



**GEO-ENVIRONMENTAL AND GEOTECHNICAL
SITE INVESTIGATION
REPORT**

**TOWN FARM
HARRISONS LANE
HALESWORTH
SUFFOLK
IP19 8PZ**

**Reference Number 2954/Rpt 1v2
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Prepared for

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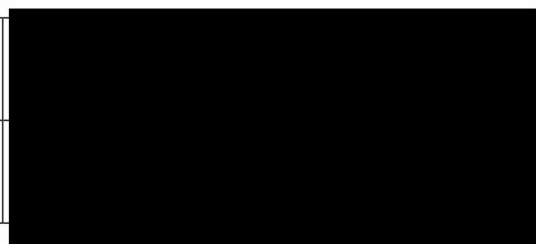


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EXECUTIVE SUMMARY

This report describes the findings of a Combined Geotechnical and Geo-environmental Site Investigation of land at Town Farm, Harrisons Lane, Halesworth, Suffolk. It is proposed to redevelop the site for residential usage.

At the time of the walk-over the site was occupied agricultural land with a series of former poultry sheds on the south end of the site.

A previous phase of geotechnical and contaminated land site investigation has been undertaken. From this work it was recommended that additional site investigation should be undertaken in order to delineate the extent of the two areas where soft clays were identified. The report also recommended that gas protection measures should be included within the proposed residential properties to be developed in the south west corner of the site. A review completed by Brown 2 Green Associates concluded that additional monitoring was required to provide a better understanding of the ground gas regime before recommendations for gas protection measures should be made. A recommendation was also made to address the risk from asbestos that had been identified. This report provides the findings of the additional site investigation and contaminated land assessment. A remediation strategy is also presented.

The investigation consisted of the excavation of trial pits, drilling of boreholes and the installation of gas monitoring wells. During the drilling soil samples were obtained and submitted for chemical analysis and geotechnical testing. Gas monitoring was also undertaken.

The following conclusions were made:

Geoenvironmental

The investigation identified the presence of fragments of cement based asbestos containing product across the ground surface of the land currently occupied by the poultry houses. The Tier I Human Health Risk Assessment has determined that the asbestos may potentially pose an unacceptable level of risk should the asbestos be released. In their current form the level of risk is considered to be very low. Across the rest of the site the concentrations of contaminants within the underlying made ground and natural soils are at levels that would not pose an unacceptable level of risk to human health of future site occupants and site users.

The Tier I Controlled Water Risk Assessment has determined that there are no concentrations of contaminants within the underlying soils that would pose an unacceptable level of risk to controlled waters.

The monitoring and risk assessment for bio-genic ground gas concluded that ground gas would not pose an unacceptable level of risk to future site users and the development.

The risk assessment in respect to the future planting and towards sensitive ecological receptors identified that there are no concentrations of determinants at levels that would pose an unacceptable level of risk to future planting and sensitive ecological receptors.

The risk assessment in respect to water supply infrastructure identified that the determinants at the site would not pose an unacceptable level of risk to the integrity of PE or PVC pipework.

From the results of the site investigation recommendations for remediation have been made.

Geotechnical

The additional investigation did not identify the presence of localised soft clay. Based on the ground conditions encountered it is recommended that foundations found within the firm clay at a minimum depth of 1.0m bgl. At this depth an allowable bearing capacity of 100kN/m² may be used with settlements estimated to be less than 25mm.

Based on this it is considered that a CBR of 3% is likely to be required.

1 INTRODUCTION

1.1 Background

Brown 2 Green Associates Ltd have been commissioned by Badger Building (E Anglia) Ltd to undertake additional combined Geotechnical and Phase 2 Geo-environmental Site Investigation of land at Town Farm, Harrisons Lane, Halesworth, Suffolk, IP19 8PZ. The site is located at National Grid Reference 639466, 278134. The site location is presented in Figure 1.

A desk study was previously completed by Create Consulting Engineers Ltd in September 2017. The desk study report recommended that a Phase 2 intrusive site investigation should be undertaken. A ground investigation was completed by ASL. The findings are presented in the reports titled:

Land Off Harrisons Lane, Halesworth – Phase 1 Contaminated Land Assessment, report prepared by Create Consulting Engineers Ltd; dated September 2017; Ref: CB/CS/P17-1228/02; and

Ground Investigation Land Off Harrisons Lane, Halesworth, prepared by ASL; dated August 2019; Ref 450-18-087-10.

The site investigation undertaken by ASL provided an initial assessment of the geotechnical and contaminated land constraints of the site. Based on the findings of the investigation ASL recommended that additional site investigation should be undertaken in order to delineate the extent of the two areas where soft clays were identified. The report also recommended that gas protection measures should be included within the proposed residential properties that were proposed for the south west corner of the site. A recommendation was also made to address the risk from asbestos fibres that had been identified within the soils.

A review of the report prepared by ASL by Brown 2 Green Associates Ltd identified a number of data gaps. These being:

Additional investigation of the two soft area that were identified. The areas that were defined surrounded boreholes BH103 and BH104. Within both boreholes, soft clays were identified to a maximum depth of 3.0m.

The report contains limited laboratory testing data to determine the plasticity and the natural moisture content of the underlying soils.

The recommendations for gas protection measures are based on the results of only three gas monitoring rounds. The data records slightly elevated level of carbon dioxide within the part of the site where gas protection measures are recommended. Flows were also recorded. However, from the review it was considered that the flows recorded were artificial created during the monitoring programme and occurred as the wells were flooded, sealing off the response zone. No sources of ground gas that could result in the generation of significant levels of ground gas and gas flow are present within the local area. Brown 2 Green consider further gas monitoring and a revised ground gas risk assessment should be undertaken to determine the true level of risk from ground gas.

1.2 Proposed Development

It is proposed to redevelop the site for residential usage consisting of up to 190 dwelling with associated landscaping and open space. The proposed development is shown on drawing number n1142 004 rev D prepared by nineteen47 Ltd. The proposed development layout is presented in

Appendix II.

1.3 Objectives

The objectives of the Geo-environmental Site Investigation are to provide an Environmental Risk Assessment to inform about potential re-development of the site, address the requirements of the National Planning Policy Framework¹ and Planning Practice Guidance. These objectives are achieved by:

Undertaking a site inspection to identify any current areas of potential environmental concern;

Reviewing historical plans, geology, hydrogeology, site sensitivity, flood-plain issues, mining records and any local authority information available in order to complete a Desk Study in line with the Environment Agency Contaminated Land Risk Management.

Investigation of any identified pollution linkages to determine any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors;

Provide geotechnical recommendations in relation to foundations and infrastructure; and,

Provide a factual and interpretive report and recommendations on any potential development issues.

The information obtained in this study has been used to develop an initial Conceptual Site Model (CSM) and outline potential risks from contamination at the site. This CSM examines potential Source-Pathway-Receptor contaminant linkages in relation to identified or potential contamination issues at the site and vicinity, incorporating them into a Preliminary Risk Assessment. This report has been completed in accordance with Environment Agency Contaminated Land Risk Management.

The Preliminary Risk Assessment seeks to establish firstly whether unacceptable risk as defined in Part 2A of the Environmental Protection Act 1990 is present and secondly whether a possibility of harm to controlled waters, human health or property is present and further investigation is therefore needed to better inform about risk assessment.

The objective of the Geotechnical Site Investigation is to assess the geological conditions beneath the site to provide geotechnical recommendations in relation to foundation and infrastructure.

1.4 Sources of Information

Background information relating to the site was acquired and referenced from the following sources:

Land Off Harrisons Lane, Halesworth – Phase 1 Contaminated Land Assessment, report prepared by Create Consulting Engineers Ltd; dated September 2017; Ref: CB/CS/P17-1228/02; and

Ground Investigation Land Off Harrisons Lane, Halesworth, prepared by ASL; dated August 2019; Ref 450-18-087-10.

A copy of the ground investigation report prepared by ASL is containing in Appendix III.

¹ National Planning Policy Framework, Department for Communities and Local Government, July 2021.

2 SITE LOCATION AND SETTING

This section presents a summary of the site location and setting. A detailed description can be found in the previous report. Where changes have been identified, these have been noted.

2.1 Site Location

The site is located on the southern side of Harrisons Lane. The site location is presented in Figure 1.

The site is irregular of shape and covers approximately 7.5 hectares. Access to the site is via a Loam Pit Lane. At the time of the work, the site was composed of three fields and five disused poultry sheds. The former poultry sheds are located within the southern end of the site. The sheds are of wooden construction with sloping corrugated cement bonded sheeting roofs. The sheds are generally surrounded by areas of concrete hardstanding that is locally in a poor state of repair and grassed soft landscaping. Fragments and sheets of corrugated cemented bonding sheeting are present at the surface surrounding the sheds. The report prepared by ASL recorded two above ground fuel storage tanks (AST) being present in this portion of the site. At the time of the work undertaken by Brown 2 Green Associates these tanks had been removed. A small area that was used for burning was also noted. This area contained fragments of tiles suspected to contain asbestos.

The topography of the site slopes down towards the north-east.

2.2 Historic Land Use

The Desk Study identified that the site had been used as a farm in the past. The poultry sheds located within the southern end of the site were constructed in the late 1960's or early 1970's.

2.3 Geology and Hydrogeology

The British Geological Survey website indicates that the site is underlain by the following geology:

Drift/Solid	Geological Unit	Description	Aquifer Classification
Drift/Superficial	Lowestoft Formation	Diamicton	Secondary (undifferentiated)
Solid	Bagshot Formation	Sand	Secondary (A)

There are no licensed groundwater abstractions within 1km radius of the site. There are no Source Protection Zones within the vicinity of the site.

Discussions with the owner of the farm house confirmed that north of the site there is an old well. In the well groundwater is located approximately 30m below ground level.

2.4 Hydrology

The nearest surface water feature is a spring located 24m to the south which discharges into a pond located further to the south.

There are no licensed surface water abstraction points within 500m radius of the site.

The database indicates that the site does not lie in a fluvial or tidal floodplain.

2.5 Industrial Setting

The Desk Study identified a horticultural nursery located 26 m to the south-west that would present a risk to the subject site.

3 PREVIOUS CONTAMINATION ASSESSMENT

As part of the site investigation undertaken by ASL a contamination assessment was undertaken. The investigation consisted for the drilling of a series of boreholes and the excavation of trial pits. The sample locations were across all of the subject site. Gas monitoring wells were installed and three gas monitoring rounds were undertaken. Samples of the soil were subjected to laboratory analysis for bulk chemistry and leachate testing.

The gas monitoring recorded levels of methane, carbon monoxide and hydrogen sulphide below the instrument detection limits. Carbon dioxide was recorded at concentrations between 0.9% by volume (v/v) and 9.5% v/v. Oxygen was recorded at concentrations between 10.5% and 20.7% v/v. Average flow rates were generally recorded as zero during the monitoring programme with the exception of WS109 during the first monitoring event where an average flow rate of 0.5l/hr was recorded. A review of the results was undertaken in accordance with Annex F of BS 8485 – Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. The review has identified that at the time of monitoring the well (WS109) was flooded with the response zone below groundwater level. It is likely that this flow is the result of a vacuum being created during the monitoring programme or pressure building up within the well, as groundwater rises. The ground gas risk assessment prepared by ASL concluded that due to a carbon dioxide level exceeding 5%v/v, the site should be classified as CS2 and gas protection measures are required in the southern part of the site. During the risk assessment no consideration of site-specific condition or the conceptual model have been given.

The human health risk assessment based on the soil samples did not identify any concentrations of determinants that were above the generic risk assessment criteria (residential with plant up take) that were adopted. As part of the laboratory analysis a single fragment of cement sheeting that was identified close to one of the boreholes that was located within the poultry sheds was analysed for asbestos. The laboratory analysis confirmed the fragment did contain asbestos. No loose asbestos fibres were identified within the soil samples. The report concluded that the presence of asbestos at the surface in the poultry shed portion of the site may pose a risk to human health at the proposed development and during the development works. Removal of the fragments was required.

The leachate samples recorded exceedances of the UK Drinking water standards in concentrations of phenol and TPH. ASL concluded that based on the environmental sensitivity of the site and the nature of the identified contamination, the potential risk to controlled waters is considered to be very low if not negligible. No further assessment of the potential risk to controlled waters is considered necessary. No remediation of soils to be protective of controlled waters is considered necessary. From the remove of the information by Brown 2 Green Associates, Brown 2 Green Associates agree with this conclusion.

Within the geological log for WS111 hydrocarbons odours were noted between 0.3 and 1.45m. The laboratory analysis of the soil sample from this zone did not record any significantly elevated concentrations of hydrocarbons.

4 CONTAMINATED LAND INITIAL CONCEPTUAL MODEL

Brown 2 Green Associates Ltd has revised the Conceptual Model based on the findings of the previous works to identify potential sources, migration pathways and receptors within the study area. Assuming there is an active pollution pathway linkage between the source and receptor an assessment has been made of the level of risk. The level of risk is a consideration of both:

- the likelihood of an event (probability) [takes into account both the presence of the hazard and receptor and the integrity of the pathway]; and
- the severity of the potential consequence [takes into account both the potential severity of the hazard and the sensitivity of the receptor].

The classifications of the likelihood of an event occurring based on C552 CIRIA, 2001² are presented below:

Likelihood		Definition
High Likelihood	> 90% of hazard receptor linkage	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor that there is harm or contamination
Likely	45-90% of hazard receptor linkage	There is a pollution linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term
Low likelihood	10-50% of hazard receptor linkage	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	10% of hazard receptor linkage	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The classifications of the severity of an event are presented below:

Severity	Category	Definition	Examples
Severe: It is likely that the hazard source could cause harm to a designated receptor and harm would be significant.	Humans	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA.	High concentrations of cyanide on the surface of an informal recreation area.
	Controlled Water	Short term risk of pollution of sensitive water resource.	Major spillage of contaminants from site into controlled water.
	Property	Catastrophic damage to building or property	Explosion causing building to collapse.
	Ecological systems	A short term risk to a particular ecosystem, or organism forming part of such an ecosystem.	Loss of ecosystem.
Medium: It is possible that the hazard source could cause harm to a designated receptor, but it is unlikely that the harm would be significant	Humans	Chronic damage to human health ("significant harm" as defined in the DETR, 2000).	Concentrations of a contaminant from site exceeds the generic, or site specific assessment criteria
	Controlled Water	Pollution of sensitive water resources.	Leaching of contaminants from a site to a Principal Aquifer.
	Ecological systems	A significant change in a particular ecosystem, or organism forming part of such an ecosystem.	Death of a species within a designated nature reserve.

² Contaminated land risk assessment. A guide to good practice (C552), D J Rudland, R M Lancefield and P N Mayell.

Severity	Category	Definition	Examples
Mild: It is possible that the hazard source could cause significant harm to a designated receptor, however it is likely to be mild	Controlled Waters	Pollution of non-sensitive water resource.	Pollution of non-classified groundwater
	Property	Significant damage to buildings/structures and crops ("significant harm" as defined in the DETR, 2000). Damage to sensitive buildings/structures or the environment.	Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor: The potential hazard source cannot cause significant harm to the receptor.	Financial or project	Harm, although not necessarily significant harm, which may result in a financial loss, or an expenditure to resolve.	
	Humans	Non-permanent health effects to human health (easily prevented by means such as Personal Protective Clothing, etc).	The presence of contaminants at such concentrations that protective equipment is required during site works.
	Property	Easily repairable effects of damage to buildings/structures	The loss of plants in landscaping scheme. Discolouration of concrete.

The comparisons of Likelihood against Severity are presented below:

		Severity			
		Severe	Medium	Mild	Minor
Likelihood	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

The potential consequences of risk classifications are presented below:

Very High Risks	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risks	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risks	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Moderate / Low Risks	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be medium to mild and professional judgement is required. Some remediation works may be required in the long term where high sensitivity receptors are involved.
Low Risks	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risks	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

4.1 Potential Sources of Contamination

On-site Potential Sources

Based on the findings of the site walk-over and the desk study information review the following potential on-site sources of contaminants that may plausibly impact the site were identified:

- Ground gas beneath southern end of the site.
- Fragments of cement sheeting that contain asbestos identified between the poultry sheds.
- Fragments were only identified across the ground surface and no loose fibres were identified.
- Fragments of tile within burning area suspected to contain asbestos.

Off-site Potential Sources

Based on the findings of the site walk-over and the information review no potentially significant off-site sources of ground contamination have been identified within a 250m radius of the subject site that may plausibly result in impact to the site.

4.2 Potential Pathways

Plausible pathways identified for each contaminant at are presented in the initial conceptual model detailed overleaf.

4.3 Potential Receptors

Brown 2 Green Associates Ltd has identified the following possible receptors:

- Human health - future users of the site (residential with private gardens).
- Human health - construction workers
- Controlled water (groundwater and surface water).
- Buildings and construction materials (concrete).
- Water supply pipework.

4.4 Discussion of Potential Pollutant Linkages

Potential pollution linkages identified are presented in the initial conceptual model detailed overleaf.

Initial Conceptual Model and Risk Assessment

<i>Potential Contaminant</i>	<i>Potential migration pathway</i>	<i>Potential Receptors</i>	<i>Probability of Risk</i>	<i>Severity</i>	<i>Risk Classification</i>	<i>Comments Active/Inactive</i>
On-site Sources						
Asbestos containing fragments of cement sheeting	Inhalation of fibres.	Future site users and construction workers	Likely	Severe	High	Potentially active with the part of the site currently used as a poultry farm. All fibres are sealed within cement-based matrix and thus the level of risk is low. Should damage occur during the development of the site the level will be increased. Remediation required to mitigate the level of risk.
Ground gas (carbon dioxide)	Through soil.	Future users and buildings	Low	Medium	Moderate to Low	Additional gas monitoring and revised risk assessment required.

5 SITE INVESTIGATION

5.1 Exploratory Fieldwork

Exploratory fieldwork was completed on 22nd November and 25th November 2021. The work consisted of the drilling of 11 (no) window sample boreholes (WS201 to WS211), the excavation of 10 (no.) trial pits (TP201 to TP210) and the collection of bulk samples (CBR1 to CBR20) of the soil for laboratory recomacted CBR testing.

The sample locations were determined to provide a general assessment of the ground quality beneath the site and the rational listed in the table below. The sampling locations are illustrated in Figure 2.

Sample Location	Rational/Potential Source Area
WS201, WS202, WS203	Assessment of soft spot located in BH104. WS201 installed as a gas monitoring well.
WS204	Installed as a gas monitoring well
WS205, WS206, WS208	Assessment of soft spot located in BH102. WS205 installed as a gas monitoring well.
WS207, WS209, WS211	Installed as a monitoring well
TP204	Potential asbestos and burning area
TP202	Assess potential hydrocarbons noted in geological log prepared by ASL for WS111.

Soil samples destined for chemical testing were collected in laboratory prepared jars. Samples for organic analysis were placed in amber glass jars, samples for volatile analysis in vials with septums and samples for inorganic analysis in plastic tubs. During the site works recovered soils were geologically logged by an experienced Geo-environmental Engineer. The geological logs are presented in Appendix IV.

On completion of the drilling the boreholes (WS201, WS204, WS205, WS207, WS209 and WS211) each borehole was converted to monitoring wells using 63 mm HDPE solid and slotted casing and well screening. Each well was sealed and equipped with a gas valve. The installation details are presented with the geological logs in Appendix IV.

To provide additional information on soil gas levels (methane, carbon dioxide and oxygen) each monitoring well was sealed and equipped with the gas valve. Four additional gas monitoring visits were completed using a calibrated Gas Data GFM435 landfill gas analyser. Atmospheric pressure and temperature, differential pressure and flow rates were also recorded. The wells were also screened for hydrocarbon vapours using a PID.

In-Situ Standard Penetration Testing (SPT)

In-situ geotechnical testing was carried out in all exploratory hole locations to provide information on the geotechnical properties of the soils.

California Bearing Ration (CBR)

Bulk samples were obtained for laboratory CBR tests. Samples were obtained at 0.7m, typical formation level.

Laboratory Testing

Selected samples were submitted to Soil Property Testing where the following geotechnical tests were undertaken:

Atterburg Limits Determinations;
Natural moisture content; and
Re-compacted Soaked California Bearing Ratio (CBR) determinations.

5.2 Chemical Analysis

Additional soil samples were obtained and submitted to Eurofins/Chemtest Ltd of Newmarket, Suffolk. The chemical analysis was carried out under UKAS/MCERTS accreditation protocols. Sample analysis was undertaken to provide information for waste disposal. In addition, a sample from TP202 was analysed for Total Petroleum Hydrocarbons to again assess the hydrocarbon that were noted by ASL. Two additional samples were also analysed for asbestos quantification. Within the burning area, fragments of tiles were noted. A sample of the tile was also submitted to asbestos determination.

6 RESULTS

6.1 Summary of Site Investigation Observations

Ground Conditions

During the site investigation similar geological strata were identified. The geological logs are presented in Appendix IV.

Top Soil

The site is underlain by between 0.3m and 0.5m of top soil consisting of dark brown and grey, slightly gravelly, slightly silty clay. The gravel being fine to coarse or subround chalk and occasional flint.

Superficial Deposits

The top soil is underlain by yellow brown and mottled grey, slightly sandy, slightly silty, gravelly clay. The gravel being fine to coarse angular to subangular and round chalk and occasional flint. Beneath the southern portion of the site, occasional thin sand horizons were identified. From approximately 1.5m, the gravelly clay becomes firm to stiff and blueish grey in colour.

Solid Geology

The solid geology was not encountered during the site investigation.

Groundwater Conditions

During the drilling and trial pitting groundwater was identified within the boreholes and trial pits excavated within the south part of the site (the land current developed with the poultry sheds. Groundwater was recorded at approximately 0.2m below ground level. It is suspected that the groundwater is perched in the weathered zone, above the firm to stiff gravelly clay. All other boreholes and trial pits were dry.

6.2 Geotechnical Laboratory Results

The geotechnical testing of the samples was undertaken by Soil Property Testing Ltd under UKAS accreditation. The test certificates are included in Appendix V.

6.3 Chemical Laboratory Results

The chemical analysis of the soil samples was undertaken by Eurofins/Chemtest Ltd of Newmarket under MCERT and UKAS accreditation. The test certificates are included in Appendix VI.

6.4 Gas Monitoring

Four ground gas monitoring visits have been completed. The results of the ground gas monitoring are presented in Appendix VII and summarised below.

	Methane %v/v	Carbon Dioxide % v/v	Oxygen % v/v	Flow (l/hr)
WS201	0.0	0.0 – 0.7	18.5	0.0
WS204	0.0	0.0 – 0.9	17.6	0.0

	Methane %v/v	Carbon Dioxide % v/v	Oxygen % v/v	Flow (l/hr)
WS205	0.0	0.0	19.7	0.0
WS207	0.0	0.0 – 1.0	18.0	0.0
WS209	0.0	0.0 – 0.4	19.9	0.0
WS211	0.0	0.0 – 5.2	17.8	0.0

During the first monitoring round, carbon dioxides level greater than the instrument detection limit were identified. During all subsequent visits the concentrations of carbon dioxide were all 0.0% v/v.

7 GEOTECHNICAL ASSESSMENT

7.1 Proposed Development

The proposed development comprises residential development with conventional domestic houses and associated infrastructure. Details of the proposed loadings are not known and therefore a line loading of 50kN/m has been assumed for preliminary assessment purposes based on experience with similar schemes.

Given the nature of the proposed development it is considered that the structure meets the criteria of Geotechnical Category 1 of Euro Code 7.

Given the nature of the development it is considered that acceptable risk from settlement is a total settlement value of 25mm for a masonry structure.

7.1 Ground Conditions

The ground conditions consist of topsoil over firm becoming stiff with depth gravelly clay.

7.2 Site Preparation

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill;
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill; and
- Any redundant foundations should be grubbed out.

7.3 Foundations

During the additional investigation, the localised soft clay that were previously identified were not encountered.

Consideration has been given to the use of conventional strip foundations at the site. Based on the ground conditions encountered it is recommended that foundations found within the firm clay at a minimum depth of 1.0m bgl. At this depth an allowable bearing capacity of 100kN/m² may be used with settlements estimated to be less than 25mm.

No evidence of significant desiccation was noted.

Final foundation depths should be determined based on distance of foundations from trees in accordance with Chapter 4.2 of NHBC Standards based on soils of moderate shrinkage potential.

Foundations should also be locally deepened where soft clays be encountered.

7.4 Ground Floor Slabs

Suspended floor slabs are recommended.

7.5 Pavement Construction

An assessment of the likely California Bearing Ratio (CBR) have been assessed from the following sources:

Laboratory CBR tests;
Correlations with plasticity index from HD25/94; and
Description of the materials encountered in the exploratory holes.

Based on this it is considered that a CBR of 3% may be used.

Based on the plasticity data the soils are not considered frost susceptible in accordance with Road Note 29.

Following excavation, the sub formation should be proof rolled and any soft material inspected and removed.

7.6 Excavations

Site observations indicated that excavations should be feasible in the near surface with normal plant.

All excavations where access is required should be supported or battered back in accordance with guidance contained in CIRIA RR97.

7.7 Buried Concrete

Results of the sulphate analysis from the chemical tests undertaken as part of the previous investigation indicates that soils have soluble sulphate concentrations of less than 0.5 g/l consistent with DS1 Conditions. Taking account of groundwater conditions and pH it is considered that buried concrete maybe designed to meet the requirements of AC-1s.

8 CONTAMINATED LAND RISK ASSESSMENT

8.1 Human Health

8.1.1 Approach

Brown 2 Green Associates Ltd has undertaken a Tier 1 Human Health Risk Assessment to determine if any potential contaminants within the underlying soil pose an unacceptable level of risk to the identified human health receptors.

At a Tier 1 stage the long term (chronic) human health toxicity of the soil has been assessed with reference to Generic Assessment Criteria (GAC) detailed in Nathanail, C. P., McCaffrey, C., Gillett, A. G., Ogden, R. C. and Nathanail, J. F. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham (Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3086). If no generic GAC (CIEH/LQM) is available, reference has been made to Category 4 Screening Values or GAC have been determined by Brown 2 Green Associates Ltd using CLEA 1.06 with adjustments based on input data used in the calculation of Category 4 Screening Values.

For the assessment of risk to human health from groundwater a qualitative risk assessment has been undertaken. Within this section we have only considered the risk to users of the site. An assessment of risk to human health beyond the boundaries of the site is considered as part of the risk to controlled waters.

8.1.2 Risk from Soil

Risk to Future Site Users

For the purposes of the Tier 1 assessment Brown 2 Green Associates Ltd have initially compared the additional laboratory test results for bulk chemistry directly to the relevant Brown 2 Green Associates Ltd Tier 1 human health screening criteria for residential with plant uptake end use with a soil organic matter content of 1%. None of the results exceed the GAC. As all of the results are below their respective GAC, it is considered that soils at the site will not pose an unacceptable level of risk to human health of the future residents.

Asbestos was not identified in any of the soil samples submitted for screening analysis.

Risk to Construction Workers

In respect to the risk to construction workers, this report and the generic assessment criteria (GAC) consider long term and chronic risk to humans based on defined exposure scenarios set out in the CLEA model. In some cases, contaminants may also pose acute hazards to workers at a site, or a worker's exposure scenario may differ from the scenarios considered when deriving the GAC. As exposure times for construction workers are generally short term, risks from site contamination are generally addressed through the use of appropriate working procedures and the use of personal protective equipment (PPE) in line with the Management of Health and Safety at Work Regulations (1999), Construction (Design) Management Regulations (2007) for some sites and the Control of Substances Hazardous to Health Regulations (2002).

8.1.3 Risk from Asbestos Containing Materials

Fragments of cement based asbestos containing materials were observed across the ground surface

within the land that contains the poultry sheds. It is suspected that the source of these fragments is damage to the sheds. No loose fibres or fragments of ACM were identified within the soil or buried at depth.

For the assessment of risk to future site users from the fragments of cement sheeting to future site users reference has been made to The Decision Support Tool for the Qualitative Risk Ranking of Work Activities and Receptors Involved in or Exposed to Asbestos in Soil and Construction & Demolition Materials (CL:AIRE Version 2.1, March 2017). For the assessment it has been assumed that minor damage to the fragments of ACM will occur resulting in the release of fibres. The tool indicates the following:

Hazard ranking: Very Low (3);
Exposure ranking: Low (5);
Receptor ranking: High (7);
Combined hazard, exposure and receptor ranking: Low;
Pathway ranking: Medium (4D);
Overall ranking: Low.

A copy of the assessment is presented in Appendix VIII.

From the results of the site investigation and assessment of risk using the CL:AIRE Model Qualitative Risk Ranking, it is considered that the risk to future site users from the asbestos present within the fragments identified across the ground surface is Low. The ranking of the receptor has been identified as high.

In respect to the risk to construction workers excavation activities will need to be undertaken. The results from the CL:AIRE Decision Support Tool for the Categorisation of Work Activities Involving Asbestos in Soil and Construction and Demolition Materials in accordance with the Control of Asbestos Regulations 2012 (Version 2.1, March 2017) (Joint Industry Working Group (JIWG)) are as follows:

Hazard ranking: Very low (5);
Exposure ranking: Low (8);
Combined hazard and exposure ranking: Low (13).

A copy of the assessment is presented in Appendix VIII.

During the construction activities, the fragments of asbestos containing materials may be damaged and loose fibres may be created. The assessment completed by Brown 2 Green Associates is based on typical construction site activities such as the excavation of the soil and the movement of plant and machinery. It does not consider the screening and crushing activities. Therefore, during the construction phase, as required by the Management of Health and Safety at Work Regulations (1999), Construction (Design) Management Regulations (2007) and the Control of Asbestos at Works Regulations (2012) risk assessments should be completed to determine the level of risk from all project specific construction activities.

8.1.4 Risk from Groundwater

As no pollution linkages have been identified, it is considered contamination in the groundwater beneath the site will not pose an unacceptable level of risk to human health.

8.2 Ground Gas

Based on the results of the additional gas monitoring undertaken and the review of the results of the gas monitoring undertaken by ASL, a revised ground gas risk assessment has been prepared. The potential impact on the development (human health and buildings) from biogenic ground gases has been assessed with reference to standards and guidelines published in CIRIA Report 665 (Assessing risks posed by hazardous ground gases to buildings, 2007).

In accordance with the methodology outlined within the CIRIA publication C665, Brown 2 Green Associates Ltd have utilised the results of the ground gas monitoring surveys to calculate a Gas Screening Value (GSV) for the proposed development. The GSV has been compared to the criteria outlined within CIRIA C665 to determine the level of risk to the proposed development and to ensure the appropriate remedial options are incorporated into the building design. The results are presented in Appendix VII.

Based on the classification scheme proposed by CIRIA Report 665, the Gas Screening Values (GSV) for methane and carbon dioxide detected across the site would be classified as Characterisation Situation (CS) 1, which for any new developments current guidance suggests that no special gas protection precautions are required. Again, carbon dioxide levels were identified at concentrations slightly above the typical values for site classified as CS1. As required by the guidance consideration has been given to up-grading the site to CS2. However, it is considered that the site should remain as CS1 for the following reasons.

The desk study did not identify any sources that would result in the generation of significant volumes of ground gas. The source of the carbon dioxide that has been detected is considered to be the weathering of the chalk gravel that is contained within the gravel clay identified beneath the site. The drilling of the boreholes and installation of the monitoring wells will penetrate trapped pockets of carbon dioxide, there were identified during the first visit. The first monitoring round purged these concentrations of carbon dioxide from the wells; hence no carbon dioxide was recorded during subsequent visits. It is therefore considered that the weathering of the chalk gravel will not act a major source for the generation of significant volumes of carbon dioxide that would pose an unacceptable level of risk.

No flows were recorded during the monitoring completed by Brown 2 Green Associates. The flows that were recorded by ASL were artificial and were either the result of the monitoring undertaken or the rise in groundwater levels within the monitoring well that recorded flow. This well was also flooded when monitoring. As no flows are present there is a lack of flux to result in migration of ground gas.

Based on the findings of the revised ground gas risk assessment it is considered that the site should be classified as CS1 and no gas protection measures are required.

8.3 Risk to Controlled Water

To assess risk to controlled waters from the leaching of determinants from soil, a Qualitative Risk Assessment has been made based on the concentrations identified within the soil samples and site conditions. From the results it is considered that concentrations will not be mobilised at concentrations that would pose an unacceptable level of risk to controlled waters.

8.4 Risk to Planting

An assessment of risk to from potentially phytotoxic metal compounds has been completed. In the absence of published assessment criteria specifically for contaminated land, GAC have been obtained from legislation (UK and European) and guidance related to the use of sewage sludge on agricultural fields.

For the assessment values defined in The Sludge (use in Agriculture) Regulations 1989 (Public Health England, Wales and Scotland), as amended in 1990 and The Sludge (use in Agriculture) Regulations (Northern Ireland) SR No, 245, 1990 have been adopted. In addition the Department of Environment (DoE) produced a Code of Practice (CoP) (Updated 2nd Edition) in 2006 which provided guidance on the application of sewage sludge on agricultural land. The specified limits of concentrations of selected elements in soil are presented in the 2nd Edition of the DoE Code of Practice and are designed to protect plant growth.

As all concentrations are below their respective assessment criteria, it is considered that the concentrations of phytotoxic metals are not at levels that would pose an unacceptable level of risk to planting.

8.5 Risk to Construction Materials

The assessment of the risk to concrete from the concentrations of sulphate and the pH in the soil has been made using BRE guidance Special Digest 1:2005 Concrete in Aggressive Ground.

Following the guidance set out in the Digest, the Design Sulphate class for the site is DS-1 and the Aggressive Environment for Concrete Class is AC-1. Based on the results of the assessment it is considered that the made ground beneath the site will not pose an unacceptable level of risk to concrete through acid attack.

8.6 Risk to Water Supply Pipe

The assessment of risk to pipe work used in the potable water supply has been made using UK Water Industry Research (UKWIR) "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites" (Ref 10/WM/03/21)" January 2011 and supplement "Contaminated Land Assessment Guidance" dated January 2014. The results from samples of made ground (through which any new water supply pipes are likely to pass) have been compared with the threshold values listed in the UKWIR guidance. It should be noted that the threshold values are for use by designers in the selection of appropriate pipe materials. Exceedance of a threshold value indicates only that there could be a 'water quality issue'. Threshold values are generally protective of taste and odour quality of water in plastic water pipes and only threshold values for benzene and MTBE are protective of human health.

Beneath the site the results indicate that concentrations are at levels that enable PE/PVC pipe work to be adopted. It is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

8.7 Risk to Sensitive Ecological Receptors

As no receptors were identified, it is considered that contamination will not pose an unacceptable risk to ecological receptors.

8.8 Risk to Historical Structures and Monuments

As no receptors were identified, it is considered that contamination will not pose an unacceptable risk to historical structures and monuments or sites of historical interest.

9 REVISED CONCEPTUAL MODEL

In light of the results of the site investigation, results of the chemical analysis and the risk screening assessment presented in the previous sections the conceptual model developed has been updated. The conceptual model is presented below.

Source	Potential migration pathway	Potential Receptors	Discussion, Remedial or Precautionary Measures and Mitigating Factors
Fragments of cement sheeting that contain asbestos	Inhalation of fibres	Residents and construction workers	Future residents are low risk, but receptor sensitivity considered to be high. Remediation should consist of the removal of the fragments of asbestos containing cement based product identified across the ground surface within the land containing the poultry houses.

10 RE-USE OF SOILS AND WASTE CLASSIFICATION

10.1 Reuse of Suitable Soils

In accordance with the definition of waste detailed in the Waste Framework Directive, waste materials are considered to be 'materials that are discarded, intended to be discarded or required to be discarded, by the holder'. Thus, soils that are not of clean and natural origin, i.e. made ground (whether contaminated or not) and other materials such as recycled aggregate, do not become waste until the aforementioned criteria are met. Naturally occurring soils are not considered waste if re-used on the site of origin for the purposes of development.

The Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011) (CoP) was developed in consultation with the Environment Agency to enable the re-use of soils that would be classified as waste. To enable the soils to be re-used certain re-use scenarios must be present. These being:

- Re-use on the site of origin (with or without treatment);
- Direct transfer of clean and natural soils between sites; and
- Use in the development of land other than the site of origin following treatment at an authorised Hub site (including a fixed Soil Treatment Facility).

The importation of made ground soils (irrespective of contamination status) or crushed demolition materials is not currently permitted under the CoP.

For waste soils to be used on development site, four factors are considered to be of particular relevance in determining if the soil is a waste or when it ceases to be waste:

- When the soil is reused it will not create an unacceptable risk of pollution of the environment or harm to human health. If so, it is still waste;
- There is certainty that the soil will be used;
- The soil is suitable for use both chemically and geotechnically; and
- Only the required quantity of soil will be used.

The CoP requires the preparation of a materials management plan (MMP) that confirms the above factors will be met. This plan needs to be reviewed by a 'Qualified Person' (QP) who will then issue a declaration form to the EA. As the project progresses, data must be collated and on completion a verification report produced that shows the MMP was followed and describes any changes. The MMP establishes whether specific materials are classified as waste and how excavated materials will be treated and/or re-used in line with the CoP. The MMP is likely to form part of the site waste management plan.

As the site has not been previously developed all excavation works are expected to generate only clean and naturally occurring soils. Under the Waste Framework Directive naturally occurring soils are not considered waste if re-used on the site of origin. However, if it is proposed to import clean and naturally occurring soils direct from another site, an MMP would need to be in place at the receiving site.

10.2 Waste Classification

The classification of waste soil is a two-stage process, the first being an assessment of whether the soil is considered hazardous or not following the guidance within EA Technical Guidance WM2 – Guidance on the Classification and Assessment of Waste. The assessment is based on the bulk

chemistry of the soils and contamination levels that are present. If the soil is deemed to be hazardous then the measurement of the organic contaminants and the leachable inorganic contaminants is necessary for comparison with values listed (Table 5.1) in the EA publication *Guidance on sampling and testing of wastes to meet landfill acceptance procedures*. The results of Waste Acceptance Criteria (WAC) testing must then be reviewed to establish if the soil is acceptable at the relevant class of landfill or requires pre-treatment to reduce specific hazardous properties. Similarly, should the soil be deemed as non-hazardous then such testing may be undertaken to determine is soil can be classified as inert waste.

The WM2 guidance also provides details of the European Waste Catalogue (EWC) code that should be applied. Group 17 of the EWC codes comprises of 'Construction and Demolition Wastes (including excavated soils from contaminated sites)'. Soils will generally be classed as either 17 05 04 which is defined as 'soil and stone (other than those mentioned in 17 05 03); or 17 05 03 which is defined as soil or stone containing dangerous substances.

As the contamination data shows the soils to be below the GAC for residential use the site can be considered 'uncontaminated land.' Surplus soils should be considered non-hazardous or inert under WMP2 as it does not contain 'hazardous material' and have an EWC code of 17.05.04.

The results of the WAC analysis indicate the soil should be classified as inert waste.

All materials that contain asbestos will be classified as Hazardous Waste.

Some landfill sites have licences that place restrictions on the concentrations of contaminants within soil that can be acceptance. Landfill sites are under no obligation to accept waste if they choose not to and waste operator may also require additional testing. Landfill sites are also required to undertake further testing of wastes that they receive to ensure they comply with the requirements of their licences.

11 GEO-ENVIRONMENTAL CONCLUSIONS AND RECOMMENDATIONS

11.1 Conclusions

The Tier I Human Health Risk Assessment has determined that there are no concentrations of potential contaminants within the underlying made ground and natural soils that would pose an unacceptable risk to human health of future site occupants and users. Fragments of cement-based product that contain asbestos were identified across the ground surface within the part of the site that contains a series of poultry sheds located within the southern part of the site. In their current form it is considered that the level of risk is very low. However, should made to the fragments occur and fibres are released the level of risk would be increased to low. The receptor sensitivity is considered to be high; it is therefore considered that the level of risk to human health is unacceptable and remediation is required.

The Tier I Controlled Water Risk Assessment has determined that there are no concentrations of potential contaminants within the underlying soils that would pose an unacceptable risk to controlled waters.

The monitoring and risk assessment for bio-genic ground gas concluded that there are no concentrations at levels that would pose an unacceptable risk to human health and the proposed development.

The risk assessment in respect to the future planting and towards sensitive ecological receptors identified that the determinants at the site are at levels that would not pose an unacceptable level of risk to future planting and sensitive ecological receptors.

The risk assessment in respect to water supply infrastructure identified that the determinants at the site would not pose an unacceptable level of risk to the integrity of PE or PVC pipework.

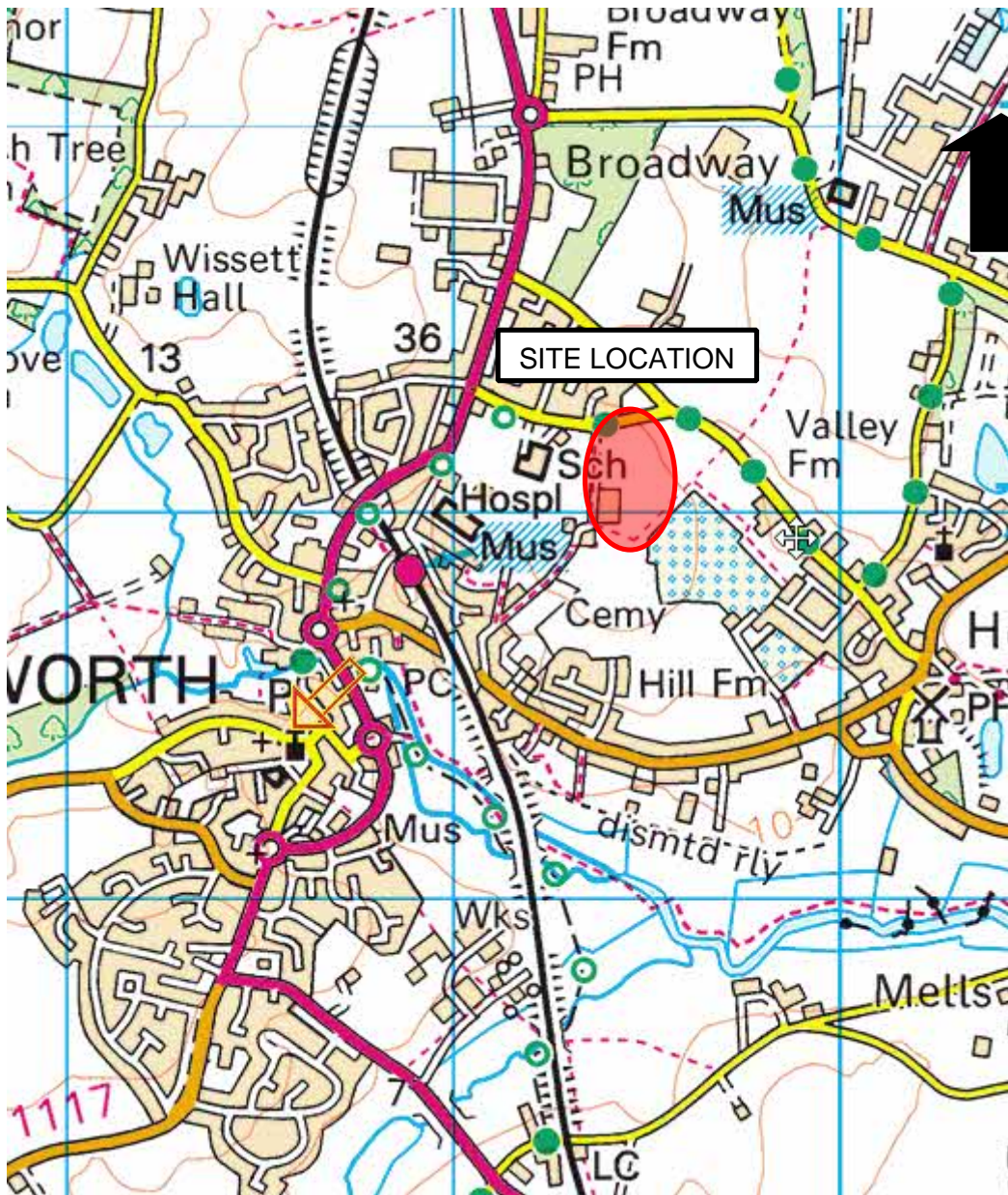
11.2 Recommendations

Based on the results of the site investigation the following recommendations are made:

To mitigate the future risk from the presence of asbestos within the fragments of cement-based asbestos containing materials it is considered that remediation is required. As the fragments are only present across the ground surface within the land currently occupied by the poultry sheds, it is recommended that there should be collect and removed from site. The most suitable methodology would be to hand pick the surface. This should be undertaken either immediately prior to or during the demolition of the former poultry sheds. Following the removal of the fragments verification of the area should be undertaken to provide confirmation that the fragments have been removed.

A Remediation Method Statement that details the proposed remediation strategy and the verification plan is contained in Appendix IX.


FIGURES



Based on an Ordnance Survey map with permission of HMSO. Crown copy right reserved. Licence number 100053399

Project Number: 2954	Project: Harrisons Lane, Halesworth	Scale: NTS
Figure 1	Site Location Plan	



Project Number: 2954	Project: Harrisons Lane, Halesworth	Scale: NTS
Figure 2	Exploratory Hole Locations Plan	

APPENDIX I
LIMITATIONS AND CONSTRAINTS

Brown 2 Green Associates Limited has prepared this report in accordance with our standard Terms and Conditions solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

Brown 2 Green Associates Ltd cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The client cannot place reliance on the report until full payment has been made. The copyright in this report and other plans and documents prepared by Brown 2 Green Associates Ltd is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of the report may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by Brown 2 Green Associates Ltd in this connection without their explicit written agreement thereto by Brown 2 Green Associates Ltd.

For the work, reliance has been placed on publicly available data obtained from the sources identified and data supplied by other parties. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information. Brown 2 Green Associates Ltd does not warrant work / data undertaken / provided by others.

Due to the short timescales associated with these projects responses may not have been received from all parties. Brown 2 Green Associates Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.

This report has been produced in accordance with UK policy and legislative requirements for land and groundwater contamination at the time the report was commissioned. Should changes in legislation or policy occur the report findings may need revisiting once the development layout is confirmed.

During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walk-over no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown or the location of the area has not been made known, or where access has not been permitted.

Access considerations, the presence of services and the activities being carried out on the site limited the positions where sampling locations could be installed and the techniques that could be used.

This report presents an interpretation of the geo-environmental information established by excavation, observation and testing. It should be noted that when investigating, or developing land it is important to recognise that sub-surface conditions may vary spatially and also with time. Groundwater conditions are dependent on seasonal and other factors. Consequently there may be conditions present not revealed by this investigation. The absence of certain ground, ground gas, and contamination or groundwater conditions at the positions tested is not a guarantee that such conditions do not exist anywhere across the site. Due to the presence of existing buildings and structures access could not be obtained to all areas. Additional contamination may be identified following the removal of the buildings or hard standing.

The scope of any investigation is based on the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.

Rather, this investigation has been undertaken to provide a characterisation of the existing sub-surface geo-environmental characteristics and make up and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

During any development programme Brown 2 Green Associates Limited should be consulted if alternative ground conditions are encountered. It assumes during any site works that the contractor will use their best endeavours to manage and control groundwater and other unforeseen ground conditions. Brown 2 Green Associates Limited will not be liable for actions taken prior to consultation.

Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and does not constitute or replace full and proper surveys.

APPENDIX II
PROPOSED DEVELOPMENT LAYOUT



- Key
- Application Site Boundary
 - Other land under the control of the applicant
 - Existing trees & hedgerow
 - Indicative planting
 - Existing water body
 - Proposed surface water attenuation basin
 - Anticipated emergency access
 - Activity Area
 - Single storey buildings

North Suffolk Skills Academy

Adjacent Emerging Proposals

Town Farm



Richborough Estates

nineteen47

CHARTERED TOWN PLANNERS & URBAN DESIGNERS

Project
Harrisons Lane, Halesworth

Drawing Title
Illustrative Layout

Project Code	Drawing Nr	Rev	Drawing Scale
n1142	004	D	1:1000 @ A2

APPENDIX III
PREVIOUS SITE INVESTIGATION REPORT PREPARED BY ASL



GROUND INVESTIGATION
LAND OFF HARRISONS LANE
HALESWORTH

Prepared for: Richborough Estates Limited

ASL Report No. 450-18-087-10

August 2019

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GROUND INVESTIGATION
LAND OFF HARRISONS LANE
HALESWORTH

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- II Field Records
- III Chemical Laboratory Test Results
- IV Geotechnical Laboratory Test Data
- V Qualitative Risk Assessment



GROUND INVESTIGATION
LAND OFF HARRISONS LANE
HALESWORTH

1 INTRODUCTION

In January 2019, ASL were instructed by Richborough Estates Limited to undertake the necessary ground investigation and consultancy services associated with the proposed development of the site known as Land off Harrison's Lane, Halesworth.

A ground investigation is required in order to determine the contaminative and geotechnical properties of the ground conditions at the site ahead of its proposed development. It is understood that the proposed development comprises the construction of residential dwellings with associated areas of hardstanding for access and parking and soft landscaping for gardens and public open space including sustainable urban drainage features. A proposed illustrative masterplan is presented as Appendix I.

ASL has previously undertaken a Desk Study report of the site (report reference 450-18-087-11, dated February 2019). This report assessed the potential for environmental and geotechnical risk issues and liabilities pertaining to the future development of the site. Based on the findings of the desk study it was recommended that an intrusive ground investigation was completed ahead of any development works to determine the founding properties of the underlying ground conditions and to determine the actual contaminative status of the site. In particular the central southern portion of the site in the vicinity of existing poultry farm was identified as potentially of concern. It was recommended that the intrusive investigation included an assessment of hazardous ground gas.

The scope of works for this project was set out in ASL's proposal reference 450-18-087.elo.2786 dated 24th January 2019 which was formally accepted by Richborough Estates Limited in their email dated 30th January 2019.

This report presents the results from an intrusive investigation and subsequent laboratory analyses and interpretative comment in terms of contaminative status and the geotechnical properties of the ground conditions encountered at the site in relation to the proposed development. This report should be read in conjunction with ASL's Desk Study Report.

This report has been prepared for the sole benefit of the client, Richborough Estates Limited and their representatives and agents. The report has been written based on the results of data searches and ground conditions encountered at the time of the investigation and the results of subsequent analyses and monitoring. Future changes in legislation and advances in current best practises or provision of more detailed design proposals will result in this report requiring review and possible further assessment after the date of issue. The general notes section within this report should be noted in relation to the limitations of this investigation and assessment.



2 THE SITE

The site is located to the south of Harrison Lane and to the east of Halesworth town centre. The site can be located approximately by National Grid Reference TM 394 780 as shown on Figure 1.

The site comprises an irregularly shaped piece of land with maximum dimensions of approximately 450m by 325m with the long axis aligned east to west and covering an area of approximately 8.6 hectares.

The site is separated into five areas as shown on Figure 2.

The first area named 'BN 1' occupies the north-west of the site. This portion of the site generally comprises a roughly rectangular shaped agricultural field with maximum dimensions of approximately 120m by 115m with the long axis aligned east to west. This portion of the site is generally flat lying and is separated from the remainder of the site by mature hedgerows including mature trees. The northern boundary is marked by sporadic trees. Access to this portion of the site is from Harrison Lane in the north-east via gaps in the trees.

The second and third areas named 'BN 2' and 'BN 3' occupy the central northern and north-eastern portions of the site. These areas are not separated by a physical boundary. The boundary between these areas is marked by overhead electricity cables supported on wooden poles that transect the site from north-north-east to south-south-west centrally. From here on these areas will be described together. This portion of the site generally comprises an irregularly shaped agricultural field with maximum dimensions of approximately 340m by 230m with the long axis aligned east-north-east to west-south-west. This portion of the site generally slopes down to the north-east with a maximum change in elevation of approximately 12m across this area. A possible borehole installation is present in the north-east corner of the site comprising a 50mm internal diameter slotted plastic well screen that protrudes from the ground surface. A second set of overhead power lines transect this portion of this area from north to south. A small area of hardstanding is present in the south-west corner of this field. A pond is located in the vicinity of the site boundary in the south-east of this area. The northern, eastern and southern boundaries are marked by mature hedgerows including mature trees. The western boundary is marked by an access roadway running south from Harrison Lane to area 'BN 5'.

The fourth area named 'BN 5' occupies the central southern portion of the site. This portion of the site generally comprises a rectangular shaped piece of land developed with a poultry farm. This portion of the site has maximum dimensions of approximately 105m by 75m with the long axis aligned approximately north to south. This portion of the site is generally flat lying. The site is occupied by five single storey wooden poultry sheds with sloping corrugated cement bonded sheeting roofs. The sheds are generally surrounded by areas of concrete hardstanding that is locally in a poor state of repair and grassed soft landscaping. Numerous fragments and sheets of corrugated cemented bonding sheeting are present at the surface surrounding the sheds.

Two above ground fuel storage tanks (AST) are present in this portion of the site comprising a metal disused AST and a newer plastic self-bunded AST. Further to this, bunds are present associated with each shed that may indicate that these structures formerly had their own heating oil AST. The sheds heating system appears to now be gas. Significant visual or olfactory evidence of contamination was not identified associated with



these structures. However, a barrel of oil was noted to be present with significant staining present at the ground surface in this area.

A wheel wash and a small waste burning area are present in the north-west of this area. The east of this area comprises an area of open space. A number of small ponds are present in this portion of the site.

This portion of the site is separated from the remainder of the site and the surrounding areas by mature hedgerows including mature trees.

The fifth area named 'BN 4' occupies the south-east of the site. This portion of the site generally comprises an irregularly shaped agricultural field with maximum dimensions of approximately 105m by 95m with the long axis aligned approximately east to west. This portion of the site generally slopes down to the east with a maximum change in elevation of approximately 2m across the site. Overhead electricity cables transect this portion of the site from north to south in the east that continue to area 'BN 3' to the north. This portion of the site is separated from the remainder of the site and the surrounding areas by mature hedgerows including mature trees.

The site is bound to the north by Harrisons Lane with residential dwellings and undeveloped agricultural land beyond, to the east by undeveloped agricultural land and a farm, to the south-west by Loam Pit Lane with a cemetery beyond, to the south by agricultural land with residential dwellings beyond, to the west by undeveloped agricultural land and a former educational facility. Drainage ditches are present in the majority of the site boundaries and within field boundaries separating the site into the five areas.

It is understood that the proposed development comprises the construction of residential dwellings with associated areas of hardstanding for access and parking and soft landscaping for gardens and public open space including sustainable urban drainage features. A proposed illustrative masterplan is presented as Appendix I.



3 ENVIRONMENTAL SETTING

The British Geological Survey (BGS) Sheet No. 176 'Lowestoft' Solid and Drift and the Geology of Britain Viewer indicates the majority of the site to be underlain by drift geology comprising cohesive deposits of the Lowestoft Formation. The north-east of the site is indicated to be underlain by granular deposits of the Lowestoft Formation. The Lowestoft Formation is generally described as 'forms an extensive sheet of chalky till, together with outwash sands and gravels, silts and clays. The till is characterised by its chalk and flint content'. The thickness of the Lowestoft Formation is not defined at the site by the BGS however this stratum is indicated to be highly variable in thickness.

Drift geology comprising Head is indicated to be present at the surface and overlying the granular Lowestoft Formation strata in the north-east corner of the site. The Head is generally described as 'polymict deposit: comprises gravel, sand and clay depending on upslope source and distance from source. Poorly sorted and poorly stratified deposits formed mostly by solifluction and/or hillwash and soil creep. Essentially comprises sand and gravel, locally with lenses of silt, clay or peat and organic material'. The thickness of the Head is not defined by the BGS at the site.

The Lowestoft Formation is indicated to be underlain by solid geology comprising gravels of the Crag Group. The Lowestoft Formation in the north-east of the site is indicated to be underlain by the Crag Group. The Crag Group is generally described as 'sands, gravels, silts and clays. The sands are characteristically dark green from glauconite but weather bright orange with haematite iron pans' by the BGS. The thickness of the Crag Group is not defined by the BGS at the site. However, this stratum is indicated to be of significant thickness in the vicinity of the site.

Significant areas of Made Ground are located at the surface in the vicinity of the site with the nearest located approximately 20m to the west and south-west. The Made Ground is generally described as 'landscaped ground (undivided)' or 'worked ground undivided (void)' by the BGS. The thickness of the Made Ground is not defined by the BGS.

In addition to the published geology, it is expected that Topsoil and locally Made Ground will be present at the surface or beneath hardstandings given the current use of the site.

There are seven BGS recorded mineral sites located within 0.5km of the site. The first listing relates to the open cast extraction of sand and gravel from the Lowestoft Group located approximately 25m to the north-east. The remaining listings relate to the open cast extraction of sand and gravel and locally clay from the Lowestoft Group and locally the Crag Group at distances greater than approximately 170m from the site.

The cohesive Lowestoft Formation and the Head deposits are classified by the EA as Secondary Aquifers - Undifferentiated. The granular Lowestoft Formation is classified by the EA as a Secondary Aquifer - A. The Crag Group is classified by the EA as a Principal Aquifer.

The nearest identified surface water feature is an unnamed stream located directly to the east of the north-eastern corner of the site. This surface water feature is not classified chemically or biologically by the EA in the vicinity of the site.

There is one abstraction from surface water located within 1.0km of the site. This listing relates to the abstraction of surface water for spray irrigation located approximately 200m to the south-east. It is noted that the license associated with this abstraction is listed as revoked.



There are twenty-eight abstractions from groundwater located within 1.0km of the site. The first three listings relate to the abstraction of groundwater for industrial process water located at distances between approximately 265m and 385m to the west. The licenses associated with these abstractions are listed as revoked. The fourth listing relates to an active abstraction of groundwater for potable supply located approximately 475m to the east. Of the twenty-three remaining listings, sixteen are for the abstraction of groundwater for potable supply with the closest located approximately 545m to the east. The remaining seven listings relate to the abstraction of groundwater for washing process water, spray irrigation and general commercial or industrial use located at distances greater than approximately 675m from the site.

The south of the site is located in a Source Protection Zone (SPZ) II (outer protection zone). Boundaries with SPZ I (inner protection zones) are located approximately 190m to the north-east and 335m to the south.

The site located in an area with limited potential for groundwater flooding to occur.

The site is indicated to be in a lower probability radon area and that new homes, or extensions do not require radon protection measures.



4 GROUND INVESTIGATION AND TESTING

4.1 Ground Investigation

The scope of works was defined for the project by ASL and comprised four cable percussion boreholes, eleven windowless sample boreholes, twenty mechanically excavated trial pits with soakaway testing undertaken in selected pits and seven insitu dynamic cone penetrometer (DCP) CBR tests. The intrusive investigation was designed to target identified potential sources of contamination and hazardous ground gas, to target the location of the proposed development and to give general site coverage to obtain information relating to the contaminative status of the site and the geotechnical properties of the underlying ground conditions. The positions of exploratory holes have been surveyed and plotted approximately on Figure 2.

The ground investigation was carried out in general accordance with BS5930 (2015) 'Code of Practice for Site Investigations' and BS10175+A2:2017 'Code of Practice for the Investigation of Potentially Contaminated Sites' and in accordance with current best practice.

The scope of works for the ground investigation was as follows:

- 4 No. cable percussion boreholes (BH) to a maximum depth of approximately 15m bgl;
- 11 No. windowless sample boreholes (WS) to a maximum depth of approximately 5.45m bgl;
- Insitu standard penetration tests (SPT) at regular intervals within all BH and WS;
- 20 No. machine excavated trial pits (TP) to a maximum depth of approximately 3.2m bgl;
- Installation of combined gas and groundwater monitoring standpipes in selected WS;
- Insitu soakage testing at selected trial pit locations;
- 7 No. insitu CBR tests completed by Dynamic Cone Penetration (DCP);
- Chemical and geotechnical laboratory testing;
- Gas and groundwater monitoring programme.

The ground investigation was undertaken between the 3rd and 25th June 2019. The intrusive investigation was supervised by suitably experienced geo-environmental engineers from ASL. The exploratory holes were logged by the supervising engineers and the logs are presented in Appendix II.

4.2 Soakaway Testing

Soakaway permeability tests were completed within selected mechanically excavated trial pits on 13th June 2019 in general accordance with BRE Digest 365. The soakaway tests were completed by filling the trial pits with clean water and monitoring the rate at which the water fell. Due to the rate of infiltration and the time constraints on the project, the soakage tests did not run to completion. The results of the soakaway testing are presented in Appendix II.

4.3 Gas and Groundwater Monitoring

A gas and groundwater monitoring programme comprising three monitoring events was completed between 10th and 24th July 2019. The monitoring events comprise level measurements of methane, oxygen, carbon dioxide, carbon monoxide, hydrogen sulphide,



relative and atmospheric pressure, gas flow rate and groundwater level. The results of the gas and groundwater level monitoring are presented in Appendix II.

4.4 Chemical Laboratory Testing

Selected soil samples were scheduled for chemical testing for a range of contaminants in order to determine the general contaminative status of conditions on the site.

The samples were scheduled for chemical laboratory testing for the following determinants:

Arsenic, Boron (water soluble), Beryllium, Cadmium, Chromium (total and VI), Copper, Cyanide (free and total) Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Poly-cyclic Aromatic Hydrocarbons (PAH) (16 No. speciated), Total Petroleum Hydrocarbons (TPH), pH, Phenols, Sulphate (soluble), Total Sulphur, Total Sulphate, fraction of organic carbon, Asbestos (Made Ground only).

Further to this, selected samples were scheduled for a suite of pesticides based on the findings of the Desk Study and for speciated TPH (CWG) based on visual and olfactory evidence of contamination. Further to this, a bulk fragment of cement bonded sheet collected from the ground surface in the vicinity of WS211 was scheduled for asbestos presence and identification.

Selected soil samples were scheduled for the following determinants in leachate:

Arsenic, Boron, Beryllium, Cadmium, Calcium, Chromium (total and hexavalent), Copper, Cyanide (free and total), Dissolved Organic Carbon, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, pH

The chemical testing is being undertaken by a UKAS accredited laboratory in accordance with the MCERTS accreditation where available.

The results of the chemical laboratory testing are presented in Appendix III.

4.5 Geotechnical Laboratory Testing

Geotechnical laboratory testing was completed on selected soil samples. The samples have been scheduled for Atterberg Limit testing to assess the volume change potential and material properties and sulphate testing to assess the concrete classification for the proposed development.

Additionally, selected samples were scheduled for particle size distribution (PSD) analysis.

The results of the geotechnical laboratory testing are presented in Appendix IV.



5 GROUND, GROUNDWATER AND GAS CONDITIONS

5.1 Materials Encountered

The published geology provided by the BGS indicates the majority of the site to be underlain by drift geology comprising cohesive deposits of the Lowestoft Formation with the north-east underlain by granular deposits of the Lowestoft Formation. Drift geology comprising Head is indicated to be present at the surface and overlying the granular Lowestoft Formation strata in the north-east corner of the site. The drift deposits are indicated to be underlain by solid geology comprising the Crag Group.

The intrusive investigation generally confirmed the published geology with generally cohesive and locally granular materials interpreted as the Lowestoft Formation encountered across the site. Drift deposits comprising Head and solid geology of the Crag Group were not encountered during the investigation. In addition to the published geology, a limited thickness of Made Ground, Made Ground Topsoil and Topsoil was encountered at the surface across the site. Table 1 presents a summary of the ground conditions encountered during the intrusive investigation. Full details are presented in Appendix II.

Table 1 Summary of Strata Encountered

Description	Top of Unit (m bgl)		Thickness of Unit (m)		SPT 'N' Value
	Min	Max	Min	Max	
Topsoil Soft dark brown slightly sandy slightly gravelly to gravelly silty CLAY. Gravel is angular to rounded fine to coarse flint, quartzite, coal and chalk.	0.00	0.00	0.25	0.40	None Taken
Made Ground (Topsoil) Dark brown slightly gravelly slightly clayey SAND. Gravel is subangular to rounded fine to coarse brick, chalk, flint, quartzite and coal; Soft dark brown and brown slightly gravelly slightly sandy to sandy silty CLAY with rare subrounded cobbles of quartzite. Gravel is angular to rounded fine to coarse brick, chalk, coal, wood, plastic and flint.	0.00	0.00	0.20	0.60	None Taken
Made Ground Soft to very stiff brown green grey, orange brown and yellow brown slightly gravelly to gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint, sandstone, plastic, chalk, coal, brick and quartzite.	0.25	0.40	0.20	0.55	None Taken
Lowestoft Formation Soft to very stiff orange brown, brown, green brown and grey sandy to very sandy gravelly silty CLAY with rare fragments of decomposing organic matter and rare to occasional decomposing roots and rootlets. Gravel is angular to rounded fine to coarse chalk, flint, siltstone, sandstone, shell fragments, charcoal and coal. Rare to occasional cobbles of sandstone, siltstone, chalk and flint and rare subangular boulders of siltstone. Localised hydrocarbon odour and staining; Medium dense to very dense light brown, green brown, yellow brown, orange brown and yellow slightly gravelly to gravelly clayey silty to very silty SAND with rare rootlets. Gravel is angular to rounded fine to coarse quartzite, chalk and flint; Dense light brown sandy slightly clayey angular to rounded fine to coarse GRAVEL of flint; Soft to firm cream, light brown and white slightly gravelly to gravelly slightly sandy to sandy SILT. Gravel is angular to subangular fine to medium chalk.	0.20	0.90	1.30*	14.70*	3 - >50

Notes: * = Base not proven



Ninety-five SPTs were completed within cohesive materials interpreted as the Lowestoft Formation that recorded SPT 'N' values of between 3 and >50 indicating typically medium to very high and locally low strength cohesive materials.

Ten SPTs were completed within granular materials interpreted as the Lowestoft Formation that recorded SPT 'N' values of between 21 and >50 indicating typically medium dense to very dense granular materials.

The SPT results are plotted versus depth on Figure 4.

Thirty-six hand shear vane tests were completed within the Lowestoft Formation at depths between 0.4m and 2.7m bgl that recorded results between 68kPa and >120kPa indicating medium to high strength cohesive materials.

Eleven samples of the cohesive materials interpreted as the Lowestoft Formation recovered from depths between 0.9m and 2.0m bgl were scheduled for Atterberg Limit determinations. The results of Atterberg limit testing indicate the materials tested to comprise clays of high plasticity with liquid limits of between 56% and 64%, plastic limits of between 20% and 24% and modified plasticity indices of between approximately 12% and 38% indicating the materials tested to be of medium to low volume change potential. Natural moisture contents of between 5.2% and 23% were recorded for the samples tested indicating that the materials tested to potentially be in a state of desiccation.

The results of the PSD analysis indicated the materials tested to comprise slightly gravelly slightly sandy silty clay.

The results of the geotechnical laboratory analysis are presented in full in Appendix IV.

5.2 Visual and Olfactory Evidence of Contamination

During the intrusive investigation, fragments of cement bonded sheeting, that may contain asbestos, were noted to be present at the surface in the vicinity of WS111. A sample of these fragments has been scheduled for laboratory analysis. It should be noted that further fragments of similar material have been noted to be present at the surface across the portion of the site developed with a poultry farm. Additionally, hydrocarbon odours were noted within the natural Lowestoft Formation materials at WS111 to a depth of 1.45m bgl. A slight hydrocarbon odour was noted between 0.3m and 0.65m bgl and a moderate hydrocarbon odour together with localised hydrocarbon staining was noted between 0.65m and 1.45m bgl.

The Made Ground and Made Ground (Topsoil) materials encountered across the site were noted to locally contain coal and charcoal fragments. Coal and charcoal are considered to be potential sources of longer chain polycyclic aromatic hydrocarbons (PAH) and longer chain aromatic total petroleum hydrocarbons (TPH).

Full details are presented on the exploratory hole logs in Appendix II.

5.3 Dynamic Cone Penetration Testing

Seven DCP tests were completed at the site. The results generally recorded CBR values between approximately 1.6% and 54.5% between ground level and approximately 0.9m bgl.

Full details are presented in Appendix II.



5.4 Soakaway Testing

Soakaway permeability tests were completed at TP107, TP111, TP113 and TP119 on the 13th June 2019. All four tests were completed within the natural materials interpreted as the Lowestoft Formation.

The soakaway permeability tests did not record significant infiltration at any of the test locations. The results of the permeability testing are presented in full in Appendix II.

5.5 Groundwater

During the intrusive investigation groundwater was encountered at WS101, WS108, WS110 and WS112 at depths between approximately 1.0m and 3.0m at WS112 and WS101 respectively.

During the subsequent monitoring programme groundwater was encountered within the monitoring installations at WS101, WS108, WS111 and WS112 during all three events and WS109 on the third event. Groundwater was recorded at depths between 0.43m and 2.17m bgl at WS111 and WS101 respectively.

Full details are presented in Appendix II.

5.6 Gas

As part of the monitoring programme below ground gas levels within monitoring standpipes were measured during three events completed between 10th and 24th July 2019. The results are presented in full in Appendix II.

Methane, carbon monoxide and hydrogen sulphide were not recorded in excess of the relevant analytical detection limits of the apparatus used during the monitoring programme.

Carbon dioxide was recorded in excess of the analytical detection limits of the apparatus used at all of the monitoring installations during the monitoring programme at concentrations between 0.9% by volume (v/v) and 9.5% v/v.

Oxygen was monitored above the analytical detection limits of the apparatus used at all monitoring installations during the monitoring programme at concentrations between 10.5% and 20.7% v/v.

Mean downhole pressures were generally recorded as zero during the monitoring programme with the exception of WS109 during the first monitoring event where an average downhole pressure of 1Pa was recorded.

Average flow rates were generally recorded as zero during the monitoring programme with the exception of WS109 during the first monitoring event where an average flow rate of 0.5l/hr was recorded.

The first monitoring event was completed during a period of standard atmospheric pressure between 1010mb and 1013mb. The second monitoring event was completed during a period of higher atmospheric pressure between 1016mb and 1019mb and the third monitoring event was completed during a period of lower atmospheric pressure between 1003mb and 1010mb.



6 GEOTECHNICAL ASSESSMENT

6.1 General

It is understood that the proposed development comprises the construction of residential dwellings with associated areas of hardstanding for access and parking and soft landscaping for gardens and public open space including sustainable urban drainage features. A proposed illustrative masterplan is presented as Appendix I.

The ground conditions at the site generally comprise variable cohesive and granular materials interpreted as the Lowestoft Formation. Additionally, a limited thickness of Made Ground, Made Ground Topsoil and Topsoil was encountered at the surface across the site.

The following geotechnical assessment is based on the current development proposals. Should the proposed development change, this assessment should be reviewed.

6.2 Earthworks

Small ponds are currently present in the east of the poultry farm area of the site. It is understood that these features do not form part of the proposed development and are to be infilled. It is recommended that any soft, loose, wet or otherwise unsuitable materials are removed from these features and that they are backfilled with geotechnically suitable materials in accordance with an engineering specification. If structures are proposed within the vicinity of these features foundations will need to be deepened through any fill materials and placed a minimum of 200mm into the underlying Lowestoft Formation materials.

Further to this, due to the topography of the site, it is anticipated that limited reprofiling works will be required to enable the proposed development. Earthworks may be required to provide suitable platforms for the construction of houses, roads and other infrastructure associated with the development. It is recommended that any significant reprofiling works are undertaken in accordance with an appropriate earthworks specification.

Based on the results of the geotechnical laboratory testing the Lowestoft Formation materials are likely to be suitable for use as general fill within earthworks and likely to be classified as class 2 - general cohesive fill. It is recommended that any materials to be reused are appropriately tested and classified prior to their use. The Topsoil and Made Ground (Topsoil) materials are not considered to be suitable for use within earthworks.

The materials used will need to be sorted and the oversized and unsuitable materials removed before placement.

Prior to the commencement of any earthworks, it is recommended that all standing water is removed from the working area and all soft, loose, wet or otherwise unsuitable materials are removed from the formation level. The formation level should be proof rolled and any 'soft spots removed and replaced with suitable fill.

6.3 Foundation Assessment

Due to their inconsistency and variability the Made Ground and Topsoil materials are not considered a suitable founding stratum in their current condition.



It is considered that conventional foundations could be adopted for the majority of the proposed development with foundations placed within the Lowestoft Formation materials at a minimum depth of 1.25m bgl (based on restricted new planting). Foundations should be designed to a net allowable bearing pressure of 100kN/m² to limit total settlements to 25mm and differential settlements to acceptable levels. Foundations may need to be deepened to approximately 2m bgl in the vicinity of BH101 due to the presence of less competent shallow Lowestoft Formation materials

Due to the presence of less competent Lowestoft Formation materials to depths of approximately 3m to 4m bgl in the vicinity of BH103 and BH104, it is considered that the use of conventional foundations may not be feasible within these portions of the site. It is therefore considered that an alternative foundation solution such as lightly loaded raft type foundations could be adopted within these portions of the site. Raft foundations may be adopted in conjunction with a suitable granular blanket following suitable preparation of the formation layer including the removal of all Topsoil or Made Ground materials. Raft foundations could be designed to an allowable bearing pressure of 30kN/m² to limit total settlements to 50mm and differential settlements to acceptable levels.

As an alternative to the use of raft foundations, ground improvement techniques such as vibro-replacement stone columns could be considered, in conjunction with reinforced conventional foundations placed within the improved ground. The stone columns will need to extend into the more competent Lowestoft Formation materials at depths of approximately 4m to 6m bgl. Depending on the size and spacing of the columns, allowable bearing pressures following treatment are likely to be approximately 125kN/m² to limit total settlements to 25mm and differential settlements to acceptable levels. It is recommended that the advice of a specialist ground improvement contractor is obtained to assist with the design and implementation of any ground improvement solution.

Following suitable delineation comprising further intrusive investigation, it may be possible to reduce the extent where alternative foundation solutions are required.

The approximate extent of the areas discussed above are detailed on the Foundation Zoning Plan presented as Figure 5.

Foundations should be locally deepened through any deeper Made Ground, fill, soft, loose or otherwise unsuitable materials particularly in the vicinity of BH101.

Plasticity index results indicate the cohesive Lowestoft Formation to be of medium to low volume change potential. Therefore, where foundations are within the influencing distance of existing or proposed trees, foundations may need to be locally deepened in accordance with NHBC guidelines for medium volume change potential soils.

The encountered cohesive Lowestoft Formation materials have been found to be in a potential state of desiccation. Therefore, consideration should be given to the inclusion of appropriate heave precautions into the foundation design.

Where foundations span across varying strata, i.e. granular and cohesive materials, such footings could be subject to differential settlement potentially leading to structural distress. Consideration should be given to the inclusion of appropriate mesh reinforcement within foundations that span across the interface between different strata to reduce the potential for differential settlement to occur.



6.4 Floor Slabs

Due to the presence of shallow cohesive materials it is recommended that suspended floor slabs, with suitable floor voids for medium volume change potential soils, are adopted for the proposed development.

6.5 Road Pavements

The results of insitu Dynamic Cone Penetrometer (DCP) CBR testing undertaken at the site recorded CBR values between approximately 1.6% and 54.5% and typically in excess of 2.5% within the shallow materials at depths between ground level and approximately 0.9m bgl.

Based on the results of the DCP testing it is considered that for the basis of design of any areas of hardstandings or road pavements a design CBR value of 2.5% could be adopted for the proposed development where the formation level lies within the natural Lowestoft Formation materials and 1% where the formation level lies within Made Ground following the removal of any Topsoil materials and suitable preparation of the formation layer.

It should be noted that the formation should be proof rolled and any 'soft' spots removed and replaced with suitable fill. The formation is likely to deteriorate if left uncovered and therefore the road should be constructed within a short time frame after stripping of superficial materials or a protective layer should be left in place. The materials at formation level may be frost susceptible and suitable precautions should be included.

6.6 Excavations

Excavation of the materials encountered on site is likely to be achieved using conventional plant however, where obstructions remain in the ground at shallow depths the use of pneumatic/hydraulic breakout equipment may be required particularly within confined excavations.

Excavations may be prone to collapse, particularly in association with inflows of water. Consequently, temporary support should be considered for all excavations where collapse is to be avoided. Heavier duty closed shoring should be provided for any excavation where man entry is necessary, in compliance with statutory requirements to ensure safe working conditions.

Due to the lower oxygen levels locally recorded as part of the monitoring undertaken at the site, it is advised that monitoring of atmospheric gas concentrations is undertaken for all works within excavations where man entry is required.

6.7 Dewatering

During the intrusive investigation groundwater was encountered at WS101, WS108, WS110 and WS112 at depths between approximately 1.0m and 3.0m. During the subsequent monitoring programme groundwater was encountered within WS101, WS108, WS111 and WS112 during all three events and WS109 on the third event. Groundwater was recorded at depths between 0.43m and 2.17m bgl.

It is therefore considered that groundwater issues may occur within shallow excavations associated with the proposed development. It should also be noted that groundwater levels may increase during winter months or periods of wet weather.



If groundwater inflows occur within excavations it is considered that these are likely to be sufficiently controlled by conventional sump pumping techniques. It is possible that instability of foundation excavations could occur in conjunction with any significant inflows particularly in associated with granular deposits.

6.8 Buried Concrete Classification

Based on the results of chemical laboratory testing undertaken on samples recovered from the Topsoil, Made Ground and Lowestoft Formation materials, it is considered that a Design Sulphate Class "DS-1" and an ACEC site classification "AC-1" should be adopted for all concrete placed within these materials in shallow excavations such as foundations and services.

A Design Sulphate Class "DS-2" and an ACEC site classification "AC-2" should be adopted for all concrete that is placed in contact with the Made Ground (Topsoil) materials.

6.9 Gas Protection Measures

The gas monitoring results indicate gas conditions corresponding to a Hazardous Gas Flow (HGF) of 0.048l/hr indicating Characteristic Situation 1 (CS1) characterised as very low potential hazard. However, concentrations of carbon dioxide exceeding 5% were recorded at WS109 and WS111, therefore a classification of CS2 (low potential hazard) is considered appropriate at WS109 and WS111 based on carbon dioxide concentrations. All other monitoring installations indicate CS1 (characterised as very low potential hazard).

Based on the results of the ground gas monitoring, it is recommended that gas protection measures to CS2 (characterised low potential hazard) are incorporated into the proposed development in the vicinity of WS109 and WS111. The extent of the recommended gas protection measures is presented on Figure 6.

The design and installation of the gas protection measures should be carried out in accordance with BS8485. It is recommended that the installation of the gas membrane should be carried out by specialist membrane installers and should be appropriately verified and validated in accordance with CIRIA C735 and current industry standards.

This conclusion should be agreed with the relevant regulatory authorities prior to the commencement of development works to confirm that the assessment completed meets with their requirements and further monitoring to verify these results is not required.

6.10 Drainage Design and Surface Water Management

As part of the intrusive investigation soakage tests were undertaken within the Lowestoft Formation at TP107, TP111, TP113 and TP119. Significant infiltration was not identified at any of the test locations.

Based on the results of the soakaway tests undertaken, it is not considered that the use of shallow soakaways or other infiltration drainage systems is feasible at the site.

It is recommended that the advice of a specialist drainage engineer is sought with regards to the design and installation of any drainage systems which may form part of the proposed development.



7 CONTAMINATION ASSESSMENT – HUMAN HEALTH

7.1 Introduction

The results of the chemical laboratory testing undertaken on selected soil samples (see Section 4.4), have been compared where possible to the relevant industry guidance as detailed in the following section.

Defra have published Development of Category 4 Screening Levels (C4SL) for Assessment of Land Affected by Contamination (document reference SP1010, dated 20th December 2013). This document includes proposed C4SL for six contaminants of concern. In March 2014, it was agreed that the C4SL could be used as part of the planning process. The chemical laboratory test results have therefore been compared where relevant to the C4SL. The C4SL have been derived based on the proposed end use of the site. In this instance an end use of 'residential with plant uptake' has been considered the most appropriate. Should the proposed development at the site change the potential risk posed by the identified contamination should be reviewed.

It is noted that the C4SL for benzo(a)pyrene has been derived as a surrogate marker for all genotoxic PAH species including this determinant assuming the assessed site investigation data conforms with the Culp et al 2010 assessment. The remaining genotoxic PAH species included in the priority 16 PAH suite of analysis are benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, chrysene, dibenzo(ah)anthracene and indeno(123cd)pyrene. An assessment of the site investigation data has been completed and shown the site investigation data to conform with the upper and lower limits from Culp 2010 assessment and therefore assessment criteria are not considered necessary for these determinants and benzo(a)pyrene may be used as a surrogate marker.

C4SLs have not been provided for the full range of determinants assessed as part of this contamination assessment. Further Generic Assessment Criteria (GAC) in accordance with this guidance are currently in production. Contaminated Land Exposure Assessment (CLEA) guidance to assess the risk to human health (Document References SC050021/SR2, SC050021/SR3, SC050021/SR4 and SC050021/SR7) is available. GAC for the relevant contaminants of concern included in this report have been derived in accordance with this CLEA guidance and spreadsheet Version 1.06. These criteria are considered to remain appropriate as C4SL are proposed to be more pragmatic whilst still highly precautionary when compared to the previously published guidance and associated SGVs. The GAC in this report are therefore considered to be conservative and define a lower level of risk in consideration of the potential risk to human health when compared to the current guidance and C4SL. The derived GAC are presented in Appendix V.

Laboratory data at the site recorded a result of approximately 3.83% for soil organic matter calculated using fraction of organic carbon results. The GAC for the site are therefore calculated assuming 3.83% SOM.

7.2 Chemical Test Results - Soils

The results of the chemical laboratory testing undertaken on the selected soil samples undertaken as part of the current and previous investigations are summarised in Table 2.

Only those determinants recorded in excess of their relevant laboratory detection limits are assessed here. The chemical test results on soil are presented in full in Appendix III.



At Tier 1 total TPH is assessed using the GAC for the aromatic TPH fraction >C10-C12. This GAC is selected as it is the most stringent of the calculated GAC's for the identified TPH.

Table 2 Summary of Soils Data with Respect to Human Health (Tier 1)

Contaminants	Max Conc. (mg/kg)	Defra C4SL mg/kg (Residential with plant uptake)	CLEA Derived GAC mg/kg (Residential with plant uptake)	No. of Tests
Arsenic	12	37 (0)	-	13
Beryllium	1	-	87.8 (0)	13
Boron	1.2	-	117 (0)	13
Cadmium	0.3	22 (0)	-	13
Chromium	27	-	1110 (0)	13
Copper	27	-	2380 (0)	13
Lead	58	200 (0)	-	13
Mercury	0.15	-	169 (0)	13
Nickel	35	-	127 (0)	13
Selenium	0.6	-	350 (0)	13
Vanadium	44	-	282 (0)	13
Zinc	310	-	3250 (0)	13
Cyanide	0.5	-	26.5 (0)	13
Phenol	1.6	-	351 (0)	13
TPH (C10-C40)	67	-	152 (0)	13
TPH Ali >C10-C12	2.8	-	274 [^] (0)	2
TPH Ali >C12-C16	9.9	-	198 [^] (0)	2
TPH Ali >C16-C21	3.9	-	88400 (0)	2
TPH Ali >C21-C35	260	-	88400 (0)	2
TPH Aro >C16-C21	3.3	-	525 (0)	2
TPH Aro >C21-C35	130	-	1060 (0)	2
Phenanthrene	0.03	-	1960 (0)	13
Fluoranthene	0.1	-	569 (0)	13
Pyrene	0.09	-	1300 (0)	13
Benzo(a)pyrene	0.05	5 (0)	-	13

Note: 1. Number in brackets represents the number of results above guideline values.
2. [^] Denotes theoretical saturation limit taken as representative.

In addition to the determinants summarised in Table 2, asbestos was analysed for in six samples of Made Ground (Topsoil), two samples of Made Ground and three samples of Topsoil. Additionally, a fragment of cement bonded sheeting recovered from the surface in the vicinity of WS111 was scheduled for asbestos presence and identification. Asbestos was not identified in any of the soil samples tested. The fragment of cement bonded sheeting was found to contain asbestos characterised as crocidolite and chrysotile cement. Further assessment of the potential risk to human health from the presence of asbestos at the surface in the poultry farm portion of the site is considered necessary.

None of the contaminants of concern summarised in Table 2 are recorded in excess of their relevant screening criteria. No further assessment of the potential risk to human health from contamination present in soil is considered necessary. No remediation of soils to be protective of human health is considered necessary.

However, it is recommended that the chemical laboratory test results within this report should be forwarded to the mains water service provider to ensure that their requirements for service line construction are satisfied.

7.3 Discussion

The presence of asbestos at the surface in the poultry farm portion of the site (Area BN5) may pose a risk to human health at the proposed development and during the development works. It is noted that similar materials to those identified in the vicinity of



WS111 have been identified at the surface across this portion of the site. Further to this, similar materials appear to be present within the existing building fabric.

To mitigate the potential risk to human health, it is recommended that a hand-picking exercise is completed by a suitably licensed contractor to remove asbestos bearing materials from the ground surface for off-site disposal. Further to this, it is recommended that an asbestos survey is completed prior to the demolition of any existing structures. Should asbestos bearing materials be identified these should also be removed from site by a suitable licenced contractor.

The removal of asbestos bearing materials from this portion of the site will mitigate the potential risk to human health at the proposed development and during the development works. Assuming the completion of these works, no further assessment of the potential risk to human health is considered necessary.



8 CONTAMINATION ASSESSMENT – CONTROLLED WATERS

8.1 Introduction

To assess the potential risk to controlled waters from the recorded concentrations in soils the use of leachability is generally used to determine contaminant mobility within the ground with the results of these tests compared to the determinants respective environmental quality standards (EQS) or other applicable standards such as UK drinking water standards (DWS). As the aquifer as a resource has been identified as the critical receptor, the DWS is used where available. For organic compounds the use of leachability testing is not considered reliable therefore at Tier 1, phenol, PAH and TPH is assessed using half the relevant inert WAC criteria. An exceedance of these criteria is considered to require further assessment and/or chemical laboratory analysis.

8.2 Summary of Results - Soils

Table 3 presents a summary of the screening criteria compared with the recorded concentrations of determinants at the site. Only those determinants recorded in excess of their relevant laboratory detection limits are assessed here.

The chemical test results are presented in full in Appendix III.

Table 3 Summary of Soils Data with Respect to Controlled Waters (Tier 1)

Determinant	Max Conc. (mg/l)	Tier 1 Value (mg/l)	No. of Exceedances
Arsenic	0.0018	0.01	0 (4)
Boron	0.014	1	0 (4)
Chromium	0.00053	0.05	0 (4)
Copper	0.0027	2	0 (4)
Lead	0.00045	0.01	0 (4)
Nickel	0.0008	0.02	0 (4)
Vanadium	0.0014	0.06	0 (4)
Zinc	0.0075	5	0 (4)
Phenol	1.6	0.5	5 (13)
PAH	0.58	50	0 (13)
TPH	400	250	1 (15)

Notes

1. Numbers in brackets denote the number of tests undertaken.
2. Organic determinant concentrations in mg/kg.

Total TPH has been recorded in excess of its relevant tier 1 value within a single sample of the Lowestoft Formation recovered from WS111, located centrally in the south, at a depth of 0.7m bgl.

Further assessment of the potential risk to controlled waters from phenol is considered necessary.

8.3 Discussion

The intrusive investigation has confirmed the published geology beneath the site to be Lowestoft Formation (Secondary Aquifer – Undifferentiated and Secondary Aquifer - A). The intrusive investigation encountered predominantly cohesive materials of the Lowestoft Formation to the completed depth of the investigation at 15m bgl. The Crag Group (Principal Aquifer) were not encountered during the intrusive investigation.



The south of the site is located in a Source Protection Zone (SPZ) II (outer protection zone). Boundaries with SPZ I (inner protection zones) are located approximately 190m to the north-east and 335m to the south.

There are twenty-eight abstractions from groundwater located within 1.0km of the site. The closest three listings relate to the abstraction of groundwater for industrial process water located at distances between approximately 265m and 385m to the west. The licenses associated with these abstractions are listed as revoked. The fourth listing relates to an active abstraction of groundwater for potable supply located approximately 475m to the east. The remaining listings are located at distances greater than 545m from the site.

The nearest identified surface water feature is an unnamed stream located directly to the east of the north-eastern corner of the site.

The environmental sensitivity of the site is therefore considered to be low in consideration of the thickness of predominantly cohesive strata of the Lowestoft Formation that will limit significant groundwater flow.

Laboratory analysis indicates the elevated concentration of total TPH is characterised by longer chain aliphatic and aromatic fractions. Longer chain aliphatic and aromatic TPH fractions are not considered to be significantly leachable, soluble or mobile within the environmental setting.

The recorded concentrations of phenol are considered to be relatively minor in nature and isolated in occurrence.

Based on the environmental sensitivity of the site and the nature of the identified contamination, the potential risk to controlled waters is considered to be very low if not negligible. No further assessment of the potential risk to controlled waters is considered necessary. No remediation of soils to be protective of controlled waters is considered necessary.



9 WASTE DISPOSAL

Based on the results of the chemical laboratory analysis completed, it is considered that the Made Ground (Topsoil), Topsoil, Made Ground and underlying natural strata may be classified as non hazardous in terms of waste disposal. Subject to the completion of further chemical laboratory analysis including waste acceptance criteria (WAC) testing it may be possible classify the underlying natural strata as inert.

Asbestos bearing materials present at the surface in the poultry farm portion of the site is classified as hazardous waste.

Prior to disposal, the characteristics of any excavated soils will need final classification in consultation with the relevant waste disposal facility and further testing and analysis may be required on the actual materials requiring off-site disposal.



10 DISCOVERY STRATEGY

This investigation has not identified significant contamination that may pose a potential risk to the identified receptors. However, there is the potential for more significantly contaminated materials, differing ground conditions and buried structures to be present at the site between exploratory hole locations. Should any of these conditions be identified during the development works, ASL should be contacted immediately to allow further assessment to be completed to ensure the identified critical receptors are not at risk.

This assessment may take the form of additional intrusive investigation, sampling and laboratory analyses subject to the nature of the conditions encountered.



11 CONCLUSIONS AND RECOMMENDATIONS

A ground investigation has been completed at the site, to characterise the ground and groundwater conditions. A geotechnical and environmental assessment has been completed based on the results of these investigations. The conclusions of this assessment are summarised as follows:

It is recommended that any significant reprofiling works are undertaken in accordance with an appropriate earthworks specification. The Lowestoft Formation materials are likely to be suitable for use as general fill within earthworks and likely to be classified as class 2 - general cohesive fill.

It is considered that conventional foundations could be adopted across the majority of the site within the Lowestoft Formation materials at a minimum depth of 1.25m bgl (based on restricted new planting) and designed to a net allowable bearing pressure of 100kN/m² to limit total settlements to 25mm and differential settlements to acceptable levels. Foundations should be locally deepened through any deeper Made Ground, fill, soft, loose or otherwise unsuitable materials.

Due to the presence of less competent Lowestoft Formation materials in the vicinity of BH103 and BH104 it is considered that raft foundations could be adopted within these portions of the site in conjunction with a suitable granular blanket following suitable preparation of the formation layer. Raft foundations could be designed to an allowable bearing pressure of 30kN/m² to limit total settlements to 50mm and differential settlements to acceptable levels.

As an alternative to raft foundations, ground improvement such as vibro-replacement stone columns could be considered. It is recommended that the advice of a specialist ground improvement contractor is obtained to assist with the design and implementation of any ground improvement solution.

Following suitable delineation comprising further intrusive investigation, it may be possible to reduce the extent of the recommended alternative foundation solutions.

Where foundations are within the influencing distance of existing or proposed trees, foundations may need to be locally deepened in accordance with NHBC guidelines for medium volume change potential soils. Consideration should be given to the inclusion of appropriate heave precautions into the foundation design.

Consideration should be given to inclusion of appropriate mesh reinforcement in foundations to reduce the potential for differential settlement to occur.

It is recommended that suspended floor slabs with a suitable subfloor void are adopted for the proposed development.

For the basis of design of any areas of hardstandings or road pavements a design CBR value of 2.5% could be adopted across the site where formation level lies within the Lowestoft Formation materials. A design CBR value of 1% should be adopted where formation level lies within Made Ground materials. The materials at formation level may be frost susceptible and suitable precautions should be included.

Based on the results of chemical laboratory testing undertaken, it is considered that a Design Sulphate Class "DS-1" and an ACEC site classification "AC-1" should be adopted for all concrete placed within the Topsoil, Made Ground and Lowestoft Formation materials. A



Design Sulphate Class "DS-2" and an ACEC site classification "AC-2" should be adopted for all concrete that is placed in contact with the Made Ground (Topsoil) materials.

Based on the results of the ground gas monitoring, it is recommended that gas protection measures to CS2 are incorporated into the proposed development in the vicinity of WS109 and WS111. The design, installation and verification of the gas protection measures should be carried out in accordance with current industry standards.

Based on the results of the soakaway tests undertaken, it is not considered that the use of shallow soakaways or other infiltration drainage systems is feasible at the site.

The contamination assessment has not identified a potential risk to the identified human health receptors assuming the removal of asbestos bearing materials from the surface and within the existing building fabric in the poultry farm portion of the site. It is recommended that an asbestos survey and hand picking exercise are completed prior to the demolition of any existing structures by a suitably licenced contractor. No further assessment of the potential risk to the identified critical receptors is considered necessary.

It is recommended that the chemical laboratory test results within this report should be forwarded to the mains water service provider to ensure that their requirements for service line construction are satisfied.

The contamination assessment has not identified a potential risk to the identified controlled waters receptor. No further assessment of the potential risk to the identified critical receptor is considered necessary. No remediation of soils to be protective of the identified critical receptor is considered necessary.

Based on the results of the chemical laboratory analysis completed, it is considered that the Made Ground (Topsoil), Topsoil, Made Ground and underlying natural strata may be classified as non hazardous in terms of waste disposal. Subject to the completion of further chemical laboratory analysis it may be possible classify the underlying natural strata as inert.



REFERENCES

ASL 'Desk Study Report Land off Harrison Lane, Halesworth', report reference 450-18-087-11, dated February 2019

BGS Map Sheet No. 176 Lowestoft, Solid and Drift. 1:50 000 scale

BGS Geindex

DEFRA R&D Publication CLR 11 "Model Procedures for the Management of Land Contamination" dated September 2004.

DEFRA R&D Publication CLR 12 "A Quality Approach for Contaminated Land Consultancy" dated 1997.

www.environment-agency.gov.uk

Department of the Environment Industry Profiles

BS5930:2015 "Code of Practice for Site Investigation"

BS10175+A2:2017 'Investigation of Potentially Contaminated Sites - Code of Practice'

BS1377 "Method of Tests for Soils for Civil Engineering Purposes" : 1991

Environment Agency's Publication 'Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources' R&D Publication 20

Environment Agency's 'Remedial Targets Worksheet, Release 3.1' (October 2007)

Concrete – Complementary British Standards to BS EN 206-1 Part 1: Method of specifying and guidance for the specifier (BS 8500-1:2006)

Concrete – Complementary British Standard to BS EN 206-1 – Part 2: Specification for constituent materials and concrete (BS 8500-2:2006)

Total Petroleum Hydrocarbon Criteria Working Group Series Volume 3 and 4, 1997

Human health toxicological assessment of contaminants in soil (Report Reference SC050021/SR2, dated January 2009);

Updated technical background to the CLEA model (Report Reference SC050021/SR3, dated January 2009);

CLEA Software (Version 1.05) Handbook (Report Reference SC050021/SR4, dated January 2009);

Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values (Report Reference SC050021/SR7, dated November 2008).

BS8485 'Code of practice for the characterisation and remediation from ground gas in affected developments', 2019

NHBC Standards 2019



GENERAL NOTES

The interpretation made in this report is based on the information obtained during the course of the desk study and ground investigation. It should be appreciated that any desk study information is not necessarily exhaustive and that further information relevant to the site and its proposed usage may be available. There may be conditions present on the site that have not been revealed by the ground investigation which as a result have not been addressed within this report.

The accuracy of any map extracts cannot be guaranteed and it should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.

The qualitative assessment of risk presented in this report presents an assessment of potential pollutant linkages between sources, pathways and receptors. A level of risk is attributed to these linkages. However a low or insignificant risk does not imply that elevated concentrations of various determinants are not present on the site when compared to background or 'greenfield' conditions.

The level of risk attributed is based on a number of factors and the interpretation of this risk may be applied in a different manner for a different end use or environmental setting. The presence of contaminants may be assessed in alternative ways by institutional bodies regardless of whether an apparent risk is present based on the identified pollutant linkages in this assessment.

This report may express an opinion on possible configurations of strata underlying the site between or beyond the exploratory holes or on the possible presence of features based on either visual, verbal or published evidence, this is for guidance only and no liability can be accepted for its accuracy.

Comments made on ground conditions are based on the observations made at the time of the investigation works. It should be noted that groundwater levels may vary due to seasonal fluctuation or other factors. Observations made with respect to below ground gas concentrations may also vary due to seasonal factors and atmospheric conditions.

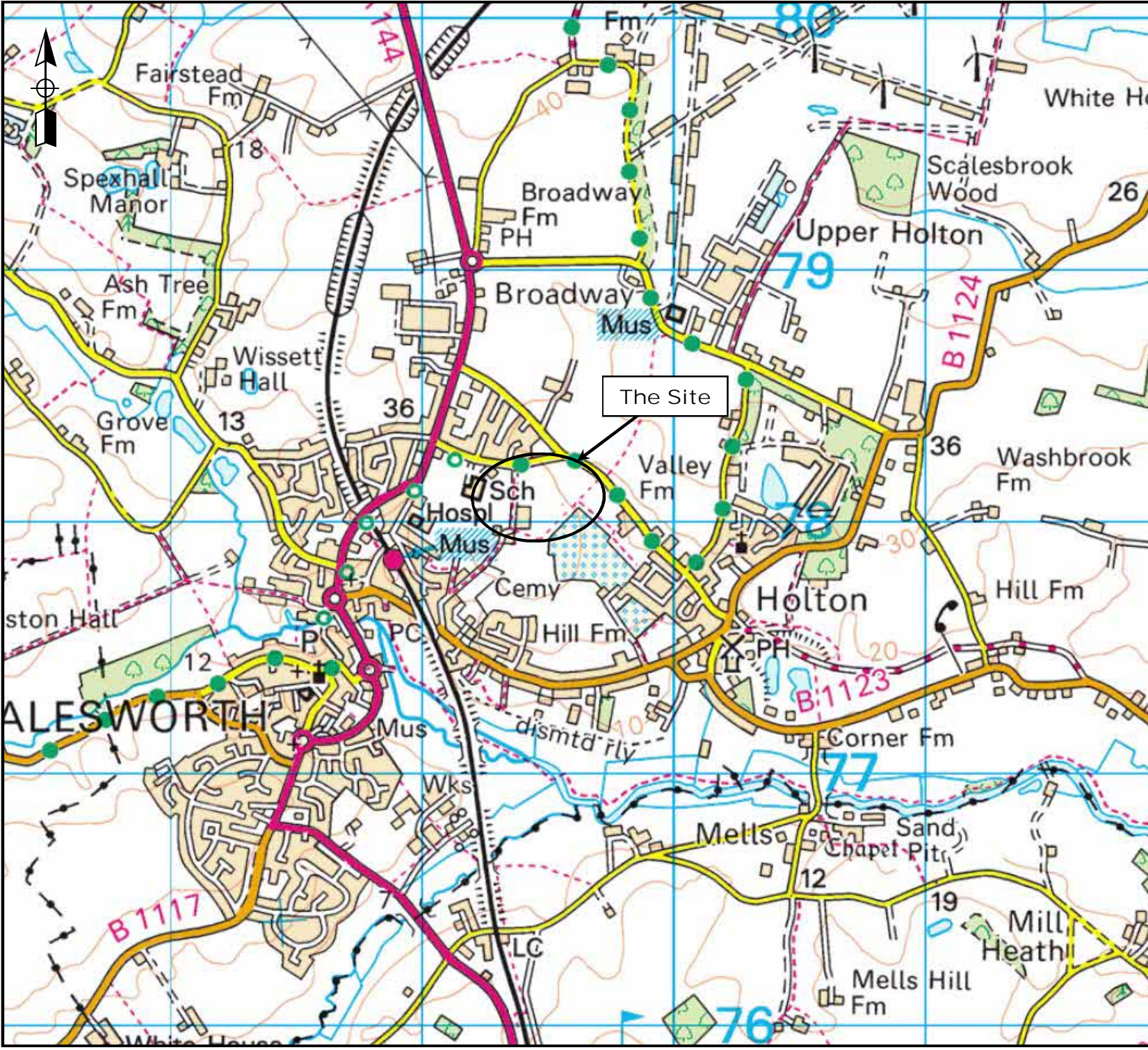
This report has been prepared in relation to the proposed development as detailed herein. Should the nature of the development change following the submission of this report a re-assessment of the conditions recorded on the site may be necessary.

This report may not be used in the assessment of the conditions at any site other than the site described herein

This report has been prepared for the sole use of the client and the client's agents and advisors in relation to the proposed development as detailed herein. The issue of this report to third parties not involved in the proposed development as described herein is not permitted without the prior permission being received in writing by ASL. Reproduction of this report to include all figures, drawings and appendices is prohibited without the prior written consent of ASL.



FIGURES



Reproduced under licence to ASL. Licence No. 100044800
 OS Map Sheet No. 156 Saxmundham, Aldeburgh and Southwold, 1:50,000 Scale, dated 2016

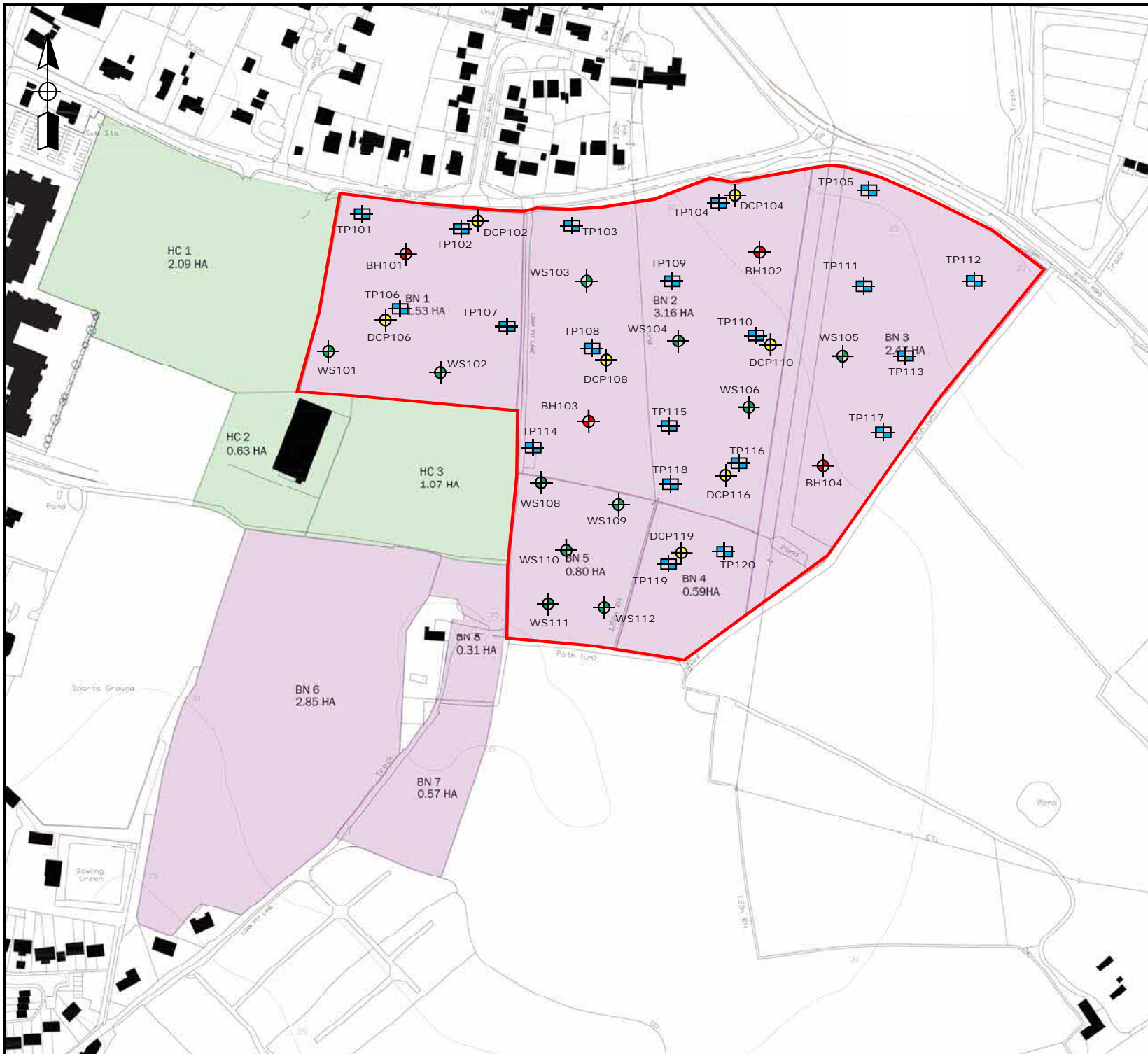
Notes:
 Not to Scale

Drawing No.	Figure 1
Drawing Name	Site Layout Plan
Project Name	Land off Harrison's Lane, Halesworth
Client Name	Richborough Estates Limited
Project No.	450-18-087

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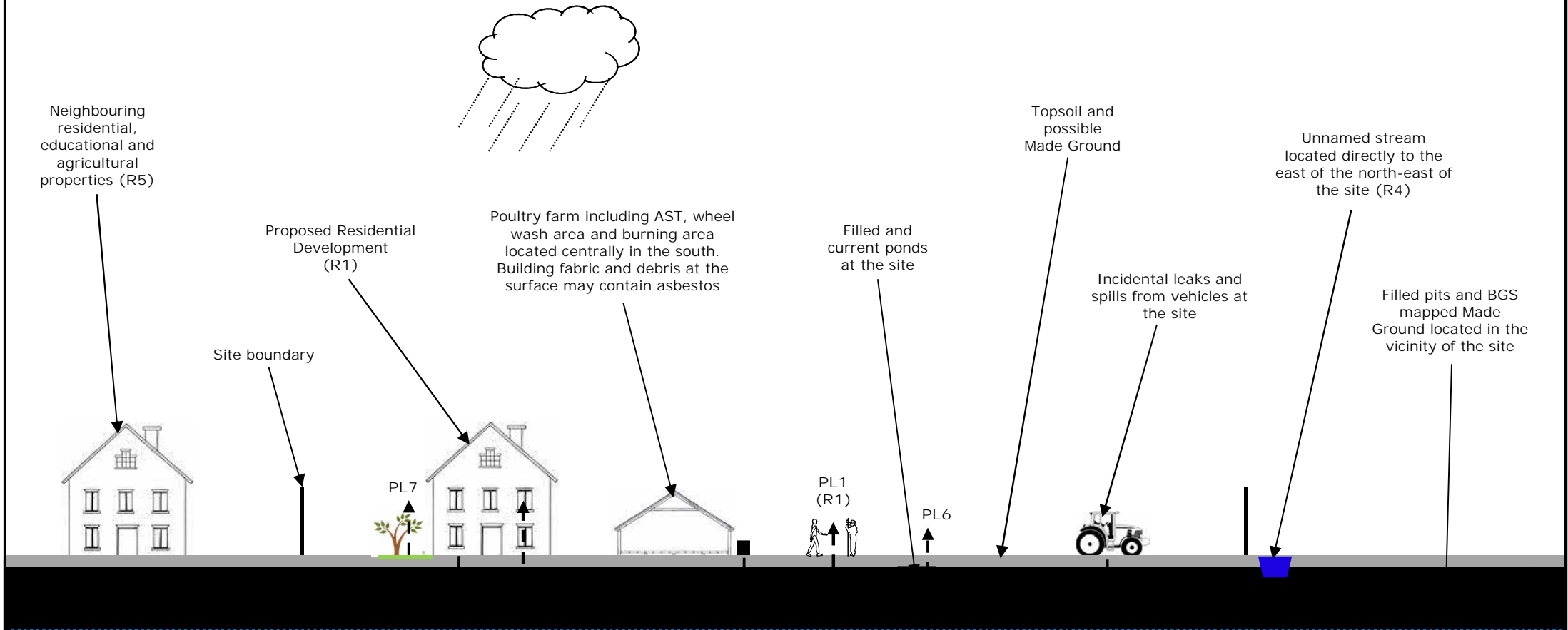
- Key
- Cable Percussion Borehole Location
 - Windowless Sample Borehole Location
 - Trial Pit Location
 - CBR Test Location
 - Approximate Site Boundary

Notes:
 Not to Scale
 This drawing should be read in conjunction with the associated ASL report.
 All dimensions to be checked on site and not scaled on this drawing.

Drawing No.	Figure 2
Drawing Name	Site Layout Plan
Project Name	Land off Harrison's Lane, Halesworth
Client Name	Richborough Estates Limited
Project No.	450-18-087

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Drawing No.	Figure 3
Drawing Name	Conceptual Site Model
Project Name	Land off Harrison's Lane, Halesworth
Client Name	Richborough Estates Limited
Project No.	450-18-087

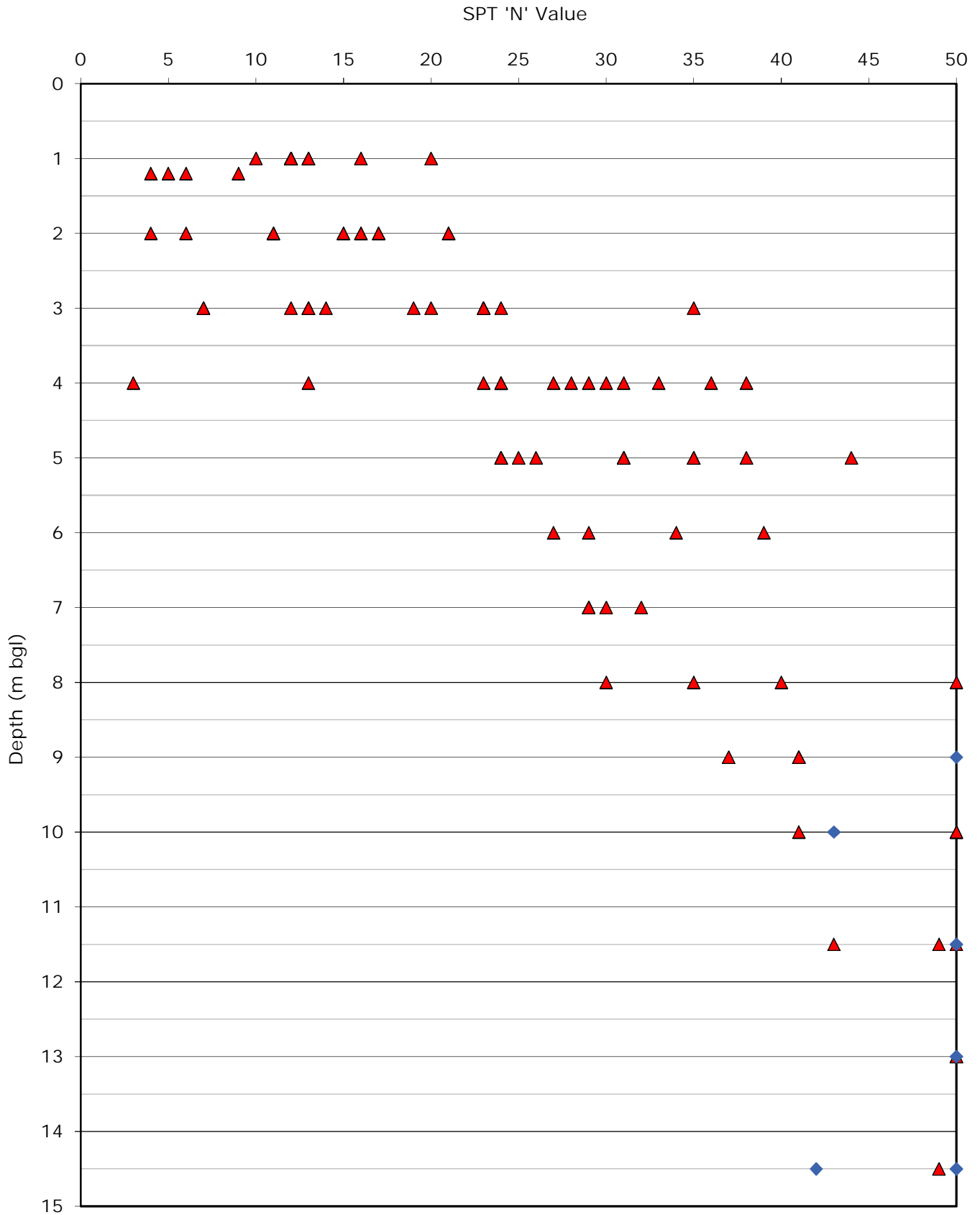
Summary of Pollutant Linkages (for full details see contamination associated report)

Receptors:
 R1 - Construction and maintenance workers and current and future site users;
 R2 - Service Lines;
 R3 - Groundwater;
 R4 - Surface watercourses;
 R5 - Neighbouring properties and residents.

Pathways:
 PL1 - Direct Physical Contact;
 PL2 - Migration from soils to groundwater via leaching;
 PL3 - Migration within groundwater;
 PL4 - Migration via service lines;
 PL5 - Volatilisation of contaminants from soils and groundwater;
 PL6 - Migration of hazardous ground gases;
 PL7 - Vegetable intake.

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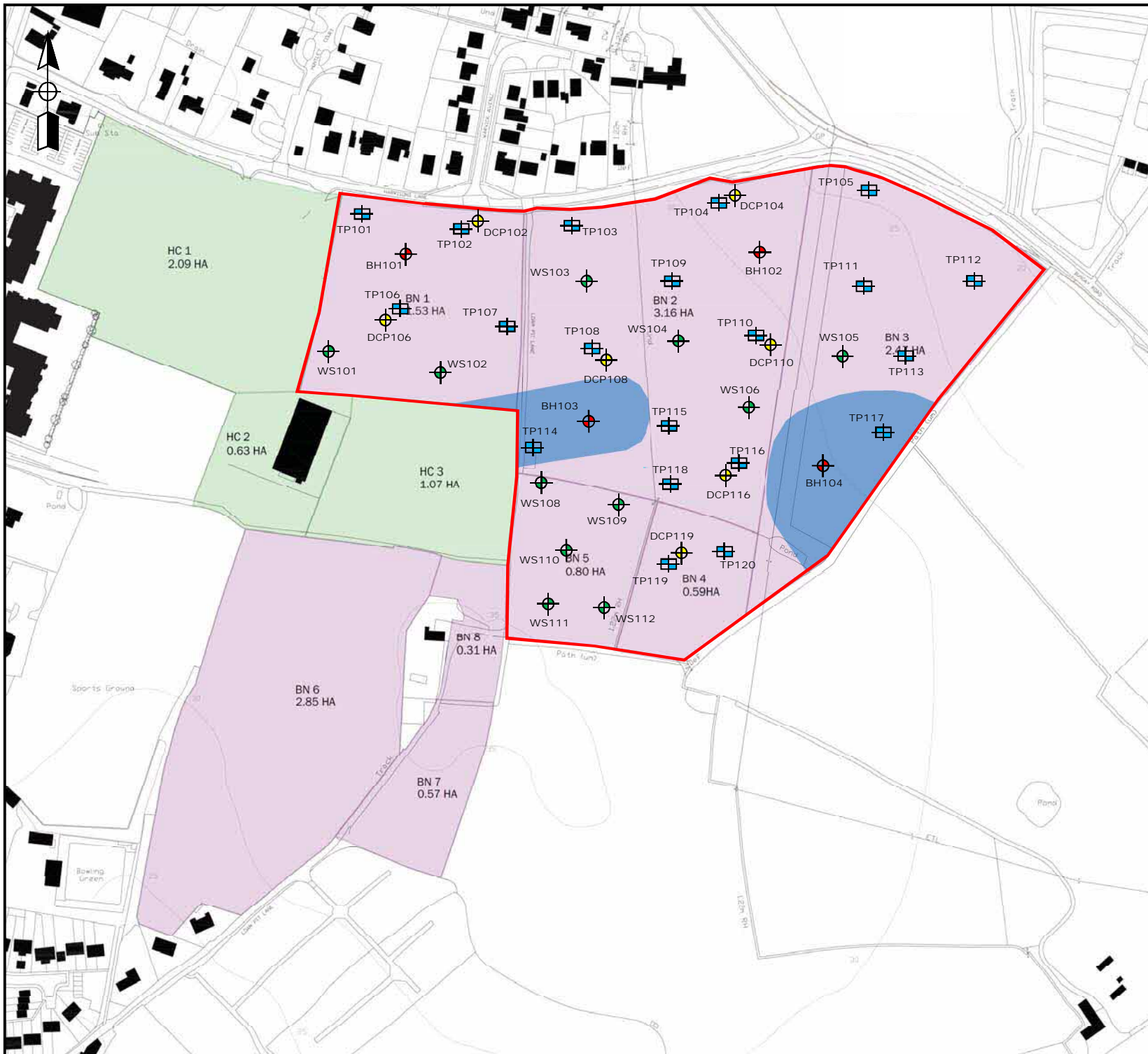
Drawing No.	Figure 4
Drawing Name	SPT 'N' Value Versus Depth Below Ground Level
Project Name	Land off Harrison's Lane, Halesworth
Client Name	Richborough Estates Limited
Project No.	450-18-087

Legend	
▲	Cohesive Lowestoft Formation
◆	Granular Lowestoft Formation

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- Key**
- Cable Percussion Borehole Location
 - Windowless Sample Borehole Location
 - Trial Pit Location
 - CBR Test Location
 - Approximate Site Boundary
 - Areas Requiring Raft Foundations or Ground Improvement*

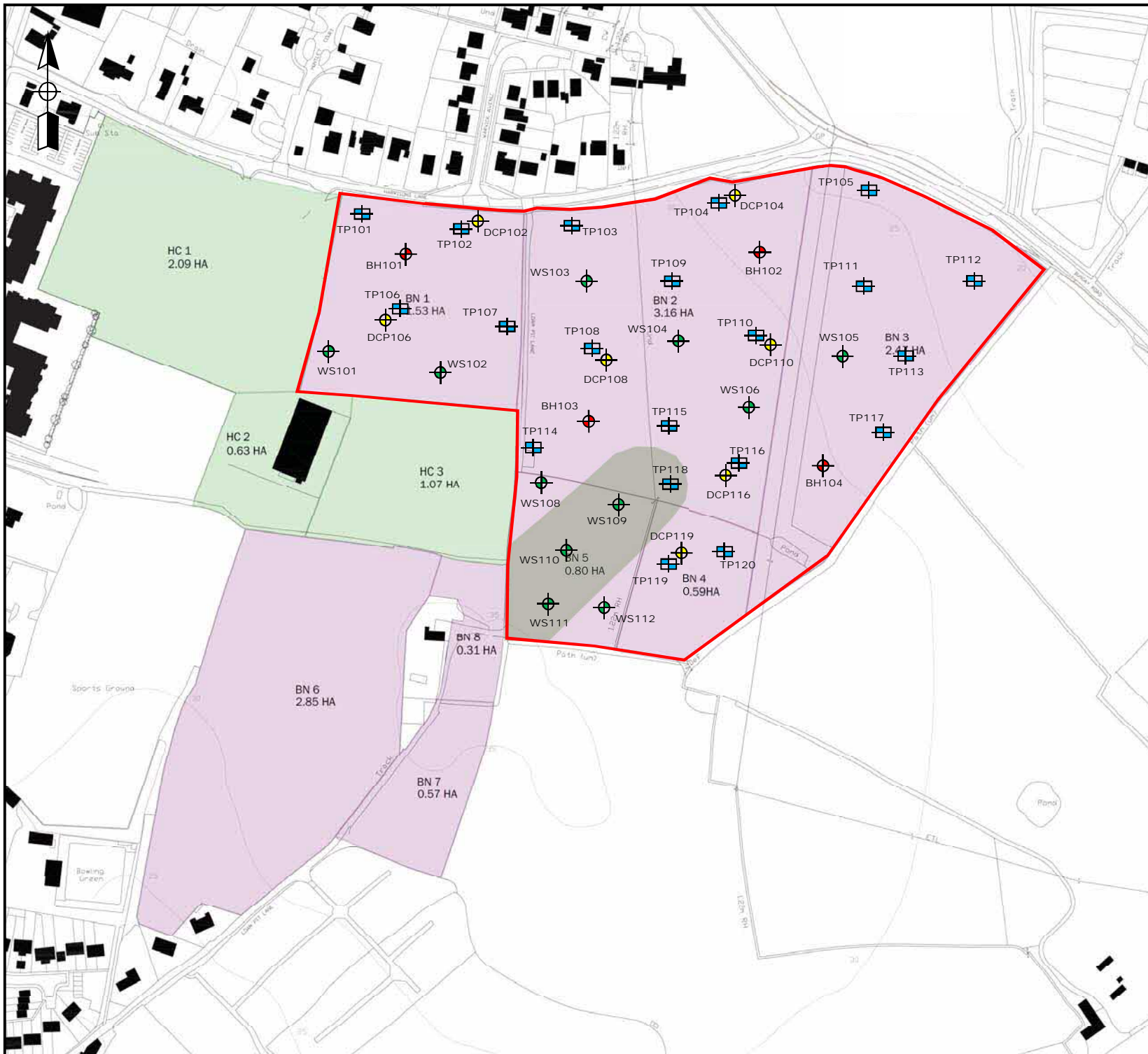
Notes:
 Not to Scale
 This drawing should be read in conjunction with the associated ASL report.
 All dimensions to be checked on site and not scaled on this drawing.

* Extent of foundation zones to be confirmed following further investigation.







Drawing No.	Figure 5
Drawing Name	Foundation Zoning Plan
Project Name	Land off Harrison's Lane, Halesworth
Client Name	Richborough Estates Limited
Project No.	450-18-087

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Key

-  Cable Percussion Borehole Location
-  Windowless Sample Borehole Location
-  Trial Pit Location
-  CBR Test Location
-  Approximate Site Boundary
-  Extent of Recommended Gas Protection Measures

Notes:

Not to Scale
 This drawing should be read in conjunction with the associated ASL report.
 All dimensions to be checked on site and not scaled on this drawing.

* Extent of foundation zones to be confirmed following further investigation.

Drawing No.	Figure 6
Drawing Name	Extent of Recommended Gas Protection Measures
Project Name	Land off Harrison's Lane, Halesworth
Client Name	Richborough Estates Limited
Project No.	450-18-087

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APPENDIX I
ILLUSTRATIVE MASTERPLAN



- Key**
- Application Site Boundary
 - Other land under the control of the applicant
 - Existing trees & hedgerow
 - Indicative planting
 - Existing water body
 - Proposed surface water attenuation basin
 - Anticipated emergency access
 - Activity Area
 - Single storey buildings



Richborough Estates
nineteen47
 CHARTERED TOWN PLANNERS & URBAN DESIGNERS

Project
 Harrisons Lane, Halesworth

Drawing Title
 Illustrative Layout

Project Code	Drawing Nr	Rev	Drawing Scale
n1142	004	C	1:10 0 0 @A2





APPENDIX II
FIELD RECORDS



Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type CP	
Location: Harrison's Lane, Halesworth		Co-ords: 639318.56 E 278212.09 N	Level: 33.51m AOD	Scale 1:50	
Client: Richborough Estates Limited		Start Dates: Finish 03/06/2019 03/06/2019		Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)						
0.50	ES1				0.50	33.01	MADE GROUND: Dark brown slightly gravelly slightly clayey SAND. Gravel is subangular to rounded fine to coarse brick, chalk, flint and coal. (Topsoil)			
0.70	ES2									
1.20 - 1.65	D3				1.10	32.41	Soft to firm grey gravelly silty CLAY. Gravel is angular to subangular fine to coarse chalk and flint. (Lowestoft Formation)			
1.20	SPT	N=6 (1,0/1,1,1,3)								
1.70	D4						Very stiff below 7.0m.			
2.00 - 2.45	D5									
2.00	SPT	N=11 (1,1/2,2,3,4)								
2.50	D6									
3.00 - 3.45	D7									
3.00	SPT	N=13 (1,2/2,3,4,4)								
3.50	D8									
4.00 - 4.45	D9									
4.00	SPT	N=24 (2,4/4,6,6,8)								
4.50	D10									
5.00 - 5.45	D11									
5.00	SPT	N=24 (2,3/4,5,7,8)								
5.50	D12									
6.00 - 6.45	D13									
6.00	SPT	N=34 (6,5/6,6,10,12)								
7.00 - 7.45	D14									
7.00	SPT	N=29 (4,4/5,6,8,10)								
8.00 - 8.42	D15									
8.00	SPT	N=50 (5,8/50 for 270mm)								
8.50	D16									
9.00 - 9.45	D17									
9.00	SPT	N=41 (4,5/8,10,10,13)								
10.00 - 10.41	D18									

Remarks Cable percussion drilling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	

		www.aslenvironmental.co.uk					Borehole No. BH101						
Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087			Sheet 2 of 2								
Location: Harrisons Lane, Halesworth		Co-ords: 639318.56 E 278212.09 N	Level: 33.51m AOD	Hole Type CP		Scale 1:50							
Client: Richborough Estates Limited		Start 03/06/2019	Dates: Finish 03/06/2019	Logged By SWF									
Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well			
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)									
10.00	SPT	N=50 (9,11/50 for 260mm)					Soft to firm grey gravelly silty CLAY. Gravel is angular to subangular fine to coarse chalk and flint. (Lowestoft Formation) <u>Gravelly below 10.0m.</u>						
11.00	D19												
11.50 - 11.95 11.50	D20 SPT	N=43 (6,11/9,10,11,13)											
13.00 - 13.43 13.00	D21 SPT	N=50 (7,11/50 for 280mm)											
14.50 - 14.95 14.50	D22 SPT	N=49 (10,9/11,12,12,14)											
15.00	D23				15.00	18.51	End of Borehole at 15.000m						
Remarks							Key						
Cable percussion drilling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.							D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample		N/R - No Recovery HVP - Hand Vane Shear Test WS - Water Strike				



Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type CP	
Location: Harrison's Lane, Halesworth		Co-ords: 639537.33 E 278202.17 N	Level: 27.77m AOD	Scale 1:50	
Client: Richborough Estates Limited		Start Dates: Finish 04/06/2019 04/06/2019		Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)						
0.10	ES1						MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse brick, chalk and flint. (Topsoil)			
0.70	ES2				0.60	27.17	Very stiff grey and orange brown slightly gravelly locally sandy silty CLAY. Gravel is subrounded to rounded fine to coarse chalk and flint. (Lowestoft Formation)			
1.00	ES3									
1.20 - 1.65	D4	N=9 (1,2/2,2,2,3)			1.20	26.57	Firm grey and brown gravelly silty CLAY. Gravel is subangular to rounded fine to coarse chalk, flint and occasional siltstone. (Lowestoft Formation)			
1.20	SPT									
1.70	D5									
2.00 - 2.45	D6	N=11 (1,2/2,3,3,3)								
2.00	SPT									
2.50	D7									
3.00 - 3.45	D8	N=12 (3,3/3,3,3,3)								
3.00	SPT									
3.50	D9									
4.00 - 4.45	D10	N=3 (1,0/1,0,1,1)			3.80	23.97	Soft cream slightly gravelly sandy SILT. Gravel is angular to subangular fine to medium chalk. (Lowestoft Formation)			
4.00	SPT									
4.50	D11				4.40	23.37	Firm to stiff grey slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium chalk and rare flint. (Lowestoft Formation)			
5.00 - 5.45	D12	N=31 (7,10/7,7,7,10)								
5.00	SPT									
6.00 - 6.45	D13	N=29 (6,9/7,8,6,8)								
6.00	SPT									
7.00 - 7.45	D14	N=29 (6,6/7,8,7,7)								
7.00	SPT									
7.50	D15									
8.00 - 8.45	D16	N=35 (6,8/8,9,8,10)								
8.00	SPT									
9.00 - 9.38	D17	50 (5,7/50 for 225mm)			8.80	18.97	Very dense light brown and yellow slightly gravelly slightly clayey SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. (Lowestoft Formation)			
9.00	SPT									
10.00 - 10.45	D18				9.50	18.27	Dense light brown sandy slightly clayey angular to rounded fine to coarse GRAVEL of flint. (Lowestoft Formation)			
Continued on Next Sheet										

Remarks Cable percussion drilling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	



Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type CP	
Location: Harrisons Lane, Halesworth		Co-ords: 639537.33 E 278202.17 N	Level: 27.77m AOD	Scale 1:50	
Client: Richborough Estates Limited		Start 04/06/2019	Dates: Finish 04/06/2019	Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)						
10.00	SPT	N=43 (5,8/9,10,11,13)					Dense light brown sandy slightly clayey angular to rounded fine to coarse GRAVEL of flint. (Lowestoft Formation)			
10.50	D19				11.00	16.77	Very dense light brown gravelly silty SAND. Gravel is angular to rounded fine to coarse flint. (Lowestoft Formation)			11
11.50 - 11.90 11.50	D20 SPT	N=50 (5,9/50 for 270mm)								
13.00 - 13.40 13.00	D21 SPT	N=50 (6,10/50 for 290mm)					Very dense light brown very silty SAND. (Lowestoft Formation)			13
13.50	D22				13.50	14.27				14
14.50 - 14.95 14.50	D23 SPT	N=50 (4,8/50 for 295mm)					End of Borehole at 15.000m			15
15.00 - 15.10	D24				15.00	12.77				16
										17
										18
										19
										20

Remarks Cable percussion drilling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	



Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type CP	
Location: Harrison's Lane, Halesworth		Co-ords: 639428.51 E 278106.70 N	Level: 33.18m AOD	Scale 1:50	
Client: Richborough Estates Limited		Start Dates: Finish 05/06/2019 05/06/2019		Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)						
0.20	ES1				0.40	32.78	MADE GROUND: Brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to medium flint, brick, chalk and coal. (Topsoil)			
0.70	ES2						Very stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to medium chalk and flint. (Lowestoft Formation)			
1.00	D3				1.00	32.18	Firm grey slightly gravelly CLAY. Gravel is angular to rounded fine to medium chalk and rare flint. (Lowestoft Formation)			1
1.20 - 1.65 1.20	D4 SPT	N=4 (1,1/1,1,1,1)								
1.80	D5									2
2.00 - 2.45 2.00	D6 SPT	N=6 (1,1/1,2,1,2)								
2.50	D7									3
3.00 - 3.45 3.00	D8 SPT	N=7 (1,1/1,2,2,2)								
3.50	D9									4
4.00 - 4.45 4.00	D10 SPT	N=23 (4,4/5,5,6,7)								
4.50	D11									5
5.00 - 5.45 5.00	D12 SPT	N=25 (3,4/5,6,7,7)								
6.00 - 6.45 6.00	D13 SPT	N=27 (5,5/5,6,8,8)								6
7.00 - 7.45 7.00	D14 SPT	N=30 (5,5/6,6,8,10)								
7.50	D15									8
8.00 - 8.45 8.00	D16 SPT	N=30 (5,6/6,7,8,9)								
9.00 - 9.45 9.00	D17 SPT	N=37 (5,8/8,9,9,11)								9
10.00 - 10.45	D18									

Stiff.

Very stiff.

Continued on Next Sheet

Remarks
Cable percussion drilling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type CP	
Location: Harrison's Lane, Halesworth		Co-ords: 639428.51 E 278106.70 N	Level: 33.18m AOD	Scale 1:50	
Client: Richborough Estates Limited		Start 05/06/2019	Dates: Finish 05/06/2019	Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)						
10.00	SPT	N=41 (5,8/9,10,11,11)					Firm grey slightly gravelly CLAY. Gravel is angular to rounded fine to medium chalk and rare flint. (Lowestoft Formation)			
10.50	D19									
11.50 - 11.94 11.50	D20 SPT	N=50 (6,10/50 for 290mm)					Dense light brown clayey fine to medium SAND with rare subrounded to rounded fine to coarse gravel of chalk. (Lowestoft Formation)			
13.00 - 13.39 13.00	D21 SPT	N=50 (7,10/50 for 240mm)			14.00	19.18				
13.50	D22									
14.50 - 14.95 14.50	D23 SPT	N=42 (5,7/9,10,11,12)			15.00	18.18	End of Borehole at 15.000m			
15.00	D24									

Remarks Cable percussion drilling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	



Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type CP	
Location: Harrison's Lane, Halesworth		Co-ords: 639573.04 E 278071.15 N	Level: 29.95m AOD	Scale 1:50	
Client: Richborough Estates Limited		Start Dates: Finish 04/06/2019 04/06/2019		Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)						
0.20	ES1				0.30	29.65	MADE GROUND: Brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to medium flint, brick, chalk and coal. (Topsoil) Firm grey mottled brown slightly gravelly CLAY. Gravel is angular to rounded fine to medium chalk and flint. (Lowestoft Formation) Firm grey slightly gravelly CLAY. Gravel is angular to rounded fine to medium chalk and rare flint. (Lowestoft Formation)			
0.50	ES2				0.70	29.25				
0.80	D3									
1.20 - 1.65 1.20	D4 SPT	N=5 (1,1/1,1,1,2)								
1.70	D5									
2.00 - 2.45 2.00	D6 SPT	N=4 (1,1/1,1,1,1)								
2.50	D7									
3.00 - 3.45 3.00	D8 SPT	N=7 (1,1/1,2,2,2)								
3.50	D9									
4.00 - 4.45 4.00	D10 SPT	N=13 (1,2/2,3,3,5)					Stiff.			
4.50	D11									
5.00 - 5.45 5.00	D12 SPT	N=24 (2,3/5,5,7,7)								
6.00 - 6.45 6.00	D13 SPT	N=39 (5,6/9,9,10,11)					Very stiff.			
7.00 - 7.45 7.00	D14 SPT	N=32 (4,6/7,7,8,10)								
7.50	D15									
8.00 - 8.45 8.00	D16 SPT	N=40 (5,7/8,10,10,12)								
9.00 - 9.45 9.00	D17 SPT	N=41 (5,7/8,10,11,12)								
10.00 - 10.43	D18									

Continued on Next Sheet

Remarks
 Cable percussion drilling from ground level to completed depth. Groundwater not encountered.
 Combined gas and groundwater monitoring standpipe installed on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type CP	
Location: Harrisons Lane, Halesworth		Co-ords: 639573.04 E 278071.15 N	Level: 29.95m AOD	Scale 1:50	
Client: Richborough Estates Limited		Start 04/06/2019	Dates: Finish 04/06/2019	Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT/U blow	HVP (KPa)	PID (ppm)						
10.00	SPT	N=50 (8,9/50 for 280mm)					Firm grey slightly gravelly CLAY. Gravel is angular to rounded fine to medium chalk and rare flint. (Lowestoft Formation)			
10.50	D19									
11.50 - 11.95 11.50	D20 SPT	N=49 (7,10/10,11,13,15)			12.00	17.95	Yellow brown slightly clayey fine to medium SAND. (Lowestoft Formation)			
13.00 - 13.40 13.00	D21 SPT	N=50 (8,10/50 for 240mm)			13.30	16.65	Soft to firm grey mottled brown locally sandy CLAY with rare subrounded to rounded fine to medium gravel of chalk. (Lowestoft Formation)			
13.50	D22									
14.50 - 14.93 14.50	D23 SPT	N=50 (5,7/50 for 280mm)			14.90	15.05	Yellow brown slightly clayey fine to medium SAND. (Lowestoft Formation)			
15.00	D24				15.00	14.95	End of Borehole at 15.000m			

Remarks Cable percussion drilling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	



Project Name:
Land off Harrison's Lane, Halesworth

Project No.:
450-18-087

Hole Type
WLS

Location:
Harrison's Lane, Halesworth

Co-ords:
639269.98 E
278141.53 N

Level:
34.18m AOD

Scale
1:25

Client:
Richborough Estates Limited

Dates:
Start: 06/06/2019
Finish: 06/06/2019

Logged By
SWF

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.20	ES1				0.30	33.88	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, chalk and rare brick. (Topsoil)			
0.40	ES2						Stiff orange brown slightly gravelly locally sandy silty CLAY. Gravel is angular to rounded fine to coarse flint and chalk. (Lowestoft Formation)			
0.90	D3	N=13 (4,3/4,3,3,3)					Stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse chalk, flint and shell fragments. (Lowestoft Formation)			
1.00	D4									
1.00	SPT (C)									
1.90	D5	N=15 (2,3/3,4,4,4)			3.00	31.18	<u>Recovered as angular to subangular fine to coarse GRAVEL of siltstone. (Possible boulder)</u>			
2.00	D6									
2.00	SPT (C)									
2.60	D7									
3.00	D8	N=14 (1,2/3,4,4,3)			3.00	31.18	Soft becoming firm below 3.2m brown very gravelly CLAY. Gravel is angular to rounded fine to coarse chalk and flint. (Lowestoft Formation)			
3.00	SPT (C)									
3.70	D9									
4.00	D10	N=27 (4,4/4,9,8,6)			4.80	29.38	<u>Stiff.</u>			
4.00	SPT (C)									
4.90	D11						Stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse chalk, flint and shell fragments. (Lowestoft			
Continued on Next Sheet										

Remarks
Windowless sampling from ground level to completed depth. Groundwater encountered at 3.0m bgl.
Combined gas and groundwater monitoring standpipe installed on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





WS101

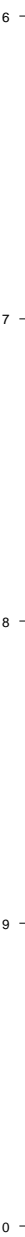
Sheet 2 of 2

Project Name: **Land off Harrisons Lane, Halesworth** Project No.: **450-18-087** Hole Type: **WLS**

Location: **Harrisons Lane, Halesworth** Co-ords: **639269.98 E 278141.53 N** Level: **34.18m AOD** Scale: **1:25**

Client: **Richborough Estates Limited** Start Dates: **06/06/2019** Finish: **06/06/2019** Logged By: **SWF**

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (C)	N=24 (4,5/5,6,7,6)					Stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse chalk, flint and shell fragments. (Lowestoft Formation)			
					5.45	28.73	End of Borehole at 5.450m			



Remarks
 Windowless sampling from ground level to completed depth. Groundwater encountered at 3.0m bgl.
 Combined gas and groundwater monitoring standpipe installed on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike



Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrison's Lane, Halesworth		Co-ords: 639339.23 E 278127.63 N	Level: 34.05m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start Dates: Finish 25/06/2019 25/06/2019		Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.30	ES1			0.0	0.35	33.70	MADE GROUND: Soft to firm brown slightly sandy silty CLAY with rare angular to subrounded fine to coarse gravel of flint, chalk, brick and wood. (Topsoil)			
0.50	ES2			0.0			Stiff green brown mottled orange brown very sandy CLAY with rare angular to subangular fine to coarse gravel of flint and chalk. Sand is fine. (Lowestoft Formation)			
0.80	D3				0.90	33.15	Stiff thinly laminated green brown mottled grey slightly gravelly silty CLAY. Gravel is subangular fine to medium chalk and rare sandstone. (Lowestoft Formation)			1
1.00 - 1.45 1.00	D4 SPT (S)	N=12 (2,3/3,3,3,3)			1.35	32.70	Medium dense pale orange brown clayey fine to medium SAND. (Lowestoft Formation)			
1.40	D5				1.50	32.55	Stiff dark green brown mottled dark grey slightly gravelly CLAY. Gravel is subangular fine to coarse chalk. (Lowestoft Formation)			
2.00 - 2.45 2.00	D6 SPT (S)	N=16 (2,2/2,3,5,6)			2.75	31.30	Firm white gravelly SILT. Gravel is angular fine to medium chalk. (Lowestoft Formation)			2
2.80	D7				3.00	30.60	End of Borehole at 3.450m			3
3.00 - 3.45 3.00	D8 SPT (S)	N=13 (2,2/3,4,3,3)			3.45	30.60				4
										5

Remarks

Windowless sampling from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample
W - Water Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
WS - Water Strike





Project Name: **Land off Harrison's Lane, Halesworth** Project No.: **450-18-087** Hole Type: **WLS**

Location: **Harrison's Lane, Halesworth** Co-ords: **639427.65 E 278179.45 N** Level: **31.76m AOD** Scale: **1:25**

Client: **Richborough Estates Limited** Start Dates: **06/06/2019** Finish: **06/06/2019** Logged By: **SWF**

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.10	ES1	N=13 (2,2/3,3,3,4)			0.28	31.48	MADE GROUND: Dark brown slightly gravelly clayey SAND. Gravel is angular to rounded fine to coarse quartzite, flint, chalk, coal and brick. (Topsoil)			
0.50	ES2				Very stiff orange brown locally sandy gravelly CLAY. Gravel is angular to rounded fine to coarse chalk and flint. (Lowestoft Formation)					
0.90	D3				N=11 (1,2/2,3,3,3)					
1.00	D4									
1.00	SPT (C)									
1.70	D5	N=20 (1,3/5,6,6)								
2.00	D6									
2.00	SPT (C)									
2.80	D7	N=30 (3,4/5,7,9,9)								
3.00	D8									
3.00	SPT (C)									
3.50	D9									
4.00	D10						Very stiff.			
4.00	SPT (C)									
4.70	D11				4.70	27.06	Soft cream and light brown slightly sandy slightly gravelly SILT. Gravel is subangular fine to coarse chalk. (Lowestoft Formation)	✕✕✕✕		
4.90	D12				4.80	26.96	Stiff grey gravelly silty CLAY. Gravel is angular to rounded			

Continued on Next Sheet

Remarks
 Windowless sampling from ground level to completed depth. Groundwater not encountered.
 Combined gas and groundwater monitoring standpipe installed on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





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Sheet 2 of 2

Project Name: **Land off Harrisons Lane, Halesworth** Project No.: **450-18-087** Hole Type: **WLS**

Location: **Harrisons Lane, Halesworth** Co-ords: **639427.65 E 278179.45 N** Level: **31.76m AOD** Scale: **1:25**

Client: **Richborough Estates Limited** Start Dates: **06/06/2019** Finish: **06/06/2019** Logged By: **SWF**

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (C)	N=26 (1,4/4,7,7,8)					Stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to medium chalk and shell fragments. (Lowestoft Formation)			
					5.45	26.31	End of Borehole at 5.450m			

Remarks
 Windowless sampling from ground level to completed depth. Groundwater not encountered.
 Combined gas and groundwater monitoring standpipe installed on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





Project Name: **Land off Harrison's Lane, Halesworth** Project No.: **450-18-087** Hole Type: **WLS**

Location: **Harrison's Lane, Halesworth** Co-ords: **639481.93 E 278142.53 N** Level: **31.40m AOD** Scale: **1:25**

Client: **Richborough Estates Limited** Start Dates: **06/06/2019** Finish: **06/06/2019** Logged By: **SWF**

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.20	ES1				0.30	31.10	MADE GROUND: Dark brown slightly gravelly clayey SAND. Gravel is angular to rounded fine to coarse quartzite, flint, chalk, coal and brick. (Topsoil)			
0.60	ES2				0.70	30.70	Very stiff brown mottled grey gravelly CLAY. Gravel is angular to rounded fine to coarse chalk and flint. (Lowestoft Formation)			
0.80	D3						Firm to stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse flint, chalk and shell fragments. (Lowestoft Formation)			
1.00	D4	N=20 (3,3/5,4,5,6)								
1.00	SPT (C)									
1.50	D5									
2.00	D6	N=17 (3,3/3,5,4,5)								
2.00	SPT (C)									
2.60	D7									
3.00	D8	N=24 (3,5/4,6,7,7)								
3.00	SPT (C)									
3.90	D9									
4.00	D10	N=29 (5,5/6,7,8,8)								
4.00	SPT (C)									
4.80	D11						<u>Slightly gravelly below 4.5m.</u>			
							Continued on Next Sheet			

Remarks
 Windowless sampling from ground level to completed depth. Groundwater not encountered.
 Backfilled with arisings on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





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Sheet 2 of 2

Project Name: **Land off Harrisons Lane, Halesworth** Project No.: **450-18-087** Hole Type: **WLS**

Location: **Harrisons Lane, Halesworth** Co-ords: **639481.93 E 278142.53 N** Level: **31.40m AOD** Scale: **1:25**

Client: **Richborough Estates Limited** Start Dates: **06/06/2019** Finish: **06/06/2019** Logged By: **SWF**

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (C)	N=31 (5,6/6,8,9,8)					Firm to stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse flint, chalk and shell fragments. (Lowestoft Formation)			
					5.45	25.95	End of Borehole at 5.450m			

Remarks
 Windowless sampling from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





Project Name: **Land off Harrison's Lane, Halesworth** Project No.: **450-18-087** Hole Type: **WLS**

Location: **Harrison's Lane, Halesworth** Co-ords: 639584.81 E 278141.92 N Level: 27.46m AOD Scale: 1:25

Client: **Richborough Estates Limited** Start Dates: 06/06/2019 Finish: 06/06/2019 Logged By: **SWF**

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.25	ES1				0.30	27.16	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, chalk and rare brick. (Topsoil)			
0.60	D2				0.70	26.76	Very stiff orange and grey slightly gravelly silty CLAY. Gravel is angular to rounded fine to coarse chalk and flint. (Lowestoft Formation)			
0.90	D3	N=12 (5,3/3,3,3,3)					Stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse flint, chalk and shell fragments. (Lowestoft Formation)			
1.00	D4						Very gravelly with rare subangular cobbles of flint.			
1.00	SPT (C)									
1.70	ES5									
2.00	D6	N=16 (3,3/3,4,4,5)								
2.00	SPT (C)									
2.90	D7	N=23 (3,4/4,6,6,7)								
3.00	D8									
3.00	SPT (C)									
3.70	D9									
4.00	D10	N=33 (8,13/14,6,6,7)					Very stiff.			
4.00	SPT (C)									
4.90	D11									

Continued on Next Sheet

Remarks
 Windowless sampling from ground level to completed depth. Groundwater not encountered.
 Combined gas and groundwater monitoring standpipe installed on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrisons Lane, Halesworth		Co-ords: 639584.81 E 278141.92 N	Level: 27.46m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 06/06/2019	Dates: Finish 06/06/2019	Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (C)	N=35 (6,6/8,9,9,9)					Stiff grey gravelly silty CLAY. Gravel is angular to rounded fine to coarse flint, chalk and shell fragments. (Lowestoft Formation)			
					5.45	22.01	End of Borehole at 5.450m			

Remarks Windowless sampling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	

Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrisons Lane, Halesworth		Co-ords: 639524.87 E 278107.44 N	Level: 30.90m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start Dates: Finish 06/06/2019 06/06/2019		Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.10	ES1						Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, coal and chalk. (Topsoil)			
0.40					30.50		Stiff orange brown slightly gravelly locally sandy silty CLAY. Gravel is angular to rounded fine to coarse flint and chalk. (Lowestoft Formation)			
0.60	ES2				0.70	30.20	Stiff grey slightly gravelly locally sandy silty CLAY. Gravel is angular to rounded fine to coarse flint, chalk and shell fragments. (Lowestoft Formation)			
0.90	D3									
1.00	D4									
1.00	SPT (C)	N=12 (3,5/3,3,3,3)								
1.30	D5									
2.00										
2.00	D6 SPT (C)	N=15 (3,3/3,3,4,5)								
2.50	D7									
3.00										
3.00	D8 SPT (C)	N=23 (4,4/6,5,5,7)								
3.80	D9									
4.00										
4.00	D10 SPT (C)	N=36 (4,5/10,9,9,8)					<u>Very stiff below 4.0m.</u>			
4.35	D11						<u>Band of firm brown SILT.</u>			
4.90	D12									
Continued on Next Sheet										

Remarks

Windowless sampling from ground level to completed depth. Groundwater not encountered. Damp strata noted between 4.35m and 4.45m. Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample
W - Water Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike





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Sheet 2 of 2

Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrisons Lane, Halesworth		Co-ords: 639524.87 E 278107.44 N	Level: 30.90m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 06/06/2019	Dates: Finish 06/06/2019	Logged By SWF	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (C)	N=31 (4,5/6,8,9,8)					Stiff grey slightly gravelly locally sandy silty CLAY. Gravel is angular to rounded fine to coarse flint, chalk and shell fragments. (Lowestoft Formation)			
					5.45	25.45	End of Borehole at 5.450m			

Remarks Windowless sampling from ground level to completed depth. Groundwater not encountered. Damp strata noted between 4.35m and 4.45m. Backfilled with arisings on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	

Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrison's Lane, Halesworth		Co-ords: 639388.56 E 278042.22 N	Level: 34.36m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start Dates: Finish 25/06/2019 25/06/2019		Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.20	ES1			0.5			MADE GROUND: Soft dark brown slightly gravelly slightly sandy silty CLAY with occasional subrounded cobbles of quartzite. Gravel is angular to subrounded fine to coarse flint, coal, plastic and quartz. (Topsoil)			
0.50	ES2			1.2	0.40	33.96	MADE GROUND: Soft to firm green grey mottled yellow brown slightly gravelly CLAY. Gravel is angular to subrounded medium to coarse flint, sandstone, plastic and quartzite.			
1.00	D3	N=10 (1,1/1,3,3,3)			0.90	33.46	Firm thinly laminated grey mottled orange brown slightly gravelly locally sandy silty CLAY. Gravel is subangular fine to coarse chalk. (Lowestoft Formation)			1
1.00	SPT (S)				1.20	33.16	Firm to stiff thinly laminated grey mottled orange brown slightly gravelly locally sandy silty CLAY. Gravel is subangular fine to coarse chalk. Strong animal waste odour. (Lowestoft Formation)			
1.75	D4				1.75	32.61	Stiff dark green brown mottled dark grey slightly gravelly locally sandy CLAY. Gravel is subangular fine to coarse chalk and sandstone. (Lowestoft Formation)			
2.00 - 2.45	D5	N=21 (3,3/4,4,6,7)			2.00	32.36	Medium dense pale green brown silty medium SAND. (Lowestoft Formation)			2
2.00	SPT (S)				2.30	32.06	Stiff dark green brown mottled dark grey slightly gravelly locally sandy CLAY. Gravel is subangular fine to coarse chalk and sandstone. (Lowestoft Formation)			
2.80	D7									
3.00 - 3.45	D8	N=25 (2,4/5,5,7,8)			3.00	31.36	Medium dense green brown fine to medium SAND. (Lowestoft Formation)			3
3.00	SPT (S)						<u>Poor recovery.</u>			
4.00	SPT (S)	N=24 (3,3/3,6,7,8)			3.80	30.56	Stiff dark green brown mottled dark grey slightly gravelly locally sandy CLAY. Gravel is subangular fine to coarse chalk and sandstone. (Lowestoft Formation)			4
							<u>No recovery</u>			
5.00 - 5.45	D9									5

Continued on Next Sheet

Remarks

Hand dug inspection pit from ground level to 1.0m bgl. Windowless sampling from 1.0m to completed depth. Groundwater encountered at 2.0m bgl. Combined gas and groundwater monitoring standpipe installed on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample
W - Water Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
WS - Water Strike



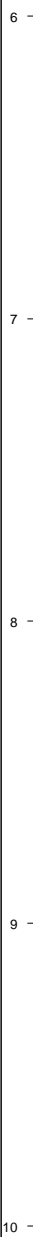


WS108

Sheet 2 of 2

Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrisons Lane, Halesworth		Co-ords: 639388.56 E 278042.22 N	Level: 34.36m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 25/06/2019	Dates: Finish 25/06/2019	Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (S)	N=44 (7,7/9,9,13,13)					Stiff dark green brown mottled dark grey slightly gravelly locally sandy CLAY. Gravel is subangular fine to coarse chalk and sandstone. (Lowestoft Formation)			
					5.45	28.91	End of Borehole at 5.450m			



Remarks Hand dug inspection pit from ground level to 1.0m bgl. Windowless sampling from 1.0m to completed depth. Groundwater encountered at 2.0m bgl. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	

Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrison's Lane, Halesworth		Co-ords: 639445.44 E 278040.04 N	Level: 33.89m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start Dates: Finish 25/06/2019 25/06/2019		Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.15	ES1			0.1			Soft dark brown slightly sandy silty CLAY. (Topsoil)			
0.35	ES2			0.4	0.25 33.64		Soft green brown mottled dark grey silty CLAY with occasional fragments of decomposing vegetation, rootlets and rare angular to subrounded gravel of flint, quartzite and charcoal. (Lowestoft Formation)			
0.90 1.00 - 1.45 1.00	D3 D4 SPT (S)	N=12 (2,3/3,3,3,3)			0.60 33.29		Soft to firm orange brown mottled grey slightly gravelly and locally gravelly silty CLAY with occasional decomposing roots and rootlets. Gravel is subangular to subrounded fine to coarse chalk and flint. (Lowestoft Formation)			
1.50	D5						<u>Firm below 1.0m.</u>			
2.00 - 2.45 2.00	D6 SPT (S)	N=21 (4,3/4,4,6,7)			2.00 31.89		Stiff dark green brown mottled dark grey slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and rare sandstone. (Lowestoft Formation)			
2.45	D7						<u>Stiff below 1.5m.</u>			
3.00 - 3.45 3.00	D8 SPT (S)	N=19 (2,3/3,5,5,6)								
4.00 - 4.45 4.00	D9 SPT (S)	N=28 (2,4/6,9,3,10)					<u>Very stiff below 4.0m.</u>			
5.00 - 5.45	D10									
							Continued on Next Sheet			

Remarks

Windowless sampling from ground level to completed depth. Groundwater not encountered.
Combined gas and groundwater monitoring standpipe installed on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample
W - Water Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
WS - Water Strike





Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrison's Lane, Halesworth		Co-ords: 639445.44 E 278040.04 N	Level: 33.89m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 25/06/2019	Dates: Finish 25/06/2019	Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (S)	N=38 (5,6/11,10,8,9)					Stiff dark green brown mottled dark grey slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and rare sandstone. (Lowestoft Formation)			
					5.45	28.44	End of Borehole at 5.450m			

Remarks Windowless sampling from ground level to completed depth. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	

Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrison's Lane, Halesworth		Co-ords: 639412.46 E 278010.14 N	Level: 34.27m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start Dates: Finish 25/06/2019 25/06/2019		Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.25	ES1			0.1	0.30	33.97	Soft dark brown silty CLAY. (Topsoil)			
0.45	ES2			0.1			Soft green brown mottled dark grey silty CLAY with occasional fragments of decomposing vegetation, occasional rootlets and rare angular coarse gravel of flint. (Lowestoft Formation)			
0.55	D3				0.65	33.62		Soft to firm orange brown mottled grey slightly gravelly silty CLAY. Gravel is subrounded fine to coarse chalk. (Lowestoft Formation)		
1.00 - 1.45	D4	N=12 (1,1/2,3,3,4)					<i>Firm below 1.0m.</i>			
1.00	SPT (S)									
1.45	D5				1.50	32.77	Stiff thinly laminated dark green brown slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and rare flint. (Lowestoft Formation)			
1.70	D6									
2.00 - 2.45	D7	N=21 (4,4/4,6,5,6)					<i>No recovery.</i>			
2.00	SPT (S)									
3.00 - 3.45	D8	N=23 (3,4/4,6,6,7)					<i>No recovery.</i>			
3.00	SPT (S)									
4.00 - 4.45	D9	N=31 (4,6/6,7,7,11)					<i>No recovery.</i>			
4.00	SPT (S)									
5.00 - 5.45	D10									

Continued on Next Sheet

Remarks

Windowless sampling from ground level to completed depth. Groundwater encountered at 2.5m bgl.
Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample
W - Water Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike





Project Name: **Land off Harrisons Lane, Halesworth** Project No.: **450-18-087** Hole Type: **WLS**


Location: **Harrisons Lane, Halesworth** Co-ords: 639412.46 E 278010.14 N Level: 34.27m AOD Scale: 1:25

Client: **Richborough Estates Limited** Start Dates: 25/06/2019 Finish: 25/06/2019 Logged By: **MC**

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (S)	N=35 (5,5/7,7,10,11)					Stiff thinly laminated dark green brown slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and rare flint. (Lowestoft Formation)			
					5.45	28.82	End of Borehole at 5.450m			

Remarks
 Windowless sampling from ground level to completed depth. Groundwater encountered at 2.5m bgl. Backfilled with arisings on completion.

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike



Project Name: Land off Harrison's Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrison's Lane, Halesworth		Co-ords: 639383.23 E 277984.24 N	Level: 34.47m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start Dates: Finish 25/06/2019 25/06/2019		Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.00 0.10	B1 ES1			0.3			Soft dark brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and quartzite. (Topsoil)			
0.40	ES2			0.4	0.30	34.17	Soft green brown mottled dark grey silty CLAY with rare pockets (<30mm) of black sandy clay and rare subangular to rounded coarse gravel of flint and quartzite. Slight hydrocarbon odour. (Lowestoft Formation)			
0.60 0.70	D3 ES4			40.0	0.65	33.82	Firm to stiff green brown mottled grey slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse chalk and sandstone. Moderate hydrocarbon odour and localised hydrocarbon staining. (Lowestoft Formation)			
0.90 1.00 - 1.45 1.00	D5 D6 SPT (S)	N=16 (2,2/2,4,5,5)		2.7						1
1.55	D7			1.3	1.45	33.02	Stiff dark green brown mottled dark grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. (Lowestoft Formation)			
2.00 - 2.45 2.00	D8 SPT (S)	N=17 (2,3/3,4,5,5)		0.9						2
3.00 - 3.45 3.00	D9 SPT (S)	N=35 (6,7/7,9,8,11)		0.3						3
4.00 - 4.45 4.00	D10 SPT (S)	N=38 (12,7/9,9,10,10)		0.2						4
					4.45	30.02	End of Borehole at 4.450m			5

Remarks

Windowless sampling from ground level to completed depth. Standing water noted at the surface in the vicinity of the borehole. Groundwater not encountered. Combined gas and groundwater monitoring standpipe installed on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample
W - Water Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike





Project Name:
Land off Harrison's Lane, Halesworth

Project No.:
450-18-087

Hole Type
WLS

Location:
Harrison's Lane, Halesworth

Co-ords:
639435.49 E
277979.81 N

Level:
34.01m AOD

Scale
1:25

Client:
Richborough Estates Limited

Dates:
Start: 25/06/2019
Finish: 25/06/2019

Logged By
MC

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
0.20	ES1			0.5	0.25	33.76	Soft dark brown slightly sandy silty CLAY. (Topsoil)			
0.40	ES2			0.2			Soft green brown mottled dark grey silty CLAY with rare fragments of decomposing vegetation, rare rootlets and rare angular coarse gravel of flint. (Lowestoft Formation)			
0.50	D3									
0.70	ES3			0.6	0.60	33.41	Firm orange brown mottled grey slightly gravelly silty CLAY. Gravel is subrounded fine to coarse chalk and rare sandstone. (Lowestoft Formation)			
1.00 - 1.45	D4	N=12 (2,2/2,3,3,4)					Stiff dark green brown mottled dark grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and rare sandstone. (Lowestoft Formation)			
1.00	SPT (S)				1.40	32.61				
1.60	D5									
2.00 - 2.45	D6	N=22 (3,4/5,5,5,7)								
2.00	SPT (S)									
2.70	D7									
3.00 - 3.45	D8	N=26 (4,4/6,6,7,7)					Dark grey.			
3.00	SPT (S)									
4.00 - 4.50	D9	N=29 (6,5/7,8,9)					Very stiff.			
4.00	SPT (S)									
4.50	D10									
5.00 - 5.45	D11									

Continued on Next Sheet

Remarks
Windowless sampling from ground level to completed depth. Groundwater encountered at 1.0m bgl. Combined gas and groundwater monitoring standpipe installed on completion.

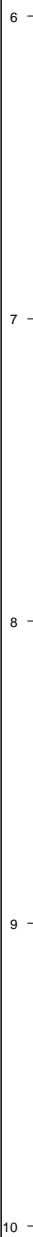
Key
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 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 W - Water Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type WLS	
Location: Harrisons Lane, Halesworth		Co-ords: 639435.49 E 277979.81 N	Level: 34.01m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 25/06/2019	Dates: Finish 25/06/2019	Logged By MC	

Sample and In Situ Testing					Depth (m)	Level (m)	Stratum Description	Legend	WS	Well
Depth (m)	Type	SPT	HPV (KPa)	PID (ppm)						
5.00	SPT (S)	N=33 (4,6/6,7,9,11)					Stiff dark green brown mottled dark grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and rare sandstone. (Lowestoft Formation)			
					5.45	28.56	End of Borehole at 5.450m			



Remarks Windowless sampling from ground level to completed depth. Groundwater encountered at 1.0m bgl. Combined gas and groundwater monitoring standpipe installed on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample W - Water Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike	



Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639284.74 E 278224.80 N	Level: 34.11m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 12/06/2019	Dates: Finish 12/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.30	ES1			0.40	33.71	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded flint, brick, coal and quartzite. (Topsoil)		
0.60	D2			0.60	33.51	MADE GROUND: Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is angular to subangular fine to coarse flint and rare brick.		
1.10	D3	>120 >120				Stiff to very stiff grey gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. (Lowestoft Formation)		
1.60	D4					<i>Pocket of SAND in eastern face of pit.</i>		
2.20	D5					<i>Occasional decomposing rootlets.</i>		
2.80	D6			2.80	31.31	End of Trial Pit at 2.800m		

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	



Project Name: **Land off Harrisons Lane, Halesworth** Project No.: **450-18-087** Hole Type: **TP**

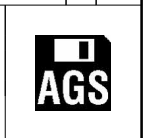
Location: **Harrisons Lane, Halesworth** Co-ords: 639351.93 E 278208.56 N Level: 32.76m AOD Scale: 1:25

Client: **Richborough Estates Limited** Start Dates: 12/06/2019 Finish: 12/06/2019 Logged By: **SWF**

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.10	ES1			0.20	32.56	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint, brick and rare coal. (Topsoil)		
0.50	D2	>120 >120		0.60	32.16	Very stiff locally sandy gravelly CLAY. Gravel is angular to rounded fine to coarse flint and quartzite. (Lowestoft Formation)		
0.90	D3	>120 >120				Stiff to very stiff grey gravelly CLAY with rare subangular cobbles of sandstone and flint. Gravel is subangular to rounded fine to coarse flint, chalk. (Lowestoft Formation)		
1.50	D4							
1.90	D5							
2.40	D6					Occasional decomposing rootlets.		
2.90	D7			3.00	29.76	End of Trial Pit at 3.000m		

Remarks
Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike
 W - Water Sample





Project Name: **Land off Harrisons Lane, Halesworth** Project No.: **450-18-087** Hole Type: **TP**

Location: **Harrisons Lane, Halesworth** Co-ords: 639414.55 E 278207.51 N Level: 31.34m AOD Scale: 1:25

Client: **Richborough Estates Limited** Start Dates: 12/06/2019 Finish: 12/06/2019 Logged By: **SWF**

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S		
Depth (m)	Type	HVP (KPa)	PID (ppm)							
0.20	ES1			0.25	31.10	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint, brick and rare coal. (Topsoil)		1		
						Stiff to very stiff grey gravelly CLAY. Gravel is angular to rounded fine to medium quartzite and flint. (Lowestoft Formation)				
0.70	D2									
1.30	D3									
1.90	D4									
2.40	D5					Occasional decomposing rootlets.				
3.00	D6			3.00	28.34	End of Trial Pit at 3.000m		3		
								4		
								5		

Remarks
 Mechanically excavated from ground level to completed depth. Groundwater not encountered.
 Backfilled with arisings on completion

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike
 W - Water Sample





Project Name: **Land off Harrisons Lane, Halesworth** Project No.: **450-18-087** Hole Type: **TP**

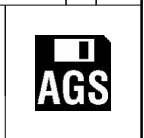
Location: **Harrisons Lane, Halesworth** Co-ords: **639506.77 E 278225.54 N** Level: **28.16m AOD** Scale: **1:25**

Client: **Richborough Estates Limited** Start Dates: **12/06/2019** Finish: **12/06/2019** Logged By: **SWF**

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.40	ES1			0.40	27.76	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint, brick and rare coal. (Topsoil)		
0.60	D2					MADE GROUND: Very stiff brown locally sandy gravelly CLAY. Gravel is angular to subangular flint, chalk and rare brick.		
1.10	D3			0.80	27.36	Stiff grey gravelly CLAY with rare subangular cobbles of flint. Gravel is angular to rounded fine to coarse flint and chalk. (Lowestoft Formation)		
1.90	D4	104 106						
2.40	D5							
3.00	D6			3.00	25.16	Recovered as angular to subangular fine to coarse GRAVEL of siltstone. (Possible boulder) End of Trial Pit at 3.000m		

Remarks
Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion

Key
 D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike
 W - Water Sample





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP
Location: Harrisons Lane, Halesworth		Co-ords: 639596.94 E 278231.81 N	Level: 24.32m AOD	Scale 1:25
Client: Richborough Estates Limited		Start 12/06/2019	Dates: Finish 12/06/2019	Logged By SWF

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.10	D1			0.30	24.02	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint, brick and rare coal. (Topsoil)	[Redacted]	[Redacted]
0.50	ES2	>120	>120	0.60	23.72	MADE GROUND: Very stiff locally sandy gravelly CLAY. Gravel is angular to subangular flint, chalk and rare brick.		
1.00	D3					Stiff grey locally sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse flint and chalk. (Lowestoft Formation)		
1.40	D4							
1.90	D5							
2.50	D6							
2.90	D7			2.90	21.42	Yellow brown gravelly clayey SAND. Gravel is subrounded to rounded quartzite. (Lowestoft Formation)		
				3.00	21.32	End of Trial Pit at 3.000m		

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	



Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639321.77 E 278162.04 N	Level: 33.97m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 12/06/2019	Dates: Finish 12/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.10	ES1			0.30	33.67	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded flint, brick, coal and quartzite. (Topsoil)		
0.50	D2	>120 >120				Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is subangular to rounded fine to coarse flint. (Lowestoft Formation)		
0.90	D3	>120 >120		0.60	33.37	Stiff grey gravelly CLAY with occasional subangular to subrounded cobbles of chalk, siltstone and flint. Gravel is angular to subrounded fine to coarse chalk and flint. (Lowestoft Formation)		
						<i>Pocket of SAND in western face.</i>		
1.30	D4					<i>Pocket of SAND in western face.</i>		
1.90	D5							
2.40	D6					<i>Occasional decomposing rootlets.</i>		
2.80	D7			3.00	30.97	End of Trial Pit at 3.000m		

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion	Key D - Disturbed Sample ES- Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	

Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639369.64 E 278154.40 N	Level: 33.36m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 13/06/2019	Dates: Finish 13/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.10	D1					MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint, brick and rare coal. (Topsoil)		
0.40	ES2			0.35	33.01	MADE GROUND: Very stiff brown locally sandy gravelly CLAY. Gravel is angular to rounded fine to coarse flint and quartzite with rare brick and coal.		
0.90	D3			0.70	32.66	Stiff grey gravelly CLAY. Gravel is angular to rounded fine to coarse chalk, flint and rare coal. (Lowestoft Formation) <i>Pocket of sand encountered in the northern face between 0.8m and 0.9m.</i> <i>Pocket of sand encountered in western face between 0.9m and 1.1m.</i>		1
1.50	D4					<i>Pocket of sand encountered in the northern face.</i>		
2.00	D5	68 72		2.00	31.36	<i>Occasional decomposing rootlets below 1.9m.</i> End of Trial Pit at 2.000m		2
								3
								4
								5

Remarks

Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike
W - Water Sample





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639429.92 E 278155.26 N	Level: 32.31m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start Dates: Finish 13/06/2019 13/06/2019		Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S	
Depth (m)	Type	HVP (KPa)	PID (ppm)						
0.20	ES1			0.25	32.06	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, chalk, quartzite, brick and rare coal. (Topsoil)			
0.60	D2			0.65	31.66	MADE GROUND: Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is angular to subangular fine to coarse flint, quartzite and brick.			
1.00	D3	>120 >120				Stiff grey mottled brown gravelly CLAY with occasional subrounded cobbles of flint. Gravel is angular to rounded fine to coarse chalk and flint. (Lowestoft Formation)			
1.40	D4								
1.90	D5						Occasional decomposing rootlets.		
2.20	D6								
2.80	D7	>120 >120		3.00	29.31	End of Trial Pit at 3.000m			

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	



Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639480.73 E 278166.65 N	Level: 30.71m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 13/06/2019	Dates: Finish 13/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.10	ES1			0.25	30.46	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, chalk, quartzite, brick and rare coal. (Topsoil)		
0.40	ES2					MADE GROUND: Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is angular to subangular fine to coarse flint, quartzite and brick.		
0.90	D3			0.80	29.91	Stiff grey gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk, flint and occasional quartzite. (Lowestoft Formation)		
1.40	D4							
1.70	D5					<i>Occasional decomposing rootlets.</i>		
2.40	D6							
3.00	D7			3.00	27.71	End of Trial Pit at 3.000m		

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	

Project Name:

Land off Harrisons Lane, Halesworth

Project No.:

450-18-087

Hole Type

TP

Location:

Harrisons Lane, Halesworth

Co-ords:
639530.81 E
278154.42 NLevel:
29.55m AOD

Scale

1:25

Client:

Richborough Estates Limited

Start Dates: Finish
13/06/2019 13/06/2019

Logged By

SWF

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.30	ES1			0.35	29.20	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, chalk, quartzite, brick and coal. (Topsoil)		
0.50	D2					MADE GROUND: Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is angular to subangular fine to coarse flint, quartzite and brick.		
0.70	D3			0.65	28.90	Stiff grey gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk, flint and quartzite. (Lowestoft Formation)		
1.20	D4							
1.80	D5					<i>Mottled brown below 1.5m.</i>		
2.30	D6	110 >120				<i>Occasional decomposing rootlets.</i>		
2.90	D7			3.00	26.55	End of Trial Pit at 3.000m		

Remarks

Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike
W - Water Sample



Project Name:

Land off Harrisons Lane, Halesworth

Project No.:

450-18-087

Hole Type

TP

Location:

Harrisons Lane, Halesworth

Co-ords:
639602.04 E
278186.38 NLevel:
25.50m AOD

Scale

1:25

Client:

Richborough Estates Limited

Start Dates: Finish
13/06/2019 13/06/2019

Logged By

SWF

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.30	ES1			0.35	25.15	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, quartzite, brick and coal. (Topsoil)		
0.40	D2					Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is subrounded to rounded fine to coarse quartzite and flint. (Lowestoft Formation)		
0.90	D3			0.70	24.80	Very stiff grey gravelly CLAY. Gravel is angular to subangular fine to coarse chalk and occasional flint. (Lowestoft Formation)		
1.30	D4							
2.00	D5							
2.60	D6			3.20	22.30	End of Trial Pit at 3.200m		
3.10	D7							

Remarks

Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key

D - Disturbed Sample
 ES - Environmental Sample
 B - Bulk Sample
 U - Undisturbed Sample
 SS - Surface Sample
 VS - Validation Sample
 N/R - No Recovery
 HVP - Hand Vane Shear Test
 W/S - Water Strike
 W - Water Sample



Project Name:

Land off Harrisons Lane, Halesworth

Project No.:

450-18-087

Hole Type

TP

Location:

Harrisons Lane, Halesworth

Co-ords:
639668.96 E
278170.19 NLevel:
22.15m AOD

Scale

1:25

Client:

Richborough Estates Limited

Start Dates: Finish
12/06/2019 12/06/2019

Logged By

OLS

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.10	ES1			0.30	21.85	Dark brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse quartzite. (Topsoil)		
0.40	D2					Light brown clayey and locally very clayey SAND and locally sandy clay. Rare rootlets. (Lowestoft Formation)		
1.00	D3			0.90	21.25	Light brown slightly clayey and locally very clayey SAND with occasional subangular fine to coarse gravel of flint. (Lowestoft Formation)		
1.60	D4			1.50	20.65	Soft to firm orange brown, brown and light grey slightly gravelly slightly sandy and locally sandy CLAY. Gravel is subangular to rounded fine to coarse flint. (Lowestoft Formation)		
2.00	D5			1.90	20.25	Light brown slightly clayey and locally very clayey SAND with occasional subangular fine to coarse gravel of flint. (Lowestoft Formation)		
2.60	D6			2.50	19.65	Soft to firm orange brown, brown and light grey slightly gravelly slightly sandy and locally sandy CLAY and locally clayey sand. Gravel is subangular to subrounded fine to coarse flint. (Lowestoft Formation)		
3.00	D7			3.00	19.15	End of Trial Pit at 3.000m		

Remarks

Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike
W - Water Sample





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639622.73 E 278132.64 N	Level: 25.18m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 13/06/2019	Dates: Finish 13/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.10	ES1			0.30	24.88	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, quartzite, brick and coal. (Topsoil)	[Redacted]	[Scale]
0.40	D2	>120 >120				Very stiff orange brown locally sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse flint, quartzite and coal. (Lowestoft Formation)		
0.80	D3			0.70	24.48	Stiff grey gravelly CLAY with rare subrounded cobbles of flint. Gravel is angular to rounded fine to coarse chalk and occasional flint. (Lowestoft Formation)		
1.30	D4							
2.00	D5			2.00	23.18	End of Trial Pit at 2.000m		

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	



Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP
Location: Harrisons Lane, Halesworth		Co-ords: 639392.68 E 278079.28 N	Level: 33.92m AOD	Scale 1:25
Client: Richborough Estates Limited		Start 14/06/2019	Dates: Finish 14/06/2019	Logged By SWF

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.30	ES1			0.40	33.52	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse quartzite, flint, brick, coal and rare chalk. (Topsoil)	[Redacted Legend]	[Redacted W/S]
0.50	D2					Very stiff brown slightly gravelly locally sandy CLAY. Gravel is angular to subrounded fine to coarse quartzite and flint. (Lowestoft Formation)		
0.90	D3			0.70	33.22	Firm to stiff grey mottled brown gravelly CLAY. Gravel is angular subrounded fine to coarse chalk, quartzite, flint and coal. (Lowestoft Formation)		
1.30	D4							
1.90	D5							
2.40	D6					<u>Occasional decomposing rootlets.</u>		
3.00	D7			3.00	30.92	End of Trial Pit at 3.000m		

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	

Project Name:

Land off Harrisons Lane, Halesworth

Project No.:

450-18-087

Hole Type

TP

Location:

Harrisons Lane, Halesworth

Co-ords:
639477.78 E
278094.53 NLevel:
32.47m AOD

Scale

1:25

Client:

Richborough Estates Limited

Start Dates: Finish
13/06/2019 13/06/2019

Logged By

SWF

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.30	ES1			0.40	32.07	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint, chalk, quartzite, brick and coal. (Topsoil)		
0.70	ES2			0.80	31.67	MADE GROUND: Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is angular to subangular fine to coarse flint, quartzite and brick.		
1.10	D3					Firm to stiff grey CLAY with occasional angular to rounded fine to medium gravel of chalk and flint. (Lowestoft Formation)		1
1.60	D4							
1.80	D5			1.70	30.77	Stiff grey gravelly CLAY with low boulder content. Gravel is angular to rounded fine to coarse chalk and occasional flint. Boulders are subangular sandstone. (Lowestoft Formation)		
2.10	D6	114 118				Pocket of slightly gravelly slightly sandy CLAY. Gravel includes angular fine to coarse shell fragments.		2
2.70	D7					Occasional decomposing rootlets.		
				3.00	29.47	End of Trial Pit at 3.000m		3
								4
								5

Remarks

Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike
W - Water Sample





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639520.85 E 278059.49 N	Level: 31.81m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 13/06/2019	Dates: Finish 13/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S	
Depth (m)	Type	HVP (KPa)	PID (ppm)						
0.30	D1			0.35	31.46	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint, quartzite, chalk, brick and rare coal. (Topsoil)		1	
0.60	ES2					MADE GROUND: Very stiff orange brown slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse quartzite, flint and brick.			
0.90	D3			0.80	31.01	Stiff grey gravelly CLAY. Gravel is angular to rounded fine to coarse chalk and flint. (Lowestoft Formation)			
1.30	D4								
1.70	D5					<i>Mottled brown below 1.5m.</i>			2
2.20	D6								
2.80	D7			2.80	29.01	Occasional decomposing rootlets.			
						End of Trial Pit at 2.800m		3	
								4	
								5	

Remarks Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.	Key D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample	N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample	



Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639610.35 E 278087.32 N	Level: 27.60m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 12/06/2019	Dates: Finish 12/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S			
Depth (m)	Type	HVP (KPa)	PID (ppm)								
0.10	ES1			0.30	27.30	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint, brick and rare coal. (Topsoil)		1			
0.40	D2					Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is subangular to rounded quartzite, flint and chalk. (Lowestoft Formation)					
0.90	D3			0.80	26.80	Stiff grey locally sandy gravelly CLAY with rare angular to subangular cobbles of flint and chalk. Gravel is subrounded to rounded chalk. (Lowestoft Formation)			2		
1.50	D4			3.00	24.60	End of Trial Pit at 3.000m				3	
2.00	D5										4
2.40	D6										
2.90	D7										
				5							

<p>Remarks</p> <p>Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.</p>	<p>Key</p> <p>D - Disturbed Sample ES- Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample</p> <p>N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample</p>	
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Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP	
Location: Harrisons Lane, Halesworth		Co-ords: 639481.09 E 278068.90 N	Level: 32.76m AOD	Scale 1:25	
Client: Richborough Estates Limited		Start 13/06/2019	Dates: Finish 13/06/2019	Logged By SWF	

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.20	ES1			0.30	32.46	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint, quartzite, chalk, brick and rare coal. (Topsoil)		
0.60	D2	>120 >120				Very stiff orange brown slightly gravelly locally sandy CLAY. Gravel is angular to subangular fine to coarse flint and quartzite. (Lowestoft Formation)		
1.00	D3			0.70	32.06	Stiff grey gravelly CLAY. Gravel is angular to rounded fine to coarse chalk and flint. (Lowestoft Formation)		
1.50	D4	>120 >120						
1.90	D5			<i>Mottled brown.</i>				
2.60	D6							
3.00	D7			3.00	29.76	End of Trial Pit at 3.000m		

<p>Remarks</p> <p>Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.</p>	<p>Key</p> <p>D - Disturbed Sample ES - Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample</p> <p>N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample</p>	
--	---	--

Project Name:

Land off Harrisons Lane, Halesworth

Project No.:

450-18-087

Hole Type

TP

Location:

Harrisons Lane, Halesworth

Co-ords:
639475.49 E
278006.42 NLevel:
33.39m AOD

Scale

1:25

Client:

Richborough Estates Limited

Start Dates: Finish
13/06/2019 13/06/2019

Logged By

SWF

Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S
Depth (m)	Type	HVP (KPa)	PID (ppm)					
0.20	D1			0.30	33.09	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse flint, brick and quartzite with rare chalk and coal. (Topsoil)		
0.50	ES2	68 72		0.65	32.74	Firm orange brown slightly gravelly locally sandy CLAY. Gravel is angular to rounded fine to coarse flint, quartzite, coal and chalk. (Lowestoft Formation)		
1.10	D3							
1.50	D4							
1.90	D5			2.00	31.39	Firm to stiff grey mottled brown gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk, flint and rare coal. (Lowestoft Formation)		
						End of Trial Pit at 2.000m		

Remarks

Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.

Key

D - Disturbed Sample
ES - Environmental Sample
B - Bulk Sample
U - Undisturbed Sample
SS - Surface Sample
VS - Validation Sample

N/R - No Recovery
HVP - Hand Vane Shear Test
W/S - Water Strike
W - Water Sample





Project Name: Land off Harrisons Lane, Halesworth		Project No.: 450-18-087		Hole Type TP
Location: Harrisons Lane, Halesworth		Co-ords: 639511.16 E 278013.96 N	Level: 32.82m AOD	Scale 1:25
Client: Richborough Estates Limited		Start 12/06/2019	Dates: Finish 12/06/2019	Logged By SWF

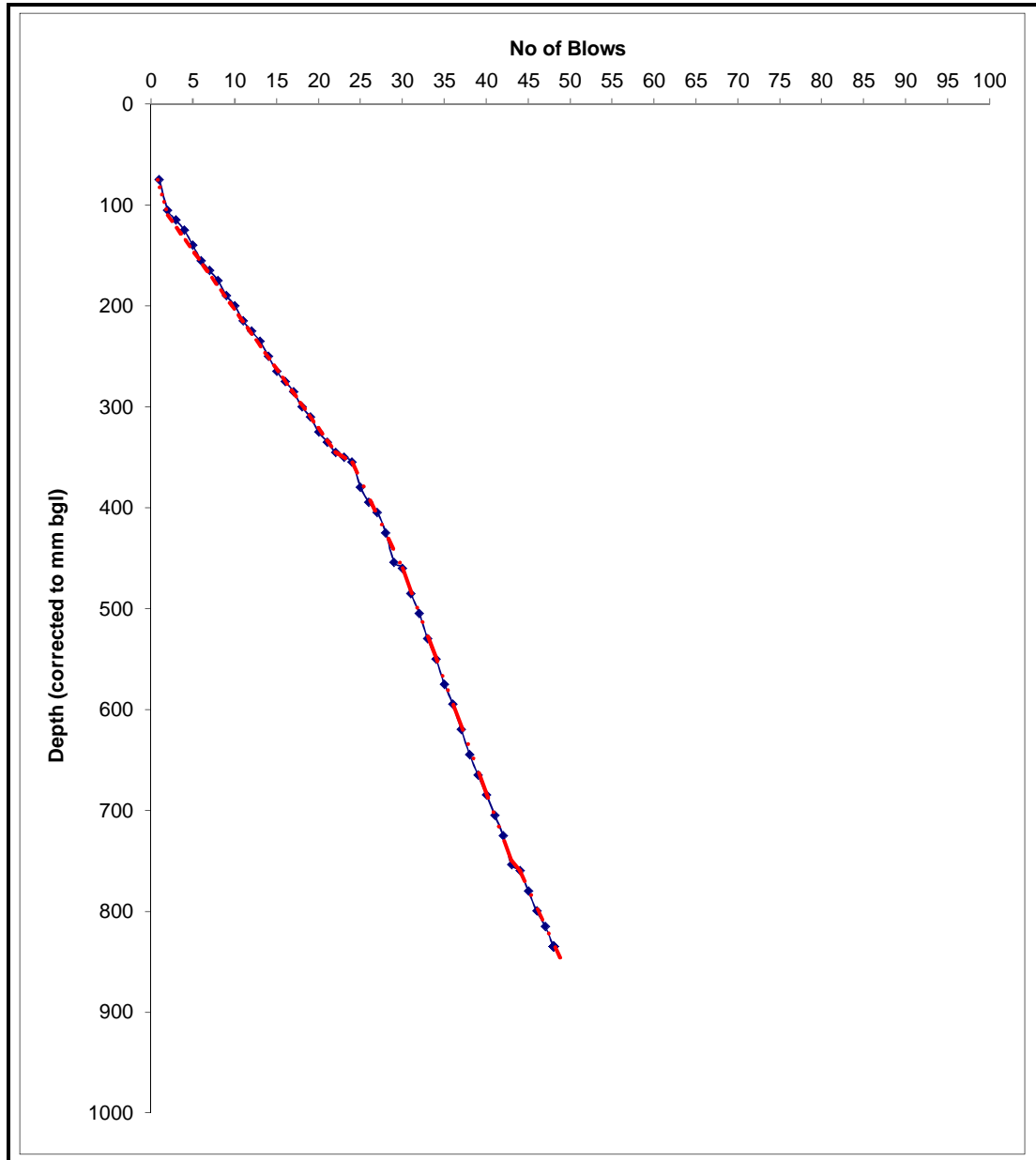
Sample and In Situ Testing				Depth (m)	Level (m)	Stratum Description	Legend	W/S	
Depth (m)	Type	HVP (KPa)	PID (ppm)						
0.20	ES1			0.35	32.47	MADE GROUND: Dark brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse flint, brick, quartzite with rare chalk and coal. (Topsoil)		1	
0.60	D2					Stiff orange brown slightly gravelly locally sandy CLAY. Gravel is angular to subangular fine to coarse flint and rare chalk. (Lowestoft Formation)			
0.80	D3	114 94		0.80	32.02	Stiff grey gravelly CLAY with occasional subangular cobbles of chalk and flint. Gravel is subangular to subrounded fine to coarse chalk and flint. (Lowestoft Formation)			2
1.30	D4								
1.80	D5			<i>Pocket of subangular fine to coarse GRAVEL of chalk within northern face.</i>		3			
2.20	D6								
3.00	D7			End of Trial Pit at 3.000m					
							5		

<p>Remarks</p> <p>Mechanically excavated from ground level to completed depth. Groundwater not encountered. Backfilled with arisings on completion.</p>	<p>Key</p> <p>D - Disturbed Sample ES- Environmental Sample B - Bulk Sample U - Undisturbed Sample SS - Surface Sample VS - Validation Sample</p> <p>N/R - No Recovery HVP - Hand Vane Shear Test W/S - Water Strike W - Water Sample</p>	
--	--	--

DCP Test Number: DCP102
 Project Number: 450-18-087
 Project Name: Land off Harrisons Lane, Halesworth
 Date: 14/06/2019



Plot 1 - No of Blows versus Depth Profile



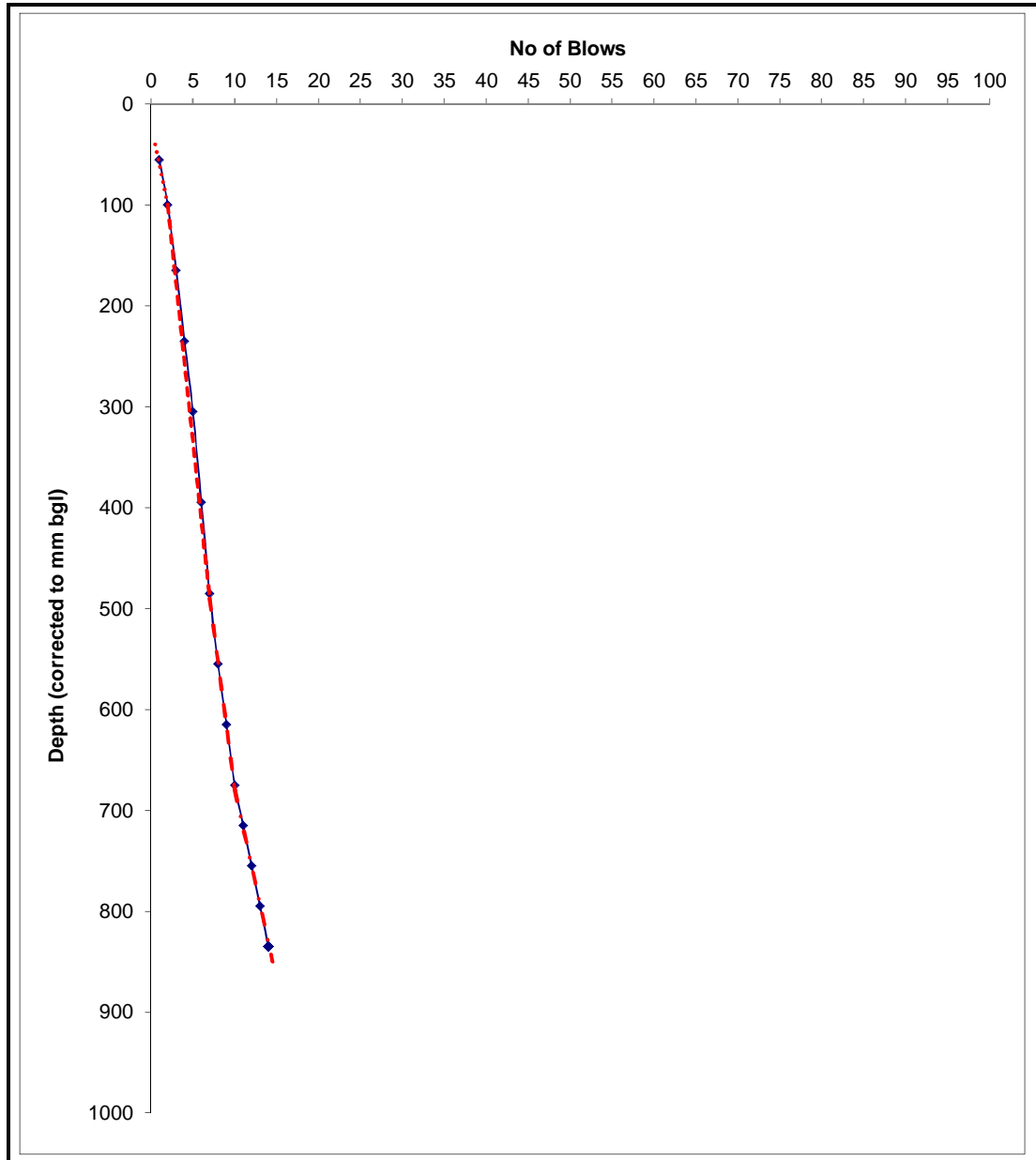
Assessment	mm/blow	depth (m bgf)		Log10(CBR)	CBR (%)
		from	to		
1	29.17	0.08	0.11	0.756944898	5.71
2	11.75	0.11	0.35	1.262351531	18.30
3	5.00	0.35	0.36	1.737318394	54.62
4	17.50	0.36	0.46	1.040911298	10.99
5	22.31	0.46	0.75	0.905978054	8.05
6	10.00	0.75	0.76	1.352	22.49
7	18.00	0.76	0.85	1.025251193	10.60

indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and eerden)

DCP Test Number: DCP104
 Project Number: 450-18-087
 Project Name: Land off Harrisons Lane, Halesworth
 Date: 14/06/2019



Plot 1 - No of Blows versus Depth Profile



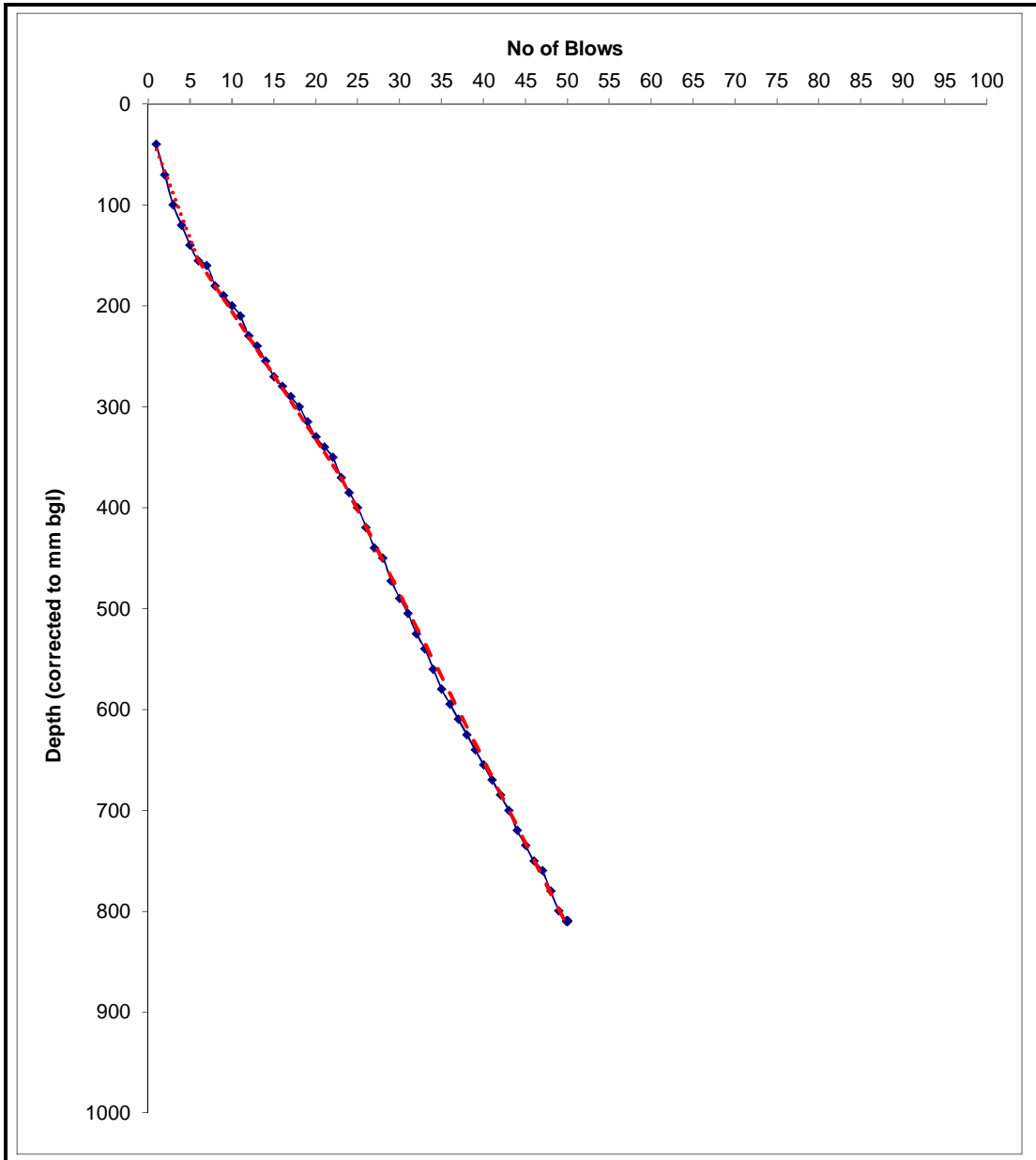
Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	40.00	0.04	0.10	0.581363211	3.81
2	78.00	0.10	0.49	0.210118909	1.62
3	63.33	0.49	0.68	0.325910597	2.12
4	37.78	0.68	0.85	0.613137398	4.10

indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and eerden)

DCP Test Number: DCP106
 Project Number: 450-18-087
 Project Name: Land off Harrisons Lane, Halesworth
 Date: 14/06/2019



Plot 1 - No of Blows versus Depth Profile



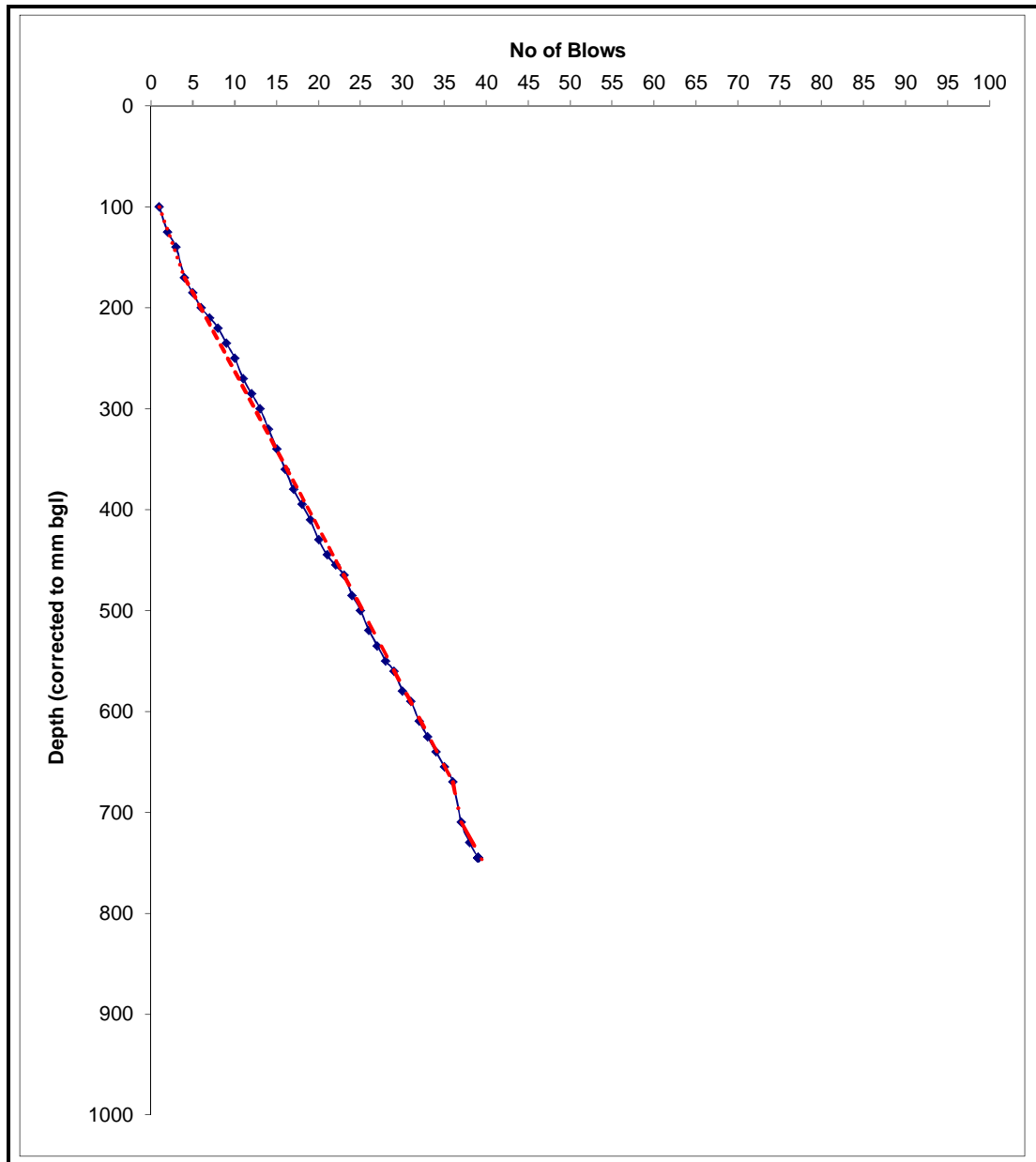
Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	22.00	0.05	0.16	0.913698969	8.20
2	12.65	0.16	0.37	1.221453391	16.65
3	16.48	0.37	0.82	1.074244804	11.86

indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and eerden)

DCP Test Number: DCP108
 Project Number: 450-18-087
 Project Name: Land off Harrisons Lane, Halesworth
 Date: 14/06/2019



Plot 1 - No of Blows versus Depth Profile



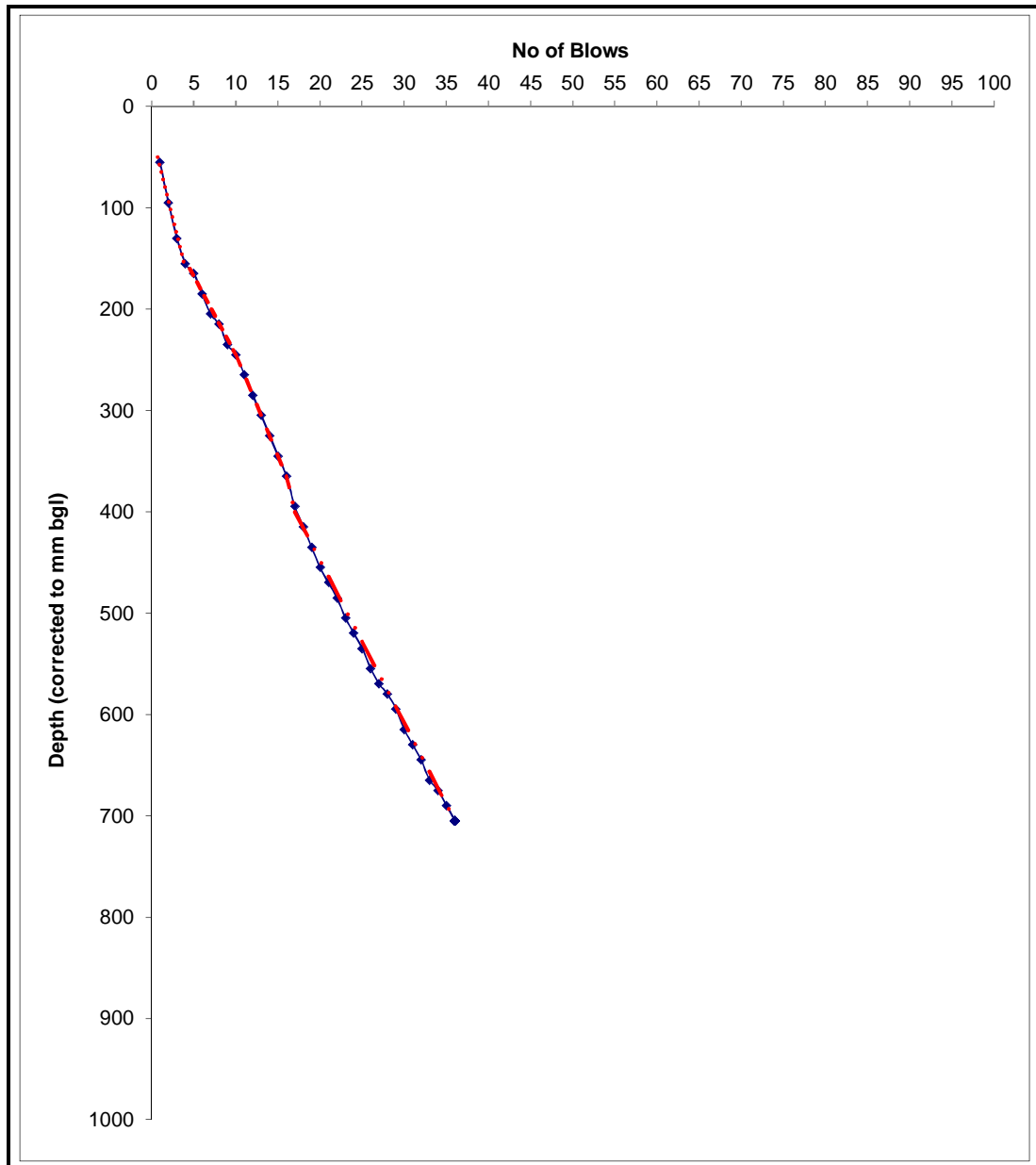
Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	23.33	0.10	0.17	0.880989715	7.60
2	15.53	0.17	0.47	1.107432429	12.81
3	15.77	0.47	0.67	1.098802549	12.55
4	40.00	0.67	0.71	0.581363211	3.81
5	15.00	0.71	0.76	1.126603188	13.38

indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and eerden)

DCP Test Number: DCP110
 Project Number: 450-18-087
 Project Name: Land off Harrisons Lane, Halesworth
 Date: 14/06/2019



Plot 1 - No of Blows versus Depth Profile



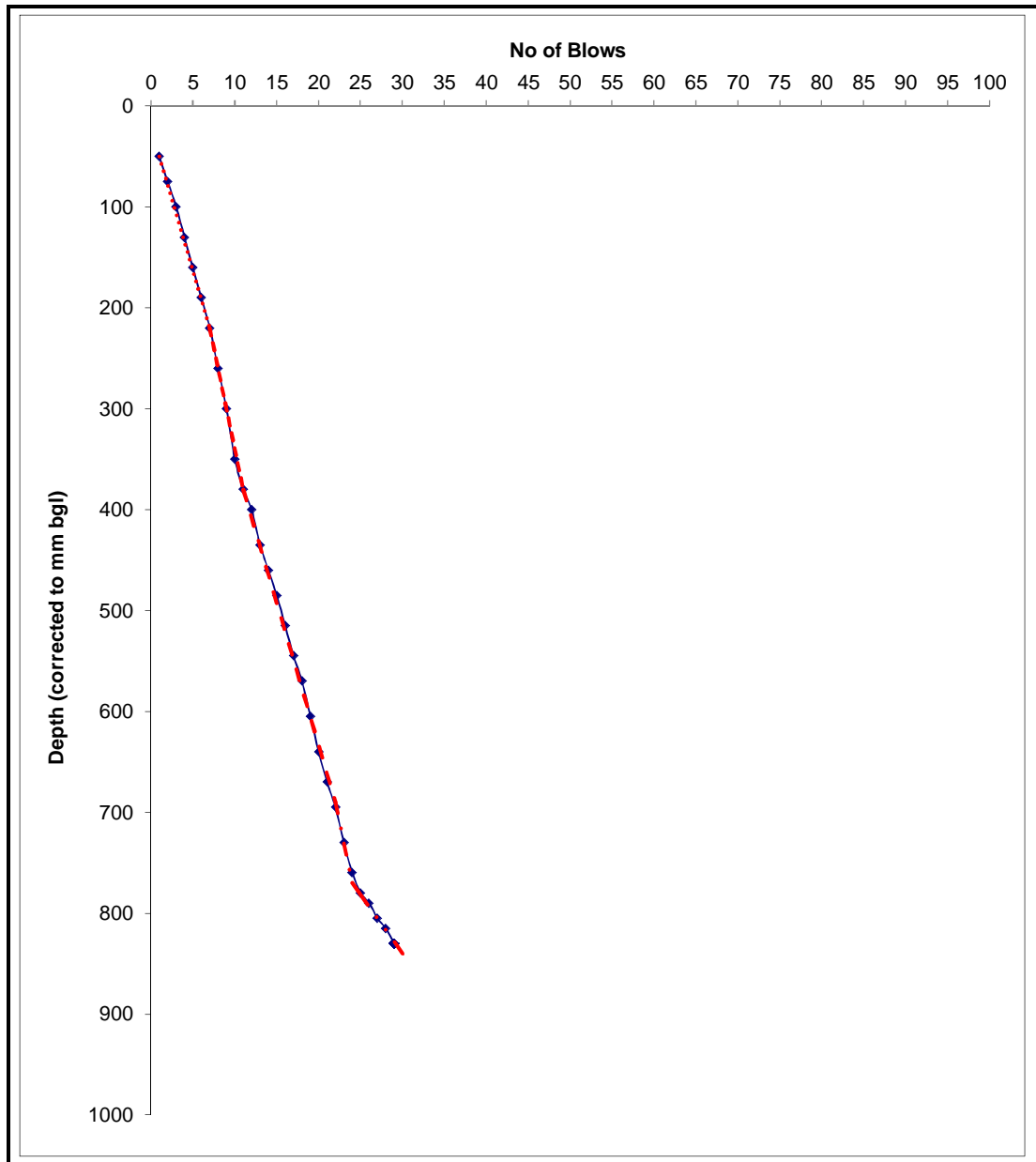
Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	33.33	0.05	0.16	0.682715206	4.82
2	15.45	0.16	0.25	1.110008018	12.88
3	20.00	0.25	0.37	0.966681606	9.26
4	35.00	0.37	0.40	0.655592903	4.52
5	16.05	0.40	0.71	1.088900815	12.27

indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and eerden)

DCP Test Number: DCP116
 Project Number: 450-18-087
 Project Name: Land off Harrisons Lane, Halesworth
 Date: 14/06/2019



Plot 1 - No of Blows versus Depth Profile



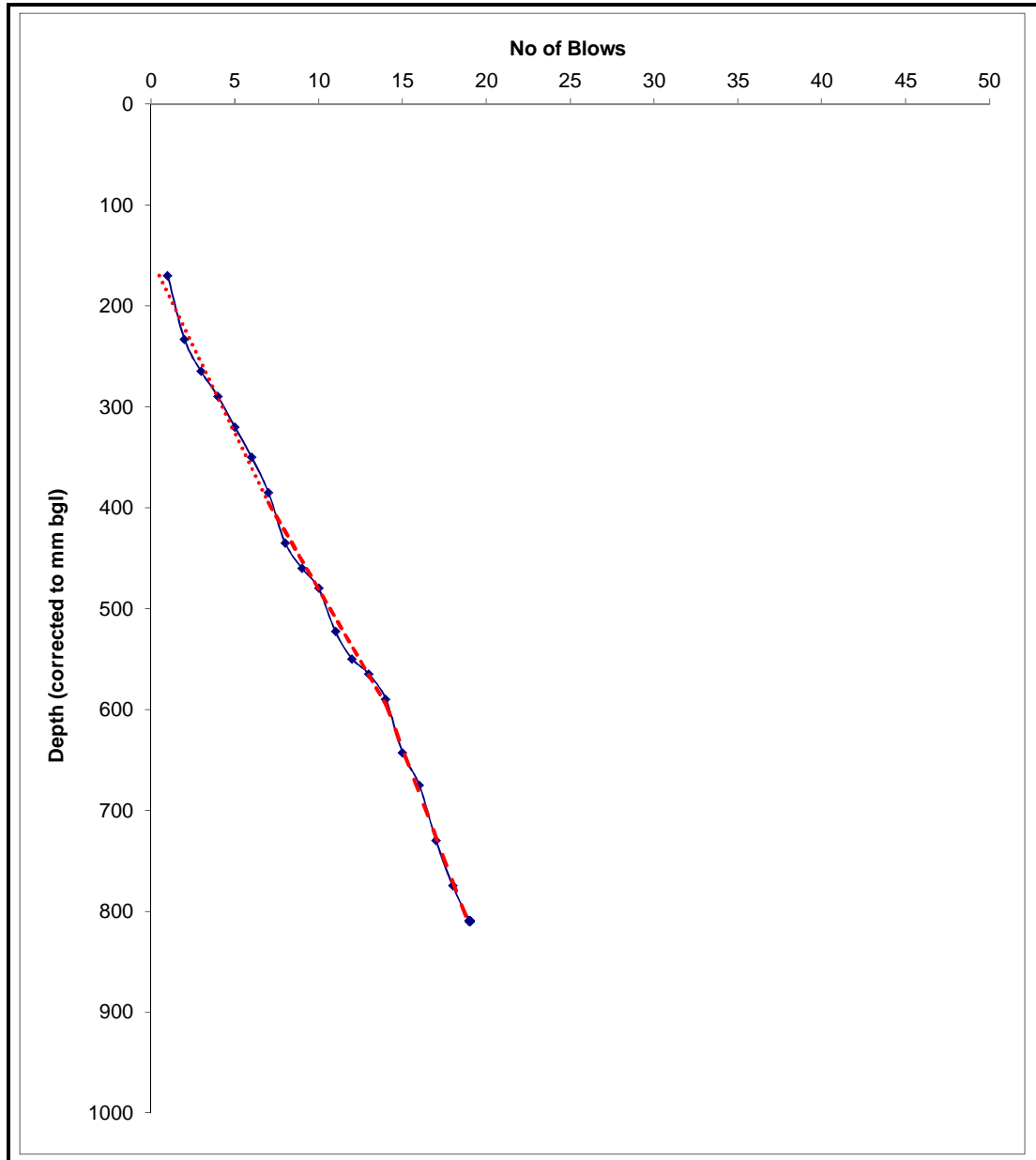
Assessment	mm/blow	depth (m bgf)		Log10(CBR)	CBR (%)
		from	to		
1	28.33	0.05	0.22	0.773058981	5.93
2	40.00	0.22	0.38	0.581363211	3.81
3	28.18	0.38	0.69	0.776039669	5.97
4	40.00	0.69	0.77	0.581363211	3.81
5	11.67	0.77	0.84	1.266308109	18.46

indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and eerden)

DCP Test Number: DCP119
 Project Number: 450-18-087
 Project Name: Land off Harrisons Lane, Halesworth
 Date: 14/06/2019



Plot 1 - No of Blows versus Depth Profile



Assessment	mm/blow	depth (m bgl)		Log10(CBR)	CBR (%)
		from	to		
1	34.62	0.17	0.40	0.661735473	4.59
2	28.57	0.40	0.60	0.768407097	5.87
3	44.00	0.60	0.82	0.528380574	3.38

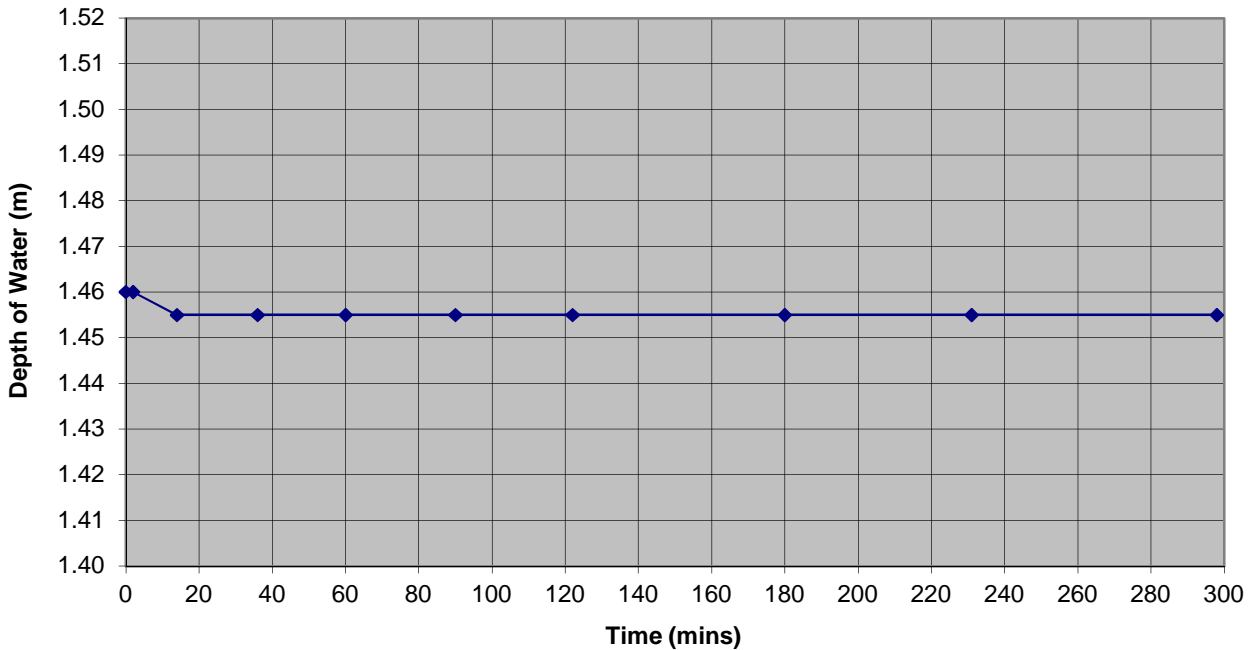
indicative line of best fit. Results have been correlated to a CBR value using industry recognised guidelines (based on the relationship derived by Kleyn and eerden)

Trial Pit Field Soakaway Test

Project : Land at Harrisons Lane, Halesworth
Project No. : 450-18-087
Date : 13/06/19
Test Number : TP107



Time	Cumulative Elapse Time (min)	Depth to Water (m)	Depth of Water (m)	Results	
	0	0.540	1.460	Trial Pit Dimensions	
	2	0.540	1.460		
	14	0.545	1.455		
	36	0.545	1.455		
	60	0.545	1.455	Length: 1.8	
	90	0.545	1.455	Width: 0.6	
	122	0.545	1.455	Depth before test: 2	
	180	0.545	1.455	Effective Depth of Water (m)	
	231	0.545	1.455		75% 1.459
	298	0.545	1.455		50% 1.458
					25% 1.456
				Summary	
					Vp(75-25) in m³: -
					Ap50 in m²: -
					Tp(75) in seconds: -
					Tp(25) in seconds: -
					Tp(75-25) in seconds: -
				Soil infiltration rate (f) in m/s Negligible Infiltration	



Notes:

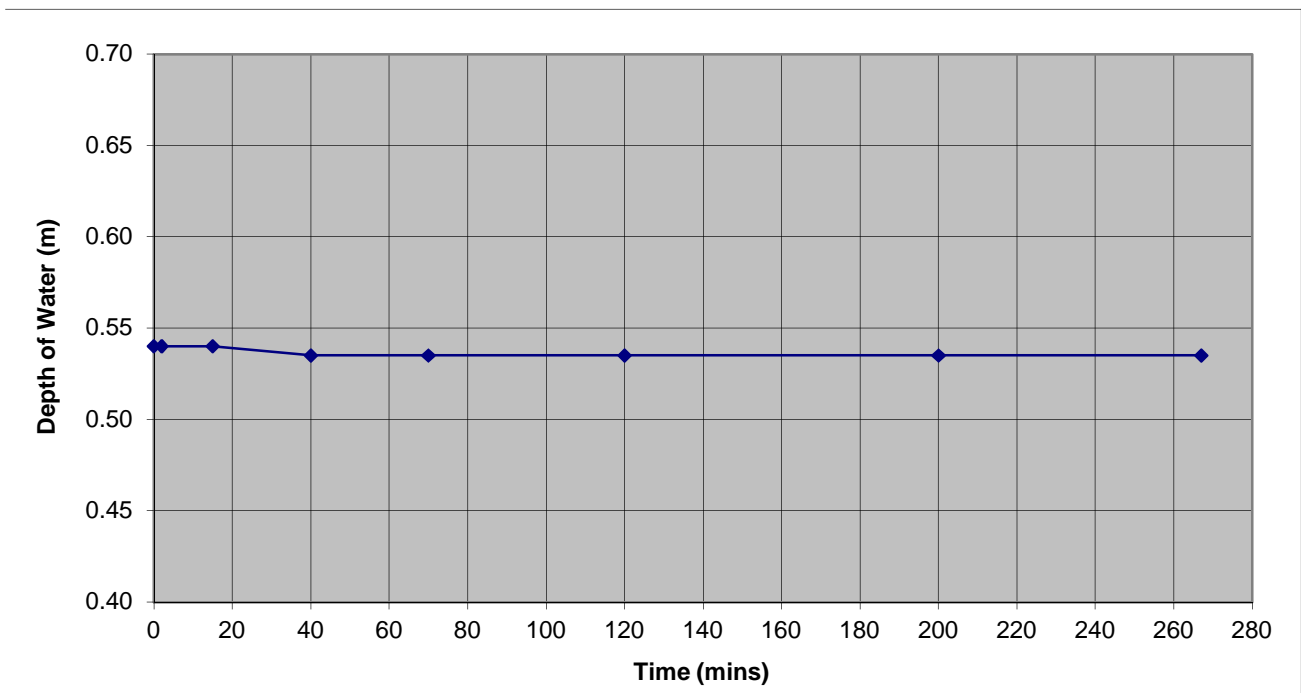
Trial pit soakaway test completed in general accordance with BRE 365. Where full effective depth soakage is not achieved, infiltration rates are calculated based on 75% and 25% of effective depth achieved during test. Mechanically excavated trial pit from ground level to completed depth. Groundwater not encountered. All side stable. Backfilled with arisings on completion.

Trial Pit Field Soakaway Test

Project : Land at Harrisons Lane, Halesworth
Project No. : 450-18-087
Date : 13/06/19
Test Number : TP111



Time	Cumulative Elapse Time (min)	Depth to Water (m)	Depth of Water (m)	Results
	0	1.460	0.540	Trial Pit Dimensions
	2	1.460	0.540	
	15	1.460	0.540	
	40	1.465	0.535	
	70	1.465	0.535	Length: 2
	120	1.465	0.535	Width: 0.6
	200	1.465	0.535	Depth before test: 2
	267	1.465	0.535	Effective Depth of Water (m)
				75% 0.539
				50% 0.538
				25% 0.536
				Summary
				Vp(75-25) in m ³ : -
				Ap50 in m ² : -
				Tp(75) in seconds: -
				Tp(25) in seconds: -
				Tp(75-25) in seconds: -
				Soil infiltration rate (f) in m/s Negligible Infiltration



Notes:

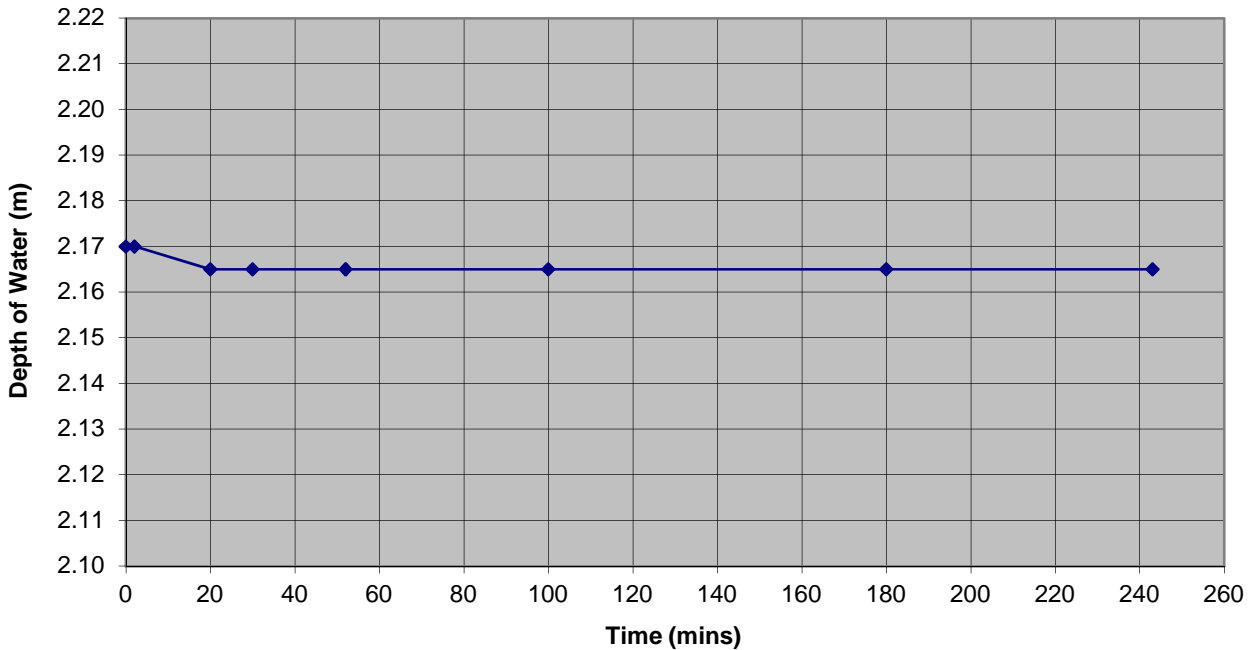
Trial pit soakaway test completed in general accordance with BRE 365. Where full effective depth soakage is not achieved, infiltration rates are calculated based on 75% and 25% of effective depth achieved during test. Mechanically excavated trial pit from ground level to completed depth. Groundwater not encountered. All side stable. Backfilled with arisings on completion.

Trial Pit Field Soakaway Test

Project : Land at Harrisons Lane, Halesworth
Project No. : 450-18-087
Date : 13/06/19
Test Number : TP113



Time	Cumulative Elapse Time (min)	Depth to Water (m)	Depth of Water (m)	Results
	0	1.030	2.170	Trial Pit Dimensions
	2	1.030	2.170	
	20	1.035	2.165	
	30	1.035	2.165	
	52	1.035	2.165	Length: 1.7
	100	1.035	2.165	Width: 0.6
	180	1.035	2.165	Depth before test: 3.2
	243	1.035	2.165	Effective Depth of Water (m)
				75% 2.169
				50% 2.168
				25% 2.166
				Summary
				Vp(75-25) in m ³ : -
				Ap50 in m ² : -
				Tp(75) in seconds: -
				Tp(25) in seconds: -
				Tp(75-25) in seconds: -
				Soil infiltration rate (f) in m/s Negligible Infiltration



Notes:

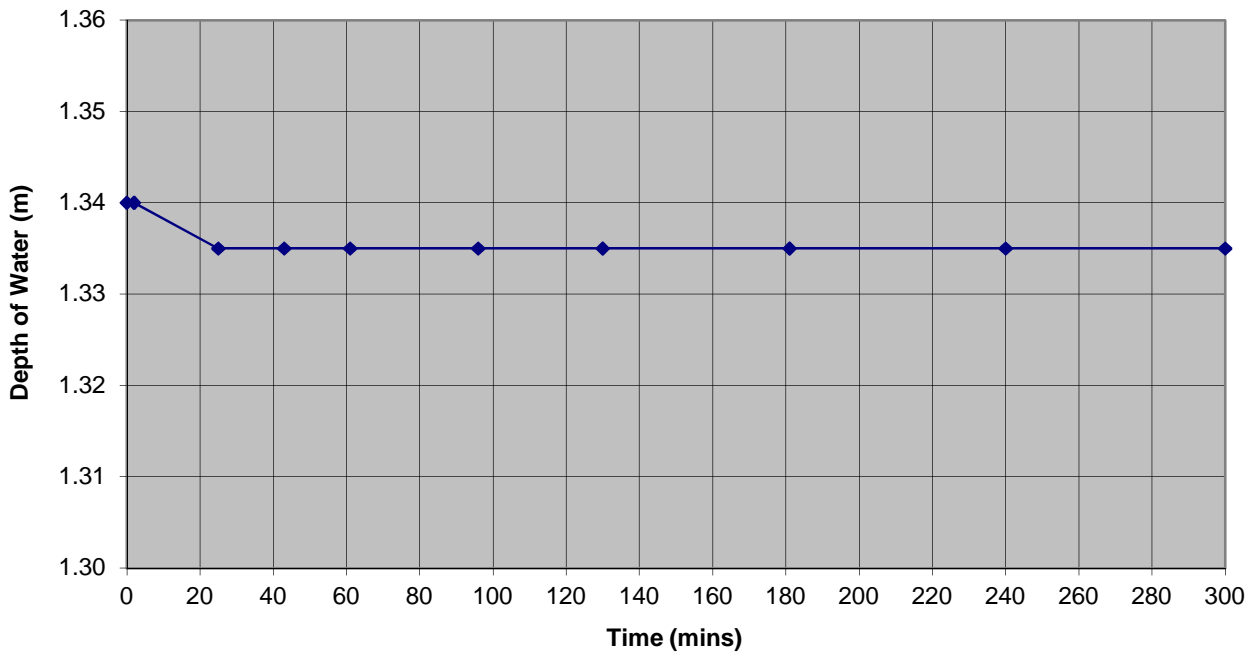
Trial pit soakaway test completed in general accordance with BRE 365. Where full effective depth soakage is not achieved, infiltration rates are calculated based on 75% and 25% of effective depth achieved during test. Mechanically excavated trial pit from ground level to completed depth. Groundwater not encountered. All side stable. Backfilled with arisings on completion.

Trial Pit Field Soakaway Test

Project : Land at Harrisons Lane, Halesworth
Project No. : 450-18-087
Date : 13/06/19
Test Number : TP119



Time	Cumulative Elapse Time (min)	Depth to Water (m)	Depth of Water (m)	Results
	0	0.660	1.340	Trial Pit Dimensions
	2	0.660	1.340	
	25	0.665	1.335	
	43	0.665	1.335	
	61	0.665	1.335	Length: 1.7
	96	0.665	1.335	Width: 0.6
	130	0.665	1.335	Depth before test: 2
	181	0.665	1.335	Effective Depth of Water (m)
	240	0.665	1.335	75% 1.339
	300	0.665	1.335	50% 1.338
				25% 1.336
				Summary
				Vp(75-25) in m ³ : -
				Ap50 in m ² : -
				Tp(75) in seconds: -
				Tp(25) in seconds: -
				Tp(75-25) in seconds: -
				Soil infiltration rate (f) in m/s Negligible Infiltration



Notes:

Trial pit soakaway test completed in general accordance with BRE 365. Where full effective depth soakage is not achieved, infiltration rates are calculated based on 75% and 25% of effective depth achieved during test. Mechanically excavated trial pit from ground level to completed depth. Groundwater not encountered. All side stable. Backfilled with arisings on completion.



Hole ID	Event	GW Level (m bgl)	Borehole Depth (m bgl)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	CO (ppm)	H ₂ S (ppm)	Downhole Pressure (Pa)		Average Flow Rate (l/hr)	
									Average	Peak	Average	Peak
Start	1	-	-	<0.1	<0.1	20.6	<1	<1	0	-	0.0	-
Finish	1	-	-	<0.1	<0.1	20.9	<1	<1	0	-	0.0	-
BH101	1	Dry	3.06	<0.1	2.7	15.8	<1	<1	0	-	0.0	-
BH102	1	Dry	3.00	<0.1	2.2	18.4	<1	<1	0	-	0.0	-
BH103	1	Dry	3.06	<0.1	2.1	18.4	<1	<1	0	-	0.0	-
BH104	1	Dry	3.06	<0.1	2.0	18.7	<1	<1	0	-	0.0	-
WS101	1	2.11	3.70	<0.1	1.5	20.0	<1	<1	0	-	0.0	-
WS103	1	Dry	3.05	<0.1	2.4	18.6	<1	<1	0	-	0.0	-
WS105	1	Dry	3.05	<0.1	1.8	19.3	<1	<1	0	-	0.0	-
WS108	1	0.60	2.66	<0.1	3.0	18.1	<1	<1	0	33	0.0	3.0
WS109	1	Dry	3.03	<0.1	5.1	16.8	<1	<1	1	-	0.5	-
WS111	1	0.83	3.02	<0.1	9.5	11.2	<1	<1	0	>1500	0.0	>90
WS112	1	0.44	3.04	<0.1	1.6	18.2	<1	<1	0	-60	0.0	-8.9

Notes: Date: 10/07/19

Atmospheric Pressure: 1010mb-1013mb

Weather Conditions: 22°C, light breeze, dry, cloudy, dry ground.

Hole ID	Event	GW Level (m bgl)	Borehole Depth (m bgl)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	CO (ppm)	H ₂ S (ppm)	Downhole Pressure (Pa)		Average Flow Rate (l/hr)	
									Average	Peak	Average	Peak
Start	2	-	-	<0.1	<0.1	20.4	<1	<1	0	-	0.0	-
Finish	2	-	-	<0.1	<0.1	20.8	<1	<1	0	-	0.0	-
BH101	2	Dry	3.06	<0.1	2.7	16.4	<1	<1	0	-	0.0	-
BH102	2	Dry	3.00	<0.1	2.2	18.4	<1	<1	0	-	0.0	-
BH103	2	Dry	3.06	<0.1	1.9	18.9	<1	<1	0	-	0.0	-
BH104	2	Dry	3.04	<0.1	1.9	19.0	<1	<1	0	-	0.0	-
WS101	2	2.15	3.70	<0.1	1.5	19.9	<1	<1	0	-	0.0	-
WS103	2	Dry	3.05	<0.1	2.4	18.6	<1	<1	0	-	0.0	-
WS105	2	Dry	3.05	<0.1	1.7	19.4	<1	<1	0	-	0.0	-
WS108	2	0.58	2.65	<0.1	1.2	19.5	<1	<1	0	>600	0.0	>38
WS109	2	Dry	3.03	<0.1	5.0	17.1	<1	<1	0	-	0.0	-
WS111	2	0.71	3.03	<0.1	9.4	10.9	<1	<1	0	-	0.0	-
WS112	2	0.46	3.04	<0.1	0.9	19.7	<1	<1	0	>-300	0.0	>-30.0

Notes: Date: 15/07/19

Atmospheric Pressure: 1016mb-1019mb

Weather Conditions: 18°C, gentle breeze, dry, cloudy, dry ground.

Table II a

Gas and Groundwater Monitoring Results

Site Name: Harrisons Lane, Halesworth.

Project No. 450-18-087

Prepared for: Richborough Estates Limited



Hole ID	Event	GW Level (m bgl)	Borehole Depth (m bgl)	CH ₄ (% v/v)	CO ₂ (% v/v)	O ₂ (% v/v)	CO (ppm)	H ₂ S (ppm)	Downhole Pressure (Pa)		Average Flow Rate (l/hr)	
									Average	Peak	Average	Peak
Start	3	-	-	<0.1	<0.1	20.9	<1	<1	0	-	0.0	-
Finish	3	-	-	<0.1	<0.1	21.9	<1	<1	0	-	0.0	-
BH101	3	Dry	3.06	<0.1	2.3	17.2	<1	<1	0	-	0.0	-
BH102	3	Dry	3.01	<0.1	1.8	19.4	<1	<1	0	-	0.0	-
BH103	3	Dry	3.06	<0.1	1.7	19.4	<1	<1	0	-	0.0	-
BH104	3	Dry	3.04	<0.1	1.5	19.8	<1	<1	0	-	0.0	-
WS101	3	2.17	3.69	<0.1	1.1	20.7	<1	<1	0	-	0.0	-
WS103	3	Dry	3.05	<0.1	2.0	19.5	<1	<1	0	-	0.0	-
WS105	3	Dry	3.05	<0.1	1.3	20.3	<1	<1	0	-	0.0	-
WS108	3	0.58	2.63	<0.1	1.6	19.6	<1	<1	0	-99	0.0	-10.0
WS109	3	0.86	3.03	<0.1	4.6	18.1	<1	<1	0	>1500	0.0	>90
WS111	3	0.43	3.02	<0.1	7.7	10.5	<1	<1	0	1380	0.0	>85
WS112	3	0.47	3.04	<0.1	1.1	19.5	<1	<1	0	>268	0.0	>12

Notes: Date: 24/07/19

Atmospheric Pressure: 1003mb-1010mb

Weather Conditions: 34°C, gentle breeze, dry, some cloud, dry ground

Table II a

Gas and Groundwater Monitoring Results

Site Name: Harrisons Lane, Halesworth.

Project No. 450-18-087

Prepared for: Richborough Estates Limited



APPENDIX III
CHEMICAL LABORATORY TEST DATA



DETS

Certificate of Analysis

Certificate Number 19-11597

27-Jun-19

Client ASL
Holly Farm Business Park

Honiley
Warwickshire
CV8 1NP

Our Reference 19-11597

Client Reference 450-18-087

Order No 450-18-087

Contract Title Land off Harrison's Lane, Halesworth

Description 15 Soil samples, 3 Leachate samples.

Date Received 20-Jun-19

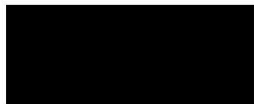
Date Started 20-Jun-19

Date Completed 27-Jun-19

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

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

Approved By



Adam Fenwick
Contracts Manager



2139



Summary of Chemical Analysis Soil Samples

Our Ref 19-11597
Client Ref 450-18-087
Contract Title Land off Harrisons Lane, Halesworth

Lab No	1519605	1519606	1519607	1519608	1519609	1519610
Sample ID	BH102	BH102	WS106	TP107	TP106	TP106
Depth	0.10	1.70	0.60	0.40	1.30	0.10
Other ID	1	5	2	2	4	1
Sample Type	ES	D	ES	ES	D	ES
Sampling Date	04/06/19	04/06/19	06/06/19	10/06/19	10/06/19	10/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	1519605	1519606	1519607	1519608	1519609	1519610
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	10		12	11		12
Beryllium	DETSC 2301#	0.2	mg/kg	0.6		0.8	1.0		0.7
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.2		0.5	0.6		0.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.2		0.1	0.3		0.3
Chromium	DETSC 2301#	0.15	mg/kg	19		23	27		18
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0		< 1.0	< 1.0		< 1.0
Copper	DETSC 2301#	0.2	mg/kg	25		16	22		27
Lead	DETSC 2301#	0.3	mg/kg	45		12	21		58
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l		13			< 10	
Mercury	DETSC 2325#	0.05	mg/kg	0.08		< 0.05	< 0.05		0.13
Nickel	DETSC 2301#	1	mg/kg	15		26	35		16
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5		< 0.5	< 0.5		< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	35		40	44		33
Zinc	DETSC 2301#	1	mg/kg	72		52	59		75
Inorganics									
pH	DETSC 2008#			7.4	7.8	8.2	8.2	8.3	7.8
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.3		< 0.1	< 0.1		0.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	0.2		< 0.1	< 0.1		< 0.1
FOC	DETSC 2084#	0.001		0.027		0.003	0.006		0.021
Ammonia Aqueous Extract as N	DETSC 2119	10	mg/l		< 10			< 10	
Chloride Aqueous Extract	DETSC 2055	1	mg/l		56			7.8	
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l		< 1.0			1.9	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	1300	310	110	49	72	19
Sulphur as S, Total	DETSC 2320	0.01	%	0.24	0.06	0.02	0.02	0.02	0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.64	0.11	0.05	0.05	0.04	0.05
Petroleum Hydrocarbons									
C5-C10 Gasoline Range Organics (GRO)	DETSC 3321*	0.1	mg/kg	< 0.1		< 0.1	< 0.1		< 0.1
EPH (C10-C40)	DETSC 3311#	10	mg/kg	< 10		< 10	< 10		< 10
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03		< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03		< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03		< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03		< 0.03	< 0.03		< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03		0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03		< 0.03	< 0.03		< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.07		< 0.03	0.09		0.10
Pyrene	DETSC 3303#	0.03	mg/kg	0.06		< 0.03	0.07		0.09
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.04		< 0.03	0.05		0.06
Chrysene	DETSC 3303	0.03	mg/kg	0.04		< 0.03	0.05		0.07
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.06		< 0.03	0.05		0.10
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03		< 0.03



Summary of Chemical Analysis Soil Samples

Our Ref 19-11597

Client Ref 450-18-087

Contract Title Land off Harrisons Lane, Halesworth

Lab No	1519605	1519606	1519607	1519608	1519609	1519610
Sample ID	BH102	BH102	WS106	TP107	TP106	TP106
Depth	0.10	1.70	0.60	0.40	1.30	0.10
Other ID	1	5	2	2	4	1
Sample Type	ES	D	ES	ES	D	ES
Sampling Date	04/06/19	04/06/19	06/06/19	10/06/19	10/06/19	10/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	0.05
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.27		< 0.10	0.31	0.58
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.7		< 0.3	0.6	< 0.3



Summary of Chemical Analysis Soil Samples

Our Ref 19-11597
Client Ref 450-18-087
Contract Title Land off Harrisons Lane, Halesworth

Lab No	1519611	1519612	1519613	1519614	1519615	1519616
Sample ID	TP101	WS101	WS105	TP116	TP108	TP108
Depth	0.60	0.40	0.60	2.20	0.20	1.00
Other ID	2	2	2	6	1	3
Sample Type	D	ES	D	D	ES	D
Sampling Date	10/06/19	10/06/19	10/06/19	10/06/19	10/06/19	10/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg		9.7			11	
Beryllium	DETSC 2301#	0.2	mg/kg		0.7			0.7	
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg		0.6			0.8	
Cadmium	DETSC 2301#	0.1	mg/kg		0.1			0.2	
Chromium	DETSC 2301#	0.15	mg/kg		22			20	
Chromium, Hexavalent	DETSC 2204*	1	mg/kg		< 1.0			< 1.0	
Copper	DETSC 2301#	0.2	mg/kg		13			25	
Lead	DETSC 2301#	0.3	mg/kg		19			49	
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	< 10		< 10	< 10		< 10
Mercury	DETSC 2325#	0.05	mg/kg		< 0.05			0.12	
Nickel	DETSC 2301#	1	mg/kg		13			17	
Selenium	DETSC 2301#	0.5	mg/kg		< 0.5			< 0.5	
Vanadium	DETSC 2301#	0.8	mg/kg		40			40	
Zinc	DETSC 2301#	1	mg/kg		130			78	
Inorganics									
pH	DETSC 2008#			8.2	8.0	8.3	8.0	7.3	8.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg		< 0.1			0.2	
Cyanide, Free	DETSC 2130#	0.1	mg/kg		< 0.1			0.2	
FOC	DETSC 2084#	0.001			0.005			0.027	
Ammonia Aqueous Extract as N	DETSC 2119	10	mg/l	< 10		< 10	< 10		< 10
Chloride Aqueous Extract	DETSC 2055	1	mg/l	4.2		2.8	7.8		4.2
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	1.3		2.2	< 1.0		< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	25	21	16	91	17	56
Sulphur as S, Total	DETSC 2320	0.01	%	0.01	0.01	0.02	0.04	0.04	0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.04	0.03	0.04	0.05	0.07	0.05
Petroleum Hydrocarbons									
C5-C10 Gasoline Range Organics (GRO)	DETSC 3321*	0.1	mg/kg		< 0.1			< 0.1	
EPH (C10-C40)	DETSC 3311#	10	mg/kg		< 10			< 10	
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Acenaphthylene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Acenaphthene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Fluorene	DETSC 3303	0.03	mg/kg		< 0.03			< 0.03	
Phenanthrene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Anthracene	DETSC 3303	0.03	mg/kg		< 0.03			< 0.03	
Fluoranthene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Pyrene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Chrysene	DETSC 3303	0.03	mg/kg		< 0.03			< 0.03	
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03	



Summary of Chemical Analysis Soil Samples

Our Ref 19-11597
 Client Ref 450-18-087
 Contract Title Land off Harrisons Lane, Halesworth

Lab No	1519611	1519612	1519613	1519614	1519615	1519616
Sample ID	TP101	WS101	WS105	TP116	TP108	TP108
Depth	0.60	0.40	0.60	2.20	0.20	1.00
Other ID	2	2	2	6	1	3
Sample Type	D	ES	D	D	ES	D
Sampling Date	10/06/19	10/06/19	10/06/19	10/06/19	10/06/19	10/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg		< 0.03			< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg		< 0.10			< 0.10
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg		< 0.3			0.8

Summary of Chemical Analysis

Soil Samples

Our Ref 19-11597
 Client Ref 450-18-087
 Contract Title Land off Harrisons Lane, Halesworth

Lab No	1519617	1519618	1519619
Sample ID	TP113	TP120	TP105
Depth	0.10	0.20	0.50
Other ID	1	1	2
Sample Type	ES	ES	ES
Sampling Date	10/06/19	10/06/19	10/06/19
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Arsenic	DETS 2301#	0.2	mg/kg	11	9.9	9.1
Beryllium	DETS 2301#	0.2	mg/kg	0.7	0.7	0.6
Boron, Water Soluble	DETS 2311#	0.2	mg/kg	0.7	0.7	0.5
Cadmium	DETS 2301#	0.1	mg/kg	0.3	0.2	< 0.1
Chromium	DETS 2301#	0.15	mg/kg	20	20	18
Chromium, Hexavalent	DETS 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETS 2301#	0.2	mg/kg	23	22	10
Lead	DETS 2301#	0.3	mg/kg	49	45	14
Magnesium Aqueous Extract	DETS 2076*	10	mg/l			
Mercury	DETS 2325#	0.05	mg/kg	0.11	0.15	< 0.05
Nickel	DETS 2301#	1	mg/kg	19	15	11
Selenium	DETS 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Vanadium	DETS 2301#	0.8	mg/kg	37	38	32
Zinc	DETS 2301#	1	mg/kg	88	94	48
Inorganics						
pH	DETS 2008#			7.7	7.1	7.6
Cyanide, Total	DETS 2130#	0.1	mg/kg	0.2	0.2	< 0.1
Cyanide, Free	DETS 2130#	0.1	mg/kg	< 0.1	0.2	< 0.1
FOC	DETS 2084#	0.001		0.018	0.030	0.004
Ammonia Aqueous Extract as N	DETS 2119	10	mg/l			
Chloride Aqueous Extract	DETS 2055	1	mg/l			
Nitrate Aqueous Extract as NO3	DETS 2055	1	mg/l			
Sulphate Aqueous Extract as SO4	DETS 2076#	10	mg/l	15	14	35
Sulphur as S, Total	DETS 2320	0.01	%	0.03	0.04	0.01
Sulphate as SO4, Total	DETS 2321#	0.01	%	0.06	0.08	0.03
Petroleum Hydrocarbons						
C5-C10 Gasoline Range Organics (GRO)	DETS 3321*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
EPH (C10-C40)	DETS 3311#	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Acenaphthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluorene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Phenanthrene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Anthracene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03
Pyrene	DETS 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03
Benzo(a)anthracene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Chrysene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03



Summary of Chemical Analysis Soil Samples

Our Ref 19-11597

Client Ref 450-18-087

Contract Title Land off Harrisons Lane, Halesworth

Lab No	1519617	1519618	1519619
Sample ID	TP113	TP120	TP105
Depth	0.10	0.20	0.50
Other ID	1	1	2
Sample Type	ES	ES	ES
Sampling Date	10/06/19	10/06/19	10/06/19
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	< 0.3	< 0.3

Summary of Chemical Analysis Leachate Samples

Our Ref 19-11597

Client Ref 450-18-087

Contract Title Land off Harrisons Lane, Halesworth

Lab No	1519620	1519621	1519622
Sample ID	BH102	TP107	TP106
Depth	0.10	0.40	0.10
Other ID	1	2	1
Sample Type	ES	ES	ES
Sampling Date	04/06/19	10/06/19	10/06/19
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Preparation						
NRA Leachate Preparation	DETSC 1009*			Y	Y	Y
Metals						
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.99	0.80	1.8
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12	< 12	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.34	< 0.25	0.53
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.5	0.6	2.7
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.11	< 0.09	0.45
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25	< 0.25
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	< 0.6	< 0.6	< 0.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.0	< 1.3	4.3
Inorganics						
pH	DETSC 2008			6.6	6.7	7.8
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.3	< 0.1	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1

Summary of Asbestos Analysis Soil Samples

Our Ref 19-11597

Client Ref 450-18-087

Contract Title Land off Harrisons Lane, Halesworth

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1519605	BH102 1 0.10	SOIL	NAD	none	Jordan Eadington
1519608	TP107 2 0.40	SOIL	NAD	none	Jordan Eadington
1519610	TP106 1 0.10	SOIL	NAD	none	Jordan Eadington
1519615	TP108 1 0.20	SOIL	NAD	none	Jordan Eadington
1519617	TP113 1 0.10	SOIL	NAD	none	Jordan Eadington
1519618	TP120 1 0.20	SOIL	NAD	none	Jordan Eadington
1519619	TP105 2 0.50	SOIL	NAD	none	Jordan Eadington

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.



DETS

Certificate of Analysis

Certificate Number 19-12220

13-Aug-19

Client ASL
Holly Farm Business Park

Honiley
Warwickshire
CV8 1NP

Our Reference 19-12220

Client Reference 450-18-087

Order No 450-18-087

Contract Title Land off Harrisons Lane, Halesworth

Description 10 Soil samples, 1 Leachate sample, 1 Misc sample.

Date Received 28-Jun-19

Date Started 28-Jun-19

Date Completed 13-Aug-19

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

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

Approved By



Adam Fenwick
Contracts Manager



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Summary of Chemical Analysis Soil/Misc Samples

Our Ref 19-12220
Client Ref 450-18-087
Contract Title Land off Harrisons Lane, Halesworth

Lab No	1523963	1523964	1523965	1523966	1523968	1523969
Sample ID	WS108	WS108	WS109	WS110	WS111	WS111
Depth	0.20	1.00	0.15	0.25	0.10	0.70
Other ID	1	3	1	1	1	4
Sample Type	ES	D	ES	ES	ES	ES
Sampling Date	25/06/19	25/06/19	25/06/19	25/06/19	25/06/19	25/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	8.8	9.8	8.5	10
Beryllium	DETSC 2301#	0.2	mg/kg	0.5	0.7	0.6	0.7
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7	0.5	0.5	0.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.2	0.3	0.3
Chromium	DETSC 2301#	0.15	mg/kg	17	17	18	19
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	26	15	21	21
Lead	DETSC 2301#	0.3	mg/kg	31	45	41	46
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l				
Mercury	DETSC 2325#	0.05	mg/kg	0.06	0.06	0.08	0.06
Nickel	DETSC 2301#	1	mg/kg	19	13	13	17
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	30	33	32	35
Zinc	DETSC 2301#	1	mg/kg	310	60	82	270
Inorganics							
pH	DETSC 2008#		pH	8.5	6.8	7.6	7.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.3	0.5	0.5	0.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	0.3	0.3	< 0.1
FOC	DETSC 2084#	0.001		0.028	0.034	0.062	0.024
Ammonia Aqueous Extract as N	DETSC 2119	10	mg/l				
Chloride Aqueous Extract	DETSC 2055	1	mg/l				
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l				
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	38	26	44	24
Sulphur as S, Total	DETSC 2320	0.01	%	0.05	0.04	0.08	0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.09	0.08	0.06	0.06
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg				< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg				< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg				< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg				2.8
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg				9.9
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg				3.9
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg				260
Aliphatic C5-C35	DETSC 3072*	10	mg/kg				270
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg				< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg				< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg				< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg				< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg				< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg				3.3
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg				130

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 19-12220
 Client Ref 450-18-087
 Contract Title Land off Harrisons Lane, Halesworth

Lab No	1523963	1523964	1523965	1523966	1523968	1523969
Sample ID	WS108	WS108	WS109	WS110	WS111	WS111
Depth	0.20	1.00	0.15	0.25	0.10	0.70
Other ID	1	3	1	1	1	4
Sample Type	ES	D	ES	ES	ES	ES
Sampling Date	25/06/19	25/06/19	25/06/19	25/06/19	25/06/19	25/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Aromatic C5-C35	DETSC 3072*	10	mg/kg						130
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg						400
C5-C10 Gasoline Range Organics (GRO)	DETSC 3321*	0.1	mg/kg	< 0.1		< 0.1	< 0.1	< 0.1	
EPH (C10-C40)	DETSC 3311#	10	mg/kg	67		< 10	< 10	30	
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.06		< 0.03	< 0.03	< 0.03	
Pyrene	DETSC 3303#	0.03	mg/kg	0.05		< 0.03	< 0.03	< 0.03	
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	0.03	
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03		< 0.03	< 0.03	< 0.03	
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.11		< 0.10	< 0.10	< 0.10	
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3		< 0.3	1.6	0.6	
OCPs									
alpha-BHC	DETSC 3441*	0.1	mg/kg		< 0.1				
gamma-BHC (Lindane)	DETSC 3441*	0.1	mg/kg		< 0.1				
beta-BHC	DETSC 3441*	0.1	mg/kg		< 0.1				
delta-BHC	DETSC 3441*	0.1	mg/kg		< 0.1				
Heptachlor	DETSC 3441*	0.1	mg/kg		< 0.1				
Aldrin	DETSC 3441*	0.1	mg/kg		< 0.1				
Heptachlor epoxide	DETSC 3441*	0.1	mg/kg		< 0.1				
gamma-Chlordane	DETSC 3441*	0.1	mg/kg		< 0.1				
Endosulphan I & Alpha-chlorodane	DETSC 3441*	0.1	mg/kg		< 0.1				
4,4-DDE	DETSC 3441*	0.1	mg/kg		< 0.1				
Dieldrin	DETSC 3441*	0.1	mg/kg		< 0.1				
Endrin	DETSC 3441*	0.1	mg/kg		< 0.1				
Endosulphan II & 4,4-DDD	DETSC 3441*	0.1	mg/kg		< 0.1				
Endrin aldehyde	DETSC 3441*	0.1	mg/kg		< 0.1				
4,4-DDT	DETSC 3441*	0.1	mg/kg		< 0.1				
Endosulphan sulphate	DETSC 3441*	0.1	mg/kg		< 0.1				
Methoxychlor	DETSC 3441*	0.1	mg/kg		< 0.1				



Summary of Chemical Analysis Soil/Misc Samples

Our Ref 19-12220
 Client Ref 450-18-087
 Contract Title Land off Harrisons Lane, Halesworth

Lab No	1523963	1523964	1523965	1523966	1523968	1523969
Sample ID	WS108	WS108	WS109	WS110	WS111	WS111
Depth	0.20	1.00	0.15	0.25	0.10	0.70
Other ID	1	3	1	1	1	4
Sample Type	ES	D	ES	ES	ES	ES
Sampling Date	25/06/19	25/06/19	25/06/19	25/06/19	25/06/19	25/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Endrin ketone	DETSC 3441*	0.1	mg/kg		< 0.1			
OPPs								
Dichlorvos	DETSC 3443*	0.1	mg/kg		< 0.1			
Mevinphos	DETSC 3443*	0.1	mg/kg		< 0.1			
Demeton-O	DETSC 3443*	0.1	mg/kg		< 0.1			
Ethoprop	DETSC 3443*	0.1	mg/kg		< 0.1			
Naled	DETSC 3443*	0.1	mg/kg		< 0.1			
Phorate	DETSC 3443*	0.1	mg/kg		< 0.1			
Demeton-S	DETSC 3443*	0.1	mg/kg		< 0.1			
Diazinon	DETSC 3443*	0.1	mg/kg		< 0.1			
Disulfoton	DETSC 3443*	0.1	mg/kg		< 0.1			
Methylparathion	DETSC 3443*	0.1	mg/kg		< 0.1			
Ronnel	DETSC 3443*	0.1	mg/kg		< 0.1			
Fenthion	DETSC 3443*	0.1	mg/kg		< 0.1			
Chlopyrifos	DETSC 3443*	0.1	mg/kg		< 0.1			
Trichlorinate	DETSC 3443*	0.1	mg/kg		< 0.1			
Merphos	DETSC 3443*	0.1	mg/kg		< 0.1			
Stirofos	DETSC 3443*	0.1	mg/kg		< 0.1			
Tokuthion	DETSC 3443*	0.1	mg/kg		< 0.1			
Fensulfothion	DETSC 3443*	0.1	mg/kg		< 0.1			
Bolstar	DETSC 3443*	0.1	mg/kg		< 0.1			
Azinphos methyl	DETSC 3443*	0.1	mg/kg		< 0.1			
Coumaphos	DETSC 3443*	0.1	mg/kg		< 0.1			

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 19-12220
 Client Ref 450-18-087
 Contract Title Land off Harrisons Lane, Halesworth

Lab No	1523970	1523971	1523972	1523973
Sample ID	WS111	WS102	WS109	WS112
Depth	1.00-1.45	0.80	1.50	1.00-1.45
Other ID	6	3	5	4
Sample Type	D	D	D	D
Sampling Date	25/06/19	25/06/19	25/06/19	25/06/19
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg				
Beryllium	DETSC 2301#	0.2	mg/kg				
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg				
Cadmium	DETSC 2301#	0.1	mg/kg				
Chromium	DETSC 2301#	0.15	mg/kg				
Chromium, Hexavalent	DETSC 2204*	1	mg/kg				
Copper	DETSC 2301#	0.2	mg/kg				
Lead	DETSC 2301#	0.3	mg/kg				
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l		< 10	< 10	< 10
Mercury	DETSC 2325#	0.05	mg/kg				
Nickel	DETSC 2301#	1	mg/kg				
Selenium	DETSC 2301#	0.5	mg/kg				
Vanadium	DETSC 2301#	0.8	mg/kg				
Zinc	DETSC 2301#	1	mg/kg				
Inorganics							
pH	DETSC 2008#		pH		8.1	8.5	8.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg				
Cyanide, Free	DETSC 2130#	0.1	mg/kg				
FOC	DETSC 2084#	0.001					
Ammonia Aqueous Extract as N	DETSC 2119	10	mg/l		< 10	< 10	< 10
Chloride Aqueous Extract	DETSC 2055	1	mg/l		4.4	8.2	13
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l		3.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l		16	17	37
Sulphur as S, Total	DETSC 2320	0.01	%		< 0.01	0.01	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%		0.02	0.03	0.04
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01			
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01			
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01			
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5			
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2			
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5			
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4			
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10			
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01			
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01			
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01			
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9			
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5			
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6			
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4			

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 19-12220
 Client Ref 450-18-087
 Contract Title Land off Harrisons Lane, Halesworth

Lab No	1523970	1523971	1523972	1523973
Sample ID	WS111	WS102	WS109	WS112
Depth	1.00-1.45	0.80	1.50	1.00-1.45
Other ID	6	3	5	4
Sample Type	D	D	D	D
Sampling Date	25/06/19	25/06/19	25/06/19	25/06/19
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10			
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10			
C5-C10 Gasoline Range Organics (GRO)	DETSC 3321*	0.1	mg/kg				
EPH (C10-C40)	DETSC 3311#	10	mg/kg				
PAHs							
Naphthalene	DETSC 3303#	0.03	mg/kg				
Acenaphthylene	DETSC 3303#	0.03	mg/kg				
Acenaphthene	DETSC 3303#	0.03	mg/kg				
Fluorene	DETSC 3303	0.03	mg/kg				
Phenanthrene	DETSC 3303#	0.03	mg/kg				
Anthracene	DETSC 3303	0.03	mg/kg				
Fluoranthene	DETSC 3303#	0.03	mg/kg				
Pyrene	DETSC 3303#	0.03	mg/kg				
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg				
Chrysene	DETSC 3303	0.03	mg/kg				
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg				
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg				
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg				
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg				
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg				
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg				
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg				
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg				
OCPs							
alpha-BHC	DETSC 3441*	0.1	mg/kg				
gamma-BHC (Lindane)	DETSC 3441*	0.1	mg/kg				
beta-BHC	DETSC 3441*	0.1	mg/kg				
delta-BHC	DETSC 3441*	0.1	mg/kg				
Heptachlor	DETSC 3441*	0.1	mg/kg				
Aldrin	DETSC 3441*	0.1	mg/kg				
Heptachlor epoxide	DETSC 3441*	0.1	mg/kg				
gamma-Chlordane	DETSC 3441*	0.1	mg/kg				
Endosulphan I & Alpha-chlorodane	DETSC 3441*	0.1	mg/kg				
4,4-DDE	DETSC 3441*	0.1	mg/kg				
Dieldrin	DETSC 3441*	0.1	mg/kg				
Endrin	DETSC 3441*	0.1	mg/kg				
Endosulphan II & 4,4-DDD	DETSC 3441*	0.1	mg/kg				
Endrin aldehyde	DETSC 3441*	0.1	mg/kg				
4,4-DDT	DETSC 3441*	0.1	mg/kg				
Endosulphan sulphate	DETSC 3441*	0.1	mg/kg				
Methoxychlor	DETSC 3441*	0.1	mg/kg				

Summary of Chemical Analysis

Soil/Misc Samples

Our Ref 19-12220

Client Ref 450-18-087

Contract Title Land off Harrisons Lane, Halesworth

Lab No	1523970	1523971	1523972	1523973
Sample ID	WS111	WS102	WS109	WS112
Depth	1.00-1.45	0.80	1.50	1.00-1.45
Other ID	6	3	5	4
Sample Type	D	D	D	D
Sampling Date	25/06/19	25/06/19	25/06/19	25/06/19
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Endrin ketone	DETSC 3441*	0.1	mg/kg				
OPPs							
Dichlorvos	DETSC 3443*	0.1	mg/kg				
Mevinphos	DETSC 3443*	0.1	mg/kg				
Demeton-O	DETSC 3443*	0.1	mg/kg				
Ethoprop	DETSC 3443*	0.1	mg/kg				
Naled	DETSC 3443*	0.1	mg/kg				
Phorate	DETSC 3443*	0.1	mg/kg				
Demeton-S	DETSC 3443*	0.1	mg/kg				
Diazinon	DETSC 3443*	0.1	mg/kg				
Disulfoton	DETSC 3443*	0.1	mg/kg				
Methylparathion	DETSC 3443*	0.1	mg/kg				
Ronnel	DETSC 3443*	0.1	mg/kg				
Fenthion	DETSC 3443*	0.1	mg/kg				
Chlopyrifos	DETSC 3443*	0.1	mg/kg				
Trichlorinate	DETSC 3443*	0.1	mg/kg				
Merphos	DETSC 3443*	0.1	mg/kg				
Stirofos	DETSC 3443*	0.1	mg/kg				
Tokuthion	DETSC 3443*	0.1	mg/kg				
Fensulfothion	DETSC 3443*	0.1	mg/kg				
Bolstar	DETSC 3443*	0.1	mg/kg				
Azinphos methyl	DETSC 3443*	0.1	mg/kg				
Coumaphos	DETSC 3443*	0.1	mg/kg				

Summary of Chemical Analysis

Leachate Samples

Our Ref 19-12220
 Client Ref 450-18-087
 Contract Title Land off Harrisons Lane, Halesworth

Lab No	1523974
Sample ID	WS108
Depth	0.20
Other ID	1
Sample Type	ES
Sampling Date	25/06/19
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
NRA Leachate Preparation	DETSC 1009*			Y
Metals				
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.2
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	14
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.7
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	0.8
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	1.4
Zinc, Dissolved	DETSC 2306	1.3	ug/l	7.5
Inorganics				
pH	DETSC 2008		pH	8.4
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1

Summary of Asbestos Analysis Soil Samples

Our Ref 19-12220

Client Ref 450-18-087

Contract Title Land off Harrisons Lane, Halesworth

Lab No	Sample ID	Sample Location	Material Type*	Result	Comment*	Analyst
1523963	WS108 1 0.20		SOIL	NAD	none	Lee Kerridge
1523965	WS109 1 0.15		SOIL	NAD	none	Lee Kerridge
1523966	WS110 1 0.25		SOIL	NAD	none	Lee Kerridge
1523967	WS111 1 0.10		Cement	Crocidolite Chrysotile	none	Lee Kerridge
1523968	WS111 1 0.10		SOIL	NAD	none	Lee Kerridge

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.



APPENDIX IV
GEOTECHNICAL LABORATORY TEST DATA



**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377 : Part 2 : 1990 Method 5)
DESCRIPTORS**

Contract Number	44733	
Site Name	Harrisons Lane, Halesworth	
Date Tested	02/07/2019	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
WS106	D4	D	1.00	-		White/ brown/ grey fine to medium gravelly chalky silty CLAY
TP107	D4	D	1.50	-		Brown/ grey slightly chalky fine to medium gravelly silty sandy CLAY
TP101	D3	D	1.10	-		White/ brown/ grey fine to medium gravelly chalky silty CLAY
WS101	D3	D	0.90	-		White/ brown/ grey fine to medium gravelly chalky silty CLAY
WS104	D6	D	2.00	-		White/ brown/ grey fine to medium gravelly chalky silty CLAY
TP117	D4	D	1.50	-		White/ brown/ grey slightly chalky fine to medium gravelly silty CLAY
TP114	D4	D	1.30	-		White/ brown/ grey fine gravelly chalky silty CLAY
TP103	D3	D	1.30	-		White/ brown/ grey fine to medium gravelly chalky silty CLAY
TP104	D4	D	1.90	-		Brown/ grey fine gravelly chalky silty CLAY
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Operators	Checked	07/07/2019	Wayne Honey (Administrative/Quality Assistant)
Ieuan Williams	Approved	07/07/2019	Paul Evans (Quality/Technical Manager)





LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377 : Part 2 : 1990 Method 5)

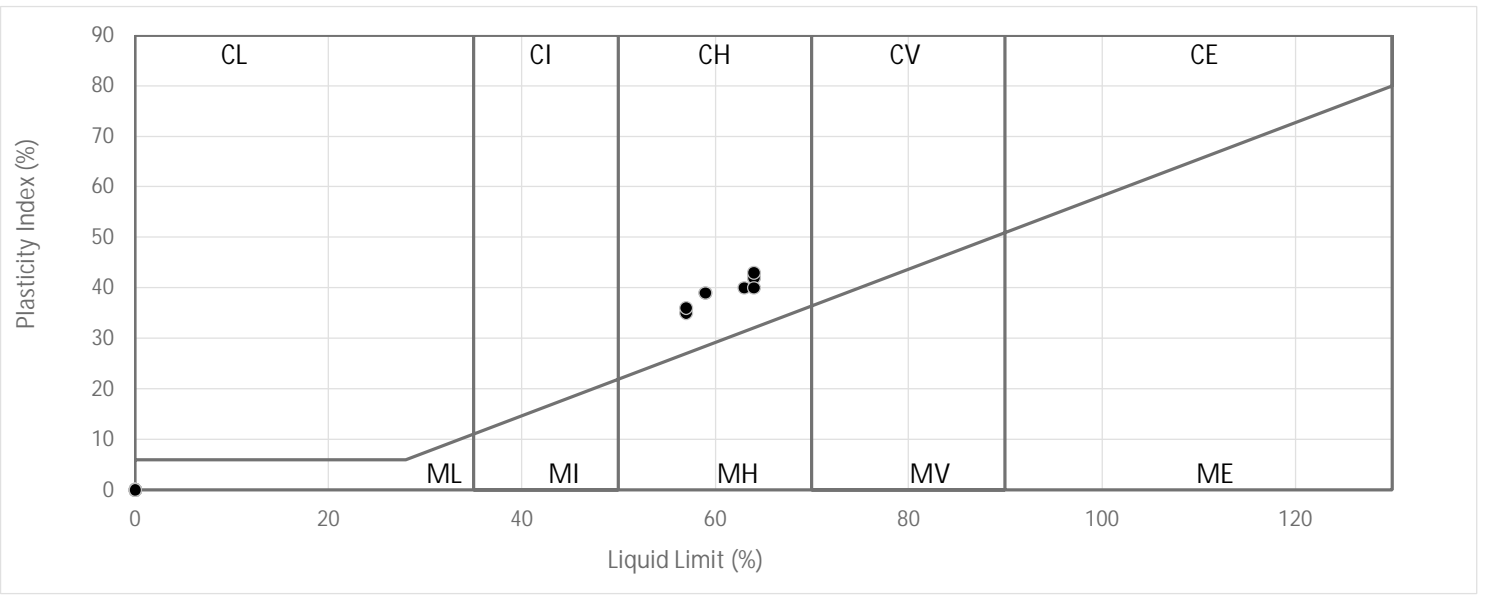
Contract Number	44733
Site Name	Harrisons Lane, Halesworth
Date Tested	02/07/2019

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
WS106	D4	D	1.00	-		15	59	20	39	84	CH High Plasticity
TP107	D4	D	1.50	-		20	59	20	39	81	CH High Plasticity
TP101	D3	D	1.10	-		18	64	22	42	86	CH High Plasticity
WS101	D3	D	0.90	-		15	64	22	42	79	CH High Plasticity
WS104	D6	D	2.00	-		5.2	57	22	35	81	CH High Plasticity
TP117	D4	D	1.50	-		20	64	21	43	82	CH High Plasticity
TP114	D4	D	1.30	-		17	63	23	40	94	CH High Plasticity
TP103	D3	D	1.30	-		18	57	21	36	78	CH High Plasticity
TP104	D4	D	1.90	-		23	64	24	40	90	CH High Plasticity
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Symbols: NP : Non Plastic

: Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	07/07/2019	Wayne Honey (Administrative/Quality Assistant)
Ieuan Williams	Approved	07/07/2019	Paul Evans (Quality/Technical Manager)

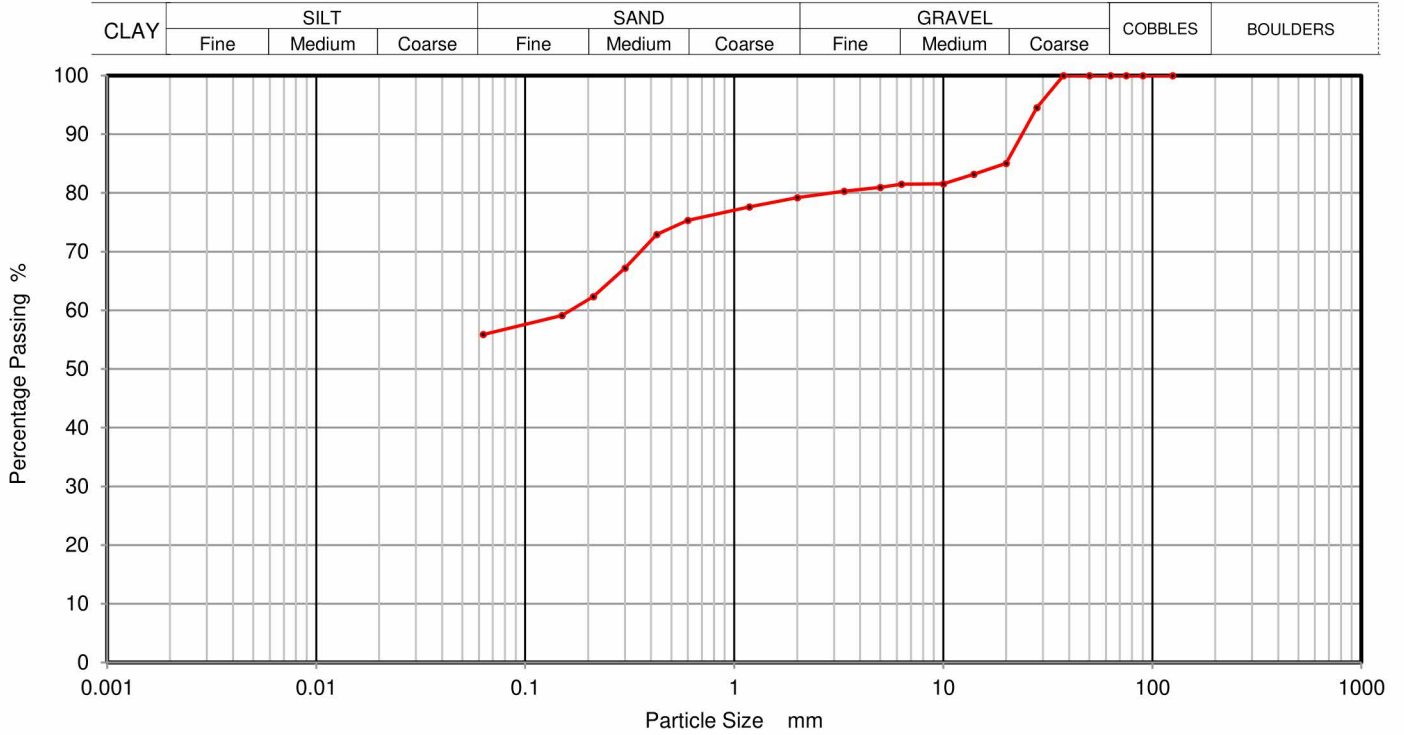




**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	44733
Borehole/Pit No.	BH103
Sample No.	ES2
Depth Top	0.70
Depth Base	
Sample Type	D

Site Name	Harrisons Lane, Halesworth
Soil Description	Brown fine to coarse gravelly fine to coarse sandy SILT/ CLAY



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	85		
14	83		
10	82		
6.3	81		
5	81		
3.35	80		
2	79		
1.18	78		
0.6	75		
0.425	73		
0.3	67		
0.212	62		
0.15	59		
0.063	56		

Sample Proportions	% dry mass
Cobbles	0
Gravel	21
Sand	23
Silt and Clay	56

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/07/2019	Wayne Honey
RO/MH	Approved	07/07/2019	Paul Evans

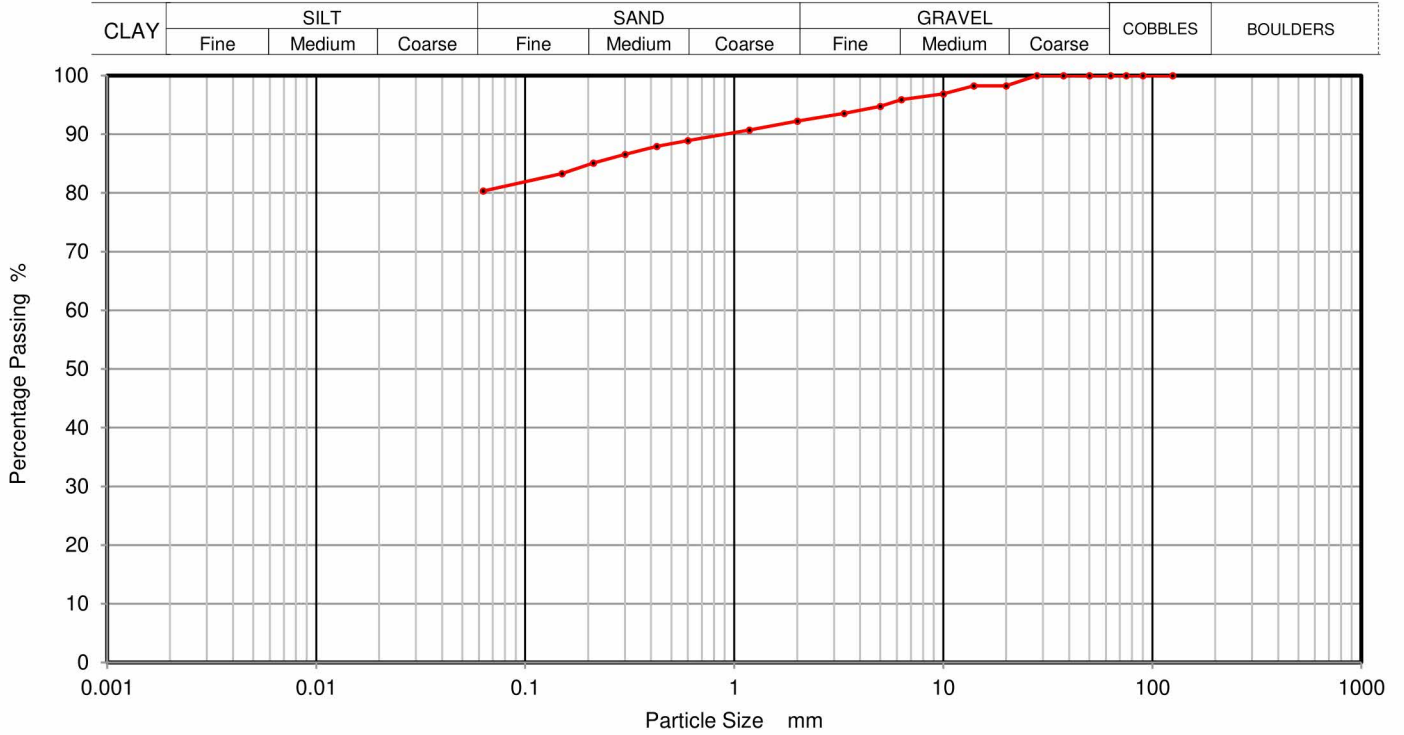




**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	44733
Borehole/Pit No.	TP108
Sample No.	d4
Depth Top	1.40
Depth Base	
Sample Type	D

Site Name	Harrisons Lane, Halesworth
Soil Description	Brown slightly fine to coarse gravelly fine to coarse sandy SILT/ CLAY



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	98		
10	97		
6.3	96		
5	95		
3.35	94		
2	92		
1.18	91		
0.6	89		
0.425	88		
0.3	87		
0.212	85		
0.15	83		
0.063	80		

Sample Proportions	% dry mass
Cobbles	0
Gravel	8
Sand	12
Silt and Clay	80

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/07/2019	Wayne Honey
RO/MH	Approved	07/07/2019	Paul Evans

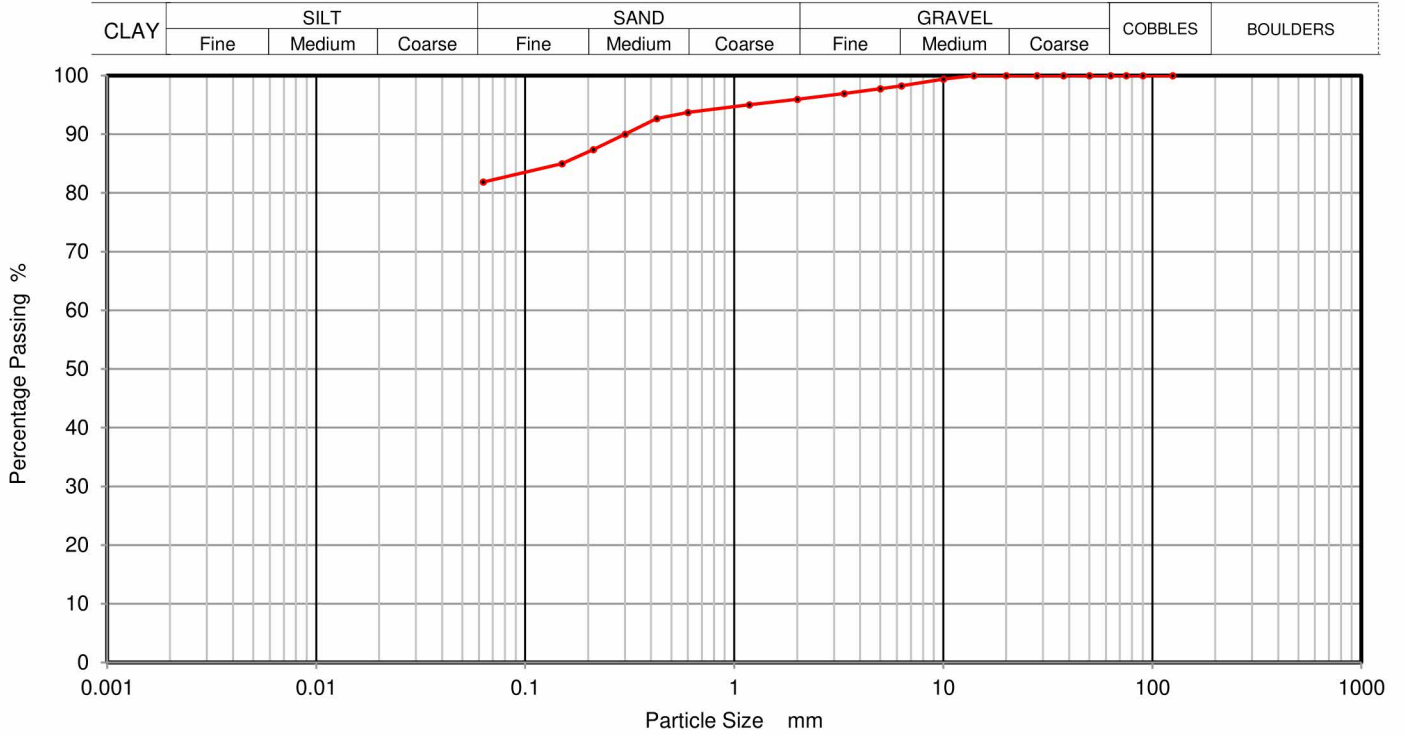




**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	44733
Borehole/Pit No.	TP110
Sample No.	D3
Depth Top	0.70
Depth Base	
Sample Type	D

Site Name	Harrisons Lane, Halesworth
Soil Description	Brown slightly fine to medium gravelly fine to coarse sandy SILT/ CLAY



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	98		
3.35	97		
2	96		
1.18	95		
0.6	94		
0.425	93		
0.3	90		
0.212	87		
0.15	85		
0.063	82		

Sample Proportions	% dry mass
Cobbles	0
Gravel	4
Sand	14
Silt and Clay	82

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/07/2019	Wayne Honey
RO/MH	Approved	07/07/2019	Paul Evans





**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number **44733**

Borehole/Pit No. **TP111**

Site Name **Harrisons Lane, Halesworth**

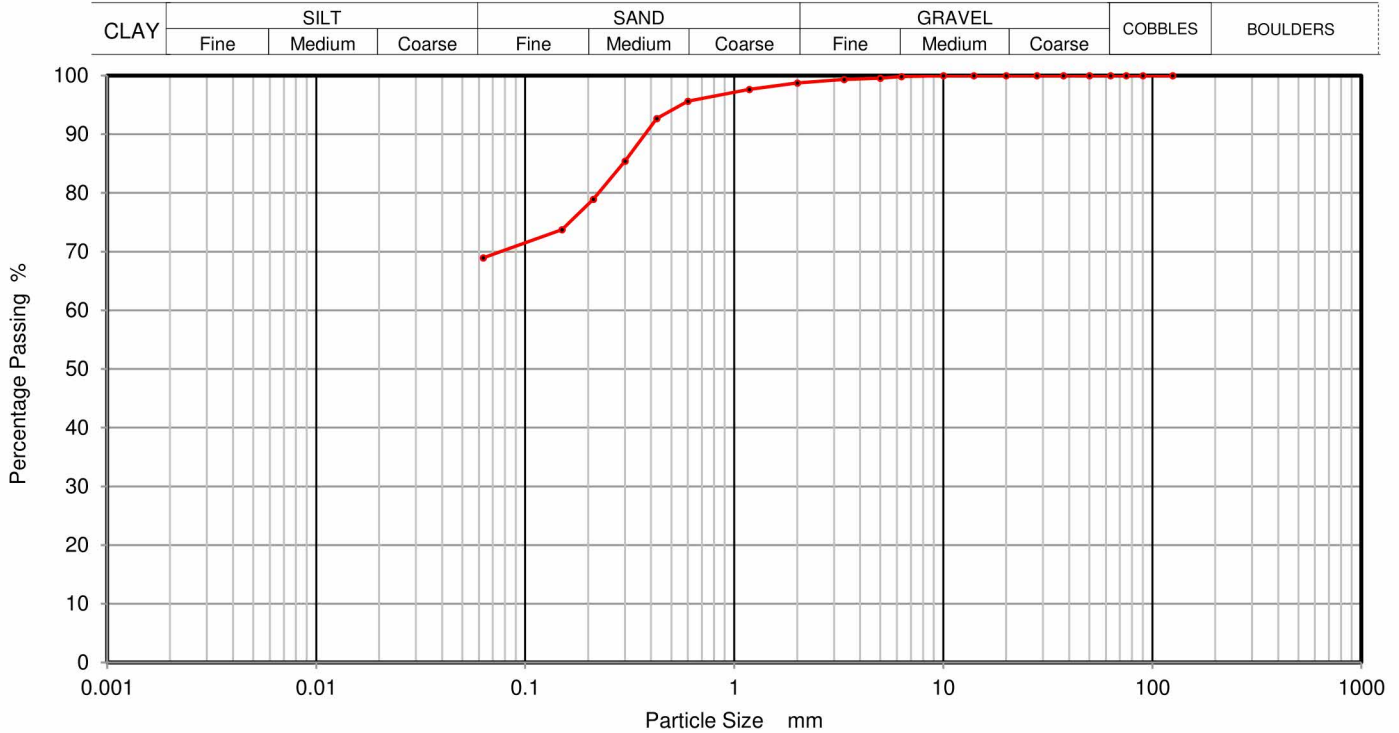
Sample No. **D2**

Soil Description **Brown slightly fine gravelly fine to coarse sandy SILT/ CLAY**

Depth Top **0.40**

Depth Base

Sample Type **D**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	96		
0.425	93		
0.3	85		
0.212	79		
0.15	74		
0.063	69		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	30
Silt and Clay	69

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/07/2019	Wayne Honey
RO/MH	Approved	07/07/2019	Paul Evans





**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377 : Part 2 : 1990 Method 5)**

DESCRIPTIONS

Contract Number	44825
Site Name	Harrisons Lane, Halesworth
Date Tested	06/07/2019

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)		Descriptions
WS109	D3	D	0.90	-	Brown fine to medium gravelly chalky silty CLAY
WS111	D7	D	1.55	-	Brown fine to medium gravelly chalky silty CLAY
			-	-	
			-	-	
			-	-	
			-	-	
			-	-	
			-	-	
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			-	-	

Operators	Checked	11/07/2019	Wayne Honey (Administrative/Quality Assistant)
Ieuan Williams	Approved	11/07/2019	Paul Evans (Quality/Technical Manager)



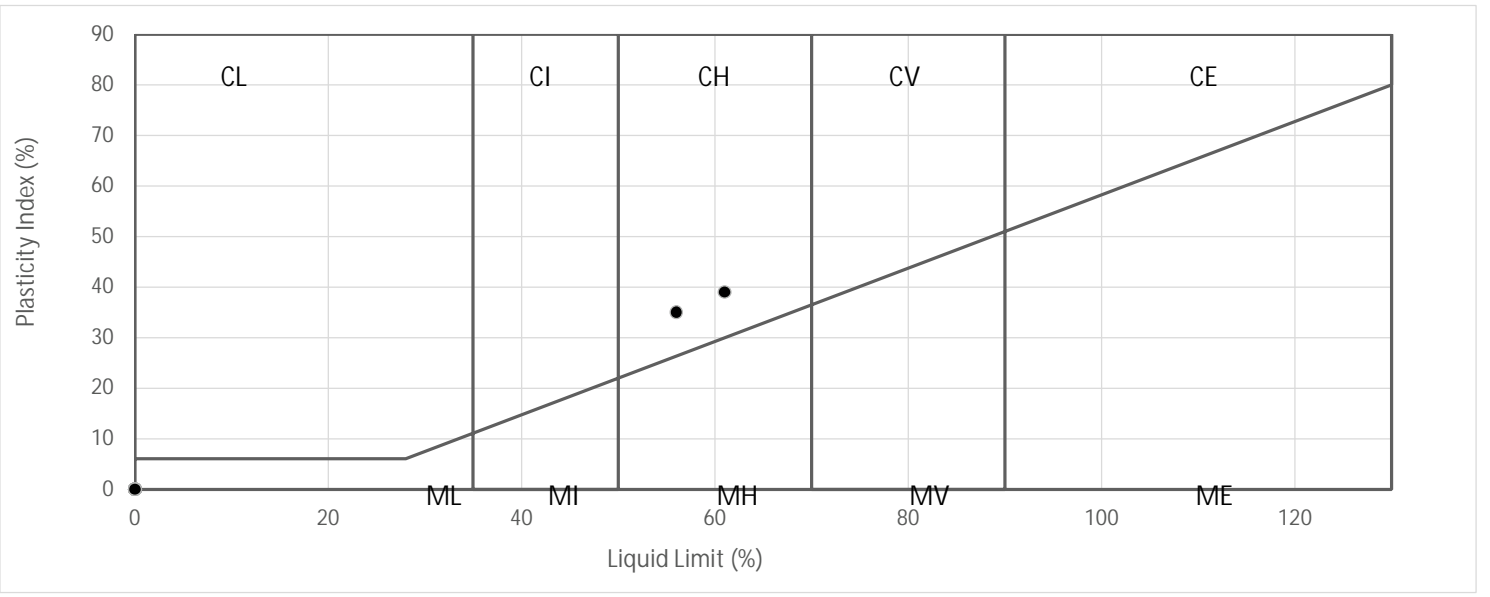


**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377 : Part 2 : 1990 Method 5)**

Contract Number	44825
Site Name	Harrisons Lane, Halesworth
Date Tested	06/07/2019

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)		Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
WS109	D3	D	0.90	-	19	61	22	39	90	CH High Plasticity
WS111	D7	D	1.55	-	20	56	21	35	89	CH High Plasticity
				-						
				-						
				-						
				-						
				-						
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Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
**PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
 BS 5930:1999+A2:2010**



Operators	Checked	11/07/2019	Wayne Honey (Administrative/Quality Assistant)
Ieuan Williams	Approved	11/07/2019	Paul Evans (Quality/Technical Manager)





APPENDIX V
QUALITATIVE RISK ASSESSMENT

STEP 2: BASIC SETTINGS

Apply Settings to Model

Back to Guide

SELECT LAND USE Residential with produce

RATIO MODE

LAND USE OPTIONS

RECEPTOR Female (res)

BUILDING Small terraced house

SOIL TYPE Sandy clay loam

START AC 1

END AC 6

pH 7

SOM (%) 3.83

EXPOSURE PATHWAYS

ORAL ROUTES

- direct soil and dust ingestion
- consumption of homegrown produce
- soil attached to homegrown produce

DERMAL ROUTES

- indoor
- outdoor

INHALATION ROUTES


- indoor dust
- outdoor dust
- indoor vapour
- outdoor vapour

APPENDIX IV
GEOLOGICAL LOGS

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP202 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	--


Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
T,J,V		0.0-0.3	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X ___ ___ ___ ___	0.3	0.3	
			Firm yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular flint gravel.	___ ___ X ___ ___ ___ X ___	1.0	>0.7	
			End of pit.		2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.2m;w=0.5m; E-W. Stability: Stable. Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP203 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	--


Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
D1 HSV	88/86/64	0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and brick fragments across the surface. (TOPSOIL)	X _ _ . _ . _ _ . _	0.3	0.3	
		0.5	Firm yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular flint gravel.	_ . O . _ _ _ _ _ X X _ _ O _ . _ _ . _ X _ _			
D2 HSV	118/130/102	1	Firm to stiff dark grey mottled dark brown slightly sandy, slightly gravelly CLAY with occasional pockets of fine to medium brown sand. Gravel of fine to medium, rounded chalk.	_ . O . _ X _ . O . _ . _ O _ . _ X _ . O . _ X _ . O . _ . _	1.0	0.7	
		1					
D3 HSV	68/60/64	1.5	no sand pockets observed below 1.7m.	_ . O . _ X _ . O . _ . _ O _ . _ X _ . O . _ X _ . O . _ . _			
		1.5					
D4 HSV	UTP	2	becoming very stiff below 2.0m.	_ . O . _ . _	2.0	>1.0	
		2					
			End of pit.		3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	 BROWN & GREEN GEOTECHNICAL ENGINEERING
Dimensions and Orientation: L=2.3m;w=0.5m; E-W. Stability: Stable. Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP204 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	---


Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
T,J,V D1 HSV	102/110/120	0.0-0.5 0.5 0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets, brick fragments and plastic. (DISTURBED GROUND)	X . . . O .	0.5	0.5	
D2 HSV	130/134/138	1 1	Stiff yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular flint gravel and pockets of fine sand.	X X O .	0.8	0.3	
D3 HSV	UTP	1 1.5	Stiff dark grey mottled dark brown slightly gravelly, slightly sandy CLAY with rare decayed rootlets. Gravel of fine to coarse, angular to rounded chalk and flints. becoming very stiff below 1.5m.	X X O . X O .	1.0		
D4 HSV	UTP	2 2		X O .	2.0	>1.2	
			End of pit.		3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.2m;w=0.5m; NE-SW. Stability: Stable.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrison's Lane Location: Harrison's Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP205 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	---


Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
D1 HSV	110/108/130	0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded chert, chalk and jasper. (TOPSOIL)	X ___	0.3	0.3	
		0.5		Stiff yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular flint gravel.			
T,J,V D2 HSV	UTP	0.8-1.0 1 1	Very stiff dark grey mottled dark brown slightly sandy, slightly gravelly CLAY Gravel of fine to medium, subrounded to rounded chalk.	___ O ___ X ___ ___ X ___ ___ O ___	1.0		
D3 HSV	UTP	1.5 1.5		O ___ ___ X ___ ___ O ___ ___ X ___			
D4 HSV	UTP	2 2		___ O ___ ___ X ___	2.0	>1.2	
			End of pit.	___			
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.2m;w=0.5m; E-W. Stability: Stable. Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP206 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	---


Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
D1 HSV	98/92/80	0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded chert, chalk and jasper. (TOPSOIL)	X _ _ _ _	0.3	0.3	
		0.5	Firm yellowish brown mottled orange slightly sandy CLAY with occasional pockets of orangish brown fine to medium sand.	_ _ _ _ _ X X _ _ _ _			
D2 HSV	132/140/ >140	1 1	Stiff grey mottled dark brown slightly gravelly, slightly sandy CLAY with rare cobbles of flint. becoming very stiff below 1.0m.	_ _ X _ _ O _ _ X _ _ O _ _ _	1.0		
D3 HSV	UTP	1.5 1.5		O _ _ X _ _ O _ _ X _ _ O _ _ _			
D4 HSV	UTP	2 2		_ X _ _ O _ _ _	2.0	>1.2	
			End of pit.		3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.3m;w=0.5m; N-S. Stability: Stable. Keys: J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrison's Lane Location: Harrison's Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP207 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	--


Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
D1 HSV	50/48/50	0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded chert, chalk and jasper. (TOPSOIL)	X --- ---	0.3	0.3	
		0.5	Firm orangish brown mottled grey slightly gravelly, sandy CLAY. Gravel of fine to coarse, angular to rounded chert and quartzite.	--O --- -X			
		D2 HSV T,J,V	108/102/90	1	Brownish grey silty sandy GRAVEL. Gravel of fine to coarse, subrounded to rounded chert and quartzite.	X --- ---	0.7
1.0-1.2	Firm gight grey silty CLAY with occasional orangish brown mottling and rare fine to medium, rounded chert. With a yellowish brown fine to medium sand pocket at 1.1m.			--- --- X --- --- O --- ---			
D3		1.5	with a light brown fine sand pocket between 1.5m and 1.7m.	--- --- --- --- X --- --- ---	0.9	0.2	
D4 HSV	UTP	2	End of pit.	--- ---			2.0
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion. Dimensions and Orientation: L=2.3m;w=0.5m; E-W. Stability: Stable. Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	 Page 1 of 1
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GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP208 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	--

Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
D1 HSV	98/72/80	0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded chert, flint and jasper. (TOPSOIL)	X . .	0.35	0.35	
		0.5	Firm brown mottled grey slightly sandy CLAY with occasional pockets of fine to medium grey sand and rare rootlets.	. O .			
D2 HSV	134/>140/ >140	1	Stiff grey mottled dark brown slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse, angular to rounded chalk and flints and occasional cobbles of flint. becoming very stiff below 1.0m.	X . .	1.0	0.25	
		1					
D3 HSV	>140/>140/ >140	1.5		. O .			
D4 HSV	UTP	2		X . .	2.0	>1.4	
			End of pit.		3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.3m;w=0.5m; N-S. Stability: Stable.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP209 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	--


Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
D1 HSV	108/78/82	0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded chert, chalk and jasper. (TOPSOIL)	X ___ ___ ___ ___	0.3	0.3	
		0.5	Firm to stiff yellowish brown mottled orange and grey slightly sandy, silty CLAY.	___ O ___ ___ ___ ___ X ___ X ___ O ___			
T,J,V D2 HSV	>140/>140/ >140	0.8-1.0 1	Stiff grey mottled dark brown slightly gravelly, slightly sandy CLAY.	___ ___ X ___ ___ O ___ ___ X ___ ___ O ___ ___	1.0		
D3 HSV		1	Gravel of fine to medium, angular to rounded chalk and flints.				
D4 HSV	UTP	1.5 1.5		___ O ___ ___ X ___ ___ O ___ ___	2.0	>1.2	
	UTP	2 2	End of pit.	___ O ___ ___			

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.2m;w=0.5m; N-S. Stability: Stable.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: TP210 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
---	--

Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
D1 HSV	132/118/120	0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded chert, chalk and jasper. (TOPSOIL)	X . . . O	0.4	0.4	
		0.5	Firm brown mottled grey slightly sandy CLAY with occasional pockets of fine to medium grey sand and rare rootlets.	. . X X O	0.8	0.4	
D2 HSV	130/126/128	1	Stiff grey mottled dark brown slightly gravelly, slightly sandy CLAY with rare cobbles of flint.	. X . . O	1.0		
		1	Gravel of fine to medium, angular to rounded chalk and flints.	. X . . O			
D3 HSV	130/134/132	1.5		. . O . X . O			
		1.5		. X . . O			
D4 HSV	>140/>140/ >140	2	becoming very stiff below 2.0m. End of pit.	. . O	2.0	>1.2	
		2		. . O			
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.3m;w=0.5m; N-S. Stability: Stable.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS201 Start of Drilling: 22-Nov-21 Completion of Drilling: 22-Nov-21 Drilling Method: Window sampling Coordinates: TM 39562 78042
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
T,J,V		0.0-0.3	Dark brown-grey slightly gravelly, slightly silty CLAY. Gravel of fine to coarse, subrounded chalk and occasional flint. (TOPSOIL)	_o X o	0.3	0.3	
D1		0.5	Soft yellow brown mottled slightly silty, slightly gravelly CLAY. Gravel of fine to coarse, rounded chert and rare subangular flints.	X o _o X o			
D2		1	becoming firm below 0.9m.	X o	1.0	0.7	
SPT	2,2,3,3,4 N=12	1.0-1.45	Firm dark grey brown slightly sandy, slightly silty, gravelly CLAY. Gravel of fine to coarse, subrounded to rounded chalk and rare flint.	o _o X o			
D3		1.5		X o _o X o			
D4		2		o X _o X o	2.0		
SPT	2,3,3,3,3 N=12	2.0-2.45		_o X o			
D5		2.5		o X _o X o			
D6		3		_o X o _o X o	3.0		
SPT	4,4,5,6,7 N=22	3.0-3.45		_o X o			
D7		4	becoming stiff to very stiff.	_o X o _o X o	4.0		
SPT	6,6,6,9,10 N=31	4.0-4.45		_o X o			
D8		4.5-4.6		_o X o			
SPT	6,6,25,19 N>50	4.6-4.90		_o	4.9	>3.9	
			No further advance achieved due to density of the strata. End of hole.		5.0		
					6.0		
					7.0		


Remarks: Groundwater: Dry on completion.

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GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS202 Start of Drilling: 22-Nov-21 Completion of Drilling: 22-Nov-21 Drilling Method: Window sampling Coordinates: TM 39568 78065
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	S/pipe
Sample / Test	Result	Sample range					
			Dark brown-grey slightly gravelly, slightly silty CLAY. Gravel of fine to coarse, subrounded chalk and occasional flint. (TOPSOIL)	. . O . . X . . O . . X	0.4	0.4	
D1		1	Soft brown slightly silty, slightly gravelly CLAY. Gravel of fine to medium, rounded chert and rare subangular flints. becoming firm below 0.9m with live rootlets.	. . O O . . X . . O . . X . . O	1.0		
SPT	3,4,2,3,3 N=12	1.0-1.45	Firm grey brown slightly sandy, slightly silty, gravelly CLAY. Gravel of fine to coarse, subrounded to rounded chalk and rare flint. becoming stiff below 1.5m	. . O . . X . . O . . X . . O O . . X . . O	1.2	0.8	
D2		1.5		. . O . . X . . O . . X . . O O . . X . . O	2.0		
D3		2		. . O . . X . . O . . X . . O O . . X . . O	3.0		
SPT	2,2,4,4,5 N=15	2.0-2.45		. . O . . X . . O . . X . . O O . . X . . O	4.0		
D4		2.5		. . O . . X . . O . . X . . O O . . X . . O	5.0		
D5		3	becoming grey with dark brown laminations and rare fine rounded mudstone clasts below 3.0m.	. . O . . X . . O . . X . . O O . . X . . O	5.15	>3.95	
SPT	7,5,5,7,9 N=26	3.0-3.45		. . O . . X . . O . . X . . O O . . X . . O	6.0		
D6		4	becoming very stiff at 4.0m.	. . O . . X . . O . . X . . O O . . X . . O	7.0		
SPT	5,5,6,7,7 N=25	4.0-4.45		. . O . . X . . O . . X . . O O . . X . . O			
D7		4.6-4.7		. . O . . X . . O . . X . . O O . . X . . O			
SPT	7,6,7,10,10 N=33.	4.7-5.15		. . O . . X . . O . . X . . O O . . X . . O			
			No further advance achieved due to density of the strata. End of hole.				

Remarks: Groundwater: Dry on completion.	 Page 1 of 1
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS203 Start of Drilling: 22-Nov-21 Completion of Drilling: 22-Nov-21 Drilling Method: Window sampling Coordinates: TM39566 78104
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
T,J,V		0.0-0.3	Dark brown slightly gravelly, slightly silty CLAY.	_O_	0.3	0.3	
			Gravel of fine to coarse, subrounded chalk. (TOPSOIL)	_X_			
D1		1	Soft yellow brown mottled very sandy, gravelly CLAY.	_X_	1.0		
			Gravel of fine to coarse, rounded chert and rare subangular flints.	_O_			
SPT	2,3,3,4,3 N=13	1.0-1.45	Soft to firm yellow-brown mottled grey slightly gravelly, slightly silty CLAY with occasional roots.	_O_	1.5	1.1	
D2		1.5	Gravel of fine to medium, subrounded to rounded chalk.	_X_			
D3		2	Stiff dark grey mottled orange brown slightly gravelly, slightly silty CLAY.	_X_	2.0		
			becoming grey below 2.0m.	_O_			
SPT	3,2,2,3,4 N=11	2.0-2.45		_X_	3.0		
D4		2.5		_O_			
D5		3		_X_	4.0		
				O			
SPT	4,3,4,5,6 N=18	3.0-3.45		_X_	5.0		
D6		4		_O_			
SPT	6,6,6,7,8 N=27	4.0-4.45	becoming very stiff below 4.6m.	_X_	5.45	>3.95	
				O			
SPT	7,7,7,10,11 N=35	5.0-5.45	End of hole.	_O_	7.0		
				O			

Remarks: Groundwater: Dry on completion.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS204 Start of Drilling: 22-Nov-21 Completion of Drilling: 22-Nov-21 Drilling Method: Window sampling Coordinates: TM 39482 78196
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
T,J,V		0.0-0.3	Dark brown slightly gravelly, slightly sandy silty CLAY with occasional roots. Gravel of fine to medium, subrounded to rounded chalk. (TOPSOIL)	_O _X O_	0.3	0.3	
D1		0.5	Soft to firm yellow brown and grey mottled slightly sandy, slightly silty CLAY.	_X _O_	0.6	0.3	
D2		1	Soft yellow brown and grey slightly silty, slightly gravelly CLAY. Gravel of fine to medium, subrounded to rounded chalk and rare flint.	O_	1.0	0.4	
SPT	2,2,2,3,3 N=10	1.0-1.45	Firm dark grey mottled orange brown slightly sandy, slightly silty, gravelly CLAY. Gravel of fine to coarse, subrounded to rounded chalk and rare flint.	_O_			
D3		1.5		_X _O_			
D4		2		_X _O_	2.0		
SPT	3,3,3,3,4 N=13	2.0-2.45		_X _O_			
D5		2.5		_O_			
D6		3		_X _O_	3.0		
SPT	4,2,4,4,5 N=15	3.0-3.45		_X _O_	3.45	>2.45	
			End of hole.		4.0		
					5.0		
					6.0		
					7.0		

Remarks: Groundwater: Dry on completion.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS205 Start of Drilling: 22-Nov-21 Completion of Drilling: 22-Nov-21 Drilling Method: Window sampling Coordinates: TM 39444 78112
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
T,J,V		0.0-0.3	Soft brown slightly silty CLAY with occasional fine to medium chalk. (TOPSOIL)	_o _x o_	0.3	0.3	
D1		0.5	Soft yellow brown, slightly silty, slightly gravelly CLAY with occasional roots. Gravel of fine to coarse, rounded chert and rare subangular flints.	_x _o_			
D2		1	Firm dark brown and grey mottled gravelly CLAY. Gravel of fine to medium, subrounded to rounded chalk and occasional flint and flint cobbles.	_x _o_	0.9 1.0	0.6	
SPT	3,6,8,6,4 N=24	1.0-1.45	Firm to stiff dark brownish grey very gravelly CLAY.	_o_	1.2	0.3	
D3		1.5	Gravel of fine to coarse rounded chalk and rare flint.	_x _o_			
D4		2		_o_	2.0		
SPT	3,2,3,3,3 N=11	2.0-2.45		_x _o_			
D5		2.5		_o_			
D6		3		_x _o_	3.0		
SPT	3,4,3,5,5 N=17	3.0-3.45		_x _o_			
D7		4	becomes stiff to very stiff.	_o_	4.0		
SPT	5,5,6,6,10 N=27	4.0-4.3		_x _o_			
SPT	5,5,6,7,8 N=26	4.3-4.75		_x _o_	4.75	>3.55	
			No further advance achieved due to density of strata. End of hole.		5.0		
					6.0		
					7.0		

Remarks: Groundwater: Dry on completion.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS206 Start of Drilling: 22-Nov-21 Completion of Drilling: 22-Nov-21 Drilling Method: Window sampling Coordinates: TP39424 78100
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
D1		0.5	Dark brown, slightly sandy, slightly silty CLAY with occasional fine to medium, subrounded to rounded chalk. (TOPSOIL)	_o _x o_	0.3	0.3	
			Soft yellow brown mottled brown sandy, slightly silty CLAY. Gravel of fine to coarse, rounded chert and rare subangular flints.	_x _o_			
D2		1	Firm brown mottled grey gravelly, slightly silty CLAY. Gravel of fine to medium, subrounded to rounded chalk.	_o_ _x _o_	1.0	0.5	
SPT	2,2,2,3,3 N=10	1.0-1.45		o_			
D3		1.5		_x _o_	1.8	1.0	
D4		2	Firm to stiff brownish grey gravelly, slightly silty CLAY.	_x _o_			
SPT	2,2,3,4,4 N=13	2.0-2.45		_x _o_	2.0		
D5		2.5		o_			
D6		3		_x _o_	3.0		
SPT	4,4,5,5,6 N=20	3.0-3.45		_x _o_			
			End of hole.	_o_	3.45	>1.65	
				_x			
				o	4.0		
				_x			
				o	5.0		
				_x			
				o	6.0		
				_x			
				o	7.0		
				_x			

Remarks: Groundwater: Dry on completion.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS207 Start of Drilling: 23-Nov-21 Completion of Drilling: 23-Nov-21 Drilling Method: Window sampling Coordinates: TM 39332 78155
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
D1		0.5	Dark brown slightly silty CLAY with occasional fine to medium subrounded flint and roots. (TOPSOIL)	_ O _ X _ O	0.3	0.3	
			Soft yellow brown mottled slightly silty, slightly gravelly CLAY. Gravel of fine to coarse, rounded chert and rare subangular flints.	_ X _ O _ .			
D2		1	Soft yellowish brown mottled grey gravelly, slightly silty CLAY. Gravel of fine to coarse, subrounded to rounded chalk and rare flint.	_ . O _ X	1.0	0.2	
			Firm to stiff dark brown and grey mottled gravelly, slightly silty CLAY. Gravel of fine to coarse, subrounded to rounded chalk and rare flint.	_ . O _ .			
SPT	2,2,2,2,3 N=9	1.0-1.45		_ . _ O _ X			
D3		1.5		_ . O _ X _ . O			
D4		2		_ . _ O _ X	2.0		
SPT	2,2,2,4,4 N=12	2.0-2.45		_ . O _ .			
D5		2.5		_ . _ O _ X			
D6		3		_ . O _ . _ X _ . O	3.0		
SPT	4,5,6,5,6 N=22	3.0-3.45		_ . O _ X _ . O			
			End of hole.	_ . O	3.45	>1.45	
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Groundwater: Dry on completion. Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	 <small>with a bit of green in the middle</small>
Page 1 of 1	

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS208 Start of Drilling: 23-Nov-21 Completion of Drilling: 23-Nov-21 Drilling Method: Window sampling Coordinates
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
D1		0.5	Dark brown slightly silty CLAY with occasional fine to medium subrounded flint and roots. (TOPSOIL)	_ O _ X _ O	0.3	0.3	
			Soft yellow brown mottled slightly sandy, silty CLAY with rare fine to medium, chalk and flint and roots.	_ X _ O _ X _ O			
D2		1	Soft to firm dark brown mottled grey slightly silty, gravelly CLAY. Gravel of fine to coarse, occasionally coarse, subrounded to rounded chalk and rare flint.	_ X _ O	0.95	0.65	
SPT	2,3,3,2,3 N=11	1.0-1.45		_ O _ X			
D3		1.5		_ O _ X			
D4		2	Firm dark grey-brown slightly gravelly CLAY. Gravel of fine to coarse rounded chalk and rare flint. with a cobble of flint at 2.0m. occasionally becoming slightly sandy.	_ O _ X _ O _ X	2.0		
SPT	3,2,3,3,4 N=12	2.0-2.45		_ O _ X			
D5		2.5		_ O _ X			
D6		3		_ O _ X	1.7	0.75	
D6		3	Firm dark grey-brown slightly gravelly CLAY.	_ O _ X	3.0	1.3	
SPT	4,3,5,6,6 N=20	3.0-3.45	Stiff dark grey slightly gravelly CLAY.	_ O _ X _ O _ X			
D7		4		_ O _ X	4.0		
SPT	5,5,5,8,8 N=26	4.0-4.45		_ O _ X			
D8		5		_ O _ X	5.0		
SPT	5,5,6,7,9 N=27	5.0-5.45		_ O _ X			
			End of hole.	_ O	5.45	>2.45	
					6.0		
					7.0		

Remarks: Groundwater: Dry on completion.	 Page 1 of 1
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS209 Start of Drilling: 23-Nov-21 Completion of Drilling: 23-Nov-21 Drilling Method: Window sampling Coordinates: TM 39394 78037
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
T,J,V		0.0-0.3	Dark brown-grey slightly sandy, silty CLAY. (TOPSOIL)	X . . . X X .	0.7	0.7	
D1		1	Soft yellow brown mottled grey slightly silty, gravelly CLAY. Gravel of fine to medium, rounded chalk.	X . O . O .	1.0		
SPT	2,1,2,2,3 N=8	1.0-1.45		O .	1.4	0.7	
D2		1.5	Firm grey slightly gravelly CLAY. Gravel of fine to medium, rounded chalk.	. O X . O .	2.0		
SPT	2,1,2,4,3 N=10	2.0-2.45		. O X . O .	2.5		
D4		2.5		O .	3.0		
D5		3	becoming stiff below 3.0m.	. O X . O .	3.45	>2.05	
SPT	5,5,5,6,8 N=24	3.0-3.45		. O X . O .	4.0		
			End of hole.		5.0		
					6.0		
					7.0		

Remarks: Groundwater: Noted at 1.2m. SPT core between 1.0m and 1.45m was dry.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS210 Start of Drilling: 23-Nov-21 Completion of Drilling: 23-Nov-21 Drilling Method: Window sampling Coordinates: TM 39444 78034
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	S/pipe
Sample / Test	Result	Sample range					
			Dark brown-grey slightly sandy, silty CLAY with occasional roots. (TOPSOIL)	X . . . X	0.45	0.45	
D1		1	Soft orange brown mottled slightly silty CLAY with occasional fine to medium angular flint and roots. Gravel of fine to coarse, rounded chert and rare subangular flints.	. . O X . . X . O	1.0		
SPT	2,0,1,1,1 N=3	1.0-1.45	no roots observed below 1.0m	. . O X . . X . O			
D2		1.5	becoming grey mottled below 1.3m.	. . O X . . X . O	1.8	1.35	
D3		2	Stiff fine to medium, brownish grey slightly silty CLAY	O X . . X . . O X . . X . O	2.0		
SPT	2,3,3,4,5 N=15	2.0-2.45		. . O X . . X . O	3.0		
D4		2.5		. . O X . . X . O	3.45	>1.65	
D5		3		. . O X . . X . O			
SPT	5,3,5,6,6 N=20	3.0-3.45	End of hole.	. . O X . . X . O			
				. . O X . . X . O	4.0		
				. . O X . . X . O	5.0		
				. . O X . . X . O	6.0		
				. . O X . . X . O	7.0		

Remarks: Groundwater: Water seepage at 0.45m. Water standing at 1.9m after 2h.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: PDM	Borehole Number: WS211 Start of Drilling: 23-Nov-21 Completion of Drilling: 23-Nov-21 Drilling Method: Window sampling Coordinates
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Sample/Test			Description	Log	Depth (m)	Thick-ness (m)	S/pipe
Sample / Test	Result	Sample range					
T,J,V		0.0-0.3	Dark brown-grey slightly sandy, silty CLAY with occasional roots. (TOPSOIL)	X . . . X	0.45	0.45	
D1		0.5	Soft yellow brown mottled grey sandy, silty CLAY with occasional fine to medium gravel of rounded chalk and angular flint.	. . O X . O	0.9	0.45	
D2		1	Medium dense very clayey, very gravelly fine to medium SAND. Gravel of fine to medium angular to subangular flint.	X . O	1.0	0.45	
SPT	2,2,2,4,3 N=11	1.0-1.45	Firm yellow brown mottled grey slightly sandy, slightly silty, gravelly CLAY.	O X	1.2	0.3	
D3		1.5	Gravel of fine to coarse, rounded chalk. With occasional sand lenses of up to 10mm thick.	. . O X	1.6	0.4	
D4		2	Firm to stiff bluish grey gravelly CLAY.	. . O X	2.0		
SPT	2,2,2,3,3 N=10	2.0-2.45	Gravel of fine to coarse, subrounded to rounded chalk and occasional flints.	. . O X . O	3.0		
D5		2.5		. . O X . O	3.0		
D6		3		. . O X . O	3.0		
SPT	4,4,5,6,7 N=22	3.0-3.45		. . O X . O	3.45	>1.85	
			End of hole.		4.0		
					5.0		
					6.0		
					7.0		

Remarks: Groundwater: Water seepage at 0.95m. Standing at 1.3m on completion.	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample.	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR1 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL) Yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	X _ _ . _ _ . _ . . . _ _ X. X _ _ . _ _ . _ . . . _ _ .	 0.3 0.7 1.0 2.0 3.0 4.0 5.0 6.0 7.0	 0.3 >0.4	
			End of pit.				

Remarks: Dry on completion. Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable Keys: J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	 <small>www.browngreen.co.uk</small>
Page 1 of 1	

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR2 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X — —	0.3	0.3	
			Yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	X — —			
			End of pit.		1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; E-W. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR3 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
			Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X — — —	0.3	0.3	
B		0.5	Yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	—X X—	0.5	>0.2	
			End of pit.		1.0 2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; E-W. Stability: Stable Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR4 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X — —	0.3	0.3	
			Yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	—X X — —			0.7
			Dark grey mottled brown slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse, angular to rounded chalk and flints.	—O — —	1.0	>0.3	
			End of pit.				

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; E-W. Stability: Stable Keys: J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR5 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X — — —	0.3	0.3	
			Yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	—X — — —X X	0.5		
			End of pit.		0.85	>0.55	
					1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.0m;W=0.5m; NW-SE. Stability: Stable Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR6 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X			
			Yellowish brown mottled dark grey slightly sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	X	0.3	0.3	
			Grey mottled brown slightly gravelly, slightly sandy CLAY.	.	0.4	0.1	
			Gravel of fine to coarse, angular to rounded chalk and flints.	.	0.5		
			End of pit.	.	0.65	>0.25	
					1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.0m;W=0.5m; N-S. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR7 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X ___			
			Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	___ X	0.3	0.3	
			Grey mottled brown slightly gravelly, slightly sandy CLAY.	___	0.4	0.1	
			Gravel of fine to coarse, angular to rounded chalk and flints.	___	0.5		
			End of pit.	___	0.85	>0.45	
					1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR8 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X			
			Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	X	0.3	0.3	
			Grey mottled brown slightly gravelly, slightly sandy CLAY.	.	0.45	0.15	
			Gravel of fine to coarse, angular to rounded chalk and flints.	.	0.5		
			End of pit.	.	0.6	>0.15	
					1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; E-W. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR9 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X _____ _____ _____	0.3	0.3	
			Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	____X _____ _____	0.5	>0.2	
			End of pit.		1.0 2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion. Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	 Page 1 of 1
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GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR10 Date of Excavation: 24-Nov-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
			Dark greyish brown slightly sandy CLAY with occasional rootlets. (TOPSOIL)	X — — —	0.3	0.3	
B		0.5	Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	—X — —	0.5	>0.2	
			End of pit.		1.0 2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR11 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X — — —	0.3	0.3	
			Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	—X — — —	0.5		
			End of pit.	— — — —	0.6	>0.3	
					1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR12 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL) Yellowish brown mottled orange, slightly gravelly, slightly sandy, silty CLAY with rare cobbles of flint. Gravel of fine to coarse, angular to rounded chalk and flint.	X ___ ___ ___ .___ ___X. .___	0.3 0.5	0.3 >0.2	
			End of pit.		1.0 2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR13 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
			Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X _____ _____ _____	0.3	0.3	
B		0.5	Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	____X _____ _____	0.5	>0.2	
			End of pit.		1.0 2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrison's Lane		Trial Pit Number: CBR14
Location: Harrison's Lane Halesworth, Suffolk IP19 8PZ		
Project No: 2954	Date of Excavation: 25-Dec-21	Type of Machine: Tracked excavator
Client: Badger Building (E Anglia) Ltd	Co-ordinates: N/A	Ground Level (m AOD): N/A
Logged By: RMI		

Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
			Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X ___. _____. ____.	0.3	0.3	
B		0.5	Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	___X. _____.	0.5	>0.2	
			End of pit.		1.0 2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.

Dimensions and Orientation: L=2.1m;W=0.5m; N-S.


Stability: Stable

Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR15 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
			Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X _____ _____ _____	0.3	0.3	
B		0.5	Yellowish brown mottled grey sandy, silty CLAY with occasional fine to coarse, angular to subangular gravel of chalk and flint.	____X _____ _____	0.5	>0.2	
			End of pit.		1.0 2.0 3.0 4.0 5.0 6.0 7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; E-W. Stability: Stable Keys: J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR16 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X — —	0.35	0.35	
			Brown slightly gravelly sandy CLAY.	—X — —	0.5		
			Gravel of fine to coarse, angular to rounded chalk, flint and quartzite.	— — —	0.6	>0.3	
			End of pit.		1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; E-W. Stability: Stable Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR18 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X . . .			
			Brown slightly gravelly, slightly sandy CLAY.	. . . X .	0.3	0.3	
			Gravel of fine to coarse, angular to rounded chalk, flint and quartzite.	. . . X .	0.4	0.1	
			Grey mottled brown slightly gravelly, slightly sandy CLAY.	0.5	>0.1	
			Gravel of fine to medium, angular to rounded chalk and flint.				
			End of pit.				
					1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

Remarks: Dry on completion.	
Dimensions and Orientation: L=2.1m;W=0.5m; N-S. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrison's Lane Location: Harrison's Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR19 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample / Test	Result	Sample range	Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
			Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X — — —	0.3	0.3	
B		0.5	Brown mottled grey slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse, angular to rounded chalk, flint and quartzite.	— —X — —	0.5	>0.2	
			End of pit.		1.0 — 2.0 — 3.0 — 4.0 — 5.0 — 6.0 — 7.0		

Remarks: Dry on completion.	 <small>BROWN GREEN LIMITED AN ISO 9001 CERTIFIED COMPANY</small>
Dimensions and Orientation: L=2.0m;W=0.5m; E-W. Stability: Stable	
Keys J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

GEOLOGICAL LOG

Project: Land South of Harrisons Lane Location: Harrisons Lane Halesworth, Suffolk IP19 8PZ Project No: 2954 Client: Badger Building (E Anglia) Ltd Logged By: RMI	Trial Pit Number: CBR20 Date of Excavation: 25-Dec-21 Type of Machine: Tracked excavator Co-ordinates: N/A Ground Level (m AOD): N/A
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Sample/Test			Description	Log	Depth (m)	Thick- ness (m)	Ground Water (m)
Sample / Test	Result	Sample range					
B		0.5	Dark greyish brown slightly sandy CLAY with occasional rootlets and fine to coarse, angular to rounded jasper and flints. (TOPSOIL)	X . .	0.3	0.3	
			Brown mottled grey slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse, angular to rounded chalk, flint and quartzite.	. . X . .	0.5		
			End of pit.	. .	0.8	>0.5	
					1.0		
					2.0		
					3.0		
					4.0		
					5.0		
					6.0		
					7.0		

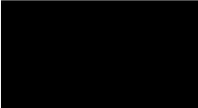
Remarks: Dry on completion.	
Dimensions and Orientation: L=2.2m;W=0.5m; N-S. Stability: Stable Keys: J - 250 or 500ml Jar, T - Tub, V - Vial or 60ml jar, D - Small Disturbed, B - Large bulk sample, W - Water sample, HSV - hand shear vane	Page 1 of 1

APPENDIX V
GEOTECHNICAL RESULTS



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 21/12/2021



Contract	Harrisons Lane, Halesworth, Suffolk		
Serial No.	39812_2		
Client:	<i>Soil Property Testing Ltd</i>		
Brown 2 Green Associates Suite 1, Wenden Court Station Road Wendends Ambo Nr. Saffron Walden CB11 4LB	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: Brown 2 Green Associates	Approved Signatories:		
Samples Labelled: Harrisons Lane, Halesworth, Suffolk	<input checked="" type="checkbox"/> J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager <input type="checkbox"/> W. Johnstone Materials Lab Manager 		
Date Received: 30/11/2021	Samples Tested Between: 30/11/2021 and 21/12/2021		
Remarks:	For the attention of Radu Mihailie Your Reference No: 2954		
Notes:	<ol style="list-style-type: none">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: 21/12/2021



Contract	Harrisons Lane, Halesworth, Suffolk		
Serial No.	39812_2	Target Date	21/12/2021
Scheduled By	Brown 2 Green Associates		

Schedule Remarks																			
Bore Hole No.	Type	Sample Ref.	Top Depth	Water Content (BS EN) Liquid/Plastic Limits Wet Sieve Preparation												Sample Remarks			
TP206	D	-	1.00	1	1	1													
TP207	D	-	1.00	1															
TP207	D	-	2.00	1	1														
TP208	D	-	1.00	1															
TP208	D	-	2.00	1	1	1													
TP209	D	-	1.50	1															
TP210	D	-	0.50	1															
TP210	D	-	1.00	1	1	1													
WS201	D	-	0.50	1															
WS201	D	-	1.00	1															
WS201	D	-	1.50	1	1	1													
WS201	D	-	2.00	1	1	1													
WS203	D	-	0.50	1															
WS203	D	-	1.00	1	1	1													
WS203	D	-	1.50	1															
WS203	D	-	2.00	1	1	1													
WS203	D	-	4.00	1															
WS204	D	-	1.00	1	1	1													
WS204	D	-	1.50	1															
WS205	D	-	1.00	1	1	1													
WS205	D	-	1.50	1															
WS207	D	-	1.00	1	1	1													
WS207	D	-	1.50	1															
WS207	D	-	2.00	1	1	1													
WS207	D	-	3.00	1	1	1													
WS209	D	-	1.00	1	1	1													
WS209	D	-	2.00	1	1	1													
WS211	D	-	0.50	1															
WS211	D	-	1.50	1	1	1													
WS211	D	-	2.00	1	1	1													
Totals				30	17	16													End of Schedule



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 21/12/2021



0998

Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

SUMMARY OF WATER CONTENT

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Description	Remarks
TP206	1.00	D	-	20.1	Firm mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine and medium angular to subrounded chalk and chert	
TP207	1.00	D	-	21.8	Stiff mottled bluish grey, orange and olive yellow slightly sandy silty CLAY	
TP207	2.00	D	-	19.4	Soft pale olive sandy silty CLAY	
TP208	1.00	D	-	20.7	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
TP208	2.00	D	-	21.7	Stiff mottled dark bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
TP209	1.50	D	-	21.5	Stiff mottled olive and dark grey slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine and medium angular to subrounded chalk and chert	
TP210	0.50	D	-	23.7	Firm olive slightly gravelly slightly sandy silty CLAY with rare light grey mottling and recently active roots. Gravel is fine and medium angular to subrounded chalk and chert	
TP210	1.00	D	-	21.7	Stiff mottled bluish grey and olive slightly gravelly slightly sandy CLAY with occasional recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
WS201	0.50	D	-	21.3	Stiff light olive brown slightly gravelly slightly sandy silty CLAY with occasional recently active and decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	
WS201	1.00	D	-	20.7	Very stiff mottled grey and olive slightly gravelly slightly sandy silty CLAY with occasional recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
WS201	1.50	D	-	20.3	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	
WS201	2.00	D	-	20.1	Very stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	
WS203	0.50	D	-	21.6	Stiff mottled grey and olive slightly gravelly slightly sandy silty CLAY with occasional recently active and decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	
WS203	1.00	D	-	20.6	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

Method Of Preparation:

BS EN ISO: 17892-1: 2014

Method of Test:

BS EN ISO: 17892-1: 2014

Type of Sample Key:

U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments:

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



TEST REPORT

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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

SUMMARY OF WATER CONTENT

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Description	Remarks
WS203	1.50	D	-	20.1	Very stiff mottled dark grey and dark olive slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium angular to subrounded chalk and chert	
WS203	2.00	D	-	21.1	Very stiff mottled dark bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
WS203	4.00	D	-	21.2	Very stiff dark olive slightly gravelly slightly sandy silty CLAY with rare dark bluish grey mottling and selenite crystals. Gravel is fine and medium angular to subrounded chalk and chert	Dried at 80°C due to the presence of selenite.
WS204	1.00	D	-	20.9	Stiff mottled grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
WS204	1.50	D	-	20.2	Very stiff mottled grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	
WS205	1.00	D	-	19.0	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	
WS205	1.50	D	-	18.6	White structureless CHALK with occasional orange staining and harder intact chalk fragments of fine and medium gravel size	
WS207	1.00	D	-	21.1	Stiff olive slightly gravelly slightly sandy CLAY with occasional grey mottling and recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
WS207	1.50	D	-	21.9	Very stiff mottled dark grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
WS207	2.00	D	-	22.0	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with occasional decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	
WS207	3.00	D	-	21.9	Very stiff mottled bluish grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots and selenite crystals. Gravel is fine and medium angular to subrounded chalk and chert	Dried at 80°C due to the presence of selenite.
WS209	1.00	D	-	25.4	Soft mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	
WS209	2.00	D	-	21.8	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with occasional decayed roots. Gravel is fine to coarse angular to rounded chalk and chert	
WS211	0.50	D	-	26.2	Soft mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

Method Of Preparation: BS EN ISO: 17892-1: 2014
 Method of Test: BS EN ISO: 17892-1: 2014
 Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
 Comments:

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



TEST REPORT

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Contract	Harrisons Lane, Halesworth, Suffolk
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Serial No.	39812_2
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SUMMARY OF WATER CONTENT

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Description	Remarks
WS211	1.50	D	-	19.9	Firm mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium angular to rounded chalk	
WS211	2.00	D	-	23.7	Firm mottled bluish grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

Method Of Preparation:	BS EN ISO: 17892-1: 2014
Method of Test:	BS EN ISO: 17892-1: 2014
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	
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



TEST REPORT

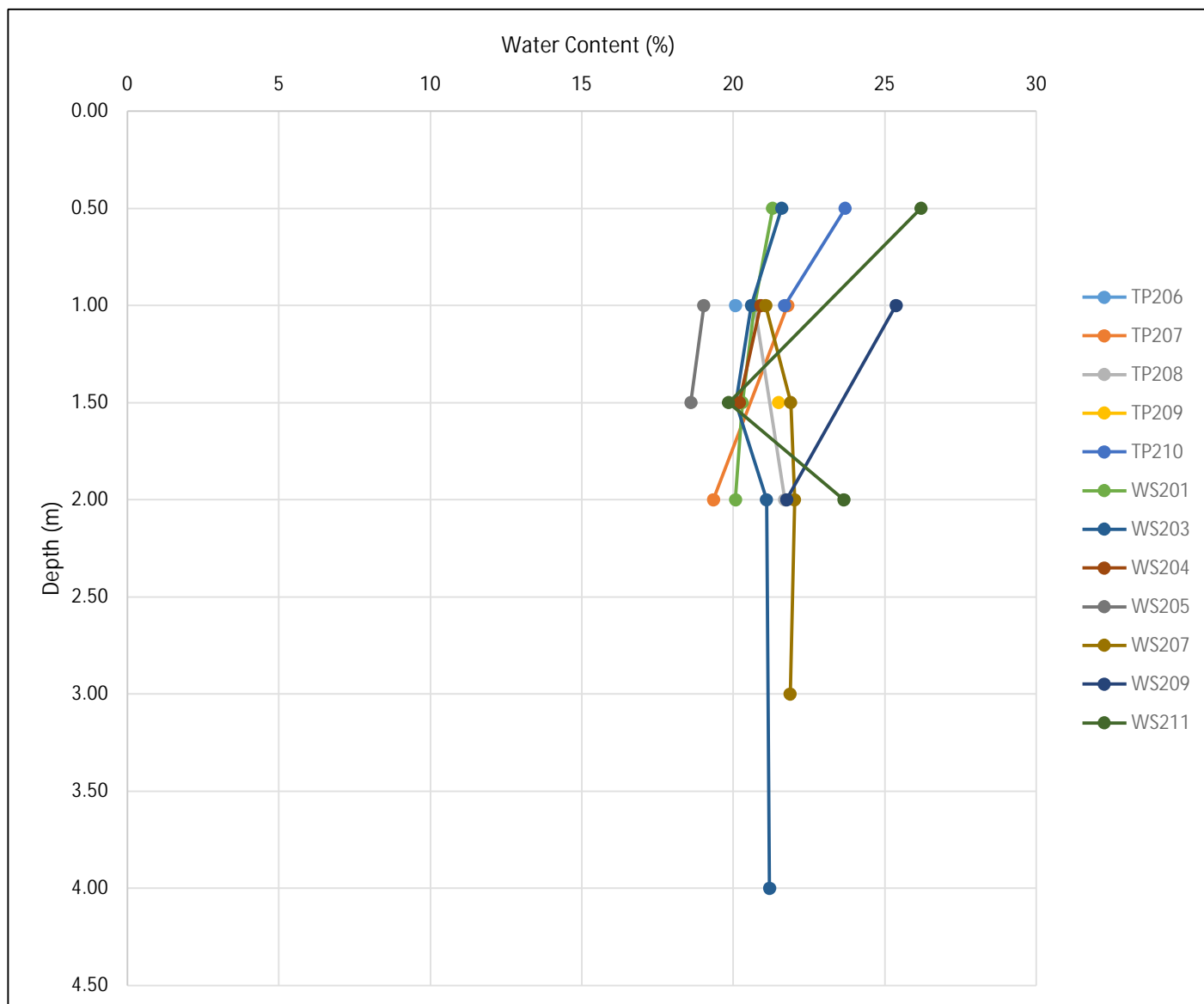
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Contract	Harrisons Lane, Halesworth, Suffolk
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WATER CONTENT VS DEPTH BELOW GROUND LEVEL



Method of Preparation: BSEN ISO 17892-1: 2014
Method of Test: BSEN ISO 17892-1: 2014
Type of Sample Key: U - Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:
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	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_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)		
TP206	1.00	D	-	20.1	47	18	29	0.07	Wet Sieved	9 (M)	22.1*	24	Firm mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine and medium angular to subrounded chalk and chert	CI
TP207	2.00	D	-	19.4	30	14	16	0.33	From Natural	0 (A)		69	Soft pale olive sandy silty CLAY	CL
TP208	2.00	D	-	21.7	49	20	29	0.06	Wet Sieved	7 (M)	23.3*	24	Stiff mottled dark bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CI
TP210	1.00	D	-	21.7	54	19	35	0.08	Wet Sieved	10 (M)	24.1*	76	Stiff mottled bluish grey and olive slightly gravelly slightly sandy CLAY with occasional recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CH
WS201	1.50	D	-	20.3	48	18	30	0.08	Wet Sieved	14 (M)	23.6*	74	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI
WS201	2.00	D	-	20.1	46	19	27	0.04	Wet Sieved	10 (M)	22.3*	24	Very stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI
WS203	1.00	D	-	20.6	50	18	32	0.08	Wet Sieved	6 (M)	21.9*	69	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CI/CH
WS203	2.00	D	-	21.1	50	21	29	0.00	Wet Sieved	13 (M)	24.3*	24	Very stiff mottled dark bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CI/CH

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, 4.4, 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.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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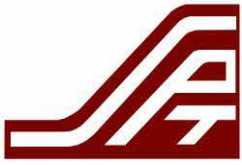
Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

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)		
WS204	1.00	D	-	20.9	52	18	34	0.09	Wet Sieved	0 (M)	20.9*	74	Stiff mottled grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CH
WS205	1.00	D	-	19.0	47	17	30	0.07	Wet Sieved	10 (M)	21.1*	73	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI
WS207	1.00	D	-	21.1	51	19	32	0.06	Wet Sieved	9 (M)	23.2*	67	Stiff olive slightly gravelly slightly sandy CLAY with occasional grey mottling and recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CH
WS207	2.00	D	-	22.0	50	20	30	0.07	Wet Sieved	8 (M)	23.9*	72	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with occasional decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI/CH
WS207	3.00	D	-	21.9	51	22	29	0.00	Wet Sieved	6 (M)	23.3*	69	Very stiff mottled bluish grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots and selenite crystals. Gravel is fine and medium angular to subrounded chalk and chert	CH
WS209	1.00	D	-	25.4	47	18	29	0.25	Wet Sieved	12 (M)	28.8*	68	Soft mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CI
WS209	2.00	D	-	21.8	48	20	28	0.06	Wet Sieved	11 (M)	24.4*	68	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with occasional decayed roots. Gravel is fine to coarse angular to rounded chalk and chert	CI
WS211	1.50	D	-	19.9	35	18	17	0.11	Wet Sieved	11 (M)	22.3*	68	Firm mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium angular to rounded chalk	CL/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, 4.4, 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.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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Contract	Harrisons Lane, Halesworth, Suffolk
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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)		
WS211	2.00	D	-	23.7	51	20	31	0.12	Wet Sieved	9 (M)	26.0*	72	Firm mottled bluish grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	CH

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, 4.4, 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.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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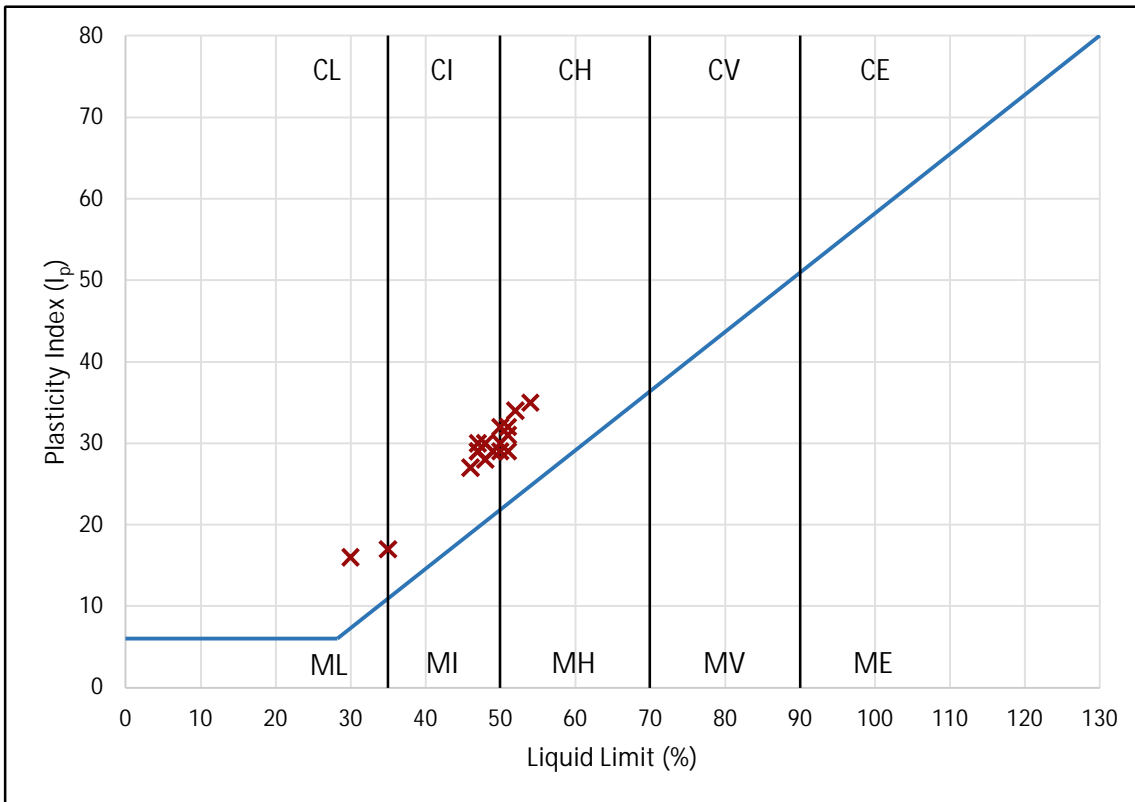
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PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

High	NHBC Volume Change Potential
Medium	
Low	

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 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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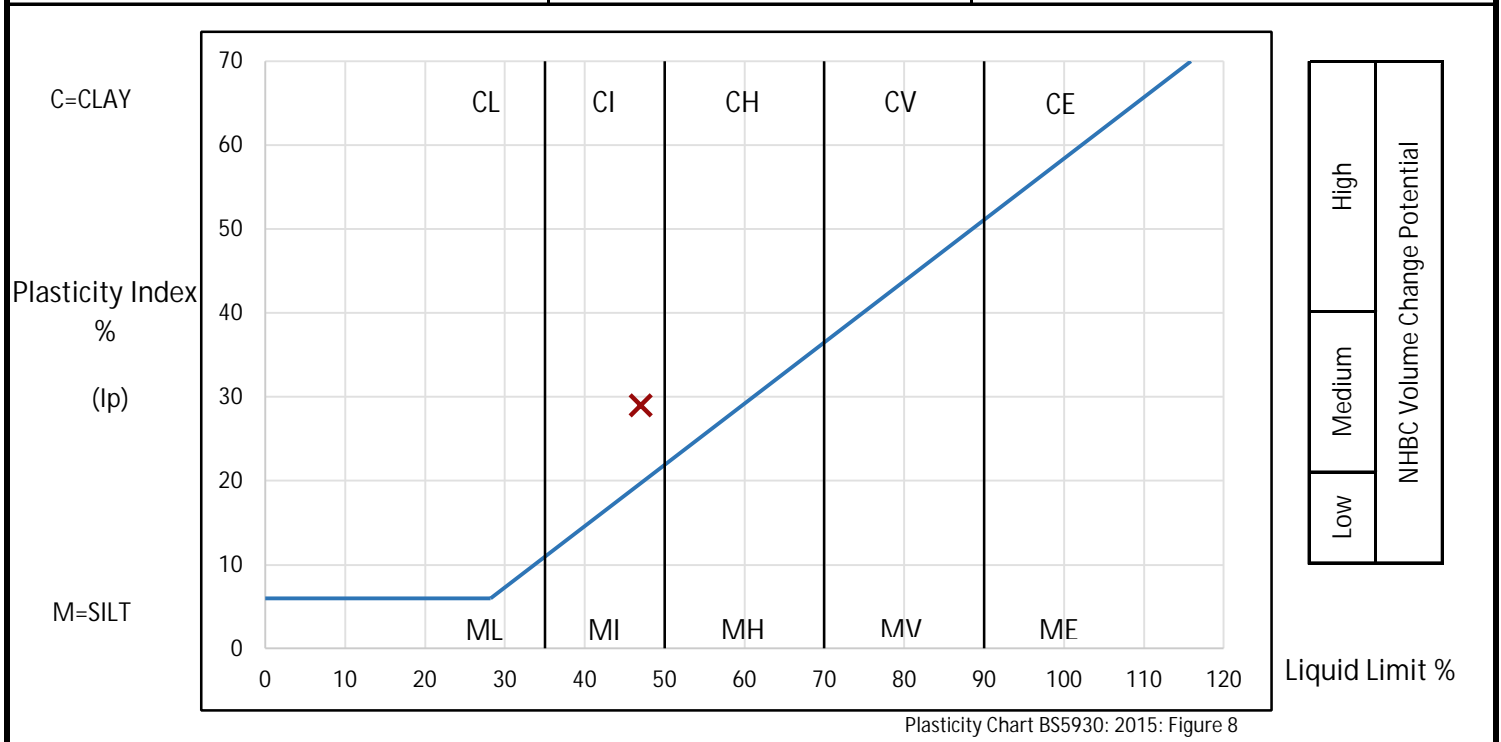
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

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			
TP206	1.00	D	-	20.1	Firm mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	47 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	9 %	Plasticity Index	29 %	
Corrected water content for material passing 0.425mm		22.1 %	Liquidity Index	0.07	
Sample retained 2mm sieve	(Measured)	7 %	NHBC Modified (I'p)	26 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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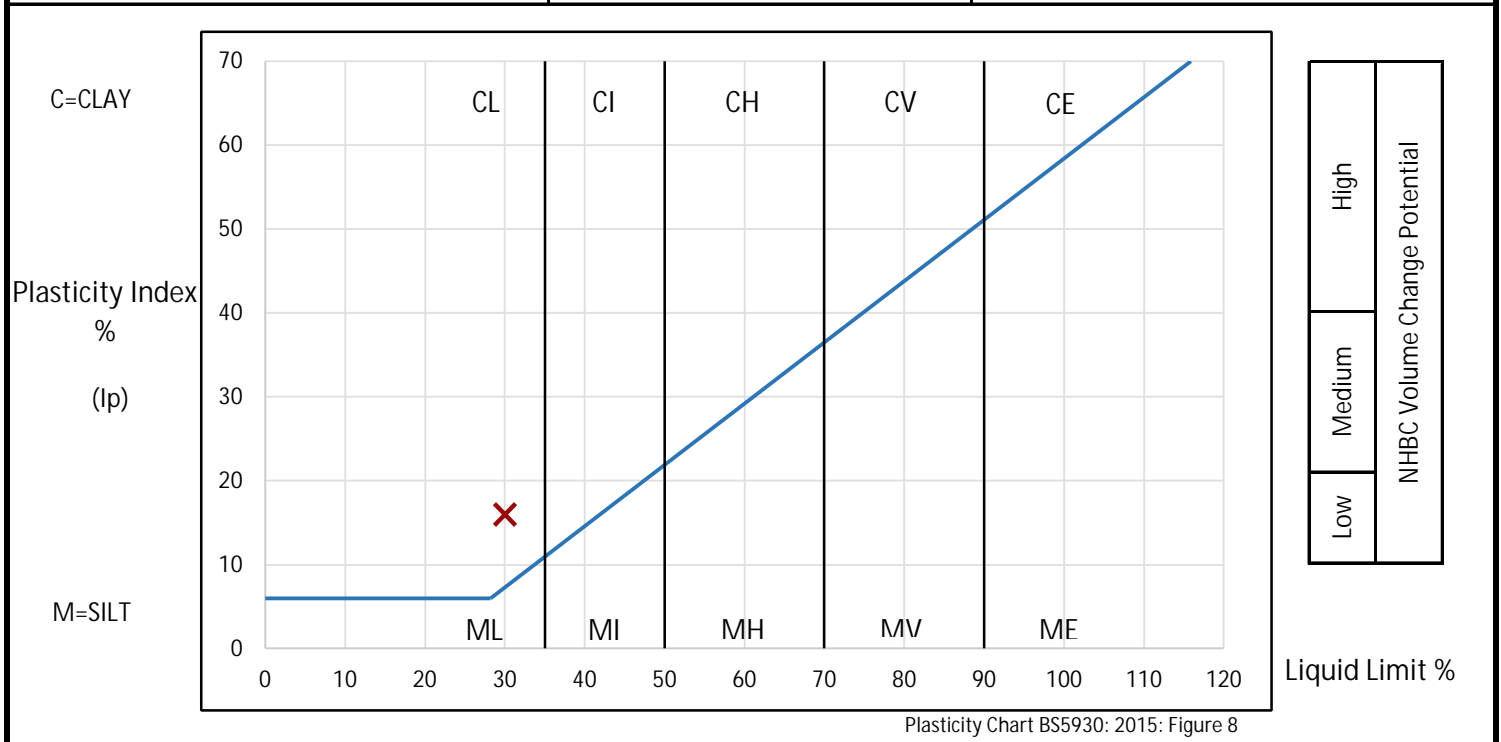
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

**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			
TP207	2.00	D	-	19.4	Soft pale olive sandy silty CLAY	

PREPARATION			Liquid Limit	30 %	
Method of preparation			From natural	Plastic Limit	14 %
Sample retained 0.425mm sieve (Assumed)			0 %	Plasticity Index	16 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.33
Sample retained 2mm sieve (Assumed)			0 %	NHBC Modified (I'p)	n/a
Curing time	69 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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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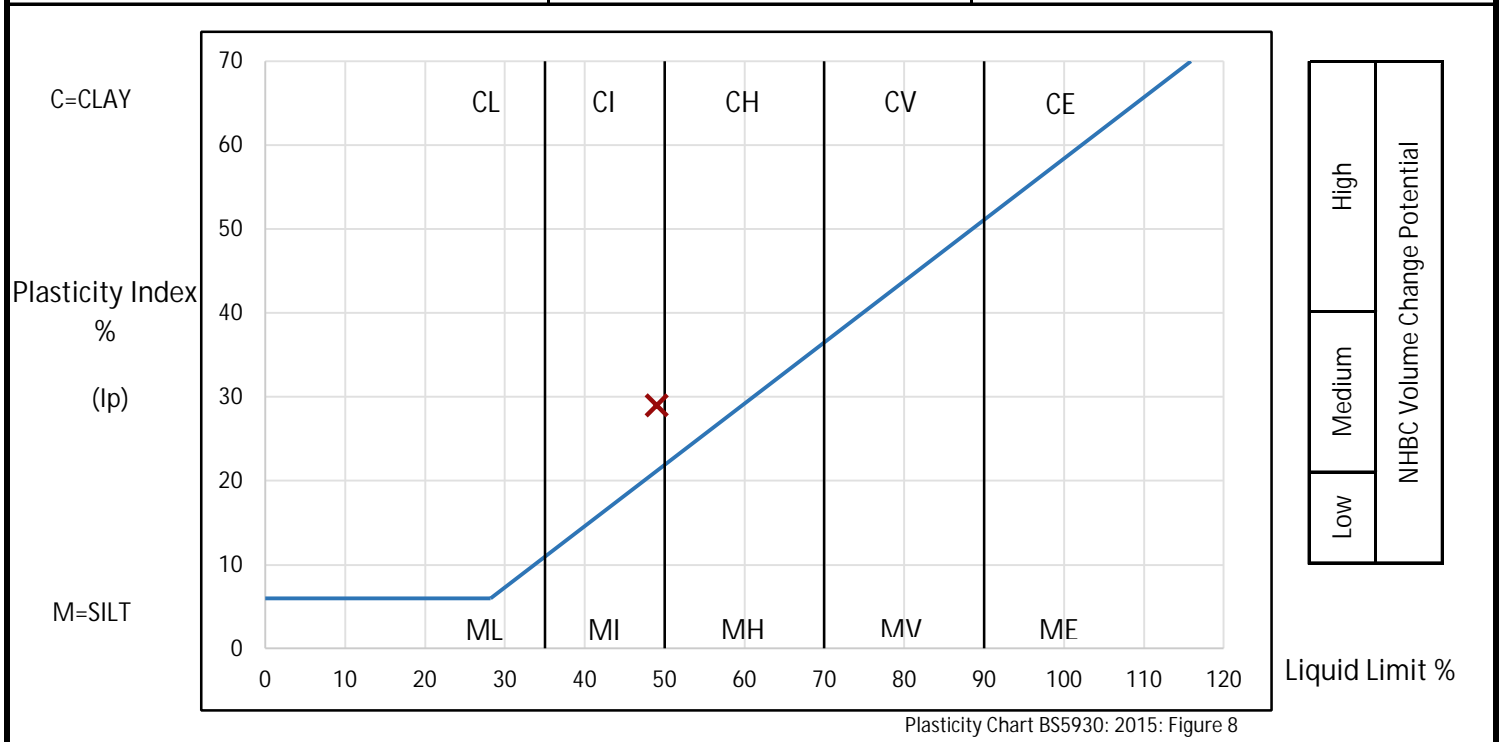
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

**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			
TP208	2.00	D	-	21.7	Stiff mottled dark bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	49 %	
Method of preparation			Wet sieved over 0.425mm sieve	Plastic Limit	20 %
Sample retained 0.425mm sieve	(Measured)	7 %	Plasticity Index	29 %	
Corrected water content for material passing 0.425mm			23.3 %	Liquidity Index	0.06
Sample retained 2mm sieve	(Measured)	5 %	NHBC Modified (I'p)	27 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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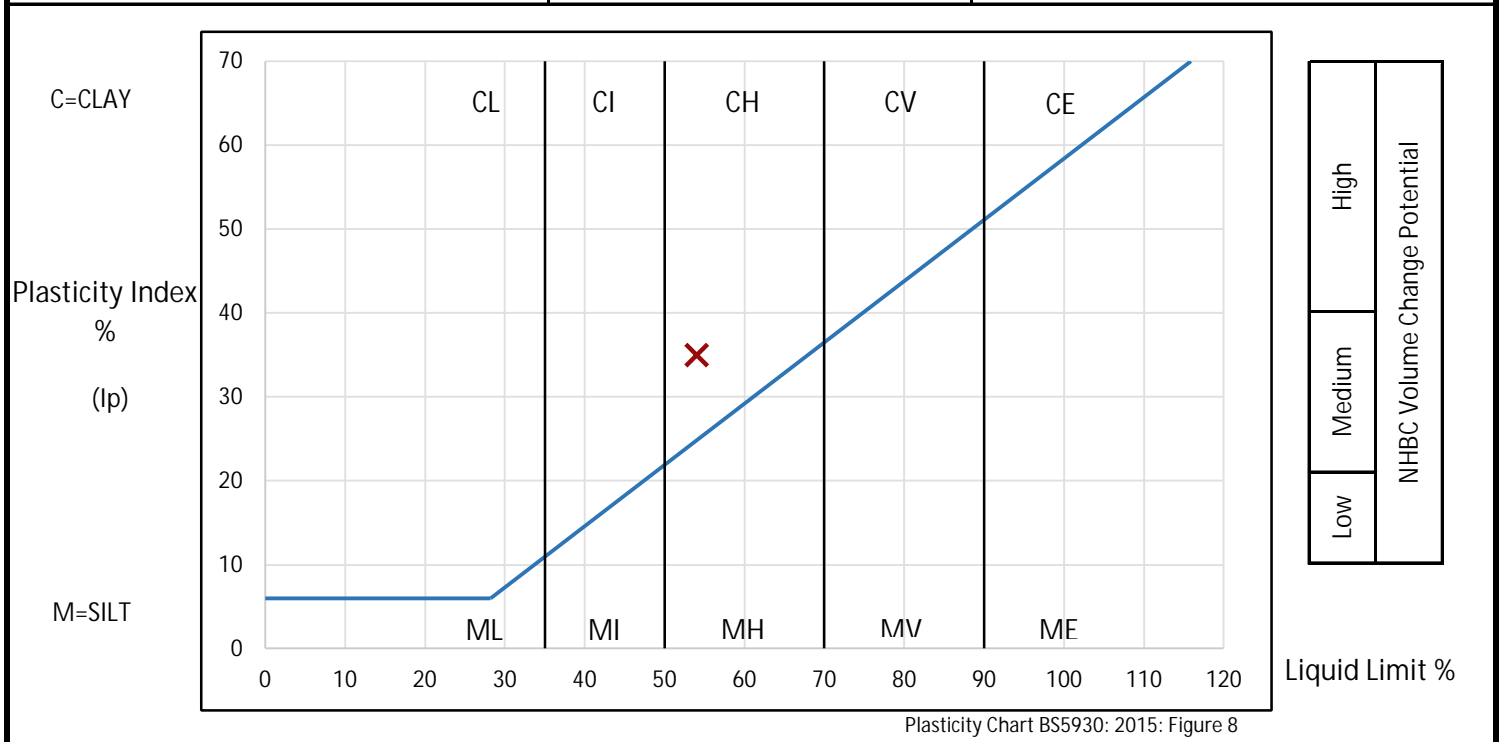
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

**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			
TP210	1.00	D	-	21.7	Stiff mottled bluish grey and olive slightly gravelly slightly sandy CLAY with occasional recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	54 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	19 %	
Sample retained 0.425mm sieve	(Measured)	10 %	Plasticity Index	35 %	
Corrected water content for material passing 0.425mm		24.1 %	Liquidity Index	0.08	
Sample retained 2mm sieve	(Measured)	8 %	NHBC Modified (I'p)	32 %	
Curing time	76 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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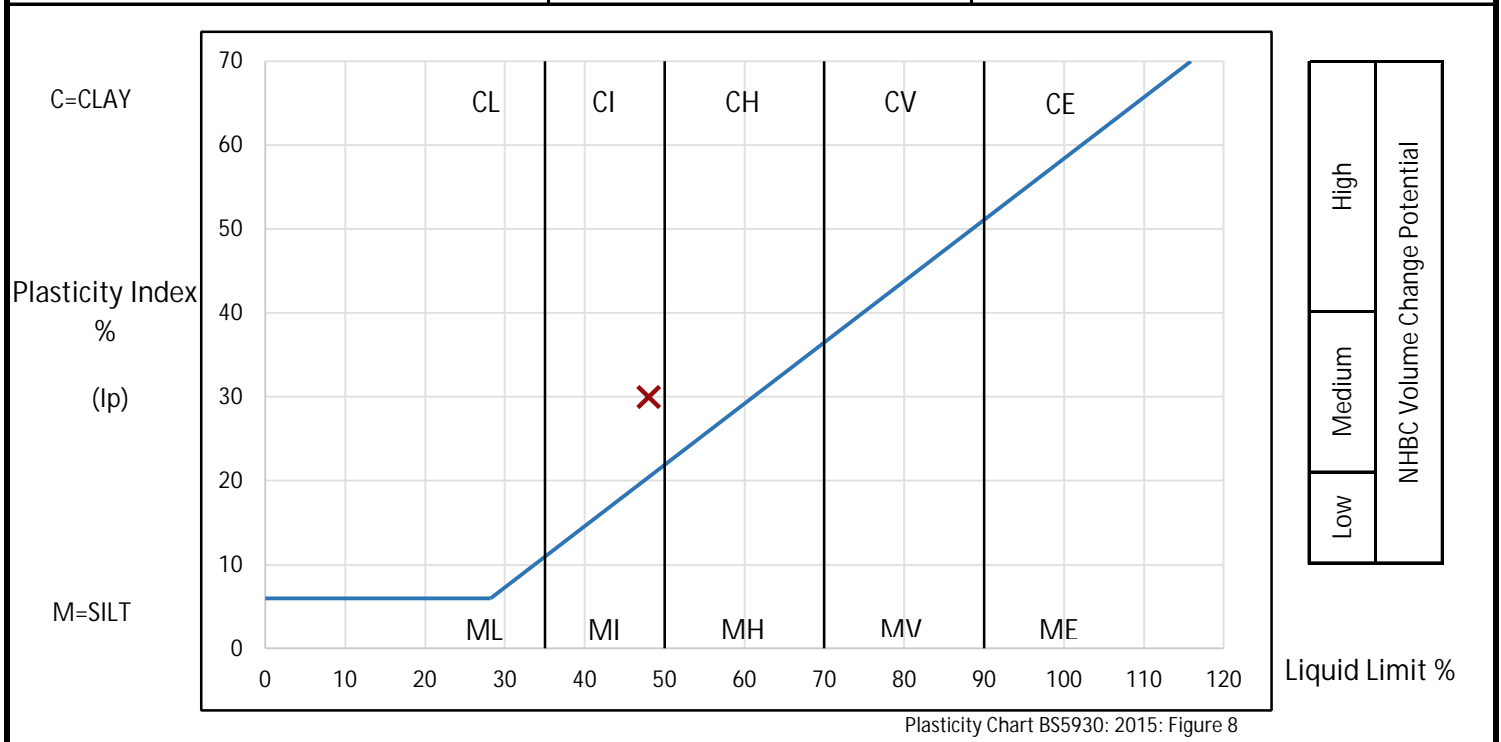
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

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			
WS201	1.50	D	-	20.3	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	48 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	14 %	Plasticity Index	30 %	
Corrected water content for material passing 0.425mm		23.6 %	Liquidity Index	0.08	
Sample retained 2mm sieve	(Measured)	12 %	NHBC Modified (I'p)	26 %	
Curing time	74 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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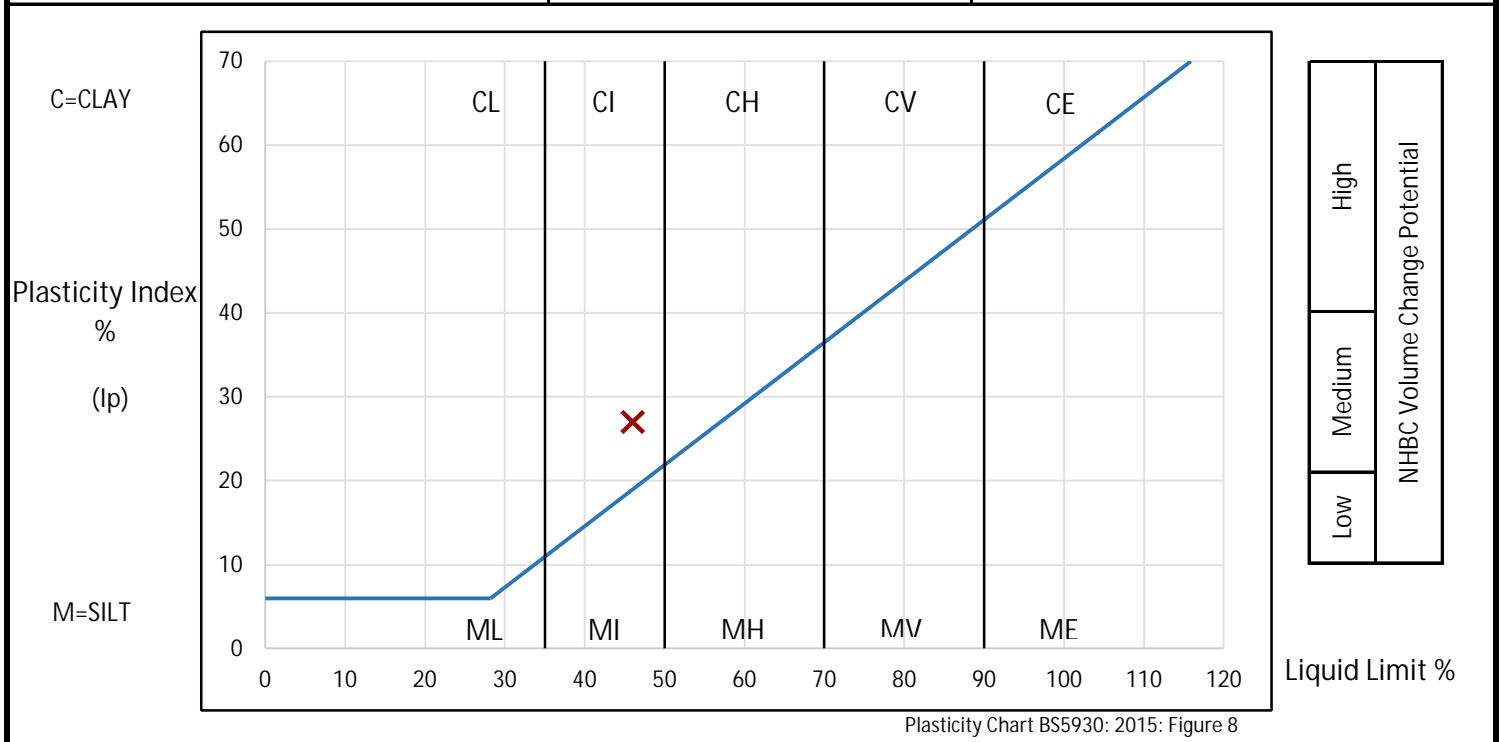


Contract	Harrisons Lane, Halesworth, Suffolk
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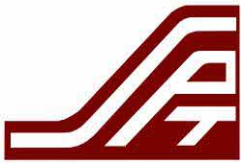
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS201	2.00	D	-	20.1	Very stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	46 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	19 %	
Sample retained 0.425mm sieve	(Measured)	10 %	Plasticity Index	27 %	
Corrected water content for material passing 0.425mm		22.3 %	Liquidity Index	0.04	
Sample retained 2mm sieve	(Measured)	8 %	NHBC Modified (I'p)	24 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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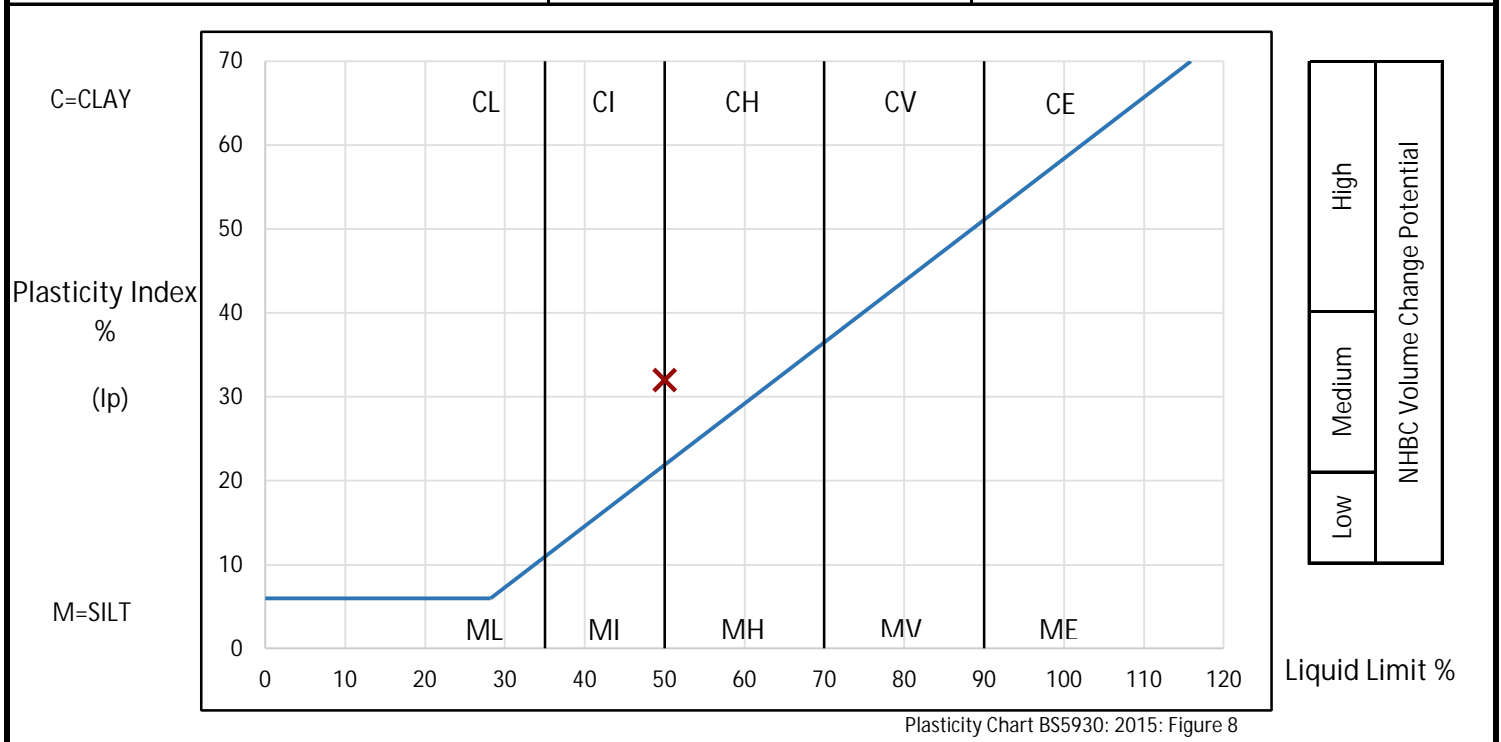


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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS203	1.00	D	-	20.6	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	50 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	6 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm		21.9 %	Liquidity Index	0.08	
Sample retained 2mm sieve	(Measured)	4 %	NHBC Modified (I'p)	30 %	
Curing time	69 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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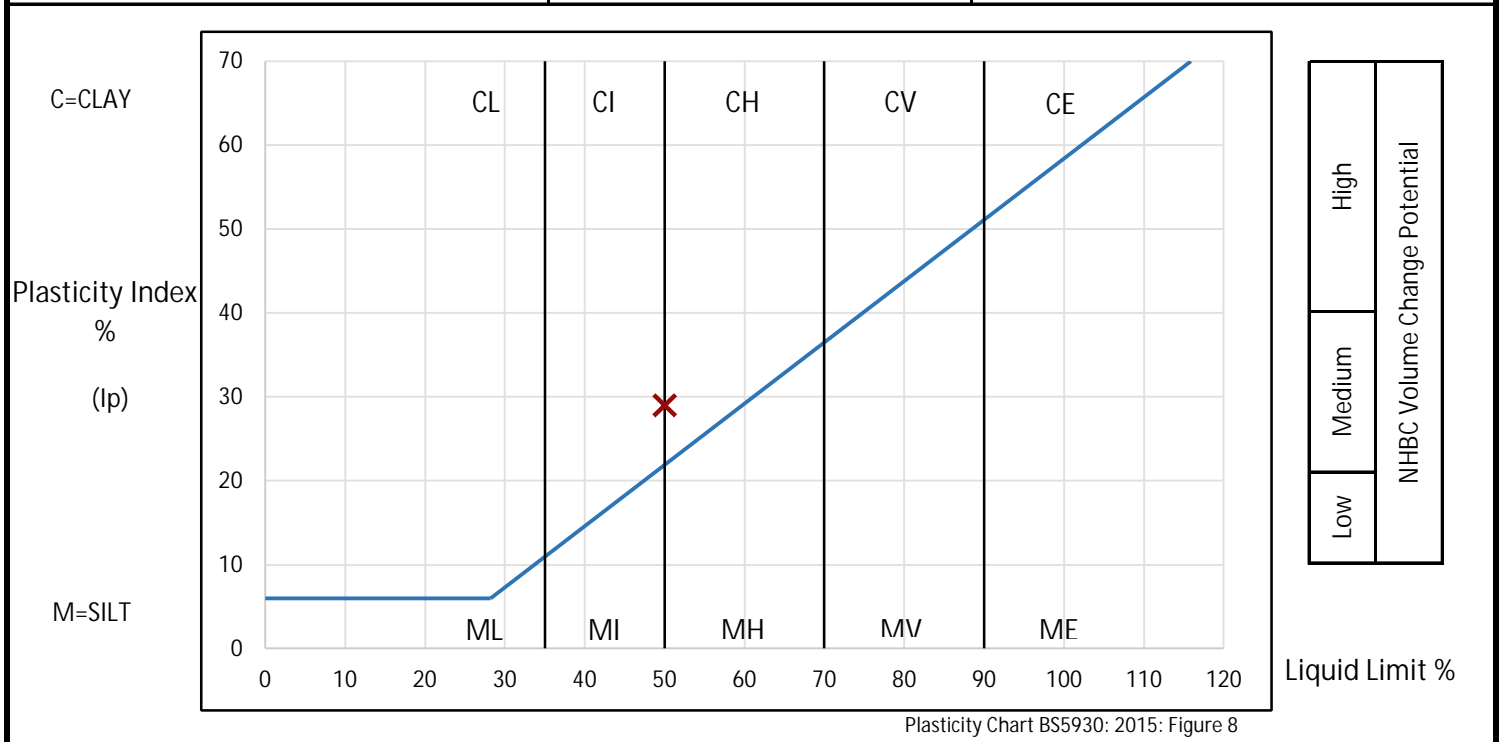
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Contract	Harrisons Lane, Halesworth, Suffolk
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**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS203	2.00	D	-	21.1	Very stiff mottled dark bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	50 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	21 %	
Sample retained 0.425mm sieve	(Measured)	13 %	Plasticity Index	29 %	
Corrected water content for material passing 0.425mm		24.3 %	Liquidity Index	0.00	
Sample retained 2mm sieve	(Measured)	11 %	NHBC Modified (I'p)	25 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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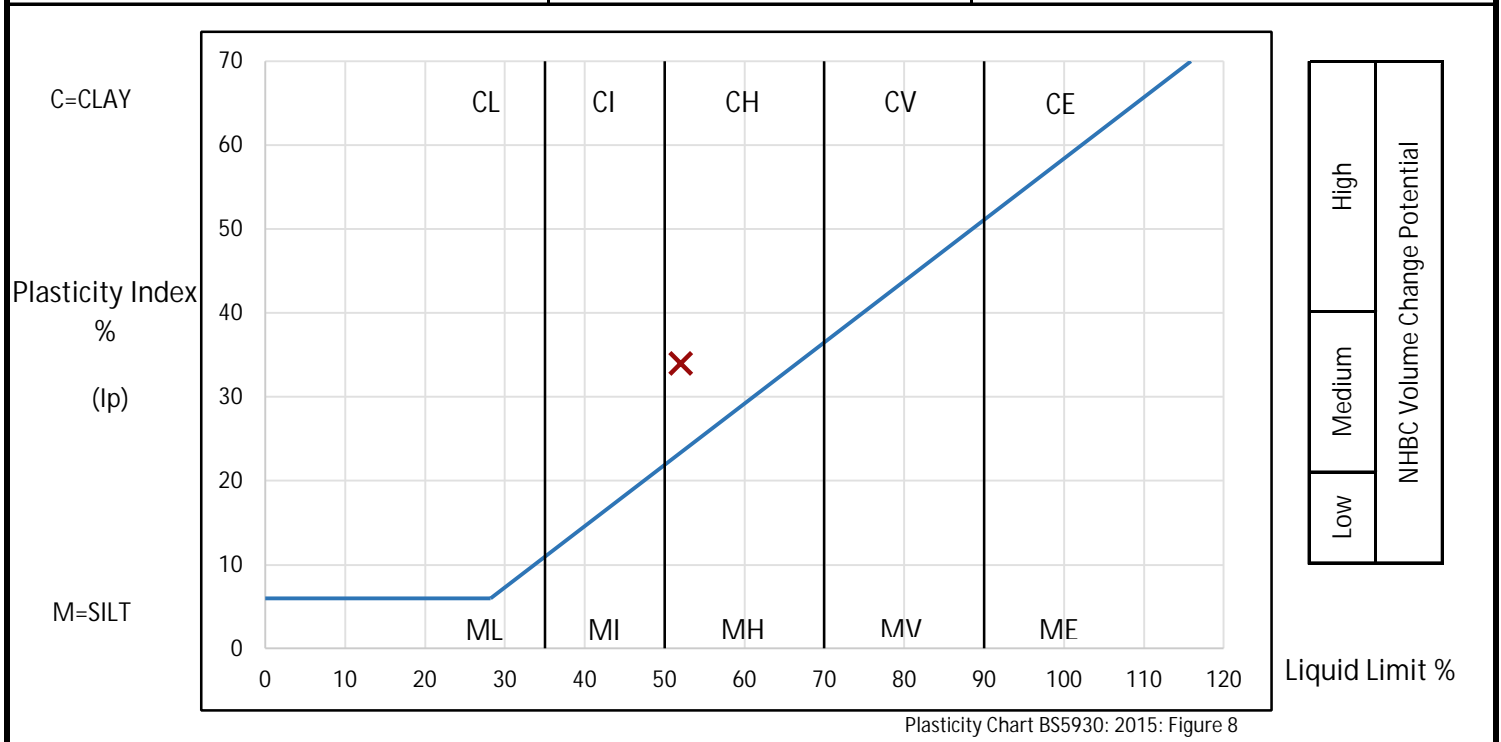
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

**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			
WS204	1.00	D	-	20.9	Stiff mottled grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	52 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	0 %	Plasticity Index	34 %	
Corrected water content for material passing 0.425mm		20.9 %	Liquidity Index	0.09	
Sample retained 2mm sieve	(Measured)	135 %	NHBC Modified (I'p)	34 %	
Curing time	74 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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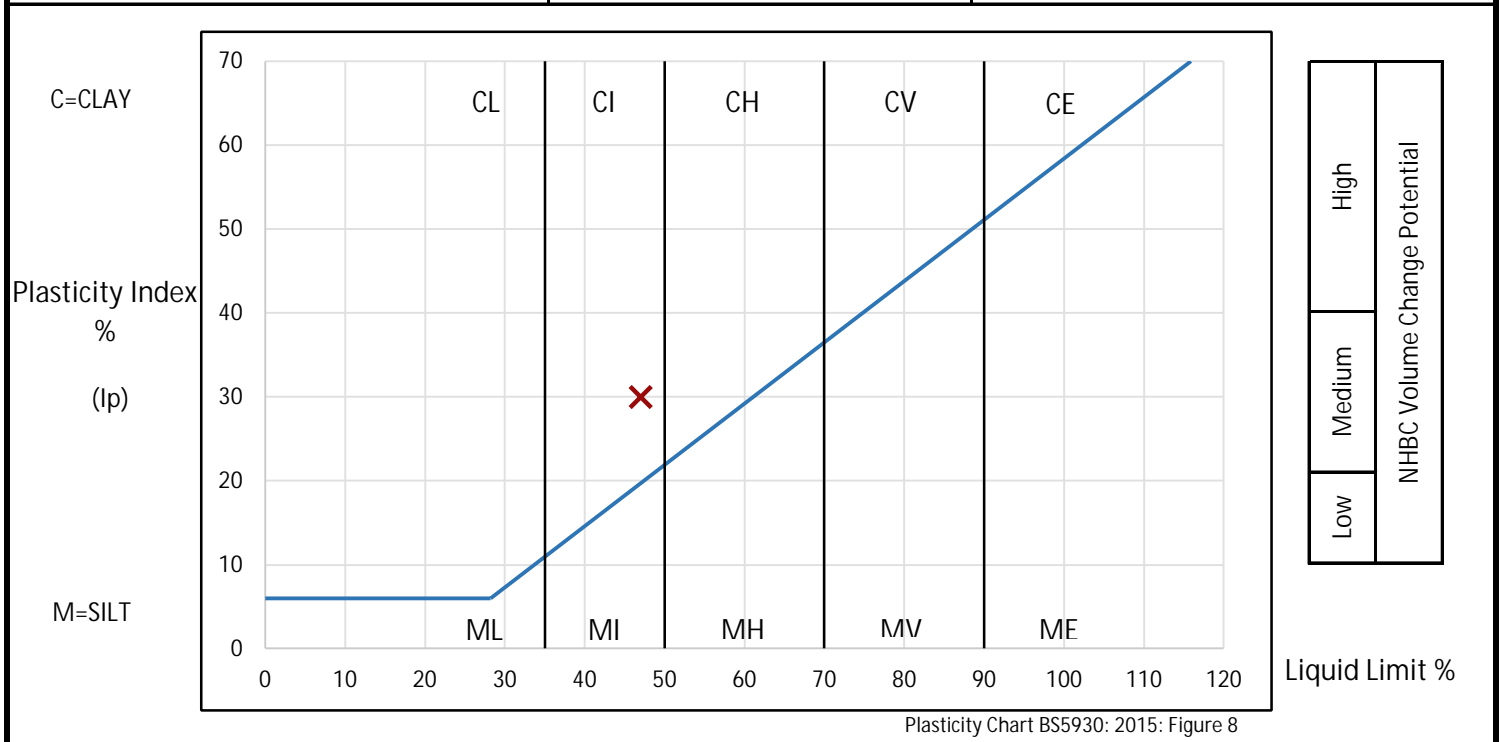
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS205	1.00	D	-	19.0	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	47 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	17 %	
Sample retained 0.425mm sieve	(Measured)	10 %	Plasticity Index	30 %	
Corrected water content for material passing 0.425mm		21.1 %	Liquidity Index	0.07	
Sample retained 2mm sieve	(Measured)	7 %	NHBC Modified (I _p)	27 %	
Curing time	73 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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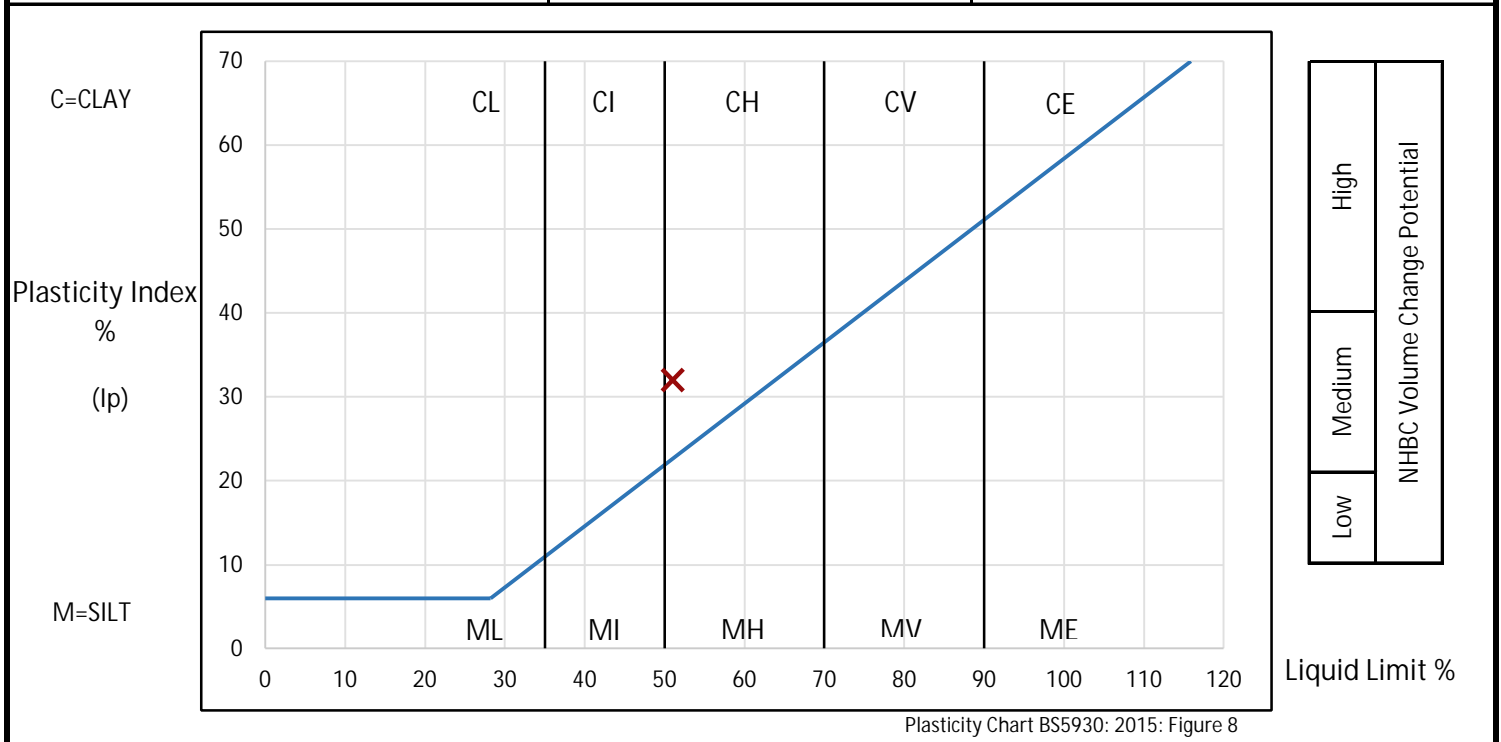
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Contract	Harrisons Lane, Halesworth, Suffolk
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**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS207	1.00	D	-	21.1	Stiff olive slightly gravelly slightly sandy CLAY with occasional grey mottling and recently active and decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	51 %	
Method of preparation		Wet sieved over 0.425mm sieve	Plastic Limit	19 %	
Sample retained 0.425mm sieve	(Measured)	9 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm			Liquidity Index	0.06	
Sample retained 2mm sieve	(Measured)	7 %	NHBC Modified (I'p)	29 %	
Curing time	67 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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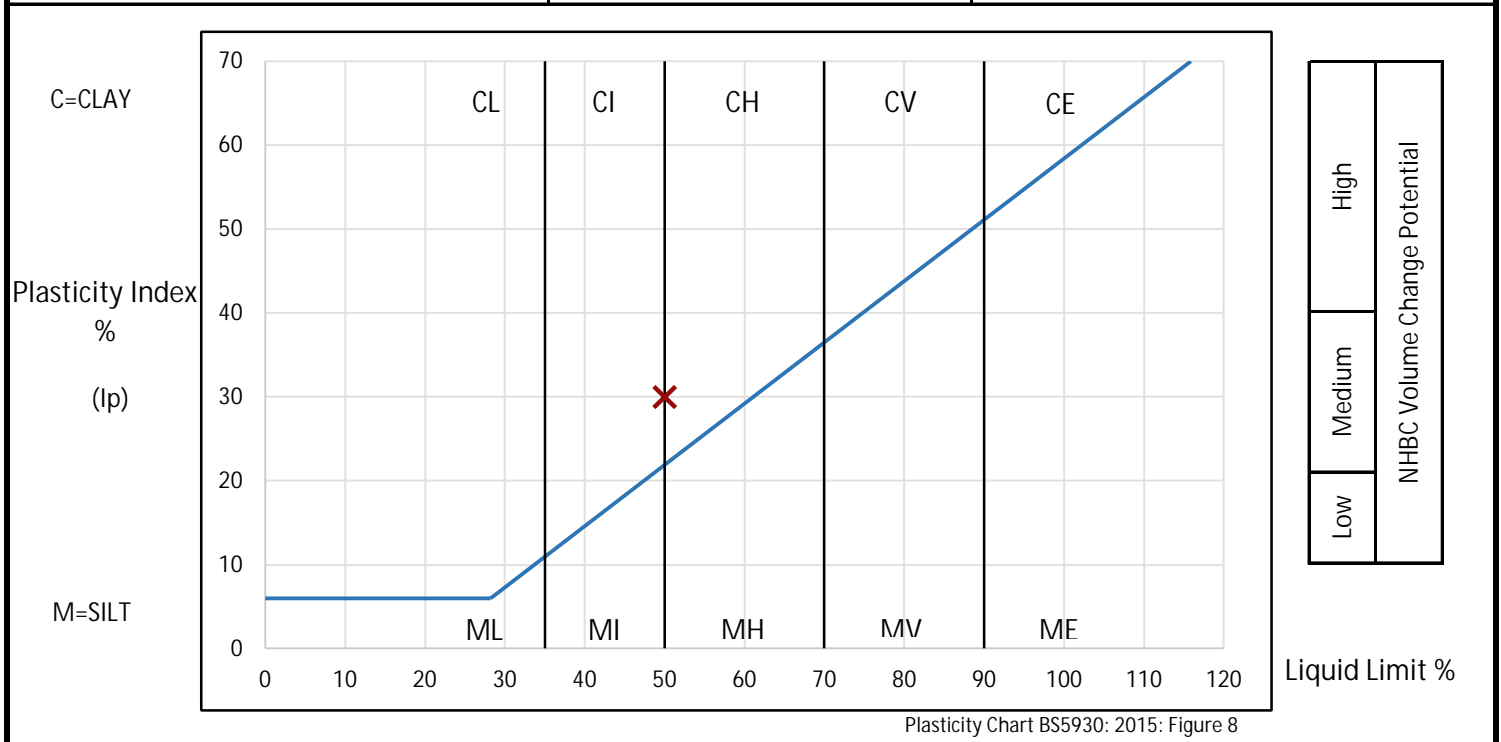
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Contract	Harrisons Lane, Halesworth, Suffolk
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**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS207	2.00	D	-	22.0	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with occasional decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	50 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	20 %	
Sample retained 0.425mm sieve	(Measured)	8 %	Plasticity Index	30 %	
Corrected water content for material passing 0.425mm		23.9 %	Liquidity Index	0.07	
Sample retained 2mm sieve	(Measured)	5 %	NHBC Modified (I'p)	28 %	
Curing time	72 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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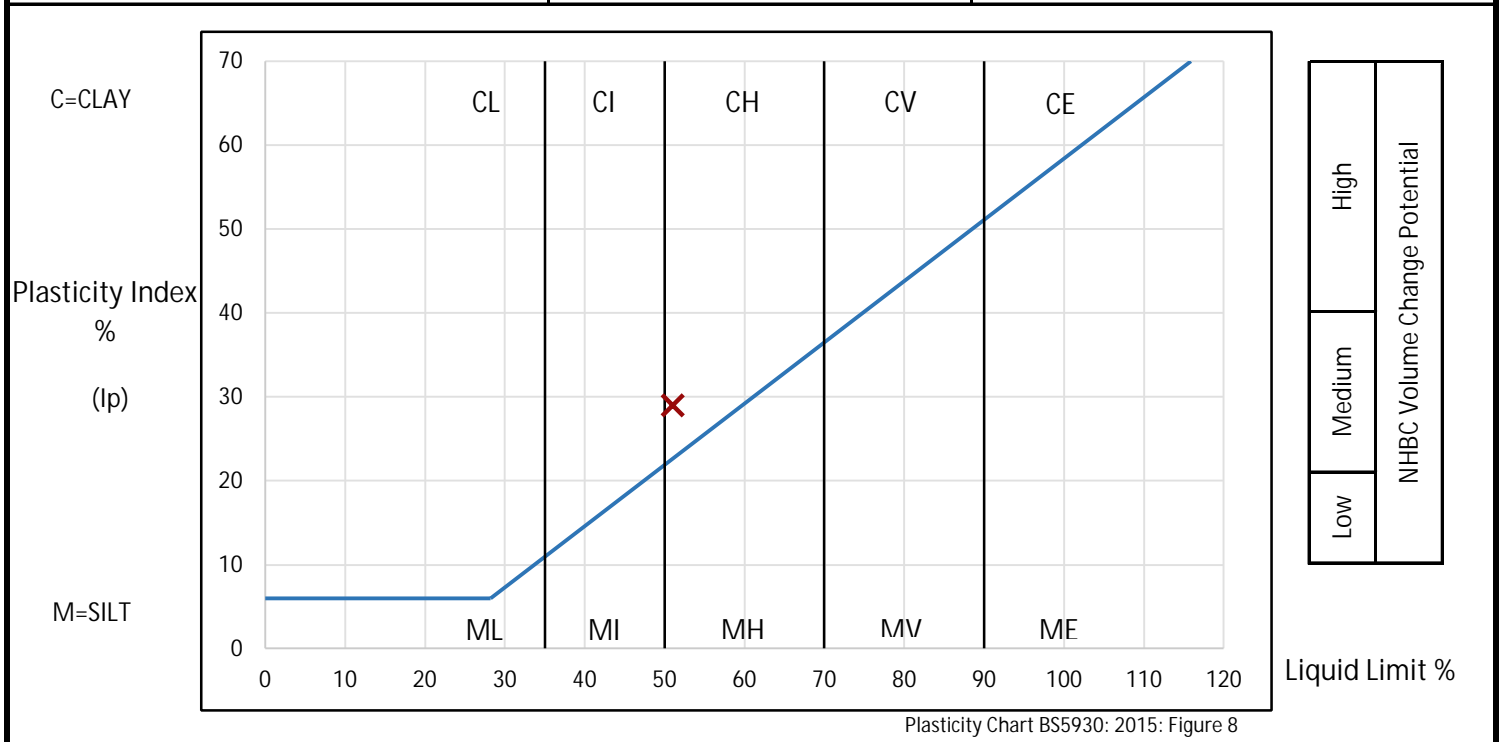
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Serial No.	39812_2

**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			
WS207	3.00	D	-	21.9	Very stiff mottled bluish grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots and selenite crystals. Gravel is fine and medium angular to subrounded chalk and chert	Specimen dried at 80°C due to the presence of selenite.

PREPARATION			Liquid Limit	51 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	22 %	
Sample retained 0.425mm sieve	(Measured)	6 %	Plasticity Index	29 %	
Corrected water content for material passing 0.425mm		23.3 %	Liquidity Index	0.00	
Sample retained 2mm sieve	(Measured)	3 %	NHBC Modified (I'p)	27 %	
Curing time	69 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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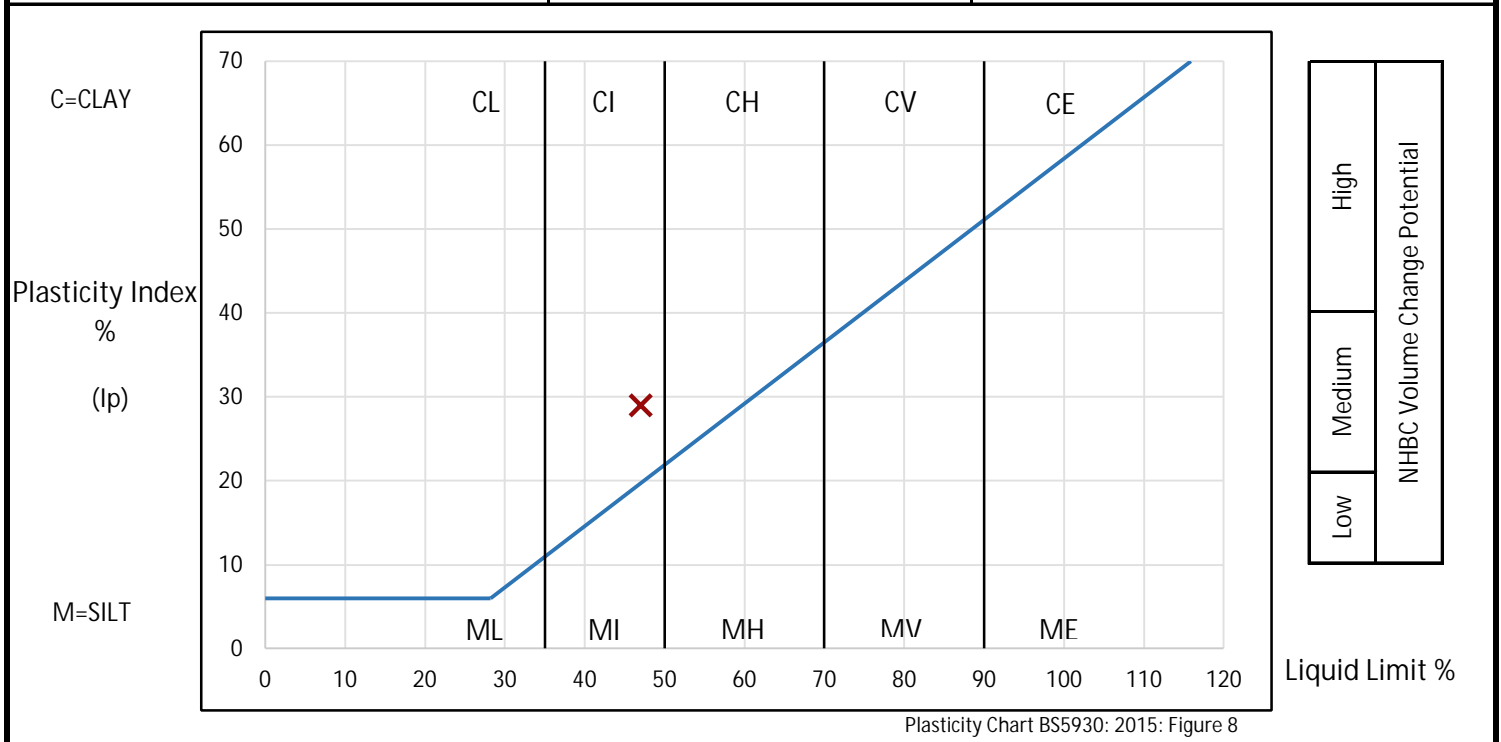
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Contract	Harrisons Lane, Halesworth, Suffolk
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS209	1.00	D	-	25.4	Soft mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION	Liquid Limit	47 %
Method of preparation	Wet sieved over 0.425mm sieve	Plastic Limit
Sample retained 0.425mm sieve (Measured)	12 %	Plasticity Index
Corrected water content for material passing 0.425mm	28.8 %	Liquidity Index
Sample retained 2mm sieve (Measured)	10 %	NHBC Modified (I'p)
Curing time	68 hrs	Clay Content
	Not analysed	Derived Activity
		Not analysed



High	NHBC Volume Change Potential
Medium	
Low	

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, 4.4, 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)



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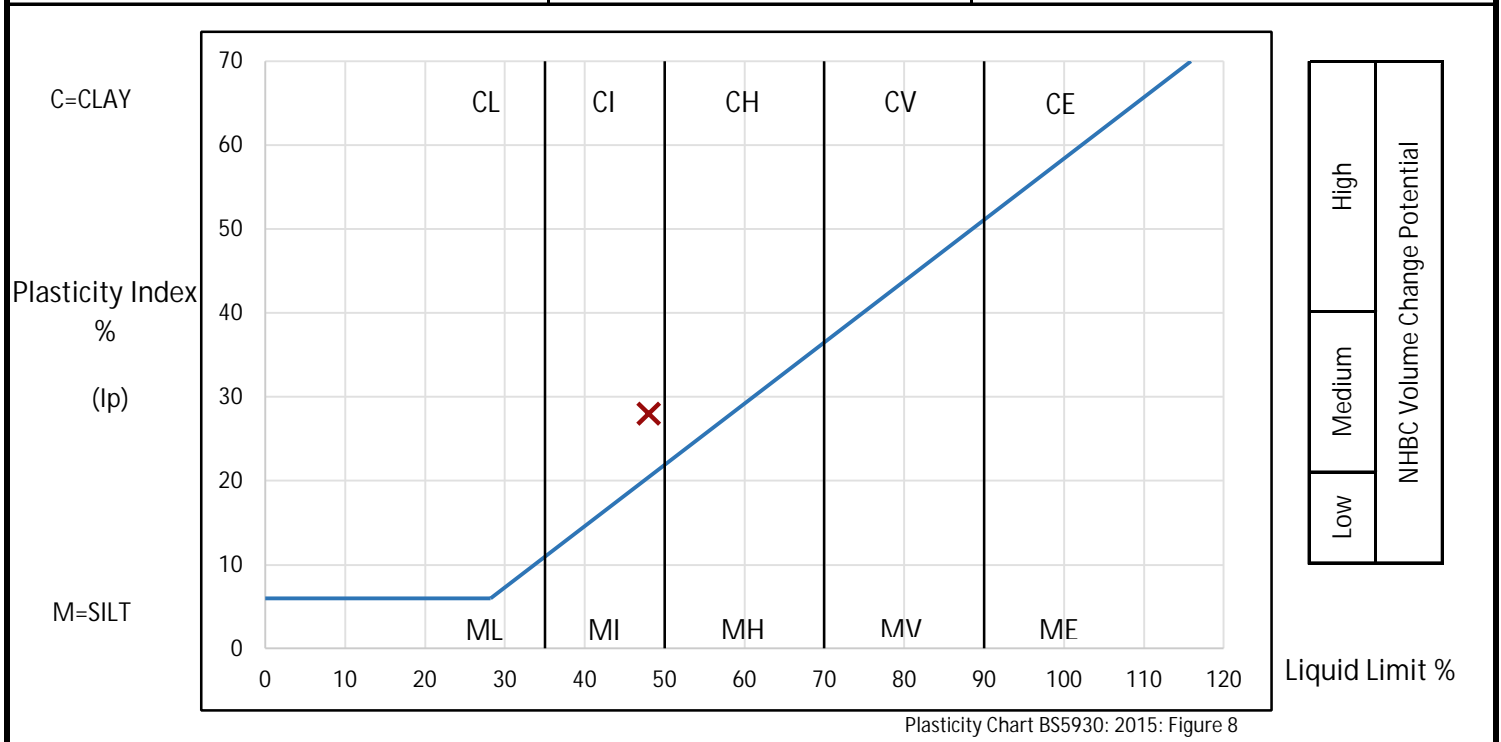
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**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS209	2.00	D	-	21.8	Stiff mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with occasional decayed roots. Gravel is fine to coarse angular to rounded chalk and chert	

PREPARATION			Liquid Limit	48 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	20 %	
Sample retained 0.425mm sieve	(Measured)	11 %	Plasticity Index	28 %	
Corrected water content for material passing 0.425mm		24.4 %	Liquidity Index	0.06	
Sample retained 2mm sieve	(Measured)	9 %	NHBC Modified (I'p)	25 %	
Curing time	68 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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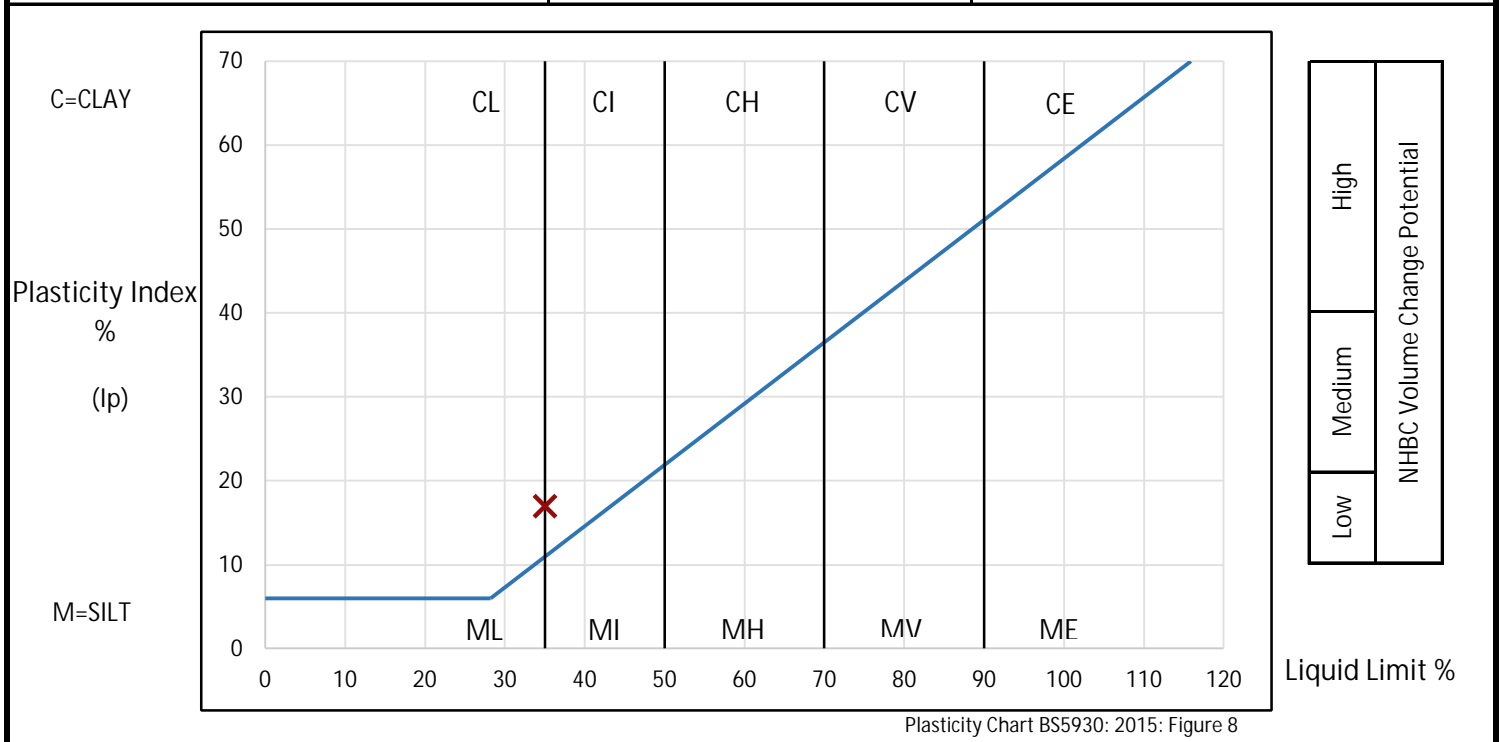


Contract	Harrisons Lane, Halesworth, Suffolk
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS211	1.50	D	-	19.9	Firm mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium angular to rounded chalk	

PREPARATION			Liquid Limit	35 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	11 %	Plasticity Index	17 %	
Corrected water content for material passing 0.425mm		22.3 %	Liquidity Index	0.11	
Sample retained 2mm sieve	(Measured)	9 %	NHBC Modified (I'p)	15 %	
Curing time	68 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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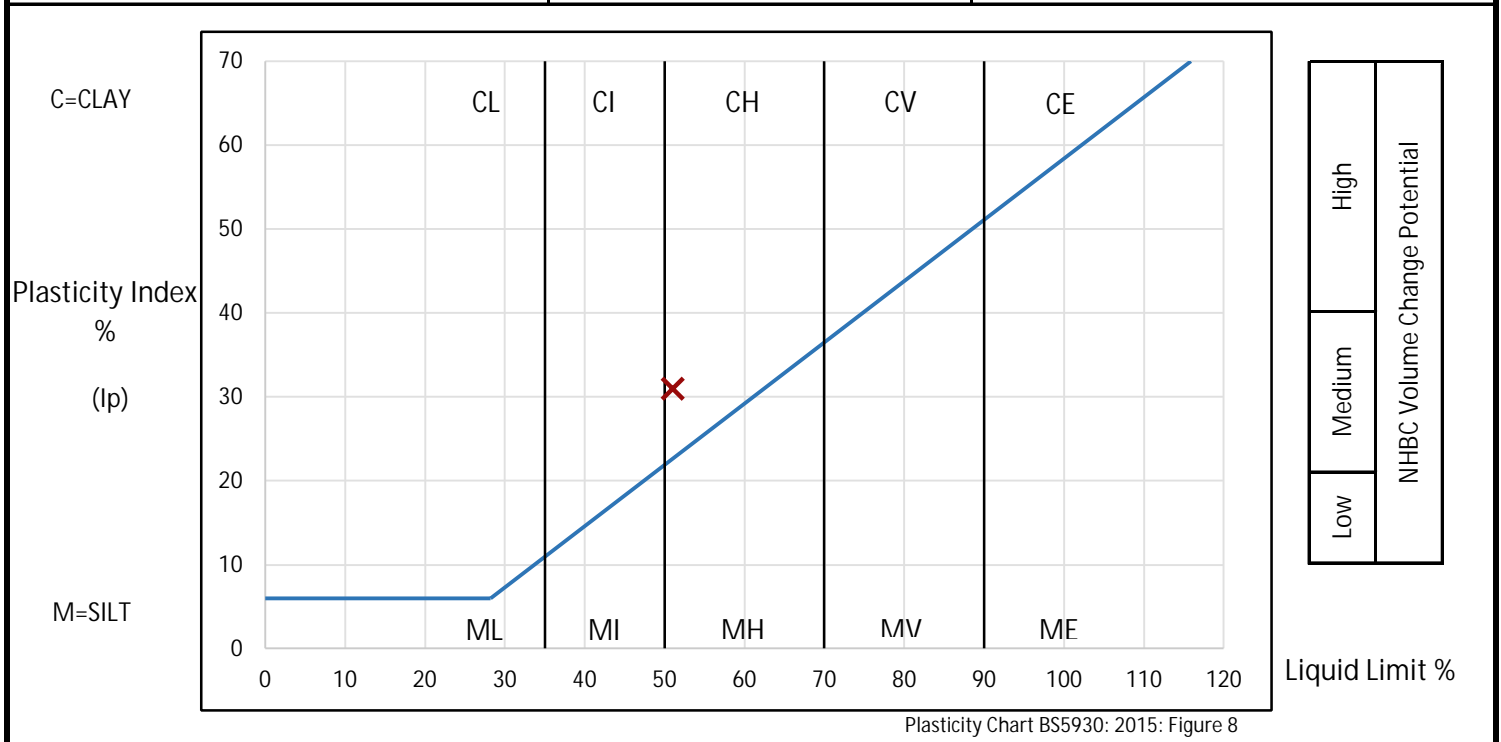
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_2

**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			
WS211	2.00	D	-	23.7	Firm mottled bluish grey and olive slightly gravelly slightly sandy CLAY with rare decayed roots. Gravel is fine and medium angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	51 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	20 %	
Sample retained 0.425mm sieve	(Measured)	9 %	Plasticity Index	31 %	
Corrected water content for material passing 0.425mm		26.0 %	Liquidity Index	0.12	
Sample retained 2mm sieve	(Measured)	7 %	NHBC Modified (I _p)	28 %	
Curing time	72 hrs	Clay Content	Not analysed	Derived Activity	Not analysed




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, 4.4, 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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DATE ISSUED: 23/12/2021



Contract	Harrisons Lane, Halesworth, Suffolk		
Serial No.	39812_1		
Client:	<i>Soil Property Testing Ltd</i>		
Brown 2 Green Associates Suite 1, Wenden Court Station Road Wendends Ambo Nr. Saffron Walden CB11 4LB	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: Brown 2 Green Associates	Approved Signatories:		
Samples Labelled: Harrisons Lane, Halesworth, Suffolk	<input checked="" type="checkbox"/> J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager <input type="checkbox"/> W. Johnstone Materials Lab Manager 		
Date Received: 30/11/2021	Samples Tested Between: 30/11/2021 and 23/12/2021		
Remarks:	For the attention of Radu Mihailie Your Reference No: 2954		
Notes:	<ol style="list-style-type: none">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

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DATE ISSUED: 23/12/2021



Contract		Harrisons Lane, Halesworth, Suffolk																				
Serial No.		39812_1												Target Date		14/12/2021						
Scheduled By		Brown 2 Green Associates																				
Schedule Remarks																						
Bore Hole No.	Type	Sample Ref.	Top Depth	<div style="display: flex; justify-content: space-between;"> Water Content (BS EN) Liquid/Plastic Limits Wet Sieve Preparation California Bearing Ratio Test </div>																Sample Remarks		
				1	1	1	1															
CBR1	-	-		1	1	1	1															
CBR10	-	-		1	1	1	1															
CBR11	-	-		1	1	1	1															
CBR12	-	-		1	1	1	1															
CBR13	-	-		1	1	1	1															
CBR14	-	-					1															
CBR15	-	-					1															
CBR16	-	-		1	1	1	1															
CBR17	-	-					1															
CBR18	-	-		1	1	1	1															
CBR19	-	-		1	1	1	1															
CBR2	-	-					1															
CBR20	-	-		1	1	1	1															
CBR3	-	-		1	1	1	1															
CBR4	-	-		1	1	1	1															
CBR5	-	-		1	1	1	1															
CBR6	-	-		1	1	1	1															
CBR7	-	-		1	1	1	1															
CBR8	-	-					1															
CBR9	-	-		1	1	1	1															
Totals				15	15	15	20															End of Schedule



TEST REPORT

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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

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)		
CBR1		-	-	29.3	58	19	39	0.26	Wet Sieved	9 (M)	32.1*	25	Dark olive brown slightly gravelly slightly sandy silty CLAY with rare light brownish grey mottling. Gravel is fine to coarse chalk and chert	CH
CBR10		-	-	17.3	38	14	24	0.14	Wet Sieved	17 (M)	20.8*	24	Light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular and subangular chert	CI
CBR11		-	-	21.0	50	18	32	0.09	Wet Sieved	9 (M)	23.0*	46	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI/CH
CBR12		-	-	25.0	53	21	32	0.13	Wet Sieved	6 (M)	26.6*	28	Light olive brown slightly gravelly slightly sandy silty CLAY with rare bluish grey mottling and recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	CH
CBR13		-	-	22.0	50	16	34	0.18	Wet Sieved	12 (M)	25.0*	24	Olive slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI/CH
CBR16		-	-	20.0	43	18	25	0.08	Wet Sieved	14 (M)	23.3*	27	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI
CBR18		-	-	23.0	53	21	32	0.06	Wet Sieved	10 (M)	25.5*	25	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light bluish grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	CH
CBR19		-	-	21.9	52	20	32	0.06				25	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	CH

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, 4.4, 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.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

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)		
CBR20		-	-	22.4	44	18	26	0.17	Wet Sieved	16 (M)	26.7*	27	Olive brown slightly gravelly slightly sandy silty CLAY with occasional orangish brown mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	CI
CBR3		-	-	22.4	47	17	30	0.18	Wet Sieved	14 (M)	26.1*	24	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling with rare recently active roots. Gravel is fine to coarse chalk and chert	CI
CBR4		-	-	17.6	38	14	24	0.15	Wet Sieved	17 (M)	21.2*	24	Light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse chert	CI
CBR5		-	-	21.8	50	18	32	0.12	Wet Sieved	2 (M)	22.2*	26	Dark greyish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse chalk and chert	CI/CH
CBR6		-	-	21.3	50	19	31	0.07	Wet Sieved	13 (M)	24.5*	24	Dark greyish brown slightly gravelly slightly sandy silty CLAY with occasional light olive brown mottling. Gravel is fine to coarse chalk and chert	CI/CH
CBR7		-	-	22.1	51	19	32	0.10	Wet Sieved	10 (M)	24.5*	26	Mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine to coarse chalk and chert	CH
CBR9		-	-	21.6	51	17	34	0.13	Wet Sieved	14 (M)	25.1*	24	Olive slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and recently active and decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	CH

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, 4.4, 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.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured



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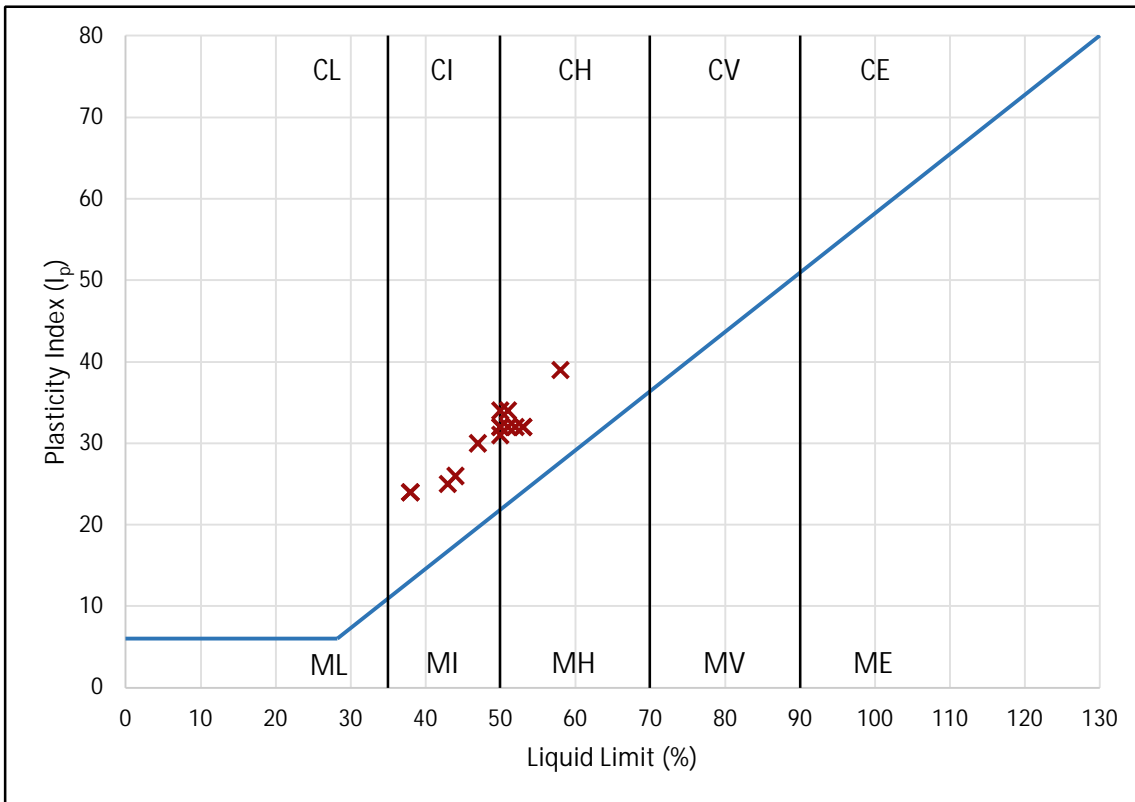


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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

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

High	NHBC Volume Change Potential
Medium	
Low	

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 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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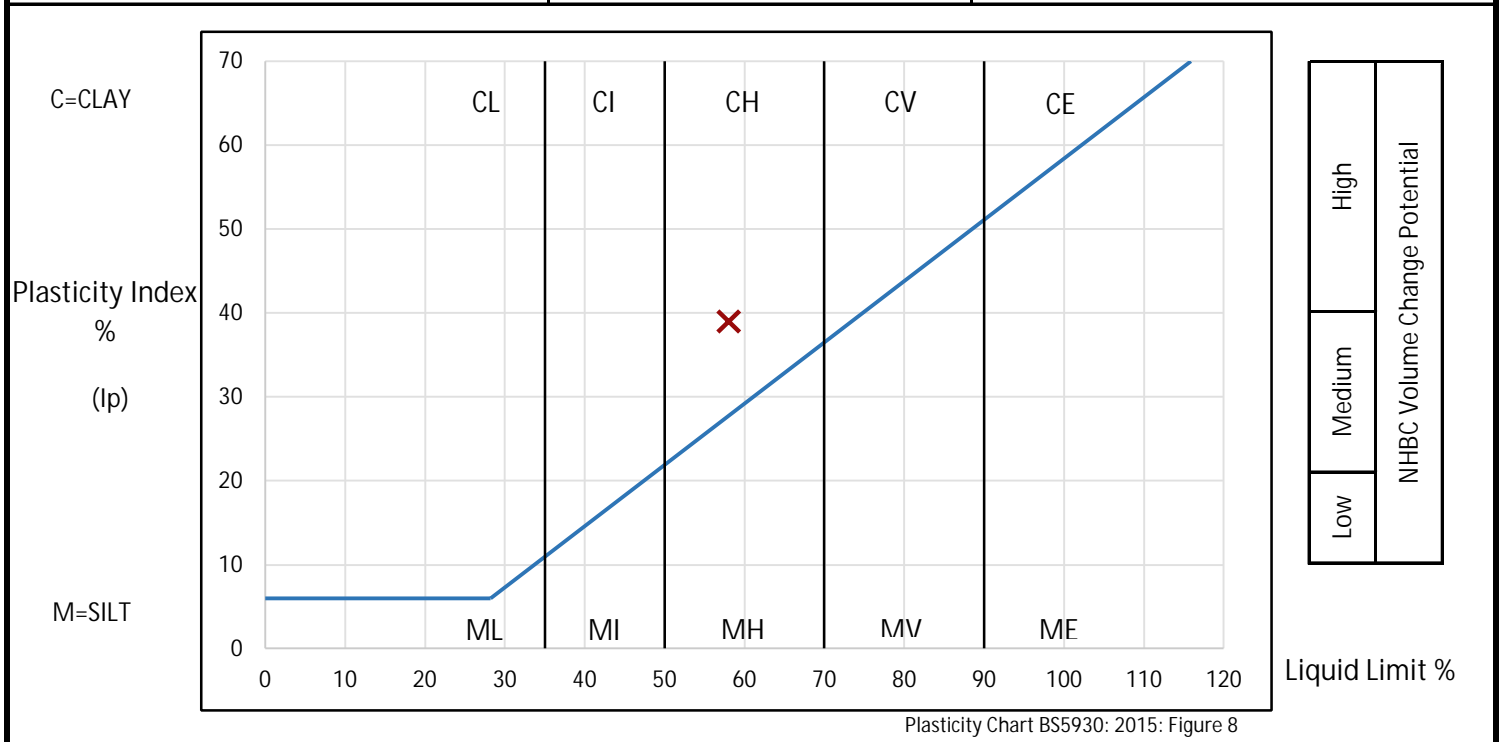
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

**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			
CBR1		-	-	29.3	Dark olive brown slightly gravelly slightly sandy silty CLAY with rare light brownish grey mottling. Gravel is fine to coarse chalk and chert	

PREPARATION			Liquid Limit	58 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	19 %	
Sample retained 0.425mm sieve	(Measured)	9 %	Plasticity Index	39 %	
Corrected water content for material passing 0.425mm		32.1 %	Liquidity Index	0.26	
Sample retained 2mm sieve	(Measured)	6 %	NHBC Modified (I'p)	35 %	
Curing time	25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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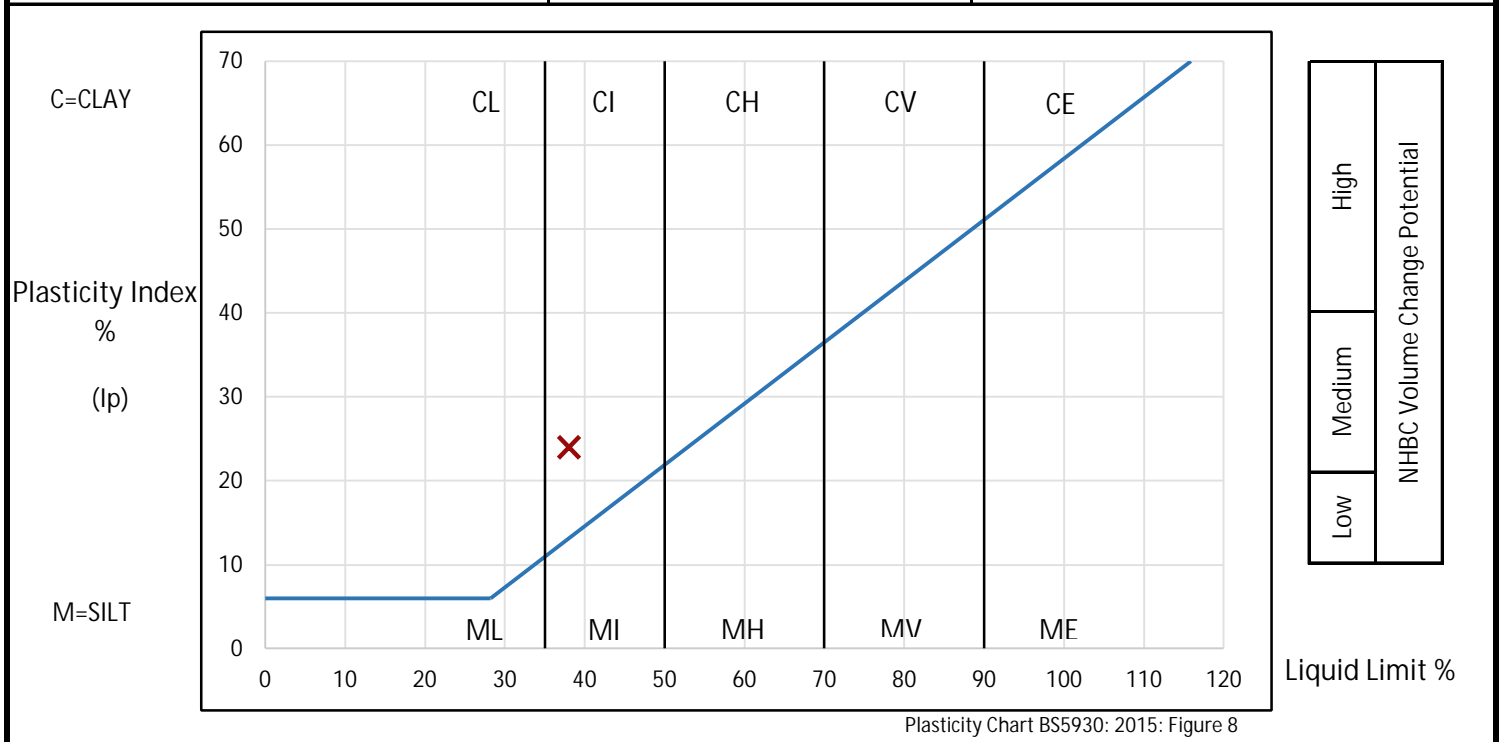


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Serial No.	39812_1

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			
CBR10		-	-	17.3	Light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular and subangular chert	

PREPARATION			Liquid Limit	38 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	14 %	
Sample retained 0.425mm sieve	(Measured)	18 %	Plasticity Index	24 %	
Corrected water content for material passing 0.425mm		21.1 %	Liquidity Index	0.14	
Sample retained 2mm sieve	(Measured)	12 %	NHBC Modified (I'p)	20 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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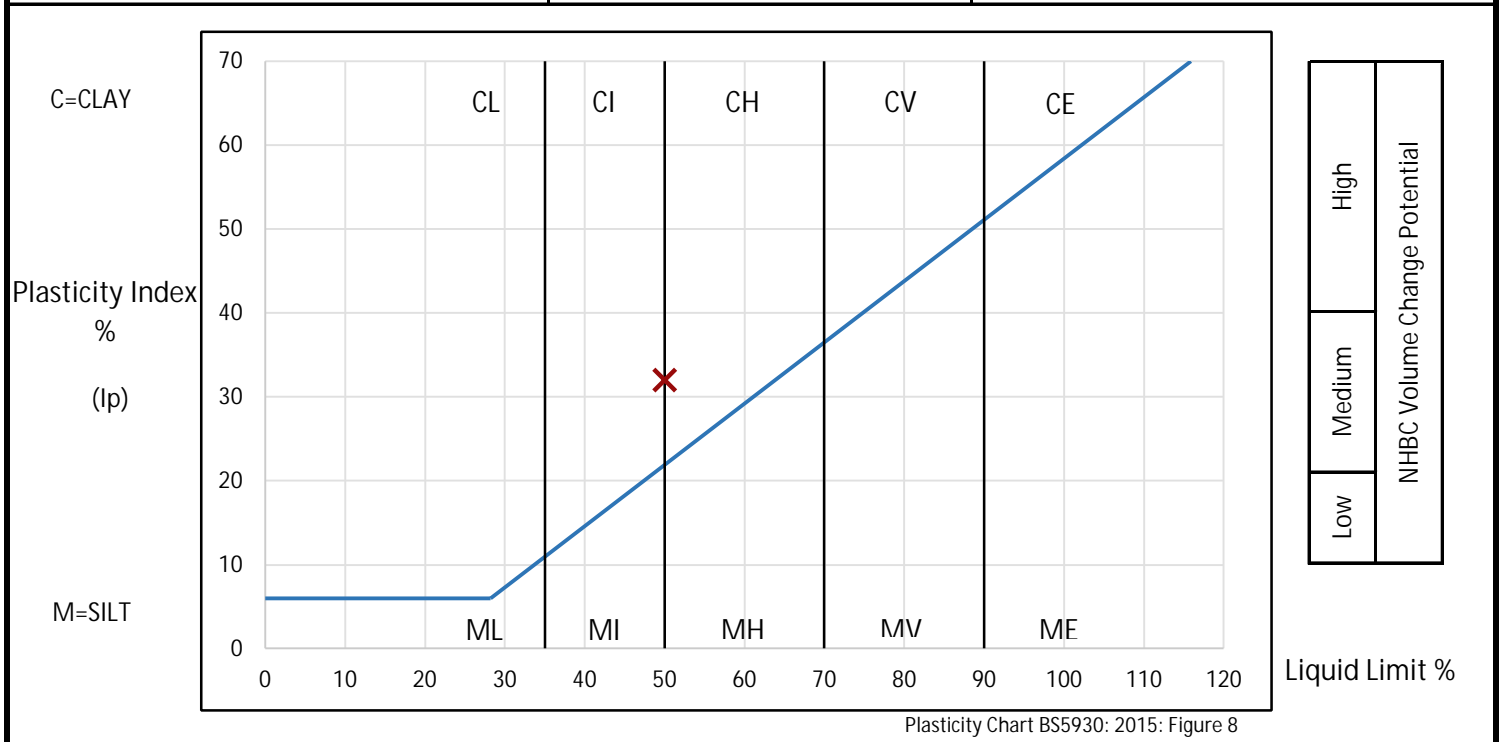
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

**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			
CBR11		-	-	21.0	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	50 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	9 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm		23.0 %	Liquidity Index	0.09	
Sample retained 2mm sieve	(Measured)	6 %	NHBC Modified (I'p)	29 %	
Curing time	46 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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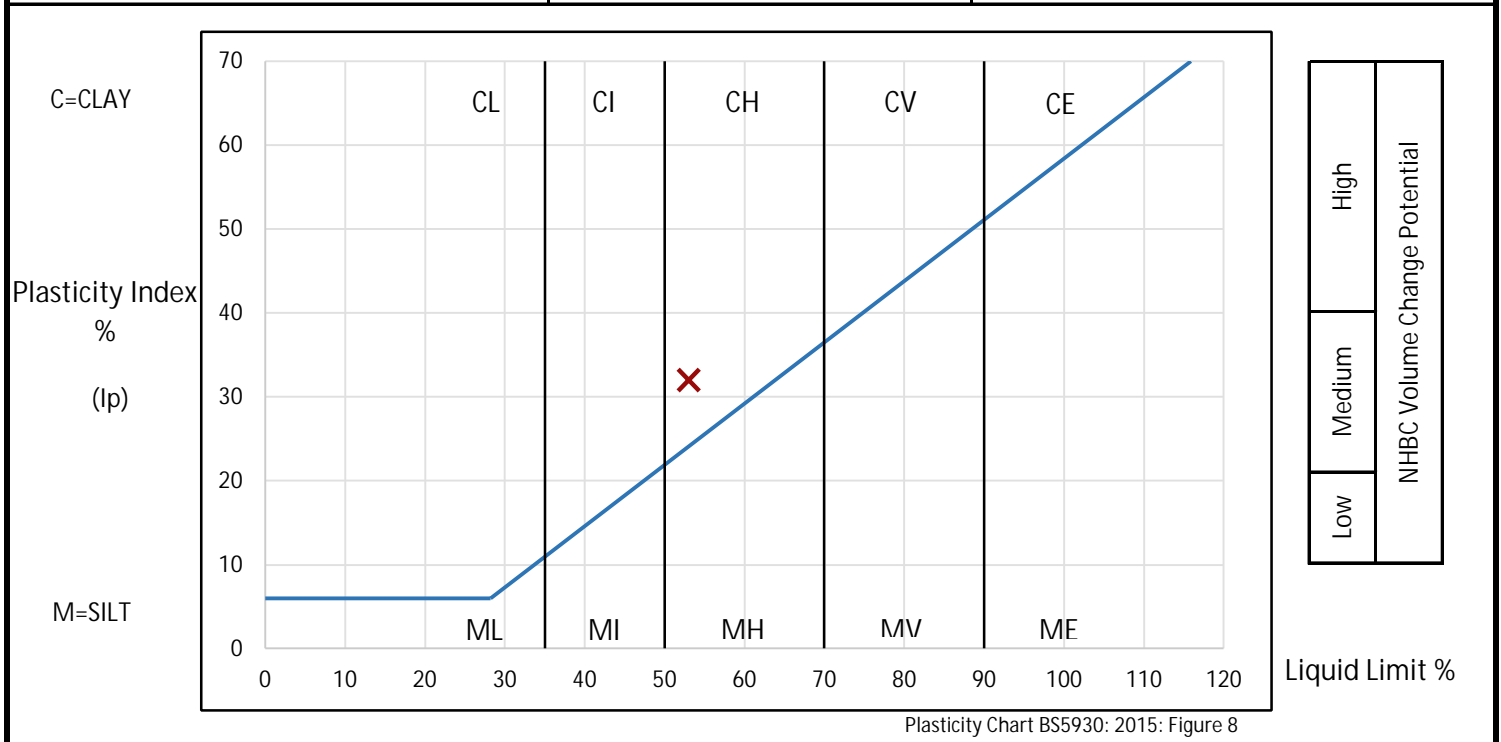
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

**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			
CBR12		-	-	25.0	Light olive brown slightly gravelly slightly sandy silty CLAY with rare bluish grey mottling and recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	53 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	21 %	
Sample retained 0.425mm sieve	(Measured)	6 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm		26.6 %	Liquidity Index	0.13	
Sample retained 2mm sieve	(Measured)	3 %	NHBC Modified (I'p)	30 %	
Curing time	28 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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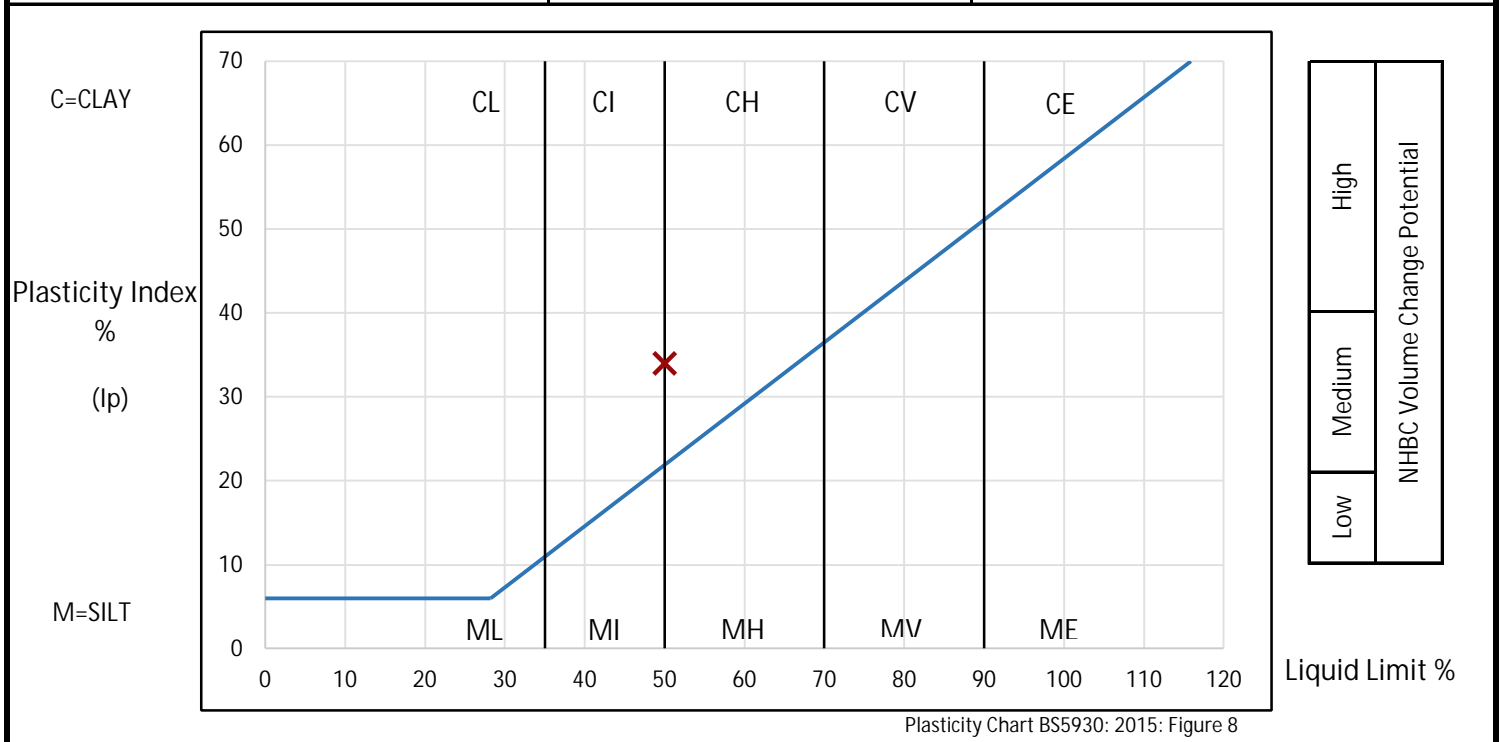
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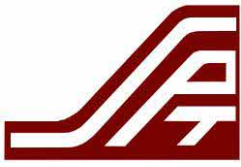
**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR13		-	-	22.0	Olive slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	50 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	16 %	
Sample retained 0.425mm sieve	(Measured)	12 %	Plasticity Index	34 %	
Corrected water content for material passing 0.425mm		25.0 %	Liquidity Index	0.18	
Sample retained 2mm sieve	(Measured)	9 %	NHBC Modified (I'p)	30 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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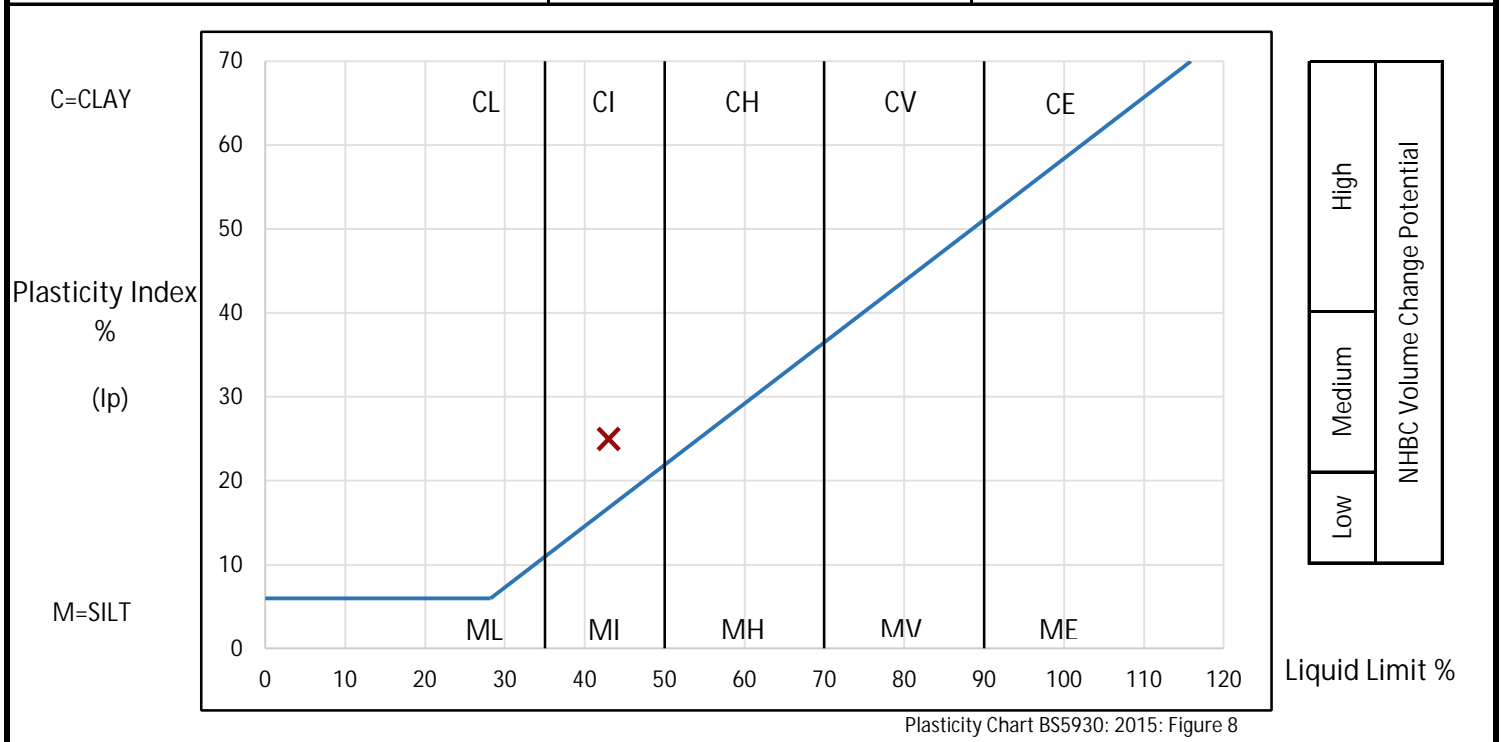


Contract	Harrisons Lane, Halesworth, Suffolk
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR16		-	-	20.0	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	43 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	18 %
Sample retained 0.425mm sieve	(Measured)	14 %		Plasticity Index	25 %
Corrected water content for material passing 0.425mm			23.3 %	Liquidity Index	0.08
Sample retained 2mm sieve	(Measured)	9 %		NHBC Modified (I'p)	22 %
Curing time	27 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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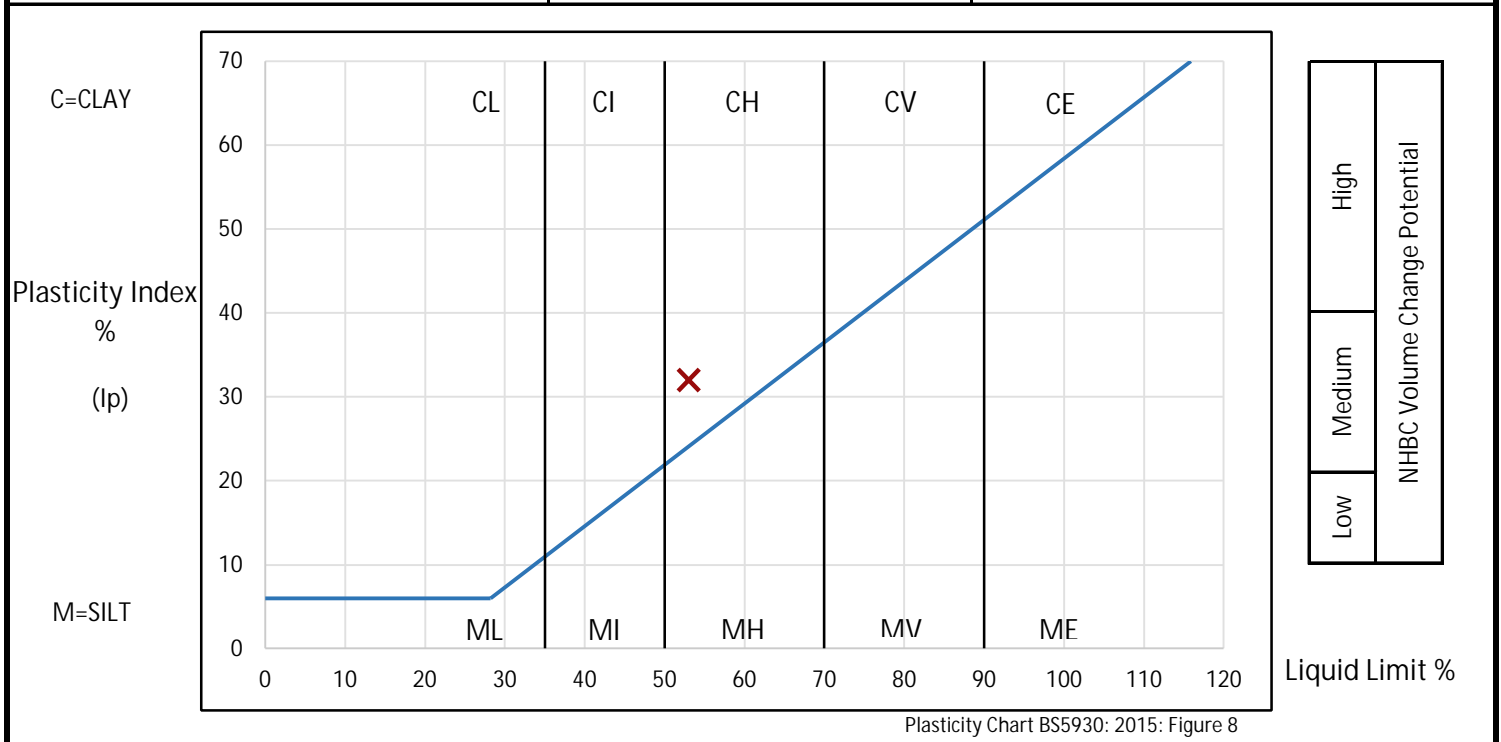
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Contract	Harrisons Lane, Halesworth, Suffolk
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**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR18		-	-	23.0	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light bluish grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	53 %	
Method of preparation			Wet sieved over 0.425mm sieve	Plastic Limit	21 %
Sample retained 0.425mm sieve	(Measured)	10 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm			25.5 %	Liquidity Index	0.06
Sample retained 2mm sieve	(Measured)	8 %	NHBC Modified (I'p)	29 %	
Curing time	25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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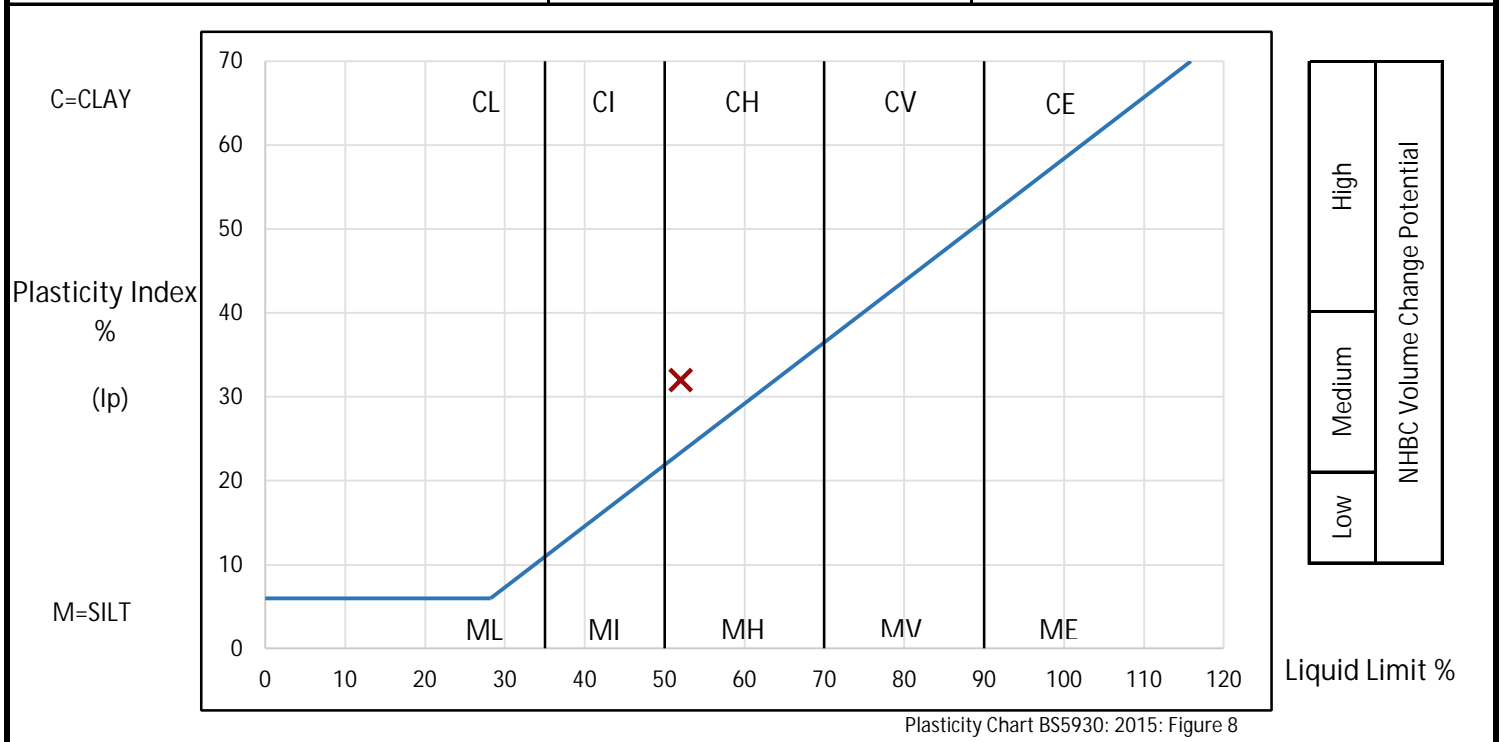


Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

**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			
CBR19		-	-	21.9	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	52 %	
Method of preparation			FALSE	Plastic Limit	20 %
Sample retained 0.425mm sieve	(Assumed)	12 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm			Liquidity Index	0.06	
Sample retained 2mm sieve	(Assumed)	10 %	NHBC Modified (I'p)	n/a	
Curing time	25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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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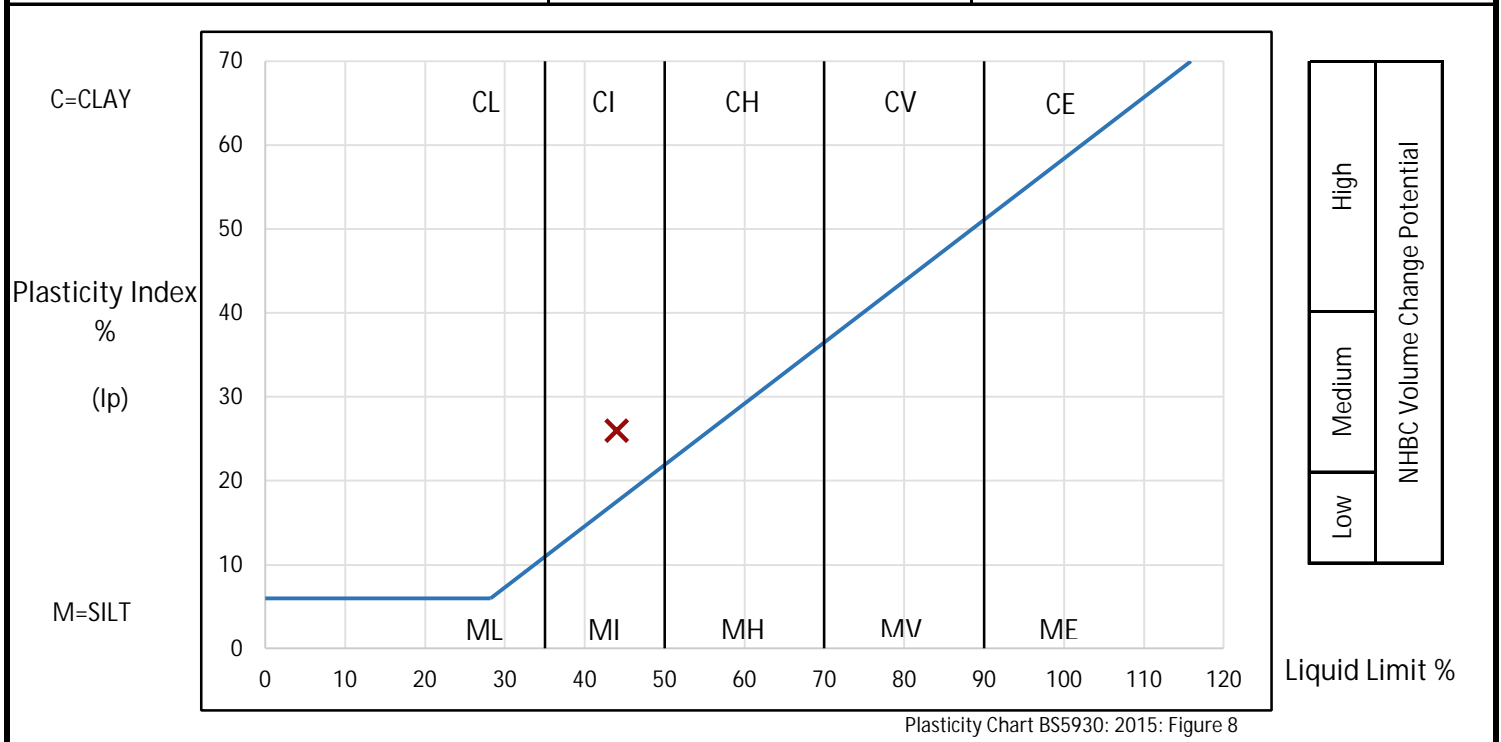


Contract	Harrisons Lane, Halesworth, Suffolk
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR20		-	-	22.4	Olive brown slightly gravelly slightly sandy silty CLAY with occasional orangish brown mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	44 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	16 %	Plasticity Index	26 %	
Corrected water content for material passing 0.425mm		26.7 %	Liquidity Index	0.17	
Sample retained 2mm sieve	(Measured)	10 %	NHBC Modified (I'p)	22 %	
Curing time	27 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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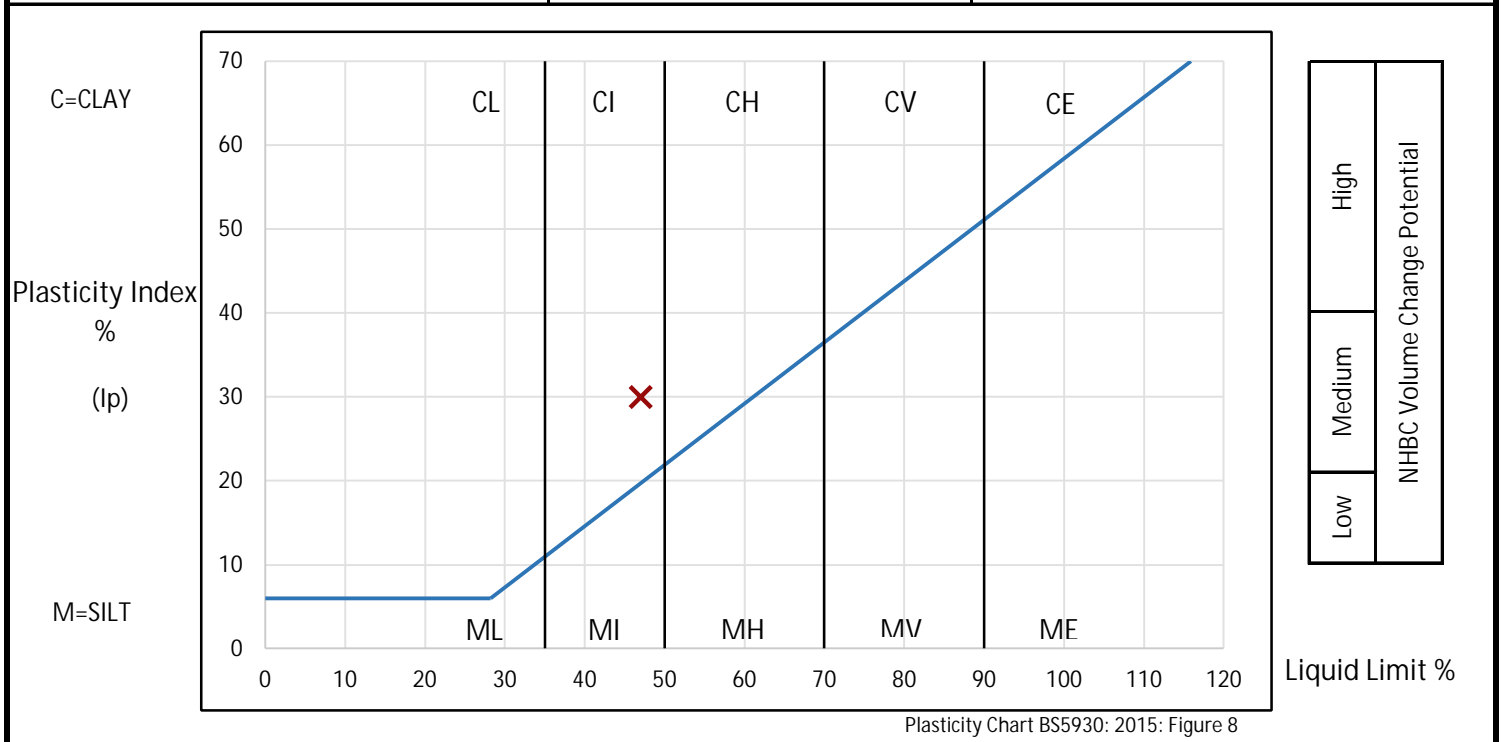
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

**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			
CBR3		-	-	22.4	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling with rare recently active roots. Gravel is fine to coarse chalk and chert	

PREPARATION			Liquid Limit	47 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	17 %	
Sample retained 0.425mm sieve	(Measured)	14 %	Plasticity Index	30 %	
Corrected water content for material passing 0.425mm		26.1 %	Liquidity Index	0.18	
Sample retained 2mm sieve	(Measured)	10 %	NHBC Modified (I'p)	26 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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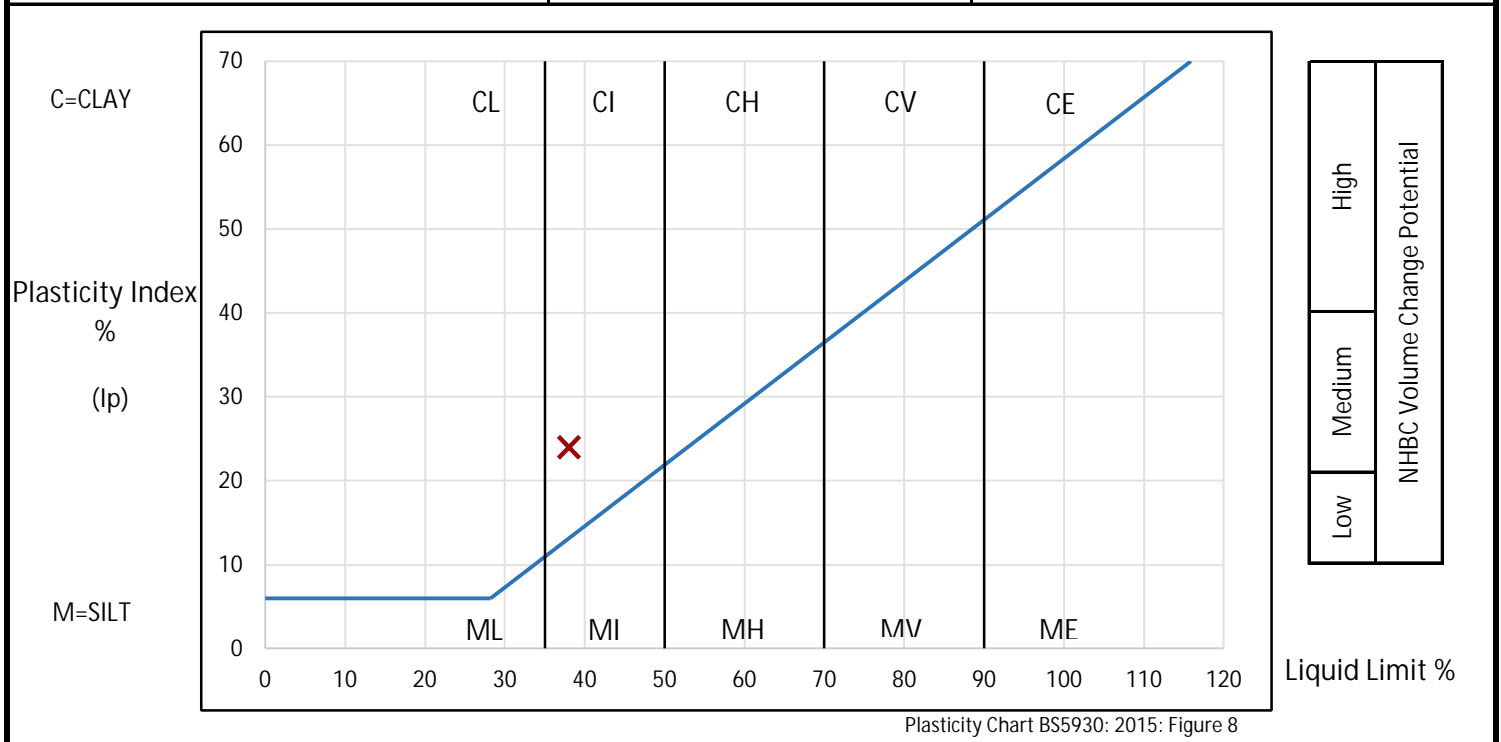
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Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

**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			
CBR4		-	-	17.6	Light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse chert	

PREPARATION			Liquid Limit	38 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	14 %
Sample retained 0.425mm sieve	(Measured)	18 %	Plasticity Index	24 %	
Corrected water content for material passing 0.425mm			21.5 %	Liquidity Index	0.15
Sample retained 2mm sieve	(Measured)	13 %	NHBC Modified (I'p)	20 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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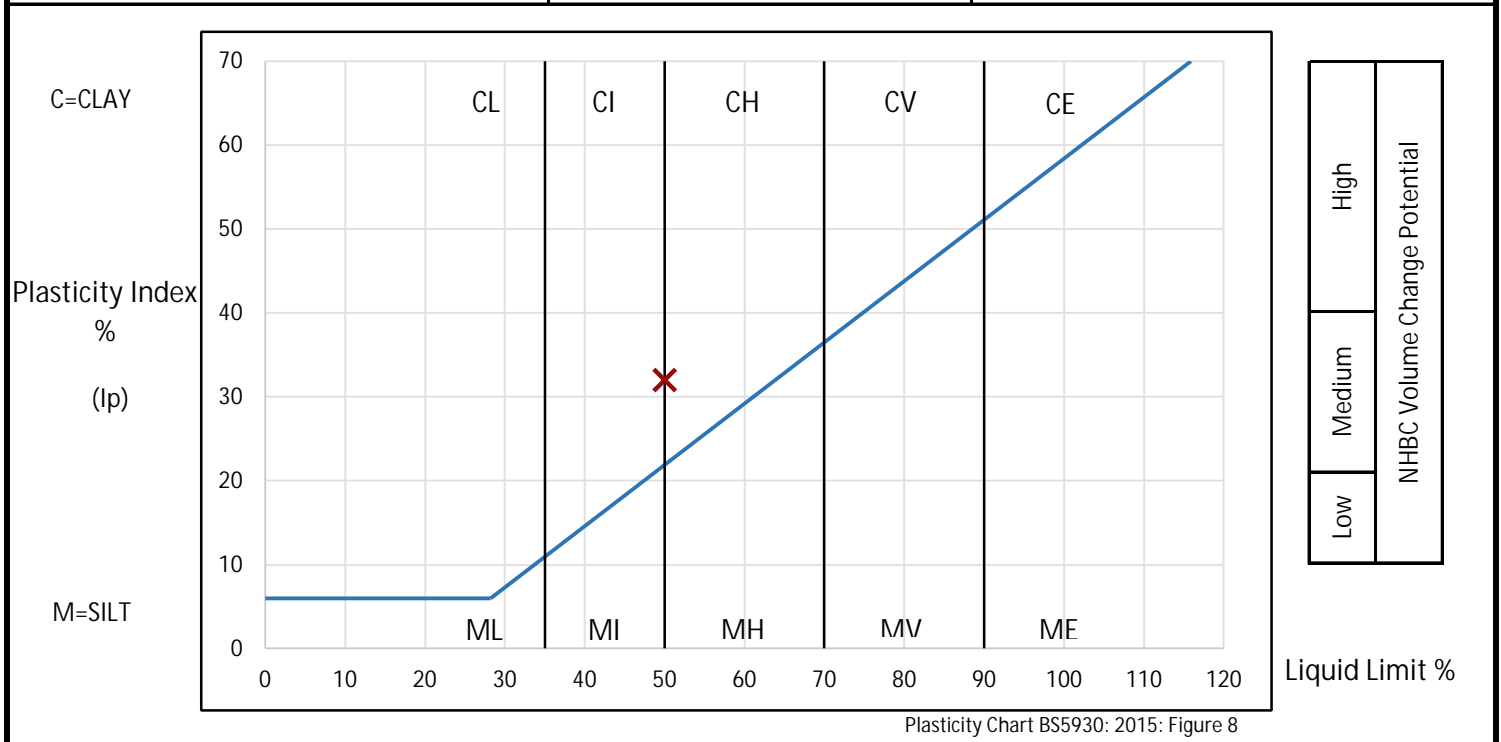
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**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR5		-	-	21.8	Dark greyish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse chalk and chert	

PREPARATION			Liquid Limit	50 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	2 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm		22.2 %	Liquidity Index	0.12	
Sample retained 2mm sieve	(Measured)	2 %	NHBC Modified (I'p)	31 %	
Curing time	26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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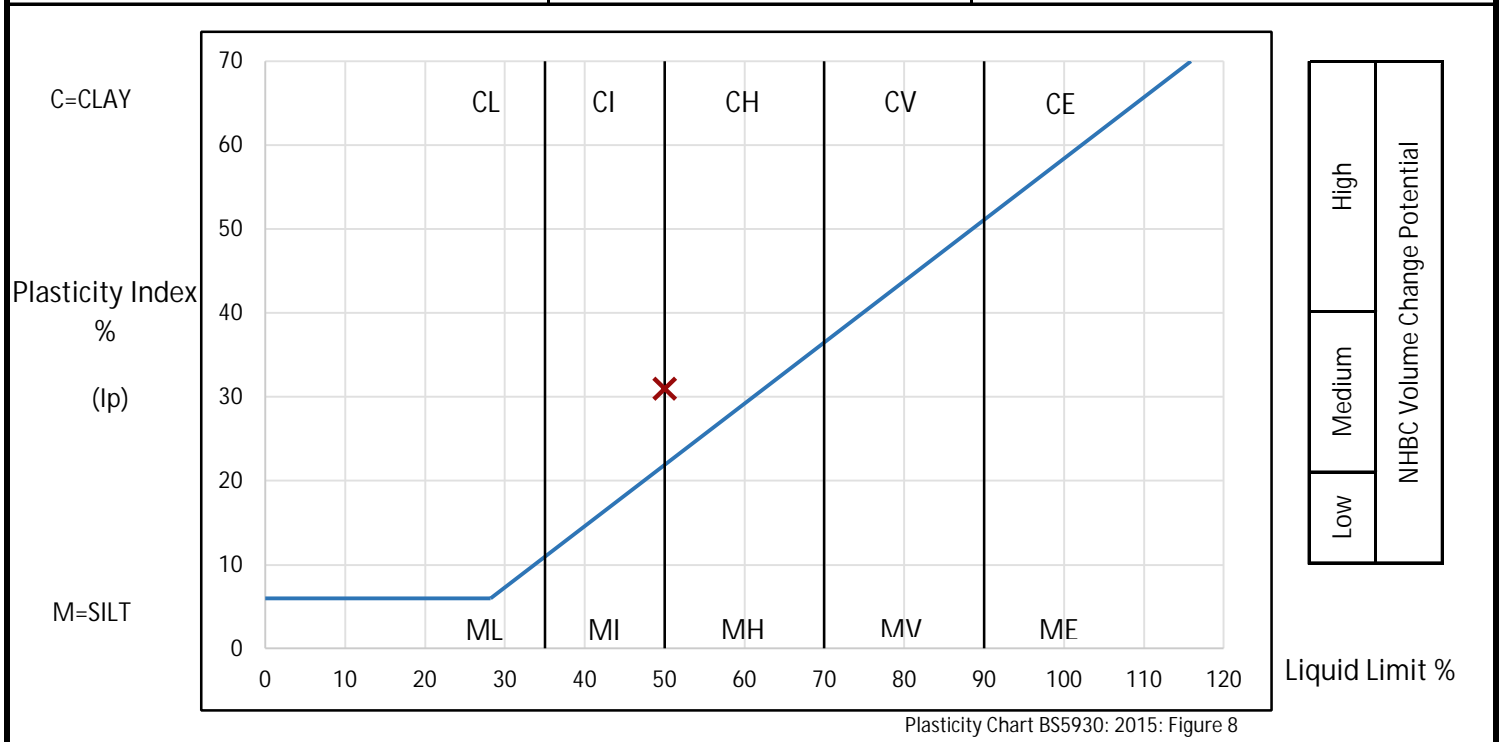


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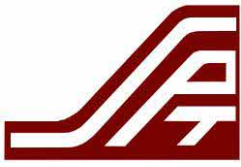
**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR6		-	-	21.3	Dark greyish brown slightly gravelly slightly sandy silty CLAY with occasional light olive brown mottling. Gravel is fine to coarse chalk and chert	

PREPARATION			Liquid Limit	50 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	19 %
Sample retained 0.425mm sieve	(Measured)	13 %		Plasticity Index	31 %
Corrected water content for material passing 0.425mm			24.5 %	Liquidity Index	0.07
Sample retained 2mm sieve	(Measured)	10 %		NHBC Modified (I'p)	27 %
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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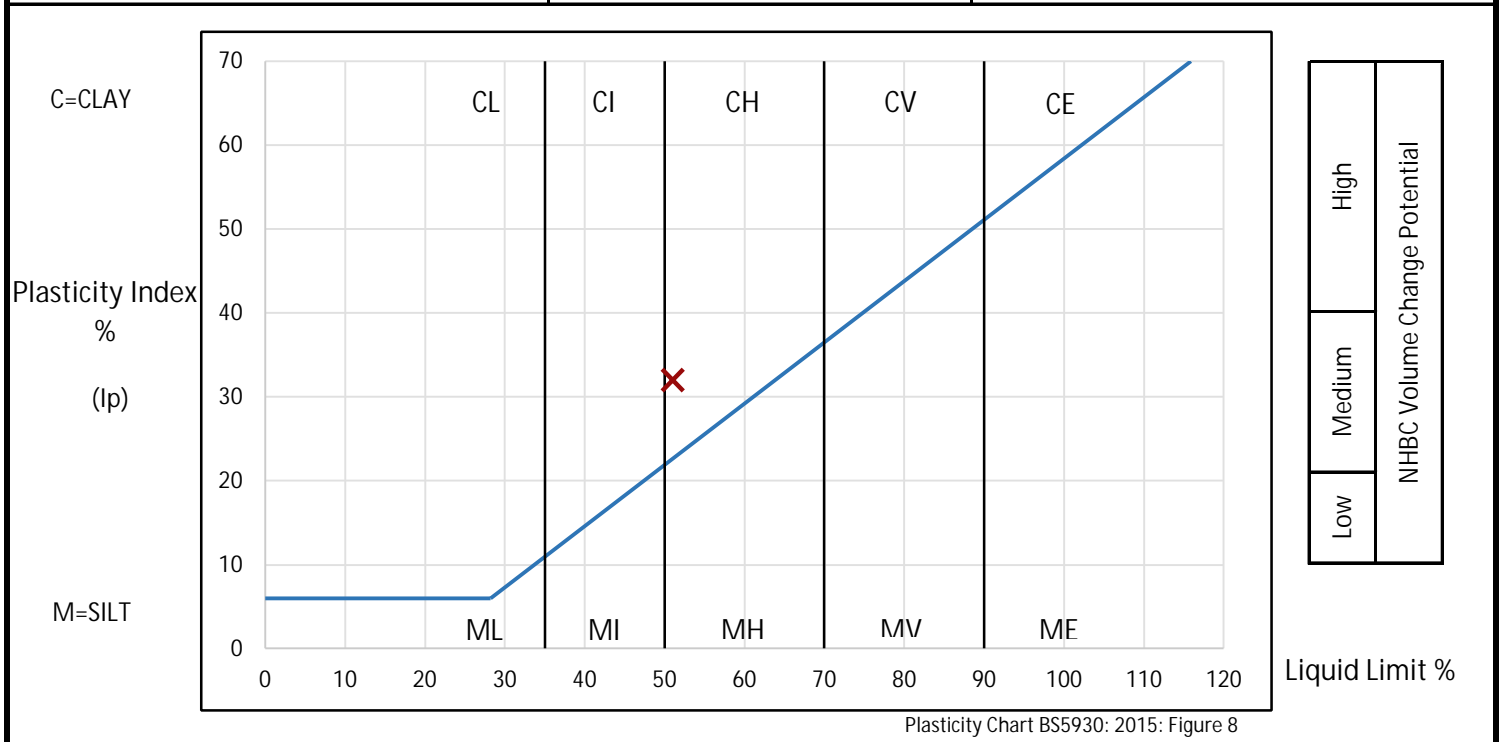


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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR7		-	-	22.1	Mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine to coarse chalk and chert	

PREPARATION			Liquid Limit	51 %	
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	19 %	
Sample retained 0.425mm sieve	(Measured)	11 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm		24.8 %	Liquidity Index	0.10	
Sample retained 2mm sieve	(Measured)	8 %	NHBC Modified (I'p)	28 %	
Curing time	26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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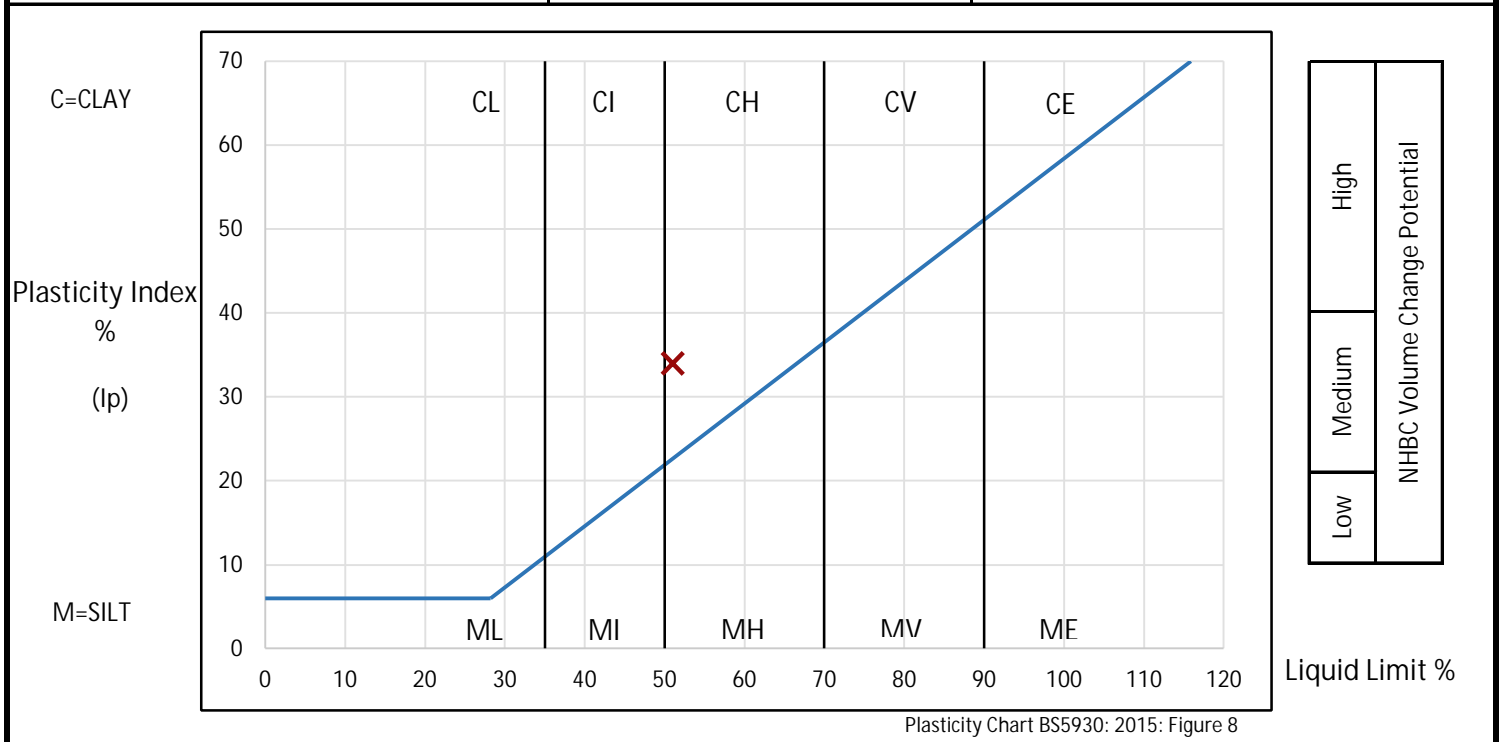
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**DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND
DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX**

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
CBR9		-	-	21.6	Olive slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and recently active and decayed roots. Gravel is fine to coarse angular to subrounded chalk and chert	

PREPARATION			Liquid Limit	51 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	17 %
Sample retained 0.425mm sieve	(Measured)	15 %	Plasticity Index	34 %	
Corrected water content for material passing 0.425mm			25.4 %	Liquidity Index	0.13
Sample retained 2mm sieve	(Measured)	12 %	NHBC Modified (I'p)	29 %	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



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, 4.4, 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)



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
CBR1		-	-	Dark olive brown slightly gravelly slightly sandy silty CLAY with rare light brownish grey mottling. Gravel is fine to coarse chalk and 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	29.5	%	

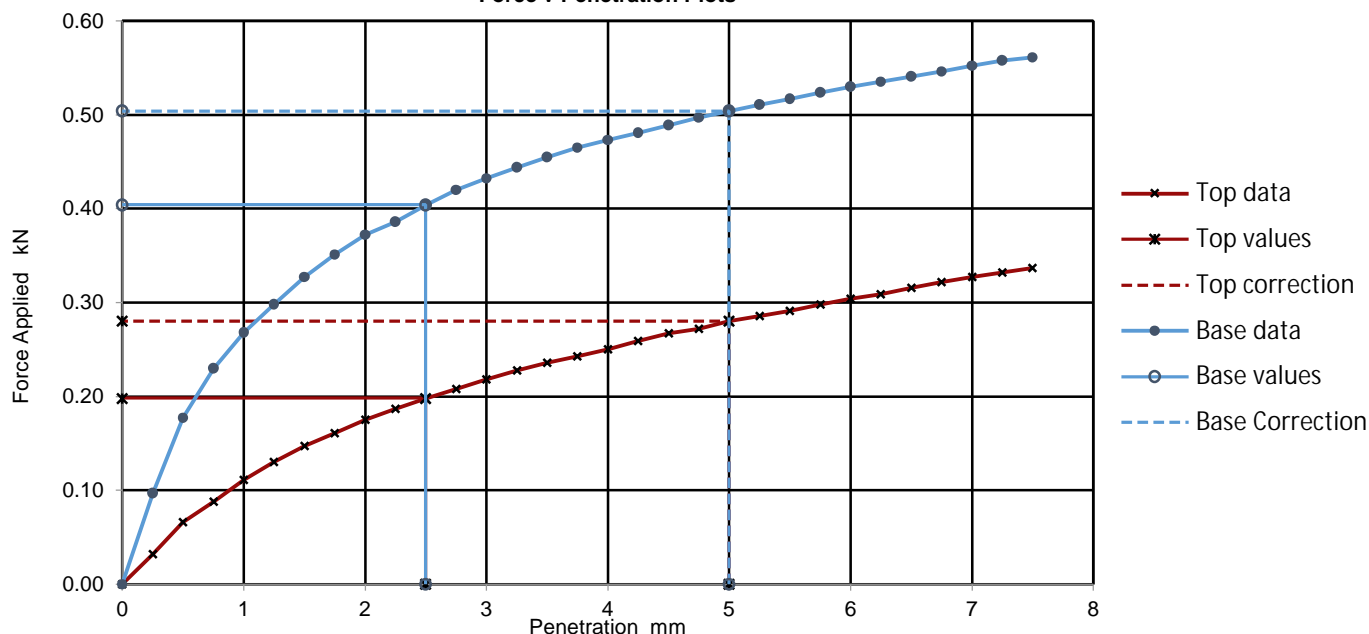
Material Retained on 20mm Sieve Removed	0.8	%
Initial Specimen Details:	Bulk Density	1.92 Mg/m ³
	Dry Density	1.48 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.5	1.4	1.5		30.6
BASE	No	3.1	2.5	3.1		29.3

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 ±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		
CBR10		-	-	Light olive 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	18.1	%	

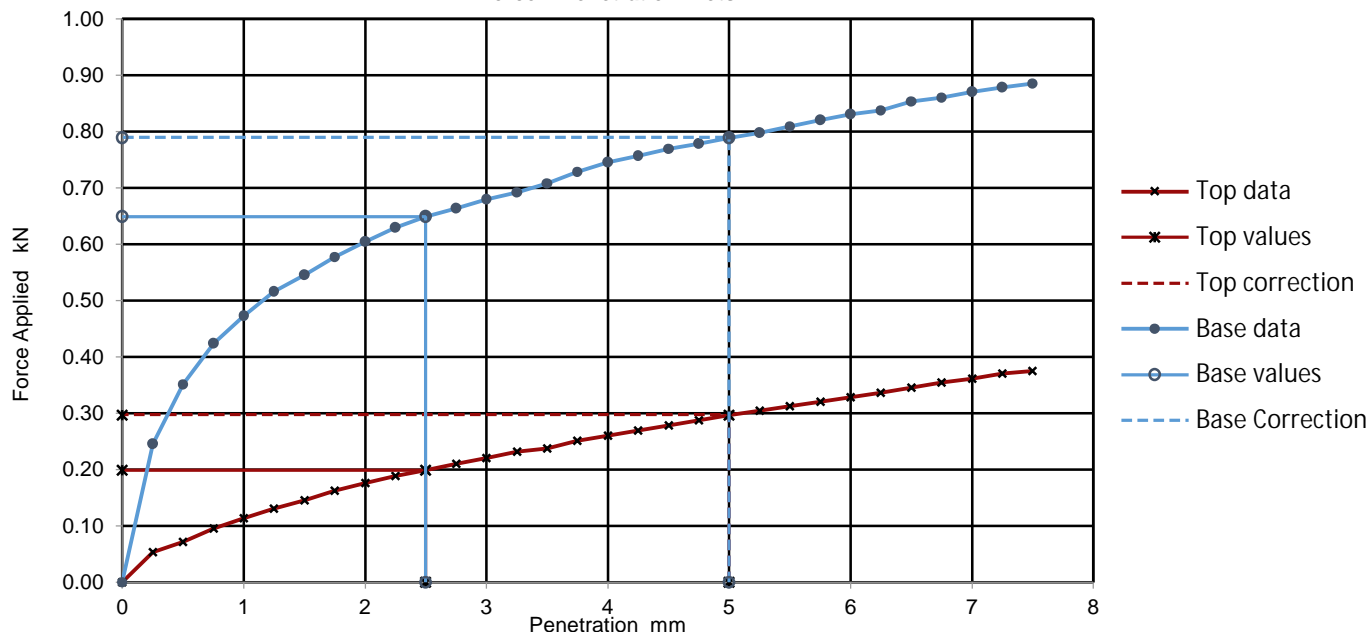
Material Retained on 20mm Sieve Removed	4.6	%
Initial Specimen Details:	Bulk Density	2.04 Mg/m ³
	Dry Density	1.73 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.5	1.5	1.5		21.4
BASE	No	4.9	3.9	4.9		19.9

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 ±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		
CBR11		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and 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	%	

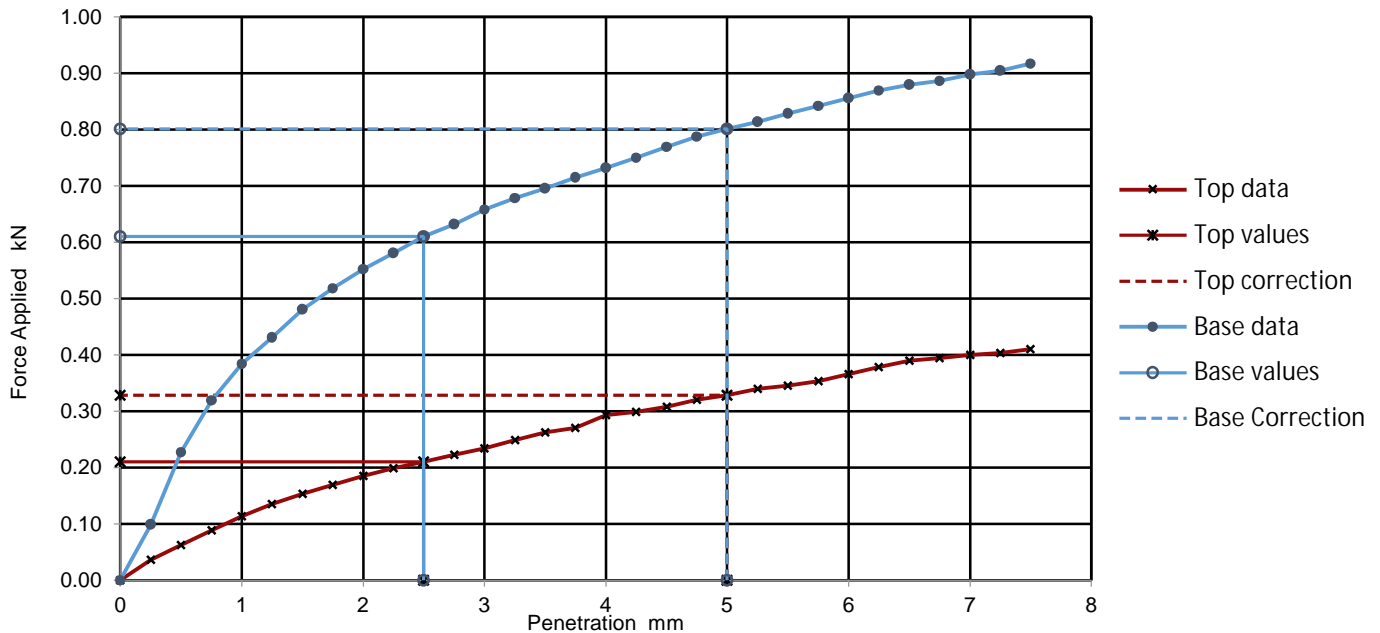
Material Retained on 20mm Sieve Removed	2.0	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.65 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.6	1.6	1.6		24.2
BASE	No	4.6	4.0	4.6		22.5

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 ±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		
CBR12		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with rare bluish grey mottling and recently active roots. Gravel is fine to coarse angular to subrounded chalk and 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	25.2	%	

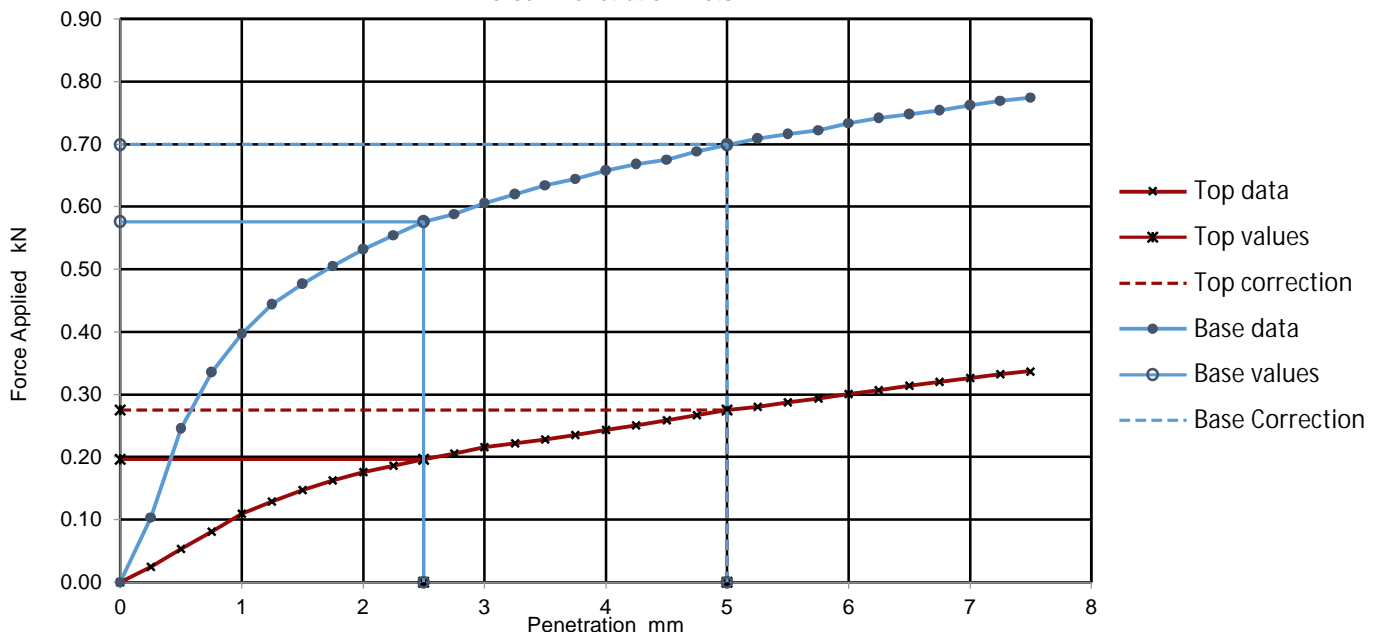
Material Retained on 20mm Sieve Removed	0.8	%
Initial Specimen Details:	Bulk Density	1.95 Mg/m ³
	Dry Density	1.56 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.5	1.4	1.5		27.9
BASE	No	4.4	3.5	4.4		26.2

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 ±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		
CBR13		-	-	Olive slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

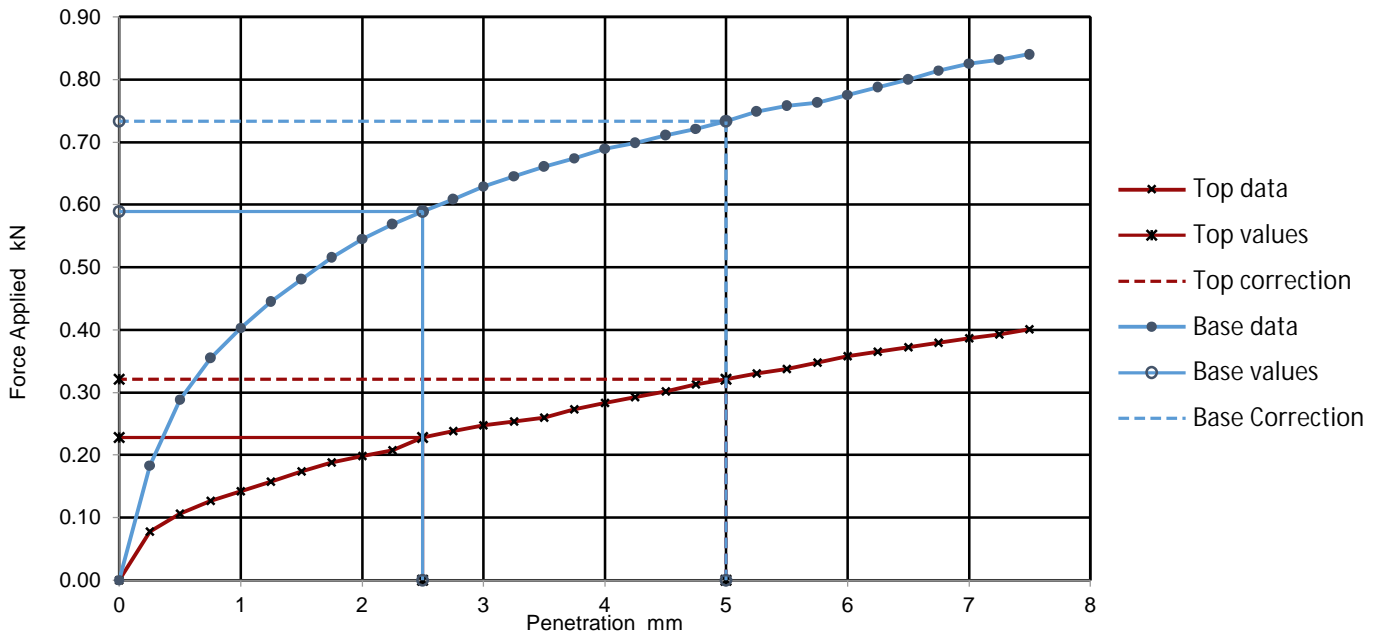
Specimen Preparation

Condition	Remoulded	Soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of Soaking	4 days
		Time to Surface	days
		Amount of Swell Recorded	mm
		Initial Water Content	22.3 %
Material Retained on 20mm Sieve Removed	1.3	%	
Initial Specimen Details:	Bulk Density	2.00	Mg/m ³
	Dry Density	1.64	Mg/m ³
Surcharge Applied	15	kg	

Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.7	1.6	1.7	24.9	
BASE	No	4.5	3.7	4.5	22.5	

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 ±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		
CBR14		-	-	Olive slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and 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	21.2	%	

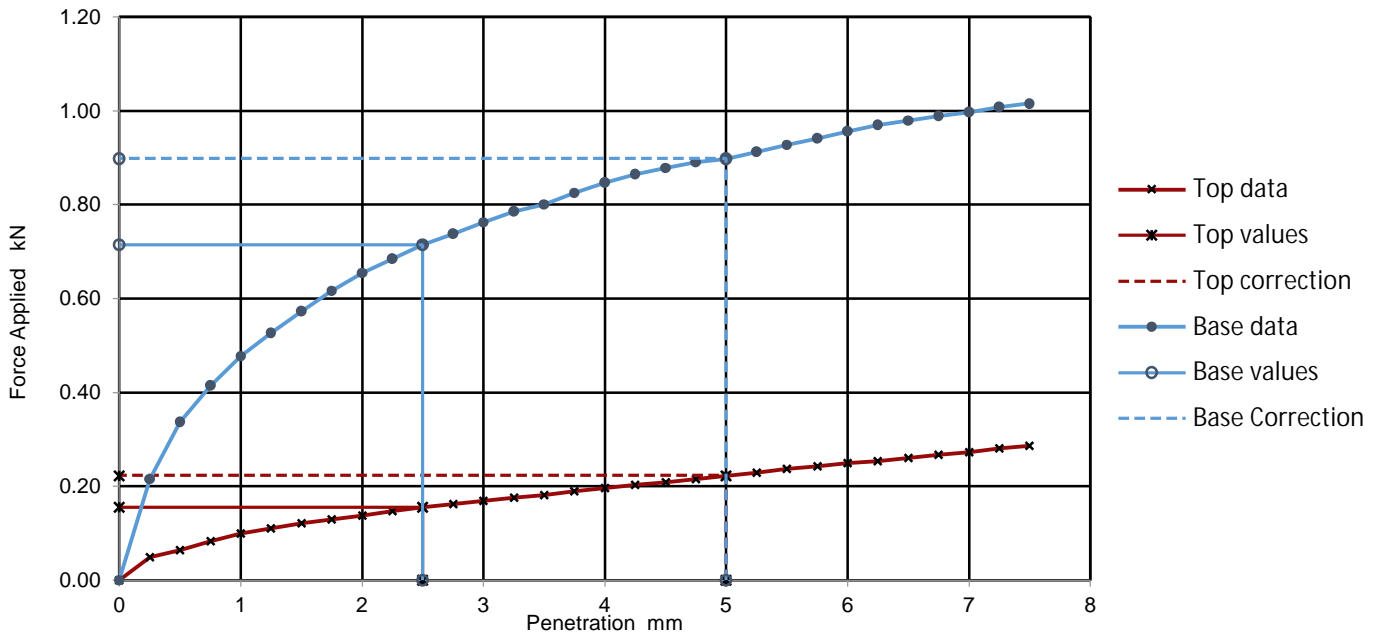
Material Retained on 20mm Sieve Removed	1.0	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.65 Mg/m ³

Surcharge Applied	15	kg
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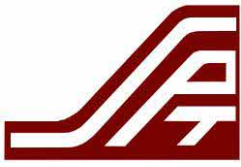
Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.2	1.1	1.2		25.2
BASE	No	5.4	4.5	5.4		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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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
CBR15		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and 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	%	

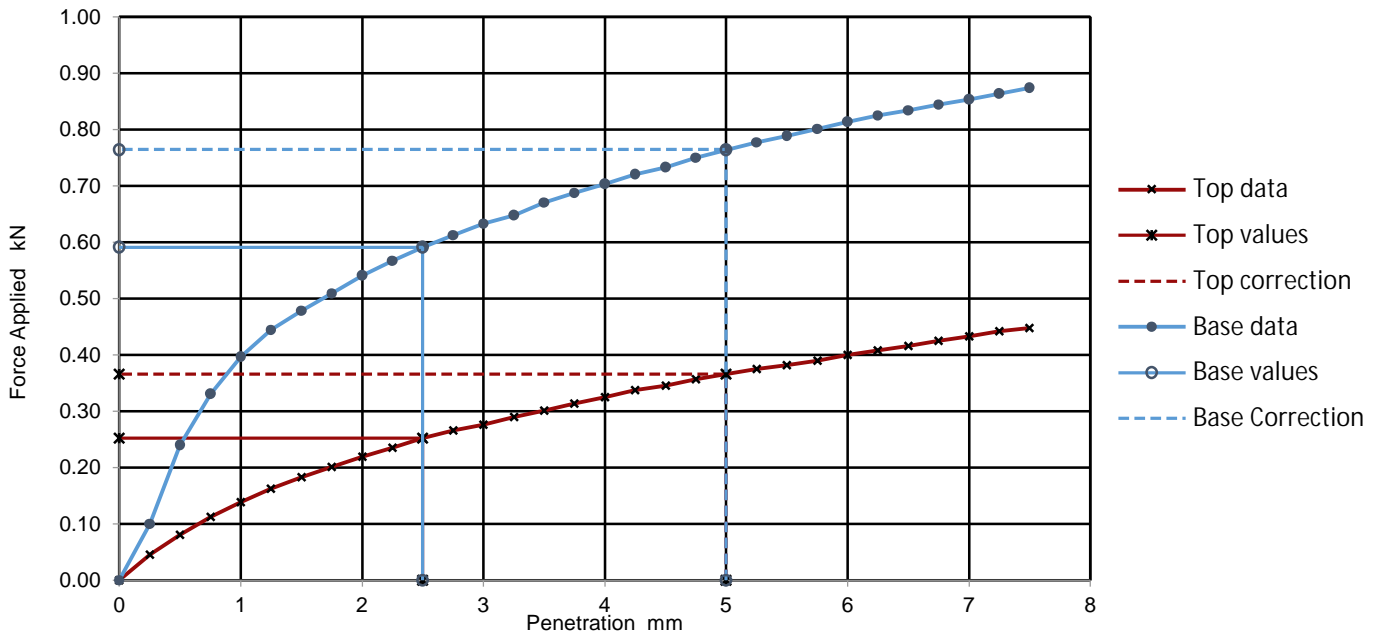
Material Retained on 20mm Sieve Removed	0.6	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.63 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.9	1.8	1.9		24.9
BASE	No	4.5	3.8	4.5		23.0

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 ±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		
CBR16		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and 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	20.4	%	

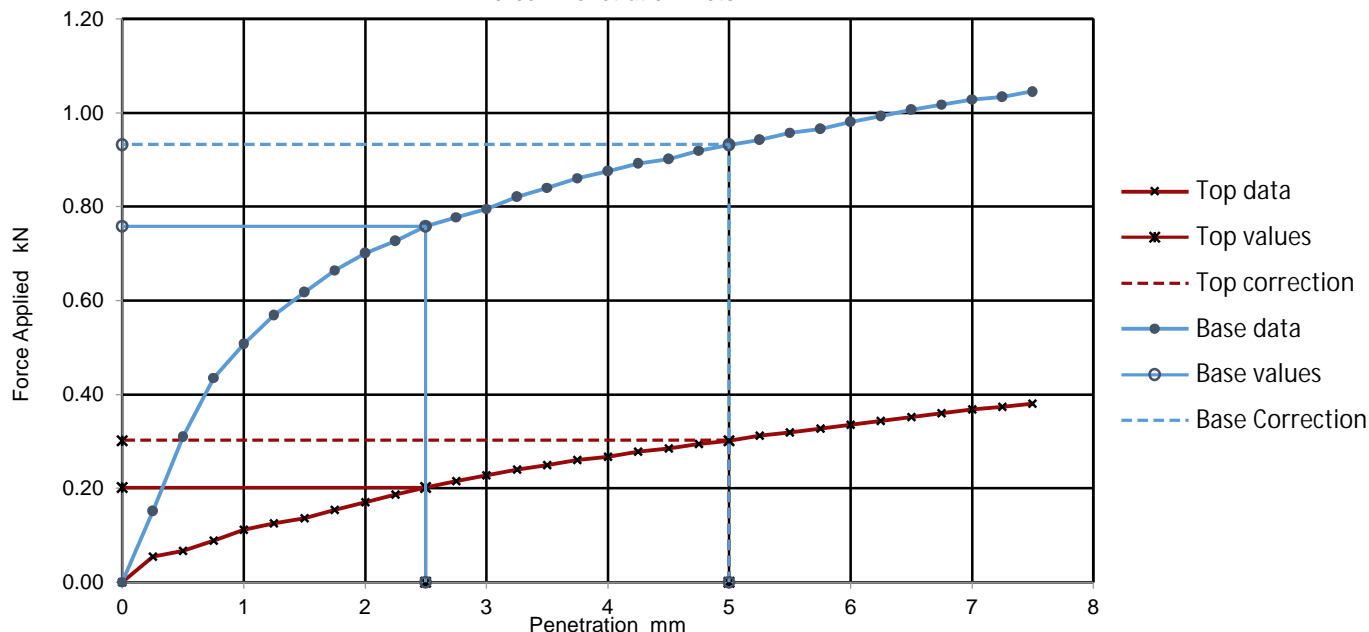
Material Retained on 20mm Sieve Removed	1.9	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.65 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.5	1.5	1.5		22.5
BASE	No	5.7	4.7	5.7		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 ±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		
CBR17		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine and medium angular and subangular chalk and 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	22.9	%	

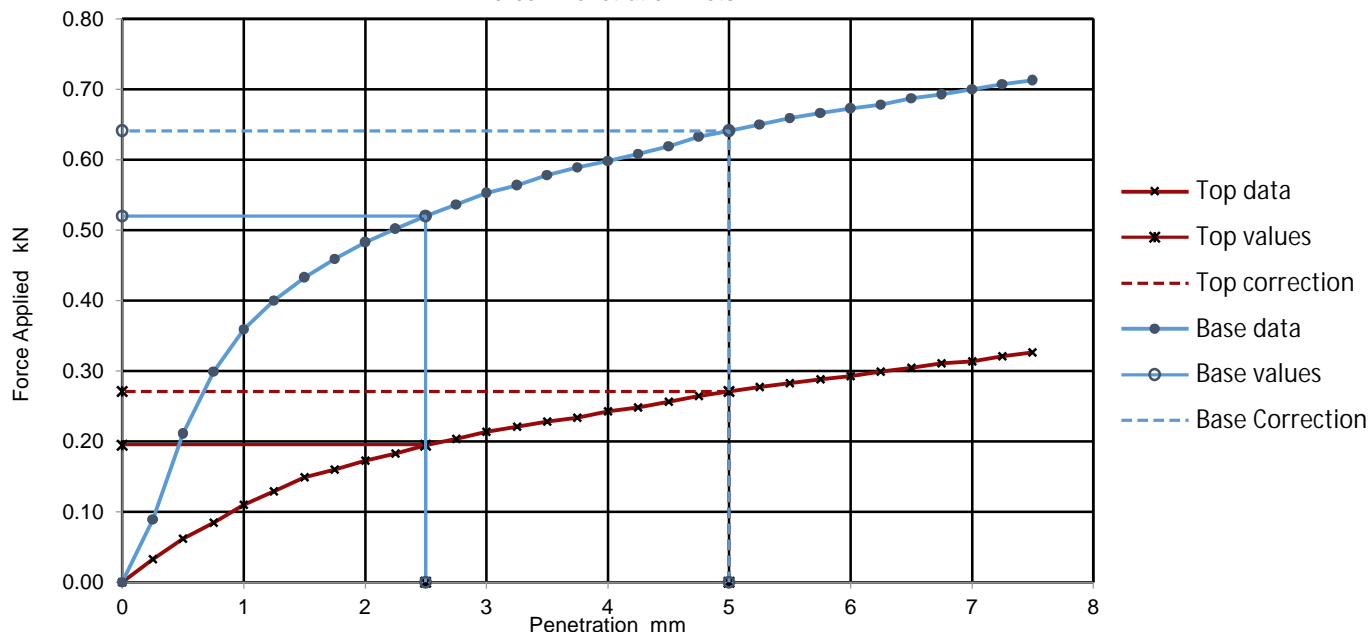
Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.96 Mg/m ³
	Dry Density	1.59 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.5	1.4	1.5		27.8
BASE	No	3.9	3.2	3.9		25.7

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 ±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		
CBR18		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light bluish grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and 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	23.9	%

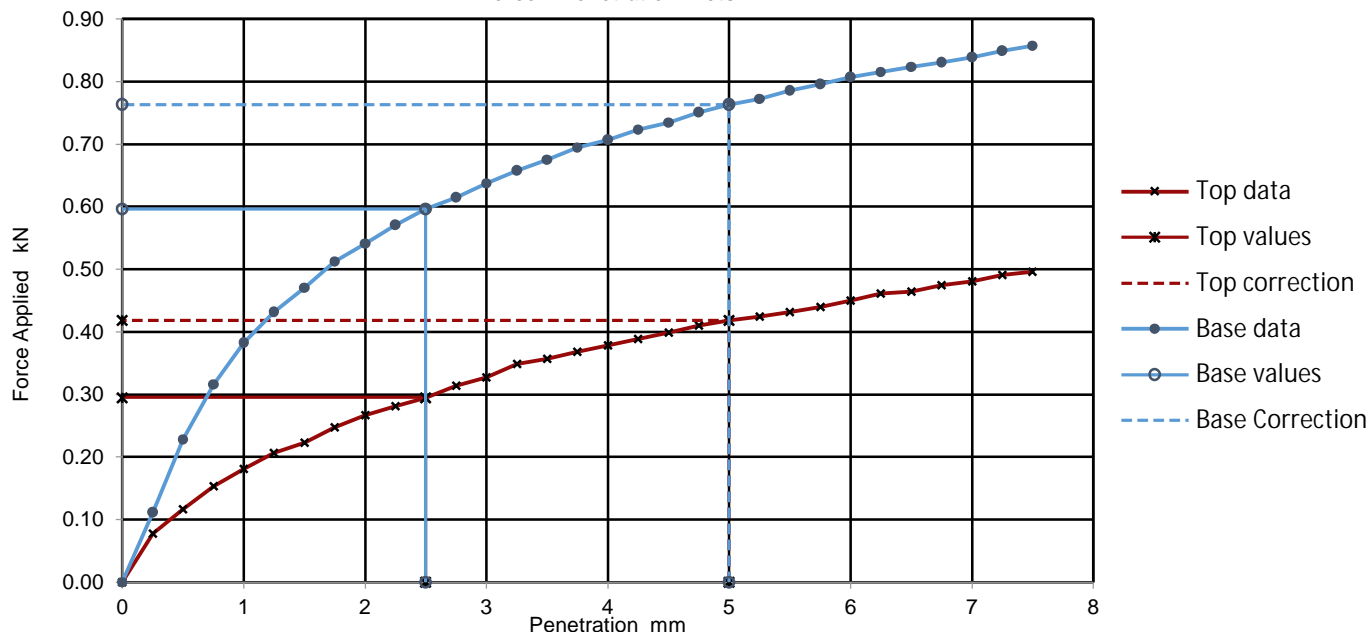
Material Retained on 20mm Sieve Removed	3.9	%
Initial Specimen Details:	Bulk Density	1.97 Mg/m ³
	Dry Density	1.59 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	2.2	2.1	2.2		24.9
BASE	No	4.5	3.8	4.5		24.8

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 ±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		
CBR19		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and chert	

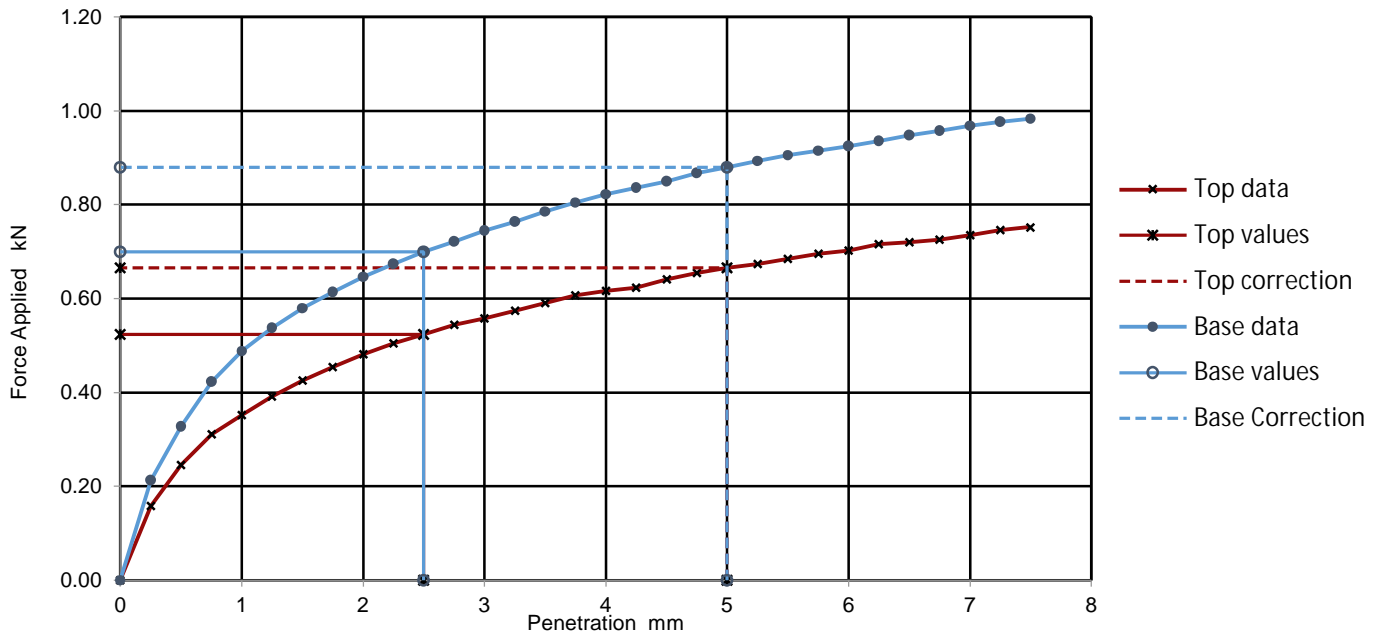
Specimen Preparation

Condition	Remoulded				
Details	Recompacted with specified standard effort using 2.5kg rammer				
Material Retained on 20mm Sieve Removed	0.8	%			
Initial Specimen Details:	Bulk Density	1.99	Mg/m ³		
	Dry Density	1.63	Mg/m ³		
Soaking Details	Soaked				
Period of Soaking	4	days			
Time to Surface		days			
Amount of Swell Recorded		mm			
Initial Water Content	22.1	%			
Surcharge Applied	15	kg			

Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	4.0	3.3	4.0		24.1
BASE	No	5.3	4.4	5.3		23.5

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 ±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		
CBR2		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light brownish grey mottling. Gravel is fine to coarse chalk and 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	%

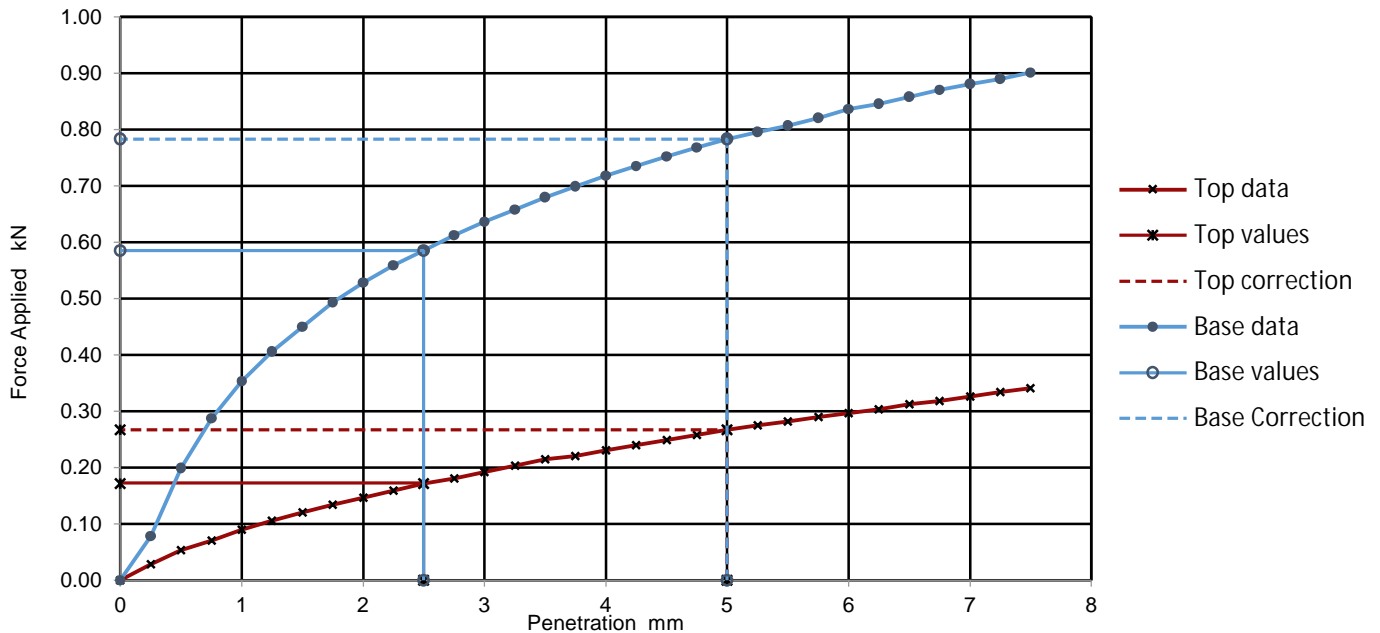
Material Retained on 20mm Sieve Removed	0.7	%
Initial Specimen Details:	Bulk Density	2.03 Mg/m ³
	Dry Density	1.66 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.3	1.3	1.3		24.0
BASE	No	4.4	3.9	4.4		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 ±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		
CBR20		-	-	Olive brown slightly gravelly slightly sandy silty CLAY with occasional orangish brown mottling and rare recently active roots. Gravel is fine to coarse angular to subrounded chalk and 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	23.5	%	

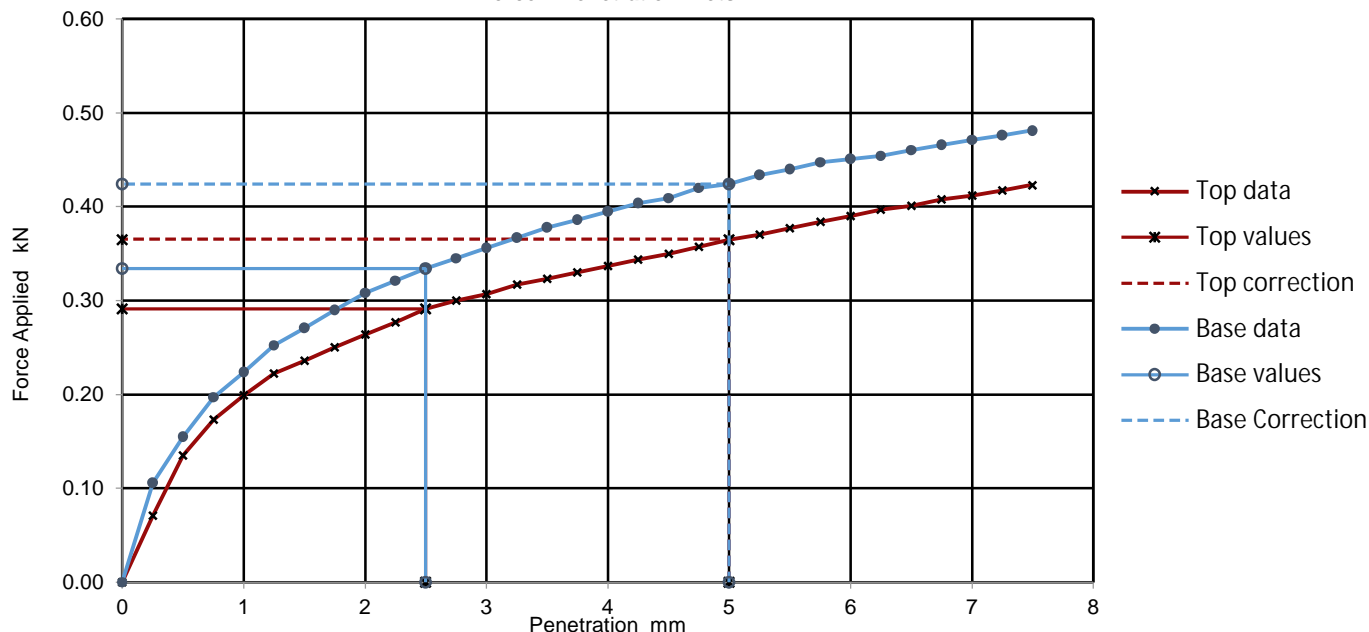
Material Retained on 20mm Sieve Removed	2.7	%
Initial Specimen Details:	Bulk Density	2.01 Mg/m ³
	Dry Density	1.63 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	2.2	1.8	2.2	2.4	23.2
BASE	No	2.5	2.1	2.5		22.5

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 ±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		
CBR3		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with occasional light grey mottling with rare recently active roots. Gravel is fine to coarse chalk and 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	24.1	%

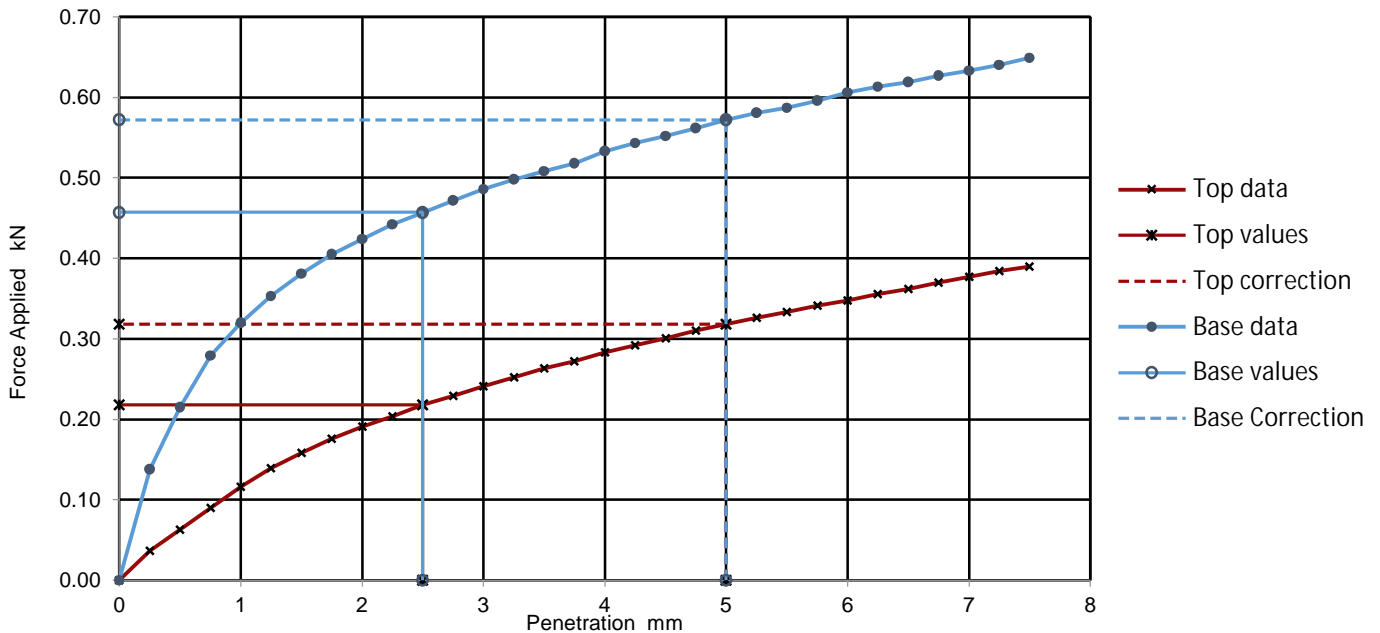
Material Retained on 20mm Sieve Removed	7.2	%
Initial Specimen Details:	Bulk Density	1.98 Mg/m ³
	Dry Density	1.60 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.7	1.6	1.7		24.6
BASE	No	3.5	2.9	3.5		24.0

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 ±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		
CBR4		-	-	Light olive brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse 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	18.6	%

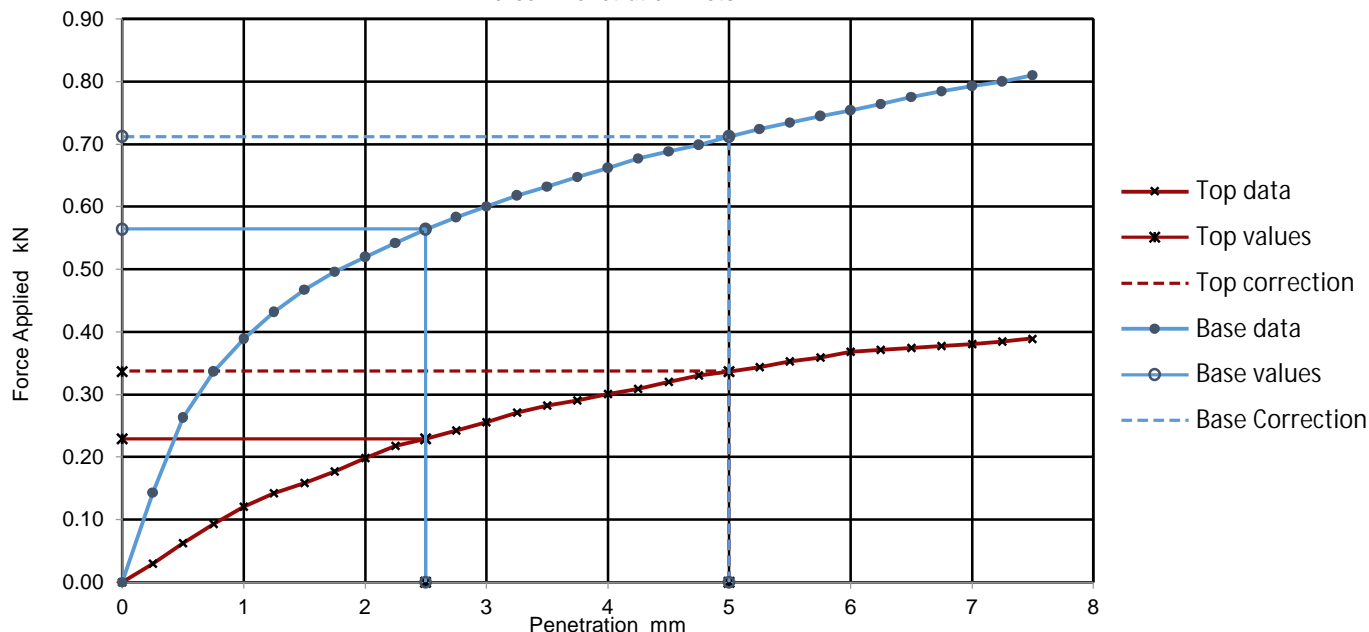
Material Retained on 20mm Sieve Removed	5.7	%
Initial Specimen Details:	Bulk Density	2.04 Mg/m ³
	Dry Density	1.72 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.7	1.7	1.7		21.3
BASE	No	4.3	3.6	4.3		19.9

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 ±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		
CBR5		-	-	Dark greyish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse chalk and 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	%

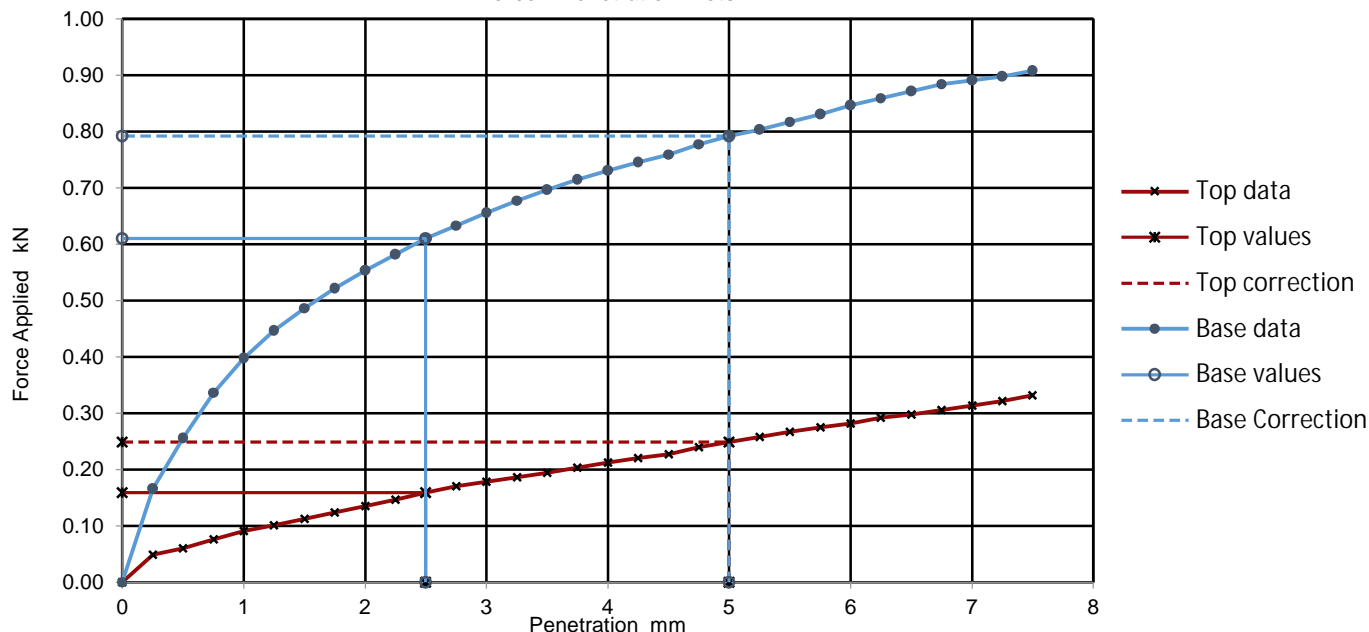
Material Retained on 20mm Sieve Removed	1.4	%
Initial Specimen Details:	Bulk Density	2.03 Mg/m ³
	Dry Density	1.66 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.2	1.2	1.2		24.5
BASE	No	4.6	4.0	4.6		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 ±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		
CBR6		-	-	Dark greyish brown slightly gravelly slightly sandy silty CLAY with occasional light olive brown mottling. Gravel is fine to coarse chalk and 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	21.9	%

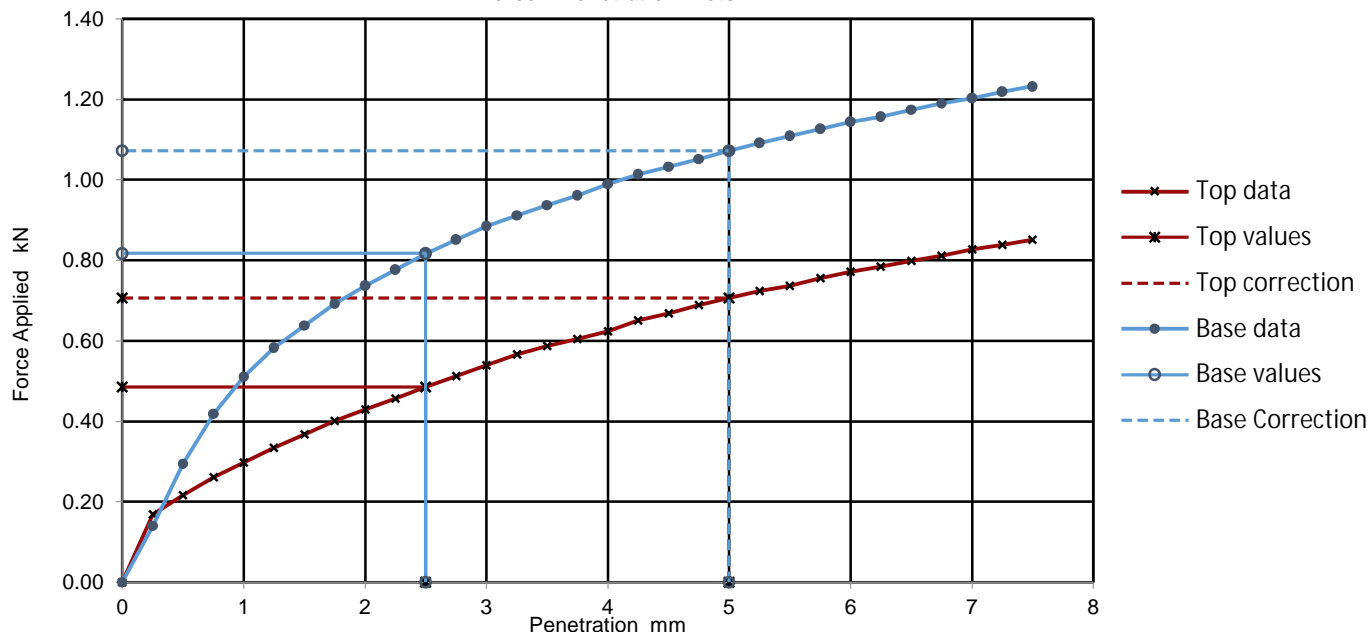
Material Retained on 20mm Sieve Removed	3.0	%
Initial Specimen Details:	Bulk Density	2.03 Mg/m ³
	Dry Density	1.67 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	3.7	3.5	3.7		22.3
BASE	No	6.2	5.4	6.2		21.3

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 ±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		
CBR7		-	-	Mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine to coarse chalk and 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	22.2	%	

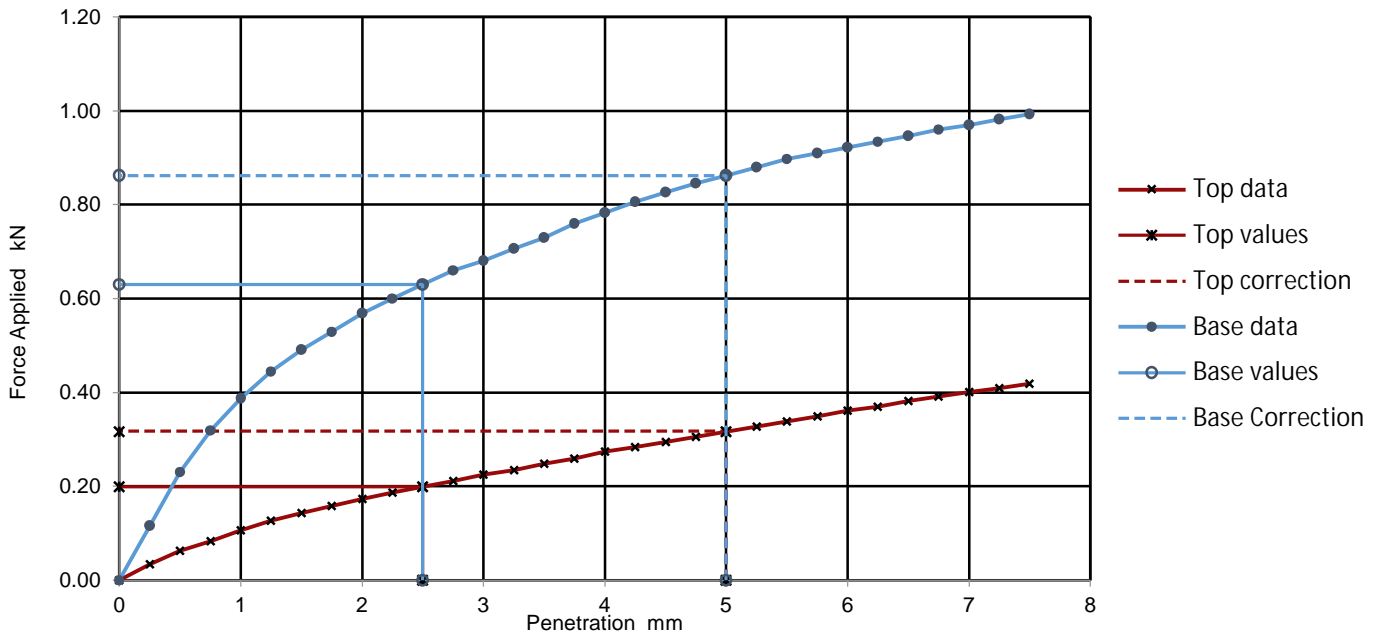
Material Retained on 20mm Sieve Removed	0.7	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.63 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.5	1.6	1.6		24.8
BASE	No	4.8	4.3	4.8		23.0

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 ±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		
CBR8		-	-	Mottled bluish grey and olive slightly gravelly slightly sandy silty CLAY with rare recently active and decayed roots. Gravel is fine to coarse chalk and chert	

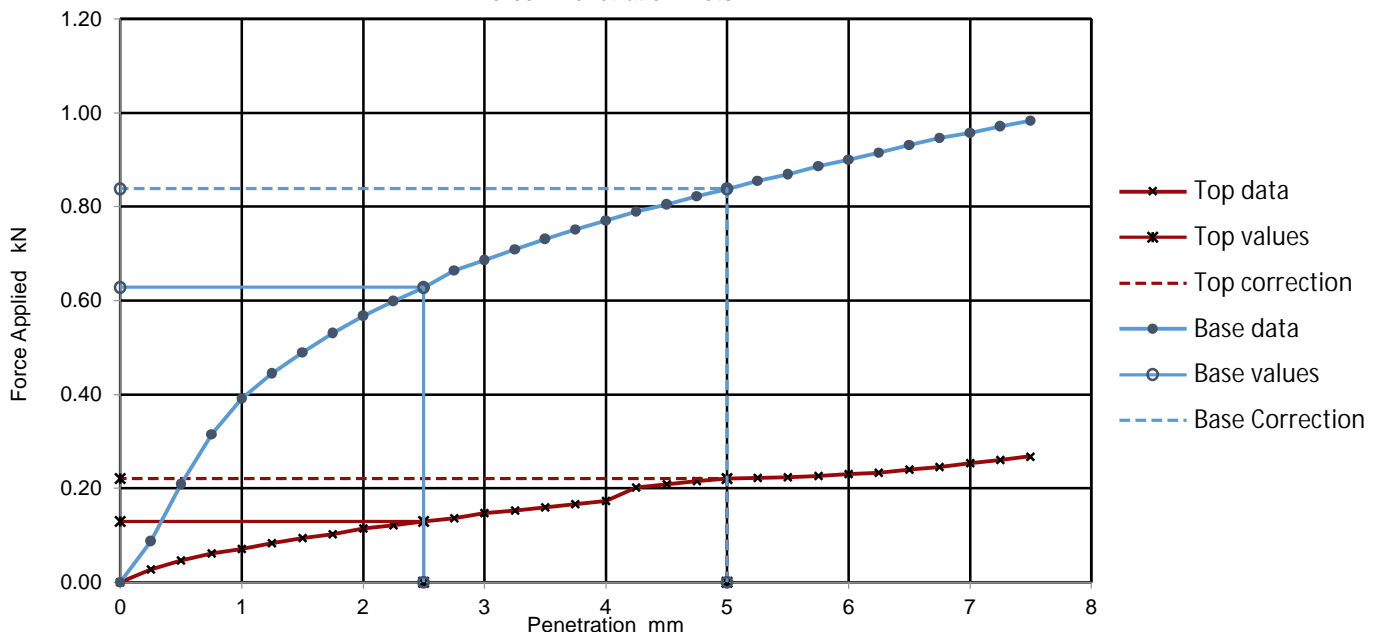
Specimen Preparation

Condition	Remoulded		Soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of Soaking	4	days
		Time to Surface		days
		Amount of Swell Recorded		mm
		Initial Water Content	21.7	%
Material Retained on 20mm Sieve Removed	1.8			%
Initial Specimen Details:	Bulk Density	2.01		Mg/m ³
	Dry Density	1.65		Mg/m ³
Surcharge Applied	15			kg

Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.0	1.1	1.1		
BASE	No	4.8	4.2	4.8		
					24.4	
					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 ±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: 23/12/2021



Contract	Harrisons Lane, Halesworth, Suffolk
Serial No.	39812_1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
CBR9		-	-	Olive slightly gravelly slightly sandy silty CLAY with occasional light grey mottling and recently active and decayed roots. Gravel is fine to coarse angular to subrounded chalk and 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	23.0	%	

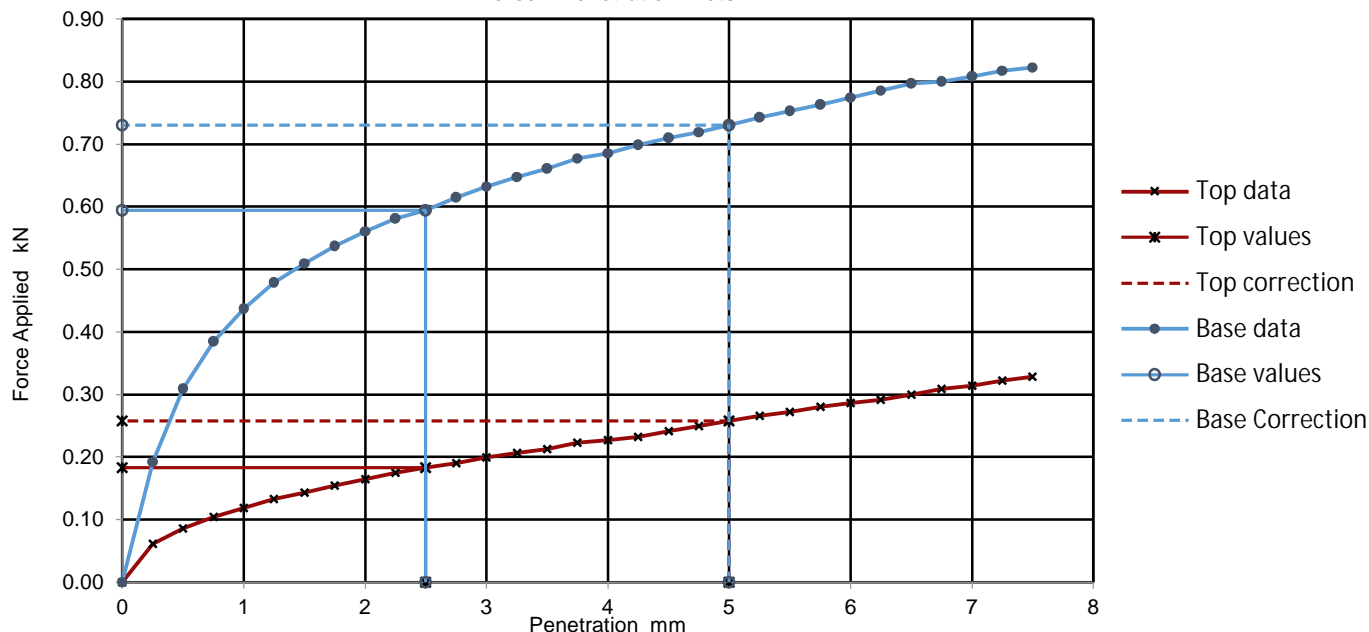
Material Retained on 20mm Sieve Removed	6.5	%
Initial Specimen Details:	Bulk Density	1.99 Mg/m ³
	Dry Density	1.62 Mg/m ³

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

Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	1.4	1.3	1.4		25.5
BASE	No	4.5	3.7	4.5		23.7

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 ±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.

APPENDIX VI
CHEMICAL ANALYSIS REPORTS



Final Report

Report No.: 21-41801-1

Initial Date of Issue: 03-Dec-2021

Client: Brown 2 Green Associates

Client Address: Suite 1, Wenden Court
Station Road
Wendens Ambo
Nr. Saffron Walden
Essex
CB11 4LB

Contact(s): Philip Miles
Radu Mihai Ilie

Project: 2954 Harrisons Lane, Holsworth


Quotation No.: **Date Received:** 26-Nov-2021

Order No.: **Date Instructed:** 29-Nov-2021

No. of Samples: 4

Turnaround (Wkdays): 5 **Results Due:** 03-Dec-2021

Date Approved: 03-Dec-2021

Approved By:


Details: Glynn Harvey, Technical Manager

Bulk Identification Certificate

Client: Brown 2 Green Associates

Site Address:

Date Sampled: 23-Nov-2021

Date Received: 26-Nov-2021

Your Ref.:

Project: 2954 Harrisons Lane, Holsworth

Job Number: 21-41801

No Samples:

Date Reported: 03-Dec-2021

Sample No.	Sample ID	Sample Ref.	Description	Top (m)	Bottom (m)	SOP	Accred.	Laboratory	Material	Result
1329085			ASB1			2185	U	NEW-ASB	Cement Tile	No Asbestos Detected

The in-house procedure SOP2185 is in accordance with the requirements of Appendix 2 of the Analyst Guide (HSG 248).

The results relate only to items tested as supplied by the client.

Comments and interpretations are beyond the scope of UKAS accreditation.

Samples associated with asbestos in building surveys are retained for six months (HSG 264 refers)

Results - Soil

Project: 2954 Harrisons Lane, Holsworth

Client: Brown 2 Green Associates		Chemtest Job No.:			21-41801	21-41801	21-41801
Quotation No.:		Chemtest Sample ID.:			1329082	1329083	1329084
		Sample Location:			WS209	TP202	TP204
		Sample Type:			SOIL	SOIL	SOIL
		Top Depth (m):			0.0	0.0	0.0
		Bottom Depth (m):			0.3	0.3	0.5
		Date Sampled:			24-Nov-2021	24-Nov-2021	24-Nov-2021
		Asbestos Lab:			NEW-ASB		NEW-ASB
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-		-
Asbestos Identification	U	2192		N/A	No Asbestos Detected		No Asbestos Detected
Moisture	N	2030	%	0.020		10	
Soil Colour	N	2040		N/A		Brown	
Other Material	N	2040		N/A		Stones	
Soil Texture	N	2040		N/A		Sand	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		< 1.0	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		< 1.0	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		< 1.0	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		< 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0		< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0		< 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0		< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0		< 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		< 10	

Test Methods

SOP	Title	Parameters included	Method summary
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
2185	Asbestos	Asbestos	Polarised light microscopy
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Dichloromethane extraction / GCxGC FID detection

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



Final Report

Report No.: 21-41799-1

Initial Date of Issue: 04-Dec-2021

Client: Brown 2 Green Associates

Client Address: Suite 1, Wenden Court
Station Road
Wendens Ambo
Nr. Saffron Walden
Essex
CB11 4LB

Contact(s): Philip Miles
Radu Mihai Ilie

Project: 2954 Harrisons Lane, Halesworth

Quotation No.: **Date Received:** 26-Nov-2021

Order No.: **Date Instructed:** 29-Nov-2021

No. of Samples: 5

Turnaround (Wkdays): 5 **Results Due:** 03-Dec-2021

Date Approved: 04-Dec-2021

Approved By:


Details: Glynn Harvey, Technical Manager

Results - Soil

Project: 2954 Harrisons Lane, Halesworth

Client: Brown 2 Green Associates		Chemtest Job No.:		21-41799	21-41799	21-41799	21-41799	21-41799	
Quotation No.:		Chemtest Sample ID.:		1329072	1329073	1329074	1329075	1329076	
		Sample Location:		TP204	TP205	TP206	TP207	TP209	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.8	1.0	0.75	1.0	0.8	
		Bottom Depth (m):		1.0	1.0	0.75	1.2	1.0	
		Date Sampled:		24-Nov-2021	24-Nov-2021	25-Nov-2021	25-Nov-2021	25-Nov-2021	
Determinand	Accred.	SOP	Units	LOD					
Moisture	N	2030	%	0.020	10	11	9.4	8.6	7.9
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand
Arsenic	M	2450	mg/kg	1.0	8.5	11	7.2	2.2	12
Cadmium	M	2450	mg/kg	0.10	0.14	0.17	< 0.10	< 0.10	0.17
Chromium	M	2450	mg/kg	1.0	16	20	25	30	26
Copper	M	2450	mg/kg	0.50	33	17	18	23	36
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	19	25	26	19	31
Lead	M	2450	mg/kg	0.50	11	12	12	19	14
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	0.24	0.26	0.21
Vanadium	U	2450	mg/kg	5.0	23	29	35	39	35
Zinc	M	2450	mg/kg	0.50	25	29	36	38	41
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: 2954 Harrisons Lane, Halesworth

Client: Brown 2 Green Associates		Chemtest Job No.:		21-41799	21-41799	21-41799	21-41799	21-41799
Quotation No.:		Chemtest Sample ID.:		1329072	1329073	1329074	1329075	1329076
		Sample Location:		TP204	TP205	TP206	TP207	TP209
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.8	1.0	0.75	1.0	0.8
		Bottom Depth (m):		1.0	1.0	0.75	1.2	1.0
		Date Sampled:		24-Nov-2021	24-Nov-2021	25-Nov-2021	25-Nov-2021	25-Nov-2021
Determinand	Accred.	SOP	Units	LOD				
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0

Test Methods

SOP	Title	Parameters included	Method summary
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
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44	Dichloromethane extraction / GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS

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



Final Report

Report No.: 21-41800-1

Initial Date of Issue: 07-Dec-2021

Client: Brown 2 Green Associates

Client Address: Suite 1, Wenden Court
Station Road
Wendens Ambo
Nr. Saffron Walden
Essex
CB11 4LB

Contact(s): Philip Miles
Radu Mihai Ilie

Project: 2954 Harrisons Lane, Halesworth

Quotation No.: **Date Received:** 26-Nov-2021

Order No.: **Date Instructed:** 29-Nov-2021

No. of Samples: 5

Turnaround (Wkdays): 7 **Results Due:** 07-Dec-2021

Date Approved: 07-Dec-2021

Approved By:


Details: Glynn Harvey, Technical Manager

Results - 2 Stage WAC

Project: 2954 Harrisons Lane, Halesworth

Chemtest Job No: 21-41800 Chemtest Sample ID: 1329077 Sample Ref: Sample ID: Sample Location: TP204 Top Depth(m): 0.8 Bottom Depth(m): 1.0 Sampling Date: 24-Nov-2021							Landfill Waste Acceptance Criteria Limits			
							Inert Waste Landfill	Stable, Non- reactive hazardous waste in non- hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				0.40	3	5	6
Loss On Ignition	2610	M	%				3.5	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--
pH	2010	M					8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.013	--	To evaluate	To evaluate
Eluate Analysis				2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.5	2	25
Barium	1455	U	0.007	< 0.005	0.013	0.0043	0.0043	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0012	< 0.0005	0.0024	0.0008	0.0008	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0019	0.0015	0.0038	0.016	0.016	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	6.6	< 1.0	13	< 10	< 10	800	15000	25000
Fluoride	1220	U	1.2	1.8	2.4	18	18	10	150	500
Sulphate	1220	U	31	< 1.0	62	20	20	1000	20000	50000
Total Dissolved Solids	1020	N	160	39	310	470	470	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	6.8	4.0	< 50	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	2.8

Leachate Test Information	
Leachant volume 1st extract/l	0.345
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.112

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: 2954 Harrisons Lane, Halesworth

Chemtest Job No: 21-41800 Chemtest Sample ID: 1329078 Sample Ref: Sample ID: Sample Location: TP205 Top Depth(m): 1.0 Bottom Depth(m): 1.0 Sampling Date: 24-Nov-2021										Landfill Waste Acceptance Criteria Limits		
								Inert Waste Landfill	Stable, Non- reactive hazardous waste in non- hazardous Landfill	Hazardous Waste Landfill		
Determinand	SOP	Accred.	Units									
Total Organic Carbon	2625	M	%				0.50	3	5	6		
Loss On Ignition	2610	M	%				4.4	--	--	10		
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--		
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--		
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--		
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--		
pH	2010	M					8.5	--	>6	--		
Acid Neutralisation Capacity	2015	N	mol/kg				0.020	--	To evaluate	To evaluate		
Eluate Analysis				2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg				
Arsenic	1455	U	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.5	2	25		
Barium	1455	U	0.006	< 0.005	0.011	0.0036	0.0036	20	100	300		
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5		
Chromium	1455	U	0.0006	< 0.0005	0.0012	< 0.0005	< 0.0005	0.5	10	70		
Copper	1455	U	0.0014	< 0.0005	0.0027	0.0009	0.0009	2	50	100		
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2		
Molybdenum	1455	U	0.0026	0.0014	0.0051	0.014	0.014	0.5	10	30		
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40		
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50		
Antimony	1455	U	0.0006	< 0.0005	0.0012	< 0.0005	< 0.0005	0.06	0.7	5		
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7		
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200		
Chloride	1220	U	1.9	< 1.0	< 10	< 10	< 10	800	15000	25000		
Fluoride	1220	U	1.1	0.18	2.2	2.4	2.4	10	150	500		
Sulphate	1220	U	20	< 1.0	40	13	13	1000	20000	50000		
Total Dissolved Solids	1020	N	140	40	290	460	460	4000	60000	100000		
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	< 0.50	1	-	-		
Dissolved Organic Carbon	1610	U	5.8	3.9	< 50	< 50	< 50	500	800	1000		

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	8.4

Leachate Test Information	
Leachant volume 1st extract/l	0.334
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.112

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: 2954 Harrisons Lane, Halesworth

Chemtest Job No: 21-41800 Chemtest Sample ID: 1329079 Sample Ref: Sample ID: Sample Location: TP206 Top Depth(m): 0.75 Bottom Depth(m): 0.75 Sampling Date: 24-Nov-2021				Landfill Waste Acceptance Criteria Limits					
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill			
Determinand	SOP	Accred.	Units						
Total Organic Carbon	2625	M	%		0.60	3	5	6	
Loss On Ignition	2610	M	%		5.0	--	--	10	
Total BTEX	2760	M	mg/kg		< 0.010	6	--	--	
Total PCBs (7 Congeners)	2815	M	mg/kg		< 0.10	1	--	--	
TPH Total WAC	2670	M	mg/kg		< 10	500	--	--	
Total (Of 17) PAH's	2700	N	mg/kg		< 2.0	100	--	--	
pH	2010	M			8.5	--	>6	--	
Acid Neutralisation Capacity	2015	N	mol/kg		0.020	--	To evaluate	To evaluate	
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0005	0.0010	0.0009	0.0095	0.5	2	25
Barium	1455	U	0.006	< 0.005	0.011	0.0036	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0038	0.0015	0.0076	0.0024	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0042	0.0009	0.0083	0.011	0.5	10	30
Nickel	1455	U	0.0008	0.0006	0.0017	0.0065	0.4	10	40
Lead	1455	U	< 0.0005	0.0007	< 0.0005	0.0069	0.5	10	50
Antimony	1455	U	0.0007	< 0.0005	0.0014	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	2.1	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.34	0.12	< 1.0	1.3	10	150	500
Sulphate	1220	U	11	< 1.0	22	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	130	38	260	440	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	11	7.8	< 50	80	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	9.3

Leachate Test Information	
Leachant volume 1st extract/l	0.332
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.112

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: 2954 Harrisons Lane, Halesworth

Chemtest Job No: 21-41800 Chemtest Sample ID: 1329080 Sample Ref: Sample ID: Sample Location: TP207 Top Depth(m): 1.0 Bottom Depth(m): 1.2 Sampling Date: 24-Nov-2021							Landfill Waste Acceptance Criteria Limits			
							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				< 0.20	3	5	6
Loss On Ignition	2610	M	%				1.2	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--
pH	2010	M					8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.029	--	To evaluate	To evaluate
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0004	0.0003	0.0008	0.0028	0.5	2	25	
Barium	1455	U	< 0.005	< 0.005	< 0.0005	< 0.0005	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70	
Copper	1455	U	0.0020	0.0006	0.0039	0.0012	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.0006	< 0.0002	0.0011	0.0004	0.5	10	30	
Nickel	1455	U	0.0006	< 0.0005	0.0012	< 0.0005	0.4	10	40	
Lead	1455	U	0.0018	0.0012	0.0037	0.012	0.5	10	50	
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5	
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7	
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200	
Chloride	1220	U	< 1.0	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.42	0.14	< 1.0	1.6	10	150	500	
Sulphate	1220	U	< 1.0	< 1.0	< 10	< 10	1000	20000	50000	
Total Dissolved Solids	1020	N	53	12	110	140	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	6.3	3.4	< 50	< 50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	9.0

Leachate Test Information	
Leachant volume 1st extract/l	0.333
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.112

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: 2954 Harrisons Lane, Halesworth

Chemtest Job No: 21-41800 Chemtest Sample ID: 1329081 Sample Ref: Sample ID: Sample Location: TP209 Top Depth(m): 0.8 Bottom Depth(m): 1.0 Sampling Date: 24-Nov-2021										Landfill Waste Acceptance Criteria Limits		
								Inert Waste Landfill	Stable, Non- reactive hazardous waste in non- hazardous Landfill	Hazardous Waste Landfill		
Determinand	SOP	Accred.	Units									
Total Organic Carbon	2625	M	%				0.50	3	5	6		
Loss On Ignition	2610	M	%				2.3	--	--	10		
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--		
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--		
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--		
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--		
pH	2010	M					8.3	--	>6	--		
Acid Neutralisation Capacity	2015	N	mol/kg				0.021	--	To evaluate	To evaluate		
Eluate Analysis				2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg				
Arsenic	1455	U	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.5	2	25		
Barium	1455	U	0.008	< 0.005	0.016	0.0053	0.0053	20	100	300		
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5		
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70		
Copper	1455	U	0.0011	< 0.0005	0.0021	0.0007	0.0007	2	50	100		
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2		
Molybdenum	1455	U	0.0031	0.0012	0.0061	0.013	0.013	0.5	10	30		
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40		
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50		
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5		
Selenium	1455	U	0.0018	< 0.0005	0.0035	0.0011	0.0011	0.1	0.5	7		
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200		
Chloride	1220	U	13	< 1.0	26	< 10	< 10	800	15000	25000		
Fluoride	1220	U	1.2	0.15	2.4	2.2	2.2	10	150	500		
Sulphate	1220	U	70	1.4	140	58	58	1000	20000	50000		
Total Dissolved Solids	1020	N	210	42	410	520	520	4000	60000	100000		
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	< 0.50	1	-	-		
Dissolved Organic Carbon	1610	U	5.9	3.8	< 50	< 50	< 50	500	800	1000		

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	12

Leachate Test Information	
Leachant volume 1st extract/l	0.326
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.112

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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 VII
GAS MONITORING RESULTS

Date: 30th November 2021

Weather Conditions: Overcast	Temperature (°C): 11
Ground Conditions: Damp	Atmospheric Pressure: Static

Monitoring Well – WS201

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.6	0.0006	18.9
1:00	0.0	0.0	0.6	0.0006	18.8
1:30	0.0	0.0	0.6	0.0006	18.7
2:00	0.0	0.0	0.6	0.0006	18.6
3:00	0.0	0.0	0.6	0.0006	18.5
4:00	0.0	0.0	0.7	0.0007	18.5
5:00	0.0	0.0	0.7	0.0007	18.5

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1002	
Depth to Ground-water (mbgl): 4.32	Differential Pressure (Pa): 0	

Monitoring Well – WS204

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.9	0.0009	17.9
1:00	0.0	0.0	0.9	0.0009	17.8
1:30	0.0	0.0	0.9	0.0009	17.7
2:00	0.0	0.0	0.9	0.0009	17.7
3:00	0.0	0.0	0.9	0.0009	17.7
4:00	0.0	0.0	0.9	0.0009	17.7
5:00	0.0	0.0	0.9	0.0009	17.6

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1002	
Depth to Ground-water (mbgl): Dry	Differential Pressure (Pa): 0	

Monitoring Well – WS205

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.7
1:00	0.0	0.0	0.0	0.0	19.8
1:30	0.0	0.0	0.0	0.0	19.9
2:00	0.0	0.0	0.0	0.0	19.9
3:00	0.0	0.0	0.0	0.0	20.0
4:00	0.0	0.0	0.0	0.0	20.0
5:00	0.0	0.0	0.0	0.0	20.0

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1002	
Depth to Ground-water (mbgl): 2.72	Differential Pressure (Pa): 0	

Monitoring Well – WS207

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.9	0.0009	18.3
1:00	0.0	0.0	0.9	0.0009	18.2
1:30	0.0	0.0	0.9	0.0009	18.1
2:00	0.0	0.0	0.9	0.0009	18.1
3:00	0.0	0.0	0.9	0.0009	18.1
4:00	0.0	0.0	1.0	0.0010	18.0
5:00	0.0	0.0	1.0	0.0010	18.0

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1002	
Depth to Ground-water (mbgl): Dry	Differential Pressure (Pa): 0	

Monitoring Well – WS209

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.4	0.0004	19.9
1:00	0.0	0.0	0.1	0.0001	19.9
1:30	0.0	0.0	0.0	0.0	20.0
2:00	0.0	0.0	0.0	0.0	20.0
3:00	0.0	0.0	0.0	0.0	20.0
4:00	0.0	0.0	0.0	0.0	20.0
5:00	0.0	0.0	0.0	0.0	20.0

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1002	
Depth to Ground-water (mbgl): 2.59	Differential Pressure (Pa): 0	

Monitoring Well – WS211

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	1.9	0.0019	19.4
1:00	0.0	0.0	4.4	0.0044	18.5
1:30	0.0	0.0	5.1	0.0051	17.9
2:00	0.0	0.0	5.2	0.0052	17.8
3:00	0.0	0.0	5.3	0.0053	17.8
4:00	0.0	0.0	5.3	0.0053	17.8
5:00	0.0	0.0	5.2	0.0052	17.8

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1002	
Depth to Ground-water (mbgl): 1.58	Differential Pressure (Pa): 0	

Date: 9th December 2021

Weather Conditions: Overcast	Temperature (°C): 6
Ground Conditions: Damp	Atmospheric Pressure: Rising

Monitoring Well – WS201

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.6
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.5
2:00	0.0	0.0	0.0	0.0	19.5
3:00	0.0	0.0	0.0	0.0	19.5
4:00	0.0	0.0	0.0	0.0	19.5
5:00	0.0	0.0	0.0	0.0	19.5

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 993	
Depth to Ground-water (mbgl): 4.31	Differential Pressure (Pa): 0	

Monitoring Well – WS204

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.5
1:00	0.0	0.0	0.0	0.0	19.5
1:30	0.0	0.0	0.0	0.0	19.4
2:00	0.0	0.0	0.0	0.0	19.4
3:00	0.0	0.0	0.0	0.0	19.4
4:00	0.0	0.0	0.0	0.0	19.4
5:00	0.0	0.0	0.0	0.0	19.4

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 993	
Depth to Ground-water (mbgl): 2.73	Differential Pressure (Pa): 0	

Monitoring Well – WS205

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.6
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.6
2:00	0.0	0.0	0.0	0.0	19.6
3:00	0.0	0.0	0.0	0.0	19.6
4:00	0.0	0.0	0.0	0.0	19.5
5:00	0.0	0.0	0.0	0.0	19.5

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 993	
Depth to Ground-water (mbgl): 3.36	Differential Pressure (Pa): 0	

Monitoring Well – WS207

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.3
1:00	0.0	0.0	0.0	0.0	19.3
1:30	0.0	0.0	0.0	0.0	19.3
2:00	0.0	0.0	0.0	0.0	19.3
3:00	0.0	0.0	0.0	0.0	19.2
4:00	0.0	0.0	0.0	0.0	19.2
5:00	0.0	0.0	0.0	0.0	19.2

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 993	
Depth to Ground-water (mbgl): Dry	Differential Pressure (Pa): 0	

Monitoring Well – WS209

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.2
1:00	0.0	0.0	0.0	0.0	19.2
1:30	0.0	0.0	0.0	0.0	19.2
2:00	0.0	0.0	0.0	0.0	19.2
3:00	0.0	0.0	0.0	0.0	19.2
4:00	0.0	0.0	0.0	0.0	19.2
5:00	0.0	0.0	0.0	0.0	19.2

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 993	
Depth to Ground-water (mbgl): 2.37	Differential Pressure (Pa): 0	

Monitoring Well – WS211

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.0
1:00	0.0	0.0	0.0	0.0	19.0
1:30	0.0	0.0	0.0	0.0	19.0
2:00	0.0	0.0	0.0	0.0	19.0
3:00	0.0	0.0	0.0	0.0	19.0
4:00	0.0	0.0	0.0	0.0	19.0
5:00	0.0	0.0	0.0	0.0	19.0

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 993	
Depth to Ground-water (mbgl): 0.2	Differential Pressure (Pa): 0	

Date: 15th December 2021

Weather Conditions: Sunny	Temperature (°C): 5
Ground Conditions: Damp	Atmospheric Pressure: Rising

Monitoring Well – WS201

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.8
1:00	0.0	0.0	0.0	0.0	19.8
1:30	0.0	0.0	0.0	0.0	19.8
2:00	0.0	0.0	0.0	0.0	19.8
3:00	0.0	0.0	0.0	0.0	19.7
4:00	0.0	0.0	0.0	0.0	19.7
5:00	0.0	0.0	0.0	0.0	19.7

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1022	
Depth to Ground-water (mbgl): 4.30	Differential Pressure (Pa): 0	

Monitoring Well – WS204

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.9
1:00	0.0	0.0	0.0	0.0	19.9
1:30	0.0	0.0	0.0	0.0	19.8
2:00	0.0	0.0	0.0	0.0	19.8
3:00	0.0	0.0	0.0	0.0	19.8
4:00	0.0	0.0	0.0	0.0	19.8
5:00	0.0	0.0	0.0	0.0	19.8

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1022	
Depth to Ground-water (mbgl): 2.69	Differential Pressure (Pa): 0	

Monitoring Well – WS205

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.7
1:00	0.0	0.0	0.0	0.0	19.7
1:30	0.0	0.0	0.0	0.0	19.7
2:00	0.0	0.0	0.0	0.0	19.7
3:00	0.0	0.0	0.0	0.0	19.7
4:00	0.0	0.0	0.0	0.0	19.7
5:00	0.0	0.0	0.0	0.0	19.7

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1022	
Depth to Ground-water (mbgl): 2.54	Differential Pressure (Pa): 0	

Monitoring Well – WS207

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.9
1:00	0.0	0.0	0.0	0.0	20.0
1:30	0.0	0.0	0.0	0.0	19.9
2:00	0.0	0.0	0.0	0.0	19.9
3:00	0.0	0.0	0.0	0.0	19.8
4:00	0.0	0.0	0.0	0.0	19.8
5:00	0.0	0.0	0.0	0.0	19.8

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1020	
Depth to Ground-water (mbgl): Dry	Differential Pressure (Pa): 0	

Monitoring Well – WS209

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.7
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.6
2:00	0.0	0.0	0.0	0.0	19.6
3:00	0.0	0.0	0.0	0.0	19.6
4:00	0.0	0.0	0.0	0.0	19.6
5:00	0.0	0.0	0.0	0.0	19.6

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1021	
Depth to Ground-water (mbgl): 2.25	Differential Pressure (Pa): 0	

Monitoring Well – WS211

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.5
1:00	0.0	0.0	0.0	0.0	18.5
1:30	0.0	0.0	0.0	0.0	17.9
2:00	0.0	0.0	0.0	0.0	17.8
3:00	0.0	0.0	0.0	0.0	17.8
4:00	0.0	0.0	0.0	0.0	17.8
5:00	0.0	0.0	0.0	0.0	17.8

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1022	
Depth to Ground-water (mbgl): 0.1	Differential Pressure (Pa): 0	

Date: 23rd December 2021

Weather Conditions: Overcast	Temperature (°C): 8
Ground Conditions: Damp	Atmospheric Pressure: Falling

Monitoring Well – WS201

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.5
1:00	0.0	0.0	0.0	0.0	19.5
1:30	0.0	0.0	0.0	0.0	19.4
2:00	0.0	0.0	0.0	0.0	19.4
3:00	0.0	0.0	0.0	0.0	19.4
4:00	0.0	0.0	0.0	0.0	19.4
5:00	0.0	0.0	0.0	0.0	19.4

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1001	
Depth to Ground-water (mbgl): 4.13	Differential Pressure (Pa): 0	

Monitoring Well – WS204

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.7
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.6
2:00	0.0	0.0	0.0	0.0	19.6
3:00	0.0	0.0	0.0	0.0	19.6
4:00	0.0	0.0	0.0	0.0	19.6
5:00	0.0	0.0	0.0	0.0	19.6

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1000	
Depth to Ground-water (mbgl): 2.61	Differential Pressure (Pa): 0	

Monitoring Well – WS205

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.6
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.6
2:00	0.0	0.0	0.0	0.0	19.6
3:00	0.0	0.0	0.0	0.0	19.6
4:00	0.0	0.0	0.0	0.0	19.6
5:00	0.0	0.0	0.0	0.0	19.6

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1000	
Depth to Ground-water (mbgl): 1.83	Differential Pressure (Pa): 0	

Monitoring Well – WS207

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.6
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.6
2:00	0.0	0.0	0.0	0.0	19.6
3:00	0.0	0.0	0.0	0.0	19.5
4:00	0.0	0.0	0.0	0.0	19.5
5:00	0.0	0.0	0.0	0.0	19.5

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1000	
Depth to Ground-water (mbgl): Dry	Differential Pressure (Pa): 0	

Monitoring Well – WS209

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.6
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.6
2:00	0.0	0.0	0.0	0.0	19.6
3:00	0.0	0.0	0.0	0.0	19.5
4:00	0.0	0.0	0.0	0.0	19.5
5:00	0.0	0.0	0.0	0.0	19.5

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1000	
Depth to Ground-water (mbgl): 2.03	Differential Pressure (Pa): 0	

Monitoring Well – WS211

Time (Mins: Sec)	Methane %v/v	Methane GSV (l/hr)	Carbon Dioxide %v/v	Carbon Dioxide GSV (l/hr)	Oxygen % v/v
0:30	0.0	0.0	0.0	0.0	19.6
1:00	0.0	0.0	0.0	0.0	19.6
1:30	0.0	0.0	0.0	0.0	19.6
2:00	0.0	0.0	0.0	0.0	19.6
3:00	0.0	0.0	0.0	0.0	19.5
4:00	0.0	0.0	0.0	0.0	19.5
5:00	0.0	0.0	0.0	0.0	19.5

H ₂ S (ppm): 0	CO (ppm): 0	VOC by PID (ppm): 0.0
Flow (l/hr): <0.1	Atmospheric Pressure (mbar): 1000	
Depth to Ground-water (mbgl): 0.21	Differential Pressure (Pa): 0	

APPENDIX VIII
ASBESTOS RISK ASSESSMENT

Decision Support Tool for Receptor Risk Ranking

Stage 1		Score
Hazard Identification		
Select ACM type (run model for each type to generate 'Worst Case' output)	Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	0
Extent of degradation of ACMs	Intact (Very good condition ACM/ACM fragments)	1
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Asbestos fibre type	Mainly chrysotile and trace amphibole (no crocidolite)	1
Sub-total		3
Hazard ranking		Very Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		Score
Emission Factors		
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Trace quantities - <0.0001 to <0.001 %wt/wt	0
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Very low	1
Activity type and effect on deterioration of ACMs	Moderate disturbance, slight deterioration expected	3
Best description of primary host material matrix	Fine Silt and/or Clay	1
Sub-total		5
Exposure ranking		Low

Stage 3		Score
Pathway and Receptor Sensitivity		
Receptor category	Residential	No score required
Age of Receptor	Infant (under 5)	4
Duration of exposure/site occupancy	> 1hr <10 hr daily exposure (e.g. part-time to full time occupational exposure or extended daily recreational exposure)	3
Receptor ranking		7 High
Combined hazard, exposure and receptor ranking		Low
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D
Pathway ranking		4D Medium
Overall ranking		Low



Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	Proect Number 2954
Site Name	Harrisons Lane, Halesworth
Client	
Run by	PDM
Date	05-Jan-22
Reviewed by	PMI
Characterisation of scenario being evaluated	damage during construction work. Minor release of fibres
Interpretation of scenario ranking by DST	



Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	2954
Site Name	Harrison Lane, Halesworth
Client	
Run by	PDM
Date	05-Jan-22
Scenario details	Construction works

Decision Support Tool for CAR2012 Work Categories

Stage 1
Hazard Factors

	Score
Select ACM type (run model for each type to generate 'Worst Case' output)	
Extent of degradation of ACMs at outset of work	
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	
Distribution of Visible Asbestos Across Affected Area	
Amount of asbestos fibre in selected ACM/fibre type as % of host material	
Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	1
Intact (Very good condition ACM/ACM fragments)	1
Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Sporadic/random occurrences of visible contamination by ACMs	2
Very Low quantities - <0.001 to 0.01 %wt/wt	1
Sub-total	5

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking: **Very low**

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool. It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		Score
Exposure Factors		
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.001 fibres/ml	0
Anticipated duration of exposure to asbestos	> 2 hours in a 7 day period and Up to 10 hours in a day (e.g. full time occupational exposure)	4
Activity type and effect on deterioration of ACMs during work	Sampling, manual or mechanical (significant deterioration expected)	2
Best description of primary host material matrix (soil/made ground)	Fine Silt and/or Clay	1
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Very low	1
Sub-total		8
Exposure ranking		Low
Combined hazard and exposure ranking	13	Low

Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.

**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)

***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

APPENDIX IX
REMEDIATION METHOD STATEMENT

REMEDIATION METHOD STATEMENT (VERSION 2)

HARRISON'S LANE, HALESWORTH

Background

Brown 2 Green Associates Ltd has prepared a Remediation Method Statement for the development of land south of Harrison's Lane, Halesworth to residential.

A contamination assessment and risk assessment has been prepared for the site. The findings are presented in the following reports:

Land Off Harrisons Lane, Halesworth – Phase 1 Contaminated Land Assessment, report prepared by Create Consulting Engineers Ltd; dated September 2017; Ref: CB/CS/P17-1228/02; and

Ground Investigation Land Off Harrisons Lane, Halesworth, prepared by ASL; dated August 2019; Ref 450-18-087-10.

Geo-environmental and Geotechnical Site Investigation Report: Town Farm, Harrisons Lane, Halesworth, Suffolk; dated January 2022; Report Reference: 2954 Rpt 1 v1.

The investigation identified fragments of cement based product that contained asbestos across the ground surface of land at the southern end of the site that contains some derelict poultry houses. A requirement for remediation was identified to mitigate the risk from the asbestos. This report presents the remediation strategy to be adopted at the site.

Pre-remediation Conceptual Model

<i>Source</i>	<i>Potential migration pathway</i>	<i>Potential Receptors</i>
Fragments of cement sheeting that contain asbestos	Inhalation of fibres	Residents and construction workers

Remediation Objectives

The objectives of the remediation are to:

Break the pollutant linkages that were identified as being active during the site investigation works.

Render the site suitable for the intended end use as a residential development with private gardens.

Render the site incapable of determination as contaminated land under Part 2A

Remediation Actions

To achieve the objectives the remediation strategy will consist of:

Removal of the cement-based asbestos containing product.

As part of the demolition of the poultry sheds, the fragments of cement-based product that contain asbestos (ACM) will be removed. Due to the limited extent and as the materials are cross the ground surface, the most suitable methodology will be hand picking to collect up the ACM. It is recommended that this should be undertaken, as part of the demolition of the poultry buildings.

Verification

The following verification should be undertaken:

Following the completion of the demolition, a detailed inspection of the area will be undertaken to provide confirmation that all materials that contain asbestos have been removed. Should any fragments of ACM be identified further had picking will be undertaken.

The following verification criteria will be adopted.

No fragments of ACM identified.

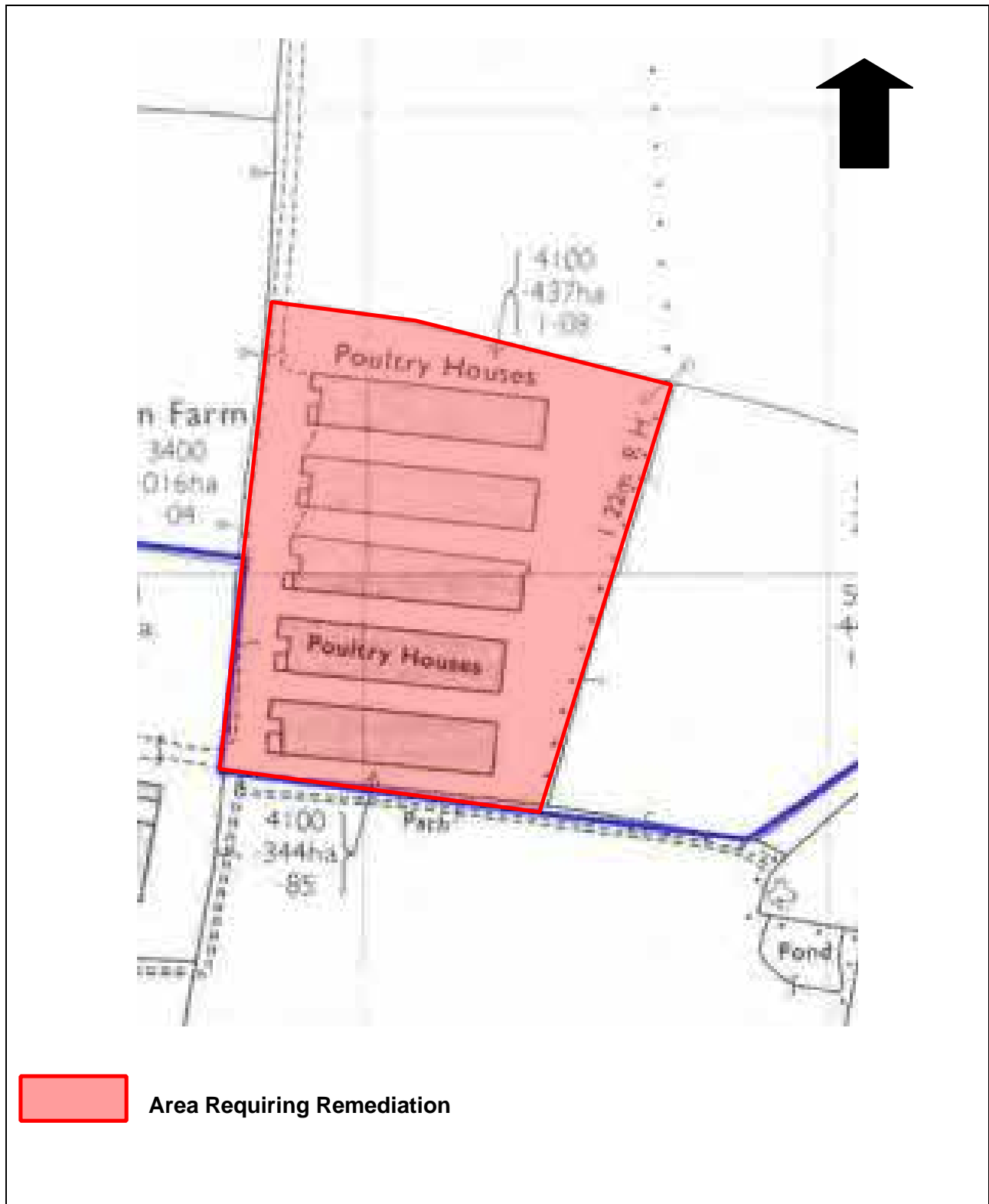
Reporting

On completion of the remediation a validation report will be prepared. The validation report will present the following information:

Site observations and photographs.

Unforeseen Contamination

During the construction works, should any evidence of unforeseen contamination be identified, contact should be made with a suitable qualified Geo-environmental Consultant. If required, additional investigation should be completed and contact made with the Contaminated Land Officer at the local council.



 Area Requiring Remediation

<p>Project Number: 2954</p>	<p>Project: Harrisons Lane, Halesworth</p>	<p>Scale: NTS</p>
<p>Figure A1</p>	<p>Extent of Area Requiring Remediation</p>	