



**GEOTECHNICAL
ASSESSMENT REPORT**

**HILGAY COTTAGE
BIRCHWOOD GROVE ROAD
BURGESS HILL
WEST SUSSEX**

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EXECUTIVE SUMMARY

The following presents a summary of the main findings of the report. It is emphasised that no reliance should be placed on any individual point until the whole of the report has been read as other sections of the report may put into context the information contained herein.

The development proposals are understood to comprise the construction of two dwellings, complete with an access road, parking areas, gardens, areas of both hard and soft landscaping and a separated garden room for plot 2.

Reference to geological datasets indicates that the site is expected to be underlain by the Weald Clay Formation. The ground investigation confirmed the underlying soils to comprise a shallow thickness of made ground, overlying Head superficial deposits and, in turn, Weald Clay Formation deposits.

The Weald Clay Formation is classed as an Unproductive Stratum. The site does not lie within a SPZ. Groundwater was recorded at various depths between 0.30m and 2.90m below ground level during drilling/excavation. Water ingress also impacted the in situ infiltration testing throughout the testing period.

It is recommended that the design of precautions against shrinkage and heave for any new foundation system should assume a high volume change potential for all fine-grained soils encountered on site.

A net allowable bearing capacity of 150kN/m² may be assumed for spread (pad or strip) foundations up to 1.00m across bearing within the Head or Weald Clay Formation soils of at least stiff consistency.

Indicative pile capacities are included in the body of the report.

It is recommended that ground floors should be suspended.

A DS-1 Design Sulfate Class and an AC-1 ACEC classification should be assumed for the design of concrete in contact with the ground where the ground will not be significantly disturbed. Where the ground will be disturbed during construction activities, a higher DS-3 and AC-3 classification should be assumed.

Infiltration testing within the Head/Weald Clay Formation soils recorded infiltration rates ranging between negligible and 3.62 x10⁻⁶m/sec. Further information is contained within the main body of the report relating to the specific strata.

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1. INTRODUCTION

It is proposed to develop a plot of land located at Hilgay Cottage, Birchwood Grave Road, Burgess Hill, West Sussex. The development proposals are understood to comprise the construction of two dwellings, complete with an access road, parking areas, gardens, areas of both hard and soft landscaping and a separated garden room for plot 2. A copy of the proposed development layout is presented in Appendix A.

Ashdown Site Investigation Ltd was requested to undertake a ground investigation and to provide advice to assist with the structural design.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q16045Rev2, dated 13th January 2026. The instruction to proceed was received from the client, Remmus Designer Homes Ltd.

The specific objectives of the works were to:

- a) Establish the expected geology and hydrogeology at the site;
- b) Investigate the ground and groundwater conditions in the area of the proposed development; and
- c) Provide advice/parameters to assist others in undertaking design of spread and piled foundations, ground floors, and to assist with the preliminary design of the stormwater drainage system.

2. SITE CONTEXT

2.1 Site Location

The site is located at Birchwood Grove Road, Burgess Hill, West Sussex, and is centred on the approximate Ordnance Survey national grid reference 531844, 118266. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

The site comprises an irregularly shaped plot of land, with a shingle driveway leading from Birchwood Grove Road to Hilgay Cottage positioned in the eastern part of the site. The remainder of the site is occupied by surrounding areas of soft landscaping, together with four outbuildings. Several trees are present on and around the site.

2.2 Geological and Hydrogeological Setting

2.2.1 Expected Geology and Aquifer Designation

The stratigraphic unit that may be expected to underlie the site has been established by reference to British Geological Survey (BGS) mapping and the BGS Lexicon of Named Rock Units. The expected stratigraphy is presented in the following table.

Table 1. Expected Strata and Aquifer Designation

Type	Stratum	Aquifer Designation
Superficial	Head (shown in locality of site)	Secondary
Bedrock	Weald Clay Formation	Unproductive Stratum

Whilst not shown on geological mapping to be present on the site, Head deposits are present in the general locality of the site. The superficial Head is a polymict deposit generally comprising clay and sandy clay with variable amounts of gravel, though locally coarse grained soils may predominate. The lithology of the Head reflects the nature of the parent solid strata. The material is likely to have been disturbed by intense frost action in a periglacial environment. It is usually poorly sorted but may be stratified where it has been subject to solifluction and/or hillwash and soil creep.

The Weald Clay Formation forms part of the Wealden Group. The formation is of Hauterivian to Barremian age (126.3 to 133.9 million years old; Early Cretaceous). The Weald Clay Formation comprises dark grey thinly-bedded mudstones (shales) and mudstones with subordinate siltstones, fine to medium grained sandstones, including calcareous sandstone (e.g. Horsham Stone Member), shelly limestones (the so called "Paludina Limestones") and clay ironstones. The formation is recorded by the BGS to range in thickness up to 460m.

2.2.2 Mining Hazards

The geological units of the Wealden Group, including the Weald Clay Formation, were locally mined for iron during the early Roman period, the Medieval period and significantly between the 15th and 18th centuries. The mining activities were associated with hammer and furnace ponds, and forges. The locations of many of the workings are unknown, the works mostly having been dismantled and sites

overgrown with woodland. Many of the old ponds in the Weald may be representative of old hammer or furnace ponds.

The historical extraction was mostly from open pits excavated from surface, but during the Medieval period, extraction in the eastern Weald was increasingly from mine pits. These mine pits were typically five metres in diameter and up to twelve metres deep. The pits were worked in sequence with spoil from one pit used to in-fill the one before. In the western part of the Weald, the principal method of extracting iron ore was also the mine pit but smaller in scale; the pits consisted of a vertical shaft up to 2.5 metres in diameter and the base of the shaft would have been widened out.

The British Geological Survey GeoIndex Onshore viewer records the presence of several mines/quarries within 1km of the site, the closest being the Burgess Hill Pottery Works located some 800m to the north-west. A search of the Wealden Iron Research Group database (www.wirgdata.org) revealed no records of iron workings within 1km of the site. The risk posed to the development is considered to be very low.

Further assessment of the natural ground and mining hazards can be undertaken, if required, to provide more detailed comment specific to the site.

2.2.3 *Groundwater Source Protection Zones (SPZ)*

The Environment Agency defines SPZs as those areas where groundwater supplies are at risk from potentially polluting activities and accidental releases of pollutants. SPZs are primarily a policy tool used to control activities close to water supplies intended for human consumption.

The site does not lie within a SPZ.

3. SITE WORKS

3.1 Introduction

The intrusive site works comprised a series of dynamic sampler boreholes, mechanically dug trial pits and a cable percussion borehole, together with accompanying in-situ geotechnical testing. The intrusive work was carried out between Thursday 22nd January 2025 and Friday 30th January 2025. The exploratory hole locations are shown on Figure 2.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the exploratory hole records given in Appendix B, which also includes explanatory notes to assist in their interpretation.

3.2 Exploratory Holes

The following table summarises the intrusive works undertaken at the site.

Table 2. Summary of Intrusive Works Undertaken

Designation	Depth (m bgl)	Method
BH01	15.00	Cable Percussion
WS01	3.00	Dynamic Sampler
WS02	3.00	Dynamic Sampler
WS03	3.00	Dynamic Sampler
WS04	3.00	Dynamic Sampler
WS05	3.00	Dynamic Sampler
TP01	2.20	Machine Dug
TP01a	1.03	Machine Dug
TP02	2.19	Machine Dug
TP02a	1.00	Machine Dug
TP03	0.62	Machine Dug

3.3 Sampling

Samples of soil were taken from the exploratory holes at the depths shown in the exploratory hole records. The types of samples taken are indicated on the exploratory hole records. Details on the sample types are provided in the explanatory notes.

3.4 In Situ Strength Testing

The types and depths of in situ testing, together with the test results, are either given on the exploratory hole records or are summarised separately in Appendix B. Further details on the in situ testing methods are provided in the explanatory notes.

3.5 In Situ Infiltration Testing

In situ infiltration testing was undertaken in trial pits in general accordance with the test methodology given by BRE guidance¹. The results of the testing along with the infiltration rate calculations are included in Appendix D.

3.6 Installations

A groundwater monitoring standpipe was installed to a depth of 3.00m in borehole WS03. A description of the installation is shown on the exploratory hole record.

A groundwater data logger was installed within the standpipe on the 23rd January 2026 and was programmed to collect readings at hourly intervals for a period of 3 months. The results of the groundwater monitoring will be issued separately on completion of the monitoring programme.

3.7 Laboratory Testing

Laboratory testing was scheduled by Ashdown Site Investigation Ltd.

Geotechnical testing was undertaken by Ashdown Site Investigation Ltd. Chemical testing was undertaken by a laboratory with recognised (UKAS and MCERTS) accreditation for quality control.

Results from the laboratory tests are provided in Appendix C.

¹ Section 3.2.3 of Building Research Establishment (BRE) Digest 365, 2016.

4. GROUND CONDITIONS

4.1 Stratigraphy

4.1.1 *Surface Covering*

With the exception of trial pit TP03 which was excavated through a shingle surfacing 150mm thick, each of the exploratory holes was excavated through a surface cover of topsoil some 50mm to 250mm in thickness.

4.1.2 *Made Ground*

Made ground, generally comprising slightly gravelly to gravelly clay, was recorded to depths of between 0.35m and 0.60m below ground level in a majority of the boreholes. The gravel fraction comprised variable quantities of brick, flint, concrete and charcoal-like material.

No made ground soils were recorded within boreholes WS01 or WS02.

4.1.3 *Head*

Underlying the topsoil and/or made ground, the investigation progressed into undisturbed locally initially firm, becoming stiff and very stiff with depth, slightly gravelly to gravelly clay soils, locally with horizons of dense very sandy very clayey gravel. These soils were recorded to the full depth of shallow trial pits TP01a, TP02a and TP03, and to depths of between 0.55m and 2.50m below ground level in the remaining exploratory holes.

Whilst not specifically shown to be present on site and in view of the flint gravel content, these deposits are considered to represent the Head deposits indicated to be present in the vicinity of the site on BGS geological maps and often forming part of the weathering profile of bedrock deposits.

4.1.4 *Weald Clay Formation*

Beneath the Head deposits, where penetrated, the exploratory holes encountered generally stiff becoming very stiff clay soils containing variable quantities of mudstone, ironstone and selenite crystals.

These soils, considered to represent the Weald Clay Formation indicated to underlie the site on BGS geological maps, continued to the full depth of the investigation.

4.2 Stability

Instability was recorded locally within the soils encountered.

4.3 Groundwater Conditions

Groundwater was recorded at various depths between 0.30m and 2.90m below ground level during drilling/excavation.

During the in situ infiltration testing period, the dataloggers installed with the test pits recorded ingress of water which was not introduced for the testing; the water ingress was likely due to heavy precipitation. Based on the results of the monitoring of water levels during the soakage testing, groundwater appears

to have been at approximately 0.40m to 0.60m below ground level over the period of the time during which the soakage testing was conducted.

Longer term groundwater monitoring within the standpipe installed within borehole WS03 is currently ongoing and the results of the monitoring will be issued separately on completion of the three-month monitoring period.

5. GEOTECHNICAL ASSESSMENT

The geotechnical assessment has been prepared in connection with the development proposals shown on the drawing included in Appendix A.

In summary, the proposed development is to comprise the construction of two dwellings, complete with an access road, parking areas, gardens, areas of both hard and soft landscaping and a separate garden room for plot 2.

Whilst no details were available concerning the specific loads likely to be applied to the foundations, it is understood that due to the presence of trees, consideration may need to be given to deep spread foundations or a piled foundation solution.

5.1 Foundations

5.1.1 Soil Shrinkage/Heave Potential

The fine-grained soils underlying the site have been classified as clays, and with plasticity indices of up to 53%, these soils may be expected to exhibit up to a high volume change potential.

It is recommended that the design of precautions against shrinkage and heave for any new foundation system (spread footings, piles, pile caps and ground beams etc.) should assume a high volume change potential for all fine-grained soils encountered on site and take into account current guidance such as that given by the Building Research Establishment (BRE)² or the National House Builders Council (NHBC)³.

Whilst this report has been prepared to provide advice to assist designers in undertaking detailed design, the report itself does not represent a detailed design statement. Detailed foundation design, including assessment of foundation type, reinforcement or sleeving of piled foundations, minimum founding depths for spread foundations, and requirements for placement of void formers et cetera, should take into account the findings of this report and the presence of trees (previous, present and proposed).

In connection with the latter, it is noted that the arboricultural survey provided identified several mature oak trees, among other species, in close proximity to the proposed buildings' footprints. This information, together with details of proposed planting schemes will need to be considered during foundation design and should be provided to engineers responsible for the foundation design.

5.1.2 Spread Foundations

5.1.2.1 Foundation Depths for Spread Foundations

Foundations should be constructed to bear below soils that are likely to be affected by significant soil volume changes caused by seasonal changes in moisture content to avoid damage to foundations that could otherwise arise. In addition, all made ground and any soils disturbed by the construction or removal of any previously existing foundations or services should be regarded as being variable in nature and state of compaction and, as such, unsuitable as a founding medium for shallow footings. New footings should be constructed so as to bear below made ground/disturbed natural soils and soil subject to seasonal soil volume changes, whichever is the deeper, and onto undisturbed, competent, natural deposits.

² www.bre.co.uk : BRE Digests 240, 241 and 242, Low rise buildings on shrinkable clay soils, parts 1, 2 and 3; and BRE Digest 298 , The influence of trees on house foundations in clay soils and BRE Digest 412, Desiccation in clay soils.

³ <http://www.nhbc.co.uk/> : NHBC Standards, Chapter 4.2.

Summary guidance on suitable minimum foundation depths to protect against the effects of seasonal soil volume changes is presented in the table below but designers undertaking detailed design of foundations should follow the detailed guidance such as that provided within Chapter 4.2 of the NHBC Standards.

Table 3. Indicative Minimum Foundation Depths

Tree Type	Water Demand of Tree	Tree Distance to Tree Height Ratio (D/H)									
		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.25
		Minimum Foundation Depth Required in High Volume Change Potential Soils (m)									
Broad Leaf	High	†					2.50	2.30	1.90	1.50	1.00*
	Moderate	2.40	2.25	2.05	1.85	1.65	1.50	1.30	1.00*	1.00*	1.00*
	Low	1.80	1.65	1.50	1.35	1.20	1.00*	1.00*	1.00*	1.00*	1.00*
Coniferous	High	†			2.20	1.80	1.40	1.00*	1.00*	1.00*	1.00*
	Moderate	2.40	2.00	1.60	1.20	1.00*	1.00*	1.00*	1.00*	1.00*	1.00*

* Minimum foundation depth required to protect against soil volume changes.

† Foundations deeper than 2.50m require specialist design to protect against soil volume changes.

Given the noted presence of trees in close proximity to the proposed building footprints, and the highly shrinkable nature of the soils, foundations may need to be extended below 2.5m and specialist foundation design may be required (foundation depths exceeding the maximum permitted by the guidance). In such circumstances piled foundations would be recommended, though commercial considerations may also dictate that piled foundations may be more economic even in comparison with conventional spread foundations constructed to depths less than the maximum permitted by guidance.

5.1.2.2 Bearing Capacity for Spread Foundations

Whilst spread foundations may ultimately be deemed unsuitable for the proposed development, the following information is provided should engineers deem that foundations greater than 2.5m depth are not required.

For design purposes, a net allowable bearing capacity of 150kN/m² may be assumed for spread (pad or strip) foundations up to 1.00m across bearing within the Head or Weald Clay Formation soils of at least stiff consistency. The quoted bearing capacity is expected to limit settlement to less than 25mm.

Attention is drawn to the presence of locally identified coarse-grained soils within the Head. As there is the potential for mixed soil conditions to be present beneath footings, designers should consider the need for foundations to be reinforced due to the potential for differential cracking to develop as a result of coarse-grained and fine-grained soils settling at different rates under loading.

5.1.3 Piled Foundations

In view of the presence of high volume change potential soils, consideration may need to be given to supporting the proposed structure on piled foundations as an alternative to deep spread foundations. It is considered that the Weald Clay Formation would provide support to piled foundations by a combination of side adhesion (skin friction) and end bearing.

The proven ground conditions would indicate that bored piles could be employed to provide a suitable foundation solution. However, the method of installation would have to accommodate naturally occurring hard strata that may potentially be encountered within the stratum i.e. mudstone bands, and possibly due to flint obstructions within the Head. In addition, the selection of piling techniques should consider access constraints applicable to particular plant and potential vibration effects on existing services, structures and roadways.

For the purpose of this initial discussion and for reasons given above, consideration has been given to the adoption of bored piles, the use of which would prove beneficial as this method enables temporary steel casing to be installed to stabilise the pile bore and a range of boring tools, including chisels, can be employed to progress pile bores through difficult ground.

Calculations to determine illustrative working loads for axially loaded piles have been undertaken; each calculation assuming a single pile acting in compression. Indicative capacities are presented in the following table. Available capacities may vary for piles acting in tension.

The soil profile assumed for these calculations has been based on examination of the recovered samples and the results of in-situ and laboratory testing. A modelled ground profile comprising stiff clay, becoming very stiff below 3m, has been adopted. Groundwater has been assumed to be present at a depth of circa 0.50m below ground level.

In consideration of the high volume change potential of the clay soils and the proximity of existing trees, for the purpose of the calculation the benefit of shaft resistance within the upper 3m has been discounted.

Table 4. Indicative Axially Loaded Pile Working Capacities

Working Loads of Piles (kN)			
Length (m)	Diameter (mm)		
	250	300	350
8	145	185	220
10	220	270	330
12*	275	340	405
15*	360	445	495

Notes: The structural strength of the concrete used in construction may limit the available working loads of the piles. Indicated pile lengths are from existing ground level. A factor of safety of 3.0 has been applied. The benefit of shaft resistance within the upper 3m has been discounted.

* Federation of Piling Specialists guidance and BS EN 1997-2-2007 require boreholes and testing to extend to a depth equivalent to the largest of: the pile length plus pile group width, pile length plus 5.0m and pile length plus 3 x pile diameter. Further ground investigation works may be required if piles of this length are proposed.

Working capacities for pile groups should be assessed when final design details are known, although for preliminary design purposes it is likely that piles spaced at least 3 x pile diameter from other piles in any group will behave as single piles.

Where preliminary and working pile load tests are undertaken it may be appropriate to reduce Safety Factors, although 2.5 may be a minimum local authority requirement. Should testing not be undertaken it is suggested that a factor of safety of at least 3.0 should be adopted.

For all piling options it is recommended that the advice of specialist foundation contractors should be sought at the earliest opportunity and that piling specifications should be obtained with reference to their particular products as this may affect the calculated pile capacity.

5.2 Ground Floors

In view of the presence of soils of up to high volume change potential, it is recommended that ground floors should be suspended.

5.3 Groundwater

Groundwater was recorded at various depths of between 0.30m and 2.90m below ground level during drilling/excavation.

It should be noted that water levels within the exploratory holes may not have equilibrated with the groundwater table at the time the readings were recorded and that groundwater levels should be expected to fluctuate seasonally. Longer term groundwater monitoring is currently ongoing and will be issued separately on completion of the three-month monitoring period.

Where excavations are proposed to extend below the groundwater table, particularly within coarse-grained soils, groundwater control will be required to maintain adequately dry working conditions and excavation stability. It is expected that pumping from sumps would be sufficient to control groundwater in excavations extending a shallow depth beneath the groundwater table.

It is also possible that heavy precipitation during construction could lead to the ingress of perched groundwater or surface water run-off into excavations. In such circumstances it would be expected that water entering excavations would also be adequately managed by pumping from sumps.

5.4 Stability of Excavations

All made ground or coarse-grained natural soils exposed in excavations should be assumed to be unstable, even in the short term. Whilst fine-grained natural soils may remain stable for a short period of time if not subjected to surcharge loads (such as may be imposed by existing foundations, traffic or storage of materials), the stability of these deposits if left unsupported should be assumed to have the potential to deteriorate. All excavations should be suitably supported.

All excavations requiring human entry must be shored as necessary to conform to current best practice, as accepted by the Health and Safety Executive (HSE)⁴. Current legislation requires that where personnel access is required into any excavation a competent person must inspect excavation supports at the start of the working shift and at other specified times. No work should take place until the excavation is safe. Excavations should also be inspected after any event that may have affected their stability, such as a significant weather event, changes in surcharge loadings imposed by temporary storage of materials or changes in site traffic plans or alteration of support systems. Inspections should be formally recorded and any faults that are found should be corrected immediately.

Particular attention must be paid to ensuring the stability of nearby structures, services and neighbouring sites, as well as the road frontage.

⁴ Relevant guidance is given on the HSE website, www.hse.gov.uk

5.5 Aggressivity to Concrete

The aggressivity of the soils to concrete has been assessed in accordance with guidance published by the BRE⁵. The results of the chemical laboratory testing together with a summary of the characteristic values is included in Appendix D.

In consideration of the soils encountered beneath the site it is considered that 'natural ground conditions' may be assumed for the purpose of assessing the aggressivity of the chemical environment for concrete classification (ACEC class). Given the noted occurrence of shallow groundwater 'mobile groundwater' conditions should be assumed.

The soils present beneath the site may be expected to contain sulphides which if exposed to air and water, and potentially bacterial action, may oxidise and convert into sulphates. The sulphides are significantly more likely to oxidise in ground that has been significantly disturbed, for example by cutting and filling as part of earthworks or by excavation and backfilling. Ground that is not disturbed beyond the cut face (e.g. piling operations or excavation without backfill) would not generally be considered by the guidance as being disturbed ground. Where disturbed ground is likely to result from construction activities a Design Sulfate Class based on the total potential sulphate should be adopted.

The following table summarises the characteristic values indicated from the chemical analysis of the soils present beneath the site.

Table 5. Assessment of the Chemical Analysis of the Soil

	Characteristic Value	Design Sulfate Class	ACEC Classification
pH	6.6	-	-
Water Soluble Sulphate (mg/l as SO ₄) *	100	DS-1	AC-1
Total Potential Sulphate (TPS % SO ₄)	0.8	DS-3	AC-3

Notes: * Characteristic value rounded to nearest 100.

In accordance with the guidance, a DS-1 Design Sulfate Class and an AC-1 ACEC classification should be assumed as a minimum for the design of concrete in contact with the ground where the ground will not be significantly disturbed. Where the ground will be disturbed during construction activities, a higher DS-3 and AC-3 classification should be assumed.

5.6 Stormwater Infiltration Systems

In-situ infiltration testing⁶ was carried out in trial pits TP01a, TP02, TP02a, and TP03. From the test results calculations were made to determine the infiltration rate that could be expected for infiltration systems constructed into the underlying Head and/or Weald Clay Formation soils.

⁵ BRE Special Digest 1:2005 Concrete in Aggressive Ground.

⁶ Conducted in general accordance with the requirements of BRE 365, Soakaway Design.

For each test conducted in trial pit TP03, the soil infiltration rate (f) was calculated by dividing the volume of water lost between 75% and 25% of the initial test depth by the sum of the average surface area of the sides of the trial pit in contact with the water during the test monitoring period, and its base area. This figure was then divided by the test duration (time taken for the water level to fall between 75% and 25% of the initial test depth) to give the soil infiltration rate in metres per second.

During the testing conducted in TP01a, TP02, and TP02a, the head of water expressed as a percentage of the initial head did not fall below 68%, 88% and 57% respectively. Calculation of the soil infiltration rate using the calculation method set out within the BRE digest was not possible, as the calculation method requires the time taken for the water level to fall to 25% of the initial head to be known. The soil infiltration rate has therefore been calculated by dividing the volume of water lost during the test by the product of the average surface area of the trial pit in contact with water during the test period and the test duration in seconds.

It is also noted that due to no fall in water level during the first tests undertaken in TP01a and TP02, no infiltration rate could be calculated.

The infiltration rates, together with the fall in head of water expressed as a percentage of the initial head over which the calculation of the infiltration rate was based, are summarised in the following table.

Table 6. Calculated Infiltration Rates

Exploratory Hole	Top of Response Zone (m bgl)	Bottom of Response Zone (m bgl)	Stratum	Infiltration Rate (f) (m/sec)	Calculation Based on Head of Water as % of Initial Head
TP01a Test 1	0.42	1.03	Head	No fall in water level	n/a
TP01a Test 2	0.21	1.03	Head	1.95×10^{-7}	100-72*
TP01a Test 3	0.20	1.03	Head	1.01×10^{-7}	100-68*
TP02 Test 1	0.73	2.19	Head and Weald Clay Formation	No fall in water level	n/a
TP02 Test 2	0.41	2.19	Head and Weald Clay Formation	1.26×10^{-7}	100-85*
TP02 Test 3	0.43	2.19	Head and Weald Clay Formation	5.80×10^{-7}	100-88*
TP02a Test 1	0.32	1.00	Head	1.41×10^{-7}	100-62*
TP02a Test 2	0.29	1.00	Head	2.88×10^{-7}	100-62*
TP02a Test 3	0.29	1.00	Head	1.58×10^{-7}	100-57*
TP03 Test 1	0.11	0.62	Head	3.62×10^{-6}	75-25
TP03 Test 2	0.25	0.62	Head	3.38×10^{-6}	75-25

Exploratory Hole	Top of Response Zone (m bgl)	Bottom of Response Zone (m bgl)	Stratum	Infiltration Rate (f) (m/sec)	Calculation Based on Head of Water as % of Initial Head)
TP03 Test 3	0.08	0.62	Head	3.36×10^{-6}	75-25

Notes: * Not calculated in accordance with BRE365 which requires infiltration rates to be calculated for between 75%-25% head of water of the initial head.

The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

The results from the infiltration tests should be provided to engineers responsible for the design of the drainage system.

To comply with building regulations⁷, point discharging infiltration systems (conventional ring or trench soakaways) are required to be constructed a minimum of 5.0m away from proposed or existing buildings.

The fall in water level within the trial pits was captured using dataloggers, set at one-minute intervals. As well as the initial rises in water levels being captured at the time of introducing water to the pits at the commencement of each of the three fills of the pits (part of the test procedure), additional rises in water levels were also captured at other times. This is likely to represent ingress of water due to prolonged heavy precipitation events. Graphs have been produced in Appendix D which show the water levels recorded within the test pits during the whole test procedure period, including rises likely attributed to rainfall events.

⁷ The Building Regulations 2010; Part H; Drainage and Waste Disposal

FIGURES

- Figure 1 Site Location Plan
- Figure 2 Site Plan



Head Office

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG
contact@ashdownsi.co.uk

Site

Hilgay Cottage
Birchwood Grove Road
Burgess Hill
West Sussex

Project Ref

P17576

Figure No

1

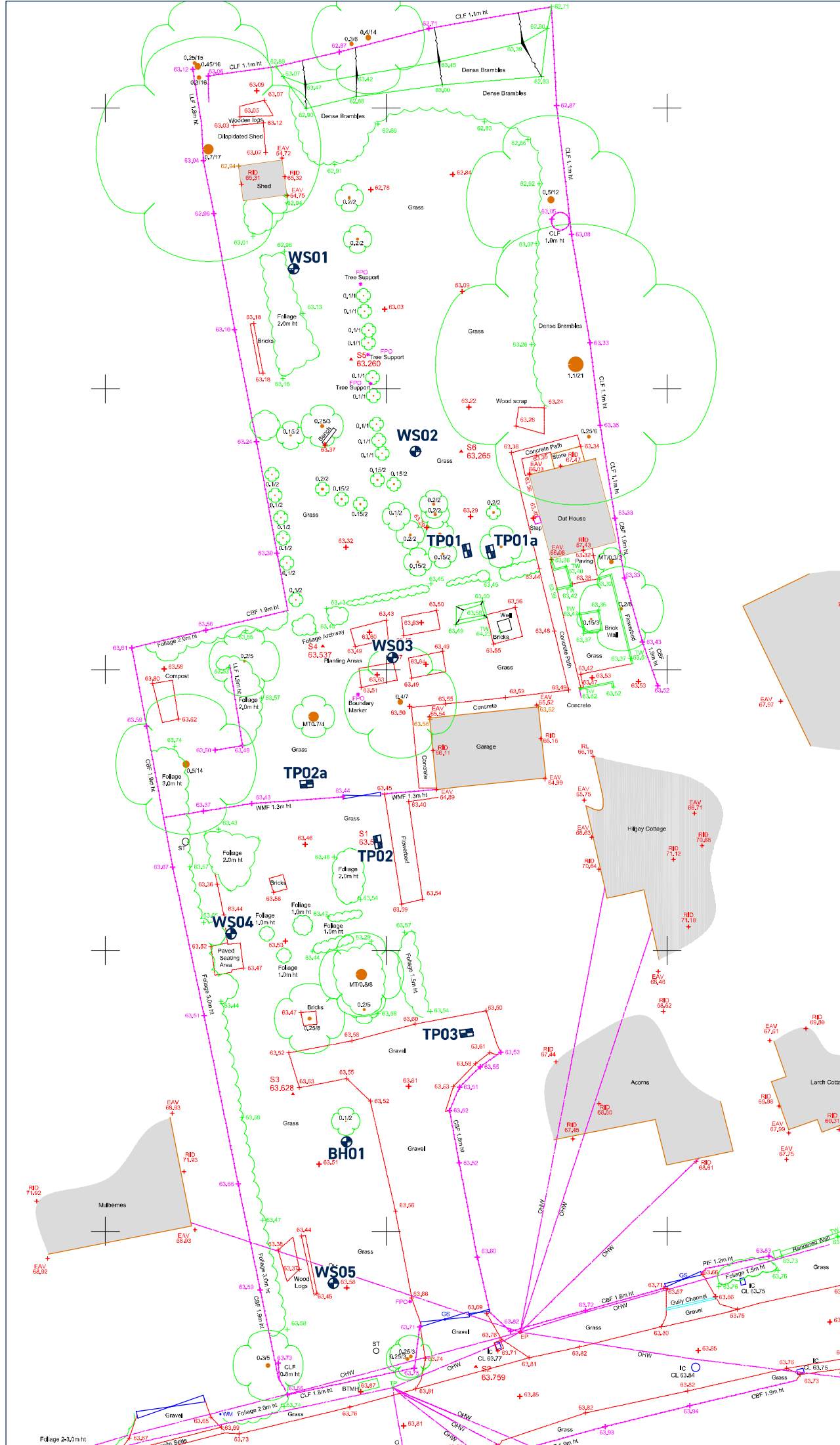
Drawing Title

Site Location Plan

Scale

Not To Scale





APPENDIX A

Proposed Development Layout



Rev	Date	Revision Details	Dr	Ch
P2	27/03/24	Issued for Planning		
P1	21/03/24	Issued to Consultants		

London: 76 Great Suffolk Street, London, SE1 1BL
T 020 7328 2773 E london@eceaarchitects.com
Sussex: 64-68 Brighton Road, Brighton, BN1 1SE
T 01903 248777 E sussex@eceaarchitects.com
Bristol: Westlands, Bristol Tower, Colston Street, Bristol, BS1 4ND
T 0117 214 1101 E bristol@eceaarchitects.com
ECE Architecture
www.eceaarchitects.com



Job Title:
Land at Hilgay Cottage, Burgess Hill

Drawing Title:
Proposed Site Plan - Ground Floor

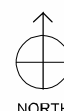
Scale:
1:200 @ A1 / 1:400 @ A3

Project: **7441** Drawing No: **PL 04** Rev: **P2**

Status:

FOR APPROVAL

- KEY**
- Existing Trees
 - Proposed Trees
 - Existing Buildings
 - Hard Landscaping Gravel
 - Hard Landscaping Paving
 - Hard Landscaping Decking



NORTH

APPENDIX B

Explanatory Notes

Exploratory Hole Records

DPSH-B Dynamic Probe Records

EXPLANATORY NOTES

Symbols and abbreviations on Exploratory Hole Records

Samples

U	'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
L	Liner sample cut to length indicated.
D	Disturbed Sample
B	Bulk Disturbed Sample
W	Water Sample
ES	Environmental Suite (on older records may be referenced J T)

In Situ Testing

SPT	Standard penetration test (SPT): Using the split spoon sampler.
SPT(C)	Standard Penetration Test (SPT): Using a solid cone instead of the sampler – conducted usually in coarse grained soils or weak rocks.
HV	Shear Vane Test: Undrained shear strength (cohesion).
PP	Hand penetrometer Test: Undrained shear strength (cohesion).
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under remarks section.

Excavation Method

CP	Cable Percussion Borehole
RC/RO	Rotary Cored Borehole/Rotary Open Hole Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HP	Trial Pit excavated using hand tools
HA	Hand Auger borehole

Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1) and Part 2 Principles of classification (BS EN 14688-2) as well as the BS5930 code of Practice for Ground Investigations.

Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1) as well as the BS5930 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk.

In Situ Strength Testing (where undertaken)

Standard penetration testing (SPT) carried out in accordance with BS EN ISO 22476-3:2005.

Continuous dynamic probe testing conducted using a super heavy DPSH-B (As defined by BS EN ISO 22476-2:2005) probing geometry. The DPSH-B configuration is similar to that of the standard penetration test (SPT); the main differences being that the tip comprises a 90° cone, the driving rods are lighter than those used for SPT testing and the blow counts are recorded over 100mm increments rather than 300mm, as is the case for the SPT.

Perth penetrometer tests carried out in accordance with Australian Standard AS 1289:6.3.3-1997, Method of Testing Soils for Engineering Purposes; no equivalent European or British Standard having been published to date.

Undrained shear strength determinations made in-situ using a Geonor hand shear vane or a hand penetrometer.

Testing to determine the in-situ California Bearing Ratio (CBR) of soils conducted at shallow depths using a hand-held Transport Research Laboratory (TRL) cone penetrometer.

Cable Percussion Log

BH01

Sheet 1 of 2

Hole Type CP	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-22	End Date 2026-01-22	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	D			(0.50)		Topsoil over, MADE GROUND: Dark brown gravelly clay. Gravel is subangular to subrounded fine to coarse flint, brick and charcoal-like material.	
		0.50	B			0.50		Firm, varying stiff, orange brown and light brown gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint.	0.5
		1.00	D			(0.40)		[Head]	1.0
		1.20	SPT(C) B	N=31 (3,7/8,9,7,7)		0.90		Dense brown and orange brown very sandy very clayey subangular to subrounded fine to coarse GRAVEL of flint.	1.5
		1.20-1.65						[Head]	
		1.75	D			(1.60)			2.0
		2.00	SPT(C) B	N=46 (6,10/10,11,13,12)		2.50			2.5
		2.00-2.45							
		2.75	D			(1.10)		Very stiff orange brown and light grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse mudstone.	3.0
		3.00	SPT D	N=47 (4,8/9,11,13,14)				[Weald Clay Formation]	3.5
		3.00-3.45							
		3.75	D			3.60		Very stiff dark grey CLAY with rare gravel of mudstone.	4.0
		4.00	SPT D	N=47 (5,6/9,12,12,14)				[Weald Clay Formation]	4.5
		4.00-4.45							
		4.75	D						5.0
		5.00	SPT D	N=48 (4,8/10,11,13,14)					5.5
		5.00-5.45							
		6.00	D						6.0
		6.50	SPT D	N=47 (6,9/10,11,13,13)		(6.40)			6.5
		6.50-6.95							
		7.50	D						7.5
		8.00	SPT D	N=50 (3,9/11,12,12,15)					8.0
		8.00-8.45							8.5
		9.00	D						9.0
		9.50	SPT(C) D	N=60 (7,10/13,15,14,18)					9.5
		9.50-9.95							
						10.00			10.0

Continued on next page

Remarks Water added to borehole to assist drilling. Borehole recorded as dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 1.20m HP Hand dug starter pit. 1.20 - 3.00m CP 200mm diameter borehole. 3.00 - 15.00m CP 150mm diameter borehole.	Logger PJ
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Cable Percussion Log

BH01
Sheet 2 of 2

Hole Type CP	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-22	End Date 2026-01-22	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		10.50	D				—	Very stiff dark grey CLAY with rare gravel of mudstone. [Weald Clay Formation]	10.5
		11.00	SPT(C) D	N=59 (6,11/12,14,15,18)			—		11.0
		11.00-11.45					—		11.5
							—		12.0
		12.00	D				—		12.5
		12.50	SPT(C) D	N=62 (7,10/13,15,15,19)		(5.00)	—		13.0
		12.50-12.95					—		13.5
							—		14.0
		13.50	D				—		14.5
		14.00	D				—		15.0
		14.55	SPT(C) D	N=72 (4,11/14,17,19,22)			—	End of Borehole at 15.00m	15.5
		14.55-15.00					—		16.0
							—		16.5
							—		17.0
							—		17.5
							—		18.0
							—		18.5
							—		19.0
							—		19.5
							—		20.0

Remarks Water added to borehole to assist drilling. Borehole recorded as dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 1.20m HP Hand dug starter pit. 1.20 - 3.00m CP 200mm diameter borehole. 3.00 - 15.00m CP 150mm diameter borehole.	Logger PJ
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Dynamic Sampler

WS01
Sheet 1 of 1

Hole Type DS	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-22	End Date 2026-01-22	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.25)		Topsoil.	
		0.30 0.30	PP D	90 (kPa)		0.25		Stiff, locally firm, orange brown and light brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. [Head]	0.5
		0.50	PP	100 (kPa)					
		0.80	PP	150 (kPa)		(1.20)		becoming stiff below 0.80m depth. (0.80m)	1.0
		0.90	D						
		1.00	HV	>130 (kPa)					
		1.30	PP	90 (kPa)					
		1.40	D			1.45			
		1.50	PP	125 (kPa)				Stiff light grey and orange brown CLAY with occasional iron staining and selenite crystals. [Weald Clay Formation]	1.5
		1.80 1.80	PP D	200 (kPa)					
		2.00	HV	>130 (kPa)				becoming very stiff and with occasional subangular to subrounded fine to coarse gravel of mudstone below 2.00m depth. (2.00m)	2.0
		2.20	D			(1.55)			
		2.30	PP	>225 (kPa)					
		2.50	PP	>225 (kPa)					2.5
		2.80	PP	>225 (kPa)					
		2.90	D						
		3.00	HV	>130 (kPa)		3.00		End of Borehole at 3.00m	3.0
									3.5
									4.0
									4.5
									5.0

Remarks Groundwater recorded at 0.70m depth on completion, rising to ground level in 15 minutes.	Method, Plant, Stability, Dimensions 0.00 - 3.00m WLS Borehole sides squeezing in below 1.90m depth.	Logger GRD
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Dynamic Sampler

WS02
Sheet 1 of 1

Hole Type DS	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-22	End Date 2026-01-22	

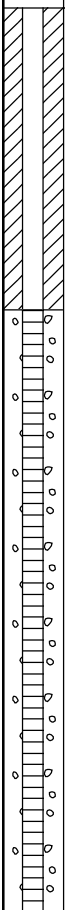
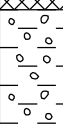
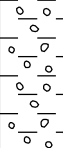
Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	D			(0.15) 0.15		Topsoil with rare gravel of flint.	
						(0.40)		Firm, varying stiff, brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. [Head]	0.5
		0.70 0.70	PP D	90 (kPa)		0.55		Stiff light brown, light grey and orange brown slightly gravelly CLAY with frequent iron staining. Gravel is subangular to subrounded fine to coarse ironstone. [Weald Clay Formation]	
		1.00 1.10	HV D	>130 (kPa)				with rare gravel of ironstone below 1.00m depth. (1.00m) becoming grey mottled orange brown below 1.00m depth. (1.00m)	1.0
		1.30	PP	110 (kPa)					
		1.50 1.60	PP D	110 (kPa)					1.5
		1.80	PP	140 (kPa)		(2.45)			
		2.00 2.10	HV D	>130 (kPa)				with rare gravel of mudstone below 2.00m depth. (2.00m)	2.0
		2.30	PP	150 (kPa)					
		2.50	PP	150 (kPa)					2.5
		2.80 2.80	PP D	150 (kPa)					
		3.00	HV	>130 (kPa)		3.00		End of Borehole at 3.00m	3.0
									3.5
									4.0
									4.5
									5.0

Remarks Groundwater recorded at 0.30m depth on completion.	Method, Plant, Stability, Dimensions 0.00 - 3.00m WLS Borehole unstable below 2.70m depth.	Logger GRD
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Hole Type DS	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-22	End Date 2026-01-22	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.10) 0.10		Topsoil.	
						(0.50)		MADE GROUND: Brown gravelly clay. Gravel is subangular to subrounded fine to coarse flint, brick and charcoal-like material.	0.5
		0.40	D			0.60		Firm, locally stiff, brown and orange brown gravelly CLAY with occasional iron staining. Gravel is subangular to subrounded fine to coarse flint and ironstone.	
		0.80	PP	60 (kPa)		(0.90)		[Head] becoming stiff, varying very stiff, below 0.90m depth. (0.90m)	1.0
		0.80	D						
		1.20	D						
		1.30	PP	125 (kPa)					
		1.50	PP	175 (kPa)		1.50		Stiff, varying very stiff, light grey and orange brown CLAY with rare iron staining.	1.5
		1.70	D					[Weald Clay Formation]	
		1.80	PP	140 (kPa)					
		2.00	HV	>130 (kPa)				with occasional subangular to subrounded fine to coarse gravel of mudstone below 2.00m depth. (2.00m)	2.0
		2.30	PP	150 (kPa)		(1.50)			
		2.30	D						
		2.50	PP	150 (kPa)					2.5
		2.70	D					becoming grey mottled light brown below 2.70m depth. (2.70m)	
		2.80	PP	>225 (kPa)					
		3.00	HV	>130 (kPa)		3.00		End of Borehole at 3.00m	3.0
									3.5
									4.0
									4.5
									5.0

Remarks Borehole dry on completion. Standpipe installed to 3.00m depth; 3.00m to 1.00m slotted pipe with gravel surround; 1.00m to ground level plain pipe with bentonite seal; completed with end cap and security cover concreted flush with ground surface.	Method, Plant, Stability, Dimensions 0.00 - 3.00m WLS Borehole stable on completion.	Logger GRD
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Dynamic Sampler

Hole Type DS	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-22	End Date 2026-01-22	

Client	Consultant	Contractor
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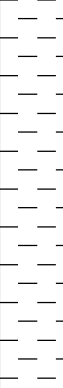
Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.10) 0.10		Topsoil.	
						(0.45)		MADE GROUND: Dark brown slightly gravelly clay. Gravel is subangular to subrounded fine to coarse flint, brick and charcoal-like material.	
		0.60	D			0.55		Firm, varying stiff, orange brown and grey slightly gravelly CLAY with occasional iron staining. Gravel is subangular to subrounded fine to coarse flint. [Head]	0.5
		0.70	PP	75 (kPa)				becoming stiff and gravelly below 1.00m depth. (1.00m)	1.0
		1.20	D			(1.45)			
		1.30	PP	90 (kPa)					
		1.50	PP	100 (kPa)					1.5
		1.75	D					becoming locally very stiff below 1.80m depth. (1.80m)	
		1.80	PP	160 (kPa)		2.00		Very stiff, locally stiff, orange brown mottled light grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse mudstone. [Weald Clay Formation]	2.0
		2.30	PP	210 (kPa)					
		2.35	D			(1.00)			
		2.50	PP	150 (kPa)					2.5
		2.80	PP	150 (kPa)					
		2.85	D						
		3.00	HV	>130 (kPa)		3.00		End of Borehole at 3.00m	3.0
									3.5
									4.0
									4.5
									5.0

Remarks Groundwater recorded at 2.90m depth on completion.	Method, Plant, Stability, Dimensions 0.00 - 3.00m WLS Borehole stable on completion.	Logger GRD
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Dynamic Sampler

Hole Type DS	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-22	End Date 2026-01-22	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.05)		Topsoil.	
		0.35	D			(0.50)		MADE GROUND: Dark brown gravelly clay. Gravel is subangular to subrounded fine to coarse flint, brick and charcoal-like material.	0.5
		0.70	PP	75 (kPa)		0.55		Firm, varying stiff, orange brown, grey and light brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and occasional ironstone. [Head] <i>becoming stiff below 0.70m depth. (0.70m)</i> <i>becoming gravelly below 1.00m depth. (1.00m)</i> <i>becoming locally very stiff below 1.10m depth. (1.10m)</i>	1.0
		1.00	D			(1.30)			1.5
		1.30	PP	100 (kPa)					
		1.50	D						
		1.70	PP	125 (kPa)					
		1.90	D			1.85		Very stiff orange brown mottled grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse mudstone. [Weald Clay Formation] <i>with occasional bands of mudstone below 2.00m depth. (2.00m)</i>	2.0
		2.00	HV	>130 (kPa)					
		2.30	PP	225 (kPa)		(1.15)			2.5
		2.30	D						
		2.50	PP	>225 (kPa)					
		2.80	PP	>225 (kPa)					
		2.90	D						
		3.00	HV	>130 (kPa)		3.00		End of Borehole at 3.00m	3.0
									3.5
									4.0
									4.5
									5.0

Remarks Borehole dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 3.00m WLS Borehole stable on completion.	Logger GRD
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Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-23	End Date 2026-01-23	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.15)		Topsoil.	
						0.15			
						(0.25)		MADE GROUND: Dark brown slightly gravelly clay. Gravel is subangular to subrounded fine to coarse flint, brick and charcoal-like material.	
						0.40			
								Orange brown and light grey gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. [Head]	0.5
								possible pipe noted at 0.70m depth. (0.70m)	
						(1.10)			1.0
								with a flint gravel band at 1.15m depth. (1.15m)	
						1.50			1.5
								Orange brown, light brown and light grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse mudstone. [Weald Clay Formation]	
						(0.70)			2.0
						2.20		End of Trial Pit at 2.20m	2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Ingress of water from coarse grained horizon at 1.15m depth. Water rose from base of pit on completion to 1.15m depth in 20 minutes. Due to ingress of water in situ infiltration testing was undertaken in adjacent shallow pit denoted TP01a.	Method, Plant, Stability, Dimensions 0.00 - 2.20m Trial pit stable on completion. L = 2.22m W = 0.52m	Logger GRD
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Trial Pit

TP01a
Sheet 1 of 1

Hole Type TP	Eastings	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-23	End Date 2026-01-23	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.15)		Topsoil.	
						0.15			
						(0.20)		MADE GROUND: Dark brown slightly gravelly clay. Gravel is subangular to subrounded fine to coarse flint, brick and charcoal-like material.	
						0.35			
								Orange brown and light grey gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint.	0.5
						(0.68)		[Head]	
						1.03		End of Trial Pit at 1.03m	1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Trial pit dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 1.03m Trial pit stable on completion. L = 1.19m W = 0.53m	Logger GRD
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Trial Pit

TP02
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-23	End Date 2026-01-23	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.20)		Topsoil.	
						0.20			
						(0.25)		MADE GROUND: Dark brown gravelly clay. Gravel is subangular to subrounded fine to coarse flint, brick, concrete and charcoal-like material. With occasional cobbles.	
						0.45			
								Orange brown and light grey mottled slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. [Head]	0.5
						(1.05)			1.0
						1.50			1.5
								Orange brown mottled light grey CLAY. [Weald Clay Formation]	
						(0.69)			2.0
						2.19		End of Trial Pit at 2.19m	
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Water ingress recorded at 1.10m and 2.05m depth. Groundwater ponding at base of pit on completion, rising to 2.06m depth in 10 minutes. Due to water ingress filling trial pit an additional shallow pit was excavated, denoted TP02a, for additional in situ infiltration testing.	Method, Plant, Stability, Dimensions 0.00 - 2.19m Trial pit stable on completion. L = 2.39m  W = 0.56m	Logger GRD
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Trial Pit

TP02a
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-23	End Date 2026-01-23	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (Thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.20)		Topsoil.	
						0.20			
						(0.20)		MADE GROUND: Dark brown slightly gravelly clay. Gravel is subangular to subrounded fine to coarse brick, flint and charcoal-like material.	
						0.40			
								Orange brown and light grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. [Head]	0.5
						(0.60)			
						1.00		End of Trial Pit at 1.00m	1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Trial pit dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 1.00m Trial pit stable on completion. L = 1.22m  W = 0.53m	Logger GRD
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Trial Pit

TP03
Sheet 1 of 1

Hole Type TP	Eastings	Northing	Ground Level (m)	Scale 1:25
Project Name Hilgay Cottage, Birchwood Grove Road, Burgess Hill	Project No. P17576	Start Date 2026-01-23	End Date 2026-01-23	

Client	Consultant	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
						(0.15) 0.15		Subangular to subrounded fine to medium gravel of flint. With membrane at base.	
						(0.25) 0.40		MADE GROUND: Dark brown slightly gravelly clay. Gravel is subangular to subrounded fine to coarse brick, flint and charcoal-like material.	
						(0.22) 0.62		Orange brown and light grey CLAY. [Head]	0.5
								End of Trial Pit at 0.62m	
									1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

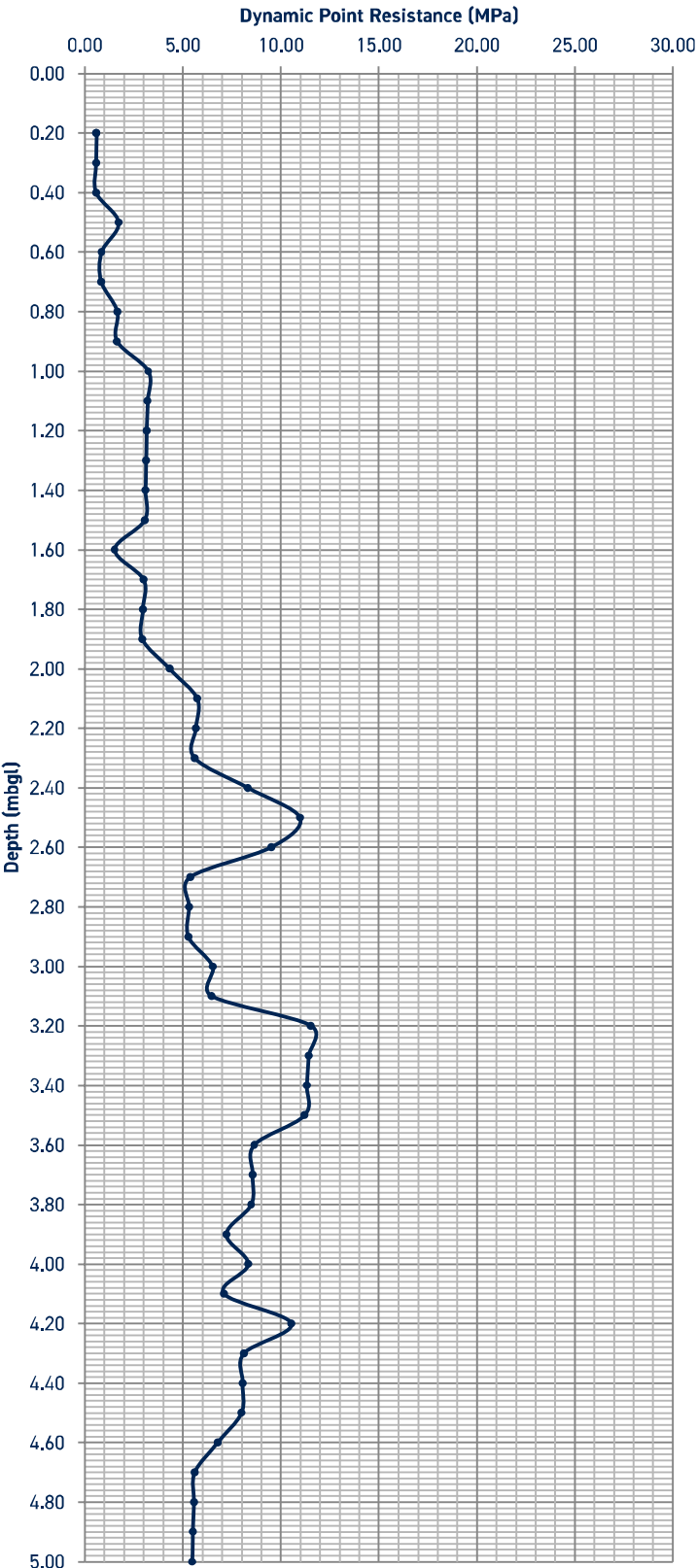
Remarks Trial pit dry on completion.	Method, Plant, Stability, Dimensions 0.00 - 0.62m Trial pit stable on completion. L = 1.39m W = 1.10m	Logger GRD
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Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference: WS01

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20	0.33	0.30	0.62	0.59
0.30	0.33	0.30	0.62	0.58
0.40	0.33	0.30	0.62	0.58
0.50	1	0.10	1.87	1.72
0.60	0.5	0.20	0.93	0.85
0.70	0.5	0.20	0.93	0.84
0.80	1	0.10	1.87	1.66
0.90	1	0.10	1.87	1.64
1.00	2	0.05	3.74	3.24
1.10	2	0.05	3.74	3.20
1.20	2	0.05	3.74	3.16
1.30	2	0.05	3.74	3.13
1.40	2	0.05	3.74	3.09
1.50	2	0.05	3.74	3.06
1.60	1	0.10	1.87	1.51
1.70	2	0.05	3.74	2.99
1.80	2	0.05	3.74	2.96
1.90	2	0.05	3.74	2.92
2.00	3	0.03	5.61	4.34
2.10	4	0.03	7.48	5.72
2.20	4	0.03	7.48	5.66
2.30	4	0.03	7.48	5.60
2.40	6	0.02	11.21	8.32
2.50	8	0.01	14.95	10.98
2.60	7	0.01	13.08	9.51
2.70	4	0.03	7.48	5.38
2.80	4	0.03	7.48	5.33
2.90	4	0.03	7.48	5.28
3.00	5	0.02	9.34	6.53
3.10	5	0.02	9.34	6.47
3.20	9	0.01	16.82	11.53
3.30	9	0.01	16.82	11.42
3.40	9	0.01	16.82	11.32
3.50	9	0.01	16.82	11.21
3.60	7	0.01	13.08	8.64
3.70	7	0.01	13.08	8.56
3.80	7	0.01	13.08	8.49
3.90	6	0.02	11.21	7.21
4.00	7	0.01	13.08	8.34
4.10	6	0.02	11.21	7.08
4.20	9	0.01	16.82	10.53
4.30	7	0.01	13.08	8.12
4.40	7	0.01	13.08	8.05
4.50	7	0.01	13.08	7.98
4.60	6	0.02	11.21	6.79
4.70	5	0.02	9.34	5.61
4.80	5	0.02	9.34	5.56
4.90	5	0.02	9.34	5.52
5.00	5	0.02	9.34	5.47



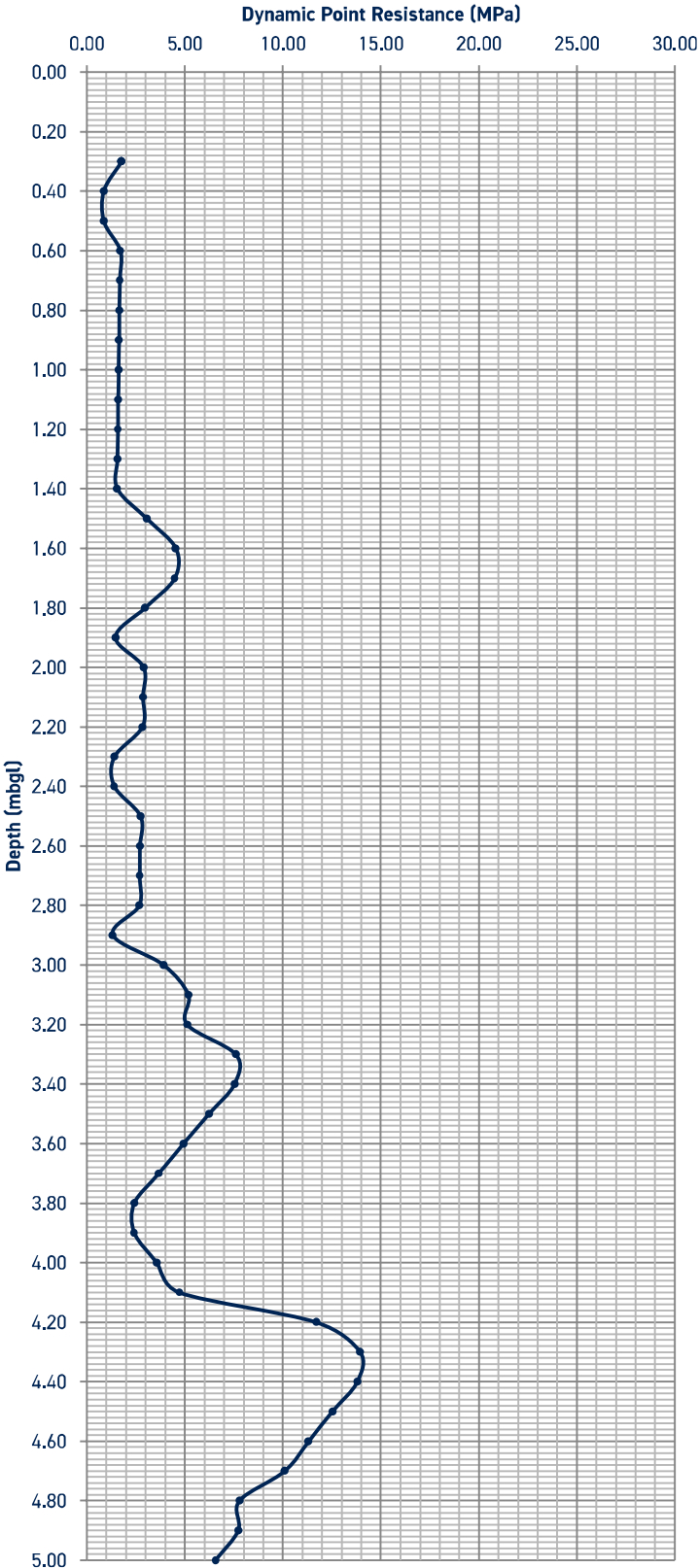
Notes:	Hammer Mass	63.5 kg
	Fall Height	0.76 m
	Cone Area	0.0019 m ²
	E _{theor}	473 J
	Energy Ratio	0.75
	Anvil Mass	1 kg
	Rod Mass	8.79 kg/m

Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference WS02

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20				
0.30	1	0.10	1.87	1.77
0.40	0.5	0.20	0.93	0.87
0.50	0.5	0.20	0.93	0.86
0.60	1	0.10	1.87	1.70
0.70	1	0.10	1.87	1.68
0.80	1	0.10	1.87	1.66
0.90	1	0.10	1.87	1.64
1.00	1	0.10	1.87	1.62
1.10	1	0.10	1.87	1.60
1.20	1	0.10	1.87	1.58
1.30	1	0.10	1.87	1.56
1.40	1	0.10	1.87	1.55
1.50	2	0.05	3.74	3.06
1.60	3	0.03	5.61	4.53
1.70	3	0.03	5.61	4.48
1.80	2	0.05	3.74	2.96
1.90	1	0.10	1.87	1.46
2.00	2	0.05	3.74	2.89
2.10	2	0.05	3.74	2.86
2.20	2	0.05	3.74	2.83
2.30	1	0.10	1.87	1.40
2.40	1	0.10	1.87	1.39
2.50	2	0.05	3.74	2.74
2.60	2	0.05	3.74	2.72
2.70	2	0.05	3.74	2.69
2.80	2	0.05	3.74	2.66
2.90	1	0.10	1.87	1.32
3.00	3	0.03	5.61	3.92
3.10	4	0.03	7.48	5.17
3.20	4	0.03	7.48	5.13
3.30	6	0.02	11.21	7.62
3.40	6	0.02	11.21	7.55
3.50	5	0.02	9.34	6.23
3.60	4	0.03	7.48	4.94
3.70	3	0.03	5.61	3.67
3.80	2	0.05	3.74	2.42
3.90	2	0.05	3.74	2.40
4.00	3	0.03	5.61	3.57
4.10	4	0.03	7.48	4.72
4.20	10	0.01	18.69	11.70
4.30	12	0.01	22.43	13.92
4.40	12	0.01	22.43	13.80
4.50	11	0.01	20.56	12.55
4.60	10	0.01	18.69	11.31
4.70	9	0.01	16.82	10.10
4.80	7	0.01	13.08	7.79
4.90	7	0.01	13.08	7.72
5.00	6	0.02	11.21	6.57



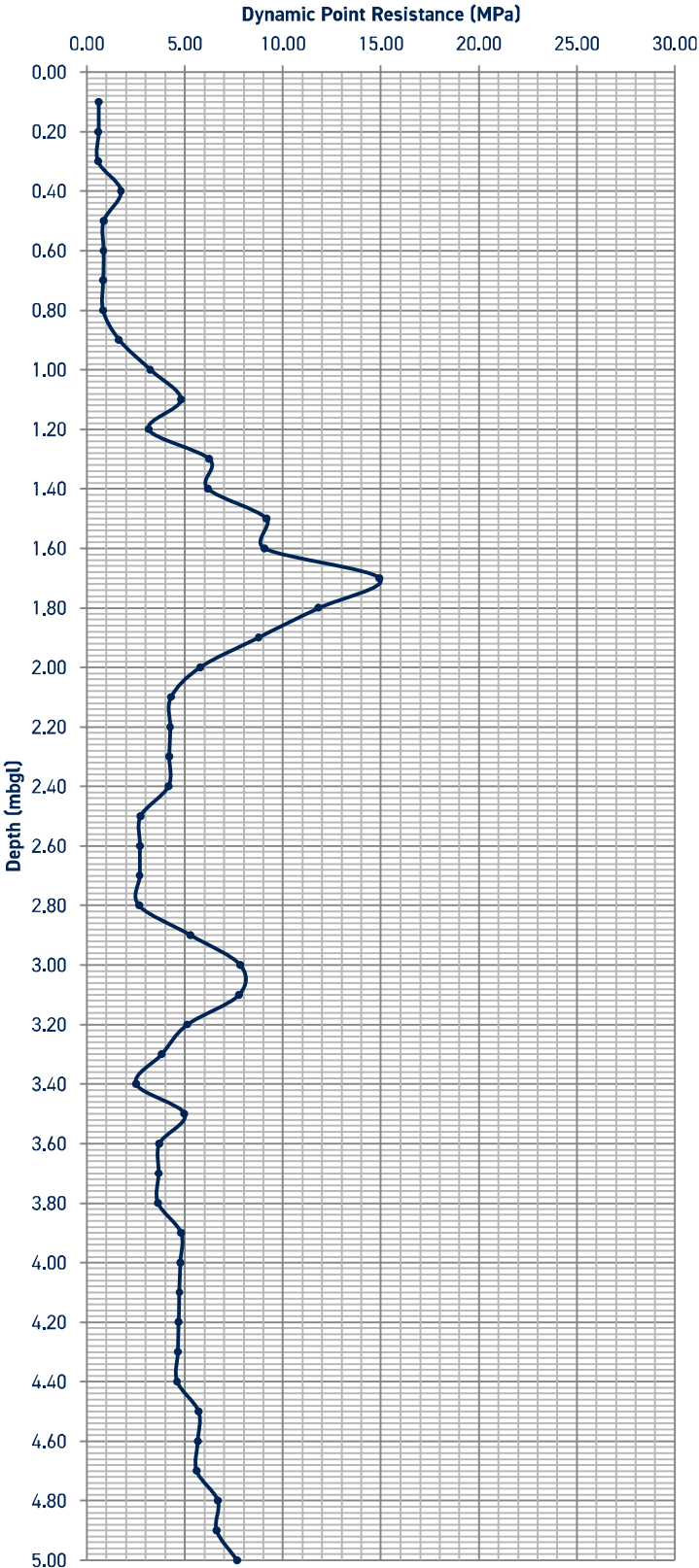
Notes:	Hammer Mass	63.5 kg
	Fall Height	0.76 m
	Cone Area	0.0019 m ²
	E _{theor}	473 J
	Energy Ratio	0.75
	Anvil Mass	1 kg
	Rod Mass	8.79 kg/m

Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference WS03

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	0.33	0.30	0.62	0.60
0.20	0.33	0.30	0.62	0.59
0.30	0.33	0.30	0.62	0.58
0.40	1	0.10	1.87	1.74
0.50	0.5	0.20	0.93	0.86
0.60	0.5	0.20	0.93	0.85
0.70	0.5	0.20	0.93	0.84
0.80	0.5	0.20	0.93	0.83
0.90	1	0.10	1.87	1.64
1.00	2	0.05	3.74	3.24
1.10	3	0.03	5.61	4.80
1.20	2	0.05	3.74	3.16
1.30	4	0.03	7.48	6.25
1.40	4	0.03	7.48	6.18
1.50	6	0.02	11.21	9.17
1.60	6	0.02	11.21	9.06
1.70	10	0.01	18.69	14.94
1.80	8	0.01	14.95	11.82
1.90	6	0.02	11.21	8.77
2.00	4	0.03	7.48	5.78
2.10	3	0.03	5.61	4.29
2.20	3	0.03	5.61	4.25
2.30	3	0.03	5.61	4.20
2.40	3	0.03	5.61	4.16
2.50	2	0.05	3.74	2.74
2.60	2	0.05	3.74	2.72
2.70	2	0.05	3.74	2.69
2.80	2	0.05	3.74	2.66
2.90	4	0.03	7.48	5.28
3.00	6	0.02	11.21	7.84
3.10	6	0.02	11.21	7.76
3.20	4	0.03	7.48	5.13
3.30	3	0.03	5.61	3.81
3.40	2	0.05	3.74	2.52
3.50	4	0.03	7.48	4.98
3.60	3	0.03	5.61	3.70
3.70	3	0.03	5.61	3.67
3.80	3	0.03	5.61	3.64
3.90	4	0.03	7.48	4.81
4.00	4	0.03	7.48	4.76
4.10	4	0.03	7.48	4.72
4.20	4	0.03	7.48	4.68
4.30	4	0.03	7.48	4.64
4.40	4	0.03	7.48	4.60
4.50	5	0.02	9.34	5.70
4.60	5	0.02	9.34	5.66
4.70	5	0.02	9.34	5.61
4.80	6	0.02	11.21	6.68
4.90	6	0.02	11.21	6.62
5.00	7	0.01	13.08	7.66



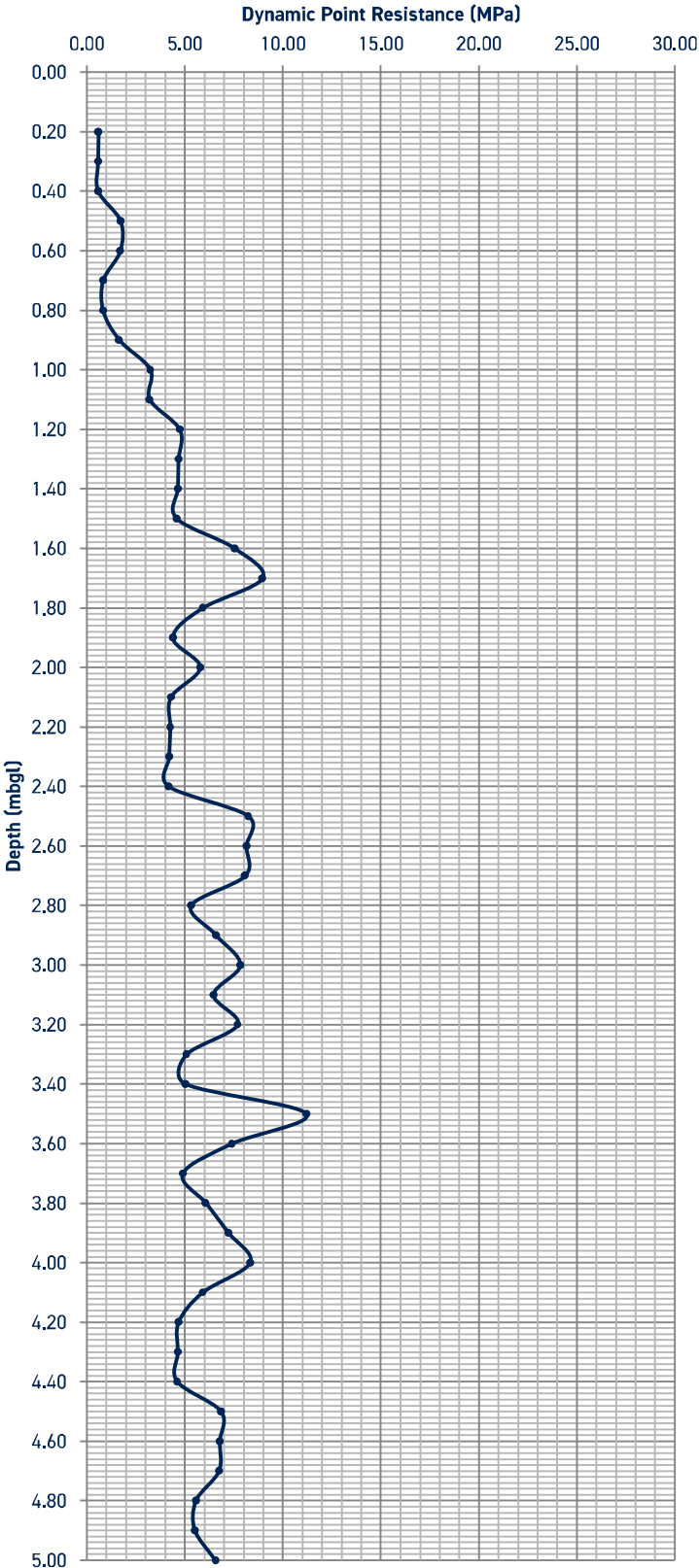
Notes:	Hammer Mass	63.5 kg
	Fall Height	0.76 m
	Cone Area	0.0019 m ²
	E _{theor}	473 J
	Energy Ratio	0.75
	Anvil Mass	1 kg
	Rod Mass	8.79 kg/m

Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference **WS04**

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20	0.33	0.30	0.62	0.59
0.30	0.33	0.30	0.62	0.58
0.40	0.33	0.30	0.62	0.58
0.50	1	0.10	1.87	1.72
0.60	1	0.10	1.87	1.70
0.70	0.5	0.20	0.93	0.84
0.80	0.5	0.20	0.93	0.83
0.90	1	0.10	1.87	1.64
1.00	2	0.05	3.74	3.24
1.10	2	0.05	3.74	3.20
1.20	3	0.03	5.61	4.74
1.30	3	0.03	5.61	4.69
1.40	3	0.03	5.61	4.64
1.50	3	0.03	5.61	4.58
1.60	5	0.02	9.34	7.55
1.70	6	0.02	11.21	8.96
1.80	4	0.03	7.48	5.91
1.90	3	0.03	5.61	4.38
2.00	4	0.03	7.48	5.78
2.10	3	0.03	5.61	4.29
2.20	3	0.03	5.61	4.25
2.30	3	0.03	5.61	4.20
2.40	3	0.03	5.61	4.16
2.50	6	0.02	11.21	8.23
2.60	6	0.02	11.21	8.15
2.70	6	0.02	11.21	8.07
2.80	4	0.03	7.48	5.33
2.90	5	0.02	9.34	6.59
3.00	6	0.02	11.21	7.84
3.10	5	0.02	9.34	6.47
3.20	6	0.02	11.21	7.69
3.30	4	0.03	7.48	5.08
3.40	4	0.03	7.48	5.03
3.50	9	0.01	16.82	11.21
3.60	6	0.02	11.21	7.41
3.70	4	0.03	7.48	4.89
3.80	5	0.02	9.34	6.06
3.90	6	0.02	11.21	7.21
4.00	7	0.01	13.08	8.34
4.10	5	0.02	9.34	5.90
4.20	4	0.03	7.48	4.68
4.30	4	0.03	7.48	4.64
4.40	4	0.03	7.48	4.60
4.50	6	0.02	11.21	6.84
4.60	6	0.02	11.21	6.79
4.70	6	0.02	11.21	6.73
4.80	5	0.02	9.34	5.56
4.90	5	0.02	9.34	5.52
5.00	6	0.02	11.21	6.57



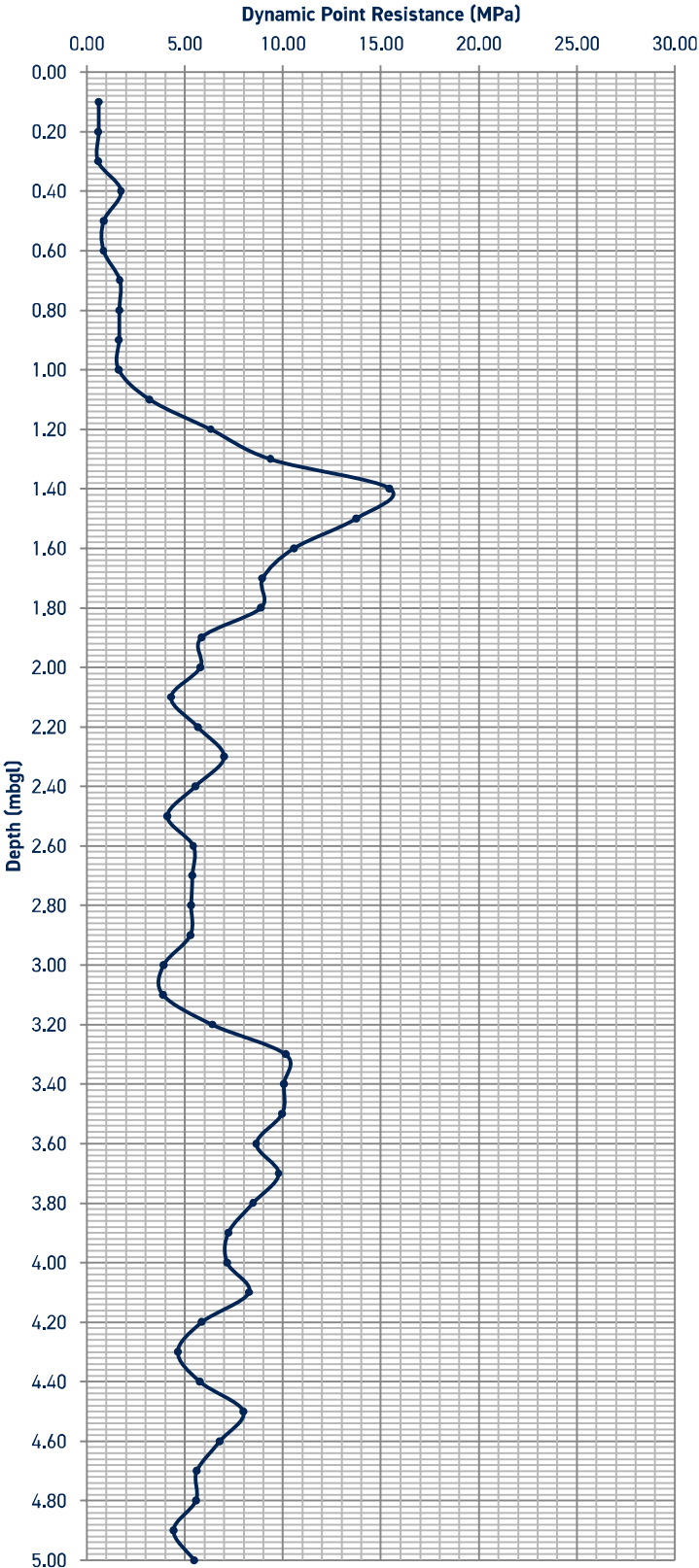
Notes:	Hammer Mass	63.5 kg
	Fall Height	0.76 m
	Cone Area	0.0019 m ²
	E _{theor}	473 J
	Energy Ratio	0.75
	Anvil Mass	1 kg
	Rod Mass	8.79 kg/m

Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference WS05

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	0.33	0.30	0.62	0.60
0.20	0.33	0.30	0.62	0.59
0.30	0.33	0.30	0.62	0.58
0.40	1	0.10	1.87	1.74
0.50	0.5	0.20	0.93	0.86
0.60	0.5	0.20	0.93	0.85
0.70	1	0.10	1.87	1.68
0.80	1	0.10	1.87	1.66
0.90	1	0.10	1.87	1.64
1.00	1	0.10	1.87	1.62
1.10	2	0.05	3.74	3.20
1.20	4	0.03	7.48	6.33
1.30	6	0.02	11.21	9.38
1.40	10	0.01	18.69	15.45
1.50	9	0.01	16.82	13.75
1.60	7	0.01	13.08	10.57
1.70	6	0.02	11.21	8.96
1.80	6	0.02	11.21	8.87
1.90	4	0.03	7.48	5.85
2.00	4	0.03	7.48	5.78
2.10	3	0.03	5.61	4.29
2.20	4	0.03	7.48	5.66
2.30	5	0.02	9.34	7.00
2.40	4	0.03	7.48	5.55
2.50	3	0.03	5.61	4.12
2.60	4	0.03	7.48	5.43
2.70	4	0.03	7.48	5.38
2.80	4	0.03	7.48	5.33
2.90	4	0.03	7.48	5.28
3.00	3	0.03	5.61	3.92
3.10	3	0.03	5.61	3.88
3.20	5	0.02	9.34	6.41
3.30	8	0.01	14.95	10.15
3.40	8	0.01	14.95	10.06
3.50	8	0.01	14.95	9.97
3.60	7	0.01	13.08	8.64
3.70	8	0.01	14.95	9.79
3.80	7	0.01	13.08	8.49
3.90	6	0.02	11.21	7.21
4.00	6	0.02	11.21	7.15
4.10	7	0.01	13.08	8.26
4.20	5	0.02	9.34	5.85
4.30	4	0.03	7.48	4.64
4.40	5	0.02	9.34	5.75
4.50	7	0.01	13.08	7.98
4.60	6	0.02	11.21	6.79
4.70	5	0.02	9.34	5.61
4.80	5	0.02	9.34	5.56
4.90	4	0.03	7.48	4.41
5.00	5	0.02	9.34	5.47



Notes:	Hammer Mass	63.5 kg
	Fall Height	0.76 m
	Cone Area	0.0019 m ²
	E _{theor}	473 J
	Energy Ratio	0.75
	Anvil Mass	1 kg
	Rod Mass	8.79 kg/m

APPENDIX C

Geotechnical Laboratory Test Results

Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

BH/TP No.	Depth (m)	Nat. Moist. Cont. (w %)	Equiv. Moist. Cont. (w _a %)	Atterberg Limits			Class'n	Cons. Index (I _c)	% passing 425 µm sieve	Visual Description of Sample
				W _L %	W _p %	I _p %				
BH01	1.00	26		44	17	27	CLM		58	Brown gravelly sandy CLAY. Gravel is fine to coarse flint.
BH01	4.75	29		60	25	35	CIH	0.89*	100	Stiff dark grey CLAY.
BH01	12.00	19		59	26	33	CIH	1.21*	100	Very stiff dark grey CLAY.
WS01	2.90	25		81	28	53	CLV	1.06*	100	Very stiff orange brown and light grey CLAY.
WS02	1.10	26		58	22	36	CIH	0.89*	100	Stiff orange brown mottled grey CLAY.
WS03	1.70	21		53	22	31	CIH	1.03*	100	Very stiff orange brown mottled grey CLAY.
WS04	2.35	28		74	27	47	CLV	0.98*	100	Stiff orange brown mottled grey CLAY.
WS05	1.50	12		34	14	20	CLL	1.10*	45	Very stiff brown gravelly CLAY. Gravel is fine to coarse flint.

Test Method: Classification Tests BS1377: Part 2: 1990: Method 4.4, 5.3 and 5.4

* Consistency index based on natural moisture content and not the equivalent moisture content.

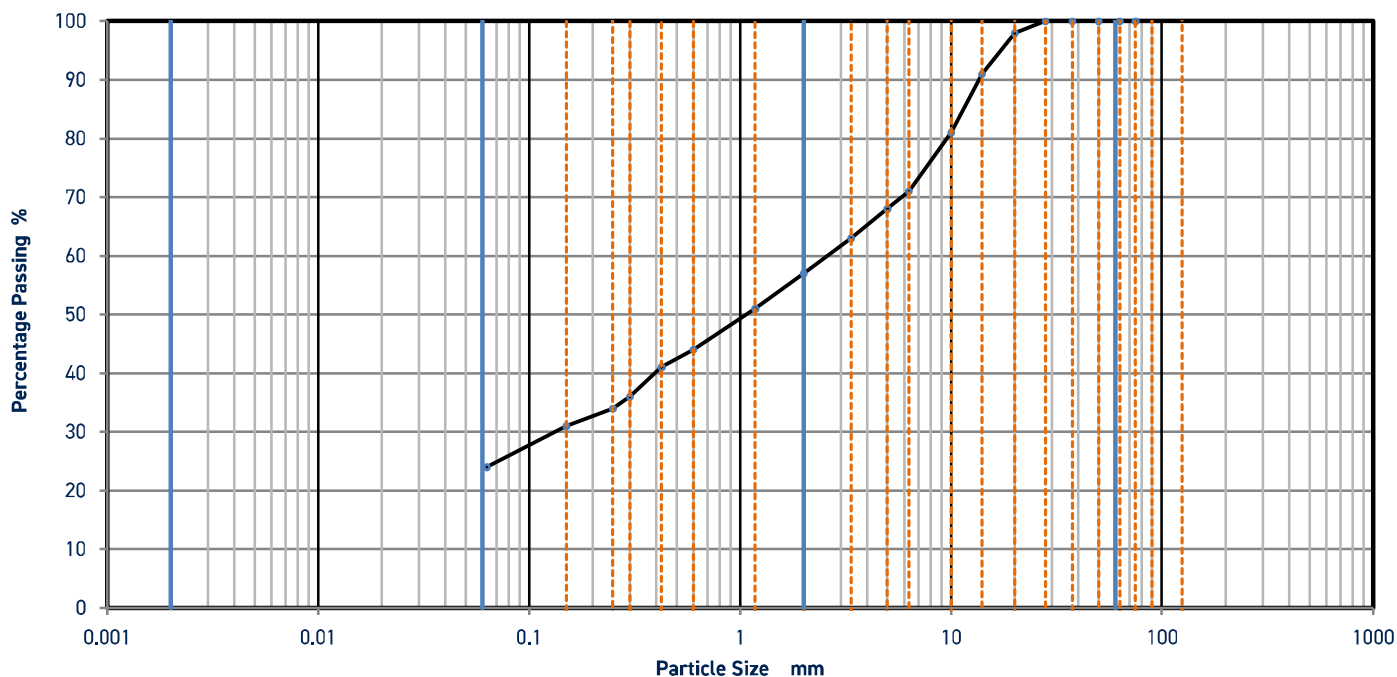
Sheet No. 1

Site: Hilgay Cottage, Birchwood Grove Road, Burgesds Hill, West Sussex

Project Ref: P17576

Soil Description:	Very sandy very clayey GRAVEL.	Borehole/Pit No.	BH01
Test Method	BS1377:Part2:1990, Clause 9.2	Depth (m)	1.75

CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100	0.0200	
63	100	0.0060	
50	100	0.0020	
37.5	100		
28	100		
20	98		
14	91		
10	81		
6.3	71		
5	68		
3.35	63		
2	57		
1.18	51		
0.6	44		
0.425	41		
0.3	36		
0.25	34		
0.15	31		
0.063	24		

Dry Mass of sample (g)	675
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Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	33
Fines <0.063mm	24

Grading Analysis		
D ₁₀₀	mm	28.000
D ₆₀	mm	2.588
D ₃₀	mm	0.133
D ₁₀	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Certificate of Analysis

Certificate Number 26-01983

Issued: 06-Feb-26

Client Ashdown Site Investigations Ltd
Unit 3 The Grain Store
Ditchling Common Business Park
Ditchling Common
West Sussex
BN6 8SG

Our Reference 26-01983

Client Reference ~ P17576_3213

Order No ~ 12657

Contract Title ~ Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Description 7 Soil samples.

Date Received 28-Jan-26

Date Started 28-Jan-26

Date Completed 06-Feb-26

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Reyhan Irfan
Operations Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 26-01983

Client Ref ~ P17576_3213

Contract Title ~ Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Lab No	2632831	2632832	2632833	2632834	2632835	2632836	2632837
Sample ID ~	BH01	BH01	WS01	WS02	WS02	WS04	WS06
Depth ~	3.75	9.00	0.90	1.60	2.30	1.20	2.90
Other ID ~							
Sample Type ~	D	D	D	D	D	D	D
Sampling Date ~	22/01/2026	22/01/2026	22/01/2026	22/01/2026	22/01/2026	22/01/2026	22/01/2026
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units							
Inorganics										
pH	DETSC 2008#		pH	7.3	8.8	8.3	8.2	5.9	8.0	7.8
Sulphate Aqueous Extract as SO ₄ (2:1)	DETSC 2076#	10	mg/l	160	97	27	74	30	24	51
Sulphur as S, Total	DETSC 2320	0.01	%	0.51	0.05	0.02	0.01	< 0.01	0.01	0.01
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.13	0.03	0.02	0.01	0.01	0.01	0.02
Sulphate as SO ₄ , Total	DETSC 2321#	100	mg/kg	1320	325	224	114	136	119	198

Information in Support of the Analytical Results

Our Ref 26-01983
 Client Ref ~ P17576_3213
 Contract ~ Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests
2632831	BH01 3.75 SOIL	22/01/26	PG		
2632832	BH01 9.00 SOIL	22/01/26	PG		
2632833	WS01 0.90 SOIL	22/01/26	PG		
2632834	WS02 1.60 SOIL	22/01/26	PG		
2632835	WS02 2.30 SOIL	22/01/26	PG		
2632836	WS04 1.20 SOIL	22/01/26	PG		
2632837	WS06 2.90 SOIL	22/01/26	PG		

Key: P-Plastic G-Bag

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
 Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
 The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Key:

~ Sample details are provided by the client and can affect the validity of the results
 * -not accredited.
 # -MCERTS (accreditation only applies if report carries the MCERTS logo).
 \$ -subcontracted.
 n/s -not supplied.
 I/S -insufficient sample.
 U/S -unsuitable sample.
 t/f -to follow.
 nd -not detected.

End of Report Ver 25.10.03

APPENDIX D

Aggressivity To Concrete Assessment
In Situ Infiltration Testing Monitoring Results
Trial Pit In Situ Infiltration Test Results
Trial Pit Infiltration Testing Monitoring Data

Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Chemical Laboratory Test Results

[illegible]

Notes: Chemical testing was undertaken by an external laboratory with recognised (UKAS and MCERTS) accreditation for quality control. Testing scheduled in line with the BRE Special Digest 1:2005 Concrete in Aggressive Ground Suites A-D and as such some determinands were not required to be tested.

Assessment of the Chemical Analysis of the Soil

Ground Condition	Natural Ground Conditions
Groundwater Condition	Mobile Groundwater Conditions
Pyrite Soil Condition	Pyrite containing soils present beneath the site which may be expected to contain sulphides

	Characteristic Value	Design Sulfate Class	ACEC Classification
pH	6.6	-	-
Water Soluble Sulphate (mg/l as SO4) *	100	DS-1	AC-1
Total Potential Sulphate (TPS % SO4)	0.8	DS-3	AC-3
Magnesium (mg/l) *	N/A - Natural Ground Conditions	-	-
Water Soluble Sulphate including mineral acids (mg/l as SO4) *	N/A - Natural Ground Conditions	-	-

Notes: * Characteristic value rounded to nearest 100.

The aggressivity of the soils to concrete has been assessed in accordance with guidance published by the BRE Special Digest 1:2005 Concrete in Aggressive Ground.

Site: Broadstream Cottage, Old Bridge Road, Bosham, West Sussex

Project Ref: P17576

Test Location Reference	TP01a
Test Number	2

Width of Pit	0.53 m	W
Length of Pit	1.19 m	L
Depth of Pit	1.03 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

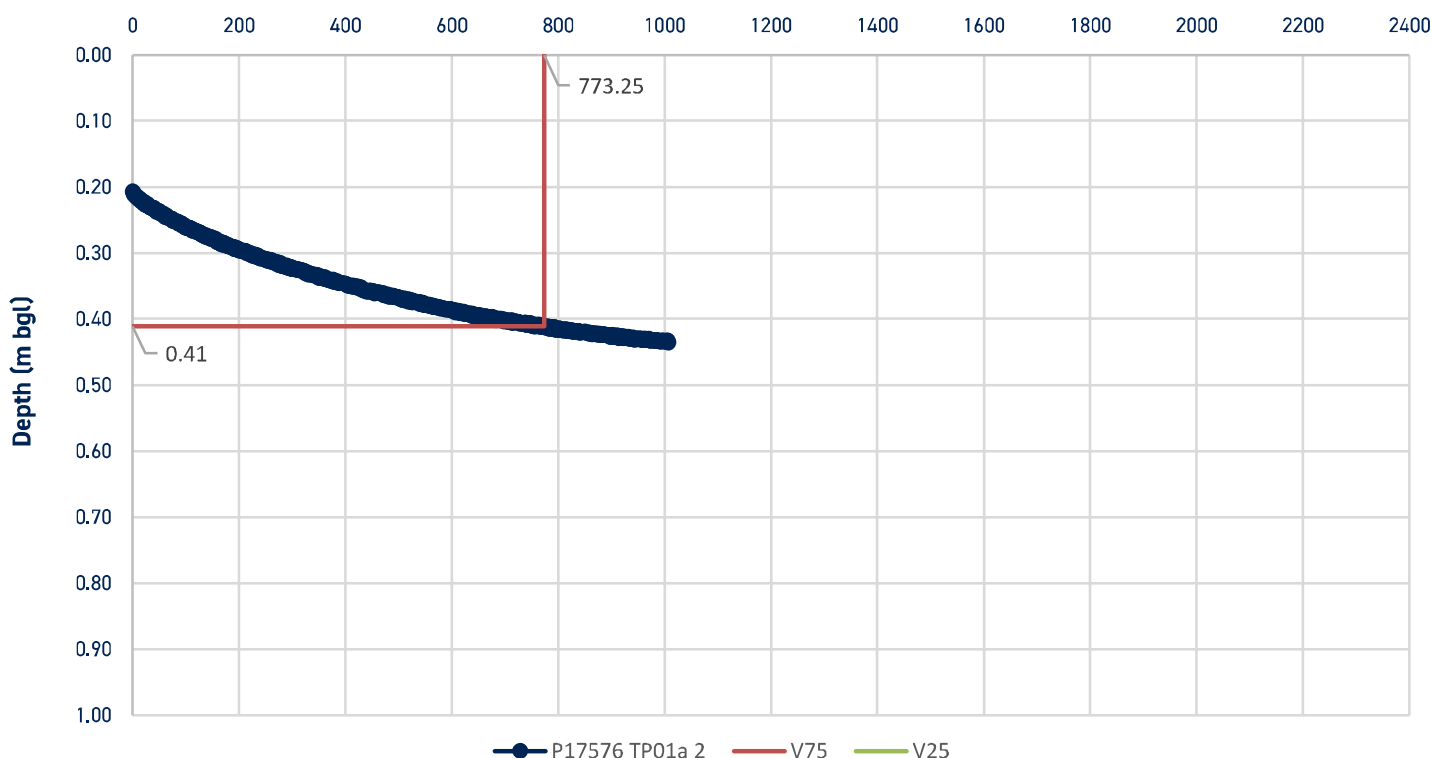
Volume of water introduced into pit	0.128 m ³	
Initial head of water	0.82 m	h_o
Water level at start of test	0.21 m	
Water level at end of test	0.44 m	
Volume of water discharged from pit	0.036 m ³	
Duration of test	1007 min	
Average soaked surface area	3.04 m ²	
Time for water level to fall to 75% of initial head	773.25 min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	0.41 m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	2.03 m ²	a_{s50}

Infiltration rate

1.95E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP01a
Test Number	3

Width of Pit	0.53 m	W
Length of Pit	1.19 m	L
Depth of Pit	1.03 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

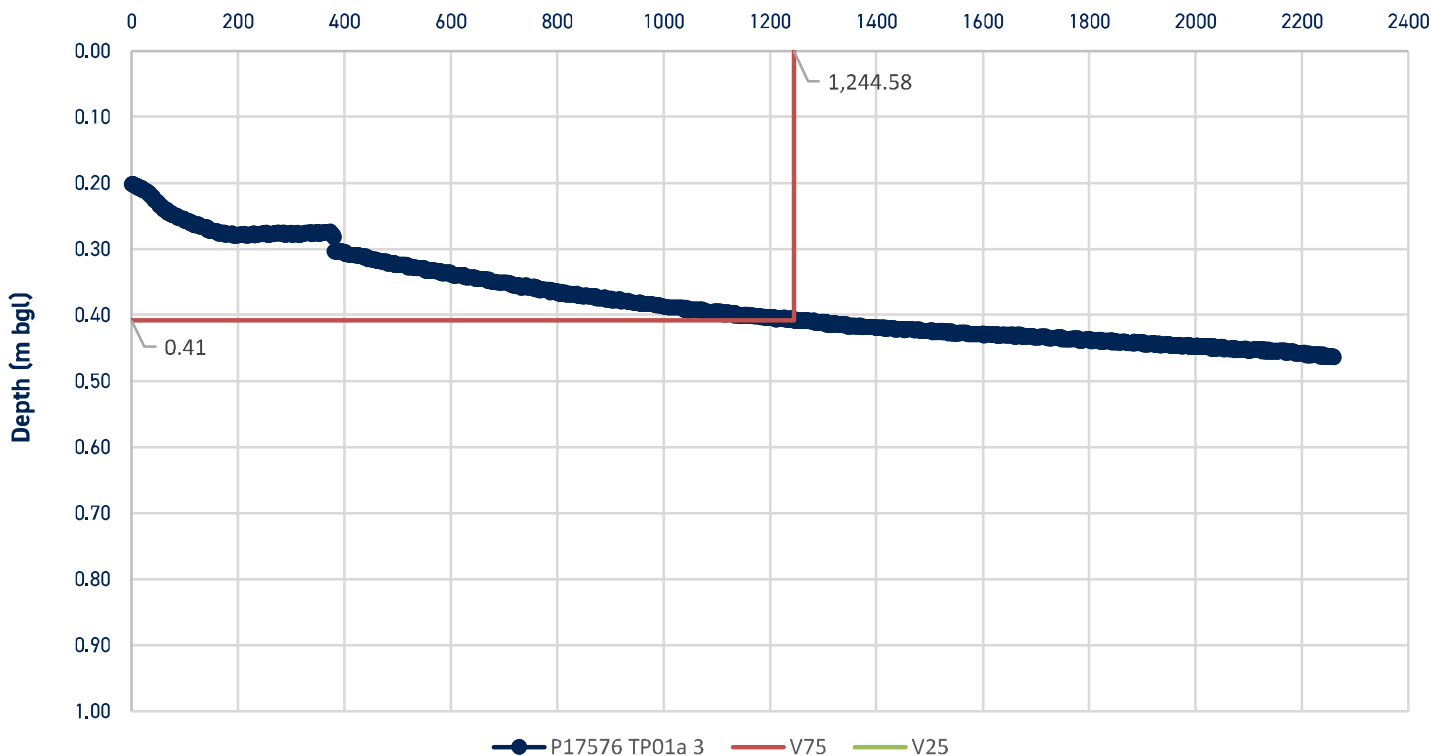
Volume of water introduced into pit	0.129 m ³	
Initial head of water	0.82 m	h_o
Water level at start of test	0.20 m	
Water level at end of test	0.46 m	
Volume of water discharged from pit	0.041 m ³	
Duration of test	2260 min	
Average soaked surface area	3.00 m ²	
Time for water level to fall to 75% of initial head	1244.58 min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	0.41 m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	2.04 m ²	a_{s50}

Infiltration rate

1.01E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP02
Test Number	2

Width of Pit	0.56 m	W
Length of Pit	2.39 m	L
Depth of Pit	2.19 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

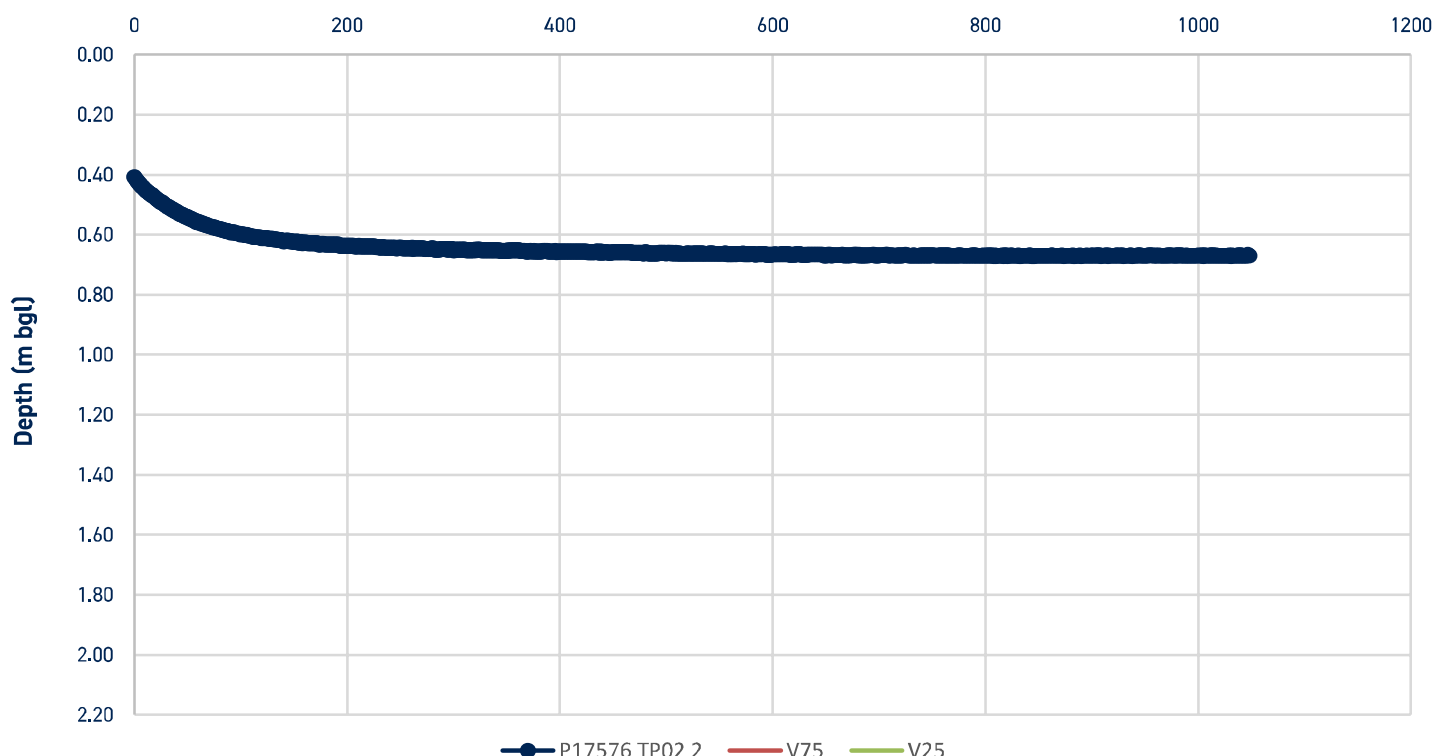
Volume of water introduced into pit	0.592 m ³	
Initial head of water	1.78 m	h_o
Water level at start of test	0.41 m	
Water level at end of test	0.67 m	
Volume of water discharged from pit	0.088 m ³	
Duration of test	1048 min	
Average soaked surface area	11.06 m ²	
Time for water level to fall to 75% of initial head	Not reached min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	Not reached m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	6.58 m ²	a_{s50}

Infiltration rate

1.26E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP02
Test Number	3

Width of Pit	0.56 m	W
Length of Pit	2.39 m	L
Depth of Pit	2.19 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

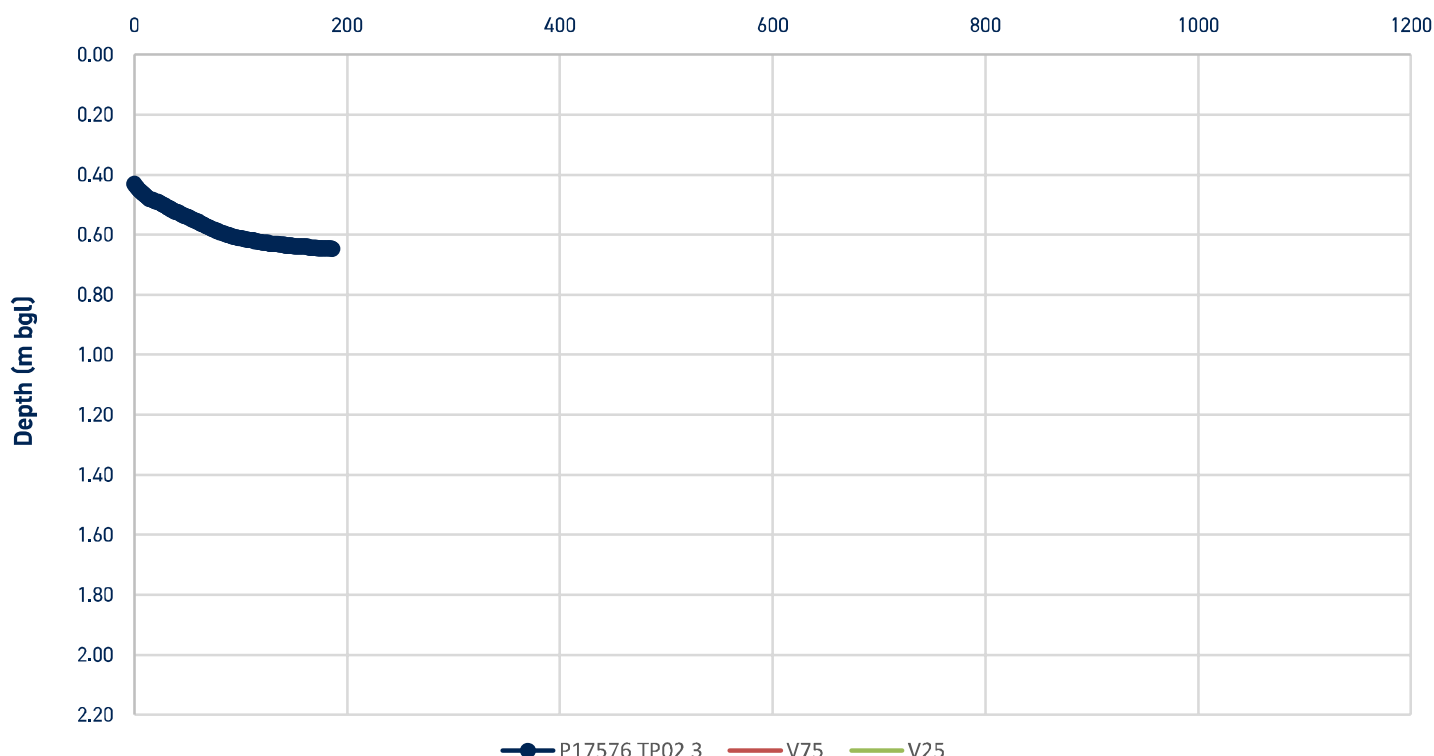
Volume of water introduced into pit	0.584 m ³	
Initial head of water	1.76 m	h_o
Water level at start of test	0.43 m	
Water level at end of test	0.65 m	
Volume of water discharged from pit	0.072 m ³	
Duration of test	186 min	
Average soaked surface area	11.06 m ²	
Time for water level to fall to 75% of initial head	Not reached min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	Not reached m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	6.51 m ²	a_{s50}

Infiltration rate

5.80E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP02a
Test Number	1

Width of Pit	0.53 m	W
Length of Pit	1.22 m	L
Depth of Pit	1.00 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

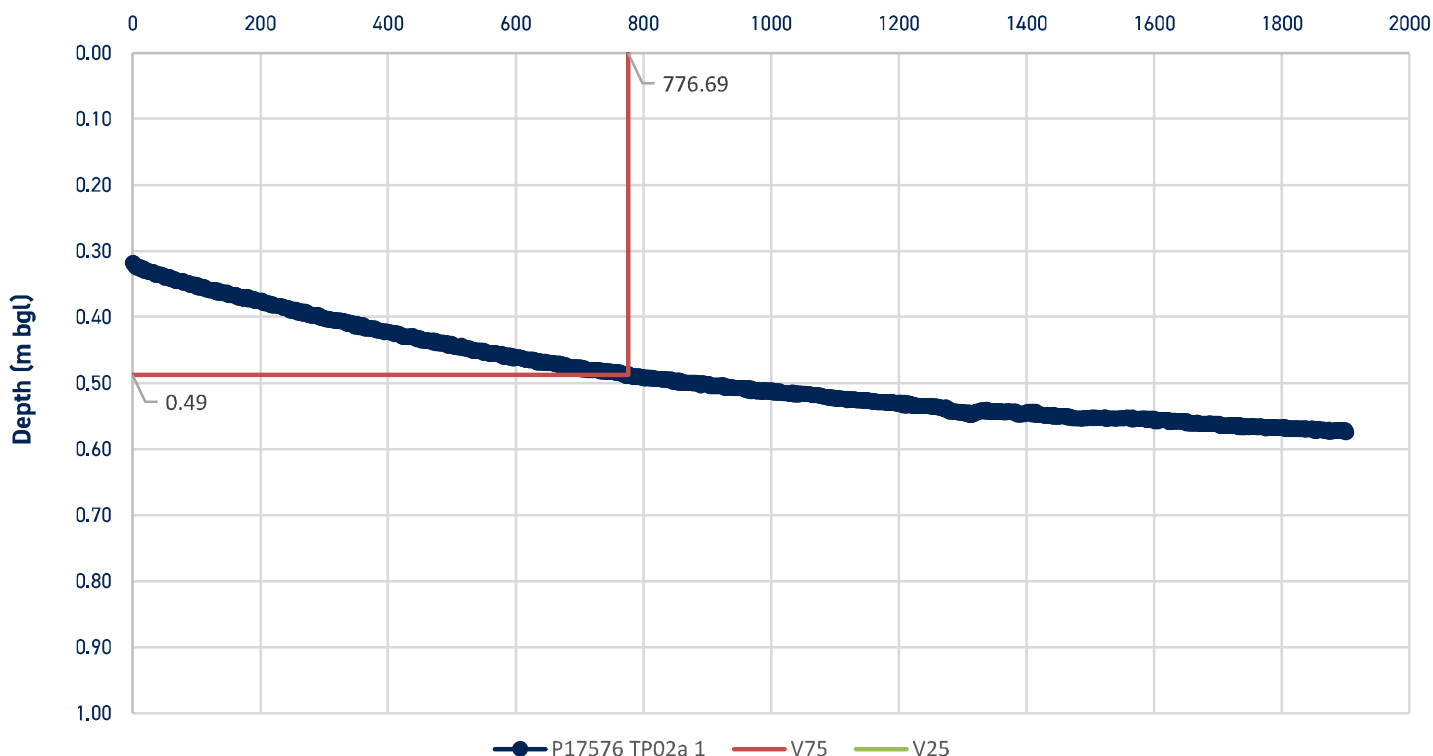
Volume of water introduced into pit	0.109 m ³	
Initial head of water	0.68 m	h_o
Water level at start of test	0.32 m	
Water level at end of test	0.58 m	
Volume of water discharged from pit	0.041 m ³	
Duration of test	1901 min	
Average soaked surface area	2.57 m ²	
Time for water level to fall to 75% of initial head	776.69 min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	0.49 m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.83 m ²	a_{s50}

Infiltration rate

1.41E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP02a
Test Number	2

Width of Pit	0.53 m	W
Length of Pit	1.22 m	L
Depth of Pit	1.00 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

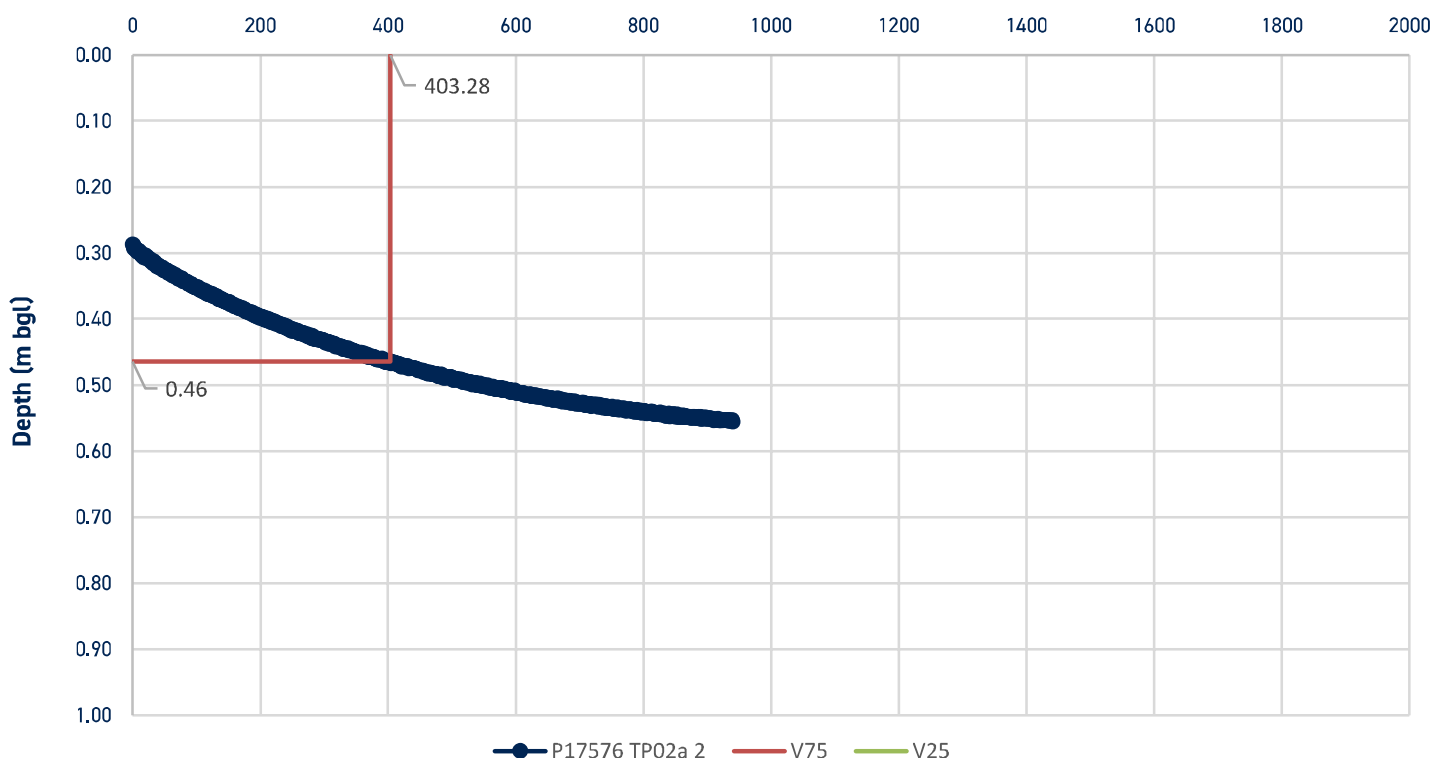
Volume of water introduced into pit	0.114 m ³	
Initial head of water	0.71 m	h_o
Water level at start of test	0.29 m	
Water level at end of test	0.56 m	
Volume of water discharged from pit	0.043 m ³	
Duration of test	940 min	
Average soaked surface area	2.65 m ²	
Time for water level to fall to 75% of initial head	403.28 min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	0.46 m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.88 m ²	a_{s50}

Infiltration rate

2.88E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP02a
Test Number	3

Width of Pit	0.53 m	W
Length of Pit	1.22 m	L
Depth of Pit	1.00 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

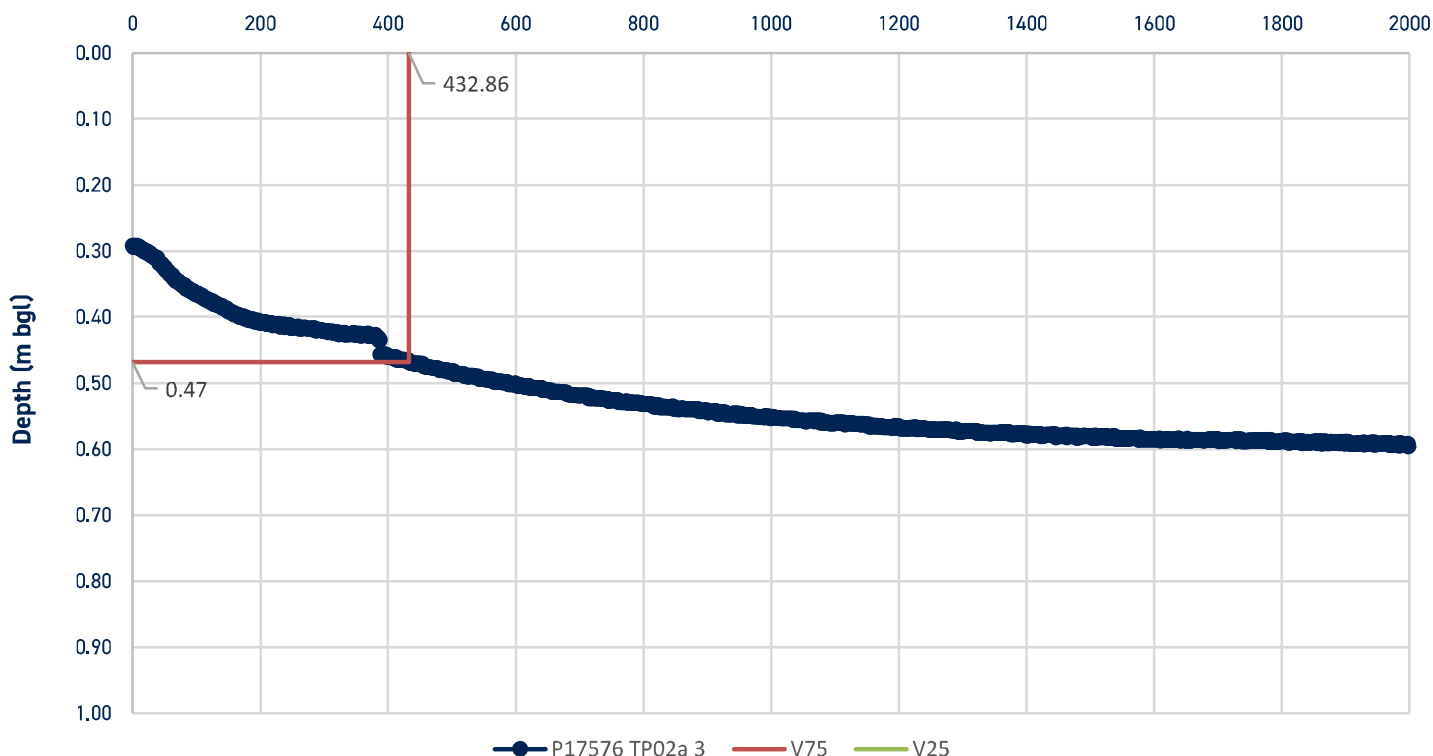
Volume of water introduced into pit	0.113 m ³	
Initial head of water	0.71 m	h_o
Water level at start of test	0.29 m	
Water level at end of test	0.60 m	
Volume of water discharged from pit	0.049 m ³	
Duration of test	1998 min	
Average soaked surface area	2.58 m ²	
Time for water level to fall to 75% of initial head	432.86 min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached min	t_{p25}
Depth to water at 75% of initial head	0.47 m	d_{75}
Depth to water at 25% of initial head	Not reached m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.87 m ²	a_{s50}

Infiltration rate

1.58E-07 m/sec f

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP03
Test Number	1

Width of Pit	0.56 m	W
Length of Pit	1.25 m	L
Depth of Pit	0.62 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

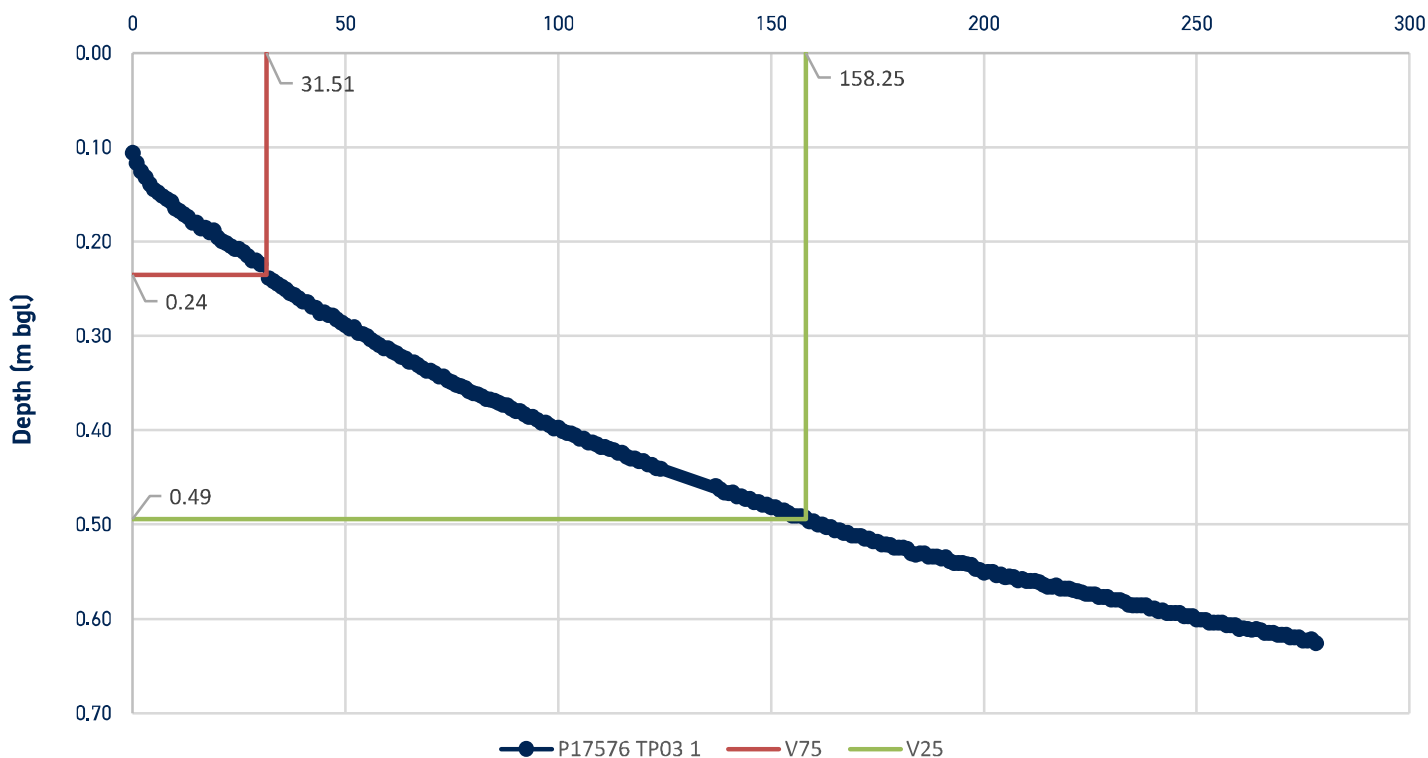
Volume of water introduced into pit	0.089 m ³	
Initial head of water	0.52 m	h_o
Water level at start of test	0.11 m	
Water level at end of test	0.63 m	
Volume of water discharged from pit	0.090 m ³	
Duration of test	278 min	
Average soaked surface area	1.62 m ²	
Time for water level to fall to 75% of initial head	31.51 min	t_{p75}
Time for water level to fall to 25% of initial head	158.25 min	t_{p25}
Depth to water at 75% of initial head	0.24 m	d_{75}
Depth to water at 25% of initial head	0.49 m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	126.74 min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	0.045 m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.62 m ²	a_{s50}

Infiltration rate

3.62E-06 m/sec f

Calculation method: BRE 365

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP03
Test Number	2

Width of Pit	0.56 m	W
Length of Pit	1.25 m	L
Depth of Pit	0.62 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

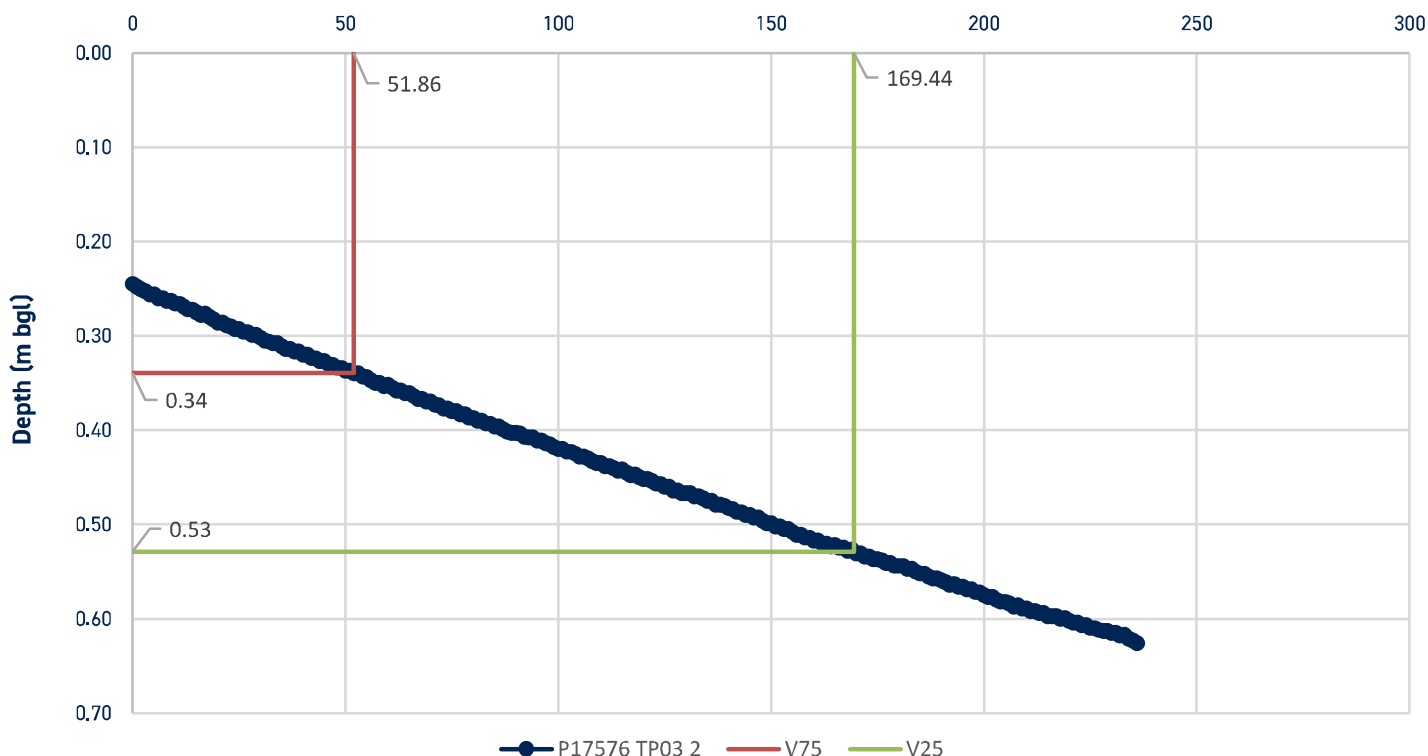
Volume of water introduced into pit	0.065 m ³	
Initial head of water	0.38 m	h_o
Water level at start of test	0.25 m	
Water level at end of test	0.63 m	
Volume of water discharged from pit	0.066 m ³	
Duration of test	236 min	
Average soaked surface area	1.37 m ²	
Time for water level to fall to 75% of initial head	51.86 min	t_{p75}
Time for water level to fall to 25% of initial head	169.44 min	t_{p25}
Depth to water at 75% of initial head	0.34 m	d_{75}
Depth to water at 25% of initial head	0.53 m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	117.58 min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	0.033 m ³	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.37 m ²	a_{s50}

Infiltration rate

3.38E-06 m/sec f

Calculation method: BRE 365

Elapsed Time (min)



Site: Hilgay Cottage, Birchwood Grove Road, Burgess Hill, West Sussex

Project Ref: P17576

Test Location Reference	TP03
Test Number	3

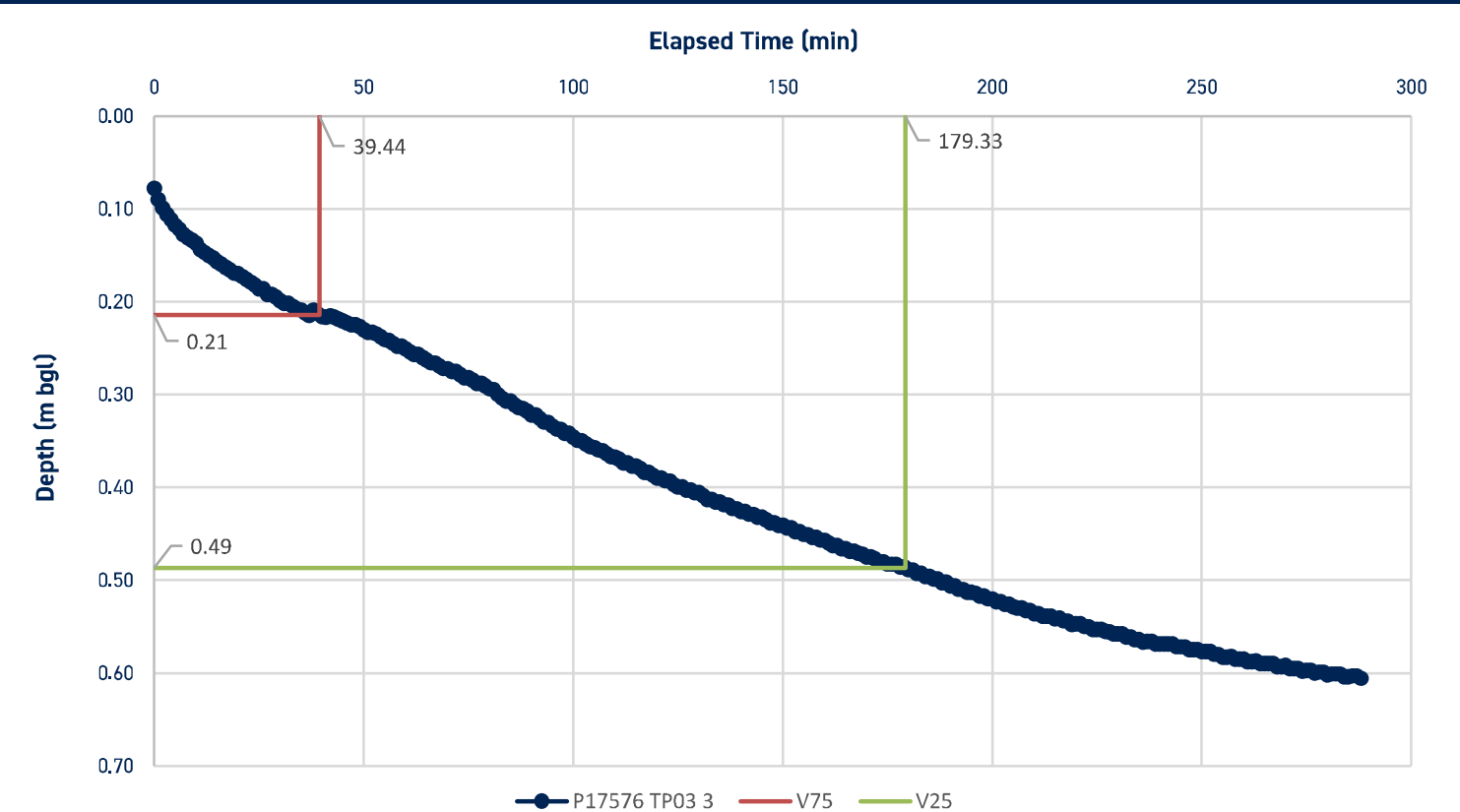
Width of Pit	0.56 m	W
Length of Pit	1.25 m	L
Depth of Pit	0.62 m	D
Pit type	Gravel Backfilled	
Void ratio of gravel backfill	0.25	

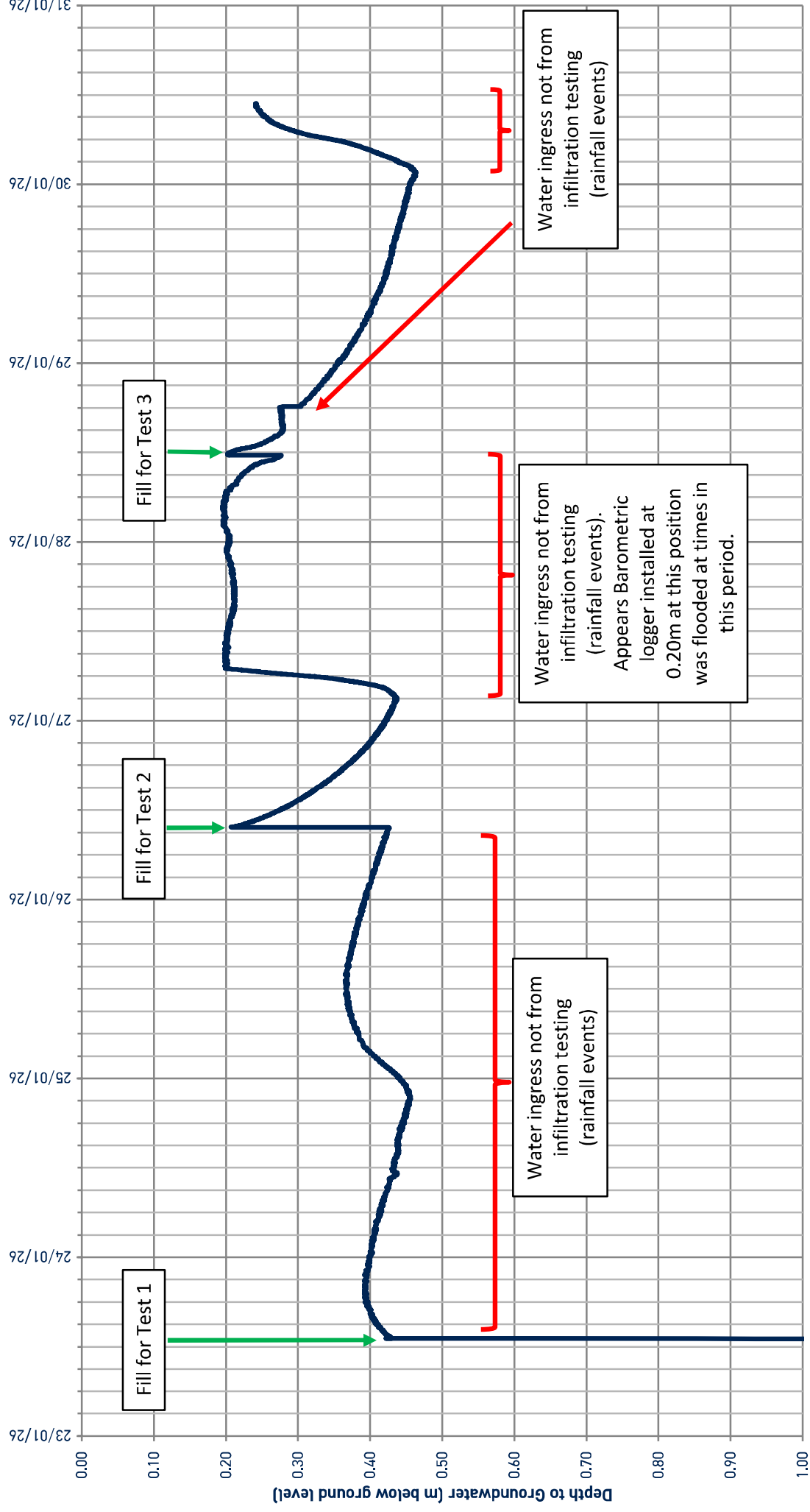
Volume of water introduced into pit	0.094 m ³	
Initial head of water	0.55 m	h _o
Water level at start of test	0.08 m	
Water level at end of test	0.61 m	
Volume of water discharged from pit	0.091 m ³	
Duration of test	288 min	
Average soaked surface area	1.70 m ²	
Time for water level to fall to 75% of initial head	39.44 min	t _{p75}
Time for water level to fall to 25% of initial head	179.33 min	t _{p25}
Depth to water at 75% of initial head	0.21 m	d ₇₅
Depth to water at 25% of initial head	0.49 m	d ₂₅
Time for the water level to fall from 75% to 25% of initial head	139.89 min	t _{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	0.047 m ³	V _{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.67 m ²	a _{s50}

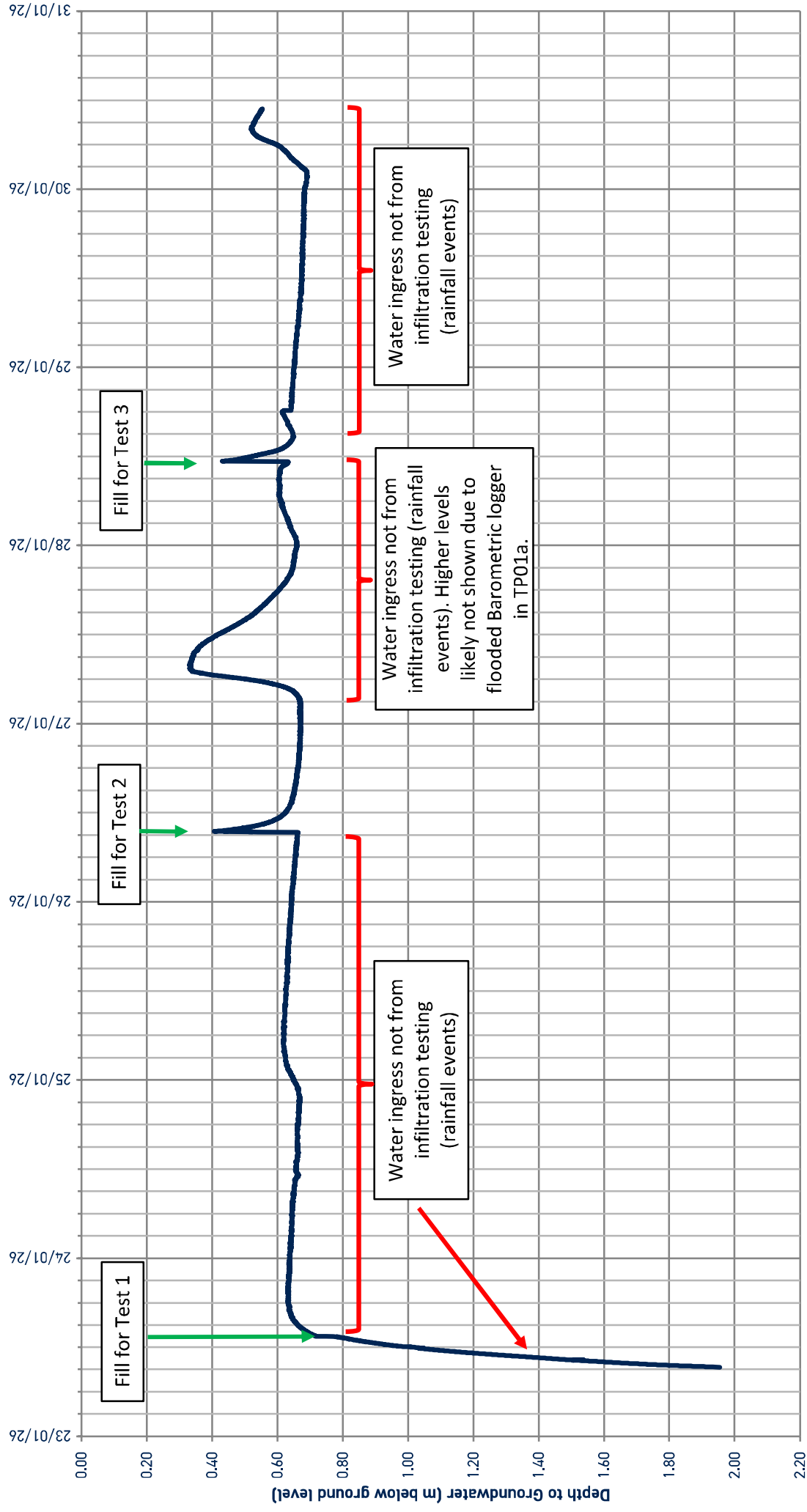
Infiltration rate

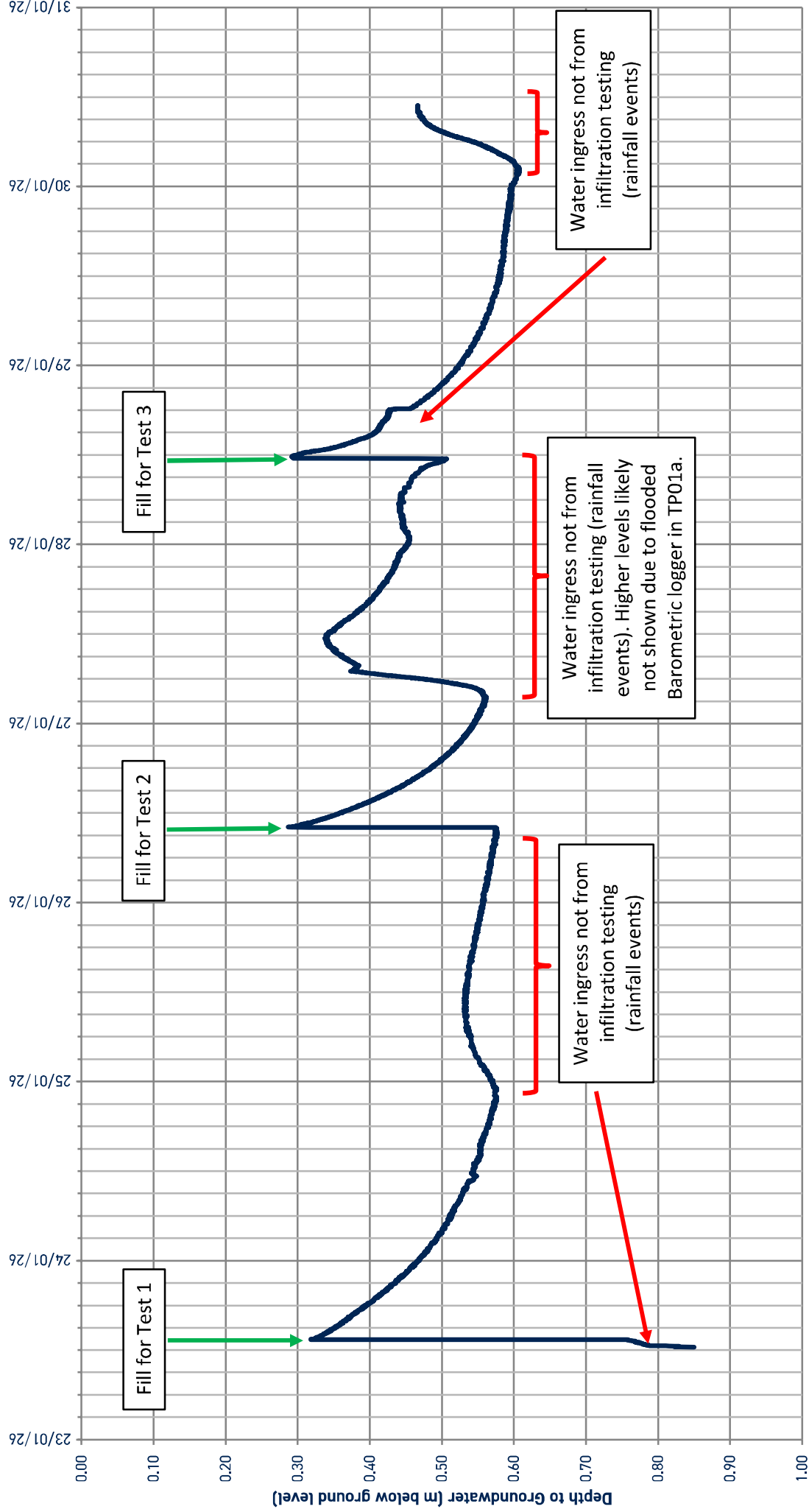
3.36E-06 m/sec f

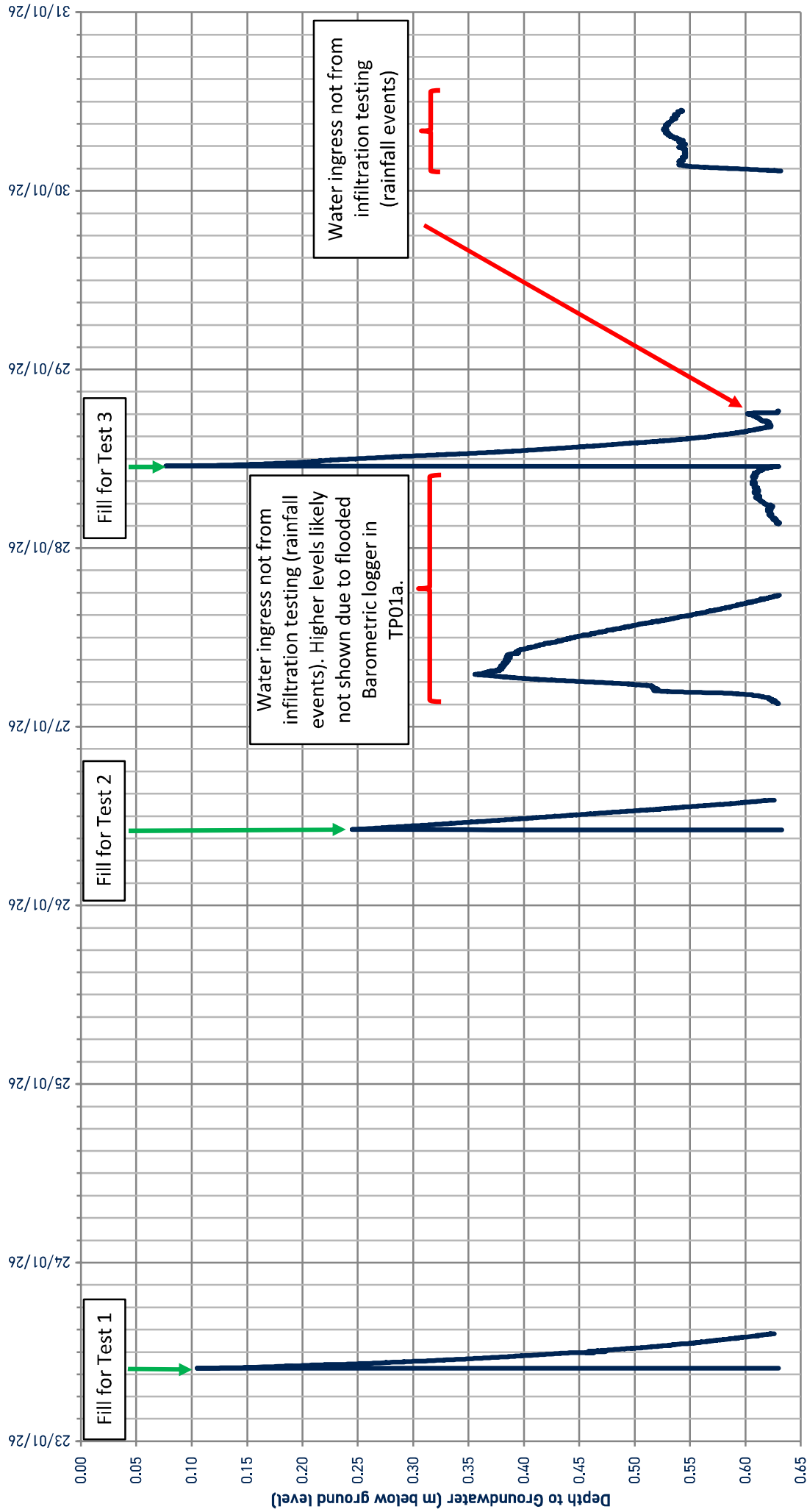
Calculation method: BRE 365











TP03