



**BRIEF GEOTECHNICAL
ASSESSMENT REPORT**

**LAND AT BORDE HILL
BORDE HILL LANE
HAYWARDS HEATH
WEST SUSSEX**

PROJECT REFERENCE: P16907

REPORT REFERENCE: R16481

Report Beneficiary: Alex Goddard

Document Control			
Issue No.	Status	Issue Date	Notes
1	Final	13 th December 2024	
Report Section		Prepared By	Approved By
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1. INTRODUCTION

It is understood that up to 5 no. self-contained holiday lodges will be constructed together with the conversion of an existing structure to provide a reception building at Land at Borde Hill, Borde Hill Lane, Haywards Heath. A proposed development plan is included within the Appendices to this report.

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

The specific objectives of the works were to:

- Establish the expected geology and hydrogeology at the site;
- Investigate the shallow ground and groundwater conditions at 5 no. locations across the site; and
- Provide advice to assist others in undertaking design of pavement, and soakaways.

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 Q14667, dated 31st October 2024. The instruction to proceed was received from MacConvilles Ltd on behalf of the client, Alex Goddard.

2. SITE CONTEXT

2.1 Site Location

The site is located at Borde Hill Lane, Haywards Heath, West Sussex, and is centred on the approximate Ordnance Survey national grid reference 531330, 127045. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

2.2 Geological Setting

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
Bedrock	Weald Clay Formation	Unproductive Stratum

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.

2.2.1 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

The intrusive site works comprised the excavation of 5 no. shallow trial pits, denoted TP01 to TP05, together with accompanying in-situ CBR and infiltration testing. The intrusive work was carried out on the 15th November 2024. The exploratory hole locations are shown on Figure 2.

Falling head soakage tests were undertaken in the trial pits in general accordance with the test methodology given by BRE guidance¹, other than the pits were filled only once rather than the three times suggested by the digest, due to the slow infiltration rates of the soils.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the appended exploratory hole records, together with explanatory notes to assist in their interpretation.

Geotechnical laboratory testing was scheduled by Ashdown Site Investigation Ltd and undertaken by GeoLabs. Results from the laboratory tests are included in the appendices.

4. GEOTECHNICAL ASSESSMENT

4.1 Pavement Design

Current guidance² suggests that pavement design should be based on the design subgrade surface modulus, determined as being equal to the lower of the short-term subgrade modulus and the long-term subgrade modulus. The subgrade surface modulus can be related to California bearing ratio using the formula, $E = 17.6(\text{CBR})^{0.64}$, where E is the subgrade modulus expressed in MPa.

Cone penetrometer tests were undertaken to establish the California bearing ratio (CBR) of the in situ soils at the time of the investigation. The range of values determined is presented on the test result records are including within the Appendices to this report alongside table and graphs. A summary of the in situ test data is presented below. It is noted that in situ CBR values are, in part, dependent on the moisture content of the tested soils and are consequently subject to seasonal variation.

Table 2. In Situ CBR Values (At Time of Ground Investigation Works)

	CBR (%)	Modulus of Subgrade Reaction E (MPa)
Minimum	1.5	22.9
Average	4.8	47.3
Maximum	12.7	89.7
10%ile	3.3	37.7
20%ile	3.7	40.4
50%ile (Median)	4.4	45.2

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

² Highways England Design Manual for Roads and Bridges CD 225 Rev1; Design for new pavement foundations.

Laboratory CBR values were determined on disturbed, remoulded and soaked soil samples. These results are considered indicative of worst-case long-term values that could occur where the soils are reworked or heavily trafficked during periods of sustained precipitation. The results of the laboratory CBR testing is summarised in the following table.

Table 3. Laboratory CBR Test Results

Exploratory Hole	Range of CBR Values (%)	Average CBR Value (%)	*Modulus of Subgrade Reaction E (MPa)
TP01	3.3 to 3.5	3.4	39
TP02	2.0 to 2.1	2.1	28
TP03	1.9 to 2.0	2.0	27
TP04	3.1 to 3.4	3.3	38
TP05	2.7 to 3.5	3.1	36
Minimum		2.0	27
Average		2.8	34
Maximum		3.4	39

* Based on average of the laboratory CBR values.

Equilibrium CBR values can also be derived from knowledge of soil classification data (plasticity index for soils exhibiting cohesion (clay type) and particle size distribution for granular soils) and pavement thickness. Historical guidance³ suggests the following design equilibrium CBR values would be applicable to the Weald Clay Formation for the construction of pavement. The subgrade moduli calculated from these design equilibrium CBR values can be reasonably considered to be representative of long-term subgrade modulus using the formula given above.

Table 4. Long-term CBR Values

Stratum		Design Equilibrium CBR Value (%)		†Modulus of Subgrade Reaction E (MPa)
		Thin Road* Pavement	Thick Road* Pavement	
Weald Clay Formation	Minimum	2.5	3.0	31.6
	Average	3.1	4.0	36.3
	Maximum	3.9	5.1	42.1

* Thin pavement being 300mm sub-base, thick pavement being 1200mm sub-base. †Modulus based on average of all calculated moduli based on CBR values for thin sub-base.

Designers will need to select an appropriate design equilibrium CBR value / modulus of subgrade reaction taking account of proposed pavement thickness, expected winter groundwater conditions, the standard to

³ Highways England Design Manual for Roads and Bridges Interim Advice Note 73/09 Rev1; now withdrawn.

which pavement is to be designed and any local authority or other regulatory/warrantor requirements together with construction conditions likely to prevail at the time of construction.

The subgrade may be assumed not to be susceptible to frost heave.

It is understood that there is no proposal for new roads or parking areas to be adopted by the local highway authority.

4.2 Stormwater Infiltration Systems

In-situ infiltration testing⁴ was carried out in trial pits TP01 to TP05. From the test results calculations were made to determine the infiltration rate that could be expected for infiltration systems constructed into the underlying Weald Clay Formation soils.

During the test performed within all five trial pits, the water level within the test pits did not fall below 25% of the initial test depth and calculation of the soil infiltration rates in accordance with the BRE digest was not possible. For each test, 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.

The infiltration rates derived from the tests are summarised in the following table.

Table 5. Calculated Infiltration Rates

Exploratory Hole	Top of Response Zone (m bgl)	Bottom of Response Zone* (m bgl)	Stratum	Infiltration Rate (f) (m/sec)	Notes
TP01	0.28	0.60	Made Ground / Weald Clay Formation	Negligible	Water level dropped 10mm in 180 minutes
TP02	0.30	0.60	Weald Clay Formation	2.22×10^{-7}	-
TP03	0.35	0.60	Weald Clay Formation	9.13×10^{-7}	-
TP04	0.26	0.65	Made Ground / Weald Clay Formation	1.47×10^{-6}	-
TP05	0.26	0.60	Reworked / Weald Clay Formation	Negligible	No drop in water level over 195 minutes

*Average pit depth

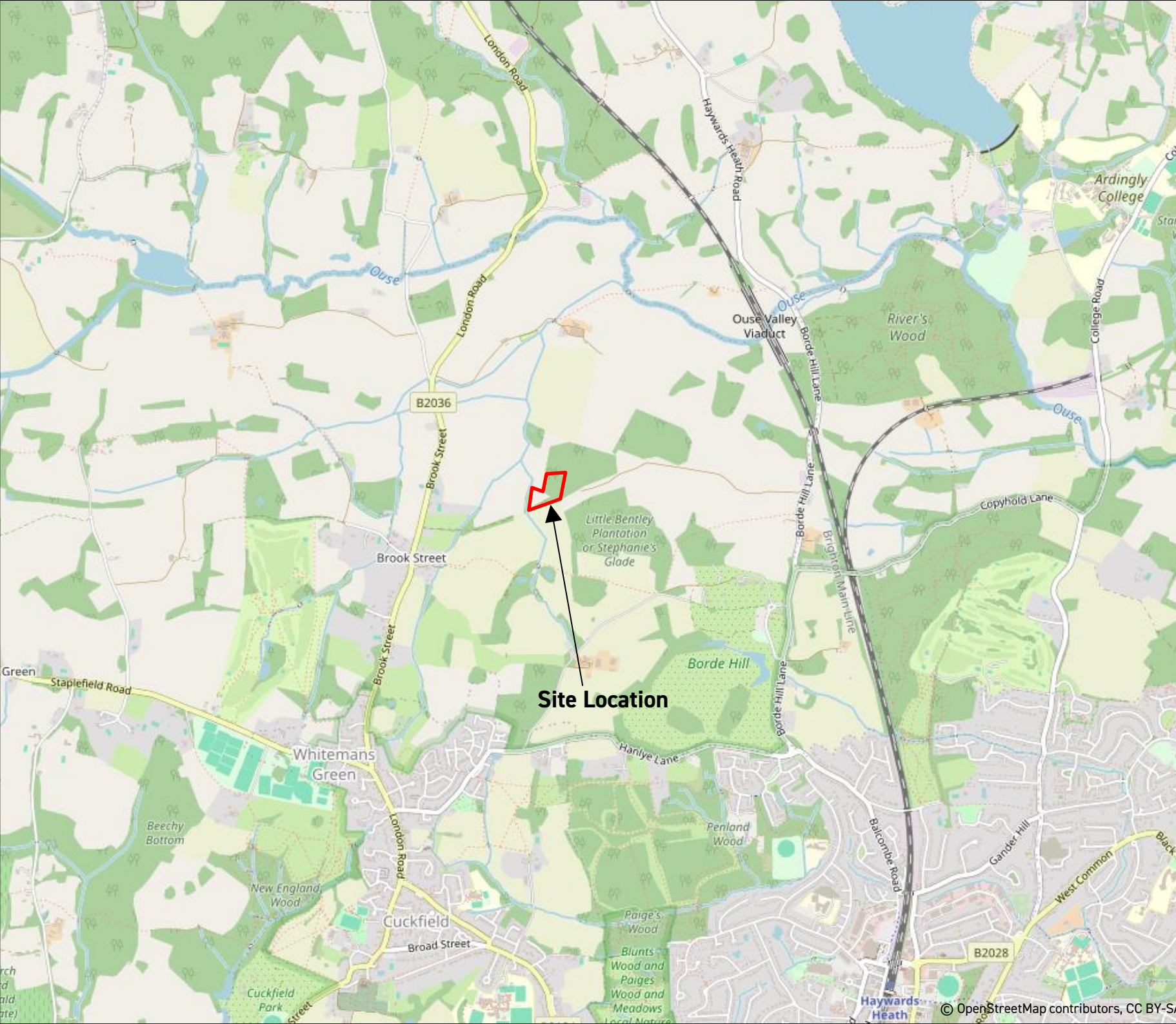
The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

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

⁴ Conducted in general accordance with the requirements of BRE 365, Soakaway Design.

APPENDICES & FIGURES

Figure 1 Site Location Plan
Figure 2 Site Plan
Proposed Development Layout
Explanatory Notes
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Graph of Subgrade Surface Modulus vs Depth
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Geotechnical Laboratory Test Results



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Site

Land at Borde Hill
Borde Hill Lane
Haywards Heath
West Sussex

Project Ref

P16907

Figure No

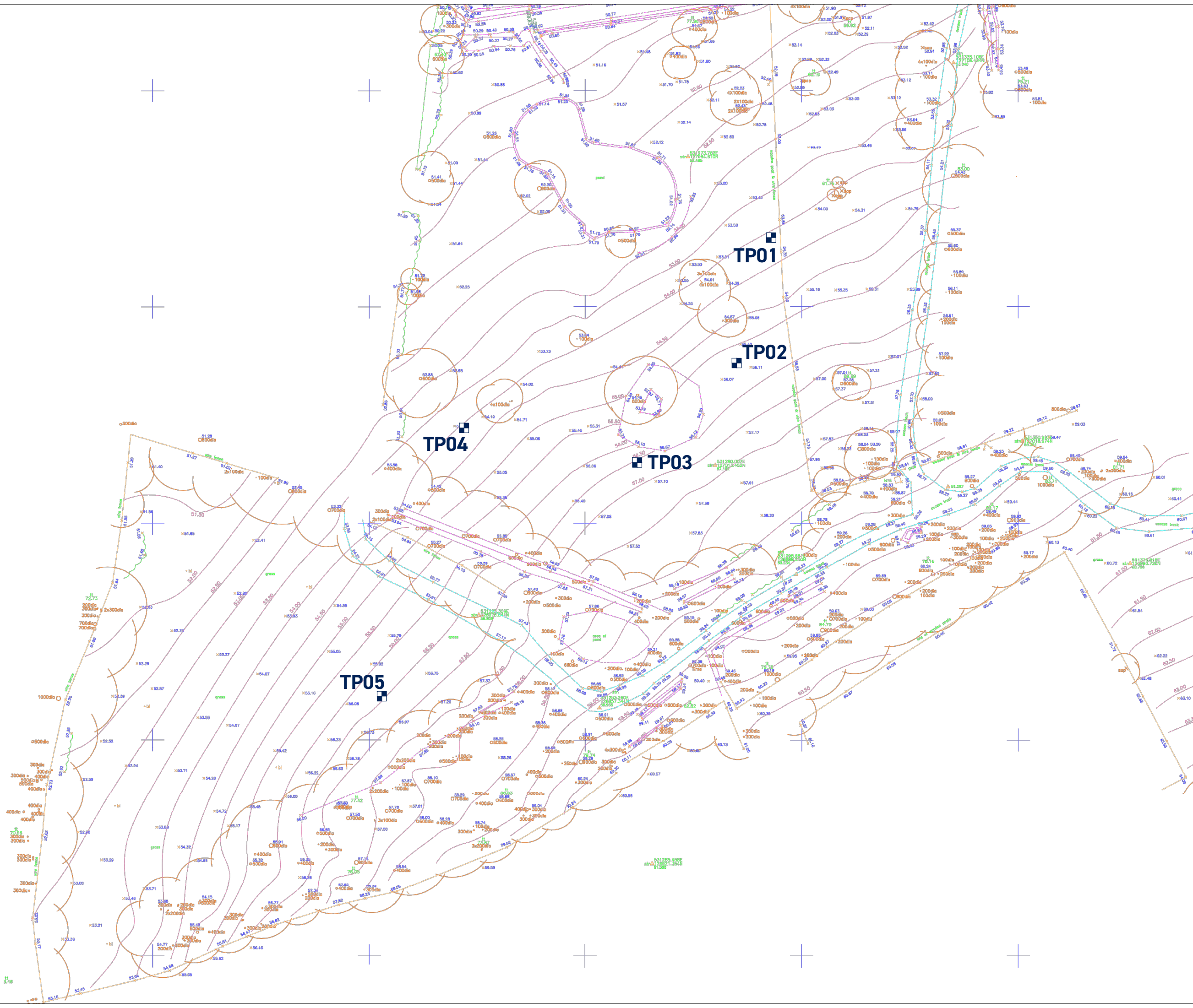
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Drawing Title

Site Location Plan

Scale

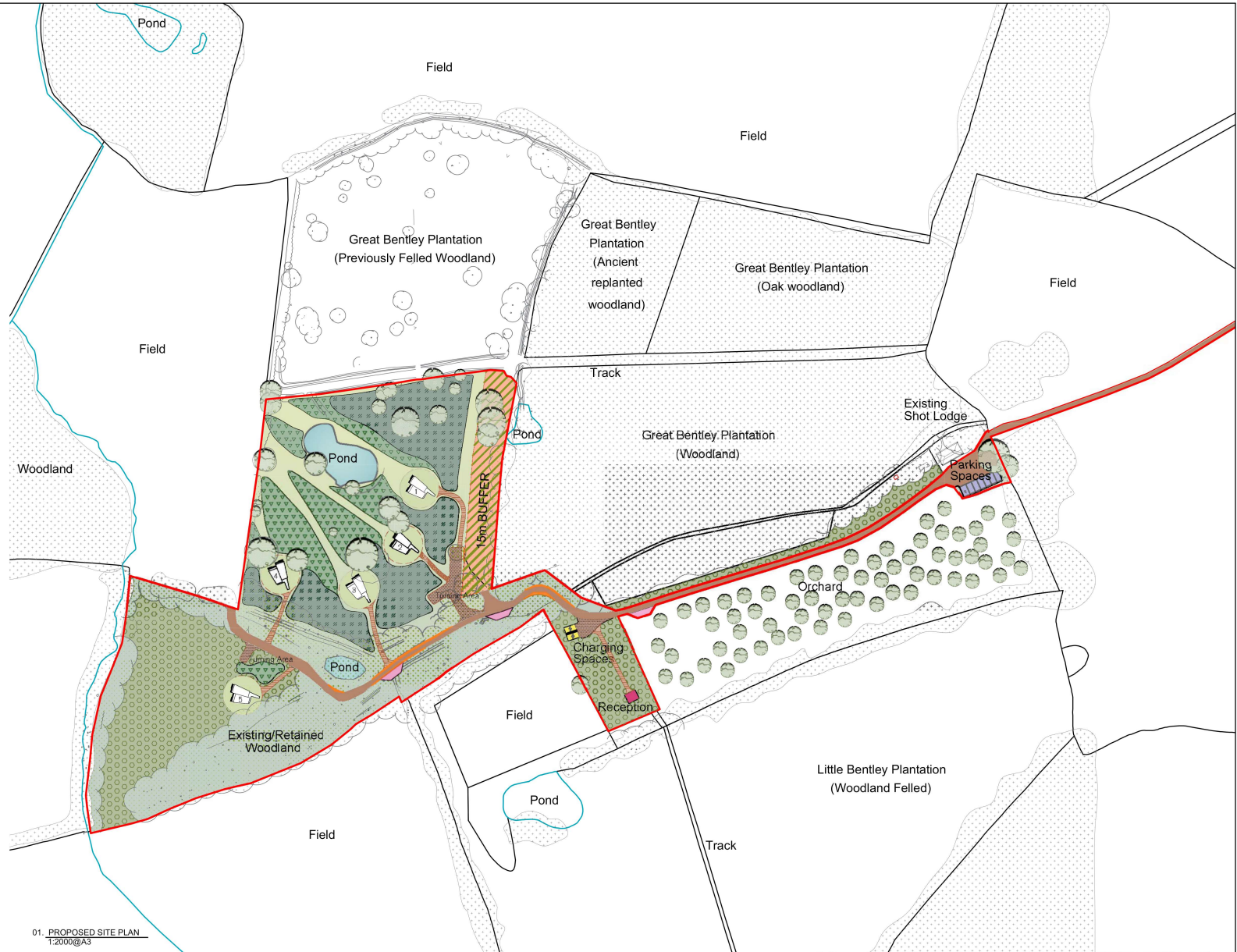
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Site
Land off Borde Hill Lane Haywards Heath West Sussex
Project Ref.
P16907
Figure No.
2
Drawing Title
Site Plan
Scale
Not To Scale

KEY:

- Shed converted to Reception
- New Resin Bonded Gravel
- New Footpaths (wood chip or pea beach)
- Existing Tracks
- New Track (for vehicles TYPE 1)
- Widening of Existing Track (TYPE 1)
- Passing Bay Space
- Existing Ponds on the Site
- Existing Woodland & Trees
- Existing Woodland & Trees on the Site
- Woodland Rides on the Site (maximum 3m to 4m wide)
- Replanted Woodland on the Site (Already Planted)
- Replanted Woodland on the Site
- New Wild Flower Meadow in Existing Field
- 15m Buffer Zone replanted to create Ecotone Buffer
- Charging Spaces
- Cabins
- Existing Trees on the Site
- New Orchard
- Parking Spaces (including 1 disabled space)
- Site Boundary
- Waterways



01. PROPOSED SITE PLAN
1:2000@A3

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CAD File:
00722_Site Plan Prop

Notes:

SCALE 1:2000@A3



Revision	Date	Details	Revised By	Checked By
G	11/12/2023	DESIGN UPDATES	RR	TD
F	09/12/2023	DESIGN UPDATES	RR	TD
E	02/10/2023	DESIGN UPDATES	RR	TD
D	04/10/2023	DESIGN UPDATES	RR	TD
C	03/10/2023	DESIGN UPDATES	RR	TD
B	07/09/2022	DESIGN UPDATES	RR	TD
A	30/08/2022	DESIGN UPDATES	RR	TD

Project Name:
OUTDOOR LIVING AT BORDE HILL

Drawing Name:
PROPOSED SITE PLAN

Client:
ARLEY HILL VENTURES

Status:
PLANNING

Scale:
1/2000 @ A3

Date:
11/12/2023
Drawn By:
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Drawing Number:
00722-P00-003 G

Revision:

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.
Pi	Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D	Disturbed Sample
R	Root Sample
B	Bulk Disturbed Sample
W	Water Sample
ES	Environmental Suite (on older records may be referenced J T)

In Situ Testing

S	Standard penetration test (SPT): Using the split spoon sampler.
C	Standard Penetration Test (SPT): Using a solid cone instead of the sampler – conducted usually in coarse grained soils or weak rocks.
V	Shear Vane Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
H	Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column.

Excavation Method

CP	Cable Percussion Borehole
RC	Rotary Cored Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HDP	Trial Pit excavated using hand tools

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

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.

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Site Name: Land off Borde Hill Lane, Haywards Heath, West Sussex

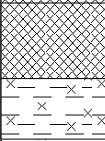
Job Number: P16907

Start Date: 15/11/2024

End Date: 15/11/2024

Trial Pit Number: **TP01**

Sheet 1 of 1

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
D B	0.30	0.60			0.00	Topsoil over, MADE GROUND: Brown slightly sandy silty clay with rare gravel of subangular to subrounded fine to coarse organic matter and ash-like material.
	0.40			0.15	MADE GROUND: Yellow brown slightly sandy silty clay with orange brown veins and rare gravel of subangular to subrounded fine to coarse brick, ash-like material and sandstone.	
					0.40	Orange brown and grey brown mottled slightly sandy silty CLAY. (Weald Clay Formation)
					0.60	End of trial pit at 0.60m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

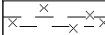
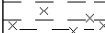
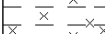
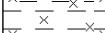
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Start Date: 15/11/2024

End Date: 15/11/2024

Trial Pit Number: **TP02**

Sheet 1 of 1

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
D	0.05	0.60			0.00	Topsoil.
				0.10	Yellow brown and grey mottled silty CLAY. (Weald Clay Formation)	
D	0.30					
B	0.40					
					0.60	End of trial pit at 0.60m

Remarks	

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

Site Name: Land off Borde Hill Lane, Haywards Heath, West Sussex

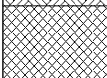
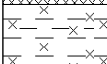
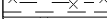
Job Number: P16907

Start Date: 15/11/2024

End Date: 15/11/2024

Trial Pit Number: **TP03**

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level
D	0.10				0.00
					0.10
B	0.40	0.60			0.35
					0.60
					End of trial pit at 0.60m

Remarks	

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

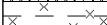
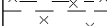
Site Name: Land off Borde Hill Lane, Haywards Heath, West Sussex

Start Date: 15/11/2024

End Date: 15/11/2024

Trial Pit Number: TP04

Sheet 1 of 1

Samples and In Situ Testing						
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	Stratum Description
D B	0.25 0.45	0.65			0.00	Topsoil.
					0.10	MADE GROUND: Grey brown and yellow brown silty clay with rare gravel of subangular to subrounded fine to coarse brick, sandstone and ash-like material.
					0.35	Yellow brown and dark brown mottled slightly sandy silty CLAY. (Weald Clay Formation)
					0.65	End of trial pit at 0.65m

Remarks	

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

Site Name: Land off Borde Hill Lane, Haywards Heath, West Sussex

Start Date: 15/11/2024

End Date: 15/11/2024

Trial Pit Number: **TP05**

Sheet 1 of 1

	Samples and In Situ Testing					
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	Stratum Description
D	0.20	55.00		[diagonal hatching]	0.00	Topsoil.
B	0.35			[cross-hatching]	0.12	REWORKED: Grey brown silty clay with orange brown speckles and rare gravel of subangular to subrounded fine to medium ash-like material.
				[horizontal dashes]	0.35	Orange brown and grey brown mottled slightly sandy silty CLAY. (Weald Clay Formation)
				[vertical dashes]	0.60	End of trial pit at 0.60m

Remarks	

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

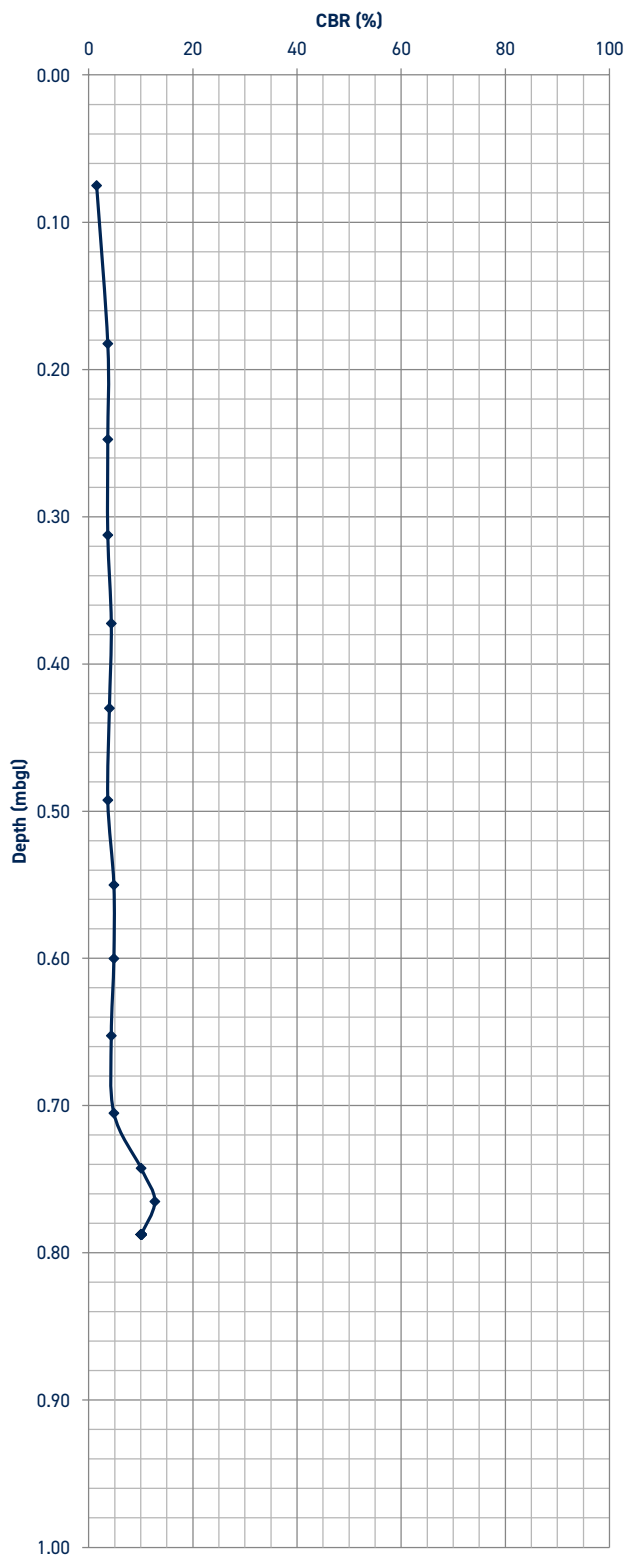
Pit Width: 0.30m

Made By: TM

Site: Land off Borde Hill, Haywards Heath, West Sussex

Project Ref: P16907

Test Location Reference	TP01
Depth of Start of Test (mbgl)	0.00

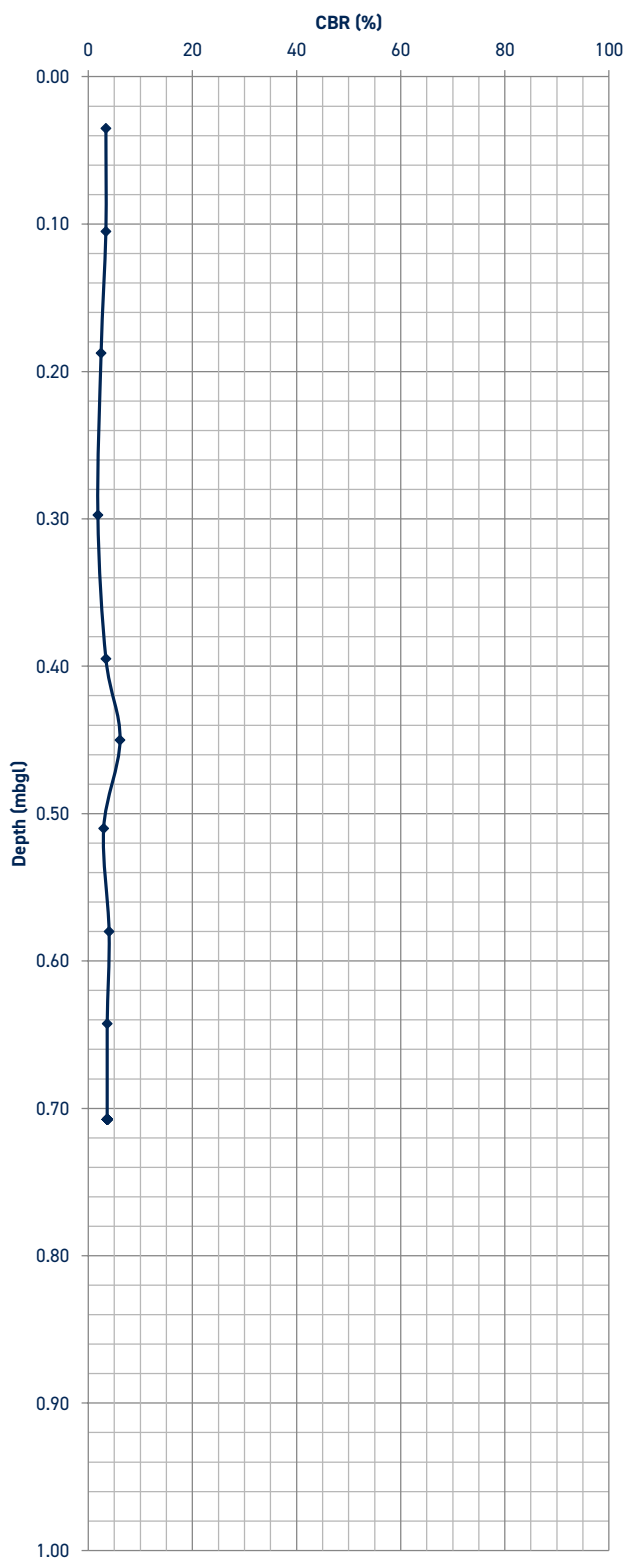
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Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

Site: Land off Borde Hill, Haywards Heath, West Sussex

Project Ref: P16907

Test Location Reference	TP02
Depth of Start of Test (mbgl)	0.00

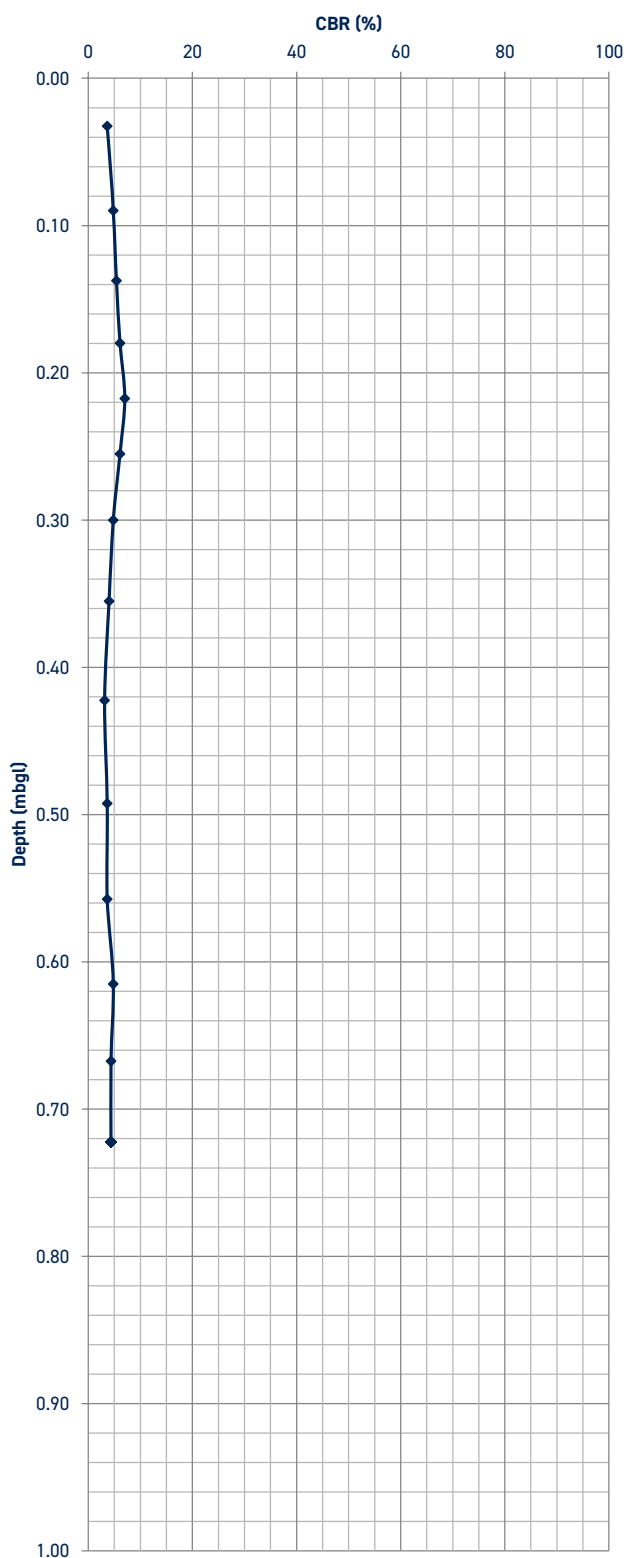
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Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

Site: Land off Borde Hill, Haywards Heath, West Sussex

Project Ref: P16907

Test Location Reference	TP03
Depth of Start of Test (mbgl)	0.00

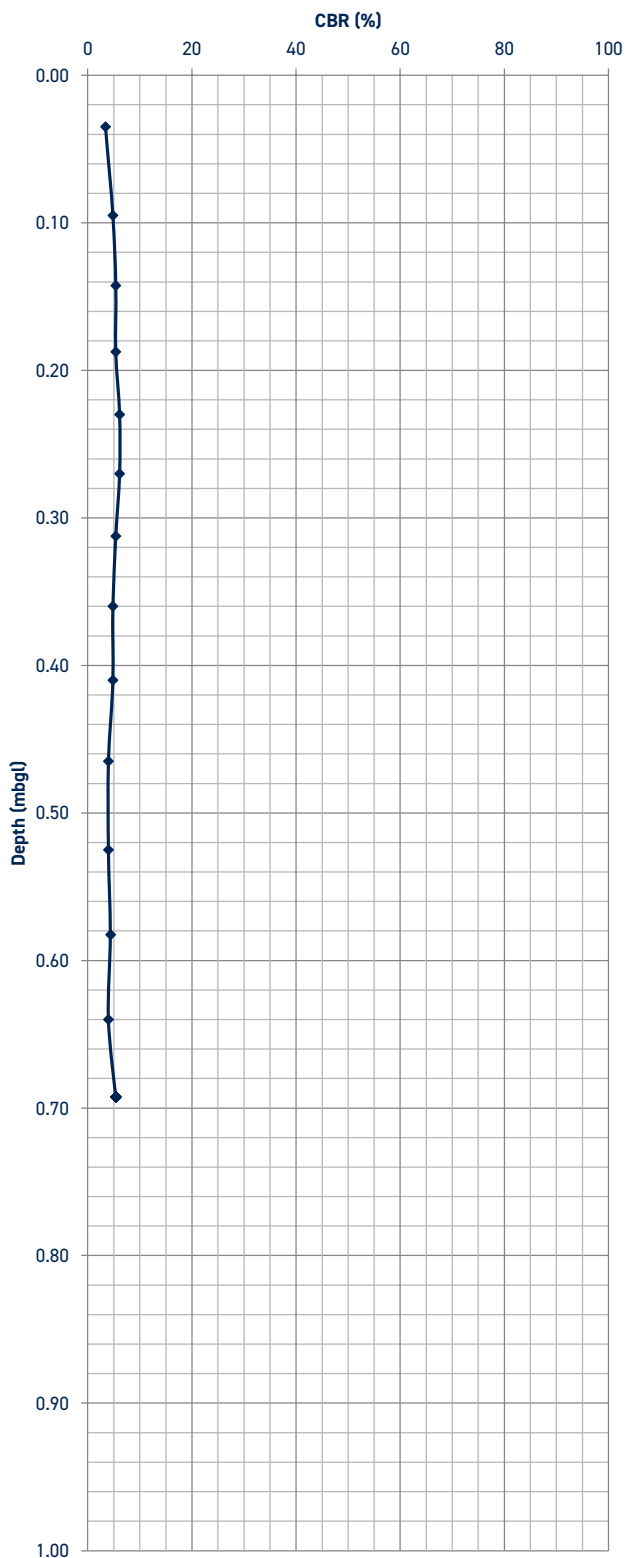
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Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

Site: Land off Borde Hill, Haywards Heath, West Sussex

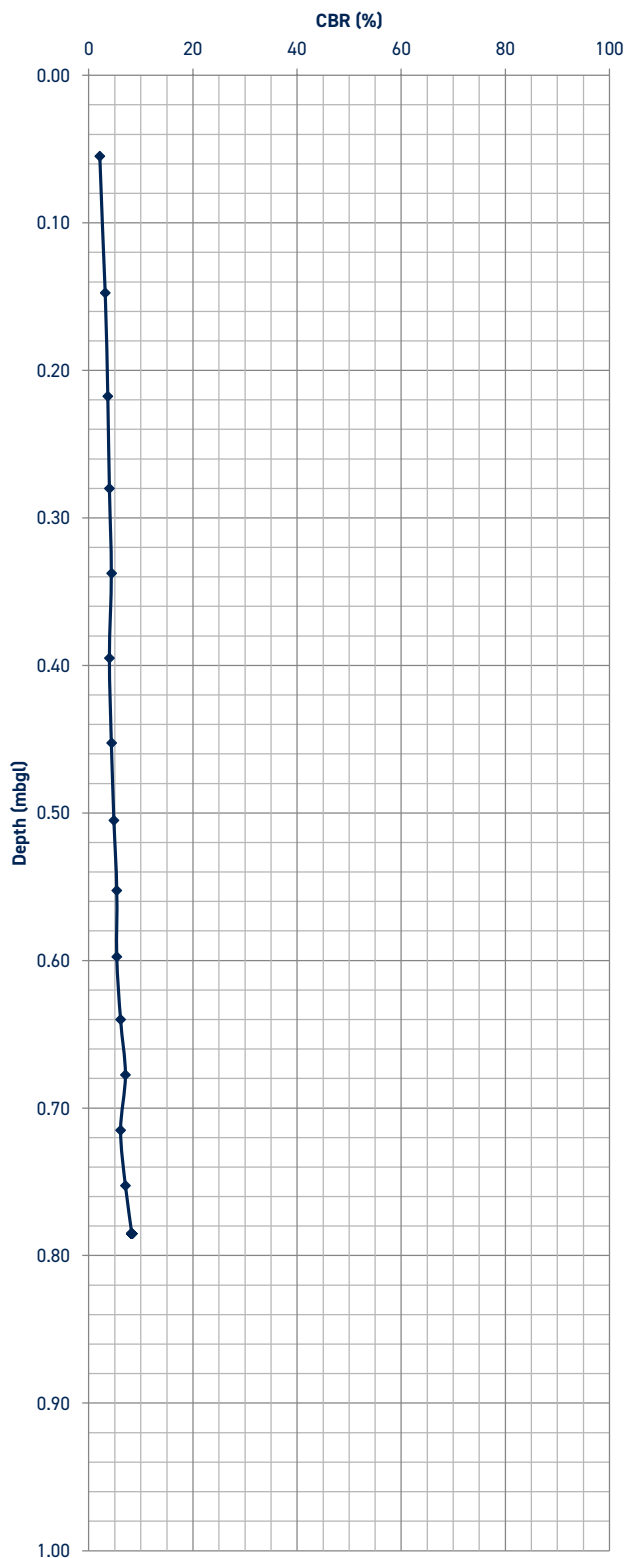
Project Ref: P16907

Test Location Reference	TP04
Depth of Start of Test (mbgl)	0.00

[illegible]

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

Project Ref: P16907

[illegible]

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

Site: Land off Borde Hill, Haywards Heath, West Sussex

Project Ref: P16907

Test Location	Depth (m)	CBR (%)	Ks (MPa)
TP01	0.15	2	23
TP01	0.22	4	40
TP01	0.28	4	40
TP01	0.35	4	40
TP01	0.40	4	45
TP01	0.46	4	43
TP01	0.53	4	40
TP01	0.58	5	48
TP01	0.63	5	48
TP01	0.68	4	45
TP01	0.73	5	48
TP01	0.76	10	77
TP01	0.78	13	90
TP01	0.80	10	77
TP02	0.07	3	38
TP02	0.14	3	38
TP02	0.24	2	31
TP02	0.36	2	26
TP02	0.43	3	38
TP02	0.47	6	56
TP02	0.55	3	35
TP02	0.61	4	43
TP02	0.68	4	40
TP02	0.74	4	40
TP03	0.07	4	40
TP03	0.12	5	48
TP03	0.16	5	52
TP03	0.20	6	56
TP03	0.24	7	61
TP03	0.28	6	56
TP03	0.33	5	48
TP03	0.39	4	43
TP03	0.46	3	37
TP03	0.53	4	40
TP03	0.59	4	40
TP03	0.64	5	48
TP03	0.70	4	45
TP03	0.75	4	45
TP04	0.19	3	38
TP04	0.12	5	48
TP04	0.17	5	52
TP04	0.21	5	52
TP04	0.25	6	56
TP04	0.29	6	56
TP04	0.34	5	52
TP04	0.39	5	48
TP04	0.44	5	48
TP04	0.50	4	43
TP04	0.56	4	43
TP04	0.61	4	45
TP04	0.67	4	43
TP04	0.72	5	52
TP05	0.11	2	28
TP05	0.19	3	37
TP05	0.25	4	40
TP05	0.31	4	43
TP05	0.37	4	45
TP05	0.43	4	43
TP05	0.48	4	45
TP05	0.53	5	48
TP05	0.58	5	52
TP05	0.62	5	52

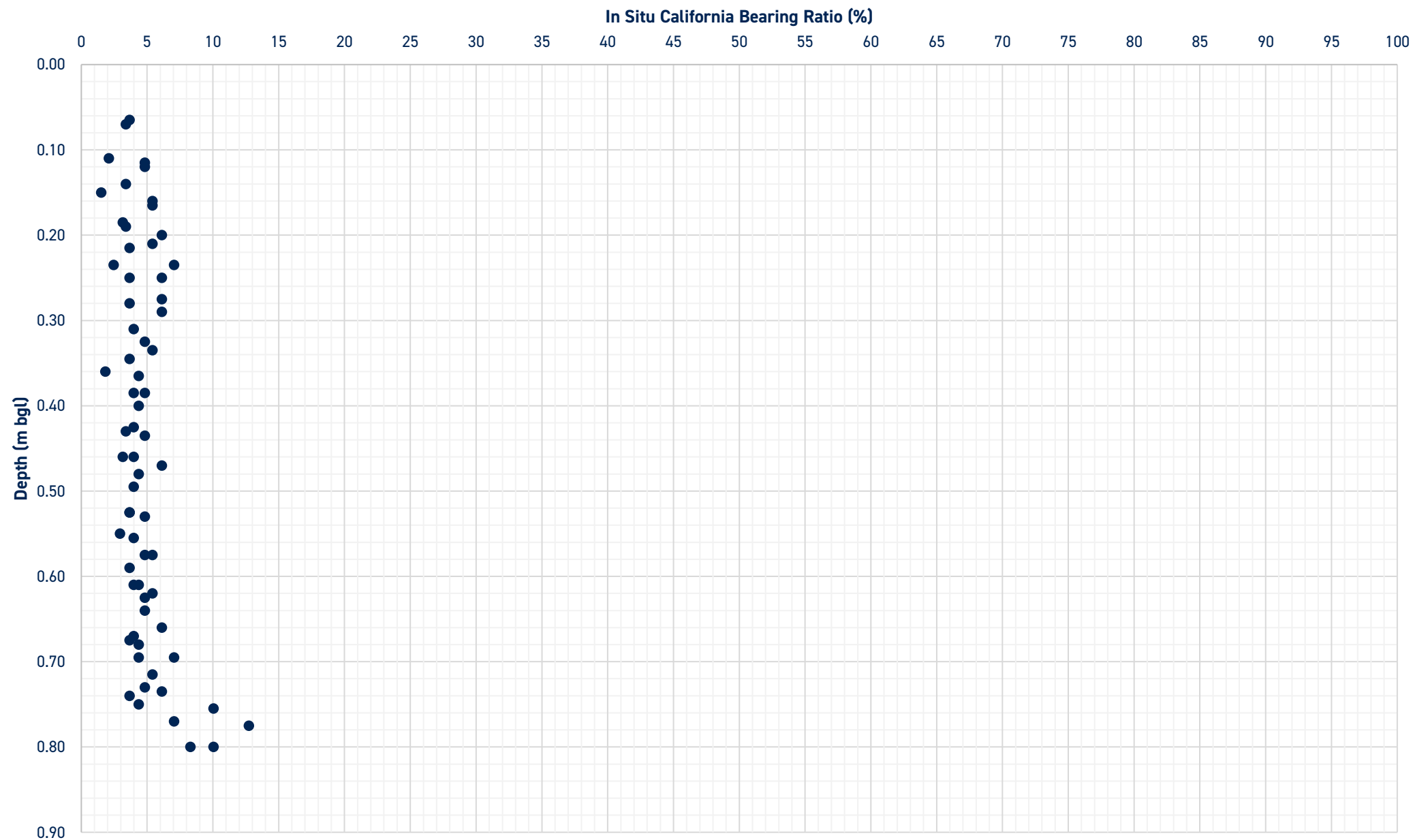
Site: Land off Borde Hill, Haywards Heath, West Sussex

Project Ref: P16907

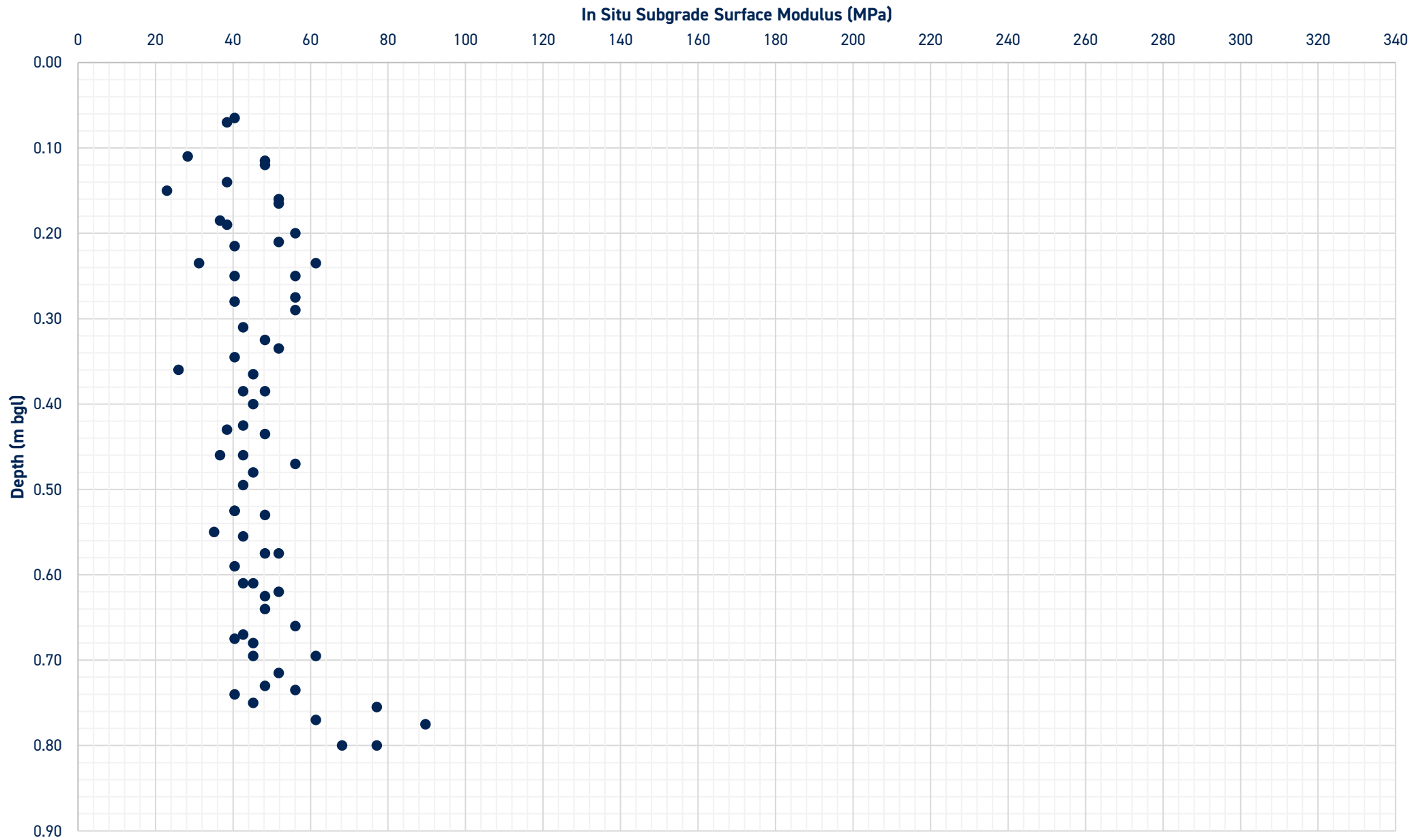
Test Location	Depth (m)	CBR (%)	Ks (MPa)
TP05	0.66	6	56
TP05	0.70	7	61
TP05	0.74	6	56
TP05	0.77	7	61
TP05	0.80	8	68

Site: Land off Borde Hill, Haywards Heath, West Sussex

Project Ref: P16907



Project Ref: P16907



Site: Land at Borde Hill Borde Hill Lane, Haywards Heath, West Sussex

Project Ref: P16907

Test Location Reference	TP01
Test Number	Test 1

Width of Pit	0.30 m	W
Length of Pit	0.30 m	L
Depth of Pit	0.60 m	D
Pit type	Open	

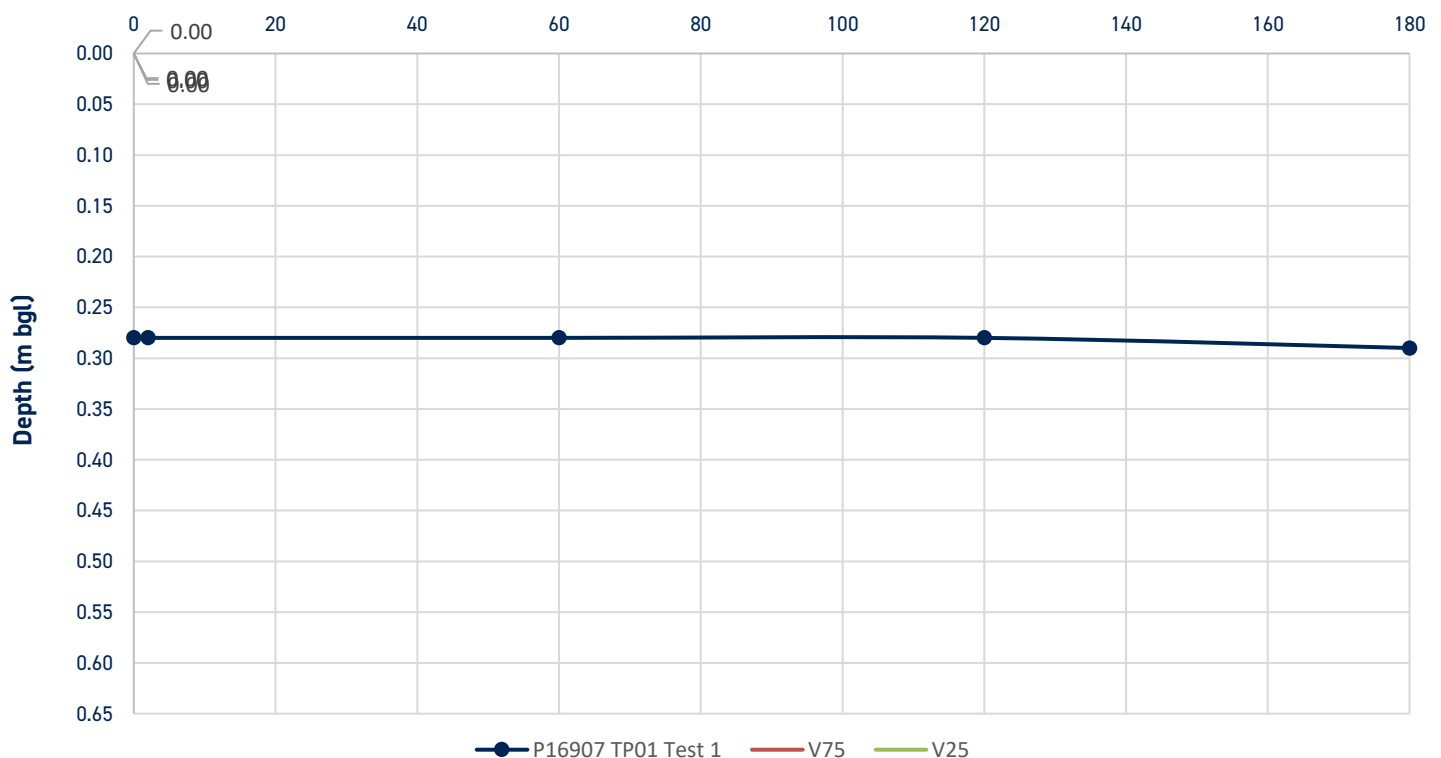
Volume of water introduced into pit	0.029 m ³	
Initial head of water	0.32 m	h_o
Water level at start of test	0.28 m	
Water level at end of test	0.29 m	
Volume of water discharged from pit	0.001 m ³	
Duration of test	180 min	
Average soaked surface area	0.47 m ²	
Time for water level to fall to 75% of 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	0.28 m ²	a_{s50}

Infiltration rate

Negligible m/sec f

Calculation method: Negligible infiltration - water level dropped by 10mm over 180 minutes.

Elapsed Time (min)



Site: Land at Borde Hill Borde Hill Lane, Haywards Heath, West Sussex

Project Ref: P16907

Test Location Reference	TP02
Test Number	Test 1

Width of Pit	0.30 m	W
Length of Pit	0.30 m	L
Depth of Pit	0.60 m	D
Pit type	Open	

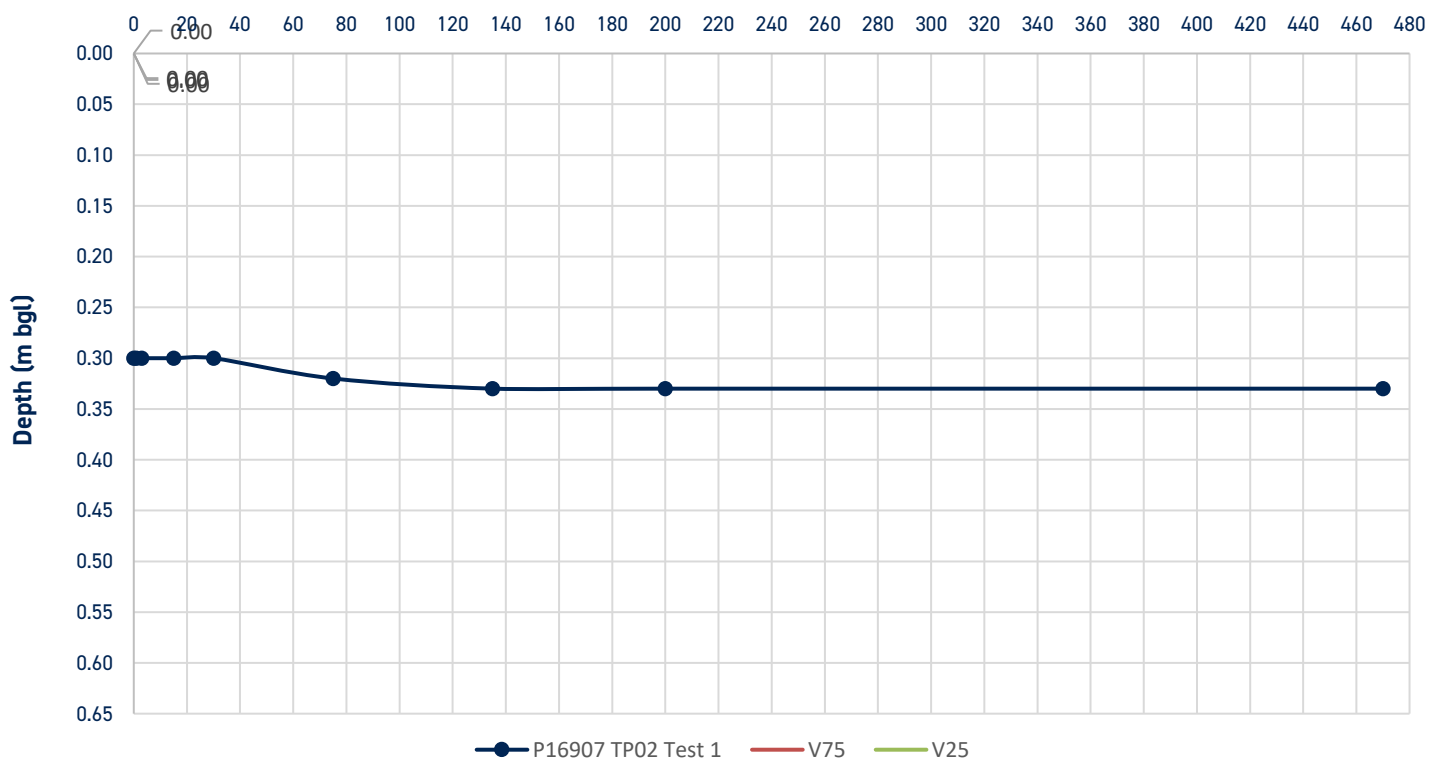
Volume of water introduced into pit	0.027 m ³	
Initial head of water	0.30 m	h_o
Water level at start of test	0.30 m	
Water level at end of test	0.33 m	
Volume of water discharged from pit	0.003 m ³	
Duration of test	470 min	
Average soaked surface area	0.43 m ²	
Time for water level to fall to 75% of 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	0.27 m ²	a_{s50}

Infiltration rate

2.22E-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: Land at Borde Hill Borde Hill Lane, Haywards Heath, West Sussex

Project Ref: P16907

Test Location Reference	TP03
Test Number	Test 1

Width of Pit	0.30 m	W
Length of Pit	0.30 m	L
Depth of Pit	0.60 m	D
Pit type	Open	

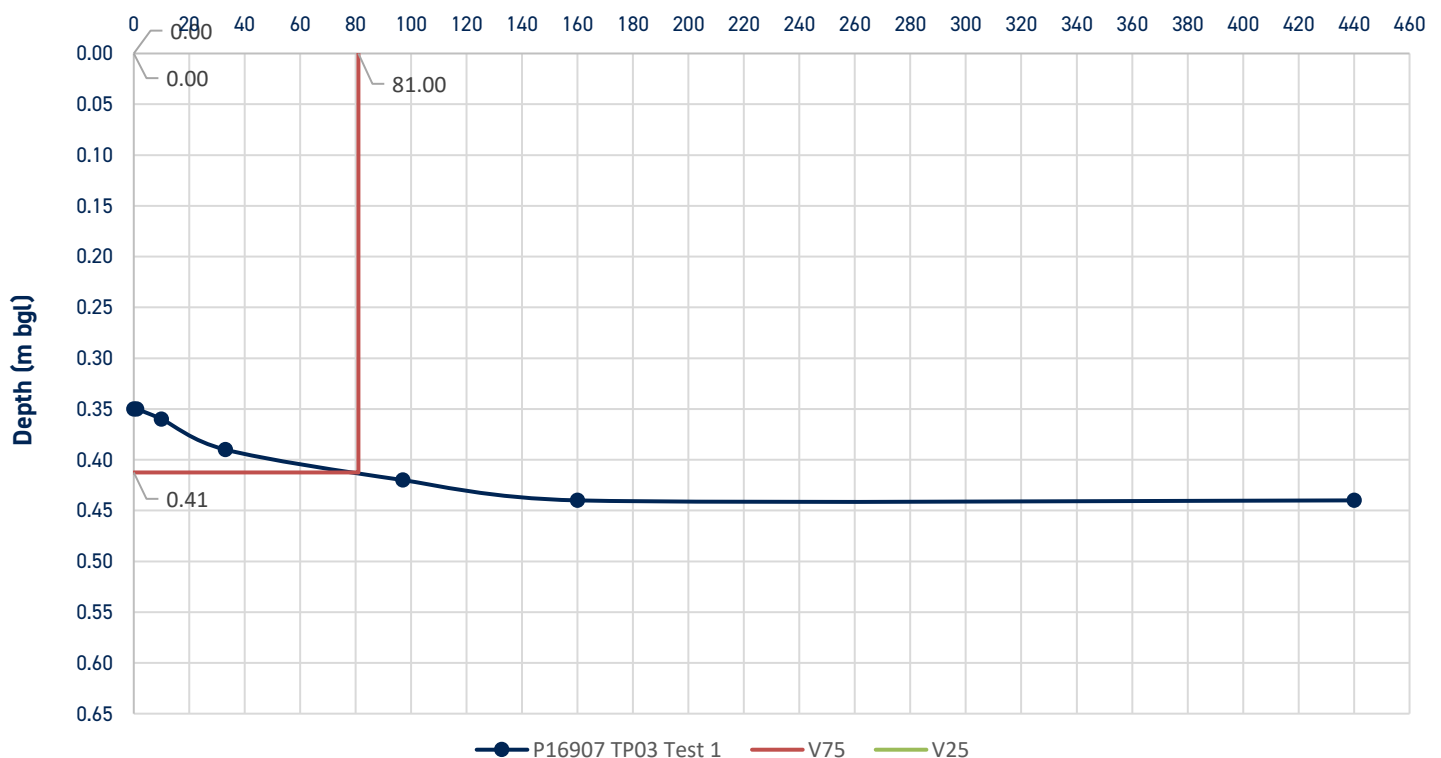
Volume of water introduced into pit	0.023 m ³	
Initial head of water	0.25 m	h_o
Water level at start of test	0.35 m	
Water level at end of test	0.44 m	
Volume of water discharged from pit	0.008 m ³	
Duration of test	440 min	
Average soaked surface area	0.34 m ²	
Time for water level to fall to 75% of initial head	81.00 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	0.24 m ²	a_{s50}

Infiltration rate

9.13E-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: Land at Borde Hill Borde Hill Lane, Haywards Heath, West Sussex

Project Ref: P16907

Test Location Reference	TP04
Test Number	Test 1

Width of Pit	0.30 m	W
Length of Pit	0.30 m	L
Depth of Pit	0.65 m	D
Pit type	Open	

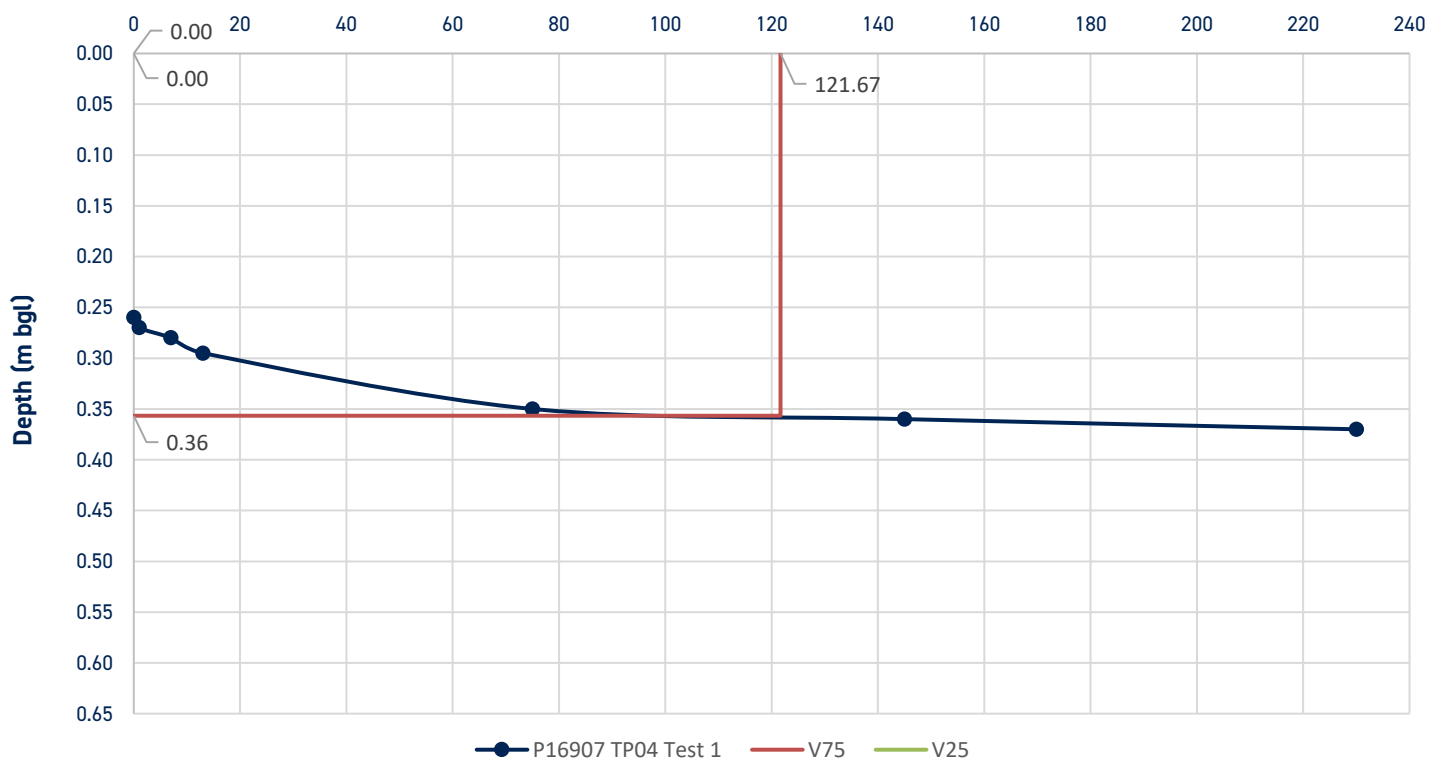
Volume of water introduced into pit	0.035 m ³	
Initial head of water	0.39 m	h_o
Water level at start of test	0.26 m	
Water level at end of test	0.37 m	
Volume of water discharged from pit	0.010 m ³	
Duration of test	230 min	
Average soaked surface area	0.49 m ²	
Time for water level to fall to 75% of initial head	121.67 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	0.36 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	0.32 m ²	a_{s50}

Infiltration rate

1.47E-06 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: Borde Hill Lane, Borde Hill, Haywards Heath

Project Ref: P16907

Test Location Reference	TP05
Test Number	1

Width of Pit	0.30 m	W
Length of Pit	0.30 m	L
Depth of Pit	0.60 m	D
Pit type	Open	

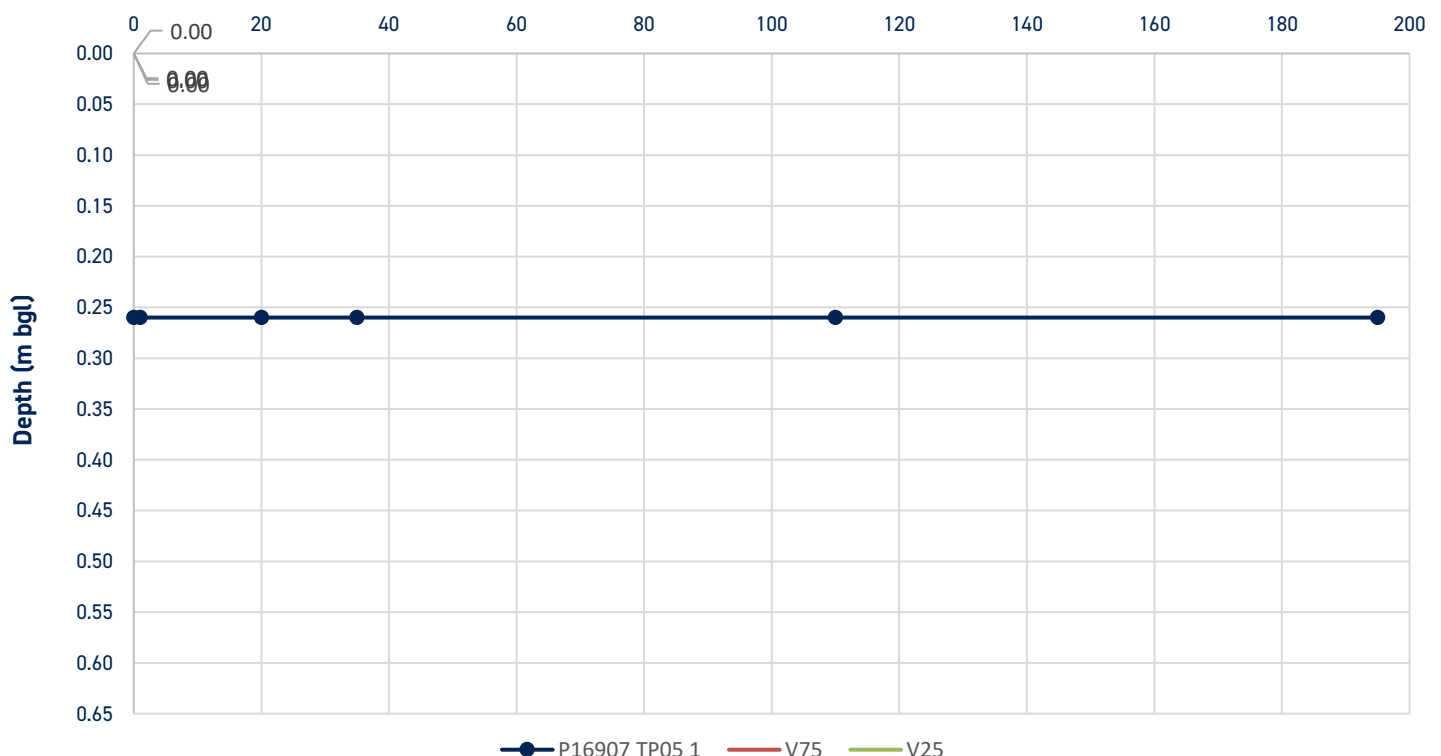
Volume of water introduced into pit	0.031 m ³	
Initial head of water	0.34 m	h_o
Water level at start of test	0.26 m	
Water level at end of test	0.26 m	
Volume of water discharged from pit	0.000 m ³	
Duration of test	195 min	
Average soaked surface area	0.50 m ²	
Time for water level to fall to 75% of 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	0.29 m ²	a_{s50}

Infiltration rate

Negligible m/sec f

Calculation method: Negligible infiltration - no drop in water level over 195 minutes.

Elapsed Time (min)



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Ditchling Common Business Park
Ditchling Common
West Sussex
BN6 8SG

09 December 2024

Report No : GEO/41622/01

Page 1 of 1

For the attention of Ms J Phillpot

Our ref	GEO / 41622	Date samples received	18/11/2024
Your ref	P16907	Date written instructions received	25/11/2024
Order ref	11933	Date testing commenced	26/11/2024
		Date of sample disposal	06/01/2025

Project **BORDE HILL LANE, BORDE HILL, HAYWARDS HEATH, WEST SUSSEX**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Liquid & Plastic Limits Summary
~	5	Water Content
~	5	Liquid & Plastic Limits
2	5	California Bearing Ratio

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional and may be subject to change unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**

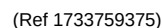


S Burke
Senior Technician

Test Type:	1 - 1 point 80g / 30° fall cone method.	Sample condition:	1 - As Received 2 - Air Dried 3 - Washed & Air Dried
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S Burke - Senior Technician
09/12/2024

**BORDE HILL LANE, BORDE HILL, HAYWARDS HEATH, WEST SUSSEX
P16907**



CALIFORNIA BEARING RATIO

Location TP01
Sample Depth 0.40-0.60 m
Sample Type B

Description:

Brownish grey slightly sandy silty CLAY with rare roots.

PREPARATION DETAILS

The specimen was soaked for 4 days, after which swelling equilibrium had been reached with 0.2 % vertical swell.
The specimen was prepared at the as received water content of 25%
The specimen was prepared by dynamic compaction using a 2.5 kg rammer
Soaked specimen bulk density 2.00 Mg/m³ (1.99 Mg/m³ before soaking)
Soaked specimen dry density 1.59 Mg/m³ (1.59 Mg/m³ before soaking)
0.0 % of the sample was retained on a 20mm sieve

Test Details

Surcharge
Seating load
Water content

Top

10.0 kg
10 N
26 %

Base

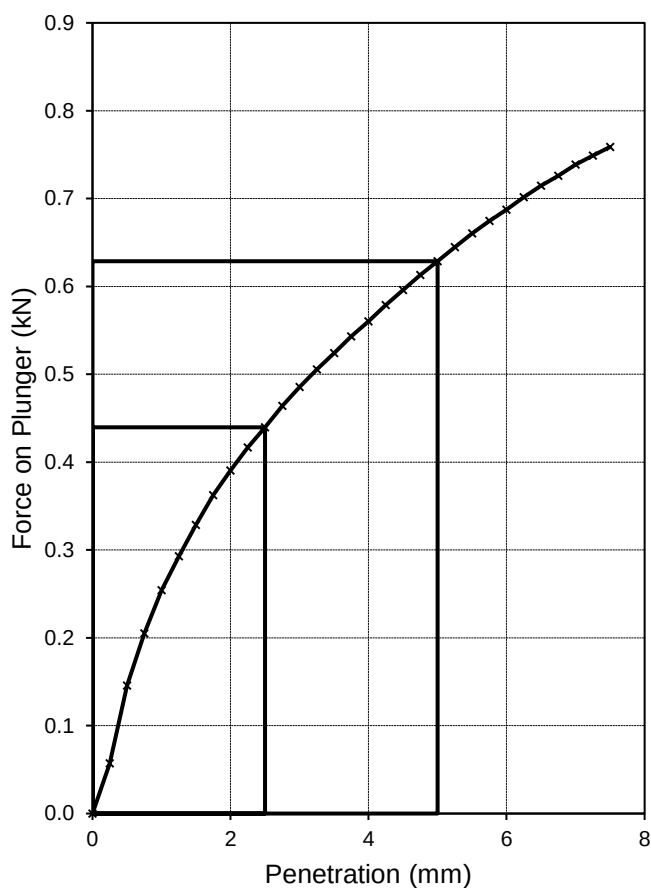
10.0 kg
10 N
25 %

CBR Value

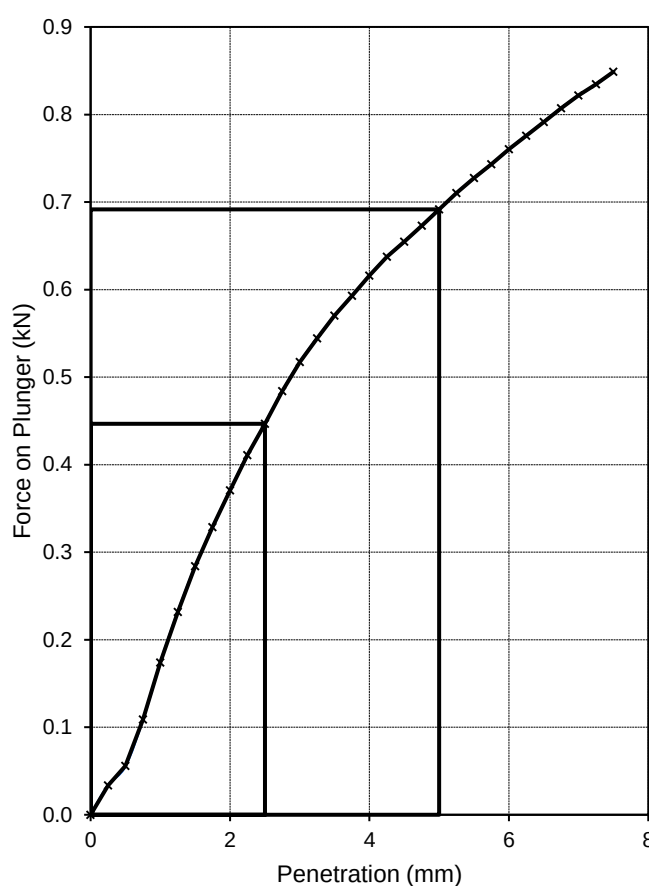
3.3 %

3.5 %

Top of Specimen



Base of Specimen



Tested by VP/LH
Checked and Approved by

S Burke

S Burke - Senior Technician
09/12/2024

Project Number:

GEO / 41622

Project Name:

**BORDE HILL LANE, BORDE HILL, HAYWARDS HEATH, WEST SUSSEX
P16907**

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CALIFORNIA BEARING RATIO

Location TP02
Sample Depth 0.40-0.60 m
Sample Type B

Description:

Yellowish brown mottled grey silty CLAY.

PREPARATION DETAILS

The specimen was soaked for 4 days, after which swelling equilibrium had been reached with -0.2 % vertical swell.
The specimen was prepared at the as received water content of 25%
The specimen was prepared by dynamic compaction using a 2.5 kg rammer
Soaked specimen bulk density 1.95 Mg/m³ (1.94 Mg/m³ before soaking)
Soaked specimen dry density 1.55 Mg/m³ (1.55 Mg/m³ before soaking)
0.0 % of the sample was retained on a 20mm sieve

Test Details

Surcharge
Seating load
Water content

Top

10.0 kg
10 N
25 %

Base

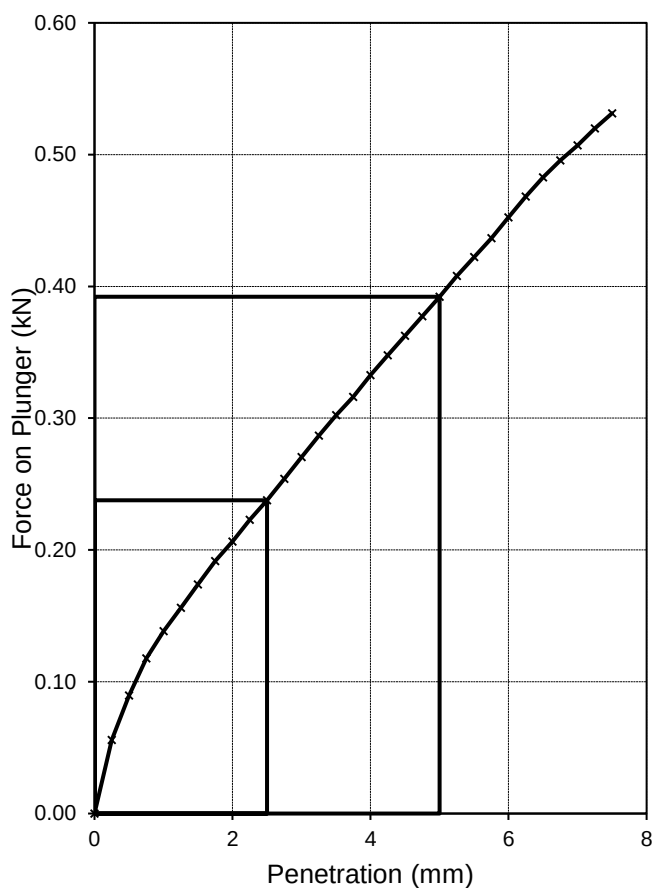
10.0 kg
10 N
26 %

CBR Value

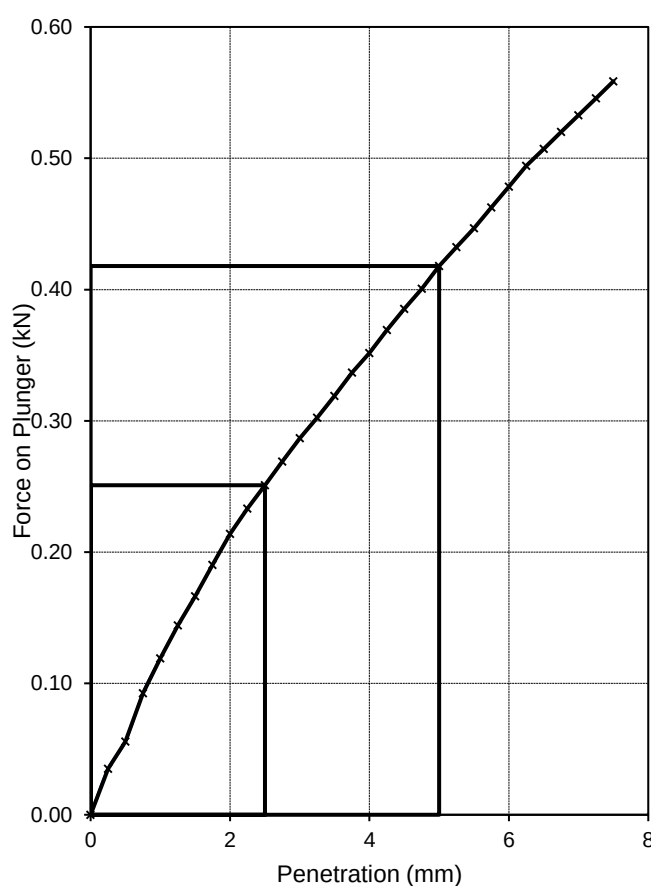
2.0 %

2.1 %

Top of Specimen



Base of Specimen



Tested by VP/LH
Checked and Approved by

S Burke

S Burke - Senior Technician
09/12/2024

Project Number:

GEO / 41622

Project Name:

**BORDE HILL LANE, BORDE HILL, HAYWARDS HEATH, WEST SUSSEX
P16907**

GEOLABS

CALIFORNIA BEARING RATIO

Location TP03
 Sample Depth 0.40-0.60 m
 Sample Type B

Description:

Yellowish brown mottled grey silty CLAY with rare roots.

PREPARATION DETAILS

The specimen was soaked for 4 days, after which swelling equilibrium had been reached with -0.1 % vertical swell.

The specimen was prepared at the as received water content of 24%

The specimen was prepared by dynamic compaction using a 2.5 kg rammer

Soaked specimen bulk density 1.99 Mg/m³ (1.98 Mg/m³ before soaking)

Soaked specimen dry density 1.60 Mg/m³ (1.60 Mg/m³ before soaking)

0.0 % of the sample was retained on a 20mm sieve

Test Details

Surcharge
 Seating load
 Water content

Top

10.0 kg
 10 N
 24 %

Base

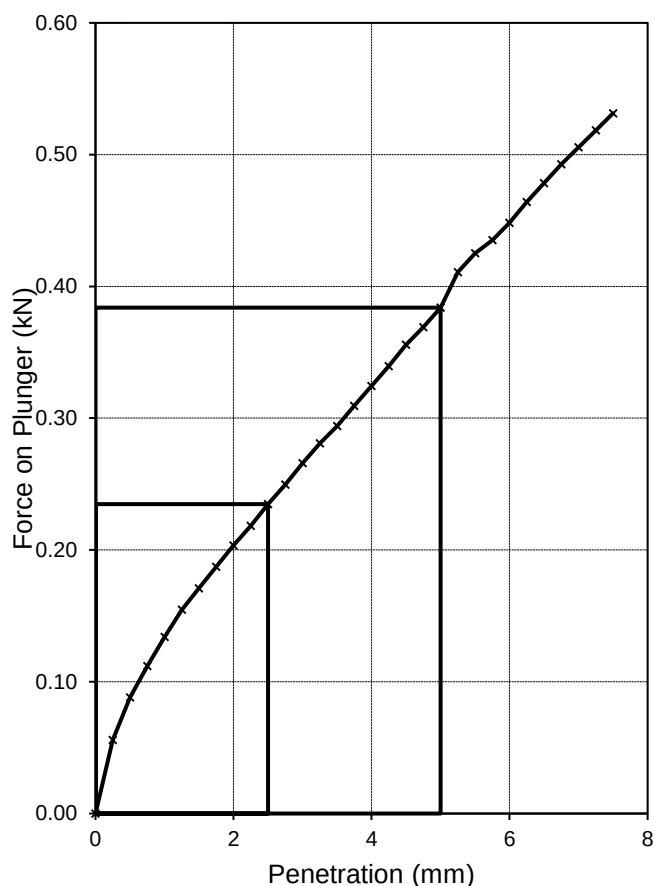
10.0 kg
 10 N
 24 %

CBR Value

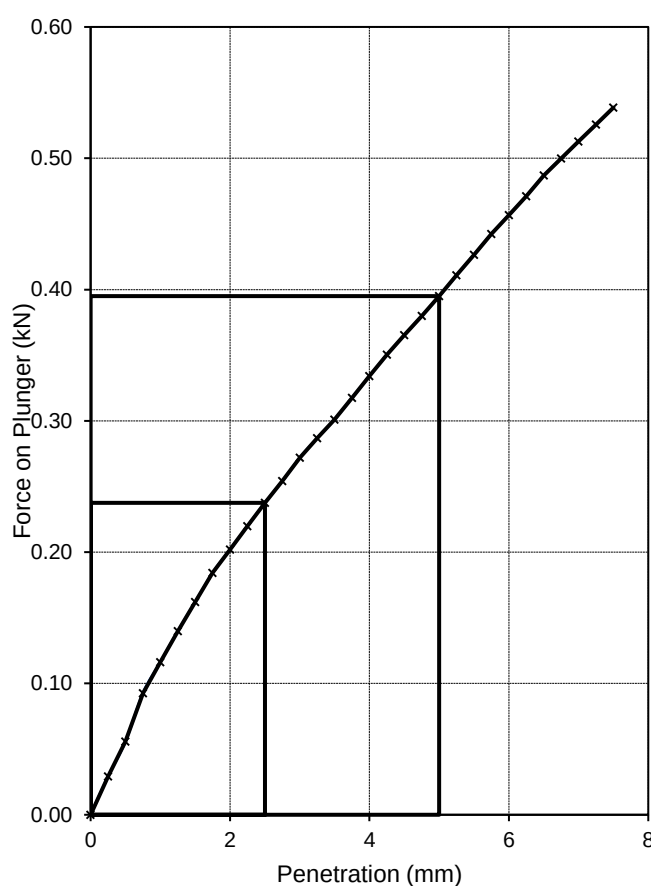
1.9 %

2.0 %

Top of Specimen



Base of Specimen



Tested by VP/LH
 Checked and Approved by

S Burke

S Burke - Senior Technician
 09/12/2024

Project Number:

GEO / 41622

Project Name:

**BORDE HILL LANE, BORDE HILL, HAYWARDS HEATH, WEST SUSSEX
 P16907**

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CALIFORNIA BEARING RATIO

Location TP04
Sample Depth 0.45-0.65 m
Sample Type B

Description:

Yellowish brown mottled dark brown slightly sandy silty CLAY
with rare roots

PREPARATION DETAILS

The specimen was soaked for 4 days, after which swelling equilibrium had been reached with 0.0 % vertical swell.
The specimen was prepared at the as received water content of 30%
The specimen was prepared by dynamic compaction using a 2.5 kg rammer
Soaked specimen bulk density 1.96 Mg/m³ (1.96 Mg/m³ before soaking)
Soaked specimen dry density 1.50 Mg/m³ (1.50 Mg/m³ before soaking)
0.0 % of the sample was retained on a 20mm sieve

Test Details

Surcharge
Seating load
Water content

Top

10.0 kg
10 N
30 %

Base

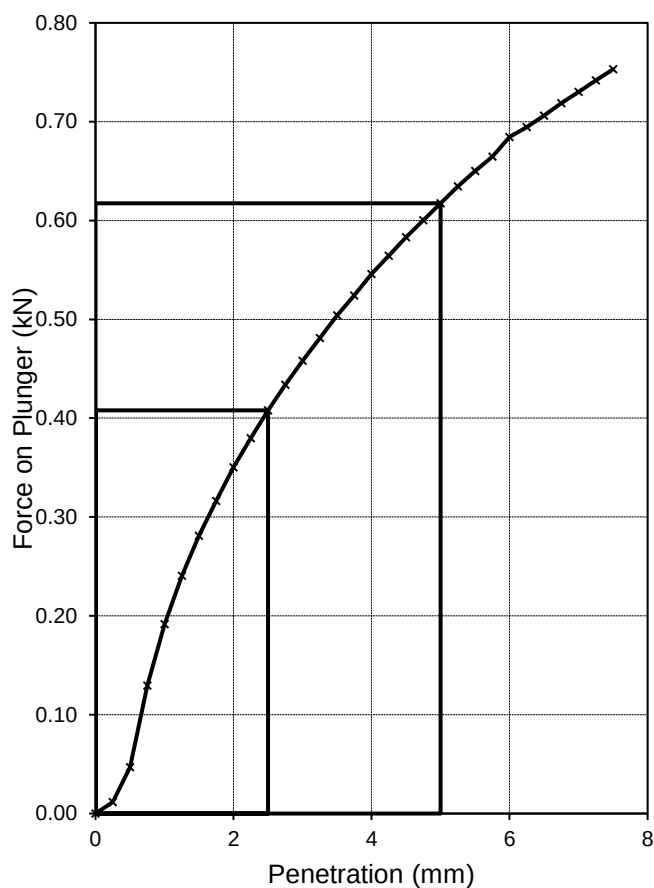
10.0 kg
10 N
31 %

CBR Value

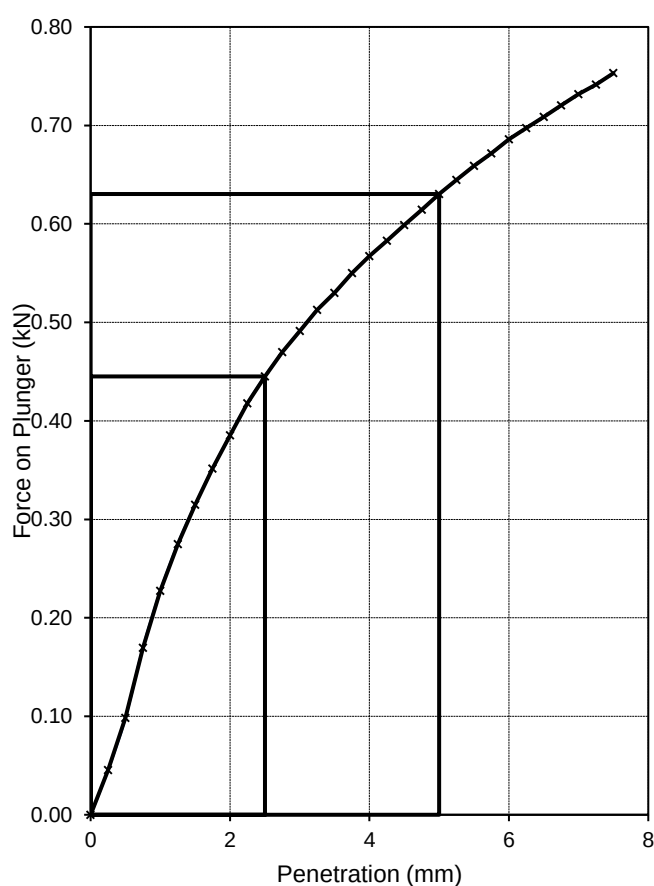
3.1 %

3.4 %

Top of Specimen



Base of Specimen



Tested by VP/LH
Checked and Approved by

S Burke

S Burke - Senior Technician
09/12/2024

Project Number:

GEO / 41622

Project Name:

**BORDE HILL LANE, BORDE HILL, HAYWARDS HEATH, WEST SUSSEX
P16907**

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CALIFORNIA BEARING RATIO

Location TP05
Sample Depth 0.35-0.55 m
Sample Type B

Description:

Greyish brown mottled orangish brown slightly sandy silty CLAY.

PREPARATION DETAILS

The specimen was soaked for 4 days, after which swelling equilibrium had been reached with 0.1 % vertical swell.
The specimen was prepared at the as received water content of 29%
The specimen was prepared by dynamic compaction using a 2.5 kg rammer
Soaked specimen bulk density 1.93 Mg/m³ (1.93 Mg/m³ before soaking)
Soaked specimen dry density 1.49 Mg/m³ (1.49 Mg/m³ before soaking)
0.0 % of the sample was retained on a 20mm sieve

Test Details

Surcharge
Seating load
Water content

Top

10.0 kg
10 N
30 %

Base

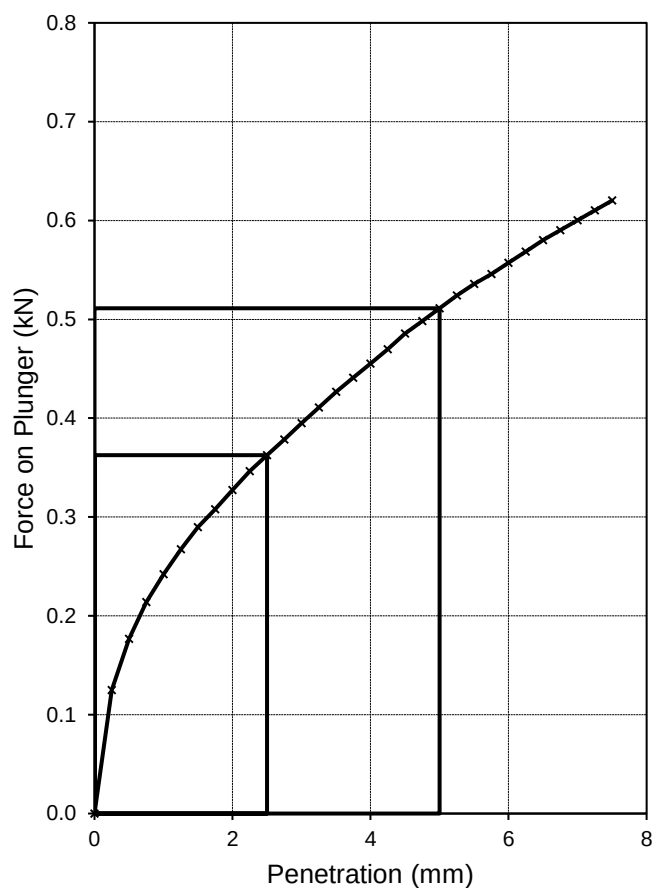
10.0 kg
10 N
30 %

CBR Value

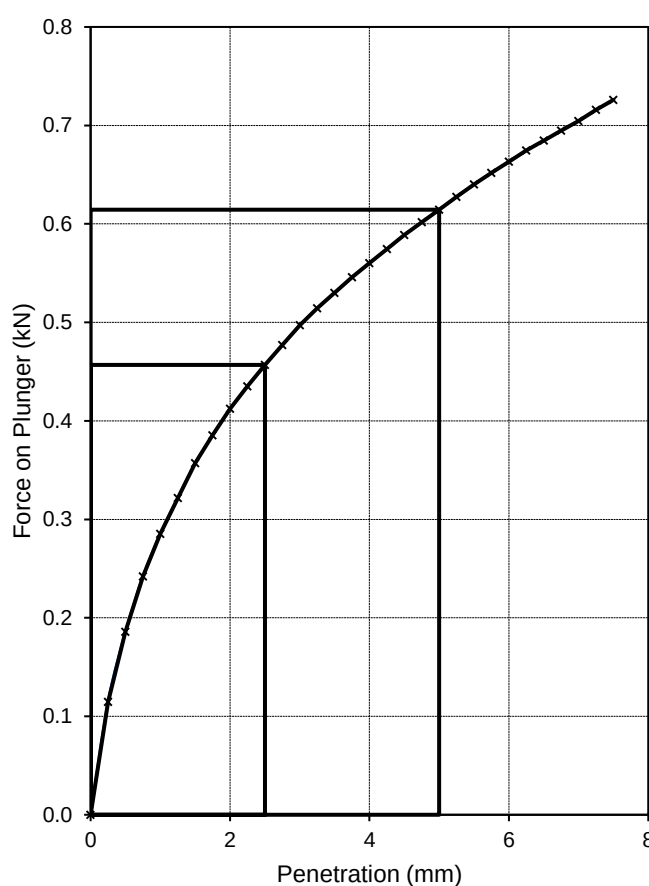
2.7 %

3.5 %

Top of Specimen



Base of Specimen



Tested by VP/LH
Checked and Approved by

S Burke

S Burke - Senior Technician
09/12/2024

Project Number:

GEO / 41622

Project Name:

**BORDE HILL LANE, BORDE HILL, HAYWARDS HEATH, WEST SUSSEX
P16907**

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