# Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

## Environmental Statement

**Volume 3**

**Appendix 21.7** - Archaeological and Geoarchaeological Monitoring Assessment

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DALCOUR MACLAREN

REGISTERED ORGANISATION CIfA

# Onshore Archaeological and Geoarchaeological Monitoring Assessment

**Project: Sheringham Shoal and Dudgeon Offshore Wind Farm Extensions**
Client: Equinor
Date: January 2022



[redacted]

# Project Details

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| **Project Name** | Sheringham Shoal and Dudgeon Offshore Wind Farm Extensions |
| **Scheme Number** | 195811 |
| **Report Number** | 001/Rev/3 |
| **Norfolk Historic Environment Record Event (ENF)** | ENF151963 |

| **Prepared by** | |
|---|---|
| **Name** | Nicholas Daffern |
| **Name** | Barry Bishop (Lithics – PCA) |

| **Approved by** | |
|---|---|
| **Name** | Dave Hodgkinson |

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# Executive Summary

Dalcour Maclaren (DM) were commissioned by Equinor New Energy Limited (hereafter referred to as 'the Client') to undertake a scheme of archaeological and geoarchaeological monitoring and recording during ground investigations, comprising boreholes and test pits, associated with the proposed onshore elements of the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP).

A total of 31 locations were archeologically monitored during the ground investigations whilst a further 15 were monitored for geoarchaeological and palaeoenvironmental potential. The works were undertaken to enable an informed decision to be made in relation to the presence or absence of archaeological and geoarchaeological remains with the onshore works area; their significance; and to guide the design of appropriate further mitigation measures, should they be required.

No features or deposits of archaeological interest were identified within any of the archaeological or geoarchaeological monitoring locations and no in-situ artefacts were recovered.

Four Neolithic or Early Bronze Age lithics were recovered from the surface of the field to the south of the Swainsthorpe substation at the southern terminus of the onshore cable corridor. Due to the unstratified nature of the finds, it cannot be stated whether these finds relate to the cropmarks of fragmentary ditches of unknown date or whether they are unrelated and represent a hitherto unrecognised phase of activity on the site.

Deposits of palaeoenvironmental and geoarchaeological interest were identified in two monitored locations (BH6-15 and BH9-25) and one location which was not subject to archaeological or geoarchaeological monitoring (BH10-31).

The deposits identified within BH6-15 and BH10-31 represent alluvium and organic alluvium associated with the Rivers Bure and Wensum respectively and have High – Moderate palaeoenvironmental and Moderate geoarchaeological potential.

The organic deposits identified within BH9-25 have High palaeoenvironmental and geoarchaeological potential. These are interpretated as the fills of a buried tunnel valley of Anglian age. If this origin is accepted then the fills must post-date MIS 12 (478 – 424ka) and, due to the absence of Devensian gravels within this area, must predate the deposition of the Briton's Lane Formation (possibly MIS 6/191 – 130ka) and therefore a provisional, mid-Pleistocene date of between c. 424,000 – 191,000 years ago is proposed.

All other deposits are considered to have No – Low palaeoenvironmental or geoarchaeological potential due to the generally shallow sequences, dominated by coarse, gravelly sediments of Mid-Pleistocene origin.

# 1 Introduction

1.1.1 Dalcour Maclaren (DM) were commissioned by Equinor New Energy Limited (hereafter referred to as 'the Client') to undertake a scheme of archaeological and geoarchaeological monitoring and recording during ground investigations, comprising boreholes and test pits, associated with the proposed onshore elements of the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP).

1.1.2 The works were undertaken to enable an informed decision to be made in relation to the presence or absence of archaeological and geoarchaeological remains with the onshore works area; their significance; and to guide the design of appropriate further mitigation measures, should they be required.

## 1.2 Scheme Overview

1.2.1 The extension of the existing operational wind farms will consist of a number of offshore and onshore elements including the offshore wind turbines and subsea array cables, up to two offshore substations, offshore and onshore export cables, and a new area for up to two onshore substations to accommodate the connection of SEP and DEP to the transmission grid.

## 1.3 Definition of terms

1.3.1 The term 'Site' is used throughout the report to refer to the onshore works area within the Preliminary Environmental Information Report (PEIR) (Royal HaskoningDHV (2021a) boundary.

1.3.2 An archaeological watching brief is defined as 'a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, in an inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive' (CIfA 2014a).

1.3.3 The term 'geo/archaeological' is used throughout the report to combine the terms archaeological, geoarchaeological and palaeoenvironmental for ease of reading and understanding. Where appropriate, the individual specific terms will be used.

1.3.4 The abbreviation 'ka' is used after dates to represent 'thousand years ago' e.g. 100ka = 100,000 years ago.

1.3.5 Marine Isotope Stage is abbreviated to 'MIS' with the relevant stage number and, where relevant, the equivalent 'ka' dates, for example, MIS 4/ 71 – 57ka . The dates for the MIS boundaries are derived from Lisiecki and Raymo (2005).

1.3.6 The abbreviation ‘m aOD’ represents the spot height in metres above Ordnance Datum whilst ‘bgl’ is the depth below (current) ground level.

## 1.4 Requirements for Geo/Archaeological Works

1.4.1 A scheme of geo/archaeological monitoring was designed in order to satisfy the stated objectives of the project as set out under Section 3 below and the goals of the advisory document previously prepared by Royal HaskoningDHV (2021c) in cooperation with John Percival, Historic Environment Senior Officer, Norfolk County Council.

1.4.2 The geo/archaeological watching brief was intended to monitor intrusive works during the course of the ground investigations at locations identified as having archaeological and/or geoarchaeological potential.

1.4.3 The purpose of the monitoring was to allow for any potential geo/archaeological features or deposits present to be highlighted, investigated and recorded.

1.4.4 The locations selected for monitoring can be found in Appendix 1 and are shown on Drawings 195811/WB/1.0 – 10.0 with the respective type of monitoring i.e. archaeological or geoarchaeological, illustrated.

1.4.5 The perceived potential and justification for the choice of boreholes monitored and the type of monitoring that was undertaken can be found in Appendix 2. This was derived from the Royal HaskoningDHV (2021c) advisory document for site investigation and was informed by the findings of the Desk-Based Assessment (DBA; Royal HaskoningDHV 2021b) and the earlier geophysical survey (Headland Archaeology 2020).

1.4.6 As the known remains are a buried structure, where appropriate the standard and guidance for the archaeological investigation and recording of standing buildings or structures, will also be adhered to. Archaeological building investigation and recording is defined as ‘a programme of work intended to establish the character, history, dating, form and archaeological development of a specified building, structure, or complex and its setting, including buried components, on land, in an inter-tidal zone or underwater’ (CIfA 2014b).

1.4.7 The monitoring has been undertaken in line with the methodology set out within the approved Written Scheme of Investigation (WSI) (Dalcour Maclaren 2021), which was developed in consultation with and approved by John Percival, Historic Environment Senior Officer, Norfolk County Council.

1.4.8 The Scheme was developed following guidance and best practice presented within the following documents:

- Standards for Development-Led Archaeological Projects in Norfolk (Norfolk County Council 2018)
- Standards and Guidance for Archaeological Watching Brief, Chartered Institute for Archaeologists: Reading (CIfA 2014a);
- Standards and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials, Chartered Institute for Archaeologists: Reading (CIfA 2014b);
- Code of Approved Conduct for the Regulation of Arrangements in Field Archaeology, Chartered Institute for Archaeologists: Reading (CIfA 2019);
- Environmental archaeology and archaeological evaluations. Recommendations concerning the environmental component of archaeological evaluations in England (AEA 1995);
- Geoarchaeology: using earth sciences to understand the archaeological record (Historic England 2015a);
- Environmental archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation, 2nd edition (English Heritage 2011);
- Guidance on Assessing the Risk Posed by Land Contamination and its Remediation on Archaeological Resource Management (English Heritage 2005).
- Preserving Archaeological Remains: Decision-Taking for Sites under Development, Historic England: London (Historic England 2016);
- Management of Research Projects in the Historic Environment (MoRPHE), (Historic England 2015b).

# 2 Background

## 2.1 Site Location

2.1.1 The onshore cable corridor is approximately 60km in length from Weybourne on the north Norfolk coast to the proposed onshore substation adjacent to the existing Norwich Main substation, south of Norwich.

2.1.2 Drawing 195811/WB/1.0 provides an overview of the route but also highlights the ten individual areas where ground investigations were monitored.

## 2.2 Geology

2.2.1 The majority of the proposed route is mapped by the British Geological Survey (BGS 2021a) as being underlain by solid geology comprising undifferentiated chalk of the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation deposited during the Cretaceous Period 72 – 94 Ma (Million Years Ago).

2.2.2 The exception to this occurs between Saxthorpe and Swannington where the Wroxham Crag Formation is mapped. These deposits comprise interbedded gravels, sands, silts and clays which are distinguishable from the Norwich Crag Formation by the presence of a significant proportion of quartz and quartzite pebbles in the gravels (McMillan et al 2011, 136 - 137).

2.2.3 Rose et al (2001) defines the Wroxham Crag as including 'all marine strata deposited in the area from the start of the influx of substantial quantities of quartz and quartzite, during the Pre-Pastonian, to the onset of glaciation represented by the Happisburgh Formation. The Wroxham Crag Formation thus includes strata previously included in either the Norwich Crag Formation or the Cromer Forest-bed Formation' (McMillan et al 2011, 136).

2.2.4 The Formation is widely overlain by mid-Pleistocene glacial deposits and has therefore been widely dated between MIS 67? – 17 (McMillan et al 2011, 137).

2.2.5 To the south and southwest of Norwich, undifferentiated Crag Group deposits are mapped which are likely to either comprise further deposits of the Wroxham Crag Formation or be the older, Norwich Crag Formation (BGS 2021a).

2.2.6 Overlying the bedrock geology is an extensive and complex patchwork of superficial deposits. The northern end of the route, in the vicinity of Weymouth, is dominated by the Weybourne Town Till Member and the Briton's Lane Formation. The former is a highly calcareous silt and chalk-rich matrix-supported diamicton which pre-dates the latter (BGS 2021a; McMillan et al 2011, 148).

2.2.7 The glaciofluvial deposits of the Briton's Lane Formation comprise several coarse-grained sand and gravel outwash lithofacies that are believed to date to the Mid-Pleistocene, possibly MIS 6 (McMillan et al 2011, 148). Lesser deposits identified within the area including the sands and gravels of the Marine Beach Deposits along the foreshore and undifferentiated head deposits (BGS 2021a).

2.2.8 In the vicinity of Oulton, in addition to the undifferentiated alluvium, head and terrace deposits associated with the River Bure, the Briton's Lane Formation is mapped as overlying the Lowestoft Formation, an extensive suite of outwash deposits and tills deposited during the Anglian Glaciation (MIS 12) (BGS 2021a).

2.2.9 To the south of Swannington and for the remainder of the route to the south and southwest of Norwich, the mapping of superficial deposits is dominated by the Lowestoft Formation, the Sheringham Cliffs Formation (variously dated as MIS 12 or MIS 10; the latter is favoured by McMillan et al 2011, 147) and the Leet Hill Sand and Gravel (MIS 16?), a sub-division of the Happisburgh Glaciogenic Formation. All of these Mid-Pleistocene units are composed of tills, diamicton, sands and gravels and clays of glacial origin.

2.2.10 Interdigitating these glacial deposits are the undifferentiated alluvial and sand and gravel terrace deposits of the River Wensum, River Tud, River Yare and River Tas; these are late Pleistocene and Holocene date and have incised into the earlier Pleistocene strata

## 2.3 Archaeological and Historical Background

2.3.1 A PEIR (Royal HaskoningDHV (2021a) and Onshore Archaeological DBA (Royal HaskoningDHV 2021b) have previously been prepared for the route.

2.3.2 Due to the scale of the route and the extensive quantity of archaeological remains identified by these studies, the summary of the DBA (Royal HaskoningDHV 2021b, 39 - 41) is presented below and the reader should refer to the original documents for further information.

***Summary of Heritage Potential***

2.3.3 The archaeological evidence in the 500m and 1km study areas reflects a human presence from the Palaeolithic period to the present day. Finds and sites dating to the prehistoric period suggest that the study area presented an environment suitable for exploitation during the Palaeolithic and Mesolithic period. The archaeological record suggests a prevalence of activities associated with subsistence, reflective of a nomadic existence of a hunter-gatherer lifestyle. Should further remains from this early period exist within the study area, they will most likely comprise artefactual lithic finds.

2.3.4 Activity of an increasingly sedentary nature is represented by the archaeological record from the Neolithic period onwards. Should further currently unrecorded heritage assets be discovered to exist within the study area dating from the Neolithic to the Romano-British period, such sites would likely be representative of land-use in association with settlement, subsistence (including farming activities) and spiritual / religious activities. The archaeological record also indicates the presence of military-related activity in the study area from the Romano-British period. As such, the potential for currently unrecorded heritage assets of a military nature dating to this period should not be discounted within the study area.

2.3.5 Settlement, agricultural and religious activities continued to dominate the archaeological record within the study area from the Saxon period onwards. These elements of past land-use may thus be represented amongst potential heritage assets that are as yet undiscovered in the study area. In addition to those outlined above, potential heritage assets from the medieval period onwards may also be of a commercial or industrial nature. The growth of a number of trading centres surrounding the study area saw a marked increase in heritage assets associated with industry and production in the archaeological record, an element which intensified in the post-medieval period with the Industrial Revolution. Commercial and industrial expansion drew people to the towns, which in turn, saw an increase in more concentrated settlement patterns in and surrounding various towns along the route of the study area. Despite this, agricultural activities continued to be the predominant activity and is likely to be reflected in the potential archaeological record (e.g. in the form of field boundaries).

2.3.6 Currently unknown archaeological remains dating to the 20th century in the study area are likely to be predominantly representative of defence measures (e.g. tank traps, anti-aircraft infrastructure, pill boxes that are no longer extant) or may provide direct evidence of hostilities (e.g. bomb craters).

***Potential for Buried Archaeological Remains***

2.3.7 The PEIR boundary is considered to contain a high potential for the further discovery of buried archaeological sites/features. A large proportion of heritage assets recorded in the NHER relate to cropmark sites, some of which are extensive and complex, indicative of a multi-period buried archaeological landscape dating from earlier prehistoric through to modern periods.

2.3.8 Within the Landfall location, there is potential for further archaeological discoveries associated with medieval and post-medieval field systems, and WWII coastal defences and military training activity.

2.3.9 Key areas along the onshore cable corridor for potential archaeological discoveries include:

- Roman and medieval settlement activity near Itteringham;
- A possible Roman military site east of Southgate;
- Medieval and post-medieval field systems and undated enclosures to the east of Morton on the Hill;
- A possible Bronze Age barrow cemetery and probable Roman enclosures and field systems at the A47 crossing;
- A multi-period site just to the northwest of Great Melton;
- An undated enclosure (possibly Neolithic/Bronze Age) to the west of High Green; and
- Possible line of the Roman road between Caistor St Edmund and Crownthorpe to the west of Ketteringham.

2.3.10 Within the onshore substation site options, there is the potential for archaeological remains associated with Roman field systems and agricultural activity, as well as medieval settlement activity potentially associated with the medieval village of Gowthorpe to the immediate west.

# 3 Aims and Objectives

3.1.1 The purpose of the requested geo/archaeological watching brief was to monitor the intrusive works associated with the development and, where geo/archaeological remains were present, to investigate, characterise and interpret them. In instances where the watching brief remit was not sufficient to deal with the potential archaeological resource, then the assessment will highlight this and provide sufficient data to allow the Stakeholders and Client to make an informed decision on the requirement for further mitigation strategies.

3.1.2 The general aims of the geo/archaeological monitoring were to:

- determine the presence or absence of buried or upstanding geo/archaeological remains within the proposed development site;
- allow the monitoring archaeologist to signal that potentially significant geo/archaeological has been revealed before it is destroyed;
- provide the opportunity for an appropriate resource allocation to deal with the geo/archaeological under the watching brief remit;
- determine the character, date, extent and distribution of any geo/archaeological deposits revealed as well as their potential significance;
- determine levels of disturbance to any geo/archaeological deposits from plough damage or from any other agricultural/industrial practices or later building activities;
- sufficiently investigate and record all deposits and features of potential geo/archaeological interest within the areas to be disturbed during the current development;
- disseminate the results of the fieldwork through an appropriate level of recording.

# 4 Methodology

4.1.1 In accordance with requirements from Norfolk County Council, a programme of geo/archaeological work was undertaken, in line with the agreed WSI, in order to satisfy the stated objective of the project as set out under Section 3 above.

4.1.2 The Norfolk Historic Environment Record Event (ENF) for the works was ENF151963.

## 4.2 Archaeology

4.2.1 The WSI stated that thirty locations would be archaeologically monitored but one location, BH21-65, was not undertaken due to its location within operational land but two additional locations, BH21-67 and BH21-68, were undertaken to the south/southwest of the existing Norwich Main substation, near Swainsthorpe, at the southern terminus of the route (See Appendix 1).

4.2.2 During the borehole investigations, archaeological monitoring of in-situ deposits was restricted to the hand dug test pits at the top of the sequences which were usually c. 1.00m in depth. All deeper deposits were investigated as disturbed upcast produced during the drilling.

4.2.3 All archaeological deposits and features were investigated and sampled sufficiently to characterise, date them, understand their relationships and determine their significance.

4.2.4 Archaeological contexts were recorded and numbered individually on pro-forma context sheets with all relevant data such as drawings, photographic images, finds, environmental samples, height values and any other information cross-referenced. In addition, a further, more general record of the work comprising descriptions and discussions of the archaeology was maintained. Context sheets were primarily filled in by the archaeologist excavating the feature/deposit.

4.2.5 Hand drawn sections were drawn at an appropriate scale. All drawings have been accurately related to the National Grid.

4.2.6 A complete digital photographic record of the work was kept. All images were taken using a camera with a suitable megapixel resolution. The photographic record is regarded as part of the site archive and digital files will be appropriately filed, saved, labelled and cross-referenced in relation to the site-specific photography register.

## 4.3 Geoarchaeology

4.3.1 Fifteen locations were identified which required geoarchaeological monitoring.

4.3.2 All of the sequences subject to geoarchaeological recording were monitored by a suitably trained and experienced geoarchaeologist.

4.3.3 The sequences were recorded following standard geological criteria (Tucker 1982; Jones et al 1999; Munsell Color 2000) whilst archaeological deposits and features were investigated and recorded as per the standards and strategy below.

## 4.4 Artefacts

4.4.1 All artefacts revealed were recovered regardless of date so that the provisional dating of as many contexts as possible could be undertaken in line with Historic England guidance (2015a).

## 4.5 Lithics

4.5.1 Worked flint was recorded following standard technological and typological classifications and largely follows the methodology of Inizan et al (1999) with modifications and additions as indicated in the text by the author.

4.5.2 Retouched tools were classified following standard British works such as Healy (1988) and Bamford (1985). Measurements were taken following the methodology of Saville (1980).

## 4.6 Palaeoenvironmental Sampling

4.6.1 The strategy and methodology for the sampling of deposits was in accordance with English Heritage (Now Historic England) Centre for Archaeology Guidelines "Environmental Archaeology – A guide to the theory and practice of methods, from sampling and recovery to post-excavation" (2011).

4.6.2 All samples were assigned a unique identification number accompanied with an appropriate sample form.

4.6.3 Where guidance was relevant the appropriate English Heritage (Now Historic England) papers were followed (EH 2005, 2007 & 2011).

# 5 Results

5.1.1 Due to the broad geographic area that is spanned by the monitoring, it is not possible to give a 'typical' stratigraphic sequence for the monitored sections and therefore the lithological descriptions of strata recorded/ encountered during the geo/archaeological monitoring are contained within Appendix 3, Appendix 4 and Appendix 5.

## 5.2 Archaeological Monitoring

5.2.1 No features or deposits of archaeological interest were identified within any of the 31 monitored locations and no in-situ artefacts were recovered.

5.2.2 The sole finds of archaeological interest comprised four stuck flints which were recovered from the surface during the monitoring of BH21-61 and BH21-64; these are discussed below.

## 5.3 Geoarchaeological Monitoring

5.3.1 No features, deposits or artefacts of archaeological interest were identified during the geoarchaeological monitoring works.

5.3.2 Deposits of palaeoenvironmental and geoarchaeological interest were identified in two monitored locations (BH6-15 and BH9-25) and one location which was not subject to archaeological or geoarchaeological monitoring (BH10-31).

### *BH6-15*

5.3.3 Underlying topsoil and subsoil at 0.40 bgl/ 23.24m aOD was the upper surface of a dark blackish brown, peaty clay deposit measuring 0.70m in thickness. Frequent plant macrofossil remains were visibly preserved within the sediment including leaves of sedges and/or grasses.

5.3.4 This was underlain at 1.10m bgl/22.54m aOD by a dark brownish grey, slightly clayey, coarse gravelly sand with occasional pockets/ fragments of organic clay/ peat. This organic alluvium/ alluvium was c. 2.50m in thickness with a basal boundary at 3.60m bgl/20.04m aOD although it should be noted that no organic remains were noted below c. 2.00m bgl/ 21.64m aOD.

5.3.5 Underlying this deposit, at 3.60m bgl/20.04m aOD was a dark grey sandy gravelly clay alluvium measuring 1.90m in thickness. This deposit lay upon superficial gravels at 5.50m/18.14m AOD which marked the base of the Holocene alluvial sequence.

### *Discussion*

5.3.6 The peaty clay (0.40m – 1.10m) deposit has H**igh** palaeoenvironmental potential due to the visible presence of plant macrofossils. In addition, there is a **high** potential for the preservation of other palaeoenvironmental proxy such as microfossils i.e. pollen, diatoms.

5.3.7 The organic alluvium/ alluvium (1.10m – 3.60m) is characterised as having **Moderate** palaeoenvironmental potential; this is due to the mixed, fragmentary nature of the organic clays/ peat and the overall lithology of the deposit (gravelly sandy clay) being less than ideal for the preservation of macro- and microfossils.

5.3.8 The lower deposit has **Low – No** palaeoenvironmental potential as no visible organic inclusions were noted. Despite the absence of visible plant macrofossil remains, there is potential for the preservation of microfossils within these sediments.

5.3.9 It is likely that the lower two deposits represent overbank sedimentation succeeded by a change in the depositional environment, potentially channel migration or avulsion of a channel, resulting in a marked reduction in flow rates allowing for the deposition of fine-grained organic sediments and peat development.

5.3.10 Overall, the entire sequence is considered **Moderate** geoarchaeological potential and a **Moderate – High** palaeoenvironmental potential to inform upon the Holocene development and evolution of the River Bure and the palaeoenvironmental history of the local landscape.

### *BH9-25*

5.3.11 Underlying an alluvial topsoil composed of dark brown, clayey sand, at a depth of 0.90m bgl/14.63m aOD, was a dark grey, very sandy gravel of 8.30m thickness.

5.3.12 Underlying these superficial gravels at a depth of 9.20m bgl/ 6.33m aOD was a very soft, dark brown silty peat measuring c.0.80m in thickness.

5.3.13 The peat was underlay at 10.00m bgl/ 5.53m aOD by a soft greyish brown organic sandy clay with occasional shell fragments. This deposit extended for at least another 5.45m to 15.45m bgl/ 0.08m aOD but the base of the deposit was not proven, and no evidence of chalk bedrock was identified.

5.3.14 It was not possible to recover an undisturbed sample of the deposit due to the disturbed nature of the cable percussion drilling and therefore direct dating or palaeoenvironmental assessment of the deposit was not possible within the current scope of works. Despite this, it should be noted that, given the interpretation of the feature (see below) and the stratigraphic position of the deposits in relation to the

overlying gravels, there is potential that the age of the deposits may be greater than the maximum limit of radiocarbon dating (i.e. 50ka).

### *Discussion*

5.3.15 The presence of extensive organic alluvium and peat (>5.45m and 0.80m thickness respectively) within BH9-25 is of note due to its depth (9.20m bgl/ 6.33m aOD) but also due to its stratigraphic position underlying extensive gravel deposits.

5.3.16 McMillan et al (2011, 149) note that 'till and associated outwash deposits of Devensian (MIS 2) age extend a short distance inland from the north coast of Norfolk' and the BGS does not map any deposits associated with the Last Glacial Maximum, whose southerly extent was the north coast of Norfolk, therefore, the extensive gravels identified must predate the Devensian Glaciation.

5.3.17 There are two gravel formations mapped by the BGS (2021a) within the vicinity of Swannington; the Briton's Lane Formation (possibly MIS 6/191 – 130ka, McMillan et al 2011, 149) and the Sheringham Cliffs Formation (MIS 10/ 374 – 337ka; McMillan et al 2011, 147-148). It is assumed, in the absence of detailed lithological comparison, that the sealing gravels are in fact one of the two aforementioned members and, therefore, to be a component of, or sealed by, either of these Formations makes these deposits of potential significance for the understanding of the Pleistocene palaeoenvironment within the region.

5.3.18 The lithology of the sediments is indicative of a hydroseral succession representing the development of a peat-forming, fen wetland from a slow-flowing, open water body. It is not clear whether the relationship between the upper boundary of the peat and the overlying gravel is conformable, but the sharp transition may suggest that there is a discontinuity in the sedimentary record.

5.3.19 The organic clay deposits sit within a defined cut or trough in the chalk as the upper surface of the chalk was not proven in BH9-25 but was encountered at:

- 12.93m aOD in BH9-24, 130m to the north
- 9.35m aOD in BH9-26, 135m to the west
- 15.33m aOD in BH9-27, 145m to southwest
- 18.90m aOD in BGS Ref: TG11NW21, 870m to the northeast
- 7.15m aOD in BGS Ref: TG11NW28, 285m to the east
- 10.30m aOD in BGS Ref: TG11NW57, 350m to southeast
- 9.90m aOD in BGS Ref: TG11NW22, 470m to southeast

- 8.40m aOD in BGS Ref: TG11NE2, 1.6km to southeast

5.3.20 There are records of a 'black bog' deposit in the public well at Swannington (BGS Ref: TG11NW94) c.760m to the west. The record states that "the cottagers will not use the water, either for drinking or washing….they say that it turns linen yellow and is not fit to drink" (BGS 2021b) suggesting that the black bog is a peat deposit.

5.3.21 Despite this, it is unlikely that the two deposits are linked as the upper contact of the 'black bog' is at c.10.61m aOD (as opposed to 6.33m aOD of the BH9-25 peat) and it directly overlies the chalk bedrock, whose upper surface is proven at 9.39m aOD.

5.3.22 The initial interpretation, based upon the scale and stratigraphic position of the feature and its fills, is that the trough in the chalk represents a buried tunnel valley associated with the Anglian Glaciation (MIS 12/ 478 – 424ka) of which there are multiple examples from East Anglia (Figure 3 of Eaton et al 2020, who source Graham et al 2011).

5.3.23 Tunnel valleys are defined by Stucki et al (2010, 363 - 364) as '*large, elongated depressions of subglacial origin cut into bedrock…the sedimentary architecture of tunnel valley fills is characterized (sic) by a large variety of lithofacies including those associated with glacial, glaciofluvial or glaciolacustrine sedimentation, as well as those resulting from deposition under temperate (i.e., warm stage) conditions'. 'Tunnel valleys are interpreted to have served as subglacial drainage pathways for large volumes of melt water* and *are thus considered to play a substantial role for the entire hydraulic system beneath glaciers*'.

5.3.24 Despite this interpretation, as shown by the upper contact heights of the chalk above, there is no clear indication of continuation in any other direction and no deposits matching the lithological descriptions were identified within the surrounding boreholes. Despite this, this 'absence' of continuation is likely to be reflective of the resolution of the sampling and the gaps between locations as opposed to being a real absence.

5.3.25 It was not possible to recover an undisturbed sample of the deposit due to the disturbed nature of the cable percussion drilling and therefore direct dating or palaeoenvironmental assessment of the deposit was not possible within the current scope of works. Despite this, it should be noted that, given the suggested origin of the feature and the stratigraphic position of the deposits in relation to the overlying gravels, there is potential that the age of the deposits may be greater than the maximum limit of radiocarbon dating (i.e. 50ka).

5.3.26 If the interpretation of the feature as a buried tunnel valley of Anglian age is accepted then the fills must post-date MIS 12 and, due to the absence of Devensian gravels within this area, must predate the deposition of the Briton's Lane Formation (possibly

MIS 6/191 – 130ka) and therefore a provisional, mid-Pleistocene date of between the end of MIS 12 and the beginning of MIS 6 (c. 424 – 191ka) is proposed.

5.3.27 The organic clays may represent the water-lain sediments of the Ivy Farm Laminated Silt Member (IFLS), a basal sub-division of the Sheringham Cliffs Formation (McMillan et al 2011, 147-148). The IFLS Member comprises 'up to 22 m of clays, silts and sands and consists of two distinctive lithofacies:

a) rhythmically-bedded dark grey clays and pale grey silts that grade upwards into a pale-yellow laminated marl;

b) horizontally bedded and rippled fine-grained pale grey sand rich in the heavy mineral zircon'.

5.3.28 The lower boundary of the IFLS is described as conformable with either 'the diamicton facies of the Walcott Till Member or the sandy facies of the Mundesley Sand Member' (McMillan et al 2011, 147-148). As the underlying deposits were not proven, the description of the stratigraphic relationship cannot be used to further interpretation of the deposits.

5.3.29 An alternative interpretation is that these deposits pre-date the Sheringham Cliffs Formation and are of Hoxnian (MIS 11/ 424 – 374ka) age. No deposits of Hoxnian age are currently known from the Yare Catchments Subgroup (McMillan et al 2011, 310-311) although they are known from the neighbouring Ouse-Nene Catchments Subgroup, specifically the River Nar.

5.3.30 The Nar Clay Formation (including both the marine Nar Clay and the underlying Nar Valley Freshwater Beds) consists of 'finely laminated marine clays, silts and silty clays, and peat of the Nar Valley Freshwater Peat Beds. Brickpits have yielded a rich fauna of well-preserved bivalves and gastropods, foraminifera, ostracods and diatoms. The clay has also yielded the bones and teeth of mammals' (McMillan et al 2011, 150).

5.3.31 Regardless of age, Pleistocene deposits with geo/archaeological significance, are a material consideration within the planning system in England (Historic England 2020, 8) and given the possibility that these deposits may represent a hitherto unidentified sequence with potential to contribute to the understanding of the onshore mid - late Pleistocene palaeoenvironment, these deposits are considered to have a **High** geoarchaeological and palaeoenvironmental potential

5.3.32 In the event that further site investigation works are due to occur in the area, then scope for assessment and dating of the deposits should be considered with uranium series dating on peat and amino acid racemization on shells within the organic clays being potential options.

### *BH10-31*

5.3.33 Underlying 0.50m of topsoil, at a height of 9.65m aOD, a very soft, black, slightly sandy organic clay was identified.

5.3.34 The deposit measured 4.60m in thickness and its basal horizon was identified at 5.05m aOD where it overlay Pleistocene gravel.

## 5.4 Discussion

5.4.1 Due to the homogenous description given within the log, it is considered that the deposits identified within BH10-31 represent gradually accumulating alluvium deposit during flooding in a peripheral location from the main active channel. Due to the continuity through the sequence, it may be considered that this alluvial unit is deposited within a stable floodplain where the primary channel remains relatively mobile with very little movement within its floodplain; this is potentially indicative of a later Holocene date, but this is purely speculative.

5.4.2 Despite this location not being monitored, it is evident, both from the description of the deposit and from the location of recovery, that the material recovered from BH10-31 has **Moderate – High** potential for the preservation of palaeoenvironmental remains.

5.4.3 The geoarchaeological potential of the deposits is more uncertain as the description of the clays implies that they may be somewhat amorphous although; the level of lithological recording may not account for finer resolution structural and depositional features within the deposit or spatial variation within the lithology of the alluvial unit. It is therefore considered that the alluvium has **Moderate** geoarchaeological potential.

5.4.4 Due to the absence of similar organic remains, or non-granular alluvium at all, in BH10-29, BH10-30 and BH10-32, there is a possibility that the deposits with palaeoenvironmental or geoarchaeological potential (i.e. non-granular, non-Pleistocene gravels) are constrained within the Holocene valley floor although there may be potential for palaeochannels to exist as the valley floor widens to the south/southeast of Attlebridge.

# 6 Artefacts and Lithics

## 6.1 Results

6.1.1 Four pieces of struck flint were recovered from the surface of the field, centred on Grid Reference TG218019, to the south of the substation at Swainsthorpe where BH21-61, BH21-64, and TP21-01 to TP21-04 were monitored

6.1.2 They are all made from similar translucent dark grey to black fine-grained flint, with two pieces retaining a hard and worn cortex and the other two a thicker and rough but still weathered cortex. It is likely that the raw materials were gathered from derived sources, probably either the glacial till that cover the area or from alluvial deposits eroding through the tills. All of the pieces have suffered from post-depositional abrasion and chipping although to varying extents, as would be consistent with their recovery from unstratified contexts.

6.1.3 The four struck pieces comprise a flake, a core and two retouched implements: a denticulated tool and a piercer. The denticulated implement was made on a narrow decortication flake that had been sporadically retouched by cutting series of small shallow notches along parts of both lateral margins, with wear on the cusps of the notches suggesting that it had been used as a heavy-duty cutting implement, perhaps akin to a saw, on relatively hard materials such as wood or bone. The piercer was made on a short, thick flake and has been minimally retouched to form a blunt point or spur on its distal end. This also shows traces of wear and there is some evidence that it may have been used in a similar way to an awl, but this is masked by post-depositional damage. The core has also experienced considerable post-depositional attrition but traces of at least two platforms that had produced flakes and narrow flakes can be detected. The flake is thin but fragmentary with most of its distal end and its striking platform missing.

6.1.4 No chronologically diagnostic implements that can give a precise date are present and it is quite possible that the pieces are not related and the products of different periods. However, if taken together, a date during the Later Neolithic or Early Bronze Age would comfortably encompass all of the pieces.

## 6.2 Significance

6.2.1 The main significance of the struck flint is that it demonstrates prehistoric flint working and tool-use activities occurring at the site, most probably during the Neolithic or Early Bronze Age. However, the small size of the assemblage and lack of diagnostic pieces or secure contextual associations means its interpretational vale is limited and it can contribute little to further understandings of the precise chronology or nature of the prehistoric occupation.

6.2.2 Due to its limited interpretative potential, this report and accompanying catalogue is all that is required for the purposes of archiving and no further analytical work is warranted. The assemblage does, however, provide evidence for prehistoric activity at the site and can contribute to wider appreciations of prehistoric landscape use in the area.

6.2.3 It is therefore recommended that it is recorded in the Historic Environment Record and a brief mention is included in any published account of the fieldwork.

# 7 Summary

## 7.1 Archaeological Monitoring

7.1.1 No features or deposits of archaeological interest were identified within any of the 31 archaeologically monitored locations and no in-situ artefacts were recovered.

7.1.2 The sole finds of archaeological interest comprised four stuck flints which were recovered from the surface during the monitoring of BH21-61 and BH21-64; these are discussed below.

7.1.3 Four Neolithic or Early Bronze Age lithics were recovered from the surface of the field to the south of the Swainsthorpe substation at the southern terminus of the route.

7.1.4 Due to the unstratified nature of the finds, it cannot be stated whether these finds relate to the cropmarks of fragmentary ditches of unknown date as recorded by the DBA (Royal HaskoningDHV 2021b) or whether they are unrelated and represent a hitherto unrecognised phase of activity on the site.

7.1.5 The archaeological potential of the lithics is difficult to assess as, in the absence of associated features or deposits, they may represent stray finds as a result of accidental loss during short-term or transitional activity on the site or, alternatively, represent a small component of a larger assemblage indicating a longer phase of occupation.

## 7.2 Geoarchaeological Monitoring

7.2.1 No features, deposits or artefacts of archaeological interest were identified during the geoarchaeological monitoring works.

7.2.2 Deposits of palaeoenvironmental and geoarchaeological interest were identified in two monitored locations (BH6-15 and BH9-25) and one location which was not subject to archaeological or geoarchaeological monitoring (BH10-31).

7.2.3 The deposits identified within BH6-15 and BH10-31 represent alluvium and organic alluvium associated with the Rivers Bure and Wensum respectively and have **High – Moderate** palaeoenvironmental and **Moderate** geoarchaeological potential.

7.2.4 The deposits identified within BH9-25 have **High** palaeoenvironmental and geoarchaeological potential. These are interpretated as the fills of a buried tunnel valley of Anglian age. If this origin is accepted then the fills must post-date MIS 12 (478 – 424ka) and, due to the absence of Devensian gravels within this area, must predate the deposition of the Briton's Lane Formation (possibly MIS 6/191 – 130ka)

and therefore a provisional, mid-Pleistocene date of between the end of MIS 12 and the beginning of MIS 6 (c. 424 – 191ka) is proposed.

7.2.5 All other deposits are considered to have **No – Low** palaeoenvironmental or geoarchaeological potential due to the generally shallow sequences, dominated by coarse, gravelly sediments of Mid-Pleistocene origin.

# Bibliography


Association for Environmental Archaeology. (1995). *Environmental archaeology and archaeological evaluations. Recommendations concerning the environmental component of archaeological evaluations in England*, Working Papers of the Association for Environmental Archaeology, 2

Bamford, H. (1985). *Briar Hill: Excavation 1974–1978*, Northampton Development Corporation, Northampton

British Geological Survey. (2021a). *Geology of Britain viewer*. [redacted]

British Geological Survey. (2021b). *Public Well, Swannington BGS ID: 514468 : BGS Reference: TG11NW94, British National Grid (27700): 613460,319020*. [redacted]

CIfA. (2014a). *Standards and Guidance for an Archaeological Watching Brief*, Chartered Institute for Archaeologists, Reading.

CIfA. (2014b). *Standards and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials*, Chartered Institute of Field Archaeologists, Reading.

CIfA. (2019). *Code of Approved Conduct for the Regulation of Arrangements in Field Archaeology*, Chartered Institute for Archaeologists, Reading.

Eaton, S.J., Hodgson, D.M., Barlow, N.L.M., Mortimer, E.E.J, and Mellett, C.L. (2020). Palaeogeographical changes in response to glacial–interglacial cycles, as recorded in Middle and Late Pleistocene seismic stratigraphy, southern North Sea, *Journal of Quaternary Science*, 35, 760-775. [redacted]

English Heritage. (2005). *Guidance on Assessing the Risk Posed by Land Contamination and its Remediation on Archaeological Resource Management*, English Heritage, London

English Heritage. (2007). *Understanding the Archaeology of Landscapes: A Guide to Good Recording Practice*, English Heritage, Swindon.

English Heritage. (2011). *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-Excavation*, English Heritage, London.

Graham, A.G.C., Stoker, M.S., Lonergan, L., Bradwell,T., and Stewart, A. M. (2011). The Pleistocene glaciations of the North Sea basin. *Developments in Quaternary Sciences*, 15, 261–278.

Headland Archaeology. (2020). *Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions – Geophysical Survey*, Oasis Ref: Headland5-412665

Healy, F. (1988). The Anglo-Saxon Cemetery at Spong Hill, North Elmham. Part VI: Occupation in the seventh to second millennia BC, *East Anglian Archaeology* 39

Historic England. (2015a). *Geoarchaeology: Using earth sciences to understand the archaeological record*, Historic England, London

Historic England. (2015b). *Management of Research Projects in the Historic Environment* (MoRPHE), Historic England, Swindon.

Historic England. (2016). *Preserving Archaeological Remains: Decision-Taking for Sites under Development*, Historic England, Swindon.

Historic England. (2020). *Curating the Palaeolithic: Guidance (Consultation Draft)*, Historic England, Swindon. [redacted]

Inizan, M-L., Reduron-Ballinger, M., Roche, H. and Tixier, J. (1999). *Technology and Typology of Knapped Stone* (Translated by J. Feblot-Augustines), Cercle de Recherches et d'Etudes Préhistoriques Tome 5, Nanterre.

Jones, A.P., Tucker, M.E., and Hart, J.K. (1999). Guidelines and recommendations. In Jones, A.P., Tucker, M.E., and Hart, J.K. (Eds.) *The description and analysis of Quaternary stratigraphic field sections*. Quaternary Research Association technical guide 7, London, 27-76.

Lisiecki, L.E., and Raymo, M.E. (2005). A Pliocene-Pleistocene stack of 57 globally distributed benthic d18O records, *Paleoceanography* 20

McMillan, A.A., Hamblin, R.J.O., and Merritt, J.W. (2011). *A lithostratigraphical framework for onshore Quaternary and Neogene (Tertiary) superficial deposits of Great Britain and the Isle of Man*, British Geological Survey, Nottingham.

Munsell Color. (2000). *Munsell soil color charts*. Munsell Color, New Windsor (NY)

Norfolk County Council. (2018). *Standards for Development-Led Archaeological Projects in Norfolk*, NCCES

Perrin, K et al. (2014) *A Standard and Guidance to Best Practice for Archaeological Archiving in Europe*, EAC Guidelines 1, Europae Archaeologia Consilium: Namur

Rose, J., Moorlock, B. S. P., and Hamblin, R. J. O. (2001). Pre-Anglian fluvial and coastal deposits in Eastern England: lithostratigraphy and palaeoenvironments. *Quaternary International*, Vol. 79, 5–22

Royal HaskoningDHV (2021a). *Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions - Preliminary Environmental Information Report - Chapter 23 Onshore*

*Archaeology and Cultural Heritage*, Document Reference - PB8164-RHD-ZZ-XX-RP-Z-0010, Dated 29th April 2021

Royal HaskoningDHV (2021b). *Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions - Preliminary Environmental Information Report Appendix 23.1 Onshore Archaeological Desk-Based (Baseline) Assessment*, Document Reference - PB8164-RHD-ZZ-ON-RP-Z-0021, Dated 29th April 2021

Royal HaskoningDHV (2021c). *Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions - Onshore archaeological advice relating to the proposed Site Investigation (SI) Campaign*, Document Reference - PB8164-RHD-ZZ-XX-RP-Z-XXX, Dated 15th June 2021

Saville, A. (1980). On the Measurement of Struck Flakes and Flake Tools. *Lithics*, 1, 16-20.

Stucki, M.D., Reber, R., and Schlunegger, F. (2010), Subglacial tunnel valleys in the Alpine foreland: an example from Bern, Switzerland, *Swiss J Geosci*, 103, 363–374. [redacted]

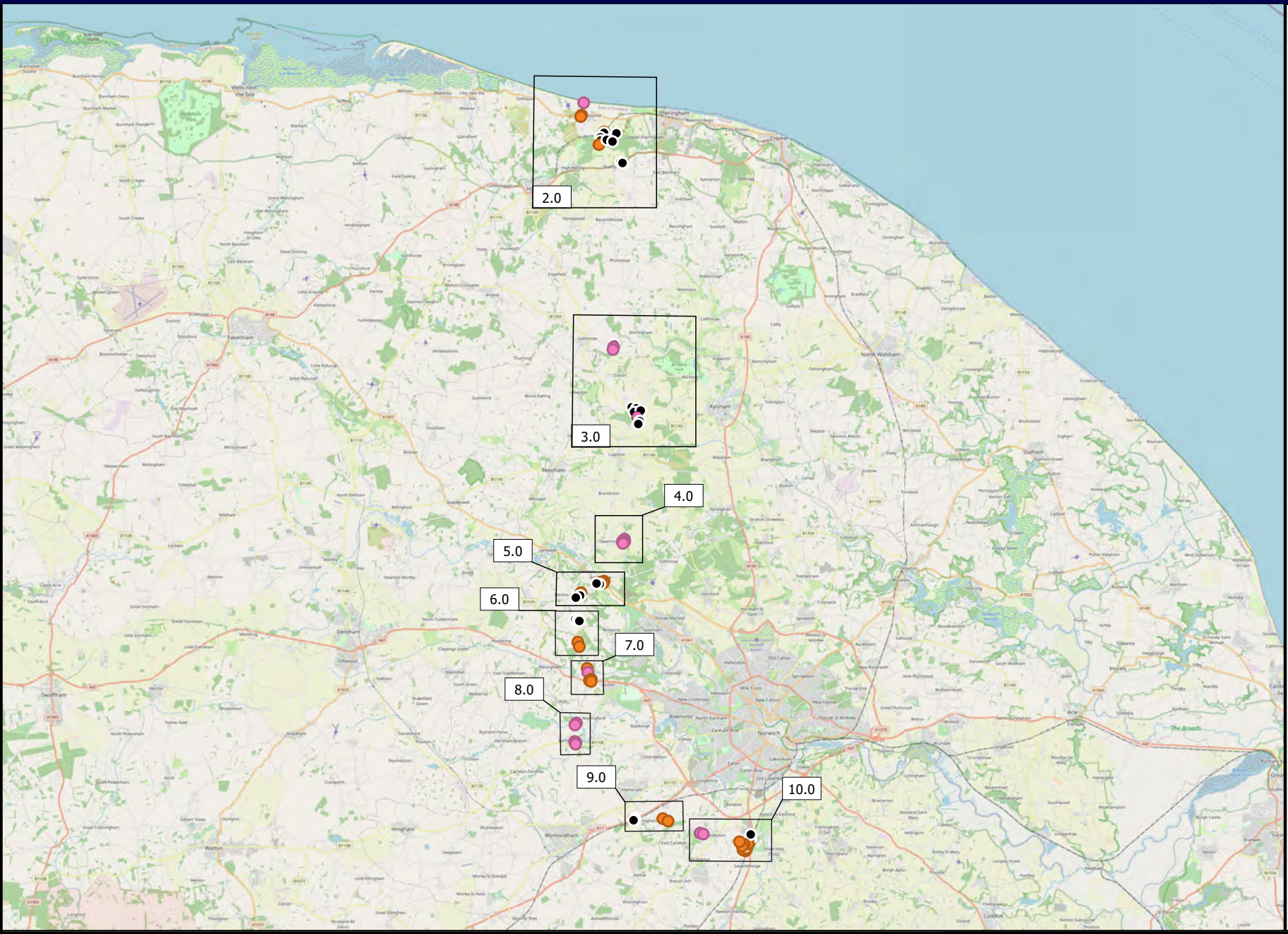
Tucker, M E. (1982) *Sedimentary rocks in the field*, Chichester: Wiley

DRAWINGS

# UK Extensions | Equinor

**195811/WB/1.0**

## OVERVIEW OF BOREHOLE LOCATIONS




Key:

**GI Locations**

- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
- No Monitoring Required

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Created By: Immogen Lyons
Created Date: July 2021

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DALCOUR MACLAREN

**UK Extensions | Equinor**

**195811/WB/2.0**

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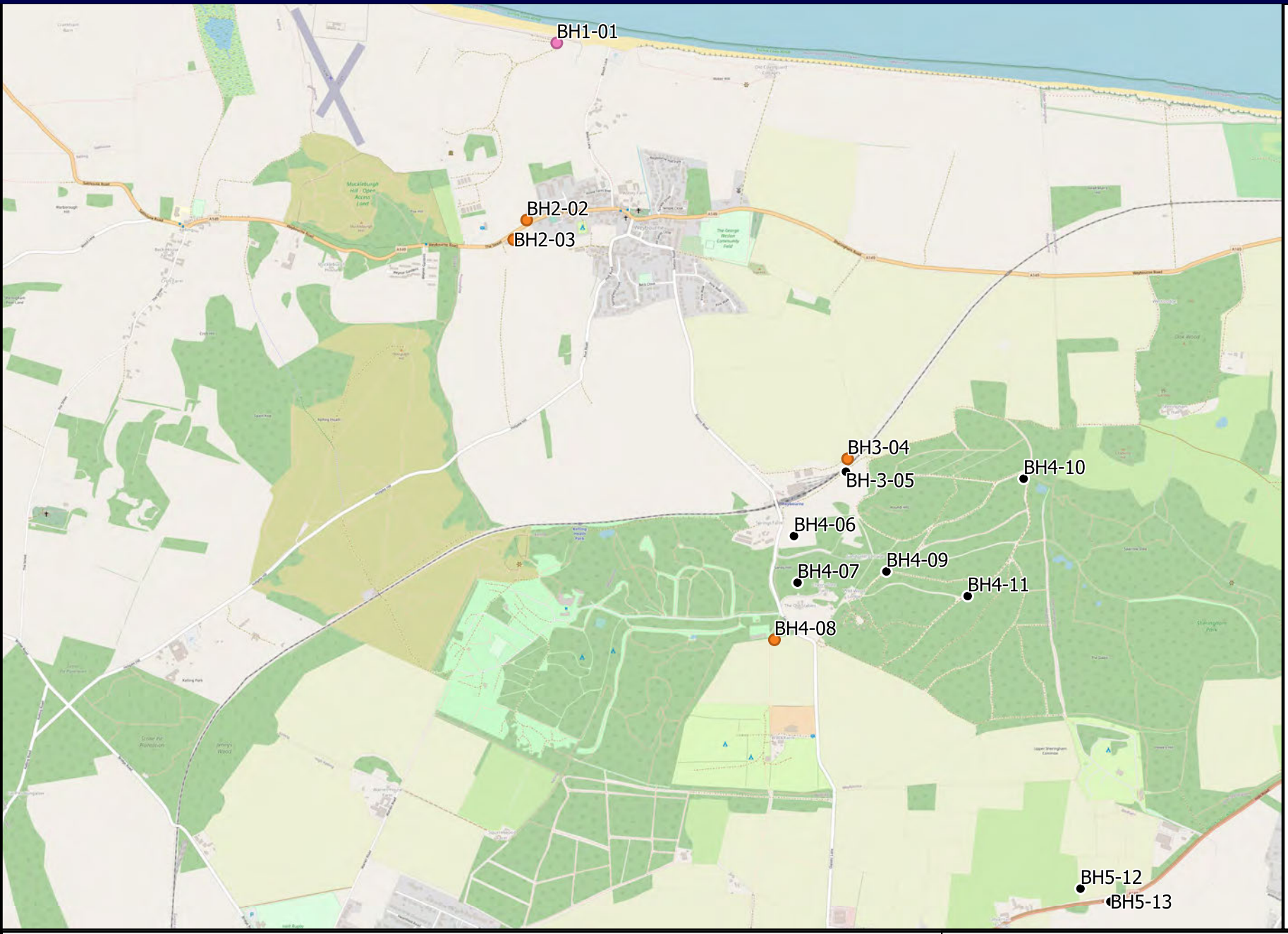


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**GI Locations**

- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
- No Monitoring Required

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Created Date: July 2021

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DALCOUR MACLAREN

# UK Extensions | Equinor

**195811/WB/3.0**

## BOREHOLE LOCATIONS WITH MONITORING REQUIREMENTS


Key:

**GI Locations**

- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
- No Monitoring Required

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Created Date: July 2021

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DALCOUR MACLAREN

**UK Extensions | Equinor**

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# BOREHOLE LOCATIONS WITH MONITORING REQUIREMENTS


Key:

**GI Locations**

- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
- No Monitoring Required

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Created Date: July 2021

Scale: 1 : 10,000

DALCOUR MACLAREN

**UK Extensions | Equinor**

**195811/WB/5.0**

# BOREHOLE LOCATIONS WITH MONITORING REQUIREMENTS


Key:

**GI Locations**

- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
- No Monitoring Required

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Created Date: July 2021

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DALCOUR MACLAREN

**UK Extensions | Equinor**

**195811/WB/6.0**

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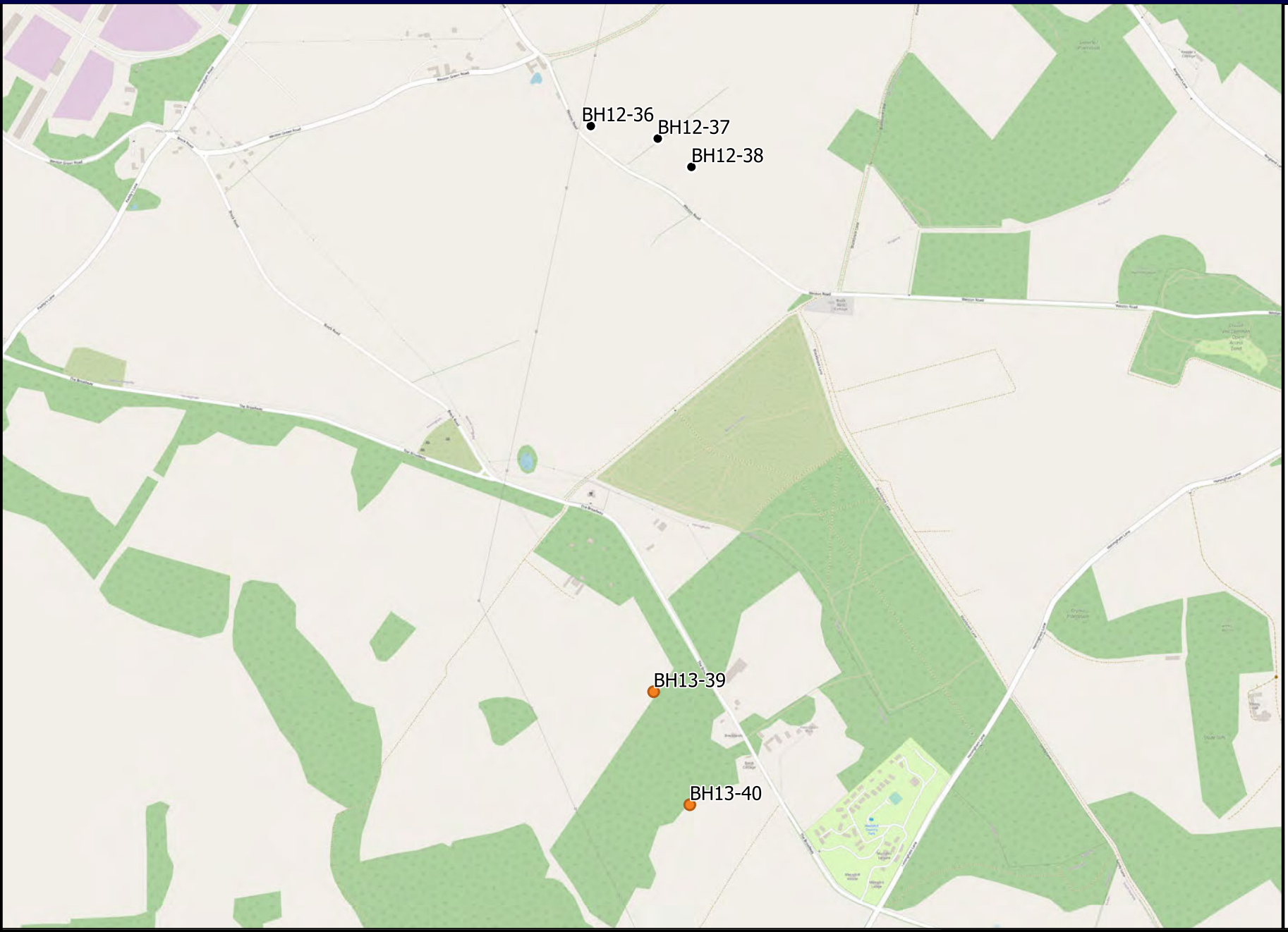


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- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
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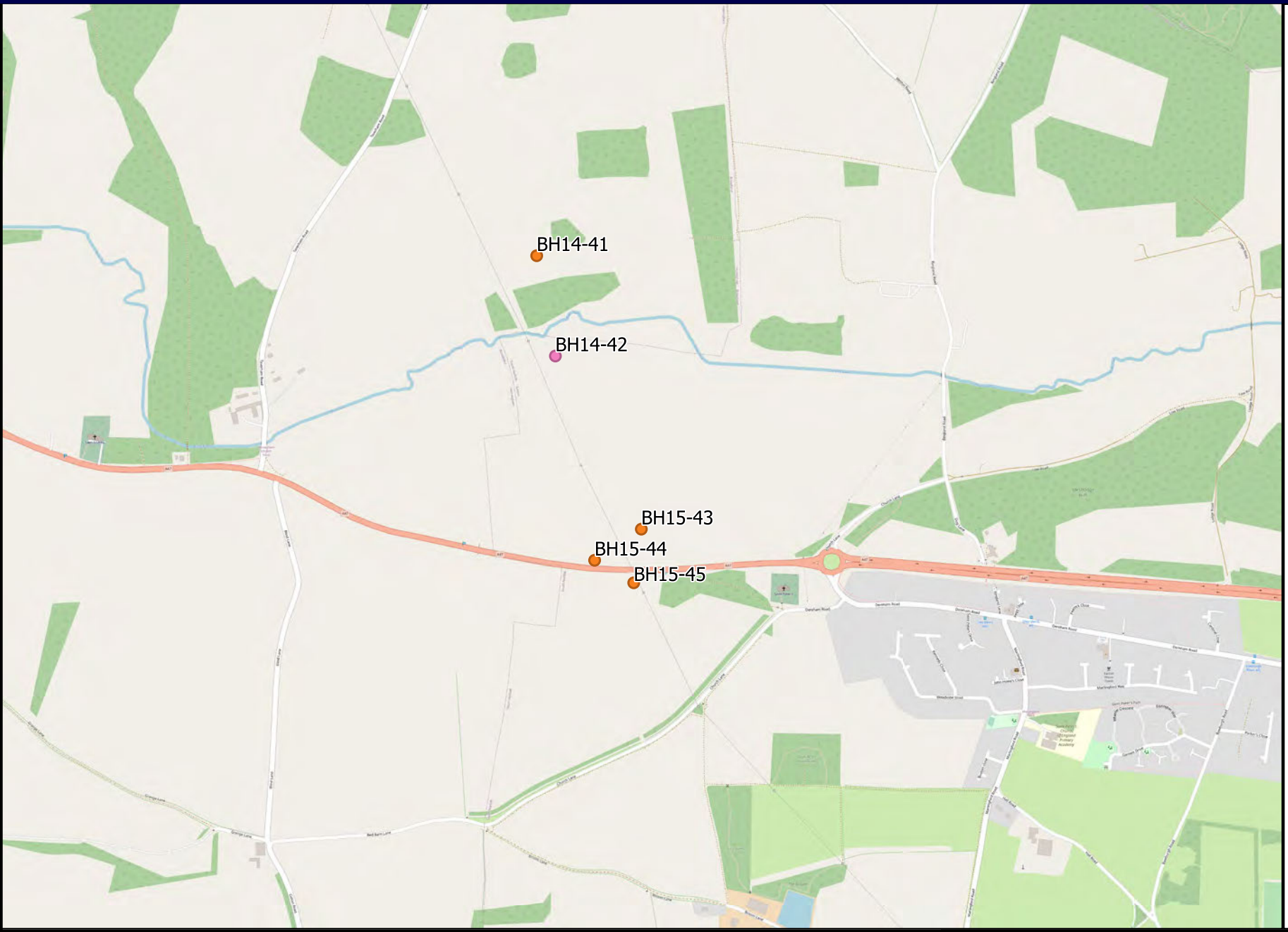


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- Archaeological Watching Brief
- No Monitoring Required

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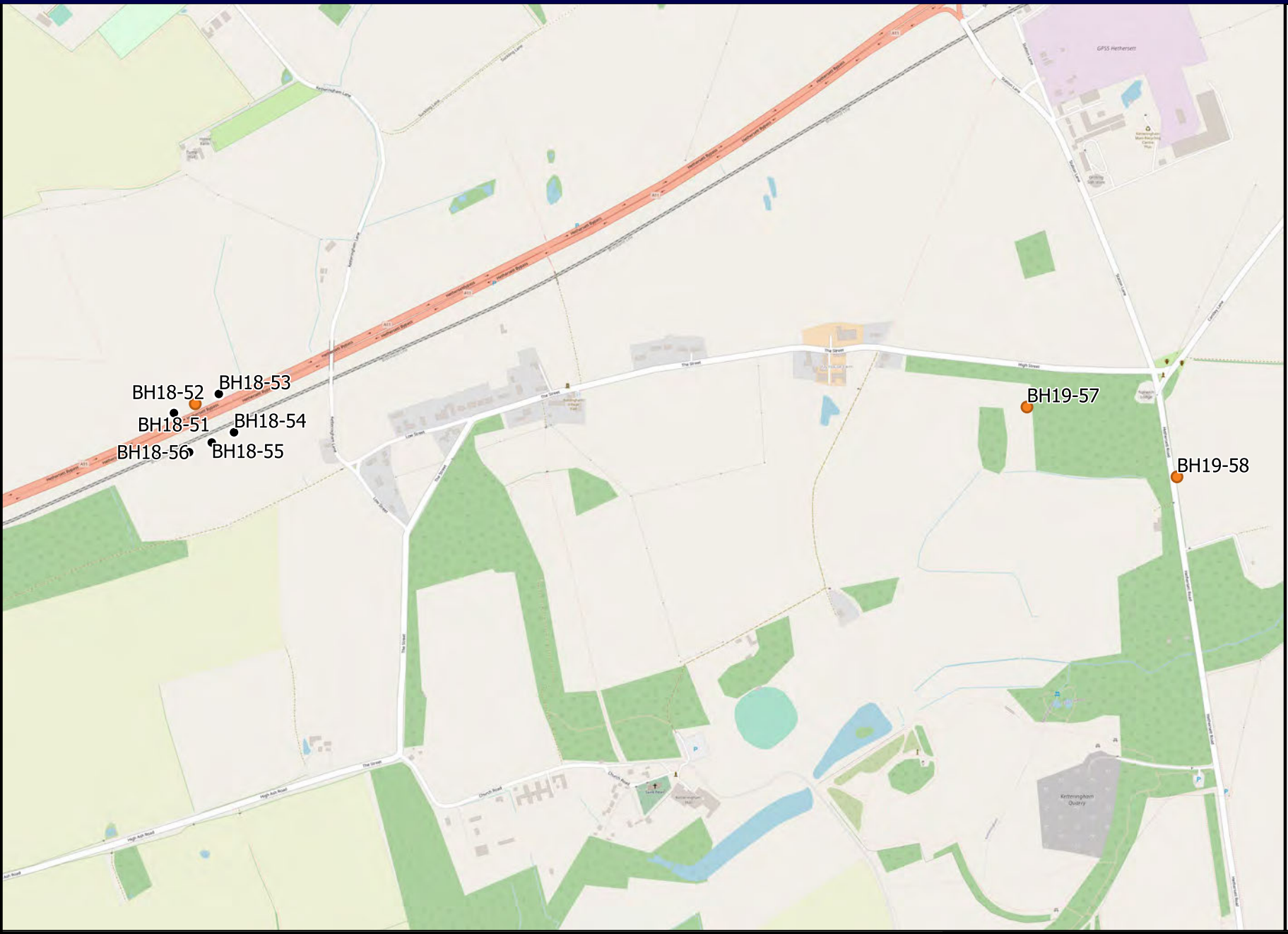


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- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
- No Monitoring Required

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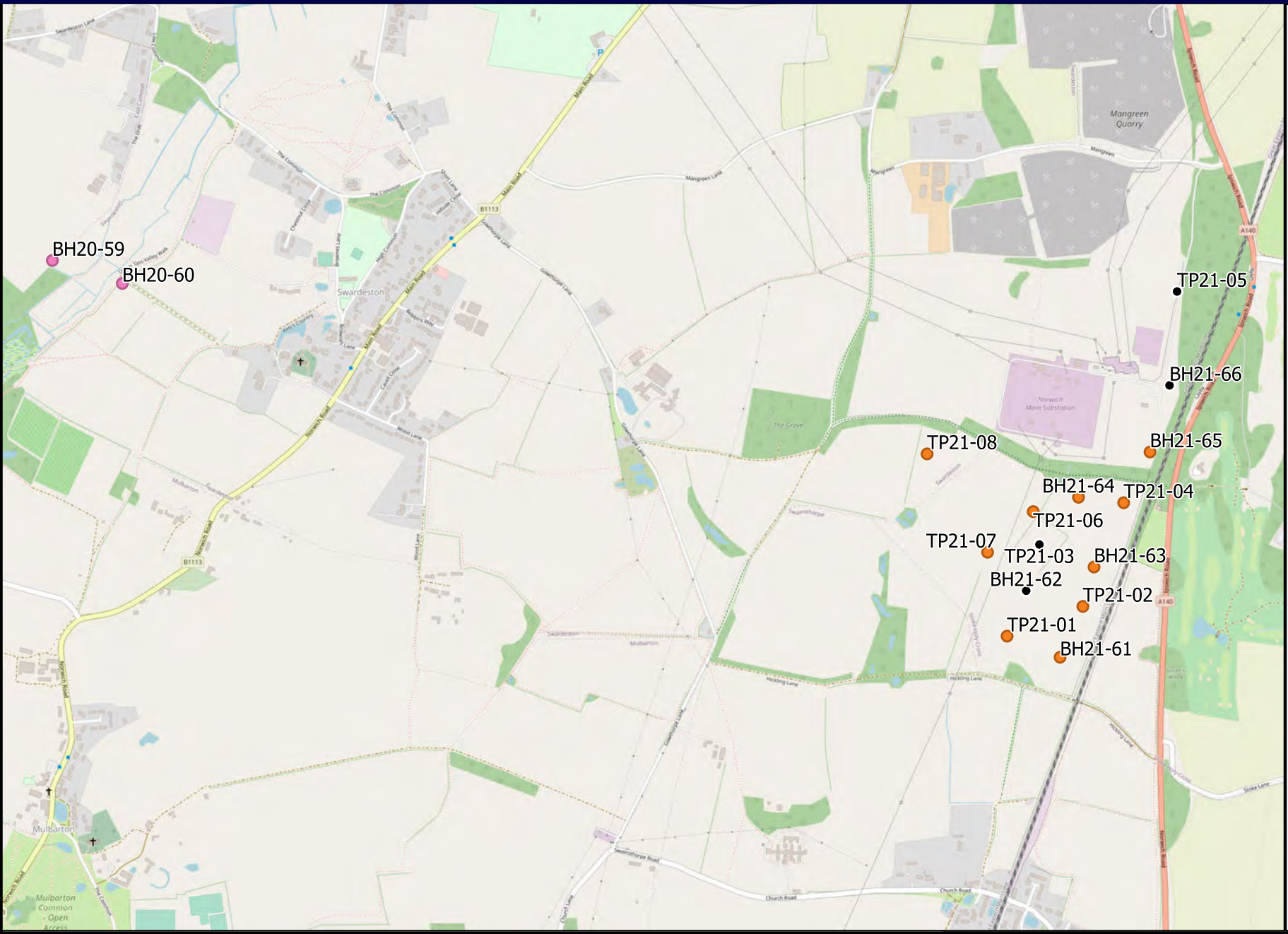
DALCOUR MACLAREN

# UK Extensions | Equinor

**195811/WB/10.0**

## BOREHOLE LOCATIONS WITH MONITORING REQUIREMENTS




Key:

**GI Locations**

- Archaeological and Geoarchaeological Monitoring
- Archaeological Watching Brief
- No Monitoring Required

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Created By: Immogen Lyons
Created Date: July 2021

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DALCOUR MACLAREN

# APPENDICES

## Appendix 1
## Location of Monitored Site Investigations

| Borehole Reference | Mitigation Type | Easting | Northing | Height (m aOD) |
|---|---|---|---|---|
| BH1-01 | Geoarch | 610817.342 | 343679.202 | 9.07m |
| BH2-02 | WB | 610729.071 | 342973.289 | 23.90m |
| BH2-03 | WB | 610681.448 | 342894.648 | 25.91m |
| BH3-04 | WB | 612042.147 | 342084.855 | 40.06m |
| BH4-08 | WB | 611783.415 | 341360.003 | 78.92m |
| BH4-11 | WB | 612515.787 | 341557.413 | 51.57m |
| BH6-15 | Geoarch | 613121.396 | 329971.271 | 23.64m |
| BH6-16 | Geoarch | 613082.65 | 329823.076 | 25.54m |
| BH9-24 | Geoarch | 614213.876 | 319117.145 | 17.63m |
| BH9-25 | Geoarch | 614226.409 | 318987.534 | 15.53m |
| BH9-26 | Geoarch | 614091.273 | 318975.867 | 16.35m |
| BH9-27 | Geoarch | 614128.552 | 318878.104 | 18.93m |
| BH10-28 | WB | 613150.080 | 316689.151 | 18.73m |
| BH10-29 | WB | 613118.837 | 316584.622 | 13.84m |
| BH10-30 | WB | 612960.01 | 316621.52 | 10.39m |
| BH10-32 | WB | 612731.109 | 316537.155 | 10.89m |
| BH11-33 | WB | 611860.744 | 315954.291 | 41.66m |
| BH12-37 | WB | 611783.606 | 314416.9 | 44.45m |
| BH13-39 | WB | 611816.077 | 313171.614 | 57.43m |
| BH13-40 | WB | 611908.378 | 312914.586 | 56.52m |
| BH14-41 | WB | 612229.399 | 311581.193 | 19.63m |
| BH14-42 | Geoarch | 612224.197 | 311387.917 | 21.13m |
| BH15-43 | WB | 612440.222 | 311082.674 | 28.34m |
| BH15-44 | WB | 612611.325 | 311016.136 | 30.86m |
| BH15-45 | WB | 612535.663 | 310974.508 | 32.08m |
| BH16-46 | Geoarch | 611904.868 | 308573.31 | 19.78m |
| BH16-47 | Geoarch | 611854.837 | 308458.587 | 21.79m |
| BH17-48 | Geoarch | 612005.865 | 307700.215 | 21.00m |
| BH17-49 | Geoarch | 611930.803 | 307446.53 | 17.54m |
| BH17-50 | Geoarch | 611962.085 | 307365.783 | 21.50m |
| BH18-52 | WB | 615435.452 | 303285.637 | 47.42m |
| BH19-57 | WB | 617093.613 | 303351.675 | 46.69m |
| BH19-58 | WB | 617401.247 | 303352.466 | 40.72m |
| BH20-59 | Geoarch | 619225.829 | 302589.836 | 22.51m |
| BH20-60 | Geoarch | 619392.492 | 302526.26 | 26.65m |
| BH21-61 | WB | 621885.917 | 301730.542 | 29.81m |
| BH21-63 | WB | 621917.391 | 302142.581 | 26.96m |

| | | | | |
|---|---|---|---|---|
| BH21-64 | WB | 621917.09 | 302143.558 | 26.98m |
| BH21-67 | WB | 621648.73 | 301884.817 | 35.28m |
| BH21-68 | WB | 621493.699 | 302031.021 | 38.56m |
| TP21-01 | WB | 621748.760 | 301776.087 | 29.93m |
| TP21-02 | WB | 621940.558 | 301858.781 | 25.47m |
| TP21-04 | WB | 622032.938 | 302131.627 | 29.52 m |
| TP21-06 | WB | 621799.024 | 302101.768 | 27.33m |
| TP21-07 | WB | 621688.237 | 301991.012 | 31.16m |
| TP21-08 | WB | 621519.838 | 302237.053 | 31.86m |

## Appendix 2
## Perceived Heritage and Archaeological Potential of SI Locations

| BH_ID | Mitigation | Completed? | Perceived Heritage Importance | Summary of Findings | Potential Mitigation Measures |
|---|---|---|---|---|---|
| BH01-01 | Geoarch | | Medium – with the BH being located just off the intertidal/ beach area – there will be low potential for archaeological remains related to the military camp. | Weybourne Camp, Roman coin finds | Archaeological Watching Brief and Geoarchaeological Monitoring at this BH due to the potential across the Norfolk coast. |
| BH02-02 | WB | | Low to Medium – BH located of edge of areas indicated on available data as archaeological presence. | Weybourne Camp, Roman coin finds | Archaeological Watching Brief, although not much info on this area, due to no geophysical data. No alternative provided due to these reasons, and currently best placed. |
| BH02-03 | WB | | Medium – to the north of Scheduled Monument NHLE 1013097, although not much info on this area, due to no geophysical data. | Medieval moated complex with enclosures, fishponds, old road and field system. Adjacent to Scheduled moated site – NHLE 1013097. | Archaeological Watching Brief. No alternative as currently best position. |
| BH03-04 | WB | | Not located within recorded heritage assets or unknown archaeological remains perceived within available data, however immediately adjacent to several recorded heritage assets/finds of Saxon date | N/A | Archaeological watching brief at this BH. |
| BH04-08 | WB | | Low – BH within area recorded on NHER as site of multi period finds. | Within area of Multi-period finds (Neolithic, Mesolithic, roman, medieval/post-med) | Archaeological Watching Brief. No alternative as currently best position based on known data from APS report |
| BH04-11 | WB | | Medium – BH within area recorded as multi-period pits. | Site of late Saxon to medieval earthwork pits, and site of WWII weapons pits. | Archaeological Watching Brief. |
| BH06-15 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data, although to the adjacent south is APS_104 (buried ditches of unknown date and origin). | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to archaeological features and waterway. |
| BH06-16 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data, although to the adjacent east is APS_104 (buried ditches of unknown date and origin). | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to archaeological features and waterway. |
| BH09-24 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. Adjacent records include Multi period finds, including early Saxon period. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to archaeological features and waterway. |
| BH09-25 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. Adjacent records include Multi period finds, including early Saxon period. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to archaeological features and waterway. |
| BH09-26 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. Adjacent records include Multi period finds, including early Saxon period. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to archaeological features and waterway. |
| BH09-27 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. Adjacent records include Multi period finds, including early Saxon period. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to archaeological features and waterway. |
| BH10-28 | WB | | Low – the BH is located just outside of the NHER indicated area (south-west), with no geophysical anomalies present within the immediate area. | Cropmarks of fragmentary ditches and soil marks of buried walls of uncertain date. Fragmentary linear anomalies of uncertain origin. Possible round barrow on north-eastern edge of survey area. Metal detecting survey also found several multi-period metal finds, dating from the roman, medial and post-medieval periods, with unidentified metal fragments of late Bronze Age to post-med date. | Archaeological watching brief at this BH due to the identified archaeological remains, and geophysical surveys. |
| BH10-29 | WB | | Low - the BH is located just outside of the NHER indicated area (north-east). | Roman, medieval and post medieval finds: metal detecting discovered a Roman ring, | Archaeological watching brief at this BH due to finds and nearby geophysical results. |

| BH_ID | Mitigation | Completed? | Perceived Heritage Importance | Summary of Findings | Potential Mitigation Measures |
|---|---|---|---|---|---|
| | | | | a vessel, Medieval strap fitting, and post med coin weight. | |
| BH10-30 | WB | | Low - the BH is located just outside of the NHER indicated area (north-western edge). | Roman, medieval and post medieval finds: metal detecting discovered a Roman ring, a vessel, Medieval strap fitting, and post med coin weight. | Archaeological watching brief at this BH due to finds and nearby geophysical results. |
| BH10-32 | WB | | High – with BH is on the very edge of the indicated area of both the APS and NHER data for the archaeological remains. | Cropmarks of ring ditch and oval enclosure of possible Bronze Age date, and medieval building platforms. | Archaeological Watching Brief at this BH due to HER and APS records and nearby geophysical results. |
| BH11-33 | WB | | Medium – the BH is within the centre of the recorded data on the NHER, although it has not been confirmed as archaeological remains. | Cropmarks of field boundaries of unknown date. Unsurveyed for geophysical survey at the time of writing – under crop of sugar beet. | Archaeological watching brief at this BH due to cropmarks that have been identified across the site. |
| BH12-37 | WB? | | Low – the BH is within the south-east of the indicative boundary of the site on the NHER. | Cropmarks of possible post-medieval date, field boundaries. | |
| BH13-39 | WB | | Low – the BH is located near to the centre of post-medieval asset Honingham Park, although no other assets within the immediate vicinity. | Within Post-medieval Honingham Park. | Archaeological watching brief at this BH as located within Post-Med park recorded on HER. |
| BH13-40 | WB | | Low – the BH is located near to the centre of post-medieval asset Honingham Park, although APS_072 to the south-east of undated cropmarks of field boundaries. | Within Post-medieval Honingham Park. | Archaeological watching brief at this BH as located within Post-Med park recorded on HER. |
| BH14-41 | WB | | Low to medium – BH is within field indicated by NHER as area of multi-period finds, however to the adjacent south-west is APS_67 (extant platforms and ditched medieval tofts – also confirmed by geophysical anomalies (PA12)). | Area of multi-period prehistoric worked flints and Iron Age, medieval and post med pottery sherds. | Archaeological watching brief at this BH due to multi-period finds and nearby geophysical result. |
| BH14-42 | Geoarch | | Medium to high – whilst BH is at northern extent of area, it is located within/close to an area of high archaeological potential, although geophysical survey provided no anomalies of possible or probable origin. | Cropmarks of a possible ring ditch of Bronze Age date and enclosures of Roman date. Linear anomalies possibly forming part of field system/enclosures. | Archaeological Watching Brief and Geoarchaeological Monitoring at this BH due to possible settlement evidence. |
| BH15-43 | WB | | Medium to high – BH within area of suspected Roman cropmarks, although geophysical survey provided no anomalies of possible or probable origin | Northern extent of cropmarks of Roman date | Archaeological watching brief at this BH. No alternative provided, as current location considered best option. |
| BH15-44 | WB | | Medium to high – BH within area of suspected Roman cropmarks, although geophysical survey provided no anomalies of possible or probable origin | Cropmarks of a possible ring ditch of Bronze Age date and Roman enclosures | Archaeological watching brief at this BH. No alternative provided, as current location considered best option. |
| BH15-45 | WB | | High – BH within area of suspected Roman cropmarks, although unsurveyable by geophysical survey to confirm extent of remains. | Cropmarks of a possible ring ditch of Bronze Age date and Roman enclosures | Archaeological watching brief at this BH. No alternative provided, as current location considered best option. |
| BH16-46 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring at this BH.<br>Due to proximity to linear features and waterway and proximity of probable ditched enclosures to adjacent south. |
| BH16-47 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data, although be aware that field to the adjacent south is APS_054: probable ditched enclosures forming focus of prehistoric settlement. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring at this BH.<br>Due to proximity to linear features and waterway and proximity of probable ditched enclosures to adjacent south. |
| BH17-48 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring at this BH due to proximity to linear features and waterway. |
| BH17-49 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring at this BH due to proximity to linear features and waterway. |

| BH_ID | Mitigation | Completed? | Perceived Heritage Importance | Summary of Findings | Potential Mitigation Measures |
|---|---|---|---|---|---|
| BH17-50 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring at this BH due to proximity to linear features and waterway. |
| BH18-52 | WB | | Low – BH's located within area recorded on NHER as site of a Roman Brooch findspot. | Site of Roman Brooch Findspot. | Potential for Archaeological Watching brief focussed on the central BH as within the centre of HER polygon. |
| BH19-57 | WB | | Medium – BH is located within a post-medieval park, although be aware of nearby heritage assets ranging from prehistoric periods. | Within post-medieval Ketteringham Park. | Archaeological watching brief at this BH, due to surrounding area being recorded locations for multi-period finds, and aware of SM's to nearby east. |
| BH19-58 | WB | | Medium – BH within area indicated by NHER as site of multi-period finds. | Within area of multi-period finds. | Archaeological Watching brief at this BH, as located withing HER asset of multi-period finds, and aware of SM's to nearby north. |
| BH20-59 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to linear features and waterway |
| BH20-60 | Geoarch | | No recorded heritage assets or unknown archaeological remains perceived within available data. | N/A | Archaeological Watching Brief and Geoarchaeological Monitoring due to proximity to linear features and waterway |
| BH21-61 | WB | | Low to medium due to proximity to some settlement anomalies identified to geophysical surveys to west – BH to south, and cropmarks of unknown date. | Cropmarks of fragmentary ditches of unknown date and post-medieval field boundaries. | Archaeological Watching Brief. No alternative as currently best position. |
| BH21-63 | WB | | Low to medium due to proximity to some settlement anomalies identified to geophysical surveys to west– BH to south, and cropmarks of unknown date. | Cropmarks of fragmentary ditches of unknown date and post-medieval field boundaries. | Archaeological Watching Brief. No alternative as currently best position. |
| BH21-64 | WB | | Low to Medium due to proximity to some settlement anomalies identified to geophysical surveys to west – BH near northern edge of heritage extent, and cropmarks of unknown date. | Post-medieval field boundaries. | Archaeological Watching Brief. No alternative as currently best position. |
| BH21-65 | WB | | Medium – BH to south-west corner of field, although no immediate identified features. | Probable site of WWII searchlight battery | Archaeological Watching Brief. No alternative as currently best position based on known data from APS report |
| TP21-01 | WB | | No recorded heritage assets or unknown archaeological remains perceived within available data. Close proximity to Gowthorpe manor settlement and geophysical settlement anomalies. | N/A | Archaeological watching brief due to proximity to geophysical anomalies and settlement of Gowthorpe manor. |
| TP21-02 | WB | | Low – TP towards centre of recorded data, and cropmarks of unknown date. | Cropmarks of fragmentary ditches of unknown date and post-medieval field boundaries. | Archaeological watching brief due to proximity to geophysical anomalies and settlement of Gowthorpe manor. |
| TP21-04 | WB | | Low – TP close to northern edge, and cropmarks of unknown date. | Post-medieval field boundaries. | Archaeological watching brief due to proximity to geophysical anomalies and settlement of Gowthorpe manor. |
| TP21-06 | WB | | No recorded heritage assets or unknown archaeological remains perceived within available data. Close proximity to Gowthorpe manor settlement and geophysical settlement anomalies. | Site of medieval village of Gowthorpe, and cropmarks of ring ditches and sub-rectangular enclosures.<br>Linear settlement clearly identified along the western edge of the survey area, which comprises a series of sub-rectangular enclosures with divisions and multiple discrete anomalies.<br>Low magnitude linear anomalies suggest a field system extending to the east of the settlement. | Archaeological watching brief due to proximity to geophysical anomalies and settlement of Gowthorpe manor. |

| BH_ID | Mitigation | Completed? | Perceived Heritage Importance | Summary of Findings | Potential Mitigation Measures |
|---|---|---|---|---|---|
| TP21-07 | WB | | No recorded heritage assets or unknown archaeological remains perceived within available data. Close proximity to Gowthorpe manor settlement and geophysical settlement anomalies. | Site of medieval village of Gowthorpe, and cropmarks of ring ditches and sub-rectangular enclosures.<br>Linear settlement clearly identified along the western edge of the survey area, which comprises a series of sub-rectangular enclosures with divisions and multiple discrete anomalies.<br>Low magnitude linear anomalies suggest a field system extending to the east of the settlement. | Archaeological watching brief due to proximity to geophysical anomalies and settlement of Gowthorpe manor. |
| TP21-08 | WB | | No recorded heritage assets or unknown archaeological remains perceived within available data. Close proximity to Gowthorpe manor settlement and geophysical settlement anomalies. | Site of medieval village of Gowthorpe, and cropmarks of ring ditches and sub-rectangular enclosures.<br>Linear settlement clearly identified along the western edge of the survey area, which comprises a series of sub-rectangular enclosures with divisions and multiple discrete anomalies.<br>Low magnitude linear anomalies suggest a field system extending to the east of the settlement. | Archaeological watching brief due to proximity to geophysical anomalies and settlement of Gowthorpe manor. |

# Appendix 3
# Lithostratigraphy of Boreholes

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| BH01-01 | 0.00 | 0.30 | Topsoil | Friable, dark brown, clayey sand with occasional angular – subrounded fine – coarse flint gravel. |
| | 0.30 | 4.60 | Beach deposits/ superficial | Loose – firm, mid yellowish brown, silty sand with occasional – rare angular – subrounded fine – coarse gravel. Becomes darker and firmer with depth |
| | 4.60 | 9.50 | Superficial | Firm - friable, mid orangish brown, with occasional brownish grey mottling, silty sand with rare lenses of sandy clay. |
| | 9.50 | 13.90 | Superficial | Loose, becoming firmer with depth, mid - light, orangish brown silty gravelly sand with rare lenses of sandy clay. Gravel was angular – subrounded, fine – coarse flint. |
| | 13.90 | 15.30 | Superficial | Mid brownish grey becoming mid whitish grey with depth. Very dense slightly silty sandy gravel with rare cobbles. Gravel comprised of angular – subangular, fine – coarse flint and chalk lithorelicts. |
| | 15.30+ | | Bedrock | Chalk |
| | | | | |
| BH06-15 | 0.00 | 0.20 | Topsoil | Friable, mid -dark brown, slightly silty clayey sand. Occasional gravel comprising angular to subrounded, fine to coarse flint and quartzite. |
| | 0.20 | 0.40 | Subsoil | Friable – firm becoming more cohesive with depth, gravelly clayey sand. Gravel was angular – subrounded, fine to coarse, flint. |
| | 0.40 | 1.10 | Organic alluvium/ peat | Soft, pliable, dark blackish brown, slightly sandy, silty organic peaty clay. Visible fragments of plant macrofossils including sedges. |
| | 1.10 | 3.60 | Organic Alluvium/ alluvium | Friable – loose, dark brownish grey, slightly clayey, coarse gravelly sand with occasional pockets/ fragments of organic clay/ peat. Transitions to gravelly sand below c.2.00m with no organics. |
| | 3.60 | 5.50 | Superficial | Firm – stiff, dark mid-fine sandy gravelly clay. Gravel comprised of angular – subangular, fine – coarse flint and chalk lithorelicts. |
| | 5.50 | 7.50 | Superficial | Moderately dense, dark grey, very gravelly silty sand. Gravel was angular – subrounded, fine – coarse flint and chalk. |
| | 7.50+ | | Bedrock | Chalk |
| | | | | |

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| BH06-16 | 0.00 | 0.20 | Topsoil | Friable, mid – dark brown clayey, fine - mid sand with occasional rounded – subangular flint gravel |
| | 0.20 | 0.40 | Subsoil | Firm – friable, dark brown, fine – mid sandy clay with occasional subangular – rounded flint gravel |
| | 0.40 | 3.60 | Superficial | Loose, becoming denser with depth, mid – light orangish brown, slightly silty, fine – coarse, becoming coarser with depth, sandy gravel. Gravel was angular to subrounded fine to coarse flint and quartzite. |
| | 3.60 | 5.30 | Superficial | Dense but friable, becoming very dense with depth, light – mid, orangish brown, gravelly silty sand. Gravel was angular – subrounded, fine – coarse flint. |
| | 5.30 | 6.40 | Superficial | Dense, friable – loose, light – mid, orangish brown, sand and gravel. Gravel of angular – subrounded, fine – coarse flint and quartzite. |
| | 6.40 | 8.50 | Superficial | Firm/ stiff, dark grey sandy clay with occasional angular – subrounded, fine – coarse chalk and flint gravel. |
| | 8.50 | 11.00 | Superficial | Dense, dark grey silty gravelly sand. Gravel of angular – subangular, fine – coarse flint. |
| | 11.00+ | | Bedrock | Chalk |
| | | | | |
| BH09-24 | 0.00 | 0.40 | Topsoil | Friable, mid brown, silty sand with occasional – rare subangular to subrounded quartzite and flint gravel. |
| | 0.40 | 1.00 | Alluvium | Soft, pliable, becoming firmer, mid grey, sandy clay with occasional subangular – subrounded, fine – coarse flint and quartzite gravel. |
| | 1.00 | 4.70 | Superficial | Moderately dense, becoming denser with depth, mid – dark grey, slightly silty, mid – coarse sand and gravel with rare subangular flint cobbles. Gravel was angular – subrounded, fine – coarse flint and quartzite gravel. |
| | 4.70+ | | Bedrock | Chalk |
| | | | | |
| BH09-25 | 0.00 | 0.90 | Topsoil | Friable, dark brown, clayey fine – mid sand with angular – subrounded, fine – coarse flint and quartzite gravel. |

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| | 0.90 | 9.20 | Superficial | Dark grey very sandy gravel. Gravel was angular – subrounded, fine – coarse flint and quartzite. |
| | 9.20 | 10.00 | Pleistocene (?) Peat/organic alluvium | Very soft dark brown silty fibrous peat with occasional (up to 30mm in size) of very soft dark brown clay. |
| | 10.00 | 15.45+ | Pleistocene(?) organic alluvium? | Soft, becoming denser with depth, mid greyish brown, organic sandy clay with occasional shell fragments (up to 5mm in size). |
| | | | | |
| BH09-26 | 0.00 | 0.30 | Topsoil | Friable, mid-dark brown, sandy silt with rare angular to subrounded, fine to coarse flint and quartzite gravel. |
| | 0.30 | 1.20 | Alluvium | Firm, pliable, light – mid brownish grey sandy clay with occasional – frequent angular – subrounded gravel of fine – coarse flint. |
| | 1.20 | 5.30 | Superficial | Moderately dense, dark grey, clayey sandy gravel. Gravel of angular – rounded, fine – coarse flint, quartzite and chalk. |
| | 5.30 | 7.00 | Superficial | Stiff, dark grey slightly sandy clay with occasional gravel of angular – subrounded, fine to coarse flint, quartzite and chalk. Occasional shell fragments. |
| | 7.00+ | | Bedrock | Chalk |
| | | | | |
| BH09-27 | 0.00 | 0.30 | Topsoil | Friable, mid-dark brown, sandy silt with rare angular to subrounded, fine to coarse flint and quartzite gravel. |
| | 0.30 | 1.00 | Superficial | Friable, mid brown sand with rare - occasional angular to subrounded, fine to coarse flint gravel. |
| | 1.00 | 1.30 | Superficial | Friable, dark grey, sand |
| | 1.30 | 3.60 | Superficial | Pliable – firm, dark grey, sandy clay with occasional – frequent with rare - occasional angular to subrounded, fine to coarse flint gravel. |
| | 3.60+ | | Bedrock | Chalk |
| | | | | |

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| BH14-42 | 0.00 | 0.30 | Topsoil | Friable, dark – mid brown gravelly clayey sand with frequent subangular – subrounded, fine – coarse flint and chalk gravel and rare subangular flint cobbles. |
| | 0.30 | 1.20 | Superficial | Friable – loose, mid – dark brown, clayey gravelly sand. Gravel was angular – subangular, fine – coarse flint and chalk. |
| | 1.20 | 2.30 | Superficial | Loose, light brown, clayey gravelly sand. Gravel was angular – subangular, fine – coarse flint and chalk. |
| | 2.30 | 3.00 | Superficial | Pliable, light brown sandy gravelly clay with occasional subrounded flint and chalk cobbles. Gravel was angular – subangular, fine – coarse flint and chalk. |
| | 3.00 | 4.50 | Superficial | Friable – loose, light - mid greyish brown silty sand. |
| | 4.50 | 9.40 | Superficial | Friable – firm, light brown, becoming grey with depth gravelly sand with occasional subrounded flint and chalk cobbles. Gravel was angular – subangular, fine – coarse flint and chalk. |
| | 9.40 | 9.70 | Superficial | Pliable, light grey, sandy gravelly clay. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | 9.70 | 13.70 | Superficial | Moderately firm, light grey gravelly sand becoming sand and gravel with depth. Gravel was angular – subangular, fine – coarse flint and chalk. |
| | 13.70 | 14.00 | Superficial | Stiff - firm, light grey, sandy gravelly clay with occasional subangular flint cobbles. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | 14.00 | 15.50 | Superficial | Moderately dense, light – mid grey gravelly sand with frequent angular – subangular flint and chalk cobbles. Gravel was angular – subangular, fine – coarse flint and chalk |
| | 15.50 | 17.00 | Superficial | Moderately dense, dark grey sandy gravel with frequent subangular – angular flint and chalk cobbles. Gravel was angular – subangular, fine – coarse flint and chalk. |
| | 17.00+ | | Bedrock | Chalk |
| | | | | |

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| BH16-46 | 0.00 | 0.30 | Topsoil | Friable, dark – mid brown, clayey gravelly sand with occasional subangular flint cobbles. Gravel was subrounded – subangular, fine – coarse flint. |
| | 0.30 | 3.20 | Superficial | Friable, becoming denser with depth, light – mid orangish brown gravelly sand with occasional subangular flint cobbles. Gravel was subrounded – subangular, fine – coarse flint. |
| | 3.20 | 4.10 | Superficial | Loose, light orangish brown sand and gravel with occasional angular - subangular flint cobbles. Gravel was angular – subangular, fine – coarse flint. |
| | 4.10 | 6.30 | Superficial | Firm, dark grey sandy gravelly clay. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | 6.30 | 7.80 | Superficial | Moderately dense, light grey, gravelly clayey sand with occasional angular flint cobbles. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | 7.80 | 9.10 | Superficial | Moderately dense, mid grey sandy gravel with frequent subangular flint cobbles. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | 9.10 | 9.20 | Superficial | Firm, mid – dark grey silty sand with frequent subrounded – subangular, fine – coarse flint and chalk gravel. |
| | 9.20 | 15.20 | Superficial | Stiff, dark grey sandy gravelly clay with occasional subangular flint and chalk cobbles. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | 15.20 | 18.00+ | Superficial | Firm - friable, grey gravelly sand. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | | | | |
| BH16-47 | 0.00 | 0.20 | Topsoil | Pliable, dark brown, sandy gravelly clay. Gravel was subrounded – subangular, fine – coarse flint and chalk. |
| | 0.20 | 0.90 | Alluvium | Friable, dark brown, gravelly sand. Gravel was angular – subrounded, fine – coarse flint. |
| | 0.90 | 5.90 | Superficial | Moderately dense, mid orangish greyish brown, sandy clayey gravel with rare subangular flint cobbles. Gravel was angular – subrounded, fine – coarse flint. |

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| | 5.90 | 10.10 | Superficial | Dense, mid grey, sand and gravel becoming clayey with depth. Gravel was angular – subrounded, fine – coarse flint and chalk. |
| | 10.10 | 18.45+ | Superficial | Stiff, mid grey, sandy gravelly clay. Gravel was subangular – subrounded, fine – coarse chalk and flint. |
| | | | | |
| BH17-48 | 0.00 | 0.40 | Topsoil | Pliable – friable, dark brown, sandy silt with frequent angular – subangular flint cobbles and angular – subangular, fine - coarse flint gravel. |
| | 0.40 | 1.20 | Alluvium | Friable, dark – mid brown, silty sand with occasional - frequent subangular flint cobbles and angular – subangular, fine – coarse flint gravel. |
| | 1.20 | 4.70 | Superficial | Moderately dense, mid - dark orangish brown, sand and gravel with frequent angular – subangular flint cobbles. Gravel was angular – subangular, fine to coarse flint. |
| | 4.70 | 4.80 | Superficial | Firm – stiff, dark sandy clay. |
| | 4.80 | 9.70 | Superficial | Firm, light grey, gravelly sandy clay. Gravel was subangular – subangular, fine to coarse flint and chalk. |
| | 9.70 | 15.20 | Superficial | Pliable – firm becoming firmer with depth, light grey, sandy gravelly clay with occasional subangular – subrounded chalk and frequent flint gravel and rare angular chalk and flint cobbles. |
| | | | | |
| BH17-49 | 0.00 | 0.40 | Topsoil | Mid brown, clayey sand with frequent subangular – subrounded, fine – coarse flint gravel. |
| | 0.40 | 0.90 | Alluvium | Friable – pliable, light greyish brown clayey sand with frequent subangular – subrounded, fine – coarse flint gravel |
| | 0.90 | 1.80 | Superficial | Firm – pliable, light orangish brown, sandy clay with frequent subrounded, fine – coarse flint gravel |
| | 2.20 | 4.70 | Superficial | Moderately dense, mid grey, clayey sand with frequent subangular – subrounded, fine – coarse flint gravel |
| | 4.70 | 12.60 | Superficial | Firm – stiff, mid grey, slightly sandy clay |

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| | 12.60 | 18.00+ | Superficial | Stiff, mid grey, sandy gravelly clay. Gravel was subrounded – rounded, fine – medium glint and chalk. |
| | | | | |
| BH17-50 | 0.00 | 0.40 | Topsoil | Mid brown, clayey sand with frequent subangular – subrounded, fine – coarse flint gravel and occasional subangular flint cobbles. |
| | 0.40 | 3.10 | Superficial | Firm – pliable, mid orangish brown, sandy clay with occasional - frequent subangular – subrounded, fine – coarse flint gravel |
| | 3.10 | 4.20 | Superficial | Firm – pliable, light orangish brown, sandy clay with occasional - frequent subangular – subrounded, fine – coarse flint gravel. |
| | 4.20 | 6.20 | Superficial | Moderately dense, mid orangish brown, sandy gravel of subangular – subrounded fine – coarse flint with occasional subrounded flint cobbles |
| | 6.20 | 8.20 | Superficial | Firm – stiff, mid orangish brown sandy gravelly clay. Gravel was angular – subangular, fine – coarse chalk and flint. |
| | 8.20 | 15.00+ | Superficial | Firm, becoming firmer with depth, light – mid grey, sandy gravelly clay. Gravel was angular – subangular, fine chalk and flint. |
| | | | | |
| BH20-59 | 0.00 | 0.40 | Topsoil | Firm but friable, mid brown clayey sand. |
| | 0.40 | 1.80 | Superficial | Firm but friable, mid brown, clayey gravelly sand. Gravel was subangular – subrounded, fine – coarse flint. |
| | 1.80 | 3.60 | Superficial | Stiff, mid-dark orangish brown, sandy gravelly silt. Gravel was subangular – subrounded, fine – coarse flint. |
| | 3.60 | 5.00 | Superficial | Moderately dense, occasionally loose, mid grey, mid – coarse sandy gravel. Gravel was subangular – subrounded, fine – coarse flint. |
| | 5.00 | 6.40 | Superficial | Stiff, mid brown, sandy gravelly clay. Gravel was subangular – subrounded, fine – coarse flint. |
| | 6.40 | 15.45+ | Bedrock | Chalk |
| | | | | |
| BH20-60 | 0.00 | 0.50 | Topsoil | Firm but friable, dark - mid brown, gravelly silty sand. Gravel was subangular – subrounded, fine – coarse flint. |

| Borehole Ref | Top (m) | Base (m) | Lithology | Description |
|---|---|---|---|---|
| | 0.50 | 1.20 | Superficial | Firm but friable, light – mid brown, gravelly sand. Gravel was subangular – subrounded, fine – coarse flint. |
| | 1.20 | 1.60 | Superficial | Stiff, mid-dark orangish brown, sandy gravelly silt. Gravel was subangular – subrounded, fine – coarse flint. |
| | 1.60 | 3.30 | Superficial | Moderately dense, occasionally loose, mid orangish brown, gravelly coarse sand with frequent subrounded – angular flint cobbles. Gravel was angular – subrounded, fine – coarse flint. |
| | 3.30 | 15.45+ | Bedrock | Chalk |

## Appendix 4
## Geotechnics Cable Percussion Borehole Logs

# *DATA SHEET - Symbols and Abbreviations used on Records*

## Sample Types

| | |
|---|---|
| B | Bulk disturbed sample |
| BLK | Block sample |
| C | Core sample |
| D | Small disturbed sample (tub/jar) |
| E | Environmental test sample |
| ES | Environmental soil sample |
| EW | Environmental water sample |
| G | Gas sample |
| L | Liner sample |
| LB | Large bulk disturbed sample |
| P | Piston sample (PF - failed P sample) |
| TW | Thin walled push in sample |
| U | Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample) |
| UT | Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample) |
| V | Vial sample |
| W | Water sample |
| # | Sample Not Recovered |

## Insitu Testing / Properties

| | |
|---|---|
| CBRP | CBR using TRL probe |
| CHP | Constant Head Permeability Test |
| COND | Electrical conductivity |
| TC | Thermal Conductivity |
| TR | Thermal Resistivity |
| HV | Strength from Hand Vane |
| ICBR | CBR Test |
| IDEN | Density Test |
| IRES | Resistivity Test |
| MEX | CBR using Mexecone Probe Test |
| PID | Photo Ionisation Detection (ppm) |
| PKR | Packer Permeability Test |
| PLT | Plate Load Test |
| PP | Strength from Pocket Penetrometer |
| Temp | Temperature |
| VHP | Variable Head Permeability Test |
| VN | Strength from Insitu Vane |
| w% | Water content |

(All other strengths from undrained triaxial testing)

| | |
|---|---|
| S | Standard Penetration Test (SPT) |
| C | SPT with cone |
| N | SPT Result |
| -/- | Blows/penetration (mm) after seating drive |
| -*/- (mm) | Total blows/penetration |
| ( ) | Extrapolated value |

## Groundwater

Water Strike

Depth Water Rose To

## Instrumentation

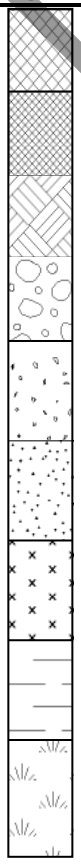
Seal

Filter

Seal

## Strata

## Legend



Made Ground Granular

Made Ground Cohesive

Topsoil

Cobbles and Boulders

Gravel

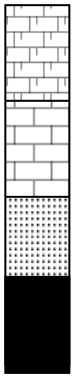
Sand

Silt

Clay

Peat

**Note: Composite soil types shown by combined symbols**



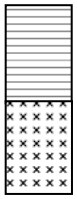
Chalk

Limestone

Sandstone

Coal

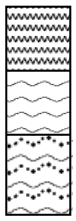
## Strata, Continued



Mudstone

Siltstone

### Metamorphic Rock

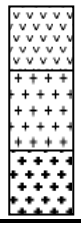


Fine Grained

Medium Grained

Coarse Grained

### Igneous Rock



Fine Grained

Medium Grained

Coarse Grained

## Backfill Materials

Arisings

Bentonite Seal

Concrete

Fine Gravel Filter

General Fill

Gravel Filter

Grout

Sand Filter

Tarmacadam

## Rotary Core

| | |
|---|---|
| RQD | Rock Quality Designation (% of intact core >100mm) |
| FRACTURE INDEX | Fractures/metre |
| FRACTURE SPACING (m) | Maximum<br>Minimum |
| NA | Non-applicable |
| NI | Non-intact core |
| NR | No core recovery |
| AZCL | Assumed zone of core loss |

(where core recovery is unknown it is assumed to be at the base of the run)

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH1-01 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 610817.342E 343679.202N | Ground Level | 9.07 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 9.07 |
| 0.10- 0.30 | B | | | | | TOPSOIL: Dark brown gravelly slightly clayey sand with occasional rootlets. Gravel is angular to | | | |
| 0.20 | D | | | | | | | | |
| 0.20 | ES | | | | | subrounded fine to coarse flint. | 0.30 | | 8.77 |
| 0.50- 1.00 | B | | | | | Yellowish brown slightly gravelly silty SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.80 | D | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S4 | Below 1.20m, becomes brown. | | | |
| 1.50- 2.20 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.20- 2.65 | D | 1.50 (DRY) | | | S20 | Below 2.20m, becomes medium dense. | | | |
| 2.50- 3.20 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.50- 3.95 | D | 3.00 (3.20) | | | S28 | | | | |
| 4.00- 4.50 | B | | | | | | | | |
| 4.20 | D | | | | | | | | |
| 4.50- 4.95 | D | 4.50 (3.20) | | | S11 | | 4.60 | | 4.47 |
| 5.00- 5.50 | B | | | | | Medium dense orangish brown mottled brownish grey silty SAND with occasional pockets (up to 50mm in size) of slightly sandy clay. | | | |
| 5.20 | D | | | | | | | | |
| 5.50- 5.95 | D | 5.50 (4.60) | | | S10 | | | | |
| 6.00- 6.50 | B | | | | | | | | |
| 6.20 | D | | | | | | | | |
| 6.50- 6.95 | D | 6.00 (4.80) | | | S15 | | | | |
| 7.00- 7.50 | B | | | | | | | | |
| 7.30 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (6.00) | | | S7 | Below 7.50m, becomes loose. | | | |
| 8.00- 8.50 | B | | | | | Below 8.20m, mottling absent. | | | |
| 8.20 | D | | | | | | | | |
| 8.50- 8.95 | D | 8.50 (7.10) | | | S8 | | | | |
| 9.00- 9.50 | B | | | | | | | | |
| 9.20 | D | | | | | | | | |
| 9.50- 9.95 | D | 9.50 (8.20) | | | S1 | | 9.50 | | -0.43 |
| 10.00-10.50 | B | | | | | Very loose grey slightly gravelly very silty SAND with rare pockets (up to 100mm in size) of grey slightly sandy clay. Gravel is angular to subrounded fine to coarse flint. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 25.45 | 0.20 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 01/09/21 | 08:00 |
| 12.50 | 12.50 | 9.20 | 01/09/21 | 18:00 |
| 12.50 | 12.50 | DRY | 02/09/21 | 08:00 |
| 20.50 | 20.00 | 12.10 | 02/09/21 | 18:00 |
| 20.50 | 20.00 | 11.60 | 06/09/21 | 08:00 |
| 25.00 | 20.00 | 11.40 | 06/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 14.20 | 14.00 | 11.00 | 20 | | Moderate inflow. |

## Remarks

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Water was added to assist boring between 1.20 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AS
Checked by DRB
Figure 1 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH1-01** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **610817.342**E **343679.202**N Ground Level **9.07** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20 | D | | | | | | | | |
| 10.30 | D | | | | | | | | |
| 10.50-10.95 | D | 10.50 (8.30) | | | S0/450 | | | | |
| 11.00-11.50 | B | | | | | | | | |
| 11.00-14.20 | W | | | | | | | | |
| 11.20 | D | | | | | | | | |
| 11.50-11.95 | D | 11.50 (9.00) | | | S10 | Below 11.50m, becomes medium dense. | | | |
| 12.00-12.50 | B | | | | | | | | |
| 12.20 | D | | | | | | | | |
| 12.50-12.95 | D | 12.50 (9.20) | | | S15 | | | | |
| 13.00-13.90 | B | | | | | | | | |
| 13.60 | D | | | | | | | | |
| 14.00-14.35 | D | 14.00 (DRY) | | | S50/ 200 | Very dense grey very sandy slightly silty GRAVEL with a low cobble content of subangular flint. Gravel is angular to subangular fine to coarse flint and chalk. | 13.90 | | -4.83 |
| 14.50-15.00 | B | | | | | | | | |
| 14.80 | D | | | | | | | | |
| 15.50-15.95 | D | 15.50 (14.60) | | | S17 | CHALK, recovered as creamish white sandy very silty GRAVEL. Clasts are very weak low density, creamish white with frequent black specks. Occasional subangular to subrounded flint gravel and cobbles. | 15.30 | | -6.23 |
| 16.00-16.50 | B | | | | | | | | |
| 16.20 | D | | | 24 | | | | | |
| 16.50 | UT20 | 16.50 (12.60) | | 25 | | | | | |
| 16.95-17.10 | D | | | | | | | | |
| 17.50-17.95 | D | 17.50 (12.60) | | | S11 | | | | |
| 18.00-19.00 | B | | | | | | | | |
| 18.50 | D | | | | | | | | |
| 19.00-19.45 | UT27 | 19.00 (12.20) | 304 | 24 | | | | | |
| 19.45-19.60 | D | | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **2 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH1-01** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **610817.342**E **343679.202**N Ground Level **9.07** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 20.50-21.50 | B | | | | | Below 20.50m, flint becomes rare. Black specks absent. | | | |
| 20.50-20.95 | D | 20.00 (12.10) | | | S16 | | | | |
| 21.00 | D | | | | | | | | |
| 21.50 | UT27 | 20.00 (11.60) | | | | | | | |
| 21.95-22.10 | D | | | 28 | | | | | |
| 22.50-22.95 | D | 20.00 (11.50) | | | S10 | | | | |
| 23.00-24.00 | B | | | | | | | | |
| 23.50 | D | | | | | | | | |
| 24.00 | UT30 | 20.00 (11.40) | 173 | 27 | | | | | |
| 24.45-24.60 | D | | | | | | | | |
| 25.00-25.45 | D | 20.00 (11.40) | | | S30 | | | | |
| | | | | | | End of Borehole | 25.45 | | -16.38 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **3 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH2-02 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 610729.071E 342973.289N | Ground Level | 23.90 m OD |

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 23.90 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Dark brown gravelly clayey sand with many rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.20 | D | | | | | | | | |
| 0.20 | ES | | | | | | 0.40 | | 23.50 |
| 0.40- 0.70 | B | | | | | Yellowish brown gravelly clayey SAND with rare rootlets. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.50 | D | | | | | | | | |
| 0.50 | ES | | | | | | 0.70 | | 23.20 |
| 0.70- 1.20 | B | | | | | Stiff yellowish brown slightly gravelly slightly sandy to sandy SILT. Gravel is angular to subrounded fine to coarse flint and chalk. At 1.20m, medium dense. | | | |
| 1.00 | D | | | | | | | | |
| 1.00 | ES | | | | | | | | |
| 1.20- 2.20 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S28 | | | | |
| 2.00 | D | | | | | | | | |
| 2.20- 2.65 | D | 1.50 (DRY) | | | S33 | | | | |
| 2.50- 3.50 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.50- 4.50 | B | | | | | | 3.50 | | 20.40 |
| 3.50- 3.95 | D | 1.50 (DRY) | | | S23 | Stiff light brown mottled cream sandy SILT. | | | |
| 4.00 | D | | | 25 | | | | | |
| 4.50- 5.50 | B | | | | | | | | |
| 4.50- 4.95 | D | 1.50 (DRY) | | | S18 | | | | |
| 5.00 | D | | | | | | | | |
| 5.50- 6.50 | B | | | | | | 5.50 | | 18.40 |
| 5.50- 5.95 | D | 1.50 (DRY) | | | S21 | Stiff light brown mottled grey slightly gravelly sandy SILT. Gravel is angular to subrounded fine to medium chalk. | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 6.95 | UT26 | 4.50 (DRY) | 72 | 27 | | | | | |
| 6.95- 7.10 | D | | | | | | | | |
| 7.50- 7.95 | D | 4.50 (DRY) | | 24 | S25 | | | | |
| | | | | | | | 7.90 | | 16.00 |
| 8.00- 9.00 | B | | | | | Stiff grey mottled orangish brown slightly sandy SILT slightly gravelly in parts. Gravel is angular to subrounded fine to coarse chalk. | | | |
| 8.50 | D | | | | | | | | |
| 9.00- 9.45 | UT31 | 9.00 (DRY) | 115 | 19 | | Below 9.00m, becoming very stiff. | | | |
| 9.45- 9.60 | D | | | 23 | | | | | |
| 10.00 | D | | | | | | | | |
| 10.00-10.45 | | | | | S34 | | | | |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 15.45 | 0.15 | Cable Percussion | MR/SS |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 06/09/21 | 08:00 |
| 1.20 | 1.20 | DRY | 06/09/21 | 18:00 |
| 1.20 | 1.20 | DRY | 07/09/21 | 08:00 |
| 15.45 | 12.50 | 13.50 | 07/09/21 | 18:00 |

Groundwater

| Depth Struck | Depth Cased | Rose to | In Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 4.50 | | | | | Soil noted as damp. |
| 12.30 | 9.50 | 10.80 | 20 | | Moderate inflow. |

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: bentonite grout up to ground level.

Logged by AS
Checked by DRB
Figure 1 of 2
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH2-02** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **610729.071**E **342973.289**N Ground Level **23.90** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | 9.00 (DRY) | | | | | | | |
| 10.70-11.40 | B | | | | | | | | |
| 10.80-12.30 | W | | | | | Very stiff grey slightly sandy SILT. Gravel is subangular to subrounded chalk. | 10.70 | | 13.20 |
| 11.00 | D | | | | | | | | |
| 11.40-11.85 | UT37 | 9.50 (DRY) | | | | | | | |
| 11.85-12.00 | D | | | 17 | | | | | |
| 12.50-12.95 | D | 9.50 (10.80) | | | S34 | | | | |
| 13.00-14.00 | B | | | | | | | | |
| 13.50 | D | | | | | | | | |
| 14.00-14.45 | UT37 | 12.50 (12.40) | | | | | | | |
| 14.45-14.60 | D | | | | | | | | |
| 15.00-15.45 | D | 12.50 (13.50) | | | S32 | | | | |
| | | | | | | End of Borehole | 15.45 | | 8.45 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH2-03** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **610681.448**E **342894.648**N Ground Level **25.91** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 25.91 |
| 0.10- 0.30 | B | | | | | **TOPSOIL: Dark brown gravelly silty sand with occasional rootlets and a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint and quartzite. Below 0.50m, rootlets absent.** | | | |
| 0.20 | D | | | | | | | | |
| 0.20 | ES | | | | | | | | |
| 0.50- 1.00 | B | | | | | | | | |
| 0.80 | D | | | | | | 0.80 | | 25.11 |
| 0.90 | ES | | | | | **Dark brown silty SAND with low cobble content of subangular flint and rare shell fragments.** | 1.10 | | 24.81 |
| 1.20- 2.00 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 | | | S10 | **Firm yellowish brown mottled light grey slightly sandy SILT slightly gravelly in parts. Gravel is angular to subrounded fine to coarse flint and chalk.** | | | |
| 1.30 | ES | (DRY) | | | | | | | |
| 1.80 | D | | | 18 | | | | | |
| | | | | | | **Below 2.20m, becoming stiff.** | | | |
| 2.20- 2.65 | D | 1.50 | | | S19 | | | | |
| | | (DRY) | | | | | | | |
| 2.50- 3.20 | B | | | | | | | | |
| 2.80 | D | | | | | | | | |
| 3.20- 3.65 | UT26 | 1.50 | 151 | 21 | | | | | |
| | | (DRY) | | | | | | | |
| 3.65- 3.80 | D | | | | | | | | |
| 4.50- 4.95 | D | 1.50 | | | S15 | | | | |
| | | (DRY) | | | | | | | |
| 5.00- 5.50 | B | | | | | | | | |
| 5.30 | D | | | 22 | | | | | |
| 5.50- 5.95 | UT27 | 3.00 | | | | | | | |
| | | (DRY) | | | | | | | |
| 5.95- 6.10 | D | | | | | | | | |
| 6.50- 6.95 | D | 3.00 | | | S34 | | | | |
| | | (DRY) | | | | | | | |
| | | | | | | | 6.90 | | 19.01 |
| 7.00- 7.50 | B | | | | | **Very stiff light brown slightly sandy slightly gravelly SILT. Gravel is subangular to subrounded fine to medium chalk and flint.** | | | |
| 7.20 | D | | | | | | | | |
| 7.50- 7.95 | UT40 | 6.00 | 245 | 19 | | **Below 7.50m, becoming very stiff.** | | | |
| | | (7.40) | | | | | | | |
| 7.95- 8.10 | D | | | | | | | | |
| 8.50- 8.89 | D | 8.50 | | | S50/ | | | | |
| | | (DRY) | | | 235 | | | | |
| 8.70-11.10 | W | | | | | | | | |
| 9.00- 9.80 | B | | | | | **Below 9.00m, becoming sandy and slightly gravelly.** | | | |
| 9.50 | D | | | 15 | | | | | |
| 9.80-10.25 | UT56 | 9.50 | | | | | | | |
| | | (DRY) | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 15.39 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 31/08/21 | 08:00 |
| 14.00 | 11.00 | 13.80 | 31/08/21 | 18:00 |
| 14.00 | 11.00 | 6.60 | 01/09/21 | 08:00 |
| 15.39 | 11.00 | 6.60 | 01/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 7.40 | | | | | |
| 11.10 | 9.00 | 8.90 | 20 | | Seepage. Moderate inflow. |

**Remarks** AGS **Inspection pit hand excavated to 1.20m depth and no services were found.**
**ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.**
**Backfill details from base of hole: bentonite grout up to ground level.**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH2-03** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **610681.448**E **342894.648**N Ground Level **25.91** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.25-10.40 | D | | | | | | | | |
| 11.00-11.41 | D | 11.00 (DRY) | | | S50/ 255 | | | | |
| 11.50-12.00 | B | | | | | | | | |
| 11.80 | D | | | 19 | | | | | |
| 12.00-12.45 | UT71 | 11.00 (DRY) | | | | | | | |
| 13.00-14.00 | B | | | | | | | | |
| 13.00-13.28 | D | 11.00 (DRY) | | | S50/ 140 | | | | |
| 13.80 | D | | | | | | | | |
| 14.00-14.27 | D | 11.00 (13.80) | | | S45/ 130 | | | | |
| 14.80 | D | | | | | | | | |
| 15.00-15.39 | D | 11.00 (6.60) | | | S50/ 235 | | | | |
| | | | | | | End of Borehole | 15.39 | | 10.52 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH3-04** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612042.147**E **342084.855**N Ground Level **40.06** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 40.06 |
| 0.10- 0.40 | B | | | | | **TOPSOIL: Dark brown slightly gravelly slightly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint.** | | | |
| 0.20 | D | | | | | | | | |
| 0.20 | ES | | | | | | 0.40 | | 39.66 |
| 0.50- 1.00 | B | | | | | **Firm yellowish brown slightly sandy slightly gravelly SILT. Gravel is angular to subrounded fine to coarse chalk and flint.** | | | |
| 0.50 | ES | | | | | | | | |
| 0.80 | D | | | 17 | | **Below 1.20m, becomes stiff.** | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S19 | | | | |
| 1.50- 2.20 | B | | | | | | | | |
| 1.80 | D | | | | | | 1.80 | | 38.26 |
| 2.20- 2.65 | D | 1.50 (DRY) | | | S17 | **Stiff light brown slightly sandy slightly gravelly SILT. Gravel is angular to subrounded fine to coarse flint and chalk.** | | | |
| 2.50- 3.20 | B | | | | | | | | |
| 3.00 | D | | | 25 | | | | | |
| 3.20- 3.65 | UT17 | 3.00 (DRY) | | 23 | | | | | |
| 3.65- 3.80 | D | | | | | | | | |
| 4.50- 4.95 | D | 3.00 (DRY) | | | S9 | | | | |
| 5.00- 5.50 | B | | | | | **Below 5.00m, with occasional pockets (up to 10mm in size) of sand.** | | | |
| 5.20 | D | | | | | | | | |
| 5.50- 0.95 | UT27 | 4.50 (DRY) | 45 | 22 | | | | | |
| 5.95- 6.10 | D | | | 21 | | | | | |
| 6.50- 6.95 | D | 6.00 (DRY) | | | S16 | | | | |
| 7.20- 7.50 | B | | | | | | 7.20 | | 32.86 |
| 7.40 | D | | | | | **Firm grey mottled light yellowish brown slightly sandy SILT.** | | | |
| 7.50- 7.95 | UT31 | 7.50 (DRY) | 62 | 21 | | | | | |
| 7.95- 8.10 | D | | | 22 | | | | | |
| 8.10- 9.50 | W | | | | | | | | |
| 8.70- 9.15 | D | 8.50 (DRY) | | | S11 | | | | |
| 9.00-10.00 | B | | | | | | 9.00 | | 31.06 |
| 9.50 | D | | | | | **Firm grey mottled light yellowish brown slightly sandy slightly gravelly SILT.** | | | |
| 9.50- 8.10 | W | | | | | | | | |
| 10.00-10.45 | UT22 | 10.00 (8.80) | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 18.45 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 26/08/21 | 08:00 |
| 9.50 | 9.00 | DRY | 26/08/21 | 18:00 |
| 9.50 | 9.00 | 8.10 | 27/08/21 | 08:00 |
| 18.45 | 17.00 | 15.60 | 27/08/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

## Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Water was added to assist boring between 1.20 and 9.50m.
A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 1.00m to 18.00m with flush lockable protective cover. Backfill details from base of hole: bentonite up to 18.00m, gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Logged by AS
Checked by DRB
Figure 1 of 2
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH3-04 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612042.147E 342084.855N | Ground Level | 40.06 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.45-10.60 | D | | | 22 | | | | | |
| 11.00-11.45 | D | 11.00 (10.10) | | | S19 | Below 11.00m, becomes stiff. | | | |
| 11.50-12.00 | B | | | | | | | | |
| 11.80 | D | | | | | | | | |
| 12.20-12.65 | UT34 | 12.00 (11.60) | 45 | 22 | | | | | |
| 12.65-12.80 | D | | | | | | | | |
| 13.50-13.95 | D | 13.00 (12.20) | | | S27 | | | | |
| 14.00-14.50 | B | | | | | | | | |
| 14.20 | D | | | | | | | | |
| 14.50-14.95 | UT36 | 14.00 (13.30) | | | | | | | |
| 14.95-15.10 | D | | | | | | | | |
| 16.00-16.45 | D | 15.50 (14.70) | | | S23 | | | | |
| 16.30-17.00 | B | | | | | | | | |
| 16.80 | D | | | 25 | | | | | |
| 17.00-17.45 | UT32 | 17.00 (15.60) | | | | | | | |
| 17.45-17.60 | D | | | | | | | | |
| 18.00-18.45 | D | 17.00 (15.60) | | | S48 | Below 18.00m, becomes very stiff. | | | |
| | | | | | | End of Borehole | 18.45 | | 21.61 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AS
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH3-05 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612038.61 E<br>342033.657 N | Ground Level | 40.76 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 40.76 |
| 0.10- 0.50 | B | | | | | TOPSOIL: Dark brown gravelly slightly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.10 | D | | | | | | 0.50 | | 40.26 |
| 0.60- 1.20 | B | | | | | Firm light brown slightly sandy slightly gravelly SILT. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.60 | D | | | 14 | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S32 | | | | |
| 1.50- 2.00 | B | | | | | | 1.50 | | 39.26 |
| 1.50 | D | | | | | Stiff light brown slightly sandy SILT. | | | |
| 2.00- 2.45 | UT43 | 1.70 (DRY) | | | | | | | |
| 2.60 | D | | | | | | | | |
| 3.00- 3.50 | B | | | | | | | | |
| 3.00 | D | | | 21 | | | | | |
| 3.00- 3.45 | D | 1.70 (DRY) | | | S35 | | | | |
| 4.00- 4.45 | UT57 | 3.00 (DRY) | | | | | | | |
| | | | | | | Below 4.60m, with frequent black specks. | | | |
| 4.60- 5.00 | B | | | | | | | | |
| 4.60 | D | | | | | | | | |
| 5.00- 5.45 | D | 4.50 (DRY) | | | S20 | | | | |
| 5.50- 6.00 | B | | | | | | | | |
| 6.00 | D | | | | | | | | |
| 6.00- 6.45 | UT41 | 6.00 (DRY) | 74 | 22 | | | | | |
| 6.60 | D | | | | | | | | |
| 7.00- 7.45 | D | 6.00 (DRY) | | 21 | S25 | | | | |
| 7.50- 8.00 | B | | | | | | 7.50 | | 33.26 |
| | | | | | | Stiff light grey slightly sandy SILT | | | |
| 8.00 | D | | | | | | | | |
| 8.00- 8.45 | UT31 | 7.50 (DRY) | | | | | | | |
| 8.60 | D | | | | | | | | |
| 9.00- 9.50 | B | | | | | Below 9.00m, becoming light grey locally dark grey. | | | |
| 9.00- 9.45 | D | 9.00 (DRY) | | | S16 | | | | |
| 9.50 | D | | | 20 | | | | | |
| 10.00-10.45 | UT46 | 10.00 (DRY) | 102 | 20 | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | 0.40 | Inspection Pit | KR/SR |
| 18.00 | 0.15 | Cable Percussion | KR/SR |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 02/09/21 | 08:00 |
| 2.65 | 1.70 | DRY | 02/09/21 | 18:00 |
| 2.65 | 1.70 | DRY | 03/09/21 | 08:00 |
| 11.50 | 11.00 | DRY | 03/09/21 | 18:00 |
| 11.50 | 11.00 | DRY | 06/09/21 | 08:00 |
| 18.00 | 11.50 | DRY | 06/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found. A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 1.00m to 18.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH3-05** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612038.61** E **342033.657** N Ground Level **40.76** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.60-11.00 | B | | | | | | | | |
| 10.60 | D | | | | | | | | |
| 11.00-11.45 | D | 11.00 (DRY) | | | S28 | | | | |
| 11.50-12.00 | B | | | | | | | | |
| 11.50 | D | | | 20 | | | | | |
| 12.00-12.45 | UT52 | 11.50 (DRY) | | | | | | | |
| 12.60 | D | | | | | | | | |
| 13.00-13.50 | B | | | | | Below 13.00m, becomes stiff to very stiff. | | | |
| 13.00-13.45 | D | 11.50 (DRY) | | | S31 | | | | |
| 13.50 | D | | | 20 | | | | | |
| 14.00-14.45 | UT49 | 11.50 (DRY) | 110 | 21 | | | | | |
| 14.50-15.00 | B | | | | | | | | |
| 14.60-15.00 | B | | | | | | | | |
| 14.60 | D | | | | | | | | |
| 15.00-15.45 | D | 11.50 (DRY) | | | S29 | | | | |
| 15.50-16.00 | B | | | | | | | | |
| 16.00 | D | | | | | | | | |
| 16.00-16.45 | UT53 | 11.50 (DRY) | | | | | | | |
| 16.60 | D | | | 19 | | | | | |
| 17.00-17.50 | B | | | | | | | | |
| 17.00-17.45 | D | 11.50 (DRT) | | | S32 | | | | |
| 17.50 | D | | | | | | | | |
| 17.50-17.95 | UT52 | 11.50 (DRY) | | | | | | | |
| 18.00 | D | | | | | | | | |
| | | | | | | End of Borehole | 18.00 | | 22.76 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH4-06 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611841.54 E<br>341774.041 N | Ground Level | 54.28 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 54.28 |
| 0.30- 1.00 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly clayey SAND with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.30 | D | | | | | | | | |
| | | | | | | | 1.10 | | 53.18 |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S8 | Loose orangish brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 1.50 | D | | | | | | | | |
| 2.00- 2.50 | B | | | | | Below 2.00m, sand and gravel with a low cobble content of subrounded flint. | | | |
| 2.00- 2.45 | D | 1.70 (DRY) | | | S6 | | | | |
| 3.00- 3.45 | D | 1.70 (DRY) | | | S11 | At 3.00m, medium dense. | | | |
| 3.00 | D | | | | | | | | |
| | | | | | | | 3.50 | | 50.78 |
| 3.50- 4.00 | B | | | | | Orangish brown sandy GRAVEL with a low cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 4.00 | D | | | | | At 4.00m, medium dense. | | | |
| 4.00- 4.45 | | 4.00 (DRY) | | | C25 | | | | |
| | | | | | | | 5.00 | | 49.28 |
| 5.00- 5.50 | B | | | | | Medium dense light brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 5.00- 5.45 | D | 4.50 (DRY) | | | S19 | | | | |
| 5.00 | D | | | | | | | | |
| 6.00- 6.45 | D | 6.00 (DRY) | | | S18 | Below 6.00m, becomes gravelly. | | | |
| 6.50- 7.00 | B | | | | | | | | |
| 6.50 | D | | | | | | | | |
| 7.00- 7.45 | D | 7.00 (DRY) | | | S25 | | | | |
| | | | | | | | 8.00 | | 46.28 |
| 8.00- 8.50 | B | | | | | Medium dense light brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 8.00 | D | | | | | | | | |
| 8.00- 8.45 | D | 7.50 (DRY) | | | S28 | | | | |
| 9.00- 9.45 | | 9.00 (DRY) | | | C36 | Below 9.00m, becomes dense. | | | |
| 9.50-10.00 | B | | | | | | | | |
| 9.50 | D | | | | | | | | |
| 10.00-10.45 | | 10.00 (DRY) | | | C38 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | KR/SS |
| 15.00 | 0.15 | Cable Percussion | KR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 07/09/21 | 08:00 |
| 11.50 | 12.00 | DRY | 07/09/21 | 18:00 |
| 11.50 | 12.00 | | 08/09/21 | 08:00 |
| 15.00 | 12.00 | DRY | 08/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found. A 50mm standpipe was installed to 15.00m with a slotted section from 2.00m to 15.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 2.00m, bentonite up to 0.20m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by EC/AD
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-06** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611841.54** E **341774.041** N Ground Level **54.28** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.50 | B | | | | | Below 11.00m, very sandy gravel. | | | |
| 11.00 | D | | | | | | | | |
| 11.00-11.45 | | 10.50 (DRY) | | | C37 | | | | |
| | | | | | | | 11.70 | | 42.58 |
| 12.00-12.50 | B | | | | | CHALK recovered as light brown slightly sandy silty GRAVEL. Clasts are very weak to weak, low to medium density, white with occasional black specks and occasional subangular fine to coarse flint gravel. Matrix is light brown. | | | |
| 12.00-12.45 | D | 12.00 (DRY) | | | S17 | | | | |
| 12.50 | D | | | 21 | | Below 12.50m, with rare orangish brown surface staining. | | | |
| 13.00-13.45 | UT41 | 12.00 (DRY) | | | | | | | |
| 13.50-14.00 | B | | | | | | | | |
| 13.60 | D | | | | | | | | |
| 14.00 | D | | | 20 | | | | | |
| 14.00-14.45 | D | 12.00 (DRY) | | | S21 | | | | |
| 14.50-14.95 | UT43 | 12.00 (DRY) | | | | | | | |
| 15.00 | D | | | | | End of Borehole | 15.00 | | 39.28 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **EC/AD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-07** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611860.011**E **341589.821**N Ground Level **82.90** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 82.90 |
| 0.10- 0.40 | B | | | | | **TOPSOIL: dark brown slightly gravelly SAND with occasional rootlets. Gravel is angular to subrounded fine to medium flint and quartzite.** | | | |
| 0.10 | D | | | | | | | | |
| 0.50- 1.00 | B | | | | | | 0.50 | | 82.40 |
| 0.50 | D | | | | | **Orangish brown very gravelly slightly silty SAND. Gravel is angular to subrounded fine to medium flint and quartzite.** | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S19 | **At 1.20m, medium dense.** | | | |
| 2.00- 2.50 | B | | | | | **Below 2.00m, becomes dense.** | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | D | 1.70 (DRY) | | | S36 | | | | |
| 3.00- 3.45 | D | | | | | | | | |
| 3.00- 3.39 | | 3.00 (1.00) | | | S50/ 235 | | | | |
| | | | | | | | 3.40 | | 79.50 |
| 3.50- 4.00 | B | | | | | **Dense orangish brown very sandy slightly silty GRAVEL with a medium cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint and quartzite.** | | | |
| 3.50 | D | | | | | | | | |
| 4.00- 4.45 | | 4.00 (1.00) | | | C41 | | | | |
| 5.00- 5.50 | B | | | | | | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.50 (1.00) | | | C40 | | | | |
| | | | | | | | 5.90 | | 77.00 |
| 6.00- 6.45 | D | 6.00 (5.00) | | | S33 | **Dense orangish brown gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint.** | | | |
| 6.50- 7.00 | B | | | | | | | | |
| 6.50 | D | | | | | | | | |
| 7.00- 7.45 | D | 7.00 (6.00) | | | S35 | | | | |
| 8.00- 8.50 | B | | | | | **At 8.00m, medium dense.** | | | |
| 8.00 | D | | | | | | | | |
| 8.00- 8.45 | D | 7.50 (7.50) | | | S29 | | | | |
| 9.00- 9.45 | D | 9.00 (8.00) | | | S23 | **At 9.00m, medium dense.** | | | |
| 9.50-10.00 | B | | | | | | | | |
| 9.50 | D | | | | | | | | |
| 10.00-10.45 | D | 10.00 (9.00) | | | S46 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | 0.40 | Inspection Pit | KR/SR |
| 15.00 | 0.20 | Cable Percussion | KR/SR |
| 30.45 | 0.15 | Cable Percussion | KR/SR |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 23/08/21 | 08:00 |
| 1.20 | 1.20 | DRY | 23/08/21 | 18:00 |
| 1.20 | 1.20 | DRY | 24/08/21 | 08:00 |
| 15.00 | 15.00 | | 24/08/21 | 18:00 |
| 15.00 | 15.00 | | 25/08/21 | 08:00 |
| 27.00 | 27.00 | | 25/08/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

Remarks **Inspection pit hand excavated to 1.20m depth and no services were found. Backfill details from base of hole: bentonite grout up to ground level.**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **1 of 4**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-07** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611860.011**E **341589.821**N Ground Level **82.90** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.50 | B | | | | | | | | |
| 11.00 | D | | | | | | | | |
| 11.00-11.45 | D | 10.50 (10.00) | | | S35 | | | | |
| 12.00-12.45 | D | 12.00 (11.00) | | | S33 | | | | |
| 12.50-13.00 | B | | | | | | 12.50 | | 70.40 |
| 12.50 | D | | | | | Dense brown gravelly SAND. Gravel is angular to subrounded fine to coarse flint. Below 12.50m, becoming brown in colour | | | |
| 13.00-13.45 | D | 12.50 (12.00) | | | S36 | | | | |
| 14.00-14.50 | B | | | | | | | | |
| 14.00 | D | | | | | | | | |
| 14.00-14.45 | D | 14.00 (13.00) | | | S33 | | | | |
| 15.00-15.45 | D | 15.00 (14.00) | | | S39 | | 15.00 | | 67.90 |
| 15.50-16.00 | B | | | | | Dense orangish brown slightly gravelly silty SAND. Gravel is angular to subrounded fine to coarse flint. Below 15.00m, becoming orangish brown in colour with rare angular to subrounded fine to medium flint gravel. | | | |
| 15.50 | D | | | | | | | | |
| 16.00-16.45 | D | 16.00 (15.00) | | | S39 | | | | |
| 17.00-17.50 | B | | | | | Below 17.00m, with rare shell fragments (up to 5mm in size). | | | |
| 17.00 | D | | | | | | | | |
| 17.00-17.45 | D | 17.00 (15.00) | | | S35 | | | | |
| 18.00-18.45 | D | 18.00 (17.00) | | | S19 | Below 18.00m, becomes medium dense. Shell fragments absent. | | | |
| 18.50-19.00 | B | | | | | | | | |
| 18.50 | D | | | | | | | | |
| 19.00-19.45 | D | 19.00 (18.00) | | | S22 | | | | |
| 20.00-20.50 | B | | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| 27.00 | 27.00 | | 26/08/21 | 08:00 |
| 30.45 | 27.00 | | 26/08/21 | 18:00 |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

**Remarks**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 4**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH4-07 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611860.011E 341589.821N | Ground Level | 82.90 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 20.00 | D | | | | | | | | |
| 20.00-20.45 | D | 20.00 (18.00) | | | S20 | | | | |
| 21.00-21.45 | D | 20.50 (19.00) | | | S24 | | | | |
| 21.50-22.00 | B | | | | | | | | |
| 21.50 | D | | | | | | | | |
| 22.00-22.45 | D | 22.00 (21.00) | | | S27 | | | | |
| 23.00-23.50 | B | | | | | | | | |
| 23.00 | D | | | | | | | | |
| 23.00-23.45 | D | 23.00 (22.00) | | | S29 | | | | |
| 23.50-24.00 | B | | | | | | 23.50 | | 59.40 |
| 23.50 | D | | | | | Dense orangish brown very sandy GRAVEL with a low to medium cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 24.00-24.45 | | 24.00 (23.00) | | | C33 | | | | |
| 25.00-25.50 | B | | | | | | | | |
| 25.00 | D | | | | | | | | |
| 25.00-25.45 | | 25.00 (23.00) | | | C37 | | | | |
| 26.00-26.45 | | 26.00 (24.00) | | | C40 | | | | |
| 26.50-27.00 | B | | | | | | | | |
| 26.50 | D | | | | | | | | |
| 27.00-27.45 | | 27.00 (25.00) | | | C43 | | | | |
| 28.00-28.50 | B | | | | | Below 28.00m, becomes a reddish brown sand and gravel. Cobbles absent. | | | |
| 28.00 | D | | | | | | | | |
| 28.00-28.45 | | 28.00 (27.00) | | | C33 | | | | |
| 29.00-29.45 | | 29.00 (27.00) | | | C45 | | | | |
| 29.50-30.00 | B | | | | | | | | |
| 29.50 | D | | | | | | | | |
| 30.00-30.45 | | 30.00 (28.00) | | | C47 | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 3 of 4
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-07** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611860.011**E **341589.821**N Ground Level **82.90** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | | 30.45 | | 52.45 |
| | | | | | | **End of Borehole** | | | |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **4 of 4**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-08** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611783.415**E **341360.003**N Ground Level **78.92** m OD

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 78.92 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Dark brown slightly gravelly sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint. | 0.40 | | 78.52 |
| 0.10 | D | | | | | | | | |
| 0.50- 1.00 | B | | | | | Medium dense orangish brown SAND & GRAVEL. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.50 | D | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S22 | | | | |
| 2.00- 2.50 | B | | | | | Below 2.00m, with a low to medium cobble content of subrounded flint. | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | | 1.70 (DRY) | | | C24 | | | | |
| 3.00- 3.45 | | 3.00 (0.50) | | | C43 | Below 3.00m, becomes dense. | | | |
| 4.00- 4.50 | B | | | | | At 4.00m, very dense. | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.35 | | 4.00 (0.50) | | | C50/ 200 | | | | |
| 5.00- 5.40 | | 4.50 (0.50) | | | C50/ 245 | At 5.00m, very dense. | | | |
| 6.00- 6.50 | B | | | | | At 6.00m, very dense. | | | |
| 6.00 | D | | | | | | | | |
| 6.00- 6.42 | | 6.00 (0.50) | | | C50/ 270 | | | | |
| 7.00- 7.45 | | 7.00 (0.50) | | | C42 | | | | |
| 7.50- 8.00 | B | | | | | | | | |
| 7.50 | D | | | | | | | | |
| 8.00- 8.45 | | 7.50 (0.50) | | | C45 | Below 8.00m, becomes gravelly. Cobbles absent. | | | |
| 9.00- 9.50 | B | | | | | | | | |
| 9.00 | D | | | | | | | | |
| 9.00- 9.45 | | 9.00 (4.50) | | | C38 | | | | |
| 10.00-10.45 | | 10.00 (4.50) | | | C44 | | | | |

Boring | Progress | Groundwater

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|---|---|---|---|
| 1.20 | | Inspection Pit | SR/KR | G.L. | | | 18/08/21 | 08:00 |
| 15.45 | 0.15 | Cable Percussion | SR/KR | 3.50 | 3.50 | | 18/08/21 | 18:00 |
| | | | | 3.50 | 3.50 | | 19/08/21 | 08:00 |
| | | | | 13.00 | 13.00 | | 19/08/21 | 18:00 |
| | | | | 13.00 | 13.00 | | 20/08/21 | 08:00 |
| | | | | 15.45 | 14.50 | | 20/08/21 | 18:00 |

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
** Drillers description.
Water was added to assist boring between 1.20 and 15.00 m.
A 50mm standpipe was installed to 15.00m with a geowrapped slotted section from 1.00m to 15.00m with upright lockable protective cover. Backfill details from base of hole: bentonite up to 15.00m, gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Logged by ECAD
Checked by DRB
Figure 1 of 2
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-08** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611783.415**E **341360.003**N Ground Level **78.92** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | | 10.40 | | 68.52 |
| 10.50-11.00 | B | | | | | Medium dense orangish brown gravelly SAND with a low cobble content. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 10.50 | D | | | | | | | | |
| 11.00-11.45 | D | 10.50 (4.50) | | | S31 | | | | |
| 12.00 | D | | | | | Below 12.00m, becomes slightly gravelly. | | | |
| 12.00-12.45 | D | 12.00 (4.50) | | | S30 | | | | |
| 12.50-13.00 | B | | | | | | | | |
| 13.00-13.45 | D | 13.00 (4.50) | | | S29 | | | | |
| 14.00-14.50 | B | | | | | | | | |
| 14.00-14.45 | D | 14.40 (4.50) | | | S26 | | | | |
| 14.00 | D | | | | | | | | |
| 15.00-15.45 | D | 14.50 (4.50) | | | S25 | | | | |
| 15.00 | D | | | | | | | | |
| | | | | | | End of Borehole | 15.45 | | 63.47 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-09** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612210.814**E **341646.633**N Ground Level **82.49** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 82.49 |
| 0.10- 0.30 | B | | | | | Orangish brown gravelly SAND with a high cobble content of subangular flint and occasional rootlets. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | | |
| 0.20 | D | | | | | | | | |
| 0.30- 0.50 | B | | | | | | 0.30 | | 82.19 |
| 0.40 | D | | | | | | 0.50 | | 81.99 |
| 0.50- 1.00 | B | | | | | Brown slightly Gravelly SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.80 | D | | | | | | | | |
| 1.20- 2.00 | B | | | | | Medium dense dark yellowish brown slightly gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse quartzite and flint. Below 1.20m, becomes medium dense. | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S22 | | | | |
| 1.80 | D | | | | | | | | |
| | | | | | | Below 2.00m, becomes yellowish brown and slightly gravelly. | | | |
| 2.20- 2.65 | D | 1.80 (DRY) | | | S11 | | | | |
| 2.50- 3.00 | B | | | | | | | | |
| 2.80 | D | | | | | | | | |
| 3.20- 3.65 | D | 3.00 (2.90) | | | S14 | | | | |
| 3.50- 4.00 | B | | | | | | | | |
| 3.80 | D | | | | | | | | |
| 4.20- 4.65 | D | 4.00 (3.60) | | | S10 | | | | |
| 4.50- 5.00 | B | | | | | | | | |
| 4.80 | D | | | | | | | | |
| 5.20- 5.65 | D | 5.00 (4.90) | | | S13 | | | | |
| 5.50- 6.00 | B | | | | | | 5.50 | | 76.99 |
| | | | | | | Medium dense dark yellowish brown very gravelly slightly silty SAND. Gravel is angular to subrounded flint to coarse flint and quartzite. | | | |
| 6.30 | D | | | | | | | | |
| 6.50- 7.00 | B | | | | | | | | |
| 6.50- 6.95 | | 6.30 (6.10) | | | C18 | | | | |
| 7.30 | D | | | | | | | | |
| 7.70- 8.15 | | 7.50 (7.30) | | | C26 | | | | |
| 8.50- 9.00 | B | | | | | | 8.50 | | 73.99 |
| 8.70 | D | | | | | Medium dense yellowish brown gravelly SAND. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 9.00- 9.45 | D | 9.00 (8.80) | | | S22 | | | | |
| 9.50-10.00 | B | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | 0.40 | Inspection Pit | MR/SS |
| 20.00 | 0.20 | Cable Percussion | MR/SS |
| 35.10 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 20/08/21 | 08:00 |
| 1.20 | NIL | DRY | 20/08/21 | 18:00 |
| 1.20 | NIL | DRY | 23/08/21 | 08:00 |
| 14.00 | 14.00 | 13.10 | 23/08/21 | 18:00 |
| 14.00 | 14.00 | DRY | 24/08/21 | 08:00 |
| 26.50 | 24.00 | DRY | 24/08/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20-1.40 and 14.00-22.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **1 of 4**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-09** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612210.814**E **341646.633**N Ground Level **82.49** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20 | D | | | | | | | | |
| 10.50-10.95 | D | 10.00 (10.20) | | | S22 | | | | |
| 11.00-11.50 | B | | | | | | | | |
| 11.20 | D | | | | | | | | |
| 11.50-11.95 | D | 11.50 (10.90) | | | S25 | | | | |
| 12.10-12.70 | B | | | | | | 12.10 | | 70.39 |
| 12.50 | D | | | | | Medium dense orangish brown gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 12.80-13.25 | D | 12.80 (12.20) | | | S18 | | | | |
| 13.00-13.50 | B | | | | | | | | |
| 13.80 | D | | | | | | | | |
| 14.00-14.45 | D | 14.00 (13.10) | | | S28 | Below 14.00m, becomes slightly gravelly. | | | |
| 14.50-15.00 | B | | | | | | | | |
| 14.80 | D | | | | | | | | |
| 15.50-15.95 | D | 15.00 (14.90) | | | S17 | | | | |
| 16.00-16.50 | B | | | | | | | | |
| 16.30 | D | | | | | | | | |
| 16.80-17.25 | D | 16.50 (16.40) | | | S30 | | | | |
| 17.50-18.00 | B | | | | | | 17.30 | | 65.19 |
| 17.70 | D | | | | | Yellowish brown slightly gravelly slightly clayey SAND with occasional pockets (up to 50mm in size) of sandy clay. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 18.80-19.25 | D | 18.20 (18.60) | | | S25 | | | | |
| 19.00-19.50 | B | | | | | | | | |
| 19.80 | D | | | | | | | | |
| 20.00-20.45 | | 19.50 (19.70) | | | C15 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| 26.50 | 24.00 | DRY | 25/08/21 | 08:00 |
| 35.10 | 24.00 | DRY | 25/08/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 4**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-09** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612210.814**E **341646.633**N Ground Level **82.49** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 21.30-21.52 | D | 21.00 (20.60) | | | S50/95 | At 21.30m, very dense. | | | |
| 21.80-22.30 | B | | | | | | 21.80 | | 60.69 |
| 22.00 | D | | | 23 | | Very stiff yellowish brown slightly gravelly slightly sandy calcareous SILT. Gravel is subangular fine to coarse flint. | | | |
| 22.80-23.14 | D | 22.50 (DRY) | | | S50/ 190 | | | | |
| 23.00-24.00 | B | | | | | | | | |
| 23.50 | D | | | | | | | | |
| 24.00-24.22 | D | 24.00 (DRY) | | | S50/ 125 | | | | |
| 24.50-25.00 | B | | | | | | | | |
| 24.80 | D | | | | | | | | |
| 25.00 | UT66 | 24.00 (DRY) | | | | | | | |
| 25.45-25.60 | D | | | | | | | | |
| 26.20-26.65 | D | 24.00 (DRY) | | | S44 | | | | |
| 27.00-27.50 | B | | | | | | | | |
| 27.20 | D | | | | | | | | |
| 27.50-27.95 | D | 24.00 (DRY) | | | S38 | | | | |
| 28.00-28.50 | B | | | | | | 27.90 | | 54.59 |
| 28.30 | D | | | 20 | | CHALK recovered as white and yellowish brown slightly sandy slightly gravelly SILT. Gravel is very weak, low density and white with occasional black specks. | | | |
| 28.90 | UT74 | 24.00 (DRY) | 144 | 21 | | | | | |
| 29.35-29.50 | D | | | | | | | | |
| 30.00-30.24 | D | 24.00 (DRY) | | | S50/ 110 | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **3 of 4**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-09** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612210.814**E **341646.633**N Ground Level **82.49** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 30.50-31.00 | B | | | | | | | | |
| 31.20 | D | | | | | | | | |
| 31.40 | UT65 | 24.00 (DRY) | | | | | | | |
| 31.85-32.00 | D | | | | | | | | |
| 33.00-33.30 | D | 24.00 (DRY) | | | S50/ 145 | | | | |
| 33.50-34.00 | B | | | | | | | | |
| 34.20 | D | | | 21 | | | | | |
| 34.50 | UT72 | 24.00 (DRY) | | | | | | | |
| 34.95-35.10 | D | | | | | | | | |
| | | | | | | End of Borehole | 35.10 | | 47.39 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **4 of 4**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-10** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612744.802**E **342056.609**N Ground Level **36.10** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 36.10 |
| 0.10- 0.30 | B | | | | | POSSIBLE MADE GROUND: Dark brown gravelly silty SAND with medium cobble content of subangular to subrounded flint. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.20 | D | | | | | | | | |
| 0.30 | ES | | | | | | 0.30 | | 35.80 |
| 0.50- 1.00 | B | | | | | Orangish brown gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 0.60 | D | | | | | | | | |
| 0.70 | ES | | | | | | | | |
| 1.20- 1.65 | D | 1.20 | | | S6 | | | | |
| 1.30- 2.20 | B | (DRY) | | | | Soft orangish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint. | 1.30 | | 34.80 |
| 1.80 | D | | | | | | | | |
| 2.20- 2.65 | D | 1.50 | | | S11 | | 2.20 | | 33.90 |
| | | (DRY) | | | | Firm brown slightly gravelly sandy CLAY with occasional pockets (up to 50mm in size) of sand. Gravel is subangular to subrounded fine to coarse chalk. | | | |
| 2.50- 3.20 | B | | | | | | | | |
| 3.00 | D | | | 14 | | | | | |
| 3.20 | UT26 | 1.50 | | | | | | | |
| | | (DRY) | | | | | | | |
| 3.65- 3.80 | D | | | | | | | | |
| | | | | | | Below 4.20m, becomes stiff. | | | |
| 4.20- 4.65 | D | 1.50 | | | S16 | | | | |
| | | (DRY) | | | | | | | |
| 5.10- 6.00 | B | | | | | | 5.10 | | 31.00 |
| 5.20 | D | | | | | Firm to stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk. | | | |
| 5.50 | UT31 | 3.00 | | | | | | | |
| | | (DRY) | | | | | | | |
| 5.95- 6.10 | D | | | 12 | | Below 6.10m, becomes brown. | | | |
| 6.50- 6.95 | D | 3.00 | | | S19 | | | | |
| | | (DRY) | | | | | | | |
| | | | | | | | 6.70 | | 29.40 |
| 7.00- 7.50 | B | | | | | Yellowish brown gravelly clayey SAND with occasional pockets (up to 50mm in size) of sandy clay. Gravel is subangular to subrounded fine to coarse chalk. | | | |
| 7.20 | D | | | | | | | | |
| 7.70- 8.11 | D | 7.50 | | | S52/ 255 | | | | |
| | | (DRY) | | | | | 7.80 | | 28.30 |
| | | | | | | Dense yellowish brown gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse. | | | |
| 8.50- 9.00 | B | | | | | | | | |
| 8.70 | D | | | | | | | | |
| 9.00- 9.50 | B | | | | | | | | |
| 9.00- 9.45 | | 9.00 | | | C39 | | | | |
| | | (DRY) | | | | | | | |
| 9.80 | D | | | | | | | | |
| 10.00-10.50 | B | | | | | | | | |
| 10.00-10.45 | | | | | C45 | | | | |



## Boring Progress

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS | G.L. | | | 18/08/21 | 08:00 |
| 20.45 | 0.15 | Cable Percussion | MR/SS | 10.00 | 10.00 | DRY | 18/08/21 | 18:00 |
| | | | | 10.00 | 10.00 | DRY | 19/08/21 | 08:00 |
| | | | | 20.45 | 20.00 | 17.10 | 19/08/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 17.20 | 17.20 | 15.90 | 20 | | Moderate inflow. |

## Remarks

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Water was added to assist boring between 6.70 and 20.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **1 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH4-10 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612744.802E 342056.609N | Ground Level | 36.10 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | 10.00 (DRY) | | | | | | | |
| 10.70 | D | | | | | | | | |
| 11.00-11.39 | | 11.00 (DRY) | | | C50/ 235 | Below 11.10m, becomes slightly gravelly. | | | |
| 11.10-11.60 | B | | | | | | | | |
| 11.80 | D | | | | | | | | |
| 12.00-12.50 | B | | | | | | | | |
| 12.00-12.45 | D | 12.00 (DRY) | | | S41 | | | | |
| 12.80 | D | | | | | | | | |
| 13.00-13.50 | B | | | | | Below 13.00m, becomes medium dense. | | | |
| 13.00-13.45 | D | 13.00 (DRY) | | | S29 | | | | |
| 13.80 | D | | | | | | | | |
| 14.00-14.45 | D | 14.00 (DRY) | | | S16 | | | | |
| 14.20-14.60 | B | | | | | Below 14.20m, becomes very gravelly. | | | |
| 14.80 | D | | | | | | | | |
| 15.00-15.50 | B | | | | | | | | |
| 15.00-15.45 | | 15.00 (DRY) | | | C12 | | | | |
| 15.80 | D | | | | | | | | |
| 15.90-17.20 | W | | | | | | | | |
| 15.90-17.20 | W | | | | | | | | |
| 16.00-16.50 | B | | | | | | | | |
| 16.00-16.45 | | 16.00 (DRY) | | | C10 | | | | |
| 16.80 | D | | | | | | | | |
| 17.00-17.50 | B | | | | | | | | |
| 17.00-17.45 | | 17.00 (DRY) | | | C14 | | | | |
| 17.80 | D | | | | | | | | |
| 18.00-18.50 | B | | | | | Below 18.00m, becomes very gravelly with a low cobble content. | | | |
| 18.00-18.45 | | 18.00 (16.80) | | | C20 | | | | |
| 18.70 | D | | | | | | | | |
| 19.00-19.50 | B | | | | | | | | |
| 19.00-19.45 | | 19.00 (16.20) | | | C18 | | | | |
| 19.80 | D | | | | | | | | |
| 20.00-20.45 | | 20.00 (17.10) | | | C17 | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 2 of 3
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH4-10 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612744.802E 342056.609N | Ground Level | 36.10 m OD |

| Sampling | | | Properties | | | Strata | | | Scale 1:50 |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | | 20.45 | | 15.65 |
| | | | | | | End of Borehole | | | |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 3 of 3
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH4-11 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612515.787E 341557.413N | Ground Level | 51.57 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 51.57 |
| | | | | | | TOPSOIL: Dark brown gravelly slightly clayey sand with a low cobble content of subrounded flint and occasional rootlets. Gravel is angular to subrounded fine to coarse flint. | 0.40 | | 51.17 |
| 0.40- 0.80 | B | | | | | | | | |
| 0.40 | D | | | | | | | | |
| | | | | | | Orangish brown gravelly slightly silty SAND. Gravel is angular to subrounded fine to medium flint. | | | |
| 0.80- 1.20 | B | | | | | | | | |
| 0.80 | D | | | | | | | | |
| | | | | | | Below 1.20m, becomes medium dense. | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S13 | | | | |
| 2.00- 2.50 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | D | 1.70 (DRY) | | | S16 | | | | |
| 3.00- 3.45 | D | 3.00 (DRY) | | | S20 | | | | |
| 3.50- 4.00 | B | | | | | | | | |
| 3.50 | D | | | | | | | | |
| 4.00- 4.45 | D | 4.00 (DRY) | | | S30 | Below 4.00m, becomes dense. | | | |
| 5.00- 5.45 | B | | | | | | 5.00 | | 46.57 |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | D | 4.50 (DRY) | | | S39 | Dense orangish brown very gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 6.00- 6.45 | D | 6.00 (DRY) | | | S47 | | | | |
| 6.50- 7.00 | B | | | | | | | | |
| 6.50 | D | | | | | | | | |
| 7.00- 7.45 | D | 7.00 (DRY) | | | S49 | | | | |
| 8.00- 8.50 | B | | | | | | | | |
| 8.00 | D | | | | | | | | |
| 8.00- 8.45 | D | 7.50 (DRY) | | | S47 | | | | |
| 9.00- 9.45 | D | 9.00 (DRY) | | | S42 | | | | |
| 9.50-10.00 | B | | | | | | | | |
| 9.50 | D | | | | | | | | |
| 10.00-10.45 | D | 10.00 (DRY) | | | S43 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | 0.40 | Inspection Pit | KR/BB |
| 15.00 | 0.20 | Cable Percussion | KR/SR |
| 25.51 | 0.15 | Cable Percussion | KR/SR |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 27/08/21 | 08:00 |
| 1.20 | NIL | DRY | 27/08/21 | 18:00 |
| 1.20 | NIL | DRY | 31/08/21 | 08:00 |
| 15.45 | 15.00 | DRY | 31/08/21 | 18:00 |
| 15.45 | 22.00 | DRY | 01/09/21 | 08:00 |
| 25.51 | 22.00 | DRY | 01/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 18.00 | | | | | Seepage. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found. Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 1 of 3
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-11** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612515.787**E **341557.413**N Ground Level **51.57** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.50 | B | | | | | | | | |
| 11.00 | D | | | | | | | | |
| 11.00-11.45 | D | 10.50 (DRY) | | | S43 | | | | |
| 12.00-12.45 | D | 12.00 (DRY) | | | S41 | | | | |
| 12.50-13.00 | B | | | | | Below 12.50m, with a low cobble content. | | | |
| 12.50 | D | | | | | | | | |
| 13.00-13.45 | | 13.00 (DRY) | | | C43 | Dense orangish brown very sandy slightly silty GRAVEL with a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint. | 13.00 | | 38.57 |
| 14.00-14.50 | B | | | | | | | | |
| 14.00 | D | | | | | | | | |
| 14.00-14.45 | | 14.00 (DRY) | | | C39 | | | | |
| 15.00-15.45 | | 15.00 (DRY) | | | C41 | | | | |
| 15.50-16.00 | B | | | | | Below 15.50m, slightly gravelly slightly silty sand. | | | |
| 15.50 | D | | | | | | | | |
| 16.00-16.45 | | 16.00 (DRY) | | | C38 | | | | |
| 17.00-17.50 | B | | | | | | 16.90 | | 34.67 |
| 17.00 | D | | | 27 | | CHALK recovered as white and light brown slightly sandy slightly gravelly SILT. Gravel is very weak, low density, white with rare black speck and angular to subangular flint. | | | |
| 17.00-17.45 | D | 17.00 (DRY) | | | S46 | | | | |
| 18.00-18.45 | D | 18.00 | | | S50 | | | ▽ | |
| 18.00-18.45 | UTF 63 | (dry) 18.00 (DRY) | | | | | | | |
| 18.50-19.00 | B | | | | | | | | |
| 18.50 | D | | | | | | | | |
| 19.00-19.37 | D | 19.00 (DRY) | | | S50/ 220 | | | | |
| 20.00-20.50 | B | | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH4-11** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612515.787**E **341557.413**N Ground Level **51.57** m OD

Scale 1:50

| Sampling Depth | Sample Type | Depth Cased & (to Water) | Properties Strength kPa | w % | SPT N | Strata Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 20.00 | D | | | 26 | | | | | |
| 20.00-20.35 | D | 20.00 (18.00) | | | S50/ 200 | | | | |
| 21.00-21.35 | D | | | | | | | | |
| 21.00-21.38 | | 21.00 (19.00) | | | S50/ 225 | CHALK recovered as light grey locally light brown slightly gravelly slightly sandy SILT. Gravel is extremely weak to very weak, low density with angular to subangular flint. | 21.00 | | 30.57 |
| 21.50-22.00 | B | | | | | | | | |
| 21.50 | D | | | 25 | | | | | |
| 22.00-22.36 | D | 22.00 (20.00) | | | S50/ 210 | | | | |
| 22.00-22.45 | UTF 72 | 22.00 (20.00) | | | | | | | |
| 23.00-23.50 | B | | | | | | | | |
| 23.00-23.41 | D | 22.00 (22.00) | | | S50/ 260 | | | | |
| 24.00-24.34 | D | 22.00 (22.00) | | | S50/ 190 | | | | |
| 24.50-25.00 | B | | | | | | | | |
| 24.50 | D | | | 25 | | | | | |
| 25.00-25.41 | D | 22.00 (22.00) | | | S50/ 255 | | | | |
| | | | | | | End of Borehole | 25.41 | | 26.16 |



| Boring Depth | Hole Dia | Technique | Crew | Progress Depth of Hole | Depth Cased | Depth to Water | Date | Time | Groundwater Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **3 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH5-12 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 613042.009E 340429.636N | Ground Level | 81.16 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 81.16 |
| 0.10- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly clayey sand with occasional rootlets and rare roots (up to 10mm in diameter). Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 0.20 | D | | | | | | 0.30 | | 80.86 |
| 0.20 | ES | | | | | Orangish brown very gravelly silty SAND with occasional pockets (up to 100mm in size) of brown sand. Gravel is angular to subrounded fine to coarse flint and quartzite. Below 1.20m, medium dense. | | | |
| 0.50- 1.00 | B | | | | | | | | |
| 0.50 | D | | | | | | | | |
| 0.50 | ES | | | | | | | | |
| 1.20- 2.20 | B | | | | | | | | |
| 1.20- 1.65 | | 1.20 (DRY) | | | C25 | | | | |
| 2.00 | D | | | | | | | | |
| 2.20- 3.20 | B | | | | | | | | |
| 2.20- 2.65 | | 2.10 (2.10) | | | C24 | | | | |
| 3.00 | D | | | | | | | | |
| 3.20- 4.20 | B | | | | | | 3.20 | | 77.96 |
| 3.20- 3.65 | | 3.10 (3.00) | | | C47 | Dense orangish brown very sandy silty GRAVEL. Gravel is angular to subrounded fine to coarse flint and quartzite. Below 3.20m, becoming very dense. | | | |
| 4.00 | D | | | | | | | | |
| 4.20- 5.20 | B | | | | | | | | |
| 4.20- 4.59 | | 4.20 (3.10) | | | C50/ 240 | | | | |
| 5.00 | D | | | | | | | | |
| | | | | | | | 5.20 | | 75.96 |
| 5.40- 5.79 | D | 5.30 (4.60) | | | S50/ 235 | Very dense orangish brown very sandy slightly silty GRAVEL with occasional pockets (up to 50mm in size) of brown clay. Gravel is angular to subrounded fine to coarse flint. | | | |
| 5.50- 6.50 | B | | | | | | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 6.95 | | 6.50 (6.10) | | | C38 | | | | |
| 6.60- 7.50 | B | | | | | | 6.60 | | 74.56 |
| 7.00 | D | | | | | Dense orangish brown very sandy slightly silty GRAVEL. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 7.80- 8.25 | | 7.60 (DRY) | | | C19 | Below 7.80m, medium dense. | | | |
| 8.00- 9.00 | B | | | | | | | | |
| 8.50 | D | | | | | | | | |
| 9.20- 9.65 | | 9.00 (8.80) | | | C13 | | | | |
| | | | | | | | 9.40 | | 71.76 |
| 9.40-10.50 | B | | | | | Medium dense brown gravelly SAND with a low cobble content of subangular to subrounded flint. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 15.45 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 08/09/21 | 08:00 |
| 15.45 | 12.50 | DRY | 08/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring, possibly obscured by added water. |

## Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Water was added to assist boring between 1.20 and 11.40m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AS
Checked by DRB
Figure 1 of 2
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH5-12 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 613042.009E 340429.636N | Ground Level | 81.16 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.30 | D | | | | | | | | |
| 10.70-11.15 | | 10.50 (9.60) | | | C14 | | | | |
| | | | | | | | 11.40 | | 69.76 |
| 11.40-12.30 | B | | | | | Firm cream sandy SILT. | | | |
| 12.00 | D | | | 21 | | | | | |
| 12.30-12.75 | UT27 | 12.30 (DRY) | 102 | 18 | | Below 12.30m, becoming stiff. | | | |
| 12.75-12.90 | D | | | | | | | | |
| 13.00-13.45 | D | 12.50 (DRY) | | | S27 | | | | |
| 13.30-14.00 | B | | | | | | 13.30 | | 67.86 |
| 13.50 | D | | | | | Very stiff cream slightly sandy slightly gravelly SILT with a medium cobble content of subangular to subrounded chalk and flint. Gravel is angular to subrounded fine to coarse chalk and flint. | | | |
| 14.00-14.45 | UT42 | 12.50 (DRY) | 177 | 15 | | | | | |
| 14.45-14.60 | D | | | | | | | | |
| 15.00-15.45 | D | 12.50 (DRY) | | 17 | S31 | | | | |
| | | | | | | | 15.45 | | 65.71 |
| | | | | | | End of Borehole | | | |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AS
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH5-13** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **613160.433**E **340381.438**N Ground Level **85.04** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 85.04 |
| 0.10- 0.30 | B | | | | | **TOPSOIL: Dark brown slightly gravelly silty sand with occasional rootlets and a medium cobble content of subangular flint. Gravel is subangular to angular fine to coarse flint.** | | | |
| 0.20 | D | | | | | | 0.30 | | 84.74 |
| 0.20 | ES | | | | | **Orangish brown silty SAND & GRAVEL. Gravel is subangular to subrounded fine to coarse flint.** | | | |
| 0.50- 1.00 | B | | | | | | | | |
| 0.60 | D | | | | | **At 1.20m, very dense.** | | | |
| 0.60 | ES | | | | | | | | |
| 1.20- 1.65 | | 1.20 (DRY) | | | C50/ 295 | | | | |
| 1.50- 2.50 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.50- 2.95 | | 2.50 (1.60) | | | C19 | **At 2.50m, medium dense.** | | | |
| 2.70- 3.50 | B | | | | | **Below 2.70m, with many pockets (up to 50mm in size) of sandy silt.** | | | |
| 3.00 | D | | | 16 | | | | | |
| 3.50- 3.90 | B | | | | | | 3.50 | | 81.54 |
| 3.50- 3.95 | D | 3.20 (3.40) | | | S13 | **Firm orangish brown mottled dark brown slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse flint and chalk.** | | | |
| 3.70 | D | | | | | | 3.90 | | 81.14 |
| 3.90- 4.90 | B | | | | | **Firm light brown and cream slightly sandy slightly gravelly SILT. Gravel is angular to subrounded fine to coarse chalk.** | | | |
| 4.20 | D | | | 20 | | | | | |
| 4.90- 5.35 | D | 4.50 (DRY) | | | S9 | | | | |
| 5.40- 6.20 | B | | | | | **Light brown slightly gravelly SAND with a high cobble content of subrounded chalk and flint. Gravel is angular to subrounded fine to coarse chalk and flint.** | 5.40 | | 79.64 |
| 5.80 | D | | | | | | | | |
| 6.20- 7.50 | B | | | | | | | | |
| 6.20- 6.65 | D | 6.00 (DRY) | | | S30 | **Medium dense light brown very silty SAND** | 6.40 | | 78.64 |
| 7.00 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (DRY) | | | S16 | | | | |
| 8.10- 9.00 | B | | | | | **Dark brown gravelly silty SAND with a medium cobble content of subangular to subrounded chalk. Gravel is subrounded fine to coarse chalk and flint. ** Driller notes presence of occasional bands of chalk.** | 8.10 | | 76.94 |
| 8.50 | D | | | | | | | | |
| 9.00-10.00 | B | | | | | | 9.00 | | 76.04 |
| 9.00- 9.45 | D | 9.00 (DRY) | | | S41 | **Dense light brown very silty SAND** | | | |
| 9.50 | D | | | | | | | | |
| 10.00-10.45 | D | 9.50 (DRY) | | | S39 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 15.25 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 09/09/21 | 08:00 |
| 11.30 | 11.00 | DRY | 09/09/21 | 18:00 |
| 11.30 | 11.00 | DRY | 10/09/21 | 08:00 |
| 15.25 | 11.00 | DRY | 10/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring, possibly obscured by added water. |

## Remarks

AGS **ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.**
**Water was added to assist boring between 1.20-3.90m and 10.20-11.30m.**
**Inspection pit hand excavated to 1.20m depth and no services were found.**
**** Drillers description.**
**Backfill details from base of hole: bentonite grout up to ground level.**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR/PS**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH5-13** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **613160.433**E **340381.438**N Ground Level **85.04** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20-11.00 | B | | | | | **Below 10.20m, Driller notes, many bands of chalk. | | | |
| 10.80 | D | | | | | | | | |
| 11.30-11.75 | D | 11.00 | | | S20 | | 11.40 | | 73.64 |
| 11.40-12.50 | B | (DRY) | | | | Stiff cream slightly sandy slightly gravelly SILT with a medium cobble content of subangular to subrounded chalk and flint. Gravel is angular to subrounded chalk and flint. Between 12.00-13.10m, with many pockets (up to 100mm in size) of orangish brown sand. | | | |
| 12.00 | D | | | 18 | | | | | |
| 12.50-12.95 | UT67 | 11.00 (DRY) | | | | | | | |
| 12.95-13.10 | D | | | | | | | | |
| 13.50-14.50 | B | | | | | Below 13.50m, becoming a dense very silty sand.. | | | |
| 13.50-13.95 | D | 11.00 (DRY) | | | S42 | | | | |
| 14.20 | D | | | 22 | | | | | |
| 14.80-15.25 | D | 11.00 (DRY) | | | S32 | | | | |
| | | | | | | End of Borehole | 15.25 | | 69.79 |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR/PS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH6-14 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 613148.862E 330112.674N | Ground Level | 25.70 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 25.70 |
| 0.20- 0.50 | B | | | | | TOPSOIL: Dark brown slightly gravelly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.20 | D | | | | | | | | |
| 0.60- 1.00 | B | | | | | | 0.60 | | 25.10 |
| 0.60 | D | | | 11 | | Soft to firm yellowish brown slightly gravelly sandy CLAY. Gravel is angular to rounded fine to coarse flint. Below 1.20m, becoming firm. | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S8 | | | | |
| 1.50- 2.00 | B | | | | | | | | |
| 1.50 | D | | | | | | 1.60 | | 24.10 |
| 2.00- 2.45 | D | 1.70 (DRY) | | | S35 | Dense yellowish brown gravelly silty SAND. Gravel is angular to subrounded fine to coarse flint and quartzite. Below 2.00m, with occasional pockets (up to 30mm in size) of silt. | | | |
| 2.50- 3.00 | B | | | | | | | | |
| 2.50 | D | | | | | | | | |
| 3.00- 3.45 | D | 3.00 (DRY) | | | S39 | | | | |
| | | | | | | | 3.50 | | 22.20 |
| 4.00- 4.50 | B | | | | | Dense yellowish brown slightly silty SAND & GRAVEL with occasional pockets (up to 50mm in size) of clay. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 4.00 (DRY) | | | C40 | | | | |
| 5.00- 5.45 | D | 4.50 (DRY) | | | S42 | | 5.00 | | 20.70 |
| | | | | | | Dense dark grey slightly clayey SAND. | | | |
| 5.50- 6.00 | B | | | | | | | | |
| 5.50 | D | | | | | | | | |
| 6.00- 6.45 | D | 6.00 (DRY) | | | S20 | | 6.00 | | 19.70 |
| | | | | | | Stiff dark grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 6.50- 7.00 | B | | | | | | | | |
| 7.00 | D | | | 15 | | | | | |
| 7.00- 7.45 | D | 7.00 (DRY) | | | S20 | | 7.10 | | 18.60 |
| | | | | | | Medium dense dark grey gravelly silty SAND with occasional shell fragments (up to 5mm in size). Gravel is angular to subrounded fine to medium chalk. | | | |
| 7.50- 8.00 | B | | | | | | | | |
| 8.00- 8.45 | D | 7.50 (DRY) | | | S27 | Below 8.00m, with a rare angular to subrounded fine to medium flint gravel. | | | |
| 8.60- 9.00 | B | | | | | | 8.60 | | 17.10 |
| 8.60 | D | | | | | CHALK, recovered as white slightly sandy slightly gravelly SILT. Gravel is very weak, low density, white with occasional black specks with occasional subrounded to rounded fine to coarse flint gravel. | | | |
| 9.00- 9.45 | D | 9.00 (DRY) | | 22 | S9 | | | | |
| 10.00-10.50 | B | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | KR/SS |
| 15.45 | 0.15 | Cable Percussion | KR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 08/09/21 | 08:00 |
| 1.20 | 1.00 | DRY | 08/09/21 | 18:00 |
| 1.20 | 1.00 | DRY | 09/09/21 | 08:00 |
| 15.45 | 13.50 | 14.50 | 09/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 10.00 | 10.00 | 9.80 | 20 | | Slow inflow. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found. Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 1 of 2
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH6-14** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **613148.862**E **330112.674**N Ground Level **25.70** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 10.00 | D | | | | | | | | |
| 10.00-10.45 | UTF | 10.00 (DRY) | | | | | | | |
| 11.00-11.45 | D | 10.50 (10.00) | | | S8 | | | | |
| 11.50-12.00 | B | | | | | | | | |
| 11.50 | D | | | 22 | | | | | |
| 12.00-12.45 | D | 12.00 (11.50) | | | S11 | Below 12.00m, flint gravel becoming rare. | | | |
| 12.50-13.00 | B | | | | | | | | |
| 12.50 | D | | | | | | | | |
| 13.00-13.45 | D | 12.00 (12.50) | | | S12 | | | | |
| 14.00-14.50 | B | | | | | | | | |
| 14.00 | D | | | 22 | | | | | |
| 14.00-14.45 | D | 13.50 (13.50) | | | S14 | | | | |
| 15.00-15.45 | D | 13.50 (14.50) | | | S15 | | | | |
| | | | | | | End of Borehole | 15.45 | | 10.25 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH6-15** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **613121.396**E **329971.271**N Ground Level **23.64** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 23.64 |
| 0.00- 0.20 | B | | | | | **TOPSOIL: Dark brown slightly gravelly slightly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite.** | 0.20 | | 23.44 |
| 0.10 | D | | | | | | 0.40 | | 23.24 |
| 0.20- 0.40 | B | | | | | **Brown slightly gravelly clayey SAND. Gravel is angular to subrounded fine to coarse flint.** | | | |
| 0.30 | D | | | | | | | | |
| 0.40- 1.00 | B | | | | | | | | |
| 0.50 | D | | | | | | | | |
| 1.10 | D | | | | | **Soft dark brown slightly sandy CLAY with occasional pockets (up to 50mm in size) of peat.** | 1.10 | | 22.54 |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.65 | D | NIL (1.05) | | | S5 | **Loose dark grey very sandy slightly silty GRAVEL with occasional pockets (up to 20mm in size) of organic material. Gravel is angular to subrounded fine to coarse flint and quartzite.** | | | |
| 2.00 | D | | | | | | | | |
| 2.20- 2.65 | B | | | | | **Below 2.20m, becoming dense. Organic material absent.** | | | |
| 2.20- 2.65 | | 2.15 (1.10) | | | C34 | | | | |
| 3.00 | D | | | | | | | | |
| 3.20- 3.60 | B | | | | | | | | |
| 3.20- 3.65 | | 3.15 (1.10) | | | C36 | | | | |
| 3.60 | | | | | | | 3.60 | | 20.04 |
| 3.70- 4.20 | B | | | | | **Stiff dark grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to medium chalk.** | | | |
| 3.70 | D | | | 12 | | | | | |
| 4.20- 4.65 | UT17 | 4.15 (DRY) | 103 | 11 | | | | | |
| 4.40 | EW | | | | | | | | |
| 4.65- 4.75 | D | | | | | | | | |
| 5.20- 5.65 | D | 5.15 (DRY) | | | S25 | | | | |
| 5.50 | | | | | | | 5.50 | | 18.14 |
| 5.60- 6.20 | B | | | | | **Medium dense dark grey very gravelly silty SAND. Gravel is angular to subrounded fine to coarse flint.** | | | |
| 5.60 | D | | | | | | | | |
| 6.30- 7.00 | B | | | | | | | | |
| 6.30- 6.75 | D | 6.30 (4.00) | | | S31 | | | | |
| 7.00 | D | | | 9.3 | | **Below 7.00m, with a low cobble content of subrounded flint.** | | | |
| 7.25- 7.50 | B | | | | | | | | |
| 7.25- 7.70 | | 7.20 (3.60) | | | C17 | | | | |
| 7.50 | | | | | | | 7.50 | | 16.14 |
| 8.00 | D | | | | | **CHALK, recovered as white slightly sandy slightly gravelly SILT. Gravel is extremely to very weak, low density, white with occasional black specks.** | | | |
| 8.30- 8.75 | UT13 | 8.20 (3.20) | 328 | 22 | | | | | |
| 8.75- 8.90 | D | | | | | | | | |
| 9.30-10.00 | B | | | | | **Below 9.30m, with occasional angular to subrounded fine to coarse flint gravel.** | | | |
| 9.30- 9.75 | D | 9.15 (6.30) | | | S6 | | | | |
| 9.70-10.00 | B | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CR/BB |
| 15.15 | 0.15 | Cable Percussion | CR/BB |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 13/09/21 | 08:00 |
| 11.85 | 11.70 | 4.60 | 13/09/21 | 18:00 |
| 11.85 | 11.70 | 0.75 | 14/09/21 | 08:00 |
| 15.15 | 13.60 | 2.20 | 14/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 1.10 | NIL | 1.05 | 20 | 3.90 | Slow inflow. |
| 5.50 | 5.30 | 4.40 | 20 | | Moderate inflow. |

## Remarks

**Inspection pit hand excavated to 1.20m depth and no services were found.**
**At 12.40m, UT shoe and sample catcher damaged during sampling.**
**Backfill details from base of hole: bentonite grout up to ground level.**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH6-15** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **613121.396**E **329971.271**N Ground Level **23.64** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.10 | D | | | 22 | | | | | |
| 10.35-10.80 | UT25 | 10.30 (6.50) | | | | | | | |
| 11.00 | D | | | | | | | | |
| 11.40-11.85 | B | | | | | | | | |
| 11.40-11.85 | D | 11.35 (4.60) | | | S4 | | | | |
| 12.00 | D | | | | | | | | |
| 12.40-13.00 | B | | | | | | | | |
| 12.40-12.85 | UTF 26 | 12.35 (0.80) | | | | | | | |
| 13.10-13.50 | B | | | | | | | | |
| 13.10-13.55 | D | 13.05 (1.80) | | | S6 | | | | |
| 13.75 | D | | | 30 | | | | | |
| 14.10-14.55 | UT22 | 13.60 (2.50) | | | | | | | |
| 14.55-14.70 | D | | | | | | | | |
| 14.70-15.15 | D | 13.60 (2.20) | | | S8 | | | | |
| | | | | | | End of Borehole | 15.15 | | 8.49 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH6-16 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 613082.65 E<br>329823.076 N | Ground Level | 25.54 m OD |

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 25.54 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly clayey sand with occasional rootlets. Gravel is angular to rounded fine to coarse flint and quartzite. | | | |
| 0.20 | D | | | | | | 0.40 | | 25.14 |
| 0.50- 1.00 | B | | | | | | | | |
| 0.80 | D | | | | | Orangish brown very sandy slightly silty to silty GRAVEL with low cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 1.20- 2.00 | B | | | | | At 1.20m, dense. | | | |
| 1.20- 1.65 | | 1.20 (DRY) | | | C36 | | | | |
| 1.80 | D | | | | | | | | |
| 2.00- 2.50 | B | | | | | At 2.00m, very dense. | | | |
| 2.00- 2.50 | D | | | | | | | | |
| 2.00- 2.29 | | 1.90 (DRY) | | | C50/ 135 | | | | |
| 2.70 | EW | | | | | | | | |
| 2.70- 4.50 | W | | | | | | | | |
| 2.80 | D | | | | | | | | |
| 3.00- 3.45 | | 3.00 (2.30) | | | C41 | | | | |
| 3.60- 4.50 | B | | | | | | 3.60 | | 21.94 |
| 4.10 | D | | | | | Orangish brown gravelly silty SAND with occasional pockets (up to 40mm in size) of clay. Gravel is angular to subrounded fine to coarse flint. | | | |
| 4.50- 4.94 | D | 4.30 (3.10) | | | S50/ 285 | At 4.50m, very dense. | | | |
| 5.30- 6.00 | B | | | | | | 5.30 | | 20.24 |
| 5.50 | D | | | | | Orangish brown very gravelly slightly silty SAND with a low cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 6.00- 6.45 | | 6.00 (2.70) | | | C23 | At 6.00m, medium dense. | | | |
| 6.40- 7.30 | B | | | | | | 6.40 | | 19.14 |
| 7.00 | D | | | 11 | | Stiff dark grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. | | | |
| 7.30- 8.50 | B | | | | | Below 7.30m, with occasional pockets (up to 30mm in size) of clayey sand. | | | |
| 7.30- 7.75 | D | 7.30 (5.20) | | | S18 | | | | |
| 8.00 | D | | | | | At 8.00m, dense. | | | |
| 8.50- 8.95 | D | 7.30 (4.90) | | | S23 | | 8.50 | | 17.04 |
| 9.00 | D | | | | | Medium dense dark grey gravelly silty SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 9.70-10.15 | D | 9.50 (5.10) | | | S45 | At 9.70m, dense. | | | |
| 10.00-11.00 | B | | | | | | | | |



Boring | Progress | Groundwater

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS | G.L. | | | 13/09/21 | 08:00 | 4.50 | 4.30 | 2.70 | 20 | | Moderate inflow. |
| 15.00 | 0.15 | Cable Percussion | MR/SS | 11.00 | 11.00 | 5.10 | 13/09/21 | 18:00 | | | | | | |
| | | | | 11.00 | 11.00 | 3.10 | 14/09/21 | 08:00 | | | | | | |
| | | | | 15.00 | 11.00 | 3.10 | 14/09/21 | 18:00 | | | | | | |

Remarks

AGS Water was added to assist boring between 1.20-11.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH6-16** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **613082.65** E **329823.076** N Ground Level **25.54** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.50 | D | | | | | | | | |
| 11.00-12.00 | B | | | | | | 11.00 | | 14.54 |
| 11.00-11.45 | UTF 27 | 11.00 (3.10) | | | | CHALK, recovered as white slightly sandy very silty GRAVEL. Gravel is extremely to very weak, low density, white with occasional black specks. | | | |
| 11.70 | D | | | | | | | | |
| 12.00-13.20 | B | | | | | Below 12.00m, with rare angular to subangular fine to coarse flint gravel. | | | |
| 12.00-12.45 | D | 11.00 (3.10) | | | S9 | | | | |
| 12.50 | D | | | | | | | | |
| 13.20-13.65 | UT36 | 11.00 (3.20) | 341 | 22 | | | | | |
| 13.50-14.50 | B | | | | | | | | |
| 14.00 | D | | | | | | | | |
| 14.50-14.95 | D | 11.00 (3.10) | | 23 | S16 | | | | |
| | | | | | | End of Borehole | 15.00 | | 10.54 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH7-17** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614283.508**E **326598.584**N Ground Level **42.99** m OD

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 42.99 |
| 0.10 | D | | | | | TOPSOIL: Brown slightly gravelly silty SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | 0.40 | | 42.59 |
| 0.40- 0.70 | B | | | | | Brown and dark yellowish brown slightly gravelly silty SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | 0.70 | | 42.29 |
| 0.40 | D | | | | | | | | |
| 0.70- 1.20 | B | | | | | | | | |
| 0.70 | D | | | | | | | | |
| 1.20- 1.65 | B | | | | | Yellowish brown gravelly silty SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. Below 1.20m, becomes medium dense. | | | |
| 1.20- 1.65 | D | NIL (DRY) | | | S23 | | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | D | 1.90 (0.50) | | | S19 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.00- 3.45 | D | 2.90 (0.50) | | | S19 | | | | |
| 4.00- 4.45 | B | | | | | | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | D | 3.90 (1.00) | | | S19 | | | | |
| 5.00- 5.45 | B | | | | | | 5.00 | | 37.99 |
| 5.00 | D | | | | | Medium dense yellowish brown gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse quartzite and flint. | | | |
| 5.00- 5.45 | D | 4.90 (1.00) | | | S21 | | | | |
| 6.10 | D | | | | | | 6.10 | | 36.89 |
| 6.50- 6.95 | B | | | | | Medium dense yellowish brown gravelly SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 6.50- 6.95 | D | 6.20 (1.00) | | | S14 | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | D | 9.20 (1.00) | | | S16 | | | | |
| 9.50- 9.95 | B | | | | | | 9.50 | | 33.49 |
| 9.50- 9.95 | D | 9.50 (1.00) | | | S14 | Medium dense grey slightly gravelly SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 9.90 | D | | | | | | 9.90 | | 33.09 |



Boring | Progress | Groundwater

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.50 | 0.40 | Inspection Pit | CD | G.L. | | | 23/08/21 | 08:00 | | | | | | None encountered during boring. |
| 6.00 | 0.20 | Cable Percussion | CD | 15.45 | 15.00 | | 23/08/21 | 18:00 | | | | | | |
| 15.45 | 0.15 | Cable Percussion | CD | | | | | | | | | | | |

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 13.70m.
A 50mm standpipe was installed to 15.00m with a geowrapped slotted section from 1.00m to 15.00m with upright lockable protective cover. Backfill details from base of hole: bentonite up to 15.00m, gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH7-17** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614283.508**E **326598.584**N Ground Level **42.99** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 10.50-10.95 | B | | | | | **Medium dense brown slightly gravelly clayey SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint.** | | | |
| 11.00-11.45 | B | | | 19 | | **At 11.00m, brown slightly sandy slightly gravelly clay.** | | | |
| 11.00-11.45 | D | 10.60 (1.00) | | | S14 | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | D | 12.30 (1.00) | | | S14 | | | | |
| 13.00 | D | | | | | | | | |
| | | | | | | **Stiff grey sandy CLAY.** | 13.70 | | 29.29 |
| 14.00-14.45 | B | | | | | | | | |
| 14.00-14.45 | D | 13.90 (DRY) | | 15 | S25 | | | | |
| 15.00-15.45 | D | 14.90 (DRY) | | | S27 | | | | |
| | | | | | | **End of Borehole** | 15.45 | | 27.54 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH7-18 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614549.643E 326559.201N | Ground Level | 47.13 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 47.13 |
| 0.00- 0.40 | B | | | | | TOPSOIL: Brown slightly gravelly silty sand. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.20 | D | | | | | | 0.40 | | 46.73 |
| 0.40- 1.20 | B | | | | | Light brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.40 | D | | | | | | | | |
| 1.20- 1.65 | B | | | | | | 1.20 | | 45.93 |
| 1.20- 1.65 | D | | | | | Medium dense brown sandy slightly silty GRAVEL. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C19 | | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | | 1.90 (0.50) | | | C18 | | | | |
| 3.00 | B | | | | | | 3.00 | | 44.13 |
| 3.00 | D | | | | | Medium dense brown very gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 3.00- 3.45 | | 2.90 (0.50) | | | C22 | | | | |
| 4.00- 4.45 | B | | | | | Below 4.00m, slightly silty sand and gravel. | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 3.90 (0.50) | | | C25 | | | | |
| 5.00- 5.45 | B | | | | | Below 5.00m, becomes slightly gravelly. | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.90 (1.00) | | | C22 | | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 6.95 | B | | | | | | | | |
| 6.50- 6.95 | | 6.40 (1.00) | | | C24 | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | | 7.80 (1.00) | | | C24 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | | 9.30 (1.00) | | | C17 | | | | |
| 10.00 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | 0.40 | Inspection Pit | CD |
| 9.00 | 0.20 | Cable Percussion | CD |
| 20.45 | 0.15 | Cable Percussion | CD |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 27/08/21 | 08:00 |
| 3.50 | 2.90 | | 27/08/21 | 18:00 |
| 3.50 | 2.90 | | 31/08/21 | 08:00 |
| 14.00 | 13.00 | | 31/08/21 | 18:00 |
| 14.00 | 13.00 | | 01/09/21 | 08:00 |
| 20.45 | 20.00 | | 01/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 17.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 3
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH7-18 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614549.643E 326559.201N | Ground Level | 47.13 m OD |

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.45 | B | | | | | | | | |
| 11.00 | D | | | | | | | | |
| 11.00-11.45 | | 10.80 (1.00) | | | C20 | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | | 12.40 (1.00) | | | C20 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | B | | | | | | | | |
| 14.00 | D | | | | | | 14.00 | | 33.13 |
| 14.00-14.45 | | 13.90 | | | C18 | Medium dense yellowish brown slightly gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 14.30 | D | (1.00) | | | | | | | |
| 15.00 | D | | | | | | | | |
| 15.40 | D | | | | | | 15.40 | | 31.73 |
| 15.50-15.95 | B | | | | | Orangish brown gravelly SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 15.50-15.95 | | 14.90 (1.00) | | | C21 | | | | |
| 16.00 | D | | | | | | | | |
| 17.00-17.45 | B | | | | | | | | |
| 17.00 | D | | | | | | 17.00 | | 30.13 |
| 17.00-17.45 | | 16.80 (9.50) | | | C16 | Firm dark grey slightly sandy CLAY. | | | |
| 18.00 | D | | | 15 | | | | | |
| 18.50-18.95 | UT39 | 18.40 (DRY) | 53 | 14 | | | | | |
| 19.00 | D | | | | | | | | |
| 20.00 | D | | | 15 | | | | | |
| 20.00-20.45 | | | | | C20 | | | | |



Boring | Progress | Groundwater

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 2 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH7-18** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614549.643**E **326559.201**N Ground Level **47.13** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | **19.80 (DRY)** | | | | | | | |
| | | | | | | **End of Borehole** | **20.45** | | **26.68** |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **3 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH7-19 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614423.932E 326340.56 N | Ground Level | 44.97 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 44.97 |
| 0.00- 0.50 | B | | | | | TOPSOIL: Dark brown slightly gravelly silty SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 0.20 | D | | | | | | | | |
| 0.50- 1.20 | B | | | | | | 0.50 | | 44.47 |
| 0.50 | D | | | | | Dark yellowish brown slightly gravelly SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 1.20- 1.65 | B | | | | | | | | |
| 1.20- 1.65 | D | NIL | | | S24 | | | | |
| 1.50 | D | (DRY) | | | | | 1.50 | | 43.47 |
| | | | | | | Brown and grey gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00- 2.45 | D | 1.90 (0.50) | | | S17 | | | | |
| | | | | | | | 2.40 | | 42.57 |
| 2.40 | D | | | | | Brown gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 3.00- 3.45 | B | | | | | Below 3.00m, becomes medium dense. | | | |
| 3.00- 3.45 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 (0.50) | | | C21 | | | | |
| 4.00- 4.45 | B | | | | | | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 3.90 (0.50) | | | C39 | | | | |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.80 (0.50) | | | C31 | | | | |
| 5.40 | D | | | | | Below 5.40m, with many pockets (up to 80mm in size) of sandy clay. | | | |
| 5.60 | D | | | | | | 5.60 | | 39.37 |
| 6.00 | D | | | | | Orangish brown gravelly slightly silty SAND with a low cobble content of angular to subangular flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 6.50- 6.95 | B | | | | | | | | |
| 6.50 | D | | | | | | | | |
| 6.50- 6.93 | | 6.20 (1.00) | | | C50/ 275 | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00 | D | | | | | | | | |
| 8.00- 8.45 | | 7.90 (1.00) | | | C35 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | | | | | | | | |
| 9.50- 9.95 | | 9.20 (1.00) | | | C26 | | | | |
| 10.00 | D | | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CD |
| 9.50 | 0.20 | Cable Percussion | CD |
| 20.45 | 0.15 | Cable Percussion | CD |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 24/08/21 | 08:00 |
| 3.00 | 2.90 | | 24/08/21 | 18:00 |
| 3.00 | 2.90 | | 25/08/21 | 08:00 |
| 9.50 | 9.20 | | 25/08/21 | 18:00 |
| 9.50 | 9.20 | | 26/08/21 | 08:00 |
| 20.45 | DRY | | 26/08/21 | 18:00 |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 14.60m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH7-19 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614423.932 E, 326340.56 N | Ground Level | 44.97 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.45 | B | | | | | | | | |
| 11.00 | D | | | | | | | | |
| 11.00-11.28 | | 10.80 (1.00) | | | C50/ 160 | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | | 12.20 (1.00) | | | C10 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | B | | | | | Below 14.00m, very gravelly. | | | |
| 14.00 | D | | | | | | | | |
| 14.00-14.45 | | 13.90 (1.00) | | | C17 | | | | |
| 14.60 | D | | | | | | 14.60 | | 30.37 |
| | | | | | | Brown gravelly clayey SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 15.00 | D | | | | | | | | |
| 16.20 | D | | | | | | 16.20 | | 28.77 |
| | | | | | | Firm grey sandy CLAY. | | | |
| 17.00 | B | | | | | | | | |
| 17.00-17.45 | UT41 | 16.60 (DRY) | 56 | 14 | | | | | |
| 17.50 | D | | | 13 | | | | | |
| 18.00 | D | | | | | | | | |
| 18.50-18.95 | B | | | | | Below 18.50m, becomes stiff. | | | |
| 18.50-18.95 | | 18.00 (DRY) | | | C19 | | | | |
| 19.00 | D | | | | | | | | |
| 20.00-20.45 | UTF 38 | 19.50 (DRY) | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 2 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS**
Engineer **J MURPHY & SONS LIMITED**
Borehole **BH7-19**
Project No **PC218256**

Client **J MURPHY & SONS LIMITED**
National Grid Coordinates **614423.932** E **326340.56** N
Ground Level **44.97** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | | 20.45 | | 24.52 |
| | | | | | | **End of Borehole** | | | |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **3 of 3**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH7-20 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614816.665E 326436.264N | Ground Level | 47.35 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 47.35 |
| 0.00- 0.40 | B | | | | | TOPSOIL: Dark brown slightly gravelly silty SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.20 | D | | | | | | 0.40 | | 46.95 |
| 0.40- 1.20 | B | | | | | Brown slightly gravelly SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.40 | D | | | | | | | | |
| 1.00 | D | | | | | | 1.00 | | 46.35 |
| 1.20- 1.65 | B | | | | | Medium dense brown very gravelly SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C13 | | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | | 1.70 (0.50) | | | C17 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 (1.00) | | | C25 | | | | |
| 4.00- 4.45 | B | | | | | | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 3.90 (1.00) | | | C20 | | | | |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.60 (1.00) | | | C33 | | | | |
| 6.00 | D | | | | | Below 6.00m, becomes yellowish brown and gravelly. | | | |
| 6.50- 6.95 | B | | | | | | | | |
| 6.50- 6.95 | | 6.20 (1.00) | | | C24 | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | Below 8.00m, becomes dense and silty. | | | |
| 8.00- 8.45 | | 7.70 (1.00) | | | C33 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | | | | | | | | |
| 9.50- 9.95 | | 9.30 (1.00) | | | C39 | | | | |
| 10.00 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | 0.40 | Inspection Pit | CD |
| 15.45 | 0.15 | Cable Percussion | CD |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 06/09/21 | 08:00 |
| 11.00 | 10.50 | | 06/09/21 | 18:00 |
| 11.00 | 10.50 | | 07/09/21 | 08:00 |
| 14.45 | 13.90 | | 07/09/21 | 18:00 |
| 14.45 | 13.90 | | 09/09/21 | 08:00 |
| 15.45 | 15.00 | 3.00 | 09/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

## Remarks

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 15.00m.
A 50mm standpipe was installed to 15.00m with a geowrapped slotted section from 1.00m to 15.00m with upright lockable protective cover. Backfill details from base of hole: bentonite up to 15.00m, gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH7-20** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614816.665**E **326436.264**N Ground Level **47.35** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 11.00-11.45 | B | | | | | | | | |
| 11.00-11.45 | | 10.90 (1.00) | | | C36 | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | | 12.30 (1.00) | | | C29 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | B | | | | | | | | |
| 14.00 | D | | | | | | | | |
| 14.00-14.45 | | 13.90 (1.00) | | | C28 | | | | |
| 14.80 | D | | | | | | 14.80 | | 32.55 |
| 15.00 | D | | | 14 | | Stiff brown sandy CLAY. | | | |
| 15.00-15.45 | | 14.90 (3.00) | | | C28 | | | | |
| | | | | | | End of Borehole | 15.45 | | 31.90 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH7-21 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614617.894E 326074.086N | Ground Level | 44.18 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 44.18 |
| 0.00- 0.60 | B | | | | | TOPSOIL: Brown slightly gravelly silty SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.10 | D | | | | | | | | |
| 0.60- 1.20 | B | | | | | | 0.60 | | 43.58 |
| 0.60 | D | | | | | Medium dense orangish brown gravelly slightly silty SAND with a low cobble content of subangular to subrounded fine to coarse flint. Gravel is subangular to subrounded fine to coarse flint. Below 1.20m, becomes brown. | | | |
| 1.20- 1.65 | B | | | | | | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C16 | | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | | 1.90 (0.50) | | | C21 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 (0.50) | | | C19 | | | | |
| 4.00- 4.45 | B | | | | | At 4.00m, dense. | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 3.80 (1.00) | | | C35 | | | | |
| | | | | | | Below 4.70m, with rare pockets (up to 50mm in size) of sandy clay. | | | |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.80 (1.00) | | | C26 | | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 6.95 | B | | | | | | | | |
| 6.50- 6.95 | | 6.20 (1.00) | | | C23 | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | At 8.00m, dense. | | | |
| 8.00 | D | | | | | | | | |
| 8.00- 8.45 | | 7.70 (1.00) | | | C33 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | | | | | | | | |
| 9.50- 9.95 | | 9.20 (1.00) | | | C14 | | | | |
| 10.00 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | 0.40 | Inspection Pit | CD |
| 15.45 | 0.15 | Cable Percussion | CD |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 02/09/21 | 08:00 |
| 15.45 | 15.00 | | 02/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH7-21** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614617.894**E **326074.086**N Ground Level **44.18** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 11.00-11.45 | B | | | | | | | | |
| 11.00 | D | | | | | | | | |
| 11.00-11.45 | | 10.70 (1.00) | | | C12 | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | At 12.50m, very dense. | | | |
| 12.50-12.86 | | 12.30 (1.00) | | | C50/ 210 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | B | | | | | | | | |
| 14.00-14.45 | | 13.90 (1.00) | | | C23 | | | | |
| 14.70 | D | | | 21 | | Firm brown sandy CLAY. | 14.70 | | 29.48 |
| 15.00-15.45 | B | | | | | | | | |
| 15.00-15.45 | | 14.90 (1.00) | | | C17 | | | | |
| | | | | | | End of Borehole | 15.45 | | 28.73 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH8-22** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614762.85** E **325846.621** N Ground Level **41.16** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 41.16 |
| 0.00- 1.20 | B | | | | | **TOPSOIL: Dark brown slightly gravelly silty SAND. Gravel is subangular subrounded fine to coarse flint and quartzite.** | | |
| 0.50 | D | | | | | | | |
| | | | | | | **At 1.20m, medium dense.** | | |
| 1.20- 1.65 | B | | | | | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C14 | | | |
| 1.60 | D | | | | | | 1.60 | 39.56 |
| | | | | | | **Medium dense dark yellowish brown very gravelly SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint.** | | |
| 2.00- 2.45 | B | | | | | | | |
| 2.00 | D | | | | | | | |
| 2.00- 2.45 | | 1.80 (0.50) | | | C21 | | | |
| 3.00- 3.45 | B | | | | | **Below 3.00m, a very sandy gravel with a medium cobble content of subangular flint.** | | |
| 3.00 | D | | | | | | | |
| 3.00- 3.45 | | 2.90 (1.00) | | | C18 | | | |
| 4.00- 4.45 | B | | | | | **At 4.00m, dense.** | | |
| 4.00 | D | | | | | | | |
| 4.00- 4.45 | | 3.90 (1.00) | | | C34 | | | |
| 5.00- 5.45 | B | | | | | | | |
| 5.00 | D | | | | | | | |
| 5.00- 5.45 | | 4.80 (1.00) | | | C24 | | | |
| | | | | | | **Firm yellowish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse quartzite and flint.** | 5.70 | 35.46 |
| 6.30 | D | | | | | | 6.30 | 34.86 |
| 6.50- 6.95 | B | | | | | **Dense yellowish brown gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint.** | | |
| 6.50- 6.95 | | 6.30 (1.00) | | | C36 | | | |
| 7.00 | D | | | | | | | |
| 8.00- 8.45 | B | | | | | | | |
| 8.00 | D | | | | | | | |
| 8.00- 8.45 | | 7.90 (1.00) | | | C35 | | | |
| 9.00 | D | | | | | | | |
| 9.50- 9.95 | B | | | | | | | |
| 9.50- 9.95 | | 9.20 (1.00) | | | C40 | | | |
| 10.00 | D | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CD |
| 15.00 | 0.15 | Cable Percussion | CD |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 09/09/21 | 08:00 |
| 9.00 | 9.00 | | 09/09/21 | 18:00 |
| 9.00 | 13.00 | | 10/09/21 | 08:00 |
| 13.00 | 13.00 | | 10/09/21 | 18:00 |
| 13.00 | 13.00 | | 13/09/21 | 08:00 |
| 15.45 | 15.00 | | 13/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

## Remarks

AGS **Inspection pit hand excavated to 1.20m depth and no services were found.**
**Water was added to assist boring between 1.20 and 15.00m.**
**Backfill details from base of hole: bentonite grout up to ground level.**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH8-22 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614762.85 E<br>325846.621 N | Ground Level | 41.16 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.45 | B | | | | | | | | |
| 11.00-11.45 | | 10.90 (1.00) | | | C30 | | | | |
| 12.00 | D | | | | | | | | |
| 12.30 | D | | | | | | 12.30 | | 28.86 |
| 12.50-12.95 | B | | | | | Stiff light grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint, quartzite and chalk. | | | |
| 12.50-12.93 | | 12.40 (1.00) | | | C56/ 275 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | B | | | | | Below 14.00m, becomes dark brownish grey. | | | |
| 14.00 | D | | | 16 | | | | | |
| 14.00-14.45 | | 13.90 (5.40) | | | C31 | | | | |
| 15.00-15.45 | UT38 | 14.90 (8.00) | 53 | 14 | | | | | |
| | | | | | | End of Borehole | 15.45 | | 25.71 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 2 of 2
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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH8-23** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614704.176**E **325673.953**N Ground Level **40.75** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 40.75 |
| 0.00- 0.70 | B | | | | | TOPSOIL: Brown slightly gravelly silty SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.20 | D | | | | | | | | |
| 0.70- 1.20 | B | | | | | | 0.70 | | 40.05 |
| 0.70 | D | | | | | Brown gravelly SAND with a low cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | | |
| 1.20- 1.65 | B | | | | | | 1.20 | | 39.55 |
| 1.20- 1.65 | | NIL (DRY) | | | C25 | Medium dense brown gravelly SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 2.00- 2.45 | B | | | | | At 2.00m, dense. | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | | 1.90 (0.50) | | | C32 | Below 2.45m, becomes yellowish brown. | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 (0.50) | | | C27 | | | | |
| 4.00- 4.45 | B | | | | | | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 4.80 (1.00) | | | C25 | | | | |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.80 (1.00) | | | C28 | | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 6.95 | B | | | | | Below 6.50m, becomes a dense gravelly silty sand. | | | |
| 6.50- 6.95 | | 6.30 (1.00) | | | C34 | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | | 7.80 (1.00) | | | C37 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | | | | | | | | |
| 9.50- 9.95 | | 9.20 (1.00) | | | C34 | | | | |
| 10.00 | D | | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CD |
| 15.45 | 0.15 | Cable Percussion | CD |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 13/09/21 | 08:00 |
| 10.50 | 10.50 | | 13/09/21 | 18:00 |
| 10.50 | 10.50 | | 14/09/21 | 08:00 |
| 15.15 | 15.00 | | 14/09/21 | 18:00 |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Logged by **PS**
Checked by **DRB**
Figure **1 of 2**
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Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH8-23** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614704.176**E **325673.953**N Ground Level **40.75** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 10.40 | | 30.35 |
| 10.40 | D | | | 16 | | Firm grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse quartzite, flint and chalk. | | | |
| | | | | | | | 10.90 | | 29.85 |
| 10.90 | D | | | | | Dense brown slightly gravelly slightly silty SAND. Gravel is subangular to subrounded fine to coarse flint, quartzite and chalk. | | | |
| 11.00-11.45 | B | | | | | | | | |
| 11.00-11.45 | | 10.70 (1.00) | | | C34 | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | | 12.20 (1.00) | | | C36 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | B | | | | | | | | |
| 14.00 | D | | | | | | | | |
| 14.00-14.45 | | 13.40 (1.00) | | | C30 | | | | |
| | | | | | | | 14.40 | | 26.35 |
| 14.40 | D | | | 17 | | Stiff brownish grey sandy CLAY. | | | |
| 15.00-15.45 | D | | | | | | | | |
| 15.00-15.45 | | 14.90 (1.00) | | | C23 | | | | |
| | | | | | | | 15.45 | | 25.30 |
| | | | | | | End of Borehole | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 2**
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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH9-24** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614213.876**E **319117.145**N Ground Level **17.63** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 17.63 |
| 0.00- 0.40 | B | | | | | TOPSOIL: Brown slightly gravelly silty sand. Gravel is subangular to subrounded quartzite and flint. | | | |
| | | | | | | | 0.40 | | 17.23 |
| 0.40- 1.20 | B | | | | | Soft to firm grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.40 | D | | | | | | | | |
| | | | | | | | 1.00 | | 16.63 |
| 1.20- 1.65 | B | | | | | Medium dense grey very sandy slightly silty GRAVEL with a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse quartzite and flint. | | | |
| 1.20- 1.65 | | NIL | | | C16 | | | | |
| 1.40 | D | (DRY) | | | | | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00 | D | | | | | Below 2.20m, dense. | | | |
| 2.00- 2.45 | | 1.90 (0.50) | | | C33 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 (0.50) | | | C36 | | | | |
| 4.00- 4.45 | B | | | | | | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 3.90 (0.50) | | | C46 | | | | |
| 4.70 | D | | | | | CHALK recovered as white slightly sandy slightly gravelly SILT. Gravel is very weak, low density, white with occasional black specks. Occasional subangular fine to coarse flint gravel. | 4.70 | | 12.93 |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00- 5.45 | D | 4.50 (1.00) | | | S20 | | | | |
| 6.00 | D | | | 36 | | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | 7.60 (1.00) | | | C17 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | UTF 17 | 9.20 (1.00) | | | | | | | |
| 10.00 | D | | | 28 | | Below 10.00m, flint gravel becoming rare. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CR |
| 15.45 | 0.15 | Cable Percussion | CR |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 14/09/21 | 08:00 |
| 5.00 | 4.80 | | 14/09/21 | 18:00 |
| 5.00 | 4.80 | | 15/09/21 | 08:00 |
| 15.45 | 15.00 | | 15/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD/PS**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH9-24** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614213.876**E **319117.145**N Ground Level **17.63** m OD

Scale 1:50

| Sampling Depth | Sample Type | Depth Cased & (to Water) | Properties Strength kPa | w % | SPT N | Strata Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| **11.00-11.45** | **B** | **10.50** | | | **C13** | | | | |
| **11.00** | **D** | **(1.00)** | | | | | | | |
| **12.00** | **D** | | | | | | | | |
| **12.50-12.95** | **UTF** | **12.70** | | | | | | | |
| | **15** | **(1.00)** | | | | | | | |
| **13.00** | **D** | | | **29** | | | | | |
| **14.00-14.45** | **B** | **13.90** | | | **C11** | | | | |
| **14.00** | **D** | **(1.00)** | | | | | | | |
| **15.00-15.45** | **B** | **14.90** | | | **C12** | | | | |
| | | **(1.00)** | | | | | | | |
| | | | | | | **End of Borehole** | **15.45** | | **2.18** |



| Boring Depth | Hole Dia | Technique | Crew | Progress Depth of Hole | Depth Cased | Depth to Water | Date | Time | Groundwater Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD/PS**
Checked by **DRB**
Figure **2 of 2**
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geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH9-25 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614226.409E 318987.534N | Ground Level | 15.53 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 15.53 |
| 0.00- 0.90 | B | | | | | TOPSOIL: Dark brown slightly gravelly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.20 | D | | | | | | | | |
| | | | | | | | 0.90 | | 14.63 |
| 0.90- 1.20 | B | | | | | Dark grey very sandy GRAVEL. Gravel is angular to subrounded fine to coarse flint and quartzite. Below 1.20m, becoming medium dense. | | | |
| 0.90 | D | | | | | | | | |
| 1.20- 1.65 | B | | | | | | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C25 | | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | | 1.90 (0.50) | | | C28 | | | | |
| 3.00- 3.45 | B | | | | | Below 3.00m, becoming dense with a medium cobble content of subrounded flint. | | | |
| 3.00 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 (0.50) | | | C35 | | | | |
| 4.00- 4.33 | B | | | | | | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.33 | | 3.70 (0.50) | | | C40/ 180 | | | | |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.50 (0.50) | | | C38 | | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 6.95 | B | | | | | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 9.20 | D | | | | | | 9.20 | | 6.33 |
| 9.50- 9.95 | UTF 11 | 9.30 (1.00) | | | | Very soft dark brown silty fibrous PEAT with occasional (up to 30mm in size) of very soft dark brown clay. | | | |
| 10.00 | D | | | 81 | | | 10.00 | | 5.53 |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | |
| 15.45 | 0.15 | Cable Percussion | |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 20/09/21 | 08:00 |
| 6.50 | 6.50 | | 20/09/21 | 18:00 |
| 6.50 | 6.50 | | 21/09/21 | 08:00 |
| 15.00 | 15.00 | | 21/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 1 of 2
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH9-25** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **614226.409**E **318987.534**N Ground Level **15.53** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **Soft greyish brown organic sandy CLAY with occasional shell fragments (up to 5mm in size).** | **10.00** | | **5.53** |
| **11.00-11.45** | **B** | | | | | **Below 11.00m, becoming firm.** | | | |
| **11.00-11.45** | **D** | **10.70 (1.00)** | | **78** | **S8** | | | | |
| **12.00** | **D** | | | | | | | | |
| **12.50-12.95** | **UT19** | **12.30 (1.00)** | **50** | **80** | | | | | |
| **13.00** | **D** | | | | | **Below 13.50m, shell fragments become rare.** | | | |
| **14.00-14.45** | **B** | | | | | | | | |
| **14.00-14.45** | **D** | **14.90 (1.00)** | | **84** | **S10** | | | | |
| **15.00-15.45** | **UTF 16** | **14.90 (1.00)** | | | | | | | |
| | | | | | | **End of Borehole** | **15.45** | | **0.08** |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH9-26 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614091.273E 318975.867N | Ground Level | 16.35 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 16.35 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly clayey sand with many rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.10 | D | | | | | | 0.30 | | 16.05 |
| 0.30- 1.20 | B | | | | | Firm to stiff light grey mottled brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.30 | D | | | | | | | | |
| 1.20- 1.65 | B | | | | | | 1.20 | | 15.15 |
| 1.20 | D | | | | | Medium dense dark grey sandy slightly clayey GRAVEL. Gravel is angular to rounded fine to coarse flint, quartzite and chalk. | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C14 | | | | |
| 2.00- 2.45 | B | | | | | Below 2.00m, becoming dense with a medium cobble content of subangular flint. | | | |
| 2.00 | D | | | | | | | | |
| 2.00- 2.45 | | 1.90 (0.50) | | | C30 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 (0.50) | | | C35 | | | | |
| 4.00- 4.45 | B | | | | | | | | |
| 4.00 | D | | | | | | | | |
| 4.00- 4.45 | | 3.90 (1.00) | | | C38 | | | | |
| 5.00- 5.45 | B | | | | | Below 5.00m, becoming medium dense with occasional pockets (up to 50mm in size) of clay. | | | |
| 5.00 | D | | | | | | | | |
| 5.00- 5.45 | | 4.70 | | | C24 | | | | |
| 5.30 | D | (1.00) | | | | Stiff dark grey slightly sandy slightly gravelly CLAY with occasional shell fragments (up to 5mm in size). Gravel is angular to subrounded fine to coarse flint, quartzite and chalk | 5.30 | | 11.05 |
| 6.00 | D | | | 13 | | | | | |
| 6.50- 6.95 | UTF 24 | 6.30 (1.00) | | | | | | | |
| 7.00 | D | | | | | CHALK recovered as white slightly sandy slightly gravelly SILT. Gravel is very weak to weak, low density, white with occasional black specks. Occasional subangular fine to coarse flint gravel. | 7.00 | | 9.35 |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | D | 7.70 (1.00) | | 27 | S7 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | 9.20 | | | S6 | | | | |
| 9.50- 9.95 | D | (1.00) | | | | | | | |
| 10.00 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CD |
| 15.45 | 0.15 | Cable Percussion | CD |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 16/09/21 | 08:00 |
| 15.45 | 14.90 | | 16/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** (AGS)

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH9-26 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614091.273E 318975.867N | Ground Level | 16.35 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.45 | B | | | | | | | | |
| 11.00-11.38 | D | 10.80 (1.00) | | | S5 | | | | |
| 12.00 | D | | | 32 | | Below 12.00m, flint gravel absent. | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | D | 12.20 (1.00) | | | S5 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | B | | | | | | | | |
| 14.00-14.45 | D | | | | | | | | |
| 14.00-14.45 | | 13.90 (1.00) | | | S5 | | | | |
| 15.00-15.45 | D | 14.90 (1.00) | | | S7 | | | | |
| | | | | | | End of Borehole | 15.45 | | 0.90 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH9-27 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614128.552E 318878.104N | Ground Level | 18.93 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 18.93 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.10 | D | | | | | | | | |
| 0.30- 1.00 | B | | | | | | 0.30 | | 18.63 |
| 0.30 | D | | | | | Brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 1.00- 1.20 | B | | | | | | 1.00 | | 17.93 |
| 1.00 | D | | | | | Dark grey SAND. | | | |
| 1.20- 1.65 | B | | | | | | | | |
| 1.20- 1.65 | | NIL | | | S9 | | 1.30 | | 17.63 |
| 1.30 | D | (DRY) | | 25 | | Soft to firm dark grey slightly gravelly sandy CLAY with occasional pockets (up to 40mm in size) of sand. Gravel is angular to rounded fine to coarse flint and quartzite. | | | |
| 2.00- 2.45 | UTF 14 | 1.50 (DRY) | | | | Below 2.00m, becoming firm. | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00- 3.45 | D | 2.90 (0.50) | | | S6 | | | | |
| 3.60 | D | | | 25 | | | 3.60 | | 15.33 |
| 4.00- 4.45 | UT15 | 3.90 (0.50) | 442 | 21 | | CHALK recovered as white slightly sandy gravelly SILT. Gravel is very weak to weak, low density, white with occasional black specks. | | | |
| 4.50 | D | | | | | CHALK recovered as light greyish white slightly sandy slightly gravelly SILT. | 4.50 | | 14.43 |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00- 5.45 | D | 4.80 (0.50) | | | S13 | | | | |
| 6.00 | D | | | | | Below 5.90m, with occasional angular to subangular flint gravel. | | | |
| 6.50- 6.95 | UTF 22 | 6.20 (1.00) | | | | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | D | 7.70 (1.00) | | | S13 | | | | |
| 9.00 | D | | | | | | | | |
| 10.00 | D | | | 27 | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CR |
| 15.45 | 0.15 | Cable Percussion | CR |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 22/09/21 | 08:00 |
| 12.50 | 12.50 | | 22/09/21 | 18:00 |
| 12.50 | 12.50 | | 27/09/21 | 08:00 |
| 15.45 | 15.00 | | 27/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AM
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH9-27 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 614128.552E 318878.104N | Ground Level | 18.93 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.45 | B | | | | | | | | |
| 11.00-11.45 | D | 11.90 (0.50) | | | S15 | | | | |
| | | | | | | Below 12.00m, flint gravel becoming rare. | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | D | 12.20 (1.00) | | 28 | S10 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | UTF 21 | 13.60 (1.00) | | | | | | | |
| 15.00-15.45 | D | 14.90 (1.00) | | | S9 | | | | |
| | | | | | | End of Borehole | 15.45 | | 3.48 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AM
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH10-28 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 613150.080E 316689.151N | Ground Level | 18.73 m OD |

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 18.73 |
| 0.10- 0.50 | B | | | | | TOPSOIL: Brown slightly gravelly slightly silty sand. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | | |
| 0.30 | D | | | | | | | | |
| 0.50- 1.20 | B | | | | | Dark yellowish brown gravelly SAND. Gravel is subangular to subrounded fine to coarse flint and quartzite. | 0.50 | | 18.23 |
| 1.00 | D | | | | | | | | |
| 1.20- 2.20 | B | | | | | | 1.20 | | 17.53 |
| 1.20- 1.59 | D | 1.20 (DRY) | | | S50/ 235 | Very dense yellowish brown very sandy GRAVEL with a low cobble content of subangular flint.. Gravel is subangular to rounded fine to coarse flint and quartzite. | | | |
| 2.00 | D | | | | | | | | |
| 2.50- 2.95 | | 2.00 (DRY) | | | C15 | | | | |
| 2.70- 3.50 | B | | | | | | 2.70 | | 16.03 |
| 3.00 | D | | | 21 | | Firm brown, locally dark grey, slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 3.50- 4.50 | B | | | | | | | | |
| 3.50- 3.95 | D | 3.20 (3.40) | | | S10 | | | | |
| 4.00 | D | | | | | | | | |
| | | | | | | | 4.20 | | 14.53 |
| 4.50- 4.95 | UT17 | 4.50 (DRY) | 69 | 22 | | Firm brown and dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 4.95- 5.10 | D | | | | | | | | |
| 5.40- 6.70 | B | | | | | | | | |
| 5.50- 5.95 | D | 4.50 (DRY) | | | S14 | | | | |
| 6.20 | D | | | 17 | | | | | |
| 6.90- 8.00 | B | | | | | | 6.80 | | 11.93 |
| 6.90- 7.35 | UT13 | 4.50 (DRY) | 172 | 27 | | CHALK recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is very weak to weak, low density, white. Occasional angular to subangular fine to coarse flint gravel. | | | |
| 7.35- 7.50 | D | | | | | | | | |
| 8.00- 9.00 | B | | | | | | | | |
| 8.00- 8.45 | D | 4.50 (DRY) | | | S3 | | | | |
| 8.50 | D | | | 25 | | | | | |
| 9.00- 9.45 | UT16 | 9.00 (DRY) | | | | | | | |
| 9.45- 9.60 | D | | | | | | | | |
| 10.00-11.00 | B | | | | | Below 10.00m, matrix becoming white. | | | |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 12.95 | 0.15 | Cable Percussion | MR/SS |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 16/09/21 | 08:00 |
| 12.50 | 9.00 | DRY | 16/09/21 | 18:00 |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring, possibly obscured by added water. |

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 2.70m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS**
Engineer **J MURPHY & SONS LIMITED**
**Borehole** **BH10-28**
Project No **PC218256**

Client **J MURPHY & SONS LIMITED**
National Grid Coordinates **613150.080**E **316689.151**N
Ground Level **18.73** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 10.00-10.45 | D | 9.00 (DRY) | | | S6 | | | | |
| 10.50 | D | | | | | | | | |
| 11.00-11.45 | UT26 | 9.00 (DRY) | | | | | | | |
| 11.45-11.60 | D | | | 27 | | | | | |
| 12.50-12.95 | D | 9.00 (DRY) | | | S14 | | | | |
| | | | | | | End of Borehole | 12.95 | | 5.78 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH10-29 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 613118.837E 316584.622N | Ground Level | 13.84 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 13.84 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 0.20 | D | | | | | | 0.40 | | 13.44 |
| 0.50- 1.00 | B | | | | | | | | |
| 0.80 | D | | | | | Light brown slightly gravelly SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 1.20- 2.20 | B | | | | | Below 1.20m, medium dense and ** driller notes the presence of clay pockets. | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S10 | | | | |
| 1.80 | D | | | | | | | | |
| 2.20- 3.50 | B | | | | | | | | |
| 2.20- 2.65 | D | 1.50 (DRY) | | | S14 | | | | |
| 3.00 | D | | | | | | | | |
| 3.50- 3.95 | D | 1.50 (DRY) | | | S11 | | | | |
| 3.80- 4.50 | B | | | | | | 3.80 | | 10.04 |
| 4.00 | D | | | | | Medium dense light brown very gravelly slightly silty SAND. Gravel is angular to subangular fine to coarse flint and quartzite. | | | |
| 4.50- 5.50 | B | | | | | | | | |
| 4.50- 4.95 | | 4.50 (4.20) | | | C29 | | | | |
| 5.00 | D | | | | | | | | |
| 5.50- 5.95 | | 5.50 | | | C1 | | | | |
| 5.60- 6.50 | B | (5.10) | | | | | 5.60 | | 8.24 |
| 6.00 | D | | | | | CHALK recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is very weak to weak, low density, white with occasional black specks. Occasional subangular to subrounded fine to coarse flint gravel. | | | |
| 6.50- 7.50 | B | | | | | | | | |
| 6.50- 6.95 | D | 6.20 (6.40) | | | S2 | | | | |
| 7.00 | D | | | | 29 | | | | |
| 7.50- 7.95 | UT26 | 7.50 (DRY) | | | | | | | |
| 7.95- 8.10 | D | | | | | | | | |
| 8.90- 9.35 | D | 8.50 | | | S1 | Below 9.00m, becoming cream. | | | |
| 9.00-10.00 | B | (DRY) | | | | | | | |
| 9.50 | D | | | | | | | | |
| 10.00-10.45 | UT18 | 9.00 (8.10) | 179 | 29 | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 20.45 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 14/09/21 | 08:00 |
| 9.35 | 9.00 | DRY | 14/09/21 | 18:00 |
| 9.35 | 9.00 | 8.10 | 15/09/21 | 08:00 |
| 20.45 | 20.00 | 7.90 | 15/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring, possibly obscured by added water. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 3.80 to 9.00m.
** Drillers description.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH10-29** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **613118.837**E **316584.622**N Ground Level **13.84** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.45-10.60 | D | | | | | | | | |
| 11.00-12.00 | B | | | | | Below 11.00m, black specks absent. | | | |
| 11.00-11.45 | D | 9.50 (8.20) | | | S7 | | | | |
| 11.50 | D | | | | | | | | |
| 12.00-12.45 | UT21 | 12.00 (8.00) | 271 | 29 | | | | | |
| 12.45-12.60 | D | | | | | | | | |
| 13.00-14.00 | B | | | | | | | | |
| 13.00-13.45 | D | 12.00 (7.90) | | | S10 | | | | |
| 13.50 | D | | | | | | | | |
| 14.50-14.95 | UT27 | 13.00 (7.90) | | | | | | | |
| 14.95-15.10 | D | | | 31 | | | | | |
| 15.50-16.50 | B | | | | | | | | |
| 15.50-15.95 | D | 13.00 (7.90) | | | S16 | | | | |
| 16.00 | D | | | | | | | | |
| 16.50-16.95 | UT28 | 15.50 (7.90) | | | | | | | |
| 16.95-17.10 | D | | | | | | | | |
| 17.50-18.50 | B | | | | | | | | |
| 17.50-17.95 | D | 15.50 (7.90) | | | S12 | | | | |
| 18.00 | D | | | | | | | | |
| 18.80-19.25 | UT47 | 18.50 (7.90) | | | | | | | |
| 19.25-19.40 | D | | | 52 | | | | | |
| 20.00-20.45 | D | 18.50 (7.90) | | | S16 | | | | |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS**
Engineer **J MURPHY & SONS LIMITED**
Borehole **BH10-29**
Project No **PC218256**

Client **J MURPHY & SONS LIMITED**
National Grid Coordinates **613118.837**E **316584.622**N
Ground Level **13.84** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | **End of Borehole** | **20.45** | | **-6.61** |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **3 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH10-30 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612960.01 E, 316621.52 N | Ground Level | 10.39 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 10.39 |
| 0.00- 0.17 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly silty sand with occasional rootlets. Gravel is subangular to subrounded fine to coarse quartzite and flint. | 0.17 | | 10.22 |
| 0.10 | D | | | | | | | | |
| 0.20- 0.40 | B | | | | | | 0.40 | | 9.99 |
| 0.30 | D | | | | | | | | |
| 0.40- 0.85 | B | | | | | Brown slightly gravelly silty SAND with rare rootlets. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 0.50 | D | | | | | | 0.85 | | 9.54 |
| 1.00 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | Greyish brown slightly gravelly SAND with occasional pockets (up to 50mm in size) of organic material. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | | |
| 1.20- 1.65 | | NIL | | | C7 | | | | |
| | | | | | | Grey very sandy clayey GRAVEL with occasional pockets (up to 50mm in size) of sandy clay. Gravel is subangular to subrounded fine to coarse flint and quartzite. At 1.20m, loose. | 1.80 | | 8.59 |
| 2.00 | D | | | | | | | | |
| 2.20- 2.50 | B | | | | | | | | |
| 2.20- 2.65 | D | 2.10 (1.10) | | | S7 | | | | |
| | | | | | | CHALK recovered as white slightly sandy gravelly SILT. Clasts are weak, low density, subangular with many black specs. | 2.50 | | 7.89 |
| 3.00 | D | | | 24 | | | | | |
| 3.20- 3.65 | UT13 | 3.00 (0.00) | | | | CHALK recovered as white slightly sandy slightly gravelly SILT. Gravel is very weak to weak, low density, white with many black specks.. | | | |
| 3.65- 3.80 | D | | | | | | | | |
| 4.30- 4.75 | B | | | | | | | | |
| 4.30- 4.75 | D | 3.00 (DRY) | | | S9 | | | | |
| 5.00 | D | | | | | | | | |
| 5.30- 5.75 | B | | | | | | | | |
| 5.30- 5.75 | D | 5.20 (2.40) | | | S8 | | | | |
| 6.00 | D | | | | | | | | |
| 6.30- 6.75 | UT8 | 6.20 (1.50) | | | | | | | |
| 7.00 | D | | | 28 | | | | | |
| 7.35- 7.80 | B | | | | | | | | |
| 7.35- 7.80 | D | 7.20 (2.00) | | | S3 | | | | |
| 8.30- 8.75 | UT9 | 8.25 (1.80) | 168 | 28 | | | | | |
| 8.75- 8.90 | D | | | | | | | | |
| 9.35- 9.80 | B | | | | | | | | |
| 9.35- 9.80 | D | 9.30 (2.00) | | | S3 | | | | |
| 10.00 | D | | | | | | 10.00 | | 0.39 |



## Boring Progress

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|---|---|---|---|
| 1.20 | | Inspection Pit | CR/BB | G.L. | | | 14/09/21 | 08:00 |
| 6.00 | 0.20 | Cable Percussion | CR/BB | 5.00 | 3.00 | DRY | 14/09/21 | 18:00 |
| 20.00 | 0.15 | Cable Percussion | CR/BB | 5.00 | 3.00 | 2.40 | 15/09/21 | 08:00 |
| | | | | 20.00 | 17.00 | 3.60 | 15/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | In Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 1.10 | NIL | | 20 | 0.70 | Slow inflow. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 2.40 and 10.00m.
**Drillers description.
At 12.35m, UT shoe damaged during sampling.
At 15.10m, UT shoe damaged during sampling.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH10-30** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612960.01** E **316621.52** N Ground Level **10.39** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **CHALK recovered as brownish white slightly sandy slightly gravelly SILT. Gravel is very weak to weak, low density, white with occasional black specks. Occasional subangular to subrounded fine to coarse flint gravel.** | **10.00** | | **0.39** |
| **10.30-10.75** | **UT18** | **10.25 (3.60)** | **283** | **27** | | | | | |
| **10.75-10.90** | **D** | | | **30** | | | | | |
| **11.30-12.00** | **B** | | | | | | | | |
| **11.30-11.75** | **D** | **11.25** | | | **S4** | | | | |
| **11.50-12.00** | **B** | **(3.60)** | | | | | | | |
| **12.35-12.80** | **UT24** | **12.70 (3.60)** | | | | **At 12.36-12.80m, driller records UT shoe being damaged by flint. At 12.50m, driller notes the presence of a flint cobble**.** | | | |
| **13.40-14.00** | **B** | | | | | | | | |
| **13.40-13.85** | **D** | **13.35 (3.60)** | | | **S3** | | | | |
| **14.20** | **D** | | | | | | | | |
| **14.40-15.00** | **B** | | | | | **At 14.40-14.85m, driller notes UT pushing flint cobble**.** | | | |
| **14.40-14.85** | **UTF 18** | **14.30 (3.60)** | | | | **At 14.50m, driller notes presence of flint cobble**.** | | | |
| **15.10-15.70** | **B** | | | | | | | | |
| **15.10-15.55** | **UTF 17** | **15.00 (3.60)** | | | | | | | |
| **16.00** | **D** | | | **28** | | | | | |
| **16.20-16.70** | **B** | | | | | | | | |
| **16.20-16.65** | **D** | **16.10 (3.60)** | | | **S9** | | | | |
| **17.00** | **D** | | | | | | | | |
| **17.30-17.75** | **UT34** | **17.00 (3.60)** | | | | | | | |
| **17.75-17.90** | **D** | | | | | | | | |
| **18.35-18.80** | **B** | | | | | | | | |
| **18.35-18.80** | **D** | **17.00 (3.60)** | | | **S18** | | | | |
| **19.20** | **D** | | | | | | | | |
| **19.40-19.85** | **UT27** | **17.00 (3.60)** | | | | | | | |
| **19.85-20.00** | **D** | | | | | | | | |
| | | | | | | **End of Borehole** | **20.00** | | **-9.61** |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH10-31 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612919.848E 316517.318N | Ground Level | 10.15 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 10.15 |
| 0.10- 0.50 | B | | | | | TOPSOIL: Dark brown slightly sandy slightly gravelly clay. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | | |
| 0.30 | D | | | | | | | | |
| 0.50- 1.20 | B | | | | | | 0.50 | | 9.65 |
| 0.75- 1.20 | W | | | | | Very soft black slightly sandy organic CLAY. | | | |
| 1.00 | D | | | | | | | | |
| 1.00 | ES | | | | | All SPTs between 1.20 and 4.50m, sunk under their | | | |
| 1.20- 1.65 | D | NIL (0.90) | | | S0/450 | own weight. | | | |
| 2.20- 2.65 | D | 1.20 (1.80) | | 170 | S0/450 | | | | |
| 3.50- 3.95 | D | 3.00 (3.30) | | 177 | S0/450 | | | | |
| 4.50- 4.95 | | 4.50 (4.10) | | | S0/450 | | | | |
| 5.10- 5.50 | B | | | | | | 5.10 | | 5.05 |
| 5.30 | D | | | | | Dense greyish brown very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 5.50- 6.50 | B | | | | | | | | |
| 5.50- 5.95 | | 5.50 (3.20) | | | C35 | Below 5.50m, with a medium cobble content of subangular flint. | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 7.50 | B | | | | | At 6.50m, loose. | | | |
| 6.50- 6.95 | | 6.50 (5.10) | | | C9 | | | | |
| 7.00 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (6.70) | | | S2 | At 7.50m, very loose. | | | |
| | | | | | | | 7.90 | | 2.25 |
| 7.90- 9.00 | B | | | | | CHALK recovered as white slightly sandy slightly gravelly SILT. Gravel is very weak to weak, low density, white with rare black specks. Occasional subangular to subrounded fine to coarse flint gravel. | | | |
| 8.50 | D | | | | | | | | |
| 9.00- 9.45 | UT11 | 9.00 (3.70) | 250 | 32 | | | | | |
| 9.45- 9.60 | D | | | 37 | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 20.45 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 16/09/21 | 08:00 |
| 5.95 | 5.50 | 3.20 | 16/09/21 | 18:00 |
| 5.95 | 5.50 | 4.60 | 17/09/21 | 08:00 |
| 12.50 | 11.50 | 2.60 | 17/09/21 | 18:00 |
| 12.50 | 11.50 | 6.20 | 20/09/21 | 08:00 |
| 20.45 | 20.00 | 6.30 | 20/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 1.20 | NIL | 0.75 | 20 | | Moderate inflow. |
| 8.10 | 8.10 | 3.70 | 20 | | Fast inflow. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found. Between 1.20 and 5.10m, driller reports no recovery during drilling. Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS/CR
Checked by DRB
Figure 1 of 3
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH10-31** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612919.848**E **316517.318**N Ground Level **10.15** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.50-11.50 | B | | | | | | | | |
| 10.50-10.95 | | 9.50 (3.80) | | | S4 | | | | |
| 11.00 | D | | | | | | | | |
| 11.50-11.95 | UT13 | 11.50 (3.00) | | | | | | | |
| 11.95-12.10 | D | | | | | | | | |
| 12.50-14.00 | B | | | | | | | | |
| 12.50-12.95 | D | 11.50 (2.60) | | 31 | S9 | | | | |
| 13.50 | D | | | | | | | | |
| 14.00-14.45 | UT18 | | | | | | | | |
| 14.45-14.60 | D | | | | | | | | |
| 15.20-15.65 | D | 15.00 (6.20) | | | S15 | | | | |
| 15.50-16.50 | B | | | | | | | | |
| 16.00 | D | | | 37 | | | | | |
| 16.50-16.95 | UT18 | 16.50 (6.20) | | | | | | | |
| 16.95-17.10 | D | | | | | | | | |
| 17.70-18.15 | D | 17.50 (6.20) | | | S14 | | | | |
| 18.00-19.00 | B | | | | | | | | |
| 18.50 | D | | | 36 | | | | | |
| 19.00-19.45 | UT19 | 19.00 (6.20) | | | | | | | |
| 19.45-19.60 | D | | | | | | | | |
| 20.00-20.45 | D | 20.00 (6.30) | | | S9 | | | | |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS/CR**
Checked by **DRB**
Figure **2 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS**
Engineer **J MURPHY & SONS LIMITED**
Borehole **BH10-31**
Project No **PC218256**

Client **J MURPHY & SONS LIMITED**
National Grid Coordinates **612919.848**E **316517.318**N
Ground Level **10.15** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | | 20.45 | | -10.30 |
| | | | | | | End of Borehole | | | |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS/CR**
Checked by **DRB**
Figure **3 of 3**
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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH10-32** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612731.109**E **316537.155**N Ground Level **10.89** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 10.89 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Brown slightly gravelly sand with occasional rootlets. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | |
| 0.20 | D | | | | | | 0.30 | 10.59 |
| 0.30- 0.70 | B | | | | | Light brown gravelly SAND with a low cobble content of subangular of flint. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | |
| 0.40 | D | | | | | | 0.70 | 10.19 |
| 0.70- 1.20 | B | | | | | Light brown very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | |
| 1.00 | D | | | | | | | |
| 1.20- 1.65 | B | | | | | | | |
| 1.20- 1.65 | | 1.20 (DRY) | | | C18 | Below 1.20m, medium dense, becoming brown and slightly gravelly. | | |
| 2.00 | D | | | | | | | |
| 2.30- 2.75 | B | | | | | | 2.30 | 8.59 |
| 2.30- 2.75 | | 2.25 (1.00) | | | C15 | Medium dense brown very sandy GRAVEL. Gravel is subangular to subrounded medium to coarse flint and quartzite. | | |
| 3.00 | D | | | | | | 3.00 | 7.89 |
| 3.30- 3.75 | B | | | | | Medium dense greyish brown very sandy GRAVEL. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | |
| 3.30- 3.75 | | 3.25 (1.50) | | | C18 | | | |
| 4.00 | D | | | | | Below 4.00m, becoming yellowish brown. | | |
| 4.35- 4.80 | B | | | | | | | |
| 4.35- 4.80 | | 4.30 (2.00) | | | C23 | | | |
| 5.00 | D | | | | | | | |
| 5.30- 5.75 | B | | | | | | | |
| 5.30- 5.75 | | 5.25 (2.00) | | | C32 | | | |
| 6.00 | D | | | | | | | |
| 6.30- 6.60 | B | | | | | | 6.30 | 4.59 |
| 6.30- 6.75 | | 6.25 (2.00) | | | C23 | Medium dense brown and orangish brown slightly sandy GRAVEL with a high cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint and quartzite. | 6.60 | 4.29 |
| 7.00 | D | | | 27 | | CHALK recovered as cream slightly sandy slightly gravelly SILT. Gravel is very weak to weak, low density, white with rare black specks. | | |
| 7.40- 7.80 | B | | | | | | | |
| 7.40- 7.85 | D | 7.35 (3.60) | | | S5 | | | |
| 8.00 | D | | | | | | | |
| 8.45- 8.90 | UT17 | 8.40 (2.50) | 34 | 27 | | | | |
| 8.90- 9.05 | D | | | | | | | |
| 9.45-10.00 | B | | | | | | | |
| 9.45- 9.90 | D | 9.40 (3.50) | | | S6 | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CR/BB |
| 12.00 | 0.15 | Cable Percussion | CR/BB |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 16/09/21 | 08:00 |
| 12.00 | 11.50 | 1.60 | 16/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring, possibly obscured by added water. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 4.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Logged by **PS**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** | Engineer **J MURPHY & SONS LIMITED** | Borehole **BH10-32** | Project No **PC218256**

Client **J MURPHY & SONS LIMITED** | National Grid Coordinates **612731.109**E **316537.155**N | Ground Level **10.89** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 10.20 | D | | | | | | | | |
| 10.50-10.95 | UT13 | 10.45 (2.00) | 181 | 29 | | | | | |
| 10.95-11.10 | D | | | 33 | | | | | |
| 11.55-12.00 | D | 11.50 (1.60) | | | S3 | | | | |
| | | | | | | End of Borehole | 12.00 | | -1.11 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS**
Checked by **DRB**
Figure **2 of 2**
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geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH11-33 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611860.744E 315954.291N | Ground Level | 41.66 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 41.66 |
| 0.00- 0.40 | B | | | | | TOPSOIL: Brown slightly gravelly sand. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | |
| 0.20 | D | | | | | | 0.40 | 41.26 |
| 0.50- 1.00 | B | | | | | Dense dark orangish brown slightly gravelly SAND. Gravel is subangular to subrounded fine to coarse flint and quartzite. | | |
| 0.50 | D | | | | | | | |
| 1.10 | D | | | | | Below 1.20, medium dense. | | |
| 1.20- 1.65 | B | | | | | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C15 | | | |
| | | | | | | | 1.80 | 39.86 |
| 2.00 | D | | | | | Medium dense dark orangish brown very sandy GRAVEL with a high cobble content of angular to subangular flint. Gravel is angular to subangular fine to coarse flint. | | |
| 2.20- 2.50 | B | | | | | | | |
| 2.20- 2.65 | | 2.15 (1.00) | | | C37 | | | |
| | | | | | | Dark orangish brown slightly gravelly slightly clayey SAND. Gravel is subangular fine flint. | 2.50 | 39.16 |
| 2.80 | D | | | | | | | |
| 3.20- 3.65 | B | | | | | | | |
| 3.20- 3.65 | D | 3.15 (2.50) | | | S25 | | | |
| 4.00 | D | | | | | | | |
| 4.30- 4.75 | B | | | | | | | |
| 4.30- 4.75 | D | 4.25 (3.50) | | | S31 | | 4.50 | 37.16 |
| 5.00 | D | | | | | Dense light brown slightly gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint. | | |
| 5.40- 5.85 | B | | | | | | | |
| 5.40- 5.85 | D | 5.35 (4.00) | | | S27 | | | |
| 6.00 | D | | | | | | | |
| 6.40- 6.85 | B | | | | | | | |
| 6.40- 6.85 | D | 6.20 (5.00) | | | S32 | | | |
| 7.10 | D | | | | | | | |
| 7.45- 8.00 | B | | | | | | | |
| 7.45- 7.85 | D | 7.40 (6.00) | | | S37/ 245 | | | |
| 8.20 | D | | | | | | | |
| 8.55- 9.00 | B | | | | | | | |
| 8.55- 9.00 | D | 8.50 (7.50) | | | S49 | | | |
| 9.20 | D | | | | | | | |
| 9.55-10.00 | B | | | | | | | |
| 9.55-10.00 | D | 9.30 (8.60) | | | S30 | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | |
| 12.00 | 0.15 | Cable Percussion | CR/BB |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 17/09/21 | 08:00 |
| 1.20 | NIL | DRY | 17/09/21 | 18:00 |
| 1.20 | NIL | DRY | 20/09/21 | 08:00 |
| 12.00 | 11.50 | | 20/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** (AGS)

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.20 and 12.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS/CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH11-33** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611860.744**E **315954.291**N Ground Level **41.66** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| **10.20** | **D** | | | | | | | | |
| **10.55-11.00** | **B** | | | | | | | | |
| **10.55-11.00** | **D** | **10.50 (10.00)** | | | **S41** | | | | |
| **11.20** | **D** | | | | | | | | |
| **11.55-12.00** | **D** | **11.50 (11.00)** | | | **S46** | | | | |
| | | | | | | **End of Borehole** | **12.00** | | **29.66** |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **PS/CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH11-34 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611818.241E 315804.122N | Ground Level | 41.08 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 41.08 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Dark brown slightly gravel slightly silty sand with a medium cobble content of angular flint. Gravel is angular fine to coarse flint. | | | |
| 0.20 | D | | | | | | 0.40 | | 40.68 |
| 0.50- 1.00 | B | | | | | Dark orangish brown gravelly SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.80 | D | | | | | | | | |
| 1.20- 2.20 | B | | | | | At 1.20m, dense. | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S36 | | | | |
| 2.00 | D | | | | | | 2.00 | | 39.08 |
| 2.20- 2.65 | | 1.80 (2.00) | | | C16 | Medium dense dark orangish brown sandy GRAVEL with a high cobble content of angular to subangular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 3.00- 3.50 | B | | | | | | 3.00 | | 38.08 |
| 3.00 | D | | | | | Dense orangish brown slightly gravelly clayey SAND with a low cobble content of subangular flint and occasional pockets (up to 50mm in size) of sandy clay. Gravel is angular to subangular fine to coarse flint. | | | |
| 3.50- 3.95 | D | 3.20 (DRY) | | | S36 | | | | |
| 3.80- 4.50 | B | | | | | | 3.80 | | 37.28 |
| 4.00 | D | | | | | Dense light brown slightly gravelly slightly silty SAND with rare shell fragments (up to 2mm in size). Gravel is angular to subangular fine to medium flint. | | | |
| 4.50- 5.50 | B | | | | | | | | |
| 4.50- 4.95 | D | 4.50 (4.20) | | | S41 | | | | |
| 5.00 | D | | | | | | | | |
| 5.50- 6.50 | B | | | | | | | | |
| 5.50- 5.95 | D | 5.50 (5.20) | | | S38 | | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 7.50 | B | | | | | | | | |
| 6.50- 6.95 | D | 6.20 (6.30) | | | S26 | | | | |
| 7.00 | D | | | | | | | | |
| 7.50- 8.50 | B | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (7.10) | | | S34 | | | | |
| 8.00 | D | | | | | | | | |
| 8.50- 9.50 | B | | | | | | | | |
| 8.50- 8.95 | D | 8.50 (DRY) | | | S33 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50-10.50 | B | | | | | | | | |
| 9.50- 9.95 | D | 9.50 (DRY) | | | S38 | | | | |
| 10.00 | D | | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 18.45 | 0.15 | Cable Percussion | MR/SS |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 20/09/21 | 08:00 |
| 1.20 | 1.20 | DRY | 20/09/21 | 18:00 |
| 1.20 | 1.20 | DRY | 21/09/21 | 08:00 |
| 18.45 | 15.00 | DRY | 21/09/21 | 18:00 |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 12.10 | 12.00 | 11.00 | 20 | 15.00 | Slow inflow. |

**Remarks**

Water was added to assist boring between 1.20 and 15.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH11-34 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611818.241E 315804.122N | Ground Level | 41.08 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.50-11.50 | B | | | | | Below 10.50m, medium dense. | | | |
| 10.50-10.95 | D | 10.50 (10.10) | | | S13 | | | | |
| 11.00 | D | | | | | | | | |
| 11.50-12.50 | B | | | | | | | | |
| 11.50-11.95 | D | 11.50 (11.10) | | | S18 | | | | |
| 12.00 | D | | | | | | | | |
| 12.00-12.10 | W | | | | | | | | |
| 12.50-13.50 | B | | | | | At 12.50m, very loose. | | | |
| 12.50-12.95 | D | 12.50 (11.10) | | | S2 | | | | |
| 13.00 | D | | | | | | | | |
| 13.50-14.50 | B | | | | | At 13.50m, loose. | | | |
| 13.50-13.95 | D | 13.50 (11.20) | | | S8 | | | | |
| 14.00 | D | | | | | | | | |
| 14.50-14.95 | D | 14.50 (11.20) | | | S16 | | | | |
| | | | | | | | 14.90 | | 26.18 |
| 15.00-16.00 | B | | | | | Stiff light brown slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse flint. | | | |
| 15.50 | D | | | 14 | | | | | |
| 16.00 | UT26 | 15.00 (DRY) | 158 | 15 | | | | | |
| | | | | | | | 16.40 | | 24.68 |
| 16.45-16.60 | D | | | | | Stiff light greyish brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. | | | |
| 17.00-18.00 | B | | | | | | | | |
| 17.00-17.45 | D | 15.00 (DRY) | | | S29 | | | | |
| 17.50 | D | | | 18 | | | | | |
| 18.00-18.45 | D | 15.00 (DRY) | | | S35 | Below 18.00m, becomes very stiff. | | | |
| | | | | | | | 18.45 | | 22.63 |
| | | | | | | End of Borehole | | | |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by PS
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH11-35 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611595.215E 315668.539N | Ground Level | 45.46 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 45.46 |
| 0.10- 0.50 | B | | | | | TOPSOIL: Dark brown slightly gravelly silty SAND with a low cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 0.40 | D | | | | | | | | |
| 0.60- 1.20 | B | | | | | Orangish brown gravelly slightly clayey SAND with a low cobble content of angular flint. Gravel is angular fine to coarse flint. | 0.60 | | 44.86 |
| 1.00 | D | | | | | | | | |
| 1.20- 1.90 | B | | | | | | 1.20 | | 44.26 |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S17 | Medium dense orangish brown gravelly clayey SAND. Gravel is subangular to subrounded fine to medium flint and chalk. | | | |
| 1.80 | D | | | | | | | | |
| 2.50- 3.50 | B | | | | | | | | |
| 2.50- 2.95 | D | 1.80 (DRY) | | | S4 | | 2.60 | | 42.86 |
| 3.00 | D | | | | | Very loose to loose light orangish brown slightly gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 3.50- 3.95 | D | 3.50 (DRY) | | | S3 | | | | |
| 4.00 | D | | | | | Between 4.00-4.50m, becoming gravelly. | | | |
| 4.50- 5.50 | B | | | | | | | | |
| 4.50- 4.95 | D | 1.80 (DRY) | | | S3 | | | | |
| 5.00 | D | | | | | | | | |
| 5.50- 5.95 | D | 3.00 (DRY) | | | S4 | | | | |
| 6.00 | D | | | | | | | | |
| 6.50- 6.95 | D | 3.00 (DRY) | | | S8 | Below 6.50m, loose. | | | |
| 6.80- 7.50 | B | | | | | | 6.80 | | 38.66 |
| 7.00 | D | | | | | Loose light brown slightly gravelly SAND. Gravel is fine to coarse subangular to subrounded flint and chalk. | | | |
| 7.50- 7.95 | D | 7.50 (DRY) | | | S10 | Below 7.50m, medium dense. | | | |
| 7.80- 9.00 | B | | | | | | 7.80 | | 37.66 |
| 8.50 | D | | | | | Medium dense orangish brown gravelly slightly silty SAND with a low cobble content of subangular flint. Gravel is angular to subrounded fine to medium flint and chalk. | | | |
| 9.00- 9.45 | D | 9.00 (DRY) | | | S15 | | | | |
| 9.40-10.30 | B | | | | | | 9.40 | | 36.06 |
| 10.00 | D | | | | | Medium dense orangish brown sandy GRAVEL with a high cobble content of angular flint. Gravel is angular to subrounded fine to coarse flint. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 12.25 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 22/09/21 | 08:00 |
| 12.25 | 11.80 | DRY | 22/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Water was added to assist boring between 1.20 and 11.80m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH11-35 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611595.215E 315668.539N | Ground Level | 45.46 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.30-10.75 | | 10.00 (9.00) | | | C10 | | | | |
| 11.10-11.80 | B | | | | | Medium dense dark brown slightly gravelly slightly silty SAND. Gravel is angular fine to coarse flint. | 11.10 | | 34.36 |
| 11.50 | D | | | | | | | | |
| 11.80-12.25 | D | 11.80 (DRY) | | | S12 | | | | |
| | | | | | | End of Borehole | 12.25 | | 33.21 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH12-36** Project No **PC218256**

Client **J MURPHY & SONS LIMITED**

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | |
| 0.00- 0.30 | B | | | | | TOPSOIL: Brown slightly gravelly slightly silty SAND with a low cobble content of angular flint and many rootlets. Gravel is fine to coarse subangular to subrounded flint and quartzite. | 0.30 | |
| 0.20 | D | | | | | | | |
| 0.30- 0.80 | B | | | | | Brown slightly gravelly slightly silty SAND with a low cobble content of angular to subangular flint. Gravel is fine to coarse angular to subangular flint. | 0.60 | |
| 0.50 | D | | | | | | 0.80 | |
| 1.00 | D | | | | | | | |
| 1.20- 2.00 | B | | | | | | | |
| 1.20- 1.65 | UT15 | NIL (DRY) | 96 | 15 | | Light brown mottled orangish brown slightly gravelly very clayey SAND. Gravel is fine to coarse angular flint. | | |
| 1.65- 1.80 | D | | | 20 | | Firm orangish brown slightly gravelly sandy CLAY with a high cobble content of angular flint. Gravel is fine to coarse subangular to subrounded flint. | | |
| 2.20- 2.65 | D | 2.15 (DRY) | | | S36 | Below 1.20m, becoming stiff. | 2.20 | |
| 2.50- 3.00 | B | | | | | Dense orangish brown gravelly clayey SAND with a high cobble content of angular flint. Gravel is fine to coarse angular to subangular flint. | 2.40 | |
| 3.10 | D | | | | | Dense light orangish brown very sandy slightly silty GRAVEL with a high cobble content of angular flint. Gravel is fine to coarse angular to subangular flint. | | |
| 3.20- 4.00 | B | | | | | | | |
| 3.20- 3.62 | | 3.15 (2.00) | | | C50/ 265 | | 3.30 | |
| | | | | | | Very dense light brown very gravelly silty SAND with a low cobble content of subrounded flint. Gravel is fine to medium subangular to subrounded flint. | | |
| | | | | | | | 4.40 | |
| 4.40- 5.00 | B | | | | | Very dense light brown sandy GRAVEL with a high cobble content of angular flint. Gravel is fine to coarse angular to subangular flint. | | |
| 4.40- 4.85 | | 4.35 (3.50) | | | C50/ 296 | | | |
| 5.20 | D | | | | | | | |
| 5.30- 5.80 | B | | | | | | | |
| 5.30- 5.75 | | 5.25 (3.40) | | | C50 | | | |
| 6.00 | D | | | | | | | |
| 6.20 | D | | | | | | 6.20 | |
| 6.40- 7.00 | B | | | | | Medium dense orangish brown gravelly slightly silty SAND. Gravel is angular to subangular fine to coarse flint. **Between 6.20-6.40m, driller notes clay band. Below 6.40m, becoming slightly gravelly. | | |
| 6.40- 6.85 | D | 6.20 (5.00) | | | S17 | | | |
| 7.20 | D | | | | | | | |
| 7.50- 7.95 | B | | | | | Below 7.50m, dense. | | |
| 7.50- 7.95 | | 7.45 (6.20) | | | C44 | | | |
| 8.20 | D | | | | | | | |
| 8.55- 9.00 | B | | | | | | | |
| 8.55- 9.00 | | 8.50 (6.50) | | | C46 | | | |
| 9.20 | D | | | | | Between 9.20-10.20m, with a low cobble content of angular flint. | | |
| 9.55-10.00 | B | | | | | | | |
| 9.55-10.00 | | 9.50 (8.00) | | | C49 | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CR/BB |
| 2.00 | 0.20 | Cable Percussion | CR/BB |
| 11.50 | 0.15 | Cable Percussion | CR/BB |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 21/09/21 | 08:00 |
| 9.00 | 8.00 | 6.55 | 21/09/21 | 18:00 |
| 9.00 | 8.00 | | 22/09/21 | 08:00 |
| 12.00 | 11.50 | | 22/09/21 | 18:00 |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Water was added to assist boring between 2.40 and 12.00m
** Drillers description.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH12-36** Project No **PC218256**

Client **J MURPHY & SONS LIMITED**

| Sampling | | | Properties | | | Strata | | | Scale 1:50 |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | |
| 10.20 | D | | | | | | | | |
| 10.55-11.00 | B | | | | | | | | |
| 10.55-11.00 | | 10.50 (9.00) | | | C36 | | | | |
| 11.20 | D | | | | | | | | |
| 11.50-11.95 | | 11.50 (10.00) | | | C48 | | | | |
| | | | | | | End of Borehole | 12.00 | | |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH12-37 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611783.606 E<br>314416.9 N | Ground Level | 44.45 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 44.45 |
| 0.00- 0.35 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly silty sand with a low cobble content of angular flint and many rootlets. Gravel is angular subrounded fine to coarse flint and quartzite. | 0.35 | | 44.10 |
| 0.20 | D | | | | | | 0.50 | | 43.95 |
| 0.35- 0.50 | B | | | | | | | | |
| 0.50- 1.00 | B | | | | | Orangish brown gravelly slightly silty SAND with a high cobble content of angular flint. Gravel is angular subrounded fine to coarse angular subrounded flint. | | | |
| 0.50 | D | | | | | | | | |
| 1.20 | D | | | | | | | | |
| 1.25- 1.70 | B | | | | | Orangish brown very sandy slightly silty GRAVEL with a high cobble content of angular flint. Gravel is angular to subangular fine to coarse flint. At 1.20m, dense. | | | |
| 1.25- 1.70 | | 1.20 (DRY) | | | C31 | | | | |
| 2.00 | D | | | | | | | | |
| 2.25- 2.70 | B | | | | | Below 2.25m, medium dense. | | | |
| 2.25- 2.70 | | 2.20 (1.50) | | | C23 | | | | |
| 3.00 | D | | | | | | | | |
| 3.30- 3.75 | B | | | | | | | | |
| 3.30- 3.75 | | 3.25 (2.50) | | | C23 | | | | |
| 4.00 | D | | | | | | | | |
| 4.35- 4.80 | | 4.30 | | | C33 | | | | |
| 4.50- 5.00 | B | (3.50) | | | | | 4.50 | | 39.95 |
| 5.00 | D | | | | | Medium dense light brown slightly gravelly SAND with rare shell fragments (up to 2mm in size). Gravel is angular to subangular fine to medium flint. At 4.50m, dense. | | | |
| 5.40- 5.85 | B | | | | | | | | |
| 5.40- 5.85 | D | 5.35 (4.00) | | | S29 | | | | |
| 6.00 | D | | | | | | | | |
| 6.45- 6.90 | D | 6.40 (5.00) | | | S32 | At 6.45m, dense. | | | |
| 7.00 | D | | | | | | | | |
| 7.45- 8.00 | B | | | | | | | | |
| 7.45- 7.90 | D | 7.40 (6.50) | | | S28 | | | | |
| | | | | | | | 8.00 | | 36.45 |
| 8.20 | D | | | | | Very dense light brown slightly silty SAND with rare shell fragments (up to 2mm in size). | | | |
| 8.50- 8.95 | B | | | | | | | | |
| 8.50- 8.95 | D | 8.45 (7.50) | | | S50/ 298 | | | | |
| 9.20 | D | | | | | | | | |
| 9.55-10.00 | B | | | | | | | | |
| 9.55- 9.98 | D | 9.50 (8.00) | | | S50/ 279 | | | | |



## Boring Progress

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|---|---|---|---|
| 1.20 | | Inspection Pit | CR/BB | G.L. | | | 22/09/21 | 08:00 |
| 4.50 | 0.20 | Cable Percussion | CR/BB | 10.00 | 9.50 | | 22/09/21 | 18:00 |
| 20.50 | 0.15 | Cable Percussion | CR/BB | 10.00 | 9.50 | | 23/09/21 | 08:00 |
| | | | | 20.30 | 15.00 | | 23/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Water was added to assist boring between 1.20 and 15.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH12-37 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611783.606 E, 314416.9 N | Ground Level | 44.45 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20 | D | | | | | | | | |
| 10.55-11.00 | B | | | | | | | | |
| 10.55-10.96 | D | 10.50 (5.00) | | | S50/ 256 | | | | |
| 11.20 | D | | | | | | | | |
| 11.55-12.00 | B | | | | | | | | |
| 11.55-11.95 | D | 11.50 (5.50) | | | S50/ 245 | | | | |
| 12.20 | D | | | | | | | | |
| 12.55-13.00 | B | | | | | | | | |
| 12.55-12.97 | D | 12.50 (5.50) | | | S50/ 269 | | | | |
| 13.20 | D | | | | | | | | |
| 13.55-14.00 | B | | | | | | | | |
| 13.55-13.99 | D | 13.50 (3.20) | | | S50/ 285 | | | | |
| 14.30 | D | | | | | | | | |
| 14.75-15.20 | B | | | | | | | | |
| 14.75-15.16 | D | 14.50 (3.80) | | | S50/ 257 | | | | |
| 15.30 | D | | | | | | | | |
| 15.50-15.90 | D | 15.40 (4.00) | | | S50/ 248 | | | | |
| | | | | | | | 16.00 | | 28.45 |
| 16.20 | D | | | | | Very dense light brown slightly gravelly silty SAND with rare shell fragments (up to 2mm in size). Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 16.40 | D | | | | | | 16.40 | | 28.05 |
| 16.55-17.00 | B | | | | | | | | |
| 16.55-17.00 | D | 16.50 (15.00) | | | S21 | Stiff light brown slightly gravelly sandy CLAY with occasional pockets (up to 100mm in size) of sand. Gravel is angular to subangular fine to medium flint and chalk. | | | |
| 17.20 | D | | | | | | | | |
| 17.60-18.05 | UT30 | 17.50 (DRY) | 56 | 15 | | | | | |
| 18.05-18.20 | D | | | | | | | | |
| 18.60-19.05 | D | 17.50 (DRY) | | | S23 | | | | |
| 19.30 | D | | | 16 | | | | | |
| 19.70-20.15 | UT26 | 17.50 (DRY) | | | | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 2 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** **Borehole** **BH12-37** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611783.606** E **314416.9** N Ground Level **44.45** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| **20.15-20.30** | **D** | | | | | **End of Borehole** | **20.30** | | **24.15** |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **3 of 3**
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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH12-38 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611850.708E 314366.945N | Ground Level | 41.10 m OD |

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 41.10 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Soft to firm dark brown slightly gravelly sandy clay with occasional rootlets. Gravel is angular and subrounded fine to coarse flint and quartzite. | | | |
| 0.20 | D | | | | | | 0.40 | | 40.70 |
| 0.50- 1.00 | B | | | | | Light brown slightly gravelly SAND. Below 0.60m, with a low cobble content of subangular flint. | | | |
| 0.80 | D | | | | | | | | |
| 1.20- 2.20 | B | | | | | Loose light brown slightly gravelly silty SAND. | 1.20 | | 39.90 |
| 1.20- 1.65 | | 1.20 (DRY) | | | C5 | | | | |
| 2.00 | D | | | | | | | | |
| 2.20- 3.50 | B | | | | | | | | |
| 2.20- 3.50 | B | | | | | | | | |
| 2.20- 2.45 | D | | | | | | | | |
| 2.20- 2.65 | | 1.80 (DRY) | | | S4 | | | | |
| 3.00 | D | | | | | Very loose to loose very sandy GRAVEL with occasional pockets (up to 50mm in size) of clay. | 3.00 | | 38.10 |
| 3.50- 4.50 | B | | | | | | | | |
| 3.50- 3.95 | D | 3.00 (DRY) | | | S3 | | | | |
| 4.00 | D | | | | | | | | |
| 4.50- 5.50 | B | | | | | At 4.50m, medium dense with a low cobble content. | | | |
| 4.50- 5.50 | B | | | | | | 4.60 | | 36.50 |
| 4.50- 4.95 | D | 4.50 (DRY) | | | S19 | Dense light brown slightly sandy slightly clayey GRAVEL with occasional pockets (up to 30mm in size) of clay. Gravel is angular to subrounded fine to coarse flint and quartzite. | | | |
| 5.10 | D | | | | | | | | |
| 5.50- 5.95 | | 5.50 (DRY) | | | C35 | At 5.50m, dense. | | | |
| | | | | | | | 5.90 | | 35.20 |
| 5.90- 6.50 | B | | | | | Dense brown slightly gravelly slightly clayey SAND. Gravel is angular to subangular fine to medium flint. | | | |
| 6.20 | D | | | | | | | | |
| 6.50- 8.00 | B | | | | | | 6.50 | | 34.60 |
| 6.50- 6.95 | D | 6.20 (DRY) | | | S43 | Dense light brown SAND. | | | |
| 7.50 | D | | | | | | | | |
| 8.00- 9.30 | B | | | | | Below 8.00m, with rare shell fragments (up to 5mm in size). | | | |
| 8.00- 8.45 | D | 7.80 (DRY) | | | S45 | | | | |
| 8.70 | D | | | | | | | | |
| 9.30-10.50 | B | | | | | | | | |
| 9.30- 9.75 | D | 9.00 (DRY) | | | S32 | | | | |
| 10.00 | D | | | | | At 10.50m, very dense. | | | |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 12.15 | 0.15 | Cable Percussion | MR/SS |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 23/09/21 | 08:00 |
| 10.95 | 10.50 | DRY | 23/09/21 | 18:00 |
| 10.95 | 10.50 | DRY | 24/09/21 | 08:00 |
| 12.15 | 11.00 | DRY | 24/09/21 | 18:00 |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

Remarks

Water was added to assist boring between 1.20 and 11.70m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by ECAD
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS**
Engineer **J MURPHY & SONS LIMITED**
Borehole **BH12-38**
Project No **PC218256**

Client **J MURPHY & SONS LIMITED**
National Grid Coordinates **611850.708**E **314366.945**N
Ground Level **41.10** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 10.50-11.70 | B | | | | | | | | |
| 10.50-10.89 | D | 10.50 (DRY) | | | S50/ 240 | | | | |
| 11.00 | D | | | | | | | | |
| 11.70-12.15 | D | 11.00 (DRY) | | | S31 | | | | |
| | | | | | | End of Borehole | 12.15 | | 28.95 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **ECAD**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH13-39 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611816.077E 313171.614N | Ground Level | 57.43 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 57.43 |
| 0.10- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly sand with a low cobble content of subangular flint. Gravel is angular to subangular fine to coarse flint. | 0.30 | | 57.13 |
| 0.10- 0.20 | D | | | | | | | | |
| 0.30- 0.70 | B | | | | | | | | |
| 0.30- 0.40 | D | | | | | | | | |
| | | | | | | Light orangish brown slightly gravelly slightly silty SAND with a low cobble content of subangular flint. Gravel is subangular fine to coarse flint. | | | |
| | | | | | | Below 1.20m, medium dense. | | | |
| 1.20- 2.20 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S10 | | | | |
| 1.90- 2.00 | D | | | | | | | | |
| 2.20- 2.65 | D | 2.20 (DRY) | | | S20 | | | | |
| 2.70- 3.20 | B | | | | | | | | |
| 2.90- 3.00 | D | | | | | | | | |
| 3.20- 3.65 | D | 3.20 (DRY) | | | S16 | | | | |
| 4.00- 4.10 | D | | | | | | | | |
| 4.20- 4.50 | B | | | | | | | | |
| 4.50- 4.95 | D | 4.50 (DRY) | | | S18 | | | | |
| 5.00- 5.10 | D | | | | | | | | |
| 5.50- 6.00 | B | | | | | Below 5.50m, silty sand. | | | |
| 5.50- 5.95 | D | 5.50 (DRY) | | | S13 | | | | |
| 6.20- 6.30 | D | | | | | | | | |
| 6.60- 7.05 | D | 6.60 (DRY) | | | S19 | | | | |
| 7.00- 7.50 | B | | | | | | | | |
| 7.20- 7.30 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (DRY) | | | S20 | | | | |
| 8.20- 8.30 | D | | | | | | | | |
| 8.60- 9.00 | B | | | | | | | | |
| 8.60- 9.05 | D | 8.60 (DRY) | | | S20 | | | | |
| 9.30- 9.40 | D | | | | | | | | |
| 9.50- 9.95 | D | 9.50 (DRY) | | | S21 | | | | |
| 10.00-10.10 | D | | | | | | 10.00 | | 47.43 |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 15.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 10/09/21 | 08:00 |
| 5.00 | 4.50 | DRY | 10/09/21 | 18:00 |
| 5.00 | 4.50 | DRY | 13/09/21 | 08:00 |
| 15.00 | 15.00 | DRY | 13/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

AGS Water was added to assist boring between 1.20 and 15.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH13-39 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611816.077E 313171.614N | Ground Level | 57.43 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.10-10.20 | D | | | | | Firm orangish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint. | 10.00<br>10.10 | | 47.43<br>47.33 |
| 10.60-11.10 | B | | | | | Medium dense orangish brown very gravelly SAND with a medium cobble content of subangular to subrounded flint. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 10.60-11.05 | | 10.60 (DRY) | | | C12 | | | | |
| 11.30-11.40 | D | | | | | | | | |
| 11.70-12.15 | | 11.70 (DRY) | | | C21 | | | | |
| 12.00-12.40 | B | | | | | | | | |
| 12.40-12.50 | D | | | | | | | | |
| 12.80-13.25 | | 12.80 (DRY) | | | C17 | | | | |
| 13.40-13.50 | D | | | | | | | | |
| 13.50-14.00 | B | | | | | | | | |
| 13.90-14.35 | | 13.90 (DRY) | | | C17 | | | | |
| 14.40-14.50 | D | | | | | | | | |
| 14.90-15.00 | D | | | | | End of Borehole | 15.00 | | 42.43 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH13-40** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611908.378**E **312914.586**N Ground Level **56.52** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 56.52 |
| 0.10- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly clayey sand with occasional rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | |
| 0.10- 0.20 | D | | | | | | 0.50 | 56.02 |
| 0.50- 0.70 | B | | | | | Orangish brown slightly gravelly clayey SAND, with rare roots (up to 5mm in diameter). Gravel is angular to subrounded fine to coarse flint and quartzite. | | |
| 0.50- 0.60 | D | | | | | | 0.80 | 55.72 |
| 0.80- 1.20 | B | | | | | | | |
| 0.80- 0.90 | D | | | | | | | |
| 1.20- 2.20 | B | | | | | | | |
| 1.20- 1.65 | D | 1.50 (DRY) | | | S15 | Medium dense dark orangish brown gravelly clayey SAND with rare rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite. | | |
| 1.80- 1.90 | D | | | | | Below 2.00m, rootlets absent. | | |
| 2.20- 3.20 | B | | | | | | | |
| 2.20- 2.65 | D | 2.20 (DRY) | | | S10 | | | |
| 2.80- 2.90 | D | | | | | | | |
| 3.20- 3.65 | D | 3.00 (DRY) | | | S15 | | | |
| 3.80- 3.90 | D | | | | | Below 3.80m, becoming very gravelly. | | |
| 4.30- 5.00 | B | | | | | | 4.30 | 52.22 |
| 4.30- 4.75 | D | 4.30 (DRY) | | | S43 | Dense orangish brown very gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint and chalk. | | |
| 5.00- 5.90 | B | | | | | | 5.00 | 51.52 |
| 5.00- 5.10 | D | | | | | Medium dense orangish brown very gravelly clayey SAND. Gravel is angular to subrounded fine to coarse flint and quartzite. | | |
| 5.30- 5.75 | | 5.30 (DRY) | | | C22 | | | |
| 5.80- 5.90 | D | | | | | | 5.80 | 50.72 |
| | | | | | | Firm orangish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint and sandstone. | 6.00 | 50.52 |
| 6.50- 7.00 | B | | | | | Medium dense orangish brown gravelly slightly clayey SAND. Gravel is angular to subrounded fine to medium flint and sandstone. | | |
| 6.50- 6.60 | D | | | | | | | |
| 6.50- 6.95 | | 6.50 (DRY) | | | C14 | | | |
| 7.30- 7.40 | D | | | | | | | |
| 7.60- 8.05 | | 7.60 (DRY) | | | C13 | | | |
| 8.00- 8.50 | B | | | | | | | |
| 8.20- 8.30 | D | | | | | | | |
| 8.50- 8.95 | | 8.50 (DRY) | | | C13 | | | |
| 9.30- 9.40 | D | | | | | | | |
| 9.50-10.00 | B | | | | | | | |
| 9.50- 9.95 | | 9.50 (DRY) | | | C19 | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 15.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 08/09/21 | 08:00 |
| 6.50 | 6.50 | DRY | 08/09/21 | 18:00 |
| 6.50 | 6.50 | DRY | 09/09/21 | 08:00 |
| 15.00 | 15.00 | DRY | 09/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Water was added to assist boring between 1.20 and 15.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH13-40** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611908.378**E **312914.586**N Ground Level **56.52** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.30-10.40 | D | | | | | | | | |
| 10.60-11.05 | | 10.60 (DRY) | | | C22 | | | | |
| | | | | | | | 11.10 | | 45.42 |
| 11.20-11.50 | B | | | | | Medium dense orangish brown slightly gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint and sandstone. | | | |
| 11.20-11.30 | D | | | | | | | | |
| 11.50-11.95 | D | 11.50 (DRY) | | | S11 | | | | |
| 12.30-12.40 | D | | | | | | | | |
| 12.50-13.00 | B | | | | | Below 12.50m, becoming dense. | | | |
| 12.50-12.95 | D | 12.50 (DRY) | | | S37 | | | | |
| 13.30-13.40 | D | | | | | | | | |
| 13.50-13.95 | D | 13.50 (DRY) | | | S39 | | | | |
| 14.00-14.50 | B | | | | | | | | |
| 14.30-14.40 | D | | | | | | | | |
| 14.50-14.95 | D | 14.50 (DRY) | | | S40 | | | | |
| | | | | | | End of Borehole | 15.00 | | 41.52 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH14-41 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612229.399E 311581.193N | Ground Level | 19.63 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 19.63 |
| 0.00- 0.20 | B | | | | | TOPSOIL: Dark brown slightly gravelly silty sand with occasional rootlets. Gravel is subrounded fine to coarse flint. | | | |
| 0.00- 0.10 | D | | | | | | | | |
| 0.30- 0.60 | B | | | | | | 0.30 | | 19.33 |
| 0.30- 0.40 | D | | | | | Dark brown slightly gravelly silty SAND with a low cobble content of subangular flint. Gravel is subangular fine to coarse flint. | | | |
| 0.70- 1.20 | B | | | | | | 0.70 | | 18.93 |
| 0.70- 0.80 | D | | | | | Dark brown clayey SAND. | | | |
| 1.20- 2.00 | B | | | | | | 1.20 | | 18.43 |
| 1.20- 1.30 | D | | | | | Soft light orangish brown slightly gravelly sandy CLAY with a medium cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 1.20- 1.65 | | 1.20 (DRY) | | | S6 | | | | |
| 1.90- 2.00 | D | | | 9.9 | | | | | |
| 2.20- 2.65 | UT30 | 2.20 (DRY) | | | | Orangish brown mottled grey slightly gravelly sandy CLAY with a medium cobble content of subrounded flint and occasional pockets (up to 50mm in size) of sand. Gravel is subangular to subrounded fine to coarse flint and chalk. | 2.20 | | 17.43 |
| 2.65- 2.70 | D | | | | | | | | |
| 2.70- 3.40 | B | | | | | | | | |
| 3.10- 3.20 | D | | | | | At 3.40m, loose. | | | |
| 3.40- 3.85 | D | 3.00 (DRY) | | | S4 | | | | |
| 3.90- 4.40 | B | | | | | CHALK, recovered as brownish cream slightly gravelly sandy SILT and SAND. Gravel is very weak, low density, brownish cream and subrounded. | 3.80 | | 15.83 |
| 4.10- 4.20 | D | | | 23 | | | | | |
| 4.40- 4.85 | UT18 | 4.40 (DRY) | 76 | 26 | | | | | |
| 4.85- 4.90 | D | | | | | | | | |
| 5.30- 5.40 | D | | | | | | | | |
| 5.50- 6.00 | B | | | | | | | | |
| 5.50- 5.95 | D | 5.50 (DRY) | | | S5 | | | | |
| 6.30- 6.40 | D | | | 23 | | | | | |
| 6.50- 6.95 | UT20 | 6.00 (DRY) | | | | | | | |
| 6.95- 7.00 | D | | | | | | | | |
| 7.00- 7.50 | B | | | | | | | | |
| 7.30- 7.40 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (DRY) | | | S4 | | | | |
| 8.30- 8.40 | D | | | | | | | | |
| 8.50- 9.00 | B | | | | | | | | |
| 8.50- 8.95 | UT15 | 8.50 (8.30) | 203 | 25 | | Below 8.95m, becoming cream. | | | |
| 8.95- 9.00 | D | | | | | | | | |
| 9.30- 9.40 | D | | | | | | | | |
| 9.50- 9.60 | D | | | | | | | | |
| 9.50- 9.95 | | 9.00 (8.40) | | | S6 | | | | |
| 10.00-12.00 | B | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 06/09/21 | 08:00 |
| 2.00 | 1.20 | DRY | 06/09/21 | 18:00 |
| 2.00 | 1.20 | DRY | 07/09/21 | 08:00 |
| 15.20 | 12.00 | 5.30 | 07/09/21 | 18:00 |
| 15.20 | 12.00 | 4.50 | 08/09/21 | 08:00 |
| 18.00 | 18.00 | 6.00 | 08/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 8.50 | 8.50 | 8.30 | 20 | | Slow inflow. |

**Remarks**

AGS Inspection pit hand excavated to 1.20m depth and no services were found.
** Drillers description.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR/PS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** | Engineer **J MURPHY & SONS LIMITED** | Borehole **BH14-41** | Project No **PC218256**

Client **J MURPHY & SONS LIMITED** | National Grid Coordinates **612229.399**E **311581.193**N | Ground Level **19.63** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.50-10.95 | UT35 | 10.50 (8.60) | | | | | | | |
| 10.95-11.00 | D | | | 33 | | | | | |
| 11.60-11.70 | D | | | | | | | | |
| 12.00-13.00 | B | | | | | Below 12.00m, with rare angular to subangular fine to coarse flint gravel. | | | |
| 12.00-12.45 | D | 12.00 (5.80) | | | S5 | | | | |
| 12.60-12.70 | D | | | | | | | | |
| 13.00-13.70 | B | | | | | At 13.00-13.45 driller notes presence of a large flint boulder**. | | | |
| 13.00-13.45 | UTF 50 | 12.00 (5.80) | | | | | | | |
| 13.70-15.20 | B | | | | | | | | |
| 13.70-14.15 | D | 12.00 (5.30) | | | S14 | | | | |
| 14.20-14.30 | D | | | | | | | | |
| 14.70-15.15 | D | 12.00 (5.30) | | 27 | S12 | | | | |
| 15.20-15.70 | B | | | | | | | | |
| 15.50-15.60 | D | | | | | Below 15.50m, flint gravel absent. | | | |
| 15.70-16.15 | D | 15.70 (5.40) | | | S9 | | | | |
| 16.70-16.80 | D | | | | | | | | |
| 17.00-17.45 | D | 17.00 (6.00) | | | S14 | | | | |
| 17.90-18.00 | D | | | | | | 18.00 | | 1.63 |
| | | | | | | End of Borehole | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR/PS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH14-42** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612224.197**E **311387.917**N Ground Level **21.13** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 21.13 |
| 0.00- 0.20 | B | | | | | TOPSOIL: Dark brown slightly gravelly clayey sand with a medium cobble content of subangular to subrounded flint and chalk. Gravel is subangular to subrounded fine to coarse flint and chalk | 0.30 | | 20.83 |
| 0.00- 0.10 | D | | | | | | | | |
| 0.30- 0.60 | B | | | | | Dark brown gravelly slightly clayey SAND with a low cobble content of angular flint. Gravel is angular to subangular fine to coarse flint and chalk. Below 0.60m, becoming light brown. | | | |
| 0.30- 0.40 | D | | | | | | | | |
| 0.60- 0.90 | B | | | | | | | | |
| 0.60- 0.70 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | Loose light brown gravelly clayey SAND with a low cobble content of angular flint. Gravel is angular to subangular fine to coarse chalk and flint. | 1.20 | | 19.93 |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S6 | | | | |
| 1.80- 1.90 | D | | | | | Light brown slightly gravelly silty SAND with a low cobble content of angular chalk. Gravel is subangular fine to coarse flint and chalk. | 1.80 | | 19.33 |
| 2.10- 2.55 | D | 2.10 (DRY) | | | S11 | | | | |
| 2.30- 3.00 | B | | | | | Soft light brown slightly gravelly sandy CLAY with a medium cobble content of subrounded chalk. Gravel is subangular to subrounded fine to coarse flint and chalk. | 2.30 | | 18.83 |
| | | | | | | Loose light greyish brown mottled dark brown very silty SAND. | 3.00 | | 18.13 |
| 3.40- 4.50 | B | | | | | | | | |
| 3.40- 3.50 | D | | | | | | | | |
| 3.40- 3.85 | | 3.40 (2.40) | | | S5 | | | | |
| 4.50- 5.00 | B | | | | | | | | |
| 4.50- 4.95 | D | 4.50 (3.20) | | | S20 | Medium dense light brown gravelly SAND with a medium cobble content of subrounded chalk. Gravel is subangular to subrounded fine to coarse chalk and flint. | 4.50 | | 16.63 |
| 5.20- 5.30 | D | | | | | | | | |
| 5.60- 6.05 | | 5.60 (3.70) | | | C12 | | | | |
| 6.10- 6.20 | D | | | | | Light grey gravelly fine to medium SAND with a medium cobble content of subrounded chalk. Gravel is subangular to subrounded fine to coarse flint. | 6.10 | | 15.03 |
| 6.30- 6.40 | D | | | | | | | | |
| 6.50- 7.50 | B | | | | | | 6.50 | | 14.63 |
| 6.50- 6.60 | D | | | | | | | | |
| 6.50- 6.95 | | 6.50 (4.10) | | | C7 | Loose grey slightly gravelly silty SAND with occasional pockets (up to 50mm in size) of soft grey clay and a low cobble content. Gravel is fine to coarse subangular to subrounded flint and chalk. | | | |
| 6.90- 7.00 | D | | | | | | | | |
| | | | | | | | 7.90 | | 13.23 |
| 7.90- 8.70 | B | | | | | Loose light grey gravelly silty SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 7.90- 8.35 | D | 7.90 (4.30) | | | S9 | | | | |
| 8.40- 8.50 | D | | | | | | | | |
| 8.90- 9.40 | B | | | | | | | | |
| 8.90- 9.00 | D | | | | | | | | |
| 8.90- 9.35 | | 8.90 (5.00) | | | S6 | | | | |
| 9.40- 9.50 | D | | | | | Soft grey slightly gravelly sandy CLAY. Gravel is subrounded fine to coarse flint and chalk. | 9.40 | | 11.73 |
| 9.70- 9.80 | D | | | 13 | | | 9.70 | | 11.43 |
| 9.80-10.00 | B | | | | | | | | |
| 9.80- 9.90 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 13/09/21 | 08:00 |
| 3.40 | 3.00 | 2.70 | 13/09/21 | 18:00 |
| 3.40 | 3.00 | 2.40 | 14/09/21 | 08:00 |
| 16.00 | 16.00 | 4.00 | 14/09/21 | 18:00 |
| 16.00 | 16.00 | 3.00 | 15/09/21 | 08:00 |
| 18.00 | 16.50 | 4.00 | 15/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 3.40 | 3.00 | 2.70 | 20 | | Slow inflow. |

**Remarks**

Water was added to assist boring between 10.00-16.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Logged by **CR**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH14-42** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612224.197**E **311387.917**N Ground Level **21.13** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.00-10.10 | D | | | | | Medium dense light grey gravelly slightly clayey SAND with a medium cobble content of subangular to subrounded flint. Gravel is subangular to subrounded fine to coarse chalk. | | | |
| 10.00-10.45 | | 10.00 (0.00) | | | S15 | | | | |
| 10.50-11.00 | B | | | | | | 10.50 | | 10.63 |
| 10.50-10.60 | D | | | | | Light grey very gravelly silty SAND with a medium cobble content of angular flint and chalk. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 11.20-11.30 | D | | | | | | | | |
| 11.50-12.00 | B | | | | | At 11.50m, loose. | | | |
| 11.50-11.95 | | 11.50 (0.00) | | | C9 | | | | |
| 12.60-12.70 | D | | | | | Between 12.60-12.70m, layer of soft slightly sandy clay. | | | |
| 12.60-13.05 | | 12.60 (0.00) | | | C11 | At 12.60m, medium dense. | | | |
| 13.00-13.50 | B | | | | | | | | |
| 13.50-13.60 | D | | | | | | | | |
| 13.50-13.95 | | 13.50 (0.00) | | | C13 | | | | |
| 13.70-14.00 | B | | | | | | 13.70 | | 7.43 |
| 13.70-13.80 | D | | | 18 | | Stiff grey slightly sandy slightly gravelly CLAY with a medium cobble content of subrounded chalk. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 14.00-14.10 | D | | | | | | 14.00 | | 7.13 |
| 14.50-14.95 | | 14.50 (0.00) | | | C18 | Medium dense light grey gravelly SAND with a high cobble content of angular flint and subangular chalk. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 15.50-16.00 | B | | | | | | 15.50 | | 5.63 |
| 15.50-15.60 | D | | | | | Medium dense dark grey sandy slightly silty GRAVEL with a high cobble content of subangular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 15.50-15.95 | | 15.50 (4.00) | | | C31 | | | | |
| 16.50-16.95 | D | 16.50 (3.50) | | | C26 | | | | |
| 16.50-16.60 | D | | | | | | | | |
| 17.00-17.10 | D | | | | | | 17.00 | | 4.13 |
| 17.50-18.00 | D | | | 22 | | CHALK recovered as brownish cream slightly gravelly sandy SILT. Gravel is very weak, low density, brownish cream with many black specks and subrounded. | | | |
| 17.50-17.95 | | 16.50 (4.00) | | | S13 | | | | |
| | | | | | | | 18.00 | | 3.13 |
| | | | | | | End of Borehole | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH15-43** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612440.222**E **311082.674**N Ground Level **28.34** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 28.34 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly subangular sand with a medium cobble content of flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 0.00- 0.10 | D | | | | | | 0.30 | | 28.04 |
| 0.30- 0.60 | B | | | | | Orangish brown very sandy clayey GRAVEL with a low cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.30- 0.40 | D | | | | | | 0.80 | | 27.54 |
| 0.80- 1.20 | B | | | | | Soft orangish brown mottled dark grey slightly sandy slightly gravelly CLAY with a medium cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.80- 0.90 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S6 | | | | |
| 1.70- 1.80 | D | | | | | | 1.70 | | 26.64 |
| 2.00- 2.10 | D | | | 16 | | Firm light brown slightly sandy slightly gravelly CLAY with a medium cobble content of subangular to subrounded flint. Gravel is subangular to subrounded fine to coarse flint and chalk. | 2.00 | | 26.34 |
| 2.20- 2.70 | B | | | | | | | | |
| 2.20- 2.65 | UTF 55 | 1.50 (DRY) | | | | Firm light brown mottled orangish brown sandy CLAY. | | | |
| 2.70- 3.15 | UT50 | 1.50 (DRY) | 187 | 17 | | | | | |
| 3.15- 3.20 | D | | | | | | | | |
| 3.50- 3.90 | B | | | | | | 3.50 | | 24.84 |
| 3.50- 3.60 | D | | | | | Soft light brown mottled dark orangish brown slightly sandy CLAY. | | | |
| 3.90- 4.35 | D | 3.90 (DRY) | | | S14 | | 4.00 | | 24.34 |
| | | | | | | Firm light brown mottled orangish brown sandy CLAY. | | | |
| | | | | | | | 4.40 | | 23.94 |
| 4.40- 4.80 | B | | | | | Firm light brown mottled orange slightly gravelly sandy CLAY with a medium cobble content of subrounded chalk. Gravel is subrounded fine to coarse chalk. | | | |
| 4.40- 4.50 | D | | | | | | | | |
| 4.80- 4.90 | D | | | 16 | | | | | |
| 4.90- 5.35 | UT30 | 4.50 (DRY) | | | | ** Driller notes presence of soft layers. | | | |
| 5.35- 5.40 | D | | | | | | 5.40 | | 22.94 |
| 5.70- 5.80 | D | | | | | Stiff light orangish grey slightly sandy gravelly CLAY with a medium cobble content of angular to subrounded flint and chalk. Gravel is subangular to subrounded fine to coarse flint and chalk. | | | |
| 6.00- 6.50 | B | | | | | | | | |
| 6.00- 6.45 | D | 6.00 (DRY) | | 19 | S16 | | | | |
| 6.80- 6.90 | D | | | | | | | | |
| 7.00- 7.45 | UT60 | 6.00 (DRY) | | | | | | | |
| | | | | | | | 7.40 | | 20.94 |
| 7.45- 7.50 | D | | | | | Stiff grey slightly sandy gravelly CLAY with a medium cobble content of subrounded chalk and flint. Gravel is subrounded fine to coarse chalk. | | | |
| 7.50- 8.00 | B | | | | | | | | |
| 8.00- 8.10 | D | | | 16 | | | | | |
| 8.20- 8.65 | D | 6.00 (DRY) | | | S22 | | | | |
| 8.90- 9.00 | D | | | | | | | | |
| 9.00- 9.30 | B | | | | | | | | |
| 9.30- 9.75 | UT65 | 6.00 (DRY) | 118 | 15 | | | | | |
| 9.75- 9.80 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 15.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 03/09/21 | 08:00 |
| 5.40 | 4.50 | DRY | 03/09/21 | 18:00 |
| 5.40 | 4.50 | 4.70 | 06/09/21 | 08:00 |
| 15.00 | 6.00 | DRY | 06/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. Water entered borehole over weekend. |

**Remarks** AGS **Inspection pit hand excavated to 1.20m depth and no services were found.**
**** Drillers description.**
**Backfill details from base of hole: bentonite grout up to ground level.**

Logged by **CR**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH15-43** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612440.222**E **311082.674**N Ground Level **28.34** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20-10.30 | D | | | | | | | | |
| 10.50-11.00 | B | | | | | | | | |
| 10.50-10.95 | D | 6.00 (DRY) | | 15 | S19 | | | | |
| 11.30-11.40 | D | | | | | | | | |
| 11.70-12.15 | UT60 | 6.00 (DRY) | 226 | 15 | | | | | |
| 12.15-12.20 | D | | | | | | | | |
| 12.20-12.50 | B | | | | | | | | |
| 12.60-12.70 | D | | | | | | | | |
| 12.80-13.25 | D | 6.00 (DRY) | | | S33 | Below 12.80m, becoming very stiff. | | | |
| 13.40-13.50 | D | | | | | | | | |
| 13.70-14.00 | B | | | | | | | | |
| 14.00-14.45 | UT70 | 6.00 (DRY) | | | | | | | |
| 14.45-14.50 | D | | | 16 | | | | | |
| 14.50-14.90 | B | | | | | | | | |
| 14.90-15.00 | D | | | | | End of Borehole | 15.00 | | 13.34 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH15-44 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612611.325E 311016.136N | Ground Level | 30.86 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 30.86 |
| 0.00- 0.10 | D | | | | | TOPSOIL: Dark brown slightly gravelly clayey sand with a low cobble content of angular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 0.10- 0.30 | B | | | | | | | | |
| 0.30- 0.60 | B | | | | | | 0.30 | | 30.56 |
| 0.30- 0.40 | D | | | | | Orangish brown slightly gravelly clayey SAND with a low cobble content of subangular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| | | | | | | | 0.90 | | 29.96 |
| 0.90- 1.20 | B | | | | | Stiff greyish brown slightly gravelly sandy CLAY with a medium cobble content of subrounded flint and chalk. Gravel is subangular to subrounded fine to coarse flint and chalk. | | | |
| 0.90- 1.00 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S24 | | | | |
| 1.90- 2.00 | D | | | | | | | | |
| 2.20- 2.65 | UT70 | 1.50 (DRY) | 176 | 16 | | | | | |
| 2.65- 2.70 | D | | | | | | | | |
| 2.70- 3.00 | B | | | | | | | | |
| 3.00- 3.10 | D | | | 17 | | | | | |
| 3.20- 3.65 | D | 1.50 (DRY) | | | S15 | | | | |
| 4.00- 4.10 | D | | | | | | 4.00 | | 26.86 |
| 4.20- 4.65 | UT50 | 1.50 (DRY) | | | | Firm light brown mottled dark brown slightly gravelly sandy CLAY with a low cobble content of subrounded chalk and flint. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 4.65- 4.70 | D | | | | | | | | |
| 4.70- 5.00 | B | | | | | | | | |
| 5.00- 5.10 | D | | | 15 | | Below 5.00m, driller notes frequent very sandy bands**. | | | |
| 5.80- 6.25 | D | 1.50 (DRY) | | | S12 | | | | |
| 6.20- 6.70 | B | | | | | | | | |
| 6.70- 6.80 | D | | | | | | | | |
| 6.80- 7.25 | UT50 | 1.50 (DRY) | 136 | 11 | | | | | |
| 7.25- 7.30 | D | | | | | | 7.20 | | 23.66 |
| 7.50- 8.20 | B | | | | | Stiff light brownish orange slightly gravelly sandy CLAY with a low cobble content of subrounded chalk and flint. Gravel is subangular to subrounded fine to coarse flint and chalk. | 7.50 | | 23.36 |
| 7.50- 7.60 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (DRY) | | | S36 | | | | |
| 8.20- 8.50 | D | | | | | Dense orangish brown and brown very sandy silty GRAVEL with a high cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint. | 8.20 | | 22.66 |
| 8.50- 9.50 | B | | | | | | 8.50 | | 22.36 |
| 8.50- 8.95 | D | 8.50 (DRY) | | | S29 | Soft light brown slightly sandy slightly gravelly CLAY with a low cobble content of subangular flint. Gravel is subangular fine to coarse flint. | | | |
| 9.20- 9.30 | D | | | | | Medium dense brownish orange slightly gravelly clayey SAND. Gravel is angular fine flint. | | | |
| 9.50-10.00 | B | | | | | | 9.50 | | 21.36 |
| 9.50- 9.80 | D | 9.50 (DRY) | | | S50/ 150 | Very dense brown and orangish brown sandy GRAVEL with a high cobble content of subangular flint. Gravel is subangular fine to coarse flint. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 15.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 02/09/21 | 08:00 |
| 15.00 | 13.50 | 13.50 | 02/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 13.00 | 13.00 | 12.00 | 20 | | Slow inflow. |

## Remarks

Water was added to assist boring between 7.50 and 13.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
** Drillers description.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH15-44 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612611.325E 311016.136N | Ground Level | 30.86 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20-10.30 | D | | | | | | | | |
| 10.50-10.95 | | 10.50 (DRY) | | | C50 | | | | |
| 11.00-11.30 | B | | | | | | | | |
| 11.30-12.80 | B | | | | | | | | |
| 11.30-11.40 | D | | | 14 | | Very dense light creamish brown sandy silty GRAVEL with a high cobble content of subangular to subrounded flint. Gravel is subangular to subrounded fine to coarse flint and chalk. | 11.30 | | 19.56 |
| 11.50-11.88 | D | 11.50 (DRY) | | | S50/ 225 | | | | |
| 12.80-15.00 | B | | | | | | | | |
| 12.80-12.90 | D | | | | | | 12.80 | | 18.06 |
| 13.00-13.20 | UT100 | 13.00 (12.00) | | | | CHALK recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is very weak, low density, brownish cream with frequent black specks. Occasional subrounded to rounded fine to coarse flint gravel and medium cobble content of subangular flint. | | | |
| 13.40-13.60 | D | | | 12 | | | | | |
| 14.50-14.95 | D | 13.50 (13.50) | | | S15 | | | | |
| | | | | | | End of Borehole | 15.00 | | 15.86 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH15-45 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612535.663E 310974.508N | Ground Level | 32.08 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 32.08 |
| 0.00- 0.25 | B | | | | | TOPSOIL: Dark brown slightly gravelly clayey sand with many rootlets and a low cobble content of angular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 0.20 | D | | | | | | 0.25 | | 31.83 |
| 0.25- 0.70 | B | | | | | | | | |
| 0.50 | D | | | | | | | | |
| 0.70- 1.10 | B | | | | | Light brown gravelly clayey SAND with rare rootlets and a medium cobble content of angular flint. Gravel is angular to subrounded fine to coarse flint. | 0.75 | | 31.33 |
| 1.15 | D | | | | | | | | |
| 1.20- 1.65 | UT24 | NIL (DRY) | | | | Firm light brown slightly sandy slightly gravelly CLAY with a medium cobble content of subangular flint and chalk. Gravel is angular to subrounded fine to medium flint and chalk. | | | |
| 1.65- 1.80 | D | | | 16 | | | | | |
| | | | | | | Below 2.20m, becoming stiff. | | | |
| 2.20- 2.70 | B | | | | | | | | |
| 2.20- 2.65 | D | 1.50 (DRY) | | | S22 | | | | |
| 3.00 | D | | | | | | | | |
| 3.20- 3.65 | UT17 | 3.00 (DRY) | 129 | 18 | | | | | |
| | | | | | | Below 3.50m, becoming mottled orangish brown. | | | |
| 3.65- 3.80 | D | | | | | | | | |
| 4.20- 4.70 | B | | | | | | | | |
| 4.20- 4.65 | D | 3.00 (DRY) | | | S18 | | | | |
| 5.00 | D | | | | | | | | |
| 5.30- 5.75 | UT18 | 3.00 (DRY) | | | | | | | |
| | | | | | | | 5.50 | | 26.58 |
| 5.75- 5.90 | D | | | | | Stiff dark bluish grey slightly gravelly sandy CLAY with a medium cobble content of subrounded chalk. Gravel is subrounded fine to coarse chalk. | | | |
| 6.30- 6.75 | B | | | | | | | | |
| 6.30- 6.75 | D | 3.00 (DRY) | | | S30 | | | | |
| 7.00 | D | | | 16 | | | | | |
| 7.35- 7.80 | UT19 | 3.00 (DRY) | | | | | | | |
| 7.80- 7.90 | D | | | | | | | | |
| 8.35- 8.80 | B | | | | | | | | |
| 8.35- 8.80 | D | 3.00 (DRY) | | | S29 | | | | |
| | | | | | | | 8.50 | | 23.58 |
| | | | | | | Stiff dark bluish grey slightly sandy slightly gravelly CLAY with a medium cobble content of subrounded chalk and rare shell fragments (up to 2mm in size). Gravel is subrounded fine to medium chalk. | | | |
| 9.10 | D | | | | | | | | |
| 9.35- 9.80 | UT46 | 3.00 (DRY) | 221 | 11 | | | | | |
| 10.00 | D | | | 16 | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CR/BB |
| 15.00 | 0.15 | Cable Percussion | CR/BB |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 24/09/21 | 08:00 |
| 1.20 | NIL | DRY | 24/09/21 | 18:00 |
| 1.20 | | | 27/09/21 | 08:00 |
| 15.00 | 3.00 | DRY | 27/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

## Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
At 1.20m, UT shoe and catcher damaged during sampling.
At 9.35m, UT shoe damaged during sampling.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH15-45** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612535.663**E **310974.508**N Ground Level **32.08** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 10.40-10.85 | B | | | | | | | | |
| 10.40-10.85 | D | 3.00 (DRY) | | | S38 | | | | |
| 11.20 | D | | | | | | | | |
| 11.45-11.90 | UT35 | 3.00 (DRY) | 173 | 17 | | | | | |
| 11.90-12.00 | D | | | | | Very stiff light grey slightly gravelly sandy CLAY. Gravel is subrounded fine to medium chalk. | 12.00 | | 20.08 |
| 12.45-13.00 | B | | | | | | 12.50 | | 19.58 |
| 12.45-12.90 | D | 3.00 (DRY) | | | S30 | Firm to stiff dark brownish grey slightly sandy slightly gravelly CLAY with a medium cobble content of subrounded chalk. Gravel is subrounded fine to coarse chalk and flint. | | | |
| 13.20 | D | | | 11 | | | | | |
| 13.55-14.00 | UT24 | 3.00 (DRY) | | | | | | | |
| 14.00-14.10 | D | | | | | | | | |
| 14.55-15.00 | D | 3.00 (DRY) | | | S32 | | | | |
| | | | | | | End of Borehole | 15.00 | | 17.08 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH16-46 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611904.868 E, 308573.31 N | Ground Level | 19.78 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 19.78 |
| 0.10- 0.30 | B | | | | | TOPSOIL: Dark brown gravelly slightly silty sand with a medium cobble content of subangular flint and occasional rootlets. Gravel is fine to coarse subangular to subrounded flint. | 0.30 | 19.48 |
| 0.10- 0.20 | D | | | | | | | |
| 0.30- 0.60 | B | | | | | | | |
| 0.30- 0.40 | D | | | | | | | |
| 0.80- 1.20 | B | | | | | Light brown gravelly slightly silty SAND with a medium cobble content of subangular flint and rare rootlets. Gravel is subangular to subrounded fine to coarse flint | 0.80 | 18.98 |
| 0.80- 0.90 | D | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S20 | | | |
| 1.70- 2.00 | B | | | | | Medium dense light orangish brown gravelly slightly silty SAND with a low cobble content of angular flint. Gravel is angular to subrounded fine to coarse flint. | 1.70 | 18.08 |
| 1.70- 1.80 | D | | | | | | | |
| 2.30- 2.75 | B | | | | | Medium dense brown and orangish brown subangular GRAVEL with a high cobble content of angular to subangular flint. Gravel is angular to subangular fine to coarse flint. | | |
| 2.30- 2.75 | | 2.30 (DRY) | | | C19 | | | |
| 3.20- 3.65 | B | | | | | Loose light orangish brown silty SAND & GRAVEL with a medium cobble content of subangular flint. Gravel is angular to subangular flint. | 3.20 | 16.58 |
| 3.20- 4.00 | B | | | | | | | |
| 3.20- 3.30 | D | | | | | | | |
| 3.20- 3.65 | | 3.20 (DRY) | | | C4 | | | |
| 4.10- 4.20 | D | | | | | Firm dark grey slightly sandy slightly gravelly CLAY with a low cobble content of subrounded chalk. Gravel is subangular to subrounded chalk and flint. | 4.10 | 15.68 |
| 4.30- 4.80 | B | | | | | | | |
| 4.30- 4.75 | D | 4.30 (DRY) | | 17 | S9 | | | |
| 5.10- 5.20 | D | | | | | Below 5.10m, becoming gravelly. | | |
| 5.30- 5.75 | UT50 | 5.30 (DRY) | 90 | 17 | | | | |
| 5.75- 5.80 | D | | | | | | | |
| 5.80- 6.10 | B | | | | | | | |
| 6.10- 6.20 | D | | | | | | | |
| 6.30- 7.50 | B | | | | | Medium dense light grey slightly gravelly clayey SAND with a medium cobble content of angular flint. Gravel is subangular to subrounded fine to coarse flint and chalk. | 6.30 | 13.48 |
| 6.30- 6.75 | D | 5.30 (3.50) | | | S20 | | | |
| 7.10- 7.20 | D | | | | | | | |
| 7.50- 7.95 | D | 7.50 (4.50) | | | S28 | | | |
| 8.00- 8.50 | B | | | | | Medium dense grey slightly sandy GRAVEL with a high cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint and chalk. | 7.80 | 11.98 |
| 8.00- 8.10 | D | | | | | | | |
| 8.40- 8.50 | D | | | | | | | |
| 8.50- 8.95 | | 8.50 (5.00) | | | C21 | | | |
| 9.10- 9.20 | D | | | | | | 9.10 | 10.68 |
| 9.20- 9.30 | D | | | | | Firm grey silty SAND. Gravel is subangular to subrounded fine to coarse flint and chalk. | 9.20 | 10.58 |
| 9.50- 9.95 | UT70 | 9.30 (DRY) | 177 | 15 | | Stiff dark grey slightly sandy gravelly CLAY with a low cobble content of subangular flint and chalk. Gravel is subangular to subrounded fine to coarse flint and chalk. | | |
| 9.95-10.00 | D | | | 14 | | **Driller notes occasional sand bands. | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 15/09/21 | 08:00 |
| 4.10 | 4.00 | 1.90 | 15/09/21 | 18:00 |
| 4.10 | 4.00 | 1.90 | 16/09/21 | 08:00 |
| 16.00 | 16.00 | 8.50 | 16/09/21 | 18:00 |
| 16.00 | 16.00 | 7.80 | 17/09/21 | 08:00 |
| 18.00 | 18.00 | 9.00 | 17/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 6.30 | 4.50 | 3.50 | 20 | 9.30 | Fast inflow. |
| 15.20 | 9.30 | 7.50 | 20 | | Fast inflow. |

## Remarks

Water was added to assist boring between 1.20 and 4.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
** Drillers description.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH16-46** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611904.868** E **308573.31** N Ground Level **19.78** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N |
|---|---|---|---|---|---|
| 10.00-10.50 | B | | | | |
| 10.50-10.60 | D | | | | |
| 10.70-11.15 | D | 9.30 (DRY) | | | S24 |
| 11.40-11.70 | B | | | | |
| 11.70-11.80 | D | | | | |
| 11.80-12.25 | UT75 | 9.30 (DRY) | 197 | 17 | |
| 12.25-12.30 | D | | | | |
| 12.70-12.80 | D | | | | |
| 12.80-13.20 | B | | | | |
| 13.20-13.65 | D | 9.30 (DRY) | | | S26 |
| 14.00-14.10 | D | | | 16 | |
| 14.30-14.50 | B | | | | |
| 14.50-14.95 | UT80 | 9.30 (DRY) | | | |
| 14.95-15.00 | D | | | | |
| 15.20-15.30 | D | | | | |
| 16.00-16.10 | D | | | | |
| 16.50-17.50 | B | | | | |
| 16.50-16.95 | D | 16.50 (7.80) | | | S24 |
| 17.00-17.10 | D | | | | |
| 17.50-18.00 | B | | | | |
| 17.50-17.95 | D | 17.50 (8.20) | | | S24 |
| 17.50-17.60 | D | | | | |
| 17.90-18.00 | D | | | | |

**Strata**

| Description | Depth | Legend | Level m OD |
|---|---|---|---|
| Grey gravelly silty SAND. Gravel is subangular to subrounded fine to medium flint and chalk. | 15.20 | | 4.58 |
| Below 16.50m, medium dense. | | | |
| End of Borehole | 18.00 | | 1.78 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH16-47** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611854.837**E **308458.587**N Ground Level **21.79** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 21.79 |
| 0.00- 0.90 | B | | | | | TOPSOIL: Soft dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is angular to subrounded fine to coarse flint. | 0.20 | | 21.59 |
| 0.20 | D | | | | | Dark brown slightly gravelly clayey SAND with occasional pockets (up to 25mm in size) of clay. Gravel is angular to subrounded fine to coarse flint. | 0.90 | | 20.89 |
| 0.90- 1.20 | B | | | | | | | | |
| 0.90 | D | | | | | | | | |
| 1.20- 1.65 | B | | | | | Medium dense orangish brown mottled grey very sandy clayey GRAVEL with a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 1.20- 1.65 | | NIL (DRY) | | | C14 | | | | |
| 2.00- 2.45 | B | | | | | | | | |
| 2.00- 2.45 | D | | | | | | | | |
| 2.00- 2.45 | | 1.90 (0.50) | | | C16 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00- 3.45 | D | | | | | | 3.10 | | 18.69 |
| 3.00- 3.45 | | 2.90 | | | C20 | Stiff grey mottled orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. | | | |
| 3.10 | D | (0.50) | | | | | | | |
| 3.80- 4.00 | B | | | | | | | | |
| 4.00- 4.45 | UT25 | 10.70 (DRY) | 35 | 18 | | | | | |
| 4.50 | D | | | 17 | | | | | |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00- 5.45 | D | | | | | | | | |
| 5.00- 5.45 | | 4.80 | | | S20 | | | | |
| 5.05- 5.45 | D | (0.50) | | | | | | | |
| | | | | | | | 5.90 | | 15.89 |
| 5.90 | D | | | | | Dense grey very sandy slightly clayey GRAVEL. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 6.50- 6.95 | B | | | | | Below 6.50m, with a low cobble content subangular to subrounded flint and chalk. | | | |
| 6.50- 6.95 | D | | | | | | | | |
| 6.50- 6.95 | | 6.30 (0.50) | | | C46 | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | D | | | | | | | | |
| 8.00- 8.45 | | 7.70 (0.50) | | | C23 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | | | | | Below 9.50m, becoming very clayey. | | | |
| 9.50- 9.95 | D | | | | | | | | |
| 9.50- 9.95 | | 9.30 (0.50) | | | C30 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | |
| 18.45 | 0.15 | Cable Percussion | |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 06/10/21 | 08:00 |
| 14.00 | 14.00 | | 06/10/21 | 18:00 |
| 14.00 | 14.00 | | 07/10/21 | 08:00 |
| 18.45 | 18.00 | | 07/10/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 5.40 | | 2.30 | 20 | | Moderate inflow. |

## Remarks

Water was added to assist boring between 5.90 and 10.10m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH16-47** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611854.837**E **308458.587**N Ground Level **21.79** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.10 | D | | | | | **Stiff grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk.** | 10.10 | | 11.69 |
| 11.00 | D | | | 19 | | | | | |
| 11.00-11.45 | UTF 50 | | | | | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | D | 12.30 (DRY) | | | S21 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00-14.45 | UT31 | | | | | | | | |
| 14.50 | D | | | | | | | | |
| 15.50-15.95 | B | | | | | | | | |
| 15.50-15.95 | D | 15.00 (DRY) | | | S20 | | | | |
| 16.00 | D | | | | | | | | |
| 17.00 | D | | | | | | | | |
| 17.00-17.45 | UT | | 66 | 16 | | | | | |
| 17.50 | D | | | 16 | | | | | |
| 18.00-18.45 | B | | | | | | | | |
| 18.00-18.45 | D | 17.90 (DRY) | | | S30 | | | | |
| | | | | | | **End of Borehole** | 18.45 | | 3.34 |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | In Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Checked by **DRB**

Figure **2 of 2**

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# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH17-48 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 612005.865E 307700.215N | Ground Level | 21.00 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 21.00 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly silty SAND with a high cobble content of a flint and occasional rootlets. Gravel is angular to subangular fine to coarse flint and quartzite. | 0.40 | | 20.60 |
| 0.10- 0.20 | D | | | | | | | | |
| 0.40- 0.70 | B | | | | | | | | |
| 0.40- 0.50 | D | | | | | | | | |
| | | | | | | Dark brown gravelly slightly silty SAND with a medium cobble content of a flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 1.10- 1.20 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | 1.20 | | 19.80 |
| 1.20- 1.30 | D | | | | | | | | |
| 1.20- 1.65 | | 1.20 (1.00) | | | C22 | Medium dense orangish brown and brown very sandy GRAVEL with a high cobble content of angular to subangular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 2.00- 2.10 | D | | | | | | | | |
| 2.20- 2.65 | | 2.20 (1.60) | | | C21 | | | | |
| 2.70- 3.00 | B | | | | | | | | |
| 3.00- 3.10 | D | | | | | | | | |
| 3.20- 3.65 | | 3.20 (2.00) | | | C18 | | | | |
| 4.00- 4.10 | D | | | | | | | | |
| 4.20- 4.70 | B | | | | | | | | |
| 4.40- 4.85 | | 4.40 (2.30) | | | C16 | | | | |
| 4.70- 4.80 | D | | | | | | 4.70 | | 16.30 |
| 4.80- 5.40 | B | | | | | Firm dark grey sandy CLAY. | 4.80 | | 16.20 |
| 4.80- 4.90 | D | | | | | | | | |
| | | | | | | Firm light grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. | | | |
| 5.40- 5.85 | D | 4.80 (DRY) | | | S7 | | | | |
| 6.00- 6.30 | B | | | | | Below 6.00m, with medium cobble content of angular to subangular flint. | | | |
| 6.40- 6.50 | D | | | 19 | | | | | |
| 6.60- 7.05 | D | 6.60 (5.60) | | | S9 | | | | |
| 7.30- 7.40 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.10 (DRY) | | | S23 | | | | |
| 8.00- 8.50 | B | | | | | | | | |
| 8.50- 8.95 | D | 7.10 | | 20 | S11 | | | | |
| 8.50- 8.60 | D | (5.30) | | | | | | | |
| 9.00- 9.10 | D | | | | | | | | |
| 9.50- 9.95 | | 9.50 (DRY) | | | C15 | | | | |
| 9.70-10.20 | B | | | | | | 9.70 | | 11.30 |
| 9.70- 9.80 | D | | | | | Stiff grey slightly sandy slightly gravelly CLAY with a low cobble content of angular flint. Gravel is subangular to subrounded chalk and flint. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 04/10/21 | 08:00 |
| 8.00 | 7.10 | DRY | 06/10/21 | 18:00 |
| 8.00 | 7.10 | 1.60 | 05/10/21 | 08:00 |
| 18.00 | 15.60 | DRY | 05/10/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 1.20 | | 1.00 | 20 | 4.80 | Slow inflow. |
| 5.40 | 4.80 | 4.80 | 20 | 7.10 | Fast inflow. |
| 14.20 | 9.50 | 2.00 | 20 | 15.60 | Fast inflow. |

**Remarks**

Water was added to assist boring between 1.20-4.70m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH17-48** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **612005.865**E **307700.215**N Ground Level **21.00** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.50-10.95 | UT80 | 9.50 (DRY) | 193 | 19 | | | | | |
| 10.95-11.00 | D | | | | | | | | |
| 11.20-11.60 | B | | | | | | | | |
| 11.30-11.40 | D | | | | | | | | |
| 11.60-12.05 | D | 9.50 (DRY) | | | S23 | | | | |
| 12.30-12.40 | D | | | | | | | | |
| 12.50-12.95 | UT95 | 9.50 (DRY) | | | | | | | |
| 12.70-13.00 | B | | | | | | | | |
| 12.95-13.00 | D | | | 17 | | | | | |
| 13.20-13.30 | D | | | | | | | | |
| 13.60-14.05 | D | 9.50 (DRY) | | | S30 | Below 13.60m, becoming very stiff. | | | |
| 14.20-14.30 | D | | | | | | 14.20 | | 6.80 |
| 14.50-15.00 | B | | | | | Loose light grey sandy slightly clayey GRAVEL with a low cobble content of angular flint. Gravel is subangular to subrounded fine to coarse chalk and flint. | | | |
| 14.50-14.95 | | 14.50 (2.30) | | | C8 | | | | |
| 15.05-16.10 | D | | | | | | | | |
| 15.20-15.60 | B | | | | | | 15.20 | | 5.80 |
| 15.20-15.30 | D | | | | | Stiff light grey gravelly sandy CLAY with a low cobble content of subrounded chalk. Gravel is subrounded fine to coarse chalk. | | | |
| 15.60-16.05 | UT85 | 15.60 (DRY) | 105 | 16 | | | | | |
| 16.05-16.10 | D | | | | | | | | |
| 16.30-16.40 | D | | | | | | | | |
| 16.60-17.10 | B | | | | | | | | |
| 16.60-17.05 | D | 15.60 (DRY) | | | S27 | | | | |
| 17.30-17.40 | D | | | 16 | | | | | |
| 17.50-17.95 | UT90 | 15.60 (DRY) | | | | | | | |
| 17.95-18.00 | D | | | | | | 18.00 | | 3.00 |
| | | | | | | End of Borehole | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH17-49** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611930.803** E **307446.53** N Ground Level **17.54** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 17.54 |
| 0.10- 0.40 | B | | | | | TOPSOIL: Brown slightly clayey slightly gravelly SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 0.10- 0.20 | D | | | | | | 0.40 | | 17.14 |
| 0.40- 0.60 | B | | | | | Light greyish brown slightly clayey slightly gravelly SAND. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 0.40- 0.50 | D | | | | | | 0.90 | | 16.64 |
| 0.90- 1.20 | B | | | | | Firm light orangish brown slightly gravelly sandy CLAY. Gravel is subrounded fine to medium flint. Below 1.10m, with chalk gravel. | | | |
| 0.90- 1.00 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.60 | D | | | | | | | | |
| 1.20- 1.65 | | 1.20 (DRY) | | | S5 | Below 1.20m, loose. | | | |
| 1.80- 1.90 | D | | | | | | 1.80 | | 15.74 |
| | | | | | | Medium dense grey gravelly clayey SAND. Gravel is subrounded fine to medium flint. | | | |
| 2.20- 2.80 | B | | | | | | 2.20 | | 15.34 |
| 2.20- 2.65 | D | 2.20 | | | S20 | Medium dense grey sandy GRAVEL. Gravel is angular to subangular fine to course flint. | | | |
| 2.30- 2.40 | D | (2.00) | | | | | | | |
| 2.80- 2.90 | D | | | | | | | | |
| 3.20- 3.65 | | 3.10 (2.60) | | | C25 | | | | |
| 3.70- 4.00 | B | | | | | | | | |
| 3.80- 3.90 | D | | | | | | | | |
| | | | | | | At 4.40, loose. | | | |
| 4.40- 4.85 | | 4.40 (2.70) | | | C8 | | | | |
| 4.70- 5.40 | B | | | | | Firm grey slightly sandy slightly organic CLAY. | 4.70 | | 12.84 |
| 4.70- 4.80 | D | | | | | | | | |
| 5.40- 5.85 | D | 5.40 (4.30) | | | S13 | | | | |
| 5.90- 6.00 | D | | | 53 | | | | | |
| 6.00- 6.50 | B | | | | | | | | |
| 6.50- 7.00 | B | | | | | | | | |
| 6.50- 6.95 | UTF 40 | 6.00 (DRY) | | | | | | | |
| 6.95- 7.00 | D | | | | | | | | |
| 7.00- 7.45 | UT50 | 6.00 (DRY) | 110 | 71 | | | | | |
| 7.45- 7.50 | D | | | | | | | | |
| 7.70- 7.80 | D | | | | | | | | |
| 8.00- 8.45 | D | 6.00 (DAMP) | | | S18 | Below 8.00m, becomes stiff. | | | |
| 8.80- 8.90 | D | | | | | | | | |
| 9.00- 9.45 | UT50 | 6.00 (DAMP) | | | | | | | |
| 9.45- 9.50 | D | | | | | | | | |
| 9.50-10.00 | B | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 21/09/21 | 08:00 |
| 12.30 | 12.30 | 9.50 | 21/09/21 | 18:00 |
| 12.30 | 12.30 | 1.60 | 22/09/21 | 08:00 |
| 18.00 | 12.60 | DRY | 22/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 2.20 | 2.20 | 2.00 | 20 | 6.00 | Slow inflow. |
| 9.00 | 6.00 | | 20 | | Seepage. |
| 12.30 | 6.00 | 9.50 | 20 | 12.60 | Fast inflow. |

## Remarks

Water was added to assist boring between 2.20 and 4.70m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AM
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH17-49 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611930.803 E<br>307446.53 N | Ground Level | 17.54 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20-10.30 | D | | | | | | | | |
| 10.50-10.95 | D | 6.00 (DAMP) | | | S17 | | | | |
| 11.00-11.50 | B | | | | | | | | |
| 11.60-11.70 | D | | | | | | | | |
| 11.80-12.25 | UT55 | 6.00 (DAMP) | 105 | 67 | | Stiff grey slightly sandy CLAY. | 11.80 | | 5.74 |
| 12.25-12.30 | D | | | 30 | | | | ▽ | |
| 12.60-13.20 | B | | | | | Stiff grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium flint and chalk. | 12.60 | | 4.94 |
| 12.60-13.20 | B | | | | | | | | |
| 12.60-12.70 | D | | | | | | | | |
| 12.90-13.35 | D | 12.60 (DRY) | | | S28 | | | | |
| 13.80-13.90 | D | | | | | | | | |
| 14.20-14.80 | B | | | | | | | | |
| 14.20-14.65 | UT70 | 12.60 (DRY) | | | | | | | |
| 14.65-14.70 | D | | | | | | | | |
| 14.80-14.90 | D | | | 18 | | | | | |
| 15.20-15.65 | D | 12.60 (DRY) | | | S29 | | | | |
| 15.70-16.20 | B | | | | | | | | |
| 16.20-16.30 | D | | | | | | | | |
| 16.50-16.95 | UT80 | 12.60 (DRY) | | | | | | | |
| 16.95-17.00 | D | | | | | | | | |
| 17.10-17.40 | B | | | | | | | | |
| 17.30-17.40 | D | | | | | | | | |
| 17.50-17.95 | D | 12.60 (DRY) | | | S27 | | | | |
| | | | | | | End of Borehole | 18.00 | | -0.46 |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AM
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH17-50 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 611962.085E 307365.783N | Ground Level | 21.50 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 21.50 |
| 0.00- 0.20 | B | | | | | TOPSOIL: Brown slightly gravelly sand with a medium cobble content of subangular flint and many rootlets. Gravel is subangular to rounded fine to coarse flint. | 0.40 | | 21.10 |
| 0.10- 0.20 | D | | | | | | | | |
| 0.40- 0.70 | B | | | | | Orangish brown gravelly slightly clayey SAND with a medium cobble content of subangular flint and rare rootlets. Gravel is subangular to subrounded fine to coarse flint. Below 0.80m, becoming clayey. | 1.20 | | 20.30 |
| 0.40- 0.50 | D | | | | | | | | |
| 0.80- 1.10 | B | | | | | | | | |
| 0.80- 0.90 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S12 | Firm orangish brown slightly gravelly sandy CLAY. Gravel is subrounded medium and coarse flint. | | | |
| 2.00- 2.10 | D | | | 16 | | | | | |
| 2.30- 2.75 | D | 1.50 (DRY) | | | S10 | | | | |
| 3.10- 3.20 | D | | | | | | 3.10 | | 18.40 |
| 3.30- 3.75 | D | 3.10 (2.70) | | 20 | S14 | Firm light orangish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium flint. | | | |
| 3.80- 4.20 | B | | | | | | 3.80 | | 17.70 |
| 3.80- 3.90 | D | | | | | Soft to firm cream slightly gravelly slightly sandy SILT. | | | |
| 4.20- 4.70 | B | | | | | | 4.20 | | 17.30 |
| 4.20- 4.65 | D | 4.20 (3.30) | | | S28 | Medium dense orangish brown very sandy slightly silty GRAVEL with a medium cobble content. Gravel is subangular to subrounded fine to medium flint. | | | |
| 4.80- 4.90 | D | | | | | | | | |
| 5.40- 5.85 | | 5.40 (4.00) | | | C27 | | | | |
| 5.70- 6.10 | B | | | | | | | | |
| 6.20- 6.30 | D | | | | | | 6.20 | | 15.30 |
| 6.40- 7.30 | B | | | | | Stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint. | | | |
| 6.40- 6.85 | UT60 | 6.40 (5.80) | 66 | 13 | | | | | |
| 6.85- 6.90 | D | | | | | | | | |
| 7.30- 7.40 | D | | | | | | 7.30 | | 14.20 |
| 7.50- 7.95 | D | 6.80 (DRY) | | | S19 | Stiff orangish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 8.20- 8.30 | D | | | | | | 8.20 | | 13.30 |
| 8.50- 9.00 | B | | | | | Firm grey slightly sandy gravelly CLAY. Gravel is subrounded and rounded fine flint and chalk. | | | |
| 8.50- 8.95 | UT70 | 6.80 (DRY) | | | | | | | |
| 8.95- 9.00 | D | | | 18 | | | | | |
| 9.00- 9.10 | D | | | | | | | | |
| 9.50- 9.95 | D | 6.80 (DAMP) | | | S15 | | | | |
| 10.00-10.50 | B | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 15.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 17/09/21 | 08:00 |
| 1.20 | 1.20 | DRY | 17/09/21 | 18:00 |
| 1.20 | 1.20 | DRY | 20/09/21 | 08:00 |
| 15.00 | 6.80 | 14.10 | 20/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 3.30 | 3.10 | 2.70 | 20 | 6.8 | Slow inflow. |
| 9.00 | 6.80 | | 20 | | Seepage. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 4.20 and 6.20m.
Backfill details from base of hole: bentonite grout up to ground level.

Logged by AM
Checked by DRB
Figure 1 of 2
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH17-50** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **611962.085**E **307365.783**N Ground Level **21.50** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20-10.30 | D | | | | | | | | |
| 10.50-10.95 | UT75 | 6.80 (DAMP) | 200 | 17 | | | | | |
| 10.95-11.00 | D | | | | | | | | |
| | | | | | | Below 11.60m, becoming stiff. | | | |
| 11.60-12.10 | B | | | | | | | | |
| 11.60-12.05 | D | 6.80 (DAMP) | | 21 | S16 | | | | |
| 12.30-12.40 | D | | | | | | | | |
| 12.50-12.95 | UT65 | 6.80 (DAMP) | | | | | | | |
| 12.95-13.00 | D | | | | | | | | |
| 13.00-13.30 | B | | | | | | | | |
| 13.40-13.50 | D | | | | | | | | |
| 13.50-13.95 | D | 6.80 (13.50) | | | S20 | | | | |
| 14.20-14.30 | D | | | | | | | | |
| 14.50-15.00 | B | | | | | | | | |
| 14.50-14.95 | D | 6.80 (14.10) | | | S22 | | | | |
| | | | | | | End of Borehole | 15.00 | | 6.50 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AM**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH18-51** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **615393.494**E **303265.266**N Ground Level **47.83** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 47.83 |
| 0.10- 0.40 | B | | | | | **TOPSOIL: Brown slightly gravelly clayey SAND with a medium cobbled content of angular to subangular flint and occasional rootlets. Gravel is angular to subangular fine to coarse flint.** | 0.40 | | 47.43 |
| 0.20 | D | | | | | | | | |
| 0.50- 1.00 | B | | | | | | | | |
| 0.80 | D | | | | | **Firm brown slightly sandy gravelly CLAY with a low cobble content of a flint. Gravel is subangular subrounded fine to coarse flint and chalk. Below 1.10m, becoming greyish brown.** | | | |
| 1.20- 2.20 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S10 | | | | |
| 2.00 | D | | | 17 | | | | | |
| 2.20- 2.65 | UT15 | 1.50 (DRY) | 73 | 17 | | | | | |
| 2.65- 2.80 | D | | | | | | | | |
| 3.50- 3.95 | D | 1.50 (DRY) | | | S15 | | | | |
| | | | | | | | 3.70 | | 44.13 |
| | | | | | | **Firm brownish cream sandy SILT.** | | | |
| 4.00- 4.30 | B | | | | | | 4.00 | | 43.83 |
| 4.00 | D | | | | | **Stiff brownish grey slightly sandy slightly gravelly CLAY with a low cobble content of angular flint and chalk. Gravel is subangular to subrounded fine to coarse flint and chalk.** | | | |
| 4.50- 4.95 | UT19 | 1.50 (DRY) | 64 | 13 | | | | | |
| 4.95- 5.10 | D | | | | | | | | |
| 5.50- 6.50 | B | | | | | | | | |
| 5.50- 5.95 | D | 1.50 (DRY) | | | S20 | | | | |
| 6.00 | D | | | 13 | | | | | |
| 6.50- 6.95 | UT15 | 1.50 (DRY) | | | | | | | |
| 6.95- 7.10 | D | | | | | | | | |
| 8.00- 8.45 | D | 1.50 (DRY) | | | S19 | | | | |
| 8.50- 9.50 | B | | | | | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | UT31 | 1.50 (DRY) | 111 | 14 | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | MR/SS |
| 20.05 | 0.15 | Cable Percussion | MR/SS |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 24/09/21 | 08:00 |
| 5.50 | 1.50 | DRY | 24/09/21 | 18:00 |
| 5.50 | 1.50 | DRY | 27/09/21 | 08:00 |
| 16.10 | 16.00 | 7.70 | 27/09/21 | 18:00 |
| 17.00 | 16.00 | 13.90 | 28/09/21 | 08:00 |
| 20.05 | 19.50 | 14.20 | 28/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 15.50 | 1.50 | 7.70 | 20 | | Slow inflow. |

**Remarks** **Inspection pit hand excavated to 1.20m depth and no services were found.**
**Backfill details from base of hole: bentonite grout up to ground level.**

Logged by **CR**
Checked by **DRB**
Figure **1 of 3**
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH18-51** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **615393.494**E **303265.266**N Ground Level **47.83** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.60-11.05 | D | 1.50 (DRY) | | | S32 | Below 10.60m, becoming very stiff. Below 10.70m, with occasional pockets (up to 100mm in size) of sand. | | | |
| 11.10-12.20 | B | | | | | | | | |
| 11.80 | D | | | 12 | | | | | |
| 12.20-12.65 | UT29 | 1.50 (DRY) | 129 | 11 | | | | | |
| 12.65-12.80 | D | | | | | | | | |
| 13.70-14.15 | D | 1.50 (DRY) | | | S26 | Below 13.70m, becoming stiff. | | | |
| 14.60-15.30 | B | | | | | Dense light bluish grey gravelly clayey SAND. Gravel is subangular to rounded fine to coarse flint. | 14.60 | | 33.23 |
| 14.80 | D | | | | | | | | |
| 15.50-15.95 | D | 1.50 | | | S40 | | | ▽ | |
| 15.50 | W | (7.70) | | | | | | | |
| | | | | | | Medium dense light bluish grey sandy clayey GRAVEL. Gravel is angular to subrounded fine to coarse flint. | 16.10 | | 31.73 |
| 17.00-18.20 | B | | | | | | | | |
| 17.00-17.45 | D | 17.00 (13.90) | | | S15 | | | | |
| 17.50 | D | | | | | | | | |
| 18.20-18.65 | D | 18.00 (14.60) | | | S26 | Below 18.00m, with a low cobble content of subrounded flint. | | | |
| 18.70-19.60 | B | | | | | Stiff bluish grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium flint. | 18.70 | | 29.13 |
| 19.00 | D | | | 14 | | | | | |
| 19.60-20.05 | D | 19.50 (14.20) | | | S18 | | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH18-51 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 615393.494E 303265.266N | Ground Level | 47.83 m OD |

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | End of Borehole | 20.05 | | 27.78 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 3 of 3
19/11/2021

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# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH18-52** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **615435.452**E **303285.637**N Ground Level **47.42** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 47.42 |
| 0.00- 0.15 | B | | | | | **TOPSOIL: Brown slightly gravelly clayey SAND with a medium cobble content of angular to subangular flint and many rootlets. Gravel is angular to subangular fine to coarse flint.** | 0.15 | | 47.27 |
| 0.10 | D | | | | | | | | |
| 0.15- 0.35 | B | | | | | | 0.35 | | 47.07 |
| 0.20 | D | | | | | | | | |
| 0.35- 0.80 | B | | | | | **Brown slightly gravelly sandy CLAY with a low cobble content of subangular flint and occasional rootlets. Gravel is subangular to subrounded fine to corse flint.** | | | |
| 0.50 | D | | | | | | 0.80 | | 46.62 |
| 1.10 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.65 | D | NIL (DRY) | | | S15 | **Firm orangish brown slightly gravelly sandy CLAY with a low cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint.** | | | |
| | | | | | | | 1.80 | | 45.62 |
| 2.00 | D | | | | | **Firm orangish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded flint and chalk. Below 1.50m, with occasional pockets (up to 50mm in size) of sand.** | | | |
| 2.20- 2.65 | UT25 | 1.50 (DRY) | | | | | | | |
| 2.90 | D | | | 19 | | **Firm light greyish brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk and flint.** | 2.80 | ▽ | 44.62 |
| 3.30 | D | | | | | **Firm light brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk.** | 3.20 | | 44.22 |
| 3.40- 3.90 | B | | | | | | | | |
| 3.40- 3.85 | D | 3.20 | | | S12 | | | | |
| 3.50 | EW | (DRY) | | | | **Firm light brown mottled orange slightly gravelly sandy CLAY with a low cobble content of angular to subrounded flint and chalk. Gravel is angular to subrounded fine to coarse flint and chalk.** | | | |
| 4.20 | D | | | 18 | | | | | |
| 4.40- 4.85 | UT8 | 3.20 (DRY) | 43 | 14 | | | | | |
| | | | | | | | 5.10 | | 42.32 |
| 5.20 | D | | | | | **Firm light bluish grey mottled orangish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium flint and chalk.** | | | |
| 5.50- 6.00 | B | | | | | | | | |
| 5.50- 5.95 | D | 3.20 (DRY) | | | S12 | | | | |
| 6.25 | D | | | 14 | | | | | |
| 6.55- 7.00 | B | | | | | | | | |
| 6.55- 7.00 | UTF 9 | 6.50 (DRY) | | | | | | | |
| 7.10 | D | | | | | | | | |
| 7.20- 7.60 | B | | | | | | | | |
| 7.20- 7.65 | D | 7.50 (4.50) | | | S12 | | | | |
| | | | | | | | 7.60 | | 39.82 |
| 8.00 | D | | | | | **Firm light grey slightly gravelly sandy CLAY with a low cobble content of angular flint. Gravel is subrounded to rounded fine to medium chalk and flint.** | | | |
| 8.30- 8.75 | UT10 | 7.50 (DRY) | 61 | 11 | | | | | |
| 8.75- 8.85 | D | | | 11 | | | | | |
| 9.35- 9.80 | B | | | | | | | | |
| 9.35- 9.80 | D | 7.50 (DRY) | | | S14 | | | | |
| 10.00 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CR/BB |
| 7.50 | 0.20 | Cable Percussion | CR/BB |
| 20.05 | 0.15 | Cable Percussion | CR/BB |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 28/09/21 | 08:00 |
| 6.50 | 2.00 | DRY | 28/09/21 | 18:00 |
| 6.50 | 2.00 | 3.50 | 29/09/21 | 08:00 |
| 20.05 | 17.50 | 17.50 | 29/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 3.00 | | | | | Moist. |
| 15.30 | 7.50 | 11.90 | 20 | 17.50 | Fast inflow. |
| 17.50 | | | | | Seepage. |

Remarks **Inspection pit hand excavated to 1.20m depth and no services were found. Backfill details from base of hole: bentonite grout up to ground level.**

Logged by **CR** Checked by **DRB** Figure **1 of 3** 19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH18-52** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **615435.452**E **303285.637**N Ground Level **47.42** m OD

Scale 1:50

| Sampling Depth | Sample Type | Depth Cased & (to Water) | Properties Strength kPa | w % | SPT N | Strata Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.35-10.80 | UT12 | 7.50 (DRY) | 85 | 12 | | | | | |
| 10.80-10.90 | D | | | | | | | | |
| 11.50-11.95 | B | | | | | Below 11.50m, becoming stiff. | | | |
| 11.50-11.95 | D | 7.50 (DRY) | | | S25 | | | | |
| 12.15 | D | | | 12 | | | | | |
| 12.55-13.00 | UT16 | 7.50 (DRY) | | | | | | | |
| 13.00-13.10 | D | | | | | | | | |
| 13.55-14.00 | B | | | | | | | | |
| 13.55-14.00 | D | 7.50 (DRY) | | | S26 | | | | |
| 14.20 | D | | | | | | | | |
| 14.55-15.00 | UT25 | 7.50 (DRY) | | | | | | | |
| 15.00-15.10 | D | | | | | Greyish brown clayey SAND. | 15.00 | | 32.42 |
| 15.55-16.00 | D | 7.50 (11.90) | | | S35 | Dense light bluish grey slightly gravelly clayey SAND. Gravel is subangular to rounded fine to medium flint. | 15.50 | | 31.92 |
| 16.10 | D | | | | | Firm light grey mottled black slightly gravelly sandy CLAY. Gravel is angular to subangular fine to medium flint. | 16.10 | | 31.32 |
| 16.30 | D | | | | | | 16.30 | | 31.12 |
| 16.55-17.00 | UT42 | 16.50 (13.70) | 217 | 11 | | Very stiff light grey mottled orangish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium flint. | | | |
| 17.20 | D | | | 16 | | | | | |
| 17.55-18.00 | B | | | | | | | | |
| 17.55-18.00 | D | 17.50 (17.00) | | | S40 | | | | |
| 18.20 | D | | | | | Below 18.00m, with occasional pockets (up to 50mm in size) of sand. | | | |
| 18.55-19.00 | B | | | | | | | | |
| 18.55-18.93 | D | 17.50 (18.20) | | | S42/ 225 | | | | |
| 19.70-20.05 | D | 17.50 (18.50) | | 12 | S50/ 200 | CHALK recovered as light grey slightly gravelly sandy SILT. Gravel is very weak to weak, low to medium density, greyish cream with frequent black specks. Rare cobbles of angular to subangular flint. | 19.00 | | 28.42 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 3**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH18-52 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 615435.452E 303285.637N | Ground Level | 47.42 m OD |

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| | | | | | | End of Borehole | 20.05 | | 27.37 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 3 of 3
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH18-53** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **615474.935**E **303304.987**N Ground Level **46.95** m OD

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 46.95 |
| 0.00- 0.15 | B | | | | | **TOPSOIL: Brown slightly gravelly clayey SAND with a medium cobble content of angular to subangular flint and many rootlets. Gravel is angular to subangular fine to coarse flint.** | 0.15 | | 46.80 |
| 0.10 | D | | | | | | | | |
| 0.15- 0.35 | B | | | | | | | | |
| 0.20 | D | | | | | | | | |
| 0.35- 0.85 | B | | | | | | | | |
| 0.50 | D | | | | | **Brown slightly gravelly sandy CLAY with a low cobble content of subangular flint and occasional rootlets. Gravel is subangular to subrounded fine to course flint.** | 0.85 | | 46.10 |
| 1.10 | D | | | | | | 1.05 | | 45.90 |
| 1.25- 1.70 | B | | | | | | | | |
| 1.25- 1.70 | D | 1.20 (DRY) | | | S13 | **Firm orangish brown slightly gravelly sandy CLAY with a medium cobble content of angular flint. Gravel is angular to subrounded fine to coarse flint.** | | | |
| 2.00 | D | | | | | **Firm brownish grey mottled orange slightly gravelly sandy CLAY with a low cobble content of subrounded chalk and occasional shell fragments (up to 2mm in size). Gravel is angular to subrounded fine to coarse chalk and flint.** | | | |
| 2.20- 2.65 | UT25 | 2.15 (DRY) | | | | | | | |
| 3.00 | D | | | 16 | | | | | |
| 3.25- 3.70 | B | | | | | | | | |
| 3.25- 3.70 | D | 3.00 (DRY) | | | S12 | | | | |
| 4.00 | D | | | | | | | | |
| 4.30- 4.75 | UT11 | 3.00 (DRY) | 68 | 14 | | | 4.50 | | 42.45 |
| 4.75- 4.85 | D | | | | | **Firm brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium chalk and flint.** | | | |
| 5.30- 5.80 | B | | | | | | | | |
| 5.30- 5.75 | D | 3.00 (DRY) | | | S14 | | | | |
| 6.00 | D | | | 13 | | | | | |
| 6.30- 6.75 | UT9 | 3.00 (DRY) | | | | | | | |
| 6.75- 6.85 | D | | | | | | | | |
| 7.10 | D | | | | | **Below 7.00m, with occasional pockets (up to 50mm in size) of sand.** | | | |
| 7.40- 8.00 | B | | | | | | | | |
| 7.40- 7.85 | D | 3.00 (DRY) | | | S30 | | | | |
| 8.20 | D | | | | | **Below 8.00m, with a low cobble content of angular to subangular chalk.** | | | |
| 8.40- 8.70 | B | | | | | | | | |
| 8.40- 8.85 | D | 8.35 (7.80) | | | S14 | | | | |
| 9.00 | D | | | 13 | | **Firm light grey mottled orangish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint.** | 8.70 | | 38.25 |
| 9.45- 9.90 | UT17 | 9.00 (DRY) | 88 | 13 | | | | | |



Boring | Progress | Groundwater

| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.20 | | Inspection Pit | | G.L. | | | 28/09/21 | 08:00 | 10.00 | | | 20 | | Seepage. |
| 19.00 | | Cable Percussion | | 7.85 | 3.00 | DRY | 28/09/21 | 18:00 | 16.30 | 15.00 | 9.10 | 20 | | Fast inflow. |
| | | | | 7.85 | | | 30/09/21 | 08:00 | | | | | | |
| | | | | 19.55 | 19.50 | 11.40 | 29/09/21 | 18:00 | | | | | | |

Remarks

AGS **Inspection pit hand excavated to 1.20m depth and no services were found.**
**** Drillers description.**
**A 50mm standpipe was installed to 20.00m with a geowrapped slotted section from 1.00m to 20.00m with upright lockable protective cover. Backfill details from base of hole: bentonite up to 1.00m, bentonite up to 0.50m, concrete up to ground level.**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** | Engineer **J MURPHY & SONS LIMITED** | Borehole **BH18-53** | Project No **PC218256**

Client **J MURPHY & SONS LIMITED** | National Grid Coordinates **615474.935**E **303304.987**N | Ground Level **46.95** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20 | D | | | | | | | | |
| | | | | | | Below 10.55m, becoming stiff. | | | |
| 10.55-11.00 | B | | | | | | | | |
| 10.55-11.00 | D | 9.00 (DRY) | | | S21 | | | | |
| 11.20 | D | | | | | | | | |
| 11.55-12.00 | UT17 | 9.00 (DRY) | | | | | | | |
| 12.00-12.10 | D | | | 14 | | **Below 12.00m, driller notes becoming predominately grey. | | | |
| 12.55-13.00 | B | | | | | | | | |
| 12.55-13.00 | D | 9.00 (DRY) | | | S17 | | | | |
| 13.20 | D | | | | | | | | |
| 13.55-14.00 | UT18 | 9.00 (DRY) | 74 | 14 | | | | | |
| | | | | | | | 13.80 | | 33.15 |
| 14.00-14.10 | D | | | | | Firm greyish brown mottled orangish brown gravelly sandy CLAY with a low cobble content of angular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 14.30 | D | | | 12 | | | | | |
| 14.65-14.90 | B | | | | | | | | |
| 14.65-15.10 | D | 9.00 (DRY) | | | S31 | | 14.90 | | 32.05 |
| | | | | | | Stiff brownish grey sandy CLAY. | | | |
| 15.60-16.10 | B | | | | | | 15.60 | | 31.35 |
| | | | | | | Greyish brown slightly gravelly clayey SAND with a low cobble content of angular flint. Gravel is angular fine to coarse flint. | | | |
| 16.20 | D | | | | | | | | |
| 16.25-16.70 | D | 16.20 (9.50) | | | S46 | | 16.30 | | 30.65 |
| | | | | | | Dense bluish grey slightly gravelly slightly clayey SAND with a low cobble content of angular flint. Gravel is angular flint to medium flint. | | | |
| 17.00 | D | | | | | | | | |
| 17.25-17.68 | D | 17.20 (11.00) | | | S50/ 283 | At 17.25m, very dense. | | | |
| 17.80 | D | | | | | | 17.80 | | 29.15 |
| | | | | | | Very stiff light bluish grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 18.35-18.80 | B | | | | | | | | |
| 18.35-18.80 | D | 18.30 (13.50) | | | S43 | | | | |
| 19.00 | D | | | 22 | | **At 19.00m, driller notes silty sand band. | | | |
| 19.30 | D | | | | | | 19.30 | | 27.65 |
| 19.55-19.95 | D | 19.50 (11.40) | | | S50/ 246 | Very stiff bluish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium flint. | | | |
| 19.55-19.96 | D | | | | | | | | |
| | | | | | | End of Borehole | 20.00 | | 26.95 |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH18-54 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 615516.825E 303230.984N | Ground Level | 48.00 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 48.00 |
| 0.00- 0.20 | B | | | | | TOPSOIL: Firm dark brown slightly gravelly sandy CLAY with occasional rootlets and a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint, chalk and quartzite. | 0.40 | | 47.60 |
| 0.00- 0.10 | D | | | | | | | | |
| 0.40- 0.70 | B | | | | | | | | |
| 0.40- 0.50 | D | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S7 | Firm light brown slightly gravelly sandy CLAY with a low cobble content of subrounded chalk. Gravel is angular to subrounded fine to coarse chalk, quartzite and flint. | 1.30 | | 46.70 |
| | | | | | | Firm brown sandy CLAY. | 1.70 | | 46.30 |
| 1.70- 2.20 | B | | | | | Firm brownish grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. | | | |
| 1.70- 1.80 | D | | | | | | | | |
| 2.20- 2.65 | UT80 | 1.50 (DRY) | 218 | 14 | | | | | |
| 2.65- 2.70 | D | | | | | Below 2.65m, with a low cobble content of subrounded chalk. | | | |
| 3.00- 3.10 | D | | | 15 | | | | | |
| 3.20- 3.65 | D | 1.50 (DRY) | | | S15 | | | | |
| 3.70- 4.00 | B | | | | | Firm light brown mottled orangish brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. | 3.70 | | 44.30 |
| 4.00- 4.10 | D | | | | | | | | |
| 4.30- 4.75 | UT60 | 1.50 (DRY) | | | | | | | |
| 4.75- 4.80 | D | | | | | | | | |
| 5.00- 5.10 | D | | | | | | | | |
| 5.30- 5.80 | B | | | | | | | | |
| 5.30- 5.75 | D | 1.50 (DRY) | | | S9 | | | | |
| 6.00- 6.10 | D | | | 14 | | | | | |
| 6.30- 6.75 | UT35 | 1.50 (DAMP) | | | | | | | |
| 6.75- 6.80 | D | | | | | | | | |
| 6.80- 7.10 | B | | | | | | | | |
| 7.10- 7.20 | D | | | | | | | | |
| 7.50- 7.95 | D | 7.50 (DRY) | | | S20 | | | | |
| 8.20- 8.30 | D | | | | | | | | |
| 8.50- 9.00 | B | | | | | | 8.50 | | 39.50 |
| 8.50- 8.95 | UT40 | 8.50 (7.80) | 73 | 13 | | Stiff grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. | | | |
| 8.95- 9.00 | D | | | | | | | | |
| 9.20- 9.30 | D | | | 15 | | | | | |
| 9.50- 9.95 | D | 9.50 (7.70) | | | S20 | | 9.50 | | 38.50 |
| | | | | | | Stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. | | | |
| 10.00-10.30 | B | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 20.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 29/09/21 | 08:00 |
| 3.70 | 1.50 | DRY | 29/09/21 | 18:00 |
| 3.70 | 1.50 | DRY | 30/09/21 | 08:00 |
| 17.50 | 17.00 | 13.00 | 30/09/21 | 18:00 |
| 17.50 | | | 01/10/21 | 08:00 |
| 20.00 | 20.00 | 10.00 | 01/10/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 6.30 | 1.50 | | | | Seepage. |
| 8.50 | 8.50 | 7.80 | 20 | 11.80 | Slow inflow. |
| 14.80 | 11.80 | 8.60 | 20 | | Fast inflow. |

**Remarks** AGS Inspection pit hand excavated to 1.20m depth and no services were found. Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AS
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** | Engineer **J MURPHY & SONS LIMITED** | Borehole **BH18-54** | Project No **PC218256**

Client **J MURPHY & SONS LIMITED** | National Grid Coordinates **615516.825**E **303230.984**N | Ground Level **48.00** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.30-10.40 | D | | | | | | | | |
| 10.50-10.95 | UT38 | 10.50 (9.00) | | | | Stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. | 10.50 | | 37.50 |
| 10.95-11.00 | D | | | 12 | | | | | |
| 11.30-11.40 | D | | | | | | | | |
| 11.50-12.00 | B | | | | | Below 11.50m, mottling absent. | | | |
| 11.50-11.60 | D | | | | | | | | |
| 11.50-11.95 | | 11.50 (10.80) | | | S17 | | | | |
| 12.30-12.40 | D | | | | | | | | |
| 12.50-12.95 | UT50 | 11.80 (DRY) | 73 | 12 | | | | | |
| 12.95-13.00 | D | | | | | | | | |
| 13.00-13.30 | B | | | | | | | | |
| 13.30-13.40 | D | | | | | | | | |
| 13.50-13.95 | D | 11.80 (DRY) | | | S16 | | | | |
| 14.30-14.40 | D | | | | | | | | |
| 14.50-14.80 | B | | | | | | | | |
| 14.80-15.25 | UT50 | 11.80 (8.60) | | | | Grey gravelly clayey SAND. Gravel is angular to subrounded fine to coarse flint. | 14.80 | ▽ | 33.20 |
| 15.25-15.30 | D | | | | | | | | |
| 15.50-15.60 | D | | | | | Stiff grey slightly gravelly sandy CLAY with occasional pockets (up to 5mm in size) of sand. Gravel is angular to subrounded fine to coarse chalk and flint. | 15.50 | | 32.50 |
| 16.00-16.45 | D | 16.00 (12.60) | | | S31 | | | | |
| 16.80-16.90 | D | | | | | CHALK recovered as white and greyish white slightly sandy slightly gravelly SILT. Gravel is very weak, low density and white with rare black specks. Flint gravel is angular to subangular fine to coarse. | 16.20 | | 31.80 |
| 17.00-17.45 | UT80 | 17.00 (13.00) | 700 | 19 | | | | | |
| 17.45-17.50 | D | | | | | | | | |
| 17.80-17.90 | D | | | | | | | | |
| 18.00-18.45 | D | | | 22 | | | | | |
| 18.00-18.45 | | 18.00 (9.00) | | | S28 | | | | |
| 19.30-19.40 | D | | | | | | | | |
| 19.50-19.95 | D | | | | | | | | |
| 19.50-19.95 | | 19.50 (10.00) | | | S28 | | | | |
| | | | | | | End of Borehole | 20.00 | | 28.00 |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH18-55 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 615473.314E 303209.667N | Ground Level | 48.47 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 48.47 |
| 0.10- 0.30 | B | | | | | TOPSOIL: Firm dark brown slightly gravelly sandy CLAY with occasional roots (up to 5mm in size) and occasional rootlets. Gravel is angular to subrounded fine to coarse flint, chalk and quartzite. | | |
| 0.10- 0.20 | D | | | | | | 0.40 | 48.07 |
| 0.40- 0.70 | B | | | | | Firm light brown slightly sandy slightly gravelly CLAY with a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint, quartzite and chalk. | | |
| 0.40- 0.50 | D | | | | | | 1.20 | 47.27 |
| 1.20- 1.70 | B | | | | | Firm brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk, flint and quartzite. | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S8 | | | |
| 2.00- 2.10 | D | | | 16 | | | | |
| 2.20- 2.65 | UT60 | 1.50 (DRY) | | | | | | |
| 2.65- 2.70 | D | | | | | Below 2.70m, low cobble content of subrounded chalk and flint. | | |
| 2.70- 3.00 | B | | | | | | | |
| 3.00- 3.10 | D | | | | | | | |
| 3.20- 3.65 | D | 1.50 (DRY) | | | S8 | | | |
| 4.00- 4.10 | D | | | | | | | |
| 4.20- 4.65 | UT60 | 1.50 (DRY) | 75 | 16 | | | | |
| 4.65- 4.70 | D | | | | | | | |
| 4.70- 5.00 | B | | | | | | | |
| 5.00- 5.10 | D | | | | | | | |
| 5.20- 5.65 | D | 1.50 (DRY) | | | S14 | | | |
| 6.00- 6.10 | D | | | | | Below 6.00m, cobbles absent. | | |
| 6.30- 6.80 | B | | | | | | 6.30 | 42.17 |
| 6.30- 6.75 | UT45 | 1.50 (DRY) | | | | Stiff dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. | | |
| 6.75- 6.80 | D | | | 14 | | | | |
| 7.40- 7.60 | D | | | | | | | |
| 8.00- 8.45 | D | 8.00 (7.00) | | | S31 | | | |
| | | | | | | | 8.20 | 40.27 |
| 8.60- 9.10 | B | | | | | Stiff grey mottled brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. | | |
| 8.60- 8.70 | D | | | | | | | |
| 9.00- 9.45 | UT80 | 8.50 (DRY) | | | | | | |
| 9.45- 9.50 | D | | | | | | | |
| 9.80- 9.90 | D | | | | | | | |
| 10.00-10.50 | B | | | | | | 10.00 | 38.47 |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 20.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 28/09/21 | 08:00 |
| 12.50 | 11.80 | DRY | 28/09/21 | 18:00 |
| 12.50 | 11.8 | DRY | 29/09/21 | 08:00 |
| 20.00 | 20.00 | 7.10 | 29/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 6.80 | 1.50 | 6.30 | 20 | 8.50 | Slow inflow. |
| 10.00 | 8.50 | 8.20 | 20 | 11.80 | Fast inflow. |
| 15.10 | 11.80 | | | | Slow inflow. |

**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found. Backfill details from base of hole: bentonite grout up to ground level.

Logged by AS
Checked by DRB
Figure 1 of 2
19/11/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH18-55** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **615473.314**E **303209.667**N Ground Level **48.47** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.00-10.45 | D | 8.50 (8.20) | | | S20 | Stiff light brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint. | 10.00 | | 38.47 |
| 10.70-10.80 | D | | | | | | | | |
| 11.00-11.45 | UT40 | 11.00 (9.00) | 54 | 14 | | Stiff grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint and chalk. | 11.00 | | 37.47 |
| 11.45-11.50 | D | | | 15 | | | | | |
| 11.50-11.80 | B | | | | | | | | |
| 11.80-11.90 | D | | | | | | | | |
| 12.00-12.45 | D | 11.80 (DRY) | | | S18 | | | | |
| 12.80-12.90 | D | | | | | | | | |
| 13.00-13.50 | B | | | | | | | | |
| 13.00-13.45 | UT45 | 11.80 (DRY) | | | | | | | |
| 13.45-13.50 | D | | | | | | | | |
| 14.30-14.40 | D | | | | | | | | |
| 14.60-15.00 | B | | | | | | | | |
| 14.60-15.05 | D | 11.80 (DRY) | | | S22 | | | | |
| 15.40-15.50 | D | | | | | | | | |
| 15.70-16.15 | UT50 | 15.70 (15.00) | 54 | 14 | | | | | |
| 16.15-16.20 | D | | | | | | | | |
| 16.20-16.50 | B | | | | | | | | |
| 16.50-16.60 | D | | | | | | | | |
| 16.70-17.20 | B | | | | | | | | |
| 16.70-17.15 | D | 16.70 (16.00) | | | S36 | Very stiff dark grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk. | 16.70 | | 31.77 |
| 17.50-17.60 | D | | | 16 | | | 17.50 | | 30.97 |
| 17.60-18.10 | B | | | | | Very stiff grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded medium to coarse flint and chalk. | | | |
| 17.60-18.05 | | 17.60 (16.70) | | | C37 | | | | |
| 18.10-18.50 | B | | | | | | 18.10 | | 30.37 |
| 18.10-18.20 | D | | | | | Very stiff dark grey slightly sandy CLAY. | | | |
| 18.50-18.60 | D | | | | | Below 18.60m, becoming sandy. | | | |
| 18.60-19.50 | B | | | | | | | | |
| 19.50-19.95 | UT90 | 19.50 (17.10) | 145 | 13 | | | | | |
| 19.95-20.00 | D | | | | | | 20.00 | | 28.47 |
| | | | | | | End of Borehole | | | |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AS**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH18-56 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 615428.78 E 303186.774 N | Ground Level | 49.13 m OD |

| Sampling | | | Properties | | | Strata | | | Scale 1:50 |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 0.00- 0.20 | B | | | | | TOPSOIL: Firm dark brown slightly sandy gravelly CLAY with occasional roots (up to 5mm in size) and many rootlets. Gravel is subangular to subrounded fine to coarse flint and quartzite. | G.L. | | 49.13 |
| 0.10- 0.20 | D | | | | | | | | |
| 0.50- 0.80 | B | | | | | | 0.50 | | 48.63 |
| 0.50- 0.60 | D | | | | | Firm brown gravelly very sandy CLAY. Gravel is subangular to subrounded fine to coarse quartzite and flint. | | | |
| 1.20- 1.70 | B | | | | | | 1.20 | | 47.93 |
| 1.20- 1.65 | D | | | | | Firm brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse quartzite, flint and chalk. | | | |
| 1.20- 1.65 | | 1.20 (DRY) | | | S7 | | | | |
| 2.00- 2.10 | D | | | 15 | | | | | |
| 2.20- 2.65 | UT70 | 2.20 (DRY) | | | | | | | |
| 2.65- 2.70 | D | | | | | | 2.60 | | 46.53 |
| 2.70- 3.00 | B | | | | | Firm orangish brown mottled grey slightly gravelly very sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. | | | |
| 3.00- 3.10 | D | | | | | | | | |
| 3.40- 4.50 | B | | | | | | 3.40 | | 45.73 |
| 3.40- 3.50 | D | | | | | Firm grey and light grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk. | | | |
| 3.40- 3.85 | | 3.00 (DRY) | | | S7 | | | | |
| 4.50- 4.95 | UT25 | 4.50 (DAMP) | 21 | 16 | | | | | |
| 4.95- 5.00 | D | | | | | | 5.00 | | 44.13 |
| 5.00- 5.50 | B | | | | | Firm grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk and flint. | | | |
| 5.00- 5.10 | D | | | | | | | | |
| 5.50- 5.95 | D | 5.50 (DRY) | | | S10 | | | | |
| 6.20- 6.30 | D | | | 14 | | | | | |
| 6.50- 7.00 | B | | | | | | | | |
| 6.50- 6.95 | UT28 | 6.00 (DRY) | | | | | | | |
| 6.95- 7.00 | D | | | | | | | | |
| 7.30- 7.40 | D | | | | | | | | |
| 7.50- 7.95 | D | 6.00 (DRY) | | | S9 | | | | |
| 8.30- 8.40 | D | | | | | | 8.30 | | 40.83 |
| 8.70- 9.30 | B | | | | | Firm dark grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk and flint. | | | |
| 8.70- 9.15 | UT60 | 8.70 (7.50) | 125 | 11 | | | 9.00 | | 40.13 |
| 9.15- 9.20 | D | | | | | Firm grey mottled cream slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk. | | | |
| 9.50- 9.60 | D | | | 13 | | | | | |
| 9.70-10.15 | D | 9.70 (8.60) | | | S10 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 20.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 23/09/21 | 08:00 |
| 5.00 | 4.50 | DRY | 23/09/21 | 18:00 |
| 5.00 | 4.50 | 4.50 | 27/09/21 | 08:00 |
| 18.80 | 18.00 | 9.60 | 27/09/21 | 18:00 |
| 18.80 | 18.00 | 8.00 | 28/09/21 | 08:00 |
| 20.00 | 20.00 | 9.00 | 28/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 8.20 | 5.50 | 7.50 | 20 | 10.20 | Slow in flow. |
| 12.20 | 10.20 | 11.50 | 20 | 12.80 | Fast in flow |
| 13.80 | 12.80 | 13.00 | 20 | | Slow in flow |

**Remarks** A 50mm standpipe was installed to 20.00m with a geowrapped slotted section from 1.00m to 20.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Checked by DRB

Figure 1 of 2

19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH18-56** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **615428.78** E **303186.774** N Ground Level **49.13** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.20-10.50 | B | | | | | Below 10.20m, becoming sandy. Mottling absent. | | | |
| 10.50-10.60 | D | | | | | | 10.50 | | 38.63 |
| 10.70-11.15 | UT45 | 10.20 (DRY) | | | | Firm dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. | | | |
| 11.15-11.20 | D | | | 12 | | | | | |
| 11.50-11.60 | D | | | | | | | | |
| 11.70-12.20 | B | | | | | | | | |
| 11.70-12.15 | D | 10.20 (DRY) | | | S7 | | | | |
| 12.50-12.60 | D | | | | | Below 12.50m, becoming sandy. | | | |
| 12.80-13.25 | UT55 | 12.80 (DRY) | 99 | 12 | | | | | |
| 13.25-13.30 | D | | | | | | | | |
| 13.30-13.60 | B | | | | | | | | |
| 13.60-13.70 | D | | | | | Below 13.50m, becoming stiff. | | | |
| 13.80-14.25 | D | 13.80 (13.00) | | | S23 | | | | |
| 14.50-14.60 | D | | | | | | | | |
| 14.80-15.30 | B | | | | | | | | |
| 14.80-15.25 | UT50 | 14.80 (14.50) | | | | | | | |
| 15.25-15.30 | D | | | | | | | | |
| 15.70-15.80 | D | | | 14 | | | | | |
| 16.00-16.45 | D | 16.00 (15.60) | | | S18 | | | | |
| 16.30-16.60 | B | | | | | | | | |
| 16.70-16.80 | D | | | | | | | | |
| 17.10-17.55 | UT60 | 17.10 (16.60) | | | | | | | |
| 17.55-17.60 | D | | | | | | | | |
| 17.70-17.80 | D | | | | | | | | |
| 17.80-18.10 | B | | | | | | | | |
| 18.10-18.80 | D | | | | | | | | |
| 18.20-18.65 | D | | | | | | | | |
| 18.21-18.66 | | 18.00 (17.60) | | | S22 | | | | |
| | | | | | | | 18.70 | | 30.43 |
| 18.80-19.00 | B | | | | | Light grey sandy slightly clayey GRAVEL. Gravel is angular to subrounded fine to coarse flint. | | | |
| 19.00-19.10 | D | | | | | | 19.00 | | 30.13 |
| 19.00-19.45 | | 19.00 (9.00) | | | C22 | CHALK recovered as greyish white slightly sandy slightly gravelly SILT. Gravel is very weak, low density, white with occasional black specks. Occasional flint gravel is subangular fine to coarse. | | | |
| 19.50-19.60 | D | | | 20 | | | | | |
| 19.90-20.00 | D | | | | | | 20.00 | | 29.13 |
| | | | | | | End of Borehole | | | |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Checked by **DRB**

Figure **2 of 2**

19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH19-57** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **617093.613**E **303351.675**N Ground Level **46.69** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 46.69 |
| 0.10- 0.30 | B | | | | | **TOPSOIL: Soft brown sandy clay with many rootlets.** | | | |
| 0.10- 0.20 | D | | | | | | 0.40 | | 46.29 |
| 0.40- 0.70 | B | | | | | **Orangish brown gravelly slightly clayey SAND. Gravel is angular to subrounded fine to coarse flint.** | | | |
| 0.40- 0.50 | D | | | | | | | | |
| 1.00- 1.20 | B | | | | | | | | |
| 1.00- 1.10 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.65 | | 1.20 | | | C12 | | 1.30 | | 45.39 |
| 1.30- 1.40 | D | (DRY) | | | | **Firm orangish brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse flint. **Below 1.90m, drillers note sandy layers.** | | | |
| 1.90- 2.00 | D | | | 15 | | | | | |
| 2.10- 2.60 | B | | | | | | | | |
| 2.10- 2.55 | D | 1.50 (DRY) | | | S12 | | | | |
| 2.90- 3.00 | D | | | | | | | | |
| 3.30- 3.75 | D | 3.00 (DRY) | | | S7 | **Below 3.60m, driller notes chalk gravel.** | | | |
| 3.80- 4.00 | B | | | | | | 3.80 | | 42.89 |
| 3.80- 3.90 | D | | | | | **Stiff light greyish brown mottled orangish brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine and medium flint and chalk.** | 4.00 | | 42.69 |
| 4.00- 4.10 | D | | | | | | | | |
| 4.20- 4.70 | B | | | | | | | | |
| 4.20- 4.65 | D | 4.20 (DRY) | | | S26 | **Medium dense light greyish brown slightly gravelly very clayey SAND. Gravel is subangular to subrounded fine to coarse flint and chalk. Below 4.20m, driller notes clay layers.** | | | |
| 5.00- 5.10 | D | | | | | **At 5.20m, dense.** | | | |
| 5.20- 6.20 | B | | | | | | | | |
| 5.20- 5.65 | D | 5.20 (4.60) | | | S36 | | | | |
| 6.00- 6.10 | D | | | | | | | | |
| 6.20- 6.65 | D | 6.20 (5.00) | | | S20 | | | | |
| 6.70- 7.30 | B | | | | | | | | |
| 7.00- 7.10 | D | | | | | | | | |
| 7.30- 7.75 | D | 7.30 (6.00) | | | S11 | | | | |
| 8.00- 8.10 | D | | | | | | | | |
| 8.50- 9.00 | B | | | | | | 8.50 | | 38.19 |
| 8.50- 8.95 | D | 8.50 (6.60) | | | S19 | **Stiff light greyish brown mottled orangish brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse flint and chalk.** | | | |
| 9.00- 9.10 | D | | | 17 | | | | | |
| 9.50- 9.95 | UT35 | | 74 | 16 | | | | | |
| 9.95-10.00 | D | | | | | | 10.00 | | 36.69 |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 15.45 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | DRY | 22/09/21 | 08:00 |
| 1.70 | | DRY | 22/09/21 | 18:00 |
| 1.70 | | DRY | 23/09/21 | 08:00 |
| 15.45 | 15.00 | 10.50 | 23/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

## Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
** Drillers description.
Water was added to assist boring between 4.70 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AM
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH19-57 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 617093.613E 303351.675N | Ground Level | 46.69 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.00-10.10 | D | | | | | Very dense light greyish brown gravelly SAND. Gravel is subangular to rounded medium and coarse flint. | 10.00 | | 36.69 |
| 10.40-10.90 | B | | | 11 | | | | | |
| 10.40-10.85 | | 10.40 (8.20) | | | C50 | | | | |
| 11.00-11.10 | D | | | | | | | | |
| 11.80-12.30 | B | | | | | | | | |
| 11.80-12.23 | | 11.80 (8.70) | | | C50/ 275 | | | | |
| 12.30-12.40 | D | | | | | | | | |
| 13.00-13.43 | | 13.00 (9.50) | | | C50/ 275 | | | | |
| 13.30-13.70 | B | | | 6.7 | | | | | |
| 13.70-13.80 | D | | | | | | | | |
| 14.50-14.95 | | 14.50 (10.50) | | | C32 | | | | |
| 14.90-15.00 | D | | | | | | | | |
| | | | | | | End of Borehole | 15.45 | | 31.24 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AM
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH19-58** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **617401.247**E **303352.466**N Ground Level **40.72** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 40.72 |
| 0.00- 0.50 | B | | | | | TOPSOIL: Soft brown sandy clay with many rootlets. | | | |
| 0.20 | D | | | | | | | | |
| 0.50- 1.00 | B | | | | | | 0.50 | | 40.22 |
| 0.50 | D | | | | | Orangish brown gravelly slightly clayey SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 1.00- 1.20 | B | | | | | | 1.00 | | 39.72 |
| 1.20- 1.65 | B | | | | | Firm dark orangish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to | | | |
| 1.20- 1.65 | D | NIL (DRY) | | 11 | S14 | coarse flint. | | | |
| 2.00- 2.45 | B | | | | | Below 2.00m, becoming stiff. | | | |
| 2.00- 2.45 | D | | | | | | | | |
| 2.00- 2.45 | | 1.90 (DRY) | | | C18 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00- 3.45 | D | | | | | | | | |
| 3.00- 3.45 | | 2.90 | | | C29 | | 3.20 | | 37.52 |
| 3.20 | D | (DRY) | | | | Medium dense brown sandy GRAVEL with occasional cobbles of flint. Gravel is angular to subrounded medium to coarse flint. | | | |
| 4.00- 4.45 | B | | | 3.9 | | | | | |
| 4.00- 4.45 | D | | | | | | | | |
| 4.00- 4.22 | | 3.90 (0.50) | | | C50/ 105 | | | | |
| 5.00- 5.45 | B | | | | | | | | |
| 5.00- 5.45 | D | | | | | | | | |
| 5.00- 5.45 | | 4.80 (0.50) | | | C18 | | | | |
| 6.00 | D | | | | | | | | |
| | | | | | | | 6.40 | | 34.32 |
| 6.40 | D | | | | | Stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse | | | |
| 6.50- 6.95 | B | | | | | flint. | | | |
| 6.50- 6.95 | | 6.30 (0.50) | | | C24 | | 6.90 | | 33.82 |
| 6.90 | D | | | | | Medium dense light brown gravelly slightly clayey SAND. Gravel is subangular to subrounded medium and coarse flint. | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | D | 7.50 (DRY) | | | S13 | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | | | | | | | | |
| 9.50- 9.95 | D | 9.00 | | | S19 | | 9.60 | | 31.12 |
| 9.60 | D | (DRY) | | | | Medium dense dark orangish brown gravelly and very gravelly slightly clayey SAND. Gravel is subangular to subrounded fine and medium flint. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CD/MN |
| 15.45 | 0.15 | Cable Percussion | CD/MN |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 27/09/21 | 08:00 |
| 2.45 | 2.80 | DRY | 27/09/21 | 18:00 |
| 2.45 | | | 28/09/21 | 08:00 |
| 15.45 | 15.00 | 0.50 | 28/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** (AGS)

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 3.20-7.00m and 9.60-15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AM**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** | Engineer **J MURPHY & SONS LIMITED** | **Borehole** **BH19-58** | Project No **PC218256**

Client **J MURPHY & SONS LIMITED** | National Grid Coordinates **617401.247**E **303352.466**N | Ground Level **40.72** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00-11.45 | B | | | | | | | | |
| 11.00-11.45 | D | 10.50 (DRY) | | | C17 | | | | |
| 12.10 | D | | | | | | 12.10 | | 28.62 |
| 12.50-12.95 | UTF 19 | 12.30 (0.50) | | | | CHALK recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is very weak, low density, brownish cream with frequent black specks. | | | |
| 13.00 | D | | | 20 | | | | | |
| 14.00-14.45 | B | | | | | | | | |
| 14.00-14.45 | D | 13.90 (0.50) | | | S14 | | | | |
| 15.00-15.45 | D | 14.80 (0.50) | | | S13 | | | | |
| | | | | | | End of Borehole | 15.45 | | 25.27 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **AM**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH20-59** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **619225.829**E **302589.836**N Ground Level **22.51** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 22.51 |
| 0.00- 0.40 | B | | | | | **TOPSOIL: Brown clayey sand with many rootlets.** | | | |
| 0.20 | D | | | | | | | | |
| | | | | | | | 0.40 | | 22.11 |
| 0.40- 1.00 | B | | | | | **Brown slightly clayey gravelly SAND. Gravel is subangular to subrounded fine and medium flint. Between 0.50-2.00m, becoming orangish brown.** | | | |
| | | | | | | **Below 1.20m, medium dense.** | | | |
| 1.20- 1.65 | B | | | | | | | | |
| 1.20- 1.65 | D | NIL (DRY) | | | S15 | | | | |
| 1.80 | D | | | | | | 1.80 | | 20.71 |
| 2.00- 2.45 | B | | | | | **Stiff brown mottled orangish brown slightly sandy gravelly SILT. Gravel is subangular to subrounded fine to coarse flint.** | | | |
| 2.00- 2.45 | D | 1.90 (DRY) | | 11 | S21 | | | | |
| 3.00- 3.45 | UT26 | 2.90 (DRY) | | | | | | | |
| 3.50 | D | | | | | | | | |
| 3.60 | D | | | | | | 3.60 | | 18.91 |
| 4.00- 4.45 | B | | | | | **Medium dense grey very sandy slightly silty GRAVEL with occasional pockets (up to 50mm in size) of grey clay. Gravel is subangular to subrounded fine to coarse flint.** | | | |
| 4.00- 4.45 | D | | | | | | | | |
| 4.00- 4.45 | | 3.70 (DRY) | | | C20 | | | | |
| 5.00- 5.45 | B | | | | | | 5.00 | | 17.51 |
| 5.00- 5.45 | D | | | | | **Stiff brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint.** | | | |
| 5.00- 5.45 | | 4.50 (DRY) | | | S25 | | | | |
| 6.00 | D | | | | | | | | |
| | | | | | | | 6.40 | | 16.11 |
| 6.40 | D | | | 21 | | **CHALK recovered as greyish white slightly sandy slightly gravelly SILT. Gravel is very weak, low density, greyish white with frequent black specks.** | | | |
| 6.50- 6.95 | UTF 18 | 6.30 (0.50) | | | | | | | |
| 7.00 | D | | | | | | | | |
| 8.00- 8.45 | B | | | | | | | | |
| 8.00- 8.45 | D | 7.70 (0.50) | | | S13 | | | | |
| 9.00 | D | | | 24 | | | | | |
| 9.50- 9.95 | B | | | | | | | | |
| 9.50- 9.95 | D | 9.30 (0.50) | | | S12 | | | | |
| 10.00 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | CD/MN |
| 15.45 | 0.15 | Cable Percussion | CD/MN |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 29/09/21 | 08:00 |
| 8.45 | 9.00 | DRY | 29/09/21 | 18:00 |
| 8.45 | 9.00 | DRY | 30/09/21 | 08:00 |
| 9.00 | 15.45 | 0.50 | 30/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks** AGS

Water was added to assist boring between 9.00-15.00m.
Inspection pit hand excavated to 1.20m depth and no services were found.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** | Engineer **J MURPHY & SONS LIMITED** | Borehole **BH20-59** | Project No **PC218256**

Client **J MURPHY & SONS LIMITED** | National Grid Coordinates **619225.829**E **302589.836**N | Ground Level **22.51** m OD

Scale 1:50

| Sampling: Depth | Sample Type | Depth Cased & (to Water) | Properties: Strength kPa | w % | SPT N | Strata: Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 11.00 | D | | | | | | | | |
| 11.00-11.45 | UTF 16 | 10.80 (0.50) | | | | | | | |
| 12.00 | D | | | | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | D | 12.20 (0.50) | | | S13 | | | | |
| 13.00 | D | | | 24 | | | | | |
| 14.00 | D | | | | | | | | |
| 14.00-14.45 | UTF 19 | 13.70 (0.50) | | | | | | | |
| 15.00-15.45 | D | 14.90 (0.50) | | | S14 | | | | |
| | | | | | | End of Borehole | 15.45 | | 7.06 |



| Boring: Depth | Hole Dia | Technique | Crew | Progress: Depth of Hole | Depth Cased | Depth to Water | Date | Time | Groundwater: Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH20-60 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 619392.492 E, 302526.26 N | Ground Level | 26.65 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 26.65 |
| 0.00- 0.50 | B | | | | | TOPSOIL: Dark brown slightly gravelly silty sand with occasional rootlets. Gravel is subangular to subrounded fine to medium flint and quartzite. | | | |
| 0.20 | D | | | | | | | | |
| 0.50- 1.20 | B | | | | | Light brown slightly gravelly silty SAND. Gravel is subangular to subrounded fine to medium flint and quartzite. | 0.50 | | 26.15 |
| 0.50 | D | | | | | | | | |
| 1.20- 1.65 | B | | | | | | 1.20 | | 25.45 |
| 1.20- 1.65 | D | NIL (DRY) | | | S13 | Medium dense dark brown slightly gravelly clayey SAND with a low cobble content of subrounded flint. Gravel is subangular to subrounded fine to coarse flint. | | | |
| 1.60 | D | | | | | | 1.60 | | 25.05 |
| 2.00- 2.45 | B | | | | | Medium dense orangish brown gravelly clayey SAND with a high cobble content of a flint. Gravel is angular to subangular fine to coarse flint. Below 1.60m, becoming dark brown. | | | |
| 2.00- 2.45 | D | 1.90 (DRY) | | | S17 | | | | |
| 3.00- 3.45 | B | | | | | | | | |
| 3.00- 3.45 | D | 2.90 (DRY) | | | S21 | | | | |
| 3.30 | D | | | | | | 3.30 | | 23.35 |
| 4.00- 4.45 | B | | | | | CHALK recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is very weak, low density, brownish cream with frequent black specks. | | | |
| 4.00- 4.45 | D | 3.00 (DRY) | | 25 | S23 | | | | |
| 5.00- 5.45 | UT17 | 4.50 (DRY) | | | | | | | |
| 5.50 | D | | | | | | | | |
| 6.50- 6.95 | B | | | | | | | | |
| 6.50- 6.95 | D | 6.30 (0.50) | | | S12 | | | | |
| 7.00 | D | | | | | | | | |
| 8.00 | D | | | 23 | | | | | |
| 8.00- 8.45 | UTF 17 | 7.80 (0.50) | | | | | | | |
| 9.00 | D | | | | | | | | |
| 9.50- 9.95 | B | | | | | | | | |
| 9.50- 9.95 | D | 9.20 (0.50) | | | S10 | | | | |
| 10.00 | D | | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | |
| 7.00 | | Cable Percussion | |
| 15.45 | | Cable Percussion | |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 04/10/21 | 08:00 |
| 7.00 | 7.00 | 0.50 | 06/10/21 | 18:00 |
| 7.00 | | | 05/10/21 | 08:00 |
| 15.45 | 15.00 | 0.50 | 05/10/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 5.00 and 15.00m.
Backfill details from base of hole: bentonite grout up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH20-60** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **619392.492** E **302526.26** N Ground Level **26.65** m OD

Scale 1:50

| Sampling | | | Properties | | | Strata | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
| 11.00 | D | | | | | | | | |
| 11.00-11.45 | UTF 19 | 10.70 (0.50) | | | | | | | |
| 12.00 | D | | | 28 | | | | | |
| 12.50-12.95 | B | | | | | | | | |
| 12.50-12.95 | D | 12.20 (0.50) | | | S9 | | | | |
| 13.00 | D | | | | | | | | |
| 14.00 | D | | | | | | | | |
| 14.00-14.45 | UTF 14 | 13.90 (0.50) | | | | | | | |
| 15.00-15.45 | D | 14.90 (0.50) | | | S12 | | | | |
| | | | | | | End of Borehole | 15.45 | | 11.20 |



| Boring | | | | Progress | | | | | Groundwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth | Hole Dia | Technique | Crew | Depth of Hole | Depth Cased | Depth to Water | Date | Time | Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH21-61 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621885.917E 301730.542N | Ground Level | 29.81 m OD |

Sampling | Properties | Strata — Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 29.81 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly sand with a low cobble content of subangular to subrounded flint and many rootlets. Gravel is subrounded fine flint. | | | |
| 0.00- 0.10 | D | | | | | | | | |
| 0.30- 0.60 | B | | | | | | 0.30 | | 29.51 |
| 0.30- 0.40 | D | | | | | | | | |
| 0.60- 1.00 | B | | | | | Light orangish brown slightly gravelly SAND. Gravel is angular to subangular fine to coarse flint. | | | |
| 0.60- 0.70 | D | | | | | | | | |
| 1.20- 1.70 | B | | | | | | 1.20 | | 28.61 |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S25 | Medium dense brown mottled orangish brown very gravelly silty SAND. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 1.70- 2.20 | B | | | | | | 1.70 | | 28.11 |
| 1.70- 1.90 | D | | | | | Medium dense brown and orangish brown sandy GRAVEL with a high cobble content of angular flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 2.20- 2.80 | B | | | | | | | | |
| 2.20- 2.65 | | 2.20 (DRY) | | | C14 | | | | |
| 3.70- 4.00 | B | | | | | | | | |
| 3.90- 4.00 | D | | | | | | | | |
| 4.00- 6.00 | B | | | | | | | | |
| 4.00- 4.45 | | 4.00 (DRY) | | | C12 | | | | |
| 5.00- 5.45 | | 5.00 (DRY) | | | C19 | | | | |
| 6.00- 6.30 | D | | | | | | 6.00 | | 23.81 |
| 6.30- 6.80 | B | | | | | Medium dense orangish brown and brown very gravelly slightly silty SAND. Gravel is angular to subrounded fine to coarse flint. | | | |
| 6.30- 6.75 | | 6.00 (DRY) | | | C13 | | | | |
| 7.00- 7.10 | D | | | 6.1 | | | | | |
| 7.50- 7.95 | | 7.50 (DRY) | | | C13 | | | | |
| 8.00- 8.50 | B | | | | | | 8.00 | | 21.81 |
| 8.20- 8.30 | D | | | | | Medium dense orangish brown and brown sandy GRAVEL with a low cobble content of angular to subrounded flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 8.50- 8.95 | | 8.50 (DRY) | | | C17 | | | | |
| 9.50-10.00 | B | | | | | | | | |
| 9.50- 9.95 | | 9.50 (DRY) | | | C16 | | | | |
| 10.00-10.10 | D | | | | | | | | |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 25/08/21 | 08:00 |
| 12.00 | 12.00 | 11.00 | 25/08/21 | 18:00 |
| 12.00 | 12.00 | DRY | 26/08/21 | 08:00 |
| 18.00 | 18.00 | DRY | 26/08/21 | 18:00 |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring, possibly obscured by added water. |

Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 1.70 and 13.50m.
Driller unable undertake SPT at 3.20m due to gravels within casing.
A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 1.00m to 18.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.
Chiselling: 1.70-3.00m for 100 minutes and 12.00-13.50m for 105 minutes.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH21-61 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621885.917E 301730.542N | Ground Level | 29.81 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.50-10.95 | | 10.50 (DRY) | | | C17 | | | | |
| 11.30-11.40 | D | | | | | | 11.30 | | 18.51 |
| 11.50-12.00 | B | | | | | Light creamish brown gravelly slightly clayey SAND with a medium cobble content of subangular flint and chalk. Gravel is angular to subangular fine to coarse flint and chalk. | | | |
| 11.50-11.95 | D | 11.50 (DRY) | | | S35 | | 11.60 | | 18.21 |
| 12.50-13.00 | B | | | | | Dense light brown very sandy slightly silty GRAVEL with a medium cobble content of subangular flint and chalk. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 12.50-12.95 | | 12.50 (DRY) | | | C30 | | | | |
| 13.00-13.20 | D | | | | | | | | |
| 13.50-13.60 | D | | | | | | 13.50 | | 16.31 |
| 13.80-14.80 | B | | | 27 | | CHALK, recovered as creamish white slightly sandy slightly gravelly SILT. Gravel is very weak, low density, creamish white with many black specks with occasional subangular to subrounded flint gravel. | | | |
| 13.80-14.25 | D | 13.50 (DRY) | | | S8 | | | | |
| 14.80-15.25 | UT20 | 14.80 (DRY) | 210 | 24 | | | | | |
| 15.25-15.30 | D | | | | | | | | |
| 15.30-15.80 | B | | | | | | | | |
| 15.80-16.00 | D | | | | | | | | |
| 16.00-16.45 | D | 16.00 (DRY) | | | S7 | | | | |
| 16.80-17.30 | B | | | | | | | | |
| 17.30-17.40 | D | | | 29 | | | | | |
| 17.50-17.95 | D | 17.50 (DRY) | | | S9 | | | | |
| | | | | | | End of Borehole | 18.00 | | 11.81 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH21-62** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **621794.739**E **301895.045**N Ground Level **27.86** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 27.86 |
| 0.00- 0.20 | B | | | | | TOPSOIL: Dark brown silty sand with occasional rootlets. | | | |
| 0.10- 0.20 | D | | | | | | | | |
| 0.30- 0.60 | B | | | | | | 0.30 | | 27.56 |
| 0.30- 0.40 | D | | | | | Light orangish brown gravelly silty SAND. Gravel is angular to rounded fine to coarse flint. | | | |
| 1.20- 1.65 | D | 1.20 | | | S10 | | | | |
| 1.30- 1.90 | B | (DRY) | | | | | 1.30 | | 26.56 |
| | | | | | | Firm brown mottled orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. | | | |
| 1.90- 2.00 | D | | | 15 | | | | | |
| 2.20- 2.65 | UT80 | 1.50 (DRY) | 190 | 13 | | | | | |
| | | | | | | ** Below 2.70m, driller notes gravelly bands. | | | |
| 2.65- 2.70 | D | | | | | | | | |
| 2.70- 3.20 | B | | | | | | | | |
| 2.70- 2.80 | D | | | | | | | | |
| 3.20- 3.65 | D | 3.00 (DRY) | | | S11 | | | | |
| 3.90- 4.00 | D | | | | | | | | |
| 4.20- 4.65 | UT50 | 3.00 (DRY) | 74 | 14 | | | 4.20 | | 23.66 |
| | | | | | | Firm orangish brown mottled brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse flint and chalk. | | | |
| 4.65- 4.70 | D | | | | | | | | |
| 4.90- 5.00 | D | | | 16 | | | | | |
| 5.20- 5.70 | B | | | | | | | | |
| 5.20- 5.65 | D | 4.50 (DRY) | | | S25 | | 5.30 | | 22.56 |
| | | | | | | Stiff dark brown mottled brown slightly sandy slightly gravelly CLAY with a low cobble content of subrounded chalk. Gravel is subangular to rounded fine to coarse flint and chalk. | | | |
| 6.10- 6.20 | D | | | | | | | | |
| 6.30- 6.65 | UT100 | 4.50 (DRY) | | | | | | | |
| | | | | | | | 6.50 | | 21.36 |
| 6.65- 6.70 | D | | | | | Orangish brown sandy slightly silty GRAVEL with a low cobble content of subangular flint. Gravel is angular to subangular fine to coarse flint. | | | |
| 6.70- 7.10 | B | | | | | | | | |
| 7.10- 7.20 | D | | | | | | | | |
| 7.20- 7.70 | B | | | | | | 7.20 | | 20.66 |
| 7.20- 7.30 | D | | | | | | | | |
| 7.20- 7.65 | | 7.20 (DRY) | | | S9 | CHALK, recovered as slightly sandy silty subangular to subrounded GRAVEL. Clasts are weak, medium density, cream with brown surface staining and many black specks. Matrix is cream with rare angular to subrounded flint cobbles. | | | |
| 8.50- 9.00 | B | | | | | | 8.50 | | 19.36 |
| 8.50- 8.95 | D | 8.50 (DRY) | | 25 | S10 | CHALK, recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is very weak, low density, brownish cream with many black specks with occasional subangular to subrounded fine to coarse flint gravel. | | | |
| 9.10- 9.20 | D | | | | | | | | |
| 9.50- 9.95 | UT20 | 9.00 (DRY) | | | | | | | |
| 9.95-10.00 | D | | | | | ** Below 10.00m, driller notes many flints. | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 23/08/21 | 08:00 |
| 6.70 | 6.70 | DRY | 23/08/21 | 18:00 |
| 6.70 | 4.50 | DRY | 24/08/21 | 08:00 |
| 18.00 | 10.50 | 17.00 | 24/08/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 18.00 | 10.50 | 17.00 | 20 | | Slow inflow. |

## Remarks

AGS

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 6.70 and 7.10m.
** Drillers description.
At 6.30m, UT shoe damaged during sampling.
A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 1.00m to 18.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **1 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH21-62 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621794.739E 301895.045N | Ground Level | 27.86 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.00-10.50 | B | | | | | | | | |
| 10.50-10.95 | D | 10.50 | | | S10 | | | | |
| 10.60-10.70 | D | (DRY) | | | | | | | |
| 11.50-12.00 | B | | | | | | | | |
| 11.50-11.95 | UT85 | 10.50 (DRY) | | | | | | | |
| 11.95-12.00 | D | | | | | | | | |
| 12.20-12.30 | D | | | 24 | | | | | |
| 12.50-12.95 | D | 10.50 (DRY) | | | S12 | | | | |
| 13.00-13.50 | B | | | | | | | | |
| 13.50-13.60 | D | | | | | | | | |
| 13.60-14.05 | UT40 | 10.50 (DRY) | 142 | 28 | | | | | |
| 14.05-14.10 | D | | | | | | | | |
| 14.50-15.00 | B | | | | | | | | |
| 15.30-15.40 | D | | | 28 | | | | | |
| 15.60-16.05 | D | 10.50 (DRY) | | | S17 | | | | |
| 16.00-16.50 | B | | | | | | | | |
| 16.60-16.70 | D | | | | | | | | |
| 16.70-17.15 | UT50 | 10.50 (DRY) | | | | | | | |
| 17.00 | W | | | | | | | | |
| 17.15-17.20 | D | | | | | | | | |
| 17.20-17.50 | B | | | | | | | | |
| 17.40-17.50 | D | | | | | | | | |
| 17.50-17.95 | D | 10.50 (DRY) | | 30 | S12 | | | | |
| | | | | | | End of Borehole | 18.00 | | 9.86 |



**Boring**

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

**Progress**

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

**Groundwater**

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH21-63 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621917.391E 302142.581N | Ground Level | 26.96 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 26.96 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly silty sand with occasional rootlets. Gravel is subangular fine to coarse flint. | 0.30 | 26.66 |
| 0.10- 0.20 | D | | | | | | | |
| 0.30- 0.60 | B | | | | | Light orangish brown slightly silty slightly gravelly SAND. Gravel is angular to rounded fine to coarse flint. | 0.90 | 26.06 |
| 0.30- 0.40 | D | | | | | | | |
| 0.90- 1.20 | B | | | | | Firm orangish brown slightly sandy slightly gravelly CLAY with a medium cobble content of subangular to subrounded flint. Gravel is angular to subrounded fine to coarse flint. | 1.20 | 25.76 |
| 0.90- 1.00 | D | | | | | | | |
| 1.20- 2.00 | B | | | | | | | |
| 1.20- 1.30 | D | | | 15 | | | | |
| 1.20- 1.50 | UTF 100 | 1.20 (DRY) | | | | | | |
| 1.30- 1.40 | D | | | | | Stiff brown slightly sandy slightly gravelly CLAY with a medium cobble content of subrounded flint and chalk. Gravel is subangular to subrounded fine to coarse flint and chalk. | | |
| 1.40- 1.50 | D | | | | | | | |
| 2.00- 2.45 | D | 2.00 (DRY) | | | S28 | | | |
| 2.50- 2.60 | D | | | 13 | | Firm light brown slightly sandy gravelly SILT with a medium cobble content of subangular flint and chalk. Gravel is angular to subrounded fine to coarse flint and chalk. | 2.50 | 24.46 |
| 2.80- 2.90 | D | | | | | | 2.80 | 24.16 |
| 2.90- 3.40 | B | | | | | | | |
| 2.90- 3.35 | D | 2.90 (DRY) | | | S28 | Medium dense light orangish brown sandy slightly silty GRAVEL with a high cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint and chalk. | | |
| 3.70- 3.80 | D | | | | | Medium dense light creamish brown very sandy slightly silty GRAVEL. Gravel is subangular to rounded fine to coarse flint and chalk. | 3.70 | 23.26 |
| 4.00- 4.50 | B | | | | | | | |
| 4.00- 4.45 | | 4.00 (DRY) | | | C29 | | | |
| 4.80- 6.00 | B | | | | | CHALK, recovered as slightly sandy silty subangular to subrounded GRAVEL. Clasts are weak to moderately weak, medium density, creamish white with brown staining and many black specks. Matrix is cream. | 4.80 | 22.16 |
| 4.80- 4.90 | D | | | | | | | |
| 5.00- 5.45 | D | 5.00 (4.50) | | 29 | S14 | | 5.30 | 21.66 |
| 6.00- 6.45 | UT30 | 6.00 (4.20) | 154 | 33 | | CHALK, recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is subrounded, very weak, low density, brownish cream with many black specks with occasional angular to subangular flint cobbles. | | |
| 6.45- 6.50 | D | | | | | | | |
| 6.50- 7.00 | B | | | | | | | |
| 7.00- 7.45 | D | 7.00 (6.50) | | | S4 | | | |
| 7.40- 7.50 | D | | | | | | | |
| 8.00- 8.50 | B | | | | | | | |
| 8.00- 8.45 | UT20 | 8.00 (DRY) | | | | | | |
| 8.45- 8.50 | D | | | 32 | | | | |
| 9.00- 9.10 | D | | | | | | | |
| 9.20-10.00 | B | | | | | | | |
| 9.20- 9.65 | D | 9.00 (DRY) | | | S33 | | | |
| | | | | | | Between 9.70-10.50m, driller notes pushing flints. | | |
| 10.00-10.10 | D | | | | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 26/08/21 | 08:00 |
| 6.50 | 6.00 | 4.60 | 26/08/21 | 18:00 |
| 6.50 | 6.00 | 5.30 | 27/08/21 | 08:00 |
| 18.00 | 9.00 | 16.50 | 27/08/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| 3.70 | | | | | Possible water strike between 3.70 to 4.80m, masked by added water. |
| 17.00 | 9.00 | 16.50 | 20 | | Slow inflow. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 3.70 and 4.80m.
A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 1.00m to 18.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.10m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH21-63** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **621917.391**E **302142.581**N Ground Level **26.96** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.50-10.95 | UT30 | 9.00 (DRY) | | | | | | | |
| 10.70-11.00 | B | | | | | | | | |
| 11.20-11.30 | D | | | | | | | | |
| 11.50-11.95 | D | 9.00 (DRY) | | | S7 | | | | |
| 12.20-12.50 | B | | | | | | | | |
| 12.50-12.95 | D | 9.00 (DRY) | | | S8 | | | | |
| 13.10-13.20 | D | | | 30 | | | | | |
| 13.50-13.95 | UT30 | 9.00 (DRY) | | | | | | | |
| 13.70-14.00 | B | | | | | | | | |
| 13.95-14.00 | D | | | | | | | | |
| 14.20-14.30 | D | | | | | | | | |
| 14.60-15.05 | D | 9.00 (DRY) | | | S9 | | | | |
| 15.20-15.60 | B | | | | | | | | |
| 15.30-15.40 | D | | | | | | | | |
| 15.60-16.05 | UT45 | 9.00 (DRY) | | | | | | | |
| 16.05-16.10 | D | | | 27 | | | | | |
| 16.50-16.95 | D | 9.00 (DRY) | | | S11 | | | | |
| 16.70-17.00 | B | | | | | | | | |
| 17.10-17.20 | D | | | | | | | | |
| 17.50-17.95 | UT30 | 9.00 (16.50) | | | | | | | |
| 17.95-18.00 | D | | | | | | | | |
| | | | | | | End of Borehole | 18.00 | | 8.96 |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH21-64 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621917.09 E, 302143.558 N | Ground Level | 26.98 m OD |

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | 26.98 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly slightly clayey sand with occasional rootlets. Gravel is subangular to subrounded fine to coarse flint. | 0.30 | 26.68 |
| 0.00- 0.10 | D | | | | | | | |
| 0.30- 0.50 | B | | | | | | 0.50 | 26.48 |
| 0.30- 0.40 | D | | | | | Firm orangish brown slightly gravelly sandy CLAY with a medium cobble content of subangular flint. Gravel is subangular fine to coarse flint. | | |
| 0.50- 0.70 | B | | | | | | | |
| 0.50- 0.60 | D | | | 11 | | | | |
| 1.00- 1.10 | D | | | | | | 1.00 | 25.98 |
| 1.20- 2.20 | B | | | | | Firm light greyish brown slightly sandy slightly gravelly CLAY with a medium cobble content of subrounded chalk. Gravel is subangular to subrounded fine to coarse flint and chalk. | 1.20 | 25.78 |
| 1.20- 1.65 | D | 1.20 (DRY) | | 16 | S15 | | | |
| 2.00- 2.10 | D | | | | | Firm greyish brown slightly sandy gravelly SILT with a medium cobble content of subangular to subrounded flint and chalk. Gravel is subangular to subrounded fine to coarse fine to coarse flint and chalk. | | |
| 2.20- 2.65 | UT40 | 1.50 (DRY) | 66 | 16 | | | | |
| 2.65- 2.70 | D | | | | | Firm orangish brown slightly sandy slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse flint and chalk. ** Driller notes sandy layers. | | |
| 2.70- 3.20 | B | | | | | | | |
| 3.00- 3.10 | D | | | | | | | |
| 3.20- 3.65 | D | 1.50 (DRY) | | | S15 | | | |
| 3.70- 4.10 | B | | | | | | | |
| 4.10- 4.20 | D | | | | | | | |
| 4.20- 4.65 | UT55 | 1.50 (DRY) | | | | | | |
| 4.65- 4.70 | D | | | | | | | |
| 5.00- 5.10 | D | | | 14 | | | 5.00 | 21.98 |
| 5.20- 5.70 | B | | | | | Stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel angular to subrounded fine to coarse flint and chalk. | | |
| 5.20- 5.65 | D | 1.50 (DRY) | | | S21 | | | |
| 6.00- 6.10 | D | | | | | | 6.00 | 20.98 |
| 6.10- 6.60 | B | | | | | Very dense brown and orangish brown sandy slightly silty GRAVEL. Gravel is subangular to subrounded fine to coarse flint and chalk. | | |
| 6.10- 6.55 | D | 1.50 (DRY) | | | S50 | | | |
| 6.60- 6.70 | D | | | | | | | |
| 7.20- 7.70 | B | | | | | At 7.20m, dense. | | |
| 7.20- 7.65 | | 7.20 (DRY) | | | C43 | | | |
| 7.70- 7.80 | D | | | | | | | |
| 8.50- 8.60 | D | | | | | | 8.50 | 18.48 |
| 8.60-10.50 | B | | | | | CHALK, recovered as brownish cream slightly sandy slightly gravelly SILT. Gravel is very weak, low density, brownish cream with many black specks with occasional subangular to subrounded fine to coarse flint gravel and cobbles. | | |
| 8.60- 9.05 | D | 8.60 (DRY) | | | S5 | | | |
| 9.20- 9.30 | D | | | 29 | | | | |
| 9.60-10.05 | UT25 | 9.00 (DRY) | 89 | 29 | | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 18.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 31/08/21 | 08:00 |
| 13.20 | 9.00 | DRY | 31/08/21 | 18:00 |
| 13.20 | 9.00 | DRY | 01/09/21 | 08:00 |
| 18.00 | 9.00 | DRY | 01/09/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.
Water was added to assist boring between 6.10 and 8.50m.
** Drillers description.
A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 1.00m to 18.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.30m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH21-64** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **621917.09** E **302143.558** N Ground Level **26.98** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| 10.05-10.10 | D | | | | | | | | |
| 10.50-11.70 | B | | | | | | | | |
| 10.50-10.95 | D | 9.00 (DRY) | | | S6 | | | | |
| 11.40-11.50 | D | | | 30 | | | | | |
| 11.70-12.15 | UT25 | 9.00 (DRY) | | | | | | | |
| 12.00-12.70 | B | | | | | | | | |
| 12.15-12.20 | D | | | | | | | | |
| 12.50-12.60 | D | | | | | | | | |
| 12.70-13.15 | D | 9.00 (DRY) | | | S12 | | | | |
| 13.50-13.60 | D | | | | | | | | |
| 13.70-14.20 | B | | | | | | | | |
| 13.70-14.15 | UT30 | 9.00 (DRY) | 100 | 26 | | | | | |
| 14.15-14.20 | D | | | | | | | | |
| 14.70-15.15 | D | 9.00 (DRY) | | | S8 | | | | |
| 15.20-15.70 | B | | | | | | | | |
| 15.70-15.80 | D | | | | | | | | |
| 16.00-16.45 | UT25 | 9.00 (DRY) | | | | | | | |
| 16.45-16.50 | D | | | | | | | | |
| 16.70-17.00 | B | | | | | | | | |
| 16.80-16.90 | D | | | | | | | | |
| 17.00-17.45 | D | 9.00 (DRY) | | 29 | S11 | | | | |
| 17.90-18.00 | D | | | | | | | | |
| | | | | | | End of Borehole | 18.00 | | 8.98 |



Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| | | | |

Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | | |

Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **2 of 2**
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole | BH21-67 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621648.73 E<br>301884.817 N | Ground Level | 35.28 m OD |

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 35.28 |
| 0.00- 0.30 | B | | | | | TOPSOIL: Dark brown slightly gravelly sandy clay with many rootlets and a medium cobble content of angular flint Gravel is subangular and subrounded fine to coarse flint. | 0.30 | | 34.98 |
| 0.00- 0.10 | D | | | | | | | | |
| 0.30- 0.70 | B | | | | | | | | |
| 0.30- 0.40 | D | | | 10.0 | | | | | |
| 0.70- 1.00 | B | | | | | Brown slightly gravelly sandy CLAY with a medium cobble content of angular flint and rare rootlets. Gravel is subangular and subrounded fine to coarse flint. | 0.70 | | 34.58 |
| 0.70- 0.80 | D | | | | | | | | |
| 1.20- 1.30 | D | | | 21 | | | 1.20 | | 34.08 |
| 1.30- 1.80 | B | | | | | Firm light orangish brown slightly gravelly very sandy CLAY. Gravel is subangular and subrounded fine and medium flint. | 1.40 | | 33.88 |
| 1.30- 1.75 | D | 1.20 (DRY) | | | S11 | | | | |
| | | | | | | Firm orangish brown slightly gravelly sandy CLAY with a medium cobble content of angular flint. Gravel is fine to coarse angular to subrounded flint and chalk. | | | |
| 2.10- 2.20 | D | | | | | | | | |
| 2.30- 2.75 | UT65 | 1.50 (DRY) | 129 | 15 | | Firm light brownish grey slightly gravelly sandy CLAY with a low cobble content of subangular flint and chalk. Gravel is subangular and subrounded fine to coarse flint and chalk. | | | |
| 2.75- 2.80 | D | | | | | | | | |
| 2.80- 3.10 | B | | | | | | | | |
| 2.80- 3.10 | D | | | | | | | | |
| 3.10- 3.20 | D | | | 16 | | | 3.10 | | 32.18 |
| 3.30- 3.75 | D | 3.00 (DRY) | | | S14 | Firm light orangish brown slightly gravelly sandy CLAY with a medium cobble content of subrounded chalk and occasional pockets (up to 50mm in size) of sand. Gravel is subangular and subrounded fine to coarse chalk and flint. | | | |
| 4.10- 4.20 | D | | | | | | | | |
| 4.30- 4.80 | B | | | | | | | | |
| 4.30- 4.75 | UT45 | 3.00 (DRY) | 43 | 17 | | | | | |
| 4.75- 4.80 | D | | | | | | | | |
| 5.20- 5.30 | D | | | | | | | | |
| 5.40- 5.90 | B | | | | | | 5.40 | | 29.88 |
| 5.40- 5.85 | D | 4.50 (DRY) | | | S22 | Stiff dark brownish grey slightly gravelly sandy CLAY with a medium cobble content of subrounded flint. Gravel is subangular and subrounded fine to coarse flint and chalk. | | | |
| 6.30- 6.40 | D | | | 14 | | | | | |
| 6.50- 6.95 | UT70 | 4.50 (DRY) | | | | | | | |
| 6.95- 7.00 | D | | | | | | | | |
| 7.30- 7.50 | B | | | | | | 7.30 | | 27.98 |
| 7.30- 7.40 | D | | | 13 | | Stiff grey slightly gravelly sandy CLAY with a medium cobble content of subangular flint and chalk. Gravel is angular to subrounded fine to coarse flint and chalk. | | | |
| 7.50- 7.95 | D | 7.50 (DRY) | | | S23 | | | | |
| 8.20- 8.30 | D | | | | | | 8.20 | | 27.08 |
| 8.40- 8.50 | D | | | | | Medium dense light orangish brown slightly gravelly clayey SAND with a medium cobble content of subangular flint. Gravel is subangular and subrounded fine to coarse flint and chalk. | 8.40 | | 26.88 |
| 8.50- 9.00 | B | | | | | | 8.50 | | 26.78 |
| 8.50- 8.60 | D | | | | | | | | |
| 8.50- 8.95 | UT90 | 7.50 (DRY) | | | | Stiff light orangish brown slightly gravelly sandy CLAY with a medium cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint and chalk. | | | |
| 9.30- 9.40 | D | | | | | | | | |
| 9.50- 9.80 | D | 7.50 (DRY) | | | S50/ 150 | Dense light orangish brown very sandy clayey GRAVEL with a high cobble content of subrounded flint. Gravel is angular to subrounded fine to coarse flint. Below 9.50m, very dense. | | | |
| 9.90-10.00 | D | | | | | | 10.00 | | 25.28 |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| 1.20 | | Inspection Pit | DC/LC |
| 10.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| G.L. | | | 07/10/21 | 08:00 |
| 2.00 | 1.50 | DRY | 07/10/21 | 18:00 |
| 2.00 | 1.50 | DRY | 08/10/21 | 08:00 |
| 10.00 | 1.50 | DRY | 08/10/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| | | | | | None encountered during boring. |

## Remarks

Inspection pit hand excavated to 1.20m depth and no services were found.
A 50mm standpipe was installed to 10.00m with a geowrapped slotted section from 1.00m to 10.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.20m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 1 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Borehole / Project No | BH21-67 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621648.73 E, 301884.817 N | Ground Level | 35.28 m OD |

Scale 1:50

| Sampling: Depth | Sampling: Sample Type | Sampling: Depth Cased & (to Water) | Properties: Strength kPa | Properties: w % | Properties: SPT N | Strata: Description | Strata: Depth | Strata: Legend | Strata: Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | End of Borehole | 10.00 | | 25.28 |



| Boring: Depth | Hole Dia | Technique | Crew | Progress: Depth of Hole | Depth Cased | Depth to Water | Date | Time | Groundwater: Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CR
Checked by DRB
Figure 2 of 2
19/11/2021

geotechnics

# BOREHOLE RECORD – Cable Percussion

Project **EQUINOR FEED PHASE 1 INVESTIGATIONS** Engineer **J MURPHY & SONS LIMITED** Borehole **BH21-68** Project No **PC218256**

Client **J MURPHY & SONS LIMITED** National Grid Coordinates **621493.699**E **302031.021**N Ground Level **38.56** m OD

Scale 1:50

| Depth | Sample Type | Depth Cased & (to Water) | Strength kPa | w % | SPT N | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | G.L. | | 38.56 |
| 0.00- 0.30 | B | | | | | **TOPSOIL: Brown slightly gravelly sandy clay with many rootlets and a medium cobble content of angular flint. Gravel is subangular and subrounded fine to coarse flint.** | 0.40 | | 38.16 |
| 0.10- 0.20 | D | | | | | | | | |
| 0.40- 0.70 | B | | | | | **Stiff light brownish grey slightly gravelly sandy CLAY with a low cobble content of subangular flint and chalk. Gravel is subangular and subrounded fine to coarse flint and chalk.** | | | |
| 0.40- 0.50 | D | | | | | | | | |
| 1.00- 1.10 | D | | | 8.1 | | | | | |
| 1.20- 1.70 | B | | | | | | | | |
| 1.20- 1.65 | D | 1.20 (DRY) | | | S25 | | | | |
| 2.00- 2.10 | D | | | | | | | | |
| 2.20- 2.70 | B | | | | | | | | |
| 2.20- 2.65 | UTF 55 | 1.50 (DRY) | | | | **Below 2.40m, becoming dark greyish brown.** | | | |
| 2.40- 2.50 | D | | | | | | | | |
| 2.70- 3.15 | UT60 | 1.50 (DRY) | | | | | | | |
| | | | | | | **Stiff dark grey slightly gravelly sandy CLAY with a low cobbled content of subangular flint and chalk. Gravel is subangular and subrounded fine to coarse flint and chalk.** | 3.00 | | 35.56 |
| 3.15- 3.20 | D | | | | | | | | |
| 3.20- 3.50 | B | | | | | | | | |
| 3.50- 3.60 | D | | | 17 | | | | | |
| 3.80- 4.25 | D | 1.50 (DRY) | | | S16 | | | | |
| 4.50- 4.60 | D | | | | | | 4.50 | | 34.06 |
| | | | | | | **Stiff light brownish grey slightly gravelly sandy CLAY with a low cobble content of subangular flint and chalk. Gravel is subangular and subrounded fine to coarse flint and chalk.** | | | |
| 4.80- 5.30 | B | | | | | | | | |
| 4.80- 5.25 | UT60 | 4.80 (DRY) | 182 | 18 | | | | | |
| 5.25- 5.30 | D | | | 17 | | | | | |
| 5.50- 6.00 | B | | | | | | | | |
| 5.50- 5.60 | D | | | | | | | | |
| 6.00- 6.45 | D | 5.50 (DRY) | | | S25 | | | | |
| 6.50- 6.60 | D | | | | | | 6.50 | | 32.06 |
| 6.60- 7.00 | B | | | | | **Stiff dark grey slightly gravelly sandy CLAY with a low cobble content of subangular flint and chalk. Gravel is subangular and subrounded fine to coarse flint and chalk.** | | | |
| 7.00- 7.45 | UT85 | 5.50 (DRY) | 192 | 14 | | | | | |
| 7.45- 7.50 | D | | | | | | | | |
| 7.70- 7.80 | D | | | 14 | | | | | |
| 8.00- 8.50 | B | | | | | **Below 8.00m, becoming very stiff.** | | | |
| 8.00- 8.45 | D | 5.50 (DRY) | | | S30 | | | | |
| 8.70- 8.80 | D | | | | | | | | |
| 9.00- 9.45 | UT80 | 5.50 (DRY) | | | | | | | |
| 9.45- 9.50 | D | | | | | | | | |
| 9.50- 9.90 | B | | | | | | | | |
| 9.90-10.00 | D | | | | | | 10.00 | | 28.56 |
| | | | | | | **End of Borehole** | | | |



## Boring

| Depth | Hole Dia | Technique | Crew |
|---|---|---|---|
| G.L.1.20 | | Inspection Pit | DC/LC |
| 10.00 | 0.15 | Cable Percussion | DC/LC |

## Progress

| Depth of Hole | Depth Cased | Depth to Water | Date | Time |
|---|---|---|---|---|
| | | | 06/10/21 | 18:00 |
| 4.25 | 1.50 | DRY | 06/10/21 | 18:00 |
| 4.25 | 1.50 | DRY | 07/10/21 | 08:00 |
| 10.00 | 9.50 | DRY | 07/10/21 | 18:00 |

## Groundwater

| Depth Struck | Depth Cased | Rose to | in Mins | Depth Sealed | Remarks on Groundwater |
|---|---|---|---|---|---|
| None encountered | | | | | |
| | | | | | during boring. |

**Remarks**

**Water was added to assist boring between 0.00 and 2.00m.**
**Inspection pit hand excavated to 1.20m depth and no services were found.**
**A 50mm standpipe was installed to 10.00m with a geowrapped slotted section from 1.00m to 10.00m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 1.00m, bentonite up to 0.20m, concrete up to ground level.**

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **CR**
Checked by **DRB**
Figure **1 of 1**
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# Appendix 5
# Geotechnics Trial Pit Logs

# *DATA SHEET - Symbols and Abbreviations used on Records*

## Sample Types

| | |
|---|---|
| B | Bulk disturbed sample |
| BLK | Block sample |
| C | Core sample |
| D | Small disturbed sample (tub/jar) |
| E | Environmental test sample |
| ES | Environmental soil sample |
| EW | Environmental water sample |
| G | Gas sample |
| L | Liner sample |
| LB | Large bulk disturbed sample |
| P | Piston sample (PF - failed P sample) |
| TW | Thin walled push in sample |
| U | Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample) |
| UT | Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample) |
| V | Vial sample |
| W | Water sample |
| # | Sample Not Recovered |

## Insitu Testing / Properties

| | |
|---|---|
| CBRP | CBR using TRL probe |
| CHP | Constant Head Permeability Test |
| COND | Electrical conductivity |
| TC | Thermal Conductivity |
| TR | Thermal Resistivity |
| HV | Strength from Hand Vane |
| ICBR | CBR Test |
| IDEN | Density Test |
| IRES | Resistivity Test |
| MEX | CBR using Mexecone Probe Test |
| PID | Photo Ionisation Detection (ppm) |
| PKR | Packer Permeability Test |
| PLT | Plate Load Test |
| PP | Strength from Pocket Penetrometer |
| Temp | Temperature |
| VHP | Variable Head Permeability Test |
| VN | Strength from Insitu Vane |
| w% | Water content |

(All other strengths from undrained triaxial testing)

| | |
|---|---|
| S | Standard Penetration Test (SPT) |
| C | SPT with cone |
| N | SPT Result |
| -/- | Blows/penetration (mm) after seating drive |
| -*/- (mm) | Total blows/penetration |
| ( ) | Extrapolated value |

## Groundwater

Water Strike

Depth Water Rose To

## Instrumentation

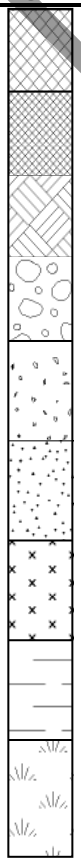
Seal

Filter

Seal

## Strata

## Legend



Made Ground Granular

Made Ground Cohesive

Topsoil

Cobbles and Boulders

Gravel

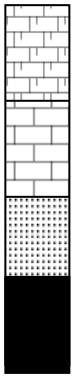
Sand

Silt

Clay

Peat

**Note: Composite soil types shown by combined symbols**



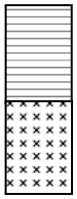
Chalk

Limestone

Sandstone

Coal

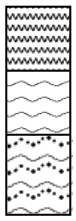
## Strata, Continued



Mudstone

Siltstone

### Metamorphic Rock

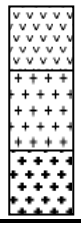


Fine Grained

Medium Grained

Coarse Grained

### Igneous Rock



Fine Grained

Medium Grained

Coarse Grained

## Backfill Materials

Arisings

Bentonite Seal

Concrete

Fine Gravel Filter

General Fill

Gravel Filter

Grout

Sand Filter

Tarmacadam

## Rotary Core

| | |
|---|---|
| RQD | Rock Quality Designation (% of intact core >100mm) |
| FRACTURE INDEX | Fractures/metre |
| FRACTURE SPACING (m) | Maximum<br>Minimum |
| NA | Non-applicable |
| NI | Non-intact core |
| NR | No core recovery |
| AZCL | Assumed zone of core loss |

(where core recovery is unknown it is assumed to be at the base of the run)

# TRIAL PIT RECORD — Trial Pit

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Trial Pit | TP21-01 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621748.760E 301776.087N | Ground Level | 29.93 m OD |

## Samples and Tests

| Depth | Type | Stratum No | Results |
|---|---|---|---|
| 0.20 | D | | |
| 0.25 | ES | | |
| 0.40 | D | | |
| 0.50 | ES | | |
| 1.00- 1.50 | B | | |
| 1.00 | D | | mc=16% |
| 1.50 | B | | |
| 2.50- 3.00 | B | | |
| 3.00 | B | | |
| 3.20- 3.30 | D | | mc=15% |
| 3.50- 4.00 | B | | |
| 4.00 | B | | |

## Strata

Scale 1:50

| Description | Depth | Level m OD |
|---|---|---|
| | G.L. | 29.93 |
| TOPSOIL: Dark brown slightly gravelly sand with occasional pockets (up to 70mm in size) of slightly clayey sand. Gravel is angular to subangular fine to coarse sandstone and flint. | 0.30 | 29.63 |
| Light brown slightly gravelly clayey SAND. Gravel is angular to subangular fine to coarse sandstone and flint. | 0.61 | 29.32 |
| Firm light greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse sandstone, chalk and flint. | | |
| At 3.20m, becoming orangish brown. | | |
| End of Excavation | 4.00 | 25.93 |



## Excavation

| | | | |
|---|---|---|---|
| Plant | JCB 3CX | Width (B) | 0.65 |
| Date | 31/08/2021 | Length (C) | 2.40 |
| Shoring | None. | Date Backfilled | 31/08/2021 |
| Stability | Stable during excavation. | | |

## Groundwater

| Depth Observed | Depth of Pit | Details |
|---|---|---|
| | | None encountered during excavation. |

Remarks

AGS ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CP
Checked by DRB
Figure 1 of 1
19/11/2021

geotechnics

# TRIAL PIT RECORD Trial Pit

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Trial Pit | TP21-02 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621940.558E 301858.781N | Ground Level | 25.47 m OD |

Scale 1:50

| Samples and Tests | | | | Strata | | | |
|---|---|---|---|---|---|---|---|
| Depth | Type | Stratum No | Results | Description | Depth | Legend | Level m OD |
| | | | | | G.L. | | 25.47 |
| 0.00- 0.50 | B | | | TOPSOIL: Light brown slightly gravelly slightly silty sand. Gravel is subangular to rounded fine to coarse flint. | | | |
| 0.15 | ES | | | | 0.30 | | 25.17 |
| 0.50- 1.00 | B | | | Light yellowish brown very gravelly very silty SAND with a low cobble content of angular to subangular flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.90 | ES | | | | | | |
| 1.00- 1.50 | B | | | | 1.15 | | 24.32 |
| 1.50 | D | | | Light orangish brown slightly gravelly SAND with a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 2.00 | D | | | | | | |
| 2.36- 2.75 | B | | | | 2.35 | | 23.12 |
| | | | | Firm light greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse flint and chalk. | | | |
| 3.00 | D | | | | 2.85 | | 22.62 |
| | | | | Light yellowish brown very sandy silty GRAVEL with a high cobble content of subangular to subrounded flint. Gravel is angular to subrounded fine to coarse flint. | | | |
| 3.50- 4.00 | B | | | | | | |
| 4.00 | D | | | | 4.00 | | 21.47 |
| | | | | End of Excavation | | | |



## Excavation

| | | | |
|---|---|---|---|
| Plant | JCB 3CX | Width (B) | 0.65 |
| Date | 27/08/2021 | Length (C) | 2.40 |
| Shoring | None. | Date Backfilled | 27/08/2021 |
| Stability | Multiple minor collapses during excavation. | | |

## Groundwater

| Depth Observed | Depth of Pit | Details |
|---|---|---|
| | | None encountered during excavation. |

Remarks AGS ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CP
Checked by DRB
Figure 1 of 1
19/11/2021

geotechnics

# TRIAL PIT RECORD — Trial Pit

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Trial Pit | TP21-03 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621819.428E 302017.058N | Ground Level | 26.97 m OD |

Scale 1:50

| Depth | Type | Stratum No | Results | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|
| | | | | | G.L. | 26.97 |
| 0.00- 0.50 | B | | | TOPSOIL: Dark brown slightly gravelly sand. Gravel is angular to subangular fine to coarse flint. | | |
| 0.15 | D | | | | | |
| 0.20 | ES | | | | 0.35 | 26.62 |
| 0.50- 1.00 | B | | | Light orangish brown gravelly silty SAND with occasional pockets (up to 100mm in size) of sandy clay and a low cobble content of subangular flint. Gravel is angular to subrounded fine to coarse flint. | | |
| 0.50 | D | | mc=7.1% | | | |
| 0.95 | ES | | | | | |
| 1.00- 1.50 | B | | | | | |
| 1.20 | D | | | | | |
| 1.50 | D | | | | | |
| 2.00- 2.50 | B | | | | | |
| 2.00 | D | | | | | |
| 2.50- 3.00 | B | | | | | |
| | | | | | 2.60 | 24.37 |
| | | | | Soft to firm light greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse chalk and flint. | | |
| 3.00- 3.50 | B | | | | | |
| 3.00 | B | | | | | |
| 3.00 | D | | mc=17% | | | |
| 3.50- 4.00 | B | | | | | |
| 4.00 | B | | | | 4.00 | 22.97 |
| 4.00 | D | | | End of Excavation | | |



## Excavation

| | | | |
|---|---|---|---|
| Plant | JCB 3CX | Width (B) | 0.65 |
| Date | 26/08/2021 | Length (C) | 2.40 |
| Shoring | None. | Date Backfilled | 26/08/2021 |
| Stability | Stable during excavation. | | |

## Groundwater

| Depth Observed | Depth of Pit | Details |
|---|---|---|
| | | None encountered during excavation. |

Remarks: ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CP
Checked by DRB
Figure 1 of 1
19/11/2021

geotechnics

# TRIAL PIT RECORD — Trial Pit

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Trial Pit | TP21-04 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 622032.938E 302131.627N | Ground Level | 29.52 m OD |

## Samples and Tests / Strata

Scale 1:50

| Depth | Type | Stratum No | Results | Description | Depth | Legend | Level m OD |
|---|---|---|---|---|---|---|---|
| | | | | | G.L. | | 29.52 |
| 0.00- 0.50 | B | | | TOPSOIL: Dark brown slightly gravelly sand with rare pockets (up to 60mm in size) of slightly sandy clay. Gravel is angular to subrounded fine to coarse flint. | | | |
| 0.20 | ES | | | | | | |
| 0.25 | D | | | | 0.30 | | 29.22 |
| 0.50- 1.00 | B | | | Light orangish brown slightly sandy slightly gravelly CLAY with a medium cobble content of angular flint. Gravel is angular to subrounded fine to coarse chalk and flint. | | | |
| 0.60 | D | | | | | | |
| 1.00- 1.50 | B | | | | | | |
| 1.10 | ES | | | | 1.15 | | 28.37 |
| 1.25 | D | | mc=13% | Firm light greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse chalk and flint. | | | |
| 1.50- 2.00 | B | | | | | | |
| 1.50 | B | | | | | | |
| 2.00- 2.50 | B | | | | | | |
| 2.00 | D | | | | | | |
| 2.50- 3.00 | B | | | | | | |
| 3.00- 3.50 | B | | | | | | |
| 3.00 | B | | | | | | |
| 3.00 | D | | | | | | |
| 3.50- 4.00 | B | | | | | | |
| 4.00 | B | | | | 4.00 | | 25.52 |
| 4.00 | D | | mc=16% | End of Excavation | | | |



## Excavation

| | | | |
|---|---|---|---|
| Plant | JCB 3CX | Width (B) | 0.65 |
| Date | 26/08/2021 | Length (C) | 2.30 |
| Shoring | None. | Date Backfilled | 26/08/2021 |
| Stability | Stable during excavation. | | |

## Groundwater

| Depth Observed | Depth of Pit | Details |
|---|---|---|
| | | None encountered during excavation. |

Remarks: ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CP
Checked by DRB
Figure 1 of 1
19/11/2021

geotechnics

# TRIAL PIT RECORD — Trial Pit

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Trial Pit / Project No | TP21-06 / PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621799.024E 302101.768N | Ground Level | 27.33 m OD |

Scale 1:50

| Depth | Type | Stratum No | Results | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|
| | | | | | G.L. | 27.33 |
| 0.00- 0.50 | B | | | TOPSOIL: Dark brown slightly gravelly sand. Gravel is angular to subrounded fine to coarse flint. | | |
| 0.10- 0.20 | D | | | | | |
| 0.25 | ES | | | | 0.35 | 26.98 |
| 0.45- 0.55 | D | | | Light orangish brown gravelly very silty SAND with pockets (up to 350mm in size) of greyish brown clay. Gravel is angular to rounded fine to coarse chalk and flint. | | |
| 0.50- 1.00 | B | | | | | |
| 1.00- 1.50 | B | | | | | |
| 1.10- 1.20 | D | | | | | |
| 1.10 | ES | | | | | |
| 1.50- 2.00 | B | | | | | |
| 1.50 | D | | | | | |
| 1.60- 1.70 | D | | | | | |
| | | | | | 1.80 | 25.53 |
| 2.00- 2.50 | B | | | Firm light greyish brown mottled orangish brown slightly sandy slightly gravelly CLAY with a medium cobble content of subangular chalk and flint. Gravel is angular to subrounded fine to coarse chalk and flint. | | |
| 2.00 | D | | mc=8.2% | | | |
| 2.50- 3.00 | B | | | | | |
| 3.00 | B | | | | | |
| 3.00- 3.50 | B | | | | | |
| 3.00 | D | | | | | |
| 3.50- 4.00 | B | | | | | |
| 4.00 | B | | | | 4.00 | 23.33 |
| 4.00 | D | | mc=15% | At 4.00m, grading to slightly sandy slightly gravelly clayey SILT. | | |
| | | | | End of Excavation | | |



## Excavation

| | | | |
|---|---|---|---|
| Plant | JCB 3CX | Width (B) | 0.65 |
| Date | 25/08/2021 | Length (C) | 2.30 |
| Shoring | None. | Date Backfilled | 25/08/2021 |
| Stability | Multiple minor collapses during excavation. | | |

## Groundwater

| Depth Observed | Depth of Pit | Details |
|---|---|---|
| | | None encountered during excavation. |

Remarks: ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CP
Checked by DRB
Figure 1 of 1
19/11/2021

geotechnics

# TRIAL PIT RECORD — Trial Pit

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Trial Pit | TP21-07 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621688.237E 301991.012N | Ground Level | 31.16 m OD |

Scale 1:50

| Samples and Tests | | | | Strata | | | |
|---|---|---|---|---|---|---|---|
| Depth | Type | Stratum No | Results | Description | Depth | Legend | Level m OD |
| 0.00- 0.50 | B | | | MADE GROUND: Dark brown slightly gravelly slightly clayey sand. Gravel is angular to subrounded fine to coarse flint and rare brick. | G.L. | | 31.16 |
| 0.20 | ES | | | | | | |
| 0.25- 0.35 | D | | | | | | |
| 0.50- 1.00 | B | | | | | | |
| 0.80- 0.90 | D | | | | 0.90 | | 30.26 |
| 0.90 | ES | | | Light orangish brown gravelly clayey SAND with occasional pockets (up to 120mm in size). Gravel is angular to subrounded fine to coarse flint. | | | |
| 1.00- 1.50 | B | | | | | | |
| 1.50- 2.00 | B | | | | | | |
| 2.00- 2.50 | B | | | | | | |
| 2.00 | D | | | | | | |
| 2.50- 3.00 | B | | | | 2.40 | | 28.76 |
| | | | | Light orangish brown gravelly silty SAND with occasional pockets (up to 80mm in size) of grey clay. Gravel is angular to rounded fine to coarse flint. | | | |
| 3.00- 3.50 | B | | | | | | |
| 3.00 | D | | | | | | |
| 3.50- 4.00 | B | | | | | | |
| 4.00 | D | | | | 4.00 | | 27.16 |
| | | | | End of Excavation | | | |



## Excavation

| | | | |
|---|---|---|---|
| Plant | JCB 3CX | Width (B) | 0.65 |
| Date | 24/08/2021 | Length (C) | 2.20 |
| Shoring | None. | Date Backfilled | 24/08/2021 |
| Stability | Stable during excavation. | | |

## Groundwater

| Depth Observed | Depth of Pit | Details |
|---|---|---|
| | | None encountered during excavation. |

Remarks: ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CP
Checked by DRB
Figure 1 of 1
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geotechnics

# TRIAL PIT RECORD — Trial Pit

| | | | | | |
|---|---|---|---|---|---|
| Project | EQUINOR FEED PHASE 1 INVESTIGATIONS | Engineer | J MURPHY & SONS LIMITED | Trial Pit | TP21-08 |
| | | | | Project No | PC218256 |
| Client | J MURPHY & SONS LIMITED | National Grid Coordinates | 621519.838E 302237.053N | Ground Level | 31.86 m OD |

Scale 1:50

| Depth | Type | Stratum No | Results | Description | Depth | Level m OD |
|---|---|---|---|---|---|---|
| | | | | | G.L. | 31.86 |
| 0.00- 0.40 | B | | | MADE GROUND: Dark brown slightly gravelly sand. Gravel is angular to subrounded fine to coarse flint and rare brick. | | |
| 0.20- 0.30 | D | | | | | |
| 0.50- 0.95 | B | | | Light greyish brown mottled orangish brown slightly sandy slightly gravelly CLAY with occasional pockets (up to 70mm in size) of clayey sand. Gravel is subangular to subrounded fine to coarse flint. | 0.45 | 31.41 |
| 0.60- 0.70 | D | | | | | |
| 1.00- 1.10 | D | | | | 1.00 | 30.86 |
| 1.10- 1.50 | B | | | Light orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. | | |
| 1.40- 1.50 | D | | | | | |
| 2.00- 2.50 | B | | | | | |
| 2.00 | D | | mc=17% | | 2.10 | 29.76 |
| 2.50- 3.00 | B | | | Firm light greyish brown mottled cream slightly sandy slightly gravelly CLAY with a low cobble content of subrounded chalk. Gravel is subangular to subrounded fine to coarse chalk and flint. | | |
| 3.00- 3.50 | B | | | | | |
| 3.00 | D | | | | | |
| 3.50- 4.00 | B | | | | | |
| 4.00 | D | | mc=16% | | 4.00 | 27.86 |
| | | | | End of Excavation | | |



## Excavation

| | | | |
|---|---|---|---|
| Plant | JCB 3CX | Width (B) | 0.65 |
| Date | 23/08/2021 | Length (C) | 2.85 |
| Shoring | None. | Date Backfilled | 23/08/2021 |
| Stability | Multiple minor collapses during excavation. | | |

## Groundwater

| Depth Observed | Depth of Pit | Details |
|---|---|---|
| | | None encountered during excavation. |

Remarks: ES sample = 2 x vial, 1 x plastic jar and 2 amber jar.
Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by CP
Checked by DRB
Figure 1 of 1
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geotechnics

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1


TP21-01 Pit

TP21-01 Side



geotechnics

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1

TP21-01 Spoil


TP21-02 Pit

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1

TP21-02 Side


TP21-02 Spoil

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1




TP21-03 Pit


TP21-03 Side

geotechnics

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1




TP21-04 Pit

TP21-04 Side

geotechnics

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1

TP21-04 Spoil


TP21-06 Pit

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1

TP21-06 Side


TP21-06 Spoil



geotechnics

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1



TP21-07 Pit

geotechnics

# PHOTOGRAPHS

Project Number : PC218256

Project : Equinor Feed Phase 1



TP21-08 Pit

TP21-08 Side

Project Number : PC218256

Project : Equinor Feed Phase 1

TP21-08 Spoil

DALCOUR MACLAREN


**Midlands**
4 Bredon Court
Brockeridge Park
Twyning
Gloucestershire GL20 6FF

T: 01684 217 703
E: info@dalcourmaclaren.com
E: EPTeam@dalcourmaclaren.com