work in accordance with our understanding of current best practice at the time of undertaking the report. Further assessment and revision of the report may be required should new information come to light or legislation/changes to best practice be introduced after the date of issue of the report.

RLL has prepared the report for the sole use and reliance of the Client. The report may not be used or relied upon by any unauthorised third party without the explicit written agreement of RLL. The interpretive work undertaken within this report remains the intellectual property of RLL and must not be divulged to any commercial third party without prior written agreement of RLL.

At the time of writing, detailed information on the proposed structures, such as detailed layout, loadings and serviceability limits, was not available. Accordingly, where geotechnical design advice is provided it is for information only and should be reassessed by a competent specialist once the development layout and structural loadings are known.

2.0 Site Setting

2.1. Site Location and Description

The Site is located to the north of the B4069 within the village of Sutton Benger, approximately 7km north-east of Chippenham. The Site is approximately centred on National Grid Reference 393999E, 178513N, with the nearest postcode being SN15 4RE.

A plan of the Site is presented in **Appendix A**. The boundary of the Site is indicated by the red line.

The land within the red line boundary will henceforth be referred to as the "Site".

The Site has a roughly rectangular outline and covers an area of approximately 4.97 hectares (ha). It comprises agricultural fields and is accessed via a track and gated entrance located in the eastern corner of Site, off the B4069.

Overhead electricity cables run broadly north to south across the eastern portion of the Site, with a pole mounted electricity transformer located within the Site boundary. A raised manhole is present in the north-west corner of the central field, associated with a foul water sewer that trends north-west to south-east across the centre of the Site.

An unnamed watercourse flows west to east adjacent to the northern boundary. A man-made lake lies immediately adjacent to the north-west corner of the Site and drains into this watercourse via a series of overflows, sluice gates and weirs.

The highest point of the Site is located in the south-west corner approximately 66m AOD, falling northwards to approximately 59m AOD. Overall, the Site is relatively flat.

2.2. Site Boundaries and Surrounding Area

The Site is bounded to the north by ancient woodlands and an unnamed watercourse. To the west, the boundary is defined by an electric fence and a sparsely vegetated hedgerow. The southern boundary comprises a hedgerow and the B4069. To the east, the Site is bordered by a hedgerow and wall forming the rear boundary of a neighbouring residential garden; a disused swimming pool is located adjacent to this boundary.

Within the surrounding area, land to the north comprises further significant areas of ancient woodland, beyond which lie additional agricultural land and woodland, as well as the M4 motorway running broadly east to west. To the west is additional residential properties, with further agricultural land beyond. To the east are residential dwellings forming part of the village of Sutton Benger.

2.3. Site History

Historical Ordnance Survey maps have been studied to identify former land uses of the Site and the surrounding area. Records have been obtained from a Groundsure Report, presented in the RLL Desk Study, which includes the Site and immediate surrounding area.

A summary is provided below, and more detailed information is available in the RL Desk study (25317-RLL-25-XX-RP-O-0001).

2.3.1. On Site

The earliest available historical maps show the Site was greenfield comprising two agricultural fields. No significant changes are recorded on the Site through to the present day. The boundary between the two fields, as shown on the 1900 1:2,500 maps.

2.3.2. Off Site

The surrounding area predominantly comprised agricultural fields, with Sutton Benger to the east and Draycot to the west. Draycot House and its associated estate are located to the north of the Site. Notable residential development within Sutton Benger is shown on the 1981-1982 1:10,000 mapping. The 2025 1:10,000 scale mapping also indicates the presence of a factory to the north of the Site.

The construction of the M4 motorway, approximately 800m north of the Site, is first shown on the 1974 1:10,560 maps.

A substantial portion of the Draycot House is no longer shown on the 1956-1960 1:10,560 maps. Historical records indicate that the estate land had been sold separately and was owned by farmers at that time. The house was considered too large for their need and was subsequently demolished between 1952 and 1954. Draycot Lake was originally excavated between approximately 1773 and 1775 and was restored in 1990 to its present-day condition.

2.4. UXO

Regional Unexploded Bomb Risk maps obtained from Zetica indicate that the Site is in a low-risk area for unexploded ordnance (UXO).

Given that the Site has historically remained undeveloped and that the historical maps do not show any obvious signs of wartime activity within the Site locality, the risk of encountering UXB is considered low. No further risk assessment is required.

2.5. Geology

2.5.1. Published Geology

Information pertaining to the underlying ground conditions at the Site has been obtained via the RL Desk Study,

The published geological information pertinent to Site is presented below.

Table 2.1 - Published Geology	
Geological Unit	
Superficial Deposits	River Terrace Deposits comprising sand and gravel are associated with areas closest to the eastern boundary of the Site. Alluvium comprising clay, silt and sand are associated with areas closest to the northern boundary of the Site.
Bedrock Geology	Kellaways Sand Member (sandstone) underlies the entire Site.

No linear bedrock features are mapped within the Site boundary. However, one recorded bedrock fault is located within approximately 182m northwest of Site.

2.6. Mining History

Information presented within the RLL Desk Study indicates that the Site is not located within an area of coal mining, and there are no records of quarrying having been undertaken within the Site.

2.7. Potential for Ground Stability Hazards

The following BGS classifications with regards to ground stability hazards:

Table 2.2 – Geological Hazards		
Hazard	Hazard Rating	Comments
Shrink - Swell Clays	Negligible to Very Low	Ground conditions are predominantly non-plastic to low plasticity. A very low hazard rating associated with the alluvium present around the watercourse along the northern boundary of the Site.
Landslides	Very Low	Slope stability problems may be present and should be anticipated. However, this is considered unlikely.
Ground Dissolution of Soluble Rocks	Negligible	Soluble rocks are either not present or are not prone to dissolution. Dissolution features are unlikely.
Compressible Deposits	Negligible to Moderate	The majority of the Site is classified as negligible hazard. However, the alluvium in the northern part of the Site is classified as moderate hazard. This indicates that compressibility and uneven settlement hazards are likely to be present, and the variability and compressible nature of these deposits should be specifically considered.
Collapsible Deposits	Negligible to Very Low	The alluvium in the north of Site is classified as negligible hazard, while the remainder of the Site is classified as low risk. This indicates that potential collapses when deposits are loaded and saturated are unlikely to be present.
Running Sands	Very Low to Low	There is a low potential for running sands problems if groundwater levels rise or if sandy strata are exposed to water. For the majority of the Site, this risk is considered very low. However, in the eastern portion of the Site, associated with the River Terrace Deposits, running sands could occur if the water table rises rapidly.

2.8. Radon

The Site is not in a radon affected area, as less than 1% of properties are above the action level. Therefore, radon protective measures are not required in the construction of new dwellings or extensions.

2.9. Hydrogeology

Information presented in the RLL Desk Study indicates that the underlying bedrock comprises the Kellaways Sand Member, classified as Secondary A Aquifer in the northern half of the Site, and Unproductive in the southern half. The superficial deposits are classified as a Secondary A Aquifer.

One groundwater abstraction licence is recorded approximately 869m southwest of the Site, described as 'Ground Water – Fresh, General Use Relating to Secondary Category (Medium Loss)'. No potable water abstractions are recorded within 2,00m of the Site. The Site is located within Source Protection Zone (SPZ) 2c, defined as the outer catchment of a confined aquifer.

2.10. Hydrology

Two WFD surface water body catchments are present on the Site and are associated with two rivers. One relates to the River Avon (Tetbury Avon within the river Marden catchment), and the other is associated with Sutton Benger Brook within the River Avon (Bristol catchment). Both watercourses are located along the northern boundary of the Site.

The northern boundary of the Site lies within Flood Zone 2 and 3, associated with the watercourse immediately to the north:

- Flood Zone 2 designations are given to land with between 1% and 0.1% annual probability of river flooding or between 0.5% and 0.1% risk of sea flooding.
- Flood Zone 3 designations are given to land with a 1% annual probability or greater of fluvial flooding or a 0.5% annual probability or greater of sea flooding.

The Risk of flooding from Rivers and the Sea (RoFRaS) rating is classifies the northern boundary as high to medium risk, associated with the adjacent watercourses.

2.11. Landfills and Other Waste Sites

A summary is provided below, and more detailed information is available in the RL Desk study (25-317-RLL-25-XX-RP-O-0001).

Table 2.3 – Land fills and Other Waste Sites		
Category		Summary
Historical Industrial Sites from 1:10,000 mapping	<i>Potentially contaminative use within 500m</i>	On Site One historical record has been identified on Site, relating to a pumping house shown on the 1925 mapping and associated with the watercourse located along the northern boundary. Off Site Thirteen historical records have been identified off Site. These relate to an unspecified factory located approximately 253m east, unspecified tanks located 371m northeast (present on the 1982 mapping), a refused heap located 439m northeast (present on the 1885 mapping), and an old gravel pit indicated on maps dated from 1899 to 1960.
	<i>Historical Tank Database</i>	On Site No records. Off Site Twelve historical records have been identified off Site relating to unspecified tanks, tanks, and a gasometer located between 291m and 414m from the Site. 12 No. historical records for the Unspecified Tanks, Tanks and Gasometer between 415m and 291m from Site.
	<i>Potentially infilled Land within 250m</i>	On Site No records. Off Site No records.
Environmental Permits, Incidents and Authorisations	<i>Part IIA EPA 1990</i>	The Site is not determined as Contaminated Land.
	<i>Records of List 2 Dangerous Substance Inventory Sites</i>	No records within 500m.

Table 2.3 – Land fills and Other Waste Sites

Category		Summary
	<i>Licensed Discharge Consents</i>	On Site No records within 500m. Off Site One record relates to a 'Miscellaneous Discharges – Surface Water' into a tributary of the River Avon (Bristol); consent was revoked in 2016.
	<i>Pollution Incidents</i>	Six records have been identified within 500m of the Site. The most significant relates to a Category 2 incident in 2006 associated with an air impact. Four of the records relate to Category 3 water impacts.
Landfills and other Waste Disposal Sites	<i>EA registered, BGS survey, Local Authority and Historical Mapping</i>	No records within 250m.
Current land Use	<i>Current Industrial Sites</i>	One record identifies a telecommunications mast located approximately 123m of the Site.
Designated Environmentally Sensitive Sites	<i>SSSI's, NNR's, AONB's</i>	One record relates to a SSSI, Sutton Lane Meadows, located approximately 769m southeast of the Site. One record identifies designated ancient woodland at Weir Wood, located approximately 1km north of the Site. No other environmental sensitive sites have been identified within 1km of the Site

3.0 Ground Investigation

3.1. Introduction

A ground investigation was undertaken at the Site by RLL in November 2025 and comprised machine excavated trial pits and soakaway tests, windowless sample boreholes and TRL DCPs.

The main objectives of the investigation were to assess the baseline contamination profile for the Site and provide a preliminary geotechnical profile to understand likely foundation options.

A borehole location plan ref 25317-RLL-25-XX-DR-O-0003 is presented in **Appendix A**.

3.2. Scope of Works

The ground investigation comprised the following scope of works.

Table 3.1 – Scope of Works				
Investigation Technique	No. Of Intrusive Points	Location Ref:	Final Depth Range (m)	Rationale
Trial Pits (TPs) utilising a 8-ton tracked excavator	13	TP1 to TP13	2.50 – 4.10	Excavated to determine ground conditions across the Site and to obtain soil samples for laboratory testing.
Window sample (WS) boreholes	5	WS01 to WS05	1.00 – 5.00	Drilled to determine ground conditions across the Site, to undertake Standard Penetration Tests (SPTs). WS01, WS03 and WS04 were installed with ground gas and groundwater monitoring wells.
Soakaways test excavated using a 8-tonne tracked excavator	1	SA01	1.00	Test located in the area of the proposed attenuation basins to assess the potential for the use of soakaways for infiltration to ground.

Table 3.1 – Scope of Works

Investigation Technique	No. Of Intrusive Points	Location Ref:	Final Depth Range (m)	Rationale
TRL DCP Insitu CBR tests	6	DC1 to DCP6	0.93 – 0.97	Tests positions along the proposed main highway alignment to provide preliminary CBR data for highway design.

The exploratory holes were logged in general accordance with BS 5930:2015+A1:2020 'Code of Practice for Site Investigations' and copies of exploratory hole logs and photographs are included in **Appendix B**.

3.3. Site Constraints

The following constraints were identified during the intrusive works which prevented the full scope of works to be undertaken:

- WS02 and WS05: Installation was not completed due to shallow SPT refusal due to hard ground conditions. All other exploratory holes were terminated at their intended depths.
- WS03: Terminated at 2.8m bgl due to unstable ground conditions and multiple collapses. As a result, the borehole could only be installed to a depth of 2.0m bgl.

3.4. Underground services

Prior to the commencement of intrusive works, all exploratory hole locations were cleared for underground services by trained personnel using a Cable Avoidance Tool (CAT) and signal generator (Genny).

In addition, hand-dug service clearance pits were excavated at each borehole to a depth of approximately 1.2m bgl prior to drilling.

3.5. Overground services

The following overground services were identified during the Site walkover and confirmed during the intrusive ground investigation:

- Overhead electricity cables run broadly north to south across the eastern portion of the Site, with a pole mounted electricity transformer located within the Site boundary.

- A raised manhole is present in the north-west corner of the central field, associated with a foul water sewer that trends north-west to south-east across the centre of the Site.

3.6. Window Sample Boreholes

The ground investigation included five window sample (WS) boreholes (WS01 to WS05). Upon completion, WS01, WS03, and WS04 were installed with monitoring pipework with response zones between 1.00m bgl to 5.00m bgl, except WS03. WS03 was installed to 2.00m bgl due to encountering unstable ground conditions during drilling. The remaining boreholes were backfilled with arisings and reinstated at the ground surface.

Standard penetration tests (SPTs) were undertaken at 1m intervals in WS01 to WS05 to assess soil strength and relative density. All WS locations were drilled to depths ranging between 0.90m bgl and 5.00m bgl.

WS01 and WS02 were located along the northern boundary of the original Site and are now situated outside the revised Site boundary. However, the data obtained has been retained within this report as it provides useful contextual information on the ground conditions.

3.7. Trial Pits

Thirteen trial pits (TP01-TP13) were excavated during the intrusive ground investigation. The majority were excavated in areas proposed for development and associated highways, (ref. Illustrative Site Layout, Stantec, ref. STN-GEN-SW-DR-MP-06 A dated July 2025) and were excavated to depths of up to 4.10m bgl.

All trial pits were distributed across the Site to investigate the continuity of ground conditions.

3.8. Soakaway

One trial pit (SA01) was excavated specifically for soakaway testing to assess the permeability of shallow soils for drainage purposes. SA01 was excavated to 1.00m bgl.

Two soakaway tests were undertaken within SA01. Both tests achieved an effective depth of 25%, with infiltration rates of 1.43×10^{-5} m/s for the first test, and 1.50×10^{-5} m/s for the second. However, it should be noted that the results from the second test were extrapolated to achieve an effective depth of 75%.

These results indicate that soakaway drainage at this location is potentially suitable. However, additional testing at SA01 is required to meet the necessary

drainage design requirements. Furthermore, additional soakaway testing is recommended to confirm the suitability of infiltration across the Site.

Results from the soakaway tests are presented in **Appendix D**.

3.9. Gas and Water Monitoring

No made ground was encountered in any of the exploratory hole locations. Monitoring pipework was installed to assist with establishing the gas regime and inform the ground gas risk assessment of the Site. Additionally, to identify any potential ground related risks affecting contamination, foundation designs, or cost allowances.

Four rounds of ground gas monitoring and seven rounds of groundwater level monitoring have been undertaken as part of the ground investigation works. On some occasions, monitoring data could not be obtained due to the borehole becoming flooded with groundwater or inability to remove the borehole bung.

All monitoring data is included in **Appendix C**.

3.10. Ground Conditions

The ground conditions encountered during the fieldwork generally comprised Topsoil underlain by the Kellaways Sand Member, except for SA01, TP03, TP13, and WS01. TP03 and TP13 comprised of Topsoil underlain by River Terrace Deposits. River Terrace Deposits in SA01, were overlaid by the Kellaways Sand Member. WS01 encountered Alluvium Deposits that were overlaid by the Kellaways Sand Member.

The following section describes the strata encountered in additional detail. The depths given are from ground level, as it existed at the time of the investigation. Detailed descriptions are presented on the individual exploratory hole logs.

Table 3.2 - Ground Conditions			
Strata Encountered (Trial Pits)	Mean Depth to top of strata (m)	Mean Depth to base of strata (m)	Mean Thickness of strata (m)
1: Topsoil Typically comprising grass over brown slightly sandy slightly gravelly CLAY. Encountered in all locations.	0.00	0.23	0.23
2: Kellaways Sand Member	0.23	*base not determined in	

Table 3.2 - Ground Conditions

Strata Encountered (Trial Pits)	Mean Depth to top of strata (m)	Mean Depth to base of strata (m)	Mean Thickness of strata (m)
Typically comprising stiff light brown sandy CLAY; or sandy GRAVEL; or gravelly SAND; or reddish brown slightly sandy slightly gravelly CLAY Encountered in all locations excepting SA01, TP03 and TP13.		the majority of locations. [depth of exploration 5.00]	*base not determined
3: Alluvium Deposits (Superficial Deposits) Typically comprising grey mottled orangish brown CLAY. Encountered in WS01.	2.5	*base not determined. [depth of exploration 5.00]	*base not determined
4: River Terrace Deposits (Superficial Deposits) Typically comprising light brown sandy gravelly CLAY; or light brown slightly clayey very sandy GRAVEL; or light brown silty sandy GRAVEL Encountered in SA01, TP03, TP13, WS03, and WS05	0.65	*base not determined. [depth of exploration]	*base not determined

The Kellaways clay located in the southwestern portion of the site (TP07 to TP12 and WS 04) was found to be soft extending to a maximum depth of 3.9m in TP8. The SPT in WS04 at 3.0m bgl recorded an N Value of 0.

3.10.1. Field Observations

There was no visual or olfactory of gross contamination present in any of the exploratory locations.

During the drilling of WS03, multiple collapses were encountered due to the instability within the borehole. As a result, drilling was terminated at 2.80m bgl and the monitoring pipework was installed to a depth of 2.0m bgl. All other exploratory locations remained stable during the intrusive investigation.

3.11. Groundwater Level

3.11.1. During Fieldwork

Groundwater was encountered in twelve exploratory hole locations during the intrusive investigation. The relative depths and corresponding exploratory holes are summarised in the table below.

Table 3.3 - Water Strikes

Borehole	Depth of Groundwater Strike (m bgl)	
TP1	2.05	Water strike
TP2	1.80	Water strike
TP3	2.10	Water strike
TP4	3.85	Water strike
TP5	3.50	Water strike
TP8	3.80	Water strike
TP10	3.80	Water strike
TP13	2.85	Water strike
WS01	1.20	Water strike
WS02	0.90	Water strike
WS03	1.80	Water strike
WS05	0.90	Water strike

3.11.2. Post Fieldwork Groundwater Monitoring

Post fieldwork groundwater level monitoring was undertaken in all boreholes that were installed with monitoring pipework across the Site (WS01, WS03, and WS04). Groundwater Monitoring was carried out during December 2025 to March 2026. The results are summarised below:

Table 3.4 - Groundwater monitoring results.

Hole ID	Date	Groundwater level (m bgl)
WS01	12/12/2025	0.78
	05/01/2026	0.90
	12/01/2026	0.83
	19/01/2026	0.43
	28/01/2026	Borehole flooded
	06/02/2026	Borehole flooded
	18/02/2026	0.64
	4/03/2026	0.73
WS03	12/12/2025	0.84
	05/01/2026	1.03
	12/01/2026	0.98
	19/01/2026	0.51
	28/01/2026	0.2

Table 3.4 - Groundwater monitoring results.		
Hole ID	Date	Groundwater level (m bgl)
	06/02/2026	Unable to remove bung
	18/02/2026	0.42
	4/03/2026	Unable to access due to archaeological works
WS04	12/12/2025	1.77
	05/01/2026	2.30
	12/01/2026	2.06
	19/01/2026	1.22
	28/01/2026	0.79
	06/02/2026	Unable to remove bung
	18/02/2026	0.94
	4/03/2026	1.45

4.0 Chemical Testing

4.1. Risks to Human Health

4.1.1. Soils

A total of ten soil samples were collected during the ground investigation and scheduled for laboratory analysis for the purpose of contamination testing. The samples were analysed for heavy metals, cyanides, phenols, polycyclic aromatic hydrocarbons (PAHs), asbestos and organochloride pesticides. Not every determinand was analysed in every sample.

Four samples were obtained from Topsoil and six were collected from Kellaways Sand Member.

The laboratory results were assessed against the Category 4 Screening Values (C4SL) for a residential end use with plant uptake.

No exceedances were recorded.

Asbestos was not identified in any of the ten samples analysed. Furthermore, no exceedances of organic chloride pesticides were identified in the samples tested.

Laboratory certificates and screening is presented within **Appendix F**.

4.2. Risk to Controlled Waters

No Made Ground was identified at the Site. Therefore, no pollutant linkages have been identified between the Site and nearby controlled waters, including Sutton Benger Brook, the River Avon (Bristol), or the underlying aquifer.

4.3. Assessment Approach

The RLL desk study did not identify any potential pollutant linkages between the Site and groundwater. Accordingly, groundwater sampling was not undertaken as part of this investigation.

The lack of significant elevations of heavy metals, cyanides, phenols, polycyclic aromatic hydrocarbons (PAHs) concentrations within the soil samples indicate that the Site is unlikely to pose a significant risk to controlled waters.

4.4. Risks to Structures

Five samples were tested for BRE water-soluble sulphate and pH to assist with the concrete Design Sulphate classification.

Four tests were undertaken on samples from the Kellaways Member and one from the River Terrace Deposits to provide an initial sulphate assessment.

The laboratory results were assessed in accordance with BRE Special Digest 1 2005: Concrete in Aggressive Ground. Due to the history of the Site, it has been designated as a greenfield Site with mobile groundwater.

A summary of the water-soluble sulphate data is provided in the table below.

Table 4.1 - Summary of Water-Soluble Sulphate Data		
Details	Kellaways Sand Member	River Terrace Deposits
No. of Tests	4	1
pH Range	7.5 – 8.3	8.3
Water Soluble Sulphate Range (mg/l)	10-72	21
Total Potential Sulphate (%)	0.06 – 0.12	0.12
Oxidisable Sulphate (%)	0.00 – 0.07	0.04
Design Sulphate Class	DS-1	DS-1
ACEC Class	AC-1	AC-1

An assessment of potentially oxidisable sulphates (OS) has been made. As the majority of samples contained OS are less than 0.3% thus it is considered the Kellaways Sand Member and River Terrace deposits are unlikely to contain OS.

In accordance with BRE SD1 (2005) and based on the pH and sulphate testing, the following grades of buried concrete should be adopted:

- Kellaways Member – DS-1 AC-1s;
- River Terrace Deposits - DS-1 AC-1s.

Any fill imported to increase levels will require further assessment.

5.0 Ground Gas

5.1. Assessment Approach

The RLL Desk Study did not identify any potential pollutant linkages associated with ground gas. In addition, no Made Ground was encountered during the ground investigation

Notwithstanding this, monitoring wells were installed in WS01, WS03, and WS04 to assess potential ground gas risk at the Site. The wells were constructed with response zones between 1.00m bgl and 5.00m bgl, with the exception of WS03, which was screened between 1.00m bgl and 2.00m bgl.

5.2. Gas Monitoring Results

Four rounds of ground gas monitoring were undertaken between the 12th January and 5th February 2026. Monitoring was carried out using a Gas Data GM25 infra-red landfill gas analyser with integral flow measuring capability.

No detectable methane was encountered (<0.1% detection limit of instrument) and a maximum concentration of 1.7 % for carbon dioxide was recorded. No detectable flows were measured during the monitoring rounds.

The monitoring results are presented in **Appendix C**. A summary of the monitoring results is presented in the table below.

Table 5.1 - Gas Monitoring Summary						
Hole ID	Date	Barometric Pressure (mb)	Peak Methane (%)	Peak Carbon Dioxide (%)	Min Oxygen (%)	Steady Flow Rate (l/hr)
WS01	12/01/26	1000	0.0	0.5	19.8	0.0
	19/01/26	1012	0.0	0.5	19.9	0.0
	28/01/26	994	0.0	-	-	0.0
	05/02/26	981	0.0	-	-	0.0
WS03	12/01/26	1000	0.0	0.1	19.8	0.0
	19/01/26	1012	0.0	0.4	19.9	0.0
	28/01/26	994	0.0	1.3	18.6	0.0
	05/02/26	981	0.0	1.4	18.4	0.0
WS04	12/01/26	1000	0.0	0.1	19.4	0.0
	19/01/26	1012	0.0	0.7	19.7	0.0
	28/01/26	994	0.0	1.7	18.3	0.0

	05/02/26	981	0.0	1.8	19.4	0.0
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5.3. Gas Screening Values (GSVs)

GSVs were calculated for each monitoring borehole and are initially conservatively based on the peak methane and carbon dioxide readings and the steady flow rate encountered within each exploratory hole.

Table 5.2 - Gas Screening Values

Hole ID	CH ₄ GSV	CO ₂ GSV	Borehole Characterisation
WS01	0.0003	0.0015	Characteristic Situation 1
WS03	0.0003	0.0042	Characteristic Situation 1
WS04	0.0003	0.0054	Characteristic Situation 1

*0.1% CH₄ concentration used on any value less than 0.1%, based on the gas analyser margin of error.

**0.3 l/hr flow has been used on any value less than 0.3 l/hr, based on the gas analyser margin of error.

All monitoring locations recorded peak carbon dioxide concentrations below the 5% v/v threshold for CS-2 protection.

In accordance with CIRIA C665 and British Standard BS8485:2015+A1:2019, and based on gas monitoring undertaken to date, all boreholes would fall under a CS-1 classification. Under this classification, no specific ground gas protection measures are required for the proposed development.

6.0 Updated Conceptual Site Model (CSM)

This section provides a qualitative assessment of the risks posed from potential on and off Site contamination sources identified from the information presented in the previous sections. The CSM considers the findings of the ground investigations that have been undertaken at the Site.

The assessment carried out assumes that the Site will be redeveloped for a residential with plant uptake end-use. Should the end-use be altered, potential pathways and receptors should be re-assessed.

The CSM below has been developed based on the commonly adopted source-pathway-receptor model as recommended within the Land Contamination Risk Management (LCRM) guidance from the Environment Agency¹.

6.1. Potential Pollutant Linkages

6.1.1. Sources

The Site is a greenfield Site previously used for agricultural purposes. Soil analysis undertaken as part of this ground investigation did not identify any elevated concentrations of contaminants when assessed against generic assessment criteria for residential end use with plant uptake. No asbestos or pesticides were identified.

Made Ground and organic peat within the Alluvium were not encountered during the ground investigation.

There was no visual or olfactory evidence of hydrocarbons contamination observed during the investigation, including within the trial pit located in proximity to the pole-mounted transformer (a potential source of petroleum hydrocarbons and/or PCBs).

Four rounds of ground gas monitoring have been completed. The Site has been initially classified as Characteristic Situation 1 (CS1). In accordance with BS8485:2015+A1:2019, a CS1 classification indicates that specific gas protection measures for methane and carbon dioxide are not required. Radon protection measures are also not considered necessary.

6.1.2. Receptors

Human Health

¹ <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

Based on a residential with homegrown produce end use, as defined by the Environmental Agency's guidance, there is potential for exposure of Site end-users to contaminants in soils via the following pathways:

- Direct ingestion of soil and dust via gardens and landscaped areas;
- Dermal contact with soil directly and indoor dust from any garden or landscaped areas;
- Inhalation of dust;
- Ingestion of contaminated water via plastic pipes.

Contamination in soils may also present a risk to construction workers. As such, appropriate risk assessments and safety measures (PPE / hygiene rules) will need to be implemented in order to provide adequate protection.

Where risks to future Site-users are identified, these can typically be mitigated by the placement of clean cover in landscaped or garden areas, increasing the overall depth to residual contamination. Given the absence of an identified source terms, clean cover shall not be necessary.

Controlled Waters

No leachate or water samples were collected during this investigation, as risks to controlled waters are not considered significant due to the lack of significant sources of contamination.

Structures

In accordance with the recommendations given within BRE SD1 and based on the pH and sulphate testing, a Design Sulphate (DS) class of DS-1 and Aggressive Chemical Environment for Concrete (ACEC) class of AC-1 should be adopted for the Kellaway Member.

Radon protection measures are not required.

6.1.3. Proposed Mitigation

It is considered that the contamination risk associated with the Site is considered to be negligible, subject to the implantation of the following actions:

- Measures to be put in place during construction to protect a Secondary A aquifer, Sutton Benger Brook and several drainage changes present from run off.
- Any imported materials used to raise ground levels, as well as any Topsoil imported for use in garden or landscaped areas, will need to be assessed for suitability and screened against agreed import criteria. This will form

part of a Site-specific Materials Management Plan taking into account risks to both human health and controlled waters.

- In accordance with the recommendations given within BRE SD1 and based on the pH and sulphate testing, a Design Sulphate (DS) class of DS-1 and Aggressive Chemical Environment for Concrete (ACEC) class of AC-1 should be adopted for the Kellaways Sand Member and the River Terrace Deposits.
- If Made Ground is encountered during the earthworks, it should remain separate from natural soils and may require additional testing to identify any potential contamination and material classification for disposal off Site.
- All required and recommended measures outlined in the RLL Waste Management Strategy must be adhered to (ref. 25317-25-XX-RP-O-0007, RLL dated November 2025)

Assuming the above measures are implemented, it is considered that there will be a negligible risk posed to human health or controlled waters post-development.

7.0 Geotechnical Assessment

Samples collected on Site were sent for geotechnical laboratory testing, which were undertaken in accordance with BS1377:1990. The testing was undertaken by Structural Soils Ltd included the following:

- 10 No. moisture content;
- 9 No. Atterberg limits;
- 5 No. particle size distribution by wet sieving; and
- 5 No. BRE SD1 full suite.

The above testing provided results to show the principal geotechnical properties of the major geological units identified during the ground investigation.

Geotechnical Laboratory certificates are included within **Appendix G**. A summary of the geotechnical laboratory results is presented below.

7.1. Topsoil

Topsoil was encountered in all window sample locations. One sample was obtained for Atterberg limits and moisture contents. No particle size distribution testing was undertaken on Topsoil samples.

Table 7.1 - Summary of Geotechnical Results for Topsoil

Parameter	No of Tests	Value Range	Assessment
Moisture Content (%)	1	28.4	-
Liquid Limit (%)	1	49	Modified Plasticity Index: 29% Medium Volume Change Potential
Plastic Limit (%)	1	20	
Plasticity Index	1	29	
% passing 425µm sieve	1	100	

7.2. Kellaways Sand Member

Eight soil samples were obtained from the Kellaways Sand Member and tested for Atterberg limits and moisture content. One sample (TP05 at 1.80m bgl) was identified as non-plastic and is therefore excluded from the summary table below.

Table 7.2 - Summary of Geotechnical Results for Kellaways Sand Member

Parameter	No of Tests	Value Range	Mean	Assessment
Moisture Content (%)	8	11.1 - 37.8	20.8	-
Liquid Limit (%)	7	28.0 – 49.0	42.7	Modified Plasticity Index: 14.0% - 22.5% (17.3) Low to Medium Volume Change Potential (Medium Volume Change Potential should be used for foundation design)
Plastic Limit (%)	7	14.0 – 21.0	17.4	
Plasticity Index (%)	7	14.0 – 23.0	18.3	
% passing 425µm sieve	7	65.0 – 100.0	94.3	

Three particle size distribution tests were carried out on samples of the Kellaways Sand Member. The results are summarised in the table below:

Table 7.3 - Summary of Particle Size Distribution Test Results for Kellaways Sand Member

Location	Depth (m bgl)	Sample Proportion %					Description	CC 601 Earthworks classification
		Clay	Silt	Sand	Gravel	Cobbles		
TP02	1.0	8		22	70	0	silty very sandy GRAVEL	Class 1B/1C
TP07	2.5	74		26	0	0	slightly sandy CLAY	Class 2A/2B
TP09	3.0	18		25	57	0	clayey very sandy GRAVEL	Class 2B/2C

Particle size distribution results indicate an initial classification ranging between Class 1B/1C, Class 2A/2B and Class 2B/2C.

7.3. River Terrace Deposits

River Terrace Deposits were encountered in SA01, TP03, TP13, WS03, and WS05. One sample was obtained for Atterberg limits and moisture content testing.

Table 7.4 - Summary of Geotechnical Results for River Terrace Deposits

Parameter	No of Tests	Value Range	Assessment
Moisture Content (%)	1	13.7	-
Liquid Limit (%)	1	30	Modified Plasticity Index: 15% Low to Medium Volume Change Potential.
Plastic Limit (%)	1	15	
Plasticity Index	1	15	
% passing 425µm sieve	1	45	

Two particle size distribution tests were undertaken on samples of the River Terrace Deposits. The results are summarised in the table below:

Table 7.5 - Summary of Particle Size Distribution Test Results for River Terrace Deposits

Location	Depth (m bgl)	Sample Proportion %					Description	CC 601 Earthworks classification
		Clay	Silt	Sand	Gravel	Cobbles		
SA01	1.0	13		23	64	0	clayey very sandy GRAVEL	Class 1B/1C
TP03	3.40	6		13	81	0	clayey sandy GRAVEL	Class 1B/1C

Particle size distribution results indicate an initial classification of Class 1B/1C.

7.4. In-Situ Soil Strength Tests

7.4.1. Dynamic Cone Penetrometer CBR Testing

Six TRL Dynamic Cone Penetrometer tests were undertaken by RLL, with the results summarised below and presented in full in **Appendix E**.

CBR tests were undertaken from ground level, the initial layer shown on the TRL DCP results relates to the topsoil and can be ignored for design purposes.

Table 7.6 - DCP Results

Location	Depth (m bgl)	CBR Range (%)	Notes
DCP-01	GL - 0.104	2.2	Topsoil
	0.104 - 0.560	5.7	
	0.560 - 0.839	70.6	
DCP-02	GL - 0.09	2.6	Topsoil
	0.09 - 0.253	4.5	Topsoil
	0.253 - 0.385	12	
	0.385 - 0.445	26	
	0.445 - 0.495	69	
	0.495 - 0.545	125	
	0.545 - 0.635	111	
	0.635 - 0.785	56	
	0.785 - 0.82	87	
DRP - 03	GL - 0.096	2.4	Topsoil
	0.096 - 0.303	6.9	Topsoil
	0.303 - 0.496	5.4	
	0.496 - 0.672	7.0	
	0.672 - 0.834	7.7	
DCP-04	GL - 0.096	2.4	Topsoil
	0.096 - 0.586	5.6	
	0.586 - 0.826	10.7	
DCP-05	GL - 0.088	2.7	Topsoil
	0.088 - 0.528	8.1	
	0.528 - 0.831	6.7	
DP-06	GL - 0.070	3.4	Topsoil
	0.070 - 0.754	5.5	
	0.754 - 0.830	20	

It should be noted that several results encountered penetration depths of 1mm or less per blow. These results are likely a result of striking a cobble or gravel; as such may not be representative and can affect the CBR conversion calculation.

On the basis of the TRL DCP CBR testing undertaken a preliminary design CBR of 5 to 10% should be used for highway design. In accordance with the Wiltshire Council standards there is a requirement for 250mm capping and 200mm subbase. Confirmatory plate load CBR testing will be required to confirm these values prior to construction.

7.4.2. Standard Penetration Tests

Standard Penetration Tests were undertaken generally at 1m intervals in WS01 to WS05 in accordance with the methodology outline in British Standard BS EN 22476-3 2005+A1:2011. Full details of the test results are contained on the individual borehole logs.

A summary of the results is presented below together with a recommended characteristic value (N) based on a statistical analysis using either a minimum value or the 50% fractile, depending on the data set. The N values have been corrected to N₆₀ or (N₁)₆₀ values, in accordance with BS EN 22476-3. RLL has used a conservative SPT Hammer energy ratio of 71% to calculate the N₆₀ values.

Table 7.7 - SPT Data				
Location	Depth (m bgl)	N ₆₀ or (N ₁) ₆₀ Value	Consistency	Geology
WS01	1.20	0	Very Soft	Alluvium
WS01	2.00	2	Very Soft	Alluvium
WS01	3.00	26	Stiff	Alluvium
WS01	4.00	36	Stiff	Alluvium
WS01	5.00	32	Stiff	Alluvium
WS02	0.90	58	Very Stiff	Kellaways Sand Member
WS03	0.85	47	Very Stiff	Kellaways Sand Member
WS03	1.80	37	Dense	Kellaways Sand Member
WS04	1.20	6	Firm	Kellaways Sand Member
WS04	2.00	0	Very Soft	Kellaways Sand Member
WS04	3.00	0	Very Soft	Kellaways Sand Member
WS04	4.00	26	Medium Dense	Kellaways Sand Member
WS04	5.00	20	Medium Dense	Kellaways Sand Member
WS05	1.20	58	Very dense	Kellaways Sand Member

Figure 1 present the distribution of SPT N60/N(1)60 values against depth for the Kellaways Sand Member, River Terrace Deposit and Alluvium across the Site.

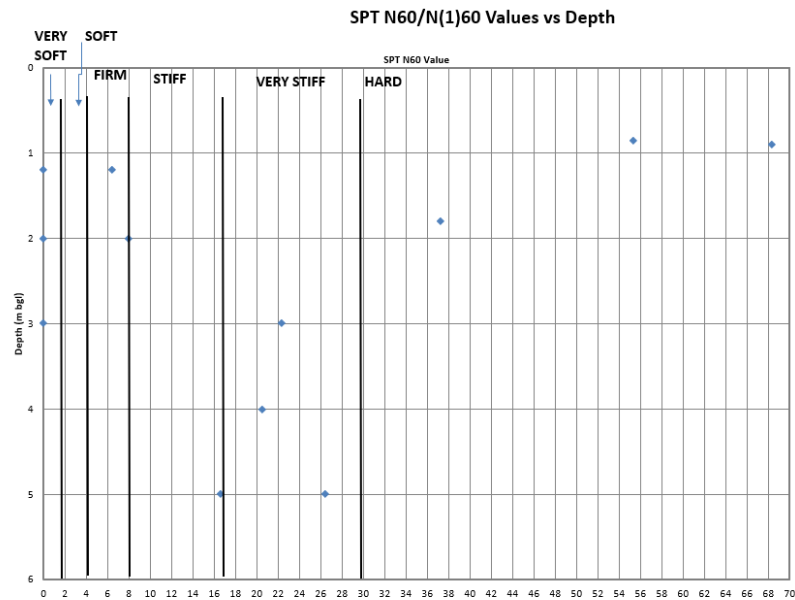


Figure.1 – Showing corrected SPT N60 values with depth.

7.5. Undrained Shear Strength Profile

The undrained shear strength of the cohesive material encountered at depth beneath the Site has been determined by empirical correlation as described in CIRIA Report C143 (after Stroud and Butler, 1975):

$$c_u = N_{60} f_1 \text{ (kN/m}^2\text{)} \quad [1]$$

Where c_u is the undrained shear strength, N_{60} is the corrected SPT N value and f_1 is an empirical correlation factor based on the soil plasticity index. Derived C_u values are presented against depth in the accompanying figure.

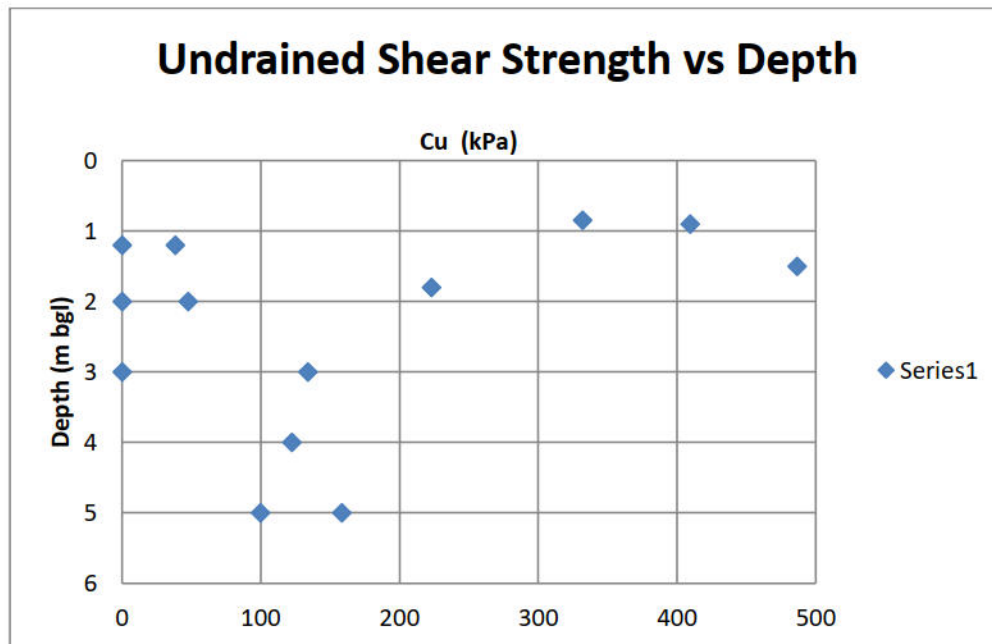


Figure.2 – Showing undrained shear strength with depth.

The Kellaways Sand Member predominately exhibits low strength cohesive soils (<30Kpa), within WS04 located in the southwest of the site. This is confirmed in with field observations in trial pits TP07 to TP11 where soft clay was observed.

There is significant variability in inferred undrained strength within and between strata. The C_u values should therefore be considered indicative and interpreted alongside the field descriptions and other available test data. Elevated values may reflect local dense/cemented horizons or partial penetration/refusal effects.

7.6. Preliminary Geotechnical Considerations

7.6.1. Groundwater Control

Due to the generally low permeability of the cohesive soils across parts of the Site and the recorded shallow groundwater present, excavations may require dewatering during autumn/winter months or following periods of heavy rainfall. It should be possible to control this and ingress of perched water through sump pumping. A discharge position should be sought for the relocation of water accumulating during the works; it may be possible to discharge into the surface water network with suitable control of suspended solids and permissions.

7.6.2. Excavations

Multiple collapses were observed during the drilling of WS03. Excavations left open for extended periods should be battered back to a safe angle or installed with appropriate trench support systems. No personnel should entry into unsupported excavation.

7.6.3. Slope Stability

No significant slopes or slope instability issues were observed on Site. Therefore, slope stability is not considered to be a significant issue. However, any proposed retaining walls, embankments and/or temporary works should be designed by a suitably qualified engineer.

It is currently unknown whether any significant changes in level will be required for the proposed redevelopment. Where significant changes of ground elevation do occur, consideration will have to be given to the impact on foundation solution adopted.

7.6.4. Soakaways

Soakaway testing was undertaken as part of the 2025 RLL ground investigation. SA01 was positioned in the location of the proposed infiltration basin. At SA01, an effective depth of 25% was achieved, with infiltration rates of 1.43×10^{-5} m/s for the first test, and 1.50×10^{-5} m/s for the second (albeit extrapolated).

The results of the groundwater level monitoring over the winter months of 2025/2026 recorded shallow groundwater, therefore it is not possible to achieve 1m of freeboard below the base of the infiltration basin (assumed to be 1m below existing ground levels). Therefore on this basis the site should be positively drained to the watercourse on the northern site boundary.

However, additional testing at this location is required to meet BRE 365 requirements, which specify that three valid tests achieving at least 25% effective depth are required to confirm the design infiltration rate.

Additional testing is required to assess suitability for infiltration drainage in other areas of the Site, as these areas are currently considered unsuitable for infiltration-based drainage solutions.

7.7. Earthworks

Details of earthworks and finished floor levels were not available at the time of the investigation. For any proposed earthworks, it is recommended that they are undertaken in a controlled manner using appropriate methods in

accordance with an Engineer's Earthworks Specification in order to minimise the settlement of hardstanding areas and services where any additional fill is placed.

7.8. Preliminary Foundation Appraisal

7.8.1. Proposed Development

It is understood that the Site is to be developed for residential dwellings. At the time of reporting, no indicative foundation loading information has been provided.

7.8.2. Foundation Recommendations

Generally, the site is suitable for conventional strip or trench fill foundations excavated into the firm to stiff clay or medium dense sand and gravel of the Kellaways Formation where an allowable bearing pressure of 100 kPa should be achievable.

Depending on the final development layout, a piled foundation maybe required for some of the plots located in the vicinity of TP07-TP12 & WS04 located in the southwest of the site where the Kellaway Formation was recorded to be soft. This area is highlighted on drawing 25317-RLL-25-XX-DR-O-003 P3 located in **Appendix A**. If piling is required then to confirm deeper ground conditions for pile design, some further ground investigation comprising combined percussive and rotary boreholes is recommended, with the boreholes drilled to depths of circa 20m. In situ Standard Penetration Tests should be conducted during forwarding of the boreholes and collected soil samples submitted for appropriate geotechnical laboratory testing.

7.8.3. Tree Influence

The natural deposits present on Site are assessed to have low to medium volume change potential; therefore, a medium volume change potential should be assumed. Given the presence of trees, the medium volume change potential of the shallow soils must be taken into consideration when designing foundations.

If trees are too be removed, there is a potential for swelling of clay soils due to an increase in moisture content following their removal. Conventional shallow foundations and ground bearing floor slabs may therefore be susceptible by heave.

A tree survey will be required to inform the detailed foundation design. Foundations and floor slabs may need to be designed to accommodate potential heave in accordance with NHBC guidance.

Where tree influence is significant, piled foundations or locally deepening of foundations to shallow rock (where this has been identified as non-plastic) may be required.

It is currently unknown whether significant changes in ground level will be required as part of the proposed development. Should substantial changes in ground elevation occur, the implication of the selected foundation solutions will need to be carefully considered.

Foundations should be designed by a structural engineer, appropriate to the loads being imposed. Should any contrasting ground/ localised soft spots be encountered at founding level, localised deepening and/ or steel reinforcement mesh may be required in the base of foundations.

Care must be taken during construction to prevent softening of clay soils at foundation level. Foundations should be cast as soon as possible following excavation. Where immediate casting is not possible, a thin layer of blinding concrete should be placed to protect the exposed clay surface.

7.9. Floor Slabs

Based on ground gas monitoring, the Site is classified as Characteristic Situation 1. Therefore, no additional gas assessment is required

The type and specification of floor slabs should be confirmed during detailed design. A beam and block suspended slab is considered suitable. Ground bearing slabs are also considered to be feasible outside of the influence of trees and where less than 600mm of upfill is proposed, and subject to the requirements for soil gas protection measures.

7.10. Buried Concrete

Buried concrete should be to Design Sulphate (DS) class and Aggressive Chemical Environment for Concrete (ACEC) class of DS-1/ AC-1. However, further assessment is required once the overall Site levels and development proposals are confirmed.

7.11. Pavement Construction

On the basis of the TRL DCP CBR testing undertaken a preliminary design CBR of 5 to 10% should be used for highway design. On the basis of these values the Wiltshire Council standard highway construction details specific a requirement for 250mm capping and 200mm subbase. Confirmatory plate load CBR testing will be required to confirm these values.

The fill material should be assessed for its geotechnical and chemical suitability prior to import. Unsuitable soils should not be accepted. Material should be tested as it is placed to test compliance with the specified compaction criteria. In situ CBR testing is recommended at Member level to assess compliance with required pavement design.

7.12. Waste Management

No Made Ground was encountered during the Site investigation. Should it be encountered is anticipated to remain on Site.

If Made Ground requires off Site disposal to landfill, it is likely to be classified as 'non-hazardous waste'. The chemical results should be forwarded to the proposed landfill Site and the waste classification confirmed prior to disposing of any surplus soils. The waste code from the European Waste Catalogue (EWC) for the soils would be 17 05 04 'Soil and Stones - other than those mentioned in 17 05 03'. Alternatively, excess material could be sent to a soil treatment facility for recovery and re-use elsewhere.

Where it is proposed to re-use Site won materials or import fill materials to raise Site levels, it is recommended that this is undertaken in accordance with a CL:AIRE approved Materials Management Plan (MMP) under the Definition of Waste: Code of Practice (DoWCoP).

Further details are provided in the RLL Waste Management Strategy (ref. 25317-25-XX-RP-O-0007 dated November 2025).

8.0 Conclusions and Recommendations

The Site is considered to present a negligible to low risk to human health and controlled waters. No requirement has been identified for remedial measures or incorporation of gas protection at this stage.

The Site generally comprises Topsoil underlain by the Kellaways Sand Member, with the exception of TP03 and TP13. At TP03 and TP13, Topsoil directly overlies River Terrace Deposits. At SA01, the River Terrace Deposits are overlaid by the Kellaways Sand Member. At WS01, located in the north of the site adjacent to the watercourse Alluvium was recorded extending to great than 5m bgl.

No contamination has been identified across the Site.

Site won Topsoil is considered chemically suitable for reuse. Any imported Topsoil should be tested to confirm its suitability for use. An allowance should be made for a suitable thickness of Topsoil (150mm is a minimum requirement for gardens) for a growing medium for any garden or landscaped areas.

If Site-won material is required for off Site disposal, it is likely to be classified as 'non-hazardous waste'. Chemical results should be forwarded to the proposed landfill Site for confirmation prior to disposal. The waste code from the European Waste Catalogue (EWC) for the soils would be 17 05 04 'Soil and Stones - other than those mentioned in 17 05 03'. Alternatively, excess material could be sent to a soil treatment facility for recovery and re-use elsewhere.

Based on the current ground gas monitoring results, new structures should be classified as Characteristics Situation 1. Accordingly, additional gas protection measures are not deemed necessary.

Radon protection is not required.

It is anticipated that the Site is suitable for standard PE water supply pipework.

Due to the presence of shallow groundwater, it is not possible to provide 1m of freeboard below the base of the infiltration basin, therefore it is recommended that surface water is positively drained into the watercourse to the north of the site.

Based on the November 2025 RLL ground investigation, traditional strip or trench fill foundations are considered likely to be suitable for two to three storey residential dwellings over the majority of the site, however the Kellaways Clays were found to be soft in the southwest of the site.

Depending on the final development layout, a piled foundation maybe required for some of the plots located in the southwest of the site where the Kellaway Formation was recorded to be soft. If piling is required then additional deep boreholes will be required in this area to confirm design information for a piled solution.

Structural loadings and appropriate foundation depths must be confirmed during detailed design. A medium volume change potential should be assumed, which may necessitate localised deepening of foundations.

In accordance with the recommendations given within BRE SD1 and based on the pH and sulphate testing, a Design Sulphate (DS) class of DS-1 and Aggressive Chemical Environment for Concrete (ACEC) class of AC-1 should be adopted for the existing ground conditions for buried concrete.

A CL:AIRE approved Materials Management Plan (MMP) may be required to facilitate the re-use of soils on Site, in accordance with the Waste Management Strategy previously provided by RLL (ref. 25317-25-XX-RP-O-0007 dated November 2025).

The following further works are recommended:

- A copy of this report, particularly the chemical results, should be issued to the local contaminated land officer to confirm that they agree that the material on Site is classified as non-hazardous and can be disposed off Site as this classification if off Site disposal is required.
- A copy of this report should be issued to the LPA to discharge any prestart Site planning conditions;
- A tree survey maybe required, extending beyond the Site boundaries, to inform foundation design;
- An ecology survey maybe required, covering the Site and adjacent areas;
- An Earthworks Specification will be required for any proposed earthworks;
- Additional geotechnical testing will be required for any materials that are to be re-used in earthworks, or for any material to be imported to Site;
- Confirm with the local water supply company that the Site is suitable for standard PE water supply pipework;
- A CL:AIRE approved Materials Management Plan (MMP) will be required for the re-use of soils on Site;

- In-situ CBR testing will be required to inform road and hardstanding design.
- 20m deep dynamic sample/rotary boreholes in the southwest of the site to confirm design information for a piled foundation solution

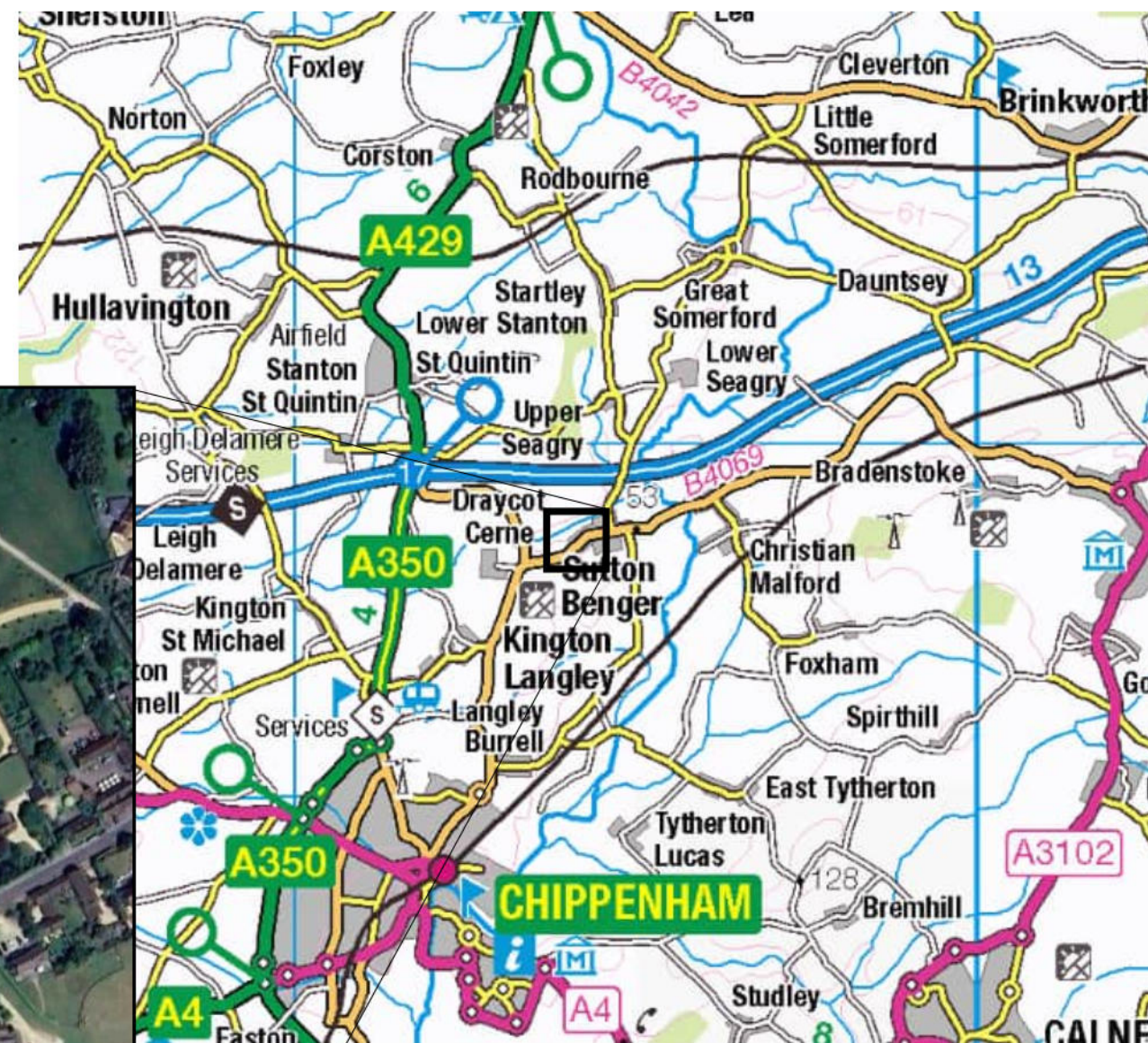
9.0 References

1. Spink, T.W. and Norbury, D.R., 1993. The engineering geological description of weak rocks and overconsolidated soils. *Proceedings 26th Regional Meeting of Engineering Group of Geological Society*, Leeds.
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4. UK National Annex to BS EN 1997-1: 2004. British Standards Institution.
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6. British Standards Institution. BS 10175:2011+A2:2017. Investigation of potentially contaminated Sites – Code of practice.
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9. British Standard BS EN 22476-2: 2005+A1:2011. Geotechnical Investigation and Testing – Field Testing – Part 3: Standard Penetration Test. British Standards Institution.
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13. Nathanial et. al., (2009), The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd edition), Land Quality Press, Nottingham

14. Wheale, G. et al, 2010, Guidance for the Selection of Water Supply Pipes to be Used in Brownfield Sites, UK Water Industry Research Ltd, report reference 10/WM03/21.
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16. BRE Special Digest 1, Concrete in Aggressive Ground 3rd Edition 2005 (including 2017 amendments), IHS BRE Press.
17. Land Contamination Risk Management (LCRM) guidance from the Environment Agency 2021

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

Appendix A: Drawings



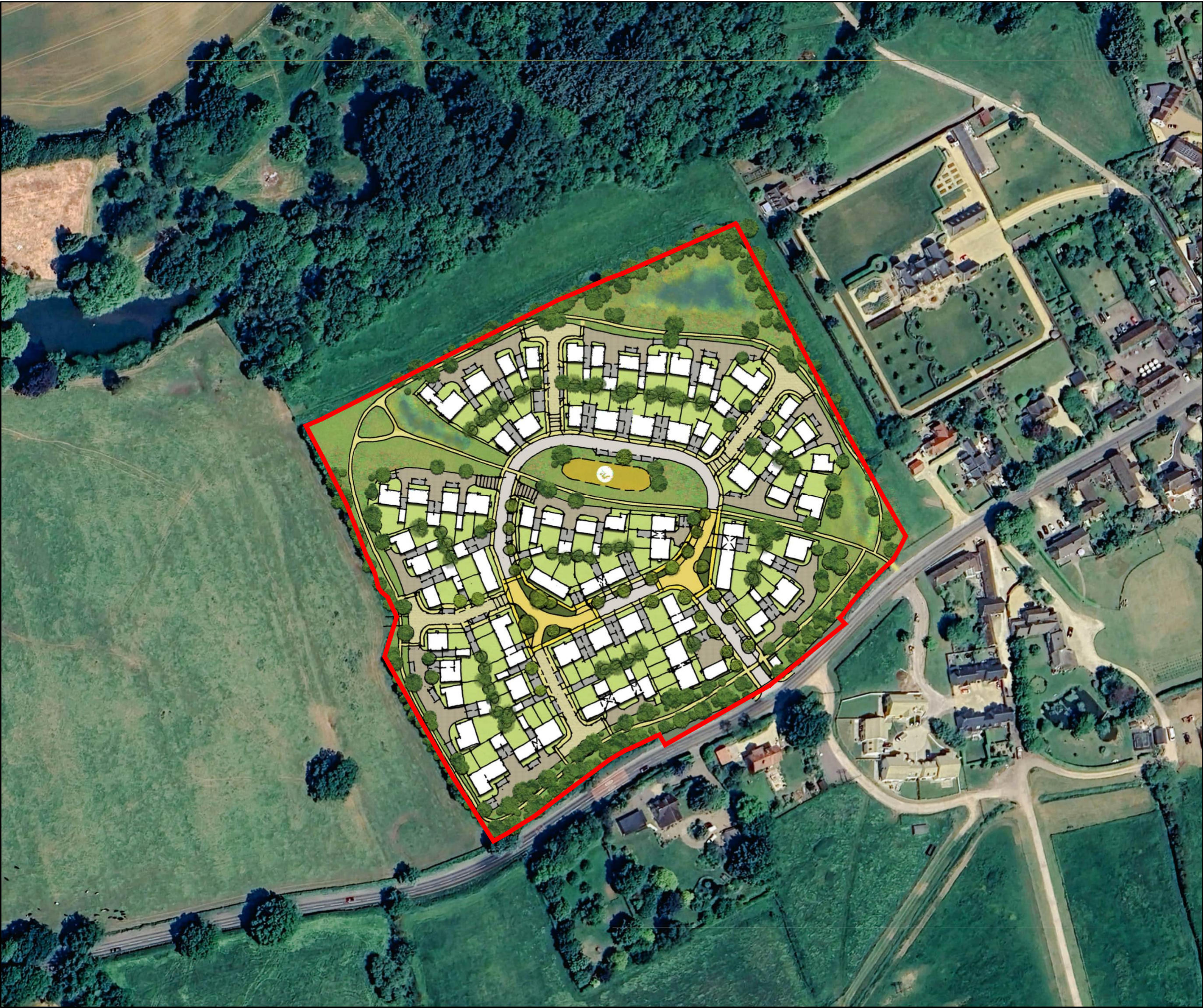
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□ Current Site Boundary

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 Client: Gleeson Land Ltd

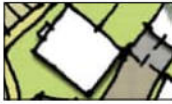
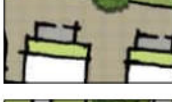
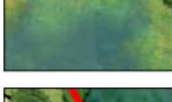
Title: Figure 1 – Site Location Plan
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 Engineer: JC
 Contractor:
 Date: Nov 2025





The scaling of this drawing cannot be assured

Revision	Date	Drn	Ckd
D Graphics Updated	12.03.26	JW	TL

-  Site Boundary
-  Dwelling House
-  Gardens
-  Primary Vehicular Route
-  Formal Square
-  Shared Surface
-  Lane / Private Drive
-  Parking
-  Footpath
-  Play Space
-  Attenuation Basin and Swale
-  Proposed Tree Planting
-  Existing Tree Planting

Project
Sutton Benger



Drawing Title
Illustrative Site Layout

Date	Scale	Drawn by	Check by
31.07.25	1:1,250 @A2	M.D.	F.M./S.B.
Project No	Drawing No	Revision	
333102291	STN-GEN-SW-DR-MP-06	D	





Stantec

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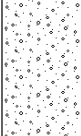
Stantec UK Limited
The Blade
Abbey Square
Reading
RG1 3BE
T: 0118 9430 000

stantec.com\uk

Appendix B:

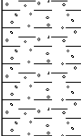
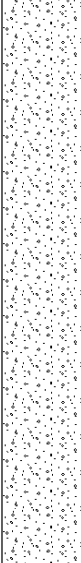
Exploratory Logs

				Trial Pit Log			Trialpit No SA1 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 394021.86 - 178615.20 Level:		Date 19/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): Depth 1.00 0.54 3.9		Scale 1:25 Logged DM	
Client: Gleeson Land									

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.20			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.	
				0.30			Firm (inferred) light brown slightly sandy slightly silty gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (RIVER TERRACE DEPOSITS)	
	0.50 - 1.00	B					Medium Dense (inferred) light brown clayey very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone. (RIVER TERRACE DEPOSITS)	
				1.00			End of pit at 1.00 m	1
								2
								3
								4
								5

Remarks: 1. Trial pit was excavated to 1.00m bgl . 2. Groundwater was not encountered. 3. Stability of the trial pit was stable. 4. Pit terminated at 1.00m bgl to undertake soakaway test. 4. Trial pit was drained and backfilled on completion. 5. No visible or olfactory evidence of contamination.		
Stability: Stable		

				Trial Pit Log				Trialpit No TP01 Sheet 1 of 1	
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393892.03 - 178555.61 Level:		Date 19/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): 4 0.55		Scale 1:25	
Client: Gleeson Land						Depth 3.00		Logged DM	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
▼	0.15	D		0.15			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.	1	
	0.60	ES		0.80			Firm (inferred) light brown slightly sandy slightly silty gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
							Medium Dense (inferred) light brown gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)		2
	2.90	B		2.70 3.00			Firm (inferred) blueish grey slightly gravelly slightly sandy CLAY with lenses of light brown gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone and shell fragments. (KELLAWAYS SAND MEMBER) End of pit at 3.00 m		3
								4	
								5	

Remarks: 1. Trial pit excavated to 3.00m bgl. 2. Groundwater encountered at 2.05m bgl. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.		
Stability: Stable		

Trial Pit Log

Trialpit No

TP02

Sheet 1 of 1

Project Name: Sutton Bengner

Project No.
P25-317

Co-ords:	393993.76 - 178554.54
----------	-----------------------

Date _____

18/11/2025

Location: Sutton Benger, Wiltshire

Dimensions
(m):

4

Scale

1:25

Client: Gleeson Land

Depth
2.50

0.55

Logged
DM

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40 0.40	D ES		0.25			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.	1
				0.45		 	Firm (inferred) reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER) Medium Dense (inferred) light brown slightly silty very sandy GRAVEL. Gravel is subangular to subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)	
	1.00 1.00	B D		1.80			Loose to medium dense (inferred) light brown slightly silty very gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)	2
	2.50			End of pit at 2.50 m		3		
							4	
							5	

Remarks:	1. Trial pit excavated to 2.50m bgl. 2. Groundwater was not encountered. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.
----------	---

Stability: Stable





TP03

Sheet 1 of 1

Project Name: Sutton Bengner

Project No.
P25-317

Level:

18/11/2025

Location: Sutton Benger, Wiltshire

Dimensions
(m):

4

Depth
2.85

0.55

Scale
1:25

Logged
DM

Client: Gleeson Land

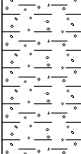
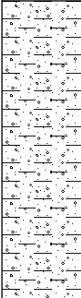
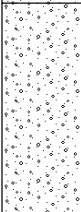
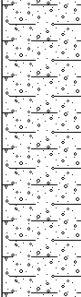
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
▼	0.00 - 0.25	ES		0.25			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.	1
	0.25 - 0.60	D		0.60			Firm (inferred) light brown sandy gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (RIVER TERRACE DEPOSITS)	
	0.25 - 0.60	D					Loose to medium dense (inferred) light brown clayey sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone. (RIVER TERRACE DEPOSITS)	
	2.00	B						Medium dense (inferred) light brown slightly clayey sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone. (RIVER TERRACE DEPOSITS)
			2.50			Medium dense (inferred) light brown slightly clayey sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone. (RIVER TERRACE DEPOSITS)	2	
			2.85					
						----- End of pit at 2.85 m		3
								4
								5

Remarks: 1. Trial pit excavated to 2.85m bgl. 2. Groundwater encountered at 2.10m bgl. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.

Stability: Stable



				Trial Pit Log			Trialpit No TP04 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393892.57 - 178504.76		Date 19/11/2025	
Location: Sutton Benger, Wiltshire				Dimensions (m):		4		Scale 1:25	
Client: Gleeson Land				Depth 3.85		0.55		Logged DM	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.20	ES		0.20			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.		
	0.40	D					Firm (inferred) light brown slightly sandy gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
	1.20	D		1.00			Firm (inferred) light brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
	2.90	B		2.80			Medium Dense (inferred) light brown slightly silty clayey SAND. Sand is fine to coarse. (KELLAWAYS SAND MEMBER)		
				3.85			End of pit at 3.85 m		
5									
Remarks: 1. Trial pit excavated to 3.85m bgl. 2. Groundwater encountered at 3.85m bgl. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.									
Stability: Stable									
									

				Trial Pit Log			Trialpit No TP05 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393942.34 - 178505.03 Level:		Date 19/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): 4 0.55		Scale 1:25	
Client: Gleeson Land						Depth 3.70		Logged DM	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
▼	0.25	ES		0.25			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.		
				0.80			Firm (inferred) light brown slightly sandy slightly silty gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
							Soft (inferred) light brown sandy gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
	1.80	D		1.80			Medium Dense (inferred) light brown slightly clayey very sandy GRAVEL. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
				2.50			Loose to medium dense (inferred) light brown mottled blue grey clayey sandy GRAVEL. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
	3.60	D		3.50 3.70			Medium Dense (inferred) light brown slightly clayey sandy GRAVEL. Gravel is angular to subangular fine to coarse of sandstone. (KELLAWAYS SAND MEMBER) End of pit at 3.70 m		
Remarks: 1. Trial pit excavated to 3.70m bgl. 2. Groundwater encountered at 3.50m bgl. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.									
Stability: Stable									



				Trial Pit Log			Trialpit No TP06 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393991.30 - 178503.69 Level:		Date 18/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): Depth 0.55 4		Scale 1:25	
Client: Gleeson Land						Depth 3.30		Logged DM	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.20	ES		0.30			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.		
	0.30	D					Firm (inferred) light brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
							Firm (inferred) light brown slightly silty sandy CLAY. Sand is fine to coarse. (KELLAWAYS SAND MEMBER).		
	2.10	B		2.10			Loose to medium dense (inferred) light brown sandy GRAVEL. Gravel is subangular to subrounded of sandstone. (KELLAWAYS SAND MEMBER)		
				3.30		End of pit at 3.30 m			
Remarks: 1. Trial pit excavated to 3.30m bgl. 2. Groundwater was not encountered. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.									
Stability: Stable									





TP07

Sheet 1 of 1

Project Name: Sutton Bengner

Project No.
P25-317

Level:

19/11/2025

Location: Sutton Benger, Wiltshire

Dimensions
(m):

4

Depth
4.00

0.55

Scale
1:25

Logged
DM

Client: Gleeson Land

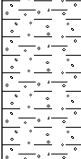
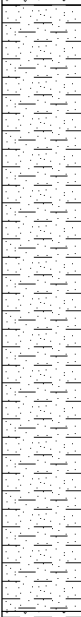
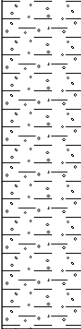
[illegible]

Remarks:	1. Trial pit excavated to 4.00m bgl. 2. Groundwater was not encountered. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.
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Stability: Stable



				Trial Pit Log			Trialpit No TP08 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393938.36 - 178455.52 Level:		Date 19/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): 4 0.55		Scale 1:25	
Client: Gleeson Land						Depth 3.90		Logged DM	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
▼				0.25			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.	
	0.80	ES		0.80			Soft (inferred) light brown slightly silty slightly sandy gravelly CLAY. Gravel is subrounded fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)	1
	2.00	D		2.80			Soft (inferred) light brown slightly sandy CLAY. Sand is fine to coarse. (KELLAWAYS SAND MEMBER)	2
				3.90			Soft to firm (inferred) light brown mottled grey slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and shell fragments. (KELLAWAYS SAND MEMBER)	3
							End of pit at 3.90 m	4
								5

Remarks: 1. Trial pit excavated to 3.90m bgl. 2. Groundwater encountered at 3.80m bgl. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.		
Stability: Stable		

				Trial Pit Log			Trialpit No TP09 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393991.47 - 178455.39 Level:		Date 20/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): Depth 3.80 0.55 4		Scale 1:25 Logged DM	
Client: Gleeson Land									

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.50 0.50	D ES		0.15		 TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed. Soft (inferred) light brown slightly sandy gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)	1	
				0.80		 Soft to firm (inferred) light brown slightly sandy CLAY. Sand is fine to coarse. (KELLAWAYS SAND MEMBER)		
	2.00	D						2
				2.80				
	3.00 3.00	B ES				 Loose to medium dense (inferred) light brown clayey very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)	3	
				3.80				
							End of pit at 3.80 m	4
								5

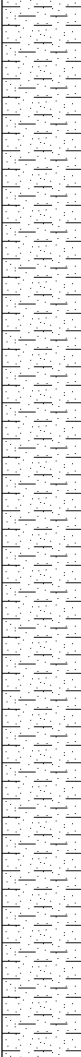
Remarks: 1. Trial pit excavated to 3.80m bgl. 2. Groundwater was not encountered. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.

Stability: Stable

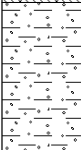
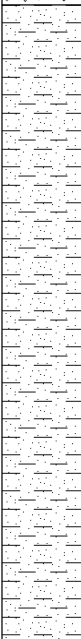
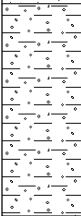


				Trial Pit Log			Trialpit No TP10 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 394042.70 - 178455.12 Level:		Date 20/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): 4 0.55		Scale 1:25	
Client: Gleeson Land						Depth 3.90		Logged DM	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
▼	0.20	ES		0.20			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.		
				0.70			Soft (inferred) light brown slightly sandy gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)		
	1.20	D					Firm (inferred) light brown very sandy CLAY. Sand is fine to coarse. (KELLAWAYS SAND MEMBER)		
				3.20			Medium Dense (inferred) light brown mottled blue grey slightly clayey gravelly SAND. Sand is fine to coarse. Gravel is subrounded fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)		
	3.50	D		3.90			End of pit at 3.90 m		
Remarks: 1. Trial pit excavated to 3.90m bgl. 2. Groundwater encountered at 3.80m bgl. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.									
Stability: Stable									



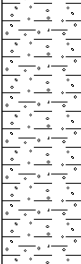
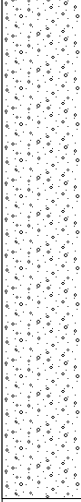
				Trial Pit Log			Trialpit No TP11 Sheet 1 of 1			
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393909.59 - 178405.87 Level:		Date 19/11/2025		
Location: Sutton Benger, Wiltshire				Dimensions (m):		4		Scale 1:25		
Client: Gleeson Land				Depth 4.10		0.55		Logged DM		
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.20	ES		0.25			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.			
	0.50	D		0.55			Soft (inferred) light brown slightly sandy gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (KELLAWAYS SAND MEMBER)			
	1.50	D					Soft to firm (inferred) light brown sandy CLAY. Sand is fine to coarse. (KELLAWAYS SAND MEMBER)			
				4.10			End of pit at 4.10 m			
Remarks: 1. Trial pit excavated to 4.10m bgl. 2. Groundwater was not encountered. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.										
Stability: Stable										

				Trial Pit Log				Trialpit No TP12 Sheet 1 of 1	
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 393969.26 - 178404.80 Level:		Date 19/11/2025	
Location: Sutton Benger, Wiltshire						Dimensions (m): 4 		Scale 1:25	
Client: Gleeson Land						Depth 3.60		Logged ES	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	D		0.30			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.	1
	0.50	ES						
				0.80			Soft (inferred) light brown slightly sandy CLAY. Sand is fine to coarse. (KELLAWAYS SAND MEMBER)	
	3.00	D		2.90			Soft to firm (inferred) light brown mottled grey slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of sandstone and shell fragments. (KELLAWAYS SAND MEMBER)	3
				3.60		----- End of pit at 3.60 m		4
								5

Remarks: 1. Trial pit excavated to 3.60m bgl. 2. Groundwater was not encountered. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.		
Stability: Stable		

				Trial Pit Log			Trialpit No TP13 Sheet 1 of 1		
Project Name: Sutton Benger				Project No. P25-317		Co-ords: 394095.96 - 178533.40 Level:		Date 20/11/2025	
Location: Sutton Benger, Wiltshire				Dimensions (m):		4 		Scale 1:25	
Client: Gleeson Land				Depth 2.85		0.55 		Logged DM	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
▼				0.30			TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.	1
	0.80	D					Soft to firm (inferred) light brown slightly sandy gravelly CLAY. Gravel is subrounded fine to medium of sandstone. (RIVER TERRACE DEPOSITS)	
	1.50	ES		1.20				Medium Dense (inferred) light brown slightly clayey very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse of sandstone. (RIVER TERRACE DEPOSITS)
				2.85			End of pit at 2.85 m	3
								4
								5

Remarks: 1. Trial pit excavated to 2.85m bgl. 2. Groundwater encountered at 2.85m bgl. 3. Stability of the trial pit was stable. 4. Trial pit was backfilled on completion. 5. No visible or olfactory evidence of contamination.		
Stability: Stable		

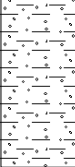
		Borehole Log				Borehole No. WS01 Sheet 1 of 1	
Project Name: Sutton Benger		Project No. P25-317		Co-ords: 393891E - 178603N		Hole Type WS	
Location: Sutton Benger, Wiltshire				Level:		Scale 1:27	
Client: Gleeson Land				Dates: 18/11/2025		Logged By ES	

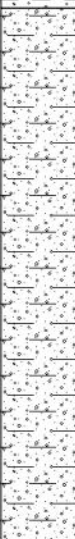
Scale	Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
	Depth (m)	Ref.	Type	Results						
1	0.20					0.20	TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed. Very soft orangish brown mottled greyish brown silty CLAY. (ALLUVIUM)			
	0.40	1	ES							
	0.80	2	D							
2	1.20		SPT	N=0 (0,0/0,0,0,0)						
	2.00		SPT	N=7 (1,0/0,1,2,4)		1.90	Very soft grey slightly sandy silty CLAY. Sand is fine to coarse. (ALLUVIUM)			
	2.30					2.30	Loose grey clayey sandy GRAVEL. Gravel is subrounded to rounded fine to coarse of sandstone. (ALLUVIUM)			
3	2.50	3	D			2.50	Firm to stiff grey mottled orangish brown CLAY. (ALLUVIUM)			
	3.00		SPT	N=22 (5,4/4,5,6,7)						
	4.00		SPT	N=31 (4,5/6,7,8,10)						
5	5.00		SPT	N=27 (3,4/5,7,7,8)		5.00	End of Borehole at 5.000m			

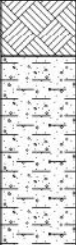
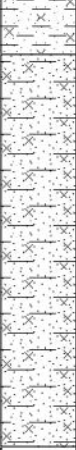
Remarks

1. Groundwater encountered at 1.20m bgl, rising to 1.00m bgl. 2. Windowless sampler drilling commenced from 0.0m bgl. 3. Borehole terminated in natural strata due to target depth was achieved. 4. Borehole installed to 5.00m bgl on completion.



					Borehole Log			Borehole No. WS02 Sheet 1 of 1		
Project Name: Sutton Benger					Project No. P25-317		Co-ords: 394041E - 178660N		Hole Type WS	
Location: Sutton Benger, Wiltshire					Level:			Scale 1:27		
Client: Gleeson Land					Dates: 18/11/2025			Logged By ES		
Scale	Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
	Depth (m)	Ref.	Type	Results						
1	0.20	1	ES		0.30	TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed.				
	0.50	2	ES			Stiff to very stiff orangish brown slightly sandy gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)				
	0.90		SPT	50 (8,15/50 for 95mm)	0.90	End of Borehole at 0.900m				
2										
3										
4										
5										
Remarks										
1. Groundwater encountered at 0.90m bgl, rising to 0.70m bgl. 2. Windowless sampler drilling commenced from 0.0m bgl. 3. Borehole terminated in natural strata due to hard strata. 4. Borehole was backfilled with arisings.										

		Borehole Log				Borehole No. WS03 Sheet 1 of 1				
Project Name: Sutton Benger		Project No. P25-317		Co-ords: 393968E - 178552N		Hole Type WS				
Location: Sutton Benger, Wiltshire				Level:		Scale 1:27				
Client: Gleeson Land				Dates: 18/11/2025		Logged By ES				
Scale	Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
	Depth (m)	Ref.	Type	Results						
1	0.85		SPT	N=40 (6,6/6,11,11,12)		0.20	TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed. Stiff to very stiff orangish brown slightly sandy gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)	 		
						0.90	Dense orangish brown clayey sandy GRAVEL. Gravel is angular and subangular fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)			
2	1.80		SPT	N=32 (6,8/10,7,7,8)						
	2.00	1	D							
3						2.80	End of Borehole at 2.800m			
4										
5										
Remarks 1. Groundwater encountered at 1.80m bgl. 2. Windowless sampler drilling commenced from 0.0m bgl. 3. Borehole terminated in natural strata due to multiple collapses. 4. Borehole was installed to 2.00m bgl on completion.										

					Borehole Log					Borehole No. WS04 Sheet 1 of 1	
Project Name: Sutton Benger					Project No. P25-317		Co-ords: 393980E - 178435N			Hole Type WS	
Location: Sutton Benger, Wiltshire					Level:			Scale 1:27			
Client: Gleeson Land					Dates: 18/11/2025			Logged By ES			
Scale	Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well	
	Depth (m)	Ref.	Type	Results							
1						0.20	TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed. Soft to firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)				
						0.90	Soft to very soft orangish brown silty CLAY. (KELLAWAYS SAND MEMBER)				
2	1.20	1	SPT	N=5 (1,0/1,2,1,1)							
	1.50		D								
3	2.00		SPT	N=0 (0,0/0,0,0,0)							
	3.00		SPT	N=0 (0,0/0,0,0,0)							
4	3.40	2					Very soft orangish brown sandy silty CLAY. Sand is fine and medium. (KELLAWAYS SAND MEMBER)				
	3.60						Medium Dense orangish brown mottled greyish brown clayey silty SAND. Sand is fine to coarse. (KELLAWAYS SAND MEMBER)				
5	3.80		D								
	4.00		SPT	N=22 (3,3/3,5,6,8)							
	5.00		SPT	N=17 (4,4/5,3,3,6)		5.00	End of Borehole at 5.000m				
Remarks 1. Groundwater was not encountered. 2. Windowless sampler drilling commenced from 0.0m bgl. 3. Borehole terminated in natural strata due to target depth was achieved. 4. Borehole installed to 5.00m bgl on completion.											

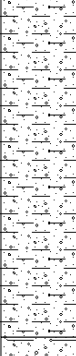
					Borehole Log			Borehole No. WS05 Sheet 1 of 1		
Project Name: Sutton Benger					Project No. P25-317		Co-ords: 394082E - 178538N		Hole Type WS	
Location: Sutton Benger, Wiltshire					Level:			Scale 1:27		
Client: Gleeson Land					Dates: 18/11/2025			Logged By ES		
Scale	Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
	Depth (m)	Ref.	Type	Results						
1	1.20		SPT	N=50 (1,2/50 for 290mm)		0.20	TOPSOIL: Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone and limestone. Frequent roots and rootlets were observed. Firm to stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel is angular and subangular fine to coarse of sandstone. (KELLAWAYS SAND MEMBER)	 		
						1.50 1.60	Very dense orangish brown clayey sandy GRAVEL. Gravel is angular and subangular fine to coarse of sandstone. (Recorded from SPT Split-Spoon) (KELLAWAYS SAND MEMBER) End of Borehole at 1.600m			
2										
3										
4										
5										
Remarks										
1. Groundwater encountered at 0.90m bgl, rising to 0.70m bgl. 2. Windowless sampler drilling commenced from 0.0m bgl. 3. Borehole terminated in natural strata due to hard strata. 4. Borehole was backfilled with arisings.										

Photo No.:	1	Date:	18/11/25	
Description:		TP01		



Photo No.:	2	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	3	Date:	18/11/25	
TP103		Trial Pit Arisings		



Photo No.:	4	Date:	18/11/25	
TP104		Trial Pit Arisings		



Photo No.:	5	Date:	18/11/25	
Description:		TP02		



Photo No.:	6	Date:	18/11/25	
Description:		Trial Pit Arisings		



Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	7	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Photo No.:	8	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	9	Date:	18/11/25	
Description:		TP03		

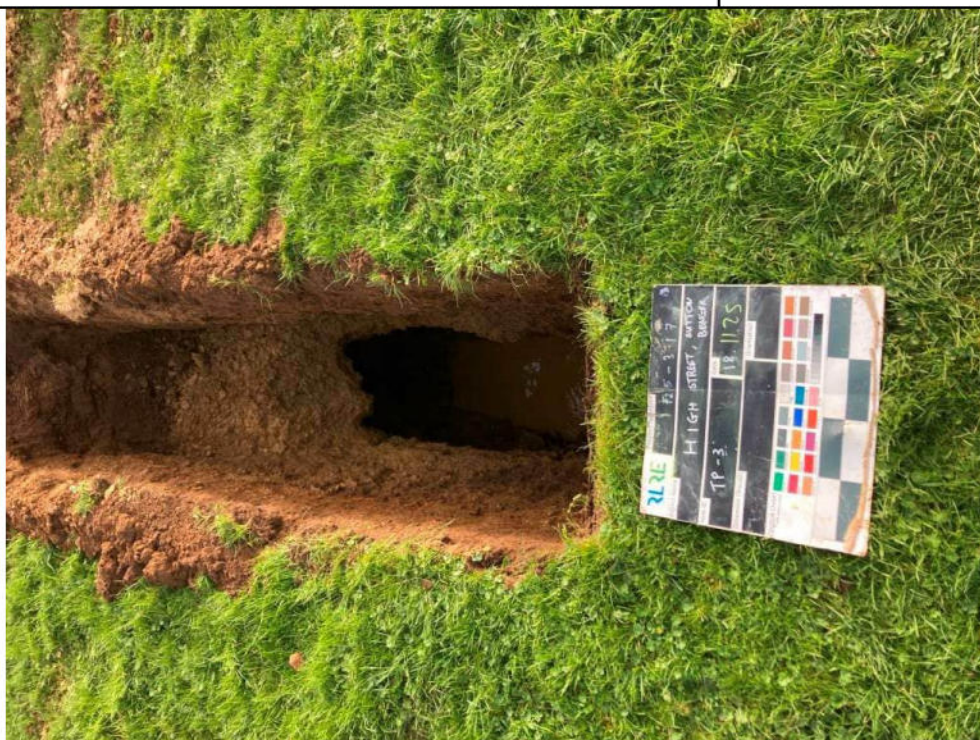


Photo No.:	10	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	11	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	12	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	13	Date:	18/11/25	
Description:		TP04		



Photo No.:	14	Date:	18/11/25	
Description:		Trial Pit Arisings		



Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.: 15	Date: 18/11/25	
Description: Trial Pit Arisings		
		
Photo No.: 16	Date: 18/11/25	
Description: Trial Pit Arisings		
		

Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	17	Date:	18/11/25	
Description:		TP05		

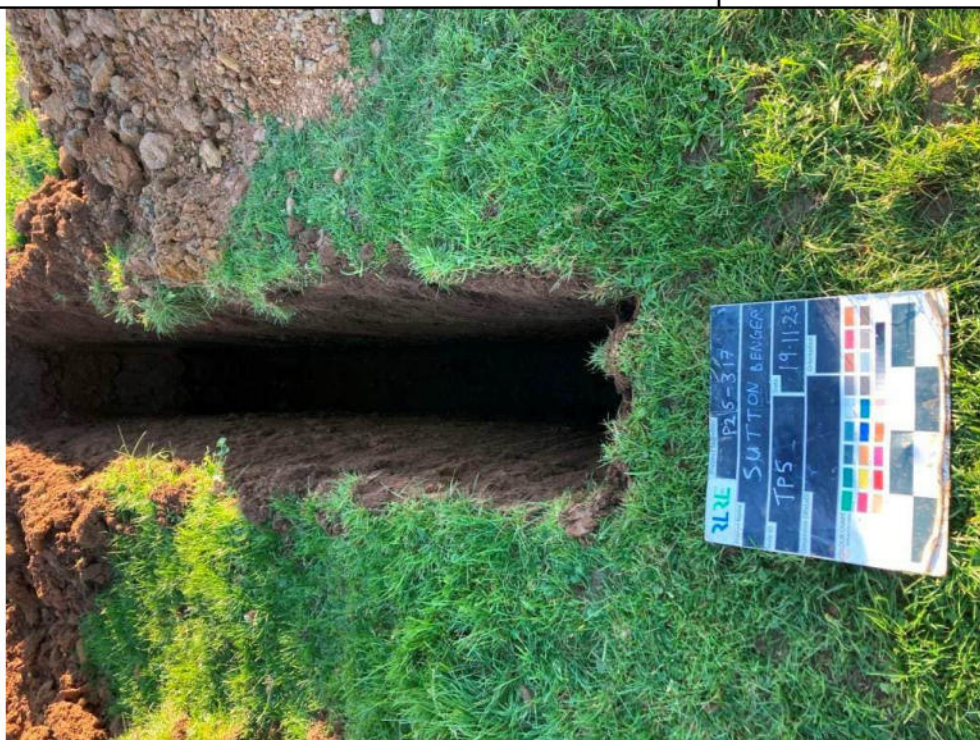


Photo No.:	18	Date:	18/11/25	
Description:		Trial Pit Arisings		



Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	19	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	20	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	21	Date:	18/11/25	
Description:		TP06		



Photo No.:	22	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	23	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	24	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.: 25	Date: 18/11/25	
Description: TP07		
		
Photo No.: 26	Date: 18/11/25	
Description: Trial Pit Arisings		
		

Photo No.:	27	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	28	Date:	18/11/25	
Description:		Trial Pit Arisings		



Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	29	Date:	18/11/25	
Description:		TP08		



Photo No.:	30	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	31	Date:	18/11/25	
Description:		Trial Pit Arisings		
				
Photo No.:	32	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Photo No.:	33	Date:	18/11/25	
Description:		TP09		



Photo No.:	34	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	35	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Photo No.:	36	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Photo No.: 37	Date: 18/11/25	
Description: TP10		
		
Photo No.: 38	Date: 18/11/25	
Description: Trial Pit Arisings		
		

Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	39	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	40	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	41	Date:	18/11/25	
Description:	TP11			



Photo No.:	42	Date:	18/11/25	
Description:	Trial Pit Arisings			



Photo No.:	43	Date:	18/11/25	
Description:		Trial Pit Arisings		
				
Photo No.:	44	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	45	Date:	18/11/25	
Description:		TP12		

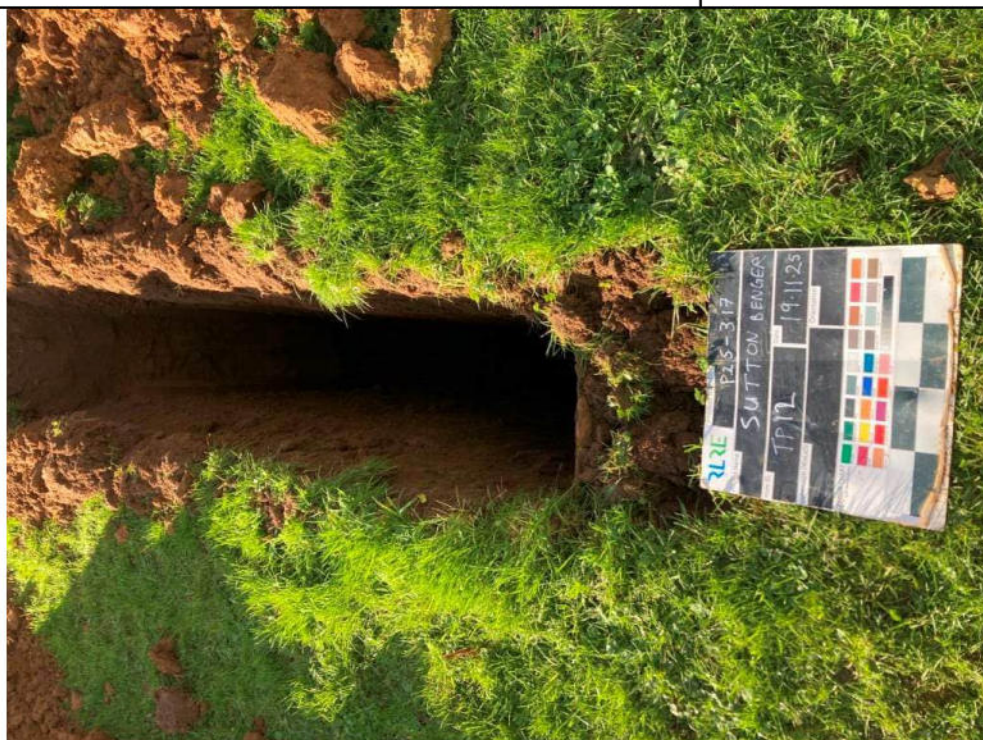


Photo No.:	46	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	47	Date:	18/11/25	
Description:		Trial Pit Arisings		
				
Photo No.:	48	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	49	Date:	18/11/25	
Description:		TP13		
				
Photo No.:	50	Date:	18/11/25	
Description:		Trial Pit Arisings		
				

Photo No.:	51	Date:	18/11/25	
Description:		Trial Pit Arisings		



Photo No.:	52	Date:	18/11/25	
Description:		Trial Pit Arisings		



Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	53	Date:	18/11/25	
Description:		WS01		



Photo No.:	54	Date:	18/11/25	
Description:		WS03		



Site Walkover Photo Log

Sutton Benger
P25-317
Gleeson Land

Photo No.:	55	Date:	18/11/25	
Description:		WS04		
				
Photo No.:	56	Date:	18/11/26	
Description:	XXX			
0				

Appendix C:

Gas and Water Monitoring Results

P25-317 Sutton Benger - Ground Gas/Water Monitoring

WS01																				
Date	Oxygen Concentration (%)		Carbon dioxide concentration (%)		Methane concentration (%)		Flow Rate		Gas Screening Value	3 Days preceding Barometric Pressure (mb)			Pressure (mb)	Pressure Trend	Depth of Water (m)	Base Level (m)	Water Level (m)	H2S (ppm)	CO (ppm)	
	Minimum	Steady	Peak	Steady	Peak	Steady	Peak	Steady		3rd	2nd	1st						Peak	Peak	
15/12/25															4.22	5.00	0.78			
05/01/26															4.10	5.00	0.90			
12/01/26	19.8	19.8	0.5	0.5	0.0	0.0	0.0	0.0	0	999.0	1012.0	1003.0	1000	rising	4.17	5.00	0.83	0.0	0.0	
19/01/26	19.9	20.1	0.5	0.5	0.0	0.0	0.0	0.0	0	988.0	985.0	1005.0	1012	rising	4.57	5.00	0.43	0.0	0.0	
28/01/26	Unable to carry out due to groundwater - Borehole flooded with groundwater																			
06/02/26	Unable to carry out due to groundwater - Borehole flooded with groundwater																			
18/02/26															4.36	5.00	0.64			
04/03/26															4.27	5.00	0.73			

Determining the Gas Screening Value

Maximum Carbon dioxide concentration ^{1*}	Maximum methane ^{1*}	Maximum flow rate ²
0.5	0.1	0.3

¹0.3 l/hr Flow has been used on any value less than 0.3 l/hr based on gas analyser potential error.

Gas Screening Value (l/hr) = Max. borehole flow rate (l/hr) x Max. gas concentration (%)

Gas Screening Value CO2 =	0.0015
Gas Screening Value CH4 =	0.0003

WS03																				
Date	Oxygen Concentration (%)		Carbon dioxide concentration (%)		Methane concentration (%)		Flow Rate		Gas Screening Value	3 Days preceding Barometric Pressure (mb)			Pressure	Pressure Trend	Depth To Water (m)	Base Level (m)	Water Level (m)	H2S (ppm)	CO (ppm)	
	Minimum	Steady	Peak	Steady	Peak	Steady	Peak	Steady		3rd	2nd	1st						Peak	Peak	
15/12/25															1.16	2.00	0.84			
05/01/26															0.97	2.00	1.03			
12/01/26	19.8	19.9	0.1	0.1	0.0	0.0	0.0	0.0	0	999.0	1012.0	1003.0	1000	rising	1.02	2.00	0.98			
19/01/26	19.9	20.3	0.4	0.4	0.0	0.0	0.0	0.0	0	986.0	985.0	1005.0	1012	rising	1.49	2.00	0.51	0.0	0.0	
28/01/26	18.6	18.7	1.3	1.3	0.0	0.0	0.0	0.0	0	994.0	985.0	998.0	994	steady	1.80	2.00	0.20	0.0	0.0	
06/02/26	18.4	18.5	1.4	1.4	0.0	0.0	0.0	0.0	0	983.0	992.0	103.0	981	steady	-	-	Unable to remove bung	0.0	0.0	
18/02/26															1.37	1.79	0.42			
04/03/26															-	-	No Access due to Archeology			

Determining the Gas Screening Value

Maximum Carbon dioxide concentration	Maximum methane	Maximum flow rate ²
1.4	0.1	0.3

¹0.3 l/hr Flow has been used on any value less than 0.3 l/hr based on gas analyser potential error.

Gas Screening Value (l/hr) = Max. borehole flow rate (l/hr) x Max. gas concentration (%)

Gas Screening Value CO2 =	0.0042
Gas Screening Value CH4 =	0.0003

WS04																					
Date	Oxygen Concentration (%)		Carbon dioxide concentration (%)		Methane concentration (%)		Flow Rate		Gas Screening Value	3 Days preceding Barometric Pressure (mb)			Pressure	Pressure Trend	Depth To Water (m)	Base Level (m)	Water Level (m)	H2S (ppm)	CO (ppm)		
	Minimum	Steady	Peak	Steady	Peak	Steady	Peak	Steady		3rd	2nd	1st									
15/12/25															3.23	5.00	1.77				
05/01/26															2.70	5.00	2.30				
12/01/26	19.4	19.4	0.1	0.1	0.0	0.0	0.0	0.0	0	999.0	1012.0	1003.0	1000	rising	2.94	5.00	2.06	0.0	0.0		
19/01/26	19.7	19.8	0.7	0.7	0.0	0.0	0.0	0.0	0	988.0	985.0	1005.0	1012	rising	3.78	5.00	1.22	0.0	0.0		
28/01/26	18.3	18.4	1.7	1.7	0.0	0.0	0.0	0.0	0	994.0	985.0	996.0	994	steady	4.21	5.00	0.79	0.0	0.0		
06/02/26	19.4	19.6	1.8	1.6	0.0	0.0	0.0	0.0	0	983.0	992.0	103.0	981	steady		5.00	Unable to remove bung	0.0	0.0		
18/02/26															4.06	5.00	0.94				
04/03/26															3.55	5.00	1.45				

Determining the Gas Screening Value

Maximum Carbon dioxide concentration	Maximum methane	Maximum flow rate ²
1.8	0.1	0.3

¹0.3 l/hr Flow has been used on any value less than 0.3 l/hr based on gas analyser potential error.

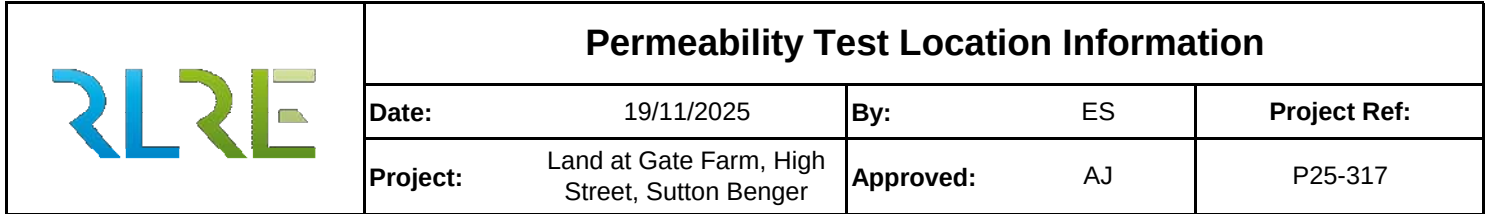
*** Data extracted from continuous ground gas monitoring, no flow and water level data recorded

Gas Screening Value (l/hr) = Max. borehole flow rate (l/hr) x Max. gas concentration (%)

Gas Screening Value CO2 =	0.0054
Gas Screening Value CH4 =	0.0003

Appendix D:

Soakaway Test Results

[illegible]

	Permeability Test Location Information			
	Date:	19/11/2025	By:	ES
	Project:	Sutton Benger	Approved:	AJ
				Project Ref: P25-317

Location ID:	SA01 T1	Start Fill:	09:34:00	Water Used (m3):	1.92
Effective Depth:	0.57	End Fill:	09:35:00	Water Volume at End of Fill (m3):	1.03
25% Effective Depth:	0.57	Rate of Fill (m/s):	3.20E-02	Rate of Infiltration During Fill (m/s):	1.47E-02
75% Effective Depth:	0.86	Elapsed Time to 25% Effective Depth (mins):	30	Depth of Topsoil (m):	0.2
		Elapsed Time to 75% Effective Depth (mins):	180	Depth of Subsoil (m):	1

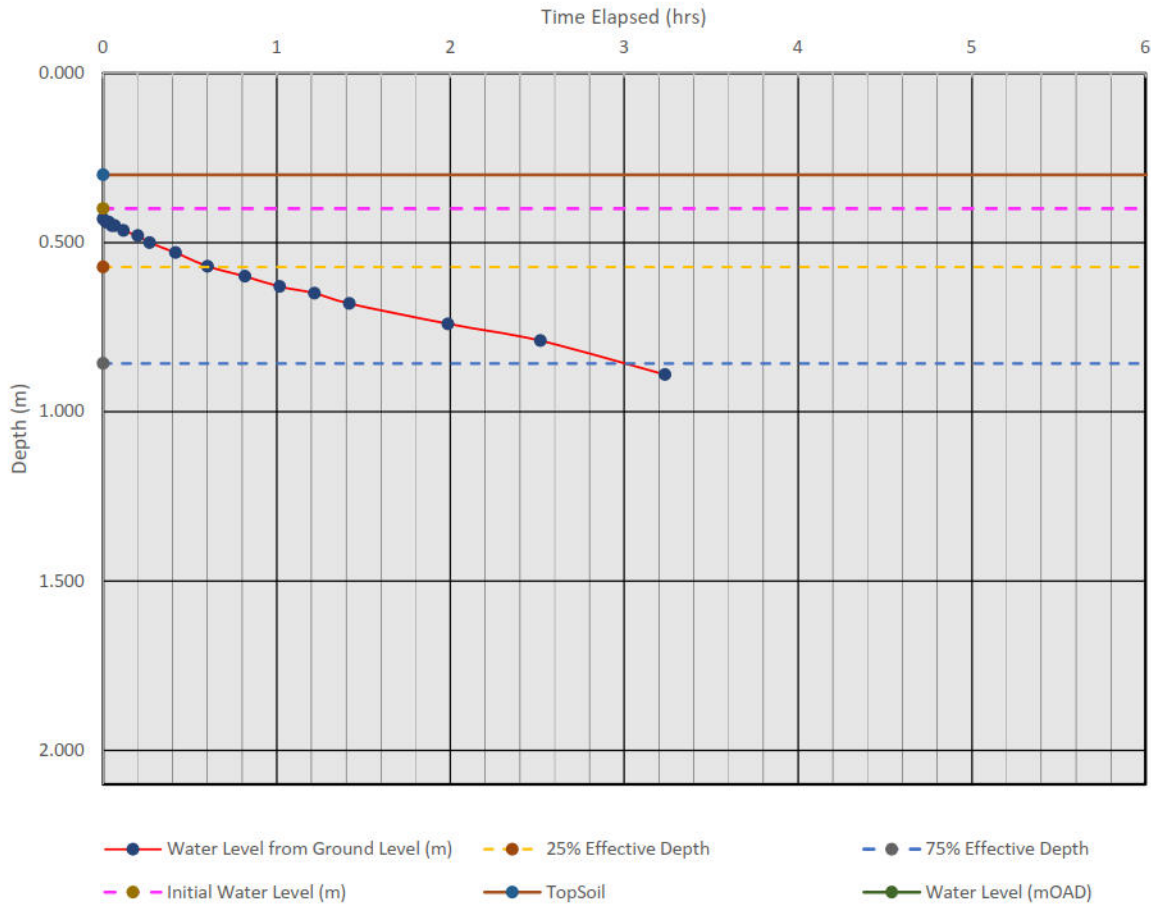
Date	Time	Water Level from Ground Level (m)	Elapsed Time (hrs)	Rate of Change of Water	Water Level (mOAD)
19/11/2025	09:35:00	0.400			
19/11/2025	09:36:00	0.430	0.0		
19/11/2025	09:37:00	0.440	0.0	0.01	-0.44
19/11/2025	09:38:00	0.440	0.0	0.00	-0.44
19/11/2025	09:39:00	0.450	0.0	0.01	-0.45
19/11/2025	09:40:00	0.450	0.1	0.00	-0.45
19/11/2025	09:43:00	0.465	0.1	0.01	-0.47
19/11/2025	09:48:00	0.480	0.2	0.00	-0.48
19/11/2025	09:52:00	0.500	0.3	0.00	-0.50
19/11/2025	10:01:00	0.530	0.4	0.00	-0.53
19/11/2025	10:12:00	0.570	0.6	0.00	-0.57
19/11/2025	10:25:00	0.600	0.8	0.00	-0.60
19/11/2025	10:37:00	0.630	1.0	0.00	-0.63
19/11/2025	10:49:00	0.650	1.2	0.00	-0.65
19/11/2025	11:01:00	0.680	1.4	0.00	-0.68
19/11/2025	11:35:00	0.740	2.0	0.00	-0.74
19/11/2025	12:07:00	0.790	2.5	0.00	-0.79
19/11/2025	12:50:00	0.890	3.2	0.00	-0.89



Permeability Test Location Information

Date:	19/11/2025	By:	ES	Project Ref:
Project:	Sutton Benger	Approved:	AJ	P25-317

P25-317 Sutton Benger SA01 T1



Time for outflow between 75% and 25% effective depth (secs):	9000.00
---	---------

vol between 75% and 25% (m3):	0.52
--------------------------------------	------

as50 m2	4.01
----------------	------

<i>f</i> (m/s)	1.43E-05
-----------------------	----------

	Permeability Test Location Information				
	Date:	19/11/2025	By:	ES	Project Ref:
	Project:	Sutton Benger	Approved:	AJ	P25-317

Location ID:	SA01 T2
Effective Depth:	0.65
25% Effective Depth:	0.51
75% Effective Depth:	0.84

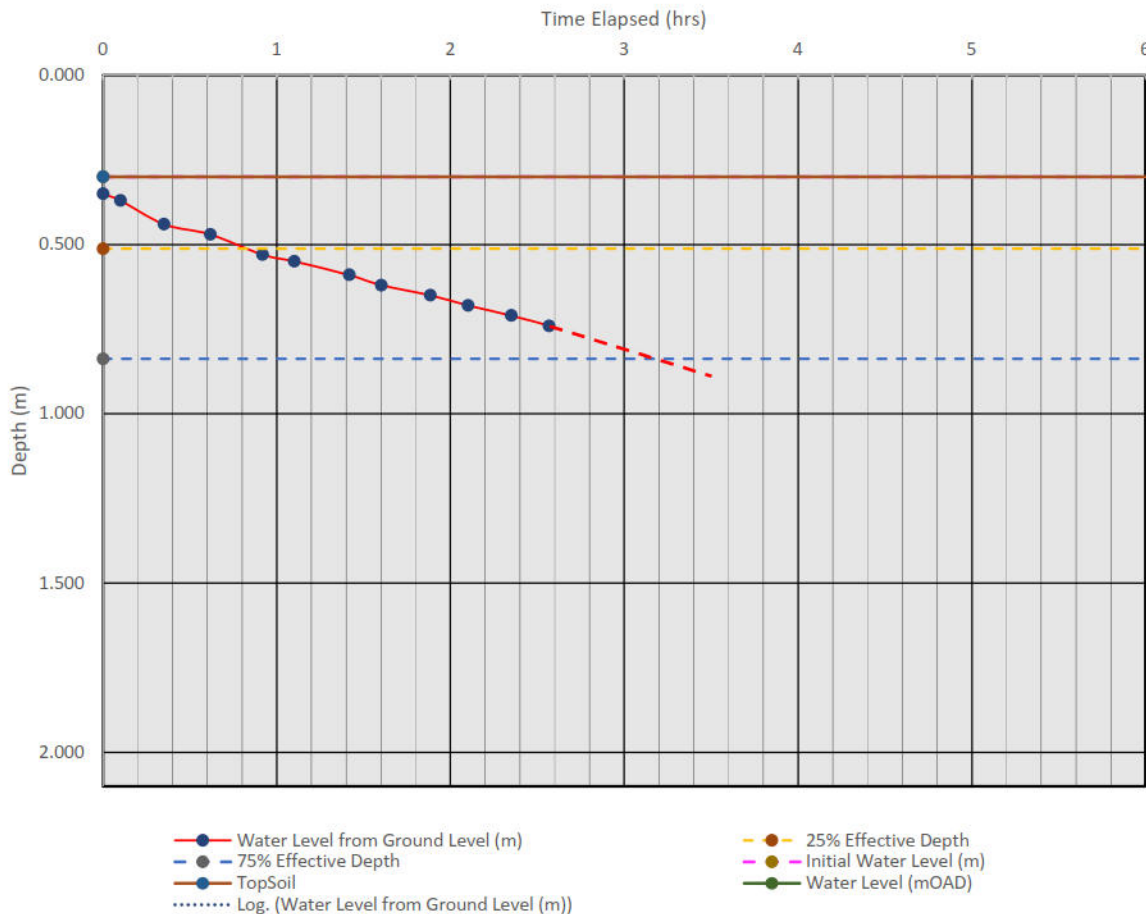
[illegible]



Permeability Test Location Information

Date:	19/11/2025	By:	ES	Project Ref:
Project:	Sutton Benger	Approved:	AJ	P25-317

P25-317 Sutton Benger SA01 T2



Time for outflow between 75% and 25 % effective depth (secs):	9120.00
--	---------

vol between 75% and 25% (m3):	0.59
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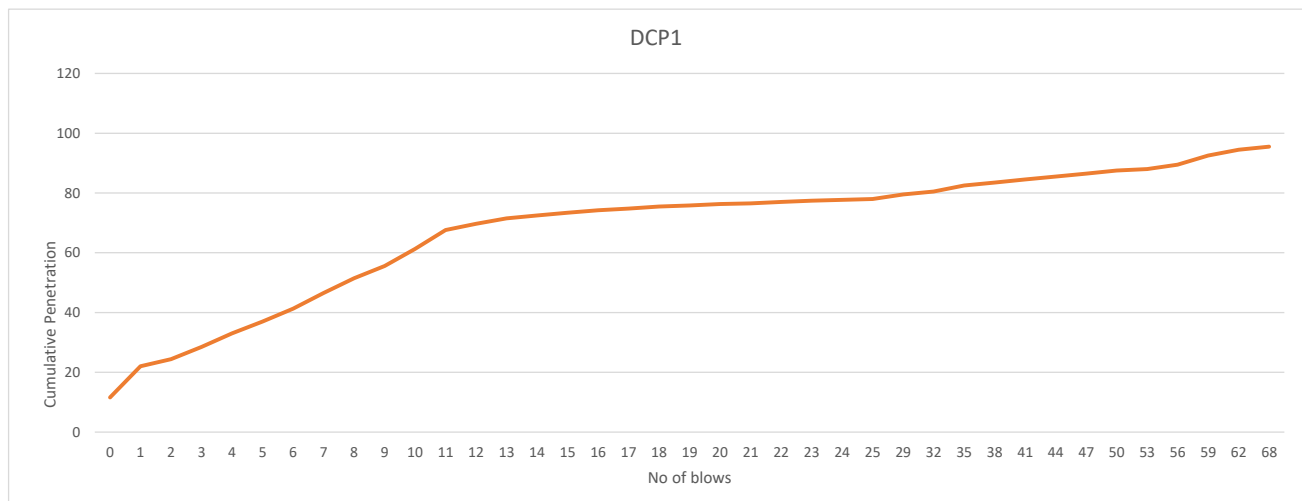
as50 m2	4.32
----------------	------

f (m/s)	1.50E-05
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Appendix E: DCP Test Results

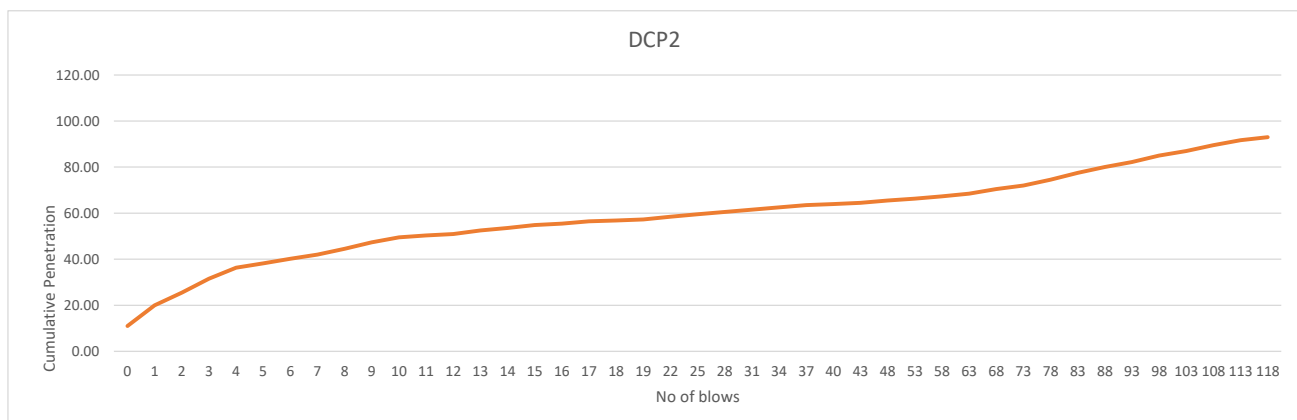
DCP1

No of blows	DCP scale reading (cm)	DCPI60 pen/blow (mm)	Cummalative Penetration (mm)	CBR Value %	Cummalitve pennetration (cm)	Layer thickness (mm)	Average CBR%
0	11.6	0	0		0	104	2.2
1	22	104	104	2.2	10.4		
2	24.4	24	128	10.5	12.8	456	5.7
3	28.5	41	169	6.0	16.9		
4	33	45	214	5.4	21.4		
5	37	40	254	6.1	25.4		
6	41.3	43	297	5.7	29.7		
7	46.5	52	349	4.6	34.9		
8	51.5	50	399	4.8	39.9		
9	55.6	41	440	6.0	44		
10	61.3	57	497	4.2	49.7		
11	67.6	63	560	3.8	56		
12	69.7	21	581	12.1	58.1	159	70.6
13	71.5	18	599	14.2	59.9		
14	72.5	10	609	26.5	60.9		
15	73.4	9	618	29.6	61.8		
16	74.2	8	626	33.5	62.6		
17	74.8	6	632	45.4	63.2		
18	75.5	7	639	38.6	63.9		
19	75.8	3	642	94.6	64.2		
20	76.3	5	647	55.1	64.7		
21	76.5	2	649	145.1	64.9		
22	77	5	654	55.1	65.4		
23	77.4	4	658	69.8	65.8		
24	77.7	3	661	94.6	66.1		
25	78	3	664	94.6	66.4		
29	79.5	4	679	74.7	67.9		
32	80.5	3	689	84.6	68.9		
35	82.5	7	709	40.7	70.9		
38	83.5	3	719	84.6	71.9		
41	84.5	3	729	84.6	72.9		
44	85.5	3	739	84.6	73.9		
47	86.5	3	749	84.6	74.9		
50	87.5	3	759	84.6	75.9		
53	88	2	764	176.0	76.4		
56	89.5	5	779	55.1	77.9		
59	92.5	10	809	26.5	80.9		
62	94.5	7	829	40.7	82.9		
68	95.5	2	839	176.0	83.9		



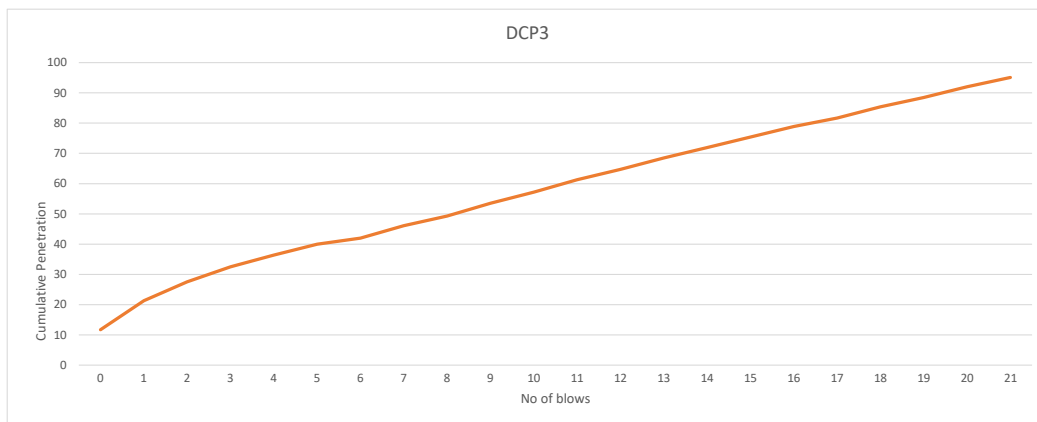
DCP2

No of blows	DCP scale reading (cm)	DCPI60 pen/blow (mm)	Cummalative Penetration (mm)	CBR Value %	Cummalitve pennetration (cm)	Layer thickness (mm)	Average CBR%
0	11.00	0	0		0.00	90	2.6
1	20.00	90	90	2.6	9.00		
2	25.50	55	145	4.4	14.50		
3	31.50	60	205	4.0	20.50	163	4.5
4	36.30	48	253	5.0	25.30		
5	38.20	19	272	13.4	27.20		
6	40.20	20	292	12.7	29.20	132	12
7	42.00	18	310	14.2	31.00		
8	44.50	25	335	10.1	33.50		
9	47.30	28	363	8.9	36.30		
10	49.50	22	385	11.5	38.50		
11	50.30	8	393	33.5	39.30	60	29
12	51.00	7	400	38.6	40.00		
13	52.50	15	415	17.3	41.50		
14	53.60	11	426	23.9	42.60		
15	54.80	12	438	21.8	43.80		
16	55.50	7	445	38.6	44.50	29	69
17	56.50	10	455	26.5	45.50		
18	56.80	3	458	94.6	45.80		
19	57.30	5	463	55.1	46.30		
22	58.50	4	475	69.8	47.50		
25	59.50	3	485	84.6	48.50	15	125
28	60.50	3	495	84.6	49.50		
31	61.50	3	505	84.6	50.50		
34	62.50	3	515	84.6	51.50		
37	63.50	3	525	84.6	52.50		
40	64.00	2	530	176.0	53.00	18	111
43	64.50	2	535	176.0	53.50		
48	65.50	2	545	145.1	54.50		
53	66.30	2	553	183.8	55.30		
58	67.30	2	563	145.1	56.30		
63	68.50	2	575	119.7	57.50	30	56
68	70.50	4	595	69.8	59.50		
73	72.00	3	610	94.6	61.00		
78	74.50	5	635	55.1	63.50		
83	77.50	6	665	45.4	66.50		
88	80.00	5	690	55.1	69.00	7	87
93	82.20	4	712	63.1	71.20		
98	85.00	6	740	48.9	74.00		
103	87.00	4	760	69.8	76.00		
108	89.50	5	785	55.1	78.50		
113	91.70	4	807	63.1	80.70	7	87
118	93.00	3	820	110.0	82.00		



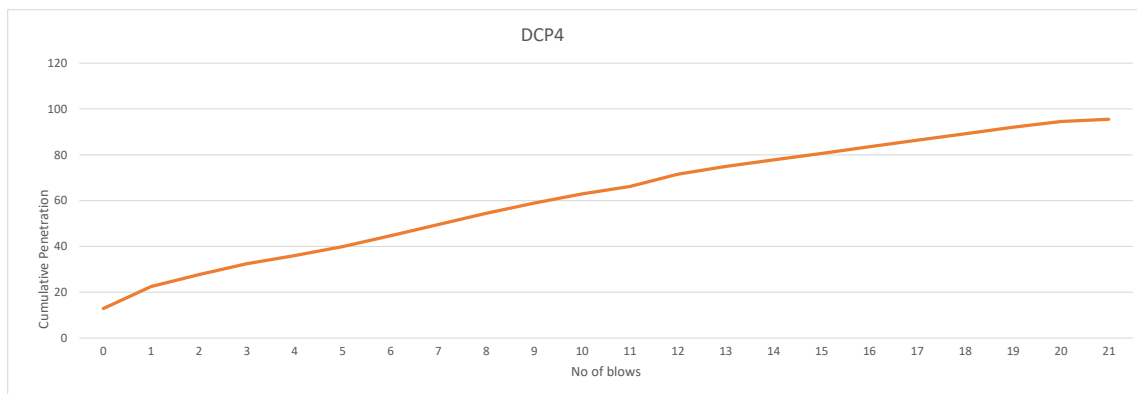
DCP3

No of blows	DCP scale reading (cm)	DCPI60 pen/blow (mm)	Cummalative Penetration (mm)	CBR Value %	Cummaltive pennetration (cm)	Layer thickness (mm)	Average CBR%
0	11.7	0	0		0	96	2.4
1	21.3	96	96	2.4	9.6		
2	27.5	62	158	3.8	15.8		
3	32.5	50	208	4.8	20.8	207	6.9
4	36.4	39	247	6.3	24.7		
5	40	36	283	6.8	28.3		
6	42	20	303	12.7	30.3		
7	46.1	41	344	6.0	34.4		
8	49.3	32	376	7.7	37.6	193	5.4
9	53.5	42	418	5.8	41.8		
10	57.2	37	455	6.6	45.5		
11	61.3	41	496	1.0	49.6		
12	64.7	34	530	7.3	53		
13	68.5	38	568	6.5	56.8	176	7.0
14	71.9	34	602	7.3	60.2		
15	75.4	35	637	7.0	63.7		
16	78.9	35	672	7.0	67.2		
17	81.7	28	700	8.9	70		
18	85.4	37	737	6.6	73.7	162	7.7
19	88.5	31	768	8.0	76.8		
20	92	35	803	7.0	80.3		
21	95.1	31	834	8.0	83.4		



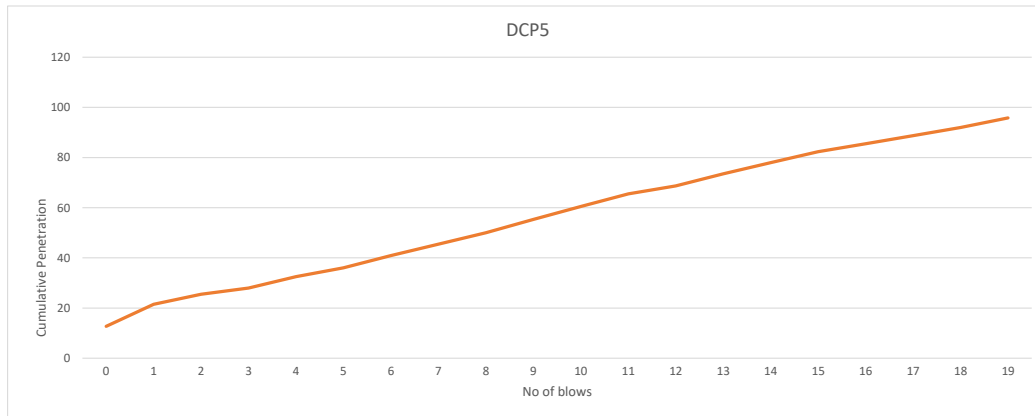
DCP4

No of blows	DCP scale reading (cm)	DCPI60 pen/blow (mm)	Cummalative Penetration (mm)		CBR Value %	Cummalitve pennetration (cm)	Layer thickness (mm)	Average CBR%
0	12.9	0	0			0	96	2.4
1	22.5	96	96	0.38	2.4	9.6		
2	27.7	52	148	0.67	4.6	14.8	490	5.6
3	32.5	48	196	0.70	5.0	19.6		
4	36	35	231	0.85	7.0	23.1		
5	39.9	39	270	0.80	6.3	27		
6	44.7	48	318	0.70	5.0	31.8		
7	49.6	49	367	0.69	4.9	36.7		
8	54.5	49	416	0.69	4.9	41.6		
9	58.9	44	460	0.74	5.5	46		
10	62.9	40	500	0.79	6.1	50		
11	66.2	33	533	0.87	7.5	53.3		
12	71.5	53	586	0.66	4.5	58.6		
13	74.9	34	620	0.86	7.3	62	240	10.7
14	77.8	29	649	0.93	8.6	64.9		
15	80.6	28	677	0.95	8.9	67.7		
16	83.5	29	706	0.93	8.6	70.6		
17	86.4	29	735	0.93	8.6	73.5		
18	89.2	28	763	0.95	8.9	76.3		
19	92	28	791	0.95	8.9	79.1		
20	94.5	25	816	1.00	10.1	81.6		
21	95.5	10	826	1.42	26.5	82.6		



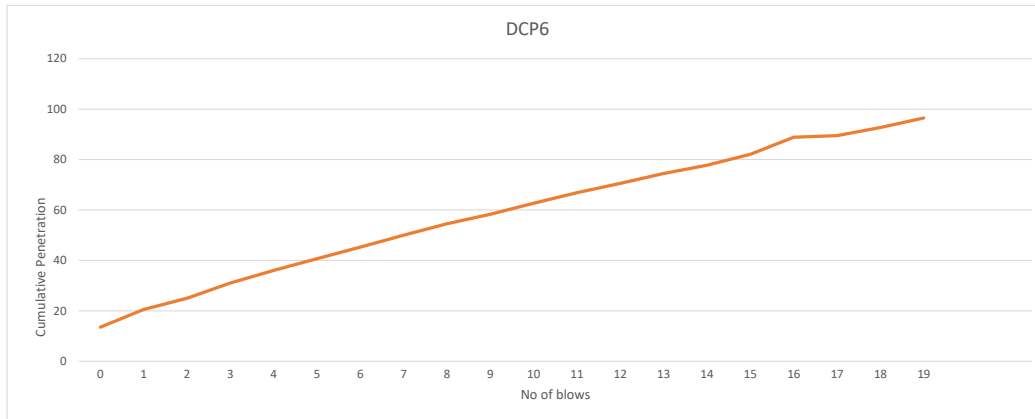
DCP5

No of blows	DCP scale reading (cm)	DCPI60 pen/blow (mm)	Cummalative Penetration (mm)	CBR Value %	Cummaltive pennetration (cm)	Layer thickness (mm)	Average CBR%
0	12.7	0	0		0	88	2.7
1	21.5	88	88	2.7	8.8		
2	25.5	40	128	6.1	12.8		
3	28	25	153	10.1	15.3	440	8.1
4	32.5	45	198	5.4	19.8		
5	36	35	233	7.0	23.3		
6	40.9	49	282	4.9	28.2		
7	45.5	46	328	5.3	32.8		
8	50	45	373	5.4	37.3		
9	55.3	53	426	4.5	42.6		
10	60.5	52	478	4.6	47.8		
11	65.5	50	528	4.8	52.8		
12	68.7	32	560	7.7	56		
13	73.5	48	608	5.0	60.8	303	6.7
14	78	45	653	5.4	65.3		
15	82.3	43	696	5.7	69.6		
16	85.5	32	728	7.7	72.8		
17	88.7	32	760	7.7	76		
18	92	33	793	7.5	79.3		
19	95.8	38	831	6.5	83.1		



DCP6

No of blows	DCP scale reading (cm)	DCPI60 pen/blow (mm)	Cummalative Penetration (mm)	CBR Value %	Cummaltive pennetration (cm)	Layer thickness (mm)	Average CBR%
0	13.5	0	0		0	70	3.4
1	20.5	70	70	3.4	7		
2	25	45	115	5.4	11.5	684	5.5
3	31	60	175	4.0	17.5		
4	36	50	225	4.8	22.5		
5	40.7	47	272	5.2	27.2		
6	45.3	46	318	5.3	31.8		
7	50	47	365	5.2	36.5		
8	54.5	45	410	5.4	41		
9	58.3	38	448	6.5	44.8		
10	62.7	44	492	5.5	49.2		
11	66.9	42	534	5.8	53.4		
12	70.6	37	571	6.6	57.1		
13	74.5	39	610	6.3	61		
14	77.8	33	643	7.5	64.3		
15	82.1	43	686	5.7	68.6		
16	88.9	68	754	3.5	75.4	76	20
17	89.5	6	760	45.4	76		
18	92.7	32	792	7.7	79.2		
19	96.5	38	830	6.5	83		



Appendix F:

Chemical Test Results

Analytical Report Number: 25-37923
Project / Site name: Sutton Benger
Your Project No: P25-317

Chemtest Sample ID.:						25-37923	25-37923	25-37923	25-37923	25-37923	25-37923	25-37923	25-37923	25-37923
Client Sample ID.:						2057726	2057727	2057728	2057731	2057733	2057734	2057737	2057738	2057740
Client Reference:						ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES1	ES2
Sample Type:						TP01	TP02	TP03	TP06	TP08	TP09	TP11	TP12	WS/BH02
Top Depth (m):						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Bottom Depth (m):						0.6	0.4	0	0.2	0.8	0.5	0.2	0.5	0.5
Date Sampled:						0.6	0.4	0.25	0.2	0.8	0.5	0.2	0.5	0.5
Time Sampled:						20/11/2025	20/11/2025	20/11/2025	20/11/2025	20/11/2025	20/11/2025	20/11/2025	20/11/2025	20/11/2025
Asbestos Lab:						1200	1200	1200	1200	1200	1200	1200	1200	1200
Sample Stratum						DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Generic Assessment Criteria Rest with Plant update	Max									
Moisture Content	%	0.020	NONE		19	16	16	16	18	18	15	19	15	16
Soil Colour			N/A		Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material			N/A		Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones	Stones
Soil Texture			N/A		Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay
ACM Type	Type	N/A	NONE		-	-	-	-	-	-	-	-	-	-
Asbestos Identification		N/A	UKAS		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
General Inorganics														
pH at 20C	pH Units	4.0	MCERTS		8.5	8	8	8.5	7.6	7.7	7.6	7.4	8.1	8.5
Speciated PAHs														
Naphthalene	mg/kg	0.1	MCERTS	15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	mg/kg	0.1	NONE	170	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	210	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	170	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	95	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	2400	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	280	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	620	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	7.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.1	MCERTS	15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	2.6	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	77	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	2.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	27	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	NONE	0.24	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.1	MCERTS	320	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total PAH														
Speciated Total EPA-16 PAHs	mg/kg	2	N		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Phenol														
Total Phenols	mg/kg	0.1	MCERTS	280	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Heavy Metals / Metalloids														
Arsenic	mg/kg	0.5	MCERTS	37	27.00	22.00	17.00	9.40	9.20	11.00	19.00	16.00	17.00	26.00
Beryllium	mg/kg	0.5	UKAS	1.7	1.60	1.60	1.20	< 0.5	< 0.5	< 0.5	0.90	0.70	0.80	1.00
Cadmium	mg/kg	0.1	MCERTS	26	0.47	0.47	0.35	0.23	0.28	0.24	0.14	0.29	< 0.10	0.42
Chromium (hexavalent)	mg/kg	0.5	NONE	6	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chromium (III)	mg/kg	0.5	MCERTS	910	42.00	42.00	34.00	14.00	14.00	18.00	29.00	23.00	26.00	26.00
Copper	mg/kg	0.5	MCERTS	2400	480.00	480.00	39.00	11.00	12.00	14.00	16.00	15.00	15.00	16.00
Lead	mg/kg	0.5	MCERTS	200	110.00	110.00	40.00	20.00	20.00	23.00	19.00	28.00	14.00	35.00
Mercury	mg/kg	0.05	MCERTS	40	0.10	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	mg/kg	0.5	MCERTS	130	63.00	63.00	41.00	17.00	16.00	19.00	31.00	21.00	35.00	37.00
Selenium	mg/kg	0.25	MCERTS	250	2.00	2.00	0.99	0.38	0.39	0.55	0.64	0.73	0.72	1.20
Vanadium	mg/kg	0.5	UKAS	410	76.00	76.00	62.00	25.00	25.00	31.00	51.00	43.00	47.00	60.00
Zinc	mg/kg	0.5	MCERTS	3700	210.00	210.00	100.00	47.00	52.00	59.00	78.00	68.00	61.00	90.00
Pesticides and Herbicides														
Aldrin	mg/kg	0	NONE	5.7	< 0.0010	-	-	<0.0010	-	-	-	<0.0010	-	-
Dieldrin	mg/kg	0	NONE	0.97	< 0.0010	-	-	<0.0010	-	-	-	<0.0010	-	-
Endosulfan	mg/kg	0	NONE	7.4	< 0.0010	-	-	<0.0010	-	-	-	<0.0010	-	-

All Soil Organic Matter (SOM) dependant results based on SOM 1%



Final Report

Report No.: 25-37923-1

Initial Date of Issue: 15-Dec-2025

Re-Issue Details:

Client *Rodgers Leask Environmental*

Client Address: *Office 225
2430/2440 Aztec West
Almondsbury
Bristol
BS32 4AQ*

Contact(s):
*chris.wilson@rodgersleask.co.uk;
Elliot.sampson@rodgersleask.co.uk;
andy.jackson@rodgersleask.co.uk;
david.mccarroll@rodgersleask.co.uk*

Project *P25-317 Sutton Benger*

Quotation No.: Q25-39757 **Date Received:** 25-Nov-2025

Order No.: RLL 25-12-91 **Date Instructed:** 25-Nov-2025

No. of Samples: 10

Turnaround (Wkdays): 15 **Results Due:** 15-Dec-2025

Date Approved: 10-Dec-2025 **Subcon Results Due:** 16-Dec-2025

Approved By:



Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: P25-317 Sutton Benger

Client: Rodgers Leask Environmental		Chemtest Job No.:				25-37923	25-37923	25-37923	25-37923	25-37923	25-37923	25-37923
Quotation No.: Q25-39757		Chemtest Sample ID.:				2057726	2057727	2057728	2057731	2057733	2057734	2057737
		Client Sample ID.:				ES1	ES1	ES1	ES1	ES1	ES1	ES1
		Client Reference:				TP01	TP02	TP03	TP06	TP08	TP09	TP11
		Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):				0.6	0.4	0	0.2	0.8	0.5	0.2
		Bottom Depth (m):				0.6	0.4	0.25	0.2	0.8	0.5	0.2
		Date Sampled:				20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025
		Time Sampled:				12:00	12:00	12:00	12:00	12:00	12:00	12:00
		Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD							
ACM Type		N	2192		N/A	-	-	-	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	16	16	16	18	18	15	19
Soil Colour		N	2030		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots	Stones and Roots
Soil Texture		N	2030		N/A	Clay	Clay	Clay	Clay	Clay	Clay	Clay
Organophosphorous Pesticides		SN		mg/kg	0.00			See Attached				See Attached
Organochlorine Pesticides		SN		mg/kg	0.00			See Attached				See Attached
pH at 20C		M	2010		4.0	8.0	8.0	8.5	7.6	7.7	7.6	7.4
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	< 0.40	0.63	0.89	0.60	0.74	< 0.40	0.49
Cyanide (Free)		M	2300	mg/kg	0.50	2.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5	22	17	9.4	9.2	11	19	16
Beryllium		U	2455	mg/kg	0.5	1.6	1.2	< 0.5	< 0.5	< 0.5	0.9	0.7
Cadmium		M	2455	mg/kg	0.10	0.47	0.35	0.23	0.28	0.24	0.14	0.29
Chromium		M	2455	mg/kg	0.5	42	34	14	14	18	29	23
Copper		M	2455	mg/kg	0.50	480	39	11	12	14	16	15
Mercury		M	2455	mg/kg	0.05	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	63	41	17	16	19	31	21
Lead		M	2455	mg/kg	0.50	110	40	20	20	23	19	28
Selenium		M	2455	mg/kg	0.25	2.0	0.99	0.38	0.39	0.55	0.64	0.73
Vanadium		U	2455	mg/kg	0.5	76	62	25	25	31	51	43
Zinc		M	2455	mg/kg	0.50	210	100	47	52	59	78	68
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon		M	2625		0.0010	0.0062	0.0072	0.021	0.020	0.012	0.0035	0.014
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: P25-317 Sutton Benger

Client: Rodgers Leask Environmental		Chemtest Job No.:					25-37923	25-37923	25-37923	25-37923	25-37923	25-37923	25-37923
<i>Quotation No.: Q25-39757</i>		Chemtest Sample ID.:					2057726	2057727	2057728	2057731	2057733	2057734	2057737
		<i>Client Sample ID.:</i>					ES1	ES1	ES1	ES1	ES1	ES1	ES1
		<i>Client Reference:</i>					TP01	TP02	TP03	TP06	TP08	TP09	TP11
		<i>Sample Type:</i>					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		<i>Top Depth (m):</i>					0.6	0.4	0	0.2	0.8	0.5	0.2
		<i>Bottom Depth (m):</i>					0.6	0.4	0.25	0.2	0.8	0.5	0.2
		<i>Date Sampled:</i>					20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025	20-Nov-2025
		<i>Time Sampled:</i>					12:00	12:00	12:00	12:00	12:00	12:00	12:00
		<i>Asbestos Lab:</i>					DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD								
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: P25-317 Sutton Benger

Client: Rodgers Leask Environmental		Chemtest Job No.:				25-37923	25-37923	25-37923
Quotation No.: Q25-39757		Chemtest Sample ID.:				2057738	2057740	2057741
		<i>Client Sample ID.:</i>				ES1	ES1	ES2
		<i>Client Reference:</i>				TP12	WS/BH02	WS/BH02
		<i>Sample Type:</i>				SOIL	SOIL	SOIL
		<i>Top Depth (m):</i>				0.5	0.2	0.5
		<i>Bottom Depth (m):</i>				0.5	0.2	0.5
		<i>Date Sampled:</i>				20-Nov-2025	20-Nov-2025	20-Nov-2025
		<i>Time Sampled:</i>				12:00	12:00	12:00
		<i>Asbestos Lab:</i>				DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
ACM Type		N	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	15	16	11
Soil Colour		N	2030		N/A	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones	Stones	Stones
Soil Texture		N	2030		N/A	Clay	Clay	Clay
Organophosphorous Pesticides		SN		mg/kg	0.00			
Organochlorine Pesticides		SN		mg/kg	0.00			
pH at 20C		M	2010		4.0	8.1	8.5	8.4
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	< 0.40	0.70	< 0.40
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5	17	26	27
Beryllium		U	2455	mg/kg	0.5	0.8	1.0	1.0
Cadmium		M	2455	mg/kg	0.10	< 0.10	0.42	0.28
Chromium		M	2455	mg/kg	0.5	26	26	24
Copper		M	2455	mg/kg	0.50	15	16	16
Mercury		M	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	35	37	44
Lead		M	2455	mg/kg	0.50	14	35	18
Selenium		M	2455	mg/kg	0.25	0.72	1.2	0.94
Vanadium		U	2455	mg/kg	0.5	47	60	62
Zinc		M	2455	mg/kg	0.50	61	90	86
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon		M	2625		0.0010	0.0011	0.013	0.018
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: P25-317 Sutton Benger

Client: Rodgers Leask Environmental		Chemtest Job No.:				25-37923	25-37923	25-37923
<i>Quotation No.: Q25-39757</i>		Chemtest Sample ID.:				2057738	2057740	2057741
		<i>Client Sample ID.:</i>				ES1	ES1	ES2
		<i>Client Reference:</i>				TP12	WS/BH02	WS/BH02
		<i>Sample Type:</i>				SOIL	SOIL	SOIL
		<i>Top Depth (m):</i>				0.5	0.2	0.5
		<i>Bottom Depth (m):</i>				0.5	0.2	0.5
		<i>Date Sampled:</i>				20-Nov-2025	20-Nov-2025	20-Nov-2025
		<i>Time Sampled:</i>				12:00	12:00	12:00
		<i>Asbestos Lab:</i>				DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos Quantification in Soils Sediments Ballast & Aggregate Crushed Concrete & Demolition Rubble	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Where analysis is performed on a dried and crushed sample, it has been prepared by crushing all of the sample. If material has been removed prior to crushing, or by request of the client, this will be stated on the report.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - The required amount of sample for analysis was not received
- H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water (Non-Regulatory)
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
cs@etuki.eurofins.com

Eurofins Chemtest Ltd
CS Chemtest
11 Depot Road
NEWMARKET
United Kingdom

Certificate of analysis

Date: 10/12/2025

Please find enclosed the analytical results of the test carried out for the project.

Certificate number/Version	AR-421-2025-130134-01
Your project number	30395
Your project name	25-37923
Your order number	421-2025-130134
Project Quotation Name	-
Samples received on	01/12/2025
Your Sample taker	-
Start date	05/12/2025
This is last Test P Validation Ending Time	10/12/2025
Report date	10/12/2025
Appendices	A

Recognition Information:

AC: NEN EN ISO/IEC 17025: 2017, RvA L010

Additional information about the applied methods as well as the classification of the accuracy, are listed in our most recent and valid supplement: "Specification of methods of analyses".

This Certificate of Analysis shall not be reproduced except in full, without written approval of the laboratory. Interpretations and opinions are outside the scope of our accreditation, and all results relate only to samples supplied.

We are confident that we have performed the order in accordance with your expectations. If you have any remaining questions concerning this Certificate of Analysis, please don't hesitate to contact our Customer Support.

Yours sincerely,

Eurofins Analytico (Barneveld)


Ing. A. Veldhuizen
Technical Manager

Parameter Name	Unit	1	2
Characteristics			
<i>NEN-EN 15934</i>			
AC Dry matter	% w/w	80.9	81.2

Organic Chlorinated Pesticides			
<i>NEN 6980</i>			
AC Hexachlorobenzene	mg/kg dm	< 0.0010	< 0.0010
AC alpha-HCH	mg/kg dm	< 0.0010	< 0.0010
AC beta-HCH	mg/kg dm	< 0.0010	< 0.0010
AC gamma-HCH	mg/kg dm	< 0.0010	< 0.0010
AC delta-HCH	mg/kg dm	< 0.0010	< 0.0010
AC Aldrin	mg/kg dm	< 0.0010	< 0.0010
AC Dieldrin	mg/kg dm	< 0.0010	< 0.0010
AC Endrin	mg/kg dm	< 0.0010	< 0.0010
AC o,p'-DDT	mg/kg dm	< 0.0010	< 0.0010
AC p,p'-DDT	mg/kg dm	< 0.0010	< 0.0010
AC o,p'-DDE	mg/kg dm	< 0.0010	< 0.0010
AC p,p'-DDE	mg/kg dm	< 0.0010	< 0.0010
AC o,p'-DDD	mg/kg dm	< 0.0010	< 0.0010
AC p,p'-DDD	mg/kg dm	< 0.0010	< 0.0010
AC Heptachloor	mg/kg dm	< 0.0010	< 0.0010
AC alpha-Endosulfan	mg/kg dm	< 0.0010	< 0.0010
AC Endosulfansulfate	mg/kg dm	< 0.0020	< 0.0020
AC Heptachloorepoxide(cis- or A)	mg/kg dm	< 0.0010	< 0.0010
AC Heptachloorepoxide(trans- or B)	mg/kg dm	< 0.0010	< 0.0010
AC Telodrin	mg/kg dm	< 0.0010	< 0.0010
AC Isodrin	mg/kg dm	< 0.0010	< 0.0010
AC alpha-Chlordane	mg/kg dm	< 0.0010	< 0.0010
AC gamma-Chlorodane	mg/kg dm	< 0.0010	< 0.0010
AC Hexachlorobutadiene	mg/kg dm	< 0.0010	< 0.0010
AC Endosulfan, beta-	mg/kg dm	< 0.001	< 0.001
AC Chlorodane	mg/kg dm	< 0.002	< 0.002
AC DDD ,DDE, DDT	mg/kg dm	< 0.006	< 0.006
AC Drins (sum)	mg/kg dm	< 0.00	< 0.00
AC Sum 4 HCH-compounds	mg/kg dm	< 0.004	< 0.004
AC Heptachlor epoxide	mg/kg dm	< 0.002	< 0.002

No.	Customer Reference	Sample matrix	Your sampling date	Sample Code
1	2057728	Soil	05/12/2025	421-2025-00395225
2	2057737	Soil	05/12/2025	421-2025-00395226

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Eurofins Analytico BV

KvK/CoC No. 09088623

Gildeweg 42-46
3771 NB Barneveld
Netherlands

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BIC/SWIFT-Code BNPANL2A
VAT Number: NL804314883B01

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Parameter Name	Unit	1	2
Organic Chlorinated Pesticides			
<i>NEN 6980</i>			
AC OCB (som) WB (factor 0,7)	mg/kg dm	< 0.024	< 0.024
AC ocb sum	mg/kg dm	< 0.021	< 0.021
ONP/OPP			
<i>Internal Method</i>			
AC Azinphos-ethyl	mg/kg dm	< 0.005	< 0.005
AC Azinphos-methyl	mg/kg dm	< 0.005	< 0.005
AC Bromophos-ethyl	mg/kg dm	< 0.02	< 0.02
AC Bromophos-methyl	mg/kg dm	< 0.02	< 0.02
AC Chlorpyrifos (-ethyl)	mg/kg dm	< 0.01	< 0.01
AC Chlorpyrifos-methyl	mg/kg dm	< 0.01	< 0.01
AC Coumaphos	mg/kg dm	< 0.005	< 0.005
AC Demeton-S/demeton-O-ethyl	mg/kg dm	< 0.02	< 0.02
AC Diazinon	mg/kg dm	< 0.005	< 0.005
AC Disulfoton	mg/kg dm	< 0.02	< 0.02
AC Fenitrothion	mg/kg dm	< 0.005	< 0.005
AC Fenthion	mg/kg dm	< 0.002	< 0.002
AC Malathion	mg/kg dm	< 0.005	< 0.005
AC Parathion	mg/kg dm	< 0.005	< 0.005
AC Parathion-methyl	mg/kg dm	< 0.01	< 0.01
AC Pyrazophos	mg/kg dm	< 0.005	< 0.005
AC Triazophos	mg/kg dm	< 0.02	< 0.02

No.	Customer Reference	Sample matrix	Your sampling date	Sample Code
1	2057728	Soil	05/12/2025	421-2025-00395225
2	2057737	Soil	05/12/2025	421-2025-00395226

Released by: NFZI

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VAT Number: NL804314883B01

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Appendix (A): concerning subsample information referring to certificate of analysis AR-421-2025-130134-01

Container Code	Drill nr	Depth From	Depth To	Your sampling date
Sample Code	421-2025-00395225	Customer Reference	2057728	
0904847469				05/12/2025
Sample Code	421-2025-00395226	Customer Reference	2057737	
0904847470				05/12/2025

Appendix G:

Geotechnical Test Results



LABORATORY REPORT



Contract Number: PSL25/9235

Report Date: 02 March 2026

Client's Reference: P25-317

Client Name: Rodgers Leask
St James House
St Mary's Wharf
Mansfield Road
Derby
DE1 3TQ

For the attention of: Chris Browning

Contract Title: High Street, Sutton Benger

Date Received: 27/11/2025

Date Commenced: 27/11/2025

Date Completed: 09/01/2026

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
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


D Nicholson
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP2	1	D	0.40		Brown slightly sandy slightly gravelly CLAY.
TP3	2	D	0.25	0.60	Brown sandy gravelly CLAY.
TP4	1	D	0.40		Brown slightly sandy CLAY.
TP4	2	D	1.20		Brown slightly sandy slightly gravelly CLAY.
TP5	1	D	1.80		Brown slightly clayey very sandy GRAVEL.
TP6	1	D	0.30		Brown sandy CLAY.
TP7	1	D	0.70		Brown sandy CLAY.
TP7	2	D	1.00		Brown sandy CLAY.
TP12	2	D	0.20		Brown slightly sandy CLAY.
TP12	3	D	3.00		Brown slightly sandy gravelly CLAY.
TP2	1	B	1.00		Brown silty very sandy GRAVEL.
SA1	1	B	0.50	1.00	Brown clayey very sandy GRAVEL.
TP3	1	B	2.00		Brown clayey sandy GRAVEL.
TP9	1	B	3.00		Brown clayey very sandy GRAVEL.
TP7	1	B	2.50		Brown slightly sandy CLAY.



High Street, Sutton Benger

Contract No:

PSL25/9235

Client Ref:

P25-317

Analytical Test Report	L25/13627/PSL/25-95587
Clients Project Reference	PSL25/9235 High Street, Sutton Benger
Clients Order Number	PSL25/9235
Sample(s) Analysed	5
Sample(s) received / instructed	15/12/2025 / 15/12/2025
Sample(s) Tested	15/12/2025 to 24/12/2025
Report issued	24/12/2025
Report issue number	1

Tested on Behalf of
Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

Signed



David Ratcliffe
Director of Analytical Services

Notes:

General

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Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples were supplied by customer, results apply to the samples as received.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

U = UKAS Accreditation, M = MCERTS Accreditation, N = Unaccredited, SC = Subcontracted

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m ³	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
TP2	1	D	0.40		18.9			38	18	20	97	Medium Plasticity CIM
TP3	2	D	0.25	0.60	13.7			30	15	15	45	Low Plasticity CIL
TP4	1	D	0.40		19.9			38	18	20	100	Medium Plasticity CIM
TP4	2	D	1.20		37.8			44	21	23	98	Medium Plasticity CIM
TP5	1	D	1.80		11.1				NP			
TP6	1	D	0.30		18.8			28	15	13	100	Low Plasticity CIL
TP7	1	D	0.70		20.1			32	16	16	100	Low Plasticity CIL
TP7	2	D	1.00		23.5			28	14	14	100	Low Plasticity CIL
TP12	2	D	0.20		28.4			49	20	29	100	Medium Plasticity CIM
TP12	3	D	3.00		16.0			42	20	22	65	Medium Plasticity CIM

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022

Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7

Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9

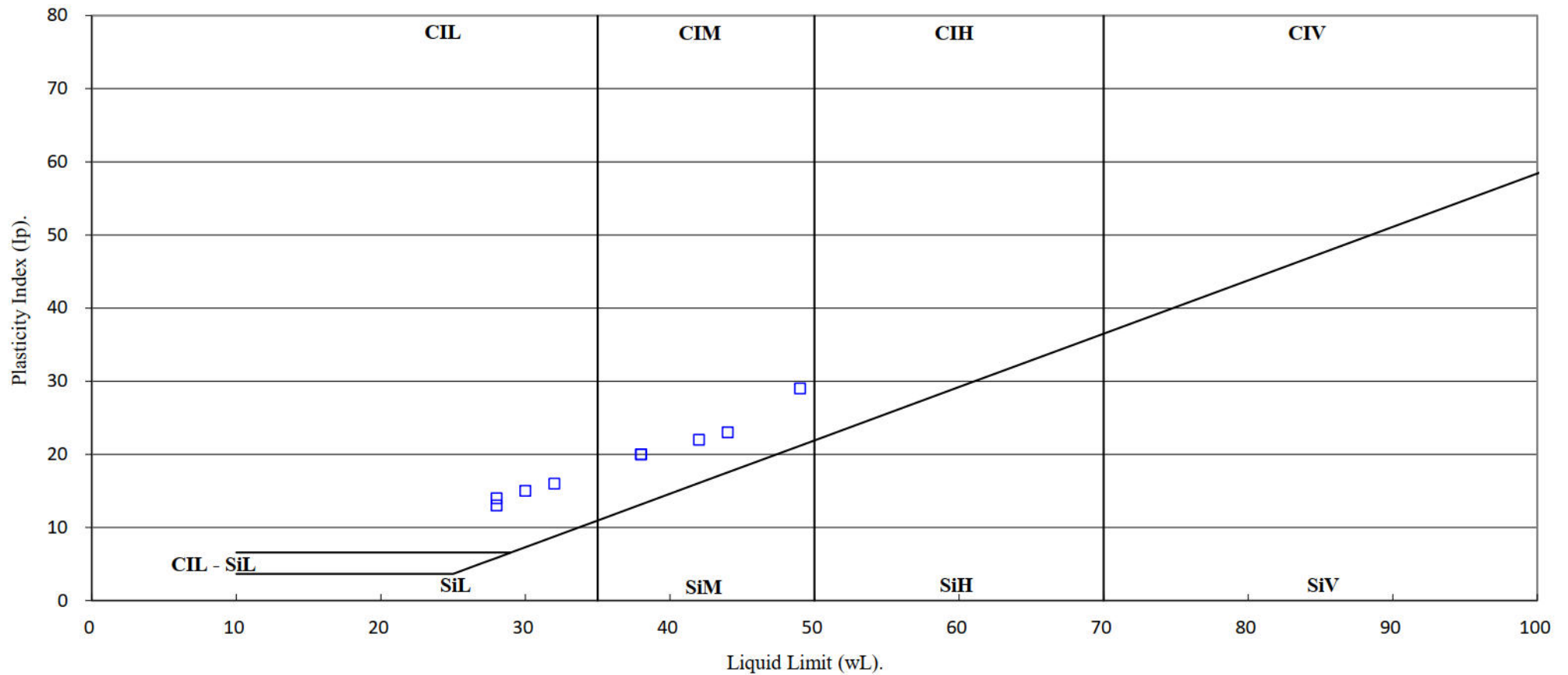
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

 	High Street, Sutton Benger	Contract No:
		PSL25/9235
		Client Ref:
		P25-317

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



High Street, Sutton Benger

Contract No:

PSL25/9235

Client Ref:

P25-317

PARTICLE SIZE DISTRIBUTION TEST

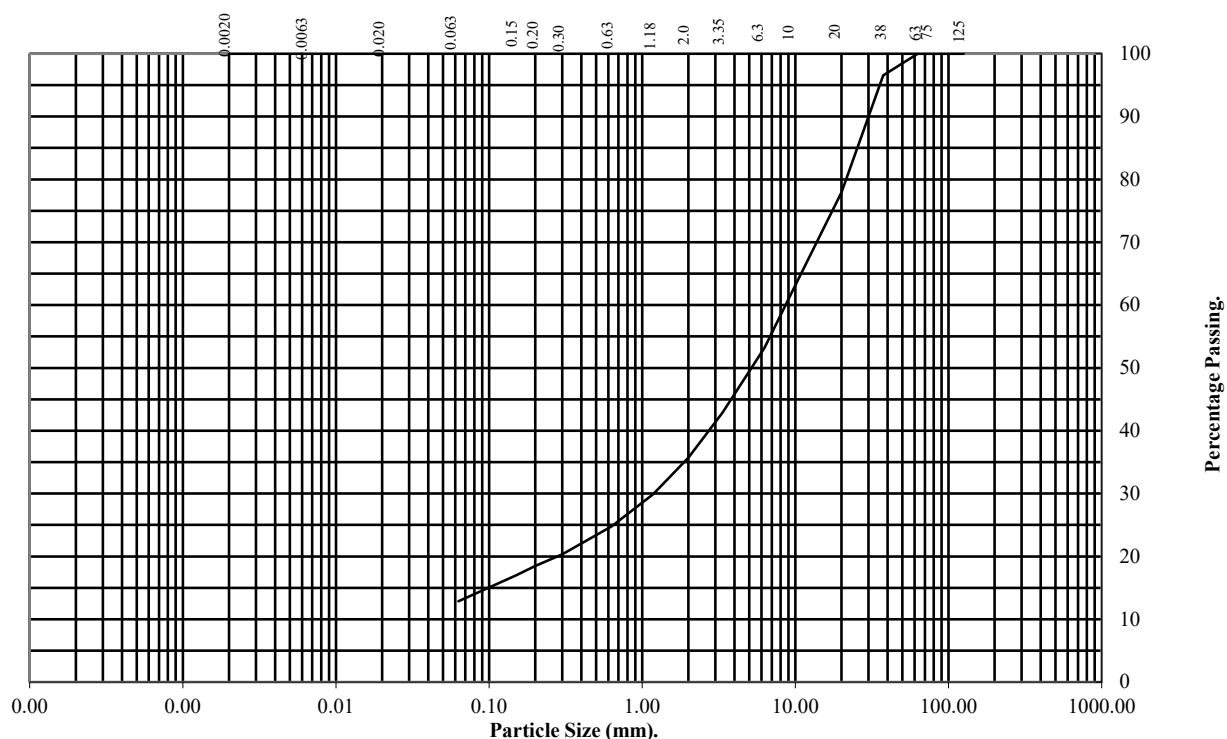
BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number: SA1 Top Depth (m): 0.50

Sample Number: 1 Base Depth (m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	97
20	78
10	63
6.3	53
3.35	43
2	36
1.18	30
0.63	25
0.3	20
0.2	18
0.15	17
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	64
Sand	23
Silt/Clay	13

Remarks:

See Summary of Soil Descriptions



High Street, Sutton Benger

Contract No:
PSL25/9235
Client Ref:
P25-317

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

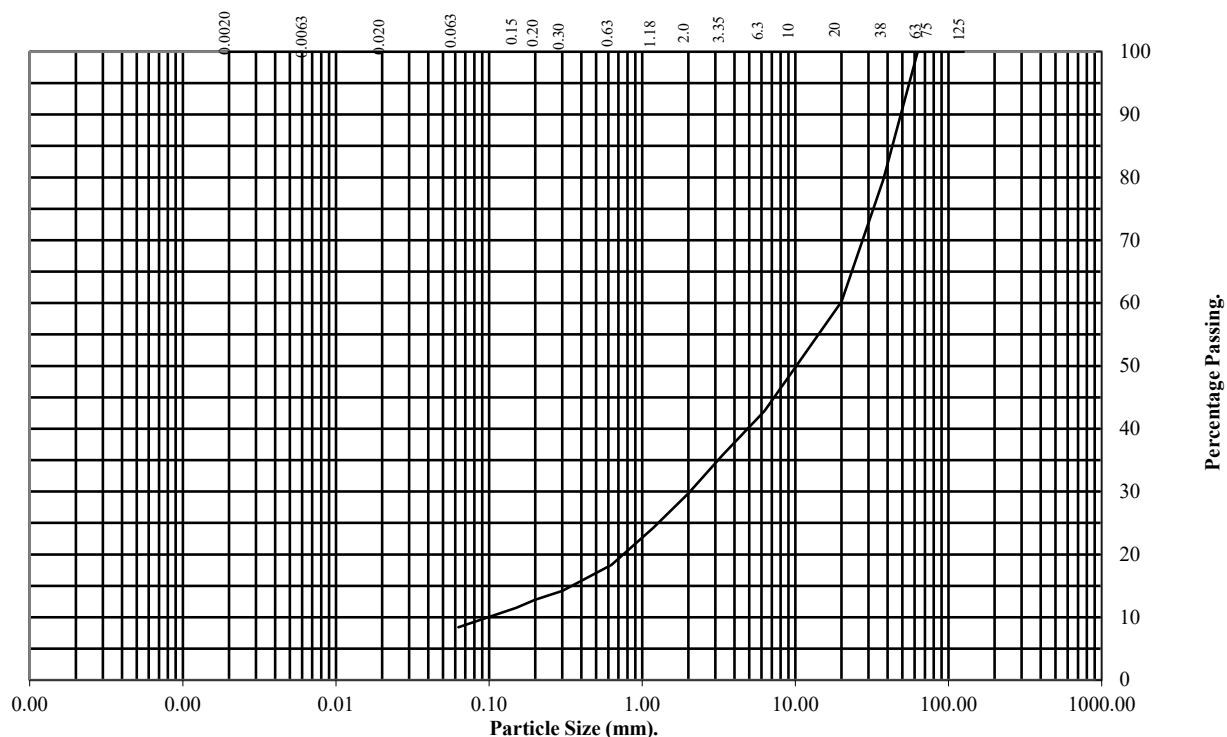
Hole Number: TP2

Top Depth (m): 1.00

Sample Number: 1

Base Depth (m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	80
20	60
10	50
6.3	43
3.35	36
2	30
1.18	24
0.63	18
0.3	14
0.2	13
0.15	11
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	70
Sand	22
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions



High Street, Sutton Benger

Contract No:

PSL25/9235

Client Ref:

P25-317

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

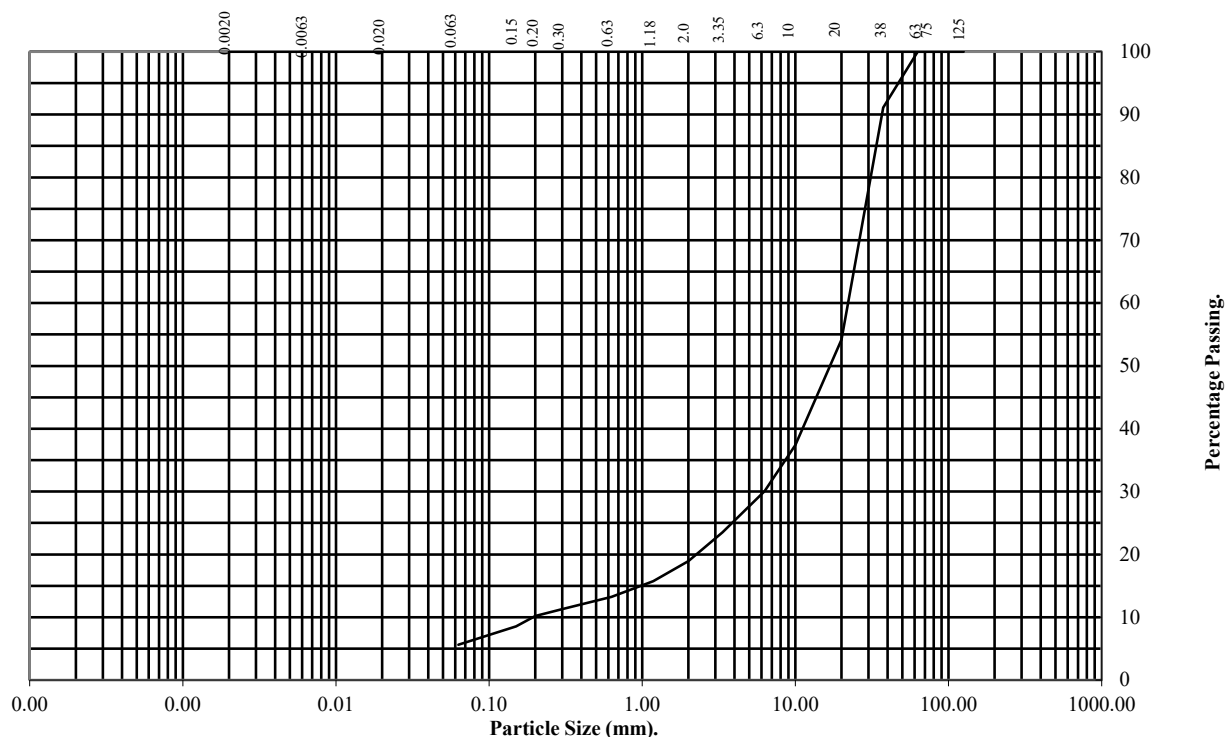
Hole Number: TP3

Top Depth (m): 2.00

Sample Number: 1

Base Depth (m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	91
20	54
10	37
6.3	30
3.35	24
2	19
1.18	16
0.63	13
0.3	11
0.2	10
0.15	9
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	81
Sand	13
Silt/Clay	6

Remarks:

See Summary of Soil Descriptions



High Street, Sutton Benger

Contract No:

PSL25/9235

Client Ref:

P25-317

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

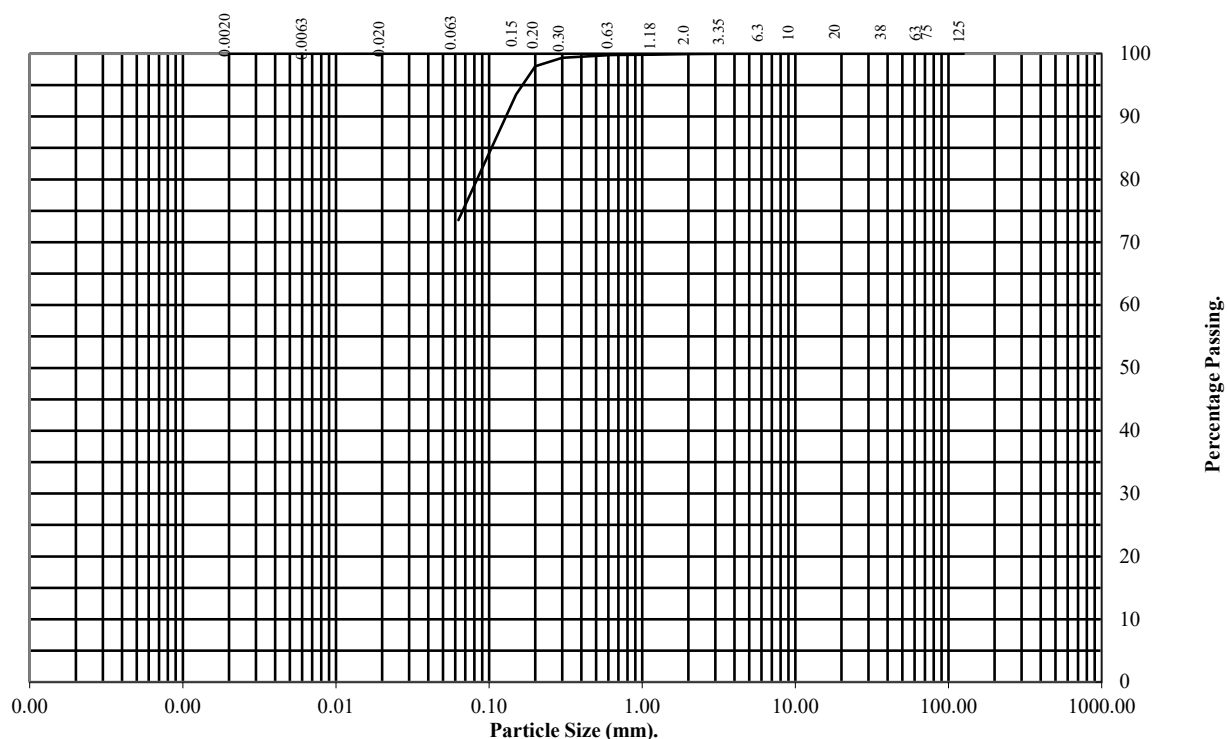
Hole Number: TP7

Top Depth (m): 2.50

Sample Number: 1

Base Depth (m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.63	100
0.3	99
0.2	98
0.15	94
0.063	74

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	26
Silt/Clay	74

Remarks:

See Summary of Soil Descriptions



High Street, Sutton Benger

Contract No:
PSL25/9235
Client Ref:
P25-317

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

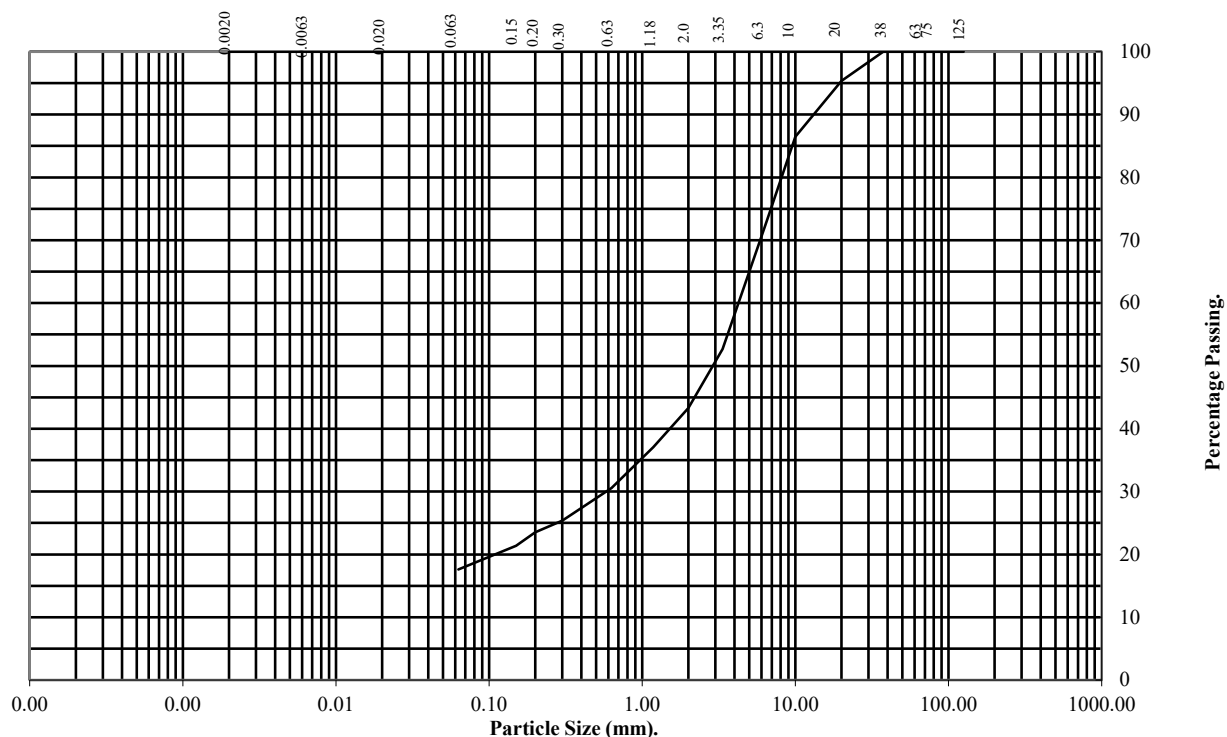
Hole Number: TP9

Top Depth (m): 3.00

Sample Number: 1

Base Depth (m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	95
10	86
6.3	72
3.35	53
2	43
1.18	37
0.63	31
0.3	25
0.2	24
0.15	21
0.063	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	57
Sand	25
Silt/Clay	18

Remarks:

See Summary of Soil Descriptions



High Street, Sutton Benger

Contract No:

PSL25/9235

Client Ref:

P25-317

L25/13627/PSL/25-95587

PSL25/9235 High Street, Sutton Benger

Analytical Test Results - ENV Analysis Soils

Lab Reference				665760	665761	665762	665763
Client Sample ID				-	-	-	-
Client Sample Location				TP1	TP3	TP8	TP9
Client Sample Type				D	D	D	D
Client Sample Number				D1	D1	D1	D2
Depth - Top (m)				0.15	0.25	2	2
Depth - Bottom (m)				0.15	0.6	2	2
Date of Sampling				-	-	-	-
Time of Sampling				-	-	-	-
Sample Matrix				Clay	Clay	Clay	Clay
Determinant	Units	LOD	Accreditation				
pH	pH units	1	M	7.5	8.3	8.2	8.3
Water Soluble Sulphate (as SO4)	mg/L	10	N	< 10	21	72	< 10
Nitrate as NO3	mg/L	1	N	10	7.4	1.2	< 1.0
Chloride	mg/L	0.1	N	2.0	2.8	2.2	0.5
Total Sulphur Content (as S)	%	0.01	U	0.04	0.04	0.04	0.02
Ammonium (NH4)	mg/L	1	N	1.3	4.2	1.3	1.3
Acid Soluble Sulphate	%	0.01	N	0.05	0.08	0.08	0.06
Magnesium	mg/L	1.5	N	1.8	< 1.5	< 1.5	< 1.5

L25/13627/PSL/25-95587

PSL25/9235 High Street, Sutton Benger

Analytical Test Results - ENV Analysis Soils

Lab Reference	665764
---------------	--------

Client Sample ID	-
Client Sample Location	TP10
Client Sample Type	D
Client Sample Number	D1
Depth - Top (m)	1.2
Depth - Bottom (m)	1.2
Date of Sampling	-
Time of Sampling	-
Sample Matrix	Clay

Determinant	Units	LOD	Accreditation	
pH	pH units	1	M	8.2
Water Soluble Sulphate (as SO ₄)	mg/L	10	N	22
Nitrate as NO ₃	mg/L	1	N	< 1.0
Chloride	mg/L	0.1	N	2.8
Total Sulphur Content (as S)	%	0.01	U	0.02
Ammonium (NH ₄)	mg/L	1	N	1.3
Acid Soluble Sulphate	%	0.01	N	0.04
Magnesium	mg/L	1.5	N	< 1.5

L25/13627/PSL/25-95587

PSL25/9235 High Street, Sutton Benger

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
665760	-	TP1	SOIL	-	Brown slightly sandy silty clay	-	-	100
665761	-	TP3	SOIL	-	Brown slightly sandy slightly gravelly silty clay	-	-	86
665762	-	TP8	SOIL	-	Brown silty slightly gravelly sandy clay	-	-	59
665763	-	TP9	SOIL	-	Brown silty clay	-	-	100
665764	-	TP10	SOIL	-	Brown silty clay	-	-	100

L25/13627/PSL/25-95587

PSL25/9235 High Street, Sutton Benger

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods Methods

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
1377MGICP	BS1377 WS Magnesium (ICP)	Oven dried	Passing 2mm test sieve	Water Soluble Magnesium testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 10.
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis

L25/13627/PSL/25-95587

PSL25/9235 High Street, Sutton Benger

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 2 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
665760		TP1				A
665761		TP3				A
665762		TP8				A
665763		TP9				A
665764		TP10				A



Rodgers Leask Limited & Rodgers Leask Environmental Limited
01332 285000 • rllderby@roddersleask.co.uk • roddersleask.co.uk
St James House, St Mary's Wharf, Mansfield Road, Derby DE1 3TQ
Seven House, 18 High Street, Longbridge, Birmingham B31 2UQ

Appendix H – Surface Water Drainage Area Plan



GENERAL NOTES

- Scale to be used for planning purposes only
- This drawing is to be read in conjunction with all other relevant drawings and details.
- Should there be any conflict between the details indicated on this drawing and those on other drawings the Engineer should be informed PRIOR to construction on site.
- Until technical approval has been obtained from the relevant Authority, it should be understood that all drawings issued are Preliminary and NOT for construction. Should the Contractor commence site works prior to such approval being provided it is entirely at their own risk.
- Sketch proposals are for illustrative purposes only and as such are subject to detailed site investigation including ground conditions, contaminants, drainage, design and planning / density negotiations.
- All dimensions are in metres unless otherwise stated.
- The Rodgers Leas Designer's Risk Assessment(s) for this project must be reviewed PRIOR to the commencement of any works on site.

NETWORK: 1									
Manhole No.	Pipe No.	Adoptable IMP	Adoptable UC	Private IMP	Private UC	Total IMP + UC			
S1	1.000	0.000	0.000	250.537	0.000	250.537			
S2	1.001	0.000	0.000	1213.924	79.360	1293.283			
S3	1.002	0.000	0.000	712.201	43.970	756.171			
S6	1.003	0.000	0.000	253.044	25.304	278.348			
S7	1.004	0.000	0.000	1229.525	70.744	1300.270			
S8	1.005	0.000	0.000	273.011	27.301	300.312			
S9	1.006	0.000	0.000	143.708	0.000	143.708			
S10	1.007	0.000	0.000	658.079	41.582	699.662			
S12	1.008	0.000	0.000	694.181	69.418	763.599			
S13	1.009	0.000	0.000	0.000	0.000	0.000			
S14	1.010	0.000	0.000	0.000	0.000	0.000			
S15	1.011	0.000	0.000	0.000	0.000	0.000			
S16	1.012	0.000	0.000	0.000	0.000	0.000			
S17	1.013	0.000	0.000	896.863	8.969	905.832			
S18	1.014	0.000	0.000	0.000	0.000	0.000			
S19	1.015	0.000	0.000	0.000	0.000	0.000			
S20	1.016	0.000	0.000	0.000	0.000	0.000			
S21	1.017	0.000	0.000	0.000	0.000	0.000			
S39	1.018	0.000	0.000	0.000	0.000	0.000			
S4	2.000	0.000	0.000	1169.729	65.191	1234.920			
S5	2.001	0.000	0.000	968.339	73.292	1041.631			
S11	3.000	0.000	0.000	292.727	0.000	292.727			
S22	4.000	0.000	0.000	346.263	0.000	346.263			
S23	4.001	0.000	0.000	808.754	49.357	858.112			
S24	4.002	0.000	0.000	0.000	0.000	0.000			
S25	4.003	0.000	0.000	279.518	0.000	279.518			
S26	4.004	0.000	0.000	664.915	0.000	664.915			
S27	4.005	0.000	0.000	981.073	98.107	1079.180			
S28	4.006	0.000	0.000	650.324	17.889	668.213			
S29	4.007	0.000	0.000	1096.174	93.031	1189.205			
S30	4.008	0.000	0.000	0.000	0.000	0.000			
S31	5.000	0.000	0.000	945.226	71.533	1016.759			
S32	5.001	0.000	0.000	275.035	0.000	275.035			
S33	5.002	0.000	0.000	420.159	42.016	462.175			
S34	5.003	0.000	0.000	478.700	0.000	478.700			
S35	5.004	0.000	0.000	612.055	33.908	645.963			
S36	5.005	0.000	0.000	1227.272	89.778	1317.050			
S37	5.006	0.000	0.000	725.421	72.542	797.963			
S38	5.007	0.000	0.000	0.000	0.000	0.000			
S41	6.000	0.000	0.000	1258.606	125.861	1384.467			
S43	6.001	0.000	0.000	0.000	0.000	0.000			
Totals:		0.000	0.000	19508.333	1201.155	20709.488			

Health and safety symbols refer to reference numbers indicated on Designers Risk Assessment number: 25317-RL-25-XX-HS-C-0001

Health & Safety Information Key

- Used to provide design specific safety information that may not be obvious to a competent contractor but may be useful
- Used to restrict/prevent a possible action, e.g. stop construction traffic from entering an area
- Used to warn of significant design hazards, adding recommendations
- Used to encourage a positive action, e.g. use of robust protection for inspection chambers

Rev	Date	Amendments	By	Chk
P03	28.08.26	Updated to latest layout	JB	TN
P02	16.04.26	Updated in response to LLFA's comments.	JB	TN
P01	21.11.25	First Issue	JEB	TN



Client
GLEESON LAND

Project
**GATE FARM
SUTTON BENDER**

Drawing Title
**SURFACE WATER
DRAINAGE AREA PLAN**

Status
INFORMATION

Scale	Drawn	Checked	Date
1:500	JEB	TN	07/11/25

Drawing Number	Revision
25317-RL-22-XX-DR-C-2001	P03

BIM Drawing Reference

Appendix I – Product 4 Data from EA

Kamil Nawaz
Rodgers Leask Limited
kamil.nawaz@rodgersleask.co.uk

Our ref: EIR2025/41803
Date: 01 December 2025

Dear Kamil

Thank you for your enquiry which was received on 13th November 2025. We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Abstract

Name	Product 4
Description	Detailed Flood Risk Assessment Map for Gate Farm, Sutton Benger NGR: ST9399578506
Licence	Open Government Licence
Information Warnings	<i>The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.</i>
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2025 Ordnance Survey AC0000807064.

Open Data and Historic Flood Events

The Environment Agency no longer provides PDF copies of the Historic Flood Map. Instead, datasets are freely available via the Government's Open Data portal: [Find open data - data.gov.uk](#)

Examples of datasets you may require:

- Flood Map for Planning
- Recorded Flood Outlines
- Historic Flood Map
- Surface Water for Spatial Planning extents
- Main River Consultation Area

You can access the Flood Map for Planning here: <https://flood-map-for-planning.service.gov.uk/>

Please note: we cannot guarantee that we hold an exhaustive list of all past flood events. All reasonable care has been taken to ensure that the historical flood event data is as accurate as possible. The Environment Agency will update its records if new evidence emerges.

Planning Guidance

We recommend you read the following items to inform your Flood Risk Assessment (FRA):

Summary	Link
Guidance on using Environment Agency information to inform a development proposal	Flood risk assessments – GOV.UK
How to use modelling data to support your FRA	Using modelling for FRAs – GOV.UK
Planning considerations for areas at risk of flooding	Flood risk and coastal change – GOV.UK
Template and advice to help increase the chances of your FRA includes the right information first time	Planning Portal – FRA Guidance
Information on getting planning advice from the Environment Agency, including paid services	EA Planning Advice – GOV.UK Email: wx.sp@environment-agency.gov.uk
Check with your Lead Local Flood Authority (LLFA) or Local Planning Authority (LPA) for additional policies or guidance for FRAs.	Find your local council – GOV.UK Local Plans & Strategic Flood Risk Assessments (SFRA)

Flood Levels and Updates to National Modelling

The flood zones available on the Flood Map for Planning service were published on 25th March 2025. However, the flood level and depth data are not currently available for all locations identified as at risk in this area.

Therefore, for your information we have supplied maps showing the water depths derived from JFLOW for the 1% AEP (100yr) and 0.1% AEP (1000yr) fluvial modelled flood scenarios. This modelling is fit for the purpose of the Flood Zones. However, it is not based on a specific channel survey. Neither water depths nor water levels were outputs specified when we commissioned this generalised modelling for the Flood Zones. Whilst the modelling process does provide some information on depth of water, it would have been possible to produce the flood extents without storing the water depth values, since water depth is only a 'by-product' of the calculation process. As this type of modelling was developed, tested and reviewed for production of the Flood Zone extents only, we have no information on the accuracy of the water depth data. Water depth or level outputs from this model are only suitable to be used for decision making at a broad catchment scale and is not fit for the purpose of a site-specific flood risk assessment.

Alternatively, you could contact us again later when we might be able to provide flood level and depth associated with our new National Flood Risk Assessment system. Visit this page <https://environment.data.gov.uk/support/faqs/778338325> to understand more how the Flood Zones have been produced.

You can find further information on the NaFRA2 project here: <https://www.gov.uk/guidance/updates-to-national-flood-and-coastal-erosion-risk-information>

Flood Defences

If there are any formal flood defences within 1km of the site boundary provided, a PDF containing flood defence information will be enclosed. This information has been taken from our Asset Information Management System database (AIMS). A data download can be accessed here: [AIMS Asset Bundle](#)

Please note that flood defences can increase water levels elsewhere e.g. through channels being restricted by defences, or because defences prevent flood water flowing back into the river channel.

Further Guidance

If you intend to use any climate change data supplied in this letter, you should consider its appropriateness in light of a range of potential allowances as described in the latest guidance: [Flood risk assessments: climate change allowances - GOV.UK](#). This information is subject to change, please check the guidance regularly. Our Sustainable places team would be happy to discuss the issues around Climate Change and how information should be used.

In some locations, the predicted Still Water Tide Level data from the Coastal Flood Boundary Study 2018 is higher than the locally modelled water levels provided. When this is the case the higher water levels should be considered in your FRA. More information can be found here [Coastal flood boundary conditions for the UK: 2018 update - GOV.UK](#) and by downloading 'Coastal Design Sea Levels' from [Find open data - data.gov.uk](#)

Information on environmental permits for work in, under, over, or near a main river, culvert, flood defence, or in the floodplain is available here: [Flood risk activities: environmental permits - GOV.UK/](#). For any further advice, please contact blandford.frap@environment-agency.gov.uk.

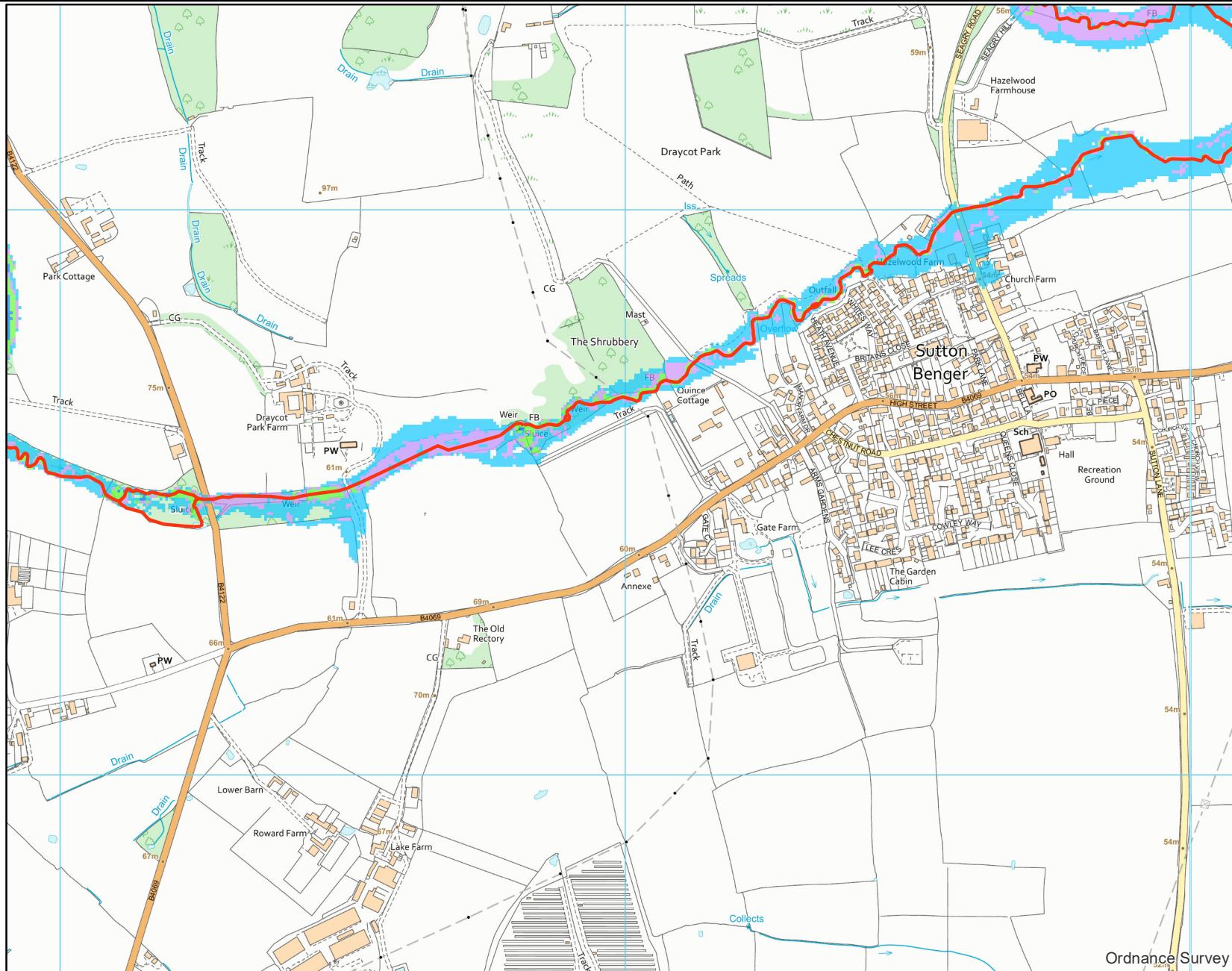
We hope you find this information helpful.

Yours sincerely

Dalene Ellis
Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk

Enc: EIR2025/41803 - 1% AEP JFLOW Depth Map
EIR2025/41803 - 0.1% AEP JFLOW Depth Map
EIR2025/41803 Defences Map & Data (if applicable)

EIR2025/41803 - JFLOW Fluvial Water depths (m) Without Flood Defences. 100 year (1% AEP)
Centred on land at ST 93995 78506. Created 28/11/2025.



Scale 1:10,000

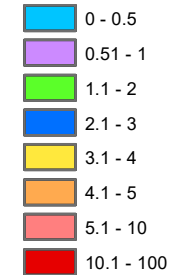


Legend

— Statutory_Main_Rivers

100yr JFLOW Depth

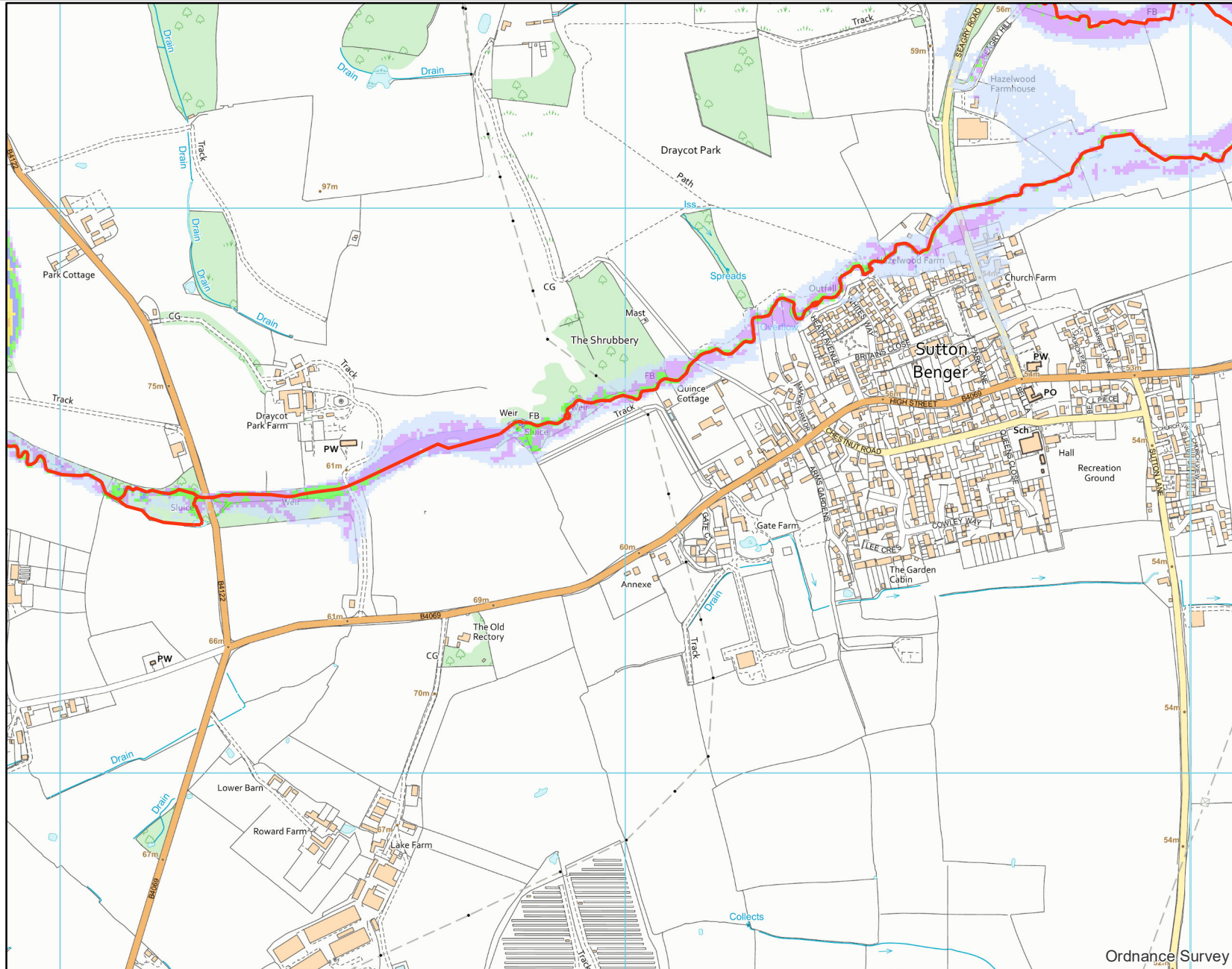
metres



Information Warning

We do not recommend the use of water depths/levels derived from JFLOW for site specific investigations such as Flood Risk Assessments.

EIR2025/41803 - JFLOW Fluvial Water depths (m) Without Flood Defences. 1000 year (0.1% AEP)
Centred on land at ST 93995 78506. Created 28/11/2025.



Scale 1:10,000

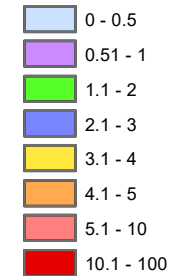


Legend

— Statutory_Main_Rivers

1000yr JFLOW Depth

metres

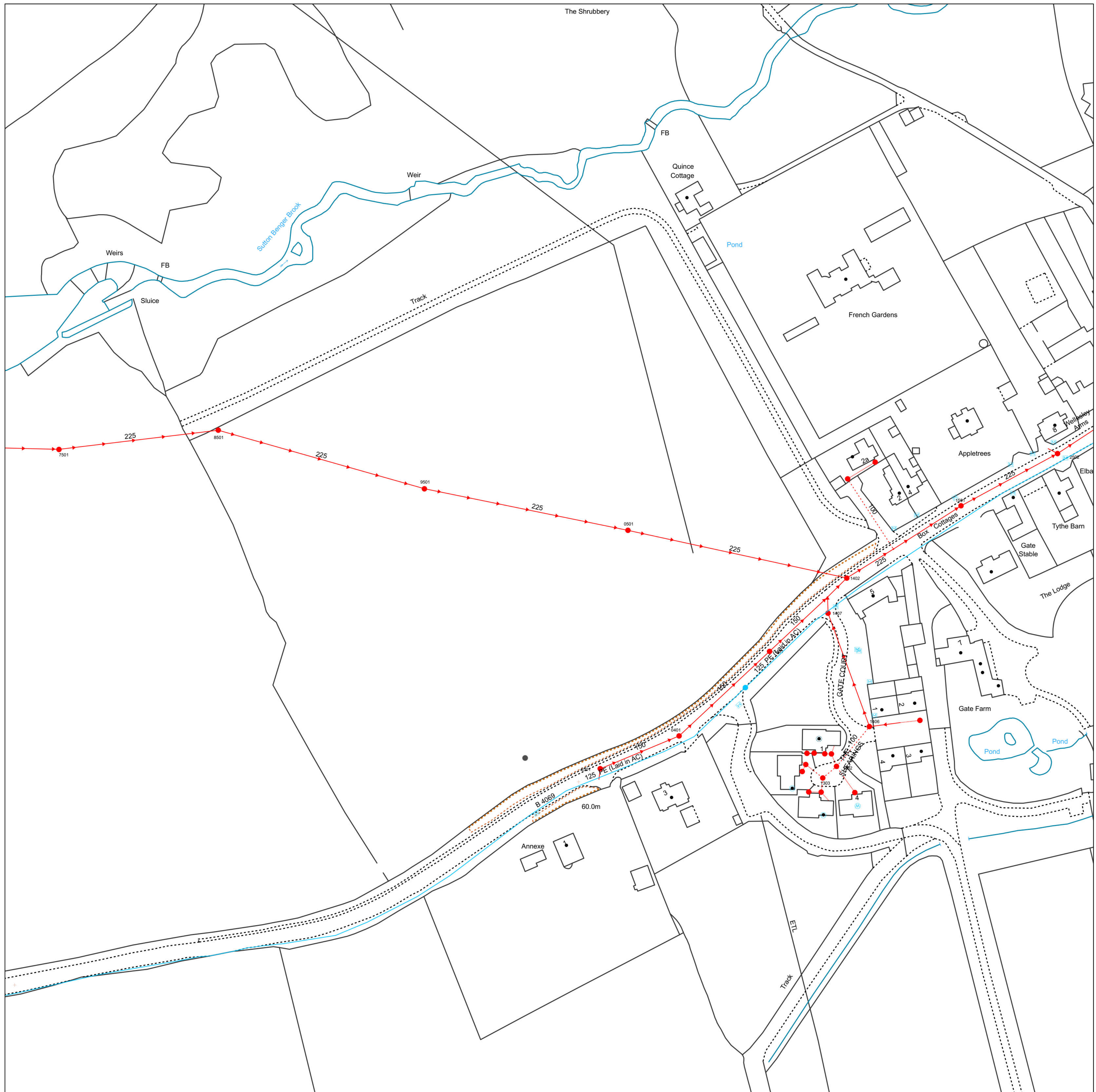


Information Warning

We do not recommend the use of water depths/levels derived from JFLOW for site specific investigations such as Flood Risk Assessments.

Appendix J – CCTV survey

Wessex Water Web Map



Reproduced from the Ordnance Survey map with the permission of the Controller of His Majesty's Stationery Office. © Crown copyright and database rights (2025) OS AC0000848304

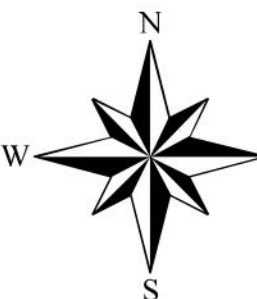
<u>WATER MAINS</u>	<u>SEWERS</u>	<u>PUBLIC</u>	<u>PRIVATE</u>	<u>SECTION 104</u>	<u>OTHER WESSEX PIPES</u>	<u>NON-WESSEX / UNKNOWN</u>
Distribution Main	Foul				Rising Mains	Private Rising Mains
Washout Main	Surface				Standby Rising Mains	Culverted Watercourse
Raw Water Main	Combined				Effluent Disposal	Highway Drain
Abandoned Main	Abandoned				Overflow	Use Unknown
Private Main					Siphon	Status Unknown

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

<u>SITES</u>	<u>STRUCTURES</u>	<u>OTHER STRUCTURES</u>
Source	Manhole - Foul	Attenuation Tank
Reservoir	Manhole - Surface	Storage Tank
Pump	Manhole - Combined	Chamber
Treatment Works	Outfall	Tunnel
	Inlet	Interceptor
	Lamphole	
	Bifurcation - Foul	
	Bifurcation - Surface	
	Bifurcation - Combined	
	Combined Sewage Overflow	
	Pumping Station - Surface	
	Pumping Stn - Foul/Combined	
	Gully	
	Vent Column	
	Rodding Eye	
	Catchpit	
	Flushing Chamber	
	Soakaway	
	Non Return Valve	
	Washout	
	Air Valve	
	Hatch Box	

Information in this plan is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. Building over or near Wessex Water's apparatus is not normally permitted.





Date: 19/11/2025

Centre: 394011E, 178496N

Scale: 1:884
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