East Midlands Gateway
Phase 2 (EMG2)

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ENVIRONMENTAL STATEMENT

Volume 2 Technical Appendices

Appendix 14H

Addendum Minerals Safeguarding Assessment

July 2025

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The East Midlands Gateway Phase 2
and Highway Order 202X and The East Midlands Gateway
Rail Freight and Highway (Amendment) Order 202X

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Addendum Minerals Safeguarding Assessment

East Midlands Gateway Phase 2, Land south of East Midlands Airport, Derby

November 2024

FAIRHURST

CLIENT: **SEGRO PLC**

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EXECUTIVE SUMMARY

Site Details & Proposed Development	The site is located immediately south of East Midlands Airport and to the east of the village of Diseworth, centred on National Grid Reference 445940, 324550, and within the jurisdiction of Leicestershire County Council. The whole development site area comprises the main development plateau in the south and rail freight terminal, the rail branch line (Network Rail), major trunk road improvements and the Kegworth Bypass, including the bridge over the M1. The proposed development includes construction of a number of warehouses, ancillary offices, associated services, access roads, parking and landscaping, with infrastructure improvement. The development site comprises three areas: the main site, highways works and EMG1 works.
Objectives	The objective of this addendum report is to address the Scoping Opinion (SO) expressed by the Planning Inspectorate in September 2024 by providing a Minerals Safeguarding Assessment for the rail freight expansion, highway network improvement site and Plot 16. Fairhurst previously completed a Minerals Safeguard Assessment for the southern 'Main Site' area, which concluded that the on-site resources are not economically viable for extraction. The Inspectorate agreed with the conclusions of this report, however noted that the report boundary did not extend to the rail freight expansion site or highway network improvement site. This report relates to the mineral safeguarding assessment for the Highways Works area and additional warehousing within EMG1 area that are proposed as part of the overall development. The assessment has been carried out in accordance with the Leicestershire Minerals and Waste Local Plan, by which consideration must be given to the extraction of any identified mineral resources prior to any permanent redevelopment.
Conclusions	The assessment of the potential for mineral extraction beneath the additional areas of the site, in accordance with the Leicestershire Minerals and Waste Local Plan, identifies the following potential resources are present: • Sand and Gravel (River Terrace Deposits) • Brick Clay (Mercia Mudstone) • Sand and Gravel (Helsby Sandstone Formation) • Sand and Gravel (Diseworth Formation) It is concluded that the extraction of these resources is not economically viable on the site, the reasons for which are set out within the report.

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1. INTRODUCTION

Fairhurst were appointed by SERGO PLC (the 'Client') to undertake a supplemental Minerals Note to support the DCO submission for the proposed development of the land to the north east of Diseworth, Derby (East Midlands Gateway (EMG)), approximate postcode DE74 2TN and National Grid Reference 445940, 324550 (the 'Site'). The Site for the proposed scheme comprises three interrelated areas:

Main Site – A new warehousing and manufacturing employment park located south of East Midlands Airport and the A453, and west of the M1 motorway. This part of the site falls within the 'East Midlands Airport and Gateway Industrial Cluster' (EMAGIC) site, which forms part of the East Midlands Freeport designated by the Government in 2022;

Highways Works – Highways works to the strategic road network including improvements at junction 24 of the M1 motorway and the road network interacting with that junction; and

EMG1 Works – Additional warehousing together with works to increase the permitted height of the cranes at the rail-freight terminal, improvements to the EMG1 public transport interchange and site management building.

Fairhurst previously completed a Minerals Safeguarding Assessment for the Main Site (Fairhurst. East Midlands Gateway Phase 2, Land South of East Midlands Airport. Minerals Safeguarding Assessment. July 2024. Ref: 148749 R5) – provided within Appendix A of this report and listed below within Section 2. This was later incorporated into a Scoping Report (Delta Planning. EMG Phase 2, Land South of East Midlands Airport, Derby. EIA Scoping Report. August 2024), and was provided to the Secretary of State (SOS) under EIA Regulation 10(3).

This is an addendum report to the above which aims to action the Scoping Opinion (SO), whereby the following opinion was provided within 3.0.3, Table 5.1, Minerals Safeguarding section of the SO report (The Planning Inspectorate. Scoping Opinion – Proposed East Midlands Gateway Phase 2. 24 Septemebr 2024. Case Ref: BC0410001):

"The Scoping Report proposed to scope out effects on minerals identified within the Main Site on the basis that a safeguarding assessment identified that these are low and not viable for extraction. The Inspectorate agrees that this matter can be scoped out for the Main Site.

The Inspectorate notes that the minerals assessment provided as Scoping Report does not however extend to the rail freight expansion site or highway network improvements.

The ES should therefore set out the minerals status of the Proposed Development as a whole. A description and assessment of likely significant effects should be provided in the ES, where significant effects are likely to occur".

This addendum report aims to provide a summary of the previously completed Mineral Safeguarding Assessment, referenced above, whilst also providing an assessment on the remaining areas within EMG1 and highway network improvement locations, which form the whole site for the proposed scheme.

2. SOURCES OF INFORMATION

Two intrusive ground investigations have been completed at the site, one pertaining to the EMG Phase 1 development (undertaken by RSK Environment Ltd. between 23rd September and 11th October 2013), and one pertaining to the EMG Phase 2 development (undertaken by Structural Soils Ltd. between 5th September and 6th October 2022). Two separate Factual Reports have been produced and, for the purpose of this report, the relevant exploratory hole logs from the Phase 1 site have been included within Appendix B.

The following sources of information were reviewed as part of this addendum Minerals Safeguarding Assessment and should be considered in conjunction with this report:

- British Geological Survey (BGS) online viewers (geology and hydrogeology) - http://www.bgs.ac.uk/data/maps/; accessed on 11th November 2024.
- British Geological Survey (BGS), Geology of Britain (1:50,000 Sheet No. 141, Loughborough, Solid and Drift (dated 2001). - www.bgs.ac.uk; accessed on the 11th November 2024.
- British Geological Survey (BGS) Leicestershire and Rutland Mineral Resource Information in Support of National, Regional and Local Planning (2002).
- British Geological Survey (BGS) Leicestershire and Rutland Mineral Resource Map, 1:100,000 (dated 2002).
- Fairhurst Geo-Environmental and Geotechnical Preliminary Risk Assessment (148749/R6, July 2024).
- Fairhurst Ground Investigation Report (148749/R7, July 2024).
- Fairhurst Minerals Safeguarding Assessment (148749/R5, July 2024)
- RSK Environment Ltd Factual Ground Investigation Report (312494-01-02(00)), December 2013.
- RSK Environment Ltd Preliminary Ground Investigation Interpretative Report (312494/1-03(00)), December 2013.
- RSK Environment Ltd (EMG Phase 1) Ground Investigation Exploratory Hole Logs contained within Appendix B.
- Leicestershire Minerals and Waste Local Plan (LMWLP) – adoption 2019 until 2031.

3. MINERAL SAFEGUARDING

3.1 Leicestershire Minerals and Waste Local Plan

As part of the Council's 'emerging plan' to create a new Local Plan for minerals and waste planning policy, the Leicestershire Minerals and Waste Local Plan (LMWLP) will provide the planning framework for Minerals and Waste development and set out the long-tem vision through the plan period to 2031. This addendum Minerals Safeguarding Assessment has been undertaken based on guidance contained within the proposed LMWLP.

It is understood that one of the main reserves in Leicestershire are construction aggregates, specifically sand and gravel. Leicestershire has been a significant producer of aggregates, and the LMWLP aims to deliver 19.04 million tonnes of construction aggregates from primary sources to meet the identified needs of Leicestershiere over the plan period. A set of 4 Minerals Objectives have been outlined in the LMWLP to ensure that the key delivery outcomes are achieved. The objectives pertinent to this Minerals Safeguarding Assessment are presented below:

- M1 – Supply of Sand and Gravel Aggregate

  The County Council will ensure a steady and adequate supply of sand and gravel for aggregate purposes by:

  i) making provision over the plan period (2015 to 2031) for the extraction of some 19 million tonnes of sand and gravel

  ii) maintaining a landbank of at least 7 years based on the past 10 years average sales

  iii) giving priority to proposal for extraction to be worked as extensions to existing site operations

- M2 – Supply of Sand and Gravel Aggregate from Existing Sites

  The County Council will make provision over the plan period (2015 to 2031) for the supply of sand and gravel for aggregate purposes from the following locations:

  i) the extraction of remaining permitted reserves at the following existing sites: Brooksby, Cadeby, Husbands Bosworth, Lockington and Shawell

ii) the following extensions to existing sites as shown on the Policies Map Insects:

- Brooksby - Spinney Farm and south of existing plant site
- Cadeby – west of plant site; north of Brascote Lane; east of Newbold Road
- Husbands Bosworth – Butt Lane northern extension
- Shawell – western extension adjacent to Lutterworth Road; land south of Gibbet Lane to the west of the plant site; land to the south west of Cotesbach village; and eastern extension adjacent to Lutterworth Road north of Shawell village.

- M3 – Sand and Gravel Extraction (Unallocated Areas):

  In unallocated areas, planning permission to extract sand and gravel for aggregate construction purposes provided that it is an extension to a permitted sand and gravel site or is needed to meet an identified shortfall in the landbank; a new quarry to replace an existing site nearing exhaustion; or would offer significant benefits than allocated sites.
- M5 - Brickclay

  The County Council will ensure a steady and adequate supply of brick clay by:

  i) allowing extensions to existing sites where they are required to maintain a landbank of at least 25 years of permitted reserves to support the level of investment required to maintain and improve existing brick-making plan and equipment

  ii) giving priority to proposals for extraction site where it can be demonstrated that production cannot be maintained from existing sites and appropriate extensions to existing site.

- M11 – Sand and gravel used for aggregate construction purposes within Minerals Safeguarding Areas in accordance with the Mineral and Waste Safeguarding documents, are to be protected from permanent sterilisation by other development.

The LMWLP also identifies a number of Allocated Sites to meet the need for primary aggregates. The whole of the subject site for the proposed development does not fall within the area of these Allocated Sites.

4. SUMMARY OF FAIRHURST MINERALS SAFEGUARDING ASSESSMENT, EMG2

This section aims to summarise the findings of the initial Minerals Safeguarding Assessment, pertaining to the below report (and included within Appendix A), of which should be read in conjunction to this addendum report:

- Fairhurst. East Midlands Gateway Phase 2, Land South of East Midlands Airport. Minerals Safeguarding Assessment. 148749/R5.

The report assesses the potential for mineral extraction beneath the southern site area, pertaining to EMG2 (**Figure 1**).

4.1 Geological Setting

Review of ground investigation findings completed by Structural Soils Ltd. in September 2022 under the instruction of Fairhurst to inform a Ground Investigation Report submitted in support of a pre-planning application revealed the following ground conditions beneath the southern site area.

Table 1: Ground Conditions, proven through Structural Soils Ltd. Investigation (2022)

Lithology	Location	Base of Lithology (m bgl)	Base of Lithology (m AOD)
Topsoil	All exploratory hole locations (aside from where Made Ground is encountered)	0.10 – 0.85	91.0 - 58.5
Made Ground	(BH04, BH12, BH25, CP27, TP08, TP25, and TP37)	0.20 – 3.00	86.0 – 53.0
Oadby Member	21 No. positions, most extensively found E-W through the centre of the site (cross section line B-B)	1.70 – 16.40	85.8 – 64.0
Glaciofluvial	61 No. Positions, most extensively found E-W through the centre of the site (cross section line B-B)	0.40 – 17.30	89.7 – 53.4
Weathered Gunthorpe Member	73 No. positions, less extensively present where significant superficials soils are found	1.40 – 18.50	88.2 – 51.0
Gunthorpe Member	33 No. positions	> 33.35	< 28.0

For full investigation details, please refer to the Fairhurst Ground Investigation Report (148749/R7).

4.2 Potential for Mineral Extraction

In brief, the assessment of the potential for mineral extraction beneath the site, in accordance with the Leicestershire Minerals and Waste Local Plan (LMWLP) identified the below listed potential resources:

- Brick Clay (Mercia Mudstone)
- Sand and Gravel (Glaciofluvial Deposits)
- Sand and Gravel (Diseworth Sandstone)

4.3 Mineral Safeguarding Assessment

Overall, the Mineral Safeguarding Assessment for the southern site area concludes that the extraction of the aforementioned resources is not economically viable for the site. The following justification is provided in support of this:

- Glaciofluvial Deposits encountered on site were logged to comprise predominantly cohesive material interbedded with granular deposits, resulting in low take-home yields and increased processing and sorting costs. Therefore, the content of fines contained within these deposits was concluded as too high for economical extraction.
- Excavation of the Brick Clay, material processing and sorting would be costly due to exploratory hole logs revealing horizons of siltstone and sandstone interbedded with mudstone. Economic and environmental costs of importing suitable fill material post-extraction would not be viable.
- The site is located outside of LMWLP prioritised Diseworth Sandstone extraction sites. Exploratory records revealed lateral discontinuity within the unit, where the sandstone strata were proved interbedded with mudstone/siltstone strata, meaning it is not economically viable to extract.
- Shallow groundwater (between 1.25 m and 15.32 m bgl within the Glaciofluvial, Weathered Gunthorpe Member and Gunthorpe Member) was encountered during the exploratory investigation. This hinders resource extraction due to the requirement for groundwater pumping, due to increased risk of excavation instability.

5. MINERALS SAFEGUARDING ASSESSMENT – EMG1 AND HIGHWAY WORKS

This section of the report aims to undertake a Mineral Safeguarding Assessment for the remaining areas of the site (Figure 1), enabling a holistic conclusion to be drawn regarding the site as a whole.

5.1 Geological Setting

The rail freight expansion site, highway improvement site and Plot 16 are all located to the north of EMG2 (Figure 1) which was the focus of the initial Minerals Safeguarding Assessment.

The published British Geological Survey (BGS) 1:50,000 Sheet No. 141 Loughborough, Solid and Drift (dated 2001) and nearby available BGS borehole records inform the geological setting of the site, as discussed below. A selection of available BGS boreholes which are broadly located along the proposed highway improvement works are presented within Appendix C.

5.2 Superficial Geology

The available BGS maps indicate the site to be underlain by five superficial deposits; Head Deposits, Thrussington Member, Wanlip Member, Eagle Moor Sand and Gravel Member and Eggington Common Sand and Gravel. The Head Deposits are depicted to surround the field drains in the northern / north eastern site area and are described by BGS as clay, silt, sand and gravel although this is expected to be cohesive dominant, consistent with the cohesive nature of the surrounding soils in the area. The Thrussington Member is mapped in the south western area of the site, extending inward towards the site centre. The soils are described by BGS as Diamicton (unsorted / poorly sorted terrigenous sediment), brown to reddish with stones and matrix primarily derived from Upper Carbonifeous and Triassic rocks; subordinate sand, gravel and stoneless clay and silt, red pebbly clay and silty clay with rock fragments. The Wanlip Member is mapped and appears limited to the far north eastern corner of the site and is described by BGS as a sedimentary superficial deposit of sand and gravel with minor clay and silt lenses. The Eagle Moor Sand and Gravel Member is mapped in the eastern / north eastern area of the site and is described by BGS as predominantly cold phase sands and gravels. The Eggington Common Sand and Gravel Member is mapped in the north easten site area and described by BGS as predominantly cold phase sands and gravels.

5.3 Bedrock Geology

The site is predominantly underlain by the Tarporley Siltstone Member, comprising interlaminated and interbedded siltstones, mudstones and sandstones in approximately equal proportions. The Edwalton Member is mapped to underlie the far north eastern site area, and is described by BGS as mudstone and siltstone, red-brown and greenish grey with beds of indurated, variable dolomitic siltstone and very fine-grained sandstone in the lower half and finely disseminated gypsum in the upper half. The Gunthorpe Member is mapped within the southern area of the site, predominantly comprising mudstone with subordinate dolomitic siltstone and fine-grained sandstones. A thin coverage of the Arden Sandstone Formation is mapped to outcrop within the northern area of the site, generally described by BGS as mudstone interbedded with siltstone and fine-to-medium grained sandstone. The Helsby Sandstone Formation is also mapped in the far western site area and is described by BGS as fine-to-medium grained, locally micaceous sandstone.

Due to the absence of historical development on site, significant Made Ground deposits are not anticipated across the majority of the site. However, Made Ground is expected along the route of the highway improvement works, due to the historical road infrastructure construction.

5.4 Ground Investigation Findings

A ground investigation was undertaken on the site by RSK Environment Ltd between 23rd September and 11th October 2013, covering the East Midlands Strategic Rail Freight Interchange. The intrusive works comprised:

- 27 No. mechanically excavated trial pits, with 6 No. soakaway tests conducted to BRE 365 (TP307 – TP317, TP319-TP327 and TPS301 – TPS305, TPS351 – TPS352) to a maximum depth of 4.60 m bgl
- 19 No. cable percussive boreholes (CP203 – CP208, CP210 – CP222) to a maximum depth of 10.94 m bgl
- 6 No. rotary cored boreholes (CP(R)203 – CP(R)208) to a maximum depth of 30 m bgl
- installation of 28 No. combined groundwater/gas monitoring wells and piezometers to varying depths to allow for 4 No. subsequent groundwater levels/gas monitoring rounds.

The following RSK Environment Ltd exploratory locations are within the site boundary and have been reviewed as part of this Minerals Safeguard Assessment (Figure 1). The corresponding exploratory hole records are included within Appendix B:

- CP203
- CP205
- CP(R)205
- CP206
- CP(R)206
- CP219
- CP220
- CP222
- TPS305
- TP309
- TP310
- TP312
- TP326
- TP327

The ground conditions within the areas of limited exploratory data (predominantly the highway improvement works) have been anticipated based on a combination of the above ground investigation findings and available BGS borehole data, with the relevant BGS exploratory logs saved within Appendix C and the locations of these boreholes shown on Figure 1.

A summary of the ground conditions for EMG 1 Works, the rail freight terminal and Plot 16, is included within Table 2 below.

Table 2: Ground Conditions proven through RSK Environment Ltd. Investigation (2013)

Lithology	Location	Base of Lithology (m bgl)	Base of Lithology (m AOD)
Topsoil or Subsoil	CP203, CP219, CP220, CP(R)205, TP309, TP310, TP312, TP326, TP327, TPS305 (sporadic, across the rail freight interchange area and within Plot 16)	0.30 – 0.45	39.12 – 67.52
Made Ground	CP222(north eastern area of rail freight interchange)	0.50	36.55
Head Deposits	CP205, CP220, TP309, TP326, TP327 (sporadically, across the rail freight area)	0.50 – 1.80	41.82 – 63.07
Thrussington Member	CP219 (just south west of the centre of Plot 16)	1.80	52.66
Wanlip Member	CP222 and TPS305 (north east of the rail freight interchange area)	2.65 – 3.40	33.65 – 36.77

Eggington Common Sand and Gravel	TP310 (north east of the Plot 16 boundary, within the rail freight interchange area)	4.60	39.87
Edwalton Member (Mercia Mudstone)	CP219, CP220, CP222 (within Plot 16 and the eastern part of the rail freight area)	5.92 – 8.29	28.76 – 46.76
Tarpoley Siltstone Member (Mercia Mudstone)	CP203, CP205, CP206, CP219, CP(R)205, TP309, TP312, TP326, TP327 (within Plot 16 and sporadically across the rail freight area)	2.10 – 8.90	47.52 – 63.81
Helsby Sandstone Formation (previously the Bromsgrove Sandstone Formation)	CP206, CP(R)205, CP(R)206 (southern area of rail freight terminal)	3.35 – 30.00	26.42 – 48.55

The investigation area did not cover the wider proposed highway improvement works areas, representing a data gap in the investigation. Therefore, available BGS borehole logs (contained within Appendix C) have been reviewed to provide a preliminary ground conditions summary for these areas within Table 3 below.The locations of the boreholes are shown in Figure 1.

Table 3: Ground conditions of highway works areas anticipated through review of BGS borehole data

Anticipated Lithology	Location of BGS Borehole	Base of Lithology (m bgl)	Base of Lithology (m AOD)
Topsoil or Subsoil	SK42NE90, SK42NE103, SK42NE5, SK42NE58, SK42NE7, SK42NE112, SK42NE71, SK42NE700 (spanning the stretch of the M1)	0.20 – 0.50	41.70 – 78.53
Alluvium	SK42NE183 (along the A453)	1.40	28.77
Made Ground	SKNE745, SK42NE179, SK42NE700, SK42NE731, SK42NE636, SK42NE633, SK42NE647 (spanning the stretch of the M1, noticeable thickest at the A453/M1 roundabout in the north of the site)	0.20 – 7.75	29.93 – 72.10
Fill	SK42NE62 (southern stretch of M1, adjacent to the EMG2 site)	1.80	71.65
Glacial Till	SK42NE112 (along the A50, adjacent to the southern extent of the rail freight terminal)	1.00	56.18
Head Deposits	SK42NE700, SK42NE12, SK42NE636, SK42NE633, SK42NE647, SK42NE10 (northern extent of the road improvement area)	1.00 – 12.80	25.63 – 56.18
River Terrace Deposits	SK42NE183, SK42NE647 (along the A453)	3.80 – 4.80	25.37 – 26.48
Mercia Mudstone	SK42NE179, SK42NE183, SK42NE647 (along the A453)	9.95 – 14.50	15.67 – 21.13
Keuper Sandstone	SK42NE71 (central stretch of M1 site area, adjacent to the EMG1 site)	1.00	55.75

Keuper Marl (Mercia Mudstone)	SK42NE90, SK42NE103, SK42NE5, SK42NE58, SK42NE62, SK42NE7, SK42NE112, SK42NE71, SK42NE10, SK42NE12 (sporadically around the road highway improvement area)	3.61 – 30.00	29.87 – 70.12

5.5 River Terrace Deposits

River Terrace Deposits are a source of sand and gravel for extraction and are anticipated along the western area of the road highway improvement works, along the A453, based on available BGS borehole logs (Table 3 above). The River Terrace Deposits are described in the BGS logs (SK42NE183 and SK42NE647) as generally 'clayey slightly to very sandy Gravels of angular to rounded fine to coarse flint, quartzite and occasional sandstone'. Therefore, the deposits are described as predominantly granular.

The Leicestershire Minerals and Waste Local Plan (MWLP) states that "the sand and gravel occurs in two distinct types of deposit in Leicestershire – sub-alluvial and river terrace". The plan describes the five existing sites (Section 3 of this report) to which sand and gravel is being extracted, two of which are extracting River Terrace Deposits. Policy M3 of the plan states the following:

"Planning permission will be granted for sand and gravel extraction for aggregate purposes outside allocated areas provided that the proposal:

(i) Is an extension to an existing permitted sand and gravel site that is required to maintain production from that site or is needed to meet an identified shortfall in the landbank; or
(ii) Is for a new quarry that is required to replace an existing permitted sand and gravel site that is nearing exhaustion where it has been demonstrated that there are no potential extensions to that site or that remaining sites cannot maintain the required level of provision; or
(iii) Would offer significant environmental benefits as a result of the exchange of surrender of existing permissions or be significantly more acceptable overall than the allocated sites".

Information from BGS boreholes has anticipated the presence of River Terrace Deposits within the area of Highway Improvements, the findings were extremely local, and the thickness of the deposit was proven as limited in extent. Additionally, review of Google Earth historical aerial imagery suggests that the A453 was constructed pre 1985, and therefore minerals in this area have been neutralised for over 40No. years. The EMG2 works comprise improvement to the road highway network, and therefore no new development is planned to take place along the roads. Therefore, as this area has not formed part of the safeguard allocated areas in the past, it can be assumed that the site will remain this way post highway improvement.

5.6 Mercia Mudstone Group

The LMWLP identifies the Mercia Mudstone Group as the principal brickclay resource in Leicestershire. The Tarporley Siltstone Member and Edwalton Member which underlie Plot 16 and the rail freight terminal (proven within RSK Environment Ltd investigation), as shown in Table 2 and the Mercia Mudstone and Keuper Marl which are anticipated to underlie the road highway improvement areas, as shown in Table 3 (from BGS borehole logs) are sub-groups of the Mercia Mudstone Group and are anticipated to underlie the whole of the site on the Mineral Plan Overlay included within Figure 2. However, the extraction of the deposit is not considered practical or economically viable given the following:

- The exploratory hole records (Appendix B and C) indicate subordinate horizons of siltstone and sandstone, interbedded with mudstone. Therefore, costly material processing and sorting would be required post excavation of the deposit.
- The economic and environmental cost of importing suitable fill material following extraction of the resource would make extraction unviable.
- The site area is not located within close proximity to an existing brick works site and therefore is not prioritised for extraction, according to the LMWLP.

Therefore, the Mercia Mudstone present beneath Plot 16 and the rail freight terminal within EMG1 works area and the highway improvement works area is not considered as a viable resource suitable for extraction.

5.7 Helsby Sandstone Formation

The “Boundary of area assessed for sand and gravel at the indicated resource level”, located in the northern road highway improvement area and eastern EMG1 area, is indicated on site and is interpreted to represent outcrops of the Helsby Sandstone Formation based on comparison with the BGS 1:50,000 scale maps.

In accordance with the LMWLP, proposals to extract reserves should be given priority to existing site operations. Current sites of extraction which feature within the plan include Brooksby, Cadeby, Husbands Bosworth, Lockington and Shadwell. Since the whole of subject site is not located within any of these areas, it is unlikely that the site of the proposed development will be considered appropriate or sustainable for extraction in accordance with LMWLP requirements.

The ground investigation report (RSK Environment Ltd) found the Helsby Sandstone Formation is not extensive across the site, with variable thickness found within two of the rotary boreholes and one cable percussive borehole (0.35 m to 21.10 m).The results also suggest limited lateral continuity across the site where the exploratory logs (Appendix B) describe the sandstone as being interbedded with mudstone / siltstone strata.

The mineral map overlay suggests that the Helsby Sandstone Formation is located within the far eastern EMG1 area, extending laterally across the northern road highway improvement works area. Therefore, the minerals of the Helsby Sandstone Formation within the site area are anticipated to have been neutralised, due to being located beneath the road.

Therefore, due to the above considerations, it is not considered practical or economically viable to extract the Helsby Sandstone Formation as a construction aggregate.

5.8 Diseworth Sandstone

The “Boundary of area assessed for sand and gravel at the indicated resource level”, located within the southern EMG1 area and central road highway improvement area, is interpreted to represent outcrops of Diseworth Sandstone, based on comparison with the BGS 1:50,000 scale maps.

This strata is not considered to be practical or economically viable to extract, due to its location beneath the highway improvement works area, resulting in neutralisation of associated minerals since the construction of the road.

Also, the Diseworth Sandstone was encountered within the EMG2 site, with limited lateral continuity and was interbedded with the mudstone/siltstone strata (148747/R5).

Therefore, this stratum is not considered as a viable resource suitable for extraction.

5.9 Groundwater

Shallow groundwater was encountered across the site during the ground investigation (1.80 m bgl – 9.65 m bgl, 30.65 m AOD – 72.05 m AOD) and is was concluded that there are a series of confined aquifer stratum which underlie the site, some of which contain water. This is characteristic of the Mercia Mudstone Group beneath the site, featuring subordinate water bearing skerry bands of siltstone and sandstone.

The investigation encountered a more stable and clear permanent groundwater table within the Bromsgrove Sandstone (currently refrrred to as the Helsby Sandstone Formation by BGS lexicon) which underlies the Mercia Mudstone Group, and supports the Principal Aquifer beneath the site. Groundwater levels monitoring suggests this groundwater level sits at approximately 41 m AOD in the south east, falling to approximately 38.78 m AOD further north.

The presence of shallow confined aquifer strata within the upper 10 m of the ground profile is likely to hinder resource extraction, as groundwater pumping would be required and there is increased rsk of excavation instability.

6. CONCLUSION

Fairhurst have been appointed by SERGO (the 'Client') to undertake a supplemental Mineral Safeguard Assessment to support a planning application for the proposed development.

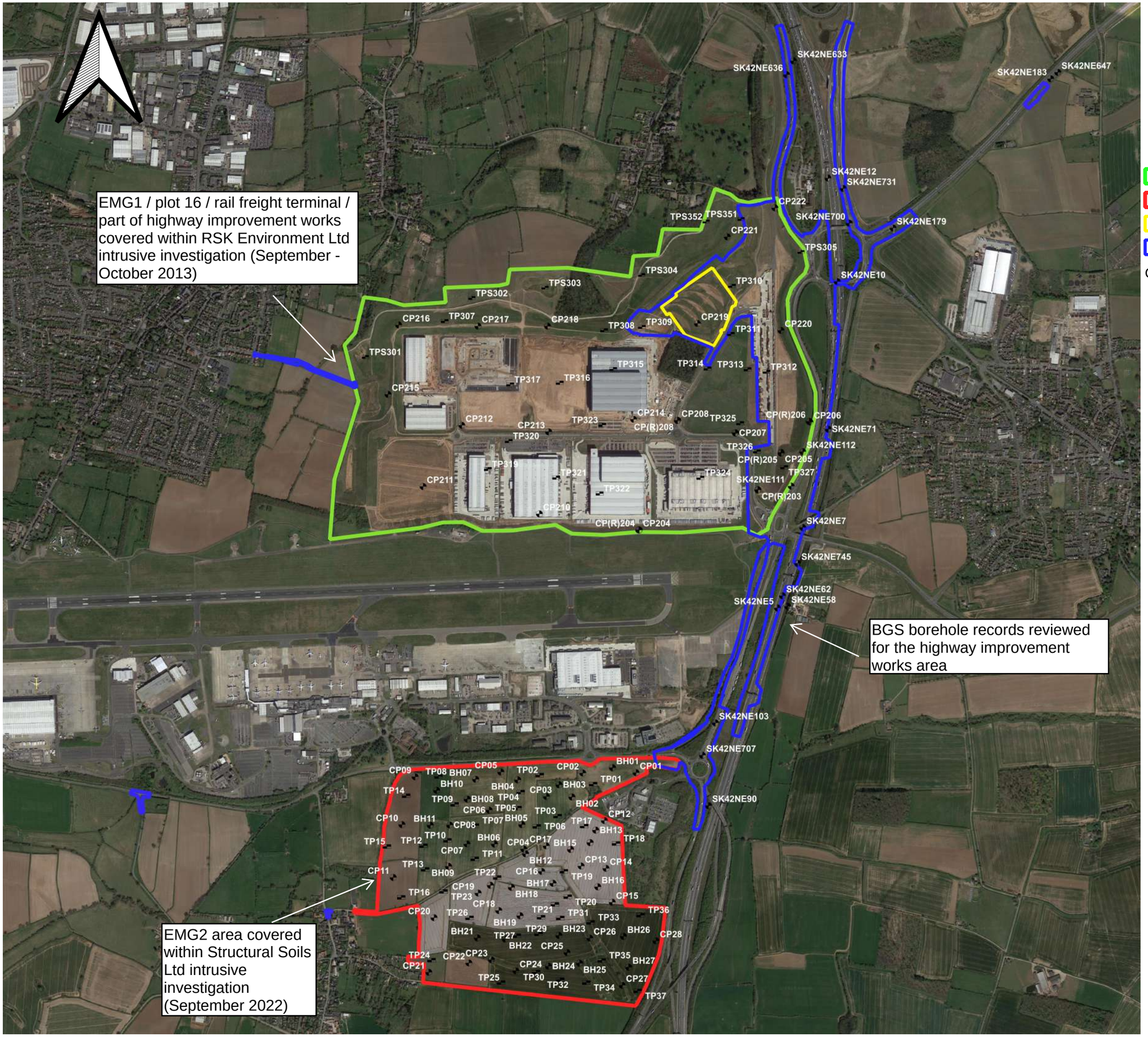
River Terrace Deposits are anticipated on site (indicated by available BGS borehole logs) within the western area of the road highway improvement works, along the A453. The local nature of the deposits, limited thickness and the presence of the A453 indicates that the deposits are not considered to be economically viable to extract.

The Mercia Mudstone underlying the site is identified as a potential resource of brickclay.This report has deemed it unviable for extraction due to the fact that the site is not within close proximity to existing clay pits, the unacceptable environmental cost of importing replacement fill material and due to the deposit being interbedded with siltstone and sandstone, thus increasing the costs of material processing.

It is evident that the Helsby Sandstone Formation is not extensive across the site with variable thickness and limited lateral continuity of the sandstone which is interbedded with mudstone and siltstone strata. This stratum is anticipated to be located beneath the northern road highway works area, suggesting the minerals have been neutralised since the construction of the road.As such, it is not considered practical or economically viable to extract the Helsby Sandstone Formation as a construction aggregate.

The Diseworth Sandstone is indicated beneath the central road highway improvement area on the Leicestershire Mineral Resource Map. This strata is not considered to be practically or economically viable to extract, due to its location resulting in the neutralisation of associated minerals since the construction of the road infrastructure. Ground investigation works within the 'Main Site' (EMG2) also encountered Diseworth Sandstone as interbedded with mudstone/siltstone strata (148747/R5).

FIGURES



Legend

- Rotary Boreholes
- Cable Percussive Boreholes
- Trial Pits
- BGS Boreholes
- EMG1 Site
- EMG2 Site
- Plot 16 Boundary
- Highway improvement works / rail freight terminal

Google Earth Aerial Imagery

FAIRHURST

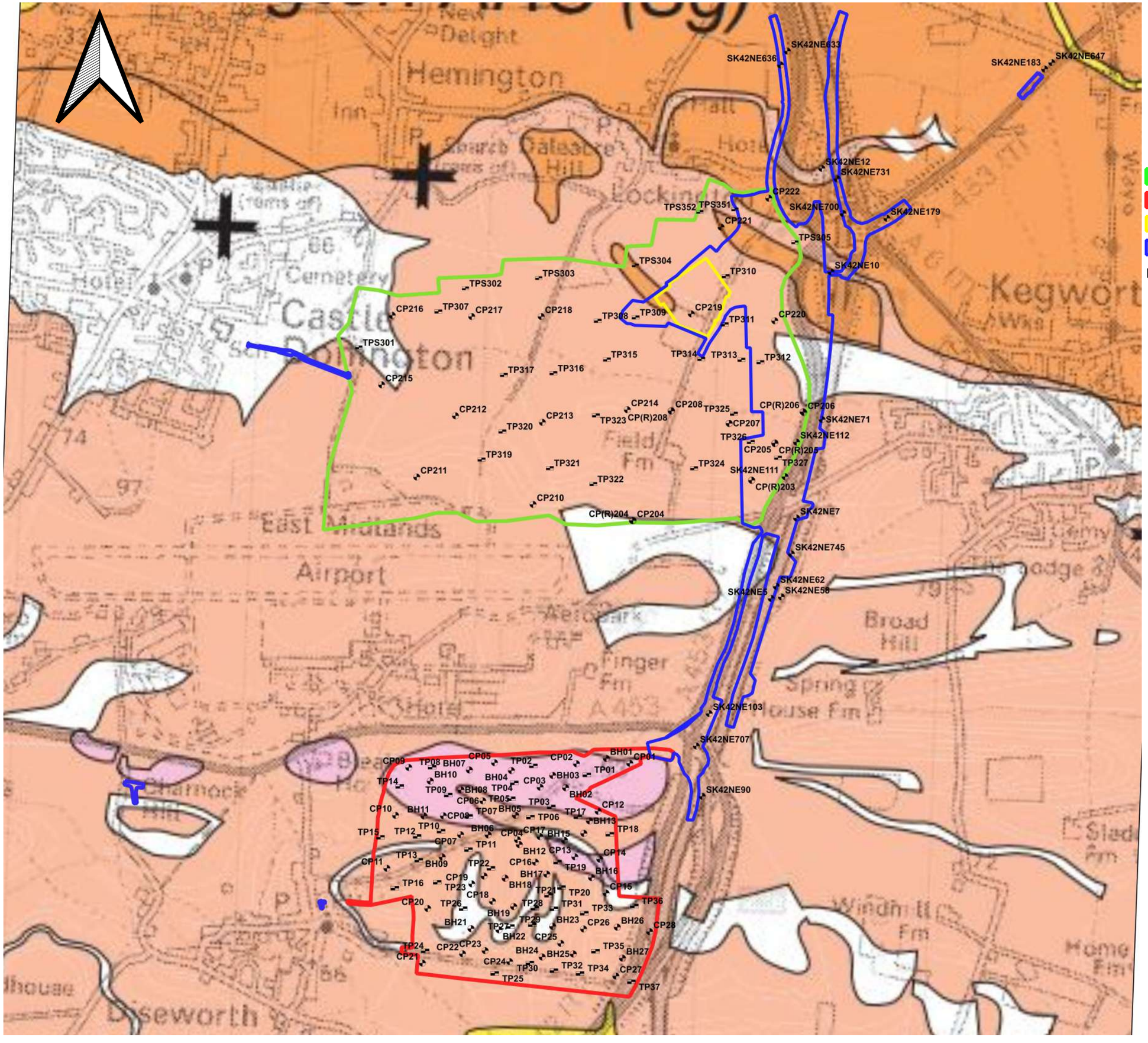
Project Title

East Midlands Gateway Phase 2

Drawing Title

Figure 1 - Exploratory Hole Location Plan

Project Number	148749
Drawn By	Sophie Murray
Checker/Approver	Dicken Maclean
Drawing number Figure 1	Rev 00



Legend

- Rotary Boreholes
- Cable Percussive Boreholes
- Trial Pits
- BGS Boreholes
- EMG1 Site
- EMG2 Site
- Plot 16 Boundary
- Highway improvement works / rail freight terminal

Leicestershire Mineral Resources Map

SAND & GRAVEL

Superficial deposits

- Sub-alluvial: Inferred resources
- Sub-alluvial: Indicated resources in areas assesssed by BGS
- River Terrace deposits
- Glaciofluvial deposits
- Blown sand
- Boundary of area assessed for sand and gravel at the indicated resource level

BRICK CLAY

- Mercia Mudstone Group: Principal brick clay resource — Triassic
- Fireclay (coincident with areas of shallow coal) — Carboniferous: Coal Measures
- Extent of Pottery Clays Formation — Carboniferous: Coal Measures
- Rutland Formation — Jurassic

0 250 500 m

FAIRHURST

Project Title

East Midlands Gateway Phase 2

Drawing Title

Figure 2. Mineral Resources Map Overlay

Project Number	148749
Drawn By	Sophie Murray
Checker/Approver	Dicken Maclean
Drawing number Figure 2	Rev 00

APPENDIX A

FAIRHURST MINERALS SAFEGUARDING ASSESSMENT (148749/R5)

Minerals Safeguarding Assessment

East Midlands Gateway Phase 2,

Land south of East Midlands Airport, Derby

July 2024

CONTROL SHEET

CLIENT:	SEGRO PLC
PROJECT TITLE:	East Midlands Gateway Phase 2, Land South of East Midlands Airport
REPORT TITLE:	Minerals Safeguarding Assessment
PROJECT REFERENCE:	148749
DOCUMENT NUMBER:	R5

Original Issue	Issue 1	Name	Signature	Date
	Prepared by	Chelsea Huggins	Signed copy held on file	05/06/2023
	Checked by	Alex O'Connor	Signed copy held on file	05/06/2023
	Approved by	Christo Dunston	Signed copy held on file	03/07/2024

Update Record	Issue	Date	Status	Description	Signature	
	2				Prepared By	
					Checked	
					Approved	
	3				Prepared By	
					Checked	
					Approved	
	4				Prepared By	
					Checked	
					Approved	

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Fairhurst is the trading name of Fairhurst Group LLP, a limited liability partnership registered in Scotland with the registered number SO307306 and registered office at 43 George Street, Edinburgh EH2 2HT.

EXECUTIVE SUMMARY

Site Details & Proposed Development	The site is located immediately south of East Midlands Airport and to the east of the village of Diseworth, centred on National Grid Reference 445940, 324550, within Leicestershire County Council. The site covers an area of c. 100 ha and is broadly rectangular in shape and can be accessed by vehicles and pedestrians from several access points. The site is currently occupied, comprising arable land with no structures aside from the overhead power lines in the west of the site and a telephone mast in the north-east. The land is divided into 20 individual fields with hedgerows marking their boundaries. The topography is undulating and generally falls towards the south, with an overall fall of c. 35 m from the northern to southern boundary. The development proposed includes construction of a number of warehouse, ancillary offices, associated services, access roads, parking and landscaping.
Objectives	The purpose of this report is to determine the possible presence of economic minerals and to prevent the sterilisation of minerals which may be needed within the plan period and beyond. This report therefore aims to undertake a desk based review of available information pertaining to the geological setting of the site. The assessment has been carried out in accordance with the Leicestershire Minerals and Waste Local Plan by which consideration must be given to the extraction of any identified mineral resources prior to any permanent redevelopment.
Conclusions	The assessment of the potential for mineral extraction beneath the site, in accordance with the Leicestershire Minerals and Waste Local Plan identifies the following potential resources are present on site: • Brick Clay (Mercia Mudstone) • Sand and Gravel (Glaciofluvial Deposits) • Sand and Gravel (Diseworth Sandstone) It is concluded that extraction of these resources is not economically viable on the site, the reasons for which are set out within the report.

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2.0 SITE INFORMATION 2
3.0 SOURCES OF INFORMATION 3
4.0 MINERALS SAFEGUARDING 4
5.0 CONCLUSION 7

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APPENDICES

APPENDIX A – LOCATION PLAN AND PROPOSED DEVELOPMENT DRAWING
APPENDIX B – MINERAL SAFEGUARDING PLAN OVERLAY
APPENDIX C – BGS BOREHOLE RECORD AND HISTORICAL BOREHOLE LOGS
APPENDIX D – STRUCTURAL SOILS BOREHOLE RECORDS

1.0 INTRODUCTION

Fairhurst have been appointed by SEGRO PLC (the 'client') to undertake a Mineral Safeguarding Assessment to support the DCO submission for the proposed development on a plot of land to the north east of Diseworth, Derby, approximate post code DE74 2TN, National Grid Reference 445940, 324550 (the 'site').

The development proposed includes construction of a number of warehouse, ancillary offices, associated services, access roads, parking and landscaping. The proposed development plan and site boundary is provided in Appendix A.

The site requires assessment in accordance with Minerals Safeguarding Areas (MSA) – Leicestershire County Council adopted the Leicestershire Minerals and Waste Local Plan (LMWLP) dated September 2019, by which consideration must be given to the extraction of any identified mineral resources prior to any permanent redevelopment, with a view of avoiding sterilisation of potential mineral assets.

The purpose of this report is to determine the possible presence of economic minerals and to prevent the sterilisation of minerals which may be needed within the plan period (2031) and beyond. This report therefore aims to undertake a desk-based review of available information pertaining to the geological setting of the site and should be read in conjunction with the associated reports:

- Geo-Environmental Preliminary Risk Assessment (148749/R6, July 2024).
- Geotechnical Investigation Report (148749/R7, July 2024).

2.0 SITE INFORMATION

2.1 Site Location and Description

The site is located south of East Midlands Airport, to the north east of the village of Diseworth and to the north-west of Junction 23a of the M1 motorway. The site has an area of approximately 100ha and currently comprises undeveloped (except overhead power lines to the west and telephone mast to the north-east) arable land with hedgerows and trees dividing the various fields. A public byway, known as Hyam's Lane, dissects the site from south-west to north-east.

The site is bounded to the north by Ashby Road (A453) with East Midlands Airport beyond. Donington Park Services, including a petrol station, is located immediately adjacent to the north-east. To the east lies an undeveloped parcel of land, the A42 and the M1. To the south the site is bounded by Long Holden public byway with fields situated beyond and to the south-west is the village of Diseworth, situated from adjacent.

The topography is undulating and generally falls towards the south, with an overall fall of c. 40 m from the northern to southern boundary. The highest point is at c. 92.6m AOD in the north-east corner of the site whilst the lowest is at c. 52.2m AOD located in the south-east corner.

The surrounding area is predominantly characterised by agricultural land with the exception of a commercial / light industrial park, East Midlands Airport, Donington Park Services and residential properties with gardens and commercial businesses within Diseworth.

2.2 Site History

A detailed review of the site history and immediate site surrounds has been undertaken within the Fairhurst Geo-Environmental and Geotechnical Preliminary Risk Assessment (148749/R5, May 2023). In summary, the review of historical mapping from Envirocheck confirmed the site to comprise predominantly agricultural fields to the earliest map available dated 1883. Numerous ponds have been identified, and a pump was introduced in 1921 in the north-east of the site. By 1975 all ponds were assumed to be infilled. No significant changes were noted herein.

The local area around the site appears to comprise agricultural land with ponds from the earliest available historical map dated 1883, with additional ponds in 1955 and an airfield in the north which later became known as East Midlands Airport. In 1966, the M1 motorway was constructed. Between 1972 and 1984, numerous ponds were assumed to be infilled, with tanks being noted 260m north-west of the site. Limited commercial buildings and a hotel was noted 100m north of the site with a junction linking the M1 to the A453 with further commercial buildings were constructed in 2000 along with Donington Park Service Station which is shown to comprise some earthworks as part of the development.

3.0 SOURCES OF INFORMATION

An intrusive ground investigation was undertaken by Structural Soils Ltd. between 5th September and 6th October 2022. A Factual Report has been produced and for the purpose of this report the exploratory hole logs and relevant laboratory test results have been included within Appendix D.

The following sources of information were reviewed as part of this Minerals Safeguarding Assessment and should be considered in conjunction with this report:

- British Geological Survey (BGS) online viewers (geology and hydrogeology) - http://www.bgs.ac.uk/data/maps/; accessed on the 26th May 2024.
- British Geological Survey (BGS), Geology of Britain (1:50,000 Sheet No. 141, Loughborough, Solid and Drift (dated 2001). - www.bgs.ac.uk, accessed on the 26th May 2024.
- British Geological Survey (BGS) Leicestershire and Rutland Mineral Resource Information in Support of National, Regional and Local Planning (2002).
- British Geological Survey (BGS) Leicestershire and Rutland Mineral Resource Map, 1:100,000 (dated 2002).
- Fairhurst Geo-Environmental and Geotechnical Preliminary Risk Assessment (148749/R6, July 2024).
- Fairhurst Ground Investigation Report (148749/R7, July 2024).
- Structural Soils Ground Investigation Logs contained within Appendix D.
- Leicestershire Minerals and Waste Local Plan (LMWLP) – adoption 2019 until 2031.

4.0 MINERALS SAFEGUARDING

4.1 Leicestershire Minerals and Waste Local Plan

As part of the Council's 'emerging plan' to create a new Local Plan for minerals and waste planning policy, the Leicestershire Minerals and Waste Local Plan (LMWLP) will provide the planning framework for Minerals and Waste development and set out the long-term vision through the plan period to 2031. This Minerals Safeguarding Assessment has been undertaken based on guidance contained within the proposed LMWLP.

It is understood that one of the main reserves in Leicestershire are construction aggregates, namely sand and gravel. Leicestershire has been a significant producer of aggregates, and the LMWLP aims to deliver 19.04 million tonnes of construction aggregates from primary sources to meet the identified needs of Leicestershire over the plan period. A set of 4 Minerals Objectives have been outlined in the LMWLP to ensure that the key delivery outcomes are achieved. The objectives pertinent to this Minerals Safeguarding Assessment are presented below:

- M1 – Supply of Sand and Gravel Aggregate

  The County Council will ensure a steady and adequate supply of sand and gravel for aggregate purposes by:

  i) making provision over the plan period (2015 to 2031) for the extraction of some 19 million tonnes of sand and gravel

  ii) maintaining a landbank of at least 7 years based on the past 10 years average sales

  iii) giving priority to proposal for extraction to be worked as extensions to existing site operations

- M2 – Supply of Sand and Gravel Aggregate from Existing Sites

  The County Council will make provision over the plan period (2015 to 2031) for the supply of sand and gravel for aggregate purposes from the following locations:

  i) the extraction of remaining permitted reserves at the following existing sites: Brooksby, Cadeby, Husbands Bosworth, Lockington and Shawell

  ii) the following extensions to existing sites as shown on the Policies Map Insects:

  - Brooksby - Spinney Farm and south of existing plant site
  - Cadeby – west of plant site; north of Brascote Lane; east of Newbold Road
  - Husbands Bosworth – Butt Lane northern extension
  - Shawell – western extension adjacent to Lutterworth Road; land south of Gibbet Lane to the west of the plant site; land to the south west of Cotesbach village; and eastern extension adjacent to Lutterworth Road north of Shawell village.

- M3 – Sand and Gravel Extraction (Unallocated Areas):

  In unallocated areas, planning permission to extract sand and gravel for aggregate construction purposes provided that it is an extension to a permitted sand and gravel site or is needed to meet an identified shortfall in the landbank; a new quarry to replace an existing site nearing exhaustion; or would offer significant benefits than allocated sites.

- M5 - Brickclay

  The County Council will ensure a steady and adequate supply of brick clay by:

i) allowing extensions to existing sites where they are required to maintain a landbank of at least 25 years of permitted reserves to support the level of investment required to maintain and improve existing brick-making plan and equipment

ii) giving priority to proposals for extraction site where it can be demonstrated that production cannot be maintained from existing sites and appropriate extensions to existing site.

- M11 – Sand and gravel used for aggregate construction purposes within Minerals Safeguarding Areas in accordance with the Mineral and Waste Safeguarding documents, are to be protected from permanent sterilisation by other development.

The LMWLP also identifies a number of Allocated Sites to meet the need for primary aggregates. The subject site does not fall within the area of these Allocated Sites.

4.2 Geological Setting

The published British Geological Survey (BGS) 1:15,000 Sheet No. 141, Loughborough, Solid and Drift (dated 2001) and nearby BGS borehole records indicate that the geological setting of the site is as summarised below. An extract of the 1:15,000 geological map is provided in Appendix C.

The BGS maps indicate the site to be underlain by three superficial deposits; Head Deposit, Oadby Member and Glaciofluvial deposits. The Head Deposit is shown to surround the river in the north-west corner of the site and is described by BGS as clay, silt, sand and gravel although it is expected to be cohesive dominant given the cohesive nature of the surrounding soils. The Oadby Member is mapped as a long thin outcrop across the central area of the site as well as the north-east corner. The soils are described by BGS as Diamicton Till consisting of brown to grey clay with subordinate silt, sand and gravel where the gravel consists of chalk and flint and localised lenses of sand and gravel. The Glaciofluvial deposits are mapped across the majority of the northern half of the site. They are described by BGS as predominantly brown to red-brown sand and gravel with localised lenses of silt, clay or organic material.

The site is predominantly underlain by the Gunthorpe Member, comprising mudstone with subordinate dolomitic siltstone and fine-grained sandstones. It is considered that the upper zone of the Gunthorpe Member will be encountered as a weathered material consisting of clay with mudstone lithorelicts. The Diseworth Sandstone, a subgroup of the Gunthorpe Member, is shown to outcrop in the western, central and eastern areas of the site and is expected to be encountered at depth elsewhere. Based on the BGS map, the strata demonstrates a dip of 0.5 to the south.

Due to the absence of historical development on site, significant Made Ground deposits are not anticipated across the majority of the site. However, as identified in the walkover section, 2 No. infilled clay pits are situated on the northern boundary which were reportedly infilled with clay and brick rubble c.10 years prior to the Fairhurst visit.

A ground investigation was undertaken on site by Structural Soils in September 2022 under the instruction of Fairhurst to inform a Ground Investigation Report submitted in support of a pre-planning application. The intrusive works comprised 38 No. machine dug trial pits (TP01 to TP37, and TP39) to a maximum depth of 4.00 m bgl, 7 No. soakaway tests within the trial pits, 27 no. cable percussive boreholes with rotary follow-on (BH01 to BH27) to a maximum depth of 31.00 m bgl; 38 no. cable percussive boreholes (CP01 to CP28) to a maximum depth 17.21 m bgl; along with geotechnical and geo-environmental laboratory testing. The exploratory hole location plan and logs from this ground investigation are presented in Appendix D.

A summary of the ground conditions is included in Table 4-1 below.

Table 4-1: Ground Conditions Summary

Lithology	Location	Base of Lithology (m bgl)	Base of Lithology (m AOD)
Topsoil	All exploratory hole locations (aside from where Made Ground is encountered)	0.10 – 0.85	91.0 - 58.5
Made Ground	(BH04, BH12, BH25, CP27, TP08, TP25, and TP37)	0.20 – 3.00	86.0 – 53.0
Oadby Member	21 No. positions, most extensively found E-W through the centre of the site (cross section line B-B)	1.70 – 16.40	85.8 – 64.0
Glaciofluvial	61 No. Positions, most extensively found E-W through the centre of the site (cross section line B-B)	0.40 – 17.30	89.7 – 53.4
Weathered Gunthorpe Member	73 No. positions, less extensively present where significant superficials soils are found	1.40 – 18.50	88.2 – 51.0
Gunthorpe Member	33 No. positions	> 33.35	< 28.0

Please refer to the Fairhurst Ground Investigation Report (148749/R7) for full details of the ground conditions encountered.

4.3 Glaciofluvial Deposits

Glaciofluvial Deposits are a source of sand and gravel for extraction and have been identified on site during the ground investigation. The Leicestershire Minerals and Waste Local Plan states such deposits “are worked in Leicestershire, but they are exploited modestly due to the proximity of more readily worked river deposits” suggesting although the deposits are worked it is unlikely they are practically or economically viable to extract.

The Glaciofluvial Deposits encountered on site were found to comprise predominantly cohesive material interbedded with granular deposits meaning the take-home yield from these deposits would be very low with increased processing and sorting costs incurred.

Particle Size Distribution testing undertaken as part of the Fairhurst Ground Investigation indicates silt contents are 15-68% and clay contents are 5-21% for the granular Glaciofluvial strata suggesting the fines content of these deposits would be too high for economical extraction.

4.4 Brick Clay

The Leicestershire Minerals and Waste Local Plan (LMWLP) identifies the Mercia Mudstone as the principal brickclay resource in Leicestershire. The Gunthorpe Member, a subgroup of the Mercia Mudstone, is shown to underlay the entire site on the Mineral Plan Overlay included in Appendix B and, as shown in Table 4-1, was proven during the intrusive ground investigation. However, extraction of the deposit is not considered practical or economically viable given the following:

- the exploratory hole logs indicate horizons of siltstone and sandstone are interbedded within the mudstone meaning costly material processing and sorting would be required post excavation
- the economic and environmental cost of importing suitable fill material following extraction of the resource would make extraction unviable

- the site is not within close proximity of an existing brickworks therefore is not prioritised for extraction

Therefore, the Mercia Mudstone present on site is not seen as a viable resource suitable for extraction.

4.5 Diseworth Sandstone

The “Boundary of area assessed for sand and gravel at the indicated resource level” is indicated on site and is interpreted to represent outcrops of the Diseworth Sandstone based on comparison with the BGS 1:50,000 scale maps. Although these deposits are indicated to outcrop on site

In accordance with the LMWLP, proposals to extract reserves should be given priority to existing site operations. Current sites of extraction include Brooksby, Cadeby, Husbands Bosworth, Lockington and Shadwell. Since the subject site is not within these areas it is unlikely that the subject site will be considered appropriate or sustainable for extraction in accordance with the requirements of the LMWLP.

The ground investigation report found the Diseworth Sandstone is not extensive across the site with variable thicknesses found within the rotary borehole logs (0.15m to 2.15m). The results also suggest limited lateral continuity across the site where the sandstone strata are often interbedded with the mudstone/siltstone strata. As such, it is not considered practical or economically viable to extract the Diseworth Sandstone as a construction aggregate.

4.6 Groundwater

Shallow groundwater was identified on site during the ground investigation and it was concluded a groundwater body is present between depths of 1.25m and 15.32m bgl within the Glaciofluvial, Weathered Gunthorpe Member and Gunthorpe Member. This hinders resource extraction at this site as groundwater pumping would be required and there is increased risk of excavation instability.

5.0 CONCLUSION

Fairhurst have been appointed by SEGRO (the 'Client') to undertake a Mineral Safeguard Assessment to support a planning application for the proposed development.

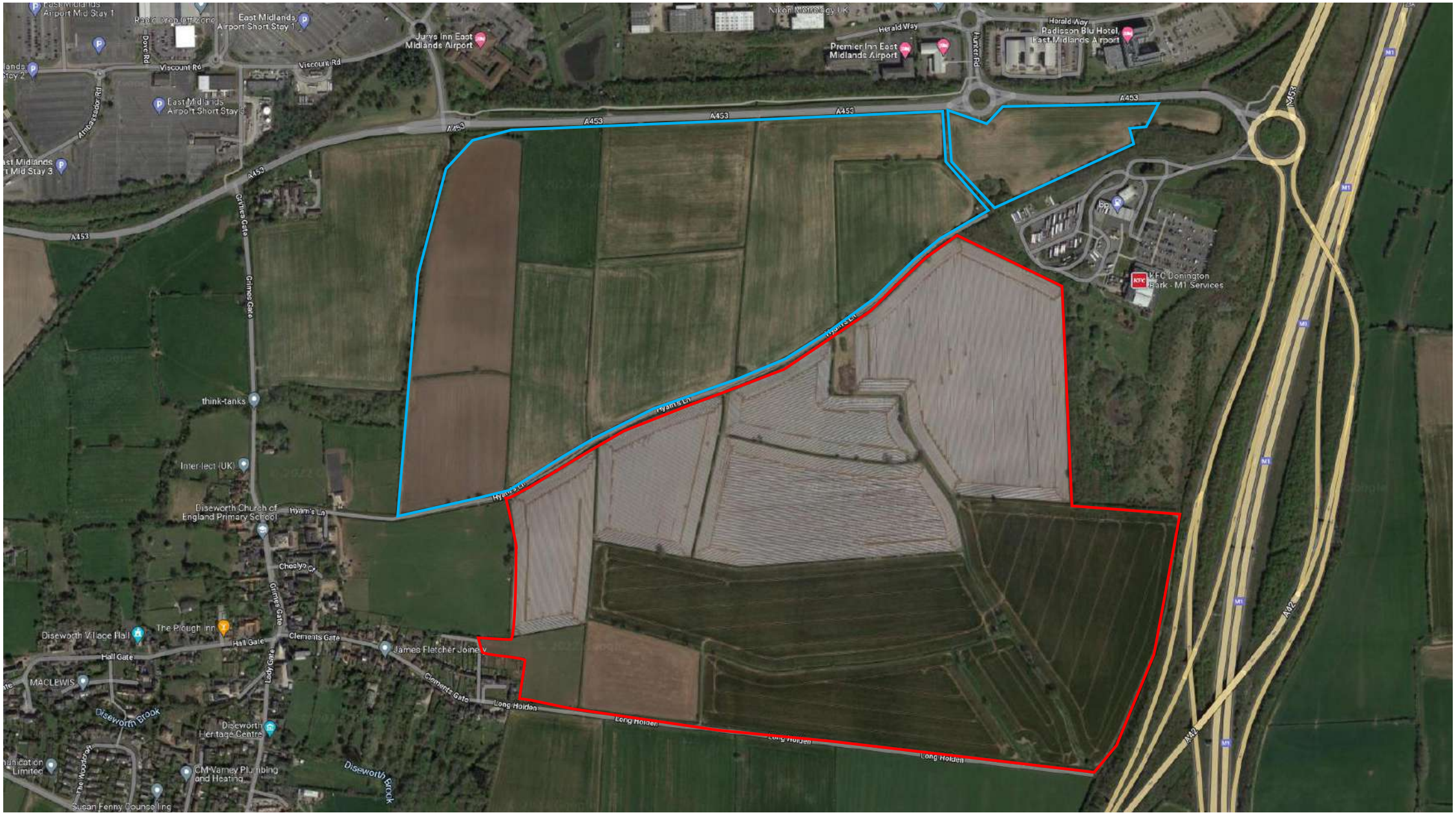
Glaciofluvial Deposits composed of granular material (sand and gravel) have been identified on site and, although these soils are sporadically worked in the region, it is not considered the deposits on site will be economically viable to extract. This is due to the relatively unsorted nature of the deposits and their limited extent across the site.

The Gunthorpe Member, the principal bedrock across the site, is identified as a potential resource of brickclay. This report has deemed it unsuitable for extraction given the site’s location as it is not close to existing clay pits, there would be an unacceptable environmental cost of importing replacement fill material and the deposit is interbedded with siltstone and sandstone increasing the material processing costs.

It is evident that the Diseworth Sandstone is not extensive across the site with variable thicknesses and limited lateral continuity of the sandstone which is interbedded with mudstone and siltstone strata. As such, it is not considered practical or economically viable to extract the Diseworth Sandstone as a construction aggregate.

APPENDIX A

DEVELOPMENT PROPOSAL PLANS & DEVELOPMENT DRAWINGS

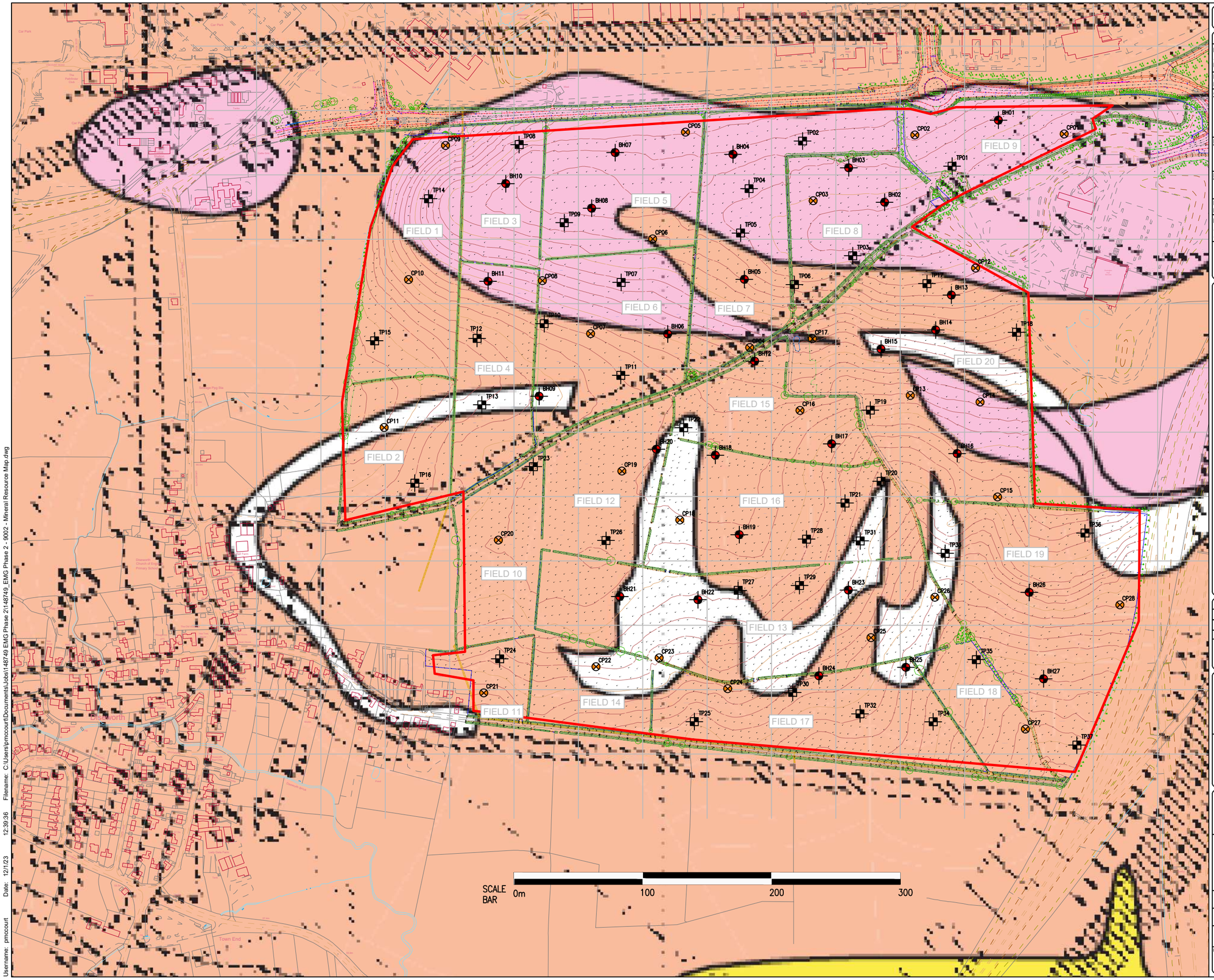


KEY

NORTH SITE

SOUTH SITE

APPENDIX B
MINERAL SAFEGUARDING MAP OVERLAY



DO NOT SCALE FROM THIS DRAWING

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DAF001.

CONSTRUCTION

MAINTENANCE

RESIDUAL DESIGN RISKS

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

NOTES
1. DO NOT SCALE FROM THIS DRAWING.
2. DRAWING TO BE REPRODUCED IN COLOUR.
3. ALL DIMENSIONS IN m UNLESS OTHERWISE STATED.

SAND & GRAVEL

SUPERFICIAL DEPOSITS

- SUB-ALLUVIAL: INFERRED RESOURCES
- SUB-ALLUVIAL: INDICATED RESOURCES IN AREAS ASSESSED BY BGS
- RIVER TERRACE DEPOSITS
- GLACIOFLUVIAL DEPOSITS
- BLOWN SAND
- BOUNDARY OF AREA ASSESSED FOR SAND AND GRAVEL AT THE INDICATED RESOURCE LEVEL

BH0 ROTARY CORE BOREHOLE 30m

CP0 CABLE PERCUSSIVE BOREHOLE 15m

TP01/SA01 TRIAL PIT 3.5-4m / SOAKAWAY

Rev	Date	Description	Drawn	Chkd	Appd

Drawing Status: FOR INFORMATION

FAIRHURST
3rd Floor, The News Building, 3 London Bridge Street, London, SE1 9SG
Tel: 0141 204 8800 Fax: 0141 204 8801

SEGRO

Project Title: EMG PHASE 2

Drawing Title: EXPLORATORY HOLE LOCATION PLAN WITH MINERAL RESOURCE

Drawn	Date	Designed	Date
P. MCCOURT	29/11/22		
Checked	Date	Approved	Date

A3	Scale: NTS	Fairhurst Ref: 148749

Drawing Number: 148749 - 9003 Revision: -

Username: pmccourt Date: 12/1/23 12:39:36 Filename: C:\Users\pmccourt\Documents\Jobs\148749 EMG Phase 2\148749_EMG Phase 2 - 9002 - Mineral Resource Map.dwg

APPENDIX C

BGS BOREHOLE RECORD AND HISTORICAL BOREHOLE LOGS

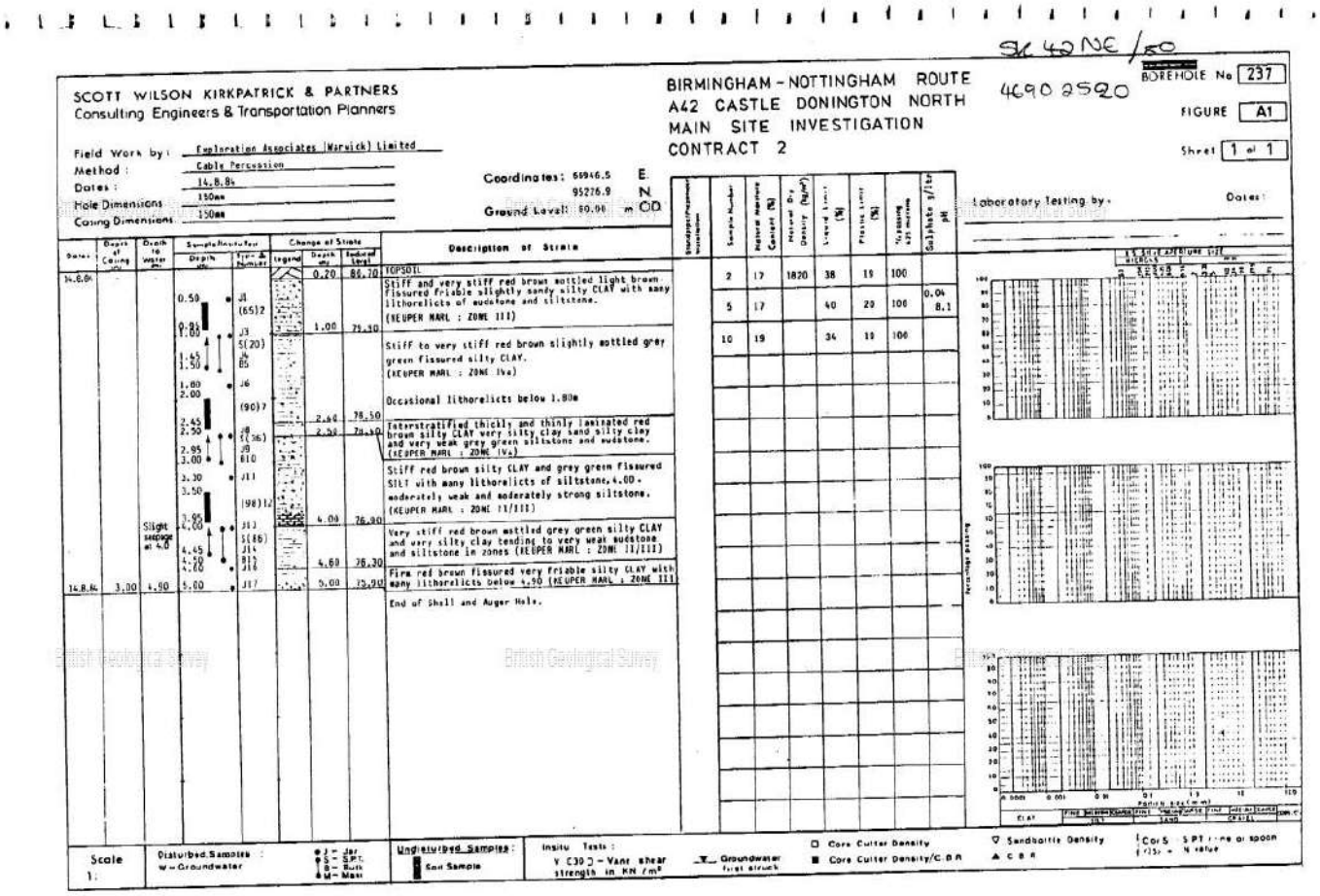
British Geological Survey

Version 2.0.6.6

BGS ID: 218220 : BGS Reference: SK42NE80
British National Grid (27700) : 446900,325200

Report an issue with this borehole

<< < Prev Page 1 of 1 Next > >>



SK 42 NE /50

SCOTT WILSON KIRKPATRICK & PARTNERS
Consulting Engineers & Transportation Planners

BIRMINGHAM - NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

4690 2920

BOREHOLE No 237
FIGURE A1
Sheet 1 of 1

Field Work by : Exploration Associates (Warwick) Limited
Method : Cable Percussion
Dates : 14.8.84
Hole Dimensions : 150mm
Casing Dimensions : 150mm

Coordinates : 69946.5 E
95276.9 N
Ground Level : 80.00 m OD

Laboratory Testing by :
Dates :

Description of Strata	Depth m	Level
TOPSOIL	0.20	80.70
Stiff and very stiff red brown mottled light brown fissured friable slightly sandy silty CLAY with many lithorelicts of mudstone and siltstone. (KEUPER MARL : ZONE III)	1.00	79.50
Stiff to very stiff red brown slightly mottled grey green fissured silty CLAY. (KEUPER MARL : ZONE IVa) Occasional lithorelicts below 1.80m	2.60	78.50
Interstratified thickly and thinly laminated red brown silty CLAY very silty clay sand silty clay and very weak grey green siltstone and mudstone. (KEUPER MARL : ZONE IVa)	2.90	78.20
Stiff red brown silty CLAY and grey green fissured SILT with many lithorelicts of siltstone, 4.00 - moderately weak and moderately strong siltstone. (KEUPER MARL : ZONE II/III)	4.00	76.90
Very stiff red brown mottled grey green silty CLAY and very silty clay tending to very weak mudstone and siltstone in zones (KEUPER MARL : ZONE II/III)	4.60	76.30
Firm red brown fissured very friable silty CLAY with many lithorelicts below 4.90 (KEUPER MARL : ZONE III)	5.00	75.90
End of Shell and Auger Hole.		

Sample Number	Natural moisture Content (%)	Natural Dry Density (kg/m³)	Liquid Limit (%)	Plastic Limit (%)	% passing 425 micron	Sulphate g/l or pH
2	17	1820	38	19	100	
5	17		40	29	100	0.04
10	19		34	18	100	8.1

Scale 1:

Disturbed Samples : W - Groundwater ● J - Jar ● S - SPT ● B - Bulk ● M - Mass

Undisturbed Samples : Soil Sample

Insitu Tests : V C30 - Vane shear strength in KN/m²

Groundwater first struck

Core Cutter Density
Core Cutter Density/C.B.R

Sandbottle Density
C B R

Cor S SPT - core or spoon

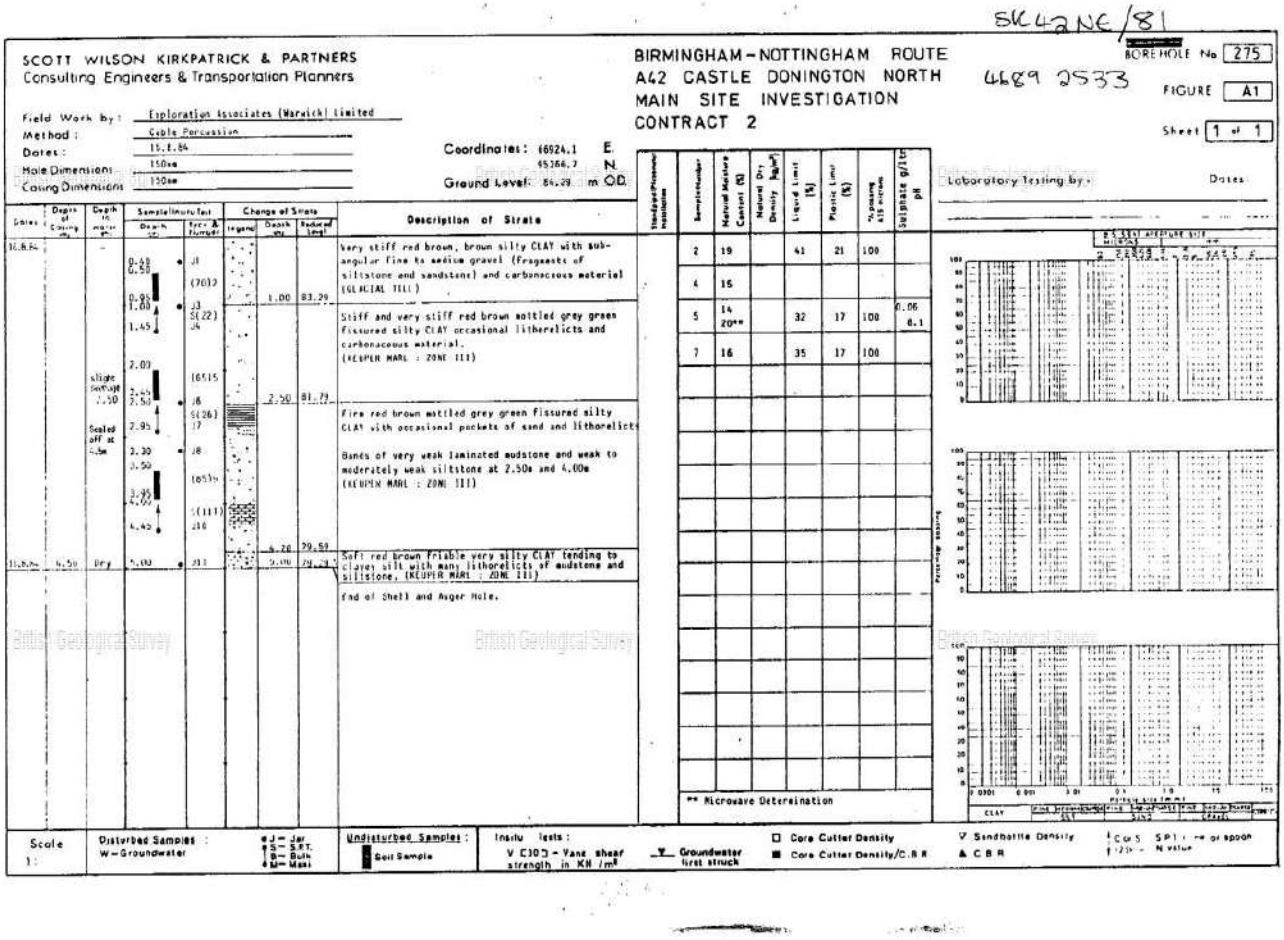
British Geological Survey

Version 2.0.6.6

BGS ID: 218221 : BGS Reference: SK42NE81
British National Grid (27700) : 446890,325330

Report an issue with this borehole

<< < Prev Page 1 of 1 Next > >>



SK42NE/81

SCOTT WILSON KIRKPATRICK & PARTNERS
Consulting Engineers & Transportation Planners

BIRMINGHAM – NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

4689 2533

BOREHOLE No 275
FIGURE A1
Sheet 1 of 1

Field Work by: Exploration Associates (Warwick) Limited
Method: Cable Percussion
Dates: 15.8.84
Hole Dimensions: 150mm
Casing Dimensions: 150mm

Coordinates: 46924.1 E, 45366.7 N
Ground Level: 84.29 m OD

Laboratory Testing by:
Dates

Depth (m)	Description of Strata	Depth (m)	Reduced Level
0.00	Very stiff red brown, brown silty CLAY with sub-angular fine to medium gravel (Fragments of siltstone and sandstone) and carbonaceous material (GLACIAL TILL)	1.00	83.29
1.00	Stiff and very stiff red brown mottled grey green fissured silty CLAY occasional lithorelicts and carbonaceous material. (KEUPER MARL : ZONE III)	2.50	81.79
2.50	Firm red brown mottled grey green fissured silty CLAY with occasional pockets of sand and lithorelicts Bands of very weak laminated mudstone and weak to moderately weak siltstone at 2.50m and 4.00m (KEUPER MARL : ZONE III)	4.20	79.59
4.20	Soft red brown friable very silty CLAY tending to clayey silt with many lithorelicts of mudstone and siltstone, (KEUPER MARL : ZONE III)	5.00	79.29
5.00	End of Shell and Auger Hole.		

Sample No	Natural Moisture Content (%)	Natural Dry Density Mg/m³	Liquid Limit (%)	Plastic Limit (%)	% passing 425 micron sieve	Sulphate g/l or pH
2	19		41	21	100	
4	15					
5	14 20**		32	17	100	0.06 8.1
7	16		35	17	100	

** Microwave Determination

Scale 1:
Disturbed Samples: W – Groundwater; J – Jar; S – S.P.T.; B – Bulk; M – Mast
Undisturbed Samples: Soil Sample
In-situ tests: V (30) – Vane shear strength in KN/m²
Groundwater first struck
Core Cutter Density
Core Cutter Density/C.B.R
Sandbottle Density
C.B.R
Cone S
SPT – N or spoon N value

SK 45266 25262

SK42NE/156.

Sampling		Properties			Strata			
Depth	Type	Strength kN m²	w %	SPT N	Description	Depth	Level	Legend
					Turf over TOPSOIL	G.L	76.47	
0.40	D					0.30	76.17	
0.50-0.95	U(30)	95	21		Firm stiff brown and red brown silty very sandy CLAY with roots and occasional fine medium sub-angular - rounded rock fragments and gravel.			
1.50	D		16			1.20	75.27	
2.00-2.45	U(75)	110	16		Firm-stiff light red brown silty sandy CLAY with frequent fine-medium sub-rounded-rounded rock fragments and gravel. Slightly friable.			
2.45	D					2.30	74.17	
3.00	D		18		Very stiff - hard friable red brown becoming grey brown silty sandy CLAY with abundant fine-medium weathered rock fragments and rounded gravel. Zones of weaker red brown friable very sandy clay noted at 2.45.			
3.50-4.00	U(100)	145	16					
3.95	D		16			3.90	72.57	
4.50	D		15		Very stiff to hard dark grey and dark grey brown fissured silty slightly sandy CLAY with abundant fine-medium rock fragments, rounded gravel, and fine pockets of silt or sand (completely weathered rock fragments).			
5.0-5.40	U(120)							
6.00	D		13					
6.35	S**							
6.40	D					6.50	69.97	
Drill Run	Fluid Return	Core Recovery	FI	RQD				
7.20	100%	100%	-	-	Strong grey and grey green limestone and siltstone BOULDERS (< 0.3 thick), with layers of very stiff dark red brown sandy CLAY, and fine medium and coarse sandstone, siltstone, flint and quartite rounded - sub-rounded gravel towards base.			
7.80	100%	100%	-	-				
8.30	100%	100%	-	-				
8.70	100%	100%	-	-				
8.80	100%	70%	-	-				
9.50	100%	100%	-	-				
9.80	100%	100%	-	-	Continued from 10.00	10.00	66.47	

Drilling

Type	From	To	Size	Fluid
Shell & Auger	G.L	6.50	0.15	- -
Rotary Core	6.50	15.00	0.072	water

Ground Water

Struck	Behaviour	Sealed	Date	Hole	Cased	Water
	Stood at 5.40 overnight		18.3.81	GL	-	-
			18.3.81	4.50	NIL	NIL
			19.3.81	9.50	6.0	GL

Remarks Rock Chisel used to penetrate boulder 4.30-4.40 (0.5 hours) and 4.50-5.0 hard strata from 6.35-6.50
**No penetration possible

Borehole Record

exploration associates

Project Department of Transport
A564 Stoke - Derby Link
Derby Southern By Pass
Isley Walton to M1 Section
Preliminary Site Investigation

Contract S2796

Borehole B9

Sheet 1 of 2

EX1

SK 42 NE/156

Sampling		Properties			Strata			
Drill Run	Fluid Return	Core Recovery	FI	RQD	Description	Depth	Level	Legend
10.00					Continued from 10.00	10.00	66.47	
	100%	*	-	-	as above but with rounded and angular limestone, quartz and sandstone gravel in matrix of firm silty clay			
10.50	100%	100%	-	-				
10.90	100%	100%	-	-				
11.00	100%	100%	15	30		11.10	65.37	
11.50	100%	95%	4	70	Dark reddish brown, fine grained very thinly bedded moderately weathered silty MUDSTONE weak to moderately weak, closely spaced joints with more highly weathered zones of firm silty CLAY and occasional bands of medium strong to strong siltstone (80mm)			
13.00	100%	100%	>25	50	As above but slightly weathered and joints <20mm to 150mm i.e. extremely closely spaced to closely spaced.	13.00	63.47	
14.00	100%	100%	10	35				
15.00					End of Borehole	15.00	61.47	

Drilling					Ground Water						
Type	From	To	Size	Fluid	Struck	Behaviour	Sealed	Date	Hole	Cased	Water
								23.3.81	10.50	10.00	G.L
								24.3.81	15.00	10.50	G.L

Remarks *Gravel and cobbles recovered after 15 attempts to core
Note: Most joints horizontal. Bedding within 5° of horizontal

Borehole Record

exploration associates

Project Department of Transport
A564 Stoke – Derby Link
Derby Southern By Pass
Isley Walton to M1 Section
Preliminary Site Investigation

Contract S2796

Borehole 89

Sheet 2 of 2

EX1a

SK 45407 25338

SK 42NE/157.

Sampling		Properties			Strata			
Depth	Type	Strength kN m²	w %	SPT N	Description	Depth	Level	Legend
					Turf over TOPSOIL	G.L	83.77	
0.30	D				Soft-Firm light brown and brown silty sandy CLAY with fine-medium strong angular rock fragments and fine gravel.	0.20	83.57	
0.50-0.90	U(70)	80	19					
					BOULDER	0.90	82.87	
1.60	D		9		Firm-Stiff friable light brown silty very sandy CLAY with fine medium and coarse angular rock fragments and gravel.	1.50	82.27	
2.00-2.45	SD			44				
2.80	D				Soft-firm very friable light red brown very silty fine sandy CLAY/clayey sandy SILT and fine SAND. Shear surfaces within the silty CLAY.	2.80	80.97	
3.00-3.35	U(75)		19					
3.80	D		21		Firm friable red brown coarse sandy CLAY with black carbonaceous fragments.	3.70	80.97	
4.50-4.95	U(80)					4.80	78.97	
5.50	D				(Very dense) matrix of very stiff brown red brown and grey brown silty sandy CLAY, fine medium and coarse angular rock fragments, GRAVEL and COBBLES.			
6.00	SD		9	**				
7.30	S			**				
8.30	D					8.30	75.47	
8.50-8.65	SD		15	200+	Very weak weathered dark red brown SILTSTONE	8.50	75.27	
Drill Run	Fluid Return	Core Recovery	FI	RQD				
	100%	85%	>25	NIL	As above, though broken in a matrix of firm silty clay and containing several pieces of rounded quartz gravel ***			
9.70-9.75	SD			300+		9.5	74.27	
					See over Continued from 10.00	10.00	73.77	

Drilling					Ground Water						
Type	From	To	Size	Fluid	Struck	Behaviour	Sealed	Date	Hole	Cased	Water
Shell & Auger	G.L	7.30	0.15	-	NIL	Water flush returns lost at 11.00		25.3.81	G.L	-	-
Rotary Core	7.30	7.50	0.072	water				25.3.81	7.00	7.00	NIL
Shell & Auger	7.50	8.50	0.15	-				26.3.81	8.5	8.3	7.3
Rotary Core	8.50	13.00	0.072	water				27.3.81	13.0	8.3	NIL

Remarks Rock chisel used from 0.9-1.5, 3.4-3.6, 5.0-5.8 (5.5 hours) 7.0-7.3, 7.5-8.5 (4 hours)
** No penetration. Standpipe installed to 13.0m with bottom 2m perforated and surounded with gravel
***May be disturbed from casing installation

Borehole Record

exploration associates

Project Department of Transport
A564 Stoke - Derby Link
Derby Southern By Pass
Isley Walton to M1 Section
Preliminary Site Investigation

Contract S2796

Borehole 10

Sheet 1 of 2

EX1

SK 42 NE/157

Sampling		Properties			Strata			
Drill Run	Fluid Return	Core Recovery	FI	RQD	Description	Depth	Level	Legend
	100%	75%	15	35	Continued from 10.00 Dark reddish brown fine grained, very thinly bedded mod-highly weathered silty MUDSTONE - very weak, occasional moderately weak, extremely closely bedded (<20) with bands of grey green strong SILTSTONE.	10.00	73.77	
11.00	NIL	100%	10	65				
11.50	NIL	60%	clay	clay	Dark reddish brown silty CLAY with mudstone fragments.	11.60	72.17	
12.00	NIL	90%	15	NIL	Dark reddish brown becoming grey green fine grained highly weathered silty MUDSTONE becoming siltstone very weak with extremely closely spaced predominant horizontal joints. 2 vertical joints noted with bands of grey green strong siltstone and bands of completely weathered siltstone and bands of firm silty CLAY (up to 200mm).	12.00	71.77	
13.00					End of Borehole	13.00	70.77	

Drilling					Ground Water						
Type	From	To	Size	Fluid	Struck	Behaviour	Sealed	Date	Hole	Cased	Water

Remarks Bedding with 5° of horizontal

Borehole Record

exploration associates

Project Department of Transport
A564 Stoke - Derby Link
Southern Derby By Pass
Isley Walton to M1 Section
Preliminary Site Investigation

Contract S2796

Borehole 10
Sheet 2 of 2

EX1a

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Borehole Number
M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2	RC1075

Machine:	Casing Diameter	Ground Level (mOD)	Client	Job Number
Flush :	140mm cased to 2.25m	84.85	Highways Agency	WAL060099
Core Dia: mm	Location	Dates	Engineer	Sheet
Method :	446944 E 325439 N	23/01/2007-24/01/2007	Arup	1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00	PIT		0	0	Groundwater was not apparent during boring(1) at 0.00m.			Inspection Pit.		▽1
	O/H		0	0			(1.20)			
1.20						83.65	1.20	Open Hole.		
	93	0	0	0			(1.00)			
2.20					23/01/2007:DRY	82.65	2.20	Firm locally fissured red brown slightly gravelly CLAY. Gravel is subrounded, fine to coarse of mudstone.		
			0	0	23/01/2007: 23/01/2007:		(0.75)			
2.95					24/01/2007:	81.90	2.95	Between 2.85m and 2.95m; moderately weak, light grey siltstone.		
	93	0	0	0				Stiff CLAY to very weak, red brown MUDSTONE, with widely spaced very thin to thin beds of light grey moderately strong siltstone. Discontinuities: extremely closely and very closely spaced, randomly orientated, rough and smooth, occasionally stained black.		
3.60-3.92					25/21,37,44,50 SPT 25'/75 152/247					
3.60	87	12	0	0						
5.10-5.36					25/27,39,50 SPT 25'/75 116/186					
5.10								From 5.10m to 5.30m; assumed zone of core loss.		
6.00	100	8	0	0	P1		(6.65)			
6.60-6.72					25/50 SPT 25'/75 50/42					
6.60	78	10	7	0						
8.10-8.19					25/50 SPT 25'/75 50/18					
8.10								From 8.10m to 8.43m; assumed zone of core loss.		
9.05	100	32	10	0	P2					
9.60-9.71					25/50 SPT 25'/75 50/32					
9.60						75.25	9.60	Weak variably stiff clay to moderately weak, red brown MUDSTONE, with widely spaced very thin and thin beds of weak and moderately strong, light grey SILTSTONE.		

Remarks

Scale (approx)	Logged By
1:50	OP

Figure No.

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British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site: M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2

Borehole Number: RC1075

Machine:	**Casing Diameter:** 140mm cased to 2.25m	**Ground Level (mOD):** 84.85	**Client:** Highways Agency
Flush :			**Job Number:** WAL060099
Core Dia: mm	**Location:** 446944 E 325439 N	**Dates:** 23/01/2007-24/01/2007	**Engineer:** Arup
Method :			**Sheet:** 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	67	15	0	0				Moderately to widely interbedded zone I and zone II. Discontinuities: zone II areas - extremely closely fractured, randomly orientated, rough and smooth. Zone I areas - vertical, undulating, rough, occasionally black staining and clay infill, very closely to medium spaced. Horizontal and subhorizontal, rough and smooth, clean, moderately to widely spaced, 60 degrees, rough, with some black staining.		
10.90					P3					
11.10 11.10-11.20					25/50 SPT 25*/75 50/21			From 11.10m to 11.60m; assumed zone of core loss.		
	97	26	9	0						
12.60										
13.10	100	40	15	0	P4		(7.60)			
14.10 14.10-14.21					25/50 SPT 25*/75 50/37					
14.80	100	38	23	0	P5					
15.60										

Sample / Tests	Casing Depth (m)	Water Depth (m)
16.84-17.20 U6		

		24/01/2007:DRY	
67.65	17.20	24/01/2007:	Complete at 17.20m

Remarks

Scale (approx)	Logged By
1:50	OP

Figure No.

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Version 2.0.6.6

BGS ID: 18913774 : BGS Reference: SK42NE711
British National Grid (27700) : 446847,325114

Report an issue with this borehole

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Trial Pit Number
M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2	TP1069

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		82.45	Highways Agency	WAL060099
	Location	**Dates**	**Engineer**	**Sheet**
	446847 E 325114 N	12/10/2006	Arup	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
			Trial pit was damp with dripping water at 2.80m(1) at 0.00m.	82.25	(0.20) 0.20	Grey brown slightly gravelly clayey TOPSOIL with frequent rootlets. Gravel is medium to coarse, subangular to subrounded of sandstone.	V1	
0.50	B1				(0.60)	Soft to firm orange brown slightly sandy gravelly CLAY. Gravel is medium to coarse, subangular to subrounded of sandstone, quartz and occasional to some subangular to subrounded cobbles of quartz and sandstone. Occasional roots.		
1.00	B2			81.65	0.80			
1.50	D3				(2.00)	Firm to stiff pink brown locally slightly sandy CLAY with occasional to some mudstone lithorelics, locally friable. Occasional cobble sized pockets of green grey silt.		
2.00	B4					At 1.80m; pocket of slightly clayey medium grained sand. From 1.90m; locally laminated clay with frequent lithorelics. Occasional bands (up to 40mm thick) of moderately strong sandstone/siltstone.		
2.50	D5					Below 2.50m; locally a weak siltstone.		
3.00	B6			79.65	2.80	At 2.80m; damp. Orange pink brown weak to moderately strong SILTSTONE. Retrieved as a silt with frequent lithorelics and cobbles of siltstone. Some bands of grey green siltstone.		
3.50	D7				(1.20)			
4.00	B8		12/10/2006:	78.45	4.00	Complete at 4.00m		
			12/10/2006:					

Plan

Remarks

Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. Services were not encountered.;No visual or olfactory indication of contamination was observed.;On completion the trial pit was backfilled with compacted arisings. ;

Scale (approx)	Logged By	Figure No.
1:50	MW	

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SK 42 SE/155

SCOTT WILSON KIRKPATRICK & PARTNERS
Consulting Engineers & Transportation Planners

BIRMINGHAM – NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH MAIN SITE INVESTIGATION
CONTRACT 2

4672 2435

BOREHOLE No 232
FIGURE A1
Sheet 1 of 1

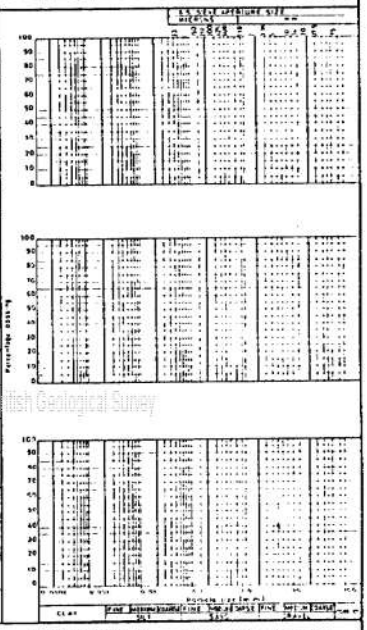
Field Work by: Exploration Associates (Warwick) Limited
Method: Cable Percussion
Dates: 24.8.84
Hole Dimensions 150mm
Casing Dimensions 150mm

Coordinates: 86742.8 E
94392.8 N
Ground Level: 54.84 m OD

Laboratory testing by: Dates

Dates	Depth of Casing	Depth to Water	Sample/Insitu Test Depth	Sample/Insitu Test Type & Number	Change of Strata Legend	Change of Strata Depth m	Change of Strata Reduced Level	Description of Strata
24.8.84	-	-				0.10	54.74	TOPSOIL
			0.50	J1				Stiff brown silty CLAY. (GLACIAL TILL)
				(35)2		0.50	54.34	
			0.95					Stiff red brown mottled light brown silty CLAY with many mudstone lithorelicts. (KEUPER MARL : ZONE III
			1.00	J3		1.00	43.84	
				S(20)				Stiff red brown and grey green fissured silty CLAY and very silty clay with many mudstone and siltstone lithorelicts. (KEUPER MARL : ZONE II/III) Very stiff in parts. Bands of weak and very weak mudstone and siltstone below 2.50m
			1.45	J4				
			1.80	J5				
			2.00					
				(70)8				
			2.45					
			2.50	J7				
				S(53)				
			2.95	J8				
			3.30	J9		3.34	51.54	
			3.50					Stiff red brown mottled grey green highly fissured silty CLAY with many mudstone lithorelicts and occasional bands of weak and very weak siltstone (KEUPER MARL : ZONE II/III)
				(85)11				
		Slight Water at ~4m	2.75					
			2.00					
				S(72)				
			4.45	J11				
			4.90	J12				
			5.50			5.50	48.34	
				S(107)				Weak and very weak red brown slightly mottled grey green fissured MUDSTONE. (KEUPER MARL : ZONE I)
			5.95	J13				
			6.20	J14				
			6.50					
				SPT 50 for 150mm*				
24.8.84	6.00	Dry	6.95	J15		7.00	47.84	
								End of Shell and Auger Hole. * Seating Blows – J15 = 34

Sample/Pocketmeter/Vanetest	Sample Number	Natural Moisture Content (%)	Natural Dry Density (kg/m³)	Liquid Limit (%)	Plastic Limit (%)	% passing 425 microns
	2	15	1840	31	19	100
	6	16	1910			
	9	19				
	11	15 16				



Scale 1:

Disturbed Samples : W – Groundwater
B – Bulk
M – Mazi

Undisturbed Samples : Soil Sample

Insitu Tests : V (30) – Vane shear strength in KN/m²

Groundwater first struck

Core Cutter Density
Core Cutter Density/C.B.R

Sandbottle Density
C.B.R

C or S SPT – no of blows or spoon
N value

British Geological Survey

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site: M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2

Borehole Number: RC1064

Machine:	**Casing Diameter:** 140mm cased to 3.00m	**Ground Level (mOD):** 62.30	**Client:** Highways Agency	**Job Number:** WAL060099
Flush :				
Core Dia: mm	**Location:** 446759 E 324588 N	**Dates:** 18/01/2007	**Engineer:** Arup	**Sheet:** 1/2
Method :				

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00	PIT		0	0				Inspection Pit.		
	OH		0	0			(1.20)			
1.20						61.10	1.20	Open Hole.		
	61	4	0	0			(1.80)			
3.00						59.30	3.00	Generally stiff to very stiff (variably very weak mudstone with depth) extremely closely fissured red brown locally mottled grey green slightly gravelly CLAY. Gravel is angular to subangular, fine to medium lithorelics of mudstone.		
	80	0	0	0				Between 3.90m and 4.50m; assumed zone of core loss.		
4.50-4.88					25/11,14,19,21 SPT 25'/75 N=65					
4.50	60	0	0	0			(3.50)			
6.00-6.18					25/26,50 SPT 25'/75 76/106					
6.00			0	0				Between 6.00m and 6.50m; non intact.		
6.50			0	0		55.80	6.50	Generally very weak (variably very stiff clay to moderately weak) red brown calcareous MUDSTONE with rare very thin beds of moderately weak light grey green siltstone. Recovered in very thin beds as very clayey angular fine to medium gravel . Fractures: where evident subvertical, extremely closely spaced, planar to irregular.		
6.90								Between 6.90m and 7.50m; assumed zone of core loss.		
7.50-7.69	100	0	0	0	25/39,50 SPT 25'/75 89/117		(1.60)			
7.50			0	0				Between 7.50m and 7.80m; non intact.		
7.80			0	0	Water strike(1) at 8.00m, no rise after 20 mins.					▼1
8.10						54.20	8.10	Generally moderately weak (variably weak to moderately strong) red brown calcareous MUDSTONE. Fractures: horizontal, extremely closely to closely spaced, smooth, planar with soft clay infill up to 5mm; subvertical, locally very closely spaced, smooth, planar; frequent others irregular, apparently random strike.		
9.00-9.09	97	47	21	0	25/50 SPT 25'/75 50/10 P1					
9.00								Between 9.00m and 9.90m; with closely spaced very thin beds of moderately weak grey green siltstone; fractures are horizontal, very closely to closely spaced, planar; rare subvertical, planar fractures.		
9.20			0	0			(2.80)			
9.90										

Remarks

Scale (approx)	Logged By
1:50	TL

Figure No.

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British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site			**Borehole Number**
M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2			**RC1064**
Machine:	**Casing Diameter**	**Ground Level (mOD)**	**Client**
Flush :	140mm cased to 3.00m	62.30	Highways Agency
Core Dia: mm	**Location**	**Dates**	**Engineer**
Method :	446759 E 324588 N	18/01/2007	Arup
Job Number			WAL060099
Sheet			2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	100	36	34	0			(2.80)			
10.50					25/37,50					
10.50-10.68			0	0	SPT 25'/75 87/100			Between 10.45m and 10.60m; thin bed of stiff friable silt/clay.		
10.65					P2	51.40	10.90			
10.90			0	0				Moderately strong light grey green locally mottled red brown SILTSTONE with occasional rounded fine gravel size dissolution vugs. Fractures: subhorizontal, very closely to medium spaced, planar; vertical generally irregular.		
11.45			0	0						
11.60	87	75	53	0			(1.95)			
12.00										
12.00-12.32			0	0	U3					
12.75					P4	49.45	12.85			
12.85	91	50	24	0				Weak to moderately weak red brown locally mottled grey green calcareous MUDSTONE with medium spaced thin beds of moderately strong light grey green siltstone. Fractures: horizontal, very closely to closely spaced, planar, occasionally undulating; subvertical, locally very closely spaced, planar to irregular; others irregular, apparently random strike.		
13.50	**Sample / Tests**		**Casing Depth (m)**	**Water Depth (m)**			(2.15)			
14.05	P5									
					18/01/2007:	47.30	15.00			
					18/01/2007:			Complete at 15.00m		

Remarks

Scale (approx)	Logged By
1:50	TL

Figure No.

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APPENDIX D
STRUCTURAL SOILS BOREHOLE LOGS & LAB TESTS

STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.09.22** End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**1** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10-0.10	1	D									TOPSOIL	(0.35)	
0.10-0.30	2	B										0.35	
0.50-0.50	101	ES	1xT+1xJ+1xV								Very stiff reddish brown, mottled grey, slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse mudstone lithorelics. (MERCIA MUDSTONE GROUP)		
0.50-0.50	3	D											
0.50-1.00	4	B											
1.00-1.00	102	ES	1xT+1xJ+1xV										
1.10-1.10	5	D											
1.20-1.50	6	$UT_{(UT100)}$	150 blows 83% recovery										
1.50-1.70	7	D											
1.70-1.70	8	D											
2.00-2.45		SPT	N=36										
2.00-2.45	10	DSPT											
2.00-2.45	11	B										(4.10)	
2.70	12	D											
3.00-3.45		SPT	N=51										
3.00-3.45	15	DSPT											
3.00-3.45	16	B											
3.70	17	D											
4.00-4.45		SPT	N=66										
4.00-4.45	19	DSPT									. . . 4.00-4.45m: becoming orangish in colour	4.45	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
05/09/22	16:31	2.50	2.50	200	Dry
06/09/22	07:52	2.50	2.50	200	Dry
06/09/22	12:00	4.45	3.00	200	-
13/09/22	09:00	4.45	None	200	
13/09/22	17:00	11.25	4.45	146	10.90
14/09/22	08:30	11.25	4.45	146	5.90
14/09/22	17:00	30.75	4.45	146	28.15

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.80	4.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 200mm diameter tools and casing.
4. SPT hammers AR3104-2022 (E_r = 64.00%) , AR3830-2021 (E_r = 67.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.09.22** End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**2** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.45-5.25 (0:03)				88	78	44		Air+Mist (Brown)			Extremely weak to weak reddish brown MUDSTONE. Occasional grey pockets of siltstone. GRADE III. Bedding fractures: Closely spaced, 0-10°, undulating, rough, with abundant black staining. Rare reddish brown silty clay infill. (MERCIA MUDSTONE GROUP)		
				88	78	44						(0.80)	
5.00-5.12	20	C									. . . 4.45-4.55m: AZCL.*(stratum copied* from 4.45m from previous sheet)		
											. . . 4.55-4.64m: Grey siltstone.	5.25	
5.25-6.75 (0:06)											. . . 4.73-4.75m: 4°, undulating, rough, abundant black staining, clay infill >3mm. . . . 4.85-4.87m: 9° undulating rough occasional black stained infill silty clay >3mm. . . . 4.96-4.99m: 8°, undulating, rough, >3mm infill clay. Grey silstone. . . . 5.10-5.11m: 3°, undulating, rough, >3mm infill clay. . . . 5.15-5.17m: Grey siltstone. . . . 5.22-5.25m: Grey siltstone with 5°, undulating, rough fracture, >3mm clay infill.		
5.80-5.90	21	D											
				85	21	0		Air+Mist (Brown)				(1.65)	
6.75-8.25 (0:04)											Extremely weak reddish brown, locally thinly laminated, MUDSTONE. Occasional to frequent pockets of grey siltstone. Bedding fractures: Closely spaced, 0-10°, undulating, rough and smooth, with occasional to abundant black staining. Fracture set 2: Widely spaced, 60-80°, undulating, rough, occasional black staining.		
												6.90	
6.75-7.20		SPT	N=91								(MERCIA MUDSTONE GROUP) . . . 5.25-5.43m: AZCL. . . . 5.43-5.47m: Fine to medium grained broken sandstone. . . . 5.49-5.68m: Thinly laminated grey siltstone. . . . 5.68-5.80m: Abundant black stained incipient fractures. . . . 6.01-6.02m, 6.46-6.48m and 6.60-6.75m: Grey siltstone.		
7.40-7.60	22	C											
				90	83	83		Air+Mist (Brown)					
8.25-9.75 (0:04)											Extremely weak to weak reddish brown MUDSTONE. CIRIA GRADE III. Bedding fractures: Widely spaced, 0 to 10°, undulating, rough with occasional black staining. Rare clay infill. Occasional to abundant yellow staining. (MERCIA MUDSTONE GROUP) . . . 8.25-8.35m: Drilling disturbed.		
				100	93	93		Air+Mist (Brown)			. . . 8.62-8.70m: 8° undulating rough occasional black staining with clay infill >3mm.	(3.58)	
8.83-8.94	23	C									*Description on next sheet*		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.09.22** End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**3** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	93	93		Air+Mist (Brown)			. . . 8.77-8.79m: 5° undulating rough abundant black stained >3mm silty clay. Extremely weak to weak reddish brown MUDSTONE. CIRIA GRADE III. Bedding fractures: Widely spaced, 0 to 10°, undulating, rough with occasional black staining. Rare clay infill. Occasional to abundant yellow staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 6.90m from previous* sheet) . . . 9.26-9.29m: Weak grey siltstone. . . . 9.75-9.82m: Drilling disturbed.		
9.75-11.25 (0:05)													
10.28-10.48	24	C										10.48	
				95	95	95		Air+Mist (Brown)			Extremely weak reddish brown thinly to thickly laminated MUDSTONE. Locally interbedded with weak grey siltstone. Bedding fractures: Closely to widely spaced, subhorizontal, planar, undulating, occasional to abundant black staining. (MERCIA MUDSTONE GROUP) . . . 11.04-11.14m: Interbedded with grey siltstone.		
10.70-10.96	25	C											
11.25-12.75 (0:06)											. . . 11.25-11.36m: Gravelly silty clay.		
11.38-11.70	26	C											
				100	65	54		Air+Mist (Brown)			. . . 11.71-11.73m: Grey siltstone. . . . 11.80-11.96m: Extremely weak thickly laminated mudstone, interbedded with weak siltstone. . . . 11.91-11.96m: Clay . . . 12.28-12.46m: Siltstone and mudstone. . . . 12.55-12.75m: NI.		
12.75-14.25 (0:07)													
				100	95	89		Air+Mist (Brown)					

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.09.22** End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**4** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thick ness)	Material Graphic Legend
				100	95	89		Air+Mist (Brown)			Extremely weak reddish brown thinly to thickly laminated MUDSTONE. Locally interbedded with weak grey siltstone. Bedding fractures: Closely to widely spaced, subhorizontal, planar, undulating, occasional to abundant black staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 10.48m from previous sheet)*	(6.77)	
14.25-15.75 (0:04)	27	C									. . . 13.50-13.53m: Grey siltstone.		
14.26-14.50											. . . 13.53-13.55m: Sandstone.		
14.56-14.69	28	C									. . . 13.55-13.57m: 4°, clay infill.		
											. . . 13.57m: Thinly interlaminated with siltstone (<10mm)		
											. . . 13.86-13.89m: 11°, incipient, planar, rough, abundant black staining.		
											. . . 13.86-13.90m: Siltstone.		
				87	75	75		Air+Mist (Brown)			. . . 13.89-14.07m: 88°, incipient, planar, rough, occasional black staining.		
											. . . 14.25-14.45m: AZCL.		
											. . . 14.71-14.72m: 5°, clay infill, undulating, rough.		
											. . . 14.87-14.89m: 9°, clay infill, undulating, rough.		
15.38-15.47	29	D									. . . 15.38-15.46m: Clay.		
											. . . 15.38-15.59m: Locally interbedded with reddish clay.		
											. . . 15.59-15.64m and 15.70-15.75m: NI.		
15.75-17.25 (0:04)											. . . 15.75-15.83m: Grey siltstone.		
											. . . 15.83-15.85m: Planar, rough, clay infill.		
											. . . 15.90-16.08m: 82°, undulating, rough, abundant black staining, incipient.		
											. . . 15.95-16.23: Clay and mudstone.		
16.23-16.34	30	C											
											. . . 16.35-16.37: Clay and mudstone.		
				100	86	71		Air+Mist (Brown)			. . . 16.38-16.59m: 63°, undulating, rough, occasional black staining, incipient.		
											. . . 16.45-16.79: Clay and mudstone.		
											. . . 16.51-16.65m: 66° undulating rough occasional black staining incipient.		
											. . . 16.89-16.95m: Clay, siltstone and mudstone.		
											. . . 17.05-17.16m: 83° undulating ough abundant black staining incipient.	17.25	
17.25-18.75 (0:05)											Extremely weak to weak unbedded MUDSTONE. Occasional grey siltstone beds (<90mm). GRADE II. (MERCIA MUDSTONE GROUP)		
				100	82	73		Air+Mist (Brown)			. . . 17.25-17.31m: NI.		
											. . . 17.51-17.57m: NI. Rare black staining on discontinuity surfaces.		
											. . . 17.70-17.73m: NI. Thinly laminated. *Description on next sheet*		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.09.22** End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**5** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
17.93-18.18	31	C		100	82	73		Air+Mist (Brown)			. . . 17.73-17.93m: 77° undulating rough abundant black staining and occasional yellow staining. Extremely weak to weak unbedded MUDSTONE. Occasional grey siltstone beds (<90mm). GRADE II. (MERCIA MUDSTONE GROUP) . . . 17.25-17.31m: NI.*(stratum copied from* 17.25m from previous sheet) . . . 18.18-18.22m: 15° planar rough occasional black staining. . . . 18.20-8.30m: 60° undulating rough abundant black staining. . . . 18.30-18.36m: Clay. . . . 18.42-18.43m: 7° planar rough occasional black staining. . . . 18.42-18.50m: 70° undulating rough abundant black staining. . . . 18.50-18.56m: 35° planar rough abundant black staining. . . . 18.67-18.73m: Grey siltstone. . . . 18.78-19.05m: 87° planar rough rare black staining incipient. . . . 19.50-19.52m: Grey siltstone. . . . 19.62-19.67m: Grey siltstone. . . . 19.96-20.03m: 52° undulating rough occasional black staining incipient.	(3.00)	
18.75-20.25 (0:04)													
19.50-19.82	32	C		100	100	100						20.25	
20.25-21.75 (0:06)				100	100	100		Air+Mist (Brown)			Extremely weak reddish brown, mottled grey, unbedded MUDSTONE. Occasional to frequent, closely spaced beds of grey siltstone. (MERCIA MUDSTONE GROUP) . . . 20.25-20.51m: Medium strong grey siltstone. . . . 20.80-21.05m: Thinly and thickly cross laminate.		
21.14-21.37	33	C											
21.37-21.58	34	C									. . . 21.37-21.80m: Medium strong grey siltstone.		
21.75-23.25 (0:05)				100	100	100		Air+Mist (Brown)			. . . 21.64-21.70m: 23°, undulating, rough, >3mm clay infill, occasional black staining. . . . 21.80-21.92m: Medium strong grey siltstone.	(3.23)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	AGS

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.09.22** End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**6** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.51-22.76	35	C		100	100	100		Air+Mist (Brown)			Extremely weak reddish brown, mottled grey, unbedded MUDSTONE. Occasional to frequent, closely spaced beds of grey siltstone. (MERCIA MUDSTONE GROUP) . . . 20.25-20.51m: Medium strong grey siltstone.*(stratum copied from 20.25m from* previous sheet)	23.48	
23.25-24.75 (0:07)													
23.68-24.02	36	C		100	100	100		Air+Mist (Brown)			Weak to medium strong reddish brown, mottled grey, fine and medium grained silty SANDSTONE. Frequent beds of grey siltstone. (MERCIA MUDSTONE GROUP)	(0.64) 24.12	
24.75-26.25 (0:06)											Weak reddish brown, mottled grey, unbedded MUDSTONE. Occasional to frequent beds of grey siltstone. (MERCIA MUDSTONE GROUP)		
24.75-24.98	37	C		100	100	100		Air+Mist (Brown)			. . . 25.39-25.46m: 39° undulating rough occasionally yellow staining incipient fracture. . . . 25.40-25.46m: 26° undulating rough occasionally yellow staining incipient fracture. . . . 25.44-25.49m: 29° undulating rough occasionally yellow stained incipient fracture.		
26.25-27.75 (0:06)				100	100	100		Air+Mist (Brown)			. . . 26.41-26.46m: Medium strong grey siltstone. . . . 26.67-26.72m: Medium strong grey siltstone.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.09.22** End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**7** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.23-27.49	38	C		100	100	100		Air+Mist (Brown)			Weak reddish brown, mottled grey, unbedded MUDSTONE. Occasional to frequent beds of grey siltstone. (MERCIA MUDSTONE GROUP) *(stratum copied from 24.12m from previous* sheet)	(6.63)	
27.75-29.25 (0:07)				100	100	100		Air+Mist (Brown)			. . . 27.13-27.26m: Weak to medium strong grey siltstone. . . . 27.25-27.30m: 21° planar rough occasional yellow staining incipient. . . . 27.26-27.48m: Reddish brown sandy MUDSTONE. . . . 27.88-27.92m: 20° planar rough. Rare black staining incipient. . . . 28.13-28.23m: Weak grey siltstone.		
28.61-29.00	39	C											
29.25-30.75 (0:05)				97	97	97		Air+Mist (Brown)			. . . 29.28-29.78m: Interbedded with weak grey siltstone.		
29.76-29.98	40	C											
											. . . 30.26-30.32m: Medium strong grey siltstone. . . . 30.41-30.49m: 51° undulating rough occasionally stained yellow, incipient.	30.75	
											Borehole terminated at 30.75m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	AGS

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**8** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**9** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**10** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**11** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**12** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**13** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**14** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**15** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH01**
Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**89.22**	**E:446551.3 N:325384.8**	**16** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.09.22** End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**1** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											TOPSOIL	0.20	
0.30	1	D									Firm to stiff brown slightly sandy gravelly CLAY. Low boulder content. Gravel is angular to rounded coarse of sandstone and mudstone.	0.40	
0.30-0.50	2	B											
0.50	101	ES	1xT+1xJ+1xV								Very stiff dark brown slightly sandy slightly gravelly clayey SILT. Sand is fine and coarse. Gravel is subangular and subrounded quartzite, sandstone and siltstone.	(0.60)	
0.70	3	D											
0.70-1.00	4	B										1.00	
1.00	102	ES	1xT+1xJ+1xV								Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine and medium and mudstone derived. Gravel is angular to subangular fine and medium extremely weak mudstone lithorelics. (MERCIA MUDSTONE GROUP)		
1.20	5	D											
1.20-1.55	6	$UT_{(UT100)}$	150 blows 100% recovery										
1.55-1.65	7	D									. . . 1.00-4.15m: frequent thin laminae (<2mm) of siltstone.		
1.70	8	D											
2.00-2.45		SPT	N=35										
2.00-2.45	10	DSPT											
2.00-2.45	11	B										(3.00)	
2.70	12	D											
3.00-3.36		SPT	6,8/16,19,15 for 60mm										
3.00-3.36	14	DSPT											
3.00-3.36	15	B											
3.70-3.70	16	D										4.00	
4.00-5.00 (0:07)											AZCL. (MERCIA MUDSTONE GROUP)		
4.00-4.42		SPT	3,8/12,14,14,10 for 40mm	45	0	0		Air+Mist (Brown)				(0.55)	AZCL
4.00-4.42	18	DSPT											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
06/09/22	17:49	3.40	3.00	200	Dry
07/09/22	08:06	3.40	3.00	200	Dry
07/09/22	11:00	4.00	2.00	200	-
16/09/22	08:50	8.00	4.00	146	6.40
16/09/22	15:25	21.50	4.00	146	20.60
15/09/22	14:00	4.00	None	200	3.50
15/09/22	17:00	8.00	4.00	146	7.65

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.00	3.40	00:30
3.40	4.00	00:45

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 200mm diameter tools and casing.
4. SPT hammers AR3104-2022 (E_r = 64.00%) , AR3830-2021 (E_r = 67.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.09.22** End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**2** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thick ness)	Material Graphic Legend
											Firm to stiff reddish brown slightly sandy gravelly CLAY with rare fine to medium gravel size pockets of silt. Sand is fine to coarse and mudstone derived. Gravel is angular to subangular fine to medium mudstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP)	4.55	AZCL
4.90	19	D		45	0	0		Air+Mist (Brown)					
5.00-6.50 (0:07)											. . . 5.00-5.30m: AZCL.		
				80	0	0		Air+Mist (Brown)				(2.70)	
6.30	20	D											
6.50-7.25 (0:03)											. . . 6.50-6.90m: AZCL.		
6.50-6.95		SPT	N=41	47	0	0		Air+Mist (Brown)					
7.20	21	D										7.25	
7.25-8.00 (0:03)											Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, tight, black staining on surfaces. (MERCIA MUDSTONE GROUP)		
7.55-7.70	22	C		109	109	85		Air+Mist (Brown)				(1.00)	
8.00-9.50 (0:00)												8.25	
				97	15	0		(Brown)			Extremely weak reddish brown MUDSTONE thinly interbedded with very weak greenish grey siltstone and beds of reddish brown thinly laminated clay. GRADE II. (MERCIA MUDSTONE GROUP) . . . 8.40-8.42m: Greenish grey siltstone. . . . 8.75-9.15m: NI, recovered as angular to subrounded fine to medium gravel of		
8.90	23	D											

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.09.22** End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**3** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thick ness)	Material Graphic Legend
				97	15	0		(Brown)			mudstone. Extremely weak reddish brown MUDSTONE thinly interbedded with very weak greenish grey siltstone and beds of reddish brown thinly laminated clay. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 8.25m from previous* sheet) . . . 9.50-10.10m: No siltstone laminae / beds.	(2.05)	
9.50-11.00 (0:00)													
				97	45	20		(Brown)			. . . 10.10-10.15m: NI. . . . 10.15m: Siltstone.	10.30	
10.60	24	D									Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Very closely spaced, randomly orientated, smooth, planar, undulating, black staining on surfaces. (MERCIA MUDSTONE GROUP) . . . 10.30-10.80m: Frequent fine to coarse gravel size pockets of greenish grey siltstone. . . . 10.30-13.55m: Heavily fissured with sample breaking easily when handled.		
11.00-12.50 (0:00)													
11.50-11.75	25	C									. . . 11.20-12.00m: Occasional fine to medium gravel size pockets of greenish grey siltstone.		
				100	67	20		(Brown)				(3.85)	
											. . . 12.25-12.30m: Reddish brown very sandy CLAY.		
12.50-14.00 (0:00)													
				100	80	40		(Brown)					

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.09.22** End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**4** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.70-13.85	26	C		100	80	40		(Brown)			. . . 13.55-13.70m: Coarse gravel size pockets and lenses of greenish grey siltstone.		
14.00-15.50 (0:00)											. . . 14.00-14.15m: Becoming thinly laminated.	14.15	
14.75-15.20	27	C		90	63	54		(Brown)			Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP) . . . 14.35-14.45m: Recovered as sandy gravel.	(1.15)	
												15.30	
15.50-17.00 (0:00)											Extremely weak reddish brown thinly laminated MUDSTONE thinly interbedded with extremely weak greenish grey siltstone with occasional clay bands along laminae/bedding. (MERCIA MUDSTONE GROUP)	(0.70)	
15.65-15.85	28	C									. . . 15.90m: Thickly laminated siltstone.	16.00	
				97	37	23		(Brown)			Very weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, tight. (MERCIA MUDSTONE GROUP)	(1.15)	
17.00-18.50 (0:00)												17.15	
17.60-17.70	29	C		97	59	30		(Brown)			Extremely weak reddish brown MUDSTONE with fine to coarse gravel sized pockets and lenses (<10mm) of greenish grey siltstone. GRADE II. Bedding fractures: Very closely spaced, rough, planar, infilled with reddish brown clay. (MERCIA MUDSTONE GROUP) . . . 17.20-17.25m: Recovered as fine to medium angular gravel.	(0.40) 17.55	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**5** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				97	59	30		(Brown)			Very weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, smooth, undulating, black staining on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.55m from previous* sheet)		
18.50-20.00 (0:00)											. . . 18.15-18.20m: Very clayey angular to subangular fine gravel of mudstone.		
											. . . 18.35-18.40m: Extremely weak greenish grey siltstone.		
											. . . 18.95-19.00m: Stiff greenish grey silt.		
											. . . 19.00-19.10m: Firm laminated reddish brown gravelly CLAY. Gravel is angular fine mudstone lithorelicts.		
				100	53	40		(Brown)					
19.55-19.65	30	C									. . . 19.45-19.55m: Weak greenish grey fine grained sandstone.	(3.95)	
20.00-21.50 (0:00)											. . . 19.95-20.00m: Greenish grey siltstone.		
											. . . 20.50-20.55m: Coarse gravel size pockets of greenish grey siltstone.		
				90	73	55		(Brown)					
21.00-21.10	31	C											
												21.50	
											Cable percussion borehole terminated at 21.50m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH02**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**6** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH02**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**7** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH02**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**8** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH02**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**9** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH02**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**10** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH02**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**11** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH02**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**77.03**	**E:446011.8 N:324862.5**	**12** of **12**

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Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH03**

Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**1** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											TOPSOIL	(0.35) 0.35	
0.40-0.40	1	D									Stiff reddish brown, mottled grey, slightly sandy gravelly CLAY. Gravel is subangular fine to coarse of mudstone and siltstone lithorelics. Low cobble content of tabular siltstone. Frequent beds (<300mm) of silt / siltstone. (MERCIA MUDSTONE GROUP)		
0.40-0.60	2	B											
0.50-0.50	101	ES	1xT+1xJ+1xV										
0.60-1.00	4	B											
0.70-0.70	3	D											
1.00-1.00	5	D											
1.00-1.45		SPT	N=25										
1.00-1.00	102	ES	1xT+1xJ+1xV										
1.00-1.45	7	DSPT											
1.00-1.45	8	B											
1.70-1.70	9	D											
2.00-2.45		SPT	N=31								. . . Below 2.00m: Very stiff.		
2.00-2.45	11	DSPT											
2.00-2.45	12	B										(4.15)	
2.70-2.70	13	D											
3.00-3.44		SPT	6,8/8,15,15,12 for 60mm										
3.00-3.44	15	DSPT											
3.00-3.45	16	B											
3.70-3.70	17	D											
4.00-5.00 (0:00)											. . . 4.00-4.50m: AZCL.		
4.00-4.39		SPT	4,5/12,15,17,6 for 15mm	45	0	0		(Brown)					
4.00-4.39	19	DSPT										4.50	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
07/09/22	17:10	4.00	3.00	200	-
20/09/22	13:15	4.00	0.00	200	3.80
20/09/22		14.00	4.00	146	13.60

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.50	4.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 200mm diameter tools and casing.
4. Borehole backfilled with bentonite upon completion.
5. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**07.09.22** End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**2** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.80	20	D		45	0	0		(Brown)			Firm to stiff thinly to thickly laminated, locally very thinly bedded, reddish brown silty CLAY with occasional to frequent angular to subangular fine to medium gravel size lithorelics of mudstone. Occasional laminae (5 to 10mm) of extremely weak siltstone. GRADE III. (MERCIA MUDSTONE GROUP)		
5.00-6.50 (0:00)												(2.30)	
5.80	21	D		100	10	0		(Brown)			. . . 5.72-5.76m: Very weak light grey siltstone.		
6.50-8.00 (0:00)											. . . 6.22-6.28m: Very weak light grey siltstone. . . . 6.39-6.46m: Very weak thinly to thickly laminated reddish brown mudstone. Bedding fractures are extremely closely spaced, 0°, undulating, smooth, <1mm soft clay on surfaces.		
7.10	22	D		93	6	0	NI 30 90	(Brown)			. . . 6.59-6.71m: Extremely weak thickly to very thinly bedded light greenish grey siltstone. Bedding fractures are extremely closely spaced, undulating, smooth, with a little clay smear and occasional black specks on surfaces.	6.80	
8.00-9.50 (0:00)											Extremely weak, locally very weak, very thinly bedded reddish brown MUDSTONE. GRADE II. Discontinuities: Extremely closely to closely spaced, randomly orientated, undulating, smooth, black stained, locally clean. Rare thin clay smears on surfaces. (MERCIA MUDSTONE GROUP) . . . 7.01-7.04m: Siltstone recovered as gravelly clay. . . . 7.11-7.28m: 75° to 80° undulating rough discontinuity with 1m clay on surfaces. . . . 7.30-7.33m: Moderately weak light greenish grey siltstone. . . . 7.33-7.60m: 80° to 90° undulating rough clean discontinuity. . . . 7.78-7.86m: Band of extremely weak light greenish grey siltstone. . . . 8.05-8.30m: 80°-90° undulating smooth black stained discontinuity.	(3.30)	
8.50	23	D		97	11	0		(Brown)					

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**07.09.22** End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**3** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				97	11	0	NI 30 90	(Brown)			. . . 8.87-8.93m: 60°-70° undulating smooth black stained discontinuity. Extremely weak, locally very weak, very thinly bedded reddish brown MUDSTONE. GRADE II. Discontinuities: Extremely closely to closely spaced, randomly orientated, undulating, smooth, black stained, locally clean. Rare thin clay smears on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 6.80m from previous sheet)*		
9.43 9.50-11.00 (0:00)	24	C									. . . 9.40-9.50m: 40°-50° undulating smooth black stained discontinuity.	10.10	
9.94	25	C		100	53	38	NI 70 300	(Brown)			Very weak very thinly to medium bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to medium spaced, 0° to 5°, undulating, smooth, locally black stained, occasionally clean. GRADE II. (MERCIA MUDSTONE GROUP) . . . 10.10-10.27m: 75° undulating smooth, locally black stained, discontinuity, with a little clay smear on surfaces. . . . 10.46-10.49m: Very weak light greenish grey siltstone. . . . 10.47-10.56m: 65° undulating smooth black stained discontinuity.	(1.10)	
11.00-12.50 (0:00)												11.20	
11.45	26	C		97	68	51	NI 20 120	(Brown)			. . . 10.56-10.73m: Randomly orientated extremely closely to very closely spaced undulating smooth clean discontinuities. . . . 10.70-11.00m: Occasional 3-5mm diameter light grey reduction spots. . . . 10.80-10.86m: 40° undulating smooth discontinuity with a little clay smear on surfaces. . . . 10.90-10.95m: Randomly orientated extremely closely to very closely spaced undulating smooth clean locally black stained discontinuities.		
12.50-14.00 (0:00)											Extremely weak thinly laminated to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Extremely closely to closely spaced, 0° to 5°, undulating, smooth, locally rough, clean, locally black stained (MERCIA MUDSTONE GROUP)	(2.18)	
				97	37	8		(Brown)			. . . 11.40-11.43m: Very weak light greenish grey siltstone. . . . 11.45-12.00m: Occasional fine to medium gravel size light greenish grey siltstone inclusions. . . . 11.79-11.80m: 2 no laminae (<2mm) of extremely weak light greenish grey siltstone.	13.38	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**07.09.22** End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**4** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.83	27	C		97	37	8		(Brown)			. . . 12.25-12.30m: Weak light greenish grey siltstone. . . . 12.30-12.50m: Rare light greenish grey reduction spots. . . . 12.30-13.20m: Extremely closely to very closely spaced randomly orientated undulating smooth, locally rough, clean, locally black stained discontinuities. . . . 13.00m: Thin lamination (<5mm) of extremely weak siltstone. . . . 13.15-13.18m: Moderately weak greenish grey siltstone.		
14.00-15.50 (0:00)				100	70	15	NI 20 120	(Brown)			Extremely weak to very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 15°, undulating, smooth, black stained, with occasional black specks. (MERCIA MUDSTONE GROUP) *(stratum copied from 13.38m from previous* sheet) . . . 13.50-13.58m: Extremely weak light greenish grey clayey siltstone. . . . 13.58-13.61m: Very weak light greenish grey siltstone. . . . 13.71-13.74m: Very weak light greenish grey siltstone. . . . 14.48-14.68m: 85° to 90° undulating rough discontinuity with frequent black specks. . . . 14.62-14.67m: 45° undulating rough discontinuity with frequent black specks. . . . 14.80-14.81m: Extremely weak light greenish grey siltstone. . . . 14.97-15.00m: Weak light greenish grey siltstone. . . . 15.01-15.21m: Frequent thin laminae (<5mm) of extremely weak to very weak siltstone. . . . 15.34-15.50m: 80° to 90° undulating smooth black stained discontinuity.	(3.49)	
15.17	28	C											
15.50-17.00 (0:00)				97	40	27		(Brown)			. . . 15.50-15.55m: 70° undulating smooth clean discontinuity locally black stained. . . . 15.66-15.72m: Drilling disturbed. . . . 15.73-15.82m: 50° undulating smooth discontinuity with 1mm clay infill. . . . 15.82-15.86m: Very weak light greenish grey siltstone. . . . 16.13-16.52m: Extremely to very closely spaced, randomly orientated black stained, locally clean, discontinuities. Occasional black specks on surfaces. . . . 16.32-16.48m: 80° to 90° undulating smooth black stained discontinuity. . . . 16.48-16.51m: (Soft to firm) light greenish grey gravelly silt.	16.87	
16.00	29	C											
17.00-18.50 (0:00)				100	63	37	NI 50 230	(Brown)					

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**5** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											. . . 16.60-16.82m: Thinly and thickly laminated.		
18.28	30	C		100	63	37		(Brown)			. . . 17.04-17.06m: Weak light greenish grey siltstone. . . . 17.10-17.38m: 2 no parallel 80° very closely spaced undulating smooth black stained discontinuity. . . . 17.37-17.41m: Extremely closely spaced thick laminae (<10mm) of very weak light greenish grey siltstone. . . . 17.53-17.58m: Very weak light greenish grey siltstone. . . . 17.88-18.00m: 85° undulating smooth clean discontinuity.	(3.13)	
18.50-20.00 (0:00)							NI 50 230				Very weak, locally extremely weak, thickly laminated to thinly bedded, locally medium bedded, reddish brown MUDSTONE. GRADE II Bedding fractures: Extremely closely to medium spaced, 0° to 10°, planar and undulating, smooth, clean, locally with black specks on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 16.87m from previous* sheet)		
19.30	31	C		100	49	28		(Brown)			20.00		
											. . . 18.21-18.25m: Weak light greenish grey siltstone. . . . 18350-18.95m: Extremely closely to very closely spaced, randomly orientated clean discontinuity with occasional black specks on surfaces. . . . 18.55-18.92m: 85° to 90° undulating smooth discontinuity with occasional black specks. . . . 18.98-19.20m: 85° to 90° undulating smooth discontinuity with occasional black specks. . . . 19.07-19.12m: 30° undulating smooth discontinuity with occasional black specks. . . . 19.20-19.27m: 60° undulating smooth discontinuity with occasional black specks. . . . 19.60-20.00m: 85° undulating rough discontinuity with frequent black specks. . . . 19.83-19.88m: Very weak light greenish grey siltstone.		
											Cable percussion borehole terminated at 20.00m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**JAlton + RStan**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH03**
Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**6** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH03**
Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**7** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH03**
Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**8** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH03**
Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**9** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH03**
Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**10** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH03**
Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**76.90**	**E:446012.3 N:324864.8**	**11** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**1** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D									TOPSOIL	(1.20)	
0.10	101	ES	1xT+1xJ+1xV										
0.10-0.30	2	B											
0.80	3	D											
0.80-1.10	4	B											
0.90	5	D											
0.90-1.20	6	B											
1.00	102	ES	1xT+1xJ+1xV									1.20	
1.00	103	ES	1xT+1xJ+1xV								Firm to stiff dark brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of mudstone. Cobbles are subangular to well rounded (<100mm).	(0.40)	
1.20-1.65		SPT	N=17										
1.20-1.65	7	B										1.60	
1.70	8	D									. . . 1.20-1.60m: With frequently thin laminae (<3mm) of extremely weak light bluish grey mudstone / siltstone.		
2.00	104	ES	1xT+1xJ+1xV								Firm reddish brown slightly sandy slightly gravelly CLAY with occasional fine and medium gravel size pockets of grey silty sand. Sand is fine and mudstone derived. Gravel is angular and subangular fine extremely weak mudstone lithorelics. (MERCIA MUDSTONE GROUP)	(1.10)	
2.00-2.45	9	$UT_{(UT100)}$	53 blows 100% recovery										
2.70	10	D										2.70	
3.00-3.45		SPT	N=36								Very stiff reddish brown slightly gravelly sandy CLAY with frequent fine and medium gravel sized pockets and lenses up to 25mm in width of grey silty sand. Sand is fine and medium and mudstone derived. Gravel is angular and subangular fine extremely weak to very weak mudstone lithorelics with relic laminae observed on some of the fragments. Destructured mudstone Grade IVa. (GUNTHORPE MEMBER) (MERCIA MUDSTONE GROUP)		
3.00	105	ES	1xT+1xJ+1xV										
3.00-3.45	12	DSPT											
3.00-3.45	13	B											
3.70	14	D										(2.30)	
4.00-4.38		SPT	4,8/10,18,22 for 75mm										
4.00-4.38	16	DSPT											
4.00-4.45	17	B											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
09/09/22	14:01	1.20	None	200	Dry
12/09/22		1.20	None	200	-
12/09/22	13:42	5.31	3.00	200	Dry
22/09/22	08:30	5.00	5.00	200	4.90
22/09/22	16:30	30.30	5.00	146	20.90
23/09/22	08:15	30.30	5.00	146	10.90
23/09/22	16:30	30.30	None	146	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
4.70	5.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm casing and tools.
4. Borehole installed with 50mm standpipe upon completion. Response zone 6.00m to 30.00m.
5. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**2** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70	18	D										5.00	
5.00-6.30 (0:05)											Very stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to coarse mudstone derived. Gravel is angular extremely weak mudstone lithorleics. GRADE IVa. (MERCIA MUDSTONE GROUP)		
5.00-5.31		SPT	15,10/18,21,11 for 35mm										
5.00-5.31	20	DSPT		69	3	0		Air+Mist (Brown)			. . . 5.10-5.30m: trace thick laminae and very closely spaced thin laminae (<4mm) of extremely weak mudstone. . . . 5.30-5.38m: weak greenish grey thickly laminated fine grained sandstone.	(1.90)	
6.00	29	D											
6.30-7.80 (0:03)											. . . 6.20-6.25m and 6.35-6.40m: extremely weak thickly laminated mudstone . . . below 6.40m: frequent fine to coarse gravel size pockets of greenish grey sandy silt. . . . 6.70-6.80m: Weak greenish thickly laminated grey sandstone.	6.90	
7.05-7.23	30	C		93	60	56		Air+Mist (Brown)			. . . . Extremely weak greenish grey SILTSTONE. Fractures: Very closely spaced, incipient, smooth, planar, with black specks on surfaces. Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, smooth, planar, tight, with black staining on surfaces. (MERCIA MUDSTONE GROUP)		
7.80-9.30 (0:05)												(2.60)	
8.80	31	D		100	48	27		Air+Mist (Brown)			. . . 8.70-9.10m: fine to medium gravel size pockets and lenses (<10mm) of greenish grey siltstone.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**3** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	48	27					Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, smooth, planar, tight, with black staining on surfaces. (MERCIA MUDSTONE GROUP)		
9.30-10.80 (0:06)												9.50	
											(stratum copied from 6.90m from previous sheet) . . . 9.10-9.15m: gravelly clay.	(0.45)	
											Extremely weak reddish brown MUDSTONE, recovered as clayey sandy angular to subangular fine to coarse gravel. GRADE III. (MERCIA MUDSTONE GROUP)	9.95	
				100	60	33		Air+Mist (Brown)					
10.15-10.20	32	C									Extremely weak reddish brown MUDSTONE with fine gravel size pockets and lenses (<20mm) of greenish grey siltstone with black specks. GRADE II. Bedding fractures: Closely spaced, smooth, undulating, with frequent black staining along surfaces Fracture set 2: Very closely spaced, randomly orientated, smooth, undulating, with black staining on fracture surfaces. (MERCIA MUDSTONE GROUP)	(1.45)	
10.80-12.30 (0:06)											. . . below 10.80m: no randomly orientated fractures. . . . 11.15-11.20m: extremely weak greenish grey siltstone.		
											. . . 11.20-11.40m: very sandy clayey gravel. Gravel is angular to subangular mudstone.	11.40	
11.40-11.70	33	C		97	62	51		Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE with fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Bedding fractures: Medium to widely spaced, rough, undulating, infilled with greenish grey sandy gravel of angular to subangular fine to medium siltstone (likely to laminae of siltstone). Fracture set 2: Closely spaced, randomly orientated, undulating, smooth, with occasional black staining along surfaces. (MERCIA MUDSTONE GROUP)		
12.30-13.80 (0:04)													
12.90-13.00	34	C		97	78	45		Air+Mist (Brown)					

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**4** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.80-15.30 (0:04)				97	78	45					Extremely weak reddish brown MUDSTONE with fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Bedding fractures: Medium to widely spaced, rough, undulating, infilled with greenish grey sandy gravel of angular to subangular fine to medium siltstone (likely to laminae of siltstone). Fracture set 2: Closely spaced, randomly orientated, undulating, smooth, with occasional black staining along surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 11.40m from previous* sheet)		
14.05-14.32	35	C										(5.80)	
				100	73	63		Air+Mist (Brown)					
15.30-16.80 (0:05)											. . . 15.40-15.60m: extremely weak grey siltstone.		
				93	53	29		Air+Mist (Brown)			. . . below 16.30m: with closely spaced thin and thick laminae of siltstone.		
16.60-16.80	36	C											
16.80-18.30 (0:05)												17.20	
				100	21	0		Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Very closely spaced, randomly orientated, rough, undulating fractures with dark brown staining along surfaces. (MERCIA MUDSTONE GROUP) . . . 17.50-17.60m and 17.80-17.85m, clayey gravel of angular to subangluar fine to medium mudstone.	(1.10)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**5** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											. . . below 17.85m: increased proportion of fractures.		
18.20	37	D		100	21	0						18.30	
18.30-19.80 (0:05)											Extremely weak reddish brown MUDSTONE with fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP)	(0.50)	
											. . . 18.30-18.45m: approximate 85°, smooth, planar fracture, with black staining along surfaces.	18.80	
19.05-19.25	38	C		100	97	45		Air+Mist (Brown)			Medium strong greenish grey fine grained SANDSTONE. Partially weathered. (MERCIA MUDSTONE GROUP)	19.05	
											. . . below 19.00m: verging towards sitlstone. Bedding fractures infilled with silty sand.		
19.80-21.30 (0:05)				100	67	55		Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, rough, undulating, with dark brown staining along surfaces. Occasional fine to medium gravel size pockets of siltstone. (MERCIA MUDSTONE GROUP)	(1.60)	
												20.65	
20.80-20.90	39	C									Weak to medium strong greenish grey fine grained SANDSTONE with frequent black specks. (MERCIA MUDSTONE GROUP)	(0.30) 20.95	
21.30-22.80 (0:06)				100	75	51		Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE closely interbedded with extremely weak greenish grey SILTSTONE. Bedding fractures: Closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP)	(0.55) 21.50	
											Weak to medium strong greenish grey fine grained SANDSTONE with frequent black specks. Bedding fractures: Closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP)	(0.70) 22.20	
22.20-22.45	40	C									*Description on next sheet*	(0.40)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**6** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											Extremely weak reddish brown MUDSTONE randomly transitioning with greenish grey SILTSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, rough, undulating, with frequent black staining along surfaces and frequent black specks on siltstone. (MERCIA MUDSTONE GROUP) *(stratum copied from 22.20m from previous* sheet)	22.60	
22.80-24.30 (0:05)				100	75	51		Air+Mist (Brown)				(1.00)	
				100	40	23					Very stiff reddish brown sandy slightly gravelly CLAY. Sand is fine, mudstone derived. Gravel is angular to subangular fine to medium mudstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP) . . . 23.05-23.15m: band of thickly cross laminated greenish grey sandstone. . . . below 23.15m: randomly interspersed with stiff greenish grey sandy silt.	23.60	
24.00-24.10	41	C										(0.75)	
											Extremely weak reddish brown MUSTONE. Bedding fractures: Closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP) . . . below 24.25m: becoming slightly interbedded/interspersed with greenish grey siltstone.	24.35	
24.30-25.80 (0:06)												(0.45)	
											Extremely weak greenish grey SILTSTONE. With incipient fractures observed on breaking up the core - yellow staining along surfaces. (MERCIA MUDSTONE GROUP)	24.80	
				100	100	97		Air+Mist (Brown)					
25.25-25.60	42	C									Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP) . . . 24.80-25.30m: frequent fine gravel size pockets of extremely weak greenish grey siltstone.		
25.80-27.30 (0:06)	43	C											
25.90-26.25											. . . below 25.90m: Bedding fractures: Widely to medium spaced, smooth, planar, with black staining along fracture surfaces.		
				100	60	49		Air+Mist (Brown)					
26.60-28.30	44	C									. . . 26.50-26.85m: fractures: very closely spaced, randomly orientated, rough, undulating, and closely interbedded with extremely weak greenish grey siltstone.		
												(4.30)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**7** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.30-28.80 (0:05)				100	60	49					Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP) . . . 24.80-25.30m: frequent fine gravel size pockets of extremely weak greenish grey siltstone.*(stratum copied from 24.80m* from previous sheet) . . . 27.20-27.30m: extremely weak to weak greenish grey siltstone. . . . 27.30-27.40m: recovered as very sandy clayey fine to medium gravel. Gravel is angular to subangular mudstone. GRADE III. . . . 27.70-27.75m: extremely weak greenish grey fine grained sandstone. . . . below 27.90m: fine to coare gravel size pockets of extremely weak greenish grey siltstone.		
				100	83	80		Air+Mist (Brown)					
28.80-30.30 (0:06)												29.10	
29.55-29.75	45	C		97	77	70		Air+Mist (Brown)			Extremely weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP) . . . 29.20-29.25m: thickly cross laminated sandstone with fine to medium sand size vugs. . . . 29.35-29.38m: sandstone with fine to medium gravel size vugs.	(0.40) 29.50	
											Extremely weak reddish brown MUDSTONE. (MERCIA MUDSTONE GROUP)	(0.50) 30.00	
											Weak greenish grey fine to medium grained SANDSTONE with abundant fine to medium sand sized vugs. (MERCIA MUDSTONE GROUP) . . . below 30.20m: verging towards extremely weak siltstone.	(0.30) 30.30	
											Borehole terminated at 30.30m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**8** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**9** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**10** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**11** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**12** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**13** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**14** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**15** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH04**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**76.87**	**E:446012.8 N:324872.6**	**16** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + JAlton**	Checked By:	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**1** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10-0.10	1	D								TOPSOIL	(0.30)	
0.10-0.10	101	ES	1xT+1xJ+1xV									
0.10-0.30	2	B									0.30	
0.50-0.50	3	D								Soft to firm orangish brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of mudstone. Cobbles are subangular to well rounded (<90mm).		
0.50-0.80	4	B										
0.60-0.60	102	ES	1xT+1xJ+1xV									
0.90-0.90	5	D										
0.90-1.20	6	B										
1.00-1.00	103	ES	1xT+1xJ+1xV									
1.20-1.65		SPT	N=17									
1.20-1.65	8	DSPT										
1.20-1.65	9	B										
1.70-1.70	10	D									(2.50)	
2.00-2.45	11	$UT_{(UT100)}$	80 blows 78% recovery									
2.45-2.55	12	D										
2.70-2.70	13	D									2.80	
3.00-3.30		SPT	3,4/20,30 for 75mm							NO RECOVERY - driller notes, obstruction, possibly sandstone or mudstone boulder.		
3.00-3.30	15	DSPT										
3.00-3.30	16	B										
4.00-4.26		SPT(c)	11,14/26,24 for 45mm								(1.70)	
											4.50	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
08/09/22	17:11	9.50	9.00	200	Dry
14/09/22	08:00	25.00	None	200	9.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.20	3.70	01:00
9.00	9.50	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm casing and tools, then down to 150mm from 11.50m.
4. Borehole installed with a 50mm standpipe upon completion.
5. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH05**

Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**2** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70-4.70	18	D								Dense multicolored (grey, orange, brown, white, red) very sandy very clayey subangular to well rounded fine to coarse GRAVEL of various lithologies. Medium cobble content of tabular subrounded to well rounded mudstone (<180mm).	(1.00)	
5.00-5.45		SPT(c)	N=39									
5.00-5.00	104	ES	1xT+1xJ+1xV									
5.00-5.45	20	B									5.50	
5.70-5.70	21	D								Stiff reddish brown sandy gravely CLAY with low to medium cobble content. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of mudstone. Cobbles are subangular to well rounded (<90mm).	(1.70)	
6.00-6.45		SPT	N=23									
6.00-6.45	23	DSPT										
6.00-6.45	24	B										
7.00	105	ES	1xT+1xJ+1xV								7.20	
7.20-7.20	105	ES	1xT+1xJ+1xV							Very dense multicoloured (grey, orange, brown, white and red) sandy very clayey subangular to well rounded fine to coarse GRAVEL of various lithologies. Medium cobble content (<80mm).	(1.50)	
7.30-7.30	25	D										
7.50-7.92		SPT	10,10/9,15,15,11 for 45mm									
7.50-7.92	27	DSPT										
7.50-7.92	28	B									8.70	
8.70-8.70	29	D								Probable boulder.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**3** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.30		SPT	13,12/21,29 for 70mm							Probable boulder. *(stratum copied from 8.70m from previous sheet)*	(1.00)	
9.00-9.00	106	ES	1xT+1xJ+1xV									
9.00-9.30	31	DSPT										
9.00-9.50	32	B										
9.20-10.00												
9.50-9.73		SPT(c)	13,12/32,18 for 40mm	62	0	0					9.70	
9.50-9.73	33	C								Drilling disturbed, very limited recovery. Recovered as probably very dense, grey, reddish brown and yellowish brown angular to subrounded medium to coarse GRAVEL of mudstone, limestone and sandstone. High cobble content of subangular to subrounded mudstone, limestone and sandstone.		
9.70	34	D										
10.00-11.50											(1.50)	
10.00-10.34		SPT	5,7/12,18,20 for 40mm	20	0	0					11.20	
11.20	35	D								Drilling disturbed, very limited recovery. Recovered as stiff reddish brown mottled light grey slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of mudstone and limestone.		
11.50-12.50				20	0	0					(1.10)	
12.30	36	D								Drilling disturbed, very limited recovery. Recovered as grey, yellowish brown and reddish brown subangular to subrounded coarse GRAVEL of mudstone, limestone and sandstone. High cobble content. Cobbles are mudstone and sandstone. . . . 12.80-13.00m: 1 no. cobble of very strong dark grey limestone.	12.30	
12.50-13.00				40	0	0					(0.70)	
12.80-13.00	37	B									13.00	
13.00-13.45		SPT	N=35							Open hole drilling. SAND AND GRAVEL (Driller's Description)		
13.00	38	D										

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**4** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-13.79		SPT	7,12/18,32 for 60mm							Open hole drilling. SAND AND GRAVEL (Driller's Description) *(stratum copied from 13.00m from previous sheet)*	(1.70)	
14.00-14.09		SPT	25/50 for 40mm									
14.00	39	D									14.70	
										Open hole drilling. MUDSTONE (Driller's Description) (MERCIA MUDSTONE GROUP)	(0.30)	
15.00-16.00											15.00	
15.00-15.12		SPT	25/50 for 50mm							Extremely weak thickly laminated to very thinly bedded reddish brown MUDSTONE. GRADE II Bedding fractures: Closely spaced, 0° to 5°, undulating, smooth, clean. (MERCIA MUDSTONE GROUP) . . . 15.00-15.40m: AZCL.	(0.70)	
15.00	40	D										
15.50	41	D		60	16	10	NI NI NI				15.70	
15.78-15.90	42	C								Extremely weak thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, smooth, clean. (MERCIA MUDSTONE GROUP) . . . 16.10-16.45m: AZCL. . . . 16.45-16.73m: NI, recovered as clayey gravel.		
16.00-17.50												
16.73-16.87	43	C		63	63	13	NI 600 200					
17.24	44	D								. . . 17.02-17.05m: Moderately weak light grey siltstone. . . . 17.10m: Thin lamination (<3mm) of weak grey siltstone. . . . 17.17-17.19m: Weak grey siltstone.	(3.40)	
17.50-19.00												
17.70-17.84	45	C		93	93	24						

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**5** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.50	46	D		93	93	24	NI NI 150			. . . 17.93-17.98m: 30°, undulating, smooth, clean discontinuity. Extremely weak thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, smooth, clean. (MERCIA MUDSTONE GROUP) *(stratum copied from 15.70m from previous sheet)* . . . 18.00-18.01m: Very weak light grey siltstone. . . . 18.00-18.14m: 80°, undulating rough clean discontinuity. . . . 18.03-18.04m: Very weak light grey siltstone. . . . 18.27-18.32m: Strong light grey siltstone. . . . 18.39-18.40m: Strong light grey siltstone.		
19.00-20.50											19.10	
19.30	47	D								. . . 18.55-18.57m: Moderately weak light grey siltstone. . . . 18.60-19.10m: Extremely weak to very weak. . . . 19.00-19.10m: NI, recovered as subangular fine to medium gravel.		
				95	95	23	NI 60 250			Very weak, locally extremely weak, thinly to medium bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely to medium spaced, 0° to 10°, undulating smooth, locally rough, clean. (MERCIA MUDSTONE GROUP)	(1.10)	
20.20-20.40	48	C								. . . 19.20-19.32m: 65° undulating smooth discontinuity with occasional black specks on surfaces.	20.20	
20.50-22.00										. . . 19.21-19.25m: 25° undulating smooth discontinuity with occasional black specks on surfaces.		
20.60-20.84	49	C								. . . 19.25-19.27m: 20° undulating smooth discontinuity with occasional black specks on surfaces. . . . 19.33-19.38m: 2 no. parallel extremely closely spaced 80° undulating smooth clean discontinuities. . . . 19.46-19.52: Weak greenish grey siltstone. 80° undulating rough discontinuity with a little clay smear on surfaces. . . . 19.60-19.72m: 50° undulating smooth clean discontinuity. . . . 19.68-19.70m: 25° undulating smooth clean discontinuity.		
				95	95	68	NI 120 300					
21.50	50	D								. . . 19.84-20.16m: 85° to 90° undulating smooth clean discontinuity intersected by 80° undulating smooth clean discontinuity.	(2.78)	
22.00-23.50										Very weak to weak thinly to medium bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely to medium spaced, 0° to 5°, undulating, rough, clean. (MERCIA MUDSTONE GROUP) . . . 20.85-20.88m: 30° undulating smooth clean discontinuity. . . . 20.91-20.93m: 10° planar rough discontinuity with 1mm thick calcite vein.		
				100	100	65						
22.40	51	D										

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**6** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										. . . 21.05-21.07m: 10° planar rough discontinuity with 1mm thick calcite vein. . . . 21.15-21.17m: 10° planar rough discontinuity with 1mm thick calcite vein. . . . 21.18-21.19m: Weak grey siltstone. . . . 21.24-21.40m: Weak grey siltstone.	22.98	
23.00-23.23	52	C		100	100	65				. . . 21.43-21.58m: 88° undulating rough clean discontinuity. . . . 22.08-22.64m: 75° to 85° undulating rough locally stepped clean discontinuity. . . . 22.27-22.39m: Weak grey siltstone. Very weak to weak thinly to medium bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely to medium spaced, 0° to 5°, undulating, rough, clean. (MERCIA MUDSTONE GROUP) *(stratum copied from 20.20m from previous sheet)*	(0.57) 23.55	
23.50-25.00							NI 120 300			Moderately weak thinly bedded light grey SILTSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, rough, clean. (MERCIA MUDSTONE GROUP) . . . 23.40-23.45m: 40° undulating rough clean discontinuity.	(0.48) 24.03	
23.90	53	D										
24.00-24.18	54	C		93	93	37				Very weak to weak thinly bedded light grey SILTSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, rough, clean. (MERCIA MUDSTONE GROUP) . . . . 23.72-23.84m: Moderately weak grey siltstone.	(0.97) 25.00	
										Strong thinly bedded light grey SILTSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, rough, clean. (MERCIA MUDSTONE GROUP) . . . 24.38-24.41m: Extremely weak reddish brown mudstone. . . . 24.72-24.78m: 60° undulating rough clean discontinuity. . . . 24.85-25.00m: Extremely weak reddish brown mudstone.		
										Borehole terminated at 25.00m.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH05**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**7** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH05**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**8** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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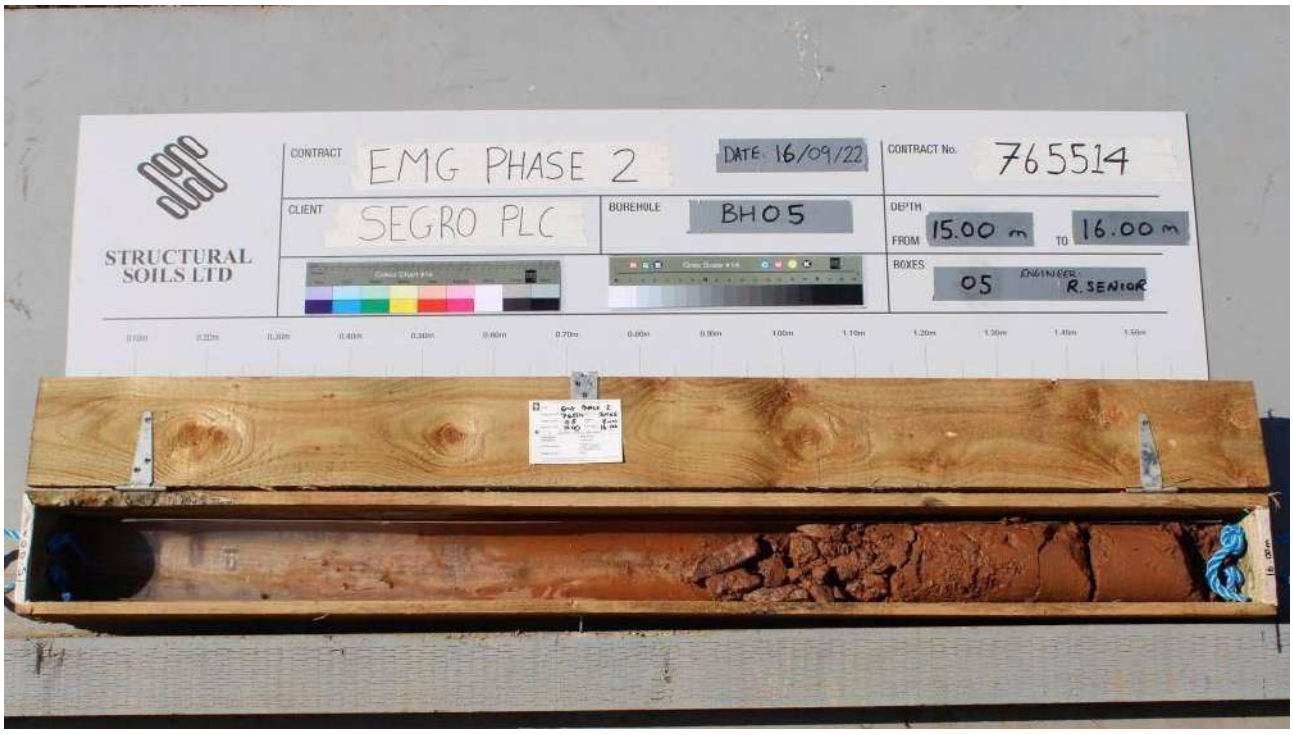
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH05**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**9** of **12**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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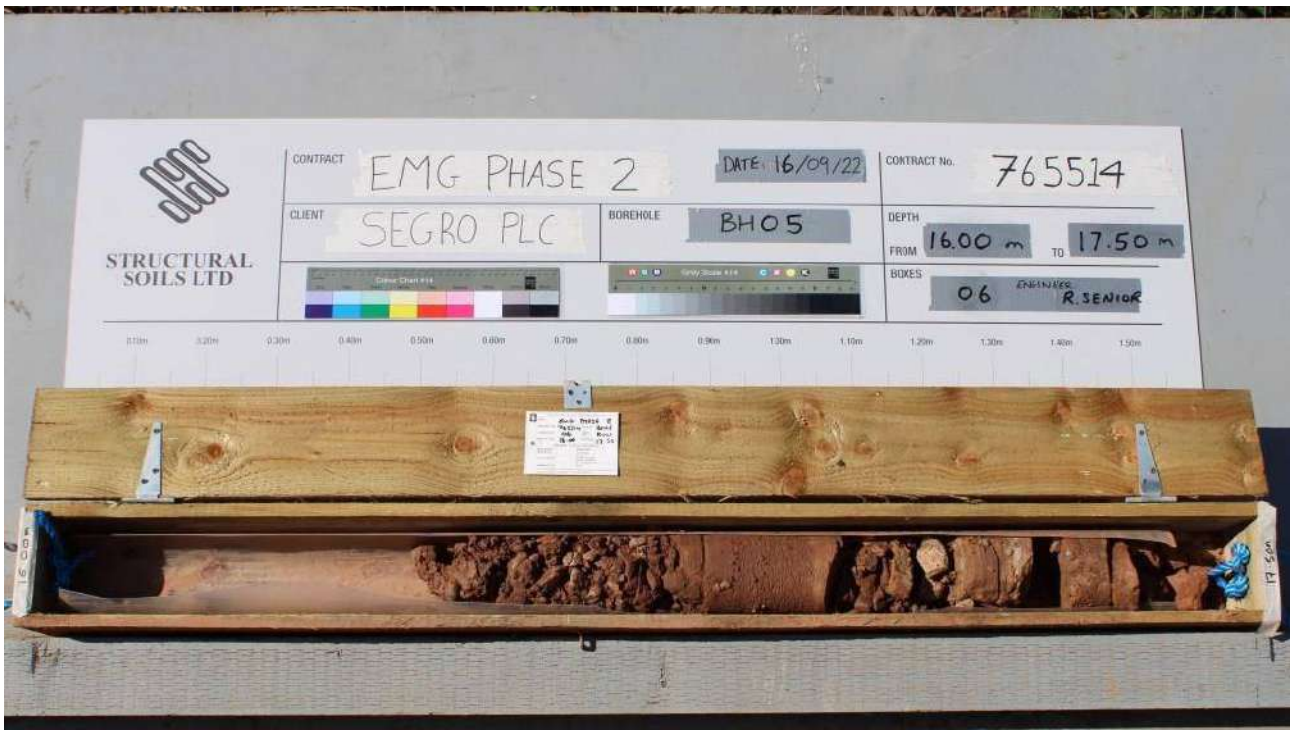
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH05**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**10** of **12**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH05**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**11** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH05**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**76.91**	**E:446018.3 N:324889.5**	**12** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH06**

Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**1** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D									TOPSOIL	(0.30)	
0.10-0.20	2	B										0.30	
0.20	101	ES									Stiff fissured grey, mottled brown, slightly sandy slightly gravelly CLAY with pockets of chalk. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of mixed lithologies including sandstone, siltstone and quartz.		
0.70	3	D											
0.70-1.00	4	B											
0.80	102	ES											
1.20	5	D											
1.20-1.50	6	$UT_{(UT100)}$	150 blows 100% recovery										
1.50-1.60	7	D										(2.70)	
1.80	8	D											
2.00-2.45		SPT	N=16										
2.00-2.45	10	DSPT											
2.00-2.45	11	B											
2.70	12	D										3.00	
3.00-3.45	13	$UT_{(UT100)}$	150 blows 0% recovery								Firm to stiff fissured dark grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone, mudstone and occasional chalk.		
3.00-3.45	14	B											
3.70	15	D											
4.00-4.45		SPT	N=15										
4.00-4.45	17	DSPT											
4.00-4.45	18	B											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
28/09/22	18:05	8.00	7.50	200	Dry
29/09/22	07:44	8.00	7.50	200	Dry
29/09/22	17:48	18.50	18.50	200	Dry
03/10/22	12:00	18.50	0.00	200	6.20
03/10/22	16:30	18.50	17.00	200	Dry
04/10/22	08:30	18.50	17.00	200	15.50
04/10/22	17:00	30.80	None	146	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
18.00	18.50	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm casing and tools.
4. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**2** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thick ness)	Material Graphic Legend
4.70	19	D									Firm to stiff fissured dark grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone, mudstone and occasional chalk. *(stratum copied from 3.00m from previous* sheet)		
5.00-5.45	20	$UT_{(UT100)}$	110 blows 100% recovery										
5.45	21	D											
5.70	22	D											
6.00-6.45		SPT	N=18										
6.00-6.45	24	DSPT											
6.00-6.45	25	B											
7.30	26	D											
7.50-7.95	27	$UT_{(UT100)}$	91 blows 100% recovery										
7.95-8.05	28	D											
8.70	29	D											

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**3** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.45		SPT	N=30								Firm to stiff fissured dark grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone, mudstone and occasional chalk. *(stratum copied from 3.00m from previous* sheet)	(13.40)	
9.00-9.45	31	DSPT											
9.00-9.45	32	B											
10.30	33	D											
10.50-10.95	34	$UT_{(UT100)}$	150 blows 89% recovery										
10.95-11.05	35	D											
11.70	36	D											
12.00-12.45		SPT	N=27										
12.00-12.45	38	DSPT											
12.00-12.45	39	B											
13.30	40	D											

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**4** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thick ness)	Material Graphic Legend
13.50-13.80	41	$UT_{(UT100)}$	150 blows 83% recovery								Firm to stiff fissured dark grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone, mudstone and occasional chalk. *(stratum copied from 3.00m from previous* sheet)		
13.80-13.90	42	D									. . . 13.90m: sandy.		
14.70	43	D											
15.00-15.45		SPT	N=35										
15.00-15.45	45	DSPT											
15.00-15.45	46	B											
												16.40	
16.40	47	D									Stiff to very stiff laminated grey slightly sandy SILT. Sand is fine.		
16.50-16.80	48	$UT_{(UT100)}$	150 blows 67% recovery										
16.80-16.90	49	D										(0.90)	
17.20	50	D										17.30	
											Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular fine to coarse of mudstone lithorelics. Occasional pockets of grey siltstone. (MERCIA MUDSTONE GROUP)		
												(1.20)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**5** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-18.26		SPT	10,15/24,26 for 60mm								Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular fine to coarse of mudstone lithorelics. Occasional pockets of grey siltstone. (MERCIA MUDSTONE GROUP)	18.50	
18.00-18.26	52	DSPT											
18.00-18.50	53	B											
18.50-18.80 (0:02)											*(stratum copied from 17.30m from previous sheet)*		
18.50-18.72		SPT	8,17/34,16 for 30mm	100	50	0		Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE, recovered as angular to subangular gravel with occasional fragments of greenish grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP)	(0.40)	
18.50-18.72	55	DSPT										18.90	
18.55-18.70	56	C											
18.80-20.30 (0:03)												(0.40)	
19.30-19.50	57	C		93	40	10		Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, smooth, undulating, with occasional black staining along some surfaces. (MERCIA MUDSTONE GROUP)	19.30	
20.30-21.80 (0:06)											Extremely greenish grey fine to medium grained SANDSTONE with frequent fine to coarse sand sized vugs. (MERCIA MUDSTONE GROUP) . . . 19.70-19.75m: Extremely weak reddish brown MUDSTONE with rough planar fractures either side up to 5mm infilled with sandy clay. . . . 19.75m: Verging towards a very weak to medium strong and no vugs. . . . 20.10-20.30m: Becoming very weak reddish brown mudstone.	(1.65)	
21.00-21.15	58	C		67	46	18		Air+Mist (Brown)			Very weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, with yellow staining on surfaces. (MERCIA MUDSTONE GROUP)	20.95 (0.30) 21.25	
											. . . 20.95m: Reddish brown sandy clay.	21.40	
											Very weak greenish grey fine to medium grained SANDSTONE. Bedding fractures: Closely spaced, planar, with yellow staining on surfaces. (MERCIA MUDSTONE GROUP)	(0.40) 21.80	
21.80-23.30 (0:04)				93	27	15		Air+Mist (Brown)			Very stiff reddish brown slightly sandy slightly gravelly CLAY with occasional fine to medium gravel size pockets of greenish grey silt. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.60)	
											Extremely weak greenish grey SILTSTONE interspersed with reddish brown mudstone verging towards a silt	22.40	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**6** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											interspersed with clay. (MERCIA MUDSTONE GROUP)	(0.40)	
											Very stiff reddish brown sandy CLAY. Sand is fine and derived from mudstone and siltstone. GRADE IVa. (MERCIA MUDSTONE GROUP) *(stratum copied from 22.40m from previous sheet)*	22.80	
22.90-23.05	59	C		93	27	15		Air+Mist (Brown)			Extremely weak greenish grey SILTSTONE thinly interbedded with reddish brown MUDSTONE. (MERCIA MUDSTONE GROUP)	23.05	
23.30-24.80 (0:05)											Very weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Bedding fractures: Medium to closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP)		
				97	59	14		Air+Mist (Brown)			. . . 23.35m: Recovered as sandy fine gravel of siltstone and mudstone. . . . 23.60-23.70m: Greenish grey siltstone.	(2.80)	
24.50-24.65	60	C											
24.80-26.30 (0:05)											. . . 25.25-25.30m: Greenish grey siltstone. . . . 25.35-25.40m: Greenish grey siltstone.	25.85	
				100	48	0		Air+Mist (Brown)					
25.85-25.95	61	C									Weak to medium strong greenish grey thinly cross laminated SANDSTONE. (MERCIA MUDSTONE GROUP)	26.05	
26.30-27.80 (0:05)											Extremely weak to very weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 26.35-26.55m: Interspersed with laminae and lenses (<10mm) of greenish grey siltstone.		
				100	77	57		Air+Mist (Brown)				(1.80)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**7** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.10-27.30	62	C		100	77	57		Air+Mist (Brown)			. . . 26.95-27.15m: Very closely spaced, randomly orientated, smooth, undulating, fractures. Extremely weak to very weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 26.05m from previous* sheet)	27.85	
27.80-29.30 (0:05)											Very weak greenish grey SILTSTONE. Bedding fractures: Very closely spaced, rough, planar, infilled with clayey sand. (MERCIA MUDSTONE GROUP) . . . 27.98-28.02m: Clayey gravelly sand. . . . 28.10-28.20m: Interspersed with lense (<2mm) of reddish brown clay.	(0.55) 28.40	
28.40-28.70	63	C		100	87	60		Air+Mist (Brown)			. . . 28.25m: Verging towards a sandy silt. Extremely weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 28.80-28.83m: Sandy clay. . . . 28.83-28.83m: Sandy clay. . . . 29.08-29.19m: Weak thickly laminated siltstone.	(1.15) 29.55	
29.30-30.80 (0:05)											Very weak greenish grey SILTSTONE with frequent gravel size pockets and laminae (<10mm) of reddish brown clay. (MERCIA MUDSTONE GROUP)	(0.40) 29.95	
30.10-30.40	64	C		97	90	83		Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 30.40-30.45m: Sandy clay.	(0.85) 30.80	
											Borehole terminated at 30.80m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH06**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**8** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH06**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**9** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH06**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**10** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH06**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**11** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH06**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **10.10.22**	**80.29**	**E:446038.9 N:325052.6**	**12** of **12**

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Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**21.09.22** End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**1** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00	1	D								TOPSOIL	0.10	
0.00-0.10	3	B								Very stiff orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithology including quartzite, metamorphic rock, sandstone and rare mudstone.	(0.30)	
0.10	4	D									0.40	
0.10-0.40	6	B										
0.20	5	ES										
0.40	7	D										
0.40-1.00	9	B										
0.50	2	ES										
0.50	8	ES								Stiff to very stiff reddish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is angular and subangular fine to coarse of mudstone. Occasional pockets of grey fine grained siltstone. (MERCIA MUDSTONE GROUP)		
1.00	10	ES										
1.20	11	D										
1.20-1.65		SPT	N=36									
1.20-1.65	12	DSPT										
1.20-1.70	13	B										
2.00-2.45		SPT	N=49									
2.00-2.45	15	DSPT										
2.00-2.50	16	B										
2.50	17	D									(4.45)	
3.00-3.45		SPT	N=50									
3.00-3.45	18	DSPT										
3.00-3.50	19	B										
3.50	20	D										
4.00-4.31		SPT	11,14/19,24,7 for 28mm				NI					
4.00-4.45	21	DSPT					NI					
4.00-4.50	22	B					200					

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)
4.30	4.50	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm casing and tools.
4. Borehole drilled using 150mm tools and casing.
5. Groundwater struck at 11.00m. Rose to 8.90m after 20 minutes.
6. Borehole backfilled with bentonite upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Martin Speedie**	**JAlton + RStan**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**21.09.22** End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**2** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.50-5.50 4.50-4.67		SPT	19,6/42,8 for 5mm									
4.50-4.95	24	DSPT									4.85	
				45	29	20	NI NI 200			Extremely weak reddish brown, local thickly laminate, MUDSTONE. Occasional pockets and laminae of very weak to weak fine grained siltstone. GRADE IVb. Bedding fractures: Closely to widely spaced, planar, rough, locally with clay infill. (MERCIA MUDSTONE GROUP)		
5.30-5.50	25	C								. . . 4.95-5.21m: NI, recovered as gravel. . . . 5.14-5.50m: frequent grey silstsone. . . . 5.29m: clay infill (<3mm).		
5.50-7.00										. . . 5.50-5.65m: AZCL . . . 5.65-6.17m: NI, recovered as gravel.	(2.45)	
				90	37	19	NI NI 580			. . . 6.17-6.36m: thinly and thickly laminated. . . . 6.42-6.54m: NI, recovered as gravel of mudstone and siltstone. . . . 6.72-6.86m: thinly and thickly interlaminated with weak grey siltstone.		
6.86-7.00	26	C										
7.00-8.50										. . . 7.00-7.12m: grey siltstone	7.30	
7.30-7.46	27	C								Extremely weak to weak reddish brown MUDSTONE. Fractures: Very closely to closely spaced, randomly orientated, planar, rarely undulating, smooth and rough, with abundant black staining. (MERCIA MUDSTONE GROUP)		
				100	43	36	NI NI 30					
8.50-12.00											(2.78)	
				43	0	0	NI NI 20			. . . 8.88-8.99m: grey siltstone.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Martin Speedie**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**21.09.22** End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**3** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.25	28	C					NI NI 20			Extremely weak to weak reddish brown MUDSTONE. Fractures: Very closely to closely spaced, randomly orientated, planar, rarely undulating, smooth and rough, with abundant black staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 7.30m from previous sheet)*		
10.00-11.00										. . . 10.00-10.17m: NI.	10.08	
10.16-10.44	29	C		43 100	0 84	0 73	NI NI 250			Extremely weak thinly and thickly laminated MUDSTONE. With widely spaced laminae and pockets of grey siltstone. Occasional grey reduction spots (< 5mm). GRADE III. Bedding fractures: Widely and very widely spaced, 0-10°, planar, rough, clean. (MERCIA MUDSTONE GROUP) . . . 10.44-10.45m: grey siltstone.		
11.00-12.50										. . . 11.00-11.03m: grey siltstone.		
11.10-11.40	30	C								. . . 11.00-11.10m: NI.	(2.57)	
				100	27	21	NI NI 70			. . . 11.74-11.75m: grey siltstone.		
										. . . 11.94-11.99m, thinkly interlaminated with grey siltstone.		
12.50-14.00												
12.50-12.65	31	C									12.65	
				87	10	10	NI 10 80			Extremely weak reddish brown, locally thinly laminated, MUDSTONE. Occasional pockets of grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP)		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Martin Speedie**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**21.09.22** End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**4** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				87	10	10	NI 10 80			Extremely weak reddish brown, locally thinly laminated, MUDSTONE. Occasional pockets of grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP) *(stratum copied from 12.65m from previous sheet)* . . . 13.80-14.00m, AZCL.		
14.65-15.00	32	C					NI NI 45					
15.00-17.00										. . . 15.32-15.50m, thickly interlaminated with grey siltstone.	(5.85)	
				75	14	14				. . . 16.03-16.20m, thickly interlaminated with grey siltstone.		
16.25-16.50	33	C					NI NI 40					
										. . . 16.77-16.89m, thickly interlaminated with grey siltstone.		
17.00-18.50												
				100	3	0	NI NI 150			. . . 17.78-17.99m, thickly laminated.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Martin Speedie**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**21.09.22** End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**5** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	3	0	NI NI 150			Extremely weak reddish brown, locally thinly laminated, MUDSTONE. Occasional pockets of grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP) *(stratum copied from 12.65m from previous sheet)* . . . 18.27-18.37m, thickly interlaminated with grey siltstone.	18.50	
18.50-20.00				100	70	64	NI NI			Extremely weak to weak reddish brown, locally thinly laminated, MUDSTONE. Occasional thin laminae of grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 19.18-19.30m: thinly laminated grey siltstone.	(1.05) 19.55	
										Extremely weak reddish brown MUDSTONE. Recover as sandy silt angular gravel. GRADE III. Fractures: Randomly orientated, planar, rough, non-intact. (MERCIA MUDSTONE GROUP)	(0.45) 20.00	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Martin Speedie**	**JAlton + RStan**	

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STRUCTURAL SOILS

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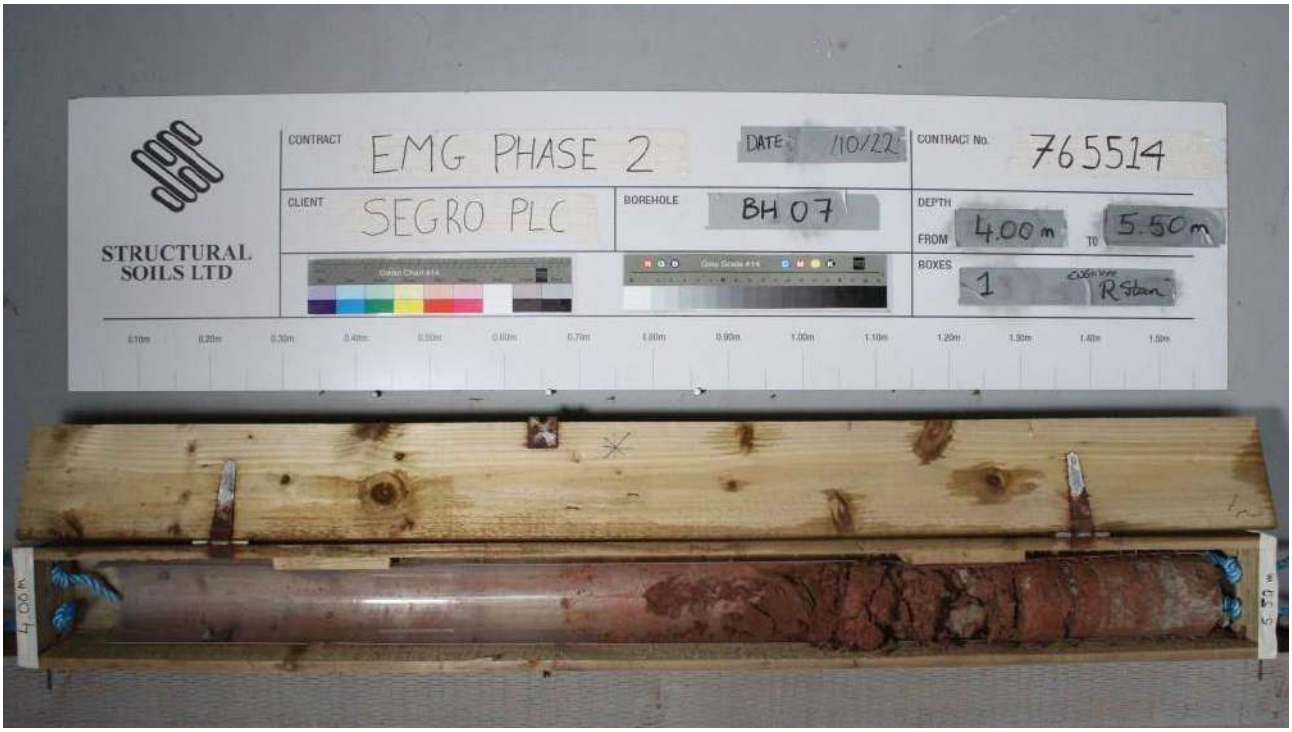
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH07**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**6** of **11**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Martin Speedie**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH07**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**7** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Martin Speedie**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH07**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**8** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Martin Speedie**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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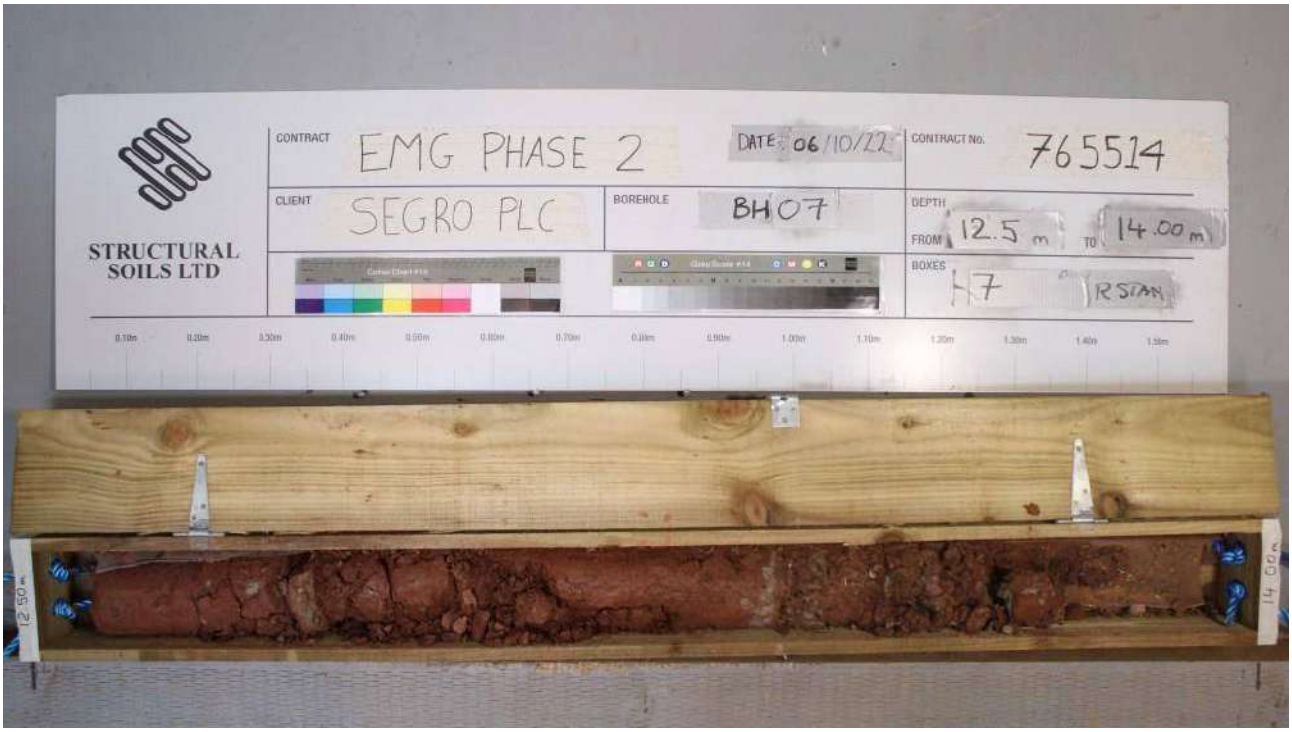
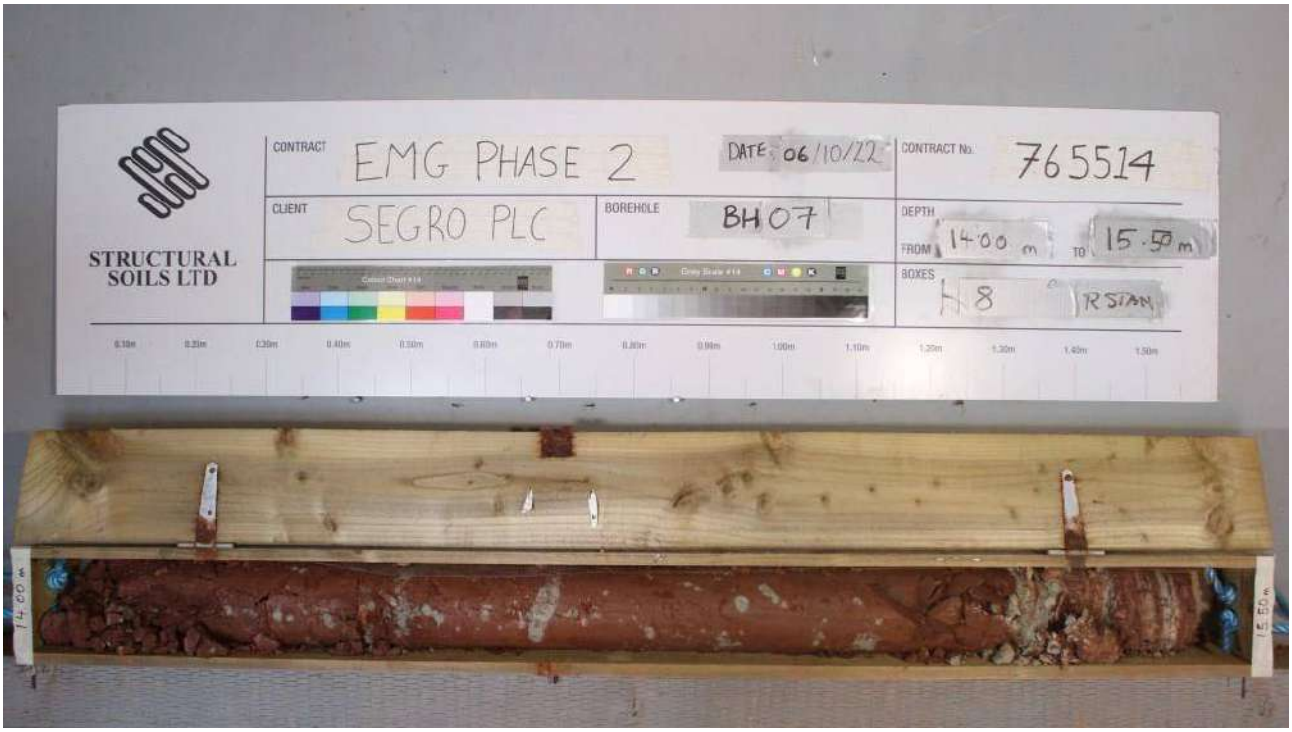
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH07**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**9** of **11**





Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Martin Speedie**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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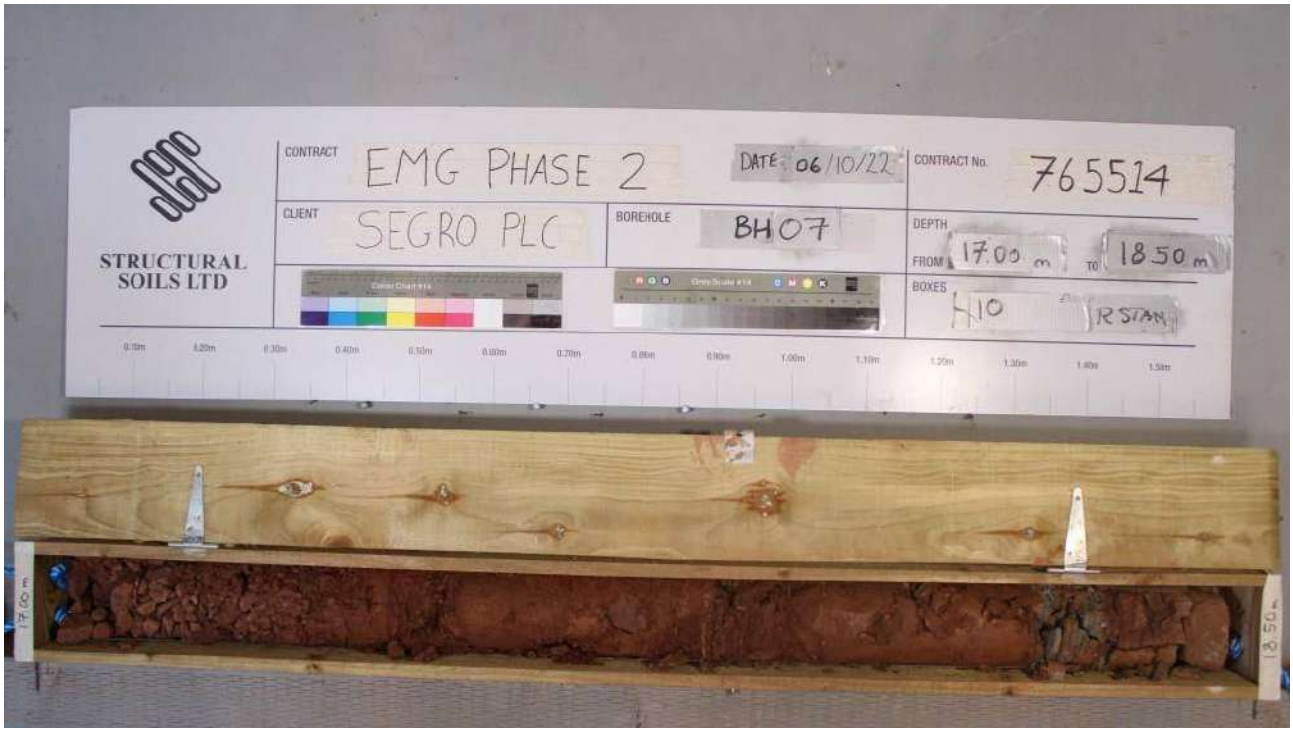
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH07**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**10** of **11**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Martin Speedie**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH07**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**87.23**	**E:445957.0 N:325334.7**	**11** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Martin Speedie**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**1** of **15**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00	1	D								TOPSOIL	0.30	
0.00-0.10	3	B										
0.05	2	ES	1xT+1xJ+1xV									
0.10	4	D										
0.10-0.30	6	B								Stiff dark reddish brown slightly gravelly sandy SILT with low cobble content of subrounded quartzite. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies of sandstone, siltstone and quartzite.	(0.60)	
0.20	5	ES	1xT+1xJ+1xV									
0.30	7	D										
0.30-0.90	9	B										
0.50	8	ES	1xT+1xJ+1xV								0.90	
0.90	10	D								Stiff reddish brown, mottled grey, slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies of sandstone and quartzite.	(0.60)	
0.90-1.20	12	B										
1.00	11	ES	1xT+1xJ+1xV									
1.00	5	D										
1.20-1.65	13	DSPT										
1.20-1.70	14	B									1.50	
1.70	15	D								Stiff greenish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies of sandstone, siltstone and quartzite.		
1.80	16	ES	1xT+1xJ+1xV									
2.00-2.45	17	UT										
2.50	18	D										
2.50-3.00	19	B										
3.00-3.45	20	DSPT									(3.00)	
3.00-3.50	21	B										
3.50	16	D										
4.00-4.45		SPT	N=23									
4.00-4.45	23	UT									4.50	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
06/09/22	15:30	2.00	2.00	150	-
07/09/22	07:30	2.00	2.00	150	-
07/09/22	17:00	8.50	8.50	150	-
27/09/22		17.00	None	150	8.40
27/09/22		30.50	17.00	150	

Chiselling / Slow Progress

From	To	Duration (hh:mm)
7.80	8.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm tools and casing.
4. Groundwater struck at 8.00m depth, rising to 4.55m depth after 20 minutes.
5. Groundwater struck at 19.00m depth. Fast inflow.
6. SPT hammer AR3469-2022 (E_r = 84.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Ben Wilson + Martin Speedie**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH08**

Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**2** of **15**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.50	24	D								Stiff to very stiff reddish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mudstone. Occasional pockets of grey siltstone (<300mm). GRADE IVb. (MERCIA MUDSTONE GROUP)		
4.50-5.00	26	B										
4.60	25	ES	1xT+1xJ+1xV									
5.00-5.45	27	DSPT										
5.00-5.50	28	B										
5.50	22	D										
6.00-6.45		SPT	N=25									
6.00-6.45	30	DSPT										
6.00-6.50	31	B									(3.50)	
6.50	32	D										
7.00-7.45	33	DSPT										
7.00-7.50	34	B										
7.50-7.95		SPT	N=27						1			
7.50	35	D									8.00	
8.00-9.50										Strong light greyish green SILTSTONE. Drilling disturbed, recovered as subangular to subrounded fine to coarse gravel size fragments. GRADE II. (MERCIA MUDSTONE GROUP)	8.15	
8.00-8.45	36	DSPT									8.32	
				97	7	7	NI 20 100		1	Stiff thinly to thickly laminated reddish brown silty CLAY with occasional subangular fine to medium gravel size mudstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)		
8.60	37	D								8.45-8.95m: Discontinuities are extremely closely to very closely spaced randomly orientated undulating smooth stained black.		

Description on next sheet

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Ben Wilson + Martin Speedie**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.09.22** End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**3** of **15**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				97	7	7				. . . 8.97-9.07m: Very weak light greenish grey siltstone with 85° to 90° undulating rough discontinuity with occasional black specks. Extremely weak very thinly to thinly bedded reddish brown MUDSTONE. Bedding fractures: Closely spaced, 0° to 15°, undulating, smooth, black stained, locally with a little clay smear on surfaces. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 8.32m from previous sheet)* . . . 9.07-9.35m: 75° to 90° undulating smooth black stained discontinuity. . . . 9.40-10.30m: Discontinuities are very closely spaced randomly orientated undulating smooth, locally rough, black stained. . . . 9.50-9.95m: AZCL. . . . 10.29m: laminae (<2mm) of extremely weak light greenish grey siltstone.	(2.24)	
9.50-11.00				70	10	0					10.56	
10.70	38	D								Stiff thickly laminated to very thinly bedded reddish brown silty CLAY with occasional subangular fine gravel size mudstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP) . . . 10.88-10.89m: Extremely weak light greenish grey siltstone with occasional black specks. . . . . 11.00-11.30m: Drilling disturbed. NI, recovered as slightly gravelly clay.	(0.74)	
11.00-12.50							NI 20 100				11.30	
11.50	39	D		77	27	27				Extremely weak to very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 5°, undulating, smooth and rough, clean, locally stained black. (MERCIA MUDSTONE GROUP) . . . . 11.34-11.38m: 40° undulating smooth discontinuity with <1mm clay on surfaces. . . . 11.38-11.50m: 80° undulating rough clean discontinuity. . . . 11.48-11.52m: Occasional fine to medium gravel size light greenish grey siltstone lithorelicts and occasional reduction spots. . . . 11.64-11.66m: Very weak light grey sandy siltstone. . . . 11.73-11.74m: Extremely weak light greenish grey siltstone. . . . 12.02-12.12m: Thickly laminated. . . . 12.27-12.38m: 50° to 60° undulating smooth discontinuity with 1mm soft clay infill on surfaces. . . . 12.40-12.50m: Stiff thickly laminated to very thickly bedded silty clay. . . . 12.50-13.10m: AZCL. . . . . 13.10-13.15m: Very weak to weak light greenish grey siltstone. . . . 13.15-13.70m: Discontinuities are extremely closely to very closely spaced randomly orientated undulating smooth and rough predominantly		
12.50-14.00				60	0	0					(3.90)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Ben Wilson + Martin Speedie**	**RSenior + RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**4** of **15**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.60	40	D		60	0	0				stained black with frequent black specks. Extremely weak to very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 5°, undulating, smooth and rough, clean, locally stained black. (MERCIA MUDSTONE GROUP)		
14.00-15.00										*(stratum copied from 11.30m from previous sheet)* . . . 13.75-14.00m: Drilling disturbed, recovered as clayey angular to subangular fine to medium gravel of mudstone.		
14.40	41	D		145	48	30				. . . 14.00-14.25m: Drilling disturbed, recovered as clayey angular to subangular fine to medium gravel od mudstone. . . . 14.10-14.15m: Light greenish grey siltstone band recovered as clayey gravel. . . . 14.40-14.80m: Discontinuities are very closely spaced randomly orientated undulating rough and smooth locally black stained and locally with a little clay smear on surfaces. Occasional reduction spots <20mm.		
											15.20	
15.33-15.41	42	C								. . . 14.65-15.27m: 80° to 90° undulating smooth and rough lack stained discontinuity. . . . 15.08-15.12m: 20° Undulating smooth black stained discontinuity.	(0.30)	
											15.50	
15.50-17.00							NI 20 100			Very weak to weak very thinly to thinly bedded light greenish grey SILTSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 10°, undulating, smooth, with 1-5mm soft clay on surfaces. (MERCIA MUDSTONE GROUP)		
16.00	43	D		97	9	0				. . . 15.20-15.23m: Extremely weak light greenish grey siltstone. Extremely weak to very weak thickly laminated to thinly bedded reddish brown MUDSTONE. GRADE II to III. Bedding fractures: Very closely to closely spaced, locally extremely closely spaced, undulating, smooth and rough, clean, with occasional clay smear on surfaces. (MERCIA MUDSTONE GROUP)		
17.00-18.50				97	63	37				. . . 15.50-15.83m: Discontinuities are extremely closely to very closely spaced randomly orientated undulating smooth and rough clean with occasional black specks on surfaces. . . . 16.02-16.17m: 85° to 90° undulating smooth clean discontinuity. . . . 16.32-16.62m: 85° to 90° undulating smooth black stained discontinuity. . . . 16.67-16.74m: 80° to 85° undulating smooth black stained discontinuity. . . . 16.74-16.80m: Very weak to weak thickly laminated light greenish grey siltstone. . . . 16.80-17.00m: Recovered as stiff thinly to thickly laminated reddish brown clay, possibly drilling disturbed.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.09.22** End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**5** of **15**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
17.93-18.03	44	C		97	63	37				. . . 17.24-17.45m: 85° to 90° undulating smooth black stained discontinuity locally with a little clay smear on surfaces. . . . 17.55-17.60m: Extremely weak light greenish grey siltstone. Extremely weak to very weak thickly laminated to thinly bedded reddish brown MUDSTONE. GRADE II to III. Bedding fractures: Very closely to closely spaced, locally extremely closely spaced, undulating, smooth and rough, clean, with occasional clay smear on surfaces. (MERCIA MUDSTONE GROUP) . . . 15.50-15.83m: Discontinuities are extremely closely to very closely spaced randomly orientated undulating smooth and rough clean with occasional black specks on surfaces.*(stratum* copied from 15.50m from previous sheet) . . . 18.14-18.28m: 80° to 90° undulating smooth lack stained discontinuity. . . . 18.50-18.80m: Drilling disturbed, recovered as slightly clayey angular to subangular fine to coarse mudstone gravel. . . . 18.80-19.00m: 85° undulating smooth black stained discontinuity. . . . . 19.10-19.23m: 85° undulating clean discontinuity. . . . 19.43-19.75m: 85° to 90° undulating, locally stepped, smooth black stained discontinuity. . . . 19.68-19.71m: Very stiff thinly laminated reddish brown clay. . . . 19.80-19.84m: Very stiff thinly laminated reddish brown clay. . . . 20.20-20.48m: Very weak to weak very thinly to thickly bedded light greenish grey siltstone. Bedding fractures are very closely to closely spaced undulating rough locally smooth, with occasional black specks on surfaces. . . . 20.22-20.43m: 85° to 90° undulating rough discontinuity with occasional black specks on surfaces. . . . 20.70-20.76m: Extremely closely to very closely spaced randomly orientated clean locally lightly black stained discontinuities. . . . 20.74-20.90m: 65° undulating rough black stained discontinuity. . . . 20.90-21.16m: 2 no parallel closely spaced, locally black stained discontinuities. . . . 21.28-21.42m: Band of extremely weak light greenish grey siltstone. . . . 21.50-21.90m: Drilling disturbed, recovered as clayey angular to subangular fine to coarse gravel of mudstone. *Description on next sheet*		
18.50-20.00				97	45	27	NI 20 100				(6.40)	
20.00-21.50				97	54	39						
21.15-21.35	45	C										
21.50-23.00				100	65	50	30 120 340				21.90 (1.10)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Ben Wilson + Martin Speedie**	**RSenior + RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**6** of **15**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.70-23.00	46	C		100	65	50	30 120 340			Very weak very thinly to thinly bedded light greenish grey SILTSTONE with occasional very thin to thin beds of reddish brown mudstone. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 5°, undulating, rough, with a little clay smear on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.90m from previous sheet)*	23.00	
23.00-24.50											(0.55)	
23.18-23.52	47	C								Very strong thickly to medium bedded light grey SILTSTONE. GRADE I. Bedding fractures: closely to medium spaced, 0°, undulating, rough, with occasional black specks and staining. (MERCIA MUDSTONE GROUP)	23.55	
				100	74	60	NI NI 130			Extremely weak to very weak thickly laminated to thinly bedded reddish brown MUDSTONE with occasional thick laminae and very thin beds of siltstone. GRADE II to III. Bedding fractures: Extremely closely to closely spaced, 0° to 5°, undulating, smooth and rough, clean, locally black stained. (MERCIA MUDSTONE GROUP) . . . 23.65-23.78m: 80° to 90° undulating rough clean discontinuity.	(0.95) 24.50	
24.50-26.00 24.50-24.63		SPT	NP							AZCL. (MERCIA MUDSTONE GROUP)	(1.00) 25.50	AZCL
				33	0	0	NI NI 20			Stiff thinly to thickly laminated reddish brown mottled light greenish grey CLAY. Occasional thick laminae and very thin beds of silt and extremely weak siltstone. Occasional fine to medium gravel size lithorelics. GRADE III. (MERCIA MUDSTONE GROUP)	(0.80)	
25.90 26.00-27.50	48	D								. . . 26.13-26.23m: 40° undulating rough clean discontinuity.	26.30	
				100	20	0	NI 60 200			Extremely weak to very weak very thinly to thickly bedded reddish brown mottled grey silty MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 15°, undulating, smooth and rough, clean, locally with black specks. (MERCIA MUDSTONE GROUP) *Description on next sheet*		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Ben Wilson + Martin Speedie**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**7** of **15**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.00	49	D		100	20	0				. . . 26.40-26.55m: 60° undulating rough black stained discontinuity . . . . 26.60-26.67m: 70° to 20° curved undulating rough clean discontinuity . . . . 26.67-26.81m: 45° undulating rough clean discontinuity . . . . 26.80-26.95m: Randomly orientated extremely closely spaced undulating clean discontinuities.		
27.50-29.00										Extremely weak to very weak very thinly to thickly bedded reddish brown mottled grey silty MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 15°, undulating, smooth and rough, clean, locally with black specks. (MERCIA MUDSTONE GROUP)		
27.95-28.08	50	C		90	37	25	NI 60 200			*(stratum copied from 26.30m from previous sheet)* . . . 27.04-27.19m: 50° undulating rough clean discontinuity. . . . 27.24-27.34m: 40° undulating smooth clean discontinuity, . . . 27.35-27.6m: Discontinuities are extremely closely to very closely spaced randomly orientated undulating smooth and rough clean. . . . 27.69-28.68m: With closely to medium spaced thin and thick laminae of Extremely weak to very weak light greenish grey siltstone.	(4.20)	
29.00-30.50				90	67	42				. . . 28.68-28.90m: 50° to 80° undulating rough lightly black stained discontinuity, . . . 29.00-29.17m: Band of stiff reddish brown silty clay. . . . 29.25-29.30m: Occasional 5-10mm diameter light greenish grey siltstone inclusions. . . . 29.36-29.40m: 50° undulating rough orangish brown stained discontinuity. . . . 29.40-29.41m: Non penetrative orangish brown stained on bedding fracture. . . . 29.86-29.91m: 15° to 20° undulating rough orangish brown stained discontinuity.		
30.10-30.35	51	C										
										. . . 30.44-30.50m: 40° undulating smooth discontinuity with 1-3mm soft clay on surfaces.	30.50	
										Borehole terminated at 30.50m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Ben Wilson + Martin Speedie**	**RSenior + RStan**	

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**8** of **15**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**9** of **15**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**10** of **15**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**11** of **15**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**12** of **15**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**13** of **15**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**14** of **15**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH08**
Contract Ref:	Start: **06.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**88.31**	**E:445920.7 N:325248.3**	**15** of **15**

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Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Ben Wilson + Martin Speedie**	Logged By:	**RSenior + RStan**	Checked By:	AGS

STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**16.09.22** End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**1** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00-0.00	1	D								TOPSOIL		
0.00-0.20	3	B									(0.40)	
0.10-0.10	2	ES	1xT+1xJ+1xV									
0.20-0.20	4	D										
0.20-0.40	6	B									0.40	
0.30-0.30	5	ES	1xT+1xJ+1xV							Stiff thinly laminated dark and light brown, mottled orangish brown, slightly sandy gravelly CLAY. Gravel is fine to coarse of mudstone and metamorphic rock. Sand is fine to coarse.		
0.40-0.40	7	D										
0.40-0.80	9	B									(0.80)	
0.50-0.50	8	ES	1xT+1xJ+1xV									
0.80-0.80	10	D										
0.80-1.20	12	B									1.20	
1.00-1.00	11	ES	1xT+1xJ+1xV									
1.20-1.65		SPT	N=10							Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine and medium. Gravel is subangular and subrounded fine mudstone, sandstone and chalk.		
1.20-1.65	13	DSPT										
1.20-1.70	14	B										
1.40	15	ES										
1.70	16	D										
1.80	17	ES										
2.00-2.45	18	UT	42 blows 100% recovery									
2.50	19	D									(2.80)	
2.50-3.00	20	B										
3.00	21	ES										
3.00-3.45		SPT	N=15									
3.00-3.45	22	DSPT							1			
3.00-3.50	23	B										
3.50	24	D										
3.80	25	ES							1		4.00	
4.00-4.45	26	UT	36 blows 100% recovery							Brown slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is subangular and subrounded fine and medium mudstone and sandstone.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
20/09/22	16:00	9.00	7.50	N/R	8.65

Chiselling / Slow Progress

From	To	Duration (hh:mm)
8.80	9.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm tools and casing.
4. Groundwater encountered at 11.60m depth. Rose to 7.10m after 30 minutes.
5. Borehole installed with a dual install of 19mm and 50mm standpipe upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	**Chris Jobson + Marc Pearson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**16.09.22** End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**2** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.50	27	D								Brown slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is subangular and subrounded fine and medium mudstone and sandstone. *(stratum copied from 4.00m from previous sheet)*	(1.50)	
4.50-5.00	28	B										
5.00-5.45		SPT	N=7									
5.00	29	DSPT										
5.00-5.50	30	B										
5.50	31	D									5.50	
6.00-6.45		SPT	N=33							Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine and medium and mudstone derived. Gravel is angular and subangular mudstone lithorelics. (MERCIA MUDSTONE GROUP)		
6.00-6.45	32	DSPT										
6.00-6.50	33	B										
6.50	34	ES										
6.50	35	D										
7.00-7.45		SPT	N=40									
7.00-7.45	36	DSPT										
7.00-7.50	37	B									(3.90)	
7.50	38	D										
8.00-8.33		SPT	8,17/17,23,10 for 39mm							. . . Occasional thin bands of fine and medium gravel size pockets of sandy silt.		
8.00	39	DSPT										
8.00-8.50	40	B										
8.50	41	D										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	**Chris Jobson + Marc Pearson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**16.09.22** End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**3** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.28		SPT	15,10/24,26 for 70mm							. . . 9.00-9.40m: AZCL. ??? SPT		
9.00	42	DSPT									9.40	
9.77-10.01	43	C								Weak grey SILTSTONE. Occasional laminae of extremely weak reddish brown mudstone. GRADE III. Bedding fractures: closely spaced, incipient, undulating, rough . (MERCIA MUDSTONE GROUP) . . . 9.40-9.65m: Extremely weka mudstone. . . . 10.00-10.03m: 9° undulating smooth clean. . . . 10.12-10.13m: 5° undulating smooth clean. . . . 10.33-10.38m: NI. . . . . 10.33-10.41m: Mottled grey and reddish brown siltstone and mudstone. Fracture bedding closely spaced 0-10° undulating smooth possible incipient. . . . . 10.44-10.45m: 7° undulating rough partial yellow stained. . . . 10.50-10.65m: AZCL. . . . 10.65-10.92m: NI. . . . . 10.68-10.75m: 36° undulating rough occasionally yellow stained. . . . . 10.86-10.88m: 4° undulating rough infill clayey silt and mudstone lithorelicts. . . . . 11.17-11.19m: Band of MUDSTONE recovered as angular gravel. Fine to coarse.	(2.20)	
11.21-11.60	44	C									11.60	
12.00-13.50				100	95	95				Extremely weak, locally weak, reddish brown MUDSTONE. Frequent laminae of grey siltstone and occasional reddish brown fine grained sandstone. Bedding fractures: widely spaced, 0-10°, planar, rough, rarely undulating, with some black, locally yellow, staining. (MERCIA MUDSTONE GROUP) . . . 11.98-12.00m: Grey siltstone. . . . . 12.54-13.21m: Sandstone fine grained interbedded with grey siltstone and local mudstone.		
12.79-12.97	45	C										

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	**Chris Jobson + Marc Pearson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**16.09.22** End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**4** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00										. . . 13.42-13.50m: NI. Extremely weak, locally weak, reddish brown MUDSTONE. Frequent laminae of grey siltstone and occasional reddish brown fine grained sandstone. Bedding fractures: widely spaced, 0-10°, planar, rough, rarely undulating, with some black, locally yellow, staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 11.60m from previous sheet)* . . . 13.50-13.58m: NI. . . . 13.64-13.69m: NI. . . . 13.65-13.69m: Frequent yellow stained on discontinuities surface. Randomly orientated. . . . 13.69-13.74m: Band of siltstone. . . . 13.85-14.00m: Frequent pockets of grey siltstone. . . . 13.98-14.03m: Band of siltstone. . . . 14.18-14.29m: ??? siltstone and mudstone. . . . 14.38-14.39m: 6° planar rough fine reddish brown sandy infill <3mm. . . . 14.54-14.61m: 15° planar rough fine reddish brown infill <3mm. . . . 14.74-14.93m: 75° planar rough occasionally yellow brown stained. . . . 15.22-15.75m: Reddish brown inbedded carbonate fine to medium grained sandstone. . . . 15.50-15.53m: NI. . . . 15.373-16.07m: Interbedded sandstone with reddish brown mudstone and grey siltstone.		
14.08-14.18	46	C		100	91	91						
15.00-16.00												
15.48-15.74	48	C		138	135	119						
16.03-16.25	47	C									(9.40)	
16.50-18.00										. . . 16.93-17.02m: Thin lamanite mudstone. . . . 16.38-16.50m: AZCL. . . . 16.50-16.66m: Grey siltstone band.		
17.00-17.20	49	C		93	77	43				. . . 17.31-17.66m: Reddish brown mudstone with infill and pockets of reddish brown sand, locally sandy MUDSTONE. . . . 17.44-17.52m: NI. . . . 17.59-17.66m: NI. . . . 17.66-17.90m: Recover as angular MUDSTONE with occasional pockets of siltstone. . . . 17.90-18.00m: AZCL.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	**Chris Jobson + Marc Pearson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**16.09.22** End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**5** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50 18.06-18.33	50	C								Extremely weak, locally weak, reddish brown MUDSTONE. Frequent laminae of grey siltstone and occasional reddish brown fine grained sandstone. Bedding fractures: widely spaced, 0-10°, planar, rough, rarely undulating, with some black, locally yellow, staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 11.60m from previous sheet)* . . . 18.00-18.06m: NI. . . . 18.00-18.37m: Occasional pockets of reddish brown fine sand. . . . 18.32-19.81m: 13° >3mm open with sandy silt infill. (reddish brown) . . . 18.33-18.34m: 4° planar rough <3mm open fine reddish brown sand infill. . . . 18.57-18.86m: NI due to difference rocks and ?? level: weak sandy MUDSTONE and weak to medium strong siltstone interbedded. Recovery as silty sandy gravel of mudstone and siltstone. . . . 18.57-19.06m: Interbeds siltstone.mudstone. . . . 19.40-19.50m: NI. . . . 19.50-19.60m: AZCL. . . . 19.60-19.71m: Pockets reddish brown fine sand and partings. . . . 19.82-19.96m: Band of grey siltstone.		
				100	74	71						
19.50-21.00												
19.96-20.38	51	C										
				82	79	61				. . . 20.38-20.40m: NI due to weakness. Lithorelicts of grey siltstone, 4° planar rough due to weakness. . . . 20.40-20.65m: Bands of grey siltstone. . . . 20.55-20.56m: 5° undulating rough reddish brown silty CLAY infill (up to 4mm) >3mm ??. . . . 20.65-20.85m: Interbedding grey siltstone and mudstone.		
											21.00	
21.00-22.50										Extremely weak to weak reddish brown fine grained SANDSTONE. Rare pockets of weak grey siltstone. Locally with laminae of reddish brown mudstone. (MERCIA MUDSTONE GROUP) . . . 21.26-21.37m: NI due to weakness. . . . 21.40-21.62m: Mudstone. . . . 21.53-21.68m: 79° undulating rough clean possible induce.		
				100	93	93					(1.78)	
21.97-22.19	52	C										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	**Chris Jobson + Marc Pearson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**16.09.22** End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**6** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.50-24.00										. . . 22.50-22.60m: AZCL. . . . 22.71-22.76m: NI due to weakness.	22.78	
22.98-23.29	53	C		89	85	80				Weak, local very weak, reddish brown MUDSTONE. Occasional laminae of weak reddish brown fine grained sandstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 22.78m: Weak local very weak slightly carbonate unbedded fine MUDSTONE. Occasional bedded of reddish brown weak fine grained sandstone. . . . 22.89-22.90m: 6° planar rough clean, possible induce. . . . 22.99-23.03m: 2° undulating rough clean slightly fine sand infill. . . . 23.53-23.55m: 9° planar rough >3mm fine sand infill, clean. . . . 23.82-23.93m: Weak sandstone. . . . 23.93-24.00m: AZCL. . . . 24.00-24.05m: AZCL.		
24.00-25.50										. . . 24.34m: 3° undulating rough induce. . . . 24.42m24.45m: NI due to weakness. . . . 24.42-24.63m: Planar rough.		
24.58-24.84	54	C		97	95	89				. . . 24.82-24.91m: Planar rough.	(4.22)	
25.50-27.00										. . . 25.35-25.50m: Pockets of fine sand. . . . 25.57m: Slightly sandy occasional pockets of reddish brown fine sand.		
25.98-26.28	55	C		100	100	84				. . . 26.27-26.28m: Extremely weak sandstone mottled with grey siltstone. (band and pockets)		
										. . . 26.89-27.00m: Drilling disturbed.	27.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	**Chris Jobson + Marc Pearson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**16.09.22** End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**7** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.00-28.50										Extremely weak reddish brown, locally mottled grey, MUDSTONE. GRADE III. Bedding fractures: 0-10°, closely spaced, planar, rough, clean. (MERCIA MUDSTONE GROUP) . . . 27.00m: Extremely weak reddish brown local mottled grey unbedded slightly carbonate fine MUDSTONE. Fracture bedding 0-10° planar rough clean. Fracture 60-70 undulating rough clean, CIRIA GRADE III) . . . 27.00-27.08m: NI. . . . 27.07-27.09m dept: 3° planar rough clean. . . . 27.18-27.19m: 8° planar rough clean. . . . 27.28-27.29m: 6° undulating rough clean. . . . 27.32-27.34m: Undulating rough silty lithorelicts. . . . 27.55-27.57m: 8° undulating rough clean. . . . 27.65-27.73m: NI. . . . 27.73-27.74m: 4° planar rough clean.	(3.00)	
27.35-27.56	56	C		100	88	67						
28.50-30.00										. . . 27.83-27.84m: 5° planar rough clean. . . . 27.83-27.87m: NI. . . . 27.92-28.06m: 69° undulating rough clean. . . . 28.07-28.30m: 64° undulating rough clean. . . . 28.36-28.50m: NI. . . . 28.61-28.63m: 14° undulating rough clean. . . . 28.84-28.87m: 7° undulating rough clean. . . . 28.94-30.00m: Grey siltstone interbedding with mudstone., . . . 29.00-29.07m: 28° undulating rough clean. . . . 29.16-29.28m: NI, recover as silty gravel of mudstone and siltstone angular. . . . 29.36-29.37m: 4° undulating rough clean. . . . 29.43-29.44m: 6° undulating rough clean. . . . 29.64-29.65m: 6° planar rough clean. . . . 29.80-29.81m: 3° planar rough clean. . . . 29.95-29.96m: Planar rough clean.	30.00	
29.44-29.65	57	C		100	95	77						
										Borehole terminated at 30.00m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	**Chris Jobson + Marc Pearson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH09**
Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**8** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH09**
Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**9** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH09**
Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**10** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH09**
Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**11** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH09**
Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**12** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH09**
Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**13** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH09**
Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.23**	**E:445839.0 N:324955.9**	**14** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark 2 + Comacchio GEO 405 Sonic**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**1** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10-0.10	1	ES	1xT+1xJ+1xV							TOPSOIL	(0.60)	
0.30-0.30	2	D										
0.30-0.50	3	B									0.60	
0.70-0.70	4	ES	1xT+1xJ+1xV							Reddish brown slightly gravelly slightly clayey coarse SAND. Gravel is fine to medium sub rounded to rounded of mudstone, siltstone and sandstone.	(0.60)	
0.70-0.90	5	B										
0.90-0.90	6	D									1.20	
1.20-2.20										Stiff reddish brown mottled light grey slightly sandy silty CLAY with frequent angular to subangular fine to medium gravel sized mudstone lithorelics. Occasional rootlets. (MMG, GRADE IVA)	1.35	
1.20-1.65		SPT	N=19								(0.40)	
1.20-1.20	7	DSPT										
1.30	8	D									1.75	
				100	0	0				Stiff thinly laminated to very thinly bedded light greenish grey clayey SILT with frequent angular to subangular fine to medium gravel sized siltstone lithorelics frequent thick lamanite and very thin beds of extremely weak siltstone. (MMG, GRADE III)		
2.20-3.70										Stiff thinly and thickly laminated reddish brown silty CLAY with frequent fine gravel sized mudstone lithorelics. (MMG, GRADE III)		
2.20-2.62		SPT	8,10/10,11,16,13 for 40mm							. . . 1.98-2.02m: Thinly to thickly laminated light greenish grey siltstone.		
										. . . 2.54-2.70m: Lithorelics are angular to subangular fine to coarse gravel size.		
2.70	9	D									(2.05)	
				100	0	0						
3.70-5.20											3.80	
4.00	10	D		100	10	0				Extremely weak very thinly to thickly bedded reddish brown MUDSTONE. Bedding fractures are very closely to closely spaced 0° to 5° planar and undulating smooth clean and locally with black spots and with <1mm clay smear on surfaces. (MMG, GRADE II)		
										. . . 3.90-4.15m: 75° undulating smooth discontinuity with <1mm clay smear on surfaces.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
27/09/22		17.20	2.20	150	-
28/09/22		17.20	2.20	150	15.50
28/09/22		20.20	None	150	-

General Remarks

1. Position cleared using CAT and Genny
2. Hand dug inspection pit to 1.20m.
3. drilling diameters ....
4. Borehole installed with 50mm standpipe upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**Marc Pearson**	**RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**2** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	10	0				. . . 4.02-4.08m: Drilling disturbed, recovered as soft gravelly clay. . . . 4.10-4.70m: With extremely closely to closely spaced undulating smooth black stained discontinuties. Extremely weak very thinly to thickly bedded reddish brown MUDSTONE. Bedding fractures are very closely to closely spaced 0° to 5° planar and undulating smooth clean and locally with black spots and with <1mm clay smear on surfaces. (MMG, GRADE II)		
5.20-6.70										*(stratum copied from 3.80m from previous sheet)* . . . 4.68-4.74m: Drilling disturbed recovered as clayey angular to subangular fine mudstone gravel. . . . 4.75-4.92m: 80° to 90° undulating rough slightly black stained discontinuity.		
5.40	11	D		100	0	0				. . . 4.92-4.95m: Very weak light greenish grey siltstone. . . . 4.96-5.02m: 45° undulating smooth clean discontinuity . . . . 5.20-5.25m: Weak reddish brown mudstone. . . . 5.41-5.42m: Extremely weak light greenish grey siltstone. . . . 5.52-5.60m: (Soft) reddish brown silty clay with frequent angular fine to medium gravel size lithorelics. . . . 5.66-5.82m: (Soft) reddish brown silty clay with frequent angular fine to medium gravel size lithorelics. . . . 6.00-6.20m: (Soft to firm) reddish brown silty clay with frequent angular fine to medium gravel size lithorelics. . . . 6.47-6.52m: Extremely weak light greenish grey siltstone. . . . 6.60-6.70m: Drilling disturbed, recovered as soft gravelly clay. . . . 6.70-6.85m: (Firm) reddish brown silty clay with occasional angular to subangular fine to medium gravel size lithorelics. . . . 7.02-7.15m: (Soft to firm) reddish brown silty clay with occasional angular to subangular fine to medium gravel size lithorelics. . . . 7.15-7.25m: Moderately weak light greenish grey siltstone. . . . 7.15-7.32m: 75° undulating smooth discontinuity with occasional black specks.	(4.40)	
6.20	12	D										
6.70-8.20												
7.30	13	D		95	0	0					8.20	
8.20-9.70										. . . 7.40-7.85m: 75° to 90° undulating rough clean locally lightly black stained discontinuity . Very weak thickly laminated to thickly locally medium bedded reddish brown MUDSTONE. Bedding fractures are very closely to closely locally medium spaced 0° to 5° planar and undulating smooth with >1mm clay smear of surfaces locally with rare to occasional black staining. (MMG, GRADE II)		
				90	47	7						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**Marc Pearson**	**RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**3** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.15-9.35	14	C		90	47	7				. . . 8.50-8.51m: Weak light greenish grey siltstone. . . . 8.55-8.95m: With extremely closely to very closely spaced randomly orientated undulating smooth and rough clean locally black stained discontinuities. . . . 8.69-8.71m: Very weak to weak light greenish grey siltstone. . . . 8.96-9.06m: Stiff reddish brown silty clay.	(2.25)	
9.70-11.20										Very weak thickly laminated to thickly locally medium bedded reddish brown MUDSTONE. Bedding fractures are very closely to closely locally medium spaced 0° to 5° planar and undulating smooth with >1mm clay smear of surfaces locally with rare to occasional black staining. (MMG, GRADE II) *(stratum copied from 8.20m from previous sheet)* . . . 9.50-9.65m: AZCL.	10.45	
9.88-10.22	15	C		100	53	33				. . . 9.70-9.85m: 90° undulating smooth discontinuity with 1-2mm soft clay on surfaces.		
11.20-12.70										Extremely weak thickly laminated to thickly bedded reddish brown mottled grey slightly sandy to locally sandy MUDSTONE. Bedding fractures are extremely closely to closely spaced 0° planar and undulating clean locally with <1mm clay smear on surfaces. . . . 10.82-11.00m: Firm to stiff thinly laminated reddish brown silty clay with occasional subangular fine gravel size mudstone lithorelics. . . . 11.20-11.45m: AZCL.		
11.50	16	C		83	53	33				. . . 11.45-11.80m: With very closely spaced randomly orientated undulating smooth and rough black stained locally clean discontinuity. . . . 11.80-12.22m: 85° to 90° undulating smooth and rough black stained discontinuity.	(2.15)	
12.70-14.20										. . . 12.24-12.28m: Weak light greenish grey siltstone. . . . 12.45-12.60m: Drilling disturbed, recovered as gravelly clay.	12.60	
12.99-13.12	17	C		93	42	21				Very weak very thickly to thinly bedded reddish brown MUDSTONE. Bedding fractures are very closely to closely spaced 0° to 5° undulating smooth and rough locally black stained and locally with <1mm clay smear on surfaces. . . . 12.70-12.92m: 85° to 90° undulating rough blacks stained discontinuity. . . . 13.25-13.32m: 45° undulating rough clean discontinuity .		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**Marc Pearson**	**RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**4** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				93	42	21				Very weak very thickly to thinly bedded reddish brown MUDSTONE. Bedding fractures are very closely to closely spaced 0° to 5° undulating smooth and rough locally black stained and locally with <1mm clay smear on surfaces. *(stratum copied from 12.60m from previous sheet)*	(2.71)	
14.20-15.70				100	59	49				. . . 13.50-13.56m: Extremely weak light greenish grey siltstone. . . . 13.56-13.70m: Extremely weak mudstone with extremely closely spaced randomly orientated rough clean discontinuity. . . . 13.77-13.86m: Moderately weak light greenish grey siltstone. . . . 13.86-13.96m: Strong light greenish grey siltstone. . . . 13.91-13.97m: 50° undulating smooth black stained discontinuity. . . . 13.97-14.10m: Drilling disturbed, recovered NI as subangular fine to coarse gravel. . . . 14.10-14.20m: AZCL. . . . 14.70-14.77m: Weak siltstone, NI, recovered as subangular fine to coarse gravel. . . . 14.84-14.98m: 2No. parallel very closely spaced 50° undulating smooth black stained discontinuities. . . . 15.12-15.24m: 2No. parallel very closely spaced 85° to 90° undulating smooth black stained discontinuities.	15.31	
15.40-15.60	18	C								Medium strong thickly to medium bedded light greenish grey SILTSTONE. Bedding fractures are closely to medium spaced 0° to 10° undulating rough clean locally with occasional black specks on surfaces. (MMG, GRADE I)	(1.59)	
15.70-17.20										. . . 15.31-15.36m: 30° undulating rough light black stained discontinuity, with occasional black specks. . . . 15.70-15.90m: Extremely weak reddish brown mudstone. . . . 15.99-16.01m: Extremely weak reddish brown mudstone. . . . 16.20-16.23m: Stiff reddish brown clay with frequent angular fine gravel size lithorelics.	16.90	
16.27-16.57	19	C		100	73	41				Extremely weak to very weak very thinly to thickly locally medium bedded reddish brown MUDSTONE. Bedding fractures are very closely to medium spaced undulating smooth and rough clean locally with <1mm clay of surfaces. (MMG, GRADE II)		
17.20-18.70												
17.20-17.38	20	C								. . . 17.37-17.42m: Beddin fractures are with black staining. . . . 17.44-17.58m: 70° to 80° undulating rough clean locally black stained discontinuity. . . . 17.62-17.83m: Very weak light greenish grey siltstone.		
				95	13	7						
17.84-18.28	21	C								*Description on next sheet*		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**Marc Pearson**	**RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**5** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.70-20.20				95 100	13 47	7 36				. . . 17.90-18.70m: Driling disturbed, recovered as (very soft to soft) gravelly clay. Extremely weak to very weak very thinly to thickly locally medium bedded reddish brown MUDSTONE. Bedding fractures are very closely to medium spaced undulating smooth and rough clean locally with <1mm clay of surfaces. (MMG, GRADE II) *(stratum copied from 16.90m from previous sheet)* . . . 19.76-19.83m: 80° undulating rough locally black stained discontinuity. . . . 19.95-20.11m: 75° undulating rough black stained discontinuity.	(3.30) 20.20	
										Borehole terminated at 20.20m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**Marc Pearson**	**RSenior**	

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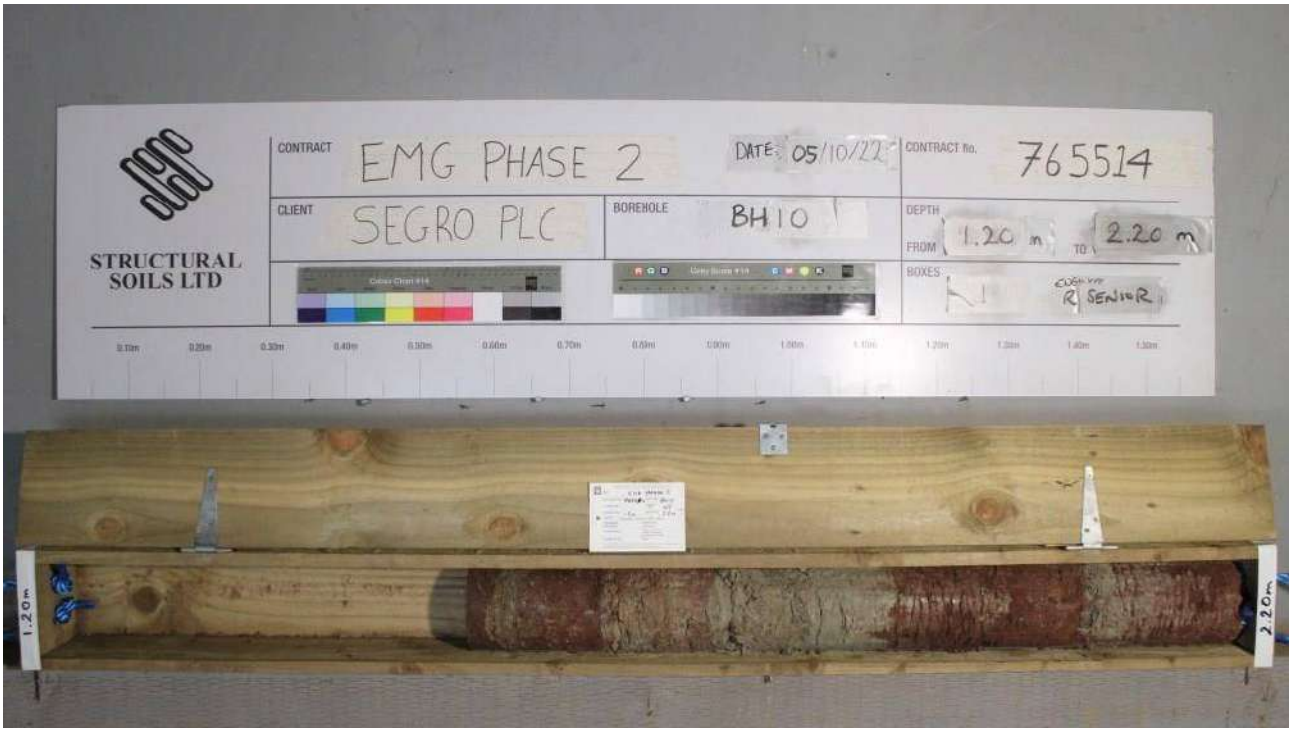
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH10**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**6** of **12**



Method Used:	**Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**Marc Pearson**	Logged By:	**RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH10**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**7** of **12**

Method Used:	**Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**Marc Pearson**	Logged By:	**RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH10**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**8** of **12**

Method Used:	**Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**Marc Pearson**	Logged By:	**RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH10**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**9** of **12**

Method Used:	**Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**Marc Pearson**	Logged By:	**RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH10**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**10** of **12**

Method Used:	**Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**Marc Pearson**	Logged By:	**RSenior**	Checked By:	

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH10**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**11** of **12**

Method Used:	**Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**Marc Pearson**	Logged By:	**RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH10**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**87.35**	**E:445787.3 N:325286.2**	**12** of **12**

Method Used:	**Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**Marc Pearson**	Logged By:	**RSenior**	Checked By:	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**1** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10-0.10	1	ES	1xT+1xJ+1xV							TOPSOIL	(0.80)	
0.50-0.50	2	B										
0.50-0.50	3	D									0.80	
0.80-0.80	4	ES	1xT+1xJ+1xV							Firm to stiff dark orangish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of mudstone, siltstone and sandstone.	(0.40)	
1.00-1.00	5	B										
1.10-1.10	6	D									1.20	
1.20-1.65	7	UT	90 blows							Very stiff greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of sandstone, chalk, quartzite and mudstone.	(1.30)	
1.70	8	D										
2.00-2.45		SPT	N=20									
2.00	10	D										
2.00-2.50	11	B									2.50	
3.00-3.45	12	UT	70 blows							Firm greyish brown, locally reddish brown, slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded predominantly fine, occasional medium to coarse, of chalk, sandstone and mudstone.		
3.00	13	D										
3.00	14	ES										
3.50-4.00	15	B										
4.00-4.45		SPT	N=24								(3.20)	
4.00	17	D										
4.00-4.50	18	B										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
27/09/22		7.50	7.50	200	-
28/09/22		7.50	7.50	200	-
28/09/22		12.50	12.50	200	11.45

Chiselling / Slow Progress

From	To	Duration (hh:mm)
10.00	10.50	01:00
10.50	11.00	01:00
11.00	11.50	01:00
11.50	12.00	01:00
12.00	12.50	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm tools and casing.
4. Groundwater struck at 9.00m depth, rising to 8.40m depth after 20 minutes.
5. Groundwater struck at 21.00m depth. Rose to 18.70m after 20 minutes.
6. Borehole installed with 50mm standpipe upon

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 205**	**Mathew Heath + Lee Smith**	**DNeylon + JAlton**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**2** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										Firm greyish brown, locally reddish brown, slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded predominantly fine, occasional medium to coarse, of chalk, sandstone and mudstone. *(stratum copied from 2.50m from previous sheet)*		
5.00-5.45	19	UT	80 blows									
5.00	20	D										
5.50	21	ES										
5.50-6.00	23	B									5.70	
5.70	22	D								Firm greyish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine of chalk and occasionally mudstone.		
6.00-6.45		SPT	N=27									
6.00	25	D										
6.00-6.50	26	B										
7.00	27	D									(3.30)	
7.50-7.95	28	UT	90 blows 100% recovery									
8.00	29	D							1		9.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 205**	**Mathew Heath + Lee Smith**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**3** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.45		SPT	N=50							Dense reddish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of mudstone, quartz, flint and sandstone.	(0.45)	
9.00-9.45	30	DSPT									9.45	
9.00-9.50	31	B										
9.00	32	D										
										Brown very sandy subangular to subrounded fine to coarse GRAVEL of quartzite, flint and sandstone.	9.60	
9.60-10.02		SPT	10,13/15,15,12,8 for 45mm							Stiff greyish brown mottled blue and reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse chalk, quartzite, sandstone and mudstone.	(0.40)	
											10.00	
10.00	34	D								Dense brown very sandy subangular to subrounded fine to coarse GRAVEL of quartz, sandstone, mudstone and flint.		
10.00-10.50	35	B										
11.00	36	D										
11.00-11.22		SPT	10,15/40,10 for 25mm									
11.00	37	DSPT										
11.00-11.50	38	B									(3.50)	
12.00-12.50	39	B										
12.50-12.82		SPT	12,13/24,19,7 for 15mm									
12.50	40	DSPT										
13.00-13.50											13.50	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 205**	**Mathew Heath + Lee Smith**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**4** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00										AZCL.	13.73	AZCL
										Extremely weak reddish brown MUDSTONE. NI, recovery as slightly clayey angular to subangular fine to medium gravel. Occasional laminae of grey siltstone. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.28) 14.01	
14.09-14.29	41	C		85	53	47	NI 150 210			Extremely weak to weak reddish brown MUDSTONE. Occasional laminae of greenish grey siltstone. Frequent calcite pockets (< 40x30x30mm). GRADE III. Bedding fractures: 0-10°, closely spaced, planar, rough, occasionally with silty clay infill. (MERCIA MUDSTONE GROUP) . . . 14.09-14.10m: 9° planar rough clean. . . . 14.29-14.33m: 5° undulating rough clean silty clay infill. . . . 14.41-14.61m: Grey siltstone.		
15.00-16.50										. . . 14.47-14.49m: 7° undulating rough clean silty clay infill.		
15.12-15.43	42	C								. . . 14.55-14.56m: 3° planar rough clean. . . . 14.67-14.68m: 4° planar rough clean. . . . 14.82m: NI, recovery as sandy angular gravel. . . . 15.05-15.14m: Reddish brown mudstone. . . . 15.12-15.13m: 6° planar rough clean.		
				100	95	90	NI 180 310			. . . 15.36-15.43m: NI recovery as angular fine to coarse gravel. . . . 15.41-15.46m: 27° undulating rough clean. . . . 15.45-15.59m: 68° undulating rough. Occasionally yellow stained. . . . 15.51-15.52m: 5° planar rough. Occasionally yellow stained. . . . 15.70-16.11m: 7° planar rough.	(3.26)	
										. . . 16.25-16.38m: 50° undulating rough clean.		
16.50-18.00										. . . 16.50-16.65m: AZCL.		
										. . . 16.95-17.19m: Weak grey siltstone.		
				90	69	62	NI 85 300			. . . 17.19-17.27m: NI.	17.27	
17.56-17.75	43	C								Extremely weak to weak reddish brown MUDSTONE. Rare to occasional grey pockets of siltstone. GRADE II. Fractures: Widely and extremely widely spaced, 0-10°, planar, rough clean. (MERCIA MUDSTONE GROUP) . . . 17.48-17.56m: NI. . . . 17.84-18.06m: NI, mottled with grey siltstone.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 205**	**Mathew Heath + Lee Smith**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**5** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50										Extremely weak to weak reddish brown MUDSTONE. Rare to occasional grey pockets of siltstone. GRADE II. Fractures: Widely and extremely widely spaced, 0-10°, planar, rough clean. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.27m from previous sheet)*		
18.10-18.45	44	C		100			NI NI NI		1			
										. . . 19.02-19.06m: Pockets of grey siltstone.		
19.50-21.00										. . . 19.50-19.57m: Pockets of grey siltstone.		
19.60-19.97	45	C		100	97	97	NI NI NI			. . . 19.65-19.68m: Sandy silty mudstone.		
										. . . 19.88-20.50m: interbedded with grey siltstone.		
										. . . 20.02-20.06m: 14° planar rough clean.		
										. . . 20.76-20.83m: Pockets of silty fine sand.		
									1	. . . 20.86-21.23m: Very weak to weak grey siltstone.		
21.00-22.50										. . . 21.08-21.09m: 5° planar rough <3mm silty clay infill.	(7.73)	
21.60-21.82	46	C		100	100	95	30 460			. . . 21.55-21.59m: Medium strong reddish brown fine grained sandstone. . . . 21.55-21.79m: Pockets of siltstone. . . . 21.59-21.60m: 4° undulating rough fine sand infill <3mm. . . . 21.78-22.00m: 85° undulating rough clean. . . . 22.00-22.25m: 69° undulating rough clean.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 205**	**Mathew Heath + Lee Smith**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**6** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.50-23.50												
22.50-22.73	47	C								Extremely weak to weak reddish brown MUDSTONE. Rare to occasional grey pockets of siltstone. GRADE II. Fractures: Widely and extremely widely spaced, 0-10°, planar, rough clean. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.27m from previous sheet)*		
				100	78	78	NI NI 320					
										. . . 23.30-23.41m: Grey siltstone.		
										. . . 23.38-23.50m: NI.		
23.50-25.00												
										. . . 23.77-23.78m: 5° planar rough clean.		
										. . . 23.90-23.92m: 8° undulating rough clean.		
24.02-24.20	48	C										
				100	97	91	NI 80 323			. . . 24.23-24.38m: 74° undulating rough. Rare laminae of siltstone.		
										. . . 24.35-24.41m: 52° planar rough clean.		
										. . . 24.35-24.44m: 52° and 57° intersecting planar rough clean discontinuities.		
										. . . 24.43-24.53m: 48° planar rough clean.		
										. . . 24.67-24.68m: 4° planar rough clean.		
										. . . 24.76-24.84m: NI.		
											25.00	
25.00-26.50										Very weak reddish brown MUDSTONE. Locally grey siltstone. GRADE II. Fractures: randomly orientated, closely to widely spaced, undulating, rough, clean. Occasional laminae and pockets of grey siltstone. (MERCIA MUDSTONE GROUP)		
25.16-25.47	49	C								. . . 25.14-25.18m: 8° undulating rough clean.		
										. . . 25.50-25.65m: 7° occasional laminae of siltstone.		
				100	83	83	NI NI 480			. . . 25.50-25.70m: Occasional laminae of siltstone.		
										. . . 25.50-25.74m: 69° undulating rough clean.		
										. . . 25.72-25.81m: 85° undulating rough clean.		
										. . . 25.75-25.85m: 44° undulating rough clean.		
										. . . 25.83-25.92m: 52° undulating rough clean.		
										. . . 25.86-25.98m: 5° planar rough clean.		
										. . . 26.20-26.22m: 14° planar rough clean.		
										. . . 26.37-26.61m: Grey siltstone.		
26.50-28.00												
26.59-26.80	50	C										
				100	67	57	NI 80 480			. . . 26.78-26.86m: 39° planar rough clean.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 205**	**Mathew Heath + Lee Smith**	**DNeylon + JAlton**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**7** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	67	57	NI 80 480			Very weak reddish brown MUDSTONE. Locally grey siltstone. GRADE II. Fractures: randomly orientated, closely to widely spaced, undulating, rough, clean. Occasional laminae and pockets of grey siltstone. (MERCIA MUDSTONE GROUP) *(stratum copied from 25.00m from previous sheet)* . . . 27.07-27.41m: NI, fractures closely spaced randomly orientated planar rough clean. . . . 27.62-27.66m: NI. . . . 27.77-27.84m: NI fracture randomly orientated 60-80°		
28.00-29.50										. . . 27.87-27.93m: Grey siltstone. . . . 28.00-28.10m: NI.	(6.00)	
				100	82	82	NI NI 830			. . . 28.26-28.43m: NI, randomly orientated, undulating, rough, incipient fractures with yellow staining on surfaces. . . . 28.64-28.83m: Grey siltstone. . . . 28.67-28.69m: Extremely weak mudstone.		
29.07-29.30	51	C								. . . 29.11-29.42m: Grey siltstone.		
										. . . 29.35-29.36m: 6° planar rough clean.		
29.50-31.00										. . . 29.50-30.34m: With laminae of very weak to weak grey siltstone.		
29.59-29.83	52	C										
				100	84	75	NI NI 530			. . . 30.34-30.47m: NI.		
										. . . 30.55-31.00m: Very weak to medium strong fine to medium grained SANDSTONE. . . . 30.57-30.66m: NI.		
										. . . 30.89-31.00m: NI.	31.00	
										Borehole terminated at 31.00m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 + Comacchio GEO 205**	**Mathew Heath + Lee Smith**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH11**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**8** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 + Comacchio GEO 205**	Drilled By:	**Mathew Heath + Lee Smith**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH11**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**9** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 + Comacchio GEO 205**	Drilled By:	**Mathew Heath + Lee Smith**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH11**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**10** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 + Comacchio GEO 205**	Drilled By:	**Mathew Heath + Lee Smith**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH11**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**11** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 + Comacchio GEO 205**	Drilled By:	**Mathew Heath + Lee Smith**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH11**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**12** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 + Comacchio GEO 205**	Drilled By:	**Mathew Heath + Lee Smith**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH11**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**79.89**	**E:445759.5 N:325134.8**	**13** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 + Comacchio GEO 205**	Drilled By:	**Mathew Heath + Lee Smith**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**1** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00-0.20	1	B									TOPSOIL	0.20	
0.10	101	ES	1xT+1xJ+1xV										
0.10	2	D									Firm fissured dark greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone, siltstone and quartz.		
0.40	3	D											
0.40-0.60	4	B											
1.00	5	D											
1.00-1.20	6	B											
1.20-1.40	7	$UT_{(UT100)}$	100 blows 100% recovery										
1.40-1.50	8	D											
1.70	9	D											
2.00-2.45		SPT	N=14									(3.70)	
2.00-2.45	11	DSPT											
2.00-2.45	12	B											
2.70	13	D											
3.00-3.45	14	$UT_{(UT100)}$	150 blows 78% recovery										
3.45-3.55	15	D											
3.70	16	D										3.90	
4.00-4.45		SPT	N=15								Firm fissured greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, quartz and siltstone.		
4.00-4.45	18	DSPT											
4.00-4.45	19	B											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/09/22	17:15	3.90	3.00	200	Dry
27/09/22	08:26	4.00	3.00	200	Dry
27/09/22	17:33	16.50	16.50	200	14.00
28/09/22	08:14	16.50	16.50	200	14.10
28/09/22	10:54	16.80	16.50	200	-
29/09/22	15:30	16.80	16.50	200	15.50
29/09/22	17:00	23.30	16.50	146	20.70
30/09/22	08:30	23.30	16.50	146	6.80

Chiselling / Slow Progress

From	To	Duration (hh:mm)
16.50	16.70	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm tools and casing.
4. Borehole installed with a 50mm standpipe.
5. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**2** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70	20	D									Firm fissured greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, quartz and siltstone. *(stratum copied from 3.90m from previous* sheet)		
5.00-5.45	21	$UT_{(UT100)}$	80 blows 89% recovery										
5.45-5.55	22	D											
5.70	23	D											
6.00-6.45		SPT	N=24										
6.00-6.45	25	DSPT											
6.00-6.45	26	B										(6.30)	
7.30	27	D											
7.50-7.95	28	$UT_{(UT100)}$	150 blows 100% recovery										
8.70	29	D											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
30/09/22	13:30	30.80	None	146	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**3** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.45		SPT	N=25								Firm fissured greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, quartz and siltstone. *(stratum copied from 3.90m from previous sheet)*		
9.00-9.45	31	DSPT											
9.00-9.45	32	B											
												10.20	
10.30	33	D									Stiff fissured dark brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine of mixed lithogolies including sandstone, mudstone and siltstone.		
10.50-10.95	34	$UT_{(UT100)}$	150 blows 89% recovery									(1.20)	
												11.40	
11.70	35	D									Stiff reddish brown mottled grey slightly gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular fine of mixed lithologies including sandstone and mudstone.		
12.00-12.37		SPT	5,7/7,20,23 for 70mm									(1.60)	
12.00-12.30	37	DSPT											
12.00-12.30	38	B											
												13.00	
13.00-13.50	39	B									Firm fissured sandy SILT.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**4** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-13.84		SPT	7,9/16,23,11 for 40mm								Firm fissured sandy SILT. *(stratum copied from 13.00m from previous* sheet)	(2.50)	
13.50-13.84	41	DSPT											
13.50-13.95	42	B											
14.70	43	D										15.50	
15.00-15.45		SPT	N=41										
15.00-15.45	45	DSPT											
15.00-15.45	46	B											
15.50-16.00	47	B									Greyish brown sandy silty subangular to subrounded fine to coarse GRAVEL of mixed lithologies including sandstone, siltstone, flint. Sand is fine to coarse. Cobbles of flint noted.	(0.60)	
16.30	48	D									Very stiff reddish brown sandy gravelly CLAY. Sand is fine. Gravel is angular to subangular fine of mudstone lithorelics. With laminae of grey siltstone. (MERCIA MUDSTONE GROUP)	(0.62)	
16.50-17.30 (0:03)												16.72	
16.50-16.72		SPT	7,9/50 for 70mm								AZCL (MERCIA MUDSTONE GROUP)	16.84	AZCL
16.50-16.72	50	DSPT											
16.50-16.80	51	B		57	30	0		Air+Mist (Brown)			Very weak thinly to thickly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 5°, planar, undulating, smooth, clean, locally lightly black stained. (MERCIA MUDSTONE GROUP)	(1.09)	
16.70-16.84		SPT	25/50 for 75mm										
16.70-16.84	53	DSPT											
17.11-17.20	54	C											
17.30-18.80 (0:05)				97	53	37		Air+Mist (Brown)			. . . 16.90-17.00m: 50° undulating smooth black stained discontinuity. . . . 17.00-17.18m: 85°-90° undulating rough lightly black stained discontinuity. . . . 17.20-17.25m: 70° undulating rough clean discontinuity. . . . 17.33-17.43m: 2 no 70° and 50° undulating rough clean discontinuities.	17.93	
17.91-18.01	55	C											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**5** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				97	53	37		Air+Mist (Brown)			Medium strong thinly bedded light greenish grey SILTSTONE. GRADE I. Bedding fractures: Closely spaced, 0° to 10°, undulating, rough, clean, locally black stained. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.93m from previous sheet)* . . . 18.08-18.18m: 40° undulating rough clean rough clean discontinuity. . . . 18.64-18.80m: Extremely weak reddish brown mudstone. . . . 18.90-19.15m: Very weak very thinly bedded reddish brown mudstone.	(1.54)	
18.80-20.30 (0:05)												19.47	
19.15-19.30	56	C											
				100	79	47		Air+Mist (Brown)			Very weak thinly to medium bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: closely to medium spaced, 0° to 5°, planar to undulating, smooth and rough, clean, locally lightly stained black. (MERCIA MUDSTONE GROUP) . . . 19.75-19.85m: Weak light grey siltstone. . . . 19.80-19.98m: 80° to 90° undulating rough lightly black stained discontinuity. . . . 20.17-20.30m: 85°to 90° undulating rough clean discontinuity. . . . 20.30-20.70m: occasional medium to coarse gravel size siltstone inclusions.	(1.76)	
20.30-21.80 (0:04)													
20.50-20.77	57	C											
				98	44	37		Air+Mist (Brown)			. . . 20.85-21.20m: 80° undulating smooth discontinuity with <1mm of silt on surfaces. . . . 21.02-21.23m: extremely weak light greenish grey siltstone.	21.23	
											. . . 21.07-21.23m: extremely weak light greenish grey siltstone. Stiff very thinly to thickly bedded reddish brown silty CLAY with occasional subangular fine to medium gravel size mudstone lithorelics. (MERCIA MUDSTONE GROUP)	(0.57)	
											. . . 21.76-21.80m: very weak light greenish grey siltstone.	21.80	
21.80-23.30 (0:05)											Extremely weak to very weak thinly bedded light grey SILTSTONE. GRADE II. Bedding fractures: Closely spaced, undulating and stepped, rough, clean, locally stained orangish brown. (MERCIA MUDSTONE GROUP)	(0.36)	
				97	90	52		Air+Mist (Brown)			*Description on next sheet*	22.16	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**RSenior + RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**6** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				97	90	52		Air+Mist (Brown)			. . . 22.33-22.45m: 70° undulating rough clean discontinuity. . . . 22.43-22.46m: 20° undulating rough clean discontinuity. Very weak thinly to medium bedded reddish brown silty MUDSTONE. Bedding fracture: Closely to medium spaced, 0° to 10°, undulating, smooth and rough, clean, locally with <1mm clay smear on surfaces. (MERCIA MUDSTONE GROUP)		
23.05-23.30	58	C											
23.30-24.80 (0:04)											*(stratum copied from 22.16m from previous sheet)* . . . 22.74-22.77m: 20° undulating rough clean discontinuity.		
23.90-24.15	59	C		100	81	55		Air+Mist (Brown)			. . . 24.22-24.24m: 20° undulating rough clean discontinuity. . . . 24.27-24.32m: very weak light greenish grey siltstone. . . . 24.38-24.40m: weak light greenish grey siltstone.	(4.64)	
24.80-26.30 (0:04)											. . . 24.72-24.90m: Very thickly to thinly bedded light greenish grey siltstone. . . . 24.85-24.92m: 70mm diameter siltstone inclusion.		
24.95-25.12	60	C									. . . 24.94-24.96m: 20° undulating rough clean discontinuity. . . . 25.24-25.30m: 40° undulating rough clean discontinuity. . . . 25.41-25.43m: light greenish grey siltstone.		
				100	78	70		Air+Mist (Brown)					
26.30-27.80 (0:06)											. . . 25.90-26.00m: 90° undulating rough clean discontinuity.		
26.55-26.78	61	C		99	73	61		Air+Mist (Brown)				26.80	
											Description on next sheet		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**RSenior + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**7** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				99	73	61		Air+Mist (Brown)			Very weak to weak very thinly to thickly bedded light greenish grey SILTSTONE. GRADE II. Bedding fracture: Very closely to closely spaced, 0° to 5°, undulating, rough, with <1mm clay on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 26.80m from previous sheet)* . . . 27.03-27.04m: firm reddish brown silty clay.	(0.50) 27.30	
27.80-29.30 (0:04)				100	77	71		Air+Mist (Brown)			Very weak thinly to medium bedded reddish brown silty MUDSTONE. GRADE II. Bedding fractures: Closely to medium spaced, 0° to 10°, undulating, rough, clean, locally with <1mm clay smear on surfaces. (MERCIA MUDSTONE GROUP) . . . 27.73-28.00m: light greenish grey siltstone. . . . 27.97-28.05m: weak light greenish grey siltstone. . . . 28.18-28.29m: 70° undulating rough discontinuity with <1mm clay smear of surfaces. . . . 28.68-28.86m: Very weak thinly bedded light greenish grey siltstone.	(2.00)	
28.78-29.00	62	C									. . . 29.16-29.18m: moderately weak light greenish grey siltstone.	29.30	
29.30-30.80 (0:04)				97	67	60		Air+Mist (Brown)			Extremely weak to very weak thinly to medium bedded reddish brown silty MUDSTONE. GRADE II. Bedding fractures: Closely to medium spaced, 0° to 15°, undulating, rough, clean, locally with <1mm clay on surfaces. (MERCIA MUDSTONE GROUP) . . . 29.30-29.35m: Drilling disturbed. NI / soft gravelly clay. . . . 29.37-29.42m: 30° undulating rough clean locally black stained discontinuity. . . . 29.45-29.50m: 25° undulating rough clean locally light stained orangish brown discontinuity. . . . 29.45-29.80m: Occasional fine to medium gravel size siltstone inclusions. . . . 30.20m030.23m: 20° undulating smooth lightly orange stained discontinuity locally with <1mm clay on surfaces.	(1.50) 30.80	
30.33-30.50	63	C									Borehole terminated at 30.80m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio Geo 602**	**Jonny Hutt + Sam Carter**	**RSenior + RStan**	

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH12**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**8** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH12**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**9** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH12**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**10** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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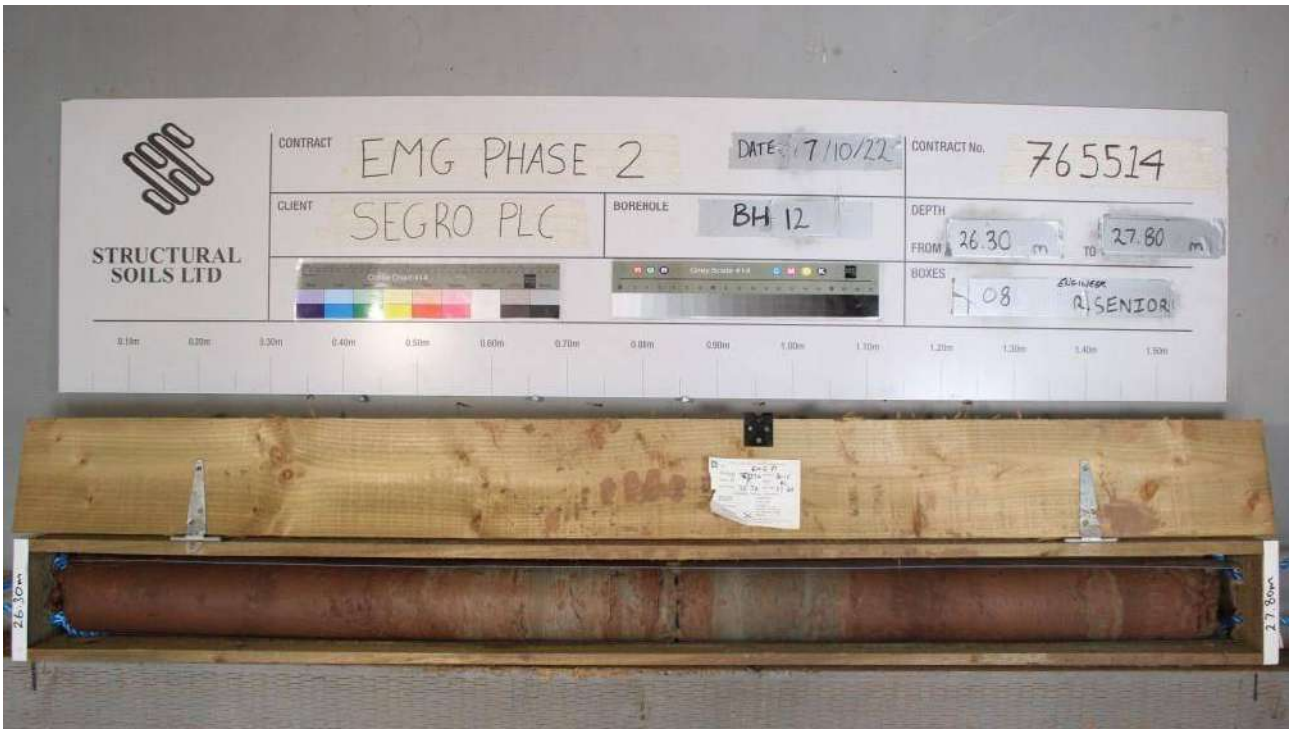
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH12**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**11** of **12**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH12**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**80.23**	**E:446174.0 N:325010.3**	**12** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio Geo 602**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**RSenior + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**20.09.22** End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**1** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D								TOPSOIL	(0.30)	
0.10-0.20	2	B									0.30	
0.20	101	ES	1xT+1xJ+1xV							Firm orangish brown very gravelly sandy SILT. Sand is fine to coarse, predominantly coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies. Occasional roots and pockets of organic matter (<5mm).		
0.50	102	ES	1xT+1xJ+1xV								(0.90)	
0.50	3	D										
0.50-0.70	4	B									1.20	
1.20	5	D								Firm to stiff reddish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies.		
1.20-1.65		SPT	N=20								(0.50)	
1.20-1.65	7	DSPT										
1.20-1.65	8	B									1.70	
1.80	9	D								Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies.		
2.00-2.45		SPT	N=7									
2.00-2.45	11	DSPT										
2.00-2.45	12	B									(1.90)	
2.70	13	D										
3.00-3.45	14	$UT_{(UT100)}$	62 blows 94% recovery									
3.45-3.55	15	D									3.60	
3.70	16	D								Stiff reddish brown mottled grey slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies.		
4.00-4.45		SPT	N=20									
4.00-4.45	18	DSPT										
4.00-4.45	19	B										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
20/09/22	16:08	9.00	7.50	200	8.00
23/09/22		28.50	None	150	-
23/09/22		30.00	None	150	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
8.70	9.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Groundwater struck at 9.00m depth, rising to 8.00m depth after 20 minutes.
4. Borehole drilled using 200mm tools and casing.
5. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 205**	**Jonny Hutt + L Bramford**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**20.09.22** End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**2** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										Stiff reddish brown mottled grey slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of mixed lithologies. *(stratum copied from 3.60m from previous sheet)*	(3.60)	
4.90	20	D										
5.00-5.45	21	$UT_{(UT100)}$	150 blows 78% recovery									
5.45-5.55	22	D										
5.70	23	D										
6.00-6.45		SPT	N=29									
6.00-6.45	25	DSPT										
6.00-6.45	26	B									7.20	
										Stiff to very stiff reddish brown slightly gravelly sandy SILT. Sand is fine to coarse and udstone derived. Gravel is subangular fine to coarse of mudstone. (MERCIA MUDSTONE GROUP)	(1.80)	
7.30	27	D										
7.50-7.95		SPT	6,6/9,12,15,14 for 70mm									
7.50-7.95	29	DSPT										
7.50-7.95	30	B							1			
8.70	31	D							1		9.00	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 205**	**Jonny Hutt + L Bramford**	**DNeylon + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**20.09.22** End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**3** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50 9.00-9.38		SPT	8,12/14,16,20 for 75mm							AZCL. (MERCIA MUDSTONE GROUP)		
9.00-9.38	33	DSPT									(0.55)	AZCL
											9.55	
				57	29	16				Extrememly weak reddish brown MUDSTONE. Recovered as very clayey subangular to subrounded fine to medium gravel. GRADE IVa. (MERCIA MUDSTONE GROUP)	9.80	
										Extremely weak greenish grey thinly laminated SILTSTONE, partly recovered as fine to medium angular gravel. (MERCIA MUDSTONE GROUP)	10.00	
10.00 10.05-10.22	35 36	ES C										
10.50-12.00										Extremely weak reddish brown MUDSTONE. Fractures: Closely spaced, randomly orientated, smooth, undulating, occasionally stained black on surfaces. (MERCIA MUDSTONE GROUP) . . . 10.20-10.50m: Closely spaced sub-horizontal rough undulating bedding fractures.		
				97	19	0						
11.50-11.62	37	C									(3.55)	
12.00-13.50										. . . 12.00-12.25m: Firm reddish brown very gravelly CLAY. Gravel is fine to medium mudstone lithorelics. . . . 12.25m: very closely to closely spaced randomly orientated fractures, stained black. . . . 12.45-12.50m: Bedding fractures infilled with very gravelly clay.		
				90	35	10				. . . 12.80-12.85m: Bedding fractures infilled with very gravelly clay.		
13.10-13.20	38	C										

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 205**	**Jonny Hutt + L Bramford**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**20.09.22** End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**4** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00										. . . 13.45-13.48m: extremely weak greenish grey siltstone.	13.55	
										Extremely weak reddish brown thinly laminated MUDSTONE. With fine to medium gravel size pockets of greenish grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP)	(0.50)	
13.85-13.97	39	C									14.05	
				90	50	0				Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Very closely spaced, randomly orientated, smooth, planar. (MERCIA MUDSTONE GROUP)	(0.50)	
										. . . 14.50-14.55m: greenish grey siltstone with bedding fractures infilled with reddish brown very gravelly clay.	14.55	
										Extremely weak reddish brown MUDSTONE. Occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Fractures: Closely spaced, randomly orientated. (MERCIA MUDSTONE GROUP)	(0.55)	
15.00-16.50											15.10	
										Reddish brown very clayey sandy angular to subangular fine to coarse GRAVEL of extremely weak mudstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP)	(0.30)	
15.30	40	D									15.40	
										Very stiff slightly sandy gravelly CLAY. Sand is fine to coarse mudstone derived. Gravel is angular to subangular fine to coarse mudstone lithorelics. (MERCIA MUDSTONE GROUP)	(0.30)	
				90	50	0					15.70	
										Stiff greenish grey slightly gravelly thinly laminated SILT. (MERCIA MUDSTONE GROUP)	15.85	
										Extremely weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP)	15.95	
										Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, with black specks on surfaces. (MERCIA MUDSTONE GROUP)	(0.55)	
16.50-18.00											16.50	
										Extremely weak reddish brown MUDSTONE recovered NI. GRADE II. Fractures: Very closely spaced, randomly orientated, with dark brown staining. (MERCIA MUDSTONE GROUP)	(0.45)	
										Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)	16.95	
17.20-17.30	41	C		93	25	0					(0.35)	
										Extremely weak reddish brown MUDSTONE thickly interlaminated with greenish grey fine grained SANDSTONE and SILTSTONE. (MERCIA MUDSTONE GROUP)	17.30	
										Description on next sheet	17.55	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**20.09.22** End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**5** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50										Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.55m from previous sheet)* . . . 8.15-18.30m: Thinly interlaminated with greenish grey siltstone.	(1.40)	
18.45-18.70	42	C		97	50	43					18.95	
										Stiff reddish brown slightly sandy gravelly CLAY, with frequent thick laminae (<10m) of greenish grey silt. Sand is fine to medium and mudstone derived. Gravel is angular to subangular fine to coarse mudstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.40)	
											19.35	
19.50-21.00										Black greenish grey thinly cross laminated SANDSTONE. (MERCIA MUDSTONE GROUP)	19.50	
										Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP) . . . 19.65-19.70m: Weak greenish grey siltstone. . . . 19.95-20.20m: Bedding fractures: very closely spaced, rough, undulating, infilled with subangular gravel.		
20.20-20.35	43	C		90	57	48				. . . 20.30m: Becoming very weak with closely spaced randomly orientated rough undulating fractures, with occasional black staining on fracture surfaces.	(3.00)	
21.00-22.50										. . . 21.00m: Closely spaced randomly orientated smooth undulating fractures with occasional black staining along surfaces.		
				107	27	15						
										. . . 21.95-22.20m: Rough undulating bedding fractures, infilled (<50mm) with sandy gravel.		
22.35-22.50	44	C									22.50	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 205**	**Jonny Hutt + L Bramford**	**DNeylon + RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**20.09.22** End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**6** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.50-24.00										Weak greenish grey fine to medium grained SANDSTONE with fine to medium and size vugs. (MERCIA MUDSTONE GROUP)	22.75	
22.63-22.85	45	C								Extremely weak reddish brown MUDSTONE. Fractures: Very closely to closely spaced, randomly orientated, undulating, with dark brown staining on surfaces. (MERCIA MUDSTONE GROUP) . . . 23.05-23.15m: Greenish grey siltstone. . . . 23.15-23.70m: Rough undulating fracture, approximately 80°, with dark brown staining along the fracture surface.	(1.60)	
				97	21	13				. . . 23.70-23.80m: Extremely weak greenish grey thinly laminated siltstone.	24.35	
24.00-25.50										Weak greenish grey fine to medium gained SANDSTONE with fine to medium sand size vugs. (MERCIA MUDSTONE GROUP)	(0.45)	
				90	47	29					24.80	
24.82-25.12	46	C								Extremely weak reddish brown MUDSTONE thinly interbedded with greenish grey SILTSTONE. Bedding fractures: Closely spaced, rough, infilled with reddish brown gravelly clay and green silt. (MERCIA MUDSTONE GROUP) . . . 24.95-25.00m: Bedding fracture infilled (<100mm) with reddish brown clay.	(0.70)	
										. . . 25.45m: Thinly interbedded.	25.50	
25.50-27.00										Weak to medium strong greenish grey fine to medium grained SANDSTONE. (MERCIA MUDSTONE GROUP) . . . 25.65-25.80m: Interspersed with reddish brown siltstone. . . . 25.90m: Abundant fine to medium sand size vugs,	(0.50)	
											26.00	
				93	29	23				Very stiff reddish brown slightly sandy CLAY. Sand is fine mudstone derived. GRADE IVb. (MERCIA MUDSTONE GROUP)		
26.50-26.72	47	C								. . . 26.38-26.45m: Weak greenish grey fine to medium grained sandstone with fine to medium sand size vugs.	(1.45)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 205**	**Jonny Hutt + L Bramford**	**DNeylon + RStan**	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**20.09.22** End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**7** of **14**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.00-28.50										Very stiff reddish brown slightly sandy CLAY. Sand is fine mudstone derived. GRADE IVb. (MERCIA MUDSTONE GROUP) *(stratum copied from 26.00m from previous sheet)* . . . 27.00m: Fine to coarse gravel size pockets of greenish grey silt.	27.45	
27.50-27.75	48	C		100	53	0				Stiff greenish grey sandy SILT. (MERCIA MUDSTONE GROUP)	27.70	
										Stiff reddish brown slightly sandy slightly gravelly CLAY. Interspersed with greenish grey sandy silt. Sand is fine to medium mudstone and siltstone derived. Gravel is angular to subangular fine to medium mudstone and siltstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.75)	
28.50-30.00										Extremely weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 28.45-28.55m: Thinly interbedded with greenish grey siltstone. . . . 28.55-28.75m: Very closely spaced randomly orientated fractures. . . . 29.00m: Rare pockets of siltstone.	28.45	
29.20-29.50	49	C		100	6	4					(1.55)	
										Borehole terminated at 30.00m depth.	30.00	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 Mark 2 + Comacchio GEO 205**	**Jonny Hutt + L Bramford**	**DNeylon + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH13**
Contract Ref:	Start: **20.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**8** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + L Bramford**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH13**
Contract Ref:	Start: **20.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**9** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + L Bramford**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH13**
Contract Ref:	Start: **20.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**10** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + L Bramford**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH13**
Contract Ref:	Start: **20.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**11** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + L Bramford**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH13**
Contract Ref:	Start: **20.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**12** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + L Bramford**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH13**
Contract Ref:	Start: **20.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**13** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + L Bramford**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH13**
Contract Ref:	Start: **20.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**88.03**	**E:446479.7 N:325113.2**	**14** of **14**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 Mark 2 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + L Bramford**	Logged By:	**DNeylon + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH14**

Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**1** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D									TOPSOIL	(0.40)	
0.10-0.30	2	B											
0.20	101	ES	1xT+1xJ+1xV									0.40	
0.50	102	ES	1xT+1xJ+1xV								Stiff reddish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including quartzite, metamorphic rock, sandstone.		
0.70	3	D											
0.70-0.90	4	B											
1.00	103	ES	1xT+1xJ+1xV									(1.30)	
1.20	5	D											
1.20-1.50	6	$UT_{(UT100)}$	150 blows 83% recovery										
1.50-1.63	7	D										1.70	
1.80	8	D									Firm reddish brown sandy SILT. Sand is fine to coarse, predominantely coarse.		
2.00-2.45		SPT	N=12										
2.00-2.45	10	DSPT											
2.00-2.45	11	B										(1.10)	
												2.80	
2.90	12	D									Stiff reddish brown thinly and thickly laminated sandy SILT. Sand is fine to coarse.		
3.00-3.45	13	$UT_{(UT100)}$	150 blows 89% recovery										
3.00-3.50	15	B											
3.45-3.55	14	D										(1.50)	
3.70	16	D											
4.00-4.45		SPT	N=31										
4.00-4.45	18	DSPT											
4.00-4.45	19	B										4.30	
											Description on next sheet		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
21/09/22	17:34	12.76	12.00	200	10.80
26/09/22	10:00	12.50	12.50	200	9.20
26/09/22	16:30	21.90	12.50	146	-
27/09/22	09:00	21.90	12.00	146	9.20
27/09/22	16:30	24.90	None	146	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
12.30	12.50	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm tools and casing, then 146mm casing from 12.00m onwards.
4. 200 litres of water added added between 9.00m and 12.00m to aid drilling.
5. Borehole installed with 50mm standpipe upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RSenior**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**2** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instru-mentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70	20	D									Stiff fissured reddish brown, mottled grey, sandy SILT. Sand is fine to coarse. *(stratum copied from 4.30m from previous* sheet)		
5.00-5.45		SPT	N=15										
5.00-5.45	22	DSPT										(1.70)	
5.00-5.45	23	B											
5.70	24	D										6.00	
6.00-6.45		SPT	N=37								Stiff dark brown fissured slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including quartzite, metamorphic rock, sandstone.		
6.00-6.45	26	B										(1.20)	
												7.20	
7.30	27	D									Stiff dark brown sandy SILT. Sand is fine to coarse.		
7.50-7.95		SPT	N=32										
7.50-7.95	29	DSPT											
7.50-7.95	30	B										(2.50)	
8.70	31	D											

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

6. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RSenior**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**3** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.45		SPT	N=31								Stiff dark brown sandy SILT. Sand is fine to coarse. *(stratum copied from 7.20m from previous sheet)*	9.70	
9.00-9.45	33	DSPT											
9.00-9.45	34	B											
10.30	35	D									Stiff dark reddish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subrounded and subangular fine to coarse of mixed lithologies including quartzite, metamorphic rock, sandstone and mudstone.	(1.50)	
10.50-10.95		SPT	N=29										
10.50-10.95	37	DSPT											
10.50-10.95	38	B										11.20	
11.70	39	D									Stiff to very stiff reddish brown, mottled light greenish grey, silty gravelly CLAY. Gravel is angular to subangular fine to coarse lithorelics of mudstone. With occasional pockets of grey siltstone. GRADE IVb. (MERCIA MUDSTONE GROUP)	(1.30)	
12.00-12.43		SPT	3,6/10,11,15,14 for 55mm										
12.00-12.43	41	DSPT											
12.00-12.45	42	B										12.50	
12.50-12.90 (0:01)											AZCL (MERCIA MUDSTONE GROUP)	12.70	AZCL
12.50-12.77		SPT	13,12/24,26 for 65mm	50	0	0		Air+Mist (Brown)			Stiff to very stiff thickly laminated to very thinly bedded reddish brown, mottled light greenish grey, silty CLAY with frequent angular to subangular fine to medium gravel size lithorelics of mudstone. GRADE III. (MERCIA MUDSTONE GROUP)	12.90	
12.50-12.77	44	DSPT											
12.80	45	D											
12.90-14.40 (0:05)				93	43	0	NI 30 80	Air+Mist (Brown)			*Description on next sheet* . . . 13.32-13.55m: 85°-90° undulating rough black stained locally orangish brown	(1.10)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RSenior**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**4** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.90	46	D		93	43	0	NI 30 80	Air+Mist (Brown)			stained discontinuity. Extremely weak to very weak thickly laminated to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very close to closely spaced, 0° to 5°, undulating, smooth, locally stained black and orangish brown. Fracture set 2: Extremely closely to very closely spaced, randomly orientated, smooth and rough, locally black and orangish brown stained.	14.00 (0.35) 14.35	
14.40-15.90 (0:05)											(MERCIA MUDSTONE GROUP) *(stratum copied from 12.90m from previous sheet)* . . . 13.59-13.61m: Very weak light greenish grey siltstone. . . . 13.60-13.80m: 60° undulating smooth clean locally orangish brown stained discontinuity. . . . 13.98-14.00m: Very weak light greenish grey siltstone with occasional black specks on discontinuity surfaces.		
14.62-14.78	47	C		97	73	20		Air+Mist (Brown)			Very stiff thickly laminated to very thinly bedded reddish brown CLAY. Frequent angular to subangular fine to medium gravel size lithorelics. GRADE III. (MERCIA MUDSTONE GROUP) . . . 14.10-14.12m: Stiff light greenish grey silt.		
15.90-17.40 (0:06)							NI 50 130				Extremely weak to very weak thickly laminated to thinly bedded reddish brown, mottled light greenish grey, MUDSTONE. Bedding fracture: Very closely to closely spaced, locally extremely closely spaced, undulating, smooth, clean, locally rough, with occasional black staining on surfaces. (MERCIA MUDSTONE GROUP) . . . 14.78-14.85m: Weak silty mudstone.		
16.63-16.75	48	C		97	47	7		Air+Mist (Brown)			. . . 15.08-15.42m: 85° to 90° undulating smooth orangish brown stained and black speckled discontinuity. . . . 15.29-15.36m: 50° undulating smooth locally orangish brown stained discontinuity with rare black specks. . . . 15.60-15.62m: Extremely weak light greenish grey siltstone. . . . 15.69-15.70m: Extremely weak light greenish grey siltstone. . . . 15.75-15.90m: Extremely weak and thinly laminated mudstone. . . . 15.95-15.97m: Strong light grey siltstone. . . . 16.14-16.16m: Strong light grey siltstone. . . . 16.27-16.30m: Strong light grey siltstone.	(4.75)	
17.40-18.90 (0:05)				100	47	27		Air+Mist (Brown)					

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RSenior**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**5** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.44-18.63	50	C		100	47	27	NI 50 130	Air+Mist (Brown)			. . . 16.30-16.39m: Drilling disturbed, recovered as (soft) gravelly clay. . . . 16.48-16.58m: 90° undulating smooth clean, locally lightly stained orange. . . . 16.59-16.60m: Light greenish grey siltstone. . . . 16.84-17.06m: 75° undulating smooth black stained discontinuity. . . . 17.05-17.15m: 80°-90° undulating smooth black stained locally orangish brown stained discontinuity. . . . 17.27-17.29m: Extremely weak light greenish grey siltstone.		
18.90-20.40 (0:05)											. . . 17.40-17.50m: Drilling disturbed, recovered as angular fine to coarse gravel size fragments. . . . 17.50-17.65m: 85° to 90° undulating rough discontinuity with frequent black specks on surface. . . . 17.65-17.80m: 90° undulating rough black stained discontinuity. . . . 17.80-19.10m: extremely closely to very closely spaced, randomly orientated, undulating, smooth and rough, clean and black stained discontinuities. Extremely weak to very weak thickly laminated to thinly bedded reddish brown, mottled light greenish grey, MUDSTONE. Bedding fracture: Very closely to closely spaced, locally extremely closely spaced, undulating, smooth, clean, locally rough, with occasional black staining on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 14.35m from previous sheet)*	19.10 (1.65) 20.75	
19.50-19.80	51	C		100	72	45	NI 80 300	Air+Mist (Brown)					
20.40-21.90 (0:05)													
20.40-20.53	52	C											
20.80-21.05	53	C									. . . 18.90-19.10m: strong thinly bedded light grey siltstone. Extremely weak to very weak very thickly to thinly, locally medium, bedded reddish brown, mottled light greenish grey, MUDSTONE. Bedding fractures: Very closely to medium spaced, 0° to 5°, undulating, smooth, clean and lightly black stained. (MERCIA MUDSTONE GROUP) . . . 20.09-20.15m: Extremely weak to very weak thinly and thickly laminated light greenish grey siltstone.	(1.00) 21.75	
				100	97	81	NI 120 260	Air+Mist (Brown)					
21.90-23.40 (0:05)											Very weak to weak thinly to medium bedded light greenish grey SILTSTONE with frequent 2-5mm diameter vugs. GRADE III. Bedding fractures: Closely to medium spaced, 0° to 5°, undulating, rough, with frequent black specks locally clean. (MERCIA MUDSTONE GROUP)	21.90 (0.62)	
				100	53	17	NI 60 260	Air+Mist (Brown)					

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RSenior**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**6** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											. . . 21.25-21.57m: Siltstone is very thinly to thinly bedded with interbeds of very weak reddish brown mudstone.	22.52	
				100	53	17	NI 60 260	Air+Mist (Brown)			Extremely weak thickly laminated very thinly bedded reddish brown, mottled light greenish grey, MUDSTONE. GRADE II. Bedding fractures: Very closely spaced, undulating, rough, clean, locally black stained. (MERCIA MUDSTONE GROUP)	(0.98)	
23.19-23.33	54	C									. . . 22.40-22.50m: 50° undulating rough discontinuity with occasional black specks.		
23.40-24.90 (0:06)											Medium strong thinly to medium bedded light greenish grey SILTSTONE. GRADE I. Bedding fractures: Closely to medium spaced, 0° to 10°, undulating, rough, clean, locally with occasional black specks on surface. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.90m from previous* sheet)	23.50	
24.00	55	D		100	22	13	NI NI 280	Air+Mist (Brown)			Extremely weak to very weak thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, rough, clean, locally with <1mm clay surfaces. (MERCIA MUDSTONE GROUP)	(1.40)	
24.64-24.90	56	C									. . . 22.55-22.65m: 50° undulating rough clean discontinuity. . . . 22.74-22.77m: Extremely weak light greenish grey siltstone. . . . 23.21-23.40m: Very weak very thinly bedded light greenish grey siltstone. . . . 23.40-23.49m: 88° to 90° undulating rough clean discontinuity.	24.90	
											Stiff to very stiff thickly laminated to very thinly bedded reddish brown silty CLAY. Frequent angular to subangular fine to medium gravel size lithorelics. GRADE III. (MERCIA MUDSTONE GROUP) . . . 23.93-24.09m: Extremely weak light greenish grey siltstone. . . . 24.32-24.40m: Extremely weak light greenish grey siltstone. . . . 24.46-24.50m: Weak light greenish grey siltstone. . . . 24.64-24.73m: Very weak to weak light greenish grey siltstone.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH14**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**7** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH14**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**8** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH14**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**9** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH14**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**10** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH14**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**84.68**	**E:446455.2 N:325059.0**	**11** of **11**

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**1** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D									TOPSOIL	(0.40)	
0.10	101	ES	1xT+1xJ+1xV										
0.10-0.30	2	B										0.40	
0.60	102	ES	1xT+1xJ+1xV								Stiff reddish brown sandy very gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of mixed lithologies including sandstone, silstone and mudstone.		
0.70	3	D											
0.70-0.90	4	B											
1.20	5	D											
1.20-1.50	6	$UT_{(UT100)}$	150 blows 83% recovery									(2.20)	
1.50-1.60	7	D											
1.70	8	D											
2.00-2.45		SPT	N=30										
2.00-2.45	10	DSPT											
2.00-2.45	11	B										2.60	
2.60-3.00	12	B									Greyish brown sandy silty very angular to subangular coarse GRAVEL of mixed lithologies including sandstone and quartz. Sand is fine to coarse.	(0.40)	
												3.00	
3.00-3.45		SPT	N=30								Medium dense to dense greyish brown silty SAND.		
3.00-3.45	14	DSPT										(0.45)	
3.00-3.45	15	B										3.45	
3.70	16	D									Dense greyish brown slightly gravelly silty fine to coarse SAND. Gravel is fine of mixed lithologies including sandstone and siltstone.		
4.00-4.45		SPT(c)	N=32										
4.00-4.45	18	B											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
23/09/22	07:42	3.45	3.00	200	Dry
23/09/22	15:00	12.00	12.00	200	9.10
26/09/22	09:20	12.00	12.00	200	6.60
26/09/22	13:24	13.80	13.50	200	-
29/09/22	09:45	26.35	13.50	146	6.40
28/09/22	11:00	14.00	13.50	200	12.50
28/09/22	17:00	26.35	13.50	146	24.50
29/09/22	08:30	26.35	13.50	146	6.40

Chiselling / Slow Progress

From	To	Duration (hh:mm)
9.20	9.60	01:00
11.20	11.70	01:00
13.30	13.80	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 200mm tools and casing, then using 109.5mm tools from 14.00m.
4. 200 litres of water added from 3.00m to 12.00m to aid drilling.
5. Borehole backfilled with a bentonite seal upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNartey + RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**2** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70	19	D									Dense greyish brown slightly gravelly silty fine to coarse SAND. Gravel is fine of mixed lithologies including sandstone and siltstone. *(stratum copied from 3.45m from previous sheet)*	(2.55)	
5.00-5.45		SPT(c)	N=33								. . . Below 5.00m: Gravelly.		
5.00-5.45	21	B											
5.70	22	D										6.00	
6.00-6.45		SPT(c)	N=33								Medium dense to dense orangish brown very gravelly silty fine to coarse SAND. Gravel is fine of mixed lithologies including sandstone, siltstone and limestone.		
6.00-6.45	24	B										(2.30)	
7.30	25	D											
7.50-7.95		SPT	N=26										
7.50-7.95	27	DSPT											
7.50-7.95	28	B										8.30	
8.70	29	D									Stiff laminated reddish brown, mottled grey, slightly sandy gravelly SILT. Sand is fine to coarse, predominantly coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone, mudstone and coal. Low cobble content of flint.	(0.90)	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
29/09/22	17:00	30.85	None	146	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

6. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**3** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-9.32		SPT	4,5/7,26,17 for 20mm									9.20	
9.00-9.32	31	DSPT											
9.00-9.32	32	B									Cobbles and boulders of flint.	(0.40)	
												9.60	
											Medium dense orangish brown silty sandy angular to subangular fine to coarse GRAVEL of mixed lithologies including sandstone, siltstone and flint. Sand is fine to coarse.		
10.30	33	D											
10.50-10.95		SPT	N=23									(2.10)	
10.50-10.95	35	DSPT											
10.50-10.95	36	B											
11.20-11.70	37	B									. . . 11.20-11.70m: Low cobble content of subrounded flint.	11.70	
11.80	38	D									Stiff reddish brown, mottled grey, gravelly sandy SILT. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mixed lithologies including mudstone and flint.	(0.75)	
12.00-12.45		SPT	N=36									12.45	
12.00-12.45	40	DSPT											
12.00-12.45	41	B											
12.50	42	W									Stiff reddish brown, mottled grey, gravelly sandy SILT. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mixed lithologies including mudstone and flint.	12.70	
											Stiff to very stiff reddish brown gravelly sandy SILT. Sand is fine. Gravel is angular to subangular fine of mudstone. Occasional band and pockets of grey siltstone. (MERCIA MUDSTONE GROUP)		
13.30	43	D										(1.30)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNartey + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**4** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-13.80		SPT	3,4/19,31 for 75mm								Stiff to very stiff reddish brown gravelly sandy SILT. Sand is fine. Gravel is angular to subangular fine of mudstone. Occasional band and pockets of grey siltstone. (MERCIA MUDSTONE GROUP) *(stratum copied from 12.70m from previous sheet)*	14.00	
13.50-13.80	45	DSPT											
13.50-13.80	46	B											
13.80-14.02		SPT	25/26,24 for 70mm										
13.80-14.02	48	DSPT											
14.00-14.35 (0:02)				100	14	0	NI NI NI	Air+Mist (Brown)			Extremely weak reddish brown MUDSTONE. GRADE III. Fractures: Very closely spaced, randomly orientated, planar, locally NI, rough, frequently black stained. (MERCIA MUDSTONE GROUP)	(1.08)	
14.20-14.30	49	D									. . . 14.33-14.35m: Grey siltstone.		
14.30-14.35	50	C									. . . 14.35-15.08m: NI, recovered as angular fine to coarse gravel, with abundant black stained on surface. Fractures are randomly orientated, predominantly 0-10°, planar, rough, abundant black staining, silty clay infill.	15.08	
14.35-15.85 (0:05)				100	25	13	NI NI 100	Air+Mist (Brown)			Extremely weak to weak reddish brown silty MUDSTONE. Fractures: Closely spaced, 0-10°, planar, rough, frequently black stained. (MERCIA MUDSTONE GROUP)		
15.29-15.39	51	C									. . . 15.08-15.09m: 6° planar rough with silty clay infill (<3mm).		
											. . . 15.10-15.30m: NI, fractures are randomly orientated with abundant black staining.		
15.85-17.35 (0:04)											. . . 15.32-15.40m: 22° planar rough with abundant black staining, with clayey silt infill (<3mm).		
											. . . 15.74-15.85m: NI, fractures are randomly orientated with abundant black staining on discontinue surface.		
16.59-16.87	52	C		100	91	53	NI 70 540	Air+Mist (Brown)			. . . 15.85-15.98m: 86° undulating rough abundant black staining.		
											. . . 15.98-15.99m depth; 7° undulating rough abundant black staining.		
											. . . 15.99-16.26m: Weak and medium strong grey siltstone.		
											. . . 16.01-16.02m: 5° planar rough abundant black staining.		
											. . . 16.04-16.05m: 3° planar rough, occasional brown staining.		
											. . . 16.14-16.15m: 6° undulating rough clean.		
17.35-18.85 (0:04)											. . . 16.23-16.24m: 6° undulating rough clean.	(4.90)	
17.49-17.69	53	C									. . . 16.27-16.28m: 4° undulating grough clean.		
				100	92	66	15 350 830	Air+Mist (Brown)			. . . 16.30-16.31m: 5° planar rough abundant black staining.		
											. . . 16.35-16.40m: NI, recovered as silty angular fine to medium gravel.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**5** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	92	66	15 350 830	Air+Mist (Brown)			. . . 16.40-16.46m: 84° planar rough abundant black staining. . . . 16.46-16.50m: NI, recovered as clayey silty angular fine to medium gravel. . . . 16.50-16.59m: 82° undulating rough abundant black staining. . . . 16.59-16.60m: 5° planar rough abundant black staining. . . . 17.12-17.14m: Grey siltstone. . . . 17.16-17.18m: NI, recovered as silty sandy gravel. . . . 17.18-17.24m: Grey siltstone. . . . 17.35-17.43m: 43° undulating rough occasional black staining. . . . 17.79-18.20m: Weak grey siltstone. . . . 17.95-17.99m: 12° undulating rough occasional brown staining. . . . 17.98-17.99m: 4° undulating rough occasional brown staining.		
18.85-20.35 (0:06)													
19.61-19.89	54	C		100	100	96	70 120 490	Air+Mist (Brown)			Extremely weak to weak reddish brown silty MUDSTONE. Fractures: Closely spaced, 0-10°, planar, rough, frequently black stained. (MERCIA MUDSTONE GROUP) . . . 15.08-15.09m: 6° planar rough with silty clay infill (<3mm).*(stratum copied from* 15.08m from previous sheet) . . . 18.02-18.05m: 15° planar rough abundant brown staining. . . . 18.07-18.08m: 6° undulating grough abundant brown staining. . . . 18.16-18.17m: 5° undulating rough abundant brown and yellow staining. . . . 18.20-18.23m: NI. . . . 18.20-18.66m: Grey mottled reddish brown siltstone interbedded with mudstone. . . . 18.32-18.38m: 29° planar rough occasional black staining. . . . 18.98-19.00m: NI. . . . 19.01-19.26m: Medium strong grey siltstone. . . . 19.11-19.13m: 9° planar rough occasional brown staining. . . . 19.26-19.97m: Grey mottled reddish brown siltstone and mudstone. . . . 19.34-19.41m: 40° planar rough abundant black staining. . . . 19.59-19.64m: 27° planar rough clean.	19.98 (0.44) 20.42 (1.48) 21.90	
20.35-21.85 (0:06)													
20.51-20.69	55	C		100	77	77	NI NI NI	Air+Mist (Brown)					
21.85-23.35 (0:05)											Very weak to weak reddish brown silty sandy MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)		
22.03-22.26	56	C		100	97	97	NI NI NI	Air+Mist (Brown)			Very weak to weak reddish brown, mottled grey, fine and medium grained SANDSTONE, interbedded with grey siltstone. (MERCIA MUDSTONE GROUP)		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNartey + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**6** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											. . . 21.50-21.90m: NI.		
											. . . 22.26-22.28m: Reddish brown fine to medium grained sandstone. Very weak to weak reddish brown MUDSTONE. Occasional pockets and laminae of grey siltstone. Rare laminae of reddish brown fine to medium grained sandstone. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.90m from previous sheet)*		
				100	97	97	NI NI NI	Air+Mist (Brown)					
23.35-24.85 (0:06)											. . . 23.35-23.40m: 43° undulating rough clean.		
											. . . 23.41-23.43m: 9° planar rough brown stained.		
											. . . 23.48-23.52m: 33° planar rough brown stained.		
											. . . 23.53-23.56m: 16° planar rough brown stained.		
				95	92	67	60 80 NI	Air+Mist (Brown)					
24.20-24.51	57	C											
											. . . 24.66-24.78m: With laminae of grey siltstone.		
24.85-26.35 (0:06)													
											. . . 25.20-25.43m: Grey mottled reddish brown siltstone and mudstone.		
25.55-25.91	58	C		100	100	100	NI NI NI	Air+Mist (Brown)			. . . 25.60-25.71m: Pockets grey siltstone.	(7.62)	
											. . . 25.98-26.65m: Weak fine grained sandstone.		
26.35-27.85 (0:06)													
26.60-26.90	59	C		100	98	98	NI NI NI	Air+Mist (Brown)			. . . 26.65-27.05m: Grey siltstone.		
											. . . 26.90-26.93m: NI.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**7** of **13**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	98	98	NI NI NI	Air+Mist (Brown)			Very weak to weak reddish brown MUDSTONE. Occasional pockets and laminae of grey siltstone. Rare laminae of reddish brown fine to medium grained sandstone. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.90m from previous* sheet) . . . 27.34-27.38m: Grey siltstone. . . . 27.47-27.75m: Weak grey siltstone . . . 27.75-27.85m: Sandy mudstone.		
27.85-29.35 (0:06)											. . . 28.08-28.14m: Medium strong grey siltstone. . . . 28.14-28.60m: Grey mottled reddish brown siltstone. . . . 28.36-28.43m: 35° planar rough brown stained.		
28.43-28.68	60	C		100	100	100	NI NI NI	Air+Mist (Brown)			. . . 28.95-28.97m: Reddish brown fine grained sandstone.		
29.35-30.85 (0:04)												29.52	
29.35-30.85	61	C		100	100	100		Air+Mist (Brown)			Weak reddish brown fine and medium grained SANDSTONE. Occasional pockets and laminae of grey siltstone and very weak reddish brown mudstone. (MERCIA MUDSTONE GROUP) . . . 30.03-30.18m: Reddish brown mudstone.	(1.33)	
											. . . 30.82-30.85m: Grey siltstone.	30.85	
											Borehole terminated at 30.85m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 601**	**Jonny Hutt + Sam Carter**	**DNartey + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH15**
Contract Ref:	Start: **22.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**8** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH15**
Contract Ref:	Start: **22.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**9** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH15**
Contract Ref:	Start: **22.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**10** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH15**
Contract Ref:	Start: **22.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**11** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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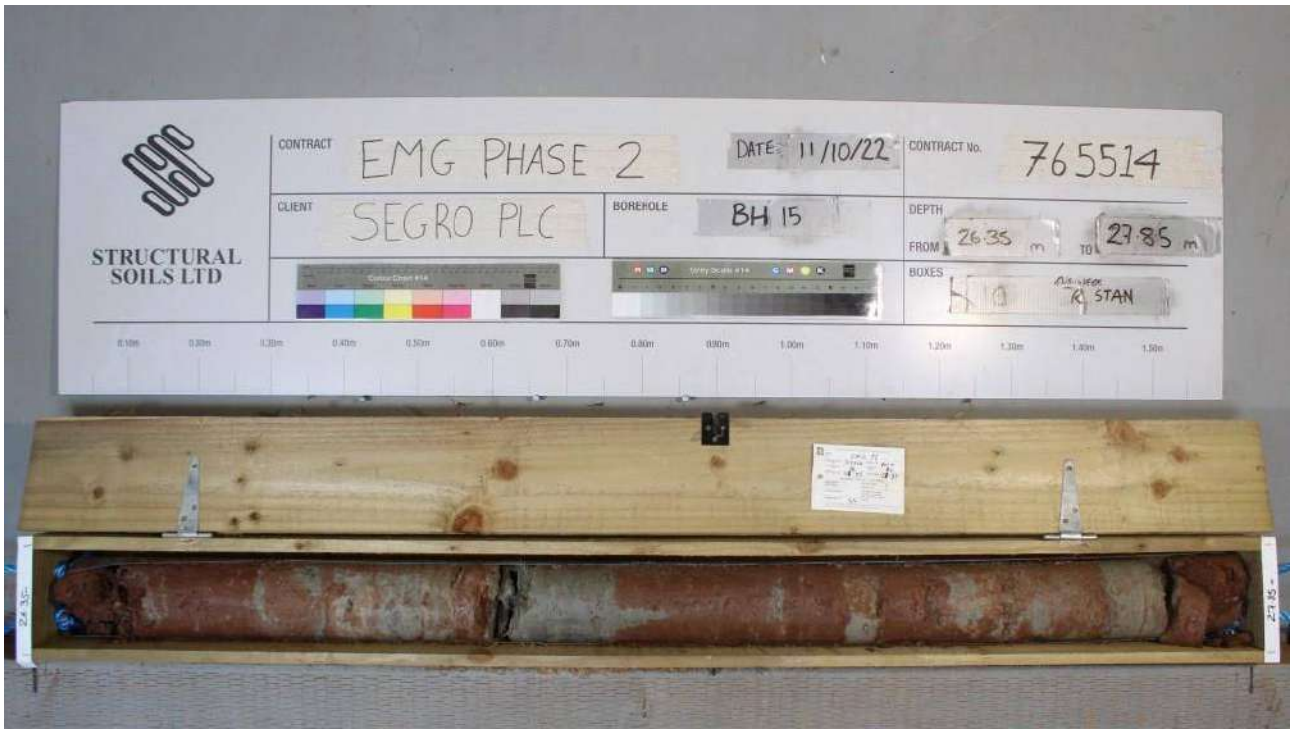
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH15**
Contract Ref:	Start: **22.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**12** of **13**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH15**
Contract Ref:	Start: **22.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**81.49**	**E:446370.2 N:325029.4**	**13** of **13**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 601**	Drilled By:	**Jonny Hutt + Sam Carter**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**1** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00-4.50										TOPSOIL	(0.60)	
0.20	1	D									0.60	
0.20-0.40	2	B										
0.70	3	D								Firm reddish brown gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartzite and sandstone.	(0.30)	
0.70-0.80	4	B									0.90	
1.00-1.20	5	B								Stiff reddish brown slightly gravelly sandy CLAY. Sand is fine to coarse, predominant coarse. Gravel is subangular to subrounded fine to coarse of metamorphic rocks, sandstone and occasional quartzite.	(0.40)	
1.20-1.40	6	$UT_{(UT100)}$	150 blows 100% recovery								1.30	
1.40-1.50	7	D								Stiff to very stiff reddish brown slightly gravelly sandy CLAY. Sand is fine. Gravel is angular to subangular of mudstone lithorelics. GRADE IVb. (MERCIA MUDSTONE GROUP)		
1.70	8	D										
2.00-2.45		SPT	N=32									
2.00-2.45	10	DSPT										
2.00-2.45	11	B										
2.70	12	D									(3.20)	
3.00-3.43		SPT	9,9/9,13,16,12 for 55mm									
3.00-3.43	14	DSPT										
3.00-3.45	15	B										
3.70	16	D										
4.00-4.36		SPT	9,12/16,18,16 for 60mm									
4.00-4.36	18	DSPT									4.50	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
16/09/22	16:00	4.00	3.00	200	-
20/09/22		4.50	None	N/R	3.20
21/09/22		14.00	None	N/R	5.30
21/08/32		20.00	None	N/R	13.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.60	4.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + DNeylon**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**2** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.50-5.00										Stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to coarse and mudstone derived. Gravel is angular to subangular fine to coarse mudstone lithorelics with some exhibiting thin laminae. GRADE III. (MERCIA MUDSTONE GROUP)		
				60	0	0						
4.90	20	D									(1.05)	
5.00-6.50												
											5.55	
5.55-5.75	21	C								Extremely weak reddish brown thinly laminated MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)	5.80	
				73	13	13				Firm reddish brown slightly sandy gravelly CLAY with fine to coarse gravel size pockets of sandy silt. Sand is fine to coarse and mudstone derived. Gravel is angular to subangular fine to coarse mudstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP)	(0.65)	
6.30	22	D									6.45	
6.50-8.00										Extremely weak reddish brown MUDSTONE with frequent randomly orientated smooth planar clean fractures. GRADE II. (MERCIA MUDSTONE GROUP)		
				77	17	17				. . . 7.10-7.25m: Very closely spaced laminae (<10mm) and medium to coarse gravel size pockets of thinly cross laminated siltstone.		
7.50-8.00	23	C								. . . 7.35-7.45m: Very closely spaced laminae (<10mm) of extremely weak greenish grey thinly cross laminated siltstone, with occasional clay.	(3.00)	
8.00-9.50												
				77	15	8				. . . 8.25-8.30m: Thinly laminated cream siltstone and mudstone. . . . 8.40-8.45m: Thinly laminated coloured siltstone and mudstone.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**3** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				77	15	8				Extremely weak reddish brown MUDSTONE with frequent randomly orientated smooth planar clean fractures. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 6.45m from previous sheet)*	9.45	
9.50-11.00										Extremely weak reddish brown MUDSTONE. (MERCIA MUDSTONE GROUP)		
10.20	24	D		100	3	0				. . . 10.25-10.85m: Smooth planar incipient fracture at approx angle of 85° running through the centre of the core.		
11.00-12.50										. . . 10.85-10.95m: Fine to coarse gravel size pockets of greenish grey siltstone. . . . 10.90-11.50m: Very closely spaced randomly orientated closed fractures.	(2.95)	
11.25	25	D		93	49	45						
11.90-12.10	26	C									12.40	
12.50-14.00										Extremely weak to very weak greenish grey thinly laminated SILTSTONE with fine to medium gravel size vugs. (MERCIA MUDSTONE GROUP)	(0.50)	
				93	29	0				Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, undulating, smooth, with occasional yellow staining and black specks on surfaces. (MERCIA MUDSTONE GROUP)	12.90	
13.30-13.40	27	C										

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**4** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				93	29	0				Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, undulating, smooth, with occasional yellow staining and black specks on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 12.90m from previous sheet)*	(1.30)	
14.00-15.50											14.20	
14.25-14.55	28	C								Extremely weak to very weak greenish grey thinly laminated SILTSTONE with fine to medium gravel size vugs. (MERCIA MUDSTONE GROUP)	(0.40)	
				100	63	45					14.60	
										Extremely weak reddish brown MUDSTONE, closely interbedded with extremely weak greenish grey SILTSTONE. Boundaries of interbeds are transitional and not distinct. Bedding fractures: Closely spaced, rough, planar, with sandy clay infill. (MERCIA MUDSTONE GROUP)	(0.75)	
15.10-15.35	29	C									15.35	
										Very weak to weak greenish grey thickly cross laminated SANDSTONE. (MERCIA MUDSTONE GROUP) . . . 15.35-15.70m: Rough undulating fracture at approx 85° through the core with black specks and yellow stain along surfaces. . . . 15.70-15.75m: Subhorizontal rough undulating wide bedding fracture infilled with sandy gravel of sandstone and red clay. . . . 15.75m: Verging towards an extremely weak siltstone with frequent fine to medium gravel size vugs.	(0.55)	
15.50-17.00											15.90	
				93	53	42				Extremely weak reddish brown MUDSTONE with occasional fine gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP)	(0.85)	
16.40-16.70	30	C									16.75	
										Firm reddish brown slightly gravelly sandy CLAY with frequent fine to medium gravel size pockets of greenish grey sandy silt. Sand is fine to coarse and mudstone derived. Gravel is angular to subangular fine to coarse of extremely weak mudstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP)	(0.95)	
17.00-18.50											17.70	
17.30	31	D		80	32	28				*Description on next sheet* . . . 17.75-17.80m: Weak greenish grey fine grained sandstone.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**5** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				80	32	28				Extremely weak to very weak greenish grey SILTSTONE closely interbedded with extremely weak reddish brown MUDSTONE. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.70m from previous sheet)*	(0.70) 18.40	
18.50-20.00										Extremely weak reddish brown MUDSTONE with occasional fine to coarse gravel size pockets of greenish grey siltstone. Beddinf fractures: Medium spaced, rough, undulating, infilled with sandy clay. Fracture set 2: rough, planar, infilled with clayey sand. (MERCIA MUDSTONE GROUP)		
18.70-18.90	32	C		93	17	17				. . . 18.70-18.80m: Extremely weak greenish grey thickly cross laminated SILTSTONE with thin laminae (<2mm) of SANDSTONE.	(1.60) 20.00	
										Borehole terminated at 20.00m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH16**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**6** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH16**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**7** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH16**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**8** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH16**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**9** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH16**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**10** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH16**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.98**	**E:446488.6 N:324866.7**	**11** of **11**

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**1** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										TOPSOIL	0.20	
0.20	1	D								Firm dark yellowish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular and subrounded, fine to coarse of mixed lithologies including quartzite and siltstone.		
0.20	101	ES	1xT+1xJ+1xV									
0.20-0.50	2	B										
0.50	102	ES	1xT+1xJ+1xV									
										. . . Below 1.80m: Stiff.	(1.30)	
0.90	3	D										
0.90-1.20	4	B										
1.00	103	ES	1xT+1xJ+1xV									
1.20-1.65	5	$UT_{(UT100)}$	32 blows 100% recovery								1.50	
										Soft to firm reddish brown very sandy SILT. Sand is fine to coarse.		
1.70	6	D										
2.00-2.45		SPT	N=13								(1.10)	
2.00-2.45	8	DSPT										
2.00-2.45	9	B							1			
											2.60	
										Medium dense dark brown mottled grey silty SAND. Sand is fine to coarse.		
2.70	10	D										
3.00-3.45		SPT	N=16						1			
3.00-3.45	12	DSPT										
3.00-3.45	13	B									(1.30)	
											3.90	
3.90	14	D								Stiff to very stiff reddish brown, mottled grey, sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular and subangular fine to coarse of mudstone. Occasional pockets of grey silt (<20mm). (MERCIA MUDSTONE GROUP)		
3.90	27	W										
4.00-4.44		SPT	6,10/12,13,13,12 for 60mm									
4.00-4.44	16	DSPT										
4.00-4.44	17	B										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
15/09/22	15:14	5.45	4.50	200	Dry
16/09/22	08:24	5.00	4.50	200	3.90
16/09/22	09:55	6.30	None	200	-
21/09/22		6.00	None	N/R	1.60
22/09/22		21.00	None	N/R	1.80

Chiselling / Slow Progress

From	To	Duration (hh:mm)
5.50	6.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**2** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70	18	D								Stiff to very stiff reddish brown, mottled grey, sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular and subangular fine to coarse of mudstone. Occasional pockets of grey silt (<20mm). (MERCIA MUDSTONE GROUP) *(stratum copied from 3.90m from previous sheet)*	(2.10)	
5.00-5.45		SPT	N=39									
5.00-5.45	20	DSPT										
5.00-5.45	21	B										
5.50-5.84		SPT	8,12/15,21,14 for 40mm									
5.50-5.84	23	DSPT										
5.50-6.00	24	B									6.00	
6.00-7.50										AZCL. (MERCIA MUDSTONE GROUP)	(0.30)	AZCL
6.00-6.30		SPT	12,13/19,24,7 for 15mm								6.30	
6.00-6.30	26	DSPT										
6.70-6.77	27	D		80	35	21				Extremely weak MUDSTONE, recovered as slightly sandy silty gravel. GRADE IV. (MERCIA MUDSTONE GROUP) . . . 6.30-6.81m: NI. . . . 6.86-6.92m: NI.	(0.62)	
											6.92	
7.33-7.41	26	C								Extremely weak thinly laminated MUDSTONE. Occasional pockets and laminae of grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP) . . . 6.92-6.97m: Thin laminae of grey siltstone. . . . 6.97-7.00m: NI. . . . 7.00-7.30m: Thinly interlaminated mudstone and siltstone.	(0.38)	
7.50-9.00											7.30	
8.30-8.47	28	C		87	70	62				Extremely weak MUDSTONE. Occasional pockets and laminae of grey siltstone. GRADE III. Fractures: Very closely spaced, randomly orientated, incipient, undulating, smooth and rough, with occasional black staining on surface. (MERCIA MUDSTONE GROUP) . . . 7.50-7.70m: AZCL. . . . 7.70-7.93m: NI. . . . 8.05-8.10m: Pockets of grey siltstone. . . . 8.14-8.21m: Thinly laminated. . . . 8.30-8.38m: Grey siltstone.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**3** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50										. . . 8.95-9.00m: Pocket of silty clay. Extremely weak MUDSTONE. Occasional pockets and laminae of grey siltstone. GRADE III. Fractures: Very closely spaced, randomly orientated, incipient, undulating, smooth and rough, with occasional black staining on surface. (MERCIA MUDSTONE GROUP) *(stratum copied from 7.30m from previous sheet)*		
				100	77	69				. . . 9.11-10.03m: Thin laminated, locally mottled grey, interlaminated with grey siltstone. . . . 9.13-9.16m: Clay mudstone. . . . 9.32-9.37m: Dark laminae of mudstone and siltstone. . . . 9.46-9.54m: Grey siltstone. . . . 9.93-10.03m: Recovery as sandy gravel.	(5.51)	
10.21-10.41	29	C										
10.50-12.00										. . . 10.45-10.50m: NI. . . . 10.50-10.64m: NI with band of weak grey siltstone. . . . 10.80-10.96m: 71° planar rough clean.		
10.90-11.20	30	C										
				100	84	84						
12.00-13.50										. . . 11.95-12.00m: NI. . . . 12.00-12.27m: NI. . . . 12.19-12.27m: Thinly laminated. . . . 12.27-12.29m: Bedding fracture, 5° undulating rough silty clay infill.		
12.41-12.61	31	C								. . . 12.27-12.39m: 85° planar rough yellow and grey stained. . . . 12.34-12.49m: Thinly laminated greenish grey siltstone, with occasional yellow staining.		
				100	64	55				. . . 12.49-12.81m: Weak. . . . 12.75-12.95m: 63° planar rough with calcite infill (<3mm).	12.81	
										Extremely weak reddish brown slightly sandy MUDSTONE interbedded with weak to medium strong grey SILTSTONE. Occasional calcite bands (<3mm). GRADE III. (MERCIA MUDSTONE GROUP) *Description on next sheet*		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**4** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00										. . . 13.24-13.41m: Thinly laminated mudstone and grey siltstone. Rare calcite. Extremely weak reddish brown slightly sandy MUDSTONE interbedded with weak to medium strong grey SILTSTONE. Occasional calcite bands (<3mm). GRADE III. (MERCIA MUDSTONE GROUP) *(stratum copied from 12.81m from previous sheet)* . . . 13.50-13.56m: NI. . . . 13.98-14.01m: Grey siltstone. . . . 14.01-14.52m: Weak to medium strong grey siltstone. . . . 14.52-14.63m: with thin laminae of grey siltstone. . . . 14.68-14.71m: Medium strong siltstone. . . . 14.74-14.81m: Thinly laminated mudstone. . . . 14.81-15.10m: Frequent calcite pockets (<30mm). . . . 15.00-15.13m: NI.	(2.32)	
14.01-14.26	32	C		100	83	71						
15.00-16.50											15.13	
15.60-15.81	33	C		100	91	84				Medium strong grey SILTSTONE. (MERCIA MUDSTONE GROUP) . . . 15.13-15.22m: 36° undulating rough, rare brown staining. . . . 15.35-15.36m: 8° planar rough, clay infill with occasional brown staining. . . . 15.43-15.58m: 70° undulating rough occasionally yellow and brown staining. . . . 15.58-15.62m: 15° undulating rough. Rare yellow staining.	(0.70)	
16.50-18.00											15.83	
16.50-16.61		SPT	25/50 for 50mm							Weak reddish brown MUDSTONE interbedded with reddish brown fine to medium grained SANDSTONE. Occasional pockets and laminae of grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP) . . . 15.83-15.96m: 50° planar rough. . . . 16.07-16.20m: Grey siltstone. . . . 16.28-16.40m: 53° planar rough. . . . 16.63-17.30m: AZCL.	(1.47)	
				52	47	43					17.30	
17.72-17.89	34	C								Weak reddish brown slightly sandy MUDSTONE interbedded with weak fine grained SANDSTONE. Occasional laminae of weak grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP)		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**5** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50										Weak reddish brown slightly sandy MUDSTONE interbedded with weak fine grained SANDSTONE. Occasional laminae of weak grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.30m from previous sheet)* . . . 18.00-18.46m: Interlaminated sandstone and grey siltstone. . . . 18.46-18.62m: with sandy silt matrix, GRADE IVb.		
				100	93	87				. . . 18.62-18.75m: Siltstone with local yellow staining.		
18.91-19.14	35	C									(3.31)	
										. . . 19.11-19.30m: Very weak mudstone interlaminated with grey siltstone. . . . 19.30m: NI.		
19.50-21.00										. . . 19.60-20.24m: Pockets of calcite. . . . 19.65-19.75m: 75° planar rough calcite infill (<3mm).		
20.04-20.43	36	C										
				100	95	95					20.61	
										Extremely weak to weak reddish brown, mottled grey, occasional pockets and laminae grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 20.61-20.68m: NI.	(0.39)	
										Borehole terminated at 21.00m depth.	21.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Unknown**	**Jonny Hutt**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH17**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**6** of **10**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH17**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**7** of **10**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH17**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**8** of **10**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH17**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**9** of **10**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH17**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**74.45**	**E:446293.6 N:324881.8**	**10** of **10**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unknown**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH18**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**1** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00	1	D								TOPSOIL	0.20	
0.00-0.20	3	B										
0.10	2	ES										
0.20	4	D								Stiff to very stiff brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithology included siltstone and occasional quartzite.		
0.20-0.40	6	B										
0.30	5	ES										
0.40	7	D										
0.50	10	D										
0.50	8	ES										
0.50-0.80	9	B										
0.80-1.20	12	B										
1.00	11	ES										
1.20-1.65		SPT	N=18									
1.20-1.65	13	DSPT										
1.20-1.70	14	B										
1.70	15	D										
2.00	16	ES										
2.00-2.45	17	$UT_{(UT100)}$	95 blows 100% recovery								(3.90)	
2.50	18	D										
2.50-3.00	20	B										
2.60	19	ES										
3.00	21	ES										
3.00-3.45		SPT	N=23									
3.00-3.45	22	DSPT										
3.00-3.50	23	B										
3.50	24	D										
4.00	25	ES									4.10	
4.00-4.45	26	$UT_{(UT100)}$	116 blows 100% recovery							Firm light brown mottled reddish brown fissured slightly gravelly sandy CLAY. Sand is fine to coarse, predominant coarse. Gravel is angular and subangular fine to coarse of mixed lithology.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
16/09/22	08:30	7.50	6.00	200	5.80
20/09/22		9.00	None	N/R	6.30
21/09/22		25.50	None	N/R	6.20

Chiselling / Slow Progress

From	To	Duration (hh:mm)
7.30	7.50	00:30
8.50	9.00	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**???**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH18**

Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**2** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.50	27	D								Firm light brown mottled reddish brown fissured slightly gravelly sandy CLAY. Sand is fine to coarse, predominant coarse. Gravel is angular and subangular fine to coarse of mixed lithology. *(stratum copied from 4.10m from previous sheet)*	(0.90)	
4.50	28	ES										
4.50-5.00	29	B										
											5.00	
5.00	30	ES								Stiff to very stiff reddish brown slightly gravelly sandy CLAY. Sand is fine and medium. Gravel is angular and subangular of mudstone. Occasional pockets of grey siltstone (<30mm). GRADE IVb. (MERCIA MUDSTONE GROUP)		
5.00-5.45		SPT	N=31									
5.00-5.45	31	DSPT										
5.00-5.50	32	B										
5.50	33	D										
6.00	34	ES										
6.00-6.45		SPT	N=43									
6.00-6.45	35	DSPT										
6.00-6.50	36	B										
6.50	37	D										
											(4.00)	
7.00-7.36		SPT	8,12/14,19,17 for 61mm									
7.00-7.45	38	DSPT										
7.00-7.50	39	B										
7.50	40	D										
7.50-7.83		SPT	10,13/18,26,6 for 25mm									
7.50-7.95	41	DSPT										
7.50-8.00	42	B										
8.00-8.38		SPT	8,10/11,15,24 for 75mm									
8.00-8.45	43	DSPT										
8.00-8.50	44	B										
8.50	45	D									9.00	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**???**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH18**

Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**3** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50 9.00-9.21		SPT	18,7/31,19 for 42mm							AZCL. (MERCIA MUDSTONE GROUP)	(0.40)	AZCL
9.00-9.45	46	DSPT									9.40	
				80	15	0				Reddish brown clayey angular to subangular fine to coarse GRAVEL of mudstone. Sand is fine to coarse and mudstone derived. Gravels and matrix showing traces of thin laminated. GRADE III. (MERCIA MUDSTONE GROUP)	(0.75)	
9.90	47	D									10.15	
										Very weak greenish grey SILTSTONE. Bedding fractures: Very closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP)	(0.35)	
10.50-12.00										. . . 10.40-10.45m: Extremely weak reddish brown mudstone.	10.50	
										Very weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP)	(1.05)	
11.10-11.30	48	C		87	63	41					11.55	
										Extremely weak reddish brown MUDSTONE very thinly to thickly interlaminated with very weak greenish grey SILTSTONE. Bedding fractures: Very closely spaced, rough, undulating, infilled with reddish brown clay. (MERCIA MUDSTONE GROUP)	(0.45)	
12.00-13.50										. . . 11.65-11.70m: Moderately weak light reddish brown sandstone.	12.00	
										Very weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Fractures: Closely spaced, randomly orientated. (MERCIA MUDSTONE GROUP)	(1.25)	
12.60	49	D		100	39	0				. . . 12.15-12.25m: Recovered as sandy angular fine to coarse gravel, verging towards GRADE III.	13.25	
										Description on next sheet		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH18**

Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**4** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00										Weak greenish grey SILTSTONE very thinly interbedded with extremely weak reddish brown mudstone and clay bands. (MERCIA MUDSTONE GROUP)	(0.55)	
										(stratum copied from 13.25m from previous sheet)	13.80	
										Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Very closely spaced, randomly orientated, rough, undulating, with occasional black staining along surfaces. (MERCIA MUDSTONE GROUP)		
				100	17	0				. . . 14.00-14.03m: Trace thin laminae and recovered partly as clayey gravel.	(1.20)	
14.50	50	D								. . . 14.40-14.75m: Some fractures are stained yellow. . . . 14.75-14.80m: Very weak greenish grey siltstone.	15.00	
15.00-16.50										AZCL. (MERCIA MUDSTONE GROUP)	15.20	AZCL
									1	Extremely weak reddish brown MUDSTONE, recovered as sandy angular to subangular fine to coarse gravel. GRADE III. (MERCIA MUDSTONE GROUP)	(0.50)	
											15.70	
				87	0	0				Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Very closely spaced, randomly orientated, with occasional black staining on surfaces. (MERCIA MUDSTONE GROUP)		
15.90	51	D									(0.86)	
											16.56	
16.50-18.00										Very weak greenish grey fine grained SANDSTONE. Bedding fractures: Closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP)	16.75	
											(0.35)	
										Extremely weak reddish brown thinly laminated MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)	17.10	
				77	50	35				. . . 16.90-17.00m: Randomly orientated fractures.	(0.45)	AZCL
										AZCL	17.55	
17.55-17.80	52	C								Very weak to weak reddish brown MUDSTONE with occasional gravel size pockets of siltstone. GRADE II. (MERCIA MUDSTONE GROUP)		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH18**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**5** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50										Very weak to weak reddish brown MUDSTONE with occasional gravel size pockets of siltstone. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.55m from previous sheet)*	(1.00) 18.55	
				97	69	37				Very weak greenish grey fine grained SANDSTONE with occasional fine to medium sand sized vugs. Bedding fractures: Very closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP)	(0.70) 19.25	
19.10-19.20	53	C										
										Extremely weak reddish brown MUDSTONE interspersed with greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP)	19.35	
19.50-21.00										Moderately weak to medium strong greenish grey fine grained SANDSTONE. (MERCIA MUDSTONE GROUP) . . . 19.50-19.60m: Reddish brown very clayey angular medium to coarse gravel. . . . 19.80m: Rough planar bedding fracture, infilled with reddish brown clay. . . . 19.83-19.87m and 19.90-19.95m: Extremely weak reddish brown mudstone.	(0.95) 20.30	
				97	77	61				. . . 20.10m: Rough planar bedding fracture, infilled with reddish brown clay. . . . 20.10-20.15m: Thinly laminated with some thin beds of reddish brown clay. . . . 20.23-20.30m: Thinly laminated and partly recovered as fine to medium size gravel.		
20.75-20.85	54	C								Extremely weak reddish brown MUDSTONE with frequent fine to coarse gravel size pockets of greenish grey silt. GRADE II. (MERCIA MUDSTONE GROUP) . . . 20.30-20.70m: 75° undulating rough fracture.	(1.00) 21.30	
21.00-22.50										Extremely weak to very weak greenish grey SILTSTONE interspersed with extremely weak reddish brown mudstone. Generally recovered as a sandy gravel to cobbles, with laminae in some gravel fragments. Randomly orientated fractures in larger gravel / cobbles. (MERCIA MUDSTONE GROUP)	(0.75) 22.05	
				93	40	40						
21.80-22.05	55	C								Stiff reddish brown sandy CLAY with occasional fine to medium gravel size pockets of greenish grey silt. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.30) 22.35	
										Description on next sheet	22.50	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**???**	**DNeylon + JAlton**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH18**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**6** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.50-24.00										Very weak greenish grey fine to medium grained SANDSTONE. (MERCIA MUDSTONE GROUP)		
				97	77	53				Extremely weak to very weak reddish brown MUDSTONE with frequent fine to coarse gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 22.50-22.80m: Very closely spaced randomly orientated rough undulating fractures, partly recovered as angular fine to medium gravel. . . . . 22.90-23.05m: Thinly interlaminated with greenish grey siltstone and sandstone.	(1.95)	
23.55-23.70	56	C									24.45	
24.00-25.50										Extremely weak greenish grey SILTSTONE interspersed with laminae and lenses of extremely weak reddish brown mudstone and clay. Verging towards a silt in some of the siltstone bands. (MERCIA MUDSTONE GROUP)	(0.40)	
				100	67	42					24.85	
24.80-24.92	57	C								Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)	(0.35)	
											25.20	
										Very weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP)	(0.30)	
											25.50	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**???**	**DNeylon + JAlton**	

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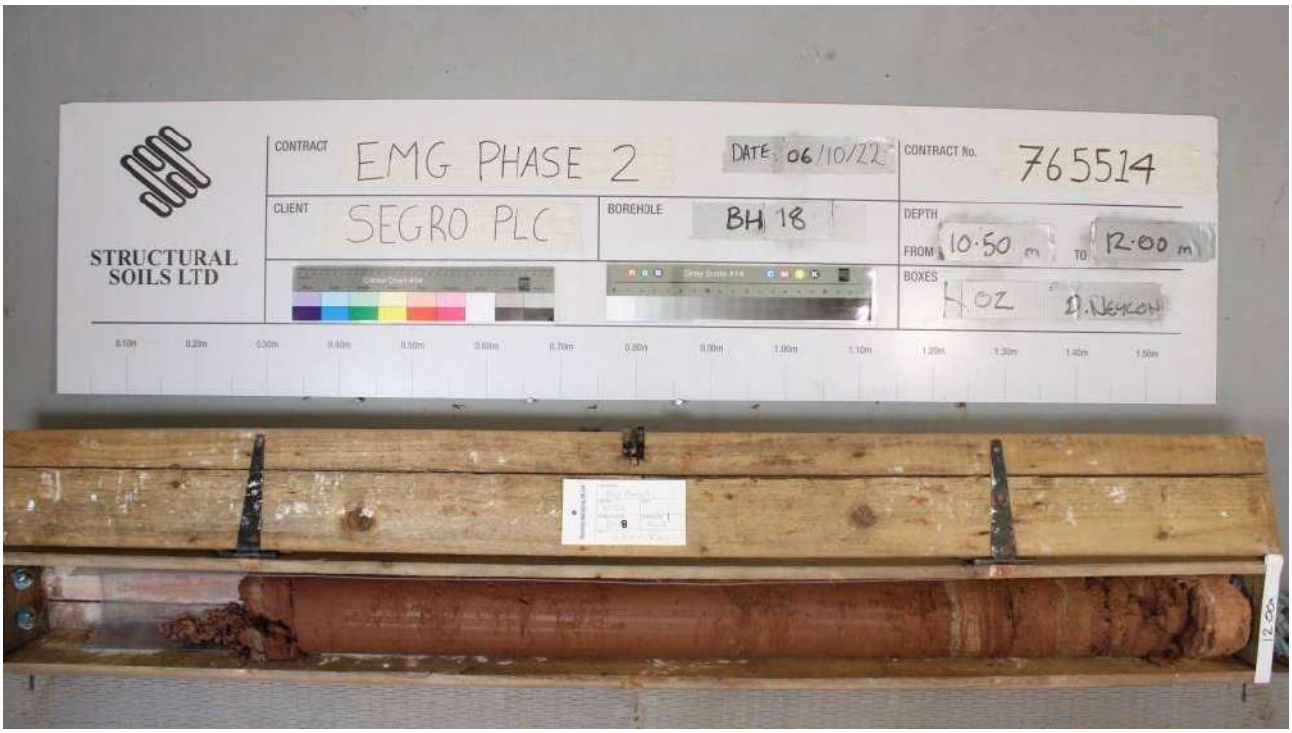
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH18**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**7** of **12**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH18**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**8** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH18**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**9** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH18**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**10** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH18**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**11** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH18**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**77.62**	**E:446112.9 N:324864.2**	**12** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH19**

Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**1** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D								TOPSOIL	(0.35)	
0.10-0.30	2	B										
0.20	101	ES	1xT+1xJ+1xV								0.35	
										Stiff reddish brown, mottled grey, slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse sandstone and mudstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)		
0.90	3	D										
0.90-1.20	4	B										
1.00	102	ES	1xT+1xJ+1xV									
1.20-1.65	5	$UT_{(UT100)}$	150 blows 78% recovery									
1.65-1.75	6	D										
1.90	7	D										
2.00-2.45		SPT	N=27									
2.00-2.45	10	B										
2.00-2.45	9	DSPT										
											(4.65)	
2.70	11	D										
3.00-3.44		SPT	6,7/10,13,13,14 for 65mm									
3.00-3.44	13	DSPT										
3.00-3.45	14	B										
3.70	15	D										
4.00-4.44		SPT	10,13/13,13,13,11 for 60mm									
4.00-4.44	17	DSPT										
4.00-4.45	18	B										
										. . . 4.35-4.45m: medium strong grey siltstone		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
14/09/22	16:21	5.00	3.00	200	Dry
16/09/22	08:00	5.00	5.00	114	Dry
16/09/22	17:00	20.00	5.00	114	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Martin Speedie**	**AJones + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**2** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70	19	D								Stiff reddish brown, mottled grey, slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse sandstone and mudstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP) *(stratum copied from 0.35m from previous sheet)*	5.00	
5.00-6.50												
5.00-5.39		SPT	8,12/13,16,16,5 for 15mm							Stiff thickly laminated to thinly bedded reddish brown, mottled light grey, CLAY with occasional subangular fine to medium gravel size mudstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP)		
5.00-5.39	21	DSPT								. . . 5.00-5.74m: AZCL (SPT).		
				51	0	0						
							NI			. . . 5.83-5.84m: extremely weak siltstone.		
							NI				(2.25)	
6.20	21	D					NI					
6.50-8.00										. . . 6.36-6.50m: 3 no very closely spaced thin beds of extremely weak to very weak siltstone.		
6.50-6.90		SPT	5,7/10,14,16,10 for 25mm							. . . 6.50-7.25m: AZCL (SPT).		
				50	0	0				. . . 7.18-7.26m: 80° undulating smooth discontinuity with occasional black spots on surface.	7.25	
7.50	22	D								Extremely weak very thinly bedded, locally thickly laminated, reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, undulating, rough, with a little clay smear on surfaces and locally stained black. (MERCIA MUDSTONE GROUP)		
							NI 20 130					
8.00-9.50										. . . 7.32m: 5° undulating smooth discontinuity with frequent black spots and a little yellowish brown staining.		
8.00-8.30		SPT	2,10/19,31 for 70mm							. . . 7.40-7.53m: 80° to 90° undulating rough black stained discontinuity.	(2.00)	
				97	23	7				. . . 7.45-7.50m: 50° undulating smooth black stained discontinuity.		
							NI			. . . 7.54-7.57m: 50° undulating smooth black stained discontinuity.		
							NI 30			. . . 7.58-7.62m: 45° undulating smooth black stained discontinuity.		
8.80	23	D								*Description on next sheet*		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Martin Speedie**	**AJones + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**3** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
							NI NI 30			. . . 7.62-7.74m: very stiff clay with occasional subangular fine to coarse gravel size lithorelics of extremely weak mudstone.		
				97	23	7				. . . 8.00-8.20m: Drilling disturbed, recovered NI as gravel.	9.25	
9.50-11.00										. . . 8.33-8.50m: 80° to 90° undulating smooth black stained discontinuity occasionally with a little clay smear on surfaces. . . . 8.50-8.56m: NI with extremely closely spaced randomly oriented undulating smooth clay smeared discontinuities, locally black stained. . . . 8.87-8.89m: extremely weak siltstone. . . . 8.90-8.93: very weak mudstone.	(0.70)	
											9.95	
				87	37	0				Very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fracture: Very closely to closely spaced, 0° to 5°, planar and undulating, smooth, clean, locally with a little clay smear and black staining on surfaces. (MERCIA MUDSTONE GROUP)		
10.53-10.63	24	C								. . . 9.26-9.32m: 85° undulating rough discontinuity with frequent black specks. . . . 9.32-9.43m: 90° undulating smooth black stained discontinuity.		
11.00-12.50							NI 10 70			. . . 9.35-9.45m: 50° undulating rough discontinuity with a little clay smear on surfaces. . . . 9.50-9.75m: extremely weak very thinly to thinly bedded mudstone. . . . 9.64-9.75m: Recovered NI as gravel.	(2.85)	
				100	11	0				Extremely weak thickly laminated to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Extremely closely to closely spaced, undulating, smooth, with a little clay smear on surfaces. (MERCIA MUDSTONE GROUP)		
12.00	25	D								. . . 9.95-10.15m: Discontinuity are extremely closely to very closely spaced randomly orientated undulating smooth with black staining on surfaces. . . . 10.15-10.21m: extremely weak light greenish grey siltstone. . . . 10.26-10.40m: 70° undulating smooth black stained discontinuity. . . . 10.29-10.31m: 20° undulating smooth black stained discontinuities.		
12.50-14.00										. . . 10.42-10.55m: firm to stiff thinly to thickly laminated reddish brown clay with frequent gravel size lithorelics.	12.80	
										. . . 10.75-10.85m: 75° undulating smooth discontinuity with occasional black staining on surfaces. . . . 10.85-11.00m: AZCL. . . . 11.00-11.15m: drilling disturned, recovered NI as clayey gravel.	(0.73)	
12.93-13.16	26	C		95	27	0				. . . 11.18-11.23m: very weak to weak very thinly bedded greenish grey siltstone.		
							NI NI 100			*Description on next sheet*		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Martin Speedie**	**AJones + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**4** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										. . . 11.25-11.36m: 85° undulating rough discontinuity with frequent black specks on surfaces.	13.53	
				95	27	0				. . . 11.36-11.45m: Discontinuities are extremely closely to closely spaced randomly orientated with <1mm clay on surfaces. Locally surfaces are clean.	(0.72)	
14.00-15.50										. . . 12.43-12.50m: extremely weak light grey siltstone.	14.25	
										. . . 12.55-12.80m: 85° undulating rough discontinuities with frequent black spots on surfaces.		
14.45-14.59	27	C								Stiff thickly laminated to very thinly bedded reddish brown, mottled light grey, CLAY with occasional angular and subangular fine to medium gravel size mudstone lithorelics. GRADE III.	(0.60)	
				97	40	17				Bedding fractures: Extremely closely to very closely spaced, 0° to 5°, undulating, smooth and rough, clean, locally with a little clay smear on surfaces.	14.85	
										(MERCIA MUDSTONE GROUP) *(stratum copied from 12.80m from previous sheet)*	(0.65)	
										Extremely weak very thinly to thickly bedded reddish brown MUDSTONE. GRADE II.	15.50	
15.50-17.00							NI 20 200			Bedding fractures: Extremely closely to very closely spaced, 0° to 5°, planar, smooth and undulating, rough, locally stained black and with occasional black spots.		
										(MERCIA MUDSTONE GROUP)	(0.65)	
										. . . 13.56-13.63m: 85° to 90° undulating smooth black stained discontinuity.		
										. . . 13.68-13.71m: very weak light greenish grey siltstone.	16.15	
				100	49	7				. . . 13.76-13.80m: very weak light greenish grey siltstone.		
										. . . 13.82-13.85m: very weak light greenish grey siltstone.		
										. . . 13.85-13.90m: stiff reddish brown clay.		
16.58-16.65	28	C								. . . 13.90-13.95m: very weak greenish grey siltstone.		
										. . . 14.06m: 1 no 15mm diameter reduction spot.		
										. . . 14.16-14.22m: 88° undulating smooth black stained discontinuity.	(1.65)	
17.00-18.50										Very weak very thinly to thickly bedded reddish brown MUDSTONE. GRADE II.		
										Bedding fractures: Very closely to closely spaced, subhorizontal, undulating, smooth, stained black locally clean.		
										(MERCIA MUDSTONE GROUP)		
				100	24	13				. . . 14.30-14.33m: 85° undulating smooth black stained discontinuity.		
										. . . 14.33-14.42m: 80° to 90° undulating rough clean locally black stained discontinuity.		
17.70	29	D								. . . 14.35-14.45m: extremely weak clayey siltstone.	17.80	
										Description on next sheet		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Martin Speedie**	**AJones + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**5** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	24	13	NI 20 200			. . . 14.60-14.72m: 85° undulating rough discontinuity with occasional black specks on surfaces. . . . 14.72m: thin lamination (3mm) of greenish grey siltstone band.	(0.70)	
18.50-20.00										Extremely weak very thinly to thickly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, subhorizontal, undulating, smooth, black stained and occasionally clean. (MERCIA MUDSTONE GROUP) . . . 14.86-14.89m: siltstone inclusions (<50mm). . . . 15.00-15.40m: randomly orientated extremely closely to very closely spaced undulating smooth black stained discontinuities.	18.50	
18.80-18.96	30	C		100	67	50	NI 20 60			. . . 15.40-15.50m: 75° undulating rough black stained discontinuity.	(1.50)	
19.50-19.70	31	C								Extremely weak thinly and thickly laminated reddish brown MUDSTONE with occasional thin laminae of siltstone. GRADE II. Bedding fractures: Extremely closely to very closely spaced, subhorizontal, undulating, smooth, clean. Occasionally with a little silt on surfaces. (MERCIA MUDSTONE GROUP) . . . 15.90-15.98m: weak grey siltstone. . . . 16.07-16.14m: very weak light grey siltstone.	20.00	
										Extremely weak to very weak thickly laminated to very thinly bedded reddish brown, mottled light grey, MUDSTONE. GRADE II. Bedding fractures: Extremely closely to closely spaced, 0° to 5°, undulating, smooth, with a little clay smear on surfaces and locally with occasional black spots. (MERCIA MUDSTONE GROUP) . . . 16.15-16.50m: randomly orientated extremely closely to very closely spaced undulating smooth black stained discontinuities, occasionally clean. . . . 16.58-16.61m: siltstone inclusions (<40mm). . . . 16.70-16.80m: 85° to 90° undulating smooth black stained discontinuity. . . . 17.10-17.21m: 80° to 85° undulating smooth black stained discontinuity with <1mm clay on surfaces. . . . 17.40-17.80m: Randomly oreintated extremely closely to closely spaced undulating smooth predominantly black stained discontinuities. . . . 17.60-17.80m: Recovered NI as gravel.		
										Very weak to weak thinly bedded reddish brown MUDSTONE. GRADE I. Bedding fractures: Very closely to closely spaced, 0° to 5°, undulating and planar, smooth, black stained. (MERCIA MUDSTONE GROUP) . . . 17.80-8.20m: 80° to 90° undulating smooth black stained discontinuity.*(stratum copied from* 17.80m from previous sheet)		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Martin Speedie**	**AJones + RSenior**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**6** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										Very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Extremely closely to closely spaced, 0° to 5°, undulating, smooth, clean, locally black stained with occasional clay smear on surfaces. (MERCIA MUDSTONE GROUP) . . . 18.50-18.56m: drilling disturbed, recovered as gravel. . . . 18.88-19.04m: moderately weak light greenish grey siltstone. . . . 19.10-19.14m: 30° undulating smooth black stained discontinuity. . . . 19.20-19.21m: 20° undulating smooth black stained discontinuity. . . . 19.42-19.45m: 30° undulating smooth discontinuity with occasional black specks. . . . 19.74-19.80m: 60° undulating smooth black stained discontinuity. Borehole terminated at 20.00m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Martin Speedie**	**AJones + RSenior**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH19**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**7** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Martin Speedie**	Logged By:	**AJones + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH19**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**8** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Martin Speedie**	Logged By:	**AJones + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH19**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**9** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Martin Speedie**	Logged By:	**AJones + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH19**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**10** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Martin Speedie**	Logged By:	**AJones + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH19**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**76.63**	**E:446150.1 N:324740.8**	**11** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Martin Speedie**	Logged By:	**AJones + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**1** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00-0.20	1	B									TOPSOIL	(0.40)	
0.10	101	ES	1xT+1xJ+1xV									0.40	
0.10	2	D											
0.25	3	D											
0.25-0.40	4	B											
0.30	102	ES	1xT+1xJ+1xV								Firm reddish brown slightly gravelly sandy SILT. Sand is fine to coarse, predominantly coarse. Gravel is subangular to subrounded fine to coarse of quartzite .	(1.10)	
0.60	103	ES	1xT+1xJ+1xV										
0.60	5	D											
0.60-0.90	6	B											
1.00	104	ES	1xT+1xJ+1xV									1.50	
1.00	7	D											
1.00-1.20	8	B											
1.20-1.65		SPT	N=15										
1.20-1.65	10	DSPT											
1.20-1.65	11	B											
1.60-1.80	12	B									Firm reddish brown, mottled grey, slightly gravelly sandy CLAY. Sand is fine to coarse, predominantly coarse. Gravel is angular to subangular fine of mudstone as lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)	(1.20)	
1.80	13	D											
2.00-2.45	14	$UT_{(UT100)}$	120 blows 89% recovery					Air+Mist (Red/Grey Mudstone.)					
2.45-2.55	15	D										2.70	
2.80	16	D									Extremely weak reddish brown fine grained MUDSTONE with rare greenish grey laminae and pockets of siltstone. GRADE IVb. (MERCIA MUDSTONE GROUP)	(2.50)	
3.00-3.45		SPT	N=30										
3.00-3.45	18	DSPT											
3.00-3.45	19	B											
3.70	20	D											
4.00-4.41		SPT	7,9/10,13,18,9 for 30mm										
4.00-4.41	22	DSPT											
4.00-4.45	23	B											

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
15/09/22	12:00	5.00	4.50	200	-
20/09/22		10.70	None	N/R	9.80
21/09/22		21.00	None	N/R	8.30
21/09/22		30.00	None	N/R	25.90

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**2** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.70	24	D									Extremely weak reddish brown fine grained MUDSTONE with rare greenish grey laminae and pockets of siltstone. GRADE IVb. (MERCIA MUDSTONE GROUP) *(stratum copied from 2.70m from previous sheet)*		
5.00-5.36		SPT	12,13/16,21,17 for 55mm										
5.00-5.36	26	DSPT										5.20	
5.20-6.00											Extremely weak reddish brown MUDSTONE with frequent beds of greenish grey siltstone. GRADE II. Fractures: Extremely closely spaced, randomly orientated, planar, smooth, with frequent black and yellow stained. (MERCIA MUDSTONE GROUP) . . . 5.20-5.45m: AZCL. . . . 5.45-5.75m: NI.		
5.48-5.65	28	C		69	25	25		Air+Mist (Red/Grey Mudstone)					
6.00-7.50				100	9	9	NI 20 150	Air+Mist (Red/Grey Mudstone)			. . . 6.55-6.72m: 60° planar smooth clean. . . . 6.70-7.10m: 9° undulating rough with black and yellow staining. GRADE II. . . . 6.90-7.00m: 60° planar smooth clean.	(2.30)	
7.25-7.40	29	C										7.50	
7.50-9.00											Extremely weak to very weak indistinctly and very thinly bedded reddish brown MUDSTONE. With beds of thinly laminated greenish grey siltstone. Fracture Set 1: Randomly orientated, very closely spaced, planar and undulating, smooth and rough, with black and yellow staining. Fracture Set 2: 45°, closely spaced, planar, smooth, with black and yellow staining. (MERCIA MUDSTONE GROUP)		
8.24	30	D		100	67	60	NI 30 70	Air+Mist (Red/Grey Mudstone)			. . . 8.90-8.95m: Greenish grey siltstone.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**3** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50													
9.08-9.36	31	C									Extremely weak to very weak indistinctly and very thinly bedded reddish brown MUDSTONE. With beds of thinly laminated greenish grey siltstone. Fracture Set 1: Randomly orientated, very closely spaced, planar and undulating, smooth and rough, with black and yellow staining. Fracture Set 2: 45°, closely spaced, planar, smooth, with black and yellow staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 7.50m from previous* sheet)		
				100	47	47	NI 30 70	Air+Mist (Red/Grey Mudstone)		4	. . . 9.36-9.42m: Medium strong. . . . 9.75-9.82m: (Firm) reddish brown clay with lithorelics of mudstone. . . . 9.82-9.92m: Greenish grey siltstone.	(3.90)	
10.50-12.00										4	. . . 10.45-10.60m: (Soft) reddish brown silty clay with lithorelics of mudstone.		
11.00-11.20	32	C											
				77	77	77		Air+Mist (Red/Grey Mudstone)				11.40	
											Extremely weak to weak reddish brown and greenish grey MUDSTONE with closely spaced very thin and thin beds of greenish grey SILTSTONE. GRADE II. Fractures: Randomly orientated, very closely spaced, planar and undulating, smooth, clean. (MERCIA MUDSTONE GROUP)		
12.00-13.50													
12.30	33	D					NI 50 170						
				97	60	47		Air+Mist (Red/Grey Mudstone)				(2.85)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**4** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00													
13.50-13.65	34	C					NI 50 170	Air+Mist (Red/Grey Mudstone)			Extremely weak to weak reddish brown and greenish grey MUDSTONE with closely spaced very thin and thin beds of greenish grey SILTSTONE. GRADE II. Fractures: Randomly orientated, very closely spaced, planar and undulating, smooth, clean. (MERCIA MUDSTONE GROUP) *(stratum copied from 11.40m from previous* sheet)		
				97	40	30	NI 5 60					14.25	
											Extremely weak reddish brown clayey MUDSTONE with abundant very closely spaced thinly beds of greenish grey siltstone. Fractures: Randomly orientated, extremely closely spaced, planar, smooth, clean. (MERCIA MUDSTONE GROUP) . . . 14.50-14.65m: Clay with frequent lithoerlicts.	(0.45)	
												14.70	
15.00-16.50							NI 10 10	Air+Mist (Red/Grey Mudstone)			Very weak reddish brown MUDSTONE with medium spaced thin beds of greenish grey SILTSTONE. Fracture Set 1: 0-15°, closely spaced, undulating, smooth, clean. GRADE I. Fracture set 2: Randomly orientated, extremely closely spaced, planar, smooth, clean. . . . 14.80-15.25m: NI - drilling disturbed.	(1.80)	
				87	53	43							
15.89-16.05	35	C											
											. . . 16.30-16.50m: NI - drilling disturbed.		
												16.50	
16.50-18.00								Air+Mist (Red/Grey Mudstone)			Extremely weak reddish brown MUDSTONE. Frequent gravel size pockets and lenses (<15mm) of greenish grey siltstone. GRADE II. Bedding fractures: Closely spaced, rough, planar. Fractures Set 2: Very closely spaced, randomly orientated, smooth, planar. (MERCIA MUDSTONE GROUP)		
				97	31	0							
17.30-17.50	36	C											
											. . . 17.00-18.00m: Becoming extremely weak to very weak .		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**5** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50				97	43	20		Air+Mist (Red/Grey Mudstone)			Extremely weak reddish brown MUDSTONE. Frequent gravel size pockets and lenses (<15mm) of greenish grey siltstone. GRADE II. Bedding fractures: Closely spaced, rough, planar. Fractures Set 2: Very closely spaced, randomly orientated, smooth, planar. (MERCIA MUDSTONE GROUP) *(stratum copied from 16.50m from previous sheet)* . . . 18.00-18.15m: Weak to medium strong greenish grey SANDSTONE with fine to medium sand size vugs.	(3.25)	
18.90-19.10	37	C										19.75	
19.50-21.00				97	65	27		Air+Mist (Red/Grey Mudstone)			Weak greenish grey fine to medium grained SANDSTONE with frequent medium to coarse sand size vugs. Interspaced with thin laminae of siltstone. Bedding fractures: Closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP) . . . 19.80m to 19.85m: Siltstone. . . . 20.20-20.40m: Sandstone is interspersed with reddish brown clay with mudstone lithorelics.	(0.70)	
20.45-20.70	38	C										20.45	
											Weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP) . . . 20.70-20.80m: Very closely spaced randomly orientated fractures and recovered as gravel of mudstone.	(0.35)	
												20.80	
21.00-22.50				70	53	33		Air+Mist (Red Mudstone)			Weak to medium strong greenish grey fine to medium grained SANDSTONE. (MERCIA MUDSTONE GROUP) . . . 21.00-21.45m: AZCL.	(0.90)	
21.60-21.95	39	C										21.70	
											Very weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP)	(0.30)	
												22.00	
											Description on next sheet . . . 22.35-22.50m: Siltstone.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

DRAFT

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**6** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.50-24.00											Extremely weak reddish brown MUDSTONE with occasional gravel size pockets of greenish grey siltstone. Medium interbedded with extremely weak to very weak greenish grey SILTSTONE. GRADE II. Bedding fractures: Medium spaced, rough, undulating, infilled with red sandy clay. (MERCIA MUDSTONE GROUP) *(stratum copied from 22.00m from previous sheet)*		
23.25-23.40	40	C		100	40	0		Air+Mist (Red Mudstone)			. . . 22.70-22.95m: Siltstone.	(2.95)	
											. . . 23.70-23.95m: Extremely weak siltstone verging towards silt.		
24.00-25.50											. . . 24.10-24.25m: Siltstone.		
24.35-24.55	41	C		100	69	21		Air+Mist (Red Mudstone)				24.95	
											Extremely weak reddish brown fine grained SANDSTONE. Fractures: Closely spaced, randomly orientated, smooth, undulating. (MERCIA MUDSTONE GROUP)	(1.15)	
25.50-27.00				97	93	83		Air+Mist (Red Mudstone)				26.10	
											Extremely weak reddish brown MUDSTONE very thinly interbedded with extremely weak greenish grey SILTSTONE. GRADE II. . . . 26.25m: Sandstone.	(0.80)	
26.65-26.90	42	C										26.90	
											Description on next sheet		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**15.09.22** End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**7** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Flush Returns & Details	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.00-28.50				100	87	30		Air+Mist (Red Mudstone)			Medium strong greenish grey thinly to thickly laminated SANDSTONE. (MERCIA MUDSTONE GROUP) *(stratum copied from 26.90m from previous sheet)*	27.10	
											Extremely weak reddish brown MUDSTONE with abundant fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP)	(0.75)	
27.85-28.15	43	C									. . . 27.10-27.40m: 70°, smooth, planar fracture.	27.85	
											Weak reddish brown fine grained SANDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. (MERCIA MUDSTONE GROUP)		
28.50-30.00				87	50	28		Air+Mist (Red Mudstone)			. . . 28.80m: Bedding fracture is infilled with subangular gravel of reddish mudstone.	(1.45)	
											. . . 29.20-29.50m: Thinly cross laminated.	29.30	
29.40-29.60	44	C									Extremely weak reddish brown fine grained SANDSTONE. (MERCIA MUDSTONE GROUP)	(0.70)	
											. . . 29.95m: Greenish grey siltstone.	30.00	
											Borehole terminated at 30.00m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**8** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**9** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**10** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**11** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**12** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**13** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**14** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**15** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH20**
Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.91**	**E:446017.0 N:324870.9**	**16** of **16**

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Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH21**

Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**1** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D								TOPSOIL	(0.30)	
0.10-0.30	2	B									0.30	
0.20	101	ES	1xT+1xJ+1xV							Stiff orangish brown, mottled grey, slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse extremely weak mudstone and siltstone lithorelics and occasional sandstone. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.50)	
0.40	102	ES	1xT+1xJ+1xV									
0.40	3	D										
0.40-0.60	4	B									0.80	
0.80	5	D								Stiff to very stiff reddish brown slightly gravelly silty CLAY. Sand is predominantly coarse. Gravel is subangular fine to coarse of extremely weak mudstone and siltstone lithorelics and occasional sandstone. GRADE IVa. (MERCIA MUDSTONE GROUP)		
0.80-1.20	6	B										
1.00	103	ES	1xT+1xJ+1xV									
1.20-1.65		SPT	N=14									
1.20-1.65	8	DSPT										
1.20-1.65	9	B										
1.70	10	D										
2.00-2.40	11	$UT_{(UT100)}$	150 blows 88% recovery									
2.40-2.50	12	D									(3.70)	
2.70	13	D										
3.00-3.40		SPT	5,10/10,13,18,9 for 20mm							. . . below 3.00m: becoming very stiff.		
3.00-3.40	15	DSPT										
3.00-3.45	16	B										
3.70	17	D										
4.00-4.37		SPT	6,8/13,20,17 for 65mm									
4.00-4.37	19	DSPT									4.50	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
13/09/22	16:44	1.90	1.90	200	Dry
14/09/22	07:46	1.90	1.90	200	Dry
20/09/22		10.30	None	N/R	3.00
16/09/22		4.50	4.50	200	Dry
16/09/22		30.00	4.50	114	26.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH21**

Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**2** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.50-6.00							NI NI NI			AZCL. (MERCIA MUDSTONE GROUP)	(0.70)	AZCL
				53	9	9				Extremely weak to very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 10°, undulating, smooth and rough, clean, with rare black specks. (MERCIA MUDSTONE GROUP)	5.20	
5.60	23	D										
6.00-7.50										. . . 6.00-6.15m: AZCL.		
				83	22	0				. . . 6.30-6.50m: Stiff reddish brown silty clay with occasional subangular fine to coarse gravel size mudstone lithorelicts.		
7.00	24	D					NI 60 170			. . . 7.02m: thin laminae (5mm) of weak light greenish grey siltstone.		
										. . . 7.12-7.38m: With frequent thick laminae and very thin beds of very weak light greenish grey siltstone.		
7.50-9.00										. . . 7.34-7.36m: 45° undulating rough discontinuity with frequent black specks.		
										. . . 7.34-7.62m: 85° undulating rough locally orangish brown stained discontinuity with frequent black specks.		
8.00	25	D								. . . 7.94-8.00m: 40° undulating rough black stained discontinuity.	(5.97)	
				99	33	7				. . . 8.12-8.46m: 85° to 90° undulating smooth discontinuity with frequent black specks.		
										. . . 8.39-8.86m: 3 no parallel 50° closely spaced undulating smooth black stained discontinuities.		
										. . . 8.60-9.00m: 80° to 90° undulating smooth rough black stained discontinuity.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH21**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**3** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50 9.00-9.27	26	C		97	61	43	NI 60 170			Extremely weak to very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 10°, undulating, smooth and rough, clean, with rare black specks. (MERCIA MUDSTONE GROUP) *(stratum copied from 5.20m from previous sheet)* . . . 9.27m: Thick laminae (15mm)of very weak light greenish grey siltstone. . . . 9.69-9.78m: 50° undulating rough black stained discontinuity. . . . 10.00-10.20m: 85° to 90° undulating rough black stained discontinuity. . . . 10.13-10.320m: 50° undulating rough discontinuity with frequent black specks. . . . 10.35-10.50m: With very closely spaced randomly orientated undulating smooth and rough discontinuities with occasional black specks. . . . 10.50-10.55m: Moderately weak light grey siltstone. . . . 10.72-10.80m: 50° undulating smooth discontinuity with <1mm clay on surfaces. . . . 10.72-10.89m: Discontinuities are closely to very closely spaced randomly orientated undulating smooth and rough clean locally stained black. . . . 10.89-11.00m: Thinly and thickly laminated.		
10.50-12.00												
11.02-11.17	27	C		95	80	69					11.17	
11.56-11.76	28	C					NI 60 200			Very weak thinly to medium bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to medium spaced, 0°, undulating, smooth, clean, locally with a little clay smear on surfaces. (MERCIA MUDSTONE GROUP) . . . 11.29-11.35m: Coarse gravel size siltstone inclusion. . . . 11.38-11.42m: Extremely weak light greenish grey siltstone. . . . 12.00-12.20m: AZCL. . . . 12.20-12.30m: Thickly laminated. . . . 12.30-12.50m: Drilling disturbed, recovered as clayey gravel. . . . 12.50-12.65m: Thickly laminated.	(1.48)	
12.00-13.50											12.65	
				87	47	17	NI NI 90			Stiff thinly and thickly laminated silty CLAY with frequent angular to subangular fine to medium gravel size lithorelics. GRADE III. (MERCIA MUDSTONE GROUP) . . . 12.70-12.72m: Thick laminae of stiff light greenish grey silt. . . . 12.86-13.07m: Thinly laminated to very thickly bedded stiff to very stiff light greenish grey clay. . . . 13.08-13.15m: Thin bed of moderately weak light greenish grey siltstone.	(0.50)	
13.28-13.42	29	C					NI 60 170				13.15	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH21**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**4** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00				100	75	38	NI 60 170			Very weak to weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 10°, undulating, rough, black stained locally orangish brown stained. (MERCIA MUDSTONE GROUP) *(stratum copied from 13.15m from previous sheet)* . . . 13.55-13.65m: 85° undulating rough orangish brown stained discontinuity. . . . 14.04-14.07m: Moderately weak light grey siltstone. . . . 14.06-14.17m: Incipient fractures very closely to closely spaced randomly orientated rough clean. . . . 14.16-14.24m: 45° undulating rough black and orangish brown stained discontinuity. . . . 14.34-14.35m: Weak light greenish grey siltstone. . . . 14.39-14.40m: Weak light greenish grey siltstone.	(2.68)	
15.00-16.50										. . . 14.55-14.70m: Extremely closely to very closely spaced randomly orientated undulating rough clean locally orangish brown stained discontinuities. . . . 15.12-15.16m: Moderately weak light greenish grey siltstone. . . . 15.40-15.45m: 90° undulating rough discontinuity with rare black specks. . . . 15.58-15.67m: 85° to 90° undulating rough black stained discontinuity.	15.83	
15.24-15.42	31	C		93	43	28	NI NI 30			. . . 15.66-15.72m: 35° undulating rough black stained discontinuity.	(0.30)	
										Stiff thinly and thickly laminated silty CLAY with occasional subangular fine to medium gravel size lithorelics of mudstone. Occasional thin laminea of very weak light grey siltstone. GRADE III. (MERCIA MUDSTONE GROUP)	16.13	
16.50-18.00										Very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: 0° to 15°, very closely to closely spaced, undulating, rough, clean, occasional black staining. (MERCIA MUDSTONE GROUP) . . . 16.15-16.19m: Moderately weak light grey siltstone with occasional vugs (<2mm). . . . 16.30-16.38m: Moderately weak light grey siltstone with frequent vugs (<2mm). . . . 16.50-16.70m: Drilling disturbed, NI / recovered as gravel. . . . 16.81-16.82m: Very weak light greenish grey siltstone. . . . 16.83-17.05m: 85°-90° undulating rough black stained discontinuity. . . . 17.05-17.35m: Extremely close to very closely spaced randomly orientated clean and black stained discontinuities.		
17.00	32	D		97	31	13	NI 50 100			*Description on next sheet*	(2.94)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH21**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**5** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50				93	23	8	NI 50 100			. . . 17.13-17.38m: 75°-85° undulating smooth and rough clean locally black stained discontinuity. . . . 17.39-17.50m: 50° undulating rough discontinuity with 1-2mm soft clay on surfaces. . . . 17.50-17.78m: 60° undulating smooth lightly black stained discontinuity. . . . 17.75-17.78m: 60° undulating smooth lightly lack stained discontinuity. . . . 17.80-17.93m: Extremely closely to very closely spaced randomly orientated undulating smooth clean locally black stained discontinuities. . . . 17.85-18.00m: 65° undulating smooth clean discontinuity.		
											19.07	
19.25-19.37	33	C								Very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: 0° to 15°, very closely to closely spaced, undulating, rough, clean, occasional black staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 16.13m from previous sheet)* . . . 18.00-18.20m: Drilling disturbed. Recovered NI as subangular coarse gravel and cobble size fragments. . . . 18.20-18.30m: 45° undulating smooth black stained discontinuity. . . . 18.30-18.55m: Extremely closely to very closely spaced undulating smooth and roughly lean locally lightly black stained discontinuities. . . . 18.40-18.46m: 75° undulating smooth clean locally lightly black stained discontinuity. . . . 18.43-18.47m: 30° undulating smooth discontinuity with <1mm clay smear on surfaces and locally stained black. . . . 18.60-18.90m: 70° undulating smooth clean locally light black stained discontinuity. . . . 19.06-19.10m: 20° planar smooth lightly black stained discontinuities.		
19.50-21.00				100	60	53	NI 120 300				(1.93)	
19.82-20.05	34	C										
											21.00	
21.00-22.50				95	73	43				Weak to moderately weak very thinly to thiny bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, undulating, smooth and rough, clean, locally black stained and locally with <1mm silt on surfaces. (MERCIA MUDSTONE GROUP) . . . 19.07-19.20m: 75°-90° curved undulating rough black stained discontinuity. . . . 19.25-19.42m: Moderately weak light greenish grey siltstone. . . . 19.50-19.77m: Occasional fine to medium gravel size inclusions of siltstone. . . . 19.82-19.97m: 85°-90° undulating smooth and rough clean and locally with frequent black specks. . . . 20.19-20.23m: Thinly interlaminated stiff reddish brown clay and very weak light greenish grey siltstone. . . . 20.23-20.27m: Moderately weak light greenish grey siltstone.	(1.80)	
22.15-22.45	35	C										

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH21**

Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**6** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.50-24.00							NI 120 300			. . . 20.27-20.45m: 50°-70° undulating smooth and rough clean locally black stained discontinuity. . . . 20.38-20.40m: 50° undulating smooth black stained discontinuity. . . . 20.70-20.82m: Extremely closely to very closely spaced randomly orientated undulating rough and smooth clean locally lightly black stained discontinuities. . . . 21.62-21.63m: Stiff reddish brown clay. . . . 21.77-22.00m: Stiff thinly bedded reddish brown mudstone locally trending to extremely weak mudstone.	22.80	
				97	32	19				Medium strong to strong thinly to medium bedded light greenish grey SILTSTONE with occasional diameter vugs (<2mm). GRADE II. Bedding fractures: 0° to 10°, undulating, rough, clean, locally orange stained. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.00m from previous sheet)*	(2.42)	
23.52-23.74	36	C					NI					
24.00-25.50							NI 220			Extremely weak very thinly to medium bedded reddish brown silty MUDSTONE. GRADE II. Bedding fractures: Very closely to medium spaced, 0° to 15°, undulating, rough, clean, locally with <1mm clay or silt on surfaces. (MERCIA MUDSTONE GROUP) . . . 22.93-23.20m: Extremely closely spaced very thin beds of very stiff light greenish grey silt. . . . 23.45-23.75m: Occasional fine to coarse gravel size inclusions of extremely weak light greenish grey siltstone. . . . 23.75-23.79m: 25° undulating rough discontinuity with <1mm silt on surfaces. . . . 23.75-23.84m: Weak light greenish grey siltstone.	25.22	
				97	36	25						
25.12-25.50	37	C							1			
25.50-27.00										. . . 23.80-23.84m: 40° undulating rough clean discontinuity. . . . 24.09-24.15m: Firm reddish brown silty clay. . . . 24.25-24.30m: Firm reddish brown silty clay. . . . 24.30-24.58m: Thinly interbedded extremely weak light greenish grey siltstone with stiff reddish brown silty clay. . . . 24.88-25.22m: Extremely weak thickly laminated to very thinly bedded light greenish grey siltstone.		
25.55-25.79	38	C							1			
				97	77	69	NI 150 380			Extremely weak to very weak thinly to medium bedded reddish brown, mottled light greenish grey, silty MUDSTONE. GRADE II. Bedding fractures: Closely to medium spaced, 0° to 10°, undulating, rough, stained, orangish brown, locally with <1mm silt on surfaces. (MERCIA MUDSTONE GROUP) . . . 25.50-25.55m: Thickly interlaminated to very thinly interbedded very weak greenish grey siltstone and extremely weak reddish brown mudstone. *Description on next sheet*		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH21**

Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**7** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.00-28.50										. . . 25.93-25.97m: 25° undulating smooth lightly black stained discontinuity. . . . 26.02-26.15m: 80°-90° undulating rough clean discontinuity. . . . 26.40-26.50m: Weak light greenish grey siltstone with 85° undulating rough clean locally orangish brown stained discontinuity. . . . 26.65-26.68m: 15° undulating rough black stained discontinuity.	(4.78)	
27.28-29.46	39	C		97	80	60				Extremely weak to very weak thinly to medium bedded reddish brown, mottled light greenish grey, silty MUDSTONE. GRADE II. Bedding fractures: Closely to medium spaced, 0° to 10°, undulating, rough, stained, orangish brown, locally with <1mm silt on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 25.22m from previous sheet)* . . . 27.10-27.12m: Weak light grey siltstone. . . . 27.18-27.21m: Weak light grey siltstone. . . . 27.30-27.34m: 2 no very thin bands of weak light grey siltstone. . . . 27.48-27.60m: 85°-90° undulating rough discontinuity with light orangish brown staining over lower 30mm. . . . 28.13-28.33m: 60°-90° curved undulating rough clean discontinuity. . . . 28.69-28.79m: Very weak light greenish grey siltstone. . . . 28.97-29.00m: 0°-25°undulating smooth clean discontinuity locally with <1mm silt on surfaces. . . . 29.35-29.43m: Extremely weak to very weak light greenish grey siltstone. . . . 29.37-29.45m: 40° undulating rough discontinuity with 1-2mm of firm clay on surfaces. . . . 29.60-29.77m: Very stiff reddish brown silty clay. . . . 29.80-30.00m: 70° undulating rough clean discontinuity.		
28.50-30.00							NI 150 380					
29.00-29.32	40	C		97	69	57					30.00	
										Borehole terminated at 30.00m depth.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**JAlton + RSenior**	

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STRUCTURAL SOILS

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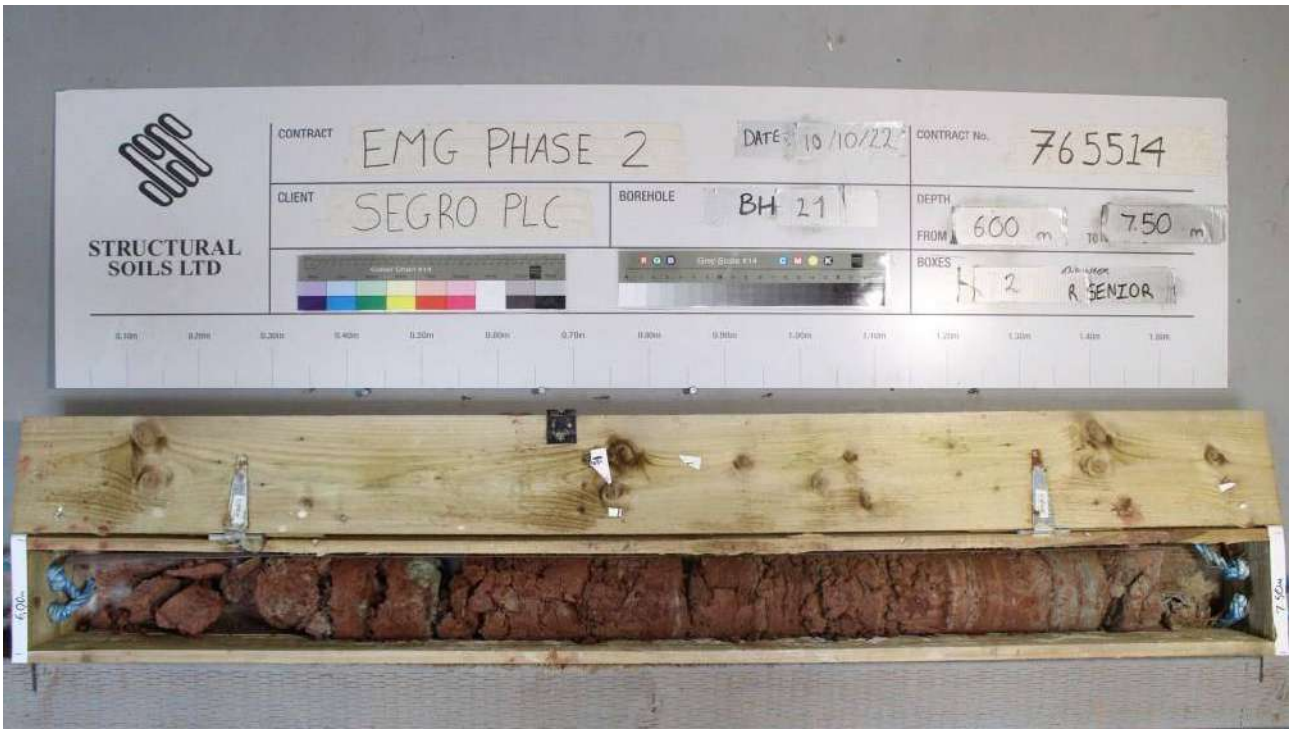
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**8** of **16**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**9** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**10** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**11** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**12** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**13** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**14** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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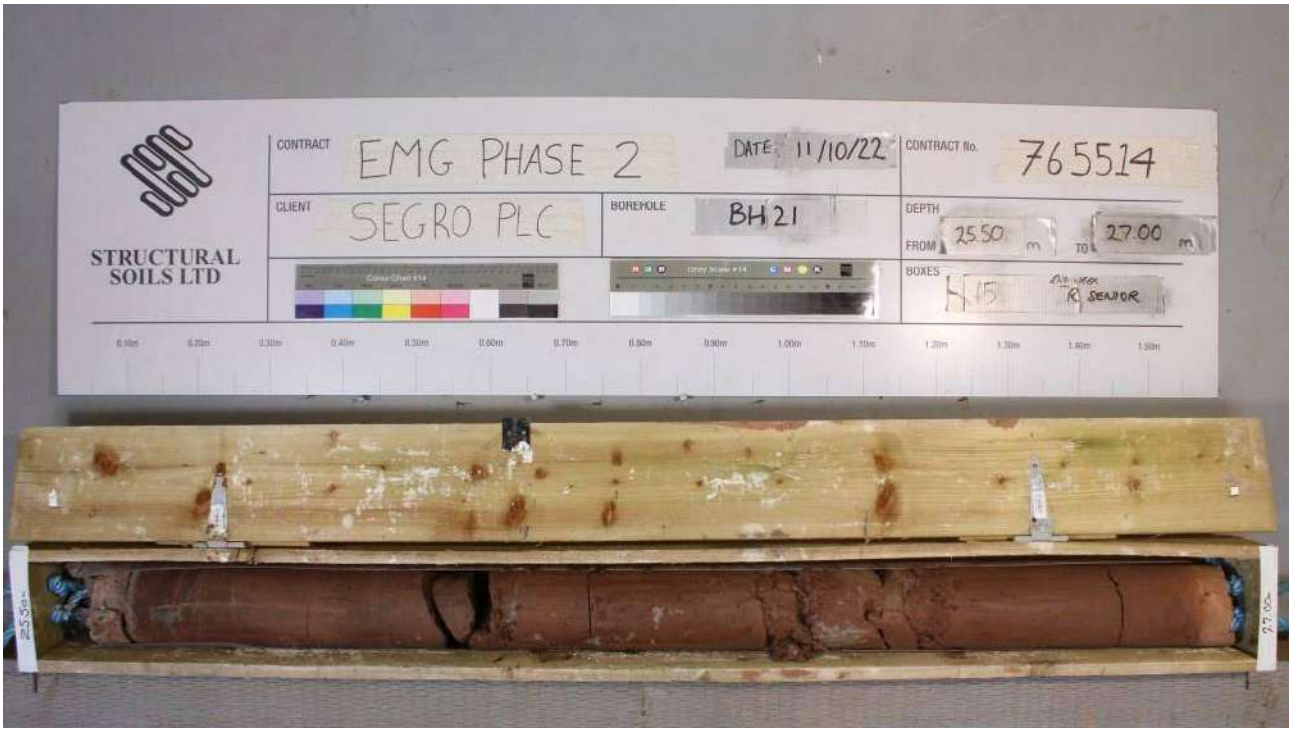
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**15** of **16**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH21**
Contract Ref:	Start: **14.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **16.09.22**	**75.56**	**E:445964.3 N:324644.9**	**16** of **16**

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Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**JAlton + RSenior**	Checked By:	AGS

STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**1** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										TOPSOIL	(0.30)	
0.20	1	D									0.30	
0.20-0.50	2	B								Firm dark brown slightly gravelly sandy SILT. Sand is fine to coarse, predominantly coarse. Gravel is subangular to subrounded fine to coarse of sandstone, mudstone and occasional quartzite.	0.55	
0.50	101	ES	1xT+1xJ+1xV							Stiff orangish brown, mottled grey, sandy gravelly silty CLAY. Sand is fine to coarse, predominantly coarse. Gravel is subangular to subrounded fine to coarse of extremely weak mudstone, siltstone and occasionally sandstone, lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)		
0.60	102	ES	1xT+1xJ+1xV									
0.80	3	D										
0.80-1.20	4	B										
1.20-1.65	5	$UT_{(UT100)}$	150 blows 67% recovery							. . . Below 1.00m: Reddish brown		
1.65-1.75	6	D										
1.70	7	D										
2.00-2.45		SPT	N=22									
2.00-2.45	10	B										
2.00-2.45	9	DSPT									(3.45)	
2.70	11	D										
3.00-3.39		SPT	8,8/10,18,18,4 for 10mm									
3.00-3.39	13	DSPT										
3.00-3.45	14	B										
3.70	15	D									4.00	
4.00-5.00										*Description on next sheet*		
4.00-4.37		SPT	5,11/14,26,10 for 65mm									
4.00-4.37	17	DSPT		100	90	16	NI NI 110					
4.30-4.40	18	C										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
13/09/22	14:00	4.00	3.00	200	Dry
15/09/22	08:00	4.00	4.00	114	2.30
15/09/22	15:15	20.00	4.00	114	16.00

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**DNartey + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**2** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										. . . 4.42-4.80m: NI with extremely closely spaced randomly orientated planar and undulating smooth clean locally black stained discontinuities.		
				100	90	16				. . . 4.46-4.55m: Extremely weak light greenish grey siltstone.		
4.90	19	D								Very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II.		
5.00-6.50										Bedding fractures: Very closely spaced, 0° to 10°, undulating, smooth, clean, locally with a little clay smear on surfaces and locally with black non-penetrative staining.	(2.29)	
							NI			(MERCIA MUDSTONE GROUP)		
							NI			. . . 4.00-4.15m: NI with extremely closely spaced randomly orientated planar and undulating smooth clean locally black stained discontinuities.*(stratum* copied from 4.00m from previous sheet)		
5.50	20	D					110			. . . 4.65-4.73m: Extremely closely spaced bands of very weak greenish grey siltstone.		
				100	87	37				. . . 4.78-4.82m: Strong grey siltstone.		
										. . . 5.00-5.20m: AZCL.		
										. . . 5.35-5.40m: NI recovered as clayey angular fine to medium gravel.		
										. . . 5.45-5.50m: NI recovered as clayey angular fine to medium gravel.	6.29	
6.30-6.50	21	C								. . . 5.59-5.95m: NI recovered as clayey angular fine to medium gravel.		
6.50-8.00										. . . 5.89-6.29m: Extremely closely to very closely spaced thin and thick laminae (3 to 20mm) of light grey siltstone.		
6.80	22	D								Very weak to weak thinly to medium bedded reddish brown MUDSTONE. GRADE II.		
										Bedding fractures: Closely spaced, 0° to 5°, undulating, smooth with frequent black non-penetrative staining.		
				100	97	43				(MERCIA MUDSTONE GROUP)		
7.35	23	D								. . . 6.50-6.58m: 40° undulating smooth discontinuity with 1mm clay infill on surfaces.		
							NI			. . . 6.69-6.85m: 65° undulating smooth discontinuity with black non-penetrative staining on surfaces.		
							80			. . . 6.71-6.88m: 40° to 75° undulating smooth discontinuity with black non-penetrative staining on surfaces.		
							230			. . . 6.84-6.91m: Undulating smooth discontinuity with black non-penetrative staining on surfaces.		
8.00-9.50										. . . 6.93-6.97m: 10° to 20° undulating smooth black stained discontinuity.		
										. . . 7.02-7.18m: 30° to 50° undulating smooth black stained discontinuity.		
8.33-8.44	24	C								. . . 7.17-7.23m: 40° undulating smooth discontinuity with 1mm clay infill on surfaces.		
				100	97	12				. . . 7.20-7.36m: 50° undulating rough clean discontinuity.		
										. . . 7.35-7.45m: NI with extremely closely to very closely spaced randomly orientated undulating smooth clean locally black stained discontinuities.	(5.11)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**DNartey + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**3** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00	25	D		100	97	12				. . . 7.40-7.53m: 70° undulating smooth black stained discontinuity. . . . 7.45m: 3mm diameter light grey reduction spot. . . . 7.56-7.58m: 10° undulating smooth black stained discontinuity. . . . 7.68-7.70m: Thick laminae (20mm) with fine to medium gravel size siltstone inclusions. . . . 7.80-7.93m: 2 no. very closely spaced 30° undulating smooth discontinuities with a little clay smear on surfaces. . . . 8.00-8.12m: NI with extremely closely spaced randomly orientated undulating smooth discontinuities with a little clay smear on surfaces. . . . 8.24-8.26m: Greenish grey siltstone. . . . 8.26-8.36m: Extremely weak reddish brown mudstone with extremely closely spaced randomly orientated discontinuities, 1mm clay infill. . . . 8.46-8.56m: 30° to 70° curved undulating smooth black stained discontinuity. . . . 8.54-8.62m: 60° undulating smooth black stained discontinuity. . . . 8.61-8.73m: 85° to 90° undulating smooth black stained discontinuity. . . . 8.65-8.71m: 2 no. parallel very closely spaced undulating smooth black stained discontinuity. . . . 8.82-8.95m: 60° undulating rough black stained discontinuity. . . . 8.95-9.30m: 3 no. parallel 70° to 85° extremely closely spaced undulating smooth clean locally black stained discontinuities.		
9.50-11.00												
10.00	26	D		100	90	65	NI 80 230					
10.75-10.94	27	C									11.40	
11.00-12.50										Very weak to weak thinly to medium bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, smooth with frequent black non-penetrative staining. (MERCIA MUDSTONE GROUP) *(stratum copied from 6.29m from previous sheet)* . . . 9.50-9.65m: Drilling disturbed, NI, recovered as gravel. . . . 9.92-10.10m: Stiff clay with 50% lithorelicts. . . . 9.99-10.02m: 15° undulating rough discontinuity with 1mm clay on surfaces. . . . 10.30-10.40m: Occasional medium gravel size siltstone inclusions. . . . 10.41-10.60m: 70° to 80° undulating rough clean discontinuity. . . . 10.55-10.61m: 70° to 80° undulating rough clean discontinuity. . . . 10.61-10.70m: 80° to 90° undulating rough black stained discontinuity.	(0.75)	
11.50	28	D		100	85	50	NI NI 40				12.15	
12.15-12.32	29	C					NI 100 160				(0.45)	
12.50-14.00											12.60	
13.00	30	D		100	96	47	NI 60 180			Extremely weak very thinly bedded reddish brown MUDSTONE thickly interlaminated with (soft) clay with 20% lithorelics of extremely weak mudstone. Grade III. Bedding fractures: Very closely spaced, 0° to 5°, planar and undulating, smooth, clean.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**DNartey + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**4** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50	31	D		100	96	47				(MERCIA MUDSTONE GROUP) . . . 11.50-11.68m: Stiff thinly to thickly laminated reddish brown clay with occasional mudstone lithorelicts. . . . 11.88-12.17m: Stiff thickly laminated reddish brown mottled light grey clay.		
14.00-15.50										Extremely weak thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, undulating, rough with a little clay smear on surfaces.	(3.40)	
14.42-14.57	32	C		100	92	53	NI 60 180			(MERCIA MUDSTONE GROUP) . . . 12.66-12.71m: 2 no. parallel extremely closely spaced undulating rough clean discontinuities. . . . 12.71-12.75m: 35° undulating smooth discontinuity with a little clay smear on surfaces. . . . 12.72-13.20m: 80° to 90° undulating / stepped rough locally black stained discontinuity. . . . 12.90-12.92m: 5° to 15° undulating rough black stained discontinuity. . . . 13.29-13.42m: Thick laminae to very thin beds (20-30mm) of moderately weak grey siltstone. . . . 13.32-13.60m: Bedding fractures are 5° to 15° undulating rough locally smooth mainly clean locally with a little clay smear on surfaces. . . . 13.42-13.62m: Stiff very thinly bedded reddish brown clay with occasional angular to subangular fine to medium gravel size lithorelics.		
15.00	33	D										
15.50-17.00										Extremely weak to very weak very thinly to thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely to closely spaced, 0° to 5°, planar and undulating, smooth and rough, clean with occasional clay smear on surfaces.		
15.90	34	D									16.00	
16.28-16.43	35	C		100	90	62				(MERCIA MUDSTONE GROUP) *(stratum copied from 12.60m from previous sheet)* . . . 13.62-13.64m: Occasional 5 to 10mm diameter grey reduction spots. . . . 13.63-13.69m: 50° planar smooth clean discontinuity. . . . 13.65-13.75m: 40° planar smooth clean discontinuity with 1mm soft clay on surfaces. . . . 13.78-13.83m: 85° undulating smooth black stained discontinuity. . . . 13.80-14.00m: 85° to 90° undulating smooth black stained discontinuity. . . . 14.00-14.15m: Drilling disturbed, NI, recovered as gravel. . . . 14.15-14.32m: 85° to 90° undulating rough black stained discontinuity. . . . 14.30-14.45m: Occasional fine to medium gravel size light grey siltstone inclusions. . . . 14.57-14.66m: 85° to 90° undulating smooth black stained discontinuity. . . . 14.60-14.90m: Extremely closely to very closely spaced randomly orientated undulating smooth black stained discontinuities.		
17.00-18.50							NI 80 200					
				100	93	39						
17.68-17.78	36	C									(4.00)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**DNartey + RSenior**	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	SEGRO	BH22

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	13.09.22 End: 15.09.22	73.80	E:446085.7 N:324639.6	5 of 12

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.20	37	D		100	93	39				. . . 14.93-14.98m: Extremely weak light grey siltstone. . . . 14.98-15.13m: Thinly to thickly laminated stiff reddish brown clay interbedded with extremely weak mudstone. . . . 15.14-15.15m: Extremely weak siltstone. . . . 15.45-15.50m: Extremely weak siltstone. . . . 15.55-15.65m: Moderately weak thickly laminated greenish grey siltstone. . . . 15.65-16.00m: Extremely weak thickly laminated reddish brown mudstone.		
18.50-20.00												
18.80-18.90	38	C					NI 80 200			. . . 16.01-16.05m: Weak light grey siltstone. . . . 16.05-16.24m: 80° to 85° undulating rough yellow brown stained discontinuity. . . . 16.43-16.48m: 40° undulating rough yellow brown stained discontinuity. . . . 16.48-16.51m: 30° undulating rough clean discontinuity. . . . 16.53-16.56m: 15° undulating smooth yellow brown stained discontinuity. . . . 16.54-16.60m: 80° undulating smooth clean discontinuity. . . . 16.60-16.64m: Drilling disturbed, NI, recovered as gravel. . . . 16.65-16.90m: 75° to 85° undulating rough yellow brown stained discontinuity.	20.00	
				100	98	43				. . . 16.77-16.84m: 40° undulating smooth clean discontinuity. . . . 16.90-17.00m: AZCL. . . . 17.15-17.32m: 60° to 85° curved undulating rough clean discontinuity. . . . 17.28-17.31m: 70° undulating smooth yellow brown stained discontinuity. . . . 17.31-17.40m: Randomly orientated extremely closely spaced undulating rough yellow brown stained discontinuities. . . . 17.58-17.62m: 15° undulating smooth yellow brown stained discontinuity. . . . 17.72-17.80m: Occasional 2-5mm diameter grey reduction spots. . . . 17.75-17.80m deph: 30° undulating smooth yellow brown stained discontinuity. . . . 17.82-17.89m: 75° to 85° undulating smooth yellow brown stained discontinuity. . . . 17.94-18.02: 60° undulating smooth yellow brown stained discontinuity. Very weak thinly bedded reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, 0° to 5°, planar and undulating, smooth, occasional yellowish brown staining on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 16.00m from previous sheet)* . . . 18.00-18.10m: Randomly orientated extremely closely spaced undulating smooth clean discontinuities.		
19.50	39	D										

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: 1:25

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	Dando 3000 + Comacchio GEO 205	Jonny Hutt + Luke Bamford	DNartey + RSenior	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**6** of **12**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										. . . 18.10-18.26m: 75° undulating smooth yellow brown stained discontinuity. . . . 18.12-18.15m: 30° undulating smooth yellow brown stained discontinuity. . . . 18.25-18.40m: Weak grey siltstone. . . . 18.25-18.40m: 60° undulating smooth clean discontinuity locally lightly stained yellow brown. . . . 18.68-18.76m: 80° to 90° undulating rough clean discontinuity. . . . 18.78-18.80m: Moderately weak light grey siltstone. . . . 19.11-19.30m: 50° undulating rough clean discontinuity. . . . 19.30-19.33m: Extremely weak light grey siltstone. . . . 19.40-19.48m: 5 no. parallel extremely closely spaced 80° to 85° undulating rough clean discontinuities. . . . 19.55-19.57m: Very weak light grey siltstone. . . . 19.57-19.60m: 20° undulating smooth clean discontinuity. . . . 19.60-19.79m: 70° undulating smooth yellow brown stained discontinuity. . . . 19.68-19.72m: 25° undulating smooth yellow brown stained discontinuity. . . . 19.81-19.85m: 50° undulating smooth discontinuity with a little clay smear on surfaces. . . . 19.83-19.87m: 20° planar smooth clean discontinuity.		
										Borehole terminated at 20.00m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt + Luke Bamford**	**DNartey + RSenior**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH22**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**7** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**DNartey + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH22**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**8** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**DNartey + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH22**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**9** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**DNartey + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH22**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**10** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**DNartey + RSenior**	Checked By:	

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH22**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**11** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**DNartey + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH22**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**73.80**	**E:446085.7 N:324639.6**	**12** of **12**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt + Luke Bamford**	Logged By:	**DNartey + RSenior**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**1** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10	1	D								TOPSOIL	(0.40)	
0.10	101	ES	1xT+1xJ+1xV									
0.10-0.30	2	B									0.40	
0.60	102	ES	1xT+1xJ+1xV							Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine and medium and mudstone derived. Gravel is angular and subangular fine of extremely weak to very weak mudstone lithorelics. Occasional fine and medium gravel size pockets of grey silty sand. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.60)	
0.70	3	D										
0.70-1.00	4	B									1.00	
1.00	103	ES	1xT+1xJ+1xV							Very stiff reddish brown slightly sandy slightly gravelly CLAY with frequent laminae (<10mm) of very weak to weak brown sandstone. Sand is fine and medium and mudstone derived. Gravel is angular and subangular fine to coarse of extremely weak to very weak mudstone lithorelics and weak fine grained sandstone. GRADE III verging towards GRADE IVb. (MERCIA MUDSTONE GROUP)	(1.00)	
1.20	5	D										
1.20-1.50	6	$UT_{(UT100)}$	150 blows 100% recovery									
1.50-1.60	7	D										
1.70	8	D									2.00	
2.00-2.45		SPT	N=40							Very stiff reddish brown slightly sandy slightly gravelly CLAY with frequent fine and medium gravel size pockets of grey silty sand. Sand is fine and mudstone derived. Gravel is angular and subangular fine to coarse of extremely weak to very weak mudstone lithorelics and weak fine grained sandstone. GRADE IVb. (MERCIA MUDSTONE GROUP)	(1.30)	
2.00-2.45	10	DSPT										
2.00-2.45	11	B										
2.50-2.88		SPT	8,12/13,14,23 for 75mm									
2.50-2.88	13	DSPT										
2.50-3.00	14	B										
3.00-3.37		SPT	9,14/15,17,18 for 70mm									
3.00-3.37	16	DSPT									3.30	
3.30-4.80				↑	↑	↑				AZCL. (MERCIA MUDSTONE GROUP)	3.50	AZCL
										Very stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to medium and mudstone derived. Gravel is fine to coarse angular to subangular extremely weak mudstone. GRADE III. (MERCIA MUDSTONE GROUP)	3.75	
3.90	25	D		80	33	0				Extremely weak reddish brown MUDSTONE. GRADE II Fractures: Very closely spaced, randomly orientated, rough, undulating, dark brown staining on surfaces.. (MERCIA MUDSTONE GROUP)	(0.90)	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
12/09/22	16:33	2.50	1.50	200	Dry
14/09/22		15.30	4.00	114	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
2.50	3.00	00:45

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**2** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
											4.65	
				80	33	0				Extremely weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP)	4.80	
4.80-6.30										Extremely weak reddish brown thickly laminated MUDSTONE with very closely spaced laminae and very thin beds (<25mm) of gravelly clay. GRADE II verging towards GRADE III. (MERCIA MUDSTONE GROUP)	(0.65)	
5.20	26	D									5.45	
				97	21	0				Extremely weak greenish grey thinly laminated SILTSTONE. (MERCIA MUDSTONE GROUP)	5.55	
										Very stiff reddish brown lightly sandy slightly gravelly CLAY. Sand is fine to medium and mudstone derived. Gravel is fine to medium mudstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP)	(0.55)	
										Extremely weak reddish brown thinly laminated MUDSTONE. GRADE II verging towards GRADE III. (MERCIA MUDSTONE GROUP)	6.10	
6.30-7.80											6.30	
										AZCL. (MERCIA MUDSTONE GROUP)	(0.70)	AZCL
6.80-7.17		SPT	2,9/11,14,25 for 70mm								7.00	
				53	18	0				Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP) . . . 7.00-7.40m: Thinly laminated.		
7.20	27	D								. . . 7.40-7.45m: Thinly laminated greenish grey silt. . . . 7.45-7.55m: Extremely weak greenish grey thinly laminated siltstone. . . . 7.55-7.85m: Thickly laminated.		
7.80-9.30										. . . 7.85-8.20m: Very closely spaced randomly orientated rough undulating fractures with black staining on surfaces.		
8.40	28	D		100	9	0				. . . 8.35-8.65m: Extremely closely spaced rough planar bedding fractures and very closely spaced randomly orientated rough undulating fractures with dark brown staining on surfaces. . . . 8.65-8.70m: Thinly laminated greenish grey silt. . . . 8.70-8.95m: Recovered as gravel.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**3** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	9	0				. . . 8.95-9.40m: Very closely spaced randomly orientated rough undulating fractures with black staining on surfaces. Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)		
9.30-10.80										. . . 7.00-7.40m: Thinly laminated. *(stratum copied* from 7.00m from previous sheet) . . . 9.40-9.45m: Extremely weak laminated greenish grey siltstone.	(5.70)	
				97	35	11				. . . 9.45-9.70m: Very closely to extremely closely spaced randomly orientated rough planar and undulating fractures with black staining on surfaces. . . . 9.90-9.95m: Thinly laminated greenish grey sandstone, recovered as subangular fine to medium gravel.		
10.55	29	D								. . . 10.35-10.40m: Thinly laminated greenish grey sandstone, recovered as subangular fine to medium gravel. . . . 10.40-10.65m: Stiff thinly laminated reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse mudstone derived. Gravel is fine to medium angular to subangular mudstone lithorelicts. GRADE III.		
10.80-12.30										. . . 11.15-11.45m: Recovered as gravel .		
				77	33	28			1	. . . 11.45-12.70m: Very closely spaced randomly orientated rough undulating fractures with black staining on surfaces and closely to very closely spaced bedding fractures with black and yellow staining on surfaces.		
11.70	30	D										
12.30-13.80											12.70	
12.30-12.43		SPT	25/50 for 60mm							Extremely weak reddish brown MUDSTONE, recovered as sandy angular to subangular fine to medium gravel. GRADE III. (MERCIA MUDSTONE GROUP)	(0.50)	
				77	33	28					13.20	
13.20	31	D								*Description on next sheet*	(0.60)	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**4** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				77	33	28				Extremely weak reddish brown MUDSTONE GRADE II. Fractures: Very closely spaced, randomly orientated, rough, undulating, black staining on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 13.20m from previous sheet)*	13.80	
13.80-15.30											(0.35)	
										Very weak greenish grey thickly laminated SILTSTONE. (MERCIA MUDSTONE GROUP)	14.15	
				100	37	37				Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Closely spaced, randomly orientated, rough, undulating, black staining on surfaces. (MERCIA MUDSTONE GROUP)		
14.60-14.95	32	C									(1.50)	
15.30-16.80											15.65	
15.65-15.90	33	C								Weak to medium strong greenish grey fine to medium grained SANDSTONE. (MERCIA MUDSTONE GROUP) . . . 15.65-15.75: Greenish grey silt.	(0.65)	
				100	52	40					16.30	
										Extremely weak reddish brown MUDSTONE with lenses of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 16.30-16.50m: NI, recovered as gravel. . . . 16.70-16.80m: Medium strong greenish grey sandstone.	(0.65)	
											16.95	
										Very weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP) . . . 17.05-17.15m: 45°, rough undulating fracture, infilled with reddish brown clay. . . . 17.60-17.70m: Reddish brown mudstone.	(0.85)	
											17.80	
17.90	34	D								*Description on next sheet*		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**5** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium and mudstone derived. Gravel is fine to coarse angular mudstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.50) 18.30	
18.30-19.80										*(stratum copied from 17.80m from previous sheet)* AZCL. (MERCIA MUDSTONE GROUP)	(0.40) 18.70	AZCL
				73	29	0				Extremely weak reddish brown thinly laminated MUDSTONE. GRADE II. Bedding fractures: Extremely closely spaced, rough, planar. (MERCIA MUDSTONE GROUP)	(0.60) 19.30	
19.40	35	D								Stiff reddish brown sandy CLAY. Sand is fine to medium and mudstone derived. GRADE IVb. (MERCIA MUDSTONE GROUP)	(0.40) 19.70	
19.80-21.30										Extremely weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP) . . . 19.80-19.85m: Stiff reddish brown sandy clay. . . . 19.85-20.00m: Very closely spaced randomly orientated fractures with yellow staining on surfaces.	(0.30) 20.00	
				100	0	0				Extremely weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Bedding fractures: Closely spaced, rough, planar. (MERCIA MUDSTONE GROUP)	(1.00) 21.00	
21.20-21.30	36	C								Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)	(0.65)	
21.30-22.80										. . . 21.50m: Firm reddish brown clay.	21.65	
				100	41	35				Extremely weak reddish brown MUDSTONE with frequent fine to coarse gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP)		
22.05-22.25	37	C								. . . 22.00-22.50m: Closely interbedded with weak greenish grey siltstone. Bedding fractures: Closely spaced, rough, planar, infilled with reddish brown clay.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**6** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.80-24.30				100	41	35				Extremely weak reddish brown MUDSTONE with frequent fine to coarse gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.65m from previous sheet)* . . . 22.50-22.55m: Recovered as clayey gravel. . . . 22.90-23.15m: Recovered as sandy clayey gravel.	(1.85) 23.50	
23.65-24.00	38	C		97	67	43				Extremely weak reddish brown MUDSTONE, verging towards very stiff clay. GRADE II. (MERCIA MUDSTONE GROUP)	(1.00) 24.50	
24.30-25.80				100	20	0				Very stiff reddish brown slightly sandy CLAY. GRADE IVb. (MERCIA MUDSTONE GROUP)	(0.35) 24.85	
										Extremely weak greenish grey thinly interbedded SILTSTONE and fine grained SANDSTONE. Bedding fractures: Closely spaced, rough, undulating, infilled with sandy fine to medium gravel of siltstone. (MERCIA MUDSTONE GROUP)	(0.35) 25.20	
25.40-25.65	39	C								Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium mudstone derived. Gravel is angular fine to coarse mudstone lithorelics. GRADE III verging towards GRADE II. (MERCIA MUDSTONE GROUP)	(1.15) 26.35	
25.80-27.30				100	20	0				Extremely weak greenish grey thickly interlaminated SILTSTONE and fine grained SANDSTONE. Bedding fractures: Closely spaced, rough, undulating, infilled with sandy fine to medium gravel. (MERCIA MUDSTONE GROUP)	(0.35) 26.70	
26.85-27.15	40	C								*Description on next sheet*		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**13.09.22** End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**7** of **16**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.30-28.80				100	20	0				Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium mudstone derived. Gravel is fine to coarse angular mudstone lithorelics. GRADE III verging towards GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 26.70m from previous sheet)*	(0.85)	
											27.55	
27.60-27.80	41	C								Very weak reddish brown MUDSTONE with closely spaced, planar, gypsum veins, typically between 5 to 20mm thickness. (MERCIA MUDSTONE GROUP)		
				93	71	50						
										. . . 28.55-29.25m: Becoming weak and light reddish brown.		
28.80-30.30												
28.80-29.05	42	C									(2.77)	
										. . . 29.25-29.40m: Greenish grey siltstone.		
										. . . 29.40m: Becoming very weak to extremely weak.		
				100	85	75						
											30.32	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 3000 + Comacchio GEO 205**	**Jonny Hutt**	**DNartey + DNeylon**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**8** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**9** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**10** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**11** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**12** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**13** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**14** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**15** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH23**
Contract Ref:	Start: **13.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**70.77**	**E:446319.7 N:324654.7**	**16** of **16**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Comacchio GEO 205**	Drilled By:	**Jonny Hutt**	Logged By:	**DNartey + DNeylon**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**1** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00-0.00	1	D								TOPSOIL		
0.00-0.10	3	B									(0.40)	
0.05-0.05	2	ES	1xT+1xJ+1xV									
0.10-0.10	4	D									0.40	
0.10-0.40	6	B										
0.20-0.20	5	ES	1xT+1xJ+1xV							Firm light orangish brown gravelly CLAY. Gravel is angular to subrounded fine to medium of mudstone.		
0.40-0.40	7	D									(0.60)	
0.40-1.00	9	B										
0.50-0.50	8	ES	1xT+1xJ+1xV								1.00	
1.00-1.00	10	ES	1xT+1xJ+1xV							Firm thinly laminated orangish brown, mottled grey, slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to medium of mudstone.	1.20	
1.20-1.65		SPT	N=49							. . . 1.00-1.20m: possible mercia mudstone. Possible extremely weathered to destructured mudstone.		
1.20-1.65	12	DSPT								Dense greenish grey gravelly silty fine to medium SAND. Gravel is angular and subangular fine to coarse strong siltstone. Frequent fine and medium gravel size pockets and lenses (<15mm) of brown silty sand. GRADE III. (MERCIA MUDSTONE GROUP)	(0.80)	
1.20-1.70	13	B										
1.70	14	D									2.00	
2.00	15	ES								Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium and mudstone derived. Gravel is angular to subangular fine mudstone lithorelics. GRADE IVa. (MERCIA MUDSTONE GROUP)		
2.00-2.45		SPT	N=45									
2.00-2.45	16	DSPT										
2.00-2.50	17	B										
2.50	18	D									(1.50)	
3.00	19	ES										
3.00-3.34		SPT	3,9/14,23,13 for 43mm									
3.00-3.45	20	DSPT										
3.00-3.50	21	B									3.50	
3.50-5.00				100	0	0	3 15			Extremely weak reddish brown MUDSTONE. Recovered as slightly clayey sandy fine to coarse angular gravel. Occasional thin and thick laminae of grey siltstone. Fractures: Randomly orientated, very closely spaced, undulating rough to undulating smooth, abundant black staining. (MERCIA MUDSTONE GROUP) . . . 3.50-3.75m: NI, clayey sandy gravel. . . . 4.00-4.23m: NI, silty sandy gravel.		
3.50	22	D										
3.50-3.78		SPT	7,15/26,24 for 50mm									
3.50-3.95	23	DSPT										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
14/09/22		9.00	3.50	114	Dry
15/09/22		9.00	3.40	114	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.30	3.50	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**2** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.60-4.70	27	D		100	0	0	3 15			Extremely weak reddish brown MUDSTONE. Recovered as slightly clayey sandy fine to coarse angular gravel. Occasional thin and thick laminae of grey siltstone. Fractures: Randomly orientated, very closely spaced, undulating rough to undulating smooth, abundant black staining. (MERCIA MUDSTONE GROUP) . . . 3.50-3.75m: NI, clayey sandy gravel.*(stratum* copied from 3.50m from previous sheet) . . . 4.60-4.74m: NI, clayey sandy gravel. . . . . 5.00-6.00m: Fracture 0-10°, 60-80° predominantly very closely spaced undulating rough occasional and abundant black staining. . . . 5.13-5.30m: NI, sandy gravel. . . . 5.40-5.43m: grey siltstone. . . . 5.43-5.51m: NI, sandy gravel. . . . 5.62-5.73m: thinly interlaminated with grey siltstone.	(2.50)	
5.00-6.00												
5.41-5.54	25	C		100	0	0						
5.74-5.83	26	D									6.00	
6.00-7.50										. . . 5.84-5.87m: medium strong grey siltstone. . . . 5.94-6.00m: weak grey siltstone. Extremely weak, locally thinly laminated, dark reddish brown MUDSTONE. Occasional pockets and laminae of weak to medium strong grey siltstone. GRADE III. Fractures: Incipient, randomly orientated, undulating, rough, occasional black staining and discolouration on surface. (MERCIA MUDSTONE GROUP) . . . 6.00-6.42m: multifractured randomly orientated incipient undulating rough with occasional black staining. Recovered as angular gravel. Rare reduction spots (<5mm). . . . 6.30-6.42m: 50° undulating rough. . . . 6.62m: 18° undulating rough, silty clay infill up to 3mm. . . . 6.64-7.08m: thinly and thickly interlaminated with grey siltstone.		
6.39-6.63	27	C		100	62	40						
7.50-9.00							NI 270				(3.00)	
7.55-7.71	28	C		100	67	40				. . . 6.96-7.05m: 51° undulating rough yellow stained. . . . 7.00-7.06m: 50° undulating rough yellow stained. . . . 7.04-7.06m: 4° undulating rough, silty clay infill up to 3mm. . . . 7.16-7.17m: 5° planar rough occasional black staining . . . 7.50-7.55m: NI. . . . 7.72-7.73m: 4° planar rough rare black staining . . . 7.85-7.86m: 9° planar rough rare black specks. . . . 7.88-7.96m: 77° undulating rough clean. . . . 8.01-8.12m: 37° planar rough clean. . . . 8.05-8.21m: 31° undulating rough occasional black staining. . . . 8.18-8.33m: NI.	9.00	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**3** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50										. . . 8.31-8.46m: 81° undulating rough occasionally black staining. . . . 8.56-8.71m: NI, thinly interlaminated with grey siltstone. . . . 8.73-8.87m: 76° planar rough occasional black specks.	(0.55)	AZCL
9.42-9.55	29	C							1	AZCL (MERCIA MUDSTONE GROUP)	9.55	
				87	19	8				Extremely weak thinly laminated reddish brown, locally dessicated, MUDSTONE. Occasional interlaminae of grey fine siltstone. GRADE III. Fractures: Randomly orientated, predominantly planar, rough, with occasional clayey silt infill. (MERCIA MUDSTONE GROUP) . . . 9.55-9.81m: NI, recovered as clayey gravel. . . . 9.81-10.01m: extremely weak mudstone. . . . 10.01-10.45m: thinly laminated mudstone with occasional interlaminae of grey siltstone. . . . 10.45-10.50m: NI recovered as gravel. . . . 10.50-10.86m: AZCL.	(1.72)	
10.50-11.80				72	40	18			1	. . . 10.86-11.00m: Weak interlaminated mudstone and grey siltstone. . . . 11.00-11.27m: NI, recovered as sandy angular gravel.	11.27	
11.48-11.68	30	C								Extremely weak to very weak reddish brown MUDSTONE. Occasionally interbedded with weak to medium strong siltstone. GRADE III. Bedding fracture: 0-10°, closely to widely spaced, predominantly planar, rough, with occasional black staining on surface, rare infill of silt. (MERCIA MUDSTONE GROUP) . . . 11.27-11.28m: 4° planar rough occasional black staining.		
11.80-13.30												
11.80-11.89		SPT	26/50 for 20mm									
11.88-12.18	31	C					170 1080			. . . 11.32-11.39m: 7° planar rough occasional black staining, silt infill up to 3mm. . . . 11.39-11.40m: 6° planar rough occasional black staining, silt infill.	(2.03)	
				100	91	71				. . . 12.32-12.33m: 4° planar rough occasional black staining. . . . 12.32-12.39m: 71° planar rough abundant black staining . . . 12.50-12.52m: 7° planar rough occasional black staining. . . . 12.61-12.71m: 69° undulating rough abundant black staining. . . . 12.70-12.71m: 5° planar rough clean. . . . 12.87-12.88m: 11° undulating rough rare black staining. . . . 12.88-12.92m: 7° planar rough occasional black staining.	13.30	
13.30-14.80				100	88	84				. . . 13.11-13.20m: NI.		

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson**	**JAlton + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**4** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.74-13.95	32	D								. . . 13.31-13.45m: 54° planar rough occasional black staining. . . . 13.36-13.37m: 4° planar rough occasional black staining. Weak reddish brown MUDSTONE. Occasionally interbedded with weak to medium strong siltstone. GRADE II. Fractures: 80-90° and 0-10°, planar, rough, occasional black staining. (MERCIA MUDSTONE GROUP) . . . 13.30-13.74m: medium strong fragmented siltstone.*(stratum copied from 13.30m from* previous sheet) . . . 13.63-13.65m: 9° planar rough occasional black staining. . . . 13.91-14.59m: 82° planar rough occasional black staining. . . . 14.51-14.55m: weak siltstone. . . . 14.70-14.80m: NI, recovered as angular gravel. . . . 14.80-14.99m: NI, fractures randomly orientated and 40-50° closely spaced planar rough clean. . . . 15.15-15.80m: Grey weak and medium strong siltstone.		
				100	88	84						
14.80-16.30												
15.21-15.45	33	C										
				100	87	82						
										. . . 15.67-15.92m: reddish brown mottled grey mudstone and siltstone.		
										. . . 16.04-16.22m: 86° undulating rough rare black staining.		
16.30-17.80										. . . 16.34-16.50m: grey siltstone.		
16.81-17.08	34	C								. . . 16.78-16.86m: grey siltstone.		
				100	100	100				. . . 17.03-17.05m: grey siltstone. . . . 17.12-17.15m: grey siltstone. . . . 17.22-17.23m: 8° planar rough clean. . . . 17.23-17.31m: grey siltstone.	(7.50)	
17.80-19.30										. . . 17.80-17.86m: NI. . . . 17.80-18.30m: grey siltstone.		
				100	91	81						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson**	**JAlton + RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**5** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
19.13-19.30	35	C		100	91	81				. . . 17.93-17.97m: thinly laminated siltstone. . . . 17.97-18.00m: 8° undulating rough occasional black staining. Weak reddish brown MUDSTONE. Occasionally interbedded with weak to medium strong siltstone. GRADE II. Fractures: 80-90° and 0-10°, planar, rough, occasional black staining. (MERCIA MUDSTONE GROUP) . . . 13.30-13.74m: medium strong fragmented siltstone.*(stratum copied from 13.30m from* previous sheet) . . . 18-07-18.08m: 4° planar rough occasional black staining. . . . 18.15-18.26m: 44° planar rough clean. . . . 18.60-18.62m: NI.		
19.30-20.80 19.30-19.57	36	C								. . . 18.70-18.72m: 9° planar rough occasional black staining. . . . 18.87-18.90m: 10° planar rough occasional black specks. . . . 19.00-19.05m: 21° undulating smooth, polished, occasional yellow staining. . . . 19.13-19.14m: 4° planar rough clean. . . . 19.30-19.67m: interbedded weak fine siltstone. . . . 19.77-19.81m: 69° undulating rough calcite infill <3mm. . . . 19.82-20.29m: 79° planar rough clean.		
				100	95	95				. . . 20.31-20.42m: 56° undulating rough clean. . . . 20.45-20.42m: 56° undulating rough clean. . . . 20.56-20.57m: 7° planar rough occasional black staining. . . . 20.68-20.69m: 9° planar rough clean.	20.80	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson**	**JAlton + RStan**	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH24**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**6** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH24**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**7** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH24**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**8** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH24**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**9** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH24**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**10** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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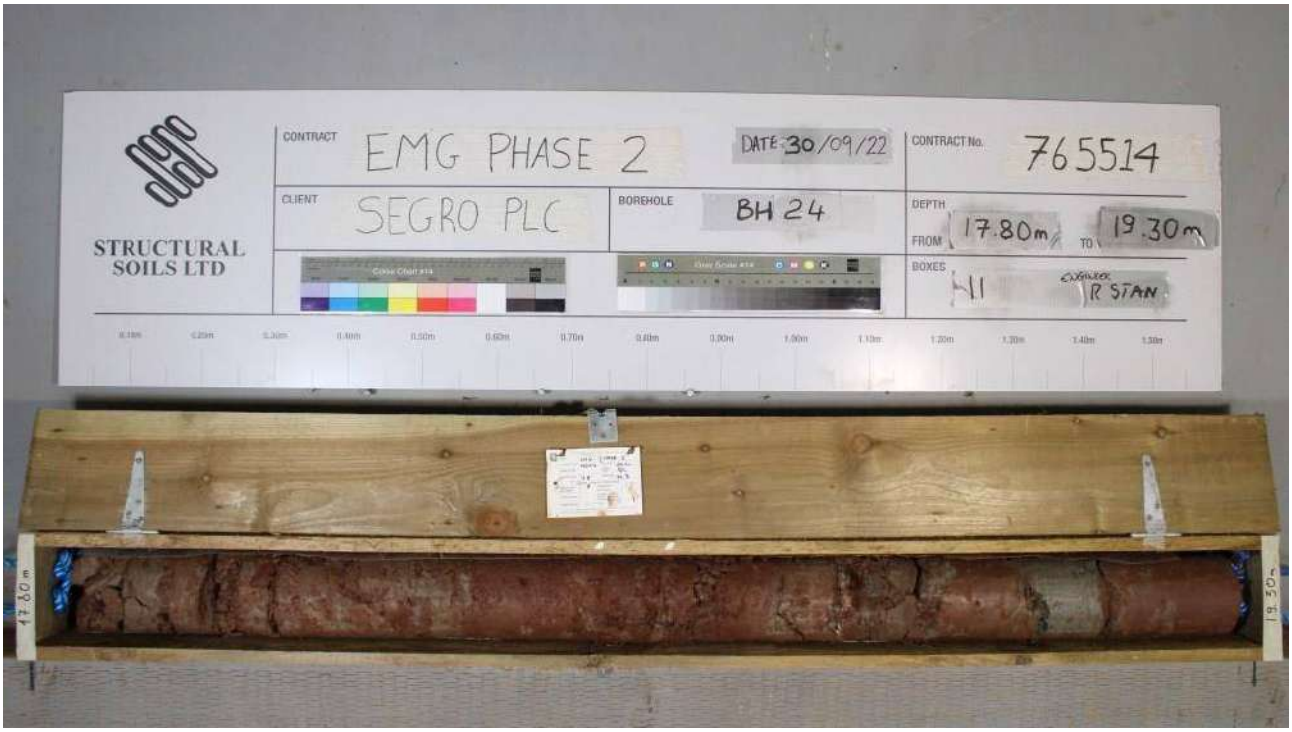
BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH24**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**67.02**	**E:446273.4 N:324520.3**	**11** of **11**



Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson**	Logged By:	**JAlton + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**1** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00-0.00	1	D								TOPSOIL		
0.00-0.10	3	B									(0.40)	
0.05-0.05	2	ES	1xT+1xJ+1xV									
0.10-0.10	4	D									0.40	
0.10-0.40	6	B										
0.20-0.20	5	ES	1xT+1xJ+1xV							Firm light orangish brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to medium of mudstone.		
0.40-0.40	7	D									(0.60)	
0.40-1.00	9	B										
0.50-0.50	8	ES	1xT+1xJ+1xV								1.00	
1.00-1.00	10	ES	1xT+1xJ+1xV							Reddish brown slightly clayey gravelly medium to coarse SAND. Gravel is angular to subrounded fine to coarse of mudstone and sandstone.	1.20	
1.20-1.20	11	D								Stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular and subangular fine to medium lithorelics of extremely weak mudstone and siltstone. Frequent pockets and lens (<10mm) of grey silty sand. GRADE IVa. (MERCIA MUDSTONE GROUP)		
1.20-1.65		SPT	N=15									
1.20-1.65	12	DSPT										
1.20-1.70	13	B										
1.70	14	D										
2.00	15	ES									(1.80)	
2.00-2.45		SPT	N=19									
2.00-2.45	16	DSPT										
2.00-2.50	17	B										
2.50	18	D									3.00	
3.00	19	ES								Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine and medium. Gravel is angular to subangular fine to coarse mudstone and siltstone lithorelics. GRADE IVa and verging towards GRADE III. (MERCIA MUDSTONE GROUP)		
3.00-3.36		SPT	5,18/18,18,14 for 57mm								(0.50)	
3.00-3.45	20	DSPT										
3.00-3.50	21	B									3.50	
3.50-5.00										Extremely weak reddish brown thickly laminated MUDSTONE. GRADE II. Bedding fractures: Very closely spaced, rough, undulating, with dark brown staining on surfaces. (MERCIA MUDSTONE GROUP)		
3.50	22	D									(0.45)	
3.50-3.79		SPT	7,18/21,29 for 72mm									
3.50-3.96	23	DSPT									3.95	
				87	21	0				Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Very closely spaced, randomly orientated, rough, undulating, dark brown staining on surfaces. (MERCIA MUDSTONE GROUP)		
4.25	25	C										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.30	3.50	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson + Marc Pearson**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**2** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				87	21	0				Extremely weak reddish brown MUDSTONE. GRADE II. Fractures: Very closely spaced, randomly orientated, rough, undulating, dark brown staining on surfaces. (MERCIA MUDSTONE GROUP) *(stratum copied from 3.95m from previous sheet)*	(1.35)	
5.00-6.50											5.30	
				97	8	0				Stiff reddish brown slightly sandy gravelly CLAY with occasional fine to medium gravel sized pockets and lenses (<15mm) of greenish grey silt. Sand is fine to coarse and mudstone derived. Gravel is fine to medium angular to subangular mudstone and siltstone lithorelics. GRADE III. (MERCIA MUDSTONE GROUP) . . . 5.75-5.90m: Extremely weak mudstone.	(0.85)	
											6.15	
6.35-6.45	26	C								Extremely weak reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, rough, undulating. Fracture set 2: Very closely spaced, randomly orientated, rough, undulating, dark brown staining on surfaces. (MERCIA MUDSTONE GROUP)		
6.50-8.00												
				87	64	58				. . . 6.90-7.00m: Thinly cross laminated greenish grey siltstone.	(3.00)	
									1			
7.84-8.00	27	C										
8.00-9.50												
				100	59	53						
8.60-8.70	28	C								. . . 8.70-8.85m: Thinly laminated greenish grey siltstone.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson + Marc Pearson**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**3** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										. . . 9.00-9.15m: Thickly laminated greenish grey siltstone.	9.15	
				100	59	53				Extremely weak reddish brown MUDSTONE. GRADE II. Bedding fractures: Closely spaced, rough, undulating, black staining on surfaces. (MERCIA MUDSTONE GROUP)		
9.50-11.00												
9.65-9.80	29	C									(1.25)	
				100	56	33				. . . 1.25m: Very closely spaced randomly orientated rough planar fractures with dark brown staining on surfaces.	10.40	
10.45-10.60	30	C								Very weak, locally medium strong, greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP)		
11.00-12.50										. . . 11.05-11.10m: Reddish brown sandy very clayey fine to medium gravel of mudstone, suspected to be infilled bedding fractures. . . . 11.10-11.18m depth: Extremely weak reddish brown mudstone. . . . 11.33-11.368m: Extremely weak reddish brown sandstone.	(1.90)	
11.60-11.85	31	C										
				83	70	56				. . . 12.10m: Verging towards medium strong fine grained sandstone.	12.30	
12.50-14.00										Very stiff reddish brown slightly sandy slightly gravelly CLAY with frequent fine to medium gravel size pockets and lenses (<15mm) of greenish grey sandy silt. GRADE IVa. (MERCIA MUDSTONE GROUP) . . . 12.55-12.65m: Extremely weak greenish grey sandstone with fine to medium sand size vugs.		
12.50-12.58		SPT	25/50 for 45mm									
				93	0	0						
13.15-13.35	32	C										

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson + Marc Pearson**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**4** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				93	0	0				Very stiff reddish brown slightly sandy slightly gravelly CLAY with frequent fine to medium gravel size pockets and lenses (<15mm) of greenish grey sandy silt. GRADE IVa. (MERCIA MUDSTONE GROUP) *(stratum copied from 12.30m from previous sheet)*	(2.50)	
14.00-15.50												
14.25-14.45	33	C										
				103	5	0					14.80	
										Extremely weak reddish brown MUDSTONE with occasional fine to coarse gravel size pockets of greenish grey siltstone. GRADE II. Fractures: Closely spaced, randomly orientated, rough, undulating, brown staining on surfaces. (MERCIA MUDSTONE GROUP)		
15.50-17.00											(1.65)	
15.85-16.10	34	C										
				103	70	42					16.45	
										Stiff reddish brown slightly sandy CLAY. Sand is fine an mudstone derived. GRADE IVb. (MERCIA MUDSTONE GROUP)	(0.30)	
											16.75	
										Very weak greenish grey fine to medium grained SANDSTONE very thinly interbedded with extremely weak reddish brown MUDSTONE. (MERCIA MUDSTONE GROUP)	17.00	
17.00-18.50												
										Extremely weak reddish brown MUDSTONE. GRADE II. (MERCIA MUDSTONE GROUP)	17.25	
17.28-17.45	35	C										
				93	68	47				Extremely weak greenish grey SILTSTONE thickly interlaminated with very weak fine to medium grained SANDSTONE. (MERCIA MUDSTONE GROUP) . . . 17.45m: Lenses (<4mm) of reddish brown clay.	(0.30)	
											17.55	
										Description on next sheet		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson + Marc Pearson**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**5** of **11**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				93	68	47				Extremely weak reddish brown MUDSTONE with occasional fine to coarse gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.55m from previous sheet)* . . . 18.10-18.25m: Recovered as sandy gravel with trace thick interlaminae with greenish grey extremely weak siltstone. Suspected interlaminated zone, verging towards GRADE III.	(1.51)	
18.50-20.00											19.06	
18.70-18.85	36	C		100	30	0				Stiff reddish brown slightly sandy CLAY with occasional fine to medium gravel size pockets of greenish grey silt. GRADE IVb. (MERCIA MUDSTONE GROUP)	(0.54)	
										Very weak greenish grey SILTSTONE. (MERCIA MUDSTONE GROUP) . . . . 19.60-19.75m: 85°, rough undulating fractures. . . . 19.85-19.90m: Band of greenish grey sandy silt.	19.60 (0.40)	
										Borehole terminated at 20.00m depth.	20.00	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable Percussion + Rotary Cored	**Dando 2000 Mark2 + Comacchio GEO 205**	**Chris Jobson + Marc Pearson**	**DNeylon + JAlton**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH25**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**6** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH25**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**7** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH25**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**8** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH25**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**9** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH25**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**10** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH25**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**63.15**	**E:446409.0 N:324534.7**	**11** of **11**

Method Used:	**Inspection pit + Cable Percussion + Rotary Cored**	Plant Used:	**Dando 2000 Mark2 + Comacchio GEO 205**	Drilled By:	**Chris Jobson + Marc Pearson**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH26**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**1** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.00	1	D								TOPSOIL	0.10	
0.10	2	D								Stiff reddish brown sandy CLAY with occasional greenish grey pockets (<2mm) of silt. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)		
0.10-0.40	3	B										
0.20	101	ES										
0.40	4	D										
0.40-1.00	5	B										
0.50	102	ES										
1.00	103	ES										
1.00	6	D										
1.00-1.20	7	B										
1.20-1.65		SPT	N=25								(2.40)	
1.20-1.65	8	DSPT										
1.20-1.70	9	B										
1.70	10	D										
2.00	104	ES										
2.00-2.45	11	UT	150 blows 78% recovery								2.50	
2.50	12	D								Stiff reddish brown and greenish grey slightly gravelly sandy CLAY, with abundant greenish grey pockets (<15mm) of silt. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone and siltstone. (MERCIA MUDSTONE GROUP)		
2.50-3.00	13	B										
3.00-3.45		SPT	N=25									
3.00-3.45	14	DSPT										
3.00-3.50	15	B									(2.00)	
3.50	16	D								. . . 3.50-4.50m: Dark reddish brown.		
4.00-4.45	17	UT	150 blows									
4.00-4.50	18	B									4.50	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
14/09/22	08:00	5.00	5.00	114	Dry
14/09/22	17:00	21.00	5.00	114	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)
4.80	5.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Unimog 405**	**???**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH26**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**2** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.50	19	D								Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine and medium and mudstone derive. Gravel is angular and subangular fine and medium extremely weak mudstone lithorelics. Occasional fine and medium gravel size pockets of grey silty sand and trace evidence of bedding. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.50)	
4.50-4.85		SPT	8,14/28,22,51 for 50mm									
4.50-4.95	20	DSPT										
4.50-5.00	21	B									5.00	
5.00-6.00										Extremely weak reddish brown MUDSTONE with frequent fine gravel size pockets and laminae (<15mm) of greenish grey siltstone, recovered as angular fragments with matrix of clayey sand. (MERCIA MUDSTONE GROUP)	(0.50)	
5.00-5.17		SPT	19,6/39,11 for 8mm								5.50	
5.50	23	D		85	8	0				Extremely weak reddish brown MUDSTONE. GRADE II. Bedding fractures: Very closely spaced, smooth, undulating, black staining. Fracture set 2: Randomly orientated, very closely spaced, smooth, planar, black staining on surfaces. (MERCIA MUDSTONE GROUP)	(1.00)	
6.00-7.50												
6.35	24	D									6.50	
				87	38	0				Extremely weak reddish brown MUDSTONE recovered as angular fragments with matrix of clayey sand. With gravel size fragments of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 6.90-7.10m: Extremely weak siltstone.	(0.60)	
											7.10	
7.50-9.00										Extremely weak reddish brown MUDSTONE with fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Bedding fractures: Closely spaced, smooth, planar, black staining on surfaces. Fracture set 2: Randomly orientated, smooth, planar. (MERCIA MUDSTONE GROUP) . . . 7.55-7.60m: Greenish grey siltstone.		
7.90	25	D										
				93	41	29				. . . 8.50-8.60m: Recovered as angular gravel, suspected bedding fracture.	(2.85)	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Unimog 405**	**???**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH26**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**3** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50										Extremely weak reddish brown MUDSTONE with fine to medium gravel size pockets of greenish grey siltstone. GRADE II. Bedding fractures: Closely spaced, smooth, planar, black staining on surfaces. Fracture set 2: Randomly orientated, smooth, planar. (MERCIA MUDSTONE GROUP) *(stratum copied from 7.10m from previous sheet)*		
9.25	26	D		93	41	29				. . . 9.60-9.65m: Recovered as angular gravel, suspected bedding fracture. . . . 9.85-9.90m: Recovered as angular gravel, suspected bedding fracture.	9.95	
										Extremely weak reddish brown MUDSTONE thinly interbedded with greenish grey SILTSTONE. GRADE II. Fractures: Randomly orientated, smooth, planar, frequent black staining on surfaces. (MERCIA MUDSTONE GROUP)	(0.55)	
10.50-12.00										Extremely weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. Bedding fractures: Medium spaced, smooth, planar, with black staining on surfaces. Fracture set 2: Randomly orientated, smooth, planar, with black staining on surfaces. (MERCIA MUDSTONE GROUP)	10.50	
11.20	27	D		100	67	40					(1.10)	
11.70-11.90	28	C								Extremely weak greenish grey thinly to thickly laminated SANDSTONE. Fine gravel size pockets and occasional laminae of brown coloured carbonate minerals and siltstone. GRADE II. (MERCIA MUDSTONE GROUP)	11.60	
12.00-13.50											(0.55)	
12.20	29	D		90	63	47				Extremely weak reddish brown MUDSTONE thinly interbedded with greenish grey SILTSTONE. GRADE I. Beddig fractures: Very closely spaced, rough, undulating. (MERCIA MUDSTONE GROUP)	12.15	
										Weak thinly cross laminated greenish grey SANDSTONE. (MERCIA MUDSTONE GROUP)	(0.50)	
13.00-13.15	30	C								. . . 13.00m: 60° fracture.	12.65	
											(0.95)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Unimog 405**	**???**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH26**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**4** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
13.50-15.00											13.60	
13.75-14.10	31	C								Extremely weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP)	(1.00)	
				100	80	73					14.60	
14.75	32	D								Very stiff greenish grey sandy SILT. Sand is fine and siltstone derived. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.40)	
15.00-16.50											15.00	
15.30	33	D								Very stiff reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium and mudstone. GRADE IVa. (MERCIA MUDSTONE GROUP)	(0.50)	
				87	60	37					15.50	
16.30-16.50	34	C								Extremely weak reddish brown MUDSTONE with occasional fine to medium gravel size pockets of greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) . . . 15.85m: 35°, smooth planar fracture, infilled with sandy clay. . . . 16.00-16.05m: Thinly cross laminated siltstone.	(2.10)	
16.50-18.00												
17.05-17.20	35	C										
				93	63	60					17.60	
										Description on next sheet		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Unimog 405**	**???**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH26**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**09.09.22** End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**5** of **10**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50										Extremely weak thinly to thickly laminated reddish brown MUDSTONE, thinly interbedded with extremely weak thinly to thickly cross laminated greenish grey SILTSTONE. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.60m from previous sheet)* . . . 18.00-18.90m: Randomly orientated rough planar fractures.	(1.30)	
18.50	36	D		90	7	0					18.90	
19.50-21.00										Extremely weak reddish brown MUDSTONE with frequent fine to medium gravel size pockets of greenish grey siltstone. (MERCIA MUDSTONE GROUP) . . . 18.90-19.30m: Randomly orientated planar fractures.	(1.30)	
19.50-19.90	37	C		80	73	60					20.20	
										Extremely weak thinly to thickly cross laminated greenish grey SILTSTONE with closely spaced laminae (<15mm) of sandstone. (MERCIA MUDSTONE GROUP)	(0.80)	
											21.00	

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable Percussion + Rotary Cored	**Dando 3000 + Unimog 405**	**???**	**DNartey + RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH26**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**6** of **10**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unimog 405**	Drilled By:	**???**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH26**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**7** of **10**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unimog 405**	Drilled By:	**???**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH26**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**8** of **10**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unimog 405**	Drilled By:	**???**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH26**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**9** of **10**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unimog 405**	Drilled By:	**???**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH26**
Contract Ref:	Start: **09.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **20.09.22**	**66.17**	**E:446600.8 N:324651.0**	**10** of **10**

Method Used:	**Cable Percussion + Rotary Cored**	Plant Used:	**Dando 3000 + Unimog 405**	Drilled By:	**???**	Logged By:	**DNartey + RStan**	Checked By:	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**1** of **17**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
0.10-0.10	101	ES	1xT+1xJ+1xV							TOPSOIL	(0.30)	
											0.30	
0.40-0.40	102	ES	1xT+1xJ+1xV							Firm to stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of mudstone. (MERCIA MUDSTONE GROUP)	(0.90)	
											1.20	
1.20-2.20										Very stiff brown slightly sandy gravelly CLAY. Sand is fine to coarse and mudstone derived. Gravel is angular to subangular fine to coarse mudstone and siltstone lithorelics. Frequent randomly orientated fractures with black staining on surfaces. GRADE IVa. (MERCIA MUDSTONE GROUP)		
1.20-1.65		SPT	N=9									
1.20-1.20	1	DSPT		100	0	0						
1.90-2.00	103	ES									(1.55)	
2.00-2.10	4	D										
2.10-2.20	5	C										
2.20-3.00												
2.20-2.53		SPT	6,8/12,21,17 for 30mm	113	0	0					2.75	
2.80-2.90	106	ES								Very stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to coarse and mudstone derived. Gravel is angular to subangular fine to coarse extremely weak mudstone lithorelics and occasional very weak siltstone lithorelics . GRADE III. Bedding: Extremely closely to very closely spaced, rough, undulating, black staining. Discontinuities: Tight to very tight, random orientated. (MERCIA MUDSTONE GROUP)		
2.90-3.00	7	D										
3.00-3.40												
3.10-3.20	8	D		138	23	0						
3.40-4.90											(1.45)	
				77	35	15						
											4.20	
4.30-4.40	9	D								*Description on next sheet*		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
13/09/22		4.90	None	N/R	3.90
14/09/22		22.80	None	114	2.90

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**???**	**DNeylon + JAlton**	AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**2** of **17**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
4.65-4.80	10	C		77	35	15				Very weak reddish brown MUDSTONE with medium spaced laminae and very thin beds (<40mm) of weak greenish grey siltstone. (MERCIA MUDSTONE GROUP)		
4.90-6.30										. . . 4.20-5.10m: Very closely spaced smooth planar bedding fractures with frequent black staining and extremely closely spaced smooth planar fractures, 60° and frequently stained dark brown and black on fracture surfaces.*(stratum* copied from 4.20m from previous sheet)		
4.90-5.04		SPT	17,8/50 for 50mm								(2.15)	
										. . . 5.10-5.30m: Slightly sandy slightly gravelly clay.		
				89	46	0				. . . Below 5.30m: Bedding: Very closely spaced, smooth, planar. Fractures: 60°, closely spaced, planar. GRADE II.		
5.90-6.00	11	C										
6.15	12	D									6.35	
6.30-7.80										. . . 6.30-6.45m: Frequent thin laminae (<5mm) of cream sandstone.		
6.35	13	D								Weak greenish grey fine grained SANDSTONE with fine to medium gravel size pockets of very weak siltstone. GRADE II. Bedding fractures: Closely spaced, smooth, undulating. (MERCIA MUDSTONE GROUP)	(0.60)	
6.40-6.55	14	C									6.95	
				90	79	13				. . . 6.45-6.60m: Rough undulating fracture. . . . 6.65m: Extremely weak siltstone. . . . Below 6.70m: reddish brown (transition zone) and very weak with lenses of very weak mudstone.		
7.80-9.30										Very weak reddish brown MUDSTONE with frequent fine gravel size pockets of greenish grey siltstone with black specs. GRADE II. Bedding fractures: Closely spaced, smooth, planar, brown staining. Fracture set 2: 80°, rough, undulating. (MERCIA MUDSTONE GROUP)	(1.30)	
											8.25	
				100	100	73				Extremely weak greenish grey SILTSTONE. Fractures: Closely spaced, 20°, undulating, smooth. (MERCIA MUDSTONE GROUP)	(0.75)	
8.60-8.80	15	C										
8.90	16	D									9.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**???**	**DNeylon + JAlton**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**3** of **17**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	100	73				Extremely weak reddish brown MUDSTONE with occasional bands up to 15mm of greenish grey siltstone and closely to very closely spaced smooth planar tight bedding fractures with slight darker staining. (MERCIA MUDSTONE GROUP)	(0.35)	
9.30-10.80											9.35	
9.50-9.75	17	C								. . . 9.15m: 80° fracture, with slight dark brown staining along surface. GRADE II.		
										Weak greenish grey SANDSTONE. Bedding fractures: Closely to medium spaced, rough, undulating, infilled with silt. (MERCIA MUDSTONE GROUP)	(1.05)	
				100	71	63				. . . 10.00-10.15m: Extremely weak reddish brown mudstone. . . . Below 10.15m: Interbedded with siltstone and thin laminae (<2mm) of slightly harder carbonate material.	10.40	
10.50	18	D								Extremely weak, locally very weak, reddish brown MUDSTONE with frequent fine to medium gravel size pockets of greenish grey sandy silt. GRADE II. Bedding fractures: Closely spaced, rough, planar. (MERCIA MUDSTONE GROUP)		
10.80-12.30										. . . 10.80-11.00m: Weak brown sandstone with very closely spaced bedding fractures with red clay infill.		
				80	67	20						
11.65-11.85	19	C										
11.85	20	D									(3.30)	
										. . . 12.15-12.55m: Very weak light greenish grey siltstone becoming extremely weak and darker in colour from 12.35m depth.		
12.30-13.80										. . . 12.30m: 70° smooth planar fracture.		
12.90-13.00	21	C		100	35	29				. . . 12.85-13.00m: Extremely weak greenish grey siltstone with yellow staining along bedding.		
13.40	22	D										

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**???**	**DNeylon + JAlton**	AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**4** of **17**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
				100	35	29					13.70	
13.80-15.30										Extremely weak reddish brown MUDSTONE thinly interbedded with extremely weak to very weak greenish grey SILTSTONE. Often siltstone beds are formed as lenses and only partially observed in the core. GRADE II. Bedding fractures: Closely spaced, rough, planar, infilled with red clay. (MERCIA MUDSTONE GROUP)		
				100	37	9						
14.70-14.90	23	C									(2.50)	
15.10	24	D								. . . 15.00-15.20m: Siltstone with laminae of cream coloured calcium carbonate and sedimentary deposit features observed.		
15.30-16.80												
15.65-16.10	25	C										
				100	46	38						
16.10	26	D								. . . 16.10-16.20m: Weak reddish brown with thin laminae of cream coloured calcium carbonate which is harder than the host mudstone.	16.20	
16.80-18.30										Extremely weak reddish brown MUDSTONE with frequent fine to medium gravel size pockets of greenish grey sandy silt. GRADE II. Bedding fractures: Medium spaced, smooth, planar. (MERCIA MUDSTONE GROUP)	(1.00)	
											17.20	
17.20-17.40	27	C								Extremely weak greenish grey thinly to thickly laminated SILTSTONE. Frequent thin laminae (<2mm) of calcium carbonate slightly harder than the surrounding matrix. Bedding fractures: Closely spaced, undulating, rough, infilled with reddish brown clay. (MERCIA MUDSTONE GROUP)	(0.55)	
				87	83	70					17.75	
17.50	28	D								*Description on next sheet*		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**???**	**DNeylon + JAlton**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**5** of **17**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.30-19.80				87	83	70				Extremely weak reddish brown MUDSTONE with frequent pockets and lenses (<15mm) of extremely weak greenish grey siltstone. GRADE II. (MERCIA MUDSTONE GROUP) *(stratum copied from 17.75m from previous sheet)* . . . 18.30-18.60m: thinly interbedded (<60mm) with greenish grey siltstone.	(1.15) 18.90	
				77	33	19				AZCL (MERCIA MUDSTONE GROUP)	(0.30) 19.20	AZCL
19.50	29	D								Extremely weak reddish brown MUDSTONE with frequent fine gravel size pockets of greenish grey sandy silt. GRADE II. (MERCIA MUDSTONE GROUP)		
19.80-21.30											(1.90)	
20.40-20.60	30	C		97	41	41					21.10	
21.30-22.80										Very weak reddish brown MUDSTONE with closely to very closely spaced, up to 40mm, but generally 5mm to 20mm, of crystalised gypsum, generally parallel with bedding. GRADE I. (MERCIA MUDSTONE GROUP)		
21.85-22.20	31	C		83	83	63						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**???**	**DNeylon + JAlton**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**12.09.22** End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**6** of **17**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
22.80-24.30				83	83	63				Very weak reddish brown MUDSTONE with closely to very closely spaced, up to 40mm, but generally 5mm to 20mm, of crystalised gypsum, generally parallel with bedding. GRADE I. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.10m from previous sheet)*		
23.50-23.80	32	C		100	70	61						
24.30-25.80												
24.60	33	C		97	97	97					(8.20)	
25.80-27.30				100	100	100				. . . 26.30-26.50m: Extremely weak greenish grey siltstone.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**???**	**DNeylon + JAlton**	AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**BH27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**7** of **17**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.00-27.30	34	C		100	100	100				Very weak reddish brown MUDSTONE with closely to very closely spaced, up to 40mm, but generally 5mm to 20mm, of crystalised gypsum, generally parallel with bedding. GRADE I. (MERCIA MUDSTONE GROUP) *(stratum copied from 21.10m from previous sheet)* . . . 27.30-27.90m: Thinly laminated with occasional siltstone laminae (<5mm).		
27.30-28.80												
27.50	35	C										
				100	77	58				. . . 28.30-28.55m: Random orientated fractures breaking up the core, generally closely spaced.		
28.80-30.30											29.30	
				100	100	87				Weak greenish grey thinly to thickly laminated SILTSTONE with fine to medium gravel size pockets of calcium carbonate, material slightly harder than the surrounding matrix. Unweathered. (MERCIA MUDSTONE GROUP)	(0.45)	
										. . . 29.45-29.55m: Extremely weak thinly laminated reddish brown mudstone.	29.75	
29.75-31.10	36	C								Weak to medium strong reddish brown thinly to thickly laminated cross SANDSTONE with intermittent bands of greenish grey weak siltstone. Unweathered. (MERCIA MUDSTONE GROUP)	(1.35)	
											31.10	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Dynamic sampling + Rotary Cored	**Comacchio GEO 205**	**???**	**DNeylon + JAlton**	

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**8** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**9** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**10** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**11** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**12** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**13** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**14** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**15** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**16** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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BOREHOLE LOG

Contract:		Client:		Borehole:
EMG Phase 2		**SEGRO**		**BH27**
Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **14.09.22**	**59.09**	**E:446622.8 N:324516.7**	**17** of **17**

Method Used:	**Inspection pit + Dynamic sampling + Rotary Cored**	Plant Used:	**Comacchio GEO 205**	Drilled By:	**???**	Logged By:	**DNeylon + JAlton**	Checked By:	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP01**

Contract Ref:	Start: **05.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.09.22**	**91.40**	**E:446654.8 N:325363.5**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES	1xT+1xJ+1xV			TOPSOIL . . . 0.20-0.40m: becomes stiff . . . 0.30-0.40m: With low cobble content. Cobbles are subangular of sandstone (<250x150x100mm).	0.40	
0.50	2	ES	1xT+1xJ+1xV			Stiff dark reddish brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartzite and sandstone.	0.65	
1.00	3	ES	1xT+1xJ+1xV					
1.20-1.65		SPT	N=18			Stiff dark reddish brown slight sandy CLAY with low cobble content. Cobbles are subangular of dark grey siltstone (<150x90x80mm). Occasional light greenish grey reduction spots. (MERCIA MUDSTONE GROUP)		
1.20-1.65	4	DSPT						
1.20-1.70	5	B						
1.80	6	D						
2.00-2.45		SPT	N=30			. . . 0.65m: Cobbles are subangular of dark grey siltstone (<230x150x100mm).		
2.00-2.45	7	DSPT						
2.00-2.50	8	B						
2.80	9	D						
3.00-3.31		SPT	13,12/18,22,10 for 5mm					
3.00-3.30	10	DSPT						
3.00-3.50	11	B						
3.80	12	D						
4.00-4.45		SPT	N=50				(7.16)	
4.00-4.45	13	DSPT						
4.00-4.50	14	B						
4.80	15	D						
5.00-5.38		SPT	6,10/10,10,20,10 for 5mm			. . . 5.00-7.95m: very stiff		
5.00-5.30	16	DSPT						
5.00-5.50	17	B						
5.80	18	D						
6.00-6.45		SPT	N=49					
6.00-6.45	19	DSPT						
6.00-6.50	20	B						
6.80	21	D						
7.50-7.81		SPT	6,8/17,23,10 for 5mm				7.81	
7.50-7.81	22	DSPT				Cable percussion borehole terminated at 7.81m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
05/09/22	17:00	1.20	-		Dry
06/09/22	08:00	1.20	-		Dry
06/09/22	14:00	7.81	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.30	3.50	00:30
5.60	6.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 150mm diameter tools and casing.
4. No groundwater encountered during drilling.
5. Borehole installed with 50mm standpipe on completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**William Nevin**	**GKalaher**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP02**

Contract Ref:	Start: **07.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **07.09.22**	**87.79**	**E:446423.0 N:325361.8**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL . . . 0.20-0.35m: stiff	0.35	
0.50	1	ES	1xT+1xJ+1xV			Stiff dark reddish brown slightly sandy gravelly CLAY. Occasional fine to coarse gravel size pockets and lenses (<10mm) of greenish grey sandy silt with trace laminae and brown bands up to 3mm. Sand is fine and medium and mudstone derived. Gravel is angular and subangular fine to coarse of extremely weak mudstone. (MERCIA MUDSTONE GROUP)	(1.25)	
0.50	2	D						
1.00	3	ES	1xT+1xJ+1xV					
1.00	4	D						
1.20-1.65		SPT	N=21					
1.20-1.65	5	DSPT					1.60	
1.20-1.70	6	B				Very stiff dark reddish brown slightly sandy gravelly CLAY. Occasional fine to coarse gravel sized pockets of greenish grey sandy silt. Sand is fine and medium and mudstone derived. Gravel is angular and subangular fine to coarse of mudstone. (MERCIA MUDSTONE GROUP)		
1.80	7	D						
2.00-2.45	8	$UT_{(UT100)}$	60 blows 100% recovery					
2.60	9	D						
2.60-3.00	10	B						
3.00-3.41		SPT	5,5/13,13,15,9 for 35mm			. . . 3.00-3.30m: verging towards Grade III with extremely weak to very weak mudstone and occasional fine gravel size fragments of dark brown fossilised organic matter.	(4.40)	
3.00-3.40	11	DSPT						
3.00-3.50	12	B						
3.80	13	D						
4.00-4.45	14	$UT_{(UT100)}$	90 blows 100% recovery					
4.60	15	D						
4.60-5.00	16	B						
5.00-5.31		SPT	5,7/12,28,10 for 5mm			. . . 5.00-5.30m: occasional fine gravel size fragments of dark brown fossilised organic matter.		
5.00-5.30	17	DSPT						
5.00-5.50	18	B		1				
5.80	19	D		1			6.00	
6.00-6.37		SPT	8,14/25,25,25 for 70mm			Very stiff dark reddish brown slightly sandy gravelly CLAY with infrequent beds (<30mm) of light greenish grey siltstone. Sand is fine to coarse and mudstone derived. Gravel is angular and subangular fine to coarse extremely weak mudstone and siltstone. (MERCIA MUDSTONE GROUP)	(1.63)	
6.00-6.40	20	DSPT						
6.00-6.50	21	B						
6.80	22	D				. . . 7.00-7.63m: gravel size fraction extremely weak to very weak		
7.50-7.63		SPT	25/75 for 55mm				7.63	
7.50-7.63	23	DSPT				Cable percussion borehole terminated at 7.63m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
07/09/22	16:00	7.63	1.50	150	-

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.40	3.60	00:30
6.80	7.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 150mm diameter tools and casing.
4. Groundwater strike at 6.00m. Rise to 5.70m after 20 minutes.
5. Borehole backfilled with bentonite on completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**W Nevins**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **08.09.22**	**90.21**	**E:446264.9 N:325259.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES	1xT+1xJ+1xV			TOPSOIL		
0.20	2	D				. . . 0.20-0.35m: becoming stiff.	0.35	
0.50	3	ES	1xT+1xJ+1xV			Stiff dark orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of quartzite, sandstone and flint.	0.70	
0.50	4	D					(0.50)	
1.00	5	B				Stiff to very stiff dark reddish brown slightly sandy slightly gravelly CLAY with frequent rootlets (<1mm) and occasional fine gravel size pockets of greenish grey silt. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, flint and sandstone. Occasional fine gravel size pockets of dark brown decayed organic matter.	1.20	
1.00	6	ES	1xT+1xJ+1xV					
1.00	7	D						
1.20	8	B						
1.20-1.65		SPT	N=16					
1.20-1.70	10	B						
1.20-1.65	9	DSPT						
1.80	11	D				. . . 0.80-1.20m: occasional lenses (<10mm) of dark reddish brown fine to coarse sand		
2.00-2.45	12	$UT_{(UT100)}$	120 blows 100% recovery			Very stiff dark reddish brown slightly sandy gravelly CLAY with occasional beds and lenses (<25mm) of greenish grey sandy silt with trace laminae and brown silt bands (<3mm). Sand is fine and medium and mudstone derived. Gravel is angular and subangular fine to coarse of extremely weak mudstone. (MERCIA MUDSTONE GROUP)		
2.60	13	D						
2.60-3.00	14	B						
3.00-3.45		SPT	N=53			. . . 2.60-3.00m: friable		
3.00-3.45	15	DSPT				. . . 3.00-6.50m: frequent gravel size pockets of greenish grey sandy silt		
3.00-3.50	16	B						
3.80	17	D					(5.30)	
4.00-4.40	18	$UT_{(UT100)}$	150 blows 100% recovery					
4.00	19	D						
4.40-5.00	20	B						
5.00-5.45		SPT	N=45					
5.00-5.45	21	DSPT						
5.00-5.50	22	B						
5.80	23	D						
6.00-6.45		SPT	N=60					
6.00-6.45	24	DSPT						
6.00-6.50	25	B					6.50	
6.80	26	D				Very stiff dark reddish brown slightly sandy gravelly CLAY with occasional beds (<20mm) of light greenish grey siltstone. Sand is fine to coarse. Gravel is angular and subangular fine to coarse of extremely weak mudstone and siltstone. (MERCIA MUDSTONE GROUP)	(1.11)	
7.00-7.25		SPT	8,15/40,60 for 20mm					
7.00-7.25	27	DSPT						
7.00-7.30	28	B					7.61	
7.30-7.61		SPT	13,12/20,40,15 for 10mm			Cable percussion borehole terminated at 7.61m depth.		
7.30-7.61	29	DSPT						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
08/09/22	18:00	7.00	1.50	150	Dry
08/09/22	08:00	7.00	1.50	150	Dry
09/09/22	09:00	7.61	1.50	150	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)
2.60	3.00	00:30
7.00	7.30	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 150mm diameter tools and casing.
4. No groundwater encountered during drilling.
5. Borehole backfilled with bentonite on completion.
6. SPT hammer JB05-2022 (E_f = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**W Nevins**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP04**

Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**81.74**	**E:446165.0 N:325032.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	3	B				TOPSOIL	0.30	
0.50	1	ES				Stiff brown slightly gravelly sandy CLAY with occasional rootlets up to 1mm in diameter. Sand is fine and medium. Gravel is angular to subrounded fine and medium of mudstone and sandstone.		
0.50	2	D						
0.50-1.00	6	B				. . . 0.85-1.00m: low cobble content. Cobbles (<100mm x 70mm x 40mm) are subrounded quartzite.	(1.90)	
1.00	4	ES						
1.00	5	D						
1.20-1.65		SPT	N=11					
1.20-1.65	7	DSPT						
1.20-1.70	8	B						
1.80	9	D						
2.00-2.45	10	$UT_{(UT100)}$	80 blows 100% recovery				2.20	
2.60	11	D				Stiff brownish grey occasionally mottled with brown and reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mudstone, sandstone, siltstone, chalk and unknown metamorphic rock.		
2.60-3.00	12	B						
3.00-3.45		SPT	N=19					
3.00-3.45	13	DSPT						
3.00-3.50	14	B						
3.80	15	D						
4.00-4.45	16	$UT_{(UT100)}$	90 blows 100% recovery					
4.60	17	D						
4.60-5.00	18	B						
5.00-5.45		SPT	N=35					
5.00-5.45	19	DSPT						
5.00-5.50	20	B						
5.80	21	D						
6.00-6.45	22	$UT_{(UT100)}$	110 blows 100% recovery					
6.60	23	D				. . . below 6.60m: becoming very stiff		
6.60-7.00	24	B						
7.00-7.45		SPT	N=37					
7.00-7.45	25	DSPT						
7.00-7.50	26	B						
7.80	27	D						
8.00-8.45		SPT	N=35					
8.00-8.45	28	DSPT						
8.00-8.50	29	B						
8.80	30	D						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
12/09/22	18:00	11.00	3.00	150	-
13/09/22	08:00	11.00	3.00	150	-
13/09/22	18:00	17.00	13.50	150	12.10
14/09/22	08:00	13.50	13.50	150	11.00
14/09/22	11:00	15.00	15.00	150	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 150mm diameter tools and casing.
4. Groundwater strike at 17m. Rose to 10.20m after 20 minutes.
5. Borehole was backfilled with bentonite seal upon completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Will Nevins**	**GKalaher**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP04**

Contract Ref:	Start: **12.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **13.09.22**	**81.74**	**E:446165.0 N:325032.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45		SPT	N=34			Stiff brownish grey occasionally mottled with brown and reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mudstone, sandstone, siltstone, chalk and unknown metamorphic rock.	(13.80)	
9.00-9.45	31	DSPT				*(stratum copied from 2.20m from previous sheet)*		
9.00-9.50	32	B				. . . 9.00-11.80m: becoming reddish brown		
9.80	33	D						
10.00-10.45		SPT	N=35					
10.00-10.45	34	DSPT						
10.00-10.50	35	B		1				
10.80	36	D						
11.00-11.45		SPT	N=34					
11.00-11.45	37	DSPT						
11.00-11.50	38	B						
11.50	39	D						
12.00-12.45		SPT	N=67			. . . 12.00: becoming dark reddish brown		
12.00-12.45	40	DSPT						
12.00-12.50	41	B						
12.50	42	D						
13.00-13.45		SPT	N=98					
13.00-13.45	43	DSPT						
13.00-13.50	44	B						
13.50	45	D						
14.00-14.45		SPT	N=75					
14.00-14.45	46	DSPT						
14.00-14.50	47	B						
14.50	48	D						
15.00-15.45		SPT	N=58					
15.00-15.45	49	DSPT						
15.00-15.50	50	B						
15.80	51	D					16.00	
16.00-16.50	52	B				Dense SAND AND GRAVEL. (Driller's Description)	(1.00)	
16.50-16.95		SPT	N=88					
16.50-16.95	53	DSPT						
16.50-17.00	54	B		1			17.00	
17.00	55	D				Cable percussion borehole terminated at 17.00m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Will Nevins**	**GKalaher**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**85.91**	**E:446066.5 N:325366.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				TOPSOIL	0.30	
0.00-0.30	101	ES						
0.30-0.30	2	D				Stiff to very stiff reddish brown gravelly sandy clayey SILT. Sand is fine. Gravel is angular to subangular fine of mudstone and siltstone. (MERCIA MUDSTONE GROUP)	(6.11)	
0.50-1.00	3	B						
0.50-0.50	102	ES						
0.70-0.70	4	D						
1.00-1.00	103	ES						
1.20-1.65	5	UT	18 blows 100% recovery					
1.65-1.75	6	D						
2.00-2.45		SPT	4,9/9,13,13,15 for 70mm					
2.00-2.45	7.1	DSPT						
2.00-2.45	8	B						
2.75-2.75	9	D						
3.00-3.44		SPT	6,11/13,12,12,16 for 65mm					
3.00-3.45	10.1	DSPT						
3.00-3.45	11	B						
3.75-3.75	12	D						
4.00-4.39		SPT	4,6/14,15,17,6 for 10mm					
4.00-4.45	13.1	DSPT						
4.00-4.45	14	B						
4.75-4.75	15	D						
5.00-5.30		SPT	8,10/15,31,4 for 0mm					
5.00-5.45	16.1	DSPT						
5.00-5.45	17	B						
5.75	18	D						
6.00-6.25		SPT	10,15/36,14 for 25mm					
6.00-6.45	19.1	DSPT						
6.20-6.41		SPT	25/38,62 for 60mm			Cable percussion borehole terminated at 6.41m depth.	6.41	
6.20	104	ES						
6.20-6.65	20.1	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
27/09/22	14:00	6.41	6.20	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
6.00	6.20	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 150mm diameter tools and casing.
4. No groundwater encountered during drilling.
5. Borehole backfilled with bentonite.
6. SPT hammer DS5-1-22 (E_r = 61.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Nathan Topping**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP06**

Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**87.01**	**E:446015.6 N:325200.5**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				TOPSOIL	0.30	
0.00-0.10	101	ES						
0.20	2	D				Stiff fissured dark greyish brown sandy gravelly silty CLAY with pockets of chalk. Sand is fine to coarse. Gravel is subangular to subrounded subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone and quartzite.	(1.00)	
0.50-1.00	3	B						
0.50	102	ES						
0.70	4	D						
1.00	103	ES					1.30	
1.20-1.65	5	UT	80 blows 40% recovery			Stiff fissured dark greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone and flint with occasional cobbles noted.		
1.30	104	ES						
1.65	6	D						
2.00-2.45		SPT	N=23					
2.00-2.45	7	DSPT						
2.00-2.45	8	D						
2.75	9	D						
3.00-3.45	10	UT	28 blows 50% recovery				(4.65)	
3.65	11	D						
4.00-4.45		SPT	N=30					
4.00-4.45	12	DSPT						
4.00-4.45	13	B						
4.75	14	D						
5.00-5.45	15	UT	26 blows 50% recovery					
5.65	16	D					5.95	
6.00-6.45		SPT	N=37			Stiff fissured orangish brown mottled grey gravelly sandy clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies included sandstone, siltstone and mudstone.	(1.75)	
6.00	105	ES						
6.00	17	DSPT						
6.00	18	B						
7.00	19	D		1				
7.50-7.95	20	UT	50 blows 20% recovery				7.70	
7.70	106	ES				Stiff to very stiff reddish brown sandy gravelly silty CLAY. Sand is fine. Gravel is angular to subangular fine to coarse of mudstone. Occasional bands of grey siltstone. (MERCIA MUDSTONE GROUP)		
8.50	21	D		1				

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
28/09/22	18:00	11.26	11.00	150	Dry
29/09/22	08:00	11.26	11.00	150	-
29/09/22	11:00	11.26	11.00	150	-

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
10.60	11.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. Groundwater struck at 9.00m depth, rising to 7.20m depth after 20 minutes.
5. Borehole installed with 50mm standpipe.
6. SPT hammer DS5-1-22 (E_r = 61.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Nathan Topping**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**87.01**	**E:446015.6 N:325200.5**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45		SPT	N=66			Stiff to very stiff reddish brown sandy gravelly silty CLAY. Sand is fine. Gravel is angular to subangular fine to coarse of mudstone. Occasional bands of grey siltstone. (MERCIA MUDSTONE GROUP) *(stratum copied from 7.70m from previous sheet)*	(3.56)	
9.00-9.45	22	DSPT						
9.00	23	B						
10.00	24	D						
10.50-10.83		SPT	12,12/24,51,20 for 30mm					
10.50-10.83	25	DSPT						
11.00-11.26		SPT	12,14/29,71 for 50mm				11.26	
11.00	107	ES				Cable percussion borehole terminated at 11.26m depth.		
11.00-11.26	26	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Nathan Topping**	**RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP07**

Contract Ref:	Start: **30.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**78.15**	**E:445919.0 N:325053.4**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.00	1	D				TOPSOIL	0.30	
0.10-0.20	2	B						
0.20-0.20	101	ES	1xT+1xJ+1xV			Soft to firm greenish brown mottled grey slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of quartzite, chalk, mudstone, sandstone and coal. Occasional cobbles (< 100mm) of quartzite and sandstone.	(13.00)	
0.40-0.40	102	ES	1xT+1xJ+1xV					
0.60-0.60	3	D						
0.60-0.80	4	B						
1.30	5	D						
1.50-1.95	6	$UT_{(UT100)}$	150 blows 89% recovery					
2.30	7	D						
2.50-2.95		SPT	N=20					
2.50-2.95	10	B						
2.50-2.95	9	DSPT						
3.20	11	D						
3.50-3.95	12	$UT_{(UT100)}$	100 blows 89% recovery					
3.50-3.95	13	D						
4.30	14	D						
4.50-4.95		SPT	N=21					
4.50-4.95	16	DSPT						
4.50-4.95	17	B						
5.70	18	D						
6.00-6.45	19	$UT_{(UT100)}$	100 blows 93% recovery					
6.45-6.55	20	D						
7.30	21	D						
7.50-7.95		SPT	N=20					
7.50-7.95	23	DSPT						
7.50-7.95	24	B		1				
8.70	25	D						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
30/09/22	18:00	8.00	7.50	200	Dry
03/10/22	08:00	8.00	7.50	200	Dry
03/10/22	15:00	14.21	9.00	200	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
13.50	14.00	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 150mm diameter tools and casing.
4. Groundwater struck at 13.40m depth, rising to 8.40m depth after 20 minutes.
5. Borehole backfilled with bentonite upon completion.
6. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 3000**	**Jonny Hutt**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**78.15**	**E:445919.0 N:325053.4**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45	26	$UT_{(UT100)}$	100 blows 100% recovery			Soft to firm greenish brown mottled grey slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of quartzite, chalk, mudstone, sandstone and coal. Occasional cobbles (< 100mm) of quartzite and sandstone. *(stratum copied from 0.30m from previous sheet)*		
9.45-9.55	27	D						
10.30	28	D						
10.50-10.95		SPT	N=43					
10.50-10.95	30	DSPT						
10.50-10.95	31	B						
11.70	32	D						
12.00-12.30	33	$UT_{(UT100)}$	150 blows 83% recovery					
12.30-12.40	34	D						
				1			13.30	
13.40	35	D				Light brownish grey slightly sandy clayey SILT. Sand is fine.	13.50	
13.50-13.78		SPT	21,4/32,40,28 for 40mm			Extremely weak reddish brown mottled grey MUDSTONE. (MERCIA MUDSTONE GROUP)	(0.71)	
13.50-13.78	37	DSPT						
13.50-13.80	38	B					14.21	
13.50	39	EW						
13.50	39	W						
14.00-14.21		SPT	25/54,46 for 60mm			Cable percussion borehole terminated at 14.21m depth.		
14.00-14.21	41	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 3000**	**Jonny Hutt**	**RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **08.09.22**	**---**	**---**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.85)	
0.30-0.50	1	B					0.85	
0.50	2	D						
0.50	3	ES	1xT+1xJ+1xV					
						Reddish brown gravelly SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartzite and rare chalk.	(0.55)	
1.00-1.20	4	B					1.40	
1.00	5	D						
1.00	6	ES	1xT+1xJ+1xV					
						Very stiff brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of chalk and quartzite.	1.80	
						Stiff brown mottled grey and locally reddish brown slightly gravelly CLAY. Gravel is subangular to subrounded fine and medium of quartzite and chalk.	(0.90)	
2.00-2.50	13	B					2.70	
2.50	14	D						
						Very stiff brown mottled grey thinly and thickly laminated CLAY.	(0.50)	
3.00-3.45	15	$U_{(100)}$	49 blows 100% recovery				3.20	
						Brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of quartzite and other lithologies.	(0.80)	
3.50	16	D					4.00	
4.00-4.45		SPT	N=23			Stiff brown mottled grey thinly and thickly laminated CLAY. Locally slightly gravelly, gravel is subangular and subrounded of mixed lithologies.		
4.00-4.45	18	DSPT						
4.00-4.50	19	B						
4.50	20	D						
5.00-5.50	21	B					(2.10)	
5.50	22	D						
6.00-6.45		SPT	N=25				6.10	
6.00-6.45	24	DSPT						
6.00-6.50	25	B				Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartzite and other lithologies.	6.45	
6.50	26	D						
7.00	27	D				Medium dense reddish brown slightly gravelly silty fine and medium SAND. Gravel is subangular to subrounded fine to coarse of quartzite and other lithologies. . . . 7.10-8.50m: with fine gravel to cobble size pockets (<100mm x 70mm x 30mm) of yellowish brown sand and some fine to coarse gravel size pockets of grey clay.	(2.05)	
7.50-7.95		SPT	N=27	1				
7.50-7.95	29	DSPT						
7.50-8.00	30	B						
8.00	31	D		1			8.50	
8.50	32	D				*Description on next sheet*	(1.00)	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
06/09/22	18:00	2.00	2.00	150	-
07/09/22	07:30	2.00	2.00	150	-
07/09/22	17:00	8.50	8.50	150	-
08/09/22	08:00	8.50	8.50	150	5.80
07/09/22	15:00	12.63	12.00	150	-

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
9.30	12.30	05:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Drilled using 150mm diameter tools and casing.
4. No groundwater encountered during drilling.
5. Borehole backfilled with bentonite on completion.
6. SPT hammer AR3469-2022 (E_r = 84.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000 Mark 2**	**Ben Wilson**	**RStan**	AGS

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **08.09.22**	**---**	**---**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45		SPT	N=37			Dense brown mottled reddish brown slightly gravelly silty fine to coarse SAND with occasional bands (<50mm) of strong grey siltstone. Gravel is subangular to subrounded fine to coarse of quartzite and siltstone.		
9.00-9.45	34	DSPT						
9.00-9.50	35	B						
9.50	36	D					9.50	
						(stratum copied from 8.50m from previous sheet)		
						Stiff grey mottled reddish brown slightly sandy slightly gravelly CLAY interbedded with reddish brown gravelly clayey SAND. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartzite and rare siltstone.	9.90	
9.90-10.22		SPT	4,10/13,28,9 for 20mm					
9.90-10.22	38	DSPT						
9.90-10.20	39	B						
10.20	40	D						
10.50	41	D						
						Very stiff brown mottled reddish brown sandy gravelly SILT with occasional to frequent fine and medium gravel size pockets of grey silty clay. Sand is fine to coarse. Gravel is subangular to subrounded fine and medium of quartzite, coal and other mixed lithologies.	(2.73)	
11.00-11.45		SPT	N=69					
11.00-11.45	43	DSPT						
11.00-11.50	44	B						
11.50-11.91		SPT	10,13/19,24,32,25 for 30mm					
11.50-11.91	46	DSPT						
11.50-12.00	47	B						
12.00	48	D						
12.10-12.50		SPT	10,14/21,26,26,27 for 25mm					
12.10-12.50	50	DSPT					12.63	
12.30	51	D				Cable percussion borehole terminated at 12.63m depth.		
12.30-12.63		SPT	12,12/25,40,35 for 30mm					
12.30-12.63	53	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000 Mark 2**	**Ben Wilson**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**29.09.22** End: **29.09.22**	**77.24**	**E:445693.6 N:325345.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				TOPSOIL	0.30	
0.01	101	ES						
0.20	2	D				Stiff reddish brown mottled grey sandy silty CLAY. Sand is fine to coarse. Gravel is angular to subangular fine mudstone with pockets of siltstone.		
0.50-1.00	3	D						
0.50	102	ES						
0.70	4	D						
1.00	103	ES						
1.20-1.65		SPT	N=11				(3.00)	
1.20-1.65	5	DSPT						
1.20-1.65	6	B						
1.75	7	D						
2.00-2.45	8	UT	28 blows 80% recovery					
2.45	9	D						
3.00-3.29		SPT	7,8/10,90 for 60mm				3.30	
3.00-3.45	10	DSPT				Stiff grey mottled reddish brown sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mixed lithologies including sandstone, siltstone and mudstone. With low cobble content of siltstone.	3.75	
3.00-3.45	11	B						
3.30	104	ES						
3.75	12	D						
3.75	105	ES						
4.00-4.45		SPT	N=31			Firm reddish brown mottled grey gravelly sandy SILT. Sand is fine. Gravel is angular to subangular fine of mixed lithologies including siltstone and mudstone.	(2.35)	
4.00-4.45	13	DSPT						
4.00-4.45	14	B						
4.75	15	D						
5.00-5.45		SPT	N=22					
5.00-5.45	16	DSPT						
5.00-5.45	17	B						
5.75	18	D						
6.00-6.45		SPT	N=78				6.10	
6.00-6.45	19	DSPT				Stiff to very stiff reddish brown gravelly sandy CLAY. Gravel is angular to subangular fine to coarse of mudstone, occasionally grey siltstone. (MERCIA MUDSTONE GROUP)		
6.00-6.45	20	B						
7.00	21	D					(2.55)	
7.50-7.95		SPT	N=81					
7.50-7.95	22	DSPT						
7.50-7.95	23	B						
8.00-8.36		SPT	25/31,24,26,21 for 60mm				8.65	
8.00	106	ES						
8.00-8.36	24	DSPT						
8.40-8.65		SPT	25/26,32,54,8 for 0mm			Cable percussion borehole terminated at 8.65m depth.		
8.40-8.65	25	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
29/09/22	17:00	8.65	8.40	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
7.60	8.00	00:30
8.00	8.40	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered during drilling.
5. Borehole backfilled with bentonite upon completion.
6. SPT hammer DS5-1-22 (E_r = 61.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Nathan Topping**	**GKalaher**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP10**

Contract Ref:	Start: **29.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**75.02**	**E:445636.3 N:325137.2**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.20	1	B				TOPSOIL	0.20	
0.10	2	D				Stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, mudstone and quartz.	(0.60)	
0.10	101	ES	1xT+1xJ+1xV				0.80	
0.30-0.60	3	B						
0.30	102	ES	1xT+1xJ+1xV					
0.50	4	D				Stiff light brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrouded fine to coarse of sandstone, siltstone, mudstone and chalk.		
0.90-1.20	5	B						
0.90	103	ES	1xT+1xJ+1xV					
1.00	6	D						
1.50-1.95		SPT	N=25				(2.00)	
1.50-1.95	8	DSPT						
1.50-1.95	9	B						
2.50-2.95	10	$UT_{(UT100)}$	125 blows 100% recovery				2.80	
2.95-3.05	11	D				Stiff fissured greyish brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone and siltstone.		
3.00-3.30	12	B						
3.00	104	ES	1xT+1xJ+1xV				(1.20)	
3.50-3.95		SPT	N=37					
3.50-3.95	14	DSPT						
3.50-3.95	15	B					4.00	
4.00	16	D				Stiff brown mottled grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine of mixed lithologies including sandstone, siltstone, flint.		
4.00-4.40	17	B						
4.00	105	ES	1xT+1xJ+1xV					
4.50-4.95	18	$UT_{(UT100)}$	150 blows 100% recovery					
4.95-5.10	19	D						
5.50	20	D					(3.30)	
6.00-6.12		SPT	25/100 for 75mm	1				
6.00-6.12	22	DSPT						
6.00-6.50	23	B						
7.00	24	D		1			7.30	
7.30	106	ES	1xT+1xJ+1xV			Stiff reddish brown mottled grey gravelly sandy silty CLAY. Sand is fine. Gravel is fine of mudstone and siltstone.		
7.50-7.83		SPT	6,10/25,25,50 for 30mm				(0.70)	
7.50-7.83	26	DSPT					8.00	
7.50-8.00	27	B				Reddish brown sandy subangular to subrounded, predominantly coarse, GRAVEL of mixed lithologies including sandstone, mudstone, siltstone and flint. Sand is fine to coarse. With low cobble content of flint.		
8.00-8.50	28	B					(0.50)	
8.50-9.00	29	B					8.50	
8.50	30	D				*Description on next sheet*		
8.50	107	ES	1xT+1xJ+1xV					

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
29/09/22	17:00	7.83	7.50	150	7.30
30/09/22	08:00	7.83	7.50	150	5.10
30/09/22	13:00	10.84	9.00	150	4.40

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
6.00	6.20	00:30
8.00	8.50	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. Not enough sample between 7.30 and 7.50 to take geotechnical sample.
5. Groundwater strike at 10.30m. Rose to 7.10m in 20 minutes.
6. Borehole installed with 50mm standpipe on

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Robert Foster**	**RStan**	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**75.02**	**E:445636.3 N:325137.2**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.29		SPT	8,16/40,60 for 65mm			Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine. Gravel is fine angular to subangular of mudstone. Occasional bands of grey siltstone. (MERCIA MUDSTONE GROUP) *(stratum copied from 8.50m from previous sheet)*	(2.34)	
9.00-9.29	32	DSPT						
9.00-9.50	33	B						
10.00	34	D						
10.50-10.84		SPT	13,12/20,30,50 for 70mm					
10.50-10.84	36	DSPT					10.84	
						Cable percussion borehole terminated at 10.84m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

completion.
7. SPT hammers AR1862-2022 (E_r = %) , AR2153-2022 (E_r = 60.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Robert Foster**	**RStan**	

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP11**

Contract Ref:	Start: **30.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**68.97**	**E:445598.3 N:324907.3**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				TOPSOIL	0.30	
0.00	2	D						
0.01	101	ES				Stiff reddish brown mottled grey slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine of mixed lithologies including sandstone, siltstone and mudstone.		
0.30	102	ES						
0.50-1.00	3	B						
0.70	4	D						
1.00-1.65	103	ES						
1.20-1.65		SPT	N=29					
1.20-1.65	5	DSPT						
1.20-1.65	6	B						
1.75	7	D						
2.00-2.45	8	UT	29 blows 40% recovery					
2.65	9	D						
3.00-3.45		SPT	N=67				(5.90)	
3.00-3.45	10	DSPT						
3.00-3.45	11	B						
3.75	12	D						
4.00-4.45		SPT	N=94					
4.00-4.45	13	DSPT						
4.00-4.45	14	B						
4.75	15	D						
5.00-5.45		SPT	N=90					
5.00-5.45	16	DSPT						
5.00-5.45	17	B						
5.75	18	D						
6.00-6.45		SPT	9,7/13,15,27,45 for 70mm				6.20	
6.00-6.45	19	DSPT				Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular of mudstone. Occasional pockets of grey siltstone. (MERCIA MUDSTONE GROUP)	(1.09)	
6.00-6.45	20	B						
6.75	21	D						
7.00-7.29		SPT	16,9/41,44,15 for 10mm				7.29	
7.00-7.29	22	DSPT				Cable percussion borehole terminated at 7.29m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
30/09/22	17:00	6.00	6.00	150	Dry
03/10/22	08:00	6.00	6.00	150	-
03/10/22	11:00	7.29	7.00	150	-

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.50	3.90	00:40
6.50	7.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered during drilling.
5. Borehole installed with 50mm standpipe upon completion.
6. SPT hammer DS5-1-22 (E_r = 61.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Nathan Topping**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**89.36**	**E:446517.1 N:325155.1**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				TOPSOIL	0.40	
0.10-0.10	101	ES						
0.30-0.30	2	B				Firm dark reddish brown mottled grey gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, limestone and quartz.	(4.50)	
0.50-1.00	3	B						
0.50-0.50	102	ES						
0.70	4	D						
1.00-1.00	103	ES						
1.20-1.65		SPT	N=13					
1.20-1.65	5	DSPT						
1.20-1.65	6	B						
1.75-1.75	7	D						
2.00-2.45	8	UT						
2.75-2.75	9	D						
3.00-3.45		SPT	N=8					
3.00-3.45	10	DSPT						
3.00-3.45	11	B						
3.75-3.75	12	D						
4.00-4.45	13	UT						
4.65-4.65	14	UT					4.90	
5.00-5.45		SPT	N=4			Soft orangish brown gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone and siltstone.	(1.30)	
5.00-5.45	15	NR						
5.00-5.45	16	B						
5.75	17	D						
6.00-6.45		SPT	N=36				6.20	
6.00-6.45	18	DSPT						
6.00-6.50	19	B				Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular fine to coarse of mudstone, occasionally siltstone. (MERCIA MUDSTONE GROUP)	(3.16)	
7.00	20	D						
7.50-7.94		SPT	4,10/16,24,29,31 for 60mm					
7.50-7.94	21	DSPT						
7.50-8.00	22	B						
8.50	23	D						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
05/10/22	17:00	9.36	9.00	150	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
8.80	9.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer DS5-1-22 (E_r = 61.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**Nathan Topping**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**89.36**	**E:446517.1 N:325155.1**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.36		SPT	10,11/26,37,37 for 60mm				9.36	
9.00	104	ES				Cable percussion borehole terminated at 9.36m depth.		
9.00-9.36	24	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**Nathan Topping**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP13**

Contract Ref:	Start: **05.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**77.14**	**E:446416.1 N:324961.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	D				TOPSOIL	0.30	
0.10-0.20	2	B						
0.20	101	ES	1xT+1xJ+1xV			Soft light orangish brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and mudstone.		
0.40	102	ES	1xT+1xJ+1xV					
0.60	3	D						
0.60-0.80	4	B					(1.40)	
1.20	5	D						
1.50-1.95		SPT	N=10				1.70	
1.50-1.95	7	B				Soft slightly sandy gravelly reddish brown CLAY. Sand is mudstone derived fine to medium. Gravel is subangular to rounded fine to coarse of sandstone, mudstone and siltstone.		
1.80-2.00	8	B					(0.60)	
1.80	103	ES	1xT+1xJ+1xV				2.30	
2.40	9	D				Firm light orangish brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and mudstone.		
2.40	104	ES	1xT+1xJ+1xV					
2.50-2.95		SPT	N=9					
2.50-2.95	11	DSPT						
2.50-2.95	12	B					(1.70)	
3.00	23	W						
3.30	13	D						
3.50-3.95		SPT	N=12					
3.50-3.95	15	DSPT						
3.50-3.95	16	B					4.00	
4.00-4.50	17	B				Loose multicolored (greenish blue, red, white, grey) slightly sandy clayey subangular to rounded fine to coarse GRAVEL of siltstone, mudstone, sandstone, quartzite and chalk. With low cobble content, cobbles are subrounded (<100mm). Sand is fine to coarse.		
4.50-4.95		SPT(c)	N=5					
4.50-4.95	19	B					(1.60)	
							5.60	
5.70	20	D				Stiff becoming very stiff reddish brown mottled grey slightly sandy gravelly CLAY. Sand is mudstone derived fine to coarse. Gravel is subrounded to rounded of siltstone, sandstone and mudstone. Occasional bluish grey silt beds up to 5cm thick.	(0.60)	
6.00-6.45		SPT	N=31				6.20	
6.00-6.45	22	DSPT						
6.00-6.20	24	B				Medium dense multicolored (greenish blue, red, white, grey) slightly sandy clayey rounded to subangular fine to coarse GRAVEL of siltstone, mudstone, sandstone, quartzite and chalk with low cobble content. Sand is fine to coarse. Cobbles are subrounded of siltstone, quartzite and sandstone up to 10cm in size.		
6.20-6.45	25	B					(1.40)	
7.30	26	D					7.60	
7.50-7.86		SPT(c)	6,9/11,20,19 for 60mm			Extremely weak light reddish brown mottled grey MUDSTONE. (MERCIA MUDSTONE GROUP)		
7.50-7.95	28	B						
8.30	29	D					(1.64)	
8.50-8.72		SPT	25/42,58 for 70mm					
8.50-8.72	31	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
05/10/22	18:36	6.00	6.00	200	4.10
06/10/22	07:35	6.00	6.00	200	3.10
06/10/22	16:00	9.24	8.50	200	-

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
5.80	6.00	00:30
8.50	9.00	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 3000**	**Jonny Hutt**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.10.22** End: **05.10.22**	**77.14**	**E:446416.1 N:324961.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
8.50-9.00	32	B					9.24	
9.00-9.24		SPT	20,5/34,56,10 for 10mm			Cable percussion borehole terminated at 9.24m depth.		
9.00-9.24	34	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 3000**	**Jonny Hutt**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**78.39**	**E:446524.3 N:324946.9**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				TOPSOIL	0.40	
0.10	101	ES						
0.30-0.50	2	D						
0.50-1.00	4	B				Stiff dark reddish brown gravelly sandy SILT. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mixed lithologies including sandstone, siltstone, mudstone and quartz.	(0.50)	
0.50	102	ES					0.90	
0.70	3	D						
1.00	103	ES				Stiff reddish brown, mottled grey, slightly gravelly sandy SILT. Gravel is angular to subangular fine of mixed lithologies including siltstone and mudstone.		
1.20-1.65	5	UT						
1.65	6	UT						
2.00-2.45		SPT	N=16				(2.90)	
2.00-2.45	7	DSPT						
2.00-2.45	8	B						
2.75	9	D						
3.00-3.45		SPT	N=17					
3.00-3.45	10	DSPT						
3.00-3.45	11	B					3.80	
3.75	12	D				Firm orangish brown, occasionally gravelly, sandy silty CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone and siltstone.	(0.60)	
3.80	104	ES						
3.80	105	ES					4.40	
4.00-4.45		SPT	N=26			Medium dense orangish brown very sandy silty angular to subangular fine to coarse GRAVEL of predominantly flint. With low cobble content. Sand is fine.	(0.90)	
4.00-4.45	14	B						
5.00-5.45		SPT(c)	N=42				5.30	
5.00-5.45	16	B						
6.00-6.45		SPT	N=55			Very stiff reddish brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse, occasional cobbles, of mudstone. (MERCIA MUDSTONE GROUP)	(1.60)	
6.00-6.45	17	B						
6.40-6.45	18	B					6.90	
7.00	19	D				Very stiff reddish brown gravelly sandy silty CLAY. Gravel is angular to subangular fine of mudstone. Occasional pocket of grey siltstone. (MERCIA MUDSTONE GROUP)		
7.50-7.95		SPT	6,11/13,20,32,35 for 70mm				(1.50)	
7.50-7.95	20	DSPT						
7.50-7.95	21	B						
8.00-8.40		SPT	10,14/18,28,41,13 for 20mm				8.40	
8.00-8.40	22	DSPT						
						Cable percussion borehole terminated at 8.40m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/10/22	16:00	8.40	8.00	150	-

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
4.50	5.00	00:50
7.50	8.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**Jonny Hutt**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP15**

Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**71.98**	**E:446551.5 N:324799.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	1	B				TOPSOIL	0.20	
0.10	101	ES				Stiff reddish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone and quartz.	(1.10)	
0.30	2	D					1.30	
0.50-1.00	3	B				Stiff reddish brown mottled grey slightly gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular fine to coarse of mixed lithologies including siltstone and mudstone.	(1.00)	
0.50	102	ES					2.30	
0.70	4	D				Stiff to very stiff reddish brown gravelly sandy silty CLAY. Gravel is angular to subangular fine to coarse of mudstone. Occasional pockets of grey mudstone and siltstone. (MERCIA MUDSTONE GROUP)	(5.96)	
1.00	103	ES						
1.20-1.65	5	UT						
1.30	104	ES						
1.65	6	D						
2.00-2.45		SPT	N=9					
2.00-2.45	7	DSPT						
2.00-2.45	8	B						
2.30	105	ES						
2.75	9	D						
3.00-3.45		SPT	N=12					
3.00-3.45	10	DSPT						
3.00-3.45	11	B						
3.75	12	D						
4.00-4.45		SPT	N=75					
4.00-4.45	13	DSPT						
4.00-4.45	14	B						
4.75	15	D						
5.00-5.45		SPT	N=48					
5.00-5.45	16	DSPT						
5.00-5.45	17	B						
5.75	18	D						
6.00-6.45		SPT	N=38					
6.00-6.45	19	DSPT						
6.00-6.45	20	B						
7.00	21	D						
7.50-7.86		SPT	10,15/21,32,47 for 60mm					
7.50-7.95	22	DSPT						
7.50-8.00	23	B						
8.00-8.26		SPT	14,11/30,48,22 for 20mm				8.26	
8.00	106	ES				Cable percussion borehole terminated at 8.26m depth.		
8.00-8.26	24	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/10/22	16:00	8.26	8.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
7.50	8.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered during drilling.
5. Borehole backfilled with bentonite upon completion.
6. SPT hammer DS5-1-22 (E_r = 61.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Nathan Topping**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP16**

Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**77.24**	**E:446244.3 N:324933.8**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.30	1	B				TOPSOIL	0.35	
0.10	101	ES	1xT+1xJ+1xV					
0.40-0.70	2	B				Stiff orange brown gravelly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, quartz, chalk and siltstone.		
0.50	3	D						
0.50	102	ES	1xT+1xJ+1xV					
0.90-1.20	4	B						
1.00	5	D						
1.00	103	ES	1xT+1xJ+1xV					
1.50-1.94		SPT	N=49					
1.50-1.94	7	DSPT					(3.05)	
1.50-1.94	8	B						
2.50-2.95	9	$UT_{(UT100)}$	100 blows 100% recovery					
2.95-3.10	10	D					3.40	
3.40	11	D				Stiff dark reddish brown mottled grey gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone, mudstone.		
3.40	104	ES						
3.50-3.95		SPT	N=19					
3.50-3.95	13	DSPT						
3.50-3.95	14	B						
4.50-4.95	15	$UT_{(UT100)}$	100 blows 100% recovery	1			(2.35)	
5.00	16	D						
5.50	17	D		1			5.75	
5.80	105	ES	1xT+1xJ+1xV			Stiff grey very sandy silty CLAY. Sand is fine to coarse.		
6.00-6.45		SPT	N=65					
6.00-6.45	19	DSPT						
6.00-6.45	20	B						
7.00	21	D					(3.25)	
7.50-7.95	22	$UT_{(UT100)}$	125 blows 100% recovery					
8.00	23	D						
8.50	24	D					9.00	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/10/22	17:00	3.10	2.50	150	Dry
05/10/22	08:00	3.10	2.50	150	Dry
05/10/22	17:15	11.15	10.50	150	-
06/10/22	08:00	11.15	10.50	150	9.25
06/10/22	11:15	11.15	10.50	150	-

Chiselling / Slow Progress

From	To	Duration (hh:mm)
10.50	11.00	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. 15 litres of water added between 1.20m and 2.50m to aid drilling.
5. No groundwater encountered during drilling.
6. SPT hammer AR1862-2022 (E_r = %) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Robert Foster**	**RStan**	AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**04.10.22** End: **04.10.22**	**77.24**	**E:446244.3 N:324933.8**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45		SPT	N=48			Stiff reddish brown mottled grey gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone, siltstone and mudstone. (MERCIA MUDSTONE GROUP)	(1.00)	
9.00	106	ES	1xT+1xJ+1xV					
9.00-9.45	26	DSPT						
9.00-9.45	27	B					10.00	
10.00-10.50	28	B				Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular fine to coarse of mudstone. Occasional bands of grey siltstone. (MERCIA MUDSTONE GROUP)	(1.15)	
10.00	107	ES	1xT+1xJ+1xV					
10.50-10.70		SPT	25/50,50 for 55mm					
10.50-10.70	30	DSPT						
10.50-11.00	31	B					11.15	
11.00-11.15		SPT	25/60,40 for 40mm			Cable percussion borehole terminated at 11.15m depth.		
11.00-11.15	33	DSPT						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Robert Foster**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP17**

Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**82.31**	**E:446263.8 N:325045.2**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00	1	D				TOPSOIL	0.30	
0.00-0.00	2	B						
0.10	1	D				Firm reddish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of quartzite, sandstone, mudstone and chalk. Frequent bluish grey silt beds (<50mm thick).		
0.10-0.20	2	B						
0.10	101	ES						
0.20	101	ES	1xT+1xJ+1xV					
0.40	102	ES	1xT+1xJ+1xV					
0.60	3	D						
0.60-0.80	4	B						
1.20	5	D						
1.50-1.70	6	$UT_{(UT100)}$	100 blows 100% recovery					
1.70-1.80	7	D						
2.30	8	D						
2.50-2.95		SPT	N=25			. . . Below 2.50m: becoming stiff.	(5.10)	
2.50-2.95	10	DSPT						
2.50-2.95	11	B						
3.30	12	D						
3.50-3.95	13	$UT_{(UT100)}$	100 blows 89% recovery					
3.50-3.95	14	D						
3.95-4.05	14	D						
4.30	15	D						
4.50-4.95		SPT	N=35					
4.50-4.95	17	DSPT						
4.50-4.95	18	B					5.40	
5.50	103	ES	1xT+1xJ+1xV			Light reddish brown mottled grey sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of mudstone and sandstone. Low cobble content (<80mm) of mudstone and sandstone. Frequent bluish grey siltstone beds (<50mm thick).		
5.70	19	D						
6.00-6.45		SPT	N=25					
6.00-6.45	21	DSPT						
6.00-6.45	22	B						
7.30	23	D				. . . Below 7.30m: slightly sandy slightly gravelly. Gravels decreasing in size.		
7.50-7.95	24	$UT_{(UT100)}$	80 blows 89% recovery					
7.95-8.05	25	D					(5.30)	
8.70	26	D						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/10/22	17:45	16.00	16.00	200	12.10
05/10/22	08:15	16.00	16.00	200	10.40
05/10/22	12:00	17.21	16.50	200	-

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
16.60	17.00	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. Water added between 15.00m and 16.00m to aid drilling.
5. No groundwater encountered during drilling.
6. Borehole installed with 50mm standpipe upon completion.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 3000**	**Jonny Hutt**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP17**

Contract Ref:	Start: **15.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**82.31**	**E:446263.8 N:325045.2**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45		SPT	N=44			Light reddish brown mottled grey sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of mudstone and sandstone. Low cobble content (<80mm) of mudstone and sandstone. Frequent bluish grey siltstone beds (<50mm thick). *(stratum copied from 5.40m from previous sheet)*		
9.00-9.45	28	DSPT						
9.00-9.45	29	B						
10.30	30	D						
10.50-10.95		SPT	N=60				10.70	
10.50-10.95	32	DSPT				Firm to stiff greyish brown slightly sandy slightly gravelly SILT. Low cobble content. Sand is fine to medium. Gravel is angular to subrounded fine to medium of siltstone. Frequent bluish grey siltstone beds (<80mm).		
10.50-10.95	33	B						
10.80	104	ES	1xT+1xJ+1xV					
11.70	34	D						
12.00-12.45		SPT	N=58				(4.00)	
12.00-12.45	36	DSPT						
12.00-12.45	37	B						
13.30	38	D						
13.50-13.95		SPT	N=56					
13.50-13.95	40	DSPT						
13.50-13.95	41	B					14.70	
14.70	42	D				Dense multicolored (greenish blue, red, white, grey) sandy clayey subangular to rounded fine to coarse GRAVEL of siltstone, mudstone, sandstone, quartzite and chalk. Sand is fine to coarse. With low cobble content, subrounded of siltstone, quartzite and sandstone (<100mm).		
15.00-15.45		SPT(c)	N=48					
15.00-15.45	44	B						
16.30	45	D					(2.51)	
16.50-16.88		SPT	8,17/26,32,42 for 75mm					
16.50-16.88	47	DSPT						
16.50-16.90	48	B						
17.00-17.21		SPT	25/46,54 for 65mm				17.21	
17.00-17.21	50	DSPT				Cable percussion borehole terminated at 17.21m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

7. SPT hammer AR3104-2022 (E_r = 64.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 3000**	**Jonny Hutt**	**RStan**	AGS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP18**

Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**76.81**	**E:446057.8 N:324763.5**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.30	1	B				TOPSOIL	0.35	
0.10	101	ES	1xT+1xJ+1xV					
0.40-0.70	2	B				Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is angular to subangular fine of mudstone. Occasional pockets of grey siltstone. (MERCIA MUDSTONE GROUP)	(4.50)	
0.50	3	D						
0.50	102	ES	1xT+1xJ+1xV					
0.90-1.20	4	B						
1.00	5	D						
1.00	103	ES	1xT+1xJ+1xV					
1.50-1.95		SPT	N=24					
1.50-1.95	7	DSPT						
1.50-1.95	8	B						
2.50-2.95	9	$UT_{(UT100)}$	125 blows 100% recovery					
3.00	10	D						
3.50-3.91		SPT	6,10/16,25,36,23 for 35mm					
3.50-3.91	12	DSPT						
3.50-3.91	13	B						
4.50-4.85		SPT	15,10/17,27,56 for 70mm					
4.50	104	ES	1xT+1xJ+1xV				4.85	
4.50-4.85	15	DSPT				Cable percussion borehole terminated at 4.85m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/10/22	13:15	4.85	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.50	4.50	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. 15 litres of water added between 1.20m and 4.50m to aid drilling.
5. No groundwater encountered during drilling.
6. Borehole backfilled with bentonite upon completion.
7. SPT hammer AR1862-2022 (E_r = %) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Robert Foster**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**30.09.22**	**76.75**	**E:445967.7 N:324839.4**	**1** of **1**
	End: **30.09.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.30	1	B				TOPSOIL	0.30	
0.10	101	ES	1xT+1xJ+1xV			Stiff dark orange brown slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subangular fine of mixed lithologies including sandstone and siltstone.	(0.60)	
0.40-0.70	2	B						
0.50	3	D					0.90	
0.50	102	ES	1xT+1xJ+1xV					
0.90-1.20	4	B				Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mudstone, occasionally bands of grey siltstone. (MERCIA MUDSTONE GROUP)	(3.97)	
1.00	5	D						
1.00	103	ES	1xT+1xJ+1xV					
1.50-1.95		SPT	N=25					
1.50-1.95	7	DSPT						
1.50-1.98	8	B						
2.50-2.95	9	$UT_{(UT100)}$	100 blows 100% recovery					
3.00	10	D						
3.50-3.93		SPT	7,12/17,23,28,32 for 55mm					
3.50-3.93	12	DSPT						
3.50-3.93	13	B						
4.50-4.87		SPT	8,10/20,30,50 for 70mm					
4.50	104	ES	1xT+1xJ+1xV				4.87	
4.50-4.87	15	DSPT				Cable percussion borehole terminated at 4.87m depth.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/10/22	16:30	4.87	3.00	150	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)
3.50	4.50	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. 20 litres of water between 1.20m to 4.50 meters to aid drilling.
5. No groundwater encountered during drilling.
6. Borehole backfilled with bentonite on completion.
7. SPT hammer AR1862-2022 (E_r = %) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Robert Foster**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP20**

Contract Ref:	Start: **30.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**75.98**	**E:445775.9 N:324732.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.30	1	B				TOPSOIL	0.40	
0.10	101	ES	1xT+1xJ+1xV					
0.40-0.70	2	B				Stiff dark orangish brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is angular to subangular fine of mixed lithologies including sandstone and siltstone.	0.80	
0.50	3	D						
0.50	102	ES	1xT+1xJ+1xV					
0.90-1.20	4	B				Stiff to very stiff reddish brown gravelly sandy silty CLAY. Sand is fine. Gravel is angular to subangular fie to coarse of mudstone, occasional bands of grey siltstone. (MERCIA MUDSTONE GROUP)	(3.99)	
1.00	5	D						
1.00	103	ES	1xT+1xJ+1xV					
1.50-1.95		SPT	N=26					
1.50-1.95	7	DSPT						
1.50-1.95	8	B						
2.50-2.95	9	$UT_{(UT100)}$	100 blows 67% recovery					
3.00	10	D						
3.50-3.91		SPT	5,12/20,25,35,20 for 35mm					
3.50-3.91	12	DSPT						
3.50-3.91	13	B						
4.50-4.79		SPT	10,15/40,60 for 75mm				4.79	
4.50-4.79	15	DSPT				Cable percussion borehole terminated at 4.79m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/10/22	13:00	4.79	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.50	4.50	01:00

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. 20 litres of water added between 1.20m and 4.50m to aid drilling.
5. No groundwater encountered during drilling.
6. Borehole backfilled with bentonite on completion.
7. SPT hammer AR1862-2022 (E_r = %) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Robert Foster**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP21**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**68.05**	**E:445752.9 N:324495.1**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				TOPSOIL	(0.50)	
							0.50	
0.50	2	ES				Firm light reddish brown slightly sandy gravelly CLAY. Sand is fine to medium and mudstone derived. Gravel is subangular to rounded fine to coarse of siltstone and mudstone. Occasional gravel size bluish grey silt pockets (<50mm). (MERCIA MUDSTONE GROUP)		
0.50	3	B						
0.50	4	D						
1.00	5	B						
1.00	6	D						
1.00	7	B						
1.20-1.65	8	U	35 blows					
1.70	9	D						
2.00-2.45		SPT	N=23					
2.00-2.45	10	DSPT						
2.00-2.50	11	B						
2.80	12	D					(4.88)	
3.00-3.45	13	U	120 blows					
3.70	14	D				. . . 3.60-4.80m: clay becoming stiff.		
4.00-4.45		SPT	N=100					
4.00-4.40	15	DSPT						
4.00-4.50	16	B						
4.80	17	D				. . . 4.80-5.30m: clay becoming very stiff.		
5.00-5.38		SPT	13,12/27,30,43 for 75mm					
5.00-5.38	18	DSPT					5.38	
						Cable percussion borehole terminated at 5.38m depth.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/10/22	08:00	0.50	3.00	150	Dry
03/10/22	18:00	5.38	5.00	150	Dry
04/10/22	08:00	5.38	5.00	150	Dry
04/10/22	11:00	5.38	5.00	150	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)
4.70	5.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered during drilling.
5. Borehole installed with 50mm standpipe upon completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2500**	**Will Nevins**	**RStan**	AGS

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STRUCTURAL SOILS

BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	101	ES				TOPSOIL.	(0.50)	
							0.50	
0.50	3	D				Very stiff reddish brown slightly sandy CLAY with frequent lithorelics of mudstone and light grey siltstone. Locally grading to extremely weak mudstone. (MERCIA MUDSTONE GROUP)		
0.50	4	B						
0.50	102	ES						
1.00	5	D						
1.00	6	B						
1.20-1.65	7	U	50 blows					
1.70	8	D						
2.00-2.45		SPT	N=50					
2.00-2.50	10	B						
2.00-2.45	9	DSPT						
2.50	11	D					(4.80)	
3.00-3.45	12	U	150 blows					
4.00-4.42		SPT	5,7/10,20,33,37 for 40mm					
4.00-4.45	14	DSPT						
4.00-4.50	15	B						
4.50	16	D						
5.00-5.30		SPT	10,15/42,58 for 75mm					
5.00-5.30	17	DSPT					5.30	
						Cable percussion borehole terminated at 5.30m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/10/22	18:00	5.30	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
4.50	5.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered during drilling.
5. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 2000**	**Will Nevins**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **23.09.22**	**71.31**	**E:446025.7 N:324549.2**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				TOPSOIL.	(0.60)	
0.50	2	B					0.60	
0.50	3	D				Very stiff reddish brown slightly sandy CLAY with occasional lithorelics of mudstone. (MERCIA MUDSTONE GROUP)		
0.60	4	ES						
1.00	5	B						
1.00	6	D						
1.20-1.65	7	UT						
1.70	8	D						
2.00-2.45		SPT	N=22			. . . 2.00m: With occasional gravel size pocket/lense (<15mm) of greenish grey sandy silt.		
2.00-2.50	10	B						
2.00-2.45	9	DSPT					(4.00)	
2.80	11	D						
3.00-3.45	12	UT	140 blows					
3.50	13	D						
4.00-4.43		SPT	10,15/16,17,29,38 for 50mm					
4.00-4.43	14	DSPT						
4.00-4.50	15	B					4.60	
4.80-5.00	16	B				Very stiff reddish brown slightly sandy CLAY with frequent lithorelics of mudstone and light grey siltstone. Locally grading to extremely weak mudstone. (MERCIA MUDSTONE GROUP)	(0.81)	
4.80	17	D						
5.00-5.41		SPT	15,10/22,21,25,32 for 45mm	1				
5.00-5.41	18	DSPT					5.41	
						Cable percussion borehole terminated at 5.41m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
22/09/22	18:00	2.00	1.50	150	Dry
23/09/22	08:00	2.00	1.50	150	Dry
23/09/22	15:00	5.41	1.50	150	5.37

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm diameter tools and casing.
4. Groundwater strike at 5.40m. Did not rise after 20 minutes.
5. Borehole backfilled with bentonite upon completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Matthew Heath**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **26.09.22**	**69.09**	**E:446132.1 N:324501.5**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				TOPSOIL (TOPSOIL)	0.30	
0.50	2	B				Very stiff dark brown slightly sandy CLAY. Sand is fine to medium and mudstone derived. (MERCIA MUDSTONE GROUP)	0.70	
0.50	3	D						
0.60	4	ES				Stiff reddish brown slightly sandy CLAY with frequent fine to coarse gravel size pockets and lenses (<10mm) of greenish grey sandy silt. Sand is fine to coarse and mudstone derived. (MERCIA MUDSTONE GROUP)	(1.30)	
1.00	5	B						
1.00	6	D						
1.20-1.65	7	UT	60 blows					
1.70	8	D					2.00	
2.00-2.45		SPT	N=42			Firm reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse and mudstone derived. Gravel is angular to subangular fine to medium of mudstone lithorelics. (MERCIA MUDSTONE GROUP)	(1.10)	
2.00	10	D						
2.00-2.50	11	B						
2.00-2.45	9	DSPT						
2.80	12	D					3.10	
3.00-3.45	13	UT	150 blows			Very stiff reddish brown slightly sandy slightly gravelly CLAY with frequent fine to medium gravel size pockets and lenses(<15mm) of greenish grey sandy silt. Sand is fine to medium and mudstone derived. Gravel is angular fine to medium of mudstone lithorelics. (MERCIA MUDSTONE GROUP)	(2.30)	
3.50	14	D						
3.50-4.00	15	B						
4.00-4.41		SPT	5,10/17,25,34,24 for 30mm					
4.00-4.41	16	DSPT						
4.00-4.50	17	B						
4.80	18	D						
5.00-5.40		SPT	7,8/16,33,34,17 for 20mm					
5.00-5.40	19	DSPT					5.40	
						Cable percussion borehole terminated at 5.40m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/09/22	16:00	5.40	4.50	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered.
5. Borehole backfilled with bentonite upon completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Mathew Heath**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **22.09.22**	**67.07**	**E:446354.7 N:324580.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.10	1	ES				TOPSOIL	0.40	
0.10	2	D						
0.10-0.40	3	B						
0.30	4	D				Stiff to very stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse mudstone. (MERCIA MUDSTONE GROUP)	(2.40)	
0.50	5	D						
0.50	6	ES						
0.50	7	D						
0.90-1.00	8	B						
1.00	9	ES						
1.00	10	D						
1.00-1.20	11	B						
1.20-1.65		SPT	N=50					
1.20-1.65	12	DSPT						
1.20-1.70	13	B						
1.90	14	D						
2.00-2.45	15	UT	150 blows					
2.50	16	D					2.80	
2.80-3.00	17	B				Very stiff reddish brown, loally light grey, slightly sandy gravelly CLAY. Gravel is subangular fine to coarse of mudstone and light grey siltstone. (MERCIA MUDSTONE GROUP)	3.00	
2.90	18	D						
3.00-3.45		SPT	N=56					
3.00-3.45	19	DSPT						
3.00-3.50	20	B				Very stiff dark orangish brown slightly sandy CLAY. Occasional very thin beds / lenses of light grey siltstone. (MERCIA MUDSTONE GROUP)	(3.88)	
3.80	21	D						
4.00-4.45	22	UT						
4.50	23	D						
5.00-5.39		SPT	8,17/20,26,37,17 for 15mm					
5.00-5.40	24	DSPT						
5.00-5.40	25	B						
6.00	26	D						
6.50-6.88		SPT	10,15/23,31,40,6 for 5mm					
6.50-6.88	27	DSPT					6.88	
						Cable percussion borehole terminated at 6.88m depth.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
21/09/22	18:00	3.00	3.00	150	Dry
22/09/22	08:00	3.00	3.00	150	Dry
22/09/22	13:00	6.88	6.00	150	Dry

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm diameter tools and casing.
4. No groundwater encountered during drilling.
5. Borehole backfilled with bentonite upon completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Matthew Heath**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP26**

Contract Ref:	Start: **16.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**77.19**	**E:446017.7 N:324866.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				TOPSOIL	0.10	
0.10	2	D				Stiff dark brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse predominantly fine and medium of quartzite and mudstone.	(1.40)	
0.10-0.40	3	B						
0.30	4	ES						
0.30	5	D						
0.50	6	ES						
0.50	7	D						
0.50	8	B						
1.00	9	ES						
1.00	10	D					1.50	
1.00	11	B				Stiff dark orangish brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of flint, quartzite sandstone and siltstone. Occasional patches (up to 4x4mm) and fragments (3x3mm) of black organic carbonated plant remain.	(1.60)	
1.20-1.65		SPT	N=10					
1.20-1.65	12	DSPT						
1.20-1.70	13	B						
1.80	14	D						
2.00-2.45	15	$UT_{(UT100)}$	30 blows 100% recovery					
2.60	16	D					3.10	
2.60-3.00	17	B						
3.00-3.45		SPT	N=10			Stiff dark reddish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of light grey siltstone. (MERCIA MUDSTONE GROUP)	(0.90)	
3.00-3.45	18	DSPT						
3.00-3.50	19	B						
3.80	20	D					4.00	
4.00-4.38		SPT	5,8/10,15,50 for 75mm			Very stiff dark orangish brown, mottled reddish brown, slightly sandy CLAY. Occasional very thin lens of light grey siltstone. (MERCIA MUDSTONE GROUP)	(2.76)	
4.00-4.40	21	DSPT						
4.00-4.50	22	B						
4.00	23	D						
5.00-5.35		SPT	5,10/20,30,35 for 45mm					
5.00-5.40	24	DSPT						
5.00-5.50	25	B						
6.00	26	D						
6.50-6.76		SPT	8,17/33,47,20 for 10mm				6.76	
6.50-6.76	27	DSPT				Cable percussion borehole terminated at 6.76m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
16/09/22	16:00	5.00	3.00	150	Dry
21/09/22	08:00	5.00	3.00	150	4.60
21/09/22	11:00	6.76	6.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
4.50	5.00	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. Groundwater strike at 4.60m.
5. Borehole backfilled with bentonite upon completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Will Nevins**	**RStan**	

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **15.09.22**	**76.99**	**E:446017.4 N:324865.5**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				TOPSOIL	0.30	
0.10	2	D				Firm dark brown mottled grey and locally dark blue and grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse flint, sandstone, siltstone and quartz. Moderate hydrocarbon odour observed. (MADE GROUND - REWORKED)	(2.70)	
0.50	3	ES						
0.50	4	D						
0.50	5	B						
1.00	6	ES						
1.00	7	D						
1.00-1.65	8	B						
1.20-1.65		SPT	N=8					
1.20-1.70	10	B						
1.20-1.65	9	DSPT						
1.80	11	D						
2.00	12	ES						
2.00	13	D						
2.00-2.45		SPT	N=8			. . . 2.15-2.25m: becoming very soft with strong hydrocarbon odour and iridescent sheen to extracted materials.		
2.00-2.45	14	DSPT						
2.00-2.50	15	B				. . . 2.50-3.00m: occasional grey organic roots and rootlet remnants.		
2.80	16	D					3.00	
3.00-3.45		SPT	N=58			Very stiff reddish brown slightly sandy slightly gravelly CLAY with frequent fine and medium size pockets of green grey sandy silt. Sand is fine and medium and mudstone derived. Gravel is angular and subangular fine to coarse of mudstone lithorelics. (MERCIA MUDSTONE GROUP)	(1.95)	
3.00-3.45	17	DSPT						
3.00	18	ES						
3.00	19	D						
3.00-3.50	20	B						
3.80	21	D						
4.00-4.35		SPT	10,15/15,20,40 for 45mm					
4.00-4.40	22	DSPT						
4.00	23	ES						
4.00	24	D						
4.60-4.95		SPT	15,10/20,30,25 for 45mm				4.95	
4.60-4.95	25	DSPT				Cable percussion borehole terminated at 4.95m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
15/09/22	18:00	4.95	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
4.40	4.60	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered during drilling.
5. Borehole installed with 50mm standpipe on completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Will Nevins**	**RStan**	

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STRUCTURAL SOILS

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BOREHOLE LOG

Contract:	Client:	Borehole:
EMG Phase 2	**SEGRO**	**CP28**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**14.09.22** End: **15.09.22**	**77.04**	**E:446017.1 N:324863.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50	3	B				TOPSOIL	(0.50)	
							0.50	
0.50	1	ES				Stiff reddish brown slightly sandy silty CLAY. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)	(0.50)	
0.50	2	D						
0.50-1.00	6	B					1.00	
1.00	4	ES				Stiff reddish brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of flint and mudstone. Occasional pockets (<10mmx5mm) of greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(1.50)	
1.00	5	D						
1.20-1.65		SPT	N=11					
1.20-1.65	7	DSPT						
1.20-1.70	8	B						
1.80	9	D						
2.00-2.45	10	UT-NR$_{(UT100)}$	55 blows 0% recovery				2.50	
2.50-2.95		SPT	N=13			Stiff to very stiff reddish brown slightly sandy silty CLAY. Sand is fine to coarse. Occasional pockets of greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(2.50)	
2.50-2.95	11	DSPT						
2.50-2.90	12	B						
2.90	13	D						
3.10-3.45	14	UT$_{(UT100)}$	150 blows 129% recovery					
3.60	15	D						
3.60-4.00	16	B						
4.00-4.42		SPT	6,12/13,17,33,35 for 40mm					
4.00-4.42	17	DSPT						
4.60-5.00		SPT	13,12/20,20,30,30 for 20mm					
4.60-5.00	18	DSPT					5.00	
						Cable percussion borehole terminated at 5.00m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
14/09/22	18:00	3.60	3.00	150	Dry
15/09/22	08:00	3.60	3.00	150	Dry
15/09/22	11:00	5.00	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
4.40	4.60	00:30

General Remarks

1. Position cleared using CAT and Genny.
2. Hand dug inspection pit to 1.20m.
3. Borehole drilled using 150mm tools and casing.
4. No groundwater encountered during drilling.
5. Borehole installed with 150mm standpipe upon completion.
6. SPT hammer JB05-2022 (E_r = 68.00%) used.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Inspection pit + Cable percussion	**Dando 2000**	**Will Nevins**	**RStan**	AGS

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STRUCTURAL SOILS

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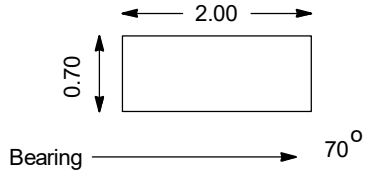
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP01**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**---**	**---**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				TOPSOIL	0.20	
0.10	2	D						
0.30	3	ES				Very stiff dark orangish reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartzite.	(0.30)	
0.30	4	D					0.50	
0.30-0.40	5	LB						
0.60	6	ES				Very stiff dark reddish brown slightly sandy CLAY with frequent beds (<40mm) of extremely weak and very weak light greenish grey siltstone. (MERCIA MUDSTONE GROUP)		
0.60	7	D						
0.60-0.70	8	LB						
0.60		V	c_u=>140				(1.50)	
						. . . 1.90-2.00m: Thin bed (<100mm) of very weak light grey siltstone.	2.00	
						Trial pit terminated at 2.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.
3. Soakaway carried out at 2.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP01**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**---**	**---**	**2** of **2**

Face 1

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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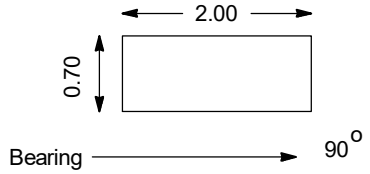
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP02**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22**	**---**	**---**	**1** of **3**
	End: **27.09.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				TOPSOIL	(0.30)	
0.15	2	D					0.30	
0.40	3	ES				Very stiff dark orangish brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite and flint.	(0.30)	
0.40	4	D					0.60	
0.40-0.50	5	LB				Very stiff dark reddish brown slightly sandy CLAY with frequent lithorelics (20x20mm) of mudstone with occasional very thin beds (<30mm) of very weak light greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(1.40)	
0.70	6	ES						
0.70	7	D						
0.70-0.80	8	LB						
0.70		V	c_u=>140				2.00	
						Trial pit terminated at 2.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.
3. Soakaway carried out at 2.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP02**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**---**	**---**	**2** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP02**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**---**	**---**	**3** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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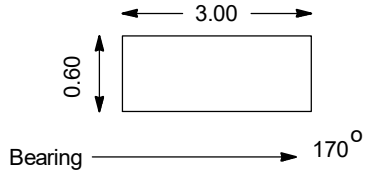
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP03**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**03.10.22**	**---**	**---**	**1** of **5**
	End: **03.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL.	(0.30)	
0.15	1	ES					0.30	
0.15	2	D						
						Light orangish brown very gravelly SAND. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of flint and quartz.	(0.50)	
0.40	3	ES					0.80	
0.40	4	D						
0.40-0.50	5	B						
						Stiff dark orangish reddish brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint and quartz. (MERCIA MUDSTONE GROUP)	(0.50)	
1.00	6	ES					1.30	
1.00	7	D						
1.00-1.10	8	B						
						Stiff dark reddish brown slightly sandy slightly gravelly CLAY with frequent lenses of reddish brown gravelly fine to coarse sand with occasional to frequent pockets (<50x50mm) of green silt. (MERCIA MUDSTONE GROUP)		
1.50	10	D						
1.50-1.60	11	B						
1.50	9	ES						
1.60		V	c_u=52/54					
						. . . 2.00m: Sand lenses absent. Occasional pockets (<100x50mm) of reddish brown sand.	(2.20)	
3.00	12	D				. . . 3.00m: Firm, low cobble content and occasional boulders. Cobbles (<200x150x100mm) subangular siltstone. Boulders (<450x350x100mm) subangular siltstone.		
3.20		V	c_u=24					
3.40-3.50	13	B					3.50	
						Trial pit terminated at 3.50m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP03**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**2** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP03**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**3** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP03**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**4** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP03**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**5** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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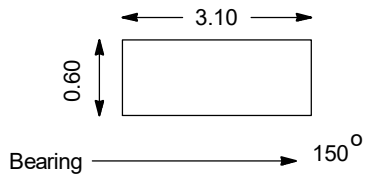
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP04**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**03.10.22**	**---**	**---**	**1** of **3**
	End: **03.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL.	(0.30)	
0.15	1	ES					0.30	
0.15	2	D						
						Stiff to very stiff dark reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of quartz and mudstone.	(0.50)	
0.40	3	ES						
0.40	4	D						
0.40-0.50	5	B					0.80	
						Stiff dark reddish brown and light grey slightly sandy CLAY with occasional thin beds (<100mm) of extremely weak to very weak light greenish grey siltstone. (MERCIA MUDSTONE GROUP)		
1.00	6	ES				. . . 1.00m: Friable.		
1.00	7	D				. . . 1.20-1.30m: Siltstone bed.	(1.10)	
1.00-1.10	8	B						
1.00		V	c_u=120			. . . 1.65-1.75m: Siltstone bed.		
							1.90	
						Very weak light grey SILTSTONE with occasional very thin beds (>30mm) of extremely weak dark eddish brown mudstone. (MERCIA MUDSTONE GROUP)	(0.30)	
2.00	10	D					2.20	
2.00-2.20	9	B						
						Trial pit terminated at 2.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP04**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**2** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP04**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**3** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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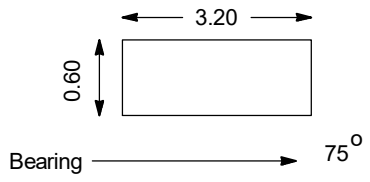
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP05**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**03.10.22** End: **03.10.22**	**---**	**---**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL.	(0.40)	
0.20	1	D					0.40	
0.20	2	ES						
						Very stiff dark yellowish brown slightly sandy slightly gravelly clayey SILT with occasional lenses (100x30mm) and pockets (<30x30mm) of reddish brown fine to coarse sand. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz and flint.	(0.90)	
0.50	3	D						
0.50	4	ES						
0.50-0.60	5	B						
0.80		V	c_u=>140				1.30	
						Very stiff dark brown mottled light grey slightly sandy sightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz, siltstone, mudstone, sandstone and chalk. With occasional pockets (<30x30mm) of orange and yellow silt/sand.	(1.90)	
1.50	6	ES						
1.50	7	D						
1.50-1.60	8	B						
2.00		V	c_u=120					
2.80		V	c_u=110					
3.00-3.10	10	B						
3.00	9	D					3.20	
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:23**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP05**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP05**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP05**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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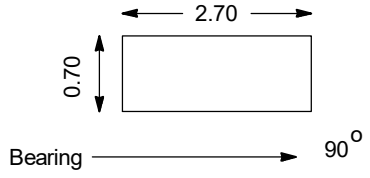
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP06**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.35)	
0.15	1	ES					0.35	
0.15	2	D						
						Dark orangish brown gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse of quartz, flint and mudstone.	(0.30)	
0.40	3	ES					0.65	
0.40	4	D						
0.40-0.50	5	B						
						Stiff dark orangish reddish brown slightly sandy slightly gravelly CLAY with occasional local frequent pockets (<40mm) of silt. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz, sandstone, siltstone, flint and mudstone.	(0.85)	
0.80	6	ES					1.50	
0.80	7	D						
0.80-0.90	8	B						
0.80		V	c_u=100					
						Dark orangish brown gravelly fine to coarse SAND with medium cobble content and occasional thin beds (<20mm) of stiff orangish brown slightly sandy silty clay. Gravel is angular to rounded fine to coarse of siltstone, quartz and flint.	(0.50)	
1.60	10	D					2.00	
1.60-1.70	11	B						
1.60	9	ES						
						Dark yellowish brown sandy GRAVEL with medium cobble and low boulder content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of siltstone, quartz, mudstone, sandstone and flint. Cobbles and boulders (<450mm) are subangular to subrounded of siltstone.	(1.70)	
2.10	12	ES						
2.10	13	D						
2.10-2.20	14	B						
						. . . Below 3.40m: Medium boulder content (<600x400x200m)		
3.50	15	D					3.70	
						Trial pit terminated at 3.70m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP06**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP06**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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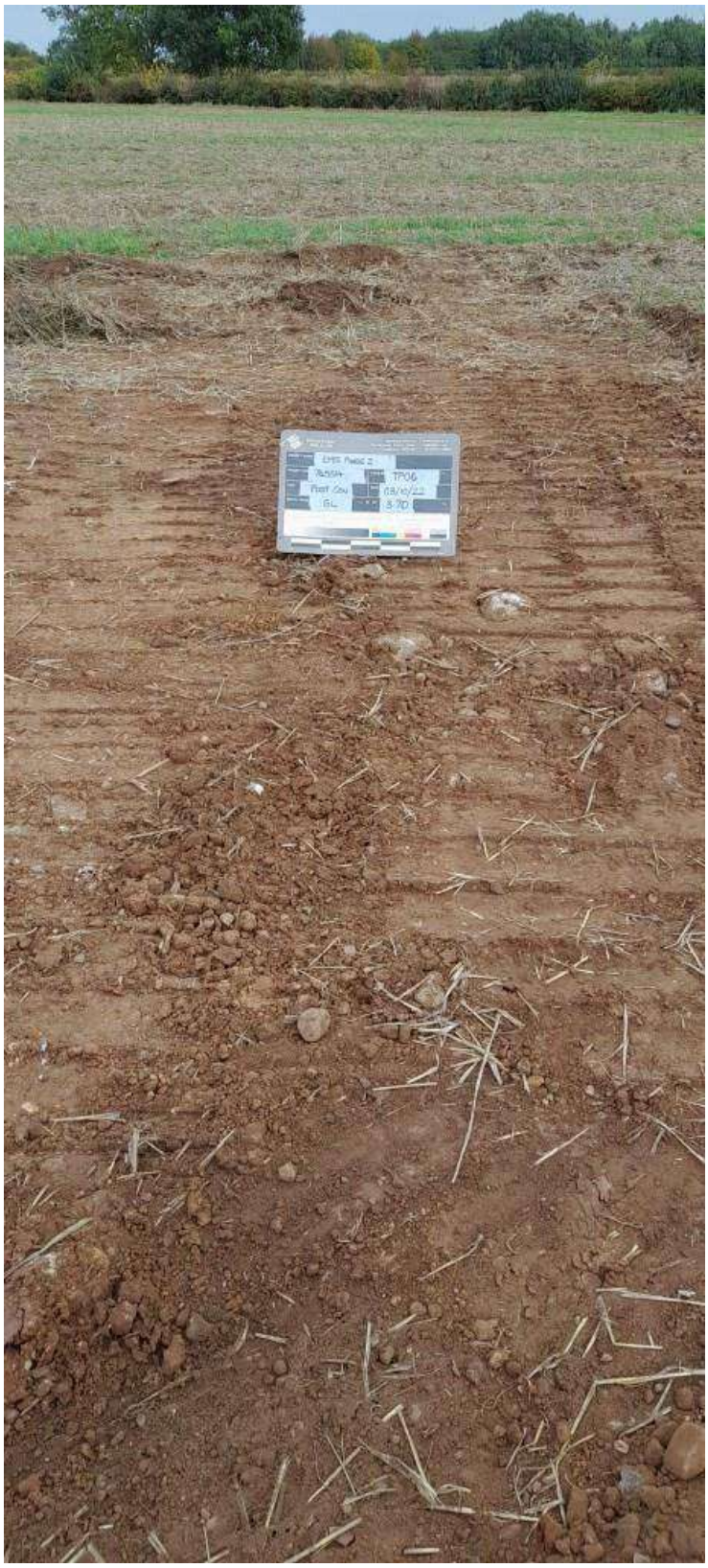
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP06**
Contract Ref:	Start: **03.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **03.10.22**	**---**	**---**	**4** of **4**



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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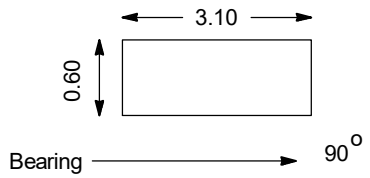
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP07**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**03.10.22** End: **03.10.22**	**83.70**	**E:445966.4 N:325132.9**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.40)	
0.20	1	ES						
0.20	2	D					0.40	
						Compact dark yellowish orangish brown slightly gravelly sandy SILT.	(0.40)	
0.50	3	ES						
0.50	4	D						
0.50-0.60	5	B					0.80	
						Stiff to very stiff dark reddish brown slightly sandy slightly gravelly clayey SILT.	(0.40)	
1.00	6	ES						
1.00	7	D						
1.00-1.10	8	B					1.20	
						Stiff to very stiff dark yellowish brown mottled grey slightly sandy slightly gravelly CLAY, low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of siltstone, quartz and chalk. Cobbles (<150mm) are subangular of siltstone. Occasional pockets (<30x30mm) of orange and yellow silt, and lenses (<100x20mm) of reddish brown fine to coarse sand.	(1.80)	
1.30	10	D						
1.30-1.40	11	B						
1.30	9	ES						
1.30		V	c_u=120/>140				3.00	
						Trial pit terminated at 3.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP07
Contract Ref:	Start: 03.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 03.10.22	83.70	E:445966.4 N:325132.9	2 of 3

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP07
Contract Ref:	Start: 03.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 03.10.22	83.70	E:445966.4 N:325132.9	3 of 3

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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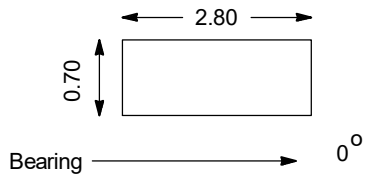
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP08**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**04.10.22**	**84.97**	**E:445808.1 N:325346.7**	**1** of **4**
	End: **04.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL: Firm dark brown slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of quartzite, flint, brick, glass and ceramic tile. Cobbles (<215x100x65mm) are angular of full and half brick.	(0.40)	
0.20	2	D					0.40	
0.50	3	ES				MADE GROUND: Reddish brown gravelly silty fine to coase SAND with low cobble content. Gravel is angular to rounded fine to coarse of brick, tile, quartzite and mudstone. Cobbles (<215x100x65mm) are angular of full and half brick, with occasional concrete blocks (<400x150x120mm).	(1.80)	
0.50	4	D						
0.50-0.60	5	LB						
1.50	6	ES						
1.50	7	D						
1.50-1.60	8	LB						
2.00	9	ES				. . . below 2.00m: frequent cobbles of full and half brick, and occasional fragments of rope.	2.20	
2.40	10	ES				POSSIBLE MADE GROUND: Firm to stiff dark reddish brown, locally dark grey, slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of quartzite and flint.	(0.60)	
2.40	11	D					2.80	
2.40-2.50	12	LB						
2.90-3.00	13	LB				Stiff dark reddish brown mottled light grey slightly sandy CLAY. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)	(0.40)	
2.90	14	D					3.20	
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP08**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**84.97**	**E:445808.1 N:325346.7**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP08**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**84.97**	**E:445808.1 N:325346.7**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP08**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**84.97**	**E:445808.1 N:325346.7**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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STRUCTURAL SOILS

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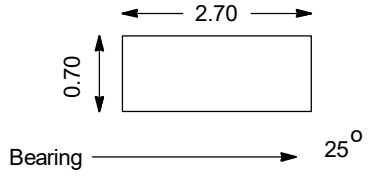
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP09**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**04.10.22**	**87.60**	**E:445878.0 N:325225.7**	**1** of **3**
	End: **04.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.35)	
0.20	1	ES					0.35	
0.20	2	D						
						Stiff to very stiff dark greyish brown slightly sandy slightly gravelly silty CLAY. Sand of fine to coarse. Gravel is angular to rounded fine to coarse of flint and quartzite.	(0.75)	
0.60	3	ES						
0.60	4	D						
0.60-0.70	5	LB						
0.60		V	c_u=110				1.10	
						Firm to stiff dark reddish brown mottled greenish grey slightly sandy gravelly silty CLAY. With abundant pockets (<100x30mm) of yellow orange and red silt with occasional lenses (<50mm) of reddish brown fine to coarse sand.		
1.30	6	ES						
1.30	7	D						
1.30-1.40	8	LB						
						. . . below 1.80m: firm, locally soft and firm.	(2.60)	
						. . . below 2.70m: with medium cobble and boulder content. Cobbles (<200x150x100mm) are subangular and subrounded of siltstone. Boulders (<350x250x150mm) are subangular of siltstone.		
3.30	10	D						
3.30-3.40	9	LB					3.70	
						Trial pit terminated at 3.70m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP09**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**87.60**	**E:445878.0 N:325225.7**	**2** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP09**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**87.60**	**E:445878.0 N:325225.7**	**3** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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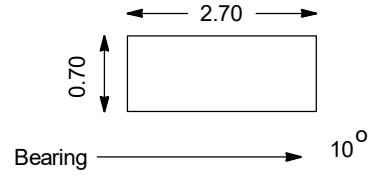
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**04.10.22**	**77.53**	**E:445846.9 N:325068.8**	**1** of **4**
	End: **04.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL	(0.40)	
0.20	2	D					0.40	
0.50	3	ES				Stiff dark yellowish orangish brown slightly sandy gravelly CLAY. With frequent pockets (<40x40mm) of reddish brown fine to coarse sand. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, mudstone and flint.	(0.30)	
0.50	4	D					0.70	
0.50-0.60	5	LB				Very stiff dark orangish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, flint and chalk.	(0.55)	
0.80	6	ES					1.25	
0.80	7	D						
0.80-0.90	8	LB						
1.40	10	D				Very stiff friable light yellowish brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of chalk and siltstone with occasional pockets (20x10mm) of yellow and orange silt.	(0.75)	
1.40-1.50	11	LB					2.00	
1.40	9	ES						
2.10	12	ES				Stiff dark brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of siltstone, flint, chalk and mudstone, with occasional pockets (<20x20mm) of orange and yellow silt.		
2.10	13	D						
2.10-2.20	14	LB				. . . below 2.50m: stiff to very stiff.	(1.20)	
3.10	15	D					3.20	
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.
3. Ceramic land drain 1.00-1.10m depth.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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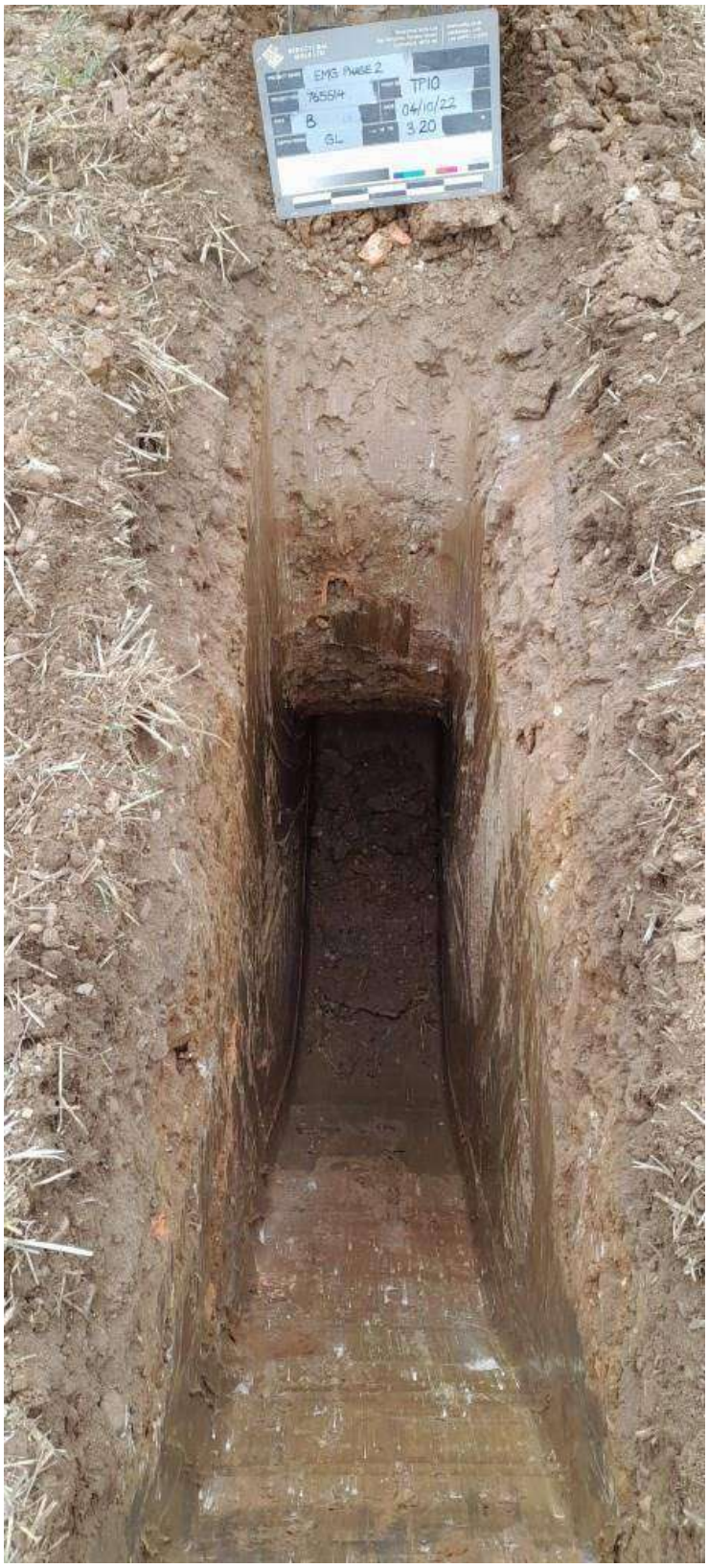
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP10**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**77.53**	**E:445846.9 N:325068.8**	**2** of **4**



Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP10**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**77.53**	**E:445846.9 N:325068.8**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:	
Hand dug	**Hand tools**	**GKalaher**		AGS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP10**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**77.53**	**E:445846.9 N:325068.8**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Hand dug	**Hand tools**	**GKalaher**	

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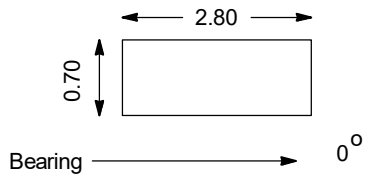
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**04.10.22**	**77.02**	**E:445965.8 N:324988.4**	**1** of **4**
	End: **04.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL	(0.40)	
0.20	2	D					0.40	
0.60	3	ES				Compact dark orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartzite.	(0.60)	
0.60	4	D						
0.60-0.70	5	B					1.00	
1.20	6	ES				Stiff dark orangish brown and greyish brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of flint, quartzite and chalk.	(0.70)	
1.20	7	D						
1.20-1.30	8	B					1.70	
1.80	10	D				Stiff dark orangish brown mottled grey slightly sandy slightly gravelly CLAY. With frequent lenses (<50mm) of reddish brown fine to coarse sand with frequent pockets (<50x30mm) of yellow and orange silt. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, siltstone, mudstone, chalk and flint.	(1.50)	
1.80-1.90	11	B						
1.80	9	ES				. . . Below 2.90m: with frequent lenses of reddish brown and yellowish orange firm silt (<100mm).	3.20	
3.30	12	ES				Dark orangish brown gravelly clayey SAND with occasional very thin beds (<30mm) of firm slightly sandy silty clay.	(0.30)	
3.30	13	D					3.50	
3.30	14	B				Trial pit terminated at 3.50m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP11**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**77.02**	**E:445965.8 N:324988.4**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP11**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**77.02**	**E:445965.8 N:324988.4**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP11
Contract Ref:	Start: 04.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 04.10.22	77.02	E:445965.8 N:324988.4	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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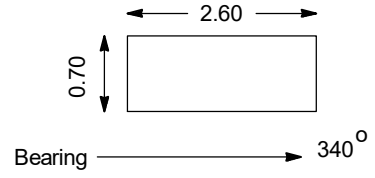
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**04.10.22**	**73.79**	**E:445742.7 N:325045.7**	**1** of **4**
	End: **04.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.40)	
0.20	1	ES						
0.20	2	D					0.40	
						Stiff dark yellowish brown sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz and flint.		
0.50	3	ES						
0.50	4	D						
0.50-0.60	5	B				. . . Below 0.60m: very stiff clayey SILT	(0.60)	
							1.00	
						Very stiff dark yellowish reddish brown mottled light grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of flint, chalk and quartz.		
1.10	6	ES						
1.10	7	D						
1.20-1.30	8	B						
1.20		V	c_u=>140				(0.80)	
						. . . 1.45m: thin bands (<50mm) of reddish brown gravelly fine to coarse sand.		
							1.80	
						Stiff dark greyish brown mottled bluish grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of flint, chalk and quartz.		
2.00	10	D						
2.00	11	B						
2.00	9	ES						
2.00		V	c_u=120				(1.90)	
3.50	12	D						
							3.70	
						Trial pit terminated at 3.70m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP12
Contract Ref:	Start: 04.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 04.10.22	73.79	E:445742.7 N:325045.7	2 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP12**
Contract Ref:	Start: **04.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **04.10.22**	**73.79**	**E:445742.7 N:325045.7**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP12
Contract Ref:	Start: 04.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 04.10.22	73.79	E:445742.7 N:325045.7	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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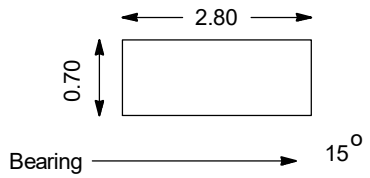
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.10.22** End: **05.10.22**	**73.00**	**E:445749.9 N:324942.5**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.35) 0.35	
0.50	1	ES				Compact light orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartz and flint	(0.45) 0.80	
0.50	2	D						
0.50	3	B						
						Light yellowish orangish brown gravelly silty fine to coarse SAND. Gravel is subangular to rounded fine to coarse of quartz and flint.	(0.40) 1.20	
1.00	4	ES						
1.00	5	D						
1.00-1.10	6	B						
						Stiff dark orangish brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz and flint.		
1.50	7	ES						
1.50	8	D						
1.50-1.60	9	B				. . . Below 1.70m: dark reddish brown	(1.20) 2.40	
						Soft dark orangish brown slightly gravelly very sandy SILT. Sand is fine to coarse. Gravel is subangular fine to coarse of flint.		
2.50	10	ES						
2.50	11	D		1			(0.80) 3.20	
2.50-2.60	12	B						
				1		Brown slightly gravelly fine to coarse SAND with occasional pockets (<150x150x100mm) of firm dark orangish brown clay.	(0.30) 3.50	
3.30	13	ES						
3.30	14	D						
3.30-3.40	15	B				Trial pit terminated at 3.50m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. Water strike at 3.30m depth, rose to 3.05m after 20 mins.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP13**
Contract Ref:	Start: **05.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**73.00**	**E:445749.9 N:324942.5**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP13**
Contract Ref:	Start: **05.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**73.00**	**E:445749.9 N:324942.5**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP13
Contract Ref:	Start: 05.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 05.10.22	73.00	E:445749.9 N:324942.5	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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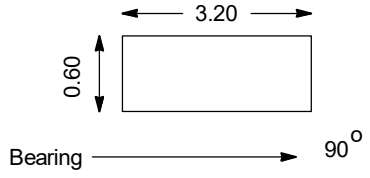
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**29.09.22** End: **29.09.22**	**82.12**	**E:445667.1 N:325262.9**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL	(0.35) 0.35	
0.40	2	D				Stiff reddish brown grey slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse of siltstone, quartzite and chert. Low cobble and boulder content.	(0.65) 1.00	
0.40-0.60	3	B						
0.40	4	ES						
0.80	5	D						
0.80-1.00	6	B						
0.80	7	ES						
1.50	8	D				Very stiff reddish brown mottled light grey CLAY with some gravel size lithorelics of mudstone and siltstone. (MERCIA MUDSTONE GROUP)	(2.50) 3.50	
1.80	9	D				. . . 1.40-1.60m: Lense of light grey silt. (2mx0.20m)		
2.50-2.70	10	B				. . . Below 1.50m: Locally silty.		
3.00	11	D				. . . Below 2.90m: With tabular gravel to cobbles of light grey siltstone and mudstone.		
3.50	2	D				Trial pit terminated at 3.50m depth.		

Plan (Not to Scale)



General Remarks

1. Unsuitable for hand vanes.
2. All faces similar and stable.
3. No groundwater encountered during excavation.
4. Terminated due to difficulty of excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**TClifford**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP14**
Contract Ref:	Start: **29.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**82.12**	**E:445667.1 N:325262.9**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**TClifford**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP14
Contract Ref:	Start: 29.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 29.09.22	82.12	E:445667.1 N:325262.9	3 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	TClifford	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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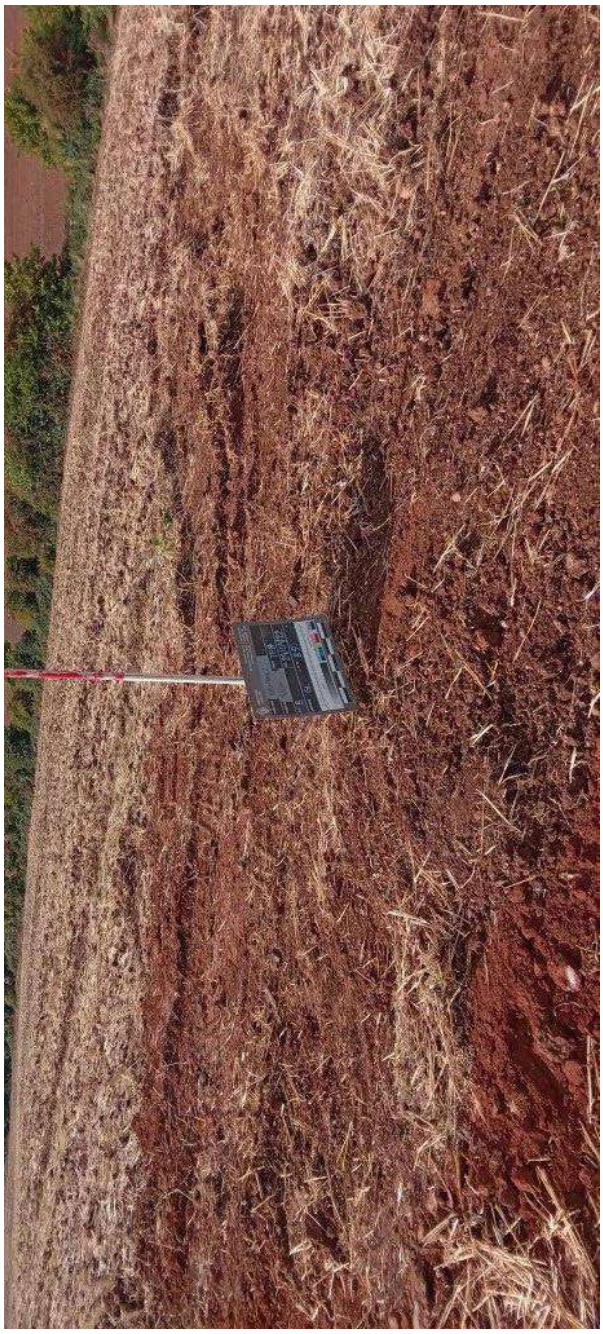
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP14
Contract Ref:	Start: 29.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 29.09.22	82.12	E:445667.1 N:325262.9	4 of 4



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	TClifford	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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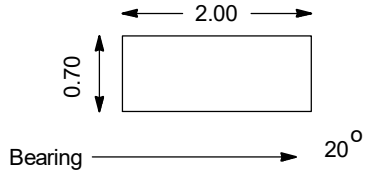
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**29.09.22**	**69.53**	**E:445583.3 N:325042.1**	**1** of **2**
	End: **29.09.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES				TOPSOIL	(0.50)	
0.30	2	D					0.50	
0.60	3	ES				Firm dark yellowish orangish brown slightly sandy gravelly clayey SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of flint and quartzite with occasional lenses (<50mm) of reddish brown fine to coarse sand.	(0.80)	
0.60	4	D						
0.60-0.70	5	B					1.30	
1.50	6	ES				Firm to stiff dark brown mottled light grey slightly sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of quartzite, flint and siltstone. Cobbles (<200x150x110mm) are subangular of siltstone.	(0.70)	
1.50	7	D						
1.50-1.60	8	B					2.00	
						Trial pit terminated at 2.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.
3. Soakaway carried out at 2.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP15**
Contract Ref:	Start: **29.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**69.53**	**E:445583.3 N:325042.1**	**2** of **2**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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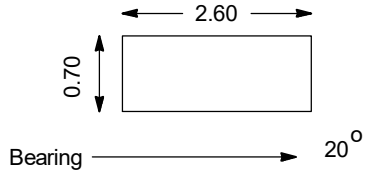
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**29.09.22** End: **29.09.22**	**72.11**	**E:445645.8 N:324820.9**	**1** of **5**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.30)	
0.20	1	ES					0.30	
0.20	2	D				Compact dark orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite.	(0.35)	
0.40	3	ES					0.65	
0.40	4	D						
0.40-0.50	5	LB				Very stiff dark reddish brown slightly sandy silty CLAY. Sand is fine to coarse.	0.85	
0.70	6	ES						
0.70	7	D				Stiff to very stiff locally friable dark reddish brown and light grey slightly sandy CLAY. With frequent very thin beds (<40mm) of very weak light grey siltstone.	(0.45)	
0.70-0.80	8	LB					1.30	
1.00	10	D						
1.00-1.10	11	LB						
1.00	9	ES						
1.00		V	c_u=>140					
1.40	12	ES				Stiff friable dark reddish brown locally mottled light grey slightly sandy CLAY. With occasional mudstone lithorelics (<10x10mm).		
1.40	13	D						
1.40-1.50	14	LB						
1.40		V	c_u=110					
2.10	15	D				. . . below 2.00m: with frequent very thin beds (<40mm) of extremely weak and very weak reddish brown mudstone and siltstone.	(1.90)	
2.80	16	D				. . . 2.70-2.90m: thin bed (<200mm) of extremely weak and very weak light greenish grey siltstone.	3.20	
3.30-3.40	17	LB				Extremely weak locally friable dark reddish brown MUDSTONE.		
3.30	18	D					(0.50)	
							3.70	
						Trial pit terminated at 3.70m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP16**
Contract Ref:	Start: **29.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**72.11**	**E:445645.8 N:324820.9**	**2** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP16**
Contract Ref:	Start: **29.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **29.09.22**	**72.11**	**E:445645.8 N:324820.9**	**3** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP16
Contract Ref:	Start: 29.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 29.09.22	72.11	E:445645.8 N:324820.9	4 of 5

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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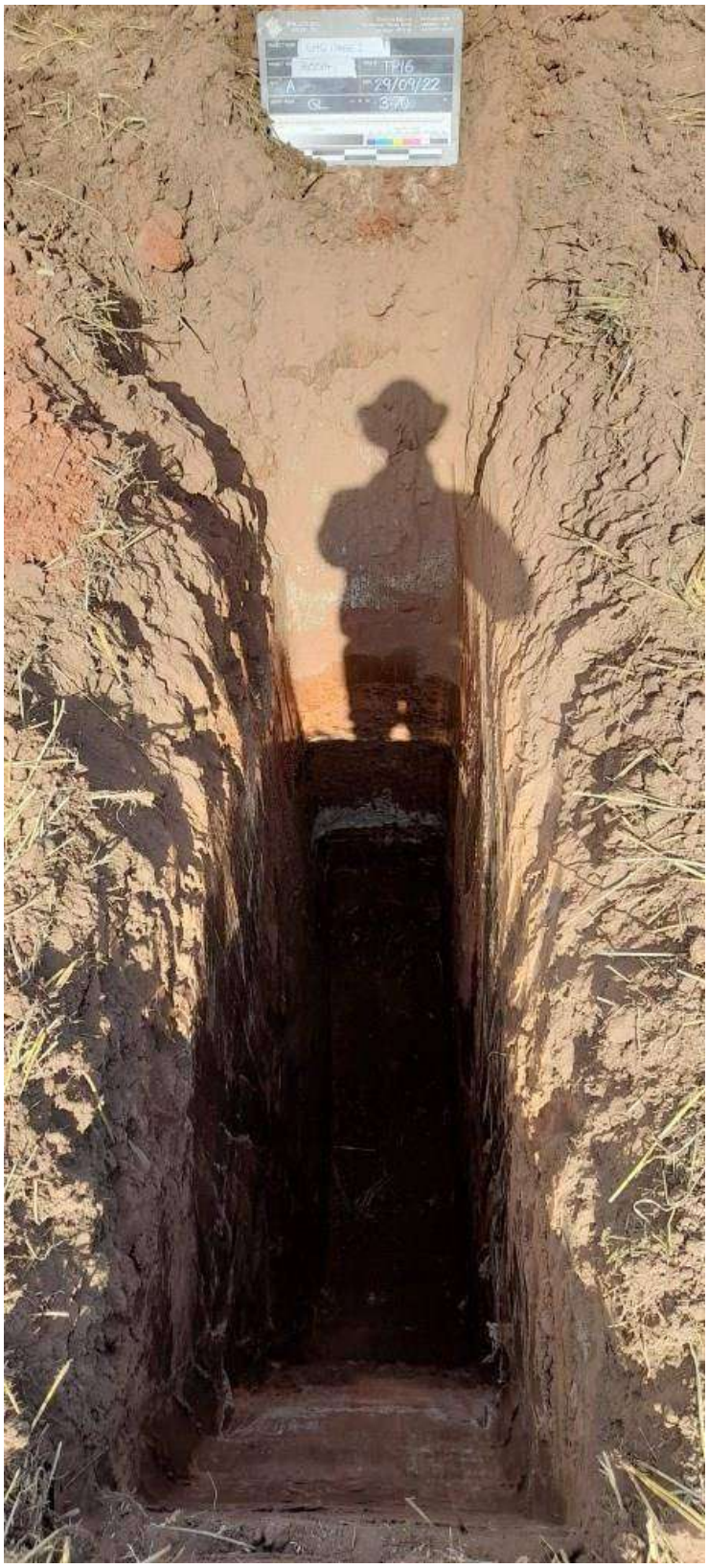
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP16
Contract Ref:	Start: 29.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 29.09.22	72.11	E:445645.8 N:324820.9	5 of 5



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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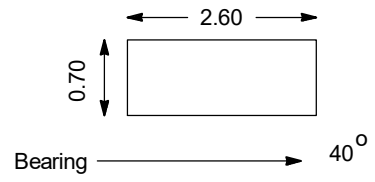
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **28.09.22**	**89.01**	**E:446441.7 N:325131.0**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.40)	
0.20	1	ES						
0.20	2	D					0.40	
						Orangish brown very gravelly silty SAND. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, mudstone and flint.	(0.35)	
0.50	3	ES						
0.50	4	D						
0.50-0.60	6	LB					0.75	
						Very stiff dark greyish brown slightly sandy slightly gravelly silty CLAY with occasional very thin lenses (<100mm) of reddish brown gravelly fine to coarse sand. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite and flint, chalk, siltstone and sandstone with frequent pockets (<30x30mm) of orange and yellow silt.		
0.80	7	ES						
0.80	8	D						
0.80-0.90	9	LB						
2.00		V	c_u=120				(2.45)	
						. . . 2.50m: Cobble (<260x150x110mm) of subangular flint.		
2.80-2.90	10	LB						
2.80	11	D						
2.80		V	c_u=107				3.20	
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP17
Contract Ref:	Start: 28.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 28.09.22	89.01	E:446441.7 N:325131.0	2 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP17
Contract Ref:	Start: 28.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 28.09.22	89.01	E:446441.7 N:325131.0	3 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP17**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**89.01**	**E:446441.7 N:325131.0**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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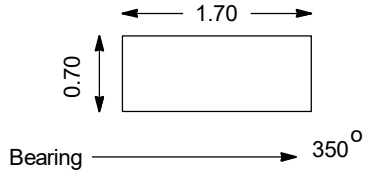
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP18**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **28.09.22**	**84.13**	**E:446580.8 N:325055.4**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL (TOPSOIL)	(0.35) 0.35	
0.20	1	ES				Firm dark orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite and flint.	0.60	
0.20	2	D						
0.40	3	ES						
0.40	4	D						
0.40-0.50	5	LB				Very stiff dark reddish brown slightly sandy slightly gravelly CLAY. With low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, mudstone and flint. Cobbles (<130x80x70mm) and subrounded of quartzite.	(0.90) 1.50	
0.70	6	ES						
0.70	7	D						
0.70-0.80	8	LB						
1.70	10	D				Stiff dark reddish brown slightly sandy gravelly silty CLAY. With medium cobble and boulder content. With frequent pockets (<30x30mm) and thin lenses (<15x100mm) of orange silt and yellow sand. Cobbles (<200x120x100mm) are subangular and subrounded of siltstone. Boulders (<400x300x150mm) are subangular and subrounded of siltstone. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, siltstone and sandstone. With occasional subrounded nodules (<90x60x40mm) of mudstone.	(0.70) 2.20	
1.70-1.80	11	LB						
1.70	9	ES						
1.70		V	c_u=50/80					
						Trial pit terminated at 2.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.
3. Soakaway carried out at 2.20m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP18**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**84.13**	**E:446580.8 N:325055.4**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP18
Contract Ref:	Start: 28.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 28.09.22	84.13	E:446580.8 N:325055.4	3 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP18
Contract Ref:	Start: 28.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 28.09.22	84.13	E:446580.8 N:325055.4	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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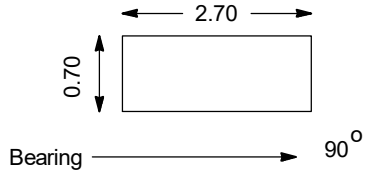
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**28.09.22** End: **28.09.22**	**75.72**	**E:446353.6 N:324934.2**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.30)	
0.15	1	ES						
0.15	2	D					0.30	
						Stiff dark orangish brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz and flint.	(0.50)	
0.40	3	ES						
0.40	4	D						
0.40	5	LB					0.80	
						Stiff to very stiff dark brown mottled grey yellow and orange slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartzite, siltstone, sandstone and flint.	(0.80)	
0.90	6	ES						
0.90	7	D						
0.90	8	LB						
0.90		V	c_u=>140				1.60	
						Stiff dark reddish brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite.	(0.30)	
1.70	10	D						
1.70	11	LB						
1.70	9	ES				. . . 1.80m: Boulder (<200x200x150mm) of subangular siltstone.	1.90	
						Stiff yellowish orangish brown mottled grey slightly sandy SILT. Locally sandy. Sand is fine to coarse.		
2.00	12	ES						
2.00	13	D						
2.00	14	LB						
				≈		. . . 2.50m: Firm and stiff with occasional thin lenses (<100mm) of firm dark orangish brown mottled grey silty clay. Locally with frequent pockets of (<100mmx80mm) of black organic carbonaceous plant remains.	(2.00)	
							3.90	
3.90	17	LB				Dark brown gravelly clayey SAND with occasional very thin lenses (<25mm) of firm dark brown slightly sandy silty clay. Sand is fine to coarse. Gravel is subangular to rounded fine to medium of quartzite, mudstone and flint.	4.00	
3.95	15	ES						
3.95	16	D						
						Trial pit terminated at 4.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. Water seepage at 3.20m-3.90m - rose 5cm - 20min.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP19
Contract Ref:	Start: 28.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 28.09.22	75.72	E:446353.6 N:324934.2	2 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP19**
Contract Ref:	Start: **28.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **28.09.22**	**75.72**	**E:446353.6 N:324934.2**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP19
Contract Ref:	Start: 28.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 28.09.22	75.72	E:446353.6 N:324934.2	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

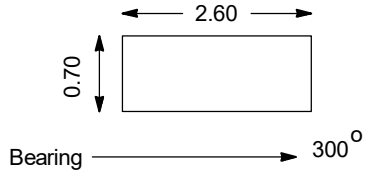
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP20**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.10.22**	**70.53**	**E:446370.4 N:324823.6**	**1** of **4**
	End: **06.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL.	(0.35)	
0.20	2	D					0.35	
0.50	3	ES				Compact dark yellowish orangish brown slightly gravelly sandy SILT.	(0.75)	
0.50	4	D					1.10	
1.20	6	ES				Dark reddish brown silty SAND. Sand is fine to coarse.	(0.50)	
1.20	7	D					1.60	
1.70	10	D				Firm to stiff dark reddish brown mottled greenish grey slightly sandy CLAY. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)	(1.20)	
1.70-1.80	11	B						
1.70	9	ES						
1.70		V	c_u=80				2.80	
2.90	12	ES				Very stiff friable dark reddish brown slightly sandy CLAY with frequent very thin beds (<40mm) of reddish brown extremely weak mudstone and very weak light grey siltstone. (MERCIA MUDSTONE GROUP)	(0.50)	
2.90	13	D						
2.90-3.00	14	B					3.30	
						Trial pit terminated at 3.30m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP20**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**70.53**	**E:446370.4 N:324823.6**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP20**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**70.53**	**E:446370.4 N:324823.6**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP20**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**70.53**	**E:446370.4 N:324823.6**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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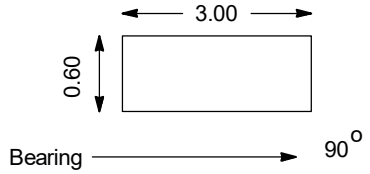
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP21**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.10.22**	**72.83**	**E:446314.3 N:324790.0**	**1** of **5**
	End: **06.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				TOPSOIL.	(0.30)	
0.15	2	D					0.30	
0.50	3	ES				Very stiff dark reddish brown mottled grey slightly sandy CLAY. Sand is fine to coarse with occasional very thin beds (<25mm) of very weak light grey siltstone. (MERCIA MUDSTONE GROUP)	(0.70)	
0.50	4	D				. . . Below 0.80m, friable.	1.00	
1.10	6	ES				Stiff to very stiff friable dark reddish brown slightly sandy CLAY with frequent beds (<40mm) of extremely weak dark reddish brown mudstone and very weak light grey siltstone. (MERCIA MUDSTONE GROUP)		
1.10	7	D						
1.10-1.20	8	B						
1.10		V	c_u=>140				(2.20)	
						. . . Below 2.90m: grading to extremely weak mudstone.		
3.10-3.20	9	B					3.20	
3.20	10	D				Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP21**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**72.83**	**E:446314.3 N:324790.0**	**2** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP21**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**72.83**	**E:446314.3 N:324790.0**	**3** of **5**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP21
Contract Ref:	Start: 06.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 06.10.22	72.83	E:446314.3 N:324790.0	4 of 5

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP21
Contract Ref:	Start: 06.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 06.10.22	72.83	E:446314.3 N:324790.0	5 of 5

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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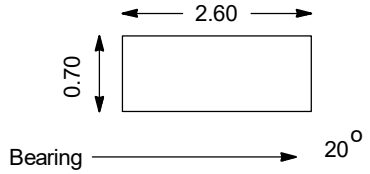
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.10.22**	**71.96**	**E:445927.4 N:324535.6**	**1** of **4**
	End: **05.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				TOPSOIL	(0.30)	
0.15	2	D					0.30	
0.40	3	ES				Stiff yellowish brown and orangish brown slighty sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz and flint.	(0.90)	
0.40	4	D						
0.50-0.50	5	B					1.20	
1.30	6	ES				Firm stiff dark orangish reddish brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartz, flint, chalk, siltstone, sandstone and mudstone, with frequent pockets (<50x30) of yellow and orange silt and sand with occasional very thin lenses (<40mm) of red brown fine to coarse sand.	(2.10)	
1.30	7	D						
1.30-1.40	8	B						
				1			3.30	
3.40	10	D				Dark orangish brown slightly gravelly silty SAND. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartz and flint.	(0.30)	
3.40-3.50	11	B						
3.40	9	ES					3.60	
						Trial pit terminated at 3.60m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP22
Contract Ref:	Start: 05.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 05.10.22	71.96	E:445927.4 N:324535.6	2 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP22**
Contract Ref:	Start: **05.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**71.96**	**E:445927.4 N:324535.6**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP22
Contract Ref:	Start: 05.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 05.10.22	71.96	E:445927.4 N:324535.6	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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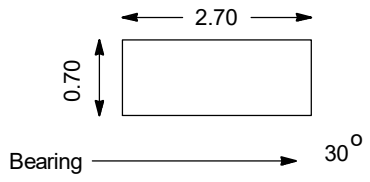
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**71.31**	**E:446025.7 N:324549.2**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.40)	
0.20	1	ES						
0.20	2	D					0.40	
						Very stiff dark reddish brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartz and flint.	(0.40)	
0.50	3	ES						
0.50	4	D						
0.50-0.60	5	B						
0.70-1.00	8	B					0.80	
						Stiff to very stiff friable dark reddish brown slightly sandy CLAY with occasional very thin beds (<25mm) of light greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(2.40)	
0.90	6	ES						
0.90	7	D						
0.90		V	c_u=120					
2.90-3.00	9	B						
3.00	10	D					3.20	
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP23
Contract Ref:	Start: 05.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 05.10.22	71.31	E:446025.7 N:324549.2	2 of 3

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP23
Contract Ref:	Start: 05.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 05.10.22	71.31	E:446025.7 N:324549.2	3 of 3

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

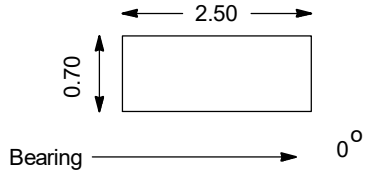
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**05.10.22** End: **05.10.22**	**69.09**	**E:446132.1 N:324501.5**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.05	1	ES				TOPSOIL	0.10	
0.05	2	D				Compact dark yellowish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of quartz and flint. Cobbles (<100x90x60mm) are rounded of quartz.	(0.40)	
0.30	3	ES					0.50	
0.30	4	D						
0.30-0.40	5	B						
0.60	6	ES				Stiff to very stiff friable dark reddish brown and light grey slightly sandy CLAY with frequent very thin beds (<60mm) of very weak light grey siltstone. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)	(0.60)	
0.60	7	D						
0.60-0.70	8	B						
0.60		V	c_u=110				1.10	
1.20	10	D				Stiff to very stiff dark reddish brown slightly sandy CLAY with frequent very thin beds (<40mm) of extremely weak to very weak dark reddish brown mudstone. (MERCIA MUDSTONE GROUP)	(2.00)	
1.20-1.30	11	B						
1.20	9	ES						
1.20		V	c_u=120				3.10	
						Trial pit terminated at 3.10m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP24
Contract Ref:	Start: 05.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 05.10.22	69.09	E:446132.1 N:324501.5	2 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP24**
Contract Ref:	Start: **05.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **05.10.22**	**69.09**	**E:446132.1 N:324501.5**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP24
Contract Ref:	Start: 05.10.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 05.10.22	69.09	E:446132.1 N:324501.5	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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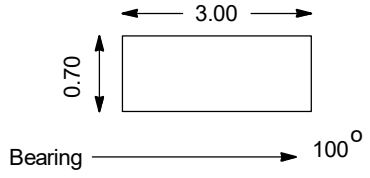
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**27.09.22** End: **27.09.22**	**65.37**	**E:446080.2 N:324450.2**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.40)	
0.20	1	ES						
0.20	2	D					0.40	
						Very stiff dark orangish brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subangular fine to coarse of quartzite with occasional pockets (<10x10m) of black organic carbonised plant remains.	(0.50)	
0.60	3	ES						
0.60	4	D						
0.60-0.70	5	LB					0.90	
						Firm to stiff dark reddish brown, mottled grey, slightly sandy CLAY with occasional very thin beds (<30mm) of very weak light grey siltstone with frequent mudstone lithorelics. (<20x20mm) (MERCIA MUDSTONE GROUP)	(0.90)	
1.10	6	ES						
1.10	7	D						
1.10-1.20	8	LB					1.80	
						Stiff to very stiff friable dark reddish brown slightly sandy CLAY with frequent very thin beds (<40mm) of very weak reddish brown mudstone and light greenish grey siltstone. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)	(1.30)	
2.00	10	D						
2.00-2.10	11	LB						
2.00	9	ES					3.10	
						Very stiff locally friable dark reddish brown slightly sandy CLAY with frequent very thin beds (<30mm) of very weak light grey siltstone. (MERCIA MUDSTONE GROUP)	3.20	
3.20	12	ES						
3.20	13	D						
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP25**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**65.37**	**E:446080.2 N:324450.2**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP25**
Contract Ref:	Start: **27.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **27.09.22**	**65.37**	**E:446080.2 N:324450.2**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:	
Machine dug	**Tracked excavator**	**GKalaher**		AGS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP25
Contract Ref:	Start: 27.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 27.09.22	65.37	E:446080.2 N:324450.2	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

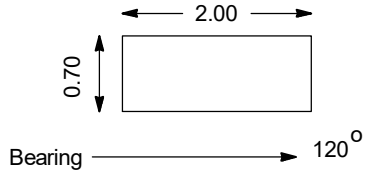
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP26**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**30.09.22** End: **30.09.22**	**76.87**	**E:445943.0 N:324731.8**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.40) 0.40	
0.20	1	ES						
0.20	2	D						
						Very stiff dark purplish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of siltstone.	(0.55) 0.95	
0.60	3	ES						
0.60	4	D						
0.60	5	LB						
0.60		V	c_u=>140					
						Stiff dark purplish brown mottled light grey and greenish grey slightly sandy CLAY. With frequent mudstone lithorelics (<10x10mm). With occasional thick laminae (<20mm) and very thin beds (<30mm) of extremely weak light greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(0.55) 1.50	
1.10	6	ES						
1.10	7	D						
1.10	8	LB						
						Stiff to very stiff friable dark reddish brown mottled greenish grey slightly sandy CLAY. With occasional very thin beds (<30mm) of very weak dark reddish brown mudstone and light greenish grey siltstone. With frequent mudstone lithorelics (<20x20mm). (MERCIA MUDSTONE GROUP)	(0.50) 2.00	
1.60	10	D						
1.60	11	LB						
1.60	9	ES						
						Trial pit terminated at 2.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.
3. Soakaway carried out at 2.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP26**
Contract Ref:	Start: **30.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **30.09.22**	**76.87**	**E:445943.0 N:324731.8**	**2** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP26
Contract Ref:	Start: 30.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 30.09.22	76.87	E:445943.0 N:324731.8	3 of 3

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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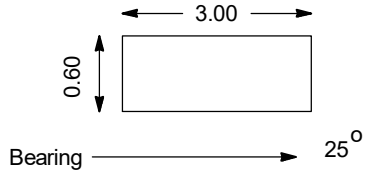
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22**	**74.42**	**E:446148.2 N:324654.3**	**1** of **4**
	End: **26.09.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL.	(0.40)	
0.20	1	ES					0.40	
0.20	2	D						
0.20-0.30	3	B						
						Very stiff light brown and light grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subangular tabular of siltstone.	0.65	
0.50	4	ES				(MERCIA MUDSTONE GROUP)		
0.50	5	D						
0.50-0.60	6	B						
0.70	7	ES				Very stiff dark reddish brown slightly sandy CLAY with occasional mudstone lithorelics. (<10x10m) Sand is fine to coarse. (MERCIA MUDSTONE GROUP)	(0.85)	
0.70	8	D						
0.70-0.80	9	B						
0.70		V	c_u=>140				1.50	
						Stiff to very stiff friable dark reddish brown slightly sandy CLAY with frequent mudstone lithorelics with occasional very thin beds (<25mm) of light grey siltstone. (MERCIA MUDSTONE GROUP)		
1.60	10	ES						
1.60	11	D						
1.60-1.70	12	B						
1.60		V	c_u=>140				(1.50)	
						. . . 2.50m: With frequent thick laminate to very thin beds (<30mm) of reddish brown mudstone.		
2.60-2.70	13	B						
2.60	14	D					3.00	
						Trial pit terminated at 3.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP27
Contract Ref:	Start: 26.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 26.09.22	74.42	E:446148.2 N:324654.3	2 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP27**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**74.42**	**E:446148.2 N:324654.3**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP27
Contract Ref:	Start: 26.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 26.09.22	74.42	E:446148.2 N:324654.3	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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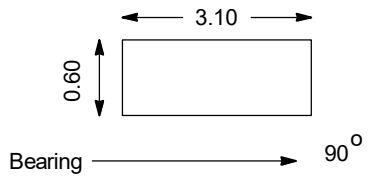
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP28**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.10.22**	**74.20**	**E:446254.6 N:324734.0**	**1** of **4**
	End: **06.10.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				TOPSOIL.	(0.30)	
0.15	2	D					0.30	
0.50	3	ES				Very stiff dark brown slightly sandy CLAY. Sand is fine to coarse.		
0.50	4	D						
0.50-0.60	5	B					(0.70)	
0.50		V	c_u=>140					
							1.00	
1.10	6	ES				Stiff to very stiff friable dark reddish brown and light greenish grey slightly sandy CLAY with frequent closely to medium spaced very thin beds (<40mm) of very weak light greenish grey siltstone. (MERCIA MUDSTONE GROUP)		
1.10	7	D						
1.10-1.20	8	B						
1.10		V	c_u=110					
						. . . Below 2.00m: Occasional siltstone and frequent extremely weak reddish brown mudstone beds.	(2.30)	
							3.30	
3.30-3.40	11	B				Extremely weak dark reddish brown MUDSTONE. (MERCIA MUDSTONE GROUP)	3.40	
3.35	10	D						
3.35	9	ES				Trial pit terminated at 3.40m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP28**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**74.20**	**E:446254.6 N:324734.0**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP28**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**74.20**	**E:446254.6 N:324734.0**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP28**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**74.20**	**E:446254.6 N:324734.0**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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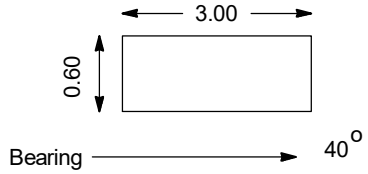
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP29**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22** End: **26.09.22**	**73.09**	**E:446243.6 N:324661.8**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.35)	
0.20	1	ES					0.35	
0.20	2	D						
0.20-0.30	3	B				Stiff to very stiff dark orangish reddish brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone and quartz.		
0.50	4	ES						
0.50	5	D						
0.50-0.60	6	B				. . . Below 0.70m: Friable.	(0.95)	
							1.30	
						Stiff dark reddish brown slightly sandy CLAY with frequent mudstone lithorelics. (<30x30m) with occasional thin beds (<40mm) of light greenish grey siltstone. (spacing - 300 to 800mm) (MERCIA MUDSTONE GROUP)		
1.40	7	ES						
1.40	8	D						
1.40-1.50	9	B				. . . Below 1.60m: Friable.	(1.80)	
2.40-2.50	10	B						
2.40	11	D						
						. . . Below 2.80m: With occasional thin to thick laminae (<20mm) of orangish brown SILT.	3.10	
						Trial pit terminated at 3.10m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP29**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**73.09**	**E:446243.6 N:324661.8**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP29
Contract Ref:	Start: 26.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 26.09.22	73.09	E:446243.6 N:324661.8	3 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP29**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**73.09**	**E:446243.6 N:324661.8**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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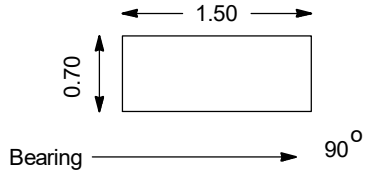
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP30**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**22.09.22** End: **22.09.22**	**66.68**	**E:446232.9 N:324495.5**	**1** of **3**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	0.20	
0.20-0.20	1	ES	1xT+1xJ+1xV			Very stiff dark reddish brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of sandstone and siltstone.	(0.60)	
0.20-0.20	2	D						
0.20-0.35	3	LB						
0.40-0.40	4	ES	1xT+1xJ+1xV				0.80	
0.40-0.40	5	D						
0.40-0.40	6	LB						
0.90-0.90	7	ES	1xT+1xJ+1xV			Stiff dark reddish brown friable slightly sandy CLAY. Sand is fine to coarse. Occasional very thin beds (<30mm) of light greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(0.45)	
0.90-0.90	8	D						
0.90-0.90	9	LB					1.25	
1.30-1.40	12	LB				Extremely weak dark reddish brown friable MUDSTONE with frequent very thin beds (<40mm) of very weak light greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(0.75)	
1.40-1.40	10	ES	1xT+1xJ+1xV					
1.40-1.40	11	D						
							2.00	
						Trial pit terminated at 2.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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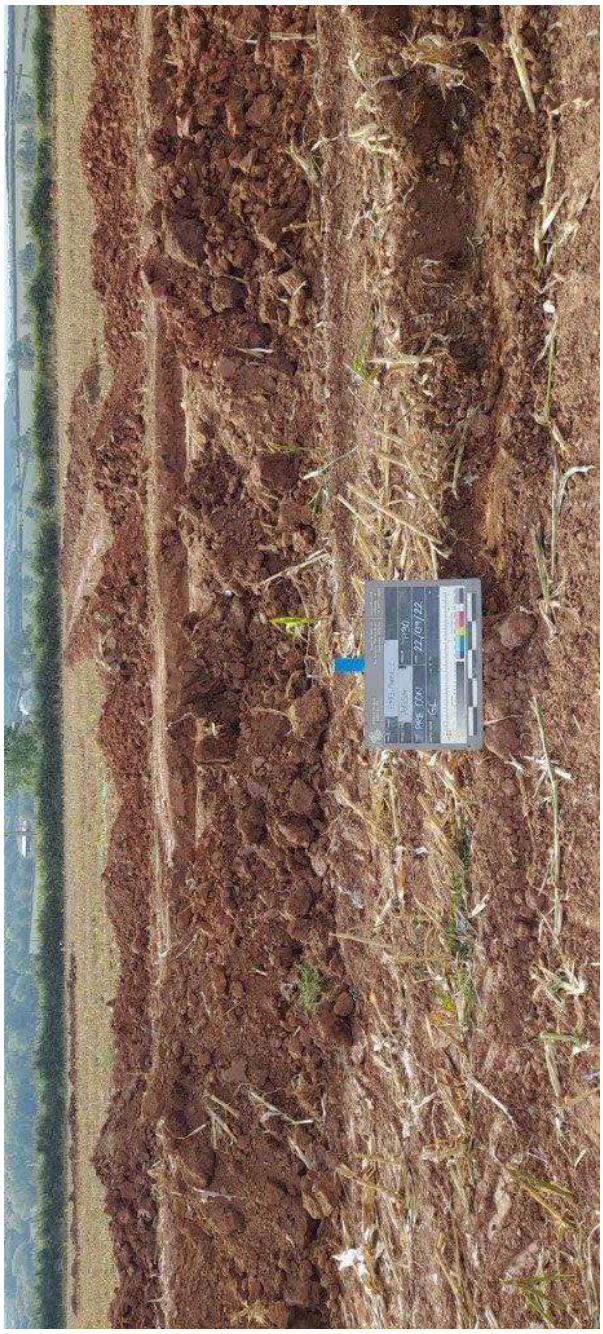
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP30
Contract Ref:	Start: 22.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 22.09.22	66.68	E:446232.9 N:324495.5	2 of 3



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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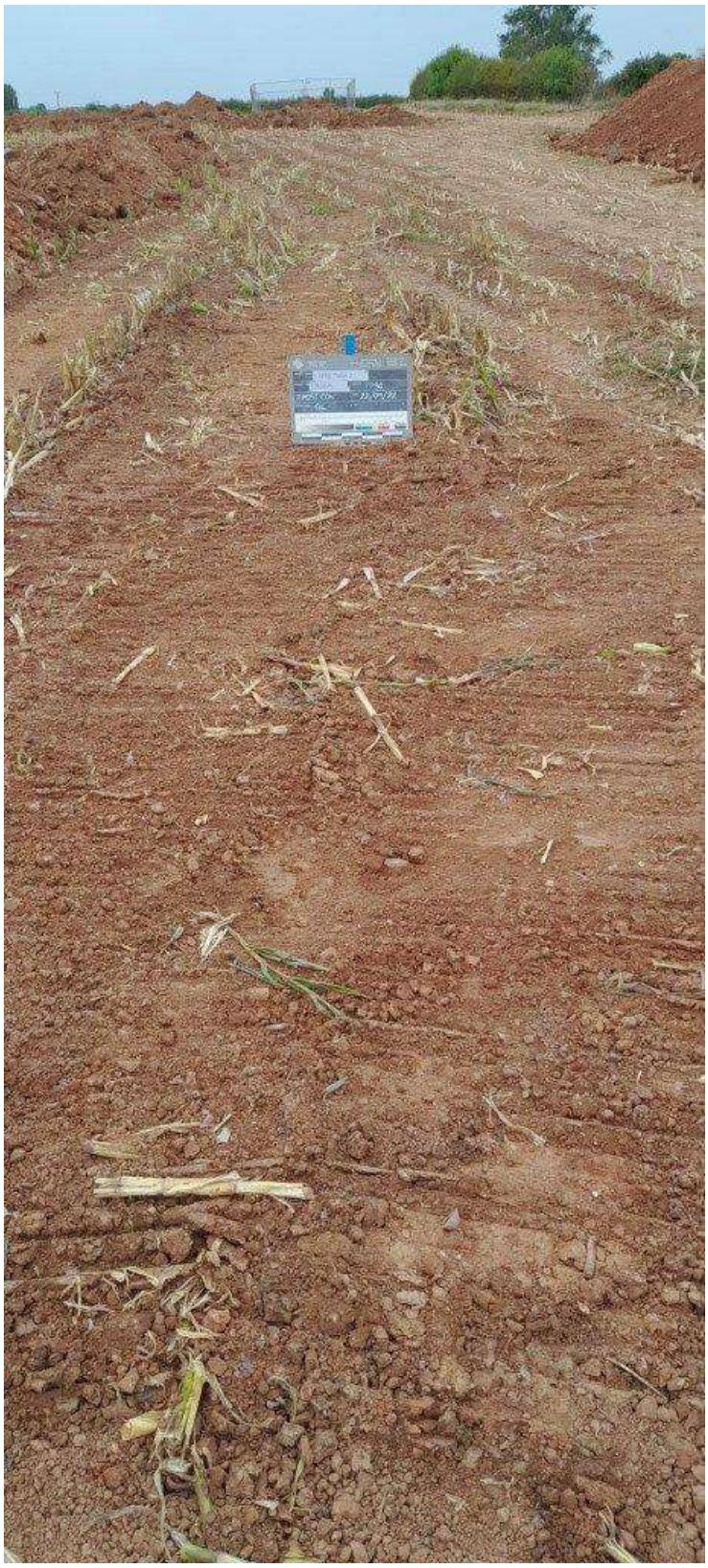
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP30
Contract Ref:	Start: 22.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 22.09.22	66.68	E:446232.9 N:324495.5	3 of 3



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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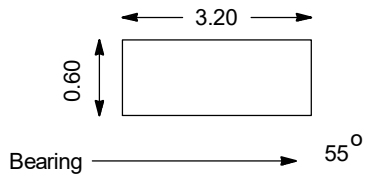
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP31**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**06.10.22** End: **06.10.22**	**70.79**	**E:446338.0 N:324723.9**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				TOPSOIL	(0.30)	
0.15	2	D					0.30	
0.40	3	ES				Very stiff dark reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of quartz.	(0.50)	
0.40	4	D						
0.40		V	c_u=120					
0.50-0.60	5	B					0.80	
0.90	6	ES				Stiff to very stiff friable dark orangish reddish brown slightly sandy CLAY with frequent mudstone lithorelics (<15x15mm) with occasional very thin beds (<60mm) of very weak light greenish grey siltstone and frequent very thin beds (<60mm) of extremely weak to very weak reddish brown mudstone. (MERCIA MUDSTONE GROUP)	(2.40)	
0.90	7	D						
0.90-1.00	8	B						
0.90		V	c_u=105					
2.90	10	D						
2.90-3.00	11	B						
2.90	9	ES					3.20	
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP31**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**70.79**	**E:446338.0 N:324723.9**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP31**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**70.79**	**E:446338.0 N:324723.9**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP31**
Contract Ref:	Start: **06.10.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **06.10.22**	**70.79**	**E:446338.0 N:324723.9**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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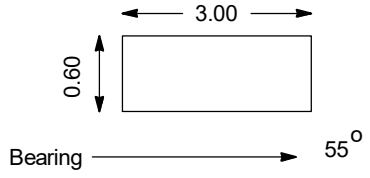
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP32**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**64.32**	**E:446337.6 N:324462.3**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.35)	
0.20	1	ES					0.35	
0.20	2	D						
0.20-0.30	3	B				Very stiff dark brown slightly sandy CLAY with frequent very thin beds (<30mm) of extremely weak light grey siltstone.	(0.55)	
0.50	4	ES						
0.50	5	D						
0.50-0.60	6	B					0.90	
						Stiff to very stiff dark orangish reddish brown slightly sandy CLAY. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)		
1.10	7	ES						
1.10	8	D						
1.10-1.20	9	B					(0.90)	
1.10		V	c_u=90/105					
							1.80	
1.80		V	c_u=90			Stiff to very stiff friable dark reddish brown slightly sandy CLAY with frequent mudstone lithorelics (<20x20mm) with occasional very thin beds (<30mm) of extremely weak brown mudstone. Sand is fine to coarse. (MERCIA MUDSTONE GROUP)		
2.00	10	ES						
2.00	11	D					(1.20)	
2.00-2.10	12	B						
							3.00	
						Trial pit terminated at 3.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP32**
Contract Ref:	Start: **23.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**64.32**	**E:446337.6 N:324462.3**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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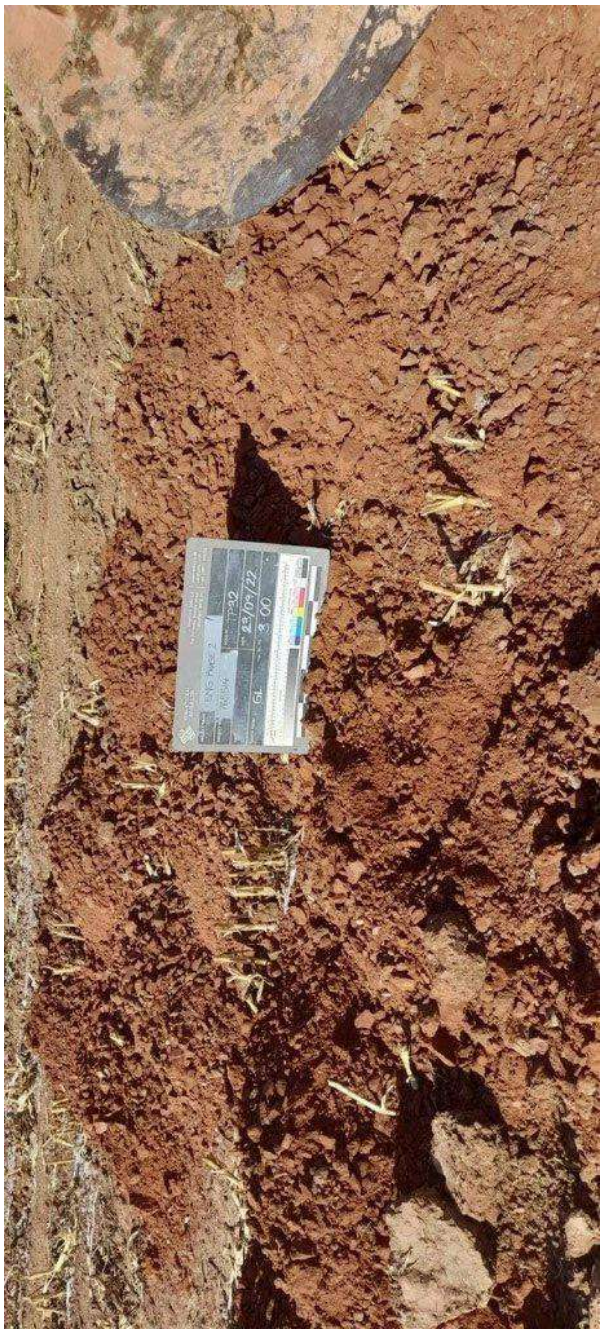
STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP32
Contract Ref:	Start: 23.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 23.09.22	64.32	E:446337.6 N:324462.3	3 of 4



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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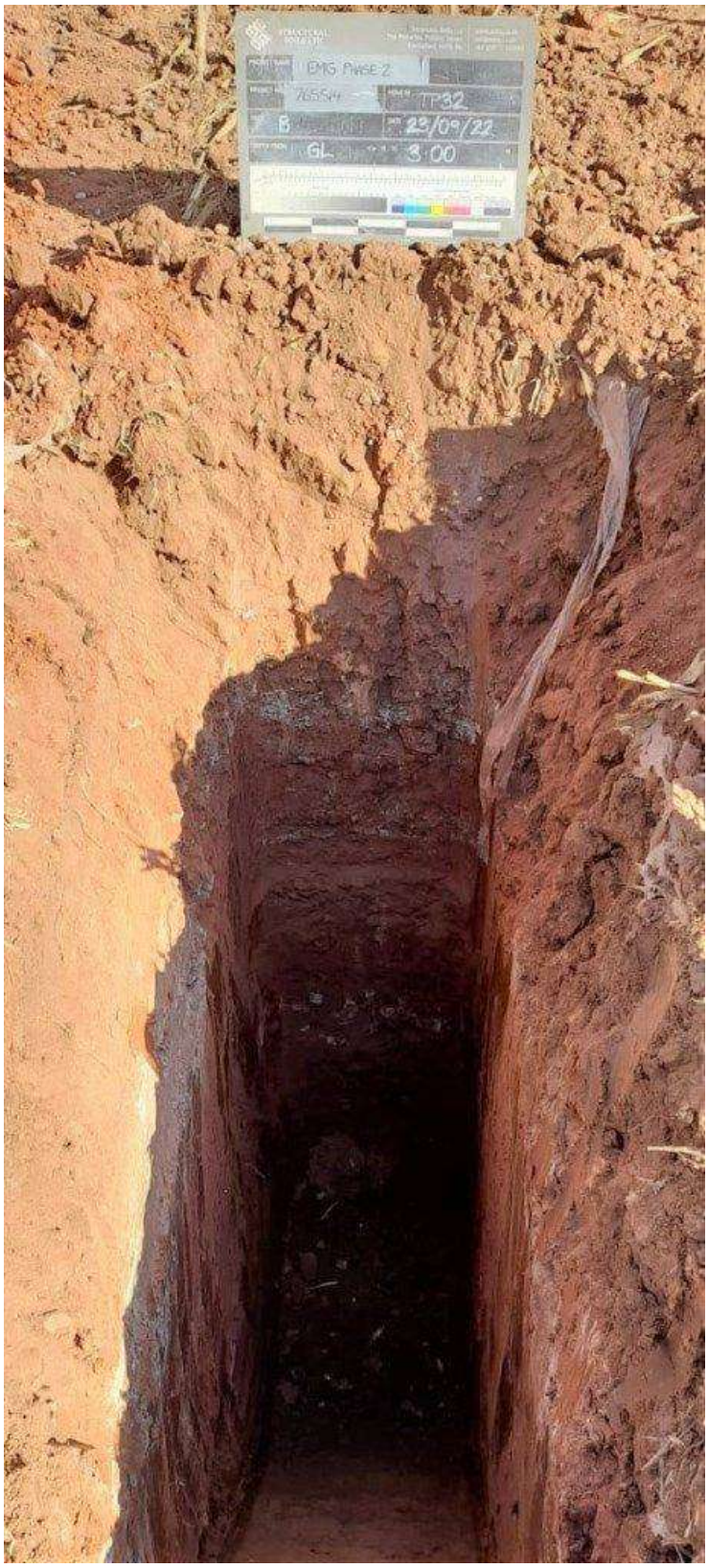
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP32
Contract Ref:	Start: 23.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 23.09.22	64.32	E:446337.6 N:324462.3	4 of 4



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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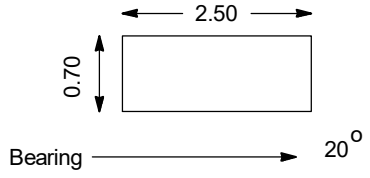
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP33**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**21.09.22** End: **21.09.22**	**66.58**	**E:446469.7 N:324711.9**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.35)	
0.20-0.20	1	ES	1xT+1xJ+1xV				0.35	
0.20-0.20	2	D						
0.20-0.35	3	LB				Very stiff reddish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular and subangular fine to coarse of mudstone and siltstone. (MERCIA MUDSTONE GROUP) . . . 0.50-0.60m: thin bedded (up to 100mm) of extremely weak lightl grey silstone. . . . 0.50-1.40m: become friable. . . . 0.75-1.40m: frequent mudstone lithorelicts (up to 25x25x30mm) and thick laminate of extremely weak mudstone (up to 20mm)	(1.05)	
0.40-0.40	4	ES	1xT+1xJ+1xV					
0.40-0.40	5	D						
0.40		V	c_u=140					
1.20-1.20	6	D					1.40	
1.20-1.40	7	LB						
1.50-1.50	8	ES	1xT+1xJ+1xV			Extremely weak dark reddish brown friable MUDSTONE. Occasional closely spaced thin beds (<40mm) of light greenish grey siltstone. (MERCIA MUDSTONE GROUP)		
1.50-1.50	9	D						
1.50		V	c_u=150				(1.40)	
2.20-2.80	10	LB						
2.20-2.20	11	D					2.80	
2.90-2.90	12	ES	1xT+1xJ+1xV			Extremely weak dark reddish brown MUDSTONE. Occasional thin beds of extremely weak and very weak light greenish grey siltstone. (MERCIA MUDSTONE GROUP)	(0.40)	
2.90-2.90	13	D						
2.90-3.20	14	LB					3.20	
						Trial pit terminated at 3.20m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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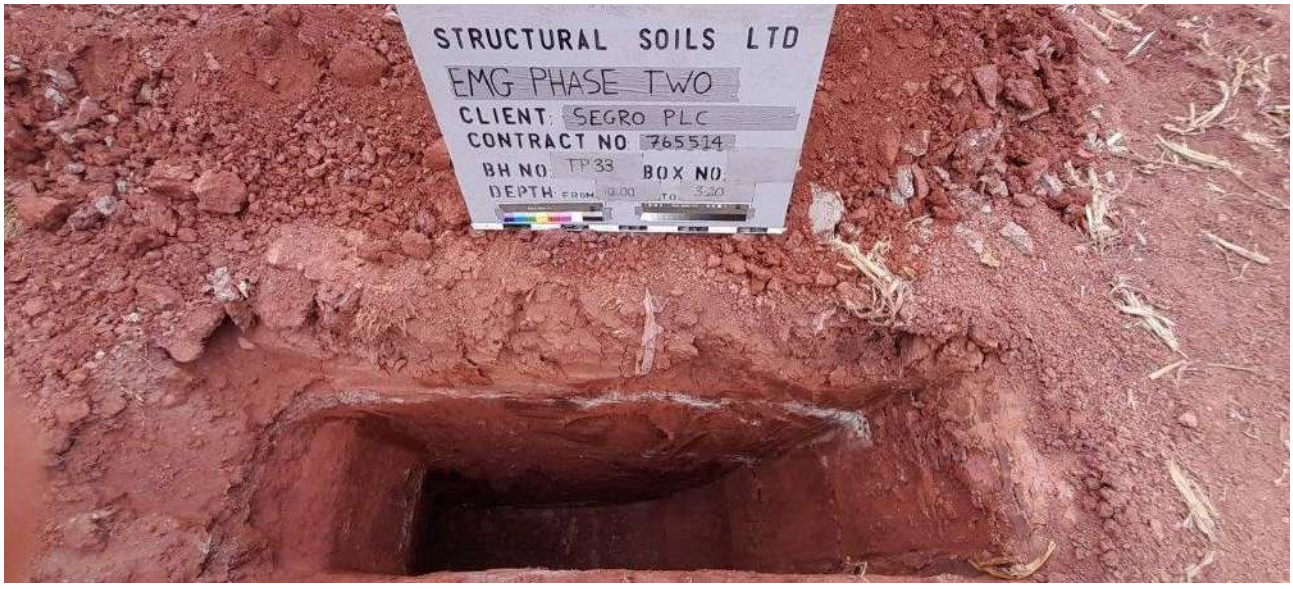
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP33**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**66.58**	**E:446469.7 N:324711.9**	**2** of **4**



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP33
Contract Ref:	Start: 21.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 21.09.22	66.58	E:446469.7 N:324711.9	3 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP33**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**66.58**	**E:446469.7 N:324711.9**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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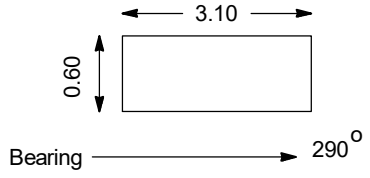
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP34**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**23.09.22** End: **23.09.22**	**60.51**	**E:446451.3 N:324450.0**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL	(0.40)	
0.20	2	D					0.40	
0.20-0.30	3	B				Firm to stiff dark reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of siltstone. (MERCIA MUDSTONE GROUP)	(0.80)	
0.50	4	ES						
0.50	5	D						
0.50-0.60	6	B				. . . 1.00-1.10m: Very thin bed (<100mm) of very weak light greenish grey siltstone.	1.20	
1.30	7	ES				Stiff to very stiff friable dark reddish brown slightly sandy CLAY with frequent mudstone lithorelics . (<30x30mm) (MERCIA MUDSTONE GROUP)	(0.80)	
1.30	8	D						
1.30-1.40	9	B					2.00	
2.10	10	ES				Extremely weak dark purplish brown MUDSTONE with occasional light greenish grey reduction horizons. (<20mm) (MERCIA MUDSTONE GROUP)	(1.10)	
2.10	11	D				. . . 2.30-2.45m: Extremely weak light greenish grey siltstone.		
2.10-2.20	12	B				. . . 2.60m: Friable.	3.10	
						Trial pit terminated at 3.10m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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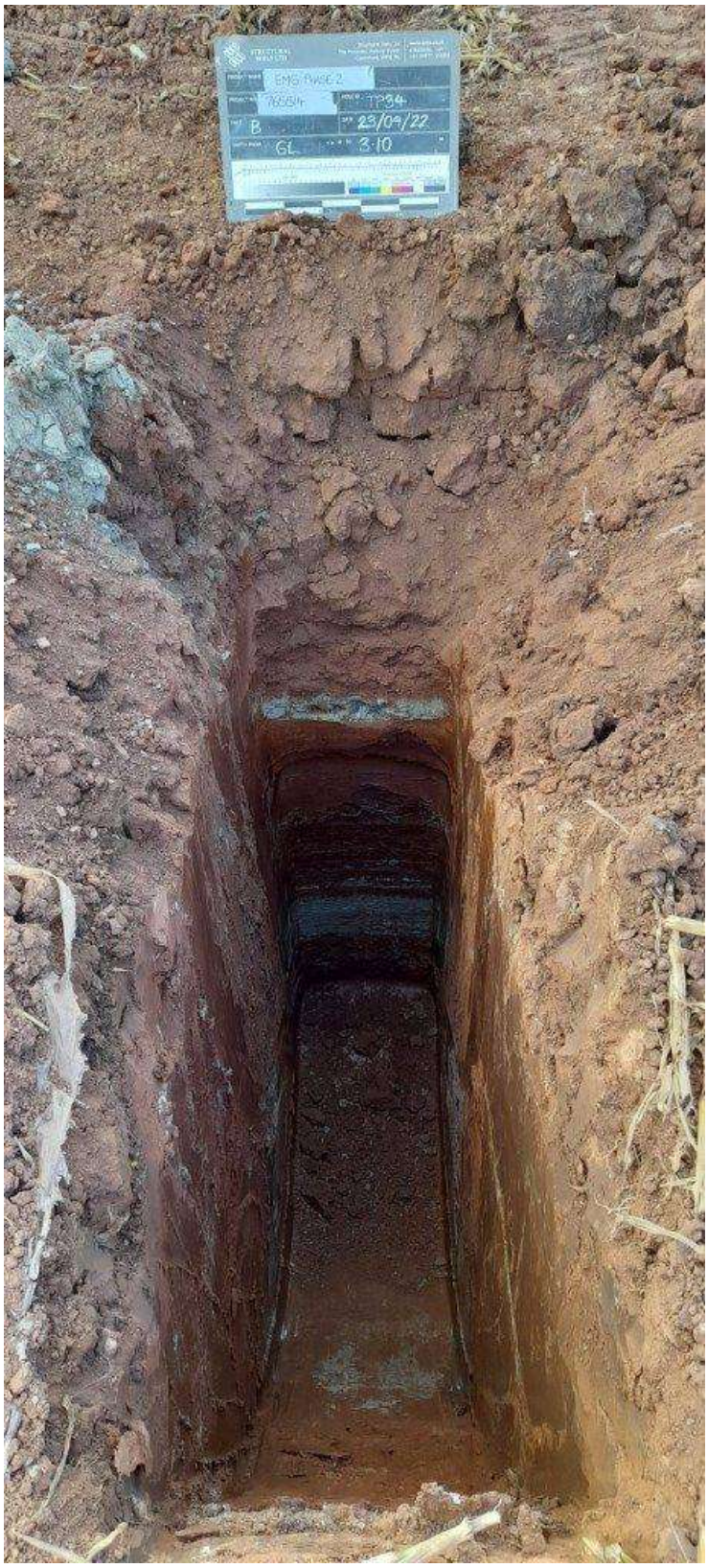
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP34
Contract Ref:	Start: 23.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 23.09.22	60.51	E:446451.3 N:324450.0	2 of 4



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP34**
Contract Ref:	Start: **23.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**60.51**	**E:446451.3 N:324450.0**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP34
Contract Ref:	Start: 23.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 23.09.22	60.51	E:446451.3 N:324450.0	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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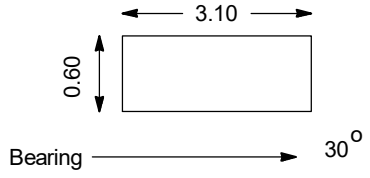
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP35**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**23.09.22** End: **23.09.22**	**59.52**	**E:446518.6 N:324546.7**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.30) 0.30	
0.20	1	ES						
0.20	2	D						
0.20-0.30	3	B						
0.40	4	ES						
0.40-0.50	5	B				Compact friable dark orangish brown slightly sandy SILT. Sand is fine to coarse with occasional pockets (<40x30) of light grey silt and black organic carbonaceous material.	(0.80) 1.10	
1.10		V	c_u=110/116					
1.20	6	ES				Stiff dark orangish brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartz and flint. Occasional pockets (<30x30mm) of yellow and grey silt.	(0.50) 1.60	
1.20	7	D						
1.20-1.30	8	B						
1.30		V	c_u=56/70/90			. . . 1.30m: Locally with frequent thin lenses (<20mm) of light yellow and orange silt. Becoming firm to stiff.		
1.60		V	c_u=40			Firm to stiff dark reddish brown mottled light grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of light grey siltstone. (MERCIA MUDSTONE GROUP)	(1.20) 2.80	
1.75	10	D						
1.75-1.85	11	B						
1.75	9	ES						
2.50		V	c_u=52	≈		. . . 2.50m: Stiff.		
						Very stiff friable dark reddish brown CLAY with abundant mudstone and siltstone lithorelics (<50x50mm). (MERCIA MUDSTONE GROUP) . . . 2.80m: Groundwater seepage (low inflow insufficient for water sample) No significant/measureable rise. . . . 3.00m: Becoming firm to stiff with frequent thin beds (<30mm) of light greenish grey siltstone. . . . 3.2-3.40m: Friable.	(0.60) 3.40	
						Trial pit terminated at 3.40m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP35**
Contract Ref:	Start: **23.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**59.52**	**E:446518.6 N:324546.7**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP35
Contract Ref:	Start: 23.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 23.09.22	59.52	E:446518.6 N:324546.7	3 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

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STRUCTURAL SOILS

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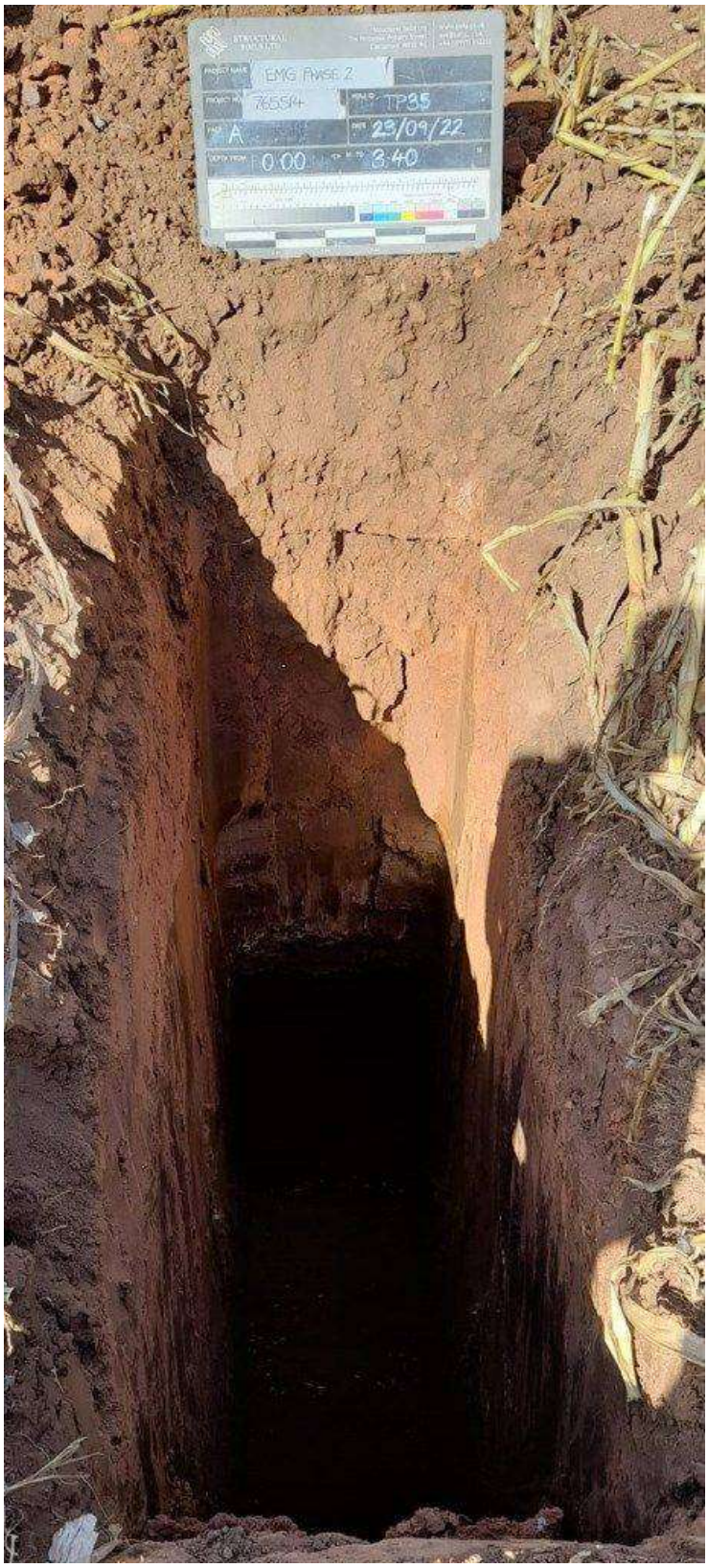
TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP35
Contract Ref:	Start: 23.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 23.09.22	59.52	E:446518.6 N:324546.7	4 of 4



Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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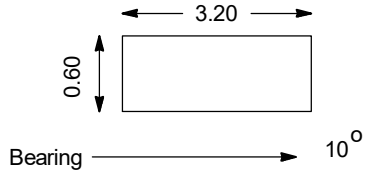
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP36**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**23.09.22** End: **23.09.22**	**71.78**	**E:446687.0 N:324743.3**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL	(0.30)	
0.10-0.20	3	B					0.30	
0.20	1	ES				Stiff to very stiff dark reddish brown slightly sandy slighty gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of quartz and mudstone.	(0.45)	
0.20	2	D						
0.45	4	ES						
0.45	5	D					0.75	
0.45	6	B				Stiff to very stiff dark reddish brown slightly sandy slightly gravelly CLAY with occasional very thin (<60mm) beds of very weak light grey siltstone. Sand is fine to coarse. Gravel is subangular fine to coarse of siltstone. (MERCIA MUDSTONE GROUP)	(0.35)	
0.80	7	ES					1.10	
0.80	8	D				Stiff to very stiff friable dark orangish brown slightly sandy slightly gravelly CLAY with frequent thin to thick laminae (<15mm) of orange silt, with occasional very thin beds (<30mm) of light greenish grey siltstone with occasional pockets (<4x4mm) of black organic carbonaceous plant remains. (MERCIA MUDSTONE GROUP)		
0.80-0.90	9	B						
1.10-1.30	12	B					(0.80)	
1.30	10	ES				. . . Below 1.30m: Reddish brown.		
1.30	11	D					1.90	
2.00	13	ES				Stiff dark reddish brown slightly sandy CLAY with frequent mudstone lithorelics (<25x25mm). Sand is fine to coarse. With frequent very thin beds (<35mm) of light grey and brown siltstone. (MERCIA MUDSTONE GROUP)		
2.00	14	D						
2.00-2.10	15	B					(0.80)	
2.00		V	c_r=62			. . . 2.50-2.70m: Thin bed (<200mm) of very weak light greenish grey siltstone.		
							2.70	
2.70-2.80	18	B				Extremely weak dark reddish brown locally light grey MUDSTONE. (MERCIA MUDSTONE GROUP)	2.80	
2.75	16	ES				Trial pit terminated at 2.80m depth.		
2.75	17	D						

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP36**
Contract Ref:	Start: **23.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**71.78**	**E:446687.0 N:324743.3**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP36**
Contract Ref:	Start: **23.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**71.78**	**E:446687.0 N:324743.3**	**3** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP36**
Contract Ref:	Start: **23.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **23.09.22**	**71.78**	**E:446687.0 N:324743.3**	**4** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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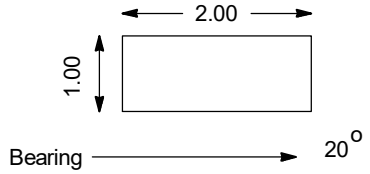
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP37**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**21.09.22** End: **21.09.22**	**55.37**	**E:446674.7 N:324413.8**	**1** of **4**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.10	1	ES	1xT+1xJ+1xV			Stiff dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of quartzite, granodiorite, siltstone and glass and ceramic tile and plastic sheet. (MADE GROUND - TOPSOIL)	(0.30)	
0.10-0.10	2	D						
0.10-0.10	3	LB					0.30	
0.40-0.40	4	ES	1xT+1xJ+1xV			Stiff dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of quartzite and flint.		
0.40-0.40	5	D						
0.60		V	c_u=90				(0.60)	
						. . . 0.80-0.90m: gravel is subangular fine to coarse of flint.		
							0.90	
1.00		V	c_u=110			Stiff dark brown, locally mottled dark grey, slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of quartzite, sandstone, siltstone.		
1.10-1.10	6	ES	1xT+1xJ+1xV				(0.45)	
1.10-1.10	7	D						
1.10-1.10	8	LB					1.35	
1.40-1.40	10	D				Firm multicoloured (dark brown, light brown, yellowish brown and grey) slightly gravelly sandy SILT, locally silty clay. Sand is fine to coarse. Gravel is angular and subangular fine to coarse of flint, sandstone and siltstone		
1.40-1.40	9	ES	1xT+1xJ+1xV					
1.40		V	c_u=38					
1.50-1.50	11	LB				. . . 1.60-2.00m: becoming firm to stiff silty CLAY. Occasional very thin beds of fine to coarse sand.	(0.65)	
							2.00	
						Trial pit terminated at 2.00m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. No groundwater encountered during excavation.
3. Soakaway carried out at 2.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP37**
Contract Ref:	Start: **21.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **21.09.22**	**55.37**	**E:446674.7 N:324413.8**	**2** of **4**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKalaher**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP37
Contract Ref:	Start: 21.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 21.09.22	55.37	E:446674.7 N:324413.8	3 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		SEGRO		TP37
Contract Ref:	Start: 21.09.22	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: 21.09.22	55.37	E:446674.7 N:324413.8	4 of 4

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	Tracked excavator	GKalaher	

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Log TRIAL PIT LOG - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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STRUCTURAL SOILS

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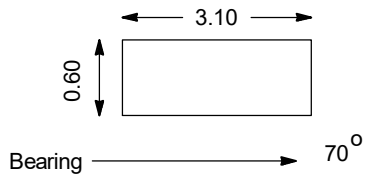
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
EMG Phase 2	**SEGRO**	**TP39**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	**26.09.22**	**---**	**---**	**1** of **3**
	End: **26.09.22**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15	1	ES				TOPSOIL	(0.30)	
0.15	2	D					0.30	
0.15-0.25	3	B				Very stiff dark brown slightly sandy slightly gravelly silty CLAY. Sand s fine to coarse. Gravel is subangular to rounded fine to coarse of quartz and mudstone.	0.55	
0.40	4	ES						
0.40	5	D						
0.40-0.50	6	B				Firm to stiff thinly to thickly laminated dark brown slightly sandy CLAY. Sand is fine to coarse.		
0.70	7	ES						
0.70	8	D						
0.70-0.80	9	B				. . . 0.80m: Stiff greyish brown.	(0.65)	
							1.20	
1.30	10	ES				Firm dark greyish brown and reddish brown slightly sandy gravelly silty CLAY with frequent pockets (<40x40mm) and thick laminae of yellow and orange silt. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite.	(0.40)	
1.30	11	D					1.60	
1.30-1.40	12	B						
1.80	13	ES		1		Firm to stiff dark reddish brown mottled light grey slightly sandy CLAY with frequent mudstone lithorelics (<30x30mm) with occasional very thin beds (<30mm) of extremely weak to very weak light grey siltstone. (MERCIA MUDSTONE GROUP)		
1.80	14	D						
1.80-1.90	15	B					(1.20)	
							2.80	
2.90	16	ES				Firm to stiff friable dark reddish brown slightly sandy silty CLAY with abundant mudstone lithorelics (<60x60x30mm). (MERCIA MUDSTONE GROUP)		
2.90	17	D						
2.90-3.00	18	B				. . . 3.00m: With frequent very thin beds (<50mm) of mudstone and siltstone.	(0.80)	
							3.60	
						Trial pit terminated at 3.60m depth.		

Plan (Not to Scale)



General Remarks

1. All faces similar and stable.
2. Water strike at 2.80m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKavanagh**	

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STRUCTURAL SOILS

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TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP39**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**---**	**---**	**2** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKavanagh**	

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STRUCTURAL SOILS

DRAFT

TRIAL PIT LOG

Contract:		Client:		Trial Pit:
EMG Phase 2		**SEGRO**		**TP39**
Contract Ref:	Start: **26.09.22**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
765514	End: **26.09.22**	**---**	**---**	**3** of **3**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**GKavanagh**	

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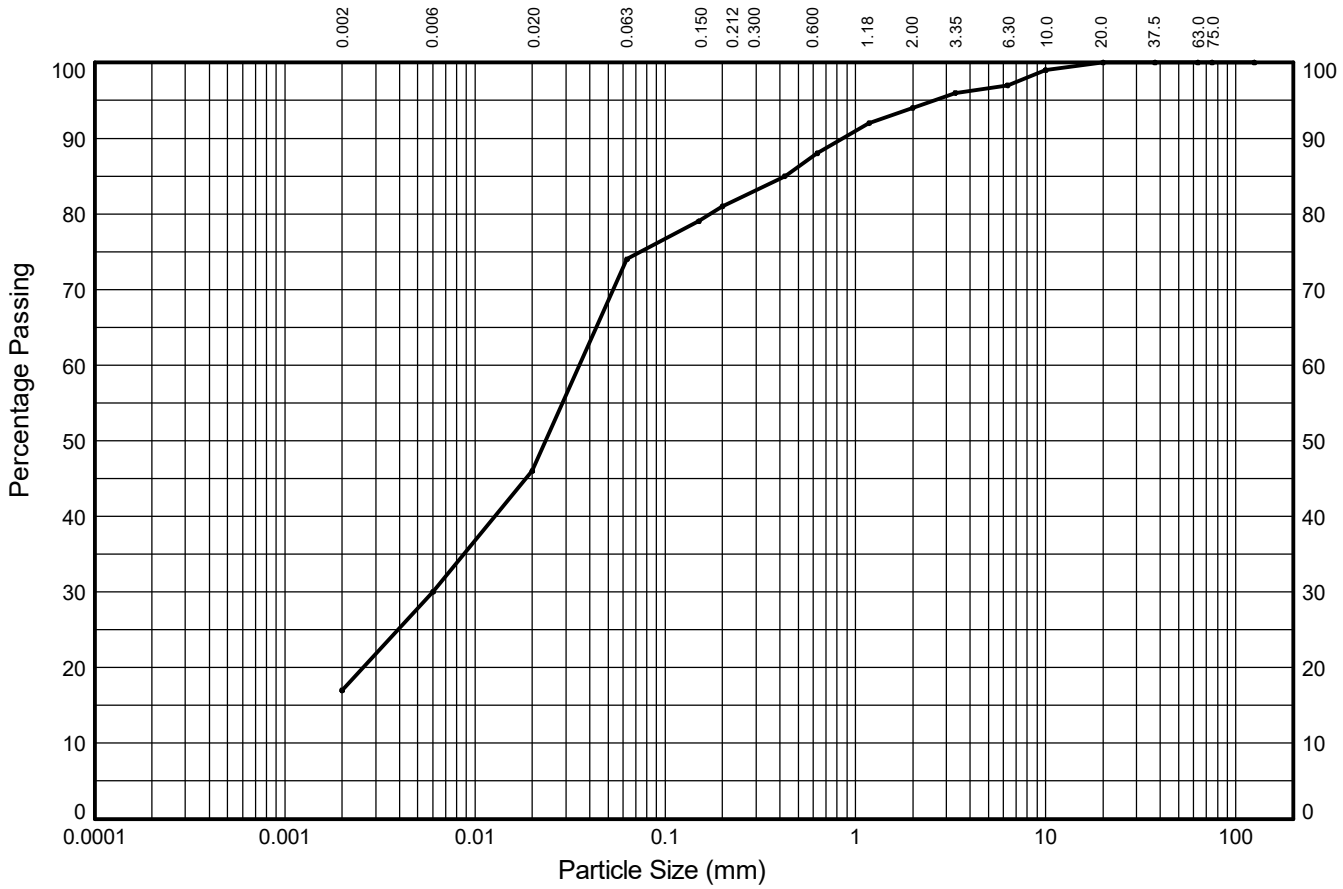
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH04** Sample Ref: **10** Sample Type: **D** Depth (m): **2.70**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	13%	16%	28%	7%	7%	6%	3%	3%	0%	
	SILT			SAND			GRAVEL			
17%	57%			20%			6%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**97**
3.35	**96**
2.00	**94**
1.18	**92**
0.630	**88**
0.425	**85**
0.200	**81**
0.150	**79**
0.063	**74**

Particle Diameter (mm)	Percent Passing (%)
0.02	**46**
0.006	**30**
0.002	**17**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.006**
D_{50} (mm)	**0.024**
D_{60} (mm)	**0.035**
D_{85} (mm)	**0.425**
D_{90} (mm)	**0.862**
C_U	**NA**
C_C	**NA**

Soil Description:

Red brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	27/02/23

Contract	Contract Ref:
EMG Phase 2	**765514**

AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - PSD - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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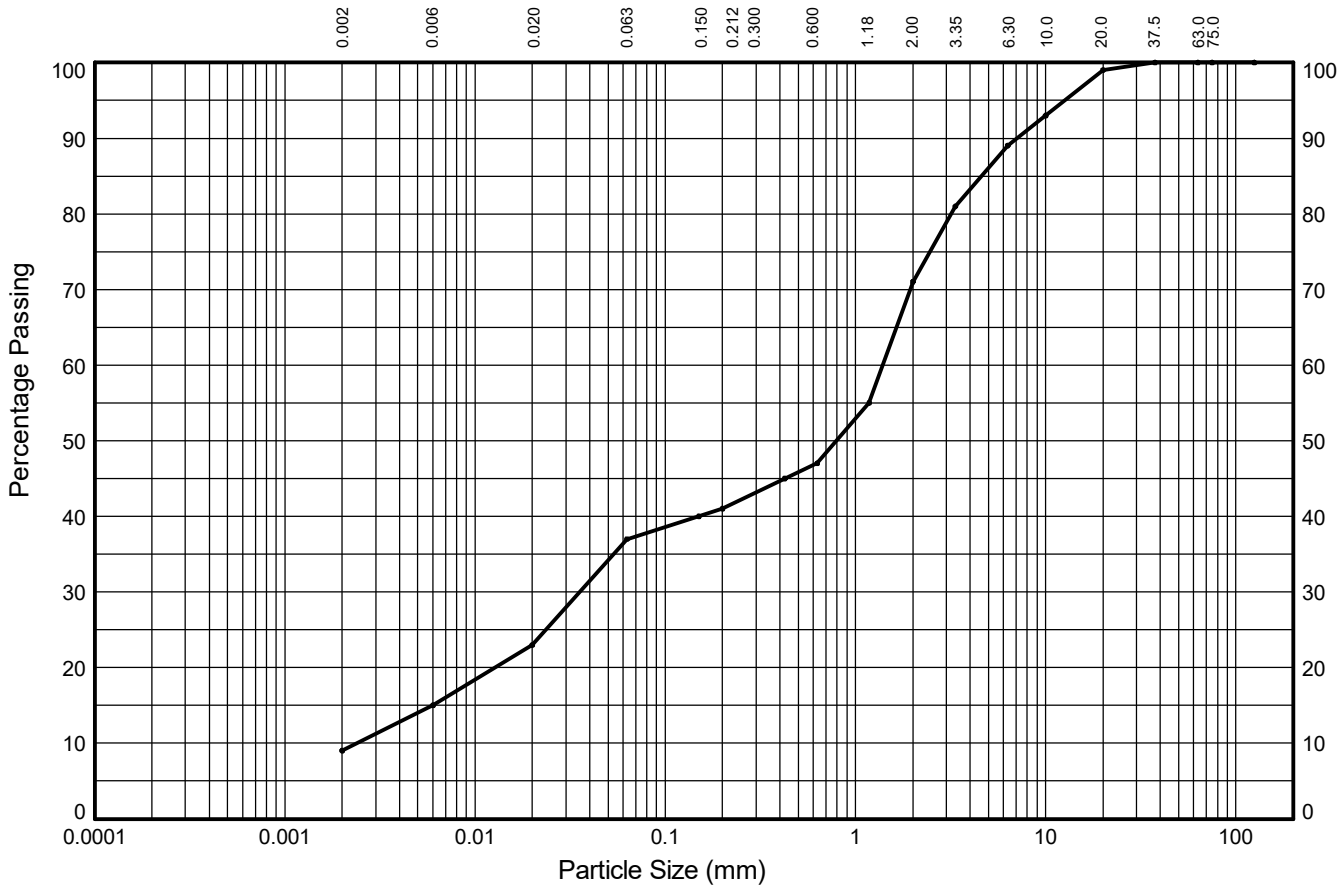
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH05** Sample Ref: **20** Sample Type: **B** Depth (m): **5.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	8%	14%	4%	6%	24%	18%	10%	1%	
	SILT			SAND			GRAVEL			
9%	28%			34%			29%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**99**
10.0	**93**
6.30	**89**
3.35	**81**
2.00	**71**
1.18	**55**
0.630	**47**
0.425	**45**
0.200	**41**
0.150	**40**
0.063	**37**

Particle Diameter (mm)	Percent Passing (%)
0.02	**23**
0.006	**15**
0.002	**9**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.006**
D_{30} (mm)	**0.035**
D_{50} (mm)	**0.797**
D_{60} (mm)	**1.392**
D_{85} (mm)	**4.594**
D_{90} (mm)	**7.071**
C_U	**579**
C_C	**0.38**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	27/02/23

Contract	Contract Ref:
EMG Phase 2	**765514**

AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - PSD - A4P | 765514_EAST_MIDLAND_AIRPORT.GPJ - v10_01.
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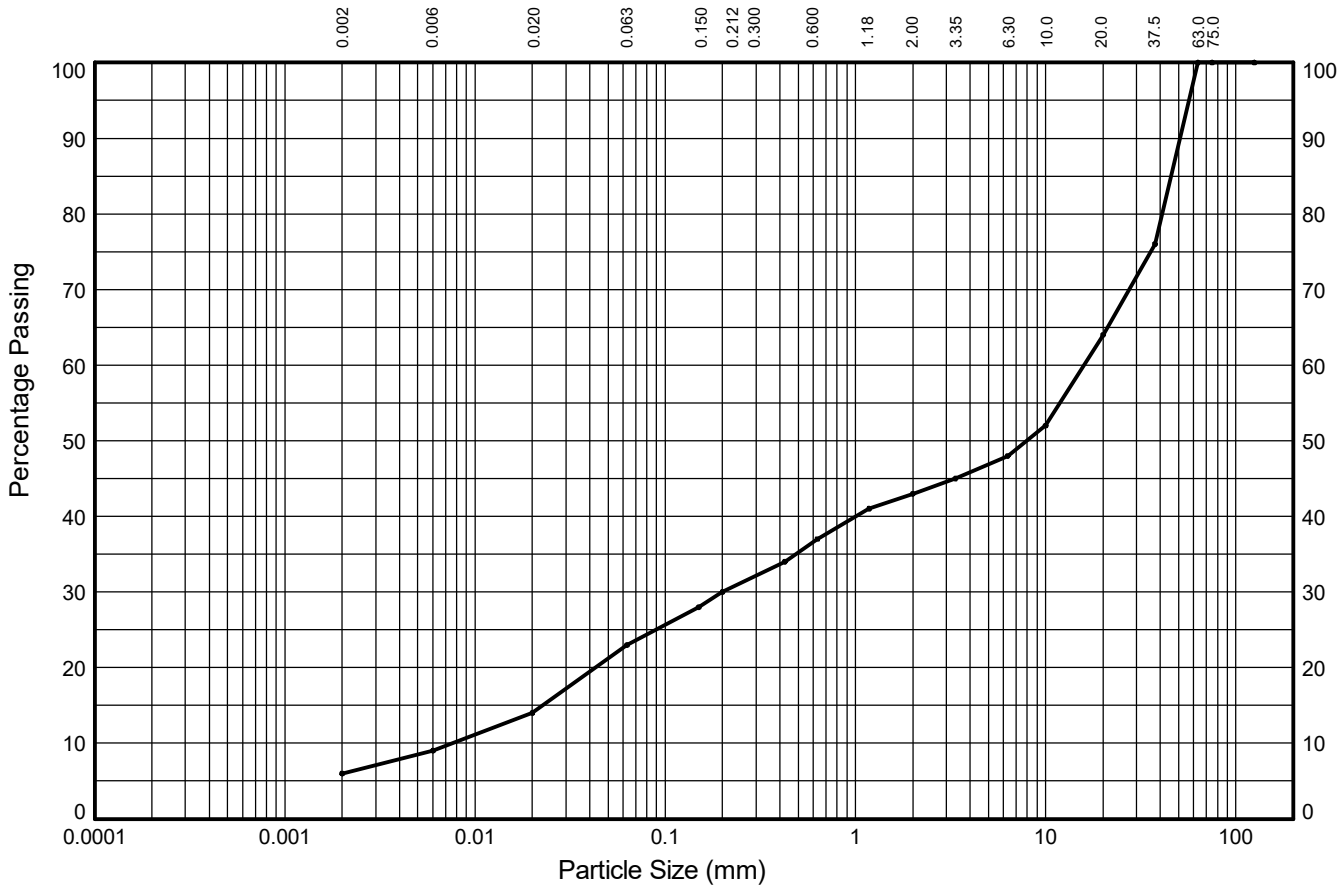
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

NON-STANDARD TEST

Borehole: **BH05** Sample Ref: **28** Sample Type: **B** Depth (m): **7.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	5%	9%	7%	7%	6%	5%	16%	36%	
	SILT			SAND			GRAVEL			
6%	17%			20%			57%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**76**
20.0	**64**
10.0	**52**
6.30	**48**
3.35	**45**
2.00	**43**
1.18	**41**
0.630	**37**
0.425	**34**
0.200	**30**
0.150	**28**
0.063	**23**

Particle Diameter (mm)	Percent Passing (%)
0.02	**14**
0.006	**9**
0.002	**6**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.008**
D_{15} (mm)	**0.023**
D_{30} (mm)	**0.200**
D_{50} (mm)	**7.937**
D_{60} (mm)	**15.874**
D_{85} (mm)	**45.554**
D_{90} (mm)	**50.753**
C_U	**2080**
C_C	**0.33**

Soil Description:

Brown sandy clayey silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Pottery Street
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Compiled By	Date
LAURA SCHRAMM	27/02/23

Contract	Contract Ref:
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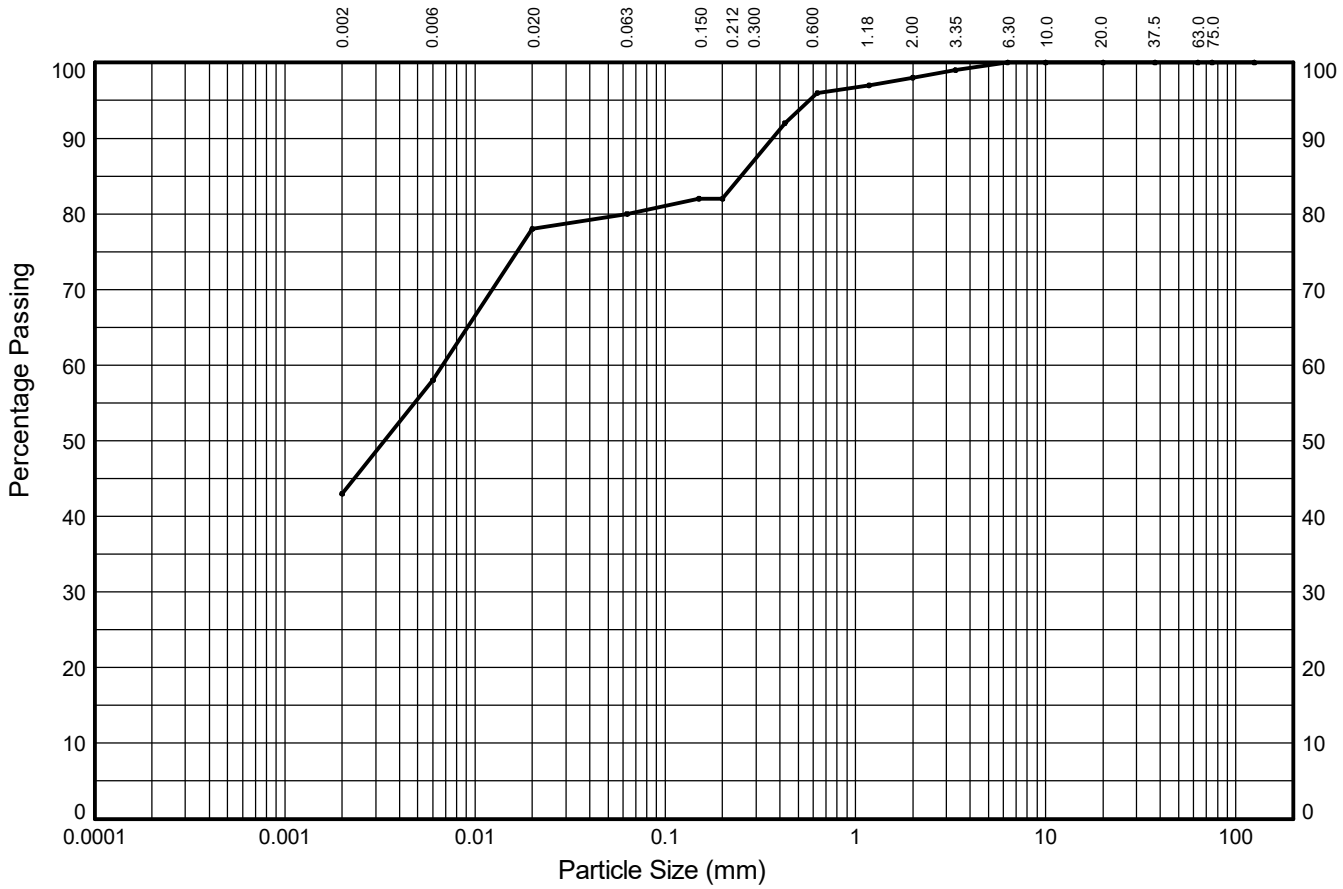
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH06** Sample Ref: **11** Sample Type: **B** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	15%	20%	2%	2%	14%	2%	2%	0%	0%	
	SILT			SAND			GRAVEL			
43%	37%			18%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**98**
1.18	**97**
0.630	**96**
0.425	**92**
0.200	**82**
0.150	**82**
0.063	**80**

Particle Diameter (mm)	Percent Passing (%)
0.02	**78**
0.006	**58**
0.002	**43**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.003**
D_{60} (mm)	**0.007**
D_{85} (mm)	**0.251**
D_{90} (mm)	**0.366**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy silty CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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Contract	Contract Ref:
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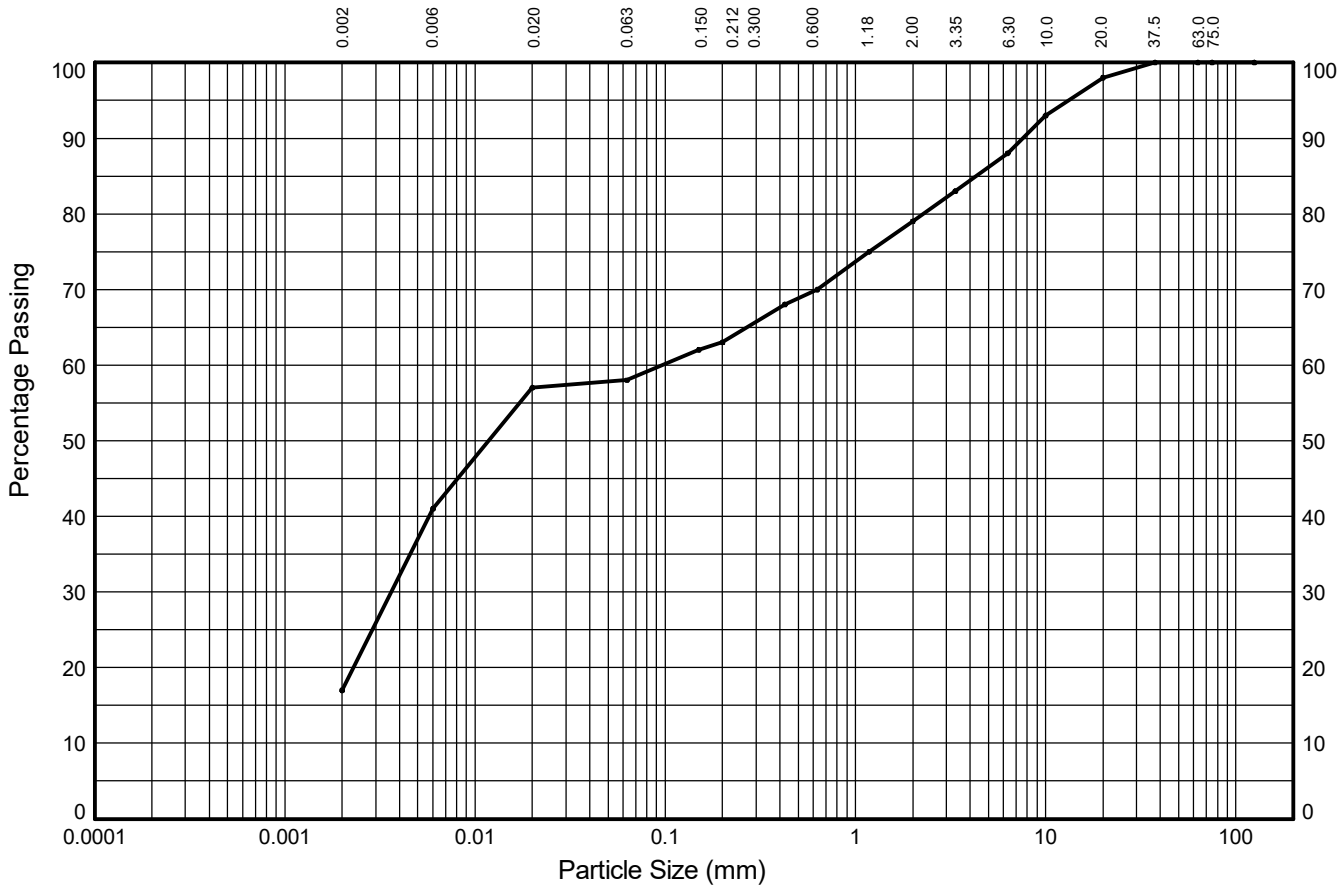
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2, 9.4 of BS1377:Part 2:1990

Borehole: **BH08** Sample Ref: **19** Sample Type: **B** Depth (m): **4.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	24%	16%	1%	5%	7%	9%	9%	10%	2%	
	SILT			SAND			GRAVEL			
17%	41%			21%			21%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**98**
10.0	**93**
6.30	**88**
3.35	**83**
2.00	**79**
1.18	**75**
0.600	
0.425	**68**
0.212	
0.150	**62**
0.063	**58**

Particle Diameter (mm)	Percent Passing (%)
0.02	**57**
0.006	**41**
0.002	**17**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.004**
D_{50} (mm)	**0.012**
D_{60} (mm)	**0.097**
D_{85} (mm)	**4.313**
D_{90} (mm)	**7.579**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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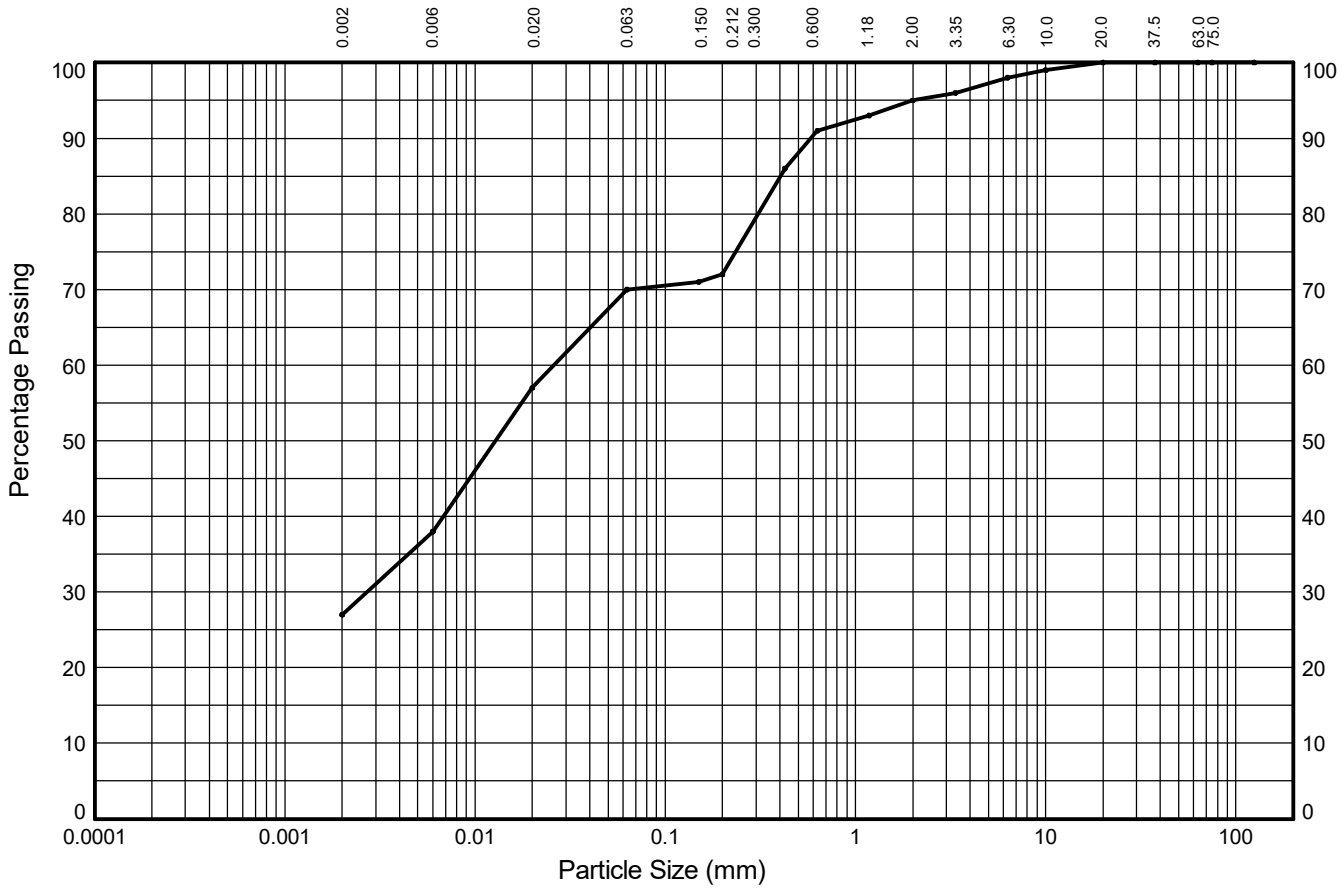
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH09** Sample Ref: **20** Sample Type: **B** Depth (m): **2.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	11%	19%	13%	2%	19%	4%	3%	2%	0%	
	SILT			SAND			GRAVEL			
27%	43%			25%			5%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**98**
3.35	**96**
2.00	**95**
1.18	**93**
0.630	**91**
0.425	**86**
0.200	**72**
0.150	**71**
0.063	**70**

Particle Diameter (mm)	Percent Passing (%)
0.02	**57**
0.006	**38**
0.002	**27**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.003**
D_{50} (mm)	**0.013**
D_{60} (mm)	**0.026**
D_{85} (mm)	**0.403**
D_{90} (mm)	**0.582**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown/red slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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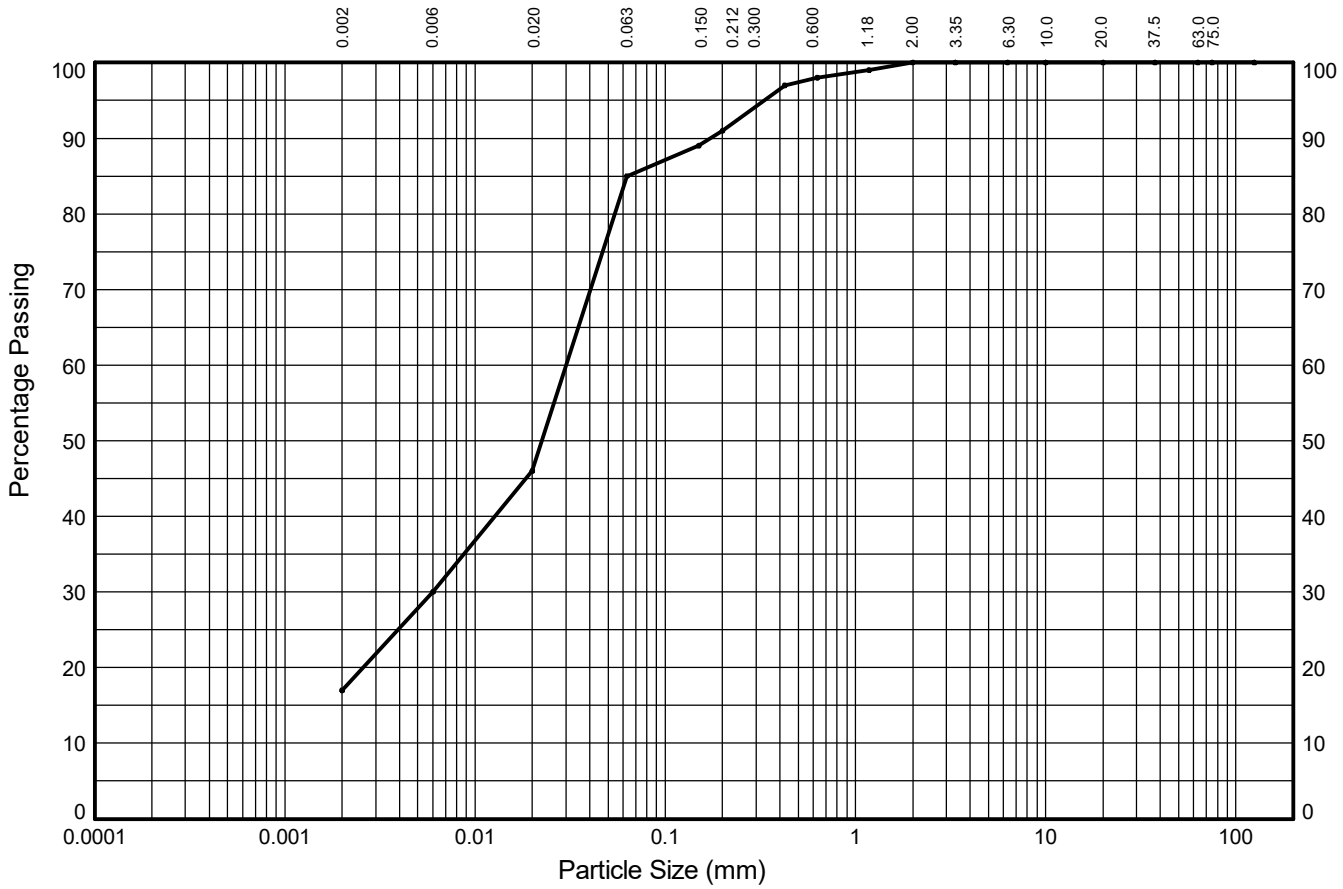
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH09** Sample Ref: **28** Sample Type: **B** Depth (m): **4.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	13%	16%	39%	6%	7%	2%	0%	0%	0%	
	SILT			SAND			GRAVEL			
17%	68%			15%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**99**
0.630	**98**
0.425	**97**
0.200	**91**
0.150	**89**
0.063	**85**

Particle Diameter (mm)	Percent Passing (%)
0.02	**46**
0.006	**30**
0.002	**17**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.006**
D_{50} (mm)	**0.022**
D_{60} (mm)	**0.030**
D_{85} (mm)	**0.063**
D_{90} (mm)	**0.173**
C_U	**NA**
C_C	**NA**

Soil Description:

Red brown slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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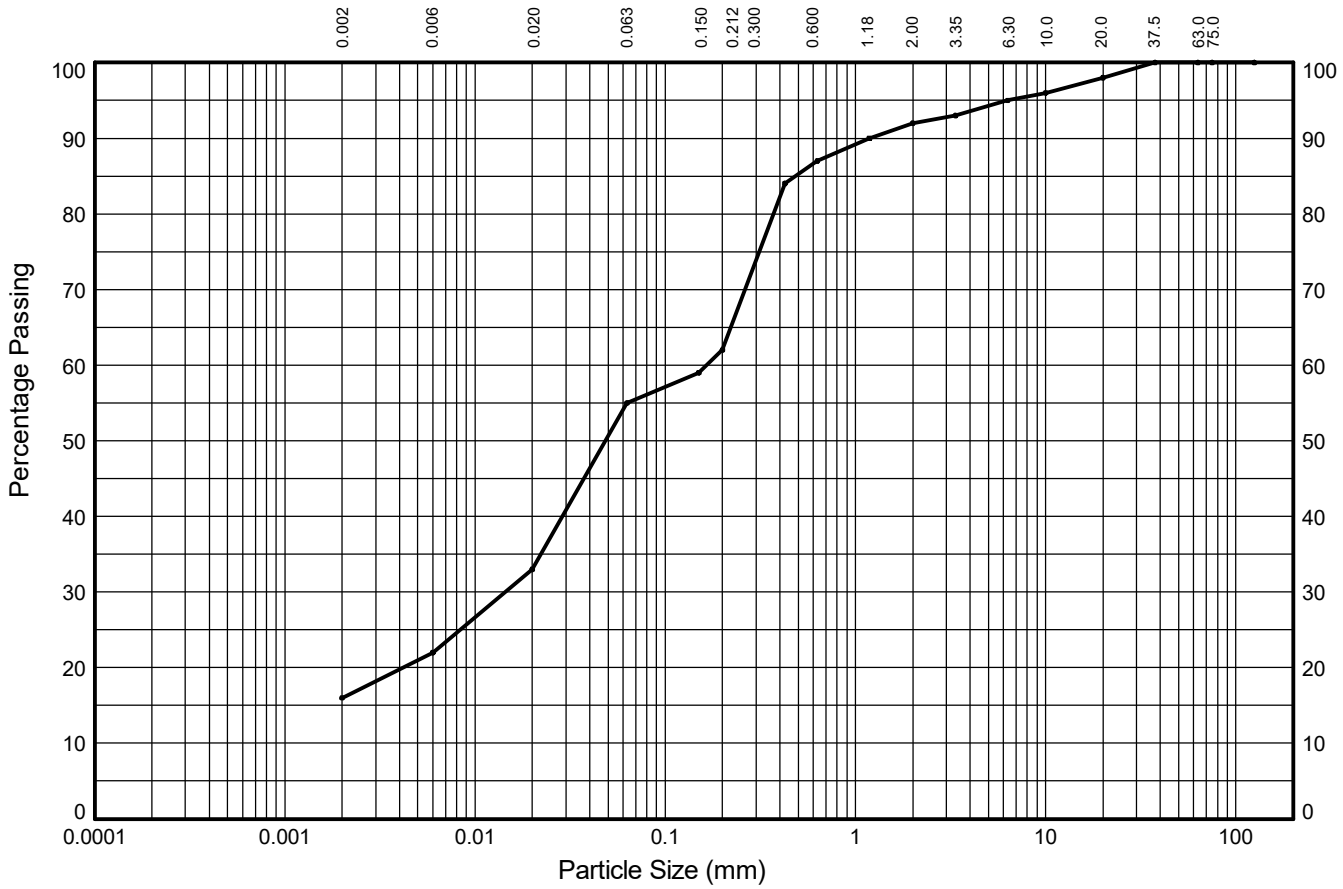
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH10** Sample Ref: **5** Sample Type: **B** Depth (m): **0.70**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	11%	22%	7%	25%	5%	3%	3%	2%	
	SILT			SAND			GRAVEL			
16%	39%			37%			8%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**98**
10.0	**96**
6.30	**95**
3.35	**93**
2.00	**92**
1.18	**90**
0.630	**87**
0.425	**84**
0.200	**62**
0.150	**59**
0.063	**55**

Particle Diameter (mm)	Percent Passing (%)
0.02	**33**
0.006	**22**
0.002	**16**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.014**
D_{50} (mm)	**0.049**
D_{60} (mm)	**0.165**
D_{85} (mm)	**0.485**
D_{90} (mm)	**1.180**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown grey slightly gravelly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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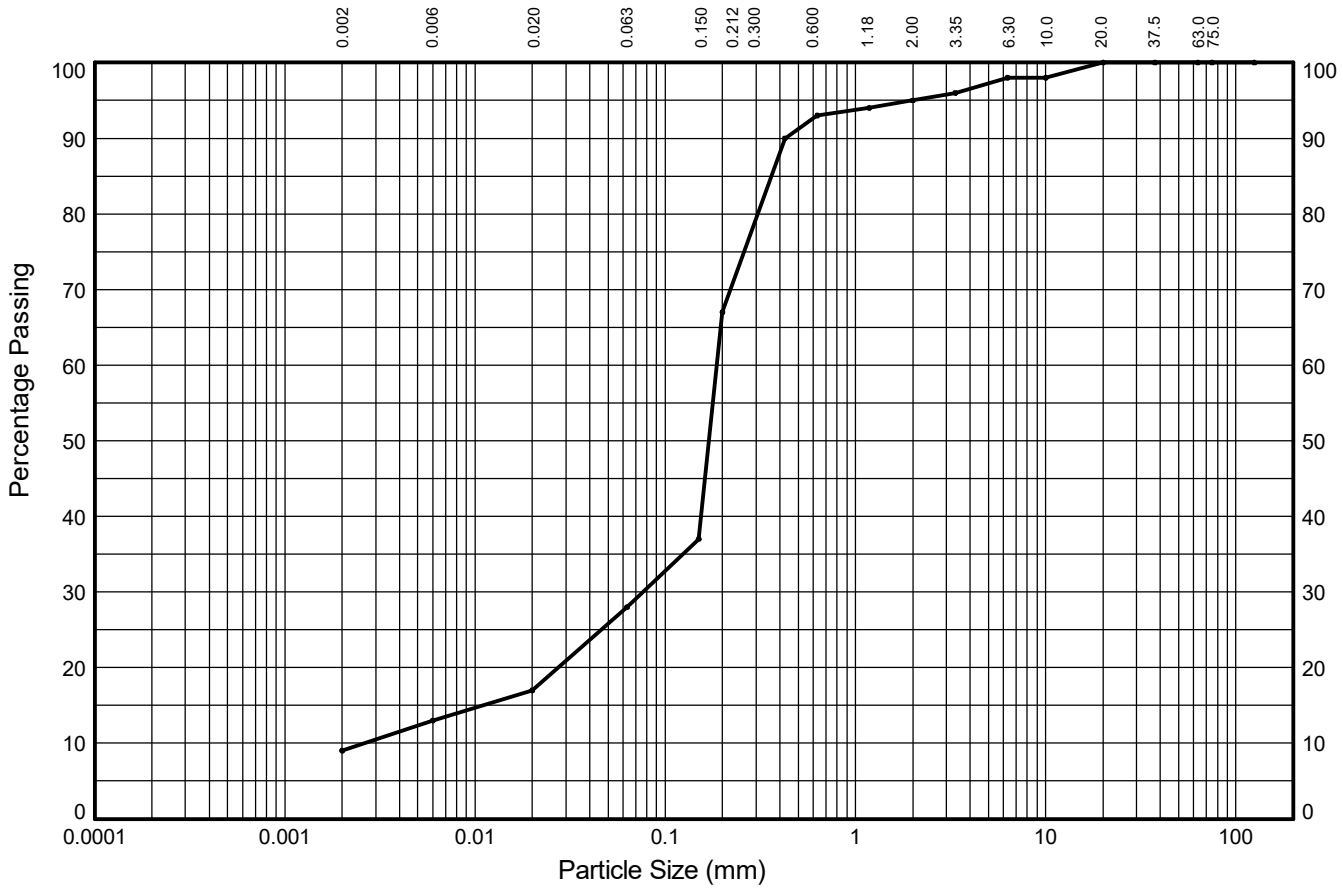
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH10** Sample Ref: **6** Sample Type: **D** Depth (m): **0.90**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	4%	11%	39%	26%	2%	3%	2%	0%	
	SILT			SAND			GRAVEL			
9%	19%			67%			5%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**98**
6.30	**98**
3.35	**96**
2.00	**95**
1.18	**94**
0.630	**93**
0.425	**90**
0.200	**67**
0.150	**37**
0.063	**28**

Particle Diameter (mm)	Percent Passing (%)
0.02	**17**
0.006	**13**
0.002	**9**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.003**
D_{15} (mm)	**0.011**
D_{30} (mm)	**0.076**
D_{50} (mm)	**0.170**
D_{60} (mm)	**0.187**
D_{85} (mm)	**0.361**
D_{90} (mm)	**0.425**
C_U	**71**
C_C	**12**

Soil Description:

Brown gravelly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
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Compiled By		Date
	LAURA SCHRAMM	**27/02/23**

Contract	Contract Ref:
EMG Phase 2	**765514**

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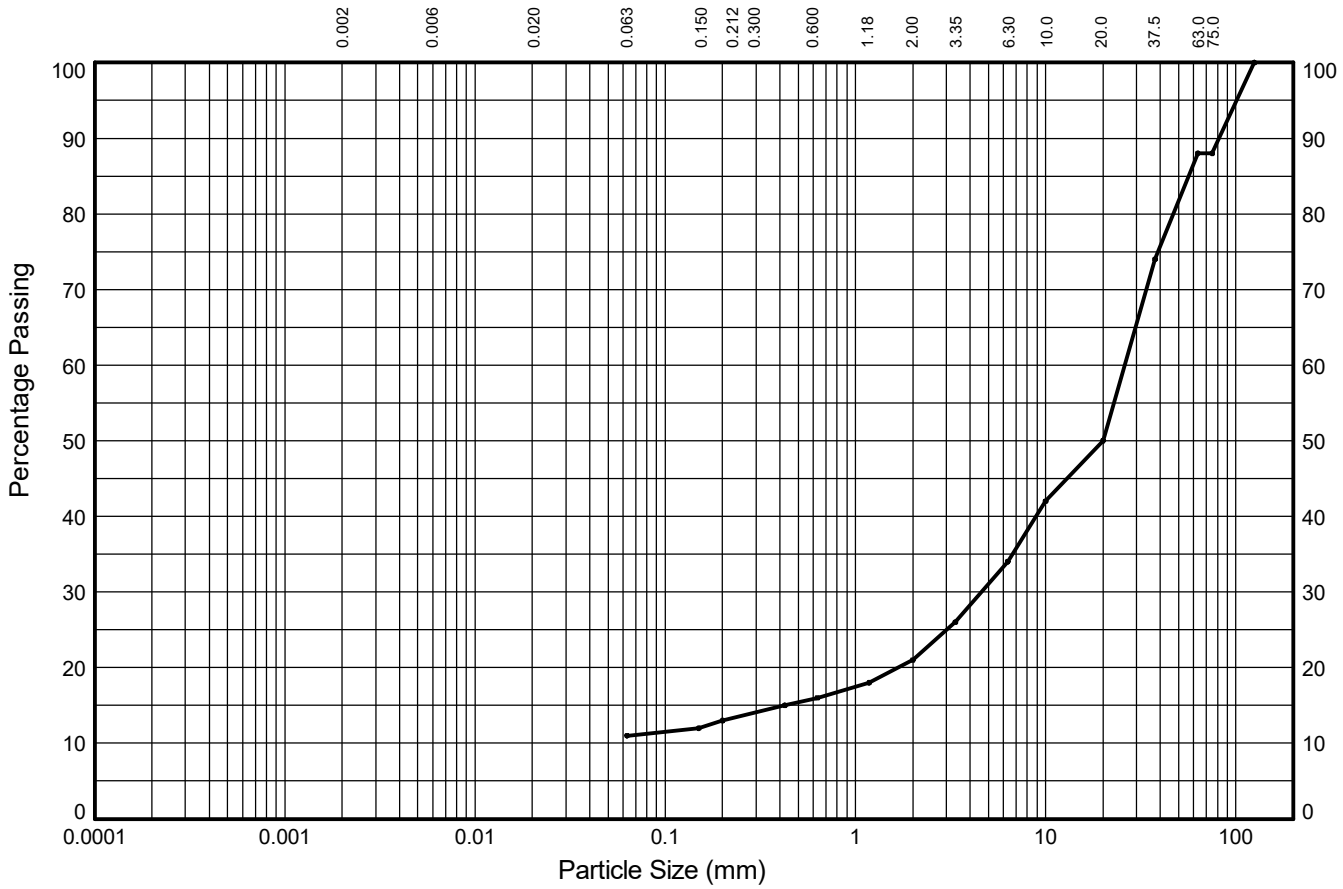
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH12** Sample Ref: **47** Sample Type: **B** Depth (m): **15.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	2%	3%	5%	13%	16%	38%	
	SILT			SAND			GRAVEL			
11%				10%			67%			12%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**88**
63.0	**88**
37.5	**74**
20.0	**50**
10.0	**42**
6.30	**34**
3.35	**26**
2.00	**21**
1.18	**18**
0.630	**16**
0.425	**15**
0.200	**13**
0.150	**12**
0.063	**11**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.425**
D_{30} (mm)	**4.594**
D_{50} (mm)	**20.000**
D_{60} (mm)	**25.988**
D_{85} (mm)	**56.372**
D_{90} (mm)	**81.665**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown sandy silty/clayey GRAVEL with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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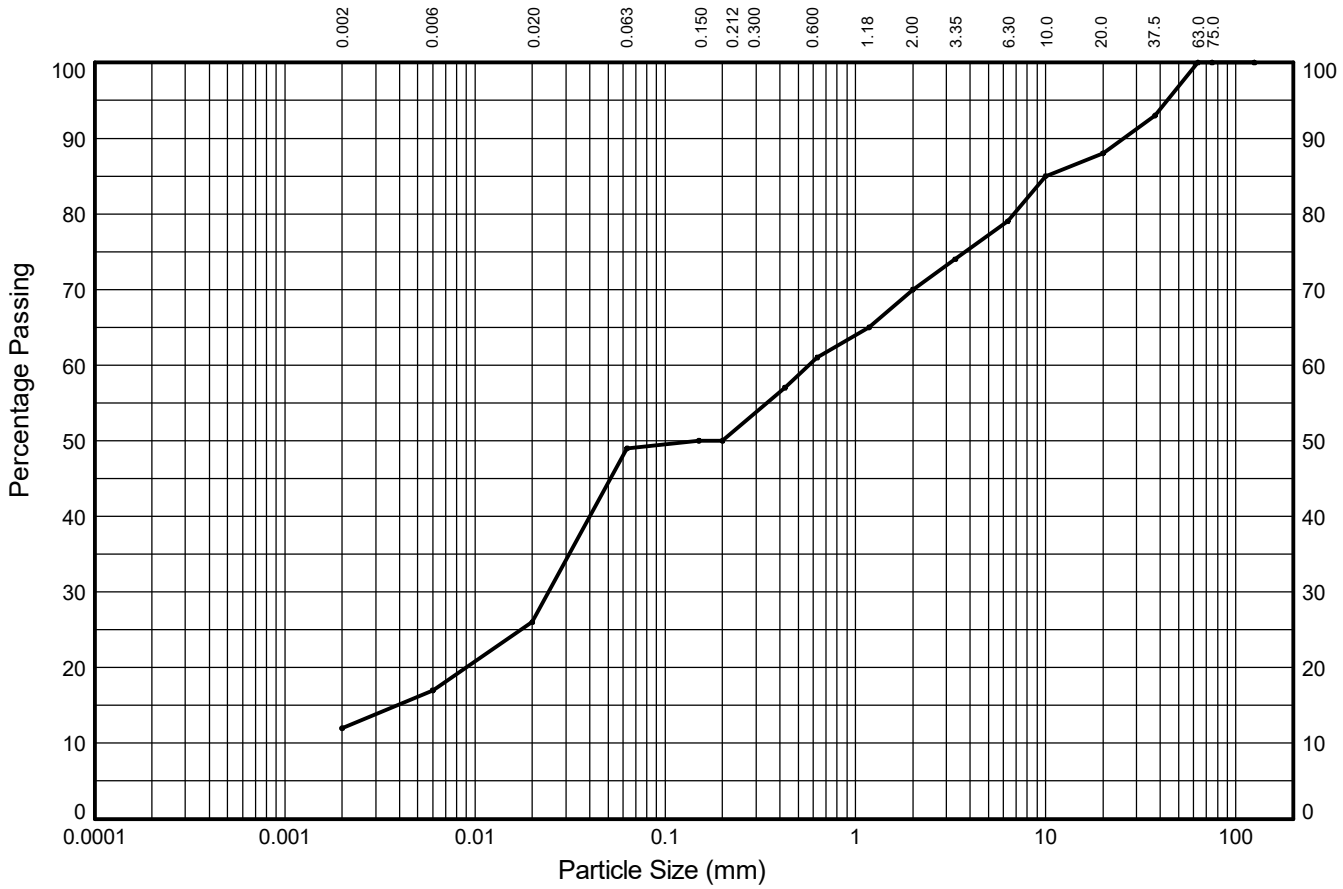
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH13** Sample Ref: **26** Sample Type: **B** Depth (m): **6.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	5%	9%	23%	1%	11%	9%	9%	9%	12%	
	SILT			SAND			GRAVEL			
12%	37%			21%			30%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**93**
20.0	**88**
10.0	**85**
6.30	**79**
3.35	**74**
2.00	**70**
1.18	**65**
0.630	**61**
0.425	**57**
0.200	**50**
0.150	**50**
0.063	**49**

Particle Diameter (mm)	Percent Passing (%)
0.02	**26**
0.006	**17**
0.002	**12**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.004**
D_{30} (mm)	**0.024**
D_{50} (mm)	**0.150**
D_{60} (mm)	**0.571**
D_{85} (mm)	**10.000**
D_{90} (mm)	**25.718**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown/red slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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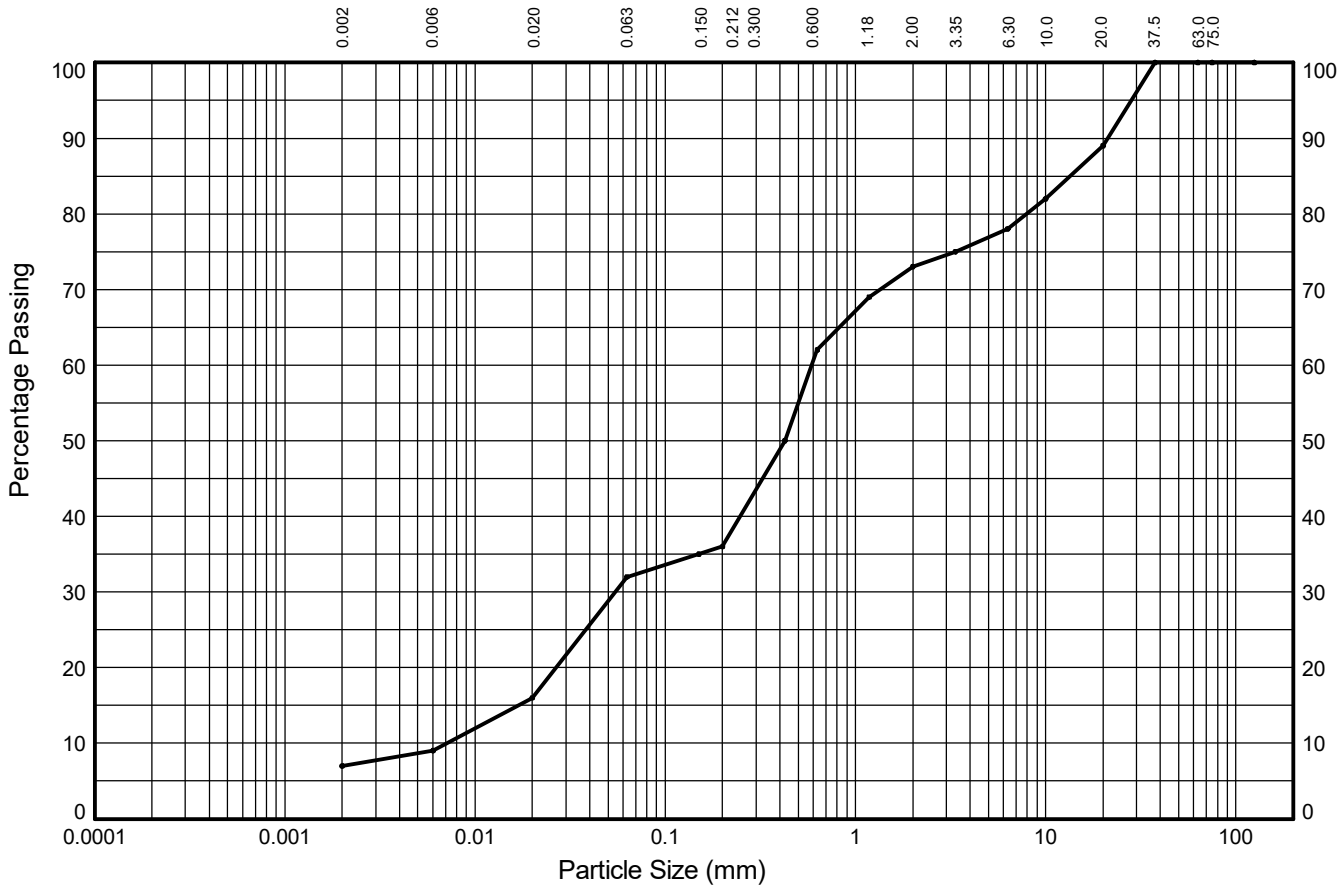
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH14** Sample Ref: **26** Sample Type: **B** Depth (m): **6.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	2%	7%	16%	4%	26%	11%	5%	11%	11%	
	SILT			SAND			GRAVEL			
7%	25%			41%			27%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**89**
10.0	**82**
6.30	**78**
3.35	**75**
2.00	**73**
1.18	**69**
0.630	**62**
0.425	**50**
0.200	**36**
0.150	**35**
0.063	**32**

Particle Diameter (mm)	Percent Passing (%)
0.02	**16**
0.006	**9**
0.002	**7**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.007**
D_{15} (mm)	**0.017**
D_{30} (mm)	**0.055**
D_{50} (mm)	**0.425**
D_{60} (mm)	**0.590**
D_{85} (mm)	**13.459**
D_{90} (mm)	**21.176**
C_U	**83**
C_C	**0.71**

Soil Description:

Brown very gravelly clayey very silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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LAURA SCHRAMM	27/02/23

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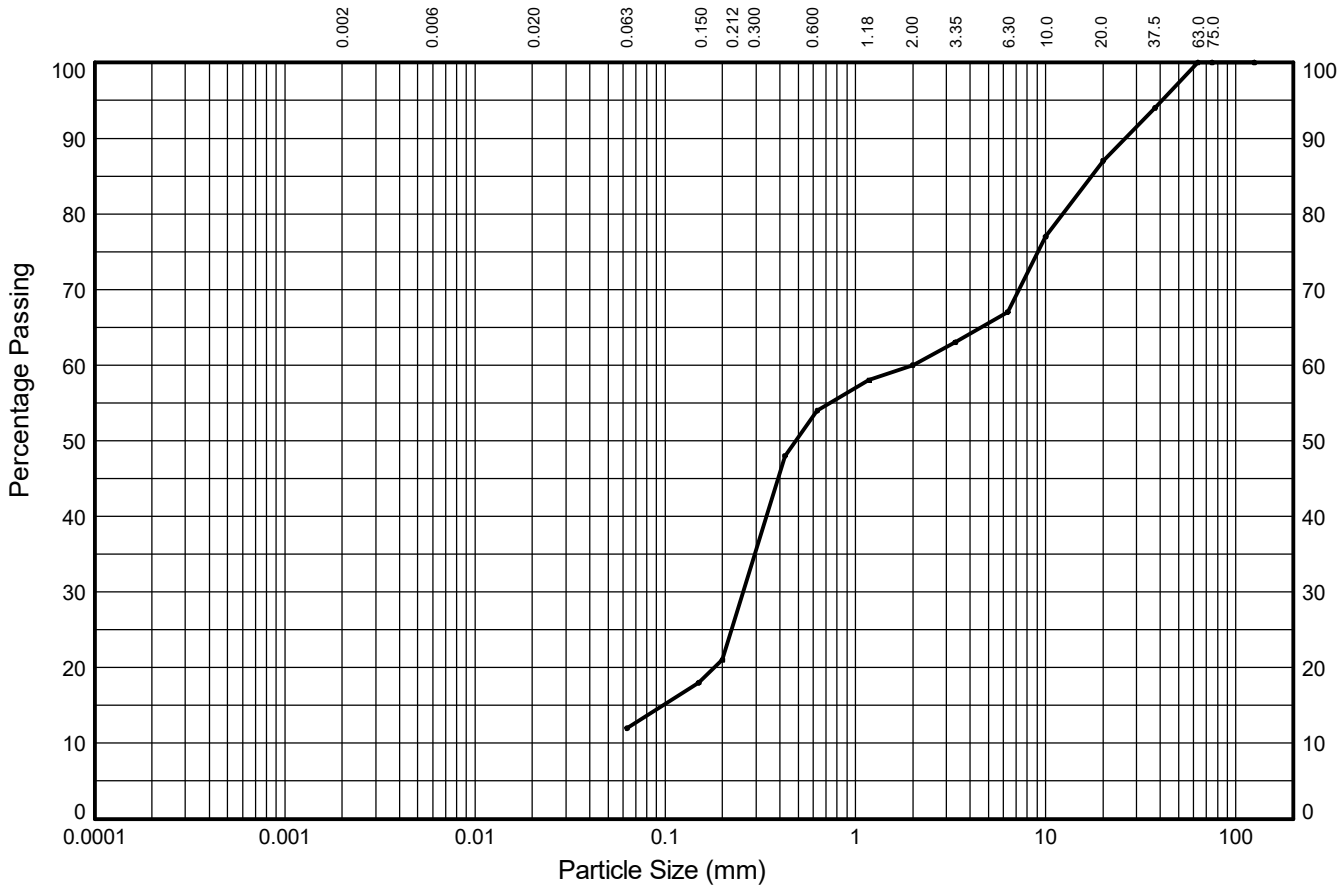
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH15** Sample Ref: **18** Sample Type: **B** Depth (m): **4.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	9%	33%	6%	7%	20%	13%	
	SILT			SAND			GRAVEL			
12%				48%			40%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**94**
20.0	**87**
10.0	**77**
6.30	**67**
3.35	**63**
2.00	**60**
1.18	**58**
0.630	**54**
0.425	**48**
0.200	**21**
0.150	**18**
0.063	**12**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.097**
D_{30} (mm)	**0.257**
D_{50} (mm)	**0.485**
D_{60} (mm)	**2.000**
D_{85} (mm)	**17.411**
D_{90} (mm)	**26.184**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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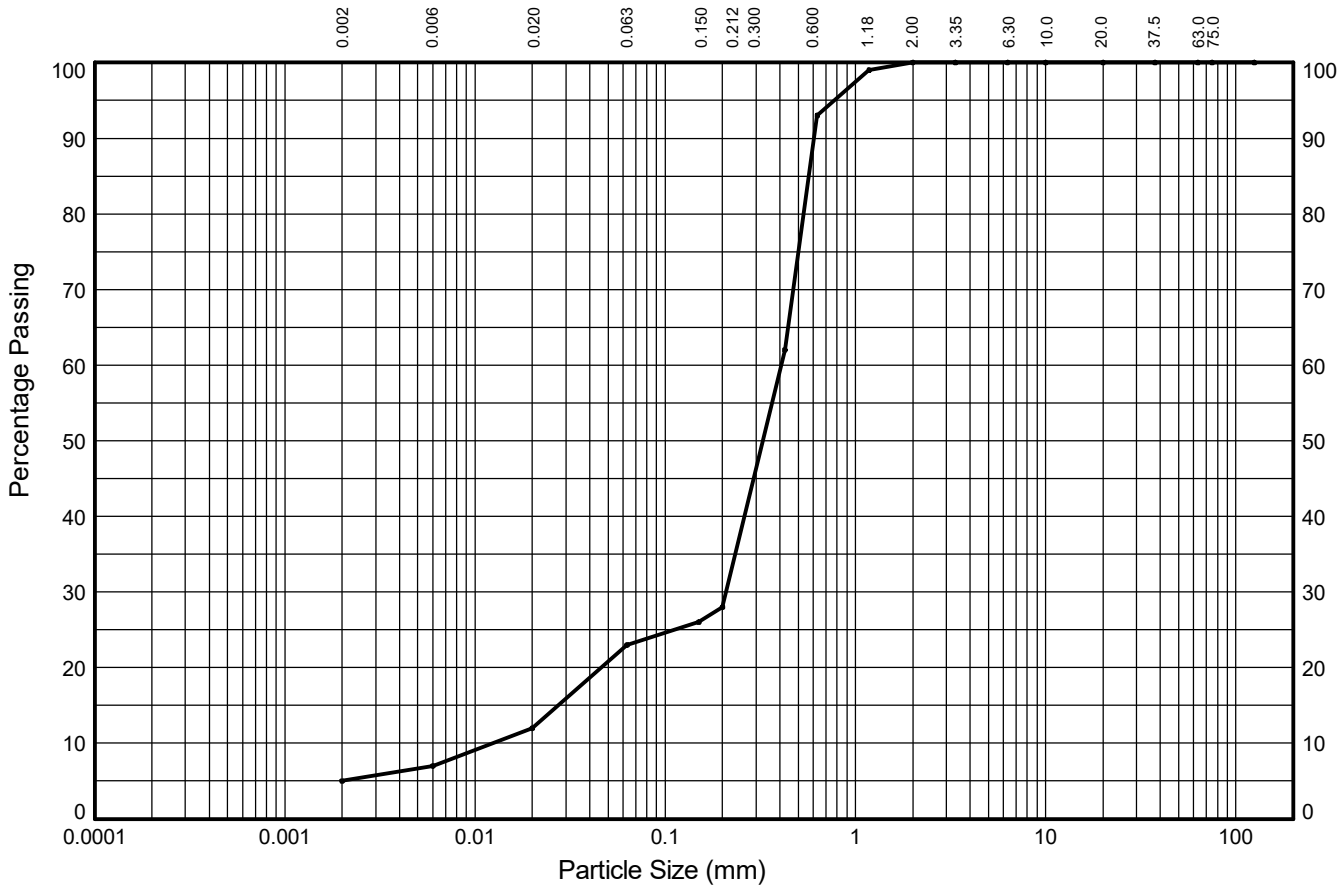
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH15** Sample Ref: **24** Sample Type: **B** Depth (m): **6.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	2%	5%	11%	5%	65%	7%	0%	0%	0%	
	SILT			SAND			GRAVEL			
5%	18%			77%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**99**
0.630	**93**
0.425	**62**
0.200	**28**
0.150	**26**
0.063	**23**

Particle Diameter (mm)	Percent Passing (%)
0.02	**12**
0.006	**7**
0.002	**5**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.012**
D_{15} (mm)	**0.027**
D_{30} (mm)	**0.209**
D_{50} (mm)	**0.326**
D_{60} (mm)	**0.407**
D_{85} (mm)	**0.569**
D_{90} (mm)	**0.606**
C_U	**33**
C_C	**9**

Soil Description:

Brown clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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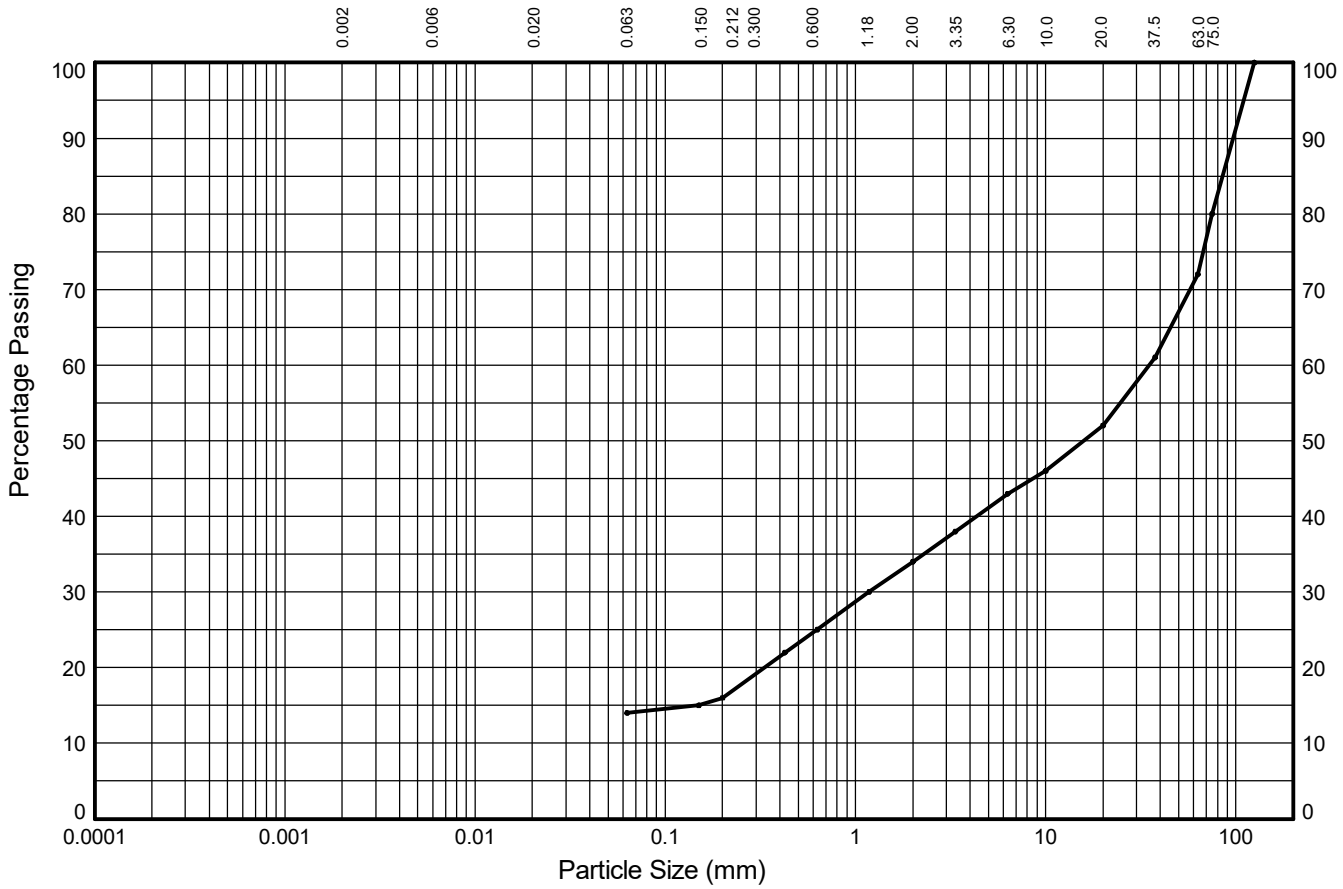
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH15** Sample Ref: **36** Sample Type: **B** Depth (m): **10.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	2%	9%	9%	9%	9%	20%	
	SILT			SAND			GRAVEL			
14%				20%			38%			28%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**80**
63.0	**72**
37.5	**61**
20.0	**52**
10.0	**46**
6.30	**43**
3.35	**38**
2.00	**34**
1.18	**30**
0.630	**25**
0.425	**22**
0.200	**16**
0.150	**15**
0.063	**14**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.150**
D_{30} (mm)	**1.180**
D_{50} (mm)	**15.874**
D_{60} (mm)	**34.970**
D_{85} (mm)	**85.216**
D_{90} (mm)	**96.825**
C_U	**NA**
C_C	**NA**

Soil Description:

Red brown sandy silty/clayey GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH17** Sample Ref: **13** Sample Type: **B** Depth (m): **3.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	14%	19%	17%	8%	23%	1%	1%	0%	0%	
	SILT			SAND			GRAVEL			
17%	50%			32%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**99**
1.18	**99**
0.630	**98**
0.425	**96**
0.200	**75**
0.150	**73**
0.063	**67**

Particle Diameter (mm)	Percent Passing (%)
0.02	**50**
0.006	**31**
0.002	**17**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.006**
D_{50} (mm)	**0.020**
D_{60} (mm)	**0.039**
D_{85} (mm)	**0.286**
D_{90} (mm)	**0.343**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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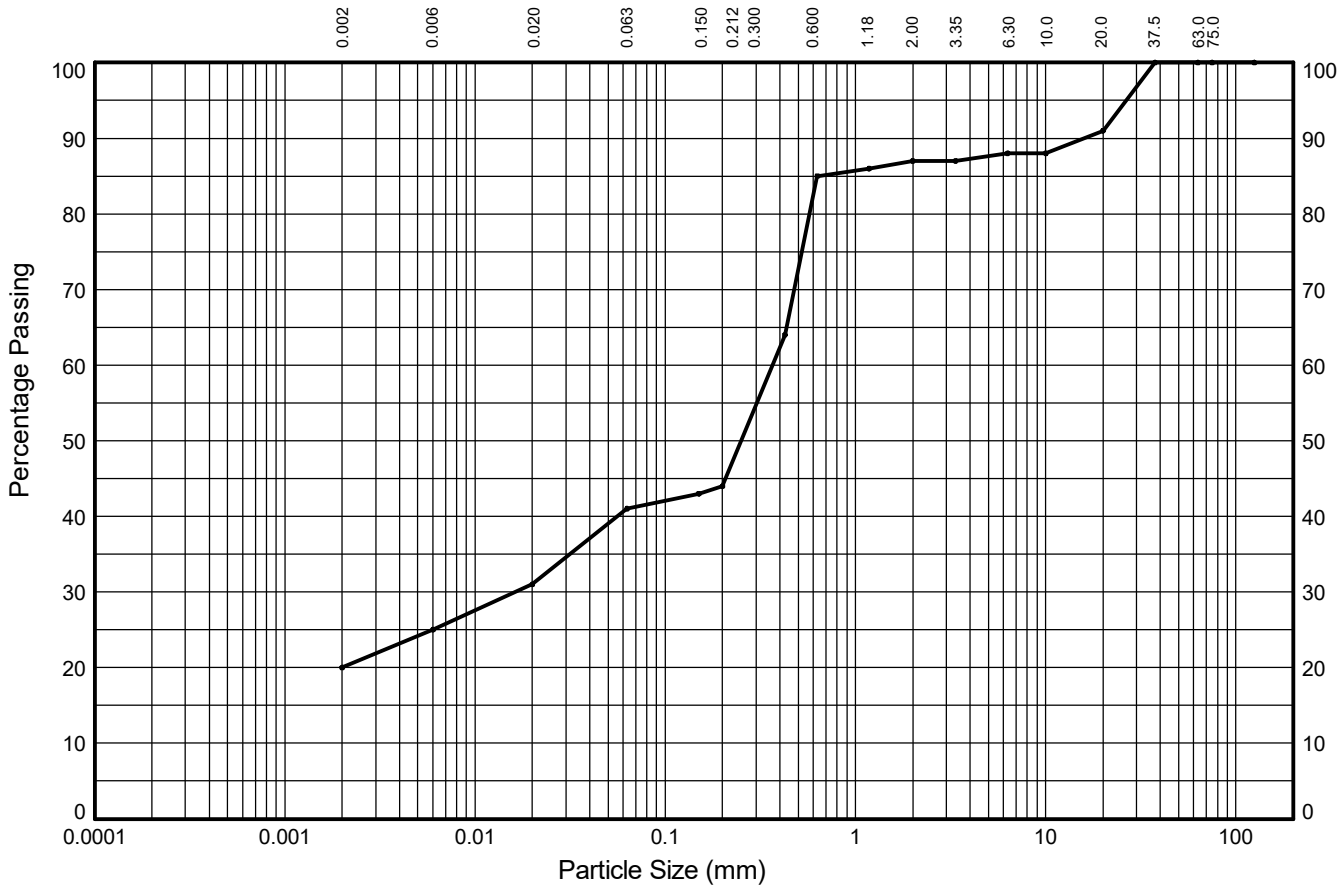
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH20** Sample Ref: **6** Sample Type: **B** Depth (m): **0.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	5%	6%	10%	3%	41%	2%	1%	3%	9%	
	SILT			SAND			GRAVEL			
20%	21%			46%			13%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**91**
10.0	**88**
6.30	**88**
3.35	**87**
2.00	**87**
1.18	**86**
0.630	**85**
0.425	**64**
0.200	**44**
0.150	**43**
0.063	**41**

Particle Diameter (mm)	Percent Passing (%)
0.02	**31**
0.006	**25**
0.002	**20**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.016**
D_{50} (mm)	**0.251**
D_{60} (mm)	**0.366**
D_{85} (mm)	**0.630**
D_{90} (mm)	**15.874**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown/red slightly gravelly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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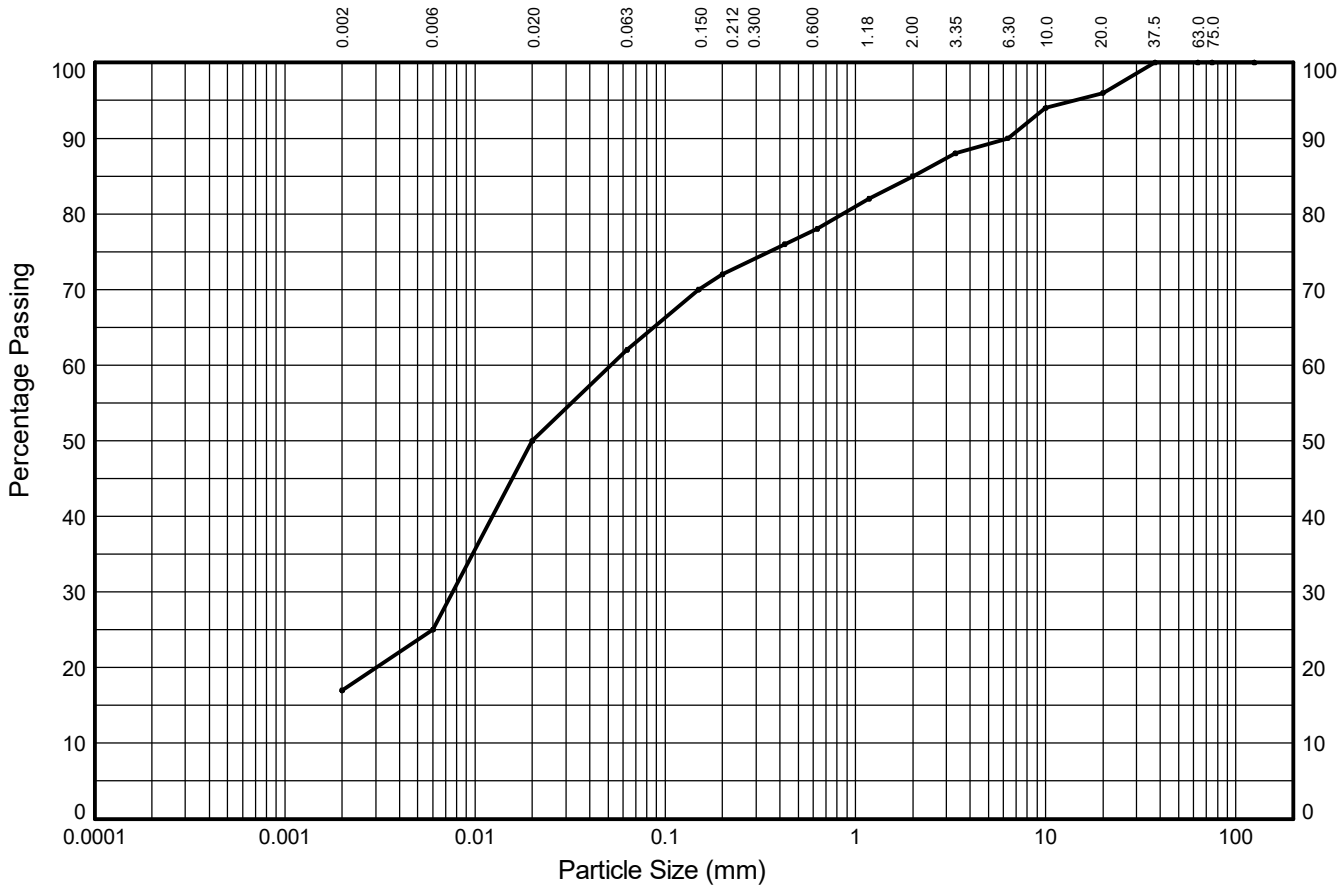
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH21** Sample Ref: **17** Sample Type: **D** Depth (m): **3.70**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	9%	24%	12%	10%	6%	7%	5%	6%	4%	
	SILT			SAND			GRAVEL			
17%	45%			23%			15%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**96**
10.0	**94**
6.30	**90**
3.35	**88**
2.00	**85**
1.18	**82**
0.630	**78**
0.425	**76**
0.200	**72**
0.150	**70**
0.063	**62**

Particle Diameter (mm)	Percent Passing (%)
0.02	**50**
0.006	**25**
0.002	**17**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.008**
D_{50} (mm)	**0.020**
D_{60} (mm)	**0.052**
D_{85} (mm)	**2.000**
D_{90} (mm)	**6.300**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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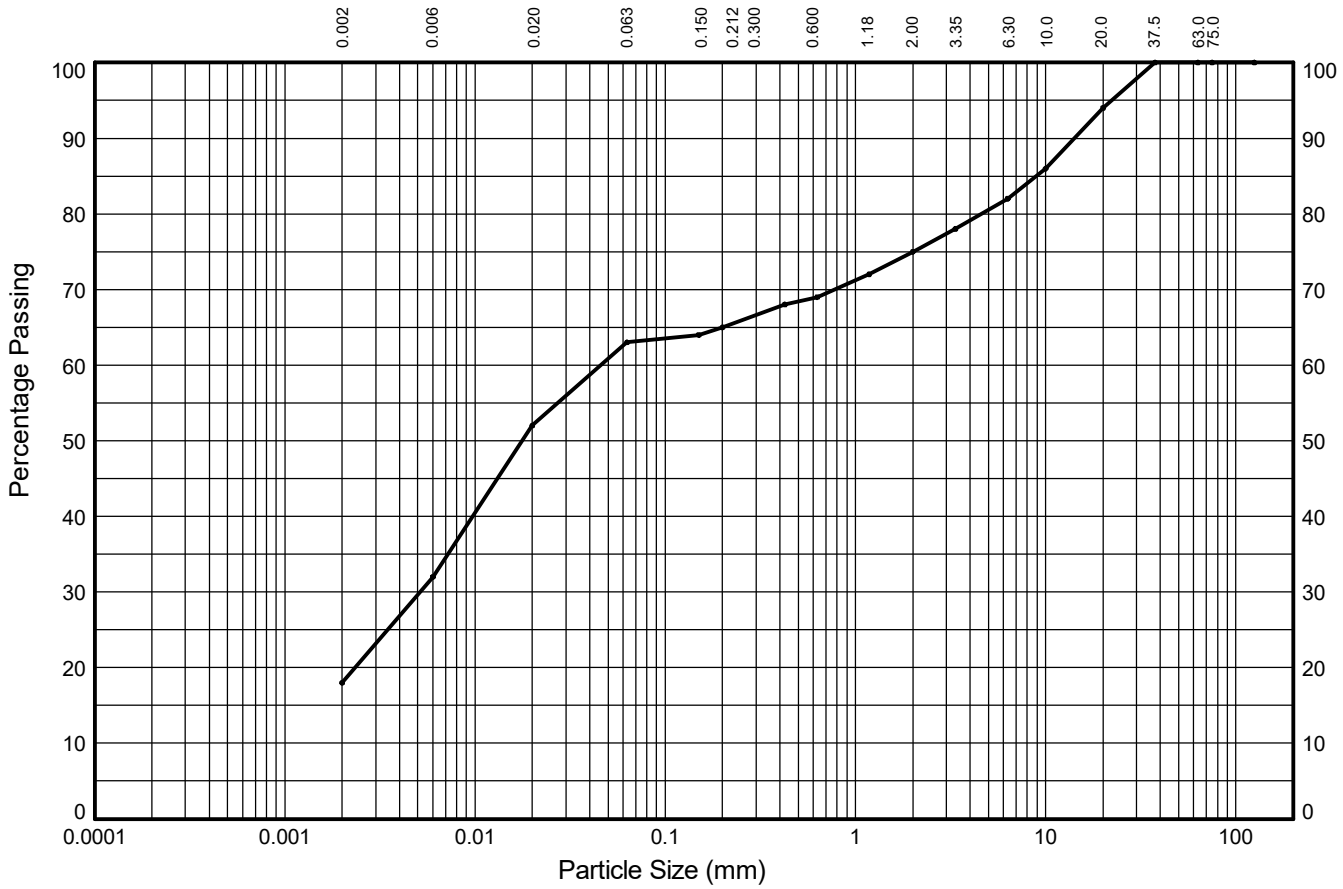
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH22** Sample Ref: **14** Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	14%	20%	11%	2%	4%	6%	7%	12%	6%	
	SILT			SAND			GRAVEL			
18%	45%			12%			25%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**94**
10.0	**86**
6.30	**82**
3.35	**78**
2.00	**75**
1.18	**72**
0.630	**69**
0.425	**68**
0.200	**65**
0.150	**64**
0.063	**63**

Particle Diameter (mm)	Percent Passing (%)
0.02	**52**
0.006	**32**
0.002	**18**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.005**
D_{50} (mm)	**0.018**
D_{60} (mm)	**0.046**
D_{85} (mm)	**8.909**
D_{90} (mm)	**14.142**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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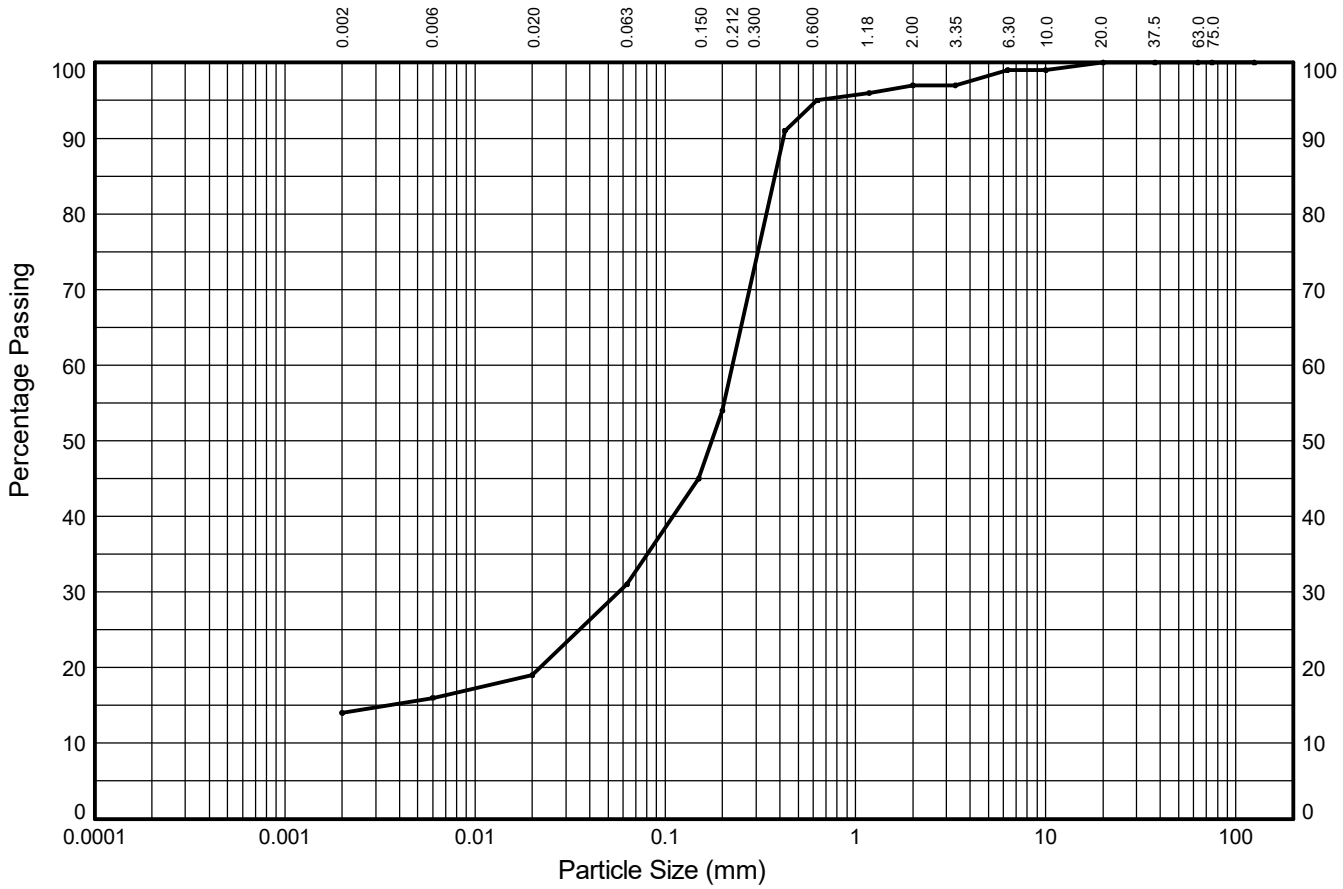
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH25** Sample Ref: **13** Sample Type: **B** Depth (m): **1.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	2%	3%	12%	23%	41%	2%	2%	1%	0%	
	SILT			SAND			GRAVEL			
14%	17%			66%			3%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**99**
3.35	**97**
2.00	**97**
1.18	**96**
0.630	**95**
0.425	**91**
0.200	**54**
0.150	**45**
0.063	**31**

Particle Diameter (mm)	Percent Passing (%)
0.02	**19**
0.006	**16**
0.002	**14**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.057**
D_{50} (mm)	**0.176**
D_{60} (mm)	**0.226**
D_{85} (mm)	**0.376**
D_{90} (mm)	**0.416**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown red slightly gravelly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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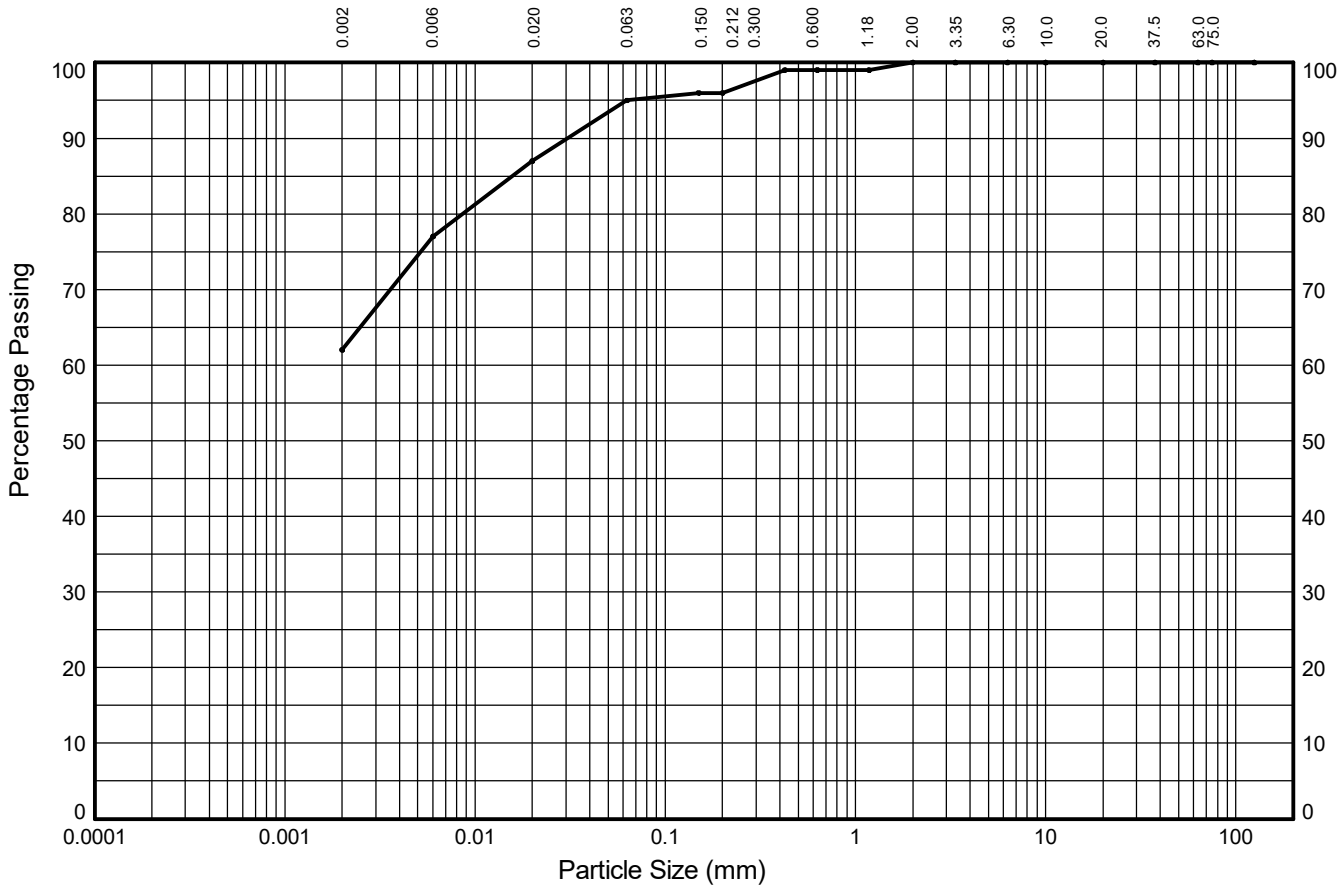
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Borehole: **BH26** Sample Ref: **3** Sample Type: **B** Depth (m): **0.10**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	15%	10%	8%	1%	3%	1%	0%	0%	0%	
	SILT			SAND			GRAVEL			
62%	33%			5%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**99**
0.630	**99**
0.425	**99**
0.200	**96**
0.150	**96**
0.063	**95**

Particle Diameter (mm)	Percent Passing (%)
0.02	**87**
0.006	**77**
0.002	**62**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**NA**
D_{60} (mm)	**NA**
D_{85} (mm)	**0.016**
D_{90} (mm)	**0.031**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy silty CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Pottery Street
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Compiled By	Date
LORNA WHITWORTH	27/02/23

Contract	Contract Ref:
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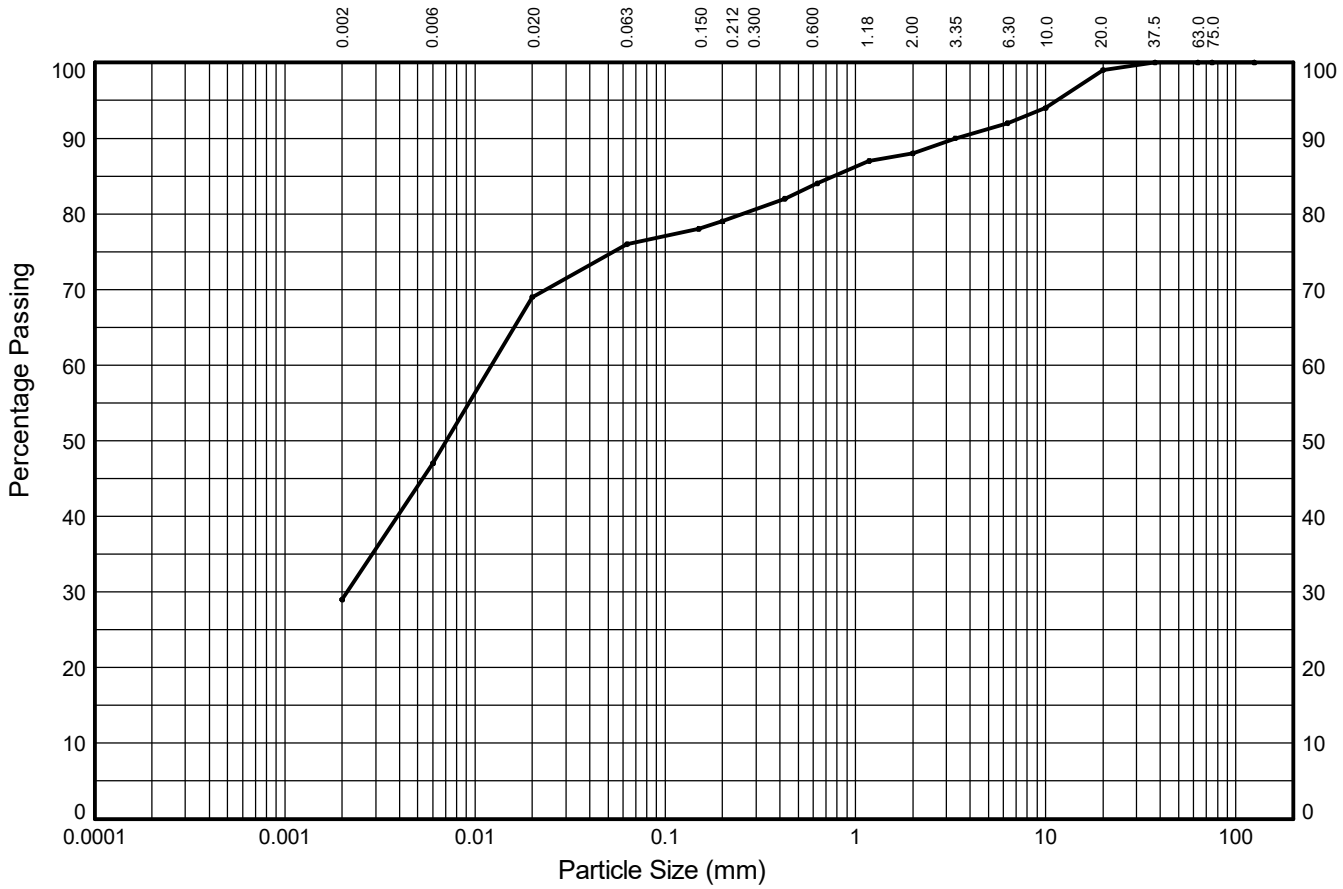
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP03** Sample Ref: **16** Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	18%	22%	7%	3%	5%	4%	4%	7%	1%	
	SILT			SAND			GRAVEL			
29%	47%			12%			12%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**99**
10.0	**94**
6.30	**92**
3.35	**90**
2.00	**88**
1.18	**87**
0.630	**84**
0.425	**82**
0.200	**79**
0.150	**78**
0.063	**76**

Particle Diameter (mm)	Percent Passing (%)
0.02	**69**
0.006	**47**
0.002	**29**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.002**
D_{50} (mm)	**0.007**
D_{60} (mm)	**0.012**
D_{85} (mm)	**0.777**
D_{90} (mm)	**3.350**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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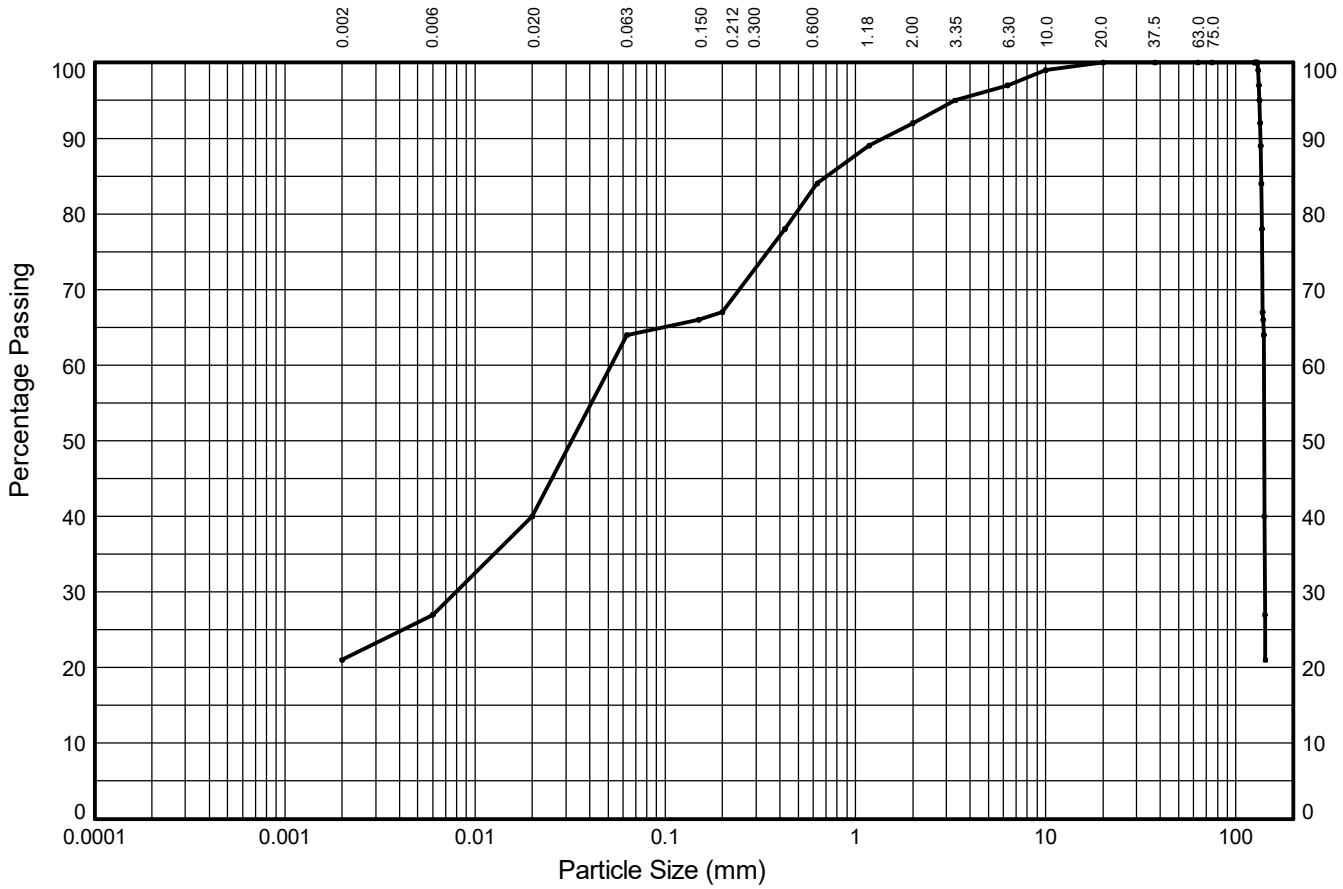
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP04** Sample Ref: **54** Sample Type: **B** Depth (m): **16.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	13%	24%	3%	17%	8%	5%	3%	0%	
	SILT			SAND			GRAVEL			
21%	43%			28%			8%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**97**
3.35	**95**
2.00	**92**
1.18	**89**
0.630	**84**
0.425	**78**
0.200	**67**
0.150	**66**
0.063	**64**

Particle Diameter (mm)	Percent Passing (%)
0.02	**40**
0.006	**27**
0.002	**21**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.008**
D_{50} (mm)	**0.032**
D_{60} (mm)	**0.052**
D_{85} (mm)	**0.714**
D_{90} (mm)	**1.407**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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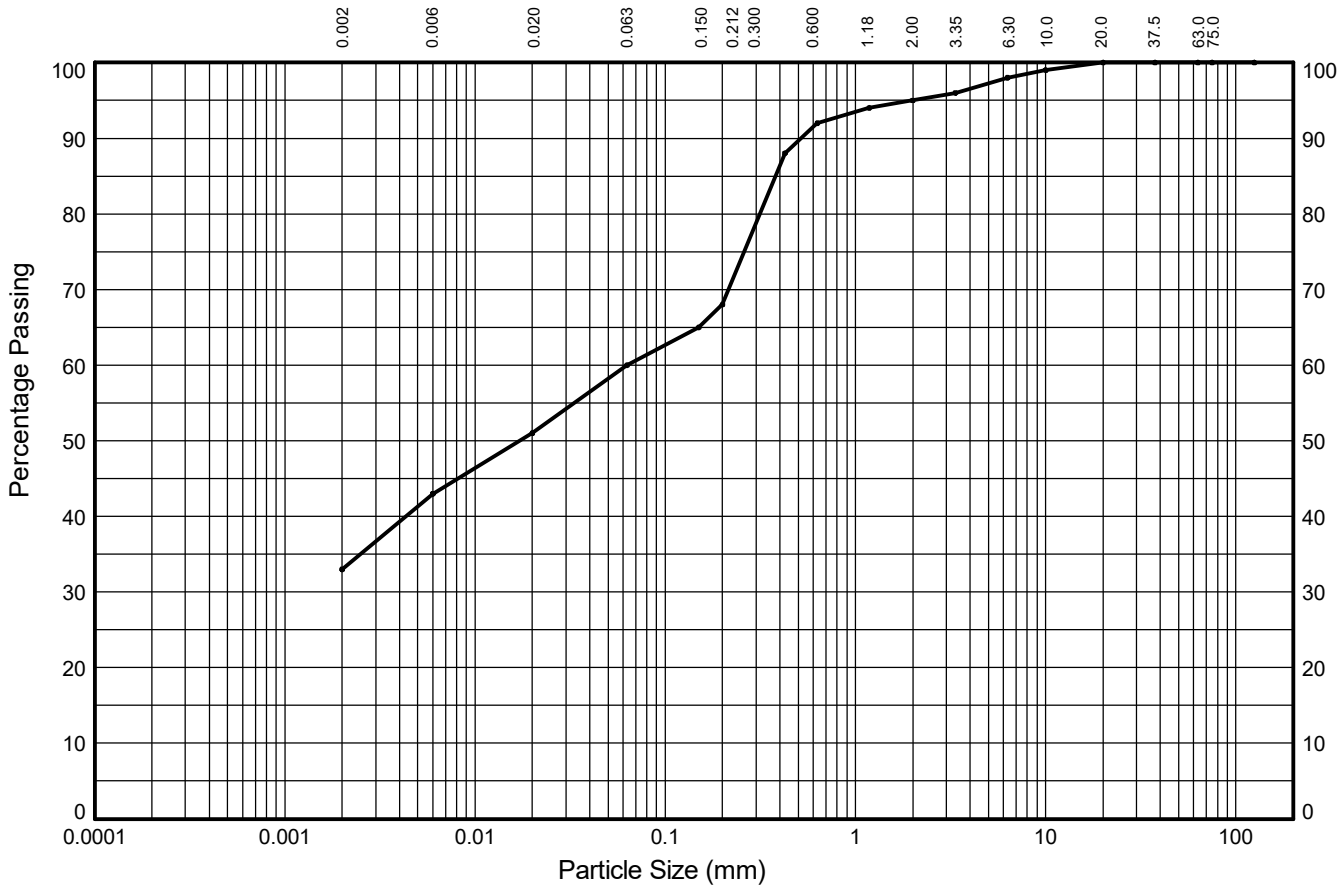
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP05** Sample Ref: **3** Sample Type: **B** Depth (m): **0.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	8%	9%	8%	24%	3%	3%	2%	0%	
	SILT			SAND			GRAVEL			
33%	27%			35%			5%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**98**
3.35	**96**
2.00	**95**
1.18	**94**
0.630	**92**
0.425	**88**
0.200	**68**
0.150	**65**
0.063	**60**

Particle Diameter (mm)	Percent Passing (%)
0.02	**51**
0.006	**43**
0.002	**33**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.017**
D_{60} (mm)	**0.063**
D_{85} (mm)	**0.380**
D_{90} (mm)	**0.517**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown red slightly gravelly sandy silty CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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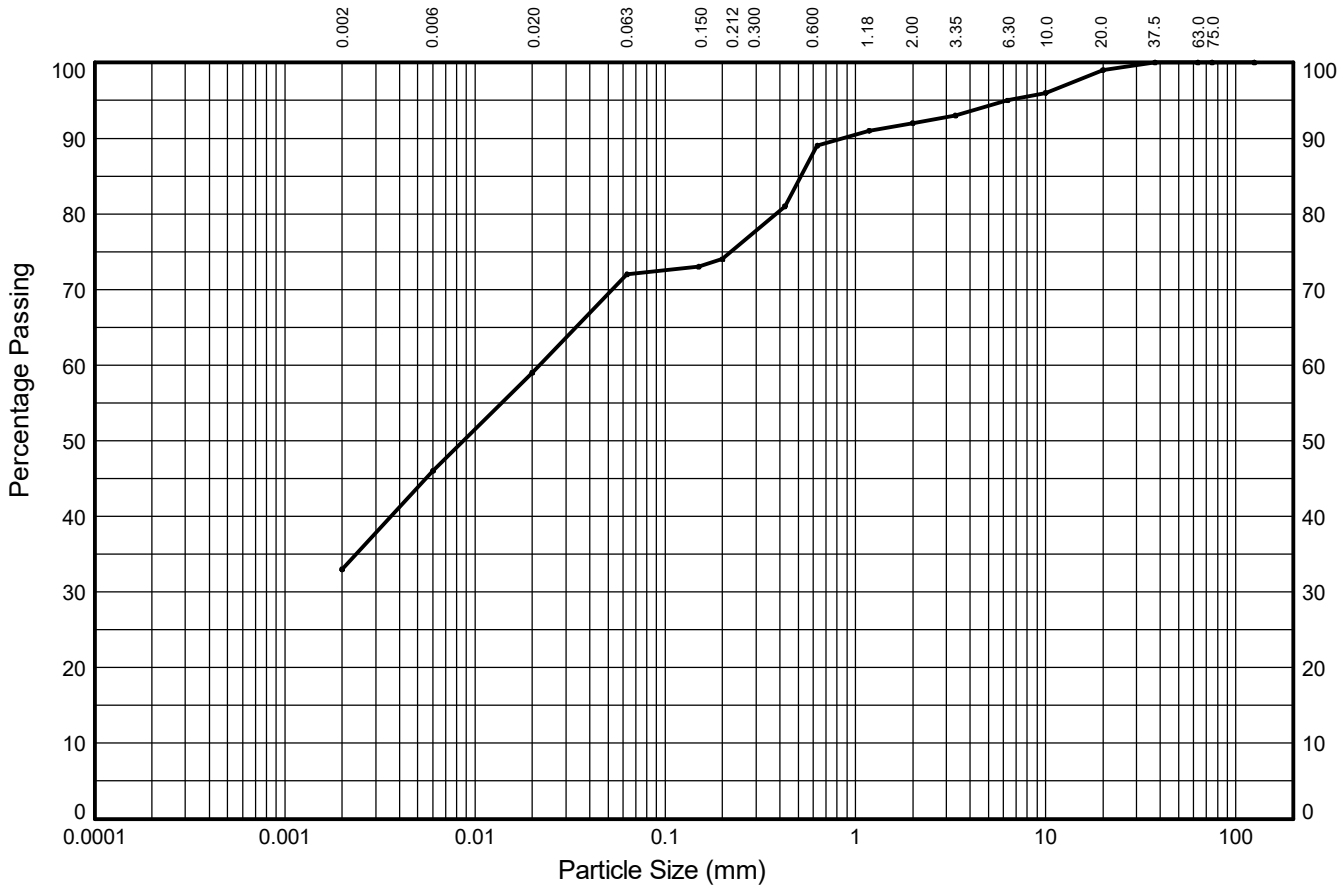
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP07** Sample Ref: **10** Sample Type: **B** Depth (m): **2.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	13%	13%	13%	2%	15%	3%	3%	4%	1%	
	SILT			SAND			GRAVEL			
33%	39%			20%			8%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**99**
10.0	**96**
6.30	**95**
3.35	**93**
2.00	**92**
1.18	**91**
0.630	**89**
0.425	**81**
0.200	**74**
0.150	**73**
0.063	**72**

Particle Diameter (mm)	Percent Passing (%)
0.02	**59**
0.006	**46**
0.002	**33**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.009**
D_{60} (mm)	**0.022**
D_{85} (mm)	**0.517**
D_{90} (mm)	**0.862**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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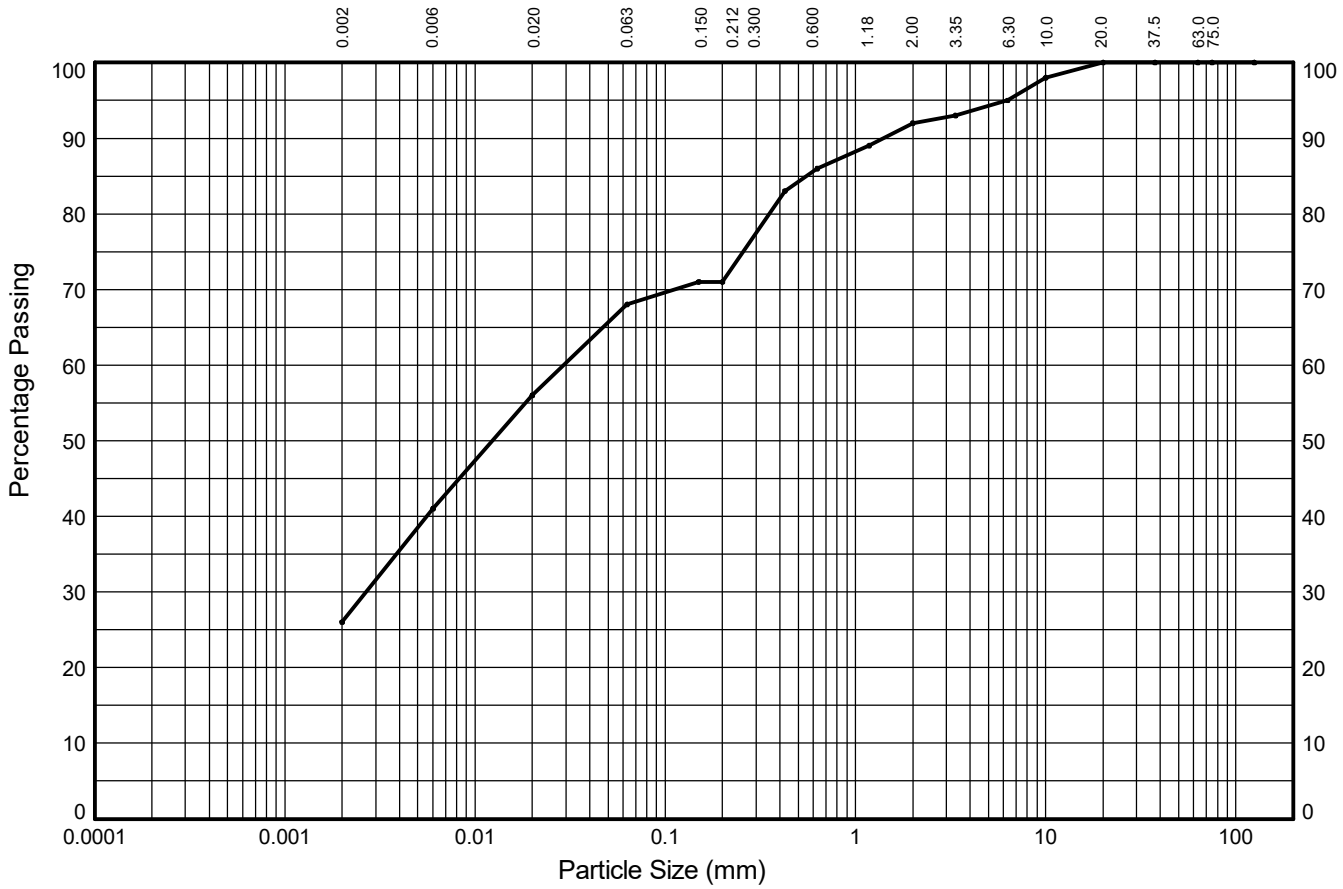
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP07** Sample Ref: **17** Sample Type: **B** Depth (m): **4.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	15%	15%	12%	3%	15%	6%	3%	5%	0%	
	SILT			SAND			GRAVEL			
26%	42%			24%			8%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**98**
6.30	**95**
3.35	**93**
2.00	**92**
1.18	**89**
0.630	**86**
0.425	**83**
0.200	**71**
0.150	**71**
0.063	**68**

Particle Diameter (mm)	Percent Passing (%)
0.02	**56**
0.006	**41**
0.002	**26**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.003**
D_{50} (mm)	**0.012**
D_{60} (mm)	**0.029**
D_{85} (mm)	**0.553**
D_{90} (mm)	**1.407**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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LORNA WHITWORTH	27/02/23

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PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP08** Sample Ref: **19** Sample Type: **B** Depth (m): **4.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	9%	11%	11%	11%	14%	9%	4%	4%	1%	
	SILT			SAND			GRAVEL			
26%	31%			34%			9%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**99**
10.0	**97**
6.30	**95**
3.35	**93**
2.00	**91**
1.18	**87**
0.630	**82**
0.425	**78**
0.200	**68**
0.150	**64**
0.063	**57**

Particle Diameter (mm)	Percent Passing (%)
0.02	**46**
0.006	**35**
0.002	**26**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.003**
D_{50} (mm)	**0.030**
D_{60} (mm)	**0.091**
D_{85} (mm)	**0.918**
D_{90} (mm)	**1.753**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
LORNA WHITWORTH	27/02/23

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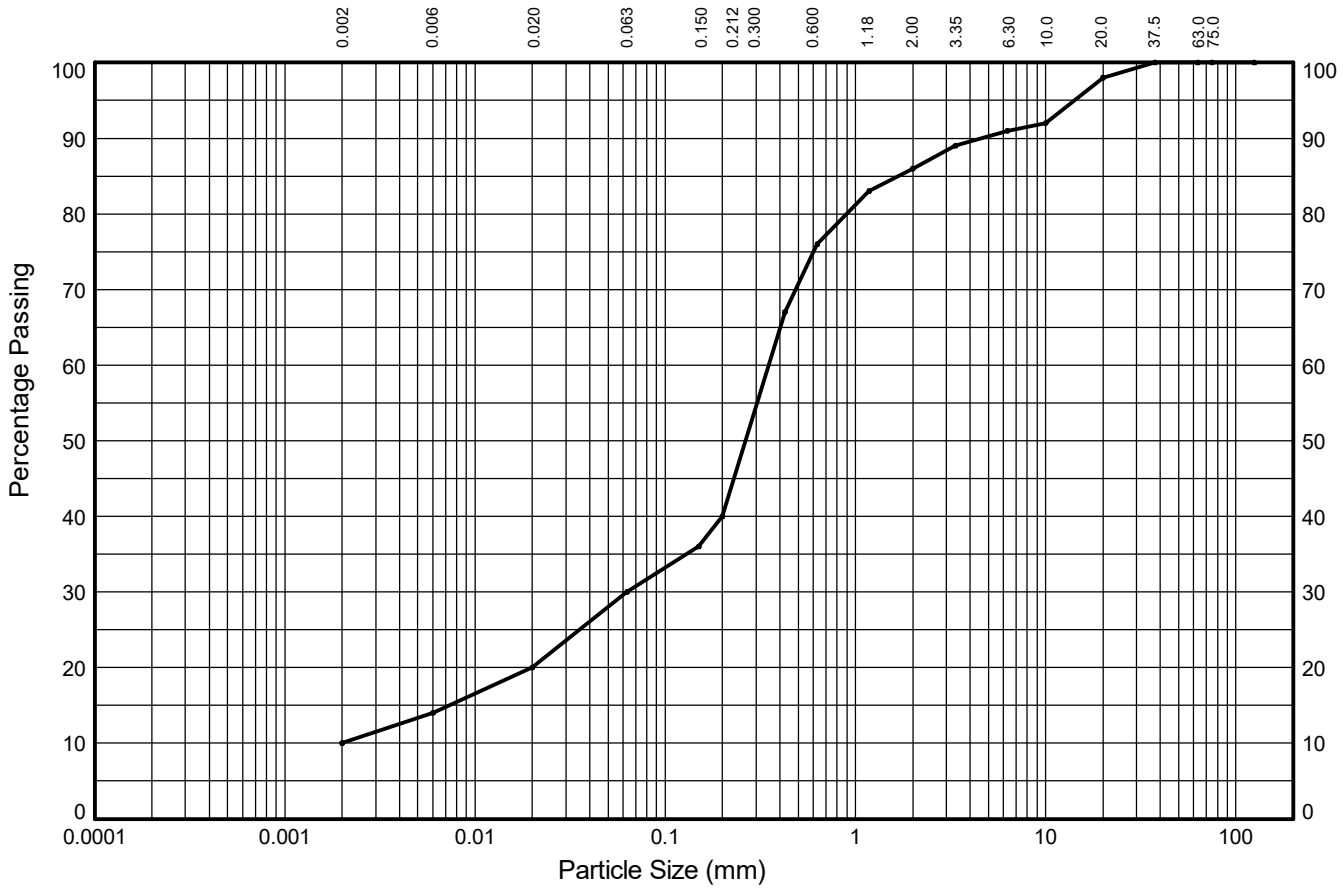
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP08** Sample Ref: **30** Sample Type: **B** Depth (m): **7.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	6%	10%	10%	36%	10%	5%	7%	2%	
	SILT			SAND			GRAVEL			
10%	20%			56%			14%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**98**
10.0	**92**
6.30	**91**
3.35	**89**
2.00	**86**
1.18	**83**
0.630	**76**
0.425	**67**
0.200	**40**
0.150	**36**
0.063	**30**

Particle Diameter (mm)	Percent Passing (%)
0.02	**20**
0.006	**14**
0.002	**10**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.002**
D_{15} (mm)	**0.007**
D_{30} (mm)	**0.063**
D_{50} (mm)	**0.264**
D_{60} (mm)	**0.350**
D_{85} (mm)	**1.677**
D_{90} (mm)	**4.594**
C_U	**175**
C_C	**6**

Soil Description:

Brown red gravelly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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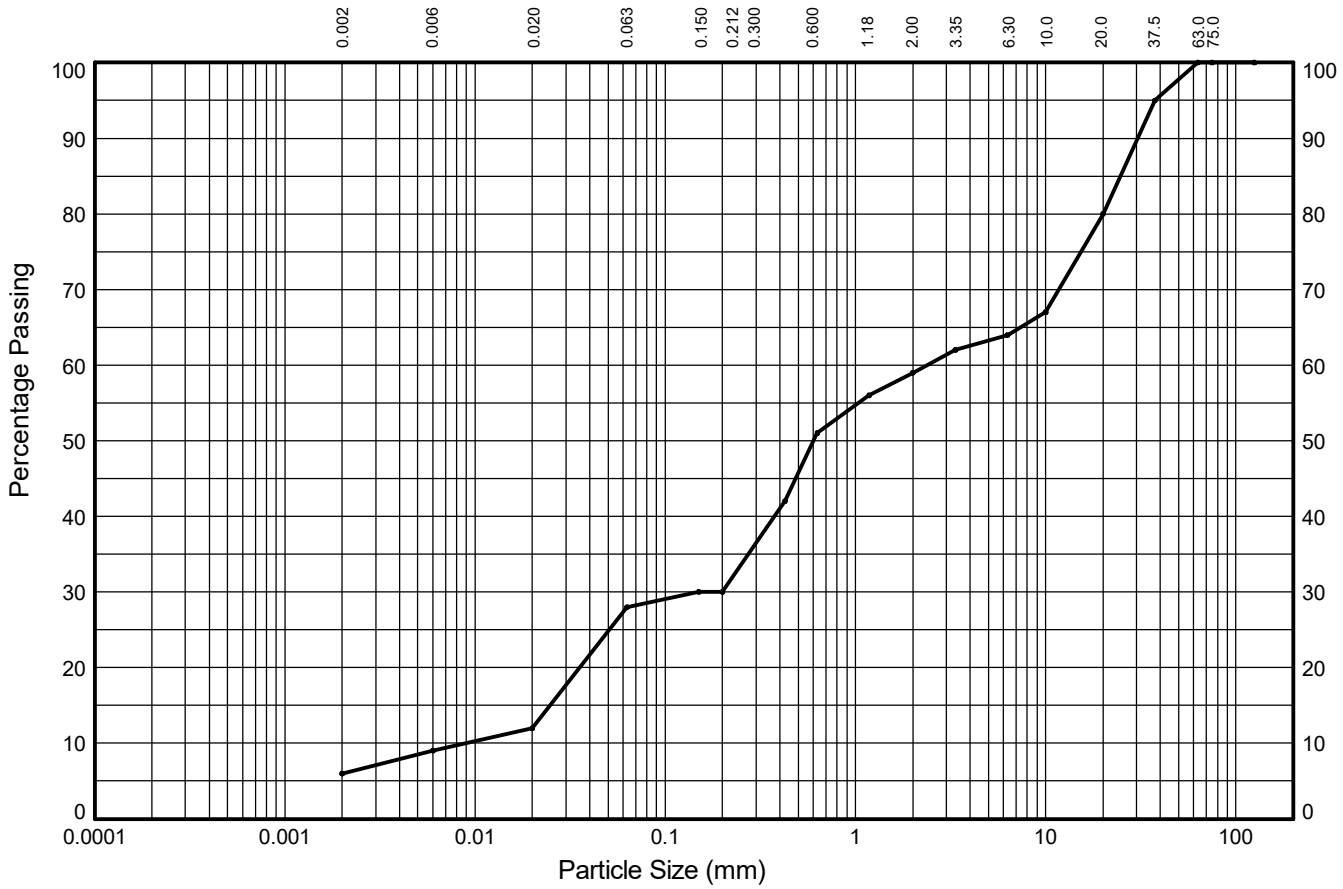
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **CP08** Sample Ref: **35** Sample Type: **B** Depth (m): **9.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	3%	16%	2%	21%	8%	5%	16%	20%	
	SILT			SAND			GRAVEL			
6%	22%			31%			41%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**95**
20.0	**80**
10.0	**67**
6.30	**64**
3.35	**62**
2.00	**59**
1.18	**56**
0.630	**51**
0.425	**42**
0.200	**30**
0.150	**30**
0.063	**28**

Particle Diameter (mm)	Percent Passing (%)
0.02	**12**
0.006	**9**
0.002	**6**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.009**
D_{15} (mm)	**0.025**
D_{30} (mm)	**0.150**
D_{50} (mm)	**0.603**
D_{60} (mm)	**2.375**
D_{85} (mm)	**24.662**
D_{90} (mm)	**30.411**
C_U	**265**
C_C	**1**

Soil Description:

Brown very sandy clayey very silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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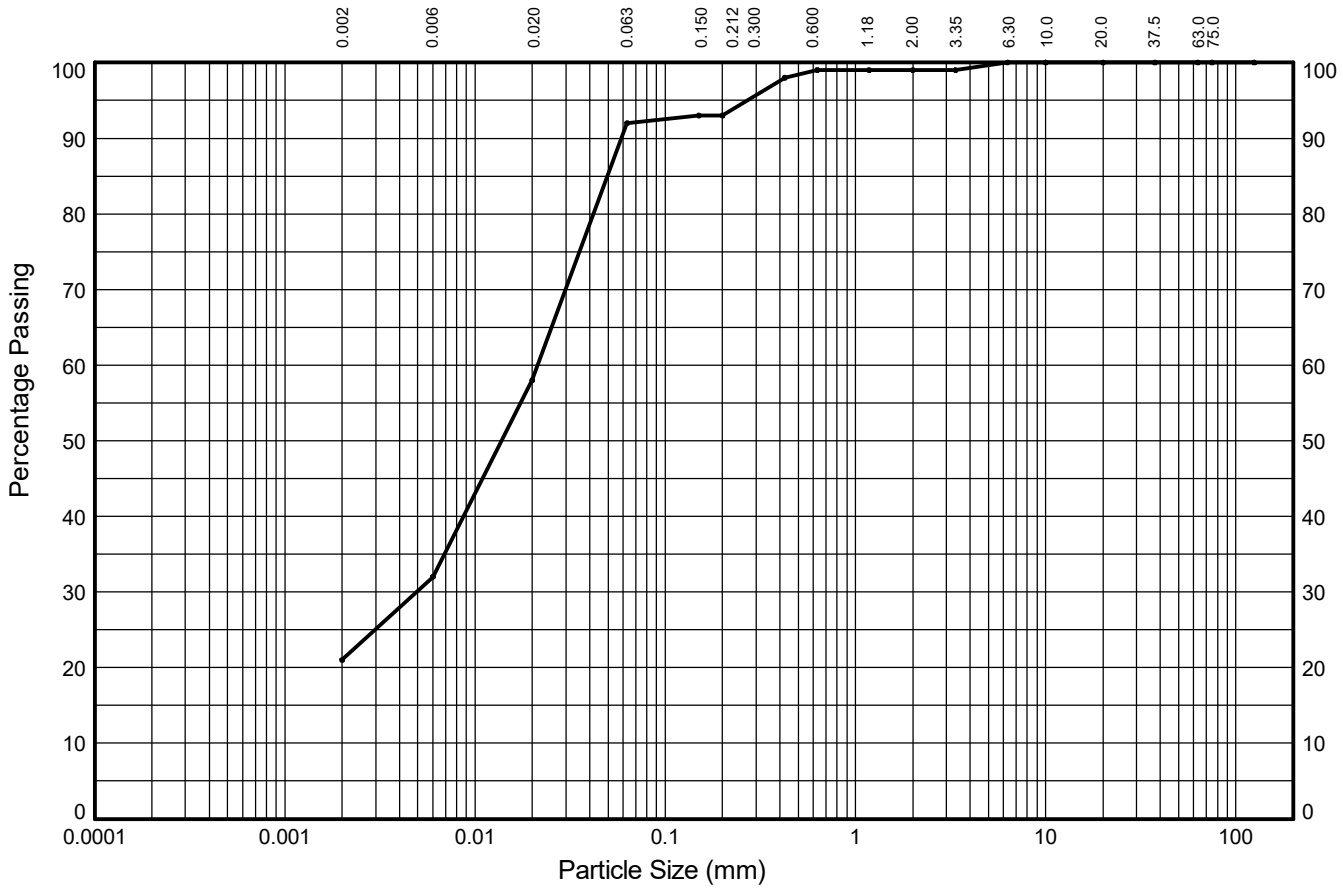
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP09** Sample Ref: **14** Sample Type: **B** Depth (m): **4.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	12%	25%	34%	1%	6%	0%	1%	0%	0%	
	SILT			SAND			GRAVEL			
21%	71%			7%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**99**
1.18	**99**
0.630	**99**
0.425	**98**
0.200	**93**
0.150	**93**
0.063	**92**

Particle Diameter (mm)	Percent Passing (%)
0.02	**58**
0.006	**32**
0.002	**21**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.005**
D_{50} (mm)	**0.014**
D_{60} (mm)	**0.021**
D_{85} (mm)	**0.050**
D_{90} (mm)	**0.059**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown/red slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP11** Sample Ref: **6** Sample Type: **B** Depth (m): **1.20**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	15%	17%	13%	2%	21%	0%	1%	0%	0%	
	SILT			SAND			GRAVEL			
31%	45%			23%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**99**
1.18	**99**
0.630	**99**
0.425	**91**
0.200	**78**
0.150	**77**
0.063	**76**

Particle Diameter (mm)	Percent Passing (%)
0.02	**63**
0.006	**46**
0.002	**31**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.008**
D_{60} (mm)	**0.016**
D_{85} (mm)	**0.300**
D_{90} (mm)	**0.401**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown/red slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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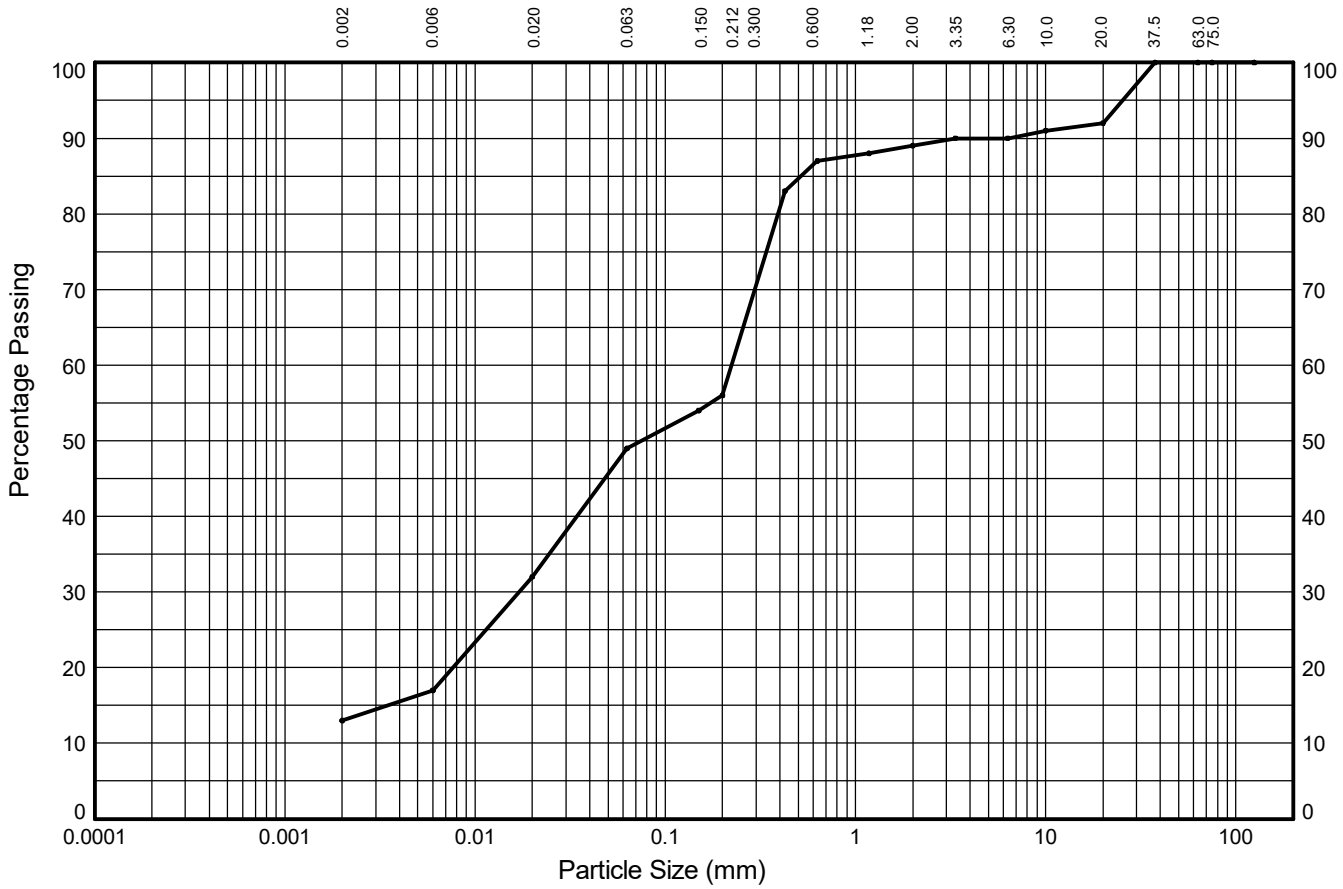
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP13** Sample Ref: **4** Sample Type: **B** Depth (m): **0.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	4%	15%	17%	7%	31%	2%	1%	2%	8%	
	SILT			SAND			GRAVEL			
13%	36%			40%			11%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**92**
10.0	**91**
6.30	**90**
3.35	**90**
2.00	**89**
1.18	**88**
0.630	**87**
0.425	**83**
0.200	**56**
0.150	**54**
0.063	**49**

Particle Diameter (mm)	Percent Passing (%)
0.02	**32**
0.006	**17**
0.002	**13**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.017**
D_{50} (mm)	**0.075**
D_{60} (mm)	**0.224**
D_{85} (mm)	**0.517**
D_{90} (mm)	**3.350**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown red slightly gravelly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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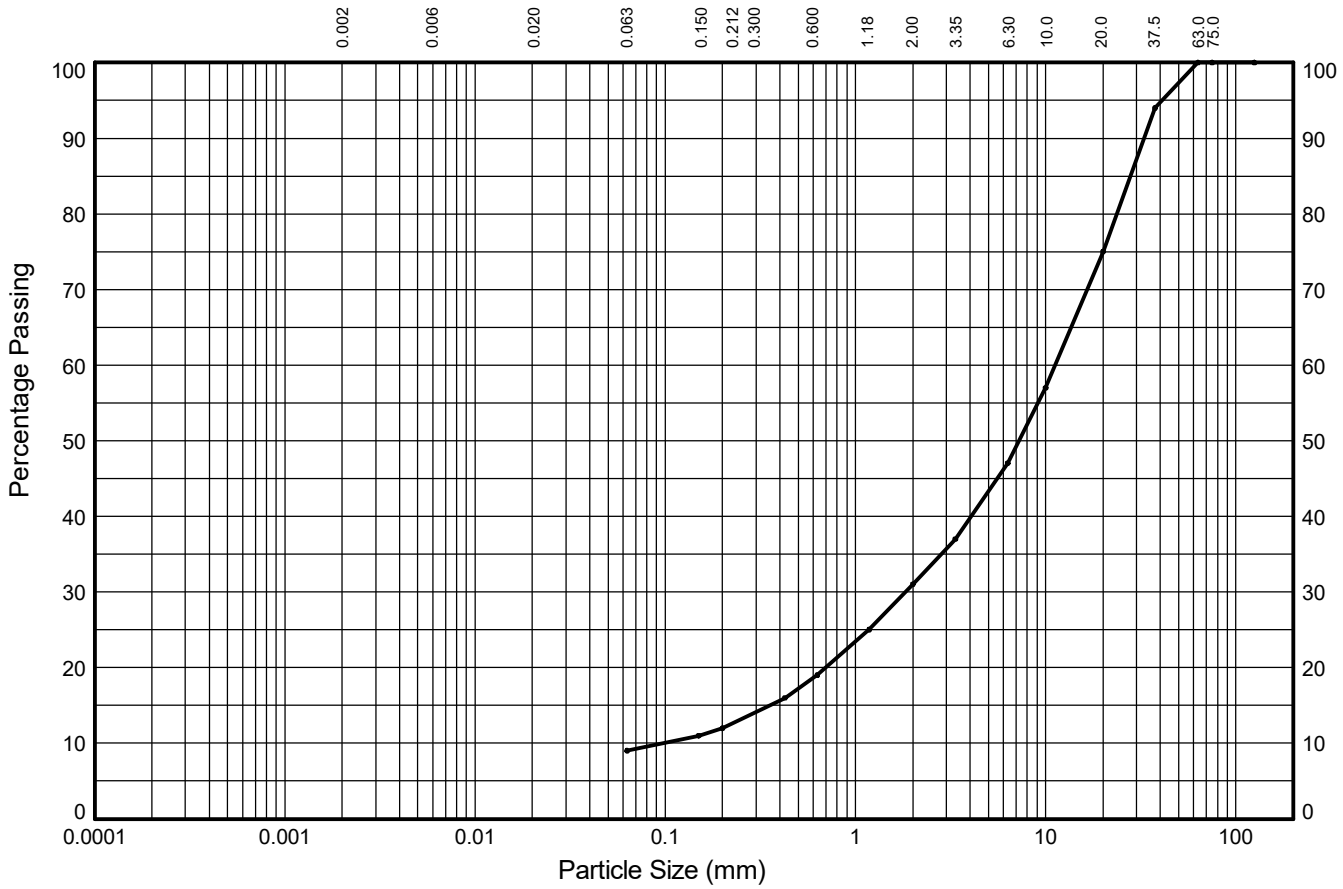
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Position ID: **CP13** Sample Ref: **19** Sample Type: **B** Depth (m): **4.50**



CLAY										
fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
-	-	-	3%	7%	12%	16%	28%	25%	
SILT			SAND			GRAVEL			
9%			22%			69%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**94**
20.0	**75**
10.0	**57**
6.30	**47**
3.35	**37**
2.00	**31**
1.18	**25**
0.630	**19**
0.425	**16**
0.200	**12**
0.150	**11**
0.063	**9**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.097**
D_{15} (mm)	**0.352**
D_{30} (mm)	**1.832**
D_{50} (mm)	**7.237**
D_{60} (mm)	**11.225**
D_{85} (mm)	**27.843**
D_{90} (mm)	**32.852**
C_U	**115**
C_C	**3**

Soil Description:

Brown sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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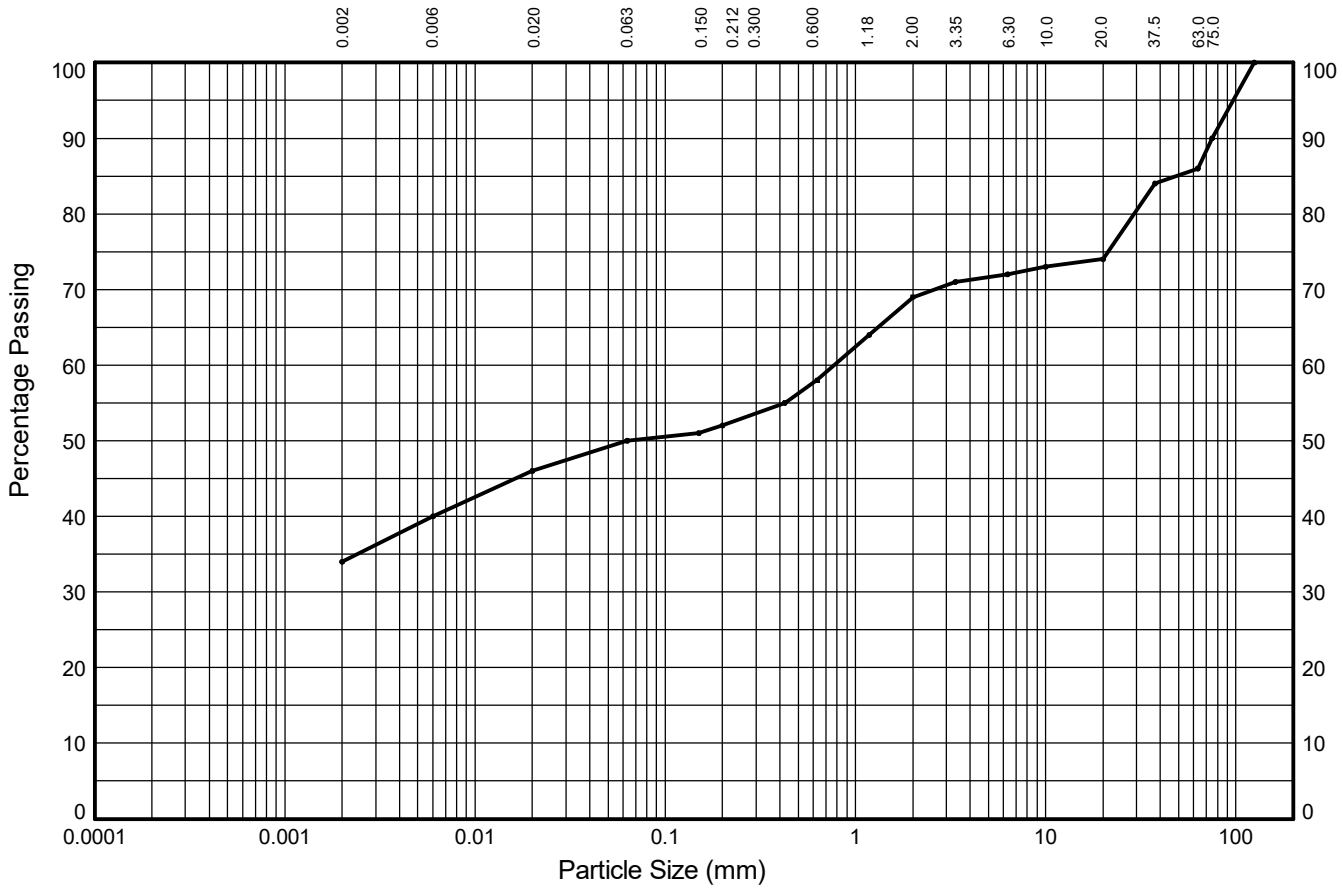
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP14** Sample Ref: **18** Sample Type: **B** Depth (m): **6.40**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	6%	4%	2%	6%	11%	3%	2%	12%	
	SILT			SAND			GRAVEL			
34%	16%			19%			17%			14%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**90**
63.0	**86**
37.5	**84**
20.0	**74**
10.0	**73**
6.30	**72**
3.35	**71**
2.00	**69**
1.18	**64**
0.630	**58**
0.425	**55**
0.200	**52**
0.150	**51**
0.063	**50**

Particle Diameter (mm)	Percent Passing (%)
0.02	**46**
0.006	**40**
0.002	**34**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.063**
D_{60} (mm)	**0.777**
D_{85} (mm)	**48.606**
D_{90} (mm)	**75.000**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy silty CLAY with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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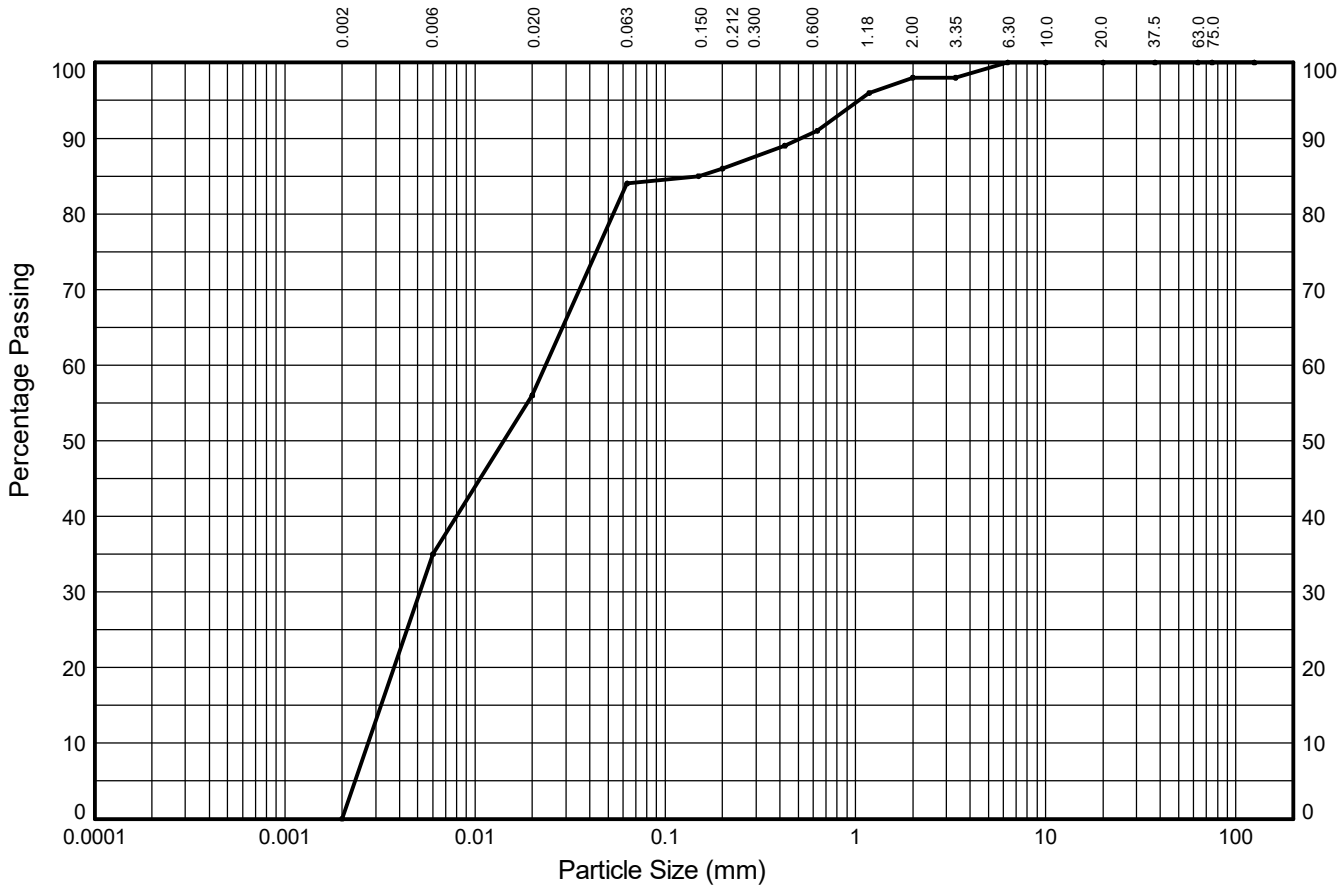
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP15** Sample Ref: **11** Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	35%	21%	28%	2%	5%	7%	2%	0%	0%	
	SILT			SAND			GRAVEL			
0%	84%			14%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**98**
2.00	**98**
1.18	**96**
0.630	**91**
0.425	**89**
0.200	**86**
0.150	**85**
0.063	**84**

Particle Diameter (mm)	Percent Passing (%)
0.02	**56**
0.006	**35**
0.002	**0**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.003**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.005**
D_{50} (mm)	**0.014**
D_{60} (mm)	**0.024**
D_{85} (mm)	**0.150**
D_{90} (mm)	**0.517**
C_U	**8.6**
C_C	**0.41**

Soil Description:

Brown/red slightly gravelly slightly sandy SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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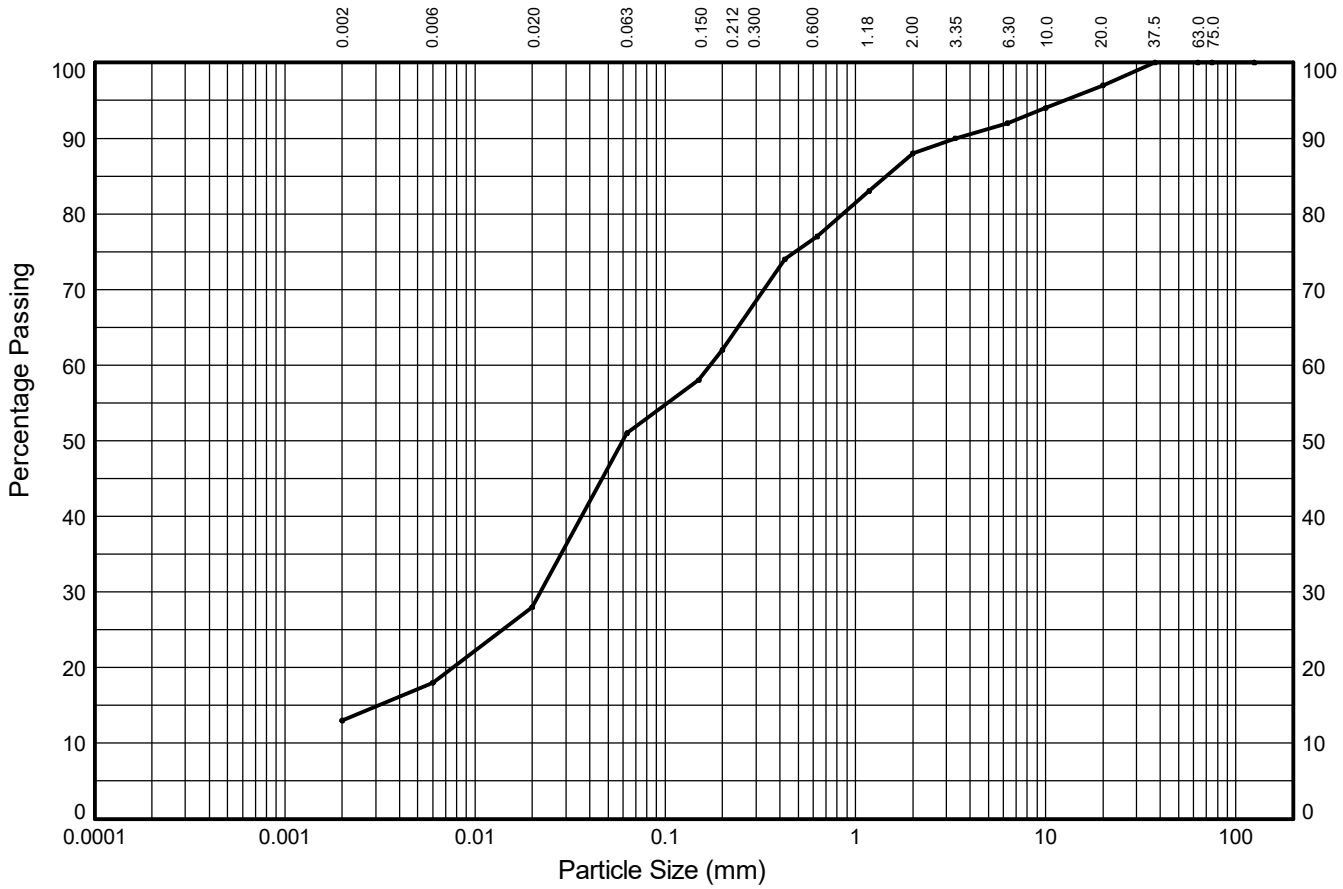
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP17** Sample Ref: **22** Sample Type: **B** Depth (m): **6.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	5%	10%	23%	11%	15%	11%	4%	5%	3%	
	SILT			SAND			GRAVEL			
13%	38%			37%			12%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**97**
10.0	**94**
6.30	**92**
3.35	**90**
2.00	**88**
1.18	**83**
0.630	**77**
0.425	**74**
0.200	**62**
0.150	**58**
0.063	**51**

Particle Diameter (mm)	Percent Passing (%)
0.02	**28**
0.006	**18**
0.002	**13**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.003**
D_{30} (mm)	**0.022**
D_{50} (mm)	**0.060**
D_{60} (mm)	**0.173**
D_{85} (mm)	**1.457**
D_{90} (mm)	**3.350**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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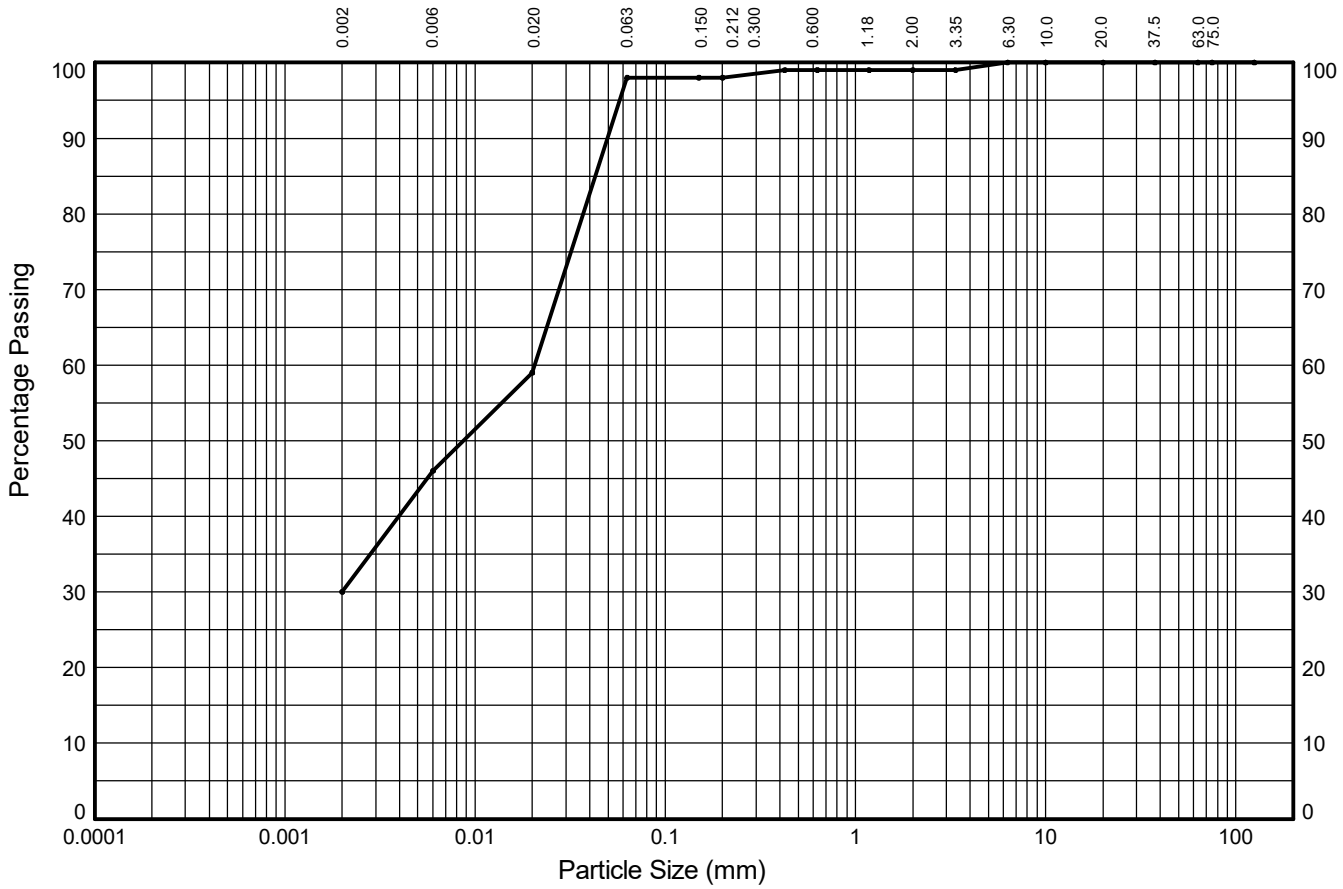
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP18** Sample Ref: **4** Sample Type: **B** Depth (m): **0.90**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	16%	13%	39%	0%	1%	0%	1%	0%	0%	
	SILT			SAND			GRAVEL			
30%	68%			1%			1%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**99**
2.00	**99**
1.18	**99**
0.630	**99**
0.425	**99**
0.200	**98**
0.150	**98**
0.063	**98**

Particle Diameter (mm)	Percent Passing (%)
0.02	**59**
0.006	**46**
0.002	**30**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.002**
D_{50} (mm)	**0.009**
D_{60} (mm)	**0.021**
D_{85} (mm)	**0.043**
D_{90} (mm)	**0.050**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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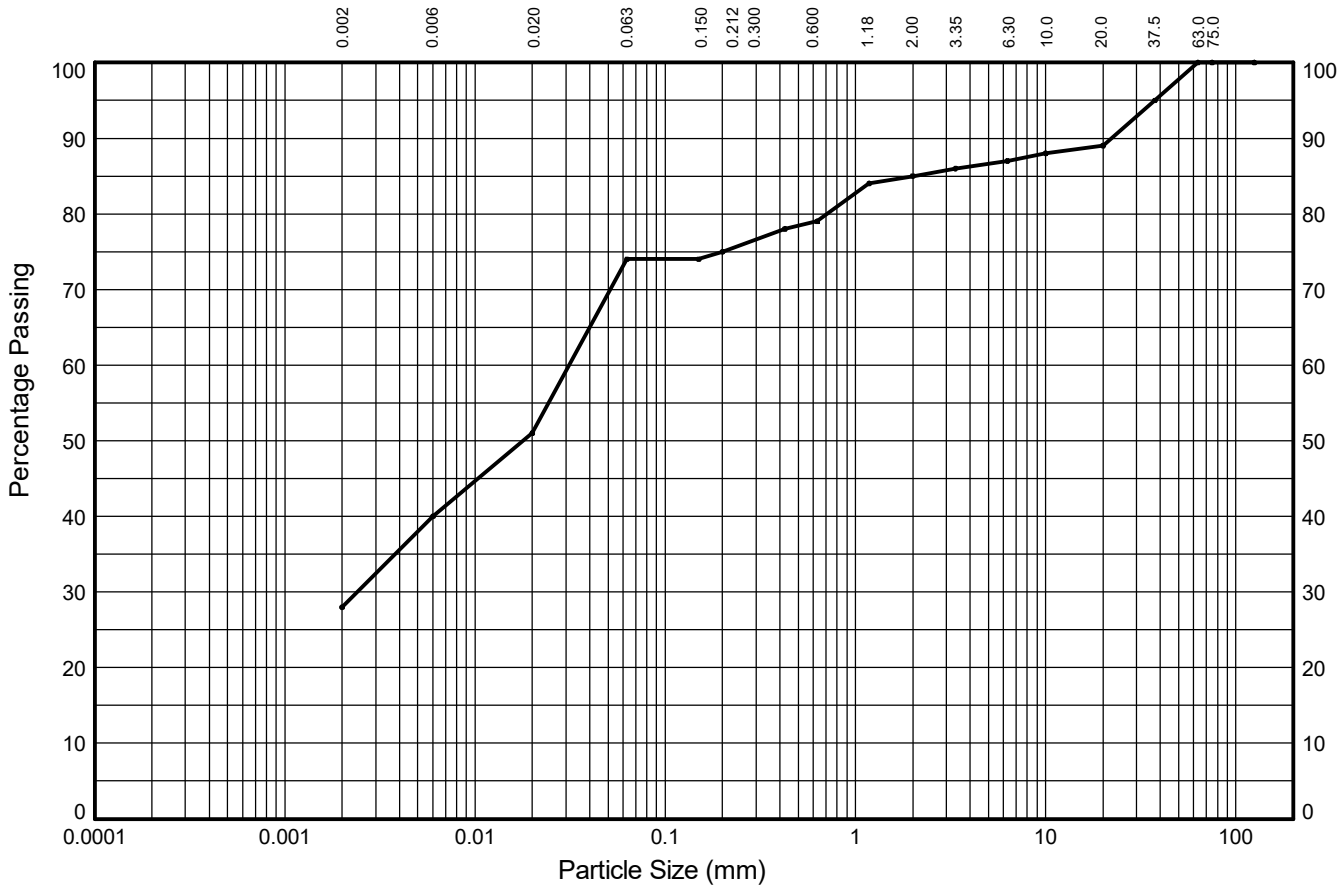
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP22** Sample Ref: **4** Sample Type: **B** Depth (m): **0.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	12%	11%	23%	1%	4%	6%	2%	2%	11%	
	SILT			SAND			GRAVEL			
28%	46%			11%			15%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**95**
20.0	**89**
10.0	**88**
6.30	**87**
3.35	**86**
2.00	**85**
1.18	**84**
0.630	**79**
0.425	**78**
0.200	**75**
0.150	**74**
0.063	**74**

Particle Diameter (mm)	Percent Passing (%)
0.02	**51**
0.006	**40**
0.002	**28**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.002**
D_{50} (mm)	**0.018**
D_{60} (mm)	**0.031**
D_{85} (mm)	**2.000**
D_{90} (mm)	**22.209**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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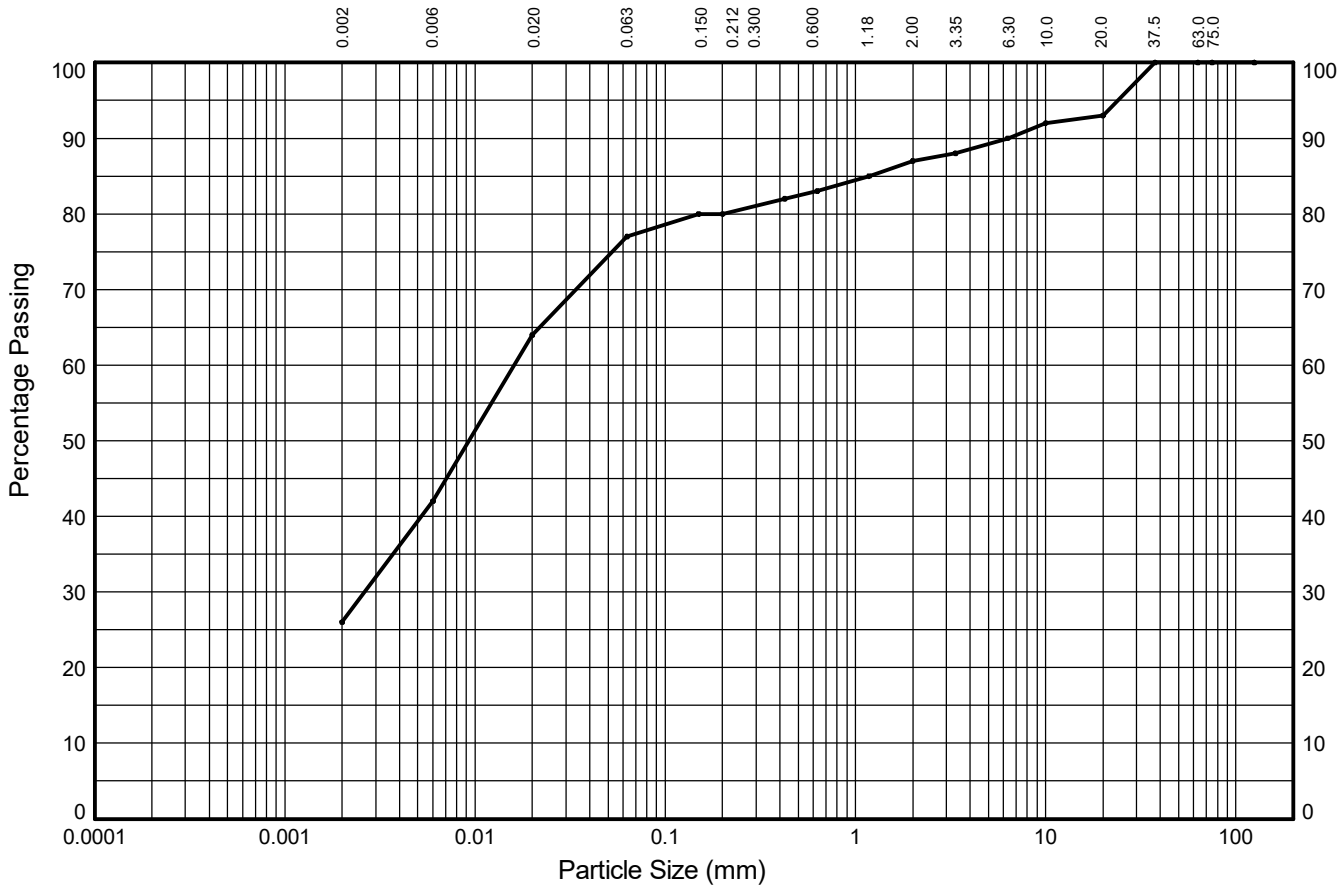
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Position ID: **CP24** Sample Ref: **5** Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	16%	22%	13%	3%	3%	4%	3%	3%	7%	
	SILT			SAND			GRAVEL			
26%	51%			10%			13%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**93**
10.0	**92**
6.30	**90**
3.35	**88**
2.00	**87**
1.18	**85**
0.630	**83**
0.425	**82**
0.200	**80**
0.150	**80**
0.063	**77**

Particle Diameter (mm)	Percent Passing (%)
0.02	**64**
0.006	**42**
0.002	**26**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.003**
D_{50} (mm)	**0.009**
D_{60} (mm)	**0.016**
D_{85} (mm)	**1.180**
D_{90} (mm)	**6.300**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown red slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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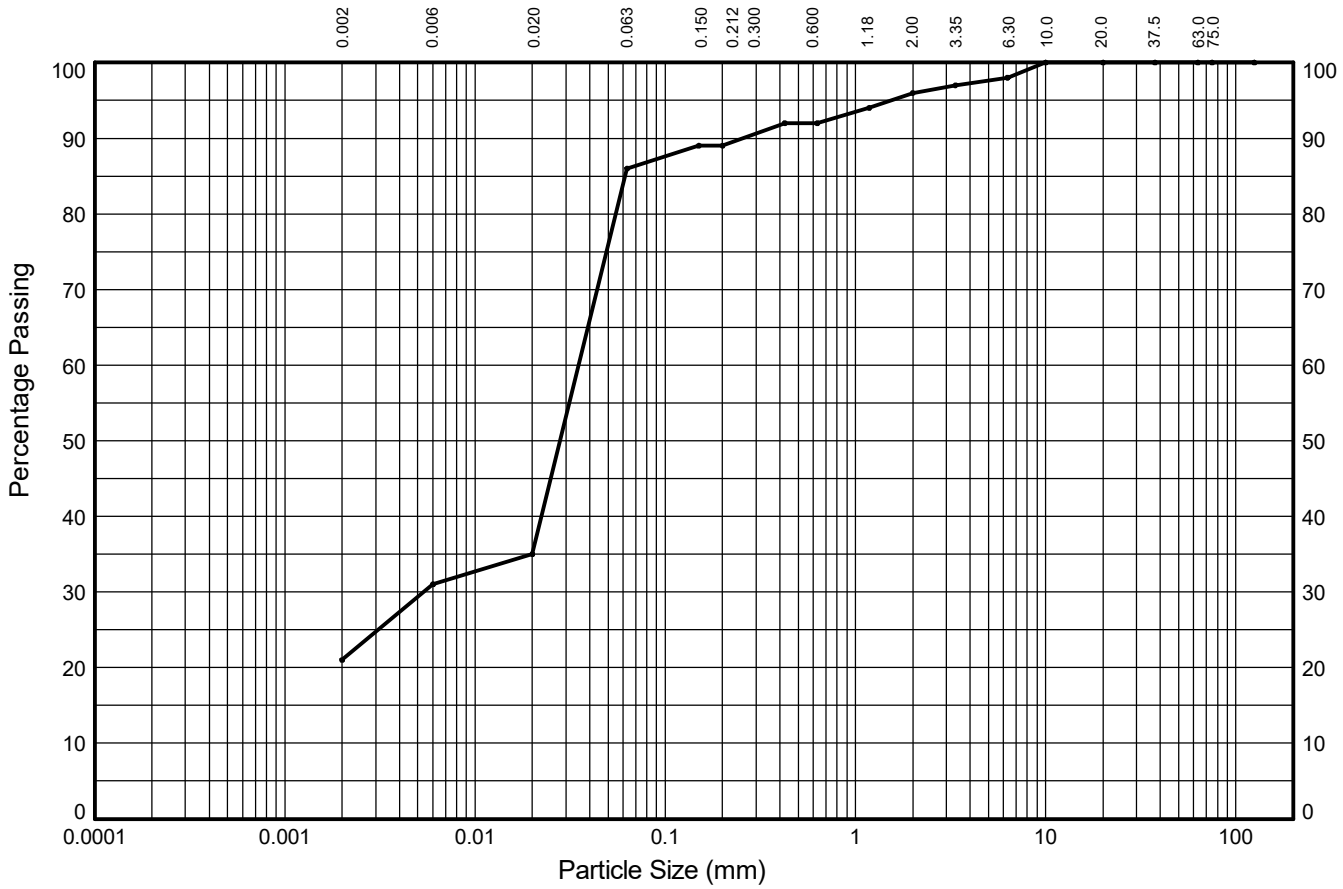
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP02** Sample Ref: **7** Sample Type: **D** Depth (m): **0.70**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	4%	51%	3%	3%	4%	2%	2%	0%	
	SILT			SAND			GRAVEL			
21%	65%			10%			4%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**98**
3.35	**97**
2.00	**96**
1.18	**94**
0.630	**92**
0.425	**92**
0.200	**89**
0.150	**89**
0.063	**86**

Particle Diameter (mm)	Percent Passing (%)
0.02	**35**
0.006	**31**
0.002	**21**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.005**
D_{50} (mm)	**0.028**
D_{60} (mm)	**0.035**
D_{85} (mm)	**0.062**
D_{90} (mm)	**0.257**
C_U	**NA**
C_C	**NA**

Soil Description:

Red brown slightly gravelly slightly sandy slightly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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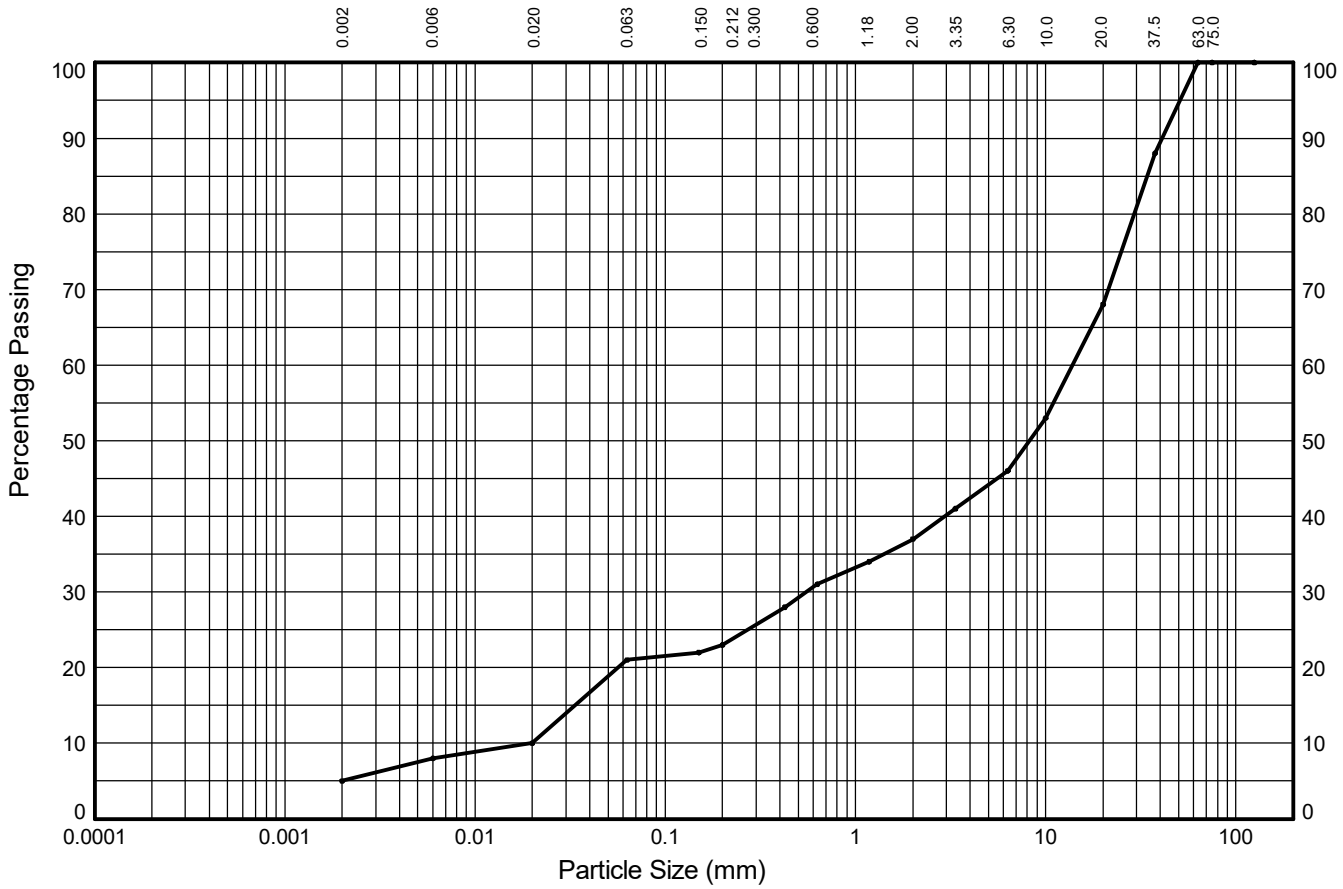
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Trial Pit: **TP06** Sample Ref: **14** Sample Type: **B** Depth (m): **2.10**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	3%	2%	11%	2%	8%	6%	9%	22%	32%	
	SILT			SAND			GRAVEL			
5%	16%			16%			63%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**88**
20.0	**68**
10.0	**53**
6.30	**46**
3.35	**41**
2.00	**37**
1.18	**34**
0.630	**31**
0.425	**28**
0.200	**23**
0.150	**22**
0.063	**21**

Particle Diameter (mm)	Percent Passing (%)
0.02	**10**
0.006	**8**
0.002	**5**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.020**
D_{15} (mm)	**0.034**
D_{30} (mm)	**0.553**
D_{50} (mm)	**8.204**
D_{60} (mm)	**13.819**
D_{85} (mm)	**34.126**
D_{90} (mm)	**40.887**
C_U	**691**
C_C	**1**

Soil Description:

Brown sandy clayey silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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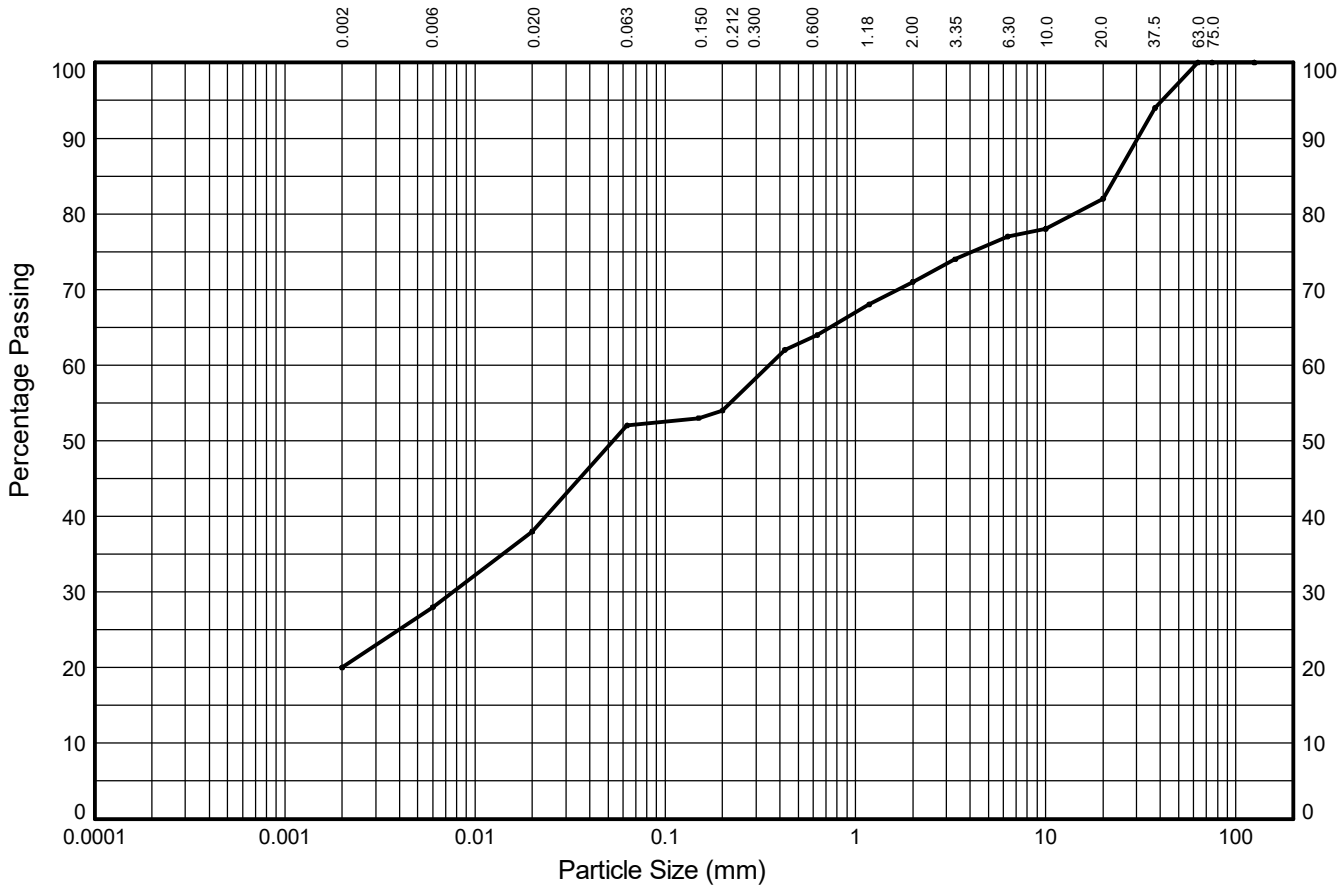
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP08** Sample Ref: **5** Sample Type: **LB** Depth (m): **0.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	8%	10%	14%	2%	10%	7%	6%	5%	18%	
	SILT			SAND			GRAVEL			
20%	32%			19%			29%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**94**
20.0	**82**
10.0	**78**
6.30	**77**
3.35	**74**
2.00	**71**
1.18	**68**
0.630	**64**
0.425	**62**
0.200	**54**
0.150	**53**
0.063	**52**

Particle Diameter (mm)	Percent Passing (%)
0.02	**38**
0.006	**28**
0.002	**20**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.008**
D_{50} (mm)	**0.053**
D_{60} (mm)	**0.352**
D_{85} (mm)	**23.403**
D_{90} (mm)	**30.411**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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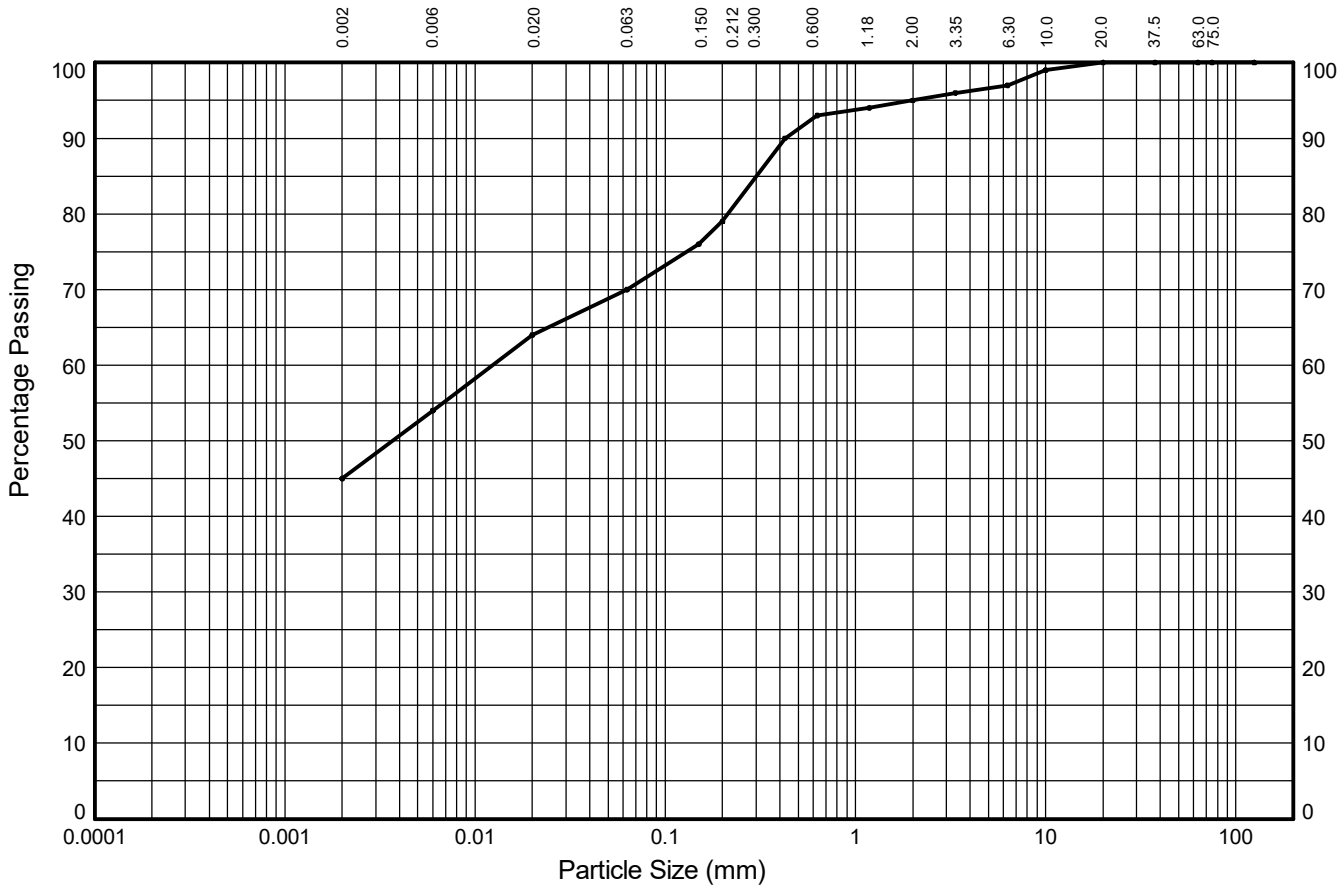
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP09** Sample Ref: **5** Sample Type: **LB** Depth (m): **0.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	9%	10%	6%	9%	14%	2%	2%	3%	0%	
	SILT			SAND			GRAVEL			
45%	25%			25%			5%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**97**
3.35	**96**
2.00	**95**
1.18	**94**
0.630	**93**
0.425	**90**
0.200	**79**
0.150	**76**
0.063	**70**

Particle Diameter (mm)	Percent Passing (%)
0.02	**64**
0.006	**54**
0.002	**45**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.004**
D_{60} (mm)	**0.012**
D_{85} (mm)	**0.302**
D_{90} (mm)	**0.425**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy silty CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP10** Sample Ref: **11** Sample Type: **LB** Depth (m): **1.40**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	13%	14%	10%	2%	16%	3%	2%	1%	1%	
	SILT			SAND			GRAVEL			
38%	37%			21%			4%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**99**
10.0	**98**
6.30	**98**
3.35	**97**
2.00	**96**
1.18	**95**
0.630	**93**
0.425	**86**
0.200	**77**
0.150	**76**
0.063	**75**

Particle Diameter (mm)	Percent Passing (%)
0.02	**65**
0.006	**51**
0.002	**38**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.006**
D_{60} (mm)	**0.013**
D_{85} (mm)	**0.391**
D_{90} (mm)	**0.532**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy silty CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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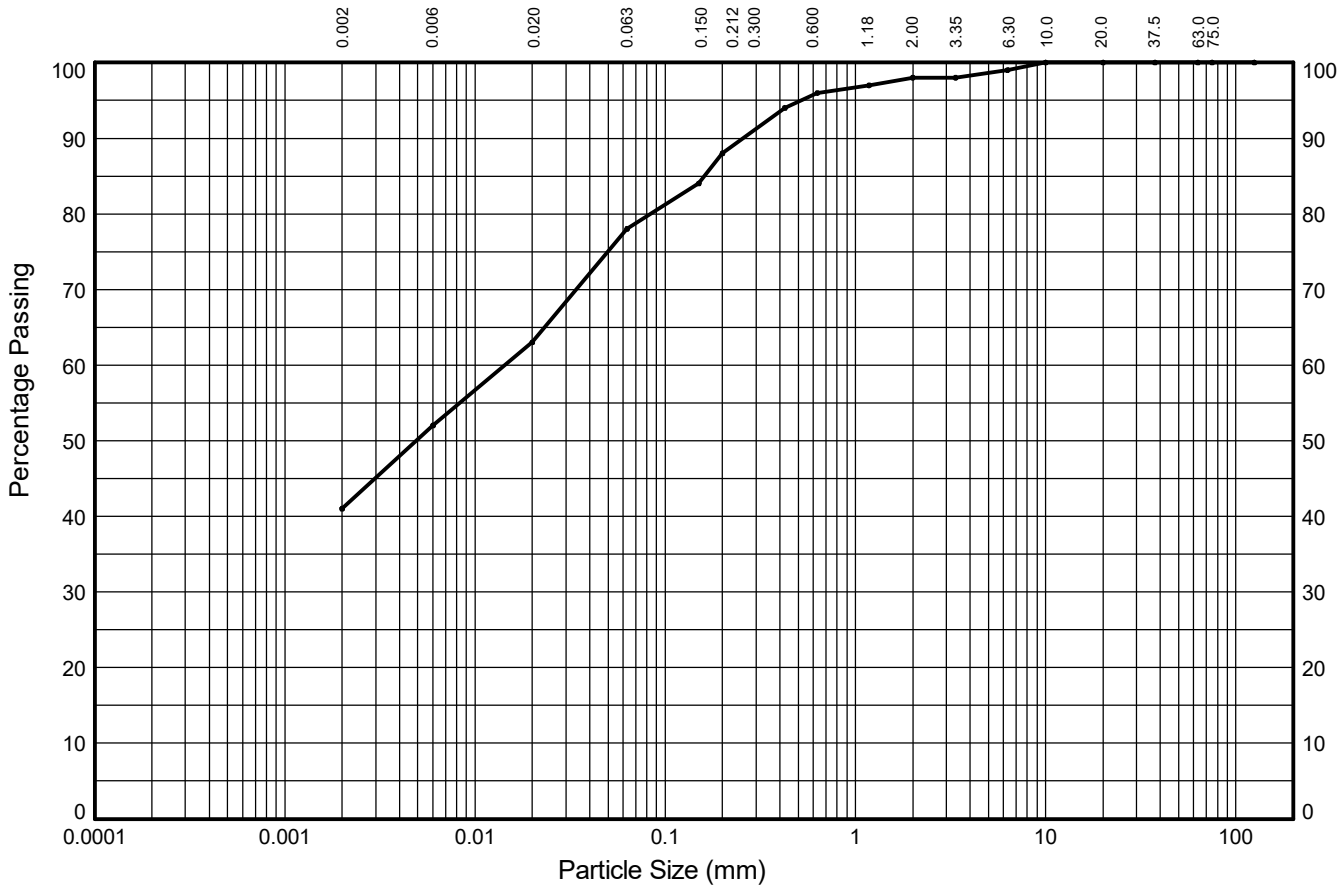
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP11** Sample Ref: **8** Sample Type: **B** Depth (m): **1.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	11%	11%	15%	10%	8%	2%	1%	1%	0%	
	SILT			SAND			GRAVEL			
41%	37%			20%			2%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**99**
3.35	**98**
2.00	**98**
1.18	**97**
0.630	**96**
0.425	**94**
0.200	**88**
0.150	**84**
0.063	**78**

Particle Diameter (mm)	Percent Passing (%)
0.02	**63**
0.006	**52**
0.002	**41**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.005**
D_{60} (mm)	**0.014**
D_{85} (mm)	**0.161**
D_{90} (mm)	**0.257**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy silty CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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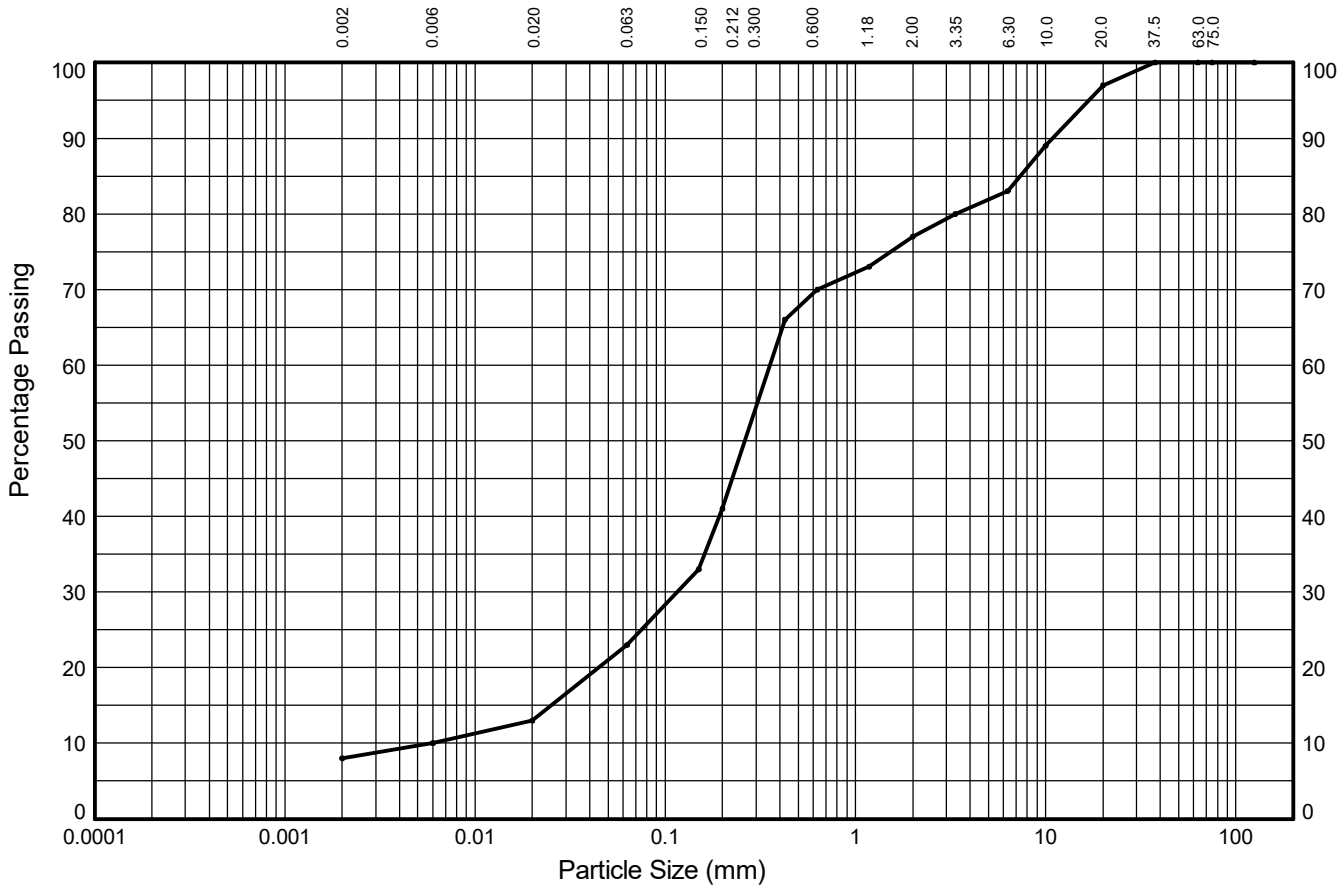
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Trial Pit: **TP13** Sample Ref: **5** Sample Type: **D** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	2%	3%	10%	18%	29%	7%	6%	14%	3%	
	SILT			SAND			GRAVEL			
8%	15%			54%			23%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**97**
10.0	**89**
6.30	**83**
3.35	**80**
2.00	**77**
1.18	**73**
0.630	**70**
0.425	**66**
0.200	**41**
0.150	**33**
0.063	**23**

Particle Diameter (mm)	Percent Passing (%)
0.02	**13**
0.006	**10**
0.002	**8**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.006**
D_{15} (mm)	**0.025**
D_{30} (mm)	**0.116**
D_{50} (mm)	**0.262**
D_{60} (mm)	**0.355**
D_{85} (mm)	**7.349**
D_{90} (mm)	**10.905**
C_U	**59**
C_C	**6**

Soil Description:

Brown very gravelly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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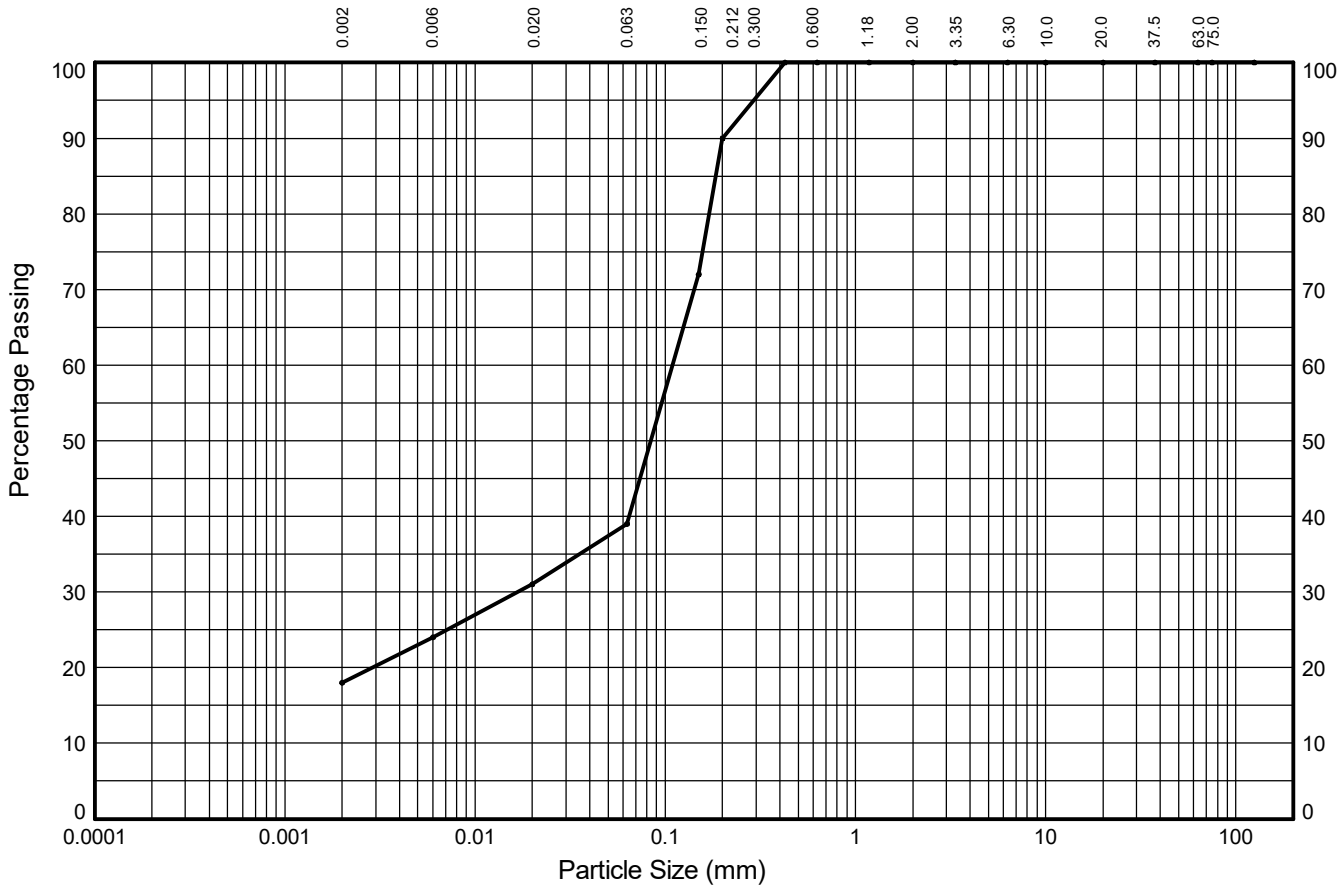
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP13** Sample Ref: **12** Sample Type: **B** Depth (m): **2.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	6%	7%	8%	51%	10%	0%	0%	0%	0%	
	SILT			SAND			GRAVEL			
18%	21%			61%			0%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**100**
2.00	**100**
1.18	**100**
0.630	**100**
0.425	**100**
0.200	**90**
0.150	**72**
0.063	**39**

Particle Diameter (mm)	Percent Passing (%)
0.02	**31**
0.006	**24**
0.002	**18**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.017**
D_{50} (mm)	**0.084**
D_{60} (mm)	**0.109**
D_{85} (mm)	**0.185**
D_{90} (mm)	**0.200**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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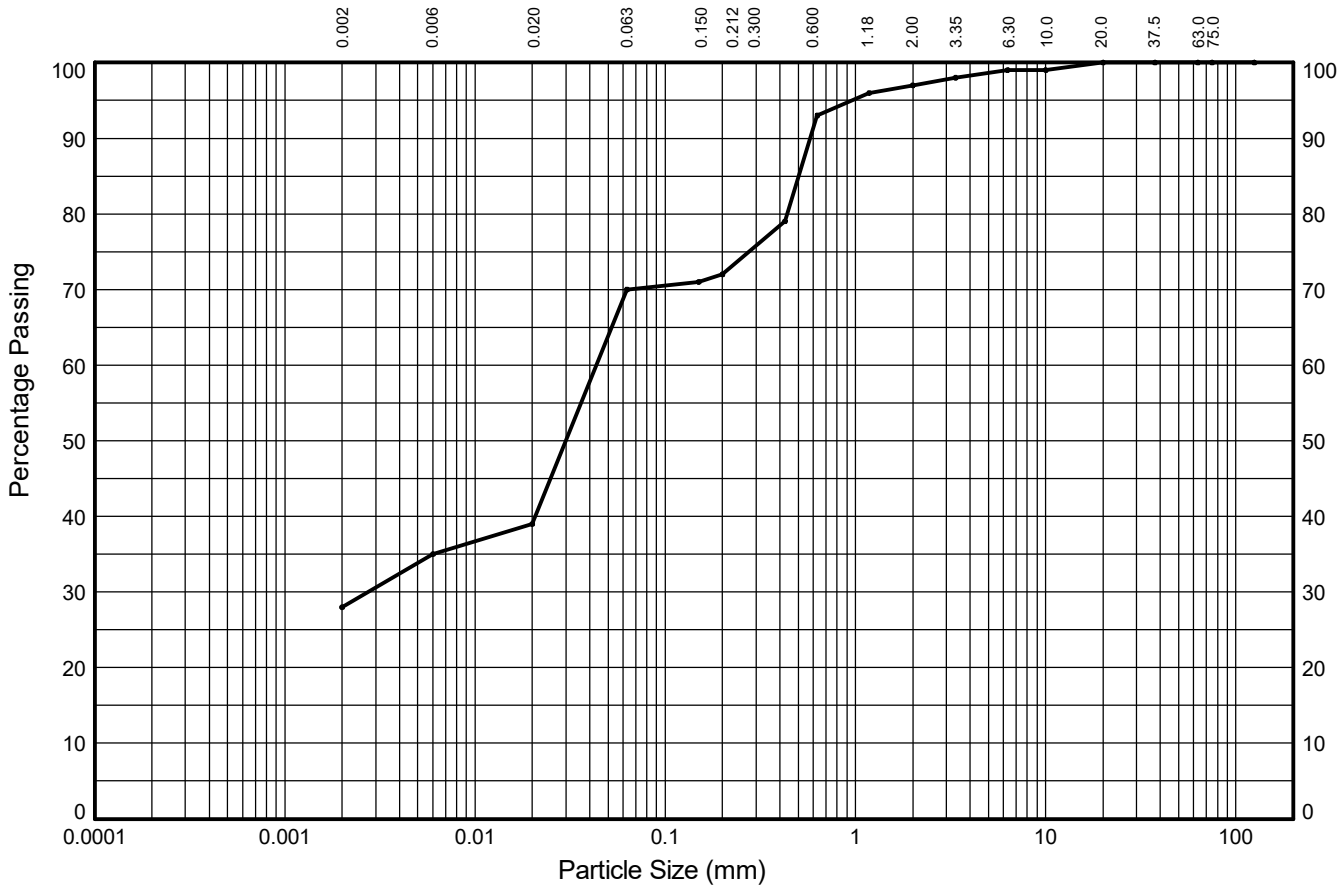
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP15** Sample Ref: **5** Sample Type: **B** Depth (m): **0.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	7%	4%	31%	2%	21%	4%	2%	1%	0%	
	SILT			SAND			GRAVEL			
28%	42%			27%			3%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**99**
6.30	**99**
3.35	**98**
2.00	**97**
1.18	**96**
0.630	**93**
0.425	**79**
0.200	**72**
0.150	**71**
0.063	**70**

Particle Diameter (mm)	Percent Passing (%)
0.02	**39**
0.006	**35**
0.002	**28**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.003**
D_{50} (mm)	**0.030**
D_{60} (mm)	**0.044**
D_{85} (mm)	**0.503**
D_{90} (mm)	**0.579**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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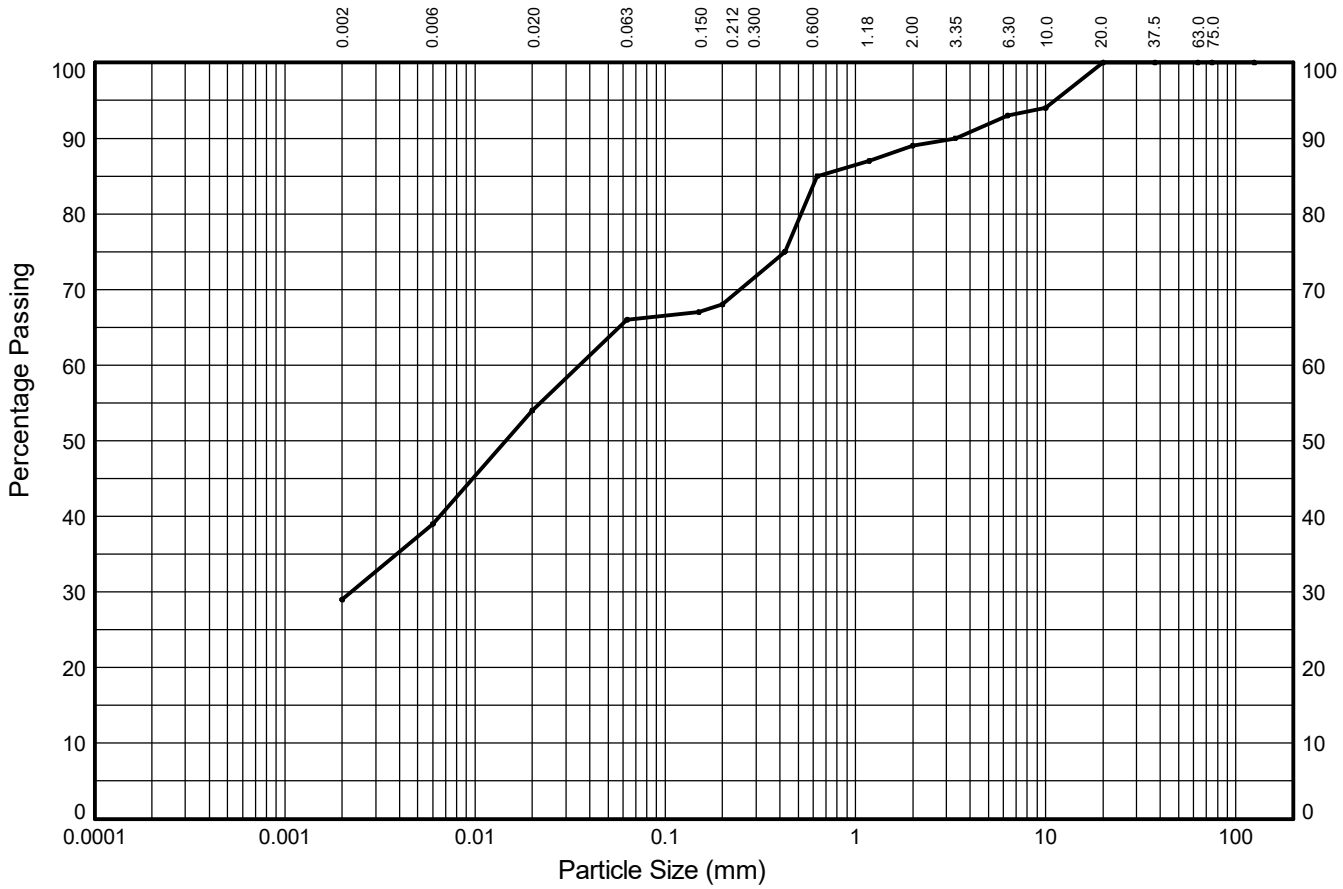
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/02/23 - 12:17 | LW5 |

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP18** Sample Ref: **11** Sample Type: **LB** Depth (m): **1.70**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	15%	12%	2%	17%	4%	4%	7%	0%	
	SILT			SAND			GRAVEL			
29%	37%			23%			11%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**94**
6.30	**93**
3.35	**90**
2.00	**89**
1.18	**87**
0.630	**85**
0.425	**75**
0.200	**68**
0.150	**67**
0.063	**66**

Particle Diameter (mm)	Percent Passing (%)
0.02	**54**
0.006	**39**
0.002	**29**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.002**
D_{50} (mm)	**0.015**
D_{60} (mm)	**0.035**
D_{85} (mm)	**0.630**
D_{90} (mm)	**3.350**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	27/02/23

Contract	Contract Ref:
EMG Phase 2	**765514**

AGS

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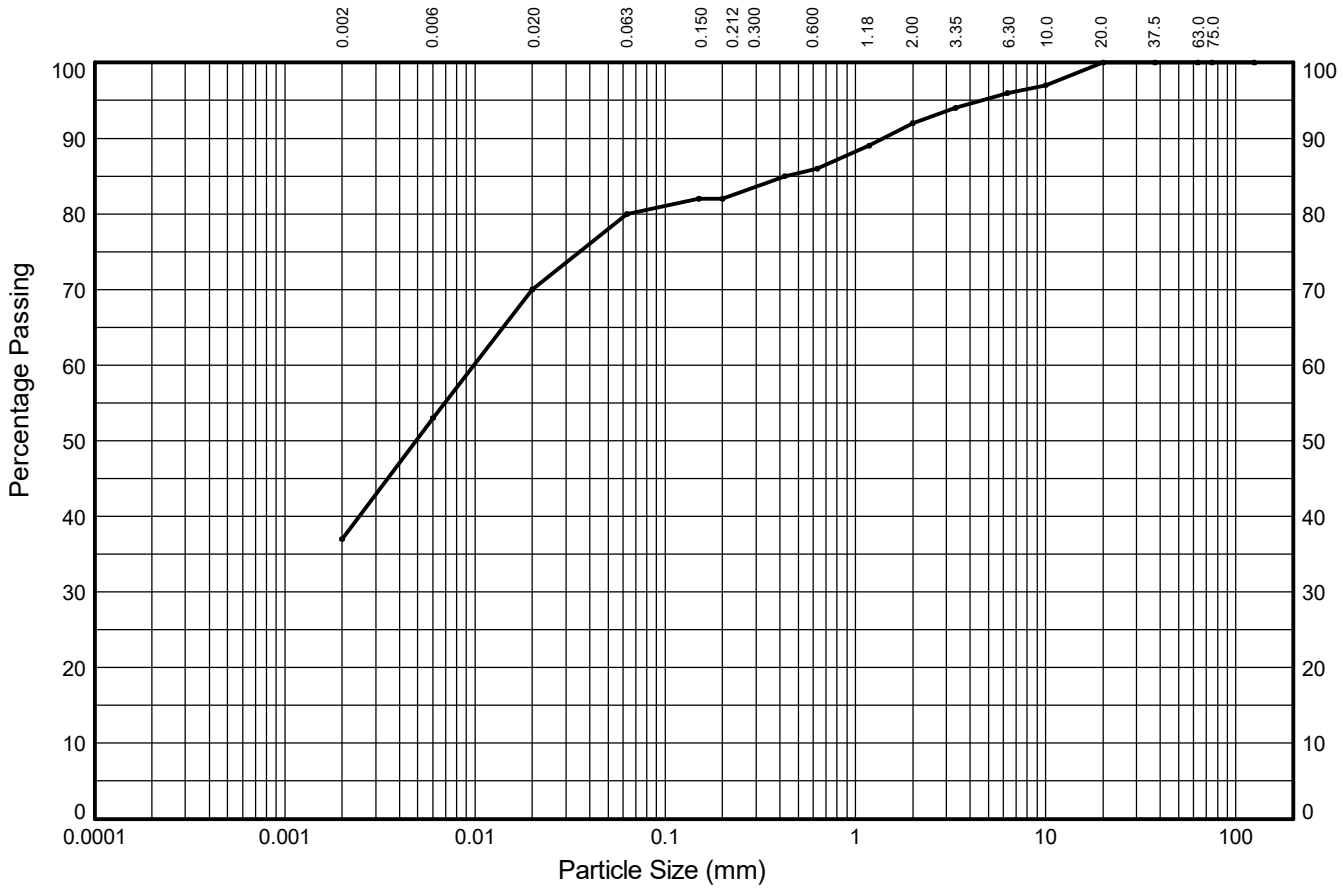
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP29** Sample Ref: **5** Sample Type: **D** Depth (m): **0.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	16%	17%	10%	2%	4%	6%	4%	4%	0%	
	SILT			SAND			GRAVEL			
37%	43%			12%			8%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**97**
6.30	**96**
3.35	**94**
2.00	**92**
1.18	**89**
0.630	**86**
0.425	**85**
0.200	**82**
0.150	**82**
0.063	**80**

Particle Diameter (mm)	Percent Passing (%)
0.02	**70**
0.006	**53**
0.002	**37**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.005**
D_{60} (mm)	**0.010**
D_{85} (mm)	**0.425**
D_{90} (mm)	**1.407**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly gravelly slightly sandy clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LORNA WHITWORTH	27/02/23

Contract	Contract Ref:
EMG Phase 2	**765514**

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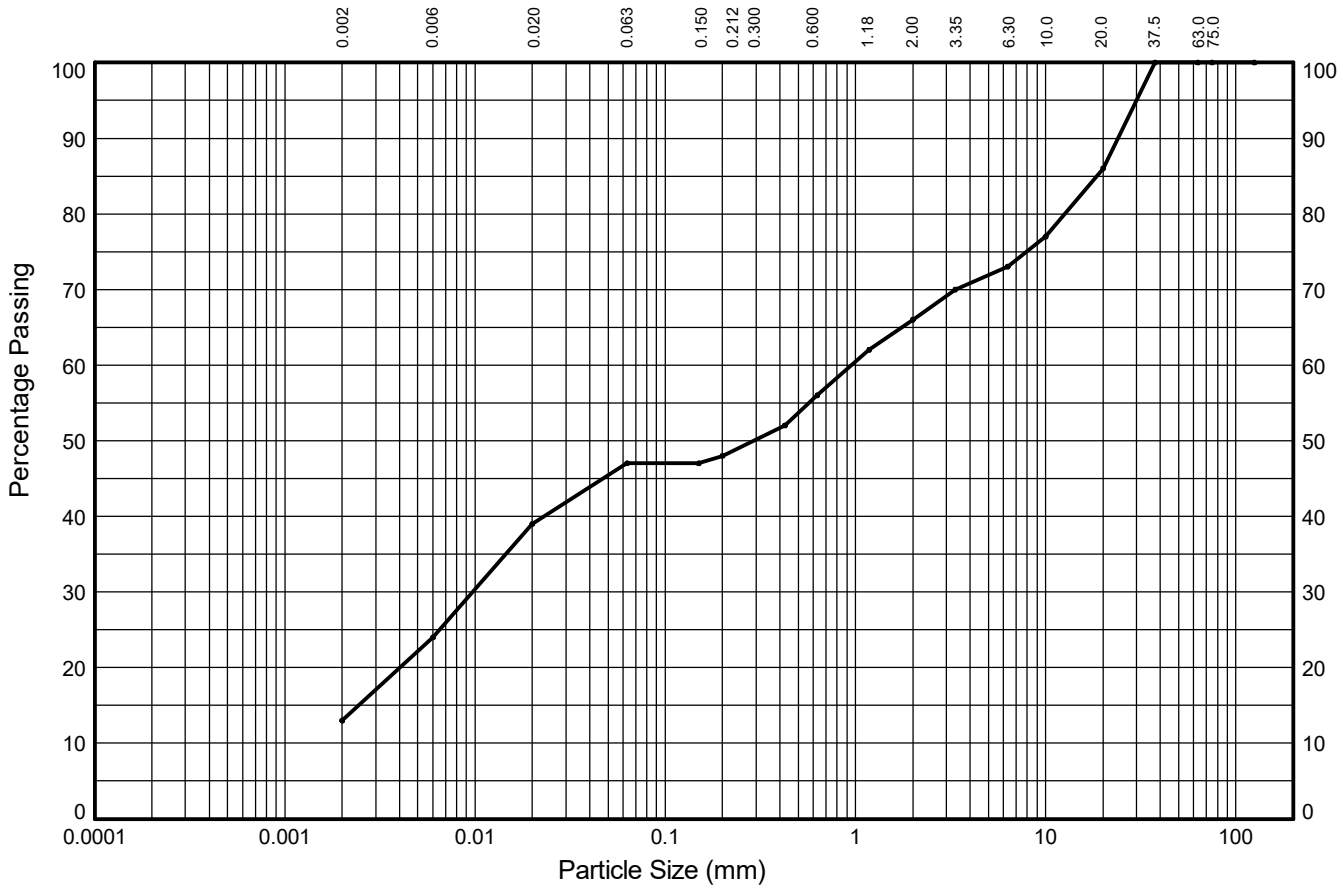
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 27/02/23 - 12:17 | LW5 |

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.4 of BS EN ISO 17892:Part 4:2016

Trial Pit: **TP36** Sample Ref: **18** Sample Type: **B** Depth (m): **2.70**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	11%	15%	8%	1%	8%	10%	7%	13%	14%	
	SILT			SAND			GRAVEL			
13%	34%			19%			34%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**86**
10.0	**77**
6.30	**73**
3.35	**70**
2.00	**66**
1.18	**62**
0.630	**56**
0.425	**52**
0.200	**48**
0.150	**47**
0.063	**47**

Particle Diameter (mm)	Percent Passing (%)
0.02	**39**
0.006	**24**
0.002	**13**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.002**
D_{30} (mm)	**0.010**
D_{50} (mm)	**0.292**
D_{60} (mm)	**0.957**
D_{85} (mm)	**18.517**
D_{90} (mm)	**23.935**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
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Compiled By	Date
LAURA SCHRAMM	27/02/23

Contract	Contract Ref:
EMG Phase 2	**765514**

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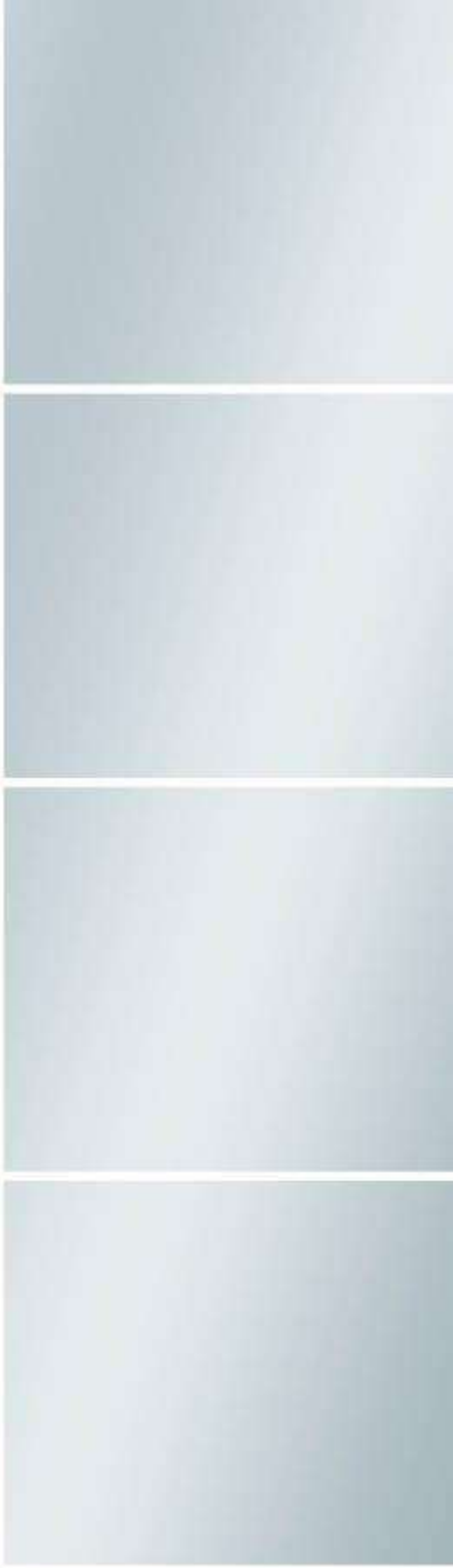

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APPENDIX B

RSK ENVIRONMENT LTD. EXPLORATORY HOLE LOGS

KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF ABBREVIATIONS

SAMPLING

Sample type codes

B	=	Bulk disturbed sample.
C	=	Core sample.
CS	=	Core sample taken from rotary core for lab testing.
D	=	Small disturbed sample.
DSPT	=	Small disturbed sample originating from SPT test.
ES	=	Soil sample for environmental testing.
U	=	Undisturbed driven tube sample - Number of blows indicated. % recovery reported.

Undisturbed sample detail codes

$U_{(100)}$	=	100mm diameter undisturbed sample.

IN-SITU TESTING

$SPT_{(c)}$	=	Standard Penetration Test using a solid 60 degree cone.
SPT	=	Standard Penetration Test using split spoon sampler. ($SPT_{(NR)}$ indicates 'No Sample Recovery').
	=	* denotes extrapolated N value. NP denotes 'No Penetration'.
V	=	Field Vane Test. Peak value (c_u) & Residual value (c_r), given as shear strength in kPa.

ROTARY DRILLING INFORMATION

W	=	Water flush returns (%)
TCR	=	Total core recovery (%)
SCR	=	Solid core recovery (%)
RQD	=	Rock quality designations (%)
If	=	Fracture spacing (mm).
		In the fracture column (i) denotes discontinuity is infilled (refer to Fracture Table for details).
		Where variable the minimum - average - maximum spacing may be quoted.
		'NI' denotes non-intact core. 'NA' denotes not applicable.

All lengths used to determine rock core mechanical properties taken along the centre line of the core.
Obvious induced fractures have been ignored.
The assessment of solid core is based on lengths that show a full diameter and not necessarily a full circumference.
AZCL = Assessed zone of core loss.

ADDITIONAL NOTES

1. All soil and rock descriptions and legends in general accordance with BS EN ISO 14688-1, 14688-2, 14689-1, and BS5930:1999 including Amendment 2 (2010).
2. Material types divided by a broken line (- - -) indicates an unclear boundary.
3. The data on any sheet within the report showing the AGS icon is available in the AGS format.

GINT_LIBRARY_V8_05.GLB'GrfcText G - LEGEND - 1 OF 2 | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 29/11/13 - 10:00 | KF.
RSK Environment Ltd, The Enterprise Centre, Coventry University Technology Park, Coventry, CV1 2TX. Tel: 02476 236816, Fax: 02476 236014, Web: www.rsk.co.uk.

Contract Reference: **312494**

KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF GRAPHIC SYMBOLS

WATER COLUMN SYMBOLS

First water strike, second water strike etc.

Standing water level following first strike, standing water level following second strike etc.

Seepage.

Standing water level recorded at documented date.

MATERIAL GRAPHIC LEGENDS

	CLAY		Clayey gravelly SAND		Gravelly clayey SAND		Clayey gravelly SAND with COBBLES
	Clayey SAND		Clayey SAND with COBBLES		Clayey sandy GRAVEL		GRAVEL
	GRAVEL with COBBLES		Gravelly CLAY		Gravelly silty CLAY		Silty gravelly CLAY
	Silty gravelly CLAY with COBBLES		Gravelly SAND		Gravelly clayey SILT		Gravelly SILT
	MADE GROUND		Mudstone		SAND		SAND with COBBLES

INSTRUMENTATION SYMBOLS

	Backfill		Bentonite seal		Concrete		Gravel filter
	Sand filter		Stopcock cover				
	Piezometer tip		Plain pipe		Slotted pipe		

GINT_LIBRARY_V8_05.GLB!Grf¢Text G - LEGEND - 2 OF 2 | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 29/11/13 - 10:00 | KF
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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP203**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**25.9.13**	**67.92**	**E:447184.9 N:326594.2**	**1** of **1**
	End: **25.9.13**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown slightly gravelly sandy CLAY. Gravel is angular to subangular fine to medium brick, sandstone. Occasional rootlets. (SUBSOIL)	(0.40)	
							0.40	
0.50	2	D				Red Brown slightly gravelly clayey fine SAND. Gravel is angular to subangular fine to medium sandstone. Occasional rootlets. (Weathering Grade IVa) (TARPORLEY SILTSTONE FORMATION)	(0.50)	
0.80-0.80	3	B					0.90	
1.00	4	D				Stiff red brown clayey SILT. Occasional black staining. (Weathering Grade IVa) (TARPORLEY SILTSTONE FORMATION)		
1.20-1.65	5	U	29 blows 90% recovery				(0.80)	
							1.70	
1.70	6	D				Stiff red brown silty CLAY. Recovery includes occasional fine to angular to subangular fine to medium sandstone skerries fragments. (Weathering Grade IVb) (TARPORLEY SILTSTONE FORMATION)	(0.30)	
							2.00	
2.00	7	D				Stiff to very stiff red brown silty clay becoming very weak red brown MUDSTONE. Occasional silt bedding and occasional grey reduction spots and sandstone skerries. (Weathering Grade III) (TARPORLEY SILTSTONE FORMATION)		
2.20-2.65	1	SPT	N=33					
2.20-2.70	8	B						
2.90	9	D						
3.00-3.45	2	SPT	N=38				(2.11)	
3.70-4.00	3	SPT	N=100*			. . . at 3.70m bgl, very weak to weak.		
3.70	10	D						
4.00-4.11	4	SPT	N=333*			. . . at 4.00m bgl, moderately weak.	4.11	
4.00	11	D						
						Borehole terminated at 4.11m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
25/09/13		1.20	1.20	150	Dry
25/09/13		2.20	1.50	150	Dry
25/09/13		3.00	3.00	150	Dry
25/09/13		3.70	3.00	150	Dry
25/09/13		4.00	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.70	4.00	01:00

General Remarks

1. Location scanned with CAT and signal generator prior to breaking ground. No services encountered.
2. Hand dug inspection pit excavated to 1.20m bgl
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 4.00m bgl upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	TMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log CABLE PERCUSSION LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:43 | KF.
RSK Environment Ltd, The Enterprise Centre, Coventry University Technology Park, Coventry, CV1 2TX. Tel: 02476 236816, Fax: 02476 236014, Web: www.rsk.co.uk.

BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP205**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**25.9.13** End: **26.9.13**	**56.42**	**E:447286.1 N:326756.4**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown slightly clayey fine SAND with occasional black organic spots and rootlets. (SUBSOIL)	(0.60)	
							0.60	
0.70	2	D				Brown sandy CLAY with occasional rootlets. (HEAD DEPOSITS)	(0.30)	
							0.90	
1.00	3	D				Stiff red brown silty CLAY. Recovery includes occasional angular, tabulated fine to coarse sandstone and mudstone lithorelicts. (Weathering Grade IVa) (TARPORLEY SILTSTONE FORMATION)	(0.50)	
1.20-1.65	1	SPT	N=18					
1.20-1.70	4	B					1.40	
2.00	5	D				Stiff red brown mottled grey CLAY. Recovery includes occasional angular fine to coarse sandstone, mudstone and siltstone lithorelicts. (Weathering Grade IVb) (TARPORLEY SILTSTONE FORMATION)		
2.20-2.65	2	SPT	N=29			. . . at 2.20m bgl, becomes stiff to very stiff.	(1.90)	
2.90	6	D						
3.00-3.40	3	SPT	N=61*					
3.00-3.40	7	B					3.30	
3.70	8	D				Very weak to weak red brown MUDSTONE with occasional grey reduction spots and sandstone skerries. (Weathering Grade III) (TARPORLEY SILTSTONE FORMATION)		
3.80-4.05	4	SPT	N=158*				(1.07)	
4.30-4.37	5	SPT	N=500*			. . . at 4.30m bgl, moderately weak to moderately strong.	4.37	
4.30	9	D				Borehole terminated at 4.37m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
25/09/13		2.65	1.50	150	Dry
26/09/13		4.36	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.40	3.80	01:00
3.80	4.30	01:00

General Remarks

1. Location scanned with CAT and signal generator prior to breaking ground. No services encountered.
2. Hand dug inspection pit excavated to 1.20m bgl
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 4.30m bgl upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	TMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log CABLE PERCUSSION LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:43 | KF.
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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP206**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**1.10.13** End: **2.10.13**	**51.90**	**E:447411.8 N:326888.7**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-1.00	1	B				Red brown sandy CLAY. Recovery includes occasional angular fine to coarse sandstone skerries fragments. (Weathering Grade IVa) (TARPORLEY SILTSTONE FORMATION)	(2.00)	
1.00-1.50	2	B						
1.50-1.95	3	$U_{(100)}$	60 blows 75% recovery					
							2.00	
2.00-2.15	1	SPT	N=200*			Weak to moderately weak red brown thinly bedded MUDSTONE and SANDSTONE. (Weathering Grade III) (TARPORLEY SILTSTONE FORMATION)	(1.00)	
2.00	4	D						
2.00-2.45	5	B						
2.50-3.00	6	B						
							3.00	
3.00-3.05	2	SPT	N=600*			Moderately weak to moderately strong grey and red/brown fine grained thinly bedded SANDSTONE. (Weathering Grade III) (BROMSGROVE SANDSTONE FORMATION)	(0.35)	
3.00-3.30	7	B						
3.30-3.35	3	SPT(c)	N=600*				3.35	
						Borehole terminated at 3.35m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
01/10/13		2.00	1.50	150	Dry
02/10/13		3.35	1.50	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.00	3.30	01:00

General Remarks

1. Location scanned with GPR a CAT and signal generator prior to breaking ground. No services encountered.
2. Hand dug inspection pit excavated to 1.20m bgl
3. Groundwater not encountered.
4. Borehole backfilled with arisings upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**TC**	**GShaw**	TMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log CABLE PERCUSSION LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:43 | KF.
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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP219**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**26.9.13** End: **27.9.13**	**54.46**	**E:446922.2 N:327317.5**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown slightly gravelly clayey fine SAND. Gravel is subangular to rounded fine to medium quartzite, sandstone and occasional rootlets. (TOPSOIL)	(0.30) 0.30	
0.60	2	D				Firm to stiff red brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite, sandstone and occasional rootlets. (THRUSSINGTON MEMBER)	(1.50)	
1.20-1.65	3	$U_{(100)}$	56 blows 100% recovery					
1.70	4	D					1.80	
1.90	5	D				Stiff grey and red brown slightly sandy silty CLAY. Recovery includes occasional angular to subangular fine to medium mudstone and sandstone lithorelicts fragments. (Weathering Grade IVb) (TARPORLEY SILTSTONE FORMATION)	(1.00)	
2.00-2.45	1	SPT	N=22					
2.00-2.50	6	B					2.80	
2.90	7	D				Stiff red brown slightly silty CLAY. Recovery includes occasional angular to subangular fine to coarse mudstone, with occasional sandstone skerries fragments. (Weathering Grade IVb) (EDWALTON MEMBER)		
3.00-3.45	8	$U_{(100)}$	75 blows 70% recovery					
3.50	9	D					(1.50)	
4.00	10	D						
4.10-4.47	2	SPT	N=70*			. . . at 4.10m bgl, becoming very stiff.		
4.10-4.50	11	B					4.30	
						Description on next sheet		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/09/13		1.70	-	150	Dry
27/09/13		7.70	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
6.80	7.10	01:00
7.10	7.50	01:00

General Remarks

1. Location scanned with CAT and signal generator prior to breaking ground. No services encountered.
2. Hand dug inspection pit excavated to 1.20m bgl
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 7.50m bgl upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log CABLE PERCUSSION LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:46 | KF.
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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP219**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**26.9.13** End: **27.9.13**	**54.46**	**E:446922.2 N:327317.5**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
4.90	12	D				Very stiff to very weak red brown SILTSTONE with occasional grey sandstone skerries. (Weathering Grade III) (EDWALTON MEMBER) . . . at 4.30m bgl, becoming very stiff.*(stratum copied from 4.30m from* previous sheet)	(2.50)	
5.00-5.45	3	SPT	N=46					
5.90	13	D						
6.00-6.39	4	SPT	N=62*					
6.00-6.50	14	B					6.80	
6.90	15	D				Weak red brown thinly bedded MUDSTONE with occasional grey sandstone skerries. (Weathering Grade III) (EDWALTON MEMBER)	(0.90)	
7.10-7.34	5	SPT	N=167*					
7.40	16	D						
7.50-7.71	6	SPT	N=158*				7.70	
						Borehole terminated at 7.70m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	DMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP220**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**26.9.13**	**43.62**	**E:447285.5 N:327287.4**	**1** of **2**
	End: **26.9.13**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown slightly clayey silty fine SAND with occasional rootlets. (TOPSOIL)	(0.45)	
0.20	1	D					0.45	
0.50-0.80	2	B				Orange brown slightly gravelly silty fine SAND. Gravel is subrounded to rounded fine to coarse quartzite. (HEAD DEPOSITS)	(0.35)	
0.55	3	D					0.80	
0.90	4	D				Firm red brown slightly silty CLAY with occasional rootlets. (HEAD DEPOSITS)	(0.70)	
1.20-1.65	5	$U_{(100)}$	29 blows 90% recovery				1.50	
						Red brown slightly clayey medium to coarse SAND. (HEAD DEPOSITS)	(0.30)	
1.70	6	D					1.80	
2.00	7	D				Firm red brown mottled grey sandy CLAY. Recovery includes occasional subangular to subrounded fine to coarse sandstone and mudstone lithorelicts. (Weathering Grade IVb) (EDWALTON MEMBER)	(1.00)	
2.20-2.65	1	SPT	N=9					
2.20-2.70	8	B					2.80	
2.90	9	D				Very weak red brown MUDSTONE thinly bedded with sandstone. Recovered as fine to coarse gravel sized tabular angular fragments. Occasional grey reduction spots. (Weathering Grade III) (EDWALTON MEMBER)		
3.00-3.45	10	$U_{(100)}$	87 blows 80% recovery					
3.50	11	D					(1.60)	
4.00	12	D						
4.10-4.51	2	SPT	N=58*					
4.10-4.50	13	B					4.40	
						Description on next sheet		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/09/13		5.92	3.00	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
4.50	4.90	01:00
5.20	5.70	01:00

General Remarks

1. Location scanned with GPR a CAT and signal generator prior to breaking ground. No services encountered.
2. Hand dug inspection pit excavated to 1.20m bgl
3. Groundwater not encountered.
4. Gas and groundwater monitoring well installed to 5.70m bgl upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	TMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP220**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**26.9.13**	**43.62**	**E:447285.5 N:327287.4**	**2** of **2**
	End: **26.9.13**			

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
4.90-5.22	3	SPT	N=88*			Red brown SILTSTONE with occasional grey reduction spots. (Weathering Grade III) (EDWALTON MEMBER)		
4.90	14	D				. . . at 4.40m bgl, becoming weak.*(stratum copied from 4.40m from* previous sheet)		
						. . . at 4.90m bgl, becomes very weak.	(1.52)	
5.60	15	D						
5.70-5.93	4	SPT	N=167*			. . . at 5.70m bgl, becomes weak.	5.92	
						Borehole terminated at 5.92m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	TMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log CABLE PERCUSSION LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:46 | KF.
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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP222**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**3.10.13**	**37.05**	**E:447259.3 N:327820.5**	**1** of **2**
	End: **3.10.13**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over brown slightly clayey SAND, with occasional rootlets. (MADE GROUND)	0.15	
0.25	1	D				Coarse angular GRAVEL of limestone. (MADE GROUND)	0.30	
0.40	2	D				Brown slightly clayey gravelly fine SAND. Gravel is subrounded to rounded quartzite and sandstone. (WANLIP MEMBER)	0.50	
0.60	3	D				Medium dense brown slightly clayey gravelly fine SAND. Gravel is subrounded to rounded quartzite and sandstone. (WANLIP MEMBER)	(1.10)	
0.80-1.20	4	B						
1.20-1.65	1	SPT(c)	N=12					
1.20-1.65	5	B					1.60	
1.70	6	D				Medium dense orange and red brown slightly gravelly clayey coarse SAND. Gravel is subangular to subrounded fine to coarse quartzite and sandstone. (WANLIP MEMBER)		
2.20-2.65	2	SPT	N=18				(1.80)	
2.90	7	D						
3.00-3.45	8	$U_{(100)}$	38 blows 100% recovery				3.40	
3.50	9	D				Soft to firm red brown slightly sandy CLAY. Recovery includes occasional angular fine mudstone and sandstone lithorelicts, with occasional grey reduction spots. (Weathering Grade IVa) (EDWALTON MEMBER)		
3.90	10	D						
4.00-4.45	3	SPT	N=7					
4.00-4.50	11	B						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/10/13	00:00	6.40	6.00	150	6.40
03/10/13	00:20	6.40	6.00	150	5.66
03/10/13		8.29	7.50	150	Dry

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
7.50	8.00	01:00

General Remarks

1. Location scanned with GPR and CAT and signal generator prior to breaking ground. No services encountered.
2. Hand dug inspection pit excavated to 1.20m bgl
3. Groundwater encountered at 6.40m bgl.
4. Gas and groundwater monitoring well installed to 6.00m bgl upon completion.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	DMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP222**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**3.10.13**	**37.05**	**E:447259.3 N:327820.5**	**2** of **2**
	End: **3.10.13**			

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft to firm red brown slightly sandy CLAY. Recovery includes occasional angular fine mudstone and sandstone lithorelicts, with occasional grey reduction spots. (Weathering Grade IVa) (EDWALTON MEMBER) *(stratum copied from 3.40m from previous sheet)*	(2.80)	
4.90	12	D						
5.00-5.45	13	$U_{(100)}$	53 blows 90% recovery					
5.50	14	D						
6.00	15	D						
6.10-6.44	4	SPT	N=79*				6.20	
						Very weak red brown MUDSTONE with occasional grey sandstone skerries. (Weathering Grade III) (EDWALTON MEMBER)	(2.09)	
7.00	16	D						
7.20-7.61	5	SPT	N=59*					
8.00-8.30	6	SPT	N=103*				8.29	
8.00	17	D						
						Borehole terminated at 8.29m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Pilcon Wayfarer 1500**	**GH**	**GShaw**	DMB

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KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF ABBREVIATIONS

SAMPLING

Sample type codes

B	=	Bulk disturbed sample.
C	=	Core sample.
CS	=	Core sample taken from rotary core for lab testing.
D	=	Small disturbed sample.
DSPT	=	Small disturbed sample originating from SPT test.
ES	=	Soil sample for environmental testing.
U	=	Undisturbed driven tube sample - Number of blows indicated. % recovery reported.

Undisturbed sample detail codes

$U_{(100)}$	=	100mm diameter undisturbed sample.

IN-SITU TESTING

$SPT_{(c)}$	=	Standard Penetration Test using a solid 60 degree cone.
SPT	=	Standard Penetration Test using split spoon sampler. ($SPT_{(NR)}$ indicates 'No Sample Recovery').
	=	* denotes extrapolated N value. NP denotes 'No Penetration'.
V	=	Field Vane Test. Peak value (c_u) & Residual value (c_r), given as shear strength in kPa.

ROTARY DRILLING INFORMATION

W	=	Water flush returns (%)
TCR	=	Total core recovery (%)
SCR	=	Solid core recovery (%)
RQD	=	Rock quality designations (%)
If	=	Fracture spacing (mm).
		In the fracture column (i) denotes discontinuity is infilled (refer to Fracture Table for details).
		Where variable the minimum - average - maximum spacing may be quoted.
		'NI' denotes non-intact core. 'NA' denotes not applicable.

All lengths used to determine rock core mechanical properties taken along the centre line of the core.
Obvious induced fractures have been ignored.
The assessment of solid core is based on lengths that show a full diameter and not necessarily a full circumference.
AZCL = Assessed zone of core loss.

ADDITIONAL NOTES

1. All soil and rock descriptions and legends in general accordance with BS EN ISO 14688-1, 14688-2, 14689-1, and BS5930:1999 including Amendment 2 (2010).
2. Material types divided by a broken line (- - -) indicates an unclear boundary.
3. The data on any sheet within the report showing the AGS icon is available in the AGS format.

GINT_LIBRARY_V8_05.GLB'GrfcText G - LEGEND - 1 OF 2 | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 29/11/13 - 10:00 | KF.
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Contract Reference: **312494**

KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF GRAPHIC SYMBOLS

WATER COLUMN SYMBOLS

First water strike, second water strike etc.

Standing water level following first strike, standing water level following second strike etc.

Seepage.

Standing water level recorded at documented date.

MATERIAL GRAPHIC LEGENDS

	CLAY		Clayey gravelly SAND		Gravelly clayey SAND		Clayey gravelly SAND with COBBLES
	Clayey SAND		Clayey SAND with COBBLES		Clayey sandy GRAVEL		GRAVEL
	GRAVEL with COBBLES		Gravelly CLAY		Gravelly silty CLAY		Silty gravelly CLAY
	Silty gravelly CLAY with COBBLES		Gravelly SAND		Gravelly clayey SILT		Gravelly SILT
	MADE GROUND		Mudstone		SAND		SAND with COBBLES

INSTRUMENTATION SYMBOLS

	Backfill		Bentonite seal		Concrete		Gravel filter
	Sand filter		Stopcock cover				
	Piezometer tip		Plain pipe		Slotted pipe		

GINT_LIBRARY_V8_05.GLB!Grf¢Text G - LEGEND - 2 OF 2 | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 29/11/13 - 10:00 | KF
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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)205**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**3.10.13** End: **4.10.13**	**56.42**	**E:447286.1 N:326753.4**	**1** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										Drillers description - Red brown silty CLAY.	(1.20) 1.20	
										Drillers description - Weak red brown MUDSTONE.	(2.90) 4.10	
										Drillers description - Red brown MUDSTONE.	4.50	
4.50-6.00				100	75	15				Weak to medium strong thinly interlaminated to thinly interbedded red brown and light grey MUDSTONE and siltstone with occasional very thinly interbedded light grey brown fine grained sandstone. Discontinuities are subhorizontal undulating rough and planar rough extremely closely to medium spaced (10/90/120) tight to open with thin clay smearing, occasional orange brown staining and black speckling and occasionally micaceous. (Weathering Grade I) (TARPORLEY SILTSTONE FORMATION)	(4.40)	
6.00-7.50				100	91	60				. . . between 6.87m and 7.11m bgl, undulating subvertical fracture. . . . between 6.90m and 7.06m bgl, medium strong light grey brown fine to medium grained sandstone band. . . . at 7.03m bgl, 31mm vug with partial calcite infill. . . . at 7.05m bgl, 22mm vug with partial calcite infill. . . . between 7.20m and 7.80m bgl, medium strong light grey brown fine grained sandstone with thinly interlaminated light grey and red brown siltstone and mudstone.		
7.50-9.00				97	78	42					8.90	
8.58-8.70	1	CS										

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/10/13	08:00	4.50	4.50	121	-
03/10/13	17:00	28.50	4.50	121	-
04/10/13	08:00	28.50	4.50	121	-
04/10/13	17:00	30.00	4.50	121	-

General Remarks

1. Location scanned with GPR and CAT and signal generator prior to breaking ground. Hand dug service pit to 1.20m bgl. No services encountered.
2. Rotary open holed to 4.50m bgl.
3. Borehole advanced to 30.00m bgl using coring technicques.
4. Gas and groundwater monitoring well installed to 19.00m bgl upon completion.
5. No groundwater strikes noted.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**LS/PC**	**LAlderman**	TMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)205**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**3.10.13** End: **4.10.13**	**56.42**	**E:447286.1 N:326753.4**	**2** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
9.00-10.50										. . . at 7.35m bgl, large vugs up to 38mm with partial calcite infill. Medium strong to strong very thinly to thinly bedded light green grey and light brown grey fine to medium grained SANDSTONE with occasional honeycombed appearance, with thinly interlaminated to very thinly interbedded red brown and light grey mudstone and siltstone. Discontinuities are subhorizontal undulating rough and planar rough closely to medium spaced (21/100/220) tight to open with thin clay smearing occasional black speckling and occasionally micaceous. (BROMSGROVE SANDSTONE FORMATION) *(stratum copied from 8.90m from previous sheet)* . . . between 9.77m and 9.81m bgl, with medium to coarse gravel sized vugs with partial calcite infill.	(3.05)	
9.70-9.92	2	CS		100	91	58						
10.50-12.00												
10.92-11.11	3	CS		100	94	75						
12.00-13.50				100	87	73				. . . between 10.60m and 11.40m bgl, medium strong thinly interlaminated to very thinly interbedded red brown and light grey MUDSTONE, siltstone and fine grained sandstone. . . . between 10.90 and 10.92m bgl, gravelly clay. . . . between 11.30m and 11.33m bgl, gravelly clay. Medium strong to strong very thinly to thinly bedded red brown and light grey brown fine to medium grained micaceous SANDSTONE with occasional honeycombed appearance with some thinly interlaminated to very thinly interbedded red brown and light grey mudstone and siltstone. Discontinuities are subhorizontal undulating rough and planar rough extremely closely to medium spaced (11/150/430) tight to open with thin clay smearing, occasional black speckling and orange brown staining and occasionally micaceous. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION)	11.95	
13.50-15.00				100	51	19						
15.00-16.50				93	79	56				. . . at 12.57m bgl, 20mm clean vug. . . . between 13.67m and 13.78m bgl, stepped rough subvertical fracture. . . . at 13.88m bgl, up to 10mm thick subhorizontal string (interconnecting) of clean vugs. . . . between 14.00m and 14.01m bgl, clayey gravel. . . . between 14.18m and 14.21m bgl, clayey gravel. . . . between 14.38 and 14.93m bgl, undulating rough subvertical fracture with thin clay smear, dark red brown staining and localised black specking. . . . between 15.78m and 15.85m bgl, planar rough subvertical fracture with black specking. . . . between 16.76m and 16.79m bgl, firm gravelly clay.		
16.50-18.00												
17.28-17.53	4	CS		100	84	60						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**LS/PC**	**LAlderman**	DMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)205**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**3.10.13** End: **4.10.13**	**56.42**	**E:447286.1 N:326753.4**	**3** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
18.00-19.50				100	86	29				. . . between 17.01m and 17.06m bgl, firm to stiff gravelly clay. Medium strong to strong very thinly to thinly bedded red brown and light grey brown fine to medium grained micaceous SANDSTONE with occasional honeycombed appearance with some thinly interlaminated to very thinly interbedded red brown and light grey mudstone and siltstone. Discontinuities are subhorizontal undulating rough and planar rough extremely closely to medium spaced (11/150/430) tight to open with thin clay smearing, occasional black speckling and orange brown staining and occasionally micaceous. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION) *(stratum copied from 11.95m from previous sheet)* . . . between 19.07m and 19.14m bgl, medium to coarse gravel sized vugs, some clean occasionally with partial calcite infill.	(18.05)	
19.50-21.00				100	56	36						
21.00-22.50				100	95	59				. . . between 19.46m and 19.48m bgl, firm to stiff gravelly clay. . . . between 19.68m and 19.72m bgl, clayey gravel. . . . between 19.84m and 20.00m bgl, undulating rough subvertical fracture with dark red brown staining. . . . between 21.15m and 22.01m bgl, clayey gravel. . . . at 21.43m bgl, 32mm clean vug. . . . at 21.93m bgl, 16mm clean vug. . . . between 22.41m and 22.50m bgl, medium to coarse gravel sized clean vugs, rarely with partial calcite infill.		
22.50-24.00				100	83	55				. . . between 22.86m and 22.96m bgl, undulating rough subvertical fracture with thin clay smearing and micaceous. . . . between 23.12m and 23.15m bgl, firm to stiff gravelly clay. . . . between 23.37m and 23.42m bgl, clayey gravel. . . . between 24.12m and 24.20m bgl, clay infilled fractures.		
24.00-25.50				95	89	80				. . . at 25.15m bgl, clay infilled fracture.		
25.50-27.00				87	65	55				. . . between 25.50m and 25.70m bgl, zone of core loss. . . . between 25.86m and 25.92m bgl, with rare medium to coarse gravel sized clean vugs. . . . between 26.68m and 26.70m bgl, with rare subrounded to rounded medium to coarse gravel of		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**LS/PC**	**LAlderman**	DMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)205**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**3.10.13** End: **4.10.13**	**56.42**	**E:447286.1 N:326753.4**	**4** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
27.00-28.50										quartzite. . . . between 26.80m and 26.90m bgl, undulating rough subvertical fracture. Medium strong to strong very thinly to thinly bedded red brown and light grey brown fine to medium grained micaceous SANDSTONE with occasional honeycombed appearance with some thinly interlaminated to very thinly interbedded red brown and light grey mudstone and siltstone. Discontinuities are subhorizontal undulating rough and planar rough extremely closely to medium spaced (11/150/430) tight to open with thin clay smearing, occasional black speckling and orange brown staining and occasionally micaceous. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION) *(stratum copied from 11.95m from previous sheet)* . . . between 27.00m and 27.05m bgl, zone of core loss.		
27.79-28.00	5	CS		97	87	80						
28.50-30.00				99	79	53					30.00	
										. . . at 27.24m bgl, 18mm clean vug. . . . between 28.32m and 28.38m bgl, recovered as sandy gravel. . . . between 28.46m and 28.50m bgl, gravelly bands, gravel is subrounded to rounded fine to coarse quartzite, sandstone and mudstone. . . . between 28.50m and 28.52m bgl, zone of core loss. . . . between 28.57m and 28.59m bgl, gravelly bands, gravel is subrounded to rounded fine to coarse quartzite, sandstone and mudstone. . . . between 28.94m and 28.98m bgl, gravelly bands, gravel is subrounded to rounded fine to coarse quartzite, sandstone and mudstone. Rotary probehole terminated at 30.00m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**LS/PC**	**LAlderman**	DMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)206**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**4.10.13**	**51.84**	**E:447408.6 N:326891.6**	**1** of **4**
	End: **4.10.13**			

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										Drillers description - Firm to stiff red/brown CLAY.	(4.00) 4.00	
4.00-5.50				100	77	27				Medium strong to very strong very thinly to thinly bedded light grey brown and red brown fine to medium grained SANDSTONE with occasional honeycombed appearance, with occasional thinly to thickly interlaminated mudstone and siltstone. Discontinuities are subhorizontal undulating rough and planar rough very closely to medium spaced (22/130/250) tight to open with thin clay smearing, occasional black speckling and occasionally micaceous. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION)		
5.50-7.00				97	75	39				. . . between 5.50m and 5.55m bgl, zone of core loss.		
7.00-8.50				100	83	52						
8.50-10.00				100	80	42				. . . between 8.25m and 8.30m bgl, medium coarse gravel sized vugs with partial and some complete calcite infill.		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
04/10/13	08:00	5.50	3.00	121	-
04/10/13	17:00	25.00	7.00	121	-

General Remarks

1. Location scanned with GPR and CAT and signal generator prior to breaking ground. Hand dug service pit to 1.20m bgl. No services encountered.
2. Rotary open holed to 4.00m bgl.
3. Borehole advanced to 25.00m bgl using coring technicques.
4. Gas and groundwater monitoring well installed to 21.00m bgl upon completion.
5. No groundwater strikes noted.
6. Piezometer installed at 24.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**SC/JO**	**LAlderman**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log COMPOSITE LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:41 | KF.
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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)206**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**4.10.13** End: **4.10.13**	**51.84**	**E:447408.6 N:326891.6**	**2** of **4**

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
10.00-11.50				100	80	42				Medium strong to very strong very thinly to thinly bedded light grey brown and red brown fine to medium grained SANDSTONE with occasional honeycombed appearance, with occasional thinly to thickly interlaminated mudstone and siltstone. Discontinuities are subhorizontal undulating rough and planar rough very closely to medium spaced (22/130/250) tight to open with thin clay smearing, occasional black speckling and occasionally micaceous. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION) *(stratum copied from 4.00m from previous sheet)* . . . between 9.05m and 9.25m bgl, weak to medium strong thinly interlaminated red brown mudstone and siltstone. . . . at 9.60m bgl, 6mm subhorizontal calcite infilled fracture. . . . between 10.00m and 10.13m bgl, zone of core loss. . . . between 11.50m and 11.55m bgl, zone of core loss. . . . between 11.80m and 11.83m bgl, firm red brown silty gravelly clay. . . . between 11.83m and 12.08m bgl, medium strong thinly interlaminated red brown mudstone, siltstone and sandstone. . . . at 12.18m bgl, 32mm cavity with partial calcite infill. . . . at 12.20m bgl, medium to coarse gravel sized vugs with partial calcite infill. . . . between 13.00m and 13.20m bgl, zone of core loss. . . . between 13.41m and 13.53m bgl, subvertical undulating rough fracture.	(11.57)	
11.50-13.00				91	68	39						
13.00-14.50				97	73	30						
14.50-16.00				87	59	39						
16.00-17.50				100	81	35				. . . between 14.78m and 14.98m bgl, subvertical undulating rough fracture.	15.57	
17.50-19.00				93	45	15				Weak to strong thickly interlaminated to thinly interbedded red brown and light grey brown micaceous fine grained SANDSTONE and MUDSTONE with occasional honeycombed appearance. Discontinuities are subvertical undulating rough and planar rough closely to medium spaced (35/100/230) partly open to open with thin clay smearing, occasional black speckling and occasionally micaceous. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION) . . . between 16.00m and 16.10m bgl, zone of core loss. . . . between 16.28m and 16.40m bgl, subvertical planar rough fracture with calcite infill.	(1.68)	
				90	80	62					17.25	

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**SC/JO**	**LAlderman**	DMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)206**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**4.10.13**	**51.84**	**E:447408.6 N:326891.6**	**3** of **4**
	End: **4.10.13**			

Depth (m)	Samples & Testing: No	Type	Results	Mechanical Log: TCR (%)	SCR (%)	RQD (%)	If (mm)	Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
										. . . between 17.50m and 17.65m bgl, zone of core loss.		
				90	80	62				Medium strong to strong thinly bedded red brown micaceous fine grained SANDSTONE with occasional honeycombed appearance. Discontinuities are subhorizontal undulating rough and planar rough very closely to medium spaced (30/150/290) partly open to open with thin clay smearing, occasional black speckling and occassionally micaceous. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION)	(2.55)	
19.00-20.50				91	55	48				*(stratum copied from 17.25m from previous sheet)* . . . between 19.00m and 19.13m bgl, zone of core loss.	19.80	
20.50-22.00				97	73	49				Medium strong to strong thickly interlaminated to thinly interbedded red brown and light grey brown fine grained SANDSTONE, very occasional honeycombed appearance with thickly interlaminated to very thinly interbedded light grey and red brown siltstone and mudstone. Discontinuities are subhorizontal undulating rough and planar rough extremely closely to medium spaced (15/80/250) partly open to open with thin clay smearing.	(4.40)	
22.00-23.50				57	37	9				. . . between 20.50m and 20.55m bgl, zone of core loss. . . . between 21.29m and 21.37m bgl, subvertical undulating rough fracture. . . . between 21.50m and 22.00m bgl, medium to coarse grained. . . . between 22.00m and 22.75m bgl, zone of core loss.		
23.50-25.00				93	53	13				. . . between 23.50m and 23.60m bgl, zone of core loss. . . . at 23.17m bgl, 14mm vug with partial calcite infill.	24.20	
										. . . between 23.90m and 24.00m bgl, cross stratified. . . . between 23.90m and 24.05m bgl, medium to coarse. . . . between 24.17m and 24.19m bgl, flute clasts/evidence of scouring within mudstone band. . . . between 24.19m and 24.21m bgl, conglomerate with subrounded to rounded medium to coarse quartzite, flint and sandstone clasts.	24.30 (0.70) 25.00	
										Red brown grey white subrounded to rounded coarse GRAVEL of sandstone, quartzite and siltstone. (CONGLOMERATE)		
										Medium strong to strong thickly interlaminated to very thinly interbedded red brown, grey and grey brown fine grained SANDSTONE, siltstone and mudstone. Discontinuities are subhorizontal		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**SC/JO**	**LAlderman**	DMB

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BOREHOLE LOG

Contract:	Client:	Borehole:
East Midlands Gateway	**Roxhill Developments Ltd**	**CP(R)206**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**4.10.13**	**51.84**	**E:447408.6 N:326891.6**	**4** of **4**
	End: **4.10.13**			

Depth (m)	Samples & Testing			Mechanical Log				Backfill & Instrumentation	Water	Description of Strata	Depth (Thickness)	Material Graphic Legend
	No	Type	Results	TCR (%)	SCR (%)	RQD (%)	If (mm)					
										undulating rough and planar rough closely to medium spaced (70/90/100) open with thin clay smearing. (Weathering Grade I) (BROMSGROVE SANDSTONE FORMATION)		
										Rotary probehole terminated at 25.00m depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Rotary open hole + Rotary Cored	**Comacchio MC450-P1**	**SC/JO**	**LAlderman**	DMB

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KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF ABBREVIATIONS

SAMPLING

Sample type codes

B	=	Bulk disturbed sample.
C	=	Core sample.
CS	=	Core sample taken from rotary core for lab testing.
D	=	Small disturbed sample.
DSPT	=	Small disturbed sample originating from SPT test.
ES	=	Soil sample for environmental testing.
U	=	Undisturbed driven tube sample - Number of blows indicated. % recovery reported.

Undisturbed sample detail codes

$U_{(100)}$	=	100mm diameter undisturbed sample.

IN-SITU TESTING

$SPT_{(c)}$	=	Standard Penetration Test using a solid 60 degree cone.
SPT	=	Standard Penetration Test using split spoon sampler. ($SPT_{(NR)}$ indicates 'No Sample Recovery').
	=	* denotes extrapolated N value. NP denotes 'No Penetration'.
V	=	Field Vane Test. Peak value (c_u) & Residual value (c_r), given as shear strength in kPa.

ROTARY DRILLING INFORMATION

W	=	Water flush returns (%)
TCR	=	Total core recovery (%)
SCR	=	Solid core recovery (%)
RQD	=	Rock quality designations (%)
If	=	Fracture spacing (mm).
		In the fracture column (i) denotes discontinuity is infilled (refer to Fracture Table for details).
		Where variable the minimum - average - maximum spacing may be quoted.
		'NI' denotes non-intact core. 'NA' denotes not applicable.

All lengths used to determine rock core mechanical properties taken along the centre line of the core.
Obvious induced fractures have been ignored.
The assessment of solid core is based on lengths that show a full diameter and not necessarily a full circumference.
AZCL = Assessed zone of core loss.

ADDITIONAL NOTES

1. All soil and rock descriptions and legends in general accordance with BS EN ISO 14688-1, 14688-2, 14689-1, and BS5930:1999 including Amendment 2 (2010).
2. Material types divided by a broken line (- - -) indicates an unclear boundary.
3. The data on any sheet within the report showing the AGS icon is available in the AGS format.

GINT_LIBRARY_V8_05.GLB'GrfcText G - LEGEND - 1 OF 2 | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 29/11/13 - 10:00 | KF.
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Contract Reference: **312494**

KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF GRAPHIC SYMBOLS

WATER COLUMN SYMBOLS

First water strike, second water strike etc.

Standing water level following first strike, standing water level following second strike etc.

Seepage.

Standing water level recorded at documented date.

MATERIAL GRAPHIC LEGENDS

	CLAY		Clayey gravelly SAND		Gravelly clayey SAND		Clayey gravelly SAND with COBBLES
	Clayey SAND		Clayey SAND with COBBLES		Clayey sandy GRAVEL		GRAVEL
	GRAVEL with COBBLES		Gravelly CLAY		Gravelly silty CLAY		Silty gravelly CLAY
	Silty gravelly CLAY with COBBLES		Gravelly SAND		Gravelly clayey SILT		Gravelly SILT
	MADE GROUND		Mudstone		SAND		SAND with COBBLES

INSTRUMENTATION SYMBOLS

	Backfill		Bentonite seal		Concrete		Gravel filter
	Sand filter		Stopcock cover				
	Piezometer tip		Plain pipe		Slotted pipe		

GINT_LIBRARY_V8_05.GLB!Grf¢Text G - LEGEND - 2 OF 2 | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 29/11/13 - 10:00 | KF
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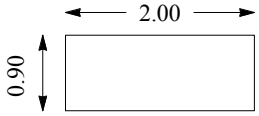
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
East Midlands Gateway	**Roxhill Developments Ltd**	**TP309**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**25.9.13**	**63.52**	**E:446680.1 N:327302.3**	**1** of **1**
	End: **25.9.13**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES	Tx2+J+Vx2			Crop stubble over very stiff brown slightly sandy slightly gravelly to gravelly silty CLAY, with frequent rootlets. Gravel is angular to rounded fine to coarse quartzite and flint.	0.25	
						(SUBSOIL)		
						Brown very clayey angular to rounded fine to coarse quartzite and siltstone to fine sandstone GRAVEL/ very gravelly CLAY.	0.45	
						(HEAD DEPOSITS)		
						Very stiff red brown occasionally mottled light grey silty CLAY. Recovery includes occasional angular to subangular fine to coarse sandstone fragments.	(0.75)	
0.95-1.20	2	B				(Weathering Grade IVb)		
						(TARPORLEY SILTSTONE FORMATION)		
						. . . 0.80m bgl, slightly gravelly.	1.20	
						Very stiff fissured red brown mottled green grey silty CLAY. Recovery includes occasional tabular and angular fine to coarse mudstone lithorelicts and siltstone and fine sandstone fragments.		
						(Weathering Grade IVb)		
						(TARPORLEY SILTSTONE FORMATION)		
						. . . below 1.90m bgl, recovery includes occasional to some cobble sized tabular mudstone fragments.	(1.50)	
							2.70	
						Red brown bedded green grey SILTSTONE and fine SANDSTONE recovered as gravel and tabular and angular cobbles within clay matrix.	2.80	
						(Weathering Grade II)		
						(TARPORLEY SILTSTONE FORMATION)		
						Trial pit terminated at 2.80m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with a CAT and Signal Generator prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled and compacted with arisings upon completion.
5. Pit terminated as machine unable to make significant further progress.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MHocking**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log TRIAL PIT LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:51 | KF.
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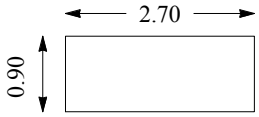
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
East Midlands Gateway	**Roxhill Developments Ltd**	**TP310**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**25.9.13**	**44.47**	**E:447071.9 N:327481.3**	**1** of **2**
	End: **25.9.13**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Crop over brown slightly gravelly silty very sandy CLAY, with occasional to some rootlets. Gravel is angular to rounded fine to coarse quartzite and flint. (SUBSOIL)	(0.30) 0.30	
						Dark orange brown mottled brown slightly clayey silty gravelly fine to medium SAND with occasional rootlets. Gravel is angular to rounded fine to coarse flint and quartzite. (EGGINTON COMMON SAND AND GRAVEL)	(0.90)	
0.80-0.90	1	ES	Tx2+J+Vx2			. . . 0.90m bgl, active land drain encountered.	1.20	
1.50-1.80	2	B				Orange brown clayey very silty slightly gravelly SAND. Gravel is rounded to angular fine to coarse quartzite and occasional tabular angular sandstone and flint. (EGGINTON COMMON SAND AND GRAVEL)		
						. . . below 2.10m bgl, orange slightly clayey silty SAND.	(3.40)	
3.30-3.60	3	B						

Plan (Not to Scale)



General Remarks

1. Location scanned with a CAT and Signal Generator prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled and compacted with arisings upon completion.
5. Pit terminated as machine unable to make significant further progress.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MHocking**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log TRIAL PIT LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:51 | KF.
RSK Environment Ltd, The Enterprise Centre, Coventry University Technology Park, Coventry, CV1 2TX. Tel: 02476 236816, Fax: 02476 236014, Web: www.rsk.co.uk.

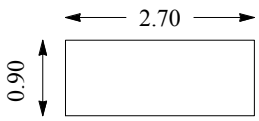
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
East Midlands Gateway	**Roxhill Developments Ltd**	**TP310**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**25.9.13**	**44.47**	**E:447071.9 N:327481.3**	**2** of **2**
	End: **25.9.13**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
							4.60	
						Trial pit terminated at 4.60m depth.		

Plan (Not to Scale)



General Remarks

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MHocking**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log TRIAL PIT LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:51 | KF.
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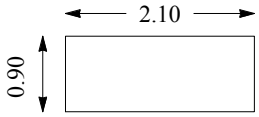
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
East Midlands Gateway	**Roxhill Developments Ltd**	**TP312**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**27.9.13**	**51.47**	**E:447222.9 N:327107.5**	**1** of **1**
	End: **27.9.13**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.20	1	ES	Tx2+J+Vx2			Crop stubble over very soft dry slightly sandy slightly gravelly very silty CLAY with occasional rootlets. Gravel is angular to rounded fine to medium quartzite and flint. (SUBSOIL)	(0.30) 0.30	
						Very stiff orange brown slightly sandy silty CLAY. Recovery includes frequent tabular and angular sandstone cobbles. (Weathering Grade IVb/III) (TARPORLEY SILTSTONE FORMATION)	(0.65) 0.95	
1.00-1.20	2	B				Very stiff fissured red brown bedded green grey silty CLAY. Recovery includes tabular and angular fine to coarse sandstone and siltstone fragments. (Weathering Grade III) (TARPORLEY SILTSTONE FORMATION) . . . @ 1.10m bgl, green grey bands. . . . @ 1.40m bgl, green grey bands.	(0.75)	
1.60-1.70	3	B				. . . below 1.60m bgl, recovery includes occasional to some tabular and angular sandstone and siltstone cobbles.	1.70	
						Red brown bedded green grey fine SANDSTONE and SILTSTONE recovered as tabular and angular cobbles and occasional boulders upto 0.25m diameter within clay matrix. (Weathering Grade II) (TARPORLEY SILTSTONE FORMATION) . . . @ 1.85m bgl, green grey bands. . . . @ 2.00m bgl, green grey bands.	(0.40) 2.10	
						Trial pit terminated at 2.10m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with a CAT and Signal Generator prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled and compacted with arisings upon completion.
5. Pit terminated as machine unable to make significant further progress.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MHocking**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log TRIAL PIT LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:52 | KF.
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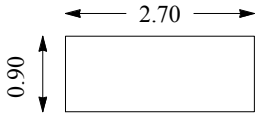
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
East Midlands Gateway	**Roxhill Developments Ltd**	**TP326**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**24.9.13**	**59.29**	**E:447181.0 N:326760.8**	**1** of **1**
	End: **24.9.13**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Crop stubble over very soft brown slightly sandy CLAY with frequent rootlets. Gravel is angular to rounded fine to coarse quartzite and rare fine brick. (SUBSOIL)	0.25	
						Orange brown slightly gravelly very silty fine SAND with occasional rootlets. Gravel is angular to rounded fine to medium quartzite and flints. (HEAD DEPOSITS)	0.50	
0.60-0.70	1	ES	Tx2+J+Vx2			Red brown friable clayey sandy SILT. (TARPORLEY SILTSTONE FORMATION)	(1.40)	
1.50-1.70	2	B				. . . below 1.40m bgl, brown and slightly clayey slightly gravelly very sandy SILT.	1.90	
						Very stiff fissured red brown bedded green grey slightly sandy slightly silty CLAY. Recovery includes occasional tabular and angular fine to medium gravel sized siltstone fragments. (Weathering Grade IVb) (TARPORLEY SILTSTONE FORMATION)	(1.20)	
							3.10	
						Red brown bedded green grey extremely weak to very weak SILTSTONE and fine SANDSTONE recovered as tabular and angular fine to coarse gravel and occasional cobbles with clay laminations. (Weathering Grade III) (TARPORLEY SILTSTONE FORMATION)	3.30	
						Trial pit terminated at 3.30m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with a CAT and Signal Generator prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater encountered between 1.80m and 2.00m bgl.
4. Trial pit backfilled and compacted with arisings upon completion.
5. Pit terminated as machine unable to make significant further progress.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MHocking**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log TRIAL PIT LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:53 | KF.
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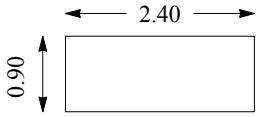
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
East Midlands Gateway	**Roxhill Developments Ltd**	**TP327**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**24.9.13**	**59.53**	**E:447299.6 N:326692.1**	**1** of **1**
	End: **24.9.13**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-0.20	1	ES	Tx2+J+Vx2			Crop stubble over very soft brown slightly gravelly silty sandy CLAY with frequent rootlets. Gravel is angular to subrounded fine to medium flint and quartzite. (SUBSOIL)	(0.30) 0.30	
						Dark orange brown mottled slightly purple brown slightly clayey slightly gravelly very sandy SILT with occasional rootlets. gravel is angular to rounded fine to medium quartzite and flint. (HEAD DEPOSITS)	(0.70) 1.00	
1.20-1.40	2	B				Stiff to very stiff fissured red brown bedded green grey silty CLAY. Recovery includes occasional tabular and angular fine to coarse gravel sized siltstone and fine sandstone fragments. (Weathering Grade IVb) (TARPORLEY SILTSTONE FORMATION)	(0.90) 1.90	
2.60-2.80	3	B				Red brown bedded green grey extremely weak SILTSTONE and fine SANDSTONE recovered as silty tabular and angular fine to coarse gravel and occasional cobble sized and rare boulder sized fragments. (~0.30m) (Weathering Grade III) (TARPORLEY SILTSTONE FORMATION)	(1.00) 2.90	
						Trial pit terminated at 2.90m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with a CAT and Signal Generator prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled and compacted with arisings upon completion.
5. Pit terminated as machine unable to make significant further progress.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MHocking**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log TRIAL PIT LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:53 | KF.
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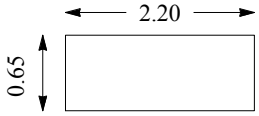
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
East Midlands Gateway	**Roxhill Developments Ltd**	**TPS305**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312494	**1.10.13**	**39.42**	**E:447372.8 N:327628.6**	**1** of **1**
	End: **1.10.13**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Crop stubble over very stiff very dry desicated slightly sandy slightly gravelly silty CLAY with occasional rootlets. Gravel is subangular to rounded fine to medium occasional coarse quartzite. (SUBSOIL)	(0.30) 0.30	
0.60	1	ES	Tx2+J+Vx2			Very stiff slightly orange brown slightly sandy slightly gravelly to gravelly silty CLAY. Gravel is subangular to rounded fine to coarse quartzite. (WANLIP MEMBER) . . . below 0.70m bgl, sandy to very sandy.	(0.75) 1.05	
1.20-1.50	2	B				Stiff to very stiff orange grey mottled red brown slightly gravelly sandy to very sandy CLAY. Gravel is angular to rounded fine to coarse quartzite and occasional flint. (WANLIP MEMBER)	1.30	
2.10-2.30	3	B				Red brown very clayey very gravelly fine to medium occasionally coarse SAND. Gravel is angular to rounded fine to coarse quartzite and occasional flint. (WANLIP MEMBER) . . . below 1.30m bgl red brown. . . . below 2.40m bgl, recovery includes rare tabular sandstone cobbles.	(1.35) 2.65	
						Trial pit terminated at 2.65m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR and a CAT and Signal Generator prior to breaking ground. No services encountered.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit backfilled and compacted with arisings upon completion.
5. Soakaway test completed.
6. Pit terminated at anticipated maximum depth of soakaway/pond feature.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**JCB-3CX**	**MHocking**	DMB

GINT_LIBRARY_V8_05.GLB LibVersion: v8_05 - Lib0004 PrjVersion: v8_05 - Core+Logs 0002 | Log TRIAL PIT LOG | 312494 - EAST MIDLANDS GATEWAY.GPJ - v8_05 | 10/12/13 - 10:54 | KF.
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APPENDIX C

HISTORICAL BGS BOREHOLE LOGS

British Geological Survey

Soil Mechanics

BOREHOLE No. 749

Sheet 1 of 1

Equipment & Methods

Hand dug inspection pit from ground level to 1.00m. Cable tool boring, 150mm diameter, from 1.00m to 3.61m.

Location No. 7382

Location SK42NE71

A42 CASTLE DONINGTON NORTH: GROUND INVESTIGATION CONTRACT 4

Carried out for

Client: Department of Transport (E. Midlands Reg. Office)

Engineer: Scott Wilson Kirkpatrick & Partners

Ground Level: 56.75 m A.O.D.

Coordinates: 447491.5 mE 326858.5 mN

Date: 02.02.88

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests: Depth	Sample Type	Sample No.	Test	Field Records
TOPSOIL	56.75		(0.20)					
	56.55		0.20					
Light grey green moderately weathered silty fine grained porous SANDSTONE weak to very weak with occasional red brown siltstone lenses and occasional black speckled staining (KEUPER SERIES SANDSTONE 3)			(0.80)	0.20 – 0.80	B	1		
	55.75		1.00					
				1.00 – 1.45	D	2	S N=38	8,9/12,15,24,47
Very stiff (hard) red brown CLAY with occasional fine gravel sized lithorelics thinly to thickly interlaminated with very dense light grey green SILT Below 2.30m stiff becoming very stiff red brown locally thinly laminated locally very silty CLAY with occasional fine to medium occasionally coarse gravel sized lithorelics and occasional bands and lenses of light greenish grey slightly fine sandy siltstone (KEUPER SERIES MARL 3/4a)			(2.61 pen)	1.70 – 2.15	D	3	S N=33	7,15/19,9,8,17
				2.50 – 2.95	D	4	S N=38	8,14/17,21,26,34
				3.00 – 3.19	D	5	S 50	12,37/50 for 40mm Chiselling from 3.00m to 3.40m 1.25 hours
				3.40 – 3.61	D	6	S 50	9,26/50 for 55mm
BOREHOLE ENDS AT 3.61 m.	53.14		3.61					

Remarks

Logged by: AAC

Scale: 1:50

Fig. 74

Notes:

Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. All depths and reduced levels in metres. Thicknesses given in brackets in depth column.

(c) Soil Mechanics

12.04.88/16.37 (Ver 3.1.0)

British Geological Survey

SK 42 NE/90

SCOTT WILSON KIRKPATRICK & PARTNERS
Consulting Engineers & Transportation Planners

BIRMINGHAM – NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

4697 2522

BOREHOLE No B273

FIGURE A1

Sheet 1 of 1

Field Work by: Exploration Associates (Warwick) Limited
Method: Cable Percussion
Dates: 14/15.8.84
Hole Dimensions 150mm
Casing Dimensions 150mm

Coordinates: 67001.2 E.
95269.7 N.
Ground Level: 79.03 m OD

Laboratory Testing by: Dates

Depth (m)	Description of Strata	Legend	Depth (m)	Reduced Level
	TOPSOIL		0.50	78.53
	Firm-stiff red brown fissured silty CLAY with many sub-angular grey green fine to medium sized fragments of very weak siltstone. (KEUPER MARL : ZONE IV)		1.00	78.03
	Firm red brown mottled grey green silty CLAY and very silty CLAY with lithorelicts of siltstone becoming very stiff tending to very weak siltstone 1.10 - 1.30. friable with no lithorelicts below 1.80m. (KEUPER MARL : ZONE III/IV)		2.50	76.53
	Stiff and very stiff red brown occasionally mottled grey green silty CLAY with lithorelicts of mudstone. (KEUPER MARL : ZONE III). Occasional thin bands of very weak mudstone and firm friable silty clay. Band of very weak mudstone 4.20 Band of very weak grey green siltstone noted 4.60		5.50	73.53
	Very Stiff red brown fissured silty CLAY and bands of grey green fissured clayey silt with many siltstone lithorelicts. Band of stiff friable silty clay 6.30m (KEUPER MARL : ZONE III)		7.70	71.33
	Firm red brown slightly mottled grey green friable silty CLAY with mudstone lithorelicts becoming stiff to very stiff below 8.30m. Band of very weak fissured mudstone at 8.70m and weak to moderately weak siltstone 8.40. (KEUPER MARL : ZONE III)		8.50	70.53
	End of Shell and Auger Hole. * Seating Blows - J15.22, J29.43 + Failed U Sample			

Sample/Test	Depth	Type & Number	Blows/Pressure/Penetration	Sample Number	Natural Moisture Content (%)	Natural Dry Density (kg/m³)	Liquid Limit (%)	Plastic Limit (%)	% passing 425 micron	Sulphate g/l 2:1 extract	pH
	0.50	J1		2	28	1445				0.04	7.7
	0.85	(3)12		10	18					0.06	8.1
	1.00	J3									
	1.00	S(39)		12	14	1945	34	20	100		
	1.45	J4									
	1.50	B5		18	13	1905	37	20	93		
	1.80	J6									
	2.00	(8)17		25	16		34	20	100		
	2.45	J8									
	2.50	J8									
	2.95	S(52)									
	3.00	J9									
	3.00	B10									
	3.30	J11									
	3.50										
	3.95	(10)42									
14.8.84	4.00	J13									
15.8.84 3.00 Dry 3.80	4.20	J14									
	4.50	S(306 for 225 mm)									
	4.95	J15									
	5.05	J16, J17									
	5.45	(10)58									
	5.50	J19									
	5.95	S(66)									
	6.00	J20									
	6.30	B21									
	6.50	J22									
	6.80	(10)23									
	6.95	J24									
	7.00	S(93)									
	7.45	J25									
	7.50	B26									
	7.70	J27									
	8.00	L									
	8.20	J28									
15.8.84 8.20 Dry 8.50	8.50	S(50 for 60mm)									

Scale 1:

Disturbed Samples: w = Groundwater; J = Jar, S = S.P.T., B = Bulk, M = Mast

Undisturbed Samples: U Soil Sample

Insitu Tests: V C30 J = Vane shear strength in KN/m²

Groundwater first struck

Core Cutter Density; Core Cutter Density/C.B.R

Sandcastle Density; C B R

C B R S P T ... or spoon ... N value

c b4

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BIRMINGHAM - NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

DRILLHOLE N° B273
FIGURE A2
Sheet 1 of 3

Field Work by : Exploration Associates (Warwick) Limited
Method : Rotary Coring with Water Flush
Dates : 9/10/11.10.84
Core Diameter : 76mm
Casing Dimensions : 133.35mm

Coordinates : 6700l.2 E
95262.7 N
Ground Level : 79.03 m O.D.

Laboratory Testing by :
Dates

Drilling							Change of Strata		Description of Strata		Details Records and Standpipe / Piezometer Installation Details	Sample number	Depth (m)	Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Natural Dry Density (kg/m³)
Date	Drain at (Casing)	Depth (m)	Mark	TCR %	SCR %	Test or Bit (mm)	Legend	Depth (m)	Details	Main							
								7.00	72.03	Drilled by Shell and Auger method to 7.00								
9.10.84	-	7.00		80%	0%	NI NI 20				Highly weathered zone at: 7.00 - 7.25 degraded to stiff silty clay with many lithorelicts.	Moderately to highly weathered friable weak to very weak red brown mottled grey green calcareous SILTSTONE. Extremely closely spaced sub-horizontal discontinuities containing some clay. (KEUPER MARL : ZONE II/III)							
		8.00		93%	7%	NI 20 110												

Scale 1:

Disturbed Samples
W - Groundwater
J - Jar
S - SPT
B - Bulk
U - UCS

Core Runs
core recovery %

Groundwater first struck

C or S - S.P.T. cone or spoon
(25) - N value

c b4

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BIRMINGHAM - NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

DRILLHOLE Nº B273
FIGURE A2
Sheet 2 of 3

Field Work by :
Method :
Dates :
Core Diameter :
Casing Dimensions :

Coordinates : E
N
Ground Level : mO.D.

Laboratory Testing by :
Dates :

Drilling: Date	Depth of casing	Depth of water strike	Depth (m)	Run	C.R. %	R.Q.D. %	Type of test (mm²)	Change of Strata: Legend	Depth (m)	Reduced Level	Description of Strata: Detail	Description of Strata: Main	Field Records and Piezometer Installation Details	Sample Number	Depth (m)	Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Natural Dry Density (kg/m³)
										69.40		See sheet 1 of 3							
9.10.84	3.00	1.00	9.50				CPT		9.55	(76 for 150mm)									
10.10.84	3.00	2.40	9.65		88%	0%	N1 20 60				Highly weathered zones at: 10.45 - 10.90, 11.15 - 11.45 degraded to stiff silty clay with many lithoreliets.	Moderately to slightly weathered weak to moderately weak red brown mottled grey green calcareous SILTSTONE. Very to extremely closely spaced sub-horizontal discontinuities. (KEUPER MARL : ZONE II/III)							
			9.90		96%	16%	N1 80 200												
			11.15		90%	15%	N1 20 150				Very weak highly weathered zones at: 15.10 - 15.15, 16.80 - 16.90.								
			12.15				CPT			(6 for 150mm26)	Sub-vertical discontinuities at: 14.80 - 15.20, 15.60 - 15.70								
			12.38		56%	7%	N1 40 110												
			13.80		85%	33%	N1 60 100												
10.10.84	3.00	2.10	14.80																
11.10.84	3.00	3.40																	
					81%	22%	N1 40 150												
			17.00		100%	47%	20 80 150		17.00	52.03	Some solution cavities upto 40mm across and 60mm long	Slightly weathered moderately weak to moderately strong grey green SILTSTONE. Very closely and closely spaced sub-horizontal discontinuities. (KEUPER MARL : ZONE III)							

Scale 1

Disturbed Samples
W - Groundwater
J - Jar
S - S.P.T.
B - Bulk
U - 100mm

Core Runs
Core recovery %

Groundwater first struck

C or S - S.P.T. cone or spoon
(35) - N value

SK 42 NE/90

Scott Wilson Kirkpatrick & Partners
Consulting Engineers and Transportation Planners

BIRMINGHAM - NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

BOREHOLE Nº B273
FIGURE A2
Sheet 3 of 3

Field Work by :
Method :
Dates :
Core Diameter :
Casing Dimensions :

Coordinates . E
N
Ground Level : m O.D.

Laboratory Testing by :
Dates :

Drilling								Change of Strata		Description of Strata		Piezometer Records and Standpipe/ Piezometer Installation Details								
Date	Depth at start of run (m)	Depth at end of run (m)	Depth (m)	Run	Core %	RQD %	Fract. per 10 cm (mm)	Legend	Depth (m)	Reduced Level	Details	Notes		Sample Number	Depth (m)	Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Natural Dry Density (kg/m³)		
			18.75									See sheet 2 of 3								
					76%	44%	NI 120 250		19.00	60.03	Slightly weathered moderately strong band at: 19.95 - 20.00	Moderately to highly weathered very weak friable red brown calcareous SILTSTONE. Very closely spaced sub-horizontal discontinuities. (KEUPER MARL : ZONE II/III)								
11.10.83	3.00	7.70	20.00						20.00	59.03										
			53.05									End of Rotary Hole.								

NI = Not Intact
SB = Seating Blows.

Bentonite seal 0.50 - 1.50
Gravel filter 1.50 - 19.00
Standpipe installed to 19.00

Scale 1 :

Disturbed Samples
W = Groundwater
J - Jar
S - SPT
B - Bulk
M - Mazier

Core Runs
core recovery %

Groundwater first struck

C or S - S.P.T. cone or spoon
(25) - N value

British Geological Survey

SK42NE/111

SCOTT WILSON KIRKPATRICK & PARTNERS
Consulting Engineers & Transportation Planners

BIRMINGHAM – NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

4733 2661

BOREHOLE No 279
FIGURE A1
Sheet 1 of 1

Field Work by: Exploration Associates (Warwick) Limited
Method: Cable Percussion
Dates: 2.10.84
Hole Dimensions: 150mm
Casing Dimensions: 150mm

Coordinates: 67356.9 E
96648.9 N
Ground Level: 62.95 m OD

Laboratory testing by: Dates

Depth	Description of Strata	Depth (m)	Reduced Level
0.30	TOPSOIL	0.30	62.65
0.50	Soft to firm brown fissured silty sandy clay with occasional sub-angular gravel (sandstone, quartz) (GLACIAL TILL)	3.80	57.15
3.80	Very stiff red brown fissured silty to very silty CLAY with many siltstone lithorelicts. Occasional bands of highly weathered fissured weak siltstone at 1.00. (KEUPER MARL : ZONE II/III) Firm to stiff in parts.	4.10	58.85
4.10	Stiff red brown and grey green fissured inter-stratified silty CLAY sand highly weathered fissured very weak mudstone/siltstone (KEUPER MARL : ZONE III) Soft red brown fissured silty CLAY with many mudstone/siltstone lithorelicts and many thin bands of highly weathered interstratified very weak mudstone/siltstone. (KEUPER MARL : ZONE III)		

End of Shell and Auger Hole.

* Seating Blows – J11 = 20
J14 = 31

Hard Strata 3.40 3.80 – 1¼ hours

Sample Number	Natural Moisture Content (%)	Natural Dry Density (Mg/m³)	Liquid Limit (%)	Plastic Limit (%)	% passing 425 micron
1	15				
2	13	1790	27	17	100
5	22				
7	26	1645	32	18	87

Scale 1:

Disturbed Samples: W – Groundwater; J – Jar; S – SPT; B – Bulk; Ben – Mazier

Undisturbed Samples: Soil Sample

Insitu Tests: V (38.2) – Vane shear strength in kN/m²; ▼ Groundwater first struck; □ Core Cutter Density; ■ Core Cutter Density/C.B.R; ▽ Sandcastle Density; ▲ C.B.R; Core S; SPT – no or seven (115) – N value

c b4

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SM 42 NE/112

SCOTT WILSON KIRKPATRICK & PARTNERS
Consulting Engineers & Transportation Planners

BIRMINGHAM – NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

4738 2676

BOREHOLE No 280
FIGURE A1
Sheet 1 of 1

Field Work by: Exploration Associates (Warwick) Limited
Method: Cable Percussion
Dates: 3.10.84
Hole Dimensions: 150mm
Casing Dimensions: 150mm

Coordinates: 67404.6 E.
96797.0 N.
Ground Level: 57.18 m OD

Laboratory testing by: Dates

Date	Depth (m)	Samples & Tests	Depth (m)	Description of Strata
3.10.84		0.30 J1	0.30	TOPSOIL
		0.50		Very stiff red brown fissured silty CLAY with occasional sub-rounded fragments of quartz, sandstone. Rootlets. (GLACIAL FILL)
		0.85 J3	1.00	
		1.00 S(28)		Stiff and very stiff red brown mottled grey green fissured silty CLAY with many mudstone and siltstone lithorelicts. (KEUPER MARL : ZONE III) Many mudstone/siltstone lithorelicts and many thin bands of highly weathered fissured red brown and grey green very weak calcareous mudstone/siltstone below 2.50.
		1.65 J4 B5		
		1.80 J6		
		2.10 (50)17		
		2.45 J8		
		2.50 S(250)		
		2.95 J9 B10		
		3.00 J11		
		3.40 S(79)		
		3.65 m J12		Becoming very silty below 5.50m
		4.50 J13		
		4.70 S(80 for 125mm)		
		5.00 J14		
		5.40 S(133 for 225mm)		
3.10.84	All	Dry 5.90 J16	5.90	End of Shell and Auger Hole.
				Hard Strata – 5.00 – 5.50 = 1 hour.
				* Seating Blows – J14 = 20 J16 = 33

Sample Number	Natural Moisture Content (%)	Natural Dry Density (kg/m³)	Liquid Limit (%)	Plastic Limit (%)	% Density ASTM Hammer	Sulphate g/l pH
1	14					
2	11	1995	32	18	100	0.04
5	24					
7	13	1865	22	NP	100	

Scale 1:

Disturbed Samples: W – Groundwater
J = Jar, P = S.P.T., B = Bulk, M = Mazier

Undisturbed Samples: Soil Sample

Insitu Tests: V (30) – Vane shear strength in kN/m²
Groundwater first struck
Cone Cutter Density
Cone Cutter Density/C.B.R
Sandbottle Density
C.B.R
Cone S.P.T. – no of blows

c b4

British Geological Survey

SK42NE 179 47773-27733

Norwest Holst Soil Engineering Ltd.

BOREHOLE LOG — Borehole No. 4

Contract No. F8883
Location A453(T): Clifton to M1
Client Dept. of Transport
Consultant John Burrow & Ptnrs.

Method Cable Percussion
Borehole Diam 150 mm
Date 03/10/90

Sheet 1 of 2
Coords E 447773 N 327733
Ground Level 33.73 m.A.O.D.

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Sampling & Insitu Testing				Ground Water
					Depth(m)		() & N	
MADE GROUND: Soft dark brown clay with much fine to coarse angular to rounded gravel of sandstone, mudstone, flint, quartz and igneous lithologies.				B	0.00	1.00		
				B	1.00	1.50		
				B	1.50	2.00		
				B	2.00	2.50		
				B	2.50	3.50		
				J	3.50	4.00		
Firm red brown silty CLAY.		3.80	29.93					
5.50–6.50m ... Becoming stiff.				U	4.05	4.50	(62)	
(Mercia Mudstone Zone IVb)				J	4.50	5.00		
				U	5.05	5.50	(48)	
				J	5.50	6.00		
				U	6.05	8.50	(26)	
								8.30 ∇2.1
Stiff red brown silty CLAY with some sand sized mudstone lithorelicts.		6.50	27.23	J	6.50	7.00		
(Mercia Mudstone Zone IVa)				U	7.05	7.50	(21)	
(Continued.....)				J	7.50	8.00		
				U	8.05	8.50	(36)	7.90 1->
				B	8.50	9.50		
				S	9.55	11.00	50	
				B	9.55	10.00		

Daily Progress

Date	Final Depth (m) of: Borehole	Water	Casing
03/10/90	2.50		0.00
04/10/90	12.60		11.00

Hard Strata

Depth(m)	Time
2.00–2.50	1 hour
2.50–3.80	1hr 30min
7.70–7.90	45 mins
12.30–12.50	1 hour

Comments

Inspection pit G.L. – 1.60m.

Casing maintained just above base of borehole unless stated

Sample and Test Key

J Small Disturbed Sample
B Bulk Disturbed Sample
U Undisturbed U100 Sample
W Water Sample
N.R. No Recovery

S Standard Penetration Test
C Cone Penetration Test
V Insitu Vane Test
PR Pressuremeter Test
K Permeability Test
() Blows to drive U100

S.P.T. ' ' N for full
C.P.T. 300mm penetration
100/ For given penetration
50/15 * Seating Blows only
N.P. No Penetration

Rotary Core Run (Recovery to Scale)
T.C.R. Total Core Recovery (%)
S.C.R. Solid Core Recovery (%)
R.Q.D. Rock Quality Designation

Ground Water
1-> First Water Strike
2-> Subsequent Water Strike
— mm/pm Standing Level
∇2.1 Level 20mins after strike
() Casing Depth

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SK42NE 179

Norwest Holst Soil Engineering Ltd.

BOREHOLE LOG — Borehole No. 4

Contract No. F8883
Location A453(T): Clifton to M1
Client Dept. of Transport
Consultant John Burrow & Ptnrs.

Method Cable Percussion
Borehole Diam 150 mm
Date 03/10/90

Sheet 2 of 2
Coords E 447773 N327733
Ground Level 33.73 m.A.O.D.

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Sampling & Insitu Testing Depth(m)		() & N	Ground Water
(....cont.)							
Very stiff, red brown silty CLAY. (Mercia Mudstone Zone IVb)		11.05	22.68	S 11.05	11.50	82	
Borehole complete at 12.60m.				B 11.50	12.00		
				W 12.00 S 12.05	12.00 12.30	88/150	
		12.60	21.13	S 12.50	12.60	50/75	

Daily Progress

Date	Final Depth (m) of: Borehole	Water	Casing
03/10/90 04/10/90	2.50 12.60		0.00 11.00

Hard Strata

Depth(m)	Time
2.00–2.50	1 hour
2.50–3.80	1hr 30min
7.70–7.90	45 mins
12.30–12.50	1 hour

Comments

Inspection pit G.L. – 1.60m.

Casing maintained just above base of borehole unless stated

Sample and Test Key

J Small Disturbed Sample
B Bulk Disturbed Sample
U Undisturbed U100 Sample
W Water Sample
N.R. No Recovery

S Standard Penetration Test
C Cone Penetration Test
V Insitu Vane Test
PR Pressuremeter Test
K Permeability Test
0 Blows to drive U100

S.P.T. * N for full 300mm penetration
C.P.T. For given penetration
* Seating blows only
N.P. No Penetration

Rotary Core Run (Recovery to Scale)
T.C.R. Total Core Recovery (%)
S.C.R. Solid Core Recovery (%)
R.Q.D. Rock Quality Designation

Ground Water
1-> First Water Strike
2-> Subsequent Water Strike
— cm/pm Standing Level
SZ Level 20mins after strike
() Casing Depth

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SK42NE 183 48459-28382

Norwest Holst Soil Engineering Ltd.

BOREHOLE LOG — Borehole No. 8

Contract No. F8883 — Method Cable Percussion — Sheet 1 of 2

Location A453(T): Clifton to M1 — Borehole Diam 150 mm — Coords E 448459 N 328382

Client Dept. of Transport

Consultant John Burrow & Ptnrs. — Date 16/10/90 — Ground Level 30.17 m.A.O.D.

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Sampling & Insitu Testing: Depth(m)		() & N	Ground Water
TOPSOIL		0.20	29.97				
Stiff, dessicated dark grey with orange brown mottling sandy CLAY with some fine to medium subangular to subrounded gravel and rootlets. (Alluvium)				J 0.50			
		0.92	29.25	J 1.00			
Dark grey with orange brown mottling very clayey medium to coarse SAND and fine to coarse subangular to subrounded GRAVEL of quartzite, flint, coal, mudstone lithorelicts and grey green siltstone. (Alluvium)				SPT 1.05 B 1.05	1.50 1.50	69	
		1.40	28.77	J 1.50			
Brown slightly clayey very sandy fine to coarse subangular to subrounded GRAVEL of quartzite, flint. (River Terrace Deposits)		2.00	28.17	C 2.05 B 2.05	2.50 2.50	45	
Brown slightly clayey medium to coarse SAND and fine to coarse angular to subrounded GRAVEL with occasional shells; gravel comprises quartzite, flint and brown sandstone. (River Terrace Deposits)				C 3.05 B 3.05	3.50 3.50	42	3.81 ▽1
		4.00	26.17	C 4.05 B 4.05	4.50 4.50	60	
Brown, fine to coarse angular to subrounded GRAVEL with some medium to coarse sand, occasional subrounded cobbles and occasional shells; gravel comprises quartzite, brown sandstone and flint. (River Terrace Deposits)							
		4.80	25.37	J 4.80 W 4.80 U 5.05	5.50	(62)	4.80 1->
Firm to stiff red brown sandy CLAY with occasional to some fine to medium subrounded to angular gravel and some fine to coarse gravel sized subangular lithorelicts of red brown, mudstone; gravel comprises quartzite and flint. (Possible Reworked Mercia Mudstone)				J 5.50			
				J 6.00 U 6.05	6.50	(58)	
		6.25	23.92				
Firm red brown occasionally grey green spotted sandy CLAY with much fine to coarse gravel sized subangular mudstone lithorelicts. (Mercia Mudstone Zone III)				J 6.50			
		6.75	23.42				
Firm red brown sandy CLAY with occasional fine gravel sized subangular lithorelicts of red brown mudstone and occasional reduction spots. (Mercia Mudstone Zone IVa)				SPT 7.00 B 7.05 U 7.05	7.50	(32) N.R	
... Uncertain Boundary		7.25	22.92				
Stiff to very stiff occasionally indistinctly thinly laminated red brown sandy CLAY with many fine to coarse gravel sized subangular lithorelicts of red brown mudstone and occasional grey green reduction spots. (Mercia Mudstone Zone III)				J 8.00			
				U 8.55	9.00	(88)	
				J 9.00			
				J 9.50			
		10.00	20.17				

Daily Progress

Date	Final Depth (m) of: Borehole	Water	Casing
16/10/90	4.00	4.80	4.00
17/10/90	14.50		14.00

Hard Strata

Depth(m)	Time
3.60–4.00	40 mins

Comments

Groundwater 16/10 – not encountered.

Casing maintained just above base of borehole unless stated

Sample and Test Key

J Small Disturbed Sample; B Bulk Disturbed Sample; U Undisturbed U100 Sample; W Water Sample; N.R. No Recovery

S Standard Penetration Test; C Cone Penetration Test; V Insitu Vane Test; PR Pressuremeter Test; K Permeability Test; () Blows to drive U100

S.P.T. * N for full; C.P.T. 300mm penetration; 25/25 For given penetration; 25/* Seating blows only; N.P. No Penetration

Rotary Core Run (Recovery to Scale); T.C.R. Total Core Recovery (%); S.C.R. Solid Core Recovery (%); R.Q.D. Rock Quality Designation

Ground Water

1-> First Water Strike; 2-> Subsequent Water Strike; ___ cm/pm Standing Level; ▽2 Level 20mins after strike; [] Casing Depth

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British Geological Survey

SK42NE 183

Norwest Holst Soil Engineering Ltd.

BOREHOLE LOG — Borehole No. 8

Contract No. F8883
Location A453(T): Clifton to M1
Client Dept. of Transport
Consultant John Burrow & Ptnrs.

Method Cable Percussion
Borehole Diam 150 mm
Date 16/10/90

Sheet 2 of 2
Coords E 448459 N328382
Ground Level 30.17 m.A.O.D.

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Sampling & Insitu Testing Depth(m)		() & N	Ground Water
Very stiff occasionally indistinctly thinly laminated red brown sandy CLAY with many fine to coarse gravel sized subangular lithorelicts of red brown mudstone and occasional grey green reduction spots.				U 10.05	10.50	(91)	
... 10.50 – 10.75m ... with very thin beds of grey green thinly laminated siltstone.				J 10.50			
(Mercia Mudstone Zone III)		10.75	19.42	J 11.00			
Soft to firm red brown sandy CLAY with occasional fine gravel sized subangular lithorelicts of red brown mudstone and occasional grey green reduction spots.				B 11.55 U 11.55	12.00 12.00	(81) M.R.	
(Mercia Mudstone Zone III)		11.75	18.42				
Soft to firm red brown sandy CLAY with some fine to medium gravel sized subangular mudstone lithorelicts.							
(Mercia Mudstone Zone III)							
VOID		12.51	17.66	J 12.50			
Stiff to very stiff indistinctly thinly laminated red brown sandy CLAY with many fine to coarse gravel sized subangular lithorelicts of red brown mudstone, very thin beds of grey green thinly laminated siltstone and reduction spots.		13.71	16.46	S 14.00	14.45	64	
(Mercia Mudstone, Zone III)							
Cable Percussion Boring complete at 14.50m.		14.50	15.67	J 14.50			

Daily Progress

Date	Final Depth (m) of: Borehole	Water	Casing
16/10/90	4.00		4.00
17/10/90	14.50	4.80	14.00

Hard Strata

Depth(m)	Time
3.60–4.00	40 mins

Comments

Groundwater 16/10 – not encountered.

Casing maintained just above base of borehole unless stated

Sample and Test Key

J Small Disturbed Sample
B Bulk Disturbed Sample
U Undisturbed U100 Sample
W Water Sample
M.R. No Recovery

S Standard Penetration Test
C Cone Penetration Test
V Insitu Vane Test
PR Pressuremeter Test
K Permeability Test
O Blows to drive U100

S.P.T. ' ' N for NB
C.P.T. 300mm penetration
For given penetration
Seating blows only
N.P. No Penetration

Rotary Core Run (Recovery to Scale)
T.C.R. Total Core Recovery (%)
S.C.R. Solid Core Recovery (%)
R.Q.D. Rock Quality Designation

Ground Water
1-> First Water Strike
2-> Subsequent Water Strike
— am/pm Standing Level
SL Level 20mins after strike
() Casing Depth

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TP2 & ASSOCIATED SERVICE TRENCH **Sheet 1 of 2**

Contract Title: Scheme 758: A50 Abnormal Loads Laybys

Date of Excavation: 10th & 13/12/2004

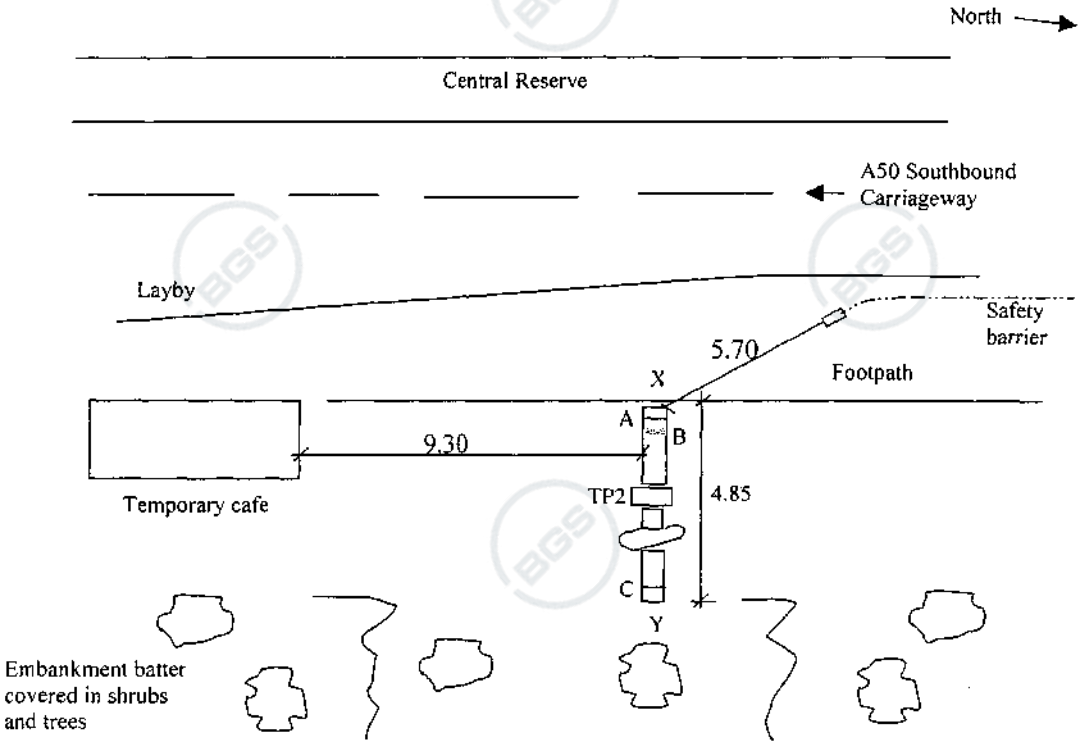
Plant/Method of Excavation: Hand Excavated

Ground Level: 32.18m AOD (adjacent to footpath), 32.23m AOD (geotechnical pit)

National Grid Co-ordinates: 447340E 328463N

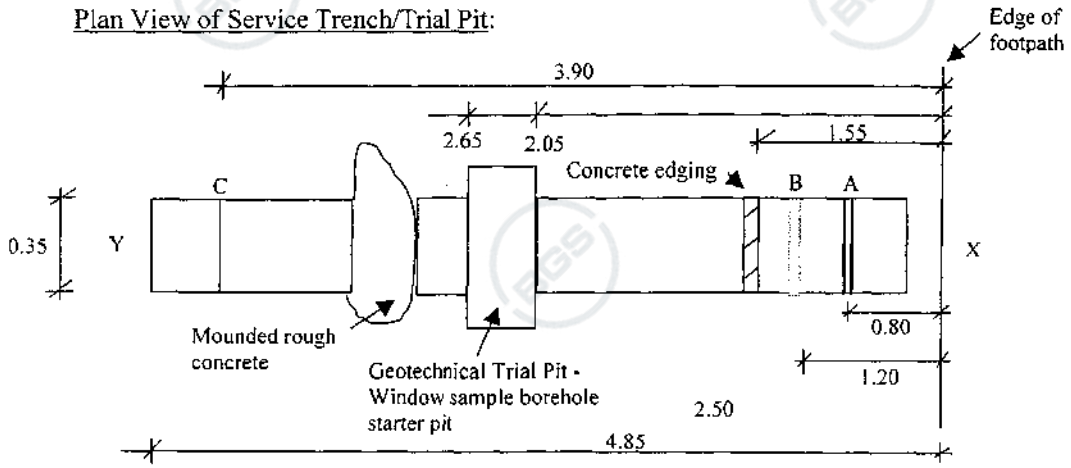
Services Encountered: Yes (see below)

Location Plan:



NOT TO SCALE
(All dimensions are in m)

Plan View of Service Trench/Trial Pit:



NICHOLLS COLTON GEOTECHNICAL LR: G05046

TP2 & ASSOCIATED SERVICE TRENCH (continued) **Sheet 2 of 2**

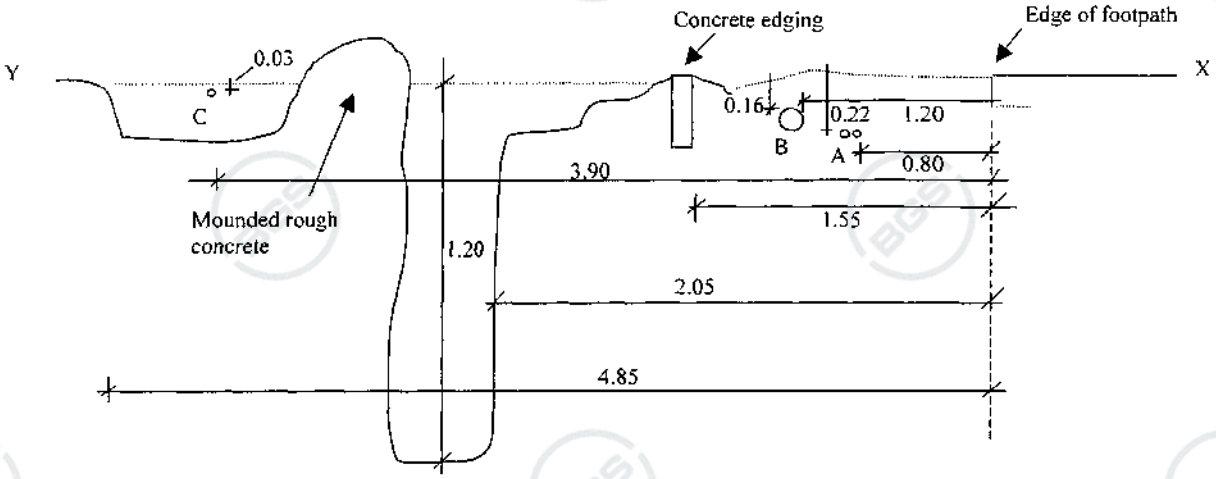
Services Encountered:

A = 2 No.14mm & 18mm diameter dark grey cables at 0.22m below existing ground level (de-marked by yellow polythene warning tape).

B = 61mm diameter orange duct marked street lighting at 0.16m below existing ground level (de-marked by yellow polythene warning tape).

C = 12mm diameter pale grey cable at 0.03m below existing ground level.

Section View of Service Trench/Trial Pit:



Descriptions:

Depth (m)	Description (Window sample starter pit)
0.08 – 0.30	MADE GROUND – vegetation over topsoil with many roots
0.30 – 0.48	MADE GROUND – reinforced concrete
0.48 – 1.20	MADE GROUND – red brown and orange locally clayey gravelly fine to medium sand (gravel is fine to coarse sub-angular to rounded quartz)

Samples: (TP2 Window sample Starter pit)

Type / No.	Depth (m)
B 1	0.50m
B 2	1.00m

Remarks:

1. No groundwater seepages were encountered at the time of excavation.
2. No collapse of the trial pit/trench sides occurred.
3. The trial pit/trench was backfilled with arisings upon completion.

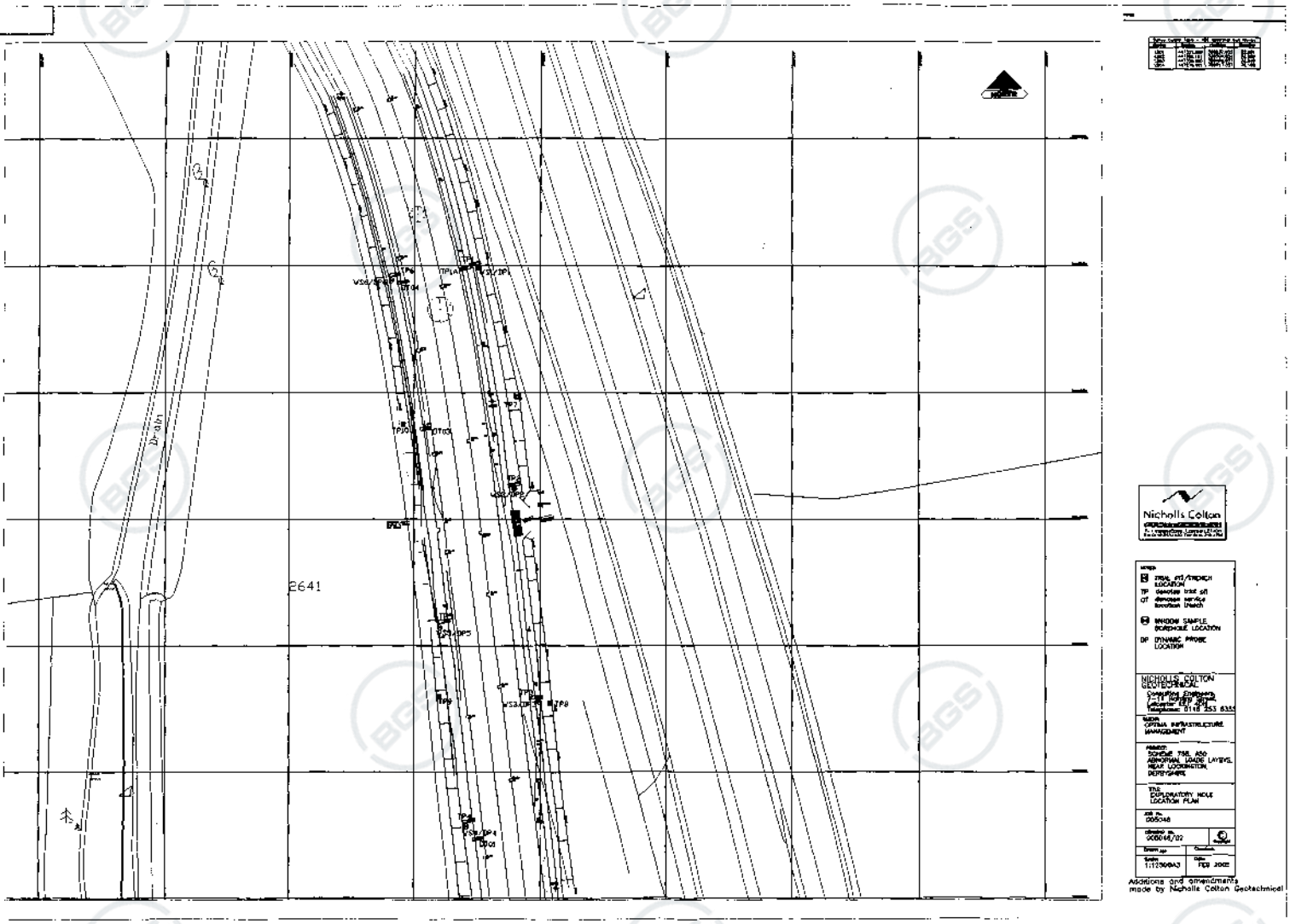
NICHOLLS COLTON GEOTECHNICAL LR: G05046

NICHOLLS COLTON AND PARTNERS LTD. Tel: 0116 - 2536333	**BOREHOLE RECORD** (Window Sampler)	Borehole Number **WS2**
Site Scheme 758: A50 Abnormal Loads Laybys		
Client Optima Infrastructure Management	Boring diameter: 92 mm To 2.90m Casing diameter:	Logged by: NB Scale: 1:50
LR: G05046 Ground Level: 32.23 m	Date: 15/12/2004 Location: 447340E - 328463N	Sheet 1 of 1

Samples & Tests			Water	Level (m)	Depth (m)	Description	Legend	Install-ation
Depth (m)	Type	SPT N						
						MADE GROUND - hand dug, see trial pit TP2 for soil descriptions and sample details		
1.20-2.00	D 1			31.03	1.20	MADE GROUND - red brown locally clayey slightly gravelly fine sand (gravel is fine to coarse sub-angular to rounded quartz)		
2.10-2.50	D 2			30.13	2.10	Orange and red brown silty fine to coarse SAND and fine to coarse angular to rounded flint and quartz GRAVEL		
2.50-2.90	D 3			29.73	2.50			
				29.33	2.90	Orange slightly gravelly fine to coarse SAND (gravel is fine to coarse sub-angular to rounded quartz)		
						End of Borehole at 2.90 m		

Remarks and Water Observations

1. Hand dug to 1.20m for bulk soil sampling and to check for services (see log for TP2).
2. No groundwater seepages were encountered at the time of boring.
3. Window sampling tube refused at 2.90m.
4. Borehole terminated and backfilled with cement/bentonite upon completion.


2641
Nicholls Colton
NICHOLLS COLTON GEOTECHNICAL
Additions and amendments made by Nicholls Colton Geotechnical

TP4 & ASSOCIATED SERVICE TRENCH

Contract Title: Scheme 758: A50 Abnormal Loads Laybys

Date of Excavation: 08/12/2004

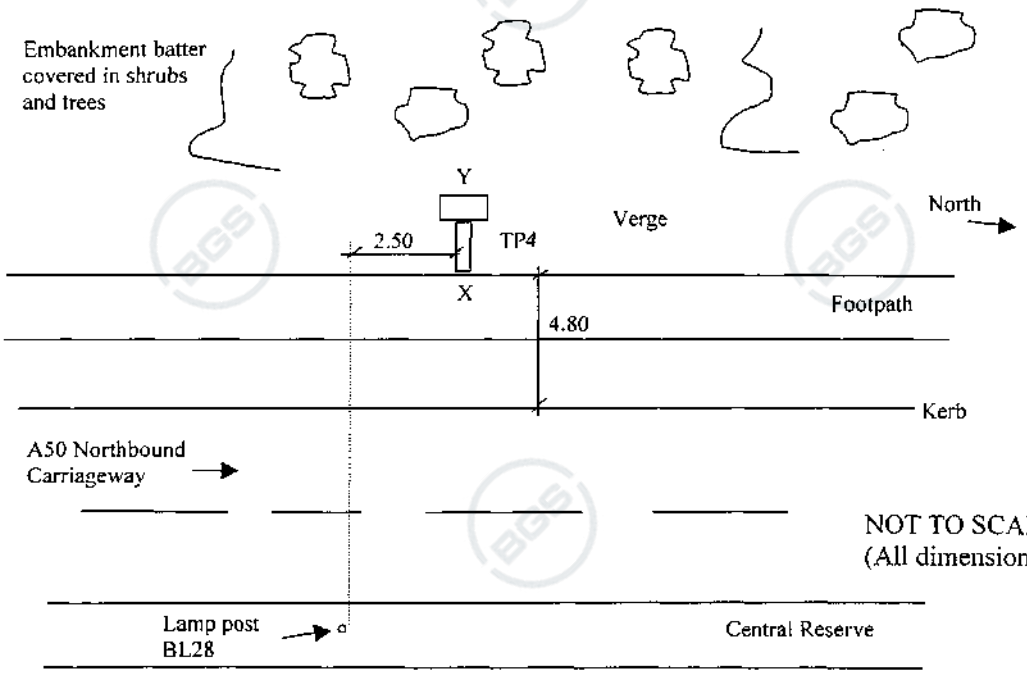
Plant/Method of Excavation: Hand Excavated

Ground Level: 31.97m AOD (adjacent to footpath), 32.09m AOD (geotechnical pit)

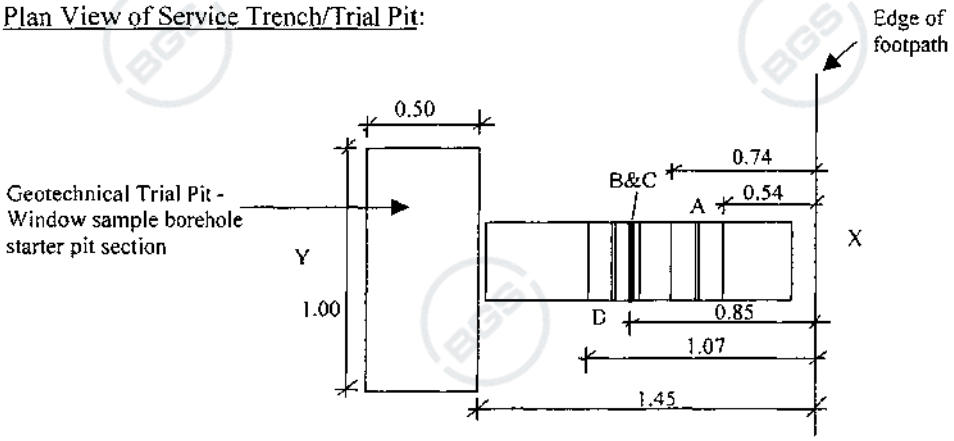
National Grid Co-ordinates: 447321E 328330N

Services Encountered: Yes (see below)

Location Plan:



Plan View of Service Trench/Trial Pit:



NICHOLLS COLTON GEOTECHNICAL

LR: G05046

TP4 & ASSOCIATED SERVICE TRENCH (continued) **Sheet 2 of 3**

Services Encountered:

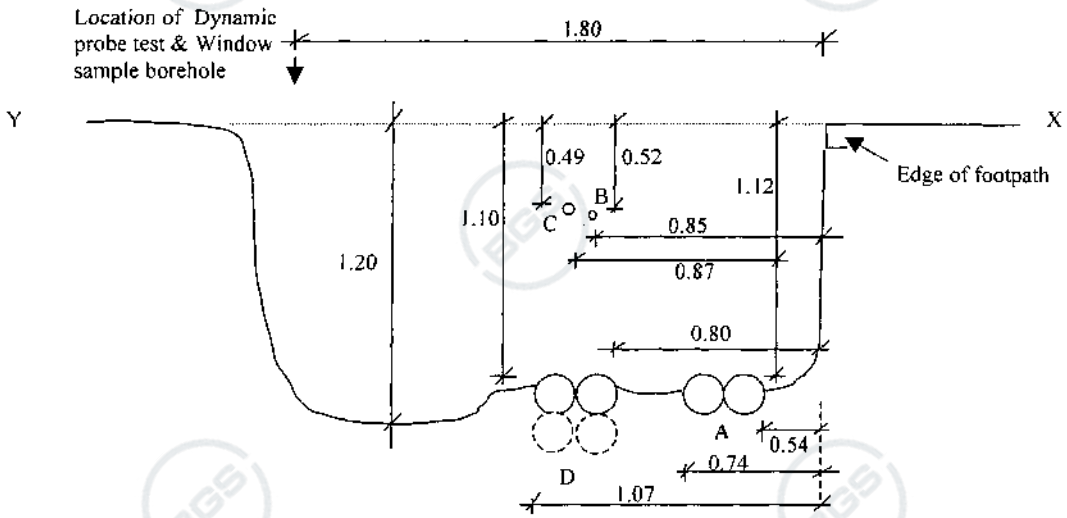
A = 2 No. approximate 100mm diameter red brown glazed ceramic ducts at 1.12m below existing ground level.

B = 7mm diameter green earth wire cable at 0.52m below existing ground level (de-marked by yellow polythene warning tape).

C = 31mm diameter black CNE cable at 0.49m below existing ground level (de-marked by yellow polythene warning tape).

D = 4 No. approximate 100mm diameter red brown glazed ceramic ducts from 1.10m below existing ground level.

Section View of Service Trench/Trial Pit:



Descriptions:

Depth (m)	Description
0.00 – 0.10	MADE GROUND – topsoil with many roots
0.10 – 0.20	MADE GROUND – black ash and clinker
0.20 – 1.20	MADE GROUND – red brown very silty gravelly fine to medium sand with occasional to many pockets of stiff sandy slightly gravelly clay with occasional angular mudstone boulders and roots (gravel is fine to coarse angular to rounded quartz and flint)
	.... large tree roots encountered at 1.20m

TP4 & ASSOCIATED SERVICE TRENCH (Continued) **Sheet 3 of 3**

Samples:

Type / No.	Depth (m)
D 1	0.10m
D 2	0.15m
B 3	0.50m
J 4	0.90m
T 5	0.90m
B 6	1.00m

Remarks:

1. No groundwater seepages were encountered at the time of excavation.
2. No collapse of the trial pit/trench sides occurred.
3. The trial pit/trench was backfilled with arisings upon completion.

NICHOLLS COLTON AND PARTNERS LTD.
Tel: 0116 - 2536333

BOREHOLE RECORD
(Window Sampler)

Borehole Number **WS4**

Site: Scheme 758: A50 Abnormal Loads Laybys

Client: Optima Infrastructure Management

Boring diameter: 92 mm To 3.80m

Casing diameter:

Logged by: NB

Scale: 1:50

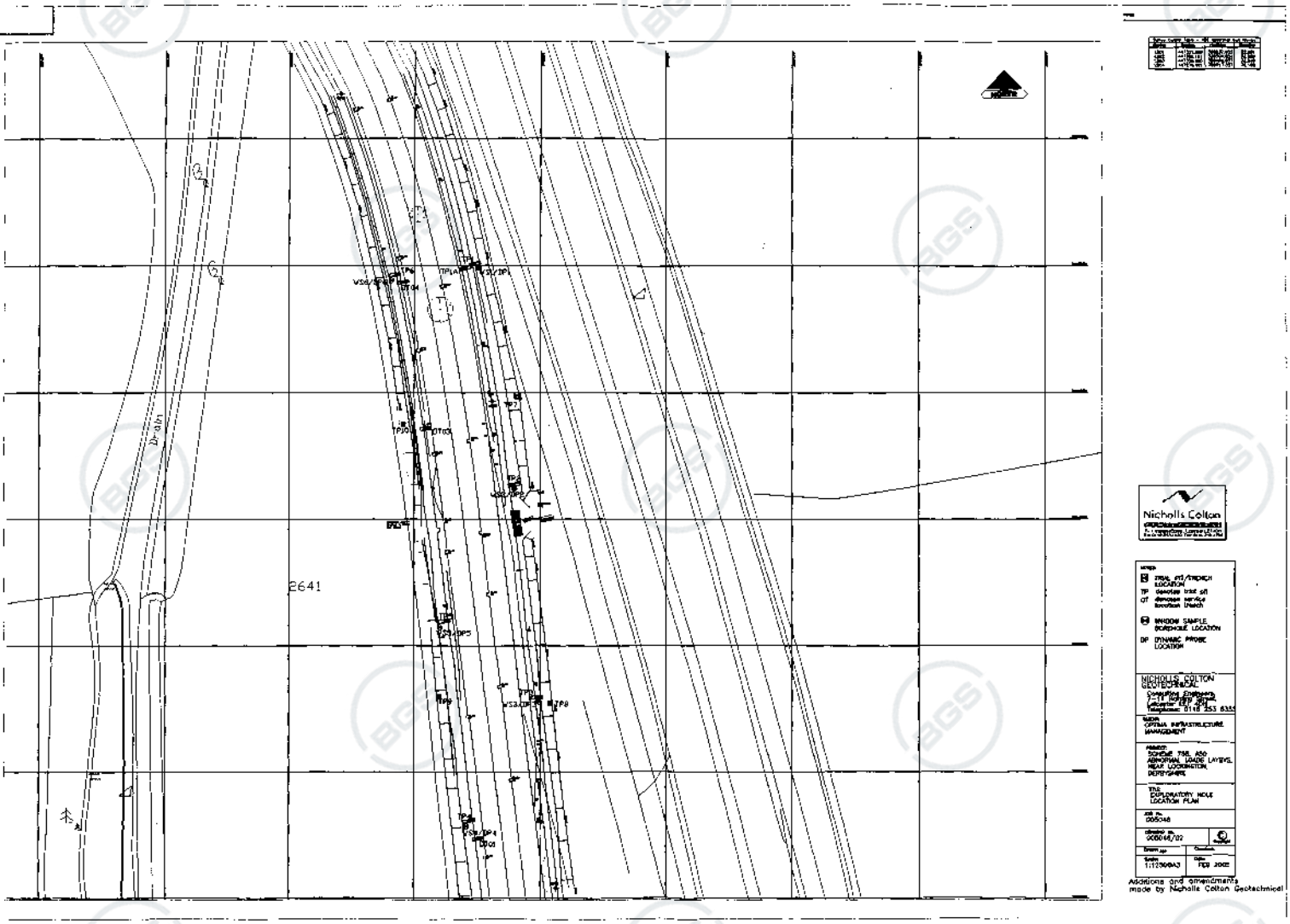
LR: G05046 | Ground Level: 32.09 m | Date: 16/12/2004 | Location: 447321E - 328330N

Sheet 1 of 1

Samples & Tests Depth (m)	Type	SPT N	Water	Level (m)	Depth (m)	Description	Legend	Install-ation
						MADE GROUND - hand dug, see trial pit TP4 for soil descriptions and sample details		
1.20-1.70	D 1			30.89	1.20	MADE GROUND - orange brown silty slightly gravelly fine sand (gravel is fine to coarse angular to rounded quartz and occasional flint)		
1.70-2.00	D 2			30.39	1.70			
2.00-2.30	D 3					Stiff red brown CLAY		
2.30-2.60	D 4		▼	29.79	2.30			
2.60-2.75	D 5			29.49	2.60	Soft red brown orange and pale grey sandy slightly gravelly CLAY (gravel is fine to coarse sub-angular to rounded quartz)		
2.75-3.40	D 6		▽	29.34	2.75			
3.40-3.80	D 7			28.69	3.40	Orange and pale grey clayey fine to coarse SAND and fine to coarse sub-angular to rounded quartz GRAVEL		
				28.29	3.80	Grey locally orange slightly clayey very gravelly medium to coarse SAND (gravel is medium to coarse sub-angular to rounded quartz)		
						Grey and orange fine to coarse SAND and fine to coarse angular to rounded flint and quartz GRAVEL		
						End of Borehole at 3.80 m		

Remarks and Water Observations

1. Hand dug to 1.20m for bulk soil sampling and to check for services (See log for TP4).
2. Groundwater seepages were encountered at 3.00m rising to 2.30m on cessation of boring.
3. Window sampling tube refused at 3.80m.
4. Borehole terminated and backfilled with cement/bentonite upon completion.


2641
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Additions and amendments made by Nicholls Colton Geotechnical

TP5 & ASSOCIATED SERVICE TRENCH **Sheet 1 of 3**

Contract Title: Scheme 758: A50 Abnormal Loads Laybys

Date of Excavation: 09/12/2004

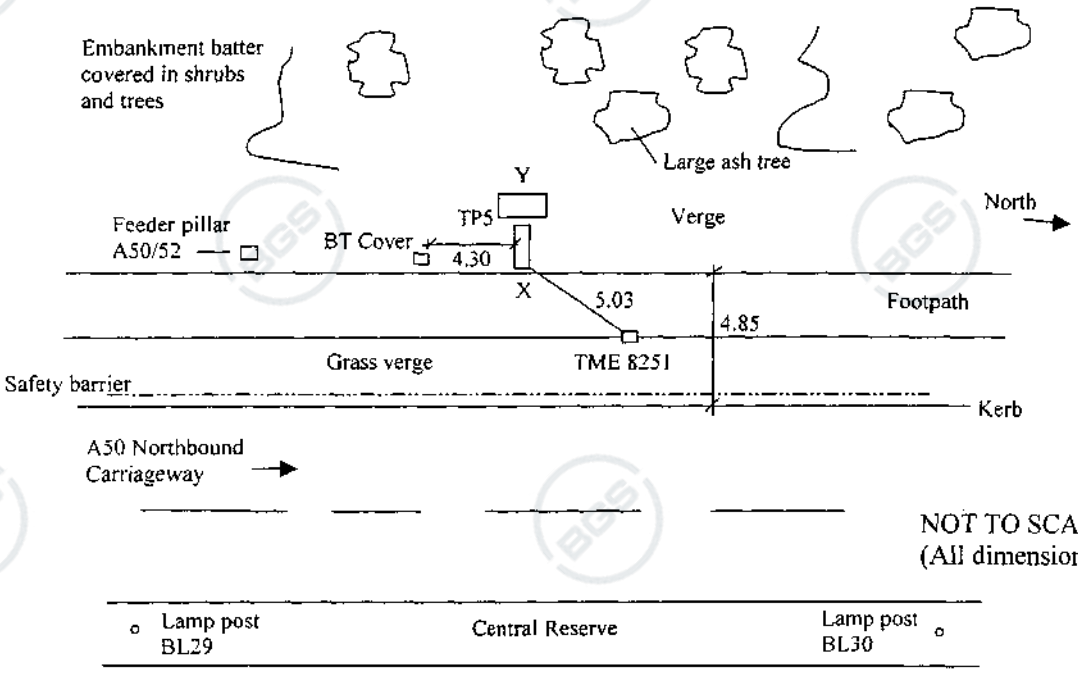
Plant/Method of Excavation: Hand Excavated

Ground Level: 31.67m AOD (adjacent to footpath), 31.77m AOD (geotechnical pit)

National Grid Co-ordinates: 447311E 328409N

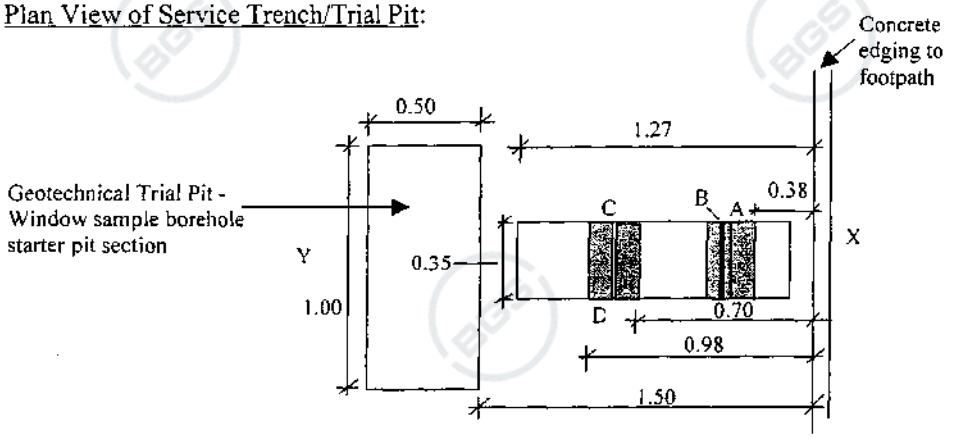
Services Encountered: Yes (see below)

Location Plan:



NOT TO SCALE
(All dimensions are in m)

Plan View of Service Trench/Trial Pit:



NICHOLLS COLTON GEOTECHNICAL LR: G05046

TP5 & ASSOCIATED SERVICE TRENCH (continued) **Sheet 2 of 3**

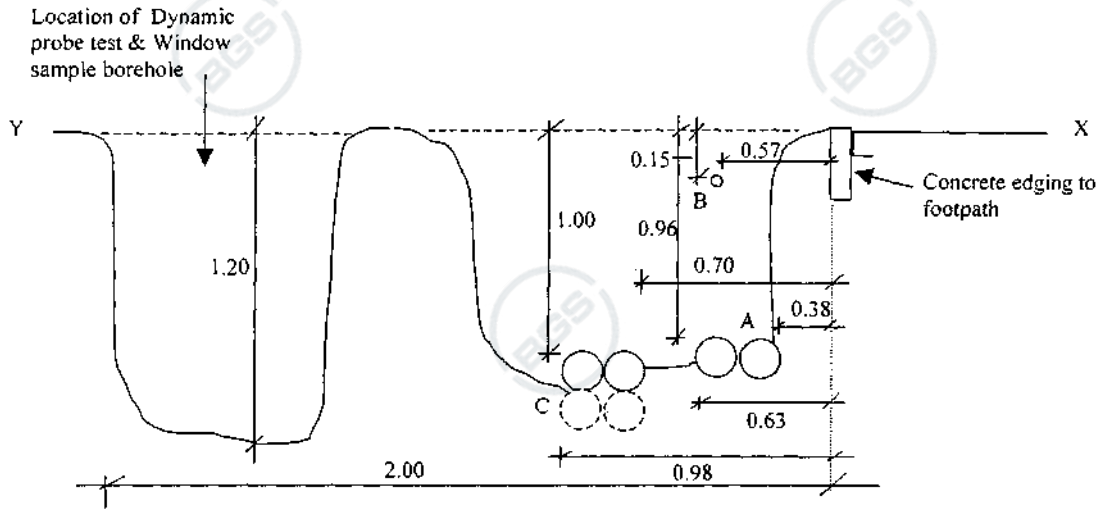
Services Encountered:

A = 2 No. approximate 100mm diameter red brown glazed ceramic ducts at 0.96m below existing ground level.

B = 15mm diameter black cable at 0.15m below existing ground level (de-marked by yellow polythene warning tape).

C = 4 No. approximate 100mm diameter red brown glazed ceramic ducts from 1.00m below existing ground level.

Section View of Service Trench/Trial Pit:



Descriptions:

Depth (m)	Description (service trench section)
0.00 – 0.15	MADE GROUND – vegetation over topsoil with many root hairs
0.15 – 1.05	MADE GROUND – red brown clayey fine to medium sand and fine to coarse angular to rounded flint and quartz gravel with occasional sub-rounded quartz cobbles

TP5 & ASSOCIATED SERVICE TRENCH (Continued) **Sheet 3 of 3**

Descriptions (Continued):

Depth (m)	Description (Geotechnical trial pit/window sample borehole starter pit)
0.00 – 0.15	MADE GROUND – vegetation over brown sandy topsoil with many roots
0.15 – 0.20	MADE GROUND – sandy black ash and clinker
0.20 – 0.50	MADE GROUND – stiff red brown sandy slightly gravelly clay (gravel is fine to coarse sub-angular to sub-rounded quartz)
0.50 – 1.20	MADE GROUND – red brown very clayey gravelly fine to medium sand with many pockets of stiff sandy slightly gravelly clay (gravel is fine to coarse sub-angular to rounded quartz)
	…. becoming slightly gravelly from 0.70m

Insitu Testing:

Hand Shear Vanes:

Depth	Readings (kPa)	Mean Value (kPa)
0.30m	140, 125 & 130	132

Samples:

Type / No.	Depth (m)
D 1	0.10m
D 2	0.15-0.20m
D 3	0.30m
J 4	0.50m
T 5	0.50m
B 6	0.70-0.80m
D 7	1.20m

Remarks:

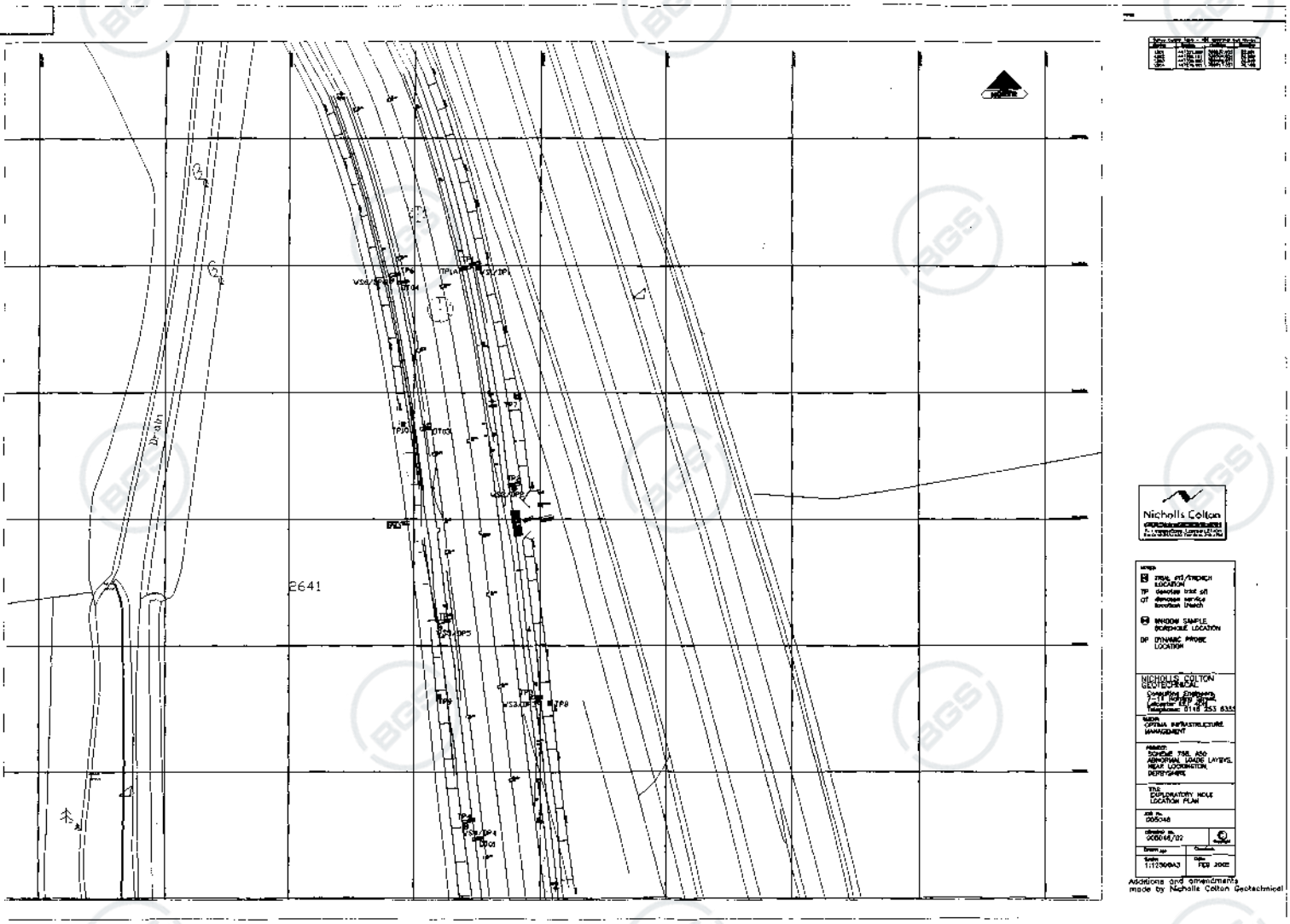
1. No groundwater seepages were encountered at the time of excavation.
2. No collapse of the trial pit/trench sides occurred.
3. The trial pit/trench was backfilled with arisings upon completion.

NICHOLLS COLTON AND PARTNERS LTD. Tel: 0116 - 2536333	**BOREHOLE RECORD** (Window Sampler)	Borehole Number **WS5**
Site Scheme 758: A50 Abnormal Loads Laybys		
Client Optima Infrastructure Management	Boring diameter: 92 mm To 5.00m Casing diameter:	Logged by: NB Scale: 1:50
LR: G05046 Ground Level: 31.77 m	Date: 16/12/2004 Location: 447311E - 328409N	Sheet 1 of 1

Samples & Tests Depth (m)	Type	SPT N	Water	Level (m)	Depth (m)	Description	Legend	Installation
						MADE GROUND - hand dug, see trial pit TP5 for soil descriptions and sample details		
1.20-1.50	D 1			30.57	1.20			
1.50-1.80	D 2			30.27	1.50	MADE GROUND - soft red brown sandy slightly gravelly clay with occasional brick fragments (gravel is medium to coarse sub-rounded to rounded quartz)		
1.80-2.00	D 3			29.97	1.80			
2.00-2.40	D 4			29.77	2.00	Firm red brown CLAY with occasional roots		
2.40-3.00	D 5		▼	29.37	2.40	Firm becoming soft from 1.90m red brown and grey mottled CLAY		
			▽					
3.00-4.00	D 6			28.77	3.00	Soft red brown orange and pale grey mottled CLAY		
						Grey clayey fine to coarse SAND and fine to coarse sub-angular to rounded quartz GRAVEL		
4.00-4.70	D 7					Brown slightly silty very sandy fine to coarse sub-angular to rounded quartz GRAVEL		
4.70-5.00	D 8			27.07	4.70			
				26.77	5.00	Soft red brown and grey green mottled CLAY with occasional pockets of fine sand/silt ....becoming firm from 4.90m		
						End of Borehole at 5.00 m		

Remarks and Water Observations

1. Hand dug to 1.20m for bulk soil sampling and to check for services (See log for TP5).
2. Groundwater seepages were encountered at 2.90m rising to 2.30m on cessation of boring.
3. The borehole collapsed in on removal of window sampling tube from 5.00m.
4. Borehole terminated and backfilled with cement/bentonite upon completion.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Additions and amendments made by Nicholls Colton Geotechnical

BOREHOLE RECORD - Cable Percussion

Project: A453 WIDENING, MI JUNCTION 24 - A52 NOTTINGHAM
Engineer: LAING O'ROURKE
Borehole: BH03-06
Project No: PC062588
Client: WHITE YOUNG GREEN
National Grid Coordinates: 448494.18 E, 328417.41 N
Ground Level: 30.28 m OD
Scale: 1:50

Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT	Description	Depth	Legend	Level m OD
							G.L.		30.28
0.15	D			18		Stiff brown mottled red brown and grey slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is angular to rounded fine to coarse quartz anf flint. [MADE GROUND-COHESIVE]	0.20		30.08
0.20- 0.65	B								
0.30	D			9.6					
0.65- 1.10	B			7.5			0.65		29.63
1.10	D					Stiff brown mottled orange brown slightly sandy slightly gravelly CLAY with rare rootlets. Gravel is angular to rounded fine to coarse quartz and flint. Occasional carbonaceous pockets (<5mm). ALLUVIUM/ [RIVER TERRACE DEPOSITS-GRANULAR]			
1.20- 1.70	B						1.20		29.08
1.20- 1.65	D	1.20 (DRY)			S50				
1.60	W								
2.00	D					Dense brown slightly clayey sandy GRAVEL. Gravel is angular to rounded fine to coarse quartz and flint. [RIVER TERRACE DEPOSITS-GRANULAR]			
2.20- 2.70	B			16					
2.20- 2.65	D	2.20 (1.60)			S33	Dense brown slightly silty SAND and GRAVEL. Gravel is angular to rounded fine to coarse quartz and flint. [RIVER TERRACE DEPOSITS-GRANULAR] Below 2.00m, varying to very sandy gravel. Below 3.00m, varying to slightly gravelly sand.			
3.00	D								
3.20- 3.70	B								
3.20- 3.65	D	3.20 (1.80)			S35				
3.80	D						3.80		26.48
4.20- 4.65	U50	4.20 (4.20)				Firm red brown occasional mottled grey slightly sandy CLAY. [HEAD]			
4.65	D						4.65		25.63
4.70- 5.20	B					Stiff red brown occasionally mottled grey slightly sandy slightly gravelly CLAY with rare gypsum lenses. Gravel is fine very weak lithorelict mudstone. [MERCIA MUDSTONEWEATHERING GRADE III]			
5.20	D								
5.50- 5.95	D	4.30 (DRY)			S12	Below 5.50m, becoming firm.			
6.50	D								
7.00- 7.45	D	6.00 (4.70)			S16	Below 7.00m, becoming stiff.			
8.00	D								
8.50- 8.95	D	8.50 (6.20)			S15				
9.30	D								
9.50- 9.95	D	9.00 (5.40)			S26				
						End of Borehole	9.95		20.33

Boring

Depth	Dia	Technique	Crew
1.20		Inspection Pit	DF/JA
9.50	0.15	Cable Percussion	DF/JA

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
G.L.			02/10/06	08:00
3.80	3.20	1.80	02/10/06	18:00
3.80	3.20	1.36	03/10/06	08:00
9.95	9.00	5.40	03/10/06	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.60	1.20	1.35	20	NS	Slow inflow.

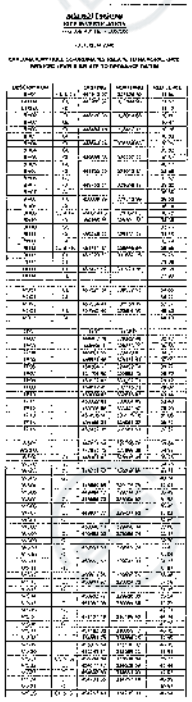
Remarks

Symbols and abbreviations are explained on the accompanying key sheet.
All dimensions are in metres.

Inspection pit hand excavated to 1.20m depth.
A 19mm standpipe piezometer was installed to 3.80m and with upright lockable protective cover and a 19mm standpipe piezometer was installed to 9.70m and with upright lockable protective cover. Detail as follows from base of hole: sand filter up to 7.90m, bentonite seal up to 3.80m, sand filter up to 1.50m, bentonite seal up to 0.50m, concrete up to ground level.

Logged by: KB
Checked by: DRB
Figure: 1 of 1
06/12/2006

geotechnics



Engineer:
Laing O'Rourke

Client:
Laing O'Rourke

Project:
A453 M1-Nottingham

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

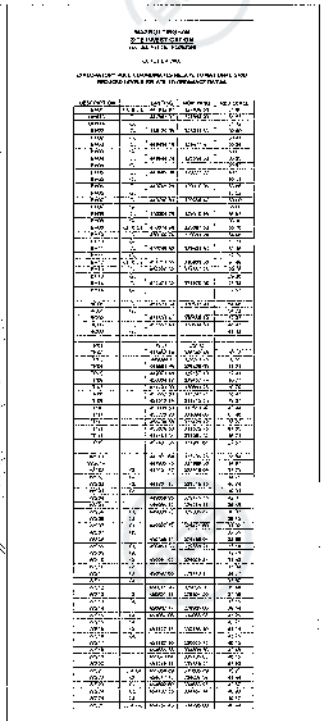
Taken from a drawing supplied by the client

Scale: 1:2500@A2

Date:
November 2006

Project No:
PC062588

File Name:
Geo-PC062588-001(1)



Engineer:
Laing O'Rourke

Client:
Laing O'Rourke

Project:
A453 M1-Nottingham

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Taken from a drawing supplied by the client

Scale: 1:2500@A2 Date: November 2006

Project No: PC062588 File Name: Geo-PC062588-001(2)

Engineer:
Laing O'Rourke

Client:
Laing O'Rourke

Project:
A453 M1-Nottingham

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

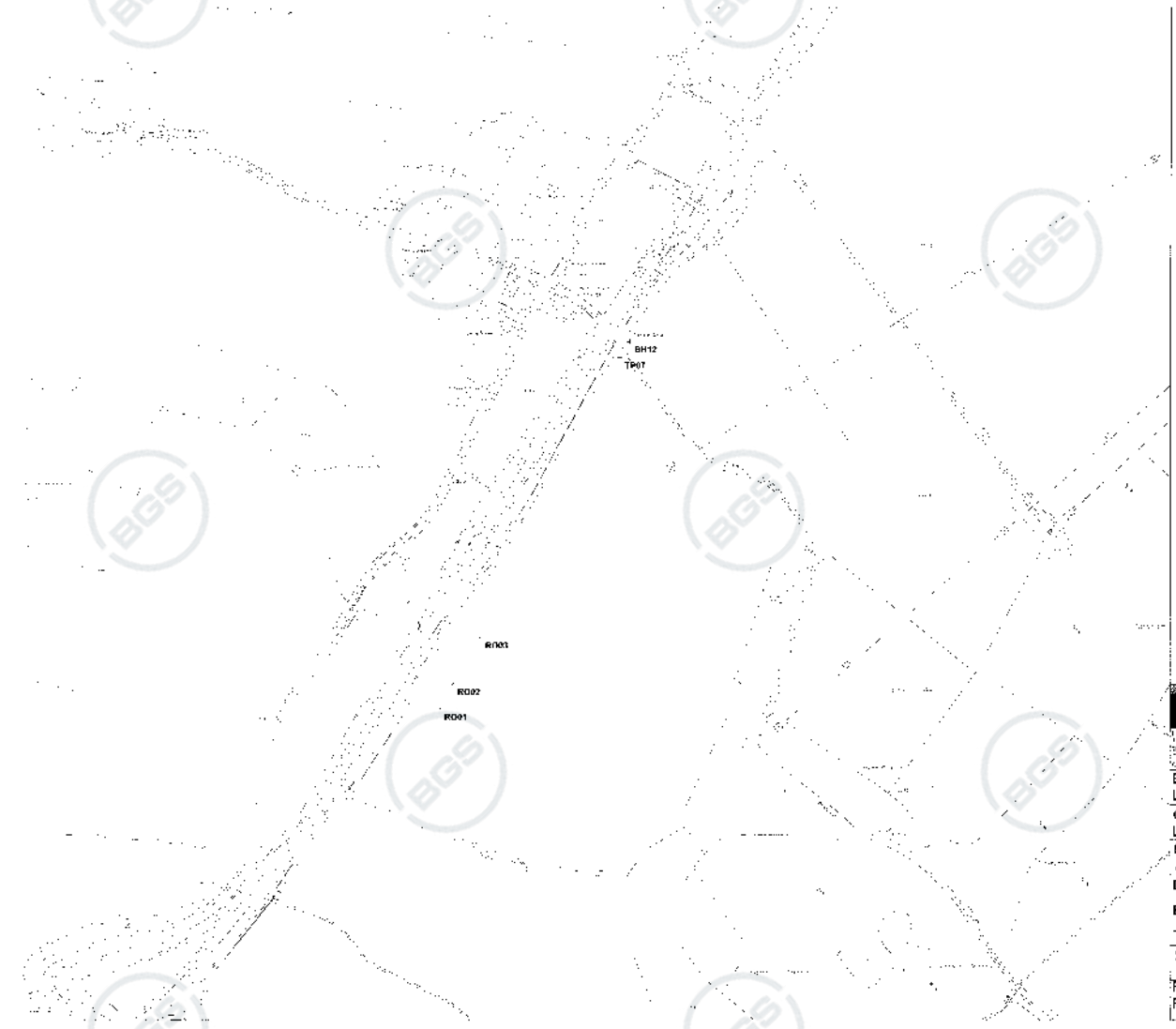
Taken from a drawing supplied by the client

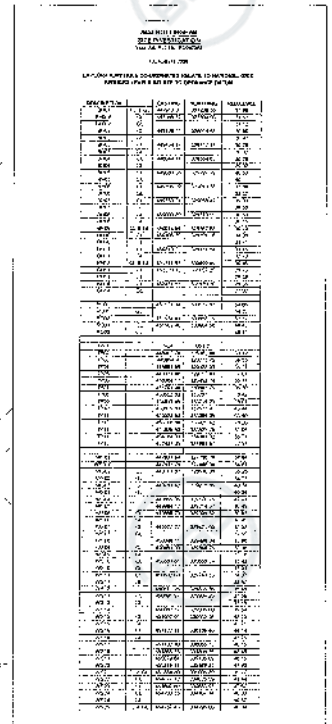
Scale: 1:2500@A2

Date:
November 2006

Project No:
PC0625BB

File Name:
Geo-PC062588-001(3)





Engineer:
Laing O'Rourke

Client:
Laing O'Rourke

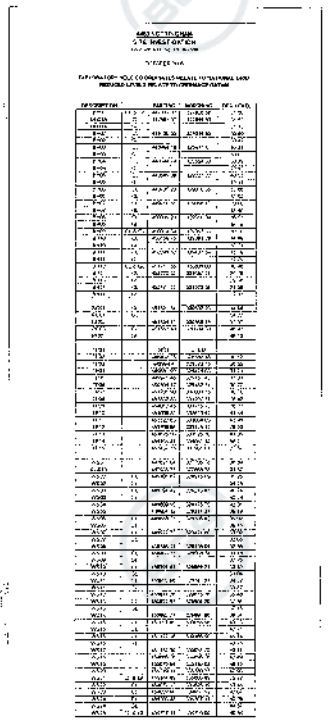
Project:
A453 M1-Nottingham

Drawing Title:

EXPLORATORY HOLE LOCATION PLAN

Taken from a drawing supplied by the client

Scale: 1:2500@A2	Date: November 2006
Project No: PC062588	File Name: Geo-PC062588-001(4)



Engineer:
Laing O'Rourke

Client:
Laing O'Rourke

Project:
A453 M1-Nottingham

Drawing Title:

EXPLORATORY HOLE LOCATION PLAN

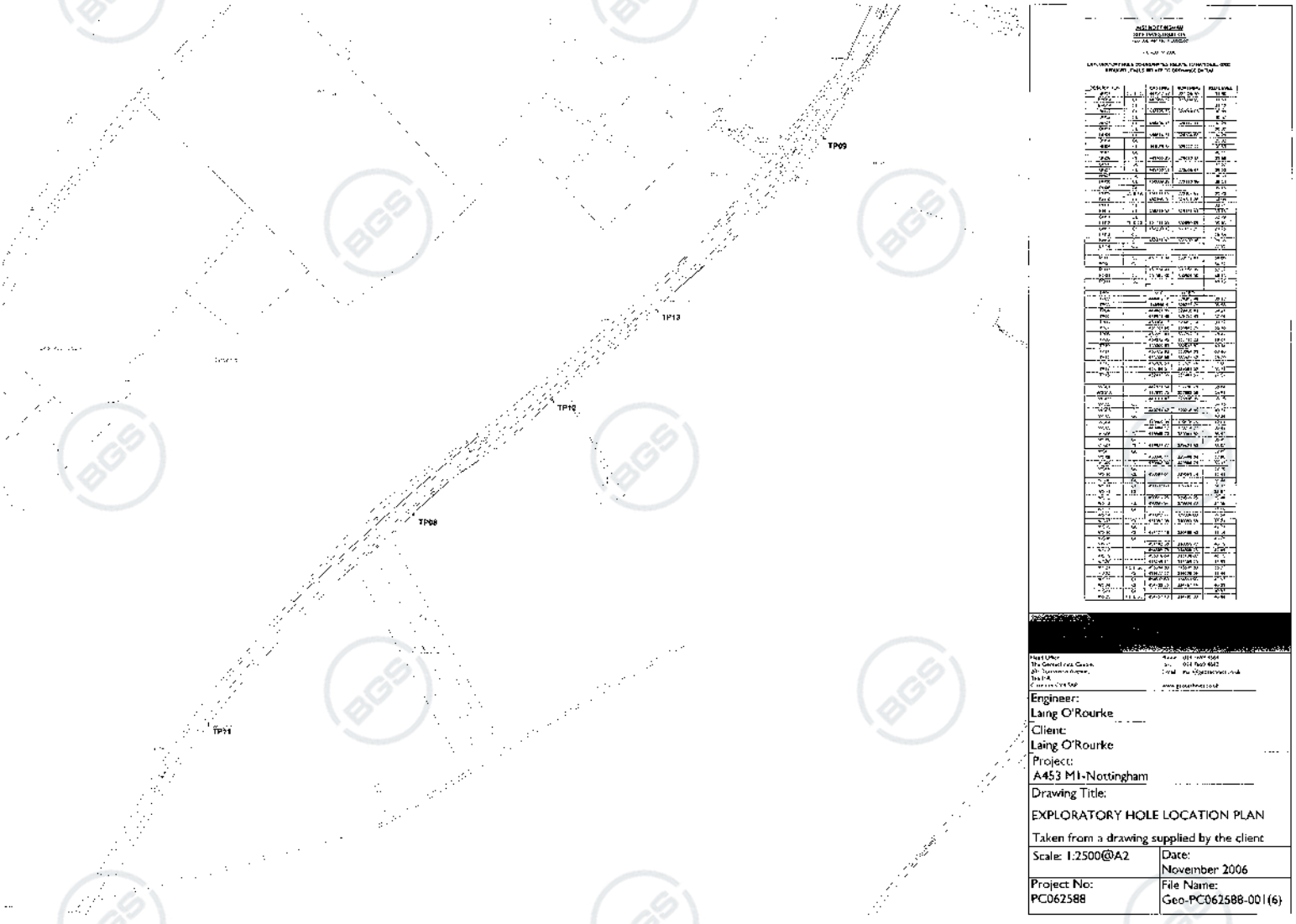
Taken from a drawing supplied by the client

Scale: 1:2500@A2

Date:
November 2006

Project No:
PC062588

File Name:
Geo-PC062588-001(5)


TP09
TP13
TP12
TP08
TP14
Engineer:
Laing O'Rourke
Client:
Laing O'Rourke
Project:
A453 M1-Nottingham
Drawing Title:
EXPLORATORY HOLE LOCATION PLAN
Taken from a drawing supplied by the client
Scale: 1:2500@A2
Date:
November 2006
Project No:
PC062588
File Name:
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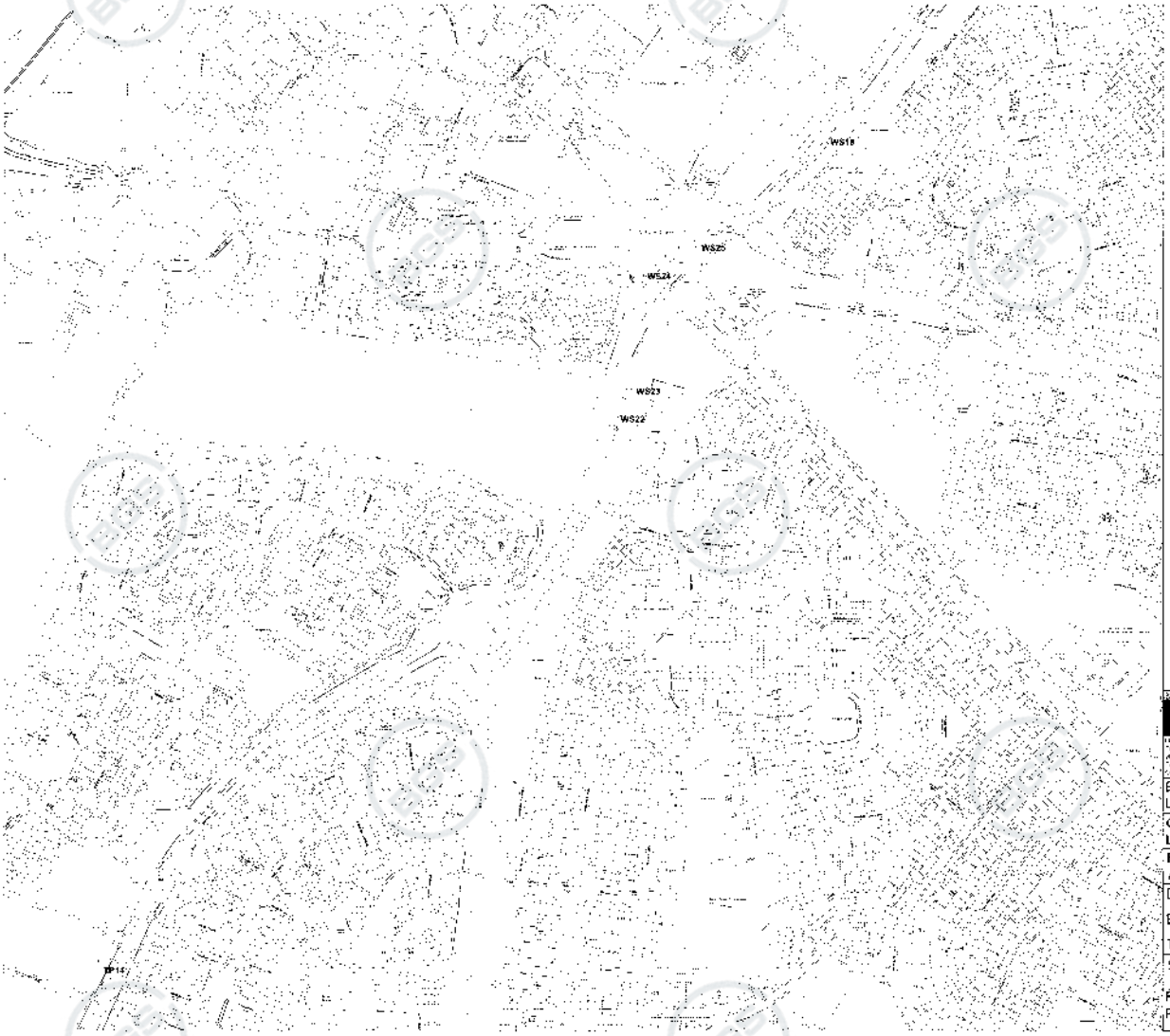

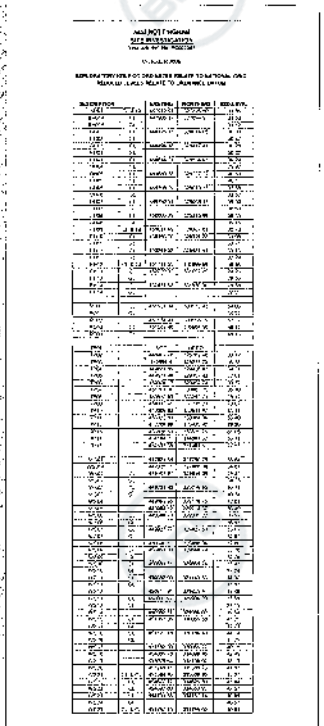

Engineer: Laing O'Rourke	
Client: Laing O'Rourke	
Project: A453 MI-Nottingham	
Drawing Title: EXPLORATORY HOLE LOCATION PLAN	
Taken from a drawing supplied by the client	
Scale: 1:2500@A2	Date: November 2006
Project No: PC062588	File Name: Geo-PC062588-001(7)

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Borehole Number
M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2	CP1086

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 12.00m	42.15	Highways Agency	WAL060099
	Location	**Dates**	**Engineer**	**Sheet**
	447582 E 327754 N	26/01/2007-29/01/2007	Arup	1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				Water strike(1) at 0.00m.		(0.45)	Dark brown sandy TOPSOIL. Driller notes hardcore over brown clayey sand.		▽1
0.20-0.45	B1				41.70	0.45			
0.45-1.20	B2						MADE GROUND. Firm to stiff brown gravelly clay. Gravel is subangular to subrounded fine to coarse of mudstone and siltstone.		
1.20-1.65	U3			64 blows					
1.70	D4						Below 1.70m: with coarse rounded gravel of quartz.		
2.20-2.65 2.20-2.65 2.20-2.70	SPT N=17 D5 B6	1.50	DRY	2,2/4,4,4,5			Below 2.20m; mottled grey		
3.20-3.65	U7			70 blows					
3.70	D8					(7.20)			
4.20-4.65 4.20-4.56 4.20-4.70	SPT N=18 D9 B10	1.50	DRY	2,3/3,4,5,6			At 4.20m; slightly sandy, slightly gravelly.		
5.20-5.65	U11			61 blows					
5.70	D12								
6.20-6.65 6.20-6.65 6.20-6.70	SPT N=15 D13 B14	1.50	DRY	2,3/3,4,4,4			Below 6.20m; sandy, slightly gravelly		
7.20-7.65	U15			50 blows					
7.65	D16				34.50	7.65			
7.70-8.15 7.70-8.15 7.70-8.20	SPT N=27 D17 B18	1.50	DRY	4,4/5,7,7,8			Medium dense to dense yellow brown gravelly SAND and sandy GRAVEL. Sand is fine to medium, gravel is rounded, fine to coarse of mudstone, sandstone and quartz. Below 7.70m; slightly clayey		
9.10 9.20-9.65 9.20-9.70	W20 SPT(C) N=35 B19	9.20	ADDED	4,6/6,9,10,10 26/01/2007:ADDED 26/01/2007:		(4.35)	Below 9.20m; sand is fine to coarse, gravel of quartz.		

Remarks

Scale (approx)	Logged By
1:50	RMS

Figure No.

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British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Borehole Number
M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2	CP1086

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 12.00m	42.15	Highways Agency	WAL060099
	Location	**Dates**	**Engineer**	**Sheet**
	447582 E 327754 N	26/01/2007-29/01/2007	Arup	2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				26/01/2007: 29/01/2007:			SAND (as previous sheet)		
10.70-11.15 10.70-11.20	SPT(C) N=42 B21	10.70	ADDED	6,7/9,9,11,13		(4.35)			
12.00-12.37 12.00-12.38 12.00-12.70	SPT 62/220 D22 B23	12.00	DAMP	6,8/12,17,33	30.15	12.00 (0.80)	Stiff red brown locally mottled grey CLAY with subangular to subrounded, fine to coarse gravel sized lithorelics of mudstone.		
12.70-12.94 12.70-12.94	SPT 25'/125 50/115 D24	12.00	DAMP	11,14/25,25 29/01/2007:DAMP 29/01/2007: 29/01/2007:9.10m	29.35	12.80	Complete at 12.94m		

Remarks

Scale (approx)	Logged By
1:50	RMS

Figure No.

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British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Number
Nottinghamshire/ Derbyshire COA NMCS2 Upgrade	D120L

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		37.14	Highways Agency	F11451
	Location	**Dates**	**Engineer**	**Sheet**
	447556.57 E 327905.66 N	13/09/1999	WSP Environmental Ltd	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				36.94	(0.20) 0.20	TOPSOIL with occasional coarse subangular limestone fragments.		
0.20-0.60	D01		0 blows		(0.40)	MADE GROUND: Reddish brown clay with a little fine to medium mudstone and Magnesian limestone gravel.		
0.60-1.50	D02		0 blows	36.54	0.60	MADE GROUND: Reddish brown sandy clay with a little fine to medium subangular quartz gravel.		
					(0.90)			
1.50-3.20	D03		0 blows 13/09/1999:0.00m	35.64	1.50	MADE GROUND: Reddish brown mottled grey clay with a little greenish grey fine to coarse subangular sandstone gravel.		
			13/09/1999: 13/09/1999:0.00m		(1.70)			
				33.94	3.20	Complete at 3.20m		

Remarks
1. Hand excavated inspection pit to 0.90m (0.50m x 0.50m). 2. Hole complete at 3.20m. 3. Hole dry. 4. Marker Post Ref 185/5 +50. 5.Hole backfilled with grout.

Scale (approx)	Logged By
1:50	NBR

Figure No.

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Borehole Log

218147/309

Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218147/309

Location: Co-ords (British National Grid): 447380 - 326430 Level: 75

Hole Type: CP Logged By: Dates: 1961-08-17 - 1961-08-17

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
					0.23	74.77		Topsoil	
					0.76	74.24		Pale brown fine loam	0.5
					1.22	73.78		Soft brown silty clay	1.0
					1.52	73.48		Yellow brown clayey silt	1.5
								Reddish brown soft silty marl KEUPER MARL	2.0
									2.5
									3.0
								Reddish brown silty clay mottled green KEUPER MARL	3.5
					3.81	71.19			
								Chocolate brown silty marl less silty from 7 62m to 9 9m green bands to 10 6m more silty to 12 19 KEUPER MARL	4.0
	▽								4.5
					4.72	70.28			

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Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218147/309

Location: Co-ords (British National Grid): 447380 - 326430 Level: 75

Hole Type: CP Logged By: Dates: 1961-08-17 - 1961-08-17

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples		Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
		Depth (m)	Type						
								Chocolate brown silty marl less silty from 7 62m to 9 9m green bands to 10 6m more silty to 12 19 KEUPER MARL	5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 12-11-2024 at 09:10. BGS Reference 20200204120045621986

Borehole Log

Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218147/309

Location: Co-ords (British National Grid): 447380 - 326430 Level: 75

Hole Type: CP Logged By: Dates: 1961-08-17 - 1961-08-17

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples		Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
		Depth (m)	Type						
								Chocolate brown silty marl less silty from 7 62m to 9 9m green bands to 10 6m more silty to 12 19 KEUPER MARL	
					12.19	62.81			

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British Geological Survey

ALTERNATIVE LOG.

SK/42NE/5
4727 2608
141

LE GRAND ADSCO LIMITED

RECORD OF TEST BORING No. 307 at Enderby - Lockington.

For ~~OTT~~ Owen Williams and Partners. (Ministry of Transport).

O/No. 1941 Boring Completed on 24.8.61. O.D. Level 262

Boring lined to a Depth of Diameter 6"

BORING FOREMAN'S STRATA RECORD		THICKNESS Ft	THICKNESS Ins	DEPTH Ft	DEPTH Ins	WATER OBSERVATIONS Date	Time	W.S.	SWL
Topsoil	(0.30)	1	0	1	0				
Red sandy marl	(1.90)	6	6	7	6	22.8.		10'0"	15'0"
Red marl	(6.86)	22	6	30	0	(8.14)			
TOTAL DEPTH				30	0				

British Geological Survey

1063 Wt. 22438/0384 10M 7/45 (51) F.&S.

307. RECORD OF SHAFT OR BORE FOR MINERALS

(For Survey use only)
1-inch Map Registered No. 141

Name and Number of Shaft or Bore 2

For Messrs.

Town or Village

County Six-inch quarter sheet

6-inch Map Registered No. SK/42NE/5

Exact site Nat Grid Ref: 4727 2608

Attach a tracing from a map, or a sketch-map, if possible.

Purpose for which made Extension to M1 Motorway

Level at which shaft / bore commenced relative to O.D. State if shaft / bore is up, down, horizontal or inclined; in latter cases give angle of inclination and direction

Made by

Information from Percussion samples Date of Sinking 1961

Specimens

Additional Notes in Space Overleaf

(For Survey use only) Geological Classification	Nature of Strata	Thickness			Depth		
	Friable brown sandy clay	(0.76)	2	6	(0.76)	2	6
	Dull brown and grey silty marl	(1.52)	5	0	(2.28)	7	6
Keuper Marl	Chocolate brown silty marl; with green band from 10ft 6in to 12ft 6in;	(.92)	5	0	(3.81)	12	6
	Sandstone, very fine grained grey green silty	(1.22)	4	0	(5.03)	16	6
	Reddish brown micaceous marl	(3.35)	11	0	(5.38)	27	6

Continued Overleaf

Geological Survey and Museum, South Kensington, London, S.W.7.	Date received	Correspondence File No.	1" N.S. Map No.	1" O.S. Map No.	Site marked (use symbol) on 1" Map | on 6" Map

Borehole Log

218150/312

Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218150/312

Location: Co-ords (British National Grid): 447530 - 327500 Level: 39.01

Hole Type: CP Logged By: Dates: 1961-08-15 - 1961-08-15

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
					0.61	38.40		Sandy Topsoil DRIFT	
					1.52	37.49		Pebbly sandy gravel well sorted DRIFT	
					3.05	35.96		Brown pebbly sand DRIFT	
	▽				4.27	34.74		Sandstone very fine grained KEUPER MARL	
								Soft grey green marl Wet Stoney KEUPER MARL	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

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Borehole Log

218150/312

Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218150/312

Location: Co-ords (British National Grid): 447530 - 327500 Level: 39.01

Hole Type: CP Logged By: Dates: 1961-08-15 - 1961-08-15

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples		Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
		Depth (m)	Type						
								Soft grey green marl Wet Stoney KEUPER MARL	
					6.10	32.91			
								Reddish brown silty marl KEUPER MARL	
					7.62	31.39			
								Reddish brown silty marl with green patches KEUPER MARL	
					9.14	29.87			

5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5

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GENERAL REMARKS

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British Geological Survey

Soil Mechanics

BOREHOLE No. 729R

Sheet 1 of 2

Equipment & Methods
Hand dug inspection pit from ground level to 0.40m. Rotary core drilling, air flush, producing 92mm diameter core, from 0.40m to 8.10m

Location No. 7382 SK42NE58

Location
A42 CASTLE DONINGTON NORTH:
GROUND INVESTIGATION CONTRACT 4

Carried out for
Client: Department of Transport (E. Midlands Reg. Office)
Engineer: Scott Wilson Kirkpatrick & Partners

Ground Level: 74.35 m A.O.D.
Coordinates: 447314.0 mE 336087.5 mN
Date: 28.01.88 to 29.01.88

Description	Reduced Level	Legend	Depth (Thick)	Drilling Records: Depth	Drilling Records: W	Mechanical core log: TCR	SCR	RQD	If	Field Records and Test Results
Inspection pit dug to 0.40m	74.35		(0.40)							
	73.95		0.40							
very stiff red brown CLAY										
Red brown slightly to moderately weathered locally very clayey SILTSTONE weak to very weak with frequent pockets and lenses of light grey green silt and siltstone Closely spaced sub-horizontal often tight fractures with occasional black speckled staining				0.40 - 1.50		95	82	64	nd 150 200	
assessed zone of core loss										
(KEUPER MARL 2)				1.50 - 3.00		77	60	56	80 50 200 340	at 1.50m S:Rm30 11,10/8,7,7 8
assessed zone of core loss										
From 0.55m to 0.65m, 2.00m to 2.20m and from 3.20m to 3.40m completely weathered altered to a dense clayey silt with occasional lithorelics From 2.70m to 3.00m very thinly interbedded with light grey green slightly fine sandy SILTSTONE strong			(6.25)	3.00 - 4.20		83	67	58	nd 130 190	
assessed zone of core loss										
stiff becoming very stiff very silty clay										
light green grey siltstone band very weak										
light grey green locally mottled red brown and grey green siltstone weak to very weak				4.20 - 6.65		95	93	80	20 120 250	
Assessed zone of core loss										
light grey green siltstone strong with lenses of red brown mudstone										
Very stiff (hard) in parts firm to stiff red brown CLAY locally very silty with occasional bands of highly weathered siltstone weak: occasional pockets of light grey green silt (weathered MUDSTONE)	67.70		6.65 (0.30)							
(KEUPER MARL 3)	67.40		6.95	6.65 - 8.00		78	59	54	nd 150 250	
non intact			(1.15 pen)							
BOREHOLE ENDS AT 8.10 m.	66.25		8.10							at 8.00m S:(68) 18,50 for 75mm

Remarks

Logged by: AAC

Scale: 1:50

Fig. 52

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. (c) Soil Mechanics
All depths and reduced levels in metres. Thicknesses given in brackets in depth column. 18.04.88/10.18 (Ver 3.1.0)

British Geological Survey

Soil Mechanics

BOREHOLE No. 729R

Sheet 2 of 2

Equipment & Methods: As sheet 1

Location No. 7382

Location: A42 CASTLE DONINGTON NORTH: GROUND INVESTIGATION CONTRACT 4

SK42NE58 4731A.0 26087.5

Carried out for
Client: Department of Transport (E. Midlands Reg. Office)
Engineer: Scott Wilson Kirkpatrick & Partners

Ground Level: As sheet 1 | Coordinates | Date

Description	Reduced Level	Legend	Depth (Thick)	Drilling Records: Depth	Drilling Records: W	Mechanical core log: TCR	SCR	RQD	If	Field Records and Test Results

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
1988					
28.01	1800	3.00		DRY	
29.01	0800	3.00		DRY	

Remarks

Logged by: MAC

Scale: 1:50

Fig. 52

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. (c) Soil Mechanics
All depths and reduced levels in metres. Thicknesses given in brackets in depth column.

Borehole Log

218210/748

Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218210/748

Location: Co-ords (British National Grid): 447292 - 326133 Level: 73.45

Hole Type: CP Logged By: Dates: 1988-02-01 - 1988-02-02

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
								FILL Foreman s Description	
					0.30	73.15			
		0.5 - 0.7	B					Angular to sub angular medium to coarse and cobble sized fragments of light grey green locally re brown slightly fine sandy SILTSTONE moderately strong to strong FILL	0.5
					0.80	72.65			
		1.0 - 1.45	D						1.0
					1.80	71.65		Very stiff red brown and dark brown mottled CLAY with occasional decayed plant matter and rare angular medium gravel FILL	1.5
		2.0 - 2.45	D						2.0
		3.0 - 3.45	D					BOREHOLE ENDS AT 5m	2.5
									3.0
								Stiff becoming very stiff hard red brown locally very silty CLAY with occasional fine gravel sized lithorelics and locally with occasional pockets and lenses of light grey green silt and siltstone KEUPER MARL	3.5
		4.0 - 4.38	D						4.0
		4.7 - 5.0	D						4.5
					5.00	68.45			

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British Geological Survey

SK 42 NE/103

SCOTT WILSON KIRKPATRICK & PARTNERS
Consulting Engineers & Transportation Planners

BIRMINGHAM – NOTTINGHAM ROUTE
A42 CASTLE DONINGTON NORTH
MAIN SITE INVESTIGATION
CONTRACT 2

4700 2558

BOREHOLE No 278

SHEET A1

Sheet 1 of 1

Field Work by: Exploration Associates (Warwick) Limited
Method: Cable Percussion
Dates: 20.8.75
Hole Dimensions: 115mm
Casing Dimensions: 150mm

Coordinates: 67024.0 E.
95618.5 N.
Ground Level: 75.12 m OD

Laboratory testing by: Dores

Dates	Depth of Casing	Depth to Water	Sample/In-situ Test Depth	Sample/In-situ Test Type & Number	Legend	Change of Strata Depth	Change of Strata Reduced Level	Description of Strata
			0.50	J1		0.40	74.92	TOPSOIL
			0.95	(270) J2		1.00	74.12	Stiff red brown mottled grey green fissured silty CLAY with traces of carbonaceous material (KEUPER MARL : ZONE Tv.i)
			1.50	S(330) J3				Stiff red brown mottled grey green silty CLAY with some mudstone/siltstone lithorelicts and bands of highly weathered very weak calcareous mudstone/siltstone. (KEUPER MARL : ZONE III)
			1.70	J4				
			2.30	(170) J5				
			2.50	J6				Bands of highly weathered mudstone at 2.50m, 3.50,
			2.95	S(310) J7				
			3.50	J8				
			3.70	S(120) J9				Band of highly weathered grey green calcareous siltstone at 4.50m
			4.20	J10				
			4.50	S(140) J11				
21.8.75	5.50	Dry	5.00	J12		5.00	70.12	End of Shell and Auger Hole.

Sample Number	Natural Moisture Content %	Natural Dry Density (kg/m³)	Liquid Limit (%)	Plastic Limit (%)	Passing 425 micron (%)
1	13				
2	25	1565	48	26	100
3	25		45	23	100

Scale 1:

Disturbed Samples: J – Jar, S – S.P.T., B – Bulk, Mw – Mast
W – Groundwater

Undisturbed Samples: U – Soil Sample

Insitu Tests: V (30) – Vane shear strength in KN/m²

Groundwater first struck

Core Cutter Density
Core Cutter Density/C B R
Sandbottle Density
C B R

c b4

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Borehole Number
M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2	RC1075

Machine:	Casing Diameter	Ground Level (mOD)	Client	Job Number
Flush :	140mm cased to 2.25m	84.85	Highways Agency	WAL060099
Core Dia: mm				
Method :	Location	Dates	Engineer	Sheet
	446944 E 325439 N	23/01/2007-24/01/2007	Arup	1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00	PIT		0	0	Groundwater was not apparent during boring(1) at 0.00m.			Inspection Pit.		▽1
	O/H		0	0			(1.20)			
1.20	93	0	0	0		83.65	1.20	Open Hole.		
					23/01/2007:DRY		(1.00)			
2.20			0	0	23/01/2007: 23/01/2007:	82.65	2.20	Firm locally fissured red brown slightly gravelly CLAY. Gravel is subrounded, fine to coarse of mudstone.		
					24/01/2007:		(0.75)			
2.95	93	0	0	0		81.90	2.95	Between 2.85m and 2.95m; moderately weak, light grey siltstone.		
3.60-3.92					25/21,37,44,50 SPT 25*/75			Stiff CLAY to very weak, red brown MUDSTONE, with widely spaced very thin to thin beds of light grey moderately strong siltstone. Discontinuities: extremely closely and very closely spaced, randomly orientated, rough and smooth, occasionally stained black.		
3.60	87	12	0	0	152/247					
5.10-5.36					25/27,39,50 SPT 25*/75					
5.10	100	8	0	0	116/186			From 5.10m to 5.30m; assumed zone of core loss.		
6.00					P1		(6.65)			
6.60-6.72					25/50 SPT 25*/75					
6.60	78	10	7	0	50/42					
8.10-8.19					25/50 SPT 25*/75					
8.10	100	32	10	0	50/18			From 8.10m to 8.43m; assumed zone of core loss.		
9.05					P2					
9.60-9.71					25/50 SPT 25*/75	75.25	9.60	Weak variably stiff clay to moderately weak, red brown MUDSTONE, with widely spaced very thin and thin beds of weak and moderately strong, light grey SILTSTONE.		
9.60					50/32					

Remarks	Scale (approx)	Logged By
	1:50	OP
	Figure No.	

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British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Borehole Number
M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI - CONTRACT 2	RC1075

Machine:	Casing Diameter	Ground Level (mOD)	Client	Job Number
Flush :	140mm cased to 2.25m	84.85	Highways Agency	WAL060099
Core Dia: mm				
Method :	Location	Dates	Engineer	Sheet
	446944 E 325439 N	23/01/2007-24/01/2007	Arup	2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	67	15	0	0				Moderately to widely interbedded zone I and zone II. Discontinuities: zone II areas - extremely closely fractured, randomly orientated, rough and smooth. Zone I areas - vertical, undulating, rough, occasionally black staining and clay infill, very closely to medium spaced. Horizontal and subhorizontal, rough and smooth, clean, moderately to widely spaced, 60 degrees, rough, with some black staining.		
10.90					P3					
11.10					25/50			From 11.10m to 11.60m: assumed zone of core loss.		
11.10-11.20					SPT 25*/75 50/21					
	97	26	9	0						
12.60										
13.10	100	40	15	0	P4		(7.60)			
14.10					25/50					
14.10-14.21					SPT 25*/75 50/37					
14.80	100	38	23	0	P5					
15.60	Sample / Tests		Casing Depth (m)	Water Depth (m)						
16.84-17.20	U6									
					24/01/2007:DRY	67.65	17.20			
					24/01/2007:			Complete at 17.20m		

Remarks	Scale (approx)	Logged By
	1:50	OP
	Figure No.	

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Borehole Log

CPT01

Project Name: M1 J23a to J25 Ground Investigation Project No: G17057

Borehole ID: CPT01

Location: M1 J23a tp J25 Ground Investigation Co-ords (British National Grid): 447358.02 - 326274.1 Level: 274.1

Hole Type: WS+RC Logged By: Dates: -

Client: Costain Galliford Try Contractor: Project Engineer: AMAR

Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
		0.3 - 0.5	B		0.16	273.94		MADE GROUND Macadam road surfacing	0.5
					0.70	273.40		MADE GROUND Light brown angular to sub angular medium to coarse limestone GRAVEL	1.0
				50 (25 for 10mm/50 for 40mm)					1.5
				50 (11,14 for 70mm/34,16 for 20mm)	2.00	272.10		MADE GROUND Very dense light brown sandy angular coarse limestone GRAVEL	2.0
								Very weak to weak reddish brown highly fractured MUDSTONE in a clayey matrix Locally sandy clay with numerous gravel sized mudstone lithorelicts Grade III	2.5
				N=48 (8,5/9,12,13,14)	3.00	271.10		Weak to moderately weak reddish brown thinly laminated MUDSTONE thickly interbedded with weak SILTSTONE Discontinuities are sub horizontal closely spaced smooth planar rough undulating clean Grade II	3.0
									3.5
									4.0
				50 (14,11 for 40mm/36,14 for 15mm)					4.5

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Project Name: M1 J23a to J25 Ground Investigation Project No: G17057

Borehole ID: CPT01

Location: M1 J23a tp J25 Ground Investigation Co-ords (British National Grid): 447358.02 - 326274.1 Level: 274.1

Hole Type: WS+RC Logged By: Dates: -

Client: Costain Galliford Try Contractor: Project Engineer: AMAR

Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
				50 (11,14 for 30mm/50 for 25mm)	6.45	267.65		Weak to moderately weak reddish brown thinly laminated MUDSTONE thickly interbedded with weak SILTSTONE Discontinuities are sub horizontal closely spaced smooth planar rough undulating clean Grade II	5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 19-11-2024 at 10:28. BGS Reference 20220826100849020

GENERAL REMARKS

1. Borehole advanced through road surfacing using road coring attachment. 2. Borehole advanced using Commachio 205 combination rig GC01, using dynamic sampling techniques from 1.20m to 3.00m techniques, then advanced to the borehole base using rotary coring techniques, with a mist flush. 3. No groundwater seepages were encountered during drilling operations. 4. Borehole backfilled with sodium bentonite (pellets) upon completion and surface reinstated.

Borehole Log

218152/314

Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218152/314

Location: Co-ords (British National Grid): 447490 - 327950 Level: 34.75

Hole Type: CP Logged By: Dates: 1961-08-10 - 1961-08-10

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
					0.23	34.52		Top Soil	
					1.22	33.53		Redish sand	
					1.98	32.77		Loamy sand and gravel	
								Red marl	

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 12-11-2024 at 09:33. BGS Reference 20200204120045621991

Borehole Log

218152/314

Project Name: Smart Motorways Programme, M1 J23a to J25 Project No: 70004578

Borehole ID: 218152/314

Location: Co-ords (British National Grid): 447490 - 327950 Level: 34.75

Hole Type: CP Logged By: Dates: 1961-08-10 - 1961-08-10

Client: Highways England Contractor: Project Engineer:

Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
								Red marl	
					5.41	29.34			
					5.79	28.96		Red sandstone	
								End of Borehole	
								Layers of marl and soft sandstone	
					9.14	25.61			

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GENERAL REMARKS

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