HERTS & ESSEX SITE INVESTIGATIONS

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GEOTECHNICAL ASSESSMENTS – ENVIRONMENTAL ASSESSMENTS - DESKTOP STUDY – CONTAMINATED LAND

29th August 2018 Our Ref : CSG/14895

Yes Engineering,
75 East Rd,
Hoxton,
London
N1 6AH

For the attention of L.Letniowski Esq.,

Dear Sir,

Re: Site at ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ : Site Investigation

This report is addressed to and may be relied upon by RO Property Management Ltd, its successors in title and assigns, and any other party with an interest in the proposed development or in the site of the proposed development (or any part thereof) including:

Any party which has or is to acquire a freehold interest in the site of the proposed development, and/or
Any party which has or is to acquire a leasehold interest in the site of the proposed development, and/or
Any contractor appointed or to be appointed in relation to the proposed development (whether appointed by RO Property Management Ltd or otherwise), and/or
Any party providing finance in connection with the proposed development, and/or
Any mortgagee of the site of the proposed development

Subject always to notice of such party being given to Herts and Essex Site Investigations (Warren House Limited).

SECTION 1 INTRODUCTION

1.01 In accordance with your instructions, we visited the above site during July 2018.

1.02 The purpose of our visit was to carry out an investigation into the subsoil conditions to assess the suitability of the site for the development of a new commercial / light industrial estate with associated access and landscaping.

1.03 The comments and opinions expressed are based purely on the conditions encountered and the subsequent laboratory testing. The locations of the excavations have been assessed on site and using a desk top study.

1.04 Some special condition may be present on site that, to date, has not been encountered within the scope of the site investigation works and therefore will not have been considered within this report.

1.05 All ground water recordings or their absence relate to short term observations and do not allow for fluctuations due to seasonal or other effects.

SECTION 2 DESCRIPTION OF SITE

2.01 The site is located off Sunrise Way and forms an open section of wild grass land which has no specific features in place. A large earth bund is in place to the north west of the site which is again grassed over with an embankment around the northern and eastern section of the site. The drop is identified as around 2-3 meters on the eastern embankment. The

site slopes down to the south in general and has also a slope to the western section of the site leading up to higher ground.

2.02 Surrounding the site, commercial / light industrial units are in place to the north and east with offices to the north west and housing to the south.

SECTION 3 FIELDWORK

3.01 In order to assess the geological conditions within the site, the following works have been completed.

- 10 No mechanical excavator trial pits were sunk to depths of between 1.60-2.20 meters - Date of Works – August 2018;
- 20 No Competitor Rig window sampler boreholes sunk across the site to depths of between 0.40-5.00 meters – Date of Works – August 2018;
- 11 No Insitu CBR Tests for road design;
- 6 No BRE 365 tests to consider permeability rates of the underlying geology;
- Chemical Sampling recovered from samples and sent to analytical chemist, (August 2018).

3.02 The location of these works is indicated on the site plan-forming appendix one.

3.03 The various strata encountered were noted and are recorded on the borehole and trial pit logs forming appendix two.

3.04 Full ranges of samples were recovered as noted and retained for subsequent laboratory testing.

SECTION 4 LABORATORY TESTING

4.01 All samples were tested in accordance with BS:1377:1990, methods for test for civil engineering purposes. As a result of the Chalk at shallow depths, testing associated with Chalk is limited.

SECTION 5 SITE INFORMATION

5.01 The site has been reviewed and we can confirm that the geology within the site is as follows:-

The site has been reviewed and we can confirm that the geology within the site is as follows :-

Table 1 Geological Profile

Stratum	***Description***	***Depth, Range***	***Thickness, Range***
Made Ground	Compact chalky, sandy topsoil FILL	0.15-0.70m	0.15-0.70m
Sand	Light grey silty fine SAND	0.25-1.40m	0.15-1.10m
Chalk	White Chalk	20m+	0.20-19.70m
Ground Water : No groundwater has been identified within the scope of the site works.			

NB : Thickness can be limited due to the depth of the boreholes not fully penetrating geological stratum.

General

5.02 By inspection of the borehole logs and from a visual assessment of the samples recovered, a scheme of laboratory testing has been undertaken. Whilst this is the case, the site is identified with shallow FILL material which in turn overlies Chalk and as such, the extent of laboratory testing available is minimal.

5.08 When considering the development of the site, we make the following general comments regarding the ground conditions encountered and implications of this on the proposed development. These are as follows:-

SECTION 6 FOUNDATION ASSESSMENT

6.01 Any new foundations should be seated at a depth of as a minimum, 0.90 meters below the site level to overcome the impact of weathering. In order for foundations to be seated in materials suitable for the proposed foundations, factors will influence the design which are as follows, (although, this lost in not exhaustive) :-

- Any new foundations should be seated in a uniform geotechnical material with regards possible volume change, future movements and differential settlements based on variable soils;
- The proposed development;
- Groundwater;
- Trees;
- Topography, and
- Solution Features.

6.02 No groundwater has been recorded in place within the scope of the works undertaken and as such groundwater is unlikely to impact on the foundation options for the site.

6.03 The geology across the site has been identified as Chalk at depths of between 0.15-1.40 meters and as such, the proposed foundations would be viable to seat within a uniform material extending foundations at least 200-300 mm into the Chalk mass.

6.04 Chalk is not liable for influence from moisture content change based on tree influence and as such, surrounding trees and vegetation and as such, these will not affect any foundation construction.

6.05 Due to the topography across the site, an element of ‘Cut and Fill’ may be required in order to provide a uniform site elevation which may impact on the ultimate foundation depth locally.

6.06 An assessment of bearing capacity should be completed to confirm that ground conditions recorded can provide a suitable bearing capacity based on the proposed development loadings.

6.07 Considering the above factors, SPT N-Values have been recorded across the site which confirm that SPT N-Values of between 22-50+ were achieved which would equate to allowable bearing capacity values of between 220-500+kN/m². This would provide a good bearing for any proposed foundations designed based on surrounding height commercial units.

6.08 We would therefore suggest that one of two foundation techniques could be adopted for the site which are as follows :-

1. Conventional concrete foundation design taking any new foundations into the lower Chalk at depths of between 0.90-1.60 meters. A minimum bearing capacity value should be used for this foundation technique of 220kN/m², although, this could be specifically altered around the site based on the identified bearing capacities identified within this report;

2. A system of pad and beam foundations again utilizing the allowable bearing capacity values achieved within this report. Pads should again extend into the lower Chalk at depths of between 0.90-1.60 meters.

6.09 All foundations should be designed by a suitably qualified engineer with regard loading for the proposed structure.

6.10 Should the design of the foundations based on these scenarios be excessive, a system of piles and ground beams could be utilized for which the information contained within this report is sufficient.

SECTION 7 SOAKAWAY ASSESSMENT

7.01 Soakaway testing has been completed on selected trial pits across the site to determine the permeability rates of the underlying Chalk mass. Based on the information gained, all soakaway tests were completed within the Chalk stratum encountered at depths of between 0.15-1.40 meters.

7.02 BRE 365 soakaway testing was completed utilizing a large mechanical tracked excavator and a 16,000-gallon taken such that rapid deployment of water into the trial pits could be completed. The results of the soakaway testing are shown below with the raw data shown in appendix 4 of this report.

Table 2 Permeability Data

Location	*Depth of Test*	*Geology*	*Permeability*
TP1	1.60m	CHALK	***6.0 x 10^{-6} m/sec***
TP3	2.10m	CHALK	***7.4 x 10^{-6} m/sec***
TP4	2.00m	CHALK	***7.8 x 10^{-6} m/sec***
TP5	2.20m	CHALK	***3.5 x 10^{-5} m/sec***
TP8	2.30m	CHALK	***1.9 x 10^{-5} m/sec***
TP10	2.00m	CHALK	***1.3 x 10^{-4} m/sec***

7.03 Based on this information, we can confirm that soakaways are a likely viable form of drainage for the site.

SECTION 8 CBR TESTING

8.01 CBR testing has been completed in-situ in order to determine the parameters for road construction. As a result, selected locations were chosen around the site for these tests and engineers dispatched for assessment.

8.02 Based on the information gained, we can confirm that the following results were achieved :-

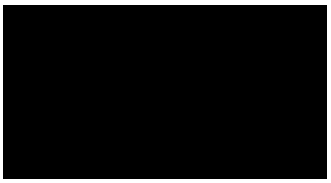
Table 3 CBR Data

Location	*Depth of Test*	*Geology*	*CBR Value, (%)*
CBR1	0.60m	CHALK	27.4
CBR2	0.60m	CHALK	28.6
CBR3	0.60m	CHALK	22.7
CBR4	0.60m	CHALK	26.8
CBR5	0.60m	CHALK	27.0
CBR6	0.60m	CHALK	26.6
CBR7	0.60m	CHALK	27.6
CBR8	0.60m	CHALK	27.4
CBR9	0.60m	CHALK	31.4
CBR10	0.60m	CHALK	9.5
CBR11	0.60m	CHALK	31.0

8.03 Based on the information gained, we can confirm that the geology within the site will likely provide a good base for road construction utilizing the information above.

I hope the foregoing is sufficient for your requirements, although please do not hesitate to contact us should require any further information regarding the above.

Yours Faithfully



C.S.Gray M.Sc
Contract Engineer

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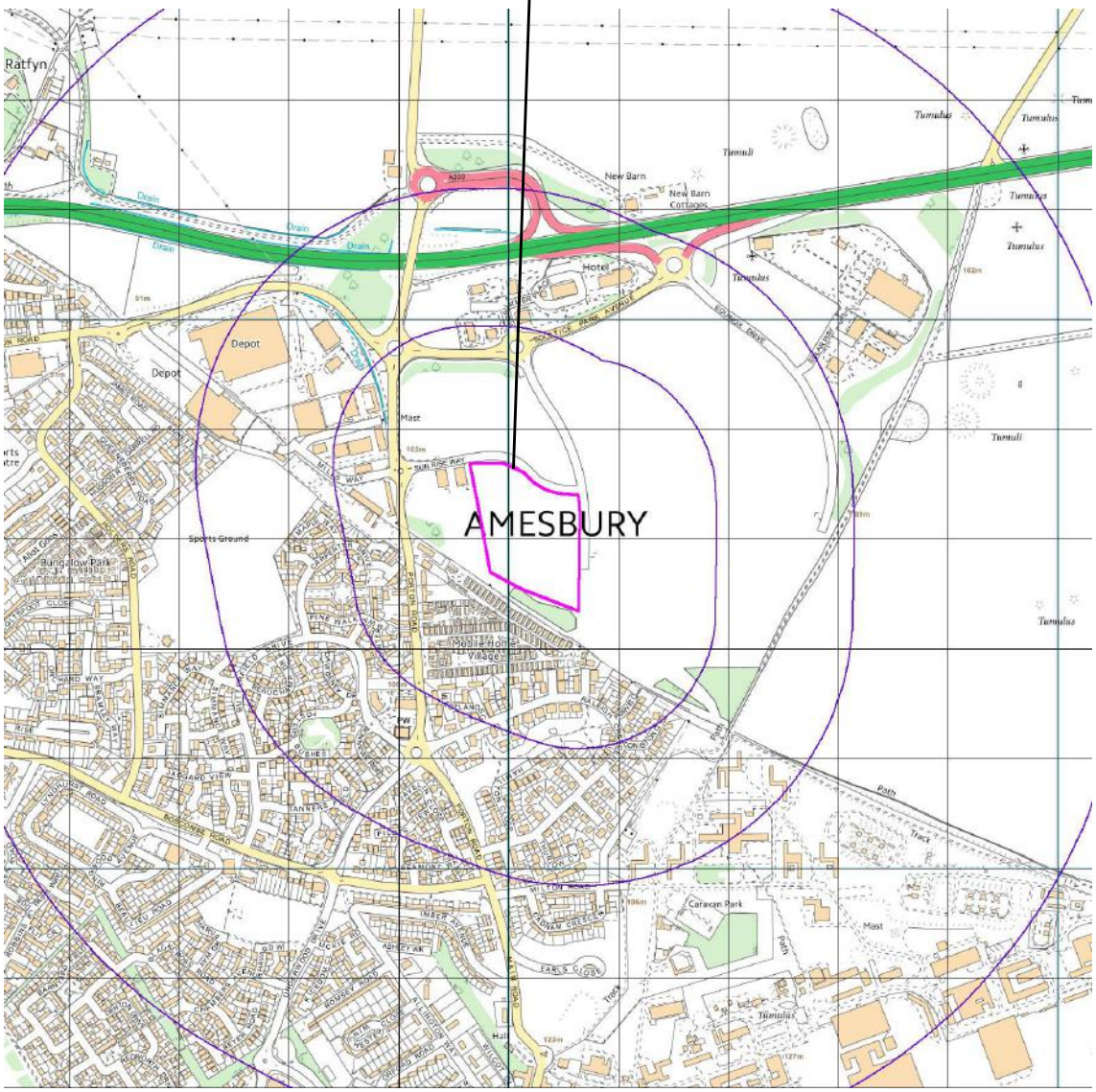
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Site at ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

Location Plan

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The Site



Not To Scale
Sketch No: GEO/14895/01/01

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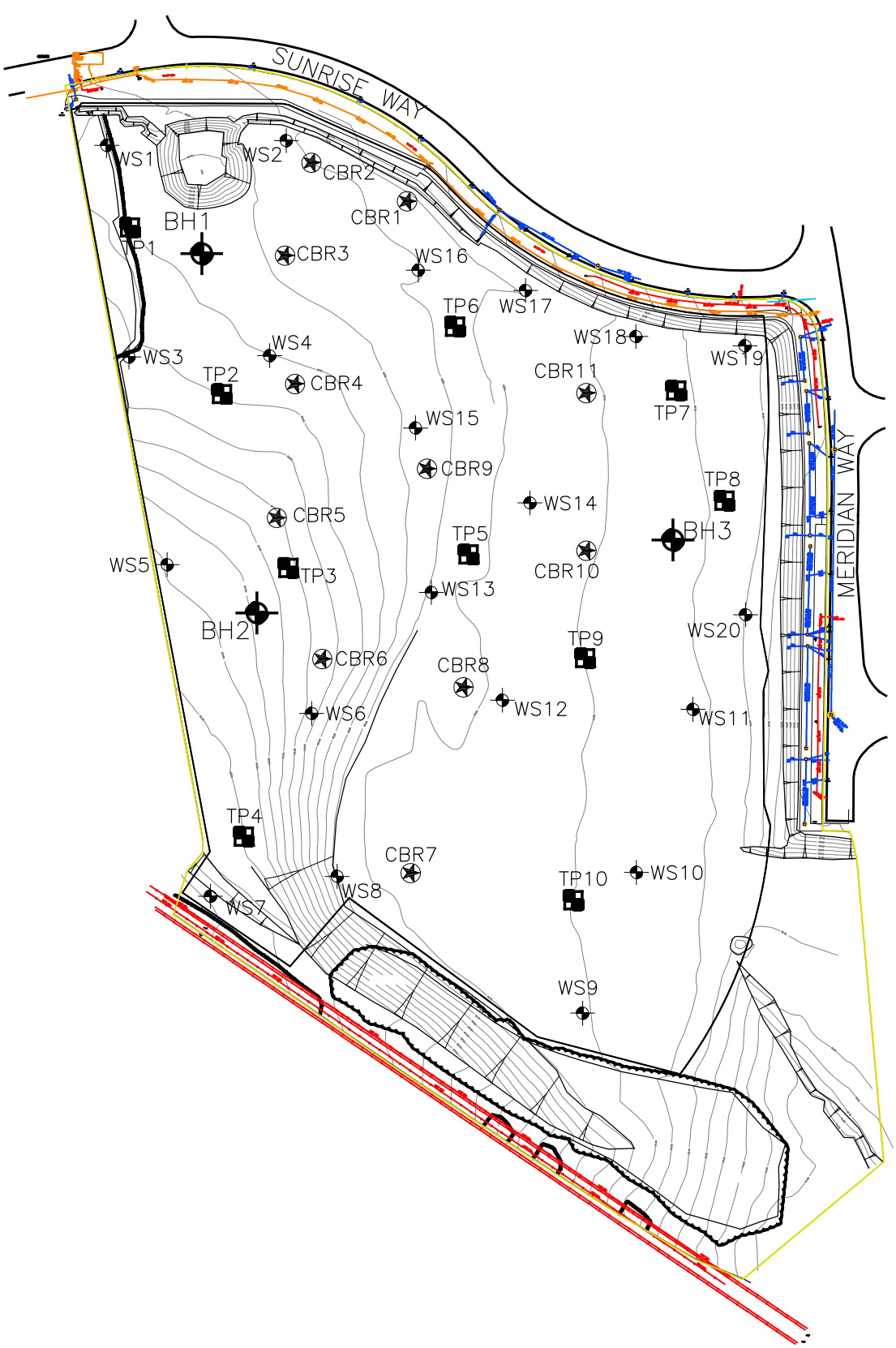
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Site at ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

Existing Site Plan with Sample Locations



Not To Scale
Sketch No: GEO/14895/01/02

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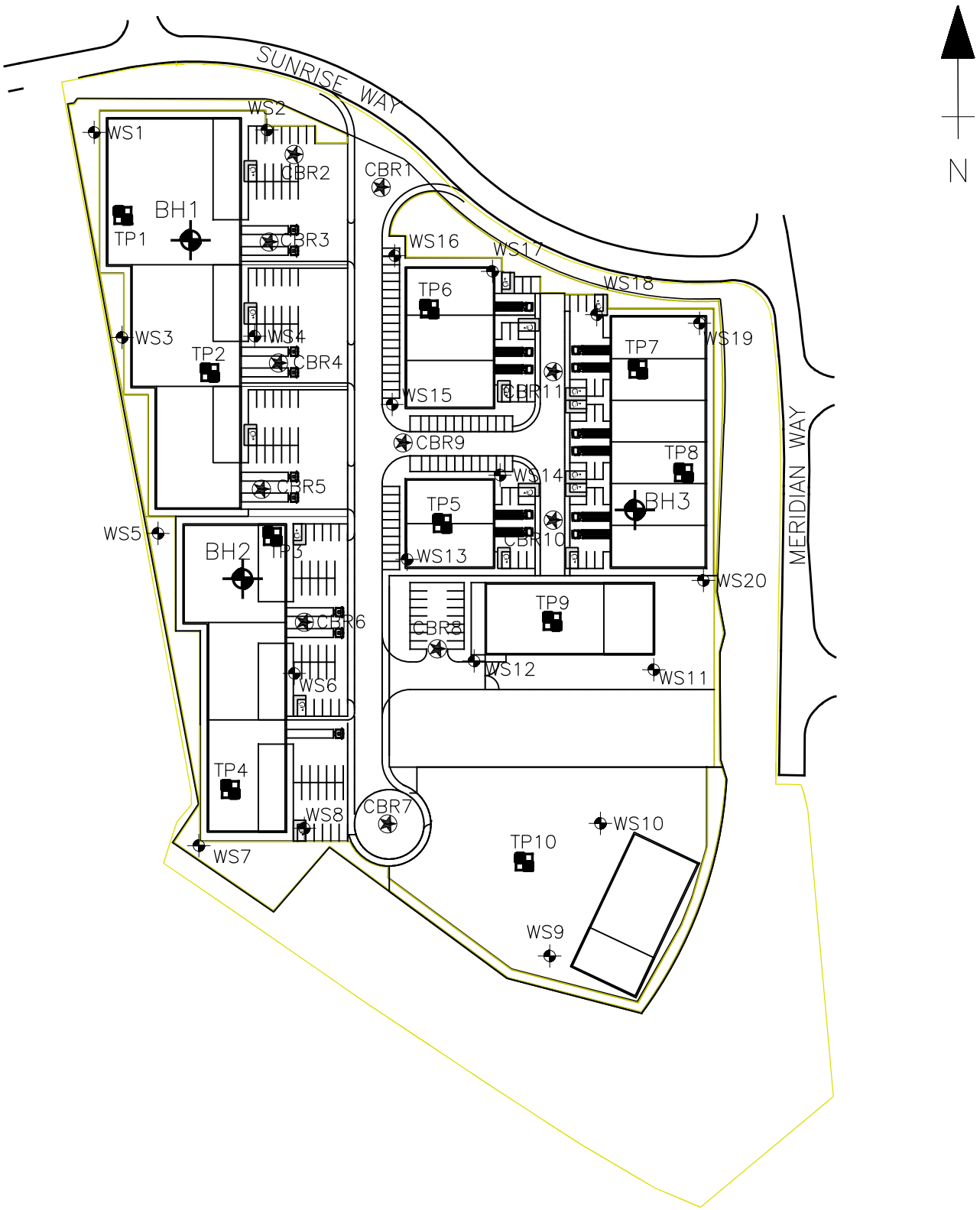
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Site at ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

Proposed Site Plan with Sample Locations



Not To Scale
Sketch No: GEO/14895/01/03

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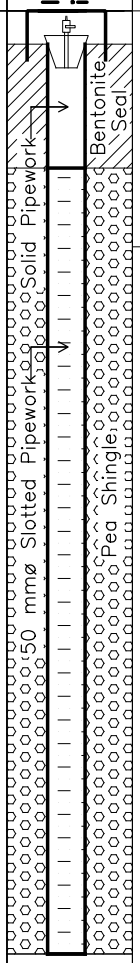
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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Borehole One

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.40	0.40								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced			19.60		1	U	0.50				
							1.00	N=50+			1.50
							2.00	N=27			
							3.00	N=22			
							4.00	N=26			
							5.00	N=30			
							6.50	N=47			
							8.00	N=38			
							9.50	N=44			

1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10



Remarks:

Scale 1:50

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Borehole One ..... continued

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
As above											
							11,00	N=44			
							12.50	N=50+			
			19.60				14.00	N=50+			
							15.50	N=50+			
							17.00	N=50+			
							18.50	N=50+			
Boreholed closed at 20.00m							20.00	N=50+			

Remarks:

Scale 1:50

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample ▼–Water Struck D –Disturbed Sample ▽–Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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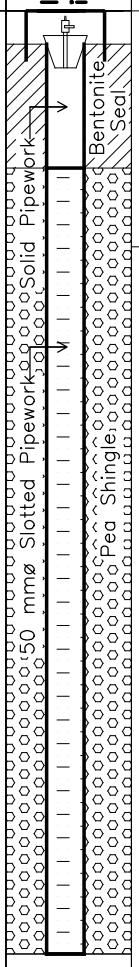
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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Borehole Two

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.20	0.20								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints					1	U	0.40				
							1.00	N=43			1.40
							2.00	N=39			
							3.00	N=28			
			19.80				4.00	N=29			
							5.00	N=34			
							6.50	N=28			
							8.00	N=32			
							9.50	N=35			



Remarks:

Scale 1:50

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Borehole Two ..... continued

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
As above											
							11,00	N=30			
							12.50	N=33			
			19.80				14.00	N=45			
							15.50	N=46			
							17.00	N=49			
							18.50	N=50+			
Boreholed closed at 20.00m							20.00	N=50+			

Remarks:

Scale 1:50

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Borehole Three

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.30	0.30								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints			19.70		1	B	0.40				
							1.00	N=50+			1.40
							2.00	N=38			
							3.00	N=41			
							4.00	N=30			
							5.00	N=34			
							6.50	N=49			
							8.00	N=49			
							9.50	N=50+			

Installation: Bentonite Seal; 50 mmø Slotted Pipework; Solid Pipework; Pea Shingle; 6.00

Remarks:

Scale 1:50

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Borehole Three ..... continued

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
As above											
							11,00	N=43			
							12.50	N=50+			
			19.70				14.00	N=50+			
							15.50	N=50+			
							17.00	N=50+			
							18.50	N=50+			
Boreholed closed at 20.00m							20.00	N=50+			

11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0

Remarks:

Scale 1:50

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler One

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.20	0.20		1	U	GL–0.60				
Light greyish brown silty fine to medium SAND with flint gravel		0.40	0.20								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.60	0.20				0.60	N=50+			
Window sampler closed at 0.60m No further progress–continued by dynamic probe											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample ▼–Water Struck D –Disturbed Sample ▽–Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Two

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.25	0.25		1	U	GL–1.00				
Light greyish brown silty very chalky fine to medium SAND with flint gravel		0.70	0.45								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		1.00	0.30				1.00	N=50+			
Window sampler closed at 1.00m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Three

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.30	0.30		1	U	GL–0.80				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.80	0.50								
Window sampler closed at 0.80m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Four

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.15	0.15		1	U	GL–0.50				
Light greyish brown silty fine to medium SAND with flint gravel		0.30	0.15								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.50	0.20				0.50	N=50+			
Window sampler closed at 0.50m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Window Sampler Five

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.20	0.20		1	U	GL–0.80				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.80	0.60								
Window sampler closed at 0.80m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Six

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.20	0.20		1	U	GL–0.85				
Light greyish brown silty fine to medium SAND with flint gravel		0.50	0.30								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.85	0.35				0.85	N=50+			
Window sampler closed at 0.85m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Seven

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.30	0.30		1	U	GL–1.00				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		2.00	1.70		2	U	1.00–2.00				
Window sampler closed at 2.00m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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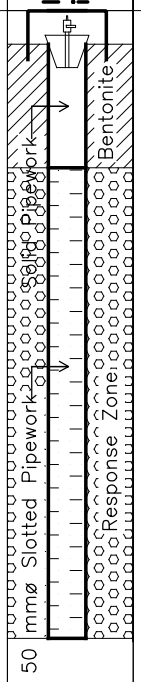
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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Window Sampler Eight

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL increasing in sand content with depth		0.60	0.60		1	U	GL–1.00				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		2.00	1.40		2	U	1.00–2.00				
Window sampler closed at 2.00m No further progress											



Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Nine

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N-Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL increasing in sand content with depth		0.60	0.60		1	U	GL–1.00				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		2.00	1.40		2	U	1.00–2.00	N=34			
Window sampler closed at 2.00m No further progress							2.00	N=50+			

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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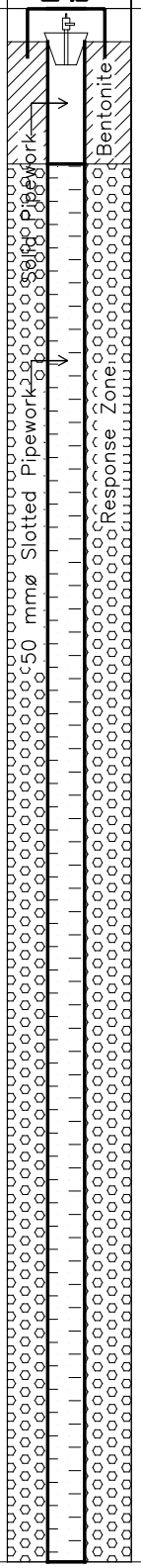
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Window Sampler Ten

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.20	0.20		1	U	GL–1.00				
Light greyish brown silty fine to medium SAND with flint gravel		0.60	0.40								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints			4.40		2	U	1.00–2.00	N=27			
					3	U	2.00–3.00	N=27			
					4	U	3.00–4.00	N=39			
					5	U	4.00–5.00	N=50+			
Window sampler closed at 5.00m		5.00									



Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Eleven

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.20	0.20		1	U	GL–0.70				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.70	0.50								
Window sampler closed at 0.70m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Twelve

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.20	0.20		1	U	GL–0.60				
Light greyish brown silty fine to medium SAND with flint gravel		0.40	0.20								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.60	0.20								
Window sampler closed at 0.60m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Thirteen

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.10	0.10		1	U	GL–0.70				
Light greyish brown silty fine to medium SAND with rare flint gravel		0.35	0.25								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.70	0.35								
Window sampler closed at 0.70m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Fourteen

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.10	0.10		1	U	GL–0.60				
Light greyish brown silty fine to medium SAND with rare flint gravel		0.25	0.15								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.60	0.35				0.60	N=50+			
Window sampler closed at 0.60m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Fifteen

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.10	0.10		1	U	GL–0.60				
Light greyish brown silty fine to medium SAND with rare flint gravel		0.35	0.25								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.60	0.25				0.60	N=50+			
Window sampler closed at 0.60m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Sixteen

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.10	0.10		1	U	GL–0.50				
Light greyish brown silty fine to medium SAND with rare flint gravel		0.30	0.20								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.50	0.20				0.50	N=50+			
Window sampler closed at 0.50m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Seventeen

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL		0.10	0.10		1	U	GL–1.00				
Light greyish brown silty fine to medium SAND with rare flint gravel		0.40	0.30								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		1.00	0.60				1.00	N=50+			
Window sampler closed at 1.00m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Eighteen

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL increasing in sand content with depth		0.20	0.20		1	U	GL–1.00				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		0.40	0.20				0.40	N=50+			
Window sampler closed at 0.40m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample ▼–Water Struck D –Disturbed Sample ▽–Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Ninteen

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy Topsoil FILL increasing in sand content with depth		0.30	0.30		1	U	GL–1.00				
Compact chalk with orange brown sandy possible reworked FILL		0.70	0.40								
1.0 White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		2.00	1.30		2	U	1.00–2.00				
2.0 Window sampler closed at 2.00m No further progress											
3.0											
4.0											
5.0											

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Window Sampler Twenty

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Compact brown chalky gravel sandy clayey Topsoil FILL		0.30	0.30		1	U	GL–1.00				
Medium dense very chalky with orange brown SAND		1.40	1.10		2	U	1.00–2.00				
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with flints		2.00	0.60								
Window sampler closed at 2.00m No further progress											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample ▼–Water Struck D –Disturbed Sample ▽–Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Trial Pit One (Soakaway Test One)

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.25	0.25								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		1.60	1.35								
Trial pit closed at 1.60m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Trial Pit Two

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.35	0.35								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		1.60	1.25								
Trial Pit closed at 1.60m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Trial Pit Four (Soakaway Test Four)

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.30	0.30								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		2.00	1.70								
Trial Pit closed at 2.00m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Trial Pit Five (Soakaway Test Five)

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.35	0.35								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		2.20	1.85								
Trial Pit closed at 2.20m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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Trial Pit Six

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.50	0.50								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		2.20	1.70								
Trial Pit closed at 2.20m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Trial Pit Seven

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.20	0.20								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		2.20	2.00								
Trial Pit closed at 2.20m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Trial Pit Eight (Soakaway Test Eight)

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.20	0.20								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		2.20	2.00								
Trial Pit closed at 2.20m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Trial Pit Nine

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.15	0.15								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		2.20	2.05								
Trial Pit closed at 2.20m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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ES02 Solstice Park Amesbury Wilts SP4 7SZ

Trial Pit Ten (Soakaway Test Ten)

Description of Strata	Legend	Depth	Thickness (m)	Water Level	Samples No.	Samples Type	Samples Depth (m)	S.P.T N–Value or Vane Strength	VOC (ppm)	Installation installed	Casing Depth(m)
Loose to compact light orange brown very silty slightly sandy clayey topsoil FILL with flint and chalk fragments		0.15	0.15								
White slightly to moderately weathered CHALK weak to moderately weak fracture closely to medium spaced with rare flint gravel		2.00	1.85								
Trial Pit closed at 2.00m											

1.0
2.0
3.0
4.0
5.0

Remarks:

Scale 1:25

Key : U–Undisturbed Sample (100mm diameter) B –Bulk Sample –Water Struck D –Disturbed Sample –Water Standing W–Water Sample T–Chemical Tub N–S.P.T. N–Value V–Vane Strength (kN/m²)

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS1**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.80	22
0.90	50+

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS3**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.10	3
0.20	3
0.30	6
0.40	12
0.50	10
0.60	17
0.70	43
0.80	41
0.90	50+

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS5**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.10	3
0.20	4
0.30	7
0.40	8
0.50	7
0.60	10
0.70	21
0.80	24
0.90	25
1.00	28
1.10	31
1.20	29
1.30	29
1.40	26
1.50	20
1.60	22
1.70	15
1.80	9
1.90	9
2.00	20
2.10	46

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS7**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.10	22
0.20	3
0.30	5
0.40	6
0.50	6
0.60	5
0.70	6
0.80	7
0.90	6
1.00	8
1.10	12
1.20	11
1.30	14
1.40	16
1.50	15
1.60	12
1.70	13
1.80	15
1.90	13
2.00	9
2.10	10
2.20	11
2.30	14
2.40	14
2.50	24
2.60	27

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS8**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.10	4
0.20	6
0.30	8
0.40	10
0.50	15
0.60	14
0.70	14
0.80	14
0.90	8
1.00	10
1.10	10
1.20	9
1.30	18
1.40	20
1.50	22
1.60	17
1.70	10
1.80	14
1.90	26
2.00	37

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS9**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
2.50	24
2.60	46
2.70	19
2.80	17
2.90	30
3.00	14
3.10	13
3.20	11
3.30	9
3.40	16
3.50	17
3.60	17
3.70	23
3.80	26
3.90	23
4.00	21
4.10	20
4.20	37
4.30	50+

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **WS12**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.10	5
0.20	6
0.30	6
0.40	9
0.50	19
0.60	50+

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS12**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
1.20	24
1.30	16
1.40	17
1.50	16
1.60	29
1.70	50+

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **contiued from WS19**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.10	2
0.20	3
0.30	6
0.40	10
0.50	6
0.60	4
0.70	6
0.80	13
0.90	13
1.00	16
1.10	20
1.20	19
1.30	14
1.40	21
1.50	20
1.60	11
1.70	10
1.80	8
1.90	14
2.00	19
2.10	23
2.20	22
2.30	17
2.40	14
2.50	8
2.60	7
2.70	6
2.80	9
2.90	10
3.00	11
3.10	26
3.20	22
3.30	16
3.40	19
3.50	10
3.60	14
3.70	27
3.80	28
3.90	15
4.00	12

Depth (m)	Blows (No.)
4.10	7
4.20	9
4.30	6
4.40	7
4.50	8
4.60	8
4.70	8
4.80	7
4.90	7
5.00	9
5.10	9
5.20	8
5.30	10
5.40	8
5.50	11
5.60	11
5.70	9
5.80	9
5.90	8
6.00	9
6.10	8
6.20	9
6.30	10
6.40	22
6.50	24
6.60	19
6.70	9
6.80	12
6.90	11
7.00	10
7.10	12
7.20	10
7.30	9
7.40	14
7.50	13
7.60	11
7.70	11
7.80	11
7.90	12
8.00	13

Depth (m)	Blows (No.)
8.10	20
8.20	17
8.30	50+

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LOCATION *ES02 Solstice Park Amesbury Wilts SP4 7SZ*

DYNAMIC PROBE PLOT **WS20**

N.B. Where water is encountered within a granular material, the bearing capacity should be halved

Depth (m)	Blows (No.)
0.10	2
0.20	3
0.30	7
0.40	12
0.50	13
0.60	14
0.70	13
0.80	15
0.90	14
1.00	14
1.10	16
1.20	12
1.30	8
1.40	11
1.50	19
1.60	13
1.70	10
1.80	8
1.90	7
2.00	9
2.10	14
2.20	18
2.30	12
2.40	8
2.50	7
2.60	6
2.70	7
2.80	11
2.90	9
3.00	10
3.10	7
3.20	8
3.30	15
3.40	12
3.50	7
3.60	7
3.70	7
3.80	8
3.90	19
4.00	21

Depth (m)	Blows (No.)
4.10	16
4.20	13
4.30	16
4.40	17
4.50	14
4.60	16
4.70	12
4.80	16
4.90	32
5.00	50+

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Soakaway No.: Trial Pit One **Site Address:** ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

B.R.E 365 - Soil Infiltration Rate

Depth of Test Hole		1.60 m
Dimensions of Test Hole	Width	1.50 m
	Length	1.75 m
Depth to Top of Water at Start of Test		0.80 m
Depth to discharge Drain		0.80 m

75%	0.20
25%	0.60
V75%-25%	1.05
ap50	5.225
tp75-25	555

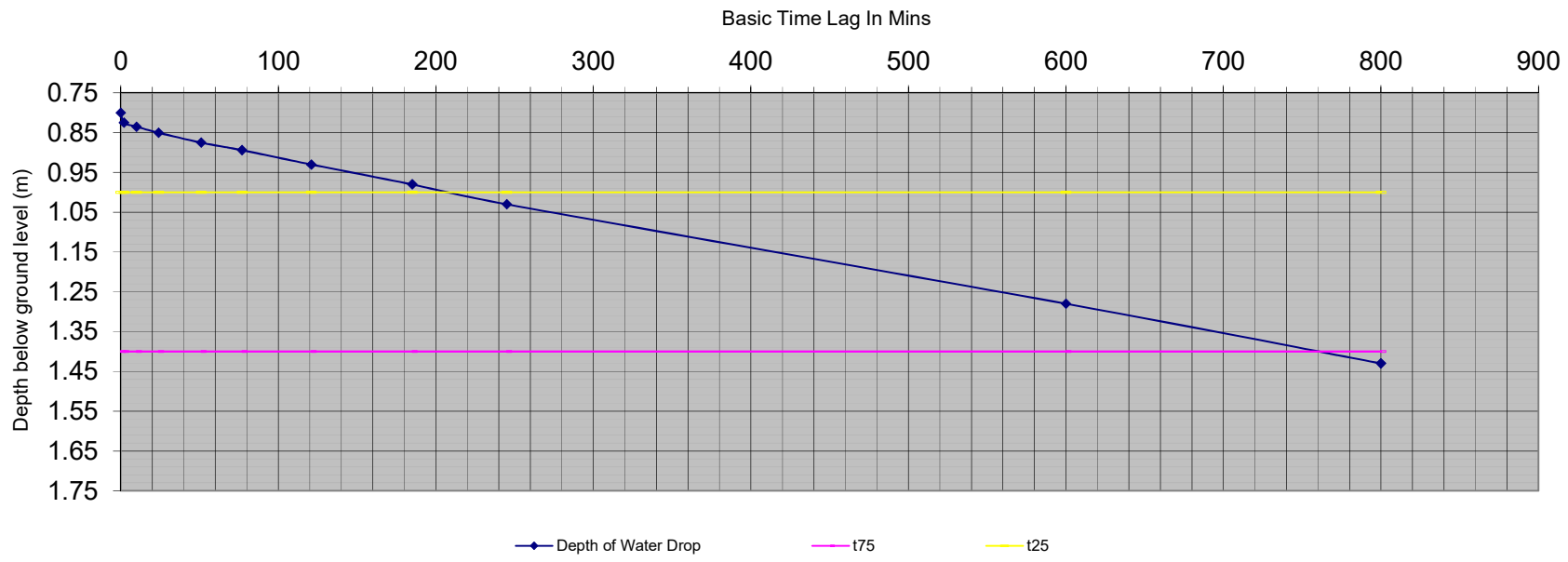
Start Time (Mins)	Depth of Water Drop (m)	Depth of Water (m)
0	0.000	0.800
2	0.025	0.775
10	0.035	0.765
24	0.050	0.750
51	0.075	0.725
77	0.094	0.706
121	0.130	0.670
185	0.180	0.620
245	0.230	0.570
600	0.480	0.320
800	0.630	0.170

Value to Note time at (m)	Time Equals (Mins)		
1.40	760	=	t75
1.00	205	=	t25

Marked in RED is extrapolated

Soil Infiltration Rate is ***6.0E-06 m/s***

Graph showing depth of Water vs Mins



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Soakaway No.: Trial Pit Three ***Site Address:*** ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

B.R.E 365 - Soil Infiltration Rate

Depth of Test Hole		2.10 m
Dimensions of Test Hole	Width	1.50 m
	Length	1.50 m
Depth to Top of Water at Start of Test		1.05 m
Depth to discharge Drain		1.05 m

75%	0.26
25%	0.79
V75%-25%	1.18
ap50	5.4
tp75-25	495

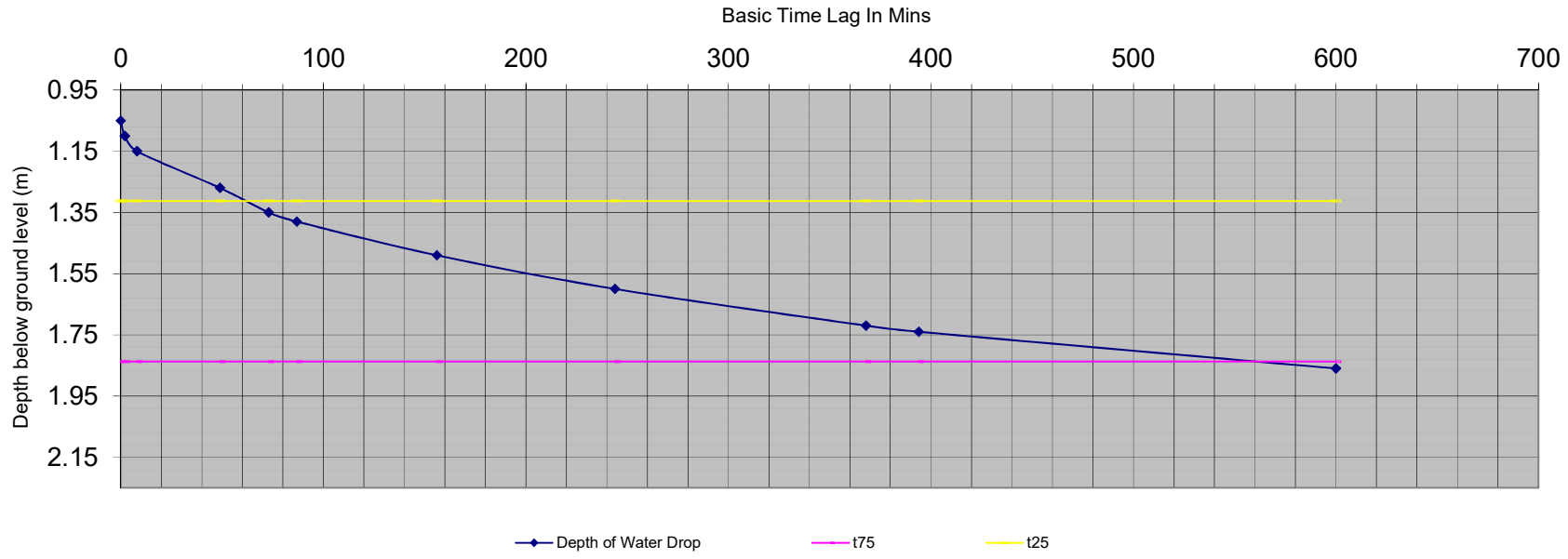
Start Time (Mins)	Depth of Water Drop (m)	Depth of Water (m)
0	0.000	1.050
2	0.050	1.000
8	0.100	0.950
49	0.220	0.830
73	0.300	0.750
87	0.330	0.720
156	0.440	0.610
244	0.550	0.500
368	0.670	0.380
394	0.690	0.360
600	0.810	0.240

Value to Note time at (m)	Time Equals (Mins)		
1.84	560	=	t75
1.31	65	=	t25

Marked in RED is extrapolated

Soil Infiltration Rate is ***7.4E-06 m/s***

Graph showing depth of Water vs Mins



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Soakaway No.: Trial Pit Four **Site Address:** ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

B.R.E 365 - Soil Infiltration Rate

Depth of Test Hole		2.00 m
Dimensions of Test Hole	Width	1.50 m
	Length	1.65 m
Depth to Top of Water at Start of Test		0.98 m
Depth to discharge Drain		0.98 m

75%	0.26
25%	0.77
V75%-25%	1.26
ap50	5.688
tp75-25	475

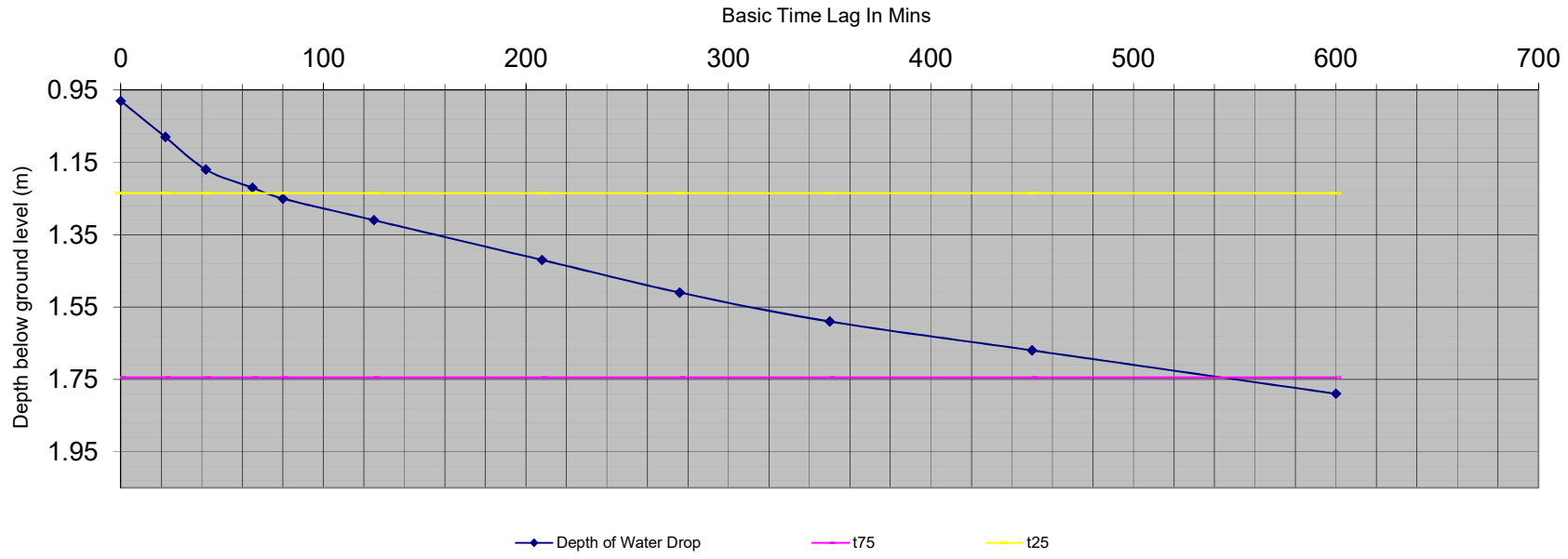
Start Time (Mins)	Depth of Water Drop (m)	Depth of Water (m)
0	0.000	1.020
22	0.100	0.920
42	0.190	0.830
65	0.240	0.780
80	0.270	0.750
125	0.330	0.690
208	0.440	0.580
276	0.530	0.490
350	0.610	0.410
450	0.690	0.330
600	0.810	0.210

Value to Note time at (m)	Time Equals (Mins)		
1.75	545	=	t75
1.24	70	=	t25

Marked in RED is extrapolated

Soil Infiltration Rate is ***7.8E-06 m/s***

Graph showing depth of Water vs Mins



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Soakaway No.: Trial Pit Five **Site Address:** ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

B.R.E 365 - Soil Infiltration Rate

Depth of Test Hole		2.20 m
Dimensions of Test Hole	Width	1.50 m
	Length	1.65 m
Depth to Top of Water at Start of Test		0.82 m
Depth to discharge Drain		0.82 m

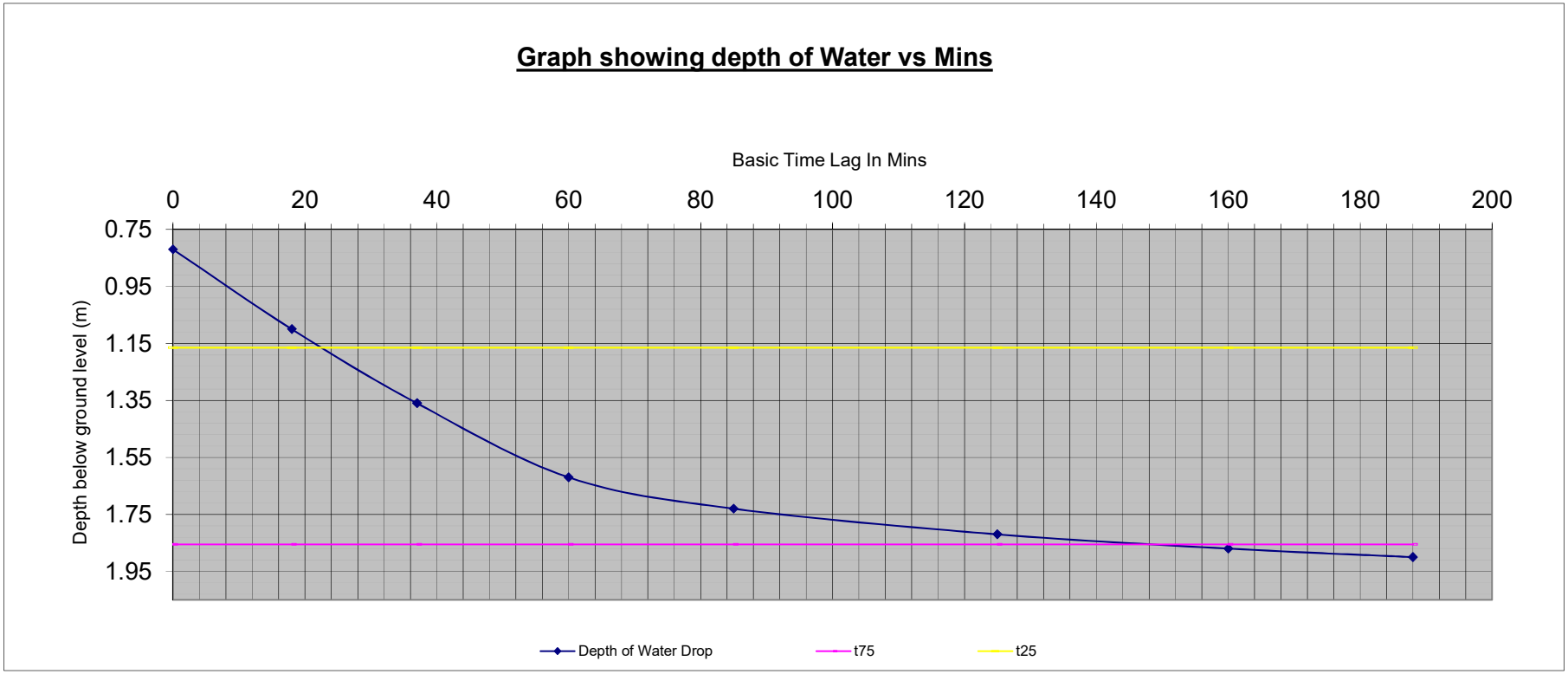
75%	0.35
25%	1.04
V75%-25%	1.71
ap50	6.822
tp75-25	118

Start Time (Mins)	Depth of Water Drop (m)	Depth of Water (m)
0	0.000	1.380
18	0.280	1.100
37	0.540	0.840
60	0.800	0.580
85	0.910	0.470
125	1.000	0.380
160	1.050	0.330
188	1.080	0.300

Value to Note time at (m)	Time Equals (Mins)		
1.86	144	=	t75
1.17	26	=	t25

Soil Infiltration Rate is ***3.5E-05 m/s***

Graph showing depth of Water vs Mins



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Soakaway No.: Trial Pit Eight **Site Address:** ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

B.R.E 365 - Soil Infiltration Rate

Depth of Test Hole		2.30 m
Dimensions of Test Hole	Width	1.50 m
	Length	1.50 m
Depth to Top of Water at Start of Test		0.83 m
Depth to discharge Drain		0.83 m

75%	0.37
25%	1.10
V75%-25%	1.65
ap50	6.66
tp75-25	215

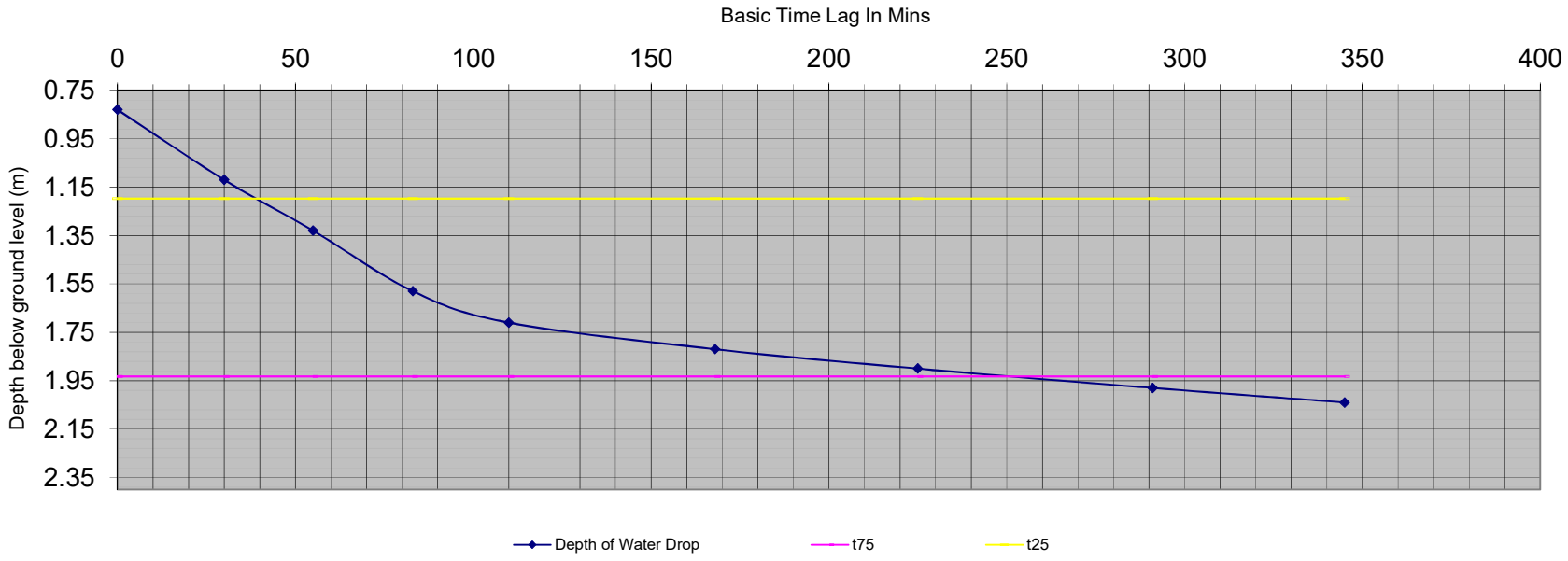
Start Time (Mins)	Depth of Water Drop (m)	Depth of Water (m)
0	0.000	1.470
30	0.290	1.180
55	0.500	0.970
83	0.750	0.720
110	0.880	0.590
168	0.990	0.480
225	1.070	0.400
291	1.150	0.320
345	1.210	0.260

Value to Note time at (m)	Time Equals (Mins)		
1.93	255	=	t75
1.20	40	=	t25

Marked in RED is extrapolated

Soil Infiltration Rate is ***1.9E-05 m/s***

Graph showing depth of Water vs Mins



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Date : 29/08/2018

Soakaway No.: Trial Pit Ten **Site Address:** ES02, Solstice Park, Amesbury, Wiltshire. SP4 7SZ

B.R.E 365 - Soil Infiltration Rate

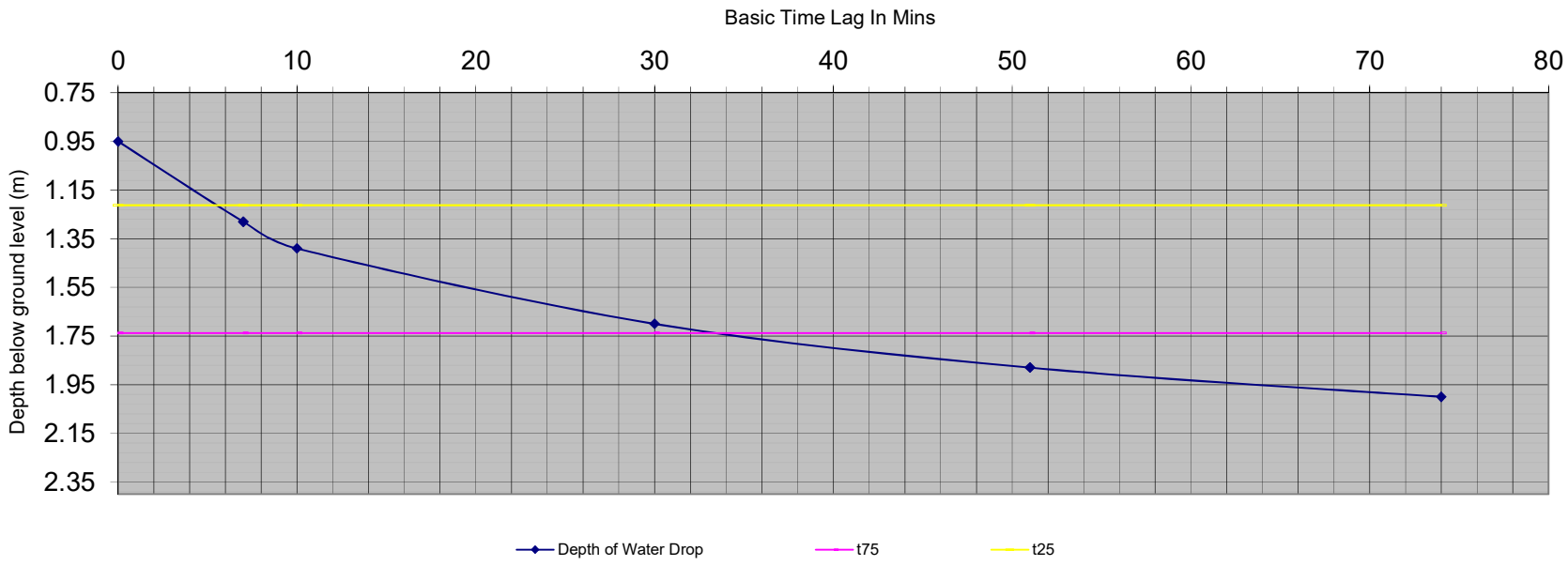
Depth of Test Hole		2.00 m
Dimensions of Test Hole	Width	1.50 m
	Length	1.45 m
Depth to Top of Water at Start of Test		0.95 m
Depth to discharge Drain		0.95 m

75%	0.26
25%	0.79
V75%-25%	1.14
ap50	5.2725
tp75-25	28

Start Time (Mins)	Depth of Water Drop (m)	Depth of Water (m)	Value to Note time at (m)	Time Equals (Mins)
0	0.000	1.050	1.74	34 = t75
7	0.330	0.720	1.21	6 = t25
10	0.440	0.610		
30	0.750	0.300		
51	0.930	0.120		
74	1.050	0.000		

Soil Infiltration Rate is ***1.3E-04 m/s***

Graph showing depth of Water vs Mins



CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 1/11

Loc'n	Sample	Depth (m)
CBR 1		0.6

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

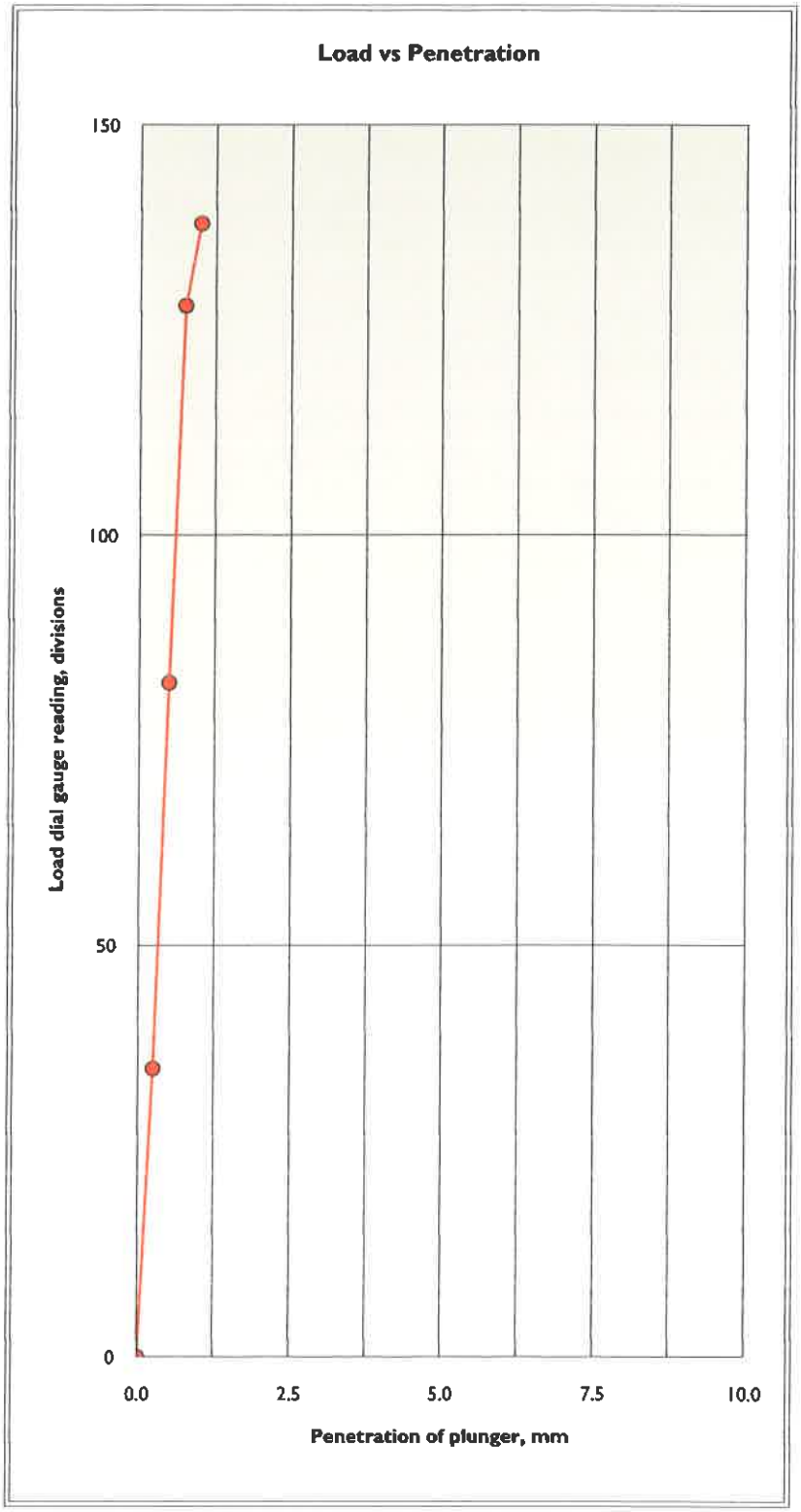
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	35	
0.50	82	
0.75	128	
1.00	138	
1.25	off jack	
1.50		
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture Cont. %	Density, Mg/m³ Bulk	Dry	% retained at 20mm
20			

CBR		Penet'n	Top	Bottom
	%	2.5mm	>27.4	
		5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 2/11

Loc'n	Sample	Depth (m)
CBR 2		0.6

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

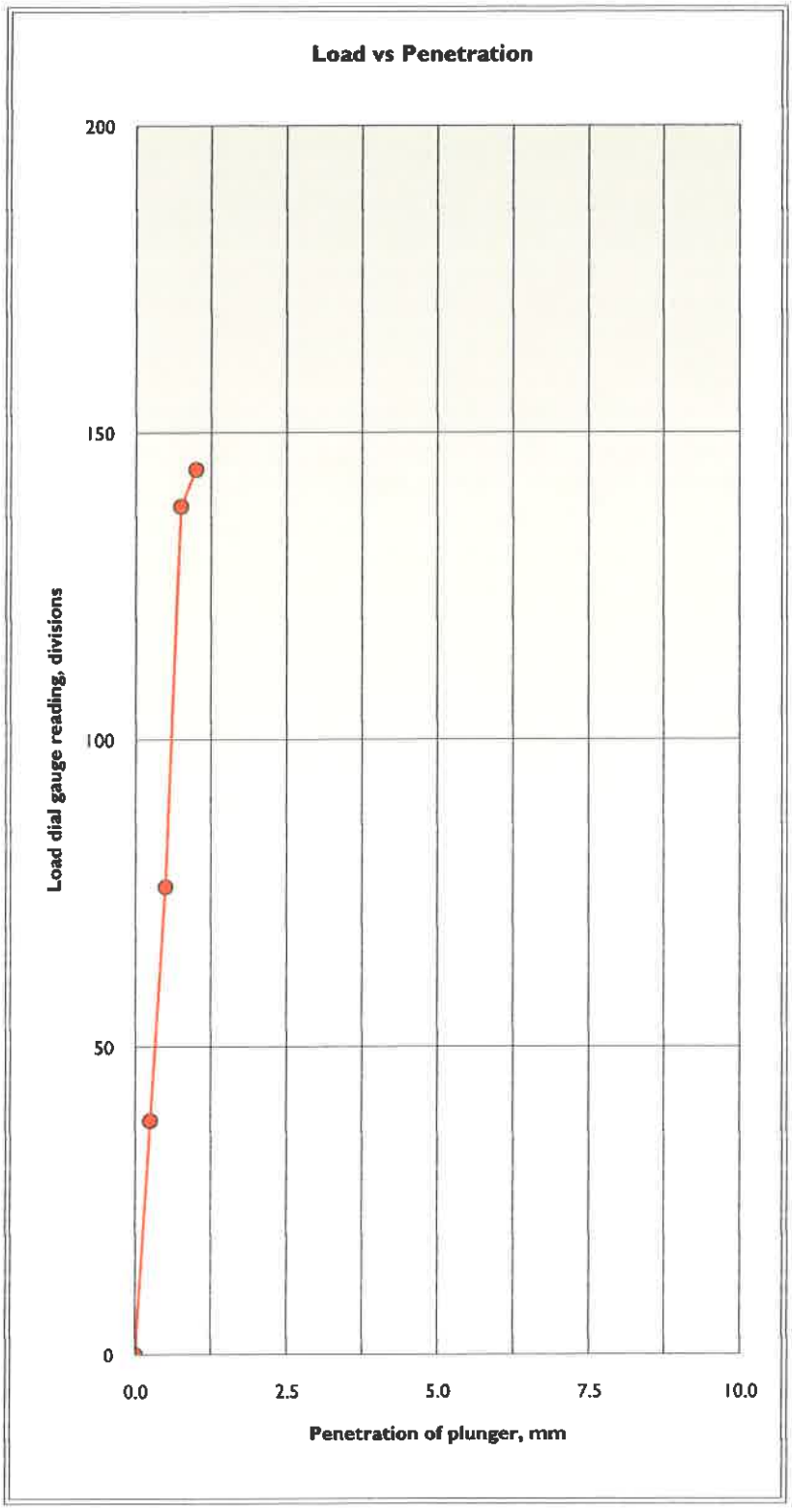
Penetration	Load Dial Gauge, div	
mm	top	bottom
0.00	0	
0.25	38	
0.50	76	
0.75	138	
1.00	144	
1.25	off jack	
1.50		
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture	Density, Mg/m³		% retained
Cont. %	Bulk	Dry	at 20mm
18			

		Penet'n	Top	Bottom
C B R	%	2.5mm	>28.6	
		5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 3/11

Loc'n	Sample	Depth (m)
CBR 3		**0.6**

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

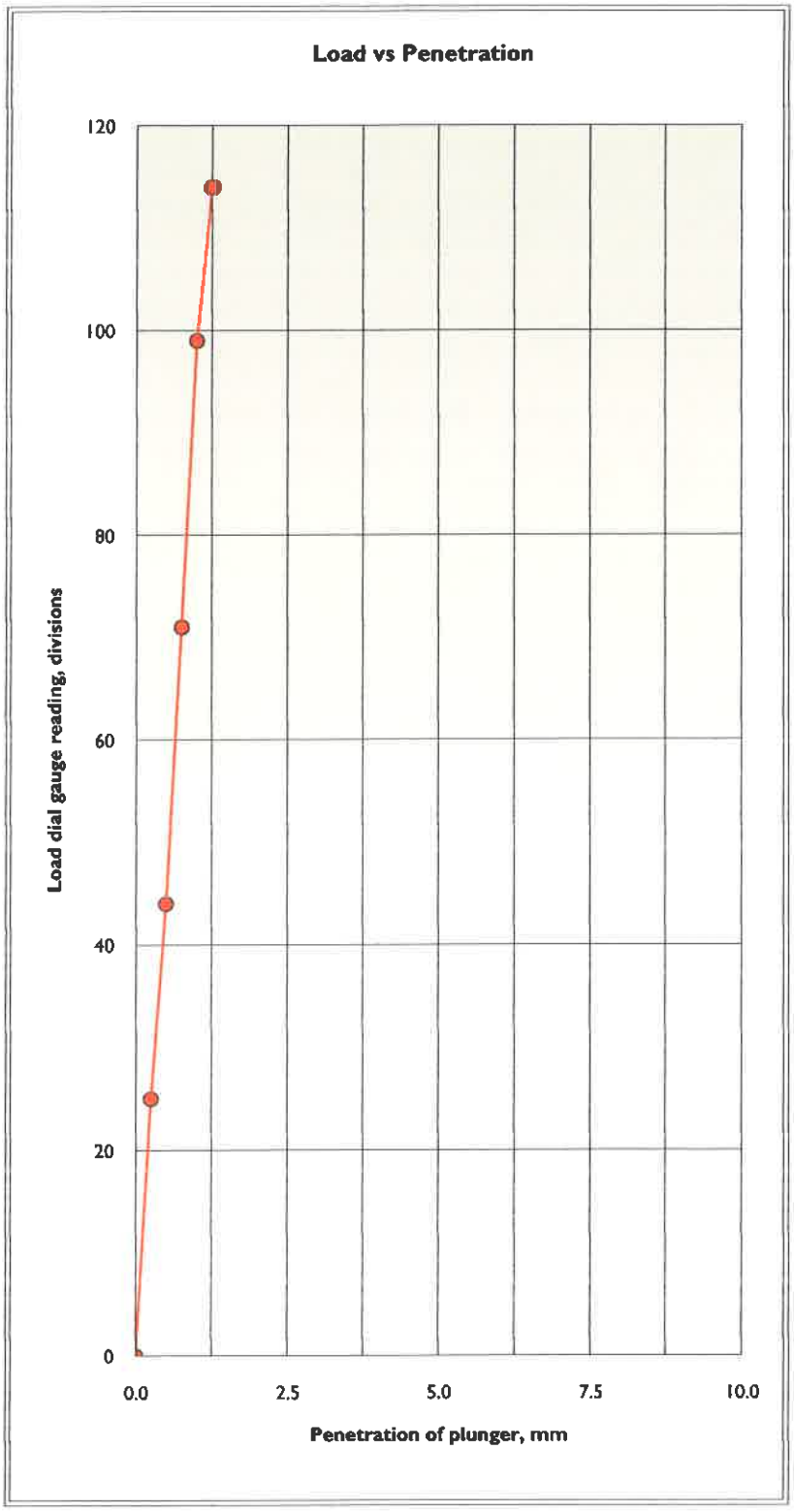
Penetration	Load Dial Gauge, div	
mm	top	bottom
0.00	0	
0.25	25	
0.50	44	
0.75	71	
1.00	99	
1.25	114	
1.50	off jack	
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture	Density, Mg/m³		% retained
Cont. %	Bulk	Dry	at 20mm
20			

		Penet'n	Top	Bottom
C B R	%	2.5mm	>22.7	
		5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 4/11

Loc'n	Sample	Depth (m)
CBR 4		**0.6**

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

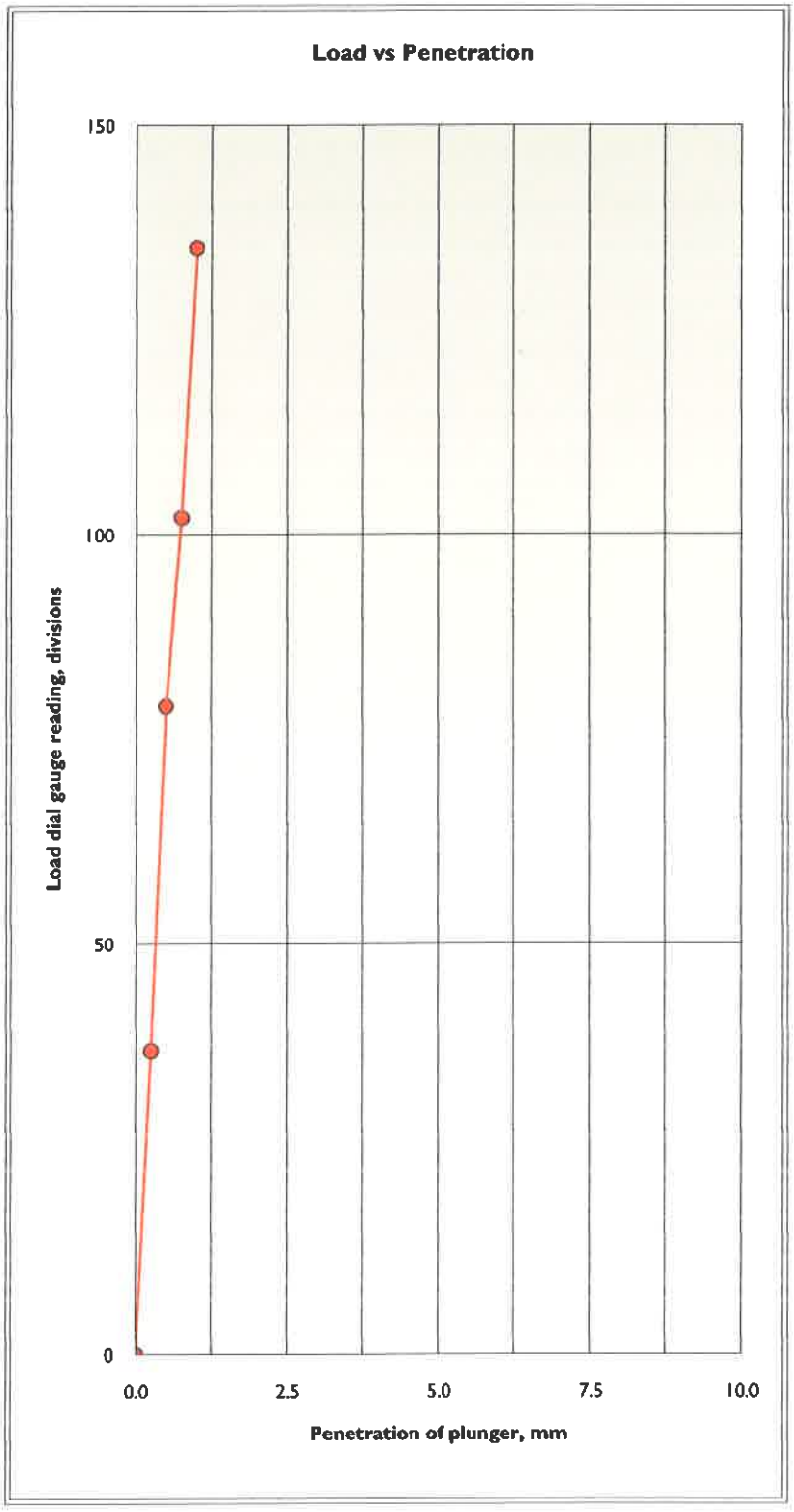
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	37	
0.50	79	
0.75	102	
1.00	135	
1.25	off jack	
1.50		
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture Cont. %	Density, Mg/m³ Bulk	Dry	% retained at 20mm
21			

CBR	Penet'n	Top	Bottom
C B % R	2.5mm	>26.8	
	5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 5/11

Loc'n	Sample	Depth (m)
CBR 5		**0.6**

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

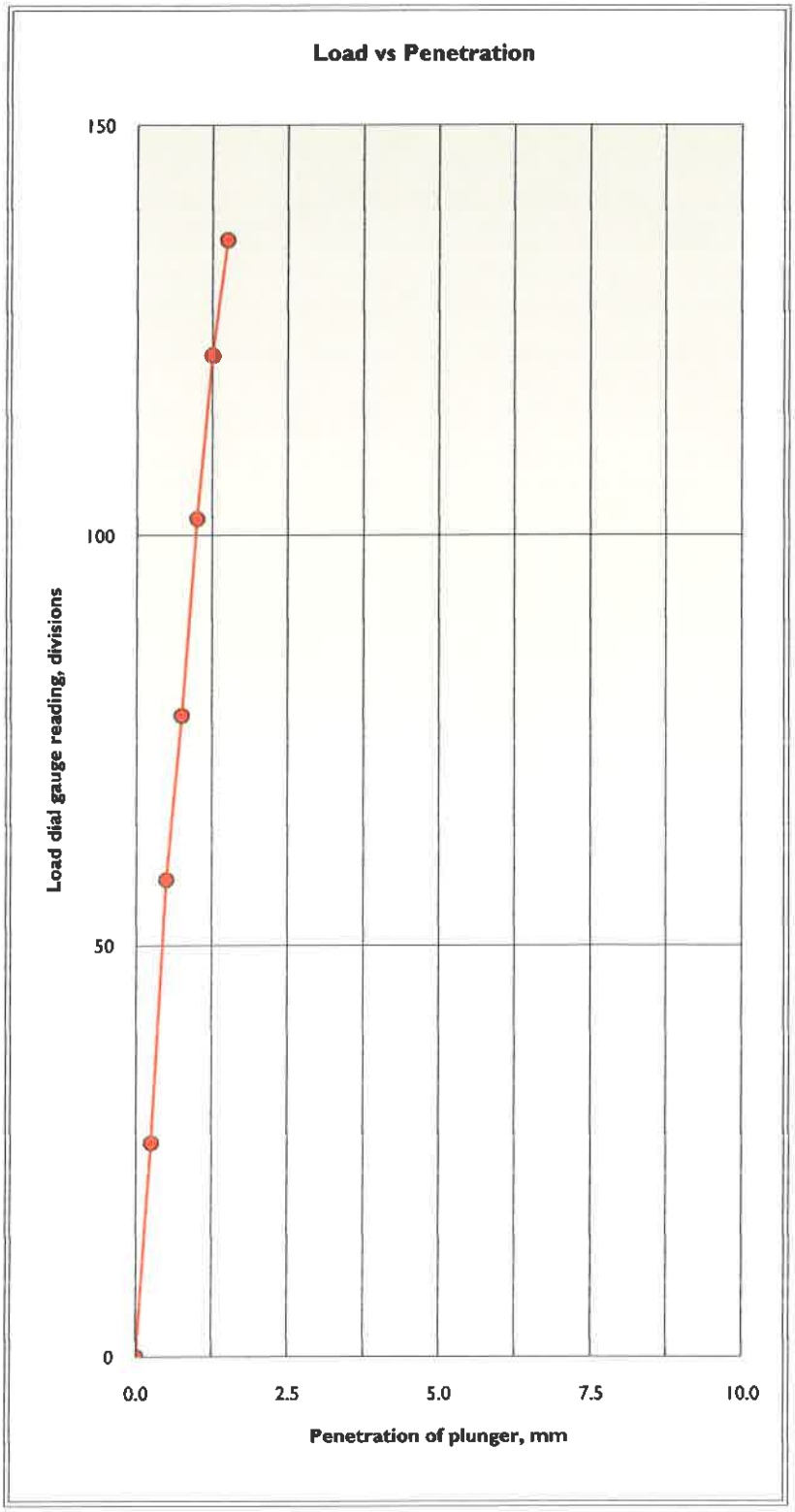
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	26	
0.50	58	
0.75	78	
1.00	102	
1.25	122	
1.50	136	
1.75	off jack	
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture	Density, Mg/m³		% retained
Cont. %	Bulk	Dry	at 20mm
18			

CBR		Penet'n	Top	Bottom
	%	2.5mm	>27.0	
		5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
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Loc'n	Sample	Depth (m)
CBR 6		0.6

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

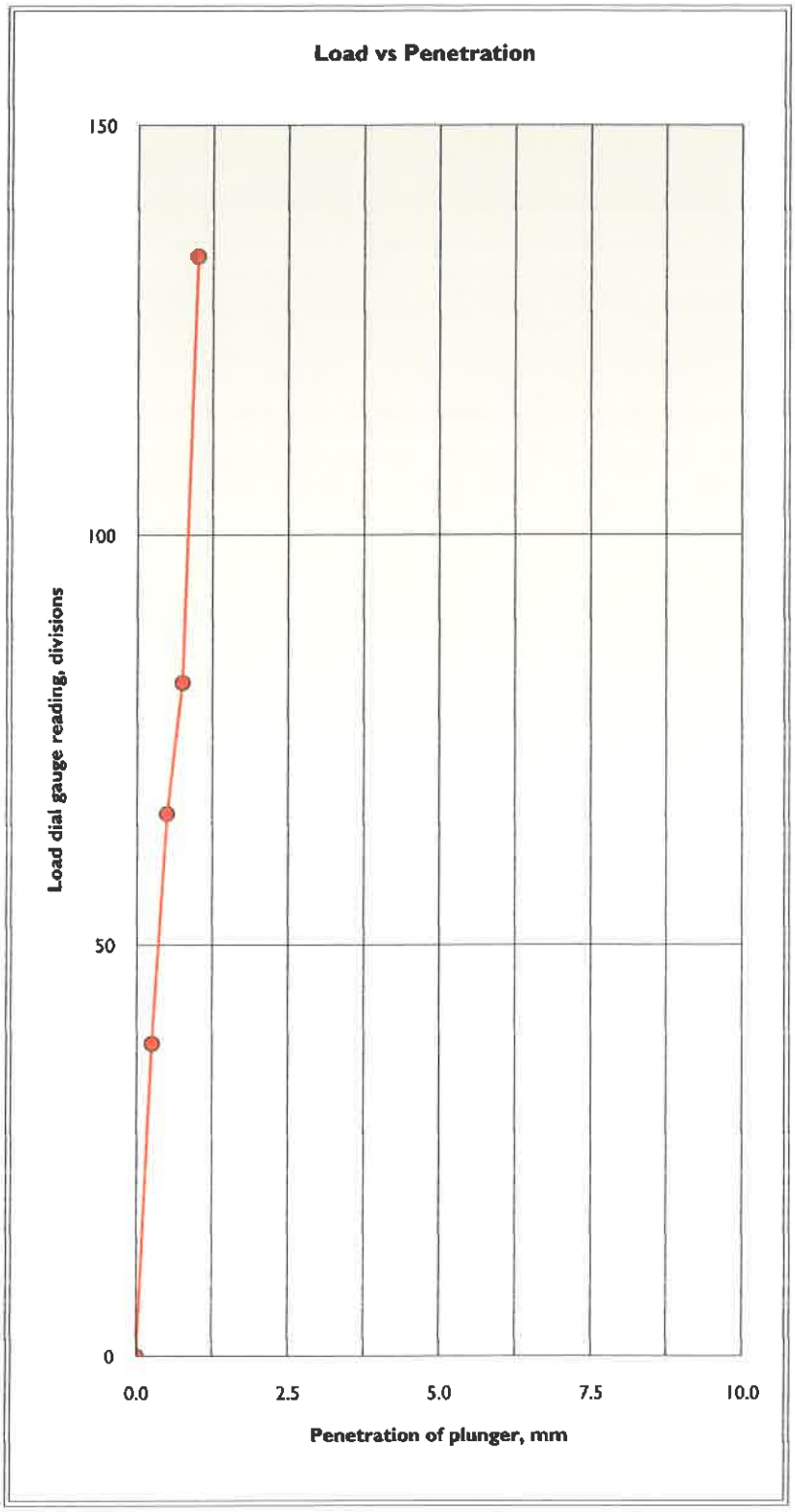
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	38	
0.50	66	
0.75	82	
1.00	134	
1.25	off jack	
1.50		
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture	Density, Mg/m³		% retained
Cont. %	Bulk	Dry	at 20mm
15			

		Penet'n	Top	Bottom
C B R	%	2.5mm	>26.6	
		5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 7/11

Loc'n	Sample	Depth (m)
CBR 7		**0.6**

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

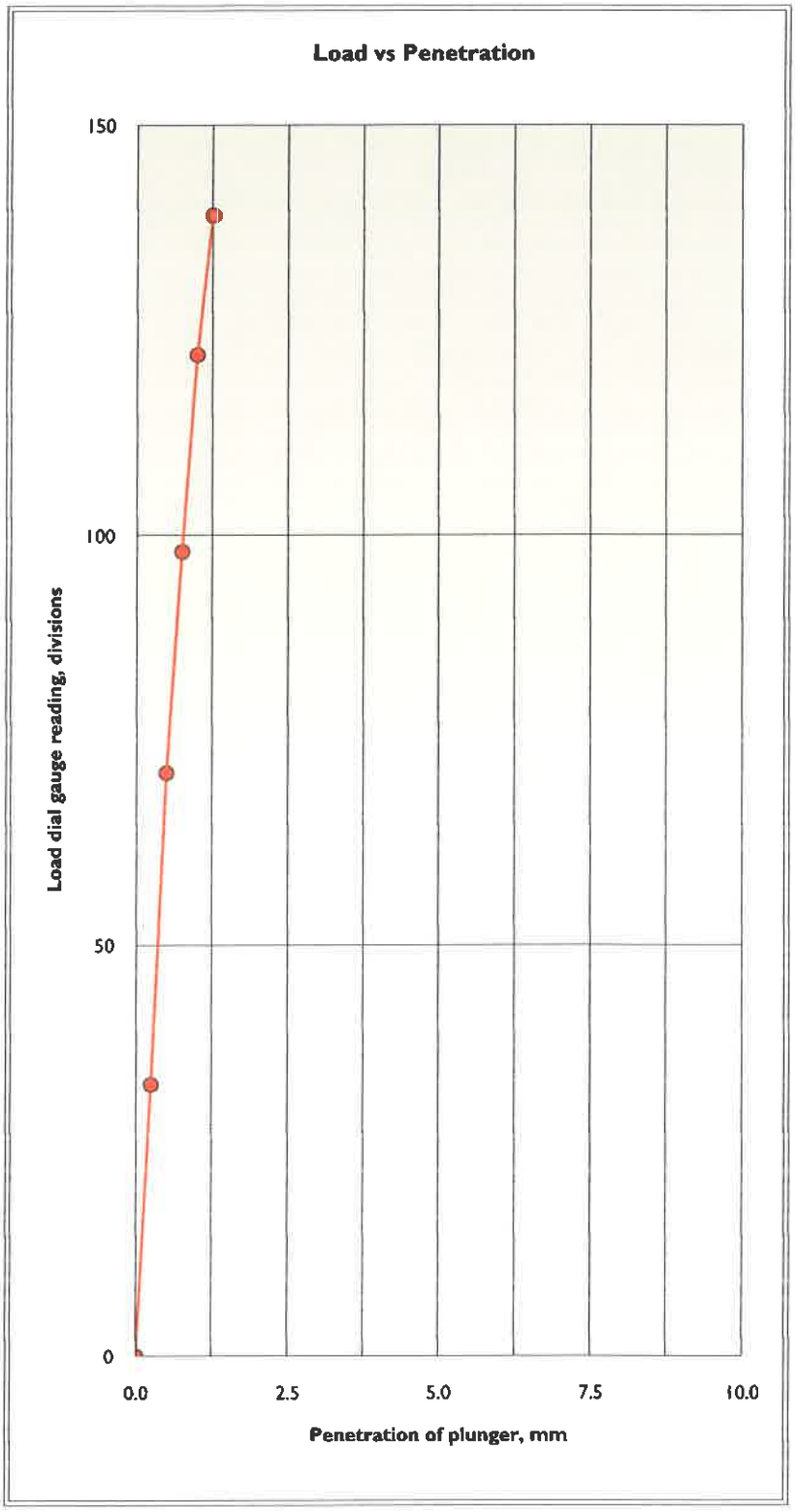
Penetration	Load Dial Gauge, div	
mm	top	bottom
0.00	0	
0.25	33	
0.50	71	
0.75	98	
1.00	122	
1.25	139	
1.50	off jack	
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture	Density, Mg/m³		% retained
Cont. %	Bulk	Dry	at 20mm
14			

C		Penet'n	Top	Bottom
B	%	2.5mm	>27.6	
R		5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 8/11

Loc'n	Sample	Depth (m)
CBR 8		0.6

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

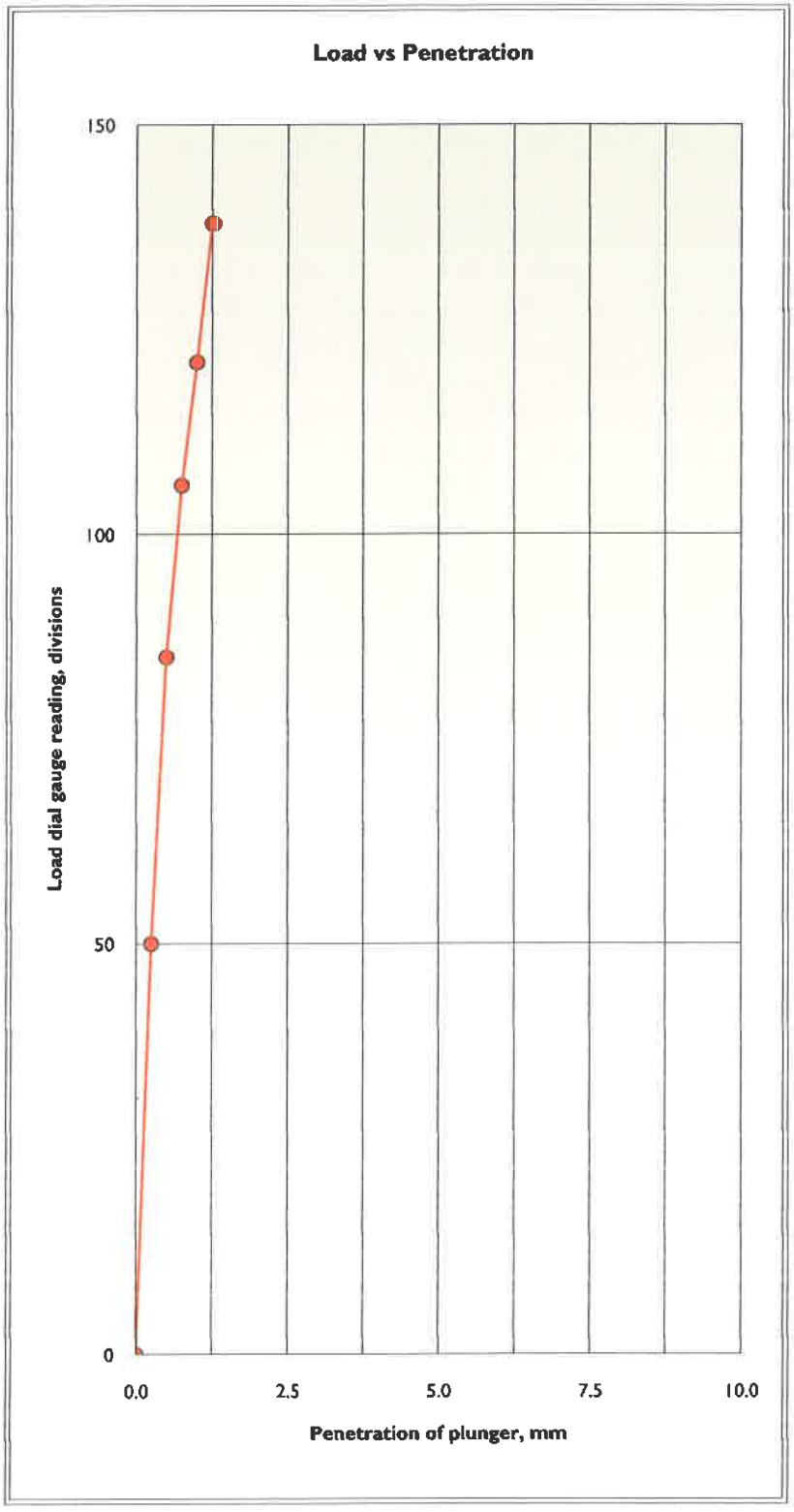
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	50	
0.50	85	
0.75	106	
1.00	121	
1.25	138	
1.50	off jack	
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture Cont. %	Density, Mg/m³ Bulk	Dry	% retained at 20mm
23			

CBR	Penet'n	Top	Bottom
%	2.5mm	>27.4	
	5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 9/11

Loc'n	Sample	Depth (m)
CBR 9		0.6

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

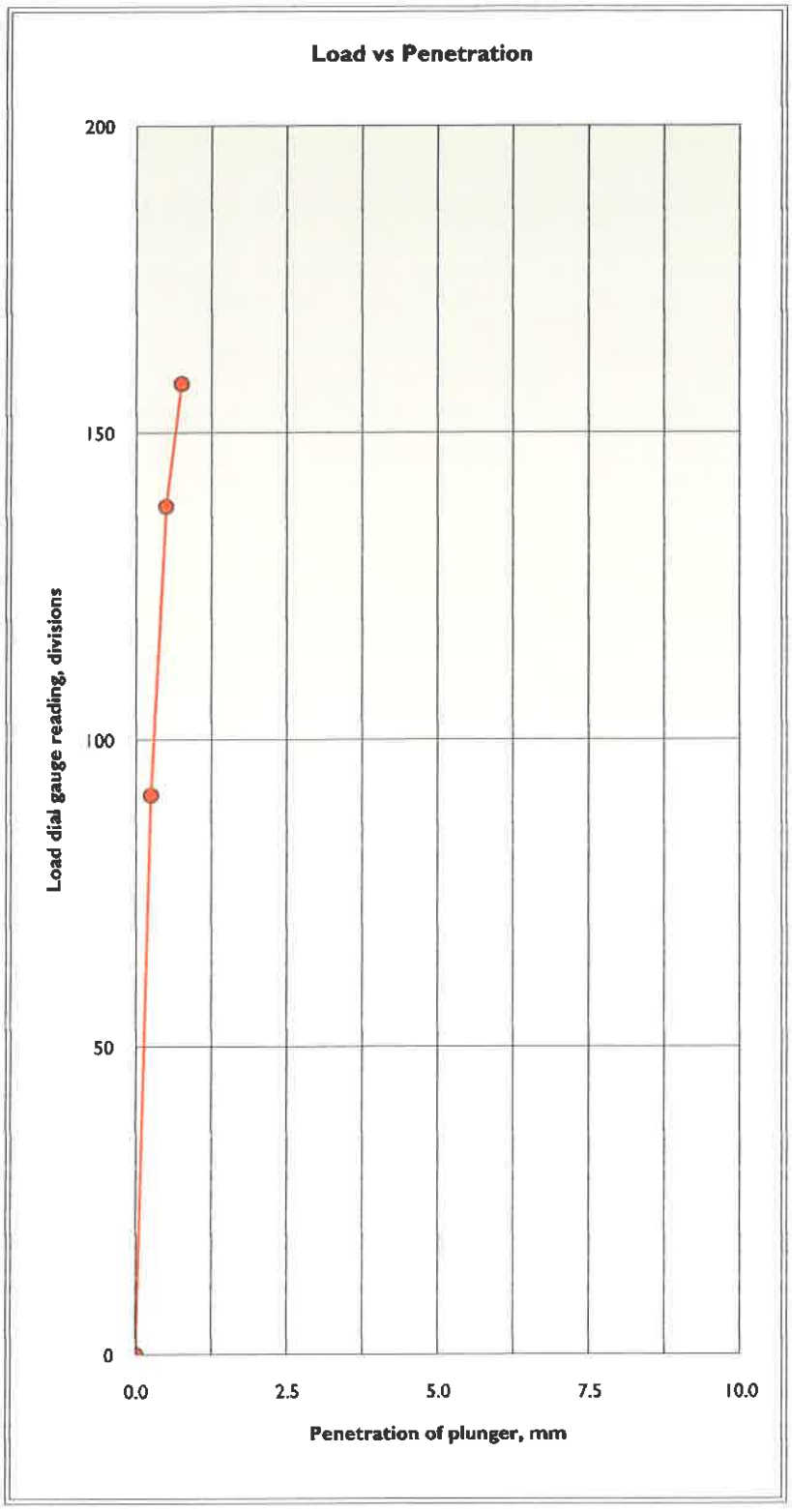
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	91	
0.50	138	
0.75	158	
1.00	off jack	
1.25		
1.50		
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture Cont. %	Density, Mg/m³ Bulk	Dry	% retained at 20mm
17			

CBR	Penet'n	Top	Bottom
%	2.5mm	>31.4	
	5.0mm		

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 10/11

Loc'n	Sample	Depth (m)
CBR 10		0.6

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

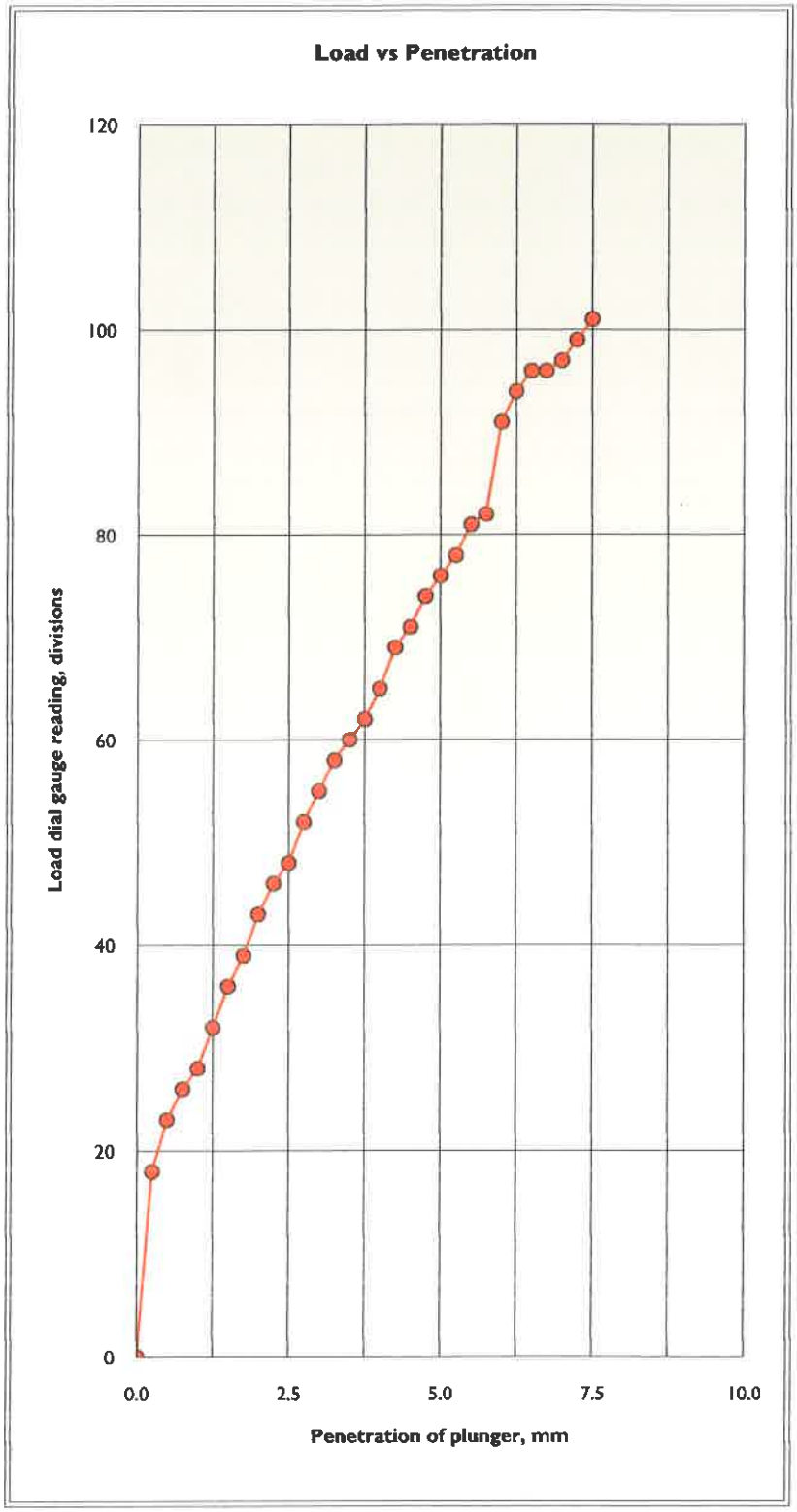
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	18	
0.50	23	
0.75	26	
1.00	28	
1.25	32	
1.50	36	
1.75	39	
2.00	43	
2.25	46	
2.50	48	
2.75	52	
3.00	55	
3.25	58	
3.50	60	
3.75	62	
4.00	65	
4.25	69	
4.50	71	
4.75	74	
5.00	76	
5.25	78	
5.50	81	
5.75	82	
6.00	91	
6.25	94	
6.50	96	
6.75	96	
7.00	97	
7.25	99	
7.50	101	

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture	Density, Mg/m³		% retained
Cont. %	Bulk	Dry	at 20mm
20			

C B R %	Penet'n	Top	Bottom
	2.5mm	9.5	
	5.0mm	10.0	

CALIFORNIA BEARING RATIO

Project: ES02 SOLSTICE PARK, AMESBURY, SP4 7SZ
Client: Herts & Essex Site Investigations

Project No: 14895
Sheet No: 11/11

Loc'n	Sample	Depth (m)
CBR 11		0.6

Description
Moderately weak white unstained CHALK, bedding fact. clean & tight

Sample Preparation	
In situ	
Undisturbed	
Remoulded	
Recompacted	2.5kg
	4.5kg

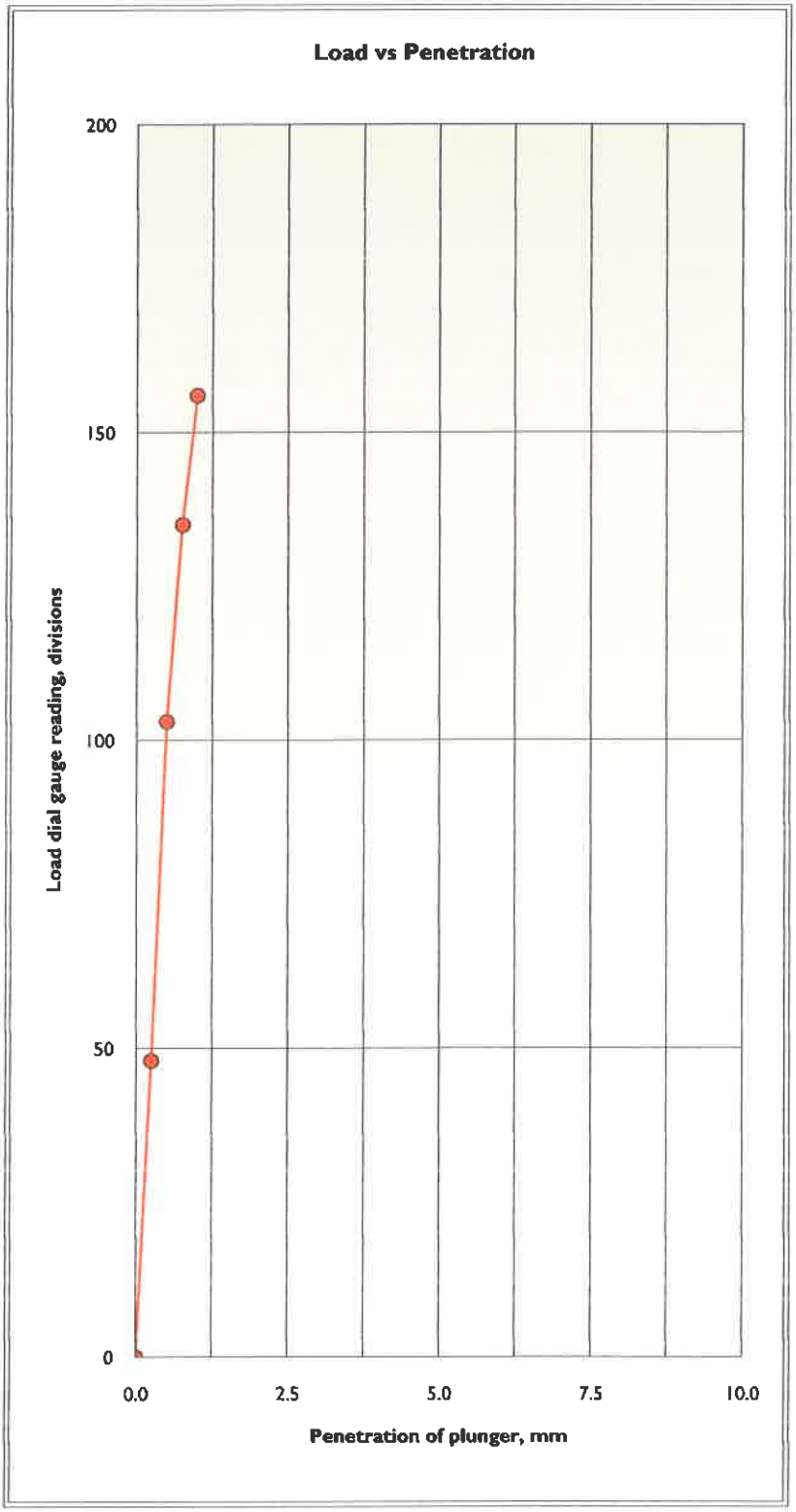
Penetration mm	Load Dial Gauge, div top	bottom
0.00	0	
0.25	48	
0.50	103	
0.75	135	
1.00	156	
1.25	off jack	
1.50		
1.75		
2.00		
2.25		
2.50		
2.75		
3.00		
3.25		
3.50		
3.75		
4.00		
4.25		
4.50		
4.75		
5.00		
5.25		
5.50		
5.75		
6.00		
6.25		
6.50		
6.75		
7.00		
7.25		
7.50		

Surcharge, kg	9
Seating Load, N	50
Proving Ring Factor, N/div	26.327

Particles larger than 20 mm may be present within the test area.

CBR at 2.5mm = (Dial reading x ring factor)/132.4

CBR at 5.0mm = (Dial reading x ring factor)/199.6



Moisture	Density, Mg/m³		% retained
Cont. %	Bulk	Dry	at 20mm
21			

		Penet'n	Top	Bottom
C B R	%	2.5mm	>31.0	
		5.0mm		