

TECHNICAL NOTE ADDENDUM ON FLOOD RISK AND DRAINAGE

PROJECT	Eastleigh Court, Warminster	PROJECT / REF	S250204-TN01
CLIENT	Kindred Living Project Ltd	REVISION	01
AUTHOR	Nathan Rowe BSc (Hons), IEng MICE	DATE	01 Oct 2026

BACKGROUND

This addendum note has been prepared in response to the Lead Local Flood Authorities objection to the initial submitted Flood Risk Assessment and Outline Drainage Strategy report, report ref S250204-SUB-99-XX-FRA-C-00001 revision 03, for planning application ref PL/2026/01607 at Eastleigh Court, Bishopstrow, Warminster, BA12 9HW. The holding objection is dated 22/04/2026.

The Holding Objection advised the following:

"At this stage, it is not clear there is a feasible drainage strategy due to the uncertainty regarding infiltration at the site. While acknowledging the applicant has stated further BRE365 compliant infiltration testing will be undertaken, this information is required at this stage to demonstrate there is a safe and feasible surface water drainage strategy in principle.

Noting the applicant may proposed deep infiltration devices – there must be 1m clearance between the base of infiltration feature and groundwater to prevent interaction. Additionally as noted by the applicant, the EA must be consulted on deep soakaway devices...

...Once the holding objection is resolved, the following information can be provided via condition:

- Detailed hydraulic modelling of the surface water drainage network to demonstrate there is no surcharging in the 1 in 1 year event and no flooding on site for a 1 in 30 year plus climate change rainfall event.*
- Pre-development overland flow routes. We note the applicant has provided post-development overland flow routes, however to demonstrate there is no increased flood risk to adjacent people & property, the applicant must also provide pre-development overland flow routes.*
- Calculations which demonstrate that the proposed drainage design provides a sufficient level of water treatment to prevent pollution of the receiving watercourse/groundwater in accordance with Standard 4: water quality of the National Standards for SuDS.*
- Further blue/green source-control SuDS across the extent of the development to manage water quantity and maintain water quality in accordance with Standard 2: Interception of the National Standards for SuDS.*
- The applicant must submit a maintenance strategy for all drainage features onsite, outlining maintenance activities undertaken, who is responsible for completing maintenance, and the frequency of maintenance.*
- The applicant must submit a construction management plan that demonstrates how flood risk to people & property, and pollution risk to groundwater will be mitigated throughout construction.*

A copy of the holding objection can be found within Attachment 01.

REVISED NATIONAL PLANNING POLICY FRAMEWORK

The National Planning Policy Framework was revised August 2026. The following is taken from the revised NPPF and relates to flood risk:

F7: Ensuring development is safe from flooding

1. Development proposals should not present a risk from flooding to potential occupiers, users, or visitors, and should not increase flood risk elsewhere.

2. Where development is proposed in a location known to be at risk from any form of flooding, now or in the future, it should be refused unless:

a.) Within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons which justify a different arrangement;

b.) The development will be safe throughout its lifetime taking account of the vulnerability of its users;

c.) Any residual risk can be safely managed, and safe access and escape routes are included where appropriate, as part of an agreed emergency plan;

d.) The development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment; and

e.) It can be demonstrated that flood risk will not be increased elsewhere.

Flood Risk Vulnerability Classification and Flood Zone "Incompatibility" criteria have been updated within Annex F of the revised NPPF, reproduced below:

Table 01 – Revised Flood Risk Vulnerability Classification

Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including for electricity generation and storage, electricity network infrastructure, telecommunications infrastructure, water supply reservoirs and water treatment works that need to remain operational in times of flood. • Wind turbines. • Solar farms. • Hydrogen production facilities. • Carbon Capture, distribution and storage facilities. • Heat networks. • Data Centres. • Electric vehicle charging stations.
Highly Vulnerable	• Police and ambulance stations, fire stations and command centres. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent or which fall under The Control of Major Accident Hazards Regulations 2015. Where there is a demonstrable need for such installations – including bulk storage associated with port or similar facilities, and energy infrastructure and carbon capture or storage – to be located at coastal, water-side, or other high flood risk areas, they should be classified as 'Essential Infrastructure'. • Installations requiring a radioactive substances regulations permit for disposal to landfill or dedicated near-surface disposal by burial.
More Vulnerable	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses (including floating/rising designs), student halls of residence, drinking establishments, nightclubs and hotels.

	- Non-residential uses for health services, nurseries and educational establishments. - Landfill⁷⁸ 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.
Less Vulnerable	- Police, ambulance and fire stations which are not required to be operational during flooding. - Buildings used for: shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. - Land and buildings used for agriculture and forestry. - Waste treatment (except landfill and hazardous waste facilities). - Minerals working and processing (except for sand and gravel working). - Water treatment works which do not need to remain operational during times of flood. - Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. - Car parks. - Land-raising (unless part of or enabling a development with a higher vulnerability classification).
Water-compatible Development	- Flood Control Infrastructure - Water transmission infrastructure and pumping stations. - Sewage transmission infrastructure and pumping stations. - Sand and gravel working. - Docks, marinas and wharves. - Navigation facilities. - Ministry of Defence installations. - Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. - Water-based recreation (excluding sleeping accommodation). - Lifeguard and coastguard stations. - Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. - Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Table 02 – Revised Flood Risk Vulnerability and Flood Zone “Incompatibility”

Vulnerability Classification		Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water-compatible
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	Exception Test	✓	✓	✓
	Zone 3a **	Exception Test**	✗	Exception Test	✓	✓
	Zone 3b *	Exception Test*	✗	✗	✗	✓*
Key ✓ Exception test is not required ✗ Development should be refused						

The assessment of flood risk, as completed within the submitted flood risk assessment report ref S250204-SUB-99-XX-FRA-C-00001 revision 03, is unchanged with regards to the revised NPPF. The development remains classified as “More Vulnerable” with a low flood risk from all sources, as is therefore deemed appropriate in accordance Annex F, reproduced within Table 01 and 02 above.

The following is taken from the revised NPPF and relates to sustainable drainage:

F8: Sustainable drainage systems and watercourses

1. Development proposals which could affect drainage on or around the development site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, in ways which are proportionate to the nature and scale of the proposal. The systems employed should provide multifunctional benefits where possible, facilitating improvements in water quality, biodiversity and amenity.

2. Sustainable Drainage Systems should:

- a.) Be designed in accordance with the National Standards for Sustainable Drainage Systems;*
- b.) Have maintenance arrangements in place to ensure an acceptable standard of operation for the anticipated lifetime of the development; and*
- c.) In the case of proposals for major development, take account of advice from the Lead Local Flood Authority.*

3. Development proposals should not enclose existing watercourses where this is not already the case, unless there are compelling reasons to do so; and should where possible remove existing culverts and renaturalise existing river channels, unless to do so would increase flood risk, result in other environmental harm or cause harm to heritage assets.

FURTHER SITE INVESTIGATION WORKS

Following the holding objection received from the LLFA, further site investigation works have taken place throughout the year to further explore infiltration as a method of surface water disposal, due to the poor results of the initial testing (as evidenced and discussed within the initial FRA and DS report ref S250204-SUB-99-XX-FRA-C-00001 revision 03) and the lack of suitable alternative discharge locations (such as above ground waterbodies or surface water sewer).

Southern Testing

Southern Testing were appointed to undertake a deep borehole soakaway test and full BRE365 testing across the site. A summary of their findings and test results can be seen below. SK1-SK4 are BRE365 test pits and BH1 is a deep borehole soakaway test. Site fieldwork was carried out on 9th and 10th June 2026.

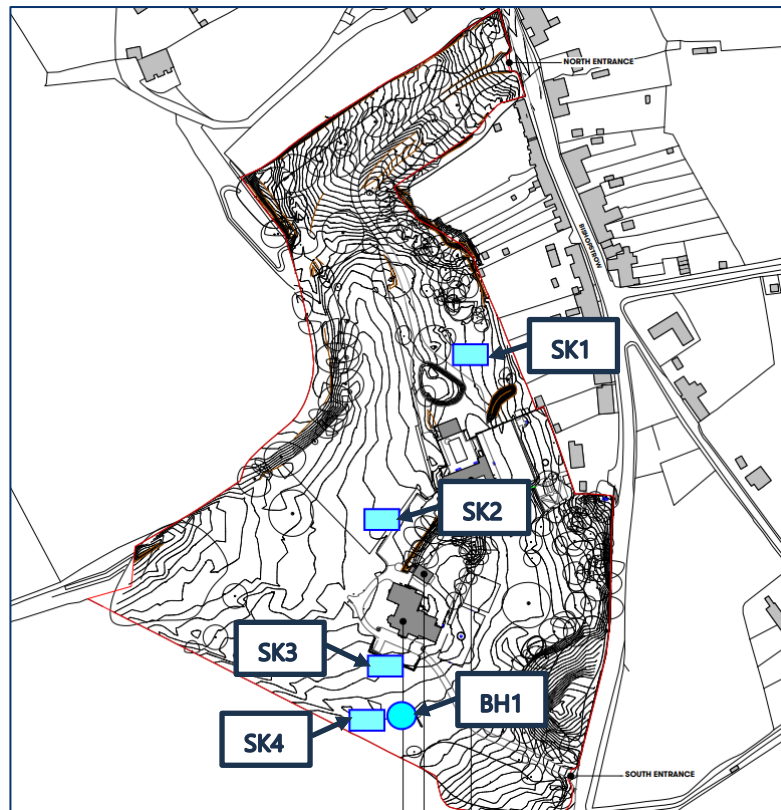


Figure 01 – Southern Testing Infiltration Test Locations

Table 03 – BRE365 Test Results (Southern Testing Report Extract)

Test ID	Test Depth (mbgl)	Test Number	Design Infiltration Rate		Notes
			l/m ² /minute	m/sec	
SK1	2.4	1	0.061*	1.02x10 ⁻⁶ *	After 24hrs water level not dropped below effective 25%. Calculation based on actual fall of water level achieved.
		2	No test	No test	
		3	No test	No test	
SK2	2.5	1	0.040*	6.69x10 ⁻⁷ *	After 24hrs water level not dropped below effective 25%. Calculation based on actual fall of water level achieved.
		2	No test	No test	
		3	No test	No test	
SK3	2.0	1	0.0093*	1.55x10 ⁻⁷ *	After 24hrs water level not dropped below effective 25%. Calculation based on actual fall of water level achieved.
		2	No test	No test	
		3	No test	No test	
SK4	2.0	1	0.208	3.47x10 ⁻⁶	Test 1 took over 13hrs to reach the effective 25% depth. Test 2 after 4 hrs, water level only dropped to 75% effective depth. Calculation based on actual fall of water level achieved.
		2	0.153*	2.55x10 ⁻⁶ *	
		3	No test	No test	

The above BRE365 test results do not support the use of conventional soakaways discharging concentrated volumes of run-off due to the poor rate of infiltration in the shallow stratum. The report notes that the rates may be considered for permeable paving design.

During the borehole drilling, groundwater was encountered at 8.2mBGL. The borehole was terminated at 8.4mBGL. A constant head test was attempted and a very poor infiltration rate achieved (25L/min). The test was aborted and a falling head test carried out:

Table 04 – Falling Head Borehole Test Results (Southern Testing Report Extract)

BH ID	BH Depth (mbgl)	Infiltration Rate
		m/sec (Falling Head)
BH1	8.40	4.04 x 10 ⁻⁷ m/s

This is noted as a very poor infiltration rate.

The Southern Testing Report can be found within Attachment 02.

Groundwater Dynamics

Groundwater Dynamics provide a proprietary flagship drainage system, known as the ECO-90 drainage system, that enables and supports infiltration of run-off into strata where conventional systems are otherwise ineffective or fail.

Following the poor results of the testing completed by Southern Testing, Groundwater Dynamics were approached by Subteno to better understand their system and the process of exploring feasibility.

The ECO90 Drainage system was launched in the UK in 2012. It is installed vertically into the ground, terminating above the natural water table, in maximum lengths up of to 12m.



Figure 02 – Cross-sectional view through the ECO-90

The ECO90 drainage system uses a multiple open chamber system that creates both lateral and vertical water transfer into the varying soil stratum surrounding it. The system is particularly effective in soils of medium to low permeability and enables infiltration systems to be used in areas where normal soakaways are not considered suitable.

During operation, soils surrounding the ECO-90 'close in' and the system begins to work more efficiently. Through repeated wetting and drying of the soils, micro-fissures in the soil form that extend outwards of the ECO-90, improving infiltration in low permeability soils such as silty and sandy clays.

Through a combination of "head of pressure" from shallow attenuation (such a geocellular storage) and the negative pore pressure of the surrounding unsaturated soils ("suction" action), the system creates a positive drainage outflow which can be modelled to calculate half drain down times. The ECO-90 system is an engineered SuDS System that has been signed off by multiple LLFA's across the country.

To further explore the potential for the ECO-90 system at Eastleigh Court, Groundwater Dynamics were appointed to undertake 3 sets of hydraulic falling head infiltration tests to various locations across the site. Each set comprised 4no 90mm diameter boreholes at varying depths to fully understand the varying soil types and characteristics beneath the site. Geotechnical Engineering supervision was provided by Soils and Structures Ltd during the testing.

Groundwater Dynamics attended site on 17/07/2026 to complete testing at the following locations:

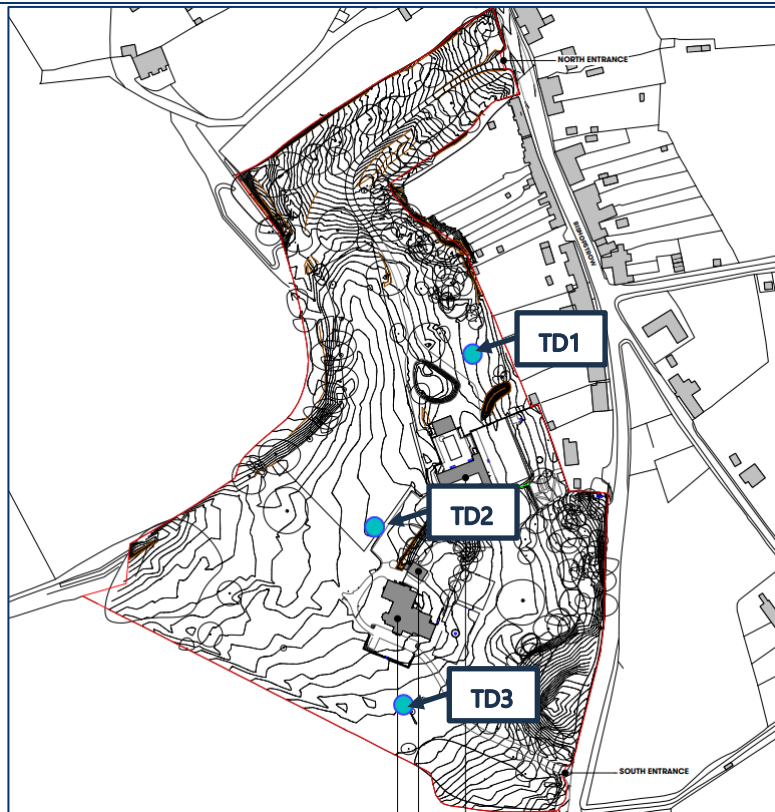


Figure 03 – Groundwater Dynamics Testing Locations

As well as infiltration testing, samples were taken and a log of the varying depths of soils recorded. The Groundwater Dynamics Borehole Logs and Infiltration Testing Datasheets can be found within Attachment 03. Following their field works, Groundwater Dynamics (through their design supply chain) produce site-specific Hydrogeological Assessments and Drainage Design Statements. These are discussed below.

PROPOSED SURFACE WATER DISPOSAL STRATEGY – ECO90 BY GROUNDWATER DYNAMICS

Soil and Structures Ltd on behalf of Groundwater Dynamics have reviewed the conditions and site investigations completed at the site (including the previous fieldwork completed by S10 and Southern Water as well as the Groundwater Dynamics testing) to provide a comprehensive Hydrogeological Assessment of the site, report reference 20653-001_V02 dated 25 September 2026.

Their summary recommendation is for a decentralised drainage system, directly discharging run-off into the ground via the ECO90 system at infiltration rates to be determined, terminating above the recorded water table with freeboard. Their report can be found within Attachment 04.

The below figure is taken from the Hydrogeological Assessment and provides a good representation of the identified ground, hydrological and hydrogeological conditions at the site:

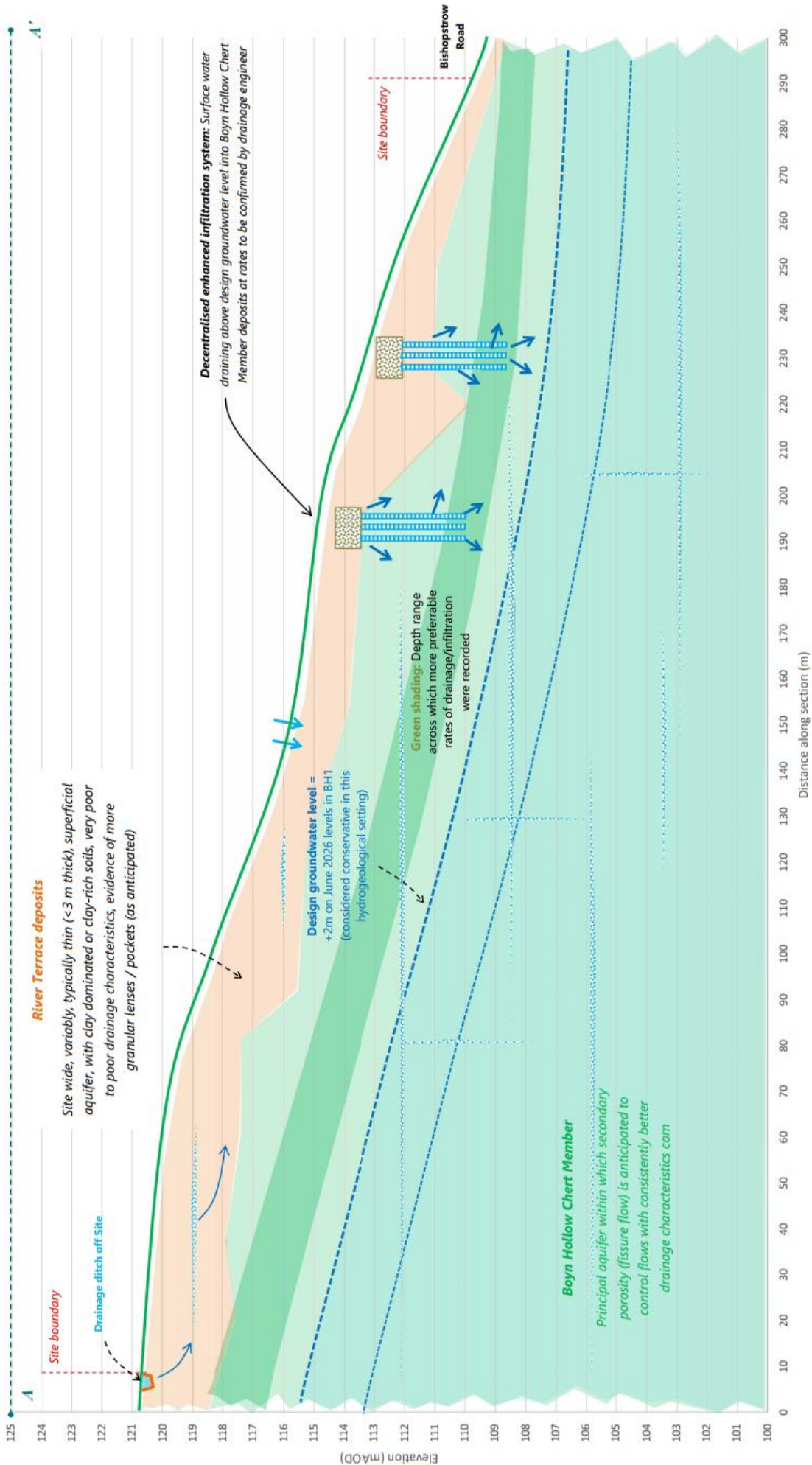


Figure 04 – Ground and Groundwater Model (Soil and Structures Hydrogeological Assessment Extract)

Following production of the Hydrogeological Assessment, Engineering Consultancy 49 Ltd ("EC49") on behalf of Groundwater Dynamics, reviewed the Groundwater Dynamics infiltration testing results alongside the Hydrogeological Assessment. EC49 is a civil engineering consultancy responsible for completing detailed design calculations for the ECO90 drainage system on behalf of Groundwater Dynamics on their projects.

EC49 have advised that the invert/depth of the ECO90 devices should be limited to 6mBGL (below ground level) to remain clear of groundwater (with 2m freeboard) as shown on Figure 04, discharging into the Boyn Hollow Chert Member where preferable rates of drainage/infiltration were recorded. The total length of the ECO90 devices will be approximately in 4.5m lengths, to cater for permeable car park construction and/or attenuation situated above the ECO90 units.

EC49 have advised the following infiltration rates suitable for use in the surface water drainage design:

TD01: 0.130756 m/hr (3.632×10^{-5} m/s)

TD02: 0.189648 m/hr (5.268×10^{-5} m/s)

TD03: 0.022121 m/hr (6.145×10^{-6} m/s)

The above infiltration rates support the use of infiltration as a method of surface water disposal.

The following figure includes an extract of Subteno drawing 250204-SUB-XX-XX-DR-C-02302-S2-P03, included within planning submitted Flood Risk Assessment and Outline Drainage Strategy report ref S250204-SUB-99-XX-FRA-C-00001 revision 03:

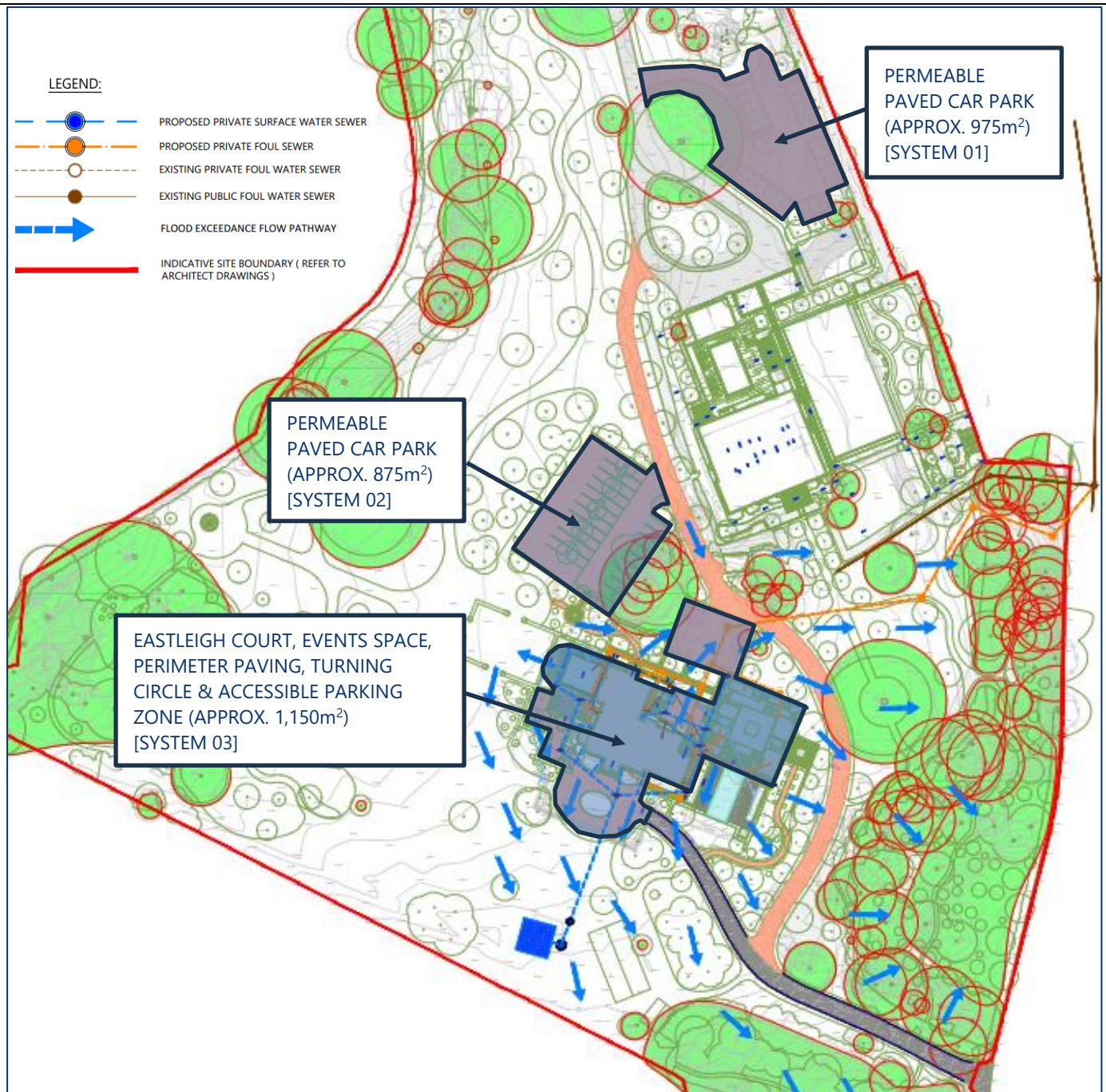


Figure 05 – Outline Drainage Masterplan Mark-Up

System 01 will utilise the soakage rates identified within TD01, System 02 will utilise TD02 infiltration rates and System 03 will utilise TD03 infiltration rates.

It is envisaged that Systems 01 and 02 will utilise storage attenuation within the porous subbase, with ECO90 units situated beneath the porous subbase, allowing for water to percolate through the surface paving and subbase, removing pollutants as water percolates before infiltrating into the ground via the ECO90 units. The exact detail will be determined during the detailed design by Groundwater Dynamics.

System 03 will drain with a below-ground pipe network towards an attenuation tank located to the south, as

depicted on the outline drainage drawings. The attenuation tank will be unlined, allowing for infiltration. Water will pass through the tank directly into ECO90 units beneath, before infiltrating into the ground.

Storage estimates have been undertaken in Causeway Flow+ Software (V18.0) based on the areas depicted in Figure 05 to understand attenuation volumes required to ensure of no flooding up to and including the 100year + 45% climate change return period, utilising FEH rainfall data:

Storage Estimate			
Return Period (years)	100		OK Cancel
Climate Change (%)	45		
Impermeable Area (ha)	0.098	Update	
Peak Discharge (l/s)	0.000		
Infiltration Coefficient (m/hr) (leave blank if no infiltration)	0.13076	Calc	
Required Storage (m³)	Calc		
	from 130		
	to 130		
With infiltration (m³)			
	from 22		
	to 79		

Figure 06 – System 01 Storage Estimate

Storage Estimate			
Return Period (years)	100		OK Cancel
Climate Change (%)	45		
Impermeable Area (ha)	0.088	Update	
Peak Discharge (l/s)	0.000		
Infiltration Coefficient (m/hr) (leave blank if no infiltration)	0.18965	Calc	
Required Storage (m³)	Calc		
	from 116		
	to 116		
With infiltration (m³)			
	from 1		
	to 64		

Figure 07 – System 02 Storage Estimate

Storage Estimate			
Return Period (years)	100		OK Cancel
Climate Change (%)	45		
Impermeable Area (ha)	0.115	Update	
Peak Discharge (l/s)	0.000		
Infiltration Coefficient (m/hr) (leave blank if no infiltration)	0.02212	Calc	
Required Storage (m³)	Calc		
	from 152		
	to 152		
With infiltration (m³)			
	from 47		
	to 134		

Figure 08 – System 03 Storage Estimate

Whilst the above estimates are outline at this stage, pending the Groundwater Dynamics detailed design, it provides an indication of volumes required.

These show that approximately up to 79m³ of attenuation will be required for System 01, 64m³ for System 02 and 134m³ for System 03.

Attenuation for System 01 will be provided within the porous subbase of the permeable car park. 300mm deep subbase at 30% voids, to the 975m² car park would provide approximately 88m³ of storage, exceeding the volumes shown in Figure 06.

Attenuation for System 02 will also be provided within the porous subbase of the permeable car park. 300mm deep subbase at 30% voids to the 875m² car park would provide approximately 79m³ of storage, exceeding the volumes within Figure 07.

Attenuation for System 03 will likely be in the form of a below-ground attenuation tank as shown on the outline drainage drawings within the planning submitted Flood Risk Assessment and Outline Drainage Strategy report ref S250204-SUB-99-XX-FRA-C-00001 revision 03. A tank size of 10.5mx14mx1.0mDP would provide an attenuation volume of 139m³ at 95% voids.

Exact volumes of attenuation will be determined during the detailed design stage, including the application of suitable safety factors.

The proposed access road interconnecting the other areas of the site could partially drain into the other systems discussed above, or have ECO90 units directly beneath the permeable subbase. Additional attenuation would be provided within the subbase of the access road. The method and exact arrangement for the access road drainage will be determined during the detailed design by Groundwater Dynamics.

SUMMARY

This technical note has been prepared in response to the holding objection issued by the LLFA dated 22.04.26. This was raised as, at the time, there was no clear surface water disposal strategy identified.

The NPPF was revised August 2026 and has been reviewed against the previous submitted flood risk assessment. The development remains classified as "More Vulnerable" with a low flood risk from all sources, as is therefore deemed appropriate in accordance Annex F of the revised NPPF.

Further site investigations have taken place throughout the course of the year. This included further BRE365 soakage testing and a deep borehole soakage test, completed by Southern Testing in June 2026, which failed / provided poor infiltration results.

Groundwater Dynamics were approached to discuss the project and offer a specialist drainage solution with their ECO90 system, that enables and supports infiltration where conventional systems are ineffective. Groundwater Dynamics undertook falling head infiltration tests to various locations and depths across the site in July 2026.

A hydrogeological assessment was produced following this testing to provide a comprehensive analysis of the site encompassing all previous investigations, to confirm whether Groundwater Dynamics system is suitable for the site. The recommendations within this assessment supported the use of the ECO90 infiltration system.

Following issue of the hydrogeological assessment, Groundwater Dynamics have reviewed and provided site specific infiltration rates to be used with the ECO90 systems across the site together with depth and length requirements.

Subteno, on review of the work completed by Groundwater Dynamics and their supply chain, have undertaken attenuation storage estimates for areas of the site being developed. This exercise has confirmed there is adequate provision available for attenuation of run-off as water infiltrates into the below-ground strata via the ECO90 system.

Groundwater Dynamics are responsible for the detailed design of their system and will confirm the exact volumes of attenuation required through this process, which is ongoing. This detailed design will be submitted alongside the other information listed within the LLFA Holding Objection to discharge the subsequent conditions. The detailed design will also be in accordance with policy F8 of the revised NPPF as well as the National SuDS Standards, including satisfaction of the Simple Index Approach for water quality in accordance with The SuDS Manual (CIRIA C753).

This technical note confirms there now is a suitable discharge strategy solution for the development and therefore the holding objection should be relaxed, with planning conditions implemented as outlined in the LLFA objection notice.

This document has been prepared by Subteno Ltd for the specific project for which it was commissioned and should not be relied upon or used for any other project. Subteno Ltd can accept no responsibility or liability for the consequences of this document, or the information therein, being used for any purpose other than the purpose for which it was commissioned. Any person using or relying on the document for such other purpose does so at their risk and indemnify Subteno Ltd for all losses or resultant damages. Subteno Ltd accepts no responsibility or liability for this document to any party other than the client by whom it was commissioned.

ATTACHMENT 01

To:	Julie Mitchell	From:	Drainage (Barney Taylor)
------------	----------------	--------------	--------------------------

Planning App Ref:	PL/2026/01607
Service Ref:	Drainage
Date:	22/04/2026

PROPOSAL

Change of use of Eastleigh Court from offices to short-stay accommodation; repair, restoration and enhancement of Eastleigh Court including demolition of existing single storey extension and construction of replacement single storey extension; exterior alterations and repairs; roof repairs; installation of new dormers and replacement rooflights; change of use of the former Eastleigh Court Stables from a dwelling to short-stay accommodation; erection of ancillary building for use as an event space and pool house; new swimming pool, demolition of an outbuilding; landscaping; vehicle parking, new electricity substation; installation of new automatic gates to north and south entrances and associated works.

SITE LOCATION

Eastleigh Court, Bishopstrow, Warminster, BA12 9HW

SUMMARY OF THE CONSULTEE POSITION

Object	
Holding Objection: Further information required	x
Support	
No comment	
No objection	
No objection subject to conditions	
Consultation not required	

APPLICATION DOCUMENTS REVIEWED

- *Application Form*
- *Cover Letter*
- *Draft Construction Management Plan*
- *Existing Site Plan*
- *Flood Risk and Outline Drainage Strategy*
- *Proposed Site Plan*
- *River Avon SAC Nutrient Calculator*

ASSESSMENT OF THE PROPOSAL

Context

In planning terms, flood risk refers to the potential for development to increase the likelihood or severity of flooding on-site or elsewhere, while drainage considerations relate to the capacity of the site and surrounding infrastructure to manage surface water runoff in a sustainable and effective manner.

The local planning authority must be satisfied that the proposed development will not increase flood risk, either on-site or elsewhere, and that surface water will be managed in a sustainable and coordinated manner.

Where necessary, planning conditions or legal agreements may be used to secure the implementation, maintenance, and monitoring of SuDS and other drainage infrastructure.

Assessment

The application has been supported with a Site-Specific Flood Risk Assessment (FRA). It should be noted that our comments below are reliant on the accuracy and completeness of the FRA and we do not take any responsibility for incorrect data or interpretation made by the authors.

We note the applicant has undertaken groundwater monitoring in March demonstrating groundwater at 2.79-3.01mBGL. If deeper borehole soakaways are proposed, the applicant may be required to undertake further groundwater testing. At this stage, BRE365 testing is required to demonstrate that there is a safe and feasible surface water drainage strategy. Until this information is provided, the holding objection cannot be removed. The LLFA do acknowledge the applicant is providing roof rainwater disconnection from foul sewers in the proposals.

As part of the LLFA Pre-Application response dated 5th June 2025, the LLFA did comment on the applicant's queries related to longer drain down times & infiltration testing, stating "*we would expect the applicant to complete full BRE365 testing in accordance with Wiltshire Council's soakaway policy (Developers-guidance-note-surface-water-soakaways-2.pdf). This would prove far more effective in demonstrating the drainage hierarchy has been exhausted, but may also provide more favourable rates*". In addition to this, we stated that half-drain down times are measured on the 1 in 30-year event and encouraged the use of blue/green SuDS.

RECOMMENDATION: Holding objection as further information required

1. National Standards for SuDS: [Standard 1: runoff destinations](#)

At this stage, it is not clear there is a feasible drainage strategy due to the uncertainty regarding the infiltration at the site. While acknowledging the applicant has stated further BRE365-compliant infiltration testing will be undertaken, this information is required at this stage to demonstrate there is a safe & feasible surface water drainage strategy in principle.

Noting the applicant may propose deep infiltration devices – there must be 1m clearance between the base of the infiltration feature and groundwater to prevent interaction. Additionally as noted by the applicant, the EA must be consulted on deep soakaway devices.

The applicant is referred to paragraph 3.14 of the [National standards for sustainable drainage systems \(SuDS\) - GOV.UK](#) for guidance on the infiltration methods & industry guidance.

Once the holding objection is resolved, the following information can be provided via condition:

1. The applicant must provide further information regarding the surface water drainage strategy:
 - a. Detailed hydraulic modelling of the surface water drainage network to demonstrate there is no surcharging in the 1 in 1 year event and no flooding on site for a 1 in 30 year plus climate change rainfall event.
 - b. Pre-development overland flow routes. We note the applicant has provided post-development overland flow routes, however to demonstrate there is no increased flood risk to adjacent people & property, the applicant must also provide pre-development overland flow routes.
 - c. Calculations which demonstrate that the proposed drainage design provides a sufficient level of water treatment to prevent pollution of the receiving watercourse/groundwater in accordance with [Standard 4: water quality](#) of the National Standards for SuDS.
 - d. Further blue/green source-control SuDS across the extent of the development to manage water quantity and maintain water quality in accordance with [Standard 2: interception](#) of the National Standards for SuDS.
 - e. The applicant must submit a maintenance strategy for all drainage features onsite, outlining maintenance activities undertaken, who is responsible for completing maintenance, and the frequency of maintenance.
 - f. The applicant must submit a construction management plan that demonstrates how flood risk to people & property, and pollution risk to groundwater will be mitigated throughout construction.

INFORMATIVES

- The applicant must agree a discharge rate with the foul sewerage provider for the region.

RELEVANT PLANNING POLICY & GUIDANCE

National Planning Policy Framework (NPPF) [NPPF December 2024 Link](#)
Planning and Flood Risk (Paras 170–182)

Wiltshire Core Strategy – Adopted January 2015 [Wiltshire Core Strategy Link](#)
Core Policy 67 requires that all new development must address flood risk from all sources and not increase flood risk elsewhere. It supports the use of Sustainable Drainage Systems (SuDS) and requires that developments demonstrate how surface water will be managed sustainably.

Wiltshire Local Plan (emerging) [Local Plan Review Link](#)
Development must avoid high flood risk areas using the sequential approach. Proposals require a Flood Risk Assessment, Surface Water Drainage Strategy, and Groundwater Assessment where relevant. All schemes must include Sustainable Drainage Systems (SuDS), with major developments achieving a 30% reduction in runoff compared to greenfield rates, following the surface water discharge hierarchy.

Culverting and building over watercourses is discouraged, and natural drainage features should be retained or restored. Drainage strategies must ensure safety during extreme flood events (1-in-100-year + climate change) and provide safe access/egress. SuDS should also deliver biodiversity, amenity, and water quality benefits.

Supplementary Planning Documents

Wiltshire Council Drainage Betterment Strategy (2024) [SPD Link](#)
This technical guidance outlines expectations for surface water discharge hierarchy, attenuation, exceedance routes, water quality, and post-development monitoring.

Wiltshire Design Guide (March 2024) [SPD Link](#)
Includes principles of good design, including integration of SuDS and flood resilience.

Other Relevant Policies and Guidance

Planning Practice Guidance (PPG) – Flood Risk and Drainage [Guidance Link](#)
Covers detailed expectations for flood risk assessments, SuDS design, discharge hierarchy, sequential testing and climate change allowances.

Wiltshire SFRA (2024) [SFRA Link](#)
This document underpins the Sequential and Exception Test application and provides site screening evidence.

Section 19 Flood Investigation Reports [Section 19 Reports Link](#)
These documents summarise investigations into significant local flood incidents and establish what caused the flooding, how authorities responded, and actions needed to prevent future floods.

National Standards for Sustainable Drainage Systems (SuDS) June 2025 [Guidance Link](#)
Establishes mandatory criteria for runoff destination hierarchy, interception, flood resilience, water quality, amenity, biodiversity, and long-term maintenance for all new developments in England.

SuDS Manual (CIRIA C753)
This document sets out design principles, especially where attenuation, exceedance routing, and water quality are discussed.

Infiltration drainage design must be supported by ground investigations, including infiltration testing in accordance with *British Research Establishment (BRE) Digest 365 – Soakaway Design*, and groundwater level monitoring that accounts for seasonal variation.

ATTACHMENT 02



Soakage Test Report

Project Name: Bishopstrow

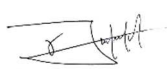
Location: Eastleigh Court, Bishopstrow Road,
Bishopstrow, Wiltshire, BA12 9HW

Client: Kindred Living Project Ltd

Project ID: JT0685

Report Date: 19 June 2026

Report Issue: 1

Author	Joel May BSc MSc	
Check/Review	R Jiagge BSc (Hons) MSc MEnvSc CSci FGS/ CL:AIRE DoWCoP QP No.366	
Check / Review	S F Pratt BSc MSc CGeol FGS DIC	

For and on behalf of Southern Testing Laboratories Limited

DOCUMENT HISTORY AND STATUS

Issue No.	Date	Purpose or Status	Author	Check / Review
1	19/06/2026	Issued to Client	JM	RJ/SFP

TABLE OF CONTENTS

A	INTRODUCTION	1
1	Authority	1
2	Location	1
3	Investigation Brief	1
4	Scope	1
B	SITE SETTING	1
5	Geological Records	1
C	FIELDWORK	2
6	Strategy and Method	2
7	General Site Description	2
8	Weather Conditions	2
9	Soils as Found	2
10	Groundwater Observations	3
D	TESTING & TEST RESULTS	3
11	Soakage Test Results	3
12	Borehole Soakaway (In-situ Permeability Tests - after BS EN ISO 22282)	4

TABLE OF APPENDICES

APPENDIX A

Site Plans and Exploratory Hole Logs

APPENDIX B

In-Situ Test Methods and Results

APPENDIX C

Photographs

A INTRODUCTION

1 Authority

Our authority for carrying out this work is contained in completed ST Consult Project Order form dated 18/05/26.

2 Location

The site is located approximately 2.25 km southeast of Warminster railway Station in Wiltshire. The approximate National Grid Reference of the site is ST 89224 43665. The site location is indicated on Figure 1 within Appendix A.

3 Investigation Brief

In accordance with the Client's instructions, and our quotation, the following was included in our brief for this soakage investigation:

- 1 No. borehole soakaway test was carried out using the falling head method.
- 4 No. soakage tests were carried out on site using the BRE 365 method.

4 Scope

This factual report presents our exploratory hole logs and test results only.

As with any site there may be differences in soil conditions between exploratory hole positions.

This report is not an engineering design and the figures and calculations contained in the report should be used by the Engineer, taking note that variations will apply, according to variations in design loading, in techniques used, and in site conditions. Our figures therefore should not supersede the Engineer's design.

The findings and opinions conveyed via this investigation report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Ltd. believes are reliable. Nevertheless, Southern Testing Laboratories Ltd. cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

The investigation was conducted and this report has been prepared for the sole internal use and reliance of Kindred Living Project Ltd and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Southern Testing Laboratories Ltd. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The recommendations contained in this report are made in respect of the particular context of the investigation as described in the report and may not be appropriate to alternative development schemes. This report should be considered in its entirety and Southern Testing Laboratories Ltd. accepts no responsibility for and excludes liability in respect of any omission or alteration made by others, and any use of the report for any purpose other than that for which it was produced.

B SITE SETTING

5 Geological Records

No formal desk study has been carried out, but reference has been made to both online and published geological maps to put the site into context.

5.1 Geology

The British Geological Survey Map No 281 indicates that the site geology consists of River Terrace Deposits over Boyne Hollow Chert Member.

5.1.1 River Terrace Deposits

The River Terrace Deposits are of fluvial origin and were laid down by rivers when the climate was much wetter and cooler than at present. The terraces consist of sheets of gravel/sand and can include an overlying deposit of Brickearth (really an ancient alluvium). Some variability in soils is to be expected at junctions with the various terraces, as riverbanks existed there. The remains of these former riverbanks can be soft and silty or contain clay.

5.1.2 Boyne Hollow Chert Member

Glauconitic sand and sandstone with regularly developed nodular and tabular beds of chert. Interbedded chert beds and nodules, up to 0.4m thick.

C FIELDWORK

6 Strategy and Method

The strategy adopted for the soakage testing comprised the following:

Activity / Method	Purpose	Max Depth Range (mbgl)	Installations / Notes
SK1-4 8T excavator	Trial pits to investigate the shallow ground conditions and allow for assessment of soakage potential using the BRE365 method.	2.00 / 2.50	BRE365 Soakage tests open pits
BH1 Rotary rig	Windowless sampling with rotary core follow on to investigate the ground conditions and allow for borehole soakaway testing.	8.40	

Exploratory hole locations were specified by the Clients Engineer and are shown in Figure 2 in Appendix A.

In-situ test method descriptions employed are given in Appendix B together with the test results.

7 General Site Description

The site is located in the Eastleigh Court Estate, which consists of a Grade II listed building to the south and Eastleigh Stables and a tennis court in the centre. The estate has approximately 5.5 hectares of land surrounding the buildings consisting of a 'wild garden' and a range of young, semi-mature and mature trees. It is bound to the south and west by agricultural fields, Bishopstrow Road to the east and residential properties to the north.

8 Weather Conditions

The fieldwork was carried out on 9th and 10th June 2026, at which time the weather was a mix of rain showers and sunny spells.

9 Soils as Found

The soils encountered are described in detail in the attached exploratory hole logs (Appendix A), but in general comprised a covering of Topsoil over Terrace Gravels, over Boyne Hollow Chert Member. A summary is given below.

Depth to base (m)	Thickness (m)	Soil Type	Description
0.15/0.25	0.15/0.25	Topsoil	Dark brown clayey gravelly fine to coarse Sand with frequent rootlets. Gravel consists of fine to coarse angular to subangular flint.

Depth to base (m)	Thickness (m)	Soil Type	Description
1.2	1.0	Made Ground	Light grey and black sandy Gravel with rare metal, slate, wood and high cobble content. Gravel consists of fine to coarse angular to subangular brick, concrete, flint and tile. Cobble is angular to subangular brick and concrete. [SK1 only]
1.3/2.0	1.12/1.85	River Terrace Deposits	Variable strata comprising brown sandy Gravel with high cobble content and occasional patches of sandy clay, firm light brown sandy very gravelly Clay with medium cobble content and Light brown slightly clayey gravelly Sand with low cobble content. Gravel consists of fine to coarse angular to subangular flint and sandstone. Cobble is angular to subangular flint and sandstone.
4.1	2.8	Boyne Hollow Chert Member	Possibly highly weathered Sandstone comprising medium dense becoming very dense with depth light grey clayey slightly gravelly fine to coarse Sand, firm to stiff light grey very sandy gravelly Clay with high cobble content; and light grey very clayey sandy Gravel with high cobble content. Gravel consists of fine to coarse angular to subangular sandstone and cobble is angular to subangular sandstone.
8.4	Not proven	Boyne Hollow Chert Member	Medium strong interbedded light grey crystalline fine to medium grained SANDSTONE. Moderately weathered, medium space joints with fine to medium glauconitic sand infill.

10 Groundwater Observations

Groundwater was observed in the exploratory holes as follows:

Hole ID	Water Strike Depth (m)	Comment	Stratum
BH1	8.20	Remained at 8.20m after 30 minutes.	Boyne Hollow Chert Formation

D TESTING & TEST RESULTS

11 Soakage Test Results

The BRE paper DG365, Ref [22] describes a method for site testing to determine soil infiltration rates at the proposed site of a soakaway. The in-situ test method is described in Appendix B.

Soakage tests were carried out at four locations across the site, as shown on the attached site plan Figure 2, Appendix A. The full results of the soakage tests are presented within Appendix B.

The DG365 Ref [22], states that each pit should be allowed to drain three times to near empty, with filling on the same or consecutive days. Due to very low soakage rates repeat tests were not carried out in SK1 – SK3. Two repeat tests were carried out in SK4 over 48 hrs.

The infiltration rate from each trial hole is summarised in the table below. The soakage rate in this report is expressed as $\ell/m^2/\text{minute}$, which is a convenient rate to use. The BRE use a unit of m/sec , which is the value in $\ell/m^2/\text{minute}$ divided by 60,000.

Test ID	Test Depth (mbgl)	Test Number	Design Infiltration Rate		Notes
			l/m ² /minute	m/sec	
SK1	2.4	1	0.061*	1.02x10 ⁻⁶ *	After 24hrs water level not dropped below effective 25%. Calculation based on actual fall of water level achieved.
		2	No test	No test	
		3	No test	No test	
SK2	2.5	1	0.040*	6.69x10 ⁻⁷ *	After 24hrs water level not dropped below effective 25%. Calculation based on actual fall of water level achieved.
		2	No test	No test	
		3	No test	No test	
SK3	2.0	1	0.0093*	1.55x10 ⁻⁷ *	After 24hrs water level not dropped below effective 25%. Calculation based on actual fall of water level achieved.
		2	No test	No test	
		3	No test	No test	
SK4	2.0	1	0.208	3.47x10 ⁻⁶	Test 1 took over 13hrs to reach the effective 25% depth. Test 2 after 4 hrs, water level only dropped to 75% effective depth. Calculation based on actual fall of water level achieved.
		2	0.153*	2.55x10 ⁻⁶ *	
		3	No test	No test	

Note: The Design Infiltration Rate is the lowest of the three tests at each test location.

Where three fillings have not been carried out, a reduction factor should be applied to the result to provide a design infiltration rate.

The test results indicate that shallow soakaways will not be viable at this site. The achieved soakage rates may be considered for permeable paving design.

12 Borehole Soakaway (In-situ Permeability Tests - after BS EN ISO 22282)

Testing within boreholes can either be by falling head where the hydraulic pressure within the borehole during the test is lowered or by constant head where the hydraulic pressure is held constant. During boring when the required depth for testing has been reached, the borehole casing, where used, may be withdrawn by one metre and the borehole cleaned out if necessary. Alternatively, where 'open hole' drilling is carried out, the borehole may be tested unlined.

Detailed guidance for such tests are given within BS EN ISO 22282 Ref [1], and are summarised below.

- **Falling Head Test** - the borehole is filled with water and the head loss is then recorded either until the level falls to the standing water level (or until dry), or over a maximum two-hour period.
- **Constant Head Test** - the borehole is filled to a specified level (usually the anticipated weir head level) and water is then pumped in, or discharged from a bowser, to maintain that level. The quantities of water used are recorded at regular intervals and a steady rate of flow is determined. In some cases where the borehole acceptance is very high, it may not be possible to achieve a steady state, and the quantity of water delivered to the borehole is averaged out over the test period to provide an approximate flow rate.

It is the practice of Southern Testing to typically carry out constant head tests with the head of water maintained at a level approximately equal to the anticipated depth of the syphon head/weir head of the final borehole soakaway. This simulates the highest rainfall intensity scenario when the soakaway chamber is full beyond the top of the weir head/syphon head. Testing this way ensures the test simulates the condition when the maximum flow rate is required. Flow rates are measured in l/minute.

Falling head tests can be conducted, but by their nature, do not maintain a constant head at the proposed level of the weir head/syphon head and therefore do not simulate maximum flow conditions. A lower flow rate is therefore recorded and this may result in over-sized chambers. Falling head tests are often carried out immediately after the constant head test utilising the same column of water.

It is our experience that in fissured rock masses (such as in Chalk, The Hythe Formation and to a lesser extent in the Tunbridge Wells Sand Formation) flow rates are generally good, depending on the incidence of fissures. Borehole diameter (and hence soakage area) has a relatively limited influence on the flow rate in l/minute due to this primary fissure flow. In such rock masses, the permeability values (k) in m/s units, which consider borehole area are therefore provided for guidance only and drainage should, ideally, be assessed using discharge rate in litres per minute.

Unfissured rock masses may be more suited to testing by falling head methods, however, in the absence of fissures, these often do not perform sufficiently well and can be susceptible to long-term siltation.

12.1 Test Results

For this site, groundwater was encountered at 8.2m bgl. The borehole was terminated at 8.4m bgl given that the Environment Agency does not generally permit the discharge of potentially contaminated water into a Principal Aquifer.

A constant head test was attempted and a very poor infiltration rate was achieved (25 litres/min). The test was aborted and a falling head test carried out.

A summary of the test result is presented in the table below.

BH ID	BH Depth (mbgl)	Infiltration Rate
		m/sec (Falling Head)
BH1	8.40	4.04×10^{-7} m/s

An infiltration rate of 4.04×10^{-7} m/s was achieved. This is not surprising given that the unsaturated zone of the Boyne Hollow Chert Member was found to comprise variable strata of medium dense to very dense clayey slightly gravelly fine to coarse Sand, firm to stiff light grey very sandy gravelly Clay, very clayey sandy Gravel underlain by moderately weathered medium strong interbedded fine to medium grained SANDSTONE with medium space joints filled with fine to medium glauconitic sand.

Given the very poor infiltration rates achieved, the borehole was backfilled. Prior to backfilling, groundwater was recorded in the borehole at 8.2m bgl the following day (24 hours after testing).

REFERENCES

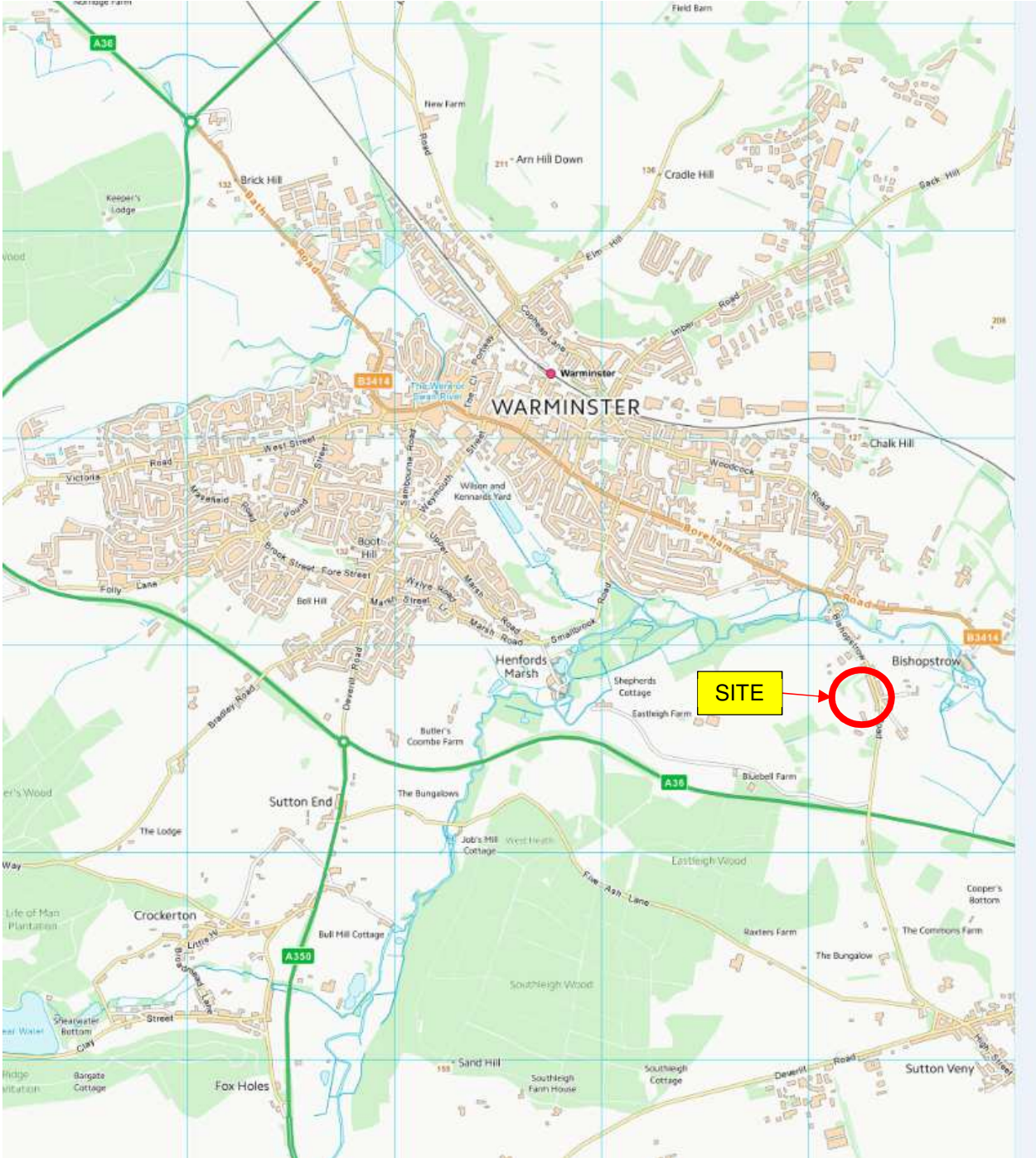
- [1] Building Research Establishment (BRE), "DG365 Soakaway Design," 2016.
- [2] BSI Standards, "BS 5930:2015+A1:2020 Code of practice for ground investigations," 2020.
- [3] BSI Standards, "BS 3882:2015 Specification for Topsoil," 2015.
- [4] CIRIA, "C574 Engineering in Chalk," 2002.
- [5] R. N. Mortimore, Logging the Chalk, 2014.
- [6] NHBC, "NHBC Standards Plus," [Online]. Available:
<http://www.nhbc.co.uk/Builders/ProductsandServices/TechZone/nhbcstandards/>.

A collage of six small images related to geotechnical engineering: a large pipe, a soil map, a worker in a high-visibility suit, a soil sample in a sieve, a pressure gauge, and a drilling rig.

APPENDIX A

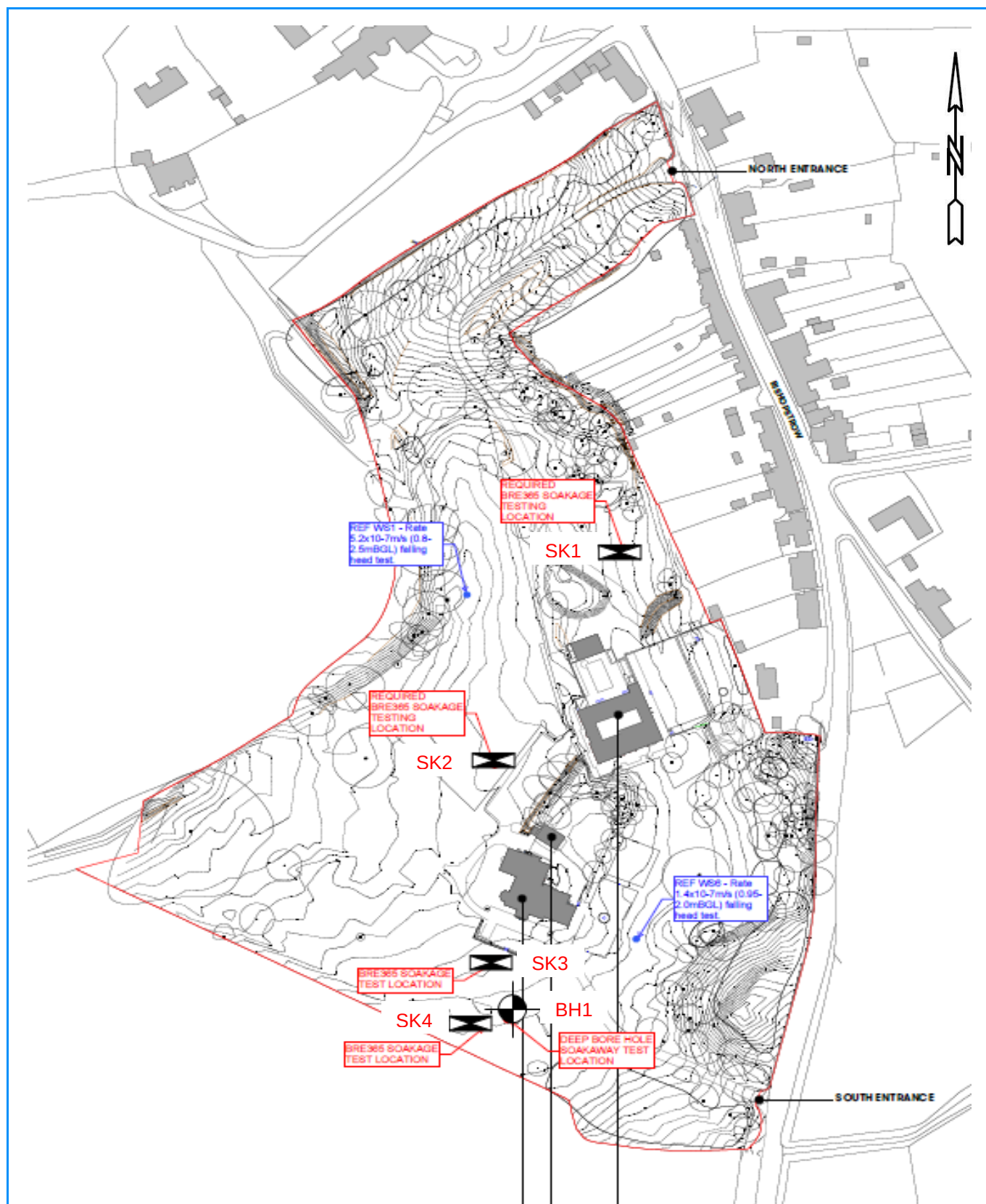
Site Plans and Exploratory Hole Logs





Contains Ordnance Survey Data © Crown Copyright and Database Right 2026

Site:	Eastleigh Court, Bishopstrow Road, Bishopstrow, Wiltshire, BA12 9HW	Project ID	JT0685
Figure 1	Site Location Plan	Date:	19/06/2026



NB: Positions of exploratory holes / test positions are only indicative unless dimensioned.

Site:	Eastleigh Court, Bishopstrow Road, Bishopstrow, BA12 9HW	Project ID	JT0685
Figure 2	Site Investigation Layout Plan	Date:	29/05/2026

Key to Exploratory Hole Logs, Plans and Sections

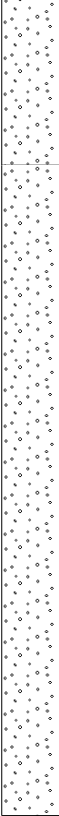
Backfill Symbols		Pipe Symbols		Principal Soil Types		Principal Rock Types		Drilling Records	
Arisings		Plain Pipe		Topsoil		Mudstone		Water Strike	
Concrete		Slotted Pipe		Made Ground		Claystone		Depth Water Rose	
Blacktop		Piezometer		Clay		Siltstone		Total Core Recovery (%) [TCR]	
Bentonite		Piezometer Tip		Silt		Sandstone		Solid Core Recovery (%) [SCR]	
Gravel Filter		Filter Tip		Sand		Limestone		Rock Quality Index (%) RQD]	
Sand Filter		Extensometer		Gravel		Chalk		Fracture Index (fractures / m) [FI]	
		Inclinometers		Peat					

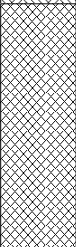
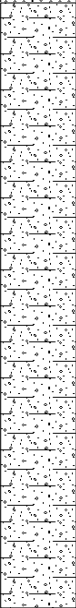
All soil and rock descriptions are in general accordance with BS5930 2015, BS EN ISO 14688-1:2002+A1:2013 and BS EN ISO 14689-1:2003. Chalk descriptions are also based on CIRIA C574 and "Logging the Chalk – R.N. Mortimer 2015". The Geology Code is only provided where a positive identification of the sample strata has been made.

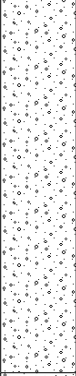
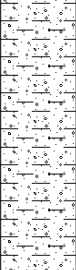
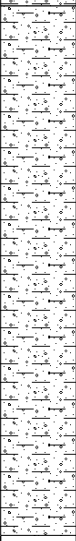
Location / Method Identifiers		In-situ Test Location / Method	
BH	Borehole (undefined)	DP	Dynamic Probe
CP	Cable Percussive	CPT	Cone Penetration Test
RC	Rotary Core	CBR	In-situ CBR Test
RO	Rotary Open Hole	DCP	CBR using Dynamic Cone Penetrometer
ODC	Rotary Odex/Symmetrix drilling cased	CBRT	CBR using TRL Probe
CP+RC	Cable Percussive to Rotary Core	PB	Plate Bearing Test
SNC	Sonic	SPT (S)	Standard Penetration Test (Split Barrel Sampler)
CFA	Continuous Flight Auger	SPT (C)	Standard Penetration Test (Solid Cone)
FA	Flight Auger	N	SPT Result
VC	Vibro Core	-/-	Blows/Penetration (mm) after seating drive
WLS+RC	Windowless (Dynamic) Sampler to Rotary Core	-*/-	Total Blows / Penetration (mm)
WLS	Windowless Sampler	()	Extrapolated Value
WS	Window Sampler	PPT	Perth Penetration (In-House Method - Equivalent N Value)
HA	Hand Auger	HP / UCS	Strength from Hand Penetrometer (kN/m ²)
C	Road / Pavement Core	IVN	Strength from Hand Vane ((kN/m ²) P = peak, R = residual
IP	Inspection Pit (Hand Excavation)	PID	Photo Ionisation Detector (ppm)
TP	Trial Pit (Machine Excavated)	MEXE	Mexi-Cone CBR (%)
OP	Observation Pit (Supported Excavation Hand or Machine)		

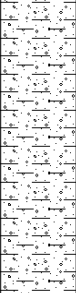
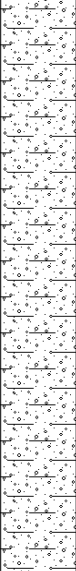
Samples / Test Type	
B	Bulk Sample
BLK	Block Sample
C	Core Sample
CBRS	CBR Mould Sample
D	Small Disturbed Sample
ES	Environmental Sample (Soil)
EW	Environmental Sample (Water)
GS	Environmental Sample (Gas)

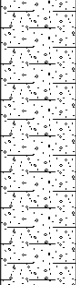
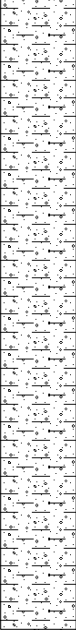
Samples / Test Type	
SPTLS	Standard Penetration Test Split Barrel Sample
TW	Thin Wall Push In Sample (e.g. Shelby Sampler)
U	Undisturbed Open Drive Sample (blows to take)
UT	Thin Wall Undisturbed Open Drive Sample (blows to take)
W	Water Sample (Geotechnical)
SP	Sample from Stockpile
P	Piston Sample
AMAL	Amalgamated Sample

				Start - End Date: 09/06/2026 - 10/06/2026		Project ID: JT0685	Hole Type: WLS+RC	BH1 Sheet 1 of 1							
Client: Kindred Living Project Ltd		Co-ordinates: E 389220 - N 143520				Level (m AOD) 113.60	Logger: JM								
Project Name: Bishopstrow				Location: Eastleigh Court, Bisopstrow Road, Bishopstrow, Wiltshire, BA12 9HW											
Well	Water Strikes	Samples and Insitu Testing			Progress		Depth (m)	Level (m AOD)	Legend	Stratum Description					
		Depth (m)	Type/FI	Results	Runs										
		1.50	SPT	N=19 (3,3/5,4,5,5)	0.00 - 1.50 (119mm dia) 100% rec		0.18	(0.18)		TOPSOIL: Brown slightly gravelly fine to coarse SAND with frequent rootlets. Gravel is fine to coarse angular to subangular flint.	1				
					0.45	(0.27)									
		3.00	SPT	50 (12,12/50 for 225mm)	1.50 - 3.00 (119mm dia) 100% rec		1.30	112.30		Brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint. Firm to stiff brown slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint. Cobble is angular to subangular flint. Medium dense becoming very dense with depth light grey clayey slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular sandstone and rare flint.	2				
					3.00 - 4.10	70% rec	(2.80)	@2.60 - 4.10m: Becomes less clayey.							
		4.10 - 5.60			50	35	35	4.10	109.50		No Recovery.	5			
								(0.78)							
								4.88	108.72						
		5.60 - 7.10			90	90	90	5.40	108.20		Very dense dark greenish grey fine to medium grained slightly gravelly glauconitic SAND. Gravel is fine to medium weak sandstone. Dark greenish grey fine to medium grained glauconitic SAND with weak cemented sandstone.	6			
								5.60	108.00						
								(1.50)							
								7.10	106.50						
								(0.50)	No Recovery		7				
								7.60	106.00						
								7.90	105.70						
								(0.50)							
								8.40	105.20						
Strong thickly bedded light grey crystalline fine to medium grained SANDSTONE. Moderately weathered, medium space joints with fine to medium glauconitic sand infill with moisture on joint surface. End of Borehole at 8.40m															
												9			
												10			

				Start - End Date:		Project ID:		Hole Type:		SK1		
				09/06/2026 - 10/06/2026		JT0685		TP		Sheet 1 of 1		
Client:		Kindred Living Project Ltd				Co-ordinates:		Level (m AOD)		Logger:		
Project Name:		Bishopstrow				E 389268 - N 143718		113.02		JM		
						Location:		Eastleigh Court, Bisopstrow Road, Bishopstrow, Wiltshire, BA12 9HW				
Samples and Insitu Testing			Level (m AOD)	Thickness (m)	Legend	Depth (m bgl)	Stratum Description					
Depth (m bgl)	Type	Results										
			112.82	(0.20)		0.20	TOPSOIL: Dark brown clayey gravelly fine to coarse SAND with frequent rootlets. Gravel is fine to coarse angular to subangular flint.					
			111.82	(1.00)			1.20	MADE GROUND: Light grey and black sandy GRAVEL with high cobble content. Sand is fine to coarse. Gravel is fine to coarse angular to subangular brick, concrete, flint, tile and rare metal, slate and wood. Cobble is angular to subangular brick, concrete and rare slate and wood. MADE GROUND @0.70m: 0.50m x 0.30m x 0.25m stone block.				
								Light grey very clayey very gravelly fine to coarse SAND with high cobble content. Gravel is fine to coarse angular to subangular sandstone. Cobble is angular to subangular sandstone.				
			110.62	(1.20)		2.40	Pit terminated at 2.40m					
Pit Dimension (m)		Pit Stability:		Moderate			Water Strikes					
		Weather:		Sun and showers			Depth (m)		Date/Time		Remarks	
Width:	0.60	Remarks:									Dry.	
Length:	3.10											
Depth:	2.40											
Status:		FINAL		Log Print Date and Time:		19/06/2026 10:42		Log Approved By:		RJ		

Southern Testing ST Consult				Start - End Date:		Project ID:		Hole Type:		SK2						
				09/06/2026 - 10/06/2026		JT0685		TP		Sheet 1 of 1						
Client:		Kindred Living Project Ltd				Co-ordinates:		Level (m AOD)		Logger:						
Project Name:		Bishopstrow				E 389219 - N 143620		114.78		JM						
						Location:		Eastleigh Court, Bisopstrow Road, Bishopstrow, Wiltshire, BA12 9HW								
Samples and Insitu Testing			Level (m AOD)	Thickness (m)	Legend	Depth (m bgl)	Stratum Description									
Depth (m bgl)	Type	Results														
			114.63	(0.15)		0.15	TOPSOIL: TOPSOIL: Brown slightly clayey gravelly fine to coarse SAND with frequent rootlets. Gravel is fine to coarse angular to subangular flint. Brown sandy GRAVEL with high cobble content and occasional patches of sandy clay. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint. Cobble is angular to subangular flint.									
			113.88	(0.75)		0.90						Firm brown slightly sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint. Cobble is angular to subangular flint.				
			113.33	(0.55)		1.45										
			112.28	(1.05)		2.50	Firm to stiff light grey very sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse angular to subangular sandstone. Cobble is angular to subangular sandstone.									
							Pit terminated at 2.50m									
Pit Dimension (m)		Pit Stability:		Good			Water Strikes									
		Weather:		Sun and showers			Depth (m)		Date/Time		Remarks					
Width:	0.50	Remarks:									Dry.					
Length:	2.90															
Depth:	2.50															
Status:		FINAL		Log Print Date and Time:		19/06/2026 10:44		Log Approved By:		RJ						

				Start - End Date:		Project ID:		Hole Type:		SK3				
				09/06/2026 - 10/06/2026		JT0685		TP		Sheet 1 of 1				
Client:		Kindred Living Project Ltd				Co-ordinates:		Level (m AOD)		Logger:				
Project Name:		Bishopstrow				E 389216 - N 143548		114.13		JM				
						Location:		Eastleigh Court, Bisopstrow Road, Bishopstrow, Wiltshire, BA12 9HW						
Samples and Insitu Testing			Level (m AOD)	Thickness (m)	Legend	Depth (m bgl)	Stratum Description							
Depth (m bgl)	Type	Results												
			113.88	(0.25)		0.25	TOPSOIL: Dark brown clayey slightly gravelly fine to coarse SAND with frequent rootlets. Gravel is fine to coarse angular to subangular flint.							
			113.28	(0.60)			0.85	Firm light brown sandy very gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint. Cobble is angular to subangular flint.						
				(1.15)					2.00	Light grey very clayey sandy GRAVEL with high cobble content and occasional patches of sandy clay. Sand is fine to coarse. Gravel is fine to coarse angular to subangular sandstone. Cobble is angular to subangular sandstone.				
										Pit terminated at 2.00m				
Pit Dimension (m)		Pit Stability:		Good			Water Strikes							
		Weather:		Sun and showers			Depth (m)		Date/Time		Remarks			
Width:	0.50	Remarks:									Dry.			
Length:	2.50													
Depth:	2.00													
Status:		FINAL		Log Print Date and Time:		19/06/2026 10:45		Log Approved By:		RJ				

Southern Testing ST Consult				Start - End Date:		Project ID:		Hole Type:		SK4		
				09/06/2026 - 10/06/2026		JT0685		TP		Sheet 1 of 1		
Client:		Kindred Living Project Ltd				Co-ordinates:		Level (m AOD)		Logger:		
Project Name:						E 389209 - N 143521		113.61		JM		
		Bishopstrow				Location:		Eastleigh Court, Bisopstrow Road, Bishopstrow, Wiltshire, BA12 9HW				
Samples and Insitu Testing			Level (m AOD)	Thickness (m)	Legend	Depth (m bgl)	Stratum Description					
Depth (m bgl)	Type	Results										
			113.46	(0.15)		0.15	TOPSOIL: Dark brown clayey slightly gravelly fine to coarse SAND with frequent rootlets. Gravel is fine to medium angular to subangular flint.					
			112.86	(0.60)			0.75	Light brown slightly clayey gravelly fine to coarse SAND with low cobble content and frequent patches of sandy clay. Gravel is fine to coarse angular to subangular flint and sandstone. Cobble is angular to subangular sandstone.				
				111.61				(1.25)		2.00	Firm brown sandy gravelly CLAY with medium cobble content, frequent fissuring and occasional patches of clayey fine to coarse sand. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint and sandstone. Cobble is angular to subangular sandstone.	
Pit terminated at 2.00m							3					
Pit Dimension (m)		Pit Stability:		Good		Water Strikes						
		Weather:		Sun and showers		Depth (m)		Date/Time		Remarks		
Width:	0.50	Remarks:								Dry.		
Length:	2.50											
Depth:	2.00											
Status:		FINAL		Log Print Date and Time:		19/06/2026 10:41		Log Approved By:		RJ		

APPENDIX B

In-Situ Test Methods and Results



B

Soil and Rock Descriptions

All soil and rock descriptions are in general accordance with BS5930 Ref [4].

Anthropogenic soils ('made ground' or 'fill') describe materials which have been placed by man and can be divided into those composed of reworked natural soils and those composed of or containing man-made materials. 'Fill' is used to describe material placed in a controlled manner and 'made ground' is used to describe materials placed without strict engineering control.

The classification of materials such as topsoil is based on visual description only and should not be interpreted to mean that the material complies with criteria used in BS 3882 Ref [33].

Chalk descriptions are based on CIRIA C574 Ref [34] and Mortimore Ref [35].

The geology code is only provided on logs where a positive identification of the sample strata has been made.

Soakage Tests (after BRE DG365 2016)

The BRE DG365 Ref [22] paper on soakaway design allows for the design of trench soakaways as well as traditional square and circular soakaways.

The test to measure the soil infiltration rate is carried out in pits which are excavated to the full depth of the proposed soakaway. The trial pits are filled and allowed to drain to empty or near empty, three times, on the same day or on consecutive days. Water levels are recorded against time. Where the sides are unstable the pit should be filled with granular material to provide stability during the test.

Calculated soakage rates are expressed as l/m²/minute, which is a convenient rate to use. The BRE use a unit of m/sec, which is the value in l/m²/minute divided by 60,000.

Results for Borehole Permeability Test -- Variable Head

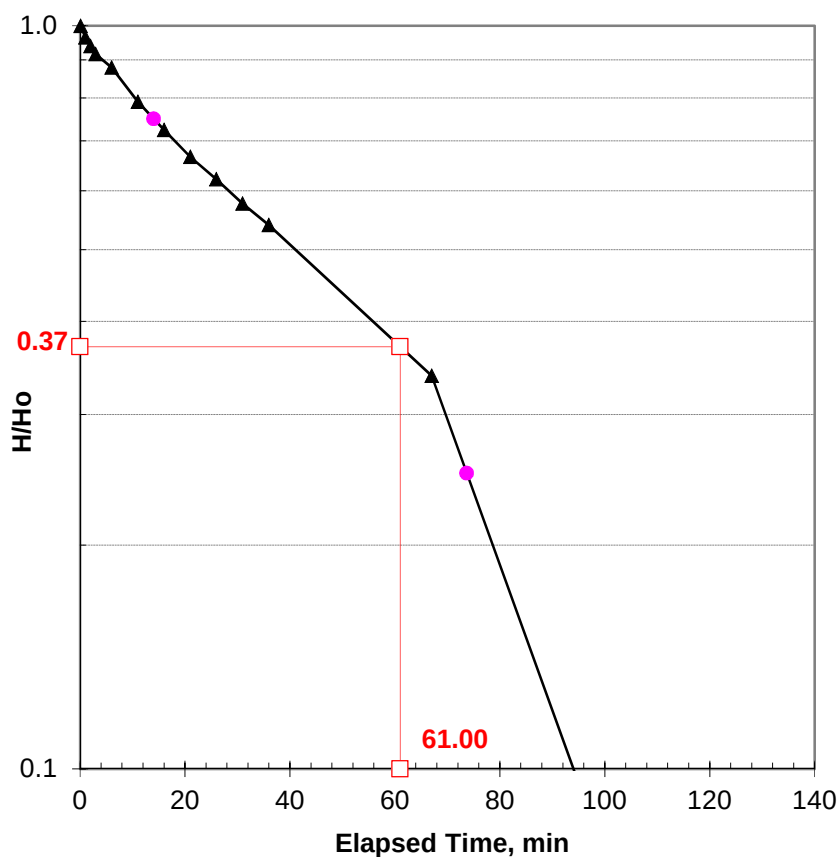
in accordance with BS 5930:1999, Section 25.4

Test Hole No : BH1

Test No : 1

Test Type : Falling head test

Plot to Determine Basic Time Factor (T)

[illegible]

Depth to Borehole Base, mbgl : 8.400
 Depth to Casing End, mbgl : 3.000
 Borehole Diameter Below Casing, m : 0.119
 Internal Casing Diameter, m : 0.200
 Depth to Intial Groundwater, mbgl : 8.200

Piezometer Installation : Without piezometer

Standpipe/Piezo Diameter, m : N/A

Cell Diameter, m : N/A

Depth to Top of Cell, m : N/A

Depth to Bottom of Cell, m : N/A

Intake Condition : d) Well point or hole extended in uniform soil

Length (L), m : 5.400
Diameter (D), m : 0.119
Intake Factor (F) : 7.526
Depth of Water Level at Start, mbgl : 1.750
Head at Start of Test (Ho), m : 6.450

Basic Time Factor (T), min : 61.00

Permeability by Time Lag Analysis, m/sec : 4.0E-07

Permeability by General Approach, m/sec : 4.5E-07

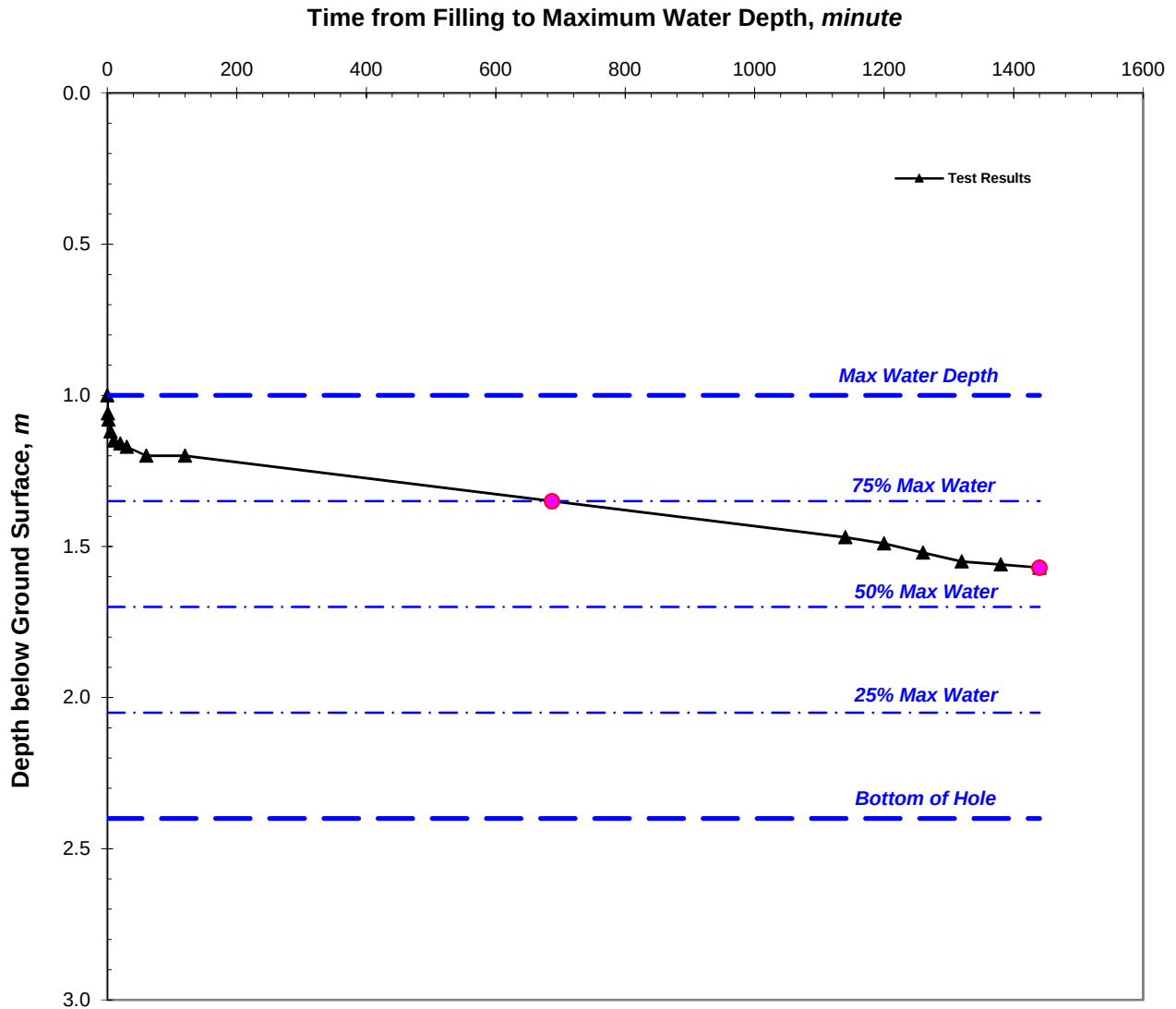
Remarks :

Client: Kindred Living Project Ltd	Job No: JT0685	Test Date: 09/Jun/2026	
Site: Eastleigh Court, Bishopstrow	Tested By: DT & JS	Engineer: RJ	Fig. No

[illegible]

BRE Digest DG365 Soakage Test

Test Hole No: SK1
Test No: Test No 1 (Initial)



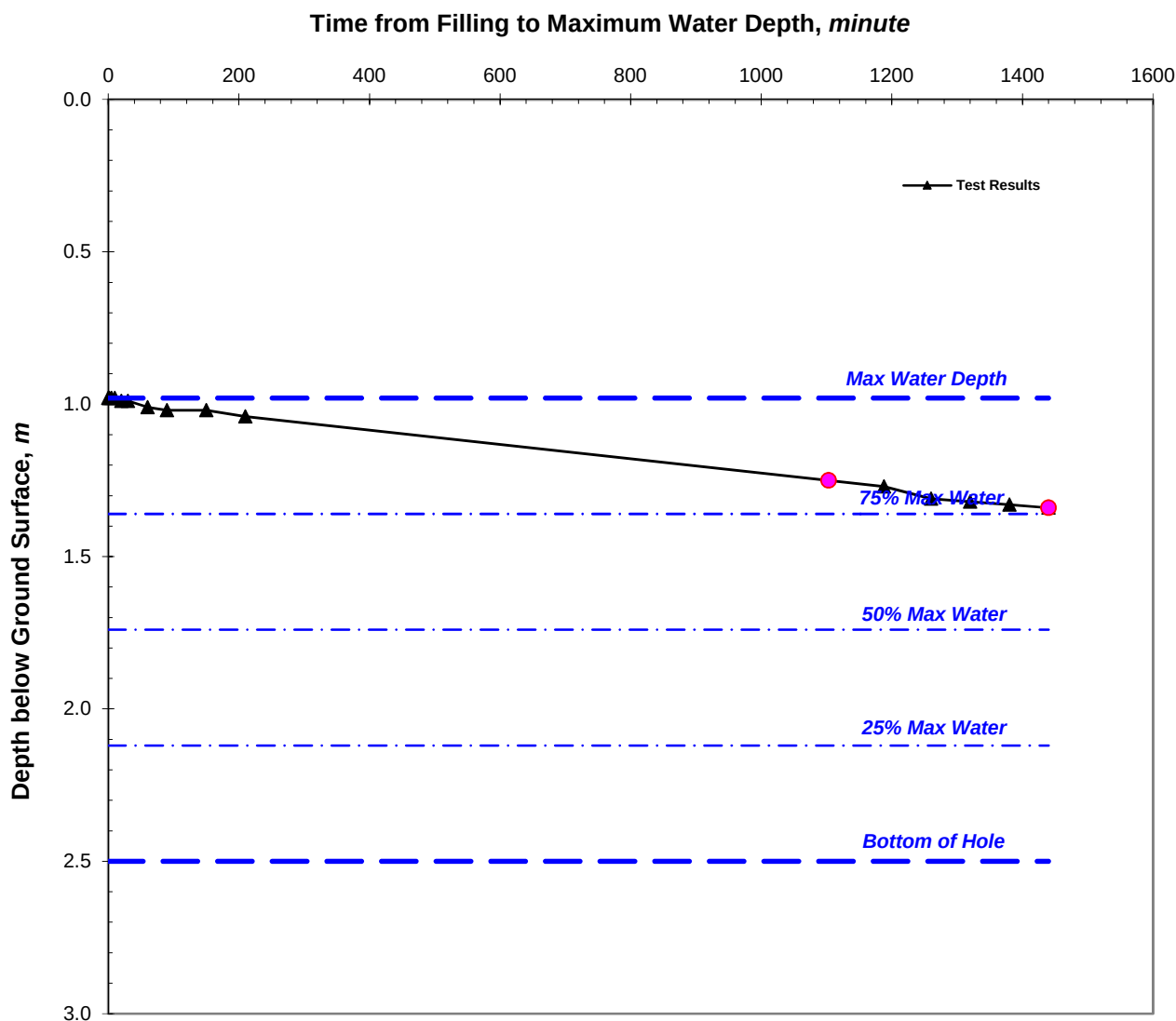
Pit Length, m	3.000	Depth to Water at Start of Test, m	1.000
Pit Width, m	0.600	Max Water Dropdown during Test, m	0.570
Depth to Pit Base, m	2.400	Total Soakage Test Time, min	1440.0
Depth to Top of Permeable Soils, m		Mean Internal Discharge Area, m ²	8.568
Depth to Groundwater Surface, m		Discharge Rate, litre/min	0.526
Depth to Top of Granular Fill, m		Soakage Rate, litre/m ² /min	0.061
Voids Assumed for Granular Fill, %	100%	BRE Soil Infiltration Rate, m/sec	1.02E-06

Comments: 1000 litres of water used
Water level fell to 75% -- 50% max water depth, calculations were based on actual fall of water level achieved.
Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client: Kindred Living Project Ltd	Job No: JT0685	Test Date: 10/Jun/2026
Site: Eastleigh Court, Bishopstrow	Tested By: DT & JS	Engineer: RJ
		Fig. S1

BRE Digest DG365 Soakage Test

Test Hole No: SK2
Test No: Test No 1 (Initial)



Pit Length, m	2.900	Depth to Water at Start of Test, m	0.980
Pit Width, m	0.500	Max Water Dropdown during Test, m	0.360
Depth to Pit Base, m	2.500	Total Soakage Test Time, min	1440.0
Depth to Top of Permeable Soils, m		Mean Internal Discharge Area, m ²	9.644
Depth to Groundwater Surface, m		Discharge Rate, litre/min	0.387
Depth to Top of Granular Fill, m		Soakage Rate, litre/m ² /min	0.040
Voids Assumed for Granular Fill, %	100%	BRE Soil Infiltration Rate, m/sec	6.69E-07

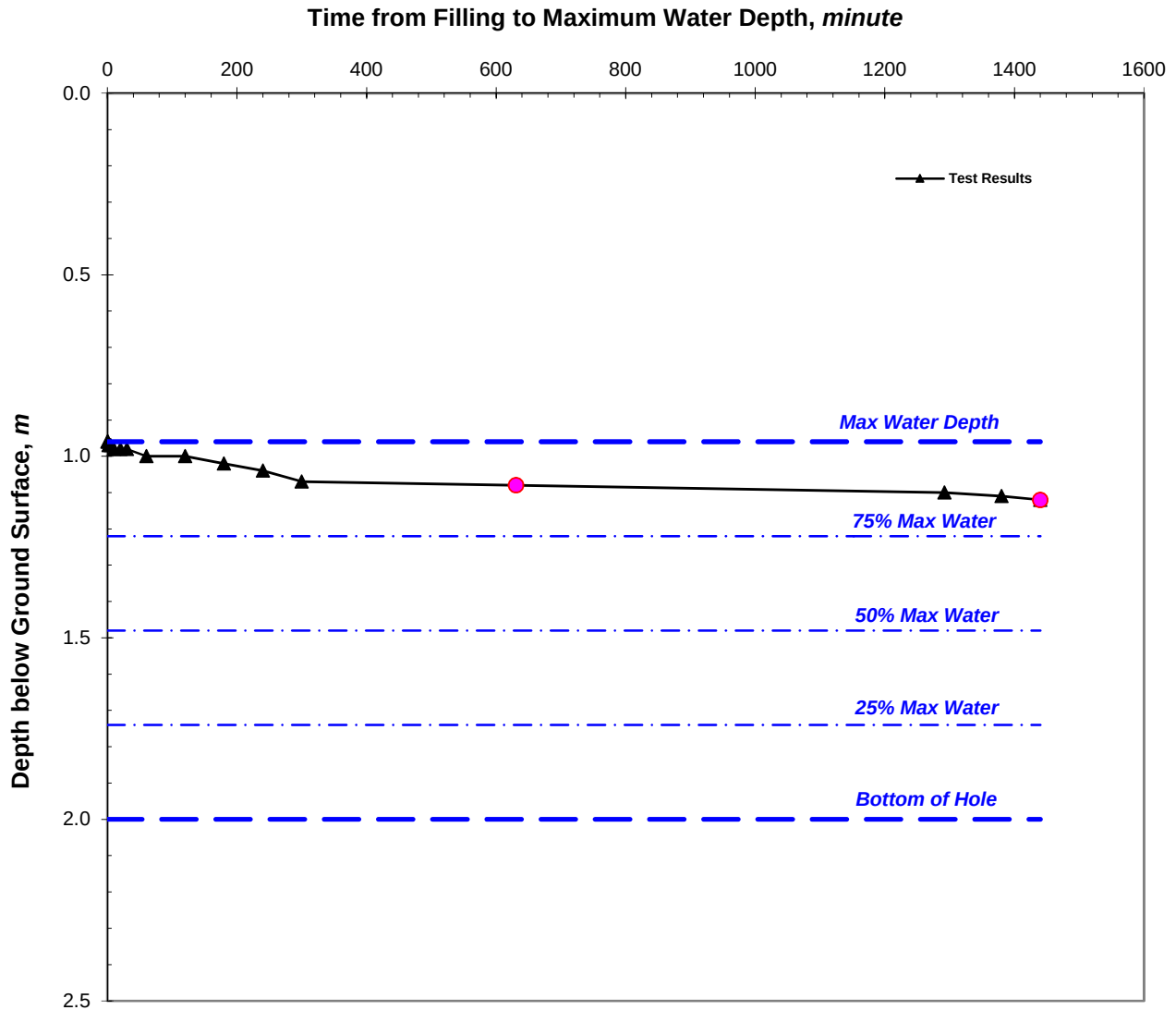
Comments:

Water level did not fall to 75% max water depth, calculations were based on actual fall of water level achieved.
Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client: Kindred Living Project Ltd	Job No: JT0685	Test Date: 09/Jun/2026
Site: Eastleigh Court, Bishopstrow	Tested By: DT & JS	Engineer: RJ
		Fig. S2

BRE Digest DG365 Soakage Test

Test Hole No: SK3
Test No: Test No 1 (Initial)



Pit Length, m	2.500	Depth to Water at Start of Test, m	0.960
Pit Width, m	0.500	Max Water Dropdown during Test, m	0.160
Depth to Pit Base, m	2.000	Total Soakage Test Time, min	1440.0
Depth to Top of Permeable Soils, m		Mean Internal Discharge Area, m ²	6.650
Depth to Groundwater Surface, m		Discharge Rate, litre/min	0.062
Depth to Top of Granular Fill, m		Soakage Rate, litre/m ² /min	0.0093
Voids Assumed for Granular Fill, %	100%	BRE Soil Infiltration Rate, m/sec	1.55E-07

Comments: 1000 litres

Water level did not fall to 75% max water depth, calculations were based on actual fall of water level achieved.

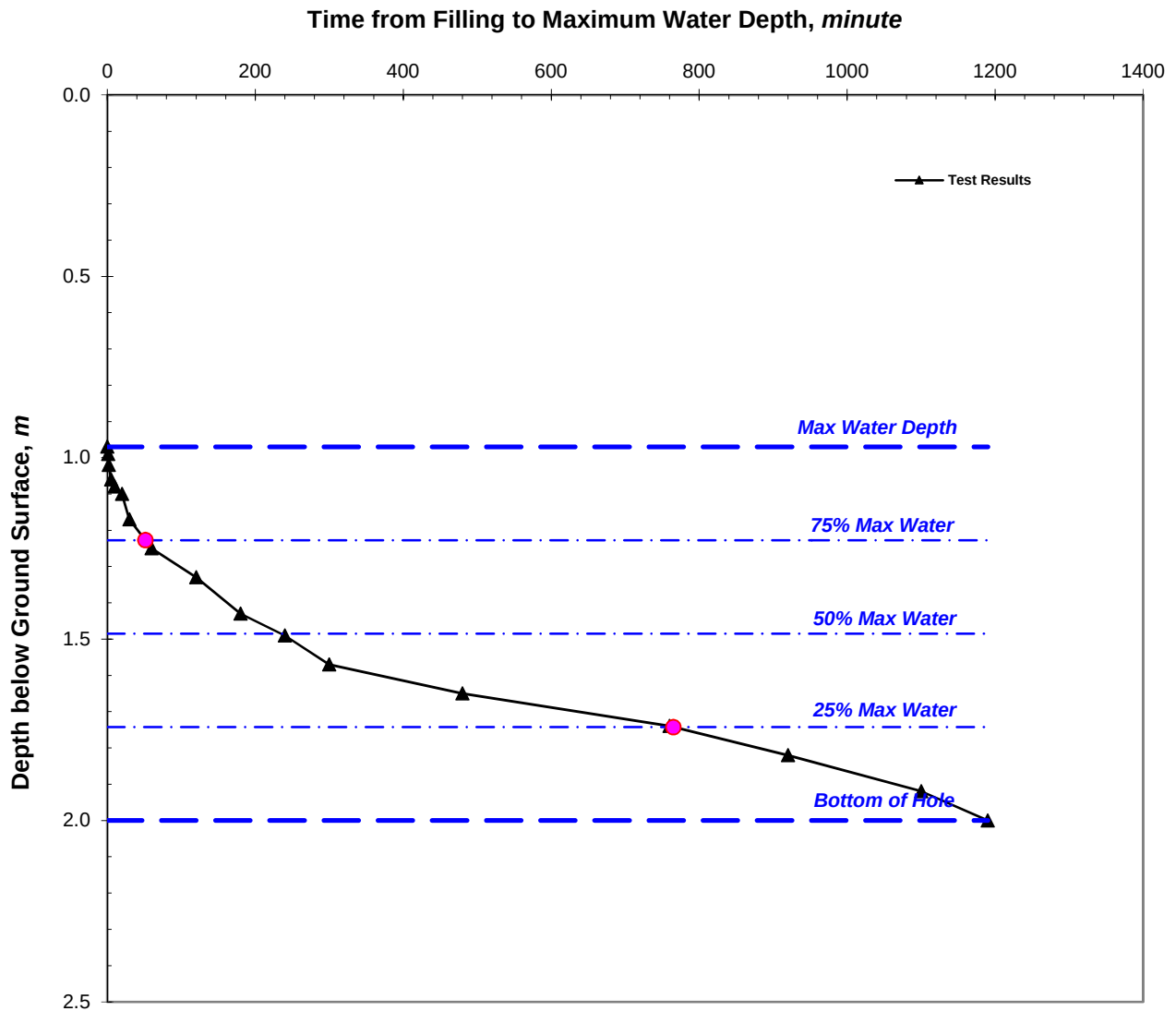
Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client: Kindred Living Project Ltd	Job No: JT0685	Test Date: 09/Jun/2026
Site: Eastleigh Court, Bishopstrow	Tested By: DT & JS	Engineer: RJ
		Fig. S3

BRE Digest DG365 Soakage Test

Test Hole No: SK4

Test No: Test No 1 (Initial)



Pit Length, m	2.500	Depth to Water at Start of Test, m	0.970
Pit Width, m	0.500	Max Water Dropdown during Test, m	1.030
Depth to Pit Base, m	2.000	Total Soakage Test Time, min	1190.0
Depth to Top of Permeable Soils, m		Mean Internal Discharge Area, m ²	4.340
Depth to Groundwater Surface, m		Discharge Rate, litre/min	0.902
Depth to Top of Granular Fill, m		Soakage Rate, litre/m ² /min	0.208
Voids Assumed for Granular Fill, %	100%	BRE Soil Infiltration Rate, m/sec	3.47E-06

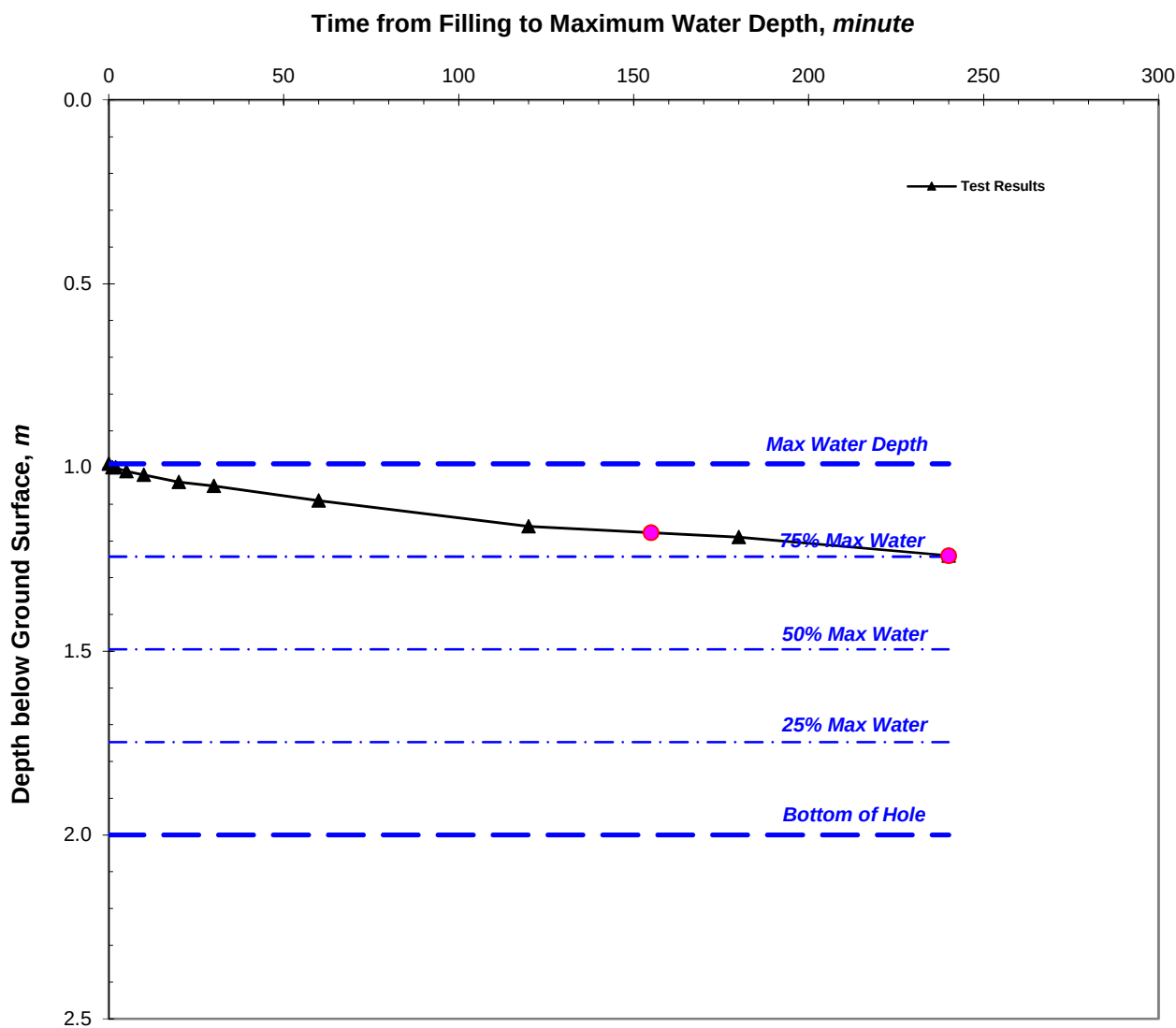
Comments: 1200 litres
Pit was emptied at finish of test.

Client: Kindred Living Project Ltd	Job No: JT0685	Test Date: 09/Jun/2026
Site: Eastleigh Court, Bishopstrow	Tested By: DT & JS	Engineer: RJ
		Fig. S4

BRE Digest DG365 Soakage Test

Test Hole No: SK4

Test No: Test No 2 (Repeated)



Pit Length, m	2.500	Depth to Water at Start of Test, m	0.990
Pit Width, m	0.500	Max Water Dropdown during Test, m	0.250
Depth to Pit Base, m	2.000	Total Soakage Test Time, min	240.0
Depth to Top of Permeable Soils, m		Mean Internal Discharge Area, m ²	5.998
Depth to Groundwater Surface, m		Discharge Rate, litre/min	0.919
Depth to Top of Granular Fill, m		Soakage Rate, litre/m ² /min	0.153
Voids Assumed for Granular Fill, %	100%	BRE Soil Infiltration Rate, m/sec	2.55E-06

Comments: 1200 litres

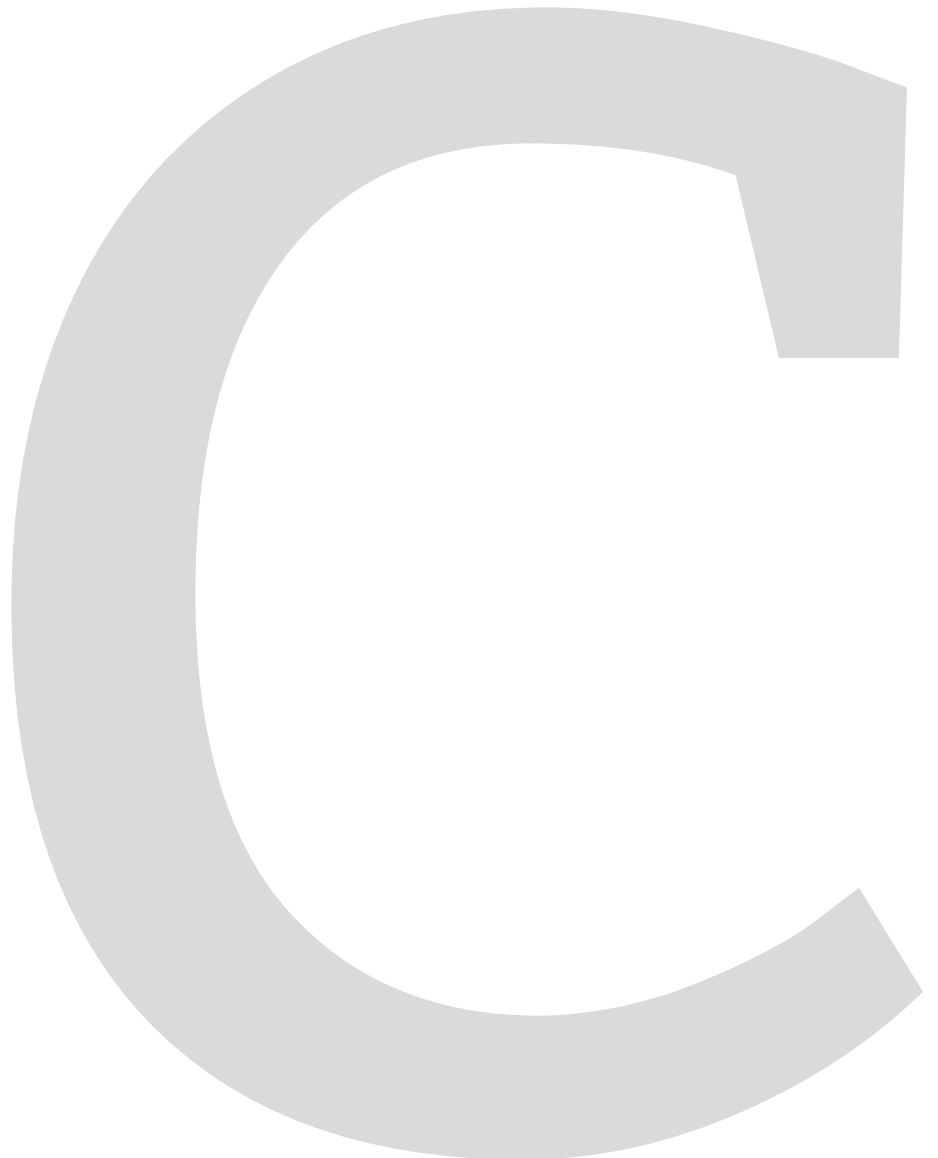
Water level did not fall to 75% max water depth, calculations were based on actual fall of water level achieved.

Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client: Kindred Living Project Ltd	Job No: JT0685	Test Date: 10/Jun/2026
Site: Eastleigh Court, Bishopstrow	Tested By: DT & JS	Engineer: RJ
		Fig. S5

APPENDIX C

Photographs





General site photos:

















Southern Testing
Environmental & Geotechnical

ST Consult
Environmental & Geotechnical



Head Office
East Grinstead
Tel: 01342 333100
enquiries@southerntesting.co.uk

ST Consult Midlands
Northampton
Tel: 01604 500020
creaton@stconsult.co.uk

ST Consult Thames Valley
Hannington
Tel: 01635 800 950
hannington@stconsult.co.uk

ST Consult North West
Warrington
Tel: 01925 661 735
warrington@stconsult.co.uk



FS 25280 EMS 506775 OHS 506776



ATTACHMENT 03

Eco90 Field Trial - Borehole Log and Infiltration Testing Datasheet



Project Name	Eastleigh Court	Drill method	Augering	Logger	C Bourke
Client	Kindred Living Project	Drill rig	GEO 205	Weather	Fine
Area	TD01	Drill diameter	89mm	Ground	Natural turf
Date	16/07/2026	to	17/07/2026		
Borehole Reference					
BH01	BH02	BH03	BH04		
▼▼	▼▼	▼▼	▼▼	▼▼	▼▼

Drilling Details

Target drill depth (mm)	4170	2890	6000	1120			
Final drill depth (mm)	4170	2890	6000	1120			
Time to drill (mins)	43	31	63	3			

Soil / Drilling Conditions

Description	BH03 0 - 2590mm recovered as topsoil followed by gravelley clayey spoil 2590mm - 4110mm remains consistent with above gravelley and clayey sandstone struck towards termination depth as spoil turns green and sandy 4110mm - 6000mm recovered as a green sandy spoil, slightly moist to touch 1.5m 3m 4.5m 6m 						
	Drilling rough - this is 2.5m						

Groundwater Conditions

Depth to damp rods (mm)	Dry	Dry	4100 to 6000	Dry			
Water level after 0 mins (mm)	Dry	Dry	Dry	Dry			
Water level after 20 mins (mm)	Dry	Dry	Dry	Dry			

Test Conditions

Depth of hole pre-test (mm)	4170	2890	6000	1120			
Rest water level before test	Dry	Dry	Dry	Dry			
Pipework or open cavity?	OC	OC	OC	OC			

Test Results

Mins	Secs	Mins	Secs				
1	60			320	100	490	180
2	120			495	115	920	210
3	180			600	140	1090	240
4	240			680	160	1250	250
5	300			760	175	1400	260
6	360			830	200	1515	265
7	420			900	210	1620	275
8	480			940	220	1710	285
9	540			980	240	1800	295
10	600			1025	250	1910	305
15	900			1200	305	2330	320
20	1200			1320	345	2620	370
25	1500			1450	380	2860	460
30	1800			1560	430	3075	550
40	2400			1740	510	3360	640
50	3000			1910	580	3550	700
60	3600			2025	640	3660	collapsed at 830 dry
*SEE NOTES ON RETESTING ABOVE							

Eco90 Field Trial - Borehole Log and Infiltration Testing Datasheet



Project Name	Eastleigh Court	Drill method	Augering	Logger	C Bourke
Client	Kindred Living Project	Drill rig	GEO 205	Weather	Fine
Area	TD02	Drill diameter	89mm	Ground	Field
Date	16/07/2026	to	17/07/2026		
Borehole Reference					
BH05	BH06	BH07	BH08		
▼▼	▼▼	▼▼	▼▼	▼▼	▼▼

Drilling Details

Target drill depth (mm)	9880	5980	2980	1360.0			
Final drill depth (mm)	9880	5980	2980	1360			
Time to drill (mins)	42	20	6	2			

Soil / Drilling Conditions

Description	BH05 0-2590mm recovered as dusty gravel spoil with some CLAY 2590mm - 4110mm recovered as more clayey spoil with less gravel present, some fragments fairly firm 4110mm - 5630mm recovered as a green sandy spoil, no stones or fragments present 5630mm - 7150mm recovered as a green sandy spoil with no stones or fragments present 7150mm - 8670mm consisten with above 8670mm - 9880mm remaining as a green sandy spoil - drilling terminated at this depth as auger failed to progress - chalk was recovered from base of drill string						
	1.5m	3m	6m	9.8m			
							

Groundwater Conditions

Depth to damp rods (mm)	Dry	Dry	Dry	Dry			
Water level after 0 mins (mm)	Dry	Dry	Dry	Dry			
Water level after 20 mins (mm)	Dry	Dry	Dry	Dry			

Test Conditions

Depth of hole pre-test (mm)	9880	5980	2980	1360			
Rest water level before test	Dry	Dry	Dry	Dry			
Pipework or open cavity?	OC	OC	OC	OC			

Test Results

Mins	Secs	Mins	Secs				
1	60			1570	820	10	50
2	120			2470	1230	20	70
3	180			3210	1590	35	90
4	240			3550	1810	50	120
5	300			3760	1920	65	150
6	360			3900	2040	80	160
7	420			4060	2180	95	170
8	480			4160	2290	105	180
9	540			4270	2410	110	190
10	600			4360	2530	115	195
15	900			4600	2960	140	205
20	1200			4830	3280	170	215
25	1500			5030	3520	190	215
30	1800			5230	3750	210	215
40	2400			5550	3930	235	230
50	3000			5820	4100	275	270
60	3600			6000	4230	320	325
				*SEE NOTES ON RETESTING ABOVE			

Eco90 Field Trial - Borehole Log and Infiltration Testing Datasheet



Project Name	Eastleigh Court	Drill method	Augering	Logger	C Bourke
Client	Kindred Living Project	Drill rig	GEO 205	Weather	Fine
Area	TD03	Drill diameter	89mm	Ground	Natural Turf
Date	17/07/2026	to	17/07/2026		
Borehole Reference					
BH09	BH10	BH11	BH12		
▼▼	▼▼	▼▼	▼▼	▼▼	▼▼

Drilling Details

Target drill depth (mm)	7260	4920	2745	1430			
Final drill depth (mm)	7260	4920	2745	1430			
Time to drill (mins)	36	19	4	1			

Soil / Drilling Conditions

Description	BH09 0 - 2590mm recovered as a stoney clayey spoil to begin with 2590mm - 4110mm recovered as more clayey spoil, fairly firm, less gravels present 4110mm - 5630mm recovered as green sandstone spoil, slight moisture content 5630mm - 7260mm remains consistent with above, sandy green spoil with a slight moisture content, again once drill string was removed chalk was observed on lead auger						
	1.5m	3m	4.5m	7.2m			

Groundwater Conditions

Depth to damp rods (mm)	4110mm to 7260mm	Dry	Dry	Dry			
Water level after 0 mins (mm)	Dry	Dry	Dry	Dry			
Water level after 20 mins (mm)	Dry	Dry	Dry	Dry			

Test Conditions

Depth of hole pre-test (mm)	7260	4920	2745	1430			
Rest water level before test	Dry	Dry	Dry	Dry			
Pipework or open cavity?	OC	OC	OC	OC			

Test Results

Mins	Secs	Mins	Secs				
1	60			120	140	80	60
2	120			230	175	95	130
3	180			300	225	105	145
4	240			330	255	120	160
5	300			360	290	130	170
6	360			390	305	135	175
7	420			435	345	140	185
8	480			480	385	145	190
9	540			540	400	150	195
10	600			560	440	160	210
15	900			650	550	180	250
20	1200			760	650	200	270
25	1500			830	740	230	290
30	1800			950	820	245	310
40	2400			1140	980	270	360
50	3000			1280	1110	310	420
60	3600			1460	1230	340	450
120	7200						
				*SEE NOTES ON RETESTING ABOVE			

ATTACHMENT 04

Hydrogeological Assessment

Eastleigh Court, Bishopstrow



Hydrogeological Assessment

Eastleigh Court, Bishopstrow

Report Status

Project Number	20653
Report Number	001
Revision	V01 – Issue for information
	V02 – Revised following Client review
Date Issued	22 September 2026 (V01)
	25 September 2026 (V02)

Report Author

Russell Bowman (Director) BSc (Hons) MSc CEng CWEM MCIWEM

Contents

1.0	The Site and the Scenario	1
2.0	Site Setting	2
3.0	Fieldwork – Exploratory Holes, In-Situ Testing, Laboratory Testing and Monitoring	4
4.0	Ground and Groundwater Conditions – Anticipated and Revealed	6
5.0	Ground and Groundwater Model – Plan and Profiles	7
6.0	Conclusion and Recommendations	11

Appendices Drawings > Groundwater Dynamics factual data > Background Information (S10 Geo-Consulting and Southern Testing reporting

This Report has been written with reference to various sources of information These are either appended or referenced throughout this Report.

Infoboxes ⓘ are also included throughout the Report intended to draw the reader’s attention to key information.

Appointment

Soil and Structures Ltd were instructed by Groundwater Dynamics Ltd (the Client) in July 2026 to prepare a Hydrogeological Assessment (*the Report*) for Eastleigh Court and the associated estate located to the west of Bishopstrow Road, Bishopstrow (*the Site*).

This Report has been prepared in support of “*Change of use of Eastleigh Court from offices to short stay accommodation*” as set out in detail within planning application ref. PL/2026/01607.

Reliance on the advice presented herein rests solely with the Client.

Scope and Context

In the ground everything is inter-related: from strength to pollution potential; through to, stability and drainage characteristics.

This Hydrogeological Assessment presents the findings of an assessment of ground and groundwater conditions across the Site referencing desk-based and intrusive investigation data. The Report has been prepared to support the development of a revised Drainage Strategy for the proposed development.

Acceptance of this Report and its findings by the Lead Local Flood Authority and the Environment Agency is likely to be required – two statutory consultees.

Fieldwork

Intrusive investigation has been completed by Groundwater Dynamics Ltd including the advancement of boreholes across the Site to both characterise ground and groundwater conditions across the Site as well as undertake infiltration testing.

Background to this Report

This Report is preceded by two ground-related reports relating to the Site and one flood risk and drainage strategy.

The ground-related reports include: a Geotechnical and Geo-Environmental Ground Investigation report prepared by S10 Geo-Consulting ref. 24-312 dated 18 March 2025; and, a Soakage Test Report prepared by Southern Testing ref. JT0685 Issue 1 dated 19 June 2026.

Reference is also made to factual intrusive investigation data provided by Groundwater Dynamics Ltd.

1.0 The Site and Development Proposals

1.1 The Site

Location and size

The Site comprises an approximately 5.5 ha parcel of land located to the west of Bishopstrow Road, Bishopstrow – Figure 1. The land forms the wider estate of Eastleigh Court a Grade 2 listed house.

Condition

At the point of issue, the Site was occupied by open grassland of the Eastleigh Court estate with established trees around the perimeter and within the main body of the Site.

Topography

The Site’s topography falls from west to east – Figure 1 – with pronounced steepening within local areas of the Site as illustrated by the contouring on the Ground Model in Section 5.0 of this Report.

Utilities

All main utilities are anticipated to supply the existing property with overhead utilities indicated to cross the Site.

1.2 The Proposed Development

Development proposals

This Report has been prepared in support of “Change of use of Eastleigh Court from offices to short stay accommodation” as set out in detail within planning application ref. PL/2026/01607.

① **Development focused hydrogeological assessments:** An appreciation of the construction processes is essential for development-focused hydrogeological assessments given that groundworks stand to alter the hydrogeological regime, e.g. intercepting groundwater flows, changing the topography or re-directing surface water flow.

The changing dynamics pre- and post- development are commonly referred to as baseline and endline conditions.

To enable this development, the following groundworks or ground-related works are likely to be required, N.B. listing is outline only and may be subject to change.

- > **Utility Excavations:** Excavation of drainage and other utility alignments including an infiltration feature/basin(s) within locations that are to be confirmed.
- > **Sub-structure Excavations:** Excavation of foundation alignments and swimming pool void that, in these ground conditions, is understood to include for spread (strip) foundations.

At the point of issue, the proposed development’s Drainage Strategy is understood to be in development, with this Report informing design decisions and discussions with the relevant regulatory authorities.



Figure 1: Site Location Plan
> Extract from Google Earth™
> Site approximately centred on NGR 428053 304035
> Red line = approximate Site boundary

2.0 Site Setting

For full details of the Site setting, it is recommended that reference is made to the earlier ground investigation reporting prepared for the Site, as referenced within the contents page of this Report.

The following sub-sections highlight and/or supplement key ground and groundwater related information from these earlier reports.

2.2 Geology

Recorded Geology

The Site is recorded¹ being underlain by either superficial deposits of the River Terrace deposits² (*across the higher elevations; sand and gravel, locally with lenses of silt, clay or peat*) or outcropping bedrock of the Boyn Hollow Chert Member³ (*Glauconitic sand and sandstone with regularly developed nodular and tabulate beds of chert*). Head deposits⁴ are recorded to the south of the Site – Figure 2.

Exploratory Hole Records

Exploratory hole records are available for the Site itself relating to the S10 Geo-Consulting, Southern Testing and Groundwater Dynamics fieldwork further details of which are presented within Section 3.0 and 4.0.

Exploratory hole records from the local area – Figure 2 – record:

- i) Geologies that are consistent with the mapped records, e.g. the exploratory hole to the south of the Site encountered outcropping Boyn Hollow Chert Member deposits.
- ii) Groundwater (or lack of groundwater) recorded at depths that are consistent with the catchment locally to the Site that are indicated to be dominated by baseflows within the bedrock aquifer (groundwater levels likely tracking topography).

Structural Geology & Geomorphology

Massive sand and sandstone deposits are recorded beneath the Site (Boyn Hollow Chert Member) within which no evidence of faulting is recorded.

The Site's location on the eastern flanks and lower to mid elevations of a broad knoll that projects north-eastwards towards the River Wylfe – Figure 3.

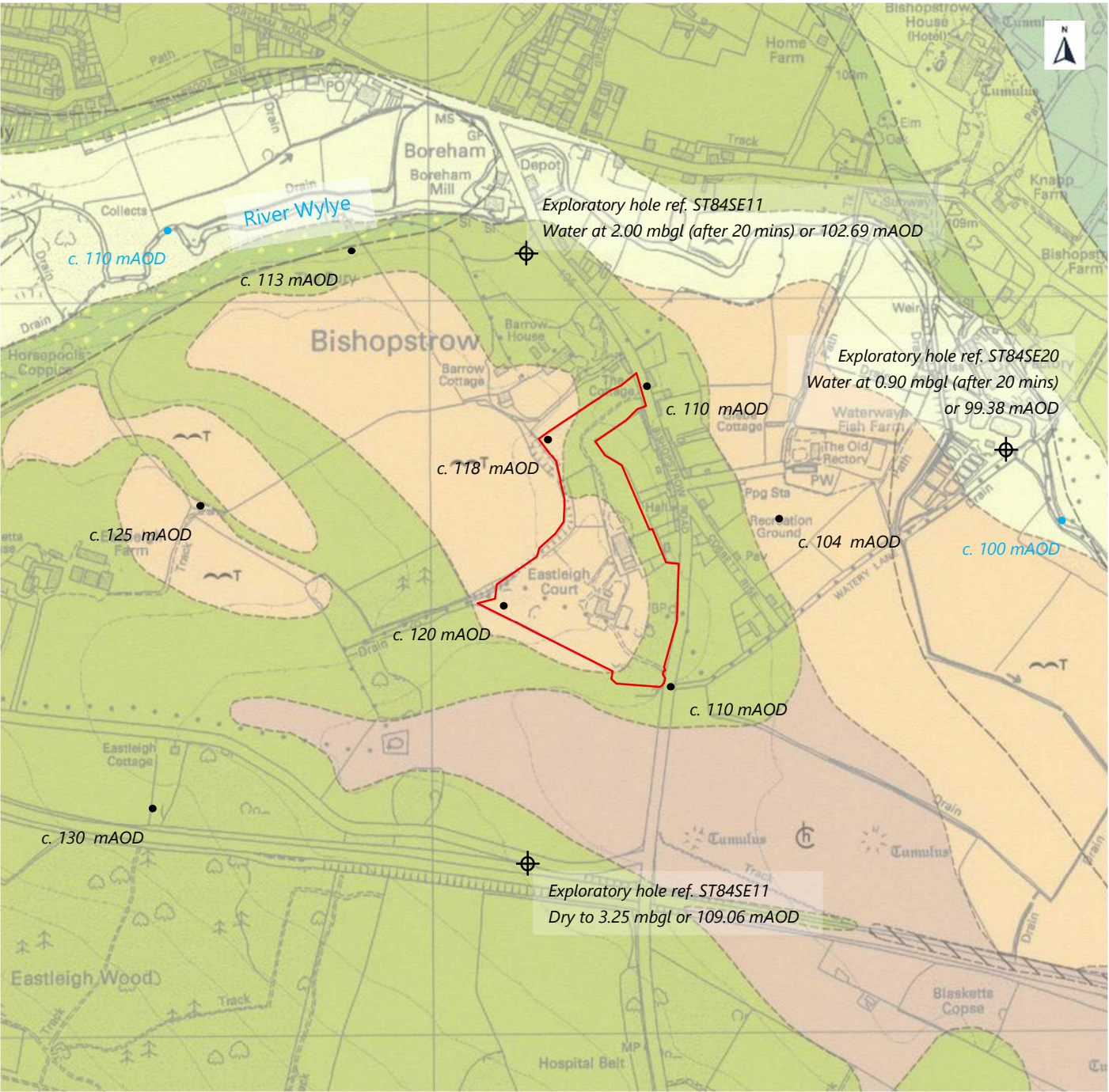


Figure 2: Geological Mapping – 1:10,000 scale

- > Extract from BGS Map Portal under Open Government License (v3.0).
- > Approximate Site boundary illustrated by **red line**.
- > **Orange shading** = River Terrace deposits
- > **Brown shading** = Head deposits
- > **Green shading** = Boyn Hollow Chert Member

¹ <https://api.bgs.ac.uk/sobi-scans/v1/borehole/scans/items/458966>

² <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=RTDU>

³ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=BHC>

⁴ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=HEAD>

2.4 Hydrogeology & Hydrology

A water catchment is divided into two main elements; groundwater (hydrogeology); and surface water (hydrology). The groundwater regime is chiefly governed by the geology and the surface water regime controlled by the topography and surface cover. For any given site, these regimes are likely to influence each other and be influenced by off-site factors, e.g. groundwater levels being ‘recharged’ higher up a catchment.

Groundwater and surface water regime

The Site’s groundwater and surface water regime is influenced by;

- i) The Site’s sloping topography with falls towards the east;
- ii) The Site’s location on the lower to mid elevations of a broad north-east trending knoll within the upper reaches of the Wylfe (middle) catchment⁵ that is characterised by disperse and intermittent fluvial/landslip deposits (River Terrace and Head) with extensive outcropping sedimentary bedrock sequences (sandstone and chalk predominating) and Alluvium across the lower elevations;
- iii) The mapped presence of a discrete superficial aquifer (*River Terrace deposits; Secondary A; no Source Protection Zones*⁶) across the western, upper elevations of the Site with the geology across the lower reaches of the Site mapped as outcropping Boyn Hollow Chert Member (Principal aquifer; no Source Protection Zones³);
- iv) A catchment where monthly rainfall above 130 mm are ‘rare’ events (<5% chance) – *Figure 3*;
- v) The predominance of ‘soft’ cover across the Site meaning effective infiltration is anticipated to be high (outside of the localised building footprints and hardstanding areas) with a ‘very low chance’ of surface water flooding affecting most of Site noting some isolated areas local to the historic field drain (running along the Site’s western border) and to the front of Eastleigh Court itself⁷ – refer to Ground Model in Section 5.0 River and reservoir flooding are also ‘very low chance’ events across the Site.
- vi) The presence of discrete overland flow paths (historic drains) at elevations above the Site suggesting historic field drainage systems are in place (as anticipated) that feed into this open and seemingly intermittent watercourse. The presence of this water also indicates very shallow (near surface) poorer draining soils are present locally to the Site within the River Terrace Deposits;
- vii) Associated with the point above, the potential for seepage flows through River Terrace deposits with contrasting permeability;
- viii) A groundwater surface within the bedrock aquifer that, lies deeper than 3.0 m below ground level based on local exploratory hole records and the Site’s topography; and,
- ix) Eastleigh Court’s water supply was historically served by ‘pumps’ suggesting extractable quantities of groundwater are generally ‘deep’ locally to the Site (requiring mechanical assistance).

Based on these characteristics, groundwater is likely to be encountered as a continuous body of water across the Site within the bedrock deposits but also as seepage flows within varied River Terrace deposits.

Groundwater is anticipated to be tracking the topography and feeding base-flows within the River Wylfe (groundwater close to, and potentially above, the river level).

Rainwater falling onto the Site is anticipated to currently be held in the Topsoil (effective infiltration) before draining into the underlying River Terrace deposits (varied but typically ‘poor’ drainage characteristics) or direct into the bedrock aquifer (Boyn Hollow Chert Member) and intercepting discrete seepage flows from the higher elevations that are fed by the River Terrace deposits at higher elevations.

⁵ <https://environment.data.gov.uk/catchment-planning/WaterBody/GB108043022550>

⁶ <https://magic.defra.gov.uk/MagicMap.html>

⁷ <https://www.gov.uk/check-long-term-flood-risk>

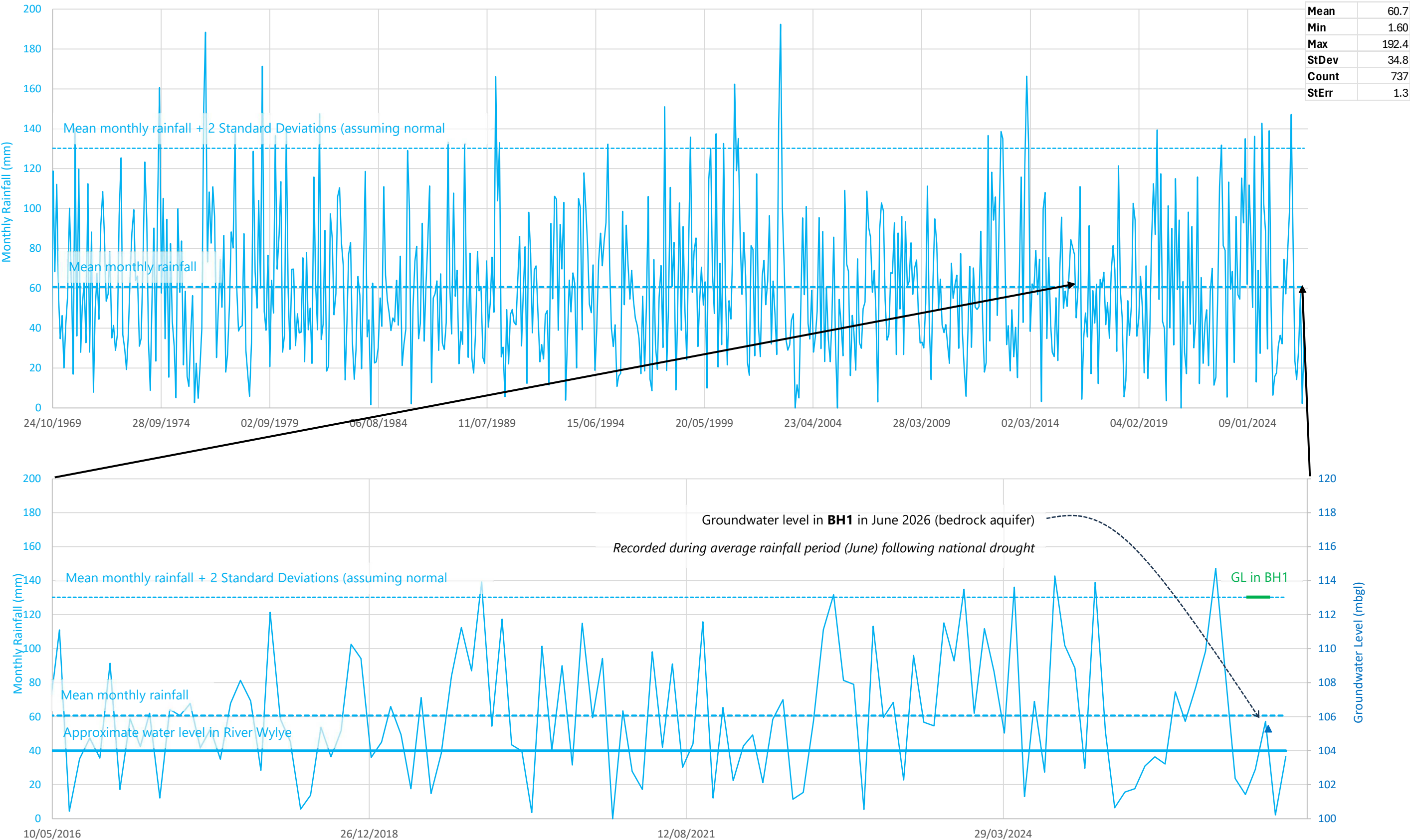


Figure 3 – long term (top) and recent (bottom) hydrographs from Yeovilton

3.0 Fieldwork – Exploratory Holes, In-Situ Testing, Laboratory Testing and Monitoring

The intrusive investigation (Table 2) was designed by Groundwater Dynamics Ltd with remote oversight by Soil and Structures referencing: i) the existing investigation data, ii) the requirements of the drainage engineer (field trials of the Eco90™ system), iii) guidance for site investigations⁸, and iv) responding to the revealed ground conditions.

*① **Comments on the scope of works:** the availability of existing, shallow ground investigation data obtained and presented by S10 Geo-Consulting and Southern Testing (groundwater and drainage-related works summarised below in Table 1 and 2 respectively) served to provide an extensive package of background data.*

The aims of the investigation were therefore to: i) profile the ground conditions across the Site; ii) confirm the depth to the groundwater table across the Site; and, iii) where possible, conduct check testing on infiltration rates above the groundwater surface to confirm the viability of drainage-to-ground as part of the drainage strategy.

This investigation is considered to have obtained sufficient data to inform design decisions however, as ever, there remains the potential for unforeseen or unexpected ground conditions to be encountered.

Access was possible to all areas relevant to the investigation.

Table 1: Scope and Rationale of the S10 Geo-Consulting Intrusive Investigation

Activity	Ref.	Rationale
6 windowless sample boreholes	WS1 to WS6	To investigate shallow ground conditions across the Site; and, to enable in-situ testing.
Infiltration testing (simple ‘falling head’ within cavity)	-	To enable rates of infiltration or permeability to be evaluated within the targeted geology. This is one line of evidence to support infiltration potential being assessed.
Logging of soil arisings from exploratory holes	-	To characterise the materials within the ground

Table 2: Scope and Rationale of the Southern Testing Intrusive Investigation

Activity	Ref.	Rationale
1 windowless sample borehole with rotary core follow-on	BH1	To investigate the deeper ground conditions across the Site; and, to enable in-situ testing
4 machined excavated trial pits	SK1 to SK4	To investigate shallow ground conditions across the Site; and, to enable in-situ testing.
Variable (falling) head testing in general accordance with current standards ⁹	BH1	To enable the permeability of the deeper bedrock aquifer to be evaluated.
Infiltration testing in general accordance BRE 365	SK1 to SK4	To enable rates of infiltration or permeability to be evaluated within the targeted geology. This is one line of evidence to support infiltration potential being assessed.
Logging of soil arisings from exploratory holes	-	To characterise the materials within the ground

⁸ Code of practice for site investigations. BS 5930 (2015)

Table 3: Scope and Rationale of the Groundwater Dynamics Intrusive Investigation

Activity	Ref.	Rationale
4 rotary auger boreholes over 4 test drill (TD) locations (four holes in total)	BH1 to BH4	To investigate deeper ground and groundwater conditions across the Site; and, to enable in-situ testing (falling head / infiltration testing).
Variable (falling) head testing in general accordance with current standards ⁹	-	To enable rates of infiltration or permeability to be evaluated within the targeted geology. This is one line of evidence to support infiltration potential being assessed. The testing performed is, in effect, a field trial for vertical drainage systems, e.g. borehole drainage, with the test results not computed as part of this Reporting but rather relayed to the drainage engineer. Subject to the overall viability of vertical drainage being confirmed as part of this Report, infiltration rates are computed on principles laid out within BRE 365 to confirm a design drainage rate in the stratum. It should be noted that drainage into unsaturated or partially saturated soils (vadose zone) occurs under very different, typically more complex conditions compared to saturated soils. Specific attention should be given to the difference between percolation (through pre-saturated soils) and infiltration. In general, percolation occurs at slower rates as infiltration fills existing air voids within the soil. Various studies have suggested that adopting falling head test models (saturated soils) can offer a reliable, if conservative means to estimate drainage rates within unsaturated or partially saturated soil systems.
Logging of soil arisings from exploratory holes	-	The use of rotary auger boreholes means the logging of material recovered from the borehole is generally only accurate to the nearest drill run (typically 1.50 m). Notes on the revealed geology are provided within the appended field trial notes and described or illustrated (photographs) throughout this Report.

Exploratory hole locations

Are illustrated on the Ground Model drawings in Section 5.0.

Geotechnical samples

Were not obtained given the availability of existing data (S10 Geo-Consulting) and availability of other lines of evidence to confirm drainage characteristics of the materials encountered.

Environmental samples

Were not obtained given this was outside the scope of works (Groundwater Dynamic investigation) nor was any evidence of potentially harmful or polluting material encountered within the exploratory holes.

Ground gas monitoring

Was not undertaken given this was outside the scope of works (Groundwater Dynamic investigation) nor was any evidence of bubbling groundwater or odours noted during the fieldworks.

⁹ BS 5930 (2015); BS 22282:2 (2012)

Hydrogeological Assessment

Eastleigh Court, Bishopstrow

SOIL AND STRUCTURES

4.0 Ground and Groundwater Conditions – Anticipated and Revealed

Anticipated ground and groundwater conditions: Based on the Site setting and available ground investigation data from the S10 Geo-Consulting and Southern Testing ground conditions were well understood across the Site and characterised by:

- Shallow River Terrace Deposits characterised by either clay dominated or clay-rich (logged as ‘silty clay matrix’ or ‘clayey’) soils to depths of 0.75 to 5.45 m depth (thinning towards the east as anticipated based on mapping records) with correspondingly poor rates of drainage (1.55 x 10⁻⁷ {SK1} to 3.47 x 10⁻⁶ {SK4} m/s)
 - Inferred Boyn Hollow Chert Member deposits beneath the River Terrace Deposits that were also clay dominated or clay rich across shallow depths, typically becoming more granular with depth, e.g. WS1, WS2 and BH1.
- Below 4.0 m depth in BH1 the Boyn Hollow Chert Member was recovered as a more structured, fine to medium grained sand / sandstone.
- Groundwater strikes – table 4 below – were intermittent across the Site with ‘dampness’ noted at varying depths that, in WS4 corresponded with varied Made Ground deposits (possible perched lens) but otherwise did not follow a clear trend, e.g. water seepage at more granular lens. The deeper strike in BH1 within the bedrock sequence is considered representative of the groundwater table and, as anticipated in this catchment, correlates with a shallow groundwater gradient towards the north-east (River Wylfe).

		GL	Base	Strike	Monitor	Stike	Strike
				Feb-25	Mar-25	Jun-26	Jul-26
		mAOD		mbgl			
S10 Geo	WS1	115.20	110.85				
	WS2	113.70	108.25	4.70			
	WS3	115.50	111.45				
	WS4	114.70	111.29	1.40	3.01		
	WS5	113.80	110.45		2.79		
Southern	BH1	113.60	105.30			8.20	
GWD	TD1	113.02	107.02				4.10
	TD2	114.78	104.90				
	TD3	113.50	106.24				4.10

Table 4: Consolidated strike and groundwater monitoring dataset

Revealed ground and groundwater conditions: The fieldworks undertaken on Site by Groundwater Dynamics confirmed the anticipated ground and groundwater conditions with no variations and two notable observations.

- Observation 1: The generally increased depth of drilling (over the existing investigations) revealed a clear trend in the characteristic green (Glaucanitic) colour of the Boyn Hollow Chert Member; generally encountered within 3 m of the ground surface.
- Observation 2: Groundwater strikes – table above – exhibited a similar indistinct trend in groundwater levels.
- Observation 3: Boreholes advanced to depths of greater than 5 m below ground recorded more positive rates of infiltration compared to shallower wells – Figure 4 – likely controlled by discrete flows within the bedrock.

The Ground Model for the Site is presented in Section 5.0 and includes further commentary on the ground conditions.

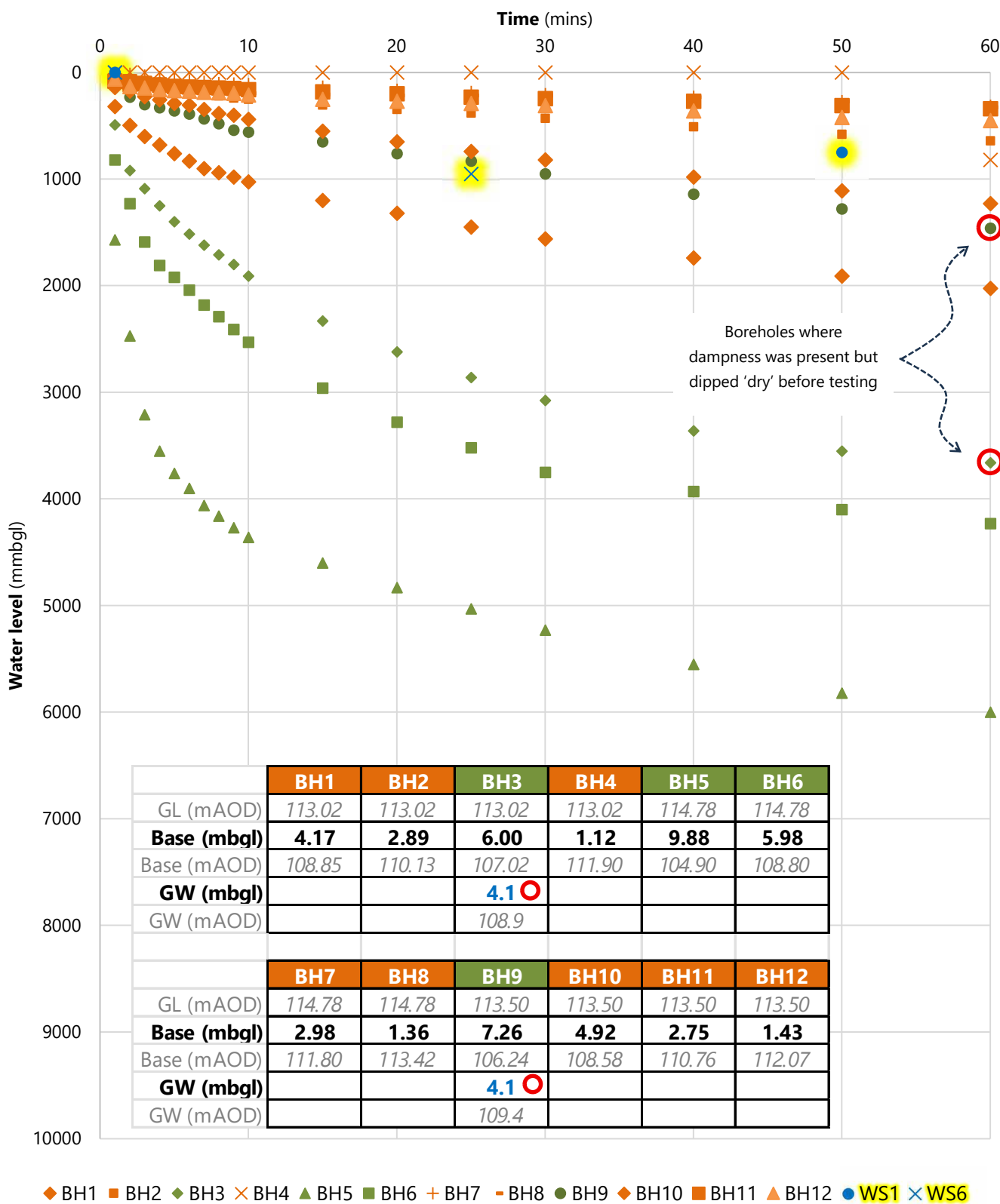


Figure 4: Consolidated infiltration test data from all Groundwater Dynamics (BH1 to BH12) and Geo-Consulting boreholes (green = > 5.0 m deep) with table of key borehole data inserted (GL = ground level; GW = groundwater)

5.0 Ground and Groundwater Model – Baseline Plan – Site Scale



Key

- Environment Agency mapped areas of surface water flooding
- Section line – refer to profile at end of Section 5.0

Ground Investigation Key

- S10 Geo-Consulting**
- Windowless sampler
- Southern Testing** investigation June 2026
- Machine excavated trial pit
 - Windowless sampler with follow-on rotary core
- Groundwater Dynamics** investigation May 2026
- Rotary auger boreholes (to varying depths)
 - Infiltration testing / falling head testing conducted.

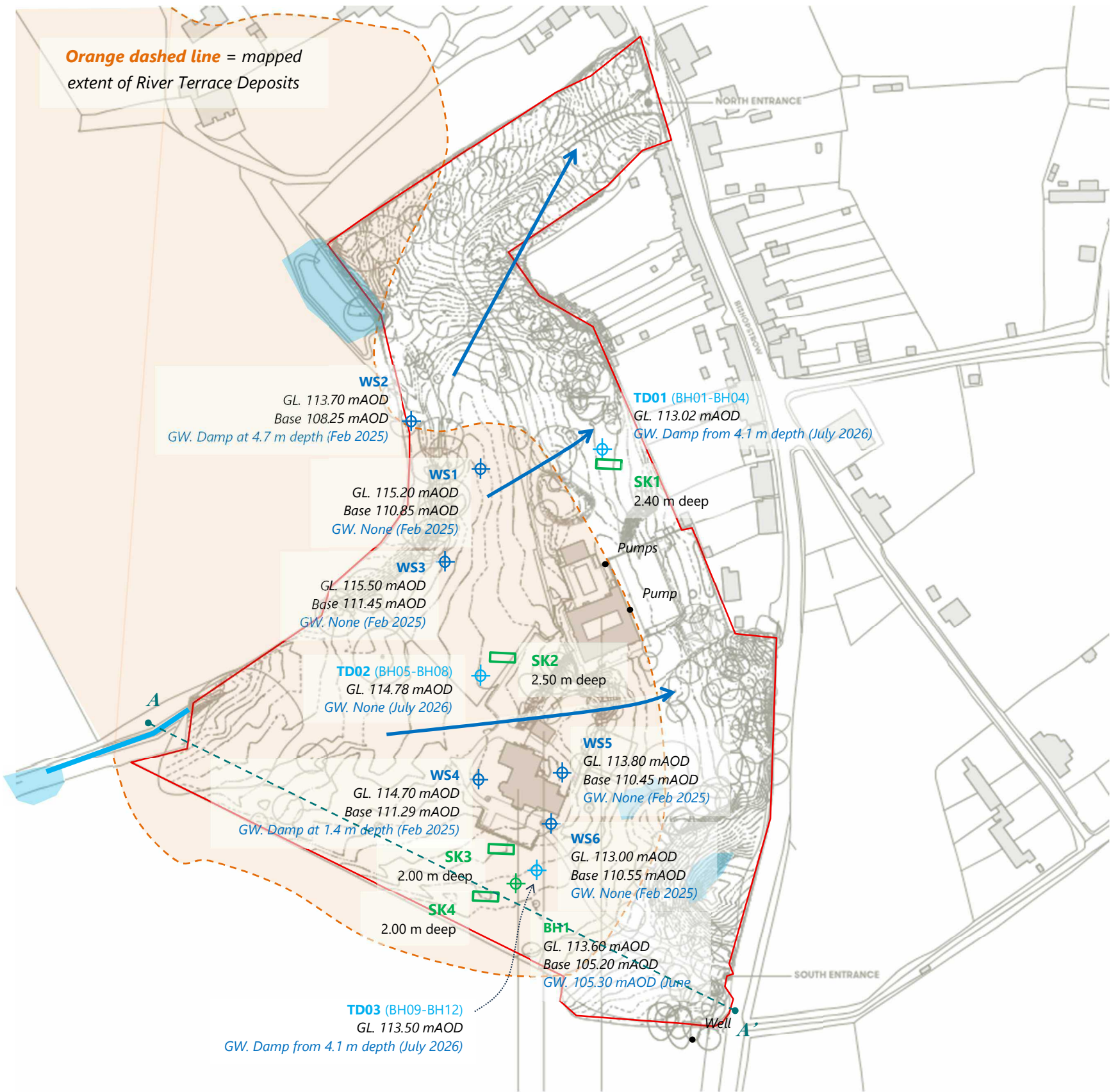
Table 5.2: Infiltration Test Results

WS No.	Test Depth	Drainage Material	Test No.	Infiltration Rate (m/s)	Time to Drain to 50% Effective Storage Depth (mins)
WS1	0.75-2.6	RTD & BHC	1	5.2x10 ⁻⁷	700
	0.78-2.6	RTD & BHC	2	9.1x10 ⁻⁷	400
WS6	0.95-2.0	RTD & BHC	1	1.4x10 ⁻⁷	2599

RTD: River Terrace Deposit BHC: Boyne Hollow Chert Member

INSERT: Extract from S10 Geo-Consulting reporting summarising infiltration testing results

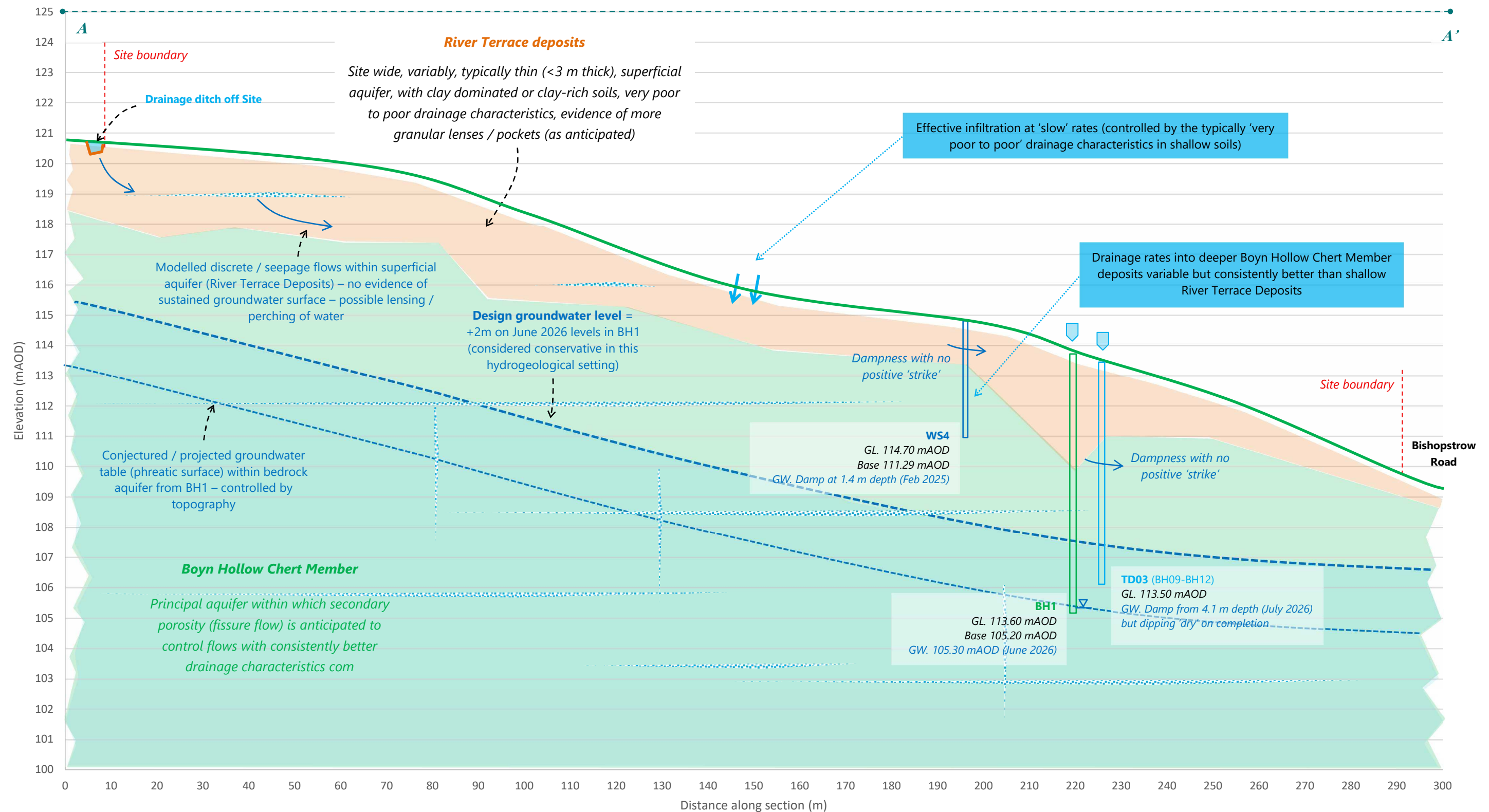
5.0 Ground and Groundwater Model – Baseline Plan – Site Scale



Key	
	Groundwater flow paths (indicative)
	Environment Agency mapped areas of surface water flooding
	Section line – refer to profile at end of Section 5.0

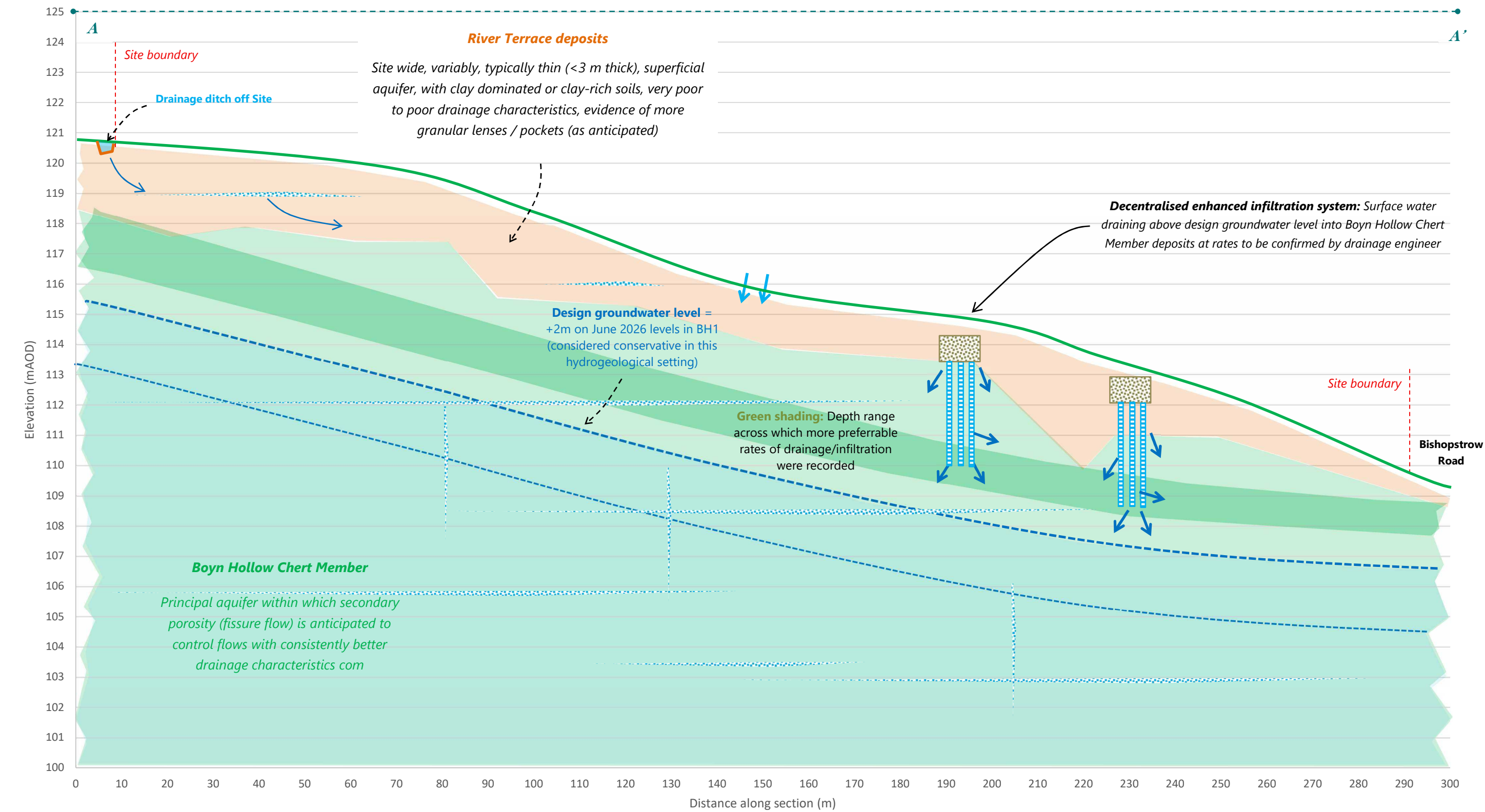
Ground Investigation Key	
S10 Geo-Consulting	
	Windowless sampler
Southern Testing investigation June 2026	
	Machine excavated trial pit
	Windowless sampler with follow-on rotary core
Groundwater Dynamics investigation May 2026	
	Rotary auger boreholes (to varying depths)
GL.	Ground level
GW.	Groundwater level (shallowest recorded)

5.0 Ground and Groundwater Model – Baseline Profile - Site Scale



Cross sections are for illustrative purposes only – do not scale from drawing.

5.0 Ground and Groundwater Model – Endline Profile - Site Scale



Cross sections are for illustrative purposes only – do not scale from drawing.

6.0 Conclusion and Recommendations

6.1 Conclusions

In conclusion, the Hydrogeological Assessment finds that:

- > **Characterisation of Site:** Based on the available information relating to; the Site’s geology, hydrogeology and hydrology is considered adequately characterised to support an assessment of the changing groundwater regime pre- and post- development.

Whilst unforeseen conditions may exist that could be influencing the groundwater regime, e.g. historic land drainage, these are generally considered unlikely to be controlling the overall patterns of groundwater movement or else readily managed as part of the development works, e.g. investigating of unrecorded land drainage routes.

- > **Baseline conditions:** The Site’s groundwater regime is characterised by:
 1. Regional-scale trends characterised by ‘deep’ groundwater levels within the bedrock aquifer.
 2. Site-scale trends characterised by typically poor draining River Terrace Deposits resulting in overland flows (drainage ditch) and/or very slow rates of effective infiltration across shallow depths. Evidence of some lateral flows/lensing of groundwater in the River Terrace Deposits are noted but no evidence of a maintained groundwater surface (phreatic surface). In effect, the River Terrace Deposits are acting as a ‘leaky’ aquitard, inhibiting the vertical (and lateral) drainage of rainfall into the deeper bedrock aquifer.
 3. Groundwater trends that broadly follow topographical gradients locally to the Site with a defined groundwater levels in BH1 in the Boyn Hollow Chert Member deposits considered to be reflective of the groundwater table (phreatic surface) noting that seasonal fluctuations of up to 2 m (rising to c. 6 m below ground level) are considered unlikely in this catchment and therefore taken as a precautionary design groundwater level (in this location; and projected across the Site).
- > **Endline conditions:** The Drainage Strategy is understood to be in development at the point of issue with this Report intended to inform decision making and discussions with the relevant regulatory authorities.

With respect to the Site’s groundwater regime, key considerations for developing the drainage strategy include:

1. **Defining groundwater bodies:** Whilst water was encountered within the River Terrace Deposits deposits, this geological unit is strictly an aquitard (clay dominated or clay-rich soils) and therefore this groundwater could, in principle, be defined as ‘perched lenses’ or ‘seepage flows’ and is not considered to represent a phreatic surface (groundwater table).

For any discharge of water to ground, it is recommended that the design groundwater level illustrated on the Ground Model profile (Section 5.0) is adopted as part of the design.

For decentralised systems across other portions of the Site (not covered by this section line), it is recommended that a general rule of ensuring inverts remain below 4.00 m depth but not greater than 5.0 m below ground level would, for most areas of the Site, remain at least 1 m above the design groundwater level.

The exceptions to this rule would be the far south-eastern and north-eastern corners of the Site where ground levels are lowest – across these portions of the Site groundwater may be present at depths of c. 3 m below ground level.

2. **Decentralisation of the drainage and directly discharging roof water above the groundwater table (within the Boyn Hollow Chert Member):** Whilst the River Terrace Deposits and shallow Boyn Hollow Chert Member deposits were found to have generally ‘poor’ drainage characteristics, more viable rates of drainage (infiltration) were recorded and therefore, there a decentralised drainage system that discharge surface water to ground is considered viable.

Test holes targeting invert depths of at least 4.50 m below ground level recorded better rates of infiltration across all test areas and therefore it is recommended that the drainage system adopts invert depths of no shallower than 4.00 m below ground level but no deeper than 5.00 m below ground level (to maintain sufficient freeboard above the design groundwater level.

6.2 Recommendations

Based on the above conclusions; the following recommendations are made:

- > **Further assessment:** No further assessment is recommended with a conservative assessment of the design groundwater level considered justified based on the available lines of evidence.

It is noted that further, seasonal (winter/spring) dip monitoring of BH1 would be desirable (but not essential) and may permit a deeper design groundwater level being adopted (less conservative).

- > **Unforeseen drainage features:** The Site’s catchment is characterised by historic farmland across which historic land drainage may have been installed. If present, these features will serve as direct pathways for shallow groundwater flows that may be locally controlling shallow groundwater flows. If and where encountered, they should be investigated fully and a suitable responsive design established, e.g. filling or removal, to remove their influence on the shallow groundwater regime.