



Surface Water Drainage Strategy

One Horton Heath

Primary School, Sports Facilities &
Allotments

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(One Horton Heath Team)

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Surface Water Drainage Strategy

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Surface Water Drainage Strategy

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1 Introduction

- 1.1.1 Stantec UK (“Stantec”) has been appointed by Eastleigh Borough Council (One Horton Heath Team) to prepare a Surface Water Drainage Strategy to support a Reserved Matters Application (RMA) for the primary school development at One Horton Heath.
- 1.1.2 This report has been prepared in accordance with the following documents:
- Outline Planning Permission (LPA ref no. O/20/89498) granted in October 2025.
 - Outline application Flood Risk Assessment (ref: G277-DOC FRA)
 - One Horton Heath Primary School, Flood Risk Assessment (FRA), (ref: 304871-SWH-ZZ-01-DR-RP-0001), March 2026.
 - Eastleigh Borough Council Policy DM10: Water and Wastewater (see others in FRA report)
 - One Horton Heath, Utilities and Foul Water Statement Report (ref: 26114-RP-IE-002)
 - Hampshire County Council Level 1 Strategic Flood Risk Assessment (SFRA), 2024
 - National Standards for Sustainable Drainage Systems, updated July 2025, Defra.
 - National Planning Policy Framework (NPPF), revised December 2024 and updated February 2025.
 - National Planning Practice Guidance (NPPG), Flood Risk and Coastal Change, updated September 2025.
 - Flood Risk Assessments: Climate Change Allowances - Environment Agency, May 2022.



2 Development Proposals

- 2.1.1 One Horton Heath (OHH) is a comprehensive redevelopment scheme to the west of Horton Heath which will provide new retail, employment, residential, senior living, a new primary school, and a new local centre, amongst other new uses on land which is currently undeveloped. Outline planning permission for OHH was granted on 27 October 2025 under application reference O/20/89498.
- 2.1.2 A series of Reserved Matters submissions are being made to Eastleigh Borough Council for the detailed design of the development phases that were approved as part of the aforementioned outline planning permission.
- 2.1.3 This Reserved Matters submission principally comprises of the detailed design of the 3FE Primary School and the adjoining sports facilities, together with the following:
 - Associated green infrastructure;
 - Allotments, ecological, landscape and sustainable drainage works;
 - Key infrastructure and utilities, including the provision of vehicular and pedestrian access, footpaths, and cycle paths.
- 2.1.4 The Primary School development site is 5.9ha in size and situated on land to the west of Burnetts Lane, Eastleigh, SO30 2HH, which is part of the One Horton Heath major mixed-use development.



Figure 1 - Site Location Plan

Surface Water Drainage Strategy

- 2.1.5 In accordance with Condition No. 4 of the outline planning permission, this report considers those conditions that are relevant to the 3FE Primary School and adjoining sports facilities and seeks to address the requirements of Condition 61 SuDS. This condition requires details of the surface water drainage scheme including SuDS, in accordance with the outline planning Flood Risk Assessment (ref: G277-DOC FRA) and addendum (ref: G277-FN14-FRA ADDENDUM), to be submitted and approved prior to commencement of the drainage system.
- 2.1.6 The school site Flood Risk Assessment (ref: 304871-SWH-ZZ-01-DR-RP-0001) has been prepared by Scott White and Hookins to discharge condition 58 Flood Mitigation and confirms the site is not at risk of fluvial flooding.
- 2.1.7 Condition 59 Foul Drainage requires detail of the means of foul drainage to be submitted and approved prior to commencement of the drainage system. The proposed foul water drainage layout for the Primary School site follows the strategy set out in the Utilities and Foul Water Statement (report ref: 26114-RP-IE-002) from the outline planning stage. The foul sewer layouts are designed to adoptable standards and discharge to the proposed Strategic Internal Distributor (SID) Road foul water drainage network via a proposed foul water spur into the Primary School site. The proposed drainage network drawings for the SID Road (Ref: 5018551-RDG-Z02-ST-DR-C-0502 and 5018551-RDG-Z02-ST-DR-C-0503) are contained in **Appendix D**. The proposed combined drainage layout drawings (Ref: OHH-STN-00-XX-DR-C-000502, and OHH-STN-00-XX-DR-C-000503) are contained in **Appendix E**.
- 2.1.8 A copy of the proposed Landscape General Arrangement (Ref: OHH-ZZ-00-DR-L-000001) is contained in **Appendix A**.



3 Existing Surface Water Drainage Regime

- 3.1.1 The existing Primary School site is comprised of grassland and as such there is no known existing drainage system on site.
- 3.1.2 The existing topography of the Primary School development area lies at an elevation of between 29.20m AOD (Above Ordnance Datum) at its highest point in the centre of the site. The northern field slopes to 25.00m AOD towards the northwest boundary where overland flows are received by an existing ditch (an ordinary watercourse) that drains westwards and is a tributary of the Moorgreen Brook (EA Main River). The southern field slopes to 25.50m AOD towards the southeast where overland flows are received by an existing ditch that also discharges to the Moorgreen Brook.
- 3.1.3 Existing green-field run-off rates for the Horton Heath development have been calculated within the Flood Risk Assessment produced for the outline planning consent (ref: G277-DOC FRA) and addendum (ref: G277-FN14-FRA ADDENDUM) using the Greenfield Runoff Tool developed by HR Wallingford available at the www.uksuds.com website. A summary of the rates are shown in the table 3.1 below.

Return Period (years)	Calculated Greenfield Runoff Rate
1	7.8 l/s/ha
2 (Q_{Med})	8.1 l/s/ha
2.33 (Q_{bar})	9.2 l/s/ha
30	21.2 l/s/ha
100	29.4 l/s/ha

Table 3.1 - Greenfield Runoff Rates



4 Proposed Surface Water Drainage Strategy

- 4.1.1 The proposed drainage strategy is split into two separate networks. The higher ground levels within the centre of the site naturally splits the school site into two defined catchments, which are known in this strategy as 'Northern' and 'Southern'.

4.2 National Standards for Sustainable Drainage Systems (SuDS)

- 4.2.1 The surface water drainage strategy has been designed in accordance with the principles and standards of the DEFRA National Standards for Sustainable Drainage Systems (SuDS), July 2025.

Standard 1: Runoff destinations

Standard 1: Runoff destinations

1.1 A 'SuDS approach' shall be adopted to address the management of surface water by the development and where it should be discharged. Runoff shall be treated as a resource and managed in a way that avoids negative impacts of the development on flood risk, the morphology and water quality of receiving waters and the associated ecology.

1.2 Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- priority 1: collected for non-potable use
- priority 2: infiltrated to ground
- priority 3: discharged to an above ground surface water body
- priority 4: discharged to a surface water sewer, or another piped surface water drainage system
- priority 5: discharged to a combined sewer

- 4.2.2 In accordance with the drainage destination hierarchy the preferred method is to collect and reuse for non-potable use. It is proposed that a portion of surface water runoff from the school roof will be collected and stored for reuse in a rainwater harvesting tank located within the car park to the northwest of the school building. Water from the tank will be used for all non-potable uses within the school.
- 4.2.3 The next preferred method of disposal in accordance with the hierarchy is via infiltration. However, during geotechnical investigations undertaken by Soils Limited, groundwater monitored within the wells installed on site to date have encountered depths ranging from 0.94m to 4.0m. Groundwater at a depth of 0.94m below the existing ground level makes it difficult to achieve a 1m unsaturated zone beneath the base of infiltration devices. Consequently, infiltration drainage is not proposed as the primary discharge method.
- 4.2.4 The Soils Limited Main Investigation Report (ref: 22177/MIR Rev1.0) is contained **Appendix B**.
- 4.2.5 The remaining runoff from the development will be positively drained to the proposed Strategic Internal Distributor (SID) Road surface water drainage network and discharged via two proposed surface water spurs into the Primary School site.



Standard 2: Management of everyday rainfall (interception)

Standard 2: Management of everyday rainfall (interception)

2.1 Apply a 'SuDS approach' so that at least the first 5mm of rainfall for the majority of rainfall events does not result in runoff from the site to surface waters or piped drainage systems.

2.2 Evidence shall be provided that the approach to managing runoff from 'everyday' rainfall has been developed alongside and in support of the management of runoff quality (standard 4) and the delivery of amenity and biodiversity benefits (standards 5 and 6).

- 4.2.6 The surface water drainage strategy for the development captures the first 5mm of rainfall allowing it to be lost through interception and evaporation.
- 4.2.7 It is proposed that a portion of surface water runoff from the school roof will be collected and stored for reuse in a rainwater harvesting tank. The proposed volume of water needed for non-potable use within the school has been calculated (by others) as 108m³ and a tank providing 125m³ of volume is proposed to be installed within the car park.
- 4.2.8 Table 1 shows the volume of storage required to retain the first 5mm of rainfall for the majority of rainfall events for each catchment.

Catchment	Contributing Impermeable Area (m ²)	Storage required to capture first 5mm (m ³)	Storage required to capture first 5mm (m ³)
Northern	13,900	69.5	107
Southern	7,500	37.5	

Table 4.1 - Interception Storage Provision

- 4.2.9 The total volume provided by the rainwater harvesting tank exceeds the total volume needed across the development site to retain the first 5mm of rainfall.
- 4.2.10 In addition to the rainwater harvesting tank, further interception storage volume will be provided by the proposed permeable paving within the car parks, the permeable surfaces around the school building and the tree pits and rain gardens positioned to the front and back of the school building, therefore, in accordance with Section 2.6.2, the site uses a combination of features to deliver compliance with standard 2.



Standard 3: Management of extreme rainfall and flooding

Standard 3: Management of extreme rainfall and flooding

3.1 A 'SuDS approach' shall be adopted to address the management of development runoff during extreme rainfall, including allowances for climate change and urban creep to:

- protect people and property on the development from flooding of the surface water drainage system
- mitigate any increased flood risk to people and property adjacent to or downstream of the development
- protect the receiving water body from morphological damage or minimise the impact on sewer capacity

3.3 When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff (rate and volume) for the 1% annual exceedance probability (AEP) event shall be controlled to ensure the runoff from the development does not increase flood risk elsewhere.

3.4 When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff rate for the 50% AEP event shall be controlled to ensure development runoff from an event of this magnitude has no negative impact.

- 4.2.11 As detailed within the outline application Flood Risk Assessment (ref: G277-DOC FRA), the proposed surface water strategy for site seeks to replicate greenfield discharge rates.
- 4.2.12 The proposed development will result in an increase in the site's impermeable area and therefore an increase in the volumetric discharge, as such the allowable discharge rate from the contributing drained areas has been limited to the equivalent QMed rate.
- 4.2.13 Contributing permeable areas such as existing areas of open space and the sports pitches have been included within the modelling at a reduced runoff rate of 30% - 50%, depending upon whether they have associated land drainage systems. The proposed catchment area drawings detailing the impermeable and contributing impermeable areas (Ref: OHH-STN-00-XX-DR-C-000500 and OHH-STN-00-XX-DR-C-000501) are contained in **Appendix C**.
- 4.2.14 The proposed drainage strategy takes account of the outline consent strategy which was established in compliance with existing local flood risk policies.
- 4.2.15 The runoff from the development will be positively drained to the proposed surface water drainage network. Flow will then be discharged via the two proposed connections into the SID Road. The existing network within this road conveys flows northwards into the proposed Local Centre, and discharges into a SuDS attenuation basin located to the northwest of the school site and referenced as 'Pond G'. The proposed drainage network and basin drawings for the SID Road (Ref: 5018551-RDG-Z02-ST-DR-C-0502 and 5018551-RDG-Z02-ST-DR-C-0503) are contained in **Appendix D**.
- 4.2.16 The two proposed discharge spurs have restricted discharge rates that were agreed and approved at the outline planning stage, refer to Table 4.2. The proposed surface water network has been designed to achieve these rates.

Catchment	Discharge Rate (l/s)
Northern	25.37
Southern	15.01



Table 4.2 - Proposed Discharge Rates

Standard 3 Continued

3.5 Any flooding from the surface water drainage system for events up to the 1% AEP event shall be managed within the development.

3.6 Any flooding from off-site sources for the 1% AEP event should be managed on site or safely routed through the site, ensuring any downstream risks are not increased compared to the pre-development scenario.

- 4.2.17 The drainage strategy modelling within the FRA (May 2021) undertaken for the outline consent was based on a potential 40% increase in rainfall intensity as a result of the effects of climate change.
- 4.2.18 The surface water system has been designed to operate with no flooding for rainfall events up to and including 1 in 100-year critical event plus a 40% climate change allowance.
- 4.2.19 The Environment Agency's, Climate Change Allowances for Peak Rainfall in England, guidance which supports the NPPF provides contingency allowances for potential increases in sea level rise, peak river flow and rainfall intensity, was updated in May 2022.
- 4.2.20 This guidance now shows the Upper End Allowance of 45% increase in rainfall intensity for a 1% annual probability event in the 2070s epoch, which should be used for developments with a lifetime of up to 2125.
- 4.2.21 Therefore, the surface water modelling will be undertaken using a 40% Climate Change allowance and sensitivity tested for 45%. The sensitivity test shows there is no surface flooding within either the northern or southern catchment areas in the 1 in 100 year + 45% climate change scenario.

Standard 3 Continued

3.7 The risks (both on and off the development) associated with flooding from the surface water drainage system for exceedance events greater than the 1% AEP event shall be appropriately managed.

- 4.2.22 The existing topography of the land ensures that any overland flow from exceedance events will be conveyed towards the existing watercourse to the north of the site. Overland flow resulting from the southern network will fall towards the open space at the south of the site before flowing towards the allotments along the eastern boundary where it can infiltrate. Any excess runoff will be conveyed south along the access road of the development parcel known as Upper Acre where it will be intercepted by the proposed ditch network.
- 4.2.23 The proposed surface water drainage layout and typical construction details drawings (Ref: OHH-STN-00-XX-DR-C-000502, OHH-STN-00-XX-DR-C-000503 and OHH-STN-00-XX-DR-C-000504) are contained in **Appendix E**.
- 4.2.24 A copy of the proposed MicroDrainage calculations for the northern and southern networks are contained within **Appendices F and G** respectively.



Standard 4: Water quality

Standard 4: Water Quality

4.1 Apply a 'SuDS approach' that protects surface waters, groundwater and coastal waters by managing the quality of the surface water runoff to adequately address water quality risks from the development.

4.2 The proposed SuDS management train(s) shall be based on a robust water quality risk assessment, appropriate to the pollution hazard and sensitivity of receiving waters, reflecting industry recognised guidance or other quantitative assessment as agreed with the approving body and permitting requirements.

4.2.25 The proposed drainage strategy utilises SuDS features in the form of permeable pavements cellular storage and a basin which provides water quality benefits through the biodegradation of hydrocarbons and the removal of suspended debris.

4.2.26 The NPPG paragraph 055 describes SuDS as follows:

'Sustainable drainage systems (or SuDS) are designed to control surface water run off close to where it falls, combining a mixture of built and nature-based techniques to mimic natural drainage as closely as possible, and accounting for the predicted impacts of climate change. They provide benefits for water quantity, water quality, biodiversity and amenity. Many types of sustainable drainage systems are possible, contributing to reducing the causes and impacts of flooding.'

4.2.27 The proposed development will utilise SuDS management train principles to manage water quality and quantity, using **Prevention Measures, Source Control and Site Control Techniques, and Regional Control Features.**

4.2.28 **Prevention Measures** will take the form of high-quality landscaping throughout the parcel minimising the impermeable area where practicable and encouraging the uptake of water and evapotranspiration. Rainwater harvesting will also be used to collect water for re-use, and trapped gullies and will be incorporated to prevent potential highway pollution.

4.2.29 Open space areas are assumed to generate runoff that is predominantly uncontaminated and of low pollution hazard, consistent with Standard 4 of the National SuDS Standards for surface water, comprising essentially rainwater.

4.2.30 **Source Control Techniques** will be used to manage water as close to the sources as possible. Given that infiltration is not viable as a primary discharge destination, these techniques will provide attenuation throughout the development to prevent and / or delay water entering the drainage system, maximising its efficiency.

4.2.31 The following Source Control techniques will be provided:

- **Bio-Retention Areas / Rain Gardens:** Where landscaping areas and strips are adjacent to paths, roads and parking areas, structured soil beds with under drains will be implemented to allow run-off to be directed into the landscape areas, promoting interception storage, filtering and evapotranspiration.
- **Permeable Paving:** Porous asphalt and permeable block paving options will be implemented in parking bays. Permeable pavements filter and treat contaminants and pollutants from stormwater runoff, such as heavy metals, sediment and hydrocarbons. The ground conditions are not conducive to infiltration as a primary discharge mechanism therefore the permeable parking bays will be lined. Parking bays will be connected to the surface water drainage system using diffuser units within the stone sub-base storage.



- 4.2.32 **Site Control Techniques** are used to manage water between sub-catchments within a development area. Typically, swales, ditches, filter drains or rills are implemented to keep water on the surface and avoid deep systems. However, due to the size of the site
- 4.2.33 The proposed piped drainage networks have been kept as high as possible across the site to prevent excessive depth. Due to the layout of the school and the provision of sports and play areas, the use of SuDS conveyance features has been limited.
- 4.2.34 **Regional Control Features** provide the primary attenuation for the parcel at each discharge location. For the northern catchment a combination of permeable paving surfaces, tree pits and a SuDS basin will be provided to control the final discharge into the existing drainage network and provides water quality and habitat benefits.

4.3 The SuDS Manual C753, CIRIA 2025, Simple Index Approach

- 4.3.1 To deliver adequate treatment, the selected Sustainable Drainage System (SuDS) components should have a total pollution mitigation index (for each contaminant type) that equals or exceeds the pollution hazard index (for each contaminant type).

$$\begin{array}{lcl} \text{Total SuDS Mitigation Index} & \geq & \text{Pollution Hazard Index} \\ \text{(for each contamination type)} & & \text{(for each contamination type)} \end{array}$$

- 4.3.2 Where two or more SuDS features are located in series, or treatment train, the following equation is used to account for the performance of secondary components associated with already reduced inflow concentrations.

$$\text{Total SuDS Mitigation Index} = \text{Mitigation Index}_1 + 0.5(\text{Mitigation Index}_2)$$

$$\text{Where: Mitigation Index}_n = \text{Mitigation Index for Component } n$$

- 4.3.3 The SuDS manual describes that removal of suspended solids is increased by extending the length of the flow path, the removal of metals is improved by a combination of different treatment processes and hydrocarbon removal is improved by running water over periodically wet and dry soils.
- 4.3.4 Tables 4.3 and 4.4 below demonstrate how the northern and southern drainage catchments provide the necessary water treatment required prior to discharge.

	Land Use and Pollution Hazard Indices ¹	Example SuDS Treatment Train Mitigation Indices ²		
	Other Roofs (Low)	Permeable Paving	Attenuation Basin	Total
Total Suspended Solids	0.3	0.7	0.5	0.95
Metals	0.2	0.6	0.5	0.85
Hydrocarbons	0.05	0.7	0.6	1.0
¹ Land Use Pollution Indices and Hazard Levels are taken from Table 26.2 Pollution Hazard Indices for Different Land Use Classifications, of The SuDS Manual C753, CIRIA 2015. ² SuDS Mitigation Indices are taken from Table 26.3 Indicative SuDS Mitigation Indices for Discharge to Surface Waters, of The SuDS Manual C753, CIRIA 2015.				

Table 4.3 - Example Simple Index Approach for Other Roof Areas



	Land Use and Pollution Hazard Indices ¹	Example SuDS Treatment Train Mitigation Indices ²		
	Low traffic roads and non-residential car parking with infrequent change (Low)	Permeable Paving	Attenuation Basin	Total
Total Suspended Solids	0.5	0.7	0.5	1.2
Metals	0.4	0.6	0.5	1.1
Hydrocarbons	0.4	0.7	0.6	1.3

¹ Land Use Pollution Indices and Hazard Levels are taken from Table 26.2 Pollution Hazard Indices for Different Land Use Classifications, of The SuDS Manual C753, CIRIA 2015.

² SuDS Mitigation Indices are taken from Table 26.3 Indicative SuDS Mitigation Indices for Discharge to Surface Waters, of The SuDS Manual C753, CIRIA 2015.

Table 4.4 - Example Simple Index Approach for low traffic roads and non-residential parking

- 4.3.5 The tables above demonstrate that adequate pollution mitigation will be provided by the proposed SuDS systems.

Standard 5: Amenity

Standard 5: Amenity

5.1 A 'SuDS approach' shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

- 4.3.6 The attenuation basin, tree pits and rain gardens proposed as part of the SuDS drainage strategy have been integrated into the overall landscaping design to maximise amenity benefits.
- 4.3.7 These features are designed to contribute positively to the visual and recreational quality of the development while managing surface water effectively. The proposed basin will also provide habitat and educational opportunities.

Standard 6: Biodiversity

Standard 6: Biodiversity

6.1 A 'SuDS approach' shall be adopted to ensure the surface water drainage system maximises biodiversity benefits throughout the development lifecycle.

6.2 The surface water drainage system shall add biodiversity value by:

- creating diverse, self-sustaining, resilient local ecosystems which contribute to net gains in biodiversity
 - supporting and promoting natural local habitat and species, for example, through local nature recovery strategies (LNRS)
 - contributing to the delivery of local biodiversity strategies
 - contributing to habitat connectivity

The attenuation basin, tree pits and rain gardens proposed as part of the SuDS drainage strategy have been integrated into the overall landscaping design to promote biodiversity. Additional detail on how biodiversity and mitigation factors are being provided can be found within the landscape package and ecology reports accompanying the planning application.



5 SuDS Maintenance Strategy

5.1 Introduction

- 5.1.1 All those responsible for maintenance should take appropriate health, safety and welfare precautions for all activities including lone working, if relevant, and risk assessments should always be undertaken. The site's infrastructure Health and Safety File should be consulted before carrying out any works either inside or outside of the development's boundary and information regarding the location of existing utilities passed on to operatives.
- 5.1.2 The requirements of the Health and Safety at Work Act 1974 and The Construction (Design and Management) Regulations 2015 should be adhered to and any residual risks identified in the Health and Safety File should be managed and information passed on to maintenance operatives through task specific risk assessments.

5.2 Ownership and Maintenance Arrangements

- 5.2.1 The piped sewer networks within the Primary School site will be adopted and maintained by Southern Water.
- 5.2.2 The communal private drainage and SuDS features will be maintained by an Eastleigh Borough Council appointed contractor that will undertake maintenance for the Primary School site.

5.3 Operation and Maintenance

- 5.3.1 There are three types of maintenance activities associated with surface water drainage systems. The SuDS Manual C753, CIRIA 2015 defines these as:
- Regular maintenance – *'basic tasks carried out to a frequent and predictable schedule, including inspections/monitoring, silt or oil removal if required more frequently than once per year, vegetation management, sweeping of surfaces and litter and debris removal.'*
 - Occasional maintenance – *'tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the regular tasks'*
 - Remedial maintenance – *'intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design, construction and regular maintenance activities. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and so timings are difficult to predict.'*
- 5.3.2 The following maintenance schedules for specific SuDS features should be utilised for the first year of maintenance and the required frequency monitored so the schedules can be adjusted for ongoing use to suit the location and condition of the drainage feature in question.
- 5.3.3 The application of fertilisers, pesticides and herbicides should not be used as these pose a risk of entering surface water and downstream watercourses or impacting the effectiveness of the SuDS systems.
- 5.3.4 De-icing agents which include urea or sodium chloride such as rock salt should be avoided and agents which use calcium magnesium acetate, potassium acetate or similar which have less of an adverse environmental impact used instead. De-icing agents mixed with sand can also increase sediment loads and impact the effectiveness that a SuDS surface can allow water to move to its sub-base.
- 5.3.5 Silt / sediment removal is a maintenance activity associated with the majority of SuDS. Testing of the sediment should be undertaken to determine its classification and subsequent appropriate



deposition / disposal which may vary depending on the SuDS location and / or association with a particular type of land use. Where necessary appropriate licences should be sought for disposal of silt.

Operation and Maintenance	SuDS Component				
	Permeable Paving	Bioretention Area / Rain Gardens	Attenuation Basin	Cellular Storage	Piped Network / Inspection Chambers / Catchpits / Gullies
Regular Maintenance					
Inspection	■	■	■	■	■
Litter and debris removal	■	■	■	□	■
Grass cutting	□	■	■	□	
Weed and invasive plant control	□	□	□		
Shrub management (including pruning)	□	■	■		
Aquatic vegetation management			□		
Occasional maintenance					
Sediment management ¹	■	■	■	■	■
Vegetation replacement		□	□		
Vacuum sweeping and brushing	■				
Remedial maintenance					
Structure rehabilitation / repair	□	□	□	□	□
Infiltration surface reconditioning	□	□			
■ will be required □ may be required ¹ Sediment should be collected and managed in pre-treatment systems, upstream of the main device					

Table 5.1 - Typical key SuDS components operation and maintenance activities

5.4 Permeable Paving

- 5.4.1 Permeable pavements have a surface that is formed of a material that is itself impervious to water, however the materials are laid to provide void space between the materials. These voids allow surface water to pass between the materials and through to the sub-base below where it is temporarily stored. As such the surface of the pavement needs to be regularly cleaned to remove silt and sediment build up to maintain movement of water from the surface to the sub-base.
- 5.4.2 Permeable pavements have been shown to reduce the concentrations of heavy metals, hydrocarbons, sediment and some nutrients. Treatment processes occurring within permeable pavements include:
- filtration of silt and the attached pollutants,
 - biodegradation of organic pollutants, such as petrol and diesel,



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- adsorption of pollutants, and the
- settlement and retention of solids.

5.4.3 Permeable pavements can provide amenity and visual benefits as there are a wide range of surface materials which can be selected to meet overall planning, architectural or landscape design.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment.
Occasional Maintenance	Stabilise and mow contributing and adjacent areas.	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection.	Monthly for three months after installation
	Inspect for evidence of poor operation and / or weed growth – if required take remedial action.	Three monthly, 48hr after large storm events in first 6 months
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually
	Monitor inspection chambers.	Annually

Table 5.2 - The SuDS Manual Table 20.10: O&M requirements for pervious pavements

5.5 Bioretention and Rain Gardens

5.5.1 Bioretention areas and rain gardens are landscaped areas with a depressed surface formed with structural soils and vegetation. Runoff enters via the surface and filters through the different layers towards a perforated underdrain pipe connected to the wider drainage network.

5.5.2 They can help reduce pollutant levels in surface water runoff by filtering out sediments, metals and hydrocarbons and also remove dissolved pollutants by sorption to the filter medium.



Surface Water Drainage Strategy

- 5.5.3 They can be incorporated into a wide variety of landscapes using different shapes, materials, and planting, which also promote evapotranspiration.
- 5.5.4 Adequate access must be provided for all bioretention areas for inspection and maintenance, including the appropriate equipment and vehicles. Litter (including leaf litter) and debris removal is a key maintenance requirement to allow the surface to continue to operate as designed and could result in ponding on the surface.

Maintenance Schedule	Required Action	Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underlain (if appropriate) to determine if maintenance is necessary.	Quarterly
	Check operation of underdrains by inspection of flows after rain.	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary.	Quarterly
	Inspect inlets and outlets for blockage.	Quarterly
Regular Maintenance	Remove litter and surface debris and weeds.	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density.	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays.	Quarterly to biannually
Occasional Maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required.	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch.	As required
Remedial Actions	Remove and replace filter medium and vegetation above.	As required but likely to be > 20 years

Table 5.3 - The SuDS Manual Table 18.3: O&M requirements for bioretention systems

5.6 Attenuation Basins

- 5.6.1 Attenuation basins are landscaped depressions that are normally dry except during and immediately following storm events. Vegetated attenuation basins provide treatment of surface water runoff through the removal of sediment and buoyant materials, but levels of nutrients, heavy metals, toxic materials and oxygen-demanding materials may also be significantly reduced.
- 5.6.2 They can include small permanent wet pools, to prevent re-suspension of particles during high intensity rainfall events and / or sediment forebays to provide pre-treatment.
- 5.6.3 Regular mowing is required along maintenance access routes and amenity areas. Mowing or vegetation management of the main storage area should ideally retain a minimum grass of plant heights of 75–150mm to assist in filtering pollutants and retaining sediments.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove litter and debris.	Monthly
	Cut grass – meadow grass in and around basin	Half yearly (spring – before



		nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any flow controls and/or other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually
Occasional Maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Maintenance	Repair erosion or other damage by reseeding or re-turfing.	As required
	Realignment of rip-rap.	As required
	Aerate pond where signs of eutrophication are detected	As required
	Repair / rehabilitate inlets, outlets and overflows.	As required
	Relevel uneven surfaces and reinstate design levels	As required

Table 5.4 - The SuDS Manual Table 22.1: O&M requirements for detention basins

5.7 Geocellular Storage

- 5.7.1 Geocellular storage systems are high porosity modular plastic units that can be used to efficiently create a below ground structure for the temporary storage of surface water. Their inherent flexibility in size and shape means that they can be tailored to suit the specific characteristics and requirements of most sites. This is aided by their ability to be located below both public open space and trafficked areas.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for three months, then annually
	Remove debris from the catchment surface (where may cause risks to performance).	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by silt, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually



Maintenance Schedule	Required Action	Frequency
	Remove sediment from pre-treatment structures and / or internal forebays.	Annually, or as required
Remedial Maintenance	Repair / rehabilitation of inlets, outlets, overflows and vents.	As required
Monitoring	Inspect / check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside the tank for sediment build-up and remove if necessary.	Every 5 year as required

Table 5.5 - Operation and maintenance requirements for geocellular storage

5.8 Piped Network / Inspection Chambers / Catchpits / Gullies

- 5.8.1 Sewers adopted by Southern Water will be maintained in accordance with their own policies and responsibilities under the Water Industry Act.
- 5.8.2 Piped drainage network components require regular inspection and maintenance to ensure that the individual components continue to operate as designed, both in terms of hydraulic capacity and potential pollutant removal. All the gullies, inspection chambers and catchpits will therefore be inspected and cleaned regularly.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect and identify any features that are not operating correctly. If required take remedial action	Monthly for three months, then six monthly
	Debris removal from catchment surface / gratings (where may cause risks to performance)	Monthly (and after large storms)
	Remove sediment from trapped sumps, manholes and catchpits.	Annually or as required
Remedial Maintenance	Repair / rehabilitation of gratings, inlets and outlets	As required
Monitoring	Inspect / check all gratings, trapped sumps, manholes and catchpits to ensure that they are in good condition and operating as designed	Annually and after large storm events
Structure Rehabilitation / Repair	Regular Maintenance and Monitoring to identify if repair and / or replacement of features or pipework is required.	As required

Table 5.6 - Operation and maintenance requirements for pipes, inspection chambers and gullies



6 Summary and Conclusion

- 6.1.1 The surface water system has been designed to operate with no flooding for rainfall events up to and including 1 in 100-year critical event plus a 40% climate change allowance. The sensitivity test shows there is no surface flooding within either the northern or southern catchment areas in the 1 in 100 year + 45% climate change scenario.
- 6.1.2 The surface water drainage system will utilise SuDS features to manage water quality and quantity, using Prevention Measures, Source Control and Site Control Techniques, and Regional Control Features.
- 6.1.3 The Simple Index method for water quality assessment, from the CIRIA SuDS Manual C753, has been used to demonstrate the proposed drainage system will provide adequate treatment for any pollutants or contaminants that may be present in surface water run-off.
- 6.1.4 In summary, the Primary School site will not be at risk from flooding from any source, as per the FRA submitted at the outline planning stage.

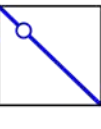
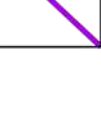
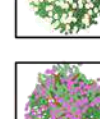
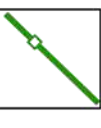
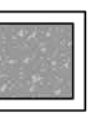
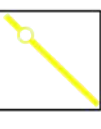
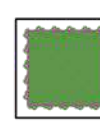


Appendix A Landscape General Arrangement



Project Number: 332613072



- | LANDSCAPE, DRAINAGE & LIGHTING | | HARD LANDSCAPE - FENCING | | BOUNDARIES | |
|---|---|---|--|---|--|
|  | PROPOSED LEVELS, GRADIENTS & EARTHWORKS
To Engineers Design & Specification. |  | SCHOOL BOUNDARY SECURITY FENCING:
1.8m high, as required to Eastleigh Borough Council Guidelines. Gates to match. |  | RESERVED MATTERS SUBMISSION RED LINE |
|  | BASIN
To Engineers Design & Specification. |  | SCHOOL FENCING:
1m high, as required to Eastleigh Borough Council Guidelines. Gates to match. | EXISTING BASELINE FEATURES | |
|  | INDICATIVE LIGHTING LOCATIONS
To Engineers Design & Specification. |  | PICKET FENCE:
1.2m high, timber fence. Gates to match. |  | EXISTING TREES
Refer to Tyler Grange Tree Constraints plan Ref: 11705_P42b, Tree Constraints Plan_Overlay. |
| SOFT LANDSCAPE - PROPOSED TREE PLANTING. | |  | KNEE RAIL:
450mm high, timber knee rail with horizontal top rail. |  | EXISTING WETLAND TREE WITH 16.5M BUFFER
Refer to Tyler Grange Tree Constraints plan Ref: 11705_P42b, Tree Constraints Plan_Overlay. |
|  | WOODLAND TREE PLANTING
Refer to Plant Schedule for details. |  | MUGA FENCE:
3m high Ball Stop Fencing. |  | EXISTING VEGETATION
Refer to Tyler Grange Tree Constraints plan Ref: 11705_P42b, Tree Constraints Plan_Overlay. |
|  | WETLAND TREE PLANTING
Refer to Plant Schedule for details. |  | 3G PITCH - 4.5M PERIMETER FENCING:
Galvanised twin bar super rebound fencing (Black or Green) on all sides of the 3G FTP, supported by box section posts.
Gates: 1 x single access gate.
1 x pair of double emergency vehicular access gates.
1 x single gate for ball retrieval. | FUTURE BASELINE FEATURES | |
|  | GARPPARK TREES
Refer to Plant Schedule for details. |  | 3G PITCH - 1.2M SPECTATOR FENCING:
Galvanised twin bar super rebound picket perimeter fencing.
Gates: 1 x single access gate along.
1 x pair of double gates for maintenance vehicular access from storage area. |  | FOXWOOD ROAD
(8ID - Secondary Infrastructure Distributor)
Planned & permitted but not constructed |
|  | FOCAL POINT TREE PLANTING WITHIN HARDSCAPE
Refer to Plant Schedule for details. |  | ALLOTMENT FENCING:
1.8m high, Welshdram dark green powder coated as required to Eastleigh Borough Council Guidelines. Gates to match. |  | UPPER ACRE RESIDENTIAL DEVELOPMENT
Development currently under construction. |
|  | FEATURE TREE PLANTING WITHIN SOFTSCAPE
Refer to Plant Schedule for details. |  | ALLOTMENT FENCING:
900mm high, stock proof timber post and rail fencing. | HARD LANDSCAPE - SURFACING | |
|  | PLAZA / FEATURE TREE PLANTING
Refer to Plant Schedule for details. |  | ACOUSTIC FENCING:
Timber acoustic barrier, maximum 3m high, including bund and fence.
Height and Specification to Engineers details. |  | ROADS & FOOTPATHS: TARMAC SURFACE
Tarmac, to Engineers Design & Specification with countryside kerb. |
|  | INDICATIVE HARD TREE PIT
Location of specialist tree pit - modular suspended pavement system using plastic crates - all size & construction details to be approved by Eastleigh Borough Council |  | HEIGHT RESTRICTION BARRIER:
1 Barrier to school with keypad / intercom.
2 Height Restriction Barrier, locatable, double leaf opening to sports pitch car park.
3 Fixed height restriction barrier to allotments.
Height and Specification to Engineers details. |  | FOOTPATHS: TARMAC SURFACE
Tarmac, to Engineers Design & Specification with countryside kerb. |
| SOFT LANDSCAPE - STRUCTURAL PLANTING | |  | SAFETY FENCING:
Refer to RIDGE 512 Road drawings for details. |  | FOOTPATHS: COLOURED ASPHALT SURFACE
Tarmac, to Engineers Design & Specification with countryside kerb. |
|  | WOODLAND PLANTING
Area to include both Native Woodland Mix & Ground flora Plant Mix Perennials & Bulbs.
Refer to Plant Schedule for details. | HARD LANDSCAPE - PLAY & ART | |  | PARKING: PERMEABLE TARMAC SURFACE
Tarmac, to Engineers Design & Specification. |
|  | WOODLAND EDGE PLANTING
Refer to Plant Schedule for details. |  | PROPOSED INDICATIVE PUBLIC ART |  | PUBLIC OPEN SPACE PLAZA: ENHANCED BLOCK PAVING
Tegula block paving
Size: 240 x 160mm to be confirmed by Engineer.
Colour: Harvest Buff.
Pattern: Herringbone, with Single Soldier course of Harvest Buff 240 x 160mm block. |
|  | HEDGE PLANTING
Including native and ornamental hedge planting.
Native hedge gapping up to existing hedges.
Refer to Plant Schedule for details. |  | INDICATIVE PLAY EQUIPMENT
Refer to Play Strategy and Play Manufacturers details for detailed information. |  | PUBLIC OPEN SPACE PLAZA: STONE DUST
Size: 6mm to dust aggregate size.
Colour: Golden Cobble, or as locally sourced.
Additional: Tegula Cobble concrete block paving or equal and approved, 100 x 100mm Traditional, double staggered soldier as edging. |
|  | SHRUB & PERENNIAL PLANTING
Shrubs & perennial planting.
Refer to Plant Schedule for details. |  | INDICATIVE PLAYGROUND MARKINGS
Refer to Play Strategy and Play Manufacturers details for detailed information. |  | PUBLIC OPEN SPACE PLAZA & ALLOTMENT - STONE DUST
Size: 6mm to dust aggregate size.
Colour: Golden Cobble, or as locally sourced.
Additional: Tegula Cobble concrete block paving or equal and approved, 100 x 100mm Traditional, double staggered soldier as edging. |
|  | MARGINAL PLANTING
Including native shrub and marginal planting.
Refer to Plant Schedule for details. | HARD LANDSCAPE - FOREST SCHOOL | |  | ROAD FOCAL PAVING: ENHANCED SURFACING
Cobble block paving or similar.
Size: 240 x 160mm to be confirmed by Engineer.
Colour: Pennant Grey.
Pattern: Herringbone, with Single Soldier course of Pennant Grey 240 x 160mm block. |
|  | AQUATIC PLANTING
Refer to Plant Schedule for details. |  | PROPOSED PLAY BARK |  | PUBLIC OPEN SPACE FOOTPATHS: Stone dust
Size: 6mm to dust aggregate size.
Colour: Golden Cobble, or as locally sourced.
Additional: Tegula Cobble concrete block paving or equal and approved, 100 x 100mm Traditional, double staggered soldier as edging. |
|  | RAIN GARDEN PLANTING
Shrub & perennial planting.
Refer to Plant Schedule for details. | HARD LANDSCAPE - STREET FURNITURE | | | |



Appendix B Ground Investigation Report



Project Number: 332613072



Main Investigation Report

at

**One Horton Heath School, Burnetts Lane,
Hampshire SO50 7QB**

for

Eastleigh Borough Council

**Reference: 22177/MIR Rev I.0
January 2026**

Control Document

Project

One Horton Heath School, Burnetts Lane, Hampshire SO50 7QB

Document Type

Main Investigation Report

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Document Status

FINAL

Date

January 2026

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This is not a valid document for use in the design of the project unless it is titled Final in the document status box.

Current regulations and good practice were used in the preparation of this report. The recommendations given in this report must be reviewed by an appropriately qualified person at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.



Commission

This document comprises the Main Investigation Report (MIR) and incorporates the results, discussion, and conclusions to this intrusive works. General site data is recorded below:

Commission Record	
Client	Eastleigh Borough Council
Site Name	One Horton Heath School, Burnetts Lane, Hampshire SO50 7QB
Grid Reference	449089 116899
Soils Limited Quotation Ref	Q30468rev3, dated 7 th October 2025
Clients Purchase Order	371513, dated 8 th October 2025

The record of revision to this document is presented below:

Record Of Revisions		
Revision	Date	Reason
1.0	Jan 2026	Original

Note(s): The latest revised document supersedes all previous revisions of the MIR produced by Soils Limited.

Documents associated with this development that must be referred to are given below.

Record Of Associated Documents			
Reference	Type	Date	Creator
22177/PIR Rev1.0	Desk Study	Nov 25	Soils Limited
P25044-RFT-ZZ-ZZ-DR-A-0110_SI_01	Red Line Boundary (WIP)	Aug 25	Re-Format LLP:
OHHPS-RFT-00-ZZ-DR-A-0101_S0_P01	Site Plan – Constraints	Sep 25	
22177 –	Full Project Scope Area	No Date	

Limitations and Disclaimers

The report was prepared solely for the brief described in our quotation and Section 1.1 of this report. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of our engagement.

We have exercised all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Conditions of Contract of Business and taking into account the resources devoted to us by agreement with the Client.

This report is a snapshot of the site and conditions taken only at the time of our investigation works and described in our reporting. The ground is a product of continuing natural and artificial processes and has variation by depth and location that cannot be determined absolutely. While a ground investigation will aim to understand and mitigate, risk cannot be eliminated.

Current regulations and good practice were used in the preparation of this report. Consideration of any subsequent changes to regulations or practice that may have occurred following issue of this report is the responsibility of the user.

If the term “competent person” is used in this report or any Soils Limited document, it means an engineering geologist or civil engineer with a minimum of three years post graduate experience in the understanding and application of the appropriate codes of practice.

Unless the site investigation works have been designed and specified in accordance with EC7, this report is not a Ground Investigation Report as defined by Eurocode 7.

Any reference to ground level relates to the site level at the time of the investigation, unless otherwise stated. Ground elevations and coordinates are only provided when this forms part of our engagement.

A survey of the possible presence or absence of invasive species including Japanese Knotweed is outside the scope of this investigation.

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License for and reliance on this report is only valid once we have been paid in full for this engagement. In the event of non-payment, we reserve the right to notify parties other than the client of failure to pay and our cancellation of license and reliance.

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Section I Introduction

1.1 Objective of Investigation

The Client commissioned Soils Limited to undertake an intrusive ground investigation and to prepare a Main Investigation Report to supply the Client and their designers with information regarding ground conditions, to assist in preparing a foundation scheme for development that was appropriate to the settings present on the site.

The investigation was to be undertaken to provide comment on appropriate foundation options for a proposed new primary school development. The investigation was to be made by means of in-situ testing and geotechnical laboratory testing undertaken on soil samples taken from the exploratory holes.

In addition, soil samples were to be taken for chemical laboratory testing to enable recommendations for the safe redevelopment of the site and the protection of vulnerable receptors from any contamination identified as dictated by the Conceptual Site Model (CSM) in the Preliminary Investigation Report undertaken for the site by Soils Limited (Report ref: 22177/PIR, Nov 2025) and the Revised Conceptual Site Model presented in Appendix E.1.

1.2 Site Description

The site comprised open grassland currently vacant, which was historically used as agricultural/pasture land. There were no structures onsite, a timber enclosure protected an inspection chamber in the centre of the site. Site topography was gently undulating with surface water ponding observed locally indicating poor drainage. Site covering was predominantly grass with occasional bare or muddy patches along informal footpaths. Vegetation comprised a grass topped field with hedgerows and scattered mature trees along boundaries. There were no sources of contamination noted during the site walkover; no evidence of fuel storage, waste deposits or staining.

To the east of site was residential housing along Burnetts Lane, agricultural fields and a solar farm were noted to the west. Area topography was generally flat to slightly undulating terrain, typical of semi-rural surroundings.

The site location plan is given in Figure 1. An aerial photograph of the site and its close environs has been included in Figure 2.

1.3 Proposed Development

The proposal comprised the development of a new primary school within the wider *One Horton Heath* masterplan area, located off Burnetts Lane, Eastleigh, Hampshire. The proposed scheme includes the construction of a part single, part two-storey school building with associated external play areas, sports facilities (including a MUGA pitch and pavilion), car parking, landscaped areas, and new vehicular and pedestrian access from Burnetts Lane.

The development layout includes a 50m acoustic buffer along the eastern and southern boundary, allotments to the south, and a public right of way crossing the northern section of the site.

Relevant plans are included in the Record Of Associated Documents. Recommendations within this report apply only to this scheme and are based on the information available at the time of writing. Any significant design or layout changes should be reviewed by Soils Limited to confirm the continued validity of the conclusions presented.

Development plans provided by the Client are presented in Appendix F.

1.4 Anticipated Geology

The 1:50,000 BGS Geology map showed the site to be situated on the Wittering Formation bedrock. No superficial deposits, artificial ground, or made ground are recorded to be present on or immediately beneath the site.

1.4.1 Wittering Formation

The Wittering Formation typically comprises greyish brown laminated clay; wavy to lenticular-bedded sand interbedded with clay in equal proportions; and fine to medium-grained sparsely glauconitic sand of Eocene age.

Section 2 Site Works

2.1 Proposed Project Works

The proposed intrusive investigation was designed to provide information on the ground conditions and to aid the design of foundations for the proposed school development. Soils Limited selected the trial hole locations using a proposed development plan provided by the client. The intended investigation, as specified, and outlined within the Soils Limited quotation (Q30468rev3, dated 7th October 2025) was to comprise the following items:

- All trial locations to be scanned with cable avoidance tool and signal generator prior to breaking ground
- Dumper truck hire to tow drilling rigs on to locations
- 12No. (up to) 5.00m windowless sampler boreholes
- 6No. groundwater monitoring well installations within windowless sampler boreholes
- 12No. (up to) 8.00m deep dynamic probe DPSH
- 5-6No. machine excavated trial pits
- 5-6No. infiltration tests over 2 days
- 1 day of CBR testing via handheld DCP (10-12No. tests)
- 1No. 20m cable percussion borehole
- Geotechnical laboratory testing
- Contamination soils laboratory testing

2.1.1 Actual Project Works

The actual project works were undertaken on 17th to 21st November 2025, with subsequent sample logging, laboratory testing, monitoring, and reporting. The actual works comprised:

- All trial locations to be scanned with cable avoidance tool and signal generator prior to breaking ground
- Dumper truck hire to tow drilling rigs on to locations
- 10No. 4.00m windowless sampler boreholes
- 11No. (up to) 4.30 – 6.00m deep dynamic probe DPSH
- 8No. machine excavated trial pits
- 5No. infiltration tests over 2 days
- 12No. CBR tests via handheld DCP
- 1No. 20m cable percussion borehole
- Geotechnical laboratory testing
- Contamination soils laboratory testing

Six windowless sampler boreholes (WS1, WS6, WS8, WS9, WS10 and WS11) were backfilled with gravel and bentonite following the installation of monitoring wells, four windowless sampler boreholes (WS2, WS3, WS5 and WS7), and one cable percussive

borehole (CP1) were backfilled with gravel. Eight trial pits were backfilled with arisings.

All exploratory hole locations have been presented in Figure 1.

Following completion of site works, soil cores were logged and sub sampled so that samples could be sent to the laboratory for both contamination and geotechnical testing.

2.2 Ground Conditions

On 17th – 19th November 2025 eleven windowless sampler boreholes (WS1 – WS11) were drilled, using a Premier drilling rig, to depths of 4.00m below ground level (bgl) at locations selected by Soils Limited using a development plan provided by the Client.

A single standpipe was installed within each of window sample borehole locations (WS1, WS6, WS8, WS9, WS10 and WS11) to allow for continued monitoring of groundwater. All monitoring wells were installed to 4.00m bgl.

Eleven super heavy dynamic probes, (DP1 – DP11) were driven prior and adjacent to their corresponding windowless sampler borehole to depths ranging between 4.30m and 6.00m bgl.

Due to time limitations caused by illegal fly tipping preventing access to the site for a few hours on one day of siteworks, and the site becoming water logged which had required a dumper truck to tow drilling rigs onto locations, the drilling of WS4, WS/DP12 and the excavation of TP6 could not be undertaken, the Client was updated with this information during and after siteworks. Machine excavated exploratory holes TP7, TP8, and TP9 were undertaken additionally for the purpose of gathering soil samples for contamination assessment.

Twelve CBR tests via handheld DCP were undertaken in locations in alignment with the proposed access road and car parking areas, selected by Soils Limited using a development plan provided by the Client.

The maximum depths of exploratory holes have been included in Table 2.1.

All exploratory holes were scanned with a Cable Avoidance Tool (C.A.T.) and Genny prior to excavation to ensure the health and safety of the operatives.

Table 2.1 Final Depth of Exploratory Holes

Exploratory Hole	Depth (m bgl)	Exploratory Hole	Depth (m bgl)
WS1 ^w	4.00	DP1	6.00
WS2	4.00	DP2	6.00
WS3	4.00	DP3	6.00
-	-	DP4	6.00
WS5	4.00	DP5	5.30
WS6 ^w	4.00	DP6	4.30
WS7	4.00	DP7	6.00
WS8 ^w	4.00	DP8	6.00
WS9 ^w	4.00	DP9	6.00

Exploratory Hole	Depth (m bgl)	Exploratory Hole	Depth (m bgl)
WS10 ^W	4.00	DPI0	6.00
WS11 ^W	4.00	DPI1	6.00
TP1	2.40	DCP3	0.95
TP2	2.40	DCP4	0.95
TP3	2.00	DCP5	0.95
TP4	2.00	DCP6	0.95
TP5	2.00	DCP7	0.95
TP7	1.00	DCP8	0.95
TP8	1.00	DCP9	0.95
TP9	1.00	DCPI0	0.95
DCPI	0.95	DCPI1	0.95
DCP2	0.95	DCPI2	0.95
CPI	20	-	

Note(s): ^W - well installation. . The depths given taken from the ground level adjacent to each exploratory hole the time of investigation..

The approximate exploratory hole locations are shown on Figure 3.

The soil conditions encountered were recorded and soil sampling commensurate with the purposes of the investigation was carried out. The depths given on the exploratory hole logs and quoted in this report were measured from ground level.

For more complete information about the soils encountered within the general area of the site reference must be made to the detailed records given within Appendix B, but for the purposes of discussion, the succession of conditions encountered in the exploratory holes in descending order can be summarised as:

Made Ground/Topsoil (MG/TS) Wittering Formation (WTT)

The ground conditions encountered in the exploratory holes are summarised in Table 2.2.

Table 2.2 Ground Conditions

Strata	Depth Encountered (m bgl)		Typical Thickness (m)	Typical Description
	Top	Bottom		
MG	0.00	0.30 – 0.35	0.30	Soft dark brown slightly sandy silty CLAY, with rare sub-angular medium chalk, flint and slate gravel.
TS		0.20 – 0.40	0.33	Soft dark brown, slightly gravelly, slightly silty, sandy CLAY/SILT.

Strata	Depth Encountered (m bgl)		Typical Thickness (m)	Typical Description
	Top	Bottom		
WTT	0.20 – 0.40	4.00 – 20.00 ^{1,2}	Not Proven ²	Soft to firm becoming stiff with depth, multicoloured, silty or sandy CLAY/SILT. Some exploratory hole locations had rare to frequent clayey sand beds (WS/DP3, WS/DP5, WS/DP6, WS/DP7, WS/DP8, DP9, DP11) which persisted to depth in CP1.

Note(s): ¹ Final depth of exploratory hole. ² Base of strata not encountered. The depths given taken from the ground level adjacent to each exploratory hole the time of investigation.

The soils encountered from immediately below ground surface have been described in the following manner. Where the soil incorporated an organic content such as either decomposing leaf litter or roots or has been identified as part of the in-situ weathering profile, it has been described as Topsoil both on the logs and within this report. Where man has clearly either placed the soil, or the composition altered, with say greater than an estimated 5% of a non-natural constituent, it has been referred to as Made Ground both on the log and within this report.

2.3 Ground Conditions Encountered in Exploratory Holes

The ground conditions encountered in exploratory holes have been described below in descending order. The engineering logs are presented in Appendix B.1.

2.3.1 Made Ground and Topsoil

Soils described as Made Ground were encountered in four out of the nineteen exploratory hole locations from ground level to depths ranging between 0.30 (WS/DP2, WS/DP5 and WS/DP10) and 0.35m bgl (WS/DP1). Made Ground was located to the north of the site, and due to the shallow depths encountered, anthropogenic material was anticipated to be predominantly introduced via historic farming practices, ploughing etc as opposed to previous building locations.

The Made Ground typically comprised soft dark brown slightly sandy silty CLAY. Sand was fine to medium. There were frequent rootlets and rare sub-angular medium chalk, flint and slate gravel.

Soils described as Topsoil were encountered in fifteen out of the nineteen exploratory holes from ground level to depths ranging between 0.20m (WS/DP8) and 0.40m bgl (WS/DP3, WS/DP7, and CP1).

The Topsoil typically comprised soft dark brown, slightly gravelly, slightly silty, sandy CLAY/SILT. Sand was fine to medium. Gravel was subangular to rounded fine to coarse flint. There were frequent rootlets.

The established depth of Made Ground and Topsoil found at each exploratory hole location have been included in Table 2.3.

Table 2.3 Established Depth of Made Ground/Topsoil

Exploratory Hole	Strata	Depth (m bgl)	Exploratory Hole	Strata	Depth (m bgl)
WS/DPI	MG	0.35	TP1	TS	0.35
WS/DP2	MG	0.30	TP2	TS	0.35
WS/DP3	TS	0.40	TP3	TS	0.39
WS/DP5	MG	0.30	TP4	TS	0.30
WS/DP6	TS	0.30	TP5	TS	0.39
WS/DP7	TS	0.40	TP7	TS	0.30
WS/DP8	TS	0.20	TP8	TS	0.30
WS/DP9	TS	0.30	TP9	TS	0.30
WS/DPI0	MG	0.30	CPI	TS	0.40
WS/DPI I	TS	0.20			

Note(s): ¹ Final depth of exploratory hole.

2.3.2 Wittering Formation

Soils described as Wittering Formation were directly encountered or inferred in all nineteen exploratory hole locations directly underlying Made Ground and Topsoil, and persisted to >20.00m bgl, the maximum extent of the investigation.

The Wittering Formation typically comprised soft to firm becoming stiff with depth, multicoloured, silty or sandy CLAY OR SILT. Some exploratory hole locations had rare to frequent clayey sand beds (WS/DP3, WS/DP5, WS/DP6, WS/DP7, WS/DP8, DP9, DP11) which persisted to depth in CP1. Sand was predominantly fine.

The established depth of Wittering Formation found at each exploratory hole location have been included in Table 2.4.

Table 2.4 Established Depth of Wittering Formation

Exploratory Hole	Depth (m bgl)	Exploratory Hole	Depth (m bgl)
WS/DPI	6.00 ¹	TP1	2.40 ¹
WS/DP2	6.00 ¹	TP2	2.40 ¹
WS/DP3	6.00 ¹	TP3	2.00 ¹
DP4	6.00 ¹	TP4	2.00 ¹
WS/DP5	5.30 ¹	TP5	2.00 ¹
WS/DP6	4.30 ¹	TP7	1.00 ¹
WS/DP7	6.00 ¹	TP8	1.00 ¹
WS/DP8	6.00 ¹	TP9	1.00 ¹
WS/DP9	6.00 ¹	-	
WS/DPI0	6.00 ¹	-	
WS/DPI I	6.00 ¹	-	
CPI	20.00 ¹	-	

Note(s): ¹ Final depth of exploratory hole. The depths given taken from the ground level adjacent to each exploratory hole at the time of investigation.

2.4 Roots

Roots (including rootlets) were encountered in all nineteen exploratory holes at depths ranging between 1.20 and 3.00m bgl. The established depth of root penetration found at the exploratory hole locations has been included in Table 2.5.

Table 2.5 Established Depth of Root Penetration

Exploratory Hole	Depth (m bgl)	Exploratory Hole	Depth (m bgl)
WS/DPI	2.70	TP1	1.80
WS/DP2	2.70	TP2	1.95
WS/DP3	2.30	TP3	1.90
WS/DP5	0.75	TP4	1.80
WS/DP6	2.30	TP5	2.00 ¹
WS/DP7	1.60	TP7	1.00 ¹
WS/DP8	1.70	TP8	1.00 ¹
WS/DP9	3.00	TP9	1.00 ¹
WS/DPI10	1.20	-	
WS/DPI11	1.20	-	
CPI	1.20	-	

Note(s): ¹ Final depth of exploratory hole. The depths given taken from the ground level adjacent to each exploratory hole at the time of investigation.

Roots may be found to greater depth at other locations on the site particularly close to trees and/or trees that have been removed both within the site and its close environs.

It must be emphasised that the probability of determining the maximum depth of roots from a narrow diameter borehole is low. A direct observation such as from within a trial pit is necessary to gain a better indication of the maximum root depth.

Regarding site specific information, on Google Earth history, the oldest aerial photograph of the site available from 1999 shows hedge locations to be the same as the current hedge boundaries, with no obvious tree removal or establishment since that date.

2.5 Groundwater

Groundwater was encountered within six exploratory holes (CP1, WS1, WS8, WS9, WS10, WS11) and was struck at depths ranging between 3.00m bgl and 3.70m bgl. Soils were observed to be moist around 2.40m bgl in TP1.

Changes in groundwater level occur for reasons including seasonal effects and variations in drainage. The investigation was conducted in November (2025), when groundwater levels should be rising from their annual minimum (lowest) elevation, which typically occurs around September to the annual maximum (highest) which typically occurs around March.

Groundwater has been monitored within the wells established within the site, to date, at depths ranging from 0.94m bgl (WS1 19th December 2025) and 'Dry' (>4.00m WS6, WS8, WS9 and WS10 28th November 2025).

Further groundwater monitoring has been conducted within the standpipes following completion of site works, with two undertaken to date and four visits outstanding to cover the winter period. Information to date has been presented in Table 2.6.

Table 2.6 Groundwater Monitoring

Exploratory Hole	Well Depth (m bgl)	Depth to Water (m bgl)	
		28/11/25	19/12/25
WS1	4.00	1.16	0.94
WS6	4.00	Dry	2.87
WS8	4.00	Dry	1.40
WS9	4.00	Dry	3.14
WS10	4.00	Dry	1.74
WS11	4.00	3.94	2.31

Groundwater equilibrium conditions may only be conclusively established, if a series of observations are made via groundwater monitoring wells.

The investigation was conducted in November (2025), when groundwater levels should be rising from their annual minimum (lowest) elevation, which typically occurs around September to the annual maximum (highest) which typically occurs around March.

It was also noted from the walkover in the Preliminary Investigation Report undertaken for the site by Soils Limited (Report ref: 22177/PIR, Nov 2025) that the relatively flat but slightly undulating ground had local surface water ponding and saturated ground was observed indicating poor drainage.

A completed Winter Groundwater Monitoring Report will be issued upon completion of the monitoring period.

Section 3 Geotechnical In-Situ and Laboratory Testing

3.1 Standard Penetration Tests

Standard Penetration Tests (SPTs) were undertaken in CP1. The results were interpreted based on the classifications outlined in Appendix C.1.

Table 3.1 Hammer Efficiency

SPT Hammer Ref	Energy Ratio Er (%)
SDAI	63

Table 3.2 Standard Penetration Tests (SPT) Interpretation

Strata	Depth Range (m bgl)	N60 Range	Soil Classification
WTT [C]	1.20 – 6.00	12 - 33	Medium to very high ($C_u = 60 - 165\text{kPa}$)
WTT [G]	6.00 – 20.00	23 - 37	Medium dense to dense

Note(s): [C] = cohesive, [G] = granular

A full interpretation of the SPT results, are outlined in Appendix C.2.

3.2 Dynamic Probe Tests

The results were converted to equivalent SPT “N60” values based on dynamic energy using commercial computer software (Geostru). Interpretation based on the classifications outlined in Appendix C.1.

Table 3.3 Hammer Efficiency

Rig Reference	Energy Ratio Er (%)
Premier 2	84.32
Premier 3	90.64

Table 3.4 Inferred SPT Interpretation

Strata	Depth Range (m bgl)	Inferred N60 Range	Soil Classification (C_u , kPa)
WTT [C]	0.20 – 2.60	0 - 4	Extremely low to very low ($<10 - 20$)
WTT [C]	0.90 – 6.00	4 - 26	Low to high ($20 - 130$)
WTT [G]	0.80 – 6.00	9 - 190	Loose to very dense

Note(s): SPT “N60” values presented have been corrected in accordance with BS EN 22476 Part 3. [C] = Cohesive. [G] = Granular.

A full interpretation of the DPSH tests, are outlined in Appendix C.2.

3.3 Dynamic Cone Penetrometer Tests

The Transport Research Laboratory (TRL), Dynamic Cone Penetrometer (DCP) was undertaken at twelve locations (DCP1 – DCP12). The results were interpreted based on the classification outlined in Appendix C.1.

The results from DCP testing indicated CBR values of between 3% and 55% for the soils encountered in the top 1.00m bgl. The higher CBR value of 55% encountered in DCP5 was anticipated to be due to encountering gravel clasts or dense sand struck during the test.

The DCP results are presented in Appendix C.3.

3.4 Infiltration Tests

Infiltration testing was undertaken in TPSA1 to TPSA5 within the soils of the Wittering Formation.

BRE Digest 365 Soakaway design: 1991 recommends that three tests are undertaken within each trial hole in quick succession, and that the water within each trial pit should be timed and recorded to 75% drained prior to undertaking the next test for full compliance.

A single test was carried out in TPSA1 to TPSA5, but 75% drainage was not reached in any tests undertaken onsite. Infiltration rates were not calculable due to negligible infiltration. Groundwater rose within TPSA1, potentially due to surface water run-off from waterlogged topsoil.

The infiltration test details are outlined in Table 3.5.

Table 3.5 Infiltration Rates

Exploratory Hole	Test No.	Comment
TPSA1	1	Negligible infiltration groundwater level rising. Potentially surface water run-off from waterlogged topsoil. Infiltration rate not calculable.
TPSA2	1	Water added to 1.17m bgl. Drained to 82% head of water (18% head loss) in 178 minutes to 1.32m bgl.
TPSA3	1	Water added to 1.10m bgl. Drained to 99% head of water (1% head loss) in 138 minutes to 1.11m bgl.
TPSA4	1	Water added to 1.19m bgl. Drained to 86% head of water (14% head loss) in 122 minutes to 1.30m bgl.
TPSA5	1	Water added to 1.24m bgl. Drained to 99% head of water (1% head loss) in 116 minutes to 1.25m bgl.

3.5 Atterberg Limit Tests

Atterberg Limit tests were performed on seven samples, all obtained from the cohesive soils of the Wittering Formation bedrock. The results were classified in accordance with BRE Digest 240 and NHBC Standards Chapter 4.2.

Table 3.6 Atterberg Limit Results Classification

Strata	Depth (m bgl)	Volume Change Potential	
		NHBC	BRE 240
WTT	0.80 – 10.00 ¹	High	High

Notes:¹ Sample at 10.00m bgl taken from clay bed within cohesive soils of CPI.

Details are in Table C.2.3, Appendix C.2 and the laboratory report in Appendix C.3

3.6 Particle Size Distribution Tests

Particle Size Distribution (PSD) tests were performed on six samples obtained from the Wittering Formation, five of granular soils and one cohesive (WS6: 1.70m bgl).

Table 3.7 Particle Size Distribution Classification

Strata	Exploratory Hole	Depth (m bgl)	Volume Change Potential	
			NHBC	BRE 240
WTT	CPI	5.00	Yes	No
		10.00	Yes	Yes
		15.00	No	No
	WS5	1.35	No	No
	WS6	1.70	Yes	Yes
	WS7	2.50	Yes	No

Note that a cohesive soil is only classified as having a volume change potential if it is also plastic and an Atterberg Limit test can be conducted on the strata.

A full interpretation of the PSD tests, are outlined in Appendix C.2 and the laboratory report in Appendix C.3.

3.7 Sulphate and pH Tests

Water soluble sulphate (2:1) and pH testing was undertaken on five samples taken from the Wittering Formation onsite in accordance with Building Research Establishment Special Digest 1, 2005, 'Concrete in Aggressive Ground'.

Table 3.8 Sulphate and pH Test Results

Strata	Depth (m bgl)	Sulphate Concentration (mg/l)	pH
WTT	1.00	14	7.9
WTT	2.10	320	5.8
WTT	4.00	28	8.4
WTT	8.00	230	7.5
WTT	12.00	60	8.8

The significance of the sulphate and pH Test results are discussed in Section 5.2 and the laboratory report in Appendix C.3.

Section 4 Engineering Appraisal

4.1 Established Ground Conditions

An engineering appraisal of the soil types encountered during the site investigation and likely to be encountered during the redevelopment of this site is presented. Soil descriptions are based on analysis of disturbed samples taken from the exploratory holes.

4.1.1 Made Ground and Topsoil

Soils described as Made Ground were encountered in four out of the nineteen exploratory hole locations from ground level to depths ranging between 0.30 (WS/DP2, WS/DP5 and WS/DP10) and 0.35m bgl (WS/DP1).

Soils described as Topsoil were encountered in fifteen out of the nineteen exploratory holes from ground level to depths ranging between 0.20m (WS/DP8) and 0.40m bgl (WS/DP3, WS/DP7, and CP1).

Foundations must not be placed on non-engineered fill unless such use can be justified on the basis of a thorough ground investigation and detailed design. Foundations must be taken through any Topsoil and/or Made Ground and either into, or onto a suitable underlying natural stratum of adequate bearing characteristics.

4.1.2 Wittering Formation

Soils described as Wittering Formation were encountered or inferred in all nineteen exploratory hole locations directly underlying Made Ground and Topsoil, and persisted to >20.00m bgl, the maximum extent of the investigation.

Soils of the Wittering Formation are overconsolidated, predominantly cohesive soils and as such are expected to display moderate bearing capacities with moderate settlement characteristics. However, some locations onsite (CP1, WS/DP3, WS/DP5, WS/DP4, WS/DP6, WS/DP7, WS/DP8, WS/DP9, WS/DP11, TP2, TP3 and TP4) included sand at upper depths ranging from 0.70m to 6.00m bgl underlying the cohesive soils, frequently but not always persisting to the maximum depths of the trial hole locations.

The results from insitu dynamic probe analysis showed that the cohesive soils of the Wittering Formation had an extremely low to low cohesive strength to 2.60m bgl in places, and that granular soils of the Wittering Formation are loose to very dense to 6.00m bgl in areas, indicating variability across the site.

The soils of the Wittering Formation were only considered suitable for light external structures onsite due to likely variations both in composition and deposition thickness, and when founding depth lies below any weaker strength soils.

4.1.3 Guidance on Shrinkable Soils

The ground conditions were established as Wittering Formation with a typical thickness unproven beyond the maximum extent of the investigation (20.00m) with overlying superficial deposits of Made Ground and Topsoil encountered to depths ranging from

0.20 – 0.40m bgl.

The volume change potential for the Wittering Formation was established and presented in Table 4.1.

Table 4.1 Established Volume Change Potential by Strata

Strata	Volume Change Potential		Established Lower Boundary (m bgl)
	BRE	NHBC	
WTT	High	High	>20.00

Soils of the Wittering Formation were determined to have a medium to high volume change potential, and the worst-case scenario of high volume change potential should therefore be adopted across the site.

4.1.4 Groundwater

Groundwater has been monitored to date at depths ranging from 0.94m bgl (WS1 19th December 2025) and dry (>4.00m WS6, WS8, WS9 and WS10 28th November 2025). Further winter groundwater monitoring is ongoing and will be updated into an addendum to this report once complete.

Section 5 Foundation Scheme

5.1 Foundation Recommendations

Foundations **must not** be constructed within any Made Ground/Topsoil due to the likely variability and potential for large load induced settlements both total and differential.

Roots (including rootlets) were encountered in all nineteen exploratory holes at depths ranging between 1.20 and 3.00m bgl. If roots are encountered during the construction phase foundations **must not be placed within any live root penetrated or desiccated cohesive soils or those with a volume change potential**. Should the foundation excavations reveal such materials, the excavations **must** be extended to greater depth in order to bypass these unsuitable soils. Excavations must be checked by a suitable person prior to concrete being poured.

Soils of the Wittering Formation have high volume change potential. Shallow groundwater was encountered onsite. Roots were encountered in all nineteen exploratory holes at depths ranging between 1.20 and 3.00m bgl, however, dry deeper roots are anticipated to be historic from former cover onsite if not located close to the bordering trees and hedges (as are WS/DP1 and WS/DP9).

Soils of the Wittering Formation are overconsolidated, with cohesive soils in many locations, but frequently overlying granular soils which persisted to the maximum depth of the investigation.

The results from insitu dynamic probe analysis showed that the cohesive soils of the Wittering Formation had an extremely low to low cohesive strength to 2.60m bgl in places, and that granular soils of the Wittering Formation, where present, are loose to very dense to 6.00m bgl in areas.

Considering the type of development, a shallow foundation solution was considered suitable only for smaller lightweight structures, but not for the main school structure due to the variability of soil strength and properties encountered which would require a piled foundation. Areas where lightweight structures have been identified include bike stores, pump station, generator compound, sports pitches and pavilion.

For any lightweight structures use of reinforced trench fill foundations could be adopted, to reduce the potential for differential settlement affecting the foundations, and variations both in composition and deposition thickness must be considered in the design of foundations.

Although not strictly applicable to non-residential structures, the proposed development is likely to be both light and brittle. It is therefore considered that foundation design is undertaken using NHBC Standards Chapter 4.2.

5.1.1 Shallow Foundations into the Wittering Formation

Based on a 5.00 by 0.75m strip foundation, using commercial software Table 5.1 shows the calculated bearing values and anticipated settlement characteristics for the Wittering

Formation in areas where lightweight structures have been identified to include bike stores, pump station, generator compound, sports pitches and pavilion.

Table 5.1 Allowable Bearing Capacities in the Wittering Formation WS/DP2 - Lightweight Ancillary Structures e.g. Bike Stores

Depth (m bgl)	Size (m)	Bearing Capacity (kPa)	Anticipated Settlement (mm)
1.00	5.00 x 0.75	25	25
1.50		25	20
2.50		45	15

Table 5.2 Allowable Bearing Capacities in the Wittering Formation WS/DP9 – Pump Station/ Generator Compound/ Sports Pitch

Depth (m bgl)	Size (m)	Bearing Capacity (kPa)	Anticipated Settlement (mm)
1.0	5.00 x 0.75	50	25

Table 5.3 Allowable Bearing Capacities in the Wittering Formation WS/DPI I – Pavillion Location

Depth (m bgl)	Size (m)	Bearing Capacity (kPa)	Anticipated Settlement (mm)
1.0	5.00 x 0.75	60	25

All foundation formations must be examined, recorded, and signed off by a competent person.

Care must be exercised where foundations pass over soils of different engineering properties or different soil types to minimise the potential effects of differential settlements.

For the allowable bearing value given above, settlements should not exceed the presented values, provided that excavation bases are carefully bottomed out and blinded or concreted as soon after excavation as possible and kept dry.

Foundations must not be constructed over former structures and other hard spots. The foundations design must be suitable for the conditions present at the site.

The anticipated settlement includes both elastic settlement and long-term drained settlement (in the case of cohesive soils).

Anticipated settlements may be taken as proportional to the bearing capacity adopted (for the same configuration of foundation), therefore if the bearing value is halved the anticipated settlement will halve.

All loose material, soft spots and Made Ground must be removed from the base of the excavations. Failure to do so could results in increased settlements.

It has been assumed that the foundations to any existing structures have been grubbed out. Where foundations have been grubbed out the new foundation must be taken through any backfill material into suitable natural ground as outlined in this report.

5.1.2 Piled Foundations

For the main structures, piled foundations must be taken into suitable strength soils of the Wittering Formation.

The construction of a piled foundation is a specialist job with the actual pile working load depending on the pile type and installation method. Prior to finalising the foundation design the advice from a reputable contractor who is familiar with the ground and groundwater conditions present at the site must be sought.

The vertical load capacities are provided for varying diameters and lengths of bored piles taken into the Wittering Formation, based on geotechnical laboratory testing and in-situ test and must only be used for preliminary design purposes.

A factor of safety of 3 was applied to the characteristic line derived from testing undertaken, for both the shaft and base load capacities.

The bearing values given in Appendix D.1., are applicable to single vertically loaded piles. Where piles are to be constructed in groups the bearing value of each individual pile should be reduced by a factor of about 0.8 and a calculation made to check the factor of safety against block failure.

The pile design was initially distorted by the two poor shallow SPT results at around 4 to 5m within cohesive soils. The values for cohesive soils have been removed from the design and have been ignored as they were not characteristic of the whole set of results. The pile design therefore starts at 7.00m bgl in the granular soils.

An adhesion value (α) of 0.45 was used to calculate the skin friction and a bearing capacity factor (N_c) of 9 was adopted for the cohesive bands of the Wittering Formation.

To prevent necking of the green concrete, temporary casing may be required below the groundwater table. To achieve the full bearing value a pile should penetrate the bearing stratum by at least five times the pile diameter.

No allowance has been made for negative skin friction that could be generated where piles pass through Made Ground and very soft cohesive soils deposits underlying the site. The negative skin friction must be applied to the pile working load and must not be factored.

Guidance on the design of a working platform for piling rigs can be provided by Soils Limited in accordance with the BRE "Working platform for tracked plant, 2004" documentation.

If a piled foundation scheme is to be adopted for the proposed development, to prevent any downward migration of contaminants into the underling groundwater/aquifers or

create preferential vertical pathways between aquifers, specific piling techniques should be employed in accordance with The National Groundwater and Contaminated Land Centre Report NC/99/73: Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention published by the EA, which presents guidance on piling on contaminated sites.

5.2 Subsurface Concrete

The sulphate and pH tests carried out in accordance with BRE Special Digest 1, 2005, 'Concrete in Aggressive Ground', established the site concrete classifications for each stratum as presented in Table 5.4.

Table 5.4 Concrete Classification

Stratum	Design Sulphate Class	ACEC Class
WTT	DS - I	AC - I

Concrete to be placed in contact with soil or groundwater must be designed in accordance with the recommendations of Building Research Establishment Special Digest 1 2005, '*Concrete in Aggressive Ground*' taking into account any possible exposure of potentially pyrite bearing natural ground and the pH of the soils.

5.3 Excavations

Shallow excavations in the Made Ground/Topsoil and Wittering Formation are likely to be marginally stable in the short term at best.

Deeper excavations taken into the Wittering Formation are likely to be unstable and require support. Unsupported earth faces formed during excavation may be liable to collapse without warning and suitable safety precautions must therefore be taken to ensure that such earth faces are adequately supported or battered back to a safe angle of repose.

Excavations beneath the groundwater table are likely to be unstable and dewatering of foundation trenches may be necessary.

Section 6 Pavements

6.1 Pavements

The Transport Research Laboratory (TRL), Dynamic Cone Penetrometer (DCP) was undertaken at twelve locations (DCP1 – DCP12). The results from DCP testing indicated CBR values of between 3% and 55% for the soils encountered in the top 1.00m bgl. The higher CBR value of 55% encountered were anticipated to be gravel clasts struck or dense sand encountered during the test.

When removing 400mm of either Made Ground or Topsoil the worst case CBR values were 1% and 2% in DCP5. The next lowest values were 3% (DCP2 and DCP6), which were considered suitable for design purposes for the majority of the road layout. During the interpretation the area highlighted as potentially problematic was around DCP5.

As CBR values were highly variable due to changes in moisture content and ground conditions, **in-situ CBR testing must be undertaken** immediately prior to the installation of pavements/roads. Any soft spots at formation level, as identified in the areas around DCP107 and DCP108, must be dug out and replaced with a suitably compacted granular fill. Prior to construction the formation level must be proof rolled.

Cohesive soils of the Wittering Formation are regarded as non-frost-susceptible as their plasticity index was >20%.

Section 7 Site Drainage

7.1 Soakaways

The results of in-situ soakage tests onsite (where a single test was carried out in TPSA1 to TPSA5), where 75% drainage was not reached in any tests resulted in infiltration rates not being calculable due to negligible infiltration. Groundwater rose within TPSA1, potentially due to surface water run-off from waterlogged topsoil.

It may be possible to undertake deeper infiltration methods onsite where granular soils are reached, however granular soils were inconsistent across the site. It is recommended that the results of the in-situ permeability testing are passed to a drainage engineer for commentary and design.

Section 8 Determination of Chemical Analysis

8.1 Site Characterisation and Revised Conceptual Site Model

The Preliminary Investigation Report undertaken by Soils Limited (report ref: 22177/PIR dated Nov 2025) identified a very low to low risk of ground contamination and from previous usage of the site and offsite sources.

The Contamination Investigation Report identified Made Ground to depths between 0.30m and 0.35m bgl.

The bedrock Wittering Formation was encountered underlying the Made Ground. Shallow groundwater was encountered within the Wittering Formation.

8.2 Soil Sampling

Exploratory hole locations were established to provide an overview of ground conditions across the site in relation to the proposed construction, together with enabling the collection of samples to enable chemical characterisation of the underlying strata.

Representative samples for potential environmental testing were obtained from the exploratory holes at depths of between 0.10m and 1.00m to allow appropriate representation of the materials encountered, with additional samples to be obtained, if necessary, where there was visual or olfactory evidence of contamination.

Unless otherwise stated, analytical testing was based initially on a screening suite of commonly identified inorganic and organic contaminants, taking into account the prevailing site conditions and the findings of the initial conceptual site model.

8.3 Determination of Chemical Analysis

The driver for determination of the analysis suite was the information obtained from the Preliminary Investigation Report and Contamination Investigation Report intrusive investigation.

The chemical analyses were carried out fourteen samples taken from soils onsite: 7No. samples of Topsoil, 3No. samples of Made Ground and 4No. samples of the Wittering Formation. The nature of the analyses is detailed in Table 8.1.

Table 8.1 Chemical Analyses Suites - Soil

No. of Tests			Determinants
MG	TS	WTT	
3	7	4	Metal suites: Arsenic, Boron (Water Soluble), Cadmium, Chromium (total & hexavalent), Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc
3	7	4	Organic Matter
3	7	4	pH
3	7	4	Polycyclic aromatic hydrocarbons (PAH) – (EPA 16)
3	7	4	Phenols – total monohydric

No. of Tests			Determinants
MG	TS	WTT	
3	7	4	Extractable petroleum hydrocarbons (EPH) – Texas banding
1	4	1	Total petroleum hydrocarbons (TPH) – CWG banding
1	4	1	BTEX and MTBE
1	4	1	Cyanide total & free
1	4	1	Polychlorinated biphenyls (PCB) – 7 Congeners
2			Waste acceptance criteria (WAC)
3	7	4	Asbestos screening

The soil testing was carried out in compliance with the MCERTS performance standard, and the results are shown in Appendix E.2, test reports 25-27624, and 25-27791.

Section 9 Qualitative Risk Assessment

9.1 Assessment Criteria

The assessment criteria used to determine risks to human health are derived and explained within Appendix E.3.

9.2 Representative Contamination Criteria - Soil

In compiling this report reliance was placed on drawings referenced in the record of associated documents. Recommendations provided within this report are made exclusively in relation to the scheme outlined above and must not be applied to any other scheme without further consultation with Soils Limited. Soils Limited must be notified about any change or deviation from the scheme outlined.

Based on the proposed development, the results of the chemical analysis have been compared against generic assessment criteria (GAC) for a **'Public Open Space - Residential'** end use, as presented in SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination December 2014 (C4SL), derived for the protection of human health. Where this document has not published screening values for determinants, GACs derived for the same end use have been adopted from the following published guidance; DEFRA Soil Guideline Values (SGV) and LQM/CIEH/Suitable 4 Use Level (S4UL).

To assess the potential toxicity of organic determinants (Petroleum Hydrocarbons and Polyaromatic Hydrocarbons) to the human health, soils samples were analysed for Soil Organic Matter (SOM). The selected samples analysed recorded, SOM values of between 0.5% and 4.8%. For each soil sample tested, the resultant SOM allowed for the correct comparison to be made with the appropriate guideline value for each organic determinants analysed.

9.2.1 Risk Assessment – Made Ground/Topsoil

Table 9.1 outlines the sample that have exceeded their relevant assessment criteria. The full laboratory report is presented in Appendix E.2.

Table 9.1 Summary of GAC Exceedances – Made Ground/Topsoil

Location	Depth (m bgl)	Contaminant	Concentration	Guidance Level
None				

The risk assessment has established no potential pollutant linkage in relation to human health within the Topsoil/Made Ground across the site.

9.2.2 Risk Assessment – Wittering Formation

Table 9.2 outlines the samples that have exceeded their relevant assessment criteria. The full laboratory report is presented in Appendix E.2.

Table 9.2 Summary of GAC Exceedances – Wittering Formation

Location	Depth (m bgl)	Contaminant	Concentration	Guidance Level
None				

The risk assessment has established no potential pollutant linkage in relation to human health within the soils of the Wittering Formation onsite.

9.3 Asbestos

The test certificate for each sample submitted for contamination analysis during this investigation includes the results of an Asbestos Screen.

In each case 'Not detected' was reported.

This finding does not obviate the risk of asbestos being present on the site and the Client must seek advice from qualified and competent asbestos specialist during and prior to undertaking works to ensure compliance with appropriate legislation and guidance.

9.4 Risk to Controlled Waters

The site is located on the Wittering Formation which is classified as a Secondary A Aquifer, is not within a groundwater source protection zone and there are no groundwater abstractions within 1km of the site.

The nearest surface watercourse feature is the on-site/near-site inland ditch (River Itchen catchment) located approximately 60m to the south east of the site. Groundwater flow direction was anticipated to follow the regional gradient toward the River Itchen; locally influenced by shallow strata and drainage lines (often SE/SW).

There is not considered to be any significant risk to controlled waters and no further assessment deemed necessary at this time.

The site is currently free draining to the underlying soils, and the proposed development will need to consider the implementation of a new drainage regime on site, as such the proposed development is considered to provide a betterment of site conditions where site drainage would not follow a pathway to impact on third party land or property.

9.5 Risk from Ground Gas Ingression

There were no potential sources of ground gas within influencing distance of the site identified within the CSM.

9.5.1 Radon

The site **was not situated** within an area where protection or risk assessment against the ingress of radon was required. Radon protection measures **will not be required**

within the proposed new development unless basements are proposed which may require further assessment.

9.6 Generic Quantitative Risk Assessment

Quantitative risk assessments are undertaken for the soil. The CSM has been updated to take account of the assessments below and presented in Appendix E.1. The full laboratory chemical report is presented in Appendix E.2.

9.6.1 Soils

Soil chemical analysis recorded no samples with substance levels over their representative guideline values.

The Tier 1 Quantitative risk assessment established that there was **no risk to the human health receptors** of construction workers or future end-users.

9.6.2 Groundwater

There is not considered to be any significant risk to controlled waters and no further assessment deemed necessary at this time.

9.6.3 Ground Gas

There were no potential sources of ground gas within influencing distance of the site identified within the CSM. Radon protection measures **will not be required**.

9.7 Recommendations

Soil chemical analysis recorded no samples with substance levels over their representative guideline values.

Therefore, there was no risk to the Human Health, Building Structures and Services and Groundwater receptors, and no remediation required onsite.

9.8 Protection of Services

Contamination of the ground may pose a risk to human health by permeating potable water supply pipes. To fulfil their statutory obligations, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from contaminants specified in UKWIR Report 10/WM/03/21 Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (UKWIR, 2010), or that the proposed remedial strategy will mitigate any existing risk.

9.9 Duty of Care

Groundworkers must maintain a good standard of personal hygiene including the wearing of overalls, boots, gloves and eye protectors and the use of dust masks during periods of dry weather.

9.10 Excavated Material

Excavated material as waste must be defined or classified prior to any disposal, transport, recycling or re-use at or by an appropriately licensed or exempt carrier and/or off-site disposal facility. The requirements inherent in both Duty of Care and Health and Safety must also be complied with. In order to determine what is to happen, what is suitable, appropriate and most effective in the disposal of wastes, especially those subject to CDM waste management plan requirements, several factors must be considered, and competent advice must always be sought.

9.11 Waste Acceptance Criteria (WAC)

WAC analysis was undertaken on two samples of Made Ground onsite to provide a general indication for future waste removal.

The WAC certificates are presented in Appendix E.2, within Test Report 25-27791.

9.12 Re-use of Excavated Material On-site

The re-use of on-site soils may be undertaken either under the Environmental Permitting Regulations 2007 (EPR), in which case soils other than uncontaminated soils are classed as waste, or under the CL:AIRE Voluntary Code of Practice (CoP) which was published in September 2008 and is accepted as an alternative regime to the EPR.

9.13 Imported Material

Any soil, which is to be imported onto the site, must undergo chemical analysis to permit classification prior to its importation and placement in order to ascertain its status with specific regard to contamination, i.e. to prove that it is suitable for the purpose for which it is intended.

9.14 Discovery Strategy

There may be areas of contamination not identified during the course of the investigation. Such occurrences may also be discovered during the demolition and construction phases for the redevelopment of the site.

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Appendix F Information Provided by the Client



Figure 1 – Site Location Map



Job Number

22177

Project

One Horton Heath School, Burnetts Lane,
Hampshire SO50 7QB

Client

Eastleigh Borough Council

Date

January 2026



Figure 2 – Aerial Photograph

Job Number

22177

Project

One Horton Heath School, Burnetts Lane,
Hampshire SO50 7QB

Client

Eastleigh Borough Council

Date

January 2026



Figure 3 – Exploratory Hole Plan



Job Number 22177	Project One Horton Heath School, Burnetts Lane, Hampshire SO50 7QB
Client Eastleigh Borough Council	Date January 2026

Appendix A Standards and Resources

The site works, soil descriptions and geotechnical testing was undertaken in accordance with the following standards were applicable:

- BS 5930:2015 and BS EN ISO 22476-2 2005+A1:2011
- BS 5930:2015 and BS EN ISO 22476-2&3:2005+A1:2011
- BS 5930:2015 and BS EN ISO 22476-3:2005+A1:2011
- BS EN 1997-1:2004+A1:2013 Eurocode 7. Geotechnical design
- BS EN ISO 14688-1:2018 - Geotechnical investigation and testing - Identification and description
- BS EN ISO 14688-2:2018 - Geotechnical investigation and testing - Principles for a classification
- BS 10175:2011+A2:2017 - Investigation of potentially contaminated sites
- LCRM 2021 Environment Agency
- BS 8004:2015 – Code of practice for foundations
- BS 1377:1990 Parts 1 to 8
- BRE Digest 241 “Low-rise buildings on shrinkable clay soils: Part 2
- BRE Special Digest 1, 2005, ‘Concrete in Aggressive Ground’
- N.E. Simons, B.K. Menzies, “A Short Course in Foundation Engineering”
- NHBC Standards Chapter 4.2, January 2024.
- SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination December 2014
- CIRIA C733, Asbestos in soil and made ground: a guide to understanding and managing risks and CAR2012 regulations.
- Google Earth
- British Geological Survey Website & iGeology App



Appendix B Field Work

Appendix B.1 Engineers Logs



Trial Pit

TP1
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-17	End Date 2025-11-17	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	D			(0.35)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [TOPSOIL]	
		0.50	D			0.35 (0.55)		Soft light brown and orange mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]	0.5
		1.00	D			0.90 (1.05)		Soft orange and grey mottled CLAY. Frequent black staining and decomposed roots. Frequent and rootlets. [WITTERING FORMATION]	1.0
		1.50	D						1.5
		2.00	D			1.95 (0.45)		Soft grey sandy CLAY. [WITTERING FORMATION]	2.0
		2.50	D			2.40		End of Trial Pit at 2.40m	2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Rootlets observed to 1.80m bgl.	Method, Plant, Stability, Dimensions 0.00 - 2.50m JCB L = 2.10m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP1

SUPPLEMENTARY INFO

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-17	End Date 2025-11-17	
Client	Consultant DEE	Contractor		

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				Slightly moist around 2.40m bgl.

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.2	D		
0.5	D		
1	D		
1.5	D		
2	D		
2.5	D		

Remarks Rootlets observed to 1.80m bgl.	Method, Plant, Stability, Dimensions 0.00 - 2.50m JCB L = 2.10m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP2
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	

Client	Consultant DEE	Contractor
--------	-------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	D			(0.35)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Roots and rootlets. [TOPSOIL]	
		0.50	D			0.35 (0.75)		Soft light brown and orange mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]	0.5 1.0
		1.00	D			1.10		Soft orange and grey mottled CLAY. Frequent black staining and decomposed roots. Frequent and rootlets. [WITTERING FORMATION]	1.5
		1.50	D			(0.85)			
		2.00	D			1.95 (0.45)		Orange SAND. [WITTERING FORMATION]	2.0
						2.40		End of Trial Pit at 2.40m	2.5 3.0 3.5 4.0 4.5 5.0

Remarks	Method, Plant, Stability, Dimensions 0.00 - 2.00m JCB L = 2.20m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP2

SUPPLEMENTARY INFO

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.2	D		
0.5	D		
1	D		
1.5	D		
2	D		

Remarks	Method, Plant, Stability, Dimensions 0.00 - 2.00m JCB L = 2.20m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP3
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	

Client	Consultant DEE	Contractor
--------	-------------------	------------

Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
		0.20	D			(0.39)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [TOPSOIL]
		0.50	D			(0.41)		Soft light brown and orange mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]
		1.00	D			(1.10)		Soft orange and grey mottled CLAY. Frequent black staining and decomposed roots. Frequent roots and rootlets. [WITTERING FORMATION]
		2.00	D			(0.10) 2.00		Orange SAND. [WITTERING FORMATION]
								End of Trial Pit at 2.00m

Remarks	Method, Plant, Stability, Dimensions 0.00 - 2.00m JCB L = 2.20m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP3

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25
Project Name	Project No.	Start Date	End Date	
One Horton Heath School	22177	2025-11-18	2025-11-18	
Client	Consultant	Contractor		
	DEE			

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.20	D		
0.50	D		
1.00	D		
1.50	D		
2.00	D		

Remarks	Method, Plant, Stability, Dimensions	Logger
	0.00 - 2.00m JCB	JC
	L = 2.20m W = 0.45m	
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP4
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	D			(0.30)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [TOPSOIL]	
		0.50	D			0.30		Soft light brown and orange mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]	0.5
		1.00	D			(1.20)			1.0
		1.50	D			1.50		Soft orange and grey mottled, sandy CLAY. Frequent roots and rootlets. [WITTERING FORMATION]	1.5
		2.00	D			(0.30)		Brown clayey SAND. [WITTERING FORMATION]	2.0
						1.80			
						(0.20)			
						2.00		End of Trial Pit at 2.00m	
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks	Method, Plant, Stability, Dimensions	Logger
	0.00 - 2.00m JCB L = 2.30m W = 0.45m	JC

Checked By: DEE Approved By: DEE Status: FINAL



Trial Pit

TP4

SUPPLEMENTARY INFO

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.20	D		
0.50	D		
1.00	D		
1.50	D		
2.00	D		

Remarks	Method, Plant, Stability, Dimensions 0.00 - 2.00m JCB L = 2.30m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP5
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	D			(0.39)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Roots and rootlets. [TOPSOIL]	
		0.50	D			(0.41)		Soft light brown and orange mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]	0.5
		1.00	D			(1.20)		Soft orange and grey mottled CLAY. Frequent black staining and decomposed roots. Frequent roots and rootlets. [WITTERING FORMATION]	1.0
		1.50	D						1.5
		2.00	D			2.00		End of Trial Pit at 2.00m	2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks	Method, Plant, Stability, Dimensions 0.00 - 2.00m JCB L = 2.20m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP5

SUPPLEMENTARY INFO

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.2	D		
0.5	D		
1	D		
1.5	D		
2	D		

Remarks	Method, Plant, Stability, Dimensions 0.00 - 2.00m JCB L = 2.20m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP7
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-17	End Date 2025-11-17	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	ES			(0.30)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [TOPSOIL]	
		0.50	ES			0.30		Soft light brown and orange mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]	0.5
		1.00	ES			(0.70)			
						1.00		End of Trial Pit at 1.00m	1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Rootlets observed to 1.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 1.00m JCB L = 1.00m  W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP7

SUPPLEMENTARY INFO

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-17	End Date 2025-11-17	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.20	ES		
0.50	ES		
1.00	ES		

Remarks Rootlets observed to 1.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 1.00m JCB L = 1.00m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP8
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-17	End Date 2025-11-17	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	ES			(0.30)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [TOPSOIL]	
		0.50	ES			0.30 (0.70)		Soft light brown and grey mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]	0.5
		1.00	ES			1.00		End of Trial Pit at 1.00m	1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Rootlets observed to 1.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 1.00m JCB L = 1.00m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP8

SUPPLEMENTARY INFO

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-17	End Date 2025-11-17	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.2	ES		
0.5	ES		
1	ES		

Remarks Rootlets observed to 1.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 1.00m JCB L = 1.00m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP9
Sheet 1 of 1

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-17	End Date 2025-11-17	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	ES			(0.30)		Soft brown, slightly gravelly clayey SILT. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [TOPSOIL]	
		0.50	ES			0.30 (0.70)		Soft light brown and grey mottled, slightly gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Frequent roots and rootlets. [WITTERING FORMATION]	0.5
		1.00	ES			1.00		End of Trial Pit at 1.00m	1.0
									1.5
									2.0
									2.5
									3.0
									3.5
									4.0
									4.5
									5.0

Remarks Rootlets observed to 1.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 1.00m JCB L = 1.00m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Trial Pit

TP9

SUPPLEMENTARY INFO

Hole Type TP	Easting	Northing	Ground Level (m)	Scale 1:25
Project Name One Horton Heath School	Project No. 22177		Start Date 2025-11-17	End Date 2025-11-17
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.2	ES		
0.5	ES		
1	ES		

Remarks Rootlets observed to 1.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 1.00m JCB L = 1.00m W = 0.45m	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Remarks	Method, Plant, Stability, Dimensions		Logger
	0.00 - 20.00m	Dando 2000	SDA
Checked By: DEE Approved By: DEE Status: FINAL			



Cable Percussion Log

CP1
Sheet 2 of 2

Hole Type CP	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-20	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata							
		Depth (m)	Type/ Ref	Results			Legend	Description						
		10.00 10.00-10.45	SPT DSAMP	N=35 (3,4/5,7,10,13) N60=37				As previous page.						
		11.00	D											
		11.50 11.50-11.95	SPT DSAMP	N=31 (3,4/5,7,9,10) N60=33										
		12.00	D											
		12.50												
		13.00 13.00-13.45	SPT D DSAMP	N=30 (3,4/6,7,8,9) N60=32			(1.00)				Firm grey mottled, brownish grey and light grey, silty, sandy CLAY. Sand is fine. [WITTERING FORMATION]			
		13.50												
		14.00	D								Grey mottled, brownish grey and light grey, silty, clayey SAND. Sand is fine. Frequent clay lenses. [WITTERING FORMATION]			
		14.50 14.50-14.95	SPT DSAMP	N=32 (3,4/6,8,9,9) N60=34			(2.00)							
		15.00	D											
		15.50												
		16.00 16.00-16.45 16.00-16.50	D UT B	Blows: 40, Recovery: 0%			(1.00)				Firm to stiff grey mottled, brownish grey and light grey, slightly silty, sandy CLAY. Sand is fine. [WITTERING FORMATION]			
		16.50									Grey mottled, brownish grey and light grey, slightly silty, very clayey SAND. Sand is fine. Frequent clay lenses. [WITTERING FORMATION]			
		17.00	D											
		17.50 17.50-17.95	SPT DSAMP	N=27 (3,4/5,7,7,8) N60=28			(3.50)							
		18.00	D											
		19.00 19.00-19.45	SPT D DSAMP	N=29 (3,4/5,7,8,9) N60=30										
		20.00	D											
												End of Borehole at 20.00m		

Remarks	Method, Plant, Stability, Dimensions 0.00 - 20.00m Dando 2000	Logger SDA
	Checked By: DEE Approved By: DEE Status: FINAL	



Cable Percussion Log

CP1
SUPPLEMENTARY INFO

Hole Type CP	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177		Start Date 2025-11-19	End Date 2025-11-20
Client	Consultant DEE	Contractor		

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.65	9.00	3.20		

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.65	3.40	20	Day 1
10.45	9.90	20	Day 2

Driller's Descriptions

Top Depth (m)	Base Depth (m)	Description
0.00	0.40	Brown slightly gravelly sandy CLAY.
0.40	1.20	Orange gravelly sandy CLAY.
1.20	2.00	Orange slightly gravelly SAND.
2.00	3.20	Brown sandy CLAY becoming clayey SAND with depth.
3.20	6.00	Orange SAND.
6.00	9.00	Grey SAND.
9.00	20.00	Grey clayey SAND.

SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.20 (S)	1.20	DRY	SDA1	63	N=11 (1,2/2,3,3,3)
3.20 (S)	3.20	DRY	SDA1	63	N=12 (1,2/2,3,3,4)
4.20 (S)	4.20	3.70	SDA1	63	N=37 (3,6/7,8,10,12)
5.50 (S)	5.50	3.80	SDA1	63	N=31 (3,4/6,7,9,9)
7.00 (S)	7.00	4.00	SDA1	63	N=22 (3,3/4,5,6,7)
8.50 (S)	8.50	4.30	SDA1	63	N=25 (3,4/5,6,7,7)
10.00 (S)	10.00	DRY	SDA1	63	N=35 (3,4/5,7,10,13)
11.50 (S)	11.50	9.30	SDA1	63	N=31 (3,4/5,7,9,10)
13.00 (S)	13.00	9.00	SDA1	63	N=30 (3,4/6,7,8,9)
14.50 (S)	14.50	9.50	SDA1	63	N=32 (3,4/6,8,9,9)
17.50 (S)	17.50	9.00	SDA1	63	N=27 (3,4/5,7,7,8)
19.00 (S)	19.00	9.70	SDA1	63	N=29 (3,4/5,7,8,9)

Continued on next page

Remarks	Method, Plant, Stability, Dimensions 0.00 - 20.00m Dando 2000	Logger SDA
Checked By: DEE Approved By: DEE Status: FINAL		



Cable Percussion Log

CP1
SUPPLEMENTARY INFO

Hole Type CP	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177		Start Date 2025-11-19	End Date 2025-11-20
Client	Consultant DEE	Contractor		

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.10	D		
0.10	B		
0.40	D		
0.40	B		
1.20	D		
1.20	DSAMP		
1.20	B		
2.00	D		
2.20	UT		
2.20	B		
3.00	D		
3.20	DSAMP		
3.20	B		
4.00	D		
4.20	DSAMP		
5.00	D		
5.50	DSAMP		
6.00	D		
6.00	B		
7.00	DSAMP		
7.00	D		
8.00	D		
8.50	DSAMP		
10.00	DSAMP		
11.00	D		
11.50	DSAMP		
12.00	D		
13.00	D		
13.00	DSAMP		
14.00	D		
14.50	DSAMP		
15.00	D		
16.00	D		
16.00	UT		
16.00	B		
17.00	D		
17.50	DSAMP		
18.00	D		
19.00	D		
19.00	DSAMP		
20.00	D		

Remarks	Method, Plant, Stability, Dimensions 0.00 - 20.00m Dando 2000	Logger SDA
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS1
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.20	WAC			(0.35)		Soft to firm brown, slightly sandy silty CLAY. Sand is fine to medium. Frequent rootlets. Occasional angular to well rounded, fine to medium flint, and clinker.	0.5
		0.50	ES			0.35		[MADE GROUND]	
		0.50	D			(0.55)		Firm orange, light greyish brown and greyish brown mottled, slightly sandy, silty CLAY. Sand is fine to medium. Frequent rootlets.	1.0
		1.00	ES			0.90		[WITTERING FORMATION]	
		1.00	D			(0.55)		Firm orange, light greyish brown and grey mottled, slightly sandy, silty CLAY. Sand is fine to medium. Rare rootlets.	1.5
		1.50	D			1.45		[WITTERING FORMATION]	
		2.00	D			(0.85)		Firm to stiff, light grey mottled, black (odourless) and orange, slightly sandy, silty CLAY. Sand is fine. Frequent black ferruginous mottling. Frequent decayed rootlets and occasional rootlets. Occasional fine sand and silty inclusions. Very rare sub-angular medium flint gravel.	2.0
		2.40	D			2.30		[WITTERING FORMATION]	
		2.80	D			(0.40)		Soft to firm multi-coloured, slightly silty sandy CLAY. Sand is fine to medium and features in frequent laminations and thin beds.	2.5
		2.80	D			2.70		[WITTERING FORMATION]	
		3.30	D			(1.30)		Soft to firm becoming firm to stiff with depth, grey slightly silty sandy CLAY. Sand is fine to medium and features in frequent laminations and lenses.	3.0
		3.80	D					<i>Rare medium lignite inclusion. (2.95m)</i>	
End of Borehole at 4.00m									

Remarks Live rootlets observed to 2.30m bgl. Dry rootlets observed to 2.70m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS1

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.00				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.00	2.80	20	

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.20	WAC		
0.50	ES		
0.50	D		
1.00	ES		
1.00	D		
1.50	D		
2.00	D		
2.40	D		
2.80	D		
3.20	D		
3.80	D		

Remarks Live rootlets observed to 2.30m bgl. Dry rootlets observed to 2.70m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS2
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
		0.10	WAC			(0.30)		Soft dark brown slightly sandy silty CLAY. Sand is fine to medium. Frequent rootlets. Rare sub-angular medium chalk, flint and slate gravel.
		0.40	ES			0.30		
		0.70	ES			(0.30)		[MADE GROUND.]
		0.70	D			0.60		Firm orange, light greyish brown and greyish brown mottled, slightly sandy, silty CLAY. Sand is fine to medium. Frequent rootlets. [WITTERING FORMATION]
		1.20	D			(1.35)		Firm to stiff orange, light greyish brown and grey mottled, slightly sandy, silty CLAY. Sand is fine to medium. Rare rootlets and decomposing rootlets. [WITTERING FORMATION]
		1.70	D			1.95		Rare black odourless mottling. (1.50 - 1.60m)
		2.10	D			(0.65)		Firm to stiff multicoloured, slightly sandy, silty CLAY. Sand is fine to medium and features in occasional laminations. Occasional sub-angular medium flint gravel. Occasional reddish brown partings. [WITTERING FORMATION]
		2.50	D			2.60		Soft with frequent sand laminations. (2.30 - 2.50m)
		2.70	D			(0.35)		Firm to stiff multicoloured slightly sandy silty CLAY. Sand is fine and features in frequent laminations. Frequent reddish brown partings. [WITTERING FORMATION]
		3.20	D			2.95		Firm to stiff grey slightly sandy, silty CLAY. Sand is fine. Occasional fine sand laminations and thin beds. [WITTERING FORMATION]
		3.70	D			(1.05)		Rare fine lignite. (2.95m)
						4.00		End of Borehole at 4.00m

Remarks Live rootlets observed to 2.30m bgl. Decomposing rootlets observed to 1.70m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS2

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.10	WAC		
0.40	ES		
0.70	ES		
0.70	D		
1.20	D		
1.70	D		
2.10	D		
2.50	D		
2.70	D		
3.20	D		
3.70	D		

Remarks Live rootlets observed to 2.30m bgl. Decomposing rootlets observed to 1.70m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS3
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata	
		Depth (m)	Type/ Ref	Results			Legend	Description
		0.30	ES			(0.40)		Soft to firm brown slightly sandy silty CLAY. Sand fine to medium. Frequent rootlets. Frequent angular to sub angular gravel. [TOPSOIL]
		0.60	ES			0.40		Firm light brown and orange mottled, slightly gravelly sandy CLAY. Sand is fine to medium. Frequent angular to sub-angular medium to coarse flint gravel. Frequent rootlets. [WITTERING FORMATION]
		0.80	ES			(0.35)		Firm light greyish brown, orange and brownish red mottled slightly sandy silty CLAY. Sand is fine to medium. Occasional rootlets. Rare subangular fine to medium flint gravel. [WITTERING FORMATION]
		0.80	D			0.75		Firm light brown and orange mottled, sandy silty CLAY. Sand is fine to medium. [WITTERING FORMATION]
		1.30	D			(0.65)		Very soft to soft brown and orange mottled clayey SAND interbedded with clay occasional laminations. Sand is fine to medium. Rare rootlets. [WITTERING FORMATION]
		1.70	D			1.40		Firm orange and light brown reddish brown mottled sandy silty CLAY. Sand is fine to medium. Fissures present. [WITTERING FORMATION]
		2.20	D			(0.25)		Firm brown slightly sandy silty CLAY. Sand is fine to medium and features in frequent laminations. [WITTERING FORMATION]
		2.40	D			2.35		Firm to stiff grey slightly sandy silty CLAY. Sand is fine to medium. Occasional fine sand laminations and thin beds. [WITTERING FORMATION]
		2.85	D			(0.60)		
		3.10	D			2.95		
		3.60	D			(1.05)		
						4.00		

Remarks Decomposing rootlets observed to 2.3m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS3

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.30	ES		
0.60	ES		
0.80	ES		
0.80	D		
1.30	D		
1.70	D		
2.20	D		
2.40	D		
2.85	D		
3.10	D		
3.60	D		

Remarks Decomposing rootlets observed to 2.3m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS5
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.10	WAC			(0.30)		Soft dark brown slightly sandy, slightly gravelly CLAY. Gravel is angular to sub-angular, fine to medium flint, chalk, slate and clinker. Frequent rootlets.	0.5
		0.40	ES			0.30		[MADE GROUND]	
		0.60	D			(0.40)			
		0.75	ES			0.70		Firm multicoloured, slightly sandy, silty CLAY. Sand is fine to medium. Frequent rootlets. Occasional sub-angular to well rounded, fine to medium flint gravel.	1.0
		0.90	D			(0.15)		[WITTERING FORMATION]	
						0.85			
		1.35	D			(0.40)			1.5
		1.60	D			1.25		Band with frequent subangular to well rounded, fine to medium flint gravel. (0.65 - 0.70m)	
						(0.30)			
						1.55			2.0
						(0.65)		Reddish brown mottled grey, fine to medium silty SAND interbedded with silty sandy CLAY at upper and lower boundaries. Rare rootlets.	
		2.10	D			2.20		[WITTERING FORMATION]	
		2.30	D			(0.25)			2.5
		2.50	D			2.45		Brown becoming yellowish brown with depth, silty SAND. Sand is fine.	
						(0.65)		[WITTERING FORMATION]	
						2.90		Sandy clay band. (1.20 - 1.25m)	3.0
						(0.65)			
		2.90	D			3.10		Yellowish brown becoming yellow mottled orange with depth, slightly silty SAND. Sand is fine. Occasional clayey bands.	
		3.20	D			(0.50)		[WITTERING FORMATION]	3.5
						(0.50)		Red becoming brown and orange with depth, clayey SAND. Sand is fine to medium.	
						3.60		[WITTERING FORMATION]	
		3.70	D			(0.20)			4.0
		3.90	D			3.80		Red sand. (1.55 - 1.70m)	
						(0.20)			
						4.00		Brown sand. (1.70 - 1.85m)	4.5
								Stiff multicoloured sandy clay band with coarse sand at the base. (1.85 - 1.95m)	
								Red sand. (1.95 - 2.00m)	
								Stiff multicoloured slightly sandy silty CLAY. Sand is fine to medium.	5.0
								[WITTERING FORMATION]	
								Light brown laminated light greyish brown SAND. Sand is fine. Occasional to frequent fine clay laminations.	
								[WITTERING FORMATION]	5.5
								Fine to medium sand band. (2.65 - 2.40m)	
								Light brown, light greyish brown and yellow laminated SAND. Sand is fine. Occasional to frequent fine clay laminations and thin beds.	6.0
								[WITTERING FORMATION]	
								Predominantly clay with sand laminations. (3.50 - 3.60m)	
								Yellow laminated multicoloured SAND. Sand is fine to medium. Rare fine clay laminations and thin beds.	7.0
								[WITTERING FORMATION]	
								Light greyish brown laminated light brownish grey and brown SAND. Sand is fine. Occasional to frequent fine clay laminations.	
								[WITTERING FORMATION]	7.5
								End of Borehole at 4.00m	
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks Rootlets observed to 0.75m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS5

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.10	WAC		
0.40	ES		
0.60	D		
0.75	ES		
0.90	D		
1.35	D		
1.60	D		
2.10	D		
2.30	D		
2.50	D		
2.90	D		
3.20	D		
3.70	D		
3.90	D		

Remarks Rootlets observed to 0.75m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS6
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.10	ES			(0.30)		Soft dark brown slightly sandy, silty CLAY. Frequent rootlets. Rare angular to sub-angular medium flint gravel. Very rare sub-angular medium clinker gravel near surface.	
		0.40	ES			0.30		Firm to stiff yellowish brown mottled orange and greyish brown, slightly sandy, silty CLAY. Sand is fine to medium. Frequent rootlets. Rare sub-angular to well rounded, fine to coarse flint gravel.	
		0.40	D			(0.50)		[TOPSOIL]	0.5
		0.80	ES			0.80		Firm to stiff yellowish brown mottled orange and greyish brown, slightly sandy, silty CLAY. Sand is fine to medium. Frequent rootlets. Rare sub-angular to well rounded, fine to coarse flint gravel.	
		0.80	D			(0.15)		[WITTERING FORMATION]	1.0
		0.80	D			0.95		[WITTERING FORMATION]	
		1.10	D			(0.55)		[WITTERING FORMATION]	1.5
		1.60	D			1.50		Orange, grey and yellow mottled, silty SAND. Sand is fine. Occasional clay laminations. Rare rootlets.	
		1.70	D			(0.15)		[WITTERING FORMATION]	2.0
		2.20	D			0.70		Firm becoming stiff, grey mottled orange and brown, slightly sandy silty CLAY. Sand is fine to medium. Occasional sand laminations, lenses and inclusions. Rare decomposing/dry rootlets.	
		2.50	D			2.35		[WITTERING FORMATION]	2.5
		2.90	D			(0.65)		Yellowish brown, orange and orangish brown mottled and bedded, slightly clayey SAND. Sand is fine to medium. Occasional clay lenses and thin beds.	
		3.30	D			3.00		[WITTERING FORMATION]	3.0
		3.60	D			(0.50)		Firm multicoloured mottled slightly sandy silty CLAY. Sand is fine to medium. Frequent thin sand beds and laminations increasing with depth. Very rare decomposing rootlets. Very rare fine lignite.	
						3.50		[WITTERING FORMATION]	3.5
						(0.50)		Rare coarse sand lamination. (1.65m)	
						4.00		Fine to medium sand band. (1.90 - 2.00m)	4.0
								Firm to stiff multicoloured slightly silty sandy CLAY. Sand is fine and features in frequent lenses, laminations and thin beds.	
								[WITTERING FORMATION]	4.5
								Orange, light brown and yellow mottled, clayey SAND. Sand is fine. Frequent clay laminations and lenses.	
								[WITTERING FORMATION]	5.0
								Light greyish brown laminated light brownish grey and greyish brown SAND. Sand is fine. Occasional to frequent fine clay laminations.	
								[WITTERING FORMATION]	5.5
								End of Borehole at 4.00m	6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks Decomposing rootlets observed to 2.30m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS6

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.10	ES		
0.40	ES		
0.40	D		
0.80	ES		
0.80	D		
1.10	D		
1.60	D		
1.70	D		
2.20	D		
2.50	D		
2.90	D		
3.30	D		
3.60	D		

Remarks Decomposing rootlets observed to 2.30m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS7
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.30	ES			(0.40)		Soft dark brown slightly silty sandy CLAY. Frequent rootlets. Frequent angular to sub-angular fine to coarse flint gravel. Very rare sub-angular fine clinker.	0.5
		0.50	ES			0.40			
		0.50	D			(0.40)		[TOPSOIL]	
		0.90	ES			0.80		Firm orange, yellowish brown and greyish brown mottled, slightly sandy, silty CLAY. Sand is fine to medium. Frequent rootlets.	1.0
		0.90	D			(0.45)		[WITTERING FORMATION]	
		1.30	D			1.25		Firm orange, light greyish brown and grey mottled, slightly sandy, silty CLAY. Sand is fine to medium. Occasional rootlets. Very rare sub-angular coarse flint gravel.	1.5
		1.70	D			1.60		[WITTERING FORMATION]	
		2.00	D			(0.35)		Firm orange, light greyish brown and grey mottled, slightly sandy, silty CLAY interbedded with clayey SAND. Sand is fine to medium. Occasional rootlets.	2.0
		2.50	D			1.95		[WITTERING FORMATION]	
		2.80	D			(0.75)		Yellowish brown, orange, and light brownish grey mottled, clayey SAND. Sand is fine to medium. Frequent sandy clay beds, lenses and laminations.	2.5
		2.80	D			2.70		[WITTERING FORMATION]	3.0
		3.30	D			(1.00)		Multicoloured mottled and laminated SAND. Sand is fine. Occasional clay laminations.	3.5
		3.80	D			3.70		[WITTERING FORMATION]	
						(0.30)		Yellow mottled yellowish brown and orange, SAND. Sand is fine. Rare clay laminations.	4.0
						4.00		[WITTERING FORMATION]	
								Light yellowish brown and light brownish grey bedded SAND.	
								[WITTERING FORMATION]	4.5
								End of Borehole at 4.00m	
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks Rootlets observed to 1.60m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS7

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered.

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.30	ES		
0.50	ES		
0.50	D		
0.90	ES		
0.90	D		
1.30	D		
1.70	D		
2.00	D		
2.50	D		
2.80	D		
3.30	D		
3.80	D		

Remarks Rootlets observed to 1.60m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS8
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.10	ES			(0.20)		Soft dark brown slightly silty sandy CLAY. Frequent rootlets. Rare angular to sub-angular fine to medium flint gravel.	
		0.30	ES			0.20		[TOPSOIL]	
						(0.50)		Firm orange, yellowish brown and greyish brown mottled, slightly sandy, silty CLAY. Sand is fine to medium. Frequent rootlets.	0.5
		0.80	ES			0.70		[WITTERING FORMATION]	1.0
		0.80	D					Firm orange, light greyish brown and grey mottled, slightly sandy, silty CLAY. Sand is fine to medium. Occasional rootlets and dry roots. Occasional black speckles. Very rare sub-angular fine flint gravel.	1.5
		1.30	D			(0.90)		[WITTERING FORMATION]	
		1.80	D			1.60		Firm orange, light greyish brown and grey mottled, slightly sandy, silty CLAY. Sand is fine to medium. Occasional sand lenses, laminations and thin beds. Rare fine lignite.	2.0
		2.10	D			(1.25)		[WITTERING FORMATION]	2.5
		2.60	D					Soft dark grey sandy CLAY. Sand is fine to medium and features in frequent lenses and inclusions. Rare fine lignite.	3.0
		3.00	D			2.85		[WITTERING FORMATION]	3.5
		3.50	D			3.50 (0.20)		Clayey sand band. (2.85 - 3.00m)	
		3.80	D			3.70 (0.30)		Dark grey clayey SAND. Sand is fine to medium.	4.0
						4.00		Grey SAND. Sand is fine.	4.5
								[WITTERING FORMATION]	5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks Rootlets observed to 1.50m bgl. Dry rootlets observed to 1.70m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS8

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177		Start Date 2025-11-18	End Date 2025-11-18
Client	Consultant DEE	Contractor		

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.00				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.00	2.80	20	

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.1	ES		
0.3	ES		
0.8	ES		
0.8	D		
1.3	D		
1.8	D		
2.1	D		
2.6	D		
3	D		
3.5	D		
3.8	D		

Remarks Rootlets observed to 1.50m bgl. Dry rootlets observed to 1.70m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS9
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata			
		Depth (m)	Type/ Ref	Results			Legend	Description		
		0.10	ES			(0.30)		Soft dark brown slightly silty slightly sandy slightly gravelly CLAY. Gravel is subangular to well rounded fine to coarse flint. Sand is fine to medium. Abundant rootlets.	0.5	
		0.40	ES			0.30				
		0.50	D			(0.65)		[TOPSOIL]		
		0.80	ES			0.95		Firm orangish brown mottled greyish brown slightly silty slightly sandy slightly gravelly CLAY. Gravel is subangular to well rounded fine to coarse flint and becomes more prominent with depth. Sand is fine. Frequent rootlets.	1.0	
		0.90	D			(0.85)		[WITTERING FORMATION]		
		1.30	D			1.80		Firm light brownish grey mottled greyish brown and orangish brown slightly sandy silty CLAY. Sand is fine. Occasional dry rootlets and partial partings.	1.5	
		1.70	D			(0.70)		[WITTERING FORMATION]		
		2.20	D			2.50		Firm light brownish grey mottled orangish brown silty sandy CLAY. Sand is fine. Occasional orangish brown laminations.	2.0	
		2.70	D			3.20		[WITTERING FORMATION]		
		3.30	D			(0.70)		Firm brownish grey laminated orangish brown and light brownish grey slightly sandy silty CLAY. Sand is fine to medium. Occasional laminations and pockets of sand. Rare dry rootlet traces.	2.5	
3.60	D			3.20		[WITTERING FORMATION]				
						(0.80)		Fine to medium SAND (3.00 - 3.20m)	3.0	
						(0.80)		Firm to stiff purplish brown laminated orangish brown and light brownish grey silty sandy CLAY. Sand is fine to medium and occurs in laminations. Occasional very stiff angular laminated clay fragments.		3.5
						4.00		[WITTERING FORMATION]		
								Orangish brown fine to medium SAND (3.95 - 4.00m)	4.0	
							End of Borehole at 4.00m			
									4.5	
									5.0	
									5.5	
									6.0	
									6.5	
									7.0	
									7.5	
									8.0	
									8.5	
									9.0	
									9.5	
									10.0	

Remarks Rootlets observed to 1.10m bgl. Dry rootlets observed to 3.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS9

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.00				

Water Strike - Details			
Struck (m)	Rose To (m)	Time (mins)	Remarks
3.00	2.80	20	

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.10	ES		
0.30	ES		
0.50	D		
0.80	ES		
0.90	D		
1.30	D		
1.70	D		
2.20	D		
2.70	D		
3.10	D		
3.60	D		

Remarks Rootlets observed to 1.10m bgl. Dry rootlets observed to 3.00m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS10
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (m) (thickness)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.10	WAC			(0.30)		Soft dark brown slightly silty sandy CLAY. Frequent rootlets. Occasional angular to well rounded fine to coarse flint, brick and chalk gravel.	0.5
		0.40	ES			0.30		[MADE GROUND]	
		0.80	ES			(0.40)		Soft to firm orangish brown mottled greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to well rounded fine to coarse flint. Sand is fine to medium. Frequent rootlets.	1.0
		0.80	D			0.70		[WITTERING FORMATION]	
		1.40	D			(0.60)		Firm to stiff grey mottled orange and brown, slightly sandy silty CLAY. Sand is fine and features in occasional lenses. Occasional rootlets.	1.5
		1.80	D			1.30		[WITTERING FORMATION]	
		2.30	D			(0.40)		Occasional subangular fine to coarse flint gravel. (1.00 - 1.20m)	2.0
		2.70	D			1.70		Stiff greyish brown, grey and orangish brown mottled, slightly sandy, silty fissured CLAY. Sand is fine.	
		3.10	D			(1.20)		Stiff light greyish brown mottled multicoloured and laminated, slightly sandy, silty fissured CLAY. Sand is fine.	2.5
		3.60	D			2.90		[WITTERING FORMATION]	
						(1.00)		Stiff light greyish brown mottled multicoloured and laminated, slightly sandy, silty fissured CLAY. Sand is fine to medium and features in frequent laminations, thin beds and inclusions.	3.0
						3.90		[WITTERING FORMATION]	
						(0.10)		Stiff grey slightly sandy, silty CLAY. Sand is fine to medium. Occasional sand laminations. Occasional sub-angular medium to coarse ironstone nodules.	3.5
						4.00		[WITTERING FORMATION]	
								End of Borehole at 4.00m	4.0
									4.5
									5.0
									5.5
									6.0
									6.5
									7.0
									7.5
									8.0
									8.5
									9.0
									9.5
									10.0

Remarks Rootlets observed to 1.20m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS10

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		

Water Strike - General				
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.50				

Water Strike - Details			
Struck (m)	Rose To (m)	Time (mins)	Remarks
3.50	3.30	20	

Sample Details			
Sample ID	Type	Water Level (m)	Remarks
0.10	WAC		
0.40	ES		
0.80	ES		
0.70	D		
1.40	D		
1.80	D		
2.30	D		
2.70	D		
3.10	D		
3.60	D		

Remarks Rootlets observed to 1.20m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		



Window Sampler

WS11
Sheet 1 of 1

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	

Client	Consultant DEE	Contractor
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Inst/ Backfill	Water Levels	Samples and Tests			Level (m)	Depth (thickness) (m)	Strata		
		Depth (m)	Type/ Ref	Results			Legend	Description	
		0.10	ES			(0.20)		Soft dark brown slightly silty slightly sandy slightly gravelly CLAY.	0.5
		0.40	ES		(0.30)		Gravel is subangular to well rounded fine to coarse flint. Sand is fine to medium. Frequent rootlets.		
					0.50		[TOPSOIL]		
		0.80	D		(0.80)		Firm greyish brown mottled orangish brown and light brownish grey slightly sandy silty CLAY. Sand is fine. Occasional rootlets.		
		0.90	ES					[WITTERING FORMATION]	
		1.20	D		1.30		Firm light brownish grey mottled orangish brown slightly sandy silty CLAY. Sand is fine. Occasional rootlets. Rare reddish brown mottling.		
		1.50	D					[WITTERING FORMATION]	
		2.00	D		(1.00)		Firm light brownish grey mottled orangish brown and greyish brown slightly sandy silty CLAY. Sand is fine and occasionally occurs in laminations.		
		2.50	D					[WITTERING FORMATION]	
		3.00	D		2.60		Stiff brownish grey laminated orangish brown and light brownish grey slightly sandy silty CLAY. Sand is fine to medium and occurs in laminations and pockets. Occasionally recovered as thickly laminated fragments when broken.		
								[WITTERING FORMATION]	
		3.50	D		(1.15)		Stiff brownish grey mottled light brownish grey and orangish brown silty sandy CLAY. Sand is fine to medium and occasionally occurs in laminations.		
		3.80	D					[WITTERING FORMATION]	
			3.75						
			(0.25)						
			4.00		Firm to stiff purplish brown laminated light brownish grey silty sandy CLAY. Sand is fine to medium and occurs in laminations. Occasional very stiff angular laminated clay fragments.				
					[WITTERING FORMATION]				
					End of Borehole at 4.00m				
						4.0			
						4.5			
						5.0			
						5.5			
						6.0			
						6.5			
						7.0			
						7.5			
						8.0			
						8.5			
						9.0			
						9.5			
						10.0			



Window Sampler

WS11

SUPPLEMENTARY INFO

Hole Type WS	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.70				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.70	3.50	20	

Sample Details

Sample ID	Type	Water Level (m)	Remarks
0.10	ES		
0.40	ES		
0.80	D		
0.90	ES		
1.20	D		
1.50	D		
2.00	D		
2.50	D		
3.00	D		
3.50	D		
3.80	D		

Remarks Rootlets observed to 0.90m bgl. Dry rootlet traces observed to 1.20m bgl.	Method, Plant, Stability, Dimensions 0.00 - 4.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL		

Appendix C Geotechnical In-Situ and Laboratory Testing

Appendix C.1 Classification

Classification based on SPT “N” values:

The inferred undrained strength of the cohesive soils was based on the SPT “N” blow counts, derived from the relationship suggested by Stroud (1974) and classified using Table C.1.1. (Ref: Stroud, M. A. 1974, “The Standard Penetration Test – its application and interpretation”, Proc. ICE Conf. on Penetration Testing in the UK, Birmingham. Thomas Telford, London.).

Table C.1.1 SPT “N” Blow Count Cohesive Classification

Classification	Undrained Cohesive Strength C_u (kPa)
Extremely low	<10
Very low	10 – 20
Low	20 – 40
Medium	40 – 75
High	75 – 150
Very high	150 – 300
Extremely high	> 300
Note(s): (Ref: BS EN ISO 14688-2:2004+A1:2013 Clause 5.3.)	

The relative density of granular soils was classified based of the relationship given in Table C.1.2.

The *UK National Annex to Eurocode 7: Geotechnical design – Part 2: Ground investigation and testing, NA 3.7 SPT test, BS EN 1997-2:2007, Annex F* states “Relative density descriptions on borehole records should also be based on uncorrected SPT N values, unless significantly disturbed, using the density classification in BS 5930:2015, Table 7.

Table C.1.2 SPT “N” Blow Count Granular Classification

Classification	SPT “N” blow count (blows/300mm)
Very loose	0 to 4
Loose	4 to 10
Medium dense	10 to 30
Dense	30 to 50
Very dense	Greater than 50
Note(s): (Ref: The Standard Penetration Test (SPT): Methods and Use, CIRIA Report 143, 1995)	

Chalk samples recovered are disturbed by the sampling process. Therefore, it is difficult to assess an accurate chalk grade for in accordance with CIRIA C574 ‘Engineering in Chalk’. In the absence of a standardised correlation between SPT “N” values and chalk grade for the most recent chalk classification (CIRIA C574) a broad indication of the in-situ chalk grade can be assessed using a paper by T.R.M. Wakeling from a site in

Mundford, Norfolk, which compares SPT “N” values to the old Spink & Norbury chalk classification. From the Spink & Norbury classification it is possible to infer a basic CIRIA Grade (structureless or structured), as outlined in Table C.1.3.

Table C.1.3 Interpretation of SPT “N” Blow Counts in Chalk

SPT “N” Value Range	Spink & Norbury Grade	Inferred CIRIA Grade
<8	VI	Structureless (Dm)
8 – 15	V	Structureless (Dc)
15 – 20	IV	Structured chalk (C5 – A1)
20 - 25	III	Structured chalk (C5 – A1)
25 - 35	II	Structured chalk (C5 – A1)
>35	I	Structured chalk (C5 – A1)

Consistency for cohesive soils

Cohesive soils consistency terms like *soft*, *firm*, *stiff*, *very stiff* (for clays and silts) are based on **hand pressure tests** in the field (thumb penetration, finger pressure, etc.). These rely on the samplers or loggers judgement, so there is inevitably some subjectivity and may vary from the results of geotechnical tests.

Terms for description of consistency

Field description term	Consistency description definition [after BS EN ISO 14688-1:2002, 5.14]
Very soft	Finger easily pushed in up to 25 mm
Soft	Exudes between fingers Finger pushed in up to 10 mm
Firm	Moulded by light finger pressure Thumb makes impression easily
Stiff	Cannot be moulded by fingers, rolls in the hand to a 3 mm thick thread without breaking or crumbling Can be indented slightly by thumb
Very stiff	Crumbles in rolling a 3 mm thick thread, but can then be remoulded into a lump Can be indented by thumb nail
	Cannot be moulded but crumbles under pressure

NOTE 1 These subdivisions can be approximate, particularly in material of low plasticity.

NOTE 2 The description of materials of higher consistency than very stiff should use rock strengths and material names.

NOTE 3 Soils varying around the boundary between soil (very stiff consistency) and rock (extremely weak strength) can be described as, for example, “very stiff CLAY/extremely weak MUDSTONE”. A boundary on the log at rockhead if it is a simple transition is preferable.

Classification of DCP results to CBR:

The DCP consists of a cone fixed to the bottom of a 575mm vertical rod. An 8kg weight is repeatedly lifted and dropped onto an anvil at the mid-height of the rod to deliver a ‘blow’. A vertical scale alongside the rod is used to measure the depth of penetration of

the cone. These measurements are then converted to CBR values using the following equation derived from the DTP Interim Advice Note 73/06 – Design Guidance for Road Pavement Foundations:

$$\text{Log}_{10}(\text{CBR}) = 2.48 - 1.057 \times \text{Log}_{10}(\text{mm/blow})$$

Appendix C.2 Interpretation**Table C.2.1 Interpretation of SPT Tests**

BH	Strata	SPT N60 Blow Counts	Inferred Cohesive Strength
CPI	WTT 1.20 – 6.00 CLAY	12 - 33	Medium to very high ($C_u = 60 - 165\text{kPa}$)
	WTT 6.00 – 20.00 SAND	23 - 37	Medium dense to dense

Table C.2.2 Interpretation of DPSH Blow Counts

DP	Strata	Equivalent SPT N60 Blow Counts	Inferred Cohesive Strength/Granular Density
DPI	WTT 0.35– 2.40 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 2.50 – 4.30 CLAY	9 - 13	Medium ($C_u = 45 - 65\text{kPa}$)
	WTT ¹ 4.40 – 6.00 CLAY	13 - 22	Medium to high ($C_u = 45 - 110\text{kPa}$)
DP2	WTT 0.30 – 2.60 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 2.70 – 5.00 CLAY	4 - 8	Low ($C_u = 20 - 40\text{kPa}$)
	WTT ¹ 5.00 – 6.00 CLAY	8 - 16	Medium to high ($C_u = 40 - 80\text{kPa}$)
DP3	WTT 0.40 – 1.10 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 1.20 – 4.30 CLAY	0 - 8	Extremely low to low ($C_u = <10 - 40\text{kPa}$)
	WTT ¹ 4.40 – 6.00 CLAY	4 - 12	Low to Medium ($C_u = 20 - 60\text{kPa}$)
DP4	WTT 0.20 – 1.10 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 1.20 – 2.00 SAND	9 - 13	Dense
	WTT 2.10 – 3.40 CLAY	4 - 9	Low to Medium ($C_u = 20 - 45\text{kPa}$)

DP	Strata	Equivalent SPT N60 Blow Counts	Inferred Cohesive Strength/Granular Density
DP5	WTT ¹ 3.50 – 6.00 Clayey SAND/ sandy SILT	9 - 52	Loose to Dense/ Medium to very high ($C_u = 45 - 260\text{kPa}$)
	WTT 0.30 – 0.70 Sandy CLAY	0 - 9	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 0.80 – 2.20 Silty SAND	9 - 35	Loose to dense
	WTT 2.45 – 4.10 SAND	9 - 22	Loose to medium dense
	WTT ¹ 4.20 – 5.40 SAND	39 - 151	Dense to very dense
DP6	WTT 0.30 – 0.80 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 0.90 – 3.00 CLAY	4 - 9	Low to Medium ($C_u = 20 - 45\text{kPa}$)
	WTT ¹ 3.00 – 4.40 SAND	39 - 190	Dense to very dense
DP7	WTT 0.40 – 1.20 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 1.30 – 2.00 Sandy CLAY/ clayey SAND	12 - 20	Medium to high ($C_u = <60 - 100\text{kPa}$)
	WTT ¹ 2.10 – 6.00 SAND	28 - 80	Medium dense to very dense
DP8	WTT 0.20 – 1.50 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 1.60 – 3.50 CLAY	4 - 9	Low to Medium ($C_u = 20 - 45\text{kPa}$)
	WTT ¹ 3.60 – 6.00 SAND	13 - 91	Medium dense to very dense
DP9	WTT 0.30 – 1.30 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 1.40 – 3.80 Sandy CLAY	4 - 13	Low to medium ($C_u = 20 - 65\text{kPa}$)

DP	Strata	Equivalent SPT N60 Blow Counts	Inferred Cohesive Strength/Granular Density
DPI0	WTT 3.90 – 5.00 SAND	26 - 130	Medium dense to very dense
	WTT ¹ 5.10 – 6.00 CLAY	13 - 22	Medium to high ($C_u = 65 - 110\text{kPa}$)
	WTT 0.30 – 1.50 CLAY	0 - 4	Extremely low to very low ($C_u = <10 - 20\text{kPa}$)
	WTT 1.60 – 3.60 CLAY	4 - 13	Low to medium ($C_u = 20 - 65\text{kPa}$)
	WTT ¹ 3.70 – 6.00 CLAY	4 - 22	Low to high ($C_u = 20 - 110\text{kPa}$)
DPI1	WTT 0.20 – 0.70 CLAY	0	Extremely low ($C_u = <10\text{kPa}$)
	WTT 0.80 – 2.10 CLAY	4 - 9	Low to Medium ($C_u = 20 - 45\text{kPa}$)
	WTT 2.20 – 5.50 CLAY	9 - 26	Medium to high ($C_u = 65 - 130\text{kPa}$)
	WTT ¹ 5.60 – 6.00 SAND	35 - 130	Dense to very dense

Note(s): ¹ Ground conditions inferred past the base of windowless sampler boreholes.

Table C.2.3 Interpretation of Atterberg Limit Tests

Stratum	Hole ID: Depth	M/C (%)	PI (%)	>425 μm (%)	Mod PI (%)	Class	VCP BRE	NHBC
WTT	CPI: 10.00	30.1	38	95	36	CH	Medium	Medium
WTT	WS1: 1.50	27.8	34	100	34	CH	Medium	Medium
WTT	WS2: 2.50	30.2	35	100	35	CH	Medium	Medium
WTT	WS3: 2.85	23.6	35	100	35	CH	Medium	Medium
WTT	WS8: 1.80	36.0	52	100	52	CH	High	High
WTT	WS10: 0.80	30.9	34	100	34	CH	Medium	Medium
WTT	WS11: 1.50	31.1	35	100	35	CH	Medium	Medium

Note(s): BRE Volume Change Potential refers to BRE Digest 240 (based on Atterberg results). VCP=Volume Change Potential
 NHBC Volume Change Potential refers to NHBC Standards Chapter 4.2
 Soils Classification based on British Soil Classification System
 The Atterberg Limit Tests were undertaken in accordance with BS 1377:Part 2:1990 Clauses 3.2, 4.3 and 5

Table C.2.4 Interpretation of PSD Tests

Location	Depth (m bgl)	Soil Description	VCP		>63µm Sieve (%)
			BRE	NHBC	
CPI	5.00	Dark grey silty/clayey fine to coarse SAND	Yes	No	28
CPI	10.00	Grey slightly fine gravelly fine to coarse sandy SILT/CLAY	Yes	Yes	39
CPI	15.00	Light brown silty/clayey fine to coarse SAND	No	No	10
WS5	1.35	Brown silty/clayey fine to coarse SAND	No	No	6
WS6	1.70	Orange slightly fine gravelly fine to coarse sandy SILT/CLAY	Yes	Yes	80
WS7	2.50	Brown silty/clayey fine to coarse SAND	Yes	No	28
Note(s): (The Particle Size Distribution Tests were undertaken in accordance with BS 1377: Part 2: 1990 Clause 9). VCP=Volume Change Potential					

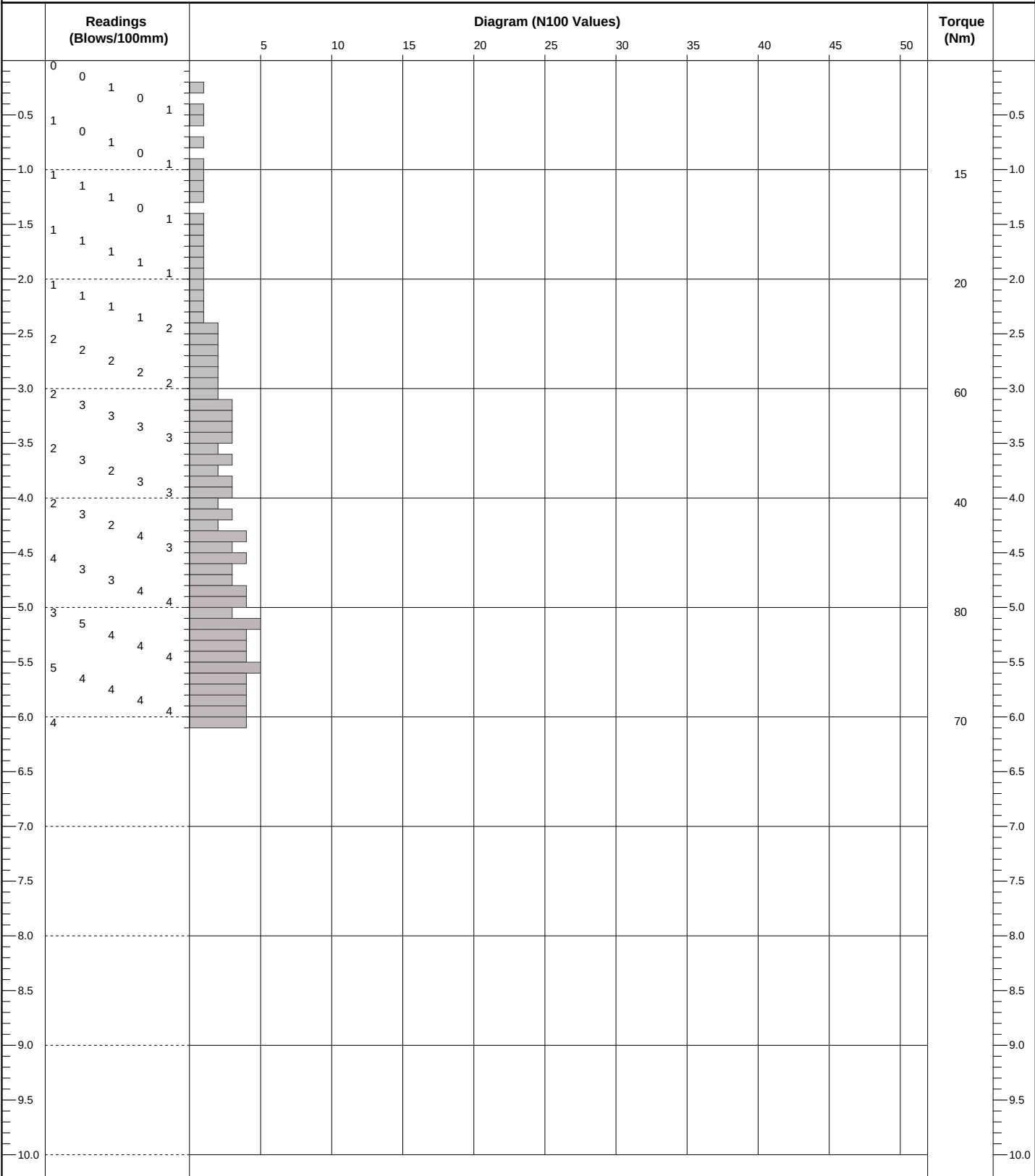
Appendix C.3 Geotechnical In-Situ and Laboratory Results



Dynamic Probe

DP1
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		



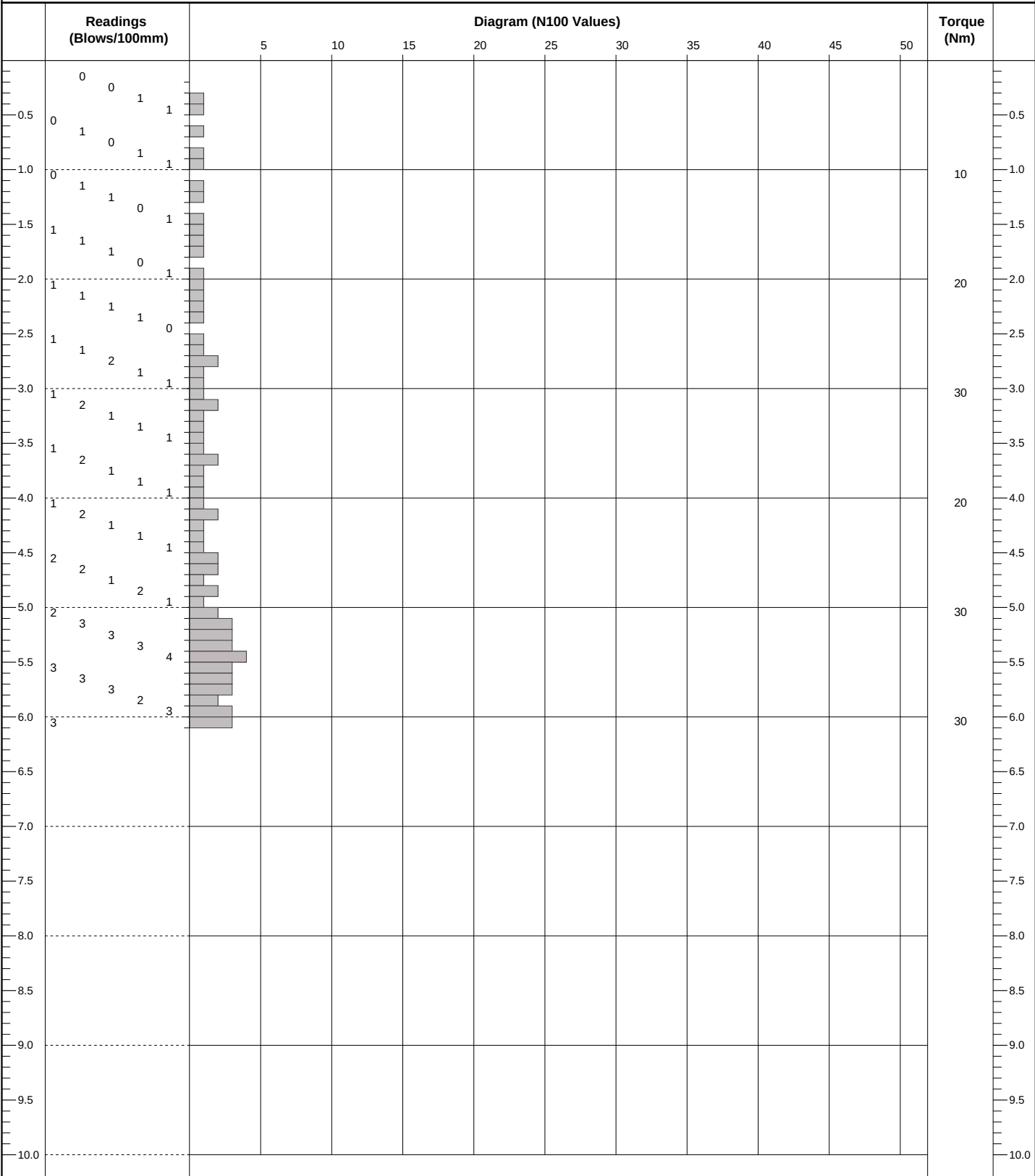
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 6.00m Premier 3	Logger GJB
	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	
Checked By: DEE Approved By: DEE Status: FINAL		



Dynamic Probe

DP2
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		



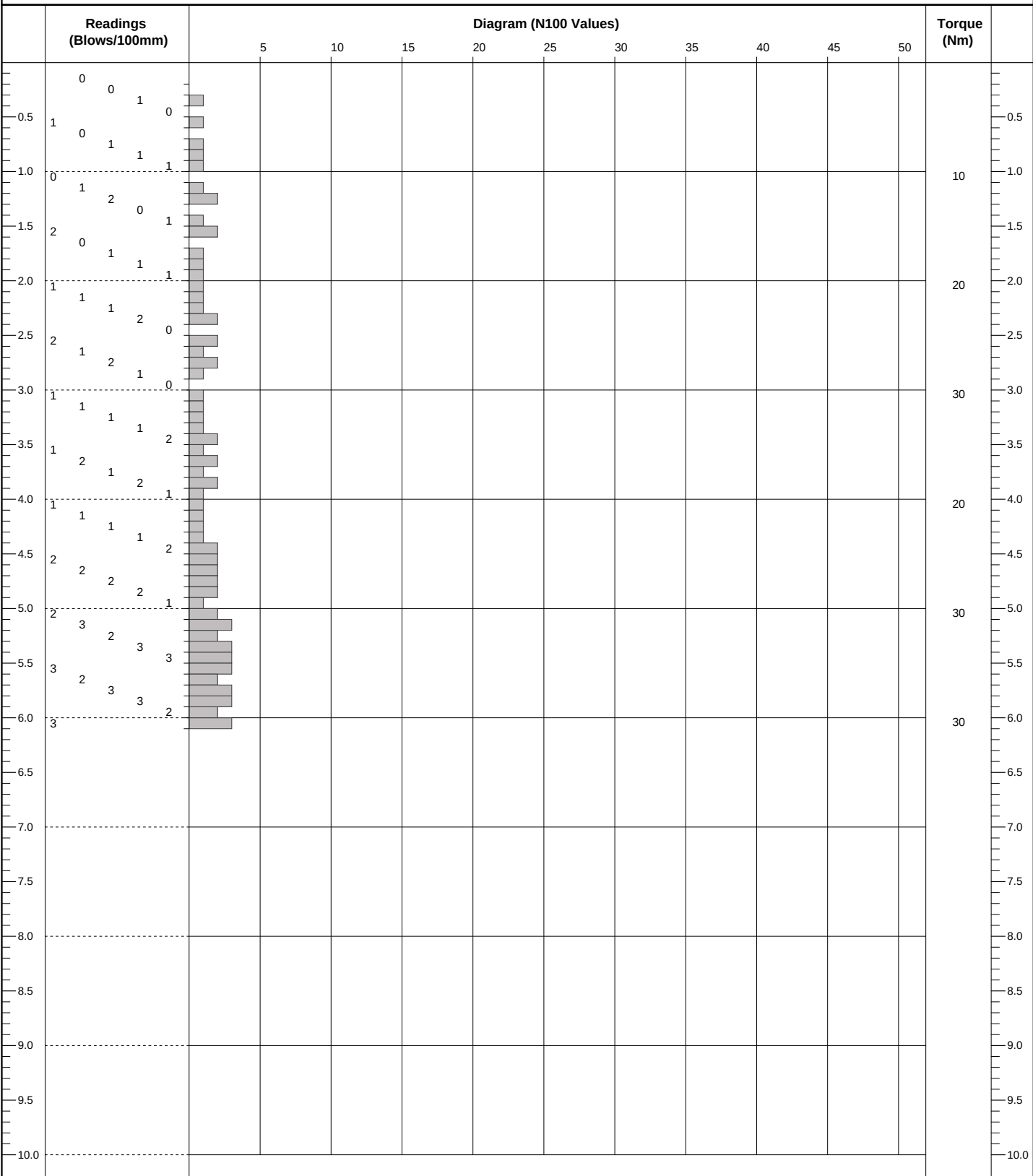
Remarks Energy ratio 84%.	Method, Plant 0.00 - 6.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP3
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		



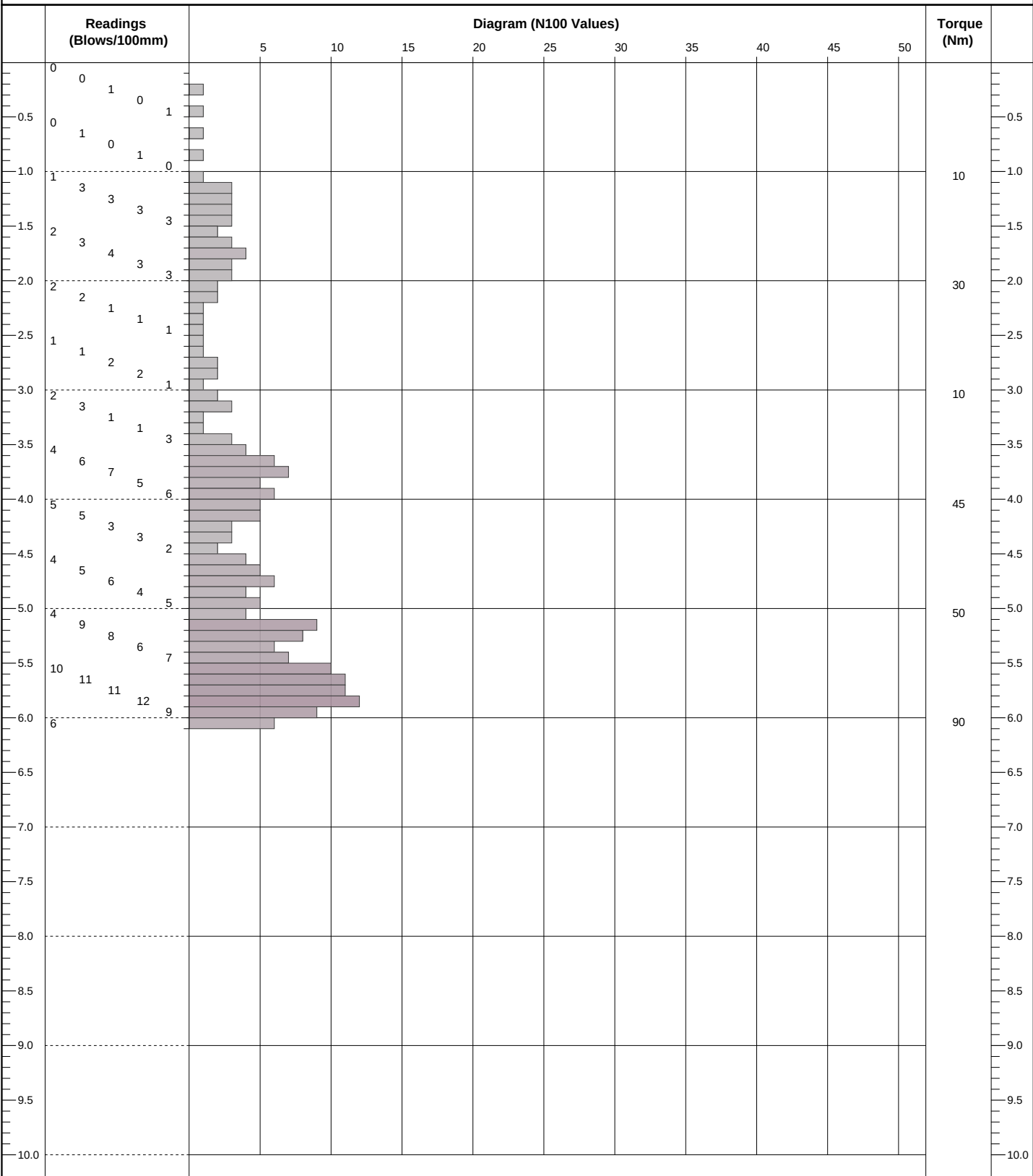
Remarks Energy ratio 84%.	Method, Plant 0.00 - 6.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP4
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		



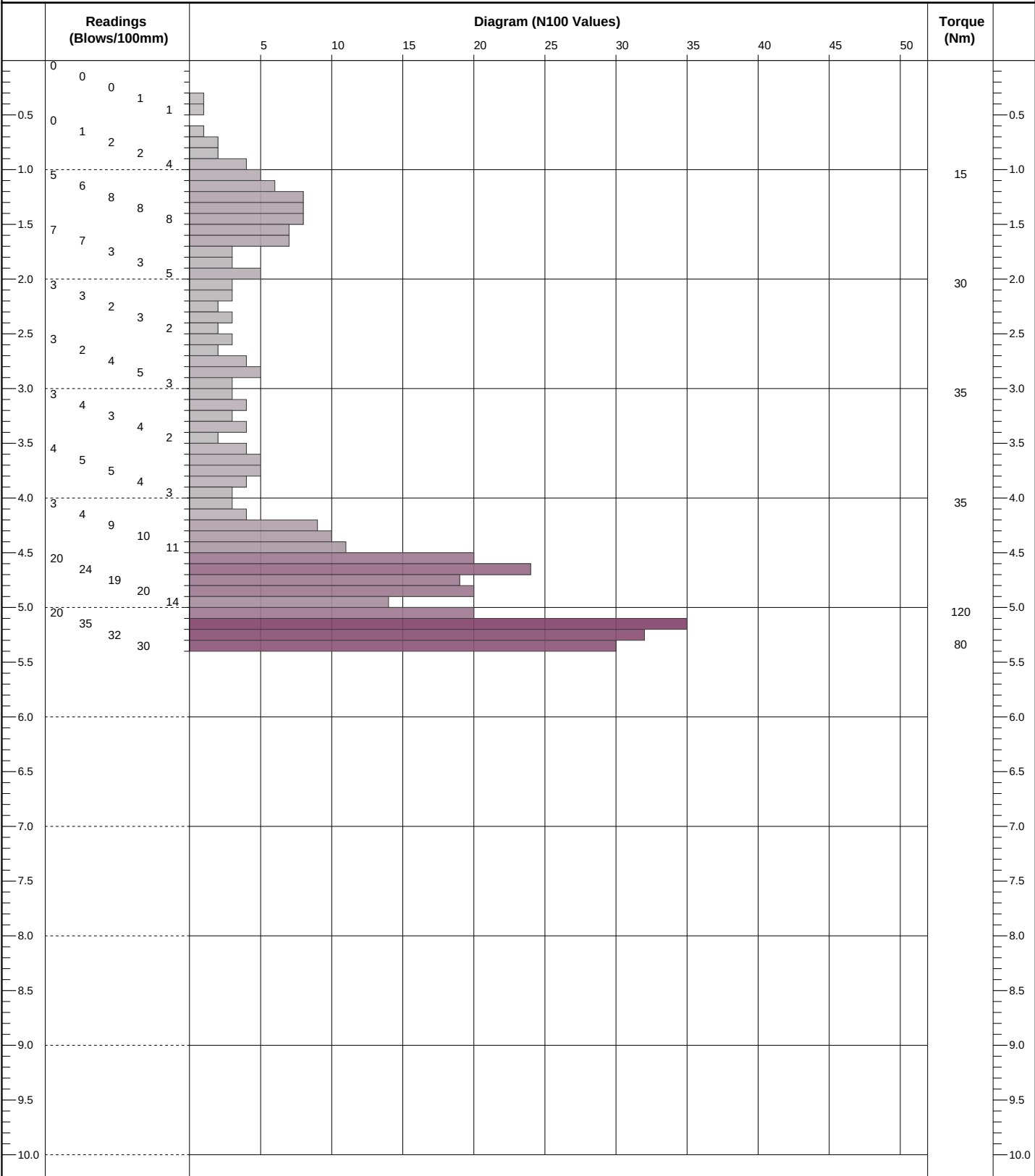
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 6.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP5
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		



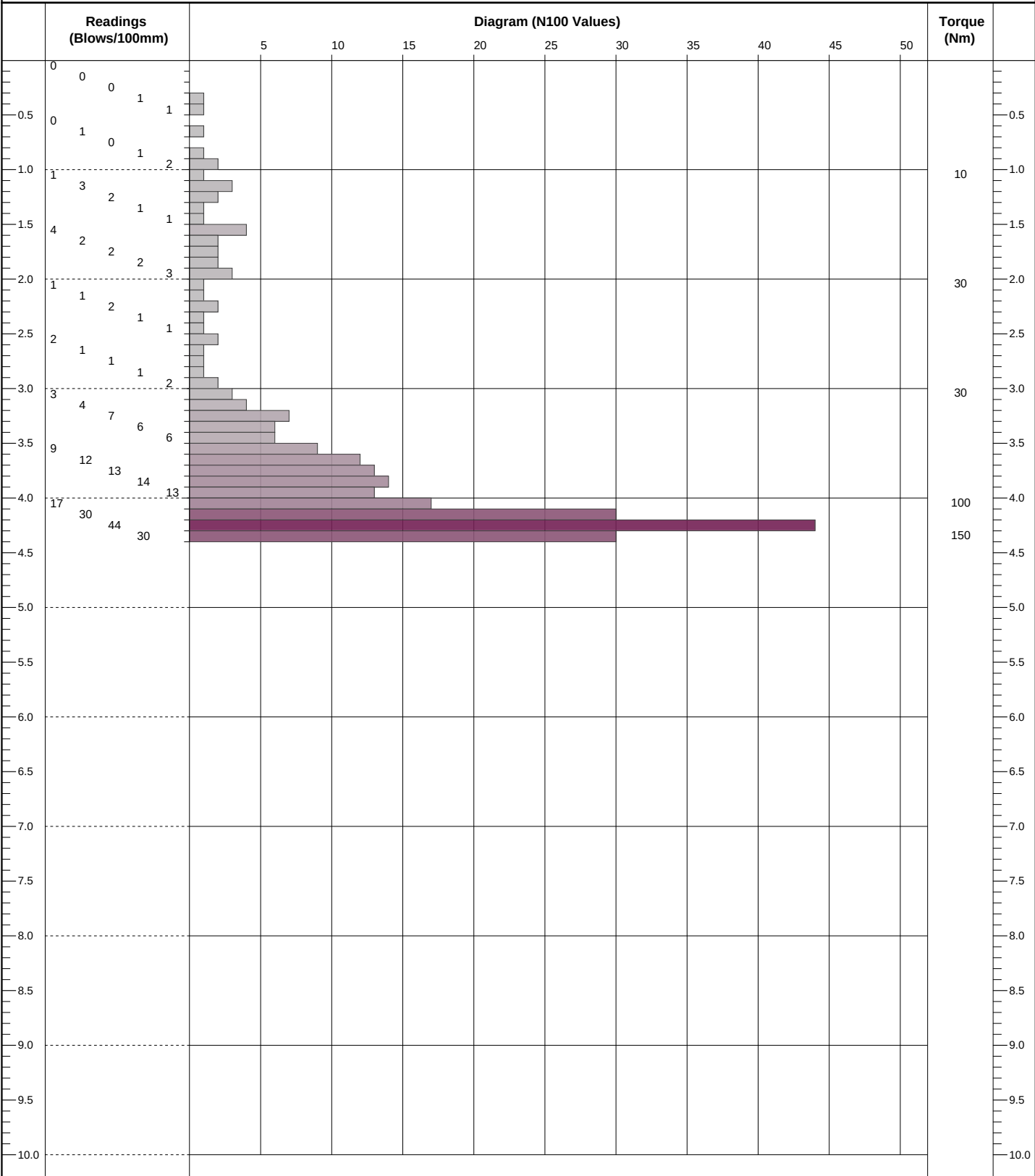
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 5.30m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP6
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		



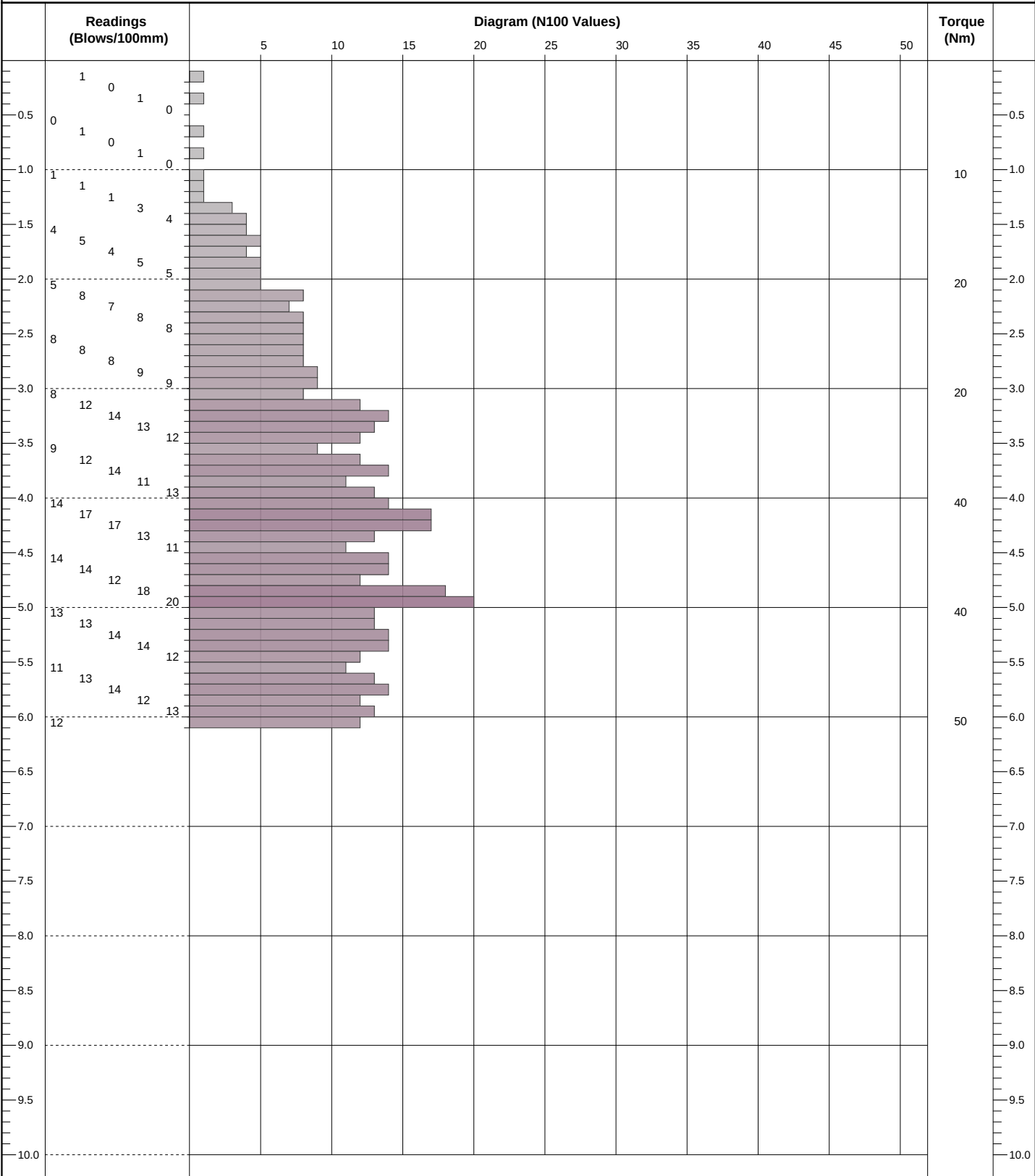
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 4.30m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP7
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		



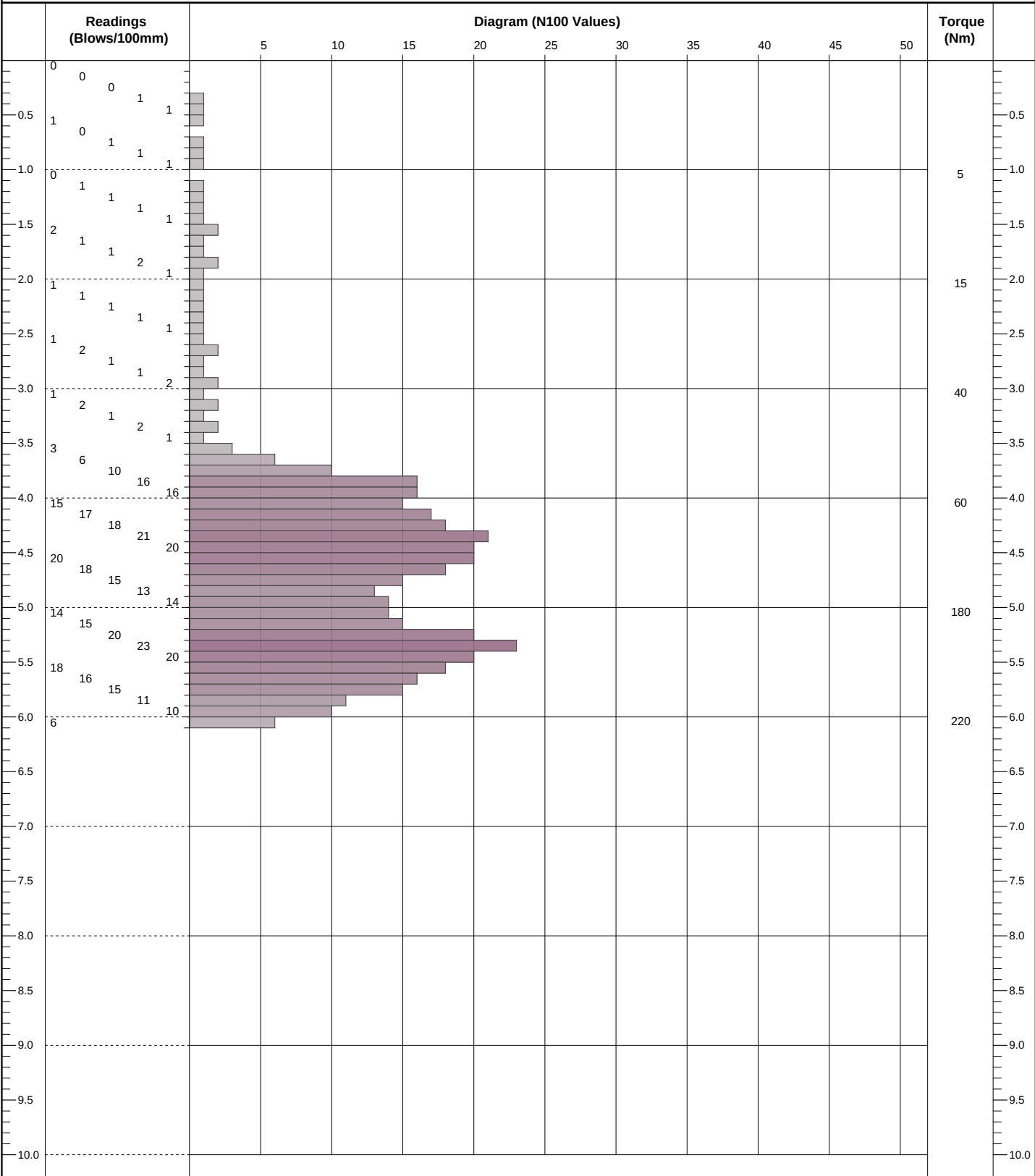
Remarks Energy ratio 84%.	Method, Plant 0.00 - 6.00m Premier 2	Logger JC
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP8
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-18	End Date 2025-11-18	
Client	Consultant DEE	Contractor		



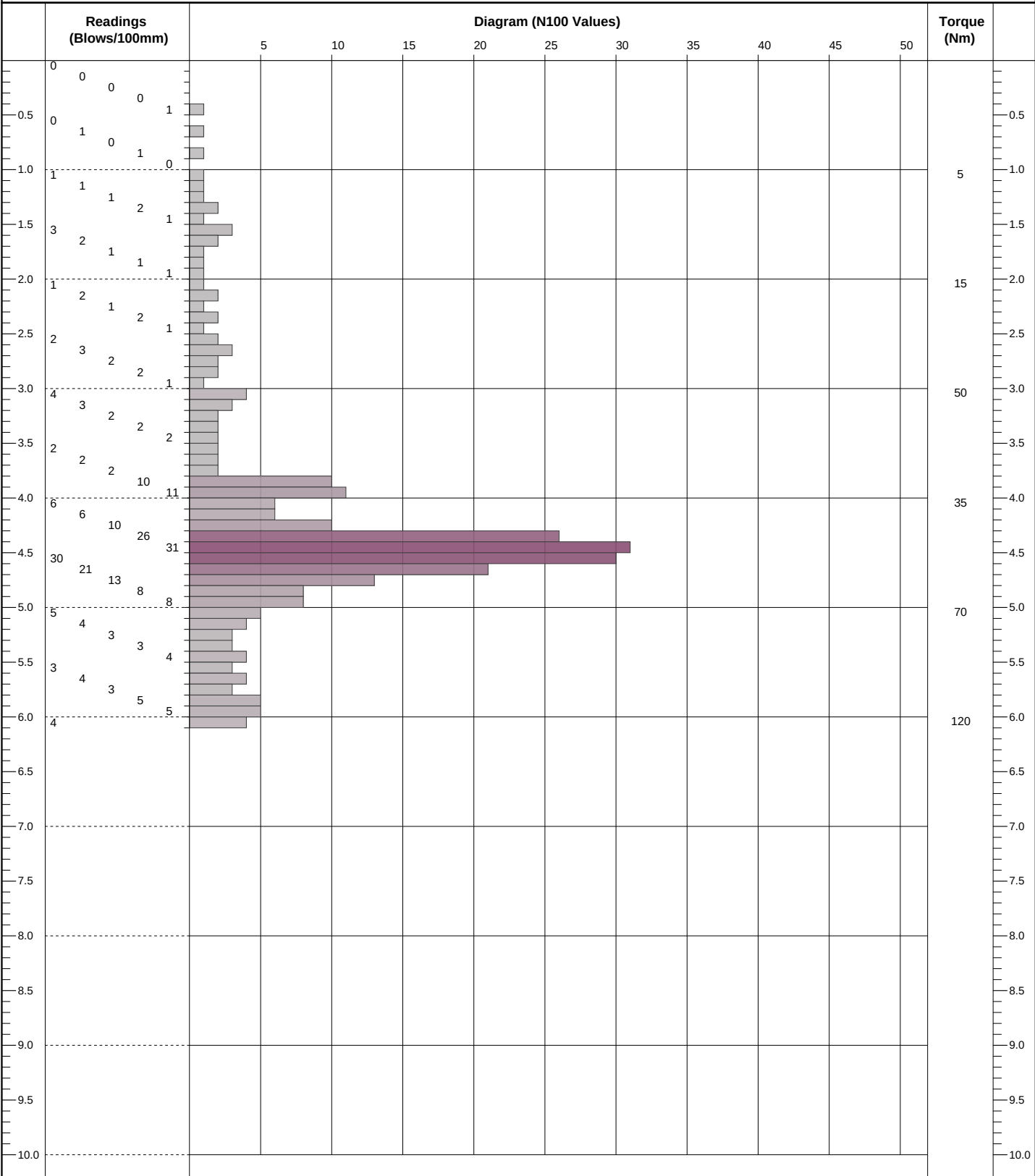
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 6.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP9
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		



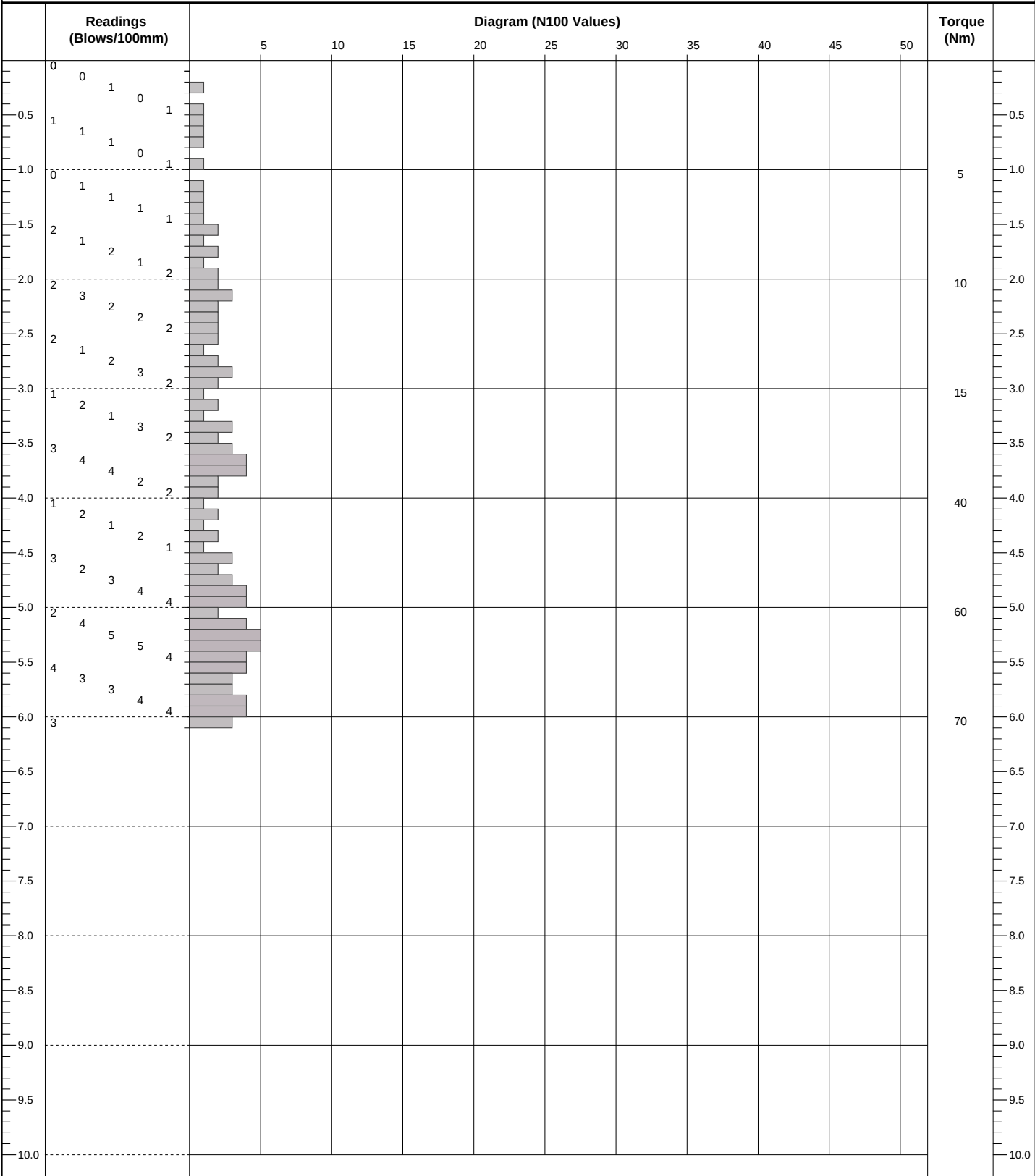
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 6.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP10
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		



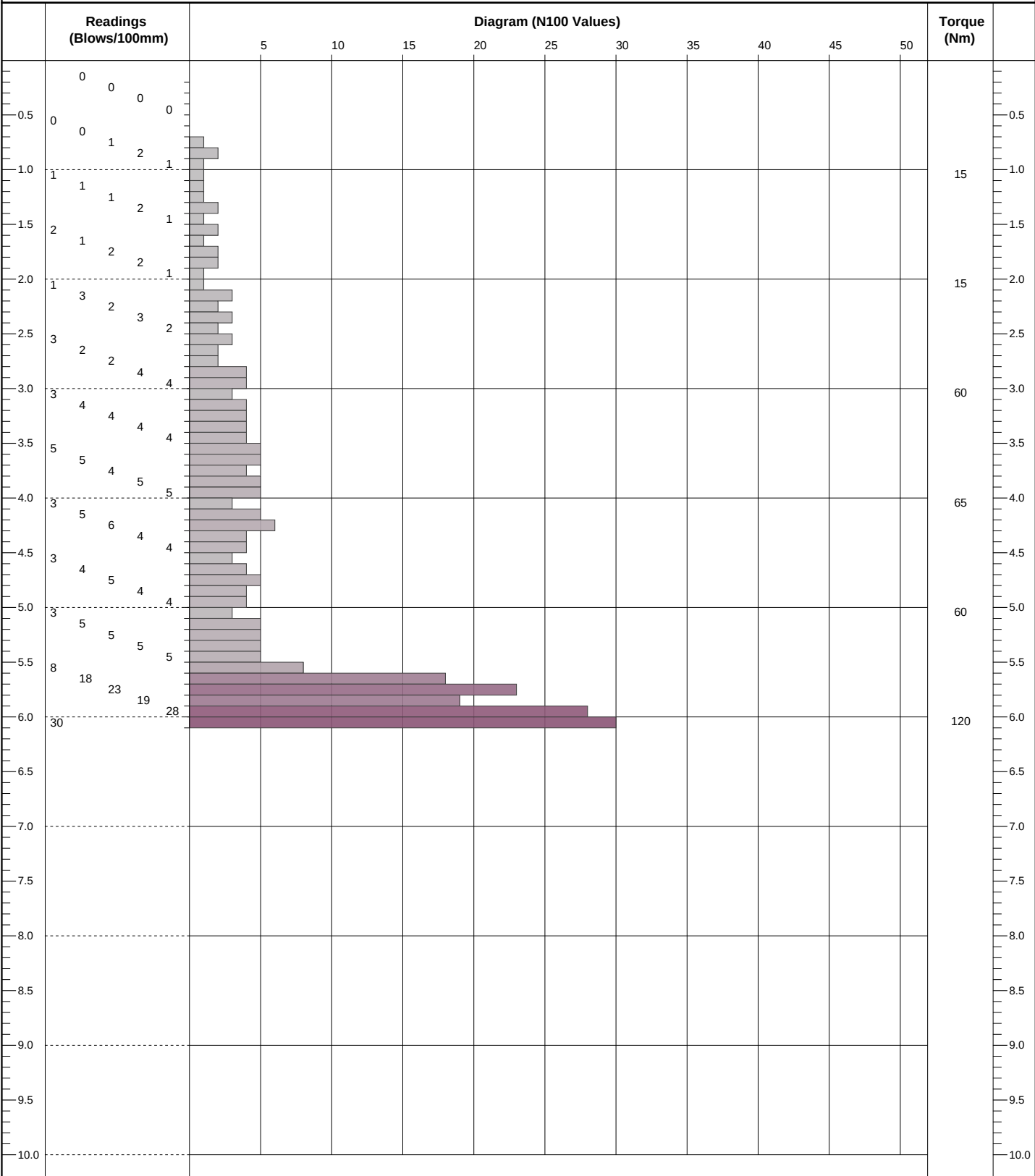
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 6.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	



Dynamic Probe

DP11
Sheet 1 of 1

Probe Type DPSH	Easting	Northing	Ground Level (m)	Scale 1:50
Project Name One Horton Heath School	Project No. 22177	Start Date 2025-11-19	End Date 2025-11-19	
Client	Consultant DEE	Contractor		



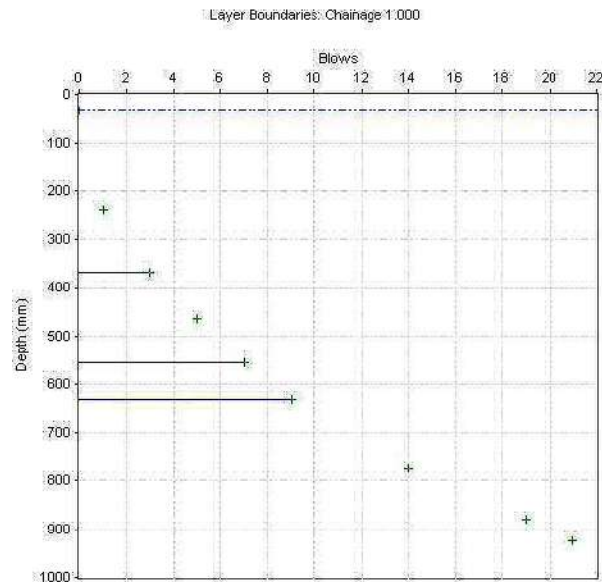
Remarks Energy ratio 90.64%.	Method, Plant 0.00 - 6.00m Premier 3	Logger GJB
Checked By: DEE Approved By: DEE Status: FINAL	Hammer Weight (kg) 63.5 Hammer Drop (mm) 760 Cone Diameter (mm) 51 Cone Angle Rod Diameter (mm) Damper	

DCP Layer Strength Analysis Report

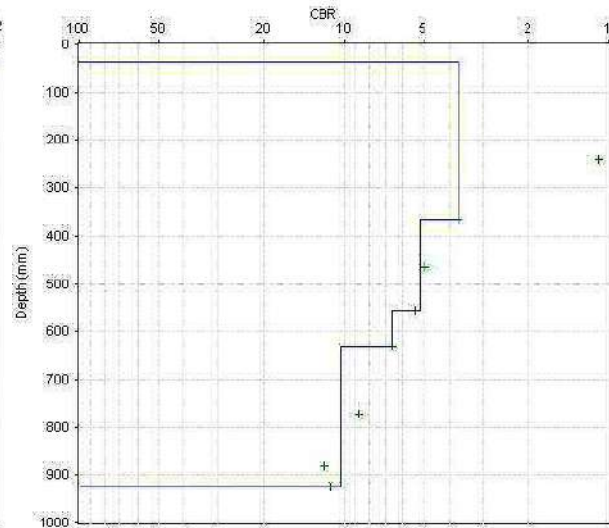
Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 1.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 35
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	64.00	4	333	368	Base	0.01	0.14	0.14	0.14
2	47.00	5	188	556	Base	0.01	0.11	0.11	0.11
3	37.50	7	75	631	Base	0.02	0.05	0.05	0.05
4	24.50	10	294	925	Base	0.03	0.32	0.32	0.32

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.41	0.41	0.41
Base	0.62	0.62	0.62
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.03	1.03	1.03

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

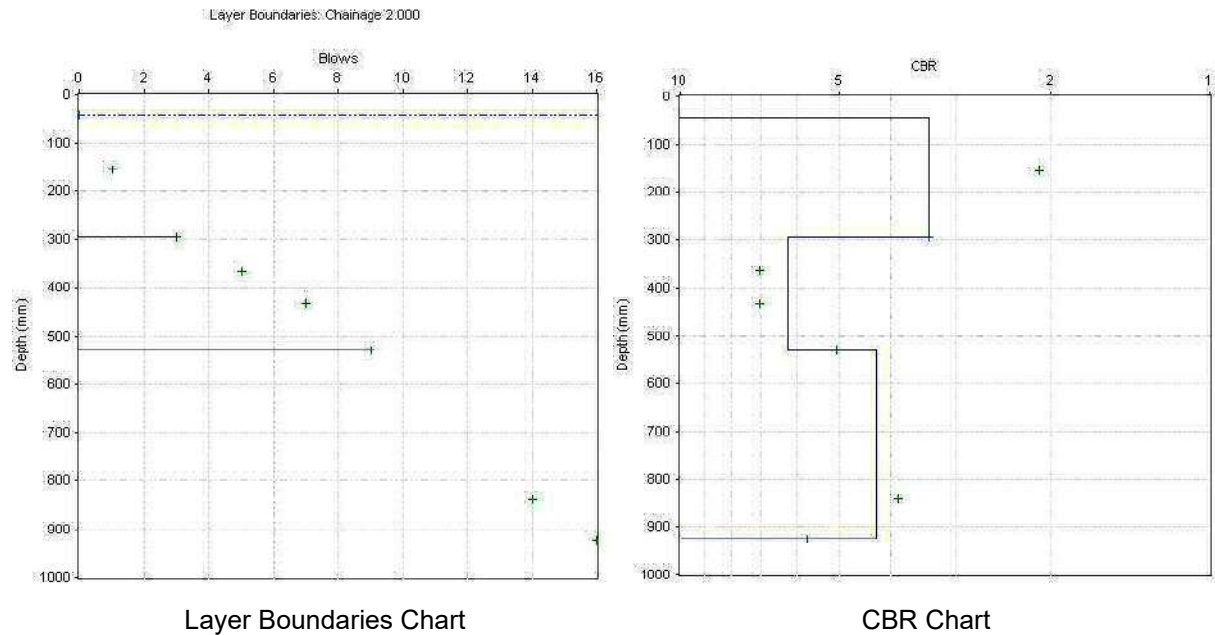
Report produced by

DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 2.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 45
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	70.00	3	250	295	Base	0.01	0.09	0.09	0.09
2	39.33	6	236	531	Base	0.02	0.16	0.16	0.16
3	56.29	4	394	925	Base	0.01	0.19	0.19	0.19

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.53	0.53	0.53
Base	0.44	0.44	0.44
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	0.97	0.97	0.97

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

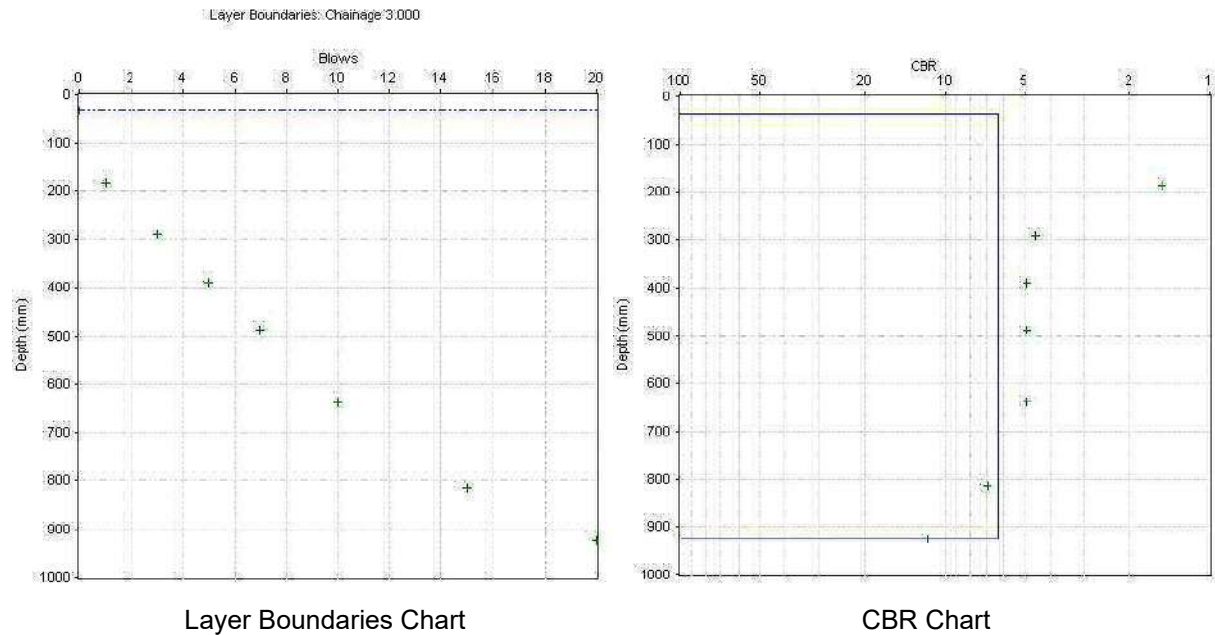
Report produced by

DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 3.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 35
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	38.95	6	890	925	Base	0.02	0.62	0.62	0.62

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.41	0.41	0.41
Base	0.62	0.62	0.62
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.03	1.03	1.03

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

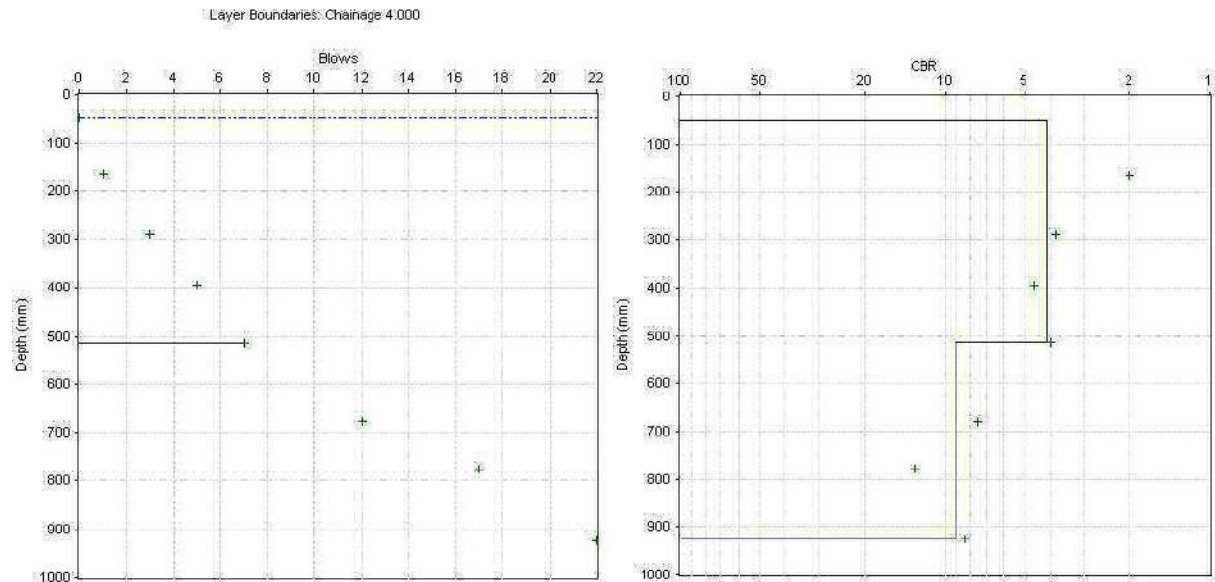
Report produced by

DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 4.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 50
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart

CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	58.33	4	465	515	Base	0.01	0.21	0.21	0.21
2	27.33	9	410	925	Base	0.03	0.40	0.40	0.40

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.59	0.59	0.59
Base	0.62	0.62	0.62
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.21	1.21	1.21

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

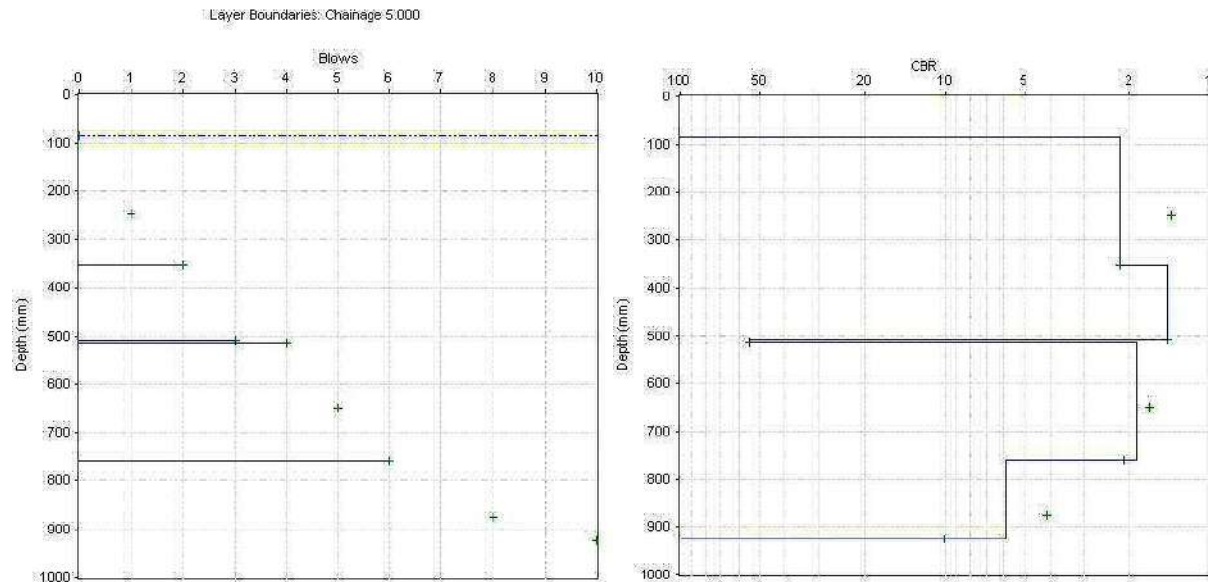
Report produced by

DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 5.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 85
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart

CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	106.00	2	268	353	Base	0.01	0.07	0.07	0.07
2	157.00	1	157	510	Base	0.00	0.03	0.03	0.03
3	5.00	55	5	515	Base	0.11	0.02	0.02	0.02
4	122.00	2	244	759	Base	0.01	0.05	0.05	0.05
5	41.50	6	166	925	Base	0.02	0.11	0.11	0.11

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	1.00	1.00	1.00
Base	0.27	0.27	0.27
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.27	1.27	1.27

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

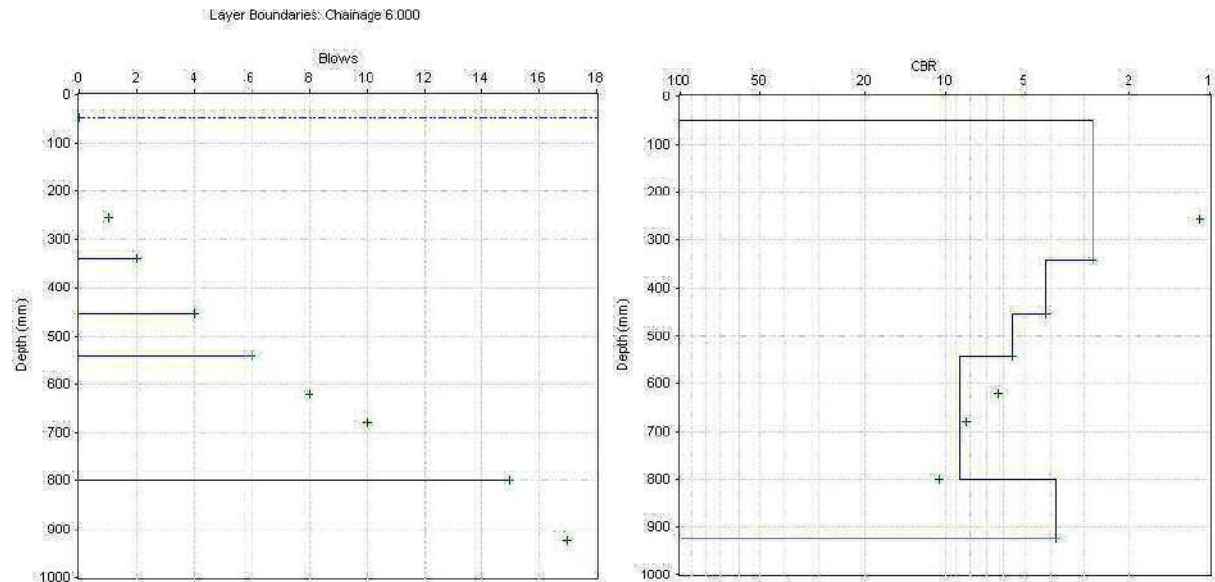
Report produced by

DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 6.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 50
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart

CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	85.00	3	290	340	Base	0.01	0.09	0.09	0.09
2	57.50	4	115	455	Base	0.01	0.05	0.05	0.05
3	43.50	6	87	542	Base	0.02	0.05	0.05	0.05
4	28.67	9	258	800	Base	0.02	0.24	0.24	0.24
5	62.50	4	125	925	Base	0.01	0.05	0.05	0.05

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.59	0.59	0.59
Base	0.49	0.49	0.49
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.08	1.08	1.08

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

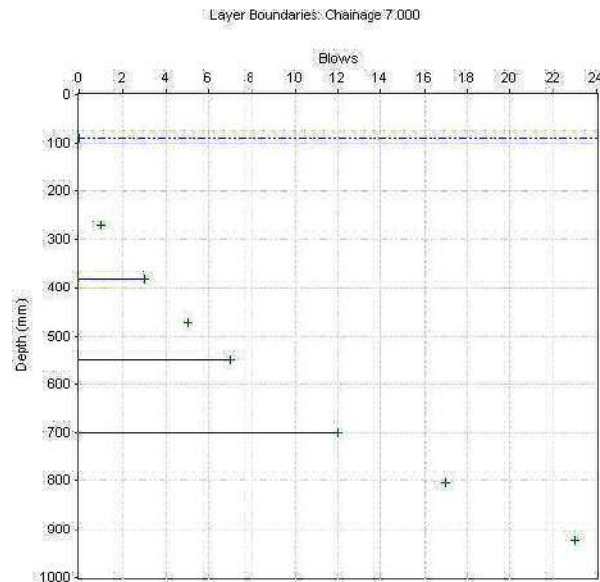
Report produced by

DCP Layer Strength Analysis Report

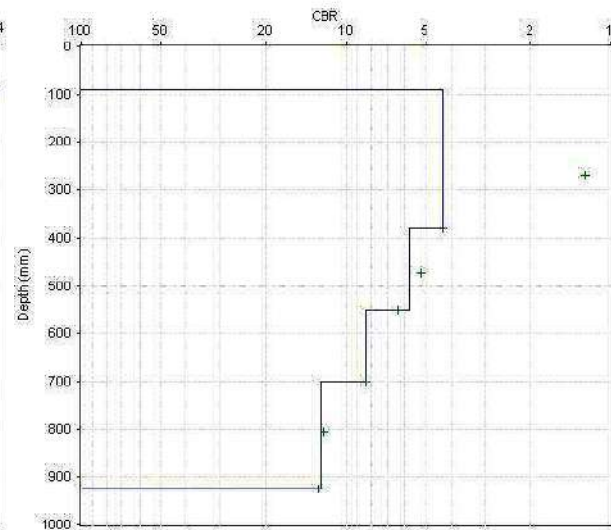
Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 7.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 90
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	56.00	4	291	381	Base	0.01	0.14	0.14	0.14
2	42.50	6	170	551	Base	0.02	0.11	0.11	0.11
3	29.80	8	149	700	Base	0.02	0.13	0.13	0.13
4	20.45	12	225	925	Base	0.03	0.29	0.29	0.29

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	1.06	1.06	1.06
Base	0.68	0.68	0.68
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.74	1.74	1.74

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

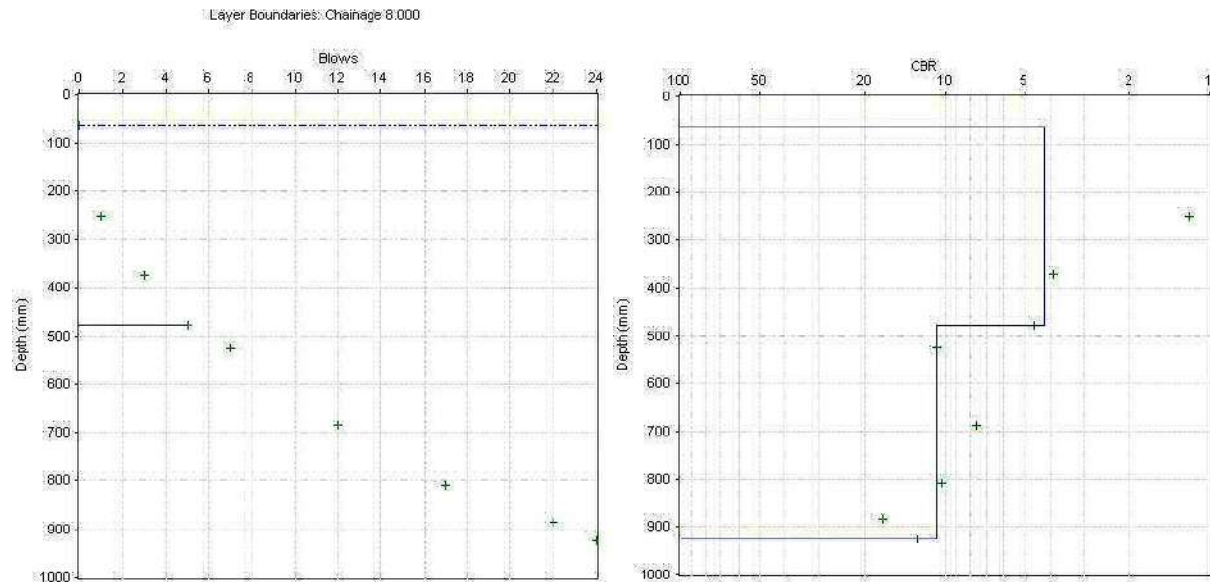
Report produced by

DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 8.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 65
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart

CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	56.75	4	413	478	Base	0.01	0.19	0.19	0.19
2	23.53	11	447	925	Base	0.03	0.51	0.51	0.51

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.77	0.77	0.77
Base	0.71	0.71	0.71
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.48	1.48	1.48

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

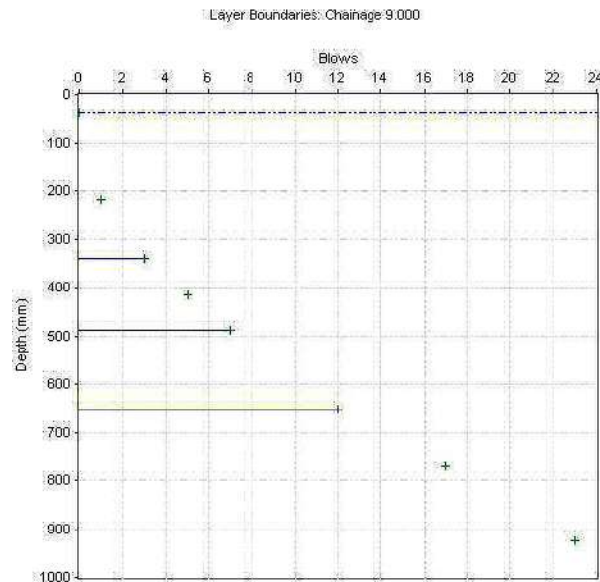
Report produced by

DCP Layer Strength Analysis Report

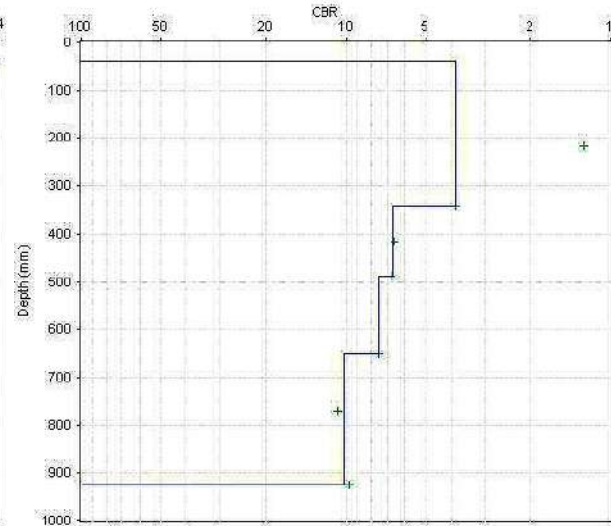
Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 9.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 40
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	61.50	4	300	340	Base	0.01	0.13	0.13	0.13
2	37.00	7	148	488	Base	0.02	0.11	0.11	0.11
3	32.80	8	164	652	Base	0.02	0.13	0.13	0.13
4	24.82	10	273	925	Base	0.03	0.30	0.30	0.30

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.47	0.47	0.47
Base	0.67	0.67	0.67
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.14	1.14	1.14

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

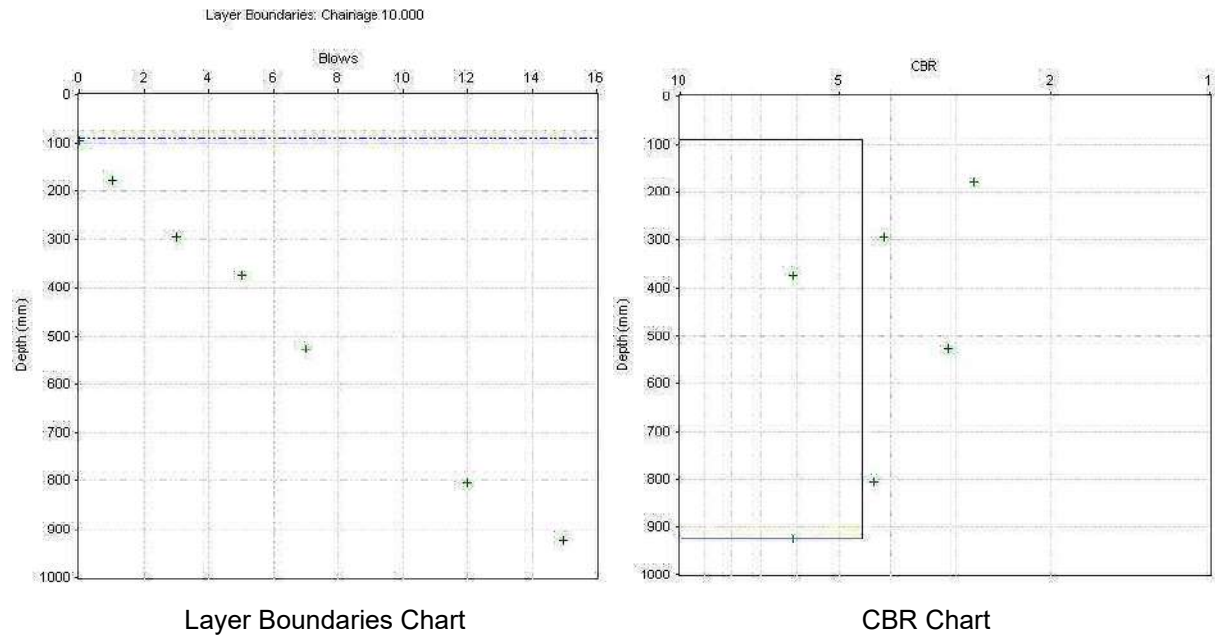
Report produced by

DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 10.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 90
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	53.29	5	835	925	Base	0.01	0.42	0.42	0.42

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	1.06	1.06	1.06
Base	0.42	0.42	0.42
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.48	1.48	1.48

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

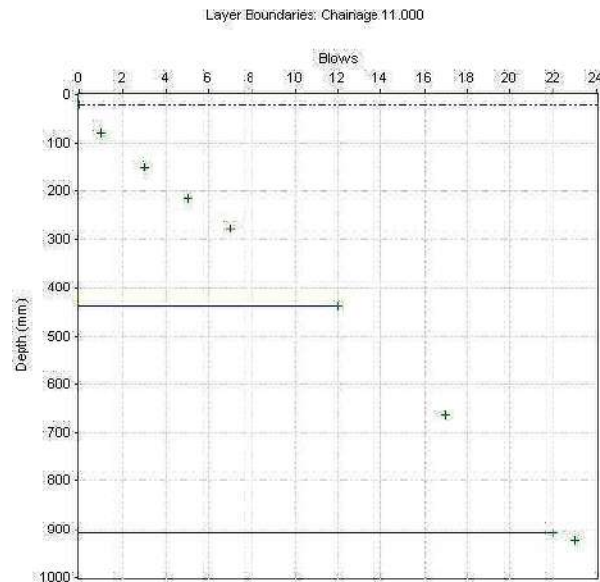
Report produced by

DCP Layer Strength Analysis Report

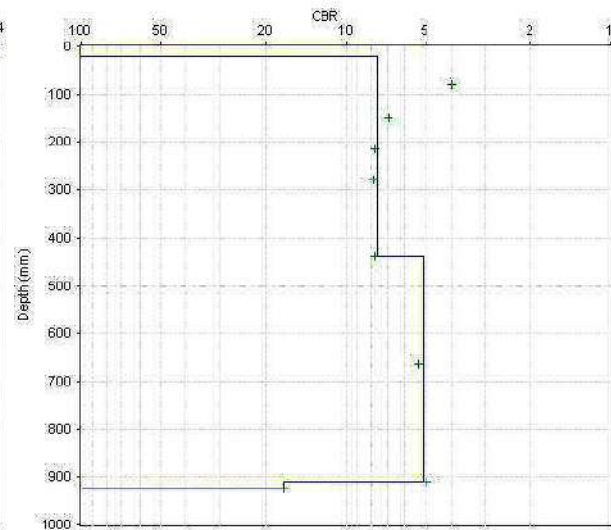
Project Name: 22117 Horton Heath DCP1-12

Chainage (km): 11.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 20
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	32.55	8	418	438	Base	0.02	0.35	0.35	0.35
2	47.20	5	472	910	Base	0.01	0.27	0.27	0.27
3	15.00	17	15	925	Base	0.04	0.03	0.03	0.03

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	0.24	0.24	0.24
Base	0.64	0.64	0.64
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	0.88	0.88	0.88

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

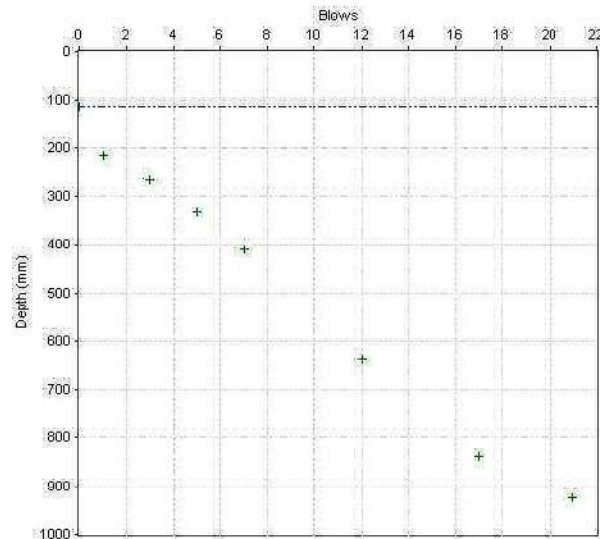
DCP Layer Strength Analysis Report

Project Name: 22117 Horton Heath DCP1-12

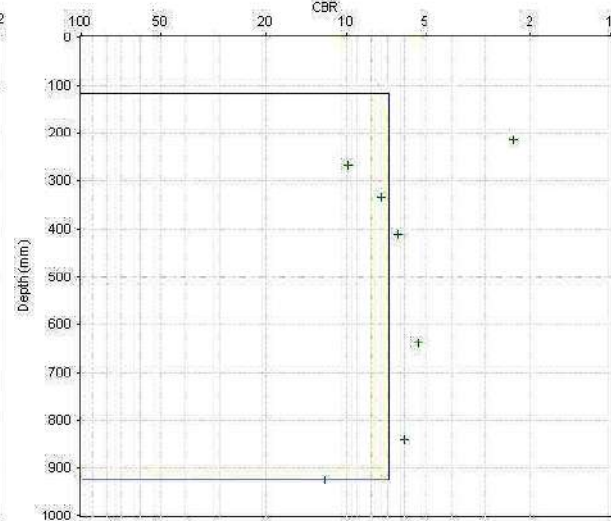
Chainage (km): 12.000
 Direction:
 Location/Offset: Carriageway
 Cone Angle: 60 degrees
 Zero Error (mm): 25
 Test Date: 19/11/2025

Surface Type: Other
 Thickness (mm): 115
 Strength Coeff.: 0.30
 Base Type:
 Thickness (mm):
 Strength Coeff.:

Layer Boundaries: Chainage 12.000



Layer Boundaries Chart



CBR Chart

Layer Properties

No.	Penetration Rate (mm/blow)	CBR (%)	Thickness (mm)	Depth to layer bottom (mm)	Position	Strength Coefficient	SN	SNC	SNP
1	35.50	7	810	925	Base	0.02	0.62	0.62	0.62

Pavement Strength

Layer	Layer Contribution		
	SN	SNC	SNP
Surface	1.36	1.36	1.36
Base	0.62	0.62	0.62
Sub-Base	--	--	--
Subgrade	--	--	--
Pavement Strength	1.98	1.98	1.98

CBR Relationship:

TRL equation: $\log_{10}(\text{CBR}) = 2.48 - 1.057 \times \log_{10}(\text{Strength})$

Report produced by

Soakaway Calculations

Trial Pit & Test No.	TPSA1 Test 1
Site Name	Horton Heath School
Project No.	22177

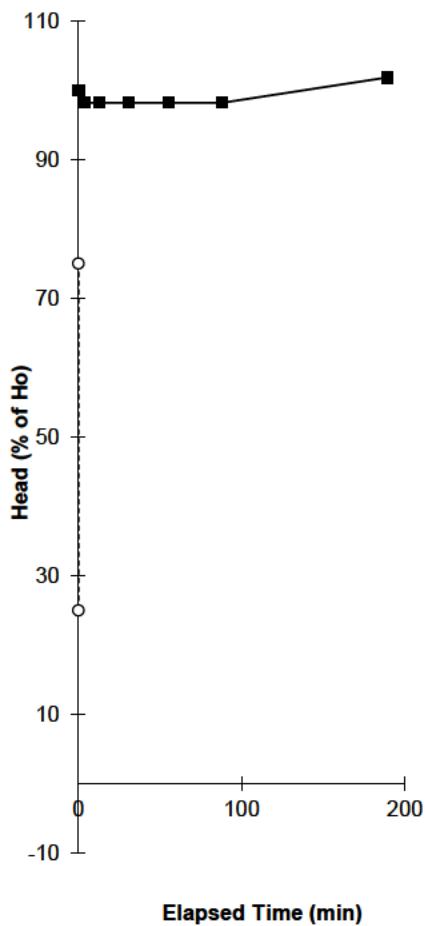
Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	2.50 m
Width of Pit	0.45 m
Length of Pit	2.10 m
Starting Head of Water	1.10 m
as50	3.75 m2
Vp75-25	0.51975 m3
t75-25	0.0 min
water used	1.0395 m3
f	m/sec.

Field Data

Depth to	Elapsed	Head of	Head of
Water	Time	Water	Water
(m)	(min)	(% of Ho)	(m)
1.40	0	100	1.1
1.42	4	98	1.08
1.42	13	98	1.08
1.42	31	98	1.08
1.42	55	98	1.08
1.42	88	98	1.08
1.38	189	102	1.12
T75	0.000	75	
T25	0.000	25	
T75-25	0.000 Derived from Best Fit		



Comments

Negligible infiltration achieved onsite prior to groundwater level rising. Infiltration rate not calculable.

SOILS LIMITED

**Newton House, Cross Road, Tadworth
Surrey, KT20 5SR**

Telephone: 01737 814 221
Facsimile: 01737 812 557

Soakaway Calculations

Trial Pit & Test No.	TPSA2 Test 1
Site Name	Horton Heath School
Project No.	22177

Field Test

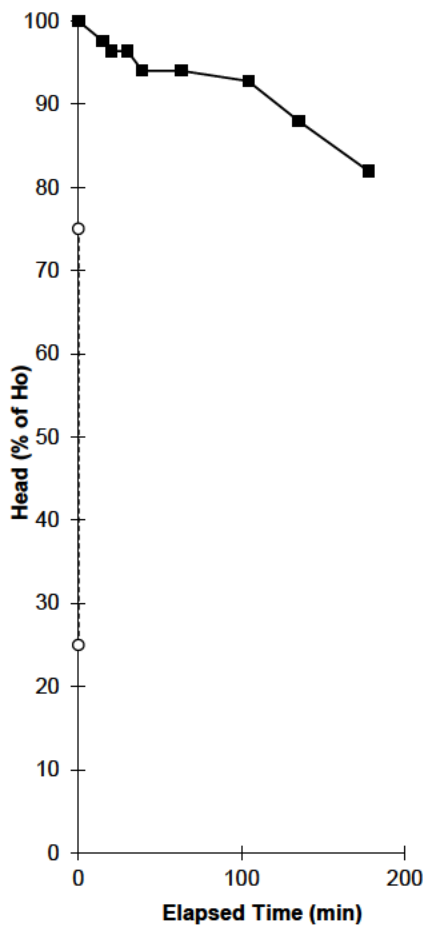
Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	2.00 m
Width of Pit	0.45 m
Length of Pit	2.20 m
Starting Head of Water	0.83 m

as50	3.1895 m2
Vp75-25	0.41085 m3
t75-25	0.0 min
water used	0.8217 m3
f	m/sec.

Field Data

Depth to Water	Elapsed Time	Head of Water	Head of Water
(m)	(min)	(% of Ho)	(m)
1.17	0	100	0.83
1.19	15	98	0.81
1.20	20	96	0.80
1.20	30	96	0.80
1.22	39	94	0.78
1.22	63	94	0.78
1.23	104	93	0.77
1.27	135	88	0.73
1.32	178	82	0.68



T75	0.000	75
T25	0.000	25
T75-25	0.000	Derived from Best Fit

Comments

Negligible infiltration achieved onsite. Infiltration rate not calculable.

SOILS LIMITED

**Newton House, Cross Road, Tadworth
Surrey, KT20 5SR**

Telephone: 01737 814 221
Facsimile: 01737 812 557

Soakaway Calculations

Trial Pit & Test No.	TPSA3 Test 1
Site Name	Horton Heath School
Project No.	22177

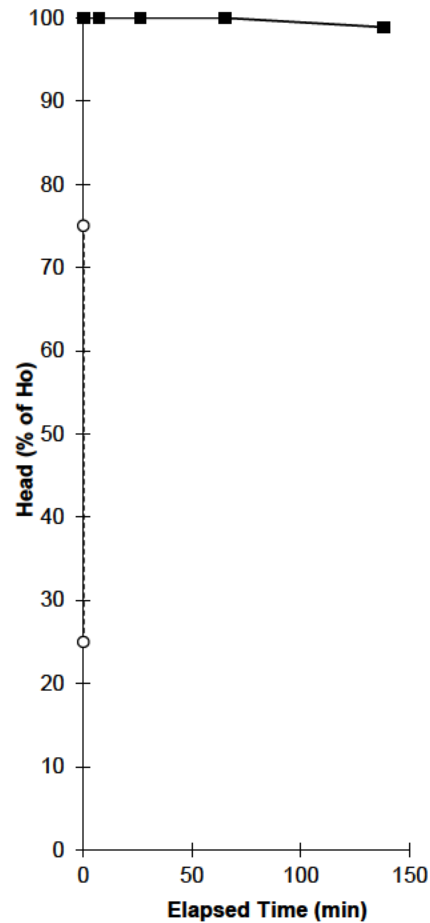
Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	2.00 m
Width of Pit	0.45 m
Length of Pit	2.20 m
Starting Head of Water	0.90 m
as50	3.375 m2
Vp75-25	0.4455 m3
t75-25	0.0 min
water used	0.8910 m3
f	m/sec.

Field Data

Depth to Water (m)	Elapsed Time (min)	Head of Water (% of Ho)	Head of Water (m)
1.10	0	100	0.9
1.10	7	100	0.90
1.10	26	100	0.90
1.10	65	100	0.90
1.11	138	99	0.89



T75	0.000	75
T25	0.000	25
T75-25	0.000	Derived from Best Fit

Comments

Negligible infiltration achieved onsite. Infiltration rate not calculable.

SOILS LIMITED

Newton House, Cross Road, Tadworth
Surrey, KT20 5SR

Telephone: 01737 814 221
Facsimile: 01737 812 557

Soakaway Calculations

Trial Pit & Test No.	TPSA4 Test 1
Site Name	Horton Heath School
Project No.	22177

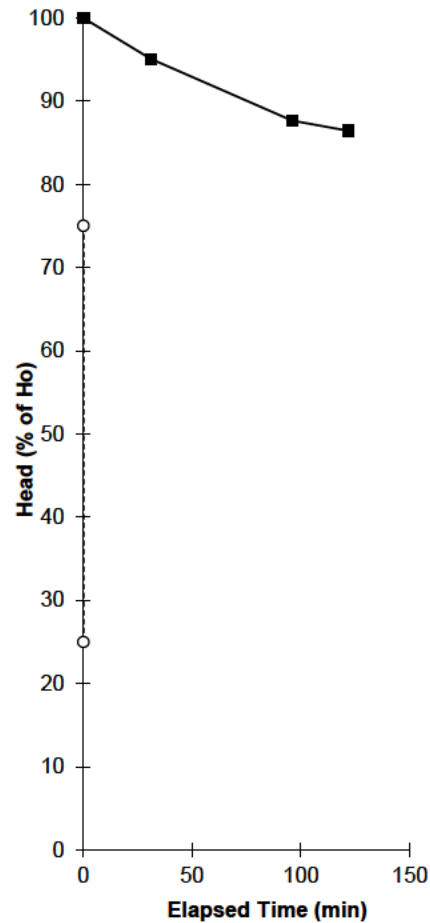
Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	2.00 m
Width of Pit	0.45 m
Length of Pit	2.30 m
Starting Head of Water	0.81 m
as50	3.2625 m2
Vp75-25	0.419175 m3
t75-25	0.0 min
water used	0.8384 m3
f	m/sec.

Field Data

Depth to Water (m)	Elapsed Time (min)	Head of Water (% of Ho)	Head of Water (m)
1.19	0	100	0.81
1.23	31	95	0.77
1.29	96	88	0.71
1.30	122	86	0.70



T75	0.000	75
T25	0.000	25
T75-25	0.000	Derived from Best Fit

Comments

Negligible infiltration achieved onsite. Infiltration rate not calculable.

SOILS LIMITED

Newton House, Cross Road, Tadworth
Surrey, KT20 5SR

Telephone: 01737 814 221
Facsimile: 01737 812 557

Soakaway Calculations

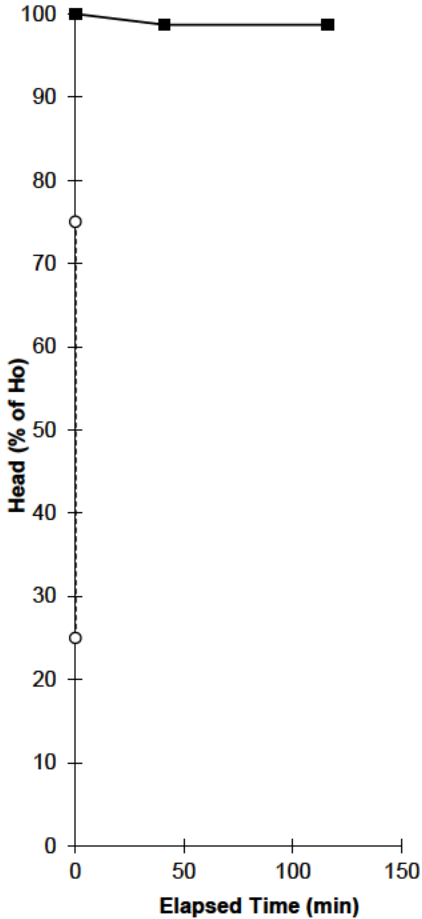
Trial Pit & Test No.	TPSA5 Test 1
Site Name	Horton Heath School
Project No.	22177

Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	2.00 m
Width of Pit	0.45 m
Length of Pit	2.20 m
Starting Head of Water	0.76 m
as50	3.004 m ²
Vp75-25	0.3762 m ³
t75-25	0.0 min
water used	0.7524 m ³
f	m/sec.

Field Data

[illegible]

Comments

Negligible infiltration achieved onsite. Infiltration rate not calculable.

SOILS LIMITED

**Newton House, Cross Road, Tadworth
Surrey, KT20 5SR**

Telephone: 01737 814 221
Facsimile: 01737 812 557



Laboratory Report



Contract Number: 83084

Client Ref: 22177

Client PO: 22177/DEE

Date Received: 03-12-2025

Date Completed: 22-12-2025

Report Date: 22-12-2025

Client: **Soils Limited**

This report has been checked and approved by:

Contract Title: **One Horton Heath School**
For the attention of: **Dee Windsor**



Shaun Jones
Laboratory manager

Description	Qty
Determination of water content BS EN ISO 17892-1:2014 - * UKAS	7
1 point Liquid & Plastic Limit.. BS EN ISO 17892-12 - * UKAS	7
Particle Size Distribution BS EN ISO 17892-4 : 5.1 - * UKAS	6

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

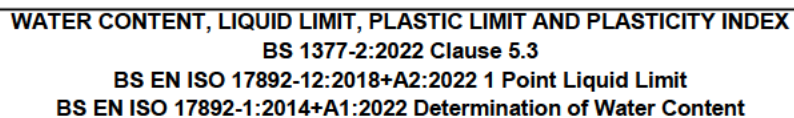
- denotes test carried out by approved contractor

@ - denotes non accredited tests

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 test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Business Support Co-ordinator) - Darren Bourne (Quality Senior Technician) - Jason Jenkins (Business Development Manager)
Luke Williams (Senior Laboratory Technician) - Paul Evans (Director) - Richard John (Quality/Technical Manager)
Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager) - Vince Williams (Site Technician)
Wayne Honey (HR & HSE Manager)



Contract Number	83084	
Project Name	One Horton Heath School	
Date Tested	16/12/2025	
	DESCRIPTIONS	

[illegible]

Operator
Darcy Etheridge



PARTICLE SIZE DISTRIBUTION
BS 1377-2:2022 Clause 10 &
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number

83084

Borehole/Pit No.

CP01

Project Name

One Horton Heath School

Sample No.

Sample Description

Dark grey silty/clayey fine to coarse SAND

Depth Top

5.00

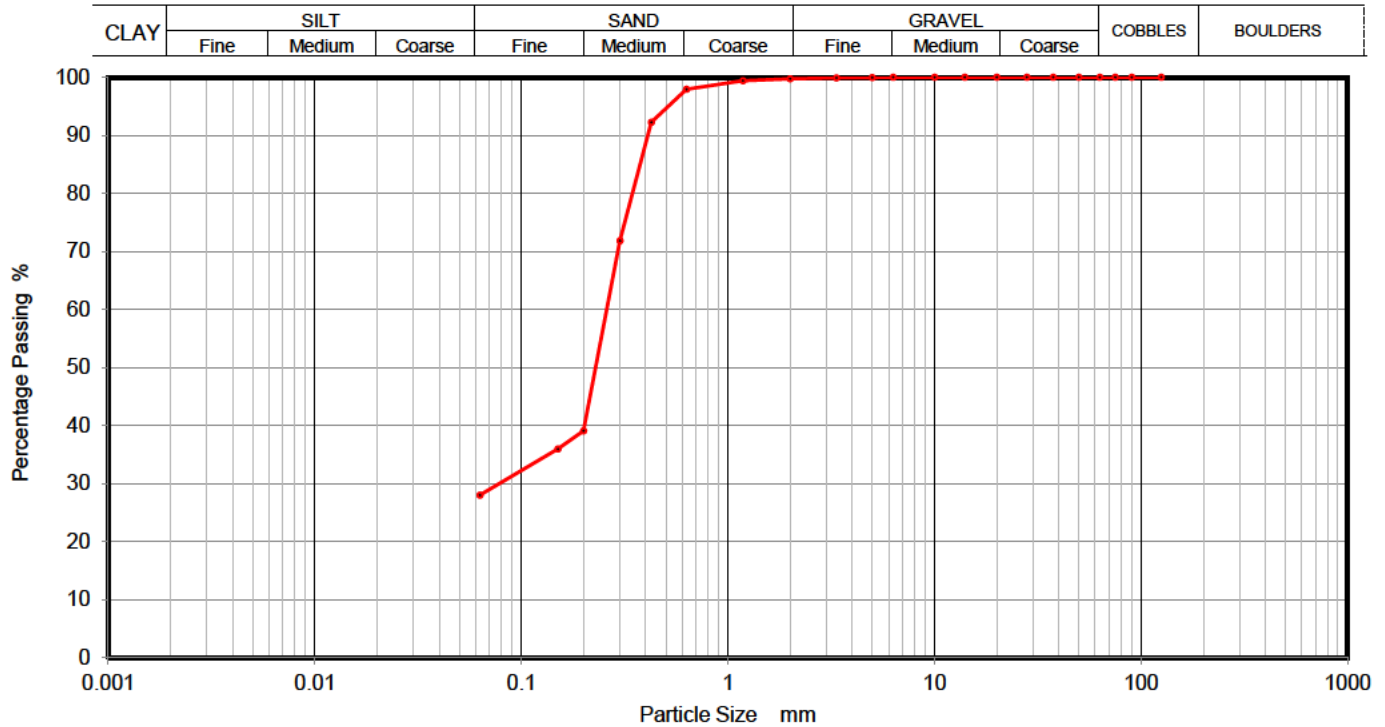
Depth Base

Date Tested

11/12/2025

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	100		
2	100		
1.18	99		
0.63	98		
0.425	92		
0.30	72		
0.20	39		
0.15	36		
0.063	28		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	72
Silt and Clay	28

Grading Analysis	
Uniformity Coefficient	N/A

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator

Corey J.



PARTICLE SIZE DISTRIBUTION
BS 1377-2:2022 Clause 10 &
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number

83084

Borehole/Pit No.

CP01

Project Name

One Horton Heath School

Sample No.

Sample Description

Grey slightly fine gravelly fine to coarse sandy SILT/CLAY

Depth Top

10.00

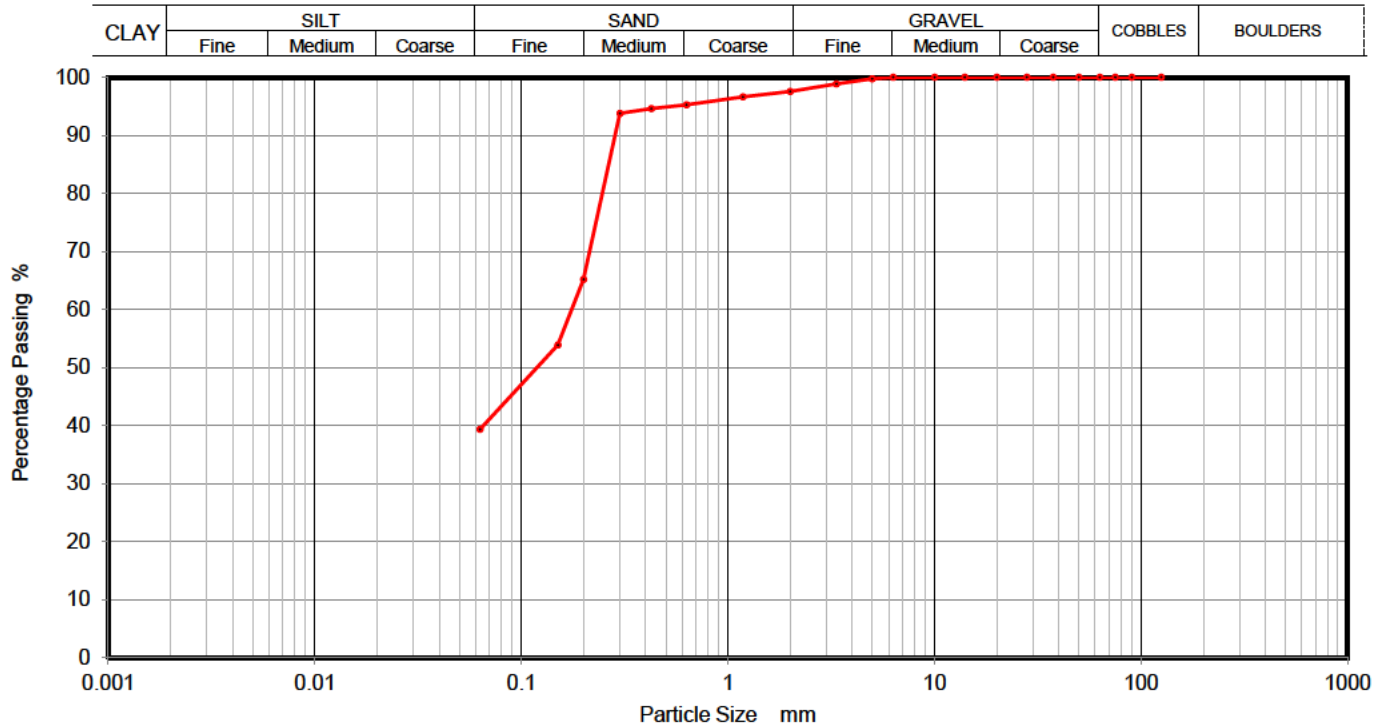
Depth Base

Date Tested

11/12/2025

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	98		
1.18	97		
0.63	95		
0.425	95		
0.30	94		
0.20	65		
0.15	54		
0.063	39		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	59
Silt and Clay	39

Grading Analysis	
Uniformity Coefficient	N/A

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator

Corey J.



PARTICLE SIZE DISTRIBUTION
BS 1377-2:2022 Clause 10 &
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number

83084

Borehole/Pit No.

WS5

Project Name

One Horton Heath School

Sample No.

Sample Description

Brown silty/clayey fine to coarse SAND

Depth Top

1.35

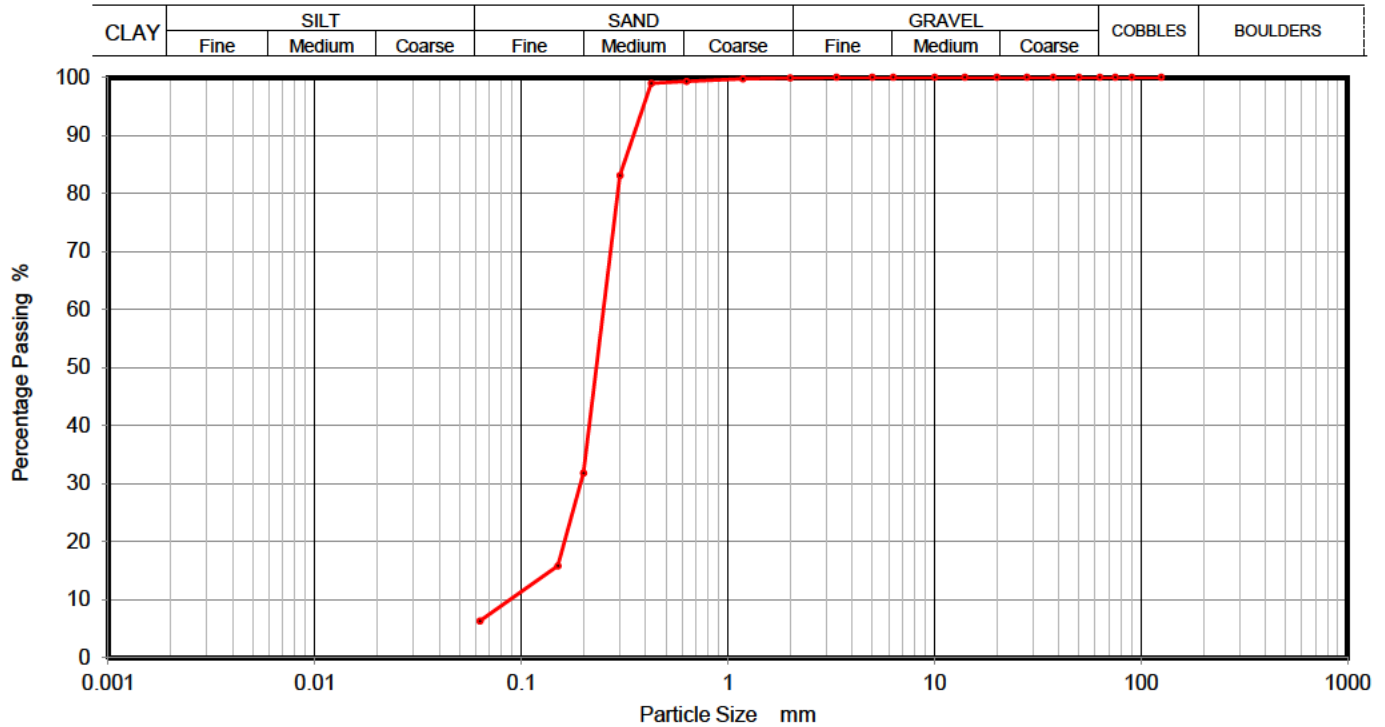
Depth Base

Date Tested

11/12/2025

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	100		
2	100		
1.18	100		
0.63	99		
0.425	99		
0.30	83		
0.20	32		
0.15	16		
0.063	6		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	94
Silt and Clay	6

Grading Analysis	
Uniformity Coefficient	N/A

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator

Corey J.



PARTICLE SIZE DISTRIBUTION
BS 1377-2:2022 Clause 10 &
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number

83084

Borehole/Pit No.

WS6

Project Name

One Horton Heath School

Sample No.

Sample Description

Orange slightly fine gravelly fine to coarse sandy SILT/CLAY

Depth Top

1.70

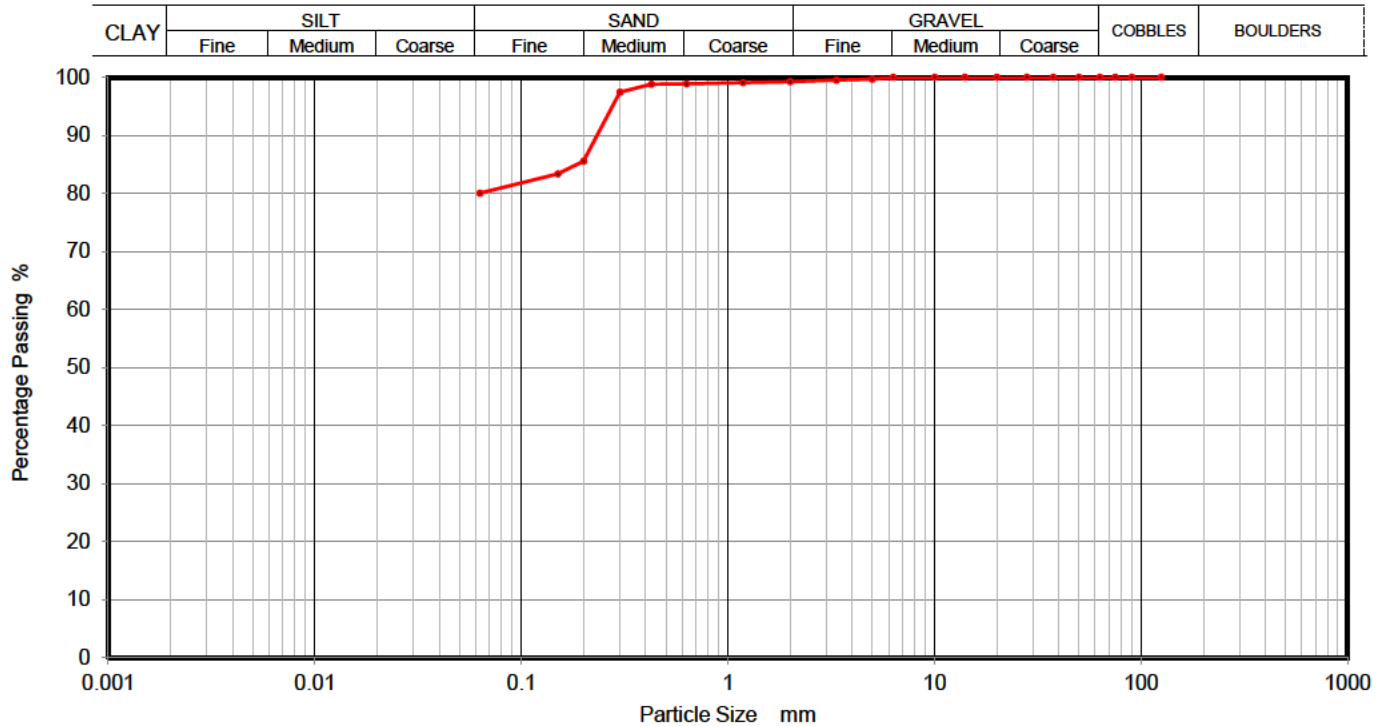
Depth Base

Date Tested

11/12/2025

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	100		
2	99		
1.18	99		
0.63	99		
0.425	99		
0.30	97		
0.20	86		
0.15	83		
0.063	80		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	19
Silt and Clay	80

Grading Analysis	
Uniformity Coefficient	N/A

Remarks

Preparation and testing in accordance with BS17892 unless noted below

Operator

Corey J.



PARTICLE SIZE DISTRIBUTION
BS 1377-2:2022 Clause 10 &
BS EN ISO 17892-4:2016
Wet Sieve, Clause 5.2

Contract Number **83084**

Borehole/Pit No. **WS7**

Project Name **One Horton Heath School**

Sample No.

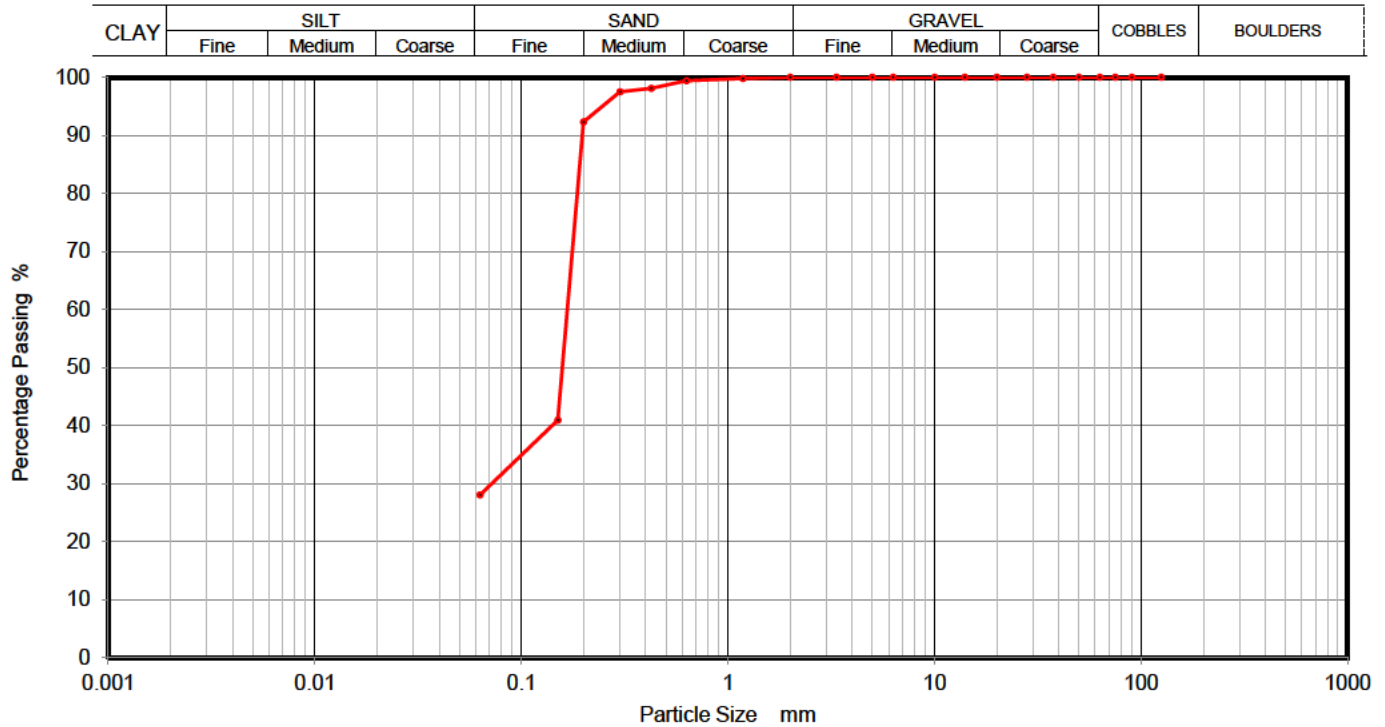
Sample Description **Brown silty/clayey fine to coarse SAND**

Depth Top **2.50**

Depth Base

Date Tested **11/12/2025**

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	100		
2	100		
1.18	100		
0.63	99		
0.425	98		
0.30	98		
0.20	92		
0.15	41		
0.063	28		

Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	72
Silt and Clay	28

Grading Analysis	
Uniformity Coefficient	N/A

Remarks
 Preparation and testing in accordance with BS17892 unless noted below

Operator
Corey J.

Certificate of Analysis

Certificate Number 25-28052

Issued: 11-Dec-25

Client Soils Limited
Thomas Telford House
Sun Valley Business Park
Winnall Close
Winchester
SO23 0LB

Our Reference 25-28052

Client Reference ~ 22177

Order No ~ 22177/DEE

Contract Title ~ Horton Heath

Description 1 Soil sample.

Date Received 02-Dec-25

Date Started 02-Dec-25

Date Completed 11-Dec-25

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

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

Approved By



Reyhan Irfan
Operations Manager



2139

Sample Deviations present. See Deviation Table Section for details.

Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY
Tel: 01207 582333 • email: info-dets@normecgroup.com • normecdets.com

Summary of Chemical Analysis

Soil Samples

Our Ref 25-28052
Client Ref ~ 22177
Contract Title ~ Horton Heath

Lab No	2608267
Sample ID ~	CP1
Depth ~	12.00
Other ID ~	
Sample Type ~	SOIL
Sampling Date ~	28/11/2025
Sampling Time ~	n/s

Test	Method	LOD	Units	
Metals				
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	< 10
Inorganics				
pH	DETSC 2008#		pH	8.8
Ammonia Aqueous Extract as N	DETSC 2119*	10	mg/l	< 10
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	7.9
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l	< 1.0
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	60
Sulphur as S, Total	DETSC 2320	0.01	%	0.36
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.08

Information in Support of the Analytical Results

Our Ref 25-28052
 Client Ref ~ 22177
 Contract ~ Horton Heath

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date		Containers Received	Holding time exceeded for tests	Incorrect container for tests
		Sampled ~				
2608267	CP1 12.00 SOIL	28/11/25		PT 1L	Ammonia Aqueous Extract (3 days)	

Key: P-Plastic T-Tub

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

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report Ver 25.10.03

Certificate of Analysis

Certificate Number 25-27789

Issued: 09-Dec-25

Client Soils Limited
Thomas Telford House
Sun Valley Business Park
Winnall Close
Winchester
SO23 0LB

Our Reference 25-27789

Client Reference ~ 22177

Order No ~ 22177/DEE

Contract Title ~ One Horton Heath School

Description 4 Soil samples.

Date Received 28-Nov-25

Date Started 28-Nov-25

Date Completed 09-Dec-25

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

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

Approved By



Reyhan Irfan
Operations Manager



2139

Sample Deviations present. See Deviation Table Section for details.

Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY
Tel: 01207 582333 • email: info-dets@normecgroup.com • normecdets.com

Summary of Chemical Analysis

Soil Samples

Our Ref 25-27789
 Client Ref ~ 22177
 Contract Title ~ One Horton Heath School

Lab No	2606958	2606959	2606961	2606962
Sample ID ~	CP1	CP1	WS1	WS5
Depth ~	4.00	8.00	1.00	2.10
Other ID ~				
Sample Type ~	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	17/11/2025	17/11/2025	25/11/2025	25/11/2025
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	< 10	12	< 10	< 10
Inorganics							
pH	DETSC 2008#		pH	8.4	7.5	7.9	5.8
Ammonia Aqueous Extract as N	DETSC 2119*	10	mg/l	< 10	< 10	< 10	< 10
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	11	7.1	5.7	7.5
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l	3.0	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	28	230	14	320
Sulphur as S, Total	DETSC 2320	0.01	%	< 0.01	0.22	< 0.01	0.14
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.01	0.11	0.01	0.31

Information in Support of the Analytical Results

Our Ref 25-27789
 Client Ref ~ 22177
 Contract ~ One Horton Heath School

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date		Containers Received	Holding time exceeded for tests	Incorrect container for tests
		Sampled ~				
2606958	CP1 4.00 SOIL	17/11/25		PT 1L	Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2606959	CP1 8.00 SOIL	17/11/25		PT 1L	Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2606961	WS1 1.00 SOIL	25/11/25		PT 1L		
2606962	WSS 2.10 SOIL	25/11/25		PT 1L		

Key: P-Plastic T-Tub

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

Soil Analysis Notes

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

Disposal

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

Key:

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

End of Report Ver 25.10.03

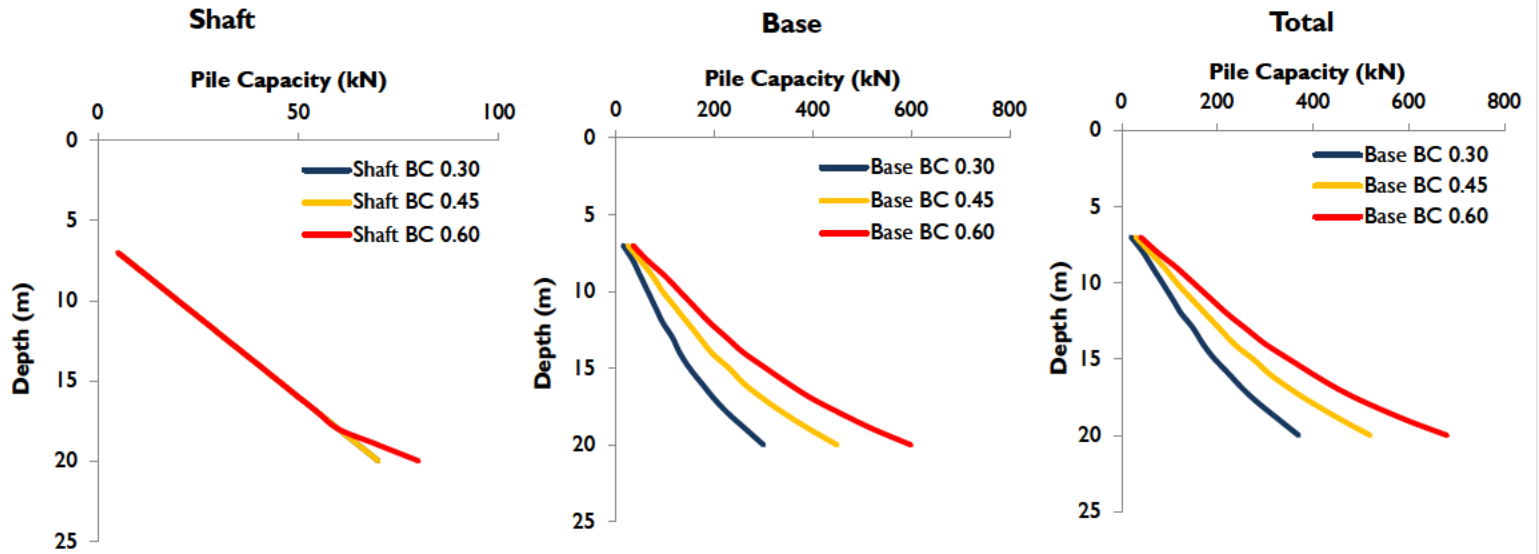
Appendix D Foundation Design

Appendix D.1 Preliminary Pile Design

Preliminary Pile Working Loads

Single Vertically Loaded Pile (kN)

Name:	DEE	Depth to top of strata:	6	Pile Start Depth:	6	FOS	
Job No:	22177			Pile Final Depth:	20	Shaft	Base
Date:	6.1.26			Pile Depth Increments:	1	3	3
Notes:							



Pile Diameter (m):

Pile Depths				0.3			0.45			0.6		
(m bgl)	Shaft	Base	Total	Shaft	Base	Total	Shaft	Base	Total			
6												
7	5	15	20	5	25	30	5	35	40			
8	10	35	45	10	50	60	10	65	75			
9	15	50	65	15	75	90	15	100	115			
10	20	65	85	20	95	115	20	130	150			
11	25	80	105	25	120	145	25	160	185			
12	30	95	125	30	145	175	30	190	220			
13	35	115	150	35	170	205	35	225	260			
14	40	130	170	40	195	235	40	260	300			
15	45	150	195	45	230	275	45	305	350			
16	50	175	225	50	260	310	50	350	400			
17	55	200	255	55	300	355	55	400	455			
18	60	230	290	60	345	405	60	460	520			
19	65	265	330	65	395	460	70	525	595			
20	70	300	370	70	450	520	80	600	680			

Appendix E Chemical Laboratory Analyses

Appendix E.1 Conceptual Site Model

Table E.I.1 CSM Revised Pre-Chemical Analyses

Source	Potential Contaminant	Exposure Pathway	Receptor	Initial Assessment from Desk Study and Main Investigation Report Information			Comments	Proposed Investigation
				Severity	Probability	Risk		
Historic agricultural use (fertilisers, pesticides)	Metals, semi-metals, nitrates, phosphates, pesticide residues	Inhalation of dust	Site Workers/Site Maintenance	Mild	Unlikely	Low	Diffuse residues possible in topsoil from historic agricultural use. Not expected to exceed guideline values.	Phase II ground investigation to confirm the ground conditions present and chemical testing prior to undertaking a generic quantitative risk assessment.
		Ingestion / dermal contact	Site Workers / End Users	Mild	Unlikely	Low	Low likelihood of direct exposure due to proposed landscaped cover.	None required beyond validation sampling if soils reused on-site.
Minor made ground (small access track, chambers)	Metals, hydrocarbons (TPH / PAH)	Inhalation of dust	Site Workers/Site Maintenance	Mild	Unlikely	Low	Minimal made ground observed; limited extent and low risk.	Visual inspection during groundworks; sample if fill encountered.
Residential dwellings (domestic fuel / waste)	TPH, PAH, metals	Migration via groundwater	Surface Water / Shallow / Deep Aquifer	Mild	Unlikely	Low	Localised, small-scale domestic sources at distance (>50 m). No pathway connectivity.	None required.
Historic pit (possible infilled ground)	Metals, inert material	Migration in groundwater	Shallow / Deep Aquifer	Mild	Unlikely	Low	Old feature ≈120 m NW; likely inert fill. No hydraulic connection expected.	None required.
Natural soil composition (Wittering Formation)	Naturally occurring metals (As, Ni, Cr)	Direct contact	End Users	Mild	Likely	Low	Concentrations typical of natural background levels in local geology.	None required.
Pumping station (on-site)	Nutrients (nitrates, phosphates), organic matter, metals	Migration via surface runoff / groundwater	Surface Water / Shallow / Deep Aquifer	Mild	Likely	Low	Potential minor discharge to drainage ditch.	None required.
Petrol Filling Station (off-site, 324 m E)	TPH, BTEX, PAHs	Migration in groundwater / vapour	Site Workers / End Users / Surface Water	Mild	Likely	Low	Modern containment; intervening low-permeability clay reduces migration potential.	None required.
Electric substation (on-site)	TPH, PAHs, PCBs, metals	Inhalation of dust / vapours	Site Workers / Site Maintenance	Mild	Likely	Low	Area fenced off; risk confined to substation footprint	Targeted soil sampling adjacent to substation if disturbed.
		Direct contact	Site Workers / Site Maintenance	Mild	Likely	Low	Contamination, if present, expected to be shallow and localised.	None required unless ground disturbance planned.

Table E.1.2 CSM Revised Post-Chemical Analyses

Source	Potential Contaminant	Exposure Pathway	Receptor	Initial Assessment from Desk Study and Main Investigation Report Information			Comments	Proposed Investigation
				Severity	Probability	Risk		
Historic agricultural use (fertilisers, pesticides)	Metals, semi-metals, nitrates, phosphates, pesticide residues	Inhalation of dust	Site Workers/Site Maintenance	-	-	None	No exceedances encountered within any soils analysed onsite.	No further investigation required. Discovery strategy required should the unlikely event that any contaminants be encountered during siteworks.
		Ingestion / dermal contact	Site Workers / End Users	-	-	None		
Minor made ground (small access track, chambers)	Metals, hydrocarbons (TPH / PAH)	Inhalation of dust	Site Workers/Site Maintenance	-	-	None		
Residential dwellings (domestic fuel / waste)	TPH, PAH, metals	Migration via groundwater	Surface Water / Shallow / Deep Aquifer	-	-	None		
Historic pit (possible infilled ground)	Metals, inert material	Migration in groundwater	Shallow / Deep Aquifer	-	-	None		
Natural soil composition (Wittering Formation)	Naturally occurring metals (As, Ni, Cr)	Direct contact	End Users	-	-	None		
Pumping station (on-site)	Nutrients (nitrates, phosphates), organic matter, metals	Migration via surface runoff / groundwater	Surface Water / Shallow / Deep Aquifer	-	-	None		
Petrol Filling Station (off-site, 324 m E)	TPH, BTEX, PAHs	Migration in groundwater / vapour	Site Workers / End Users / Surface Water	-	-	None		
Electric substation (on-site)	TPH, PAHs, PCBs, metals	Inhalation of dust / vapours	Site Workers / Site Maintenance	-	-	None		
		Direct contact	Site Workers / Site Maintenance	-	-	None		

Appendix E.2 Chemical Laboratory Results

Certificate of Analysis

Certificate Number 25-27791

Issued: 22-Dec-25

Client Soils Limited
Thomas Telford House
Sun Valley Business Park
Winnall Close
Winchester
SO23 0LB

Our Reference 25-27791

Client Reference ~ 22177

Order No ~ 22177/DEE

Contract Title ~ One Horton Heath School

Description 10 Soil samples, 4 Leachate prepared by DETS samples.

Date Received 28-Nov-25

Date Started 28-Nov-25

Date Completed 22-Dec-25

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

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

Approved By



Reyhan Irfan
Operations Manager



2139

Sample Deviations present. See Deviation Table Section for details.

Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY
Tel: 01207 582333 • email: info-dets@normecgroup.com • normecdets.com

Summary of Chemical Analysis

Soil Samples

Our Ref 25-27791

Client Ref ~ 22177

Contract Title ~ One Horton Heath School

Lab No	2606964	2606965	2606966	2606967	2606968	2606969
Sample ID ~	WS1	WS2	WS3	WS5	WS6	WS7
Depth ~	0.20	0.40	0.60	0.10	0.10	0.30
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	25/11/2025	25/11/2025	25/11/2025	25/11/2025	25/11/2025	25/11/2025
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Moisture Content	DETSC 1004	0.1	%				22		
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	9.7	11	15	9.8	9.3	9.2
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.4	0.3	0.3	0.6	0.4	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	< 0.1	< 0.1	0.2	0.2	0.2
Chromium	DETSC 2301#	0.15	mg/kg	18	24	29	18	15	17
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	16	12	13	14	22	15
Lead	DETSC 2301#	0.3	mg/kg	39	13	13	36	44	37
Mercury	DETSC 2325#	0.05	mg/kg	0.13	< 0.05	< 0.05	0.13	0.14	0.15
Nickel	DETSC 2301#	1	mg/kg	7.4	7.9	7.1	5.1	5.2	5.6
Selenium	DETSC 2301#	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5	0.5	0.8
Vanadium	DETSC 2301#	0.8	mg/kg	32	40	45	33	29	30
Zinc	DETSC 2301#	1	mg/kg	50	38	40	40	42	46
Inorganics									
pH	DETSC 2008#		pH	9.1	8.8	9.2	7.9	7.6	7.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1				0.2	
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1				< 0.1	
Organic matter	DETSC 2002#	0.1	%	2.6	0.5	0.6	3.9	3.1	2.6
Petroleum Hydrocarbons									
EPH >C10-C12	DETSC 3521#	10	mg/kg		< 10.00	< 10.00	< 10.00		< 10.00
EPH >C12-C16	DETSC 3521#	10	mg/kg		< 10.00	< 10.00	< 10.00		< 10.00
EPH >C16-C21	DETSC 3521#	10	mg/kg		< 10.00	< 10.00	< 10.00		< 10.00
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01				< 0.01	
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01				< 0.01	
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01				< 0.01	
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	< 1.50				2.01	
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20				< 1.20	
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50				< 1.50	
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40				< 3.40	
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00				< 10.00	
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01				< 0.01	
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01				< 0.01	
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01				< 0.01	
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90				< 0.90	
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50				< 0.50	
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	< 0.60				0.80	
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40				< 1.40	
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00				< 10.00	
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	< 10.00				< 10.00	
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg		< 0.1	< 0.1	< 0.1		< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref 25-27791

Client Ref ~ 22177

Contract Title ~ One Horton Heath School

Lab No	2606964	2606965	2606966	2606967	2606968	2606969
Sample ID ~	WS1	WS2	WS3	WS5	WS6	WS7
Depth ~	0.20	0.40	0.60	0.10	0.10	0.30
Other ID ~						
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	25/11/2025	25/11/2025	25/11/2025	25/11/2025	25/11/2025	25/11/2025
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
EPH (C21-C36)	DETSC 3311	10	mg/kg		< 10	< 10	< 10		< 10
EPH (C36-C40)	DETSC 3311	10	mg/kg		< 10	< 10	< 10		< 10
EPH >C10-C40	DETSC 3521#	10	mg/kg		< 10.00	11.33	< 10.00		< 10.00
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01				< 0.01	
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01				< 0.01	
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01				< 0.01	
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01				< 0.01	
MTBE	DETSC 3321	0.01	mg/kg	< 0.01				< 0.01	
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 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	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 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	< 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	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 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	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
PCBs									
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01				< 0.01	
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	< 0.3	< 0.3	0.7	0.5	0.5

Summary of Chemical Analysis

Soil Samples

Our Ref 25-27791

Client Ref ~ 22177

Contract Title ~ One Horton Heath School

Lab No	2606970	2606971	2606972	2606973
Sample ID ~	WS8	WS9	WS10	WS11
Depth ~	0.30	0.40	0.10	0.10
Other ID ~				
Sample Type ~	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	25/11/2025	25/11/2025	25/11/2025	25/11/2025
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Preparation							
Moisture Content	DETSC 1004	0.1	%			21	
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	11	12	10	15
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	0.4	0.4	0.6
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	0.2	0.2
Chromium	DETSC 2301#	0.15	mg/kg	28	28	15	19
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	15	11	15	21
Lead	DETSC 2301#	0.3	mg/kg	16	15	46	49
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.38	0.33
Nickel	DETSC 2301#	1	mg/kg	11	8.0	5.0	7.2
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	44	46	31	47
Zinc	DETSC 2301#	1	mg/kg	46	47	42	52
Inorganics							
pH	DETSC 2008#		pH	7.6	7.9	6.9	6.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1			0.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1			0.1
Organic matter	DETSC 2002#	0.1	%	1.0	0.9	3.4	3.1
Petroleum Hydrocarbons							
EPH >C10-C12	DETSC 3521#	10	mg/kg		< 10.00	< 10.00	
EPH >C12-C16	DETSC 3521#	10	mg/kg		< 10.00	< 10.00	
EPH >C16-C21	DETSC 3521#	10	mg/kg		< 10.00	< 10.00	
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01			< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01			< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01			< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	2.72			3.10
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20			< 1.20
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50			< 1.50
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40			< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00			< 10.00
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01			< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01			< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01			< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90			< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50			< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	0.77			0.78
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	2.11			< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00			< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	< 10.00			< 10.00
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg		< 0.1	< 0.1	

Summary of Chemical Analysis

Soil Samples

Our Ref 25-27791

Client Ref ~ 22177

Contract Title ~ One Horton Heath School

Lab No	2606970	2606971	2606972	2606973
Sample ID ~	WS8	WS9	WS10	WS11
Depth ~	0.30	0.40	0.10	0.10
Other ID ~				
Sample Type ~	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	25/11/2025	25/11/2025	25/11/2025	25/11/2025
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
EPH (C21-C36)	DETSC 3311	10	mg/kg		< 10	< 10	
EPH (C36-C40)	DETSC 3311	10	mg/kg		< 10	< 10	
EPH >C10-C40	DETSC 3521#	10	mg/kg		< 10.00	< 10.00	
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01			< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01			< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01			< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01			< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01			< 0.01
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	< 0.03	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 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	< 0.10	< 0.10	< 0.10	< 0.10
PCBs							
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01			< 0.01
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	0.3	0.9	0.8

WASTE ACCEPTANCE CRITERIA TESTING

v20.25.02.03

Our Ref 25-27791

Client Ref 22177

Contract Title One Horton Heath School

Sample Id WS5 0.10

Sample Numbers 2606967 2606974 2606975

Date Analysed 10/12/2025

Test Results On Waste					WAC Limit Values		
Determinand and Method Reference	Units	Result			Inert Waste	SNRHW	Hazardous Waste
DETS 2084# Total Organic Carbon	%	3.5			3	5	6
DETS 2003# Loss On Ignition	%	6.9			n/a	n/a	10
DETS 3321# BTEX	mg/kg	< 0.04			6	n/a	n/a
DETS 3401# PCBs (7 congeners)	mg/kg	< 0.01			1	n/a	n/a
DETS 3521* Mineral Oil >C10-C40 + Clean Up	mg/kg	< 10			500	n/a	n/a
DETS 3301 PAHs	mg/kg	< 1.6			100	n/a	n/a
DETS 2008# pH	pH Units	7.9			n/a	>6	n/a
DETS 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0			n/a	TBE	TBE
DETS 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0			n/a	TBE	TBE

Test Results On Leachate					WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached mg/kg		Limit values for LS10 Leachate		
	2:1	8:1	LS2	LS10	Inert Waste	SNRHW	Hazardous Waste
DETS 2306 Arsenic as As	0.21	0.32	< 0.002	< 0.01	0.5	2	25
DETS 2306 Barium as Ba	2.3	3.4	< 0.02	< 0.1	20	100	300
DETS 2306 Cadmium as Cd	< 0.030	< 0.030	< 0.004	< 0.02	0.04	1	5
DETS 2306 Chromium as Cr	0.33	0.28	< 0.02	< 0.1	0.5	10	70
DETS 2306 Copper as Cu	1.8	2.4	< 0.004	0.024	2	50	100
DETS 2306 Mercury as Hg	< 0.010	< 0.010	< 0.0004	< 0.002	0.01	0.2	2
DETS 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1	0.5	10	30
DETS 2306 Nickel as Ni	< 0.50	< 0.50	< 0.02	< 0.1	0.4	10	40
DETS 2306 Lead as Pb	0.11	0.37	< 0.01	< 0.05	0.5	10	50
DETS 2306 Antimony as Sb	< 0.17	< 0.17	< 0.01	< 0.05	0.06	0.7	5
DETS 2306 Selenium as Se	< 0.25	< 0.25	< 0.006	< 0.03	0.1	0.5	7
DETS 2306 Zinc as Zn	< 1.3	3.2	< 0.002	0.03	4	50	200
DETS 2055 Chloride as Cl	700	7500	< 20	< 100	800	15,000	25,000
DETS 2055* Fluoride as F	< 100	140	< 0.02	1.33	10	150	500
DETS 2055 Sulphate as SO4	560	1200	< 20	< 100	1000	20,000	50,000
DETS 2009* Total Dissolved Solids	14000	24000	28	234.9	4000	60,000	100,000
DETS 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
DETS 2085 Dissolved Organic Carbon	7300	7600	14.6	75.8	500	800	1000

Additional Information		
DETS 2008 pH	7.9	6.5
DETS 2009 Conductivity uS/cm	19.3	34.0
* Temperature*	17.0	17.0

Mass of Sample Kg	0.224
Mass of dry Sample Kg	0.175

Stage 1

Volume of Leachant L2	0.301
Volume of Eluate VE1	0.09

Stage 2

Volume of Leachant L8	1.4
Volume of Eluate VE2	0.615

TBE - To Be Evaluated
 SNRHW - Stable Non-Reactive
 Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. Normec DETS does not accept responsibility for errors or omissions.
 Values are correct at time of issue.

WASTE ACCEPTANCE CRITERIA TESTING

v20.25.02.03

Our Ref 25-27791

Client Ref 22177

Contract Title One Horton Heath School

Sample Id WS10 0.10

Sample Numbers 2606972 2614533 2614534

Date Analysed 10/12/2025

Test Results On Waste					WAC Limit Values		
Determinand and Method Reference	Units	Result			Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	2.5			3	5	6
DETSC 2003# Loss On Ignition	%	5.5			n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04			6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01			1	n/a	n/a
DETSC 3521* Mineral Oil >C10-C40 + Clean Up	mg/kg	< 10			500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6			100	n/a	n/a
DETSC 2008# pH	pH Units	6.9			n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0			n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0			n/a	TBE	TBE

Test Results On Leachate					WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached mg/kg		Limit values for LS10 Leachate		
	2:1	8:1	LS2	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	0.5015	0.5772	< 0.002	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	6.232	5.809	< 0.02	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.0300	< 0.0300	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	1.19	0.3093	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	4.276	5.263	0.009	0.052	2	50	100
DETSC 2306 Mercury as Hg	0.0123	0.011	< 0.0004	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.10	< 1.10	< 0.02	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	1.222	0.8846	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.7714	0.2553	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.1700	0.1726	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.465	0.5261	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	4.53	3.64	0.009	0.037	4	50	200
DETSC 2055 Chloride as Cl	2100	850	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	840	1100	1.68	10.87	10	150	500
DETSC 2055 Sulphate as SO4	5400	6900	< 20	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	32000	55000	64	538.2	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	7400	9900	14.8	97.7	500	800	1000

Additional Information		
DETSC 2008 pH	6.5	6.7
DETSC 2009 Conductivity uS/cm	45.7	79.1
* Temperature*	18.0	17.0

Mass of Sample Kg	0.223
Mass of dry Sample Kg	0.175

Stage 1

Volume of Leachant L2	0.302
Volume of Eluate VE1	0.09

Stage 2

Volume of Leachant L8	1.4
Volume of Eluate VE2	0.61

TBE - To Be Evaluated
 SNRHW - Stable Non-Reactive
 Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. Normec DETS does not accept responsibility for errors or omissions.
 Values are correct at time of issue.

Summary of Asbestos Analysis

Soil Samples

Our Ref 25-27791

Client Ref ~ 22177

Contract Title ~ One Horton Heath School

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2606964	WS1 0.20	SOIL	NAD	none	Lee Kerridge
2606965	WS2 0.40	SOIL	NAD	none	Lee Kerridge
2606966	WS3 0.60	SOIL	NAD	none	Lee Kerridge
2606967	WS5 0.10	SOIL	NAD	none	Lee Kerridge
2606968	WS6 0.10	SOIL	NAD	none	Lee Kerridge
2606969	WS7 0.30	SOIL	NAD	none	Lee Kerridge
2606970	WS8 0.30	SOIL	NAD	none	Lee Kerridge
2606971	WS9 0.40	SOIL	NAD	none	Lee Kerridge
2606972	WS10 0.10	SOIL	NAD	none	Lee Kerridge
2606973	WS11 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.

Information in Support of the Analytical Results

Our Ref 25-27791
 Client Ref ~ 22177
 Contract ~ One Horton Heath School

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	time exceeded for tests	Incorrect container for tests	Headspace in container for tests
2606964	WS1 0.20 SOIL	25/11/25	GJ 250ml, GJ 30ml, PT 1L			
2606965	WS2 0.40 SOIL	25/11/25	GJ 250ml ((Headspace)), PT 1L ((Headspace))			BTEX/C5-10, HS
2606966	WS3 0.60 SOIL	25/11/25	GJ 250ml ((Headspace)), PT 1L ((Headspace))			BTEX/C5-10, HS
2606967	WS5 0.10 SOIL	25/11/25	GJ 250ml, PT 1L			
2606968	WS6 0.10 SOIL	25/11/25	GJ 250ml, GJ 30ml, PT 1L			
2606969	WS7 0.30 SOIL	25/11/25	GJ 250ml ((Headspace)), PT 1L ((Headspace))			BTEX/C5-10, HS
2606970	WS8 0.30 SOIL	25/11/25	GJ 250ml ((Headspace)), GJ 30ml ((Headspace)), PT 1L ((Headspace))			BTEX/C5-10, HS
2606971	WS9 0.40 SOIL	25/11/25	GJ 250ml ((Headspace)), PT 1L ((Headspace))			BTEX/C5-10, HS
2606972	WS10 0.10 SOIL	25/11/25	GJ 250ml ((Headspace)), PT 1L ((Headspace))			BTEX/C5-10, HS
2606973	WS11 0.10 SOIL	25/11/25	GJ 250ml ((Headspace)), GJ 30ml ((Headspace)), PT 1L ((Headspace))			BTEX/C5-10, HS
2606974	WS5 0.10 LEACHATE	25/11/25	GJ 250ml, PT 1L			
2606975	WS5 0.10 LEACHATE	25/11/25	GJ 250ml, PT 1L			
2614533	WS10 0.10 LEACHATE	25/11/25	GJ 250ml, PT 1L			
2614534	WS10 0.10 LEACHATE	25/11/25	GJ 250ml, PT 1L			

Lab No	Sample ID	Comments
2606974	WS5 0.10 LEACHATE	Insufficient sample 950.1g (<2kg) Sample received
2606975	WS5 0.10 LEACHATE	Insufficient sample 950.1g (<2kg) Sample received
2614533	WS10 0.10 LEACHATE	Insufficient sample 950.1g (<2kg) Sample received
2614534	WS10 0.10 LEACHATE	Insufficient sample 950.1g (<2kg) Sample received

Key: G-Glass P-Plastic J-Jar T-Tub

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

Soil Analysis Notes

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

Disposal

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

Key:

~ Sample details are provided by the client and can affect the validity of the results
 * -not accredited.
 # -MCERTS (accreditation only applies if report carries the MCERTS logo).
 \$ -subcontracted.
 n/s -not supplied.
 I/S -insufficient sample.
 Symbol key at end of report

Certificate of Analysis

Certificate Number 25-27624

Issued: 12-Dec-25

Client Soils Limited
Thomas Telford House
Sun Valley Business Park
Winnall Close
Winchester
SO23 0LB

Our Reference 25-27624

Client Reference ~ 22177

Order No ~ 22177/DEE

Contract Title ~ One Horton Health School

Description 4 Soil samples.

Date Received 27-Nov-25

Date Started 27-Nov-25

Date Completed 12-Dec-25

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




Louise Cook
Contracts Manager



Sample Deviations present. See Deviation Table Section for details.

Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY
Tel: 01207 582333 • email: info-dets@normecgroup.com • normecdets.com

Summary of Chemical Analysis

Matrix Descriptions

Our Ref 25-27624
Client Ref ~ 22177
Contract Title ~ One Horton Health School

Sample ID	Depth	Lab No	Completed	Matrix Description
TP01	0.2	2606020	12/12/2025	Dark brown gravelly, sandy CLAY including odd rootlets
TP07	0.2	2606021	12/12/2025	Dark brown gravelly, sandy CLAY including odd rootlets
TP08	0.2	2606022	12/12/2025	Dark brown gravelly, sandy CLAY including odd rootlets
TP09	0.2	2606023	12/12/2025	Dark brown gravelly, sandy CLAY including odd rootlets

Summary of Chemical Analysis

Soil Samples

Our Ref 25-27624

Client Ref ~ 22177

Contract Title ~ One Horton Health School

Lab No	2606020	2606021	2606022	2606023
Sample ID ~	TP01	TP07	TP08	TP09
Depth ~	0.20	0.20	0.20	0.20
Other ID ~				
Sample Type ~	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	17/11/2025	17/11/2025	17/11/2025	17/11/2025
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Preparation							
Moisture Content	DETSC 1004	0.1	%	20	20	24	28
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	6.4	6.3	8.0	6.6
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.3	0.3	1.0	0.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	0.2	0.2	0.1
Chromium	DETSC 2301#	0.15	mg/kg	12	9.2	15	12
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	12	11	13	14
Lead	DETSC 2301#	0.3	mg/kg	35	27	40	38
Mercury	DETSC 2325#	0.05	mg/kg	0.13	0.10	0.14	0.13
Nickel	DETSC 2301#	1	mg/kg	5.5	3.5	3.6	3.4
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	23	20	27	23
Zinc	DETSC 2301#	1	mg/kg	33	31	35	33
Inorganics							
pH	DETSC 2008#		pH	7.6	7.5	6.6	7.2
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2		0.2	
Cyanide, Free	DETSC 2130#	0.1	mg/kg	0.1		0.1	
Organic matter	DETSC 2002#	0.1	%	3.1	3.3	4.8	4.5
Petroleum Hydrocarbons							
EPH >C10-C12	DETSC 3521#	10	mg/kg		< 10.00		< 10.00
EPH >C12-C16	DETSC 3521#	10	mg/kg		< 10.00		< 10.00
EPH >C16-C21	DETSC 3521#	10	mg/kg		< 10.00		< 10.00
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	< 1.50		< 1.50	
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20		< 1.20	
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50		< 1.50	
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40		< 3.40	
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00		< 10.00	
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01		< 0.01	
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90		< 0.90	
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50		< 0.50	
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	< 0.60		< 0.60	
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40		< 1.40	
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00		< 10.00	
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	< 10.00		< 10.00	
VPH (C6-C10)	DETSC 3321*	0.1	mg/kg		< 0.1		< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref 25-27624

Client Ref ~ 22177

Contract Title ~ One Horton Health School

Lab No	2606020	2606021	2606022	2606023
Sample ID ~	TP01	TP07	TP08	TP09
Depth ~	0.20	0.20	0.20	0.20
Other ID ~				
Sample Type ~	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	17/11/2025	17/11/2025	17/11/2025	17/11/2025
Sampling Time ~	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
EPH (C21-C36)	DETSC 3311	10	mg/kg		< 10		< 10
EPH (C36-C40)	DETSC 3311	10	mg/kg		< 10		< 10
EPH >C10-C40	DETSC 3521#	10	mg/kg		< 10.00		< 10.00
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	
MTBE	DETSC 3321	0.01	mg/kg	< 0.01		< 0.01	
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	< 0.03	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 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	< 0.10	< 0.10	< 0.10	< 0.10
PCBs							
PCB 28 + PCB 31	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 52	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 101	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 153	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 138	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 180	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
PCB 7 Total	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	1.8	2.1	1.7

Summary of Asbestos Analysis

Soil Samples

Our Ref 25-27624
Client Ref ~ 22177
Contract Title ~ One Horton Health School

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2606020	TP01 0.20	SOIL	NAD	none	Lee Kerridge
2606021	TP07 0.20	SOIL	NAD	none	Lee Kerridge
2606022	TP08 0.20	SOIL	NAD	none	Lee Kerridge
2606023	TP09 0.20	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.					

Information in Support of the Analytical Results

Our Ref 25-27624
 Client Ref ~ 22177
 Contract ~ One Horton Health School

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests	Headspace in container for tests
2606020	TP01 0.20 SOIL	17/11/25	GJ 250ml ((Headspace)), GJ 30ml ((Headspace)), PT 1L ((Headspace))	pH + Conductivity (7 days)		BTEX/C5-10, HS
2606021	TP07 0.20 SOIL	17/11/25	GJ 250ml ((Headspace)), PT 1L ((Headspace))	pH + Conductivity (7 days)		BTEX/C5-10, HS
2606022	TP08 0.20 SOIL	17/11/25	GJ 250ml ((Headspace)), GJ 30ml ((Headspace)), PT 1L ((Headspace))	pH + Conductivity (7 days)		BTEX/C5-10, HS
2606023	TP09 0.20 SOIL	17/11/25	GJ 250ml ((Headspace)), PT 1L ((Headspace))	pH + Conductivity (7 days)		BTEX/C5-10, HS

Key: G-Glass P-Plastic J-Jar T-Tub

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

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO ₄	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO ₄	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETS 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
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Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

Information in Support of the Analytical Results

Our Ref 25-27791

Client Ref ~ 22177

Contract ~ One Horton Heath School

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report Ver 25.10.03

Appendix E.3 General Assessment Criteria

HUMAN HEALTH RISK ASSESSMENT

Introduction

The statutory definition of contaminated land was initially defined in the Environmental Protection Act 1990, ref. 1.1, which was introduced by the Environment Act 1995, ref. 1.2, and retained in the Environment Act 2021, ref 1.3, as;

‘Land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –

- (a) significant harm is being caused or there is a significant possibility of such harm being caused; or
- (b) pollution of controlled waters is being, or is likely to be, caused.’

The UK guidance on the assessment of contaminated land has developed as a direct result of the introduction of these Acts. The technical guidance supporting the original legislation was summarised in a number of key documents collectively known as the Contaminated Land Reports (CLRs). These have since been replaced or superseded by Land Contamination Risk Management (LCRM) 2021, ref 1.4 produced and administrated by the Environment Agency online through the .GOV.uk website <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> .

However, the basic definitions, methodology and guidance remain essentially the same utilizing the UK Contaminated Land Exposure Assessment Models (CLEA) as within the original CLR and planning guidance it replaces or supersedes.

In establishing whether a site fulfils the statutory definition of ‘contaminated land’ it remains necessary to identify, whether a pollutant linkage exists in respect of the land in question and whether the pollutant linkage:

- is resulting in significant harm being caused to the identified receptor in the pollutant linkage,
- presents a significant possibility of significant harm being caused to that receptor,
- is resulting in the pollution of the controlled waters which constitute the receptor, or
- is likely to result in such pollution.

A ‘pollutant linkage’ may therefore be defined as the confirmation of a link between a contaminant ‘source’ and a vulnerable at risk ‘receptor’ by means of a ‘pathway’ and that the risk is potentially significant. If there is no complete linkage, risk defaults to low to negligible and can never be potentially significant.

Assessment Methodology

A four-stage assessment process is followed for identifying potential pollutant linkages on a site. These stages are summarised in the table below:

No.	Process	Description
1	Hazard Identification	Establishing contaminant sources, pathways and receptors (the conceptual model).
2	Hazard Assessment	Analysing the potential for unacceptable risks (what linkages could be present, what could be the effects).
3	Risk Estimation	Trying to establish the magnitude and probability of the possible consequences (what degree of harm might result and to what receptors, and how likely is it).
4	Risk Evaluation	Deciding whether the risk is unacceptable in the context of existing and future proposals.

Stages 1 and 2 develop an initial '*conceptual model*' based upon information collated from desk-based available and existing site information and a walkover of the site as recommended in BS10175 and LCRM. The formation of any conceptual model is an iterative process and as such it should be updated and refined throughout each phase of the project to reflect any additional information obtained and unknowns being resolved and identify the potential contaminants of concern at the site, i.e. those with the potential to cause significant harm to identified receptors.

The extent of the desk studies and enquiries to be conducted should be in general accordance with BS10175 and other UK guidance to produce an initial conceptual model highlighting the known potential risks, remaining unknowns and contaminants of concern. The information from these enquiries is presented in a desk study or preliminary report with recommendations, if necessary, for further work based upon the conceptual model findings and any identified or unresolved unknowns.

If potential pollutant linkages or potentially significant unknowns are identified within the initial conceptual model, further site investigation and report will be recommended and usually required under planning. Such investigation should be based on and driven by the findings of the initial conceptual model and planned in general accordance with BS10175, LCRM and other current UK guidance where relevant. The number of exploratory holes and samples collected for analysis should be consistent with the size, extent and nature of the site, the identified contaminants of concern and the level of initial risk identified in the initial conceptual model. This will enable a contamination risk assessment to be conducted in accordance with current UK requirements, at which point the conceptual model can be updated and any relevant pollutant linkages can be further quantified and any remaining unknowns resolved. As previously this is an iterative process that may highlight or require additional investigation to resolve to the satisfaction of the regulator.

A two-stage investigation process may therefore be more appropriate where time constraints are less of an issue with the first intrusive investigation being conducted as an initial or screening assessment to confirm or validate the presence of potential sources on site identified in the initial conceptual model and to investigate if additional unknown sources not previously identified are present. This helps to define the scope, extent and requirements of a second more refined and targeted investigation to delineate wherever possible the extent of the identified contamination, contaminants of concern and/or remaining unknowns.

All site works should be undertaken in general accordance with the British Standards BS 10175, ref. 5, for environmental only investigations and BS 5930:2015, ref. 1.6, in the case of combined Geoenvironmental and/or Geotechnical investigations.

The results of analysis are compared initially against generic guidance values which are dependent on the proposed end-use of the development and which must ultimately be based on traceable, scientifically valid and justified exposure and chemical data using the UKCLEA methodology.

The end-use and therefore potential exposure pathways may be defined as one of the following under current UK guidance;

- Residential with homegrown produce i.e. typical low rise and low-density housing with gardens where vegetables and fruits may be grown for home consumption.
- Residential without homegrown produce i.e. low-density housing where no gardens are present where vegetables and fruits could be grown for home consumption.
- Allotments – i.e. areas where vegetables and fruits are grown for home consumption but are not specifically associated with a residential property.
- Public open space residential – i.e. grassed areas adjacent and/or directly related to high density housing and other common or communal open areas on which underlying soils could be exposed but on which vegetables and fruits are not grown for consumption.
- Public open space – i.e. areas such as parks, playing fields and other recreational areas to which public access is possible but otherwise to which there is no direct residential linkage.
- Commercial – i.e. industrial premises where there is limited exposure to soil and residents are not present on site.

Standard Land-use Scenarios

The standard land-use scenarios used to develop exposure models are further detailed in the following sections:

Residential with homegrown produce

Generic scenario assumes a house built on a ground bearing slab with a private garden having a lawn, flowerbeds and a small fruit and vegetable patch.

-
- Critical receptor is assumed to be a young female child (zero to six years old)
 - Exposure pathways include direct soil and indoor dust ingestion, consumption of home-grown produce and any adhering soil, skin contact with soils and indoor dust and inhalation of indoor and outdoor dust and vapours.
-

A sub-set of the Residential land-use is **Residential without Homegrown produce**. The generic scenario assumes low density housing with communal landscaped gardens where the consumption of homegrown vegetables will not occur and the pathways of direct ingestion and produce inputs are suitably moderated.

Allotments

Areas of open space commonly made available to local users but remote from residential properties, but on which tenants may grow fruit and vegetables for their own consumption. Typically, there are a number of plots to a site which may have a total area of up to 1 hectare. The tenants are assumed to be adults and that young children make only occasional accompanied visits.

Although some allotment holders may choose to keep animals on allotments, potential exposure to animal products is not currently considered within the CLEA model.

-
- Critical receptor is a young female child (zero to six years old)
 - Exposure pathways include direct soil ingestion, consumption of homegrown produce and any adhering soil, skin contact with soils and inhalation of outdoor dust and vapours but at reduced exposure levels reflecting non-residential status.
-

Commercial

This generic scenario assumes a typical commercial or light industrial property at which employees spend most time indoors and are involved in office-based or relatively light physical work.

-
- Critical receptor is a working female adult (aged 16 to 65 years old).
 - Exposure duration is over working lifetime
 - Exposure pathways include direct soil and indoor dust ingestion, skin contact with soils and dusts and inhalation of dust and vapours but exposure reduced to reflect non-residential nature and general lack of open spaces.
-

Public Open Space within Residential Area

This generic scenario refers to any grassed area up to 0.05 ha that is associated with residential properties but is not for their exclusive use and on which no fruit or vegetables are grown for home consumption.

-
- Grassed area of up to 0.05 ha and a considerable proportion of this (up to 50%) may be bare soil which can be interacted with directly
 - Predominantly used by children for play and/or access
 - Sufficiently close proximity to home for tracking back of soil to occur, thus indoor exposure pathways apply
-

-
- older children chosen as the critical receptor on basis that they will use site most frequently (age class 4-9 years)
-
- ingestion rate assumed to be 75 mg.day⁻¹
-

Public Open Space Park

This generic scenario refers to any public park or grassed space that is more than 0.5ha in area:

-
- Public park (>0.5 ha), predominantly grassed and may also contain children's play equipment and border areas of soil containing flowers or shrubs (75% assumed cover)
-
- Female child age classes 1-6
-
- Soil ingestion rate of 50 mg.day⁻¹
-
- Occupancy period outdoors = 2 hours.day⁻¹
-
- Exposure frequency of 170 days.year⁻¹ for age classes 2-18 and 85 days.year⁻¹ for age class 1
-
- Outdoor exposure pathways only (no tracking back of soils).
-

Human Health Generic Quantitative Risk Assessment (GQRA) involves the comparison of contaminant concentrations measured in soil at the site with Generic Assessment Criteria (GAC) generated using the CLEA model based on the exposure and land use scenario assumptions noted above.

GAC's are deliberately conservative values adopted to ensure that they are applicable to the majority of possible contaminated sites and below which there is considered a low to negligible risk to identified human health receptors, i.e. there can be no harm. These values may be published Contaminated Land Exposure Assessment Model (CLEA) derived GAC's derived by a competent third party or the Environment Agency / DEFRA. It is imperative to the risk assessor to understand the uncertainties and limitations associated with these GAC's to ensure that they are used appropriately.

Where the adoption of a GAC is not appropriate, for instance when the intended land-use is at variance the CLEA standard land-uses or the contaminant is susceptible to wide variation depending on factors such as form and bioavailability, then a Detailed Quantitative Risk Assessment (DQRA) may be undertaken to develop site specific or remediation values for relevant soil contaminants based on site and contaminant specific conditions.

In 2014, the publication of Category 4 Screening Levels (C4SL), refs 1.8 and 1.9, as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3) ref 1.7 used in the generation of SGVs. C4SL were published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern. Where a C4SL has been published, Soils Limited has adopted them as GAC for these six substances.

For all other substances the soils will be compared to Suitable For Use Levels (S4ULs) published by LQM, ref. 1.10, which were developed for around 85 substances and are

intended to enable a screening assessment of the risks posed by soil quality on development sites. The updated LQM/CIEH GAC publication was developed to accommodate recent developments in the understanding of chemical, toxicological and routine exposure to soil-based contaminants.

Where no S4UL or C4SL is available, assessment criteria may be generated using the Contaminated Land Exposure Assessment (CLEA) Software Version 1.07, ref. 1.11, Toxicological and physico-chemical/fate and transport data used to generate the criteria has been derived from a hierarchy of data sources as follows:

1. Environment Agency or Department of Environment Food and Rural Affairs (DEFRA) documents;
2. Other documents produced by UK Government or state organisations;
3. European institution documents;
4. International organisation documents;
5. Foreign government institutions.

In the case of the majority of contaminants considered, the toxicological data has been drawn originally from the relevant CLR 9 TOX report, or updated toxicological data published by the Environment Agency (2009), where available. Where no TOX report is available reference has been made to appropriately determined health criteria values, derived from the above-noted hierarchy, as this is considered to represent appropriate peer reviewed data sources. Similarly, fate and transport data should also be determined by reference to appropriate sources and the CLEA model assumptions.

Chemical laboratory test results are processed as follows. A statistical analysis of the results is conducted, as detailed in CIEH and CL:AIRE 'Guidance on Comparing Soil Contamination Data with a Critical Concentration', ref. 1.12. Individual concentrations are then compared to the selected guideline values to identify and isolate concentrations of contaminants that are in excess of the selected screening low or no risk criteria.

Where the risk estimation identifies significant concentrations of one or more contaminants, further risk evaluation needs to be undertaken often as a site specific DQRA in line with current guidance to determine and confirm if the identified exceedances are significant in the context of the proposed development or activity.

References

- 1.1 The Environmental Protection Act, Part IIA, Section 78, DoE 1990.
- 1.2 Environment Act 1995, Section 57, DoE 1995.
- 1.3 Environment Act 2021 OEP 2021.
- 1.4 Land Contamination Risk Management Gov.UK (EA) 2021
- 1.5 BS 10175: 2011+A2:2017 '*Investigation of potentially contaminated sites. Code of practice*', British Standards Institute, 2017
- 1.6 BS 5930: 2015+A1:2020 '*Code of practice for ground investigations*', British Standards Institute, 2015
- 1.7 Science Report SC050021/SR3 '*Updated technical background to the CLEA model*', Environment Agency, 2008
- 1.8 DEFRA SP1010: Development of Category 4 Screening Levels for the Assessment of Land Affected by Contamination, published March 2014.
- 1.9 Contaminated Land: Applications in Real Environment (CL:AIRE) (2014). '*Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination*', Revision 2, DEFRA research project SP1010.
- 1.10 The LQM/S4ULs for Human Health Risk Assessment, Nathanail P, McCaffery C, Gillett A, Ogden R, and Nathanail J, Land Quality Press, Nottingham, published 2015.
- 1.11 CLEA '*Software Version 1.071*' (downloaded from the CL:AIRE website , <https://www.claire.co.uk/home/news/44-risk-assessment/178-soil-guideline-values>)
- 1.12 CIEH '*Guidance on Comparing Soil Contamination Data with a Critical Concentration*', Chartered Institute of Environmental Health (CIEH) and Contaminated Land: Applications in Real Environments (CL:AIRE), May 2008.

Land Use			Residential With or Without Plant Uptake									Public Open Space (POS)											Name	Authority	Date
			With			Without			Allotments			Commercial			Residential						Park				
			SOM	1.0	2.5	6	1	2.5							6	1	2.5	6	1	2.5	6	1			
Type	Contaminants	Species	Year																						
Metals	Antimony		2010					550						7500								EIC/AGS/ CL:AIRE	EIC/AGS/ CL:AIRE	2010	
	Arsenic		2014		37		40			49			640		79		168				C4SL	DEFRA	2014		
			2015		37		40			40			640		79		170				S4UL	LQM/CIEH	2015		
	Barium		2010					1300						22000							EIC/AGS/ CL:AIRE	EIC/AGS/ CL:AIRE	2010		
	Beryllium		2015		1.7		1.7			35			12		2.2		63				S4UL	LQM/CIEH	2015		
	Boron		2015		290		11000			45			240000		21000		46000				S4UL	LQM/CIEH	2015		
	Cadmium		2015		11		85			1.9			190		120		532				S4UL	LQM/CIEH	2015		
	Chromium	III	2014		26		149			4.9			410		220		880				C4SL	DEFRA	2014		
			2015		910		910		18000		8600		1500		33000				S4UL	LQM/CIEH	2015				
			2014		21		21		170		49		23		250				C4SL	DEFRA	2014				
		VI	2015		6		6			1.8			33		7.7		220				S4UL	LQM/CIEH	2015		
	Copper		2015		2400		7100			520			68000		12000		44000				S4UL	LQM/CIEH	2015		
	Lead		2014*		82-210		130-310			30-84			1100-6000		270-760		580-1400				C4SL	DEFRA	2014		
	Mercury	Elemental	2012		1.0		1.0			26			26					210				DEFRA	2012		
			2015		1.2		1.2			21			58		16		30				S4UL	LQM/CIEH	2015		
		Inorganic	2012		170		170			80			36000					SGV				DEFRA	2012		
			2015		40		56			19			1100		120		240				S4UL	LQM/CIEH	2015		
		Methyl	2012		11		11			8			410					SGV				DEFRA	2012		
			2015		11		15			6			320		40		68				S4UL	LQM/CIEH	2015		
	Molybdenum		2010						670					17000				EIC/AGS/ CL:AIRE	EIC/AGS/ CL:AIRE			2010			
	Nickel		2012		130		130			230			1800					SGV				DEFRA	2012		
			2015		130		180			53			980		230		800				S4UL	LQM/CIEH	2015		
	Selenium		2012		350		595			120			13000					SGV				DEFRA	2012		
			2015		250		430			88			12000		1100		1800				S4UL	LQM/CIEH	2015		
	Vanadium		2015		410		1200			91			9000		2000		5000				S4UL	LQM/CIEH	2015		
	Zinc		2015		3700		40000			620			730000		81000		170000				S4UL	LQM/CIEH	2015		
BTEX & MTBE	Benzene		2012		0.33		0.33			0.07			95				SGV				DEFRA	2012			
			2014		0.87		3.3			0.18			98		140		230				C4SL	DEFRA	2014		
			2015	0.087	0.17	0.37	0.38	0.7	1.4	0.017	0.034	0.075	27	47	90	72	72	73	90	100	110	S4UL	LQM/CIEH	2015	
	Toluene		2012		610		610			120			4400				SGV				DEFRA	2012			
			2015	130	290	660	880	1900	3900	22	51	120	56000	110000	180000	56000	56000	56000	87000	95000	100000	S4UL	LQM/CIEH	2015	
	Ethylbenzene		2012		350		350			90			2800				SGV				DEFRA	2012			
			2015	47	110	260	83	190	440	16	39	91	5700	13000	27000	24000	24000	25000	17000	22000	27000	S4UL	LQM/CIEH	2015	
	Xylenes	o-xylene	2012		250		250			160			2600				SGV				DEFRA	2012			
			2015	60	140	330	88	210	480	28	67	160	6600	15000	33000	41000	42000	43000	17000	24000	33000	S4UL	LQM/CIEH	2015	
		m-xylene	2012		240		240			180			3500				SGV				DEFRA	2012			
			2015	59	140	320	82	190	450	31	74	170	6200	14000	31000	41000	42000	43000	17000	24000	32000	S4UL	LQM/CIEH	2015	
		p-xylene	2012		230		230			160			3200				SGV				DEFRA	2012			
			2015	56	130	310	79	180	430	29	69	160	5900	14000	30000	41000	42000	43000	17000	23000	31000	S4UL	LQM/CIEH	2015	
Petroleum Hydrocarbons Fractions	Aliphatic >C5 - C6		2015	42	78	160	42	78	160	730	1700	3900	3200	5900	12000	570000	590000	600000	95000	5900	12000	S4UL	LQM/CIEH	2015	
	Aliphatic >C6 - C8		2015	100	230	530	100	230	530	2300	5600	13000	7800	17000	40000	600000	610000	620000	150000	17000	40000	S4UL	LQM/CIEH	2015	
	Aliphatic >C8 - C10		2015	27	65	150	27	65	150	320	770	1700	2000	4800	11000	13000	13000	13000	14000	4800	11000	S4UL	LQM/CIEH	2015	
	Aliphatic >C10 - C12		2015	130	330	760	130	330	770	2200	4400	7300	9700	23000	47000	13000	13000	13000	21000	23000	47000	S4UL	LQM/CIEH	2015	
	Aliphatic >C12 - C16		2015	1100	2400	4300	1100	2400	4400	11000	13000	13000	59000	82000	90000	13000	13000	13000	25000	82000	90000	S4UL	LQM/CIEH	2015	
	Aliphatic >C16 - C35		2015	65000	92000	110000	65000	92000	110000	260000	270000	270000	1600000	1700000	1800000	250000	250000	250000	450000	170000	180000	S4UL	LQM/CIEH	2015	
	Aliphatic >C35 - C44		2015	65000	92000	140000	65000	92000	110000	260000	270000	270000	1600000	1700000	1800000	250000	250000	250000	450000	170000	180000	S4UL	LQM/CIEH	2015	
	Aromatic >C5 - C7		2015	70	140	300	370	690	1400	13	27	57	26000	46000	86000	56000	56000	56000	76000	84000	92000	S4UL	LQM/CIEH	2015	
	Aromatic >C7 - C8		2015	130	290	660	860	1800	3900	22	51	120	56000	110000	180000	56000	56000	56000	87000	95000	100000	S4UL	LQM/CIEH	2015	

Land Use			Residential With or Without Plant Uptake									Public Open Space (POS)									Name	Authority	Date	
			With			Without			Allotments			Commercial			Residential			Park						
			SOM	1.0	2.5	6	1	2.5							6	1	2.5	6	1	2.5				6
Type	Contaminants	Species	Year																					
	Aromatic >C8 - C10		2015	34	83	190	47	110	270	8.6	21	51	3500	8100	17000	5000	5000	5000	7200	8500	9200	S4UL	LQM/CIEH	2015
	Aromatic >C10 - C12		2015	74	180	380	250	590	1200	13	31	74	16000	28000	34000	5000	5000	5000	9200	9700	10000	S4UL	LQM/CIEH	2015
	Aromatic >C12 - C16		2015	140	330	660	1800	2300	2500	23	57	130	36000	37000	38000	5100	5100	5000	10000	10000	10000	S4UL	LQM/CIEH	2015
	Aromatic >C16 - C21		2015	260	540	930	1900	1900	1900	46	110	260	28000	28000	28000	3800	3800	3800	7600	7700	7800	S4UL	LQM/CIEH	2015
	Aromatic >C21 - C35		2015	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	S4UL	LQM/CIEH	2015
	Aromatic >C34 - C44		2015	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	S4UL	LQM/CIEH	2015
	Aliphatic + Aromatic >C44 - C70			1600	1800	1900	1900	1900	1900	1200	2100	3000	28000	28000	28000	3800	28000	28000	7800	7800	7900	S4UL	LQM/CIEH	2015
Polycyclic Aromatic Hydrocarbons (PAH' s) (mg/kg)	Acenaphthene		2015	210	510	1100	3000	4700	6000	34	85	200	84000	97000	100000	15000	15000	15000	29000	29000	29000	S4UL	LQM/CIEH	2015
	Acenaphthylene		2015	170	420	920	2900	4600	6000	28	69	160	83000	97000	100000	15000	15000	15000	29000	29000	29000	S4UL	LQM/CIEH	2015
	Anthracene		2015	2400	5400	11000	31000	35000	37000	380	950	2200	520000	54000	540000	74000	74000	74000	150000	150000	150000	S4UL	LQM/CIEH	2015
	Benzo(a)anthracene		2015	7.2	11	13	11	14	15	2.9	6.5	13	170	170	180	29	29	29	49	56	62	S4UL	LQM/CIEH	2015
	Benzo(a)pyrene		2014			5			5.3			5.7			76			10		21	C4SL	DEFRA	2014	
			2015	2.2	2.7	3	3.2	3.2	3.2	0.79	2	3.5	35	35	36	5.7	5.7	5.7	11	12	13	S4UL	LQM/CIEH	2015
	Benzo(b)fluoranthene		2015	2.6	3.3	3.7	3.9	4.0	4.0	0.99	2.1	3.9	44	44	45	7.1	7.2	7.2	13	15	16	S4UL	LQM/CIEH	2015
	Benzo(ghi)perylene		2015	320	340	350	360	360	360	290	470	640	3900	4000	4000	640	640	640	1400	1500	1600	S4UL	LQM/CIEH	2015
	Benzo(k)fluoranthene		2015	77	93	100	110	110	110	37	75	130	1200	1200	1200	190	190	190	370	410	440	S4UL	LQM/CIEH	2015
	Chrysene		2015	15	22	27	30	31	32	4.1	9.4	19	350	350	350	57	57	57	93	110	120	S4UL	LQM/CIEH	2015
	Dibenz(a,h)anthracene		2015	0.24	0.28	0.3	0.31	0.32	0.32	0.14	0.27	0.43	3.5	3.6	3.6	0.57	0.57	0.58	1.1	1.3	1.4	S4UL	LQM/CIEH	2015
	Fluoranthene		2015	280	560	890	1500	1600	1600	52	130	290	23000	23000	23000	3100	3100	3100	6300	6300	6400	S4UL	LQM/CIEH	2015
	Fluorene		2015	170	400	860	2800	3800	4500	27	67	160	63000	68000	71000	9900	9900	9900	20000	20000	20000	S4UL	LQM/CIEH	2015
	Indeno(1,2,3-cd)pyrene		2015	27	36	41	45	46	46	9.5	21	39	500	510	510	82	82	82	150	170	180	S4UL	LQM/CIEH	2015
	Naphthalene		2015	2.3	5.6	13	2.3	5.6	13	4.1	10	24	190	460	1100	4900	4900	4900	1200	1900	3000	S4UL	LQM/CIEH	2015
	Phenanthrene		2015	95	220	440	1300	1500	1500	15	38	90	22000	22000	23000	3100	3100	3100	6200	6200	6300	S4UL	LQM/CIEH	2015
	Pyrene		2015	620	1200	2000	3700	3800	3800	110	270	620	54000	54000	54000	7400	7400	7400	15000	15000	15000	S4UL	LQM/CIEH	2015
	Coal Tar (Bap as surrogate matter)		2015	0.79	0.98	1.1	1.2	1.2	1.2	0.32	0.67	1.2	15	15	15	2.2	2.2	2.2	4.4	4.7	4.8	S4UL	LQM/CIEH	2015
Chloroalkanes & alkenes	1,2 Dichloroethane		2015	0.0071	0.011	0.019	0.0092	0.013	0.023	0.0046	0.0083	0.016	0.67	0.97	1.7	29	29	29	21	24	28	S4UL	LQM/CIEH	2015
	1,1,1 Trichloroethane		2015	8.8	18	39	9	18	40	48	110	240	660	1300	3000	140000	140000	140000	57000	76000	100000	S4UL	LQM/CIEH	2015
	1,1,2,2 Tetrachloroethane		2015	1.6	3.4	7.5	3.9	8	17	0.41	0.89	2	270	550	1100	1400	1400	1400	1800	2100	2300	S4UL	LQM/CIEH	2015
	1,1,1,2 Tetrachloroethane		2015	1.2	2.8	6.4	1.5	3.5	8.2	0.79	1.9	4.4	110	250	560	1400	1400	1400	1500	1800	2100	S4UL	LQM/CIEH	2015
	Tetrachloroethene (PCE)		2015	0.18	0.39	0.9	0.18	0.4	0.92	0.65	1.5	3.6	19	42	95	1400	1400	1400	810	1100	1500	S4UL	LQM/CIEH	2015
			2021	0.31	0.7	1.6	0.32	0.71	1.6	2	4.8	11	24	55	130	3200	3300	3400	1400	1900	2500	C4SL	CLAIRE	2021
	Tetrachloromethane (Carbon Tetrachloride)		2015	0.026	0.056	0.13	0.026	0.056	0.13	0.45	1	2.4	2.9	6.3	14	890	920	950	190	270	400	S4UL	LQM/CIEH	2015
	Trichloroethene (TCE)		2015	0.016	0.034	0.075	0.017	0.036	0.08	0.041	0.091	0.21	1.2	2.6	5.7	120	120	120	70	91	120	S4UL	LQM/CIEH	2015
			2021	0.0093	0.02	0.043	0.0097	0.02	0.045	0.032	0.072	0.16	0.73	1.5	3.4	76	78	79	41	54	69	C4SL	CLAIRE	2021
	Trichloromethane (Chloroform)		2015	0.91	1.7	3.4	1.2	2.1	4.2	0.42	0.83	1.7	99	170	350	2500	2500	2500	2600	2800	3100	S4UL	LQM/CIEH	2015
	Vinyl Chloride (Cloroethene)		2015	0.00064	0.00087	0.0014	0.00077	0.001	0.0015	0.00055	0.001	0.0018	0.059	0.077	0.12	3.5	3.5	3.5	4.8	5	5.4	S4UL	LQM/CIEH	2015
			2021	0.0064	0.01	0.017	0.015	0.019	0.029	0.0017	0.0031	0.0058	1.1	1.4	2.2	7.8	7.8	7.8	18	19	19	C4SL	CLAIRE	2021
Explosives	2,4,6 Trinitrotoluene		2015	1.6	3.7	8.1	65	66	66	0.24	0.58	1.4	1000	1000	1000	130	130	130	260	270	270	S4UL	LQM/CIEH	2015
	RDX (Hexogen/Cyclonite/1,3,5-trinitro-1,3,5-triazacyclohexane)		2015	120	250	540	13000	13000	13000	17	38	85	210000	210000	210000	26000	26000	27000	49000	51000	53000	S4UL	LQM/CIEH	2015
	HMX (Octogen/1,3,5,7-tetrenitro-1,3,5,7-tetrazacyclo-octane)		2015	5.7	13	26	6700	6700	6700	0.86	1.9	3.9	110000	110000	110000	13000	13000	13000	23000	23000	24000	S4UL	LQM/CIEH	2015
Pesticides	Aldrin		2015	5.7	6.6	7.1	7.3	7.4	7.5	3.2	6.1	9.6	170	170	170	18	18	18	30	31	31	S4UL	LQM/CIEH	2015
	Dieldrin		2015	0.97	2	3.5	7	7.3	7.4	0.17	0.41	0.96	170	170										

Land Use			Residential With or Without Plant Uptake									Public Open Space (POS)											Name	Authority	Date			
			With			Without			Allotments			Commercial			Residential						Park							
			SOM	1.0	2.5	6	1	2.5							6	1	2.5	6	1	2.5	6	1				2.5	6	1
Type	Contaminants	Species	Year																									
Chlorobenzenes	Chlorobenzene		2015	0.46	1	2.4	0.46	1	2.4	5.9	14	32	56	130	290	11000	13000	14000	1300	2000	2900	S4UL	LQM/CIEH	2015				
	1,2-Dichlorobenzene		2015	23	55	130	24	57	130	94	230	540	2000	4800	11000	90000	95000	98000	24000	36000	51000	S4UL	LQM/CIEH	2015				
	1,3-Dichlorobenzene		2015	0.4	1	2.3	0.44	1.1	2.5	0.25	0.6	1.5	30	73	170	300	300	300	390	440	470	S4UL	LQM/CIEH	2015				
	1,4-Dichlorobenzene		2015	61	150	350	61	150	350	15	37	88	4400	10000	25000	17000	17000	1700	36000	36000	36000	S4UL	LQM/CIEH	2015				
	1,2,3,-Trichlorobenzene		2015	1.5	3.6	8.6	1.5	3.7	8.8	4.7	12	28	102	250	590	1800	1800	1800	770	1100	1600	S4UL	LQM/CIEH	2015				
	1,2,4,-Trichlorobenzene		2015	2.6	6.4	15	2.6	6.4	15	55	140	320	220	530	1300	15000	17000	19000	1700	2600	4000	S4UL	LQM/CIEH	2015				
	1,3,5,-Trichlorobenzene		2015	0.33	0.81	1.9	0.33	0.81	1.9	4.7	12	28	23	55	130	1700	1700	1800	380	580	860	S4UL	LQM/CIEH	2015				
	1,2,3,4,-Tetrachlorobenzene		2015	15	36	78	24	56	120	4.4	11	26	1700	3080	4400	830	830	830	1500	1600	1600	S4UL	LQM/CIEH	2015				
	1,2,3,5,- Tetrachlobenzene		2015	0.66	1.6	3.7	0.75	1.9	4.3	0.38	0.9	2.2	49	120	240	78	79	79	110	120	130	S4UL	LQM/CIEH	2015				
	1,2,4, 5,- Tetrachlobenzene		2015	0.33	0.77	1.6	0.73	1.7	3.5	0.06	0.16	0.37	42	72	96	13	13	13	25	26	26	S4UL	LQM/CIEH	2015				
	Pentachlrobenzene		2015	5.8	12	22	19	30	38	1.2	3.1	7	640	770	830	100	100	100	190	190	190	S4UL	LQM/CIEH	2015				
	Hexachlorobenzene		2015	1.8	3.3	4.9	4.1	5.7	6.7	0.47	1.1	2.5	110	120	120	16	16	16	30	30	30	S4UL	LQM/CIEH	2015				
Phenols & Chlorophenols	Phenols		2012			420			420			280			3200							SGV	DEFRA	2012				
			2015	120	200	380	440	690	1200	23	42	83	440	690	1300	440	690	1300	440	690	1300	S4UL	LQM/CIEH	2015				
	Chlorophenols (4 Congeners)		2015	0.87	2	4.5	94	150	210	0.13	0.3	0.7	3500	4000	4300	620	620	620	1100	1100	1100	S4UL	LQM/CIEH	2015				
	Pentachlorophenols		2015	0.22	0.52	1.2	27	29	31	0.03	0.08	0.19	400	400	400	60	60	60	110	120	120	S4UL	LQM/CIEH	2015				
Others	Carbon Disulphide		2015	0.14	0.29	0.62	0.14	0.29	0.62	4.8	10	23	11	22	47	11000	11000	12000	1300	1900	2700	S4UL	LQM/CIEH	2015				
	Hexachloro-1,3-Butadiene		2015	0.29	0.7	1.6	0.32	0.78	1.8	0.25	0.61	1.4	31	66	120	25	25	25	48	50	51	S4UL	LQM/CIEH	2015				
	Sum of PCDDs, PCDFs and dioxin-like PCB's.		2012			8			8			8			240							SGV	DEFRA	2012				
NOTE																												
	Priority	Guideline (mg kg ⁻¹)																										
	1	Site Specific Assessment Criteria (SSAC) (Soils Limited)																										
	2	2014: Category 4 Screening Level (C4SL) (Contaminated Land: Application in Real Environment (CL:ARE), 2014 and 2021) * Use upper range value for Lead unless otherwise indicated																										
	3	2012: Soil Guideline Value (SGV) (Environment Agency, 2009)																										
	4	2015: Suitable 4 Use Level (S4UL) (Nathanail et al, 2015)																										
For Generic Risk Assessment, the values in Bold should have priority unless site specific, Client or regulatory requirements dictate otherwise – which must be justified																												
Table reviewed January 2024																												

Appendix F Information Provided by the Client