



Richard Jackson
Engineering Consultants

GROUND INVESTIGATION REPORT

Saxons Corner, St Georges Avenue, Emsworth, PO9 2SA

Barratt David Wilson Homes (BDW)

August 2021

Project no: 61195

Document Review Sheet: -

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Date: - 09 / 08 / 2021

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Date: - 09 / 08 / 2021

Document Status

DRAFT

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FINAL

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Revision Status

Issue	Date	Description	Prepared	Checked	Approved

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 Project: Saxons Corner, St Georges Avenue, Emsworth, PO9 2SA
 Client: Barratt David Wilson Homes (BDW)
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EXECUTIVE SUMMARY

Purpose:	To undertake an intrusive ground investigation to: • establish the prevailing ground conditions; • recover soil samples; • assess the contamination status of the site; • assess the gassing regime; • assess the suitability of infiltration drainage, and; • provide recommendations for consideration in the design and construction of the proposed development scheme.
Site Status:	At the time of investigation, the site comprised an arable field.
Fieldwork:	The fieldwork comprised the following: • 19no. trial pits with soakage testing in 8no. locations; • 10no. windowless sampler (WLS) boreholes incl. 5no. monitoring standpipe installations; • 3no. gas monitoring visits with a further 3no. planned. In addition, in-situ testing and soil sampling were also undertaken.
Ground Conditions:	The ground conditions were found to comprise: • Topsoil – max. depth 0.45m below ground level (bgl); • Superficial Deposits – composed of cohesive Brickearth overlying Head Gravels and cohesive Head Deposits - base unproven in this investigation at a max. depth of 4.00m bgl. Groundwater was struck between 1.70m bgl & 2.45m bgl, with standing water level (SWL) monitored to be between 1.18m bgl & 2.23m bgl on 28.07.21.
Soil Contamination:	Concentrations of contaminants in soil samples analysed were recorded to be below their tier one screening values for the protection of human health.
Gassing Regime:	Gas monitoring to date has recorded the following: • Max. CO₂ concentrations – 3.9% by volume (v/v); • Max. CH₄ concentrations – 0.0% v/v • Max. VOC concentrations – 0.7ppm • Min. O₂ concentrations – 15.0% v/v • Max. Flow rates – 0.0l/hr The site has been characterised as a CS-1 in accordance with CIRIA C665 (2007). On the basis of the NHBC traffic-light system, the site has been classified as 'green'. The monitoring regime is ongoing and the classification should be reviewed and if necessary revised following completion of the monitoring regime.
Structural Foundations:	The presence of low strength cohesive deposits and a shallow water table are likely to preclude the adoption of shallow mass concrete foundations due to their limited bearing capacities, high settlement characteristics and the difficulties associated with excavating below the water table. Piled foundations are likely to be suitable, subject to appropriate deep soils investigation to confirm the ground conditions at depth.
Ground Floor Construction:	Fully suspended ground floor slabs with a sub floor void appropriate to medium volume change potential soils are recommended for adoption at the site.

Concrete Grade:	A design sulphate class of DS-1 is considered appropriate for use on site, with an aggressive chemical environment for concrete (ACEC) classification of AC-2z recommended.
Pavement Design:	A design CBR value of 1% is recommended where the subgrade comprises the shallow soft to firm cohesive RTD. Stabilization of subgrade materials through the use of lime/cement stabilisation may be necessary reduce the thicknesses of capping required.
Drainage:	Infiltration rates of between $1.6 \times 10^{-5} \text{m/s}$ and $7.5 \times 10^{-7} \text{m/s}$ have been calculated for the shallow soils at the site. The relatively shallow depth of groundwater at the site is considered likely to prevent the adoption of conventional infiltration drainage.

1. Introduction

Richard Jackson Ltd received an instruction to undertake ground investigation works in connection with the proposed development at Saxons Corner, St Georges Avenue, Emsworth, PO9 2SA.

The works were instructed by the Client, Barratt David Wilson Homes (BDW), and were carried out in accordance with our fee proposal of 7th April 2021, reference KB/61195/Geo_V2.

Richard Jackson Ltd (RJL) have previously prepared a phase one desk study for the site, report reference 61195 dated July 2021. This is briefly reviewed in this report.

The intrusive investigation, on which this report is based, comprised the formation of 19no. trial pits (TP01-TP16, TP16A & TP17-TP18) together with the advancement of 10no. windowless sampler boreholes (WS01-WS10). In-situ testing and soil sampling were also undertaken. Semi-permanent monitoring standpipes were installed in 5no. boreholes and gas monitoring is on-going.

This report assesses the findings of the intrusive investigation and gives recommendations for use in the design and construction of the proposed scheme.

Chemical analyses have been undertaken in order that the contamination status of the site may be determined and the need for further investigation or remediation assessed.

This report shall be read in conjunction with the limitations of use provided in Appendix G.

2. Site Location and Description

The site was located at Saxons Corner, St. Georges Avenue, Emsworth, PO9 2SA. The approximate Ordnance Survey grid reference for the centre of the site was SU 733 063. A site location plan is presented as Figure 1 in Appendix A.

The site was triangular with maximum approximate dimensions of 340m north to south and 415m east to west and was approximately level at an elevation of 11m aOD.

At the time of investigation, the site comprised an arable field with a maize crop.

A detailed site description is presented as Section 4 of the RJL Phase One Desk Study Report, reference 61195, dated July 2021.

3. Proposed Development

The proposed development scheme is to comprise the construction of c.194 new residential dwellings with associated parking, roads, public open space and infrastructure.

A proposed development plan is presented in Appendix A.

4. Review of RJL Phase One Desk Study Report, ref. 61195 (July 2021)

The report recorded to the site to have comprised an agricultural field throughout the historical period examined (1866-2021). The surrounding area was also recorded as predominantly agricultural land until the 1930s when widespread residential development was noted.

The prevailing geology was identified to comprise superficial River Terrace Deposits (RTD) overlying the London Clay Formation. On-site BGS boreholes disclosed cohesive Head Deposits overlying the RTD at the site. The RTD were identified as a Secondary (A) Aquifer, whilst the underlying London Clay Formation was listed as an unproductive stratum.

No on-site sources of contamination were identified. Off-site sources were reported to include infilled features, an orchard and horticultural nurseries.

A moderate risk of soil and groundwater contamination and a high risk from ground gases was concluded to be presented to the identified sensitive receptors which included residential end users of the site, site workers, the underlying Secondary (A) Aquifer, water supply services and flora.

Intrusive ground investigation was recommended to confirm the prevailing ground conditions, assess the contamination status of the site and install monitoring wells in order that the gassing regime may be investigated.

5. Factual Ground Investigation Information

The findings of the factual ground investigation are provided in the following sections.

5.1. Fieldwork

The fieldwork on which the report is based was undertaken between 7th & 16th June 2012 and comprised the following:

- The excavation of 19no. trial pits – TP01-TP16, TP16A & TP17-TP18;
- The formation of 10no. small diameter windowless sampler boreholes (WLS) – WS01 – WS10;
- The installation of 5no. semi-permanent monitoring standpipes in WLS boreholes -WS01, WS03, WS04, WS06 & WS10;
- Infiltration tests in 8no. of the trial pits in accordance with BRE 365 (2016) – TP01, TP03, TP05, TP08, TP10, TP12, TP16A & TP18;

- 3no. gas monitoring visits undertaken between 1st and 29th July 2021. A further 3no. visits are scheduled.

Exploratory hole location plans are presented as Figure 2_Rev A and Figure 3_Rev A, with respect to proposed and existing site layouts respectively, in Appendix A.

Exploratory hole logs are presented in Appendix B and give descriptions and depths of strata encountered, together with details of samples taken, in-situ tests, well installations and other relevant information.

Soil samples were recovered from throughout the depth of exploratory holes for chemical analyses, geotechnical testing and record keeping purposes. Samples recovered for chemical analyses were stored in air tight plastic containers and amber glass jars.

Samples recovered for chemical analysis were transported to the analytical laboratory, Envirolabs Ltd, in cool boxes under chain of custody protocols.

Where applicable, investigative techniques, sampling, logging of soils and in-situ testing complied with the requirements of British Standard BS5930:2015- 'Code of Practice for Site Investigations'.

5.1.1. Windowless Sampling

The windowless sampling (WLS) utilised a track-mounted hydraulic power-pack and percussive hammer to drive a series of small diameter windowless tubes into the ground. WLS boreholes were positioned to provide a representative site coverage.

The WLS boreholes were formed to depths of between 1.00m below ground level (bgl) (WS08 & WS10) and 4.00m bgl (WS01-WS05). A number of the WLS boreholes were terminated shallow due to the density of the encountered materials preventing further progress being made.

In-situ standard penetration tests (SPTs) were undertaken throughout the depth of the WLS boreholes to provide an indication of the soil density / stiffness. The number of blows required to advance a 60° cone over the final 300mm of a 450mm total drive was recorded as the 'N' value these values were presented on the borehole logs.

Where cohesive soils were encountered, both a hand shear vane and pocket penetrometer were used to assess the undrained shear strength of the encountered soils. The results of these tests are recorded as the 'IVN' and 'PP' values respectively and are presented on the logs in Appendix B.

On completion of 5no. of the WLS boreholes, semi-permanent 50mm diameter HDPE gas and groundwater monitoring standpipes were installed to a maximum depth of 4.00m bgl (WS03 & WS04).

5.1.2. Trial Pitting

A mechanical excavator was used to form 19no. trial pits (TP01-TP16, TP16A & TP17-TP18) to depths of between 0.60m bgl (TP16) and 2.80m bgl (TP09 & TP13). Trial pits were positioned to provide a representative coverage of the site. TP16 was terminated at 0.60m bgl due to the presence of a land drain and relocated nearby as TP16A) which was advanced to 0.80m bgl.

Where cohesive soils were encountered, a pocket penetrometer was used to assess the undrained shear strength of the encountered soils. The results of these tests are recorded as the 'PP' values and are presented on the trial pit logs in Appendix B.

Infiltration tests were undertaken in 8no. of the trial pits as discussed in Section 5.1.3 below.

5.1.3. Infiltration Testing

Infiltration testing was undertaken in 8no. of the trial pits (TP01, TP03, TP05, TP08, TP10, TP12, TP16A & TP18), in accordance with current guidance given in BRE Digest 365, 'Soakaway Design', (2015). The infiltration testing was undertaken to assess the suitability of the site for permeable paving.

The trial pits were installed with a monitoring pipe and data logger before being backfilled with gravel to ensure the pits remained open for the duration of the testing. Test commenced with the addition of clean water from a water tank and the fall in water level in the trial pits was monitored at regular intervals.

Three tests were undertaken in each location in accordance with the requirements of BRE Digest 365. Table 1, provides a summary of the infiltration rates.

Table 1: Results of Infiltration Testing

Exploratory Hole	Infiltration Rate (m / s)		
	Test 1	Test 2	Test 3
TP01	3.3×10^{-6}	1.6×10^{-6}	1.8×10^{-6}
TP03	2.2×10^{-6}	1.3×10^{-6}	7.5×10^{-7}
TP05	1.6×10^{-5}	3.9×10^{-6}	4.1×10^{-6}
TP08	3.0×10^{-6}	1.3×10^{-6}	1.7×10^{-6}
TP10	1.3×10^{-5}	7.6×10^{-6}	1.6×10^{-5}
TP12	2.5×10^{-6}	1.5×10^{-6}	1.5×10^{-6}
TP16A	6.2×10^{-6}	2.5×10^{-6}	2.2×10^{-6}
TP18	6.1×10^{-6}	1.3×10^{-6}	1.7×10^{-6}

Infiltration test results and calculations are presented in Appendix E.

5.1.4. Gas Monitoring

The installed standpipes have been monitored on 3no. occasions since installation for the presence of methane, carbon-dioxide and oxygen using an infra-red portable gas analyser. Gas flow, atmospheric pressure, and standing water levels (SWLs) were also monitored during each visit.

A photo-ionisation detector (PID) was used during 2no. of the visits to assess the installations for the presence of volatile organic compounds (VOCs).

Measurements to the base of the standpipes were also made to confirm the depth of the installation.

5.2. Laboratory Testing

5.2.1. Geo-Environmental Testing

Chemical analyses were undertaken on a number of soil samples recovered from the site. Details of chemical analyses undertaken are provided in Section 6. Results of chemical analyses are presented in full in Appendix C.

5.2.2. Geotechnical Testing

Disturbed and undisturbed soil samples recovered from the exploratory holes were sent to a UKAS accredited soil testing laboratory Soil Property Testing (SPT) Ltd. The following tests were carried out in accordance with BS EN ISO: 17892-2:2014 & BS1377:1990:

- 12no. water content determinations;

- 12no. Atterberg limit tests (four-point liquid limit cone method);
- 2no. particle size distribution (PSD) determinations;
- 15no. soaked California Bearing Ratio (CBR) tests;
- 19no. pH value and sulphate content (2:1 water soil extract) determinations*;
- 4no. BRE Pyrites Suite Analyses.

**Some of these tests were undertaken by the UKAS and MCerts accredited laboratory Envirolab Ltd*

The results of these tests are presented in Appendices C & D.

5.3. Ground Conditions

The British Geological Survey (BGS) 1:50,000 scale series online mapping of the area, indicates River Terrace Deposits to exist beneath the site. The bedrock geology is understood to comprise the London Clay Formation.

The deposits encountered in this investigation comprised the following sequence:

- Topsoil
- Superficial Deposits

5.3.1. Topsoil

Topsoil was encountered from ground level in each of the 29no. exploratory hole locations, the thickness of which ranged from 0.30m (various) to 0.45m (WS02).

The Topsoil typically comprised a soft brown silty sandy clay with rootlets and occasional gravel of flint.

5.3.2. Superficial Deposits

Soils interpreted to represent the Superficial Deposits were encountered beneath the topsoil in each of the 29no. exploratory holes. The base of the RTD remained unproven in this investigation at a maximum depth of 4.00m bgl (WS01-WS05).

The Superficial Deposits were found to comprise 3no. distinct layers as follows:

- Brickearth – typically composed of a soft to firm orange/brown clay with occasional flint gravel;
- Head Gravels – typically composed of dense orange brown clayey sandy gravel of flint / very gravelly clay with gravel of flint;

- Head Deposits – typically composed of a soft silt/clay.

SPTs were undertaken throughout the depth of the Superficial Deposits. Full results are provided on the WLS logs presented in Appendix B and summarised on the 'N' Value –vs- Depth Plot presented in Appendix B and can be summarised as follows:

- Brickearth – N=5 (WS01 at 1.00m bgl) to N=28* (WS07 at 1.00m bgl);
- Head Gravels – N=24 (WS02 at 1.00m bgl) to N=50 for 250mm (WS10 at 1.00m bgl*);
- Cohesive Head Deposits – N=0 (WS02 at 3.00m bgl) to N=32 (WS04 at 4.00m bgl).

**This value was recorded at the base of the Brickearth but is considered to be representative of the underlying Head Gravels which were not recovered due to the density of the soils preventing advancement of the borehole in this location.*

Hand shear vane and pocket penetrometer tests were also undertaken throughout the depth of the Superficial Deposits – Brickearth and recorded in-situ strengths of between 26kN/m² (WS06 at 0.50m bgl) and 141kN/m² (TP14 at 0.90m bgl). A single test was also undertaken on a cohesive sample representative of the Head Gravels and recorded an in-situ shear strength of 141kN/m² (WS03 at 1.50m bgl). Full results are provided on the exploratory hole logs and summarised on the 'undrained shear strength –vs- depth plots presented in Appendix B.

2no. particle size distribution (PSD) determinations were undertaken on samples of the Head Gravels and recorded the following:

- Gravel – 0%
- Sand – 65% - 74%
- Silt – 17% - 23%
- Clay – 6% - 12%

Full results of these tests are provided in Appendix D.

Atterberg limit tests were undertaken on 12no. samples of the Superficial Deposits. 2 no. samples representative of the shallow Brickearth, 6no. sample representative of the Head Gravels and 4no. samples representative of the Head Deposits. Full results of these tests are provided in Appendix D and can be summarised as follows:

Brickearth

- Water Contents – 19.6% (TP13 at 1.10m) to 21.5% (TP15 at 1.00m);
- Liquid Limits – 40% (TP13 at 1.10m) to 42% (TP15 at 1.00m);
- Plastic Limits – 17% (TP13 at 1.10m & TP15 at 1.00m);

- Plasticity Indices – 23% (TP13 at 1.10m) to 25% (TP15 at 1.00m).

Modified plasticity indices of 23% were calculated on the basis of the following relationship:

- Modified plasticity index = (% samples passing 0.425mm sieve x plasticity index) / 100

The results of the Atterberg limit tests indicated the Superficial Deposits – Brickearth to be of medium plasticity and of medium volume change potential.

Head Gravels

- Water Contents – 9.1% (WS04 at 0.90m) to 15.2% (WS07 at 1.00m);
- Liquid Limits – 40% (WS04 at 0.90m) to 61% (WS04 at 0.90m);
- Plastic Limits – 18% (WS07 at 1.00m) to 25% (TP04&TP06 at 1.00m);
- Plasticity Indices – 22% (WS07 at 1.00m) to 37% (WS04 at 0.90m).

Modified plasticity indices of between 5.6% (WS04 at 0.90m) and 15.2% (WS07 at 1.00m) were calculated.

The results of the Atterberg limit tests indicated the Superficial Deposits – Head Gravels to be a variable material, ranging from medium to high plasticity. The Head Gravels were generally recorded to be of medium volume change potential, although when accounting for gravel content this reduced to a low to no volume change potential.

Head Deposits

- Water Contents – 20.4% (WS01 at 2.50m) to 30.8% (WS03 at 2.90m);
- Liquid Limits – 30% (WS02 at 3.50m) to 38% (WS01 at 2.50m);
- Plastic Limits – 14% (WS01 at 2.50m) to 23% (WS02 at 3.50m & WS06 at 2.50m bgl);
- Plasticity Indices – 7% (WS02 at 3.50m) to 24% (WS01 at 2.50m).

Modified plasticity indices of between 7% (WS02 at 3.50m) and 14% (WS03 at 2.90m) were calculated.

The results of the Atterberg limit tests indicated the Superficial Deposits – Head Deposits to be a variable material comprising either a low to medium plasticity material or low plasticity to non-plastic material. Where the Head Deposits were recorded as a plastic soil they were recorded to be of low to medium volume change potential.

5.3.3. Groundwater

Groundwater was encountered in a number of the exploratory holes during formation and subsequent monitoring. Table 2, provides a summary of the groundwater data and includes strike depth, observed rises in groundwater during borehole formation and standing water levels (SWLs) recorded during monitoring.

Table 2: Summary of Groundwater Levels

Exploratory Hole	Strike Depth (m bgl)	Rose to Depth (mins) (m bgl)	SWLs during monitoring on 28.07.21 (m bgl)
TP04	2.45	None Observed	NI
TP07	2.25	2.10 (10)	NI
TP09	2.20	None Observed	NI
TP13	2.50	None Observed	NI
TP17	2.00	None Observed	NI
WS01	2.00	None Observed	1.18
WS02	2.45	None Observed	NI
WS03	2.55	None Observed	2.23
WS04	1.80	None Observed	1.87
WS05	1.70	None Observed	NI
WS06	2.20	None Observed	1.20
WS10	NE	None Observed	Dry
<i>NI – No monitoring installation. NE – Not encountered.</i>			

5.3.4. Ground Gases

Table 3 provides a summary of the gas monitoring results to date. Full results are presented in Appendix F together with the calibration certificates for the gas analyser and PID used at the site.

Table 3: Summary of Gas Monitoring Results – 01/07/2021 – 29/07/2021

Borehole	Range of Peak CH ₄ (% v/v)	Range of Peak CO ₂ (% v/v)	Range of Min O ₂ (% v/v)	Range of Peak VOCs (ppm)	Range of Peak Flow Rates (l/hr)
WS01	0.0	0.0	20.4 – 20.5	0.1	0.0
WS03	0.0	2.2 – 3.9	15.0 – 17.1	0.2 – 0.7	0.0
WS04	0.0	0.8 – 2.4	17.7 – 19.8	0.1 – 0.2	0.0
WS06	0.0	0.0 – 0.2	20.0 – 20.4	0.1 – 0.3	0.0
WS10	0.0	0.2 – 3.1	15.0 – 20.2	0.2	0.0
<i>*Bold denotes worst case conditions</i>					

The results of the remaining 3no. monitoring visits will be presented under separate cover on completion of the monitoring programme.

6. Geo-Environmental Assessment

The purpose of this section is to provide an assessment of the contamination status of the site.

The analysis was undertaken by Envirolab Ltd., a UKAS and MCerts accredited laboratory.

6.1. Soil Analysis

A broad suite of analyses was scheduled, including metals, hydrocarbons, and inorganic compounds. 14no. samples of soil have been analysed for a broad suite of contaminants as follows:

Arsenic	pH
Cadmium	Total Cyanide
Chromium	Water Soluble Sulphate
Copper	Total Phenols
Nickel	BTEX Compounds
Lead	Total Sulphur
Mercury	Speciated Polyaromatic Hydrocarbons (PAH)
Selenium	Organic Matter Content
Zinc	Total Petroleum Hydrocarbons (TPH)

A further 6no. samples were analysed for the above listed metals and PAH compounds.

Asbestos screening was undertaken by the analytical laboratory on 9no. samples of soil.

Analysis for the presence of a range of Volatile Organic Compounds (VOCs) was undertaken on 6no. soil samples with Semi-VOC (SVOC) analyses undertaken in 4no. soil samples.

6.1.1. Reference Criteria

Screening values have been adopted for the site to reflect site-specific parameters, such as, intended end use and the Soil Organic Matter (SOM). Screening values have been developed on the basis of current guidance as given in The Land Quality Management / Chartered Institute of Environmental Health document, 'The LQM / CIEH S4ULS for human health assessment', (2015) publication no. S4UL3379.

It is understood that the site is to be developed for residential purposes. Therefore, screening values specific to a residential end use with homegrown produce have been adopted for the site.

A SOM of 1% has been adopted for organic chemicals for the purposes of the initial assessment on the basis of laboratory analysis. A SOM of 6% has been adopted for inorganic chemicals as detailed in 'The LQM / CIEH S4ULS for human health assessment', (2015).

In the absence of published S4UL for lead, the DEFRA Category 4 Screening Level (C4SL) for lead has been adopted.

Full details of the reference criteria used to derive the screening values, including the adopted values, are provided in Appendix C and summarised below.

The adopted screening values are also summarised in the following section.

6.1.2. Discussion of Analytical Results – Soils

Results of the chemical analyses undertaken on soils are presented in Appendix C and summarised in Table 4.

Table 4: Results of Chemical Analyses - Soils

Contaminant	No of Samples Tested	Screening Value (mg / kg)	Range of Concentrations (mg / kg)	No of samples exceeding screening value
Arsenic	20	37	<1 - 9	0
Cadmium	20	11	<0.5 – 1.6	0
Chromium	20	910	16 – 45	0
Copper	20	2,400	8 - 19	0
Nickel	20	180	10 – 33	0
Lead	20	200	11 - 57	0
Selenium	20	250	<1 – 2	0
Mercury	20	40	<0.17	0
Zinc	20	3,700	36 - 63	0

Contaminant	No of Samples Tested	Screening Value (mg / kg)	Range of Concentrations (mg / kg)	No of samples exceeding screening value
Benzo(a)pyrene	20	2.2	<0.04 – 0.06	0
Dibenz(a,h)anthracene	20	0.24	<0.04	0
Naphthalene	20	2.3	<0.03	0
Total Phenols	14	280	<0.2	0
TPH Aromatic C ₅ -C ₇	14	70	<0.01	0
TPH Aromatic C ₇ -C ₈	14	130	<0.01	0
TPH Aromatic C ₈ -C ₁₀	14	34	<1	0
TPH Aromatic C ₁₀ -C ₁₂	14	74	<1	0
TPH Aromatic C ₁₂ -C ₁₆	14	140	<1	0
TPH Aromatic C ₁₆ -C ₂₁	14	260	<1 – 1	0
TPH Aromatic C ₂₁ -C ₃₅	14	1,100	<1 - 22	0
TPH Aliphatic C ₅ -C ₆	14	42	<0.01	0
TPH Aliphatic C ₆ -C ₈	14	100	<0.01 – 0.01	0
TPH Aliphatic C ₈ -C ₁₀	14	27	<1	0
TPH Aliphatic C ₁₀ -C ₁₂	14	130	<1	0
TPH Aliphatic C ₁₂ -C ₁₆	14	1,100	<1	0
TPH Aliphatic C ₁₆ -C ₃₅	14	65,000	<1 - 13	0
Benzene	14	0.087	<0.01	0
Toluene	14	103	<0.01	0
Ethylbenzene	14	47	<0.01	0
M & P xylene	14	56	<0.01 – 0.02	0
O xylene	14	60	<0.01	0
Vinyl Chloride	6	0.00064	<0.001	0
1,2 – Dichloroethane	6	0.0071	<0.002	0
Trichloroethene	6	0.016	<0.001	
1,1,1 – Trichloroethane	6	8.8	<0.001	0
Tetrachloroethene	6	0.18	<0.001	0

Contaminant	No of Samples Tested	Screening Value (mg / kg)	Range of Concentrations (mg / kg)	No of samples exceeding screening value
Chlorobenzene	6	0.46	<0.001	0
Hexachlorobutadiene	6	0.29	<0.001	0

Asbestos was not detected in the 9no. samples which underwent asbestos screening.

Although screening values for SVOC are not presented in the above table, the recorded concentrations were below the method detection limit (MDL) for the test methods and thus SVOC within the soils are not considered to pose a risk to sensitive receptors, such as end users of the site.

From the above it is evident that none of the soil samples analysed presented elevated concentrations of the contaminants screened for when compared to their screening values for the protection of human health in a residential setting.

6.2. Risk Assessment

As detailed in the preceding sections, concentrations of contaminants in soil samples analysed have been recorded to be below their tier one screening values for the protection of human health.

Furthermore, the concentrations of hydrocarbon compounds (PAH & TPH) were generally recorded to be below their method detection limits (MDL) for the analytical methods used.

6.2.1. Soil Contamination and End Users

Considering initially end users of the site, exposure to contaminants would be primarily through direct contact, ingestion or inhalation of contaminated soils where soil is exposed such as in gardens or other soft landscaping areas.

There is considered to be a significantly reduced risk beneath buildings or in paved areas as in such areas there is no pathway by which the pollutant linkage may be completed.

On the basis of the results to date, remediation is not considered to be necessary as no soil concentrations of contaminants have been encountered which may be considered to pose a risk to future users of the site.

6.2.2. Soil Contamination and Controlled Waters

The underlying Secondary (A) Aquifer associated with the RTD is considered as a potential Controlled Waters receptor.

The concentrations of contaminants recorded in the soils have generally been low with concentrations of TPH, PAH, VOC & SVOC compounds generally recorded to be below their MDL.

On the basis of the above, it is considered that the risk presented to controlled waters by soil contamination is very low, owing to the absence of significant soils contamination. Further investigation or remediation in respect to this risk is not considered to be required.

6.2.3. Soil Contamination and Construction Workers, Maintenance Workers and the Public

Risks to site workers and site neighbours during redevelopment arise primarily through dermal contact, ingestion and inhalation of contaminants. It is considered that the degree of contamination observed poses a very low to site workers and the general public.

In order to reduce the risk to site workers during redevelopment, appropriate safety measures should be adopted on site.

Workers should avoid contact with the soils by the use of protective boots, overalls and gloves, and should wash before eating, drinking and using the toilet.

To prevent the inhalation of contaminants by site workers and the wind-blown transfer of contaminants off site, the generation of dust should be avoided; this can be achieved by spraying the materials with water if necessary. Measures should be taken to ensure that contaminated materials are not accidentally transferred off site, for example on vehicle tyres.

Excavations should be checked for elevated gas concentrations and depleted oxygen levels prior to entry by site workers.

Reference should be made to CIRIA Report No.132 'A Guide for Safe Working on Contaminated Sites' (1996), and Health and Safety Guidance Document, 'Protection of Workers and the General Public during the Development of Contaminated Land' (1991).

6.2.4. Soil Contamination and Flora

Concentrations of the phytotoxic contaminants, zinc, copper and nickel have been compared to the threshold values presented in Table 1 of British Standard BS3882: 'Specification for Topsoil and Requirements for Use' (2007), in order that this risk to flora may be assessed. It should be appreciated that this specification is only applicable to topsoil materials which are being placed. Topsoil which is to remain in-situ is not required to comply with the specifications of BS3882.

The screening values for phytotoxic contaminants are pH dependent and the following values have been adopted on the basis of a pH less than 6.

- Threshold Value for Zinc –200mg/kg

- Threshold Value for Copper –100mg/kg
- Threshold Value for Nickel –60mg/kg

Concentrations of the phytotoxic contaminants are below the threshold values and thus the analysed samples are not considered to pose a risk to flora.

6.2.5. Soil Contamination and Structures and Services

On the basis of the results of chemical analyses on soils undertaken to date, the concentrations of contaminants are not considered to pose a risk to structures and services within the proposed development scheme.

6.2.6. Ground Gas Contamination

Gas monitoring to date has recorded maximum carbon-dioxide concentrations of 3.9% by volume (%v/v). No methane concentrations, VOC concentrations or ground gas flow rates have been detected.

Depleted oxygen concentrations as low as 15%v/v have also been recorded.

Carbon-dioxide is a heavier gas than air, which affects the respiratory and central nervous systems. It can cause unconsciousness at concentrations of 5% by volume and death at concentrations of 10% to 15% by volume.

Table 8.5 of CIRIA Report 665 (2007) provides information on current UK practice with respect to gas control measures based upon a Gas Screening Value (GSV).

A GSV is obtained by multiplying the maximum concentration of gas by the maximum flow rate. As no flow rates have been detected at the site, the minimum detection limit of the analyser of 0.1l/hr has been adopted.

The following GSV have therefore been calculated for the site:

- GSV for CO₂ – 0.0039 l/hr

A GSV for methane has not been determined as no methane concentrations have been recorded at the site to date.

The calculated GSV typically corresponds to a characteristic situation 1 (CS-1), which is recommended for adoption at the site based on the initial monitoring data. A CS-1 does not require the adoption of ground gas mitigation measures.

It should be noted that if the low-rise residential development proposed for the site is compliant with the NHBC definition of low rise-residential development (ref. NHBC Guidance on Carbon Dioxide and Methane' (2007)), then the gassing regime should be assessed and the required protection measures determined in accordance with the traffic-light classification system. The site would be classified as 'green' using the NHBC traffic-light system on the basis of the monitoring data obtained.

It should be noted that gas monitoring is on-going and the above will be reviewed on completion of the full monitoring regime.

6.2.7. Conceptual Model

On the basis of the findings detailed in Section 6.1 together with the above discussion, the preliminary conceptual model presented in our phase one desk study report has been revised and is presented as Table 5.

Table 5: Revised Conceptual Model

Contaminant	Source(s)	Pathway(s)	Receptor(s)	Comment
Ground Gases	Infilled Features	Inhalation, Accumulation, Explosion	Residential End Users, Maintenance Workers & Site Neighbours	The on-going monitoring programme should be completed & the requirement of mitigation measures reviewed and revised as necessary.
			Site Workers	Refer to Section 6.2.3.

6.2.8. Summary

On the basis of the above it is considered that the site may be developed for its intended residential end use subject to the completion of the on-going gas monitoring programme.

6.3. Waste

Reference should be made to the EU Waste Framework Directive, Revised Directive 2008/98/EC and 'The definition of Waste: Development Industry Code of Practice (CoP) Version 2' published by CL:AIRE (2011) to establish whether soils generated from on-site works are classified as waste.

Waste will likely be generated from excavation works. There may be limited opportunities for re-use of materials on site, subject to compliance with the CoP.

The groundworks contractor should classify the waste in accordance with the document entitled, 'Guidance on the classification and assessment of waste (1st Edition 2015), Technical Guidance WM3', to determine whether the soils to be disposed of off-site are considered to be hazardous or not.

There is, however, likely to be some waste to be disposed of off-site. Waste removed from the site, for disposal, must be classified according to the analytical methods and criteria recommended by the Landfill (England and Wales) (Amendment) Regulations 2004 and 2005. The regulations set new acceptance criteria for wastes to be disposed of at landfill sites with effect from 16th July 2005.

Results of solid soil analysis, are included in Appendix C, and should be forwarded to the receiver/hauler to assist in the off-site disposal of waste soils.

Full and detailed records should be kept of all waste soils removed from site for future reference purposes.

6.4. General

As with any sampling exercise, the sampling process is representative and it is possible that areas of contamination may be found during the redevelopment of the site. Excavations on site should be supervised and any areas of suspected contamination should be assessed by a competent professional and subject to further analysis is necessary.

It should be noted that all remediation proposals are subject to the approval of the Local Authority. It would be prudent to involve the regulatory bodies early in the development of the proposed scheme and before construction commences in order that all requirements are met.

7. Geotechnical Assessment

We have assumed that the proposed development will include predominantly low-rise buildings with associated roads and parking areas. Exact details of building loads were not available at the time of writing this report, however, we anticipated that loadings for typical one to two storey residential dwellings will be applicable.

The recommendations provided within this section are based upon the above information and our understanding of the proposed scheme as detailed in Section 3, together with the proposed development plans included in Appendix A.

7.1. Structural Foundations

The encountered ground conditions have been found to comprise Superficial Deposits composed of shallow cohesive soils representative of Brickearth overlying the Head Gravels and the soft silty clays of the cohesive Head Deposits.

The cohesive head deposits have been recorded as soft to very soft silty clay / clayey silt and are not considered an appropriate bearing stratum owing to their low in-situ strength. Furthermore, their low strength is likely to result in high settlements and given the depths at which they were encountered this may influence shallow foundations bearing into overlying strata resulting in unacceptable levels of settlement.

In addition to the above, a relatively shallow water table has been disclosed at the site which is likely to present difficulties with the formation of shallow foundation excavations, owing to the need to groundwater control measures.

On the basis of the above, shallow mass concrete foundations are not considered to be a feasible foundation solution at the site. It is considered

the piled foundations may be suitable, subject to adequate soils investigation to disclosed the ground conditions present at depth beneath the site.

7.2. Ground Floor Construction

Fully suspended ground floor slabs are recommended for adoption on site and should incorporate a sub floor void appropriate to medium-volume change potential soils.

7.3. Groundworks

The stability of topsoil/made ground or disturbed ground must not be relied upon in unsupported excavations.

Safe working conditions must be provided at all times where operatives are required to work in excavations.

Heavy plant and stockpiles of materials should not be permitted close to the edges of open excavations.

Based on observations made during fieldwork, groundwater ingress from the RTD could be encountered in excavations for structures or services and the requirement for groundwater control measures should be considered.

Further reference should be made to CIRIA Report No. 97, 'Trenching Practice' (1997).

Where operatives are required to work in excavations, the excavations should be monitored for the presence of toxic, anoxic or explosive conditions prior to being entered. Monitoring should also be undertaken throughout the duration of the works in excavations to ensure safe working conditions are maintained.

7.4. Concrete Grade

Sulphate content and pH value determinations were carried out by both analytical laboratories on a total of 19no. samples. Total sulphur determinations were undertaken on a total of 14no. samples. BRE pyrites suite analyses were undertaken on 4no. soil samples and included pH, sulphate and total sulphur analyses.

The results of the testing can be summarised as follows:

- Water soluble sulphate – <10mg/l SO₄ to 600mg/l SO₄;
- pH – 4.76 – 8.8;
- Total Sulphur – 0.005% - 0.063%.

The above results have been compared to current guidance provided within BRE Special Digest 1, third edition 'Concrete in Aggressive Ground' (2005). The methodology detailed in Section C5.1.1 has been used to determine the required concrete grade

The following representative values have been adopted for the shallow soils at the site:

- Water Soluble Sulphate – 100mg/l SO₄;
- pH Value – 5.0;
- Total Potential Sulphate – 0.12%.

In accordance with BRE SD1 (2005) and on the basis of the above results and an assumption of mobile groundwater, the following classifications are recommended for shallow buried concrete at the site.

- Design Sulphate Class – DS-1;
- Aggressive Chemical Environment for Concrete (ACEC) – AC-2z.

7.5. External Works

7.5.1. Drainage

As discussed in Section 5.1.3, infiltration tests were undertaken in accordance with BRE Digest 365, 'Soakaway Design' (2007), in 8no. trial pits to assess the site's suitability for the adoption of permeable paving. Infiltration rates of between 7.5×10^{-7} m/s and 1.6×10^{-5} m/s were established.

Given the relatively shallow depth to groundwater beneath the site, conventional soakage drainage is not considered to be feasible at the site.

7.5.2. Pavement Design

The investigation identified the likely subgrade for pavement design to comprise the Superficial Deposits - Brickearth.

Soaked CBR tests were undertaken by the geotechnical laboratory on 15no. shallow superficial deposits soil samples recovered from locations along the route of proposed roads. These samples were recovered from 0.70m bgl, which was considered representative of formation level for road construction.

Results of the laboratory testing ranged from 0.6% (TP10) to 5.6% (TP12).

On the basis of the above, the following CBR values are recommended for preliminary design of road pavements:

- Superficial Deposits - Brickearth – 1%

Once formation level for the new road pavements has been achieved, proof rolling should be carried out using a heavy roller and any soft areas that are revealed should be excavated and a greater depth of subbase provided.

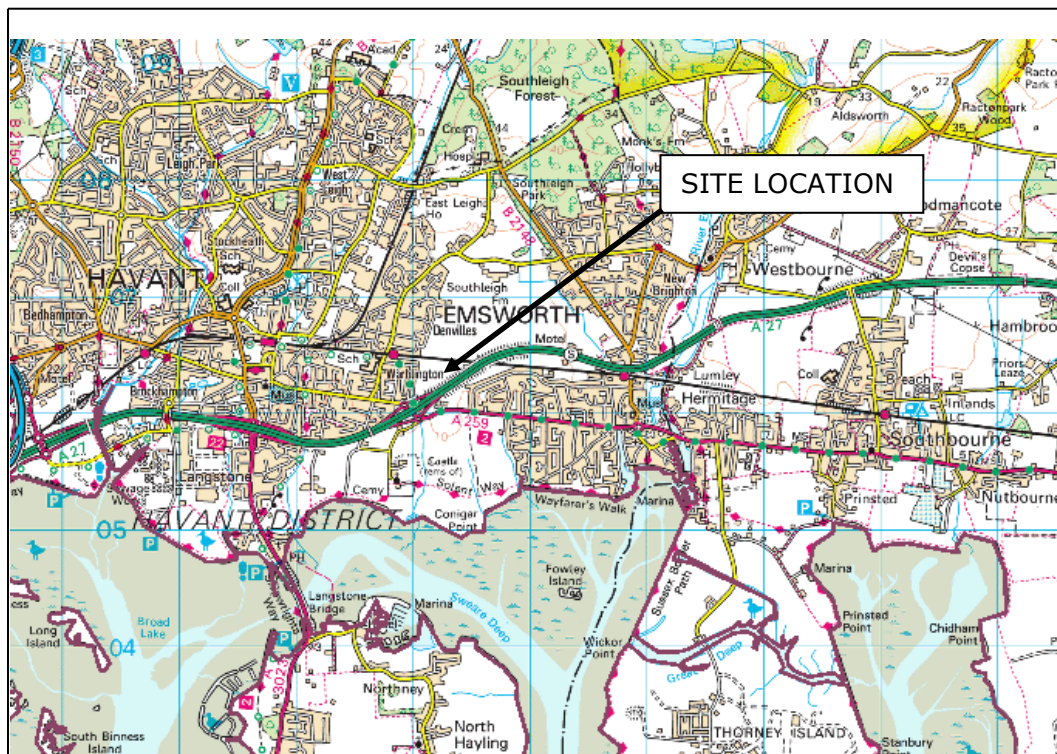
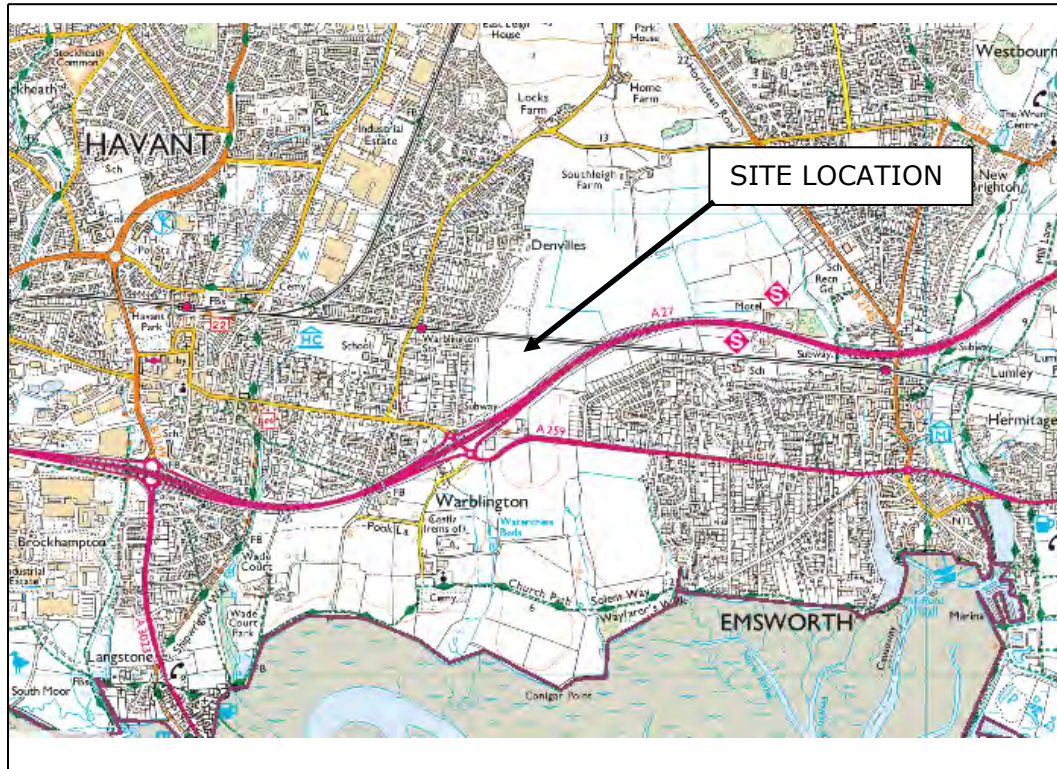
Exposed subgrades are likely to deteriorate rapidly on exposure to wet weather and should be shaped to shed water. Subbase should be placed as soon as possible to minimise the exposure of subgrade to adverse weather conditions.

In order to improve the clay subgrade, lime/cement treatment may be feasible subject to the suitability of such a process being demonstrated. Specialist lime/cement treatment contractors should be consulted regarding the feasibility of this technique.

Subgrade stabilisation, possibly using a geogrid product or similar may be advantageous and should also be considered at the design stage. It is recommended that specialist geotextile suppliers are consulted regarding possible mitigation measures.

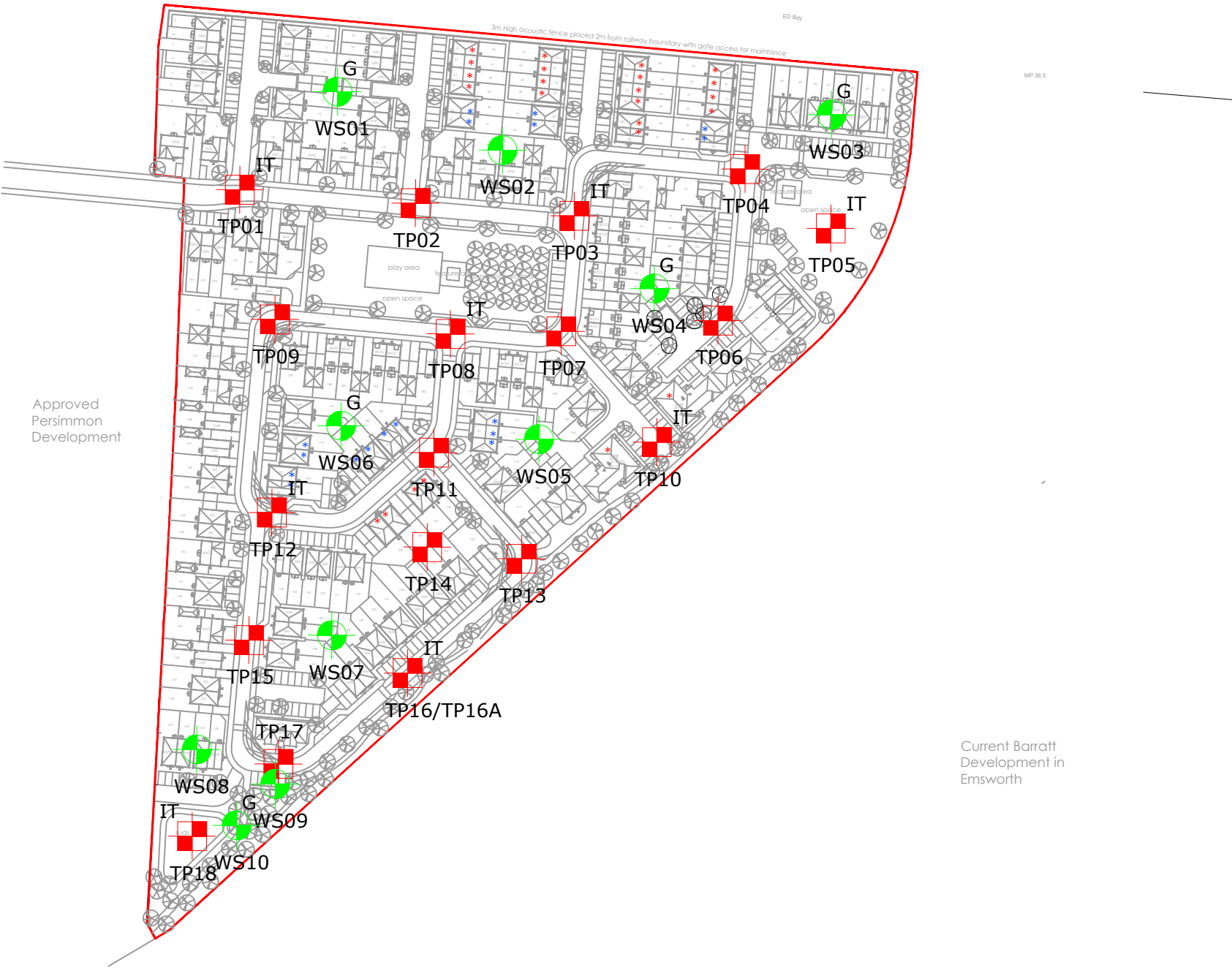
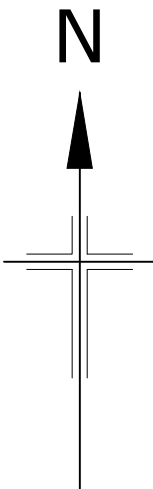
Appendix A

Figures & Drawings



REPRODUCED FROM ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONARY OFFICE, © CROWN COPYRIGHT RICHARD JACKSON LTD – ACC No. 100002572

DO NOT SCALE



KEY:

- 

TRIAL PIT LOCATIONS
(TP01 - TP18)
- 

WINDOWLESS SAMPLER
BOREHOLE LOCATIONS
(WS01 - WS10)
- 

INFILTRATION TEST
LOCATION
- 

GAS MONITORING
WELL INSTALLED

A	JULY 21	WINDOWLESS SAMPLERS (WS09-10) AND GAS MONITORING LOCATIONS ADDED	FM	KO
REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.



Project
SAXONS CORNER, EMSWORTH

Title
EXPLORATORY HOLE
LOCATION PLAN

Client
BARRAT DAVID WILSON HOMES
(BDW)

Scale	Drawn	Date
1:2000 @ A3	FM	JUNE 21
Job Manager	Checked	Approved
KO	KO	KO



847, The Crescent, Colchester, Essex CO4 9YQ

Unit 06C130, 6th Floor, 1 St. Katherine's Way, London, E1W 1UN

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Drawing No.

61195-G-FIG02

Revision

A

Drawing Status

☒ INFORMATION

☐ APPROVAL

☐ COSTING

☐ TENDER

☐ CONSTRUCTION

☐ AS CONSTRUCTED

DO NOT SCALE

N

KEY:



TRIAL PIT LOCATIONS
(TP01 - TP18)

TP01



WINDOWLESS SAMPLER
BOREHOLE LOCATIONS
(WS01 - WS10)

WS01

IT

INFILTRATION TEST
LOCATION

G

GAS MONITORING
WELL INSTALLED

A	JULY 21	WINDOWLESS SAMPLERS (WS09-10) AND GAS MONITORING LOCATIONS ADDED	FM	KO
REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.



Project

SAXONS CORNER, EMSWORTH

Title

EXPLORATORY HOLE
LOCATION PLAN

Client

BARRATT DAVID WILSON HOMES
(BDW)

Scale	Drawn	Date
1:2000 @ A3	FM	JUNE 21
Job Manager	Checked	Approved
KO	KO	KO

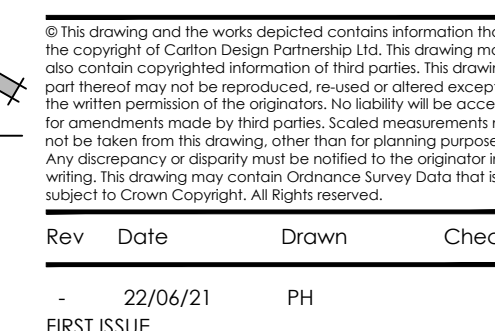
847, The Crescent, Colchester, Essex CO4 9YQ
Unit 06C130, 6th Floor, 1 St. Katherine's Way, London, E1W 1UN
5 Quern House, Mill Court, Great Shelford, Cambs CB22 5LD
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Drawing No.	Revision
61195-G-FIG03	A

Drawing Status	☒ INFORMATION	☐ APPROVAL	☐ COSTING
	☐ TENDER	☐ CONSTRUCTION	☐ AS CONSTRUCTED



Legend

- | | |
|---|-------------------------------------|
|  | Application Boundary |
|  | Indicative Tree Position |
|  | Indicative Landscaping |
|  | Existing Tree |
|  | Existing Tree |
|  | Existing Hedge |
|  | Parking Space |
|  | Main Entrance |
|  | Secondary Entrance |
|  | Garage Entrance |
|  | Bin Storage Area |
|  | Bin Collection Point |
|  | Communal Bin Store |
|  | Communal Cycle Store |
|  | Shed Location |
|  | 1.8m Brick Wall |
|  | 1.8m Closed Board Fence |
|  | 1.2m Closed Board Fence |
|  | 1.2m Post & Rail Fence |
|  | 1m Estate Railings |
|  | 0.45m Knee Rail |
|  | 1.8m Brick Pier & Timber Panel Wall |
|  | Bollards |
|  | Informal Path |
|  | Hoggin Path |

PRELIMINARY ISSU

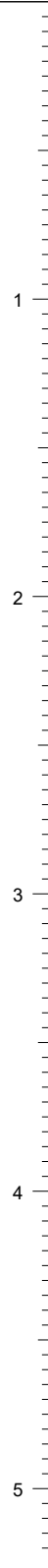
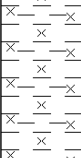
Project:
LAND OFF ST GEORGES AVENUE
HAVANT

Drawing Title:
SITE LAYOUT

Drg No: PLN-1-1101 Rev:

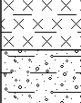
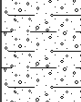
Appendix B

Exploratory hole logs and data plots

 Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD			Trial Pit No. TP01 Sheet 1 of 1			
Project Name: Saxons Corner				Project No. 61195		Co-ords: E473120.14 N106401.98			Date 08/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant				Orientation:		Level (m, aOD): 1.20			Dimensions (m)		
Client: Barratt David Wilson Homes (BDW)				Depth (m): 0.90		0.50			Scale 1:25 Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description				
	Depth	Type	Results								
	0.20	ES1	PP=108		0.35		Light brown silty CLAY. TOPSOIL				
	0.50	ES2				Soft/firm orange/brown SILT/CLAY. SUPERFICIAL DEPOSITS					
	0.70	B1									
	0.70	PP									
					0.90		End of Pit at 0.900m				
Groundwater: Groundwater not encountered						Key					
Stability: Dry and Stable						D	Disturbed	IVN	Hand Vane		
Remarks: Infiltration tests undertaken.						B	Bulk	PID	PID Reading		
						ES	Environmental	PP	Pocket Penetrometer		
							Groundwater strike		Standing water level		

 Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Trial Pit No. TP02 Sheet 1 of 1	
Project Name: Saxons Corner			Project No. 61195		Co-ords: E473183.70 N106397.13		Date 08/06/2021	
Location: St Georges Avenue, Emsworth Road, Havant			Orientation:		Level (m, aOD): 1.30		Dimensions (m)	
Client: Barratt David Wilson Homes (BDW)			Depth (m): 1.00		0.50		Scale 1:25 Logged TS	
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40	ES1			0.35		Light brown silty CLAY. TOPSOIL	
	0.70	B1					Soft to firm orangish brown SILT/CLAY. SUPERFICIAL DEPOSITS	
	0.80	ES2			0.85		Brownish orange clayey GRAVEL of subangular to subrounded fine to coarse flint with occasional cobbles of flint. SUPERFICIAL DEPOSITS	
	1.00	D1			1.00		End of Pit at 1.000m	
							1	
							2	
							3	
							4	
							5	
Groundwater: Groundwater not encountered							Key	
Stability: Dry and Stable							D Disturbed IVN Hand Vane	
Remarks:							B Bulk PID PID Reading	
							ES Environmental PP Pocket Penetrometer	
							 Groundwater strike  Standing water level	

Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Trial Pit No. TP03 Sheet 1 of 1			
Project Name: Saxons Corner			Project No. 61195		Co-ords: E473241.17 N106392.54		Date 07/06/2021			
Location: St Georges Avenue, Emsworth Road, Havant					Orientation:		Dimensions (m)			
Client: Barratt David Wilson Homes (BDW)					Level (m, aOD):		1.20			
					Depth (m): 0.85		0.50			
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.30	ES1			0.35		Light brown silty CLAY. TOPSOIL			
	0.60	ES2					Soft to firm orangish brown SILT/CLAY. SUPERFICIAL DEPOSITS			
	0.70	B1			0.85		End of Pit at 0.850m			
							1			
							2			
							3			
							4			
							5			
Groundwater: Groundwater not encountered							Key			
Stability: Dry and Stable							D	Disturbed	IVN	Hand Vane
Remarks: Infiltration tests undertaken.							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
								Groundwater strike		Standing water level

 Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD			Trial Pit No. TP04 Sheet 1 of 1			
Project Name: Saxons Corner				Project No. 61195		Co-ords: E473302.94 N106409.47			Date 07/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant				Level (m, aOD):		Orientation:			Dimensions (m) 1.80		
Client: Barratt David Wilson Homes (BDW)				Depth (m): 2.55		0.50			Scale 1:25 Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description				
	Depth	Type	Results								
	0.20	ES1			0.35		Light brown silty CLAY. TOPSOIL				
	0.60	ES2					Soft brownish orange SILT/CLAY. SUPERFICIAL DEPOSITS				
	0.70	B1									
	1.00	D1			0.90		Brown slightly sandy clayey GRAVEL of subangular to subrounded fine to coarse flint with occasional cobbles of flint. SUPERFICIAL DEPOSITS				
	2.55	D2			2.55		End of Pit at 2.550m				
Groundwater: Water seepage noted at 2.45m							Key				
Stability: Sidewall collapse from 1.30m							D Disturbed		IVN Hand Vane		
Remarks:							B Bulk		PID PID Reading		
							ES Environmental		PP Pocket Penetrometer		
									 Standing water level		

Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Trial Pit No. TP05 Sheet 1 of 1		
Project Name: Saxons Corner			Project No. 61195		Co-ords: E473333.97 N106388.00		Date 07/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant			Level (m, aOD):		Orientation:		Dimensions (m) 1.10		
Client: Barratt David Wilson Homes (BDW)			Depth (m): 0.80		0.50		Scale 1:25 Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.70	B1					Light brown slightly sandy CLAY. TOPSOIL		
				0.35		Brownish orange silty CLAY. SUPERFICIAL DEPOSITS			
				0.50		Soft to firm orangish brown slightly gravelly silty CLAY. Gravel of subangular to subrounded fine to coarse flint. SUPERFICIAL DEPOSITS			
				0.80		End of Pit at 0.800m			
							1		
							2		
							3		
							4		
							5		
Groundwater: Groundwater not encountered						Key			
Stability: Dry and Stable						D	Disturbed	IVN	Hand Vane
Remarks: Infiltration tests undertaken.						B	Bulk	PID	PID Reading
						ES	Environmental	PP	Pocket Penetrometer
							Groundwater strike		Standing water level

Project Name: Saxons Corner				Project No. 61195		Co-ords: E473293.18 N106354.63		Date 07/06/2021			
						Orientation:		Dimensions (m)			
Location: St Georges Avenue, Emsworth Road, Havant						Level (m, aOD):		1.60		Scale 1:25	
						Depth (m): 1.00		0.50		Logged TS	
Client: Barratt David Wilson Homes (BDW)											
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description				
	Depth	Type	Results								
	0.50	ES1									
	0.70	B1									
	0.85	ES2									
	1.00	D1		1.00		Dark brown clayey GRAVEL of subangular to subrounded fine to coarse flint. SUPERFICIAL DEPOSITS End of Pit at 1.000m					
Groundwater: Groundwater not encountered							Key				
Stability: Dry and Stable							D Disturbed IVN Hand Vane				
Remarks:							B Bulk PID PID Reading				
							ES Environmental PP Pocket Penetrometer				
							Groundwater strike Standing water level				



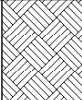
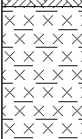
Project Name: Saxons Corner		Project No. 61195		Co-ords: E473236.44 N406350.77		Date 07/06/2021				
Location: St Georges Avenue, Emsworth Road, Havant				Orientation:		Dimensions (m) 1.60				
				Level (m, aOD):		Scale 1:25				
Client: Barratt David Wilson Homes (BDW)				Depth (m): 2.40		Logged TS				
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
▼ ▽					0.35		Light brown silty CLAY. TOPSOIL			
	0.70	B1	PP=91		0.90		Soft/firm orange/brown SILT/CLAY with black specks. SUPERFICIAL DEPOSITS			
	0.80	ES1					...becoming stiff at 0.80m			
	0.80	PP								
	1.10	ES2					Dark brown clayey GRAVEL of subangular to subrounded fine to coarse with occasional cobble of flint. SUPERFICIAL DEPOSITS			
	1.20	D1			...pink hue at 1.50m.					
					2.30		Olive green becoming brown silty SAND. SUPERFICIAL DEPOSITS			
					2.40		End of Pit at 2.400m			
Groundwater: Water strike at 2.25m, rose to 2.10m after 10mins.							Key			
Stability: Slight sidewall collapse from 2.30m.							D	Disturbed	IVN	Hand Vane
							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
Remarks:								Groundwater strike		Standing water level



Project Name: Saxons Corner		Project No. 61195		Co-ords: E473196.38 N106349.83		Date 08/06/2021				
Location: St Georges Avenue, Emsworth Road, Havant				Orientation:		Dimensions (m) 1.20				
				Level (m, aOD):		0.50				
Client: Barratt David Wilson Homes (BDW)				Depth (m): 0.80		Scale 1:25				
						Logged TS				
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.30	ES1	PP=100		0.35		Light brown silty CLAY. TOPSOIL			
	0.70	B1			0.80		Soft to firm orangish brown slightly mottled light grey silty CLAY. SUPERFICIAL DEPOSITS			
	0.70	PP					...becoming stiff at 0.70			
	0.80	ES2					End of Pit at 0.800m			
							1			
							2			
							3			
							4			
							5			
Groundwater: Groundwater not encountered							Key			
Stability: Dry and Stable							D	Disturbed	IVN	Hand Vane
Remarks: Infiltration tests undertaken.							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
								Groundwater strike		Standing water level



Project Name: Saxons Corner				Project No. 61195		Co-ords: E473132.87 N106355.07		Date 08/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant				Level (m, aOD):		Orientation:		Dimensions (m) 2.10		
Client: Barratt David Wilson Homes (BDW)				Depth (m): 2.80		Scale 1:25		Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
▼					0.35		Light brown siltCLAY. TOPSOIL			
	0.70	B1	PP=112				Soft to firm orangish brown mottled light grey silty CLAY with black specks. SUPERFICIAL DEPOSITS			
	0.70	ES1					...becoming stiff at 0.70m			
	0.70	PP								
	1.00	ES2								
	1.20	D1		1.00		Orangish brown mottled light grey with black speckling clayey GRAVEL of subangular to subrounded fine to coarse flint with occasional cobbles of flint. SUPERFICIAL DEPOSITS				
2.30	D2		2.10		Olive green becoming olive green/brown silty fine SAND. SUPERFICIAL DEPOSITS					
	2.80	D3		2.80		End of Pit at 2.800m				
Groundwater: Damp from 2.20m.							Key			
Stability: Sidewall collapse from 2.10m							D	Disturbed	IVN	Hand Vane
Remarks:							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
								Groundwater strike		Standing water level

Project Name: Saxons Corner				Project No. 61195		Co-ords: E473190.38 N106310.68		Date 07/06/2021			
						Orientation:		Dimensions (m)			
Location: St Georges Avenue, Emsworth Road, Havant						Level (m, aOD):		1.50		Scale 1:25	
						Depth (m): 1.00		0.50		Logged TS	
Client: Barratt David Wilson Homes (BDW)											
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description				
	Depth	Type	Results								
	0.40 0.50 0.60 0.70 0.70 0.90	ES1 ES1 ES2 B1 PP D1	PP=66		0.35 0.80 1.00		Light brown silty CLAY. TOPSOIL				
							Soft to firm orangish brown SILT/CLAY. SUPERFICIAL DEPOSITS				
							Orangish brown clayey GRAVEL of subangular to subrounded fine to coarse flint. SUPERFICIAL DEPOSITS				
						End of Pit at 1.000m					
Groundwater: Groundwater not encountered						Key					
Stability: Dry and Stable						D	Disturbed	IVN	Hand Vane		
Remarks: Infiltration tests undertaken						B	Bulk	PID	PID Reading		
						ES	Environmental	PP	Pocket Penetrometer		
						▽	Groundwater strike	▼	Standing water level		



Project Name: Saxons Corner		Project No. 61195		Co-ords: E473131.76 N106306.86		Date 08/06/2021	
Location: St Georges Avenue, Emsworth Road, Havant				Orientation:		Dimensions (m) 1.50	
				Level (m, aOD):		Scale 1:25	
Client: Barratt David Wilson Homes (BDW)				Depth (m): 1.05		Logged TS	
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description
	Depth	Type	Results				
							Light brown silty CLAY. TOPSOIL
	0.50	ES1	PP=133		0.35		Soft to firm orange mottled brown and light grey with black specks silty CLAY. SUPERFICIAL DEPOSITS
	0.70	B1					
	0.80	ES2					
	0.80	PP					...becoming stiff at 0.80m
	1.00	D1					
					1.00		Brownish orange clayey GRAVEL of subangular to subrounded fine to coarse flint. SUPERFICIAL DEPOSITS
					1.05		End of Pit at 1.050m
Groundwater: Groundwater not encountered							Key
Stability: Dry and Stable							D Disturbed IVN Hand Vane
Remarks:							B Bulk PID PID Reading
							ES Environmental PP Pocket Penetrometer
							Groundwater strike Standing water level



Project Name: Saxons Corner				Project No. 61195		Co-ords: E473222.10 N106285.21		Date 08/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant				Level (m, aOD):		Orientation:		Dimensions (m) 1.50		
						Depth (m): 0.90		0.50		
Client: Barratt David Wilson Homes (BDW)								Scale 1:25		
								Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.20	ES1	PP=133		0.35		Light brown silty CLAY. TOPSOIL			
	0.50	ES2			0.70		Soft brownish orange SILT/CLAY. SUPERFICIAL DEPOSITS			
	0.70	B1			0.90		Soft to firm orange mottled brown and light grey silty CLAY.			
	0.80	PP					SUPERFICIAL DEPOSITS End of Pit at 0.900m			
							1			
							2			
							3			
							4			
							5			
Groundwater: Groundwater not encountered							Key			
Stability: Dry and Stable							D	Disturbed	IVN	Hand Vane
							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
Remarks: Infiltration tests udnertaken.								Groundwater strike		Standing water level



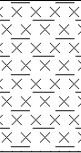
Project Name: Saxons Corner		Project No. 61195		Co-ords: E473187.95 N106268.49		Date 07/06/2021				
Location: St Georges Avenue, Emsworth Road, Havant				Orientation:		Dimensions (m) 2.10				
				Level (m, aOD):		Scale 1:25				
Client: Barratt David Wilson Homes (BDW)				Depth (m): 2.80		Logged TS				
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.70	B1	PP=104		0.35		Light brown silty CLAY. TOPSOIL			
					0.85		Soft to firm orangish brown SILT/CLAY. SUPERFICIAL DEPOSITS <i>...land drain at 0.70m.</i>			
	1.00	ES1			1.20		Firm orangish brown mottled grey with black specks silty CLAY. SUPERFICIAL DEPOSITS			
	1.10	D1								
	1.10	PP								
	1.20	ES2			1.70		Firm to stiff brown mottled orange and grey very gravelly CLAY. SUPERFICIAL DEPOSITS			
	1.50	D2								
	2.00	D3			2.50		Dark brown clayey GRAVEL of subangular to subrounded fine to coarse flint. SUPERFICIAL DEPOSITS <i>...clay has reddish/pink hue at 2.30m.</i>			
	2.60	D4			2.80		Brown silty fine SAND. SUPERFICIAL DEPOSITS			
								End of Pit at 2.800m		
Groundwater: Water seepage noted at 2.50m.							Key			
Stability: Sidewall collapse from 2.50m							D	Disturbed	IVN	Hand Vane
							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
Remarks:								Groundwater strike		Standing water level



Project Name: Saxons Corner		Project No. 61195		Co-ords: E473187.95 N106272.69		Date 07/06/2021				
Location: St Georges Avenue, Emsworth Road, Havant				Orientation:		Dimensions (m) 1.80				
				Level (m, aOD):		Scale 1:25				
Client: Barratt David Wilson Homes (BDW)				Depth (m): 1.05		Logged TS				
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.40	ES1	PP=141		0.35		Light brown silty CLAY. TOPSOIL			
	0.70	B1			0.70		Soft to firm orangish brown SILT/CLAY. SUPERFICIAL DEPOSITS			
	0.70	ES2					Firm to stiff orangish brown mottled light grey silty CLAY. SUPERFICIAL DEPOSITS			
	0.90	PP			0.95		Dark brown clayey GRAVEL of subangular to subrounded fine to coarse flint. SUPERFICIAL DEPOSITS			
	1.00	D1			1.05		End of Pit at 1.050m			
Groundwater: Groundwater not encountered							Key			
Stability: Dry and Stable							D	Disturbed	IVN	Hand Vane
							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
Remarks:								Groundwater strike		Standing water level

Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Trial Pit No. TP15 Sheet 1 of 1			
Project Name: Saxons Corner			Project No. 61195		Co-ords: E473123.46 N106239.04		Date 08/06/2021			
Location: St Georges Avenue, Emsworth Road, Havant					Level (m, aOD):		Dimensions (m) 1.40			
Client: Barratt David Wilson Homes (BDW)					Depth (m): 1.00		0.50			
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
							Light brown silty CLAY TOPSOIL			
	0.45	ES1			0.30		Soft brown SILT/CLAY. SUPERFICIAL DEPOSITS			
	0.60	ES2								
	0.70	B1			0.70		Firm to stiff orangish brown with black specks silty CLAY. SUPERFICIAL DEPOSITS			
	0.80	PP	PP=79							
	1.00	D1			1.00		End of Pit at 1.000m			
	1.00	PP	PP=87							
Groundwater: Groundwater not encountered							Key			
Stability: Dry and Stable							D	Disturbed	IVN	Hand Vane
Remarks:							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
								Groundwater strike		Standing water level

Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Trial Pit No. TP16 Sheet 1 of 1			
Project Name: Saxons Corner				Project No. 61195		Co-ords: E473180.84 N106227.13		Date 08/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant				Level (m, aOD):		Dimensions (m) 		Scale 1:25		
Client: Barratt David Wilson Homes (BDW)				Depth (m): 0.60				Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
					0.30		Light brown siltyCLAY TOPSOIL			
					0.60		Soft orangish brown SILT/CLAY. SUPERFICIAL DEPOSITS			
							...land drain at 0.60m End of Pit at 0.600m			
							1			
							2			
							3			
							4			
							5			
Groundwater: Groundwater not encountered							Key			
Stability: Dry and Stable							D	Disturbed	IVN	Hand Vane
Remarks: Relocated to TP16A due to land drain.							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
								Groundwater strike		Standing water level

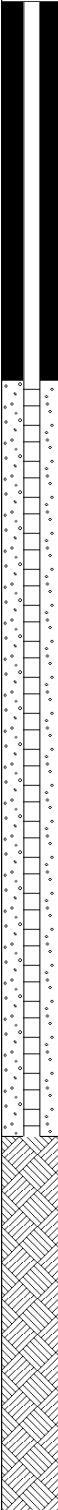
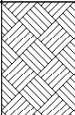
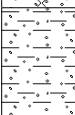
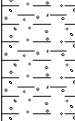
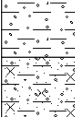
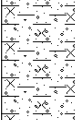
Richard Jackson Engineering Consultants					5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Trial Pit No. TP16A Sheet 1 of 1		
Project Name: Saxons Corner			Project No. 61195		Co-ords: E473182.00 N106230.00		Date 08/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant					Orientation:		Dimensions (m)		
					Level (m, aOD):		1.50		
Client: Barratt David Wilson Homes (BDW)					Depth (m): 0.80		Scale 1:25 Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.40	ES1	PP=87		0.30		Light brown silty CLAY. TOPSOIL		
	0.70	B1			0.80		Soft to firm brownish orange SILT/CLAY. SUPERFICIAL DEPOSITS		
	0.70	ES2					...becoming stiff at 0.70m		
	0.70	PP					End of Pit at 0.800m		
							1		
							2		
							3		
							4		
							5		
Groundwater: Groundwater not encountered						Key			
Stability: Dry and Stable						D	Disturbed	IVN	Hand Vane
						B	Bulk	PID	PID Reading
						ES	Environmental	PP	Pocket Penetrometer
Remarks: Infiltration tests undertaken.							Groundwater strike		Standing water level



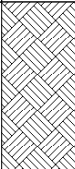
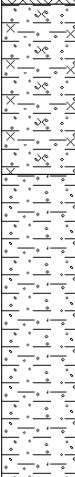
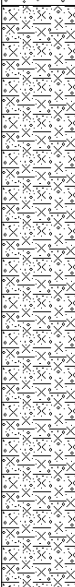
Project Name: Saxons Corner		Project No. 61195		Co-ords: E473134.14 N106194.23		Date 09/06/2021	
Location: St Georges Avenue, Emsworth Road, Havant				Orientation:		Dimensions (m) 2.60	
				Level (m, aOD):		Scale 1:25	
Client: Barratt David Wilson Homes (BDW)				Depth (m): 2.60		Logged TS	
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description
	Depth	Type	Results				
			PP=94		0.30		Light brown silty CLAY TOPSOIL
					0.60		Soft to firm brown SILT/CLAY. SUPERFICIAL DEPOSITS
	0.70	B1					Soft to firm orangish brown with rare grey mottling silty CLAY. SUPERFICIAL DEPOSITS
	0.70	PP					
	0.80	ES1					
	1.20	ES2			1.10		Orange/brown clayey GRAVEL of subangular to subrounded fine to coarse flint with occasional cobbles of flint. SUPERFICIAL DEPOSITS
	1.40	D1					...becoming brown and slightly clayey from 1.80m.
	2.50	D2			2.60		End of Pit at 2.600m
Groundwater: Water seepage noted at 2.20m				Key			
Stability: Sidewall collapse from 1.80m				D	Disturbed	IVN	Hand Vane
				B	Bulk	PID	PID Reading
				ES	Environmental	PP	Pocket Penetrometer
Remarks:					Groundwater strike		Standing water level

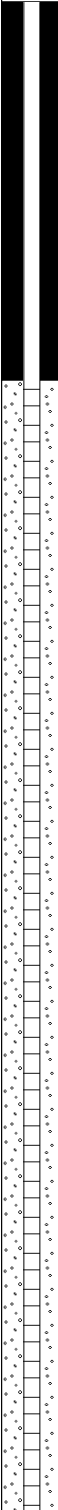
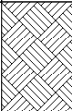


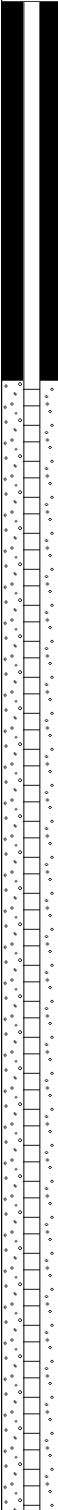
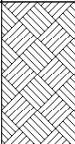
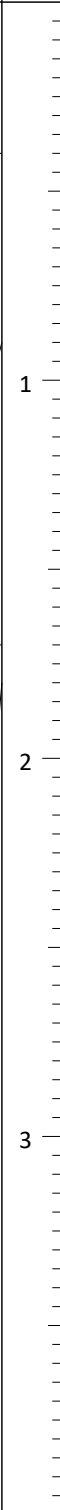
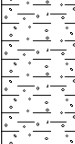
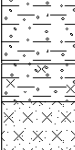
Project Name: Saxons Corner				Project No. 61195		Co-ords: E473102.90 N106168.11		Date 09/06/2021		
Location: St Georges Avenue, Emsworth Road, Havant				Level (m, aOD):		Orientation:		Dimensions (m) 1.40		
						Depth (m): 0.90		0.50		
Client: Barratt David Wilson Homes (BDW)								Scale 1:25		
								Logged TS		
Ground water	Samples & In Situ Testing			Level (m)	Depth (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.70	B1			0.30		Light brown silty TCLAY. TOPSOIL			
							Soft to firm orangish brown silty CLAY. SUPERFICIAL DEPOSITS			
							Orangish brown clayey GRAVEL of subangular to subrounded fine to coarse flint with occasional cobbles of flint. SUPERFICIAL DEPOSITS			
							End of Pit at 0.900m			
							1			
							2			
							3			
							4			
							5			
Groundwater: Groundwater not encountered							Key			
Stability: Dry and Stable							D	Disturbed	IVN	Hand Vane
							B	Bulk	PID	PID Reading
							ES	Environmental	PP	Pocket Penetrometer
Remarks: Infiltration tests undertaken.								Groundwater strike		Standing water level

Richard Jackson Engineering Consultants						5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Borehole No. WS01 Sheet 1 of 2				
Project Name: Saxons Corner				Dates 15/06/2021		Project no. 61195		Hole Type WLS				
Location: St Georges Avenue, Emsworth Road, Havant				Co-ordinates: E473155.49 N106437.46				Scale 1:20				
Client: Barratt David Wilson Homes (BDW)				Ground Level (m, aOD)				Logged By GB				
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale
	Depth	Level	Casing	SWL	Depth	Type	Results					
			1.00		0.20	ES1			0.30		Soft to firm brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subrounded fine to coarse flint. TOPSOIL	1
					0.50	IVN	45				Soft to firm orangey brown mottled orange slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint.	
					0.50	D1					SUPERFICIAL DEPOSITS ...becoming mottled beige with ironstone nodules from 0.6m.	
					0.80	IVN	52				...becoming gravelly at 0.95m.	
					0.80	D2						
			1.00		1.00	C	N=6		1.25		Soft to firm beige mottled orange very gravelly CLAY. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS	2
					1.10	ES2	(2,2/1,2,2,1)				Firm orangish brown mottled orange slightly sandy gravelly very silty CLAY with iron staining. Gravel is fine to coarse angular to subrounded flint and occasional shell fragments.	
					1.20 - 1.50	D3						
					1.70 - 2.00	D4						
					2.00	C	N=11 (2,3/2,2,3,4)		2.00		Firm orangish brown mottled orange slightly sandy gravelly very silty CLAY with iron staining. Gravel is fine to coarse angular to subrounded flint and occasional shell fragments.	
		2.00		2.50	D5					SUPERFICIAL DEPOSITS	3	
				3.00	C	N=16 (3,3/3,4,4,5)				...becoming brown with no further gravel from 2.90m.		
				3.50	D6							
		3.00	2.7	4.00	C			4.00				
Groundwater: Groundwater struck at 2.0m. SWL 1.18m on 28.7.21							Groundwater Key		Sample Type Key		Test Type Key	
Remarks: Borehole collapsed to 3.00m on completion.								Groundwater Strike	D	Disturbed	IVN	Hand vane
									B	Bulk	S/C	SPT / CPT
								Standing water level	U	Undisturbed	PP	Pocket penetrometer
									ES	Environmental	PID	PID Reading

RichardJackson Engineering Consultants										5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Borehole No. WS01 Sheet 2 of 2					
Project Name: Saxons Corner						Dates 15/06/2021		Project no. 61195		Hole Type WLS							
Location: St Georges Avenue, Emsworth Road, Havant						Co-ordinates: E473155.49 N106437.46				Scale 1:20							
Client: Barratt David Wilson Homes (BDW)						Ground Level (m, aOD)				Logged By GB							
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale					
	Depth	Level	Casing	SWL	Depth	Type	Results										
							N=22 (5,5/5,5,5,7)				Firm orangish brown mottled orange slightly sandy gravelly very silty CLAY with iron staining. Gravel is fine to coarse angular to subrounded flint and occasional shell fragments. SUPERFICIAL DEPOSITS ...becoming stiff from 4.00m End of Borehole at 4.000m	5					
												6					
												7					
Groundwater: Groundwater struck at 2.0m. SWL 1.18m on 28.7.21												Groundwater Key		Sample Type Key		Test Type Key	
Remarks: Borehole collapsed to 3.00m on completion.									Groundwater Strike	D	Disturbed	IVN	Hand vane				
									Standing water level	B	Bulk	S/C	SPT / CPT				
										U	Undisturbed	PP	Pocket penetrometer				
										ES	Environmental	PID	PID Reading				

Richard Jackson Engineering Consultants						5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Borehole No. WS02 Sheet 1 of 2						
Project Name: Saxons Corner				Dates 16/06/2021		Project no. 61195		Hole Type WLS						
Location: St Georges Avenue, Emsworth Road, Havant				Co-ordinates: E473125.16 N106416.29				Scale 1:20						
Client: Barratt David Wilson Homes (BDW)				Ground Level (m, aOD)				Logged By GB						
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale		
	Depth	Level	Casing	SWL	Depth	Type	Results							
	2.45				0.15	ES1	34		0.45		Soft brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subrounded fine to coarse flint. TOPSOIL ...with black specks of iron staining from 0.20m.	1		
					0.20	ES1								
					0.50	D1								
					0.60	IVN								
					0.70	ES2								
					1.00	C	N=24 (5,5/4,5,6,9)		0.90		Firm to stiff brown mottled orange with black specks very gravelly CLAY. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS			
					1.20	D2								
					1.80	D3								
					2.00	C	N=18 (6,6/4,6,4,4)							
					2.20	D4								
					2.45	D5			2.45		Very soft greenish brown mottled orange slightly sandy very clayey SILT. SUPERFICIAL DEPOSITS	2		
					3.00	C	N=0 (0,0/0,0,0,0)		4.00				...becoming brownish orange from 1.65m.	3
					3.50	D6								
					4.00	C								
Groundwater: Groundwater struck at 2.45m							Groundwater Key		Sample Type Key		Test Type Key			
Remarks:								Groundwater Strike	D	Disturbed	IVN	Hand vane		
								Standing water level	B	Bulk	S/C	SPT / CPT		
								U	Undisturbed	PP	Pocket penetrometer			
									ES	Environmental	PID	PID Reading		

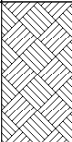
Richard Jackson Engineering Consultants							5 Quern House, Mill Court, Gt. Shelford, CB22 5LD			Borehole No. WS03 Sheet 1 of 2		
Project Name: Saxons Corner					Dates 16/06/2021		Project no. 61195		Hole Type WLS			
Location: St Georges Avenue, Emsworth Road, Havant					Co-ordinates: E473334.24 N106429.11				Scale 1:20			
Client: Barratt David Wilson Homes (BDW)					Ground Level (m, aOD)				Logged By GB			
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale
	Depth	Level	Casing	SWL	Depth	Type	Results					
					0.20	ES1			0.30		Soft to firm brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint.	1
					0.40	D1					TOPSOIL	
					0.50	IVN	42				Soft to firm orangish brown slightly gravelly silty CLAY with rootlets.	
					0.60	ES2			0.60		Gravel is angular to subangular fine to coarse flint.	
					0.80	D2					SUPERFICIAL DEPOSITS	
					1.00	C	N=33 (5,7/7,9,8,9)				Firm to stiff orangish brown very gravelly CLAY. Gravel is angular to subangular fine to coarse flint.	
											SUPERFICIAL DEPOSITS	
					1.40	D3					...becoming brownish orange from 1.30m.	
					1.50	PP	141					
												
					1.90	D4						
					2.00	C	N=41 (10,10/9,10,11,11)					
					2.40	D5						
		2.55				2.70	C	N=14 (6,6/6,4,2,2)		2.55		Firm brownish orange mottled orange gravelly slightly sandy very clayey SILT. Gravel is angular to subangular fine to coarse flint.
						2.90	D6					SUPERFICIAL DEPOSITS
												
					3.40	D7			3.35		Firm orangish brown mottled orange slightly sandy SILT.	
											SUPERFICIAL DEPOSITS	
					4.00	C			4.00			
Groundwater: Groundwater struck at 2.55m. SWL 2.23m on 28.7.21							Groundwater Key		Sample Type Key		Test Type Key	
								Groundwater Strike	D	Disturbed	IVN	Hand vane
									B	Bulk	S/C	SPT / CPT
							Remarks:		Standing water level	U	Undisturbed	PP
		ES	Environmental	PID	PID Reading							

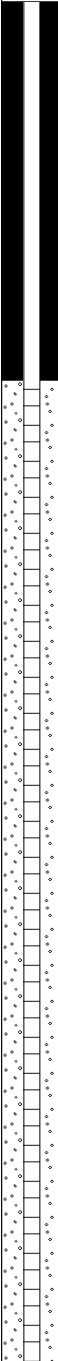
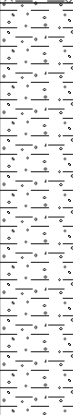
Richard Jackson Engineering Consultants						5 Quern House, Mill Court, Gt. Shelford, CB22 5LD			Borehole No. WS04 Sheet 1 of 2				
Project Name: Saxons Corner				Dates 16/06/2021		Project no. 61195		Hole Type WLS					
Location: St Georges Avenue, Emsworth Road, Havant				Co-ordinates: E473270.10 N106366.23				Scale 1:20					
Client: Barratt David Wilson Homes (BDW)				Ground Level (m, aOD)				Logged By GB					
Well	Water		Samples & In-situ Tests				Level (m)	Depth (m)	Legend	Stratum Description	Scale		
	Depth	Level	Casing	SWL	Depth	Type						Results	
					0.15	ES1				Soft brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint. TOPSOIL			
					0.60	IVN	45	0.40		Soft to firm orangish brown slightly gravelly slightly silty CLAY with rootlets. Gravel of fine to coarse angular to subangular flint. SUPERFICIAL DEPOSITS			
					0.60	D1				...becoming brownish orange from 0.50m.			
					0.80	ES2				...mottled orange with black specks from 0.70m.			
					0.90	D2		0.90		Stiff orangish brown mottled orange with black specks very gravelly CLAY. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS			
					1.00	C	N=44 (9,12/12,12,10,10)						
					1.40	D3							
					1.70	D4		1.70		Brownish orange mottled orange very gravelly slightly silty CLAY. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS			
					2.00	C	N=6 (3,2/2,2,1,1)	1.80		Soft greenish brown mottled orange slightly sandy SILT. SUPERFICIAL DEPOSITS			
					2.20	D5							
					3.00	C	N=8						
					3.00	D6	(1,2/2,2,2,2)						
					3.80	D7							
					4.00	C		4.00					
	Groundwater: Groundwater struck at 1.80m. SWL 1.87m on 28.7.21						Groundwater Key		Sample Type Key			Test Type Key	
	Remarks:							Groundwater Strike	D	Disturbed		IVN	Hand vane
								B	Bulk	S/C		SPT / CPT	
							Standing water level	U	Undisturbed	PP	Pocket penetrometer		
								ES	Environmental	PID	PID Reading		

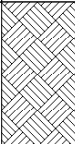
Project Name:	Saxons Corner	Dates 16/06/2021	Project no. 61195	Hole Type WLS
Location:	St Georges Avenue, Emsworth Road, Havant	Co-ordinates: E473270.10 N106366.23		Scale 1:20
Client:	Barratt David Wilson Homes (BDW)	Ground Level (m, aOD)		Logged By GB

[illegible]

Groundwater:	Groundwater struck at 1.80m. SWL 1.87m on 28.7.21	Groundwater Key		Sample Type Key		Test Type Key	
			Groundwater Strike	D	Disturbed	IVN	Hand vane
Remarks:			Standing water level	B	Bulk	S/C	SPT / CPT
				U	Undisturbed	PP	Pocket penetrometer
				ES	Environmental	PID	PID Reading

Richard Jackson Engineering Consultants							5 Quern House, Mill Court, Gt. Shelford, CB22 5LD			Borehole No. WS05 Sheet 1 of 2			
Project Name: Saxons Corner					Dates 15/06/2021		Project no. 61195		Hole Type WLS				
Location: St Georges Avenue, Emsworth Road, Havant					Co-ordinates: E473228.36 N106311.72				Scale 1:20				
Client: Barratt David Wilson Homes (BDW)					Ground Level (m, aOD)				Logged By GB				
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale	
	Depth	Level	Casing	SWL	Depth	Type	Results						
	1.70				0.20	ES1			0.40		Soft brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subrounded fine to coarse flint. TOPSOIL	1	
					0.70	IVN	53						Soft to firm brownish orange mottled light brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS
					0.70	ES2							...mottled orange and grey from 0.70m with black ironstone nodules.
					0.80	D1							Dense beige mottled orange very clayey GRAVEL with ironstone nodules. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS
					0.90	D2							
					1.00	C	N=34 (10,12/12,10,7,5)			1.30			2
					1.50	D3						Beige mottled orange very gravelly CLAY. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS	
					1.80	D4				1.80		Soft orangish brown mottled orange slightly sandy SILT with occasional shell fragments. SUPERFICIAL DEPOSITS	
					2.00	C	N=6 (0,0/0,2,2,2)						
					2.50	D5							
		3.00	C	N=8 (2,1/1,2,2,3)					...becoming more brown at 2.80m.	3			
		3.50	D6										
		4.00	C				4.00						
Groundwater: Groundwater struck at 1.70m							Groundwater Key		Sample Type Key		Test Type Key		
Remarks:								Groundwater Strike	D	Disturbed	IVN	Hand vane	
									B	Bulk	S/C	SPT / CPT	
								Standing water level	U	Undisturbed	PP	Pocket penetrometer	
									ES	Environmental	PID	PID Reading	

Richard Jackson Engineering Consultants										5 Quern House, Mill Court, Gt. Shelford, CB22 5LD		Borehole No. WS06 Sheet 1 of 1	
Project Name: Saxons Corner					Dates 15/06/2021		Project no. 61195		Hole Type WLS				
Location: St Georges Avenue, Emsworth Road, Havant					Co-ordinates: E473156.78 N106316.62				Scale 1:20				
Client: Barratt David Wilson Homes (BDW)					Ground Level (m, aOD)				Logged By GB				
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale	
	Depth	Level	Casing	SWL	Depth	Type	Results						
					0.20	ES1			0.40		Soft to firm brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint and rare brick. TOPSOIL	1	
					0.50	IVN	26				Soft to firm brownish orange mottled orange slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS ...with fine to medium gravel sized ironstone nodules from 0.70m. ...becoming gravelly from 0.90m.		
					0.50	ES1							
					0.70	ES2							
					0.80	IVN	45						
					0.90	D2							
					1.00	C	N=25 (3,4/4,6,8,7)		1.10		Stiff brownish orange mottled orange and beige very gravelly CLAY with rootlets and frequent fine to medium gravel sized ironstone nodules. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS		
					1.50	D3							
					2.00	C	N=9 (2,2/2,2,3,2)		2.20		Soft brownish orange mottled orange slightly gravelly very sandy SILT with occasional shell fragments. Sand is fine. SUPERFICIAL DEPOSITS		
					2.50	D4							
					3.00	C	N=3 (0,0/0,1,1,1)					3	
					3.50	D5							
					3.60	C	N=16 (2,3/4,4,4,4)		3.60		End of Borehole at 3.600m		
Groundwater: Groundwater struck at 2.20m. SWL 1.20m on 28.7.21							Groundwater Key		Sample Type Key		Test Type Key		
Remarks:								Groundwater Strike	D	Disturbed	IVN	Hand vane	
									B	Bulk	S/C	SPT / CPT	
								Standing water level	U	Undisturbed	PP	Pocket penetrometer	
									ES	Environmental	PID	PID Reading	

Richard Jackson Engineering Consultants								5 Quern House, Mill Court, Gt. Shelford, CB22 5LD			Borehole No. WS07 Sheet 1 of 1	
Project Name: Saxons Corner					Dates 15/06/2021		Project no. 61195		Hole Type WLS			
Location: St Georges Avenue, Emsworth Road, Havant					Co-ordinates: E473153.42 N106240.79				Scale 1:20			
Client: Barratt David Wilson Homes (BDW)					Ground Level (m, aOD)				Logged By GB			
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale
	Depth	Level	Casing	SWL	Depth	Type	Results					
					0.10	ES1			0.40		Soft brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint. TOPSOIL	1 <

		Groundwater Key		Sample Type Key		Test Type Key	
Groundwater:	Groundwater not encountered		Groundwater Strike	D	Disturbed	IVN	Hand vane
				B	Bulk	S/C	SPT / CPT
Remarks:	Borehole terminated at 1.00m, too dense to advance.		Standing water level	U	Undisturbed	PP	Pocket penetrometer
				ES	Environmental	PID	PID Reading

Richard Jackson Engineering Consultants								5 Quern House, Mill Court, Gt. Shelford, CB22 5LD				Borehole No. WS09 Sheet 1 of 1	
Project Name: Saxons Corner						Dates 15/06/2021		Project no. 61195		Hole Type WLS			
Location: St Georges Avenue, Emsworth Road, Havant						Co-ordinates: E473133.00 N106187.00				Scale 1:20			
Client: Barratt David Wilson Homes (BDW)						Ground Level (m, aOD)				Logged By GB			
Well	Water		Samples & In-situ Tests					Level (m)	Depth (m)	Legend	Stratum Description	Scale	
	Depth	Level	Casing	SWL	Depth	Type	Results						
					0.30	ES1			0.40		Soft to firm brown slightly gravelly silty CLAY with rootlets. Gravel is angular to subangular fine to coarse flint. TOPSOIL	1	
					0.50	IVN	31				Soft orangish brown slightly gravelly silty CLAY. Gravel is angular to subrounded fine to coarse flint. SUPERFICIAL DEPOSITS ...mottled orange and beige with frequent black specks from 0.70m.		
					0.60	D1					...becoming gravelly from 1.00m.		
					0.70	ES2							
					0.90	IVN	39		1.10		Stiff brownish orange mottled beige very gravelly CLAY. Gravel is angular to subangular fine to coarse flint. SUPERFICIAL DEPOSITS		
					1.00	C	N=50 (3,4/6,12,16,16)				End of Borehole at 1.400m		
					1.20	D2							
					1.40	C	N=50 (10,13/50 for 265mm)		1.40				
												2	
												3	
Groundwater: Groundwater not encountered								Groundwater Key		Sample Type Key		Test Type Key	
Remarks: Borehole terminated at 1.40m, too dense to advance.									Groundwater Strike	D	Disturbed	IVN	Hand vane
									Standing water level	B	Bulk	S/C	SPT / CPT
										U	Undisturbed	PP	Pocket penetrometer
										ES	Environmental	PID	PID Reading

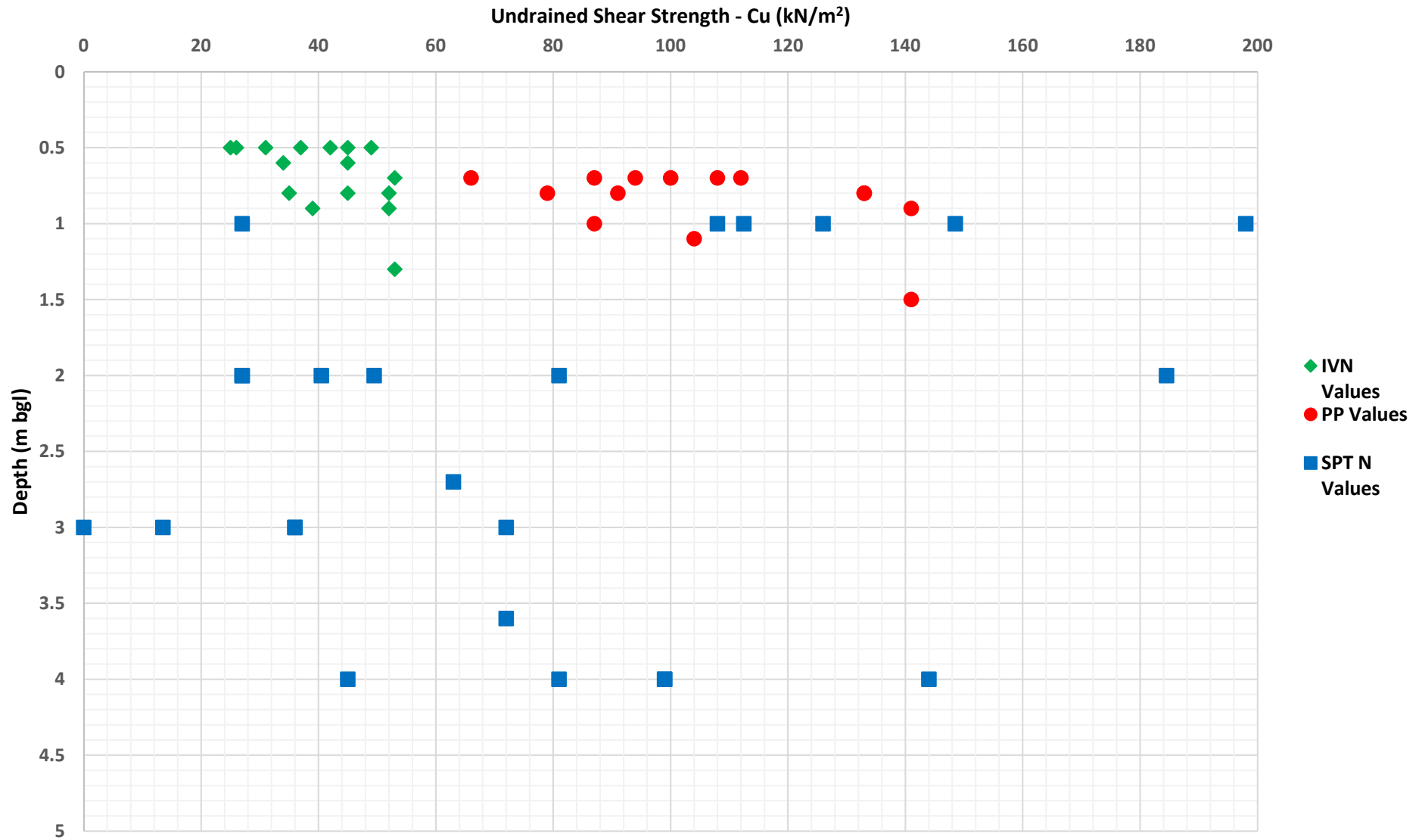
Hole Type
WLS

Scale
1:20

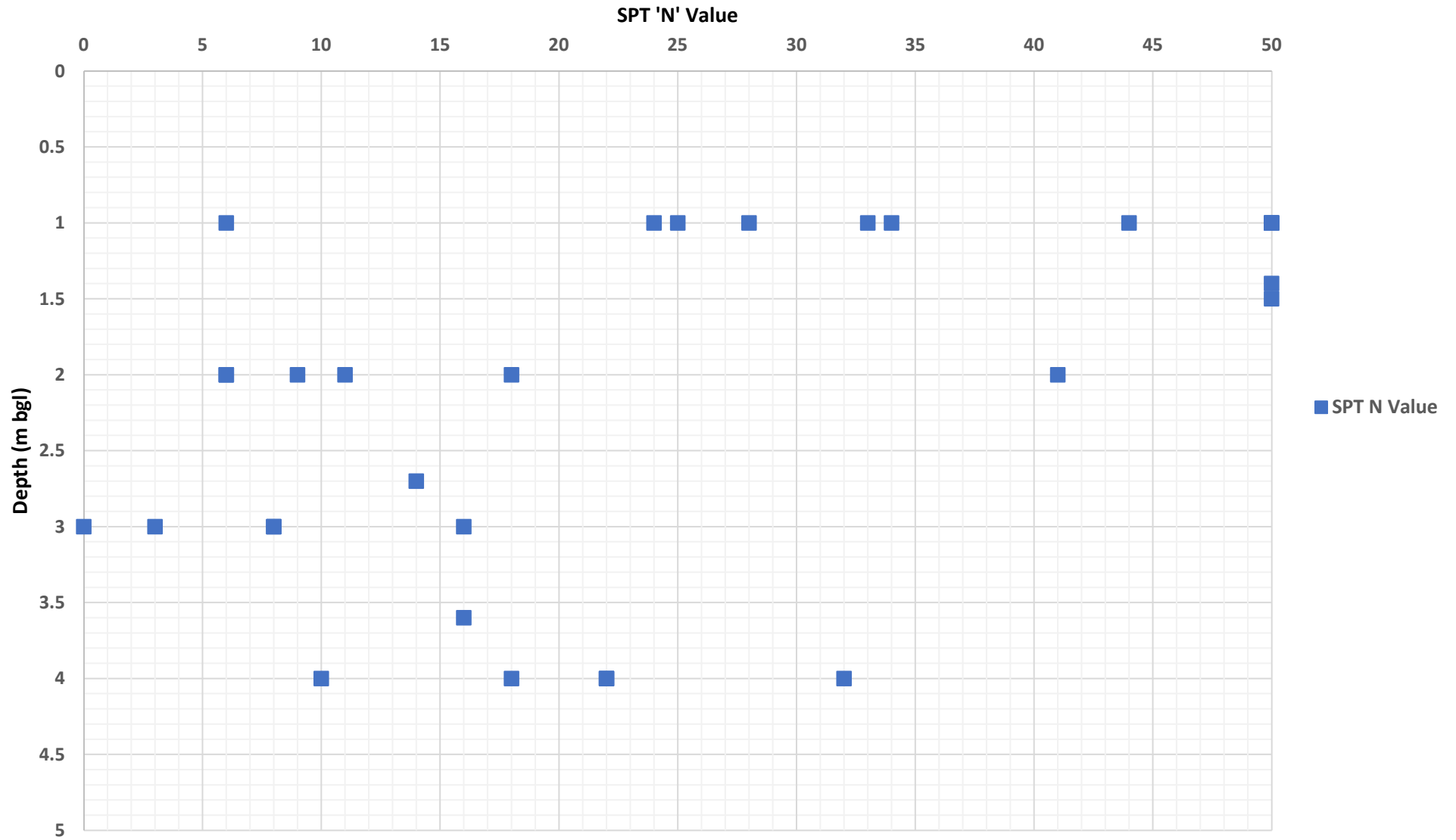
Logged By
GB

Groundwater: Groundwater not encountered		Groundwater Key		Sample Type Key		Test Type Key	
			Groundwater Strike	D	Disturbed	IVN	Hand vane
Remarks: Borehole terminated at 1.00m, too dense to advance.			Standing water level	B	Bulk	S/C	SPT / CPT
				U	Undisturbed	PP	Pocket penetrometer
				ES	Environmental	PID	PID Reading

#61195 - Saxons Corner, St Georges Avenue, Emsworth, PO9 2SA
Undrained Shear Strength (Cu) -vs- Depth Profile



#61195 - Saxons Corner, St Georges Avenue, Emsworth, PO9 2SA
SPT 'N' Value -vs- Depth Profile



Appendix C

Results of Chemical Analyses

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/06706
Issue Number: 1
Date: 28 June, 2021

Client: Richard Jackson Ltd
847 The Crescent
Colchester Business Park
Colchester
CO4 9YQ

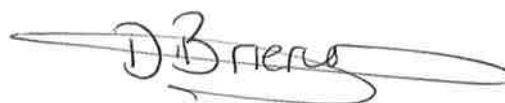
Project Manager: Katherine Brightwell/Kay O'Reilly
Project Name: Emsworth
Project Ref: 61195
Order No: 61195
Date Samples Received: 14/06/21
Date Instructions Received: 18/06/21
Date Analysis Completed: 25/06/21

Prepared by:



Holly Neary-King
Client Services Supervisor

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 21/06706

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06706/1	21/06706/2	21/06706/3					Units	Limit of Detection	Method ref
Client Sample No	1	1	1							
Client Sample ID	TP13	TP01	TP10							
Depth to Top	1	0.2	0.5							
Depth To Bottom										
Date Sampled	07-Jun-21	08-Jun-21	07-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	6A	5A							
% Stones >10mm _A	<0.1	<0.1	15.8					% w/w	0.1	A-T-044
pH _D ^{M#}	7.72	5.05	6.35					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.01	0.01	<0.01					g/l	0.01	A-T-026s
Sulphur (total) _D	56	263	115					mg/kg	50	A-T-024s
Cyanide (total) _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2					mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	0.3	3.0	0.8					% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	9	3	2					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	1.6	0.9	0.7					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	18	15	8					mg/kg	1	A-T-024s
Chromium _D ^{M#}	45	25	24					mg/kg	1	A-T-024s
Lead _D ^{M#}	20	31	13					mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	33	15	15					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	57	52	41					mg/kg	5	A-T-024s

Envirolab Job Number: 21/06706

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06706/1	21/06706/2	21/06706/3					Units	Limit of Detection	Method ref
Client Sample No	1	1	1							
Client Sample ID	TP13	TP01	TP10							
Depth to Top	1	0.2	0.5							
Depth To Bottom										
Date Sampled	07-Jun-21	08-Jun-21	07-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	6A	5A							
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08					mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/06706

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06706/1	21/06706/2	21/06706/3					Units	Limit of Detection	Method ref
Client Sample No	1	1	1							
Client Sample ID	TP13	TP01	TP10							
Depth to Top	1	0.2	0.5							
Depth To Bottom										
Date Sampled	07-Jun-21	08-Jun-21	07-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	6A	5A							
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	1	7	2					mg/kg	1	A-T-055s
Ali >C35-C44 _A	<1	<1	<1					mg/kg	1	A-T-055s
Total Aliphatics _A	1	7	2					mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	<1	6	<1					mg/kg	1	A-T-055s
Aro >C35-C44 _A	<1	<1	<1					mg/kg	1	A-T-055s
Total Aromatics _A	<1	6	<1					mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	1	14	2					mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	0.02	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Richard Jackson Ltd, 847 The Crescent, Colchester Business Park, Colchester ,
CO4 9YQ

Project: Emsworth

Clients Project No: 61195

Project No: 21/06706

Date Received: 18/06/2021 (am)

Cool Box Temperatures (°C): 16.1 - 17.2

Lab Sample ID	21/06706/1	21/06706/3
Client Sample No	1	1
Client Sample ID/Depth	TP13 1m	TP10 0.5m
Date Sampled	07/06/21	07/06/21
Deviation Code		
F	✓	✓

Key

F Maximum holding time exceeded between sampling date and analysis for analytes listed below

HOLDING TIME EXCEEDANCES

Lab Sample ID	21/06706/1	21/06706/3
Client Sample No	1	1
Client Sample ID/Depth	TP13 1m	TP10 0.5m
Date Sampled	07/06/21	07/06/21
VPHCWG	✓	✓

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-120:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/06723
Issue Number: 1
Date: 30 June, 2021

Client: Richard Jackson Ltd
847 The Crescent
Colchester Business Park
Colchester
CO4 9YQ

Project Manager: Kay O'Reilly
Project Name: Emsworth
Project Ref: 61195
Order No: 61195
Date Samples Received: 18/06/21
Date Instructions Received: 18/06/21
Date Analysis Completed: 30/06/21

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
% Stones >10mm _A	1.5	13.3	31.3	<0.1	<0.1	11.5	0.7	% w/w	0.1	A-T-044
pH _D ^{M#}	5.92	-	4.76	-	4.88	6.50	5.10	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	-	<0.01	-	<0.01	0.02	<0.01	g/l	0.01	A-T-026s
Sulphur (total) _D	220	-	181	-	241	77	267	mg/kg	50	A-T-024s
Cyanide (total) _A ^{M#}	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	2.7	-	2.5	-	3.0	0.5	2.8	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	2	5	<1	3	2	4	<1	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.7	0.8	<0.5	1.0	0.8	1.1	0.6	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	13	16	13	18	15	16	11	mg/kg	1	A-T-024s
Chromium _D ^{M#}	24	36	16	43	26	40	24	mg/kg	1	A-T-024s
Lead _D ^{M#}	25	11	24	13	26	17	25	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	14	23	10	28	14	26	14	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	2	mg/kg	1	A-T-024s
Zinc _D ^{M#}	49	50	36	63	56	50	50	mg/kg	5	A-T-024s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-	NAD	-	NAD	-	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	-	N/A	-	N/A	-	N/A			A-T-045

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	0.12	<0.08	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	0.10	<0.07	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08	<0.08	0.37	<0.08	<0.08	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Hexachlorobenzene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Diethyl phthalate _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Dimethyl phthalate _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Dibenzofuran _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Carbazole _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Butylbenzyl phthalate _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate _A	-	-	-	-	-	<500	<500	µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
4-Nitrophenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
3+4-Methylphenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
4-Chloro-3-methylphenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2-Nitrophenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2-Methylphenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2-Chlorophenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2,6-Dinitrotoluene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2,4-Dinitrotoluene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2,4-Dimethylphenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2,4-Dichlorophenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2,4,6-Trichlorophenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2,4,5-Trichlorophenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
1,4-Dichlorobenzene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
1,3-Dichlorobenzene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
1,2-Dichlorobenzene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2-Chloronaphthalene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
2-Methylnaphthalene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Phenol _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Pentachlorophenol (SVOC) _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
n-Diethylphthalate _A	-	-	-	-	-	<500	<500	µg/kg	500	A-T-052s
n-Dibutylphthalate _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Nitrobenzene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Isophorone _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Hexachloroethane _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Hexachlorocyclopentadiene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Hexachlorobutadiene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s
Perylene _A	-	-	-	-	-	<100	<100	µg/kg	100	A-T-052s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
VOC										
Dichlorodifluoromethane _A	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Chloromethane _A	-	-	<10	-	-	<10	<10	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene) _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Bromomethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Chloroethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Trichlorofluoromethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,1-Dichloroethene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Carbon Disulphide _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Dichloromethane _A	-	-	<5	-	-	<5	<5	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,1-Dichloroethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
2,2-Dichloropropane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Bromochloromethane _A [#]	-	-	<5	-	-	<5	<5	µg/kg	5	A-T-006s
Chloroform _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,1,1-Trichloroethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,1-Dichloropropene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Carbon Tetrachloride _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,2-Dichloroethane _A [#]	-	-	<2	-	-	<2	<2	µg/kg	2	A-T-006s
Benzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Trichloroethene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,2-Dichloropropane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Dibromomethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Bromodichloromethane _A [#]	-	-	<10	-	-	<10	<10	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Toluene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,1,2-Trichloroethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,3-Dichloropropane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Tetrachloroethene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Dibromochloromethane _A [#]	-	-	<3	-	-	<3	<3	µg/kg	3	A-T-006s
1,2-Dibromoethane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s

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Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
Chlorobenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane _A	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Ethylbenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
m & p Xylene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
o-Xylene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Styrene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Bromoform _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Isopropylbenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane _A	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,2,3-Trichloropropane _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
Bromobenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
n-Propylbenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
2-Chlorotoluene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
4-Chlorotoluene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
tert-Butylbenzene _A [#]	-	-	<2	-	-	<2	<2	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
sec-Butylbenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
4-Isopropyltoluene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,3-Dichlorobenzene _A	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,4-Dichlorobenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
n-Butylbenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,2-Dichlorobenzene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP) _A	-	-	<2	-	-	<2	<2	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene _A	-	-	<3	-	-	<3	<3	µg/kg	3	A-T-006s
Hexachlorobutadiene _A [#]	-	-	<1	-	-	<1	<1	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene _A	-	-	<3	-	-	<3	<3	µg/kg	3	A-T-006s

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Lab Sample ID	21/06723/1	21/06723/2	21/06723/3	21/06723/4	21/06723/5	21/06723/6	21/06723/7	Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2	1	2	1			
Client Sample ID	WS02	WS02	WS03	WS03	WS04	WS04	WS06			
Depth to Top	0.20	0.70	0.20	0.60	0.15	0.80	0.20			
Depth To Bottom										
Date Sampled	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	16-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3AE	3A	6AE	3	6AE	3A	6AE			
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	8	-	2	-	5	2	4	mg/kg	1	A-T-055s
Ali >C35-C44 _A	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Total Aliphatics _A	8	-	2	-	5	2	4	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	-	<1	-	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	22	-	4	-	9	<1	5	mg/kg	1	A-T-055s
Aro >C35-C44 _A	5	-	<1	-	2	<1	<1	mg/kg	1	A-T-055s
Total Aromatics _A	26	-	5	-	11	<1	5	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	35	-	7	-	16	2	9	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

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Lab Sample ID	21/06723/8	21/06723/9	21/06723/11	21/06723/12	21/06723/13	21/06723/14	21/06723/15	Units	Limit of Detection	Method ref
Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
% Stones >10mm _A	<0.1	4.9	<0.1	6.3	3.3	2.0	2.8	% w/w	0.1	A-T-044
pH _D ^{M#}	-	5.25	5.29	7.04	5.55	-	5.33	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	g/l	0.01	A-T-026s
Sulphur (total) _D	-	415	280	<50	175	-	324	mg/kg	50	A-T-024s
Cyanide (total) _A ^{M#}	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	-	4.4	3.3	0.4	1.5	-	5.3	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	2	2	2	5	<1	3	3	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.9	0.7	0.7	0.8	0.7	1.0	1.0	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	13	17	16	15	11	16	19	mg/kg	1	A-T-024s
Chromium _D ^{M#}	41	22	22	37	23	38	29	mg/kg	1	A-T-024s
Lead _D ^{M#}	15	32	27	14	20	11	57	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	23	14	15	22	14	23	17	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	2	mg/kg	1	A-T-024s
Zinc _D ^{M#}	48	59	52	47	49	49	59	mg/kg	5	A-T-024s

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Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	NAD	NAD	-	NAD	-	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	-	N/A	N/A	-	N/A	-	N/A			A-T-045

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Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	mg/kg	0.01	A-T-019s

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Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Hexachlorobenzene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Diethyl phthalate _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Dimethyl phthalate _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Dibenzofuran _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Carbazole _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Butylbenzyl phthalate _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate _A	-	-	-	<500	-	-	-	µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
4-Nitrophenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
3+4-Methylphenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
4-Chloro-3-methylphenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2-Nitrophenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2-Methylphenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2-Chlorophenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2,6-Dinitrotoluene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2,4-Dinitrotoluene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2,4-Dimethylphenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2,4-Dichlorophenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2,4,6-Trichlorophenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2,4,5-Trichlorophenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
1,4-Dichlorobenzene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
1,3-Dichlorobenzene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
1,2-Dichlorobenzene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2-Chloronaphthalene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
2-Methylnaphthalene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Phenol _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Pentachlorophenol (SVOC) _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/8	21/06723/9	21/06723/11	21/06723/12	21/06723/13	21/06723/14	21/06723/15	Units	Limit of Detection	Method ref
Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
n-Diethylphthalate _A	-	-	-	<500	-	-	-	µg/kg	500	A-T-052s
n-Dibutylphthalate _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Nitrobenzene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Isophorone _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Hexachloroethane _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Hexachlorocyclopentadiene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Hexachlorobutadiene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s
Perylene _A	-	-	-	<100	-	-	-	µg/kg	100	A-T-052s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/8	21/06723/9	21/06723/11	21/06723/12	21/06723/13	21/06723/14	21/06723/15	Units	Limit of Detection	Method ref
Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
VOC										
Dichlorodifluoromethane _A	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Chloromethane _A	-	-	<10	<10	-	-	-	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene) _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Bromomethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Chloroethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Trichlorofluoromethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Carbon Disulphide _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Dichloromethane _A	-	-	<5	<5	-	-	-	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
2,2-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Bromochloromethane _A [#]	-	-	<5	<5	-	-	-	µg/kg	5	A-T-006s
Chloroform _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,1,1-Trichloroethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Carbon Tetrachloride _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,2-Dichloroethane _A [#]	-	-	<2	<2	-	-	-	µg/kg	2	A-T-006s
Benzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Trichloroethene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,2-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Dibromomethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Bromodichloromethane _A [#]	-	-	<10	<10	-	-	-	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Toluene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,1,2-Trichloroethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,3-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Tetrachloroethene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Dibromochloromethane _A [#]	-	-	<3	<3	-	-	-	µg/kg	3	A-T-006s
1,2-Dibromoethane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s

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Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/8	21/06723/9	21/06723/11	21/06723/12	21/06723/13	21/06723/14	21/06723/15	Units	Limit of Detection	Method ref
Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
Chlorobenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane _A	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Ethylbenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
m & p Xylene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
o-Xylene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Styrene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Bromoform _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Isopropylbenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane _A	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,2,3-Trichloropropane _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
Bromobenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
n-Propylbenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
2-Chlorotoluene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
4-Chlorotoluene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
tert-Butylbenzene _A [#]	-	-	<2	<2	-	-	-	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
sec-Butylbenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
4-Isopropyltoluene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,3-Dichlorobenzene _A	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,4-Dichlorobenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
n-Butylbenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,2-Dichlorobenzene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP) _A	-	-	<2	<2	-	-	-	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene _A	-	-	<3	<3	-	-	-	µg/kg	3	A-T-006s
Hexachlorobutadiene _A [#]	-	-	<1	<1	-	-	-	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene _A	-	-	<3	<3	-	-	-	µg/kg	3	A-T-006s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/8	21/06723/9	21/06723/11	21/06723/12	21/06723/13	21/06723/14	21/06723/15	Units	Limit of Detection	Method ref
Client Sample No	2	1	1	2	1	2	1			
Client Sample ID	WS06	WS09	WS01	WS01	WS05	WS05	WS07			
Depth to Top	0.70	0.30	0.20	1.10	0.20	0.70	0.10			
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21	15-Jun-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	3	6AE	6AE	3A	6AE	3AE	6AE			
TPH UKCWG										
Ali >C5-C6 _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	2	5	2	5	-	4	mg/kg	1	A-T-055s
Ali >C35-C44 _A	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Total Aliphatics _A	-	2	5	2	5	-	4	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	<1	<1	<1	<1	-	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	4	6	<1	7	-	13	mg/kg	1	A-T-055s
Aro >C35-C44 _A	-	<1	1	<1	2	-	1	mg/kg	1	A-T-055s
Total Aromatics _A	-	4	7	<1	9	-	14	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	-	6	12	2	14	-	18	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	-	<0.01	<0.01	<0.01	<0.01	-	<0.01	mg/kg	0.01	A-T-022s

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Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
% Stones >10mm _A	<0.1	<0.1	<0.1					% w/w	0.1	A-T-044
pH _D ^{M#}	-	6.12	-					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	<0.01	-					g/l	0.01	A-T-026s
Sulphur (total) _D	-	262	-					mg/kg	50	A-T-024s
Cyanide (total) _A ^{M#}	-	<1	-					mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	-	<0.2	-					mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	-	2.3	-					% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	3	4	4					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.9	0.9	1.1					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	15	19	18					mg/kg	1	A-T-024s
Chromium _D ^{M#}	35	24	43					mg/kg	1	A-T-024s
Lead _D ^{M#}	20	39	15					mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	23	16	25					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	56	55	51					mg/kg	5	A-T-024s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	NAD	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	-	N/A	-							A-T-045

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08					mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether _A	-	<100	-					µg/kg	100	A-T-052s
Hexachlorobenzene _A	-	<100	-					µg/kg	100	A-T-052s
Diethyl phthalate _A	-	<100	-					µg/kg	100	A-T-052s
Dimethyl phthalate _A	-	<100	-					µg/kg	100	A-T-052s
Dibenzofuran _A	-	<100	-					µg/kg	100	A-T-052s
Carbazole _A	-	<100	-					µg/kg	100	A-T-052s
Butylbenzyl phthalate _A	-	<100	-					µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate _A	-	<500	-					µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane _A	-	<100	-					µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether _A	-	<100	-					µg/kg	100	A-T-052s
4-Nitrophenol _A	-	<100	-					µg/kg	100	A-T-052s
3+4-Methylphenol _A	-	<100	-					µg/kg	100	A-T-052s
4-Chloro-3-methylphenol _A	-	<100	-					µg/kg	100	A-T-052s
2-Nitrophenol _A	-	<100	-					µg/kg	100	A-T-052s
2-Methylphenol _A	-	<100	-					µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene _A	-	<100	-					µg/kg	100	A-T-052s
2-Chlorophenol _A	-	<100	-					µg/kg	100	A-T-052s
2,6-Dinitrotoluene _A	-	<100	-					µg/kg	100	A-T-052s
2,4-Dinitrotoluene _A	-	<100	-					µg/kg	100	A-T-052s
2,4-Dimethylphenol _A	-	<100	-					µg/kg	100	A-T-052s
2,4-Dichlorophenol _A	-	<100	-					µg/kg	100	A-T-052s
2,4,6-Trichlorophenol _A	-	<100	-					µg/kg	100	A-T-052s
2,4,5-Trichlorophenol _A	-	<100	-					µg/kg	100	A-T-052s
1,4-Dichlorobenzene _A	-	<100	-					µg/kg	100	A-T-052s
1,3-Dichlorobenzene _A	-	<100	-					µg/kg	100	A-T-052s
1,2-Dichlorobenzene _A	-	<100	-					µg/kg	100	A-T-052s
2-Chloronaphthalene _A	-	<100	-					µg/kg	100	A-T-052s
2-Methylnaphthalene _A	-	<100	-					µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether _A	-	<100	-					µg/kg	100	A-T-052s
Phenol _A	-	<100	-					µg/kg	100	A-T-052s
Pentachlorophenol (SVOC) _A	-	<100	-					µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine _A	-	<100	-					µg/kg	100	A-T-052s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
n-Dioctylphthalate _A	-	<500	-					µg/kg	500	A-T-052s
n-Dibutylphthalate _A	-	<100	-					µg/kg	100	A-T-052s
Nitrobenzene _A	-	<100	-					µg/kg	100	A-T-052s
Isophorone _A	-	<100	-					µg/kg	100	A-T-052s
Hexachloroethane _A	-	<100	-					µg/kg	100	A-T-052s
Hexachlorocyclopentadiene _A	-	<100	-					µg/kg	100	A-T-052s
Hexachlorobutadiene _A	-	<100	-					µg/kg	100	A-T-052s
Perylene _A	-	<100	-					µg/kg	100	A-T-052s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
VOC										
Dichlorodifluoromethane _A	-	<1	-					µg/kg	1	A-T-006s
Chloromethane _A	-	<10	-					µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene) _A [#]	-	<1	-					µg/kg	1	A-T-006s
Bromomethane _A [#]	-	<1	-					µg/kg	1	A-T-006s
Chloroethane _A [#]	-	<1	-					µg/kg	1	A-T-006s
Trichlorofluoromethane _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,1-Dichloroethene _A [#]	-	<1	-					µg/kg	1	A-T-006s
Carbon Disulphide _A [#]	-	<1	-					µg/kg	1	A-T-006s
Dichloromethane _A	-	<5	-					µg/kg	5	A-T-006s
trans 1,2-Dichloroethene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,1-Dichloroethane _A [#]	-	<1	-					µg/kg	1	A-T-006s
cis 1,2-Dichloroethene _A [#]	-	<1	-					µg/kg	1	A-T-006s
2,2-Dichloropropane _A [#]	-	<1	-					µg/kg	1	A-T-006s
Bromochloromethane _A [#]	-	<5	-					µg/kg	5	A-T-006s
Chloroform _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,1,1-Trichloroethane _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,1-Dichloropropene _A [#]	-	<1	-					µg/kg	1	A-T-006s
Carbon Tetrachloride _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,2-Dichloroethane _A [#]	-	<2	-					µg/kg	2	A-T-006s
Benzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
Trichloroethene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,2-Dichloropropane _A [#]	-	<1	-					µg/kg	1	A-T-006s
Dibromomethane _A [#]	-	<1	-					µg/kg	1	A-T-006s
Bromodichloromethane _A [#]	-	<10	-					µg/kg	10	A-T-006s
cis 1,3-Dichloropropene _A [#]	-	<1	-					µg/kg	1	A-T-006s
Toluene _A [#]	-	<1	-					µg/kg	1	A-T-006s
trans 1,3-Dichloropropene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,1,2-Trichloroethane _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,3-Dichloropropane _A [#]	-	<1	-					µg/kg	1	A-T-006s
Tetrachloroethene _A [#]	-	<1	-					µg/kg	1	A-T-006s
Dibromochloromethane _A [#]	-	<3	-					µg/kg	3	A-T-006s
1,2-Dibromoethane _A [#]	-	<1	-					µg/kg	1	A-T-006s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
Chlorobenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane _A	-	<1	-					µg/kg	1	A-T-006s
Ethylbenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
m & p Xylene _A [#]	-	<1	-					µg/kg	1	A-T-006s
o-Xylene _A [#]	-	<1	-					µg/kg	1	A-T-006s
Styrene _A [#]	-	<1	-					µg/kg	1	A-T-006s
Bromoform _A [#]	-	<1	-					µg/kg	1	A-T-006s
Isopropylbenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane _A	-	<1	-					µg/kg	1	A-T-006s
1,2,3-Trichloropropane _A [#]	-	<1	-					µg/kg	1	A-T-006s
Bromobenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
n-Propylbenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
2-Chlorotoluene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
4-Chlorotoluene _A [#]	-	<1	-					µg/kg	1	A-T-006s
tert-Butylbenzene _A [#]	-	<2	-					µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
sec-Butylbenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
4-Isopropyltoluene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,3-Dichlorobenzene _A	-	<1	-					µg/kg	1	A-T-006s
1,4-Dichlorobenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
n-Butylbenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,2-Dichlorobenzene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP) _A	-	<2	-					µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene _A	-	<3	-					µg/kg	3	A-T-006s
Hexachlorobutadiene _A [#]	-	<1	-					µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene _A	-	<3	-					µg/kg	3	A-T-006s

Envirolab Job Number: 21/06723

Client Project Name: Emsworth

Client Project Ref: 61195

Lab Sample ID	21/06723/16	21/06723/17	21/06723/18					Units	Limit of Detection	Method ref
Client Sample No	2	1	2							
Client Sample ID	WS07	WS08	WS08							
Depth to Top	0.60	0.25	0.65							
Depth To Bottom										
Date Sampled	15-Jun-21	15-Jun-21	15-Jun-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	3A	6AE	3A							
TPH UKCWG										
Ali >C5-C6 _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	<1	-					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	<1	-					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	<1	-					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	2	-					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	11	-					mg/kg	1	A-T-055s
Ali >C35-C44 _A	-	1	-					mg/kg	1	A-T-055s
Total Aliphatics _A	-	14	-					mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	<1	-					mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	<1	-					mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	<1	-					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	1	-					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	17	-					mg/kg	1	A-T-055s
Aro >C35-C44 _A	-	4	-					mg/kg	1	A-T-055s
Total Aromatics _A	-	21	-					mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	-	36	-					mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s
MTBE _A [#]	-	<0.01	-					mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client:	Richard Jackson Ltd, 847 The Crescent, Colchester Business Park, Colchester , CO4 9YQ	Project No:	21/06723
Project:	Emsworth	Date Received:	18/06/2021 (am)
Clients Project No:	61195	Cool Box Temperatures (°C):	15.0, 14.6

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-120:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

61195 – Saxons Corner, St Georges Avenue, Emsworth

Geo-environmental Assessment
Reference Criteria

Soils

In 2014 Land Quality Management Ltd (LQM) and the Chartered Institute of Environmental Health (CIEH) published 'Suitable 4 Use Levels' (S4ULs) for human health risk assessment. The S4ULs have been derived in accordance with UK legislation, national and Environment Agency policy using a modified version of the Contaminated Land Exposure Assessment (CLEA) software. The S4ULs are based on minimal or tolerable risk as described in SR2 (Environment Agency, 2009a).

The S4ULs are intended to replace the 2nd edition of the LQM/CIEH Generic Assessment Criteria (GAC).

The S4ULs have also been used to replace the Environment Agency Soil Guideline Values (SGVs), which were defined in 2009 alongside updates to the CLEA methodology and software.

The parameters detailed in the LQM/CIEH S4ULs publication have been adapted using the CLEA software to reflect site specific conditions, including the Soil Organic Matter (SOM), where these are significantly different from the values used to derive the SGV.

It is understood the site is to be developed for residential purposes, therefore S4ULs for a residential land use with homegrown produce have been adopted for this site.

A SOM of 1% has been adopted for organic chemicals for the purposes of the initial assessment on the basis of laboratory analysis. A SOM of 6% has been adopted for inorganic chemical as detailed in 'The LQM / CIEH S4ULS for human health assessment', (2015).

The three most hazardous PAH's, benzo(a)pyrene, dibenz(a,h)anthracene and naphthalene have been considered on this occasion.

In the absence an S4UL for lead the Category 4 Screening Level (C4SL) for lead has been adopted. In March 2014 DEFRA published C4SLs for six contaminants including lead. The C4SLs are based on a unique toxicological benchmark, 'Low Level of Toxicological Concern' rather than the 'minimal or tolerable level of risk' which forms the basis for the S4ULs.

A summary of the tier one screening values for human health is given in the Table, below.

Contaminant	Origin of Screening Value	Screening Value (mg / kg)
Arsenic	S4UL ¹	37
Cadmium	S4UL ¹	11
Chromium	S4UL ¹	910
Copper	S4UL ¹	2,400
Nickel	S4UL ¹	180
Lead	C4SL ²	200
Selenium	S4UL ¹	250
Mercury	S4UL ¹	40
Zinc	S4UL ¹	3,700
Benzo(a)pyrene	S4UL ³	2.2
Dibenz(a,h)anthracene	S4UL ³	0.24
Naphthalene	S4UL ³	2.3
Total Phenols	S4UL ³	280
TPH Aromatic C ₅ -C ₇	S4UL ³	70
TPH Aromatic C ₇ -C ₈	S4UL ³	130
TPH Aromatic C ₈ -C ₁₀	S4UL ³	34
TPH Aromatic C ₁₀ -C ₁₂	S4UL ³	74
TPH Aromatic C ₁₂ -C ₁₆	S4UL ³	140
TPH Aromatic C ₁₆ -C ₂₁	S4UL ³	260
TPH Aromatic C ₂₁ -C ₃₅	S4UL ³	1,100
TPH Aliphatic C ₅ -C ₆	S4UL ³	42
TPH Aliphatic C ₆ -C ₈	S4UL ³	100
TPH Aliphatic C ₈ -C ₁₀	S4UL ³	27
TPH Aliphatic C ₁₀ -C ₁₂	S4UL ³	130*
TPH Aliphatic C ₁₂ -C ₁₆	S4UL ³	1,100*
TPH Aliphatic C ₁₆ -C ₃₅	S4UL ³	65,000*
Benzene	S4UL ³	0.087
Toluene	S4UL ³	130
Ethylbenzene	S4UL ³	47
M & P Xylene	S4UL ³	56
O Xylene	S4UL ³	60
Vinyl Chloride	S4UL ³	0.00064

Contaminant	Origin of Screening Value	Screening Value (mg / kg)
1,2 – Dichloroethane	S4UL ³	0.0071
Trichloromethane	S4UL ³	0.91
Trichloroethene	S4UL ³	0.016
1,1,1 – Trichloroethane	S4UL ³	8.8
Tetrachloroethene	S4UL ³	0.18
Chlorobenze	S4UL ³	0.46
Hexachlorobutadine	S4UL ³	0.29

¹ Value derived for site specific conditions use using CLEA software, S4UL parameters, at an SOM of 6% for a residential land use with homegrown produce.

² Category 4 Screening Level adopted based on DEFRA (2014)

³ Value derived for site specific conditions use using CLEA software, S4UL parameters, at an SOM of 1% for a residential land use with homegrown produce.

*Although soils up to this value may not be harmful to human health, it should be noted that soils would be saturated at this value and remediation may still be necessary. Results will therefore be reviewed on a case by case basis.

Appendix D

Geotechnical test results



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 06/07/2021



Contract	Emsworth
Serial No.	38912_1
Client: Richard Jackson Limited 847 The Crescent Colchester Essex CO4 9YQ	
Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com	
Samples Submitted By: Richard Jackson Limited Samples Labelled: Emsworth	Approved Signatories: ☐ J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager ☐ W. Johnstone Materials Lab Manager ☒ D. Sabnis Operations Manager 
Date Received: 15/06/2021	Samples Tested Between: 15/06/2021 and 06/07/2021
Remarks: For the attention of Kay O'Reilly Your Reference No: 61195	
Notes: 1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary. 2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. 3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory. 4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory. 5 The results within this report only relate to the items tested or sampled.	



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 06/07/2021



0998

Contract		Emsworth																	
Serial No.		38912_1												Target Date		29/06/2021			
Scheduled By		Richard Jackson Limited																	
Schedule Remarks																			
Bore Hole No.	Type	Sample Ref.	Top Depth	California Bearing Ratio Test												Sample Remarks			
TP01	B	1	0.70	1															
TP02	B	1	0.70	1															
TP03	B	1	0.70	1															
TP04	B	1	0.70	1															
TP06	B	1	0.70	1															
TP07	B	1	0.70	1															
TP08	B	1	0.70	1															
TP09	B	1	0.70	1															
TP10	B	1	0.70	1															
TP11	B	1	0.70	1															
TP12	B	1	0.70	1															
TP13	B	1	0.70	1															
TP15	B	1	0.70	1															
TP16a	B	1	0.70	1															
TP17	B	1	0.70	1															
Totals				15															End of Schedule



TEST REPORT

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DATE ISSUED: 06/07/2021



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Contract	Emsworth
Serial No.	38912_1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP01	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to medium angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Soaked	
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	22.5	%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.63 Mg/m ³

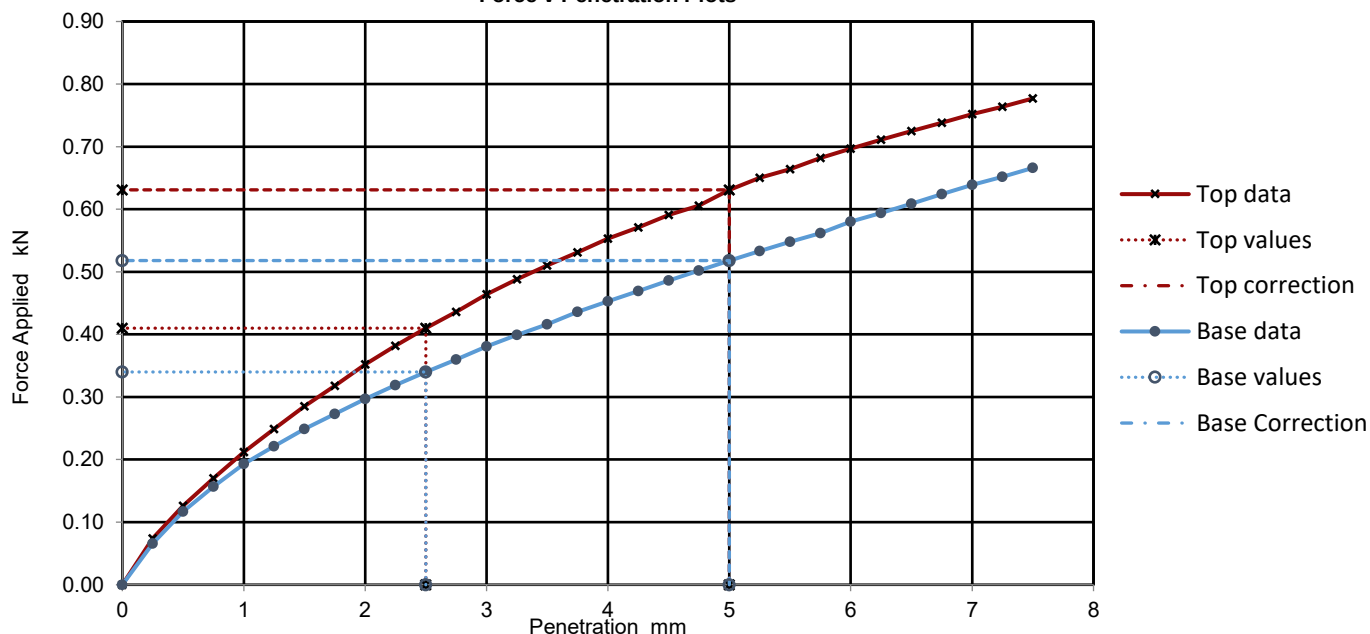
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.1	3.2	3.2	2.9
BASE	No	2.6	2.6	2.6	

Water Content (%)
23.2
22.7

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP02	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Soaked	
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	22.0	%

Material Retained on 20mm Sieve Removed	4.3	%
Initial Specimen Details:	Bulk Density	1.98 Mg/m ³
	Dry Density	1.62 Mg/m ³

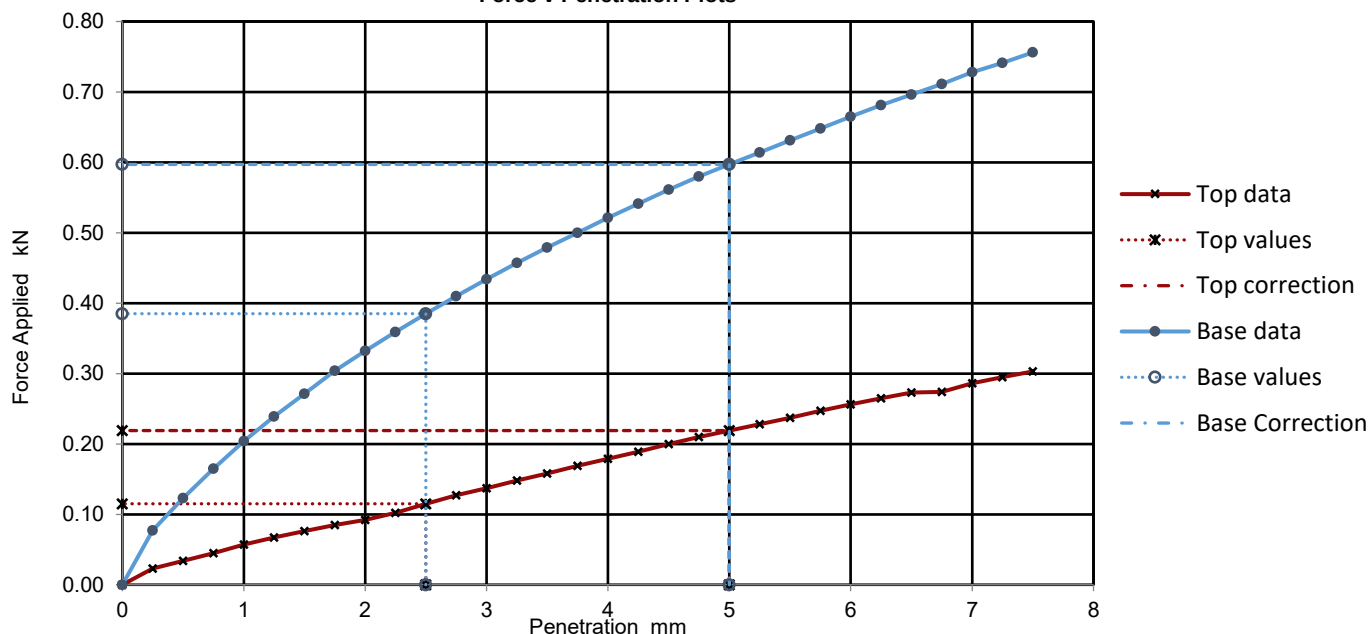
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	0.9	1.1	1.1	
BASE	No	2.9	3.0	3.0	

Water Content (%)
28.4
19.2

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP03	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	18.8	%

Material Retained on 20mm Sieve Removed	12	%
Initial Specimen Details:	Bulk Density	2.03 Mg/m ³
	Dry Density	1.71 Mg/m ³

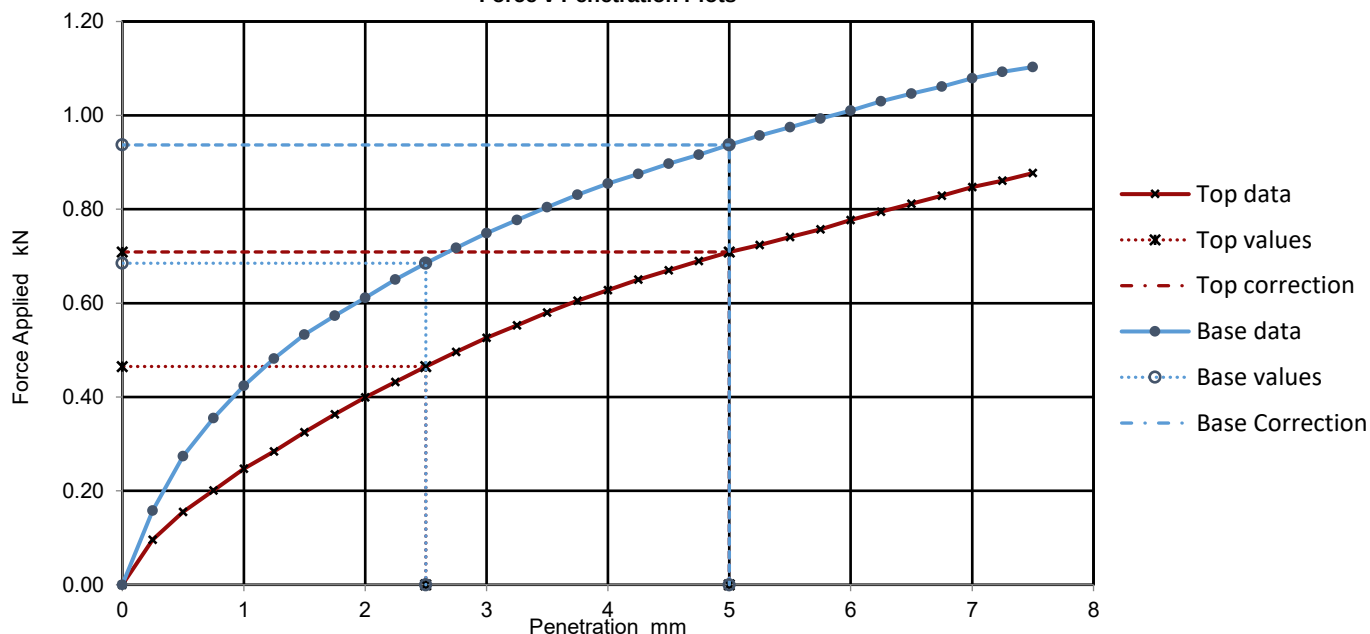
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.5	3.5	3.5	
BASE	No	5.2	4.7	5.2	

Water Content (%)
20.6
21.0

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP04	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	22.0	%

Material Retained on 20mm Sieve Removed	1.9	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.64 Mg/m ³

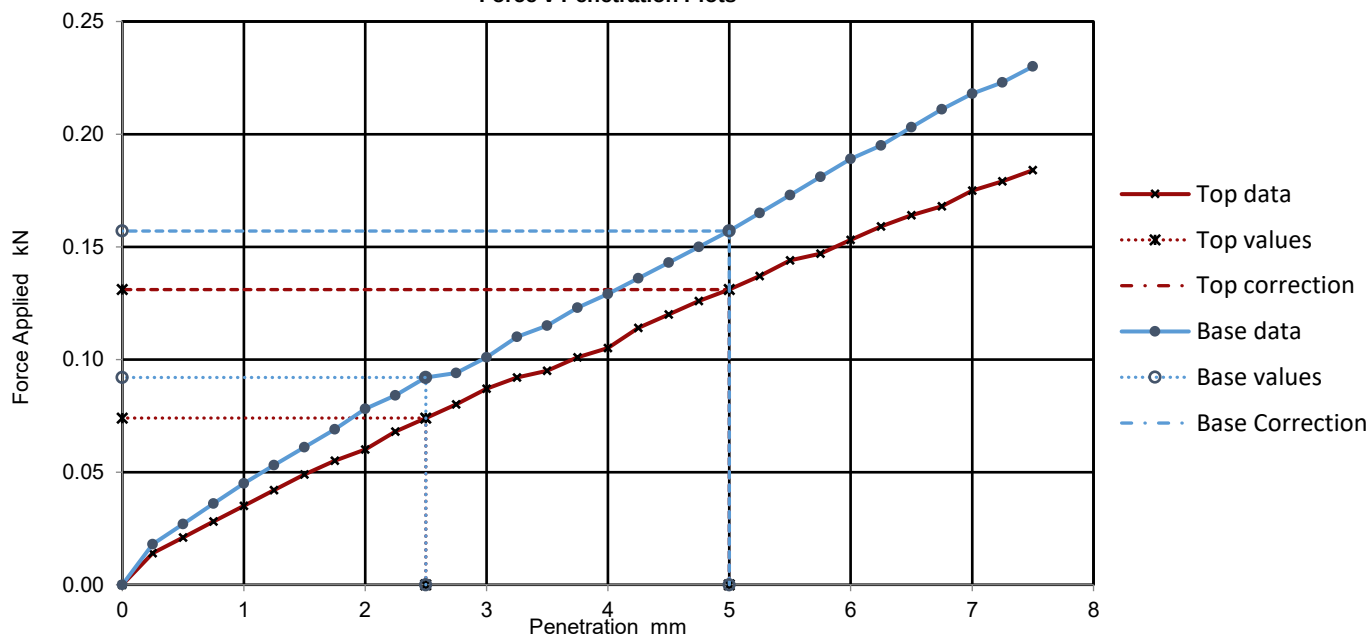
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	0.6	0.7	0.7	0.7
BASE	No	0.7	0.8	0.8	

Water Content (%)
22.4
22.0

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP06	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare fine to coarse angular to subangular chert, and recently active roots.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	22.8	%

Material Retained on 20mm Sieve Removed	0.2	%
Initial Specimen Details:	Bulk Density	1.98 Mg/m ³
	Dry Density	1.61 Mg/m ³

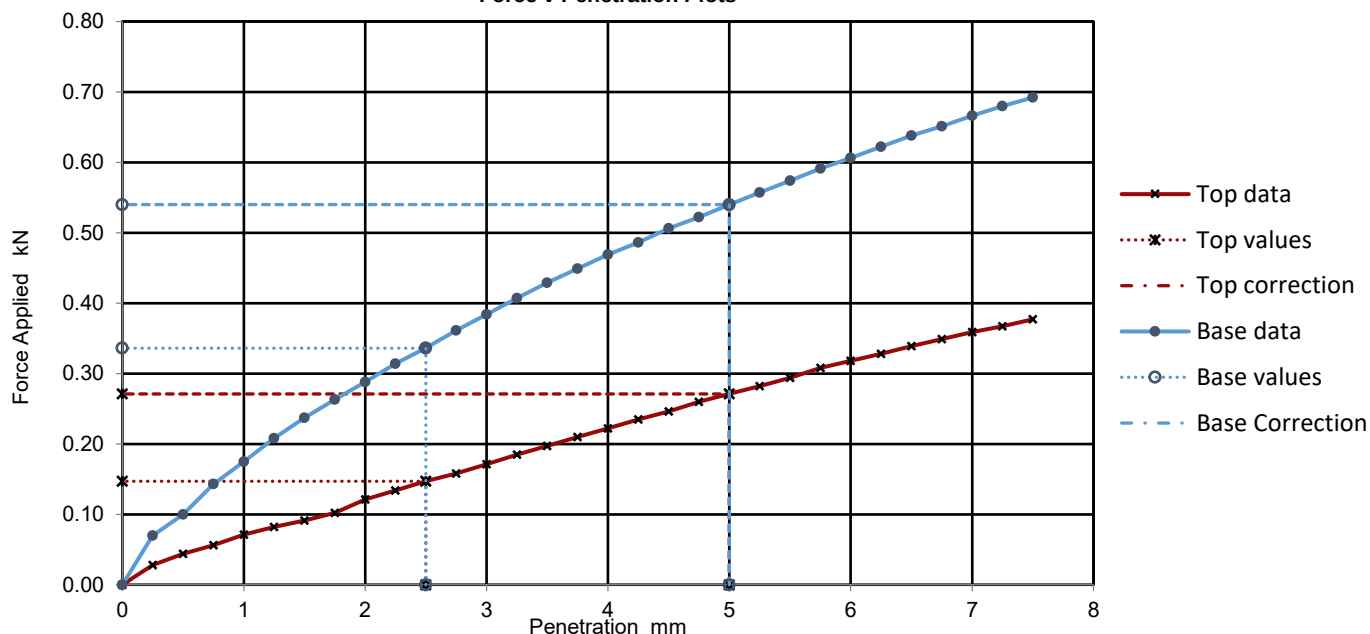
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.1	1.4	1.4	
BASE	No	2.5	2.7	2.7	

Water Content (%)
24.7
22.8

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP07	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Soaked	
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	21.4	%

Material Retained on 20mm Sieve Removed	3.6	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.65 Mg/m ³

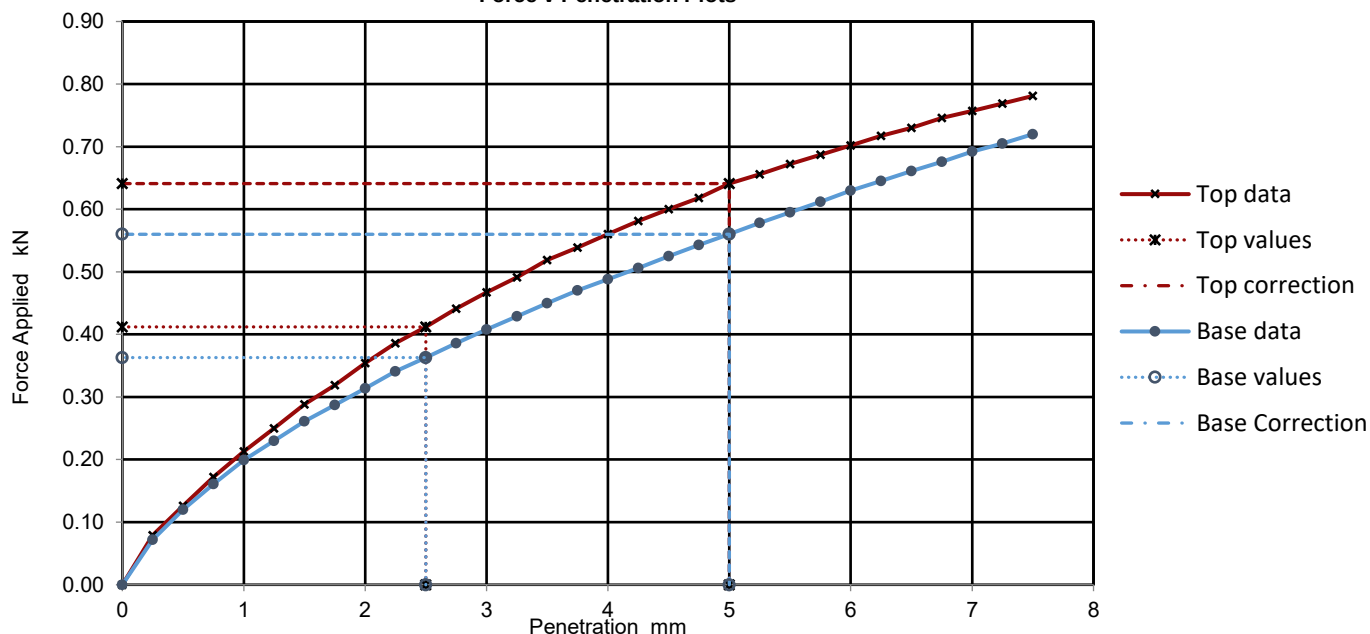
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.1	3.2	3.2	3.0
BASE	No	2.8	2.8	2.8	

Water Content (%)
22.2
21.7

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP08	0.70	B	1	Yellowish brown CLAY with rare fine to medium chert gravel, and recently active roots.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Soaked	
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	21.9	%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.63 Mg/m ³

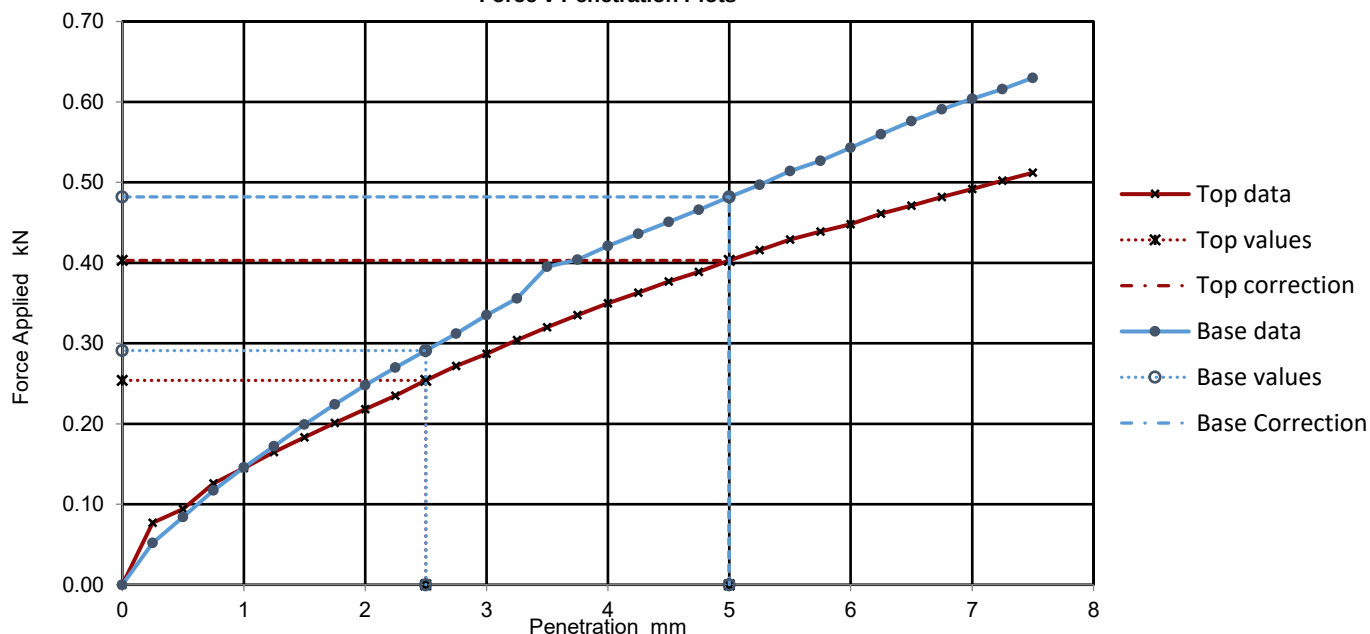
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.9	2.0	2.0	2.2
BASE	No	2.2	2.4	2.4	

Water Content (%)
23.6
22.1

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP09	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	21.8	%

Material Retained on 20mm Sieve Removed	2.4	%
Initial Specimen Details:	Bulk Density	1.98 Mg/m ³
	Dry Density	1.63 Mg/m ³

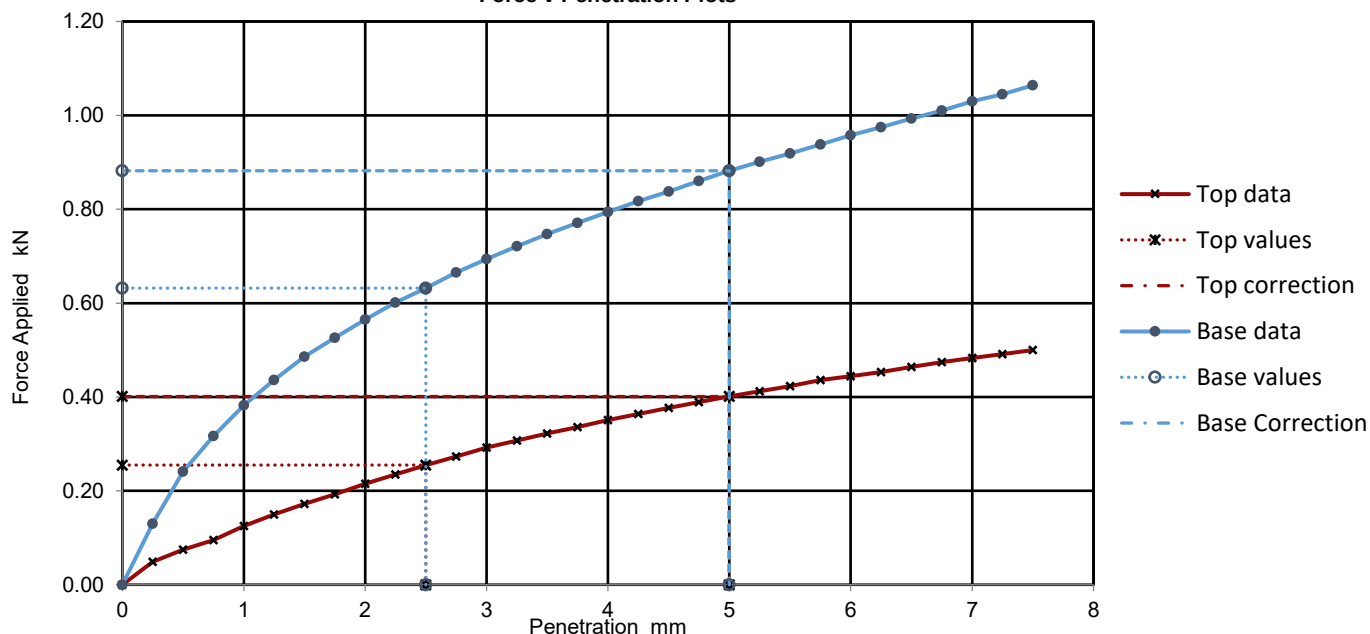
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.9	2.0	2.0	
BASE	No	4.8	4.4	4.8	

Water Content (%)
25.3
21.9

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP10	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	20.8	%

Material Retained on 20mm Sieve Removed	4.5	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.65 Mg/m ³

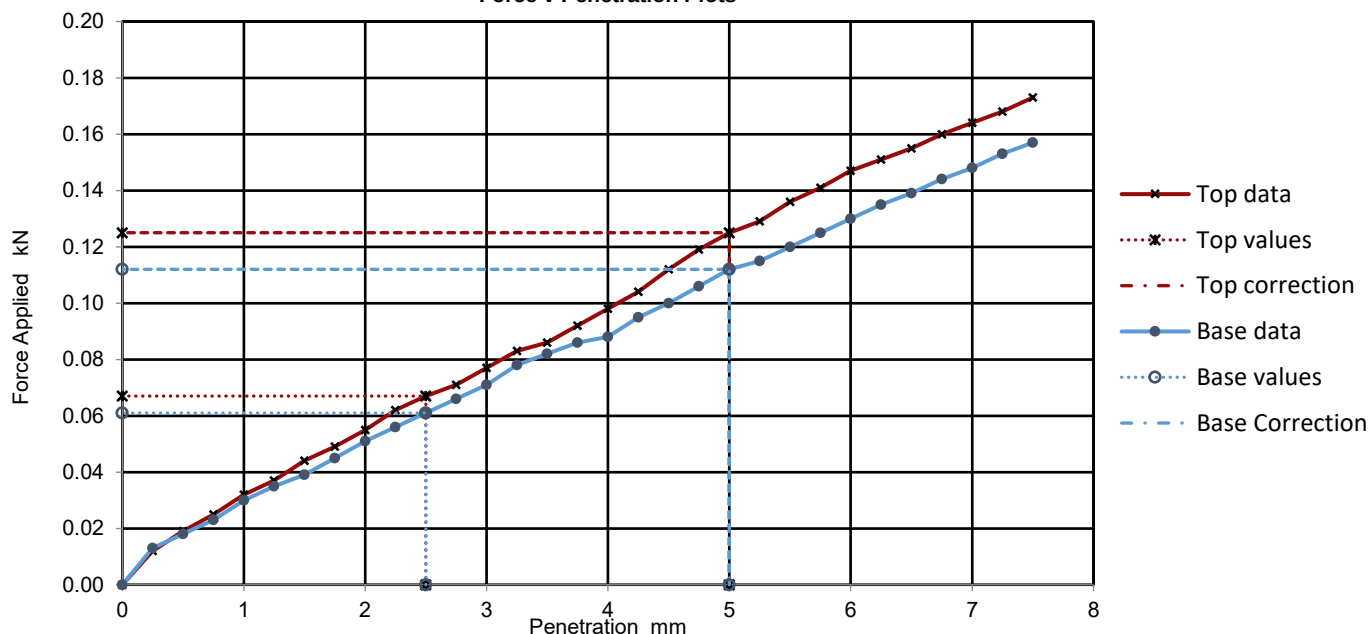
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	0.5	0.6	0.6	0.6
BASE	No	0.5	0.6	0.6	

Water Content (%)
22.1
21.8

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP11	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	22.1	%

Material Retained on 20mm Sieve Removed	0.5	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.63 Mg/m ³

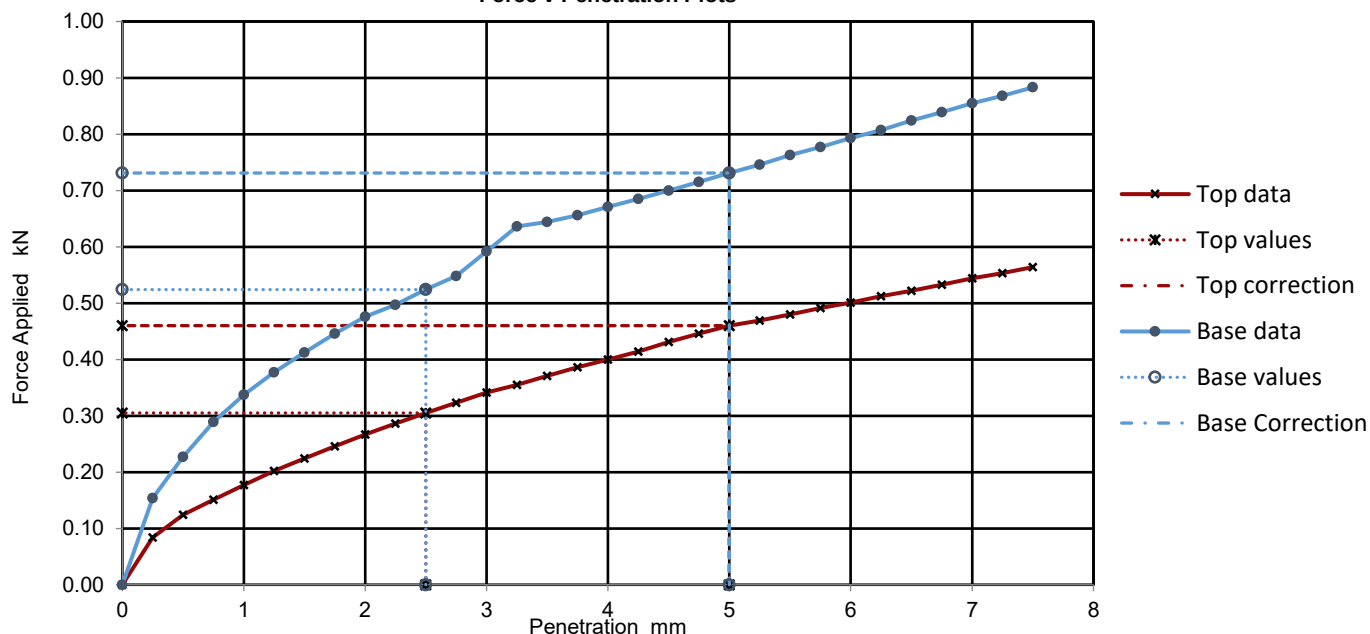
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	2.3	2.3	2.3	
BASE	No	4.0	3.7	4.0	

Water Content (%)
25.1
22.6

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP12	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subangular chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Soaked	
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	20.5	%

Material Retained on 20mm Sieve Removed	1.3	%
Initial Specimen Details:	Bulk Density	2.02 Mg/m ³
	Dry Density	1.68 Mg/m ³

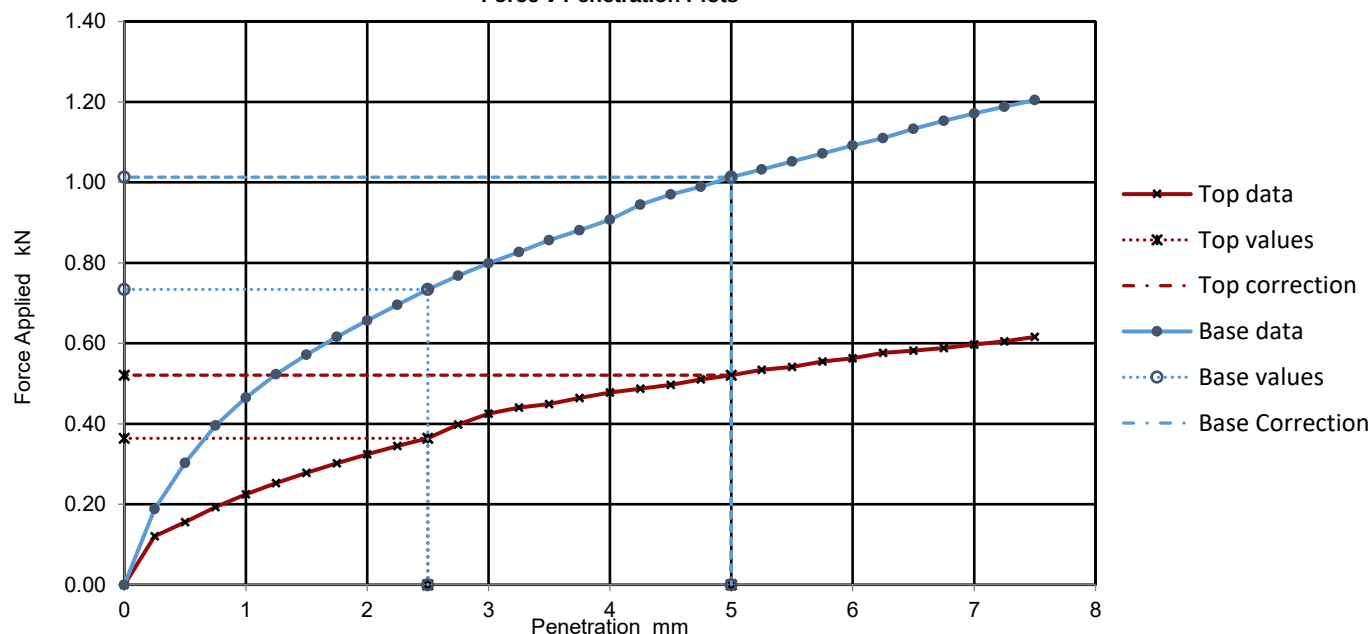
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	2.8	2.6	2.8	
BASE	No	5.6	5.1	5.6	

Water Content (%)
23.4
20.9

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP13	0.70	B	1	Yellowish brown silty CLAY with rare recently active roots.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Soaked	
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	23.1	%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.98 Mg/m ³
	Dry Density	1.61 Mg/m ³

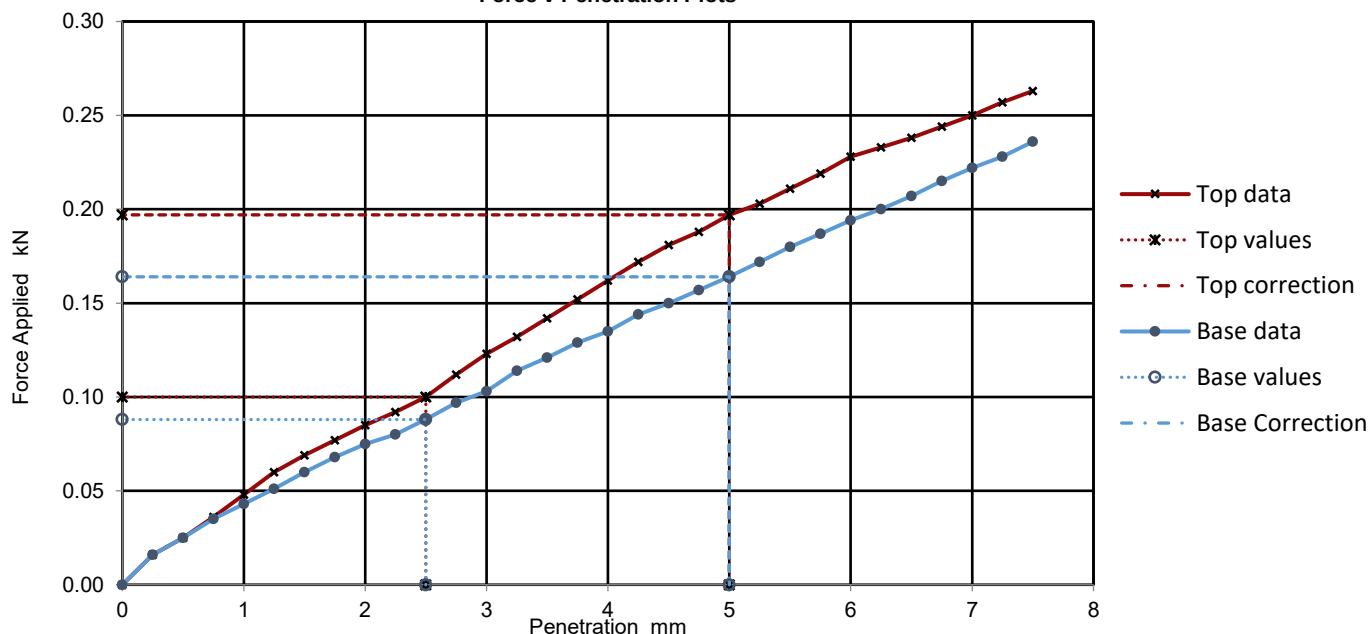
Surcharge Applied	15	kg
-------------------	----	----

Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	0.8	1.0	1.0	0.9
BASE	No	0.7	0.8	0.8	

Water Content (%)
23.4
23.1

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 06/07/2021



0998

Contract	Emsworth
Serial No.	38912_1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP15	0.70	B	1	Yellowish brown CLAY with rare fine and medium chert gravel	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	23.0	%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.62 Mg/m ³

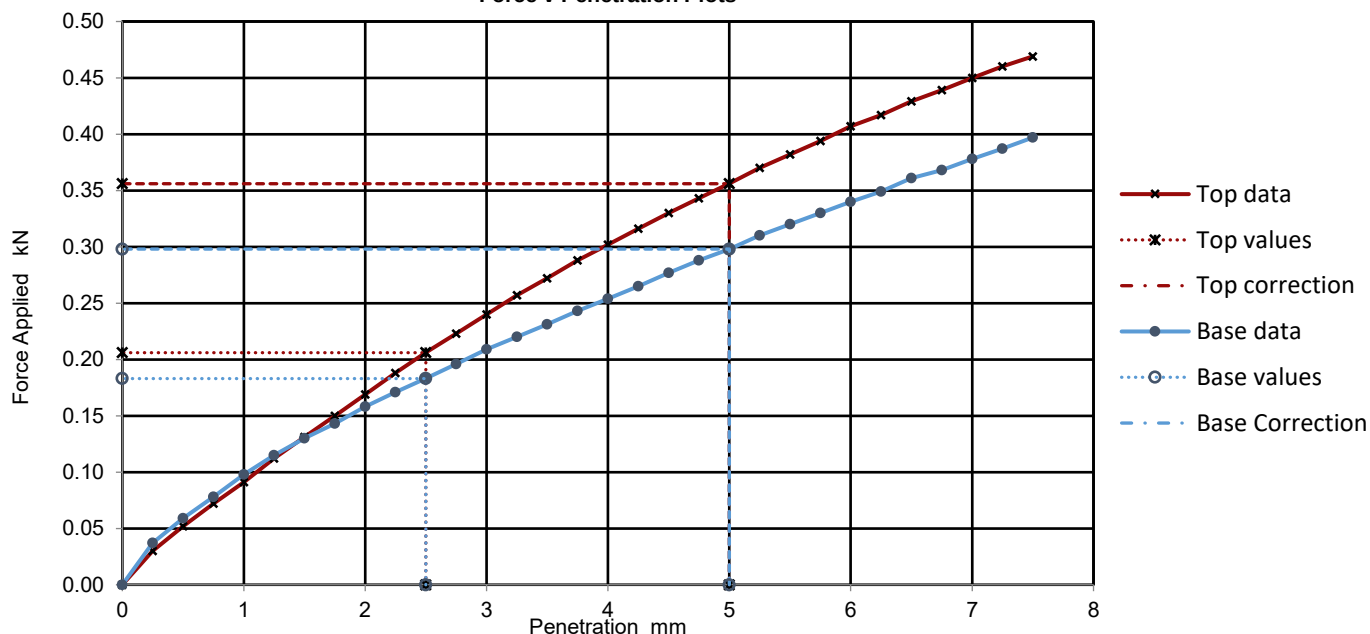
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.6	1.8	1.8	1.7
BASE	No	1.4	1.5	1.5	

Water Content (%)
23.6
23.2

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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DATE ISSUED: 06/07/2021



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Contract	Emsworth
Serial No.	38912_1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP16a	0.70	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular and subangular chert	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	21.5	%

Material Retained on 20mm Sieve Removed	3.8	%
Initial Specimen Details:	Bulk Density	2.01 Mg/m ³
	Dry Density	1.65 Mg/m ³

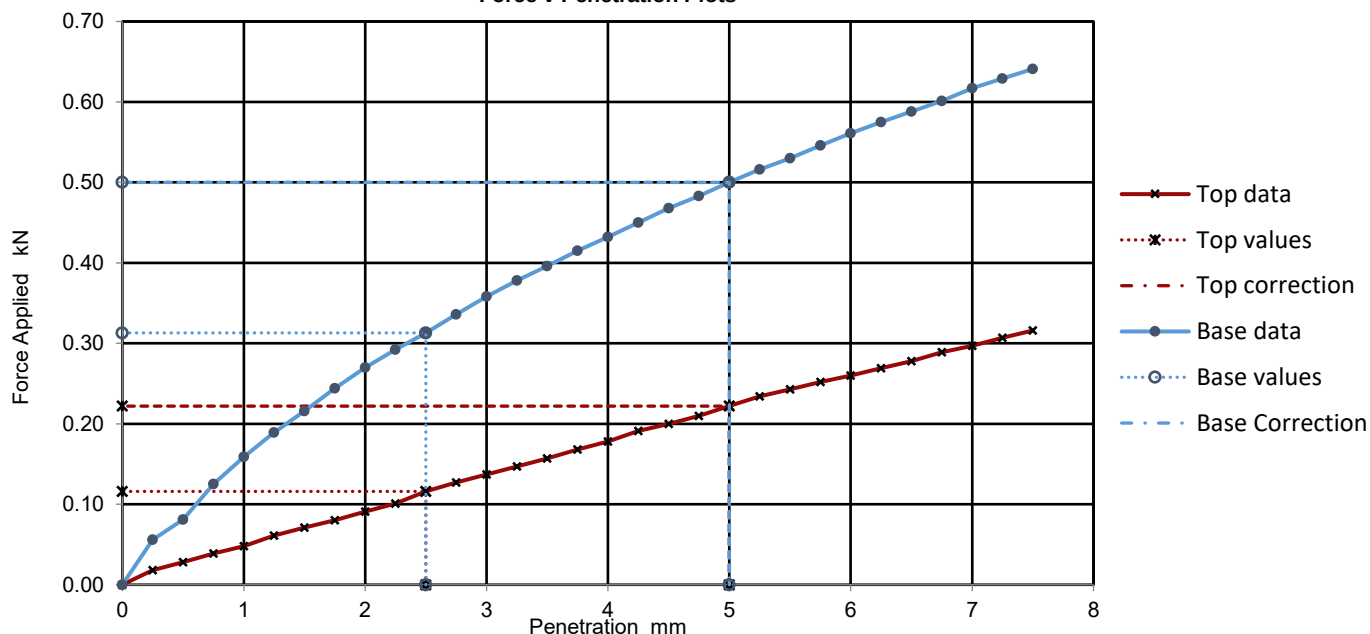
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	0.9	1.1	1.1	
BASE	No	2.4	2.5	2.5	

Water Content (%)
23.7
21.6

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Contract	Emsworth
Serial No.	38912_1

CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP17	0.70	B	1	Yellowish brown CLAY	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details		Soaked
Period of Soaking	4	days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content	23.6	%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.98 Mg/m ³
	Dry Density	1.60 Mg/m ³

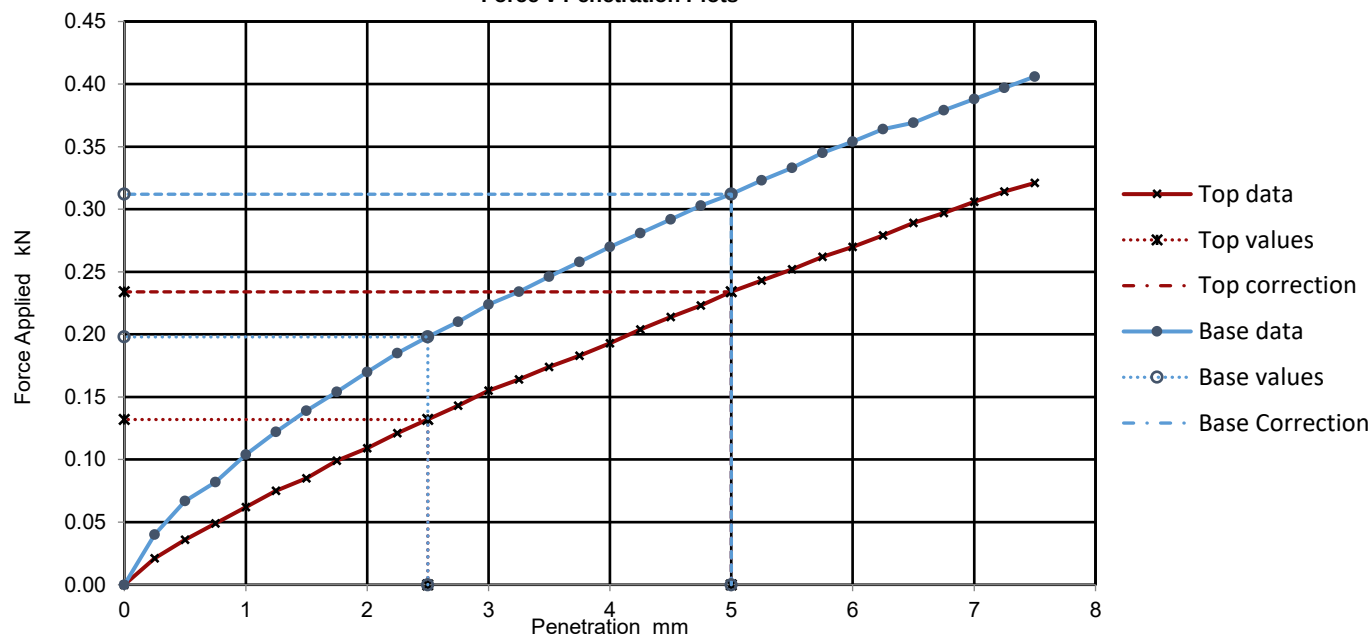
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.0	1.2	1.2	
BASE	No	1.5	1.6	1.6	

Water Content (%)
24.8
23.8

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4, 7.3
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 15/07/2021



Contract	Emsworth		
Serial No.	38912_2		
Client: Richard Jackson Limited 847 The Crescent Colchester Essex CO4 9YQ		Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com	
Samples Submitted By: Richard Jackson Limited Samples Labelled: Emsworth		Approved Signatories: ☐ J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager ☐ W. Johnstone Materials Lab Manager ☒ D. Sabnis Operations Manager 	
Date Received: 15/06/2021		Samples Tested Between: 15/06/2021 and 15/07/2021	
Remarks: For the attention of Kay O'Reilly Your Reference No: 61195			
Notes: 1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary. 2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. 3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory. 4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory. 5 The results within this report only relate to the items tested or sampled.			



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 15/07/2021



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Contract			Emsworth																				
Serial No.			38912_2										Target Date		09/07/2021								
Scheduled By			Richard Jackson Limited																				
Schedule Remarks																							
Bore Hole No.	Type	Sample Ref.	Top Depth	Water Content (BS EN) Liquid/Plastic Limits Wet Sieve Preparation Particle Size Distribution (BS1377) Sulphate Content/pH Value BRE SD1 Suite																			Sample Remarks
TP04+TP06	D	1+1	1.00	1	1	1																	
TP09	D	2+3	2.30				1																
TP10+TP11	D	1+1	0.90	1	1	1																	
TP13	D	1	1.10	1	1																		
TP13	D	4	2.60				1																
TP13+TP14	D	3+1	1.00	1	1	1																	
TP15	D	1	1.00	1	1	1																	
WS01	D	2	0.80					1															
WS01	D	4	1.70						1														
WS01	D	5	2.50	1	1	1																	
WS01	D	6	3.50					1															
WS02	D	3	1.80	1	1	1																	
WS02	D	6	3.50	1	1																		
WS03	D	6	2.90	1	1																		
WS04	D	2	0.90	1	1	1																	
WS04	D	5	2.20						1														
WS05	D	1	0.80					1															
WS05	D	3	1.50					1															
WS06	D	2	0.90						1														
WS06	D	3	1.50					1															
WS06	D	4	2.50	1	1																		
WS07	D	3	1.00	1	1	1																	
WS09	D	2	1.20						1														
Totals				12	12	8	2	5	4										End of Schedule				



TEST REPORT

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DATE ISSUED: 15/07/2021



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Contract		Emsworth												
Serial No.		38912_2												
SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX														
Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti- city Index (%)	Liquid- ity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
TP04+TP06	1.00	D	1+1	10.7	59	25	34	-0.42	Wet Sieved	81 (M)	N/R*	24	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix	CH
TP10+TP11	0.90 - 1.00	D	1+1	10.2	45	19	26	-0.34	Wet Sieved	73 (M)	N/R*	24	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix	CI
TP13	1.10	D	1	19.6	40	17	23	0.11	From Natural	<1% (A)		29	Firm light orangish brown silty CLAY with occasional reddish yellow mottling and rare black speckling	CI
TP13+TP14	1.00 - 2.00	D	3+1	11.3	45	19	26	-0.30	Wet Sieved	67 (M)	N/R*	24	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix	CI
TP15	1.00	D	1	21.5	42	17	25	0.18	Wet Sieved	8 (M)	23.4*	25	Firm orangish brown slightly gravelly slightly sandy silty CLAY with rare black speckling. Gravel is white and brown fine and medium angular to subrounded chert	CI
WS01	2.50	D	5	20.4	38	14	24	0.27	Wet Sieved	51 (M)	41.7*	27	Very soft light orangish brown slightly sandy gravelly silty CLAY with occasional reddish yellow mottling. Gravel is grey, brown and white fine to coarse angular to subrounded chert	CI
WS02	1.80	D	3	10.5	42	19	23	-0.37	Wet Sieved	74 (M)	N/R*	25	Grey and white fine to coarse angular to subrounded chert GRAVEL in a stiff yellowish brown slightly sandy silty clay matrix	CI
WS02	3.50	D	6	26.2	30	23	7	0.46	From Natural	0 (A)		24	Very soft yellowish brown sandy silty CLAY	CL/ML
Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2														
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.3, 5.3, 5.4														
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter														
Comments: *Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1. Where N/R, corrected water content is not reported due to material type.														
Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured														



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Contract	Emsworth
Serial No.	38912_2

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
WS03	2.90	D	6	30.8	31	17	14	0.99	From Natural	0 (A)		41	Very soft light yellowish brown sandy silty CLAY	CL
WS04	0.90	D	2	9.1	61	24	37	-0.40	Wet Sieved	85 (M)	N/R*	28	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix	CH
WS06	2.50	D	4	23.6	31	23	8	0.08	From Natural	0 (A)		44	Yellowish brown clayey fine SAND/SILT with occasional light yellowish brown mottling	CL/ML
WS07	1.00	D	3	15.2	40	18	22	-0.13	Wet Sieved	31 (M)	22.0*	24	Very stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is white, grey and brown fine to coarse angular to subrounded chert	CI

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.3, 5.3, 5.4
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments: *Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1. Where N/R, corrected water content is not reported due to material type.
Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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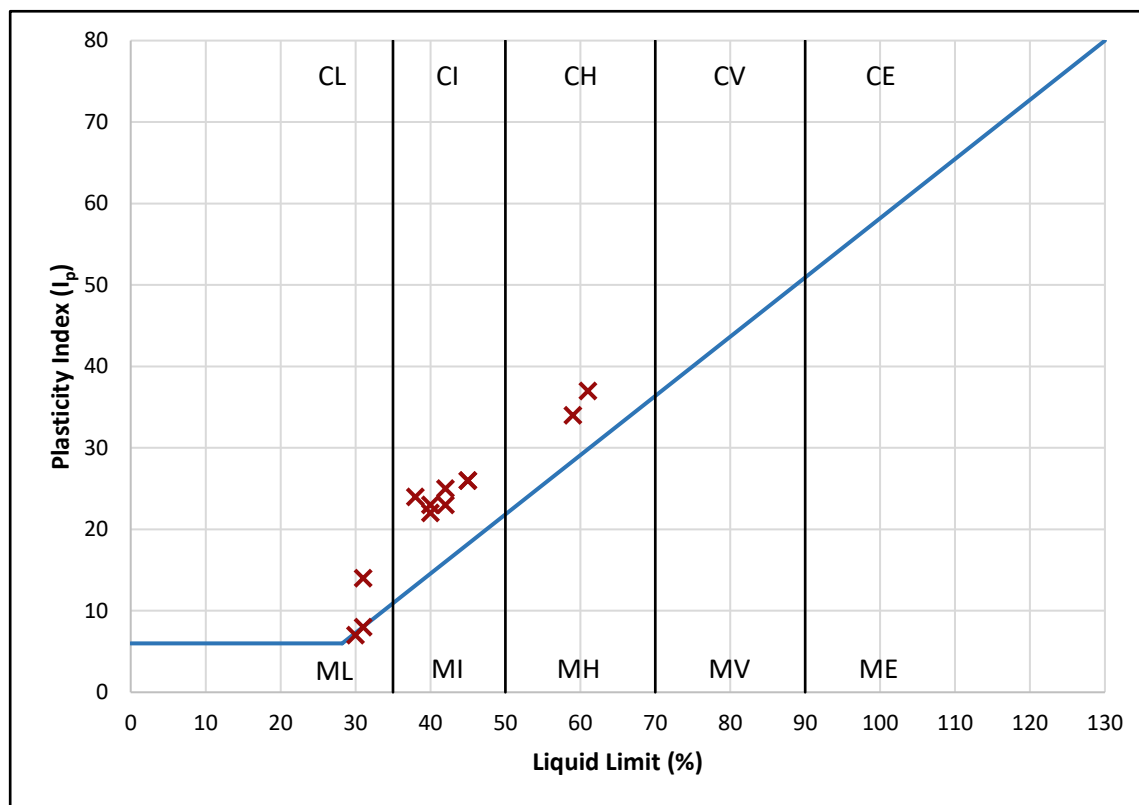


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Contract	Emsworth
Serial No.	38912_2

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

NHBC Volume Change Potential	
Low	High
Medium	

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.3, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index



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Contract		Emsworth					
Serial No.		38912_2					
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX							
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks	
		Type	Reference				
TP04+TP 06	1.00	D	1+1	10.7	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix		
PREPARATION					Liquid Limit	59 %	
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	25 %
Sample retained 0.425mm sieve (Measured)					81 %	Plasticity Index	34 %
Corrected water content for material passing 0.425mm					Not reported	Liquidity Index	-0.42
Sample retained 2mm sieve (Measured)					78 %	NHBC Modified (I'p)	6 %
Curing time			24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (Ip) M=SILT High Medium Low NHBC Volume Change Potential Liquid Limit % Plasticity Chart BS5930: 2015: Figure 8							
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content not reported due to material type. Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)							



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Serial No.		38912_2					
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX							
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks	
		Type	Reference				
TP10+TP 11	0.90 - 1.00	D	1+1	10.2	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix		
PREPARATION					Liquid Limit	45 %	
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	19 %
Sample retained 0.425mm sieve (Measured)					73 %	Plasticity Index	26 %
Corrected water content for material passing 0.425mm					Not reported	Liquidity Index	-0.34
Sample retained 2mm sieve (Measured)					71 %	NHBC Modified (I'p)	7 %
Curing time			24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (Ip) M=SILT High Medium Low NHBC Volume Change Potential Liquid Limit % Plasticity Chart BS5930: 2015: Figure 8							
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content not reported due to material type. Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)							



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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX											
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks					
		Type	Reference								
TP13	1.10	D	1	19.6	Firm light orangish brown silty CLAY with occasional reddish yellow mottling and rare black speckling						
PREPARATION					Liquid Limit	40 %					
Method of preparation					From natural/gravel picked out by hand	Plastic Limit	17 %				
Sample retained 0.425mm sieve					(Assumed)	0 %	Plasticity Index	23 %			
Corrected water content for material passing 0.425mm							Liquidity Index	0.11			
Sample retained 2mm sieve					(Assumed)	<1 %	NHBC Modified (I'p)	n/a			
Curing time			29 hrs	Clay Content	Not analysed	Derived Activity	Not analysed				
C=CLAY Plasticity Index % (I_p) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquid Limit %								High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential										
Medium											
Low											
Plasticity Chart BS5930: 2015: Figure 8											
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments:											



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Contract		Emsworth					
Serial No.		38912_2					
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX							
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks	
		Type	Reference				
TP13+TP 14	1.00 - 2.00	D	3+1	11.3	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix		
PREPARATION					Liquid Limit	45 %	
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	19 %
Sample retained 0.425mm sieve (Measured)					67 %	Plasticity Index	26 %
Corrected water content for material passing 0.425mm					Not reported	Liquidity Index	-0.30
Sample retained 2mm sieve (Measured)					64 %	NHBC Modified (I'p)	9 %
Curing time			24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (Ip) M=SILT High Medium Low NHBC Volume Change Potential Liquid Limit % Plasticity Chart BS5930: 2015: Figure 8							
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content not reported due to material type. Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)							



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Contract		Emsworth						
Serial No.		38912_2						
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX								
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks		
		Type	Reference					
TP15	1.00	D	1	21.5	Firm orangish brown slightly gravelly slightly sandy silty CLAY with rare black speckling. Gravel is white and brown fine and medium angular to subrounded chert			
PREPARATION					Liquid Limit	42 %		
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	17 %	
Sample retained 0.425mm sieve (Measured)					8 %	Plasticity Index	25 %	
Corrected water content for material passing 0.425mm					23.4 %	Liquidity Index	0.18	
Sample retained 2mm sieve (Measured)					6 %	NHBC Modified (I _p)	23 %	
Curing time				25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

C=CLAY

Plasticity Index % (I_p)

M=SILT

High

Medium

Low

NHBC Volume Change Potential

Liquid Limit %

Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I _p = I _p x (% less than 425microns/100)



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Contract		Emsworth									
Serial No.		38912_2									
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX											
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks					
		Type	Reference								
WS01	2.50	D	5	20.4	Very soft light orangish brown slightly sandy gravelly silty CLAY with occasional reddish yellow mottling. Gravel is grey, brown and white fine to coarse angular to subrounded chert						
PREPARATION					Liquid Limit	38 %					
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	14 %				
Sample retained 0.425mm sieve (Measured)					51 %	Plasticity Index	24 %				
Corrected water content for material passing 0.425mm					41.7 %	Liquidity Index	0.27				
Sample retained 2mm sieve (Measured)					48 %	NHBC Modified (I'p)	12 %				
Curing time				27 hrs	Clay Content	Not analysed	Derived Activity	Not analysed			
C=CLAY Plasticity Index % (Ip) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquidity Index								High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential										
Medium											
Low											
Plasticity Chart BS5930: 2015: Figure 8											
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)											



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 15/07/2021



0998

Contract		Emsworth									
Serial No.		38912_2									
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX											
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks					
		Type	Reference								
WS02	1.80	D	3	10.5	Grey and white fine to coarse angular to subrounded chert GRAVEL in a stiff yellowish brown slightly sandy silty clay matrix						
PREPARATION					Liquid Limit	42 %					
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	19 %				
Sample retained 0.425mm sieve (Measured)					74 %	Plasticity Index	23 %				
Corrected water content for material passing 0.425mm					Not reported	Liquidity Index	-0.37				
Sample retained 2mm sieve (Measured)					68 %	NHBC Modified (I'p)	6 %				
Curing time			25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed				
C=CLAY Plasticity Index % (Ip) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquidity Index								High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential										
Medium											
Low											
Plasticity Chart BS5930: 2015: Figure 8											
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content not reported due to material type. Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)											



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Contract		Emsworth								
Serial No.		38912_2								
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX										
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks				
		Type	Reference							
WS02	3.50	D	6	26.2	Very soft yellowish brown sandy silty CLAY					
PREPARATION					Liquid Limit	30 %				
Method of preparation					From natural	Plastic Limit	23 %			
Sample retained 0.425mm sieve (Assumed)					0 %	Plasticity Index	7 %			
Corrected water content for material passing 0.425mm						Liquidity Index	0.46			
Sample retained 2mm sieve (Assumed)					0 %	NHBC Modified (I'p)	n/a			
Curing time		24 hrs		Clay Content	Not analysed	Derived Activity	Not analysed			
C=CLAY Plasticity Index % (I_p) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquid Limit %							High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential									
Medium										
Low										
Plasticity Chart BS5930: 2015: Figure 8										
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2										
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4										
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter										
Comments:										



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Contract		Emsworth				
Serial No.		38912_2				
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX						
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS03	2.90	D	6	30.8	Very soft light yellowish brown sandy silty CLAY	
PREPARATION					Liquid Limit	31 %
Method of preparation					From natural	Plastic Limit 17 %
Sample retained 0.425mm sieve (Assumed)					0 %	Plasticity Index 14 %
Corrected water content for material passing 0.425mm						Liquidity Index 0.99
Sample retained 2mm sieve (Assumed)					0 %	NHBC Modified (I'p) n/a
Curing time		41 hrs		Clay Content	Not analysed	Derived Activity Not analysed
C=CLAY Plasticity Index % (I_p) M=SILT High Medium Low NHBC Volume Change Potential						
Plasticity Chart BS5930: 2015: Figure 8						
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2						
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4						
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter						
Comments:						



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Contract		Emsworth									
Serial No.		38912_2									
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX											
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks					
		Type	Reference								
WS04	0.90	D	2	9.1	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a yellowish brown slightly sandy clay matrix						
PREPARATION					Liquid Limit	61 %					
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	24 %				
Sample retained 0.425mm sieve (Measured)					85 %	Plasticity Index	37 %				
Corrected water content for material passing 0.425mm					Not reported	Liquidity Index	-0.40				
Sample retained 2mm sieve (Measured)					81 %	NHBC Modified (I'p)	6 %				
Curing time			28 hrs	Clay Content	Not analysed	Derived Activity	Not analysed				
C=CLAY Plasticity Index % (Ip) M=SILT <table border="1" style="border-collapse: collapse;"> <tr> <td style="height: 40px;">High</td> <td rowspan="3" style="writing-mode: vertical-rl; transform: rotate(180deg);">NHBC Volume Change Potential</td> </tr> <tr> <td style="height: 40px;">Medium</td> </tr> <tr> <td style="height: 40px;">Low</td> </tr> </table> Liquidity Index %								High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential										
Medium											
Low											
Plasticity Chart BS5930: 2015: Figure 8											
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content not reported due to material type. Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)											



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Contract		Emsworth									
Serial No.		38912_2									
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX											
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks					
		Type	Reference								
WS06	2.50	D	4	23.6	Yellowish brown clayey fine SAND/SILT with occasional light yellowish brown mottling						
PREPARATION					Liquid Limit 31 %						
Method of preparation					From natural	Plastic Limit 23 %					
Sample retained 0.425mm sieve (Assumed)					0 %	Plasticity Index 8 %					
Corrected water content for material passing 0.425mm						Liquidity Index 0.08					
Sample retained 2mm sieve (Assumed)					0 %	NHBC Modified (I'p) n/a					
Curing time				44 hrs	Clay Content	Not analysed	Derived Activity				
C=CLAY Plasticity Index % (I_p) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquid Limit %								High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential										
Medium											
Low											
Plasticity Chart BS5930: 2015: Figure 8											
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2											
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4											
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter											
Comments:											



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Contract		Emsworth						
Serial No.		38912_2						
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX								
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks		
		Type	Reference					
WS07	1.00	D	3	15.2	Very stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is white, grey and brown fine to coarse angular to subrounded chert			
PREPARATION					Liquid Limit	40 %		
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	18 %	
Sample retained 0.425mm sieve (Measured)					31 %	Plasticity Index	22 %	
Corrected water content for material passing 0.425mm					22.0 %	Liquidity Index	-0.13	
Sample retained 2mm sieve (Measured)					27 %	NHBC Modified (I'p)	15 %	
Curing time				24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (Ip) M=SILT High Medium Low NHBC Volume Change Potential								
Plasticity Chart BS5930: 2015: Figure 8								
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.3, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)								



TEST REPORT

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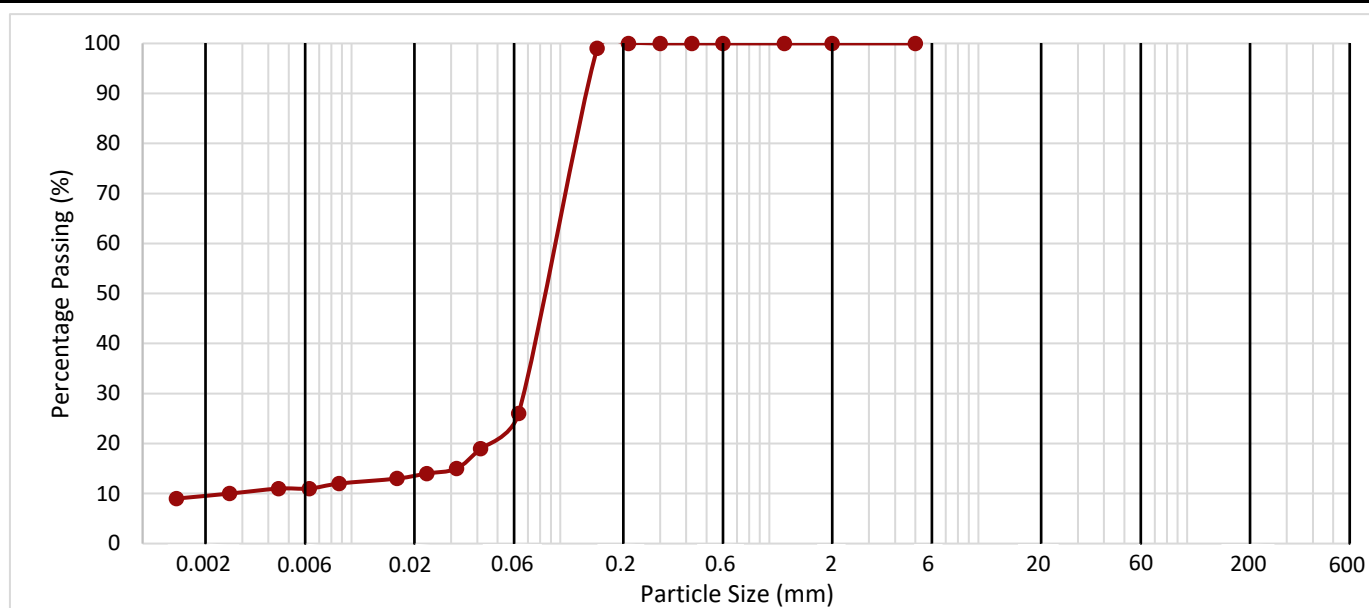
0998

Contract	Emsworth
Serial No.	38912_2

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP09	2.30 - 2.80	D	2+3	Yellowish brown clayey silty SAND with occasional light orangish brown mottling	One piece of coarse gravel excluded from tests as unrepresentative

Method of Test: Hydrometer + Pre-sieve Method of Pretreatment: Not required



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

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0414	19	17
	0.0318	15	
	0.0229	14	
	0.0165	13	Clay by Dry Mass (%)
	0.0087	12	
	0.0063	11	
	0.0045	11	9
	0.0026	10	
	0.0015	9	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	100	74
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	99	
0.106	99	
0.075	26	

Fines By Dry Mass (%)	
<0.063mm	26

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		0
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

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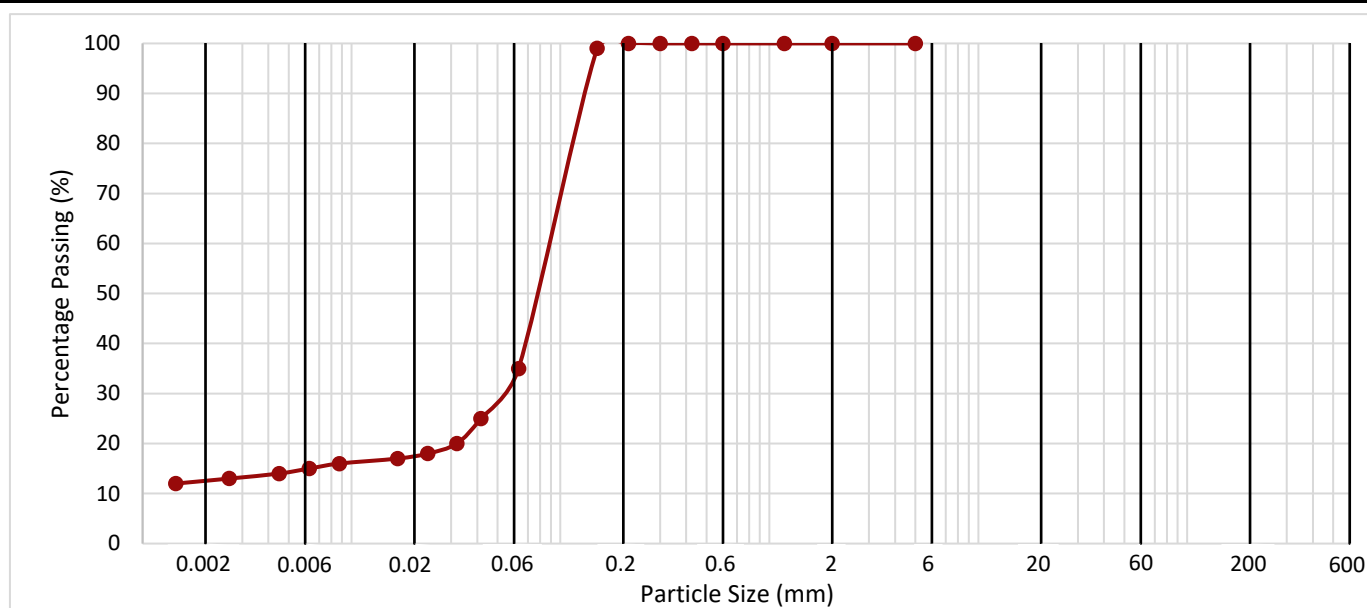
0998

Contract	Emsworth
Serial No.	38912_2

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP13	2.60	D	4	Yellowish brown sandy CLAY/SILT with occasional light orangish brown mottling	

Method of Test: Hydrometer + Pre-sieve Method of Pretreatment: Not required



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

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0416	25	23
	0.0319	20	
	0.0232	18	
	0.0166	17	Clay by Dry Mass (%)
	0.0087	16	
	0.0063	15	
	0.0045	14	
	0.0026	13	12
	0.0014	12	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	100	65
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	99	
0.063	35	

Fines By Dry Mass (%)	
<0.063mm	35

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		0
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

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DATE ISSUED: 15/07/2021

Contract:	Emsworth
Serial No:	38912_2

DETERMINATION OF THE SULPHATE CONTENT AND pH OF SOIL AND GROUNDWATER

Borehole / Pit No.	Depth (m)	Sample		Conc. of Soluble SO ₃		Calc'd	pH Value	% Sample Passing 2mm Sieve	Description	Remarks
		Type	Ref.	Water Soluble 2:1 (g/L)	Ground Water (g/L)	Conc. Of SO ₄ (g/L)				
WS01	0.80	D	2	0.01		0.02	6.4	97	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium chert	
WS01	3.50	D	6	<0.01		<0.01	7.1	92	Yellowish brown gravelly silty fine SAND. Gravel is fine and medium chert	
WS05	0.80	D	1	<0.01		<0.01	6.1	93	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY with occasional orange staining and recently active roots. Gravel is fine to coarse chert	
WS05	1.50	D	3	<0.01		0.01	6.2	43	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a brown sandy clay matrix	
WS06	1.50	D	3	<0.01		<0.01	6.5	50	Brown, black and white fine to coarse angular and subangular chert GRAVEL in a brown sandy clay matrix	

Method of Preparation: BS1377: Part 1: 2016: 8.5, BS1377: Part 3: 1990: 5.3 Soil/Water Extract, 5.4 Groundwater
Method of Test: BS1377: Part 3: 1990: 5.5
Type of Sample Key: U= Undisturbed, B= Bulk, D= Disturbed, J= Jar, W= Water, SPT= Split Spoon Sample, C= Core Cutter
Comments: **Test not UKAS accredited**
Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location, and origin of test specimen within original sample. Oven drying temperature if not 105-110C.



2183



Chemtest

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.: 21-22835-1
Initial Date of Issue: 08-Jul-2021
Client Soil Property Testing

Client Address: 18 Halycon Court
St Margarets Way
Stukeley Meadows
Huntingdon
Cambridgeshire
PE29 6DG

Contact(s): Jon Garner

Project 38912_2 Emsworth

Quotation No.: **Date Received:** 02-Jul-2021

Order No.: 38912_2 **Date Instructed:** 02-Jul-2021

No. of Samples: 4

Turnaround (Wkdays): 5 **Results Due:** 08-Jul-2021

Date Approved: 08-Jul-2021

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: 38912 2 Emsworth

Client: Soil Property Testing	Chemtest Job No.:				21-22835	21-22835	21-22835	21-22835
Quotation No.:	Chemtest Sample ID.:				1233589	1233590	1233591	1233592
	Client Sample ID.:				D4	D5	D2	D2
	Sample Location:				WS01	WS04	WS06	WS09
	Sample Type:				SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				1.70	2.20	0.90	1.20
Determinand	Accred.	SOP	Units	LOD				
Moisture	N	2030	%	0.020	9.7	20	15	9.2
pH (2.5:1)	N	2010		4.0	[A] 8.1	[A] 8.8	[A] 8.1	[A] 8.2
Magnesium (Water Soluble)	U	2120	mg/kg	20	[A] 26	[A] < 20	[A] < 20	[A] < 20
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	[A] 0.60	[A] < 0.010	[A] 0.012	[A] 0.038
Total Sulphur	U	2175	%	0.010	[A] 0.063	[A] 0.014	[A] 0.015	[A] 0.012
Chloride (Water Soluble)	U	2220	g/l	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010	0.012	< 0.010	< 0.010	< 0.010
Ammonium (Extractable)	U	2425	mg/kg	0.50	[A] 2.6	[A] 1.3	[A] 2.2	[A] 1.8
Sulphate (Total)	U	2430	%	0.010	[A] 0.22	[A] < 0.010	[A] 0.011	[A] < 0.010

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1233589		D4	WS01		A	Plastic Bag
1233590		D5	WS04		A	Plastic Bag
1233591		D2	WS06		A	Plastic Bag
1233592		D2	WS09		A	Plastic Bag

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2425	Extractable Ammonium in soils	Ammonium	Extraction with potassium chloride solution / analysis by 'Aquakem 600' Discrete Analyser using sodium salicylate and sodium dichloroisocyanurate.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Appendix E

Infiltration test results

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP01 - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.90
Effective Depth (m)	0.40
tp ₇₅ (mins)	186
tp ₂₅ (mins)	44
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.04
a _{p₅₀}	1.28
tp ₇₅₋₂₅	142
f = 3.3E-06 m/s	

<u>Infiltration TP01 - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.90
Effective Depth (m)	0.34
tp ₇₅ (mins)	397
tp ₂₅ (mins)	127
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.18
tp ₇₅₋₂₅	270
f = 1.6E-06 m/s	

<u>Infiltration TP01 - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.90
Effective Depth (m)	0.37
tp ₇₅ (mins)	380
tp ₂₅ (mins)	129
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.23
tp ₇₅₋₂₅	251.0
f = 1.8E-06 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP03 - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.82
Effective Depth (m)	0.34
tp ₇₅ (mins)	245
tp ₂₅ (mins)	47
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.18
tp ₇₅₋₂₅	198
f = 2.2E-06 m/s	

<u>Infiltration TP03 - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.82
Effective Depth (m)	0.36
tp ₇₅ (mins)	462
tp ₂₅ (mins)	115
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.21
tp ₇₅₋₂₅	347
f = 1.3E-06 m/s	

<u>Infiltration TP03 - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.82
Effective Depth (m)	0.32
tp ₇₅ (mins)	780
tp ₂₅ (mins)	220
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.14
tp ₇₅₋₂₅	560.0
f = 7.5E-07 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP05 - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.10
Width (m)	0.50
Depth (m)	0.84
Effective Depth (m)	0.33
tp ₇₅ (mins)	37.5
tp ₂₅ (mins)	11.5
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.08
t _{p₇₅₋₂₅}	26
f = 1.6E-05 m/s	

<u>Infiltration TP05 - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.10
Width (m)	0.50
Depth (m)	0.84
Effective Depth (m)	0.33
tp ₇₅ (mins)	154
tp ₂₅ (mins)	45
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.08
t _{p₇₅₋₂₅}	109
f = 3.9E-06 m/s	

<u>Infiltration TP05 - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.10
Width (m)	0.50
Depth (m)	0.84
Effective Depth (m)	0.41
tp ₇₅ (mins)	154
tp ₂₅ (mins)	41
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.21
t _{p₇₅₋₂₅}	113
f = 4.1E-06 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP08 - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.77
Effective Depth (m)	0.32
tp ₇₅ (mins)	182
tp ₂₅ (mins)	43
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.14
tp ₇₅₋₂₅	139
f = 3.0E-06 m/s	

<u>Infiltration TP08 - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.77
Effective Depth (m)	0.39
tp ₇₅ (mins)	440
tp ₂₅ (mins)	90
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.04
a _{p₅₀}	1.26
tp ₇₅₋₂₅	350
f = 1.3E-06 m/s	

<u>Infiltration TP08 - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.20
Width (m)	0.50
Depth (m)	0.77
Effective Depth (m)	0.31
tp ₇₅ (mins)	350
tp ₂₅ (mins)	100
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.13
tp ₇₅₋₂₅	250
f = 1.7E-06 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP10 - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.99
Effective Depth (m)	0.24
tp ₇₅ (mins)	36
tp ₂₅ (mins)	7.5
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.23
tp ₇₅₋₂₅	28.5
f = 1.3E-05 m/s	

<u>Infiltration TP10 - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.99
Effective Depth (m)	0.23
tp ₇₅ (mins)	58.5
tp ₂₅ (mins)	11.5
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.21
tp ₇₅₋₂₅	47
f = 7.6E-06 m/s	

<u>Infiltration TP10 - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.99
Effective Depth (m)	0.25
tp ₇₅ (mins)	36
tp ₂₅ (mins)	12.5
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.25
tp ₇₅₋₂₅	23.5
f = 1.6E-05 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP12 - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.90
Effective Depth (m)	0.28
tp ₇₅ (mins)	210
tp ₂₅ (mins)	52
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.31
tp ₇₅₋₂₅	158
f = 2.5E-06 m/s	

<u>Infiltration TP12 - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.90
Effective Depth (m)	0.34
tp ₇₅ (mins)	400
tp ₂₅ (mins)	105
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.04
a _{p₅₀}	1.43
tp ₇₅₋₂₅	295
f = 1.5E-06 m/s	

<u>Infiltration TP12 - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.90
Effective Depth (m)	0.32
tp ₇₅ (mins)	420
tp ₂₅ (mins)	122.5
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.04
a _{p₅₀}	1.39
tp ₇₅₋₂₅	297.5
f = 1.5E-06 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP16A - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.80
Effective Depth (m)	0.29
tp ₇₅ (mins)	93
tp ₂₅ (mins)	27
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.33
tp ₇₅₋₂₅	66
f = 6.2E-06 m/s	

<u>Infiltration TP16A - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.80
Effective Depth (m)	0.34
tp ₇₅ (mins)	253
tp ₂₅ (mins)	72
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.04
a _{p₅₀}	1.43
tp ₇₅₋₂₅	181
f = 2.5E-06 m/s	

<u>Infiltration TP16A - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.80
Effective Depth (m)	0.29
tp ₇₅ (mins)	273
tp ₂₅ (mins)	83
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.33
tp ₇₅₋₂₅	190
f = 2.2E-06 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

$$\text{Soil Infiltration Rate (f)} = V_{p_{75-25}} / (a_{p_{50}} * t_{p_{75-25}})$$

<u>Infiltration TP18 - Test 1 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.40
Width (m)	0.50
Depth (m)	0.93
Effective Depth (m)	0.30
tp ₇₅ (mins)	82
tp ₂₅ (mins)	14
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.27
t _{p₇₅₋₂₅}	68
f = 6.1E-06 m/s	

<u>Infiltration TP18 - Test 2 of 3</u>	
Date: 09/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.40
Width (m)	0.50
Depth (m)	0.93
Effective Depth (m)	0.25
tp ₇₅ (mins)	377
tp ₂₅ (mins)	85
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.03
a _{p₅₀}	1.18
t _{p₇₅₋₂₅}	292
f = 1.3E-06 m/s	

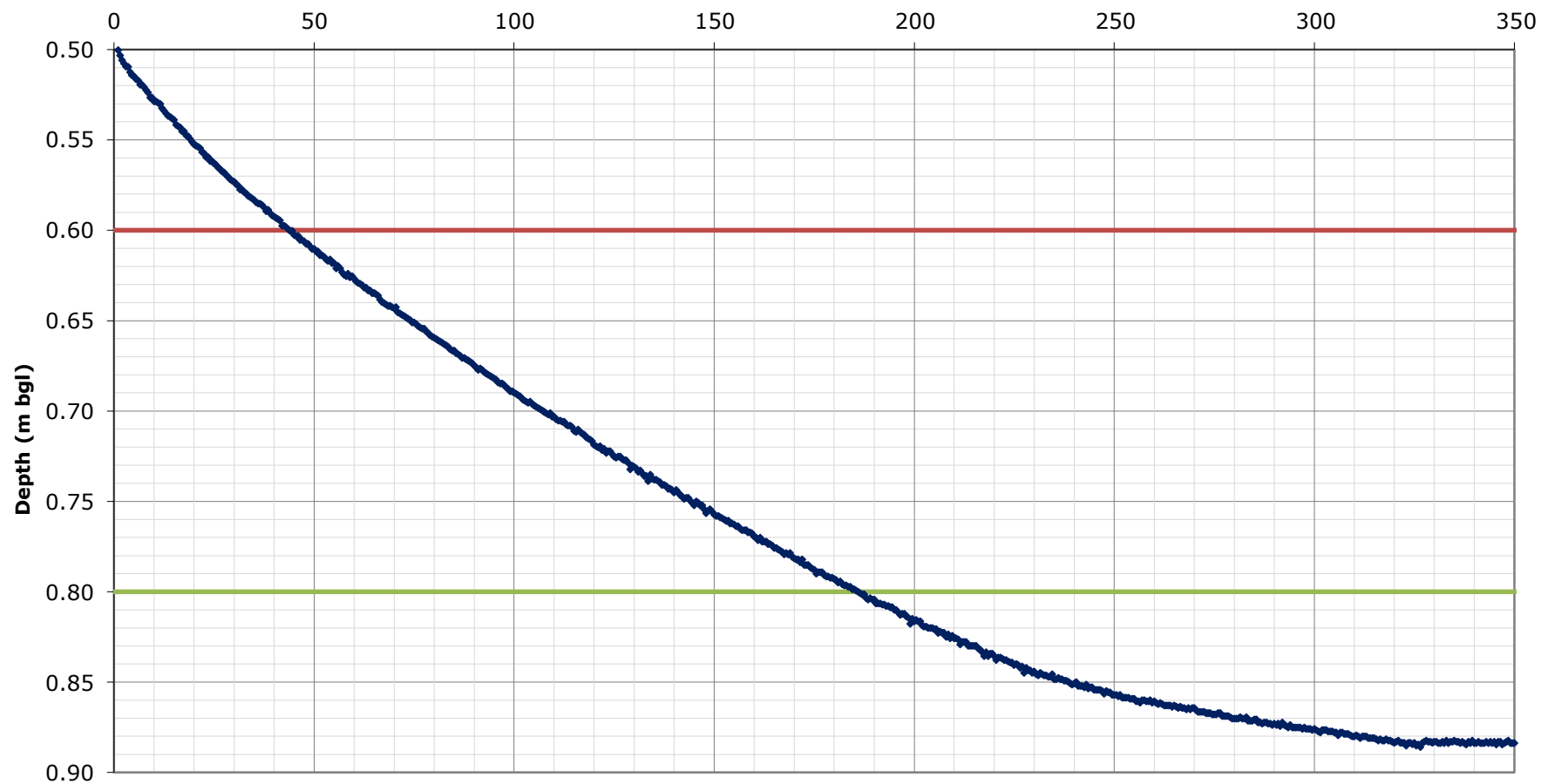
<u>Infiltration TP18 - Test 3 of 3</u>	
Date: 10/06/2021	
<u>Trial Pit Dimensions</u>	
Length (m)	1.50
Width (m)	0.50
Depth (m)	0.93
Effective Depth (m)	0.20
tp ₇₅ (mins)	250
tp ₂₅ (mins)	57
<u>Calculations</u>	
V _{p₇₅₋₂₅}	0.02
a _{p₅₀}	1.15
t _{p₇₅₋₂₅}	193
f = 1.7E-06 m/s	

NB Volume adjusted by a factor of 0.3 to allow for presence of gravel in trial pit

61195 - Saxons Corner, Emsworth - TP01 - Test 1 of 3

■ 25% Effective Storage Depth ▲ 75% Effective Storage Depth ◆ Measured data

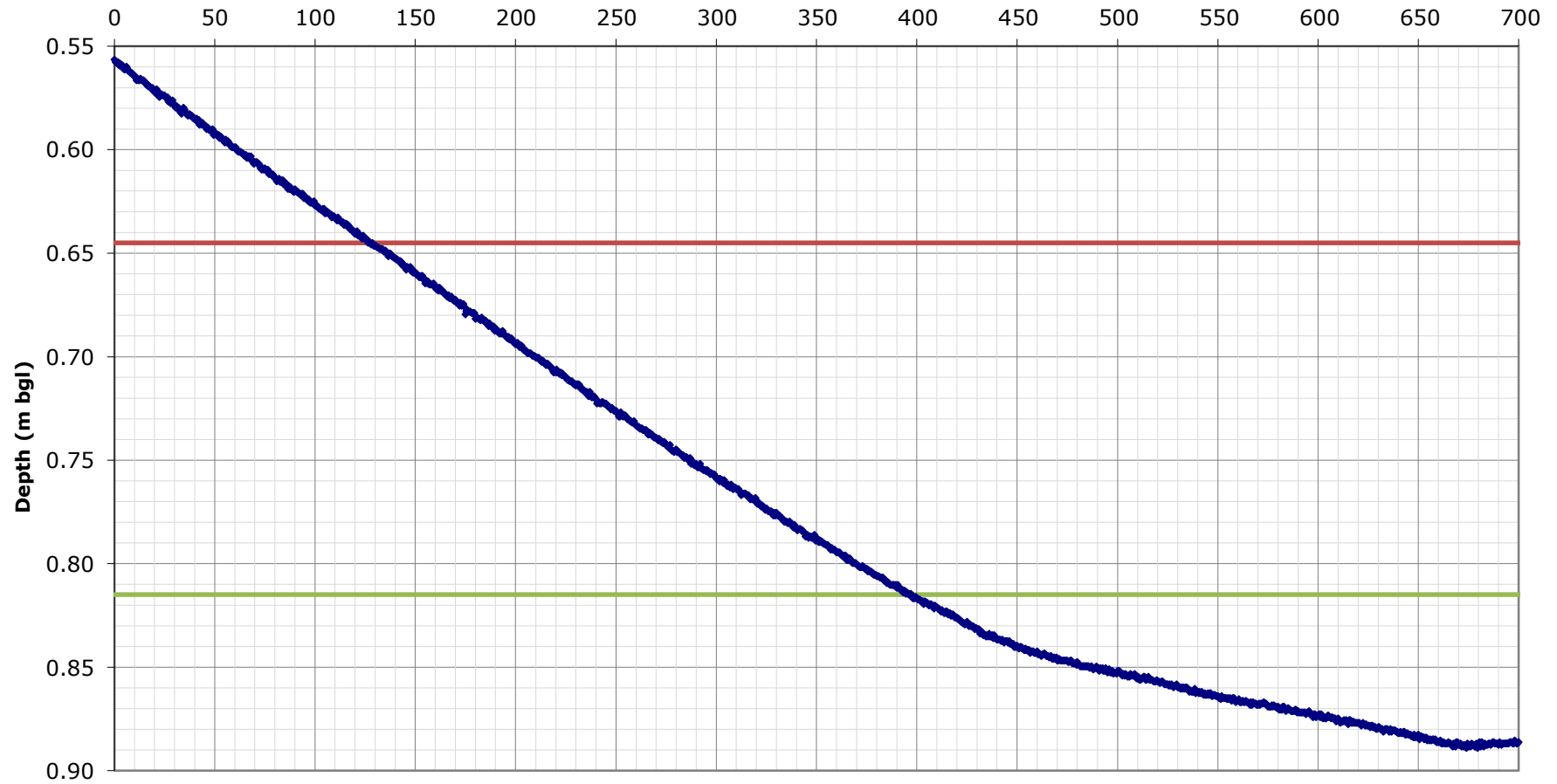
Time (min)



61195 - Saxons Corner, Emsworth - TP01 - Test 2 of 3

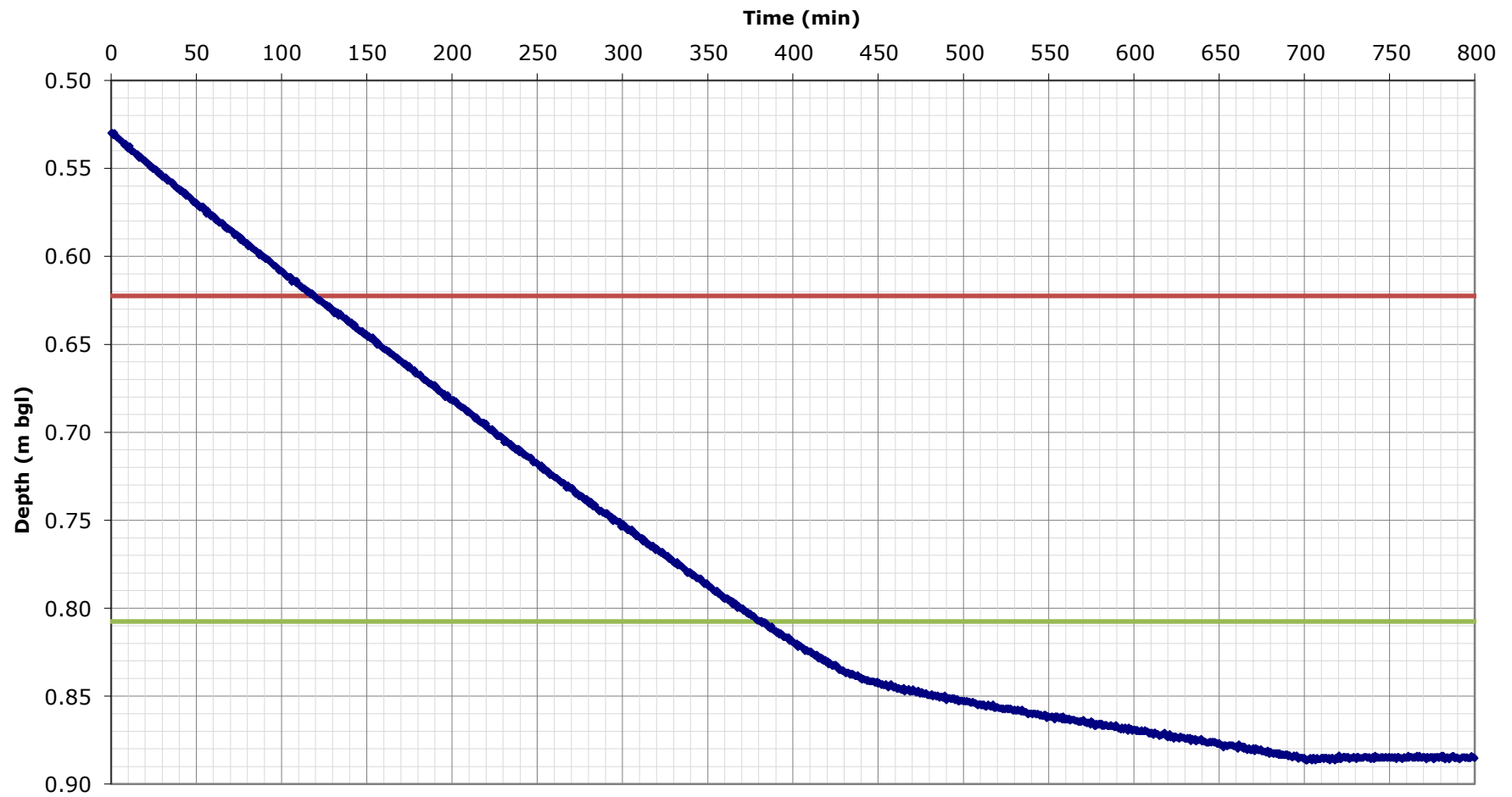
■ 25% Effective Storage Depth ▲ 75% Effective Storage Depth ◆ Measured data

Time (min)



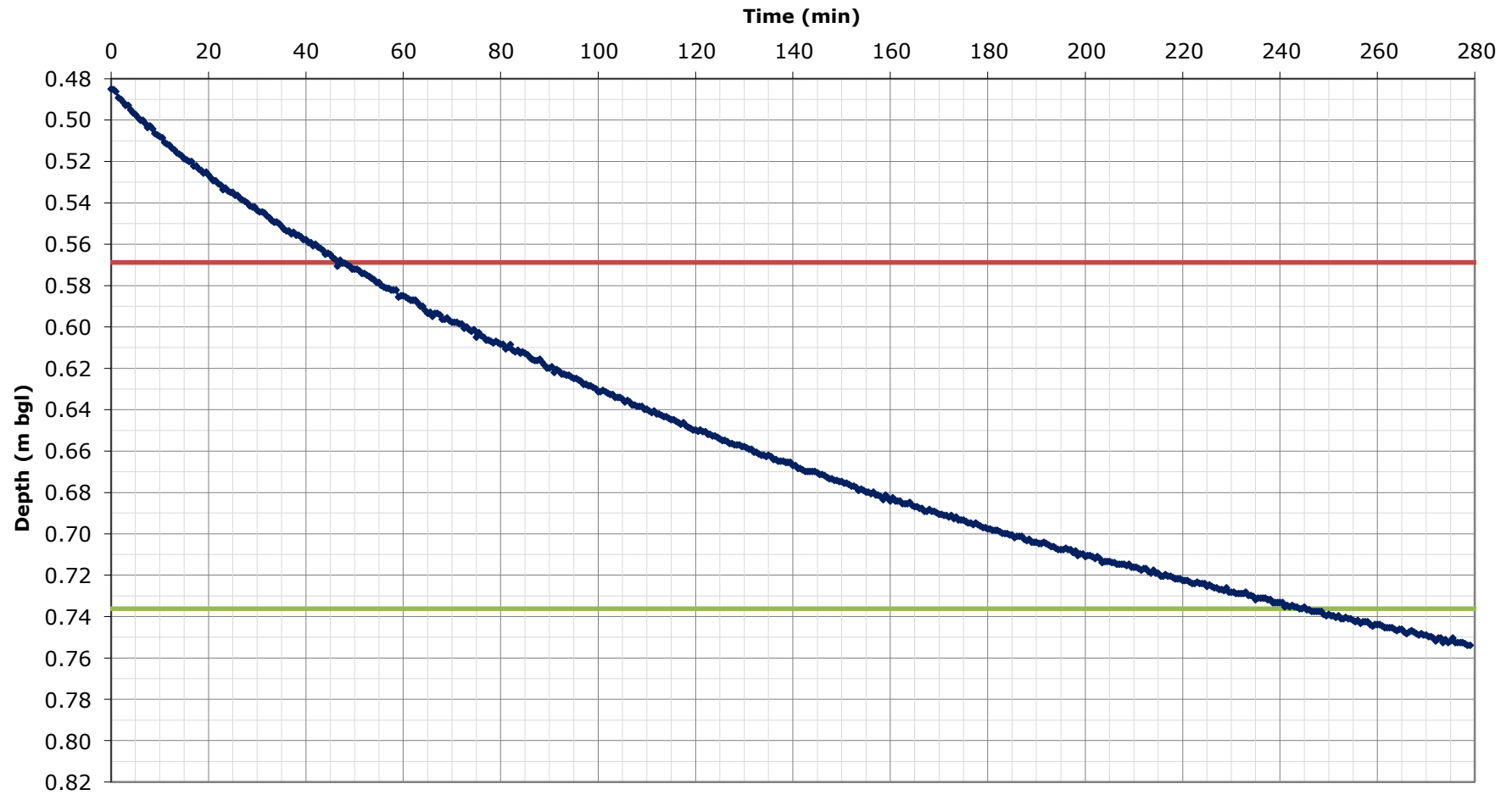
61195 - Saxons Corner, Emsworth - TP01 - Test 3 of 3

■ 25% Effective Storage Depth ▲ 75% Effective Storage Depth ◆ Measured data



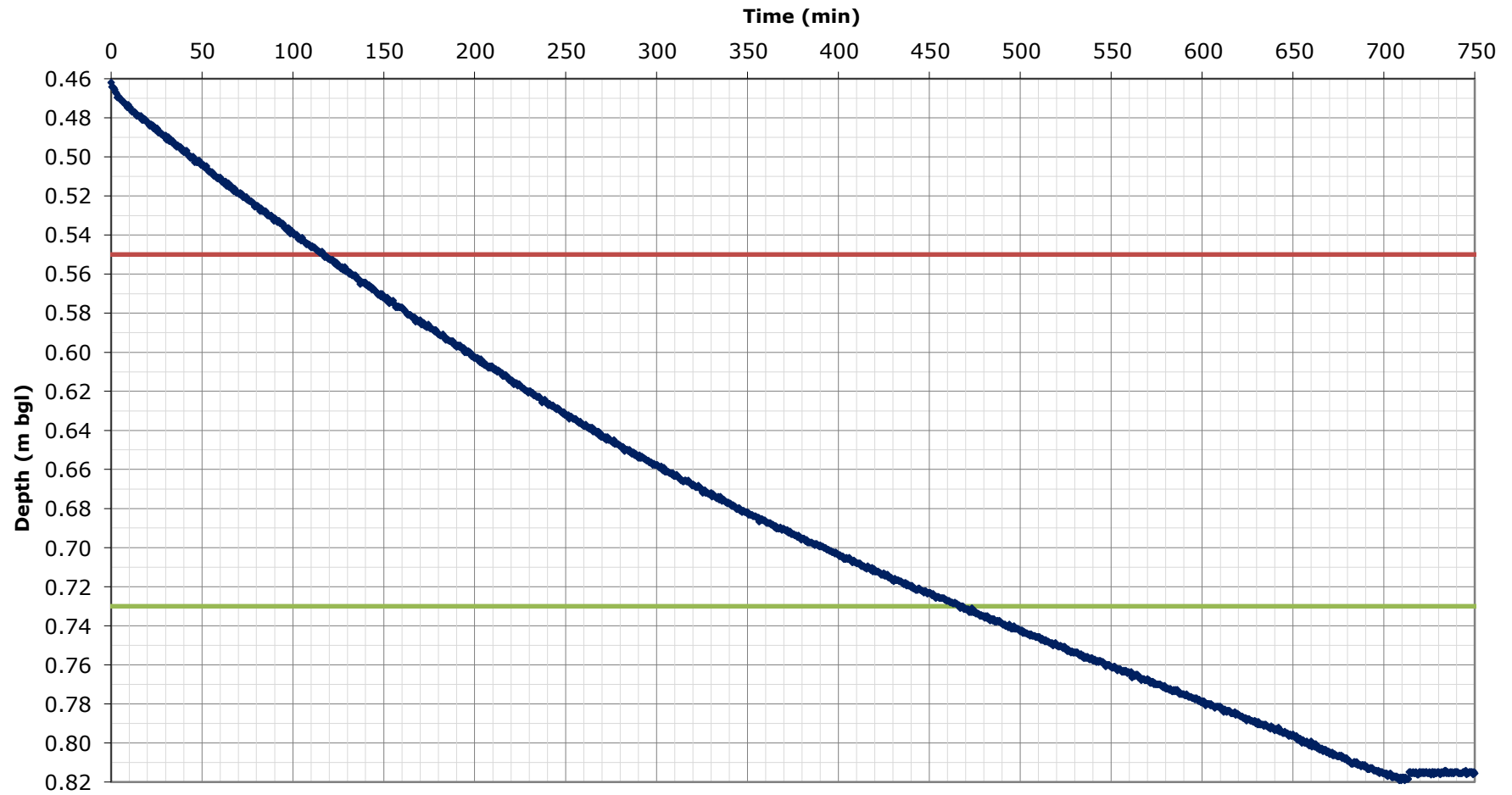
61195 - Saxons Corner, Emsworth - TP03 - Test 1 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data

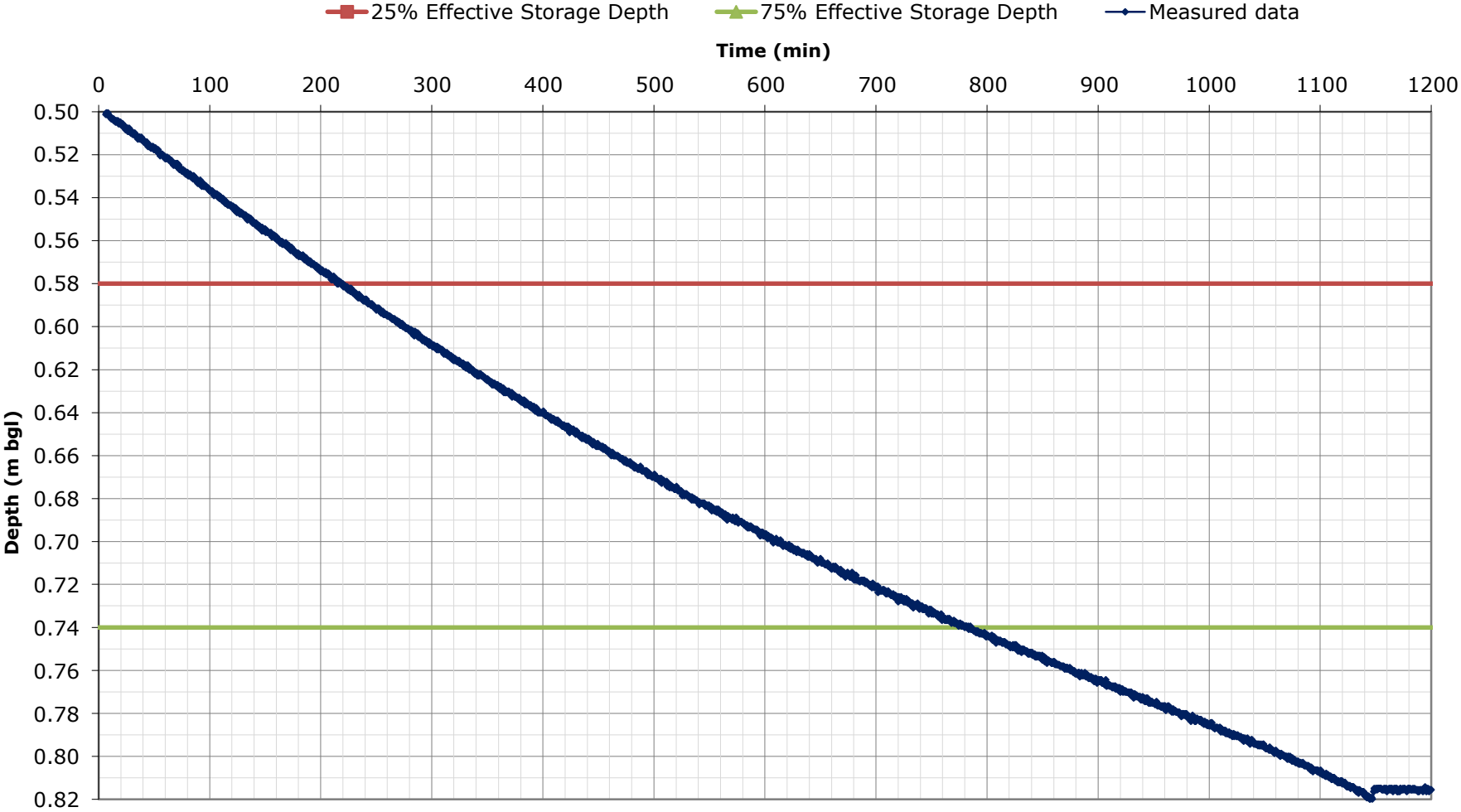


61195 - Saxons Corner, Emsworth - TP03 - Test 2 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data



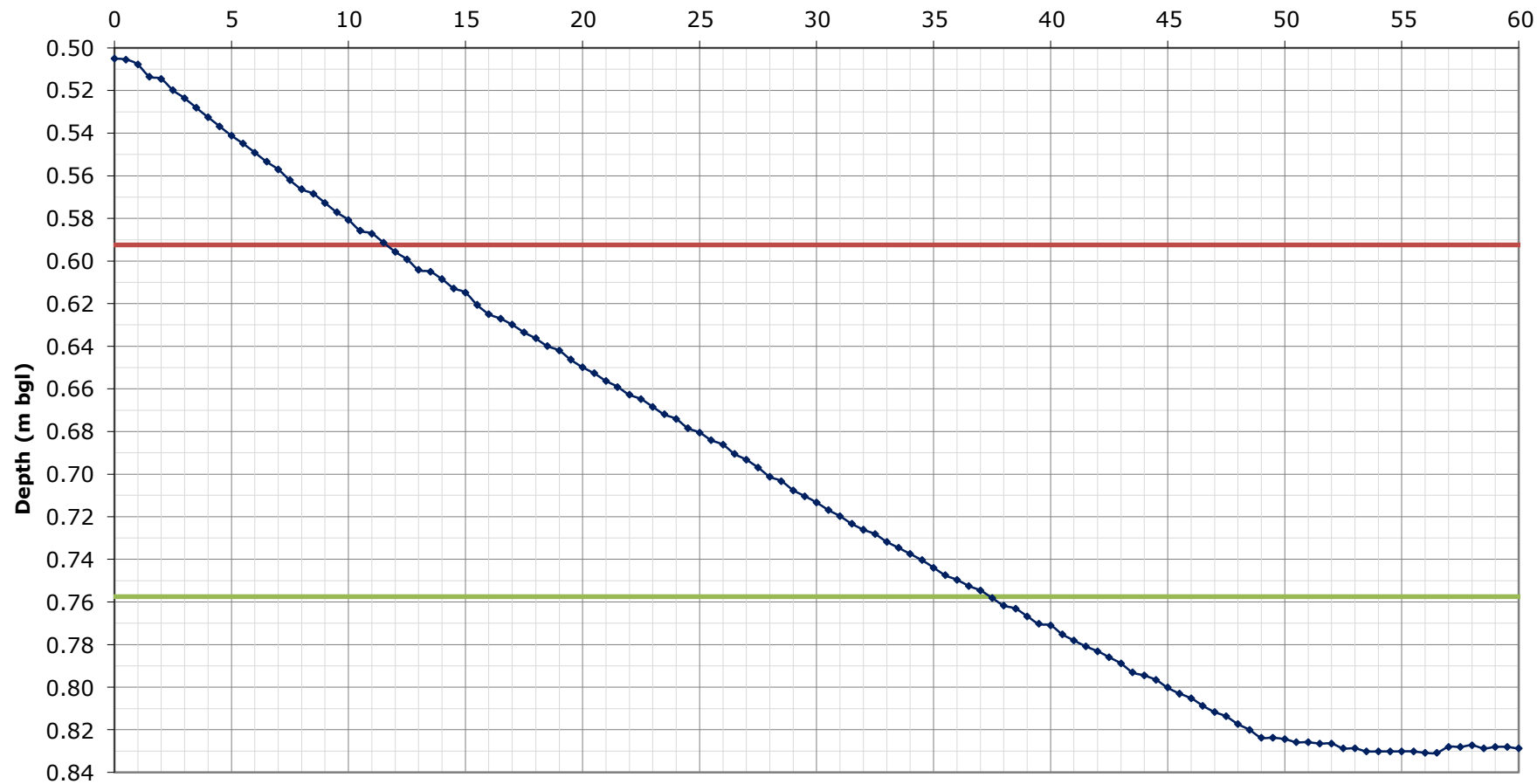
61195 - Saxons Corner, Emsworth - TP03 - Test 3 of 3



61195 - Saxons Corner, Emsworth - TP05 - Test 1 of 3

—■— 25% Effective Storage Depth —▲— 75% Effective Storage Depth —◆— Measured data

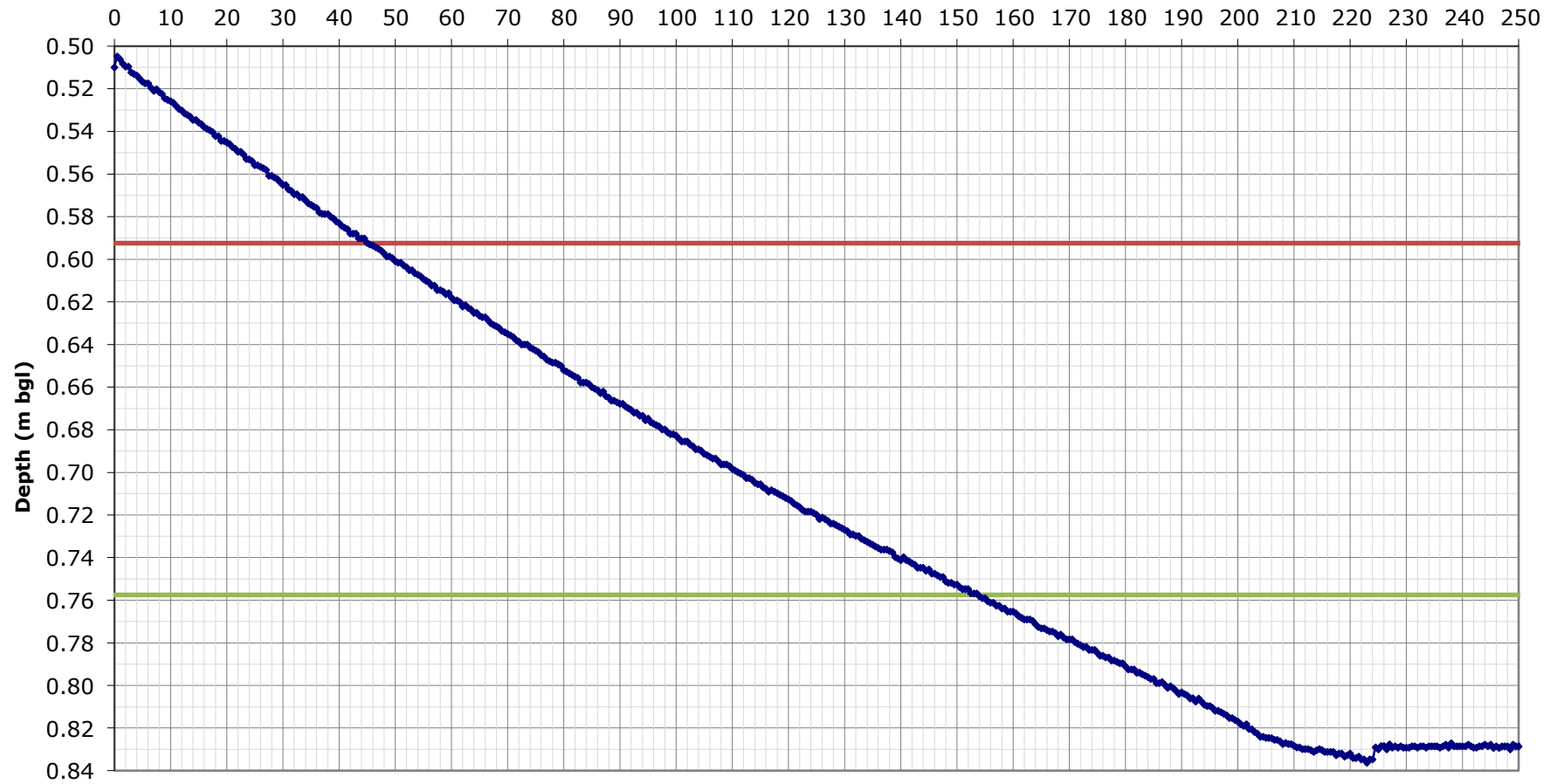
Time (min)



61195 - Saxons Corner, Emsworth - TP05 - Test 2 of 3

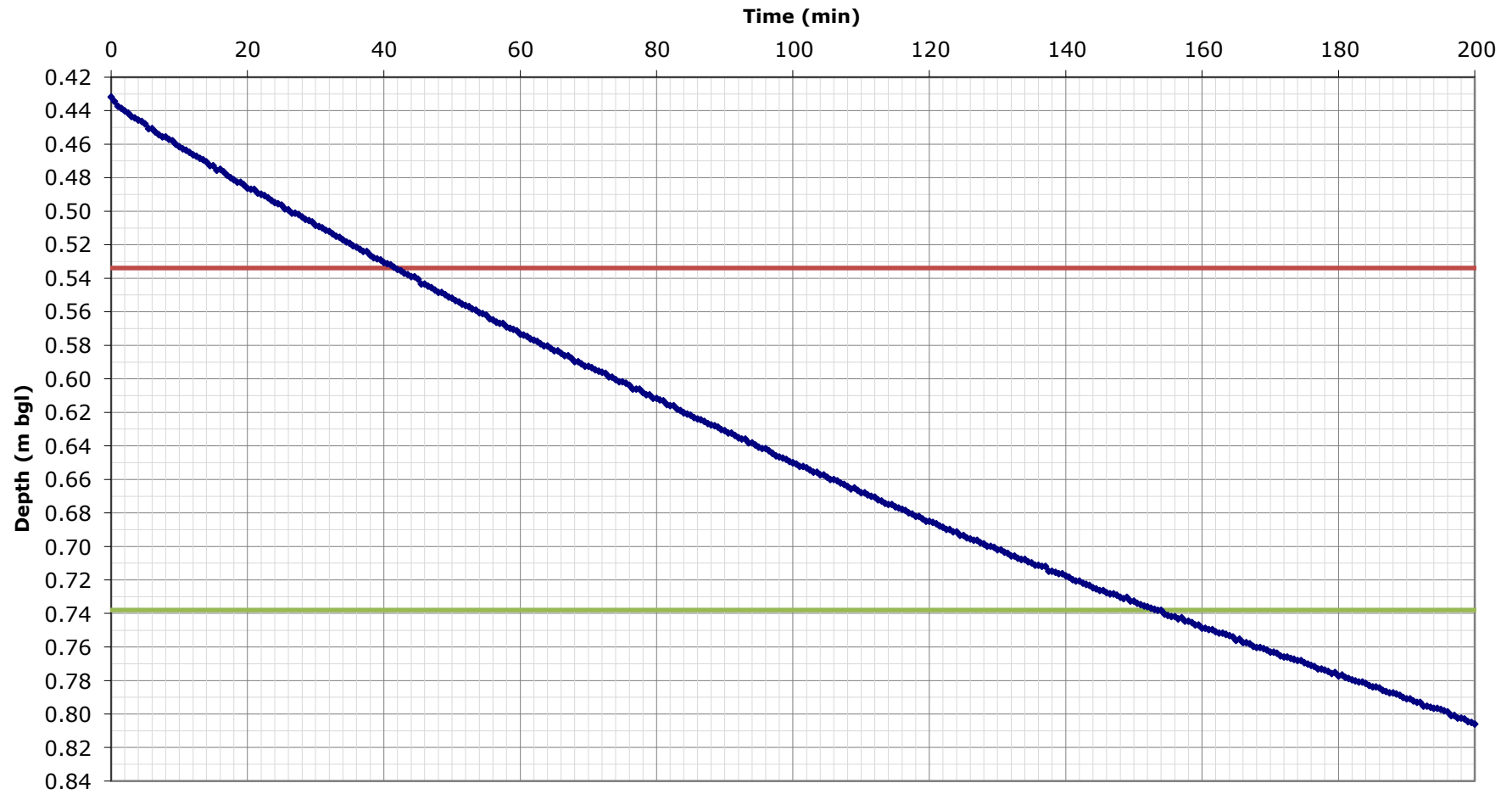
—■— 25% Effective Storage Depth —▲— 75% Effective Storage Depth —◆— Measured data

Time (min)



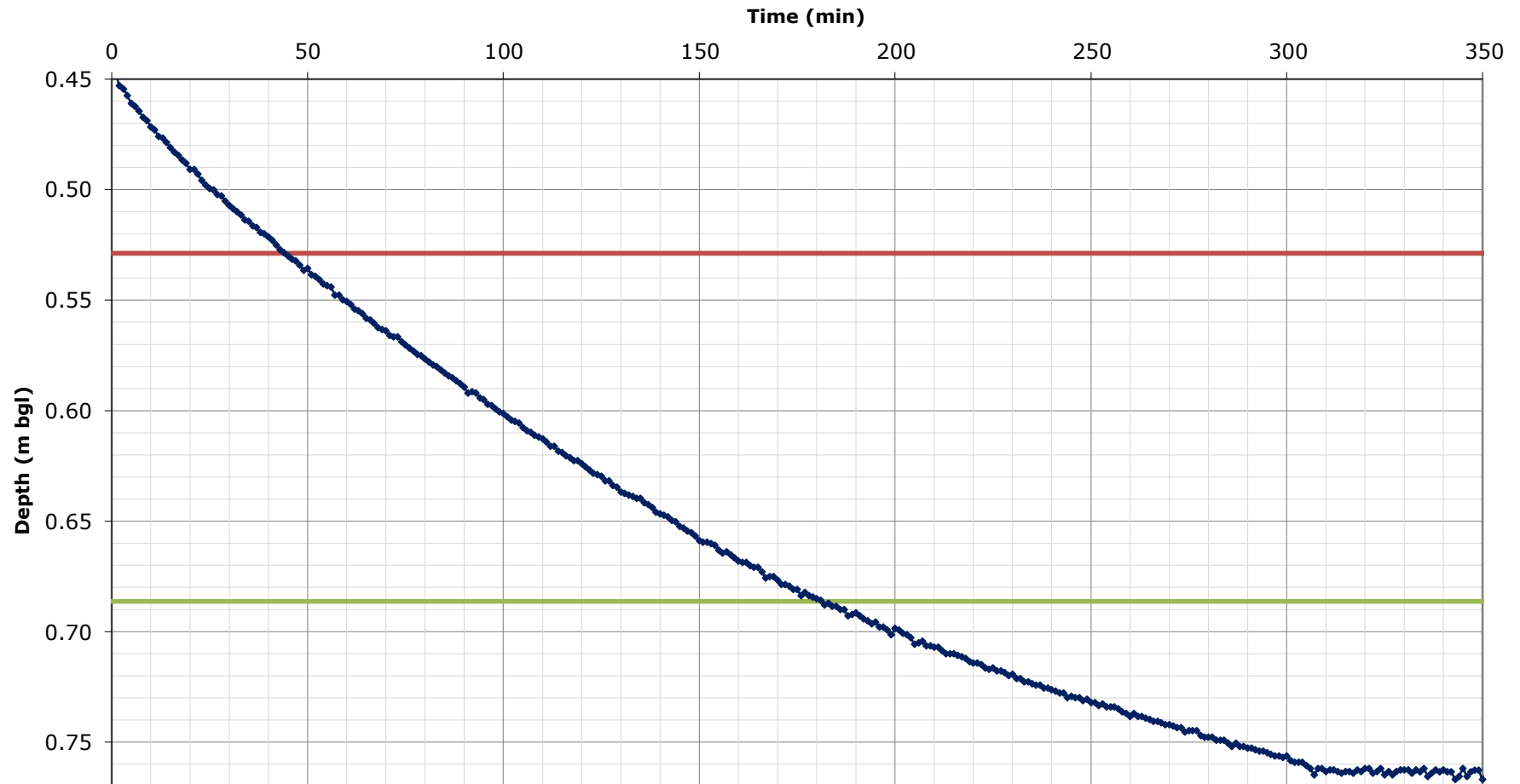
61195 - Saxons Corner, Emsworth - TP05 - Test 3 of 3

—■— 25% Effective Storage Depth —▲— 75% Effective Storage Depth —◆— Measured data



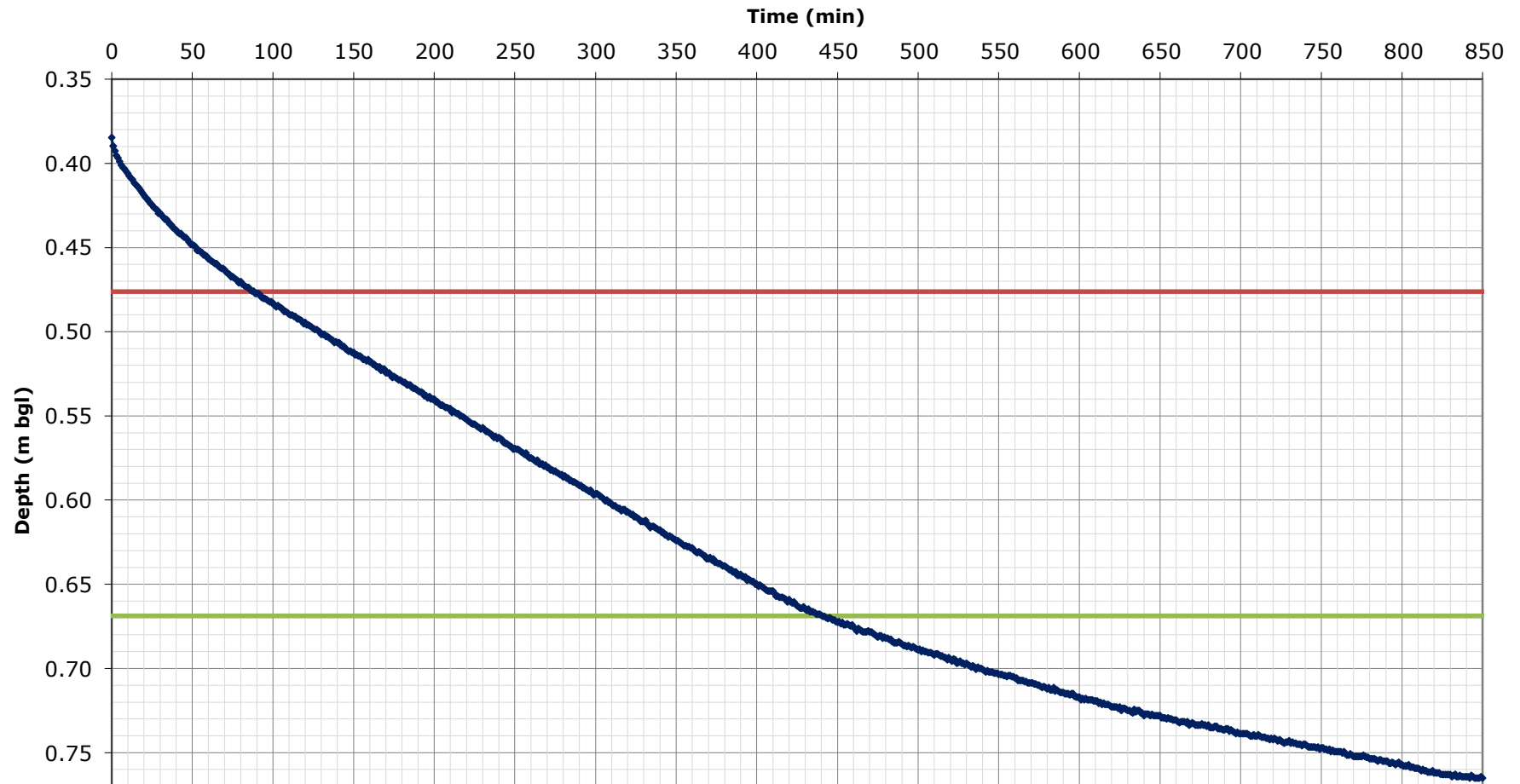
61195 - Saxons Corner, Emsworth - TP08 - Test 1 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data



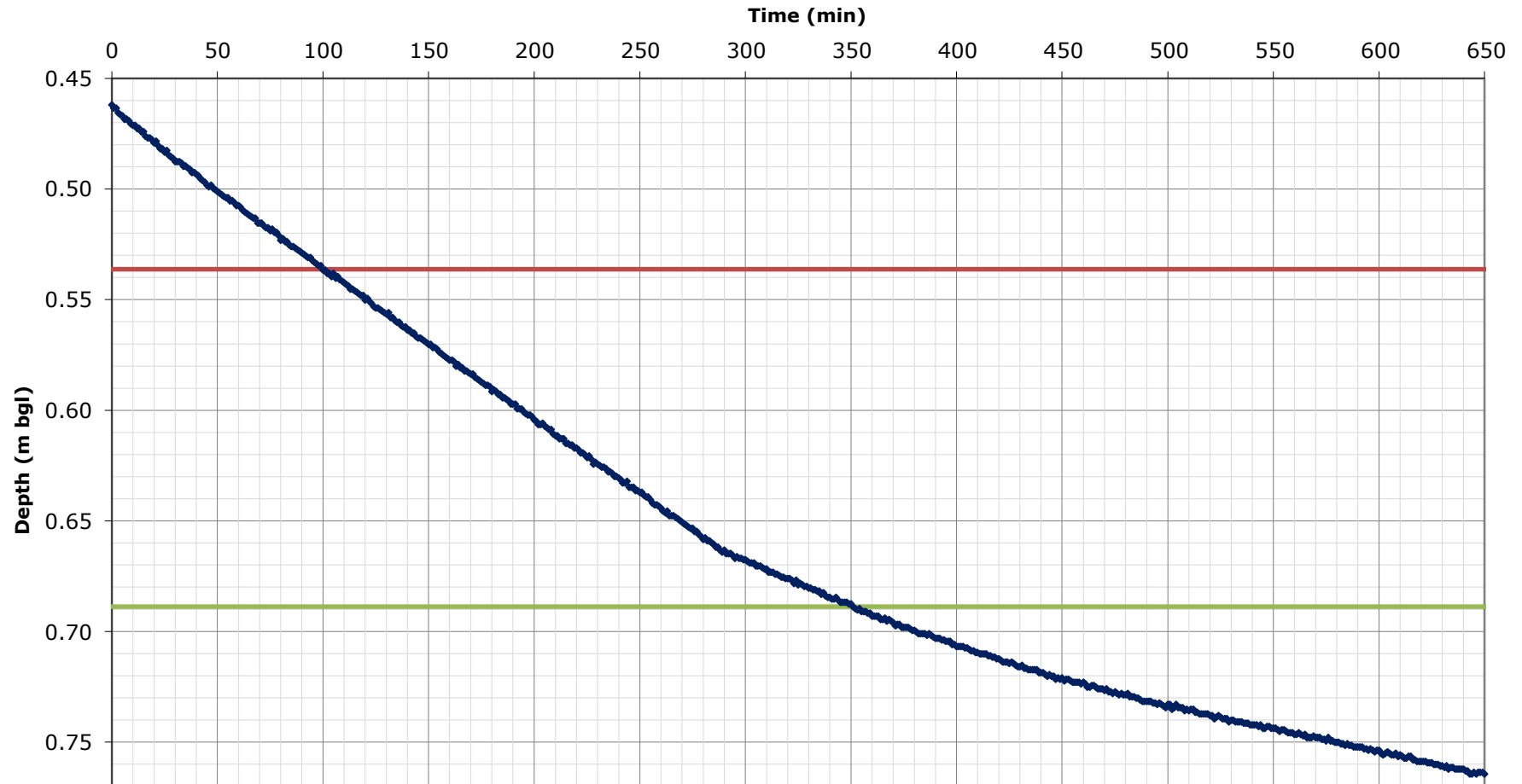
61195 - Saxons Corner, Emsworth - TP08 - Test 2 of 3

—■— 25% Effective Storage Depth —▲— 75% Effective Storage Depth —◆— Measured data



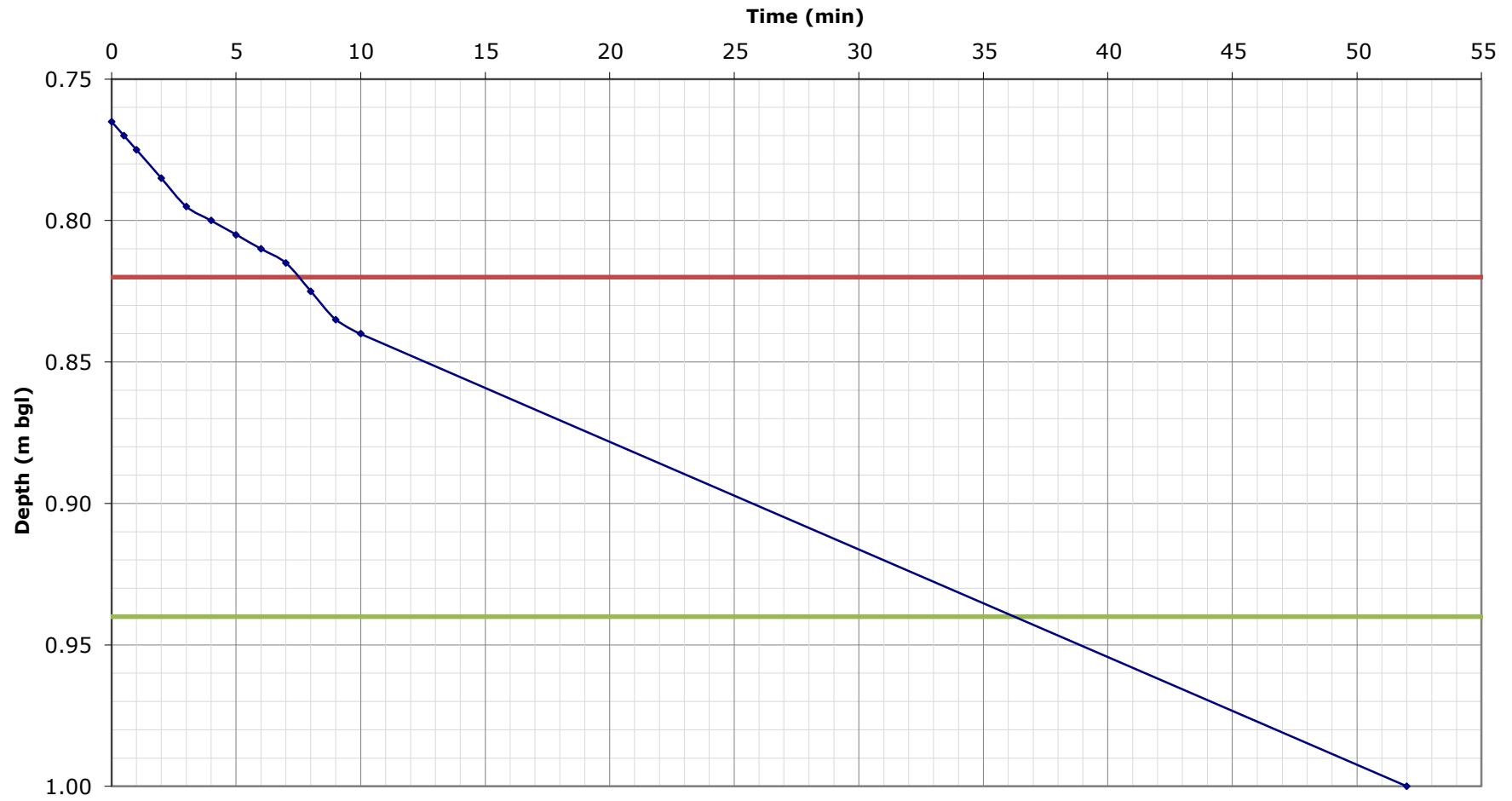
61195 - Saxons Corner, Emsworth - TP08 - Test 3 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data



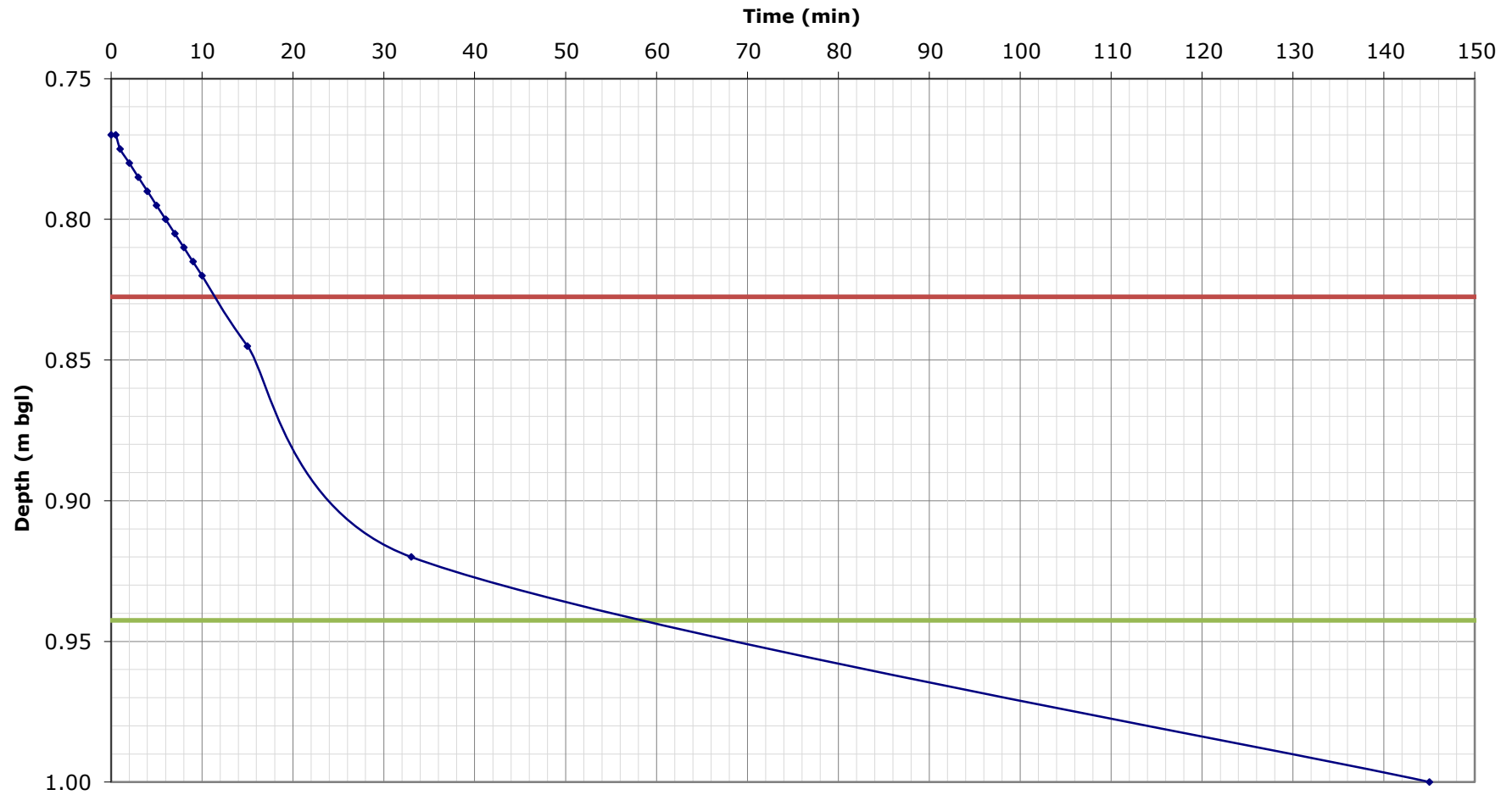
61195 - Saxons Corner, Emsworth - TP10 - Test 1 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data



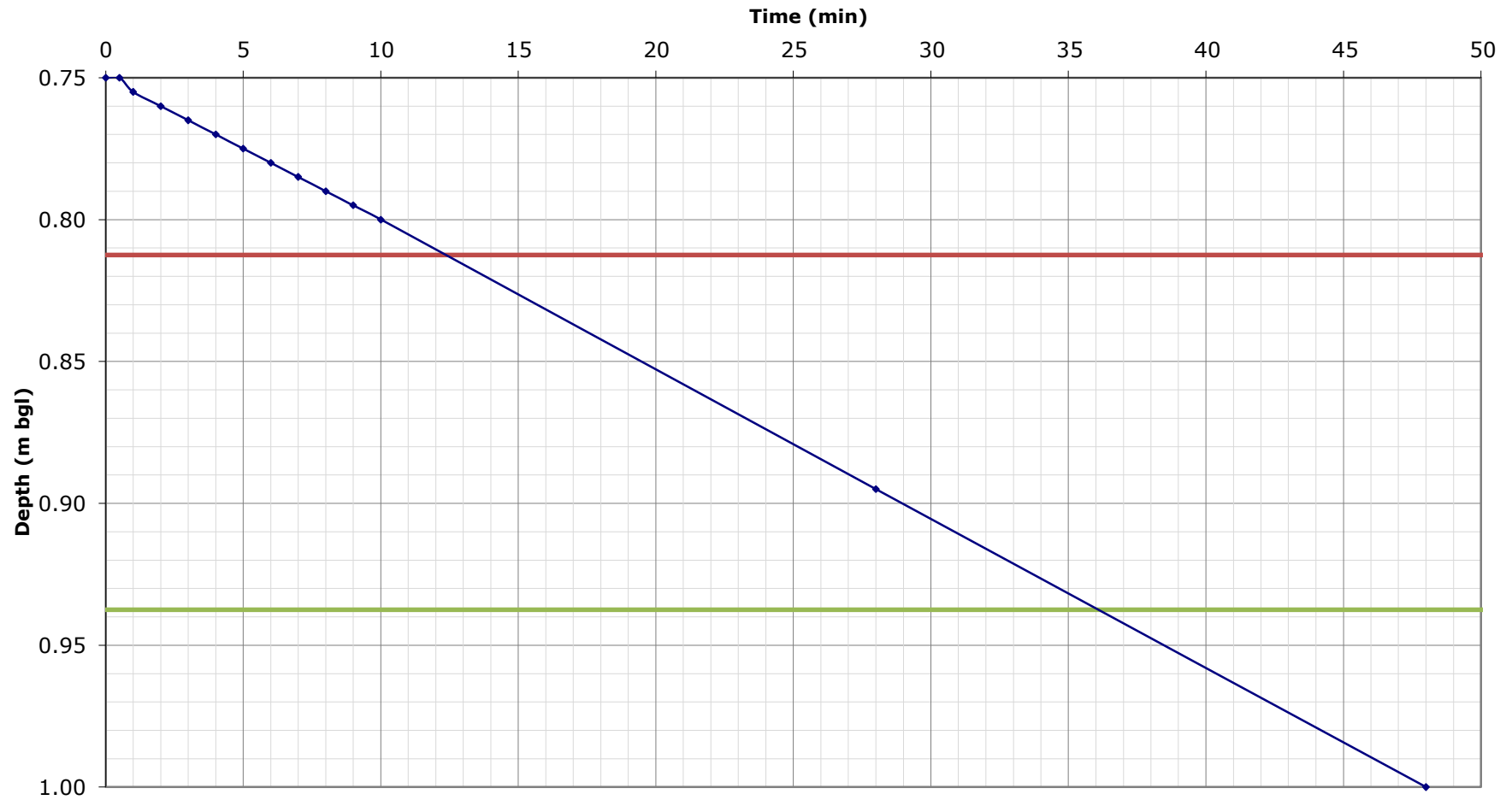
61195 - Saxons Corner, Emsworth - TP10 - Test 2 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data



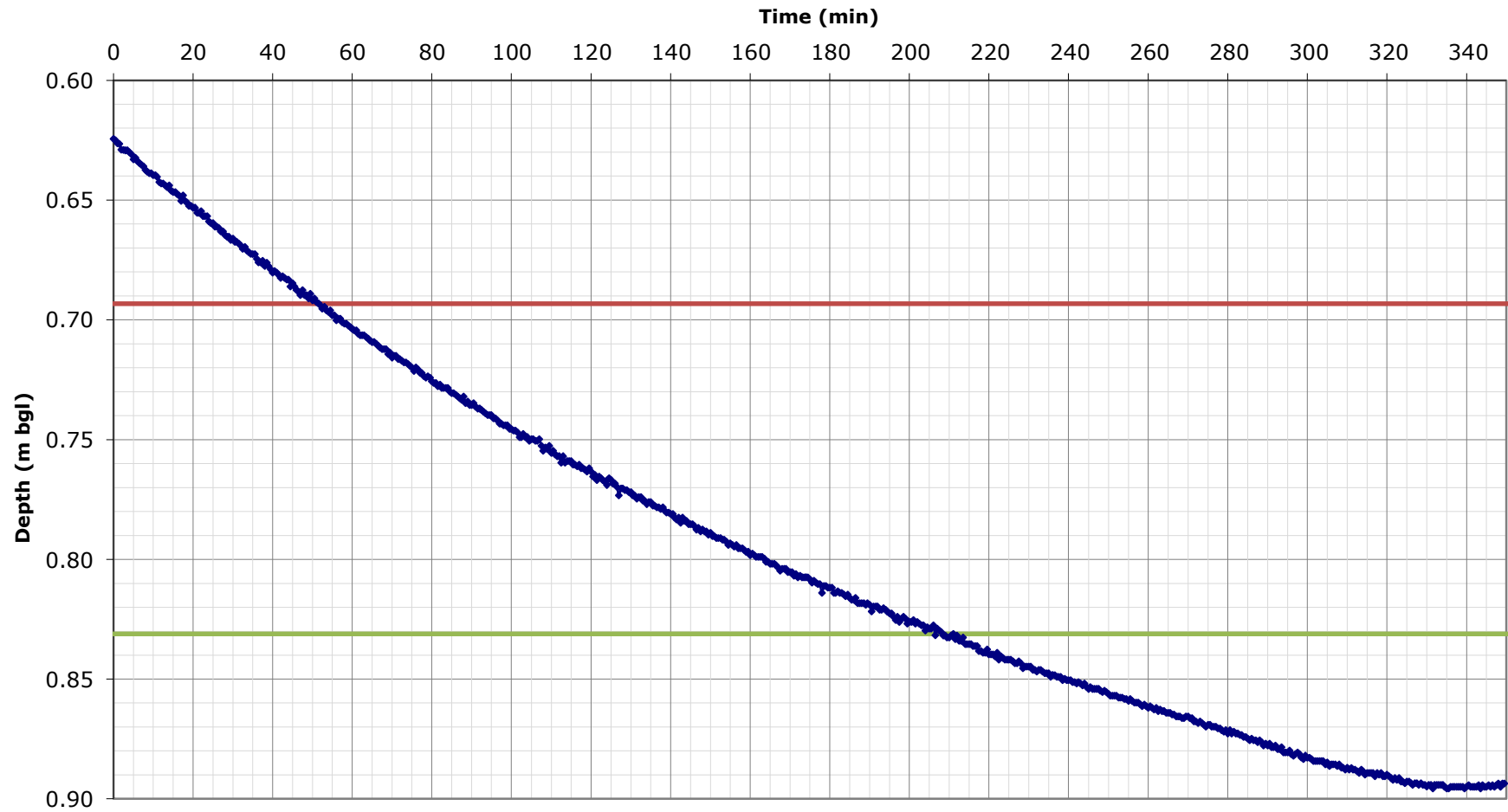
61195 - Saxons Corner, Emsworth - TP10 - Test 3 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data



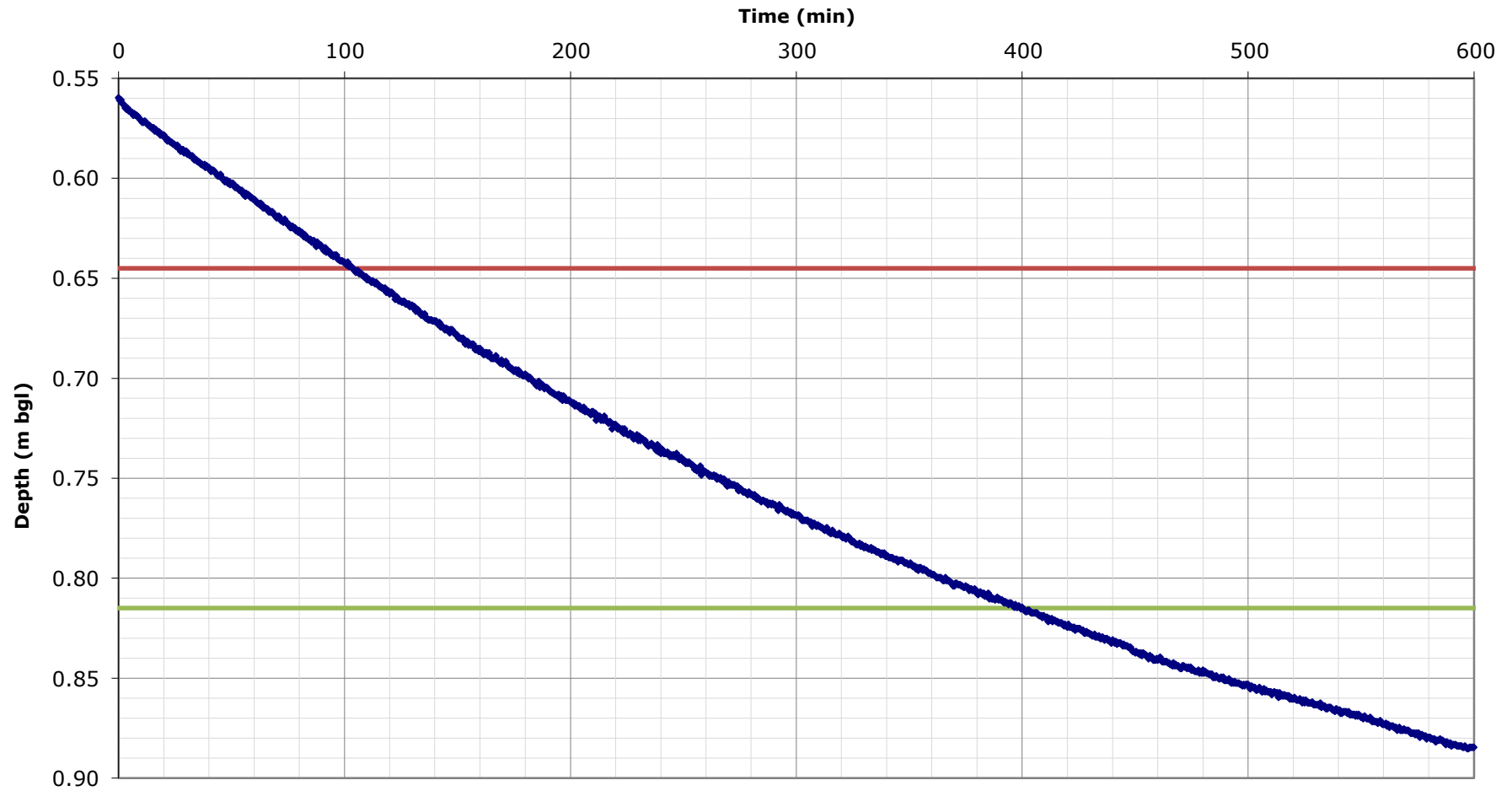
61195 - Saxons Corner, Emsworth - TP12 - Test 1 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data

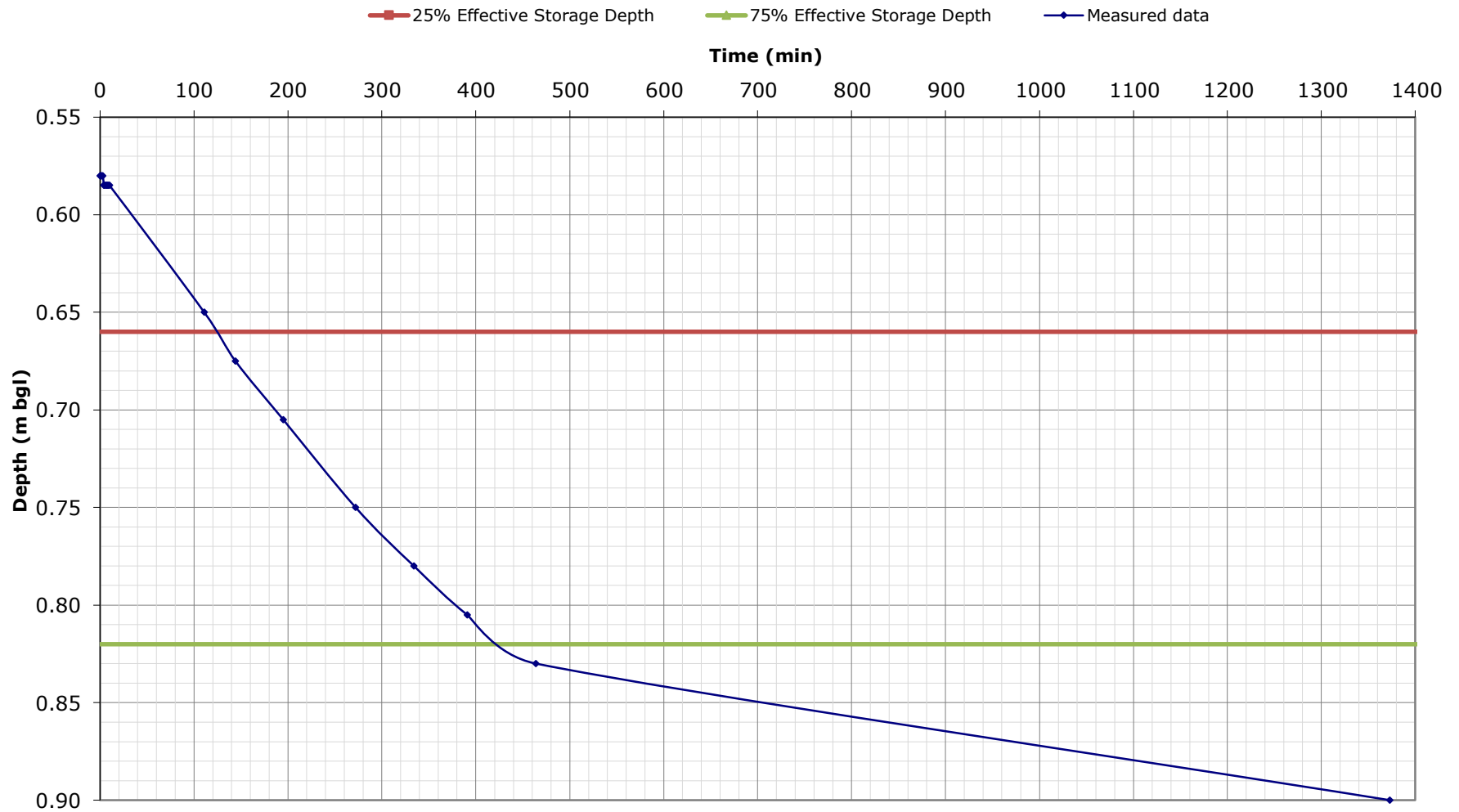


61195 - Saxons Corner, Emsworth - TP12 - Test 2 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data

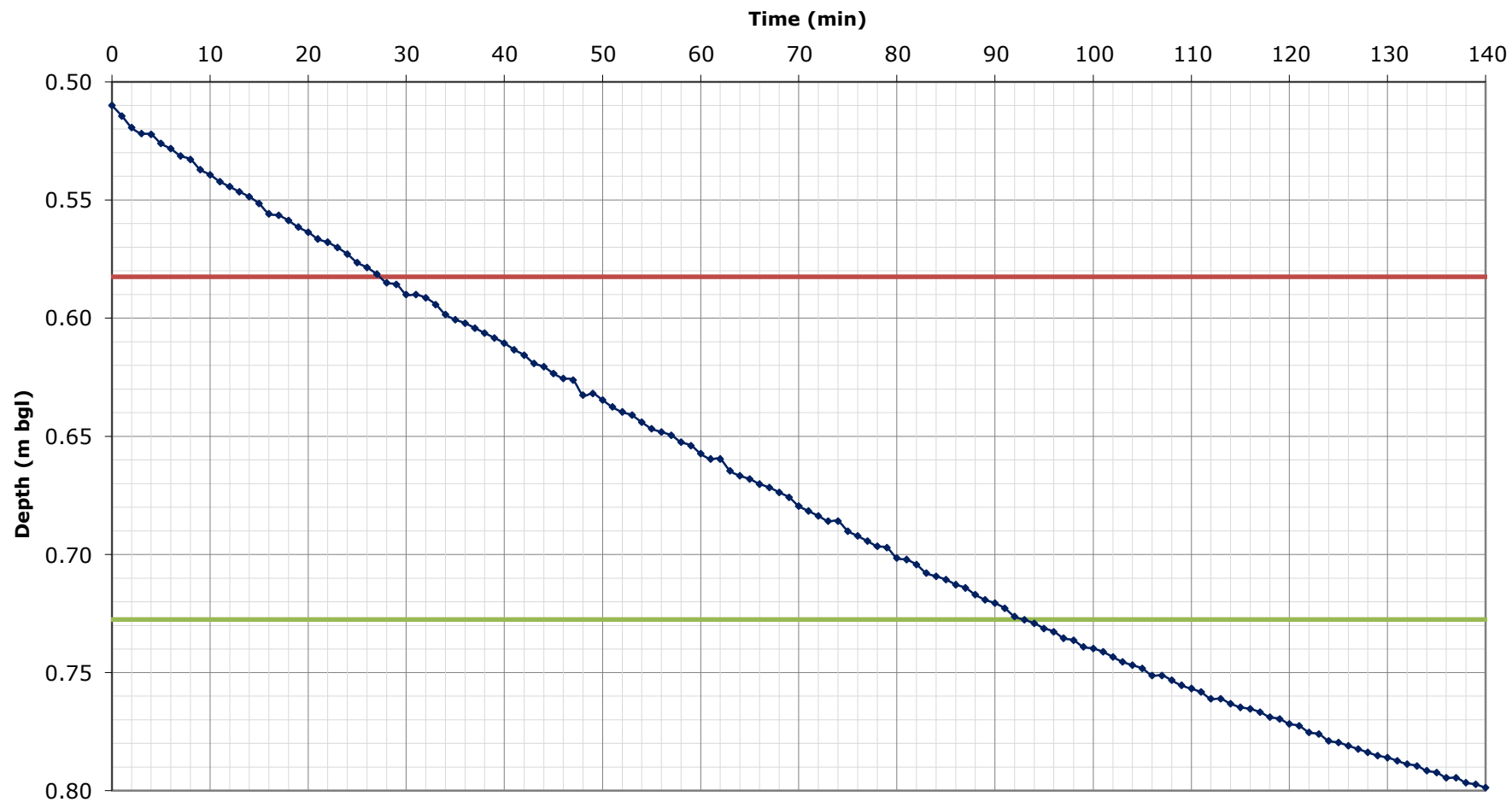


61195 - Saxons Corner, Emsworth - TP12 - Test 3 of 3



61195 - Saxons Corner, Emsworth - TP16A - Test 1 of 3

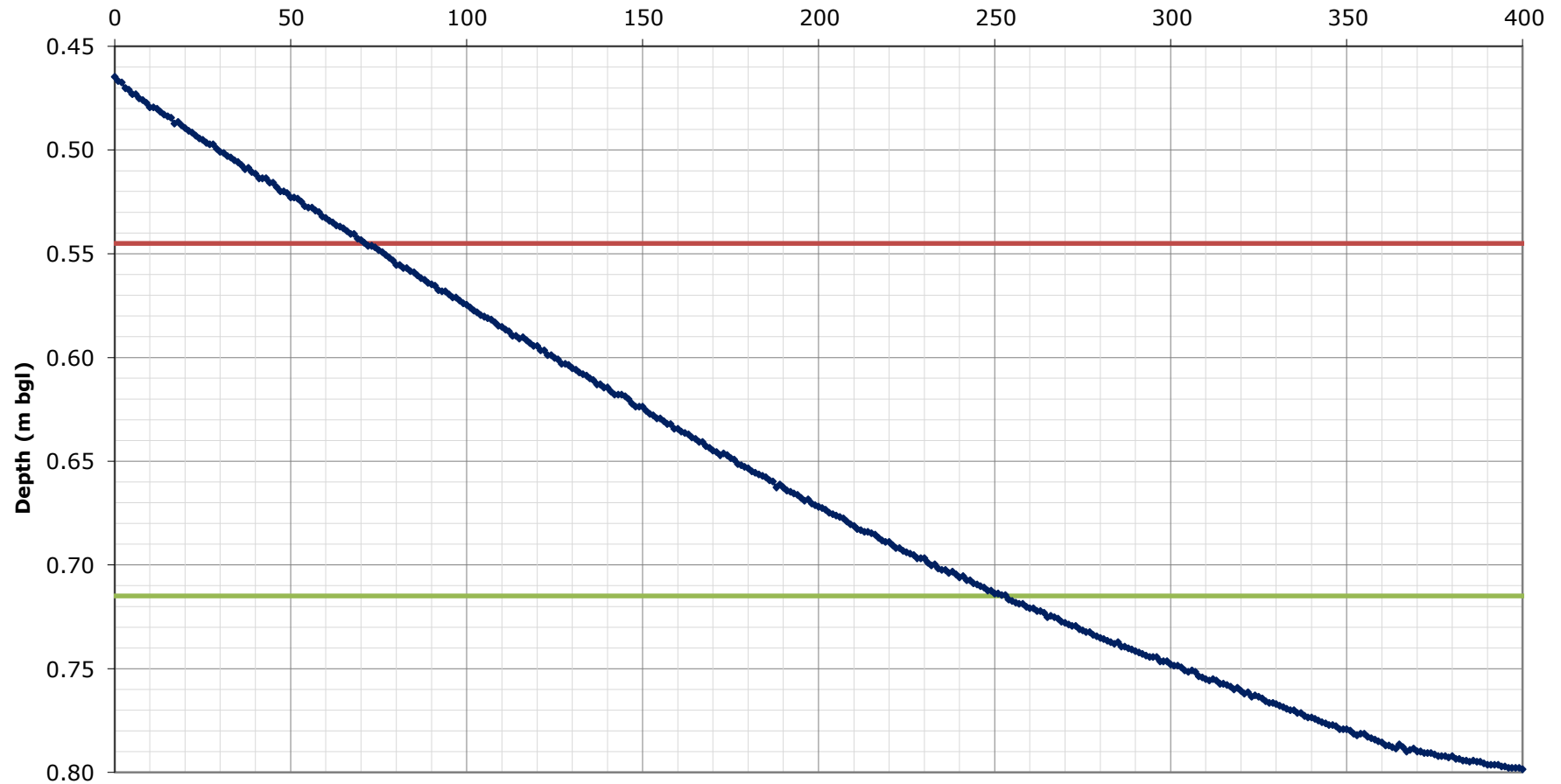
■ 25% Effective Storage Depth ▲ 75% Effective Storage Depth ◆ Measured data



61195 - Saxons Corner, Emsworth - TP16A - Test 2 of 3

—■— 25% Effective Storage Depth —▲— 75% Effective Storage Depth —◆— Measured data

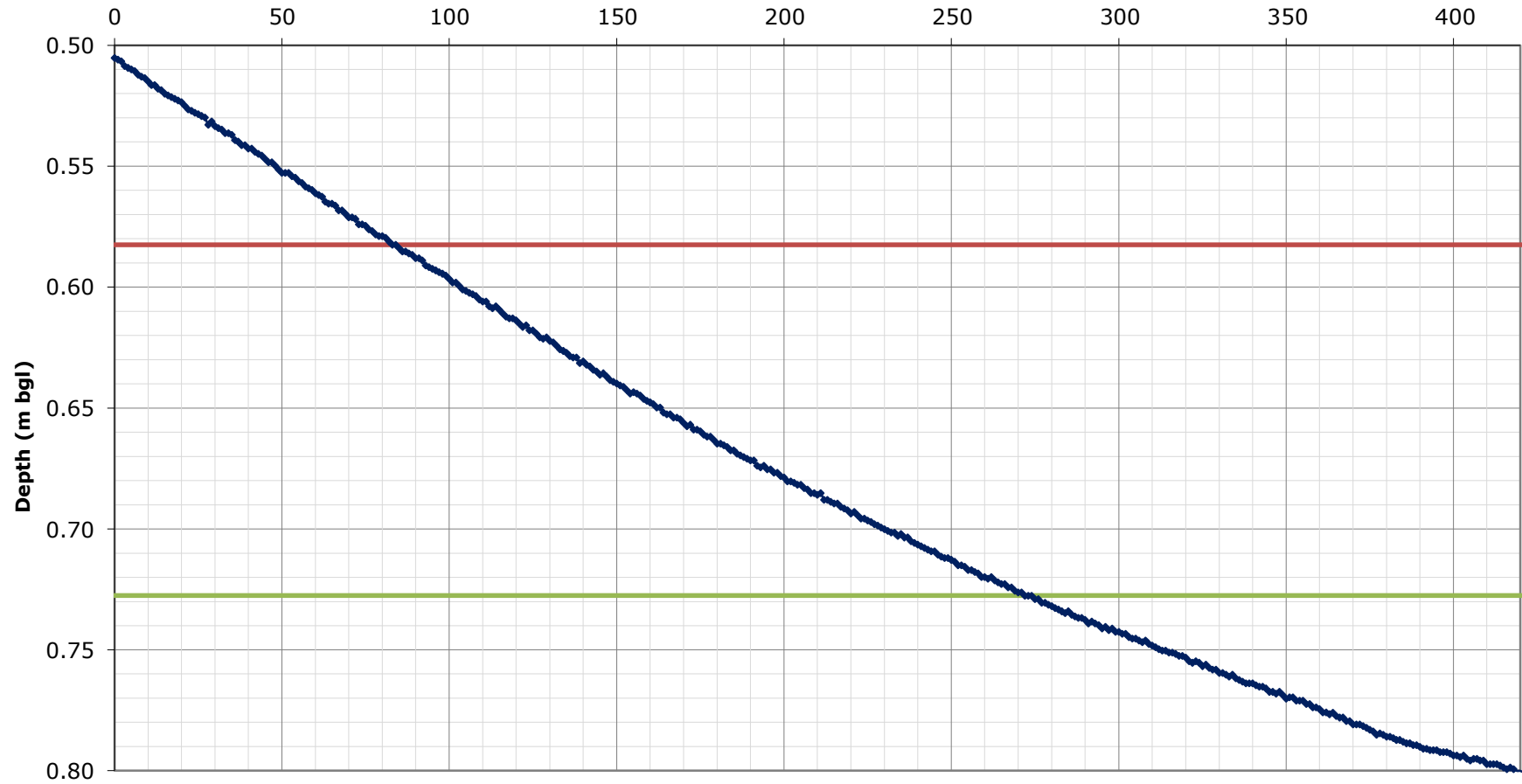
Time (min)



61195 - Saxons Corner, Emsworth - TP16A - Test 3 of 3

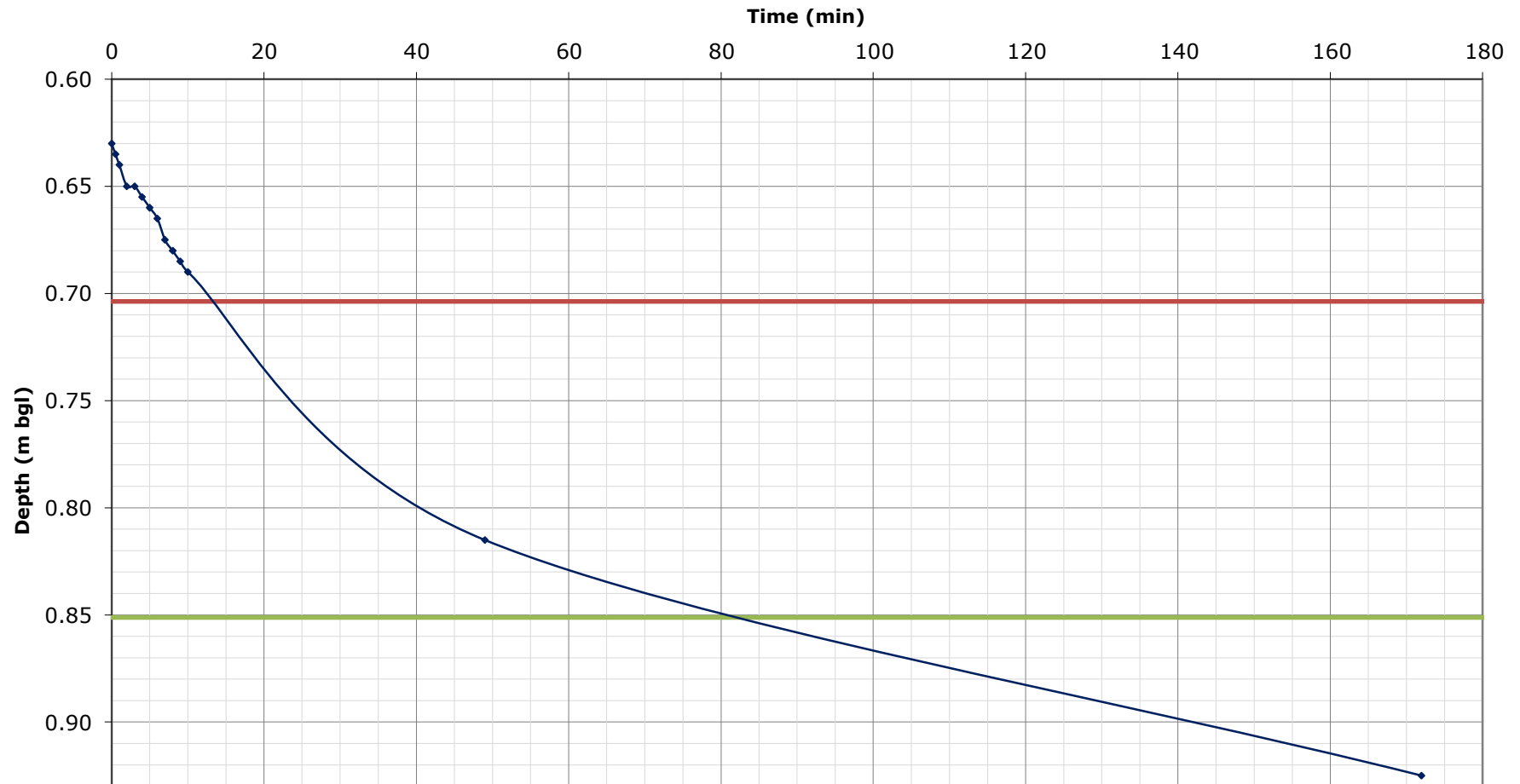
25% Effective Storage Depth 75% Effective Storage Depth Measured data

Time (min)



61195 - Saxons Corner, Emsworth - TP18 - Test 1 of 3

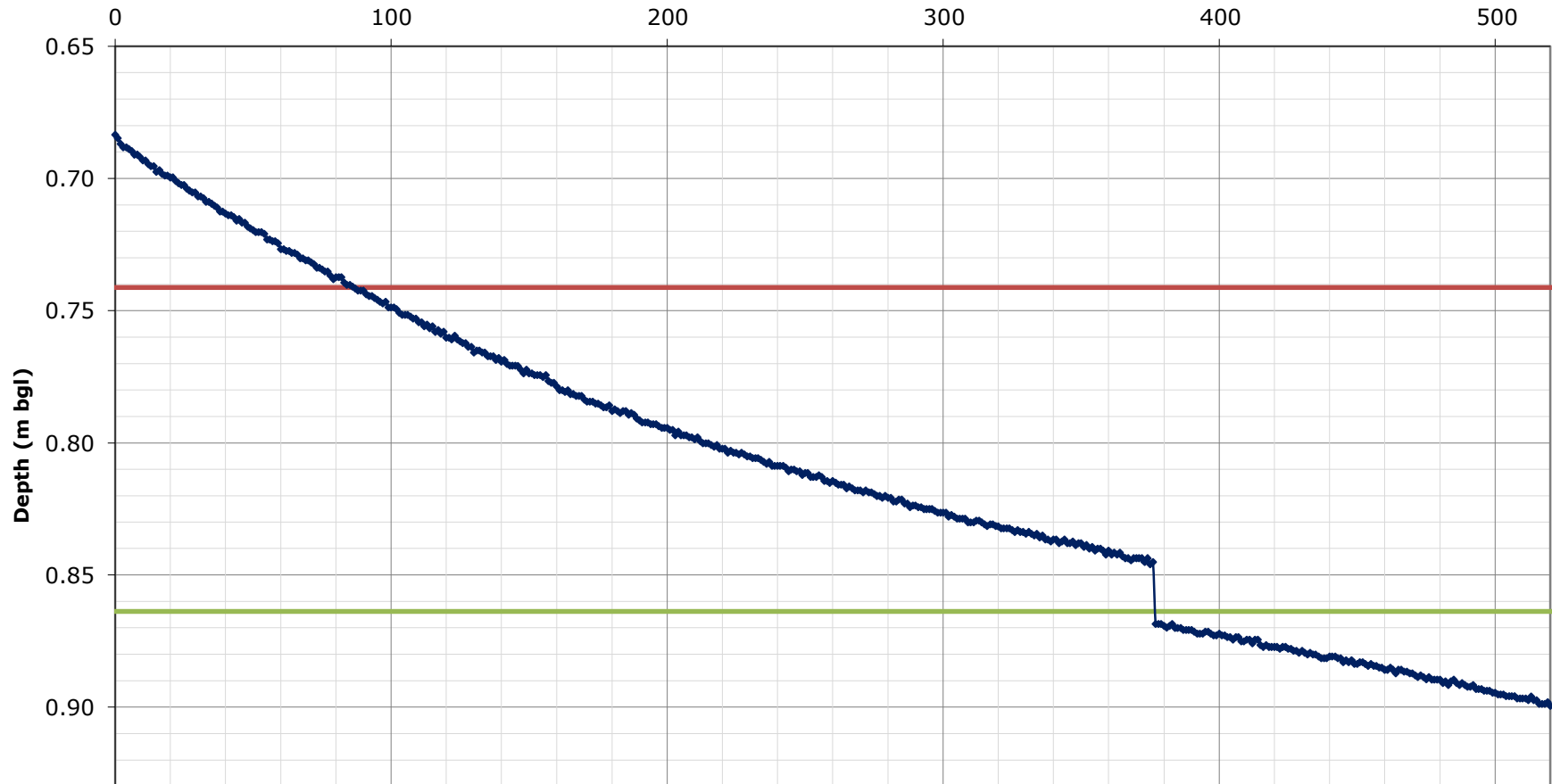
25% Effective Storage Depth 75% Effective Storage Depth Measured data



61195 - Saxons Corner, Emsworth - TP18 - Test 2 of 3

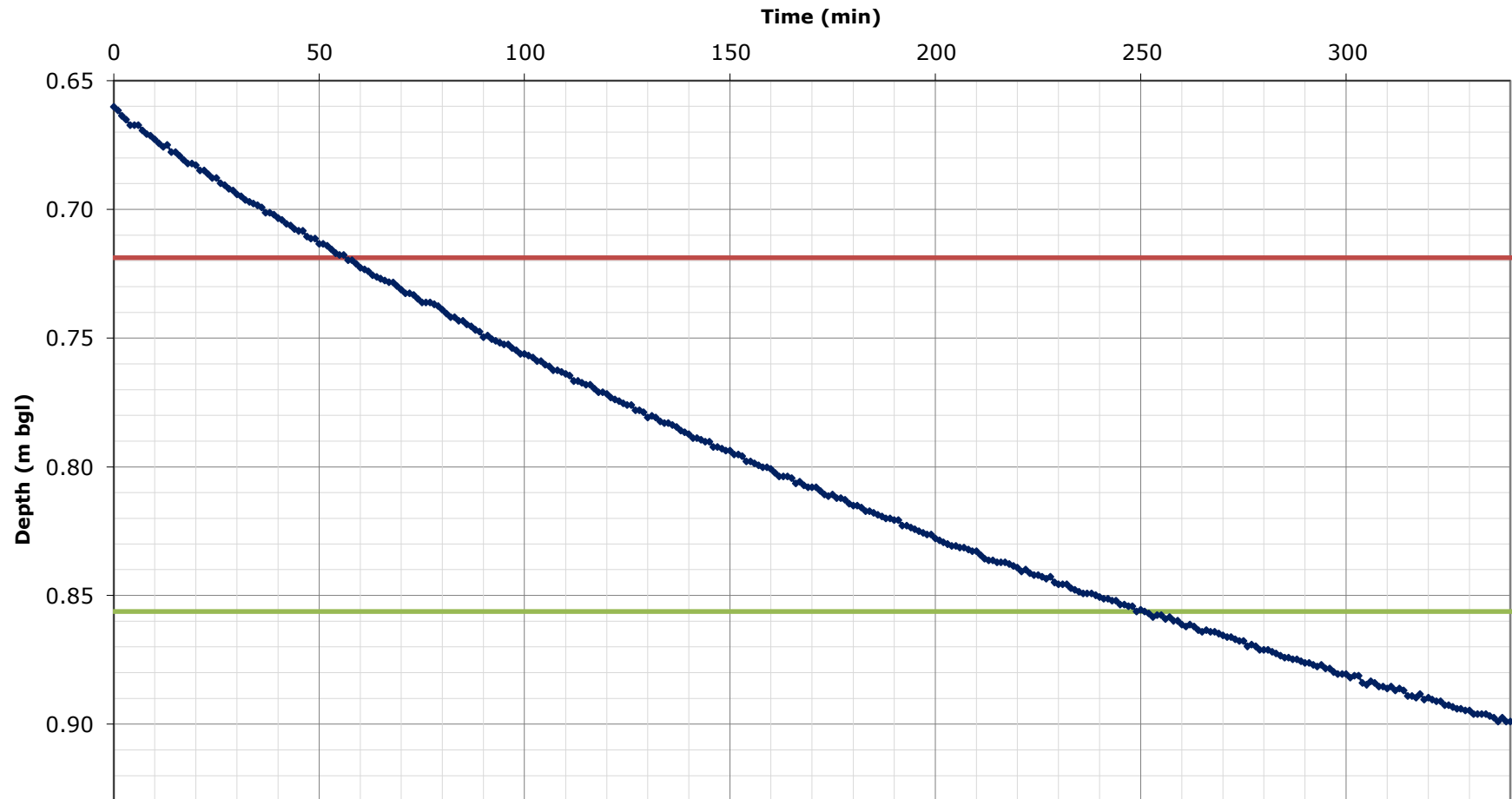
—■— 25% Effective Storage Depth —▲— 75% Effective Storage Depth —●— Measured data

Time (min)



61195 - Saxons Corner, Emsworth - TP18 - Test 3 of 3

25% Effective Storage Depth 75% Effective Storage Depth Measured data



Appendix F

Gas monitoring results & calibration certificates

Ground Gas Monitoring

61195 – Saxons Corner, St. Georges Avenue, Emsworth

Date: 01/07/2021 Weather: Hot, sunny, dry, calm
 Instrument No: 10820 / MiniRAE 3000 Engineer: AH

Exploratory Hole	CO ₂ Conc. (% by volume)		CH ₄ Conc. (% by volume)		O ₂ Conc. (% by volume)		Length of monitoring (mins)	VOC Conc. (ppm)	Flow Rate (l/hr)	Atmospheric Pressure (mb)	Standing Water Level (m bgl)	Depth to base (m bgl)	Time of Reading	Remarks
	P	S	P	S	Min	S								
WS01	0.0	0.0	0.0	0.0	20.5	20.6	15	0.1	0.0	1018	0.33	2.95	13:00	DP = 0pa, LEL= 0%
WS03	2.2	2.2	0.0	0.0	17.1	17.2	15	0.2	0.0	1016	2.31	2.67	13:30	DP = 0pa, LEL= 0%
WS04	1.4	1.4	0.0	0.0	17.7	20.1	15	0.2	0.0	1016	1.85	2.84	14:00	DP = 0pa, LEL= 0%
WS06	0.0	0.0	0.0	0.0	20.0	20.3	15	0.3	0.0	1018	0.88	2.37	12:30	DP = 0pa, LEL= 0%
WS10	3.1	2.9	0.0	0.0	15.0	15.1	15	0.2	0.0	1018	Dry	1.31	12:00	DP = 0pa, LEL= 0%

P = Peak, S = Steady, DP = Differential Pressures, LEL = Lower Explosive Limit

Atmospheric Pressure 01/07/2021 (World Weather Online): 12am: 1018mb, 3am: 1017mb, 6am: 1017mb, 9am: 1018mb, 12pm: 1018mb, 3pm: 1018mb, 6pm: 1018mb.

Date: 15/07/2021 Weather: Warm, cloudy, dry, breezy
 Instrument No: 10820 / MiniRAE 3000 Engineer: TS

Exploratory Hole	CO ₂ Conc. (% by volume)		CH ₄ Conc. (% by volume)		O ₂ Conc. (% by volume)		Length of monitoring (mins)	VOC Conc. (ppm)	Flow Rate (l/hr)	Atmospheric Pressure (mb)	Standing Water Level (m bgl)	Depth to base (m bgl)	Time of Reading	Remarks
	P	S	P	S	Min	S								
WS01	0.0	0.0	0.0	0.0	20.5	20.5	15	0.1	0.0	1022	1.33	2.95	09:20	DP = 0pa, LEL= 0%
WS03	3.2	3.2	0.0	0.0	15.0	15.0	15	0.7	0.0	1019	2.26	2.65	10:00	DP = 0pa, LEL= 0%
WS04	0.8	0.5	0.0	0.0	19.8	19.8	15	0.1	0.0	1017	1.82	2.80	10:40	DP = 0pa, LEL= 0%
WS06	0.0	0.0	0.0	0.0	20.4	20.4	15	0.1	0.0	1022	0.86	2.31	08:50	DP = 0pa, LEL= 0%
WS10	0.4	0.4	0.0	0.0	20.0	20.0	15	0.2	0.0	1021	Dry	0.98	08:30	DP = 0pa, LEL= 0%

P = Peak, S = Steady, DP = Differential Pressures, LEL = Lower Explosive Limit

Atmospheric Pressure 15/07/2021 (World Weather Online): 12am: 1021mb, 3am: 1021mb, 6am: 1021mb, 9am: 1022mb, 12pm: 1022mb, 3pm: 1022mb, 6pm: 1022mb.

Date: 28/07/2021

Weather: Cool, cloudy, damp, breezy

Instrument No: 10820 / MiniRAE 3000

Engineer: TS

Exploratory Hole	CO ₂ Conc. (% by volume)		CH ₄ Conc. (% by volume)		O ₂ Conc. (% by volume)		Length of monitoring (mins)	VOC Conc. (ppm)	Flow Rate (l/hr)	Atmospheric Pressure (mb)	Standing Water Level (m bgl)	Depth to base (m bgl)	Time of Reading	Remarks
	P	S	P	S	Min	S								
WS01	0.0	0.0	0.0	0.0	20.4	20.4	15	-	0.0	1006	1.18	2.95	10:05	DP = 0pa, LEL= 0%
WS03	3.9	3.9	0.0	0.0	15.0	15.0	15	-	0.0	1006	2.23	2.64	10:45	DP = 0pa, LEL= 0%
WS04	2.4	2.2	0.0	0.0	17.8	17.8	15	-	0.0	1005	1.87	2.79	09:45	DP = 0pa, LEL= 0%
WS06	0.2	0.0	0.0	0.0	20.4	20.4	15	-	0.0	1005	1.2	2.32	09:25	DP = 0pa, LEL= 0%
WS10	0.2	0.2	0.0	0.0	20.2	20.2	15	-	0.0	1005	DRY	0.98	08:45	DP = 0pa, LEL= 0%

P = Peak, S = Steady, DP = Differential Pressures, LEL = Lower Explosive Limit

Atmospheric Pressure 28/07/2021 (World Weather Online): 12am: 1010mb, 3am: 1010mb, 6am: 1010mb, 9am: 1010mb, 12pm: 1010mb, 3pm: 1010mb, 6pm: 1010mb.

TEST DATE AND CONDITIONS			
Date	05/10/2020		
Atmospheric Pressure	975	mB	
Ambient Temperature	22.7	°C	
EnviroNics Serial No.	5089		

**GFM430 Final Inspection & Calibration
Check Certificate**

GAS DATA LTD

Unit 4, Fairfield Court

Seven Stars Estate

Wheler Rd

Coventry

CV3 4LJ

Tel 02476303311

Fax 02476307711



Customer	Richard Jackson Ltd
Certificate Number	122044
Order Number	326868

Serial Number	10820
Software Version	G430-00.0024/0013

Recalibration DUE Date
05/10/21

Instrument Checks					
Keyboard	✓		Display Contrast	✓	
Pump Flow In	350	Accept > 200 cc/min	Pump Flow @ -200mB	200	Accept > 200 cc/min
Clock Set / Running	✓		Labels Fitted	✓	

Gas Checks						
Sensor	CH ₄		CO ₂		O ₂	
	Instrument Gas	True Gas Value %	Instrument Gas	True Gas Value %	Instrument Gas	True Gas Value %
	Readings %		Readings %		Readings %	
	59.5	60	40	40	20.9	20.9
	Accept ±3.0		Accept ±3.0		Accept ±0.5	
	5.1	5	4.9	5	6	6
	Accept ±0.3		Accept ±0.3		Accept ±0.3	
Zero Reading 100% N ₂	0	0	0	0	0	0
	Accept ±0.0		Accept ±0.0		Accept ±0.1	

Pressure Checks						
Atmospheric Pressure [AP] (mB)				Static Pressure [SP] (mB)		
Current Atmospheric	Instrument Atmospheric			Applied Pressure (mB)	Instrument Pressure (mB)	
Pressure (mB)	Pressure Reading (mB)					
All Ports	Open Ports	975	Accept ±2.0	0.0mB	N/A	Accept ±0.0
AP Port (Internal)	+800 mB	800	Accept ±5.0	+50mB	N/A	Accept ±2.0
AP Port (Internal)	+1200mb	1200	Accept ±5.0	-100mB	N/A	Accept ±2.0

Flow Checks					
Borehole Flow			Differential Pressure		
Applied Reading (l/h)	Instrument Reading (l/h)		Applied Pressure (Pa)	Instrument Reading (Pa)	
-30	-29.7	Accept ± 3.0	-272	-270	Accept ± 50
-3	-3	Accept ± 1.0	-13	-13	Accept ± 6.0
0	0	Accept ± 0.0	0	0	Accept ± 0.5
3	3	Accept ± 0.5	14	14	Accept ± 3.0
30	29.6	Accept ± 3.0	281	274	Accept ± 50
60	59.4	Accept ± 6.0	828	821	Accept ± 130
90	89.7	Accept ± 9.0	1631	1650	Accept ± 250

Temperature Checks		
Calibration Temperature	Instrument Temperature Reading $^{\circ}\text{C}$	
Applied Temperature $^{\circ}\text{C}$		
-10	-10	Accept ± 2.0
0	0	Accept ± 1.0
30	30	Accept ± 1.0
60	60	Accept ± 1.0
100	100	Accept ± 1.0

Technician:
<i>Jack Rutland</i>

Date Tested:
<i>06/10/2020</i>

The instrument identified by the serial number stated above has been tested by Gas Data personnel for calibration accuracy on the date and under the ambient conditions stated. Gas Data Ltd internal BS EN ISO9001:2015 compliant workshop procedures were followed to apply known calibration test gases, gas flow rates, pressures and temperatures of the values stated. The results displayed on the instrument at each stage are recorded above.

Gas Data Ltd is certified to BS EN ISO9001:2015. Certificate NQA 8374. Valid until 21/03/2022

CALIBRATION CERTIFICATE NO: 592-932995

ISSUED BY: SHAWCITY LIMITED
DATE: 27/05/2021
APPROVED SIGNATORY: 
NAME: Jack Cheshire
CUSTOMER: Richard Jackson Ltd
INSTRUMENT: MiniRAE 3000
SERIAL NUMBER: 592-932995
CALIBRATION METHOD: CM03
AMBIENT CONDITIONS: 20°C ± 2°C and 50% (± 20%) RH

Prior to calibration the instrument was allowed to stabilise in the laboratory for at least 30 minutes.
The instrument was calibrated by exposing the sensor to known values of gas concentrations.
All gases were sampled through the complete probe and in line filter, where applicable.
The reference value is that generated by the certified source and the indicated value is that measured by the instrument.

CALIBRATION RESULTS

GAS	LOT No	REF. VALUE	INDICATED VALUE
Isobutylene	WO297301-1	100 ppm	100 ppm
Isobutylene	WO256926-1	1000 ppm	1000 ppm

COMMENTS:

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$.
This provides a level of confidence of uncertainty of approximately 95%.
The uncertainty of measurement is $\pm 2\%$
The results indicate that the instrument conforms to the applicable parts of the published specification.

LTH & SAFETY, OCCUPATIONAL HYGIENE AND ENVIRONMENTAL MONITORING INSTRUMENTS

Appendix G

Limitations of use

Limitations of Use

This report is based on the results of the exploratory boreholes, the laboratory testing carried out on samples recovered from those boreholes and on details of the scheme provided by the Client.

This report has been prepared for the benefit of Barratt David Wilson Homes (BDW), and its contents should not be relied upon by others without the written authority of Richard Jackson Ltd. If any unauthorised third party makes use of this report they do so at their own risk and Richard Jackson Ltd owes them no duty of care or skill.

All information provided by others is taken as being in good faith as being accurate, but Richard Jackson Ltd cannot, and does not, accept any liability for the detailed accuracy, errors or omissions in such information.

Subsoils are by their nature hidden from view and no investigation can be exhaustive to the extent that all soil conditions are revealed. Conditions may well be present beneath the site which was not evident from the investigations carried out.

Geological data, with the exception of geological maps held by Richard Jackson Ltd, Ordnance Survey maps and aerial photographs have not been inspected, nor has any other data relating to site conditions past or present, or any information regarding underground services, other than as indicated.

Groundwater levels can be subject to considerable seasonal variations, and the conditions encountered in the exploratory holes may not reflect long-term conditions.

There can be no guarantee that the samples analysed represent the highest concentrations of contamination present beneath the site. The chemical analysis results have been assessed to standards appropriate at the time of investigation.

Unless a greater period of retention of samples is agreed, it is our normal practice to discard all samples one month after submission of our final report.



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