

NORTHSTOWE PHASE 2

Ground Investigation Report

April 2017







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This report dated March 2017 has been prepared for the Homes & Communities Agency (the "Client") in accordance with the terms and conditions of appointment dated November 2016 (the "Appointment") between the Client and **Arcadis Consulting (UK) Limited** ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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1 INTRODUCTION

Arcadis Consulting (UK) Limited (Arcadis) was instructed by the Homes and Communities Agency, 'the Client', in November 2016 to undertake a ground investigation at Northstowe new town development. The purpose of the investigation was to confirm the below ground conditions and establish the soil's material properties to enable a suitable design for the new town development.

The scope of the ground investigation was determined by Arcadis Consulting (UK) Limited.

This ground investigation report provides a factual account of the fieldwork undertaken, the strata encountered, results of *in situ* testing and the subsequent geotechnical and geo-environmental laboratory testing undertaken on samples obtained.

1.1 Limitations

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It should be noted that ground conditions between exploratory holes may vary from those identified during this ground investigation; any design should take this into consideration. It should also be noted that groundwater levels may be subject to diurnal, tidal, seasonal, climatic variations and those recorded in this report are solely dependent on the time the ground investigation was carried out and the weather before and during the investigation.

1.2 Proposed Development

The proposed development at the site comprises approximately 10,000 new homes, a new town centre, schools, health centre and other supporting social infrastructure. The Northstowe joint development control committee received a grant for permission of planning for phase 2 comprising 3,500 homes, a secondary school, 2 primary schools, a town centre and sports hub. Further permission was also agreed for the Southern Access Road.

The ground investigation was designed to:

- Complement and extend the existing information from previous investigations;
- Inform the remediation strategy across the Phase 2 development areas; and,
- Inform the design of the infrastructure and earthworks across Phase 2 development and the access
 roads as detailed above and including sustainable drainage and the attenuation ponds on the eastern
 side of the development and the land raising required to the north. The investigation was also to inform
 outline design of development plots and general earthworks.

1.3 Existing Information

The following information relating to the site and the ground conditions was made available to Arcadis prior to mobilisation to the site:

- a. Invitation to Tender: Northstowe Phase 2 Geo-Environmental and Geotechnical Site Investigation and Reporting [1]; source the Client
- b. Northstowe Phase 2 Ground Investigation Specification [2]; source the Designer.

2 SITE DETAILS

2.1 Site Location and Description

The site was situated approximately 10 km northwest of Cambridge, east of Longstanton and north of Oakington within the South Cambridgeshire District, at approximately NGR TL 4084 6606. The area was bordered to the east by the route of the Cambridgeshire Guided Busway. Image 2-1 Site Location shows the site location.



Image 2-1 Site Location

The main Phase 2 development area was approximately 165 ha and generally flat, with an elevation of around 10 m AOD. The area included the former Oakington Barracks, which comprised:

- Three buildings, with no current use;
- Remaining floor slabs from demolished buildings;
- Remaining facilities associated with the barracks including sports amenities and green space; and
- A water tower at NGR TL40789 66241 which was the tallest structure on the site and a visible feature in the wider landscape.

The existing settlement of Rampton Drift, which comprised of 92 properties, bounded the site to the north and was originally built as part of the barracks complex.

The wider main Phase 2 development area included areas of hardstanding and open space associated with the former airfield (currently occupied by agricultural tenants), farmland including Brookfield Farm and Larksfield Farm and a section of Rampton Road.

Historically, a sewage works was present in the north-eastern corner of the site and the open space between this and the settlement of Rampton Drift supported the former bomb storage and associated infrastructure. The area on the western side of the site was the location of the main barrack buildings including the former living quarters and associated welfare / training facilities / offices / vehicle maintenance garages and fuel storage areas. The northern part of this area was used as the Oakington Immigration Reception Centre.

There are groups of trees throughout the former Oakington Barracks, including avenues of mature trees around the barracks complex and leading to the station headquarter building. There are also groups of mature trees in the western corner of the site and around Rampton Drift.

To the south of the main Phase 2 development area, and through the proposed access route is located is land that is identified for future phase 3 of development of Northstowe. The area for the Southern Access Road (West) runs from the B1050 to the boundary of Northstowe, as shown on Image 2-2 Main Phase 2 Development and Southern Access Road West Plan. This area currently comprises arable fields and extends to approximately 51 hectares. Wilson's Road, a public right of way crosses the area, providing a link from Longstanton towards Bar Hill.



Image 2-2 Main Phase 2 Development and Southern Access Road West Plan

With reference to the Environment Agency (EA) 'What's in my backyard?' [20], there are no current or historical landfills located in the general vicinity of the site.

2.2 Geology

The published 1:50 000 scale British Geological Survey (BGS) map of the area incorporating the site, Sheet 188 [3], and the BGS online GeoIndex [19] indicate the site to be underlain by superficial deposits of River Terrace Deposits (sands and gravels). The underlying bedrock geology consists of mudstone from the Kimmeridge Clay Formation, the West Walton Formation and Ampthill Clay Formation. The general distribution of the strata at the site is shown in Image 2-3 Geological Setting.



Image 2-3 Geological Setting

A summary of the anticipated geological sequence is shown in Table 2-1 Anticipated geological sequence.

Table 2-1 Anticipated geological sequence

Period	Formation	Description		
Quaternary	River Terrace Deposits	Sand and gravel, locally with lenses of silt, clay or peat		
luraccia	Kimmeridge Clay Formation	Mudstone (calcareous or kerogen-rich or silty or sandy); thin siltstone and cement-stone beds; locally sands and silts.		
Jurassic	West Walton Formation and Ampthill Clay Predominantly grey, marine muds Formation	Predominantly grey, marine mudstone and silty mudstone.		

There are no faults located on the site, according to the BGS mapping.

The Coal Authority website [21] indicates that there is no evidence of coal outcrops or mining activities within the vicinity of the site.

Previous boreholes in the area indicate top soil is present to between 0.9 and 1.4 m bgl, with River Terrace deposits (very clayey gravelly sand), ranging from 0.3 to 2.3 m in thickness. The Kimmeridge Clay (dark grey with medium grey argillaceous limestone layers) was encountered at between 3.0 and 4.3 m bgl.

2.3 Hydrogeology and Hydrology

The superficial deposits (River Terrace Deposits) on the site are classified as a Secondary A aquifer by the Environment Agency (EA). Secondary A aquifers are defined as "*permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers*" [20].

The bedrock (Kimmeridge Clay Formation, West Walton Formation and Ampthill Clay Formation) are classified as Unproductive Strata. Unproductive Strata is defined as "*rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow*" [20].

The superficial deposits are also classified as being in a minor aquifer intermediate groundwater vulnerability zone.

The site is not situated within a groundwater source protection zone [20].

Flood risk zones, levels 3 are located to the immediate north, east and south of the site. Flood risk zones, level 2 are also located to the east, south and west of the site [20].

With reference to the Environment Agency (EA) 'What's in my backyard?' [20], there is a small groundwater abstraction point located at Brookfield Farm in the northeast section of the Main Phase 2 Development. The groundwater is used by multiple sources for spray irrigation and agriculture purposes.

The closest surface water feature is an unnamed pond located in the southwest corner of the former Oakington Barracks. There is also Beck Brook, which is located approximately 150 m east of the site and two unnamed drains located approximately 210 west and 650 m southeast of the site respectively.

3 FIELDWORK

3.1 General

The site has been divided into Land Use (LU) areas, which relate to the area's history and the proposed development. There are 12 LU areas and the numbering of the exploratory holes relates to the LU (e.g. in LU02, exploratory holes are the 200 series, in LU03 the 300 series etc.). It is noted that there is no LU01, as the 100 series already exists from previous investigations.

Ground investigation works were scheduled to be carried out in the eastern part of LU02, all of LU06, LU07, LU09, LU10 and LU12 and specific locations in LU04, LU08 and LU11, between the 28th November 2016 and the 25th January 2017. The ground investigation scope, which was determined by Arcadis Consulting (UK) Limited, was set out in Northstowe Phase 2 Ground Investigation Specification [2] and comprised:

- Determination of location and condition of existing monitoring wells across the site (45 potential locations);
- 41 no. cable percussive boreholes with dual 50mm HDPE installations;
- 45 no. windowless sample holes with 50mm HDPE installations (as indicated) and SPT testing;
- 185 no. trial pits;
- 35 no. Cone Penetration Tests (CPTs);
- 28 no. Cone Penetration Tests (CPTs) with Laser Induced Fluorescence (LIF) probe;
- 49 no. BRE 365 Soakage test within nominated Trial pits;
- 25 no. TRL Dynamic Cone Penetrometer Tests;
- Gas, vapour and groundwater monitoring from existing wells and new exploratory holes; and,
- Sampling associated with gathering soil information for a Soil Management Plan to be completed by others.

The ground investigation methods were undertaken in general accordance with the principles set out in BS EN 1997-2:2005 [9] and with the general practice described in BS5930:2015 [10]. The geo-environmental aspects of the ground investigation complied with the general requirements of BS 10175:2011:2011+A1:2013 [11].

The investigation works were carried out under the supervision of a suitably experienced ground engineer who undertook the logging and reporting of the exploratory holes and in situ testing.

3.2 Exploratory Holes

3.2.1 Exploratory Hole Locations

The co-ordinates and elevations of the exploratory hole locations were obtained by the Arcadis supervising engineer using a Trimble VRS NOW GPRS system; allowing an accuracy of +/-50 mm.

Drawing UA008426-GLR-DWG-0001 presented in Appendix A displays the as-constructed exploratory hole locations while the co-ordinates and elevation of the ground surface at each exploratory hole location are given on the individual logs.

3.2.2 Investigation Methodology

The following methods and techniques were undertaken to construct the exploratory holes at the site. The completed scope of investigation is summarised in Summary of completed exploratory holes: cable percussive **Error! Reference source not found.**below.

Details of the methods of investigation and associated standards adopted are presented in Appendix B; the exploratory hole records are presented in Appendix C, a key to the notation and symbols used on the logs is presented in Appendix B.

It is noted that ground investigation works could not be undertaken in LU02, due to land ownership issues, and LU07 due to archaeological excavation works.

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
BH601	СР	07/12/2016	07/12/2016	10.00	No groundwater encountered	Target depth
BH602	СР	06/12/2016	06/12/2016	10.45	Groundwater seepage at 4.50 m	Target depth
BH603	СР	06/12/2016	06/12/2016	10.00	No groundwater encountered	Target depth
BH604	СР	12/12/2016	13/12/2016	10.45	Groundwater seepage at 1.10 m	Target depth
BH605	СР	12/12/2016	12/12/2016	10.45	No groundwater encountered	Target depth
BH606	СР	07/122016	07/122016	10.45	No groundwater encountered	Target depth
BH607	СР	08/12/2016	08/12/2016	10.45	No groundwater encountered	Target depth
BH608	СР	08/12/2016	08/12/2016	10.45	Groundwater encountered at 3.00 m, rose to 1.50 m	Target depth
BH609	СР	09/12/2016	09/12/2016	10.45	No groundwater encountered	Target depth
BH610	CP	12/12/2016	12/12/2016	10.45	No groundwater encountered	Target depth
BH611	СР	07/12/2016	07/12/2016	10.45	Groundwater encountered at 3.00 m and 4.00 m	Target depth
BH613	CP	07/12/2016	07/12/2016	10.00	No groundwater encountered	Target depth
BH1001	СР	09/12/2016	12/12/2016	15.45	Groundwater encountered at 1.32 m, rose to 1.30 m	Target depth
BH1002	СР	09/12/2016	09/12/2016	15.45	Groundwater encountered at 1.30m	Target depth
BH1003	CP	08/12/2016	09/12/2016	15.45	No groundwater encountered	Target depth

Table 3-1 Summary of completed exploratory holes: cable percussive

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
BH1004	СР	08/12/2016	08/12/2016	15.45	Groundwater encountered at 2.50 m, rose to 2.30 m	Target depth
BH1101	СР	06/12/2016	07/12/2016	15.45	Groundwater encountered at 4.30 m, rose to 1.50 m	Target depth
BH1102	СР	07/12/2016	08/12/2016	15.45	Groundwater encountered at 4.20 m, rose to 1.65 m	Target depth
BH1103	СР	12/12/2016	13/12/2016	15.45	Groundwater encountered at 3.00 m, rose to 2.40 m	Target depth
BH1107	СР	28/11/2016	29/11/2016	15.45	Groundwater encountered at 2.00 m and 4.70 m, rose to 3.90 m	Target depth
BH1108	СР	29/11/2016	30/11/2016	15.95	No groundwater encountered	Target depth
BH1109	СР	05/12/2016	05/12/2016	15.45	Groundwater encountered at 4.30 m, rose to 1.55 m	Target depth
BH1110	CP	08/12/2016	09/12/2016	15.45	Groundwater encountered at 2.00 m, rose to 1.60 m	Target depth
BH1111	CP	30/11/2016	01/12/2016	15.45	Groundwater encountered at 4.40 m, rose to 1.80 m	Target depth
BH1112	CP	02/12/2016	02/12/2016	15.45	Groundwater encountered at 3.00 m, rose to 2.00 m	Target depth
BH1201	CP	14/12/2016	15/12/2016	25.00	No groundwater encountered	Target depth
BH1202	CP	13/12/2016	14/12/2016	25.00	No groundwater encountered	Target depth
BH1203	CP	13/12/2016	13/12/2016	25.45	No groundwater encountered	Target depth
BH1204	СР	13/12/2016	14/12/2016	25.33	No groundwater encountered	Target depth
BH1205	СР	14/12/2016	15/12/2016	25.00	No groundwater encountered	Target depth
BH1206	СР	14/12/2016	15/12/2016	25.45	No groundwater encountered	Target depth

Notes: CP = cable percussive boring.

Table 3-2 Summary of completed exploratory noies. dynamic samplin	Table	3-2 Sun	nmary of	^c complete	d explora	atory holes	s: dynamic	sampling
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Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
WS401	DS	15/12/2016	15/12/2016	1.65	No groundwater encountered	Terminated due to refusal
WS402	DS	15/12/2016	15/12/2016	3.45	Groundwater encountered at 2.00 m	Target depth
WS601	DS	06/12/2016	06/12/2016	1.58	No groundwater encountered	Terminated due to refusal
WS605	DS	06/12/2016	06/12/2016	3.23	No groundwater encountered	Terminated due to refusal
WS606	DS	07/12/2016	07/12/2016	2.93	No groundwater encountered	Terminated due to refusal
WS607	DS	07/12/2016	07/12/2016	3.45	No groundwater encountered	Target depth
WS608	DS	07/12/2016	07/12/2016	2.95	No groundwater encountered	Terminated due to refusal
WS609	DS	06/12/2016	06/12/2016	3.45	No groundwater encountered	Target depth
WS611	DS	05/12/2016	05/12/2016	2.16	No groundwater encountered	Terminated due to refusal
WS612	DS	06/12/2016	06/12/2016	2.75	No groundwater encountered	Terminated due to refusal
WS613	DS	05/12/2016	05/12/2016	2.12	No groundwater encountered	Terminated due to refusal
WS614	DS	06/12/2016	06/12/2016	3.08	No groundwater encountered	Terminated due to refusal
WS615	DS	07/12/2016	07/12/2016	3.45	Groundwater encountered at 1.40 m	Target depth
WS616	DS	08/12/2016	08/12/2016	3.45	Groundwater encountered at 1.00 m	Target depth
WS617	DS	08/12/2016	08/12/2016	3.45	No groundwater encountered	Target depth
WS618	DS	09/12/2016	09/12/2016	3.45	Groundwater encountered at 1.30 m	Target depth
WS619	DS	09/12/2016	09/12/2016	3.45	Groundwater encountered at 1.20 m	Target depth
WS620	DS	08/12/2016	08/12/2016	2.38	No groundwater encountered	Terminated due to refusal

Location ID	Hole Туре	Start Date	End Date	Final depth (m)	Comment	Termination Reason
WS621	DS	07/12/2016	08/12/2016	3.45	Groundwater encountered at 0.80 m	Target depth
WS701	DS	15/12/2016	15/12/2016	3.23	No groundwater encountered	Terminated due to refusal
WS901	DS	14/12/2016	14/12/2016	1.65	No groundwater encountered	Terminated due to refusal
WS902	DS	14/12/2016	14/12/2016	1.65	No groundwater encountered	Terminated due to refusal
WS903	DS	15/12/2016	15/12/2016	3.45	No groundwater encountered	Target depth
WS904	DS	13/12/2016	13/12/2016	3.45	Groundwater encountered at 1.10 m and 2.50 m	Target depth
WS905	DS	14/12/2016	15/12/2016	3.45	No groundwater encountered	Target depth
WS906	DS	13/12/2016	13/12/2016	3.45	No groundwater encountered	Target depth
WS1001	DS	14/12/2016	14/12/2016	3.45	No groundwater encountered	Target depth
WS1101	DS	13/12/2016	13/12/2016	3.45	Groundwater encountered at 1.90 m	Target depth
WS1102	DS	12/12/2016	12/12/2016	3.45	Groundwater encountered at 2.30 m	Target depth
WS1103	DS	12/12/2016	12/12/2016	3.45	Groundwater encountered at 1.70 m	Target depth

Notes: DS = dynamic sampling.

Table 3-3 Summary of completed exploratory holes: trial pitting

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP601	TP	06/12/2016	06/12/2016	3.10	No groundwater encountered	Target depth
TP602	TP	07/12/2016	07/12/2016	3.00	No groundwater encountered	Target depth
TP603	TP	02/12/2016	02/12/2016	3.00	No groundwater encountered	Target depth
TP604	TP	06/12/2016	06/12/2016	3.00	No groundwater encountered	Target depth

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP605	TP	02/12/2016	02/12/2016	2.60	Rapid groundwater ingress at 0.90 m	Rapid groundwater ingress
TP606	TP	21/12/2016	21/12/2016	1.80	Rapid groundwater ingress at 1.63 m	Water strike and pit wall collapse
TP606A	TP	16/12/2016	16/12/2016	2.20	Rapid groundwater ingress at 1.63 m	Rapid groundwater ingress
TP607	TP	21/12/2016	21/12/2016	2.23	Groundwater encountered at 2.00 m	Water strike and pit wall collapse from 2.05 m
TP608	TP	11/01/2017	11/01/2017	3.00	No groundwater encountered	Target depth
TP609	TP	10/01/2017	10/01/2017	2.60	No groundwater encountered	Terminated on Siltstone
TP611	TP	14/12/2016	14/12/2016	3.00	Groundwater encountered at 3.00 m	Target depth
TP612	TP	07/12/2016	07/12/2016	3.00	No groundwater encountered	Target depth
TP613	TP	01/12/2016	01/12/2016	3.00	No groundwater encountered	Target depth
TP614	TP	07/12/2016	07/12/2016	3.00	Groundwater seepage at 1.10 m	Target depth
TP615	TP	14/12/2016	14/12/2016	3.10	Groundwater encountered at 1.30 m	Target depth
TP622	TP	11/01/2017	11/01/2017	3.10	No groundwater encountered	Target depth
TP623	TP	12/01/2017	12/01/2017	3.00	No groundwater encountered	Target depth
TP624	TP	21/12/2016	21/12/2016	2.20	Groundwater ingress at 1.60 m, slow to start then flow rate increased. Water level monitored for 20 minutes.	Groundwater ingress
TP625	TP	21/12/2016	21/12/2016	3.00	Due to water seepage from 0.60 m pit became unstable from 2.00 m shortly after completion of trial pit.	Target depth

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP626	TP	07/12/2016	07/12/2016	3.00	No groundwater encountered	Target depth
TP627	TP	05/12/2016	05/12/2016	3.00	No groundwater encountered	Target depth
TP629	TP	13/01/2017	13/01/2017	3.00	No groundwater encountered	Target depth
TP630	TP	13/01/2017	13/01/2017	3.00	No groundwater encountered No hand vane results obtained as no suitable blocks of clay excavated from pit	Target depth
TP631	TP	01/12/2016	01/12/2016	3.00	No groundwater encountered	Target depth
TP632	TP	02/12/2016	02/12/2016	3.00	Groundwater encountered at 0.90 m	Target depth
TP633	TP	12/01/2017	12/01/2017	3.20	No groundwater encountered	Target depth
TP634	TP	12/01/2017	12/01/2017	3.10	No groundwater encountered	Target depth
TP722	TP	28/11/2016	28/11/2016	3.00	Groundwater encountered at 2.40 m	Target depth
TP901	TP	19/12/2016	19/12/2016	3.20	Groundwater ingress at 1.80 m.	Target depth
TP902	TP	20/12/2016	20/12/2016	4.10	Groundwater encountered at 1.33 m	Target depth
TP906	TP	20/12/2016	20/12/2016	1.20	No groundwater encountered Pit relocated to TP906A.	Terminated due to land drain at 1.10 m
TP906A	TP	20/12/2016	20/12/2016	2.85	No groundwater encountered	Terminated on siltstone
TP907	TP	20/12/2016	20/12/2016	4.13	No groundwater encountered	Target depth
TP908	TP	20/12/2016	20/12/2016	3.00	No groundwater encountered	Target depth
TP912	TP	19/12/2016	19/12/2016	2.45	Groundwater encountered at 1.35 m	Pit wall instability from 1.35-2.00 m.

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP913	TP	19/12/2016	19/12/2016	2.95	No groundwater encountered	Target depth
TP915	TP	20/12/2016	20/12/2016	3.00	No groundwater encountered	Target depth
TP916	TP	19/12/2016	19/12/2016	3.00	Groundwater seepage at 1.60 m	Target depth
TP917	TP	19/12/2016	19/12/2016	3.10	Groundwater encountered at 1.30 m	Pit wall instability
TP918	TP	19/12/2016	19/12/2016	0.95	No groundwater encountered	Pit wall instability
TP919	TP	20/12/2016	20/12/2016	3.00	No groundwater encountered	Target depth
TP921	TP	19/12/2016	19/12/2016	2.27	Groundwater encountered at 2.05 m	Groundwater ingress and pit wall instability
					Groundwater seepage at 1.60 m	
TP923	TP	09/12/2016	09/12/2016	3.30	100 mm Dia. land drain at 0.80 m depth.	Pit wall instability
					Pit collapsed back to 2.20 m.	
TP924	TP	13/12/2016	13/12/2016	3.00	Groundwater seepage at 1.10 m	Target depth
TP925	TP	14/12/2016	14/12/2016	2.70	Groundwater encountered at 1.00 m	Groundwater ingress and pit wall collapse
TP927	TP	14/12/2016	14/12/2016	3.00	Groundwater encountered at 1.70 m	Target depth
TP928	TP	14/12/2016	14/12/2016	3.00	No groundwater encountered	Target depth
TP929	TP	15/12/2016	15/12/2016	3.30	Groundwater encountered at 1.80 m	Target depth
TP930	TP	14/12/2016	14/12/2016	3.00	Groundwater seepage at 1.80 m	Target depth
TP931	TP	15/12/2016	15/12/2016	3.00	No groundwater encountered	Target depth
TP932	TP	15/12/2016	15/12/2016	3.00	No groundwater encountered	Target depth

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP1001	TP	16/12/2016	16/12/2016	3.00	Groundwater seepage at 0.70 m	Target depth
TP1003	TP	16/12/2016	16/12/2016	3.00	Groundwater encountered at 2.30 m	Target depth
TP1102	TP	01/12/2016	01/12/2016	2.20	Groundwater seepage at 2.20 m Hole backfilled itself to 2.10 m	Pit wall collapse
TP1106	TP	01/12/2016	01/12/2016	2.20	Hydrocarbon odour emitting from bottom strata – PID machine not picking anything up – 1.5 reading on bag and 0.9/1.3 reading on pot. Water encountered at 1.80 m – oily sheen on surface – sample taken. Sidewalls collapsed backfilling hole to 1.80 m	Groundwater ingress and risk of spreading hydrocarbons on surface.
TP1107	TP	30/11/2016	30/11/2016	3.00	Groundwater seepage at 2.80 m	Target depth
TP1108	TP	30/11/2016	30/11/2016	3.00	Groundwater seepage at 3.00 m	Target depth
TP1109	TP	01/12/2016	01/12/2016	3.00	No groundwater encountered	Target depth
TP1110	TP	30/11/2016	30/11/2016	3.00	Groundwater seepage at 3.00 m	Target depth
TP1112	TP	01/12/2016	01/12/2016	3.00	No groundwater encountered Hole started to backfill from 2.50 m, however target depth was achieved	Target depth
TP1114	TP	30/11/2016	30/11/2016	3.00	Groundwater seepage at 3.00 m Hand vane not possible at 2.90 m, material too soft	Target depth
TP1116	TP	29/11/2016	29/11/2016	3.00	Groundwater encountered at 2.10 m, rose to 2.00 m	Target depth
TP1117	TP	29/11/2016	29/11/2016	3.00	Groundwater seepage at 2.50 m Pit collapsed to 2.50 m No hand vanes taken as material unsuitable	Target depth

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP1117A	TP	29/11/2016	29/11/2016	0.60	No groundwater encountered	Cable warning tiles at 0.60m
TP1118	TP	29/11/2016	29/11/2016	3.00	Groundwater seepage at 2.00 m	Target depth
TP1119	TP	29/11/2016	29/11/2016	3.00	Groundwater encountered at 3.00 m, rose to 2.50 m	Target depth
TP1122	TP	30/11/2016	30/11/2016	3.00	Groundwater seepage at 2.50 m Hand vane not undertaken between 1.00 m and 2.70 m. No suitable samples obtained	Target depth
TP1123	TP	29/11/2016	29/11/2016	3.00	Groundwater seepage at 2.00 m and 2.40 m	Target depth
TP1201	TP	16/01/2017	16/01/2017	1.00	No groundwater encountered	Possible service
TP1201A	TP	16/01/2017	16/01/2017	3.00	No groundwater encountered	Target depth
TP1202	TP	23/01/2017	23/01/2017	2.40	Groundwater seepage at 2.40 m	Groundwater ingress
TP1203	TP	16/01/2017	16/01/2017	2.10	Groundwater seepage at 2.10 m (possible land drain) No hand vane results obtained as no suitable blocks of clay excavated from pit	Groundwater ingress and pit wall instability
TP1204	TP	20/01/2017	20/01/2017	3.00	Groundwater encountered at 1.60 m	Target depth
TP1205	TP	26/01/2017	26/01/2017	3.00	Groundwater encountered at 1.70 m	Target depth
TP1206	TP	26/01/2017	26/01/2017	3.00	No groundwater encountered	Target depth
TP1207	TP	17/01/2017	17/01/2017	3.00	No groundwater encountered	Target depth
TP1208	TP	09/01/2017	09/01/2017	3.00	No groundwater encountered	Target depth
TP1209	TP	05/01/2017	05/01/2017	3.00	No groundwater encountered	Target depth

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP1210A	TP	06/01/2017	06/01/2017	3.00	TP1210 cancelled due to relict cable at 0.40 m, moved to TP1210A	Target depth
					No groundwater encountered	
TP1211	TP	06/01/2017	06/01/2017	3.00	No groundwater encountered	Target depth
TP1212	TP	09/01/2017	09/01/2017	3.00	Groundwater seepage at 2.00 m	Target depth
					No groundwater encountered	
TP1213	TP	25/01/2017	25/01/2017	3.00	Soil management samples taken at 0.10 m (SMB1, SMD2) and 0.40 m (SMB3, SMD4)	Target depth
TP1214	TP	25/01/2017	25/01/2017	3.00	No groundwater encountered	Target depth
TP1215	TP	25/01/2017	25/01/2017	3.00	No groundwater encountered	Target depth
TP1216	TP	05/01/2017	05/01/2017	3.00	No groundwater encountered	Target depth
TP1217	TP	05/01/2017	05/01/2017	3.00	No groundwater encountered	Target depth
TP1218	TP	05/01/2017	05/01/2017	3.00	No groundwater encountered	Target depth
TP1219	TP	25/01/2017	25/01/2017	3.00	No groundwater encountered	Target depth
TP1220	TP	25/01/2017	25/01/2017	3.00	No groundwater encountered	Target depth
TP1221	TP	25/01/2017	25/01/2017	3.00	No groundwater encountered	Target depth
TP1222	TP	11/01/2017	11/01/2017	3.00	Groundwater seepage at 1.60 m	Target depth
TP1223	TP	13/01/2017	13/01/2017	1.90	Groundwater seepage at 1.70 m	Groundwater ingress and pit wall instability
TP1224	TP	10/01/2017	10/01/2017	3.00	Groundwater seepage at 0.90 m	Target depth
TP1225	TP	11/01/2017	11/01/2017	1.50	No groundwater encountered	Pit wall instability

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TP1226	TP	12/01/2017	12/01/2017	3.10	No groundwater encountered	Target depth
TP1227	TP	11/01/2017	11/01/2017	1.80	No groundwater encountered	Pit wall instability
TP1228	TP	11/01/2017	11/01/2017	1.85	No groundwater encountered	Pit wall instability
TP1231	TP	20/01/2017	20/01/2017	3.00	No groundwater encountered	Target depth
TP1232	TP	13/01/2017	13/01/2017	3.00	No groundwater encountered	Target depth
TP1233	TP	13/01/2017	13/01/2017	2.50	Groundwater encountered at 1.60 m	Groundwater ingress
TP1234	TP	17/01/2017	17/01/2017	2.50	Groundwater seepage at 1.90 m	Groundwater ingress
TP1235	TP	17/01/2017	17/01/2017	3.00	No groundwater encountered	Target depth
TPBH612	TP	21/12/2016	21/12/2016	3.30	Groundwater seepage at 1.20 m	Target depth
TPC016A	TP	23/01/2017	23/01/2017	1.40	No groundwater encountered.	Drainage pipe encountered at 1.30 m.
TPC016B	TP	24/01/2017	24/01/2017	1.90	TPC016A extended to become TPC016B as original hole was obstructed by drainage pipe Groundwater seepage at	Pit wall instability
					1.90 m Groundwater encountered	Groundwater
TPC019	TP	24/01/2017	24/01/2017	2.40	at 2.40 m	ingress
TPC024A	TP	24/01/2017	24/01/2017	2.10	Groundwater encountered at 2.10 m	Pit wall collapse due to Groundwater ingress
TPC038	TP	24/01/2017	24/01/2017	2.70	Groundwater seepage at 2.40 m	Groundwater ingress and pit wall instability
TPC050B	TP	24/01/2017	24/01/2017	2.30	No groundwater encountered	Pit wall instability

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
TPC051	TP	24/01/2017	24/01/2017	3.00	No groundwater encountered	Target depth
TPSA407	TPSA	04/01/2017	04/01/2017	2.00	Groundwater encountered at 2.00 m	Pit wall collapse due to groundwater ingress
TPSA408	TPSA	04/01/2017	04/01/2017	2.80	Groundwater encountered at 1.74 m	Terminated due to pit wall instability
TPSA610	TPSA	11/01/2017	11/01/2017	3.00	No groundwater encountered	Target depth
TPSA616	TPSA	15/12/2016	15/12/2016	3.00	Groundwater encountered at 1.40 m	Target depth
TPSA618	TPSA	15/12/2016	15/12/2016	3.00	Groundwater encountered at 1.70 m	Target depth
TPSA618A	TPSA	15/12/2016	15/12/2016	1.40	No groundwater encountered	Target depth for soakaway test
TPSA620	TPSA	18/01/2017	18/01/2017	3.00	Groundwater seepage at 1.30 m	Target depth
TPSA801	TPSA	04/01/2017	04/01/2017	2.20	Groundwater encountered at 2.20 m	Pit wall collapse due to groundwater ingress
TPSA802	TPSA	04/01/2017	04/01/2017	2.65	Groundwater encountered at 1.90 m	Terminated due to pit wall instability
TPSA808	TPSA	05/01/2017	05/01/2017	3.00	Groundwater encountered at 1.20 m	Target depth
TPSA813	TPSA	17/01/2017	17/01/2017	2.00	Groundwater encountered at 2.00 m	Pit wall collapse due to groundwater ingress
TPSA814	TPSA	05/01/2017	05/01/2017	2.70	Groundwater encountered at 2.70 m	Pit wall collapse due to groundwater ingress
TPSA832	TPSA	05/01/2017	05/01/2017	2.00	Groundwater encountered at 2.00 m	Pit wall collapse due to groundwater ingress
TPSA847	TPSA	08/12/2016	08/12/2016	2.10	Groundwater encountered at 2.10 m	Pit wall collapse due to

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
						groundwater ingress
TPSA856	TPSA	19/01/2017	19/01/2017	1.70	Groundwater encountered at 1.70 m	Groundwater ingress
TPSA911	TPSA	18/01/2017	18/01/2017	3.00	No groundwater encountered	Target depth
TPSA920	TPSA	16/01/2017	16/01/2017	2.70	Groundwater encountered at 1.80 m	Groundwater ingress and pit wall collapse
TPSA926	TPSA	16/01/2017	16/01/2017	3.00	No groundwater encountered	Target depth
TPSA1002	TPSA	17/01/2017	17/01/2017	1.90	Groundwater encountered at 1.90 m	Groundwater ingress and pit wall collapse
TPSA1004	TPSA	17/01/2017	17/01/2017	3.00	Groundwater encountered at 2.20 m	Target depth
TPSA1101	TPSA	08/12/2016	08/12/2016	3.00	Groundwater encountered at 2.40 m	Target depth
TPSA1103	TPSA	10/01/2017	10/01/2017	2.30	Groundwater seepage at 2.30 m	Groundwater ingress
TPSA1105	TPSA	05/01/2017	05/01/2017	2.10	Groundwater encountered at 2.10 m	Groundwater ingress and pit wall collapse
TPSA1113	TPSA	06/01/2016	06/01/2016	2.30	Groundwater encountered at 2.30 m	Groundwater ingress and pit wall instability
TPSA1120	TPSA	06/01/2016	06/01/2016	2.10	Groundwater encountered at 2.10 m	Pit wall collapse due to groundwater ingress
TPSA1121	TPSA	06/01/2016	06/01/2016	2.10	Groundwater encountered at 2.10 m	Pit wall collapse due to groundwater ingress
TPWS611	TP	06/12/2016	06/12/2016	3.00	No groundwater encountered	Target depth
WSC012	TP	24/01/2017	24/01/2017	1.90	Groundwater encountered at 1.90 m	Groundwater ingress and pit wall instability
WSC027	TP	24/01/2017	24/01/2017	3.00	Groundwater encountered at 2.00 m	Target depth

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
WSC03	TP	23/01/2017	23/01/2017	2.80	Groundwater encountered at 2.60 m	Obstructed by brick wall beneath concrete. Hole extended to 4m in length to avoid brick wall.
WSC032A	TP	24/01/2017	24/01/2017	2.40	Groundwater seepage at 2.20 m	Pit wall collapse due to groundwater ingress
WSC033	TP	24/01/2017	24/01/2017	3.30	No groundwater observed.	Target Depth
WWC03	TP	24/01/2017	24/01/2017	2.00	Groundwater encountered at 2.00 m	Pit wall collapse due to groundwater ingress
ZBP1	TP	05/12/2016	05/12/2016	1.80	Groundwater encountered at 1.60 m	Terminated on instruction from UXO supervisor.
ZBP2	TP	05/12/2016	05/12/2016	1.10	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZBP3	TP	05/12/2016	05/12/2016	1.40	Groundwater encountered at 1.00 m	Terminated on instruction from UXO supervisor.
ZBP4	TP	06/12/2016	06/12/2016	1.80	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZBP4b	TP	06/12/2016	06/12/2016	1.20	ZPB4b located in same pit as ZBP4. Groundwater encountered at 0.90 m	Terminated on instruction from UXO supervisor.
ZTR1	TP	07/12/2016	07/12/2016	0.55	Cable encountered at 0.40 m, 0.70 m from the edge of the pit No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR10	TP	08/12/2016	08/12/2016	1.40	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR11	TP	08/12/2016	08/12/2016	1.10	No groundwater encountered	Terminated on instruction from UXO supervisor.

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
ZTR12	TP	08/12/2016	08/12/2016	0.65	No groundwater encountered.	Terminated on instruction from UXO supervisor.
ZTR2	TP	07/12/2016	07/12/2016	0.60	Earthing rod located in centre of pit. No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR3	TP	07/12/2016	07/12/2016	0.60	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR4a	TP	07/12/2016	07/12/2016	0.60	ZTR4b located in same pit. No groundwater encountered.	Terminated on instruction from UXO supervisor.
ZTR4b	TP	07/12/2016	07/12/2016	0.60	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR5	TP	07/12/2016	07/12/2016	0.70	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR6	TP	07/12/2016	07/12/2016	0.75	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR7A	TP	06/12/2016	06/12/2016	1.10	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR7B	TP	06/12/2016	06/12/2016	0.70	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR8	TP	08/12/2016	08/12/2016	1.10	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR8b	TP	08/12/2016	08/12/2016	1.40	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR9	TP	06/12/2016	06/12/2016	0.70	No groundwater encountered	Terminated on instruction from UXO supervisor.
ZTR9b	TP	06/12/2016	06/12/2016	0.85	No groundwater encountered	Terminated on instruction from UXO supervisor.

Notes: TP = trial pitting, TPSA = trial pitting for soak away test.

Location ID	Hole Type	Start Date	End Date	Final depth (m)	Comment	Termination Reason
CPT601	СРТ	19/12/2016	19/12/2016	3.75	Cone used: 15CFIIP.1032	Test refused on total pressure
CPT601A	СРТ	20/12/2016	20/12/2016	11.39	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT602	СРТ	20/12/2016	20/12/2016	0.24	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT602A	СРТ	20/12/2016	20/12/2016	2.47	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT602B	СРТ	20/12/2016	20/12/2016	2.59	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT603	СРТ	20/12/2016	20/12/2016	2.26	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT603A	СРТ	20/12/2016	20/12/2016	1.79	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT604	СРТ	20/12/2016	20/12/2016	1.11	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT606	СРТ	20/12/2016	20/12/2016	3.06	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT607	СРТ	20/12/2016	20/12/2016	2.14	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT608	СРТ	21/12/2016	21/12/2016	2.49	Cone used: 15CFIIP.1458	Test refused on total pressure
CDT600	IP	16/12/2016	16/12/2016	1.20	No groundwater encountered.	Target depth
CP1009	СРТ	20/12/2016	20/12/2016	12.66	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT610	СРТ	21/12/2016	21/12/2016	12.36	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT611	СРТ	21/12/2016	21/12/2016	11.25	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT612	СРТ	21/12/2016	21/12/2016	11.28	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT613	СРТ	21/12/2016	21/12/2016	10.92	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT614	СРТ	21/12/2016	21/12/2016	11.48	Cone used: 15CFIIP.1458	Test refused on total pressure

Table 3-4 Summary of completed exploratory holes: cone penetration testing

CPT615	СРТ	21/12/2016	21/12/2016	11.11	Cone used: 15CFIIP.1458	Test refused on total pressure
CDT616	IP	16/12/2016	16/12/2016	1.20	No groundwater encountered.	Target depth
CF1010	СРТ	20/12/2016	20/12/2016	11.38	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT617	СРТ	21/12/2016	21/12/2016	2.80	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1203	СРТ	23/12/2016	23/12/2016	5.65	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1204	СРТ	22/12/2016	22/12/2016	6.92	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1205	СРТ	22/12/2016	22/12/2016	8.56	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1206	СРТ	22/12/2016	22/12/2016	6.26	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1207	СРТ	22/12/2016	22/12/2016	8.18	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1208	СРТ	22/12/2016	22/12/2016	8.44	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1209	СРТ	22/12/2016	22/12/2016	7.74	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1210	СРТ	22/12/2016	22/12/2016	9.09	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1211	СРТ	22/12/2016	22/12/2016	8.64	Cone used: 15CFIIP.1458	Test refused on total pressure
CPT1212	СРТ	22/12/2016	22/12/2016	8.68	Cone used: 15CFIIP.1458	Test refused on total pressure

Notes: IP = inspection pit, CPT = cone penetration test.

Table 3-5 Summary of completed exploratory holes: laser induced fluorescence probe

Location I	D	Hole	Туре	Start	Date	End D	ate	Fi de	nal epth (m)	Comment	Те	rmination Reason
LIF601		LIF	14/12/	2016	14/12	2/2016	10.0	1				Target depth
LIF602		LIF	14/12/	2016	14/12	2/2016	10.0	5				Target depth
LIF603		LIF	14/12/	2016	14/12	2/2016	10.0	1				Target depth

Location I	ation ID Hole Type		Start	t Date End D		ate	Fi de	nal epth (m)	Comment	Те	rmination Reason
LIF604	IP	13/12/	/2016	13/12	2/2016	1.0	0	No groun encounte	dwater red.		Terminated due to refusal
	LIF	14/12/	/2016	14/12	2/2016	10.02					Target depth
LIF605	LIF	14/12/	/2016	14/12	2/2016	10.04					Target depth
LIF1001	IP	13/12/	/2016	13/12	2/2016	1.20		No groun encounte	dwater red.		Target depth
	LIF	13/12/	/2016	13/12	2/2016	3.5	0				
LIF1002	IP	12/12/	/2016	12/12	2/2016	1.2	0	No groun encounte	dwater red.		Target depth
	LIF	13/12/	/2016	13/12	2/2016	4.5	8				
LIF1003	IP 13/12		/2016	13/12/2016		1.2	0	No groundwater encountered.			Target depth
	LIF	LIF 13/12/20		13/12	2/2016	3.7	1				
LIF1004	IP 13/12		/2016	13/12/2016		0.8	0	No groundwater encountered.		Terminated due to refusal	
	LIF	13/12/	/2016	13/12	2/2016	3.1	5				
LIF1101	IP	12/12/	/2016	12/12	2/2016	1.2	0	No groundwater encountered.			Target depth
	LIF	13/12/	/2016	13/12	2/2016	10.0)6				Target depth
LIF1102	IP	12/12/	/2016	12/12	2/2016	1.2	0	No groun encounte	dwater red.		Target depth
	LIF	12/12/	/2016	12/12	2/2016	3.6	9				
LIF1103	IP	13/12/	/2016	13/12	2/2016	0.5	0	No groun encounte	dwater red.		Terminated due to refusal
	LIF	14/12/	/2016	14/12	2/2016	6.8	5				
LIF1104	LIF	15/12/	/2016	15/12	2/2016	6.2	25				
LIF1105	IP	12/12/	/2016	12/12	2/2016	1.2	0	No groun encounte	dwater red.		Target depth
LII-1103 -	LIF	14/12/	/2016	14/12	2/2016	4.6	1				

Location I	D Hole	Туре	Start	Date	te End Date		Fi de	nal epth (m)	Comment	Те	rmination Reason
LIF1108	LIF	14/12/	2016	14/12	2/2016	4.7	5				
LIF1117	LIF	15/12/	2016	15/12	2/2016	4.9	3				
LIF1301	IP	16/12/	2016	16/12	16/12/2016		0	No groundwater encountered.		Target depth	
	LIF	12/01/	2017	12/01	1/2017	5.42	2				
LIF1302	IP	16/12/	2016	16/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
	LIF	12/01/	2017	12/01	1/2017	7.04	4				
LIF1303	IP	16/12/	2016	16/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
	LIF 12/01/2017		2017	12/01/2017		4.94	4				
LIF1304	IP 16/12/2		2016	16/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
	LIF	12/01/	2017	12/01	1/2017	6.5	7				
LIF1305	IP 16/12/2016		2016	16/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
	LIF	15/12/	2016	15/12	2/2016	3.8	7				
LIF1306	IP	16/12/	2016	16/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
	LIF	15/12/	2016	15/12	2/2016	3.7	5				
LIF1307	IP	16/12/	2016	16/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
	LIF	15/12/	2016	15/12	2/2016	3.78	8				
LIF1308	IP	16/12/	2016	16/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
	LIF	15/12/	2016	15/12	2/2016	3.40	6				
LIF8002	IP	12/12/	2016	12/12	2/2016	1.20	0	No groun encounte	dwater red.		Target depth
2.1. 0002	LIF	15/12/	2016	15/12	2/2016	1.1	5				

Location I	D	Hole	Туре	Start	Date	End D	ate	Fi de	nal epth (m)	Comment	Те	rmination Reason
LIF 8002A		LIF	13/12/	2016	13/12	2/2016	1.18	8				
LIF WWC003		LIF	14/12/	2016	14/12	2/2016	3.72	2				

Notes: IP = inspection pit, LIF = laser induced fluorescence probe.

3.2.3 Cable Percussive Boring

Cable percussive boring was completed using a Dando D2000 drilling rig equipped with 200 mm and 150 mm casing and tools to undertake boreholes up to 25 m bgl.

Samples of the material recovered in the boreholes were taken to enable representative laboratory testing. Generally small disturbed samples were taken at each change in stratum and at 0.5 m intervals thereafter in clay soils; and bulk samples were taken at 1 m intervals where the sand and gravel content of the soil was significant.

Where specified by Arcadis Consulting (UK) Limited, UT100 open drive tube samples were taken using thin-walled sampling apparatus from the relatively undisturbed material at the base of the borehole.

Standard penetration tests (SPT) were generally undertaken at 1.0 m until the termination depth of the hole. Where cohesive soils were encountered, the SPT interval became 1.5m and UT100 samples were taken from 0.5 m below the lower end of the SPT.

In addition, sampling requirements for contamination testing - consisting of 1 No. 1 litre plastic tub, 1 glass jar and 2 glass vials - typically comprised for each sample location as:

- 1 sample from the topsoil (if present), taken as close to the surface as possible i.e. just below the grass root zone for example at 0.05-0.25 m within the hand dug inspection pit;
- 2 samples from the top 1.0 m within Made Ground;
- 1 sample per metre of Made Ground thereafter or change in strata;
- 1 sample in each natural stratum; and,
- 1 sample of materials that may be of particular interest e.g. where there is strong visual or olfactory evidence of contamination.

3.2.4 Dynamic Sampling

Dynamic sampling was completed using a track-mounted sampling rig capable of driving windowless sampling tubes using a mechanical hammer dropped repeatedly from a self-governed height. The choice of method was largely dictated by access conditions at the site.

The time to drive the sampling tubes (or number of blows for the mechanical hammer) was recorded together with a description of the recovered materials by the supervising engineer and the lead driller.

Due to the method of investigation, the materials recovered within the sampler apparatus were generally disturbed and were assessed as complying with Class 3 to Class 5 of BS EN 22475-2. Sub-samples of the material recovered in the liners were taken to enable representative laboratory testing. Generally small disturbed samples were taken at each change in stratum and at 0.5 m intervals thereafter in clay soils; and small bulk samples were taken at 1 m intervals where the sand and gravel content of the soil was significant.

Standard penetration tests (SPT) were undertaken using the track mounted rig at 1.0 m until the termination depth of the hole. Where cohesive soils were encountered, the SPT interval became 1.5m and UT100 samples were taken from 0.5 m below the lower end of the SPT.

In addition, sampling requirements for contamination testing was the same as the schedule outlined in the cable percussive boring section.

3.2.5 Trial Pitting

Trial pits were undertaken using a mechanical excavator.

For the machine excavated pits, a type of plant e.g. JCB 3CX backhoe wheeled excavator was used and pits were entirely logged from the surface and arisings obtained from the trial pits.

Samples of the material recovered in the trial pits were taken to enable representative laboratory testing. Generally small disturbed samples were taken at each change in stratum and at 0.5 m intervals thereafter in clay soils; and bulk samples were taken at 1 m intervals where the sand and gravel content of the soil was assessed as significant.

In addition, sampling requirements for contamination testing was the same as the schedule outlined in the cable percussive boring section.

Photographic records of the trial pit elevation and arisings were taken and are presented with the associated trial pit log.

3.3 In situ Testing

3.3.1 General

In situ testing was carried out within the relevant exploratory hole or at a specified test location. Where tests were undertaken within or associated with a specific borehole or trial pit, the test data is presented on the relevant exploratory hole log or as additional sheets to that log. As such, the location details will be the same as the associated hole and its position will be the same as the exploratory hole with which it is associated.

Where in situ tests were carried at standalone location not directly associated with other exploratory holes, the tests results are presented as individual records and they are summarised within Summary of completed exploratory holes: cable percussive **Error! Reference source not found.** as such; their as-constructed locations are given on the test records and their positions are shown on drawing UA008426-GLR-DWG-0001.

3.3.2 Penetration Testing

3.3.2.1 Standard Penetration Tests

Standard penetration tests (SPT) were carried out as required in the investigation scope and in accordance with the methods given in the standard procedures presented within Appendix B. Generally tests were undertaken at regular intervals throughout the borehole to provide a profile of the soil's resistance with depth and a disturbed soil samples was recovered from the SPT split-spoon tool or a disturbed sample was taken over the range of the test interval.

The N-values as determined in the field are presented on the borehole logs as uncorrected values that do not take into account the energy losses or efficiency of the automatic trip hammer used to drive the test tool into the ground. The calibration certification for the test devices used in the investigation is presented in Appendix D and a summary of the SPT equipment used at each location is presented in Table 3-1 Test Hammer Calibrations

Table 3-1 Test Hammer Calibrations

Location ID	SPT Hammer Reference No.	Energy Efficiency Ratio, E _r %	Comment
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All WS locations	365	74.75	Calibration due November 2017
BH1101-BH1103, BH1107-1112 BH1203, BH1205	PB14	81	Calibration due December 2016
BH610, BH1001, BH1003, BH1204, BH1206	CJ08	79.75	Calibration due July 2017
BH608, BH611	BS8	64	Calibration due December 2016
BH601 – BH603, BH613, BH1002, BH1004	BS10	60	Calibration due December 2016
BH604 – BH607, BH609, BH1201- BH1201	BS13	69	Calibration due December 2016

3.3.2.2 TRL Dynamic Cone Penetrometer Test

The penetration resistance of the ground was determined by the TRL dynamic cone penetrometer at the locations specified in the ground investigation scope. Generally, the tests were undertaken adjacent to or as an extension of other exploratory holes to provide additional investigation depth or to provide a subjective record of the ground profile and therefore test results are presented with the associated exploratory hole record in Appendix C.

The TRL dynamic penetrometer is a hand-held test apparatus that uses a lightweight (8 kg) free-fall hammer to drive a 20 mm diameter 60° cone into the ground. The penetration of the cone is recorded after a set number of blows as millimetres per blow. The tests were undertaken in accordance with PR IN 277-04 [4], and the results have been assessed in terms of the CBR-value using the relationship proposed by Jones and Rolt [5] given as:

 $Log (CBR) = 2.48 - 1.057. Log \left(\frac{mm}{blow}\right)$

3.3.2.3 Electrical cone and Piezocone Penetration Testing

Static cone penetration testing (CPT) was carried out as required by the ground investigation scope. The tests were undertaken by specialist subcontractor, In Situ Site Investigation. Tests were undertaken following the methods and techniques given in their technical report for the site work that is presented as Appendix C and provides the test results for each location together with an interpretation of the soil type where this has been assessed. Details of the cone type(s) used and the calibration certification of the test apparatus are also given.

The test locations are shown in drawing UA008426-GLR-DWG-0001.

3.3.2.4 Laser Induced Fluorescence Testing

Laser induced fluorescence (LIF) testing was carried out at selected locations as advised by the investigation supervisor. Testing was undertaken in LU06, LU11 and LU13 to determine the extent of hydrocarbon contamination that had been encountered during previous investigations. The tests were undertaken by specialist subcontractor, In Situ Site Investigation utilising Arcadis' LIF, following the methods and techniques given in their technical report for the site work that is presented as Appendix C and provides the test results for each location together with an interpretation of the soil type where this has been assessed. Details of the cone type(s) used and the calibration certification of the test apparatus are also given.

3.3.3 Strength and Deformation Testing

3.3.3.1 Determination of undrained shear strength using Hand Vane apparatus

Hand shear vane tests were carried out using a Pilcon hand shear vane with a cruciform vane of 19 mm or 33 mm diameter, depending on the strength of the materials. The tests were made at 0.5 m and 1 m intervals in cohesive undisturbed strata within inspection pits, at 1 m intervals or change of stratum within the sides of trial pits and within large block type bucket samples beyond 1.2 m in non-shored trial pits.

The test was performed in general accordance with the manufacturer's instructions and the vane was inserted a minimum distance of 70 mm below the surface tested. The vane head was rotated slowly at a speed not greater than 1 revolution per minute until the soil has failed in shear or the maximum reading of the device was achieved. For valid tests, the remoulded strength of the failed soil was determined by rapidly rotating the vane head for five complete rotations and allowing a minimum rest period of 3 minutes before reapplying torque to the vane.

The undrained soil strength was read directly from the calibrated vane head in kPa. It should be noted that these values are based on an empirical relationship derived by Pilcon from undrained triaxial compression tests on samples of London Clay.

Where possible, four tests were made to provide an average value, however, it should be noted that where natural fissures or discontinuities are present the minimum values may provide a better representation of the mass consistency of the soil and may be significant.

Due to the nature of the samples tested, the results are indicative for assistance in determining soil consistency for logging purposes only and should not be used to classify soil strength.

The hand vane shear strength results are presented on the relevant exploratory holes logs within Appendix C.

3.3.4 Hydraulic Tests

3.3.4.1 Soakaway Tests

The soil infiltration rate was determined by conducting a soakaway tests in accordance with the methodology described in BRE 365 [6]. The tests were conducted in trial pits excavated to the anticipated soakaway depth. Summary information of the tests is presented Table 3-2 Summary of trial pit soakage tests while detailed test sheets are presented with the relevant trial pit log in Appendix C.

Location ID	Depth of pit (m)	Time to empty (minutes)	Soil Infiltration Rate <i>f</i> (ms ⁻¹)	Comment/limitations
TPSA407	1.21	-	1.09 x 10 ⁻⁴	Test terminated due to time constraints
TPSA408	1.24	-	2.52 x 10⁻⁵	Test terminated due to reaching 25% ESD
	1.24	-	8.41 x 10 ⁻⁶	Test terminated due to time constraints
TPSA610	1.70	-	6.02 x 10 ⁻¹⁵	Test terminated due to time constraints
TPSA617	1.50	-	1.22 x 10 ⁻¹²	Test terminated due to time constraints

Table 3-2 Summary of trial pit soakage tests

TPSA620	1.20	-	No valid data	Test terminated due to time constraints
TPSA801	2.50	-	1.09 x 10 ⁻⁸	Test terminated due to time constraints
TPSA802	1.60	-	1.59 x 10 ⁻⁶	Test terminated due to time constraints
TPSA808	1.00	-	No valid data	Test terminated due to time constraints
	1.30	90	5.33 x 10 ⁻⁵	Test terminated due to emptying of pit
TPSA813	1.30	50	1.14 x 10 ⁻⁴	Test terminated due to emptying of pit
	1.30	-	5.29 x 10 ⁻⁵	Test terminated due to reaching 25% ESD
TPSA814	1.80	150	1.33 x 10 ⁻⁴	Test terminated due to emptying of pit
TPSA829	1.30	-	2.66 x 10 ⁻⁶	Test terminated due to time constraints
TPSA832	1.60	-	9.86 x 10 ⁻⁹	Test terminated due to time constraints
TPSA856	1.20	180	1.12 x 10 ⁻⁵	Test terminated due to emptying of pit
TPSA905	2.00	-	No valid data	Test terminated due to time constraints
TPSA911	1.10	-	1.36 x 10 ⁻⁹	Test terminated due to time constraints
TPSA914	1.30	-	No valid data	Test terminated due to time constraints
TPSA920	1.60	-	No valid data	Test terminated due to time constraints
TPSA922	1.10	-	2.13 x 10 ⁻⁷	Test terminated due to time constraints
TPSA926	1.30	-	2.26 x 10 ⁻¹⁰	Test terminated due to time constraints
TPSA933	1.20	-	4.20 x 10 ⁻²¹	Test terminated due to time constraints
TPSA1002	1.30	-	1.06 x 10 ⁻⁵	Test terminated due to time constraints
	1.30	-	6.70 x 10 ⁻⁶	Test terminated due to time constraints
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TPSA1004	1.70	-	2.83 x 10 ⁻⁹	Test terminated due to time constraints
TPSA1005	2.00	-	2.86 x 10 ⁻¹¹	Test terminated due to time constraints
	1.80	-	3.10 x 10 ⁻⁵	Test terminated due to time constraints
TPSA1103	1.60	-	4.18 x 10 ⁻⁵	Test terminated due to reaching 25% ESD
	1.60	120	4.07 x 10 ⁻⁵	Test terminated due to emptying of pit
TPSA1105	1.40	-	1.92 x 10 ⁻⁷	Test terminated due to time constraints
TPSA1113	1.80	-	3.17 x 10 ⁻⁹	Test terminated due to time constraints
TPSA1120	1.50	-	1.91 x 10 ⁻⁸	Test terminated due to time constraints
TPSA1121	1.50	-	1.34 x 10 ⁻⁶	Test terminated due to time constraints

3.3.5 VOC Head Space Screening

The presence of Volatile Organic Compounds (VOC) within the ground was estimated using a photoionization detector (PID) to detect the 'headspace' vapours emitted by the compounds. The method is applicable to a wide range of compounds that have sufficiently high volatility to be effected liberated from the soil or water matrix in normal temperature and pressure ranges.

The headspace test was undertaken on the freshly extracted soil core sample at regular intervals of 0.5 m by placing a small amount of material into a screw-top glass jar so that the jar was not more than half-full. The jar opening was covered with an aluminium foil sheet and the lid screwed on to form an air-tight seal. The sample and jar were then shaken for about 15 seconds to break-up and disperse the soil before resting the sample for about 5 minutes.

To assess the headspace vapour, the jar lid was removed and the PID probe was inserted through the foil into the headspace area. The PID reading recorded was the highest response observed in the first 10 seconds. The screening results are presented on the relevant exploratory holes logs within Appendix C.

The testing was undertaken using a Mini RAE 3000 PID with a 10.6 eV lamp.

The PID instrument was calibrated regularly throughout the day using Balance Air and Isobutylene Mixture reference gas concentrations.

3.4 Installations and Post-fieldwork Monitoring

3.4.1 Installations

Installations to enable long term monitoring of the site were made in those boreholes selected by Arcadis Consulting (UK) Limited and the details are summarised in Table 3-3 Summary exploratory hole installations and are also provided on the relevant exploratory hole logs.

Location ID	Installation Type	Response Zone Top m bgl	Response Zone Base m bgl	Comment/limitations
BH601	SP50	3.00	4.50	Flush cover set in 0.30 m concrete. 2.70 m bentonite pellet seal to top of first response zone.
	SP50	7.00	10.00	Borehole backfilled with bentonite pellets from 4.50 m to 7.00 m (top of second response zone).
BH602	SP50	3.20	5.00	Flush cover set in 0.30 m concrete. 2.90 m bentonite pellet seal to top of first response zone.
BH602	SP50	7.00	10.00	Borehole backfilled with bentonite pellets from 5.00 m to 7.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 10.00 m to 15.45 m.
BUGGG	SP50	2.00	3.00	Flush cover set in 0.50 m concrete. 1.50 m bentonite pellet seal to top of first response zone.
BH603	SP50	7.00	10.00	Borehole backfilled with bentonite pellets from 3.00 m to 7.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 10.00 m to 15.45 m.
BH604	SP50	2.00	3.00	Flush cover set in 0.30 m concrete. 1.70 m bentonite pellet seal to top of response zone. Borehole backfilled with bentonite pellets from
011004	SPIE	7.20	7.50	3.00 m to 7.00 m (top of second response zone).Pluviated sand filter pack from 7.00 m to 8.00 m.Borehole backfilled with bentonite pellets from 8.00 m to 10.45 m.
BH605	SP50	2.00	4.50	Flush cover set in 0.30 concrete. 1.70 m bentonite pellet seal to top of first response zone.
	SP50	7.00	10.00	4.50 m to 7.00 m (top of second response zone).

Table 3-3 Summary exploratory hole installations

				Borehole backfilled with bentonite pellets from 10.00 m to 10.45 m.
DUCCC	SP50	1.50	2.20	Flush cover set in 0.30 concrete. 1.20 m bentonite pellet seal to top of first response zone.
BH000	SP50	3.50	5.00	Borehole backfilled with bentonite pellets from 2.20 m to 3.50 m (top of second response zone). Borehole backfilled with bentonite pellets from 5.00 m to 10.45 m.
	SP50	1.00	4.00	Flush cover set in 0.30 concrete. 0.70 m bentonite pellet seal to top of first response zone.
BH607	SP50	7.00	10.00	Borehole backfilled with bentonite pellets from 4.00 m to 7.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 10.00 m to 10.45 m.
	SP50	1.00	4.00	Flush cover set in 0.30 concrete. 0.70 m bentonite pellet seal to top of first response zone.
BH608	SP50	6.00	9.00	Borehole backfilled with bentonite pellets from 4.00 m to 6.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 9.00 m to 10.45 m.
BH609	SP50	1.50	4.50	Flush cover set in 0.30 concrete. 1.20 m bentonite pellet seal to top of first response zone.
	SP50	6.00	9.00	Borehole backfilled with bentonite pellets from 4.50 m to 6.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 9.00 m to 10.45 m.
PLIC 10	SP50	3.00	5.00	Flush cover set in 0.30 concrete. 1.60 m bentonite pellet seal to top of first response zone.
RH010	SP50	6.00	8.00	Borehole backfilled with bentonite pellets from 5.00 m to 5.90 m (top of second response zone). Borehole backfilled with bentonite pellets from 8.00 m to 10.45 m.
	SP50	4.00	4.90	Flush cover set in 0.30 concrete. 3.70 m bentonite pellet seal to top of first response zone.
BH611	SP50	7.00	10.00	Borehole backfilled with bentonite pellets from 4.90 m to 7.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 10.00 m to 10.45 m.

BH613	GMP	1.00	3.00	Flush cover set in 0.50 concrete.0.50 m bentonite pellet seal to top of first response zone.Borehole backfilled with bentonite pellets from 3.00 m to 10.45 m.
	SP50	1.00	2.80	Flush cover set in 0.30 m concrete. 0.60 m bentonite pellet seal to top of first response zone.
BH1001	SP50	5.00	8.00	Borehole backfilled with bentonite pellets from 2.80 m to 4.90 m (top of second response zone). Borehole backfilled with bentonite pellets from 8.00 m to 15.45 m.
	SP50	1.00	3.00	Flush cover set in 0.50 m concrete. 0.50 m bentonite pellet seal to top of first response zone.
BH1002	SP50	6.00	9.00	Borehole backfilled with bentonite pellets from 3.00 m to 6.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 9.00 m to 15.45 m.
	SP50	1.00	3.60	Flush cover set in 0.30 m concrete. 0.60 m bentonite pellet seal to top of first response zone.
BH1003	SP50	6.00	9.00	Borehole backfilled with bentonite pellets from 3.60 m to 5.90 m (top of second response zone). Borehole backfilled with bentonite pellets from 9.00 m to 15.45 m.
DU4004	SP50	1.00	3.00	Flush cover set in 0.50 m concrete. 0.50 m bentonite pellet seal to top of first response zone.
БП 1004	SP50	6.00	8.00	Borehole backfilled with bentonite pellets from 3.00 m to 6.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 8.00 m to 15.45 m.
BH1101	SP50	4.30	5.20	Flush cover set in 0.30 m concrete. 4.00 m bentonite pellet seal to top of response zone. Borehole backfilled with bentonite pellets from 5.20 m to 15.45 m.
BH1102	SP50	2.00	3.20	Flush cover set in 0.30 m concrete. 1.70 m bentonite pellet seal to top of first response zone.

	SP50	4.20	5.00	Borehole backfilled with bentonite pellets from 3.20 m to 4.20 m (top of second response zone). Borehole backfilled with bentonite pellets from 5.00 m to 15.45 m.
	SP50	2.00	5.00	Flush cover set in 0.30 m concrete. 2.00 m bentonite pellet seal to top of first response zone.
BH1103	SP50	7.50	9.50	Borehole backfilled with bentonite pellets from 5.00 m to 7.50 m (top of second response zone). Borehole backfilled with bentonite pellets from 9.50 m to 15.45 m.
	SP50	1.00	3.00	Flush cover set in 0.30 m concrete. 0.70 m bentonite pellet seal to top of first response zone.
BH1107	SP50	4.50	4.90	Borehole backfilled with bentonite pellets from 3.00 m to 4.50 m (top of second response zone). Borehole backfilled with bentonite pellets from 4.90 m to 15.45 m.
BH1108	SP50	4.80	6.00	Flush cover set in 0.30 m concrete. 4.50 m bentonite pellet seal to top of response zone. Borehole backfilled with bentonite pellets from 6.00 m to 15.95 m.
BH1109	SP50	4.30	5.20	Flush cover set in 0.30 m concrete. 4.00 m bentonite pellet seal to top of response zone. Borehole backfilled with bentonite pellets from 5.20 m to 15.00 m.
	SP50	1.90	3.90	Flush cover set in 0.30 m concrete. 1.60 m bentonite pellet seal to top of first response zone.
BH1110	SP50	7.50	9.50	Borehole backfilled with bentonite pellets from 3.90 m to 7.50 m (top of second response zone). Borehole backfilled with bentonite pellets from 9.50 m to 15.00 m.
	SP50	4.40	5.50	Flush cover set in 0.30 m concrete. 4.10 m bentonite pellet seal to top of first response zone.
BH1111	SP50	7.00	9.00	Borehole backfilled with bentonite pellets from 5.50 m to 7.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 9.00 m to 15.45 m.

DU14440	SP50	2.00	6.00	Flush cover set in 0.30 m concrete. 1.70 m bentonite pellet seal to top of first response zone.
БПТТІ	SP50	8.00	10.00	Borehole backfilled with bentonite pellets from 6.00 m to 8.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 10.00 m to 15.45 m.
BH1201	SPIE	12.70	13.00	Flush cover set in 0.50 concrete.11.50 m bentonite pellet seal to top of response zone.Pluviated sand filter pack from 12.00m to 14.00 m.Borehole backfilled with bentonite pellets from 14.00 m to 25.00 m.
BH1202	SPIE	6.00	10.00	Flush cover set in 0.50 concrete.5.50 m bentonite pellet seal to top of response zone.Borehole backfilled with bentonite pellets from 10.00 m to 25.00 m.
	SP50	1.00	2.00	Flush cover set in 0.30 concrete. 0.70 m bentonite pellet seal to top of first response zone.
BH1203	SP50	5.00	10.00	Borehole backfilled with bentonite pellets from 2.00 5.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 10.00 m to 25.00 m.
DU4204	SP50	1.00	2.00	Flush cover set in 0.30 concrete. 0.70 m bentonite pellet seal to top of first response zone.
DH 1204	SP50	10.00	15.00	Borehole backfilled with bentonite pellets from 2.00 10.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 15.00 m to 25.33 m.
DUMOOS	SP50	2.00	4.00	Flush cover set in 0.30 concrete. 1.70 m bentonite pellet seal to top of first response zone.
BH1205	SP50	15.00	20.00	Borehole backfilled with bentonite pellets from 4.00 to 15.00 m (top of second response zone). Borehole backfilled with bentonite pellets from 20.00 m to 25.00 m.
BH1206	SP50	2.00	3.50	Flush cover set in 0.30 concrete.

	SP50	10.00	15.00	1.70 m bentonite pellet seal to top of first response zone.Borehole backfilled with bentonite pellets from 3.50 to 10.00 m (top of second response zone).Borehole backfilled with bentonite pellets from 15.00 m to 25.45 m.
WS402	SP50	1.80	2.40	Flush cover set in 0.10 concrete. 0.90 m arising seal over 0.80 m bentonite pellet seal to top of response zone. Borehole backfilled with arisings from 2.40 m to 3.00 m.
WS701	SP50	1.70	2.00	Flush cover set in 0.10 concrete. 0.90 m arising seal over 0.70 m bentonite pellet seal to top of response zone. Borehole backfilled with arisings from 2.00 m to 3.23 m.
WS901	SP50	0.50	1.30	Flush cover set in 0.10 concrete. 0.40 m arising seal to top of response zone. Borehole backfilled with arisings from 1.30 m to 1.65 m.
WS902	SP50	0.60	1.20	Flush cover set in 0.10 concrete. 0.50 m arising seal to top of response zone. Borehole backfilled with arisings from 1.20 m to 1.65 m.
WS903	SP50	1.00	1.50	Flush cover set in 0.10 concrete. 0.90 m arising seal to top of response zone. Borehole backfilled with arisings from 1.50 m to 3.45 m.
WS904	SP50	1.00	2.50	Flush cover set in 0.10 concrete. 0.70 m arising seal over 0.20 m bentonite pellet seal to top of response zone. Borehole backfilled with arisings from 2.50 m to 3.45 m.
WS905	SP50	0.50	2.50	Flush cover set in 0.10 concrete. 0.40 m arising seal to top of response zone. Borehole backfilled with bentonite pellets from 2.50 m to 3.45 m.
WS906	SP50	0.50	1.50	Flush cover set in 0.10 concrete. 0.40 m arising seal to top of response zone. Borehole backfilled with bentonite pellets from 1.50 m to 3.45 m.

WS1001	SP50	0.50	1.50	Flush cover set in 0.10 concrete.0.40 m arising seal to top of response zone.Borehole backfilled with bentonite pellets from 1.50 m to 3.45 m.
WS1101	SP50	1.00	1.50	Flush cover set in 0.10 concrete. 0.70 m arising seal over 0.20 m bentonite pellet seal to top of response zone. Borehole backfilled with arisings from 1.50 m to 3.45 m.
WS1102	SP50	1.00	3.00	Flush cover set in 0.10 concrete.0.70 m arising seal over 0.20 m bentonite pellet seal to top of response zone.Borehole backfilled with arisings from 3.00 m to 3.45 m.
WS1103	SP50	1.00	2.20	Flush cover set in 0.10 concrete. 0.70 m arising seal over 0.20 m bentonite pellet seal to top of response zone. Borehole backfilled with arisings from 2.20 m to 3.45 m.

Notes: SP50 = 50 mm ID standpipe, SPIE = 19 mm Standpipe piezometer, GMP = Gas monitoring point

3.4.2 Post-fieldwork Monitoring

Post-field work monitoring was undertaken on separate visits on the $13^{th} - 17^{th}$ February 2017, $8^{th} - 10^{th}$ March 2017 and 6-7th April 2017. In all, three visits to the site were made to record land gas emissions and groundwater levels. During the first monitoring visit, after completion of the land gas emission monitoring, the well was purged by removing three well volumes of groundwater and in situ groundwater monitoring and sampling was undertaken. Where installations were purged dry, monitoring and sampling was conducted on groundwater recovered following recharging of groundwater in installations.

The results of the groundwater monitoring are presented within Appendix E.

4 LABORATORY TESTING

4.1 General

Geotechnical and geo-environmental chemical testing was undertaken on selected samples obtained from the exploratory holes. The testing was scheduled by the geotechnical and/or geo-environmental engineer and the testing was undertaken by an Arcadis approved testing laboratory.

4.2 Geotechnical Laboratory Testing

The geotechnical tests detailed in Table 4-1 were carried out in accordance with either BS1377:1990: Parts 1 to 8 [16]; BS EN ISO 17892: Parts 1 to 12 [17]; BRE SD 1:2005 [7]; or other methods as listed in Table 4-1. The complete results of the geotechnical laboratory testing are presented in Appendix F.

Table 4-1 Summary of scheduled geotechnical test data

Test	Method	No of Determinations	Comment
Moisture content	BS1377 Pt2-3.2	264	
4-point liquid and plastic limit	BS 1377 Pt2-4.3 & 5.3	264	
Particle Size Distribution - Wet sieving	BS1377 Pt2-9.2	53	
Particle Size Distribution - Sedimentation	BS1377 Pt2-9.4	49	
Water Soluble Sulphate 2:1 extract		4	
BRE Suite Total Sulphate, Aqueous Sulphate, Total Sulphur, Aqueous Nitrate, Aqueous Magnesium, Chloride	BRE SD1 preferred methods	17	
BRE Suite B Greenfield Ph, SO4 2:1, Acid Sol, total Sulphur		14	
BRE Suite D Ph Total Sulphate Aqueous Sulphate, Total Sulphur, Aqueous Nitrate, Aqueous Magnesium, Chloride		5	
Density (2.5 kg Rammer Method 1 Litre Mould)		25	
Density (4.5 kg Rammer Method 1 Litre Mould)		22	
MCV		28	
MCV/Moisture Content Relation		38	
CBR: Remoulded Specimen		33	
Max/Min Density Cohesionless Soil		20	
One-Dimensional Consolidation		15	
Shear Strength by Hand Vane		5	

Quick Undrained Triaxial Compression	BS1377 Pt7-8/9	13	
Consolidated Undrained Triaxial (100 mm)		22	
Consolidate Drained Triaxial (100 mm)		8	
Quick undrained Shear Box 60mm Suitable sands only		5	

4.3 Geo-Environmental Laboratory Testing

Geo-environmental tests were undertaken on soil, groundwater and prepared leachate specimens obtained from the samples collected from the site. Testing was carried out for the contaminants detailed in

Table 4-2, Table 4-3 and Table 4-4. The results of the chemical laboratory testing are presented in Appendix G. Details of the test methodology is presented with the test results.

Table 4-2	Summary of	geo-environmental	test data –	soil matrix
-----------	------------	-------------------	-------------	-------------

Test type	Method	No of Determinations
pH, Cyanide Free & Total, Organic Matter, Sulphates	Induced Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	281
Metals (As, B, Cr, Cd, Cu, Pb, Hg, Ni, Se, Zn),	Induced Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	270
Total Phenols		266
Speciated Polycyclic Aromatic Hydrocarbon compounds (PAH)	Gas Chromatography –Mass Spectrometry (GC-MS)	266
Total PAH		266
Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX)	GC-MS	210
Total Petroleum Hydrocarbon Criteria Working Croup (TPH CWG)	Gas Chromatography – Flame Ionisation Detector (GC- FID)	210
VOCs, SVOCs		13

 Table 4-3 Summary of geo-environmental test data – groundwater matrix

Test type	Method	No of Determinations
pH, Cyanide Free & Total, Sulphate, Total Sulphur, Sulphide, Ammoniacal Nitrogen, TOC, Alkalinity	ICP-OES	33

Total Phenols	GC-MS	33
Total and Speciated PAH	GC-FID	33
Metals (As, Cr, Cd, Cu, Pb, Hg, Ni, Se, V, Zn)	ICP-OES	33
Benzene, Toluene, Ethylbenzene, p & m-xylene, o- xylene, MTBE	GC-MS	33
Petroleum Hydrocarbons: TPH-CWG	GC-MS	33

Table 4-4 Summary of geo-environmental testing data - leachate

Test type	No of Determinations
Metals (Arsenic, Boron, Cadmium, Chromium (total), Chromium (VI) , Copper, Lead, Mercury, Nickel, Selenium, Zinc)	27
Cyanide (free)	27
Cyanide (total)	27
PAH (16 speciated)	27
Total PAH	27
рН	27
Total Phenols	27
Water soluble sulphate	27
Total Organic Carbon (TOC)	27

5 REFERENCES

General References

- Homes & Communities Agency. 2016. Invitation to Tender: Northstowe Phase 2 Geo-Environmental and Geotechnical Site Investigation and Reporting. Homes & Communities Agency Report HCAP17040. Jul 2016.
- 2. Arcadis Consulting. 2016. Northstowe Phase 2 Ground Investigation Specification. Arcadis Consulting Report NOR-ARC-P2-000-RP-G-0039-P02. Jul 2016.
- 3. British Geological Survey. 1981. Cambridge. England and Wales Sheet 188. Solid and Drift Deposits. 1:50 000. BGS Keyworth, Nottingham.
- 4. TRL. 2004. Dynamic cone penetrometer tests and analysis. TRL Technical Report PR IN 277-04. Transport Research Laboratory, Crowthorne, England.
- 5. Jones C R and Rolt J. 1991. Operating instructions for the TRL dynamic cone penetrometer. 2nd Edition Information Note. Transport Research Laboratory, Crowthorne.
- 6. Building Research Establishment. 2016. Soakaway Design. BRE Digest DG365. BRE, Watford.
- Building Research Establishment. 2005. Concrete in aggressive ground. BRE Special Digest 1. 3rd Edition. BRE, Watford.

National Standards

- 8. BS EN 1997-1. 2004. Eurocode 7: Geotechnical Design. Part 1 General Rules. British Standards Institution, 2013 (revised text).
- 9. BS EN 1997-2. 2007. Eurocode 7: Geotechnical Design. Part 2 Ground Investigation and testing. British Standards Institution, 2010 (revised text).
- 10.BS 5930. 2015. Code of practice for ground investigations. British Standards Institution.
- 11.BS 10175. 2011. Investigation of potentially contaminated sites Code of practice. British Standards Institution.
- 12.BS EN ISO 22282-1:2012. Geotechnical investigation and testing Geohydraulic testing. Part 1: General Rules. British Standards Institution.
- 13.BS EN ISO 22282-2:2012. Geotechnical investigation and testing Geohydraulic testing. Part 2: Water permeability tests in a borehole using open systems. British Standards Institution.
- 14.BS EN ISO 22282-5:2012. Geotechnical investigation and testing Geohydraulic testing. Part 5: Infiltrometer tests. British Standards Institution.
- 15.BS EN ISO 22282-6:2012. Geotechnical investigation and testing Geohydraulic testing. Part 6: Water permeability tests in a borehole using closed systems. British Standards Institution.
- 16.BS 1377. 1990. Method of test for soils for civil engineering purposes. Published in 9 Parts. British Standards Institution,
- 17.BS EN ISO 17892-1: Geotechnical investigation and testing Laboratory testing of soil Determination of water content. British Standards Institution.
- 18.BS EN ISO 17892-2: Geotechnical investigation and testing Laboratory testing of soil Determination of bulk density. British Standards Institution.

Internet References

- 19.British Geological Survey: http://www.bgs.ac.uk/data/mapViewers/home.html. Accessed Feb 2017.
- 20.Environment Agency: http://maps.environmentagency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e. Accessed Feb 2017.
- 21.Coal Authority: http://mapapps2.bgs.ac.uk/coalauthority/home.html. Accessed Feb 2017.

APPENDIX A

DRAWINGS

Drawing UA008426-GLR-EHP-0001: Exploratory Hole Location Plan









TP1215





































APPENDIX B

STANDARD PROCEDURES

B0 General Principles

This ground investigation was undertaken in general accordance with the principles of BS EN 1997-1 [1] and BS EN 1997-2 [2] and the advice given in BS5930:2015 [8], which, provides complimentary guidance on the application of the primary standards. Where the requirements of the ground investigation specification differ from these primary standards, the investigation methodology was adapted as required and specific notes regarding methods and techniques employed were made in the appropriate report sections.

B1 Buried Services

Service clearance was undertaken in accordance with Arcadis' common operating practice COP SA1. This document details the methods and safe working practices used to undertake excavations safely. Prior to breaking ground, services plans were consulted and the area scanned using a Cable Avoidance Tool (CAT) with detected signals marked on the ground. For all investigation positions, other than for machine excavated trial pits, hand excavated inspection pits are completed to 1.20 m bgl prior to the use of drilling and boring plant.

B2 Sampling requirements

The selection of sample types and sampling techniques has been chosen to take account of the soil fabric, size and quality of sample required based on whether the soils mass properties or the intact material properties of the ground are to be determined in subsequent laboratory tests. BS EN ISO 22475-1 [4] describes three generic sample groups that are:

- a. Sampling by drilling. Generally a disturbed sample recovered from the drilling tool or digging equipment, typically meeting Class 3 to Class 5 requirements, with the recovered material being stored in bulk bags or sealed jar or tub containers.
- b. Sampling by sampler. Typically referred to as open tube or drive sampling in which a tube with a sharp cutting edge is driven into the ground either by static thrust or dynamically driven to give a relatively undisturbed sample of Class 1 or Class 2 but may result in a Class 3 sample.
- c. Block sampling. Cylindrical large diameter samples or cuboid hand-cut samples usually relatively undisturbed Class 1 and Class 2.

The open-tube sampling equipment used on the site was of a type and design that conformed to BS EN ISO 22475-1. For the purpose of this ground investigation block sampling was not required.

Generally samples were assessed on site and any unexpected deterioration in sample quality was reported to the ground engineer by the lead drilling technician.

Sufficient and representative samples were taken to allow the geo-mechanical properties of the ground to be adequately characterised and to enable the sequence of soil strata to be described by an engineering geologist or geotechnical engineer.

Where samples have been taken for chemical tests the drilling method attempted to adopt dry drilling over the sampling range that generally was achieved by the use of drill casing to separate and isolate the upper soil layers and exclude groundwater. Cross-contamination was further reduced by regular cleaning of sampling tools. Sample integrity was maintained by sealing samples immediately on collection and storing the samples in a temperature controlled cool box. Samples were despatched from the site at the end of the shift on which they were collected or as

required in the project specification. Details of best practice storage, preservation and decontamination measures undertaken are given below:

Task	Soil	Groundwater	Ground Gas							
Storage	Glass jars and vials supplied by the laboratory were used for the collection of soil samples to be analysed for volatile compounds. Plastic one-litre tubs were used to collect soil samples for metals analysis.	Glass vials supplied by the laboratory were used for the collection of samples to be analysed for volatile compounds. Samples to be analysed for lower volatility compounds were stored in laboratory prepared glass bottles.	1.4L Canisters supplied by the laboratory.							
Preservation	Filling of sample containers as headspace and low storage te potential for volatilisation and b hydrocarbon compounds prior	far as practicable to minimise mperature to minimise the biodegradation of petroleum to analysis.	Not required.							
Decontamination	Disposable gloves were worn and changed between sample collection to prevent cross-contamination.	Groundwater samples were collected using dedicated disposable tubing / bailers, that were changed between monitoring well locations in order to prevent cross- contamination.	Disposable gloves were worn and changed between sample collection to prevent cross contamination.							
Transport	Samples stored in dedicated sample boxes provided by the laboratory. Sample details and analytical requests were recorded on the laboratory chain of custody form included with samples, prior to dispatching to laboratory for analysis. Samples were dispatched to the laboratory on the day of sampling.									

B3 Sample description

Sample description was undertaken by the Arcadis site geologist in accordance with BS 5930: 2015. The descriptions of the individual samples were used to identify the sequence of strata at the exploratory hole location and from which representative exploratory hole logs were drawn.

B4 In situ testing

In situ geotechnical tests were undertaken taking account of the investigation scope and requirement to attain the appropriate parameters required in the geotechnical design. The tests were undertaken in accordance with the requirements of the relevant parts of BS EN ISO 22476 [5, 6, 7] and other methods as follows:

Dynamic probing

Dynamic probes were undertaken in general accordance with BS EN ISO 22476-2, BS EN 1997-2 and the national annex to BS EN 1997. The tests were generally made using the super-heavy DPSH-B configuration of the apparatus, however, it should be noted that the basis for selection of the type of dynamic probe should be a consideration of the driving energy in relation to the type of ground conditions anticipated at the site.

Where adequate correlation with borehole data is available an interpretation of the estimated soil type may be made, however, it should be noted that probing can give unreliable results in mixed soils.

Standard penetration testing

Standard penetration tests were carried out in accordance with BS EN ISO 22476-3, BS EN 1997-2 and the national Annex to BS EN 1997-2. The test records are presented on the borehole logs as blow counts for each increment with the N-value as the total number of blows of the four main test increments.

Where the N-value exceeds a total of 50 blows, the test reports the penetration in millimetres for the last test increment recorded, and the N value is indicated as greater than 50,

e.g. 4,5/12,14,18, 6 for 10 mm

indicates that the seating blows (4 and 5) were completed and that the test terminated in the 4th increment after penetrating 10 mm.

Where the seating blows exceeded 25 blows for less than 150 mm; the test was stopped and the rods remarked after which, the main drive was continued. The test is then reported as the number of blows in each seating drive for the recorded penetration with the results of the main drive given as above,

e.g. 14/11 for 45 mm/12,14,16, 8 for 10 mm.

In certain circumstances where groundwater in-flow may affect the test, particularly in fine sand or silt, low SPT blow counts may be recorded. Where the SPT blow count was very low, N values of 5 or less, the test was, at the discretion of the site engineer, continued for a further 300 mm, recording blows for each 75 mm increment. **This is not** a standard penetration test value, it does however give an indication of potential disturbance to the ground.

California Bearing Ratio

In situ California Bearing Ratio (CBR) tests were carried out in general accordance with the requirements of BS 1977-9:1990, 4.3 [10]. The CBR is a strength test that is generally concerned with pavement design and the control of pavement sub grade construction, as such it is a test that is most suited to soils with a maximum particle size not exceeding 20 mm.

TRL Dynamic cone penetrometer

The TRL DCP is a device developed by the TRL to assess the California Bearing Ratio of road sub-base by correlation. As such the device was developed for use in a limited range of soil types. The test has no formal standard the test methodology and its use is discussed in TRL report PR IN 277-04 [11].

B5 Data transfer format

The data collated during the ground investigation has been organised and managed using the "AGS data format" that allows data transfer between different disciplines and organisations in accordance with BS 8574 [9].

B6 References

- 1. BS EN 1997-1. 2004. Eurocode 7: Geotechnical Design. Part 1 General Rules. British Standards Institution, 2013 (revised text).
- BS EN 1997-2. 2007. Eurocode 7: Geotechnical Design. Part 2 Ground Investigation and testing. British Standards Institution, 2010 (revised text).
- 3. BS EN ISO 22282-1:2012. Geotechnical investigation and testing Geohydraulic testing. Part 1: General Rules. British Standards Institution.
- 4. BS EN ISO 22475-1. Geotechnical investigation and testing Sampling methods and groundwater measurements Part 1 Technical principles for execution.
- 5. BS EN ISO 22476-1:2015. Geotechnical investigation and testing Field testing Part 1: Electrical cone and piezocone test. British Standards Institution
- 6. BS EN ISO 22476-2. Geotechnical investigation and testing Field testing Part 2: Dynamic Probing. British Standards Institution
- 7. BS EN ISO 22476-3 2005. Geotechnical investigation and testing Field testing Part 3: Standard penetration test. British Standards Institution
- 8. BS 5930: 2015. Code of practice for ground investigation. British Standards Institution.
- 9. BS 8574. Code of practice for the management of geotechnical data for ground engineering projects.
- 10. BS 1377-9. 1990. Methods of test for soils for civil engineering purposes. Part 9: In-situ tests. British Standards Institution.
- 11. TRL. 2004. Dynamic cone penetrometer tests and analysis. TRL Technical Report PR IN 277-04. Transport Research Laboratory, Crowthorne, England.

B7 Exploratory Hole Key



Key to Exploratory Hole Symbols and Abbreviations

Environmental soil sample

SPT split spoon sample

Gas sample

Liner sample

L

SPT

Environmental water sample

U

UT

W

SAMPLE TYPES

В	Bulk disturbed sample	ES
С	Core sample	EW
CBR-D	Disturbed sample from CBR test area	G

- CBR-U Undisturbed sample from CBR test area
- D Small disturbed sample

IN-SITU TESTING

- SPTs Standard Penetration Test (using a split spoon sampler)
- SPTc Standard Penetration Test (using a solid 60 degree cone)
- N Recorded SPT 'N' Value *
- -/- Blows/Penetration (mm) after seating blows totalling 150 mm
- MX Mexi Probe Test (records CBR as %)
- HV Hand Shear Vane Test (undrained shear strength quoted in kPa)
- PP Pocket Penetrometer Test (kg/m³)
- () Denotes residual test value
- PID Photo Ionisation Detector (ppm) *
- Kf/Kr Permeability Test (f = falling head, r = rising head quoted in ms⁻¹)
- HPD High Pressure Dilatometer Test (pressure meter)
- PKR Packer / Lugeon Permeability Test
- CBR California Bearing Ratio Test

ROTARY CORE DETAILS

- TCR Total Core Recovery, %
- SCR Solid Core Recovery, %
- RQD Rock Quality Designation (% of intact core >100 mm)
- FI Fracture Spacing (average fracture spacing; in mm, over indicated length of core) * *
- NI Non-Intact Core
- AZCL Assumed Zone of Core Loss

GROUNDWATER



Groundwater strike

Standing water level after 20 minutes; 1st, 2nd etc (number denotes level order)

STRATA LEGENDS - Note: Composite strata types are shown by combining symbols



* Where a single value is quoted this is the uncorrected 'N' value for a full 300 mm test drive following a seating drive of 150mm. Where the full test drive penetration is not achieved the number of blows is quoted for the penetration below the test total of 300mm, e.g.: 50/75.

* * The minimum, average and maximum are shown e.g. 5/45/125

INSTALLATION & BACKFILL DETAILS

Undisturbed sample

Water sample

Undisturbed thin wall sample



STRATUM BOUNDARIES

Unit boundary

APPENDIX C

EXPLORATORY HOLE LOGS

ARCADIS Percussive Borehole Log

BH1001

Project Northst Client Homes	towe F and C	Phase 2 Commur	nities Ag	gency					Project No. UA008426-01 Easting (OS mE) 540834.37	Ground Lev 9.10 Northing (C 266684	vel (mAOD) OS mN) - .59		Start Date 09/12/20 End Date 12/12/20	16 16	Sca 1:5 Sh	e 50 eet 1	of 2
SAM	PLES		Т	ESTS			PROGE	RESS			STRATA						<u> </u>
Depth	Type No.	e/ Depth	Type/ No.	Res	ults	Water Strikes	Date Time	Casing Water		Descrip	ption		Leg	end (Depth Thickness)	Level	Install/ Backfill
0.10 0.10 - 0.4 0.10 - 0.4	ES 0 B1 0 ES14	-					09/12/2016 09:00	0.00	Grass over orangish with rootlets and roo Gravel is sub-angula	brown, slightl ts (<1cm in wi ar to sub-round	y sandy slig idth). Sand ded, fine to	phtly gravelly C is fine to coarse coarse of flint a	LAY de la construction de la construcción de la con		(0.40)	0.70	
- 0.50 - 1.2 - 0.70 - 1.0	0 B2 0 ES15								sandstone. [TOP SOIL] Firm, orangish brown occasional pockets of Cravel is appular to	n, slightly grav of dark brown	velly sandy clay. Sand	CLAY with is fine to coarse	e.		(0.80)	-	
- - 1.20 - 1.6	5 D3	1.20	SPT(C)	N=12 (2,3/3,	3,3,3)				lithologies.	DEPOSITS]					- 1.20	- 7.90	
- - 1.50 - 1.7 - -	0 ES16								SAND. Gravel is sub mixed lithologies. [RIVER TERRACE D	ogish brown, ci o-angular to su DEPOSITS]	layey grave ib-rounded	fine to coarse	of		(0.80)	- -	
2.00 2.00 2.00 2.00 - 2.4 2.40	B4 EWW EWW 5 D4 ES	2.00	SPT(C)	N=13 (3,4/3,	4,3,3)	1.80			Medium dense, yello Sand is fine to coars to coarse of mixed lif [RIVER TERRACE D	owish brown, s ie. Gravel is su thologies. DEPOSITS]	lightly clay ub-angular	ey sandy GRAV to sub-rounded	/EL. I, fine		2.00 -	- 7.10	
2.40 - 2.6	E D20	-	CDT(C)	N=10 (2 2/2	0.0.0	1.80			Firm to stiff, bluish g				×		2.80	6.30	
- 3.00 - 3.4 	5 D20 0 ES18	- 3.00 - - - -	5P1(5)	N=10 (3,3/2,	2,3,3)	1.80				FORMATIO	N]		× ×			-	
- - - 4.00	B23	-											×				
4.00 - 5.0	D21												×		-	- - -	
- - 	5 D22	- - - 5.00 -	SPT(S)	N=21 (7,9/9,	5,4,3)	1.80							×		-	-	
- - 5.50 - 6.5 - - -	0 B7	- - - - -											× ×		-	- - - -	
- - - - 6.50 - 6.9	5 UT23												× ×		(7.20)		
- - 6.95 - 7.00 - 8.0 -	D31 B8	- - - -											× ×		- - - - -	- -	
- - - - - - - -	5 D25		SPT(S)	N=20 (3 3/4	5 5 6)	1 80							× ×		-	- - - -	
- - - - 8.50 - 9.5	0 B9		- (-)		,								× ×		-	- - -	
-		- - - -											×		- - - -	-	
9.50 - 9.9	5 UT26												× × ×		- - - - - - - - - - - - - -	0.90	
_ 10.00 - 11.							<u> </u>	L		NO				1	14/47-		
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ARCADIS Percussive Borehole Log

BH1001

Project Northsto Client Homes a	we Pl nd Co	hase 2 ommuni	ities Ac	iency					Project No. UA008426-01 Easting (OS mE) 540834 37		Ground Level (m 9.10 Northing (OS mi 266684 59	nAOD) N)	Start I 09/1 End D 12/1	Date 2/2016 Date 2/2016	Sca 1: St	^{ale} 50 neet 2	of 2
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																15.4	5m
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ARCADIS Percussive Borehole Log

BH1002

Project Northsto Client Homes a	owe P and C	hase 2 ommuni	ities Agency						Project No. Ground Level (mAOD) UA008426-01 9.29 Easting (OS mE) Northing (OS mN) 540963.63 266805.40							Star 09/ End 09/	Date 12/2016 Date 12/2016	Sca 1:: Sh	^{Scale} 1:50 Sheet 1 of 2			
SAMPI	ES		TE	STS	2	SS	PROGF	RESS				Ş	STRATA							Inoto		
Depth	Туре	/ Depth	Type/	Results	Wate	Strike	Date Time	Casing	9			Descri	ption				Legend	(Thickness)	Level	Back		
0.00 0.00 - 0.30 0.00 - 0.30 0.30 0.50 0.50 - 0.70	ES B1 ES1 D19 ES ES2 B3	- - - - -					09/12/2016 09:00	0.00	Gras rootle [TOP Oran Grav [RIVE	s over soft ets. SOIL] gish browi el is sub-a ER TERRA	t, brown s n, slightly ngular to	ilty CLAY clayey gr sub-round OSITS1	with free avelly fir ded, fine	quent ro ne to co to coar	oots an arse S rse of f	d AND. lint.	NIZ	(0.30) - 0.30	8.99			
- 1.00 - 1.20	D20 D21	- - - -																- - -				
- - 1.50 - 2.00 -	В4	- - 1.50 -	SPT(C)	N=22 (3,3/5,6,5,	6) 1	00												•	+ + +			
- 1.80 - 2.00 - 2.00	EW1 D22 EW2	- - - -																(3.00)	+ + + + + +			
- 2.50 - 3.00	В5	- - - -																• • •	+ + + + + +			
- 3.00 - 3.30	D23 D24	— 3.00 - -	SPT(C)	N=24 (3,4/5,6,7,9	6) 2	00			04:#			441 and 1 and 1				14 .	- · · · · ·	- 3.30	5.99			
3.30 - 3.70 - 3.40 - 3.60 - 3.70 - 3.70 - 4.50 - 3.80 - 4.00	B6 ES3 D25 B7 ES4	- - - - -							Stiff, slight Grav litholo [RIVE	orangish b ily gravelly el is sub-a ogies. ER TERRA	CLAY wi	th sandy sub-round	pockets. ded, fine	y, slight Sand is to coar	iy sand s fine to rse of r	iy slity o coarse nixed	. ×_^ ×	(0.40) 3.70	5.59			
- 4.00 	D26 UT41	- - - -							Stiff t fragn grey [KIMI	o very stiff nents (up t mudstone MERIDGE	t, grey, sli to 1mm in CLAY FO	ghtly silty width) ar DRMATIO	CLAY w nd occas N]	ith occa ional ba	asional ands of	shell weak,		 - - - - -				
4.50 - 5.00	B8 D27	-																- - - - - -	+ + + +			
- - - 5.50 - 6.00	В9	-																- - - - -	* * * *			
- 6.00	D28	- - 6.00	SPT(S)	N=39 (2,3/9,10,1	10,10)													- - - - - -	+ - -			
- 6.50 - 7.00	B10	-																- - - - -	+ + + +			
- 7.00	D29	-																(11.75)				
- 7.50 - 8.00	B11	- 7.50 -	SPT(S)	N=36 (4,4/8,8,10	0,10)												 	- - - -	+ + + + +			
- 8.00	D30	-																- - - -				
· 8.50 - 9.00	B12																	- · · · · · · · · · · · · · · · · · · ·				
9.00 - 9.33	UT42	-																- - - - -	+ + + +			
9.50 - 10.00	B13	- - -																- - - -	+ + + +			
- 10.00	D33	-		<u> </u>													<u> </u>	-		//,/		
DF From	RILLING To	TECHNIC	QUE /pe	CHIS Hard Stra		uration	D-4-77	imo	WATER Strike At	OBSERV	ATIONS	Casing S	Sealed Ho	HOLE	/CASI	IG DIAN Casing Dia	ETER Depth	WATE From	R ADD ™ \	<u>ED</u> /olume (l		
0.00 1.20	1.20 5.45	Inspec Cable P	ction Pit ercussion	4.00 6.70	4.20 (6.90 (10:30 10:30	09/12/2016	6 10:00	1.30	20	1.30	1.70		300 200 50	1.20 15.00 15.45	200	3.00					
Remarks UT41 (4.50 UT42 (9.00 UT43 (12.0 UT44 (15.0	-4.95) - -9.33) - 0-12.45 0-15.45	No recove 75% recov 5) - 100% re 5) - 100% re	ry, 100 blo very, 83 bl ecovery, 1 ecovery, 9	ows. ows. 00 blows. 5 blows.							<u> </u>	<u> </u>	1					Term	ination E	Depth:		
																			15.4	5m		
Arcad St Mel Park CF3 0	s Cymru Hous Ions Business F EY	 Unless Depth (in the second seco	otherwis m), Diam ess (m), L	e stated: eter (mm), Tim .evel (mOD).	ie (hhmm),	Equipme Dando	ent Used 5 2000				Contracto Arcadi	r s Cons	ulting	(UK)	Ltd.	Lo V	ogged By P	Check AM	ed By		
Project Northsto Client Homes a	we P Ind C	hase 2 ommuni	ties Ag	jency				Project No. UA008426-01 Easting (OS mE) 540963.63	Ground Level (m 9.29 Northing (OS ml 266805.40	nAOD) N)	Start Date 09/12/2016 End Date 09/12/2016	Sca 1:5 Sh	ie 50 ieet 2	of 2								
--	-----------------------------------	-------------------------	---------------------------	---------------------------------	---------------------------	------------	------------------	--	---	------------------------------------	--	----------------------	--------------------	----------------------								
SAMPL	.ES		TE	ESTS	ب «	PROG	RESS		STRA	ATA												
Depth	Туре	/ Depth	Type/	Results	Wate	Date Time	Casing	1	Description		Legend	Depth (Thickness)	Level	Install/ Backfill								
-	140.	-	110.				Water	Stiff to very stiff, grey	y, slightly silty CLA	Y with occasional she			-	[]]]								
- 	B14	- 10.50	SPT(S)	N=38 (4.5/8.10.1)	0.10) 10.00			grey mudstone.	m in width) and oc	casional bands of we	ак,											
-	5	-			10.00				Y FORMATION]													
- 11.00	D24	-										· ·										
	034	-										-										
	D 40	-											-	[]]]								
-11.50 - 12.00 - -	B18	-										-	-									
-		-											-									
- 12.00 -12.00 - 12.45	D35 UT43	E										-	-	[]]]								
-		-																				
- 12.50 -12.50 - 13.00	D36 B19	-											-									
		-																				
— 13.00 -	D37	-											-									
-13.50 - 14.00	B21	- 13.50	SPT(S)	N=37 (4,4/8,9,10,	10) 10.00								-	[[]]								
-		-											-									
- 14.00	D38											-	-									
-		-											-									
- -14.50 - 15.00	B20	-											-									
		-																				
- 15.00	D39	-											-									
-15.00 - 15.45 -	UT44	-											Ī									
15.45	D40	-				09/12/2016	3.00	I				15.45	-6.16	<u> </u>								
-		-				17:00	1.30						+									
_		-																				
-		-											-									
-		-																				
F		-																				
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		-																				
-		-											-									
DR		TECHNIC	UE	CHIS	ELLING		<u> </u>	WATER OBSERVATIO	NS	HOLE/CASING I		WATE	R ADDI	ED								
From 0.00	To 1.20	Ty Inspec	/pe ction Pit	From 4.00	To Duration 4.20 00:30	on Date/T	ime 8 6 10:00	Strike At Time Elapsed Rise 1.30 20 1.	e To Casing Sealed 30 1.70	Hole Dia. Depth Casi 300 1.20 2	ng Dia. Depth 00 3.00	From	To V	/olume (Itr)								
1.20 1	5.45	Cable P	ercussion	6.70	5.90 00:30					200 15.00 50 15.45												
Remarks																						
UT41 (4.50- UT42 (9.00-	4.95) - 9,33) -	No recove 75% recove	ry, 100 blo ery, 83 bl	ows. ows.																		
UT43 (12.00)-12.45)-15 45) - 100% re	ecovery, 1	00 blows.								Torre	ination D	enth:								
5144 (15.00	5-10.40	- 100% FE	veiy, 9	0 0101/05.								lerm	15 4 ¹	5m								
	Current	Unleas	othomic	o etatod:		Fauinme	ent Used		Contractor		10	aged By	Check	ed By								
AGS	y synnu Hous ons Business Y	Depth (I Thickne	m), Diam ess (m), L	eter (mm), Time .evel (mOD).	e (hhmm),	Dando	2000		Arcadis Co	onsulting (UK) Lto	I. V	P	AM	,								

BH1003

Project Northsto Client	we P	hase 2							Project No. UA008426 Easting (OS me	-01	Ground Let 9.16 Northing (C	vel (mAOD) DS mN)		Start I 08/1 End D	Date 2/2016 ate	Sca 1:	^{ile} 50	
Homes a	nd C	ommuni	ties Ag	jency					540992.31		266653	.44		09/1	2/2016	Sr	neet 1	of 2
SAMPL	ES	,	TE	ESTS		ater kes	PROGF	RESS			ę	STRATA			1	Depth	ا میما	Install/
Depth	No.	Depth	Type/ No.	Resu	ults	Stri	Date Time	Casing Water			Descri	otion			Legend	(Thickness)	Level	Backfill
0.10 0.10	B5 B6	-					08/12/2016 08:00	0.00	Soft, brown, [TOP SOIL]	slightly sand	dy CLAY v	vith frequen	t roots and	rootlets.	NC	(0.40)	ļ	A .
- 0.10 - 0.30	ES1	-							Soft to firm	orangish bro	own elight	ly candy eli	abtly grave		NIZ: NO	0.40	8.76	
- 0.50	86	E							with frequen	t roots and r	rootlets. S	and is fine t	o coarse. (Gravel is		-	Ī	
-		-							[RIVER TER	RACE DEP	OSITS]	o coarse or	mm.		E	-	ļ	414
	ES2	-													<u>L</u>	(1.40)	÷	
- 1.20 - 1.65 - 1.30	D7 EW2	- 1.20	SPI(S)	N=11 (1,2/2,3	3,3,3)										<u>L</u>	-	İ	
-		-													<u>L</u>		÷	
- 1.80	B8	-							Firm browni	sh arev slia	htly sandy		nd is fine to	coarse	<u> </u>	1.80	7.36	
-2.00 - 2.20	ES3	2.00	SPT(S)	N=12 (2,2/2,3	3,3,4)				[RIVER TER	RACE DEP	OSITS]			oouroe.	<u>L</u>	-	ŀ	
2.00 - 2.45	B10	-													<u></u>	-	ł	
- 2.40	EW1	-															+ +	
																(1.80)	I	
- 	UT11	-													<u></u>	-	+	
- 3.00 - 4.00	B12	-													<u></u>	-	+	
3.45	D13														L		ļ	
-		-							Firm to stiff,	bluish grey	gravelly C	LAY. Gravel	l is sub-ang	gular to	× × × ×	3.60 3.70	5.56 5.46	
4 00 4 45	D14	-		N-12 (6 2/2 2	2 5 1				Sub-rounded	, fine to coa	ORMATIO	dstone. N]				(0.20) 3.90	5.26	
- 4.00 - 4.45 - 4.00 - 5.00 - 4 10 - 4 30	B15 ES4	- 4.00		N=13 (0,3/2,3	5,5,5)				Grey SILTS	ONE. GE CLAY FO	ORMATIO	N]				-	Ţ	
-	201	-							Stiff to very s angular to su	stiff, bluish g ub-rounded,	grey silty g fine to co	ravelly CLA arse of mud	Y. Gravel is Istone.	s sub-	×	-	+	
E		E							[KIMMERID	GE CLAY FO	ORMATIO	N]			×	· .	Ť	
-		-													×	-	ļ	
	UT16	-													×	-	+	
		-													×	2	Ì	
5.45 5.50 - 6.50	D17 B18	-													×		÷	///
-		-													x		+	(/H
F		_													×		F	
-		-													×		+	
6.50 - 6.95	D19	6.50	SPT(S)	N=37 (4,10/7,	,8,11,11)										×	(5.20)	ŧ	
-		-													×	2	ļ	
	B20	-													×	-	+	
Ę															×	2	Į	
-		-													×		Ļ	
		-													×	2	ŧ	
8.00 - 8.45	UT21	E													×	-	Ļ	
-		-													×		ŧ	
8.45	D22	Ē													×		İ	
_ 8.50 - 9.50 -	B23	-													× <u>×</u>		ł	
F		-													×		ŧ	
		-							Grey SILTS	ONE.					×××××	9.10 (0.20)	0.06	///
		-							[KIMMERID	GE CLAY FO	ORMATIO	N] ravellv CLA	Y. Gravel is	s sub-		9.30	-0.14	[]]]
- 9.50 - 9.95 -	D24	- 9.50 -	SPT(S)	N=24 (4,4/5,6	6,6,7)				angular to su	Ib-rounded,	fine to co	arse of mud	Istone.		×	(0.05)	ŧ	
E		E										ι			×	(0.90)	Į	
-10.00 - 11.00 -	B25	-													<u> </u>	-	t	
DR		TECHNIQ	UE	- C	HISELLI	NG	·	v	VATER OBSE	RVATIONS		HC	DLE/CASIN		TER	WATE	RADD	ED
From 0.00	10 1.20	Ty	/pe ction Pit	From 3.70	То 3.90	Duratio	n Date/Ti	ime S	strike At Time Elap	sed Rise To	Casing S	ealed Hole Di	a. Depth	Casing Dia. 200	Depth 1.65	⊢rom	10 \	rolume (ltr)
1.20 1	5.45	Cable Pe	ercussion	9.10	9.30	00:50						200 50	15.00 15.45					
Remarks	[1	1		I	I			I			I	[I	
No groundw UT11 (3.00-	/ater en ·3.31) -	countered. 70% recov	ery, 36 bl	ows.														
UT16 (5.00- UT21 (8.00-	-5.45) - -8.45) -	100% reco 100% reco	overy, 91 l overy, 62 l	blows. blows.												Term	ination D	epth:
UT22 (11.00 UT33 (14.00)-11.45)-14.45) - 100% re) - 100% re	covery, 7 coverv. 9	9 blows. 2 blows.													15.4	5m
Arcadi	s Cymru Hous	Unless	otherwis	e stated:			Equipme	ent Used			Contracto	r			Lo	gged By	Check	ed By
AGS St Melle	ons Business	Depth (r	m), Diam	eter (mm), T	Time (hhi	nm),	Dando	2000			Arcadi	s Consult	ing (UK)	Ltd.	S	С	AM	



Dando 2000

Arcadis Consulting (UK) Ltd.



BH1003

Project Northsto Client	owe P	hase 2							Project No. UA008426-01 Easting (OS mE)	Ground 9.16 Northing	Level (mAOD) g (OS mN)		Start I 08/1 End D	Date 2/2016 Date	Sca 1:5	e 50	. (0
Homes a	ina C	ommuni	ties Ag	ency					540992.31	2666	53.44		09/1	2/2016	Sn	eet 2	OT 2
SAMPI Depth	_ES Type	e/ Depth	TE Type/ No	STS Resu	Its	Water Strikes	PROGR Date Time	Casing Water	l	Des	STRATA			Legend	Depth (Thickness)	Level	Install/ Backfill
Depth 	Type No. UT22 D23 B24 D25 B26 B27	 Depth 	SPT(S)	Resu N=30 (6,6/7,7	.8.8)	We Stri	Date Time	Water	Stiff to very stiff, b angular to sub-rou [KIMMERIDGE C Stiff to very stiff, d [KIMMERIDGE C	Des luish grey silt unded, fine to LAY FORMAT ark grey silty LAY FORMAT	cription y gravelly CL/ coarse of mun ION] CLAY. ION]	YY. Gravel i dstone.	is sub-	Legend X <td>(Thickness)</td> <td>-1.04</td> <td>Backfill</td>	(Thickness)	-1.04	Backfill
							09/12/2016 16:30	1.65							15.45	6.29	
DF From	To	<u>TECHNIC ز</u> Ty	VE /pe	Hard From	HISELLIN Strata To	IG Duratio	n Date/Ti	me s	WATER OBSERVAT	IONS Rise To Casing	Sealed Hole D	ULE/CASI	NG DIAM Casing Dia.	E TER Depth	From	R ADDE	<u>D</u> olume (ltr)
0.00	1.20 15.45	Inspec Cable Pe	ction Pit ercussion	3.70 9.10	3.90 9.30	00:50 00:50					300 200 50	1.20 15.00 15.45	200	1.65			
Remarks No groundv UT11 (3.00- UT16 (5.00- UT21 (8.00- UT22 (11.00- UT33 (14.0- UT33 (14.0-	vater e -3.31) - -5.45) - -8.45) - 0-11.45 0-14.45	ncountered. 70% recov 100% recov 100% reco 100% reco 100% reco 100% re 100% re 100% re	ery, 36 blo overy, 91 b overy, 62 b covery, 79 ecovery, 92 otherwise	ows. lows. lows. blows. 2 blows. a stated:			Equipme	nt Used		Contra	ctor			Lo	Termi gged By	nation D 15.4	epth: 5m ed By



Dando 2000

Arcadis Consulting (UK) Ltd.

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Project Northsto ^{Client} Homes a	we Ph and Co	nase 2 ommuni	ties Ag	lency					Project No. UA008426-01 Easting (OS mE) 541168.85	Ground Level Northing (OS 266601.5	(mAOD) mN) 2	Start Date 08/12/2016 End Date 08/12/2016	Sca 1: Sh	^{le} 50 leet 1	of 2
SAMPL	ES		TE	ESTS		۲o	PROG	RESS		ST	RATA	1			
Depth	Type/ No.	Depth	Type/ No.	Resul	ts	Wate Strike	Date Time	Casing Water		Descriptio	on	Legend	Depth (Thickness)	Level	Install/ Backfil
0.20 0.20 - 0.40 0.30 0.40 0.50	B27 ES1 D5 B28 D6	- - - - - -					08/12/2016 09:00	0.00	Soft, brown, slightly s frequent roots and ro angular to rounded, f [TOP SOIL] Orangish brown, clay sub-angular to round [RIVER TERRACE D	sandy slightly gr otlets. Sand is f ine to coarse of /ey gravelly fine ed, fine to coars DEPOSITS]	avelly silty CLAY with ine to coarse. Gravel flint. to coarse SAND. Gra se of flint.	is sub-	(0.40)	- - - - - - -	
- 1.00 - 1.00 - 1.00 - 1.00 - 1.00 - 1.20 - 1.20	B29 D7 ES ES2 EW2	- - - - - - - - - - - - - -	SPT(C)	N=10 (2,2/2,3,	2,3)					-			(2.80)	+ + - - - - - - - - - - - - - - - - - -	
- 2.00 - 2.00	B30 D8	- - - - -												+ + - - - - - -	
2.80 - 3.00 - 3.20 - 3.30 - 3.50	EW1 D9 B31 ES3	- - - 3.00 -	SPT(C)	N=18 (2,2/4,4,	5,5)				Stiff, greenish grey m	nottled brown, sl	ightly sandy slightly g	pravelly — ×		+ + + + +	
- - - - 4.00 - 4.00	B32 D10	- - - - -							RIVER TERRACE D	se of flint. EPOSITS]	raver is sub-angular (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
4.40 - 4.50 - 4.84	D11 UT23								Weak, grey MUDSTO [KIMMERIDGE CLA] Stiff, greenish grey rr [KIMMERIDGE CLA]	DNE. <u>(FORMATION]</u> nottled brown sil (FORMATION]	ty CLAY.		4.30 (0.20) 4.50		
- 5.00 5.00 5.00 - 5.20	B33 D12 ES4								Stiff to very stiff, grey	mottled orangis	sh brown silty CLAY.		5.50		
- 6.00 6.00	B34 D13	- - 6.00 -	SPT(C)	N>50 (10,10/2 for 5mm)	0,20,10				Weak, grey MUDST(DNE. (FORMATION]			(0.50) 6.00 - (0.70)	+ + +- + + + + +	
- 7.00 7.00	B23 D14								Stiff to very stiff, grey shell fragments. [KIMMERIDGE CLAY	r to dark grey sil / FORMATION]	ty CLAY with occasio		6.70	+ + + + + + + + + + + + + + + + +	
- 7.50 - 7.95 - 8.00 8.00	UT24 B24 D15													+ + + + + + + + + + + +	
- 9.00 9.00	B25 D16	- - - - - - - - - - - - - - -	SPT(S)	N=17 (2,3/4,4,	4,5)								. ka . ka . ka . ka		
- 10.00 10.00	B26 D17	- - - - -													
DR From 0.00 1 1.20 1 1	To 1.20 5.45	I ECHNIQ Ty Inspec Cable Pe	UE pe tion Pit ercussion	CH Hard S From 4.30 6.00	HISELLI titrata To 4.50 6.20	NG Duratio 00:30 00:30	n Date/T 08/12/201	V īme S 6 12:30	WATER OBSERVATION Strike At Time Elapsed Rise 2.50 20 2.2	NS To Casing Seal 20 1.50	HOLE/CASING ed Hole Dia. Depth Ca 300 1.20 200 15.00 50 15.45	asing Dia. Depth 200 1.50	From		<u>-D</u> /olume (Itr
Remarks JT23 (4.50- JT24 (7.50- JT25 (10.50 JT25 (10.50 UT26 (13.50	-4.84) -7.95) 0-10.95) 0-13.95) s Cymru House ons Business	75% recov 100% reco - 100% re - No recov	ery, 55 bl very, 85 b covery, 8 very, 100 otherwise	ows. blows. 5 blows. blows. e stated: efer (mm) Ti	me (bbr	1	Equipme	ent Used		Contractor			ogged By	ination D 15.4	Depth: 5m Sed By



Dando 2000

Arcadis Consulting (UK) Ltd.

Project Northsto Client Homes a	we Pl	nase 2	itios An	INCV					Project No. UA008426-01 Easting (OS mE) 541168 85	1	Ground Level (m Northing (OS mN 266601 52	AOD) ≬)	Start 08/ End I 08/	Date 12/2016 Date 12/2016	Sca 1:5 Sh	e 50 00t 2	of 2
SAMDI							PPOCE	DESS	541100.05		STD4			12/2010		661 2	
Denth	Type/	Denth	Type/	Resul	Ite	Vater	Date Time	Casing			Description			Legend	Depth (Thickness)	Level	Install Backfil
Dopui	No.	_ Dopui	No.	1000		- 00	Dute fille	Water	Stiff to very stiff,	grey to c	lark grey silty	CLAY with occa	asional				
		-							shell fragments.	CLAY FC	RMATION			<u></u>			
0.50 - 10.95	UT25	-									. 1			××	-	-	
		-												× ×	-		///
11.00 11.00	B13 D11	-												× ×	-	-	
11.00	D18	-												× ×	-		///
		[× ×	-	_	///
		-												× ×	-		[]]
12.00	B14	- — 12.00	SPT(S)	N=26 (3,4/4,6,	,8,8)									$\overline{}$		-	[]]
12.00	019	_												××			[]]
		-												× ×	-	-	[]]
		-													(9.75)		
13.00	B15	-												×	(0.75)		
13.00	D20	-												×	· ·	-	[]]
		-												×		-	///
3.50 - 13.95	UT26	-												×	-		[]]]
		-												×	· ·	-	[]]]
14.00 14.00	B16 D21	-												×	-	-	
		-												×			
		[×	-		///
		-												×		-	
15.00	B17	- — 15.00	SPT(S)	N=40 (5,5/10,	10,10,10)									×		-	[]].
15.00	D22													×			///
		-					08/12/2016	1.50						<u> </u>	15.45	-	<u> </u>
		-					17:00	2.2									
		-															
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DR		TECHNIC	QUE	CH Hard S	HISELLII Strata	NG Direction	-	\		TIONS	Occine Occiled	HOLE/CAS		ETER	WATE		ED
0.00 1	.20	Inspe	ction Pit	From 4.30	To 4.50	00:30	n Date/Ti 08/12/2016	me 8 3 12:30	2.50 20	2.20	1.50 Sealed	300 1.20	200	1.50	From		/olume (ltr)
1.20 1	5.45	Cable P	ercussion	0.00	0.2U	00:30						50 15.45					
emarks T23 (4.50-/ T24 (7.50-	4.84) - 7.95) -	75% recov 100% reco	very, 55 bl overy, 85 l	lows.		1		I			<u>ı </u>	<u>ı </u>		1	I	I	
T25 (10.50 T26 (13.50)-10.95))-13.95)) - 100% re) - No reco	ecovery, 8 overy, 100	5 blows. blows.											Termi	nation D	epth:
,			,,	-												15.4	5m
	Cumer H	Unless	othorwic	o etatod:			Equipme	nt Used			Contractor			10	aged Bv	Check	ed Bv
GS St Mello Park Cardiff CF3 0ED	ns Business	Depth (m), Diam	eter (mm), Ti	ime (hhr	nm),	Dando	2000			Arcadis Co	onsulting (UP	() Ltd.	S	C	AM	,

BH1101

Project Northsto Client	owe P	hase 2							Project No. UA008426-0 Easting (OS mE)	1	Ground L	evel (m.	AOD) I)		Sta 00 En	art Date 5/12/20 d Date	016	Sca 1:	ale 50	-60
nomes		ommuni	ties Ag	lency					540776.32		20019	1.20			0	112/20	010	<u> </u>	ieet 1	
SAMP Depth	LES Type No.	/ Depth	TE Type/ No.	ESTS Resu	llts	Water Strikes	PROGI Date Time	RESS Casing Water			Desc	STRA	TA			Le	gend	Depth (Thickness)	Level	Insta Back
0.00 - 1.00 0.10 0.10 - 0.20 0.20 - 0.20	B1 ES ES2 D3 D7	- - - -					06/12/2016 13:00	0.00	Soft to firm, yell roots and rootle [TOP SOIL]	owish bro ts. Sand	own, slig is fine to	htly sa coars	indy CL/ ie.	AY with t	frequent	112, 112, 112, 112, 112, 112, 112, 112,	 G G G	(0.70)	- - - - -	
0.70 0.90 - 1.20 - 1.00 1.00 1.00 - 1.50 1.40	ES5 B9 B9.00 B6 EWW1								Firm, light orang gravelly silty CL sub-angular to s [RIVER TERRA	gish brow AY with c sub-rounc CE DEP	n mottle occasion ded, fine OSITS]	ed grey, nal root to coa	, slightly s and ro arse of fl	sandy sootlets. Contraction of the second se	slightly Gravel is	×_ ×_	× ·		- - - - -	
- 1.50 1.50 - 1.95 - 2.00 2.00 - 2.50	B10 B7 B11 B8	- 1.50 - - - - -	SPT(S)	N=13 (1,2/3,3	,3,4)											×_ ×_ ×_	× ×	(1.60)		
2.30 - 2.50 - 2.80 2.50 - 3.00	D9 ES11 B10	- - - - -							Soft to firm, gre [RIVER TERRA	y mottled CE DEP	orangis OSITS]	h brow	n, silty (CLAY.		 	× ×	2.30	+ + + + + + + + +	
-3.00 - 3.45 - 3.50	UT12	- - - -							Very soft to soft		ndy CLA	Y San	d is fine	to coar	50	×_ ×_ ×_	× ×	(1.20) 3.50	+ + + + + + + + + +	
3.50 - 4.00 3.60 - 3.80	B14 ES15								[RIVER TERRA	, grey sai	OSITS]	Jail						(0.80)		
4.30 • 4.50 4.50 - 4.95 4.70 4.70 - 4.90	D16 B18 B17 ES ES18	- - - 4.50 - - - -	SPT(S)	N=14 (2,3/3,4	,3,4)				Medium dense, GRAVEL with h is sub-angular t angular to sub- [RIVER TERRA	yellowish igh cobbl o rounded counded c CE DEP(n brown e conter d, fine to of flint. OSITS]	to grey nt. San o coars	/, slightl <u>y</u> d is fine e of flint	y clayey to coars . Cobble	sandy se. Grav es are	el		4.30	+ + + + + + + + + + +	
5.20 - 5.50 - 6.00	D19 B20						06/12/2016 16:30 07/12/2016 08:00	5.50 4.5 5.50	Firm to stiff, blu [KIMMERIDGE	ish grey, s CLAY FC	silty CL/ DRMATI	ay. ON]				 	×	5.20	- - - - - -	
-6.00 - 6.45 - 6.50 - 7.00	B21 B22	- 6.00 	SPT(S)	N=23 (3,4/5,5	,6,7)											- - - - - - - - - - - - - 	×	(2.00)		
- 7.20	D23	- - - - -							Weak, grey SIL							×_ ×_ ×××	× × × × × × × × × × × × × × × × × × ×	7.20		
- 7.50 7.50 - 7.95 - 8.00	D24 UT25 D26	- - - -							KIMMERIDGE Stiff, bluish grey [KIMMERIDGE	, silty CL CLAY FC	AY. DRMATI	ON]				×× ×_ ×_	× × × × ×	7.50	+	
- 0.00 0.45	B27	- - - - - -	CDT(C)	N-26 /2 4/5 6	7 9)											×_ ×_ ×_ ×_	× · · · · · · · · · · · · · · · · · · ·		* * * * * *	
9.00 - 9.45	1020	- 9.00 - - - -	071(0)	11 1- 20 (3,4/3,6	,,,,0)											 	× · · · · · · · · · · · · · · · · · · ·			
40.00 - 10.5	D B29	-														×	<u>×</u> :		-	
From	RILLING To	TECHNIC	<u>QUE</u> /pe	Hard	HISELLI Strata	NG Duratio	n Doto 7	ime S	WATER OBSERV	ATIONS Rise To	Casing	Sealed	HOI Hole Dia.	LE/CAS Depth	Casing D	METER	h	From WATE	R ADD	ED Volume (I
0.00 1.20	1.20 15.00	Inspec Cable P	ction Pit ercussion	From	То	Duratio	Date/T 06/12/201	ime 3 6 15:00	4.30 20	1.70	4.00	5.00	300 200 50	1.20 15.00 15.45	200	7.50)	. 1011		- siume (I
Remarks JT12 (3.00 JT25 (7.50 JT30 (10.5 JT35 (13.5	-3.45) - -7.95) - 0-10.95 0-13.95	100% recc 100% recc) - 100% re) - 100% re	overy, 17 I overy, 40 I ecovery, 6 ecovery, 7	blows. blows. 5 blows. 3 blows.	I	I	Fauloma	ant lead		1	Contrac	tor	I		I			Term	nination [15.4	Depth: 5 m
	llons Business ff	Depth (m), Diam	eter (mm), T	ïme (hhr	nm),	Dando	o 2000			Arcac	lis Co	nsultir	ng (UK) Ltd.		S	с С	AM	



Arcadis Consulting (UK) Ltd.

Project Northstov Client	we Pl	nase 2	tion An					Project No. UA008426-01 Easting (OS mE) E 40778 22	Ground Level (mAC	D) Start 06/1 End D	Date 2/2016 Date	Sca 1:	le 50	of 2
Homes a		ommuni	ties Ag		1	DROOF	2500	540778.32	200197.28	07/1	2/2016	<u></u> Sr	leet 2	
SAMPLI	ES Type/	Denth	Type/	ESIS	Vater trikes	PROGE	Casing		Description			Depth (Thickness)	Level	Install/ Backfill
	No. UT30 D31 B32		No.				Water	Stiff, bluish grey, silty ([KIMMERIDGE CLAY	CLAY. FORMATION]				+ + + + + + + + + + + + + + + + + + +	
42.00 - 12.45 	B33 B34 UT35	- 12.00	SPT(S)	N=28 (4,4/5,7,8,8)								(7.00)	* * * * * * * * * * * * *	
- - - - - - - - - - - - - - - - - - -	D36 B37 D38	-						Weak to medium stror [KIMMERIDGE CLAY	g, grey SILTSTON FORMATION]	Ξ.		14.50		
- 15.00 - 15.45 - - - - - - - - - -	D39	- - 15.00 - - - - - - - - -	SPT(S)	N>50 (8 for 0mm/10 for 0mm)		07/12/2016 15:00	7.50 15	Stiff to very stiff, bluish [KIMMERIDGE CLAY	grey, silty CLAY. FORMATION]		×××××× ×	(0.55) 15.45	+ - - - - - - - - - - - - - - - - - - -	
												-	* * * * * * * * * * * * * * * * * * * *	
- - - - - - - - - - - - - - - - - - -	ILLING To .20 5.00 3.45) -	TECHNIQ Ty Inspec Cable Pe	UE rpe ction Pit ercussion vvery, 17 I	CHISELLI Hard Strata From To	NG Duratic	n Date/Ti 06/12/2014	V ime S 6 15:00	VATER OBSERVATION: Strike At Time Elapsed Rise 1 4.30 20 1.70	S o Casing Sealed H 4.00 5.00	HOLE/CASING DIAMI De Dia. Depth Casing Dia. 300 1.20 200 200 15.45 200	TER Depth 7.50	WATE From	R ADD	ED /olume (itr)
UT25 (7.50- UT30 (10.50 UT35 (13.50	7.95) - 10.95) 1-10.95) 1-13.95)	100% reco) - 100% re) - 100% re	covery, 40 l covery, 6 covery, 7	blows. 5 blows. 3 blows.								Term	ination D	^{Jepth:}
Arcadis St Mellor Park Cardiff CF3 0EY	Cymru House ns Business	Unless Depth (r Thickne	otherwis n), Diam ss (m), L	e stated: eter (mm), Time (hh .evel (mOD).	mm),	Equipme Dando	ent Used		Contractor Arcadis Cons	sulting (UK) Ltd.	La	igged By C	Check	ed By

BH1102

Project Northst Client Homes	towe F and C	hase 2 ommuni	ities Aq	ency					Project No. UA008426-01 Easting (OS mE) 540875.06	Ground 9.57 Northing 2661	Level (mA g (OS mN) 99.51	NOD)		Start I 07/1 End D 08/1	Date 2/2016 ate 2/2016	Sca 1: Sł	^{ile} 50 neet 1	of 2
SAM	PLES		TE	STS		s	PROGR	RESS			STRAT	Α		0			1	
Depth	Type	e/ Depth	Type/ No.	Result	Wate	Strike	Date Time	Casing Water		Des	cription				Legend	Depth (Thickness)	Level	Install Backfi
- 0.30 - 0.30 - 0.30 - 0.5 - 0.30 - 1.0	D2 ES 0 ES3 0 B1	- - - - -					07/12/2016 13:00	0.00	MADE GROUND: C Soft to firm, orangis roots and rootlets [F	Grass over C sh brown, sliq POSSIBLE N	ONCRE	TE fill. / CLAY w ROUND]	ith occa	sional		(0.30) 0.30 (0.70)	9.27	
- - - - - - - - - - - 1.30 - - - 1.50 - 1.8 [°]	0 B4 EWW EWW 8 UT5	- - - 1 - 2 - -							Firm, light orangish Sand is fine to coar [RIVER TERRACE	brown mottl se. DEPOSITS]	ed grey,	slightly s	andy CL	.AY.		(1.00)	8.57	
-	DC																-	
	0 B7 0 ES8	-							Orangish brown, sli fine to coarse SANI coarse of flint.	ghtly clayey D. Gravel is	to claye sub-angi	y very gra ular to ro	avelly to unded, f	gravelly ne to		(0.60)	- 7.57	
- 2.60	D9								Soft, grey to dark bi [RIVER TERRACE	rown, slightly DEPOSITS]	y silty CL	.AY.				2.60	6.97	
- 2.90 	D10 5 B11 D13 0 ES12	- - - -	SPT(S)	N=2 (1,0/0,1,0,7))				Very soft to soft, da	rk brown, cla DEPOSITSI	ayey fibro	ous PEA	Г.		5 alk a	(0.60)	6.37	
- - 3.70	D14	- - - -							Soft, grey, slightly g angular to sub-roun	ravelly sligh	tly silty C	LAY. Gra	ivel is su	ıb-	6 316 3 316 316	(0.50)	5.87	
	0 ES16 0 B15 D17 5 B18	- - - - - 4.50	SPT(S)	N=12 (2,2/3,2,3	,4)	Z			[RIVER TERRACE Medium dense, bro cobble content. Sar sub-rounded, fine to rounded of flint.	DEPOSITS] wn to black, nd is fine to o coarse of f	Tendii slightly s coarse. C lint. Cobl	ng to clay sandy GF Gravel is bles are s	ey sand RAVEL w sub-ang sub-ang	y gravel vith high ular to ular to		(0.30) 4.20 (0.80)	5.37	
- - - 5.00 - 5.00 - 5.00 - 5.5	D20 ES19 0 B21	- - - - -							[RIVER TERRACE Firm, brownish grey [KIMMERIDGE CL4	DEPOSITS] /, silty CLAY. AY FORMAT	ION]					5.00	4.57	
- - - - - - - -	5 B22	- - - -	SPT(S)	N=23 (4 3/5 5 6	7)		07/12/2016	6.00								(1.00)	3.57	
		- - - - -					16:00 08/12/2016 08:00	6.00	KIMMERIDGE CLA	iish grey, silt AY FORMAT	y CLAY. ION]							
- - 	0 B23	-														- - - -	+ + + +	
- - - 7.50 - 7.9 - -	5 UT24															-	+ + +	
- 8.00 - 8.00 - 8.5 -	D25 0 B26	- - - - - -														- - - - - - -	+ + + + +	
 - - 9.00 - 9.9 - -	5 B27	- - - - 9.00	SPT(S)	N=26 (3,4/5,6,7	,8)													
- - - - - - - - - - - - - - - - - - -	50 B28	- - - - -																
C	RILLIN	J G TECHNIC		СН	SELLING			<u>ا</u>	NATER OBSERVATIO	DNS	.	HOLE	/CASIN	g diame	TER	I WATE	R ADD	ED
From 0.00 1.20	To 1.20 15.45	Ty Inspec Cable P	ype ction Pit ercussion	From From	To Du	ration	Date/Ti 07/12/2016	me 5 5 14:30	Strike At Time Elapsed Ri 4.20 20 1	se To Casing 1.65 4.00	Sealed 5.00	Hole Dia. 300 200 50	Depth 0 1.20 15.00 15.45	asing Dia. 200	Depth 15.00	From	To \	olume (Itr
Remarks UT5 (1.50 UT24 (7.5 UT29 (10.	-1.88) - 0-7.95) 50-10.9	85% recove - 100% reco 5) - 100% re	ery, 34 blo overy, 53 b ecovery, 5	ws. blows. 3 blows.						I	<u> </u>						ingti-	
UI 35 (13.	.ou-13.9	o) - 100% re	ecovery, 6	S DIOWS.												Term	15.4	epth: 5m
		Unloss	othonwic	o etatod:			Equipme	nt Used		Contra	ctor				Lo	aged By	Check	od By



Arcadis Consulting (UK) Ltd.

Logged By Checked
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Project Northsto Client Homes a	we Pl ind Co	hase 2 ommuni	ties Ag	jency				Project No. UA008426-01 Easting (OS mE) 540875.06	Ground Level (mAOD) 9.57 Northing (OS mN) 266199.51) Start Da 07/12 End Da 08/12	ate 2/2016 te 2/2016	Sca 1: Sh	^{le} 50 leet 2	of 2
SAMPL	.ES		TE	ESTS	- S	PROGR	RESS		STRATA					Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wate	Date Time	Casing Water		Description		Legend	Depth (Thickness)	Level	Backfill
-		-						Stiff to very stiff, bluis	h grey, silty CLAY.			-		[]]]
-10.50 - 10.95	UT29	-							i onanzinonj				Ļ	
		-										-	ł	
- 11.00	D30	-											-	
11.00 11.00 - 11.50	D33 B31	-										-	-	
-		-										-		
		-										-	ł	
	D 22	-										-	ł	[]]]
-12.00 - 12.45	D32	- -	3F1(3)	N-20 (4,4/3,7,0,0)								-	ļ	
		-										(8.70)	ł	
-		-											Į	///
		-										-	ł	[]]]
- 13.00 13.00 - 13.50	B20 B33	-											†	
-		-										-	ļ	
-13.50 - 13.95	UT34	-										 -	+	[]]]
-		-										-	Į	
- 14.00 - 14.00	D35 D38	-										-	+	
14.00 - 14.50 -	B36	-										-	ŧ	
- 14.50 - 14.50	D37 D40	-											Ţ	
-		-						Weathered, grey SIL			× × × × × × ×	14.70 (0.30)	-5.13	
- -15.00 - 15.45 -	D38	- 15.00	SPT(S)	N=45 (8,8/10,11,12,12)		08/12/2016	7.50	Very stiff, bluish grey,	silty CLAY.		××××× ×	15.00 -	- 5.43	
-		-				10.00		[KIMMERIDGE CLAY	FORMATION]		×	(0.45)	-	
-		-									x — :	15.45	-5.88	<u>/////</u>
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From	To	TECHNIC T\	<u>UE</u> /pe	Hard Strata	NG Duratio	n Date/T	ime S	VATER OBSERVATION Strike At Time Elapsed Rise	To Casing Sealed Hole	HOLE/CASING DIAME Dia. Depth Casing Dia.	Depth	From WATE	R ADDI ™ \	ED /olume (Itr)
0.00 1	1.20 5.45	Inspec Cable Pe	ction Pit ercussion			07/12/201	6 14:30	4.20 20 1.6	5 4.00 5.00 30	00 1.20 200 00 15.00	15.00			. ,
			-						5	U 15.45				
Remarks UT5 (1.50-1	.88) - 8	5% recove	ery, 34 blo	WS.										
UT24 (7.50- UT29 (10.50	7.95) -)-10.95	100% reco	overy, 53 l	olows. 3 blows.										
UT35 (13.50)-13.95) - 100% re	ecovery, 6	5 blows.								Term	ination D	epth:
<u></u>													15.4	5m
Arcadis St Mello	Cymru House	Unless	otherwis	e stated: eter (mm) Time (bb)		Equipme	ent Used		Contractor		Lo	gged By	Check	ed By
ACS CF3 0EX	Y	Thickne	ess (m), L	evel (mOD).),	Dando	2000		Arcadis Consu	liting (UK) Ltd.	S	ن	AM	

BH1103

Project Northst Client Homes	owe F and C	hase 2 ommun	ities Ag	ency				Project No. UA008426-01 Easting (OS mE) 541001.35	Ground Level (m. 9.42 Northing (OS mN 266263.30	AOD)	Start Da 12/12 End Dat 13/12	te /2016 / /2016	Sca 1:: Sh	^{le} 50 leet 1	of 2
SAMF	PLES		TE	STS	<u>ب</u> ۵	PROGRI	ESS		STRA	TA					
Depth	Туре	Depth	Type/	Results	Wate	Date Time	Casing Water		Description			Legend	Depth (Thickness)	Level	Install/ Backfil
0.00	ES ES1	-	110.			12/12/2016	0.00	MADE GROUND: CO	ONCRETE.	htly condy clightly a	ravally	<u>a a</u> .	0.10	9.32	A
0.10 - 1.00) B5							CLAY. Sand is fine to	coarse. Gravel is	sub-angular to sub-	aveny	\times	(0.30) 0.40	9.02	
-		-						Firm, orangish brown	n, slightly gravelly s	andy CLAY. Sand is	s fine			-	
-		Ē						and sandstone.			ormine				
- 1.00 - 1.20 - 1.00 - 1.50	D ES2 D B6	-							JEPU3I13j				(1.20) -	-	
-															
- 1.50 - 1.82 -	2 UT7	-						Medium dense becc	ming dense vellov	vish brown clavev			1.60	7.82	311
- - 1.90	EWW	2						gravelly fine to coarse of flint	e SAND. Gravel is	angular to sub-rour	nded,				
- 2.00 2.00	B9.00 D8	-						[RIVER TERRACE D	EPOSITS]	a to clavey gravelly	hee		-	-	╡╢┟
2.00 - 2.50) B9										sana.				ΠI
-		-												-	$\exists $
		Ē													
- 3.00 · 3.00 - 3.20	EWW ES3	1 - 3.00	SPT(C)	N=13 (2,2/2,3,3,5)	\vdash								-	-	HI
3.00 - 3.45	5 B10	Ē											(3.40)	t i	
-		-													
		-													. [] []
-4.00 - 4.50	B11	-											-	-	:11
		-													:::::::::::::::::::::::::::::::::::::::
- 4.50 - 4.95	5 B12	4.50	SPT(C)	N=35 (6,7/8,8,9,10)											:::::::::::::::::::::::::::::::::::::::
		-												+	.81
- 	D ES4	-						Medium dense, yello	wish brown, grave	ly fine to coarse SA	ND.		5.00 -	- 4.42	뷧
		-						Gravel is sub-angula [RIVER TERRACE D	r to sub-rounded, f)EPOSITS]	ine to coarse of flint				-	
-								-							
		-													
6.00 - 6.45	5 B14	6.00	SPT(C)	N=25 (3,4/5,6,7,7)									(1.80)	-	A
		-												-	
-		Ē													
6.80	D15	-						Firm to stiff, bluish a	ov silty CLAV				6.80	2.62	12
-7.00 - 7.50	B16	-						[KIMMERIDGE CLA	Y FORMATION]			<u>×_×</u>	-	-	
		-										<u>×_*</u>		-	
- 7.50 - 7.95	5 UT17	-									-	<u>×_~</u> _			4
		-										<u>×_^_</u>			·
- 8.00	D18	-									-	<u>×_^_</u>	-	-	÷Н
0.00		-										×			٠Ħ
		Ē										×		ŀ	٠Ħ
		-										×			• 🗄
-9.00 - 9.45	5 B20	9.00	SPT(C)	N=19 (3,4/4,5,5,5)								×	-	-	• 🗄
		-										<u>×</u>		-	
=												<u>~ ~</u>	-	ļ	÷,
		-										<u>~_×</u>			
-10.00 - 10.8	50 B21	-											-	_	
	RILLIN	G TECHNIC		CHISEL	LING		V	NATER OBSERVATIO	NS ,	HOLE/CASING	DIAMET	ER	WATE	R ADDI	Đ
From 0.00	To 1.20	T Inspe	ype ction Pit	From To	Duratio	n Date/Tim 12/12/2016	ne S 10:00	3.00 20 2.	To Casing Sealed 4 3.00 6.80	Hole Dia. Depth Cas 300 1.20	sing Dia. 200	Depth 7.50	From	To V	olume (Itr)
1.20	15.45	Cable F	ercussion							200 15.00 50 15.45					
Remarks	1.921	70% rocci	any 27 bla				1	I I			I	1	I	I	
UT17 (1.50	-1.02) - 0-7.95) - 50.10.01	100% recove	overy, 37 biov	ws. DIOWS. 4 blows											
JT27 (10.	50-10.9	5) - 100% r	ecovery, 88	8 blows.									Term	ination D	epth:
														15.4	5m
Arc	adie Cumru Hou		othorwise	statod:		Equipmen	nt Used		Contractor			Lo	aaed By	Check	ed By



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Arcadis Consulting (UK) Ltd.

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Project Northsto Client Homes a	we P	hase 2 ommuni	ties Aa	encv				Project No. UA008426-01 Easting (OS mE) 541001-35	Ground Level (mAi 9.42 Northing (OS mN) 266263.30	DD) Start [12/1 End D 13/1	Date 2/2016 ate 2/2016	Sca 1:5 Sh	eet 2	of 2
SAMPI	FS		TF	STS	ب	PROGE	RESS		STRAT					
Depth	Туре	/ Depth	Type/	Results	Water Strikes	Date Time	Casing		Description	ר 	Legend	Depth (Thickness)	Level	Install/ Backfill
- - - - - - - - - - - - - - - - - - -	UT22 D23 B24	- - - - - - - - - -						Firm to stiff, bluish gre [KIMMERIDGE CLAY	y, siity CLAY. FORMATION]				-	
- - - - - - - - - - - - - - - - - - -	B25	- - - - - - - - - - - -	SPT(C)	N=20 (3,4/4,5,5,6)								. (8.20)		
- - - - - - - - - 13.50 - 13.95 - -	B26 UT27	- - - - - - -									× × × × × × × × × × × × × × × × × × ×		· • • •	
- - - 14.00 - 14.00 - 14.50 - - - - 14 50 - 15 00	D28 B29 B30	- - - - -											- - - - -	
	D31	- - - - - - - - -	SPT(C)	N>50 (25 for 30mm/50 for 50mm)	15.00	12/12/2016	7.50	Weathered grey SILT: [KIMMERIDGE CLAY	Stone. Formation]			15.00 - (0.45)	5.58 6.03	
			UE	CHISELLI	NG		v	NATER OBSERVATION	s	HOLE/CASING DIAME	TER			ED
From 0.00 1 1.20 1 Remarks 1	To 1.20 5.45	Ty Inspec Cable Pe	vpe tion Pit ercussion	Hard Strata From To	Duratio	n Date/Ti 12/12/2016	ime S 5 10:00	Strike At Time Elapsed Rise 3.00 20 2.4	To Casing Sealed H 3.00 6.80	tole Dia. Depth Casing Dia. 300 1.20 200 200 15.00 50	Depth 7.50	From	Γο	'olume (ltr)
UT7 (1.50-1 UT17 (7.50- UT22 (10.50 UT27 (13.50	.82) - 7 7.95) -)-10.95)-13.95	'0% recove 100% reco) - 100% re) - 100% re	ry, 37 blo overy, 39 b ecovery, 6 ecovery, 8	ws. blows. 4 blows. 8 blows.								Term	ination D	^{lepth:}
Arcadis St Mello Park Cardiff CF3 0EV	: Cymru Hous ons Business Y	 Unless of Depth (r Thickne 	otherwise n), Diame ss (m), L	e stated: eter (mm), Time (hh evel (mOD).	mm),	Equipme Dando	ent Used 2000		Contractor Arcadis Con	sulting (UK) Ltd.	La	gged By	Check	ed By

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Project Norths Client	towe F	hase 2						Project No. UA008426-01 Easting (OS mE)	Ground Level (m 9.30 Northing (OS mN	AOD) I)	Start I 28/1 End D	Date 1/2016 Date	Sca 1:	le 50	
Homes	s and C	ommun	ities Ag	jency				541077.58	266125.61		29/1	1/2016	Sh	eet 1	of 2
SAN	IPLES	,	TE	ESTS	ater ikes	PROGR	RESS		STRA	TA			Depth	امريم ا	Install
Depth	No.	^{2/} Depth	No.	Results	Stri	Date Time	Water		Description			Legend	(Thickness)		Backfi
0.00 0.00 - 0.8	ES 50 B3	-				28/11/2016 13:00	0.00	Grass over dark brow fine to coarse SAND.	vn to black, slightly Gravel is sub-and	clayey slightly g	ravelly ded, fine	NC	(0.50)		4
0.00 - 0.5	52 ES1	-						of mixed lithologies.	Occasional rootlets	s up to 2mm wide	9.	NC. NC.	(0.52)		
- 0.50 - 1.2 0.52 - 1.2	20 B4 20 ES2	-						Medium dense, yello	wish brown, grave	lly fine to coarse	SAND.	- <u>1</u> 12	0.52	8.78	
		-						lithologies.		ine to medium of	mixeu				
-		-						RIVER TERRACE D	EPOSITS				-		
1.20 - 1.6	55 D20	- 1.20	SPT(S)	N=22 (2,3/4,5,6,7)	1.20								(1.38)		
-		-											-	-	
1.70	EW1	-													
1.90 	ES 50 B6	-						Medium dense, yello	wish brown, slight	y clayey sandy G	RAVEL		1.90 -	· 7.40	
1.90 - 2.8 -	50 ES5	-						angular to sub-round	ed, fine to coarse	of mixed lithologi	es.				
-		-						[RIVER TERRACE D	EPOSITS]					-	·F
		-													
		-			0.00								(1.90)		
- 3.00 - 3.4 -	+0 019	- 3.00	3P1(C)	19-13 (3,3/3,3,3,3,4)	3.00										
		-													
- 3.50 -	EW2	-											-	-	
3.80	D21							Firm to stiff, liaht to d	ark bluish grev. sli	ghtly gravellv CL	AY.		3.80	5.50	
- 3.80 - 4.5	50 ES7	-						Gravel is sub-angula	r to sub-rounded, f	ine of mixed litho	logies.			-	1
- 4.00 - 4.• -	+5 622	-							TORMATION			· · · · · ·	(0.70)		
- 4.50 - 4.7	73 UT23	-						Strong grev SILTST					4.50	- 4.80	24
-		-			\square			[KIMMERIDGE CLAY	FORMATION]			*****	(0.45)		
. 5.00	D24							Firm to stiff light to d	ark bluish grev sli	nhtly silty CLAY			4.95	4.35	$\overline{}$
5.10	D25	-						[KIMMERIDGE CLA)	FORMATION]						///
		-								lending to slight	ly sandy.	<u></u>			(//
- 5.50 - 6.0 - 5.50 - 6.0	00 B10 00 ES9	-										×	-	-	[]]]
-		-										×			
	45 D26	- 6.00	SPT(S)	N=23 (3,4/5,5,6,7)	5.10							×	(2.05) _	-	
		-										×			[]]
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		-										×_×_			[]].
—7.00 - 7. (50 B11	-								,		<u></u>	7.00 -	- 2.30	[]]
-		-						[KIMMERIDGE CLA]	FORMATION	ſ.					[]]
	DE UT07	-										$\mathbf{x} = \mathbf{x}$			///
- 7.50 - 7.8 - -	5 0127	-										××			
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- 	45 D28	- 9.00	SPT(S)	N=23 (3,4/5,5,6,7)								×	-	-	[]]
· 9.00 - 9.8 ·	50 B13	-										×			[]]
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From		<u>G TECHNIC</u> T		CHISELL Hard Strata	NG Duratio	in <u> </u>	\ 		To Casing Sealed	HOLE/CASI	NG DIAME	Denth	WATE	R ADD	ED /olume (Itr
0.00	1.20	Inspe	ction Pit	From To	Durado	Date/Ti 28/11/2016 29/11/2016	me 3 10:00 12:00	2.00 20 2.0 4.70 20 2.0	0 2.00 0 4.50 5.10	300 1.20 200 15.00	200	7.50			
1.20	15.45	Cable F	rercussion			29/11/2016	12.00	20 3.5		50 15.45					
Remarks UT23 (4.) UT27 (7.) UT29 (10	50-4.73) 50-7.95) 0.50-10.8	- 50% reco - 100% reco 2) - 70% re	very, 64 bl overy, 42 l covery, 62	ows. blows. blows.						L I					
JT31 (13	8.50-13.7	7) - 60% re	covery, 67	blows.									Term	ination D	epth:
										<u></u>				15.4	5m
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SAUN-TESTS TESTS TESTS <thtests< th=""> TESTS TESTS</thtests<>	Homes	and C	Commun	ities Ag	jency					541077	.58		266125.0	61			29/	11/2016	S	neet 2	of 2
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DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED om To Type From To Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia Depth From To Volume 20 15.45 Cable Percussion Inspection Pit Cable Percussion 20/12016 12.00/2.00/2.00/2.00 2.00/2.00/2.00/2.00 15.00 12.00/15.45 200/15.45 7.50 India India<			-																	ţ	
DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED om To Type From To Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia Depth Casing Dia Depth From To Volume 00 1.20 Inspection Pit Cable Percussion 20/11/2016 10:00 2.00 20 2.00 2.00 15.00 12.0 200 7.50 I I I 20 15.45 Cable Percussion I I 29/11/2016 12:00 4.70 20 3.90 4.50 5.10 200 15.00 7.50 I<	_		-																	Ļ	
DRILLING CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED om To Type Hard Strata Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia Depth From To Volume 00 1.20 Inspection Pit Cable Percussion 28/11/2016 10:00 2.00 20 2.00 3.00 1.20 300 1.20 200 7.50 To Volume 01 15.45 Cable Percussion 29/11/2016 12:00 4.70 20 3.90 4.50 5.10 200 15.00 200 15.45 10 10 15.45 10 15.45 10 15.45 10 15.45 10 15.45 10 15.45 10 15.45 10 15.45 15 15.45 10 15.45 10 15.45 10 10 15.45 10 15.45 10 15.45 10 15.45 10 15.45 10 15.45 15 15.45 15 15.45			-																	t	
Om To Type From To Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia. Depth From To Volume 00 1.20 Inspection Pit Inspection Pit 28/11/2016 10:00 2.00 20 2.00 2.00 3.00 1.20 12.0 200 7.50 Image: Casing Dia. 200 7.50 Image: Casing Dia. 200 7.50 Image: Casing Dia. 200 15.45 200 12.0 200 15.45 200	-	RILLIN	G TECHNIC	QUE	C	HISELLING			<u> </u>	NATER OF	SERVA	TIONS			HOLE	E/CASI	NG DIAN	IETER	WATE	RADD	ED
20 15.45 Cable Percussion 29/11/2016 12:00 4.70 20 3.90 4.50 5.10 200 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.45 15.00 15.00 15.00 15.45 15.00 15.00 15.45 16.00 15.45 16.00 15.45 16.00 15.45 16.00 15.45 16.00 15.45 16.00 15.45 16.00 15.45 16.00 16.00 15.45 16.00 16.00 15.45 16.00 15.45 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 15.45 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 15.45 15.45 15.45 15.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00	From 0.00	Го 1.20	T Inspe	ype ction Pit	From	To Dur	ation	Date/T	ime 8 6 10:00	2.00	Elapsed	Rise To	Casing Sea	aled H	ole Dia. 300	Depth 1.20	Casing Dia 200	Depth 7.50	From	Го	Volume (Itr)
Arcadic Cymm House Unless otherwise stated: Pepth (m), Diameter (mm), Time (hhmm), Dando 2000 Arcadis Consulting (UK) Ltd. VP AM	1.20	15.45	Cable F	ercussion				29/11/2010	o 12:00	4.70	20	3.90	4.50 5.	.10	200 50	15.00 15.45					
23 (4.50-4.73) - 50% recovery, 64 blows. 27 (7.50-7.95) - 100% recovery, 42 blows. 29 (10.50-10.82) - 70% recovery, 62 blows. 31 (13.50-13.77) - 60% recovery, 67 blows. Termination Depth: 15.45m Minute Building Bu	Remarks		1				I		I	1	1						1				
29 (10.50-10.82) - 70% recovery, 62 blows. Termination Depth: 15.45m Unless otherwise stated: Equipment Used Depth (m), Diameter (mm), Time (hhmm), Dentho 2000 Arcadis Consulting (UK) Ltd. VP AM	JT23 (4.5 JT27 (7.5	0-4.73) 0-7.95)	- 50% reco - 100% reco	very, 64 bl overy, 42 b	lows. blows.																
Accedit Cymmu House Unless otherwise stated: Equipment Used Contractor Logged By Checked By Depth (m), Diameter (mm), Time (hhmm), Dando 2000 Arcadis Consulting (UK) Ltd. VP AM	JT29 (10.	.50-10.8	2) - 70% re	covery, 62	blows.														Torm	nination ^r	Denth:
Unless otherwise stated: Equipment Used Contractor Logged By Checked By Depth (m), Diameter (mm), Time (hhmm), Dando 2000 Arcadis Consulting (UK) Ltd. VP AM		13.7	. j - 00 % ie	55very, 0/	510495.														liem	15 4	5m
Statistics of the state of the			liniag -	othorn:-i-	o ototod:			Fauinme	ent Lleed				Contractor						aged By	Check	ked By
		Mellons Busine k rdiff 3 0EV	Depth (m), Diam	eter (mm), T	īme (hhmm),		Dando	o 2000				Arcadis	Cons	sulting	g (UK)	Ltd.	v	од-2 <i>с,</i> Р	AM	,

Project Northsto Client	we Pl	nase 2	tion Am	ionov					Project No. UA008426-01 Easting (OS mE) E40894 25	Ground Level (mAOD) 9.85 Northing (OS mN)	Start I 29/1 End D 20/1	Date 1/2016 ate	Sca 1:	le 50	of 2
			ues Ag				DROOF	2500	540694.25	200074.33	50/1	1/2010	<u> </u>	leet i	
Depth	Type/	Depth	Type/ No.	Resu	Its	Water Strikes	Date Time	Casing Water		Description		Legend	Depth (Thickness)	Level	Install/ Backfil
0.10 0.10 - 0.20 0.10 - 1.00 0.10 - 1.00 0.20 0.20 0.60 0.60 - 0.60 - 1.00	ES ES1 B3 ES2 D20 D21 D21 D22 B22 EWW1	- - - - - - - - -					29/11/2016 09:00	0.00	MADE GROUND: C MADE GROUND: S gravelly CLAY with a Gravel is sub-angula lithologies.	ONCRETE. oft, orangish brown, slight a low cobble content. Sand ar to sub-rounded, coarse	ly sandy slightly d is fine to coarse. of mixed	d e	(1.40)	9.75	
- - 1.50 - 1.95 - 1.50 - 1.95 - 1.50 - 1.95 - 1.50 - 1.95 - 1.50 - 1.95	B4 B5 D23 ES4 ES5	- 1.50 	SPT(S)	N=13 (2,2/3,3	,3,4)				Firm, reddish brown is fine to medium. G to coarse of mixed li bands, up to 1cm in	, slightly sandy slightly gra ravel is sub-angular to sul thologies. Occasional ligh width.	avelly CLAY. Sand b-rounded, medium t grey, silty clay		1.50 (0.90)	8.35	
2.00 	D24 D25	-							[RIVER TERRACE I Soft, brownish grey,	DEPOSITS] slightly silty CLAY.			2.40	7.45	
- - - 	UT26	- - - -							[RIVER TERRACE I	DEPOSITS]				+ + + + +	
- 3.50 - 3.50 - 4.00 - 3.50 - 4.00 - 3.50 - 4.00 - 3.50 - 4.00 - 3.50 - 4.00	D27 B6 B7 ES6 ES7	- - - - - - -											(2.40)		
- - - 4.50 - 4.50 - 4.95 -	D28 B8	- - 4.50 -	SPT(S)	N=11 (1,1/2,2	,3,4)	2.70							4.80	5.05	
- - 5.00 - 5.00 - 5.50 - -	D29 B9	- - - -							Medium dense, yello fine to coarse. Grave coarse of mixed litho mixed lithologies. [RIVER TERRACE I	ow, slightly clayey sandy (el is sub-angular to sub-ro ologies Low cobble conte DEPOSITS]	GRAVEL. Sand is unded, fine to ent of subrounded		(1 20)		
- - - - - 6.00 - 6.45 - 6.10	ES10 D30	- - - - 6.00	SPT(S)	N=20 (2,3/4,5	,5,6)	6.00			Stiff, bluish grey silty	/ CLAY with occasional su	b-angular to sub-		6.10	3.75	
- - - - - - - - - - - - - -	D31	- - - - -							rounded gravel of si [KIMMERIDGE CLA	itstone, up to 1-2cm wide. Y FORMATION]				+ + + + + + + + +	
- 7.00 - 7.45 	B11 B12	- - - 7.50	SPT(S)	N=30 (0,5/7,7	,8,8)									+ + + + + + + + +	
· 		- - - - - - - -												+ + + + + + + + + + + + + + + + +	
- 9.00 - 9.45 - 9.00 - 9.45 - 	B13 UT32	- - - -											-	+ +- + + + +	
- - - - - - - - - - - - - - - - - - -	B14	-												+ + + +	
DR		TECHNIG			HISELLII	<u> </u>		L	NATER OBSERVATIO		DLE/CASING DIAME	ETER	WATE	R ADD	ED
From 0.00 1 1.20 1	To 1.20 5.95	Ty Inspec Cable P	/pe ction Pit ercussion	From 15.10	Strata To 15.30	Duratio 00:30	Date/Ti	īme S	Strike At Time Elapsed Ris	e To Casing Sealed Hole Di 300 200 50	a. Depth Casing Dia. 1.20 200 15.50 15.95	Depth 7.50	From	To \	'olume (Itr)
Remarks No groundw UT26 (3.00- UT32 (9.00- UT36 (12.00 UT40 (15.00	vater en (3.45) - (9.45) - ()-12.45) ()-15.45)	countered 100% reco 100% reco 100% reco 1 - 100% reco	overy, 12 b overy, 54 b ecovery, 4 very (brol	blows. blows. 8 blows. ken), 100 blo	ws.	<u> </u>							Term	ination D)epth:
Arcadis St Mello Park Cardiff	Cymru House	Unless Depth (i	otherwis m), Diam	e stated: eter (mm), T	ime (hhı	nm),	Equipme	ent Used		Contractor Arcadis Consult	ina (UK) I ta	Lo	gged By	Check	ed By



Project Northsto Client Homes a	we Pl and Co	hase 2 ommuni	ties Ag	jency				Project No. UA008426-01 Easting (OS mE) 540894.25	Ground Level (mAOD) 9.85 Northing (OS mN) 266074.59	Start Da 29/11 End Da 30/11	ate /2016 te /2016	Sca 1: Sh	^{le} 50 leet 2	of 2
SAMPL	ES		TI	ESTS		PROG	RESS		STRATA					
Depth	Type/ No.	Depth	Type/	Results	Strike	Date Time	Casing Water		Description		Legend	Depth (Thickness)	Level	Backfill
- - - 10.50 - 10.50 - 10.95 - - - -	D34 B15	- - - - - - - - - -	SPT(S)	N=23 (3,4/5,5,6,7)				Stiff, bluish grey silt rounded gravel of si [KIMMERIDGE CLA	/ CLAY with occasional sub-a Itstone, up to 1-2cm wide. Y FORMATION]	ngular to sub-				
- - - - - - - - - - - - - - - - - - -	D35 B16 UT36	- - - - - - - - - - - - - - - - - - -										-	+ + + + + + + + + + + + + + + + + + +	
- - - - - - 43.00 - 13.45 - - -	B17	- - - - - -										(9.00)	* * * * * * *	
-13.50 - 13.95 -13.50 - 13.95 - - - - - 14.00 - 14.45	B18 D37 B19	- 13.50 - - - -	SPT(S)	N=28 (4,5/6,7,7,8)							× × ×	-	* * * *	
- - - - - - - - - - - - - - - - - - -	B38	- - - - - - - -										15.10		
- 15.10 - 	D39 D41	- - - 15.50 -	SPT(S)	N=31 (5,6/7,7,8,9)	15.50			KIMMERIDGE CLA	LISTONE. Y FORMATION] y CLAY. Y FORMATION]	/		(0.20) 15.30 (0.65)	-5.45	
- - - - - - - - - - - - - - - - - - -		-				30/11/2016 17:00	7.50 15.5					15.95	-6.10	
- - - - - - - - - - - - -		-										-	+ + + + + + + + + + + + + + + + + +	
													- - - - - - - - - - - - - - - - - - -	
-						<u> </u>	,					14/475		
DF From 0.00 1.20	To 1.20 5.95	ILCHNIC Ty Inspec Cable P	vpe ction Pit ercussion	CHISE Hard Strata From 1 15.10 15	ELLING To Duratio	Date/T	ime S	Strike At Time Elapsed Ris	le To Casing Sealed Hole Dia. a 300 200 50	Image: Construct of Casing Dia. 1.20 200 15.50 15.95	Depth 7.50	From		Ξ D /olume (ltr)
Remarks No groundw UT26 (3.00- UT32 (9.00- UT36 (12.00 UT36 (12.00 UT40 (15.00	vater en -3.45) - -9.45) - 0-12.45 0-15.45	icountered 100% reco 100% reco) - 100% re) - No reco	overy, 12 overy, 54 ecovery, 4 very (bro	blows. blows. 8 blows. ken), 100 blows.	I			I			I	Term	ination D	lepth:
	e Cummi !!		othorwic	o statod:		Equipme	ent Used		Contractor		10	aged By	Check	ed Bv
AGS Arcadi	s cymru Housi ons Business	Depth (I	m), Diam	eter (mm), Time	(hhmm),	Dando	2000		Arcadis Consulting	(UK) Ltd.	VI	9900 D, P	AM	



Project Northsto Client	we Ph	nase 2						Project No. UA008426-01 Easting (OS mE)	Ground Level (mAOD) 9.43 Northing (OS mN)	Start D 05/1 End Da	ate 2/2016 ate	Sca 1:	le 50	
Homes a	nd Co	ommuni	ties Ag	ency				540//4./6	266109.05	06/1	2/2016	Sr	eet 1	of 2
SAMPL	ES Type/	Denth	TE Type/	STS	Nater Strikes	PROGF	RESS Casing	l	STRATA		Legend	Depth (Thickness)	Level	Insta Backt
0.20 0.30 0.30 0.30 - 1.00 0.30 - 1.00	NO. D19 D20 ES B1 ES2		No.			05/12/2016 15:30	0.00	MADE GROUND: Co MADE GROUND: So slightly silty sandy C rounded, fine to med	ONCRETE. off to firm, orangish brow LAY. Sand is fine. Grave lium of mixed lithologies	n, slightly gravelly I is angular to sub- and red brick.		(0.30)	9.13	
- 1.10	EWW1	- - -										(1.00)	8.13	
1.50 - 1.95	D29	- - 1.50 - - -	SPT(S)	N=11 (1,2/2,3,3,3)				Soft to firm, light gre organic material (up fine to medium sand [RIVER TERRACE D	y, silty CLAY with occasi to 1cm thick) and freque (up to 1cm thick). DEPOSITS]	onal pockets of ent bands of orange,			-	
2.00 2.00 - 2.45 2.00 - 2.45	ES B3 ES4	- - - -										(2.40)		
2.70 -3.00 - 3.45 3.00 - 4.00	D21 UT3 B30	- - - -										- - - - -	- - - -	
3.50	D22	- - - -						Soft to firm, dark gre	y, silty CLAY with freque	nt pockets of organic		3.70	5.73	
4.00 - 4.45 4.00 - 4.50	ES7 B6	- 						material (up to 1cm t [RIVER TERRACE D	hick). DEPOSITS]		× ×	(0.60) -	5 12	
4.50 - 4.95	ES8	- - 4.50 - -	SPT(C)	N=10 (1,2/2,2,3,3)) 4.30			Medium dense, grey angular to sub-round [RIVER TERRACE D	, slightly clayey GRAVEL led, fine to coarse of mix DEPOSITS]	Gravel is sub- ed lithologies.		(1.00)	-	
5.00 - 6.00 5.30	B10 D24							Stiff, dark bluish grey	Tending to slightly	clayey sandy gravel.		5.30	4.13	
5.65 - 6.00 6.00 - 6.45	ES11 D25	- - - - - - - - - - - -	SPT(S)	N=19 (3,4/4,4,5,6) 2.30									
7.00 - 7.50	B13	- - - - - -											- - - - - - - -	
7.50 - 7.95	UT14	- - - -										(9.20)	- - - -	
8.00 - 8.50	B15												+ + + + + + + + +	
9.00 - 9.45	D27	- 9.00 - - - - - -	SPT(S)	N=18 (3,3/4,4,5,5))								- - - - - - - - - -	
0.00 - 10.50	B17	- - -								[-	_	
DR From 0.00 1 1.20 1 1	ILLING To .20 5.45	TECHNIQ Ty Inspec Cable Pe	QUE vpe ction Pit ercussion	CHIS Hard Strata From	ELLING To Duratic	on Date/T	ime 5 6 15:00	WATER OBSERVATIO Strike At Time Elapsed Rise 4.30 20 1.:	NS H a To Casing Sealed Hole D 55 3.00 300 200 50 50 50 50	OLE/CASING DIAME Dia. Depth Casing Dia. 1.20 200 15.00 15.45	TER Depth 7.50	From	R ADD	ED /olume (If
emarks T3 (3.00-3 IT14 (7.50- IT28 (10.50 IT31 (13.50	.45) - 1(7.95) - 1)-10.95))-13.95)	00% recov No recover - 100% re - 100% re	ery, 16 blo ry, 52 blov ecovery, 40 ecovery, 54	ows. vs. 6 blows. 4 blows.	1		I	I I			I	Term	ination D	Depth:
Arcadis St Mello Park	Cymru House	Unless Depth (r	otherwise	e stated: eter (mm). Time) (hhmm).	Equipme	ent Used		Contractor	ting (116) 1 (-1	Lo	gged By	15.4 Check	5m ed By

we Pł	hase 2							Project No. UA008426-0 Easting (OS mE)	1	Ground Level (n 9.43 Northing (OS m	nAOD) N)	Start E 05/1 End D	2/2016 ate	Sca 1:	.le 50		
nd Co	ommuni	ties Ag	ency					540//4./6		266109.05) 	06/1	2/2016		ieet 2	of 2	
ES Type/	D	TE Type/	STS		rikes	PROGE	Casing			STR	ATA		<u> </u>	- Depth	Level	Install/ Backfil	
Jype/ No. UT28 D29 B18 D30 B27 UT31 B28 D32 B29 D33	Depth	SPT(S)	N=24 (3,4/5,6,6	s 3	5.00	06/12/2016 17:00	7.50 15	Weathered, gre KIMMERIDGE Very stift, dark t [KIMMERIDGE	Y SILTST CLAY FC Duish gre CLAY FC	ONE. ONE. DRMATION] YCLAY. RMATION]	sandy slightly gra	velly clay.		(Thickness)			
	Ľ													-	†		
	-				I		v	WATER OBSERV	ATIONS		HOLE/CAS	ING DIAME	TER	WATE			
			CH Hard Str	ata		-		serves as a trace Element.	D: -	0	I I I I I I I I I I I I I I I I I I I	I	D-1 1	I		<u>=D</u>	
	nd Cc is Type/ No. UT28 D29 B18 D30 B27 UT31 B28 D32 B29 D33	ad Communi iss iss Type/ No. Depth UT28 - D29 - B18 - D30 - B27 - B27 - B28 - D30 - B28 - D32 - B28 - D32 - B29 - D33 - 15.00 -	Ind Communities Ag Type/ No. Type/ No. Type/ No. Depth Type/ No. UT28 - - D29 - - D30 - 12.00 SPT(S) B27 - - D31 - 12.00 SPT(S) B27 - - D32 - - D33 - 15.00 SPT(S) - - - - - - - - - - - - - - - - B28 - - - - - - - D33 - 15.00 SPT(S) - - - - - - - - - - - - - - - - - - - - - - - - <td>National Communities Agency TESTS Type/ No. Depth Type/ No. Result UT28 - - - D29 - - - - D30 - 12.00 SPT(S) N=24 (3,4/5,6,6) B27 - - - - B27 - - - - B28 - - - - - D32 - 15.00 SPT(S) N=46 (9,9/9,11, - - - - - - - - D33 - 15.00 SPT(S) N=46 (9,9/9,11, - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -</td> <td>Ad Communities Agency Type/ Depth Type/ Results UT28</td> <td>No. 1000 L TESTS page 1 Type/ No. Depth Type/ No. Depth No. TESTS page 2 U128 - - D29 - - - D30 - 12.00 SPT(S) N=24 (3.4/5.6,6.7) - B27 - - - - - B28 - - - - - D30 - 15.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 B28 - - - - - - D31 - 15.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 B29 - - - - - - D32 - - - - - - - B29 - - - - - - - - - - - - - - - - - - - - - - - - - -</td> <td>no. TESTS procession Type/ Results PROCE UT28 PROCE UT28 PROCE D29 PROCE D20 PT(S) N=24 (3,4/5,6,6,7) D30 12.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 O6/12/2016 D32 - - O6/12/2016 D33 - 15.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 O6/12/2016 D33 - - - - - - - - - - - - - - - - - - -</td> <td>no. Depth TESTS PRORESS Type/ VUT28 Depth Type/ No. Tests B PRORESS U128 -</td> <td>Depth TESTS B FROGRESS Easing (05 mE) S TESTS B E Date Time Casing Date Time Date Ti</td> <td>Base of Communities Agency Base of Cost metry Subsection Subsection<</td> <td>And Communities Agency Easing 105 mE Working 105 mE</td> <td>Easing (S m.) Easing (S m.) Easing (S m.) Solution (S m.) Mean-mathematical (S m.) Mean-mathematical (S m.) Mean-mathematical (S m.) Solution (S m.) <th colspan<="" td=""><td>Diameter Description Meeting (05 mV) East (05/1 IS TESTS gg PROGRESS STRATA IV Deph Type/ No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Strata Strata Strata Strata St</td><td>Data Build Communities Agency Description Description Description Lagend SS TESTS 3 State Control STRATA STRATA Lagend Lagend</td><td>Diameter Method Communities Agency Description Bod Mathematics Description Descrip</td><td>Description Description Description</td></th></td>	National Communities Agency TESTS Type/ No. Depth Type/ No. Result UT28 - - - D29 - - - - D30 - 12.00 SPT(S) N=24 (3,4/5,6,6) B27 - - - - B27 - - - - B28 - - - - - D32 - 15.00 SPT(S) N=46 (9,9/9,11, - - - - - - - - D33 - 15.00 SPT(S) N=46 (9,9/9,11, - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	Ad Communities Agency Type/ Depth Type/ Results UT28	No. 1000 L TESTS page 1 Type/ No. Depth Type/ No. Depth No. TESTS page 2 U128 - - D29 - - - D30 - 12.00 SPT(S) N=24 (3.4/5.6,6.7) - B27 - - - - - B28 - - - - - D30 - 15.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 B28 - - - - - - D31 - 15.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 B29 - - - - - - D32 - - - - - - - B29 - - - - - - - - - - - - - - - - - - - - - - - - - -	no. TESTS procession Type/ Results PROCE UT28 PROCE UT28 PROCE D29 PROCE D20 PT(S) N=24 (3,4/5,6,6,7) D30 12.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 O6/12/2016 D32 - - O6/12/2016 D33 - 15.00 SPT(S) N=46 (9,9/9,11,13,13) 15.00 O6/12/2016 D33 - - - - - - - - - - - - - - - - - - -	no. Depth TESTS PRORESS Type/ VUT28 Depth Type/ No. Tests B PRORESS U128 -	Depth TESTS B FROGRESS Easing (05 mE) S TESTS B E Date Time Casing Date Time Date Ti	Base of Communities Agency Base of Cost metry Subsection Subsection<	And Communities Agency Easing 105 mE Working 105 mE	Easing (S m.) Easing (S m.) Easing (S m.) Solution (S m.) Mean-mathematical (S m.) Mean-mathematical (S m.) Mean-mathematical (S m.) Solution (S m.) <th colspan<="" td=""><td>Diameter Description Meeting (05 mV) East (05/1 IS TESTS gg PROGRESS STRATA IV Deph Type/ No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Strata Strata Strata Strata St</td><td>Data Build Communities Agency Description Description Description Lagend SS TESTS 3 State Control STRATA STRATA Lagend Lagend</td><td>Diameter Method Communities Agency Description Bod Mathematics Description Descrip</td><td>Description Description Description</td></th>	<td>Diameter Description Meeting (05 mV) East (05/1 IS TESTS gg PROGRESS STRATA IV Deph Type/ No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Strata Strata Strata Strata St</td> <td>Data Build Communities Agency Description Description Description Lagend SS TESTS 3 State Control STRATA STRATA Lagend Lagend</td> <td>Diameter Method Communities Agency Description Bod Mathematics Description Descrip</td> <td>Description Description Description</td>	Diameter Description Meeting (05 mV) East (05/1 IS TESTS gg PROGRESS STRATA IV Deph Type/ No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Deph No. Results gg PROGRESS STRATA IV Strata Strata Strata Strata St	Data Build Communities Agency Description Description Description Lagend SS TESTS 3 State Control STRATA STRATA Lagend Lagend	Diameter Method Communities Agency Description Bod Mathematics Description Descrip	Description Description

BH1110

Project Northsto Client	we Pl	hase 2						Project No. UA008426-01 Easting (OS mE)	Ground Level 9.64 Northing (OS r	(mAOD) mN)	Start Date 08/12/2 End Date	2016	Sca 1:5	le 50	-60
Homes a		ommun	nies Ag	lency				540940.77	200150.9	9	09/12/2	2016	50	eet 1	
SAMPL Depth	.ES Type/	/ Depth	TE Type/	ESTS	Water Strikes	PROGF Date Time	RESS Casing		STF	RATA	L	eaend	Depth (Thickness)	Level	Insta Backt
0.00 - 1.00	NO. B1 D3	-	NO.			08/12/2016 11:00	0.00	Grass over soft, silty	sandy CLAY wit	h frequent root and r	ootlets.		(0.20)		a
0.20	D4 ES	-						Soft to firm, orangish	n brown, sandy s	lightly gravelly CLAY	with		0.20	9.44	
0.20 - 0.40	ES2	_						occasional roots and rounded, fine to coar	l rootlets. Gravel rse of sandstone	is sub-angular to sul	b-		-		
		-						[RIVER TERRACE [DEPOSITS]						1 H
1.00	B20	-									Ľ			_	
1.00 - 1.50	В	-									-		(1.70)		21
		-												-	
1.50 - 1.73	UT5	-									_		-	-	
		-												-	
2.00	в	-			\square			Loose, orangish brow	wn, sandy GRAV	EL. Sand is fine to c	oarse.		1.90	7.74	
2.00 2.00 - 2.20	D6 ES8	-						Gravel is sub-angula sandstone.	ar to rounded, find	e to coarse of flint an	id i			-	ĿЦ
2.00 - 2.50	B7 FW2	-						[RIVER TERRACE [DEPOSITS]			•		-	
2.40	2112	-											-	-	H
		-												-	ĿД
·3.00 - 3.45	В9	- 3.00	SPT(S)	N=9 (1,1/2,2,2,3)								•	(2.00) -	-	
3.20	ES	-												-	
3.20 - 3.40	ES10	-													·H
3.50 - 4.00 3.60	B11 EW1	-							Tending to sligh	tly clayey very sandy	gravel.	• • •	-	-	ĿД
	D 40	F									2 - 10 - 10 - 10				
3.90 4.00 - 4.50	B14	F						Soft, orangish grey,	slightly sandy slig	ghtly silty gravelly CL	AY.		(0.30)	5.74	71
4.20	D13	-						Very soft to soft, are	vish brown, sligh	tly silty CLAY.	×.		4.20	5.44	11
4.30 - 4.50	ES15	4 50						[RIVER TERRACE [DEPOSITS]						12
4.50 - 4.95	БЮ	- 4.50	5P1(5)	N=4 (1,0/1,1,1,1)							<u> </u>		(0.80)	-	
		E									E.				12
5.00	D17	E						Stiff. dark grev. silty	CLAY.			<u> </u>	5.00 -	- 4.64	
5.00 - 5.50 5.10 - 5.30	ES19	E						[KIMMERIDGE CLA	Y FORMATION]			; 			11
		-									×.	- <u>-</u> -		-	
		E									×.				1
											×.				1
6.00 - 6.45	B20	6.00	SPT(S)	N=21 (2,3/5,5,5,6)							×.		-	_	11
		-										<u>×</u>	(2.60)		1
		-										$\overline{\times}$	(2.00)	-	11
		L									Ê	×			12
		-									×.	- <u>-</u> -;			
7.00 - 7.50	B21	-									×		-	-	
		-									×			-	(/)
7.50 - 7.95	UT22	-									×	<u>×</u>	-	-	4
7.60	D23	-						Weak, grey SILTSTO	ONE.		×:	<u> </u>	7.60	2.04	F
		-						KIMMERIDGE CLA			X	<u> </u>	7.90	1.74	
8.00 - 8.50	B24	-				08/12/2016 16:30	7.50 7.50	[KIMMERIDGE CLA	Y FORMATION]		Ê	 	-	-	
		E				09/12/2016 08:00	8				Ľ.	<u>×</u>		F	
		[×.	- <u>-</u>	-	L	•
		F									×.			ļ	
9.00 - 9.45	B25	- 9.00	SPT(S)	N=24 (4,4/5667)							×.		_	Ļ	
0.40		-									×.	;			
		F									×.	<u>×</u> _		ŧ	F
		- -									The second secon	_ <u>×</u> _	-	ł	77
		F										\times		ŧ	[]]
0.00 - 10.50	B26	-									Ê	×	-	-	[]]
						L	L		NS	HOI F/CASINI		R	\\/∆T⊏	R ADD	ED.
From	То	T	уре	Hard Strata From To	Duratio	on Date/Ti	ime S	Strike At Time Elapsed Rise	e To Casing Seal	ed Hole Dia. Depth C	asing Dia. De	pth	From		/olume (l
0.00 1.20 1	1.20 5.45	Inspe Cable P	ction Pit ercussion			08/12/2016	5 12:30	2.00 20 1.	60 1.50 5.00	0 300 1.20 200 15.00 50 15.45	200 7.1	50			
emarks															
15 (1.50-1 T22 (7.50- T27 (10 5-	1.73) - 5 -7.95) - 0-10 95	0% recove No recove	ery, 21 blo ery, 100 blo ecovery 5	ws. ows. 3 blows											
T32 (13.5	0-13.95) - 100% re	ecovery, 6	5 blows.									Term	ination D	epth:
														15.4	5m
Arcadi	s Cymru House	Unless	otherwis	e stated:		Equipme	ent Used		Contractor			Log	gged By	Check	ed By
RC St Mell Park Cardiff	ons Business	Depth (m), Diam	eter (mm), Time (hl	hmm),	Dando	2000		Arcadis C	Consulting (UK) L	.td.	sc	2	АМ	



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Project Northsto Client Homes a	we P	hase 2 ommuni	ties Ac	iencv					Project No. UA008426-01 Easting (OS mE) 540940.77	Ground Level (mA 9.64 Northing (OS mN) 266158.99	OD) Start I 08/1 End D 09/1	Date 2/2016 Date 2/2016	Sca 1: Sł	^{ale} 50 neet 2	of 2
SAMPI	FS		TF	-STS		۲ ۵	PROGE	RESS		STRAT					
Depth	Туре	/ Depth	Type/	Page	ulte	Vater	Date Time	Casing		Description	n	Legend	Depth (Thickness)	Level	Install/ Backfill
-10.50 - 10.95	No.		No.			- 0		Water	Stiff, dark bluish grey [KIMMERIDGE CLA)	, silty CLAY. / FORMATION]					
- 11.00 - 11.00 - 11.50 - - - - - - - - - - - - - - - - - - -	D28 B29 D30	- - - - - - - - - - - - - - - - - - -	SPT(S)	N=24 (4,5/5,6	5,6,7)										
- - - - - - - - - - - - - - - - - - -	B31												(7.10)		
-13.50 - 13.95 - - - - - - - - - - - - - - - - - - -	UT32 D33													+ + + + + + + + + + + + + + + + + + + +	
-14.50 - 15.00 -	B34	-	007/01											+	
-15.00 - 15.45 -	D35	- 15.00 - - -	5P1(5)	for 0mm)	65mm/0		09/12/2016	7.50	Weathered, grey SIL [KIMMERIDGE CLA]	TSTONE. (FORMATION]			(0.45) 15.45	-5.36	
DR				L C Hard	HISELLIN	NG		V		NS		TER	WATE	R ADD	ED
From 0.00 1 1.20 1	10 1.20 5.45	Ty Inspec Cable Pe	rpe tion Pit ercussion	From	То	Duratio	n Date/T 08/12/2016	ime S 3 12:30	Strike At Time Elapsed Rise 2.00 20 1.6	Io Casing Sealed F i0 1.50 5.00 Image: sealed F	Hole Dia. Depth Casing Dia. 300 1.20 200 200 15.00 200 50 15.45 0	Depth 7.50	From	10	/olume (ltr)
Remarks UT5 (1.50-1 UT22 (7.50- UT27 (10.50 UT32 (13.50	.73) - 5 7.95) - 0-10.95 0-13.95	0% recove No recove) - 100% re) - 100% re	ry, 21 blo ry, 100 bl covery, 5 covery, 6	ws. ows. 3 blows. 5 blows.									Term	ination D	Depth:
														15.4	5m
Arcadis St Mello Park Cardiff CE3 APN	s Cymru Hous ons Business Y	 Unless Depth (I 	otherwis n), Diam	e stated: eter (mm), T	Time (hhr	nm),	Equipme Dando	ent Used		Contractor Arcadis Con	sulting (UK) Ltd.	Lo S'	igged By	Check	ed By



roject Northstor lient Nomes a	we Pl nd Co	nase 2 ommuni	ties Ag	jency					Project No. UA008426-01 Easting (OS mE) 540700.56	Ground Level (mAC 9.48 Northing (OS mN) 266151.06	D) Sta 30 En 0	art Date 0/11/2016 Id Date 1/12/2016	Sca 1: SI	^{ile} 50 neet 1	of 2
SAMPL	ES		TE	ESTS		es	PROGR	RESS		STRATA			Denth		Inotal
Depth	Type/ No.	Depth	Type/ No.	Resul	Its	Vvati Strik	Date Time	Casing Water		Description		Legend	(Thickness)	Level	Back
0.20 0.20 0.20 - 0.30 0.40	D1 ES ES1 D2	-					30/11/2016 13:00	0.00	Grass over stiff, bro is fine to coarse. [TOPSOIL] Firm to stiff, light to occasional roots. Sa fine to coarse of film	wn, sandy CLAY with dark brown, slightly sa ind is fine to coarse. (roots and rootlets. Sa andy gravelly CLAY w Gravel is sub-angular,	ind Market Market	(0.20) 0.20	9.28	
1.00 1.00 1.00 - 1.10 1.20 1.50 - 1.95	B3 ES ES2 EWW2 D4	- - - - - - - - - - - - - - - - - - -	SPT(S)	N=18 (3,4/4,4,	5,5)					DEPOSITSJ			(1.50)		
1.70 2.00 - 2.10	D6 ES3	- - -							Soft, light grey, silty [RIVER TERRACE I	CLAY. DEPOSITS]		×	1.70 (0.70)	7.78	
2.40 2.40 2.50	D8 EWW1	- - -							Soft to firm, brownis	h grey, silty CLAY.			2.40	7.08	
3.00 3.00 - 3.41	B9 UT10	- - - - - -					01/12/2016 09:00 30/11/2016 17:00	3.00 3.00 3.5	[RIVER TERRACE	DEPOSITSJ			(2.00)		
3.50 3.90 4.00	D11 D12 D13	- - - - - -			-										
4.40 4.50 - 4.60 4.50 - 4.95 5.00 - 5.70	D14 ES4 B15 B16	- 4.50 	SPT(C)	N=14 (2,3/3,3,	4,4)	\checkmark			Medium dense, grey coarse. Gravel is su [RIVER TERRACE I	r, clayey sandy GRAV b-angular, fine to coar DEPOSITS]	EL. Sand is fine to se of flint.		4.40	5.08	
5.70	D17	- - - -											5.70	- - - - 3.78	
6.00 - 6.10 6.00 - 6.45 7.00 - 7.50	ES5 D18 B20	- 6.00 	SPT(S)	N=27 (2,4/5,7,	7,8)	5.70			Stiff, dark grey, silty [KIMMERIDGE CLA	CLAY. Y FORMATION]					
7.50 - 7.95 8.00 8.00 - 9.00	UT21 D22 B23	- - - - - - - - - -													
9.00 - 9.45	D24	- - - - - - - - - - -	SPT(S)	N=18 (3,4/4,4,	5,5)										
10.00	D26	- - - -												+ + +	
DR		TECHNIQ		CH Hard S		Burntic	0	v		NS	HOLE/CASING DIA		WATE		ED
0.00 1 1.20 15	.20 5.45	Inspec Cable Pe	tion Pit ercussion	From	То	Juratio	" Date/T 01/12/201	ime S 6 10:00	4.40 20 1.	80 4.00 5.20	Sector Depth Casing L 300 1.20 200 200 15.00 50	6.00	FIUM		oume (
marks F10 (3.00-: F21 (7.50- F27 (10.50 F33 (13.50	3.41) - 1 7.95) - 0-10.95) 0-13.95)	90% recov 100% reco) - 100% re) - 100% re	ery, 30 bl overy, 32 l ecovery, 3 ecovery, 4	ows. blows. 7 blows. 9 blows.	I								Tern	nination D	Depth: 5m
Arcadis St Mello Park Cardiff	Cymru House ns Business	Unless Depth (r	otherwis n), Diam	e stated: eter (mm), Ti	ime (hhmr	n),	Equipme Dando	ont Used		Contractor Arcadis Cons	sulting (UK) Ltd.	Lo A'	igged By W	Check	ed By



BH1111

Project Northsto Client	we P	hase 2							Project No. UA008426-01 Easting (OS mE)	Ground Level (m 9.48 Northing (OS ml	nAOD) N)	Start Da 30/1 1 End Da	ate 1/2016 te	Sca 1:	le 50	
Homes a	nd C	ommuni	ities Ag	jency					540700.56	266151.06	··/	01/12	2/2016	St	eet 2	of 2
SAMPL	ES		TE	ESTS		tter kes	PROGE	RESS		STRA	ATA			Depth		Install/
Depth	Type No.	Depth	No.	Res	ults	Stri	Date Time	Casing Water		Description			Legend	(Thickness)	Level	Backfil
		-							Stiff, dark grey, silty [KIMMERIDGE CL	/ CLAY. AY FORMATION]			×		ł	
10.50 - 10.95	UT27	_											× 		ļ	
		-											× 		ł	
- 11.00 11.00 - 12.00	D28 B29	F											×	-	F	
		-											× × :		ŧ	
		-											<u></u>		ł	
		-											<u>×_</u>		İ	
12.00 - 12.45	D30	— 12.00 -	SPT(S)	N=29 (4,5/6,	7,8,8)								<u></u>	-	÷	
													<u>×_</u>	(9.00)	ţ	
		-											<u>×_×</u> _	(0.00)	ł	
													<u>×_</u>		İ	
43.00 - 13.50	B32	-											×	-	÷	
													<u>×_</u>		ţ	
13.50 - 13.95	UT33	-											×		ł	
													×		İ	1.11
- 14.00 14.00 - 14.70	D34 B35	-											×	-	ł	
													×		ļ	
	Dag	-											×	44.70		
14.70	D36								Very weak, light gro	ey, weathered SILTS	STONE.		× × × × × × × × × × × ×	(0.30)	-5.22	
- 15.00 15.00 - 15.45	B37 D38	— 15.00 -	SPT(S)	N=38 (6,7/8,	9,10,11)				Very stiff, dark bluis	sh grey, silty CLAY.			<u> </u>	15.00 -	-5.52	
										AY FORMATION]			×	(0.45)	İ	
-		-					01/12/2016 17:00	6.00 15.00					^	15.45	-5.97	
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٩IJ					HISFUL	NG		v	VATER OBSERVATIO	ONS	HOI F/CASI	NG DIAME	 TER	WATE	R ADD)ED
From	То	Ty	/pe	Hard	Strata	Duratio	n Date/T	ime S	trike At Time Elapsed R	ise To Casing Sealed	Hole Dia. Depth	Casing Dia.	Depth	From		Volume (Itr)
0.00 1 1.20 1	1.20 5.45	Inspec Cable P	cuon Pit ercussion				01/12/2010	5 10:00	4.40 20	1.00 4.00 5.20	200 1.20 200 15.00 50 15.45	200	00.0			
Remarks																
JT10 (3.00-	-3.41) -	90% recov	very, 30 bl	OWS.												
JT27 (10.50 JT27 (10.50	0-10.95) - 0-10.95) - 100% reco	ecovery, 32 l	7 blows.										-	inoti	Donth
13.50	5-13.95) - 100% re	covery, 4	ิษ มเบพร.										lerm	15 4	.5m
		- ماهال	other	o ototodi			Fauipma	antlied		Contractor			10	aged By	Check	ked By
Arcadis St Mello Park Cardiff	ons Business	Depth (m), Diam	eter (mm),	Time (hh	mm),	Dando	2000		Arcadis Co	onsulting (UK)	Ltd.	A	w	AM	,



Arcadis Consulting (UK) Ltd.

BH1112

Project Northsto Client Homes a	we Pl nd Co	hase 2 ommuni	ties Ag	ency					Project N UA00 Easting 5408	No. 8426-0 (OS mE) 51.75	1	Ground Leve 9.24 Northing (OS 266298.0	el (mAO 6 mN) 65	D)		Sta 02 En 02	art Date 2/12/ nd Date 2/12/	2016	Sca 1: Sł	^{ile} 50 neet 1	of 2
SAMPL	ES		TE	STS		er	PROGF	RESS				ST	TRATA						Death		Inctall/
Depth	Type/ No.	Depth	Type/ No.	Resu	llts	Wate Strike	Date Time	Casing Water	9			Descript	tion				I	Legend	Depth (Thickness)	Level	Backfill
_ 0.00 _ 0.00 - 1.00 _ 0.00 - 1.00 - 0.20 - 0.30 - - - - -	ES B1 ES2 D19 D20	- - - - - - - - -							Grass occasi Grave litholog TOP Brown Grave litholog [RIVE]	over brov onal rootl l is sub-ar gies. SOIL] , slightly o l is sub-ar gies. R TERRA	vn, slight ets (up tr ngular to clayey sa ngular to .CE DEP	ly clayey sl o 2mm thick sub-rounde indy GRAVI sub-rounde OSITS]	ightly g k). Sar ed, fine EL. Sa ed, fine	nd is fi to coa nd is fi to coa	y SANI ne to c arse of ne to c arse of	D with oarse. mixed coarse. mixed	<u>`^ 4. ^ 4. ^ 4. ^ 4. ^ 5</u>		(0.50) 0.50 (1.00)	8.74	
- - - - 1.50 - 1.50 - 1.95 - 1.50 - 1.95 - - - - - -	ES B3 D21 ES4	- - - - - - - - - - - - - - - - - - -	SPT(C)	N=27 (6,7/7,6	5,7,7)	1.20			Mediu slightly angula [RIVEI	m dense, / silty GR Ir to sub-r R TERRA	becomir AVEL. Sa ounded, CE DEP	ig loose, ora and is fine t fine to coar OSITS]	angish to coars rse of r	browr se . Gr nixed	i, sligh avel is litholog	tly sandı sub- ies.	نين م ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب		1.50	7.74	
- - - - - 3.00 - 3.45 - 3.00 - 3.45 - 3.10 - -	EWW1 B5 D22 EWW2	- - - - - - - - - - - - - - - - - - -	SPT(C)	N=12 (2,2/3,3	3,3,3)	1:20						Tending	g to cla	yey ve	ry grav	elly sand	d.			* * * * * * * * * * *	
- - 	B6	- - - - -															• • •		(5.30)		
- 4.50 - 4.95 -	D23	- 4.50 -	SPT(C)	N=9 (1,1/2,2,2	2,3)	1.20											•			ļ	
- 	В7	- - - - - - - -															• • • • • • •				
- 	B8 D24	- - 6.00 - - - - -	SPT(C)	N=16 (3,3/3,4	,4,5)	1.20			Beco	ming grey	E , sandy g	Blowing sand Iravel with o	d from occasio round	6.00m nal sub ed cob	, rising o-angul bles of	to 2.00n ar to sub siltstone	n. b- e.				
- 6.80 - 7.00 - 7.45 - 7.00 - 7.45 - 7.00 - 7.45	D25 B9 ES10	- - - - -							Stiff, d siltstor [KIMM	ark bluish ne (up to 3 ERIDGE	n grey, sil 3cm in w CLAY F0	ty CLAY wit idth). DRMATION	th occa	isional	grave	of fine			6.80	2.44	
- 7.50 - 7.95 - - - - - - - - - - - 8.00 - 8.00 - 8.00 - 8.45 - - -	D27 D28 B11	-															<u> </u>				
- - 9.00 - 9.45 - 9.00 - 9.45 - - - - -	B12 D29	- - - - - - - - - - - - - - -	SPT(S)	N=19 (2,3/4,4	,5,6)																
_ 10.00 - 10.45 	B13	-																		-	
DR		TECHNIQ	UE	C	HISELLIN	NG	-		WATER	OBSERV/				HOLI	E/CAS	ING DIA	METE	R	WATE		ED
From 0.00 1 1.20 1	10 1.20 5.45	Ty Inspec Cable Pe	tion Pit ercussion	From 14.10	To 14.30	Duration 00:15	n Date/Ti 02/12/2016	me 5 3 13:00	3.00	me Elapsed 20	Rise To 2.00	Casing Sea	aled Ho	ie Dia. 300 200 50	Depth 1.20 15.00 15.45	Casing D 200	ла. D	repth 7.50	+rom 1.20 3	10 \	70 70
Remarks UT26 (7.50- UT30 (10.50 UT33 (13.50	7.95) -)-10.95)-13.95	100% reco) - 100% re) - 100% re	very, 47 b covery, 5 covery, 6	blows. 1 blows. 6 blows.		<u> </u>													Terr	ination D	eepth: 5m



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VP

BH1112

Project Northsto Client Homes a	we Pl nd Co	hase 2 ommuni	ities Ac	iencv				Project No. UA008426-01 Easting (OS mE) 540851.75	Ground Level (m/ 9.24 Northing (OS mN 266298.65	NOD) S	Start Date)2/12/2016 End Date)2/12/2016	Sca 1:5 Sh	^{le} 50 leet 2	of 2
SAMPI	FS	1	Т	-575		PROGE	PESS		STRAT					
Depth	Type/ No.	Depth	Type/ No.	Results	Water Strikes	Date Time	Casing Water		Description		Legend	Depth (Thickness)	Level	Install/ Backfil
-10.50 - 10.95	UT30	-						Stiff, dark bluish grey siltstone (up to 3cm i [KIMMERIDGE CLA)	r, silty CLAY with oc n width). Y FORMATION]	casional gravel of fine			-	
- 11.00 11.00 - 11.45	D31 B14	-									× ×	- - - - - - - - - - - - - - - - - - -		
- 1 2.00 - 12.45 12.00 - 12.45	B15 D32	- - - - - - - - - - - - - -	SPT(S)	N=25 (4,5/5,6,7,7)								(7.30)	+ + + + + + + + + + + + +	
- 43.00 - 13.45	B16													
13.50 - 13.95 - 14.00	UT33 D34	- - - -											* * * * *	
14.00 - 14.45	B17							Weathered, grey SIL [KIMMERIDGE CLA]	TSTONE. (FORMATION]		× × × × × × × × × × × × × × × × × × ×	14.10 (0.30) 14.40	-4.86 -5.16	
- 15.00	D35	 - - - - - 15.00	SPT(S)	N=30 (4,6/6,7,8,9)				Kimmeridge CLA	grey, silty CLAY. / FORMATION]			(1.05)	- - - - -	
15.00 - 15.45 _ 15.45	B18 D36	- - -									×	15.45	-6.21	
		-										-	+ + + + +	
													* + + * *	
-												-	+- + + + + +	
-		- - -										-	- - - - -	
		- - - -											+ + + + +	
-		-										-	+ + + + + + + +	
-		-										-	+ + + + +	
DR	 ILLING			CHISELL	.ING		۱	 WATER OBSERVATIO	vs	HOLE/CASING D		WATE	R ADDI	ED
From 0.00 1 1.20 1	To .20 5.45	Inspec Cable P	ype ction Pit ercussion	Hard Strata From To 14.10 14.30	Duratio 00:15	Date/Ti 5 02/12/2016	me 5 3 13:00	Strike At Time Elapsed Rise 3.00 20 2.0	To Casing Sealed	Hole Dia. Depth Casing 300 1.20 200 200 15.00 50	Dia. Depth 0 7.50	From 1.20 3	To \	/olume (ltr) 70
Remarks JT26 (7.50- JT30 (10.50 JT33 (13.50	7.95) -)-10.95)-13.95	100% reco) - 100% re	overy, 47 l ecovery, 5 ecovery, 6	blows. 11 blows. 66 blows.										
			-									Term	ination D	epth: 5m
Arcadis St Mello Park Cardiff	Cymru House ns Business	Unless Depth (otherwis m), Diam	e stated: eter (mm), Time (h	nmm),	Equipme Dando	nt Used		Contractor Arcadis Con	nsultina (UK) Ltd.	La	gged By	Check	ed By



BH1201

Project Norths Client Homes	towe P and C	hase 2 ommuni	ities Ag	jency					Project No. UA008426-(Easting (OS mE) 539243.29)1	Ground Level (14.87 Northing (OS m 264744.41	mAOD) NN)	Start 14/ End I 15/	Date 2/2016 Date 2/2016	Sca 1:5 Sh	^{le} 50 leet 1	of 3
SAM	PLES		TE	ESTS		s S	PROG	RESS). I	STR	ATA					
Depth	Type No.	e/ Depth	Type/ No.	Resu	lts	Wate	Date Time	Casing Water			Description	n		Legend	Depth (Thickness)	Level	Backfil
_ 0.00 _ 0.00 - 0.4 _ 0.10 - 0.4 - 0.40 - 0.9 - 0.50 - 0.60 - 0.8	ES 0 B4 0 ES1 0 B5 D13 0 ES2	- - - - -					14/12/2016 13:00	0.00	Grass and turf gravelly CLAY. medium of flint <u>TOP SOIL</u> Soft to firm, ora	over soft t Sand is fir	o firm, brown ne to medium wn mottled g	n, slightly sand n. Gravel is rou rey, slightly gra	y slightly inded, fine to avelly CLAY.	312	(0.40)	14.47	
-		-							[RIVER TERR	ACE DEPO	SUD-rounded, DSITS]	Tine to mealu	m of filnt.		(0.60)	ļ	
	0 B6 0 ES3 D14 UT10 0 B10 0 ES7 0 B11 0 ES8 D15	- 1.20 - 1.20 	SPT(S)	N=9 (1,2/2,2,2	2,3)				Loose, orangis occasional poo IRIVER TERR Firm, light grey fine to coarse. IRIVER TERR Firm, dark grey occasional gyp	h brown, c kets of gre ACE DEP(mottled o ACE DEP(mottled y sum cryst	clayey fine to ey, silty clay. DSITS] range, slightl DSITS] rellow, slightly als. Gravel is	coarse SAND y sandy silty C y gravelly silty sub-angular to	with CLAY. Sand is CLAY with o sub-		1.00 - (0.20) - 1.20 - (0.20) - 1.40 -	- 13.87 13.67 13.47	
-		-							[RIVER TERR	COARSE O	of mixed lithol OSITS]	ogies.				+	
- 2.50 - 3.0 - -	0 B12	- - -													(2.20)	+ + + +	
- 3.00 - 3.00 - 3.4 -	U1 5 UT1	-					14/12/2016 17:00 15/12/2016 09:00	2.50 2.50							-	+ +- + + +	
- 3.50 - 3.60 - 4.0 - 3.70 - 3.9 -	D4 0 B7 0 ES9	 - - -							Firm to stiff, gro siltstone, shells [KIMMERIDGE	ey, fissure and shell CLAY FC	d, silty CLAY I fragments.)RMATION]	with occasion	al gravel of	×	3.60	11.27	
- - - - 4.50	D5	- - - - 4.50	SPT(S)	N=10 (1,2/2,2	,3,3)											+- + + + +	
- 4.50 - 5.0 - - - - -	0 88	- - - -												× ×	-	+ + + + +	
- - - 5.50 - 5.50 - 6.0	D6 0 B9	- - - -													(4.00)	* + + + +	
- 	5 UT2	-															
- 6.50 - 6.50 - 7.0 - - -	D7 0 B10	- 														+ + + + + + +	
- - - 7.50 - 7.60 - 7.9	D8 0 B11	- - - - 7.50	SPT(S)	N>50 (5,20 fo 25mm/50 for	r 35mm)				Grey SILTSTO	NE.				×	7.60	7.27	
- ī		-							[KIMMERIDGE Stiff to very stif	CLAY FC	RMATION]	LAY with occa	sional gravel	× × × × × × × × × × × × × × × × × × ×	(0.30) 7.90	6.97	
- - - -	0 812	-							of siltstone. [KIMMERIDGE	CLAY FC	RMATION]		sional graver	×_×_	(0.80)		
- - Ωοη		-							Grey SILTSTO	NE.				*****	(0.20) 8.70	6.17	
- 8.80 - 9.00 - 9.00 - 9.4	U3 5 UT3	-							KIMMERIDGE Stiff to very stif of siltstone.	f, grey, fiss	ORMATION] sured, silty C	LAY with occa	sional gravel			6.17	
_ 9.50 - 9.50 - 10.0 - -	D10 00 B13	- - - -															
-		-										1		<u> </u>	-	-	26
From	DRILLING To	<u>G TECHNIC</u> Ty	<u>(UE</u> /pe	Hard From	HISELLI ^{Strata}	NG Duratic	in Date/T	ime s	VATER OBSER	ATIONS	Casing Seale	HOLE/C	ASING DIAM pth Casing Dia.	ETER Depth	WATE From	R ADDI ™ \	<u>ED</u> /olume (Itr)
0.00 1.20	1.20 25.00	Inspec Cable Pe	tion Pit ercussion	7.60 8.50 16.10	7.90 8.70 16.40	00:30 00:30 00:30	Sater					300 1.1 200 25	20 200	3.00			
Remarks				19.80	20.20	00:45											
No ground Standpipe UT1 (3.00 100 blows (24.00-24	dwater ei e piezom -3.45) - 3. UT5 (1 .45) - 10	ncountered. eter installe 100% recov 5.00-15.45) 0% recover	d to 13.00 'ery, 38 bl) - 100% r y, 100 blo)m bgl (base ows. UT2 (6. ecovery, 100 ws.	of tip). F .00-6.45) blows. I	Pluviateo) - 100% UT6 (18	d sand resp recovery, (.00-18.45)	onse zoi 68 blows - 100% r	ne from 12.00m f 5. UT3 (9.00-9.45 recovery, 100 blo	o 14.00m) - 100% r ws. UT7 (2	bgl. ecovery, 100 21.00-21.45)	blows. UT4 (1 - 100% recove	2.00-12.45) - ery, 100 blows	100% reco . UT8	overy,	ination D	epth:



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Contractor

BH1201

Home and Communities Agency Total of the product of the	Project Northsto Client	we Pl	hase 2							Project No. UA008426-01 Easting (OS mE)	Gr 14 No	ound Level (r 1.87 rthing (OS m	mAOD) nN)		Start 14/1 End E	Date 2/2016 Pate	1	:50		
Stature Tende <	Homes a	nd Co	ommuni	ities Ag	ency					539243.29	26	64744.41			15/1	2/2016	<u> </u>	Sheet 2	2 of	3
Inter Via Data (h) Via Result 2 € 0 Data (h) Data (h) Logo(h) Logo(h) Data (h)	SAMPL	.ES	,		STS		ater ikes	PROGF	RESS			STR	ATA				Depth	Leve	Ins	stall/
1000 100 10000 1000 1000 <th< td=""><td>Depth</td><td>No.</td><td>Depth</td><td>No.</td><td>Resu</td><td>ilts</td><td>≥₽</td><td>Date Time</td><td>Water</td><td>011111</td><td>.</td><td>Description</td><td>n</td><td></td><td></td><td>Legend</td><td>(Thicknes</td><td>ss)</td><td>ва</td><td>сктш</td></th<>	Depth	No.	Depth	No.	Resu	ilts	≥₽	Date Time	Water	011111	.	Description	n			Legend	(Thicknes	ss)	ва	сктш
13.8 0.9 5713 No.9 (4.85.8.7.7) Image: Disc (4.87.8.7.7) Ima	E		-							of siltstone.			LAY WITH	occasio	nai gravei			ŧ		
Image: No. 100 Image:	- 10.50	D11 B14	- 10.50	SPT(S)	N=25 (4,4/5,6	6,7,7)				KIMMERIDGE C	LAY FOR	MATIONJ						ŧ	1	
1 0	-	014	-													×		÷		
1.50 107 108 <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>×</td> <td></td> <td>÷</td> <td></td> <td></td>			-													×		÷		
11.156 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 107 11.00 1	-		-													×		ţ		
1.30 0.30 1.30 0.37 1.30 1.30 0.37 1.30 0.37 1.30 0.37 1.30 1.30 1.30 1.30 1.30 1.30 1.30 <td< td=""><td>- 11.50</td><td>D12</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td></td><td>÷</td><td></td><td></td></td<>	- 11.50	D12	-													×		÷		
263 - 326 UT 128 87(8)	- 11.50 - 12.00	B15	-													×		Į		
1300 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 130 00 100 <t< td=""><td>- -12.00 - 12.45</td><td>UT4</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>\times</td><td>-</td><td>÷</td><td>//</td><td></td></t<>	- -12.00 - 12.45	UT4	-													\times	-	÷	//	
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1289-1800 868 13.00 971 13.00 9715 N-57 (4.8.8.9.10.10) 1	12.50	D13	-													\mathbf{x}	-	÷		
	-12.50 - 13.00	B16	-													$\overline{\times}$	-	ł	Ŷ	
13.50 0/1 13.50 0/15 13.50 0/15 1.50 13.50 10/1 13.50 0/15 1.50 1.50 1.50 14.00 0/15 1.50 0/15 1.50 1.50 1.50 14.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 10/15 1.50 1.50 1.50 1.50 1.50 15.00 1.50 1.50 1.50 1.	-		-													$\overline{}$	-	+		<u> </u>
1300 0.17 1308 SPT(S) NeST (4.88.9.0.10) 1 <th1< th=""> <th1< th=""> <th1< th=""> <th1< td=""><td>-</td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2 (7.40)</td><td>ŧ</td><td></td><td></td></th1<></th1<></th1<></th1<>	-		-														2 (7.40)	ŧ		
13.55 - 14.00 B17 F F F F F F F F F F F F F F F F F F F	- 13.50	D14	- - 13.50	SPT(S)	N=37 (4.8/8.9	.10.10)										\mathbf{x}	2	Į		
14.00 15.00 013 013 013 15.00 100 013 013 15.00 100 013 013 013 15.00 100 013 013 013 013 013 15.00 100 013 013 013 013 013 013 013 013 013	-13.50 - 14.00 -	B17	-	- (-)												× ×		ţ		
14 50 015 1500 015 1 <t< td=""><td>-</td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td><u></u></td><td>-</td><td>ļ</td><td></td><td></td></t<>	-		-													<u></u>	-	ļ		
14.50 0.15 1<	-		-													<u></u>	-	ţ		' /`
14:50 15:00 15:6 15:00 15:7 15:00 1	- 14.50	D15	-													×_×	-	Ì	1	///
15.00 15.00 US 15.00 >15.00 US 15.00 </thus 	-14.50 - 15.00	B18	-													<u></u>	-	-	1	
15:00-15:46 D16 1 1 22 2 2 2 2 2 1 15:00 1 12:20 1 16:10 1 12:20 1 16:10 1 12:20 1 16:10 1 12:20 1 16:10 1 12:20 1 16:10 1 12:20 1 16:10 1 12:20 10:10 1 1:10 1 1:10 1:10 1:10 1:10 1:10 1:10 1:10 1:10 1	15.00	115	-													<u></u>	-	Ţ	1	
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15.00 10.00 10.00 10.00 10.00 10.00 10.00 1.23 15.00 10.00 10.00 10.00 10.00 1.23 10.10 1.23 15.00 10.00 10.10 1.23 10.10 1.23 10.10 1.23 15.00 10.00 10.21 10.00 10.00 1.23 10.00 1.23 15.00 10.00 10.22 10.00 10.00 1.23 10.40 1.23 15.00 10.00 10.22 10.00 10.00 1.23 10.40 1.23 15.00 10.00 10.22 10.00 10.00 1.23 10.40 1.23 15.00 10.00 10.23 10.00 10.00 1.23 10.40 1.23 15.00 10.00 10.23 10.00 10.00 10.00 1.23 10.40 1.23 15.00 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20 10.20	-	DIG	-													<u></u>	-	ţ	11	///
16.10 - 18.40 B20 N=41 (4,87,9,11,14) Image: Clark product of the state of the stat	- 15.50 -15.50 - 16.00	D16 B19	-													<u></u>	-	Ŧ		
18.10 - 18.40 B20 Image: Superstand State	-		-													<u></u>	-	ł		
15.00 15.50 17.00 15.50 15.50 17.00 SPT(S) N=41 (4.87, 9, 11, 14) Image: Figure	-16.10 - 16.40	B20								Grev SILTSTONE							16.10	-1.2	3	///
-16.50 D17 16.50 SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=41 (4,8/7,9,11,14) Image: SPT(S) N=40 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) N=50 (4,8/7,9,11,14) Image: SPT(S) d=""><td>-</td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td>[KIMMERIDGE C</td><td>LAY FOR</td><td>MATION]</td><td></td><td></td><td></td><td>*****</td><td>(0.30)</td><td>-1.5</td><td>3</td><td>//</td></td<>	-		-							[KIMMERIDGE C	LAY FOR	MATION]				*****	(0.30)	-1.5	3	//
17.50 D18 D19 T	- 16.50 -16.50 - 17.00	D17 B21	- 16.50 -	SPT(S)	N=41 (4,8/7,9	0,11,14)				siltstone.	sured, sin		th occasi	ional gra	vel of	<u></u>		+		
Image: constraint of the second sec			-								LAY FOR	MATIONJ				<u>×_×</u>		ł	1	///
- 17.50 D18 - 17.50 D18 - 18.50 D18 - 18.50 D19 - 19.50 D19 D19 D19 D19 D19 D19 D19 D19 D19 D19 D19 D19 D19 D19 D19<	-		-													<u>×_×</u>		÷		//
17.50 D18 Image: Second s			-													×_×_	-	ŧ		·//
18.00 - 18.45 UT6 -	- 17.50 -17.50 - 18.00	D18 B22	-													×_×_	-	ţ		
48.00 - 18.45 UT6 -	E		-													<u>×_</u>		ŧ		//
18.50 D19 19 19.50 SPT(S) N>50 19.50 19.50 19.50 SPT(S) N>50 Image: String All Str	48.00 - 18.45	UT6	-													×_×_	(3.40)	Ŧ		//
18.50 D19	-		-													×		ŧ		
10:00 Note Image: Second second	- 18.50 - 18.50 - 19.00	D19 B23	-													×	~	ŧ		//
- 19.50 D20 19.50 SPT(S) N>50	-		-													×	-	ţ		//
19.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 <td< td=""><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td></td><td>÷</td><td></td><td>' </td></td<>			-													×		÷		'
19.50 D20 19.50 SPT(S) N>50 (8,12/13,13,14,10 for 45mm) (9,12/13,13,14,10 for 45mm) 19.80 - 20.20 B25 19.80 SPT(S) N>50 (8,12/13,13,14,10 for 45mm) 19.80 4.93 19.80 - 20.20 B25 19.80 SPT(S) N=50 (9,40) 19.80 4.93 19.80 - 20.20 B25 19.80 SPT(S) N=100 SPT(S) (0,40) 19.80 19.80 - 20.20 B25 19.80 SPT(S) N=100 SPT(S) (0,40) 20.20 -5.33 DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED 10.00 1.20 Inspection Pit 7.60 7.90 00:30 10 10 10 120 200 3.00 120 200 3.00 10	-		-													×		ţ	1	·//
19.50 - 19.80 B24 (8,12/13,13,14,10 for 45mm) (8,12/13,13,14,10 for 45mm) (8,12/13,13,14,10 for 45mm) (8,12/13,13,14,10 for 45mm) (9,12/13,13,14,10 (9,12/13,12,12) (9,12/13,12,12) (9,12/13,12,12) (9,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,12,12) (12,12/13,	- 19.50	D20	- - 19.50	SPT(S)	N>50											×		÷		
Gréy SILISIONE. Gréy SILISIONE. XXXXX (0.40) Image: Strate in the strate i	-19.80 - 20.20	B24 B25	-		(8,12/13,13,1 45mm)	4,10 tor										×	19.80	-4.9	3	
From To Type CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED From To Type From To Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia. Depth From To Volume (ttr) 0.00 1.20 Inspection Pit 8.50 8.70 00:30 00:30 300 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 200 3.00 1.20 1.20 1.80 20.20 0.30 1.20 200 3.00 1.20 2.00 3.00 1.20 2.00 3.00 1.20 2.00 3.00 1.20 2.00 3.00 1.20 1.20	-		-							[KIMMERIDGE C	LAY FOR	MATION]				*****	(0.40)	+		', /,
DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HolE/CASING DIAMETER WATER ADDED From To Type Hard Strate To Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth From To Volume (ttr) 0.00 1.20 Inspection Pit 7.60 7.90 00:30 Image: Strike At Time Elapsed Rise To Casing Depth From To Volume (ttr) 1.20 25.00 Cable Percussion 8.50 8.70 00:30 Image: Strike At Time Elapsed Rise To Casing Date/Time To Volume (ttr) 1.20 25.00 Cable Percussion 8.50 8.70 00:30 Image: Strike At Time Elapsed Rise To Casing Date/Time To Volume (ttr) 1.20 25.00 Cable Percussion 8.50 8.70 00:30 Image: Strike At Time Elapsed Rise To Casing Dia Date To Prom	-		-										-1			<u> </u>	20.20	-5.3	3	11
0.00 1.20 Inspection Pit Cable Percussion 7.60 7.90 00.30 Date rate 6.10 1.20 2.00 3.00 2.00 3.00 2.00 3.00 2.00 3.00 2.00 2.00 3.00 2.00 2.00 2.00 3.00 1.20	DR From	To	TECHNIQ	<u>UE</u> /pe	Hard		NG Duratio	00 0-1-7-	imo s	NATER OBSERVAT	IONS Rise To C	asing Sealed	HO d Hole Dia	LE/CAS	Casing Dia	Depth	WA From	TER ADI	DED Volum	ie (ltr)
16.10 16.40 00:30 Remarks No groundwater encountered. Standpipe piezometer installed to 13.00m bgl (base of tip). Pluviated sand response zone from 12.00m to 14.00m bgl. UT1 (3.00-3.45) - 100% recovery, 38 blows. UT2 (6.00-6.45) - 100% recovery, 68 blows. UT3 (9.00-9.45) - 100% recovery, 100 blows. UT4 (12.00-12.45) - 100% recovery, 100 blows. UT5 (15.00-15.45) - 100% recovery, 100 blows. UT6 (18.00-18.45) - 100% recovery, 100 blows. UT7 (21.00-21.45) - 100% recovery, 100 blows. UT8	0.00	1.20	Inspec Cable Pr	ction Pit ercussion	7.60 8.50	7.90 8.70	00:30))					300 200	1.20 25.00	200	3.00		-		
Remarks No groundwater encountered. Standpipe piezometer installed to 13.00m bgl (base of tip). Pluviated sand response zone from 12.00m to 14.00m bgl. UT1 (3.00-3.45) - 100% recovery, 38 blows. UT2 (6.00-6.45) - 100% recovery, 68 blows. UT3 (9.00-9.45) - 100% recovery, 100 blows. UT4 (12.00-12.45) - 100% recovery, 100 blows. UT5 (15.00-15.45) - 100% recovery, 100 blows. UT6 (18.00-18.45) - 100% recovery, 100 blows. UT7 (21.00-21.45) - 100% recovery, 100 blows. UT8 Termination Depth: (24.00-24.45) - 100% recovery, 100 blows.			5001011		16.10 19.80	16.40 20.20	00:30 00:45	5												
Standpipe piezometer installed to 13.00m bgl (base of tip). Pluviated sand response zone from 12.00m to 14.00m bgl. UT1 (3.00-3.45) - 100% recovery, 38 blows. UT2 (6.00-6.45) - 100% recovery, 68 blows. UT3 (9.00-9.45) - 100% recovery, 100 blows. UT4 (12.00-12.45) - 100% recovery, 100 blows. UT5 (15.00-15.45) - 100% recovery, 100 blows. UT6 (18.00-18.45) - 100% recovery, 100 blows. UT7 (21.00-21.45) - 100% recovery, 100 blows. UT8 (24.00-24.45) - 100% recovery, 100 blows. UT8	Remarks No aroundw	ater en	countered																	
100 blows. UT5 (15.00-15.45) - 100% recovery, 100 blows. UT6 (18.00-18.45) - 100% recovery, 100 blows. UT7 (21.00-21.45) - 100% recovery, 100 blows. UT8 (24.00-24.45) - 100% recovery, 100 blows. UT8	Standpipe p	iezome 45) - 1	ter installe	d to 13.00)m bgl (base ows. UT2 (6	of tip). P	luviate	d sand responses	onse zo	ne from 12.00m to 1 5. UT3 (9.00-9 45) -	4.00m bg 100% rec	gl. :overv 100	blows I	JT4 (12 ()0-12 45) -	100% reco	overv			
	100 blows. (24.00-24.4	UT5 (15 5) - 100	5.00-15.45) % recover) - 100% r y, 100 blo	ecovery, 100 ws.) blows. l	JT6 (18	8.00-18.45) -	100% r	recovery, 100 blows	UT7 (21	.00-21.45)	- 100% r	ecovery,	100 blows	. UT8	Te	rmination	Depth	:



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Contractor



Logged By

BH1201

Project Northst Client	towe P	hase 2						Project No. UA008426-01 Easting (OS mE)	Groun 14.8 Northin	d Level (mAC 7 ng (OS mN)))	Start 14/ End	Date 12/2016 Date	Sc 1:	^{ale} 50	
Homes	and C	ommun	ities Ag	jency				539243.29	264	(44.41		15/	12/2016		neet 3	of 3
SAMF		/	TI / Type	ESTS	/ater rikes	PROGE	RESS Casing	1		STRATA	A		<u> </u>	Depth (Thickness	Level	Install/ Backfill
Depth	No.	Depth	No.	Results	< <u>2</u>	Date Time	Water	Verv stiff arev fis	De sured_silty (Scription	ccasional gra	ivel of		(1110111000	,	
20.50	D21	-						siltstone.			oodoloridi gro		×		ļ	
-		-											×		ļ	[]]]
-	15 1177	-											×		1	
-	1017	-											× ×		1	
-	D22	-											× ×		ţ	
21.50	00 B26	-											$\overline{\times} \times$	2	Ţ	
-		-											××		-	
		-											××		Ī	
-		-											××		-	
- 22.50 -22.50 - 23.0	D23 D0 B27	- 22.50 -	SPT(S)	N>50 (7,7/10,13,13,14 for 60mm)									××	(4.80)	+	
Ę		-											×_×_		I	
-		-											×_×_		÷	////
-		-											<u>×</u> ×		Ī	
- 23.50 -23.50 - 24.0	D24 D0 B28	-											<u></u>		÷	
-		-											<u></u>		ţ	
- 24.00	U8	-											<u>×</u> ×		Ŧ	
-		-											<u></u>		+	
24.50	D25	_ 24.50	SPT(S)	N=55									<u></u>		ŧ	
-		-		(6,12/10,14,14,17)									<u></u>		1	
-		-				15/12/2016	3.00						<u>×</u>	25.00		<u>////</u> //
Ę		-				17:00									I	
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		G TECHNIC	QUE	CHISELL	ING		·	WATER OBSERVAT			HOLE/CAS		ETER	WATE	RADD	ED
⊢rom 0.00	10 1.20	Inspe	ype ction Pit	From To 7.60 7.90	00:30	Date/T	ime S	Strike At Time Elapsed	Rise lo Casir	ng Sealed H	01e Dia. Depth 300 1.20	Casing Dia. 200	Depth 3.00	From	10	volume (ltr)
1.20	25.00	Cable P	ercussion	8.50 8.70 16.10 16.40 19.80 20.20	00:30 00:30 00:45	5					200 25.00					
Remarks						I	I				I	1	11_	I	[
No ground Standpipe	iwater e	ncountered eter installe	ed to 13.0	0m bgl (base of tip).	Pluviate	d sand resp	onse zo	ne from 12.00m to	4.00m bgl.							
UT1 (3.00 100 blows	-3.45) - . UT5 (1	100% recov 5.00-15.45	very, 38 b) - 100% i	lows. UT2 (6.00-6.48 recovery, 100 blows.	5) - 100% UT6 (18	6 recovery, 6 8.00-18.45)	58 blows - 100% i	s. UT3 (9.00-9.45) - recovery, 100 blows	100% recove . UT7 (21.00	ery, 100 blo -21.45) - 10	ws. UT4 (12.0 0% recovery	00-12.45) · , 100 blow:	- 100% rec s. UT8	overy, Terr	nination E	Depth:
(24.00-24.	.45) - 10	0% recover	ry, 100 blo	OWS.											25.0	0m



Contractor

BH1205

Project Northsto	we P	hase 2						Project No. UA008426-01 Easting (OS mE)	Ground L	evel (mAC	OD)		Start 14/ End	Date 12/2016	Sca 1:	^{ile} 50	
Homes a	nd C	ommun	ities Ag	jency				539238.34	26469	6.65			15/	12/2016	Sł	neet 1	of 3
SAMPL	.ES	/	TE	ESTS	ater ikes	PROGR	RESS			STRATA	4				Depth	Level	Instal
Depth	No.	Depth	No.	Results	Str	Date Time	Water		Desc	ription		h 41		Legend	(Thickness)	2010	Backf
0.10	ES D2	-				13:00	0.00	CLAY. Gravel is su	b-angular to s	ub-round	ey, siig ded, fin	e to me	edium of		(0.40)	ŧ	
0.40	D3	-						Firm, light brown n	nottled grey, sl	lightly gra	avelly s	ilty CL	AY. Gravel		0.40	+	Ű1
		-						IS SUB-angular to S	ub-rounded, fi DEPOSITS]	ne to me	dium o	f flint.			(0.70)	ļ	
-1.00 - 1.50	B4	-												\sim	-	-	
1.10	D5	-						Firm to stiff, light b	rown, sandy g	gravelly C	CLAY. S	Sand is	fine to		1.10	Ì	
- 1.50 - 1.95	D6	- - 1.50	SPT(C)	N=23 (3,4/5,6,6,6)				flint.			laca, ii				(0.90)	+	
		-						[(0.00)	1	
- 2.00	D7	-						Firm to stiff dark h	luich grov elic	the same	dy eliat	thy ara	velly silty		2.00 -	+	41
2.00 2.00 - 2.50	EW2 B8	-						CLAY. Sand is fine	to coarse. Gr	avel is su	ub-angi	ular to	sub-	×_×_	2	ļ	
2.50 - 3.00	В9	-						[RIVER TERRACE	DEPOSITS]					×	0	+	
2.80	EW1	-												×	2	Į	
-3.00 - 3.36	UT10	-												×	(2.00) -	+	
		-												×	0	ļ	
3.50	D11	-				14/12/2016	3.00							×	2	ł	ŀΠ.
		-				17:00	3.00							×		ļ	Ι.Π.
-4.00 - 4.50	B12	-				03.00		Stiff dark bluish or	ev slightly silty						4.00 -	+	Ц.
		-						[KIMMERIDGE CL	AY FORMATI	ON]				×	0	Į	
4.50 - 4.95	D13	- - 4.50	SPT(S)	N=19 (3,4/4,5,5,5)										×		+	12
		-												× 		ļ	
-5.00 - 5.50	B14	-												×	-	+	
		-												$\overline{\times} \times$		Į	12
-		-												× ×	2	ł	
		-												<u></u>	(3.30)	ļ	
-6.00 - 6.45	B16	-												×_×_	-	ŧ	12
0.00 - 0.45	0115	-												×_×_	0	ł	12
-		-												×	0	ŧ	
		-												×		ł	
-7.00 - 7.50	B17	-												×	-	ļ	$\langle \rangle$
7.30	D18	-						Weathered, grev S	ILTSTONE.					<u>×_^</u>	7.30	ţ	
7.50 - 7.95	D19	- 7.50 -	SPT(S)	N>50 (25 for 70mm,27/25 for 55mm)				[KIMMERIDGE CL	AY FORMATI	ON]		h ciltot	200	××××× ×××××	(0.30) 7.60	ł	
		-						bands.				11 51151	une	×		+	
-8.00 - 8.50	B20	-								UNJ				×	-	÷	
		-												× 		Į	
		-												× ×		ŧ	
		-												×_×_		Į	
- 9.00 9.00 - 9.45	D19 D21	— 9.00 _	SPT(S)	N=30 (5,5/6,7,8,9)										×_×_	-	t	
		-												×_×_		Į	ĹA.
-		-												× <u>×</u>		ţ	
		-												×	2	ļ	
10.00 - 10.50	B22	-												<u>×</u> <u>×</u>	-	t	<u>`/</u>]
DR	RILLING To	G TECHNIC	QUE ype	CHISELLI Hard Strata	NG Duratio	on Data 7	ime S		ONS tise To Casing	Sealed H	HOL lole Dia.	E/CAS Depth	ING DIAM Casing Dia.	ETER Depth	WATE	R ADD	ED Volume (Iti
0.00	1.20	Inspe	ction Pit			Date/1					300 200	1.20 25.00	200	4.50			
1.20 2	5.00	Cable P	ercussion														
kemarks No groundw	ater er	ncountered	· ·		-,				1000			T O 4 3					
ecovery, 61	-3.36) - I blows	80% recov UT36 (18	very, 35 bl .00-18.45	iows. U I 15 (6.00-6.4 i) - 100% recovery, 65	5) - No 5 blows.	recovery, 34	DIOWS.	0126 (12.00-12.45)	- 100% recove	ery, 57 blo	ows. U	131 (1	5.00-15.45) - 100%			
															lerm	25 0	Om
																_0.0	



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Contractor

BH1205

Project Northsto Client	we P	hase 2						Project No. UA008426-01 Easting (OS mE)	Ground	Level (mAOD) g (OS mN)		Start Date 14/12/2016 End Date	s 1	cale :50	
Homes a	na C	ommuni	ties Ag	ency	1			539238.34	2646	96.65		15/12/2016		sneet 2	2 OT 3
SAMPL Depth	ES Type No.	/ Depth	TE Type/ No.	ESTS Results	Water Strikes	PROGF Date Time	RESS Casing Water		Des	STRATA		Legen	d (Thickness	s) Leve	Instal Backf
10.50 - 10.95 10.60	D23							Very stiff, dark bluis bands. [KIMMERIDGE CL	sh grey, sligh AY FORMAT	itly silty CLAY v 'ION]	vith siltstone		بلت بلت		
10.60	D24	-										× ×			
11.00 - 11.00	525	-										× ×			
		-													
12.00 - 12.45	0126	-										× ×		Ì	
12.50 12.50 - 13.00	D27 B28	-										× ×			
		 - -										× ×			
13.50 13.50 - 13.95	D27 D29	- 13.50 -	SPT(S)	N=26 (5,5/6,6,7,7)								× ×			
		- 										× ×		+	
14.50 - 15.00	B30	-													
ł5.00 - 15.45	UT31	- - - -										×	(17.40)	+	
15.50 15.50 - 16.00	D32 B33											×			
-		- - 										× <u>×</u>		-	
16.50	D32	- - 16.50	SPT(S)	N>50 (25 for 20mm/50											
-	204	- - -													
17.50 - 18.00	B35	-													
19.00 19.45	11726											× × ×			
10.00 - 10.45	0130													Ī	
18.50 18.50 - 19.00	D37 B38	-										× ×	- fri - fri	Ť	
-		- - -										× ×			
19.50 19.50 - 19.95	D37 D39	- - 19.50 -	SPT(S)	N=51 (8,10/10,12,14,15)								× ×			
-		-												+	
DR			UE /pe	CHISELLI Hard Strata	NG Duratio	on p-t-c	imo s		ONS lise To Casing	HC Sealed Hole Dia	LE/CASING	DIAMETER	WA From	TR ADE)ED Volume (
0.00 1 0.00 1 1.20 2	.20 5.00	Inspec Cable Pe	ction Pit ercussion			Date/11				300 200	1.20 25.00	200 4.50		-	
emarks lo groundw JT10 (3.00-	ater er 3.36) -	icountered. 80% recov	very, 35 bl	ows. UT15 (6.00-6.4)	5) - No i	recoverv. 34	blows.	UT26 (12.00-12.45)	- 100% recov	very, 57 blows.	UT31 (15.00)-15.45) - 100%			
covery, 61	blows	. UT36 (18.	.00-18.45) - 100% recovery, 65	blows.			(.2.00 (2.10)			(10.00		Те	mination	Depth:



Contractor

BH1205

Project Northsto Client Homes a	owe P and C	hase 2 ommuni	ities Ag	jency				Project No. UA0084 Easting (OS 539238 .	26-01 ^{mE)} 34	C N 2	Ground L Northing 26469	Level (m. (OS mN)6.65	AOD) I)		St 14 Er 1	art Date 4/12/2 nd Date 5/12/2	2016 2016	Sca 1: Sh	^{le} 50 leet 3	of 3
SAMPL	ES		TI	ESTS		PROG	RESS					STRA	TA							
Depth	Type No.	/ Depth	Type/ No.	Results	Wate	Date Time	Casing Water				Desc	ription	<u></u>			L	egend	Depth (Thickness)	Level	Install/ Backfill
- -20.50 - 21.00 - - - - - - - - - - - - - - - - - -	B40	- - - - - - - - - - - - - - - - - - -	SPT(S)	N>50 (10,10/12,3	22,16			Very stiff, bands. [KIMMER	dark blu IDGE C	uish grey	γ, slight RMATI	ly silty ON]	CLAY w	ith siltst	one		× ×		+ + + + + + + + + +	
- - - - - - - -		- - - - - - -		for 30mm)													× × ×		+ + - + + + + + +	
-22.00 - 22.50 - - -	B42															X	×	-		
- 22.50 -22.50 - 22.95 - -	D41 D43	- 22.50 - - -	SPT(S)	N>50 (10,10/12,12,13, 70mm)	13 for											×	×		+ + + +	
- -23.00 - 23.50 - - - - - -	B44	- - - - -															× × ×	-		
- 24.00 -24.00 - 24.45 - -	D43 D45	24.00 	SPT(S)	N=50 (8,10/11,12,13,14	4)											X	×	-	- - - -	
-24.50 - 25.00 - - -	B46	-														x.	<u>×</u>			
- - -						15/12/2016 17:00	4.50 25										X	25.00 -		<u>/, // /</u>
- - - -		-																	+ + + + + +	
		- - -																-		
- - - -		- - - -																-	+ + + + + +	
-		-																	+ + + + +	
- - 		-																-	+ + +- +	
- - - -		- - - -																		
- - - -		- - - -																-	+ +- + +	
-		- - -																		
		 - -																-	-	
DF		G TECHNIC	QUE	CHIS	SELLING		· _ \	NATER OBS	SERVAT	IONS		1	НО	LE/CAS	ING DIA		R	WATE	R ADD	ED
From 0.00 0.00 1.20 2	To 1.20 25.00	Ty Inspec Cable P	ype ction Pit ercussion	From	To Durati	on Date/T	ime S	Strike At Time E	Elapsed	Rise To	Casing	Sealed	Hole Dia 300 200	Depth 1.20 25.00	Casing E 200	Dia. De	epth 50	From	To N	/olume (ltr)
Remarks No groundw	vater er		1001 25 L		0.6.4E) N-		1 blows			100%				IT24 (4	5 00 15	45) 4				
recovery, 61	-3.30) - 1 blows	. UT36 (18	.00-18.45) - 100% recove	ery, 65 blows		T UUWS.	U 120 (12.UL	u- 12.40,	ı - 10U%	1 ecove	∪ ιy, ວ/	JUWS. U	וטו (1	J.UU-15.	-+0) - 11	00%	Term	ination E	Depth: Om
Arcadis St Melli Park Cardiff	s Cymru Hous ons Business	 Unless Depth (I 	otherwis m), Diam	e stated: eter (mm), Tim	e (hhmm),	Equipme Dando	ent Used				Contrac Arcac	tor	nsulti	ng (UK) Ltd.		Log	gged By	Check AM	ed By



Arcadis Consulting (UK) Ltd.

^{roject}	owe Pł	hase 2							Project No. UA008426	6-01	Ground Leve	el (mAOD)		Start D 13/12	^{ate} 2/2016	Sca 1:	le 50	
lient Iomes a	and Co	ommuni	ties Ag	jency					Easting (OS miles 539275.73	=) 3	Northing (OS 264653.	5 mN) 94		End Da 14/12	^{ite} 2/2016	Sh	neet 1	of
SAMPI	LES		TE	ESTS		er es	PROGF	RESS			ST	RATA				Donth		Inc
Depth	Type/ No.	Depth	Type/ No.	Resu	ilts	Strik	Date Time	Casing Water			Descript	ion			Legend	(Thickness)	Level	Ba
0.10 0.10 - 0.30	ES B1	-					13/12/2016 09:00	0.00	Grass over f	firm, brown, to medium.	slightly sand	dy CLAY v	vith thin rootlet	S.	NC	(0.40)	1	4
.10 - 0.30 0.30	ES5 EW2	-							[TOP SOIL]			<u></u>			sizsic	0.40	ļ	Ż
.40 - 1.20 .60 - 0.80	B2 ES6	-							Firm to stiff, coarse sand	orangish bro	own, sandy onal fine roc	CLAY with otlets.	pockets of fin	ie to			ţ	8
		-							[RIVER TEF	RACE DEP	OSITS]					-	ļ	1
		-														(1.10)	+	4
		- - 1.20	SPT(C)	N=9 (3,2/2,2,3	3,2)												ţ	ĿĿ
		-															+	$ \cdot $
.50 - 2.00	В3	-							Firm, bluish	grey mottled	d brown, slig	htly sand	/ slightly grave	elly		1.50	ŧ	
.70 - 1.90	ES7	-							fine to coars	is fine to co	arse. Grave e and gypsu	i is angula im.	r to sub-round	iea,			ŧ	
2.00	B10	2.00	SPT(S)	N=10 (1,1/2,2	2,3,3)				[RIVER TEF	RRACE DEP	OSITS]					-	÷	÷
2.00 .00 - 3.00	D9 B4	-														0 	Ī	1
		-															Ī	
		-															Ŧ	1
		_														(2.50)	I	(/)
.00 - 3.45	UT11	_														-	ŀ	11
3 30	EW/1	-													·····		ł	1
3.45	D12	-													· · · · · · · · · · · · · · · · · · ·		ļ	
		_														•	ţ	1
		-														-	ļ	1
4.00 4.00	B13 D14	4.00	SPT(S)	N=15 (2,2/3,3	8,4,5)				Firm to stiff,	dark bluish	grey silty CL	LAY with fr	equent shell		<u> </u>	4.00 -	+	1
4.00	D4	-							fragments.	GE CLAY FO	ORMATION	1			×		ļ	
20 - 4.40	200	-										1			×		Ļ	
		-													×		ł	(/.
		-													×		ŧ	1
00 - 5.45	UT15	-													<u></u>	-	÷	(/)
		-													<u>×</u> ×		ţ	()
5.45	D16	-													X		+	
5.50	ыл	-															ŧ	1
		-													×	(3.90)	ŧ	1
		-													×		Ŧ	{/
		-													×		Ŧ	
6.50	D17	6.50	SPT(S)	N=20 (2,3/4,4	,6,6)										×		Ŧ	(/)
0.50	010	-													<u></u>		ł	11
7.00	B19	-													<u></u>	_	1	1
1.00	2.0	-													<u> </u>		ļ	1
		-													×		ļ	1
		_													×		÷	1
		-													×		ţ	
8.00	D20	- 8.00	SPT(S)	N=29 (17,8/10	0,7,7,5)				Dark grey S	ILTSTONE.		_			× × × × ×	7.90	+	
		-							[KIMMERID	GE CLAY F			ith frequent or	avel	* * * * * *	8.20	ţ	
		-							of siltstone.	an, uart Dit	alon grey Sill	., olai W	an noquent gr		F	-	ţ	1
8.60	B21	-							KIMMERID	GE CLAY FO	ORMATION]				1	ţ	1
																-	I	1
		É													F	-	ł	11
		_													<u>⊢−−−</u>	(2.50)	ţ	
9.50	D21	9.50	SPT(S)	N=50 (6 7/19	13.10 9)										[ļ	1
9.50	D22				,,										<u>L</u>		ţ	1
		-													<u> </u>	-	ţ	(/.
10.00	B23	-														-	t	••••
DF	RILLING	TECHNIC	UE			NG		v	VATER OBSE	RVATIONS		НС	DLE/CASING I		TER	WATE	R ADD	ED
om .00	To 1.20	Ty	rpe tion Pit	From 17.70	To 17.90	Duratio 00:40	n Date/Ti	ime S	trike At Time Elap	osed Rise To	Casing Sea	aled Hole Di 300	a. Depth Casir 1.20 2	ng Dia. 200	Depth 1.65	From	To Y	Volum
20 2	25.33	Cable Pe	ercussion	23.70	23.90	00:40						200 50	25.00 25.33					
arks groundv 1 (3.00-	vater en	countered.	verv. 28 t	blows. UT15	(5.00-5.4	1)% recovery	v. 35 blov	ws. UT24 (11.)	00-11.45) - 1	100% recove	erv. 50 blo	ws. UT29 (14.	.00-14.4	45) - 100 ⁰	l %		
overy, 74	4 blows.	UT34 (17.	.00-17.10) - 25% recov	very, 100	blows.	UT37 (19.0	0-19.45) - 100% recov	very, 110 blo	ws. UT42 (2	24.00-24.4	0) - 90% reco	very, 1	15 blows.	Term	ination [Depth
																	25.3	3m
	ie Curren Maria	Unless	othorwic	a etatod:			Equinme	nt Used			Contractor				10	aged Bv	Check	ked R
St Mel Park Cardiff	lons Business	Depth (I	n), Diam	eter (mm), T	ïme (hh	nm),	Dando	2000			Arcadis	Consult	ing (UK) Ltd	1.	V	P	AM	





Project Norths Client	towe I	Phase 2							Project No. UA008426-0 Easting (OS mE)	01	Ground Le Northing (C	vel (mAO OS mN)	D)		Start 13/ End I	Date 2/2016 Date	Sci 1:	^{ale} 50	
Homes	s and C	Sommun	ities Ag	jency					539275.73		264653	5.94			14/	2/2016	5	neet 2	of 3
SAM		0/		ESTS I		ater ikes	PROGF	RESS			ŝ	STRATA					Depth	Level	Install/
Depth	No	Depth	No.	Resu	ults	≥₽	Date Time	Water	Oliff to upon a tiff		Descri	ption	V	6	4	Legend	(Thickness)	васктії
-		-							of siltstone.	r, dark blu	isn grey s		v with	frequen	t gravei	F		ŧ	
		-							KIMMERIDGE	CLAY FC	RMATIO	NJ				F		ŧ	
-		-							Grey SILTSTO	NE.						****	10.70 (0.20)	ļ	
- 11.00	U23	-							[KIMMERIDGE Very stiff, dark	CLAY FC	VRMATIO y silty CL	N] AY with	freque	nt grave	l of		10.90	ŧ	
- 11.00 - 11 -	.45 0124	-							siltstone. [KIMMERIDGE	CLAY FC	RMATIO	N]				×		Į	$ \cdot $
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12 50	D27	- 12.50	SPT(S)	N=42 (6 7/9 /	10 10 13)											×		Ì	
-	021	-		11-42 (0,773,	10,10,13)											×		ţ	
-		-					13/12/2016	1.65								×	0	ŧ	
- 13.00	B28	-					17:00 14/12/2016	1.65								×		Ť	
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_ 14.50	B31	-														×	2	ļ	
-		-														×	2	ŧ	H:
		-														×	0	Ī	
- 15.50	D32	- - 15.50	SPT(S)	N=50 (6,9/11	,13,14,12)											×	2	ļ	
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_ 19.45 _ 19.50	D38 B39	F														× ×		ļ	1.1.1.
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	 DRILLIN	G TECHNIC			HISELLI	I NG		۱ ۱	WATER OBSERV	ATIONS			HOLE	/CASIN	IG DIAM	ETER	 WATE	R ADD	ED
From	To	T	ype	Hard From	Strata To	Duratio	n Date/Ti	ime S	Strike At Time Elapsed	Rise To	Casing S	Sealed Ho	ole Dia.	Depth	Casing Dia.	Depth	From	То	Volume (Itr)
1.20	1.20 25.33	Inspe Cable F	caon Pit Percussion	17.70 23.70	23.90	00:40							200 50	25.00 25.33	200	60.1			
Pemarica																			
No groun	dwater e	encountered	l.																
UT11 (3.0 recovery,	00-3.45) 74 blow	- 100% reco s. UT34 (17	overy, 28 l .00-17.10	olows. UT15) - 25% reco	(5.00-5.4 very, 100	45) - 100 blows.)% recovery UT37 (19.0	y, 35 blo 0-19.45	ws. UT24 (11.00-) - 100% recover	11.45) - 1 y, 110 blov	00% reco ws. UT42	overy, 50 (24.00-) blows 24.40)	. UT29 (- 90% re	(14.00-14 ecovery,	.45) - 100 115 blows.	%		
		``										-	,				Tern	nination I	Depth:
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	rcadis Cymru Ho	use Unless	otherwis	e stated:			Equipme	ent Used			Contracto	or				Lo	gged By	Checl	ked By





Dec and Communities Agery 59375.73 26485.34 14/12/2016 Sheed 3 of: NUMP 10 TESTS 100 <t< th=""><th>roject Iorthsto lient</th><th>we Pl</th><th>hase 2</th><th></th><th></th><th></th><th></th><th></th><th>Project No. UA008426-01 Easting (OS mE)</th><th>Ground Level (m</th><th>AOD)</th><th>Start Date 13/12/20 End Date</th><th>016</th><th>Scale 1:5</th><th>0</th><th></th></t<>	roject Iorthsto lient	we Pl	hase 2						Project No. UA008426-01 Easting (OS mE)	Ground Level (m	AOD)	Start Date 13/12/20 End Date	016	Scale 1:5	0	
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100 100 <td>00.50</td> <td>D 40</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Very stiff, dark bluis siltstone.</td> <td>h grey silty CLAY w</td> <td>ith frequent gravel o</td> <td></td> <td></td> <td>ţ</td> <td></td> <td></td>	00.50	D 40	-						Very stiff, dark bluis siltstone.	h grey silty CLAY w	ith frequent gravel o			ţ		
	20.50	D40	- 20.50 - -	5P1(5)	N=50 (8,9/10,16,20,4	4)				Y FORMATION]		×	×	Ţ		
101 101 <td>04.00</td> <td>D</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>×</td> <td>- <u></u>; <u>×</u></td> <td>ŧ</td> <td></td> <td></td>	04.00	D	-									×	- <u></u> ; <u>×</u>	ŧ		
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1: 22.6 UT2 0.0 2.00 8FT(5) NO0 (20.0 BT 0.00 <td< td=""><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td> </td><td>×</td><td>ł</td><td></td><td></td></td<>			-									 	×	ł		
Part of the second se	.00 - 22.40	UT42	-									 	<u>×</u> 1	Ţ		
22 - 20 50 57 (5) 1+50 (25.6 for 0mm20.15 for 35mm) 1+1220m 1-1011			-									×	<u>×</u>	ţ		
250 No. 1 <td>22.45</td> <td>D42</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>×</td> <td><u>×</u></td> <td>ļ</td> <td></td> <td></td>	22.45	D42	-									×	<u>×</u>	ļ		
3.30 bits 2.200 SPT(5) bits/30,12 bits 36xxy) bits/30,12 bi	22.45 22.50	D43 B44	-									×	<u>×</u> (7	.33)		
3.50 0.45 2.3.50 SPT(B) N=01 (25.5 Hr HIGH 2010 (25.6 H			-									×	<u>^</u> `	4		
3.30 bes 2.2.30 SPT(S) Next (1) Status Next (1) </td <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>×</td> <td><u>^</u></td> <td>ţ</td> <td></td> <td></td>			-									×	<u>^</u>	ţ		
4.00 846 - <td>23.50</td> <td>D45</td> <td>- - 23.50</td> <td>SPT(S)</td> <td>N>50 (25,0 for</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>×</td> <td> </td> <td>+</td> <td></td> <td></td>	23.50	D45	- - 23.50	SPT(S)	N>50 (25,0 for							×	 	+		
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Sol - 26.33 Bar - 25.03 SPT(S) - 26.33 Bar - 25.03 SPT(S) - 26.33 Bar - 25.33 SPT(S) - 26.33 Bar - 25.33 SPT(S) - 26.33 Bar - 25.33 SPT(S) - 25.33 Bar - 25.33<			-										×	Į		
2.5.3.3 GVT polytimin polytimin 14/12/2018 1.65 T T 25.33 Image: State Processing 1/2016 1.65 T	25.00	D46	_ 25.00	SPT(S)	N>50 (14,11/19,21,1	0,0						 	<u>×</u> 1	ŧ		
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DRILLING TECHNQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADBED 1 0 100 Imagedian PH From 100 100 1 0 100 Imagedian PH 100% recovery, 32 blows. UT15 (5:00-5:45) - 100% recovery, 35 blows. UT24 (11:00-11:45) - 100% recovery, 110 blows. UT42 (24:00-24:40) - 90% recovery, 110 blows. UT34 (17:00-17:10) - 25% recovery, 100 blows. UT37 (19:00-19:45) - 100% recovery, 110 blows. UT42 (24:00-24:40) - 90% recovery, 115 blows. Imagedian PH Contractor Logged By Checked Data Phone, Dat			-											ŧ		
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m To Type Children Underson Depth Contractor Logged By rks rundwater encountered. (13.00-345) - 100% recovery, 35 blows. UT24 (11.00-11.45) - 100% recovery, 50 blows. UT29 (14.00-14.45) - 100% Logged By Contractor Logged By Contractor Logged By Contractor Logged By Contractor Logged By Contractor Logged By Contractor Logged By Checked By moment Dues otherwise stated: Equipment Used Contractor Logged By Contractor Logged By Checked By Marcadis Consulting (UK) Ltd. VP AM			-											ŧ		
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DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED m To Trype From To Duration Date/Time Strike At Time Elapsed Rise To Casing Depth Casing Depth From To Volume 0 1.20 Inspection Pit 17.70 17.90 00.40 Date/Time Strike At Time Elapsed Rise To Casing Depth Casing Depth From To Volume 0 25.03 Cable Percussion 17.70 17.90 00.40 Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia Depth Percon To Volume 10.02.52.33 Cable Percussion 17.70 17.90 00.40 Date/Time Strike At Time Elapsed Rise To Casing Dia Depth From To Volume 13.00.25.33 Cable Percussion 13.70 23.90 00.40 Dia Dia Dia Dia Dia Dia Dia Dia Dia Dia Dia Dia </td <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Į</td> <td></td> <td></td>			-											Į		
Image: Contractor Contractor Logged By Checked By Termination Depth: Equipment Used Contractor Logged By Checked By Termination Depth: Equipment Used Contractor Logged By Checked By Termination Depth: Equipment Used Contractor Logged By Checked By Contractor Logged By Checked By Ancadis Consulting (UK) Ltd. VP AM			-											ţ		
DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED m To Type From To Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia Depth From To Volume 0 1.20 Inspection Pit 17.70 00.40 Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth From To Volume 0 25.33 Cable Percussion 23.70 23.90 00.40 Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth From To Volume 0 25.33 Cable Percussion 23.70 23.90 00.40 Date/Time Note Strike Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth From To Volume 13.00 12.00 25.03 20.00 25.03 20.00 1.65 Jone Strike Strike Strike<			Ļ											ļ		
DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED m To Type From To Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia Depth From To Volume 0 1.20 Inspection Pit 17.70 17.90 00:40 Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth From To Volume 0 25.33 Cable Percussion 23.70 23.90 00:40 Date/Time Strike At Time Elapsed Rise To Casing Sado 1.20 200 1.65 Date/Time Strike At Time Elapsed 200 25.00 200 Attriati			-											Ť		
URILLING I ECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED m To Type From To Duration Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia. Depth From To Volume 0 12.0 Inspection Pit 17.70 17.90 00:40 and and and 200 25.00 25.00 25.00 25.03 and <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td><u> </u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			-				<u> </u>									
0 1.20 Inspection Pit 17.70 17.90 00.40 00.40 23.90 00.40 25.33 200 1.65 1.	rom	To		<u>QUE</u> ype	Hard Strata From I To	LING Durati	on Date/T	ime S	VATER OBSERVATIC	Se To Casing Sealed	HOLE/CASING Hole Dia. Depth Cas	DIAMETER	h From			<u>-D</u> ′olume (l'
arks roundwater encountered. I (3.00-3.45) - 100% recovery, 28 blows. UT15 (5.00-5.45) - 100% recovery, 35 blows. UT24 (11.00-11.45) - 100% recovery, 50 blows. UT29 (14.00-14.45) - 100% very, 74 blows. UT34 (17.00-17.10) - 25% recovery, 100 blows. UT37 (19.00-19.45) - 100% recovery, 110 blows. UT42 (24.00-24.40) - 90% recovery, 115 blows. Termination Depth: 25.33m Unless otherwise stated: Depth (m), Diameter (mm), Time (hhmm), Tequipment Used Dando 2000 Arcadis Consulting (UK) Ltd. VP AM	.00 · .20 2	1.20 25.33	Inspec Cable P	ction Pit ercussion	17.70 17.9 23.70 23.9	0 00:40 0 00:40	2	-			300 1.20 200 25.00 50 25.22	200 1.65				
Intro roundwater encountered. I (3.00-3.45) - 100% recovery, 28 blows. UT15 (5.00-5.45) - 100% recovery, 35 blows. UT24 (11.00-11.45) - 100% recovery, 50 blows. UT29 (14.00-14.45) - 100% recovery, 110 blows. UT42 (24.00-24.40) - 90% recovery, 115 blows. Very, 74 blows. UT34 (17.00-17.10) - 25% recovery, 100 blows. UT37 (19.00-19.45) - 100% recovery, 110 blows. UT42 (24.00-24.40) - 90% recovery, 115 blows. Termination Depth: 25.33m Network Open Name Wellows Buildess Termination Depth: Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm), Depth (m), Diameter (mm), Time (hhmm),											50 25.33					
I (3.00-3.45) - 100% recovery, 28 blows. U115 (5.00-5.45) - 100% recovery, 35 blows. U124 (11.00-11.45) - 100% recovery, 50 blows. UT29 (14.00-14.45) - 100% recovery, 110 blows. UT29 (14.00-14.45) - 100% recovery, 115 blows. very, 74 blows. UT34 (17.00-17.10) - 25% recovery, 100 blows. UT37 (19.00-19.45) - 100% recovery, 110 blows. UT42 (24.00-24.40) - 90% recovery, 115 blows. Termination Depth: 25.33m Andread Common termination States Equipment Used Contractor Logged By Checked By Depth (m), Diameter (mm), Time (hhmm), Dando 2000 Arcadis Consulting (UK) Ltd. VP AM	arks groundw	vater en	countered					0- / /		5) 40001	F0.11.	00 / / · · ··	1000			
Accedits Cymun Norme St Mellones Business St Mellones Stated: Equipment Used Contractor Logged By Checked By Depth (m), Diameter (mm), Time (hhmm), Certifier Dando 2000 Arcadis Consulting (UK) Ltd. VP AM	overy, 74	3.45) - 1 blows.	UT34 (17	overy, 28 t .00-17.10	biows. UT15 (5.00- i) - 25% recovery, 1	5.45) - 10 100 blows	0% recovery . UT37 (19.0	y, 35 blo 0-19.45	ws. U124 (11.00-11.4) - 100% recovery, 110	 b) - 100% recovery, blows. UT42 (24.0) 	50 DIOWS. UT29 (14 00-24.40) - 90% reco	.00-14.45) - overy, 115 blo	100% ows.	-		
Activity Strength Unless otherwise stated: Equipment Used Contractor Logged By Checked By Depth (m), Diameter (mm), Time (hhmm), Composition of the co														Termin	ation D	epth: 3m
Unless otherwise stated: Equipment used Contractor Logged By Checked By States Contractor Logged By Checked By							Caulton.	nt line -		Contractor			100	4	-0.30	
	Arcadis St Melle Park Cardiff	s Cymru House ons Business	Depth (otnerwis m), Diam	e stated: eter (mm), Time (l	hhmm),	Dando	2000		Arcadis Co	onsulting (UK) Lt	d.	VP	Uy	AM	ла ру

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oject orthstov	we Pł	nase 2							Project No. UA008426-01 Easting (OS mE)	Ground Leve	el (mAOD)		Start Dat 13/12	, 2016	Sca 1:	le 50	
omes a	nd Co	ommuni	ties Ag	ency					539232.81	264657.	32		13/12	2016	Sł	neet 1	of
SAMPLI	ES		TE	ESTS		tter kes	PROGR	ESS		S	TRATA				Depth		Ins
Depth	No.	Depth	No.	Resu	ults	Stri	Date Time	Water		Descrip	tion			Legend	(Thickness)	LOVO	Ba
0.10	B4 ES	-					13/12/2016 12:30	0.00	Soft, brown, slightly coarse. Gravel is ar	sandy slightly g ngular to sub-rou	gravelly CLAY unded, fine to	 Sand is fir coarse of f 	ne to	10. 	(0.30)	÷	4
.10 - 0.30 0.20	ES1 D5	-							and mudstone.				/	<u> </u>	0.30	ţ	Ż
0.30	D6	F							Medium dense, ora	nge mottled bro	wn, slightly g	ravelly clay	ey	· · · · ·		+	
		-							fine to coarse of flin	to coarse. Grav	el is sub-ang	ular to rour				Ŧ	
.00 - 1.50	B7	_							[RIVER TERRACE	DEPOSITS]					-	÷	-
10 - 1.30	E92	E											(* 		(1.70)	I	
50 - 1 70	1178	-											•			-	
00 1.70	010	-														ļ	
		-											1			ļ	ŀ.
2.00 00 - 2.50	D9 B10	-							Soft to firm, brown r	nottled orange,	slightly sand	y gravelly C	LAY		2.00 -	-	
		-							with low cobble con angular to sub-roun	tent. Sand is fin ded. fine to coa	e to coarse.	Gravel is su d mudstone	-ub- غ	*** * *** ** 	(0.60)	+	11
2 55		-							Cobbles are sub-an	gular of flint.				- · _ * · · · · · · · · · · · · · · · · ·		+	./.
2.60	D11	-							Firm to stiff, bluish g	grey, silty CLAY	with occasion	nal shell		×	2.60	ŧ	
80 - 3.00	ES3	-							fragments.		n			<u></u>		ţ	1
00 - 3.40	0113	-									.1				-	Ŧ	11
		E											Ĺ			I	1
3.50	D14 B15	_								Tending to sligh	tly sandy slig	ntly gravelly	clay.	×		ł	
50 - 4.00	ыз	-								<u> </u>				×		ļ	1
		-												<u></u>		Ļ	
		-											3	<u></u>		ļ	1
		-												<u>×_×</u> _		ļ	
50 - 4.95	B16	- 4.50 -	SPT(S)	N=15 (3,3/3,4	1,4,4)									<u></u>		ŧ	11
		-												<u> </u>		+	
		-											Ĺ		-	+	4
		-												×	(5.00)	ţ	Ŷ
50 0.00	D47	-												×		ļ	
50 - 6.00	ыл	-												x		Ī	
		E											3	<u> </u>		I	÷.,
00 - 6.45	UT18	-												<u></u>	-	t	
		-												<u></u>		+	
6.50	D19	-												<u> </u>		+	
50 - 7.00	B20	-												<u> </u>		ţ	
		-											, 			ŧ	Ŷ
		-												×	-	+	
		-												×		ŧ	
50 - 7.95	B21	- 7.50	SPT(S)	N>50 (6,8/29	,21 for								0	<u></u>	7.60	Ŧ	
7.00	DZZ	-		2011111)					Weathered, grey SI	LTSTONE. AY FORMATION	n		5	<	(0.40)	ļ	
00 - 8 50	B23	-									.1		2	<	8.00	Ļ	
00 0.00	220	-							Stiff, bluish grey, sill [KIMMERIDGE CLA	ty CLAY with oc	casional grav I]	el of siltsto	ne.	<u></u>	0.00	ļ	
		-									-		Ļ		(0.60)	ţ	
		-							Weathored area Of	ITSTONE				 ~~~~~~~~	8.60	ţ	
8.80	D24	-							[KIMMERIDGE CLA	AY FORMATION	1]		2	<		ţ	Ŷ
00 - 9.45	B25	9.00	SPT(C)	N>50 (25 for	40mm/50								2		(0.60)	Ŧ	
		E		ior / Umm)					Stiff to verv stiff, blu	ish grev. siltv Cl	LAY.		2	<u> </u>	9.20	ł	
		_							[KIMMERIDGE CLA	Y FORMATION	1]			<u></u>		ļ	
		-											2	<u>×</u>		ŧ	
		-												<u></u>		ţ	
00 - 10.50	B26	-												_ <u>×</u>		t	Ż
DR	ILLING	TECHNIC	QUE	C	HISELLI	NG		V	VATER OBSERVATIO	DNS	HOL	E/CASING		ER	WATE	RADD	ED
om .	To 20	Ty	/pe	From	Strata To	Duration	Date/Tir	me S	trike At Time Elapsed Ris	se To Casing Se	aled Hole Dia.	Depth Casi	ing Dia. D	Depth 4.50	From	To Y	Volum
.20 25	5.45	Cable P	ercussion								200 50	25.00 25.45					
arks		ounto 1												[
iroundwa (1.50-1.	ater en 70) - 5 534 (15	0% recove	ry, 52 blo	ws. UT13 (3	.00-3.40)) - 90% r T30 (19	ecovery, 27	blows.	UT18 (6.00-6.45) - 10	00% recovery, 3	8 blows. UT2	9 (12.00-12	2.45) - 10	0% reco	overy,		
		.50-13.40)	- 10070 I	550very, 50	510W3. U	103 (10.	50-10. 4 0) -	100 /0 10	y, 4 0 010W3.						Term	ination [Depti
																25.4	5m
									-			-					-

Project Northsto	owe P	hase 2							Project No. UA008426-	01	Ground L	evel (mA	AOD)		Start 13/ *	Date 12/2016	Sca 1:	le 50	
Client Homes a	and C	ommuni	ties Ag	jency					Easting (OS mE) 539232.81		Northing 26465	(OS mN) 7.32)		End [13/	Date 12/2016	Sh	leet 2	of 3
SAMP	LES		TI	ESTS		er es	PROGF	RESS				STRAT	ΓA				Donth		Install/
Depth	Type No.	Depth	Type/ No.	Resu	ults	Wati Strik	Date Time	Casing Water			Desci	ription				Legend	(Thickness)	Level	Backfill
-		-							Stiff to very st [KIMMERIDG	iff, bluish g E CLAY FO	rey, silty DRMATIO	CLAY. ON]				×		-	
- 10.50	B27	- 10.50	SPT(S)	N=26 (4,5/6,6	6,7,7)				-							×		ł	
-		-														×	2	Į	[]]]
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-		Ē														×		ŧ	
_ 11.50 - 12.00) B28	_														×	- - -	Į	
-		-														×	2	ł	
-		-					12/12/2016	4.50								×	-	Ĺ	
	0129	-					13/12/2016 17:00	4.50								×		F	
-		-					08:30	11.00								×		ł	
- 12.50	D30	-														×	-	ŧ	
-																×	2	I	
-		-														×		+	
-		-														×	0	ŧ	
-13.50 - 13.9 -13.50 - 13.9	5 B32	- 13.50	SPT(S)	N=30 (5,6/7,7	7,8,8)											×		ł	[]]]
-	5 501	-														×	2	ļ	
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-																<u></u>	\$	Į	
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- - 	5 11734	-														<u></u>		Ĺ	
-	0134	-														<u></u>	(13.20)	Į	
-		-														<u></u>		ł	
- 15.50 -15.50 - 16.00	D35 B36	-														<u>×</u> ×	-	ŧ	
-		Ę														XX		Į	
-		-														XX	-	+	
-		-														× ×	2	ł	
- 	5 B37	16.50	SPT(S)	N=27 (4,5/6,6	6,7,8)											× ×		ļ	
-		-																ļ	
-		-															-	+	
-		-														×		ţ	
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-		-														×		ł	
-	5 11720	-														×		ţ	
	5 0139	-														×		F	
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- 18.50 -	D40	-														×		÷	
-		-														×	2	İ	
-19.00 - 19.50 -	B41	-														×	-	-	
-		-														×		ł	
- 	5 B42	- 19.50	SPT(S)	N>50	14 10 for											×		ļ	[],]]
-		-		55mm)	14, IU 10ľ											×		ļ	
-		-														×	-	Ļ	///
-		-														<u>×</u> ×		t	/////
DI			UE	C	HISELLI	NG	_	V		VATIONS		0	HOL	E/CASI		ETER	WATE		ED
0.00	1.20	Inspec	tion Pit	From	То	Juratio	" Date/Ti	me S	nike AL TIME Elaps	EU RISE IO	Casing	Sealed	300	1.20	200	4.50	FIOI	10 \	Joiuine (Itr)
1.20	25.45	Cable P	ercussion										200 50	25.00 25.45					
Remarks				I	1	1		I	I		1 1			1	1		I		
No ground UT8 (1.50-	vater ei 1.70) - {	ncountered. 50% recove	ery, 52 blo	ws. UT13 (3	.00-3.40)	- 90%	recovery, 27	blows.	UT18 (6.00-6.4	5) - 100% ı	ecovery	, 38 blo	ws. UT2	29 (12.0	0-12.45) -	100% rec	overy,		
43 blows. L	JT34 (1	5.00-15.45)) - 100% i	ecovery, 38	blows. Ú	T39 (18	.00-18.45) -	· 100% r	ecovery, 45 blov	WS.	,						Term	ination F	Depth:
																		25.4	5m
							Equipmo	ntllead			Contract	tor					agod By	Chaele	and Dec





Northsto Client	we Pl	nase 2						Project No. UA008426-01 Easting (OS mE)		Ground Level (n Northing (OS ml	nAOD) N)		Start E 13/1 End D	Date 2/2016 ate	Sca 1:	le 50	
Homes a	nd Co	ommuni	ties Ag	jency				539232.81		264657.32			13/1	2/2016	Sh	eet 3	of 3
SAMPL	ES		TE	ESTS	ikes	PROGE	RESS			STR/	ATA			1	Depth	Level	Install/
Depth 	No. B43 B44	Deptn	No. SPT(S)	N=40 (6,8/8,10,1	5 ō		Water	Stiff to very stiff, [KIMMERIDGE o	bluish gr	rey, silty CLAY RMATION]	۱ ۲.			Legend X X X X X X X X X X X X X X X X X X X			
- -22.00 - 22.50 - - 22.40 -22.50 - 22.95 - - - - - - - - - - - - - - - - - - -	B45 D46 B47 B48	- - - - - - - - - - - - - - - - - - -	SPT(C)	N>50 (25 for 40n for 65mm)	nm/50			Weathered, grey [KIMMERIDGE (Very stiff, bluish [KIMMERIDGE (SILTST CLAY FC grey, silt CLAY FC	ONE. RMATION] y CLAY. RMATION]					22.40 (0.30) 22.70	+ + + + + + + + + + + + + + + + + + +	
- -24.00 - 24.45 - - - -24.50 - 25.00	B49 B50	- 24.00 	SPT(S)	N>50 (10,11/12,12,14, 70mm)	12 for										(2.75)		
- -25.00 - 25.45 - - - - - - - - - -	D51	- 25.00 	SPT(S)	N=48 (9,10/11,12,12,13	3)	14/12/2016 15:00	4.50								25.45	+ + + + + + + + + + + + + + + + + + +	
· 		- - - - - - - - - - - - -													-	- - - - - - - - - - - - - - - - - - -	
· 		- - - - - - - - - - - - - - -														- - - - - - - - - - - - - - - - - - -	
- - - - - - - - - - - - - - - - - - -				CHIS Harri Stra	SELLING		 v	VATER OBSERVA	TIONS		HOL	E/CASIN		TER		R ADDI	ED
From 0.00 1	.20	Ty Inspec	tion Pit	From	To Durati	on Date/T	ime S	Time Elapsed	Rise To	Casing Sealed	Hole Dia. 300 200	Depth 1.20 25.00	casing Dia. 200	Depth 4.50	⊢rom	10 \	volume (ltr)
Remarks No groundw UT8 (1.50-1 43 blows. U	ater en .70) - 5 T34 (15	countered. 0% recove .00-15.45)	ry, 52 blo - 100% r otherwis	ws. UT13 (3.00 recovery, 38 blo e stated:	-3.40) - 90% ws. UT39 (18	recovery, 27 3.00-18.45) · Equipme	7 blows. - 100% n	UT18 (6.00-6.45) ecovery, 45 blows.	- 100% r	ecovery, 38 b	lows. UT2	25.45)-12.45) -	100% reco	gged By	ination E 25.4 Check	Depth: 5m ed By

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Project Northst	owe P	hase 2							Project N UA00 Easting (Project No. Ground Level (mAOD) UA008426-01 Easting (OS mE) Northing (OS mN)					Start 13/ 1 End E	Date 12/2016 Date	Scale 1:50			•
Homes and Communities Agency									53928	36.48		264/51.56)		14/1	12/2016	SI	neet 1	of	3
SAMPLES Depth Type/		/ Depth	TE Type/	ESTS Results		Water Strikes	PROGF Date Time	RESS Casing	STRATA Description						Legen	Depth (Thickness)	Level	Ins Ba	stall/ ckfill	
0.00 - 0.30 0.10 - 0.30 0.30 - 0.80	NO. B5 ES1 B6	-	NO.			,	13/12/2016 09:00	0.00	Turf ov sandy	ver soft to CLAY wit	o firm, dar th frequer	k brown mott nt rootlets.	led orang	je grey, s	slightly	312	(0.30) 0.30	Į	A	ې م
- 0.40 - 0.40 - 0.60 - 0.50	ES ES2 D29	-							Soft to gravell sub-ro	firm, ora ly CLAY. unded, fii	ngish bro Sand is fii ne to coai	wn mottled g ne to coarse. rse of flint. O	rey, sligh Gravel is ccasional	tly sandy s sub-ang rootlets	y slightly gular to		(0.50)	-		
- 1.20 - 1.20 - 1.20 - 1.40	D30 D31 ES3	- - 1.20	SPT(S)	N=7 (1,2/1,2,	2,2)				Soft to gravell to sub- [RIVEF	firm, gre ly silty CL -rounded R TERRA	ACE DEPO by mottled AY. Sand fine to co ACE DEPO	orangish bro is fine to coa oarse of flint. OSITS]	wn, sligh arse. Gra	tly sandy vel is sul	/ slightly o-angular		(1 20)			
1.20 - 1.70																		+		
- 2.00 2.00 - 2.50 2.30 - 2.50 -	D32 B9 D ES4								Firm, c of gyps [RIVEF	dark grey sum cryst R TERRA	mottled y tals. ACE DEPO	vellow CLAY v DSITS]	with occa	sional fra	agments		2.00 ·	+ + + + +		
— 3.00 - 3.45	5 UT6	- - - -															- - - -			
3.23 - 3.50 - 3.50 - 4.00	EW1 D33 B10	-							Firm to	o stiff, fiss	sured, gre	y silty CLAY	with occa	isional fii	ne shell		3.50	+		
• • 		- - - -							[RIVEF	R TERRA	ACE DEPO	OSITS]								
- 4.50 4.50 - 5.00	D34) B11	- 4.50 	SPT(S)	N=11 (1,2/2,3	3,3,3)													+		
- - 5.50	D35																			
- 5.50 - 6.00 - - - - 6.00 - 6.30) B12	-																+		
6.30 6.30 - 6.80	D36 B13								Grey S [KIMM	BILTSTOM	NE. CLAY FC	RMATION]				××××××××××××××××××××××××××××××××××××××	6.30	+ + + +		
- 7.00 7.00 - 7.50	D37 B14	-							Stiff, fis fragme [KIMM	ssured, g ents, up te ERIDGE	rey silty C o 1cm in v CLAY FC	CLAY with occ width. DRMATION]	casional 1	fine shell			6.80			
- 7.50 D38 7.50 - 7.80 B15		- - 7.50 -	SPT(S)	N>50 (25 for for 35mm)	30mm/50				Grey S [KIMM Stiff, fi	SILTSTON ERIDGE ssured, g	NE. CLAY FC jrey silty C	ORMATION]	casional f	fine shell			7.50 (0.20) 7.70			
- - 8.50	D39								fragme [KIMM	ents, up te ERIDGE	o 1cm in v CLAY FC	width. DRMATION]					(1.60)			
- 9.00 - 9.30	UT8	- - - -																		
9.30 9.30 - 9.90	D40 B17	- - - -							Grey SILTSTONE. [KIMMERIDGE CLAY FORMATION] Stiff, fissured, grey silty CLAY with occasional fine shell					9.30	+ + + + +					
		-												××××× ×	9.90	-	Z			
DRILLING To		G TECHNIQUE CHISEL Type Hard Strata			HISELLII Strata	NG Duratio	on	V imo S	WATER OBSERVATIONS HOLE/CASING DI Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing						NG DIAM	ETER Depth	WATE From	To RADD	ED Volume	e (ltr)
0.00 1.20	1.20 25.00	Inspec Cable P	ction Pit ercussion	From 6.30 7.50 9.30 15.80	To 6.80 7.70 9.90 16.30	00:44 00:30 00:44 00:44	Date/Ti	me S		e _iapseu	1.130 10	Sound Scale	300 200	1.20 25.00	200	3.00		~	_ crunk	- (10)
Remarks UT6 (3.00 100 blows	-3.45) - 1 . UT53 (00% recov	very, 40 bl 5) - 100%	ows. UT7 (6 recovery, 10	.00-6.30) 00 blows.	- 67% UT54 (recovery, 10 (18.00-18.4	00 blows 5) - 100%	. UT8 (9 % recove	.00-9.30) ery, 100 b) - 67% re lows. UT5	covery, 100 b 55 (21.00-21.	olows. UT 45) - 100	52 (12.0 % recov	0-12.45) - ery, 100 bl	100% rec ows. UT56	overy, S			_
(24.00-24.	45) - 10(J≫ recover	y, TUU DIO	ws.													Term	nination [25.0	Depth: 0m	:
	idie Cumru Hour		othorwis	o statod:			Equipme	ent Used				Contractor				L	aged By	Check	ked By	



Checke
BH1202

Project Norths	towe	Pha	ase 2							Project N UA008	o. 3426-0 ′	1	Ground Le	evel (mAC	DD)		Start 13/	Date 12/2016	Sc 1:	ale 50	
Client Homes	and	Con	nmuni	ties Ag	jency					Easting (0	OS mE) 6.48		Northing (26475	(OS mN) 1.56			End I 14/	Date 12/2016	SI	neet 2	of 3
SAM	IPLES			TE	ESTS		er es	PROGF	RESS					STRATA	4				Dopth		Install/
Depth	Ty N	pe/ o.	Depth	Type/ No.	Resu	ilts	Wat Strik	Date Time	Casing Water				Descr	ription				Legend	(Thickness	Level	Backfill
_		-								fragme [KIMMI	nts, up to ERIDGE	1cm in V CLAY FC	width. DRMATIC	DN]				×		1	
- 10.50	D41	-	10.50	SPT(S)	N=23 (3,3/5,5	i,6,7)		13/12/2016	3.00	-								×		ŧ	
-10.50 - 11. - -	.00 818	-						17:00 14/12/2016 09:00	3.00 10.4									×		Į	
-		F						00.00										×		ŧ	
-		-																×		Į	
- 11.50	D42	-																× 		ŧ	
- 11.50 - 12. - -	.00 618	-																× 		ļ	
- -12.00 - 12	.45 UT5	i2 -																$\overline{\times}$		ŧ	
-		-																×_×_		ļ	
- 12.50	D43	-																<u>×_×</u>		ŧ	
-	.00 020	-																<u></u>		-	
-		Ē																×_×_	(5.90)	ŧ	
-		-																×_×_		ł	
- - 13.50 -13.50 - 14	D44		13.50	SPT(S)	N=26 (4,5/6,6	6,6,8)												×		ŧ	
-	.00 021	F																×		ļ	
-		F																×		ŧ	
-		-																×		ļ	
- - 14.50 - 14.50 - 15	D45	-																×		ŧ	
-	.00 622	-																×		+	
- - 15.00 - 15	.45 UT5	i3 -																×		ŧ	
-		-																×		-	
- 15.50	D46																	×		ŧ	
- -15.80 - 16	.30 B23	-								Grav S								×	15.80	ł	
-		-								[KIMME	ERIDGE	CLAY FC	ORMATIC	ON]				× × × × × × ×	(0.50)	ŧ	
-		-								Verv et	iff fissure	d dark o	nev siltv		ith occa	siona	l fine shell	× × × × × × × ×	16.30	ł	
- 16.50	D47	-	16.50	SPT(S)	N=37 (6,7/7,9	,9,12)				fragme	nts, up to		width.			1310110		$\overline{}$		ŧ	
-		-								[i divitin		02/11/0		514]				×_×_		ŧ	
-		_																× ×		ŧ	
-		-																<u></u>		ł	
-17.50 - 18	.00 B25	-																<u></u>		ŧ	
-		-																×_×_		ţ	
18.00 - 18	.45 UT5	i4 -																×	(0.70)	ŧ	
-		-																×	(3.70)	-	
- 18.50 - 18.50 - 19	D48	-																×		ŧ	
-		-																×		+	
_		-																×		Ŧ	
-		-																×		ţ	
- 19.50 - 19.50 - 20	.00 B27	F	19.50	SPT(S)	N=36 (6,7/7,8	8,10,11)												×		ŧ	[]]]
-		-																×		+	
20.00 - 20	.30 B28	-								Grey S	ILTSTON	IE.						<u>×</u>	20.00 (0.30)	Ŧ	
-			ECHNIO					<u> </u>													
From	То		Ty	pe	Hard	Strata	Duratio	n Date/Ti	me S	Strike At Tir	ne Elapsed	Rise To	Casing	Sealed H	ole Dia.	Depth	Casing Dia.	Depth	From		Volume (Itr)
0.00 1.20	1.20 25.00		Inspec Cable Pe	tion Pit ercussion	6.30 7.50 9.30	6.80 7.70 9.90	00:45 00:30 00:45								300 200	1.20 25.00	200	3.00			
Remarks					15.80	16.30	00:45														
UT6 (3.00	0-3.45)	- 100	00 15 45	ery, 40 bl	lows. UT7 (6	.00-6.30)	- 67%	recovery, 10	0 blows	. UT8 (9.	00-9.30)	- 67% re	covery,	100 blow	/s. UT52	2 (12.0	0-12.45) -	100% rec	overy,		
(24.00-24	3. 0153 1.45) - 1	00%	recovery	y, 100%	ws.	NUUWS.	0154 (10.00-18.45	<i>)</i> - 100%		y, 100 Dli	ows. UIS	JU (21.UU	J-21.45)	- 100%	Tecov	cıy, i∪∪ D	ows. 0150	-	ungti)onth:
																			lern	25 0	Om
	rcadie Cumru I	louen	l Inloss (othorwis	o statod:			Equipme	nt Used				Contract	or				Lc	aaed By	Check	ed By



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BH1202

Project Norths	stov	ve Pl	hase 2							Project No. UA008426-0	01	Ground Level	(mAOD)		Start D 13/1	^{ate} 2/2016	Sca 1:	le 50	
Home	s ar	nd Co	ommuni	ties Ag	jency					539286.48		264751.5	^{mN)}		14/1	2/2016	Sh	ieet 3	of 3
SAN	MPLE	S		TE	ESTS		ter kes	PROGF	RESS			ST	RATA			1	Depth		Install/
Dept	h	Type/ No.	Depth	Type/ No.	Resi	ults	Wa Stri	Date Time	Casing Water			Descripti	on			Legend	(Thickness)	Levei	Backfill
-			-							[KIMMERIDGE Very stiff, fissu	CLAY FO red, dark g	RMATION] rey silty Cl	_AY with oc	casional	fine shell	××××× ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	20.30	ļ	
-			-							fragments, up [KIMMERIDGE	to 1cm in w	vidth. RMATION1				×		+	
_			-													×		Į	
-21.00 - 2' -	1.45	UT55	-													×	-	+	
-			-													×		İ	
- 21.50 -21.50 - 22) 2.00	D50 B57	-													×	-	÷	
			-													×		t	[]]]
_			-													×		Ļ	
-			-													×		ļ	
- - 22.50 -22.50 - 22)	D51	- 22.50	SPT(S)	N=42 (6,6/8,	10,11,13)										×	-	Ì	
-	0.00	200	-													×	(4.70)	-	
-			-													×	-	-	
-			-													×		Į	
- 23.50 - 24	4.00	B59	-													×	-	+	
-			-													×		Į	
- 	4.45	UT56	-													×	-	-	
-			-													×		İ	
_ - 24.50)	D51	- - 24.50	SPT(S)	N=42 (5,8/9,9	9,10,14)										×		Ļ	
- 24.50)	D52	-													×		ł	
-			-					14/12/2016	3.00							×	25.00 -	Ļ	////
-			-					17:00	0.00								20.00	ł	
-			-															Į	
-			-															Į	
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From	DRI T	LLING	TECHNIC	UE /pe	Hard	HISELLI Strata	NG Duratie	n -	V		ATIONS	Casing Sea	HOL Hole Dia	E/CASI	NG DIAME	TER Depth	WATE From	R ADDI	ED
0.00	1.	20	Inspec	ction Pit	From 6.30 7.50	To 6.80 7.70	00:45	Date/T	me 3		1.100 10	Juong Odd	300	1.20	200	3.00			(iu)
1.20	25	.00	Cable Pe	er cussion	9.30 15.80	9.90 16.30	00:45						200	20.00					
Remarks		45	000/											50 /10 5			I		
U16 (3.0 100 blow	JU-3.4 ws. U	45) - 1 T53 (1	00% recov	very, 40 bl 5) - 100%	ows. UT7 (6 recovery, 10	.00-6.30 00 blows) - 67% UT54 (recovery, 10 (18.00-18.4	00 blows 5) - 100%	. UI8 (9.00-9.30 % recovery, 100 l) - 67% rec blows. UT5	covery, 100 5 (21.00-2	blows. UT 1.45) - 100	52 (12.00 % recove	u-12.45) - 1 ery, 100 blo	00% reco ws. UT56	overy,		
(24.00-2	4.45) - 100	% recover	y, 100 blo	WS.												Term	ination D	epth:
																		25.0	0m
	Arcadis C	ymru House	Unless	otherwis	e stated:			Equipme	nt Used			Contractor				Lo	gged By	Check	ed By
AGS	ot Mellon Park Cardiff	5 BUSINESS	Depth (I	m), Diam	eter (mm),	lime (hh	mm),	Dando	2000			Arcadis	Consultir	ng (UK)	Ltd.	v	Р	AM	



BH1206

Project Norths Client	towe F	hase 2							Project No. UA008426-01 Easting (OS mE)	Ground Level (m	AOD) I)	Start D 14/1 End Da	ate 2/2016 ate	Sca 1:5	le 50	
Homes	and C	ommuni	ities Ag	jency					539281.02	264696.67		15/1	2/2016	Sh	eet 1	of 3
SAM	PLES	- /	TE	ESTS		ater ikes	PROGF	RESS		STRA	TA		1	Depth	l evel	Install/
Depth	No	Depth	No.	Resu	ults	St &	Date Time	Water		Description			Legend	(Thickness)	2010	Backfill
0.10 0.10 0.10 - 0.3	ES 0 ES1	-					14/12/2016	0.00	with roots and rootlet	n, brown slightly g s. Gravel is sub-a	ravelly slightly sli ngular to sub-rou	nded,	SALC	(0.40)		
- 0.40	B6	-							[TOP SOIL]	clightly gravelly	andy CLAX San	/		0.40	-	
- 0.60 - 0.8 - -	0 ES2	-							to coarse. Gravel is s	ub-angular to sub	-rounded, fine to	coarse of				
-		-							[RIVER TERRACE D	EPOSITS]				(1.00)	-	
1.20	D7	- 1.20	SPT(S)	N=9 (1,1/2,2,	2,3)											
- 1.40 - 1.60	B8 ES	-							Firm, bluish grey mot CLAY with occasiona	tled yellowish brow	vn, slightly sandy sum.	/ silty	×	1.40	-	
- 1.60 - 1.8	0 ES3	-							[RIVER TERRACE D	EPOSITS]			×		-	FILF
1.93 2.00	EW2 B10	2.00	SPT(S)	N=9 (1,2/2,2,	2,3)								×		-	F_ F
2.00	09												×			
-		-											×	(2.40)	-	
-		-											×			
— 3.00 - 3.00 - 3.4	B12 5 UT11	-												-	-	
- 245	D12	-					14/12/2016	1.65								
3.45 	013	-					17:00	1.65					×_×_		-	
-		-	0.000				09:00		Stiff, dark bluish grey	, slightly silty CLA	Y with occasional	l shell	×_*	3.80	-	
- 4.00 - 4.00 - 4.00 - 4.2	B15 D14 0 ES4	- 4.00	SPI(S)	N=16 (2,2/3,3	3,5,5)				[KIMMERIDGE CLAY	FORMATION]			×_*_	-		
4.20	EW1	-											×			
-		-											×		-	
- - 	5 UT16	-											×	_	-	
-	0110	-											×			
5.45	D17	-											×		-	
5.50	B18	-											×	(1.00)	-	
-		-											×	(4.00)	-	
-		-													-	
- 6.50	D19	- - 6.50	SPT(S)	N=19 (3,3/4,4	1,5,6)								<u></u>	-	-	
-		-											×			
- 7.00	B20	-											×	-	-	
-		-											×		-	
-		-											×			
-		-											× × × × × × × × × × × × × × × × × × ×	(0.20) 7.80	-	12
- - 8.00 - 8.00 - 8.4	U21 5 UT21	-							KIMMERIDGE CLAY	FORMATION]	aravelly CLAY wi	/		-	-	
		-							occasional shell frage	nents. Gravel is fi	ne to medium of	siltstone.				
8.45 8.50	D22 B23	-												-		
-														-		
-		E												-	-	
-		-	05-												ł	
- 9.50 -	D24	9.50	SPT(S)	N>50 (8,10/1 for 50mm)	2,22,16									-	t I	
-	Dec	-											· · · ·	-	ł	
- 10.00 -	B25	-									1		· · · ·	-	_	
From	DRILLIN To	<u>G TECHNIC</u> Ty	<u>QUE</u> /pe	Hard From	HISELLII Strata	NG Duratio	n Date/T	ime S	VATER OBSERVATION Strike At Time Elapsed Rise	IS To Casing Sealed	HOLE/CASII Hole Dia. Depth	NG DIAME Casing Dia.	TER Depth	From	R ADD	ED Volume (Itr)
0.00 1.20	1.20 25.45	Inspec Cable P	ction Pit ercussion	7.70	7.80 18.90	00:15 00:30	546/1				300 1.20 200 25.00 50 25.45	200	1.65			
Domini											ວບ 25.45					
No ground	dwater e	ncountered.			/F 66 -		201	00.00		4000/						
UI11 (3.0 recovery,	10-3.45) 78 blow	- 100% reco s. UT30 (14	overy, 27 t .00-14.45	biows. UT16) - 100% rec	(5.00-5.4 overy, 86	15) - 10 blows.	U% recovery UT34 (17.0	y, 38 blo 0-17.45	ws. U121 (8.00-8.45) -) - 100% recovery, 59 b	100% recovery, 4 lows. UT38 (20.0	9 DIOWS. UT26 (1 ו 100% - 20.45) - 100%	1.00-11.40 recovery, 6) - 90% 6 blows. I	JT42		
(23.00-23	.45) - 10	u% recover	y, 97 blov	vs.										Term	ination [25 4	Depth: 5m
							Fauinma	ntllood		Contractor						



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BH1206

Project Northsto Client	owe P	hase 2							Project No. UA008426-0 Easting (OS mE)	01	Ground Level (m. Northing (OS mN	AOD) I)	Sta 14 End	rt Date / 12/2016 I Date	Sc. 1:	^{ale} 50	
Homes a	and C	ommuni	ities Ag	jency			1		539281.02		264696.67		15	/12/2016	SI	neet 2	of 3
SAMPI	LES	1	TE	ESTS		ater ikes	PROGR	RESS			STRA	TA			Depth	Level	Install/
Depth	No.	Depth	No.	Resi	ults	Str &	Date Time	Water			Description			Legend	(Thickness) 2010	Backfill
-		-							Very stiff, dark occasional she	bluish gre Il fragmen	y, slightly silty to the silty the second seco	gravelly CL ne to mediu	AY with m of siltstone		-	1	
-		-							[KIMMERIDGE	CLAY FC	RMATION]				- - -	+	
-		-													-	I	
- 	UT26	-													-	+	
-		-													-	Ŧ	
_ - 11.50	B27	_													-	ļ	
-		-												· · · · ·		-	
-		-												· · · · ·		İ	
-		-												· · · · ·		1	
-		-		N 00 (5 5 (0)										· · · · ·		+	
- 12.50	D28	- 12.50	5P1(5)	N=28 (5,5/6,6	5,8,8)									· · · · ·		Ī	
-		-												· · · · ·	-	ļ	
— 13.00 -	B29	-												· · · · ·	-	÷	
-		Ē														Ì	
-		-												· · · · ·	-	ţ	
-		-													- 	ţ	
44.00 - 14.45	5 UT30	-													-	÷	
-		-													-	ļ	
- 14.50	B31	-													(10.90)	ŧ	
-		-													•	Ì	
-		-													• •_	1	H
-		-													• 	ţ	
- 15.50	032	-		N=29 (5.6/6.7	7 8 8)										-	İ	
-	0.52	-		11-23 (3,0/0,1	,0,0)										-	-	
-		-														ļ	
— 16.00	B33	-														Ť	
															-	I	
-		-													-	+	[]]]
-		-												· · · ·	• -	ţ	
17.00 - 17.45	5 UT34	-												· · · ·	-	÷	
-		-												· · · ·	-	-	
- 17.50	B35	-												· · · ·	-	ŧ	
														· · · · ·	-	I	
-		-												· · · · ·	-	1	
-		-												· · · · ·	-	-	
- 18 50	D36	- 18 50		N>50 (25 for											-	İ	
-	200	-		70mm/39,11	for 35mm)									*****	18.70	-	
-		-							[KIMMERIDGE	NE. CLAY FC	RMATION]			× × × × × × × × × ×	(0.30)	-	
- 19.00	B37	-							Very stiff, dark	bluish gre	y, slightly silty	CLAY with o	occasional		19.00	Ī	
-		-							[KIMMERIDGE	CLAY FC	RMATION]			×	-	ļ	
-		-												×	-	÷	
														×	-	Ī	
20.00 - 20.45	5 UT38	-												×		Ŧ	
-		-													1		/ ' , / /
From	To	<u>, iechnic</u> T	<u>vDE</u> ype	Hard From	HISELLI Strata	Duratio	n Date/Ti	me s	VALER OBSERV	A LIONS	Casing Sealed	HOLE/(Hole Dia. D	epth Casing Di	vi⊨ I E R a. Depth	From	<u>דא ADD</u> דס וי	ED Volume (ltr)
0.00	1.20 25.45	Inspec Cable P	ction Pit ercussion	7.70 18.70	7.80 18.90	00:15 00:30	Batorn					300 · 200 2	1.20 200 5.00	1.65			
		22.5.01										50 2	5.45				
Remarks	vater er																
UT11 (3.00	-3.45) -	100% reco	overy, 27 b	blows. UT16	(5.00-5.4	5) - 100)% recovery	/, 38 blo	ws. UT21 (8.00-8	8.45) - 100 v 59 blow	% recovery, 49	9 blows. UT	26 (11.00-11.	40) - 90%	11742		
(23.00-23.4	5) - 100	0130 (14) 0% recover	y, 97 blov	y - 100% rec vs.	overy, 86	DIOWS.	0134 (17.0	u-17.45	- 100% recover	y, ວອ blow	3. 0130 (20.00	J-20.43) - 11	Jo 70 recovery	, oo didws.	Term	nination E	Depth:
																25.4	5m
Arcad	is Cymru Hou:	∞ Unless	otherwis	e stated:			Equipme	nt Used			Contractor			Lo	ogged By	Check	ked By



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В	Η	1	2	0	6

lorthsto	we Pl	hase 2	tios An	Iency				Project No. UA008426-01 Easting (OS mE) 539281 02	Ground Level (mAOD) Northing (OS mN) 264696 67	Start Date 14/12/2 End Date 15/12/2	2016	Sca 1:4 Sh	le 50	of 3
SAMPI	FS			-979		PROGE	RESS		STRATA			0.		
Denth	Type/	Denth	Type/	Results	Mater Strikes	Date Time	Casing		Description	i	egend	Depth (Thickness)	Level	Install Backfi
20.50	No. B39	-	No.				Water	Very stiff, dark bluish shell fragments. [KIMMERIDGE CLA]	grey, slightly silty CLAY with (FORMATION]	h occasional				
21.50	D40	- - - - 21.50	SPT(S)	N=44 (5,7/9,10,12,13	3)					X X X	× × ×	-		
22.00	B41	- - - - - -								X X X X		-	- - - - - - - - -	
3.00 - 23.45	UT42	- - - - - - -								X X X X		(6.45)	* * * * * * * * *	
23.50	B43	- - - - - - - - - - -								X X X X X		-	+ + + + + + + + + + + + + + + +	
25.00	D44	- - - 25.00 - - -	SPT(S)	N>50 (7,9/10,11,12,1 for 5mm)	13	15/12/2016 17:00	1.65			x x x		25.45		
		- - - - - -										-	- - - - - - - - - -	
		- - - - - - - -										-	+ + + + + + + + + + + + + +	
		- - - - - -										-	* * * * * * * *	
		- - - - - - -										-	+ + + + + + + + + + + +	
DR			UE	CHISEL	LING			WATER OBSERVATIO	NS HOLE	E/CASING DIAMETE	R	WATE	RADD	ED
From 0.00 1 1.20 2	To 1.20 5.45	Ty Inspec Cable Pe	rpe tion Pit ercussion	Hard Strata From To 7.70 7.80 18.70 18.90	Duratio 0 00:15 0 00:30	Date/T	ime S	Strike At Time Elapsed Rise	To Casing Sealed Hole Dia. 300 200 50	Depth Casing Dia. De 1.20 200 1. 25.00 25.45 1.	epth .65	From	To N	/olume (Itr
emarks o groundw T11 (3.00- covery, 78 23.00-23.4	ater en 3.45) - 5 blows. 5) - 100	countered. 100% reco UT30 (14. % recover	very, 27 b 00-14.45 y, 97 blow	blows. UT16 (5.00-) - 100% recovery, vs.	5.45) - 10 86 blows	0% recover <u>.</u> . UT34 (17.0	y, 38 blo 00-17.45	ws. UT21 (8.00-8.45) -) - 100% recovery, 59 b	100% recovery, 49 blows. L blows. UT38 (20.00-20.45) -	JT26 (11.00-11.40) - 9 100% recovery, 66 b	90% Jows. L	JT42 Term	ination D	Depth:
													25.4	5m
Arcadis St Mello	Cymru House	Unless	otherwise	e stated: eter (mm) Time (k	hmm)	Equipme	ent Used		Contractor		Log	gged By	Check	ed By

BH601

SAMT-LS TES 15 PERAID PERAID PERAID PERAID STRAIA Legen (P) Depth Work Depth Work Peraid Strain Legen (P) Description Legen (P) Description Legen (P) Description Legen (P) MADE CRUDUC Find and Komp games (CAM games and CM games) Description MADE CRUDUC Find and Komp games (CAM games and CM games) Description	^{Scale} 1:50 Sheet 1 of 1	Sca 1: St	Start Date 07/12/2016 End Date 07/12/2016	Ground Level (mAOD) Star 1 5.85 07/ Northing (OS mN) End 267262.02 07/	Project No. UA008426-0 Easting (OS mE) 541209.72					jency	ties Ag	nase 2 ommuni	we Ph and Co	Project Northsto Client Homes a
Open Open <th< th=""><th></th><th></th><th></th><th>STRATA</th><th></th><th>RESS</th><th>PROGE</th><th><u>ب</u> ۵</th><th></th><th>ESTS</th><th>TE</th><th></th><th>ES</th><th>SAMP</th></th<>				STRATA		RESS	PROGE	<u>ب</u> ۵		ESTS	TE		ES	SAMP
000 - 0.20 100	Level Install/ Backfill	Depth (Thickness)	Legend	Description		Casing	Date Time	Wate	ults	Result	Type/	Depth	Type/	Depth
Control Control <t< td=""><td>5.75</td><td>0.10 (0.70)</td><td>s sub-</td><td>D: Grass over brown, sandy CLAY. D: Firm, dark brown gravelly CLAY. Gravel is sub ounded, fine to coarse of mixed lithologies, bar (20x1x1cm), cloth, brick and glass.</td><td>MADE GROUN MADE GROUN angular to sub- including an iro</td><td>0.00</td><td>07/12/2016 08:00</td><td></td><td></td><td></td><td></td><td>- - - - -</td><td>B1 ES15 D17 ES B2 ES12</td><td>0.00 - 0.30 0.00 - 0.30 0.30 0.30 0.30 - 0.80 0.30 - 0.80</td></t<>	5.75	0.10 (0.70)	s sub-	D: Grass over brown, sandy CLAY. D: Firm, dark brown gravelly CLAY. Gravel is sub ounded, fine to coarse of mixed lithologies, bar (20x1x1cm), cloth, brick and glass.	MADE GROUN MADE GROUN angular to sub- including an iro	0.00	07/12/2016 08:00					- - - - -	B1 ES15 D17 ES B2 ES12	0.00 - 0.30 0.00 - 0.30 0.30 0.30 0.30 - 0.80 0.30 - 0.80
100 100 </td <td></td> <td></td> <td>Y. tone.</td> <td>vn mottled greenish grey, silty gravelly CLAY. medium, subangular to subrounded of siltstone. CE DEPSOITS]</td> <td>Soft to firm, bro Gravel is fine to [RIVER TERRA</td> <td></td> <td></td> <td></td> <td>3,3,3)</td> <td>N=12 (1,1/3,3,3</td> <td>SPT(S)</td> <td>- - - - - - - - - - - -</td> <td>D18 ES B3 ES13 D19</td> <td>- 1.00 1.00 - 2.00 1.00 - 2.00 1.00 - 2.00 1.20</td>			Y. tone.	vn mottled greenish grey, silty gravelly CLAY. medium, subangular to subrounded of siltstone. CE DEPSOITS]	Soft to firm, bro Gravel is fine to [RIVER TERRA				3,3,3)	N=12 (1,1/3,3,3	SPT(S)	- - - - - - - - - - - -	D18 ES B3 ES13 D19	- 1.00 1.00 - 2.00 1.00 - 2.00 1.00 - 2.00 1.20
300 Control <thcontrol< th=""> <thcontrol< th=""> <thcont< td=""><td></td><td>(2.80)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>D20 B4 EW2</td><td>- 2.00 2.00 - 3.00 2.20</td></thcont<></thcontrol<></thcontrol<>		(2.80)										-	D20 B4 EW2	- 2.00 2.00 - 3.00 2.20
-380 - 650 B7 -4.50 SPT(S) N=50 (2.37.8.25.40 for B0mm) PCIMMER/DGE CLAY FORMATION) V <td>2.25</td> <td>3.60 (0.20) 3.80</td> <td></td> <td>E. CLAY FORMATION] dark grev silty CLAY</td> <td>Grey SILTSTOI [KIMMERIDGE Stiff to very stif</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>D21 U30 UT30 B5 EW1 D22 ES B6</td> <td>- 3.00 - 3.00 - 3.45 - 3.00 - 3.80 - 3.20 - 3.50 </td>	2.25	3.60 (0.20) 3.80		E. CLAY FORMATION] dark grev silty CLAY	Grey SILTSTOI [KIMMERIDGE Stiff to very stif								D21 U30 UT30 B5 EW1 D22 ES B6	- 3.00 - 3.00 - 3.45 - 3.00 - 3.80 - 3.20 - 3.50
5.00 D24 Creation Crea				CLAY FORMATION]	[KIMMERIDGE				3,25,40 for	N>50 (2,3/7,8,2 60mm)	SPT(S)		ES14 D23 B7	- 3.80 - 4.50 - 4.00
6.00 6.00 - 6.33 D25 UT31	0.85	-2 - 5.00 - (0.20) - 5.20 	shells x	E. CLAY FORMATION] LAY with occasional gravel of siltstone and shell n x 1cm). CLAY FORMATION]	Grey SILTSTO [KIMMERIDGE Stiff, grey silty ((up to 1cm x 1c [KIMMERIDGE							- - - - - -	D24 B8	- 5.00 - 5.00
- 7.00 D26 - 7.50 SPT(S) N=27 (4.4/5,7,7,8) Image: Constraint of the state of		1										- - - - - -	D25 UT31 B9	- 6.00 6.00 - 6.33 - - - - 6.50 - 7.50
7.50 - 8.50 B10 − 7.50 SPT(S) N=27 (4.4/5,7.7.8) A <td></td> <td>1<u>, 11, 1</u>, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- - - - -</td> <td>D26</td> <td>- 7.00</td>		1 <u>, 11, 1</u> , 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,										- - - - -	D26	- 7.00
0.00 027 - <td></td> <td>(4.80)</td> <td>× × ×</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>7,7,8)</td> <td>N=27 (4,4/5,7,7</td> <td>SPT(S)</td> <td>- 7.50 - - -</td> <td>B10</td> <td>- 7.50 - 8.50</td>		(4.80)	× × ×						7,7,8)	N=27 (4,4/5,7,7	SPT(S)	- 7.50 - - -	B10	- 7.50 - 8.50
- 9.00 D28 - 10.0 0 0 0 0 0 0 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>B11</td><td>- 8.50 - 9.50</td></t<>													B11	- 8.50 - 9.50
9.50 B16 - <td></td> <td>141 - 141 -</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- - - -</td> <td>D28</td> <td>- 9.00</td>		1 41 - 1 41 -										- - - -	D28	- 9.00
10.00 D29 - 07/12/2016 1.50 1.50 - - - 10.00 1.50 - - - 10.00 1.50 - - 10.00 1.50 - - - 10.00 1.50 - - - 10.00 10.00 - - 10.00 10.00 - - - - - 10.00 10.00 - - - - - - - 10.00 -		<u>, 11, 11, 11, 11, 11, 11, 11, 11, 11, 1</u>										- - - -	B16 UT32	- 9.50 9.50 - 9.95
DRILLING TECHNIQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER V From To Type Hard Strata Duration Date/Time Strike At Time Elapsed Rise To Casing Depth Casing Dia Depth From To 0.00 1.20 Inspection Pit 3.60 3.80 00:30 District Casing Strike At Time Elapsed Rise To Casing Diate/Time Strike At Time Elapsed Strike At Strike At Strike At Time Elapsed Strike At<	-4.15	- 10.00 -				1.50	07/12/2016 15:00					-	D29	- 10.00
1.20 Inspection Pit 3.60 3.80 00:30 Early between the processing of the processing o		WATE		TIONS HOLE/CASING DIAN		V	'n	NG Durot	HISELLI	CH Hard St	UE	TECHNIQ		DI
	volume (ltr)		200 1.50	Casing Sealed noie Dia. Depth Casing Dia 300 1.20 200 200 10.00		ime S	" Date/T	00:30 00:30	To 3.80 5.20	From 3.60 5.00	ion Pit rcussion	Inspec Cable Pe	1.20 0.00	0.00
Remarks No groundwater encountered. UT30 (3.00-3.45) - 100% recovery, 25 blows. UT31 (6.00-6.33) - 75% recovery, 85 blows. UT32 (9.50-9.95) - 100% recovery, 100 blows.	ermination Depth:	Term								blows. lows.) blows.	very, 25 b ery, 85 blo very, 100	countered. 100% reco 75% recov 100% reco	vater end -3.45) - 7 -6.33) - 7 -9.95) - 7	Remarks No grounds UT30 (3.00 UT31 (6.00 UT32 (9.50
Arcadis Cymmu House Unless otherwise stated: Equipment Used Contractor Logged B	Checked By	ogged By	Lo	Contractor		ent Used	Equipme			e stated:	otherwise	Unless	s Cymru House	Arcad



Arcadis Consulting (UK) Ltd.

BH602

Project Northstor	we Pł	nase 2							Project No. UA008426-01	Ground Leve 7.68	el (mAOD)	Start [06/1	^{2/2016}	Sca 1:	le 50	
Homes a	nd Co	ommuni	ties Ag	ency					541375.29	267143.	84	06/1	ate 2/2016	Sh	leet 1	of 2
SAMPL	ES		TE	STS		ter (es	PROGF	RESS		ST	rata			Depth		Install
Depth	Type/ No.	Depth	Type/ No.	Resu	lts	Vat Strik	Date Time	Casing Water		Descript	ion		Legend	(Thickness)	Level	Backfi
0.00 0.00 - 0.40 0.00 - 1.00 0.40 - 1.20 0.50	ES ES1 B2 ES3 D14	-					06/12/2016 11:00	0.00	Grass over brown, s to <1mm). Sand is fi [TOPSOIL] Firm, orangish brown	lightly sandy sil ne to medium. n, slightly sandy	ty CLAY with fine r	cootlets (up	112: 114 12: 114 12: 114 12: 114	(0.40) 0.40	7.28	
- - - - 1.00	D15	-							thin lenses of grey c angular to sub-round [RIVER TERRACE I	lay . Sand is fin ded, fine to coar DEPOSITS]	e to coarse. Grave se of mixed litholo	el is sub- gies.		(0.70)	-	
- 1.20 - 1.20 - 1.20 - 1.70 - 1.40	D16 EWW2 B4 EWW1	- 1.20 - -	SPT(C)	N=5 (2,3/1,1,2	2,1)				Loose, orangish bro fine to coarse. Grave coarse of mixed litho [RIVER TERRACE I	wn, slightly clay el is sub-angula blogies. DEPOSITS]	ey sandy GRAVEI r to sub-rounded,	Sand is fine to		(0.70)	0.50	
- 1.80 - 1.80 - 1.80 - 2.30 - 1.80 - 2.30	D17 ES B5 ES6	- - - -							Soft to firm, brown n Gravel is sub-angula lithologies. [RIVER TERRACE I	nottled grey, slig ar to sub-rounde DEPOSITS]	htly silty gravelly (ed, fine to coarse o	CLAY. of mixed	× · · · · · · · · · · · · · · · · · · ·	1.80	5.88	
- - - -		-											×	(1.40)	- - - - - -	
- 3.00 3.00 - 3.20 3.00 - 3.50 3.00 - 3.50 3.20 3.50	D18 UT28 B7 ES8 D19 D20	- - - - 3.50	SPT(S)	N>50 (5,5/4,4	,4 for				Grey SILTSTONE. [KIMMERIDGE CLA Firm to stiff grey silty	Y FORMATION] y CLAY with occas	sional small		3.20 (0.20) 3.40 (0.20)	4.48	
3.50 - 4.00 	B9 D21	- - - -		55mm)					gypsum crystals. Gr coarse of mixed litho [KIMMERIDGE CLA Grey SILTSTONE. [KIMMERIDGE CLA	avel is sub-anguologies. Y FORMATION	ular to sub-rounde]	d, fine to		3.60 (0.20) 3.80	4.08 3.88	
- - 4.50 - 4.95 - -	UT29	-							Firm to stiff, grey, sil crystals and angular [KIMMERIDGE CLA	ty CLAY with oc gravel of siltsto Y FORMATION	casional small gypone (up to 3cm x 1]	osum cm x 2cm).		(1.80)		
5.00 - 5.00 - 5.50 - -	D22 B10	- - - -														
- - - - 6.00 - 6.50	D23 B11	- - - - - - 6.00	SPT(S)	N=21 (3,3/4,4	.,6,7)				Stiff, dark grey, silty [KIMMERIDGE CLA	CLAY. Y FORMATION]			5.60	2.08	
- - - 7.00	D24	- - - - - -												-	+ + + + + + +	
- - 7.50 - 7.95 -	UT30	-												(4.85)	- - - - - -	
8.00 - 8.00 - 8.50 - - - -	D25 B12													-		
- - 9.00 - -	D26	- - - 9.00 -	SPT(S)	N=23 (2,3/4,5	,7,7)										+ + + + + +	
-9.50 - 10.00	B13		SDT(S)	N=24 (3 3/4 6	6.8)									-	† + + + +	
10.00										Ne				\A/ATC		
DR From 0.00 1 1.20 10	To 1.20 0.45	IECHNIQ Ty Inspec Cable Pe	tion Pit ercussion	Hard : From 3.20 3.60	HISELLII Strata To 3.40 3.80	Duratio 00:30 00:30	n Date/Ti 06/12/2016	V ime S 3 12:00	VALER OBSERVATIO trike At Time Elapsed Ris 4.50	e To Casing Sea	HOLE/CA3 aled Hole Dia. Deptr 300 1.20 200 10.00 50 10.45	Casing DIAME	Depth 1.00	From		<u>=D</u> /olume (Itr
Remarks Groundwate UT16 (3.00: UT29 (4.50 UT30 (7.50 UT30 (7.50-	er seepa 3.20) - 4 4.95) - 7 7.95) - 7	uge at 4.50 44% recov 100% reco 100% reco Unless	m bgl. ery, 100 b very, 75 b very, 100 otherwise	blows. blows. blows.	ime (bb)		Equipme	ent Used		Contractor			Lo	Term gged By	ination D 10.4	epth: 5m ed By



Arcadis Consulting (UK) Ltd.

Project Norths Client	towe P	hase 2							Project UA0 Easting	No. 08426-0 (OS mE))1	Ground Le 7.68 Northing (evel (m/ (OS mN	AOD) I)		Start I 06/1 End D	Date 2/2016 ate	Sc 1	ale 50	
Homes	and Co	ommuni	ties Age	ency					5413	575.29		26714	3.84			06/1	2/2016	5	neet 2	of 2
SAM	PLES Type/		TES Type/	STS _		/ater rikes	PROGF	RESS Casing					STRA	TA				Depth	Level	Install/ Backfill
Depth	No.	Depth	No.	Resu	llts	≥ ≌	Date Time	Water	Stiff	dark grev	silty CLA	Descr	ription					(1110101000	.,	
		-							[KIM	MERIDGE	CLAY FO	ORMATIC	ON]						Į.	
-		-					06/12/2016 16:00	1.00										10.45	-2.77	
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-				C	HISFLUN	IG IG		\		OBSERV	ATIONS			ног	F/CASI			WAT		FD
From	To	Ty	vpe	Hard From	Strata To	Duration	Date/Ti	me S	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	From	То	Volume (ltr)
1.20	1.20	Inspec Cable Pe	ercussion	3.20 3.60	3.40 3.80	00:30	00/12/2016	v 1∠.UU	4.50			1.00		200 50	10.00 10.45	200	1.00			
Remarks																				
Groundw UT16 (3 (ater seepa	age at 4.50 44% recov	m bgl. erv. 100 bl	ows																
UT29 (4.5	50-4.95) -	100% reco	very, 75 bl	OWS.														.	nineti)onth:
0130 (7.8	- (כפ. ו-טכ	100% (600	wery, 100 l	JIUWS.														len	10 <i>1</i>	5m
	rcadis Cumo Harris		otherwise	stated			Equinme	nt Used				Contract	or				Lo	gged Bv	Check	ked Bv
AGS	Mellons Business ark ardiff F3 0EY	Depth (I Thickne	m), Diamei ss (m), Le	ter (mm), T evel (mOD).	ïme (hhr	nm),	Pilcon	2000				Arcad	is Co	nsultin	ıg (UK)	Ltd.	V	P	AM	

BH603

roject Iorthsto lient	we Pl	nase 2							Project No. UA008426-01 Easting (OS mE)		Ground Level 6.98 Northing (OS	(mAOD) mN)		Start Da	ate 2/2016 te	Sca 1:	ale 50	-64
		ommuni	ties Ag	ency			PROOF		541475.10		26/014.5			06/12	2/2016	5	ieet 1	OT 1
SAMPL	ES Type/	Denth	Type/	515	14-	Vater trikes	PROGR	Casing			SI	RAIA				Depth (Thickness	Level	Insta Back
Depth	No.	Depth	No.	Resu	lis	> v	06/12/2016	Water 0.00	MADE GROUND	Grass	over soft, b	rown sliaht	lv siltv CLAY		XXXX	(0.20)		an n
0.30	B2	-					12:00		MADE GROUND	Soft to	firm, browr	n, slightly gr	avelly, silty (CLAY.	XX	0.20	6.78	
0.30	D1 ES	-							Gravel is sub-ang	ular to s	sub-rounde	d, fine to co	barse of mixe	ed	\bigotimes		ļ	
0.30 - 1.00	B3 ES2	-							intrologico.							(0.80)	1	
	202	-													\boxtimes		1	
1.00	B2 B3	-							Soft, light grey mo	ottled br	own, silty C	LAY.			×	1.00	- 5.98	11
.00 - 1.20	ES5	-									56116]				×		ł	
1.20	B2 B5	-													<u>×_^-</u> _	(1.20)	÷	21
1.20	D15 D6	-													×		ţ	74
1.20	UT16	-													×		+	44
.20 - 1.65	UT7	-							Soft to firm, arev	mottled	brown. slia	htlv gravelly	v siltv CLAY.		×	2.20	4.78	H
2.00	D17	-							Gravel is angular,	fine to	medium of	siltstone.			$\overline{\times}$	(0.30)	4 4 8	
2.00	B10	-							Grey SILTSTONE						× × × × × × ×	(0.20) 2.70	4.28	
2.50	D11	-							Firm to stiff, greyi	LAY FO sh brow	n, silty CLA	Y.		/			ļ	
3.00 3.00	D12 D20	— 3.00 -	SPT(S)	N=15 (2,2/3,3	,4,5)				[KIMMERIDGE C	LAY FO	RMATION]				$\overline{\times}$ \times		÷	74
.00 - 3.45	D13	-															ŧ	12
3.50	B7 ES	-													×		ł	
8.50 - 4.00	B14 ES15	-													×		ļ	12
4.00	D16	-													×	(2 70)	+	1
4.00	D21	-													×	(2.70)	ļ	11
4 50	1120	-													×		Į	12
4.50	UT29	-													×		Ī	
.50 - 4.95	0117	-													×	0	ļ	1
5.00	D18	-													<u></u>		÷	$\langle \rangle$
		-													<u></u>			
5.50	B9	-							Stiff, grey, silty CL	AY.					<u>_ ×</u>	5.40 (0.20)	1.58	1
.50 - 6.00	B20 ES19	-							Grey SILTSTONE	LATFO	RIVIATION				× × × × × ×	(0.20)	1.38	1
5.60 6.00	D21 D22	- 6.00	SPT(S)	N=23 (2.2/5.5	.5.8)				Very stiff, grey, sil	LAY FO ty CLAY	RMATION] 7.					5.00	-	
.00 - 6.45	D23	-			, . , . ,				[KIMMERIDGE C	LAY FO	RMATION]						ļ	
		-													×		ł	
6.50 6.50 - 7.00	B11 B24	-													×		Ŧ	12
		-													×		ł	
7.00	D25	-													×		÷	[
		-													<u>×_^</u> _		1	
7.50	UT27	-													×		ŧ	
.50 - 8.00	B26	-													×		ł	
8 00	D26	-													×	(4.20)	-	
8.00	D28	-													<u>×_×</u> _		ļ	F
		-													<u></u>		ţ	F
5.50 - 9.00	B29	-													<u></u>		Ť	
		-													<u> </u>		ļ	
9.00 9.00	D27 D30	-															ŧ	
		-													$\overline{\times}$ \times		ţ	
9.50	B14	9.50	SPT(S)	N=30 (2,3/7,7	,8,8)												ŧ	
50 - 10.00	D31	-															ţ	
		-					06/12/2016	3.00							×	10.00	-3.02	
np					HISELL		17:00	v				ЦОІ	F/CASINO			\\/\TT	ם מא	
rom	To	TECHNIC Ty	/pe	Hard From	Strata To	Duratio	n Date/Ti	me S	trike At Time Elapsed	Rise To	Casing Sea	led Hole Dia.	Depth Casi	ng Dia.	Depth	From	To V	/olume (
0.00 1 1.20 10	0.00	Inspec Cable P	ction Pit ercussion	2.50 5.60	2.70 5.80	00:30 00:30		T				300 200	1.20 2 10.00	200	3.00		T	
marks groundw 7 (1.20-1	ater en .65) - N	countered.	, 50 blows	s.														
17 (4.50- 27 (7.50-	4.95) - 7.95) -	100% reco 100% reco	overy, 50 b overy, 59 b	olows. olows.												Tern	ination [Depth:
																	10.0	0m
Arcadis	Cymru House	Unless	otherwise	e stated:			Equipme	nt Used			Contractor				Lo	gged By	Check	ed By
St Mello Park Cardiff	ons Business	Depth (m), Diame	eter (mm), T	ime (hhı	nm),	Dando	2000			Arcadis	Consultin	ig (UK) Lto	ł.	V	Р	АМ	-

Project Northsto Client Homes a	we Ph Ind Co	nase 2 ommuni	ities Ag	jency				Project No. UA008426-01 Easting (OS mE) 541663.57	Ground Level (m 5.93 Northing (OS m 266440.74	AOD) Sta 12 I) En 12	rt Date 2/12/2016 d Date 2/12/2016	Sca 1:: Sh	^{le} 50 leet 1	of 2
SAMPL	ES		TE	ESTS	er tes	PROG	RESS		STRA	ТА		Denth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik	Date Time	Casing Water		Description		Legend	(Thickness)	Level	Backfill
0.10 - 0.30 0.10 - 0.30	B5 ES1	-				12/12/2016 08:00	0.00	Grass over firm, bro Sand is fine to coars	wn, slightly sandy s se. Gravel is sub-ar	lightly gravelly CLAY. Igular to sub-rounded, fi		(0.30)	-	× [
- 0.30 - 0.75	B6 ES	-						to coarse of sandsto width).	one. Roots and root	lets present (up to 1cm	n /	0.30	5.63	
0.40 - 0.80	E32 D1 B7	-						\[TOP SOIL] Firm, orangish brow	n, slightly gravelly	andy CLAY. Sand is fin	e	0.45)	5 1 8	
0.75 - 1.20	D2 ES3	-						to coarse. Gravel is flint and sandstone.	sub-angular to sub Occasional roots p	rounded, fine to coarse resent (1cm x 2cm x	of $\boxed{\times \times}$	0.75	5.16	
- 1.20 - 1.65	D3	- 1.20	SPT(S)	N=5 (1,1/1,1,1,2)				3cm). IRIVER TERRACE	DEPOSITSI	·			ļ	111
- 1.20 - 1.70	B8	-						Soft to firm, bluish g	rey mottled orangis	h brown, slightly sandy to coarse. Gravel is sub	- <u>× </u>		ł	
F		-						angular to sub-roun	ded, fine to coarse	of flint and sandstone.	×	-	Ŧ	
- 1.80 - 1.80	EWW1 EWW2	-						[221 00110]		× ×	-	+	111
2.00 - 2.50	D4 B9	-									×		Ī	
-		-										-	ł	
		_										(3.75)	Ī	
-		-									×_×_		-	
3.00 - 3.45	UT1	_									<u></u>		Ē.	
-		-									×_×_	4 14	ł	
3.50 - 4.00	D5 B10	-									×_×_		Ì	H
-		-									×_×_		÷	H
		_									<u></u>		t I	H
		-									<u></u>		ļ	H
- 4.50 - 4.95 - 4.50 - 5.00	D6 B11	- 4.50 -	SPT(S)	N=14 (1,2/3,3,4,4)				Soft to firm, fissured	l, dark grey, silty CL	AY with occasional shel		4.50	- 1.43	
- 4.60 - 4.80 -	ES4	-						[KIMMERIDGE CLA	Y FORMATION]		×_ <u>×</u> _		Į	
-		-									×	-	+	
		-									×		Į	
- 5.50 - 5.50 - 6.00	D7 B12	-									×_*_		÷	
Ē											<u>×_</u>		Į	
- 6.00 - 6.00 - 6.45	U2 UT2	-									×		-	
		-									×_*_	-	ţ	
- 6.50 - 6.50 - 7.00	D8 B13	-									×	 -	+	
		-									×		İ	
-		-									×		÷	÷:
											×	(5.95)	t	
- 7.50 - 7.95 - 7.50 - 8.00	D9 B14	- 7.50	SPT(S)	N=14 (1,2/2,3,4,5)							×		ļ	Ē
		-									×		İ	- 8
-		-									×		÷	8
		-											İ	
8.50 - 8.50 - 8.50	D10 B15	_											Į	
-		-									×	-	ŧ	
9.00 - 9.45	UT3	-									×		ļ.	
E											$\frac{1}{x}$		İ	
9.50 9.50 - 10.00	D11 B16	-									×_×	-	ł	
-	1	-									× ×	4	ŧ	
10.00 - 10.45	D12	- 10.00	SPT(S)	N=21 (2,3/4,5,6,6)							<u>×</u>		F	
				CHISE Hard Strata			<u> </u>	WATER OBSERVATIO	ONS	HOLE/CASING DIA	METER	WATE	R ADDI	ED
0.00	1.20	Inspec	ction Pit	From	o Duratio	Date/T	ime S	SUTIKE AT TIME Elapsed Ris	se ro Casing Sealed	Hole Dia. Depth Casing D 300 1.20 200 200 10.00 10.00	a. Depth 1.50	⊢rom	10 \	oiume (ltr)
1.20	0.70	Cable P	0100351011							50 10.45				
Remarks	ater en	countered												
UT1 (3.00-3 UT2 (6.00-6	6.45) - 10 6.45) - 10	00% recov	/ery, 95 bl /ery. 75 bl	ows. ows.										
UT3 (9.00-9	.45) - 10	00% recov	/ery, 100 l	plows.								Term	ination D	epth:
													10.4	5m
Arcadie St Mella Park Cardiff CF3 0E	s Cymru House ons Business Y	Unless Depth (Thickne	otherwis m), Diam ess (m). L	e stated: eter (mm), Time .evel (mOD).	(hhmm),	Equipme Pilcor	ent Used 1 2000		Contractor Arcadis Co	nsulting (UK) Ltd.	La V	ogged By 'P	Check	ed By

Project Norths Client Homes	towe Pl	hase 2 ommuni	ties Aa	encv					Project No. UA008426-0 Easting (OS mE) 541663-57	1	Ground Level (r 5.93 Northing (OS m 266440.74	mAOD) IN) L		Start D 12/1 End Da 12/1	ate 2/2016 ate 2/2016	sc 1: SI	ale 50 neet 2	of 2
SAM			<u>те</u>	опо ј 979			PROCE	DESS				ΔΤΔ						
Depth	Type/	Depth	Type/	Resu	ilts	Water Strikes	Date Time	Casing Water			Description	n			Legend	Depth (Thickness	Level	Install/ Backfill
		-							Soft to firm, fiss fragments.	ured, dar	k grey, silty C	LAY with	occasiona	l shell	×		1	[]]]
-		-					12/12/2016	1.50	[KIMMERIDGE	CLAY FC	DRMATION]				× ×	10.45	-4.52	////
		-					10.00										ļ	
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	DRILLING		UE	C	HISELLIN	I IG		V	L NATER OBSERV	ATIONS		HOL	E/CASING	G DIAME	TER	WATE	RADD	ED
From 0.00	To 1.20	Ty Inspec	rpe tion Pit	From	To	Duratio	n Date/Ti	me S	Strike At Time Elapsed	Rise To	Casing Sealed	d Hole Dia.	Depth Ca 1.20	asing Dia. 200	Depth 1.50	From	To	Volume (Itr)
1.20	10.45	Cable Pe	ercussion									200 50	10.00					
Remarks	dwater en	countered														I		
UT1 (3.00	0-3.45) - 1 0-6.45) - 1	00% recov	ery, 95 blo	DWS.														
UT3 (9.00	0-9.45) - 1	00% recov	ery, 100 bl	lows.												Tern	nination [Depth:
																	10.4	5m
AGS	rcadis Cymru Hous Mellons Business ark ardiff F3 0EY	 Unless Depth (I Thickne 	otherwise m), Diame ss (m). Le	e stated: eter (mm), 1 evel (mOD)	'ime (hhr	nm),	Equipme Pilcon	nt Used 2000			Contractor	onsultin	g (UK) L	.td.	Lo VI	gged By P	Check AM	еа Ву

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Project Norths Client	towel	Pha	se 2							Project UA0 Easting	t No. 08426-0' g (OS mE)	1	Ground L 6.30 Northing	₋evel (mA (OS mN)	OD)		Start I 12/1 End D	Date 2/2016 Date	Sc 1:	ale 50	
Homes	and (Com	nmunit	ies Ag	ency					5416	619.68		26666	5.77			13/1	2/2016	S	neet 1	of 2
SAM	IPLES			TE	STS		ter Kes	PROGF	RESS					STRAT	A				Depth	Laval	Install/
Depth	Typ No	e/).	Depth	Type/ No.	Res	ults	Wa Stril	Date Time	Casing Water	1			Desc	ription				Legend	(Thickness	Level	Backfill
0.10 0.10 - 0.3 0.10 - 0.3	ES 30 B1 30 ES4	-		-				12/12/2016 08:00	0.00	Gras	s over firm, ootlets. Sar	brown, s nd is fine coarse o	lightly to coars	sandy s se. Grav	lightly gr /el is sul	ravelly (b-angul	CLAY with ar to sub-	NIZ,	(0.30) 0.30	6.00	
- 0.30 - 0.8	35 B2 D7	Ē									SOIL]		http://www.aca						(0.55)	+	
- 0.50 - 0.8	30 ES5	F								coars	se. Gravel is	s sub-ang	gular to	sub-rou	nded, fir	ne to m	edium of		(0.55)	ŧ	
0.85 - 1.2	20 B3 D8	E					_			muds [RIVI	stone. ER TERRA	CE DEPO	OSITS]						0.85	5.45	
_ 1.00 - 1.2 - 1.20	20 ES6 D9	-	1.20	SPT(S)	N=12 (1,2/2,	3,3,4)				Soft, occa	brown moti sional sand	tled grey, pockets	slightly (up to 2	sandy g 2mm x 1	gravelly mm x 1r	CLAY v mm). Sa	vith and is fine	· · · · · · · · · · · · · · · · · · ·	(0.35)	5.10	210
- 1.20 - 1.7	70 B13	F		, ,						to co	arse. Grave	el is sub-a	angular	to sub-r	ounded	, fine to	medium			ţ	
MAMA TURNA STRAA																					
SAMPLES TESTS Bit of the second seco			rounded,	×		ţ															
Date: Description Description Description Description				×		+															
Depth Mo. Depth Mo. Results \$ 50 Date Time / Water Uses 0.10 0.30 81 12/12/2016 Grass over fim. hown, slightly since coarse of final to coarse (final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) of final to coarse (final to coarse) (fin							×	(2.30)	ŧ												
2.50	D10	DB DB DB DB DB DB DB DB DB DB DD <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×</td><td></td><td>ŧ</td><td></td></td<>												×		ŧ					
-		-																×		ļ	· [] .
3.00	UT11	$ \begin{array}{c} B_2 \\ EWW1 \\ B14 \\ D10 \\ D10 \\ D10 \\ D10 \\ D10 \\ D11 \\ B15 \\ D11 \\ B15 \\ D12 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ D11 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ A 50 \\ B17 \\ A 50 \\ A 50 \\ B 5 \\ A 50 \\ B 5 \\ A 50 \\ A 50 \\ B 5 \\ A 50 \\ A 50 \\ B 5 \\ A 50 \\ $													×		ŧ				
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				abtly ar			(Crow		×_^	3.50	2.80										
- 3.50 - 4.0 -	00 B15	-								round	ded to roun	ded, med	dium to	coarse o	of siltsto	ne.	ei is sud-	×		Ŧ	/20
Desite and Communities Agency Easing Coll and Service 1 <t< td=""><td></td><td>×</td><td></td><td>L</td><td></td></t<>		×		L																	
-		F																×		ļ	
-	Dia	-	4.50		N-47 (0.0/0	4.5.5)												×		ŧ	
- 4.50	00 B7	E	4.50	5P1(5)	N=17 (2,3/3,4	4,5,5)												×	(2.40)	Ī	
-		E																×	(2.40)	ļ	
-		-																×		+	
-		E																×_×_		ŧ	
- 5.50	D7	F																×_×_		ļ	
-		F																<u></u>		÷	
6.00 - 6.4	45 UT2	E								Soft	to firm, fissu	ured, greg	y silty gi	ravelly C	LAY. G	ravel is	fine to	F	5.90	0.40	1/1/
-		L								[KIM	MERIDGE	CLAY FC	RMATI	ON]	notorio.			F		ļ	
- 6.50	D8	F																F		ŧ	
- 6.50 - 7.0	D0 B8	E																F		Ī	
-		Ŀ																F		-	
-		F																<u> </u>		ŧ	
7 50		E	7 50	SDT(S)	N=15 (1 2/3	3 4 5)												<u> </u>		İ	L H
- 7.50 - 8.0	00 B9	E	7.50	511(5)	10 (1,2/3,	5,4,5)														ļ	
-		F																		ł	
-		E																<u> </u>	(4.55)	Ī	////
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- 8.50 - 8.50 - 9.0	D10 D0 B10	F																<u> </u>		ţ	[]]]
-		Ē																<u> </u>		I	[]]]
9.00 - 9.4	45 UT3	F																<u> </u>		÷	[]]]]
-		F																<u> </u>		ţ	
3.00 UT11		ŧ	[]]]]																		
- 9.00 - 10.		-					<form></form>	[]]]													
10.1.0 PER 12 SP1(5) H=12 (22.3.3.4) H=12 (22.3.4.5) SP1(5) H=12 (22.3.4.5) H=12 (22.3.4.5) H=12 (22.3.4.5) H=12 (22.3.4.5) H=12 (22.3.4.5) H=12 (22.3.4.5)	+																				
		= FD																			
From	То		Тур	be	Hard	Strata	Duratio	n Date/Ti	me	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	From	To \	/olume (Itr)
Product Note Product Note<	_																				
Domo-1															50						
Groundw	ater see	page	e at 1.1m	bgl.																	
Wire-line UT16 (3.0	piezome 00-3.45)	eter i - 100	nstalled t 0% recov	to 7.50m /ery, 75 b	bgl (base o blows.	f tip). Pluv	/iated s	and respon	se zone	from 7	.00m to 8.0	0m bgl.									
UT2 (6.00	, 0-6.45) - 0-9.45) -	100	% recove	ery, 65 blo ery, 100 h	ows. blows.														Terr	nination D	epth:
	-,				-															10.4	bm



House

Pilcon 2000

Arcadis Consulting (UK) Ltd.

Logged By Checked By AM

VP

BH604

Project Norths Client Homes	stowe F	Phase 2 Communi	ities Aa	encv					Project UA0 Easting 5416	No. 08426-0 (OS mE) 19.68)1	Ground L 6.30 Northing 26666	.evel (mA (OS mN) 5 5.77	NOD)		Start 12/1 End E 13/1	Date 2/2016 Date 2/2016	Տա 1: Տ	^{ale} 50 heet 2	of 2
SAN	API ES		TF	STS			PROGE	RESS					STRAT	Δ						_
Depth	Туре	e/ Depth	Type/	Resu	ults	Wate	Date Time	Casing	1			Desc	ription				Legend	Depth (Thickness	Level	Install/ Backfill
-	NO	- - - - -	NO.				12/12/2016 16:00	3.00	Soft t mediu [KIMI	o firm, fiss um, subar MERIDGE	sured, gre igular to s CLAY F	ey silty g subround ORMATI	ravelly (ded of s ON]	CLAY. G iltstone.	Bravel is .	fine to		10.45	-4.15	
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	DRILLIN	<u>G TECHNIC</u>		C	HISELLIN	I NG		۱۱	 WATER	OBSERV	ATIONS			HOL	E/CASII	NG DIAM	 ETER	WAT	ER ADD	ED
From 0.00 1.20	To 1.20 10.45	Ty Inspec Cable P	ype ction Pit ercussion	From	Strata To	Duratio	n Date/T	ime 5 5 09:00	Strike At 1.10	Time Elapsed	Rise To	Casing	Sealed	Hole Dia. 300 200 50	Depth 1.20 10.00 10.45	Casing Dia. 200	Depth 3.00	From	То	Volume (Itr)
Remarks Groundw Wire-line UT16 (3	vater seep e piezome	bage at 1.1r ter installed	n bgl. I to 7.50m	bgl (base of	f tip). Pluv	viated s	and respon	se zone	from 7.	00m to 8.	00m bgl.		I		1	<u> </u>	I	I	I	
UT2 (6.0 UT3 (9.0	10-6.45) - 10-9.45) -	100% recov 100% recov	very, 65 bl very, 100 b	ows. blows.			F '	unt 11- 1				0	tor				<u> </u>	Terr	nination E	Depth: 5m
AGS	Arcadis Cymru Hou St Mellons Busines Park Cardiff	Depth (otherwise m), Diame	e stated: eter (mm), 1	lime (hhr	nm),	Equipme Pilcon	ent Used				Contrac Arcac	ւor lis Cor	nsultin	ıg (UK)	Ltd.	Lo VI	igged By P	Check AM	еа Ву



Arcadis Consulting (UK) Ltd.

BH606

Project Northst Client	owe P	hase 2							Project No UA008 Easting (C). 426-0 (S mE)	1	Ground 7.40 Northing	Level (m/	AOD))			Start 07/1 End D	Date 2/201 Date	6	Scale 1:50		- 6 0	
Homes	and C	ommuni	ties Ag	ency		1			541644	1.09		2661	5.27				077	2/201)	Snee	τ1	OT 2	
SAMP Depth	LES Type No.	/ Depth	TE Type/ No.	ESTS Resu	ılts	Water Strikes	PROGF Date Time	RESS Casing Water				Desc	STRA	TA				Leger	d (Thickn	h ess) Le	vel	Insta Bacl	all/ kfill
0.00 - 0.30 0.00 - 0.30 0.30 0.30 0.30 - 1.00 0.30 - 1.00	B1 ES4 D16 ES B2 ES3	- - - - -					07/12/2016 09:00	0.00	Grass o thick). [TOPSC Firm, or slightly angular [RIVER	ver firm DIL] angish t gravelly to sub-r TERRA	, brown, prown oo silty CL, rounded .CE DEE	sandy C ccasiona AY. Sand , fine to POSITS1	CLAY with ally mottl d is fine medium	th rooth ed greg to coar n of mix	ets (u y, slig rse. G ked litt	p to 7 htly sa ravel hologi	mm andy s sub- es.		(0.30 0.30 0.30		.10		
- - 1.00 - 1.10 - 1.20 - 1.20 - 1.70 - 1.20 - 1.70	D17 EWW2 D18 B6 ES5	- 2 - - 1.20 -	SPT(S)	N=12 (4,4/5,2	2,3,2)				Firm, or with poo	angish t kets of	prown, s soft, gre o sub-ro	lightly sa y, silty c unded, f	andy slig lay. San fine to m	ihtly gr d is fin iedium	avelly e to c of mi	silty (oarse xed	CLAY Gravel	× × ×			5.20		
- - - - 2.00	D19	-							lithologi [RIVER	es. TERRA	CE DEF	POSITS]							(0.90	0	•		
· 2.10 - 2.50 - 2.10 - 2.50 -	B7 ES8	- - -							Firm, gr [KIMME	ey, silty RIDGE	CLAY. CLAY F	ORMAT	ION]					×	2.10) + !) +	5.30		
- 2.50 2.50 - 3.00 2.50 - 3.00 - 2.70 - - 3.00 - 3.30 - - - - - - - - - - - - -	D20 B9 ES10 EWW1 UT29 D21	- - - 1 - - - - - -							Grey SI [KIMME Firm to [KIMME	LTSTON RIDGE stiff, gre RIDGE	NE. CLAY F :y, silty C CLAY F	ORMAT LAY witi ORMAT	ION] h occasi ION]	ional ba	ands	of silts	tone.		2.50 (0.20 2.70		1.90		
· 3.50 - 4.00 - - - - - - - - - - - - - - - - - -	B11	- - - - - - - - - -	SPT(S)	N=21 /2 3/4 5	5.5.7)																• • • •		
- 4.50 4.50 - 5.00 - - - - - - - - - - - - -	D22 B12	- 4.50 - - - - - - - -	3F1(3)	N=21 (2,5/4,5	,,,,,,)																		
	UT30	- - - - - - -							Firm to :	stiff. fiss	sured. da	ark grev	CLAY w	ith occ	asion	al she	1				.10		\. \////////
- 6.50 6.50 - 7.00 	D24 B13	- - - - - -							fragmer [KIMME	nts (up to RIDGE	o 1cm in CLAY F	width). ORMAT	ION]										·/////////////////////////////////////
- 7.50 7.50 - 8.00	D25 B14	- - 7.50 - - - - - -	SPT(S)	N=20 (4,4/4,5	5,5,6)																		///////////////////////////////////////
- 8.50 - 9.00 - 9.50	D26 B15	- - - - - - - - - - - - - 9.00	SPT(S)	N=15 (2,2/3,3	3,4,5)																		
- 9.50	D27	- - - - -																					
- 10.00	D28		SPT(S)	N=19 (2,2/4,3	3,5,7)						ATIONS					A C IN 1							Ź
From			/pe	Hard From	Strata	Duratio	nDate/T	ime S	Strike At Tim	e Elapsed	Rise To	Casing	Sealed	HO Hole Dia		pth Ca	asing Dia.	Depth	From			Jume	(ltr)
0.00 1.20 Remarks No ground UT29 (3.00	1.20 10.45 water er)-3.30) -	Inspec Cable P ncountered.	ction Pit ercussion	2.50	2.70	00:30	Date							300 200 50	1.: 10. 10.	20 00 45	200	2.60					_
UT30 (6.00)-6.45) -	100% reco	overy, 100	blows.															[Ferminati 1(on De).45	epth: 5m	
Arra	die Cumru Hous		othorwis	e stated.	-		Equipme	ent Used	-			Contra	ctor	-					ogged By	С	necke	ad By	-

Arcadis Consulting (UK) Ltd.

Logged By Check

Project Norths Client Homes	stowe Pl s and Co	hase 2 ommuni	ties Age	ency					Project No. UA008426-0 Easting (OS mE) 541644.09	01	Ground Lev 7.40 Northing (O 266165	vel (mAOD ^I S mN) .27)	Start E 07/1 End D 07/1	Date 2/2016 ate 2/2016	Sca 1: SI	^{ale} 50 neet 2	of 2
SAM	IPLES		TES	STS		er es	PROGF	RESS			S	TRATA				Death		Install/
Depth	n Type/	Depth	Type/	Resu	lts	Strik	Date Time	Casing Water			Descrip	otion			Legend	(Thickness)	Level	Backfill
		- - -					07/12/2016 15:30	2.60	Firm to stiff, fis fragments (up [KIMMERIDGE	sured, dar to 1cm in CLAY FC	k grey CL width). DRMATION	AY with c	occasional s	hell		10.45	-3.05	 . , .
-		-															-	
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From			pe	Hard S	HISELLIN Strata To	Duratio	n Date/Ti	me s	Strike At Time Elapsed	ATIONS I Rise To	Casing S	ealed Hole	Dia. Depth	Casing Dia.	Depth	From		D
0.00 1.20	1.20 10.45	Inspec Cable Pe	tion Pit ercussion	2.50	2.70	00:30						30 20 5	00 1.20 00 10.00 50 10.45	200	2.60			
Remarks No grour UT29 (3.	ndwater en 00-3.30) -	countered. 67% recov	ery, 100 bl	ows.		-		i			I			I	i		i	
UT30 (6.	00-6.45) -	100% reco	very, 100 b	olows.												Tern	nination D	epth: 5m
AGS	Arcadis Cymru House St Mellons Business Park Jardiff 2F3 0EY	Unless o Depth (r Thickne	otherwise n), Diamet ss (m), Le	stated: ter (mm), T vel (mOD).	ïme (hhr	nm),	Equipme Pilcon	nt Used 2000			Contractor Arcadis	s Consu	ulting (UK)) Ltd.	Lo V	gged By P	Check	ed By

Project Northsto Client	we Pl	nase 2							Project No. UA00842 Easting (OS m	6-01	G 6 N	round Lev .69 orthing (O	el (mAC S mN)	D)		Star 08 End	rt Date / 12/2 d Date	2016	Sca 1:5	^{le} 50	
Homes a	ind Co	ommuni	ties Ag	ency					541646.1	5	2	66261.	96			80	/12/2	2016	Sn	eet 1	of 2
SAMPL Depth	.ES Type/ No.	Depth	TE Type/ No.	STS Resu	llts	Water Strikes	PROGF Date Time	RESS Casing Water				S Descrip	TRATA tion				L	egend	Depth (Thickness)	Level	Instal Backf
$\begin{array}{c} 0.10 - 0.25\\ 0.10 - 0.25\\ 0.30\\ 0.30\\ 0.30 - 0.50\\ 0.30 - 0.50\\ 0.50 - 0.80\\ 0.50 - 0.80\\ 0.50 - 0.80\\ 0.60\\ 0.60\\ \end{array}$	B2 ES1 D18 ES B3 ES5 B4 ES6 D19 EWW2	- - - - - - - -					08/12/2016 09:00	0.00	Grass over rootlets (up angular to s <u>(TOP SOIL</u>) Firm, orang occasional sub-angula [RIVER TE Soft, dark b	firm, brow to 1mm ti sub-round j jish brown fine rootle r to round RRACE D prown moti	wn, sa thick). led, fir n, sligl ets (<' led, fir DEPO: ttled li	ndy grav Sand is ne to coa htly grave 1mm). Sa ne to coa SITS] ght brow	relly CL fine to rse of elly sar and is f rse of n, san	AY wit coarse mixed I ndy CL ine to c mixed I dy grav	h frequ e. Grave litholog AY with coarse. litholog	ent el is sub- ies. Gravel i ies. AY with	s	N/2 N/2	(0.30) 0.30 (0.20) 0.50 (0.30) 0.80	6.39 - 6.19 - 5.89	
0.80 0.80 - 1.20 1.20 1.20 - 1.65 1.20 - 1.70 1.60 1.90 - 1.90 1.90	B18 B17 ES7 B D20 B8 EWW1 B10 D21 ES	- 1.20 - - - - - - - - - - - - - - - - - - -	SPT(S)	N=10 (3,2/3,3	,2,2)				occasional coarse. Gra lithologies. <u>[RIVER TE]</u> Medium de fine to coar coarse of n <u>[RIVER TE]</u>	pockets o avel is ang <u>RRACE D</u> nse, orang se. Grave nixed lithol <u>RRACE D</u>	of bluis gular t DEPO: gish b el is su blogies DEPO:	sh grey s to subrou SITS] prown, cla ub-angula s. SITS]	ilty clay inded, ayey sa ar to su	y. Sanc fine to andy G b-roun	RAVEL ded, fir	to of mixed Sand is ne to	s	×	(1.10) 1.90	4.79	
1.90 - 2.40 2.50 -3.00 - 3.45	D22 UT31	- - - - - - -							Firm, bluish occasional [KIMERIDG	n grey occa gravel of s SE CLAY F	casion siltsto FORM	ally mott ne (up to IATION]	ed bro	wn, silf 2cm x	ty CLA (1cm).	/ with		× × ×	(1.90)	· · · ·	
3.50 3.50 - 4.00 3.50 - 4.00	D23 B10 ES11	- - - - - -							Grey SILTS	STONE. GE CLAY F	FORM	1ATION]						× × × × ×	3.80 (0.20) 4.00 -	- 2.89 - 2.69	
4.50 4.50 - 4.95 4.50 - 5.00	B12 D24 B11	- - - 4.50 - -	SPT(S)	N=13 (1,2/3,3	,3,4)				Soft to firm with occasi [KIMERIDO	, bluish gre onal grave SE CLAY F	rey oc el of s FORM	casionall iltstone (IATION]	y mottl up to 1	ed bro cm x 2	wn, silt cm x 1	y CLAY cm).		× × ×	(1.80)	· · · ·	
5.80 5.80 - 6.00	D25 B12	-							Firm, fissur	ed, dark g	grey, s	silty CLA	with c	occasic	onal she	əll		×	5.80	0.89	
6.00 - 6.45 6.50 6.50 - 6.80 6.50 - 7.00	UT32 D26 ES15 B13								fragments ([KIMERIDG	(up to 1cm SE CLAY F	n in wi FORM	idth). Iation]					X X X X	× × ×	-	-	
7.50 - 7.95 7.50 - 8.00	D27 B15	- - - - - - - -	SPT(S)	N=16 (3,2/3,3	5,5)													× × ×	(4.65)	· · · · ·	
8.50 •9.00 - 9.45	D28 UT33	- - - - - - - - -															X X X X	× × ×	-	· · · ·	
9.50 9.50 - 10.00	D29 B16	-	0.077(0)														XX	×	-	- - -	
0.00 - 10.45	D30	- 10.00	571(5)	IN=19 (3,2/4,3	,0,1)													· <u>×</u> -			<i></i>
DR From 0.00 1 1.20 1 1	To 1.20 0.45	I ECHNIC Ty Inspec Cable Pr	VDE vpe ction Pit ercussion	Hard From 3.80	HISELLI Strata To 4.00	Duration 00:30	n Date/Ti	ime S	VAIER OBS	ERVATION apsed Rise	e To	Casing Se	aled Ho	HOL ble Dia. 300 200	Depth 1.20 10.00	Casing Dia	<u>vi⊨ ſĒ</u> a. De 4.	epth 00	From	R ADDE	<u>D</u> olume (Iti
temarks lo groundw JT31 (3.00- JT32 (6.00- JT33 (9.00-	vater en ·3.45) - ·6.45) - ·9.45) -	countered. 100% reco 100% reco 100% reco	overy, 43 b overy, 65 b overy, 80 b	plows. plows. plows.										50					Term	ination D	epth:
							Faultan	ntllaci				Contro-t-							agod Du	10.4	
Arcadis St Melle Park Cardiff CF3 0E	s Cymru House ons Business Y	Unless Depth (I Thickne	otherwise m), Diame ess (m), L	e stated: eter (mm), T evel (mOD)	ïme (hhı	nm),	Equipme Pilcon	2000				Arcadis	Cons	sulting	g (UK)	Ltd.		V	yyeu by D	AM	en RÀ

Project No. UA008426-01 Start Date Scale 1:50 Ground Level (mAOD) Northstowe Phase 2 6.69 08/12/2016 Northing (OS mN) Homes and Communities Agency 541646.15 266261.96 08/12/2016 Sheet 2 of 2 SAMPLES TESTS PROGRESS STRATA Water Strikes Install/ Depth (Thickness Casing Water Level Type/ No. Type/ No. Date Time Backfill Depth Results Depth Description Legend Firm, fissured, dark grey, silty CLAY with occasional shell fragments (up to 1cm in width). [KIMERIDGE CLAY FORMATION] \times 08/12/2016 4.00 10.45 -3.76 16:00 HOLE/CASING DIAMETER DRILLING TECHNIQUE WATER OBSERVATIONS CHISELLING WATER ADDED From Strike At Time Elapsed То Туре Duration Rise To Casing Sealed Hole Dia. Depth Casing Dia. Depth From Volume (Itr) То Date/Time From 3.80 1 To 4.00 300 200 50 1.20 10.00 10.45 1.20 Inspection Pit Cable Percussion 00:30 200 4.00 0.00 1.20 10.45 Remarks No groundwater encountered.

UT31 (3.00-3.45) - 100% recovery, 43 blows. UT32 (6.00-6.45) - 100% recovery, 65 blows. UT33 (9.00-9.45) - 100% recovery, 80 blows.

AGS Cardiff CF3 0EY

Equipment Used Pilcon 2000

Arcadis Consulting (UK) Ltd.

Contractor

Checked By Logged By AM

VP

Termination Depth: 10.45m

BH608

Project Northst Client Homes	owe Pl and Co	hase 2 ommuni	ties Ag	jency				Project No. UA008426-0 Easting (OS mE) 541483.61	1 7	Ground Leve 7.91 Northing (OS 266348.	el (mAOD) S mN) 99		Start D 08/1 End Da 08/1	^{Date} 2/2016 ate 2/2016	Sca 1:: Sh	^{le} 50 leet 1	of 2
SAMF	PLES		TE	ESTS	۔ ۵	PROGE	RESS			S	TRATA		1				
Depth	Type/	Depth	Type/	Results	Wate	Date Time	Casing	J		Descript	tion			Legend	Depth (Thickness)	Level	Install/ Backfill
_ 0.10 - 0.30 - 0.20 - 0.30 - 0.30 - 1.20 - 0.40 - 0.40 - 0.60 - -) B1) ES12) B2 ES) ES13	- - - - - - -				08/12/2016 09:00	0.00	Grass over soft frequent roots a angular to sub-r [TOP SOIL] Brown, clayey v Gravel is sub-au sandstone.	, brown, sl ind rootlets rounded, fi rery sandy ngular to s	lightly san s. Sand is ine to coa GRAVEL sub-rounde	dy slightly fine to coa rse of flint. . Sand is fil ed, fine to c	gravelly CL rse. Gravel ne to coarse coarse of flin	AY with is sub- e. at and	NIZ	(0.30) 0.30 (0.90)	7.61	
- 1.20 - 1.20 - 2.00 - 1.24 - 1.27 - 1.30 - 1.50 	D16 B3 EWW2 EWW1 0 ES14	- 1.20 - 1.20 	SPT(C)	N=8 (3,3/2,2,2,2				[RIVER TERRA Loose to mediu to coarse. Grav flint and sandstr [RIVER TERRA	CE DEPC m dense, el is sub-a one. CE DEPC	DSITS] light brow angular to DSITS]	n, gravelly sub-rounde	SAND. Sand d, fine to co	d is fine barse of		1.20	6.71	
- - - - - - - - - - - - - - - - - - -	B D17 B5	- - - - - - - - - - - - - - - - - - -	SPT(C)	N=16 (3,3/4,4,4,	4)										(2.80)	+ + + + + + + + + + + + + + + + + +	
- - - - - - - - 4.30 - 4.50 - - 4.50 - 4.95 -) B6) ES15 5 D18	- - - - - - - - - - - - - - - - - - -	SPT(S)	N=16 (3,4/4,4,4,	4)			Soft to firm, fiss occasional shel of siltstone. [KIMMERIDGE	ured, grey Is and she CLAY FO	/, slightly g Ill fragmer RMATION	ravelly silty its. Gravel	CLAY with s fine to me	edium	× × × × × × × × × × × × × × × × × × ×	4.00 -	3.91	
- - - - - - - - - - - -) B7	- - - - - - - - -														+ + + + + + + + + + + + + + + + +	
- 	5 UT23 B8 D19															- - - - - - - - - - - - - - - - - - -	
) B9 5 D20	- - - - 7.50 - -	SPT(S)	N=17 (3,4/4,4,4,	5)										(6.45)	+ + + + + + + + + + + + +	
) B10																
-9.00 - 10.0 9.00 - 9.45 - - - - - - - -	0 B11 5 UT24 D21																
_ 10.00 - 10.4 _	5 D22	- 10.00	SPT(S)	N=17 (1,2/3,4,5,	5)									×	-	-	
	RILLING	TECHNIC	UE	L CHIS			<u> </u>	WATER OBSERV	ATIONS		НС	LE/CASING	G DIAME	TER	WATE	R ADD	ED
From 0.00	To 1.20	Inspec	/pe ction Pit	From	To Duratio	n Date/T 08/12/201	ime 8 6 12:00	Strike At Time Elapsed 3.00 20	Rise To 1.50	Casing Se 3.00 4	aled Hole Dia .00 300 200	. Depth Ca	asing Dia. 200	Depth 4.50	From 1.20 4	To \	olume (ltr)
Remarks UT23 (6.0 UT24 (9.0	0-6.45) - 0-9.45) -	100% recc 100% recc	overy, 65 l overy, 95 l	blows. blows.							50	10.45				ing#i=	
	idis Cymru Housi ellons Business liff	 Unless Depth (i 	otherwis m), Diam	e stated: eter (mm), Tim	ne (hhmm),	Equipme	ent Used			Contractor Arcadis	Consulti	ng (UK) I	td.	Lo	gged By	10.4 Check	epth: 5m .ed By



Arcadis Consulting (UK) Ltd.

	Project Norths Client Homes	stowe P s and C	hase 2 ommuni	ties Ag	ency					Project No. UA008426-0 Easting (OS mE) 541483.61	1	Ground Level (r 7.91 Northing (OS m 266348.99	mAOD) IN)		Start D 08/12 End Da 08/12	ate 2/2016 ite 2/2016	Sca 1:5 Sh	^{le} 50 leet 2	of 2
	SAN	MPLES		TE	STS		er es	PROGF	RESS			STR	ATA				Dopth		Install/
	Depti	h Type	/ Depth	Type/	Resu	lts	Strik	Date Time	Casing Water			Descriptior	ı			Legend	(Thickness)	Level	Backfill
	- - - - -		- - - - -					08/12/2016 16:00	4.50	Soft to firm, fisse occasional shell of siltstone. KIMMERIDGE	ured, greys and she	y, slightly gra ell fragments. DRMATION]	velly silty (Gravel is	CLAY with fine to me	dium/	× ×	10.45	-2.54	
	-		- - - - -														-	- - - - - -	
	- - - - -		- - - - - - -														-	- - - - -	
	- - - - -		- - - - -														-	- - - - - -	
PRULUNG TECHNOLIZE CHISCULING WATER OBSERVATIONS HOLE/CASING DUANTER: WATER ADDED TOTAL TOTAL TECHNOLIZE CHISCULING WATER OBSERVATIONS HOLE/CASING DUANTER: WATER ADDED TOTAL TECHNOLIZE CHISCULING WATER OBSERVATIONS HOLE/CASING DUANTER: WATER ADDED TOTAL TECHNOLIZE CHISCULING WATER OBSERVATIONS HOLE/CASING DUANTER: WATER ADDED TOTAL TECHNOLIZE CHISCULING WATER OBSERVATIONS HOLE/CASING DUANTER: WATER ADDED TOTAL TECHNOLIZE CHISCULING TOTAL TECHNOLIZE WATER ADDED TOTAL TECHNOLIZE WATER ADDED TOTAL TECHNOLIZE CHISCULING TOTAL TECHNOLIZE CHISCULING WATER ADDED READ TOTAL TECHNOLIZE CHISCULING TOTAL TECHNOLIZE TOTAL TECHNOLIZE TOTAL TECHNOLIZE READ TOTAL TECHNOLIZE CHISCULING TOTAL TECHNOLIZE TOTAL TECHNOLIZE TOTAL TECHNOLIZE READ CHISCULING CHISCULING CHISCULING CHISCULING CHISCULING	- - - - -		- - - - -															- - - - - -	
	- - - - - -																	- - - - - -	
Primate Image: Severet Use Image: Severet Use Image: Severet Use Image: Severet Use Remark UT23 (6:00.4.45) - 100% recovery, 65 blows. Image: Severet Use <td>-</td> <td></td> <td>- - - - -</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>- - - - - -</td> <td></td>	-		- - - - -														-	- - - - - -	
Provide the provide the			- - - - - -														-	- - - - - -	
From To Understand Description Description State A Time Lagged Res to Logged By Checked B Remarks UT23 (6.00-6.45) - 100% recovery, 65 blows. UT24 (6.00-6.45) - 100% recovery, 95 blows. Equipment Used Contractor Logged By Checked B			 - - - - - -														-	- - - - -	
Image: Severation of the second se	- - - - -		- - - - - -															- - - - -	
From To To To To Duration Deletifine Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth From To Volur 1.20 10.45 Casing Dia Depth From To Duration Deletifine Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth From To Volur 1.20 10.45 Cable Percussion Im Deletifine Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Deph From To Volur 1.20 10.45 Cable Percussion Im Deletifized 3.00 2.0 1.50 3.00 4.00 300 1.20 4.50 1.20 4.00 5 Remarks UT23 (6.00-6.45) - 100% recovery, 65 blows. UT23 (6.00-6.45) - 100% recovery, 95 blows. UT24 (9.00-9.45) - 100% recovery, 95 blows. Termination Depth 10.45m Termination Depth Contractor Logged By Checked B Contractor Logged By Checked B	- - - - - -		-															- - - - -	
From To Type Hard Strata Duration Date/Time Strike At Time Elapsed Rise To Casing Death Hole/CASING DIAMETER WATER ADDED From To Type From To Duration Date/Time Strike At Time Elapsed Rise To Casing Death Casing Dia Depth From To Volum 0.00 1.20 Inspection Pit 08/12/2016 12:00 3:00 20 1:50 3:00 4:00 300 1:20 200 4:50 1:20 4:00 5 Remarks UT23 (6:00-6:45) - 100% recovery, 65 blows. UT24 (9:00-9:45) - 100% recovery, 95 blows. Termination Depth To Item in the target of target of the target of targe	- - - - - -																-	- - - - - -	
DRLLING TECHNQUE CHISELLING WATER OBSERVATIONS HOLE/CASING DIAMETER WATER ADDED From To Type Hard Strike At Time Elapsed Rise To Casing Sealed Hole Dia. Depth Casing Dia. Depth From To Volur 1.20 1.20 Inspection Pit Inspection Pit 08/12/2016 12:00 3.00 20 1.50 3.00 4.00 200 10.00 200 4.50 1.20 4.00 5 Remarks UT23 (6.00-6.45) - 100% recovery, 65 blows. UT24 (9.00-9.45) - 100% recovery, 95 blows. Fermination Depth Termination Depth Termination Depth Termination Depth 10.45 Logged By Checked B Remarks UT24 (9.00-9.45) - 100% recovery, 95 blows. Equipment Used Contractor Logged By Checked B	- - - - - -		- - - - -														-		
Remarks UT23 (6.00-6.45) - 100% recovery, 65 blows. UT24 (9.00-9.45) - 100% recovery, 95 blows. Termination Depth 10.45m Contractor Logged By Checked B Depth (m), Diameter (mm), Time (hhmm)	From 0.00 1.20	To 1.20 10.45	Inspec	rpe tion Pit ercussion	Hard 3 From	TISELLIN Strata To	Duration	Date/Ti 08/12/2016	me 5 5 12:00	Strike At Time Elapsed	Rise To 1.50	Casing Sealed	HOL Hole Dia. 300 200 50	Depth Ca 1.20 10.00 10.45	200	Depth 4.50	From 1.20 4	<u>K ADDE</u> To V .00	colume (ltr)
Accele Committees Unless otherwise stated: Equipment Used Contractor Logged By Checked B Partin (m), Diameter (mm), Time (hhmm), Diameter (mm), Time (hhmm), Diameter (mm), Time (hhmm), Diameter (mm), Time (hhmm), Diameter (mm), Di	Remarks UT23 (6 UT24 (9	.00-6.45) - .00-9.45) -	100% reco 100% reco	overy, 65 b overy, 95 b	lows. lows.												Term	ination D	epth:
		Arcadis Cymru Hou: St Mellons Busines: Park	• Unless	otherwise	e stated:	ime (hbr	nm).	Equipme	nt Used			Contractor				Lo	gged By	10.45 Checke	5m ed By

BH609

Project Northsto Client Homes a	we Pl nd Co	hase 2 ommuni	ties Ac	iencv					Project No. UA008426-01 Easting (OS mE) 541584.31	Ground Level (mAOD) 6.65 Northing (OS mN) 266428.88	Start D 09/1 End Da 09/1	^{Date} 2/2016 ate 2/2016	sc 1: SI	^{ale} 50 neet 1	of 2
SAMPI	FS		TF	-STS			PROGE	RESS		STRATA					
Depth	Type/ No.	Depth	Type/ No.	Resu	lts	Water Strikes	Date Time	Casing Water		Description		Legend	Depth (Thickness)	Level	Install/ Backfill
_ 0.10 - 0.30 _ 0.10 - 0.30 - 0.30 - 0.30 - 0.80 - 0.40	B1 ES2 D15 B4 ES	-					09/12/2016 09:00	0.00	Grass over firm, bro occasional roots an sub-angular to sub- [TOP SOIL] Firm , brown mottle	own, slightly gravelly sandy CLAN Id rootlets. Sand is fine to coarse rounded, fine to coarse of sands id grey, slightly gravelly sandy CL	/ with . Gravel is tone and flint. / .AY with		(0.30) 0.30 (0.60)	6.35	
- 0.90 - 0.90	D16	-							frequent fine rootlet rounded to rounded [RIVER TERRACE	ts. Sand is fine to coarse. Gravel d, fine to medium of mixed litholog DEPOSITS]	is sub- gies		0.90	5.75	
- 1.20 - 1.20 - 1.20 - 1.70 	D17 B6	- 1.20 	SPT(S)	N=10 (1,2/2,2	,3,3)				Firm, orangish brov sandy CLAY with or roots. Sand is fine to fine to medium of m [RIVER TERRACE	vn mottled light grey, slightly grav ccasional orange sand lenses an o coarse. Gravel is sub-rounded ixed lithologies. DEPOSITS]	relly silty d peaty to rounded,				
-		-										<u> </u>	(2.90)	-	
- 2.50 - 2.50 - 3.00	D18 B7	-										× ×			
- 	UT18	- - - -										× ×		*	
- - 3.50 - 3.50 - 4.00 -	D19 B8	-										× ×	3.80	2.85	
- 4.00 - 4.00 - 4.10	D20 EWW2 EWW1	-							Grey SILTSTONE. [KIMMERIDGE CL/ Soft to firm, fissured	AY FORMATION] d, dark grey, slightly silty CLAY w	ith	×××××× ××××××	(0.20) 4.00	2.65	
- 4.50 - 4.50 - 4.50 - 5.00	D21 B9	- - - 4.50 -	SPT(S)	N=12 (1,2/2,3	,3,4)				[KIMMERIDGE CL/	AY FORMATION]		×		+ + + +	
- 4.70 - 4.90 - - -	ES14	-												- - - -	
- - - 5.50 - 5.50 - 6.00 -	D22 B10	-												+	
- 	UT19	- - -										×	- - -	-	
- 6.50 - 6.50 - 7.00 - - -	D23 B11	- - - - -											(0.45)	+	
- 7.50 - 7.50 - 8.00 	D24 B12	- - - - - - - -	SPT(S)	N=15 (2,2/3,3	,4,5)								(6.45)	+ + + + + + + + + + + + + + + + + + +	
- - - 8.50 - 8.50 - 9.00 -	D15 B13	- - - -												+ + + + + +	
- 	UT20	- - - -												+	
- - 9.50 - 9.50 - 10.00 - -	D16 B14	- - - -												+ + + +	
- - 10.00 	D17	- 10.00	SPT(S)	N=20 (2,3/4,4	,5,7)						A 01110 2:::			+	
From	To	TECHNIQ	/pe	Hard From	HISELLI Strata To	Duratio	n Date/T	ime S	VALER OBSERVATIO	INS HOLE/C	Pth Casing Dia.	Depth	From		<u>=U</u> /olume (ltr)
0.00 1 1.20 1	0.45	Inspec Cable Pe	ction Pit ercussion	3.80	4.00	00:30				300 1. 200 10 50 10	20 200 00 45	4.50			
Remarks No groundw UT18 (3.00- UT19 (6.00- UT20 (9.00-	vater en 3.45) - 6.45) - 9.45) -	countered. 100% reco 100% reco 100% reco	overy, 75 I overy, 85 I overy, 100	blows. blows.) blows.				nt lo		Contraster		,	Term	nination E	Depth: 5m
Arcadis St Mello Park Cardiff Cardiff	Cymru House	Unless Depth (r	otherwis m), Diam	e stated: eter (mm), T	ime (hhi	nm),	Equipme Pilcon	ant Used 2000		Contractor Arcadis Consulting (L	JK) Ltd.	Lo	yged By P	AM	ea By



Arcadis Consulting (UK) Ltd.

Project Northst Client Homes	owe Ph and Co	nase 2 ommuni	ties Age	ency					Project No. UA008426-0 Easting (OS mE) 541584.31	1	Ground Level 6.65 Northing (OS 1 266428.8	(mAOD) mN) 8		Start D 09/1 End Da 09/1	ate 2/2016 ate 2/2016	Sca 1: Sł	^{ale} 50 neet 2	of 2
SAM	PLES		TES	STS		- s	PROGF	RESS			STI	RATA						
Depth	Type/	Depth	Type/	Resu	lts	Wate Strike	Date Time	Casing			Descriptio	on			Legend	Depth (Thickness)	Level	Install/ Backfill
- - - - - -			NO.				09/12/2016 16:00	4.50	Soft to firm, fiss occasional shel [KIMMERIDGE	ured, dari I fragmen CLAY FC	k grey, sligh ts (<10mm).)RMATION]	tly silty CL	AY with		x x	10.45	-3.80	
- - - - -		- 															+ + + + + + + +	
- - - - - -		-															+ + + + + + + + + + + + + + + + + + + +	
-		-															+ + + + + + + +	
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- - - - -																	+ + + + + +	
-		-															+	
- C	RILLING	TECHNIC		C	HISELLIN	 1 <u>G</u>		V	 <u>NATER</u> OBSERV	ATIONS		НО	LE/CASIN	<u>G D</u> IAME	TER	WATE	R ADDI	ED
From 0.00 1.20	To 1.20 10.45	Ty Inspec Cable Pe	rpe tion Pit ercussion	Hard From 3.80	Strata To 4.00	Duration	n Date/Ti	me S	Strike At Time Elapsed	Rise To	Casing Seal	ed Hole Dia 300 200 50	a. Depth C 1.20 10.00 10.45	asing Dia.	Depth 4.50	From	To V	/olume (Itr)
Remarks No ground	lwater end	countered.							1						I			
UT18 (3.0 UT19 (6.0 UT20 (9.0	u-3.45) - ′ 0-6.45) - ′ 0-9.45) - ′	100% reco 100% reco 100% reco	overy, 75 blo overy, 85 blo overy, 100 b	ows. ows. olows.												Term	ination D	lepth:
Arc Still AGS	adis Cymru House Aellons Business k diff 0 EY	Unless Depth (I	otherwise m), Diamet	stated: er (mm), T	ïme (hhn	nm),	Equipme Pilcon	nt Used			Contractor Arcadis (Consulti	ng (UK) L	_td.	Lo	gged By	Check	ed By

BH610

Project Northsto Client	we Pl	nase 2	41						Project No. UA008426-01 Easting (OS mE)	Ground Level Northing (OS	(mAOD) mN)	Start Date 12/12/2016 End Date	Sca 1:	ale 50	
Homes a	nd Co	ommuni	ties Ag	ency					541208.04	266819.0	0	12/12/2016	Sr	neet 1	of 2
SAMPL	ES Type/		TE Type/	ESTS		/ater rikes	PROGF	RESS Casing		ST	RATA		Depth	Level	Install
0.10 0.10 0.10 - 0.30	No. B4 ES ES1	Depth 	No.	Resu	Its	 N 	Date Time 12/12/2016 11:30	Water	MADE GROUND: C and rootlets. MADE GROUND: S slightly sandy slight rootlets. Sand is find rounded, fine to coa	Description Grass over brown Soft to firm, orang Iy gravelly CLAY e to coarse. Grav arse of flint, brick	CLAY with occasional ish brown mottled grey with occasional roots a el is sub-angular to sul and mudstone.	roots	0.05		
- 1.50 - 1.50 - 1.70 - 1.70 - 1.70 - 1.80 - 2.00 - 2.00 - 2.45	B5 ES2 EWW1 EWW2 B7 D6	- 1.20 	SPT(C) SPT(S)	N=9 (2,2/2,2,3 N=12 (2,2/3,3	3,2) ,3,3)				Firm, bluish grey, sl angular to rounded, [KIMMERIDGE CLA	ightly gravelly silf fine to coarse of Y FORMATION]	y CLAY. Gravel is sub- weak mudstone.		X X X 1.50		
- - - - - - - - - - - - - - - - - - -	B9 ES	-											(2.00)		
3.00 - 3.20 3.00 - 3.45 3.45 - - - - - 4.00 - 4.00	E33 UT8 D10 B12 D11	- - - - - - - - - - - - - - - - - - -	SPT(S)	N=27 (4,5/7,9	,7,4)				Grey SILTSTONE. [KIIMMERIDGE CL/ Firm, bluish grey, sl angular to rounded, [KIIMMERIDGE CL/ Grey SILTSTONE.	AY FORMATION ightly gravelly sill fine to coarse of AY FORMATION	y CLAY. Gravel is sub- weak mudstone.		3.50 (0.20) 3.70 3.80 3.90		
- - - - - - - - 5.00 - 5.45 -	UT13	- - - - - - -							(KIMMERIDGE CLA Firm to stiff, bluish g sub-angular to roun [KIMMERIDGE CLA	AY FORMATION] grey, slightly grav ded, fine to coars AY FORMATION]	elly silty CLAY. Gravel se of weak mudstone.	is	(1.30)		
- 5.45 5.50 	D14 B15 D16 B17	- - - - - - - - - - - - - - - - - - -	SPT(S)	N=19 (3,4/4,4	,5,6)				Jun, dark grey CLA	^{Τ.} Y FORMATION]					
	UT18 D19 B20	-											- (5.25)	+ + + + + + + + + + + + + + + + + + +	
	D21	- - - - - - - - - - - - - - - - - - -	SPT(S)	N=22 (4,4/5,5	,6,6)										
DR			UE	C Hard		NG Duratio	n _	V			HOLE/CASING		WATE From		ED
0.00 1	.20	Inspec	tion Pit	From 3.50 3.80	To 3.70 3.90	00:40 00:25	" Date/Ti	ime S		Se io Casiiig Sea	300 1.20 200 10 00 200 200 200 200 200 200 200	200 1.65	- TOTI	0	volume (itr
Remarks No groundw UT8 (3.00-3 UT13 (5.00- UT18 (8.00-	ater en .45) - 1 5.45) - 8.45) -	countered. 00% recov 100% reco 100% reco	ery, 71 bl very, 42 b very, 53 b	ows. blows. blows).							50 10.45		Terr	ination [10.4	Depth: 5m
Arcadis St Mello	Cymru House	Unless of	otherwise	e stated:			Equipme	ent Used		Contractor		L	ogged By	Check	ked By



Arcadis Consulting (UK) Ltd.

Project Norths Client	stowe I	Phase 2	tios Aa	ency					Project No. UA008426-0 Easting (OS mE) 541208 04)1	Ground Le	evel (mA OS mN)	AOD))		Start I 12/1 End D 12/1	Date 2/2016 Date 2/2016	Sca 1: SI	ale 50 2001 2	of 2
			ues Ag	oto			55005	500	541200.04		20001	0.00	F A		12/	2/2010		ieet 2	
SAN	MPLES Tvn	e/	TE Type/	STS		ater rikes	PROGF	Casing				STRAT	A			1	- Depth	Level	Install/
Depth	h No	Depth	No.	Resu	ilts	≤ tì	Date Time	Water			Descr	iption				Legend	(THICKHESS)	,	Баскіш
-		-							Stiff, dark grey	CLAY. CLAY FC	ORMATIC	DN]				F		1	
-		-					12/12/2016	1.65									10.45	1	[]
-		-					16:00											1	
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From	To		vpe	Hard From	Strata	J Duratio	n Date/Ti	me s	Strike At Time Elapsed	I Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	From		/olume (ltr)
0.00	1.20 10.45	Inspec Cable Pr	tion Pit ercussion	3.50 3.80	3.70 3.90	00:40 00:25		-					300 200	1.20 10.00	200	1.65			
													50	10.45					
Remarks					·			I	I		.					1	I	I	
No grour UT8 (3.0	ndwater e)0-3.45) -	encountered. 100% recov	ery, 71 blo	ows.															
UT13 (5.	.00-5.45)	- 100% reco	very, 42 b	lows.													Torr	nination D)enth:
0110(0	.00-0.43)	- 100 % 1800	wery, oo D	novvoj.													lem	10 /	-epui. 5m
																		10.4	
	Arcadis Cymru Ho St Mellons Busine Park	Denth (r	otherwise m). Diame	e stated: eter (mm). T	'ime (hhmr	n).	Equipme	nt Used			Contracto	or			144	Lo	gged By	Check	ed By
AUS	Cardiff CF3 0EY	Thickne	ss (m), L	evel (mOD)		,,	Dando	2000			Arcadi	is Cor	nsultin	ig (UK)	∟tđ.	S	L.	АМ	

BH611

Project Norths t Client Homes	towe P and C	hase 2 ommuni	ities Ag	jency					Project UA0 Easting 5415	No. 08426-0 9 (OS mE) 588.67	1	Ground Le 6.34 Northing (26664	evel (mA0 (OS mN) 7.16	OD)		Start E 07/1 End D 07/1	Date 2/2016 ate 2/2016	Sca 1:5 Sh	^{ile} 50 neet 1	of 2
SAM	PLES		TE	ESTS		r ss	PROGF	RESS			0		STRATA	Ą		0				
Depth	Туре	Depth	Type/	Resu	ilts	Wate	Date Time	Casing				Descr	ription				Legend	Depth (Thickness)	Level	Install Backfil
0.00 - 1.2	0 B5	-	140.				07/12/2016	0.00	MAD	E GROUN	D: Grass	over sof	ft, brown	CLAY w	ith frequ	ent		(0.20)		A
0.30	ES 0 ES1						10.00		MAD	E GROUN	D: Soft, b	rown, sli	ightly sa	ndy sligh	tly grave	elly		(0.40)	6.14	
-	-	-							Grav	el is sub-ar	ngular to	sub-rour	nded, fin	e to coar	se of flir	se. It.		0.60	5.74	
									Firm, is fine	e to coarse	brown, sil . Gravel i	igntiy sa is sub-ar	ndy sligi ngular to	sub-rou	nded, fin	r. Sand ie to		- 	ļ	21
-	DC	-		N-45 (0.0/4.4	2.4				[RIVE	ER TERRA	CE DEPO	OSITS]						(1.00)	+	
1.20	De	- 1.20	5P1(5)	N=15 (3,3/4,4	,3,4)													(1.20)	ļ	
- 1.50 - 2.0 1.60 - 1.8	0 B7 0 ES2	-																4 4 4	+	211
		E							Loos	e, yellowisł	h brown, g	gravelly	fine to c	oarse SA	ND. Gra	avel is		1.80 1.90	4.54	311
- 2.00	EWW1 EWW2								sub-a	angular to s ER TERRA	Sub-round	ded, fine DSITS]	to coars	e of flint.			/ × _		+-	
2.00 - 3.0	0 B8								Soft, silty (grey mottle CLAY. Sand	ed orangis d is fine to	sh browr coarse	n, slightl . Gravel	y sandy : is sub-a	slightly g ngular to	ravelly sub-	×		ļ	211
-		-							round	ded, fine to ER TERRA	coarse o	of flint. DSITS1			•		×		+	311
2.80	ES ES3																×		Ì	
- 3.00 - 3.00	D9 0 B10	— 3.00 -	SPT(S)	N=5 (1,2/2,1,	1,1)	\vdash											× ×	(2.10)	+	
		E																	ŧ]
-		-																	ł	
		-															× ×		+	
- 4.00 4.00 - 4 5	B 0 B11	F				$\mathbb{P}^{\mathbb{Z}}$			Medi	um dense,	yellowish	n brown,	very sar	ndy GRA	VEL. Sa	nd is	×	4.00 -	2.34	
4.30 - 4.4	0 ES4	-							fine t	o coarse. G se of flint.	Gravel is s	sub-angi	ular to su	ub-round	ed, fine	to			+	
- 4.50	D12	- 4.50	SPT(C)	N=28 (7,7/6,6	6,7,9)				[RIVE	ER TERRA	CE DEPO	OSITS]						(0.90)	ŧ	
4.50 - 4.9	0 613	-																· · ·	ļ	
	0 B14	-							Soft 1	o firm, fiss	ured, blue	eish grey	y, slightly	/ silty CL	AY with		$\overline{}$	4.90	1.44	
									[KIMI	MERIDGE	CLAY FC	ORMATIC	DN]				$\overline{\times}$	-	Į	
-		-															$\overline{\times}$	-	+	
																	$\overline{}$	-	ŧ	
- 6.00	U21	-															$\overline{\nabla} \times$		+	
6.00 - 6.4	5 UT22	-															$\overline{\nabla} \times$	-	+	
6.45	D15																		ļ	
6.50 - 7.5	D B16	-															$\overline{\times} \times$	2	ŧ	
_																	×_×		Ļ	4
		-															× ×	-	ł	r H
7 50	D17	- 7.50		N=0 (2 3/2 2 1	2 3)												<u>×</u> ×	(5.55)	Ì	r H
1.00	011	-		11-0 (2,0/2,2,2	2,0)												<u></u>	(0.00)	ł	L H
	0 040	-															<u></u>	-	+	L H
-8.00 - 9.0	0 818	-															<u>×_×</u> _		-	Η
		-															<u></u>		ŧ	
		-															<u></u>		Ī	H
		-															<u></u>		ŧ	
-9.00 - 9.4	5 UT23	-															×_×_		Ī	Π
0 /5	D10	-															×_×_		ł	H
9.45 9.45 - 10.0	0 B20	E															×_×_		ţ	H
		-															×	-	ł	
- 10.00	D21	— 10.00 -	SPT(S)	N=19 (3,4/4,4	,5,6)												×			ż7
Erom			QUE	C	HISELLI	NG		V				Conir-	Social	HOLE			TER	WATE		ED
0.00	1.20	Inspec	ction Pit	From	То	Juratio	"Date/T 07/12/2010 07/12/2010	ime S 6 13:00 6 14:00	3.00 4.00	20 20	2.00	3.00 4.00	5.50 5.50	300 200	1.20 10.00	200	5.50	rivill	10 1	ourne (Itř)
1.20	10.40		0100351011											50	10.45					
Remarks JT22 (6.0	0-6.45) -	100% reco	overy, 65 l	blows.																
UT23 (9.0	0-9.45) -	100% reco	overy, 100	blows.																
																		Term	ination D	epth:
																			10.4	5m
Arc St I Par	adis Cymru Hous Mellons Business k	 Unless Depth (otherwis m). Diam	e stated: eter (mm). T	ime (hh	mm).	Equipme	ent Used				Contract	or			- 4d	Lo	ogged By	Check	ad By



Arcadis Consulting (UK) Ltd.

Project Northst Client Homes	towe Pl and Co	hase 2 ommuni	ties Age	ency					Project No. UA008426-01 Easting (OS mE) 541588.67		Ground Level (m/ 6.34 Northing (OS mN 266647.16	AOD)	Start 07/1 End [07/1	Date 2/2016 Date 2/2016	Sca 1: Sh	^{ile} 50 1eet 2	of 2
SAMF	PLES		TES	STS		er es	PROGF	RESS			STRA	TA					la stall/
Depth	Type/	Depth	Type/	Resul	ts	Wate	Date Time	Casing		-	Description			Legend	Depth (Thickness)	Level	Install/ Backfill
- - - -	NO.	- - - -	NO.				07/12/2016 16:00	5.50	Soft to firm, fissu occasional shells [KIMMERIDGE 0	red, blue and she LAY FC	eish grey, sligh ell fragments. PRMATION]	tly silty CLAY	with		10.45	-4.11	
- - - -		- - - -														* * * *	
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Erom		TECHNIQ	UE	CH Hard S	ISELLIN	IG		۱ ا			Casing Social	HOLE/CA	SING DIAM	ETER	WATE		ED
0.00 1.20	1.20 10.45	Inspec Cable Pe	tion Pit ercussion	From	То	Sarauor	Date/Ti 07/12/2016 07/12/2016	me 5 13:00 5 14:00	3.00 20 4.00 20	2.00 2.00	3.00 5.50 4.00 5.50	300 1.20 200 10.0 50 10.4) 200 0 5	5.50			
Remarks UT22 (6.0 UT23 (9.0	0-6.45) - 0-9.45) -	100% reco 100% reco	very, 65 bl very, 100 l	lows. blows.											Torre	ination D	enth:
															Ierm	10.4	5m
AGS Arc. St M Part Care CF3	adis Cymru Hous Mellons Business k diff 3 0EY	Unless of Depth (r Thickne	otherwise n), Diame ss (m), Le	stated: ter (mm), Ti evel (mOD).	me (hhm	۱m),	Equipme Dando	nt Used			Contractor Arcadis Co	nsulting (U	K) Ltd.	Lo	gged By	Check AM	ed By

BH613

Project Northst Client Homes	towe Pl and Co	hase 2 ommuni	ties Ag	jency					Project No. UA00842 Easting (OS 541102.1	26-01 ^{mE)} 13		Ground Le 6.66 Northing (26713	evel (mA (OS mN) 1.34	OD)		St 0 Er 0	tart Dat 7/12 nd Date 7/12	/2016 /2016 /2016	sc 1: SI	^{ale} 50 neet 1	of 1	
SAM	PLES		 TI	ESTS		۲ ۵	PROGE	RESS					STRAT	A							1	-
Depth	Туре	/ Depth	Type/	Resu	lts	Water	Date Time	Casing				Descr	ription					Leaend	Depth (Thickness	Level	Instal Backf	l/ ill
0.10 0.10 - 0.2 0.10 - 0.2 0.20 - 0.7 0.20 - 0.7 0.30 0.30 - 0.4	NO. ES 0 B1 0 ES2 0 B3 D16 0 ES4	-	NO.				07/12/2016 09:00	0.00	Grass ove rootlets. G mixed litho [TOPSOIL Firm to stit silty CLAY	er soft, b Gravel is ologies. -] ff, brow	n mottle	lightly si gular to d grey, s	ilty grav sub-rou slightly Grave	velly CL unded, sandy s	AY with fine to slightly	gravelly	nt of	₩ <u>.</u>	(0.20) 0.20	6.46		
- - - 1.00 - 1.00 - 1.5 - - - - - -	D17 0 B5 D18	- - - - - - - - - - - - - - - - - -	SPT(S)	N=19 (2,2/3,5	,5,6)				rounded, [RIVER TE	fine to o ERRAC	coarse d E DEPC	of mixed OSITS]	litholog	jies.				× · · · · · · · · · · · · · · · · · · ·		+ + + + + + + + + + + + + + + + + + + +		//
- - 2.00 - 2.00 - 2.5	D19 0 B7	- - - -															- - - -	× <u>··</u>	(3.50)			,
2.40	EW1	-																× × × ×				
- 3.00 - 3.00 - 3.4 - 3.00 - 3.5 - 3.50	5 D20 UT32 B8 D21	3.00 	SPT(S)	N=24 (3,3/6,6	,6,6)													× × × ×				°+/////
- 3.70 - 4.00 - 4.00 - 4.11	D22 D23 ES6	-							Grey SILT [KIMMER] Soft, grey orange sa	STONE IDGE C mottled	LAY FO brown, occasio	RMATIC silty CL	DN] AY with ular gra	pocke	ts (1cm	1) of e (1cm x		× × × × × × × × × × × × × × × × × × ×	3.70 (0.20) 3.90	2.96		(;
- 4.00 - 4.5 - - - -	0 89	= = = = = =							2xcm x 0.8 [KIMMERI	5cm). IDGE C	LAY FO	RMATIC	DN]			. (×	(1.30)	* + + +		///////////////////////////////////////
- 5.00 - 5.00 - 5.5 - 5.30 - 5.4 - 5.40	0 D24 B10 0 ES15 D25	- - - - -							Grey SILT [KIMMERI Stiff to ver	STONE	LAY FO	RMATIC	DN] LAY wi	th occa	sional	angular		×	5.20 (0.20) 5.40	1.46 1.26		//////
- - - - 6.00 - 6.00 - 6.00 - 6.50 - - - 6.50 - -	D26 U33 5 UT33 0 B11 D27								gravel of s [KIMMERI	siltstone IDGE C	LAY FO	RMATIC	[NC			-		× × ×		+ + + + + + + + + + + + + + + + + + +		
- - - 7.00 - 7.00 - 7.5 - - -	D28 0 B12	- - - - - - 7.50	SPT(S)	N=34 (4,5/6,8	s,10,10)													×		* * * * * * * * *		
- 8.00 - 8.00 - 8.5 	D29 0 B13	-																	(4.60)	+ + + + + + + + + + + + + + + + + + +		1.11111111111
- - 9.00 - 9.00 - 9.5 - -	D30 0 B14	-																		+		
- - 9.50 - 9.9 - - - - - - 10.00	5 UT34 D31						07/12/2016	1.50										×	10.00			///////////////////////////////////////
- -					HISELLIN		16:00			SEB//AT	IUNG			ноі	F/CA9			FR	\\\/\\\T	- - - - - - - - - - - - - - - - - - -	ED.	
From	To	Ту	/pe	Hard From	Strata	Duratio	n Date/Ti	ime S	Strike At Time E	Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing [Dia. Dia	Depth	From	То	Volume (Iti	r)
0.00 1.20 Remarks No ground Gas moni	1.20 10.00 dwater en toring poi	Cable Po Cable Po Iccountered.	ercussion at 3.00m	3.70 5.20	3.90 5.40	00:30								300 200	1.20	200		1.50				
																			Tern	10.0	Depth: 0m	_



Arcadis Consulting (UK) Ltd.

Logged By Checked By VP

CPT609

Project Northstov Client Homes al	we - IP nd Cor	s (CPT/L nmunitie	₋IF) ∋s Agen	су		Project UA0 Easting 5416	No. 08426-04 (OS mE) 50.13	Ground Level (mAOD) 6.35 Northing (OS mN) 266581.43	Start Date 16/12/201 End Date 16/12/201	6 1 6 S	^{cale} :25 Sheet 1	of 1
SAMPL	ES		TESTS	;	es			STRATA		Death		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Desc	ription	Legend	(Thickness)	Level	Backfill
- 0.10	ES1	-				MADE GROUND: Soft, b	rown, sandy silf	y CLAY. Sand is fine to coarse.		× × (0.20)	-	
		-				Firm, light brown, slightly	sandy slightly g	ravelly CLAY. Sand is fine to coarse		0.20	6.15	
-		-				Gravel is angular, fine to [RIVER TERRACE DEPC	coarse of flint a DSITS]	nd chalk.			ł	
-		-								(0.50)	ļ	
-		-									ŧ	
-		-				Light yellowish grey, sligh	ntly gravelly slig	htly clayey SAND. Sand is fine to co	arse.	0.70	5.65	
-		-				[RIVER TERRACE DEPC	DSITS]				Į	
-		-								(0.50)	ŧ	
-		-									-	
		-								1.20	5.15	, <u> </u>
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PLAN DETA	ILS	F			1	1	Remarks		I	1	1	1
		0.5		Long Axi	s Orienta	ion: 90	Inspection pit No groundwa Target depth	for CPT. ter encountered. reached.				
				Shorina	Support	None						
0.5				Stability:	Stable							
				Groundw	ater (des	cription): DRY				Teri	mination	Depth:
											1.20r	n
Arcadis House	s Cymru	Inless other	wise stated:			Equipment Used		Contractor	L	ogged By	Checke	ed By
AGS St Mello Busines Cardiff,	ons E ss Park T CF3 0EY	Pepth (m), Di hickness (m	ameter (mm ı), Level (m0), Time (hhmm)D).),	Hand Tools		Arcadis Consulting (UK)	Ltd N	ID	SH	

CPT616

Project Northstov ^{Client} Homes ar	we - IP: nd Con	s (CPT/L nmunitie	.IF) es Agenc	у		Project N UA00 Easting (54162	lo. 8 426-04 (OS mE) 2 6.86	Ground Level (mAOD) 6.42 Northing (OS mN) 266398.64	Start Date 16/12/2016 End Date 16/12/2016	Sc 1: S	ale 25 heet 1	of 1
SAMPL	.ES		TESTS		بة 8			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desci	iption	Legend	Depth (Thickness)	Level	Backfill
- 0.10	ES1	- - - -	140.			MADE GROUND: Soft, bro	own, sandy silty	CLAY. Sand is fine to coarse.		(0.30)		
- - - -		- - -				Firm, light brown, slightly s Gravel is angular, fine to c [RIVER TERRACE DEPO	andy slightly g oarse of flint ar SITS]	ravelly CLAY. Sand is fine to coal d chalk.	rse.	0.30 (0.20)	6.12	
- - - -						Light yellowish grey, slight Gravel is angular, fine to c [RIVER TERRACE DEPO	ly gravelly sligh oarse of flint ar SITS]	tly clayey SAND. Sand is fine to d chalk.	coarse.	0.50	- 5.92	
- - - - -		- - - -								(0.60)	• • • •	
-		-				Firm to stiff, light grey mot	tled light brown	, slightly sandy CLAY. Sand is fin	ie to	1.10 (0.10)	5.32	
-		-										
- - - -		- - -										
-		- - -										
-		-									Ł	
	 S	-					Remarks					
		0.5		Long Axis	Orientat	ion: 90	Inspection pit t No groundwate Target depth re	or CPT. er encountered. eached.				
0.5				Shoring /	Support: Stable	None						
				Groundw	ater (deso	cription): DRY				Tern	nination 1.20n	Depth: n
Arcadis	Cymru	nless otherv	vise stated:			Equipment Used	<u> </u>	Contractor	Log	ged By	Checke	ed By

Project Northst Client Homes	towe - IP and Cor	s (CPT/L nmunitie	_IF) es Ager	су		Project N UA00 Easting 54105	No. 1 8426-04 (OS mE) 5 4.25	Ground Level (mAOD) 9.13 Northing (OS mN) 266615.51	Start Date 13/12/20 End Date 13/12/20	16 16	^{Scale} 1:25 Sheet 1	of 1
SAM	IPLES		TEST	S	r s			STRATA				
Depth	Type/	Depth	Type/	Results	Wate Strike		Desc	ription	Lege	nd (Thicknes	s) Level	Install/ Backfill
- 0.10 - 0.3 	0 ES1	- 0.10 	PID	<1ppm		MADE GROUND: Grass c coarse SAND with occasio to coarse of red brick.	over dark brown onal rootlets. G	 slightly gravelly very clayey fine ravel is sub-angular to sub-rounde 	to ed, fine	(0.50)		
-		-				Soft, light orangish brown, Gravel is sub-angular to s [RIVER TERRACE DEPO	, slightly gravel ub-rounded, fir SITS]	y sandy CLAY. Sand is fine to coa e of flint and chalk.		0.50	8.63	
		-				Soft, light orangish brown, sub-angular to sub-rounde [RIVER TERRACE DEPO	, gravelly very o ed, fine of flint a SITS]	clayey fine to coarse SAND. Grave and chalk.	el is	0.90	8.23	
-		- - - -							2000 - 200 	1.20	7.93	= == ;== ;===:
- - - - -												
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= = = =		- - - -										
PLAN DE	TAILS	r	1	1	1	1	Remarks		I	1		1
		0.4		Long Axi	s Orientat	ion: 90	Inspection pit No groundwat Target depth r	for LIF. er encountered. eached.				
0.4				Shoring / Stability:	Support: Stable	None				·		Devil
				Groundw	ater (des	cription): DRY				le	1.20r	Deptn:
Arca	adis Cymru	nless other	wise state			Equipment Used		Contractor		Logged By	Check	ed By

LIF1002

Project Northstov Client Homes ar	we - IP nd Con	s (CPT/L nmunitie	_IF) es Agei	тсу		Project I UA00 Easting 5410	No. 1 8426-04 (OS mE) 97.82	Ground Level (mAOD) 9.15 Northing (OS mN) 266638.44	Start Date 12/12/2010 End Date 12/12/2010	5 1 5 S	^{cale} :25 heet 1	l of 1
SAMPL	.ES		TEST	S	ŝ			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install Backfi
0.10 - 0.30	ES1	- 0.10 	PID	2.8ppm		MADE GROUND: Grass of CLAY with occasional roo sub-rounded, fine to medi	over soft to firm tlets. Sand is fir um of flint and	, dark brown, slightly gravelly sand e to coarse. Gravel is sub-angular chalk.	to	(0.40)		
		- - - - -				Soft, light brown, slightly g sub-angular to sub-rounde [RIVER TERRACE DEPO	pravelly sandy (ed, fine to medi SITS]	CLAY. Sand is fine to coarse. Grave um of flint and chalk.	l is	0.40 (0.50)	8.75	
		-									ŧ	
_		-				Firm, bluish grey, slightly s	sandy CLAY. Sa	and is fine.		0.90	8.25	
_		-					NIATION			(0.30)	Ţ	
_										1.20	· 7.95	,
		- - - - - -									-	
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	LS	F	I	I		1	Remarks				1	1
		0.4		Long Ax	is Orienta	ion: 90	Inspection pit No groundwat Target depth r	for LIF. er encountered. eached.				
				Shoring	/ Support:	None						
0.4				Stability Groundy	Stable vater (des	cription): DRY				Terr	nination	Depth:
											1.20r	n
Arcadis	Cymru	nless other	wise state	1:		Equipment Used		Contractor	Lo	gged By	Checke	ed By
GS St Mello Busines Cardiff,	ons D is Park T CF3 0EY	epth (m), Di hickness (m	ameter (m i), Level (n	m), Time (hhmn 10D).	ı),	Hand Tools		Arcadis Consulting (UK)	Ltd S/	A .	SH	,

Project Northstov Client Homes al	we - IPs nd Con	s (CPT/L nmunitie	_IF) es Agei	ncy		Project N UA00 Easting 54113	No. 1 8426-04 (OS mE) 3 8.47	Ground Level (mAOD) 8.98 Northing (OS mN) 266610.48	Start Date 13/12/2010 End Date 13/12/2010	6 1 6 S	^{:ale} :25 heet 1	of 1
SAMPL	ES		TEST	S	_ ى			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
-	NO.		NO.			MADE GROUND: Grass of	over strong, gre	y CONCRETE.	A	(0.10)		m≡m
- 0.10 - 0.30 - - - -	ES1	- 0.10 - - -	PID	<1ppm		MADE GROUND: Light gr coarse. Gravel is sub-ang	eyish brown, s ular to sub-rou	andy gravelly CLAY. Sand is fine to nded, fine to coarse of flint and cha	alk.	(0.40)	8.88	
- 		- - - - - -				50mm diameter clay pip dr Soft, light brown, slightly g sub-angular to sub-rounde [RIVER TERRACE DEPO	e (land drain) e ain running in r gravelly sandy (ed, fine of flint a SITS.]	ncountered between 0.40-0.50m bg orth-south direction in east side of p CLAY. Sand is fine to coarse. Grav and chalk.	I. Land bit wall. el is	0.50	- 8.48	
- - -										1.00	- 7.98	
-		-				KIMMERIDGE CLAY FOR	andy CLAY. Sa RMATION]	nd is fine.		(0.20)		
- - - - - - - - - - - -		-										
-		-									ł	
		-					Domorka				Т	
		0.4			s Orientat	ion: 90	Inspection pit No groundwai Target depth r	for LIF. er encountered. eached.				
0.4				Shoring /	Support: Stable	None						
				Groundw	ater (des	cription): DRY				Terr	nination 1.20r	Depth:
Arcadis	Cymru	nless other	wise state	d:		Equipment Used		Contractor	Lc	gged By	Checke	ed By

LIF1004

Project Northsto Client Homes a	owe - IPs and Con	s (CPT/L nmunitie	.IF) es Ager	ю		Project N UA00 Easting 54113	No. 8426-04 (OS mE) 32.06	Ground Level (mAOD) 9.05 Northing (OS mN) 266573.71	Start Date 13/12/2016 End Date 13/12/2016	Sc 1: Sl	^{ale} 25 heet 1	of 1
SAM	PLES		TEST	S	er		S	STRATA		Denth		Install/
Depth	Type/	Depth	Type/	Results	Wat Strik		Descrip	ption	Legend	(Thickness)	Level	Backfill
-	110.	-	110.			MADE GROUND: Strong,	grey CONCRET	E.	A	(0.10)		⋓≣⋓
- 0.10 - 0.30 -	ES1	- 0.10	PID	<1ppm		MADE GROUND: Light ye	ellowish brown, v	ery gravelly fine to coarse SAND wit	h	0.10	8.95	
-		-				fine to coarse of flint and r	ed brick. Cobble	s are angular of red brick.		(0.20)	0.75	
-		-				Firm to stiff, dark brown, s Gravel is sub-angular to s	lightly gravelly sa ub-rounded, fine	andy CLAY. Sand is fine to coarse. to medium of flint and chalk.		0.30	0.75	
-		-				[RIVER TERRACE DEPO	SITS]				-	
-		-								(0.50)		
-		-										Ľ≣Ľ
		-							· · · · · · · · · · · · · · · · · · ·	0.80	8.25	□ ≝ <u>□</u>
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PLAN DET	AILS						Remarks					
⊢		0.4		Long Axi	s Orientat	ion:	Inspection pit fo	r LIF. r encountered				
T T						90	Pit refused at 0.	80m bgl due to stiffness of clay.	inction			
				0	0	Nees	SU minutes of cl	msening undertaken prior to pit term	mation.			
0.3				Shoring	Support:	NONE						
				Stability:	otable	cription): DPV				Term	ination I	Depth [.]
				Groundy	aici (088						0 80-	n
											0.000	11
Arcad	lis Cymru a U	nless other	wise stated	:		Equipment Used		Contractor	Lo	ged By	Checke	ed By

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Project Northstov Client Homes ar	we - IP nd Cor	s (CPT/L nmunitie	.IF) es Agei	су		Project UA0 Easting 5408	No. 08426-04 (OS mE) 69.80	Ground Level (mAOD) 9.42 Northing (OS mN) 266228.81	Start Date 12/12/2 End Date 12/12/2	016 016	sc 1: Sl	ale 25 neet 1	of 1
SAMPL	.ES		TEST	S	r s			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Leg	end (Depth Thickness)	Level	Backf
0.10 - 0.30	ES1	- 0.10 	PID	<1ppm		MADE GROUND: Grass SAND with occasional ro coarse of flint and chalk.	over dark browi otlets. Gravel is	n, slightly gravelly clayey fine to coars sub-angular to sub-rounded, fine to	ie		(0.65)		
_		- - - - - -				Soft, light brown, slightly is sub-angular to sub-rou [RIVER TERRACE DEPC	gravelly very sa nded, fine to co DSITS]	ndy CLAY. Sand is fine to coarse. Gr arse, of flint and chalk.	avel		0.65	8.77	
		- - - - - -									1.20	8.22	
		- - - - -									-	-	
-		- - - - - - - -									- - - - - - - - - - - - - 	• • • • •	
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	LS	0.4		Long Axi	s Orienta	ion: 90	Remarks Inspection pit No groundwa Target depth r	for LIF. er encountered. eached.					
0.3				Shoring Stability:	/ Support Stable	None					Torm	ination	Denth:
				Groundy	valer (des	σηριιση). ΟΚΥ						1.20n	n
Aroad'-	Cymry					n							
AGS AGS AGS AGS AGS AGS AGS ACCAUS House St Mello Busines Cardiff,	ns D s Park T CF3 0EY	nless other lepth (m), Di hickness (m	wise state ameter (m ı), Level (n	d: m), Time (hhmm iOD).),	Equipment Used Hand Tools		Contractor Arcadis Consulting (UK) L	td	Logg SA	jed By	Checke SH	ed By

Project Northstov Client Homes ar	we - IP nd Con	s (CPT/L nmunitie	.IF) es Age	ncy		Project N UA00 Easting 54083	No. 1 8426-04 (OS mE) 3 6.24	Ground Level (mAOD) Northing (OS mN) 266196.90	Star 12 End 12	t Date 12/2016 Date 12/2016	6 1: 6 S	^{ale} 25 heet 1	of 1
SAMPL	ES		TEST	S	_ s			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desci	ription		Legend	Depth (Thickness)	Level	Install/ Backfil
- 0.10 - 0.30 	ES1	- - 0.10 - - - -	PID	<1ppm		MADE GROUND: Strong, MADE GROUND: Light to low cobble content. Sand to coarse of red brick. Cot Soft, dark brown, slightly g	grey CONCRE dark brown, sli is fine to coarse obles are angula gravelly sandy (TE. ghtly sandy very clayey GRAVE e. Gravel is angular to sub-angu ar to sub-angular or red brick. CLAY. Sand is fine to coarse. Gr	EL with Ilar, fine ravel is	4.4	(0.10) 0.10 (0.20) 0.30		
- 		- - - - - - - - - -				sub-angular to sub-rounde [RIVER TERRACE DEPO	ed, fine to coars SITS]	e of flint and chalk.			(0.80)	- - - - - - - - - -	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
						Soft, light orangish brown, coarse. Gravel is sub-ang IRIVER TERRACE DEPO	, slightly graveli ular to sub-rour SITS]	y very sandy CLAY. Sand is fine ided, fine to coarse of flint and o	∍ to chalk.		1.10 (0.10) 1.20		
	LS			Long Axi	s Oriental	ion: 90	Remarks Inspection pit 1 No groundwat Target depth ro	for LIF. er encountered. eached.			-		
0.3				Shoring A Stability: Groundw	' Support: Stable vater (des	None cription): DRY					Tern	ination I	Depth: N
Arcadis House	Cymru U	nless other	wise state	d:		Equipment Used		Contractor		Lo	gged By	Checke	ed By

Project Northstov ^{Client} Homes ar	we - IP nd Con	s (CPT/L nmunitie	_IF) es Agei	тсу		Proje UA Eastiu 540	ct No. 008426-04 ng (OS mE) 888.32	Ground Level (mAOD) 9.48 Northing (OS mN) 266178.17	Start Date 13/12/2 End Date 13/12/2	2016 2016	Sc 1: SI	ale 25 neet 1	of 1
SAMPL	ES		TEST	S	er es			STRATA			. "		Install
Depth	Type/ No.	Depth	Type/ No.	Results	Wate		Desc	ription	Leg	jend (T	Deptn hickness)	Level	Backfil
-		-				MADE GROUND: Stror	ıg, grey, wire rein	orced CONCRETE.		\otimes	(0.20)		
- 0.20 - 0.50 - -	ES1	- 0.20 - - -	PID	<1ppm		MADE GROUND: Redo cobble content. Gravel and concrete. Cobbles	lish brown, very g is sub-angular to are angular to sul	ravelly fine to coarse SAND with sub-rounded, fine to coarse of re o-angular of red brick and concre	d brick ete.		0.20	9.28	
- - - - - - - - - - - -		- - - - - - - - - -								~~~	0.50	- 8.98	≝₩≝
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	ILS	0.4			s Orienta	tion: 90	Remarks Inspection pit No groundwa Pit refused at 30 minutes of	for LIF. er encountered. 0.50m bgl due to cobbles of red chiselling undertaken prior to pit	brick and concre termination.	ete.			
0.3				Shoring Stability: Groundw	Support Stable vater (des	ription): DRY					Term	ination 0.50n	Depth: N
Arcadis House St Mello Busines Cardiff,	Cymru Uons D as Park T CF3 0EY	nless other epth (m), Di hickness (m	wise state ameter (m ı), Level (n	d: m), Time (hhmm iOD).),	Equipment Used Hand Tools		Contractor Arcadis Consulting (U	K) Ltd	Logg SA	ed By	Checke SH	ed By

Project Northst Client Homes	owe - IP and Cor	s (CPT/L nmunitie	_IF) es Ager	су		Project f UA00 Easting 5407(No. 1 8426-04 (OS mE) 6 5.79	Ground Level (mAOD) Northing (OS mN) 266172.15	Start Da 12/12 End Da 12/12	ate 2/2016 te 2/2016	sc 1: S	^{ale} 25 heet 1	of 1
SAM	PLES		TEST	S	r s			STRATA					
Depth	Type/ No.	Depth	Type/ No.	Results	Wate Strike		Descr	iption	L	egend	Depth (Thickness)	Level	Install/ Backfill
- - 0.10 - 0.3 - -	D ES1	- 0.10	PID	<1ppm		MADE GROUND: Grass of SAND with occasional roc chalk.	over dark brown otlets. Gravel is	, slightly gravelly clayey fine to angular to sub-rounded, fine of	coarse flint and		(0.34)		
		- - - - -				Soft, light brown, slightly s Gravel is sub-angular to s [RIVER TERRACE DEPO	andy slightly gr ub-rounded, fin SITS]	avelly CLAY. Sand is fine to co. e to coarse of flint and chalk.	arse.		0.34 (0.36)		
- - - -		-				Soft, greyish brown mottle Sand is fine to coarse. Gr and chalk. [RIVER TERRACE DEPO	ed yellowish bro avel is sub-angu SITS]	wn, slightly sandy slightly grave Ilar to sub-rounded, fine to coa	elly CLAY.		0.70 (0.50)		
-		- - - -									1.20		
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		-					Domester				-		
	AILS	0.3		Long Axi	s Orientat	ion: 90	Inspection pit f No groundwate Target depth re	or LIF. er encountered. eached.					
0.3				Shoring / Stability: Groundw	Support: Stable	None cription): DRY					Term	ination I	Depth:
						· ·						1.20n	n
Arca	dis Cymru	nless other	wise state	ŀ		Equipment Used		Contractor		Log	ged By	Checke	ed By
LIF1301

roject Iorthstov lient Iomes ar	we - IPs nd Con	s (CPT/L nmunitie	_IF) es Agenc	y		Project UA00 Easting 5405	No.)8426-04 (OS mE) 70.15	Ground Level (mAOD) Northing (OS mN) 266098.82	Start Date 16/12/201 End Date 16/12/201	6 1 6 S	^{cale} :25 heet 1	of 1
SAMPL	.ES		TESTS		3 SS			STRATA				
Depth	Type/	Depth	Type/	Results	Wate Strike		Desc	ription	Legend	Depth (Thickness)	Level	Instal Backf
0.10	ES1	-				MADE GROUND: Soft, b	rown, sandy silt	y CLAY. Sand is fine to coarse.		(0.40)	+ + + + + +	
		-				Light brown, slightly sand to sub-rounded, fine to co [RIVER TERRACE DEPC	y GRAVEL. Sat barse of flint and DSITS]	nd is fine to coarse. Gravel is sub I chalk.	ı-angular	0.40		
-										(0.80)		
										1.20		
		-										
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LAN DETAI	LS	0.5		Long Axis	s Orientat	ion:	Remarks Inspection pit	for LIF.			1	<u> </u>
				Shoring /	Support:	90 None	Target depth	reached.				
).5				Stability: Groundw	Stable ater (des	cription): DRY				Terr	nination	Depth:
A	Current						1					
House St Mello Busines Cardiff,	ons D s Park TI CF3 0EY	nless other epth (m), Di hickness (m	wise stated: iameter (mm) n), Level (mO	, Time (hhmm) D).	,	Equipment Used Hand Tools		Contractor Arcadis Consulting (UP	د) Ltd N	ogged By D	Checke SH	∋d By

Project Northstov Client Homes al	we - IP nd Cor	s (CPT/L nmunitie	.IF) es Agenc	ÿ		Project UA00 Easting 5405	No. 1 8426-04 (OS mE) 64.71	Ground Level (mAOD) Northing (OS mN) 266155.46	Start Date 16/12/2010 End Date 16/12/2010	5 1: 6 S	: ^{ale} :25 heet 1 c	of 1
SAMPL	ES		TESTS		<u>ب</u> ۵			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level E	nstall 3ackfi
0.10	ES1	- - -	NO.			MADE GROUND: Soft, br	rown, sandy silty	CLAY. Sand is fine to coarse.		(0.40)		
		-				Light brown, slightly sand to sub-rounded, fine to co	y GRAVEL. Sar arse of flint and	d is fine to coarse. Gravel is sub chalk.	-angular	0.40		
- - - - - -		- - - - -					0110]			(0.80)		
— - - - - -		- - - - - -								1.20		
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	 ILS	-					Remarks					
		0.5		Long Axi	s Orientat	ion: 90	Inspection pit No groundwat Target depth r	for LIF. er encountered. eached.				
0.5				Shoring / Stability:	Support: Stable	None				Tern	nination Dr	epth.
				Groundw	alei (Ues						1.20m	
Arcadis	Cymru					Environment III - 1		Combract			Chaolie I	Dv
House St Mello Busines Cardiff,	ons D ss Park T CF3 0EY	nless other epth (m), Di hickness (m	wise stated: ameter (mm) i), Level (mO	, Time (hhmm) D).),	Equipment Used		Contractor Arcadis Consulting (UP	() Ltd N	ggea ву D	SH	⊳у

Project Northstor Client Homes at	we - IP nd Cor	s (CPT/L nmunitie	.IF) es Ageno	су.		Project N UA00 Easting 54062	No. 1 8426-04 (OS mE) 2 3.10	Ground Level (mAOD) Northing (OS mN) 266158.14	Start 16/ End 16/	Date 12/2016 Date 12/2016	5 1: 5 S	^{ale} 25 heet 1	of 1
SAMPI	ES		TESTS		ر ه			STRATA					
Donth	Type/	Dopth	Type/	Populto	Vater trike		Dooo	ription		Logond	Depth (Thickness)	Level	Install/ Backfill
Deptil	No.	Deptil	No.	Results	> 0		Desu	V CLAX Sand in fine to soor	200		. ,		m=m
- 0.10 -	ES1	-				MADE GROUND: SOTT , Dr	own, sandy siit	y CLAY. Sand is fine to coar	se.		(0.40)	- - - -	
-		-				Light yellow, gravelly SAN coarse of chalk. [RIVER TERRACE DEPO	D. Sand is fine	to coarse. Gravel is sub-an	gular, fine to		0.40	- - -	
- - - - - -		-									(0.80)	- - - - -	≡ ≡ ≡ ≡ ≡ ≡ ≡
-		-									1.20	- - - -	
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	ILS	0.5		Long Axi	s Orientat	ion: 90	Remarks Inspection pit No groundwat Target depth r	for LIF. ter encountered. reached.					
0.5				Shoring / Stability:	Support: Stable	None					Term	ination 1	Depth.
	s Cymru			Groundw	aler (des			Contractor				1.20n	n n
House	u	niess otherv	wise stated:					Contractor		LU	9900 Dy	SHOULE	y

Project Northstov Client Homes ar	we - IP nd Con	s (CPT/L nmunitie	.IF) es Agenc	y		Projec UA0 Eastin 5406	t No. 08426-04 g (OS mE) 611.39	Ground Level (mAOD) Northing (OS mN) 266121.68	Start I 16/1 End D 16/1	Date 2/2016 ate 2/2016	5 1 5 S	^{ale} :25 heet 1	of 1
SAMPL	.ES		TESTS		۲ S			STRATA					la stall/
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level	Backfill
-	INU.	-	NO.			MADE GROUND: Soft, t	brown, sandy silty	CLAY. Sand is fine to coarse.		~~~~		+	
- 0.10	ES1	-							k		(0.20)	ł	
		Ē				Firm, brown, sandy CLA IRIVER TERRACE DEP	Y. Sand is fine to OSITSI	coarse.	-		0.20	Į	
-		-				L			-		(0.40)	ł	
E									-			ŧ	
-		-				Light yellow, gravelly SA	ND. Sand is fine	to coarse. Gravel is sub-angular, fin	e to		0.60	ļ	
-		-				coarse of chalk. [RIVER TERRACE DEP	OSITS]					ŧ	
											(0.60)	I	
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											1.20	I	ш≝ш
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PLAN DE IAI	LƏ	0.5			s Orientai	ion [.]	Inspection pit	for LIF.					
		0.5				90	No groundwat Target depth r	er encountered. eached.					
0.5				Shoring /	Support:	None							
				Groundw	তারেDIE ater (des	cription). DRV					Tern	nination	Depth:
					a.ci (ues							1.20n	n
Arcadis House	Cymru U	nless otherv	wise stated:	Time (htmm)	Equipment Used		Contractor		Lo	gged By	Checke	ed By
AGS St Mello Busines Cardiff,	nis D is Park T CF3 0EY	hickness (m	ameter (mm)), Level (mO	, Time (nnmm D).	,	Hand Tools		Arcadis Consulting (UK) I	_td	NI	כ	SH	

Project Northstor Client Homes a	we - IP nd Con	s (CPT/L nmunitio	_IF) es Agen	су		Project UA00 Easting 5407	No. 08426-04 (OS mE) 70.78	Ground Level (mAOD) Northing (OS mN) 266001.83	Start Date 16/12/2010 End Date 16/12/2010	6 1 6 S	^{:ale} :25 heet 1	of 1
SAMPI	ES		TESTS	-				STRATA				
Depth	Type/	Depth	Type/	Results	Nater		Desc	ription	Legend	Depth (Thickness)	Level	Install Backfi
-	No.	-	No.		- 0	MADE GROUND: Soft, b	rown, sandy silf	y CLAY. Sand is fine to coarse.				m≡m
0.10	ES1	-						,				
-		-								(0.40)	+	≣∎≣
-		-								0.40	ţ	
-		_				Firm, bluish grey, slightly	sandy CLAY. S	and is fine to coarse.		0.40	İ	Ⅲ≡॥ ≡॥≡
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PLAN DETA	ILS						Remarks	6				
		0.5		Long Axi	is Orienta	lion:	No groundwa	ter encountered.				
T						90	Target depth	reached.				
				Shorina	/ Sunnart	None						
0.5				Shohilit	stable	NULE						
				Ground	oldule	cription): DRV				Terr	nination [Depth:
					(000	Strate State					1 20m	n
											1.2011	
Arcadis House	s Cymru U	nless other	wise stated:			Equipment Used		Contractor	La	gged By	Checke	d By

Project Northsto Client Homes a	we - IP nd Cor	s (CPT/L nmunitie	_IF) es Agen	cv		Project UA00 Easting 5407	No.)8426-04 (OS mE) 64.85	Ground Level (mAOD) Northing (OS mN) 266051.60	Start 16/ End 16/	Date 12/2010 Date 12/2010	5 1: 5 S	^{ale} 25 heet 1	of 1
QAMPI	IFS		теете	,				STRATA		_0.1			
Denth	Type/	Denth	Type/	Results	Nater		Desc	rintion		Legend	Depth (Thickness)	Level	Install Backfi
-	No.	-	No.		- 0	MADE GROUND: Soft, bi	rown, sandy silt	y CLAY. Sand is fine to coarse.					≡∎
0.10	ES1	-									(0.40)		
-		Ę									(0.40)		
-		-				Firm bluish arey slightly	sandy CLAY S	and is fine to coarse			0.40		
-		-				[KIMMERIDGE CLAY FO	RMATION]					-	
-		-											
-		-									(0.00)		
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PLAN DETA	ILS	•	· 1				Remarks			•			
		0.5		Long Axi	is Orientat	ion:	Inspection pit	for LIF. ter encountered.					
T						90	Target depth	reached.					
				Shoring	/ Support:	None							
0.5				Stability	Stable								
				Groundy	vater (des	cription): DRY					Tern	ination	Depth:
												1.20n	n
Arcadis House	s Cymru U	Inless other	wise stated:			Equipment Used		Contractor		Lo	gged By	Checke	ed By

Project Northsto Client Homes a	we - IP Ind Con	s (CPT/L nmunitie	.IF) es Ageno	ÿ		Project N UA00 Easting 5408	No. 8426-04 (OS mE) 10.59	Ground Level (mAOD) Northing (OS mN) 266069.30	Start Date 16/12/20 End Date 16/12/20	6 1 6 S	^{:ale} :25 heet 1	of 1
SAMP	LES		TESTS		ر ه			STRATA				
Depth	Type/	Depth	Type/	Results	Watel Strike		Desci	iption	Legen	Depth (Thickness)	Level	Install/ Backfill
- 0.10	ES1	-	NO.			MADE GROUND: Soft, br	own, sandy silty	CLAY. Sand is fine to coarse		(0.40)		
-		= = = = =				Firm, bluish grey, slightly s [KIMMERISDGE CLAY FC	sandy CLAY. Sa DRMATION]	nd is fine to coarse.		× 0.40	- - - - - -	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- - - - - -		- - - - -								(0.80)		≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
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	NILƏ	0.5			o Orientat	ion: 90	Inspection pit 1 No groundwat Target depth re	or LIF. er encountered. eached.				
0.5	Shoring / Suppo Stability: Stable Groundwater (d					None cription): DRY				Term	nination [1.20m	Depth:
Arcadi House	s Cymru U	nless otherv	vise stated:			Equipment Used	1	Contractor	L	ogged By	Checke	d By

Project Northstov Client Homes au	we - IP: nd Con	s (CPT/L	_IF) es Agen	CV.		Project UA00 Easting 5408	No.)8426-04 (OS mE) 19 74	Ground Level (mAOD) Northing (OS mN) 266038.34	Start 16/ 1 End E 16/ 1	Date 2/2016 Date 2/2016	5 1: 5 9	^{ale} 25 heet 1	of 1
			TEOTO	~1		5400			10/		. 3		
Depth	Type/	Depth	Type/	Results	Mater Strikes		Desc			Legend	Depth (Thickness)	Level	Install Backfi
Bobai	No.	-	No.		- 0)	MADE GROUND: Soft, br	rown, sandy silf	ty CLAY. Sand is fine to coarse.					
0.10	ES1	-									(0.40)		
		-									(0.40)		
		-				Firm, bluish grey, slightly	sandy CLAY. S	and is fine to coarse.		<u> </u>	0.40		
-		-				[KIMMERIDGE CLAY FO	RMATION]					-	
		-											
		-									(0.80)	-	
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PLAN DETA	ILS						Remarks						
H		0.5		Long Axi	s Orientat	ion:	Inspection pit No groundwa	for LIF. ter encountered.					
T						90	Target depth	reached.					
				Shoring	/ Support [.]	None							
0.5				Stability:	Stable								
				Groundv	vater (des	cription): DRY					Tern	ination	Depth:
												1.20n	n
Arcadis	s Cymru	niese other	wise stated			Equipment Used	1	Contractor		Lo	gged Bv	Checke	ed Bv

roject Iorthstov lient Iomes ar	ve - IPs nd Com	s (CPT/L nmunitie	.IF) es Agei	псу		Project N UA00 Easting 5416(No. 1 8426-04 (OS mE) 56.85	Ground Level (mAOD) 5.97 Northing (OS mN) 266462.04	Start D 13/12 End Da 13/12	ate 2/2016 tte 2/2016	sc 1: 5 Sl	^{ale} 25 heet 1	of 1
SAMPL	ES		TEST	S	es			STRATA					Insta
Depth	Type/ No.	Depth	Type/ No.	Results	Wate		Desc	ription	l	egend	Depth (Thickness)	Level	Back
0.10 - 0.30	ES1	- - 0.10 -	PID	<1ppm		MADE GROUND: Grass of occasional rootlets.	over dark brown	n, very clayey fine to coarse SAN	D with		(0.35)		
		-				Light brown, very sandy C	LAY. Sand is fi	ne to coarse.			0.35	5.62	
		-					0.1.0]				(0.30)	532	
						Firm, light blueish grey, sli Gravel is sub*angular to s [KIMMERIDGE CLAY FOI	ightly gravelly s ub-rounded, fir RMATION]	andy CLAY. Sand is fine to coars le of flint and chalk.	se.		(0.35)	0.32	
											1.00 -	- 4.97	
		-											
		-									-	-	
		-											
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										-	-		
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		-									-	-	
		-											
		-									-		
		-											
		-											
		-					Remarks				-	-	
		0.4		Long Axi	s Orienta	ion: 90	Inspection pit No groundwat Pit refused at	for LIF. er encountered. 1.00m bgl due to stiffness of clay	1.				
4	Shoring / Suppo			/ Support:	None	30 minutes of	chiselling undertaken prior to pit	termination.					
	Stability: Stable Groundwater (d				Stable vater (des	cription): DRY					Term	ination	Depth
												1.00r	n
Arcadis House St Mello	is Cymru Juniess otherwise stated: Jons Depth (m), Diameter (mm), Time (hhmm), ess Park Thickness (m) avel (mDD)					Equipment Used		Contractor	() I td	Log	gged By	Checke	ed By

Project Northsto Client Homes a	owe - IPs and Con	s (CPT/L nmunitie	.IF) es Ager	су		Project I UA00 Easting 5408	No. 1 8426-04 (OS mE) 7 4.74	Ground Level (mAOD) 9.02 Northing (OS mN) 266412.83	Sta 12 Enc 12	rt Date / 12/2016 I Date / 12/2016	5 1: 5 S	ale :25 heet 1	of 1
SAMF	PLES		TEST	S	er es			STRATA			Depth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Desc	ription		Legend	(Thickness)	Level	Backfill
- 0.10 - 0.30 	ES1	- 0.10	PID	<1ppm		MADE GROUND: Grass of coarse SAND with occasis to medium of flint and cha	over dark brown onal rootlets. Gr lk.	n, slightly gravelly very clayey ravel is sub-angular to sub-ro	r fine to bunded, fine		(0.70)	8.32	N≡N≡N≡N≡N≡N≡ N≡N≡N≡N≡N≡N≡ N≡N≡N≡N≡N≡N≡N
-		-				sub-rounded, fine to medi [RIVER TERRACE DEPO	um of flint and o SITS]	chalk.			(0.50)		
		-									-	Ī	
-		-									1.20	7.82	
	All S						Remarks						
	HILƏ	0.5		Long Avi	s Oriental	ion:	Inspection pit	for LIF.					
0.4		0.5		Shoring Stability: Groundv	/ Support: Stable vater (des	90 None cription): DRY	Target depth n	er encountered. eached.			Tern	nination I	Depth:
												1.20n	n
Arcad	lis Cymru a U	nless other	wise stated	1:		Equipment Used		Contractor		Lo	gged By	Checke	ed By

TP1001

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitio	es Agei	псу		Project UA00 Easting 5409	No.)8426-01 (OS mE) 69.97	Ground Level (mAOD) 9.25 Northing (OS mN) 266739.48	Start Date 16/12/2016 End Date 16/12/2016	5 1 5 S	ale :25 heet 1 of 1
SAMPL	.ES		TEST	S	L S			STRATA			
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level Backfil
-	NU.	-	INU.		-	Grass over dark brown sa	indy, slightly gr	avelly CLAY. Sand is fine to coarse.			
- 0.10 - 0.20 - 0.10 - 0.20	B1 ES1	-				Gravel is subangular, fine	to coarse cher	t.		(0.30)	
- 030-040	ES2									0.30	┆ ┆ _{┇┇5} ║═║
- 0.30 - 0.70	B2	-				Orangish brown gravelly	ine to coarse S	AND		0.50	
-		-								(0.40)	⊥ ≣ ∎≝
-											
- 0.70 - 0.80 - 0.70 - 1.00	ES3 B3	-				Soft to firm light bluish gre	ey mottled brow	n silty CLAY.		0.70	
-		-						gravelly fine to coarse SAND pock			
-	D1	Ē								_	
-		-						by 1.00 m dark bluish g			
-		-									
-											
-		-									
-		-									
-											
- - 1.80 - 1.90	D2	- 1.80	HV(1)	102(44)kPa							
-		- 1.80 - 1.80	HV(2) HV(3)	110(42)kPa 98(38)kPa				sand and gravel poc		(2.30)	
- 	B4	-							×		┆ ┼ ╘║═
-									×		
-		-							×		
-		-							×		┆ <u></u> <u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u></u>
-		2.50	HV(4)	100(36)kPa					×		┆ ┆ ║═╟
-		- 2.50	HV(5) HV(6)	102(48)kPa >120()kPa					×		
-		-							×		
-									×		
-		-							×		
-		-								3.00	- 6.25 m = m
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PLAN DETAI	LS	·				·	Remarks		1		<u> </u>
		3.6		Long Ax	is Orienta	tion:]				
T											
				Charine	/ Support	N/A					
0.7				Stability	stable	IN/A					
				Groundy	vater (des	cription): Slight seepage at				Terr	nination Depth:
					,	base of gravel					3.00m
											-
Arcadis House St Mello	Umru Uns U	nless other	wise state	d: m). Time (bbmm	ı).	Equipment Used		Contractor	Lo	gged By	Checked By
Busines Cardiff,	s Park T CF3 0EY	hickness (n	n), Level (n	10D).	· <i>n</i>	JCB 3CX		Arcadis Consulting (UK) Lto	A N	V	IP

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitie	es Ager	тсу		Project N UA00 Easting 54095	No. 1 8426-01 (OS mE) 5 2.23	Ground Level (mAOD) 9.25 Northing (OS mN) 266678.73	Start Date 16/12/2016 End Date 16/12/2016	5 1: 5 S	ale 25 heet 1	of 1
SAMPL	ES		TEST	S	er			STRATA		Denth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Strik		Desc	ription	Legend	(Thickness)	Level	Backfill
- - 0.10 - 0.30 - 0.10 - 0.30 -	B1 ES2	-				Grass over topsoil.			1122	(0.30)		
- - - - 0.50 - 0.80	B3	- - - - -				Grass over light brown slig subangular to subrounded [RIVER TERRACE DEPO	ghtly gravelly cl I of chert. SITS]	ayey SAND. Gravel is fine to coa	arse,	0.30	8.95	
-		- - - - - - - -								(0.90)		
- 1.20 - 1.40 - 1.20 - 1.40 	B4 ES5					Yellowish brown sandy GF subrounded of mixed litho [RIVER TERRACE DEPO	RAVEL. Gravel logies. SITS]	is fine to coarse, subangular to		1.20	8.05	
-		- - - - - - - - -								(1.10)	- - - - - - -	
- - - - - 2.50 - 2.80	B6	- - - - - - 2.50	HV(1)	90(42)kPa		Firm to stiff dark grey CLA [KIMMERIDGE CLAY]	Y			2.30	6.95	
- 2.50 - 2.80 - 2.50 - 2.80 - - - -	D7 ES8									(0.70)		
							Pemarks			3.00 -	6.25	
PLAN DETAI	LS	2.2			s Oriental	ion:	Remarks Groundwater	encountered at 2.3m bol. Pit tem	ninated at target dept	'n.		
0.7		3.2		Shoring Stability:	Support: Stable	None	Signiuwale	anoonnorou at 2.011 byl. Fit tell	and a target dep			
				Groundv	vater (des	cription):				Tern	nination E 3.00m	Depth:
Arcadis	Cymru	nless other	wise state	1:		Equipment Used	1	Contractor	Lo	gged By	Checke	d By

Project Northstov ^{Client} Homes ar	AMPLES TESTS					cy 5408		Ground Level (mAOD) 9.35 Northing (OS mN) 266296.10	Star 01, End 01,	t Date /12/2016 Date /12/2016	5 1: 5 S	^{ale} 25 heet 1 of 1
SAMPL	.ES		TESTS		ri Se			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level Backfil
- 0.10 - 0.10 - 0.20 - 0.20 - 0.40	ES ES1 B2		110.			Dark orangish brown sligh coarse (NATURAL) [RIVER TERRACE DEPO	ttly silty SAND v SITS]	with occasional rootlets. Sand is	fine to		(0.70)	
	ES3 B4	- - - - - - - - - - - - - - - - - - -				Light brownish orange slig subangular dine to coarse [RIVER TERRACE DEPO	jhtly clayey gra flint. Sand is fi SITS]	velly SAND. Gravel of subround ne to coarse (NATURAL)	ed to		(1.50)	
	ES5										2.20	
											-	
											-	
-		- - - - - - - - - - - -										
PLAN DETAI	LS		· · · · · ·		1	1	Remarks					<u> </u>
0.5		0.5		Long Axis	s Orientat Support:	ion: None	Hole backfilled	d itself to 2.1 before photo was t	aken. Hole	backfilled	to ground le	vel.
				Groundw	ater (des	cription):					Tern	ination Depth:
												2.20m
Arcadis	Cymru	nless other	wise stated.			Equipment Used		Contractor		Lo	gged By	Checked By

Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Agen	су	Project No. Ground Level (mAOD) UA008426-01 9.07 Easting (OS mE) Northing (OS mN) 540889.55 266338.17 STRATA			Start Date 01/12/20 End Date 01/12/20	16 1 16 S	^{cale} :25 heet 1	of 1	
SAMPL	ES		TESTS	6	Ľ۵			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Descri	ption	Legen	Depth d (Thickness)	Level	Install/ Backfill
-	No.	-	No.			CONCRETE			4 6 4 4 4	(0.30)		
- 0.50 - 0.60 - 0.60 - 0.80	ES7 B1	-				MADE GROUND: Soft to fragments. Sand is fine to	firm dark reddisł coarse.	i brown very sandy CLAY with ra	e brick	(0.55)		
- 0.90 - 1.10 - 1.10 - 1.20	B2 ES3	- - - - - - - -				MADE GROUND: Dark or Gravel of subrounded to s	angish brown sli subangular fine t	ghtly clayey slightly gravelly SAN o coarse flint. Sand is fine to coar	D. se.	0.85	8.22	
-		- - - - - - -								(0.90)		
- 1.90 - 1.90 - 2.00	ES ES4	-				MADE GROUND: Light w Gravel of subrounded to s smell.	hitish grey SANI subangular fine t	D & GRAVEL. Sand is fine to coal o medium flint. Strong hydrocarbo	rse. on	1.75	7.32	
2.00 - 2.10 - 2.00 - 2.10 	ES6	-								2.20	6.87	
- - - - - - - - - - - - - - - - - - -	LS	0.5		, Long Axia	s Oriental	ion:	Remarks Hydrocarbon si	nell emitting from bottom strata -	PID machine no	t picking anyt		- 1.5
0.5		0.5		Shoring / Stability: Groundw	Support: Stable ater (des	ion: None cription):	reading on bag – sample taker hydrocarbons o ground level.	and 0.9/1.3 reading on pot. Wate . Hole terminated at 2.2m due to on surface. Sidewalls collapsed b	ere encountered al water ingress an ackfilling hole to	а ріскіпд anyt 1.8m – oily s d risk of sprea 1.8m. Hole ba	heen on ading ickfilled to nination	o Depth:
Arcadis House	Cymru U	nless other	wise stated	:		Equipment Used		Contractor		ogged By	Checke	ed By

|--|

Project Northstov ^{Client} Homes ar	we Pha nd Con	ise 2 nmunitie	es Agei	тсу		Project N UA00 Easting 54075	No. 8426-01 (OS mE) 51.75	Ground Level (mAOD) Northing (OS mN) 266150.97	Start Date 30/11/201 End Date 30/11/201	6 13 6 S	^{:ale} :25 heet 1	of 1
SAMPL	ES		TEST	S	er			STRATA		Dopth		Inetal
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Desc	ription	Legend	(Thickness)	Level	Backfi
- 0.10	FS					Grass over TOPSOIL with	abundant root	s and rootlets.	siz.	74 04	ļ	
0.10 - 0.20	ES1	-							sliž <u>i i s</u> dr	(0.30)	ļ	
- - 0.30 - 0.40 - 0.30 - 0.50	ES2 B3					Light brown very sandy Cl	AY with low co	bble content of sandstone. Sand is	fine	0.30	ŧ	
-		-				to coarse. [RIVER TERRACE DEPO	SITS]				ł	
-		-								(0.40)	Ţ	
- 0.70 - 0.80	D4	-				Stiff light grey mottled ora	ngish brown sa	ndv slightly gravelly SILT Gravel is		0.70	ł	
						subangular, fine to coarse	of predominan	tly chert. Occasional mm scale poo	kets	- + -	Į	
1.00		-				[KIMMERIDGE CLAY FOR	RMATION]				ł	
- 1.00 1.00 - 1.10	ES ES5 B6	-								-	Ţ	
1.00 1.20		-							(* * * * * * *		ŧ	
		-							(* * × * * * *		Į	
		-							(* * * * * * *	(1.50)	ł	
		-							(* * * * * *		Ī	
		-							(* * × × * * * *		ł	
		- 1.80	HV(1)	>120()kPa >120()kPa					(* * × × * * *	- 	Į	
		- 1.80	HV(3)	>120()kPa					(* * * * * *		ł	
-2.00 - 2.20	B/	-									Ī	
2.20 - 2.30	ES8	-				Soft arey silty CLAY with a	occasional oran	aish brown mottling and shelly frag		2.20	ł	
2.20 - 2.50	B9					(1-2mm).		gian brown motting and anony mag			Į	
		- 2.40 - 2.40	HV(4) HV(5)	52(22)kPa 62(30)kPa			(WATION]		×_ <u>×</u> _	2	ł	
		- 2.40	HV(6)	64(40)kPa					×_*_	(0.80)	ţ	
		-							×	()	ŧ	
									×	2	ŧ	
2.90 - 3.00 2.90 - 3.00	D11 ES10	-				Abundant black orga	nic rich bands (mm scale) and partially decomposed	plant × ^		ł	
2.90 - 3.00	WIZ	-								0.00	+ + + +	
-		-										
		-									+ + + +	
_		- - - -										
		-										
		- - -									+ + +	
		-										
_		- - 								-	I 	
PLAN DETAI	LS				- 0		Remarks					
T [s Orientat	ion:						
				Shoring Stability:	/ Support: Stable	N/A						
				Groundw	vater (des	cription): Water seepage at 2.8m				Tern	nination 3.00r	Depth: N
Arcadis	Cymru	place other	wice state	4.		Equipment Used	1	Contractor	Lo	aaed By	Checke	ed By

TP1108

Project Northstov Client Homes ar	ve Pha nd Con	nse 2 nmunitie	es Agei	ncy		Project N UA00 Easting 5408	Project No. Ground Level (mAOD) UA008426-01 9.35 Easting (OS mE) Northing (OS mN) 540810.68 266225.19			6 1: 6 S	ale 25 heet 1	of 1
SAMPL	ES		TEST	S	L SS			STRATA				la etell (
Depth	Type/	Depth	Type/	Results	Strike		Descri	ption	Legend	(Thickness)	Level	Backfill
-	110.	-	110.			CONCRETE: Wire reinfor	ced concrete.			(0.15)		Ш≣Ш
- 0.15	ES	-				MADE GROUND: Dark br	own to reddish t	black sandy GRAVEL. Gravel fine to	-	0.15	9.20	
0.15 - 0.25	ES1					coarse, subangular to sub	rounded of brick	and concrete. Low cobble content	of 🔀	(0.30)	Į	
-		-				DICK.				(0.00)		
- 0.50	ES	-				Light orangish brown clay	ey gravelly fine t	o coarse SAND. Gravel is fine to		0.45	8.90	≣⊒≣
0.50 - 0.60	ES3	E				[RIVER TERRACE DEPO	SITS]				Į	≝≡≞
-		-										
-		-									Ì	
	B6	E								(1.05)	Ļ	
- 1.00 - 1.10	ES5	-							·			
-		E									İ	
-		-									-	
-		-										
-		E				Soft becoming firm to stiff	dark blueish gre	ey slightly gravelly sandy CLAY. Graved of mixed lithologies. Sand is fine t	vel — —	1.50	- 7.85 I	≡∥≡ ⊯≡⊯i
-		-				coarse.		a of mixed infologies. Oand is fine t				≡∥≡ ⊪≡⊪:
-		-									ł	≝∥≝
-											Į	
-2.00 - 2.10 - 2.00 - 2.10	B8 ES7	-								-	-	
-		- 2.10	HV(1) HV(2)	72(40)kPa 86(40)kPa								
-		2.10	HV(3)	90(38)KPa						(1.50)		
-		-										║═║┇ ═║═
-		- 2.50	HV(4)	100(44)kPa							Ì	
-		- 2.50	HV(6)	90(42)kPa							-	<u></u> ≝≣≣
-		- 2.70 - 2.70	HV(7) HV(8)	102(50)kPa 110(48)kPa							Ì	
- 2.90 - 3.00	B10	- 2.70	HV(9)	92(42)kPa							I	
2.90 - 3.00	ES9	- 3.00	HV(10)	120()kPa						3.00 -	6.35	
PLAN DETAI	LS	F		1			Remarks		<u> </u>			
				Long Axi	s Orientat	ion:	Seepage enco	untered at 3m bgl. Pit terminated at	target depth			
				Shoring Stability:	/ Support: Stable	None						
				Groundv	vater (deso	cription):				Tern	nination I	Depth:
A	Current										3.00N	
House	-,u U	Inless other	wise state	d:		Equipment Used		Contractor	Lo	gged By	Checke	ed By

JCB Excavator

Arcadis Consulting (UK) Ltd

TP1109

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitie	es Agen	cy 54086		No. 1 8426-01 (OS mE) 6 7.88	Ground Level (mAOD) 9.30 Northing (OS mN) 266257.40	Start Date 01/12/2016 End Date 01/12/2016	5 1: 5 S	ale 25 heet 1	of 1	
SAMPL	ES		TESTS	3	ter (es			STRATA		Depth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Strik		Desc	ription	Legend	(Thickness)	Level	Backfill
-		-				Concrete			A	(0.20)		
-		-				Light orangish brown sligh	ntly silty SAND.	Sand is fine to coarse.	<u> </u>	0.20	9.10	
-	50	-				[RIVER TERRACE DEPC	SITS]				ł	
- 0.40 - 0.40 - 0.50 - 0.50 - 0.70	ES ES2 B1	-									ļ	
-		-									ţ	
-		-									ł	
-		-									ļ	
-		-								-	ŧ	
- 1.10 - 1.20	ES3	-								(1.80)	ł	
-		- -									ļ	
-		-									ŧ	
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-		-									ł	Ë∥Ë ₩≝₩
-	504	-										
- 2.10 - 2.30	B5	-				Light orangish grey clayey [RIVER TERRACE DEPC	/ SAND. Rootle SITS]	ts up to 2mm. Sand is fine to coar	se.	2.00 -	- 7.30	
-		-					-				ţ	
-		-									ł	
-		-								(1.00)	ļ	
-		-									ţ	
-		-									ł	
- 2.90 - 3.00	ES6	-									ļ	
-		-								3.00 -	6.30	
-		-									ł	
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PLAN DETAI	LS						Remarks		· · ·			
		0.5		Long Axi	s Orienta	tion:						
0.5				Shoring	/ Support:	None						
				Stability: Groundv	Stable vater (des	cription):				Tern	nination	Depth:
						/					3.00r	n
Arcadis	Arcadis Cymru House Unless otherwise stated:					Equipment Used	1	Contractor	Lo	gged By	Checke	ed By

House Unless otherwise stated: AGS St Mellons Depth (m), Diameter (mm), Time (hhmm), Business Park Cardiff, CF3 0EY Thickness (m), Level (mOD).

Arcadis Consulting (UK) Ltd

VP IP

Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Ager	су		Project N UA00 Easting (54080	o. 8426-01 OS mE) 95.08	Ground Level (mAOD) 9.47 Northing (OS mN) 266157.60	Start Date 30/11/201 End Date 30/11/201	6 1 6 S	^{:ale} :25 heet 1	of 1
SAMPL	ES		TEST	S	es er			STRATA		Donth		Install/
Depth	Type/	Depth	Type/	Results	Strike		Desc	ription	Legend	(Thickness)	Level	Backfill
- 0.10 - 0.20 - 0.10 - 0.70 	ES1 B2	- - - - - - - - - - - - - - - - - - -				Grass over dark brown slig Sand is fine to coarse.	htly silty sligh	ly clayey SAND with rare brick co	bbles.	(0.70)		
- 1.10 - 1.10 - 1.20 - 1.10 - 2.00	ES ES3 B4					Soft to firm grey slightly sa [RIVER TERRACE DEPOS	ndy CLAY. Sa BITS]	nd is fine to coarse.		0.70	8.77	= = = = = = = =
-		- - - - - - - - - - - - - - - - - - -	HV(1)	64(44)kPa						(1.80)		∥≅║≅║═║═║═║ ═║═║═║═║═║═║
- - - 2.00 - 2.10 - 2.00 - 2.50 - -	ES5 B6	- 1.80 - 1.80 - - - - - - - - - - - - - - - - - - -	HV(2) HV(3)	74(52)kPa 80(60)kPa								: = = = = = = =
- - - 2.80 - 2.90 - 2.80 - 3.00	ES7 B8	- - - - - 2.90 - 2.90 - 2.90	HV(4) HV(5) HV(6)	27(23)kPa 29(18)kPa 34(21)kPa		Very soft dark grey slightly [KIMMERIDGE CLAY FOR	sandy CLAY. MATION]	Sand is fine to coarse.		2.50 (0.50) 3.00	6.97	
- - - - - - - - - - - - - - - - - - -	LS						Remarks					
	-			Long Axi Shoring Stability:	s Orientat / Support: Stable	ion: None				Tarr	ninction	Donth:
	Cymru			Groundv	vater (des	Equipment list		Contractor			3.00n	

Project Northstov Client Homes al	stowe Phase 2 s and Communities Agency MPLES TESTS h Type/ Depth Type/ Results					cy 540963.57 Ground Level (mAOD) 9,29 Northing (OS mN) 266251.07 STRATA			Start 01/ End 01/	Date 12/2016 Date 12/2016	5 1 5 S	ale 25 heet 1	of 1
SAMPL	ES		TESTS	3	<u>ب</u> ي			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.20 - 0.20 - 0.40	ES ES1 B2	- - - - - - - - - -	NO.			Dark reddish brown slight subangular of mixed lithol [KIMMERIDGE CLAY FO	ly silty, slightly ogies RMATION]	gravelly SAND. Gravel is subrou	unded to		(0.68)		
- 0.90 - 1.10	B3 ES4	- - - - - - -				Light orangish brown sligh and subangular flint. Sanc [KIMMERIDGE CLAY FO	ntly clayey, sligi I is fine to coar RMATION]	ntly gravelly SAND. Gravel of su se.	brounded		0.68	8.61	
		- - - - - - - - - - - - - - -				Clay con	tent increases	until 1.7m, where it becomes clay	vey SAND				
- 1.90 - 2.00 - 2.10 	EW7 ES5	- - - - - - - - - - - - - - - - - - -				Crand acotor i) E urban il boonne CAND and			(2.32)		
- 2.90 - 3.00	ES6	- - - - - - - - - - - - - - - - - - -							GRAVEL		3.00 -	6.29	
		- - - - - - -											
	ILS	0.5		Long Axi	s Orientat	ion:	Remarks Hole started t	o backfill from 2.5m, however m	ax depth wa	as achieve	d		
				Groundw	ater (des	cription):					Tern	nination [3.00m	Depth:
Arcadis House	Cymru U	nless other	wise stated			Equipment Used		Contractor		Lo	gged By	Checke	d By

Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Ager	су		Project No. Ground Level (mAOD) UA008426-01 9.50 Easting (OS mE) Northing (OS mN) 540951.04 266201.95			Start Date 30/11/2016 End Date 30/11/2016	sc 1: S	^{ale} 25 heet 1	of 1
SAMPL	ES		TEST	S	es			STRATA		Donth		Install/
Depth	Type/	Depth	Type/	Results	Strike		Descr	iption	Legend	(Thickness)	Level	Backfill
	NO.	-	110.			Concrete			A A	(0.20)		
- 0.20 - 0.20 - 0.20 - 0.30	B2 ES ES1	- - -				Light orangish brown sligh [RIVER TERRACE DEPO	itly clayey SANI SITS]	D. Sand is fine to coarse.	<u> </u>	0.20	9.30	
- 0.50	B4	- - -					-					
- 0.50 - 0.60	ES3	-					-	becoming increasingly cla	ayey			
		-										
- - 1.00 - 1.00	B6 ES	-								(1.50)	-	
- 1.00 - 1.10 - -	ES5	-										
		- - -										
- - -		- - -								-		
-		- -				Soft light brownish grey sa [KIMMERIDGE CLAY FOR	andy CLAY. San RMATION]	d is fine to coarse.		1.70	7.80	
- 1.90 - 1.90 - 2.00	B8 ES7	- 1.90 - 1.90 - 1.90	HV(1) HV(2) HV(3)	42(26)kPa 55(39)kPa 66(46)kPa						_	-	
-		- - -								(1.00)		
-		-										
-		-								-	- I	
-		-				Very soft light grey very sa	andy CLAY. San	d is fine to coarse	<u> </u>	2.70	6.80	
- - - 2.90 - 2.90 - 3.00	B10 ES9	-				[KIMIMERIDGE CLAT FOR	RMATIONJ			(0.30)		
		-								3.00 -	- 6.50	
-		- - -								-		
-		-										
		-										
[-		- -								-	-	
-		-										
- - -		- - -								-		
-		-								•		
-		- - -								•		
-		-					D			-	-	
	15			Long Ax	is Orientat	ion:	Hand vane not	possible at 2.9m bgl, material too s	oft.			
				Shoring Stability	/ Support: Unstable	None						
Groundwater (desc					vater (des	cription): Seepage				Term	nination I 3.00n	Depth:
Arcadis	Cymru U	nless otherv	vise stated	1:		Equipment Used		Contractor	Lo	gged By	Checke	d By

Project Northstow Client Homes an	ve Pha Id Com	se 2 nmunitie	es Ager	тсу	Project UA00 Easting 5409		o. 8 426-01 OS mE) 9 .90	Ground Level (mAOD) 9.82 Northing (OS mN) 266099.57	Start Date 29/11/2010 End Date 29/11/2010	6 1: 6 S	^{ale} 25 heet 1	of 1
SAMPLI	ES		TEST	S	es S			STRATA				la stall (
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	(Thickness)	Level	Backfill
- - 0.15 - 0.15 - 0.15 - 0.30	D2 ES1 B3	-	NU.			MADE GROUND: Stiff dark brown slightly sar Gravel is angular to subrou	ndy, slightly gra Inded, fine to c	avelly CLAY. Sand is fine to coarse oarse of chert.		(0.15) 0.15	9.67	
-		- - - 0.50 - 0.50	HV(1) HV(2)	100(62)kPa 105(60)kPa			5110]			(0.45)		
- 0.60 - 0.60 - 0.60 - 1.00 	D5 ES ES4 B6	- 0.50	HV(3)	110(58)kPa		Light grey and orangish bro subrounded, fine to coarse [RIVER TERRACE DEPOS	own sandy, slig of chert. Occa SITS]	htly gravelly CLAY. Gravel is ang isional orangish brown sand horizα	ular to ns.	0.60	9.22	 = = = = = = =
- - - 1.70	D7	-										
- - - - - - - -	W10	- - - - - - -									- - - - - - -	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- 2.30 - 2.30 - 2.60 -	ES8 B9	-				Orangish brown clayey GR [RIVER TERRACE DEPOS	RAVEL of subro SITS]	unded, fine to coarse chert.	، ، ، ، ، ، ، ، ، ، ، ، ، ، ، ، ، ، ،	2.30	7.52	
- - - - -		-								(0.70)		
										3.00 -	- 6.82	
- PLAN DETAIL	LS	-				<u> </u>	Remarks					
	-			Long Axi Shoring / Stability: Groundw	s Orientat Support:	on: ription): Strike at 2.10m.				Term	nination [Depth:
	Cymru					Equipment Load		Contractor		aged By	3.00m	ן d By

Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Agen	су		Project N UA00 Easting (54102	No. 1 8426-01 (OS mE) 2 9.42	Ground Level (mAOD) 9.44 Northing (OS mN) 266203.87	Start Date 29/11/20 End Date 29/11/20	16 1 16 5	^{cale} :25 Sheet 1	of 1
SAMDI	ES		TESTS					STRATA				
SAIVIPL	EO Type/)	ater ikes			SIRAIA		Depth	Level	Install/
Depth	No.	Depth	No.	Results	St K		Desc	ription	Legen	d (Inickness)	Backfill
0.00 - 0.25	ES1 B2	-				Topsoil over dark brown sl	lightly silty SAN	ID. Sand is fine to coarse.		(0.50)		
0.30 - 0.40	ES3	_									ł	
- 0.60 - 0.60 - 0.70	B4 ES5	-				Dark reddish brown slgihtl [RIVER TERRACE DEPO	ly silty SAND. S SITS]	and is fine to coarse.		0.50	8.94	
- - - - 1.00 - 1.00 - 1.10	B6 ES7	-				Light orangish brown very [RIVER TERRACE DEPO	clayey SAND. SITS]	Sand is fine to coarse.		0.90	8.54	
		-										; = = = = = = =
- 1.75 - 1.75 - 1.75 - 1.85	B8 ES ES9	-				Str	ong hydrocarbo	n odour encountered, staining obs	servered	(2.10)		
- 2.00 - 2.00 - 2.00 - 2.10 - -	ES ES11	- - - - -				Str	ong hydrocarbo	n odour encountered, staining obs	servered			
- - 2.50 -	EW	-										
- - - - - - - - - - - - - - - - - - -	B12 FS	- - - - -								3.00	6.44	
- 3.00 - 3.00 	ES13						Remarks					
	15			Long Axi	s Orientat	ion:	Pit excavated	to 3m, water seepage from 2.5m ken as material unsuitable.	resulting in the pit	collapsing to	o 2.5m. N	lo
				Shoring Stability:	Support: Unstable	None				Ter	mination	Depth:
	Cymru			Groundw	aler (des)			Contractor			3.00r	n
House	U	niess otherv	vise stated:					CUIIII aCIUI	1	-oggeu by	CHECKE	Ju Dy

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Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	s Agenc	Э		Project N UA00 Easting 54102	No. 1 8426-01 (OS mE) 29.40	Ground Level (mAOD) Northing (OS mN) 266203.84	Start Date 29/11/20 End Date 29/11/20)16)16	^{Scale} 1:25 Sheet 1 c	of 1
SAMPI	FS		TESTS		, <i>v</i>			STRATA				
Depth	Type/ No.	Depth	Type/ No.	Results	Wate	Grass over TOPSOIL MADE GROUND: Dark br	Descr	to coarse SAND.		Depth (Thickness (0.20)	s) Level	
- - - - - - - - - - - - - - - - - - -										0.60		
· · · · · · ·		-										
· · · · · · · ·												
· · · · · · · · ·		-										
		-										
	ILS			Long Axis Shoring / Stability: Groundw	Support:	ion: sription):	Remarks Terminated on	engineers instruction at 0.60r	n due to encounteri	ng cable war	rmination De 0.60m	epth:
Arcadis	Cymru	nless otherv	vise stated:			Equipment Used	1	Contractor		Logged By	Checked	Ву

Project Northstov Client Homes ar	hstowe Phase 2 es and Communities Agency					Project N UA00 Easting 54098	Start Date 29/11/2016 End Date 29/11/2016	of 1				
SAMPL	ES		TEST	S	ر س			STRATA				
Depth	Type/	Depth	Type/	Results	Nate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
0.00	No. ES	Dopui	No.	licounto	- 0	Grass over dark brown sli	ahtly silty SAN) Sand is fine to coarse	2030110			m≡m
0.00 - 0.25	ES1									(0.25)	I	≣∥≣
-		_								0.25	934	
- 0.30	B2 ES	_				Dark orangish brown sligh	tly silty SAND.	Sand is fine to coarse		0.25	9.34	
0.30 - 0.40	ES3	_					0110]			(0.25)	ļ	
-		-				Firm light orangish brown	very sandy CL/	AY. Sand is fine to coarse		0.50	9.09	
- 0.60 - 0.60 - 0.70	B4 ES5	-				[RIVER TERRACE DEPO	SITS]					
-		-										
-		-								(0.70)	ŧ	
-		-									ł	
-											F	
_		_								1.20	8.39	
-		-				Soft light greyish brown sl [RIVER TERRACE DEPO	ightly sandy CL SITS]	AY. Sand is fine to coarse			0.00	
- 1.40	B6	- 1.40	HV(1)	14(14)kPa							ł	
- 1.40 - 1.50	ES7	- 1.40 - 1.40	HV(2) HV(3)	24(16)kPa 36(24)kPa							ł	
-		-									ł	<u>∎</u> ≣∎
- 1.70	B8	-							F			
- 1.70 - 1.80	ES9	-								(1.10)	Ì	
					_						ł	≣≣≣
<u> </u>										-	ŀ	
E											I	
-		_									ł	
-		-				Soft dark brownish grey sl	ightly sandy CL	AY. Sand is fine to coarse		2.30	7.29	
-		-				[KIMMERIDGE CLAY FOR	RMATION]					
- 2.50 - 2.50 - 2.60	B10 ES11	- 2.50 - 2.50	HV(4) HV(5)	48(28)kPa 66(34)kPa					F	(0.50)	ł	
-		2.50	HV(6)	77(20)kPa								
-		-										
-		-				Soft light greyish brown sl	ightly sandy CL	AY. Sand is fine to coarse		2.80	6.79	
-	D40	-					RMATION			(0.20)	6.50	
	E513											
PLAN DETAI	LS						Remarks					
				Long Axi Shoring Stability: Groundv	is Orientat / Support: Stable vater (des	ion: None cription): Seepage				Tern	nination	Depth:
											3.00n	n
Arcadis	Cymru U	nless other	wise state	d:		Equipment Used		Contractor	Lo	gged By	Checke	ed By

Project Northstov Client Homes ar	towe Phase 2 and Communities Agency					Project No UA008 Easting (0 54104	D. 3 426-01 DS mE) 9.86	Ground Level (mAOD) 9.64 Northing (OS mN) 266150.07	Start Date 29/11/2016 End Date 29/11/2016	5 1 5 S	cale :25 heet 1 of 1
SAMPL	.ES		TEST	S	۲ű			STRATA			
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level Backfil
0.00	NO. ES	_	NO.		- 0)	Grass over light orangish b	rown slightly s	silty SAND. Sand is fine to coarse.			
0.00 - 0.25	ES1	_				0 0	0,				
F		-									
- 0.30 - 0.30 - 0.40	B2 ES3	-								(0.70)	
-		-									
- 0.50 - 0.50	B4 ES	-									┆ <u>∭</u> <u></u>
0.50 - 0.60	ES5	E								0.70	
-		-				Soft light reddish grey very IRIVER TERRACE DEPOS	sandy CLAY.	Sand is fine to coarse.		0.70	
-		-					-,				
-		-									
F		-									
E		Ē									! ! !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
		_									
		-									
-		-								(1.60)	┆
- 1.60 - 1.60 - 1.70	B6 ES7	- 1.60 - 1.60	HV(1) HV(2)	36(26)kPa 48(14)kPa							
-		- 1.60	HV(3)	56(20)kPa							
E		E									
- 2.00	B8	-									
2.00 - 2.10	ES9	-									
-		-									
-		-				Stiff dark grev slightly sand	v CLAY Sand	is fine to coarse	<u> </u>	2.30	7.34
E						[KIMMERIDGE CLAY FOR	MATION]				
2.50	B10										
2.30 - 2.00		-								(0.70)	
-		-								(/	
-	D 40	-		100/0011 5							
- 2.90	B12	- 2.90	HV(4) HV(5)	120(36)kPa 120(38)kPa	$\ \bigtriangledown$					2.00	
PLAN DETAI	ILS			Long Avi	is Orientat	ion:	Remarks				
				Shoring Stability: Groundw	/ Support: Stable vater (desc	None ription):				Terr	nination Depth:
											3.00m
Arcadis House	Cymru U	nless other	wise state	d:		Equipment Used		Contractor	Lo	gged By	Checked By

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitie	es Ager	тсу		Project N UA00 Easting (54084	No. Ground Level (mAOD) Start Date 18426-01 9.60 30/11/201 (OS mE) Northing (OS mN) End Date 40.05 266126.73 30/11/201			5 1: 5 S	of 1	
SAMPL	ES		TEST	S	<u>ب</u> ي			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.20	B2 ES ES1	-				Grass over dark reddish b	rown slightly si	Ity SAND. Sand is fine to coarse.		(0.45)		
						Light orangish brown sligh [RIVER TERRACE DEPO	itly silty SAND. SITS]	Sand is fine to coarse.		0.45	9.15	
- 0.70 - 0.70 - 0.70 - 0.80	B4 ES ES3									(0.55)		
- 1.10 - 1.10 - 1.20 	B6 ES5					Stiff light grey slightly sand [KIMMERIDGE CLAY FOF	dy CLAY. Sand RMATION]	is fine to coarse.		1.00 -	- 8.60	 = = = = = = =
- 2.00 - 2.00 - 2.10 	B8 ES7	- - - - - - - - - - - - - - - - - - -								(1.70)	- - - - - - - - - - - - - - - - - - -	= = = = = = =
- 2.90 - 2.90 - 3.00 	B10 ES9	- 2.90 - 2.90 - 2.90 - 2.90 - 2.90 	HV(1) HV(2) HV(3)	56(30)kPa 76(33)kPa 76(40)kPa		Firm dark g rey slightly sa [KIMMERIDGE CLAY FOF	ndy CLAY. San RMATION]	d is fine to coarse.		2.70 (0.30) 3.00 -	6.90	≕
PLAN DETAI	LS	F		1	1		Remarks		I		1	
				Long Axi Shoring /	s Orientat ' Support: Stable	ion: None	Hand vane no obtained.	t undertaken between 1m bgl and	d 2.7m bgl and no si	uitable samp	els were	•
				Groundw	ater (des	cription): Seepage				Tern	nination I	Depth:
	Cymru ,,	nless other	wise state			Equipment Used		Contractor	La	gged Bv	3.00n Checke	d By

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Project Northstov Client Homes ar	rthstowe Phase 2 the mes and Communities Agency					thstowe Phase 2 nes and Communities Agency					Project N UA00 Easting 54104	Project No. Ground Level (mAOD) UA008426-01 9.20 Easting (OS mE) Northing (OS mN) 541048.08 266049.14			16 16	Scale 1:25 Sheet 1 of ²				
SAMPL	FS		TEST	S	, <i>w</i>			STRATA												
Depth	Type/	Depth	Type/	Results	Water		Desc	ription	Lege	Depth nd (Thickness	3) Level	Install/ Backfill								
0.00	ES ES1	-	110.			Grass over TOPSOIL; Sof is fine to coarse. Gravel is	ft dark brown sl subangular ar	ghtly gravelly slightly sandy CLAY. d subrounded fine to coarse of flint.	Sand	(0.20)	1									
0.20	ES2	-				Brown slightly grouply SA	ND Sand is fir	o to operato. Crevel in subangular a	aliz,	0.20	9.00									
- 0.20 - 0.40 - - -	B3	- - - - -				In the subrounded fine to coarse RIVER TERRACE DEPO	of mixed lithol SITS]	agies.		(0.50)										
0.70	ES	-								0.70	8.50									
- 0.70 - 0.70 - 1.00	ES4 B5	-				of mixed lithologies.	gntiy graveliy C	LAY. Gravel is subangular, fine to c	oarse											
0.70 - 1.00	D12	-				[RIVER TERRACE DEPO	SITS]			(0.40)	ł									
-		-									ŧ									
- 1.10 - 1.10 - 1.30	ES6 B7	-				Firm to stiff light grey and	orangish brow	slightly sandy, slightly gravelly CL	YY.	1.10	8.10									
-		-				KIMMERIDGE CLAY FO	aven is subangu RMATION]	iar, fine to coarse of predominantly		(1.30)										
- 	B8	- - - - - - - -																		
- 2.40	ES9 B10	- 2.40 - 2.40	HV(1)	42(18)kPa 42(22)kPa		Soft grey and brownish gr	ey SILT.		××>	2.40	6.80									
2.40 - 2.70	D11	- 2.40 - 2.40 - 2.80 - 2.80	HV(3) HV(4) HV(5)	54(24)kPa 60(24)kPa 64(28)kPa		[KIMMERIDGE CLAY FO	RMATION]			(0.60)										
F											+									
PLAN DETAI	LS				•		Remarks					•								
0.7		2.5		Long Axi Shoring J Stability:	s Orientat Support: Stable	ion: None	Terminated or	engineers instruction at 3.00m on	eaching targe	depth.	minotia									
	Groundwater (descrip					cription): 2.00m				le		Deptn:								
Arcadis	Cymru					Fauinment Used		Contractor		Logged By	J.UUI	ed By								



Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Ageno	Pro U/ Eas ncy 54			No. 8 426-01 (OS mE) 5 6.53	Ground Level (mAOD) Northing (OS mN) 266046.30	Start Date 16/01/2017 End Date 16/01/2017	7 1: 7 S	of 1	
SAMPL	.ES		TESTS		۲ø			STRATA				
Depth	Type/ No.	Depth	Type/ No.	Results	Wate Strike		Desc	cription	Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10	B1 D3	-				MADE GROUND: Grass of fine to coarse. Gravel is a	over dark brown ngular and sub	n sandy slightly gravelly CLAY. Sand is angular fine to coarse of flint.		(0.20)		
0.10	ES2 B4	-				MADE GROUND: Dark br to coarse. Gravel is subar	ownish black s igular to round	slightly sandy gravelly CLAY. Sand is fir ed, fine to coarse of bituminous bound		0.20 (0.15)	ļ	
- 0.30 - 0.30	D6 ES5	-				macadam. Soft brown slightly sandy and subangular fine to coa	gravelly CLAY.	Sand is fine to coarse. Gravel is angu	ar	0.35	ţ	
- 0.50 - 0.50 - 0.50	D9 ES8	-				[RIVER TERRACE DEPO	SITS]	Occasional brick co	bbl		Ī	
-		-								(0.65)	ļ	
-		-						Land drain at 0.	9m			
-		-								1.00 -	+	
-		-									ļ	
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		-			1		Remarks			-	-	
	0.8 Long Axis Orientati				s Orientat	ion:	Terminated or	n engineers instruction at 1.00m due to	and drain.			
	2.2 Shoring / Suppo				Support:	None						
2.2	Stability:			Stable	cription): Dry				Tern	ination	Depth:	
					alei (UUS	onpuon). Dry					1.00r	n
Arcadis	Arcadis Cymru House Unless otherwise stated:					Fauinment Used	1	Contractor	Lc	aged By	Checke	ad By

TP1201A

Project Northstov Client Homes ar	we Pha nd Com	se 2 nmunitie	es Ageno	;y		Project f UA00 Easting 5410(No. 1 8426-01 (OS mE) 56.53	Ground Level (mAOD) Northing (OS mN) 266046.30	Start Date 16/01/2017 End Date 16/01/2017	7 1: 7 S	^{Scale} 1:25 Sheet 1 of 1			
SAMPL	.ES		TESTS		۲ŵ			STRATA						
Depth	Type/	Depth	Type/	Results	Wate		Descr	iption	Legend	Depth (Thickness)	Level	Install/ Backfill		
- 0.10 - 0.10 - 0.10 - 0.40 - 0.40 - 0.40	B1 D3 ES2 B4 D6 ES5	-	110.			Grass over TOPSOIL; Firn Sand is fine to coarse. Gr	n slightly gravel avel is angular a	ly sandy CLAY with roots and roo and subangular fine to coarse of fli	lets. <u>Mc</u> - <u>Mc</u> nt. <u>Mc</u> - <u>Mc</u> <u>Mc</u> - <u>Mc</u> <u>Mc</u> - <u>Mc</u> <u>Mc</u> - <u>Mc</u> <u>Mc</u> - <u>Mc</u> <u>Mc</u> - <u>Mc</u>	(0.70)				
- - 0.80 - 0.80 - 0.80	B7 D9 ES8	-				Soft to firm slightly sandy subangular and subround [RIVER TERRACE DEPO	gravelly CLAY. ed, fine to coars SITS]	Sand is fine to coarse. Gravel is e of flint.		(0.30)				
2.60 - 2.60 - 2.60 - 2.60	ES8 B10 D2 ES1 B3 D5 ES4					Firm brown mottled greys Gravel is subangular and [KIMMERIDGE CLAY FOI Scravel is subangular and fragments (<5 mm x 2 mm [KIMMERIDGE CLAY FOI	slightly gravelly : subrounded fine RMATION]	sandy CLAY. Sand is fine to coarse of flint.		1.00 - (1.50) 2.50 (0.50) 3.00 -		\=W=W=W=W=W=W=W=W=W=W=W=W=W=W=W=W=W=W=W		
-		-								-	ŧ			
PLAN DETAI		2.3		Long Axi Shoring Stability: Groundw	s Orientat / Support: Stable /ater (des	ion: None cription): Dry	Remarks Terminated on	engineers instruction at 3.00m on	reaching target de	ppth.	nination	Depth:		
Arcadis	Arcadis Cymru House Unless otherwise stated:					Equipment Used		Contractor	Lo	gged By	Checke	ed By		

Project Northstov Client Homes au	we Pha nd Con	ise 2 nmunitio	es Age	ncy		Project N UA00 Easting 54104	Project No. Ground Level (mAOD) Start Date UA008426-01 23/01/201 Easting (OS mE) Northing (OS mN) End Date 541047.48 265948.43 23/01/201					of 1
SAMPL	ES		TEST	S	r SS			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Backfil
		-				MADE GROUND: Concret	te.			× × × (0.35)		
- 0.40 - 0.40	ES ES1	-				MADE GROUND: Light br subangular and subround	own gravelly S ed fine to coars	AND. Sand is fine to coarse. G e of flint.	ravel is	0.35 (0.15)		
- 0.60 - 0.60	ES ES2	- - 0.60 - 0.60 - 0.60	HV(1) HV(2) HV(3)	40()kPa 60()kPa 90()kPa		Firm to stiff grey sandy CL [RIVER TERRACE DEPO	.AY. Sand is fin SITS]	e to coarse. Fra	yed cable.	(0.40)		
-		-				Orangish brown slightly gr	avelly slightly	clavev SAND. Sand is fine to c	oarse.	- - - - - - - - - - - - - - - - - - -		
1.00 	ES3	- - - - - - - - - - - - - - - - - - -				Gravel is subangular and a	subrounded, fi SITS]	he to coarse of flint.		(1.30)		: = = = = = = =
 2.30	ES4	- - - - 2.30	HV(4)	110()kPa		Stiff grey mottled brown sl thickness. Sand is fine to	ightly sandy Cl	AY. Relic rootlets up to 5 mm i	n	2.20 (0.20)	+	
PLAN DETA	ILS	-					Remarks				†	
_ 		0.9		Long Axi	is Orientat	ion:	Terminated or	engineers instruction at 2.40n	n due to water ingress	S.		
3.0				Shoring Stability: Groundv	/ Support: Unstable vater (des	None cription): Seepage at 2.40m				Terr	nination	Depth:
L											∠.40r	11
Arcadis House St Mello Busines Cardiff,	Cymru U ons D ss Park T CF3 0EY	nless other epth (m), D hickness (n	wise state iameter (m n), Level (r	d: m), Time (hhmm nOD).	ı),	Equipment Used		Contractor Arcadis Consulting (L	JK) Ltd V	ogged By 'P	Checke IP	ed By

Project NortI Client Hom	nstowe es and	e Pha d Con	se 2 nmunitie	es Agen	су		Project I UA00 Easting 5410	No. Ground Level (mAOD) S 18426-01 10.54 1 (OS mE) Northing (OS mN) E 30.37 265859.91 1			t Date /01/2017 Date /01/2017	y 1: S	^{Scale} 1:25 Sheet 1 of 1				
S	SAMPLE	s		TESTS		г s			STRATA					la stall (
De	pth	Type/	Depth	Type/	Results	Strike		Descr	iption		Legend	Depth (Thickness)	Level	Install/ Backfill			
-		NO.		NO.			Grass over TOPSOIL; Fin	m slightly gravel	ly, slightly sandy CLAY. Sand is	fine to	NIL:						
- 0.	10	D3	-				coarse. Gravel is subangu	liar and subrour	Possible redundant telepho	ne cable.	NIC.	(0.30)	İ				
0.	10	ES2	-								ALC: ALC	0.30	10.24				
- 0.4	40	B4	-				and subrounded, fine and	medium of flint.	d is fine to coarse. Gravel is su	bangular		(2.00)	ŧ				
- 0.4	40 40	ES ES5	-				[RIVER TERRACE DEPC	ISITS]				(0.30)	ŧ				
-			-				Firm orangish brown sligh	tly gravelly sand	dy CLAY. Sand is fine to coarse	. Gravel		0.60	9.94	≝∥≝			
- 0.	70	B6 D8	-				[RIVER TERRACE DEPC	r, fine and medic SITS]	im of fiint.				ŧ				
- 0.	/0	E9/	-					-	0.20m thick concrete drain	age pipe.			ļ				
-			-									(0.80) -	+				
E			-										Į				
-			-										ł				
Ē			-									1.40	1 Q 14				
- 1.	50	В9	-				Orangish brown gravelly subrounded fine to coarse	SAND. Sand is f e of flint.	ine to coarse. Gravel is subang	ular and		1.40	- 0.14				
- 1. - 1.	50 50	D1 ES10	-				[RIVER TERRACE DEPC	ISITS]					ł				
Ē			-									(0.70)	I				
-			-									(0110)	ł				
-			-									-	Į				
-			-									2.10	8.44				
PLAN	DETAILS	S						Remarks									
	2.2 Long Axis One Shoring / Supp						None	Terminated on unstable.	engineers instruction at 2.10m	due to wat	er ingress	causing hole	e to beco	ome			
0.8	0.8 Stability: Unstr				Unstable	from 2.10m											
	Groundwater			ater (des	cription): Water ingress at 2.10m	is at			Termination Depth:								
												2.10r	n				
	Arcadis Cymru House Unless otherwise stated:						Equipment Used	•	Contractor		Lo	gged By	Checke	ed By			

Project Northstow Client Homes an	ve Pha Id Con	se 2 nmunitie	es Ager	су		Project N UA003 Easting (54100	o. 8426-01 OS mE) 17.82	Ground Level (mAOD) 11.72 Northing (OS mN) 265699.15	Start 20/0 End I 20/0	Date 01/2017 Date 01/2017	y 1: y Si	^{ale} 25 heet 1	of 1
SAMPLE	ES		TEST	S	es S			STRATA					la etell (
Depth	Type/	Depth	Type/	Results	Wate		Descr	iption		Legend	Depth (Thickness)	Level	Backfill
0.00 0.10 - 0.30 0.10 - 0.30	ES ES B2 ES1	- - - - - - - - -	110.			Grass over TOPSOIL; Darl Sand is fine to coarse. Gra mixed lithologies. With occ Orangish brown slightly gra is angular to subrounded. f	k reddish brown ivel is subangu asional rootlets avelly very clay fine and mediu	n slightly gravelly very clayey SANI lar and subrounded, fine and media ey SAND. Sand is fine to coarse. C n of mixed lithologies.	D. um of Gravel		(0.50) 0.50 -	11.22	N≡N≡N≡N≡N≡ =N≡N≡N≡N≡N≡ N≡N≡N≡N≡N≡
- 0.60 - 0.90	ES3	- - - - - - - - -				RIVER TERRACE DEPOS	SITS]				(1.20)	- - - - - - - - -	≡ ≡ ≡ ≡ ≡ = = =
- - - - 1.60 - 1.70	В5	- - - - - - - - - - -				Firm to stiff dark bluish are	y mottled brow	nish vellow CLAY.			1.70	10.02	 Ξ Ξ Ξ Ξ Ξ Ξ Ξ
		- - - - - - - - - - - - - - - - - - -				KIMMERIDGE CLAY FOR	MATION]	. ,			(1 30)	- - - - - - - - - -	₩₩₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩₩
- 2.40 - 2.80 - 2.40 - 2.80 - 2.40 - 2.80 	B6 D7 ES8	- - 2.50 - - - - - - - -	HV(1)	>120()kPa							(1.55)	- - - - - - - - - - - - -	: = = = = = = =
							Remarks				3.00	8.72	m = 104
0.7		2.4		Shoring / Stability:	s Orientat Support: Stable	ion: None stintion). Water ingress at	Terminated on	engineers instruction at 3.00m on	reaching	target de	pth.	ination	Depth:
	Cymru	nlaga -4-	uiaa c*-*	Groundw		Equipment Used		Contractor				3.00n	n ed By



Project Northstow Client Homes an	ve Pha Id Con	se 2 nmunitie	es Ager	ю		Project N UA00 Easting (54094	lo. 8426-01 OS mE) 1.59	Ground Level (mAOD) Northing (OS mN) 265525.84	hAOD) Start Date 26/01/2017 N) End Date 26/01/2017			^{Scale} 1:25 Sheet 1 of 1				
SAMPLI	ES		TEST	S	ب د د		STRATA									
Depth	Type/	Depth	Type/	Results	Nate Strike		Desci	intion	Legend	Depth (Thickness)	Level	Install/ Backfill				
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	No. ES B2 ES1	- - - -	No.		- 00	Grass over TOPSOIL; Dar Sand is fine to coarse. Gra sandstone and mudstone.	k brown to blac ivel is subangu	k slightly gravelly very clayey SAN lar to rounded fine to medium of	ND.	(0.30)						
	R4	- - - - -				Brownish orange gravelly to rounded fine to medium [RIVER TERRACE DEPOS	very clayey fine of sandstone a SITS]	to coarse SAND. Gravel is subar Ind mudstone.	igular	0.30	• • • • •					
- 0.70 - 1.00 - 0.70 - 1.00 	ES3	- - - - -								(0.80)	- - - - -					
- - - - -		- - - - -				Firm dark bluish grey sligh [KIMMERIDGE CLAY FOF	tly sandy CLAY MATION]	. Sand is fine to coarse.		1.10	- - - - - -					
							-	Pocket of orange	SAND							
- 	B6 D7 ES5	- 								(1.90)	- 					
-		- - - 2.50 - - -	HV(1)	78(31)kPa							- - - -					
- - - - - -		- - - - -								3.00 -	- - - - - -					
- - - - - - - - - - - - - - -		- - - - - - - - -									- - - - - - - - - -					
- - - - - - - -		- - - - - - -								-	· · · · · ·					
- - - - - - -		- - - - - -									-					
- - - - -		- - - - -								-	- - - -					
	_S	3.0		Long Axis	Orientat	on:	Remarks Terminated on	engineers instruction at 3.00m or	ı reaching target de	epth.						
0.6				Shoring / Stability: Groundw	Support: Stable ater (deso	None sription): Dry				Term	ination I	Depth:				





Project Northstowe Phase 2

Homes and Communities Agency

SAMPLE	PLES TESTS				STRATA	_	Denth		Install/		
Depth	Type/	Depth	Type/	Results	Strik		Description	Legend	(Thickness)	Level	Backfill
- - 0.10 - 0.10	N0. В1 D3	- -	NO.			Grass over TOPSOIL; Soft is fine to coarse. Gravel is	t dark brown slightly sandy slightly gravelly CLAY. Sand subangular to rounded fine to coarse of flint.	Alte Alte	(0.20)		
- 0.10	ES	-				Soft orangish brown slightl	y gravelly CLAY. Gravel is subangular and subrounded		0.20		
0.10	E92	_				fine to coarse of flint. With	occasional rootlets (< 2 mm x 160 mm).	F		l l	
0.40	B4	- 0.40	HV(1)	43(32)kPa		KIVER TERRACE DEPOS	5115]	E	(0.50)	ł	
- 0.40	ES	-						<u> </u>	(0.50)		
0.40	ES5	-									≣≡≡
- 0.70	B7	- 0.70	HV(2)	76(65)kPa		Stiff light grey mottled orar	naish brown slightly gravelly CLAV Gravel is subangular	<u> </u>	0.70	ŧ	
- 0.70 - 0.70	D9 ES8	-				and subrounded fine to co	arse of flint and chalk.			ļ	
_		_				[KIMMERIDGE CLAY FOF	RMATION]	<u> </u>		ļ	≣∎≣
-		- 1.00	HV(3)	64(58)kPa					(0.60) -		
_			(.)	()					()	l l	Ⅲ ≝Ⅲ
		_						<u> </u>			
1 20	D10	-						[1 20		≣≡≣
- 1.30	D11	-				Stiff light grey mottled dark	grey and orangish brown fissured gravelly silty CLAY.	· · · · ·	1.30	ł	
-		-				closely to closely spaced,	possibly subhorizontal, planar and undulating with	· · · ·	(0.20)	ł	≣≣≣
- 1.50 - 1.50	B12 D13	- 1.50 -	HV(4)	70(64)kPa		reddish brown ferruginous	staining to surfaces.		1.50	ŧ.	
-		-				Soft becoming firm dark gr	ey mottled orangish brown slightly sandy slightly	′⊢−_−			≝≣≝
-		-				gravelly CLAY. Sand is fine	e to coarse. Gravel is subangular and subrounded fine	E	1	ţ	
-		-				io coarse of fiint. With occa mm).	asional shell and byster shell tragments (< 10 mm x 80	<u> </u>		ţ	
		_				[KIMMERIDGE CLAY FOR	RMATION]	F		ţ	
_		_							- 1	t	≝∎≝
-								<u> </u>	(1 30)	ŧ	
-		-						<u> </u>	(1.50)		
-		-									≣∥≣
-		-								Ī	
-		-								ł	
-		-						<u> </u>		ŧ	
-		-						E			
- 2.80	B14	-				0.61		<u> </u>	2.80	ţ	
2.80	D15	-				Soft becoming firm dark gr Moderate organic odour ar	ey mottled light orangish brown and dark brown CLAY.		(0.20)		≡ ≣≣
-						[KIMMERIDĞE CLAY FOF	RMATION]		3.00 -	-	
-		-									
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- PLAN DETAIL	S	-			1		Remarks		1	1	
		2.6		Long Axis	Orientat	ion:	Terminated on engineers instruction at 3.00m on reachir	ig target de	epth.		
								-			
				Shoring /	Support:	None					
0.7				Stability:	Stable						
				Groundw	ater (desc	cription): Dry			Tern	nination I	Depth:
						··· / ·· /				3 00n	,
									1	0.001	1 I

Project No. UA008426-01

Easting (OS mE) 540791.28

Ground Level (mAOD) Northing (OS mN) 265312.44



Checked By Logged By MJ IP

TP1206

Scale 1:25

Sheet 1 of 1

Start Date 26/01/2017

End Date 26/01/2017

Project Northstov Client Homes an	ve Pha Id Con	se 2 nmunitie	es Agei	тсу		Project N UA00 Easting 54060	No. 1 8426-01 (OS mE) 0 1.60	Ground Level (mAOD) 10.45 Northing (OS mN) 265117.16	Star 17 End 17	t Date /01/2017 Date /01/2017	7 1 7 S	^{:ale} :25 heet 1	of 1
SAMPL	FS		TEST	S				STRATA					
Depth	Type/	Depth	Type/	Results	Mater Strike		Descr	intion		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.00 - 0.10 - 0.30 - 0.10 - 0.30 - 0.20 -	NO. ES B2 ES1 ES	- - - - - -	NO.			Grass over TOPSOIL; Dai rootlets. Sand is fine to co medium of sandstone and	rk brown to blac parse. Gravel is I mudstone.	k clayey gravelly SAND with occasi subangular and subrounded fine an	ional Id		(0.50)		
- - 0.50 - 0.90 - 0.50 - 0.90 - 0.50 - 0.90 -	B4 D5 ES3	-				Soft light greyish brown sl angular to subrounded, fir	ightly sandy gra	velly CLAY. Sand is fine. Gravel is of mixed lithologies.			0.50 (0.40)	9.95	
- - - - - -						Firm dark bluish grey sligh is fine. Occasional angula [KIMMERIDGE CLAY FOR	ntly sandy CLAY r selenite crysta RMATION]	with occasional shell fragments. Si (<5 mm).	and		0.90	9.55	
													₩≅₩≅₩≅₩≅₩≅₩≡ ₩≅₩≅₩≅₩≡₩≡₩≡ ₩≅₩≅₩≅₩≡₩≡₩≡
- - - - - - - - - - - - - - - - - - -	B7 D8 ES6	- - - - - - - - - - - - - - - - - - -	HV(1)	95(71)kPa							(2.10)		₩≅₩≅₩≅₩≅₩≡ ₩≡₩≡₩≡₩≡₩≡ ₩≡₩≡₩≡₩≡₩≡
- - - - - - - - - - - -		- - - - - - - - -									3.00 -	7.45	
												- - - - - - - - - - - - - - - - - - -	
		- - - - - - - - - - - - - -											
PLAN DETAIL	LS	r	1	1	1	l	Remarks			1		1	1
0.7		2.2		Long Axi Shoring J Stability:	s Orientat Support: Stable	ion: None	Terminated on	engineers instruction at 3.00m on r	eachin	g target de	pth.		
				Groundw	ater (deso	cription): Dry					Tern	nination 3.00r	Depth:
Arcadis	Cymru II	nless other	wise state	d:		Equipment Used		Contractor		Lo	gged By	Checke	ed By



Project Northstov Client Homes at	we Pha nd Con	se 2 nmunitie	es Ageno	су.		Project N UA00 Easting 54038	No. 8426-01 (OS mE) 81.21	Ground Level (mAOD) 11.97 Northing (OS mN) 265071.05	Start Date 09/01/201 End Date 09/01/201	7 1 7 S	^{:ale} :25 heet 1	of 1	
SAMPL	ES		TESTS		er tes			STRATA		Depth		Install/	
Depth	Type/	Depth	Type/	Results	Vat Strik		Desc	ription	Legend	(Thickness)	Level	Backfill	
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2		110.			Grass over TOPSOIL; Firr subangular and subrounde throughout.	n brown slightl ed fine to coars	y gravelly, slightly sandy CLAY. Grave e of mixed lithologies. Roots and ro	vel sile	iz (0.30)			
- 0.50 - 0.50 - 0.50	B4 D6 ES5	- - - - - -				Firm to stiff orangish brow Gravel is subangular and a [RIVER TERRACE DEPO	n slightly grave subrounded fin SITS]	elly sandy CLAY. Sand is fine to coar e to coarse of mixed lithologies.	se.	2 0.30	11.67		
-		- - - - - - - - - - - - - - - - - - -								(0.90)			
- 1.20 - 1.20 - 1.20	B7 D9 ES8	-				Orangish brown slightly cla subangular and subrounde [RIVER TERRACE DEPO	ayey sandy GF ed fine to coars SITS]	RAVEL. Sand is fine to coarse. Graves se of mixed lithologies	el is	1.20	10.77		
- - - -		-								(0.50)	+ + + + +		
- - - -		-				Firm to stiff bluish grey mo Frequent selenite crystals [KIMMERIDGE CLAY FOR	ottled orangish (< 20 mm x 60 RMATION]	brown CLAY with pockets of sand. mm x 30 mm).		- 1.70 - - - -	10.27		
- 2.00 - 2.00 - 2.00 -	B10 D14 ES11							Tending to slightly sandy	<u>clay.</u>	- (0.80) - (0.80)			
- 2.50 - 2.50 - 2.50 - 2.50	B15 D13 ES12	-				Stiff dark grey mottled yell (<2 mm x 5 mm x 10 mm)	ow slightly san	dy CLAY. Sand is fine. Selenite crys	tals	2.50	9.47		
-		-				[NIMMERIDGE CLAFFOR	MATION			- - (0.50) - -			
										- 3.00 -			
	ILS	2.5		Long Axi	s Orientat	ion:	Remarks Terminated or	n engineers instruction at 3.00m on i	eaching target o	lepth.			
0.7				Shoring Stability:	' Support: Stable	None				_			
				Groundv	vater (des	cription): Dry				Terr	nination 3.00r	Depth: N	
Arcadis	Cymru	nless other	wise stated [.]			Equipment Used		Contractor	L	ogged By	Checke	ed By	
Project Northstowe Phase 2 Client Homes and Communities Agency			тсу		Project N UA00 Easting 54043	Project No. Ground Level (mAOD) UA008426-01 11.39 Easting (OS mE) Northing (OS mN) 540432.26 264925.70			7 1: 7 S	Scale 1:25 Sheet 1			
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SAMPL	ES		TEST	S	r SS			STRATA				la etell (
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	(Thickness)	Level	Backfill	
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2		110.			MADE GROUND; Grass of CLAY. Sand is fine to coar chalk and flint.	over soft dark b se. Gravel is a	rown slightly sandy slightly gravelly ngular and subangular, fine to coarse	e of	(0.55)			
-		_						1 No.	brick	<	I		
- - - - - - - - - - - - - - - - - - -	В4	- - - -				MADE GROUND; Soft ora Sand is fine to coarse. Gra clinker. [RIVER TERRACE DEPO	angish brown m avel is angular SITS]	nottled grey slightly gravelly sandy C and subangular fine to coarse of flin	LAY t and	0.55	10.84		
- 0.80 - 0.80 - 0.80 	ES ES5	- - - 1.00 -	HV()	()kPa						(0.70)			
1 20	D7	-				Firm light grey mottled ora	ngish brown s	ightly sandy CLAY. Sand is fine to		1.25	10.14		
- 1.30 - 1.30 - 1.30	D9 ES8	-				coarse. With pockets of w	hite sand. SITSI			(0.25)	ļ		
-		- - - - - - - - -				Stiff dark grey mottled ora gravelly CLAY. With pocke gravel. Sand is fine to coa subrounded fine and med mm x 40 mm). Moderate of possibly subhorizontal und surfaces. [KIIMMERIDGE CLAY FOF	ngish brown fis ets (<100 mm x rse of crushed jum of chalk. W organic odour. I dulating with or RMATION]	sile, fissured slightly sandy slightly 300 mm) of mottled orange and whi selenite. Gravel is angular to fith frequent selenite crystals (Up to Fissures are very closely spaced, angish brown ferruginous staining to	ite	1.50	9.89	₩₩₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩₩₩₩₩	
-		-					-						
-		-								(1.50)	ł	≡≡≡ ≡≡≡	
-										(1.50)	Į	≝∥≝	
-		-											
-		-									-		
-										•	Į		
- 2.80	B10	-							E- <u>-</u> -		-	║═║╕ ═║═	
- 2.80	D11	-									ļ	 ≡ : = =	
- PLAN DETAI	l LS	F			1		Remarks						
0.6	2.5 Long Axis C Shoring / St					iion: None	Terminated or	engineers instruction at 3.00m on r	eaching target d	epth.			
	Groun				vater (des	cription): Dry				Tern	ermination Depth:		
										3.00m			
Arcadis	Cymru	niess other	viso stato	4.		Equipment Used		Contractor	L	ogged By	Checke	ed By	



TP1210A

Project Northstor Client Homes at	we Pha nd Con	se 2 1munitie	s Agenc	y		Project f UA00 Easting 54032	No. 1 8426-01 (OS mE) 2 2.08	Ground Level (mAOD) 12.42 Northing (OS mN) 264848.38	Start Date 06/01/201 End Date 06/01/201	7 1: 7 Si	^{Scale} 1:25 Sheet 1 of				
SAMPL	LES		TESTS		ater ikes			STRATA		Depth	Level	Install/			
Depth	No.	Depth	No.	Results	Str		Desci	iption	Legend	(Thickness)		Backfill			
- 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES	-				Grass over TOPSOIL: So is fine to coarse. Gravel is	ft dark brown sli angular to sub	ghtly sandy slightly gravelly CLAY. S angular, fine to coarse of chalk and fl	int.	(0.25)					
0.10 	ES2	-				Firm light orangish brown Sand is fine to coarse. Gr [RIVER TERRACE DEPO	mottled light gro avel is angular a SITS]	ey slightly sandy slightly gravelly CLA and subangular, fine to coarse of flint	Y	0.25	12.17				
-		-													
- - - - 1.00	B4	- - - -								(1.05)					
- 1.00 - 1.00 -	D6 ES5	-													
- - -		-				Stiff dark grey mottled ora Gravel is angular and sub closely to closely spaced, staining Abundant selenit	ngish white fiss angular, fine an likely subhorizo e crystals (< 10	ured, fissile slightly gravelly CLAY. d medium of chalk. Fissures are very ntal with occasional ferruginous mm x 80 mm). Occasional crinoid ar	,,	1.30	11.12				
-		- - -				shell fragments. [KIMMERIDGE CLAY FOI	RMATION]								
- 1.80 - 1.80 - 1.80 - 1.80	B7 D9 ES8	-													
-		-								(1.70)					
-		-								-					
- - - -		-													
- - - -		- - - -								3.00 -	- 9.42				
- - -		-													
-		-													
- - - -		-													
- - - -		- - -								-					
- - - -		-													
- - - -		-								-					
- - - -		-													
- -										-	+				
PLAN DETA	ILS					•	Remarks		appling to set 1			•			
		2.5			s orientat	ion.	reminated on	engineers instruction at 3.00m on re	aoning target de	.					
0.5).5 Shoring / Supp				Support: Stable	None									
	Groundwater					cription): Dry				Term	rmination Depth: 3.00m				
Arcadis	s Cymru	nless other	viso statod:			Equipment Used	1	Contractor	Lc	gged By	Checke	ed By			





Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Agenc	ÿ		Project 1 UA00 Easting 54018	No. Ground Level (mAOD) 18426-01 13.55 (OS mE) Northing (OS mN) 82.67 264797.63			Date 01/2017 Date 01/2017	y 1: S	of 1	
SAMPL	ES		TESTS		ater ikes			STRATA			Depth	l evel	Install/
Depth	No.	Depth	No.	Results	Stri		Descr	iption		Legend	(Thickness)	2010	Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2					Grass over TOPSOIL: Sol is fine to coarse. Gravel is flint.	ft dark brown sli angular and su	ghtly sandy slightly gravelly CLAY. bangular, fine to coarse of chalk a	Sand nd	NIZ NG	(0.30)	13 25	
-		-				Firm light orangish brown Sand is fine to coarse. Gra [RIVER TERRACE DEPO	mottled light gre avel is angular a SITS]	ey slightly sandy slightly gravelly C and subangular, fine to coarse of fl	LAY. int.		0.00	10.20	
-		-				Half of pit orangish bro	own slightly claye Gravel is su	ey sandy GRAVEL. Sand is fine to c bangular to angular, fine to coarse	oarse. of flint.				
- - 0.80 - 0.80	B4 D6	-											
0.80	ES ES5	-									(1.20)		
-		-											
-		-											
- - -		-				Stiff bluish grey becoming gravelly CLAY. Gravel is a	dark grey mottl	ed orangish white fissured slightly gular, fine and medium of chalk.			1.50	12.05	
-		-				Fissures are very closely staining. Occasional seler [KIMMERIDGE CLAY FOI	to closely space nite crystals (<4 RMATION]	d, likely subhorizontal, with ferrug mm x 8 mm).	inous				
-		-					Sligh	Water se ly sandy due to crushed selenite cr	epage. ystals.				
-		-									-		
- - 2.30 - 2.30	B7 D8	-									(1.50)		
-		-								 		• • •	
-		-											
-		-											
		-									3.00 -	- 10.55	m=m
-		-											
-		-											
-		-											
-		-											
-		-									-		
-		-											
- - -		-											
- - -		-											
- - -		-											
		-					D					†	
	19	2.5		Long Axi	s Orientat	ion:	Terminated on	engineers instruction at 3.00m on	reaching	ı target de	pth.		
0.5	5 Shorin Stabilit				Support: Stable	None							.
	Groun					cription): Dry					iermination Dep 3.00m		
Arcadis	Cymru	place other	vico etatod:			Equipment Used	1	Contractor		Lo	gged By	Checke	ed By



Project Northsto Client Homes a	ise 2 nmunitie	es Ageno	у		Project N UA00 Easting 54013	No. Ground Level (mAOD) Start J8426-01 13.77 09 / I(OS mE) Northing (OS mN) End 31.24 264745.19 09 /			7 1: 7 S	^{Scale} 1:25 Sheet 1 o		
SAMP	LES		TESTS		Lω		ş	STRATA				
Depth	Type/	Depth	Type/	Results	Vate strike		Descri	ntion	Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	No. B1 D3 ES ES2	- - - -	No.		2 05	Grass over TOPSOIL; Sof subrounded fine to coarse	t brown slightly (of flint and chal	gravelly CLAY. Gravel is subangular k.		(0.35)		
- - 0.40 - 0.40 - 0.40	B4 D6 ES5	-				Soft orangish brown CLAY [RIVER TERRACE DEPO	ŚITS]			0.35	13.42	
-		-				Soft becoming firm orangi	sh brown mottle	d grav elightly gravelly CLAV Gravel	is	0.70	13.07	
- - - - 1.00	B7	-				subangular and subrounde [RIVER TERRACE DEPO	ed fine to coarse SITS]	of chalk and flint		(0.60) -		
- 1.00 - 1.00 -	D9 ES8	-								()		
- - - - 1.50	B10	-				Orange gravelly SAND. Sa subrounded fine to coarse [RIVER TERRACE DEPO Soft bluich grav CLAX	and is fine to coa of flint. SITS]	arse. Gravel is subangular and		1.30 (0.10) 1.40	12.47 12.37	
- 1.50 - - -	D11	-				[KIMMERIDGE CLAY FOF	RMATION]			(0.80)		
- - - - -		-								-		
- - - - -		-				Soft dark grey mottled ora Fissures are very closely s brown ferruginous staining 100 mm).	ngish brown and spaced, randoml g to surfaces. Wi	I greenish grey fissured fissile CLAY y orientated, undulating wit orangish th frequent selenite crystals (<20 mr	n x	2.20	11.57	
- 2.50 - 2.50 -	B12 D13	-				[KIMMERIDGE CLAY FOF	RMATION]			(0.80)		
- - - -		-								3.00 -	- 10.77	
- - - - - - - - - - - - - - - - - - -	ILS			Long Avi			Remarks	angineers instruction at 3 00m on re	aching target d			
		2.6		Long Axis	s Orientati Support:	on: None	reminated on o	engineers instruction at 3.00m on re	aching target de	ερτη.		
0.7	Stability: Stable Groundwater (de					cription): Dry				Tern	nination	Depth:
Arcadis	s Cymru	nless other	viso statod:			Equipment Used		Contractor	Lc	gged By	Checke	ed By

Arcadis Consulting (UK) Ltd

Logged By Checked By MJ IP

TP1213

Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Ageno	су		Project No UA008 Easting (0 540053	Project No. Ground Level (mAOD) Sta UA008426-01 13.99 25 Easting (OS mE) Northing (OS mN) Enc 540053.37 264713.46 25					Scale 1:25 Sheet 1 of			
SAMPL	.ES		TESTS	;	Γø			STRATA							
Depth	Type/ No.	Depth	Type/ No.	Results	Wate Strike		Desc	ription		Legend	Depth (Thickness)	Level	Install Backfil		
- - 0.10 - 0.10	B1 D3	-				Grass over TOPSOIL: Very angular and subangular, fine	soft dark brove e to coarse of	vn slightly gravelly CLAY. Gravel is flint and chalk.	2	112,	(0.30)				
0.10	ES2	-				Soft orangish brown slightly		Y Gravel is angular and subangular	fine	112	0.30	13.69			
- 0.40 - 0.40 - 0.40 - 0.40 - 0.40	B4 D6 ES ES5	-				to coarse of flint and chalk. [RIVER TERRACE DEPOS	ITS]		-			+			
-		-							-		(0.70)	ļ			
-		-							-			Į			
		-				Firm light grey mottled oran	gish brown ar	nd dark brown CLAY.			1.00 -	12.99			
- 1.10 - 1.10	B7 D9	-				[KIMMERIDGE CLAY FORM 1 No. pocket (200 mm x 30	MATION] 00 mm) of ora	nge gravelly sand. Gravel is subangu	ilar to			ļ			
- 1.10 -	ES8	-						rounded, fine to coarse o	f flint.			Į			
-		-							E			ţ			
-		-										ţ			
-		-							ŀ		(1.30)	Į			
-		-							ŀ			ł			
-		-							ŀ			Į			
-		-							F		-	† I			
-		-										ļ			
- - 2.30 - 2.30	B10 D11	-				Firm dark grey mottled oran	igish brown a	nd reddish brown friable CLAY. With			2.30	11.69			
-		-				frequent selenite crystals. [KIMMERIDGE CLAY FORM	MATION]					ŧ			
-		-							ŀ			Ī			
-		-							ŀ		(0.70)	ŧ			
-		-							-			Į			
-		-									3.00 -	 			
	ILS			Long Avi		Figure 1	Remarks	engineers instruction at 3 00m on	reaching	taroet de	nth Soil m		ent		
0.6		2.6		Shoring / Stability: Groundw	s Oriental Support: Stable rater (des	tion: 7	ierminated or samples taker	engineers instruction at 3.00m on i a at 0.10 m (SMB1, SMD2) and 0.40	reaching) m (SME	target de 3, SMD4	pth Soil m -).	nination 3.00r	Depth:		
Arcadis	Cymru	-1 "				Fauinment Lood		Contractor			aged By	Checks	ed By		
AGS Busines Cardiff,	U ons D ss Park T CF3 0EY	niess otherv epth (m), Dia hickness (m	vise stated: ameter (mm), Level (mC), Time (hhmm) DD).),	JCB 3CX		Arcadis Consulting (UK)	Ltd	M.)	IP	Ju Dy		

Project Nort Client Hom	roject Northstowe Phase 2 ^{Jient} Homes and Communities Agency						Project N UA00 Easting 53996	No. 1 8426-01 (OS mE) 66.51	Ground Level (mAOD) 14.25 Northing (OS mN) 264707.58	Start Date 25/01/2017 End Date 25/01/2017	y 1	^{Scale} 1:25 Sheet 1 of 1				
	SAMPL	ES		TEST	3	Ľ۵			STRATA							
De	onth	Type/	Depth	Type/	Results	Nate		Desc	rintion	Legend	Depth (Thickness)	Level	Install/ Backfill			
- 0. - 0. - 0.	.10 .10 .10 .10	No. B1 D3 ES ES2	- - - -	No.		- 0)	Vegetation over TOPSOIL angular to subrounded, fir (< 2 mx 100 mm).	: Very soft brow to coarse of	wn slightly gravelly CLAY, Gravel is chalk and flint. With occasional rootlets		(0.40)	- - - - -				
- 0.	.40	B4	-				Very soft becoming soft or	angish brown	slightly gravelly CLAY Gravel is	sile	0.40	13.85				
- 0. - 0. - 0.	.40 .40 .40	ES ES5	-				subangular and rounded, pockets (10 mm x 100 mn [RIVER TERRACE DEPO	fine and mediu n) of reddish br SITS]	m of flint and chalk. With occasional own ferruginous staining.		(0.40)	ļ				
Ł	80	B7	_								0.80	13.45				
- 0. - 0. - 0.	.80 .80 .90 .90	D9 ES8 B10 ES11	-				Firm becoming stiff light g [KIMMERIDGE CLAY FOF 1 No. lense/pocket (< 600 coarse. G	rey mottled ora RMATION] mm x 1500 mn ravel is subang	Ingish brown CLAY. n) of orange gravelly SAND. Sand is fine ular and subrounded. fine to coarse of fli	to	0.00	+				
			- - - -									*				
			- - - -								(1.50)	+				
			- - -													
- - 2. - 2.	.00 .00	B12 D13	- - - -													
-			-									ł				
-			- - -				Firm dark grey mottled ora crystals (< 50 mm x 100 n	angish brown fr nm).	iable/fissile CLAY. With frequent seleni	ie	2.30	11.95				
- 2. - 2. -	.50 .50	B14 D15	- - - - -					RMATIONJ			(0.70)	+				
-			- - - -							 	3.00	+ + 11.25				
												* * * * * * * * * * * * * *				
PLAN		LS	2.6	· · · · · ·	Long Axi	s Orientat	ion:	Remarks Terminated or	n engineers instruction at 3.00m on rea	ching target de	pth.	1	1			
0.6					Shoring / Stability:	Support:	None									
					Groundw	Groundwater (description): Dry					Termination Depth 3.00m					

Project Northstowe Phase 2 Client Homes and Communities Agency					Project N UA00 Easting 53977	No. 1 8426-01 (OS mE) 7 3.77	Ground Level (mAOD) 15.21 Northing (OS mN) 264671.66	Start Date 25/01/201 End Date 25/01/201	7 13 7 S	^{Scale} 1:25 Sheet 1 of			
SAMPL	ES		TEST	S	L SS			STRATA					
Depth	Type/ No.	Depth	Type/ No.	Results	Wate Strike		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill	
- - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	B2 D3 ES1	-				Grass over TOPSOIL; Sof CLAY. Sand is fine to coar medium of mixed lithologic	ft light to dark re se. Gravel is su es.	eddish brown slightly gravelly sandy bangular and subrounded, fine and		(0.30)			
- 0.40 - 0.40 - 0.70 - 0.40 - 0.70 - 0.40 - 0.70 - 0.40 - 0.70	0 B6					Soft light brown slightly gr subangular and subround [RIVER TERRACE DEPO	avelly sandy Cl ed, fine and me SITS]	_AY. Sand is fine to coarse. Gravel is dium of mixed lithologies.		0.30	14.91		
- - - - - - -		- - - - - - - -								- (0.90) 			
		-				Soft to firm light becoming present (< 5 mm). [KIMMERIDGE CLAY FO	i dark mottled y RMATION]	ellow bluish grey CLAY. Selenite cry	stals	1.20	14.01	≡₩≡₩≡₩≡₩ ₩≡₩≡₩≡₩≡₩ ₩	
		- - - - - - - -								(1.80)			
- - 2.30 - 2.60 - 2.30 - 2.60 - 2.30 - 2.60 - 2.30 - 2.60	B8 D9 ES7	- - - - - 2.50 - 2.50	HV(1) HV(2)	108(41)kPa >120()kPa									
- - - - - - -		- 2.50 	HV(3)	>12U()KPa					 	3.00 -	12.21		
- - - - - - - -		- - - - - - - - -								-			
PLAN DETAI	LS	2.7		Long Axi	s Orientat	ion:	Remarks Terminated on	engineers instruction at 3.00m on re	eaching target d	epth.			
0.7	Shoring / Support: No Stability: Stable					None			-				
	Groundwater (c					cription): Dry				Tern	ermination Depth: 3.00m		
Arcadis	Cymru	nless other	wise state	1.		Equipment Used	I	Contractor	L	ogged By	Checke	ed By	



TP1216

Project Northsto ^{Client} Homes a	we Pha nd Cor	ise 2 nmunitie	es Age	ncy	Project N UA008 Easting (0 53958			Ground Level (mAOD) 15.78 Northing (OS mN) 264673.79	Start Date 05/01/2017 End Date 05/01/2017	sc 1: S	^{Scale} 1:25 Sheet 1 of 1			
SAMP	LES		TEST	ſS	г s			STRATA						
Depth	Type/	Depth	Type/	Results	Strike		Desc	ription	Legend	Depth (Thickness)	Level	Backfill		
- 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	- - - -	NO.			TOPSOIL; Soft dark brown Gravel is subangular to ro	n slightly grave unded fine and	lly sandy CLAY. Sand is fine to coa medium of chalk and flint.		(0.30)				
- 0.50 - 0.50 - 0.50	B4 D6	- - - -				Soft orangish brown slight Gravel is subangular to ro [RIVER TERRACE DEPO	ily gravelly sligh unded fine to c SITS]	ntly sandy CLAY. Sand is fine to coa oarse of flint and chalk.		0.30	15.48			
-	233	-								(1.20)	-			
		- 1.00 	HV()	()kPa						_	- - - -			
- - - - 1.50 - 1.50 - 1.50	B7 D9 ES8	- - - - -				Firm to stiff light grey mott ferruginous staining.	led orangish bi	own CLAY. With orangish brown		1.50	- 14.28			
- - - - - -		-				KIMMERIDGE CLAY FOR	RMATION]				- - - - -			
-		- - - - -								(1.10)	- - - - - -			
- - - 2.60 - 2.60 - 2.60	B10 D12 ES11	-				Very stiff fissured dark gre Gravel is angular to subro organic odour. With abunc very closely spaced, poss	y mottled oran unded fine and dant selenite cr ibly subhorizon	gish white slightly gravelly CLAY. Fi medium of chalk. Moderate to stro ystals (< 10 mm x 500 mm). Fissur tal, undulating with orangish brown	ssile ng es are	2.60 (0.40)	13.18			
- - - - -		- - - - -				ferruginous staining to sur [KIMMERIDGE CLAY FOF	faces. RMATION]			3.00 -	- 12.78			
-		- - - - - - - -								-	- - - - - - - - -			
- - - - - - -		- - - - - - -								-	- - - - - - -			
- - - - - -		-								- - -	- - - - -			
- - - - -		- - - - -									- - - - - -			
PLAN DETA	AN DETAILS							engineers instruction at 3.00m on	reaching target de	pth.				
0.6	Shoring / Support: None Stability: Stable													
	Groun					cription): Dry				Term	ination I 3.00n	Depth: N		

Project Northstov Client Homes ar	ve Pha Id Con	ise 2 nmunitie	es Ager	ю		Project N UA00 Easting (53943	lo. 8426-01 OS mE) 88.62	Ground Level (mAOD) 16.22 Northing (OS mN) 264648.72	Star 05/ End 05/	t Date /01/2017 Date /01/2017	7 1: 7 S	ale 25 heet 1	of 1
SAMPL	ES		TEST	S	es es			STRATA			Death		Install/
Depth	Type/	Depth	Type/	Results	Wate Strike		Desc	ription		Legend	(Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	- - - - -	NO.			TOPSOIL; Soft brown mot CLAY. Sand is fine to coars of chalk and flint.	tled light orang se. Gravel is si	ish brown slightly gravelly slightly Ibangular and subrounded fine to	r sandy coarse		(0.35)		
- - - 0.60 - 0.60 - 0.60 - 0.60	B4 D6 ES5					Soft orangish brown mottle fine to coarse. Gravel is su flint. [RIVER TERRACE DEPO:	ed grey slightly ibangular and SITS]	sandy slightly gravelly CLAY. Sar subrounded fine to coarse of chal	nd is k and		0.35	15.87	₩═₩═╫═╫═ ₩═╫═╫═╫═ ₩
- - - - - - - - -		- - - - - - - - - - - - -	HV()	()kPa							(1.15)	- - - - - - - - - - - - - - - - - - -	= = = = = = =
- 1.60 - 1.60 - 1.60 - 1.60 	B7 D9 ES8					Stiff to very stiff light grey (mm) [KIMMERIDGE CLAY FOF	CLAY. With occ	asional selenite crystals (<100 m	m x 150		1.50	- 14.72	: = = = = = = =
											(1.20)		= = = = = = = = = = = = =
- 2.80 - 2.80 - 2.80 	B10 D11	- - - - - - -				Very stiff fissured dark gre With pockets (<100 mm x angular to subrounded fine (< 4 mm x 6 mm). Moderal possibly subhorizontal unc surfaces.	y mottled orang 230 mm) of mo and medium te organic odor lulating with or	ish white slightly gravelly CLAY. Ittled orangish white gravel. Grav of chalk. With frequent selenite cr Ir. Fissures are very closely spac angish brown ferruginous staining	Fissile. el is ystals ed, g to		2.70 (0.30) 3.00 -	13.52	
						\[KIMMERIDGE CLAY FOF	RMATION]				-	* * * * * * * * * * * * * *	
PLAN DETAI	LS						Remarks	onginoorg instruction of 0.00	n	a torrat i	ath		
0.6	2.5 Long Axis Orientation: 0.6 Shoring / Support: Non- Stability: Stable					ion: None	Ierminated or	engineers instruction at 3.00m o	n reachin	g target de	pth.	instics '	
				Groundv	vater (des	cription): Dry					lern	3.00n	Deptn: N
Arcadis	Cymru	nloss other	wise state	1.		Equipment Used		Contractor		Lo	gged By	Checke	ed By



TP1218

Project Northstowe Phase 2 ^{Client} Homes and Communities Agency						Project N UA00 Easting 53936	lo. 8426-01 (OS mE) 60.14	Ground Level (mAOD) 16.11 Northing (OS mN) 264679.29	Start Date 05/01/2017 End Date 05/01/2017	y 1 y S	^{Scale} 1:25 Sheet 1 of 1				
CAMDI	50		тгет					STDATA							
Depth	ES Type/	Depth	Type/	Results	Water Strikes		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill			
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	- - - - -	140.			TOPSOIL; Soft brown slig Gravel is subangular and Soft orangish brown slight	htly gravelly sli subrounded fin	ghtly sandy CLAY. Sand is fine to c e and medium of chalk. dy CLAY. Sand is fine and medium.		(0.30) 0.30	15.81				
- 0.50 - 0.50 - 0.50 	B4 D6 ES5	- - - - - - - - - - - - - - - - - - -	HV()	()kPa		Gravel is subangular and [RIVER TERRACE DEPO	subrounded fin SITS]	e to coarse of flint and chalk.		(1.30)					
- - - - - - - - - - - - - - - - - - -	B7 D9 ES8	- - - - - - - - - - - - - - - - - - -	HV()	()kPa		Light grey mottled orangis subrounded fine and med	h brown slightl um of chalk. W	y gravelly CLAY. Gravel is subangu fith rare selenite crystals (<3 mm x	Ilar to	1.60	14.51				
		- - - - - - - - - - - - - - -				mm). [KIMMERIDGE CLAY FO	RMATION]			(1.10)					
- 2.70 - 2.70 - 2.70	B10 D11	- - - - - - - - -				Dark grey mottled orangis (<100 mm x 230 mm) of n subrounded fine and med mm). Moderate organic oc subhorizontal undulating v [KIMMERIDGE CLAY FOI	h brown slightl hottled orange um of chalk. W lour. Fissures a vith orangish b RMATION]	y gravelly CLAY. Fissile. With pocka and white gravel. Gravel is angular fith frequent selenite crystals (< 4 n are very closely spaced, possibly rown ferruginous staining to surface	ets	2.70 (0.30) 3.00	13.41				
							Remarks								
	2LAN DETAILS 2.5 Long Axis Orientation: 0.6 Shoring / Support: None						Terminated or	engineers instruction at 3.00m on	reaching target de	pth.					
				Groundw	vater (des	scription): Dry				Termination Depth: 3.00m					

Project Northstow Client Homes ar	we Pha nd Cor	ise 2 nmunitie	es Agen	су		Project No. Ground Level (mAOD) S UA008426-01 15.83 S Easting (OS mE) Northing (OS mN) S 539118.52 264715.40 S			Start Date 25/01/2017 End Date 25/01/2017	y 1 y S	^{Scale} 1:25 Sheet 1 of			
SAMPL	.ES		TESTS	6	r s	STRATA								
Depth	Type/	Depth	Type/	Results	Wate	Description				Depth (Thickness)	Level	Install/ Backfill		
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 ES1	- - - - -	NO.			Grass over TOPSOIL; Dar Sand is fine to coarse. Gra mixed lithologies.	rk reddish brow avel is subangu	n slightly gravelly very clayey SAN lar and subrounded, fine to mediu	D. n of	(0.40)	45.42			
- 0.40 - 0.80 - 0.40 - 0.80 - - -	ES3	- - - - - -				Soft light brown slightly gr subangular and subround [RIVER TERRACE DEPO	avelly sandy Cl ed, fine and me SITS]	AY. Sand is fine to coarse. Gravel dium of mixed lithologies.	is	0.40	15.43			
-		- - - - -								(0.80)				
						Soft to firm light becoming crystals (<5 mm). [KIMMERIDGE CLAY FOF	dark bluish gre	ey mottled yellow CLAY. With seler	nite	1.20 (1.80)	14.63	= = = = = = = = = = = = =		
2.30 - 2.70 2.30 - 2.70 2.30 - 2.70 2.30 - 2.70	B6 D7 ES5											\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
	2.5 Long Axis Orientation: 0.7 Shoring / Support: None Stability: Stable						Terminated on	engineers instruction at 3.00m on	reaching target de	pth.				
	Groundwater (d					cription): Dry				Tern	nination 3.00n	Depth: N		

Project Northstowe Phase 2 Client Homes and Communities Agency						Project N UA00 Easting 5390	No. 1 8426-01 (OS mE) 1 2.80	Start Date 25/01/201 End Date 25/01/201	7 1: 7 S	ale :25 heet 1 of 1	
SAMPL	ES		TESTS		- <i>S</i>			STRATA			
Depth	Type/	Depth	Type/	Results	Wate		Desci	iption	Legend	Depth (Thickness)	Level Backfil
SAMPL Depth 0.10 - 0.30 0.10 - 0.30 0.10 - 0.30 0.10 - 0.30 	B5 D6 ES4	nmunitie Depth 	ES Agen	Cy Results	Mater Strikes	Soft to firm light becoming crystals (< 5 mm). [KIMMERIDGE CLAY FOR	I L.80	264710.13 STRATA iption iddish brown slightly gravelly sand ibangular and subrounded, fine an Pocket of orange s	Legend V d	7 S Depth (Thickness) (1.10) (1.90) 3.00	Install/ Level Install/ Backfill Imstall/ Imstall/ Imstall/ Imstall Imstall Imstall Imstall
PLAN DETAILS 2.9 Long Axis Orientati Shoring / Support: 1 Stability: Stable Groundwater (desc					s Orientat ' Support: Stable vater (des	ion: None cription): Dry	Remarks Terminated on	engineers instruction at 3.00m on	reaching target d	epth.	nination Depth: 3.00m
Arcadis	Cymru	nless other	viso statod:			Equipment Used	-	Contractor	Lc	gged By	Checked By

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Project Northstowe Phase 2 Client Homes and Communities Agency						Project UA00 Easting 5388	Project No. Ground Level (mAOD) Status UA008426-01 15.09 2 Easting (OS mE) Northing (OS mN) 1 538889.12 264796.05 2			7 1: 7 S	^{Scale} 1:25 Sheet 1 of 1				
SAM	PLES		TESTS		r SS		STRATA								
Depth	Type/ No.	Depth	Type/ No.	Results	Wate		Des	cription	Legend	Deptn (Thickness)	Level	Backfil			
- - 0.10 - 0.10 - 0.30 - 0.10 - 0.30	ES 0 B2 0 D3					Grass over TOPSOIL; So CLAY. Sand is fine to coa medium of mixed lithologi	ft light to dark rse. Gravel is s es.	reddish brown slightly gravelly sandy subangular and subrounded fine to		(0.30)					
0.10 - 0.30 - - 0.40 - 0.70	0 ES1 0 B5	-				Soft light brown slightly gr subangular and subround	ravelly sandy C led fine to med	CLAY. Sand is fine to coarse. Gravel is lium of mixed lithologies.		0.30	14.79				
- 0.40 - 0.70 - 0.40 - 0.70 -	0 D6 0 ES4	-				[RIVER TERRACE DEPC	SITS]			(0.40)					
-		-				Soft to firm light becoming crystals (< 5 mm).	g dark bluish g	rey mottled yellow CLAY. With selenite	· · · · · · · · · · · · · · · · · · ·	0.70	14.39				
- - 		-					i di si i i ci i j			-	+ + +-				
- - -		-									ļ				
-		- - -													
-		-								·	Ī				
-		-							 	(2.30)					
-		-								-					
- - 2.20 - 2.60 - 2.20 - 2.60 - 2.20 - 2.60	0 B8 0 D9 0 ES7	-													
- - -		- - -													
-		-													
-		-													
		- - - -								3.00 -	+ 12.09				
- - -															
-		-													
-															
- - -		-								-	-				
-		- - -													
-		-													
- - -		- - -									ł				
- - -		- - -													
PLAN DET	TAILS	-					Remarks			-	ł				
		2.8		Long Axi	is Orientat	ion:	Terminated o	n engineers instruction at 3.00m on re	eaching target de	pth.					
				Shoring	/ Support:	None									
				Stability: Groundv	Stable vater (des	cription): Dry				Tern	nination	Depth:			
Arca	dis Cymru	1-1				Fauinment Lised		Contractor	Lo	aged By	3.00r	n ad By			

TP1222

Project Northstowe Phase 2 Client Homes and Communities Agency			cy		Project I UA00 Easting 53870	No.)8426-01 (OS mE) 60.76	Ground Level (mAOD) 15.32 Northing (OS mN) 264794.53	Start Date 11/01/20 End Date 11/01/20	7 1 7 S	^{Scale} 1:25 Sheet 1 of 1				
SAMDI	ES		TESTS					ςτρατα						
Danth	Type/	Denth	Type/	Desulte	Vater trikes		Deer			Depth (Thickness)	Level	Install/ Backfill		
Depth	No.	Depth	No.	Results	> \(\mathcal{S}\)		Desc		Legen	, ((), (), (), (), (), (), (), (), (), (
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B1 D3 ES2	-				Grass and stubble over TO CLAY. Gravel is subangula rootlets.	OPSOIL; Soft t ar and subrour	rown slightly sandy slightly gravell ded, fine to coarse of flint. With fre		は : : : : : : : : : : : : :				
-		-				Firm orangish brown sligh	tly gravelly slic	htly sandy CLAY Gravel is suband	ular	0.40	14.92			
- - 0.50 - 0.60 - 0.50 - 0.60 - 0.50 - 0.60	B4 D6 ES5	- - -				and subrounded fine to co [RIVER TERRACE DEPO	parse of flint. W SITS]	ith occasional rootlets.		(0.35)				
- - - - 0.90 - 1.10	B7	- - -				Firm bluish grey mottled o Sand is fine to coarse. Gr Pockets (up to < 1 mm x 5	orangish brown avel is angular 5 mm) of fine s	slightly sandy slightly gravelly CLA and subangular, fine and medium elenite crystals. With occasional roo	Y of flint	0.75	14.57			
- 0.90 - 1.10 - 0.90 - 1.10 	D9 ES8	- - -				[KIMMERIDGE CLAY FOI	RMATION]			(0.75)				
- - - -		- - -												
-		-								- 1.50	+ 13.82			
-		-				Orangish brown gravely s subangular and subround	ed, fine to coal	SAND. Sand is fine to coarse. Grav se of flint.	elis	(0.20)	1			
-		-				[KIMMERIDGE CLAY FOI	RMATION]			1.70	13.62			
-		-				coarse.	own slightly slit	y slightly sandy CLAY. Sand is fine		-	ţ	≣≞≣		
-		-				[KIMMERIDGE CLAY FOI	RMATION]			_	ţ			
-		-								-	ŧ			
-		-								(0.80)	Ŧ			
Ē										-	ł			
-										_	ł			
_		_								_	ł			
-		-				Firm dark grey mottled ye	llow CLAY with	crystals of selenite (< 10 mm x 20	mm x	2.50	12.82			
- 2.60 - 2.80 - 2.60 - 2.80	B10 D12	-				60 mm). [KIMMERIDGE CLAY FOI	RMATION]			-	ţ			
2.60 - 2.80	ES11	-								(0.50)	ţ			
-		-									ţ			
-		-								-	1 40 00			
-		-									T			
		2.6			s Orienta	ion:	Terminated or	n engineers instruction at 3.00m on	reaching target	depth.				
0.7				Stability	Stable									
	Stability: Stable Groundwater (de					cription): Water seepage at 1.62m				Terr	Termination Depth: 3.00m			
Arcadis	Cymru	nless other	viso statod:			Equipment Used	1	Contractor		.ogged By	Checke	ed By		

Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Agen	су		Project f UA00 Easting 53869	Project No. Ground Level (mAOD) UA008426-01 15.70 Easting (OS mE) Northing (OS mN) 538694.54 264709.56				Scale 1:25 Sheet 1 of			
SAMPL	ES		TESTS	;	بہ s			STRATA						
Depth	Type/ No.	Depth	Type/ No.	Results	Wate Strike		Desc	ription	Legend	(Thickness)	Level	Backfi		
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B1 D3 ES2	- - - -				Grass over TOPSOIL; Sol fine to coarse. Gravel is so rootlets. Occasional sand	ft brown slightly ubangular and y pockets (<2 n	sandy, slightly gravelly CLAY. San subrounded of flint. Frequent roots im x 1 mm x 1 mm).	d is and with the second secon	6 6 (0.30)	- 15.40			
- 0.40 - 0.60 - 0.40 - 0.60 - 0.40 - 0.60 - 0.40 - 0.60	B4 D6 ES5					Soft orangish brown slight and subrounded fine to co rootlets [RIVER TERRACE DEPO	tly sandy slightl barse of flint. Sa bSITS]	y gravelly CLAY. Gravel is subangund is fine to coarse. With occasion	lar al	(0.40)	15.40			
- - - - 0.80 - 1.00 - 0.80 - 1.00 - 0.80 - 1.00	B7 D9 ES8	- - - - - -				Orangish brown slightly cl subrounded, fine to coars [RIVER TERRACE DEPO	ayey, gravelly S e of flint. /SITS]	SAND. Gravel is subangular and		0.70	15.00			
- - - - - -										(0.90)				
-		-				Firm to stiff grey mottled o	orangish brown	slightly sandy CLAY. Sand is fine t	0 — —	1.60	14.10			
- 1.70 - 1.80 - 1.70 - 1.80	B10 D12	-				coarse. [KIMMERIDGE CLAY FOI	RMATION]		<u> </u>	(0.30)	ł			
- 1.70 - 1.80 - -	ES11	-								1.90	13.80			
	LS						Remarks							
0.8		2.5		Long Axi Shoring Stability: Groundw	s Orientat / Support: Unstable vater (des	ion: None cription): Water seepage at 1.90m				Terr	nination	Depth:		
Arcadis	Cymru					Equipment Land]	Contractor	1.		Checks	ad By		
House St Mello Busines Cardiff,	ns D s Park T CF3 0EY	nless other epth (m), Di hickness (m	wise stated: ameter (mm ı), Level (mC), Time (hhmm)D).),	Equipment Used		Contractor Arcadis Consulting (UK)	Ltd V	одуеа ву Р	IP	≂u BY		

Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Ageno	cy		Project N UA00 Easting 53866	No. 1 8426-01 (OS mE) 5 8.28	Ground Level (mAOD) 15.39 Northing (OS mN) 264746.24	Start Date 10/01/201 End Date 10/01/201	7 1: 7 S	Scale 1:25 Sheet 1 of 1				
SAMPL	ES		TESTS		es S			STRATA				la stall/			
Depth	Type/	Depth	Type/	Results	Strike		Desc	ription	Legend	(Thickness)	Level	Backfill			
- 0.10 - 0.20 - 0.10 - 0.20 - 0.10 - 0.20 - 0.10 - 0.20	B1 D3 ES2	-				Grass and stubble over To Gravel is subangular and	OPSOIL; Soft s subrounded of	lightly gravelly, slightly sandy CLA flint. With frequent roots and rootl	Y. Ma	(0.30)					
- - 0.40 - 0.50 - 0.40 - 0.50 - 0.40 - 0.50	B4 D6 ES5	-				Soft orangish brown sand [RIVER TERRACE DEPO	y CLAY. Sand i SITS]	s fine to coarse		0.30 (0.30)	15.09				
- - - 0.70 - 0.90 - 0.70 - 0.90 - 0.70 - 0.90	B7 D9 ES8	-				Orangish brown slightly cl subangular and subround [RIVER TERRACE DEPO	ayey, sandy GF ed fine to coars SITS]	RAVEL. Sand is fine to coarse. Gr e of flint.	avel is	0.60	14.79				
-	200	- - - 				Stiff bluish grey mottled br	rown slightly gr	avelly sandy CLAY. Sand is fine a	n	1.00 -	- 14.39				
- - 1.20 - 1.40 - 1.20 - 1.40 - 1.20 - 1.40	B10 D12 ES11	- - - - - - - - -				Medium. Gravel is subang	Jular and Subro	unded fine to coarse of flint.		(1.00)					
		- - - - - - -				Firm dark grey mottled br	own slightly sar	dy CLAY. Sand is fine to coarse		2.00 -	- 13.39	= = = = = = = = = = = = =			
- 2.10 - 2.20 - 2.10 - 2.20 - 2.10 - 2.20 - 2.10 - 2.20	B13 D15 ES14	-				KIMMERIDGE CLAY FO	RMATION]			(1.00)		= = = = = = = = = = = = =			
- 2.70 - 2.80 2.70 - 2.80 2.70 - 2.80	B16 D18 ES17	-													
	LS						Remarks			3.00 -					
0.7		2.5		Long Axi Shoring J Stability:	s Orientat Support: Stable	ion: None	Terminated or	engineers instruction at 3.00m o	n reaching target de	epth.	nination 1	Depth:			
	Cymru	nless other	wise stated.	Groundw	ater (deso	Equipment Used			Logged By Checke						



Project Northstov Client Homes ar	we Pha nd Com	se 2 nmunitie	es Ageno	cy	Project N UA000 Easting (53870			No. Ground Level (mAOD) 8426-01 14.60 (OS mE) Northing (OS mN) 01.40 264933.41			Scale 1:25 Sheet 1 of			
SAMPL	ES		TESTS		r s			STRATA						
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	L	egend	Depth (Thickness)	Level	Install/ Backfill	
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B1 D3 ES2	-	NO.			Grass and stubble over TC CLAY. Sand is fine to coar coarse of flint. With freque	DPSOIL; Soft b se. Gravel is si int rootlets.	rown slightly sandy slightly grav ubangular and subrounded, fine	elly siz		(0.40)			
-		-				Soft orangish brown slight	ly sandy CLAY.	With pockets (up to 1 mm) of fi	ne to	<u></u>	0.40	14.20	▥▦▥	
- 0.50 - 0.70 - 0.50 - 0.70 - 0.50 - 0.70 -	B4 D6 ES5	-				coarse sand. With occasio [RIVER TERRACE DEPO	onal rootlets. SITS]				(0.40)	-		
- 0.80 - 0.90 - 0.80 - 0.90 - 0.80 - 0.90	B7 D9 ES8	-				Soft orangish brown slight subangular and subrounde [RIVER TERRACE DEPO	ly gravelly sand ed, fine to coar SITS]	dy CLAY. Sand is fine to coarse. se of flint.	Gravel is		0.80 (0.10) 0.90	13.80 13.70		
	ES11					Soft orangish brown slight subangular and subrounde [RIVER TERRACE DEPO	ly gravelly SAN ed, fine to coar SITS]	ID. Sand is fine to coarse. Gravise of flint	el is		(0.65)		═ ═ ═ ═ ═ ═ ═ ═	
- 1.50 - 1.70 - 1.50 - 1.70	B12 D14	-				Stiff bluich grev mottled or	angish brown a	lightly candy CLAV Sand is find	and		1.55	13.05		
- 1.50 - 1.70	ES13	-				medium.		Signuy Sanuy CLAT. Sanu IS Inte			(0.25)			
		-				[KIMMERIDGE CLAY FOF	RMATION]				1.80	12.80		
- - - - - - - - - - - - - - - - - - -	LS						Remarks							
		2.5		Long Axi	s Orientat	ion:								
0.8).8 Shorin Stabili Groun					None cription): Dry					Term	ination	Depth:	
	Cymru	nless other	wise stated.			Equipment Used		Contractor		Loc	ged By	1.80n Checke	n ed By	

Project Nort Client Hom	^{roject} Iorthstowe Phase 2 ^{lient} Iomes and Communities Agency						Project N UA00 Easting (53872	lo. 8426-01 OS mE) 28.40	Ground Level (mAOD) 14.48 Northing (OS mN) 264990.60	Start Date 12/01/2017 End Date 12/01/2017	7 11 7 S	^{Scale} 1:25 Sheet 1 of				
9		FS		TESTS					STRATA							
De	epth	Type/	Depth	Type/ No.	Results	Water Strikes		Descr	iption	Legend	Depth (Thickness)	Level	Install/ Backfill			
- 0. - 0. - 0.	.10 .10 .10	B1 D3 ES ES2	-				Grass and stubble over TO sandy CLAY with frequent subangular, fine to coarse	DPSOIL; Soft to rootlets. Sand i of flint.	firm brown slightly gravelly slightly s fine to coarse. Gravel is angular an	d	(0.30)					
- 0. - 0. - 0.	40 40 40	B4 D6 ES5	-				Firm orangish brown slight [RIVER TERRACE DEPO	tly silty CLAY w SITS]	th occasional rootlets.		0.30	14.18				
			-				Firm to stiff orangish brow	n slightly sandy	gravelly CLAY. Occasional subround	ed	0.80	13.68				
- 0. - 0. - 0. -	.90 .90 .90	B7 D9 ES8	-				cobbles of flint (50 mm x 3 subangular and subrounde [RIVER TERRACE DEPO	0 mm x 80 mm ed, fine to coars SITS]). Sand is fine to coarse. Gravel is e of flint.		(0.40) -					
- - - - 1.	.40 40	B10 D2	-				Firm dark grey mottled ora coarse. [KIMMERIDGE CLAY FOF	Ingish brown sli RMATION]	ghtly sandy CLAY. Sand is fine to 300 x 400 mm sand poo	ket	1.20	13.28				
- 1. 	40	ES1	-								(0.60)					
			- - - -				Firm to stiff dark grey mott fine (<0.5mm) selenite cry [KIMMERIDGE CLAY FOF	led brown CLA` stals. RMATION]	/ with pockets (1 mm x 2 mm x 1 mm) of	1.80	12.68				
			-								(0.80)					
- - - 2. - 2. - 2.	.70 .70 .70	B3 D5 ES4	-				Firm bluish grey mottled o sand and selenite crystals [KIMMERIDGE CLAY FOF	range CLAY. W (crystals up to RMATION]	th pockets (<5 mm x 5 mm x 10 mm) 1 mm).	of	2.60	11.88				
			-								(0.50) - 3.10	11.38				
	DETAI	LS	2.2			s Orientat	ion:	Remarks Terminated on	engineers instruction at 3.10m on rea	aching target de	epth.					
0.8	Stability Ground					Stability: Stable Groundwater (description): Dry					Tern	nination 3.10r	Depth: N			
	Arcadis	Cymru	nless other	wise stated:			Equipment Used		Contractor	Lo	gged By	Checke	ed By			



Project Northstov Client	Project Northstowe Phase 2 Client					Project N UA00 Easting (No. Ground Level (mAOD) 5 18426-01 15.07 (OS mE) Northing (OS mN) E			t Date / 01/2017 Date	Sc 1:		
Homes an	nd Con	nmunitie	es Ageno	су		53870	08.17	264830.16	11/	/01/2017	S	heet 1	of 1
SAMPL	ES		TESTS		tter kes			STRATA			Depth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Stri		Desc	ription		Legend	(Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B1 D3 ES2	-				Grass and stubble over TO CLAY. Sand is fine to coar coarse of flint. With freque	DPSOIL; Soft b se. Gravel is so nt rootlets.	rown slightly sandy slightly gra ubangular and subrounded, find	velly e to	aliz	(0.30)		
0.40 0.50		-				Soft orangish brown slight	ly sandy slight	y gravelly CLAY. Sand is fine to	coarse.		0.30	14.77	
- 0.40 - 0.50 - 0.40 - 0.50 - 0.40 - 0.50	D6 ES5	-				rootlets. [RIVER TERRACE DEPO	SITS]		Casional		(0.40)	-	
- - 0.80 - 1.00 - 0.80 - 1.00 -	B7 ES8					Orangish brown slightly cla flint (40 mm x 80 mm x 30 subrounded, fine to coarse [RIVER TERRACE DEPO	ayey slightly gr mm). Sand is e of flint. With c SITS]	avelly SAND with occasional c fine to coarse. Gravel is subany cccasional rootlets	obbles of gular and		0.70 (0.40)	14.37	
 [-									1 10	12 07	
- 1.20 - 1.30	B9	-				Firm bluish grey mottled o Sand is fine and medium.	rangish brown Gravel is suba	slightly sandy slightly gravelly (ngular and subrounded, fine ar	CLAY. nd medium		1.10	13.97	
- 1.20 - 1.30 - 1.20 - 1.30	D1 ES10	-				of flint. [KIMMERIDGE CLAY FOR	RMATION	3 ,,		E	(0.40)		
-		-								E	-		
-		-									1.50	13.57	<u> </u>
E		-											
_		-									-	 -	
- PLAN DETAII	LS	-					Remarks						L
		2.5		Long Axis	orientat	ion:							
				\neg									
				Shoring /	Support	None							
0.8				Stability	Unstable								
	Gro			Groundw	Groundwater (description): Seebage at 0.70m						Term	ination	Depth:
												n	
Arcadis	Cymru	nlass other	vico statod:			Equipment Used	1	Contractor		Log	gged By	Checke	ed By

TP1228

Project Northstowe Phase 2 ^{Client} Homes and Communities Agency						Project N UA00 Easting (53859	No. 8426-01 (OS mE) 96.10	Ground Level (mAOD) 15.91 Northing (OS mN) 264684.08	Star 11/ End 11/	t Date 01/2017 Date 01/2017	so 1 S	ale 25 heet 1	of 1
641			тгете	,				CTDATA					
SAI			Type/	D	/ater irikes						Depth (Thickness)	Level	Install/ Backfill
Deptr	No.	Depth	No.	Results	≤≌		Descr	iption		Legend	(1110(11035)		
- 0.10 - 0.10 - 0. - 0.10 - 0. - 0.10 - 0. - 0.10 - 0.	ES 30 B1 30 D3 30 ES2					Grass and stubble over IC CLAY. Gravel is subangula rootlets.	DPSOIL; Soπ br ar and subround	own slightly sandy slightly gravided, fine to coarse of flint. With	frequent	NIC - NIC	(0.40)		
-		-				Soft orangish brown slight	ly sandy CLAY	With pockets (up to 1 mm) of f	ine to	alle <u>de</u>	0.40	15.51	
- 0.50 - 0. - 0.50 - 0. - 0.50 - 0.	70 B4 70 D6 70 ES5	- - - -				coarse sand. With occasio [RIVER TERRACE DEPO:	onal rootlets. SITS]				(0.40)		
- 0.80 - 0.	90 B7	-									0.80	15.11	
- 0.80 - 0.	90 ES8	-				subrounded, fine to coarse	e of flint.	ly CLAY. Gravel is subangular a	and	<u> </u>	(0.10) 0.90	15.01	
- - - - - - - - -		- - - - - - - -				[RIVER TERRACE DEPO: Orangish brown slightly cla subangular and subrounde [RIVER TERRACE DEPO:	SITS] ayey gravelly S, ed, fine to coars SITS]	AND. Sand is fine to coarse. G se of flint.	ravel is		(0.65)		= = = = = = = = = = = = = =
-		F									4.55	1 44 20	
- 1.60 - 1.	70 B9	Ē				Bluish grey mottled orangi medium With pockets (up	sh brown slight	ly sandy CLAY. Sand is fine an nd.	d	[- <u>-</u> -]	1.00	14.36	
1.60 - 1.	70 ES10	-				[KIMMERIDGE CLAY FOF	RMATION]			<u> </u>	(0.30)	ļ	L≣≣
-		-								<u> </u>	1.85	14.06	
							Remarks						
PLAN DE	TAILS						Remarks						
0.8	2.9 Long Axi					ion: None cription): Dry					Tern	nination 1.85r	Depth: N
Arc	cadis Cymru	Unless other	wise stated:			Equipment Used		Contractor		Log	gged By	Checke	ed By

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitie	es Agei	ncy		Project N UA00 Easting (54142	No. 1 8426-01 (OS mE) 2 6.94	Ground Level (mAOD) Start Date \$426-01 20/01/2017 DS mE) Northing (OS mN) End Date 6.94 265340.43 20/01/2017			^{Scale} 1:25 Sheet 1 of 1			
SAMPI	FS		TEST	S	, w			STRATA						
Depth	Type/	Depth	Type/	Results	Water		Descri	ption	Legend	Depth (Thickness)	Level	Install/ Backfill		
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30	NO. ES B2 ES1		No.			Grass over TOPSOIL; Dar Sand is fine to coarse. Gra mixed lithologies. With occ	rk reddish brown avel is subangul casional rootlets	slightly gravelly very clayey SAND. ar and subrounded, fine and mediun	n of	(0.50)				
- 0.60 - 0.60 - 1.00 - 0.60 - 1.00	ES B4 ES3	- - - - - - -				Yellowish brown clayey gr subangular to rounded, fin [RIVER TERRACE DEPO	avelly SAND. Sa to coarse of s SITS]	and is fine to coarse. Gravel is andstone and mudstone.		0.50				
		- - - - - - - -								(1.20)				
- 1.90 - 2.30 B6 - 1.90 - 2.30 D7		- - - - - -				Light to dark bluish grey mottled white slightly sandy CLAY. Sand is fine. [KIMMERIDGE CLAY FORMATION]		1.70						
-		- - - - - - - - - 2.50	HV(1)	>120()kPa						(1.30)				
- - - - - - - -		- - - - - - -								3.00 -				
										-				
		- - - - - - - - - - -												
PLAN DETAI	LS	F	I	I	<u> </u>	l	Remarks		1		1			
0.7		2.3		Long Axi Shoring A	s Orientat Support: Stable	ion: None	Terminated on	engineers instruction at 3.00m on re	aching target de	pth.				
				Groundw	ater (des	cription): Dry				Tern	nination E 3.00m	Depth: 1		
Arcadis	Cymru	nless other	wise state	d:		Equipment Used	1	Contractor	Lo	gged By	Checke	d By		

Project Norths Client Home	stowe Phass and Col	ase 2 mmunitio	es Ageno	;y		Project N UA00 Easting (54164	No. 8 426-01 (OS mE) 12.55	Ground Level (mAOD) 9.59 Northing (OS mN) 265347.59	Star 13/ End 13/	t Date /01/2017 Date /01/2017	y 1: y S	Scale 1:25 Sheet 1 of 1				
SA	MPLES		TESTS		r ss		:	STRATA								
Dept	th Type/	Depth	Type/	Results	Wate		Descri	ption		Legend	Depth (Thickness)	Level	Install/ Backfill			
- 0.10 - 0.10 - 0.10) B1) D3) ES	-	NO.			TOPSOIL; Very soft dark t to coarse. Gravel is suban frequent roots/rootlets (2 r	prown slightly gr Igular and subro nm x 230 mm).	avelly slightly sandy CLAY. Sand unded fine and medium of flint. V	is fine Vith		(0.20)	9.39				
- 0.10 - 0.30 - 0.30 - 0.30 -) ES2) B4) D6) ES5	- - - - - - - -				coarse. Gravel is subangu occasional roots/rootlets (; [RIVER TERRACE DEPO	ilar and subroun 2 mm x 230 mm SITS]	ded fine and medium of flint. Wit).	h		-	· · · ·	= = = = = = = = = = = = =			
- - - - - - - -		- - - - - - - -									(1.05)	· · · ·				
- - 1.30 - 1.30 -) B7) ES8	-				Orangish brown gravelly S subrounded fine to coarse [RIVER TERRACE DEPO	SAND. Sand is fi of flint. SITS]	ne to coarse. Gravel is subangul	ar and		1.25	8.34				
- - - -											(0.55)	-				
- 1.80 - 1.80 - - - - - - -) B9) ES10	- - - - - - - -				Yellowish brown gravelly S subrounded fine of flint. [RIVER TERRACE DEPO	SAND. Sand is fi SITS]	ne to coarse. Gravel is subangul	ar and		1.80	7.79	≡ ≡ ≡ ≡ = ≡ ≡ ≡ = = = = = = = = = =			
-											(1.20)		₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ =₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ =₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ			
- 3.00	ETAILS	22		Long Axi	s Orientat		Remarks Terminated on	engineers instruction at 3.00m of	n reachin	g target de	3.00 -	- 6.59				
0.7				Shoring /	Support: Stable	None				-						
				Groundw	ater (deso	pription): Dry					Term	ination [3.00m	Depth:			
A	rcadis Cymru	Inless other	wise stated:			Equipment Used		Contractor		Lo	gged By	Checke	d By			

Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	s Ageno	сy		Project N UA00 Easting 53869	No. 8426-01 (OS mE) 94.47	Ground Level (mAOD) 15.70 Northing (OS mN) 264709.26	Start Date 13/01/2017 End Date 13/01/2017	y 1: y S	^{ale} :25 heet 1	of 1
SAMPI	FS		TESTS					STRATA				
Depth	Type/ No.	Depth	Type/ No.	Results	Water Strikes		Des	cription	Legend	Depth (Thickness)	Level	Install/ Backfill
- - 0.10 - 0.30 - 0.10 - 0.30	B1 D3	=				Grass over TOPSOIL; Bro Sand is fine to coarse. Gra flint	wn slightly gra avel is subang	avelly sandy CLAY with frequent rootle gular and subrounded, fine and mediun	ts. No. No.	(0.20)	ł	
- 0.10 - 0.30 - 0.30	ES2 B4	-				Firm brown slightly sandy subrounded to subangular	gravelly CLAY	Y. Sand is fine to coarse. Gravel is se of flint. Occasional rootlets.		0.20 (0.20)	15.50	
- 0.30	D6 ES5	-				[RIVER TERRACE DEPO	SITS]			0.40	15.30	
0.40 - 0.60 0.40 - 0.60	B4 D6	-				Soft orangish brown slight coarse. Gravel is subangu	ly sandy and s lar and subro	slightly gravelly CLAY. Sand is fine to unded fine to coarse of flint. Occasiona	l	(0.40)		
0.40 - 0.60 0.50 0.50	ES5 B7 D9	-				[RIVER TERRACE DEPO	SITS]			(0.40)	15.00	
- 0.50 - 0.80 - 1.00	ES8 B7	-				Loose orangish brown slig Gravel is subangular and	htly clayey sa subrounded fi	andy GRAVEL. Sand is fine to coarse. ne to coarse of flint.		0.80	14.90	
- 0.80 - 1.00 - 0.80 - 1.00 - 0.90	D9 ES8 B10	-				[RIVER TERRACE DEPO Orangish brown slightly classes]	SITS] ayey, gravelly	SAND. Sand is fine to coarse. Gravel	is		ļ	
0.90	D2 ES1	-				RIVER TERRACE DEPO	ed fine to coar SITS]	rse of flint.		-	ŀ	
-		-								(0.90)	ł	
-		-									Į	
-		-										
-		-				Light brown sandy GRAVE	L. Sand is fin	e to coarse. Gravel is subangular and		1.60	14.10	
- 1.70 - 1.80 - 1.70 - 1.80	B10 D12	-				subrounded, fine to coarse [RIVER TERRACE DEPO	e of flint. SITS]			(0.30)	ļ	
- 1.70 - 1.80 -	ES11	-								1.90	13.80	
-		-			_			From 2.00m; becoming sa	ndy	-	+	≝≝≡
- 2.10 - 2.10	B3 D5	-									ł	
- 2.10	ES4	-									ļ	
-		-									Ì	
-		-				Firm to stiff grey mottled o	rangish browr	n, slightly sandy CLAY. Sand is fine to		2.50	13.20	┉≡┉
-		-					RMATION]		/		Į	
-		-									Ì	
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- PLAN DETAI	 LS	-					Remarks					
		2.5		Long Axi	s Orientat	on:	Terminated o	on engineers instruction due to water in	gress into pit.			
				Shorina	Support:	None						
0.8				Stability:	Unstable							
				Groundw	vater (deso	cription): Seepage at 1.90m				Tern	nination	Depth:
											2.50r	n
Arcadis	Cymru	nless otherv	vise stated:			Equipment Used		Contractor	Lo	gged By	Checke	ed By

Project Northsto Client	we Pha	se 2				Project N UA00 Easting	lo. 8426-01 (OS mE)	Ground Level (mAOD) 12.35 Northing (OS mN)	Start Date 17/01/2017 End Date	y Sc 1:	^{ale} 25	
Homes a	nd Con	nmunitie	es Ager	ncy		54029	92.26	265176.55	17/01/2017	'S	heet 1	of 1
SAMP	LES		TEST	S	ter (es			STRATA		Depth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Strik		Des	cription	Legend	(Thickness)	Level	Backfill
0.10 0.10 0.10 0.10	B1 D3 ES ES2	- - 0.20 - 0.20 - 0.20	HV(1) HV(2) HV(3)	110()kPa 120()kPa 80()kPa		Grass and stubble over To gravelly CLAY. Sand is fin- to coarse of flint.	DPSOIL: Firm e to coarse. G	to stiff dark brown slightly sandy sligh ravel is subangular, and subrounded f	tly NC NC	(0.30) 0.30	12.05	
0.50 0.50 0.50	B4 D6 ES5	- 0.40 - 0.40 - 0.40 - 0.40	HV(4) HV(5) HV(6)	100()kPa 120()kPa 90()kPa		Gravel is angular and sub [RIVER TERRACE DEPO	n sligntly grav angular, fine to SITS]	o coarse of flint. Occasional rootlets.	e.	(0.50)		
- 1.00 1.00	B7 ES8	- - - - -				Orangish brown slightly sa subangular and subround [RIVER TERRACE DEPO	andy clayey G ed, fine to coa SITS]	RAVEL. Sand is fine to coarse. Gravel rse of flint.	is *******	0.80	11.55	
1.30 1.30 1.30	B9 D1 ES10	- 1.20 - 1.20 - 1.20 - 1.20	HV(7) HV(8) HV(9)	70()kPa 80()kPa 90()kPa		Firm orangish brown mottl subangular and subround mm x 5 mm x 5 mm). [RIVER TERRACE DEPO	ed grey slight ed fine to coar SITS]	ly sandy, slightly gravelly CLAY. Grave se of flint. Frequent selenite crystals (ا is 2	1.15	11.20	
1.30	ES10	- - - - - - - - - - - - -	HV(10)	60/)kPa			·					
_		- 1.80 - 1.80 - 1.80 	HV(10) HV(11) HV(4)	70()kPa 70()kPa						(1.45)		
-		- 										
2.70 2.70 2.70	B2 D4 ES3	- - - 2.80 - 2.80 - 2.80 - 2.80	HV(12) HV(13) HV(14)	70()kPa 70()kPa 80()kPa		Firm dark grey mottled yel coarse orange pockets of [KIMMERIDGE CLAY FOR	lowish orange sand (up to 10 RMATION]	e slightly silty CLAY with frequent fine t 0 mm thick).	°	2.60	9.75	
										-		
		-									ł	
		-					Damid			-	F	
	AILS	2.3		Long Axi	s Orientat	ion:	Remarks Terminated o	n engineers instruction at 3.00m on re	eaching target de	pth.		
0.8				Shoring / Stability: Groundw	Support: Stable ater (deso	None Cription): Water seepage at				Term	nination	Depth:
						.90m					3.00r	n





TP1235)
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Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitie	es Agen	су		Project N UA00 Easting 54028	No. 1 8426-01 (OS mE) 3 1.87	Ground Level (mAOD) 12.50 Northing (OS mN) 265046.24	Start Date 17/01/201 End Date 17/01/201	7 1 7 S	^{cale} :25 heet 1	of 1
SAMPL	ES		TESTS	3	L S			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.10 - 0.10	NO. B1 D3 ES FS2	-	NO.			Grass and stubble over TO CLAY with roots and rootle subrounded fine to coarse	OPSOIL; Soft b ets. Sand is fine e of flint.	rown slightly sandy slightly gravelly e to coarse. Gravel is subangular a	/ 3 ^{1/2}	(0.30)	-	
- 0.40 - 0.40 - 0.40 - 0.40	B4 D6 ES5	- - - -				Soft to firm brown slightly subangular, fine to coarse [RIVER TERRACE DEPO	gravelly silty Cl of flint. SITS]	AY with rootlets. Gravel is angular	and	0.30 (0.35)	12.20	
- 0.70 - 0.70 - 0.70	B7 ES ES8	-				Brown slightly clayey sand subangular and subround [RIVER TERRACE DEPO	dy GRAVEL. Sa ed, fine to coar SITS]	and is fine to coarse. Gravel is se of flint. Clay land	d drain	0.65 (0.25)	11.85	
- 1.00 - 1.00 - 1.00	B9 D11 ES10	- - - - - - -				Firm brown slightly gravell silty sandy CLAY. Sand is coarse of flint. [KIMMERIDGE CLAY FOF	ly slightly sand fine to coarse. RMATION]	/ CLAY with occasional pockets of Gravel is angular and subangular,	grey fine to	(0.50)	-	
- 1.60	B12	-				Firm to stiff light brown mo an subangular, fine to coa [KIMMERIDGE CLAY FOR	ottled grey sligh rse of flint. Poc RMATION]	tly gravelly CLAY. Gravel is fine an kets of sandy clay (20 mm x 10 mr	gular n)	1.40	11.10	
- 1.60 - 1.60 	ES13	- - - - -				Firm to stiff bluish grey mo	ottled orange sl	ightly sandy slightly gravelly CLAY.	Sand	1.90	10.60	
- 2.30	B15	- - - - - -				KIMMERIDGE CLAY FOR	RMATION]	Remnant roots and r	potlets		- - - - -	
- 2.30 - 2.30 	ES16	- - - -								(1.10)		
- - - - -		- - - - -							 	3.00	9.50	
PLAN DETAI	LS		. 1	1 on - 1 '		ion:	Remarks	engineers instruction at the achee		•		
0.8		2.5		Shoring Axi Stability: Groundw	s orientat ' Support: Stable vater (desi	None cription): Dr	reminated or	rengineers instruction at the sched	ωσα ασμιτι.	Terr	nination	Depth:
											3.00r	n

Contractor

Project Northstov Client Homes an	ve Pha Id Con	se 2 nmunitie	es Agei	тсу		Project No. Ground Level (mAOD) S UA008426-01 5.55 0 Easting (OS mE) Northing (OS mN) E 541157.13 267268.13 0	tart Date 6/12/2010 nd Date 6/12/2010	5 1: 5 S	^{ale} 25 heet 1	of 1
SAMPL	ES		TEST	S	<u>ار</u> د	STRATA				Install
Depth	Type/	Depth	Type/	Results	Wate	Description	Legend	(Thickness)	Level	Backfi
0.10 0.10 - 0.30 0.10 - 0.30	ES B2 ES1	- - - - - - - - - - -				Grass over TOPSOIL; Firm light to dark brown slightly slity gravelly CLAY. Gravel is subangular and subrounded fine to medium of sandstone. [KIMMERIDGE CLAY FORMATION]	MELL MELL MELL MELL MELL MELL MELL MELL	(0.80)		
- - - - - - - - - - - - - - - - - - -	ES B4 D5	- - - - - - - 1.00 - 1.00	HV(1) HV(2) HV(3)	48()kPa 50()kPa 55()kPa		Firm to stiff light bluish grey slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine of sandstone and siltstone [KIMMERIDGE CLAY FORMATIO]		0.80	4.75	= = = = = = = =
1.00 - 1.20 - - - - -	E93	- - - - - -				Weak light bluish grey occasionally yellowish brown SILTSTONE		1.50	4.05	= = = = = = = = = =
1.70 - 1.90 1.70 - 1.90	B7 ES6	- - - - - - -				Stiff bluish light grey occasionally mottled red slightly sandy CLAY. Sand is fine. [KIMMERIDGE CLAY FORMATIO]		(0.30) 1.80 -	3.75	₩≡₩Ξ₩=₩ ≡₩≡₩≡₩≡ ₩≡₩≡₩≡₩
-		-						(1.30)	- - - - - - - - - -	= = = = = = = = = =
- 2.70 - 2.80 - 2.70 - 2.80 - 2.70 - 2.80 - 2.70 - 2.80	B9 D10 ES8	- 2.70 - 2.70 - 2.70 - 2.70 	HV(4) HV(5) HV(6)	103()kPa 105()kPa 117()kPa		Weak light bluish grey siltstone layer		-	- - - - - - - -	= = = = = = = =
								3.10	2.45	
	LS	1.8		Long Axi Shoring J Stability: Groundw	s Orientat / Support: Stable vater (des	Remarks tion: Pit terminated on engineers instruction at 3.10m at sch None cription): Dry	eduled dept	n.	ination I 3.10n	Depth:
Arcadis House St Mellor Business Cardiff, C	Cymru U ns D s Park TI CF3 0EY	nless other epth (m), Di hickness (m	wise state iameter (m n), Level (n	d: m), Time (hhmm nOD).),	Equipment Used Contractor JCB 3CX Arcadis Consulting (UK) Ltd	Lo	gged By	Checke	d By

Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Ager	тсу		Project N UA00 Easting 54128	No. 18426-01 (OS mE) 37.68	Ground Level (mAOD) 7.68 Northing (OS mN) 267184.81	Start 07/ End 07/	Date 12/2016 Date 12/2016	s∝ 1: 5 Sl	^{ale} 25 heet 1	of 1
SAMPL	ES		TEST	S	er			STRATA			Denth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Desc	ription		Legend	(Thickness)	Level	Backfill
- - 0.10 - 0.10 - 0.20 - 0.10 - 0.20	ES B2 ES1	-				Grass over TOPSOIL; Bla occasional rootlets. Sand mixed lithologies.	ck to brown slig is fine to coarse	htly clayey gravelly SAND with e. Gravel is subangular to rounded	fine of	NIZ:	(0.25)	7 /3	
- - - - - - - - - - - - - - - - - - -	B4	- - - - - -				Soft to firm light brown slig Gravel is subangular and [RIVER TERRACE DEPO	ghtly gravelly sa subrounded fin SITS]	ndy CLAY. Sand is fine to coarse. e of mixed lithologies.			0.25	7.43 	
- 0.70 - 1.00 - 0.70 - 1.00 - - - - - -	D5 ES3	- - - - - - - -									(1.15)	- - - - - - - - - - - - - - - - - - -	
-		- - - - - -				Soft to firm bluish grey mo [KIMMERIDGE CLAY FO]	ottled brown silt RMATION]	y sandy CLAY. Sand is fine to coars	se.	× × ×	1.40	6.28	₩₩₩₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩₩₩₩₩
- - 1.90 - 2.20 - 1.90 - 2.20 - 1.90 - 2.20 - 1.90 - 2.20	B7 D8 ES6	- - - - - - -									(1.60)	- - - - - - - -	: = = = = = = =
- - - - - - - - - - - - - - - - - - -	B10 D11 ES9	- - - - - 2.60 - 2.60 - 2.60 - -	HV(1) HV(2) HV(3)	101()kPa 107()kPa 95()kPa						x x x x x x x x x x		- - - - - - - - - -	: = = = = = = =
											3.00	4.68	
PLAN DETAI	LS			Los- A '	Oriante	ion:	Remarks	on engineers instruction at 2 00m	atechod				
0.6		3.6		Shoring Axi Stability: Groundw	s Oriental Support: Stable vater (des	ion: None cription): Dry	Pit terminated	on engineers instruction at 3.00m	at sched	luled dept	n. Term	nination	Depth:
Arcadis	Cymru	nless other	viso stator	4.		Equipment Used		Contractor		Log	gged By	Checke	ed By



roject Iorthstov lient Iomes ar	ve Pha nd Con	se 2 nmunitie	es Agei	тсу		Project No. Ground Level (mAOD) UA008426-01 7.27 Easting (OS mE) Northing (OS mN) 541445.81 267093.33	Sta 02 Enc 02	urt Date 2/12/2016 d Date 2/12/2016	5 1: 5 S	25 heet 1	of 1
SAMPL	ES		TEST	S	er	STRATA	_		Dant	_	Incto
Depth	Type/ No	Depth	Type/	Results	Waté Striké	Description		Legend	Depth (Thickness)	Level	Back
0.00 0.00 - 0.30 0.00 - 0.30 0.00 - 0.30	ES B2 D6 ES1	-				Grass over TOPSOIL; Soft brown sandy, slightly gravelly CLAY with abund roots and rootlets. Sand is fine to coarse. Gravel is subrounded fine to coar mixed lithologies.	ant se of	12:	(0.30)		
0.30 - 0.60 0.30 - 0.60 0.30 - 0.60	B4 D5 ES3	-				Very soft orangish brown slightly gravelly sandy CLAY. Sand is fine to coars Gravel is subangular fine to coarse of chert.	se.	NIC: NIZ: 	0.30	6.97	
		-				Stiff dark grey mottled brown silty CLAY.		× · · · · · · · · · · · · · · · · · · ·	0.60	6.67	
0.90 - 1.10	D11	- 0.75 - 0.75 - 0.75 -	HV(1) HV(2) HV(3)	100(60)kPa 86(58)kPa 90(48)kPa					· · ·		
1.20	ES	-				Pocket of orangish brown sandy GRAVEL of subangular, fine to coars	e chert		-	-	
1.20 - 1.30 1.20 - 1.90	ES6 B7	-									
		-							(2.30)		
		-				SILTSTON	E band		()	- - -	
		-								- - -	
2.50 - 2.60 2 50 - 2 90	ES8 B9	-							-		
		-									
2.90 - 3.00 -	D10	-				Very weak light grey SILTSTONE. [KIMMERIDGE CLAY FORMATION]		×××××× ××××××	2.90 (0.10) 3.00 -	4.37 - 4.27	
		-									
		-							-	-	
		-							- - - -	- - -	
		-								• • •	
		-							· · ·		
		-							-	-	
		-									
		-				Bomorio				_	
		2.0		Long Axi	s Orienta	ion: Pit terminated on engineers instruction at 3.00m	at sche	duled deptr	1		
.6				Shoring Stability:	/ Support: Stable	None					
				Groundv	vater (des	cription): Dry			Term	ination 3.00r	Depth N
Arcadis House	Cymru U	nless other	wise state	d:		Equipment Used Contractor		Log	gged By	Checke	ed By
St Mellor Busines Cardiff, 0	ns D s Park TI CF3 0EY	epth (m), Di hickness (n	iameter (m n), Level (n	m), Time (hhmm 10D).),	JCB 3CX Arcadis Consulting (UK	Ltd	AV	v	IP	

Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Agei	тсу		Project / UA00 Easting 54114	No. 18426-01 (OS mE) 14.79	Ground Level (mAOD) 5.81 Northing (OS mN) 267213.81	Start Date 06/12/20 End Date 06/12/20	16 16	^{Scale} 1:25 Sheet 1	l of 1
SAMPL	ES		TEST	S	بة 8			STRATA				la etell/
Depth	Type/	Depth	Type/	Results	Strike		Desc	ription	Lege	nd (Thicknes	s) Level	Backfill
- - 0.10 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 D3	- - - -	140.			Grass over TOPSOIL; Sol rootlets. Gravel is subang	ft dark brown sl ular and subro	ightly gravelly silty CLAY with occas unded fine of mixed lithologies.	ional	(0.30)		
- 0.10 - 0.30 - - - - - -	ES1	- - - - - -				Firm yellowish brown sligt of mixed lithologies. [RIVER TERRACE DEPO	ntly gravelly CL ISITS]	AY. Gravel is subangular to subrour	ided	0.30	5.51	
- - - - - - - 1.00 - 1.10 - 1.00 - 1.10 - 1.00 - 1.10	B5 D6 ES4	- - - - - - 1.00 - 1.00 - 1.00	HV(1) HV(2) HV(3)	100()kPa 79()kPa 93()kPa				Pocket of weak grou SILTS		(1.20)		
- - - - - -		- - - - - -				Firm bluish grey occasion	ally brown and	dark bluish grey slightly sandy silty		1.50	4.31	
- - - - - - - - - - - - -	ES	- - - - - - - - - - - - - - - - - - -	HV(4)	103()kPa		CLAY. Sand is fine to med [KIMMERIDGE CLAY FOI	lium. RMATION]					
2.00 - 2.20 2.00 - 2.20 2.00 - 2.20	D9 ES7	2.00 2.00 - - - - - - -	HV(6)	93()kPa				Pocket of weak of	Irey S	(1.50)		
- - 2.80 - 3.00 - 2.80 - 3.00 - 2.80 - 3.00 - 2.80 - 3.00	B11 D12 ES10									3.00	- 2.81	
		-										
		- - - - - - - - - - -										
- - - - - - - -		-										
PLAN DETAI	LS		•		•		Remarks					
		1.7		Long Axi	s Orientat / Support:	ion: None	Pit terminated	on engineers instruction at 3.00m a	at scheduled de	epth.		
				Groundy	vater (des	cription): Dry				Te	rmination 3.001	Depth: M
Arcadis	Cymru	nless other	wise state	4.		Equipment Used		Contractor		Logged By	Check	ed By



TP605

Project Northstowe Phase 2 ^{Client} Homes and Communities Agency						Project N UA00 Easting 54156	No. 1 8426-01 (OS mE) 5 2.75	Ground Level (mAOD) 6.41 Northing (OS mN) 266769.46	Star 02 End 02	rt Date / 12/2016 Date / 12/2016	6 13 6 S	^{Scale} 1:25 Sheet 1 of ⁻			
SAMPLE	ES		TESTS		ter <es< th=""><th></th><th></th><th>STRATA</th><th></th><th></th><th>Depth</th><th></th><th>Instal</th></es<>			STRATA			Depth		Instal		
Depth	Type/ No.	Depth	Type/ No.	Results	Stril		Desc	ription		Legend	(Thickness)	Levei	Backf		
0.00 0.00 - 0.40 0.00 - 0.40 0.00 - 0.40	ES B2 D3 ES1	-				Grass over TOPSOIL; Ver Sand is fine to coarse. Gra	y soft dark brov avel is subroun	vn slightly sandy, slightly gravelly ded, fine to coarse of mixed lithol	CLAY. ogies.		(0.40)				
0.40 - 0.50 0.40 - 0.90	ES4 B5	- - - -				Soft orangish brown slight subangular fine to coarse [RIVER TERRACE DEPO	ly gravelly sand of chert. SITS]	ly CLAY. Sand is fine to coarse. C	Gravel is		0.40	6.01			
0.90 0.90 	ES W11 ES6 B7	- - - - - -				Orangish brown sandy GF subrounded fine to coarse [RIVER TERRACE DEPO	RAVEL. Sand is of chert. SITS]	fine to coarse. Gravel is subangu	ılar and		0.90	5.51			
_		- - - - -									(0.80)				
1.70 - 1.80 1.70 - 1.80 1.70 - 2.60	D10 ES8 B9	- - - - -				Stiff grey mottled brown si [KIMMERIDGE CLAY FOF	lty CLAY. Occa RMATION]	sional relict plant matter.		× ×	1.70	4.71			
_		- - - - - - - -									(0.90)				
		- - - - - - -								<u>×_</u>	2.60	3.81			
-		- - - - -									-				
		-													
_		-									-				
		-													
		-													
_		- - -									-	‡ + -			
	_S	2.0		Long Axi	s Orientat	ion:	Remarks Pit terminated	on engineers instruction due to ra	apid grou	ndwater in	flow into pit.				
0.6				Shoring	Support:	None									
				Groundw	Stable vater (des	cription): Rapid groundwater inflow at 0.9					Tern	nination 2.60r	Depth:		
Arcadis C House AGS St Mellon Business	Cymru Uns Do s Park Th	nless other epth (m), Di hickness (m	wise stated: ameter (mm), I), Level (mOI	Time (hhmm)).),	Equipment Used	-	Contractor Arcadis Consulting (UK) Ltd	Lo	gged By	Checke	ed By		

^{roject} Iorthstowe Phase 2 ^{lient} Iomes and Communities Agency					Project No. Ground Level (mAOD) UA008426-01 8.17 Easting (OS mE) Northing (OS mN) 541675.15 265990.64			21/12/20 End Date 21/12/20	016 1 016 S	^{Scale} 1:25 Sheet 1		
SAMPLES		TESTS		3S SS	STRATA							
Depth Type No	e/ Depth	Type/ No.	Results	Wate Strike	Description				nd (Thickness)	Level	Ba	
0.10 B1 0.10 D2 0.10 ES 0.10 ES1	- - - - -				Grass over TOPSOIL; Da fine to coarse. Gravel is a abundant roots and rootle	irk brown slightl angular and sub ets.	y clayey slightly gravelly SAND. angular fine to coarse of flint. W	Sand is th	(0.36)			
	- - - - - - - - - - - - - -				Light orangish brown san and subangular fine to co [RIVER TERRACE DEPC	dy GRAVEL. Sa arse of flint. JSITS]	and is fine to coarse. Gravel is a	ngular	0.36	7.81		
1.00 B3 1.00 ES2									(1.24)			
1.70 B4	-				Light grey slightly gravely subangular fine to coarse	y SAND. Sand i	s fine to coarse. Gravel is angula	ar and	1.60 (0.20)	6.57		
										* * * * * * * * * * * * * * * * * * * *		
						Pemarks						
	2.5		Long Axi	s Orientat	on:	Pit terminated	on engineers instruction at 1.80) m due to water s	trike and pit wa	all collaps	se.	
.6 Shoring / Suppo Stability: Stable Groundwater (d					None 1.60 m Rapid inflow of groundwater at 1.63				Teri	mination 1.80r	Dep n	
Arcadis Cymru	Unless other	vise stated.			Equipment Used	1	Contractor		Logged By	Checke	ed E	

Project Northsto Client Homes a	Project Northstowe Phase 2 ^{Client} Homes and Communities Agency					Project N UA00 Easting (54167	No. 1 8426-01 (OS mE) 1 5.15	Ground Level (mAOD) Northing (OS mN) 265990.61	Start 16/ End 16/	Date 12/2010 Date 12/2010	ate Scal 2/2016 1:2 ate 2/2016 Sh		of 1	
SAME			теетс				STRATA							
Depth	Type/	Depth	Type/ No.	Results	Water Strikes		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill	
- 0.10 - 0.20 0.10 - 0.30	ES1 B1	- - -				Dark brown slightly gravel is fine to coarse. Gravel is [RIVER TERRACE DEPO	ly sandy CLAY angular fine to SITS]	with abundant roots and rootlets. o coarse of flint.	. Sand		(0.30)			
- 0.30 - 0.40 - 0.30 - 0.40 - 0.40 - 0.50 - 0.40 - 0.70	B2 ES2 ES3 B3	- - - -				Light brown sandy gravelly subangular fine to coarse [RIVER TERRACE DEPO Light brown clavey gravell	y CLAY. Sand i of chert. SITS] v SAND, Sanc	s fine to coarse. Gravel is angular	r and		0.30 (0.10) 0.40			
- 0.70 - 0.80	ES4	-				to coarse of chert. [RIVER TERRACE DEPO White SAND with abundar	SITS]	nts. Sand is fine.			(0.30) 0.70			
- 0.70 - 1.50 - - - - - - - - - - - - - - - -	84					[RIVER TERRACE DEPO	SITS]	yellowish brown	n SAND.		(1.50)	* * * * * * * * * * * *	= = = = = = = = = = = = =	
- - - - - - - - - - - -		- - - - - - - - - - - - - - - - - - -						Slight seepage a	<u>t 1.70m.</u>		-	* * * * * * * * *		
- 2.20 	W1										2.20	* * * * * * * * * * * * * *		
												* * * * * * * * * * * * * * * * * * *		
												- - - - - - - - - - - - - - - - - - -		
		-					Remarks							
	1LO	3.6		Long Axi Shoring /	s Orientat ' Support: Stable	ion: None	Pit terminated	on engineers instruction due to	rapid inflov	v of grour	idwater at ba	ase of pi	it	
				Groundw	ater (deso	Rapid inflow of cription): groundwater at 2.20					Term	nination 2.20r	Depth: N	
Arcad	is Cymru	nless other	viso statod:			Equipment Used	•	Contractor		Lo	gged By	Checke	ed By	

Pr N CI	oject orthstow ient omes an	ve Pha d Con	se 2 nmunitie	es Agen	су		Project N UA00 Easting 54155	No. 8426-01 (OS mE) 51.83	Ground Level (mAOD) 8.00 Northing (OS mN) 266249.28	Start 21/ End 21/	Date 12/2016 Date 12/2016	5 1: 5 SI	^{ale} 25 heet 1	of 1
	SAMPLE	ES		TESTS	6	۲ų			STRATA					
	Depth	Type/ No.	Depth	Type/ No.	Results	Wate Strike		Descr	iption		Legend	Depth (Thickness)	Level	Install Backfi
	0.10	B1 D2	-				MADE GROUND; Grass of Sand is fine to coarse. Gra	over dark brown avel is angular a	slightly clayey slightly gravelly S and subangular, fine to coarse of	AND. flint.	NIC	(0.23)		
-	0.10	ES1	-				MADE GROUND: Light gr	evish brown ara	avelly to very gravelly SAND with	hiah		0.23	7.77	
-	0.40	B3	-				cobble content. Sand is fir coarse of brick, concrete,	ne to coarse. Gr rebar and clinke	avel is angular and subangular, f er. Cobbles are subangular to ang	ine to gular of		(0.30)		
-	0.40 0.40 0.40	ES ES2	-				Soft orangish brown slight	ly gravelly sand	v CLAY Sand is fine to coarse G	Gravel is		0.53	7.47	
-	0.10	202	-				angular and subangular fir IRIVER TERRACE DEPO	ne and medium	of flint.					
			-									(0.61)		
-	0.90 0.90	B5 D6	-									(0.01)		
	0.90 0.90	ES ES3	-									-	-	
			-				Light yellowish orange sar	ndy GRAVEL. S	and is fine to coarse. Gravel is an	ngular		1.14	6.86	
-			-				[RIVER TERRACE DEPO	SITS]						
-			-											
			-									(0.91)	-	
-			-											
-			-											
			-											
-			-				Light grey slightly clayey lo	ocally clayey sil	ty SAND. Sand is fine and mediu	m.		2.05	5.95	
	2.15 2.15 2.15	B0 B7 D8	-					SITSJ				2.23	5.77	
			-											
-			-									-	-	
			-											
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			-											
P	AN DETAII	_S	-					Remarks						
		-	2.5		Long Axi	s Orientat	on:	Pit terminated	on engineers instruction at 2.23 r	m due to v	vater strike	e and pit wal	l collaps	se from
	Ţ													
					Shoring	Support:	None							
1	.6				Stability:	Stable to	2.05 m							
					Groundw	ater (deso	cription): Groundwater inflow at 2.00					Term	ination	Depth:
	⊥ └───												2.23r	1)



TP607

Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Agei	ncy		Project N UA00 Easting (54156	o. 3426-01 DS mE) 0.71	Ground Level (mAOD) 6.81 Northing (OS mN) 266491.57	Star 11 End 11	t Date /01/2017 Date /01/2017	, Sc 1: ∕ Sl	^{ale} 25 heet 1	of 1
SAMPL	ES		TEST	S	<u>ب</u> ۵			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Descr	iption		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10	B1	-				TOPSOIL; Very soft dark b coarse. Gravel is subangul	rown slightly gi ar and subrour	ravelly sandy CLAY. Sand is fine to nded fine to coarse of flint. With fre	o equent	NL:	(0.20)		
- 0.10 - 0.10	D3 ES	-				roots/rootlets (<1 mm x 12) Verv soft orangish brown s	0 mm). lightly gravelly	slightly sandy CLAY. Sand is fine t	to	NK	0.20	6.61	
0.10	ES2 B4	-				coarse. Gravel is subangul	ar and subrour	ided fine to coarse of flint and cha	lk.		(0.25)		
0.30	ES5	-				[RIVER TERRACE DEPOS	BITS] slightly gravel	Johnny. Ilv silty CLAY Gravel is subangula	r and		0.45	6.36	
- 0.60	B7	-				subrounded fine and media KIMMERIDGE CLAY FOR	um of flint.		. and	E			
- 0.60 - 0.60	D9 ES	-									(0.45)		
- 0.60	E58	-											
-		-		00/0011 D		Orangish brown gravelly S	AND. Sand is f	ine to coarse. Gravel is subangula	r and		0.90 (0.10)	5.91	
- 1.00	D11	- 1.00 - 1.00 - 1.00	HV(1) HV(2) HV(3)	80(36)kPa 80(40)kPa 82(38)kPa		[RIVER TERRACE DEPOS	SITS]				1.00 -	- 5.81	
-		-	110(3)	02(00)Ki a		With occasional orangish b	n depth dark gi rown ferrugino	us staining.	AY.				
-		-				[KIMMERIDGE CLAY FOR	MATION]						
-		-											
-		-									-	-	
-		-											
-		-											
-		-								F			
-		-								F	(2.00) -	-	
-		-								F		l	
-		-											
		-											
-		- 250	HV(1)	102(40)kPa							-		
-		- 2.50	HV(2) HV(3)	108(42)kPa 112(54)kPa									
-		-											
		-								<u> </u>			
-		-											
- 3.00 - 3.00	B12 D13	-									3.00 -	- 3.81	m=m
- PLAN DETAI	LS	-				<u> </u>	Remarks						
0.7		2.5		Long Axi Shoring Stability: Groundv	s Orientat / Support: Stable vater (dese	ion: None cription): Dry	Pit terminated	on engineers instruction at 3.00m	at scheo	duled dept	n. Term	ination	Depth:
												3.00r	n



Project Northstowe Phase 2 Client Homes and Communities Agency			тсу		Project N UA00 Easting 54097	No. 8426-01 (OS mE) 77.40	Start Date 10/01/201 End Date 10/01/201	7 1: 7 S	^{Scale} 1:25 Sheet 1 of				
SAMPL	ES		TEST	S	г s			STRATA				Install	
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	(Thickness)	Level	Backfil	
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	NO. B1 D3 ES ES2	- - - -	NO.			MADE GROUND; Very so subangular and subround	ft dark brown s ed fine to coars	ightly gravelly CLAY. Gravel is e of flint and brick.	NIZ:	(0.35)			
- 0.40 - 0.40 - 0.40 - 0.40 - 0.40 - 0.50 - 0.50	B4 D6 ES ES5 B7 D8	- - - 0.50 - 0.50 - 0.50 -	HV(1) HV(2) HV(3)	70(30)kPa 76(34)kPa 78(32)kPa		Soft orangish brown mottl subrounded fine to coarse [RIVER TERRACE DEPO Very stiff grey mottled ligh [KIMMERIDGE CLAY FOR	ed grey slightly of flint. SITS] t grey silty CLA RMATION]	gravelly CLAY. Gravel is subangula Y	ar and	0.35 (0.15) 0.50	6.15		
- - - - - - - - -										- - - (1.00) -			
- - - - 1.50 - 1.50 - -	B9 D10	- - - - 1.50 - 1.50 - 1.50 -	HV(4) HV(5) HV(6)	86(38)kPa 86(40)kPa 88(36)kPa		Very stiff grey mottled oran material. [KIMMERIDGE CLAY FOR	ngish brown CL RMATION]	AY. With occasional decayed orga	nic	1.50	5.00		
- - - - - - - -		- - - - - - - -								- - - - (1.10)			
- - - - - - - - - 2.50	B11 D12	-											
						Weak, light grey SILTSTO	NE RMATION]						
PLAN DETAI	LS	2.5	 	Long Axi Shoring Stability: Groundw	s Orientat / Support: Stable /ater (des	ion: None cription): Dry	Remarks Pit terminated	on engineers instructions at 2.60m	l due to refusal or	hard strata	nination	Depth:	
	Cymru	nless other	wise state] 		Equipment Used		Contractor	L	ogged By	2.60n	n ed By	

Project Northstowe Phase 2

Client Homes and Communities Agency

SAMPLES		TESTS		S	es	STRATA			Denth		Install/	
Depth	Type/	Depth	Type/	Results	Strik		Description	Legend	(Thickness)	Level	Backfill	
	NO.		NO.		- 0,		t dark brown dightly grouply condy CLAV. Cond in fine				m= m	
0.10	ES B2	=				to coarse. Gravel is subangular and subrounded fine to medium of mixed lithologies.					≝≣≝	
0.10 - 0.30									(0.40)		⋓∰⋓	
0.10 - 0.30	D3 ES1	-							(0.40)		≣⋓≣	
	-	-										
		-				Soft to firm light brown slic	htly gravelly silty sandy CLAY. Sand is fine to coarse	<u> </u>	0.40	7.95		
-		- - - - - - - - - - - - - - - - - - -		70()kPa 72()kPa		Gravel is subangular and subrounded fine and medium of mixed lithologies. [RIVER TERRACE DEPOSITS]	subrounded fine and medium of mixed lithologies. SITS]	X	-			
								X			≞≣≞	
	F.0							×	(0.60)		₩ ₩	
0.70 - 1.00	ES B5							×_×	(0.60)		≣∥≣	
0.70 - 1.00	D6		HV(1)				$\overline{}$					
0.70 - 1.00	E34	- 0.80	HV(3)	79()kPa				×				
_		-				Firm bluich grov condy Cl	AV Sand in fine to coarse		1.00 -	- 7.35	≣≣≣	
		-				[KIMMERIDGE CLAY FOR	RMATION]				쁘틊쁘	
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170 200									t I	≣⋓≡		
- 1.70 - 2.00	D9	-										
1.70 - 2.00	ES7	-							(1,70)			
		-							(≣∭≣	
-		-							- 1	_	≝≣≝	
		-										
-		-						\Box			≣∥≣	
-		-									쁘틊쁘	
		-										
		- - 2.50 - 2.50 - 2.50 - 2.50	HV(4) HV(5) HV(6)	79()kPa 81()kPa 81()kPa							≝≣≝	
-									-	-	▥▥ײ	
_												
-									0.70	5.05	≝≣≝	
- 2.70 - 3.00	D12					Firm bluish grey mottled brown sandy CLAY. Sand is fine to coarse.			2.70	5.05	⋓∰⋓	
2.70 - 3.00	ES10	-				[KIMMERIDGE CLAY FOR	RMATION]		(0.30)		≣⋓≡	
-		-							(0.00)			
		_							3.00 -	- 5.35	m <u>m</u> in:	
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PLAN DETAIL	-5						Remarks					
L		2.6		Long Axis	s Orientat	ion:	Pit terminated on engineers instruction at 3.00m at sche	duled dept	h.			
Shoring / Support: None					Support.	None						
					Ctoble							
Stability: Stable Groundwater (description): Groundwater inflow at 3.00					Stable	Groundwater			· -	in atta		
					ater (deso	cription): inflow at 3.00			Term	ination [Jepth:	
										3 00m		

Project No. UA008426-01

Easting (OS mE) 541080.74

Ground Level (mAOD) 8.35 Northing (OS mN) 267023.66



Contractor



Scale 1:25

Sheet 1 of 1

Start Date 14/12/2016

End Date 14/12/2016
Project Northstov Client Homes ar	Vorject Northstowe Phase 2 Jient Homes and Communities Agency					Project N UA00 Easting 5413(Project No. Ground Level (mAOD) S JA008426-01 7.80 0 casting (OS mE) Northing (OS mN) E 541301.13 267149.09 0			Date 2/2016 Date 2/2016	5 1: 5 S	^{Scale} 1:25 Sheet 1 of				
SAMPL	.ES		TESTS		ر م			STRATA								
Depth	Type/	Depth	Type/	Results	Wate		Descr	iption		Legend	Depth (Thickness)	Level	Install/ Backfill			
0.00 0.10 0.10 - 0.20 0.20 0.20 - 0.35	ES ES ES1 ES B2	- - - -				Soft dark reddish brown si Gravel is subangular and [RIVER TERRACE DEPO	lightly gravelly s subrounded fine SITS]	andy CLAY. Sand is fine to coarse to coarse of mixed lithologies.			(0.35)					
- 0.40 - 0.40 - 0.50 - 0.50 - 0.70 -	ES ES3 B4	-				Firm yellowish brown sligh subangular to rounded fin [RIVER TERRACE DEPO	ntly gravelly slig e and medium o SITS]	ntly sandy CLAY. Sand is fine. Grav f mixed lithologies.	vel is		0.35	7.45				
- - - -		-				Firm dark grey slightly sar [KIMMERIDGE CLAY FOF	ndy CLAY. Sand RMATION]	is fine to coarse.			0.70	7.10				
							-	Becoming very sandy	CLAY		-	- - - -				
- - - - - - -		-							-		-	-				
- 1.80 - 2.00 - 2.00 - 2.10	B5 ES6	- - - - - -							-		(2.30)	- - - - -				
- - - - - - -		-							- - - - - - - - - - - - - - 			- - - - - - -				
- - - - 2.90 - 3.00	ES7	- - - - - -							-			-				
											3.00 -	- 4.80	ш — ш			
		-									-	-				
- - - - - -		-									-	- - - - -				
-		-										- - - - -				
- - - - -		-									-	- - - -				
-		-										• -				
- PLAN DETAI	LS	-					Remarks									
		0.5		Long Axi	s Orientat	ion:	Pit terminated	on engineers instruction at 3.00m	at schedu	iled deptr	1.					
0.5				Shoring Stability:	Support: Stable	None										
Groun				Groundw	ater (des	cription): Dry					Term	ination 3.00n	Depth: N			
Arcadis	Cymru	nless other	wise stated			Equipment Used	1	Contractor		Log	gged By	Checke	ed By			

Project Northsto Client Homes a	orthstowe Phase 2 ent omes and Communities Agency					Project N UA00 Easting 54117	No. 1 8426-01 (OS mE) 7 0.18	Ground Level (mAOD) 6.95 Northing (OS mN) 267146.30	Start Date 07/12/2010 End Date 07/12/2010	5 1: 5 S∣	Scale 1:25 Sheet 1 of			
SAME	PLES		TES	S	ر ۵			STRATA						
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill		
- 0.00 - 0.10 - 0.10 - 0.20 - 0.10 - 0.20	ES ES B2 D3	- - - -	140.			Grass over TOPSOIL; Sof rootlets. Gravel is subang	ft dark brown s ular to rounded	ilty gravelly CLAY with occasional I fine and medium of sandstone.	× · · · · · · · · · · · · · · · · · · ·	(0.30)				
- 0.10 - 0.20 - - - - 0.50 - 0.80) ES1	-				Firm yellowish brown sligh Gravel is subangular to ro [RIVER TERRACE DEPO	ntly gravelly slig unded fine and SITS]	ghtly sandy silty CLAY. Sand is fine. I medium of mixed lithologies.		0.30	6.65			
- 0.50 - 0.80 - 0.50 - 0.80 	D6 ES4	-								(1.00)				
-		- - 1.00 - 1.00 - 1.00 -	HV(1) HV(2) HV(3)	80()kPa 85()kPa 95()kPa						_	-			
- - - - 1.50 - 1.80 - 1.50 - 1.80	B8 D9	-				Firm to stiff bluish grey sa [KIMMERIDGE CLAY FOR	ndy CLAY. Sar RMATION]	id is fine to coarse.		1.30	5.65			
- 1.50 - 1.80	ES7	-				Firm to stiff light bluish gre [KIMMERIDGE CLAY FOR	ey slightly sand RMATION]	y CLAY. Sand is fine to coarse. Weak light grev SILTSTONF ba		1.70	5.25			
- - - - - -		- - - - -								-	- - - - -			
- - - - 2.50 - 2.80 - 2.50 - 2.80 - 2.50 - 2.80	B11 D12 ES10	- - 2.40 - 2.40 - 2.40 - 2.40	HV(4) HV(5) HV(6)	75()kPa 84()kPa 87()kPa						(1.20)	- - -			
-						Weak light grey SILTSTO	NE.			2.90	4.05			
							RMATION			3.00 -	- 3.95	<u> </u>		
-		- - - - - - - - -								_	- - - - - - - - -			
-		-									- - - - - -			
-		-									- - - -			
-		-								-	-			
PLAN DET	AILS	0.4	,	Long Avi	s Orienta	ion:	Remarks Pit terminated	on engineers instruction at 3.00m at a	cheduled dept	'n		•		
		3.4		Shoring	/ Support:	None		a on engineers instruction at 0.0011 at 5						
0.7				Stability: Groundv	Stable vater (des	cription): Dry				Term	ination I	Depth:		
											3.00n	n		
Arcad	dis Cymru	nless other	wise state	d:		Equipment Used		Contractor	Lo	gged By	Checke	ed By		

Project Northstov Client	roject Iorthstowe Phase 2 lent Iomes and Communities Agency					Project N UA00 Easting (lo. 8426-01 (OS mE)	Ground Level (mAOD) 8.82 Northing (OS mN)	Start Date 07/12/2 End Date)16 ^s	6 1:25						
Homes an	nd Con	nmunitie	es Agei	псу		54107	3.76	266974.23	07/12/2	016 8	Sheet 1	of 1					
SAMPL	ES		TEST	S	ter kes			STRATA	I	Depth	Level	Install/					
Depth	Type/ No.	Depth	Type/ No.	Results	Stri		Desc	ription	Lege	nd (Thickness)		Backfill					
- 0.10 - 0.10 - 0.20 - 0.10 - 0.20	ES B2 ES1					Grass over TOPSOIL; Sof rootlets. Gravel is subangu	t dark brown sl ular to rounded	ghtly gravelly silty CLAY with occa fine to medium of sandstone.	asional <u>x_</u>	(0.30)							
- - - 0.50 - 0.80	B4	-				Soft yellowish brown sand [RIVER TERRACE DEPO	y CLAY. Sand i SITS]	s fine to coarse.		0.30	8.52						
- 0.50 - 0.80 - 0.50 - 0.80 - -	ES3	- 0.60 - 0.60 - 0.60	HV(1) HV(2) HV(3)	62()kPa 66()kPa 72()kPa						0.80	8.02						
-		- - - 				Firm bluish grey slightly gr Gravel is subangular and s [KIMMERIDGE CLAY FOF	avelly slightly s subrounded fin RMATION]	andy CLAY. Sand is fine to coars e to medium of mixed lithologies. Lan	e		+						
- - - -		- - - -						Pocket of yellowish brown sandy G	RAVEL								
- - - - 1.70 - 2.00 - 1.70 - 2.00	B7 D8									(1.60) (1.60)							
- - - - -	230	- - - -															
					Stiff bluish arey slightly ar	avelly CLAY Sa	and is fine to coarse. Gravel is		 2.40	6.42							
- - - - 2.70 - 3.00 - 2.70 - 3.00	70-3.00 B10 - 2.70 HV(4) 103()kPa 70-3.00 D11 - 2.70 HV(5) 105()kPa					subangular and subrounde [KIMMERIDGE CLAY FOF	ed fine to media RMATION]	um of mixed lithologies.		 							
2.70 - 3.00	ES9	- 2.70 	HV(6)	92()kPa						 	- 5.82						
PLAN DETAI	LS						Remarks		of open 1.2	anth							
		3.4		Long Axi	s Orientati / Support:	on: None	rit terminated	on engineers instruction at 3.00m	at scheduled d	ερτη.							
0.7				Stability:	Stable	Groundwater				T	mination	Denth:					
	Groundwat				vater (deso	seepage at 1.10m	10m				3.00m						
Arcadis	Arcadis Cymru					adis Cymru co unless otherwise stated Equipment Used					Fauinment Used	L	Contractor		Logged By	Check	ed Bv

Project Northsto Client Homes a	orthstowe Phase 2 ent omes and Communities Agency					Project N UA00 Easting (54119	No. 18426-01 (OS mE) 14.46	Ground Level (mAOD) 8.07 Northing (OS mN) 267048.01	Start Date 14/12/2016 End Date 14/12/2016	5 1: 5 S	^{Scale} 1:25 Sheet 1 of 1				
SAMP	LES		TESTS		۲ S			STRATA				la et ell (
Depth	Type/	Depth	Type/	Results	Strike		Desc	ription	Legend	Depth (Thickness)	Level	Backfill			
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 D3 ES1	- - - -				Grass over TOPSOIL; Sof to coarse. Gravel is suban lithologies.	t dark brown sl Igular and subr	ightly gravelly sandy CLAY. Sand is ounded fine to medium of mixed	fine	(0.40)					
- - - 0.50 - 0.80 - 0.50 - 0.80 - 0.50 - 0.80	B5 D6 ES4	-				Soft light brown slightly gra subangular and subround [RIVER TERRACE DEPO	avelly sandy C ed fine and me SITS]	LAY. Sand is fine to coarse. Gravel i dium of mixed lithologies.	S	0.40	7.67				
- - - -		-				Firm bluish grey slightly gr subangular and subround	ravelly sandy C ed fine to medi	LAY. Sand is fine to coarse. Gravel um of mixed lithologies.	is <u>state</u>	0.80	7.27				
- - - - - - - -		- - - - - -				KIMMERIDGE CLAY FOR	RMATIONJ	Pocket of c	iravel	-	* * * * * * *				
- - 1.50 - 1.80 - 1.50 - 1.80 - 1.50 - 1.80 - 1.50 - 1.80 -	B8 D9 ES7	- - - - -								(1.90)	- 				
- - - - - - -		- - - - - - -								-					
-		- - - - - -				Weak light grey SILTSTO	NE. RMATION]			2.70 (0.20)	5.37				
- 2.90 - 3.10 2.90 - 3.10 2.90 - 3.10	B11 D12 ES10	-				Firm bluish grey mottled b [KIMMERIDGE CLAY FOR	rownish orang RMATION]	e sandy CLAY. Sand is fine to coarse		2.90 (0.20) - 3.10	5.17				
PLAN DETA	AILS	•					Remarks		1						
0.6		3.4		Shoring Stability:	s Orientat / Support: Stable vater (des	ion: None cription): Groundwater inflow at 1.30	Pit terminated	on engineers instruction at 3.00m a	t scheduled dept	h. Tern	nination I 3.10n	Depth: 1			
Arcadi	is Cymru	nless other	wise stated:			Equipment Used	I	Contractor	Lo	gged By	Checke	d By			

Project Northstow Client Homes an	ve Pha d Con	ise 2 nmunitie	es Agenc	у		Project N UA00 Easting (54154	lo. 8426-01 ^{OS mE)} 10.55	Ground Level (mAOD) 6.84 Northing (OS mN) 266507.91	Start Date 11/01/201 End Date 11/01/201	7 13 7 S	^{Scale} 1:25 Sheet 1 of ⁷				
SAMPLE	ES		TESTS					STRATA		1					
Depth	Type/ No.	Depth	Type/ No.	Results	Water Strikes		Descr	iption	Legend	Depth (Thickness)	Level	Install/ Backfill			
- 0.10	B1	-				TOPSOIL; Very soft dark b subrounded of flint and ch	orown slightly gr alk.	avelly CLAY. Gravel is subangular ar	d sile	(0.20)					
- 0.10	ES	-				Soft orangish brown slight	v gravelly CLA	Gravel is subangular and subround	ed	0.20	6.64				
0.10 0.30	ES2 B4	-				fine to coarse of flint and c	halk. With frequ	uent roots/rootlets (<1 mm x 150 mm)	. <u> </u>	-	Į	<u></u>			
0.30	D6 ES5	-				[RIVER TERRACE DEPO	SITS]		<u> </u>	- (0.30)	ţ				
- 0.50	B7	-				Stiff arey mottled light area	slightly gravell	v silty CLAY Gravel is subangular an	d <u> </u>	0.50	6.34				
0.50	ES8	-				subrounded fine and medi	um of flint.			-	Ŧ				
-		-				RIVER TERRACE DEPO	SITSJ			(0.40)	Į				
-		-								-	ţ				
-		-					and is fine to co	area. Gravel is subangular and		0.90	5.94				
1.00	B10	-				subrounded fine to coarse	of flint.			. (0.10) 1.00 -	5.84	≝≣≝			
- 1.00	D11	-				[RIVER TERRACE DEPO	SITS] anth dark grev r	nottled grevish brown CLAX With	_/F =	-	ţ				
		-				occasional orangish browr	ferruginous sta	aining.			ţ				
		-				[KIMMERIDGE CLAY FOF	RMATION]			-	ŧ				
-		-								-	ŧ				
-		-								-	ļ				
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		-									ł				
		-								-	ł	≝≣≝			
		-								-	ł				
-		-								-	Ŧ				
-		-								(2.10)	Ī				
-		-									ŧ				
-		-								-	ţ				
		-								-	ţ				
-		-								-	ţ				
-		-								-	ł				
		-									ţ	⋓≣⋓			
		-								-	ł				
		-					-	becoming	silty	-	ł				
		-					-			-	ł				
											ł				
3.10	B12	_				Verv weak, light grev SILT	STONE			3.10	3.74				
3.10	DZ	-				KIMMERIDGE CLAY FOR	RMATION]		/		ł				
- 	_S				Oriontal		Remarks	on anningers instruction at 3 10m at							
1		2.5		Long Axis	Orientat	ion:	Pit terminated	on engineers instruction at 3.10m at	scheduled dep	th.					
0.7 Shoring / Support Stability: Stable Groundwater (des					Support: Stable ater (desc	None sription):				Tern	nination	Depth:			



Contractor



Project Northst Client Homes	thstowe Phase 2 nes and Communities Agency			ю		Project No. Ground Level (mAOD) S UA008426-01 6.81 4 Easting (OS mE) Northing (OS mN) 5 541600.47 266369.59 6	Start Date 12/01/2017 End Date 12/01/2017	7 1:25 7 Sheet 1		of 1
SAM	IPLES		TEST	S	er	STRATA		Dopth		Inetall/
Depth	Type/	Depth	Type/	Results	Vat Strik	Description	Legend	(Thickness)	Level	Backfill
- 0.10	B1 D3	-	110.			TOPSOIL; Very soft dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of flint. With frequent roots/rootlets (≤ 4 mm x 180 mm).		(0.15) 0.15	6.66	≡≡≡ ≡≡≡
0.10 0.20 0.20 0.20	ES2 B4 D6 ES5	-				Soft orangish brown slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of chalk. With occasional roots/rootlets (< 2 mm x 135 mm). [RIVER TERRACE DEPOSITS]		(0.45)		
- 0.60 - 0.60 - 0.60	B7 D9 ES8	- - -				Soft orangish brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular and subrounded fine to coarse of flint.		0.60	6.21	≡=== =================================
- 0.90 - 0.90	B B10	-				[RIVER TERRACE DEPOSITS] Orangish brown gravelly SAND. Sand is fine to coarse. Gravel is angular to		0.90 (0.10)	5.91	= = = = = =
1.00 1.00 1.00 1.00 1.00	B11 D13 ES ES12	- - - -				subrounded fine to coarse of flint. [RIVER TERRACE DEPOSITS] Firm to very stiff grey mottled greyish brown silty sandy CLAY with occasional orangish brown root traces and ferruginous staining. Sand is fine to coarse.		`1.00´ -	- 5.81	≡ ≡ ≡ ≡ ≡ ≡
		-				[KIMMERIDGE CLAY FORMATION]			- - - - - - - - - - -	= = = = = = = =
	B14 D15							(2.00) -		= = = = = = = =
- - - - - - - - - - - - - - - - - - -	TAILS					Remarks		3.00	- 3.81	
0.7	2.5 Long Axis Orientation: Shoring / Support: None					on: Pit terminated on engineers instruction at 3.00m at sc	neduled dept	1.		
	Stability: Stable Groundwater (descript				Stable vater (des	sription): Dry		Term	ination I 3.00n	Depth: 1

Project Northstowe Phase 2

Homes and Communities Agency

SAMPL	.ES		TESTS	;	er es		STRATA		Dopth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Description	Legend	(Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	-				MADE GROUND; Turf ove is fine to coarse. Gravel is occasional red brick.	er Soft brown slightly gravelly slightly sandy CLAY. Sand angular to subangular fine to coarse of flint, chalk and		(0.35)	7 39	
- - - - 0.60 - 0.60	B4 D6	-				MADE GROUND; Soft ora to coarse. Gravel is angula and brick.	ingish brown slightly sandy gravelly CLAY. Sand is fine ar to subrounded fine to coarse of flint, chalk, pottery		(0.55)	-	
- 0.60 	B7 ES8	- - - - -				Orangish brown very sand subangular to rounded fin	ty GRAVEL. Sand is fine to coarse. Gravel is e to coarse of flint and chalk.		0.90	6.84	
-	200	- - - - - -				INVERTERNAGE DEPO	5115]				= = = = = = = =
- - - - - - -		- - - - - - - -					Water ingress	Ţ	(1.30)		= = = = = = = = = = = = =
-		-				Grey SILT. KIMMERIDGE CLAY FO	RMATION]	/	2.20	5.54	
-											
-											
-		-									
- - - - -		- - - - -								-	
-		-									
-											
-		-							-		
- PLAN DETAI	 LS	-					Remarks				
		2.4		Long Axis	Orientati	on:	Water ingress at 1.60, slow to start then flow rate increa water ingress and water level monitored for 20 minutes.	sed. Pit ter	minated at 2	.20m due	e to
1.4				Shoring / Stability: : Groundwa	Support: Stable ater (desc	None water ingress at ription): 1.60m			Term	nination [Depth:

Project No. UA008426-01

Easting (OS mE 541596.47

Ground Level (mAOD)

7.74 Northing (OS mN) 266187.56



Contractor

2.20m

TP624

Scale 1:25

Sheet 1 of 1

Start Date 21/12/2016

End Date 21/12/2016

Project Northstow Client Homes an	ve Pha Id Com	se 2 nmunitie	s Agen	су	Project No. Ground Level (mAOD) Star UA008426-01 7.69 21 Easting (OS mE) Northing (OS mN) End 541651.06 266100.01 21				Start 21/ End I 21/	Date 12/2016 Date 12/2016	5 1: 5 S	^{Scale} 1:25 Sheet 1		
SAMPLE	ES		TESTS	3	ـ ۵			STRATA						
Depth	Type/	Depth	Type/	Results	Water		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill	
- - 0.10 - 0.10 - 0.10	B1 D3 FS					MADE GROUND; Turf ove is fine to coarse. Gravel is occasional red brick.	er soft brown sl angular to sub	ightly gravelly slightly sandy CLAY. Sar angular fine to coarse of flint, chalk and	nd d		(0.25)			
0.10	ES2	- - -				Soft brown slightly sandy of and subangular fine to coa [RIVER TERRACE DEPO	gravelly CLAY. arse of flint cha SITS]	Sand is fine to coarse. Gravel is angula lk. Occasional rootlets (, 1 mm x 80 mn	ar n).		0.25	7.44		
- 0.50 - 0.50	B4 D6	-						Relic cable Relic cable	es es			-	■Ⅲ≡ Ⅲ≘Ⅲi	
- 0.50 - - - -	ES5	-				Soft grey mottled orangish to subrounded fine to coar [KIMMERIDGE CLAY FOF	i brown slightly se of chalk and RMATION]	gravelly silty CLAY. Gravel is subangul I flint.	ar		0.60	7.09		
- - 1.00 - 1.00 - 1.00 - 1.00	B7 D9 ES ES8	- - 									-			
-		- - - -								×_*_; ×_*_; 	(1.40)			
-		-								× × ×				
- - - - 2.00	B10	- - - - -				Soft brownich grow motiles	t dark grov ala	2004 SILT		×	2.00 -	- 5.69		
- 2.00 - - - -	D11	- - - -				[KIMMERIDGE CLAY FOF	RMATION]	ley SILI.						
-		- - - - -									(1.00)			
- - - -		- - - -									3.00 -	- 4.69		
- - - - - - - - - - - - - - - - - - -	_S	2.5		Long Axia	s Orientat	on:	Remarks Pit terminated	on engineers instruction at 3.00m at so	ched	uled depth	. Pit becam		ble from	
1.4	1.4 Shoring / Support: No				Support:	None	12.00m.							
Gr					ater (deso	ription): Water seepage from 0.60m					Tern	nination 3.00r	Depth:	



TP625

Project Northstow Client Homes an	ve Pha d Com	se 2 nmunitie	es Agei	псу		Project N UA00 Easting (54125	No. Ground Level (mAOD) S 8426-01 6.08 0 (OS mE) Northing (OS mN) E 51.01 267319.31 0			Date 12/2016 Date 12/2016	sc 1: 5 SI	^{Scale} 1:25 Sheet 1 of		
SAMPLE	ES		TEST	S	_ ە			STRATA						
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill	
- - 0.10 - 0.10 - 0.20 - 0.10 - 0.20	ES B2 ES1	-	140.			MADE GROUND: Grass of rootlets. Sand is fine to co mixed lithologies.	over dark browr arse. Gravel is	n to black gravelly SAND with occa subangular to rounded fine to me	asional dium of		(0.30)			
- - - 0.40 - 0.40 - 0.70	ES B4	-				MADE GROUND: Light br to subrounded fine to coar	own gravelly fi se of brick, cer	ne to coarse SAND. Gravel is suba ramics and glass.	angular		0.30	5.78		
-	E00	-				Very stiff brownish grey sa	indv CLAY. Sar	nd is fine to coarse.			0.70	5.38		
- - - - 1.00 - 1.00	ES B6	- - - - -				KIMMERIDGE CLAY FOR	RMATION]				-	- - - -		
- 1.00 - 1.20 - 1.00 - 1.20 	D7 ES5	- - - -									(1.10)			
-		- - - - -									-	- - - -		
- - 1.80 - 2.00 - 1.80 - 2.00 - 1.80 - 2.00 	B9 D10 ES8	- - 1.80 - 1.80 - 1.80 -	HV(1) HV(2) HV(3)	112()kPa 115()kPa 120()kPa		Stiff brown and bluish grey coarse. [KIMMERIDGE CLAY FOF	/ becoming dai	k bluish grey sandy CLAY. Sand is	s fine to		1.80	4.28		
-		- - - -						Weak light grey SILTSTON	E band		-	-		
- - - - -		- - - -							I		(1.20)	• • • •		
- 2.80 - 3.00 - 2.80 - 3.00 - 2.80 - 3.00 	B12 D13 ES11	- 2.80 - 2.80 - 2.80 - 2.80 -	HV(4) HV(5) HV(6)	101()kPa 107()kPa 110()kPa							3.00 -	- 3.08		
							Remarks							
	3.1 Long Axis Orientation:						Pit terminated	on engineers instruction at 3.0m	at schedu	led depth.				
0.8 Stability: Stable Groundwater (des					Stable ater (des	cription): Dry					Term	ination	Depth: n	





Proje NO Clier	r thstow t	ve Pha	se 2				Project N UA00 Easting (No. 8426-01 (OS mE)	Ground Level (mAOD) Northing (OS mN)	Start 05/ End [Date 12/2016 Date	5 1:	^{ale} 25				
но	mes an	d Con	munitie	es Ager	ісу		54125	51.86	267262.78	05/	12/2016	5 S	Sheet 1 Of 1				
	SAMPLE	ES Turna (TEST	S	ater ikes			STRATA			Depth	Level	Install/			
	Depth	No.	Depth	No.	Results	Str		Descr	iption		Legend	(Thickness)	2010.	Backfill			
	0.10 0.10 0.10	B2 ES ES1	- - -				MADE GROUND: Grass o to coarse. Gravel is angula ceramics, glass and red bi	over black to dan ar to sub-angula rick.	rk brown, sandy GRAVEL. Sand is find ar, fine to coarse of ash and clinker,	e		(0.35)					
-	0.35 0.35 0.35	B4 ES ES3	- - - - - -				Soft to firm, yellowish brov Gravel is sub-angular to si [RIVER TERRACE DEPO	vn, slightly grav ub-rounded, find SITS]	elly sandy CLAY. Sand is fine to coars e of flint and chalk.	e.		0.35					
	1.00 1.00 1.00	B6 D7 ES5	- - - - - - -									(1.25)					
-			-				Firm, light bluish grey, slig	htly gravelly sa	ndy CLAY. Sand is fine to coarse. Gra	vel		1.60					
_	2.00 2.00 2.00	B9 D10 ES8	- - - - - 2.00 - 2.00	HV(1) HV(2) HV(3)	55()kPa 60()kPa 80()kPa		is sub-angular to sub-roun [KIMMERIDGE CLAY FOF	Ided, fine of finn RMATION] _ -	and chaik. Weak, bluish grey SILTSTON	IE.		-					
-			-									(1.40)					
	3.00 3.00 3.00	B12 D13 ES11	- - - - 3.00 - 3.00 - 3.00	HV(4) HV(5) HV(6)	105()kPa 65()kPa 85()kPa							3.00 -		≕ : = = = :			
-																	
PLA	N DETAIL	S				•		Remarks					. 1				
0.7 Long Axis Orientation: Shoring / Support: Nor Stability: Stable Groundwater (descript					Long Axis Shoring / Stability: Groundw	Support: Stable ater (deso	ion: None sription): DRY	No groundwate Pit terminated	er encountered. on reaching target depth.			Tern	nination D	Depth:			
-	L L												3.00m	I			





TP627

Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Ageno	;y		Project N UA00 Easting 54162	No. 1 8426-01 (OS mE) 2 3.96	Ground Level (mAOD) 6.39 Northing (OS mN) 266533.34	Star 13 End 13	rt Date /01/2017 Date /01/2017	y 1: y SI	^{ale} 25 heet 1	of 1
SAMPL	ES		TESTS		r ss			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desci	iption		Legend	Depth (Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES	-	No.			TOPSOIL; Very soft dark l subrounded fine to coarse	brown slightly g of flint.	ravelly CLAY. Gravel is subangu	lar and	312	(0.30)		
- 0.40 - 0.40 - 0.40 - 0.40	B4 D6 ES5	- - - - - -				Soft orangish brown slight fine to coarse of flint and o [RIVER TERRACE DEPO	ily gravelly CLA chalk. SITS]	Y. Gravel is subangular and sub	rounded		0.30	6.09	
- - - - -	BZ	- - - -				Soft to firm grey mottled lin	ght grey slightly	sandy slightly gravelly silty CLA	Y. Sand With		0.90	5.49	
- 1.00 - 1.00 	D9 ES8					frequent orangish brown fr [KIMMERIDGE CLAY FO	erruginous stair RMATION] Ten	ling. ding to slightly sandy slightly grav	relly clay.		(1.10)	- - - - - - - - - -	
- 2.00	B10	- - - - - -				Stiff grey silty CLAY. With	frequent selenit	e crystals (≤ 2 mm x 4 mm).			2.00 -	- 4.39	
2.00	ES					[KIMMERIDGE CLAY FOF					(0.40)	3.99	
- - - - - -		- - - - - -				[KIMMERIDGE CLAY FO Very stiff grey silty CLAY. 1 [KIMMERIDGE CLAY FO]	RMATION] With frequent se RMATION]	elenite crystals (≤ 4 mm x 6 mm)).		(0.15) 2.55 (0.45)	3.84	
- 3.00 - 3.00 - 3.00 	B12 D13						Remarks				3.00	- 3.39	
0.7	2.5 Long Axis Orientation: 0.7 Shoring / Support: None Stability: Stable Groundwater (description): Dry						Pit terminated	on engineers instruction at 3.00	m at schei	duled depti	n.	ination I	Depth:
	Cymru	nless other	wiso statod:]		Equipment Used		Contractor		Lo	gged By	3.00n Checke	ed By

Project Norths Client Homes	towe Pha	ase 2 mmunitie	es Agenc	;y		Project N UA00 Easting († 54167	lo. 8426-01 (OS mE) 70.10	Ground Level (mAOD) 6.09 Northing (OS mN) 266499.16	Sta 13 Enc 13	rt Date 5/01/2017 5 Date 5/01/2017	, Sc 1: 2 SI	^{ale} 25 neet 1	of 1
SAN	IPLES		TESTS		L S		:	STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Descri	ption		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	No. B1 D3 ES ES2	- - - -	No.		- 0)	Grass over TOPSOIL; Very CLAY. Sand is fine to coars of flint. Frequent rootlets.	y soft dark brow se. Gravel is su	n slightly gravelly slightly sandy s bangular and subrounded fine to	ilty coarse		(0.30)		
0.30 0.30 0.30	B4 D6 ES5	-				RIVER TERRACE DEPOS	SITS SITS]				(0.20)	5.79	
- 0.50 - 0.50 - 0.50	ES B7 D9 ES8					RIVER TERRACE DEPOS	SITS SITS]				0.50	- 5.59	
- 0.90	B10	-				Firm becoming stiff grey m fine to coarse with pockets [KIMMERIDGE CLAY FOR	nottled brown sli s up to 10 x 10 x RMATION]	ghtly sandy slightly silty CLAY. Sa 10 mm.	ind is		0.70	5.39	
- 0.90 - 0.90 	ES1	-											= = = = = = =
- - - - - -		- - - - -					_				(2.30)	-	
- 2.10 - 2.10 - 2.10 - 2.10	B3 D5 ES4					Becom	ing firm with der	th. Pockets of selenite crystals (<	1 mm).				
											3.00 -	3.09	
		2.1		Long Axis Shoring / Stability:	Support: Stable	ion: None	Remarks Pit terminated (on engineers instruction at 3.00m	at sche	duled deptł	ı. 		
Ground					ater (des	cription): Dry					Term	ination 3.00n	Depth:
Arc	adis Cymru	Inless other	wise stated:			Equipment Used		Contractor		Lo	aged By	Checke	ed By



Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Agei	ісу		Project N UA00 Easting 5413	No. 1 8426-01 (OS mE) 5 0.21	Io. Ground Level (mAOD) State 8426-01 7.63 01 OS mE) Northing (OS mN) End 50.21 267191.96 01			5 1: 5 S	ale 25 heet 1 of 1
SAMPL	ES		TEST	S	L S			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level Backfi
0.00 0.00 - 0.40 0.00 - 0.40	NO. ES B1 ES2		No.			Grass over TOPSOIL; Sof	ft slightly sandy	CLAY with rootlets. Sand is fine		IL NG	(0.40)	
- 0.40 - 0.40 - 1.30 	ES4 B3					Firm light orangish brown [RIVER TERRACE DEPO	sandy CLAY. S SITS] -	and is fine to coarse. Becoming very	sandy		0.40	
		- - - - - - -									(0.90)	
- 1.30 - 1.30 - 1.30 - 3.00 	ES ES6 B5					Stiff dark bluish grey silty [KIMMERIDGE CLAY FO	CLAY. RMATION]				1.30	
		- 2.80	HV(1)	170(28)kPa							(1.70)	
		- 2.80 - 2.80 - 2.80 	HV(2) HV(3)	/6(20)KPa 78(30)kPa						× · · · · · · · · · · · · · · · · · · ·	3.00 -	
	LS	3.0		Long Axi	s Orientat	ion:	Remarks Pit terminated	on engineers instruction at 3.00m	at schedu	led dept	٦.	
0.5				Shoring A Stability:	Support: Stable	None					-	singitis - D
Groundwater (descript						cription): Dry					Tern	3.00m
Arcadis	Cymru	nless other	wise state	ŀ		Equipment Used		Contractor		Lo	gged By	Checked By



TP632

Project Northstov Client Homes an	ve Pha nd Con	se 2 nmunitie	es Agei	псу		Project N UA00 Easting 54159	No. Ground Level (mAOD) Start Date 18426-01 6.23 02/12/2016 (OS mE) Northing (OS mN) End Date 93.50 266709.86 02/12/2016				^{Scale} 1:25 Sheet 1 of		
SAMPL	ES		TEST	S	ر ه			STRATA					
Denth	Type/	Denth	Type/	Results	Nate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill	
Bopui	No.	Dopui	No.	- Roodiko	- 0)	Verv soft dark brown sligh	tly sandy CLAY	with rare rootlets. Sand is fine to				M≡M:	
0.10	ES	-				coarse.					I	≣≞≣	
0.10 - 0.20	B1	-				RIVER TERRACE DEPO	5115]			(0.40)			
0.20 - 0.30	03	-									ļ		
- 0.40 - 0.70 - 0.40 - 0.90	D4 B5	-				Stiff dark orangish brown	sandy CLAY wi	th rare rootlets. Sand is fine to coarse.		0.40	5.83		
-		-				[RIVER TERRACE DEPO	SITS]				ł		
E		0.70		102(49)kBo						(0.50)	ł		
E		0.70	HV(1) HV(2)	105(50)kPa	_						I		
- 0.90 - 1.10	D7	0.70	HV(3)	83(58)KPa						0.90	5.33		
- 0.90 - 3.00	B8 ES	-				Very stiff dark bluish grey [KIMMERIDGE CLAY FOR	silty CLAY. RMATION]				0.00		
1.00 - 1.10	ES6	-										≝≣≝	
-		-											
-		-									ł		
E		-									I		
_		_									ł		
-		-						pocket of SAND & GRAV					
-		-									ł		
-		-											
	500	-								(2.10)			
-2.00 - 2.10	ES9	-								-			
- 2.10-2.20		-									I		
_		-									ł		
-		-									ļ		
-		-									-		
-		-									ł		
-		-									ł		
- 2.80 - 3.00	D12	-									Ì		
2.90 - 3.00	ES11	-									I		
-		-								3.00 -	3.23	ш = ш:	
-		-											
-		-											
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PLAN DETAIL	LS					•	Remarks		abodulad				
⊢		2.6		Long Axi	s Orientat	ion:	Pit terminated	on engineers instruction at 3.00m at s	scneauled dept	1.			
				Shoring	Sunnort	None							
0.6				Stability	Stable								
				Groundy	/ater (deso	Water ingress from				Tern	nination I	Depth:	
						•••• / U.90m					3.00n	n	
											5.501	••	
Arcadis House	Cymru U	nless other	wise state	d:		Equipment Used		Contractor	Lo	gged By	Checke	ed By	
AGS Business Cardiff, C	ns D s Park T CF3 0EY	epth (m), Di hickness (n	ameter (m ı), Level (n	m), Time (hhmm ìOD).),	JCB 3CX		Arcadis Consulting (UK) Ltd	d W	В	IP		

Project Northst Client Homes	^{troject} Northstowe Phase 2 ^{Client} Homes and Communities Agency				Project N UA00 Easting (54161			Ground Level (mAOD) 6.52 Northing (OS mN) 266483.47	Start Date 12/01/201 End Date 12/01/201	7 1: 7 S	Scale 1:25 Sheet 1 c		
SAM	PLES		TEST	S	- S			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install Backfi	
0.00 0.10 0.10 0.10 0.10 0.10	ES B1 D3 ES ES2	- - - - 0.20 - 0.20 - 0.20 - 0.20	HV(1) HV(2) HV(3)	60()kPa 70()kPa 70()kPa		Firm brown slightly sandy subangular and subround [RIVER TERRACE DEPO	gravelly CLAY ed fine and me SITS]	Sand is fine to coarse. Gravel is dium of flint.		(0.40)			
- - 0.50 - 0.50 - 0.50	B4 D6 ES5	- - - - 0.60 - 0.60	HV(4) HV(5)	120()kPa 70()kPa		Firm to stiff orangish brow fine to coarse. [RIVER TERRACE DEPO	n slightly sand SITS]	y CLAY with occasional rootlets. Sa	and is	0.40	6.12		
-		- 0.80 HV(7) 100()kPa - 0.80 HV(7) 100()kPa - 0.80 HV(8) 110()kPa - 0.80 HV(9) 120()kPa				Firm to stiff grey mottled b coarse. Gravel is subangu [RIVER TERRACE DEPO	1 to stiff grey mottled brown slightly sandy gravelly CLAY. Sand is fine to rse. Gravel is subangular and subrounded fine and medium of flint. /ER TERRACE DEPOSITS]				5.72		
-		-								(0.60)			
- - 1.50 - 1.50 - 1.50 - 1.50 - 1.50	B7 D9 ES ES8	-				Brown slightly gravelly cla and subrounded fine to co [RIVER TERRACE DEPO	yey SAND. Sa parse of flint. SITS]	nd is fine to coarse. Gravel is subar	ngular	1.40 (0.25) 1.65	5.12 4.87		
- 1.80 - 1.80 - 1.80 - 1.80 - 1.80	B10 D12 ES ES11	- - - - - - -				1 x 5 mm. [KIMMERIDGE CLAY FO]	RMATION]						
-		- 2.30 - 2.30 - 2.30 - 2.30 	HV(10) HV(11) HV(12)	80()kPa 80()kPa 80()kPa						(1.15)		;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	
- - - - -				Stiff grey CLAY with pockets of fine selenite crystals in < 5 x 5 x 5 mm pockets. Sand is fine to coarse. [KIMMERIDGE CLAY FORMATION]			ets.	2.80	3.72				
-		-								3.20	3.32		
											<pre> + + + + + + + + + + + + + + + + + + +</pre>		
- PLAN DE	TAILS	-					Remarks			-	+		
0.8		2.0		Long Axi	s Orientat / Support: Stable	ion: None	Pit terminated	on engineers instruction at 3.20m	at scheduled dept	h.			
	Groundwater (descri					cription): Dry				Tern	nination 3.20n	Depth: n	
Arca	dis Cymru	nloss other	wiso stato	4.		Equipment Used	1	Contractor	Lo	ogged By	Checke	ed By	

Project Northstowe Phase 2 ^{Client} Homes and Communities Agency						Project N UA00 Easting (5415 4	ect No. Ground Level (mAOD) Start Date \008426-01 7.07 12/01/2017 ting (OS mE) Northing (OS mN) End Date 1545.92 266436.36 12/01/2017				Scale 1:25 Sheet 1 of			
SAM			TESTS	-				STRΔTΔ						
Depth	Type/ No.	Depth	Type/ No.	Results	Water Strikes		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill		
- 0.10 - 0.10 - 0.10	B1 D3 ES	-				TOPSOIL; Very soft dark t fine to coarse. Gravel is su frequent roots/rootlets (≤ 4 Very soft orangish brown s	brown slightly g ubangular and s mm x 180 mm slightly gravelly	ravelly slightly sandy silty CLAY. San subrounded fine to coarse of flint. Wit I). CLAY. Gravel is subangular to round	d is the second	(0.15) 0.15	6.92			
0.10 0.40 0.40	B4 D6	- - - -				fine to coarse of flint and c mm). [RIVER TERRACE DEPO	chalk. With occa	asional roots/rootlets (< 2 mm x 135		(0.40)	•			
- 0.40 - 0.70 - 0.70 - 0.70 - 0.70 - 0.70	ES5 B7 D9 ES ES8	- - - - - - -				Soft to firm grey mottled g subangular to rounded fin [KIMMERIDGE CLAY FOF	reyish brown sl e to coarse of fl RMATION]	ightly gravelly CLAY. Gravel is int and chalk.		0.55	6.52			
- - - - - - -		- - - - - - -								(1.20)	- - - - - - - -			
- - 1.50 - 1.50 - -	B10 ES11	- - - - - -					pocket (20	10 mm x 500 mm) of orange gravelly s	and.	1.75	5.32			
- 1.80 - 1.80 - 1.80 - 1.80 - 1.80 	B12 D14 ES ES13	- - - - - - - - - -				Stiff grey mottled greyish f mm x 2 mm). [KIMMERIDGE CLAY FOF	Drown Silty CLA	Y. With frequent selenite crystals (<			· · · · · · · · · · · · · · · · · · ·	═ ═ ═ ═ ═ = = =		
										(1.35)	- - - - - - - - - - - -	₩₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩		
- - - - - -		-								3.10	3.97			
- - - - - - - -		- - - - - - - -								-	- - - - - - -			
- - - - - -		- - - - - -								-	- - - - - - -			
		- - - - -								-	• • • • •			
		- - - -								- - -	• • • •			
- PLAN DE	 TAILS	-					Remarks							
		2.5			s Orientati	on:	Pit terminated	on engineers instruction at 3.10m at	scheduled dept	٦.				
0.7				Shoring / Stability:	Support: Stable	None								
	Groundwater (descr				ater (desc	cription): Dry				Term	ination I 3.10n	Depth: N		
Arca	idis Cymru	Jnless other	wise stated:			Equipment Used	I	Contractor	Lo	gged By	Checke	ed By		



Project Northstowe Phase 2 ^{Client} Homes and Communities Agency			су	Project N UA00 Easting (54110			Ground Level (mAOD) 9.14 Northing (OS mN) 266149.55	Start Date 28/11/2016 End Date 28/11/2016	5 1 5 S	^{Scale} 1:25 Sheet 1 of ⁻		
SAMPI	FS		TEST	с С				STRATA				
Depth	Type/	Depth	Type/	Results	Nater		Desc	rintion	Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 0.30 0.30	ES ES3		No.		- 0	Grass over TOPSOIL Dark brown clayey, gravell coarse predominantly of cl [RIVER TERRACE DEPO	y fine to coars hert. SITS]	e SAND. Gravel is subrounded, fin	e to	(0.16) 0.16	8.98	
- 0.30 - 0.50	B2	-								(0.64)	+ + + + + + + + + +	
- 0.80 - 0.80 - 1.00 	ES5 B4	- - - -				Yellowish brown gravelly fi fine to coarse of mixed lith [RIVER TERRACE DEPO	ne to coarse S ologies. SITS]	AND. Gravel is angular to subang	ular,	0.80 (0.50)	8.34	
- - - 1.30 - 1.30 - 1.50	ES7 B6	-				Stiff to very stiff light greys	slightly gravelly	silty CLAY. Gravel is angular to		1.30	7.84	
-		- - - - - - - - - - - - -				[RIVER TERRACE DEPO	SITS]			(0.80)		= = = = = = = = = = = = =
- - - 2.10	ES8					Vollowich brown vor arou	ally find to opp	an SAND. Cravel is subangular to		2.10	7.04	
- 2.10 - 2.30 - - - 2.40	B9	- - - - - 240	HV(1)	40(18)kPa		subrounded, fine to caorse [KIMMERIDGE CLAY FOR	eny nine to coa e of predomina RMATION]	se SAND. Glave is subangular to		(0.30)	674	
- 2.40 - 2.40 - 2.50	W14 D11	- 2.40 - 2.40 	HV(2) HV(3)	62(30)kPa 68(28)kPa		Very stiff light grey sandy 5 [KIMMERIDGE CLAY FOF	SILT. Sand is fi RMATION]	ne to medium.	× × × × × × × × × × × × × × × × × × × ×	(0.35)		
- 2.75 - 2.75 - 2.90 -	ES13 B12	-				Yellowish brown very grav subrounded, fine to caorse [KIMMERIDGE CLAY FOR	elly fine to coa of predomina RMATION]	rse SAND. Gravel is subangular to htly chert.		2.75 (0.25)	6.39	
PLAN DETAI	LS	F	1				Remarks		d dopth		1	<u> </u>
0.6		2.5		Shoring / Stability: Groundw	s Orientati Support: Stable rater (desc	on: None Groundwater ription): inflow into pit at	rerminated or	engineers instruction at schedule	u deptn.	Term	nination	Depth:
	Cymru					Z.40M.		Contractor			3.00r	n d By





Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Ageno	су.		Project f UA00 Easting 54074	No. 1 8426-01 (OS mE) 40.61	Ground Level (mAOD) 8.93 Northing (OS mN) 266945.79	Start Date 19/12/2016 End Date 19/12/2016	5 1: 5 S	^{:ale} :25 heet 1	of 1
SAMPL	ES		TESTS		بد 8			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
	No.		No.		- 07	TOPSOIL · Grass over sof	t brown slightly	sandy slightly gravelly CLAY Sand is				m≡m:
- 0.10	ES	-				fine to coarse. Gravel is s	ubangular to ar	igular, fine and medium of flint.		(0.20)	Ī	
- 0.10	EST	F								(0.30)	Ŧ	
F		-				Soft light brownish orange	e slightly gravel	v slightly sandy CLAY. Sand is fine to		0.30	8.63	
-		-				coarse. Gravel is subangu	ular to angular,	fine and medium of flint.			ł	
F		<u> </u>				RIVER TERRACE DEPO	5115]			(0.45)	Ŧ	
-									- 홍홍		ł	
		_								0.75	8 18	
0.80	B1	_				Light brownish orange slig Gravel is subangular to an	phtly clayey gra	velly SAND. Sand is fine to coarse.	· · · · ·	0.70	1 0.10	<u>∭</u>
0.80	ES	-				[RIVER TERRACE DEPO	SITS]			(0.25)	ł	
0.80	E52	-				Light brownish orange slig	ghtly clayey ver	y sandy GRAVEL. Sand is fine to coar	se.	1.00 -	7.93	
-		-				Gravel is subangular to an	ngular, fine to c	barse of flint.			ł	
-		_				INVERTERRACE DEFO	5115]				ł	
-		-									ł	∭≝∭
-		-								(0.80)	ļ	
-		-									ł	≣∥≣
-		-									ļ	
-		-									ł	
-		-				Stiff dark bluish grey sligh	tly sandy slight	ly gravelly silty CLAY. Sand is fine.	×	1.80	7.13	
-		-				Gravel is fine, subrounded	d to subangular RMATION1	of flint.	<u></u>		ļ	
2.00	B3 D4	-								-	ŧ	
2.00	ES3	-									ţ	
-		-									ŧ	▥▦▥
-		-							×		1	
-		-							×		ţ	
-		-							×_×_	(1.40)	ţ	
F		-							<u></u>		ŧ	
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										-	- - - - - - - - - - - - - - - - - - -	
		2.5		Long Axi Shoring Stability: Groundw	s Oriental / Support: Stable /ater (des	ion: None cription): Water ingress at 1.80m	Remarks Pit terminated	on engineers instruction at 3.20 m. W	ater ingress at	- 1.80 m. Tern	nination I 3.20n	Depth:
Arcadis House	Cymru U	nless other	wise stated:			Equipment Used		Contractor	Lo	gged By	Checke	ed By

Project Northstowe Phase 2 Client Homes and Communities Agency						Project f UA00 Easting 5408(No. 1 8426-01 (OS mE) 10.05	Io. Ground Level (mAOD) 8426-01 8.59 OS mE) Northing (OS mN) 00.05 267000.03			s∝ 1: 5 S	^{Scale} 1:25 Sheet 1		
SAM	PLES		TEST	S	- S			STRATA						
Depth	Type/	Depth	Type/	Results	Wate		Desc	cription		Legend	Depth (Thickness)	Level	Install/ Backfill	
- 0.10 - 0.10 - 0.10 - 0.20	B2 D1 ES1 ES	-	NO.			TOPSOIL: Very soft dark I fine to coarse. Gravel is si	brown slightly s ubangular to a	sandy slightly gravelly silty CLAY. Sand ngular, fine to coarse of flint.	d is	12	(0.32)	0.07		
- - 0.50 - 0.50	B4 D3	-				Soft dark orangish brown coarse. Gravel is subangu [RIVER TERRACE DEPO	slightly sandy : ılar to angular, SITS]	slightly gravelly silty CLAY. Sand is fine fine and medium of flint.	e to		(0.48)	8.27		
0.50	ES ES2	Ę						Pockets of firm bluish grey of	lay.	x				
E						Orangish brown slightly cl	avev gravelly s	Becoming orangish bro SAND. Sand is fine to coarse. Gravel is	wn. s	x;	0.80	7.79		
-		-				subangular to angular, fine	e and medium	of flint.	Æ	×	0.00	7.74		
		- - -				Stiff bluish grey slightly sa fine, subangular to subrou [KIMMERIDGE CLAY FOI	indy slightly gra inded of flint. RMATION]	avelly silty CLAY. Sand is fine. Gravel i	is is		-			
E								Band of orangish brown gravelly sa	and.					
- 1.40 - 1.40	B6 D5	-												
- 1.40	ES3	-							Ĺ		-	-		
-									Ĺ					
-		-							Ĺ					
		- 1.90	HV(1)	103(26)kPa					É					
-		1.90	HV(3)	92(26)kPa					É		-	-		
		E												
Ę		Ę								_ <u>×</u> ;				
-		-							É					
-		-							Ĺ		(3.25)	-	<u><u></u>≡≡≡</u>	
Ē									Ĺ					
-		-							É	<u> </u>				
-		-							É	×				
									Ĺ	×	_	_		
-		-								×				
-		-							Ľ	×; _ <u>×</u>]			≣∎≞	
-									P	×				
-		-								×;				
-		-								×;	-	-	<u><u></u>≝≣</u>	
-		-								<u> </u>				
-		E								<u> </u>				
-										×;				
		-								<u>×_×_</u>	-	_		
-		-								_ <u>×</u> _	4.10	4.49		
-		-												
-		-												
-		 -									-	-		
-														
-														
- -		-												
F		F									-	F		
PLAN DET	TAILS			I	·	I	Remarks		I				1	
		2.5		Long Axi	s Orientat	ion:	Pit terminated	d on engineers instruction at 4.10 m.						
				—i										
				Charle	(Quan'	Nono								
1.6				Stability	Stable									
				Groundy	/ater (des	cription):					Term	ination	Depth:	
					,							4.10n	n	
Arca	idis Cymru	nless other	wise state	4.		Equipment Used		Contractor		Log	gged By	Checke	ed By	

TP906

Project Northstowe Phase 2 Client						lo. 8426-01 OS mE)	Ground Level (mAOD) 7.32 Northing (OS mN)	Start Dat 20/12 End Date	Start Date 20/12/2016 End Date		Scale 1:25			
Homes	and Co	mmuniti	es Ageno	;y		54094	9.85	267050.27	20/12	/2016	S	neet 1	of 1	
SAM	PLES		TESTS		ter <es< th=""><th></th><th></th><th>STRATA</th><th></th><th></th><th>Depth</th><th>Laural</th><th>Install/</th></es<>			STRATA			Depth	Laural	Install/	
Depth	Type/ No.	Depth	Type/ No.	Results	Wa		Descr	iption	Le	egend	(Thickness)	Level	Backfill	
- - 0.10 - 0.10	B2 D1					Grass over soft dark brown and medium. Gravel is sub	n slightly sandy bangular to ang	slightly gravelly silty CLAY. Sand is ular, fine and medium of flint.	s fine		(0.25)			
- 0.10 - 0.20 - 0.35 - 0.35 - 0.35 - 0.35	ES1 ES B4 D3 ES2					Soft orangish brown and g fine to coarse. Gravel is su coarse of flint. Occasional [RIVER TERRACE DEPOS	rey slightly sand Ibangular to ang pockets of bluis SITS]	dy slightly gravelly silty CLAY. Sand gular, fine and medium occasionall h grey clay.	d is X- y X- x- x- x- x- x-		0.25	7.07		
-										× × × ×	(0.85)	- 6.22		
						Stiff bluish grey silty CLAY	RMATION]			 	(0.10) 1.20	6.12		
- 2.50	D9													
- - - - - - - - - - - - - - - - - - -	AILS						Remarks					-		
		2.5		Long Axi	s Orientat	ion:	Pit terminated	due to land drain at 1.10 m. Pit relo	ocated to TF	P906A.				
1.6				Shoring / Stability: Groundw	Support: Stable ater (des	None cription): Dry					Term	ination 1.20n	Depth: N	
Arca	ais Cymru	Inless other	wise stated.			Equipment Used		Contractor		Log	ged By	Checke	ed By	



TP906A

Project Nort Client Hom	Project Northstowe Phase 2 Client Homes and Communities Agency						Project N UA00 Easting (54094	lo. 8426-01 OS mE) I9.83	Ground Level (mAOD) Northing (OS mN) 267050.23	Star 20/ End 20/	t Date / 12/2016 Date / 12/2016	5 1: 5 S	ale 25 heet 1	of 1
		=9		TEST	-9				STDATA					
De	enth	_5 Type/	Denth	Type/	Results	Nater Strikes		Desc	rintion		Legend	Depth (Thickness)	Level	Install/ Backfill
		No.	- - -	No.	Results	- 00	Grass over soft dark brow fine and medium. Gravel is	n slightly sandy s subangular to	/ to sandy slightly gravelly CLAY. S angular, fine and medium of flint.	Sand is		(0.25)	-	
- - - -			-				Soft grey and orangish bro and medium. Gravel is sub coarse of flint. Occasional [RIVER TERRACE DEPO	own slightly sar bangular to ang pockets of blui SITS]	idy slightly gravelly CLAY. Sand is jular, fine and medium occasionall sh grey clay.	fine y		(0.65)		
-			-				Те	nding to bluish	grey. Sand and gravel content decre	easing.		(0.00)		
- - -			- - - 1.00 - 1.00	HV(1)	100(40)kPa		Firm to stiff dark grey silty and white fine to coarse sa	CLAY. With oc and.	casional pockets of light grey, orar	ige	×	0.90		
- - - 1. - 1.	.20 .20	B6 D5	1.00	HV(3)	106(48)kPa			(MATION)						
- '. - -	.20	E00	-											
-			-											
-			-									(1.94)		
-			-											
-			-											
-			-											
- - - -			-				Weathered light grey SILT [KIMMERIDGE CLAY FOF	STONE. RMATION]		/		2:85		
-			-											
-			-											
-			-									-	-	
-			-											
- - - -			-									-		
			-											
-			- 									-	ŀ	
PLAN	DETAIL	_S	2.5	1	Long Ax	is Orientat	ion:	Remarks Pit terminated	at 2.85 due to refusal on weather	ed siltsto	ne.	L	1	1
T						10								
1.6					Shoring Stability	/ Support: : Stable	NONE							
					Groundy	vater (des	cription): Dry					Tern	ination	Depth:
	Arcadis O	Cymru U	nless other	wise state	d:		Equipment Used		Contractor		Lo	gged By	Checke	ed By

TP	90	8(
	JL	0

Project Northstov ^{Client} Homes ar	we Pha nd Com	se 2 nmunitie	es Agenc	у		Project No. UA008426-(Easting (OS mE)	Ground Level (mAOD) Northing (OS mN)	Start Date 20/12/201 End Date 20/12/201	6 1 6 S	:25 heet 1 of	1
SAMPL	ES		TESTS		L S		STRATA				
Depth	Type/	Depth	Type/	Results	Vate		Description	Legend	(Thickness)	Level Bac	ckfi
- - 0.10 - 0.10 - 0.10 -	B1 ES ES2	- - - -				Turf over dark brown slightly grave is subangular to subrounded fine to	elly clayey SAND. Sand is fine to coarse o coarse of flint, brick and plastic.	. Gravel	it it it (0.30)		
		- - - - -				Soft orangish brown slightly gravel Gravel is subangular to subrounde	Ily slightly sandy CLAY. Sand is fine to c d fine and medium of flint.	oarse.	0.30 		
- 0.65 - 0.65 - 0.65 - 0.65 	B3 D5 ES ES4	- - - - -							(0.70)		
- 1.20 - 1.20 - 1.20	B6 ES7					Yellowish brown gravelly SAND. S subrounded fine to coarse of flint a	and is fine to coarse. Gravel is subangu and chalk.	lar to	- 1.00 -		
		- - - - - -							(1.00)		
2.00 2.00	B8 D9	- - - - - -				Soft becoming firm with depth bluis mm x 180 mm) of orange fine to co	sh grey CLAY. With occasional pockets o parse sand.	(<120 	2.00 -		
- - - - - - -		- - - - - -							- (0.90) 		
- - - 3.00 - 3.00 -	B10 D11	- - - - -				Soft grey silt.		key key	2.90 (0.10) 3.00		
		- - - - - - -								- - - - - - - -	
		- - - - - -							-		
- - - - -		-									
- - - - -		-									
									-	+	
	LS	2.5		Long Axi	s Orientat	ion: Pit term	ks ninated on engineers instruction at 3.00	m.	_		_
1.4				Shoring Stability:	Support: Stable	None			· -		41-
				Groundw	ater (des	pription):			Iern	3.00m	un:
Arcadis	Cymru	nloss other	viso statod:			Equipment Used	Contractor	L	ogged By	Checked By	v

Project Northstov Client Homes at	we Pha nd Con	ise 2 nmunitie	es Ageno	су.		Project N UA00 Easting 5407(lo. 8426-01 (OS mE))5.24	Ground Level (mAOD) 9.11 Northing (OS mN) 266892.59	Start Date 20/12/2016 End Date 20/12/2016	5 1: 5 S	:25 heet 1	of 1
SAMPL	_ES		TESTS		ater ikes			STRATA		Depth	Level	Install/
Depth	No.	Depth	No.	Results	Stri		Desc	ription	Legend	(Thickness)	Lover	Backfill
- 0.10	B1	-				TOPSOIL: Grass over dar coarse. Gravel is subangu	k brown slightly lar to angular,	v clayey gravelly SAND. Sand is fin fine to coarse of flint. With abundar	eto	(0.10) 0.10	9.01	
- 0.10 - 0.10 - 0.10 - 0.40	D2 ES ES1 B3	-				Virginia view of the second se	avelly SAND. Se to coarse of f SITS]	Sand is fine to coarse. Gravel is int.				
- 0.40 - 0.40 	ES ES2	-								(0.95)		: = = = = = = = = = = = =
		- - - - - - - -				Orangish brown very grav is fine to coarse. Gravel is [RIVER TERRACE DEPO	elly SAND loca subangular to SITS]	Ily tending to very sandy GRAVEL. angular, fine to coarse of flint.	Sand	1.05	8.06	║═║═║═║═ ═║═║═║═║═
- 1.55 - 1.55 - - - - - -	D4 ES3									(1.15)		═ ═ ═ ═ ═ ≡ ≡ ≡
-		- - - - - - - - -				Very soft bluish grey SILT. blueish grey clay. [KIMMERIDGE CLAY FOR	With rare laye	rs of black mudstone/siltstone and o	Jark (X X	2.20	6.91	= = = = = = =
- - - - - - - - 3.00 - - - - - -	B5 D6	- - - - - - - - -							×××× ×××× ×××× ×××× ×××× ××××	(1.10)		= = = = = = = = = = = = =
- - - - - - - - -		- - - - - - -				Very stiff dark bluish grey [KIMMERIDGE CLAY FOF	CLAY. RMATION]			3.30	5.81	= = = = = = = = = = = = =
- - - - -		- - - 								-		
										4.13	4.98	
-		-								-	ł	
	ILS	2.5		Long Axi	s Orientat	ion: None	Remarks Pit terminated	on engineers instruction at 4.13 m				
1.6				Stability:	Stable							
				Groundw	vater (deso	cription): Dry				Tern	nination I	Depth:
	Cymru										4.13n	n
House		nless other	wise stated:			Equipment Used		Contractor	Lo	gged By	Checke	ed By

TP912

Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Agei	тсу		Project UA00 Easting 5408	No. 08426-01 (OS mE) 02.04	Ground Level (mAOD) 9.05 Northing (OS mN) 266828.54	Start Date 19/12/20 End Date 19/12/20	16 1 16 S	^{cale} :25 Sheet 1	of 1
SAMPL	.ES		TEST	S	er			STRATA		Death		Install/
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Leger	d (Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B3 D4 ES ES1	- - - - - -	140.			TOPSOIL: Grass over sol to coarse. Gravel is subar Light orangish brown slig	ft slightly sandy ngular to angula htly clayey sligh	slightly gravelly silty CLAY. Sand r, fine and medium of flint. tly gravelly to gravelly SAND. Sai	is fine	<u>₩</u>	8.75	
- 0.70 - 0.70 - 0.70 - 0.70 - 0.70 - 0.70 - 0.70 	B1 D2 ES ES2	- - - - - - - - - - - - - - - - - - -				fine to coarse. Gravel is s [RIVER TERRACE DEPC	subangular to an OSITS]	gular, fine to coarse of flint.		े २२ २२ २२ २२ २२ २२ २२ २२ २२ २२ २२ २२ २२		======================================
	- - - - - - - - - - - -				Light orangish brown slig Gravel is subrounded to a [RIVER TERRACE DEPC	htly sandy to sai angular, fine to c DSITS]	ndy GRAVEL. Sand is fine to coa coarse of flint.	rse.	1.35	7.70		
-		- - - - - - - - - - - - - -	HV(1)	104(50)kPa		Stiff to very stiff dark blui	sh arey silty CLA	v		2.00	- 7.05	
- 2.20	B5	- 2.00 - 2.00 -	HV(2) HV(3)	112(52)kPa 98(54)kPa		[KIMMERIDGE CLAY FO	RMATION]			(0.45)	+ + +	
- 2.20 - 2.20 -	ES3	-								2 45	6.60	
	LS						Remarks		125 200 m			
1.6		2.5		Long Axi Shoring Stability: Groundv	is Orientat / Support: Stable to vater (des	ion: None 1.35 m cription): Water ingress at 1.35m	Pit terminated	at 2.45 m due to instability from	1.35-2.00 m.	Ten	mination [2.45n	Depth:
Arcadis	Cymru	nless other	wise state	d:		Equipment Used	1	Contractor		Logged By	Checke	d By
AGS St Mello Busines Cardiff,	ons D s Park TI CF3 0EY	epth (m), Di hickness (m	iameter (m n), Level (n	m), Time (hhmm 10D).	ı),	JCB 3CX		Arcadis Consulting (UK	() Ltd	BT	IP	

Project Northstov Client Homes au	we Pha nd Corr	se 2 nmunitie	es Agei	тсу		Project N UA00 Easting (54089	lo. 8 426-01 OS mE) 9 7.62	Ground Level (mAOD) 8.79 Northing (OS mN) 266931.46	Start Date 19/12/2010 End Date 19/12/2010	6 13 6 S	ale 25 heet 1	of 1
SAMPL	ES		TEST	S	۲ Se			STRATA				1
Depth	Type/	Depth	Type/	Results	Wate		Desci	ription	Legend	(Thickness)	Level	Backfill
0.00 0.10 0.10 0.10 0.20	ES B1 ES ES2 ES		NU.			TOPSOIL: Grass over soft fine to coarse. Gravel is su	brown slightly ubangular to an	sandy slightly gravelly CLAY. Sand is gular, fine and medium of flint and ch		(0.45)		
- - 0.50 - 0.50 	B3 ES4	- - - - -				Dark orangish brown sanc [RIVER TERRACE DEPO	ly CLAY. Sand i SITS]	is fine to coarse.		0.45	8.34	
- - - - -										(0.75)		
- 1.20 - 1.20 - 1.20	B5 D6	- 1.20 - 1.20 - 1.20 - 1.20	HV(1) HV(2) HV(3)	78(42)kPa 80(42)kPa 84(40)kPa		Soft becoming firm with de reddish brown root traces. [KIMMERIDGE CLAY FOF	epth bluish grey RMATI]	r mottled brown CLAY with frequent		1.20	7.59	
- - - - - -		- - - - - -										
		2.00 2.00 2.00 2.00	HV(4) HV(5) HV(6)	100(52)kPa 102(42)kPa 98(48)kPa						(1.75)		
- 2.50 - 2.50 	B7 D8	-										
- - - - - -		-								2.95	5.84	
		-										
- - - - -		-								-		
-		-										
- - - - -		- - - - - -										
- - -		_									ł	
-		-								-	+	
	ILS	2.4		Long Axi	s Orienta	ion:	Remarks Pit terminated	on engineers instruction at 2.95m.				
1.6				Shoring Stability: Groundy	/ Support: Stable vater (des	None cription): Drv				Tern	nination	Depth:
					(· · ·					2.95n	n
Arcadis	Cymru	nless other	wise state	d:		Equipment Used		Contractor	Lo	gged By	Checke	ed By

Project Northstowe Phase 2						Project UA00	No. 08426-01	Ground Level (mAOD)	Start Date 20/12/201	6 1:	^{ale} 25	
Homes a	nd Con	nmunitie	s Agenc	у		Easung	(03 IIIE)		20/12/201	6 S	heet 1	of 1
SAMPL	ES		TESTS		er			Denth		Install		
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Des	cription	Legend	(Thickness)	Level	Backfi
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	-				Turf over very soft brown coarse. Gravel is subang	slightly gravell ular to subrour	y slightly sandy CLAY. Sand is fine to ided fine to coarse of flint.	NEC SHE	(0.35)	-	
-		-				Soft orangish brown sligh	tly sandy CLA	Y. Sand is fine to coarse.		0.35		
- - 0.55 - 0.55	B4 D6	- -								(0.35)	• 	≝≡≡ ≡≡≡
- 0.55 0.55 - 0.80 - 0.80	ES ES5 B7 D8	-				Soft becoming firm with d	lepth bluish gre	ey mottled brown CLAY.		0.70	- - -	
		- - -								-	-	
-		-								(1.00)		
-		-									-	
- - 1.80 - 1.80	B9 D10	- - - -				Firm bluish grey CLAY wi coarse sand. Frequent se	th frequent poo elenite crystals	ckets (170 x 220 mm) of orange fine to (< 3mm).		1.70	- - - -	
- - - -		- - - -								-		
-		- - -								(1.30)	- - -	
-		- - - -								- - -	- - -	
-		-										
3.00	D12	- - - - - - -									· · · · · ·	
-		- - - -									- - - - -	
- - - -		- - - -								-	- - - -	
-		-										
-		- - -										
- - - -		- - - -								-	- - - -	
- PLAN DETAI	ILS	-					Remarks					
		2.4		Long Axi	s Orientat	ion:	Pit terminate	d on engineers instruction at 3.00 m.				
1.4				Shoring Stability:	Support: Stable	None				_		
				Groundw	ater (des	cription):				Tern	ination I 3.00n	Depth: n
Arcadis	Cymru	nless otherv	/ise stated:			Equipment Used		Contractor	Lo	ogged By	Checke	ed By

Project Northsto Client Homes a	we Pha nd Con	ise 2 nmunitie	es Agei	тсу		Project N UA00 Easting 5408	No. 18426-01 (OS mE) 50.27	Ground Level (mAOD) 9.07 Northing (OS mN) 266849.37	Start Date 19/12/201 End Date 19/12/201	6 1 6 S	:25 heet 1 of 1
SAMP	LES		TEST	S	er es			STRATA		Depth	Install
Depth	Type/	Depth	Type/	Results	Strik		Desc	ription	Legend	(Thickness)	Level Backfi
- 0.10 - 0.10 - 0.10 - 0.10	B1 ES ES2	- - - -	110.			TOPSOIL: Grass over sof fine to coarse. Gravel is so	t brown slightly ubangular to ar	sandy slightly gravelly CLAY. Sand gular, fine and medium of flint and	t is strained to the strained	्र सं सं सं सं सं सं	
- 0.50 - 0.50 - 0.50	B3 ES4	- - - -				Dark orangish brown sanc [RIVER TERRACE DEPO	ly CLAY. Sand SITS]	is fine to coarse.		0.40	
- - - -		- - - -								(0.70)	
- 1.10 - 1.10 -	B5 ES6	- - - -				Yellowish brown gravely S subrounded fine to coarse [RIVER TERRACE DEPO	AND. Sand is t of flint and cha SITS]	fine to coarse. Gravel is subangula alk.	r and	(0.50)	
- - - 1.60 - 1.60	B7 D8	- - - -				Soft becoming firm with de gravelly silty CLAY with fre medium. Gravel is fine to .	epth bluish grey equent reddish medium, subar	r mottled brown slightly sandy sligh brown root traces. Sand is fine to	tly ×	1.60	
- - - -		- - - - 2.00 - 2.00	HV(1) HV(2)	90(40)kPa 94(38)kPa		KIMMERIDGE CLAY FOR	RMATION]	iguiar to subrounced of filmt and ch	ак. <u> </u>		
- - - - -		- 2.00 - - - - -	HV(3)	96(46)kPa						(1.40)	
- 2.50 	D9	- - - - - -								لمنا لمراجب الرحب الرحب الم	
										3.00	6.07 III — II
PLAN DETA	ILS	I	·	·	·	I	Remarks		I	1	1
1.6		2.5		Long Axi Shoring Stability:	s Orientat / Support: Stable	ion: None	Pit terminated	on engineers instruction at 3.00m	at scheduled dep	th.	
				Groundw	vater (des	cription): Slight water ingress				Tern	nination Depth: 3.00m
Arcadis	s Cymru U	nless other	wise state	d:		Equipment Used		Contractor	L	ogged By	Checked By

Project Northstow Client Homes an	ve Pha Id Con	ise 2 nmunitie	es Agenc	y		Project N UA00 Easting (54085	lo. 8 426-01 (OS mE) 5 0.76	Ground Level (mAOD) 9.22 Northing (OS mN) 266799.15	Start Date 19/12/2016 End Date 19/12/2016	s: 1: S	^{ale} 25 heet 1	of 1
SAMPLI	ES		TESTS		er			STRATA		Denth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Vat Strik		Desci	iption	Legend	(Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D2 ES ES1					TOPSOIL: Grass over ver is fine to coarse. Gravel is	y soft brown slig subangular to	htly sandy slightly gravelly CLAY. S angular, fine to coarse of flint.	and N ^{1/2}	(0.35)		
- - - -		- - -				Soft dark orangish brown s [RIVER TERRACE DEPO	slightly sandy to SITS]	sandy CLAY. Sand is fine to coarse	e.	0.35	8.87	
- - -		-				Light orangish brown sand	ly GRAVEL. Sa	nd is fine to coarse. Gravel is		0.85	8.37	
- 1.20 - 1.20 - 1.20 - 1.20 	B3 D4 ES2				▼	subangular to angular, fine [RIVER TERRACE DEPO	' to coarse of fli SIT]	nt.		- (1.45)		₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩
- - - - - - 2.50 - 2.50 - 2.50 -	2.50 B5 - 2.50 D6 - 2.50 ES3 -					Very stiff dark bluish grey slightly gravelly silty CLAY. Gravel is fine, subangular to subrounded of flint. [KIMMERIDGE CLAY FORMATION]			ar to	2.30	6.92	
		- - - - - -								3.10	6.12	
										-		
PLAN DETAIL	LS						Remarks					
1.6		2.5		Long Axis Shoring / Stability: Groundw	Support: Stable to ater (deso	on: None 2.30 m yription): Water ingress at 1.30m	Pit terminated	on engineers instruction at 3.10 m o	due to pit wall inst	ability.	ination I	Depth:
	Cumero										3.10n	n
Arcadis	Cymru	nless other	vice stated:			Equipment Used		Contractor	Lo	aged By	Checke	d By

Project Northstov ^{Client} Homes ar	ve Pha nd Con	ise 2 nmunitie	es Agen	су		Project N UA00 Easting (54089	o. 8426-01 ^{DS mE)} 9.13	Ground Level (mAOD) 9.19 Northing (OS mN) 266848.90	Start 19/ End 19/	Date 12/2016 Date 12/2016	5 1: 5 S	^{ale} 25 heet 1	of 1
SAMPL	ES		TESTS	3	r s			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Descr	ption		Legend	Depth (Thickness)	Level	Backfil
0.10 0.10 0.10	B1 ES ES2	- - -				TOPSOIL: Grass over soft fine to coarse. Gravel is su and occasional red brick.	brown slightly s bangular to ang	andy slightly gravelly CLAY. Sa gular, fine and medium of flint an	nd is id chalk	NR	(0.30)		
		-				Dark orangish brown sand [RIVER TERRACE DEPOS	y CLAY. Sand is SITS]	s fine to coarse.			0.30	8.89	
0.50 0.50	B3 ES4										(0.65)		
0.95 - 0.95	B5 ES6	- - - -									0.95	8.24	≝≡≡ ₩≡₩
		-											
		-											
_		-									-		
		-											
		- - -											
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_		- - - -									-		
		-											
		-											
		-											
		- 										<u> </u>	
²LAN DETAII	LS	2.5		Long Axis	s Orientat	ion:	Remarks Pit terminated	on engineers instruction at 0.95r	m due to pi	it wall inst	ability.		
16				Shoring /	Support:	None							
				Stability: Groundw	Stable ater (des	cription): Dry					Term	nination 0.95r	Depth:
Arcadis House St Mellor Busines	Cymru U ns D s Park T	nless otherv epth (m), Dia hickness (m	wise stated: ameter (mm ı), Level (mC	i), Time (hhmm) DD).	,	Equipment Used		Contractor Arcadis Consulting (UK	() Ltd	Lo M.	gged By	Checke	ed By

Project Northstor Client Homes at	Project Northstowe Phase 2 Client Homes and Communities Agency				Project N UA003 Easting (f	o. 8426-01 OS mE)	Ground Level (mAOD) Northing (OS mN)	Start Date 20/12/2010 End Date 20/12/2010	5 1: 5 S	^{Scale} 1:25 Sheet 1 of 1				
SAMPL	LES		TESTS		tter kes			STRATA		Depth		Install/		
Depth	Type/ No.	Depth	Type/ No.	Results	Stri		Desc	ription	Legend	(Thickness)	Lever	Backfil		
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	-				Turf over very soft brown s coarse. Gravel is subangul	lightly gravelly lar to subround	slightly sandy CLAY. Sand is fine to ed fine to coarse of flint.		(0.40)				
- - 0.50 - 0.50	B4 D6	-				Soft orangish brown slightl	y sandy CLAY.	Sand is fine to coarse.		0.40				
- 0.50	ES5	-								(1.00)				
- 1.20	B7	- - - -												
- 1.20 - 1.20 - 1.40 - 1.40	D9 ES8 B10 D11	- - - -				Soft becoming firm with de mm x 280 mm) of orange f	pth bluish grey ine to coarse s	CLAY with occasional pockets (<1) and. Frequent selenite crystals (<2)	50 mm)	1.40				
- - - - -		- - - -				,								
- - - 		- - - 												
		-								(1.60)				
- - - - -		- - - -												
- - - - -	P12	- - - -								2 00				
- 3.00	D13													
	ILS	2.5		Long Axi	s Orienta	ion:	Remarks Pit terminated	on engineers instruction at 3.00 m.						
1.4				Shoring Stability:	Support: Stable	None				Term	nination	Depth:		
	Ground				Groundwater (description):						3.00m			

Project Northstowe Phase 2					Project N UA00 Easting	UA008426-019.3019/12/2016Easting (OS mE)Northing (OS mN)End Date							
Hor	nes an	d Con	nmunitie	es Ageno	су		54095	540950.31 266849.37 19/12/2					
	SAMPLE	S		TESTS	;	es er			STRATA		Dopth		Install
C	epth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Desc	ription	Legend	(Thickness)	Level	Backfi
	0.10 0.10 0.10 0.10 0.10	B1 D2 ES ES1	-				TOPSOIL: Grass over ver CLAY. Sand is fine to coar flint.	y soft dark brov se. Gravel is si	wn slightly sandy slightly gravelly silty Jbangular to angular, fine to coarse of	122	(0.33)		
. (0.45 0.45 0.45	B3 D4 ES2	- - - -				Dark orangish brown becc Sand is fine to coarse. Gra [RIVER TERRACE DEPO	oming orangish avel is subangu SITS]	brown slightly clayey gravelly SAND. Ilar to angular, fine to coarse of flint.		0.33	8.97	
	0.80	B5	- - -				Light yellowish orange slig coarse. Gravel is subroun	htly clayey slig ded to angular,	htly sandy GRAVEL. Sand is fine to fine to coarse of flint.		0.70	8.60	
	0.80 0.80 0.80	D6 ES ES3	-				[REIVER TERRACE DEP	OSITS]			(1.35)	+ + - - - - - - - - - - - - - - - - - -	\\``=\\`=\\`=\\`=\\`=\\`=\\`=\\`=\\`=\\
-			- 					01.41/			2.05	7.25	
			-				KIMMERIDGE CLAY FOR	CLAY. RMATION]			(0.22)		
			- - - -								-		
												- - - - - - - - - - - - - - - - - - -	
_			- - - -								-		
			-										
			- - -										
			- - - -										
												-	
		S	2.5		Long Axis	orientat	ion:	Remarks Pit terminated	on engineers instruction at 2.27 m du	le to water ingre	ess and pit w	all insta	bility.
1.6					Shoring / Stability: S Groundwa	Support: Stable to ater (deso	None 0.70 m cription): Water ingress at 2.05m				Term	nination I	Depth:
-						1			1				





Project Northstow Client Homes an	ve Pha Id Con	se 2 Imunitie	es Ager	ісу		Project N UA00 Easting (54099	lo. 8 426-01 OS mE) 9 8.99	Ground Level (mAOD) 9.17 Northing (OS mN) 266852.42	Start 09/ End 09/	Date 12/2010 Date 12/2010	6 1: 6 SI	ale 25 heet 1	of 1
SAMPLE	ES		TEST	S	ΓŴ			STRATA					
Depth	Type/ No.	Depth	Type/ No.	Results	Wate Strike		Descr	iption		Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.10 0.00 - 0.20	ES1 B2	-				Soft dark brown sandy, slig angular to subangular, fine	phtly gravelly Cl to coarse of ch	AY. Sand is fine to coarse. Grave nert.	el is		(0.20)		
- 0.20 - 0.20 - 0.30 - 0.20 - 0.30 - 0.20 - 0.50	ES D4 ES3 B5	-				Soft light orangish brown v coarse. Gravel is angular,	ery sandy, sligh fine to medium	ntly gravelly silty CLAY. Sand is fin of chert. (Possible MADE GROU	ne to ND)	×	0.20 (0.30)	8.97	
- - 0.50 - 0.60 - 0.50 - 1.00 - -	ES6 B7	- - - - -				Light orangish brown and l Gravel is angular to subro	ight yellowish b unded, fine to c	rown gravelly fine to coarse SAN parse of chert.	ID.	×	0.50 -	- 8.67	
- - - 1.00 - 1.10 - 1.00 - 1.30 -	ES8 B9	- - - - -									(0.80)	-	
- - - 1.30 - 1.40 - 1.30 - 1.40 - 1.30 - 2.00	D12 ES10 B11	- - - -				Soft becoming stiff dark blue Sand is fine to coarse.	uish grey silty s	andy CLAY with rare shell fragme	ents.	×	1.30	7.87	
		- - 1.50 - 1.50 - 1.50 - - - - - - -	HV(1) HV(2) HV(3)	100(34)kPa 90(28)kPa 92(40)kPa			-	mottlec	1 brown	× × × × × × × × × × × × × × × × × × ×		· • • • • • •	
2.20 - 2.30 2.20 - 2.30 2.20 - 3.00	D14 ES13 B15	- 2.20 - 2.20 - 2.20 - 2.20 	HV(4) HV(5) HV(6)	100(40)kPa 102(38)kPa 92(32)kPa							(2.00)	· · · · · · ·	= = = = = = =
	D17 ES16 B18	- - 3.00 - 3.00 - 3.00 - - - - -	HV(7) HV(8) HV(9)	112(48)kPa 80(40)kPa 86(44)kPa						× × ×	3.30	5.87	
	LS					00'	Remarks	nn ennineers instruction at 3 30m		t wall inst	ability 10cm		d drain
0.9		3.3		Long Axi Shoring J Stability: Groundw	s Orientati Support: Unstable	on: N/A priotion): Slow seepage at	Pit terminated at 0.80m depth	on engineers instruction at 3.30rr I. Pit collapsed back to 2.20m.	i due to pi	t wall inst	ability. 10cm	. Dia lan	Depth:
					2101 (0030	base of gravel						3.30n	n





Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Agei	ncy		Project N UA00 Easting 54104	No. 1 8426-01 (OS mE) 11.76	Ground Level (mAOD) 9.21 Northing (OS mN) 266806.13	Start Date 13/12/201 End Date 13/12/201	6 1 6 S	^{cale} :25 heet 1	of 1
SAMPL	ES		TEST	S	<u>ب</u> ي			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 0.00 - 0.10 0.00 - 0.30	ES ES1 B2	- - -	NO.			Grass over very soft dark subangular, fine to coarse	brown slightly s of chert.	sandy, slightly gravelly CLAY. Gravel	is	(0.30)		
- - 0.30 - 0.40 - 0.30 - 0.40 - 0.30 - 0.70	D3 ES4 B5	- 0.30	PID	<1ppm		Light brown soft sandy CL	AY. Sand is fin	e to coarse.		0.30	8.91	
-		- - 0.50 - 0.50 -	HV(1) HV(2)	100(60)kPa 105(70)kPa						(0.40)		
- 0.70 - 0.80 - 0.70 - 0.90 - 0.70 - 1.30 -	ES6 D11 B7	-				Firm to stiff light grey mott Occasional orangish brow	led brown sand n, fine to coars	ly CLAY. Sand is fine to coarse. e sand pockets.		0.70	8.51	
- - - -		- 1.00 - 1.00 - 1.00	HV(3) HV(4) HV(5)	84(38)kPa 90(36)kPa 90(48)kPa						(0.60)		
- - 1.30 - 1.30 - 1.40 - 1.30 - 2.00 -	ES ES12 B8	- 1.30 	PID	<1ppm		Orangish brown slightly cl subrounded, fine to coarse Grave	ayey gravelly fi e of predomina elly sand pocke	ne to coarse SAND. Gravel is angula ntly chert. t. Clay continues from 1.3-2.0m at Fac	ar to	1.30	7.91	
- - - - -		- - - - - -								(0.70)	-	
2.00 - 3.00	B9	- - - - -				Stiff dark bluish grey occa gypsum crystals up to 5cn	sionally mottled n length. Rare j	d brown silty CLAY. Rare pockets of pockets of shelly fragments.	× × ×	2.00	7.21	
- - 2.40 -	D10	- - - - 2.50 - 2.50	HV(6) HV(7)	100(30)kPa 108(50)kPa					×	(1.00)	- - - - -	
		- 2.50 	HV(8)	110(40)kPa					× ×			
- - 3.00 -	W13	-								- 3.00	6.21	
-		- - - - - - - - - - - - - - -										
- - - - -		- - - - -									-	
- - - - -		- - - -										
-		-					1				+	
	LS	2.6		Long Axi	s Orientat	ion:	Remarks Pit terminated gravelly sand	on engineers instruction at 3.00m a throughout pitting.	t scheduled dep	thSlow seep	age from	1
0.6				Shoring	Support:	N/A						
				Groundw	Stable ater (des	Slight seepaage at 1.1m				Terr	nination 3.00r	Depth: n
Arcadis	Cymru	nless other	wise state	d:		Equipment Used	1	Contractor	L	ogged By	Checke	ed By

Project Northstowe Phase 2 Client Homes and Communities Agency				Project N UA000 Easting (54111			Io. Ground Level (mAOD) 8426-01 9.33 OS mE) Northing (OS mN) 5.00 266848.83			s: 1: S	of 1		
SAMPLE	ES		TEST	S	es			STRATA			Donth		Inetall/
Depth	Type/ No.	Depth	Type/ No.	Results	Wati Strik		Desc	cription		Legend	(Thickness)	Level	Backfill
0.00 - 0.10 0.00 - 0.80 - - - - - - - - - - - - - - - - - - -	ES1 B4 ES D3 ES2	- - - - - - - - - -				MADE GROUND: Grass of is fine to coarse. Gravel is lithologies.	over soft brown subangular to	sandy, slightly gravelly silty CLAY. subrounded, fine to medium of mix	Sand æd		(0.80)	- - - - - - - - - - - -	
- 0.80 - 0.90 0.80 - 1.50 - - -	ES5 B6	- - - - - - - - - - - -			▼	Light brown very gravelly fine to coarse of predomin [RIVER TERRACE DEPO	fine to coarse S antly chert. SITS]	SAND. Gravel is angular to subrour 70mm cla Yellowish brown fine SAN	nded, ay pipe [D lens		0.80	8.53	
- - - - 1.50 - 1.60 - 1.50 - 1.90 - 1.60 - 1.70 -	ES7 B9 D8	- - - - - - -				Firm bluish grey and oran [KIMMERIDGE CLAY FO	gish brown slig RMATION]	htly sandy silty CLAY.			1.50 (0.40)	7.83	
- 1.90 - 2.70 - - - - - -	B11	- - - - - - - -				Soft to firm dark bluish gre mottled brown pockets an subrounded of flint. [KIMMERIDGE CLAY FOR	ey slightly sand d gypsum. Gra RMATIO]	y slightly gravelly CLAY with occasi vel is fine to medium, subangular to	ional ว	× · · · · · · · · · · · · · · · · · · ·	1.90	7.43	═ ═ ═ ═ ═ ═ ═ ═
- - - 2.50 - 2.60 - - -	D10	- 2.30 - 2.30 - 2.30 - - - - - -	HV(1) HV(2) HV(3)	50(25)kPa 60(20)kPa 62(22)kPa				from 2.50m becomi	ng stiff		(0.80) 2.70	6.63	
							Domorio				-	- - - - - - - - - - - - - - - - - - -	
PLAN DETAIL	5	3.7		Long Axi	s Orientat	ion:	Remarks Pit terminated	I on engineers instruction at 2.70m	due to p	it side colla	apse and gr	oundwat	ter
0.7	Cymru			Shoring / Stability: Groundw	Support: Unstable ater (deso	None cription): Inflow from 1.0m	inflow.	Contractor			Term	2.70n	Depth: n

Project Northsto Client Homes a	Voject Northstowe Phase 2 Client Homes and Communities Agency					Project N UA00 Easting 54114	No. 1 8426-01 (OS mE) 1 8.66	Ground Level (mAOD) 9.57 Northing (OS mN) 266825.66	Start Date 14/12/2016 End Date 14/12/2016	Scale 1:25 Sheet 1 of 1			
SAMP	PLES		TEST	s	ater ikes			STRATA		Depth	Level	Install/	
Depth	No.	Depth	No.	Results	St K	Grass over dark brown sa	Desc	ription		(Thickness)		Backfill	
0.00 - 0.10 0.00 - 0.40 0.10 - 0.20	ES1 B3 D2	- - - -				Gravel is subangular, fine	to coarse of ch	ert.		(0.40)			
- 0.40 - 0.50 - 0.40 - 1.00	ES4 B7	- - -				Orangish brown clayey ve subangular, fine to coarse	ry gravelly fine of chert.	to coarse SAND. Gravel is angu	lar to	0.40	9.17		
0.60 - 0.70	D5	-				RIVER TERRACE DEPO	SII]			(0.60)			
- 0.80 - 0.90 -	ES6	-										= = = =	
	ES ES8 B10					Light yellowish brown slig Gravel is angular to subar [RIVER TERRACE DEPO	htly clayey to cl ngular, fine to c SITS]	ayey gravelly fine to coarse SAN barse of chert.	ID.	1.00 -	- 8.57		
- - - - 1.60	W9	-								(0.80)			
- - - 1.80 - 1.90 - 1.80 - 3.00	ES11 B14	- - -				Firm to stiff dark bluish gre	ey silty CLAY w	ith rare shell fragments.		1.80	7.77		
- 2.00 - 2.10 - - -	D12	- 2.00 2.00 2.00	HV(1) HV(2) HV(3)	90(32)kPa 90(38)kPa 98(30)kPa		[KIMMERIDGE CLAY FO	RMATIONJ			-			
_ _ _ _ 2.50 - 2.70	D13	-		80/28\\/Da						(1.20)			
-		2.60 2.60 2.60	HV(4) HV(5) HV(6)	80(34)kPa 82(40)kPa									
										3.00 -			
- PLAN DETA		-					Remarks			-	†		
0.7		3.9		Long Axi Shoring Stability:	is Orientati / Support: Stable	ion: None Slow inflow at	Pit terminated	on engineers instruction at 3.00	m at scheduled dept	Torm	ination	Denth:	
				Groundv	vater (deso	ription): 1.70m				Iem	3.00r	n	
Arcad	is Cymru	Inless other	wiso stato	d.		Equipment Used		Contractor	Lo	gged By	Checke	ed By	

TP928

Project Northstowe Phase 2 ^{Client} Homes and Communities Agency				псу		Project UA00 Easting 5410	No.) 8426-01 (OS mE) 98.79	Ground Level (mAOD) 9.37 Northing (OS mN) 266749.66	Start Date 14/12/2010 End Date 14/12/2010	5 1: 5 S	of 1	
SAMP	LES		TEST	S	<u>ار</u> د			STRATA				la etell/
Depth	Type/	Depth	Type/	Results	Strike		Desc	ription	Legend	(Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 ES1	- - - -	110.			Grass over dark brown sli occasional rootlets. Grave lithologies.	ightly gravelly v el is fine to med	ery clayey fine to coarse SAND with um, subangular to subrounded of n		(0.40)		
- - 0.50 - 0.80 - 0.50 - 0.80 - 0.50 - 0.80 - 0.50 - 0.80	B4 D5 ES3	- - - - - 0.60 -	HV(1)	95(41)kPa		Soft to firm light brown sill [RIVER TERRACE DEPC	ty CLAY. Sand i DSIT]	s fine to coarse.		0.40	8.97	
- - - - - - - - - - - - - - - - - - -	B7	- - - -							× × ×	- 1.10	8.27	
- 1.10 - 1.30 - 1.10 - 1.30 - 1.10 - 1.30	D8 ES6	- - - -				Firm light bluish grey mot [KIMMERIDGE CLAY FO	tled brown silty RMATIO]	sandy CLAY. Sand is fine to coarse. Pocket of	sand.	1.10	0.27	
-		- - - - -							× × × × × × ×	(0.80)		
- 	B10 D11 ES9	- - - - - - - - - - - - - - - - - - -	HV(2)	110(42)kPa		Firm dark bluish grey mot angular clear selenite cry: fine to medium, subangul [KIMMERIDGE CLAY FO	tled yellowish b stals (4 mm x 8 ar to subrounde RMATI]	rown silty sandy gravelly CLAY with nm). Sand is fine to coarse. Gravel d of flint.	is X	1.90 -	7.47	
-										(1.10)		
-									<u></u>	3.00 -	6.37	
-										-	* 	
- - - - - -		- - - - -								-		
PLAN DETA	ILS					·	Remarks	on reaching toront down				
0.6		3.4		Long Axi Shoring Stability:	s Orientat / Support: Stable	ion: None	Pit terminated	on reaching target depth.				
				Groundv	vater (des	cription): Dry				Iern	3.00n	Deptn:
Arcadis	s Cymru	nless other	wise state	d•		Equipment Used	-	Contractor	Lo	gged By	Checke	d By


Project Northstov Client Homes ar	ve Pha Id Con	se 2 nmunitie	es Ager	тсу		Project N UA00 Easting (54106	No. 8 426-01 (OS mE) 5 5.27	Ground Level (mAOD) 9.23 Northing (OS mN) 266685.61	Start Date 15/12/201 End Date 15/12/201	6 1 6 S	^{:ale} :25 heet 1	of 1
SAMPL	ES		TEST	S	es S			STRATA				la et ell/
Depth	Type/	Depth	Type/	Results	Strike		Desci	iption	Legend	(Thickness)	Level	Backfill
0.00 0.00 - 0.10 - 0.30 - 0.40	ES ES1 D3	- - - - -	NO.			Grass over dark brown slig coarse. Gravel is subangu	ghtly sandy, slig lar, fine to coar	htty gravelly silty CLAY. Sand is fir se of chert. Abundant roots and ro		(0.30)	8.93	
- 0.30 - 0.40 - 0.30 - 0.80 - - - - -	B4					[RIVER TERRACE DEPO	SIT]			(0.50)		
- 0.80 - 0.90 - 0.80 - 1.10 - 0.90 - 1.00	ES5 B7 D6	-				Soft to firm light grey and l low cobble content of cher coarse of mixed lithologies	brown slightly s rt. Sand is fine t s.	andy, slightly gravelly silty CLAY v o coarse. Gravel is subrounded, fi	vith a <u>×</u> ne to <u>×</u>	(0.30)	8.43	
- 1.10 - 1.10 - 1.20 - 1.10 - 1.50 	ES ES8 B9					Orangish brown very sanc mixed lithologies. Sand is [RIVER TERRACE DEPO	ly GRAVEL of a fine to coarse. SIT]	ngular to subrounded, fine to coar	se ×	1.10	8.13	₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩
		- - - - - - - - -				White and bro	wn coarse GRA	VEL at base with slow groundwater	inflow.	(1.10)		
- 2.20 - 2.30	D10	- 2.20 2.20 2.20	HV(1) HV(2) HV(3)	110(40)kPa 80(38)kPa 96(32)kPa		Firm dark bluish grey silty [KIMMERIDGE CLAY FOF	CLAY with occ RMATI]	asional reddish brown relic rootlet mottled brown and orangish l	s. <u>×</u> prown. <u>×</u>	*. *. 	7.03	
- 2.50 - 2.60 - 3.00 	W11 B12 D13	- 2.50 - 2.50 - 2.50 - - - - - - - - - - - - - - - - - - -	HV(4) HV(5) HV(6)	102(30)kPa 104(38)kPa >120()kPa						(1.10)		: =: =
		- - - - - - - - - - - - - - - - - - -							× ×	3.30	5.93	
		- - - - - - - - - -										
- - - - - - - - - - - -		- - - - - - - - - - - - -										
- PLAN DETAI	LS	F	1		1	<u> </u>	Remarks		I	1	I	l
0.7		3.7		Long Axi Shoring	s Orientat Support: Stable	ion: None	Pit terminated	on engineers instruction at 3.10m	at scheduled dep	oth		
				Groundw	ater (deso	cription): Slow inflow from 1.80m				Tern	nination 3.30n	Depth:
Arcadis	Cymru U	nless other	wise state	d:		Equipment Used		Contractor	L	ogged By	Checke	d By



Project Northstov Client Homes ar	piect prthstowe Phase 2 prt pres and Communities Agency SAMPLES TESTS			ncy	Project N UA00 Easting 54114			Ground Level (mAOD) 9.38 Northing (OS mN) 266749.61	Start Date 14/12/201 End Date 14/12/201	6 1 6 S	ale 25 heet 1	of 1
SAMPL	ES		TEST	S	ŝ			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.10 0.00 - 0.30	ES1 B1	- - - -				MADE GROUND: Grass o Sand is fine to coarse. Gra mixed lithologies.	ver dark brow avelly is suban	n slightly sandy, slightly gravelly Cl gular to subrounded, fine to coarse	AY. of	(0.30)		
- 0.30 - 0.30 - 0.40 - 0.30 - 0.40 - 0.30 - 0.60 	ES D1 ES2 B2	- - - - - - - - - - - -				MADE GROUND: Soft red fine to coarse. Gravel is su litholigies including brick. C	dish brown to ibangular to si Dccasional sar	grey silty sandy gravelly CLAY. Sa ubrounded, fine to coarse of mixed Id pockets.	nd is	0.30	9.08	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- 	D2 ES3	- - - - -								(1.30)		
- 1.30 - 1.60 	В3	-			_	Pocket of yellowish browr	a sandy GRAVI	EL of subangular to rounded, fine to mixed lithologies. Sand is fine to	coarse			
- 1.60 - 1.70 - 1.60 - 1.70 - 1.70 - 2.00 - 1.70 - 2.00	D3 ES4 B4 D5	-				Light grey mottled orangist to coarse of chert. [RIVER TERRACE DEPO:	h brown grave	Ily, silty CLAY. Gravel is subangula	r, fine	1.60 (0.10) 1.70	7.78 7.68	
- - - - - - -		- - - - - -				with selenite crystals. [KIMMERIDGE CLAY FOF	RMATI]					
- - - 2.40 - 2.50 - - - - - -	D4	- - - 2.40 - 2.40 - - - - - - - - -	HV(1) HV(2) HV(3)	100(40)kPa 94(38)kPa 96(36)kPa						(1.30)	* * * * * *	≕ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- - - 3.00 -	W1	- - - -								3.00	6.38	
							Bomarka					
PLAN DETAI	LS	0.7			s Orientat	ion:	Remarks Pit terminater	on engineers instruction at 3.00m	at scheduled dep	th		
3.7				Shoring / Stability: Groundw	Support: Stable rater (desc	None sription): Seepage from 1.60m				Tern	nination	Depth:



Checked By Logged By AW IP



Project Northstov Client Homes al	we Pha nd Con	ise 2 nmunitie	es Agei	псу		Project N UA00 Easting 54119	No. 1 8426-01 (OS mE) 39.71	Ground Level (mAOD) 8.97 Northing (OS mN) 266698.42	Start 15/ End 15/	Date 12/2016 Date 12/2016	5 1: 5 SI	^{ale} 25 heet 1	of 1
SAMPL	ES		TEST	S	۲ø			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.20 - 0.10 - 0.50	ES ES1 B2	- - - - -				MADE GROUND: Grass c cobble content of brick.	over dark brown	n sandy, slightly gravelly CLAY wi	th low		(0.50)		
- - 0.50 - 0.50 - 0.60 - 0.50 - 0.60 - 0.50 - 0.85	ES D4 ES3 B5	- - - - -				Soft light brown mottled gr coarse. Gravel is angular [RIVER TERRACE DEPO	rey sandy, sligh to subangularn vSITS]	tly gravelly silty CLAY. Sand is fir fine to coarse of chert.	ne to		0.50 -	8.47	
- - 0.90 - 1.00 - 0.90 - 1.00 - 0.90 - 1.40 -	D7 ES6 B8	- 0.90 - 0.90 - 0.90 -	HV(1) HV(2)	100(50)kPa 80(44)kPa		Firm light grey and brown to coarse. Gravel is subar brown fine to coarse sand [RIVER TERRACE DEPO	slightly sandy, ngular, fine to c pockets. ISITS]	slightly gravelly silty CLAY. Sand parse of chert. Occasional orangi	is fine sh		0.85	8.12	
- - - - 1.40 - 1.50 - 1.40 - 1.50 - 1.40 - 1.70	D10 ES9 B11	-				Soft to firm light bluish gre abundant selenite crystals	ey mottled brow	n and yellowish brown silty CLAY	' with	× × × × × × × × × ×	1.40	7.57	
- - - 1.80 - 1.90 - -	D12	- - - - - - - 1.90 - 1.90 - - 1.90	HV(3) HV(4) HV(5)	60(40)kPa 84(33)kPa 92(56)kPa		KIMMERIDGE CLAY FOR	RMATIJ					- - - - - - -	
- - - - - - - -								from 2.10 m becoming dark blu	iish grey		(1.60)	- - - - - - -	
- 2.50 - 2.60 - - - - - - - -	D13										3.00 -	- 5.97	= = = = = = = =
												· · · · · ·	
		- - - - - - - - - - - - -										- - - - - - - - - - - - - - - - - - -	
- - - - - - - -												- - - - - - - - - - -	
- PLAN DETAI	ILS	F					Remarks						
0.7		3.7		Long Axi Shoring Stability: Groundv	s Orientat / Support: Stable /ater (des	ion: None cription): Dry	Pit terminated	on engineers instruction at 3.00r	n at sched	uled dept	Term	nination	Depth:
Arcadis	Cymru U	nless other	wise state	d:		Equipment Used		Contractor		Lo	gged By	Checke	ed By

Project Northstov Client Homes ar	the stowe Phase 2 nes and Communities Agency					stowe Phase 2 as and Communities Agency					Project No. Ground Level (mAOD) Sta UA008426-01 8.88 15 Easting (OS mE) Northing (OS mN) End 541202.35 266649.09 15	rt Date / 12/2016 I Date / 12/2016	5 1: 5 S	:25 heet 1 of 1
SAMPL	ES		TESTS		ر م	STRATA								
Depth	Type/	Depth	Type/	Results	Nate	Description	Legend	Depth (Thickness)	Level Backfill					
Bopul	No.	Bopai	No.	rioculio	- 05	Grass over TOPSOIL	AIK	(0.10)						
0.10	ES D2	-				MADE GROUND: Firm brown sandy, slightly gravelly silty CLAY. Sand is fine to		0.10	8.78					
0.10 - 0.20	ES1 D3	-				coarse. Gravel is subangular, fine to coarse of mixed lithologies. Metal fragment	1 XXX							
	507	-						(0.50)						
- 0.40 - 0.50	ES7	-												
- 0.60 - 0.70	D5	-						0.60						
0.60 - 0.70	ES4	-				Stiff to very stiff brown and grey slightly sandy silty CLAY. Sand is fine to medium. [RIVER TERRACE DEPOSIT]	×							
- 0.80 - 1.30	B6	-					×							
-		-					×	(0.70)						
-		-					×	(0.70)						
-		-					×							
-		-					×	1 30						
- 1.30 - 1.40	D9	-				Very stiff grey silty CLAY. Abundant nodules of white firm silt.		1.50						
- 1.50 - 2.50	B10	-				orangish brown sandy subrounded fine to coarse GRAVEL. Sand is fine to coarse.	1 <u>×_~</u>							
-		-					×_*							
-		-												
-		-					×_×_							
-		-					<u></u>	(1.20)						
-		-						-						
-		-					\mathbf{x}							
-		-												
-		-												
- 2.50 - 2.60	D11	-				Firm dark bluich arey mottled brown city CLAY with shally fragments and avecum		2.50	6.38					
- 2.50 - 3.00	B12	-				crystals.								
		-					×	(0.50)						
-		-					×	(0.00)						
-		-					×							
		-				Remarke			<u>† </u>					
		3.7		Long Axi	s Orientat	ion: Pit terminated on engineers instruction at 3.00m at sche	duled depti	ı						
0.7				Shoring Stability:	' Support: Stable	None								
				Groundw	ater (des	sription): Dry		Tern	nination Depth:					
Arcadis	Cymru	wlass oth				Equipment Lised Contractor		aged By	Checked By					

TPBH612

Project Northstov Client Homes au	we Pha nd Corr	se 2 nmunitie	es Ageno	cy		Project N UA00 Easting 54117	No. 18426-01 (OS mE) 70.19	Ground Level (mAOD) Northing (OS mN) 267146.29	Start Date 21/12/20 End Date 21/12/20	16	^{Scale} 1:25 Sheet 1	of 1
SAMPL	ES		TESTS		- s			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Lege	Depth d (Thickness) Level	Install/ Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	- - - - -	NO.			Turf over TOPSOIL; Very subangular to subrounded (<3mm x 150mm).	soft dark browr I fine to coarse	slightly gravelly CLAY. Gravel is of flint. With frequent roots and roots	otlets	Nč s s s (0.40)		
- - - - -		- - - -				Dark orangish brown silty subangular to subrounded	gravelly SAND I fine to coarse	Sand is fine to coarse. Gravel is of flint and chalk.	NU.	0.40		
- 0.75 - 0.75 - 0.75 - 0.75 - 0.75	B4 D6 ES ES5	-								(0.60)		
-		-				Orange SAND. Sand is fir	e to coarse.			1.00	+	
-		-								(0.20)	1	
- 1.20 - 1.20 	B7 D8 B9 D10					Soft becoming firm with de Gravel is subangular to ro	epth bluish grey unded fine to c	mottled brown slightly gravelly Cl barse of flint and chalk.	AY.	(2.10)		═╢═║═║═║═║═║═╢═║═║═║═║═║═║═║═║═║═║═║═╢═ ║═║═║═║═
PLAN DETAI	ILS	2.5		Long Axi Shoring Stability:	s Orientat	ion:	Remarks Trial pit termin	ated at 3.30m on engineers instru	ction.			
	Cum			Groundv	vater (des	pription): 1.20m				Ter	mination 3.30r	Depth:
Arcadis	Cymru U	nless other	wise stated.			Equipment Used		Contractor		Logged By	Checke	ed By

TPC016A

Project Northstov Client Homes ar	we Pha nd Com	se 2 nmunitie	es Agei	ncy		Project N UA00 Easting 5409	No. 18426-01 (OS mE) 52.40	Ground Level (mAOD) 9.17 Northing (OS mN) 266285.73	Start 23/ End 23/	Date 01/2017 Date 01/2017	y 1: Y SI	25 1991 1991 1	of 1
SAMPL	.ES		TEST	S	بة 10			STRATA					la etell/
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level	Backfill
-	NO.	-	NO.			MADE GROUND: Concre	te.				(0.15)		∭≣∭
- - 0.20 - 0.20	ES ES1	- - - 0.20 -	PID	5.608ppm		MADE GROUND: Reddisl Gravel is subrounded to s Firm to stiff grey slightly si	n brown slightl ubangular, fine	/ sandy GRAVEL. Sand is fine to co to coarse tarmac. nd is fine to medium. With pockets	oarse.		0.15 (0.10) 0.25	9.02 8.92	
- 0.40 - 0.40 -	ES ES2	- - 0.40 - - -	PID	18.16ppm		x 10 x 10 mm) of black oil	y clay.	Geotext Strong hydrocarbon	ile mat odour.		- - - -	• • • •	
- - - - - -		- - - - - -									(0.85)	· · · · ·	
-		-				Firm bluish grey slightly sa	andy CLAY. Sa	nd is fine to coarse.			1.10	8.07	
- 1.20 - 1.20	ES ES3	- 1.20 -	PID	122.55ppm							(0.20)	7 07	
- 1.35	ES4	- 1.35 - - -	PID	4.18ppm		Orangish brown slightly cl subrounded to subangular	ayey gravelly S r, fine to coarse	SAND. Sand is fine to coarse. Grav of flint. Clay drainag	el is e pipe. /		(0.10) 1.40	7.77	
PLAN DETAI	LS	3.0		Long Axi Shoring J Stability: Groundw	s Oriental	ion: None	Remarks Pit terminated	I on engineers instruction at 1.40 m	ı as drain	age pipe v	was encoun	rered at	1.30 m.
												1.40n	n
Arcadis	Cymru	nless other	wise state	d.		Equipment Used	I	Contractor		Lo	gged By	Checke	d By

TPC016B

Project Northstov Client Homes ar	rthstowe Phase 2 th mes and Communities Agency					Project I UA00 Easting 5409	Project No. Ground Level (mAOD) S UA008426-01 2 Easting (OS mE) Northing (OS mN) E 540952.00 266286.00 2				7 1 7 S	^{Scale} 1:25 Sheet 1		
SAMPL	ES		TEST	S	ر ۵			STRATA						
Denth	Type/	Denth	Type/	Results	Nater		Desc	rintion		Legend	Depth (Thickness)	Level	Install/ Backfill	
Deput	No.	Dopui	No.	- TOOULO	- 05	MADE GROUND: Concre	te.			d d.			₩≡₩	
		-								A . A	(0.20)	I		
- 0.20	ES1	- 0.20	PID	6.1ppm		MADE GROUND: Reddis	h brown slightly	sandy GRAVEL. Sand is fine to	coarse.		0.20	ł		
-		-				Gravel is subrounded to s	ubangular, fine	to coarse tarmac.	ets (< 10		0.35	ł		
0.50	FS	- 0.50	PID	54 24ppm		x 10 x 10 mm) of black oil	y clay.	Coote				ļ		
- 0.50	ES2	-		o nz ippin				Geole		′ <u>⊢−</u> _−	(0.55)	ļ		
-		-									(0.55)	ŧ		
		-								F		ŧ		
-		-				Firm bluish grey slightly s	andy CLAY. Sai	nd is fine to coarse. Strong hydr	ocarbon	<u> </u>	0.90	ļ		
- 1.00 - 1.00	ES ES3	- 1.00	PID	55.49ppm		odour.						÷		
-		-									(0.40)	ţ		
-		-								L	1 20	ŧ		
		-				Orangish brown slightly cl	ayey gravelly S	AND. Sand is fine to coarse. Gra	avel is		1.50	I		
- 1.50	ES	- 1.50	PID	139.91ppm			.,					ļ		
- 1.50	ES4	-									(0.60)	ţ		
-		-										ŧ		
E		_										Ī		
-		-									1.90	ļ	<u>≕</u> ‴≕	
		19		Long Avi	s Orientat	ion:	Excavated ne	xt to TPC016A. Trial pit terminate	ed on enai	neers instr	uction at 1.9	0m due	to	
		1.9			e enerital		instability.					000		
				Shoring /	Support:	None								
1.5				Stability:	Unstable									
				Groundw	ater (des	cription): Seepage at 1.9m					Tern	nination	Depth:	
												1.90n	n	
Arcadis	Cymru	nlaa"	where =1 =1	d.		Fauipment Lead		Contractor		10	aaed By	Checke	ed Bv	
AGS House St Mellor Busines Cardiff,	ns D sPark T CF30EY	niess other epth (m), Di hickness (m	wise state iameter (m n), Level (n	u. m), Time (hhmm 1OD).),	JCB 3CX		Arcadis Consulting (UI	K) Ltd	VF)	IP		

TPC019

Project Northstov Client Homes ar	piect prthstowe Phase 2 ant pmes and Communities Agency SAMPLES TESTS					Project N UA00 Easting 54105	Project No. Ground Level (mAOD) UA008426-01 9.54 Easting (OS mE) Northing (OS mN) 541053.05 266223.99			rt Date /01/2017 Date /01/2017	7 13 7 S	Scale 1:25 Sheet 1 c		
SAMPL	ES		TEST	S	es es			STRATA			Death		Install/	
Depth	Type/	Depth	Type/	Results	Wate		Descr	iption		Legend	(Thickness)	Level	Backfill	
- 0.10 0.10 - 0.30	ES ES1	0.10	PID	1.249ppm		Grass over TOPSOIL; Dar coarse. Gravel is rounded occasional rootlets.	rk brown slightly to subangular,	/ gravelly clayey SAND. Sand is f fine to coarse of sandstone. With	fine to		(0.90)			
- - - - - - - - - - -	ES	- - - - - - - - 1.10	PID	1.729ppm		Light reddish brown grave to subangular, fine and me	lly SAND. Sand edium of sandst	is fine to coarse. Gravel is subro one.	ounded		0.90	8.64		
- 1.10 - 1.40 - - -	ES2	-									(0.55)			
- - - - - - -		-				Yellowish brown gravelly S subangular, fine and medi	SAND. Sand is 1 um of sandston	îne to coarse. Gravel is subround e.	ded to		1.45	8.09		
- - 2.00 - 2.30 - -	ES3	- - - - - -									(0.95)			
- - -		- - - -									2.40	7.14	≝ ≝ <u>= </u> :	
- - - - - - - - - - - - - - - - - - -	LS						Remarks							
		2.5		Long Ax	is Orientat	ion:	Pit terminated	on engineers instruction at 2.40n	n due to g	groundwate	er influx.			
0.7				Shoring Stability Ground	/ Support: : Stable water (deso	None pription): Groundwater inflow at 2.40m					Tern	nination	Depth: N	
Arcadis	Arcadis Cymru House Unless otherwise stated:					Equipment Used		Contractor		Lo	gged By	Checke	ed By	

TPC024A

Project Northstov Client Homes al	rthstowe Phase 2 t nes and Communities Agency					thstowe Phase 2 nes and Communities Agency			Project No. UA00842(Easting (OS m 540862.09			Ground Level (mAOD) 9.46 Northing (OS mN) 266361.19	Start Date 24/01/2017 End Date 24/01/2017	7 1 7 S	Scale 1:25 Sheet 1 of ²		
SAMPL	ES		TEST	S	ž			STRATA				-					
Depth	Type/	Depth	Type/	Results	Wate		Dese	ription	Legend	Depth (Thickness)	Level	Install Backfi					
	INO.	-	INO.			MADE GROUND: Concr	ete.			(0.15)		≡∎					
		-				Firm to stiff arev slightly	sandy CLAX wit	h pockets (up to 10 x 10 x 10 mm) of		0.15)	9.31						
						black oily clay. Sand is fi	ne and medium	Strong hydrocarbon odour.			ł						
0.40	ES1	0.40	PID	200.8ppm						(0.45)	I						
		-									ļ						
		-				Firm bluish arev slightly	sandy CLAY Sa	nd is fine to coarse		0.60	8.86						
											I						
0.80	ES2	- 0.80	PID	109.28ppm						(0.50)	ţ						
		-									ł						
_										1 10	1 8 36						
						Orangish brown slightly subrounded to subangul	clayey gravelly s ar. fine to coars	SAND. Sand is fine to coarse. Gravel	is	1.10	0.30						
		-				.					ļ						
		-									ŧ						
1.50	ES3	- 1.50	PID	2.17ppm							Ŧ						
		_								(1.00)	ł						
		-									ł						
		-									ŧ						
_											l						
		-								2.10	7.36						
		-									ŧ						
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PLAN DETA	ILS						Remarks										
—		3.0		Long Ax	is Orienta	ion:	Pit terminated	I on engineers instruction at 2.10 m, u	unstable due to i	nflux of wate	er.						
T																	
				Shoring	/ Sunnart	None											
1.0				Stability	Unstable												
				Groundy	vater (des	cription): Groundwater				Terr	nination	Depth:					
						innow at 2.10m					2.10r	n					
												-					
Arcadis House	Cymru U	nless other	wise state	d:		Equipment Used		Contractor	Lo	gged By	Checke	ed By					
AGS Busines Cardiff	ons D ssPark T CF30EY	epth (m), Di hickness (m	iameter (m n), Level (n	m), Time (hhmm 1OD).	1),	JCB 3CX		Arcadis Consulting (UK) L	td VI	5	IP						

Project Northstow Client Homes an	ve Pha Id Con	se 2 nmunitie	es Agei	тсу		Project N UA00 Easting (54086	lo. 8426-01 ^{OS mE)} 64.00	Ground Level (mAOD) Northing (OS mN) 266059.00	Start 24/ End I 24/	Date 01/2017 Date 01/2017	so 1: S	^{ale} 25 heet 1	of 1
SAMPLE	ES		TEST	s	, <i>"</i>			STRATA					
Depth	Type/	Denth	Type/	Peculte	Vater		Desc	rintion		Legend	Depth (Thickness)	Level	Install/ Backfill
Deptil	No.	Deptil	No.	Itesuits	>0	Vegetation over TOPSOIL	Soft dark brov	wn slightly gravelly slightly sandy (NIL:			m=m
0.10	ES ES1	0.10	PID	<1ppm		With frequent roots and ro	otlets (less tha	n 20 mm x 300 mm). Gravel is		sile.	(0.25)	I	≣⊒≣
- 0.10	201	-									0.25	-	
-		-				coarse. Gravel is subangu	ghtly gravelly s lar to rounded	fine to coarse of flint.)			ļ	
-		-										ł	
- 0.50 - 0.50	ES ES2	- 0.50	PID	5.02ppm							(0.55)		▥▦▥
		_										I	
-		-									0.80	ļ	
-		-				Soft orangish brown slight medium. Gravel is subang	ly sandy slightl ular and subro	unded fine to coarse of flint. With				-	≣≝≣
- 1.00	ES3	- 1.00	PID	<1ppm		occasional roots/rootlets (I	ess than 2 mm	n x 250 mm)			(0.40) -	+	
-		-										ŧ	
1.20	ES4	-				Very soft light grey mottled	l orange slight	v gravelly CLAY Gravel is subang	ular		1.20	Ī	Ľ≣Ľ
-		_				and subrounded fine to co	arse of chalk a	ind flint. With occasional rootlets (I	ess			ļ	
-		-											
-		-											
-		-									(0.80)	ł	
-		-										ŧ	
		_										I	
-		-									2.00 -		▥▦▥
-		-				Orangish brown slightly gr subangular and subrounde	avelly clayey S ed fine to coars	SAND Sand is fine to coarse. Grave se of flint.	el is			-	
-		-									(0.40)		
-		-										ł	
-		-				Orangish brown slightly gr	avelly CLAY N	ot possible to sample due to pit			2.40	Ì	≝≣≝
_		-				collapsing in.					(0.30)	ŀ	
- 2.60	ES5	2.60	PID	2.348ppm							(0.50)	ł	▥▦▥
-		-									2.70		==
-		-										ļ	
-		-										ł	
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		-					Pomorko						
PLAN DE IAIL	19			Long Avi		ion:	Remarks	on engineers instruction at 2 70m	unstahle	due to w	ater seenao	e	
					Sonentat	юп.		on engineers instruction at 2.7011	, unsidult	, aue 10 W	ater seepay	0.	
				Shorina /	Support:	None							
				Stability:	Unstable								
				Groundw	ater (deso	Water seepage at					Tern	nination	Depth:
						2.4011						2.70r	n



Contractor

TPC038

TPC050B

Project Northst Client Homes	towe Pha and Con	se 2 nmunitie	es Agei	ncy		Project N UA00 Easting (54076	o. 8426-01 OS mE) 97.00	Ground Level (mAOD) Northing (OS mN) 266193.00	Start Da 24/0 End Da 24/0	ate 1/2017 te 1/2017	sc 1: Sl	ale 25 heet 1	of 1
SAM	IPLES		TEST	S	ter <es< th=""><th></th><th>S</th><th>STRATA</th><th></th><th></th><th>Depth</th><th>Laural</th><th>Install/</th></es<>		S	STRATA			Depth	Laural	Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Stril		Descrip	otion	L	egend	(Thickness)	Levei	Backfill
-		-				Vegetation over MADE GR	OUND; Soft ora	ngish brown slightly sandy CLA	Y. Sand	\times	(0.10)		
-		-				MADE GROUND; Concret	e footing with rel	bar - weak grey concrete, 50% o	clasts,	\sim	(0.20)		
-		-				Soft crangish brown slight	y grouply glightly	w condy CLAY Sound in fine. Cro			0.30		
- 0.40	ES	- 0.40	PID	<1ppm		subangular and subrounde	ed fine to coarse	of flint.					
	ESI	-							-		-	-	
-		-							F				
-		-									(1.00)		
-		-									(1.00)		
- 1.00	ES2	- 1.00	PID	<1ppm					_		_		
-		-								: _			≝≣≝
-		-								1			
_		-				Orange gravelly SAND Sa	nd is fine to coar	se. Gravel is subangular and			1.30		
-		-				subrounded fine to coarse	of flint.	Ũ			(0.20)		
- 1.50 - 1.50	ES ES3	- 1.50 -	PID	<1ppm		Firm to stiff light grey slight	tly gravelly CLAY	Gravel is subangular and subr	ounded		1.50 -	-	
-		-				fine and medium of flint.			-				
-		-											
-		-									(0.80)		
-		-							_		-	-	
-		-											
-		-											
- 2.30 - 2.30	ES ES4	- 2.30	PID	<1ppm							2.30		
-		-											
-		-									-	-	
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PLAN DE	TAILS				<u> </u>		Remarks						
_⊢				Long Axi	s Orientat	ion:							
				Shorina	Support:	None							
				Stability:	Stable								
				Groundw	vater (des	cription):					Term	ination	Depth:
												2.30n	n
Arca	adis Cymru	nless other	Niso etata	d.		Equipment Used		Contractor		Loc	ged By	Checke	ed Bv

TPC051

Project Northstov Client Homes al	we Pha nd Cor	ise 2 nmunitie	es Ager	тсу		Project N UÁ003 Easting (54080	o. 8426-01 OS mE) 10.13	Ground Level (mAOD) 9.41 Northing (OS mN) 266197.82	Start Date 24/01/201 End Date 24/01/201	7 1 7 S	ale 25 heet 1	of 1
SAMPL	ES		TEST	S	<u>ب</u> ۵			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desci	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
	NO.	-	NO.			MADE GROUND: Weak gr With rebar.	rey concrete, 4	0% clasts, 40% concrete, 20% voids	A 	(0.20)		
- - 0.30 - 0.30	ES ES1	- - 0.30 -	PID	<1ppm		MADE GROUND; Dark bro with strong hydrocarbon oo subangular fine to coarse o	own mottled bla dour. Sand is fi of brick and cor	ack slightly gravelly slightly sandy CL ne to coarse. Gravel is angular and ncrete. Very strong odour of	AY	0.20	9.21	
- 0.50 - 0.50 -	ES ES2	- - 0.50 -	PID	<1ppm		hydrocarbons and sheen to Dark greyish brown mottled hydrocarbon odour and sh is angular of possible balla	o material. d black slightly een to gravel fi st.	gravelly clayey SAND with strong ragments. Sand is fine to coarse. Gra	avel	(0.50)	9.01	
- - - 0.90 - 0.90	ES ES3	- - - - 0.90	PID	1.1ppm		Soft light grey mottled brov	vn slightly grav and obvious sh	elly CLAY diesel odour noted. Very een to gravel. Gravel is angular to		0.90	8.51	
- 0.90 - 1.50 - 1.50 - 1.50 	ES3 ES4 ES5	3.00	PID	5.23ppm		Soft light grey mottled brow strong hydrocarbon odour subrounded fine to coarse Very soft dark greyish brov odour. With frequent shell i subangular to rounded fine	vn slightly grav and obvious sr of flint.	elly silty CLAY with strong hydrocarb s than 5 mm x 7 mm). Gravel is of flint.		(1.60)	6.91	≡₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ₩Ξ ₩Ξ₩Ξ₩Ξ₩Ξ
PLAN DETA	ILS						Remarks					
				Shoring	is Orientat / Support: : Stabl	ion: None	Pit terminated	on engineers instruction at 3.00m at	scheduled dep	th.	nination	Denth
				Ground	water (des	cription): Ury				iem	3.00r	n
Arcadis	Cymru	nless otherv	wise stated	1:		Equipment Used		Contractor	L	ogged By	Checke	ed By



Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Agen	cy		Project 1 UA00 Easting 54092	No. 1 8426-01 (OS mE) 2 3.48	Ground Level (mAOD) 9.35 Northing (OS mN) 266771.87	Start 17/ End 17/	Date 01/2017 Date 01/2017	sم 1: S	^{ale} 25 heet 1	of 1
SAMPL	ES		TESTS		es es			STRATA			Death		Install/
Depth	Type/	Depth	Type/	Results	Strike		Desc	ription		Legend	(Thickness)	Level	Backfill
- 0.10 - 0.30 - 0.10 - 0.30 	B2 ES1	- - - - - - - - - -				Grass over TOPSOIL; Lig coarse. Gravel is subangu lithologies.	ht to dark brown llar to subround	n clayey gravelly SAND. Sand is led, fine and medium of mixed	s fine to		(0.60)		
- - - - - - - - - - - - - - - - - - -	B4 ES3	- - - - - - - -				Yellowish brown very grav to subrounded, fine and rr [RIVER TERRACE DEPO	relly SAND. Sa hedium of mixed SITS]	nd is fine to coarse. Gravel is si d lithologies.	ubangular		0.60	8.75	
- - - - - - - - - -		- - - - - - - - -									(1.30)	- - - - - - - - - - -	≡ ∥≡∥≡∥≡∥≡ ∥≡∥≡∥≡∥≡∥≡ ∥≡∥≡∥≡∥≡∥≡
-		-									1.90	7.45	
	LS						Remarks						
PLAN DE IAI	LƏ	2.2		Lona Axi	s Orientat	ion:	Pit terminated	due to groundwater inflow and	pit collapsin	g.			
0.7				Shoring Stability: Groundw	Support: Unstable	None cription): Groundwater		-		-	Tern	ination I	Depth:
	Cymru	"				Equipment Logd		Contractor			aged By	1.90n	n ed By

Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Agen	су		Project N UA00 Easting 54092	No. 1 8426-01 (OS mE) 2 6.59	Ground Level (mAOD) 9.20 Northing (OS mN) 266634.08	Star 17 End 17	t Date /01/2017 Date /01/2017	7 1 7 S	^{:ale} :25 heet 1	of 1
SAMPL	ES		TESTS	8	۲ű			STRATA					
Depth	Type/	Depth	Type/	Results	Wate Strike		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill
- - 0.10 - 0.30 - 0.10 - 0.30 -	NO. B2 ES1	-	NO.			MADE GROUND: Grass c fine. Gravel is angular to s ceramics. Low cobble con	over dark browr subrounded, fin tent of subroun	slightly clayey sandy GRAVEL. e to coarse of brick, concrete and ded concrete and angular brick.	Sand is d		(0.50)		
- - - 0.60 - 0.90 - 0.60 - 0.90 - -	B4 ES3					Yellowish brown slightly cl subangular to subrounded [RIVER TERRACE DEPO	ayey gravelly S I, fine and medi SITS]	AND. Sand is fine to coarse. Gra um of mixed lithologies.	avel is		0.50	8.70	
-		- - - - - - - - - -									(1.20)		≡ = = = = = = =
- - - - 1.80 - 2.20 - 1.80 - 2.20	B6 ES5	-				Dark yellowish brown sligh Gravel is subangular to su [RIVER TERRACE DEPO	ntly clayey sand ibrounded, fine SITS]	ly GRAVEL. Sand is fine to coars and medium of mixed lithologies	se. 3.		1.70	7.50	
						Firm dark bluish grey sligh [KIMMERIDGE CLAY FOF	ntly sandy CLAN RMATION]	. Sand is fine to coarse.			2.20	7.00	
- - - 2.50 - 2.80 - 2.50 - 2.80 - - -	B7 D8	- - - - - -									(0.80)		
- - - - -		- - - - - -									3.00 -	6.20	
	LS						Remarks						
		2.4		Long Axi	s Orientat	ion:	Pit terminated	on reaching target depth.					
0.7	7					None cription): Groundwater inflow at 2.20m		0 - 0			Tern	nination	Depth:
Arcadis	Cymru	nless other	wise stated	:		Equipment Used		Contractor		Lo	gged By	Checke	ed By

Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Ager	псу		Project N UA00 Easting (54074	No. 1 8426-01 (OS mE) 14.76	Ground Level (mAOD) 9.60 Northing (OS mN) 266262.35	Start Date 08/12/2016 End Date 08/12/2016	5 1 5 S	^{ale} :25 heet 1	of 1
SAMPL	ES		TEST	S	ri Si			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Legend	Depth (Thickness)	Level	Install/ Backfill
- - 0.10 - 0.30 - 0.10 - 0.30 - -	B2 ES1	- - - - - -	110.			Grass over TOPSOIL; Lig occasional rootlets. Sand i fine to medium of sandstor	ht to dark brow is fine to coarso ne.	n slightly gravelly clayey SAND with e Gravel is subangular and subrour	n nded	(0.50)		
- 0.50 - 0.50 - 0.90 - 0.50 - 0.90 - 0.50 - 0.90 	ES B4 ES3	- - - - - - - - - - -				Yellowish brown slightly cl Gravel is subangular and cobble content of angular [RIVER TERRACE DEPO	ayey very sanc subrounded fin and subrounde SITS]	y GRAVEL. Sand is fine to coarse. e to coarse of mixed lithologies. Lo d flint and sandstone.	w	0.50	9.10	
-		- - - - - - - - - - -								(1.10)		
- - 1.60 - 1.90 - 1.60 - 1.90 -	B6 ES5					Yellowish brown clayey ve subangular and subrounde content of subrounded to a [RIVER TERRACE DEPO	ry sandy GRAV ed fine to coars angular flint and SITS]	/EL. Sand is fine to coarse,. Grave e of mixed lithologies. Low cobble d sandstone.	lis	1.60	8.00	
- - - - - -										(0.80) -		
-		-				Firm dark bluish grey sligh	tly sandy CLA	7. Sand is fine.		2.40	7.20	
- 2.60 - 2.90 - 2.60 - 2.90 - 2.60 - 2.90 - 2.60 - 2.90	B8 D9 ES7	- 2.60 - 2.60 - 2.60 - 2.60 -	HV(1) HV(2) HV(3)	101()kPa 102()kPa 91()kPa		[KIMMERIDGE CLAY FOF	RMATION]			(0.60)		
PLAN DETAI	LS	F	1	1	1	1	Remarks			l	1	1
0.6		2.5		Long Axi Shoring A	s Orientat ' Support: Stable	ion: None	Pit terminated	on engineers instruction at 3.00m	at scheduled dept	n.		
				Groundw	ater (deso	cription): 2.40m				Tern	3.00r	Depth: N
Arcadis	Cymru	nless other	wise state	d:		Equipment Used	1	Contractor	Lo	gged By	Checke	ed By

Project Northstov Client Homes al	we Pha nd Con	ise 2 nmunitie	es Ageno	су		Project I UA00 Easting 54084	No.)8426-01 (OS mE) 42.66	Ground Level (mAOD) 9.30 Northing (OS mN) 266347.84	Start Dat 10/01 End Date 10/01	te /2017 e /2017	Sc 1: Sl	^{ale} 25 heet 1	of 1
SAMPL	ES		TESTS		<u>ب</u> ۵			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Le	eaend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.10	NO. B1 D3 ES2		No.			Grass over TOPSOIL; Firi Gravel is subangular and rootlets	m brown slightl subrounded fin	y gravelly CLAY. Sand is fine to n e to coarse of flint. Frequent root	nedium.		(0.30)	0.00	
-						Firm orangish brown sligh subrounded fine to coarse [RIVER TERRACE DEPO	itly gravelly, sai e of flint. Occas ISITS]	ndy CLAY. Gravel is subangular a ional rootlets.	nd 55		(1 10)	9.00	
- 0.90 - 0.90 - 0.90 	B4 D6 ES5	- - - - - - - - - - -									(1.10)		== ==
- 1.50 - 1.50 - 1.50 - 1.50 	B7 D9 ES8	- - - - - - - - - -				Orangish brown gravelly S subrounded fine to coarse [RIVER TERRACE DEPO	SAND. Sand is e of flint. Occas SITS]	fine to coarse. Gravel is subangu ional rootlets	lar and		(0.70)	-	
- - 2.20 - 2.20 - 2.20	B10 D12 ES11	-				Orangish brown sandy GF subrounded fine to coarse [RIVER TERRACE DEPO	RAVEL. Sand is e of flint. SSITS]	fine to coarse. Gravel is subang	ular and		2.10 (0.20) 2.30	7.20	
PLAN DETA	ILS	2.5	· · · · · ·	Long Axi	s Orientati	ion: None	Remarks Pit terminated	on engineers instructions at 2.30	,)m due to wat	er ingre	ess.		·
				Groundw	Unstable ater (desc	cription): Water seepage at 2.30m					Term	ination I 2.30n	Depth:
Arcadis House	Cymru U	nless other	wise stated:			Equipment Used		Contractor		Log	ged By	Checke	ed By

Project Northsto Client Homes a	we Pha nd Con	ise 2 nmunitie	es Agen	су		Project N UÁ00 Easting (54074	No. 1 8426-01 (OS mE) 41.02	Ground Level (mAOD) Northing (OS mN) 266184.08	Start Date 05/01/201 End Date 05/01/201	7 1 7 S	:25 heet 1	of 1
SAMP	LES		TESTS	3	رە			STRATA				
Depth	Type/	Depth	Type/	Results	Nate		Descr	intion	Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.10 - 0.10 - 0.10 - 0.10 - 0.30 - 0.10 - 0.30	No. B1 D3 ES ES2 B2 ES1		No.			Grass over TOPSOIL: Lig occasional rootlets. Sand fine to medium of mixed lit	ht to dark brown is fine to coarse thologies.	i slightly gravelly clayey SAND w e. Gravel is subangular to subrou	ith nded	(0.50)		
- 0.50 - 0.50 - 0.50 - 0.70 - 0.70 - 1.10 - 0.90 - 0.90 - 0.90	B4 D6 ES5 ES B4 ES3 B7 D9 ES8					Light orangish brown sligh Gravel is angular to subro [RIVER TERRACE DEPO	itly clayey slight unded fine to m SITS]	ly gravelly SAND. Sand is fine to edium of mixed lithologies.	coarse.	0.50		≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- 1.50 - 1.50 - 1.50 - 1.50 - 1.80 	B10 D12 ES11 B5									(1.60)		
-		- - - - - - - - - - -								2.10		
PLAN DETA	2.70 2.70 2.70 ES14 					Remarks						
0.7		1.9		Long Axi Shoring / Stability:	s Orientat Support: Unstable	ion: None	Pit terminated	on engineers instruction at 2.30r	n due to collapse th	rough water	ingress.	
				Groundw	ater (deso	cription): 2.10m				Tern	nination I 2.10n	Depth:
Arcadis	s Cymru U	nless other	vise stated			Equipment Used		Contractor	L	ogged By	Checke	ed By

Project Northstov Client Homes ar	ve Pha nd Con	ise 2 nmunitie	es Agen	су		Project N UA00 Easting (54085	No. 8426-01 (OS mE) 54.77	Ground Level (mAOD) Northing (OS mN) 266171.31	Start Date 06/01/2 End Date 06/01/2	2016 2016	Sca 1: SI	ale 25 neet 1	of 1
SAMPL	ES		TESTS		ر م			STRATA					1
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription	Leg	end (Depth Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 ES1	- - - - - - - - - - - - - - - - - - -				Grass over TOPSOIL; Dar Sand is fine to coarse. Gra mixed lithologies.	k brown claye; avel is subangu	r gravelly SAND with occasional r lar to subrounded fine to coarse o	ootlets.		(0.75)	· · · · ·	
- - 0.80 - 1.20 - 0.80 - 1.20 - - - -	B4 ES3	- - - - - - - - - - -				Orangish brown occasiona is fine to coarse. Gravel is lithologies. [RIVER TERRACE DEPO	ally light grey s subangular to SITS]	ightly gravelly very clayey SAND. subrounded fine to medium of mi:	Sand ked		0.75	· · · · ·	
- - - - 1.60 - 1.60 - 2.00 - 1.60 - 2.00	ES B6 ES5	- - - - - - - - - - - -									(1.05)	· · · ·	
		-				Orangish brown occasiona to coarse. Gravel is suban lithologies. IRIVER TERRACE DEPO	ally light grey g gular to subrou SITSI	ravelly very clayey SAND. Sand i inded fine to medium of mixed	s fine		1.80	- - -	
- - - -		-									(0.50)		
	LS						Remarks						
		2.3		Long Axi	s Orientat	ion:	Pit terminated	on engineers instruction at 2.30n	n due to collaps	e throu	ugh water i	ingress.	
0.7				Shoring Stability: Groundw	' Support: Unstable vater (deso	None pription): Groundwater at 2.30m					Term	ination 2.30r	Depth:
Arcadis	Cymru	nless other	wise stated			Equipment Used		Contractor		Logg	ged By	Checke	ed By

TPSA1120

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitie	es Ageno	;y		Project No. Ground Level (mAOD) St UA008426-01 9.29 0 Easting (OS mE) Northing (OS mN) Er 541050.82 266100.51 0	art Date 6/01/2016 nd Date 6/01/2016	5 1: 5 S	ale 25 heet 1 of 1
SAMPL	.ES		TESTS		iter kes	STRATA		Depth	I evel Install
Depth	Type/ No.	Depth	Type/ No.	Results	Wa Strij	Description	Legend	(Thickness)	Backfi
- - 0.10 - 0.30 - 0.10 - 0.30 -	B2 ES1					Grass over TOPSOIL; Dark brown slightly clayey slightly gravelly SAND with occasional rootlets. Sand is fine. Gravel is angular to subrounded fine to medium of sandstone and flint.			
		- - - - - -				Old <u>land drain encountered in eastern pit wall</u>		(0.80)	
0.90 - 1.20 0.90 - 1.20	B4 ES3	- - - - - - - -				Yellowish brown occasionally grey slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is angular to subrounded fine to medium, of sandstone and flint. [RIVER TERRACE DEPOSITS]		0.80	
		- - - - - - - - -						(1.30)	
- - - - - -		- - - - - - - -						- 2.10	
		1.8		Long Ax	is Orientat	emarks on: Pit terminated on engineers instruction at 2.10m due to	collapse th	ough water	ingress
0.7				Shoring Stability: Groundv	/ Support: Unstable vater (deso	None ription): Groundwater at 2.10m		Tern	nination Depth: 2.10m
Arcadis House St Mello Busines Cardiff,	Cymru Uons D S Park T CF3 0EY	nless othern epth (m), Di hickness (m	wise stated: ameter (mm) ı), Level (mO	, Time (hhmm D).	ı),	Equipment Used Contractor JCB 3CX Arcadis Consulting (UK) Ltd	Lo	gged By	Checked By

Project Northstov Client Homes ar	ve Pha nd Corr	se 2 Imunitie	s Agenc	су.		Project N UA00 Easting (54095	o. 8 426-01 OS mE) 5 0.55	Ground Level (mAOD) 9.76 Northing (OS mN) 266150.75	Start 06/ End 06/	Date 01/2016 Date 01/2016	Sc 1: Sl	^{ale} 25 neet 1	of 1
SAMPL	ES		TESTS		L S			STRATA		[
Depth	Type/ No.	Depth	Type/	Results	Wate Strike		Descr	ription		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.30 0.10 - 0.30 - -	B2 ES1	-				MADE GROUND: Grass o Sand is fine and medium. I brick. Low cobble content of	ver dark brown Gravel is subar of angular brick	slightly clayey slightly gravelly S ngular to subrounded fine to coars c.	AND. se of		(0.45)		
- - - 0.60 - 1.00 - 0.60 - 1.00 -	B4 ES3	- - -				Light orangish brown sligh is subangular to subrounde [RIVER TERRACE DEPOS	tly gravelly clay ed fine and me SITS]	vey SAND. Sand is fine to coarse. dium of mixed lithologies.	Gravel		0.45	9.31	
- - - - -		- - - - -									(0.85)	• • • • •	
- - - - - - - - - - - - - - - - - - -	B6 ES5	-				Light orangish brown sligh Gravel is subangular to su [RIVER TERRACE DEPOS	tly clayey slight brounded fine t SITS]	tly gravelly SAND. Sand is fine to o medium of mixed lithologies.	coarse.		1.30	8.46	
- - - - - -		- - - - - -									(0.80)	- - - - -	= = = = = = = = = = = = =
		- - - -									2.10	7.66	
- - - - - -		- - - - -									-	- - - -	
- - - - -		-										• • • •	
- - - - -		- - - - -									-		
-		- - - - -										- - - -	
- - - - -		- - - - -									- - - -	- - - - -	
- - - - -		-											
- - - - -		- - - -									-	- - - - -	
- - - - -		- - - - -									-	- - - -	
PLAN DETAI	LS						Remarks						
		1.9		Long Axis	Orientati	on: None	Pit terminated	on engineers instruction at 2.10 c	lue to coll	apse throu	ıgh water in	gress.	
0.7				Stability:	Jnstable								
				Groundwa	ater (desc	ription): Groundwater at 2.10m					Term	ination 2.10n	Depth: N
Arcadis	Cymru	less otherv	vise stated:			Equipment Used		Contractor		Log	ged By	Checke	ed By

Project Northstov Client Homes au	we Pha nd Con	ise 2 nmunitie	es Agen	су		Project N UA00 Easting 5404(No. 1 8426-01 (OS mE) 01.25	Ground Level (mAOD) 9.19 Northing (OS mN) 266549.79	Start Date 04/01/201 End Date 04/01/201	7 13 7 S	ale 25 heet 1	of 1
SAMPL	ES		TESTS	8	ater ikes			STRATA		Depth	Level	Install/
Depth	No.	Depth	No.	Results	Str		Desc	ription	Legend	(Thickness)	2010.	Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 ES1	-				Grass over TOPSOIL; Dan fine to coarse. Gravel is so lithologies.	rk brown slightl ubangular to su	y clayey slightly gravelly SAND. S ibrounded fine and medium of mi:	Sand is xed xe	(0.40)		
- - - - 0.60 - 0.90 - 0.60 - 0.90	B4 ES3	- - - - - -				Light brown slightly clayey is subangular and subrour [RIVER TERRACE DEPO	/ slightly gravel nded fine of mi: SITS]	ly SAND. Sand is fine to coarse. (ked lithologies.	Sravel	0.40	8.79	
- - - -		- - - -				Very light yellowish brown subangular and subround	very gravelly S	SAND. Sand is fine to coarse. Gra	ivel is	0.90	8.29	
- 1.10 - 1.50 - 1.10 - 1.50 	B6 ES5	- - - - - - - - - - - - - - - - - - -				[RIVER TERRACE DEPO	SITSJ			(1.10)		
		-								2.00 -	7.19	
PLAN DETA	ILS	F			I	l	Remarks		I	1	1	1
0.7		1.9		Long Axi Shoring J Stability: Groundw	s Orientat ' Support: Stable to vater (deso	ion: None 2.00m cription): Groundwater at 2.00m	Pit terminated	on engineers instruction at 2.00r	n due to collapse.	Tern	nination	Depth:
Arcadis	Cymru	nless other	wise stated	,		Equipment Used		Contractor	Lc	ogged By	Z.000	ed By

Project North: Client Home	stowe Pha s and Con	ise 2 nmunitie	es Ageno	cy .		Project No. Ground Level (mAOD) UA008426-01 Easting (OS mE) Northing (OS mN)	Start Date 04/01/2017 End Date 04/01/2017	y 1: y Si	^{ale} 25 heet 1	of 1
SA	MPLES		TESTS		- SS	STRATA		5 "		la etell/
Dep	th Type/	Depth	Type/	Results	Wate	Description	Legend	Depth (Thickness)	Level	Backfill
- 0.30 - 0.30 - 0.30	D B1 D D3 D ES2		NO.			TOPSOIL: Grass over soft dark brown slightly gravelly sandy CLAY tending to clayey SAND. Sand is fine to coarse. Gravel is subangular to angular, fine to coarse of flint.		(0.60)		
- - - -		-				Yellowish orange gravelly SAND. Sand is fine to coarse. Gravel is subangular angular, fine to coarse of flint. [RIVER TERRACE DEPOSITS]	to	0.60 (0.35)	- - - -	
- - - 1.00 - 1.00 - -) B4) ES5	-				Light grey gravelly becoming slightly gravelly SAND. Sand is fine to coarse. Gravel is subangualr to angular, fine to coarse of flint. [RIVER TERRACE DEPOSITS]		0.95	- - - - -	
- - - - - -		-						(0.79)	- - - - - - -	
- - 1.80 - 1.80 - - -	0 B6 0 ES7	- - - - - - -				Light grey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to angular, fine to coarse of flint. [RIVER TERRACE DEPOSITS]		1.74	- - - - - - - -	
								(1.06)	- - - - - - - - - -	
- - - - - - - - - - - - - - - - - - -	AN DETAILS					Remarks		2.80		
	2.5 Long Axis Orienta Shoring / Support Stability: Stable tr					Interminated on engineers instruction at 2.80 m d On: Pit terminated on engineers instruction at 2.80 m d 2.10 m and 1.50 m. Soakaway test undertaken in a None 1.33m	ue to pit wall sta adjacent pit.	bility, Pit coll	apsed b	ack to
				Groundy	vater (deso	sription):		Term	ination I 2.80n	Depth:
	rcadis Cymru	nless otherv	vise stated:			Equipment Used Contractor	Lo	gged By	Checke	d By

SAMPLES TESTS bg g g g g g g g g g g g g g g g g g g	Level 5.88 5.63	Install/ Backfill
Depth Type/ No. Depth No. Type/ No. Results Strept S Description Legend (Thickness) 0.10 B1	Level 5.88 5.63	Install/ Backfill
0.10 B1 0.10 D3 0.10 ES 0.10 ES 0.10 ES 0.10 ES 0.10 ES 0.10 ES 0.10 ES 0.10 ES 0.10 ES 0.10 ES 0.10 ES2 0.35 B4 0.35 D6 0.35 ES5 0.60 B7 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 ES 0.60 <t< td=""><td>5.88 5.63</td><td>Dackini</td></t<>	5.88 5.63	Dackini
0.35 B4	5.63	
0.60 B7	5.63	
	_	
		═ ═ ═ ═ ═ ═ ═ ═
2.00 B10 - Very weak, light grey SILTSTONE XX XX X (0.15) KIMMERIOGE CLAY FORMATIONI	- 4.18	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
2.20 B11 2.20 HV(1) 106(46)kPa Stiff grey mottled greyish brown silty CLAY. With occasional orangish brown 2.15 2.20 D12 2.20 HV(2) 110(48)kPa Stiff grey mottled greyish brown silty CLAY. With occasional orangish brown 2.20 HV(3) 98(50)kPa [KIMMERIDGE CLAY FORMATION] 0.85) 0.85)	4.03	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
	- 3.18	
	- -	
PLAN DETAILS Remarks 2.5 Long Axis Orientation: Pit terminated on engineers instruction at 3.00m on reaching target depth.		
0.7 Shoring / Support: None Stability: Stable Groundwater (description): Dry	ination	Depth:
	3.00r	n od Die

TPSA616

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitie	es Ager	тсу		Project No UA008 Easting (C 54135 2	roject No. Ground Level (mAOD) JA008426-01 7.75 asting (OS mE) Northing (OS mN) 41352.77 267051.36			16 1 16 S	cale :25 Sheet 1 of 1
SAMPL	ES		TEST	S	r SS			STRATA			Install
Depth	Type/	Depth	Type/	Results	Wate		Desci	ription	Leger	d (Thickness)	Level Backfil
- 0.10	ES					Grass over TOPSOIL; Soft	to firm dark br	own slightly gravelly sandy CLAY. Sa	and	1	
- 0.10 - 0.30 - 0.10 - 0.30	B2 ES1	-				lithologies.	abangular an			(0.30)	
-		-				Soft to firm orangish brown	a grov clightly	aroually condy CLAX. Sond in fine to		0.30	7.45
-		-				coarse. Gravel is subangula	a grey slightly ar and subrou	nded fine of mixed lithologies.			
- 0.50 - 0.80	B4	_				[RIVER TERRACE DEPOS	ITS]				
- 0.50 - 0.80	ES3	-								3	
-		-								(0.90)	
-		-									
-											
-		_								3	
- - 1.20 - 1.40	B7	-				Orea sich has un alightly alay		manually CAND. Condition for the second		1.20	6.55
- 1.20 - 1.40	ES6	-				Gravel is subangular to sub	rounded fine a	and medium of mixed lithologies.	е.	(0.20)	
-		-				[RIVER TERRACE DEPOS Firm dark brown bluish grey	ITS] / sandv CLAY.	Sand is fine to coarse.		1.40	6.35
-		_				[KIMMERIDGE CLAY FOR	MATION]			-	┊┊
-		-								-	
-		-								2	
-											
										4	
-		-									
-		-								(1.60)	
-		-									
- - 2.40 - 2.70 - 2.40 - 2.70	B9	2.40	HV(1)	110(41)kPa							
2.40 - 2.70	ES8	-									
-		-									
-		-									
-		-					-	Occasional pockets of SILTSTC	NE	7	
		-								3.00	
PLAN DETAI	ILS	•	•			F	Remarks				- 1
_⊢		3.4		Long Axi	is Orientai	ion: F	Pit terminated	on engineers instructions at 3.00m of	on reaching tai	get depth.	
				Shoring	/ Support:	None					
0.6				Stability:	Stable					_	
				Groundv	vater (des	cription): Groundwater at 1.40m				Terr	mination Depth:
											3.00m
Arcadis	Cymru ,.	nloop attai	wine et at	4.		Fauinment Lised		Contractor		_ogged Rv	Checked Bv
AGS St Mello Busines Cardiff,	ons D ss Park T CF3 0EY	epth (m), Di hickness (n	iameter (m n), Level (m	m), Time (hhmm iOD).	ı),	JCB 3CX		Arcadis Consulting (UK) L	td	SA	IP

Project Northstow Client Homes an	ve Pha d Con	se 2 nmunitie	es Ager	псу		Project N UA00 Easting 5414	Project No. Ground Level (mAOD) UA008426-01 7.11 Easting (OS mE) Northing (OS mN) 541462.10 266890.02			t Date /12/2016 Date /12/2016	5 1: 5 S	^{ale} 25 heet 1	of 1
SAMPLI	ES		TEST	S	- S			STRATA					
Depth	Type/	Depth	Type/	Results	Wate		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30	NO. ES B2 ES1	- - - - - -	NO.			Grass over TOPSOIL; Sof Sand is fine to coarse. Gra mixed lithologies.	it to firm dark br avel is subangu	own slightly gravelly very clayey S lar and subrounded fine and medi	SAND. um of		(0.40)		
- - - 0.50 - 0.80 - 0.50 - 0.80 - 0.50 - 0.80 -	B4 D5 ES3	-				Soft light brown slightly gr subangular and subround [RIVER TERRACE DEPO	avelly sandy Cl ed fine and mee SITS]	AY. Sand is fine to coarse. Grave dium of mixed lithologies.	lis		0.40	6.71	
- - - - 0.90 - 0.90 - 1.20	ES B7 D8					Firm light bluish grey mott Sand is fine to coarse. Gra mixed lithologies.	led brown sligh avel is subangu	tly gravelly slightly sandy to sandy lar and subrounded fine and medi	CLAY. um of		0.80	6.31	
0.90 - 1.20	ES6	-				KIMMERIDGE CLAY FO	RMATIONJ				(0.80)		
- - - - - -		-				Firm to stiff dark bluish gre coarse. [KIMMERIDGE CLAY FOF	ey mottled yello	wish brown sandy CLAY. Sand is t	fine to		1.60	5.51	
- 2.40 - 2.70 - 2.40 - 2.70 - 2.40 - 2.70	B10 D11 ES9	- - - - - - - - - - - - - - - - - - -	HV(1) HV(2)	110(53)kPa >120()kPa							(1.40)	* * * * * * * * * * * *	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- - - - - - - - - - - -											3.00 -	4.11	
PLAN DETAIL	S						Remarks						
0.7		3.2		Long Axi Shoring J Stability: Groundw	s Orientat / Support: Stable vater (des	ion: None cription): Groundwater at 1.80m	Pit terminated	on engineers instruction at 3.00m	on reac	ning target	depth.	nination	Depth:
Arcadis	^{Cymru} U	nless other	wise state	d:		Equipment Used	1	Contractor		Lo	gged By	Checke	ed By



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Project North: Client Home	stowe Pha s and Con	se 2 nmunitie	es Agenc	y		Project N UA00 Easting (54146	Project No. Ground Level (mAOD) UA008426-01 Easting (OS mE) 541462.07 266889.94			Start Date 15/12/2016 End Date 15/12/2016		^{ale} 25 heet 1	of 1
SA	MPLES		TESTS		L٥			STRATA					
Den	th Type/	Denth	Type/	Results	Nate		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill
	No.	- - -	No.		- 00	Grass over TOPSOIL; Sof clayey SAND. Sand is fine and medium of mixed litho	it to firm dark b to coarse. Gra ologies.	rown soft to firm slightly gravelly avel is subangular and subround	very ed fine		(0.30)		
- - - -		- - - - -				Soft light brown slightly gra subangular and subrounde [RIVER TERRACE DEPO	avelly sandy C ed fine and me SITS]	LAY. Sand is fine to coarse. Grav dium of mixed lithologies.	vel is		0.30 (0.40)	• • • •	
-		-				Yellowish brown sandy ver subangular and subrounde [RIVER TERRACE DEPO	ry clayey GRA\ ed fine and me SITS]	/EL. Sand is fine to coarse. Gradulum of mixed lithologies.	vel is		0.70	- - - -	
- - - -											(0.70)		
-		- - - -									1.40		
-		-										-	
											-	-	
- - - -		- - - - -										- - - -	
-		- - - -										- - -	
-											-	-	
-		- - - - -									-	-	
-		- - - -									-	- - - -	
- - - -											-	-	
- - - -		- - - - -									-	- - - -	
-		-										- - -	
-		-					1				_	-	
	PLAN DETAILS				Orientat	ion:	Remarks Pit terminated	on engineers instruction at 1.40	m on reach	ning target	depth for so	oakaway	test.
0.7 Shoring / Sup Stability: Stat					Support: Stable	None					.	ingtion	Dorth
Ground					ater (deso	cription): Dry						1.40n	n
A	rcadis Cymru	nless otherv	vise stated [.]			Equipment Used		Contractor		Lo	gged By	Checke	ed By

Project Northsto Client Homes a	we Pha	se 2 nmunitie	es Agei	тсу		Project N UA00 Easting 5414	Project No. Ground Level (mAOD) Start Date JA008426-01 6.89 18/01/ Easting (OS mE) Northing (OS mN) End Date 541456.47 266730.84 18/01/				icale :25 Sheet 1	of 1
SAMP	LES		TEST	S	- S			STRATA				
Depth	Type/	Depth	Type/	Results	Wate		Descr	iption	Legen	d (Thickness) Level	Backfill
- 0.10 - 0.10 - 0.10 - 0.10	B1 D3 ES ES2	- 0.10 - 0.10 - 0.10 - 0.10	NO. HV(1) HV(2) HV(3)	30(10)kPa 40(20)kPa 50(10)kPa		Grass and stubble over TO subangular and subround	OPSOIL; Soft br ded fine to coars	rown slightly gravelly CLAY. Grave e of flint. Frequent rootlets.		lė .is lė (0.30) .is		
- 0.50 - 0.50 - 0.50 - 0.50	B4 D6 ES5	- - - - 0.50 - 0.50 - 0.50	HV(4) HV(5) HV(6)	40(10)kPa 50(20)kPa 60(20)kPa		Firm orangish brown sligh rootlets. [RIVER TERRACE DEPO	tly sandy CLAY. vSITS]	Sand is fine to coarse. Occasion		0.30 	6.59	
- - - - 0.90 - 0.90	B7 D9	- - - - - 0.90 - 0.90	HV(7) HV(8)	100(50)kPa 110(60)kPa		Firm to stiff orangish brow Gravel is subangular to ro [RIVER TERRACE DEPO	n slightly gravel unded fine to co SITS]	ly sandy CLAY. Sand is fine to co barse of flint.	arse.	0.75	6.14	
0.90 - 0.90 	ES8	0.90	HV(9)	110(60)kPa		Stiff grey mottled brown si	lightly gravelly s	lightly sandy CLAY. Sand is fine t	0		5.69	
		-				coarse. With occasional r sand. Gravel is angular ar fragments (<10 mm x 10 r [KIMMERIDGE CLAY FOI	emants of plan nd subangular fi nm x 20 mm). RMATION]	t rootlets and pockets (< 100 mm ne to coarse of flint. Occasional s) of ilitstone 			
- 2.00 - 2.00 - 2.00 - 2.00	B10 D2 ES1	- 2.00 2.00 2.00 - 2.00 - - - - - - -	HV(10) HV(11) HV(12)	110(50)kPa 110(50)kPa 120(70)kPa			-	Selenite crystals <1mm	i in size	- - - - - - - - - - - - - - - - - - -		= = = = = = = = = = = = =
-										3.00	3.89	: ≡ ≡ = = = = = =
											- - - - - - - - - - - - - - - - - - -	
- - - - - - - - - - - - - - - - - - -											- - - - - - - - - - - - - - - - - - -	
PLAN DETA	AILS	r	1	1	1	1	Remarks		I	1	1	1
0.9		2.2		Long Axi Shoring Stability: Groundw	s Orientat / Support: Stable	ion: None cription): Slight seepage at	Pit terminated	on engineers instruction at 3.00m	n on reaching targ	et depth.	mination	Depth:
	e Cumru			Gioundy	ater (des	1.30m					3.00r	n
Arcadi House	s Cymru U	nless other	wise state	d:		Equipment Used		Contractor		ogged By	Checke	ed By

Project Northstov Client Homes ar	we Pha nd Com	se 2 nmunitie	es Ageno	;y		Project f UA00 Easting 54039	No. 1 8426-01 (OS mE) 99.66	Ground Level (mAOD) 9.26 Northing (OS mN) 266451.05	Start Date 04/01/2017 End Date 04/01/2017		7 ^{Scale} 7 1:25 7 Sheet		of 1
SAMPL	.ES		TESTS		er es			STRATA			Denth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Vat Strik		Desc	ription		Legend	(Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.40 - 0.10 - 0.40 - 0.10 - 0.40 -	ES B2 ES1	-				Grass over TOPSOIL; Da fine to coarse. Gravel is s lithologies.	rk brown slightl ubangular and s	y clayey slightly gravelly SAND. subrounded fine and medium of	Sand is mixed		(0.40)		
- - - - - - - - - - - - - - - - - - -	ES B4	- - - - - -				Light yellowish brown gra subangular and subround [RIVER TERRACE DEPO	velly very claye ed fine and me SITS]	y SAND. Sand is fine to coarse. dium of mixed lithologies.	Gravel is		0.40	8.86	
- 0.70 - 1.00 	ES3	- - - - -									(0.80)		
- - - - - - - - - - - - - - - - - - -	B6 ES5	- - - - - - -				Very light yellowish brown subangular and subround [RIVER TERRACE DEPO	very gravelly S ed fine of mixed SITS]	AND. Sand is fine to coarse. Gr d lithologies.	avel is		1.20	8.06	= = = = = = = = = = = = =
		- - - - - - - - - -									(1.00)		= = = = = = = =
- - - - - - -		-									2.20	7.06	
- - - - - -		-										+ + - - - -	
- - - - - -		- 									-		
- - - - - -		- - - - - -											
- - - - - -		- - - - - -									-		
- - - - -		-											
- - - - -		- - - - - -											
												<u> </u>	
	LS	2.3		Long Axi	s Orientat	ion:	Remarks Pit terminated	on engineers instruction at 2.20	m due to d	collapse.	_	_	_
0.7				Shoring /	' Support: Unstable	None at 2 20m							
				Groundw	vater (deso	Groundwater at 2.20m					Term	nination 2.20n	Depth:
Arcadis House	Cymru	nless other	wise stated:			Equipment Used		Contractor		Lo	gged By	Checke	ed By

TPSA	802
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Project North Client Home	stowe I es and C	has om	se 2 munitie	es Ageno	;y		Project N UA00 Easting	No. 1 8426-01 (OS mE)	Start Date 04/01/201 End Date 04/01/201	Scale171:2517Sheet		of 1	
SA	AMPLES			TESTS		r s			STRATA				
Dep	th Ty	oe/	Depth	Type/	Results	Wate		Des	cription	Legend	Depth (Thickness)	Level	Install/ Backfil
- 0.20 - 0.20 - 0.20	0 E 0 E	0. - - 1 - 3 - 32 -		NO.			Grass over TOPSOIL: Sof clayey SAND. Sand is fine coarse of flint.	t dark brown s to coarse. G	sightly gravelly sandy CLAY tendin ravel is angular and subangular, fin		(0.40)		
- - - - - - - - - - 0.90	0 E 0 E	4 -					Light yellowish orange gra and subangular, fine to co [RIVER TERRACE DEPO	velly SAND. S arse of flint. SITS]	Sand is fine to coarse. Gravel is an	pular	0.40		= = = = = = = = = = = = =
- - - -		-	_						Light yellowish gre	y sand. y sand.			
			_								(2.10)		₩═╫═╢═╢═╢═╢═║═║═║═║ ═║═║═║═║═║═║═║═║═
- - - 2.6(-	0 [6 -					Light grey sandy GRAVEL subangular, fine to coarse RIVER TERRACE DEPO	Sand is fine of flint. SITS]	to coarse. Gravel is angular and		2.50 (0.15) 2.65		
			_									- - - - - - - - - - - - - - - - - - -	
- - - -			_					1			-		
	DETAILS		2.5			s Orientat	ion:	Remarks Pit terminate undertaken ii	d on engineers instructions at 2.65 n adjacent pit.	m due to pit wall ir	nstability. Soa	akaway t	test
0.5).5 Shoring / Supp Stability: Stabi Groundwater (Stable to	approx 2.00m cription): Groundwater at 1.90m				Term	nination 2.65r	Depth: n
	Arcadis Cymr	lin	less other	viso statod:			Equipment Used		Contractor	L	ogged By	Checke	ed By

Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Ager	тсу		Project N UA00 Easting 54060	No. 8 426-01 (OS mE))0.05	Ground Level (mAOD) 9.68 Northing (OS mN) 266249.41	Start Date 05/01/20 End Date 05/01/20	17 1 17 S	^{:ale} :25 heet 1	of 1
SAMPL	ES		TEST	S	r s			STRATA				
Depth	Type/	Depth	Type/ No.	Results	Wate Strike		Desci	ription	Legen	d (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 ES1	-				Grass over TOPSOIL; Dar with occasional rootlets. G of mixed lithologies.	rk brown slightly Gravel is subang	y gravelly clayey fine to coarse SAN ular and subrounded fine and med	D ium	(0.30)	9.38	
- - - - - - - - - - - - - - - - - - -	B4 ES3	- - - - - - - -				subangular and subround [RIVER TERRACE DEPO	ed fine and med SITS]	fium of mixed lithologies.				≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
-		- - - - - - - - - - - - - - -			▼					(1.30)		I≡N≡N≡N≡N≡I = = = = = = = = = = = = =
- - - - - 1.80 - 2.30 - 1.80 - 2.30 - 1.80 - 2.30 -	B6 D7 ES5					Firm to stiff dark bluish gre [KIMMERIDGE CLAY FOF	ey slightly sand RMATION]	y CLAY. Sand is fine to coarse.			8.08	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
-		- - - - - - - - 2.50 - - - - - - - - - - - - - - - - - - -	HV(1) HV(2)	90(42)kPa 93(41)kPa						(1.40) (1.40) 		:"""""""""""""""""""""""""""""""""""""
		- - - - - - - - - - - - - - - - - - -									6.68	
PLAN DETAI	LS		I	1	1	1	Remarks		I	1		
0.7		1.9		Long Axis	Support: Stable	ion: None	Pit terminated	on engineers instruction at 3.00m c	n reaching targ	et depth.		
Groundwater (descriptio						Groundwater at cription): 1.20m				Tern	nination 3.00n	Depth: n
Arcadis	Cymru	nloss other	vice state	4.		Equipment Used		Contractor		.ogged By	Checke	ed Bv

Project Northstov Client Homes ar	ve Pha nd Con	se 2 nmunitie	es Agenc	Project N UA002 Easting (y 54067			No. 8426-01 (OS mE) 76.33	Ground Level (mAOD) 9.15 Northing (OS mN) 266582.34	Start 17/ End 17/	Date 01/2017 Date 01/2017	y 1: y S∣	^{ale} 25 heet 1	of 1
SAMPL	ES		TESTS		er			STRATA			Dopth		Install/
Depth	Type/	Depth	Type/	Results	Strik		Descri	ption		Legend	(Thickness)	Level	Backfill
- 0.10 - 0.30 - 0.10 - 0.30 	B2 ES1	- - - - - - - - - - - - - - - - - - -				Grass over TOPSOIL; Red to coarse. Gravel is suban	ddish brown slig Igular and subro	htly gravelly clayey SAND. Sar unded, fine of mixed lithologies	id is fine S.		(0.90)	-	₩₩₩₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩₩
- - 0.90 - 1.20 - 0.90 - 1.20 - - -	B4 ES3					Light yellowish brown very subangular and subround [RIVER TERRACE DEPO	v sandy GRAVEI ed fine and med SITS]	L. Sand is fine to coarse. Grave ium of sandstone and flint.	el is		0.90	8.25	≡
-		- - - - - - - - - - -									(1.10)	- - - - - - - - - -	₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩ ₩₩₩₩₩₩₩₩₩₩
					S Orientati	00.	Remarks	on engineers instruction at 2 00)m due to n	roundwate	2.00 -	pit insta	ui — III 3
0.7				Shoring Stability: Groundw	' Support: Unstable vater (desc	None ription): Groundwater at 2.0					Term	ination I	Depth:
Arcadis	Cymru	nloss other	wice stated:			Fauipment Used		Contractor		Lo	gged Bv	Checke	ed By

Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Ageno	су.		Project No UA008 Easting (O 540549	426-01 ^{S mE)} 0.32	Ground Level (mAOD) 9.44 Northing (OS mN) 266448.71	Star 05 End 05	rt Date /01/2017 Date /01/2017	7 1: 7 S	^{ale} 25 heet 1	of 1
SAMPL	.ES		TESTS		er tes		:	STRATA			Depth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Descri	ption		Legend	(Thickness)	Level	Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 ES1	- - - - - - - - - - -				Grass over TOPSOIL; Light with occasional rootlets. Sar subrounded fine of flint.	and dark brown nd is fine to co	n slightly clayey slightly gravelly arse. Gravel is subangular and	y SAND		(1.20)		
- 0.70 - 1.00 	B3 B5	- - - - - - - - - - - -				Orannish brown gravelly SA	ND. Sand is fi	ne to coarse. Gravel is subannu	lar and		1.20	8.24	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- 1.20 - 1.50	ES4	-				subrounded fine and medium	m of mixed lith	ologies.			(0.30)	I	
-		-					10]				4.50		
						Very light yellowish brown g subangular and subrounded [RIVER TERRACE DEPOSI	ravelly SAND. I fine and med TS]	Sand is fine to coarse. Gravel is ium of mixed lithologies.	5		1.50 -	- 7.94	
- - 2.30 - 2.60 - 2.30 - 2.60 -	B7 ES6	- - - - - - - - -									(1.20)	- - - - - - - - -	
	LS					F	Remarks				2.70	6.74	
		2.6		Long Axi	is Orientat	ion:	Pit terminated of	on engineers instruction at 2.70r	n due to c	ollapse			
0.7				Shoring Stability: Groundv	/ Support: Unstable vater (deso	None at 2.70m Groundwater at ription): 2.70m					Term	ination I 2.70n	Depth:
Arcadis	Cymru	nloss other	wien etatod:			Equipment Used		Contractor		Lo	gged By	Checke	d By

Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Ageno	су.		Project N UA00 Easting (54055	o. 8426-01 OS mE) 0.58	Ground Level (mAOD) 9.72 Northing (OS mN) 266300.63	Start Date 05/01/201 End Date 05/01/201	7 1 7 S	^{ale} :25 heet 1	of 1
SAMPL	.ES		TESTS		ater ikes			STRATA		Depth	Level	Install/
Depth	No.	Depth	No.	Results	Stri		Descr	iption	Legend	(Thickness)	20101	Backfill
0.10 0.10 - 0.30 0.10 - 0.30	ES B2 ES1 B4					Grass over TOPSOL; Ligh with occasional rootlets. S subrounded fine and medi Light yellowish brown sligh Gravel is subangular and g	t and dark brow and is fine to cc um of mixed lith thy gravelly class subrounded fine	In slightly clayey slightly gravelly parse. Gravel is subangular and hologies. yey SAND. Sand is fine to coarse and medium of mixed lithologie	SAND s.	(0.60)	9.12	======================================
- 1.20 - 1.60 - 1.20 - 1.60 	B6 ES5					IRIVER TERRACE DEPOR	ן אונ				- - - - - - - - - - - - - - - - - - -	═║═║═║═║═║═║═║═ ║═║═║═║═║═║═║═║═
- - - -		-			_	Light orangish brown sligh subangular and subrounde [RIVER TERRACE DEPO	tly gravelly SAN ed fine of mixed SITS]	ND. Sand is fine to coarse. Grave I lithologies.	el is	1.70 (0.30)	8.02	≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡
- - - - - - - - - - - - - - - - - - -	LS						Remarks					
	-	1.8		Long Axi	s Orientat	ion:	Pit terminated	on engineers instruction at 2.00n	n due to collapse.			
0.7				Shoring Stability: Groundv	/ Support: Unstable vater (deso	None at 2.00m cription): Groundwater at 2.00m				Terr	nination I 2.00n	Depth: 1
Arcadis	Cymru	nless other	wise stated			Equipment Used		Contractor	L	ogged By	Checke	d By

Project Northstov Client Homes ar	we Pha nd Com	se 2 nmunitie	es Ageno	;y		Project N UA00 Easting 54069	No. 1 8426-01 (OS mE) 98.31	Ground Level (mAOD) Start Date \$426-01 9.27 08/12/2016 26 mE) Northing (OS mN) End Date 8.31 266348.94 08/12/2016			Scale 1:25 Sheet 1 of 1				
SAMPL	ES		TESTS		<u>ب</u> ي			STRATA							
Depth	Type/	Depth	Type/	Results	Wate Strike		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill		
- - 0.10 - 0.10 - 0.30 - 0.10 - 0.30 -	NO. ES B2 ES1	-	No.			Grass over TOPSOIL; Dar fine to coarse.	rk brown clayey	SAND with occasional rootlets.	Sand is		(0.40)				
- 0.50 - 0.50 - 0.80 - 0.50 - 0.80 - 0.50 - 0.80	ES B4 ES3	- - - -				Light brown slightly gravel subangular and subround [RIVER TERRACE DEPO	lly clayey SANI ed fine of mixe SITS]	 Sand is fine to coarse. Gravel d lithologies. 	is		0.40	8.87			
- - - - - - - - - - - - - - - - - - -	B6 ES5	-				Yellowish brown very sand subangular and subround content of subangular to s [RIVER TERRACE DEPO	dy GRAVEL. Sa ed fine to coars subrounded sar SITS]	and is fine to coarse. Gravel is e of mixed lithologies. Low cobb distone.	le		0.80	8.47	═ ═ ═ ═ ═ ═ ═		
-		- - - - - - - - - - - -									(1.30)		= = = = = = =		
-		-									2.10	7.17	₩₩₩		
- - - - - - - - - - - - - - - - - - -		- - - - - - - - - - - -									-	- - - - - - - - - - - - - - - - - - -			
-		- - - - - - - - -									-	- - - - - - - - - - -			
		-										+ + + + + + + + + + + + + + + +			
		- - - - -									-				
	ILS	3.1			s Orientat	on:	Remarks Pit terminated	on engineers instructions at 2.1	0m due to o	collapsing.					
0.6				Stability: Groundw	Shoring / Support: None Stability: Unstable at 2.10m Groundwater (description): Groundwater at 2.10m						Tern	nination	Depth:		
Arcadis	Cymru	nless other	wise stated:			Equipment Used	I	Contractor		Lo	gged By	Checke	ed By		

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Project Northstov Client Homes ar	we Pha nd Con	se 2 nmunitie	es Ageno	cy		Project UA00 Easting 5407	No. 08426-01 (OS mE) 94.69	Ground Level (mAOD) 9.10 Northing (OS mN) 266489.88	Start Date 19/01/20 End Date 19/01/20	17 1 17 5	^{Scale} 1:25 Sheet 1 of 1				
SAMPL	.ES		TESTS		L SS			STRATA				la stall/			
Depth	Type/	Depth	Type/	Results	Wate		Descr	iption	Leger	d (Thickness)	Level	Backfill			
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 	No. 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					Grass over TOPSOIL: Da coarse. Gravel is angular mudstone.	ark brown slightly to subrounded f	r gravelly clayey SAND. Sand is ine and medium of sandstone and	fine to	Vič ∵ : Vič ∵ : Vič ∵ : Vič					
- 0.50 - 0.50 - 0.90 - 0.50 - 0.90 	ES B4 ES3	-				Orangish brown slightly c subangular to subrounde [RIVER TERRACE DEPC	layey gravelly S, d, fine and medii JSITS]	AND. Sand is fine to coarse. Gra um of mixed lithologies.	ivel is	0.50	8.60				
-		-								(1.20)					
		- - - - - - -									7.40				
-		- - - - - - -													
-		-													
- - - - - - -		- 													
-		- - - - - -													
-		-													
- - - - - -		- - - - - 					1 2								
PLAN DETAILS						ion:	Pit terminated	on engineers instruction at 1.70	n due to influx of (groundwater.					
0.7				Shoring A Stability: Groundw	/ Support: Stable vater (deso	None pription): Groundwater at 1.70m				Ten	mination I	Depth:			
Arcadis House St Mello Busines Cardiff,	Cymru Uons D S Park TI CF3 0EY	nless other epth (m), Di hickness (m	wise stated: ameter (mm ı), Level (mC), Time (hhmm D).),	Equipment Used		Contractor Arcadis Consulting (Uk	() Ltd	Logged By	Checke	ed By			

Project Northstow Client Homes an	ve Pha Id Com	se 2 Imunitie	es Ager	ісу		Project N UA003 Easting (54075	o. 3426-01 DS mE) 1.71	Ground Level (mAOD) 8.97 Northing (OS mN) 266800.18	Start Date 18/01/2017 End Date 18/01/2017	y 1: y SI	ale 25 neet 1	of 1
SAMPLI	ES		TEST	S	er		S	STRATA		Denth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Wat Strik		Descri	ption	Legend	(Thickness)	Level	Backfill
- - 0.10 - 0.10	B1 D3	0.10	HV(1) HV(2)	70(40)kPa 80(40)kPa		TOPSOIL; Firm to stiff dark coarse. Gravel is subround and rootlets.	brown slightly led and rounded	gravelly sandy CLAY. Sand is fine to I fine to coarse of flint. Frequent root	IS allo	(0.20)	0 77	
0.10	ES ES2	0.10	HV(3)	90(50)kPa		Stiff orangish brown slightly fine and medium of flint. Of [RIVER TERRACE DEPOS	y gravelly CLAY. ccasional rootle SITS]	Gravel is subrounded and rounded ts.		(0.30)	0.77	
- 0.40 - 0.40 -	ES5	0.40 0.40 0.40	HV(4) HV(5) HV(6)	80(50)kPa 90(60)kPa		Firm to stiff grey mottled br fine to coarse. Gravel is su	own silty slightly bangular, fine to	y gravelly slightly sandy CLAY. Sand o coarse of siltstone.	is ×	0.50 -	- 8.47	
- 0.70 - 0.70 - - - - - -	B6 - ES7 -	0.70	HV(7) HV(8) HV(9)	110(70)kPa 120(80)kPa 120(80)kPa						(0.70)	• • • • •	
- - - - - 1.40	- - - 					Grey sandy GRAVEL. San coarse of flint. [RIVER TERRACE DEPOS	d is fine to coars	se. Gravel is angular to rounded, fine	e to	1.20	7.77	
- 1.40 - 1.40 - - - - -	D10 ES9	· - · ·				Stiff dark grey slightly grav is rounded, coarse of flint. selenite crystals (<5 mm). [KIMMERIDGE CLAY FOR	elly slightly sand Occasional cobl MATION]	ly CLAY. Sand is fine to coarse. Gra oles up to 80 x 40 x 20 mm. Frequer	vel	1.60	7.37	= = = = = = = = = = = =
- - - 2.00 - 2.00 - 2.00 -	B1 - D3 - ES2 -	- 2.00 2.00 2.00	HV(10) HV(11) HV(12)	120(60)kPa 120(80)kPa 120(80)kPa						- - - - - - - - -		= = = = = = = = = =
- - - - - - - - - - - - - - - - - - -		· · · ·								(1.40)	· · · ·	
- - - - - - - - - - - - -										3.00 -	- 5.97	
		· · · · ·									· · · · ·	
- - - - - - - - - - - -		· · · · · ·									· - - - - - - - - - - - - - -	
- PLAN DETAIL	L						Remarks					
0.8	PLAN DE IAILS 2.5 Long Axis Orientation: Shoring / Support: None Other if the Other is							n engineers instruction at 3.00m on	reaching target	depth.		
				Groundw	ater (deso	cription): Dry				Term	ination I	Depth:
	Cymru	less other	vise state]		Equipment Used		Contractor	Lo	gged By	3.00n Checke	d By
ARCADIS Trial Pit Log

Project Northsto Client Homes a	we Pha	ise 2 nmunitie	es Ager	ıcv		Project No. UA00842 Easting (OS r	26-01 mE)	Ground Level (mAOD) Northing (OS mN)	Start D 16/0 End Da 16/0	ate 1/2017 Ite 1/2017	' ^{Sc} 1: ' SI	^{ale} 25 heet 1	of 1
SVMD	1 5 9		TEST	· · · · · · · · · · · · · · · · · · ·				ςτρατα					
Depth	Type/	Depth	Type/	Results	Water Strikes		Descr	ption	I	egend	Depth (Thickness)	Level	Instal Backf
- 0.10 - 0.20 - 0.10 - 0.20 - 0.10 - 0.20 - 0.30 - 0.60	B2 D8 ES1 B4		NO.			Grass over soft dark brown slig fine to medium, subangular to	ghtly sandy subrounded	gravelly CLAY. Sand is fine. Gravel I of mixed lithologies.	is *	· · · · · · · · · · · · · · · · · · ·	(0.30)		
- 0.30 - 0.60 - 0.30 - 0.60 	D9 ES3	- - - - - -				Soft slightly gravelly sandy CL subangular to subrounded of n	AY. Sand is mixed litholo	fine. Gravel is fine to medium, gies.			0.00 		
		- - - - - -									(1.00)		
- 1.30 - 1.60 - 1.30 - 1.60 - 1.30 - 1.60 -	B6 D10 ES5	-				Yellowish brown gravelly fine to subrounded of sandstone.	to coarse SA	ND. Gravel is fine to coarse, angul	ar to		1.30		
· · ·		-				Firm dark blueish grey slightly	sandy CLA	Y. Sand is fine.			(0.50) 1.80	- - - -	
2.10 - 2.40 2.10 - 2.40	B7 D11	- - - -									- - - - -		
-		- 2.30	HV(1)	91(71)kPa							(0.90)	• • • •	
		-									2.70		≡≡ ≡≡≡
		- - - -									- - - - - - - - - - - - - 	- - - - -	
-		-									- - - - - - - - - - - - 	-	
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		- - - - -											
_		-										-	
	MLS	2.2		Long Axi	s Orientat	ion: Pit t	marks terminated	due to pit becoming unstable.					
0.7				Shoring Stability:	/ Support: Unstable	None							
				Groundw	vater (des	cription):					Term	ination 2.70r	Depth:
Arcadi	s Cymru	nless other	wise state	4.		Equipment Used		Contractor		Lo	gged By	Checke	ed Bv

ARCADIS Trial Pit Log

Project Northstow Client Homes ar	we Pha nd Con	nse 2 nmunitie	es Agei	ncy		Project No. UA008426-(Easting (OS mE)	Ground Level (mAOD) 11 Northing (OS mN)	Start Date 16/01/2017 End Date 16/01/2017	7 1 7 S	^{cale} :25 heet 1	of 1
SAMPL	.ES		TEST	S	L S		STRATA				T
Depth	Type/	Depth	Type/	Results	Wate		Description	Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	B1 ES2	-	No.			Grass over soft dark brown slightly fine to medium, subangular to subr	sandy gravelly CLAY. Sand is fine. Grav	vel is	(0.40)	-	
- 0.40 - 0.70 - 0.40 - 0.70 -	B3 ES4	- - - - - -				Soft light brown slightly gravelly sa subrounded of mixed lithologies. S	ndy CLAY. Gravel is fine, subangular to and is fine to medium.		0.40 (0.40)		
- - - - - - - - 1.00 - 1.50 - - - - -	B5 ES6	- - - - - - - - - - - -				Yellowish brown slightly clayey gra medium of sandstone.	velly fine to coarse SAND. Gravel is fine	to	0.80		
-		-							(1.00)	* * * * * *	== = = = = = =
- 2.10 - 2.50	В7	- - - - - - - -				Firm dark blueish grey CLAY.			1.80		== = = = = = =
-		- 2.50	HV(1)	92(43)kPa					(1.20)	+ + + + + + + + + + + + + + + + + + +	= = = = = = = = = = =
- - - - - - - - - - - - - - - -		- - - - - - - - - - -							3.00		≝≡≡
-		- - - - - - - -									
-		- - - - - - - -									
		- - - - - -				 	6				
		2.2		Long Axi Shoring J Stability:	s Oriental / Support: Stable	ion: Pit term	ভ inated on reaching target depth.				
	Cumme			Groundw	vater (des	cription):			Terr	nination 3.00r	Depth:
ACCASE St Mello Busines Cardiff,	ons D S Park T CF3 0EY	Inless other Depth (m), Di Thickness (m	wise state iameter (m ı), Level (n	d: m), Time (hhmm ıOD).),	Equipment Used	Contractor Arcadis Consulting (UK	Lo) Ltd SA	gged By A	Checke IP	∋d By

ARCADIS Trial Pit Log

TPWS611

Project Northstov Client Homes ar	we Pha nd Con	ise 2 nmunitio	es Age	ncy		Project N UA00 Easting (54123	lo. 8426-01 OS mE) \$1.07	Ground Level (mAOD) Northing (OS mN) 267200.63	Start 06/ End 06/	Date 12/2016 Date 12/2016	6 1 6 S	^{:ale} :25 heet 1	of 1
SAMPI	FS		TES	S	. 0			STRATA					1
Depth	Type/ No.	Depth	Type/ No.	Results	Water Strikes		Desc	ription		Legend	Depth (Thickness)	Level	Install/ Backfill
- 0.10 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30 - 0.10 - 0.30	ES B2 D3 ES1	-				Grass over TOPSOIL; Sof rootlets. Gravel is subang	t to firm dark b llar and subro	rown gravelly silty CLAY with occas unded fine and medium of sandston	ional e.		(0.40)		
- - - - -		-				Firm bluish light brown and Gravel is subangular to ro [KIMMERIDGE CLAY FOF	d grey slightly unded fine of r RMATION]	gravelly slightly sandy CLAY. Sand i nixed lithologies.	s fine.		0.40		
- - - - 1.00 - 1.20	ES B5	- - - - - - - - - - - - - - - - - - -	HV(1) HV(2)	52()kPa 57()kPa							(0.70)		
- 1.00 - 1.20 - 1.00 - 1.20	D6 ES4	1.00	HV(3)	60()kPa		Weak light bluish grey SIL	TSTONE.			*****	1.10	ţ	
- 1.30 - 1.50 - 1.30 - 1.50	B8 ES7	-				[KIMMERIDGE CLAY FOF	RMATION]				(0.30)	1	
-	237	-				Firm light bluish grey mott	ed brown sligh	tly sandy CLAY. Sand is fine to coa	rse.	×××××	1.40	ł	
-		-					manonj				(0.00)		
- 	B10 D11 ES9	-									(0.90)		
-		-				Wook light bluich grov SIL	TETONE				2.30	ļ	
- - -		-				[KIMMERIDGE CLAY FOF	RMATION]				(0.30)		
-		-				Stiff light bluish grey mottle	ed brown sand	y CLAY. Sand is fine to coarse.		× × × × × × × ×	2.60		
- - 2.80 - 3.00 - 2.80 - 3.00	D14 ES12	-				[KINIMERIDGE CLAT FOR	(WATION)				(0.40)	ļ	
-		- 3.00 - 3.00	HV(4) HV(5)	107()kPa 110()kPa							3.00 -	+ + +	Ë≣≞
		3.00	HV(6)	115()kPa			Demarks						
	LS	1.8		Long Ax	is Orientat	ion:	Remarks Pit terminated	l on engineers instruction at 3.00m o	on reach	ing target	depth.		
0.6				Shoring Stability:	/ Support: Stable	None							
				Groundv	vater (des	cription): Dry					Tern	nination 3,00r	Depth:
Arcadis	Cymru	nless other	wise state	d:		Equipment Used		Contractor		Lo	gged By	Checke	ed By

Project North

Project Northstov Client	ve Ph	ase 2				Project No. UA008426-01 Easting (OS mE)	Ground Level (mAOD)	Start Date 14/12/2 End Date	2016	Scale 1:5	0	
Homes ar	SAMPLES TESTS			ency		541022.98	266637.11	14/12/2	2016	She	et 1 o	of 1
SAMPLI	ES		Т	ESTS	ter Kes		STRATA			Depth	Laural	Install
Depth	Type/ No.	Depth	Type/ No.	Results	Stril	Des	cription		Legend	(Thickness)	Levei	Backfi
0.00 - 0.40 0.10 0.10 - 0.20	B1 ES ES2					Dark reddish brown, clayey SAND. Sand [RIVER TERRACE DEPOSI]	I is fine to coarse.			(0.40)		
- 0.50 - 1.20 -	В3					Firm, dark orangish brown, slightly sandy Gravel is fine to medium, subangular to s [RIVER TERRACE DEPOSITS]	y silty gravelly CLAY. Sand is fine subrounded of flint.	to coarse.	× <u>~</u>	0.40	-	
- 0.90 - 1.00 - 1.00 - 1.20	ES4 D5					Deceming clightly grouply. Crowd is on	autor to out rounded fine to ever	an offlight	<u>~ ~</u> :	(1.10)	-	
- 1.20 - 1.50	B6	1.20	SPT(S)	N=10 (2,3/3,3,2,2)		Becoming slightly gravelly. Gravel is ar	ngular to sub-rounded, fine to coars	se of filnt.	<u>×_~</u>			
- - 1.50 - 3.00 -	В7					Firm, dark blueish grey, slightly sandy sil	ty CLAY. Sand is fine to coarse.		<u>×_~</u>	1.50 -	-	:H: ////
100	ES						Locally	very soft.	<u>×_^</u> _			///
- 1.90 - 1.90 - 2.00 - 2.00 - 2.45	ES8 D9	2.00	SPT(S)	N=11 (2,2/2,3,3,3)					<u>×_^</u>	_	_	
-									<u>~_×</u> _	(1.95)		
-									<u>×_×</u>	(,		[]]
- - - 3.00 - 3.45	D10	3.00	SPT(S)	N=12 (2.2/2.2.4.4)					××	-		
-			- (-7						<u>×_</u>			
-									<u>×_</u>	3.45	-	///
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DRI	LLING	ECHNIQ	JE		WATER	OBSERVATIONS	HOLE/CASING DIAMETER	२ 🗌		BACKFI	LL	

Remarks

From

0.00

No groundwater encountered. Target depth reached.

То

1.20 3.00

Technique

Inspection Pit Dynamic Sample



Date/Time

Strike At Time Elapsed

Rise To

Casing

Sealed

Hole Dla.

Contractor

Arcadis Consulting (UK) Ltd.

Depth

1.20 2.00 3.00 3.45

Casing Dia.

128

Depth

2.00

Тор

0.00 0.10 0.50 1.50

Base

0.10 0.50 1.50 3.45



Termination Depth:

Backfill

Concrete Arisings Gravel Bentonite

WS1001

WS1101

Project Norths Client	towe F	hase 2				Pr U Fa	oject No. A00842 astina (OS m	6-01	Ground L	₋evel (mAO (OS mN)	D)	Start Date 13/12/ End Date	2016	Scal 1:5	e 0	
Homes	and C	ommun	ities Ag	ency		54	40682.24	4	26620	94.60		13/12/	2016	Sh	eet 1	of 1
SAM	IPLES		1	ESTS	ter kes				STRAT	ΓA				Depth		Install/
Depth	Typ No	Depth	ו Type/ No.	Results	Stri			D	escription				Legend	(Thickness)	Level	Backfill
0.00 - 0.3	30 B ² ES	6				Dark reddish brow to coarse. Gravel	vn, slightly is sub-and	clayey slig	ghtly silty s b-rounded.	lightly gra fine to co	velly SAND. San arse of flint.	id is fine		(0.30)	ł	کن لک
- 0.10 - 0.2 - 0.30 - 1.2	20 ES 20 B3	2				[RIVER TERRAC	E DEPOSI	TS]	lightly gray) Sand is fine to			0.30	ţ	
-						Gravel is sub-ang	jular to sub	-rounded,	fine to coa	arse of flin	t.	coarse.			ŧ	
- 0.90	ES						E DEPUSI	15]						(1.10)	Į	
- 0.90 - 1.0	00 ES	4													ŧ	
- 1.20 - 1.20 - 1.6	5 D	N1 1.20	SPT(S)	N=14 (2,3/3,3,3,5)										1.40	ŧ	
- 1.30 - 1.7 -	70 B6	6				Firm, light grey, sl	lightly sand	Iy silty CL	AY. Sand is	s fine to co	oarse.		×	1.40	ŧ	╧╓╧
- 1.70 - 1.8	30 ES	7											×		ţ	
- - 2.00 - 2.4	15 D1	0 2.00	SPT(S)	N=4 (1,1/1,1,1,1)									×	(1.20)	ŧ	
- 2.00 - 2.6	50 D8	3									Locally v	ery soft.	<u></u>		ŧ	
													<u></u>		Į	
-						Firm, dark grey, s	lightly sand	dy silty gra	avelly CLAY	. Sand is	fine to coarse. G	ravel is	×	2.60	ŧ	
- 2.90 - 3.0	DO ES	9 200	CDT(C)	N=0 (2 2/2 2 2 2)		[KIMMERIDGE C	o subround LAY FORM	aed of filint (ATION]					×		ŧ	
- 3.00 - 3.4	+5 D1	1 3.00	3F1(3)	N-9 (2,2/2,3,2,2)									×	(0.85)	Ŧ	
-													$\frac{1}{\times}$	2.45	ļ	
-														3.45	ţ	
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				1	14/4											
From		G IECHNI Tec	uU⊑ hnique	Date/Time	VVATE Strike At	Time Elapsed Rise To	Casing	Sealed	Hole Dia.	ULE/CAS Depth	Casing Dia.	Depth	Тор	Base	ILL Bac	kfill
0.00	1.20	Inspe	ection Pit	13/12/2016 14:00	1.90	20 1.90			300 112	1.20 2.00	128	2.00	0.00 0.10	0.10 0.80	Conc Arisi	rete ngs
	0								98 50	3.00 3.45			0.80 1.00	1.00 1.50	Bento	onite vel
Remarks	ater once		1 00m h~													
Target de	pth react	ned.	i.suiiibgi													
														Termi	nation D	epth:
															3.45	m
	CL House	Unless	otherwise	e stated:		Equipment Used			Contrac	tor			Log	ged By	Check	ed By



WS1102

Project Norths Client	towe P	nase 2					Proje UA Easti	ect No. 00842 ing (OS m	6-01	Ground	l Level (mAO g (OS mN)	D)	Start Da 12/12 End Dat	ate 2/2016 te	Scale 1:5	0	
Homes	and Co	ommunit	ties Ag	ency		1	540	0796.3	2	2662	49.13		12/12	2/2016	Sh	eet 1	of 1
SAM	IPLES		T	ESTS	ater					STRA	ATA				Depth		Insta
Depth	No.	^{e/} Depth	No.	Results	Stri					Descriptior	I			Legend	(Thickness)	Lever	Back
0.00 - 0.6 0.10 0.10 - 0.2	60 B1 ES 20 ES2					MADE GRO rootlets. Sa	OUND: S and is fine	Soft, light e to coar	brown, s rse. Grave	lightly san el is angula	dy gravelly ar to sub-ar	CLAY with fr ngular, fine to	equent coarse of		(0.60)	ł	<u>,</u>
0.60 1	20 82					Teu Drick.									(0.00)	ł	
0.60 - 1.4	20 83					Soft to firm fine to med	, dark bro lium, sub	own sligi angular	htly claye to subrou	y silty grav inded of m	elly fine to ixed litholo	coarse SANI gies.	D. Gravel is	××××	0.60	ļ	
0.90 - 1.0	00 ES4					[RIVER TE	RRACE	DEPOS	ITS]					××××	(0.80) -	ŧ	
1.20 - 1.6	65 D5	1.20	SPT(S)	N=10 (2,2/3,3,2,2)										×××	1.40	ļ	
1.65 - 2.0	D0 B6					Light orang	ish brow ded, fine	n, sandy to coar	GRAVE	L. Sand is	fine to coar	rse. Gravel is	sub-angular		(0.25) 1.65	ł	·•-
1.90	ES					Loose, ligh	t brownis	DEPOS sh orang	e, very cl	ayey SANI	D locally ter	nding to sand	ly slightly	/		ļ	
1.90 - 2.0 2.00 2.00 - 2.4	00 ES7 EWW 45 D8	1 2.00	SPT(S)	N=6 (1,1/1,2,1,2)		of flint.	RRACE			Glavel 15 S	ubangular i	to angular, ili			(0.75) -	+	
2.40 - 2.6	60 D9					Loose, bec		iedium d	ense. liał	nt orangish	brown, fine	e to coarse S	AND.		2.40	ł	
						[RIVER TE	RRAČE	DEPOS	ITS]		,					Į	
2.90 - 3.0	00 ES10	3.00	SPT(S)	N=14 (1.1/3.3.4.4)											(1.05)		
5.00 - 5.	-5 DI	0.00														ł	
															3.45	ļ	<u> </u>
																ł	
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[TECHNIQ	L UE	1	WATEF	R OBSERVAT	IONS				HOLE/CAS	ING DIAMET	ER		BACKF		
From	To	Techr	ique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dla.	Depth	Casing Dia.	Depth	Top	Base	Back	cfill
1.20	3.45	Dynamic	Sample		2.00	20	2.00	2.00		112 98	2.00 3.00	120	2.00	0.10 0.80	0.80	Arisir Bento	ngs
Remarks										50	3.45			1.00	3.00	Grav	vel
roundwarget de	ater encou	intered at 2	30m bgl.														
anger ue	Puricacili														-		
															iermir	3 15	երլը։ Տ



Contractor

WS1103

Project Northsto Client	we Ph	ase 2					Pro U Eas	oject No. A00842 sting (OS m	6-01 ⊫)	Ground I	Level (mAO (OS mN)	D)	Start Date 12/12 End Date	/2016	Scale 1:5	0	- 6 4
Homes a	na Co	mmunit	ies Ag	ency		1	54	10923.3	/	26630)2.27		12/12	/2016	Sne	et 1 (of 1
SAMP	ES		T Turo/	ESTS	ater ikes					STRA	ΓA				Depth	Level	Install/
Depth	No.	Depth	No.	Results	St				C	Description				Legend	(Thickness)	2010.	Backfill
0.00 - 0.50	B1 ES					Dark redo [RIVER T	dish brow ERRACE	n, silty fin DEPOS	e to coars ITS]	se SAND wi	ith frequer	nt rootlets.		××× ×××	(0.50)	-	ين الج
- 0.10 - 0.20	ES2					-								××× ×××	(0.50)		┋
- 0.50 - 1.20	B3					Dense, lig	ght browr	hish orang	e, gravell	y fine to co	arse SAN	D. Gravel is su	b-angular		0.50		
- 0.90 - 1.00	FS4					[RIVER T	ERRACE	E DEPOS	ITS]							I	
															- (1.20)	-	
- 1.20 - 1.65 - 1.20 - 1.70	D5 B6	1.20	SPT(S)	N=36 (3,5/6,7,10,13)											(1.30)		
-															-	+	
1.75	EWW1														1.90	ł	
- 1.90	ES ES7	1.90	PID SPT(S)	31.6ppm		Black fine	e to coars	E SAND.	Strong hy	drocarbon	odour.				(0.20)	L	
- 2.00	EW1	2.00	011(0)	11-52 (5,577,6,6,8)		Dense, liç	ght grey S	SAND & C	GRAVEL.	Sand is fine	to coarse	e. Gravel is sub	o-angular to		2.00	ļ	
	00					[RIVER T	ed, fine ERRACE	to coarse E DEPOS	of flint. Hy ITS]	ydrocarbon	odour.				(0.55)	-	
-						Dense, be	ecoming	medium c	lense, ligh	nt brownish	orange S	AND & GRAVE	EL. Sand is		2.55	ł	
-	50					fine to co	arse. Gra	avel is sub	-angular t	to sub-roun	ded, fine t	o coarse of flir	nt.			ţ	
2.90 - 3.00	ES9	3.00	SPT(S)	N=15 (4,6/3,5,4,3)		[INVERT			10]						(0.90) -	F	
3.00 - 3.45	D10															I	
-															3.45		Ⅲ≝Ⅲ
																* * * * * * * * * * * * * * * * * * * *	
		ECUNICI					TIONO									-	
From	To	Techn	ique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Тор	Base	Back	fill
0.00	1.20	Inspecti Dynamic	on Pit Sample	12/12/2016 10:00	1.70	20	1.70			300 112	1.20 2.00	128	2.00	0.00 0.10	0.10 0.80	Concr Arisir	rete Igs
		_ ,	pio							98 50	3.00 3.45			0.80 1.00	1.00 2.20	Bento Grav	nite rel
Remarks Groundwate Target depti	er encour n reached	itered at 1	.70m bgl.												Termir	nation De 3.451	epth: M



Contractor

Checked By Logged By WB

SH

^{roject} Iorthstowe Phase 2 Iomes and Communities Agency							Proj UA Eas	ject No. \00842(tina (OS m)	6-01	Ground L Northing	_evel (mAOI (OS mN)	D)	Start Da 15/12 End Dat	te / 2016 e	Sca 1:	^{lle} 50	
Homes	and C	ommunit	ies Age	ency			54	0244.00) [′]	26659	7.00		15/12	/2016	SI	neet 1	of 1
SAM	PLES		Т	ESTS	es es					STRAT	ΓA				Denth		Install
Depth	Type	e/ Depth	Type/ No.	Results	Strik				[Description				Legend	(Thicknes) Level	Backfi
0.00 - 0.7	0 B1	·				Dark redd	lish brow	n, slightly	clayey S	AND. Sand	is fine to c	coarse.				+	<u> </u>
0.10 - 0.2	0 ES2					IRIVER I	ERRACE	DEPUSI	15]						(0.70)	Ŧ	
																Ŧ	
0.70 - 1.2	0 B3					Dense to	very dens	se, light o	rangish b	rown, slight	ly clayey g	gravelly SANE	D. Sand is		0.70	1	≣≝≣
- 1.00	ES					fine to coa [RIVER T	arse. Gra ERRACE	vel is sub DEPOSI	-angular 1 TS]	to sub-round	ded, fine to	o medium of f	lint.			1	ËШË
1.00 - 1.1 1.20 - 1.6	0 ES4 5 D5	1.20	SPT(S)	N=50 (2,6/12,12,12,14)											(0.95)	ŧ	
																I	
															1.65	1	III≣II
-																+	
Erom				Data/Time	WATER			Casica	Scole -	Hole Di-	OLE/CASI		ER		BACK	FILL	
0.00	1.20	Inspect	ion Pit	Daternime	Suike At	Time Elapsed	ruse 10	Casing	Jealed	300	1.20	Casing Dia.	Берги	0.00	1.65	Arisir	ngs
1.20	0.00 1.20 Inspection Pit 1.20 1.65 Dynamic Sample									50	1.65						

Remarks

No groundwater encountered. Refusal at 1.65m bgl.

AGS HCL House St Mellons Business F Cardiff CF3 0EY Contractor

Termination Depth: 1.65m



Project Norths	towe I	Phase 2					Proj UA	ect No.	6-01	Ground L	evel (mAOI	D)	Start Dat 15/12	2016	Sca 1:	le 50	
Homes	and C	commun	ities Ag	ency			54	0303.0	Ď	26652	24.00		15/12	2016	Sh	eet 1	of 1
SAM	IPLES		Т	ESTS	er					STRAT	ΓA				Denth		Inetall/
Depth	n Ty	Depth	Type/	Results	Wat				[Description				Legend	(Thickness) Level	Backfill
0.00 - 0.7 0.10 0.10 - 0.2	70 B E 20 ES	5. 1 5 12	NO.			Dark redd [RIVER T	lish browr ERRACE	n, slightly DEPOSI	clayey S. TS]	AND. Sand	is fine to c	coarse.			(0.70)		
- - - 0.70 - 1.2	20 В	3				Medium d	lense to c	lense, ligi	nt orangis	sh brown, sl	ightly claye	ey gravelly SAN	ND. Sand		0.70	Ì	
- 1.00 - 1.1	10 ES	4				is fine to c [RIVER T	coarse. G ERRACE	ravel is s DEPOSI	ub-angula TS]	ar to sub-rou	unded, fine	e to medium of	flint.			÷	
- 1.20 - 1.0 - 1.20 - 1.8 - - -	65 D 80 B	5 1.20	SPT(S)	N=30 (5,6/7,7,8,8)											(1.10)		
- 1.80 - 2.4	40 B	7				Stiff, light	greyish v	vhite chal	ky sandy	SILT. Sand	is fine to c	oarse.		<pre></pre>	1.80	ł	
— 2.00 - 2.4 - 2.10 - 2.2 -	45 D1 20 ES	0 2.00 6	SPT(S)	N=29 (3,7/7,6,8,8)		[RIVER T	ERRACE	DEPOSI	TS]					× × × × × × × × × ×	(0.60)	÷	
- 2.40 - 3.0	00 В	3				Verv dens	e. liaht o	rangish b	rown slial	htly clavey §	SAND, Sar	nd is fine to me	dium.	<u>(</u>	2.40	ł	
-						[RIVER T Lens of	ERRACE gravelly f	DEPOSI fine to coa	TS] arse SANI	D. Gravel is	sub-angula	ar to sub-rounde coars	ed, fine to se of flint.		(1.05)		
- 3.00 - 3.4 - -	45 ES	11 3.00	SPT(S)	N=61 (4,7/8,11,16,26)											(1.03)	+	
-															3.45		m≣m
- - -																+	
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				1			TIONS									1	
From			Nique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	≺ Depth	Тор	Base	Bac	kfill
0.00 1.20	1.20 3.45	Inspe Dynami	ction Pit c Sample	15/12/2016 13:00	2.00	20	2.00	2.00		300 112 98 50	1.20 2.00 3.00 3.45	128	2.00	0.00 0.10 1.00 1.80	0.10 1.00 1.80 2.40	Conc Arisi Bento Gra	orete ngs onite vel

Remarks

Groundwater encountered at 2.00m bgl. Target depth reached.



Arcadis Consulting (UK) Ltd.

Contractor

3.45m Checked By Logged By

WВ

Termination Depth:



Project Norths Client Homes	stowe F s and C	Phase 2 Communi	ties Age	ency			Pro UA Eas 54	ject No. \00842(ting (OS mi 1126.1 1	6-01 ^{E)}	Ground L 5.61 Northing 26725	.evel (mAOI (OS mN) i0.40	D)	Start Da 06/12 End Dat 06/12	e 2/2016 2/2016	sc 1: S	^{ale} 50 heet 1	of 1
SAM	MPLES		T	ESTS	es					STRAT	A				Denth		Install/
Dept	h Typ	Depth	Type/	Results	Wate Strik				0	Description				Legend	(Thicknes	s) Level	Backfill
0.00 - 0. 0.10 0.10 - 0. 0.10 - 0. 0.40 - 1.	.30 B2 E3 .20 D3 .20 ES .20 B3	2 3 1 5				Firm, ligh [RIVER T Stiff, brow [RIVER T	t greyish ERRACE vnish grey ERRACE	brown, sli DEPOSI 7, slightly s DEPOSI	ghtly sand TS] sandy silty TS]	dy CLAY. Sa	and is fine nd is fine t	to coarse.			(0.30) 0.30	5.31	
- 1.00 - 1. - 1.00 - 1. - 1.20 - 1. - 1.20 - 1. 	.10 ES .20 D0 .58 D7	4 7 1.20	SPT(S)	N>50 (2,3/5,20,25,0 for 0mm)											(1.28)	4.03	
- - - - - - - - - -																	
- - - - - - - - -																	
- - - - - - - - - - -																	
- - - - - - - - -																	
- - - - - - -																	
- - - - - - - -																	
- - - - - - -																	
		G TECHNIQ	UE		WATE	R OBSERVA	TIONS			H	OLE/CASI	ING DIAMETE	R		BACK	FILL	·
From 0.00 1.20	To 1.20 1.58	Techr Inspect Dynamic	ion Pit Sample	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dla. 300 50	Depth 1.20 1.58	Casing Dia.	Depth	Top 0.00	Base 1.58	Bacl	kfill ngs

Remarks

No groundwater encountered. Refusal at 1.5m bgl.

AGS Business Cardiff CF3 0EY

Arcadis Consulting (UK) Ltd.

Contractor

Checked By Logged By WВ SH

Termination Depth: 1.58m

WS601

WS605

Project Norths Client Homes	towe F and C	hase 2 ommuni	ties Ag	ency			Pro UA Eas 54	ject No. 400842(sting (OS m 1393.1 2	6-01 ^{E)} 2	Ground 7.44 Northing 26718	Level (mAO (OS mN) 34.39	D)	Start Dat 06/12 End Date 06/12	2016 2016	Scale 1:5 She) 0 eet 1 (of 1
SAN	IPLES		Т	ESTS	er es					STRA	TA						la stall/
Depti	n Typ	e/ Depth	Type/	Results	Wate				C	Description				Legend	Depth (Thickness)	Level	Backfill
0.00 - 0.	30 B2		110.			Soft, dark	brown, s	slightly sar	ndy CLAY	. Sand is fi	ne to coars	se.			(0.30)		<u>∭≣</u> ∭
0.10 - 0. 0.10 - 0.	20 ES 30 D3	1				Firm, light	t brownis	h grey, sli	ghtly sand	dy CLAY. S	and is fine	to coarse.			0.30	7.14	
- 0.30 - 1. - 0.40 - 0.	20 B5 80 D6					[RIVER T	ERRACE	DEPOSI	TS]						-	-	
-															(1.00)		
- 0.90 - 1. 	00 ES	4													-		
- 1.20 - 1. - 1.20 - 2.	65 D7 00 B1	1.20	SPT(S)	N=9 (1,1/2,1,3,3)		Firm to st	iff dark o	urov elight	ly candy		Sand is fir	e to coarse			1.30	6.14	(///
-						[RIVER T	ERRACE	E DEPOSI	TS]	Silly OLAT.					-		
-															(0.70)		
- 1.90 - 2. - 2.00 - 2. -	00 ES 45 DS	8 2.00	SPT(S)	N=13 (2,1/2,3,4,4)		NO RECO Sand is fi	OVERY. A ne to coa	Anticipateo	to be firr	n to stiff, da	ark grey, s	lightly sandy silt	y CLAY.		2.00 -	- 5.44	
-						[RIVER T	ERRACE	DEPOSI	TS]						(1 23)	-	
- 	23 D1	0 3.00	SPT(S)	N>50 (9,10/23,27 for											(1.23)	-	
-				10mm)											3.23	4.21	<u> </u>
-																	
-															-	-	
-															-	-	
-															-	-	
-															-	-	
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-															-	-	
-															-	-	
- - -															-	- - -	
-																	
					14/4		TIONS								-		
From		JECHNIQ Techi	UE nique	Date/Time	VVATEF Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Тор	Base	LL Back	cfill
0.00 1.20	1.20 3.23	Inspec Dynamic	tion Pit Sample							300 112 98 50	1.20 2.00 3.00 3.23	128	2.00	0.00 1.00	1.00 3.23	Arisir Bento	ngs nite
Remarks No grour Refusal a	dwater e at 3.23m	ncountered.		1							1				I		
		2													Termir	ation De	epth:
																J.23	

AGS HCL House St Mellons Business P Cardiff CF3 0EY

Arcadis Consulting (UK) Ltd.

Contractor

V	VS606)

Project Norths Client Homes	towe F and C	Phase 2 Commun	ities Ag	ency			Proj UA Eas 54	ject No. \00842 ting (OS m 1495.7	6-01 ^{E)}	Ground 7.08 Northing 2670	Level (mAC g (OS mN) 12.51	D)	Start Da 07/12 End Dat 07/12	/2016 /2016 /2016	Scale 1:5 She) Deet 1 c	of 1
SAN	1PLES		T	ESTS	r s					STRA	TA				_		
Depth	Typ	Depth	Type/	Results	Wate				C	Description				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.3	30 B	1	110.			Soft, dark	reddish I	brown, sli	ghtly sand	dy CLAY. S	and is fine	to coarse.			(0.30)		
0.10	20 ES	2 5 3				Soft, light	ERRACE	DEPOSI	TSJ ahtly sand	V CLAY, S	and is fine	to coarse.			0.30	6.78	
- 0.30 - 0.4	40 D 20 B	5				[RIVER T	ERRACE	DEPOSI	TS]	,					-	_	≡≡≡ ⊯≡⊯≣
-															(1.00)		≡∭≡ ⊯≝⊯
- 0.90 - 1.0	DO ES	56													-	_	╤┉╤
- 1.20 - 1.6	65 D 00 B	7 1.20 8	SPT(S)	N=12 (1,2/2,3,3,4)		- Firmer alle al				O and in fin	- 4			<u> </u>	1.30	5.78	
-	70 01					[KIMMER	IDGE CL	AY FORM	ATION]			5.			(0.30)	- 	
- 1.00 - 1.1		*				Light grey	, highly w IDGE CL	veathered AY FORM	SILTSTC	NE.					1.70 1.80	5.38	
- 1.90 - 2.0 - 2.00 - 2.4	00 ES 45 D1	9 0 2.00	SPT(S)	N=20 (5,3/3,5,5,7)		Firm, dark	grey, slig	ghtly sand AY FORM	dy CLAY. 3	Sand is fine	e to coars	Э.		/××××××	1.90 -	5.18	
2.00 - 2.8	80 B1	1				Light grey	, highly w	veathered		NE.				/ <u></u> _			
-						Stiff to ver	y stiff, da	ark grey, s	lightly sar	ndy silty Cl	LAY. Sand	is fine to coar	se.	<u></u>	(1.03)	-	
- 2.70	E	S 2.70	SPT(S)	N>50 (2,3/10,40 for			IDGE CL		ATION					×_×_			
- 2.70 - 2.8	80 ES 93 D1	12 3		10mm)										<u> </u>	2.93	4.15	///
- 3.00		3															
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[G TECHNI	QUE		WATEF	R OBSERVA	TIONS			Н	IOLE/CAS	ING DIAMETE	R		BACKFI	LL	
From	To	Tec	hnique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Тор	Base	Back	fill
1.20	2.93	Dynam	ic Sample							112 98 50	2.00 2.70 2.93	120	2.00	1.00	2.93	Bentor	nite
Remarks No groun	dwater e	ncountered	I.								1		·I				
Refusal a	it 2.93m	bgl.													Termin	ation Do	oth:
																2.93r	n



Contractor Arcadis Consulting (UK) Ltd.

WS607

Project Norths Client Homes	stowe s and	Phase Comm	2 unities Ag	jency			Pro UA Eas 54	ject No. \00842 sting (OS m • 1509.8	6-01 ^{E)} 5	Ground 6.75 Northing 26694	Level (mAO (OS mN) 12.64	D)	Start Da 07/12 End Da 07/12	ate 2/2016 te 2/2016	Scale 1:5 She	0 Deet 1	of 1
SAN	MPLES			TESTS	۲ų					STRA	TA						
Dept	h T	ype/ De	pth Type/	Results	Wate				C	Description				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.	.30	B1	· NO.			Soft, dark	reddish	brown, sli	ghtly sand	, dy CLAY. S	and is fine	to coarse.			(0.20)		₩≣₩
0.10	20	ES ES3				[RIVER T Firm, liah	ERRACE t reddish	DEPOS	TS] erv sandv	CLAY. San	d is fine to	coarse.			0.30	6.45	
- 0.30 - 0.	.70	D5 B4				[RIVER T	ERRACE	DEPOS	TS]						-	-	
-		F6													(1.00)		≡≡≡ ≡≡≡
- 0.90 - 1.	.00	230													-	-	╤┉═
- 1.20 - 1. - 1.20 - 3.	.65 .00	D7 1. B12	20 SPT(S)	N=10 (1,2/2,2,3,3)		Firm to st	iff. dark o	rev. sliah	lv sandv (CLAY. San	d is fine to	coarse.			1.30	5.45	
-						[KIMMER	IDGE CL	AY FORM	IATION]						-	-	
-		E 00															
- 2.00 - 2.	.45	D9 2.	00 SPT(S)	N=14 (4,5/4,3,3,4)											-	-	
-															(2 15)		
-															(2.10)	-	
-																	
- 2.90 - 3.	.00 E .45	D11 3.	00 SPT(S)	N=26 (4,8/6,6,7,7)											-	-	[]]]
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-															3.45	3.30	/ ' / / /
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<u> </u>	DRILLI	ING TECH			WATER	R OBSERVA	TIONS	1		Н	OLE/CAS	ING DIAMET	FER		BACKFI	LL	l
From 0.00	To 1.20	In	Technique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia. 300	Depth 1.20	Casing Dia. 128	Depth 2.00	Top 0.00	Base 1.00	Back Arisir	dill ngs
1.20	3.45	Dyr	namic Sample							112 98 50	2.00 3.00 3.45			1.00	3.45	Bento	nite
Remarks										50	3.45	1					
No grour Target de	ndwater epth rea	r encounte ached.	ered.														
															Termir	ation De	epth:
																3.45	m



Contractor

WS608

Project Norths Client	towe I	Phase 2					Proj UA Eas	ject No. \00842 sting (OS m	6-01	Ground 7.37 Northing	Level (mAO	D)	Start Da 07/12 End Dat	te /2016 e	Scale 1:5) 0	
Homes	and C	Commun	ities Ag	ency			54	1415.7	9	2670	53.38		07/12	/2016	She	eet 1	of 1
SAN Depth	IPLES	De/ Depth	T Type/	ESTS Results	Water Strikes					STRA Description	TA			Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.	30 B 40 D	0. 1 1 2	NO.			Soft, dark	reddish ERRACE	brown, sli E DEPOSI	ightly sand ITS]	dy CLAY. S	Sand is fine	to coarse.			(0.40)		Ⅲ≡Ⅲ ≡Ⅲ≡
- 0.10 - 0.10 - 0.2 - 0.40 - 1.2	20 ES 20 D	5 33 5				Firm, dar	k grey, sli	ghtly sand	dy silty CL	AY. Sand	is fine to co	oarse.		×	0.40	6.97	
0.70 - 0.9	90 В 00 ЕS	4 66						DEF 03	110]					×	(1.00)		
- - 1.20 - 1.6	65 D	7 1.20	SPT(S)	N=9 (3,2/2,2,3,2)										×	-	-	
- 1.40 - 1.9 -	50 D	8				Light orar	ngish brov ERRACE	wn, fine to DEPOSI	coarse S ITS]	AND.					1.40 1.50	5.97 5.87	
- - 1.90 - 2.0 - 2.00 - 2.4	00 ES	10 2.00	SPT(S)	N=14 (2,2/2,3,4,5)		[KIMMER	iff, dark g IDGE CL	rey, slight AY FORN	tly sandy //ATION]	CLAY. San	id is fine to	coarse.			_		
2.00 - 2.8	30 B1	2													(1.45)		
- - 2.70 - 2.8	30 ES	13													-		
- 2.80 - 2.9 - -	95 D1	4 2.80	SPT(S)	N>50 (25,50 for 80mm/0 for 0mm)										<u> </u>	2.95 _	4.42	///
- - -																	
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		G TECHNIC			WATER	R OBSERVA	TIONS	-		F	IOLE/CAS	ING DIAMET	ER		BACKFI		
From	To	Tecl	nnique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Top	Base	Back	tfill
1.20	2.95	Inspe Dynam	ic Sample							300 112 98 50	2.00 2.80 2.95	128	2.00	1.00	2.95	Bento	nite
Remarks No groun Refusal a	dwater e t 2.95m	ncountered	l.														
															Termir	nation De	epth:
																2.95	m

Project Norths	towe F	hase 2					Proj UA	ject No.	6-01	Ground 7.98	Level (mAO	D)	Start Dat 06/12	, 2016	Scale 1:5	0	
Homes	and C	ommuni	ties Ag	ency			54	1341.7	6	2671	42.32		06/12	2016	She	et 1 o	of 1
SAN	IPLES	. (T	ESTS	ater ikes					STRA	TA			1	Depth	ا مر ما	Install/
Depth	No	e/ Depth	Type/ No.	Results	Stri				C	Description				Legend	(Thickness)	Levei	Backfill
0.00 - 0.3	30 B2 30 D3					Soft, light [RIVER T	brown, s ERRACE	andy CLA DEPOSI	Y with rai TS]	re rootlets.	Sand is fir	ne to coarse.			(0.30)	7.00	
- 0.10	70 D6	1				Firm to sti Gravel is	ff, light o sub-angu	rangish bi Ilar to sub	rown, san -rounded	dy gravelly	/ CLAY. Sa arse of flin	nd is fine to coa t.	rse.		0.30	7.08	<u>≞</u> ≞≞
- 0.30 - 1.: -	20 B5					[RIVER T	ERRAČE	DEPOSI	TS]							-	
- 0.90 - 0.90 - 1.0	DO ES	4													-	-	■ ■ ■
- - 1.20 - 1.0 - 1.20 - 2.0	65 D7	1.20	SPT(S)	N=21 (3,5/6,5,6,4)											(1.60)		
-															-	-	
- 1.90 - 2.0 - 2.00 - 2.4	00 ES 45 D9	B 2.00	SPT(S)	N=46 (7,7/8,13,12,13)		Stiff to ver	y stiff, da	ark grey, s	lightly sa	ndy CLAY.	Sand is fir	e to coarse.			1.90 -	6.08	
2.00 - 3.0	D0 B1	2					IDGE CL	AY FORM	ATION								
-															-	-	
															(1.55)		
- — 3.00 - 3.4	45 D1	3.00	SPT(S)	N=27 (4,4/4,5,8,10)											-	-	
_															3.45	4.53	////
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From		TECHNIQ	ÚE nique	Date/Time	WATER			Casica	Soaled	Hole Dia	IOLE/CAS		Depth	Ton	BACKFI	LL	fill
0.00	1.20	Inspec	tion Pit	Date/ I ime	Surike At	rime Elapsed	RISE IO	Casing	Sealed	112 Hole Dia.	1.20	128	2.00	0.00 1.00	1.00 3.45	Arisin Rento	ini igs nite
1.20	3.45	Dynamic	sample							98 50	3.00 3.45			1.00	0.40	Denito	
Remarks	duct.				I										I		
Target de	pth reacl	icountered. ied.															
															Termir	ation De	pth:
																3.45	n

Contractor

Project Norths Client Homes	towe and	Pha Corr	se 2 nmunit	ies Age	ency			Proj UA Eas 54	ject No. \00842 ting (OS m 1231.0	6-01 ⊫) 7	Ground 6.96 Northing 2672(Level (mAO (OS mN))0.73	D)	Start Dat 05/12 End Date 05/12	, 2016 2016	Scale 1:5 She	eet 1	of 1
SAM	/IPLES			Т	ESTS	L S		1			STRA	TA						
Dept	n Ty	/pe/	Depth	Type/	Results	Wate					Description				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.	30 E	NO. 32		N0.		,	Soft, dark	brown, s	lightly sa	ndy CLAY	. Sand is fi	ne to coars	se.					⋓≡⋓
0.00 - 0.	30 E	D3 ES					[RIVER T	ERRACE	DEPOS	ITS]		Sand is fir				(0.30)	6.66	
- 0.30 - 0.	20 E	D5					[KIMMER	IDGE CL	AY FORM	MATION]	Silty CLAT.		le lo coalse.		<u>×</u> ×		ŧ	
- 0.30 - 1.	90 6	54													×_×		I	
- 0.90	00 E	ES IS6													××		Ļ	
- 1.20 - 1.	65 [77	1.20	SPT(S)	N=12 (3,3/2,4,3,3)										×_×	(1.60)	İ	
- 1.50 - 2.	00 0	28													××		ļ	
-																1	ł	
-	16	10	2.00	CDT(C)	N> 50 (2.4/50 for 10mm)		Strong, lig	aht arev. I	niahlv we	athered S	ILTSTONE				×××××	1.90	5.06	[]]]
2.00 - 2.	16 0		2.00	5P1(5)	N>50 (3,4/50 for 10mm)		[KIMMER	IDGE CL	AY FORM	MATION]		•			****	(0.26) ⁻ 2.16	4.80	///
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	l DRILLIN	N <u>G T</u> E		JE	I	WATEF	R OBSERVA	TIONS			Н	OLE/CAS	ING DIAMET	ER		BACKF		I
From	To		Techni	ique	Date/Time S	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Top	Base	Back	tfill
1.20	2.16		Dynamic	Sample							112 50	2.00	120	2.00	1.00	2.16	Bento	nite
Domorius																		
No grour	idwater	encou	untered.															
Refusal a	at 2.16m	n bgl.																
																Termi	nation De	epth:
																	2.16	m
	ICL House		Jnless o	therwise	stated:		Equipment l	Jsed			Contrac	ctor			Log	ged By	Checke	d By

AGS HCL House St Mellons Business Park Cardiff CF3 0EY

Start Date Project No Ground Level (mAOD) Scale Northstowe Phase 2 UA008426-01 6.19 06/12/2016 1:50 Northing (OS mN) 541186.94 Homes and Communities Agency 267204.82 06/12/2016 Sheet 1 of 1 SAMPLES STRATA TESTS Water Strikes Install/ Depth (Thickness Level Type/ No. Type/ No. Backfill Depth Depth Results Description Legend 5.89 0.00 - 0.30 0.00 - 0.30 0.10 0.10 - 0.20 0.30 - 0.70 0.30 - 1.20 B2 D3 ES ES1 D6 B5 Soft to firm, dark brown, slightly silty sandy CLAY with occasional rootlets. Sand is (0.30) fine to coarse. [RIVER TERRACE DEPOSITS] Firm to stiff, light greyish brown, slightly sandy CLAY. Sand is fine to coarse. [RIVER TERRACE DEPOSITS] × 0.30 ∭≝∭ 0.90 - 1.00 ES4 ≣∭≣ 1.20 - 1.65 1.20 - 2.00 D7 1.20 SPT(S) N=8 (1,2/2,2,2,2) B11 (2.45) 1.90 1.90 - 2.00 1.90 - 2.35 ES ES8 D9 1.90 SPT(S) N=28 (2,3/4,6,8,10) N>50 (4,10/14,36 for 20mm) 2.50 - 2.75 D10 2.50 SPT(S) Becoming very stiff from 2.50m bgl. 2.75 3.4 DRILLING TECHNIQUE WATER OBSERVATIONS HOLE/CASING DIAMETER BACKFILL From То Technique Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dla Depth Casing Dia. Depth Тор Backfill Base 1.20 2.00 2.50 2.75 0.00 1.00 128 2.00 0.00 1.20 Inspection Pit 300 112 98 50 Arisings Bentonite 1.20 2.75 Dynamic Sample

Remarks

No groundwater encountered. Refusal at 2.75m bgl.

AGS HCL House St Mellons Business P Cardiff CF3 0EY Contractor

Termination Depth: 2.75m



WS612

WS613

Project Norths	stowe F	Phase 2					Pro U	ject No. 400842	6-01	Ground L 5.68	_evel (mAO	D)	Start Da 05/12	te /2016	Scale 1:5) 0	
Client Homes	s and C	Commun	ities Ag	ency			Eas 54	sting (OS m 1182.2	nE) 6	Northing 26723	(OS mN) 88.67		End Dat 05/12	, 2016	Sh	et 1	of 1
SAN	NPLES		Т	ESTS	ss Ss					STRAT	ΓA						
Dept	h Typ	pe/ Depth	Type/	Results	Wate				[Description				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 1.	.20 B	0. 1 1	N0.		,	Firm, dar	k greenis	h grey, sli	ightly sand	dy silty grav	elly CLAY	. Sand is fine t	o coarse.	× · · · ·			⋓≡⋓
0.10 0.10 - 0.	.20 ES	S 33				Gravel is	fine, sub	angular to	subroun	ded of flint.				× ×		ļ	
- 0.10 - 1. 	.20 D:	2				[. anninzi								<u> </u>		ł	
-														~	(1.30)	+	
1_001	10 59													×	_	L	
- 1.20 - 1.	.80 B	6 1.20	SPT(S)	N=18 (3.3/4.4.5.5)										×			[],]
-						Stiff to ve	ry stiff, da	ark grey, s	slightly sa	ndy CLAY. S	Sand is fir	e to coarse.		×	1.30	4.38	
-							IDGE CL	AY FORM	MATION]							ł	(//,
- 1.70 1.70 - 1.	.80 ES	5 5 1.80	SPT(S)	N>50 (2,2/3,27,20 for											(0.82)	ŧ	///
_				20mm)												2 50	(///
_															2.12	3.50	
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From	DRILLIN To	G TECHNIC	QUE	Date/Time	WATEF Strike At	R OBSERVA	Rise To	Casing	Sealed	Hole Dia	OLE/CAS Depth	Casing Dia	R Depth	Top	BACKF Base	LL Back	cfill
0.00	1.20	Inspe	ction Pit							300 112	1.20			0.00	1.00	Arisir	ngs inite
ı.20	2.12	Dynami	c oample							50	2.12					Dentu	
Remarks		г <u> </u>		1	I		1	1	1		r				I		
No groun Refusal	ndwater e at 2.12m	ncountered															
		3															
															l'ermir	ation De	eptn:
																2.12	111
	ICL House	IInlose	othorwise	etatod:		Equipment (Jsed			Contrac	tor			Loa	aed Bv	Checke	d By



Arcadis Consulting (UK) Ltd.

Start Date Project No Ground Level (mAOD) Scale Northstowe Phase 2 UA008426-01 6.33 06/12/2016 1:50 Northing (OS mN) 541223.80 Homes and Communities Agency 267222.96 06/12/2016 Sheet 1 of 1 SAMPLES TESTS STRATA Water Strikes Install/ Depth (Thickness) Level Type/ No. Type/ No. Backfill Depth Description Depth Results Legend 0.00 - 0.50 0.00 - 0.50 0.10 0.10 - 0.20 0.50 - 1.10 0.50 - 1.10 ∭≣∭ B1 D2 ES ES3 Firm, dark brownish grey, slightly sandy CLAY. Sand is fine to coarse [KIMMERIDGE CLAY FORMATION] (0.50) B4 D5 0.50 5.83 Firm to stiff, dark grey, slightly sandy silty CLAY. Sand is fine to coarse. [KIMMERIDGE CLAY FORMATION] × 0.90 - 1.10 ES6 × ≣∭≣ × 1.20 - 1.65 D7 1.20 SPT(S) N=14 (2,2/3,3,4,4) × \times (2.58) × 1.90 - 2.00 2.00 - 2.45 ES8 D9 2.00 SPT(S) N=17 (1,2/2,4,4,7) \times \times 2.60 - 2.70 2.70 - 3.08 ES10 D11 \times N>50 (2,3/7,8,10,25 for 10mm) 2.70 SPT(S) Becoming very stiff from 2.70m bgl \times 3.08 3 25 DRILLING TECHNIQUE WATER OBSERVATIONS HOLE/CASING DIAMETER BACKFILL From То Technique Date/Time Strike At Time Elapsed Rise To Casing Sealed Hole Dla Depth Casing Dia. Depth Тор Backfill Base 1.20 2.00 2.70 3.08 1.00 300 112 98 50 128 2.00 0.00 0.00 1.20 Inspection Pit Arisings Bentonite 1.20 3.08 Dynamic Sample

Remarks

No groundwater encountered. Refusal at 3.08m bgl.

AGS HCL House St Mellons Business P Cardiff CF3 0EY

Arcadis Consulting (UK) Ltd.

Contractor

Logged By Checked By

Termination Depth: 3.08m

WS614

WS615

Project Norths Client Homes	towe F and C	Phase 2 Communit	ties Ag	ency			Pro UA Eas 54	oject No. A00842 sting (OS m 11605.9	6-01 ⊫) 3	Ground L 6.37 Northing 26675	Level (mAOI (OS mN) 5 1.77	D)	Start Da 07/12 End Dat 07/12	/2016 /2016 /2016	Scale 1:5 She	o 0 eet 1	of 1
SAN	IPLES		T	ESTS	۲ų					STRAT	ΓΑ		l.				
Dept	Тур	e/ Depth	Type/	Results	Wate				C	escription				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0. 0.00 - 0. 0.10 - 0.10 0.10 - 0.	90 B 90 D2 20 ES	5. 1 2 3 3	NO.			Soft, dark [RIVER T	creddish ERRACE	brown, sli E DEPOS	ghtly sand ITS]	iy CLAY. Sa	and is fine	to coarse.			(0.90)		
[
- 0.90 - 1. - 0.90 - 1. - 1.00 - 1. - 1.20 - 1. - 1.20 - 1.	20 B4 20 D9 10 ES 40 B1 65 D1	4 5 2 1.20 7	SPT(S)	N=20 (2,3/6,5,5,4)		Firm to st [RIVER T	tiff, light o ERRACE	orangish g E DEPOSI	rey, sandy ITS]	CLAY. Sar	nd is fine t	o coarse.			0.90 (0.50) 1.40	5.47 4.97	
-						[RIVER T	ERRACE	E DEPOS	ITS]		SE SAND.				(0.60)		
- 1.90 - 2. - 2.00 - 2. - 2.00 - 3. 	00 ES 45 D! 00 B1	8 9 2.00 3	SPT(S)	N=11 (2,1/2,2,3,4)		Firm to st [KIMMEF	tiff, dark g RIDGE CL	grey, sligh ∟AY FORM	tly sandy (/IATION]	CLAY. Sanc	d is fine to	coarse.			2.00 -	4.37	
- - - - 2.90 - 2.90 - 3. - 3.00 - 3.	ES 00 ES 45 D1	S 10 3.00 1	SPT(S)	N=32 (2,3/4,10,10,8)											(1.45)		
- - - - -														<u> </u>	3.45	2.92	<u>///</u> .
															-		
- - - 																	
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- - - - -																	
	DRILLIN	G TECHNIQ	UE		WATE	R OBSERVA	ATIONS			Н	OLE/CASI	NG DIAMET	ER		BACKF	ILL	
From 0.00 1.20	To 1.20 3.45	Techr Inspect Dynamic	nique tion Pit : Sample	Date/Time 07/12/2016 10:00	Strike At 1.40	Time Elapsed 20	Rise To 1.40	Casing	Sealed	Hole Dla. 300 112 98 50	Depth 1.20 2.00 3.00 3.45	Casing Dia. 128	Depth 2.00	Top 0.00 1.00	Base 1.00 3.45	Bacl Arisi Bento	kfill ngs onite
Remarks Groundw Target de	ater enco pth reac	ountered at 1 ned.	.40m bgl.												Tormie	nation	enth:
	CL House			atatadi		Equipment	lsed			Contrac	tor				ned By	3.45	m



Arcadis Consulting (UK) Ltd.

Logged By Checked By WВ

SH

WS616

Project Norths	stowe	Pha	ise 2					Pro U	ject No. 400842	6-01	Ground 5.95	Level (mAO	D)	Start Dat 08/12	e /2016	Scal 1:5	e 0	
Home	s and	Con	nmunit	ies Age	ency			54	1668.9	⊫) 7	26638	85.16		End Date 08/12	/2016	Sh	eet 1	of 1
SAI	MPLES			T	ESTS	ter					STRA	TA				Depth		Install/
Dept	th T	ype/ No.	Depth	Type/ No.	Results	Wat Strik				[Description				Legend	(Thickness)	Level	Backfill
0.00 - 0	.40	B1 ES					Dark redo	lish brow	n, gravelly	y SAND. S	Sand is fine	e to coarse	e. Gravel is sub	o-angular to		(0.40)	ł	
_ 0.10 - 0 - 0.40 - 1	.20 E	ES2 B3					[RIVER T	ERRACE	DEPOS	ITS]	with a state		and in first to			0.40	5.55	
-							Gravel is	igish brov sub-angu	wn, slighti ular to sub	y gravelly p-rounded	, fine to coa	y CLAY. Sa arse of flin	t.	uarse.	×		ţ	
- - - 0.90 - 1	.00 F	ES4				-		EKRACE	DEPOS	115]					×		Į	
- 100			1.00	007/01											×	(1.30)	ŧ	┍┉═
- 1.20 - 1 - 1.20 - 1 -	.00 .70	B6	1.20	571(5)	11 (3,3/5,4,4,4)										×		Į	///
-															×		† 	(]]
- - - 190-2	00	-57					Firm, darl	grey, sli	ghtly san	dy CLAY.	Sand is fine	e to coarse	Э.			1.70	4.25	///
- 1.90 - 3 - 2.00 - 2	.00 E	S10	2.00	SPT(S)	N=10 (2,2/2,2,3,3)		[rannin]			,, thong							ŧ	
2.00 - 3	8.00	B8															ŧ	[]].
-																(1.75)	Ŧ	1/1
-																-,	ŧ	(//)
- — 3.00 - 3	8.45 I	D11	3.00	SPT(S)	N=10 (2,2/2,2,3,3)											-	‡	///
-																	I	
-																3.45	2.50	///
-																	ŧ	
-																	Į	
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From	DRILLI To	NG T	ECHNIQL Techn	JE iaue	Date/Time	WATE Strike At	R OBSERVA		Casing	Sealed	Hole Dia	Depth	Casing Dia	R Denth	Ton	BACKF Base	ILL Back	cfill
0.00	1.20		Inspecti	on Pit	08/12/2016 10:00	1.00	20	1.00	Jasily	Couleu	300 112	1.20	128	2.00	0.00	1.00	Arisir	ngs
1.20	3.45		Dynamic	Sample							98 50	3.00 3.45			1.00	3.43	Denic	ante -
Remarks	1					1	1	I	1	1						[
Groundv Target de	vater en epth rea	count	ered at 1	.00m bgl.														
0	,															Tormi	nation D	enth:
																renni	345	m
							E su in su su t l	lood			Quata	-4					0.40	



Arcadis Consulting (UK) Ltd.

gged By Checked By WB SH

Project Norths Client Homes	towe and	Pha Cor	ise 2 nmunit	ies Aq	ency			Proje UA East 54'	ect No. 00842 ing (OS m 1676.14	6-01 ⊫) 4	Ground 6.08 Northing 26632	Level (mAO (OS mN) 2 0.67	D)	Start Da 08/12 End Dat 08/12	te /2016 e /2016	Scale 1:5 She) 0 eet 1 (of 1
SAM		-		т	FSTS			_			STRA	ΤΔ						
Depth		ype/	Depth	Type/	Results	Water Strikes					Description				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.4	40 20 F	B1 		INO.			Dark redd	ish brown	, silty SA	ND. San	d is fine to	coarse.			×××	(0, (0))		
- 0.40 - 1.2	20	вз							DEPUSI		<u> </u>				×××	(0.40)	5.68	
							[RIVER TI	IRRACE	ige, claye DEPOSI	ey SAND. ITS]	Sand is fir	e to coars	se.				ł	
- 0.90		ES														(0.90)	ł	
- 1.20 - 1.0	00 E 65	ES4 D6	1.20	SPT(S)	N=11 (0,1/2,3,3,3)											-		[]]
- 1.20 - 3.0	00	B5		. ,			Firm, dark	grey, slig	htly sand	dy CLAY.	Sand is fine	e to coarse	9.			1.30	4.78	
-							[002 02										
- 1.90 - 2.0	00 E	ES7 D8	2.00	SPT(S)	N=11 (2,2/2,3,3,3)						2 thin b	ands of sil	tstone, up to 20r	nm thick.		-	Ļ	
-				- (-)														
-																(2.15)	ŀ	
- 2.90 - 3.0	00 E 45 E	ES9 D10	3.00	SPT(S)	N=14 (2,2/3,3,4,4)											-	-	
-																	ļ	
-																3.45	2.63	////
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		NG T	ECHNIQI	JE	1	WATER	ROBSERVA	TIONS			н	OLE/CAS	ING DIAMETER	2		BACKF		
From	To		Techn	ique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Тор	Base	Back	tfill
0.00	1.20 3.45		Inspecti Dynamic	on Pit Sample							300 112 98	1.20 2.00 3.00	128	2.00	1.00	3.45	Arisir Bento	igs nite
Remarks											50	3.45						
No groun Target de	dwater	enco ached	untered.															
																Termir	nation De	epth:
																	3.45	m



Logged By Checked By
WB SH

WS618

Project Norths	towe I	Phase 2					Pro	oject No. A00842	6-01	Ground L 7.57	_evel (mAOl	0)	Start Dat 09/12/	2016	Scale 1:5	0	
Client Homes	s and C	Commun	ities Ag	ency			Ea: 54	sting (OS m 11697.0	ηE) 3	Northing 26606	(OS mN) 50.33		End Date 09/12/	2016	She	et 1	of 1
SAN	IPLES		Т	ESTS	ter (es					STRAT	ΓA			1	Depth		Install/
Dept	n Tyj N	o. Depth	n Type/ No.	Results	Strik				D	escription				Legend	(Thickness)	Level	Backfill
0.00 - 0. 0.10 - 0.	50 B 20 ES	1 52				Dark brov [RIVER T	vn, silty S ERRACE	SAND. Sa E DEPOSI	nd is fine t ITS]	o coarse.				× × ×	(0.50)		
- 0.50 1	20 0	2							-					×××,	(0.50)	7.07	
- 0.50 - 1. - -	20 B	5				Medium of is fine to	dense, lig coarse. C	ght orangis Gravel is s	sh grey, sli ub-angula	ghtly claye r to sub-rou	y slightly g unded, fine	ravelly silty SAN to coarse of fline	ND. Sand nt.	××`>	0.50	- 7.07	
- 0.90	E	s				[RIVER T	ERRACE	E DEPOS	ITS]					××、×	(1.00)	-	
— 0.90 - 1. - - 1.20 - 1.	00 ES	5 1.20	SPT(S)	N=13 (2.2/3.3.3.4)										××`,	(1.00) -		777.
- 1.20 - 2.	00 B	6	- (-)											××,>	1.50		
-						Light ora	nge, fine ERRACE	to coarse	SAND. ITS1						1.50	- 6.07	
- - 1.90 - 2.	00 ES	57							,						(0.50)		///
- 2.00 - 2. - 2.00 - 3.	45 D 00 B	8 2.00 9	SPT(S)	N=8 (1,1/2,2,2,2)		Soft to fir	m, light g	rey, sandy	Y CLAY. Sa	and is fine t	to coarse.				2.00 -	- 5.57	
-									VIATION								
-																-	
-	00 50	10													(1.45)		
- 2.90 - 3. - 3.00 - 3.	45 D'	10 11 3.00	SPT(S)	N=39 (2,4/6,9,12,12)							Becoming	very stiff from 3.	00m bgl.		-	-	
-																-	
-														<u> </u>	3.45	4.12	////
-																	
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							TIONS			11					PACKE		
From	To	Tec	hnique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Тор	Base	Back	cfill
0.00 1.20	1.20 3.45	Inspe Dvnam	ection Pit iic Sample	09/12/2016 10:00	1.30	20	1.30			300 112	1.20 2.00	128	2.00	0.00 1.00	1.00 3.45	Arisir Bento	ngs inite
	5.45	Synall								98 50	3.00 3.45						
Remarks	-4-		4.00		. I			•	· 1			· · · ·	I		I		
Groundw Target de	ater enco pth reac	ountered at hed.	1.30m bgl.														
															Termir	ation De	epth:
																3.45	m
	ICI House	Univer	othomulos	atatad.		Equipment	lsed			Contrac	tor			1.00	aed By	Chooko	d Du



WS619

Project Norths Client Homes	towe F and C	hase 2 ommunit	ties Ag	ency			Proj UA Eas 54	ect No. 00842 ting (OS m 1652.2	6-01 ^(E) 0	Ground 8.20 Northing 26602	Level (mAO (OS mN) 24.42	D)	Start Da 09/12 End Dat 09/12	te /2016 e /2016	Scale 1:5 She	0 eet 1	of 1
SAN	IPLES		Т	ESTS	es					STRA	TA				Death		Install/
Depth	Typ	e/ Depth	Type/ No.	Results	Wate				[Description				Legend	(Thickness)	Level	Backfill
0.00 - 0.9 0.10 0.10 - 0.2	50 B ⁻ ES 20 ES	2				Dark brov [RIVER T	vn, silty S ERRACE	AND. Sa DEPOSI	nd is fine ITS]	to coarse.					(0.50)		
- 0.50 - 1.2	20 B3					Firm, light	t orangish	brown s	ilty CLAY.					×	0.50	7.70	
0.90 - 1.0	DO ES	4				[21110102	52. 00.						×			
- - 1.20 - 1.6 - 1.20 - 2.0	65 D	1.20	SPT(S)	N=27 (3,6/7,6,7,7)										×			
- 														×	(1.90)	+ +	
- 1.90	E		0.007(0)											×		ļ	
- 1.90 - 2.0 - 2.00 - 2.4 -	15 DI	2.00	5P1(5)	N=11 (2,1/2,3,3,3)												Ī	
2.50 - 3.0	00 B					Firm, light	t grey, slig	ghtly sand	dy CLAY.	Sand is fine	e to coarse	ŀ.			2.40	5.80	
- 2.90 - 3.0	00 ES	0				[(1.05)	ł	
- 3.00 - 3.4	45 D1	1 3.00	SPT(S)	N=12 (2,2/3,2,3,4)											(1.00)	+	
-															3.45	4.75	////
-																	
-															-	Ļ	
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From		G TECHNIQI	UE	Date/Time	WATEF			Casing	Sealed	Hole Dia	OLE/CAS	ING DIAMET	ER	Top	BACKF	LL Pact	
0.00 1.20	1.20 3.45	Inspect	tion Pit Sample	09/12/2016 10:00	1.80	20	1.80	Jasily	Jealeu	300 112	1.20 2.00	128	2.00	0.00 1.00	1.00 3.45	Arisir Bento	ngs onite
Remarks										98 50	3.45						
Groundwa Target de	ater enco pth reac	untered at 1 ned.	.20m bgl.														
															Termi	nation De	epth:
	CL Hours	Halaa	41	- 4 - 4 - 4		Equipment	lead			Control	ctor				and By	3.45	m



Arcadis Consulting (UK) Ltd.



Project Norths	stowe	Pha	ase 2					Proj UA	ect No.	6-01	Ground 6.28	Level (mAO	D)	Start Da 08/12	^{ate} 2/2016	Scale 1:5) 0	
Client Homes	s and	Cor	nmunit	ies Ag	ency			Eas 54	ting (OS m 1632.4	E) 7	Northing 2665	(OS mN) 5 2.50		End Da	^{te} 2/2016	Sh	eet 1	of 1
SAM	MPLES			Т	ESTS	er					STRA	TA				Denth		Install/
Dept	h T	ype/ No.	Depth	Type/ No.	Results	Wat Strik				0	Description				Legend	(Thickness)	Level	Backfil
0.10 0.10 - 0.	.20 1	ES ES3					Soft, dark	reddish I ERRACE	orown, sli	ghtly sand TS1	dy CLAY. S	and is fine	to coarse.			(0.40)		
. 0.10 - 0. . 0.20 - 0.	.40 .40	B1 D2					Eirm light	orangieł		abtly cand	ly elightly g	ravelly silt	V CLAV San	d is fine to		0.40	5.88	
- 0.40 - 0. - 0.40 - 1. -	.20	D5 B4					coarse.	Gravel is s	sub-angul	ar to sub-	rounded, fi	ine to coar	se of flint.		×		ţ	
- - 0.90 - 1.	.00 1	ES6								10]					×	(0.80)	ł	
 - - 1.20 - 1.	.65	D7	1.20	SPT(S)	N=11 (1.0/2.3.3.3)										×	1.20	5.08	777
1.20 - 2.	.00	B10					Firm, dark [KIMMER	i grey, sli IDGE CL	ghtly sand AY FORM	dy CLAY. 3 /IATION]	Sand is fine	e to coarse	2.				ł	
-																	Ī	(///
- - 1.90 - 2. - 2.00 - 2	.00 1	ES8	2.00	SPT(S)	N>50 (2 0/20 15 5 10 for											(1.18)	ŧ	
	.30	09	2.00	011(0)	0mm)								Becom	ing very stiff.			ļ	
-																2.38	3.90	<u> </u>
-																	Į	
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	DRILLI	NGT	FCHNIO	JF	1			TIONS			ц			FR		BACKE		
From	To		Techni	ique	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dia.	Depth	Casing Dia.	Depth	Тор	Base	Back	kfill
0.00 1.20	1.20 2.38		Inspecti Dynamic	on Pit Sample							300 112 50	1.20 2.00 2.38	128	2.00	0.00 1.00	1.00 2.38	Arisir Bento	ngs onite
Pemarka												2.00						
No grour	ndwater	enco	ountered.															
Refusal a	at 2.38r	n bgl.																
																Termir	nation De	epth:
							East 11	la a d				-4					2.30	
	St Mellons		Unless of	tnerwise	stated:		Equipment C	15EU			Contrac	UUI			LOG	уеч ву	Спеске	u By



WS621

Project Norths Client Homes	towe P and C	hase 2 ommuni	ties Ag	ency			Proj UA Eas 54	ject No. \00842 sting (OS m • 1562.3	6-01 ^{E)} 1	Ground 6.25 Northing 2666	Level (mAO g (OS mN) 71.09	D)	Start Da 07/12 End Date 08/12	/2016 /2016 /2016	Scale 1:5 She	0 eet 1	of 1
SAN	IPLES		T	ESTS	ر م					STRA	TA						
Denth	Тур	e/ Denth	Type/	Results	Nate					escription				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0.	- No 50 B1	. Bopui	No.		- 0	Soft, dark	reddish	brown, sli	ghtly sand	y slightly o	gravelly CL	AY. Sand is fine	e to			<u> </u>	⋓≡⋓
_ 0.10 - 0. _ 0.20 - 0.	20 ES 50 D2	3				coarse. G	FRRACE	ine to me	dium, suba TSI	ingular to	subrounde	ed of mixed litho	ologies.			ļ	
- - 0.50 - 0.	80 D5								1						(0.90)	ŧ	≣∎≣
- 0.50 - 1.	20 B4															ŧ	
- 0.90	00 ES	5				Firm, ligh	t grey, slig	ghtly sand	ly CLAY. S	and is fine	e to coarse				0.90	5.35	
- - 1.20 - 1.	65 D7	1.20	SPT(S)	N=15 (2,2/3,4,4,4)		[KIMMER	IDGE CL	AY FORM	/ATION]							ŧ	[]]]
- 1.20 - 2.	40 B1															ļ	1,17
-															(1.50)	ļ	
- - 1.90 - 2.	00 ES	3														ţ	///
- 2.00 - 2.	45 D9	2.00	SPT(S)	N=6 (1,1/1,1,2,2)								Lo	cally soft.		-	ŧ	[]]]
- 240-3	00 B1														2 40	3.85	
		·				Firm to st [KIMMER	iff, dark g IDGE CL	rey, slight AY FORM	tly sandy s /IATION]	ilty CLAY.	Sand is fir	ne to coarse.		×	2.40	0.00	///
-		_				-			-					×		ŧ	$\langle / / \rangle$
- 2.90 - 3.	00 ES1 45 D1	3.00	SPT(S)	N=19 (2,2/4,3,4,8)										×	(1.05)	ŧ	[]]/
E														×		Į	
-														×_^	3.45	2.80	////
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From		TECHNIQ	UE	Date/Time	WATER Strike At	≺ OBSERVA Time Elansed	Rise To	Casing	Sealed	Hole Dia	Depth	Casing DIAMETER	≺ Depth	Top	BACKF Base	Back	fill
0.00	1.20	Inspec	tion Pit	07/12/2016 10:00	0.80	20	0.80			300 112	1.20	128	2.00	0.00	1.00 3.45	Arisir Bento	igs nite
1.20	5.45	Dynamic	Jample							98 50	3.00 3.45					20110	
Remarks					I						1				I		
Groundw Target de	ater enco pth reach	untered at (ed.	0.80m bgl														
															Termi	nation De	epth:
																3.45	m



Arcadis Consulting (UK) Ltd.

Contractor



Project Norths Client Homes	stowe	Pha Com	ise 2 nmunit	ies Ag	ency			Pro UA Eas 54	iect No. 100842 ting (OS m 1248.8	6-01 ^{E)} 5	Ground I 8.45 Northing 26664	Level (mAO (OS mN) 19.43	D)	Start Dat 15/12 End Date 15/12	, 2016 /2016	Scale 1:5 She	0 9 9et 1 (of 1
SAM	MPLES			T	ESTS	۲ų					STRAT	ΓΑ						
Dept	h Ty	pe/	Depth	Type/	Results	Wate				C	escription				Legend	Depth (Thickness)	Level	Install/ Backfil
_ 0.00 - 0. _ 0.10 _ 0.10 - 0.	.60 E E .20 E	81 SS S2					Soft, dark [RIVER T	reddish ERRACE	brown, sli DEPOSI	ghtly sand TS]	iy CLAY. Si	and is fine	to coarse.			(0.70)		x x ■ ■
- 0.60 - 1. -	.20 E	33					Stiff, light	brownish	i orange,	slightly gra	avelly sand	ly CLAY. S	and is fine to a	coarse.		0.70	7.75	
- - 1.10 - 1. - 1.20 - 1.20 - 1. - 1.20 - 1.	.20 E E\ .65 E .70 E	S4 W1 05 86	1.20	SPT(S)	N=19 (2,4/3,5,5,6)		[RIVER T	ERRACE	DEPOSI	TS]						(1.00)		
- 1.70 - 2. - 1.90 - 1.90 - 2. - 2.00 - 2.	.00 E .00 E .45 D	88 SS S7 99	2.00	SPT(S)	N=10 (2,2/2,2,3,3)		Light brov coarse. G [RIVER T Firm to st	vnish ora iravel is s ERRACE	nge, sligh sub-angul DEPOSI	tly clayey ar to sub- TS]	slightly gra rounded, fi	avelly SAN ine to coar	D. Sand is fine	e to		1.70 (0.30) 2.00 -	6.75 - 6.45	
2.00 - 3 2.30 - 2	.00 B .60 D	11 12					[KIMMER	IDGE CL	AY FORM	ATION]			Band of grave	elly SAND.		(1.23)		
- - 2.90 - 3 - 3.00 - 3	.00 ES .23 D	510 13	3.00	SPT(S)	N>50 (3,20/50,0 for 0mm)							Becoming	very stiff from	3.00m bgl.		3.23	5.22	
																-		
																-		
																-	- - - - - - - - - - - - - -	
From	DRILLIN To	IG TE	ECHNIQU Techn	JE ique	Date/Time	WATEF Strike At		TIONS Rise To	Casino	Sealed	Hole Dia.	OLE/CAS	Casing Dia.	R Depth	Тор	BACKF	LL Back	fill
0.00 1.20	1.20 3.23		Inspecti Dynamic	on Pit Sample	Saternite	Cunto At	Elapadu	1400 10	Cabing	Could	300 112 98 50	1.20 2.00 3.00 3.23	128	2.00	0.00 0.10 1.00 1.70	0.10 1.00 1.70 2.00	Concr Arisir Bento Grav	ete gs nite el
Remarks No grour Refusal a	ndwater (at 3.23m	encoi bgl.	untered.													Termir		pth:



Contractor

3.23m

WS901

Project Northstov	ve Ph	ase 2					Proj UA	ject No. \00842	6-01	Ground I 8.40	Level (mAOI	D)	Start Da 14/12	e /2016	Scale 1:5	0	
Homes ar	nd Co	mmunit	ies Age	ency			54	0849.3	≞) 4	26700	(OS mN))0.05		End Date 14/12	/2016	She	et 1	of 1
SAMPLI	ES		Т	ESTS	ter (es					STRA	ΓA				Depth		Install/
Depth	Type/ No.	Depth	Type/ No.	Results	Strik				[Description				Legend	(Thickness)	Level	Backfill
_ 0.00 - 1.00 _ 0.10 _ 0.10 - 0.20 _ _ _ _ 0.70	B1 ES ES2 EW1					Soft, dark [RIVER T	reddish ERRACE	brown, sli E DEPOSI	ghtly sand TS]	Jy CLAY. Si	and is fine	to coarse.			(1.00) -	- - - - -	3ⅢⅢⅢ │
- 1.10 - 1.10 - 1.20 - 1.20 - 1.30 - 1.20 - 1.65	EW1 ES3 D5 D4	1.20	SPT(S)	N=11 (1,2/2,2,3,4)		Firm to st [KIMMER	iff, dark b IDGE CL	lueish gre AY FORM	ey, slightly /IATION]	^r sandy silty	CLAY. Sa	ind is fine to c	oarse.		1.00 -	- 7.40	
															(0.65)	6.75	
	LLING 1 10 20 30	ECHNIQI Techn Inspect Dynamic	JE Jique jon Pit Sample	Date/Time	WATE: Strike At	R OBSERVA Time Elapsed	ITIONS Rise To	Casing	Sealed	H Hole Dia. 300 50	OLE/CASI Depth 1.20 1.65	NG DIAMETE Casing Dia.	ER Depth	Top 0.00 0.10 0.50 1.30	BACKFI Base 0.10 0.50 1.30 1.85		fill ete egg s el nite
Remarks No groundwa Refusal at 1.6	iter enco	ountered.													Termir	ation De	epth: M

ged By Checked By WB SH

WS902

Project Norths Client Homes	stowe I s and (Phas Com	e 2 muniti	ies Age	ency			Proj UA Eas 54	ject No. \00842 sting (OS m .0950.2	6-01 ^{E)} 7	Ground L 8.76 Northing 26695	_evel (mAO (OS mN) 5 0.29	D)	Start Da 14/12 End Dat 14/12	te 2/2016 e 2/2016	Scale 1:5 She	0 eet 1	of 1
SA	MPLES			T	ESTS	س _ ۵	1	0			STRAT	ΓΑ						
Dept	th Ty	pe/	Depth	Type/	Results	Wate				C	escription				Legend	Depth (Thickness)	Level	Install/ Backfill
0.00 - 0 0.10 0.10 - 0	0.60 B 0.20 ES	0. 1 S S2		NO.			Soft, dark angular to [RIVER T	brown, s sub-rou ERRACE	lightly gra nded, fine DEPOSI	avelly sand to coarse TS]	dy CLAY. S e of flint.	and is fine	e to coarse. Gra	vel is		(0.60)		
- 0.60 - 1 - 0.70 - 0.70 - 0	.00 B E .80 ES	3 S 64					Light brov coarse. G	vnish ora iravel is a	nge, sligh ingular to	tly clayey sub-round	slightly gra ded, fine to	velly SAN coarse of	D. Sand is fine flint.	to		0.60 (0.40)	8.16	
1.05 - 1 - 1.20 - 1	.15 ES	6	1.20	SPT(S)	N=7 (2,2/1,2,2,2)		Soft, dark [KIMMER	blueish (IDGE CL	grey, sligh AY FORM	tly sandy IATION]	silty CLAY.	Sand is fi	ne to coarse.			1.00 -	- 7.76	
-																1.05		
-															_	-	-	
	DRILLIN	G TEO	CHNIQU	JE		WATER	R OBSERVA	TIONS	1		Н	OLE/CAS	ING DIAMETER	R	_	BACKFI	LL	1
From 0.00 1.20	To 1.20 1.65	[Techni Inspecti Dynamic \$	ique on Pit Sample	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dla. 300 50	Depth 1.20 1.65	Casing Dia.	Depth	Top 0.00 0.10 0.60 1.20	Base 0.10 0.60 1.20 1.65	Back Conc Arisir Grav Bento	cfill rete ngs vel vnite
Remarks No grour Refusal	ndwater e at 1.65m	encour bgl.	ntered.													Termir		epth:

AGS Busines Cardiff CF3 0EV

Contractor Arcadis Consulting (UK) Ltd.

Checked By Logged By WВ

SH

1.65m

ARCADIS Dynamic Sa

TESTS

Results

Type/ No.

Project Northstowe Phase 2 Client

Type/ No.

SAMPLES

Depth

Client Homes and Communities Agency

Depth

ban	ipie Log				VV 5	903	5
	Project No. UA008426-01 Easting (OS mE) 540798.63	Ground Level (mAOD) 9.23 Northing (OS mN) 266750.86	Start Date 15/12/ End Date 15/12/	2016 2016	Scale 1:50 She) Deet 1 (of 1
er tes		STRATA			Denth		Install/
Wat Strik		Description		Legend	(Thickness)	Level	Backfill
	Dark reddish brown, slightly clayey s [RIVER TERRACE DEPOSITS]	slightly silty SAND. Sand is fine t	o coarse.		(0.80)		
	Dense, light brownish orange, slight Gravel is sub-angular to sub-rounde [RIVER TERRACE DEPOSITS]	ly clayey gravelly SAND. Sand is id, fine to medium of flint. Tending to clayey very	fine to coarse. gravelly sand.		(0.70)	8.43	
	Light brownish orange SAND and G angular to sub-rounded, fine to med [RIVER TERRACE DEPOSITS]	RAVEL. Sand is fine to coarse. C ium of flint.	Gravel is sub-		1.50	- 7.73	
	Stiff, dark blue, slightly sandy silty C [KIMMERIDGE CLAY FORMATION]	LAY. Sand is fine to coarse.			1.90	- 1.33	

0.10	.00 B	S				[RIVER T	ERRACE	n, slightly DEPOSI	ciayey si ITS]	ignuy silty S	SAND. Sar	ia is tirle to co	arse.		-	ļ	×14 ≡
+ 0.10 - 0.	.20 ES	2													(0.80)	ţ	≝≝
-																ţ	
- 0.80 - 1	20 B	3									-				0.80	843	
1.00	.20 0	e				Dense, lig	ght brown	ish orang	e, slightly	clayey grav	velly SAN	D. Sand is find total	e to coarse.		0.00	1 0.40	≝≝
- 1.00 - 1	.10 ES	5 64				[RIVER T	ERRACE	DEPOSI	ITS]	, line to me		i i i.			(0.70)	Ŧ	
- 1.15 1.20 - 1	.65 D	V1 1.2 5	SPI(S)	N=32 (3,5/6,8,9,9)		-			-	Te	ending to c	clayey very gra	velly sand.	J	(0.10)	ţ	
1.20 - 1	.90 B	6													1.50	- 7.73	
E						Light brow	vnish ora o sub-roui	nge SANI nded. fine	D and GR	AVEL. San	d is fine to	o coarse. Grav	el is sub-	•	(0.40)	ţ	<u> </u>
L						[RIVER T	ERRACE	DEPOSI	ITS]						1 90	7 33	
- 2.00 - 2	.45 D	7 2.0	0 SPT(S)	N=19 (3,2/3,5,6,5)		Stiff, dark	blue, slig	htly sand	ly silty CL	AY. Sand is	fine to co	arse.			1.50	+ 1.55	≣∎≣
- 2.00 - 3	.00 B	9						ATFORM	VIATION							Ŧ	
-																ļ	∭≣≣
- 2.50 - 2	.60 ES	58													1	ţ	
-															(1.55)	ţ	≝∎≞
- 200 2	45 04			N-19 (2 2/2 2 6 6)												ł	
- 3.00 - 3.	.45 D	3.0	0 3F1(3)	N=16 (3,2/3,3,0,0)												Ŧ	
-																1	≝≣≝
L															3.45	5.78	ш≡ш
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Erom				Date/Time	VVAIE			Cacina	Sociad		ULE/CAS		Donth	Tor	BACK		zfill
0.00	1.20	Ins	pection Pit	Date/Time	Suike At	nine ciapsed	Rise IO	Casing	Sealed	300	1.20	128	2.00	0.00	0.10	Conc	rete
1.20	3.45	Dyna	amic Sample							112 98	2.00 3.00			0.10 1.00	1.00 1.50	Arisir Grav	ngs vel
										50	3.45			1.50	3.45	Arisir	ngs
Domorko																	

No groundwater encountered. Target depth reached

AGS

Contractor

Termination Depth: 3.45m



WS904

Project Norths	towe	Phase	ə 2					Proj U	ject No.	6-01	Ground 9.11	Level (mAO	D)	Start Da 13/12	Scale 1:50			
Client Homes	and	Comn	nuniti	ies Age	ency			Eas 54	ting (OS m 1049.6	ie) 6	Northing 26684	(OS mN) 48.70		End Dat 13/12	, 2016	Sheet 1 c		of 1
SAM	IPLES			Т	ESTS	ter kes					STRA	TA				Depth	Loval	Install/
Depth	דע N	pe/ lo.	Depth	Type/ No.	Results	Wa Stril				[Description				Legend	(Thickness)	Level	Backfill
0.00 - 0.4 0.10 0.10 - 0.1 0.20 - 0.4 0.50 - 1.4	50 B E 20 E 50 D 20 B	1 S S3 2 4					Soft, dark [RIVER T	erangish ERRACE	DEPOSI	silty sandy ITS]	gravelly C	LAY. Sand	is fine to coa	irse.	×	(0.50) 0.50 -	- 8.61	
- 0.60 - 0.9 - - 0.90 - 0.90 - 1.1	90 C E 00 E	95 IS S6					[KIMMER	m, dark gi IDGE CL	reenisn g AY FORN	rey, siight //ATION]	iy sandy sii	ity CLAY. S	and is tine to	coarse.		- -	-	
- 1.20 - 1.20 - 1.0 - 1.20 - 3.0 	65 C 00 B	W1 98 97	1.20	SPT(S)	N=5 (1,2/1,2,1,1)											-	• • • •	
- 2.00 - 2.4 - - -	45 D	9 :	2.00	SPT(S)	N=9 (1,2/2,2,2,3)								Local	v dark grev.		(2.95)	- - - -	
- - - - - 3.00 - 3.4	45 D	10 :	3.00	SPT(S)	N=13 (2,3/3,3,3,4)									<u>,</u>			-	
															×	3.45	5.66	
																- - - -	- - - - -	
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		IG TEC	HNIQU	JE		WATE	R OBSERVA	TIONS	1		Н	OLE/CAS	ING DIAMET	ER		BACKFI	LL	I
From 0.00 1.20	To 1.20 3.45	D	Technie Inspectio ynamic S	que on Pit Sample	Date/Time 13/12/2016 10:30 13/12/2016 11:00	Strike At 1.10 2.50	Time Elapsed 20 20	Rise To 1.10 2.50	Casing 2.00	Sealed	Hole Dla. 300 112 98 50	Depth 1.20 2.00 3.00 3.45	Casing Dia. 128	Depth 2.00	Top 0.00 0.10 0.80 1.00	Base 0.10 0.80 1.00 2.50	Back Conce Arisir Bento Grav	cfill rete ngs vnite vel
Remarks Groundw Target de	ater enc pth reac	ountere	ed at 1.	10m bgl	and 2.50m bgl.			1					1			I		
																Termir	ation De	epth: M



Arcadis Consulting (UK) Ltd.

	WS905
Start Date	Scale

Project Northstowe Phase 2							Project No. Ground Level (mAOD) UA008426-01 Easting (OS mF) Northing (OS mN)								Scale 1:50			
Homes	and C	ommuni	ties Ag	ency			54	1019.1	⊫) 1	26673	(US MN) 34.71		15/12	/2016	She	et 1 o	of 1	
SAN	IPLES		T	ESTS	ater ikes		STRATA									ا مربعا	Install/	
Depth		Depth	No.	Results	Stri				C	Description				Legend	(Thickness)	Level	Backfill	
_ 0.00 - 1.0 _ 0.10 _ 0.10 - 0.2 _ _	00 B E: 20 ES	1 5 2				Soft, dark [RIVER T	corangish ERRACE	n brown, s E DEPOSI	lightly sar]	ndy CLAY. S	Sand is fin	e to coarse.	ah orongo		(1.00) -			
- - - - 1.20 - 1.3 - 1.20 - 1.6 - 1.20 - 3.0 - 1.40	E: 30 ES 65 D 00 B EV	5 1.20 33 4 5 /1	SPT(S)	N=13 (3,2/2,3,4,4)		Firm, darl [KIMMER	k blueish IDGE CL	grey, sligl AY FORM	htly sandy /ATION]	silty CLAY.	Sand is f	ine to coarse.			1.00 -	· · · ·		
- - - 2.00 - 2.4 -	45 D	5 2.00	SPT(S)	N=13 (3,2/3,3,3,4)											(2.45)	-		
- - - - - - - - - - - - - - - - - - -	45 D	7 3.00	SPT(S)	N=13 (2,3/3,3,3,4)														
-														<u> </u>	3.45	· • • •	·//,	
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		G TECHNIC	I VE		WATEF	ROBSERVA	TIONS			H	OLE/CAS	ING DIAMETE	R		BACKFI	LL		
From 0.00 1.20	To 1.20 3.45	Tech Inspec Dynamie	nique tion Pit c Sample	Date/Time	Strike At	Time Elapsed	Rise To	Casing	Sealed	Hole Dla. 300 112 98 50	Depth 1.20 2.00 3.00 3.45	Casing Dia.	Depth 2.00	Top 0.00 0.10 0.50 2.50	Base 0.10 0.50 2.50 3.45	Back Concr Arisin Grav Bento	fill gs el nite	
Remarks No groun Target de	dwater e pth reac	ncountered. hed.													Termir	ation De	pth:	



Contractor Arcadis Consulting (UK) Ltd.

WS906

Project Northstowe Phase 2 Client							Proje	ect No.	6-01	Ground I 9.25	Level (mAO	D)	Start Dat 13/12		Scale 1:50			
Client Homes	and C	ommuni	ties Ag	ency			Easti 541	ng (OS m 149.4 {	E) 5	Northing 26669	(OS mN) 99.00		End Date 13/12	2/2016		eet 1	of 1	
SAN	IPLES		Т	ESTS	ter (es					STRAT	TA				Depth		Install/	
Dept	ר Typ N	Depth	Type/ No.	Results	Strik				C	Description				Legend	(Thickness)	Level	Backfill	
0.00 - 0. 0.10	80 B E	8				Dark oran [POSSIBL	gish browi	n, clayey GROUN	/ SAND. S D]	Sand is fine	to coarse						دة ال ا	
_ 0.10 - 0. -	20 ES	2				-			-						(0.80)	ŧ	▐▋▐	
-																Ī		
- 0.80 - 1.	20 B	3				Medium d	lense, light	t brownis	sh orange	, slightly cla	ayey grave	elly SAND. Sa	ind is fine to		0.80	8.45		
- 1.00 - 1. - 1.20 - 1.	10 ES	4 1.20	SPT(S)	N=19 (4,4/5,5,4,5)		[RIVER T	ERRACE	DEPOSI	TS]	iounded, in		e or mint.			(0.80)	Ţ		
1.20 - 1.	65 D	5														ł		
-						Firm to sti	iff, dark gre	ey, slight	ly sandy s	silty CLAY.	Sand is fir	e to coarse.		× * *	1.60	7.65		
- 1.80 - 3. - 1.90 - 2.	00 B 00 ES	7	ODT(O)	N=11 (0.0/0.0.5.0)		[KIMMER	IDGE CLA	Y FORM	/ATION]					×		ŧ		
2.00 - 2. 	45 D	3 2.00	5P1(5)	N=11 (2,2/2,2,5,2)										$\overline{}$		Ī		
-																ł		
-														$\overline{\times}$ \times	(1.85)	Ī		
-			0.007(0)											<u>×</u> ×		ł		
- 3.00 - 3. - -	45 01	0 3.00	5P1(5)	N=20 (4,5/6,4,5,5)										×_×_	-	Ē		
-														× ×	3.45	5.80		
-																Ī		
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From			UE nique	Date/Time	WATER Strike At		TIONS Rise To	Casing	Sealed	Hole Dia	OLE/CAS		ER Denth	Ton	BACKF Base	ILL Baci	sfill	
0.00	1.20	Inspect	tion Pit	Battor Amo	- a mo Pu	Liapood		ig	- 50.00	300 112	1.20 2.00	128	2.00	0.00	0.10 0.50	Conc	rete	
1.20	0.40	Dynamic	Jample							98 50	3.00 3.45			0.50 1.50	1.50 3.45	Gra	vel	
Remarks	dwater	nountered					I											
Target de	epth reac	ncountered. ned.																
															Termi	nation De	epth:	
					_		_						_			3.45	m	
	CL House	Unless	otherwise	stated:		Equipment L	Jsed			Contrac	ctor			Log	aed Bv	Checke	ed By	



Arcadis Consulting (UK) Ltd.

WB

SH

Trial Pit Soakaway Test



Based on	BRE DG 365:2016						11.19		built assets		
Project		Northstor	we				Status		LOCATION ID		
Project	ID	UA00842	26				C	HECKED	TPSA407		
Trial Pi	it Details										
	Test 1	Test 2 Test 3	Groun	Ground Level 9.19				Date Excav	vated 04/01/2017		
Dep	oth 1.21		6		540	401.25	mE	Date Test	ed 04/01/20)17	
Wio	dth 0.70		Coor	Coordinates 266		56549.79 mN					
Len	gth 1.50										
Test 1											
Time	Depth to Water	Test Parameters					Flans	ed Time (min)			
min	m bgl				0 20	4	0 6	0 80	100 120 140)	
0	0.84	75% esd (mbgl) 0.93		0.00							
1	0.90	50% esd (mbgl) 1.03		0.20					Iest Data		
2	0.94	25% esd (mbgl) 1.12	<u>р</u> о	0.40					- 75% FSD		
4	0.97	A _{s50} (m ²) 1.86	p m	0.60				_	– – 25% ESD		
8	1.01	V _{p75-25} (m ³) 0.19	vel	0.80	•						
15	1.06	t ₇₅ (min) 5.1	r Le	1.00							
30	1.13	t ₂₅ (min) 21.0	ate	1 20		•					
60	1.29	Data Fit R ² 0.948	\geq	1.20			•				
90	1.35			1.40							
120	1.41			1.60	·						
	Infiltration rate	f (ms ⁻¹) 1.09E-04			Tota	l effectiv	ve storage	e depth (esd) (m)	0.37		
Test 2											
Time min	Depth to Water m bgl	Test Parameters		-1	20 0)	Elaps 20	ed Time (min) 40 60	80 100)	
0	C	75% esd (mbgl)			0.00	•					
1		50% esd (mbgl)			0.10				 Test Data 		
2		25% esd (mbgl)	<u></u> 0		0.20			•••	•••• Best Fit Line		
4		$A_{c50} (m^2)$	n pî		0.30			Ī	- 25% ESD		
8		$V_{n75,25}$ (m ³)	/el r		0.40				2378 230		
15		t ₇₅ (min)	. Le		0.60						
30		t ₂₅ (min)	ater		0.70						
45		Data Fit R ²	\geq		0.80						
60					0.90						
90					1.00						
	Infiltration rate	f (ms ⁻¹) NO VALID DATA			Total	effective	e storeage	e depth (esd) (m)			
Test 3											
Time min	Depth to Water m bgl	Test Parameters		-2	.0 0		Elapse 20	ed Time (min) 40 60	80 100	ļ	
0		75% esd (mbgl)			0.00						
1		50% esd (mbgl)			0.10				Test Data		
2		25% esd (mbgl)	00		0.20			•••	Best Fit Line		
4		A _{s50} (m ²)	n b{		0.30				- 75% ESD		
8		V _{p75-25} (m ³)	/el r		0.40				2373 230		
15		t ₇₅ (min)	. Lev		0.60						
30		t ₂₅ (min)	ater		0.70						
45		Data Fit R ²	Ň		0.80						
60					0.90						
90					1.00						
	Infiltration rate	f (ms ⁻¹) NO VALID DATA			Total	effective	e storeage	e depth (esd) (m)	0.00		
Carried	out by	Notes: Only one so	akaway	test unde	ertaken due to	o time re	straints	Logged	Checked		
Arcadis	Consulting (LIK) I	ltd							нк сн		

Trial Pit Soakaway Test



Based on I	BRE DG 365:2016									- 1 ann	100000000	
Project		hstov	ve				Status		LOCATION ID			
Project l	D	UAC	0842	6				0	HECKED	Т	PSA408	
Trial Pi	t Details											
	Test 1	Test 2 Test 3		Groun	d Level		8.96	mAOD	Date Excava	ated	04/01/2017	
Dep	oth 1.24	1.24		Coor	dinator	-	540341.07	mE	Date Test	ed	04/01/2017	
Wic	ith 0.70	0.70		0001	266644.52							
Len	gth 1.32	1.03										
Test 1												
Time min	Depth to Water m bgl	Test Paramete	ers			0	20 40	Elaps 0 6	ed Time (min) 0 80 2	100	120 140	
0	0.35	75% esd (mbgl)	0.57		0.00					_		
1	0.39	50% esd (mbgl)	0.80		0.20					Tes	t Data	
2	0.43	25% esd (mbgl)	1.02	6		•				– 75%	6 ESD	
4	0.48	A _{s50} (m ²)	2.72	d m	0.40	1				- 25%	6 ESD	
8	0.53	V _{p75-25} (m ³)	0.41	ve	0.60						_	
15	0.61	t ₇₅ (min)	11.7	r Le	0.00		· · · •	• •				
30	0.70	t ₂₅ (min)	111.5	/ate	0.80				•••••			
60	0.86	Data Fit R ²	0.980	\$	1.00				.		-	
90	1.00				1 20							
120	1.03				1.20							
	Infiltration rate	ef (ms ⁻¹) 2.52E	-05			٦	otal effectiv	ve storage	e depth (esd) (m)	0.89		
Test 2												
Time	Depth to Water	Test Paramete	ers			0	F0 10	Elaps	ed Time (min)		200 250	
min	m bgi		0.50		0.00	0	50 10	10 15	200 2	250	300 350	
0	0.25	75% esd (mbgl)	0.50							• Tes	t Data	
1	0.38	50% esd (mbgi)	0.75		0.20	•			•••	•••• Bes	t Fit Line	
2	0.41	25% esd (mbgl)	0.99	l bg	0.40	<u>.</u>				- 75%	6 ESD	
4	0.43	A_{s50} (m ³)	2.43	님	0.00				=	= _25%	6 ESD	
0 15	0.47	v_{p75-25} (III)	0.30	Lev	0.60							
20	0.51	t_{75} (min)	200 0	ter	0.80		•	••••••	••••			
40	0.67		0 0 2 5	Ma	1.00					•••••		
40 50	0.07	Data Ht K	0.935		2.00							
60	0.80				1.20							
00	Infiltration rate	ef (ms ⁻¹) 8.41E	-06			Тс	otal effective	storeage	e depth (esd) (m)	0.99		
Test 3										0.00		
Time	Depth to Water	Test Paramete	ers					Flores				
min	m bgl				-0).2	0 0.2	2 0.4	4 0.6 C).8	1 1.2	
		75% esd (mbgl)				0.00						
		50% esd (mbgl)				0.10				Test	Data	
		25% esd (mbgl)		μ		0.20				веst — 75%	ESD	
		A _{s50} (m ²)		d m		0.30				- 25%	ESD	
		V _{p75-25} (m ³)		ve		0.50						
		t ₇₅ (min)		r Le		0.60						
		t ₂₅ (min)	/ate		0.70							
		Data Fit R ²		3		0.80						
					0.90							
1.00												
	Infiltration rate	e f (ms ⁻¹) NO VALID	DATA			Тс	otal effective	e storeage	e depth (esd) (m)	0.00	1	
Carried	out by	Notes: ^{Se}	cond test	underta	ken due	to collap:	e of first pit		Logged		Checked	
Arcadis	Consulting (UK)	Ltd								ΗК	SH	

Trial Pit Soakaway Test



Based on	BRE DG 365:2016												Sauce State	1004114	
Project			No	rthstov	ve				S	tatus			LO	CATION	ID
Project	ID		UA	400842	6					C	HECKED)	T	PSA61	0
Trial P	it Details														
Dep Wid	Test 1 oth 1.70 dth 0.70	Test 2	Test 3		Groun Coor	d Level dinates	5	6. 541049. 267148.	.18 n .17 n .33 n	nAOD nE nN	Date Da	e Excava Ite Teste	ted ed	12/01/ 12/01/	'2017 '2017
Len	gth 1.40														
Test 1															
Time min	Depth to Water m bgl	Tes	st Parame	eters			0	500		Elaps 1000	ed Time	(min) 1500	2000) 2	2500
0	0.67	75% es	esd (mbgl) 0.93			0.00							·	<u> </u>	
1	0.67	50% es	d (mbgl)	1.19		0.20							l est	Data Eit Lino	_
2	0.67 25%		d (mbgl)	1.44	18	0.40							- 75%	ESD	-
4	0.67	/	$A_{s50} (m^2)$	3.14	E	0.60							- 25%	ESD	
8	0.67	V _{p7}	₇₅₋₂₅ (m ³)	0.50	eve	0.80	** ***	••••	••••	••••	•••••	••••••	•••••	•••	
15	0.68	1	t ₇₅ (min)	311875.2	ir Le	1.00									
30	0.69		t ₂₅ (min)	########	/ate	1.20									_
60	0.71	Da	ata Fit R ²	0.843	5	1.40									
120	0.73					1 60									
150	0.73					1.00									
	Infiltration rate	f (ms)	6.02	2E-15			Т	otal effe	ective	storage	e depth (e	esd) (m)	1.03		
Test 2															
Time min	Depth to Water m bgl	Tes	st Parame	eters		-().2	0	0.2	Elapso 0.	ed Time	(min) .6 0).8	1	1.2
		75% es	d (mhøl)				0.00	-						-	
		50% es	d (mbgl)				0.10					(Test	Data	_
		25% es	d (mbøl)			0.20					• • • •	••• Best	Fit Line	-	
		2070 00	A_{ro} (m ²)	n bg		0.30						- 75%	ESD	_	
		V	V_{s50} (m ³)				0.40							LSD	
		- p/	t_{7r} (min)		Lev		0.50								_
			t _{ar} (min)		ater		0.70	_							_
		Da	t_{25} (111)		M		0.80								-
		20					0.90								-
							1.00								
	Infiltration rate	f (ms ⁻¹)	NO VAI				То	tal effec	tive s	toreage	e depth (e	esd) (m)			
Test 3		. ,	_				-								
Time	Depth to Water	Tes	st Parame	eters						Elance	d Time ((min)			
min	m bgl					-0	.2	0	0.2	0.4	4 0.	6 0	.8	1 1	L.2
		75% es	d (mbgl)				0.00					•••••			7
		50% es	d (mbgl)				0.10					•	Test	Data	-
		25% es	d (mbgl)		00		0.20						- 75%	FIT LINE	_
		/	A _{s50} (m ²)		q M		0.30						- 25%	ESD	
		V _{p7}	₇₅₋₂₅ (m ³)		vel		0.50								_
		•	t ₇₅ (min)		r Le		0.60								-
			t ₂₅ (min)				0.70								-
		Da	Data Fit R ²				0.80								-
							0.90								
1.00													_		
	Infiltration rate	f (ms ⁻¹)	NO VAI	LID DATA			То	tal effec	tive s	toreage	e depth (e	esd) (m)	0.00		
Carried	out by		Notes:	Only one so	akaway	undertak	en due to	time rest	traints	5		Logged		Checked	ļ
Arcadis	Consulting (UK)	Ltd											НК	0	SH


Based on	BRE DG 365:2016									a and	the state of the s
Project		Ν	lorthsto	ve				Status		LO	CATION ID
Project	ID		JA00842	26				(CHECKED	T	PSA617
Trial Pi	it Details									•	
	Test 1	Test 2 Test	3	Groun	d Level		7.7	72 mAOD	Date Excava	ated	19/01/2017
Dep	oth 1.50				dinator	-	541377.4	47 mE	Date Test	ed	19/01/2017
Wie	dth 0.70				unates	>	266821.6	63 mN			
Len	gth 1.30										
Test 1											
Time min	Depth to Water m bgl	Test Para	meters			0	500	Elaps 100	ed Time (min) 0 1500	2000) 2500
0	0.58	75% esd (mb	gl) 0.81		0.00						
1	0.58	50% esd (mb	gl) 1.04		0.20					 Test 	t Data
2	0.58	25% esd (mb	gl) 1.27	18	0.40					– 75%	ESD
4	0.58	A _{s50} (m	²) 2.75	p M	0.60					25%	5 ESD
8	0.58	V _{p75-25} (m	³) 0.42	ive	0.00	••••	•••••	••••••	••••••	•••••	• • •
15	0.60	t ₇₅ (mi	n) 29933.7	r Le	0.80						
30	0.61	t ₂₅ (mi	n) ########	/ate	1.00						
60	0.63	Data Fit	R ² 0.874	5	1.20						
90	0.64				1 40						
120	0.65	1			1.40						
	Infiltration rate	ef(ms ⁻) 1	.22E-12			-	Fotal effec	ctive storag	e depth (esd) (m)	0.92	
Test 2											
Time min	Depth to Water m bgl	Test Para	meters		-().2	0	Elaps 0.2 0	ed Time (min) .4 0.6	0.8	1 1.2
		75% esd (mb	gl)			0.00				Test	Data
		50% esd (mb	gl)			0.10				e lest	E Data
		25% esd (mb	gl)	28		0.20				75%	S ESD
		A _{s50} (m	²)	E E		0.40				- 25%	S ESD
		V _{p75-25} (m	³)	evel		0.50					
		t ₇₅ (mi	n)	er Le		0.60					
		t ₂₅ (mi	n)	Vate		0.70				_	
		Data Fit	R ²	>		0.80					
						1.00					
		_									
	Infiltration rate	ef(ms ⁻¹) NO∖	ALID DATA			T	otal effect	ive storeag	e depth (esd) (m)		
Test 3											
Time	Depth to Water	Test Para	meters					Elaps	ed Time (min)		
min	m bgi	750(-1)		-0	.2	0	0.2 0.	4 0.6 C).8	1 1.2
		75% esd (mb)	51) -1)			0.00				Test	Data
		50% esd (mb)	gi) -1)			0.20			•••	Best	Fit Line
		25% esd (mb)	2) 2)	bgl		0.30				- 75%	ESD
		A _{s50} (m	3,	2		0.40				- 25%	ESD
		V _{p75-25} (m	-)	eve		0.50					
		t ₇₅ (mi	n) n)	er L		0.60					
		L ₂₅ (IIII	n) 5 ²	Wat		0.70					
		Data Fit	ĸ			0.90					
						1.00					
	Infiltration rate	f (mc ⁻¹) NO				-		ivo eterrer -	o donth (and) (an)	0.00	
Carried			• Only one so	akwav te	est under	taken du	e to time r	estraints		0.00	Checked
Arcadic	Consulting (LIK)	Itd	. ,	.,					Logged	нк	СПЕСКЕЦ СН
, a cauis										1.113	511



Based on	BRE DG 365:2016									
Project		No	rthsto	we			Status		LO	CATION ID
Project	ID	UA	400842	26			0	CHECKED	Т	PSA620
Trial P	it Details									
	Test 1	Test 2 Test 3		Ground Leve	el	6.89	mAOD	Date Excava	ated	18/01/2017
Dep	oth 1.20			Coordinate	20	541456.47	mE	Date Test	ed	18/01/2017
Wio	dth 0.70			Coordinate	23	266730.84	mN			
Len	gth 1.90									
Test 1										
Time min	Depth to Water m bgl	Test Parame	eters				Elanc	od Timo (min)		
0	0.46	75% esd (mbgl)	0.65		-10-0.20	0 10	20	30 40	50	60 70
1	0.46	50% esd (mbgl)	0.83		0.00				Test	t Data
2	0.46	25% esd (mbgl)	1.02	00	0.20			•••	Best	ESD
4	0.46	A _{s50} (m ²)	3.25	d m	0.20				25%	S ESD
8	0.46	V _{p75-25} (m ³)	0.49	vel	0.40		•	• •	•	•
15	0.46	t ₇₅ (min)	#DIV/0!	rLe	0.60					
30	0.46	t ₂₅ (min)	#DIV/0!	/ate	0.80					
40	0.46	Data Fit R ²	#DIV/0!	3	1.00					
50	0.46				1 20					
60	0.46				1.20					
	Infiltration rate	ef(ms ⁻¹) NO VAL	ID DATA			Total effectiv	ve storage	e depth (esd) (m)	0.74	
Test 2										
Time	Depth to Water	Test Parame	eters		0.2	0 0	Elaps	ed Time (min)	no	1 10
min	m bgl				-0.2	0 0.	2 0.	.4 0.6	0.8	1 1.2
		75% esd (mbgl)			0.10				 Test 	: Data
		50% esd (mbgl)		_	0.20			•••	•••• Best	t Fit Line
		25% esd (mbgl)		bg I	0.30)			- 75%	S ESD
		A_{s50} (m)		3	0.40				- 25%	S ESD
		v _{p75-25} (III)		Leve	0.50					
		t, (min)		ter	0.70					
				Ma	0.80					
		Data Fit K			0.90					
					1.00					
	Infiltration rate	of (ms ^{−1}) NO VAI			т	otal effective	a storeage	e denth (esd) (m)		
L Test 3							e storeug			
Time	Depth to Water	Test Parame	eters							
min	m bgl			-	0.2	0 0.2	Elapse 2 0	ea i ime (min) 4 0.6 C).8	1 1.2
		75% esd (mbgl)			0.00					
		50% esd (mbgl)			0.10				Test	Data
		25% esd (mbgl)		00	0.20			•••	Best	Fit Line
		A _{s50} (m ²)		р Г	0.30				- 25%	ESD
		V _{p75-25} (m ³)		vel I	0.40				2370	
		t ₇₅ (min)		r Le	0.60					
		t ₂₅ (min)		ate	0.70					
		Data Fit R ²		>	0.80					
					0.90					
					1.00					
	Infiltration rate	ef (ms ⁻¹) NO VAL	ID DATA		Т	otal effective	e storeage	e depth (esd) (m)	0.00	-
Carried	out by	Notes:	Only one sc	akway test unde	ertaken di	ie to time rest	raints	Logged		Checked
Arcadis	Consulting (UK)	Ltd							НК	SH



Based on	BRE DG 365:2016										Contra	aloc ca
Project			No	rthstov	ve				Status		LC	CATION ID
Project	ID		UA	400842	6				C	CHECKED	T	PSA801
Trial Pi	it Details											
	Test 1	Test 2	Test 3		Groun	d Level		9.2	6 mAOD	Date Excav	ated	04/01/2017
Dep	oth 2.50				Coor	dinates	5	40399.6	6 mE	Date Test	ed	04/01/2017
Wic	1th 0.70						2	56451.0	15 mN			
Len	gth 1.60											
lest 1												
Time min	Depth to Water m bgl	Tes	st Parame	eters			0	500	Elaps 1000	ed Time (min)) 1500	2000	2500
0	0.60	75% es	d (mbgl)	1.08		0.00					Tori	t Data
1	0.78	50% es	d (mbgl)	1.55		0.50				•••	Bes	t Fit Line
2	0.83	25% es	d (mbgl)	2.03	08	0.50				-	75%	5 ESD
4	0.86	A	A _{s50} (m ²)	5.49	E	1.00					- 25%	ESD
8	0.90	V _{p7}	₇₅₋₂₅ (m [°])	1.06	eve			••••	•••••••	•••••••	•••••	•••
15	0.93	1	t ₇₅ (min)	89.1	er L	1.50						
30	0.97	-	$\tau_{25}(min)$	296219.7	Nat	2 00						
45	1.02	Da	ita Fit R ⁻	0.984		2.00						
60	1.06					2.50						
90	Infiltration rate	f (mc ⁻¹)	1.00	NF 00			Та		+:	a ala atta (a a al) (ma)	1 00	
Toct 2	linitiation rate	1 (115)	1.05	7E-U8			10	larenec	tive storage	e depth (esd) (m)	1.90	
Time	Dopth to Wator	Tor	t Darama	tors					-			
min	m bgl	Tes		eters		-	20	0	Elaps 20	ed Time (min) 40 60	8	30 100
0	0	75% es	d (mbgl)				0.00	-				
1		50% es	d (mbgl)				0.10				 Test 	Data
2		25% es	d (mbgl)		00		0.20				Besi	EFIT LINE
4		A	A _{s50} (m ²)		d m		0.30				25%	ESD
8		V _{p7}	₇₅₋₂₅ (m ³)		ve		0.50	_				
15		1	t ₇₅ (min)		ir Le		0.60					
30			t ₂₅ (min)		/ate		0.70					
45		Da	ita Fit R ²		>		0.80					
60							1.00					
90		_										
	Infiltration rate	f (ms⁻¹)	NO VAL	ID DATA			Tot	al effecti	ve storeage	e depth (esd) (m)		
Test 3												
Time min	Depth to Water m bgl	Tes	st Parame	eters		-2	20	0	Elapse 20	ed Time (min) 40 60	8	0 100
0		75% es	d (mbgl)				0.00	-				
1		50% es	d (mbgl)				0.10				 Test 	Data
2		25% es	d (mbgl)		00		0.20			•••	•••• Best	Fit Line
4		ŀ	A _{s50} (m ²)		р Ш		0.30				- 25%	ESD
8		V _{p7}	₇₅₋₂₅ (m ³)		vel I		0.40				2073	
15		t	t ₇₅ (min)		rLe		0.60					
30			t ₂₅ (min)		'ate		0.70					
45		Da	ita Fit R ²		3		0.80					
60							0.90					
90							1.00					
	Infiltration rate	f (ms ⁻¹)	NO VAL	ID DATA			Tot	al effecti	ve storeage	e depth (esd) (m)	0.00	
Carried	out by		Notes:	Too many fi	nes for e	ffective	soakage			Logged		Checked
Arcadis	Consulting (UK) I	Ltd									ΗК	SH



Based on BRE D	G 365:2016								ound	100000
Project		Nort	hstov	ve			Status		LC	CATION ID
Project ID		UAO	0842	6			0	CHECKED	Т	PSA802
Trial Pit De	etails									
	Test 1	Test 2 Test 3		Groun	d Level	9.0	9 mAOD	Date Excava	ated	05/01/2017
Depth	1.60			Coor	dinator	540499.8	36 mE	Date Teste	ed	05/01/2017
Width	0.70			COOL	uniates	266548.2	23 mN			
Length	1.30									
Test 1										
Time Dep	oth to Water	Test Parameter	rs				Elaps	ed Time (min)		
min	m bgl				() 50	0	1000	1500	2000
0	0.60	75% esd (mbgl)	0.85		0.00				• Test	t Data
1	0.78	50% esd (mbgl)	1.10		0.20			•••	•••• Bes	t Fit Line
2	0.83	25% esd (mbgl)	1.35	bgl	0.40				75%	5 ESD
4	0.86	$A_{s50} (m^{-})$	2.91	3	0.60				25%	5 ESD
8	0.90	v _{p75-25} (m ⁻)	0.46	eve	0.80					
15	0.93	t ₇₅ (min)	4.4	erL	1.00	.				
30	0.97	$t_{25}(min)$	1647.5	Wat	1.20		•••••			
45	1.02	Data Fit K	0.984		1.40				2 ° 2 ° 2 ° 2 ° 2	
60	1.00				1.60					
90	filtration rate	$f(mc^{-1})$ 1 FOF	06			Total offor	tivo storog	a danth (acd) (m)	1 00	
Tost 2		1 (113 / 1.332-	00			Total elled	live storag	e deptil (esd) (iii)	1.00	
	th to Mator	Tost Daramoto	rc					1		
min Dep	m bgl	Test Parameter	15		-2	0 0	Elaps 20	ed Time (min) 40 60	8	0 100
0	0	75% esd (mbgl)				0.00				
1		50% esd (mbgl)				0.10			 Test 	Data
2		25% esd (mbgl)		00		0.20		•••	•••• Best	t Fit Line
4		A_{s50} (m ²)		a u p		0.30			25%	ESD
8		V_{p75-25} (m ³)		vel I		0.50				
15		t ₇₅ (min)		r Le		0.60				
30		t ₂₅ (min)		ate		0.70				
45		Data Fit R ²		3		0.80				
60						0.90				
90						1.00				
Int	filtration rate	f (ms ⁻¹) NO VALID	DATA			Total effect	ive storeag	e depth (esd) (m)		
Test 3										
Time Dep	th to Water	Test Parameter	rs				Elaps	ed Time (min)		
min	m bgl				-2	0 0	20	40 60	8	0 100
0		75% esd (mbgl)			[0.00			Toct	Data
1		50% esd (mbgl)				0.10			Best	Fit Line
2		25% esd (mbgl)		1 B C		0.30			- 75%	ESD
4		A _{s50} (m ²)		E	-	0.40			- 25%	ESD
8		V _{p75-25} (m [°])		eve	-	0.50				
15		t ₇₅ (min)		er Li	-	0.60				
30		t ₂₅ (min)		Vat(-	0.70				
45		Data Fit R ²		>		0.80				
60						1.00				
90	lituationt	f (me ⁻¹)	D			T			0.00	
Ini Corrigation	intration rate			akaway t	est unde	I Otal effect	ive storeage	e deptn (esd) (m)	0.00	Charling
	Jγ	Notes: on	, ene 30			i i i i i i i i i i i i i i i i i i i		Logged		спескеа



Based on BRE DG 365:2016											
Project		Nor	thsto	ve			Status		LO	CATION ID	
Project	ID	UA	00842	6			C	HECKED	T	PSA808	
Trial Pi	it Details										
	Test 1	Test 2 Test 3		Ground Level		9.68	mAOD	Date Excava	ted	05/01/2017	
Dep	oth 1.00			Coordinates		540600.05	mE	Date Teste	ed	05/01/2017	
Wio	dth 0.70			Coordinates	•	266249.41	mN				
Len	gth 1.50										
Test 1											
Time	Depth to Water	Test Paramet	ers								
min	m bgi		0.02		-0.20		Elaps	ed Time (min)			
0	0.50	75% esd (mbgl)	0.03	-2	20	0 20	40	60 80	• 100 _{Test}	± ∄ 20a 140	
	0.52	30% esu (mbgl)	0.75		0.00			•••	•••• Best	t Fit Line	
2	0.54	25% est (110gl)	0.00	bgl	0.20				75%	ESD	
4 0	0.54	$A_{s50} (m)$	0.26	E					25%	ESD	
0 15	0.55	v_{p75-25} (11)	0.20 #DIV/01	Leve	0.40						
30	0.55	t_{75} (min)	#DIV/01	ter	0.60		•	• •		•	
50 60	0.55	$L_{25}(IIIII)$	0 631	Mai	0.00						
90	0.55	Data Ht K	0.051		0.80						
120	0.55				1.00						
120	Infiltration rate	f (ms ⁻¹) NO VALI	D DATA			Total effectiv	e storage	e depth (esd) (m)	0.50		
Test 2		(, ,					0 0101 080		0.00		
Time	Depth to Water	Test Paramet	ers				Flans	ad Time (min)			
min	' m bgl			-().2	0 0.2	2 0.	4 0.6 (0.8	1 1.2	
		75% esd (mbgl)			0.00				Test	Dete	
		50% esd (mbgl)			0.10				e Rest	· Fit Line	
		25% esd (mbgl)		08	0.20				- 75%	ESD	
		A _{s50} (m ²)		E	0.40				- 25%	ESD	
		V _{p75-25} (m ³)		eve	0.50						
		t ₇₅ (min)		er Le	0.60						
		t ₂₅ (min)		Vate	0.70						
		Data Fit R ²		>	0.80						
					1.00						
	Infiltration rate	f (ms ⁻¹) NO VALI	D DATA		Т	otal effective	storeage	e depth (esd) (m)			
Test 3											
Time	Depth to Water	Test Paramet	ers				Elapse	ed Time (min)			
min	m bgi	750(and (mbal)		-0	.2	0 0.2	2 0.2	4 0.6 0	.8	1 1.2	
		75% esu (mbgl)			0.10				Test	Data	
		25% esd (mbgl)			0.20				••• Best	Fit Line	
		$\Delta = (m^2)$		bgl	0.30				- 75%	ESD	
		$V_{s50} (m)$		E	0.40				- 25%	ESD	
		r_{p75-25} (m)		Leve	0.50						
		$t_{ac}(\min)$		ter	0.60						
		Data Fit R ²		Ma	0.80						
		Data Ht K			0.90						
					1.00						
	Infiltration rate	f (ms ⁻¹) NO VALL	D DΑΤΔ		т	otal effective	storeage	e depth (esd) (m)	0.00		
Carried	out by	Notes: T	oo many f	nes for effective s	oakage				0.00	Checked	
Arcadis	Consulting (UK)	Ltd							нк	SH	



Based on B	RE DG 365:2016								oun	10000
Project		No	rthsto	ve			Status		LO	CATION ID
Project II	C	U	400842	6			0	CHECKED	Т	PSA813
Trial Pit	. Details									
	Test 1	Test 2 Test 3		Groun	d Leve	9	.15 mAOD	Date Excava	ated	18/01/2017
Dept	th 1.30	1.30 1.30		Coor	dinato	540676	.33 mE	Date Test	ed	18/01/2017
Widt	th 0.70	0.70 0.70		COOL	unates	266582	.34 mN			
Leng	th 1.60	1.60 1.60								
Test 1										
Time min	Depth to Water m bgl	Test Paramo	eters			0 20	Elaps 40	ed Time (min) 60	80	100
0	0.57	75% esd (mbgl)	0.75		0.00					
1	0.60	50% esd (mbgl)	0.94		0.20				 Lest 	t Data
2	0.62	25% esd (mbgl)	1.12	18	0.40	•			75%	ESD
4	0.66	A _{s50} (m ²)	2.80	ц Ц	0.60				25%	SESD
8	0.72	V _{p75-25} (m ³)	0.41	evel	0.00					
15	0.80	t ₇₅ (min)	11.1	er Le	0.80	•••	••••			
30	0.95	t ₂₅ (min)	56.7	Vate	1.00					
40	0.95	Data Fit R ²	0.930	>	1.20					
60	1.16				1.40					•
90	1.30	(-1)								
Test 2	Infiltration rate	f (ms) 5.3	3E-05			Total effe	ective storage	e depth (esd) (m)	0.73	
Test Z		Tast Daway	- +							
l ime min	Depth to Water m bgl	Test Parame	eters			0 10	Elaps 20	ed Time (min) 30 40	5	0 60
0	0.68	75% esd (mbgl)	0.84		0.00					
1	0.74	50% esd (mbgl)	0.99		0.20				 Test 	Data
2	0.76	25% esd (mbgl)	1.15	00	0.40			••	•••• Best	Fit Line
4	0.81	$A_{s50} (m^2)$	2.55	m p	0.60	•			25%	ESD
8	0.89	V _{p75-25} (m ³)	0.35	vel	0.80					
15	1.00	t ₇₅ (min)	4.4	r Le	1.00	•••	9			
30	1.17	t ₂₅ (min)	24.4	/ate	1.20					
40	1.27	Data Fit R ²	0.967	3	1.40			•		
50	1.38				1.60					
	Infiltration rate	f (ms ⁻¹) 1.14	4E-04			Total effec	tive storeage	e depth (esd) (m)	0.62	
Test 3										
Time min	Depth to Water m bgl	Test Parame	eters		0.00	0 10	Elapse 20 30	ed Time (min) 0 40 5	50	60 70
0	0.60	75% esd (mbgl)	0.78		0.00				Test	Data
1	0.63	50% esd (mbgl)	0.95		0.20			•••	••• Best	Fit Line
2	0.65	25% esd (mbgl)	1.13	bgl	0.40				- 75%	ESD
4	0.69	$A_{s50} (m^{-})$	2./3	E	0.60				- 25%	ESD
8 1 E		$v_{p75-25} (m^2)$	0.39	eve.	0.80					
50	0.00	ι ₇₅ (min) + (min)	0.9 ברים	er L	1.00	· · · · · · · · · · · · · · · · · · ·	••••••			
30	1 02	L ₂₅ (11111) Data Eit P ²	52.2 0 076	Wat	1.00			••••••	. <u></u>	
50	1.00	Daid Fil K	0.976	-	1.20					•
60	1 20				1.40					
Infiltration rate f (ms ⁻¹) 5.29E-05						Total effec	al effective storeage depth (esd) (m) 0.70			
Carried out by Notes: Too many fines for effe						soakage		Logged	0.70	Checked
Arcadis C	, Consulting (UK) I	Ltd							нк	SH
L	2. /									



Based on	BRE DG 365:2016						-17	1111			built	issets
Project		Norths	stov	ve				Status			LO	CATION ID
Project	ID	UA00	842	6				C	HECKED		TF	PSA814
Trial P	it Details											
	Test 1	Test 2 Test 3		Groun	d Level		9.44	mAOD	Date	Excavate	ed	05/01/2017
Dep	oth 1.80			Coor	dinator	5405	49.32	mE	Dat	e Testec	ł	05/01/2017
Wie	dth 0.70			COOL	umates	2664	48.71	mN				
Len	gth 2.30											
Test 1												
Time	Depth to Water	Test Parameters						Elaps	ed Time (min)		
min	m bgl					D	50		100 `	,	150	200
0	1.49	75% esd (mbgl)	1.57		0.00						Test	Data
1	1.51	50% esd (mbgl)	1.65		0.50						• Best	Fit Line
2	1.52	25% esd (mbgl)	1.72	bg	0100						- 75%	ESD
4	1.55	A _{s50} (m²)	2.54	E	1.00						- 25%	ESD
8	1.61	V _{p75-25} (m ³)	0.25	evel		•						
15	1.65	t ₇₅ (min)	7.7	er	1.50	₩ <mark>₩</mark> -					_	
30	1.76	t ₂₅ (min)	20.0	Vate	2.00			•				
60	1.91	Data Fit R ² 0	.923	>	2.00				•		•	
90	2.00				2.50							
150	2.13	• (-1)										
L	Infiltration rate	ef (ms ⁻) 1.33E-04				Total	effectiv	e storage	e depth (es	d) (m)	0.31	
Test 2												
Time	Depth to Water	Test Parameters			-7	0 0		Elaps	ed Time (1	min)	8(0 100
0	in bgi	75% esd (mbgl)			2	0.00		20	0	00		100
1		50% esd (mbgl)				0.10		_		•	Test	Data
2		25% esd (mbgl)		_		0.20		_		••••	•• Best	Fit Line
2		$\Delta = (m^2)$		l bg		0.30					- 75%	ESD
4		$\Lambda_{\rm s50} ({\rm m}^3)$		el u		0.40					- 25%	ESD
15		$v_{p75-25}(m)$		Lev		0.50						
30		t, (min)		ter		0.70						
30		$l_{25}(1111)$		Ma		0.80						
4J 60		Data Fit K				0.90						
90						1.00						
50	Infiltration rate	$f(ms^{-1})$ NO VALID DA	Δ			Total e	ffoctive	storpage	denth (es	d) (m)		
Test 3						Totale	neenve	storeuge	ucptil (cs	a) (m)		
Time	Depth to Water	Test Parameters						C 1				
min	m bgl				-2	0 0		Elapse	40 40	60	80	100
0		75% esd (mbgl)			ſ	0.00						
1		50% esd (mbgl)				0.10				•	Test	Data
2		25% esd (mbgl)		00		0.20					Best	FIT LINE
4		A _{s50} (m ²)		μ		0.30					25%	ESD
8		V _{p75-25} (m ³)		vel i		0.50					_3/3	
15		t ₇₅ (min)		, Lev		0.60						
30		t ₂₅ (min)		ater		0.70						
45		Data Fit R ²		\geq		0.80						
60						0.90						
90						1.00		1	ſ			
	Infiltration rate	f (ms ⁻¹) NO VALID DA	ATA			Total e	ffective	e storeage	e depth (es	d) (m)	0.00	
Carried	out by	Notes: Only o	one so	akaway t	est unde	rtaken due to	time res	straints		ogged	T	Checked
Arcadis	Consulting (UK)	Ltd								н	к	SH



Based on	BRE DG 365:2016													
Project		Nort	hsto	we					Status			LO	CATION	ID
Project	ID	UAC	0842	26					C	HECKED		TI	PSA82	9
Trial P	it Details													
	Test 1	Test 2 Test 3		Groun	d Leve	I		9.30	mAOD	Date E	Excavate	þ	19/01,	/2017
De	pth 1.30			Coor	dinate	c	54080	00.78	mE	Date	e Tested		19/01,	/2017
Wie	dth 0.70			0001	unate	5	266	597.7	mN					
Len	gth 1.10													
Test 1														
Time min	Depth to Water m bgl	Test Paramete	ers			0	20	00	Elaps 400	ed Time (n 60	nin) 00	800	1	1000
0	0.61	75% esd (mbgl)	0.78		0.00									
1	0.62	50% esd (mbgl)	0.96		0.20						•	Test	Data	
2	0.64	25% esd (mbgl)	1.13	00	0.20							• Best	FIT LINE	
4	0.66	A _{s50} (m ²)	2.01	m D	0.40							25%	ESD	_
8	0.69	V _{p75-25} (m ³)	0.27	vel	0.60									
15	0.75	t ₇₅ (min)	25.9	rLe										
30	0.78	t ₂₅ (min)	852.4	'ate	0.80								-	
60	0.85	Data Fit R ²	0.972	3	1.00		••••	•••••	•••••					_
90	0.91				1 20						•••••••	• •• •• •		
120	0.91				1.20									
	Infiltration rate	ef(ms ⁻¹) 2.66E-	-06			1	otal e	ffectiv	e storage	e depth (esd	l) (m)	0.69		
Test 2														
Time	Depth to Water	Test Paramete	ers			0.0	0	0.7	Elaps	ed Time (m	nin)		4	1.2
min	m bgl				-	0.2	0	0.2	2 0.	.4 0.6	0.8		1	1.2
		75% esd (mbgl)				0.10	_					Test	Data	_
		50% esd (mbgl)				0.20					••••	• Best	Fit Line	_
		25% esd (mbgl)		bgl		0.30						75%	ESD	_
		$A_{s50} (m)$		E B		0.40						25%	ESD	-
		V _{p75-25} (m)		Leve		0.50								
		t ₇₅ (min)		ter		0.00								
		$t_{25}(min)$		Na		0.80								_
		Data Fit R				0.90								_
						1.00								
	Infiltration rate	$f(mc^{-1})$ NO VALID	DATA			т.	م ا م	(. :		a davatla (acal	(
	minitation rate	er (IIIS) NO VALID	DATA			10	otal en	rective	storeage	e depth (esd	i) (m)			
Time	Donth to Water	Tost Daramata												
min	m bgl	Test Paramete	:15		-().2	0	0.2	Elapse	ed Time (m 4 0.6	in) 0.8		1 .	1.2
		75% esd (mbgl)				0.00		0.2					- ·	
		50% esd (mbgl)				0.10	_				•	Test	Data	-
		25% esd (mbgl)				0.20					••••	Best	Fit Line	-
		A_{s50} (m ²)		n be		0.30						75%	ESD	-
		V_{n75-25} (m ³)		eln		0.40						23%	ESD	
		t ₇₅ (min)		Lev		0.50								
		t ₂₅ (min)		ater		0.70	_							_
		Data Fit R ²		\sim		0.80	_							-
						0.90								-
						1.00								
	Infiltration rate	ef (ms ⁻¹) NO VALID	DATA			Тс	otal ef	fective	storeage	e depth (esd	l) (m)	0.00		
Carried	out by	Notes: On	ly one so	akaway	undertal	ken due to	time i	restrain	nts	Lo	gged		Checkec	4
Arcadis	Consulting (UK)	Ltd									НК			SH



Based on	BRE DG 365:2016							Duid	455015
Project		Northsto	we			Status		LC	CATION ID
Project	ID	UA00842	26			0	CHECKED	Т	PSA832
Trial P	it Details								
	Test 1	Test 2 Test 3	Groun	d Level	9.7	'2 mAOD	Date Excava	ated	05/01/2017
Dep	oth 1.60		Coor	dinato	540550.5	8 mE	Date Teste	ed	05/01/2017
Wie	dth 0.70		000	unates	266300.6	i3 mN			
Len	gth 1.50								
Test 1									
Time min	Depth to Water m bgl	Test Parameters			0 500	Elaps 1000	ed Time (min) 0 1500	200	0 2500
0	0.69	75% esd (mbgl) 0.92		0.00				_	
1	0.70	50% esd (mbgl) 1.15		0.20				Tes	t Data
2	0.70	25% esd (mbgl) 1.37	6	0.40				– 75%	6 ESD
4	0.71	A _{s50} (m ²) 3.05	<u>р</u> Е	0.60				25%	6 ESD
8	0.72	V _{p75-25} (m ³) 0.48	ive	0.80					
15	0.73	t ₇₅ (min) 467.8	rLe	1.00		••••••			•••
30	0.76	t ₂₅ (min) 265094.1	Vate	1.20					
60	0.80	Data Fit R ² 0.890	5	1.40					
90	0.83			1.60					
120	0.85	1.		2.00					
	Infiltration rate	ef (ms ⁻) 9.86E-09			Total effec	tive storage	e depth (esd) (m)	0.91	
Test 2									
Time min	Depth to Water m bgl	Test Parameters		-	20 0	Elaps 20	ed Time (min) 40 60	8	30 100
0		75% esd (mbgl)			0.00			Tes	t Data
1		50% esd (mbgl)			0.20			•••• Bes	t Fit Line
2		25% esd (mbgl)	bgl		0.30			- 75%	6 ESD
4		A _{s50} (m ²)	3		0.40			- 25%	6 ESD
8		V _{p75-25} (m [°])	eve		0.50				
15		t ₇₅ (min)	er l		0.60				
30		t ₂₅ (min)	Wat		0.80				
45		Data Fit R ²			0.90				
60					1.00				
90	Infiltration rate	ef (ms ⁻¹) NO VALID DATA			Total effecti	ve storeage	e depth (esd) (m)		
Test 3									
Time	Depth to Water	Test Parameters				Elapse	ed Time (min)		
min	m bgl			-2	0 0	20	40 60	8	0 100
0		75% esd (mbgl)			0.00			Toct	Data
1		50% esd (mbgl)			0.10			Best	Fit Line
2		25% esd (mbgl)	bgl		0.30			- 75%	ESD
4		A _{s50} (m ²)	E		0.40			- 25%	ESD
8		V _{p75-25} (m [°])	eve		0.50				
15		t ₇₅ (min)	er L		0.60				
30		t ₂₅ (min)	Vate		0.70				
45		Data Fit R ⁻	~		0.90				
60					1.00				
90	Infiltuation ant-	f (mc ⁻¹) NO VALID DATE			T-+-1 (1 ···		a al a sate (= = 1) ()	0.00	
Comier	mintration rate	NU VALID DATA	ines for 4	effective	i otai effecti soakage	ve storeage		0.00	Charlind
Arcadic	Consulting (LIK)	Itd					Logged	нк	CHECKEU CH
, a cauis	consuring (OK)								



Based on	BRE DG 365:2016											a and	TRADE VA	
Project		North	istov	ve					Status			LC	CATION	ID
Project	ID	UAO	0842	6					C	НЕСК	ED	Т	PSA85	6
Trial P	it Details													
	Test 1	Test 2 Test 3		Groun	d Leve	I		9.10	mAOD	D	ate Exca	vated	19/01	/2017
Dep	oth 1.20			Coor	dinate	ç	540	794.69	mE		Date Tes	sted	19/01	/2017
Wio	dth 0.70			0001	amate	5	266	489.88	mN					
Len	gth 1.50													
Test 1														
Time min	Depth to Water m bgl	Test Parameter	S			0	50)	Elaps 100	ed Tin 150	ne (min) 20	00 2	50	300
0	0.49	75% esd (mbgl)	0.67		0.00							_		
1	0.50	50% esd (mbgl)	0.85		0.20							Test	t Data	_
2	0.51	25% esd (mbgl)	1.02	18								– – 75%	ESD	
4	0.53	A _{s50} (m ²)	2.61	д Е	0.40						-	25%	ESD	_
8	0.56	V _{p75-25} (m ³)	0.37	eve	0.60									_
15	0.60	t ₇₅ (min)	24.8	er Le	0.00			• •		-				
30	0.67	t ₂₅ (min)	237.7	/ate	0.80				••••••	••••				
60	0.77	Data Fit R ²	0.925	5	1.00							· · · · · · · · · · · · ·		_
120	0.89				1 20									
180	1.01	1			1.20									
	Infiltration rate	f (ms ⁻¹) 1.12E-0	5				Total	effectiv	e storage	e depth	n (esd) (m	n) 0.71		
Test 2														
Time min	Depth to Water m bgl	Test Parameter	S		-(0.2	0	0.2	Elaps	ed Tin 4	ne (min) 0.6	0.8	1	1.2
		75% esd (mbgl)				0.00							-	
		50% esd (mbgl)				0.10						 Test 	t Data	_
		25% esd (mbgl)		0		0.20					•	Bes	t Fit Line	_
		$A_{s50} (m^2)$		n pî		0.30						25%	S ESD	
		$V_{p75-25} (m^3)$		vel		0.50								
		t ₇₅ (min)		r Le		0.60								
		t ₂₅ (min)		'ate		0.70								_
		Data Fit R ²		3		0.80							_	_
						1.00								
						1.00								
	Infiltration rate	f (ms ⁻¹) NO VALID I	DATA			Т	otal e	effective	storeage	e deptł	n (esd) (m	ו)		
Test 3														
Time	Depth to Water	Test Parameter	S						Elapse	ed Tim	ie (min)			
min	m bgl				-C).2	0	0.2	0.4	4	0.6	0.8	1	1.2
		75% esd (mbgl)				0.00						Test	Data	
		50% esd (mbgl)				0.20						•••• Best	Fit Line	
		25% esd (mbgl) $\Lambda (m^2)$		Bq		0.30						75%	ESD	_
		$A_{s50} (m)$		В		0.40	_					25%	ESD	
		v_{p75-25} (111)		-eve		0.50						_		_
		t_{75} (min)		ter l		0.60								
		$D_{25}(1111)$		Wai		0.80								
		Data Ht K				0.90								
						1.00								
	Infiltration rate	f (ms ⁻¹) NO VALID I	DATA			Т	otal e	effective	storeage	e depth	n (esd) (m	n) 0.00		
Carried	out by	Notes: Only	one so	akaway	test und	ertaken o	lue to	time res	trictions		Logge	<u>, , ,,,,,</u> d	Checke	d
Arcadis	Consulting (UK)	Ltd										НК		SH



Based on	BRE DG 365:2016							Duitt assets
Project		Northstov	ve			Status		LOCATION ID
Project	ID	UA00842	26			C	HECKED	TPSA905
Trial P	it Details							
	Test 1	Test 2 Test 3	Ground Level		6.93	mAOD	Date Excava	nted 11/01/2017
Dep	oth 2.00		Coordinator	540	949.85	mE	Date Teste	ed 11/01/2017
Wie	dth 0.70		Coordinates	267	7099.54	mN		
Len	gth 1.70							
Test 1								
Time	Depth to Water	Test Parameters						
min	m bgl			0.50		Elaps	ed Time (min)	
0	1.07	75% esd (mbgl) 1.30	2	-0.50		20	10 60	TestoData 100
1	1.07	50% esd (mbgl) 1.54	-2	0.00		20	40 00	Best Fit Line
2	1.07	25% esd (mbgl) 1.77	bgl					– – 75% ESD
4	1.07	$A_{s50} (m^{-}) 3.42$	<u> </u>	0.50	•			- – 25% ESD
8	1.07	V_{p75-25} (m ²) 0.55	eve		•			
15	1.07	t_{75} (min) #DIV/0!	erL	1.00			• •	•
30	1.07	$t_{25}(min) \#DIV/0!$	Wat	1.50				
50	1.07	Data Fit K #DIV/U!	-	1.00				
00	1.07			2.00				
90	1.07	$f(ms^{-1})$ NO VALID DATA		Tota	l offoctiv	e storage	a denth (esd) (m)	0.93
		I (IIIS / NO VALID DATA		1012	lienecuv	e storage		0.35
Time	Denth to Water	Test Parameters				Flama		
min	m bgl		-0.	2 0	0.2	Elaps: 2 0.	ed Time (min) 4 0.6 ().8 1 1.2
	-	75% esd (mbgl)	ſ	0.00	•••••			
		50% esd (mbgl)	-	0.10			(Test Data
		25% esd (mbgl)	00	0.20				 Best Fit Line 75% FSD
		A _{s50} (m ²)	р Ш	0.30				- 25% ESD
		V _{p75-25} (m ³)	ve	0.50				
		t ₇₅ (min)	r Le	0.60				
		t ₂₅ (min)	/ate	0.70				
		Data Fit R ²	5	0.80				
				1.00				
				1.00				
_	Infiltration rate	f (ms ⁻¹) NO VALID DATA		Total	effective	storeage	e depth (esd) (m)	
Test 3								
Time	Depth to Water	Test Parameters				Elapse	ed Time (min)	
min	m bgl		-0.2	2 0	0.2	0.4	4 0.6 0	.8 1 1.2
		75% esd (mbgl)		0.00				Test Data
		50% esd (mbgl)		0.20				••• Best Fit Line
		25% esd (mbgl)	80	0.30				– 75% ESD
		A_{s50} (m)	3	0.40				– 25% ESD
		v_{p75-25} (m)	eve	0.50				
		ι ₇₅ (min) + (min)	l l	0.60				
		$L_{25}(11111)$	Wat	0.70				
		Daid Fil K	-	0.90				
				1.00				
	Infiltration rate	$f (ms^{-1}) NO VALID DATA$		Total	effectivo	storeage	denth (acd) (m)	0.00
Carried		Notes. Too many f	nes for effective so	akage	enective	scoreage		Checked
Arcadis	Consulting (LIK) !	Itd		-			LOBBEU	нк спескей



Based on	BRE DG 365:2016								oun	asses
Project		Northsto	we				Status		LO	CATION ID
Project	ID	UA00842	26				0	CHECKED	Т	PSA911
Trial P	it Details									
	Test 1	Test 2 Test 3	Groun	d Leve	l	8.9	7 mAOD	Date Excava	ated	20/01/2017
Dej	pth 1.10		Coor	dinate	s	266800.1	3 mE	Date Test	ed	20/01/2017
Wie	dth 0.70					540751.7	1 mN			
Len	gth 1.50									
Test 1										
Time min	Depth to Water m bgl	Test Parameters			0	500	Elaps 1000	ed Time (min) 0 1500	2000) 2500
0	0.68	75% esd (mbgl) 0.79		0.00					Tost	Data
1	0.68	50% esd (mbgl) 0.89		0.20				•••	•••• Best	t Fit Line
2	0.68	25% esd (mbgl) 1.00	bgl	0.40					75%	SESD
4	0.69	A _{s50} (m ²) 1.97	E	0.40					25%	5 ESD
8	0.69	V_{p75-25} (m ³) 0.22	eve	0.60						
15	0.70	t ₇₅ (min) 614.2	er L	0.80	<u></u>					
30	0.71	$\tau_{25}(min) ####################################$	Wat							
60	0.73	Data Fit R 0.914		1.00						
90	0.74			1.20						
120	U.75	of (ms ⁻¹) 1 36F-09			т	otal effect	ive storage	e denth (esd) (m)	0 4 2	
Test 2		1.002 05					ive storage		0.42	
Time	Depth to Water	Test Parameters			0.2	0 0	Elaps	ed Time (min)	n s	1 12
	in bgi	75% esd (mbgl)			0.2			0.0 (0.0	
		50% esd (mbgl)			0.10				 Test 	Data
		25% esd (mbgl)	<u>–</u> 0		0.20			••••	•••• Best	Fit Line
		A_{c50} (m ²)	n bg		0.30				- 75%	ESD
		V_{n75-25} (m ³)	vel r		0.40				2070	
		t ₇₅ (min)	r Le		0.60					
		t ₂₅ (min)	atei		0.70					
		Data Fit R ²	\geq		0.80					
					0.90					
					1.00					
	Infiltration rate	f (ms ⁻¹) NO VALID DATA			Тс	tal effectiv	ve storeage	e depth (esd) (m)		
Test 3										
Time	Depth to Water	Test Parameters					Elapse	ed Time (min)		
min	n Iga m	7E% and (mhal)		-(.2	υ Ο	.2 0.	4 0.6 C).8	1 1.2
		7 5% esu (MDgi)			0.00				Test	Data
		25% esd (mbal)			0.20			••••	••• Best	Fit Line
		$\Delta = (m^2)$	lgd .		0.30				- 75%	ESD
		$V_{\rm war er}$ (m ³)	ы Ш		0.40				- 25%	ESD
		t ₇ (min)	Leve		0.50					
		t ₂ (min)	ter		0.00					
		Data Fit R ²	Wa		0.80					
					0.90					
					1.00					
	Infiltration rate	f (ms ⁻¹) NO VALID DATA			Тс	tal effectiv	ve storeage	e depth (esd) (m)	0.00	
Carried	out by	Notes: Too many f	ines for e	effective	soakage			Logged		Checked
Arcadis	Consulting (UK)	Ltd							НК	SH



Based on I	BRE DG 365:2016							ounter	155015
Project		Northst	owe			Status		LO	CATION ID
Project	ID	UA008	426			C	HECKED	TF	PSA914
Trial Pi	it Details								
	Test 1	Test 2 Test 3	Grou	ind Level	8.64	mAOD	Date Excava	ited	16/01/2017
Dep	oth 1.30		Cor	ordinates	540902.93	mE	Date Teste	ed	16/01/2017
Wio	dth 0.70			Junates	266951.98	mN			
Len	gth 1.70								
Test 1									
Time	Depth to Water	Test Parameters							
min	m bgi	$\overline{7}$	70	_0.2	0	Elaps	ed Time (min)		
0	0.53	75% esd (mbgi) 0.	72	-10	0 10	20	30 40	50 Test	60 70 Data
	0.53	50% esd (mbgl) 0.	92 11	-0.0	0		•••	•••• Best	Fit Line
2	0.53	25% esd (mbgl) 1.		0.2	0			- 75%	ESD
4	0.53	A_{s50} (m) 3.	04 E	-0.4	0			25%	ESD
0 1E	0.53	v_{p75-25} (III) U	40 40	0.6		•	• •	•	•
20	0.55	t_{75} (mm) #NUN							
30 40	0.55	$l_{25}(1111)$ #NON		0.8	0				
40 50	0.53		00	-1.0	0				
50 60	0.53			1.2	0				
00	Infiltration rate	$f (ms^{-1}) NO VAUD DAT$	Δ		Total effectiv	ve storage	e denth (esd) (m)	0 77	
Test 2			^		Total circei	ve storage		0.77	
Time	Depth to Water	Test Parameters				Flans	ad Time (min)		
min	m bgl			-0.2	0 0.	2 0.	4 0.6 ().8	1 1.2
		75% esd (mbgl)		0.	00				
		50% esd (mbgl)		0.	10			Test	Data
		25% esd (mbgl)	۵	0. 0	20			– 75%	ESD
		A _{s50} (m ²)	2	0.	40			- 25%	ESD
		V _{p75-25} (m ³)	P P	0.	50				
		t ₇₅ (min)	<u>ل</u> ا	0.	50				
		t ₂₅ (min)	/ate	-0.	70				
		Data Fit R ²	5	-0.	30				
				0.	0				
				1.					
	Infiltration rate	f (ms ⁻¹) NO VALID DAT	A		Total effective	e storeage	e depth (esd) (m)		
Test 3									
Time	Depth to Water	Test Parameters				Elapse	ed Time (min)		
min	m bgl			-0.2	0 0.1	2 0.4	4 0.6 0	.8	1 1.2
		75% esd (mbgl)		0.0	0			Test	Data
		50% esd (mbgl)		0.2	0			••• Best	Fit Line
		25% esd (mbgl)	lgd	0.3	0			- 75%	ESD
		A_{s50} (m)	5	0.4	0			- 25%	ESD
		v _{p75-25} (m ⁻)	eve	0.5	0				
		t ₇₅ (min)	er L	0.6	0				
			Wat	0.7	0				
		Data Fit R ²		0.9	0				
				1.0	0				
	Infiltration rate	f (ms ⁻¹) NO VALID DAT	^		Total offective	astoroace	denth (acd) (m)	0.00	
Carried		Notes: Too mai	ry fines for	r effective soakag		= storeage		0.00	Chacked
Arcadis	Consulting (LIK) I	td					LORRen	нк	SH



Based on	BRE DG 365:2016								- Call	1007612
Project		No	rthstov	ve			Status		LC	OCATION ID
Project	ID	UA	00842	26			C	HECKED	т	PSA920
Trial Pi	it Details									
	Test 1	Test 2 Test 3		Ground Level		8.96	mAOD	Date Exca	avated	16/01/2017
Dep	oth 1.60			Coordinates	-	541050.26	mE	Date Te	ested	16/01/2017
Wio	dth 0.70			coordinates	5	266948.43	mN			
Len	gth 1.70									
Test 1										
Time min	Depth to Water m bgl	Test Parame	ters				Elaps	ed Time (min))	
0	0.84	75% esd (mbgl)	1.03		₋₅ -0.20	0 5	10	15 20	25	30 35
1	0.85	50% esd (mbgl)	1.22		0.00				Tes	t Data
2	0.85	25% esd (mbgl)	1.41	00	0.20				Bes	t Fit Line
4	0.85	A _{s50} (m ²)	3.01	р Ш	0.40				25%	6 ESD
6	0.85	V _{p75-25} (m ³)	0.45	vel	0.60					
8	0.85	t ₇₅ (min)	#NUM!	rLe	0.80	••••	• •	• •		•
10	0.85	t ₂₅ (min)	#NUM!	'ate	1.00					
15	0.85	Data Fit R ²	0.000	3	1.20					
20	0.85				1.40					
30	0.85	_			1.00					
	Infiltration rate	f (ms ⁻¹) NO VAL	ID DATA			Total effectiv	ve storage	e depth (esd) (I	m) 0.76	
Test 2										
Time min	Depth to Water m bgl	Test Parame	ters	-(0.2	0 0.	Elapso 2 0.	ed Time (min) 4 0.6	0.8	1 1.2
		75% esd (mbgl)			0.00)			Tes	t Data
		50% esd (mbgl)			0.10)			Bes	t Fit Line
		25% esd (mbgl)		bgl	0.30)			75%	6 ESD
		$A_{s50} (m^2)$		5	0.40)			25%	6 ESD
		V _{p75-25} (m ³)		eve	0.50)				
		t ₇₅ (min)		er L	0.60)				
		t ₂₅ (min)		Wat	0.70)				
		Data Fit R ²			0.90)				
					1.00)				
	Infiltration rate	f (ms ⁻¹) NO VAL	ID DATA		т	otal effective	e storeage	e depth (esd) (I	m)	
Test 3										
Time	Depth to Water	Test Parame	ters				Elapse	ed Time (min)		
min	m bgl			-C	0.2	0 0.2	2 0.4	4 0.6	0.8	1 1.2
		75% esd (mbgl)			0.00				• Test	Data
		50% esd (mbgl)			0.10				Best	: Fit Line
		25% esd (mbgl)		bgl	-0.30				75%	ESD
		A _{s50} (m ²)		5	0.40				25%	ESD
		v _{p75-25} (m ²)		eve	0.50					
		τ ₇₅ (min)		er L	0.60					
		$t_{25}(min)$		Wat	0.70					
		Data Fit R		-	0.90					
					1.00					
	Infiltration rate	f (ms ⁻¹) NO VAL			Ŧ	otal offortis	storeser	a denth (acd) (m) 0.00	
Carried	out by	Notes	Too many f	nes for effective	ı soakage		sioreage		n) 0.00 ed	Checked
Arcadis	Consulting (UK)	Ltd			5				HK	SH



Based on BRE DG 365:2016								Contra	1007612
Project	Northstow	ve				Status		LC	CATION ID
Project ID	UA00842	6				(CHECKED	т	PSA922
Trial Pit Details									
Test 1 Test	t 2 Test 3	Groun	d Level		9.0	07 mAOD	Date Excava	ated	20/01/2017
Depth 1.10		Coor	dinates	:	540849.8	81 mE	Date Test	ed	20/01/2017
Width 0.70		000	uniates	'	266750.4	41 mN			
Length 1.50									
Test 1									
Time Depth to Water min m bgl	Test Parameters		(0	500	Elaps 100	ed Time (min) 0 1500	200	0 2500
0 0.63 75%	% esd (mbgl) 0.75		0.00						
1 0.63 50%	% esd (mbgl) 0.87		0.20					I es	t Data
2 0.64 25%	% esd (mbgl) 0.98	18						– – 75%	6 ESD
4 0.65	A_{s50} (m ²) 2.08	р Е	0.40					25%	6 ESD
6 0.65	V _{p75-25} (m ³) 0.25	ive	0.60						
8 0.66	t ₇₅ (min) 71.0	ir Le	0.90					+	
15 0.69	t ₂₅ (min) 9339.6	/ate	0.80		****	••••••	•••••	•••••	•••
30 0.71	Data Fit R ² 0.950	5	1.00						
60 0.74			1 20						
120 0.77	1		1.20						
Infiltration rate f (m	s ⁻¹) 2.13E-07			Т	otal effec	ctive storag	e depth (esd) (m)	0.47	
Test 2									
Time Depth to Water min m bgl	Test Parameters		-C).2	0	Elaps 0.2 0	ed Time (min) .4 0.6	0.8	1 1.2
75%	% esd (mbgl)			0.00				Tes	t Data
50%	% esd (mbgl)			0.10				•••• Bes	t Fit Line
25%	% esd (mbgl)	bgl		0.30				- 75%	6 ESD
	$A_{s50} (m^2)$	3		0.40				- 25%	6 ESD
	V _{p75-25} (m ³)	eve		0.50					
	t ₇₅ (min)	er L		0.60					
	t ₂₅ (min)	Wat		0.70					
	Data Fit R ²			0.90					
				1.00					
Infiltration rate f (m	s ⁻¹) NO VALID DATA			То	tal effect	ive storeag	e depth (esd) (m)		
Test 3									
Time Depth to Water	Test Parameters					Elaps	ed Time (min)		
min m bgl			-0	.2	0	0.2 0.	4 0.6 0).8	1 1.2
759	% esd (mbgl)		[0.00				Test	Data
50%	% esd (mbgl)			0.20			•••	•••• Best	Fit Line
259	% esd (mbgl)	bgl		0.30				- 75%	ESD
	$A_{s50} (m^{-})$	3		0.40				- 25%	ESD
	v _{p75-25} (m ⁻)	eve		0.50					
	t ₇₅ (min)	er L		0.60					
	$\tau_{25}(min)$	Nat		0.70					
	uata fit K	_		0.90					
				1.00					
Infiltration rato f (m				τ.	tal affact	ivo ctores -	a dapth (and) (m)	0.00	
Carried out by	Notos: Only one so	akawav t	test unde	I O ertaken di	ial effect	constraints	e depth (esd) (m)	0.00	Checked
	10105. ,	,					Loggeu		Checkeu



Based on	BRE DG 365:2016								Cult	internal and a second sec
Project		Northsto	ve				Status		LC	CATION ID
Project	ID	UA00842	26				0	HECKED	Т	PSA926
Trial P	it Details									
	Test 1	Test 2 Test 3	Groun	d Level		9.4	5 mAOD	Date Excava	ated	17/01/2017
Dep	oth 1.30					541048.9	1 mE	Date Teste	ed	17/01/2017
Wio	dth 0.70		Coor	dinates	5	266748.9	4 mN			
Len	gth 1.60									
Test 1	-									
Time	Depth to Water	Test Parameters					Elanc	ad Tima (min)		
min	, m bgl				0	500	1000) 1500	2000	2500
0	0.50	75% esd (mbgl) 0.70		0.00						
1	0.51	50% esd (mbgl) 0.90		0.20					 Test 	Data
2	0.51	25% esd (mbgl) 1.10	00	0.20				•••	•••• Bes	t Fit Line
4	0.51	A _{s50} (m ²) 2.96	n p	0.40					25%	S ESD
8	0.52	V _{p75-25} (m ³) 0.45	vel I	0.60	N					
15	0.53	t ₇₅ (min) 2428.7	Le,				••••••	<u></u>		•== •=
30	0.55	t ₂₅ (min) ########	ate	0.80						
60	0.57	Data Fit R ² 0.902	\geq	1.00						
120	0.60									
180	0.61			1.20						
	Infiltration rate	ef (ms ⁻¹) 2.26E-10				otal effect	tive storage	e depth (esd) (m)	0.80	
Test 2										
Time	Depth to Water	Test Parameters					Elaps	ed Time (min)		
min	m bgl			-().2	0	0.2 0.	4 0.6 (0.8	1 1.2
		75% esd (mbgl)			0.00				Test	Data
		50% esd (mbgl)			0.10				•••• Best	Fit Line
		25% esd (mbgl)	bgl		0.30				- 75%	ESD
		A _{s50} (m ²)	3		0.40				- 25%	ESD
		V _{p75-25} (m ³)	eve		0.50					
		t ₇₅ (min)	er		0.60					
		t ₂₅ (min)	Vati		0.70					
		Data Fit R ²	>		0.80					
					1.00					
	Infiltration rate	ef (ms ⁻¹) NO VALID DATA			Т	otal effecti	ve storeage	e depth (esd) (m)		
Test 3										
Time	Depth to Water	Test Parameters			2		Elapse	ed Time (min)		4 4 2
min	ni bgi	$7E_0(acd (mbgl))$		-0	.2	0 ().2 0.4	4 0.6 0).8	1 1.2
		50% esd (mbal)			0.10				Test	Data
		25% esd (mbal)			0.20				••• Best	Fit Line
		25% esu (mbgi) A (m^2)	bgl		0.30				- 75%	ESD
		r_{s50} (III)	m		0.40				- 25%	ËSD
	V_{p75-25} (m ³)		eve.		0.50					
	t ₇₅ (min)				0.60					
		Wat		0.80						
		υαιά ΓΙΙ Κ	-		0.90					
					1.00					
	Infiltration rate	$f(ms^{-1})$ NOVALID DATA			τ.	tal offect	vo storoos	a dopth (acd) (m)	0.00	
Carried		Notes Only one so	akawav	test unde	ertaken d	ue to time of	ve storeage		0.00	Checked
Arcadia	Consulting (UV)	Itd						Logged	ык	спескец
AILOUIS	Consulting (UK)	LIU							ПК	⊓د



Based on	BRE DG 365:2016										a same	Contra 1
Project			Nor	thsto	ve				Status		LO	CATION ID
Project	ID		UA	00842	26				(CHECKED	т	PSA933
Trial Pi	it Details											
	Test 1	Test 2	Test 3		Groun	d Leve		8.8	36 mAOD	Date Excava	ated	19/01/2017
Dep	oth 1.20							541249.9	99 mE	Date Test	ed	19/01/2017
Wie	dth 0.70				Coor	dinate	S	266698.2	26 mN			
Len	gth 1.40											
Test 1										•		
Time	Depth to Water	Tes	st Paramet	ers					Flans	ed Time (min)		
min	m bgl						0	500	100	0 1500	2000	2500
0	0.46	75% es	d (mbgl)	0.65		0.00						
1	0.46	50% es	d (mbgl)	0.83		0.20					I est	: Data
2	0.46	25% es	d (mbgl)	1.02	18						– – 75%	ESD
4	0.46	/	A _{s50} (m ²)	2.53	E E	0.40		••••			25%	ESD
8	0.46	V _{p7}	₇₅₋₂₅ (m ³)	0.36	eve	0.60						
15	0.46		t ₇₅ (min) #	#######	er Le	0 00						
30	0.47		t ₂₅ (min) #	#######	Vate	0.80						
60	0.48	Da	ata Fit R ²	0.795	5	1.00						
120	0.48					1.20						
180	0.49	1.				2.20						
	Infiltration rate	ef (ms⁻)	4.20E	-21				Fotal effec	tive storag	e depth (esd) (m)	0.74	
Test 2												
Time	Depth to Water	Tes	st Paramet	ers		_	0.2	0	Elaps	ed Time (min)	0.8	1 1 2
mm	in bgi	75% 00	d (mbal)			-	0.2		0.2 0	.4 0.0	0.0	1 1.2
		75% es	d (mbgl)				0.10				 Test 	Data
		25% 00	d (mbgl)		_		0.20			•••	•••• Best	Fit Line
		23/0 83	$\Delta (m^2)$		bg 1		0.30				75%	ESD
		, V	(m^3)		e		0.40				25%	ESD
		♥ p7	+ (min)		Lev		0.50					
			$t_{r_{2}}(min)$		Iter		0.70					
		Da	$t_{25}(1111)$		Ma		0.80					
		Da					0.90					
							1.00					
	Infiltration rate	f (ms ⁻¹)		Ο ΠΑΤΑ			т	otal effecti	ive storeag	e denth (esd) (m)		
Test 3		(ive storeus			
Time	Depth to Water	Tes	st Paramet	ers					Flam	a d Time a (maine)		
min	m bgl					-().2	0 0	0.2 0.	4 0.6 ().8	1 1.2
		75% es	d (mbgl)				0.00					
		50% es	d (mbgl)				0.10			(Test	Data
		25% es	d (mbgl)		00		0.20				Best	Fit Line
			A _{s50} (m ²)		n pî		0.30				- 25%	FSD
		V _{p7}	₇₅₋₂₅ (m ³)		vel 1		0.40				2370	200
	t ₇₅ (min)				. Lev		0.60					
	t ₂₅ (min)				ater		0.70					
Data Fit R ²							0.80					
							0.90					
							-1.00	1	1		1	
	Infiltration rate	f (ms ⁻¹)	NO VALII	D DATA			Т	otal effect	ive storeag	e depth (esd) (m)	0.00	
Carried	out by		Notes: To	oo many f	ines for e	effective	soakage			Logged		Checked
Arcadis	Consulting (UK)	Ltd									НК	SH



Based on E	BRE DG 365:2016									- Part	interested
Project		Nort	hstov	ve				Status		LC	CATION ID
Project I	D	UAO	0842	6				(CHECKED		PSA1002
Trial Pi	t Details										
	Test 1	Test 2 Test 3		Groun	d Leve	I	8.	86 mAOD	Date Exc	cavated	17/01/2017
Dep	oth 1.30	1.30		Coor	dinato	c	541249.	99 mE	Date T	ested	17/01/2017
Wid	ith 0.70	0.70		COOL	unate	5	266698.	26 mN			
Len	gth 1.70	1.70									
Test 1											
Time min	Depth to Water m bgl	Test Paramete	rs			0	50	Elaps 100	ed Time (mir 150	ו) 200 2	50 300
0	0.61	75% esd (mbgl)	0.78		0.00					_	
1	0.64	50% esd (mbgl)	0.96		0.20					Tes	t Data
2	0.66	25% esd (mbgl)	1.13	6						75%	ESD
4	0.69	A _{s50} (m ²)	2.85	д Е	0.40					25%	6 ESD
8	0.75	V _{p75-25} (m ³)	0.41	ive	0.60						
15	0.82	t ₇₅ (min)	11.5	rLe	0.00						
30	0.86	t ₂₅ (min)	238.9	/ate	0.80	•••	•				
40	0.89	Data Fit R ²	0.970	5	1.00		•••	•••••	****		
60	0.98				1 20			+			
90		1			1.20						
	Infiltration rate	ef(ms ⁻¹) 1.06E-	05			1	otal effe	ctive storag	e depth (esd)	(m) 0.69	
Test 2											
Time min	Depth to Water m bgl	Test Paramete	rs		0.00	0	100	Elaps 200	ed Time (mir) 300	1) 400	500
0	0.53	75% esd (mbgl)	0.72		0.00					- Tes	t Data
1	0.53	50% esd (mbgl)	0.92		0.20					• Bes	t Fit Line
2	0.55	25% esd (mbgl)	1.11	lgd	0.40					75%	6 ESD
4	0.57	A _{s50} (m ²)	3.04	3	0.40					 25%	6 ESD
8	0.63	V _{p75-25} (m ³)	0.46	eve	0.60						
15	0.71	t ₇₅ (min)	18.4	er L	0.80						
30	0.75	t ₂₅ (min)	393.6	Wat			••••••••	••••			
60	0.86	Data Fit R ²	0.983		1.00				•••••••••••••••••••••••••••••••••••••••	·	
90	0.92				1.20						
120		<i>c</i> (-1)				_				<i>,</i> , , , , , , , , , , , , , , , , , ,	
	Inflitration rate	er (ms) 6.70E-	06			10	otal effect	tive storeag	e depth (esd)	(m) 0.77	
Test 3	Douth to Mistor	To at Do your at a									
min	m bgl	Test Paramete	rs		-0	12	0	Elaps	ed Time (min)	1 12
		75% esd (mbgl)				0.00		0.2 0.	0.0	••••	
		50% esd (mbgl)				0.10				 Test 	Data
		25% esd (mbgl)				0.20				Best	Fit Line
		$A_{s50} (m^2)$		n be		0.30		_		75%	ESD
		$V_{p75-25} (m^3)$		/el n		0.40					630
		t ₇₅ (min)		Lev		0.60					
		t ₂₅ (min)		ater		0.70	_				
		Data Fit R ²		Ŵ		0.80		_			
						0.90					
						1.00					
	Infiltration rate	e f (ms ⁻¹) NO VALID	DATA			Тс	tal effec	tive storeag	e depth (esd)	(m) 0.00	
Carried	out by	Notes: Sec	ond test	underta	ken due	to collaps	e of first p	bit	Log	ged	Checked
Arcadis	Consulting (UK)	Ltd								НК	SH



Based on B	RE DG 365:2016										Saul Google	
Project		Northsto	we					Status			LOCATI	ON ID
Project II	D	UA00842	26					C	HECKED		TPSA1	L004
Trial Pit	t Details									•		
	Test 1	Test 2 Test 3	Groun	d Level			9.20	mAOD	Date	Excavated	i 17,	/01/2017
Dep	th 1.70		Coor	dinatos		54092	26.59	mE	Dat	e Tested	17,	/01/2017
Wid	th 0.70			unates		26663	84.08	mN				
Leng	th 1.60											
Test 1			-									
Time min	Depth to Water m bgl	Test Parameters		0		50	0	Elaps 1000	ed Time (1	min) 500	2000	2500
0	0.67	75% esd (mbgl) 0.93		0.00								
1	0.70	50% esd (mbgl) 1.19		0.20						•	Test Data	20
2	0.70	25% esd (mbgl) 1.44	0.0	0.40							• Best Fit Li 75% FSD	ne
4	0.71	A _{s50} (m ²) 3.49	d m	0.60							25% ESD	
8	0.72	V _{p75-25} (m ³) 0.58	ve	0.80								
15	0.73	t ₇₅ (min) 691.9	r Le	1.00			• • - • •	•••••				
30	0.75	t ₂₅ (min) 975138.8	/ate	1.20								
60	0.79	Data Fit R ² 0.870	5	1.40								
90	0.82			1.60								
120	0.85			1.00								
	Infiltration rate	f (ms ⁻¹) 2.83E-09			-	Total e	ffectiv	e storage	e depth (es	d) (m)	1.03	
Test 2												
Time min	Depth to Water m bgl	Test Parameters		-0.	2	0	0.2	Elaps 2 0.	ed Time (ı .4 0.6	min) 5 0.8	1	1.2
		75% esd (mbgl)			0.00						Test Data	
		50% esd (mbgl)			0.10						Best Fit Li	ne
		25% esd (mbgl)	bg	_	0.30	_					75% ESD	
		A _{s50} (m ²)	3	-	0.40						25% ESD	
		V _{p75-25} (m°)	eve	-	0.50							
		t ₇₅ (min)	er L		0.60							
		t ₂₅ (min)	Wat		0.70							
		Data Fit R ²		_	0.90							
					1.00							
		· · -1										
	Infiltration rate	f (ms ⁻) NO VALID DATA			Te	otal eff	ective	storeage	e depth (es	d) (m)		
Test 3												
Time	Depth to Water	Test Parameters		0.3	2	0	0.2	Elapse	ed Time (n	nin)	1	1 2
		75% esd (mbgl)		-0.2	0.00	0	0.2	. 0.4	4 0.0	0.8		1.2
		50% esd (mbgl)		_	0.10						Test Data	
		25% esd (mbgl)	_	-	0.20						Best Fit Lir	ne
		$A_{c_{50}}$ (m ²)	ցզ ւ	_	0.30						75% ESD	
		$V_{n75,25}$ (m ³)	el m		0.40						25% ESD	
		t ₇₅ (min)	Lev		0.50							
	t ₂₅ (min)				0.70							
Data Fit R ²				-	0.80							
				-	0.90							
					1.00							
	Infiltration rate	f (ms ⁻¹) NO VALID DATA			Т	otal eff	ective	storeage	e depth (es	d) (m)	0.00	
Carried o	out by	Notes: Only one so	bakaway	test under	taken d	lue to ti	me res	trictions	L	ogged	Cheo	ked
Arcadis C	Consulting (UK)	Ltd								нк		SH



Based on E	BRE DG 365:2016								-				and and	CC- Stell	
Project			Νοι	rthstov	ve					Status			LO	CATION I	D
Project I	D		UA	00842	6					C	CHECKED		TP	SA100	5
Trial Pi	t Details														
	Test 1	Test 2	Test 3		Groun	d Level			9.08	mAOD	Date E	xcavat	ted	10/01/2	2017
Dep	oth 2.00				Coor	dinato	-	54110	01.61	mE	Date	Teste	d	10/01/2	2017
Wid	ith 0.70				000	unates	5	26665	51.18	mN					
Len	gth 1.80														
Test 1															
Time min	Depth to Water m bgl	Tes	st Parame	ters			0	50	00	Elaps 1000	ed Time (m 0 150	nin) 00	2000) 25	500
0	1.27	75% es	d (mbgl)	1.45		0.00									
1	1.27	50% es	d (mbgl)	1.64		0.20						•	Test	Data	
2	1.27	25% es	d (mbgl)	1.82	00	0.40							- 75%	FIT LINE	
4	1.28	A	A _{s50} (m²)	3.09	а Ш	0.80							- 25%	ESD	
8	1.28	V _{p7}	₇₅₋₂₅ (m ³)	0.46	ve	1.00									_
15	1.29	1	t ₇₅ (min)	3151.1	r Le	1.20									
30	1.31		t ₂₅ (min)	########	/ate	1.40				·····				La •	-
60	1.32	Da	ata Fit R ²	0.876	3	1.60									
120	1.35					1.80									
150	1.37					2.00									
	Infiltration rate	f (ms⁻¹)	2.86	E-11			-	Fotal e	ffectiv	e storage	e depth (esd) (m)	0.73		
Test 2															
Time	Depth to Water	epth to Water Test Parameters				,		0	0.1	Elaps	ed Time (m	nin)	0	1 1	2
min	m bgl	750/				-(J.2	0	0	2 0.	.4 0.6	0.	.8	1 1	
		75% es	d (mbgl)				0.10	_					Test	Data	_
		50% es	d (mbgl)				0.20					••••	••• Best	Fit Line	_
		25% es	a (mbgi) (m^2)		bg		0.30	_					- 75%	ESD	_
		,	$A_{s50} (m)$		E B		0.40	_					- 25%	ESD	-
		V _{p7}	₇₅₋₂₅ (m)		Leve		0.50								
		1	t ₇₅ (min)		ter		0.00								
		Da	$t_{25}(min)$		Ma		0.80								_
		Da	ita Fit K				0.90	_							-
							1.00								
	Infiltration rate	f (mc ⁻¹)					т	atal off		storoog	a danth (acd) (m)			
Toct 2	ininitiation rate	1 (115)	NO VAL	ID DATA			10	Julien	ective	storeage	e depth (esd) (m)			
Timo	Dopth to Wator	Tor	st Paramo	tors											
min	m bgl	163	stratatie	Let's		-0).2	0	0.2	Elapse	ed Time (mi 4 0.6	in) 0.3	8	1 1	.2
	-	75% es	d (mbgl)				0.00							· •	
		50% es	d (mbgl)				0.10					•	Test	Data	
		25% es	d (mbgl)				0.20						•• Best	Fit Line	
		A	$A_{s50} (m^2)$		n be		0.30						- 75%	ESD	
		V _{n7}	$_{75-25}$ (m ³)		eln		0.40						- 25%	ESD	
		, ۲	t ₇₅ (min)		Lev		0.50								
	t ₂₅ (min)				Iter		0.70								
	Data Fit R ²						0.80								
							0.90								
							1.00								
	Infiltration rate	f (ms ⁻¹)	NO VAL	ID DATA			Т	otal eff	fective	storeage	e depth (esd) (m)	0.00		
Carried	out by		Notes:	Γοο many fi	nes for e	ffective	soakage				Lo	gged		Checked	
Arcadis	Consulting (UK)	Ltd	-										нκ	S	н
	3. 1														



Dasea on Di	LE DG 303.2010										1	
Project			Nor	thstov	ve				Status		L	OCATION ID
Project ID)		UA	00842	6				C	HECKED	T	PSA1103
Trial Pit	Details											
	Test 1	Test 2	Test 3		Groun	d Leve	l	9	.30 mAOD	Date Excav	ated	10/01/2017
Dept	h 1.80	1.60	1.60		6		ļ	540842	.66 mE	Date Test	ted	10/01/2017
Widt	h 0.70	0.70	0.70		Coor	dinate	S	266347	.84 mN			
Lengt	th 1.60	1.60	1.60									
Test 1												
Time	Depth to Water	Tes	st Paramet	ers					Flanc	ad Time a (min)		
min	m bgl						0	20	40	60 80		100 120
0	0.88	75% es	d (mbgl)	1.11		0.00						
1	0.91	50% es	d (mbgl)	1.34		0.20					• Tes	st Data
2	0.95	25% es	d (mbgl)	1.57	<u></u> 0	0.40				• •	••••• Be:	st Fit Line
4	1.00	,	A _{s50} (m²)	3.24	n pî	0.60					25	% ESD
8	1.08	V _p ,	₇₅₋₂₅ (m ³)	0.52	/el r	0.80					23	
15	1.19		t ₇₅ (min)	9.8	. Lev	1.00						
30	1.30		t ₂₅ (min)	95.4	ater	1.20	•	D• • • • • •	••••			
40	1.36	Da	ata Fit R ²	0.977	\geq	1.40			••••	••••		
50	1.43					1.60						• • •
60	1.48					1.80						
	Infiltration rate	f (ms ⁻¹)	3.10	E-05			т	otal effe	ective storage	e depth (esd) (m)) 0.92	2
Test 2												
Time	Depth to Water	Tes	st Paramet	ers					Elaps	ed Time (min)		
min	m bgl						0	20	40	60	80	100
0	0.75	75% es	d (mbgl)	0.96		0.00					Та	at Data
1	0.78	50% es	d (mbgl)	1.18		0.20				••	• Tes	st Fit Line
2	0.81	25% es	d (mbgl)	1.39	2g	0.40				-	759	% ESD
4	0.84		A _{s50} (m²)	3.08	E	0.60				-	259	% ESD
8	0.93	V _p ,	₇₅₋₂₅ (m ³)	0.48	evel	0.80	Ň					
15	1.05		t ₇₅ (min)	7.7	er Le	1.00						
30	1.21		t ₂₅ (min)	69.4	/ate	1.20		···.				
40	1.27	Da	ata Fit R ²	0.980	>	1.40						
50	1.33					1.60						
60	1.38											
	Infiltration rate	f (ms ⁻¹)	4.18	E- 05			То	tal effec	tive storeage	e depth (esd) (m)	0.85	5
Test 3												
Time	Depth to Water	Tes	st Paramet	ers					Elapse	ed Time (min)		
min	m bgl		.,	_		0.00	0	20	40 60	0 80	100	120 140
0	0.70	75% es	d (mbgl)	0.93		0.00						t Data
1	0.72	50% es	d (mbgl)	1.15		0.20				•••	•••• Bes	t Fit Line
2	0.75	25% es	d (mbgl)	1.38	lgc	0.40					- 75%	6 ESD
4	0.79	,	A _{s50} (m ²)	3.19	E	00.0	<u>.</u>				- 25%	6 ESD
8	0.86	V _p	₇₅₋₂₅ (m³)	0.50	eve	1 00						
15	0.97		t ₇₅ (min)	8.9	er L(1 20		•••••••				
30	1.16		t ₂₅ (min)	73.5	Vaté	1 40				····		
60	1.32	Da	ata Fit R ²	0.975	5	1.60						
90	1.41					1.80						Ī
120	1.60					1.00						
	Infiltration rate	f (ms ⁻¹)	4.07	E-05			То	tal effec	tive storeage	e depth (esd) (m)) 0.90)
Carried o	ut by		Notes:							Logged	I	Checked
Arcadis C	onsulting (UK)	Ltd									НК	SH

Based on BRE DG 365:2016



Northstowe Project Status LOCATION ID UA008426 **TPSA1105** Project ID CHECKED Trial Pit Details Ground Level mAOD Date Excavated 06/01/2017 Test 1 Test 2 Test 3 Depth 1.40 540741.0225 mE Date Tested 06/01/2017 Coordinates Width 0.70 266184.0844 mN Length 1.50 Test 1 Time Depth to Water **Test Parameters** Elapsed Time (min) min m bgl 0 500 1000 1500 2000 2500 0.00 0 0.50 75% esd (mbgl) 0.73 Test Data 1 0.51 50% esd (mbgl) 0.95 0.20 ••••• Best Fit Line 25% esd (mbgl) 2 0.52 1.18 bg 0.40 75% ESD 4 0.53 $A_{s50} (m^2)$ 3.03 Ε - 25% ESD 0.60 8 0.54 V_{p75-25} (m³) 0.47 Leve 0.80 15 0.55 t₇₅ (min) 162.3 Water 30 0.58 t₂₅(min) 13679.8 1.00 Data Fit R² 60 0.65 0.884 1.20 90 0.69 1.40 180 0.74 Infiltration rate f (ms⁻¹) 1.92E-07 Total effective storage depth (esd) (m) 0.90 Test 2 Time Depth to Water Test Parameters Elapsed Time (min) min m bgl -0.2 0 0.2 0.4 0.6 0.8 1 1.2 0.00 75% esd (mbgl) Test Data 0.10 50% esd (mbgl) •••• Best Fit Line 0.20 25% esd (mbgl) Water Level m bgl – 75% ESD 0.30 $A_{s50} (m^2)$ 25% ESD 0.40 V_{p75-25} (m³) 0.50 t₇₅ (min) 0.60 0.70 t₂₅(min) 0.80 Data Fit R² 0.90 1.00 Infiltration rate f (ms⁻¹) **NO VALID DATA** Total effective storeage depth (esd) (m) Test 3 Time Depth to Water **Test Parameters** Elapsed Time (min) m bgl min 0.2 0.8 -0.2 0 0.4 0.6 1 1.2 0.00 75% esd (mbgl) 0.10 Test Data 50% esd (mbgl) •••• Best Fit Line 0.20 25% esd (mbgl) Water Level m bgl - 75% ESD 0.30 $A_{s50} (m^2)$ 25% ESD 0.40 V_{p75-25} (m³) 0.50 t75 (min) 0.60 t₂₅(min) 0.70 0.80 Data Fit R² 0.90 1.00 Infiltration rate f (ms⁻¹) **NO VALID DATA** Total effective storeage depth (esd) (m) 0.00 Notes: Only one soakaway test undertaken due to time restrictions Carried out by Checked Logged Arcadis Consulting (UK) Ltd SH ΗK



Based OII	BRE DG 303.2010	Northsto					C L - L					
Project		Northsto	we				Status			DCATION ID		
Project	ID	UA0084	26				C	CHECKED		PSA1113		
Trial P	it Details											
	Test 1	Test 2 Test 3	Groun	id Level			mAOD	Date Excav	ated	09/01/2017		
De	oth 1.80		Coor	dinates	540854	.7661	mE	Date Tes	ted	09/01/2017		
Wie	dth 0.70			uniaces	266171	.3132	mN					
Len	gth 1.60											
Test 1												
Time min	Depth to Water m bgl	Test Parameters		0	5(00	Elaps 1000	ed Time (min)) 1500	2000	0 2500		
0	0.67	75% esd (mbgl) 0.95		0.00								
1	0.68	50% esd (mbgl) 1.24		0.20					 Test 	t Data		
2	0.68	25% esd (mbgl) 1.52	00	0.40					75%	K FSD		
4	0.69	$A_{s50} (m^2)$ 3.72	р ш	0.60					25%	6 ESD		
8	0.71	V _{p75-25} (m ³) 0.63	ve	0.80								
15	0.72	t ₇₅ (min) 865.5	Ľe	1 00	••••••							
30	0.75	t ₂₅ (min) 895896.0	atei	1.20								
60	0.78	Data Fit R ² 0.910	≥	1.20								
120	0.84			1.40								
180	0.87			1.60								
	Infiltration rate	ef (ms ⁻¹) 3.17E-09			Total e	effectiv	ve storage	e depth (esd) (m) 1.13			
Test 2												
Time	Depth to Water	Test Parameters					Elaps	ed Time (min)				
min	m bgl			-0.2	2 0	0.2	2 0.	4 0.6	0.8	1 1.2		
		75% esd (mbgl)			0.00				Tost	t Data		
		50% esd (mbgl)			0.10				Bes	t Fit Line		
		25% esd (mbgl)	08	_	0.30				75%	S ESD		
		A _{s50} (m ²)	E	-	0.40				25%	S ESD		
		V _{p75-25} (m ³)	eve	-	0.50							
		t ₇₅ (min)	er Le	-	0.60							
		t ₂₅ (min)	Vate	-	0.70							
		Data Fit R ²	>		0.80							
					1.00							
	Infiltration rate	e f(ms ⁻¹) NO VALID DATA			Total ef	fective	e storeage	e depth (esd) (m)			
Test 3												
Time	Depth to Water	Test Parameters					Elapse	ed Time (min)				
min	m bgl			-0.2	0	0.2	2 0.4	4 0.6	0.8	1 1.2		
		75% esd (mbgl)			0.00				Test	Data		
		50% esd (mbgl)			0.10				•••• Best	Fit Line		
		25% esd (mbgl)	lgd	_	0.30				- 75%	ESD		
		A _{s50} (m²)	E	-	0.40				25%	ESD		
		V _{p75-25} (m ³)	eve	-	0.50							
		t ₇₅ (min)	er Le	-	0.60							
		t ₂₅ (min)	Vate	-	0.70							
		Data Fit R ²	5		0.80							
					1.00							
	1.00											
	Infiltration rate	e f (ms ⁻⁺) NO VALID DATA	1		Total ef	fective	storeage	e depth (esd) (m	0.00			
Carried	out by	Notes: Only one s	oakway t	est underta	iken due to tir	me rest	rictions	Logged	l	Checked		
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Project			No	rthstov	ve				:	Status			LO	CATION I	D
Project	ID		UA	400842	26					C	CHECKED)	TP	SA112	.0
Trial Pi	it Details														
	Test 1	Test 2	Test 3		Groun	d Level			9.29	mAOD	Date	e Excava	ted	06/01/	2017
Dep	oth 1.50				Coor	dinato		54105	50.82	mE	Da	ite Teste	ed	06/01/	2017
Wic	dth 0.70				000	umates		26610	0.51	mN					
Len	gth 1.60														
Test 1															
Time min	Depth to Water m bgl	Test	t Parame	eters			0	50	0	Elaps 1000	ed Time	(min) 1500	2000) 2	500
0	0.52	75% esd	d (mbgl)	0.77		0.00							_		٦
1	0.52	50% esd	d (mbgl)	1.01		0.20							Test	: Data	_
2	0.53	25% esd	d (mbgl)	1.26	6	0.40							– 75%	ESD	_
4	0.53	A	A _{s50} (m ²)	3.37	m b	0.60							25%	ESD	
8	0.56	V _{p75}	₅₋₂₅ (m ³)	0.55	Ne	0.00	.								
15	0.58	t	: ₇₅ (min)	394.2	ir Le	0.80			•••••	•••••	••••••	••••••	•••••	•••	-
30	0.60	t	t ₂₅ (min)	142330.6	/ate	1.00									-
60	0.65	Dat	ta Fit R ²	0.939	5	1.20									_
90	0.68					1 40									
120	0.70	1				1.10									
	Infiltration rate	f (ms)	1.93	LE-08			T	otal e	ffective	e storage	e depth (e	sd) (m)	0.98		
Test 2															
Time min	Depth to Water m bgl	Test	t Parame	eters		-().2	0	0.2	Elaps 0.	ed Time .4 0.	(min) .6 0).8	1 1	L.2
		75% esd	(mbgl)				0.00						Tost	Data	7
		50% esd	d (mbgl)				0.10						Best	Fit Line	
		25% esd	d (mbgl)		08		0.20	_					- 75%	ESD	_
		A	A _{s50} (m ²)		E		0.40						- 25%	ESD	_
		V _{p75}	₅₋₂₅ (m ³)		eve		0.50	_							-
		t	: ₇₅ (min)		er L		0.60								-
		t	t ₂₅ (min)		Vati		0.70								
		Dat	ta Fit R ²		~		0.80	_							
							1.00								
		1													
	Infiltration rate	f (ms⁺)	NO VAL	ID DATA			To	tal eff	ective	storeage	e depth (e	sd) (m)			
Test 3															
Time	Depth to Water	Test	t Parame	eters		0	2	0	0.2	Elapse	ed Time (min)	0	1 1	2
	11 061	75% esd	l (mhøl)			-0	.∠ 0.00	0	0.2	0.4	+ U.I	0 0	.o	т Т	.∠
		50% esd	d (mhøl)				0.10						Test	Data	
		25% esd	d (mhøl)		_		0.20					••••	••• Best	Fit Line	-
		Δ	$A_{c_{50}}$ (m ²)		lgd (0.30						- 75%	ESD	-
		V	$_{5,25}$ (m ³)		el m		0.40						- 25%	ESD	
		- p/s	(min)		Levi		0.50]
	t ₂₅ (min)			ter		0.70									
	Data Fit R ²				Wa		0.80								
						0.90								-	
							1.00								J
	Infiltration rate	f (ms ⁻¹)	NO VAL	ID DATA			Тс	tal eff	ective	storeage	e depth (e	sd) (m)	0.00		
Carried	out by	1	Notes:	Too many fi	nes for e	effective	soakage					Logged		Checked	
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Based on	BRE DG 365:2016								our	Laberts
Project		Northstow	we				Status		LC	DCATION ID
Project	ID	UA00842	26				0	HECKED	TF	PSA1121
Trial Pi	it Details									
	Test 1	Test 2 Test 3	Groun	d Level		9.7	6 mAOD	Date Excava	ated	06/01/2017
Dep	oth 1.50		Coor	dinatos		540950.5	55 mE	Date Test	ed	06/01/2017
Wio	dth 0.70		0001	unates		266150.7	75 mN			
Len	gth 1.80									
Test 1										
Time min	Depth to Water m bgl	Test Parameters			0	500	Elaps 1000	ed Time (min)) 1500	200	0 2500
0	0.68	75% esd (mbgl) 0.89		0.00						
1	0.69	50% esd (mbgl) 1.09		0.20					I es	t Data
2	0.70	25% esd (mbgl) 1.30	08	0.40					75%	6 ESD
4	0.71	$A_{s50} (m^2)$ 3.31	E E	0.60					25%	6 ESD
8	0.74	V _{p75-25} (m ³) 0.52	evel	0.00						
15	0.79	t ₇₅ (min) 47.5	er Le	0.80						
30	0.84	t ₂₅ (min) 1995.8	Vate	1.00		•••				
40	0.86	Data Fit R ² 0.944	>	1.20		••••	•••••••••••	* * * * * * * * * * * * * * * * * * * *		
60	0.91			1.40						
90	0.95	· · -1								
	Infiltration rate	ef (ms) 1.34E-06				otal effec	tive storage	e depth (esd) (m)	0.82	
Test 2	Denth to Minter	T								
l ime min	Depth to Water m bgl	Test Parameters		-C).2	0	Elaps 0.2 0.	ed Time (min) 4 0.6 (0.8	1 1.2
		75% esd (mbgl)			0.00					
		50% esd (mbgl)			0.10				e Tes	t Data
		25% esd (mbgl)	00		0.20		_	•••	•••• Bes	t Fit Line
		A_{s50} (m ²)	р Д		0.30				- 25%	6 ESD
		V _{p75-25} (m ³)	veli		0.50		_			
		t ₇₅ (min)	rLe		0.60					
		t ₂₅ (min)	'ate		0.70					
		Data Fit R ²	3		0.80		_			
					1.00					
					1.00					
	Infiltration rate	ef (ms ⁻¹) NO VALID DATA			T	otal effecti	ive storeage	e depth (esd) (m)		
Test 3										
Time	Depth to Water	Test Parameters					Elapse	ed Time (min)		
min	m bgl			-0	.2	0 (0.2 0.4	4 0.6 C	.8	1 1.2
		75% esd (mbgl)		[0.00				Test	Data
		50% esa (mbgi)			0.20				Best	Fit Line
		25% esa (mbgi)	bgl		0.30				- 75%	ESD
		A_{s50} (m)	E I		0.40				- 25%	ESD
		v_{p75-25} (111)	eve		0.50					
		t_{75} (IIIII)	ter L		0.60					
			Wat		0.80					
					0.90	_				
					1.00					
	Infiltration rate	ef (ms ⁻¹) ΝΟ ναι μο σατα			т	ntal effecti	ive storeage	e denth (esd) (m)	0 00	
Carried	out by	Notes: Only one so	akaway	test unde	rtaken d	ue to time i	restraints		0.00	Checked
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	2. 1									



PROJECT: OAKINGTON, CAMBRIDGESHIRE

STATIC CONE PENETRATION TESTING FACTUAL REPORT

CLIENT: ARCADIS

CONTRACT No.: PO0063967-1



Issue	Date	Description	Prepared	Checked	Approved
01	13/01/17	Final	reg. 13	1	

Report No.: 1160415R001RW

Arcadis

Oakington, Cambridgeshire



Date: Our Ref:	13 January 1160427	2017					
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5 th Floor, The	Pithay					Fax: 0845 862 0559	
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Bristol					2	Company Reg No.: 6339499 VAT No.: 922 3561 41)
BS1 2NL							
Attention <mark>۲</mark> 은	g. 13						
Dear reg.	13						
	5	STATIC CON	IE PENETF	RATION TES	STING	ì	

We have pleasure in providing a digital copy of our report and data in AGS format for the above project.

AT OAKINGTON, CAMBRIDGESHIRE

We hope that you are satisfied with the performance of our staff, equipment and reporting on this project. If you should have any queries about any aspect of the works carried out, please do not hesitate to contact us. We look forward to being of service to you in the future.

Yours faithfully,

In Situ Site Investigation Limited



Director



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1.0 INTRODUCTION

At the request of Arcadis (The Client), In Situ Site Investigation Limited (In Situ S.I.) carried out a soils investigation at Oakington, Cambridgeshire.

The investigation consisted of performing Static Cone Penetration Tests (CPTs). All tests were performed at locations set out by the Client.

The fieldwork details are shown below in figure 1.1 and figure 1.2.

Fieldwork Summary			
CPT Rig Used	20 Tonne track mounted CPT 007		
Operators	reg. 13		
Date Started	12/12/2016		
Date Finished	23/12/2016		
In Situ S.I. Project Manager	rad 13		
Main Contractor's Site Manager	reg. 13		

Figure 1.1: Table showing the fieldwork summary details.

Completed Fieldwork Summary			
30 Static Cone Penetration Tests (CPTs) to a maximum depth of 12.66m or refusal. Each			
test measured Cone Resistance (qc), Sleeve fiction (fs), Measured Pore Pressure in the			
shoulder position (u ₂), inclination in X and Y planes.			
10 Dissipation Tests.			

Provision of factual report with estimated soil type, geotechnical parameters and AGS data.

Figure 1.2: Table showing the completed fieldwork summary details.



2.0 FIELDWORK

2.1 CPT RIG

All works were performed with a 20 tonne CPT track mounted rig. A full data sheet for the rig is presented in Appendix A.

2.2 CPTU CONE

The following single electric CPTU cones were used S15-CFIIP.1032 and S15-CFIIP.1458 of a type conforming to the requirements of Application Class 2 of ISO/ FDIS 22476-1 (2012). The cones measured parameters are shown in figure 1.2. The cone had a cross-sectional area of 15cm^2 . The piezo filter was mounted in the shoulder (u_2) position (see figure 3.2). A full datasheet for each of the cones used is shown in Appendix A.

2.3 TEST PROCEDURE

The tests are carried out in accordance with the International Standard for electrical cone and piezocone penetration test (ISO/FDIS 22476-1 2012).

The final depths of the tests were determined by either completion to the specified test depth or when the maximum safe capacity of the equipment was reached. A schedule of the tests performed is shown in Appendix A which has been compiled from the operator's daily progress reports.

The data is transmitted from the digital CPTU through an umbilical cable that runs through the push rods to the data acquisition system.

The rate of penetration is kept constant at $2 \text{cm/s} \pm 10\%$ except when penetrating very dense or hard strata. A copy of the depth encoder calibration certificate is shown in Appendix A. Results are displayed instantaneously on the computer logging screen. The results are recorded on the computer hard disc.

Before each test is carried out zero values are taken of the cone to check to see if it is within calibration. At the end of each test, zero values are taken again to see if there has been any drift during the test. These values are inspected during the post processing stage. This is a quality check on the data and the testing procedure. Individual test zero values are shown on their corresponding test results on form CPT0001 in Appendix B.

Oakington, Cambridgeshire



2.4 **POSITIONING**

All positions were set out by the Client on site.



3.0 CONE PENETRATION TEST RESULTS

All tests carried with the CPTU cone are shown in Appendix B and displays all results as described in section 3.1 and 3.2. Two graphs are shown for each test. The first graph (form CPT0001 Estimated Soil Behaviour Type Plot) shows the measured readings from the cone and the estimated soil description, these are plotted at a 0-20MPa scale for the cone resistance. The second graph (form CPT0002 Measured Pore Pressure Plot) shows derived and corrected values along with the pore pressure results; these are plotted at a 0-80MPa scale for the cone resistance.

3.1 ESTIMATED SOIL BEHAVIOUR TYPE PLOT (FORM CPT0001)

The estimated soil behaviour type plot presented in Appendix B details the following:

- Measured cone end resistance (q_c) and sleeve friction (f_s) ;
- Friction ratio (*R_f*);
- Inclination, X and Y axis;
- Estimated behaviour soil type log (Robertson *et.al* 1986, friction ratio chart)
- Legend indicating soil log (BS5930:1999 legend)

3.1.1 Estimated Soil Behaviour Type

The estimation of soil behaviour type using measurements of cone and friction is based upon the variation of the friction ratio in respect to the cone resistance. The friction ratio varies depending upon whether the soil is cohesive or granular. The cone resistance varies depending on the strength and densities of the soil.

The interpretation is based on Robertson *et. al.* (1986) (Friction ratio chart) which is shown below (figure 3.1).

The density and stiffness values descriptions are based on derived N60 (Robertson *et. al.* (1986)) and S_u (Lunne and Kleven (1981)) values from the cone resistance in accordance to BS5930:1999. A list of these values are presented in Appendix A.

Arcadis

Oakington, Cambridgeshire





Figure 3.1: Robertson et al., 1986 soil behaviour type chart.

3.1.2 Friction Ratio (*R_f*)

The friction ratio (R_f) is the ratio between the sleeve friction and the cone resistance. This is a very useful parameter for carrying out soil interpretation

Fricton Ratio
$$(R_f) = \left(\frac{Sleeve \ Friction \ (f_s)}{Tip \ Resistance \ (q_c)}\right) \times 100$$
 (Lunne *et al.*, 1997)

3.1.3 Depth Correction

All tests in the report have been corrected for depth difference caused by inclination. This has been calculated using the method described in the International Reference Test Procedure (2001).

To calculate the corrected depth the following formula is used:

$$z = \int_0^l C_h \cdot dl$$

where:

z = penetration depth, in m;

I = penetration length, in m;

 C_h = correction factor for the effect of the inclination of the CPTU relative to the vertical axis.

The equation for calculating the correction factor for the influence of the inclination for a biaxial inclinometer is:

$$\boldsymbol{C}_{\boldsymbol{h}} = (1 + tan^2 \propto + tan^2 \boldsymbol{\beta})^{-1/2}$$

Oakington, Cambridgeshire



3.2 MEASURED PORE PRESSURE PLOT (CPT0002)

Behind each estimated soil type plots in Appendix B is a second plot showing the pore pressure results as well as corrected and derived parameters. These logs detail the following:

- Measured Pore pressure (u_2) ,
- Corrected cone resistance (*q*_t);
- Pore pressure ratio (B_q)
- Sleeve friction (f_s)

3.2.1 Pore Pressure Results (*u*₂)

The CPTU measured the pore pressure during penetration. If the material is free draining and saturation is maintained it will normally measure hydrostatic pore pressure. In material that is not free draining it will record the total pore pressure (hydrostatic plus any excess pore pressures generated) created by the cone penetrating through this material

The filter element can be mounted in one of three positions. For the tests carried out in this report the filter was mounted in the u_2 , or shoulder position (see figure 3.2)



Figure 3.2: Diagram showing pore pressure filter locations (after Lunne et al., 1997)

3.2.2 Corrected Cone Resistance (q_t)

For each penetration test, the measured Cone Resistance, q_c , can be corrected for the 'unequal area effect' due to the influence of the ambient pore water pressure acting on the cone.

The corrections have been applied using the following equation:

 $q_t = q_c + [u_{2}(1 - \alpha)]$ (Lunne *et al.*, 1997)

Where α is the cone area ratio, which is **0.869** for the cone used on this project (This value is geometrically measured).

Oakington, Cambridgeshire



3.2.3 Pore Pressure Ratio (*B_q*)

Pore pressure ratio is the ratio between the measured pore pressure generated during penetration and the corrected cone resistance minus the total overburden stress.

Pore pressure ratio as defined by Senneset and Janbu (1985) is defined as:

$$B_q = \frac{u_2 - u_0}{q_t - \sigma_{vo}}$$

where:

 u_2 = pore pressure measured between the cone and the friction sleeve

 u_0 = equilibrium pore pressure

 σ_{vo} = total overburden stress

 q_t = cone resistance corrected for unequal end area effects

3.2.4 Soil Unit Weight

For calculations involving the total overburden stress, an estimate of the soil unit weight has to be made. For all calculations in this report, an approximate unit weight is assigned to each soil classification zone from the Robertson *et al.*, 1986 chart.

Figure 3.3 below lists the approximate unit weight for each zone from Lunne et al., 1997.

Zone	Approximate unit weight (kN/m ³)
1	17.5
2	12.5
3	17.5
4	18
5	18
6	18
7	18.5
8	19
9	19.5
10	20
11	20.5
12	19

Figure 3.3: Estimate of unit weights based on the Robertson *et al.*,(1986) friction ratio chart (Lunne *et al.*, 1997).


3.2.5 In Situ Pore Pressure

On the pore pressure plot is a second line (in red) showing the inferred in situ or hydrostatic pore pressure, u_0 . This is calculated from a known or estimated water table level.

In the report, the water table has been inferred at 2m below ground level.



4.0 GEOTECHNICAL PARAMETERS

A number of empirical correlations can be carried out to derive geotechnical parameters from CPT data. This report includes a number of these parameters which are described in this section. For the CPT data only soil behaviour type, SPT values, shear strength and relative density are derived and are shown in Appendix C. For the CPTU data all the derived parameters described in the section are derived and displayed in Appendix C.

Please note that a number of the correlations are derived for a certain type of soil, and may not be appropriate for all the soil types encountered on this project.

4.1 SOIL BEHAVIOUR TYPE INDEX

The soil behaviour type index was derived by Jefferies and Davies (1991). It was created to allow a continuous variation of $(q_o/p_a)/N_{60}$ with soil type, which was an improvement on the discontinuous nature of an earlier conversion by Robertson *et al.* (1986).

This approach has been modified for use with the Robertson (1990) normalised CPT soil classification chart. The boundaries between soil behaviour type zones (2 to 7) can be approximated as concentric circles, and the radius of each circle can be used as a soil behaviour type index (Lunne *et al.*, 1997).

The soil behaviour type index, I_c , can then be defined as:

$$I_c = ((3.47 - logQ_t)^2 + (logF_r + 1.22)^2)^{0.5}$$

The boundaries of soil behaviour type are then given in terms of the index, I_c . See figure 4.1 for the table of soil behaviour types.

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Soil Behaviour Type Index, <i>I_c</i>	Zone (from Robertson 1990 normalised chart)	Soil Behaviour Type
<i>I_c</i> < 1.31	7	Gravelly sand to dense sand
1.31 < <i>I_c</i> < 2.05	6	Sands – clean sand to silty sand
$2.05 < I_c < 2.60$	5	Sand mixtures – silty sand to sandy silts
2.60 < <i>I_c</i> < 2.95	4	Silt mixtures – clayey silt to silty clay
$2.95 < I_c < 3.60$	3	Clays: silty clay to clay
<i>I_c</i> > 3.60	2	Organic soils - peats

Figure 4.1: Boundaries of soil behaviour type index, *I*_c.

4.2 STANDARD PENETRATION TEST (SPT) N VALUE

The SPT N value can be derived using differing ratios of the relationship between q_c and N_{60} . These ratios were suggested by Robertson *et al.* (1986) and are shown in figure 4.2.

Zone	Soil Behaviour Type	(q₀/p _a)/N ₆₀
1	Sensitive fine grained	2
2	Organic material	1
3	CLAY	1
4	Silty CLAY to CLAY	1.5
5	Clayey SILT to silty CLAY	2
6	Sandy SILT to clayey SILT	2.5
7	Silty SAND to sandy SILT	3
8	SAND to silty SAND	4
9	SAND	5
10	Gravely SAND to SAND	6
11	Very stiff fine grained	1
12	SAND to clayey SAND	2

Figure 4.2: SPT N value ratios from Robertson et al., 1986.

For the best results for the calculation of N_{60} it is recommended to use the soil behaviour type index, I_c . This is the method used in this report.



The relationship between N_{60} and I_c is defined as:

$$\frac{(rac{q_c}{p_a})}{N_{60}} = 8.5(1 - rac{I_c}{4.6})$$
 (Lunne *et al.*, 1997)

It is suggested (Jefferies and Davies, 1991) that this method provides a better estimate of the SPT N values than the actual SPT test due to poor repeatability of the SPT.

4.3 SHEAR STRENGTH

Estimation of s_u from CPTUs using corrected cone resistance is made from the following equation:

$$s_u = rac{(q_t - \sigma_{vo})}{N_{kt}}$$
 (Lunne et al., 1981)

where:

 N_{kt} = empirical cone factor σ_{vo} = total overburden stress.

Research has shown that the cone factor N_{kt} varies between 11 and 30 with an average value of 15. We present an upper bound s_u value with an N_{kt} value of 15 and a lower bound s_u value with an N_{kt} value of 20. This report only presents this data on soils with a soil behaviour type index (I_c) of greater than 2.60.

4.4 **RELATIVE DENSITY** (*D_r*)

Relative density has been derived using a method by Jamiolkowski *et al.*, 1985 (see figure 4.3). This correlation was derived from five predominantly silica sands under controlled laboratory conditions. The sands were normally consolidated, un-cemented, un-aged and predominantly quartz. It is noted that field cases are likely to show more variability than that demonstrated in figure 4.3.

The correlation in this report is calculated on soil with a soil behaviour type index (I_r) of less than 2.60. The formula for calculating relative density (D_r) is:

$$D_r = -98 + 66 \log_{10} \frac{q_c}{[\sigma'_{vo}]^{0.5}}$$

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Figure 4.3: Correlation between q_c and relative density (after Jamiolkowski et al., 1985)

4.5 FRICTION ANGLE

Friction angle is derived using the Robertson and Campanella (1983) method from their work looking at calibration test data (see figure 4.6). The correlation is based on un-aged uncemented quartz sand. The formula for peak ϕ ' from CPTU is:

$$\Phi' = \arctan\left[0.1 + 0.38\log(\frac{q_t}{\sigma_{vo}})\right]$$

The correlation in this report is calculated on soil with a soil behaviour type index (I_c) of less than 2.60.



Figure 4.6: Peak friction angle of clean quartz sands from CPTU (after Robertson & Campanella,

1983).

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4.6 FINES CONTENT (FC)

It is possible to estimate fines content from the friction ratio of sandy soils. Suzuki *et al.*, (1995) demonstrated how friction ratio (R_f) varies with fines content (*FC*) (see figure 4.7)



Figure 4.7: Variation of fines content with friction ratio (Suzuki et al., 1995)

Robertson and Fear (1995) used this relationship and integrated it with the soil behaviour type index (I_c), this was later updated in 1998. This relationship is shown below:

if $I_c < 1.26$ apparent fines content FC (%) = 0

if $1.26 \le I_c \le 3.5$ apparent fines content FC (%) = $1.75 I_c^3 - 3.7$

if $I_c > 3.5$ apparent fines content FC (%) = 100



5.0 DISSIPATION TESTS

At locations instructed by the Client's representative on site, porewater dissipation tests were performed. These tests measure the dissipation of excess pore water pressure at specific soil horizons, after the advancement of the cone is temporarily stopped.

The rate of dissipation depends upon the coefficient of consolidation, which, in turn, depends on the compressibility, and permeability of soil (Lunne *et. al.*, 1997).

The results of these tests are presented in Appendix D.

The coefficient of horizontal consolidation interpretation is calculated using the Houlsby and Teh (1998) method. The interpretation is based on the results of large strain finite element analysis of the penetration pore pressures, and a finite difference analysis of the dissipation pore pressure (Lunne *et. al.*, 1997). The formula is defined as follows:

$$T^* = \frac{c_h \cdot t}{r^2 \sqrt{I_r}}$$

where:

 T^* = dimensionless time factor (for T50 this value is 0.245 using a u_2 filter) r^2 = diameter of cone c_h = coefficient of consolidation t = time to the T50 value I_r = rigidity index

The values are typically calculated using the T50 value which is the time taken to reach 50% dissipation. In situations where T50 is not reached it is possible to other values of T^* as described by Houlsby and Teh (1998).

The c_h values are calculated for two different rigidity index values 50 and 500. The rigidity index is given in the formula below:

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Ir = Gu/Su

where:

G_u = Shear modulus of the soil

S_u = Undrained shear strength of the soil

The level of groundwater for the calculations has been stated at 2m below ground level.



6.0 REFERENCES

- British Standard BS5930:1999, "Code of practice for site investigations". BSI, 1999.
 International Standard. Geotechnical Investigation and testing- field testing part 1: electrical cone and piezocone penetration test. ISO/ FDIS 22476-1.
- Jefferies, M.G. and Davies, M.P. (1991) "Soil classification by the cone penetration test": Discussion. Canadian Geotechnical Journal, 28(1), 173-6.
- Jones, G.A. and Rust, E. (1995) "Piezocone settlement prediction parameters for embankments on alluvium". Proceedings of the International Symposium on Cone Penetration Testing, CPT '95, Linköping, Sweden, 2, 501-8, Swedish Geotechnical Society
- Kulhawy, F.H. and Mayne, P.H. (1990) "Manual on estimating soil properties for foundation design". Electric Power Research Institute, EPRI, August, 1990.
- Lord, J.A., Clayton, C.R.I., and Mortimore, R.N. (2002) "Engineering in chalk". Ciria Guide C574.
- Lunne, T. And Kleven, A. (1981) "Role of CPT in North Sea foundation engineering". Session at the ASCE National Convention: Cone Penetration Testing and Materials, St. Louis, 76-107, American Society of Engineers (ASCE).
- Lunne, T. And Christophersen, H.P. (1983) "Interpretation of cone penetrometer data for offshore sands". Proceedings of the Offshore Technology conference, Richardson, Texas, Paper No. 4464.
- Lunne, T., Robertson, P. K. And Powell, J. J. M. (1997) "Cone Penetration testing in Geotechnical Practice". Blackie.
- Mitchell, J.K. and Gardner, W.S. (1975) "In situ measurement of volume change characteristics". Proceedings of the ASCE Specialty Conference on In Situ Measurements os Soil Properties, Raleigh, North Carolina, 2, 279-345, American Society of Engineers (ASCE).
- Robertson, P.K. (1990) "Soil classification using the cone penetration test". Canadian Geotechnical Journal, 27(1), 151.
- Robertson, P.K. and Campanella, R.G. (1983) "Interpretation of cone penetrometer test: Part 1: Sand". Canadian Geotechnical Journal, 20(4), 718-33.



- Robertson, P.K. and Fear, C.E. (1995) "Liquefaction of sands and its evaluation. IS TOKYO '95". First International Conference on Earthquake Geotechnical Engineering, Keynote Lecture, November, 1995.
- Robertson, P.K. and Wride (Fear), C.E. (1998) "Evaluating cyclic liquefaction potential using the cone penetration test". Can. Geotech. J. Vol. 35.
- Robertson, P.K., Campanella, R.G., Gillespie, D. And Greig, J (1986) "Use of piezometer cone data". Proceedings of the ASCE Specialty Conference In Situ '86: Use of In Situ Tests in Geotechnical Engineering, Blacksburg, 1263-80, American Society of Engineers (ACE).
- Senneset K. And Janbu, N. (1985) "Shear strength parameters obtained from static cone penetration tests. Strength Testing of Marine Sediments; Laboratory and In Situ Measurements". Symposium, San Diego, 1984, ASTM Special technical publication, STP 883, 41-54.
- Senneset, K., Sandven, R. And Janbu, N. (1989) "The evaluation of soil parameters from piezocone tests". Transportation Research Record, No. 1235, 24-37.
- Suzuki, Y., Tokimatsu, K., Taya, Y. And Kubota, Y. (1995) "Correlation between CPT data and dynamc properties of in situ frozen samples". Proceedings of the Third International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, St. Louis, 1, 249-52, University of Missouri Rolla.
- Topp, G.C., Davis, J.L. and Anna, A.P. (1980). "Electromagnetic determination of soil water content: Measurements in coaxial transmission lines". Water Resiur. Res., 16, 574-582.
- Waltham, A.C., 2002. "Foundations of Engineering Geology". Blackie Academic and Professional, 2002.
- Houlsby, G.T. and Teh, C. I. (1998). "Analysis of the piezocone in clay". Proceedings of the International Symposium on Penetration Testing, ISOPT-1, Orlando, 2, 777-83, Balkema Pub., Rotterdam.
- Power P.T. (1982) "The use of electronic cone penetrometer in the determination of the engineering properties of chalk". Proceedings of the 2nd European Symposium on Penetration testing, ESOPT-II, Amsterdam, 2, 769-74, Balkema Pub., Rotterdam



APPENDIX A

GENERAL INFORMATION

LIST OF FIGURES

Description	Pages Included
Cone Datasheet	1
Cone Calibration Certificates S15-CFIIP.1032 and S15-CFIIP.1458	2
CPT Project Summary Sheet	2
20 Tonne Tracked Rig Data Sheet	1
CPT Soil Description Table	1
Explanation of Symbols	1



CONE DATASHEET



Rijksstraatweg 22F 2171 AL Sassenheim : +31 71 301 92 51 : +31 71 301 92 52 Tel. Fax E-mail : info@geopoint.nl ING bank : 68.23.01.396 Postbank : 5226758 BTW nr. : NL806331677801



SPECIFICATIONS S15 SERIES **ELECTRICAL CONES**

The electronic subtraction cones have been developed to address the durability problems inherent in other cone designs. The unit consists of a single element temperature compensated strain gauge transducer for measuring both cone resistance and local sleeve friction. This design is therefore more robust than a compression type cone. The cone support electronics package is located directly behind the transducer. The precision strain gauge amplifiers and power supply eliminate the effects of cable resistance on the measurements. A standard subtraction cone is capable of measuring simultaneously the following channels: Tip, Local friction, Pore pressure, Temperature and Inclination.

GENERAL SPECIFICATIONS

Cone Tip Section Area Friction Sleeve Surface Total Length Weight Power Supply Output Working Temperature Storage Temperature Connector

1,500 mm2 22,500 mm2 325 mm 4200 g ± 15 VDC, 100 mA. 0-10 VDC* 0 - 60°C - 40 to + 85°C Lemo 10 pins (others on request)

TIP RESISTANCE

Range Accuracy Maximum Load 150 % of range Cone Area Ratio 0.75

100/150* kN 0.25 % FS

LOCAL SLEEVE FRICTION Range 100/150* kN 0.50 % FS Accuracy Maximum Load 150 % Sleeve Area Ratio 1.0 (EA)

PORE PRESSURE

1/2/5/10* MPa Range Accuracy 0.5 % FS Maximum Load 150 % of range INCLINATION Range Accuracy

25° (biaxial) < 2

All our equipment complies with the ISSMGE, ASTM, DIN and NEN Standards.

*Other output and voltage ranges available on request. Loadcells may be calibrated for lower ranges.

Oakington, Cambridgeshire



CONE CALIBRATION CERTIFICATE S15-CFIIP.1032

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Calibration ins	struments								
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Report No.: 1160415R001RW

Appendix A

Oakington, Cambridgeshire



CPT PROJECT SUMMARY SHEET

	Final					
HOLE	Depth of Test (m)	Date of Test	Cone Used	Test Remarks		
CPT 601	3.75	19/12/2016	S15CFIIP.1032	Test refused on total pressure.		
CPT 601A	11.39	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 602	0.24	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 602A	2.47	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 602B	2.59	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 603	2.26	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 603A	1.79	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 604	1.11	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 606	3.06	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 607	2.14	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 608	2.49	21/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 609	12.66	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 610	12.36	21/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 611	11.25	21/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 612	11.28	21/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 613	10.92	21/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 614	11.48	21/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 615	11.11	21/12/2016	S15CFIIP.1458	Test refused on total pressure.		
CPT 616	11.38	20/12/2016	S15CFIIP.1458	Test refused on total pressure.		

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CPT 617	2.8	21/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1203	5.65	23/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1204	6.92	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1205	8.56	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1206	6.26	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1207	8.18	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1208	8.44	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1209	7.74	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1210	9.09	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1211	8.64	22/12/2016	S15CFIIP.1458	Test refused on total pressure.
CPT 1212	8.68	22/12/2016	S15CFIIP.1458	Test refused on total pressure.





20 TONNE TRACK MOUNTED CPT RIG DATA SHEET



20 TONNE CPT TRACK MOUNTED RIG (CPT007)

In Situ has a wide range of rigs which meet the dients varied CPT requirements often in difficult terrains. Projects may require CPT testing in areas which range from motorways to rugged mountainous terrain, to offshore work; the access to the projects may often be restricted for manoeuvring.

In Situ has rigs to meet all clients needs and situations .

CPT RIG DETAILS								
DRIVE SYSTEM	RUBBER TRACKED							
TOTAL WEIGHT	20 TONNES							
GROUND BEARING PRESSURE	35KPA							
CPT RAM THRUST CAPACITY	20 TONNES							
MAXIMUM PENETRATION	30-40M DEPENDING ON THE GROUND CONDITIONS							
PERFORMANCE RATES	100-150M OF TESTING IN A DAY DEPENDING ON- ACCESS TO POSITIONS.							
TYPICAL SITES FOR THIS RIG	SOFT BOGGY SITES. THE RIG HAS LOW GROUND BEARING PRESSURE							











SOIL DESCRIPTION TABLES

GRANULAR SOILS (Sands and Gravels)

Description	Cone Resistance (<i>qc</i>) (MPa)
Very Loose	0 – 2
Loose	2 – 4
Medium Dense	4 – 12
Dense	12 – 20
Very Dense	>20

COHESIVE SOILS (Clays)

Description	Cone Resistance (<i>q_c</i>) (MPa)	Equivalent S _u value from <i>q_c</i> (kPa)
Very Soft	0-0.3	0 –20
Soft	0.3 – 0.5	20 – 40
Firm	0.5 – 1.0	40 – 75
Stiff	1.0 – 2.0	75 – 150
Very stiff	2.0-4.0	150-300
Hard	>4.0	>300

(from Waltham, 2002)

Arcadis Oakington, Cambridgeshire



EXPLANATION OF SYMBOLS

- $a(\alpha)$ = area ratio of the cone (= A_n/A_c)
 - A_c = projected area of the cone
 - A_n = cross-sectional area of shaft
 - B_q = pore pressure parameter (=(u_2 - u_0)/(q_t - σ_{vo}))
 - c_h = horizontal coefficient of consolidation

$$Dr = \left(D_r = \frac{e_{max} - e}{e_{max} - e_{min}} \times 100\% \right)$$

- e = void ratio
- e_o = initial void ratio
- e_{max} = maximum void ratio
- *e_{min}* = minimum void ratio
 - $f_{\rm s}$ = unit sleeve friction
- FC = fines content
 - I_c = soil behaviour type index
 - I_r = rigidity index = G/s_u
- m_v = coefficient of volume change
- *M* = constrained deformation modulus
- N = no. Of blows in the SPT
- N_k or N_{kt} cone factor
 - N_{60} = SPT energy ratio
 - q_c = measured cone resistance
 - q_e = effective cone resistance = (q_t - u_2)
 - q_n = net cone resistance = (q_t - σ_{vo})
 - q_t = corrected cone resistance = q_c +(1-a) u_2
 - Q_t = normalised cone resistance = $(q_t \sigma_{vo})/\sigma'_{vo}$
 - R_f = friction ratio (=(f_s/q_c)×100%)
 - s_u = undrained shear strength
 - t_{50} = time for 50% dissipation of measured pore pressure
 - $u_0 =$ in situ pore pressure
 - $u_1 =$ pore pressure measured on the cone
 - u_2 = pore pressure measured behind the cone
 - Δu = measured pore water pressure
 - φ = total friction ratio



APPENDIX B

CPT RESULTS

LIST OF FIGURES

Description	Pages Included
CPT 601 – CPT 1212 (Printed on Form CPT0001) Estimated Soil Behaviour Type Plot	30
CPT 601 – CPT 1212 (Printed on Form CPT0002) Measured Pore Pressure Plot	30





	0 2	Cone End Res	sistance, qc (I 6	MPa) 8 10) 12	14	16	18 20	0	Friction 2	Ratio, Rf (%) 4 6	In 8 -15	clination (de	egrees) 15		INI	CITLI
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	Ground Leve	el: -			File	Name:	1160427 - Cl	PT 602 Po	Sleeve re Pressure	e Zero Pre: 28 e Zero Pre: 35	5 mV Slee 2 mV Pore Press	eve Zero Post ire Zero Post	:: 2074 mV :: 417 mV	Sleeve Zero Difference Pore Pressure Difference	e: -86 % e: -16 %	CPT 602	
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Corrected Cone End Resistance, qt (MPa)												70	00	10	F	Pore Press	ure Ratio,	Bq	1.0	1200	000	600	Pore	Pressure, U	l (kPa)	600	000	1200			
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Oakington, Cambridgeshire



APPENDIX C

CPT DERIVED GEOTECHNICAL PARAMETERS

LIST OF FIGURES

Description	Pages Included
CPT 601 – CPT 1212 (Printed on Form CPT0003) Soil Behaviour Type and N Value	30
CPT 601 – CPT 1212 (Printed on Form CPT0004) Relative Density and Shear Strength	30
CPT 601 – CPT 1212 (Printed on Form CPT0005) Fines Content and Friction Angle	30











































