Roxhill Developments Limited

M1 Junction 15 West, Northampton

Factual Ground Investigation Report

312598–02 (00)

NOVEMBER 2014

RSK GENERAL NOTES

Project No.: 312598 – 02 (00)

Title: M1 Junction 15 West
Factual Ground Investigation Report

Client: Roxhill Developments Limited

Date: November 2014

Office: RSK, Abbey Park, Humber Road, Coventry, CV3 4AQ. Tel No: 02476 505600
Contact: Darren Bench

Status: Final

Author	Michael Lawson	**Technical reviewer**	Marc Dixon
Signature		Signature	
Date:	6th November 2014	Date:	6th November 2014
Project manager	Darren Bench	**Quality reviewer**	Darren Bench
Signature		Signature	
Date:	6th November 2014	Date:	6th November 2014

CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

1.1 Introduction

RSK Environment Limited (RSK) has been commissioned by Roxhill Developments Limited (the Client) to carry out a Factual Ground Investigation Report for the site of the proposed commercial development at M1 Junction 15 west.

This report is subject to the RSK service constraints given in Appendix A.

1.2 Terms of reference

This report comprises a factual report in general accordance with the requirements of:

- BS5930:1999+A2:2010 'Code of practice for site investigations':
- Environment Agency CLR 11 2004a 'Model Procedures for the Management of Land Contamination' (Contaminated Land Risk Assessment):
- Highways Agency HD22/08, 'Managing Geotechnical Risk' (Ground Investigation): and
- BS EN 1997-2:2007. Eurocode 7 — Geotechnical design — Part 2: Ground investigation and testing.

1.3 Proposed development

It is understood that the site is being considered for commercial development. The development area located within the north eastern area of the site includes two large distribution warehouses with associated loading bays, hard standing and access routes, as well as a two story office building. Site drainage including five drainage ponds located at either end of the distribution warehouses, a highway network joining to the A508 and soft landscaping with a landscape screening bund around the north, east and west of the proposed development.

In order to undertake the commercial development it is anticipated that a significant cut and fill earthworks exercise will be undertaken at the site with the aim of achieving a volume balance by utilising all site won materials, avoiding or minimising the need to import fill materials.

1.4 Objective

The subject of this report is the development area including the proposed Main Development Plateau for the construction of distribution warehouses, office block and associated hardstanding. In accordance with the Client's specific objectives, requirements and brief; the objective for the works was developed with the aim of providing sufficient preliminary data to:

- provide sufficient data to confirm the ground model
- obtain data to provide a chemical and geotechnical characterisation of each strata
- assist with master planning design
- provide data to support planning applications

In line with Eurocode 7, BS5930, BS10175 and CLR 11 further phases of targeted investigation (post Planning Approval) may be required to provide specific data and information for detailed design of individual elements of the scheme as the design evolves.

1.5 Scope

The project has been carried out to an agreed brief as set out in RSK's proposal (ref. M1 Junction 15 West, Northampton; Geotechnical and Geo-environmental Services; Master Planning and EIA Support, dated 10th July 2014).

The ground investigation fieldwork carried out at the site was undertaken in accordance with a site specific specification developed by RSK for the clients scheme proposals. This site specific specification was in general accordance with the Site Investigation Steering Group's UK Specification for Ground Investigation 2nd edition (2012), BS 5930 and A2: 2010 'Code of practice for site investigations', BS EN ISO 14688-1:2002, BS EN ISO 14689 – 1:2003 and in general accordance with the recommendations made within BS10175:2011 'Investigation of Potentially Contaminated Sites – Code of Practice'.

2 SITE DETAILS

2.1 Site location

The whole site covers approximately 172 hectares, the centre of which is defined by the following National Grid co-ordinates: 474940 254715. The site is bound by the M1 motorway which runs roughly north west to south east along the north eastern boundary of the site and the A508 running north east to south west along the south eastern boundary of the site. An unnamed brook with fields beyond denotes the southern boundary of the site, and hedgerows with fields beyond denotes the western boundary. Collingtree Lane marks the northern boundary of the site.

The specific development area covers approximately 95 hectares and is predominantly located in the north east half of the site, where the main distribution warehouses and their associated infrastructure will be located. In addition, a strip of land along the western edge of the site is included within the development area, where a proposed bund is to be located.

The village of Blisworth is situated approximately 1km to the west of the overall site. The village of Milton Malsor is located approximately 0.5km north west of the overall site and the village of Collingtree is located some 100m east beyond the M1 Motorway.

2.2 Local topography, geography and geomorphology

The site sits within a formerly glaciated area. The land is gently undulating with a general rise from the southern extent to the north eastern corner.

The site generally slopes down from west to east, with the peak of the hill on which the site sits being located near to the centre of the western boundary of the site. The top of the hill forms a ridge which extends along the majority of the western boundary of the site. At its highest, the site elevation is approximately 102m AOD, located near to the centre of the western boundary, down to its lowest elevation of approximately 80m AOD along the sites eastern boundary, within a shallow valley associated with the unnamed brook flowing north east, along the sites south eastern boundary.

Ground elevations within the general vicinity of the site undulate up and down, with levels initially rising to the east and south, and dropping to the north and west. The M1 motorway is located in a deep cutting along the north western site boundary.

The geological sequence of the area is understood to be one of fossiliferous mudstone and siltstone, laminated and bituminous in part, with thin siltstone or silty mudstone beds and rare fine-grained calcareous sandstone beds deposited within sea conditions and eroded by periods of glaciations and later deposition of Oadby Member (Glacial Till) and Glaciofluvial Deposits.

2.3 Site description

The site is predominately utilised for arable farming and comprises fields with hedgerow field boundaries including a variety of immature to mature sized trees of various species. Two areas of mixed woodland are also located within the site. The woodlands are located near to the centre of the site, adjacent to the main access track trough the site. The majority of fields comprised stubble from recent harvesting, however the fields in the extreme south of the site comprised bean crops. The general elevation of the surrounding land undulates up and down, with the site elevations generally sloping down from north west to south east.

The main access to the site is via a rough compacted gravel track leading north from the southern end of the site off of the A508, towards the sites centre. In the centre of the site, just off the track is a stockpile of rubble consisting of brick tarmac and stone (presumed to be for improving farm track ways).

There are two buildings located on the site. Close to the centre of the site is a gun club with shooting range and clay pigeon shooting. Further to the south east there are a small number of derelict farm buildings . The derelict farm buildings are generally empty but appear to be utilised as a store for stone as well as containing two former fuel tanks, now partially filled with water

An overhead 1.1Kv power supply enters the north west of the site, travelling south east and south towards the derelict buildings on low level wooden poles..

The site also contains two telecoms masts, one is located in the south eastern corner, to which a concrete track leads, while the second mast is located towards the north east in a field boundary at the end of a grass track, adjacent to the site boundary.

At the south of the site is a brook which flows north east towards Northampton.

It was also noted from ecological plans supplied to RSK that the site has two badger sets which are located in the east of the site. One is located on the north east corner in coniferous woodland and the second is within a boundary hedge. The ecological plans supplied to RSK also indicate that there is a pond within the grounds of the gun club which may have contained great crested newts, as well as common lizard habitats and bat roosts. Supplied plans also indicated existing underground gas and water district mains in the east corner of the site though no markers were observed.

2.4 Published geology and expected ground conditions

The British geological Survey (BGS) plans and maps obtained have been reviewed to determine the anticipated geology beneath the site.

It is envisaged that the local geology beneath the site will be in line with the summary below detailed within Table 1.

Table 1: Expected geology

Geology	Comment
Surfacing and Buried Structures: (source: Envirocheck History Maps, Site Observation)	Hard standing was identified along tracks to the gun club, existing farm buildings in the east and to the telecoms masts.
Made Ground / Topsoil: (source: BGS Maps, Available Borehole Logs, Envirocheck Geology & History Maps, memoirs)	The entire Site is anticipated to be underlain by a cultivated plough layer which would really be a sub soil or growing medium rather than topsoil. Given its extensive use for arable crops it is anticipated that this layer could extend between 0.2 and 0.6m depth and is anticipated to be derived from the underlying Glacial Till so would be anticipated to be sand gravelly clay.
Drift Deposits: (source: BGS Maps, Available Borehole Logs, Envirocheck Geology & History Maps, memoirs)	The majority of the site appears to be underlain by a mantle of **Oadby Member** (Diamicton Till / Glacial Till) which is anticipated to be primarily sandy gravelly clay. It may also contain sandy gravel strings, lenses and pockets which may bare perched or trapped groundwater. In the north and east fingers of **Glaciofluvial Deposits** are anticipated to be present and are likely to take the form of sands and gravels.
Bedrock (source: BGS Maps, Available Borehole Logs, Envirocheck Geology & History Maps, memoirs)	The entirety of the Site is indicated to be underlain by **Whitby Mudstone Formation** likely to be weathered beneath the overlying superficial deposits to firm to stiff brown tending to blue grey clays, mudstones with subordinate siltstone and limestone bands. Calcareous shell and fossil fragments are common throughout these deposits.
Soil Chemistry (source: Envirocheck / BGS)	Available soil chemistry data suggests that the natural soils anticipated to be present across the site do not have any significantly elevated concentrations of contaminants that would be considered to represent a risk to Human Health for the elements tested for a commercial development.
Opencast Quarrying (source: Coal Authority web viewer, BGS Maps, Envirocheck History Maps)	Some noted within 400m of the site, although none expected on site.
Groundwater	Several perched groundwater tables maybe expected within the more permeable solid strata trapped between less permeable strata most probably in the superficial glacial deposits.

The constraints to investigations undertaken at the site are summarised below in Table 2;

Table 2: Constraints to investigation

Issue	Comment
Landowners Permissions	Entry into the shooting range and the woodland associated with the gun club was not permitted during the investigations, however, no investigations were proposed for this area as this was not part of the development area and therefore, there was no impact on the scope of the investigation.
Utilities & Services	Low level 11kv **Overhead power lines** are present on site, entering from the north west of the site, travelling south east and south across the site towards the derelict farm buildings, in the south east of the site. A **gas main** and a **water main** are present in the east corner of the site, near to the motorway junction, travelling north to south.
Farming & Crops	No investigation was feasible within two areas of fields in the south of the site as inclement weather had prevented the harvesting of crops in those areas. As such it was not possible to undertake TP18 in the south east of the site or WS17 and TP29 and TP30 in the south west of the site. Entry to these areas would have resulted in significant crop damage and where therefore avoided.
Ecological	Ecological surveys undertaken prior to the site investigation indicted a number of features on the site of ecological interest. These were **two badger sets** with 30m buffer zones around and **two mature trees with moderate bat rooting potential** within hedgerows at the site, **Common lizard areas** and **a pond with potential to contain Great Crested Newts** within the shooting club grounds, and **a barn owl roost** within the derelict barns, east of the centre of the site. Exploratory hole access routes and positions were therefore set up in coordination with the ecology team to ensure that no ecological receptors were compromised.
Archaeology	Archaeological assessments of the site were being undertaken by non intrusive geophysical methods at the time of the investigation. An archaeologist was in attendance during all trial pits undertaken at the site as part of a watching brief to identify any archaeological features that might be in advertently uncovered during the intrusive ground investigations.

3 GROUND INVESTIGATION

3.1 Introduction

RSK prepared a site specific Stage 2 Preliminary Ground Investigation Specification in accordance with the Site Investigation Steering Group's UK Specification for Ground Investigation 2nd edition (2012) and BS 5930 and A2: 2010 'Code of practice for site investigations', BS EN ISO 14688-1:2002 and BS EN ISO 14689-1:2003.

The specification for the works was developed with the aim of providing sufficient preliminary data to assist with master planning design of the development area taking account of the anticipated ground conditions detailed within the Preliminary Sources Study Report.

The site work for the investigation of the M1 Junction 15 site was undertaken between 18th August and 8th September 2014.

3.2 Investigation strategy and methodology

The techniques adopted for the intrusive investigation were appropriate to the expected geology and were also chosen to provide general preliminary non targeted arrangement covering both plan area and depth of strata sufficient to allow the ground model to be confirmed.

In addition specific exploratory holes were targeted in order to provide data for specific critical design elements. The investigation and sampling strategy was primarily focused on the assessment of the shallow soils and weathered bedrock.

The rationale for each planned exploratory hole location is detailed within the Stage 2 Preliminary Ground Investigation Specification and summarised within the Provisional Exploratory Hole Schedule included in Appendix B. This formed the basis for the works decision making as works progressed.

Following completion of fieldworks and upon preparation of exploratory hole logs a series of samples were scheduled for selection of geotechnical and chemical laboratory testing to help characterise the strata properties. Groundwater samples were also taken and analysed where it was viable.

An initial programme of four weekly soil gas and groundwater level monitoring visits were undertaken to establish the groundwater and ground gas conditions beneath the site. The results of the monitoring are provided within Appendix J.

3.2.1 Health and safety

Services data was obtained and overlaid upon plans to aid in the design and safe positioning of exploratory holes.

RSK liaised with Landowners to agree suitable and safe exploratory hole locations, access routes and to obtain all necessary permits and permissions.

RSK prepared site specific works H&S Plan, risk assessments and method statements for the undertaking of the works.

3.2.2 Location of exploratory hole positions and service clearance

RSK met with landowners and stakeholders to confirm suitable access routes and viable exploratory hole locations prior to finalising the ground investigation specification and commencing works.

Services data was obtained and overlaid upon plans to aid in the safe positioning of exploratory holes.

RSK SafeGround team used a number of non intrusive techniques and equipment to check all exploratory hole positions and the surrounding areas were free of buried services and utilities. SafeGround used the following equipment:

- CAT & Genny (Radiodetection RD8000),
- Ground Penetrating Radar (GPR) - GSSI SIR-3000 console with the GSSI 400MHz antenna (standard frequency, used in high risk clearances)

Following issue of a permit to dig from the RSK Safeground team, hand excavated service avoidance inspection pits were excavated to depths of 1.2mbgl prior to commencing all boreholes. Boring was only commenced if no evidence of services was uncovered.

Upon completion of the works an as-built survey of the exploratory hole positions was commissioned and the coordinates and levels of each position were recorded using a Leica Viva GPS accurate to +/-5mm in horizontal positioning and +/-10mm in elevation. The coordinates and level data are recorded upon each exploratory hole log whilst the position of each exploratory hole is shown upon the exploratory hole location plan presented as Figure 4.

3.2.3 Investigation techniques

Trial pits

Machine excavated trial pits were utilised to provide coverage across the site and to provide data on the shallow near surface strata. Trial pits also allowed bulk disturbed samples to be taken for strata classification and earthworks testing. Trial pits also allowed assessments of diggability and stability to be made.

Specific trial pits were undertaken at defined locations to facilitate soakaway testing to provide infiltration data to aid drainage design.

The trial pit logs and photographs are presented in Appendix C.

Windowless sampler boreholes

Windowless sampler boreholes were utilised to penetrate shallow near surface drift strata. This technique was also used to provide in-situ strength and density testing (SPT), representative disturbed samples for laboratory testing and to facilitate installation of monitoring instrumentation within the shallow near surface deposits to facilitate long term soil gas and groundwater monitoring.

The windowless sampler borehole logs are presented in Appendix D.

Cable percussion boring

150mm diameter cable percussion boreholes were utilised to penetrate shallow near surface drift strata to full depth and to prove the top of rock head where possible. This technique was also used to provide in-situ strength and density testing (SPT), representative disturbed and undisturbed samples for laboratory testing and to facilitate installation of monitoring instrumentation within the deeper near surface deposits to facilitate long term soil gas and groundwater monitoring.

The cable percussion borehole logs are presented in Appendix E.

3.2.4 Development area investigation

The investigation undertaken at the site comprised the following:

- Setting out and service Clearance (RSK SafeGround).
- Excavation of twenty seven trial pits using an operated tracked excavator to depths of between 1.80m and 4.80m bgl.
- Carry out three soakaway tests in selected trial pits in general accordance with BRE 365.
- Sinking of sixteen window sample boreholes to depths of between 3m and 6m bgl using a windowless sampler drilling rig.
- Sinking of sixteen boreholes to depths of between 7.50m and 20.45m bgl using a standard cable percussive drilling rig.
- Installation of twenty four combined groundwater/gas monitoring wells and piezometers to varying depths including provision of flush lockable covers and 1.5m high wooden marker stakes (in fields).
- Four initial return visits to monitor groundwater levels/ground gas concentrations
- One groundwater sampling visit.
- Surveying in of as built exploratory hole positions using GPS surveying equipment.
- Removal of instrumentation covers and capping of instrumentation.
- Associated sampling and insitu testing.
- Soil and rock sample geotechnical laboratory testing.
- Soil sample chemical and contamination laboratory testing.
- Groundwater sample chemical and contamination laboratory testing.

3.2.5 Soil sampling, in-situ testing and laboratory analysis

Details of the soil samples obtained during the intrusive investigation are recorded on the exploratory hole logs presented within Appendices C, D and E.

In-situ SPTs were undertaken within the window sampler and cable percussion boreholes and are presented on the borehole logs included within Appendix D and E.

In-situ soakaway testing was undertaken in selected trial pit locations as denoted upon the exploratory hole plan presented as Figure 4. Preliminary soakaway tests were undertaken in unsupported shallow trial pits and were attempted in general accordance

with the recommendation of BRE 365. The three tests, undertaken within TPs 5, 15 and 20 did not soakaway sufficiently to allow calculation of infiltration rates. The strata in which these tests were undertaken were predominantly cohesive and not considered to be conducive to soakaways and the testing undertaken has confirmed this. The in-situ soakaway test results are presented in Appendix F and the results are summarised below within Table 3.

Table 3: Summary of soakaway test results

Hole	Test Zone (Depth m bgl)	Calculated Infiltration Rate m/s	Strata
TPS5	1.11 – 1.85	Insufficient soakage	Glaciofluvial Deposits – sandy clay
TPS15	0.93 – 1.85	Insufficient soakage	Oadby Member – gravelly clay over gravelly sand
TPS20	1.10 – 2.05	Insufficient soakage	Oadby Member – gravelly clay over sand and gravel

A programme of laboratory testing was scheduled by RSK to be carried out on selected suitable samples, in order to provide characteristic geotechnical strata properties.

The programme of geotechnical testing undertaken is summarised below within Table 4.

Table 4: Summary of geotechnical testing programme undertaken

Stratum	Analysis Undertaken	Number
Glaciofluvial Deposits	Moisture Content	1
	Classification tests (Atterberg Limits)	2
	Particle Size Distribution analysis	8
	Dry Density / Moisture Content Relationship Test (4.5kg Compaction)	3
	California Bearing Ratio (recompacted)	3
	Undrained shear strength measured by shear vane testing (kN/m^2)	1
	Sulphate Characterisation (BRE SD1)	5
Oadby Member	Classification tests (natural moisture content)	11
	Classification tests (Atterberg Limits)	28
	Particle Size Distribution analysis	14
	Moisture condition value (Single Point)	5
	Moisture Condition Calibration	3
	Dry Density / Moisture Content Relationship Test (4.5kg Compaction)	13

Stratum	Analysis Undertaken	Number
	California Bearing Ratio (recompacted)	10
	Consolidation Testing	12
	Undrained shear strength measured by triaxial testing (kN/m^2)	11
	Undrained shear strength measured by shear vane testing (kN/m^2)	7
	Sulphate Characterisation (BRE SD1)	13
Whitby Mudstone Formation	Classification tests (Atterberg Limits)	3
	Consolidation Testing	3
	Coefficient of consolidation c_v (m^2/year)	3
	Undrained shear strength measured by triaxial testing (kN/m^2)	3
	Undrained shear strength measured by shear vane testing (kN/m^2)	4
	Sulphate Characterisation (BRE SD1)	2

The results of the geotechnical laboratory testing are presented in full within Appendix G.

In addition a programme of non targeted analytical chemical and contamination suites of tests were scheduled upon selected soil and groundwater samples obtained to confirm characteristic soil and groundwater chemistry and contamination potential.

The programme of analytical chemical and contamination suites of tests undertaken on soil samples is summarised below within Table 5.

Table 5: Summary of analytical chemical and contamination testing programme undertaken on soil samples

Stratum	Analysis Undertaken	Number
Agricultural Topsoil	pH, Arsenic, Cadmium, Copper, Chromium, Chromium (hexavalent), Lead, Mercury, Nickel, Selenium, Zinc	7
	Total Organic Carbon (TOC)	7
	Phenols (total)	7
	Pesticides and Triazine Herbicides	4
	Polycyclic Aromatic Hydrocarbons (PAHs)	7
	Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG) + BTEX and MTBE	7

Stratum	Analysis Undertaken	Number
Subsoil	pH, Arsenic, Cadmium, Copper, Chromium, Chromium (hexavalent), Lead, Mercury, Nickel, Selenium, Zinc	3
	Total Organic Carbon (TOC)	3
	Phenols (total)	3
	Pesticides and Triazine Herbicides	1
	Polycyclic Aromatic Hydrocarbons (PAHs)	3
	Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG) + BTEX and MTBE	3
Oadby Member	pH, Arsenic, Cadmium, Copper, Chromium, Chromium (hexavalent), Lead, Mercury, Nickel, Selenium, Zinc	5
	Total Organic Carbon (TOC)	5
	Phenols (total)	5
	Polycyclic Aromatic Hydrocarbons (PAHs)	5
	Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG) + BTEX and MTBE	5
	Pesticides and Triazine Herbicides	3

The results of the analytical chemical and contamination suites of tests are presented in full within Appendix H.

The programme of analytical chemical and contamination suites of tests undertaken on groundwater samples is summarised below within Table 6.

Table 6: Summary of analytical chemical and contamination testing programme undertaken on groundwater samples

Sample	Analysis Undertaken	Number
Groundwater	pH, Redox potential, Electrical conductivity, dissolved oxygen, hardness, ammonia, Phenols, Arsenic, Cadmium, Copper, Chromium, Chromium (hexavalent), Lead, Mercury, Nickel, Selenium, Zinc	10
	Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG) + BTEX and MTBE	10

The results of the analytical chemical and contamination suites of tests for the groundwater samples are presented in full within Appendix I.

3.2.6 Instrumentation and monitoring

Long term monitoring of gas and groundwater levels was made possible by the installation of standpipes and standpipe piezometers as shown within Table 7:

Table 7: Monitoring well installation details

Hole	Borehole depth (m)	Standpipe Response zone (m)	Strata
WS2	3.45	1.00 – 3.00	GFD
WS3	6.45	3.00 – 6.00	GFD
WS4	5.45	2.00 – 5.00	GFD
WS6	6.45	3.00 – 6.00	OM
WS8	5.45	2.00 – 4.00	GFD
WS9	6.42	2.50 – 5.50	OM
WS11	4.45	2.00 – 4.00	OM/GFD/WMF
WS15	6.45	3.00 – 6.00	WMF
CP1	15.45	8.00 – 15.00	GFD
CP2	20.45	14.00 – 20.00	GFD
CP3	13.25	8.00 – 12.00	WMF
CP4	15.45	1.00 – 8.00	GFD
CP5	15.45	4.00 – 8.00	OM/GFD/WMF
CP6	14.45	6.00 – 8.00	OM and WMF
CP7	7.50	1.00 – 6.00	OM
CP8	9.10	2.00 – 5.00	OM
CP9	11.10	6.10 – 11.10	WMF
CP10	14.10	2.00 – 5.00	OM
CP11	11.10	7.00 – 10.00	WMF
CP12	12.45	1.00 – 5.00	OM
CP13	13.00	8.00 – 13.00	OM and WMF
CP14	7.95	1.00 – 5.00	OM and WMF
CP15	8.90	6.00 – 8.90	WMF
CP16	9.10	2.00 – 5.00	GFD
Notes: GFD – Glaciofluvial Deposits, OM – Oadby Member, WMF – Whitby Mudstone Formation			

Instrumentation installed within the boreholes has been monitored by trained technicians from RSK.

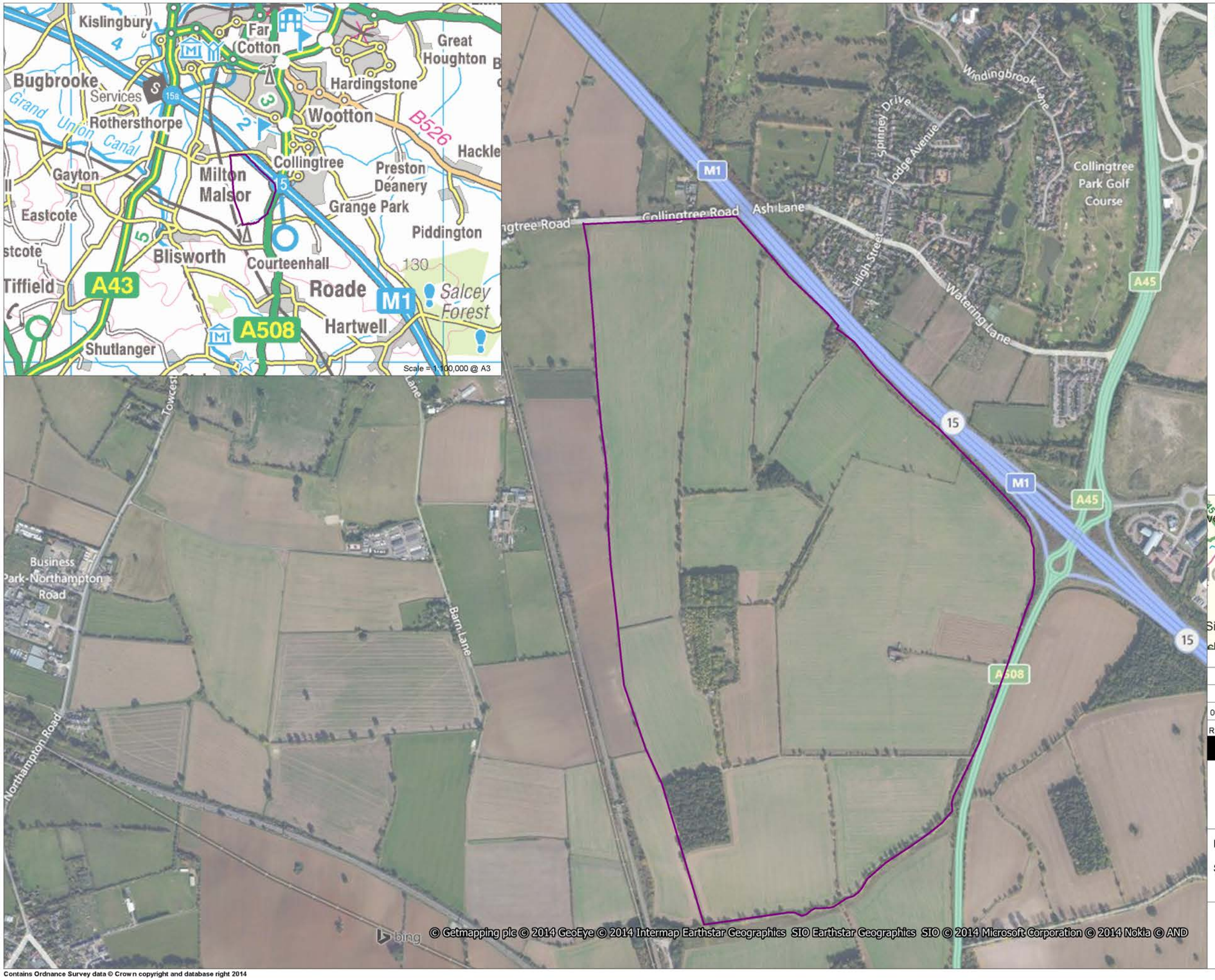
Gas and Groundwater Monitoring was undertaken on four separate occasions over a four week period as follows;

- 4th and 5th September 2014
- 9th September 2014
- 15th September 2014
- 24th September 2014

Groundwater sampling was undertaken from Borehole CP3, CP5, CP6, CP7, CP9, CP11, CP13, CP14, WS6 and WS8 on the 5th September 2014. Groundwater sampling was undertaken in accordance with RSK Procedure No; SHEQ MS TP210 Groundwater and Surface Water – sampling and routine in-situ testing. This has been formulated in accordance with current published guidance. Samples obtained were sent to Envirolab for testing and the results are presented within Appendix I. Details of the in-situ water quality results are presented within Appendix J.

Gas and groundwater level monitoring was undertaken in accordance with RSK Group SHEQMS Technical Procedure TP211 Ground Gas (Permanent gases) Monitoring and Sampling. This has been formulated in accordance with current published guidance. Groundwater levels were established using a hand held dipmeter with levels recorded with reference to depth below ground level. Gas monitoring was carried out using a Geotechnical Instruments GA2000+ Infra red gas analyser and Gas Data GFM610 flow pod. Monitoring was carried out to check for Methane, Carbon Monoxide, Carbon dioxide, Hydrogen Sulphide, Oxygen, Barometric pressure and Flow rate. The detailed results of the gas and groundwater level monitoring are presented within Appendix J.

FIGURES



Indicative site boundary

Rev	Date	Description	Drn	Chk	App
00	11.08.14	312598	RG	SP	DB

Junction 15 M1 West

RSK

Figure 1

Site Location Plan

0 300
metres
Scale = 1:10,000 @ A3

N W E S

REV 00

File Name : X:\Cov Ground and Environment\Jobs\312000 ONWARDS\312500 - 312599\312598 - Junction 15 M1 West\10 Drawings\GIS\10 - Workspaces

Indicative site boundary

Rev	Date	Description	Drn	Chk	App
00	01.10.14	312598	RG	SP	DB

Junction 15 M1 West

RSK

Figure 2

Proposed Development Plan

0 240

metres

Scale = 1:8,000 @ A3

N W E S

REV 00

File Name : X:\Cov Ground and Environment\Jobs\312000 ONWARDS\312500 - 312598\312598 - Junction 15 M1 West\10 Drawings\GIS\10 - Workspaces

Indicative site boundary

Exploratory Holes

- Trial pit
- Window sample
- Cable percussion borehole
- Trial pit/window sample unable to be undertaken as crops still up in fields

Rev	Date	Description	Drn	Chk	App
00	06.11.14	312598	RG	SP	DB

Junction 15 M1 West

RSK

Figure 3

Exploratory Hole Location Plan

0 240

metres

Scale = 1:8,000 @ A3

N W E S

REV 00

File Name - X:\Cov Ground and Environment\Jobs\312000 ONWARDS\312500 - 312598\312598 - Junction 15 M1 West\10 Drawings\GIS\10 - Workspaces

APPENDIX A
SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Roxhill Developments Limited in accordance with the terms of a contract between RSK and the "client", dated July 2014. The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.

2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.

3. Unless otherwise agreed the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be** well advised to seek independent advice from a competent environmental consultant and/or lawyer.

4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date hereof, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.

5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.

6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.

7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.

8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.

9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX B
PROVISIONAL EXPLORATORY HOLE SCHEDULE

312598 M1 Junction 15
Northampton

Hole	Hole Type	Provisional Depth m bgl	Provisional Instrumentation	Current Use/surfacing	Purposed end use	Special insitu testing / sampling /Likely Lab Testing Requirements	Position E	Position N	Estimated Ground Level mAOD	Estimated Design Ground Level mAOD	Diff in level m
Cable Percussion Boreholes											
CP 1	CP	**15**	50mm dia HDPE s/pipe slotted 8-15mbgl	Cropped Fields	Unit 1 RDC Warehouse Cut at northern end (CP1 end) up to 8m, fill at southern end (CP8 end) up to 4m.	SPT 1m c/c, U100 samples where possible in CP holes, std geotech and env samples. Water strikes to be carefully recorded with casing recorded.	474650	255462	90		90
CP 2	CP	**15**	50mm dia HDPE s/pipe slotted 14-20mbgl				474502	255316	90		90
CP 3	CP	**15**	50mm dia HDPE s/pipe slotted 8- 12mbgl				474793	255181	90		90
CP 4	CP	**15**	50mm dia HDPE s/pipe slotted 1 -8mbgl				475018	255080	80		80
CP 5	CP	**15**	50mm dia HDPE s/pipe slotted 4 -8mbgl				474880	254940	90		90
CP 6	CP	**15**	50mm dia HDPE s/pipe slotted 6 -8mbgl				475123	254837	80		80
CP 7	CP	**15**	50mm dia HDPE s/pipe slotted 1- 6mbgl				475379	254732	80		80
CP 8	CP	**15**	50mm dia HDPE s/pipe slotted 2-5mbgl				475255	254607	80		80
CP 9	CP	**15**	50mm dia HDPE s/pipe slotted 6-11mbgl				475349	254328	80		80
CP 10	CP	**15**	50mm dia HDPE s/pipe slotted 2-5mbgl		Unit 1 RDC Warehouse		475232	254221	80		80
CP 11	CP	**15**	50mm dia HDPE s/pipe slotted 7-10mbgl				475125	254548	90		90
CP 12	CP	**15**	50mm dia HDPE s/pipe slotted 1-5mbgl				475002	254427	90		90
CP 13	CP	**15**	50mm dia HDPE s/pipe slotted 8-13mbgl				475192	254386	90		90
CP 14	CP	**15**	50mm dia HDPE s/pipe slotted 1-5mbgl				475451	254653	80		80
CP 15	CP	**15**	50mm dia HDPE s/pipe slotted 6-9mbgl		New three storey Offices note probable fill of 2-4m beneath.		475385	254581	80		80
CP 16	CP	**15**	50mm dia HDPE s/pipe slotted 2-5mbgl				475345	254552	80		80
Trial Pits											
TP 1	TP	**6**	NR	Cropped Fields	Cutting Works	Hand Vanes and general soils samples for classification testing from all pits. In addition; Where in roads, car parks and loading bays bulks for recompacted CBR tests needed. Where cuttings, ponds and soakaways obtain Large Bulks to 6m for earthwork suites.	474667	255542	90		90
TP 2	TP	**6**	NR		Cutting Works/Embankment		474798	255407	90		90
TP 3	TP	**6**	NR		Cutting Works/Embankment		474992	255228	80		80
TP 4	TP	**6**	NR		Cutting Works/Embankment		475122	255053	80		80
TP 5	TP & Soakaway	**3**	NR		Cutting Works/Soakaways		475340	254849	80		80
TP 6	TP	**6**	NR		Cutting Works		474851	255298	90		90
TP 7	TP	**6**	NR		Fill /Loading bays		475215	254886	80		80
TP 8	TP	**6**	NR		Drainage		475462	254605	80		80
TP 9	TP	**6**	NR		Fill & Car Park		475316	254671	80		80
TP 10	TP	**6**	NR		Cutting Works		474964	255006	90		90
TP 11	TP & Soakaway	**3**	NR		Cutting Works/Pond		474468	255501	90		90
TP 12	TP	**6**	NR		Cutting Works		474370	255422	90		90
TP 13	TP	**6**	NR		Cutting Works/Road		474688	255107	90		90
TP 14	TP	**6**	NR		Fill /Loading Bays		475088	254754	90		90
TP 15	TP & Soakaway	**3**	NR		Pond		475378	254475	80		80
TP 16	TP	**6**	NR		Fill/Loading Bays		475254	254444	80		80
TP 17	TP & Soakaway	**3**	NR		Pond		475314	254245	80		80
TP 18	TP	**6**	NR		Road/junction		475274	254104	80		80
TP 19	TP	**6**	NR		Fill Loading Bays		475073	254324	90		90
TP 20	TP & Soakaway	**3**	NR		Pond		474952	254607	90		90
TP 21	TP	**6**	NR		Pond		474989	254691	90		90
TP 22	TP	**6**	NR		Cutting Works/Road		474896	254866	90		90
TP 23	TP	**6**	NR		Cutting Works/Road		474531	255212	90		90
TP 24	TP	**6**	NR		Road		475165	254183	90		90
TP 25	TP	**6**	NR		Road		474979	254353	90		90
TP 26	TP	**6**	NR		Road		474863	254497	90		90
TP 27	TP	**6**	NR		Embankment		474358	255050	95		95
TP 28	TP	**6**	NR		Embankment		474394	254791	95		95
TP 29	TP	**6**	NR		Embankment		474449	254380	100		100
TP 30	TP	**6**	NR		Embankment		474574	254140	95		95
Window Sampler Boreholes											
WS 1	WS	**6**	Backfill with arisings	Cropped Fields	Cutting and Embankments	SPT/GW and general soil sampling Possible probing to depth and possible U38 sampling if requested or unusual strata encountered. Water Table monitoring is important so water strikes should be recorded with rise.	475467	254741	80		80
WS 2	WS	**6**	50mm dia HDPE s/pipe slotted 1-3mbgl		Cutting and Embankments		475280	254939	80		80
WS 3	WS	**6**	50mm dia HDPE s/pipe slotted 3-6mbgl		Cutting and Embankments		475081	255131	80		80
WS 4	WS	**6**	50mm dia HDPE s/pipe slotted 2-5mbgl		Cutting and Embankments		474892	255316	90		90
WS 5	WS	**6**	Backfill with arisings		Cutting and Embankments		474734	255473	90		90
WS 6	WS	**6**	50mm dia HDPE s/pipe slotted 3-6mbgl		Cutting and Embankments		474555	255542	90		90
WS 7	WS	**6**	Backfill with arisings		Cutting and Embankments		474409	255507	90		90
WS 8	WS	**6**	50mm dia HDPE s/pipe slotted 2-4mbgl		Cutting and Embankments		474394	255349	90		90
WS 9	WS	**6**	50mm dia HDPE s/pipe slotted 2.5-5.5mbgl		Unit 1		474620	255203	90		90
WS 10	WS	**6**	Backfill with arisings		Unit 1		474804	255019	90		90
WS 11	WS	**6**	50mm dia HDPE s/pipe slotted 2-4mbgl		Unit 1		474980	254861	90		90
WS 12	WS	**6**	Backfill with arisings		Unit 1		475171	254686	80		80
WS 13	WS	**6**	Backfill with arisings		Embankments		474348	255154	95		95
WS 14	WS	**6**	Backfill with arisings		Embankments		474373	254955	95		95
WS 15	WS	**6**	50mm dia HDPE s/pipe slotted 3-6mbgl		Embankments		474405	254699	95		95
WS 16	WS	**6**	Backfill with arisings		Embankments		474430	254538	100		100
WS 17	WS	**6**	Backfill with arisings		Embankments		474524	254255	100		100

NK = Not Known | **TBC= To Be Co** | **Note: Rotary Holes to be commenced 5m away from Cable Percussion holes and open holed to the depth acchieved by Cable Percussion prior to commencing coring.**

Access not yet available , Acces to these positions still to be confirmed by client and landowner. Do not undertake these investigation positions untill can confirm.

Safeground GPR required as high risk utilities in area

APPENDIX C
TRIAL PIT LOGS AND PHOTOGRAPHS

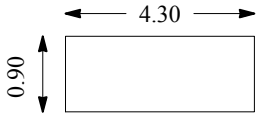
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP1**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**88.81**	**E:474667.0 N:255542.0**	**1** of **1**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES	JJV			Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite, flint with rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.50) 0.50	
						Firm becoming stiff grey mottled brown slightly gravelly CLAY with rootlets. (OADBY MEMBER)		
1.20 1.20	2	D V	c_u=60/60/60			. . . 1.30m bgl, no gravel and no roots.		
2.30 2.30	3	D V	c_u=72/82/75				(3.70)	
3.50 3.50	4	D V	c_u=110/120/>120					
							4.20	
						Trial pit terminated at 4.20m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

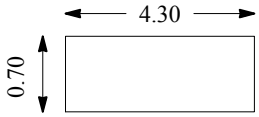
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP2**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**89.77**	**E:474798.0 N:255407.1**	**1** of **1**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
0.40	1	ES	JJV			Firm orange brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded quartzite and flint. (OADBY MEMBER)	(0.30) 0.60	
0.70		V	c_u=60/60/65			Firm orange brown slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse quartzite. (OADBY MEMBER)		
0.80	2	D						
1.20	3	B					(1.10) 1.70	
1.70	4	D				Firm to stiff grey blue mottled brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk with occasional quartzite. (OADBY MEMBER)	1.90	
1.70		V	c_u=70/75/75			Stiff grey blue mottled brown silty CLAY with occasional selenite crystals. (OADBY MEMBER)		
2.80	5	B				. . . 2.80m bgl, silty pockets.	(2.50) 4.40	
3.40	6	D						
3.40		V	c_u=>120/>120/>120					
4.40	7	B				Trial pit terminated at 4.40m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

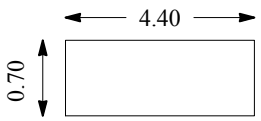
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**81.70**	**E:474992.0 N:255227.9**	**1** of **1**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES	JJV			Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular fine to medium quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
						Orange brown slightly gravelly slightly sandy CLAY. Gravel is subangular fine to medium quartzite. (SUBSOIL)	0.40	
1.30	2	D				Orange brown slightly clayey fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	(1.30) 1.70	
1.80	3	D				Grey mottled orange clayey fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	1.90	
3.00	4	D				Orange brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS) . . . 2.00m bgl, becoming damp.	(1.20) 3.10	
						Trial pit terminated at 3.10m depth due to collapsing.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit collapsed during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

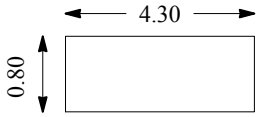
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP4**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**84.85**	**E:475122.0 N:255053.0**	**1** of **2**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
0.40	1	ES				Light orange brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium quartzite. (SUBSOIL)	(0.45) 0.75	
0.40	2	D						
0.90	3	D				Firm to stiff orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite and flint. (OADBY MEMBER)	(0.55) 1.30	
0.90	4	B						
1.30	5	D				Orange brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse quartzite, flint and mudstone. (GLACIOFLUVIAL DEPOSITS)	(3.20)	
2.70	6	D						
						. . . 3.40m bgl, clay pockets.		
3.50	7	D						
						. . . 3.70m bgl, becoming less gravelly.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Collapsing between 1.25m and 3.50m bgl.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

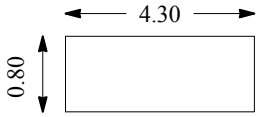
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP4**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**84.85**	**E:475122.0 N:255053.0**	**2** of **2**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
4.30	8	D				Orange brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse quartzite, flint and mudstone. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 1.30m from previous sheet)*	4.50	
						Trial pit terminated at 4.50m depth.		

Plan (Not to Scale)



General Remarks

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

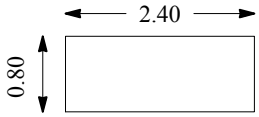
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP5 (S)**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**82.39**	**E:475340.0 N:254849.0**	**1** of **1**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				Brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse flint and quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
						Orange brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	(0.70)	
						. . . 0.80m bgl, becoming gravelly.	1.00	
1.50	2	B				Soft to firm light brown mottled grey sandy CLAY. (GLACIOFLUVIAL DEPOSITS)	(1.00)	
						Trial pit terminated at 2.00m depth to allow soakaway to be undertaken.	2.00	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings, after completion of a soakaway test.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

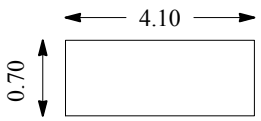
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP6**

Contract Ref:	Start: **28.08.14**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	End: **28.08.14**	**84.96**	**E:474851.0 N:255298.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse quartzite, flint and rare brick. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.50) 0.50	
0.50	1	ES				Firm to stiff fissured light brown mottled orange and grey silty CLAY. Fissures are indistinctly orientated. (OADBY MEMBER)		
0.90	2	D						
0.90		V	c_u=70/65/75/70				(1.00) 1.50	
						Soft to firm orangish brown SILT. (OADBY MEMBER)	(0.40) 1.90	
1.70	3	D						
						Orangish brown gravelly medium SAND. Gravel is subrounded to rounded fine to medium quartzite. (GLACIOFLUVIAL DEPOSITS)		
2.60	4	B					(1.20) 3.10	
						Trial pit terminated at 3.10m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

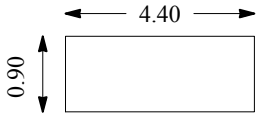
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP7**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**83.01**	**E:475215.0 N:254886.1**	**1** of **1**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				Soft dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL)	(0.30)	
0.20	2	D				(TOPSOIL)	0.30	
0.60	3	D				Firm to stiff orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite. (OADBY MEMBER)	(0.45)	
1.20	4	D				Compact light orange brown mottled grey slightly gravelly slightly sandy silty CLAY/ sandy very clayey SILT. Gravel is subrounded fine to medium quartzite. (OADBY MEMBER)	0.75	
1.20	5	B				. . . 1.30m bgl, becoming gravelley with depth.	(0.75)	
2.60-2.80	6	B				Orange brown slightly silty sandy GRAVEL. Gravel is rounded to subrounded fine to coarse quartzite, flint and chalk. (GLACIOFLUVIAL DEPOSITS)	1.50	
3.00	7	D				Stiff to very stiff blue grey slightly gravelly very silty fissured CLAY with silt pockets. Gravel is subangular fine to coarse chalk. (GLACIOFLUVIAL DEPOSITS)	(1.30)	
3.70	8	B		≈		Buff orange brown gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse quartzite and chalk. (GLACIOFLUVIAL DEPOSITS)	2.80	
				≈		Stiff blue grey slightly gravelly silty CLAY. Gravel is subangular to rounded chalk. (GLACIOFLUVIAL DEPOSITS)	(0.40)	
						Trial pit terminated at 4.40m depth.	3.20	
							(1.00)	
							4.20	
							4.40	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater seepage encountered at 3.70m and 4.20m bgl.
4. Trial pit back filled with arisings.

All dimensions in metres | Scale: **1:28**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

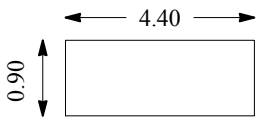
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP8**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**80.54**	**E:475462.0 N:254605.0**	**1** of **1**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly clayey fine to medium SAND. Gravel is subangular to rounded fine to medium quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
0.35-0.60	1	ES				Firm orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk, flint and quartzite. (OADBY MEMBER)	(1.15) 1.45	
0.35-0.60	2	D						
0.35-0.60	3	B						
1.50		V	c_u=45/44/42	▼		Firm orange brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium chalk and quartzite. (OADBY MEMBER)	1.60	
1.80	4	D				Orange brown slightly gravely slightly silty fine to medium SAND. Gravel is subangular to subrounded fine to medium chalk and quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.50) 2.10	
1.80	5	B						
						Trial pit terminated at 2.10m depth due to collapsing.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit became unstable at 1.80m bgl.
3. Groundwater seepage encountered at 1.80m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

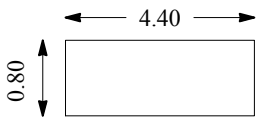
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP9**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**81.31**	**E:475315.9 N:254671.0**	**1** of **1**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite, flint with roots and rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
						Orange brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse chalk, flint and quartzite. (OADBY MEMBER)	(0.30) 0.70	
0.80	1	ES				Soft to firm orange brown mottled grey sandy CLAY. (OADBY MEMBER)		
0.80	2	D				. . . 0.70m bgl, encountered old limestone slabs for drainage.	(0.50) 1.20	
1.10	3	D						
1.10	4	B				Medium dense orange brown slightly silty fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)		
1.50	5	D					(0.70) 1.90	
				≈		Orange brown fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse chalk, flint and quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.40) 2.30	
2.30	6	D				Trial pit terminated at 2.30m depth due to collapsing.		
2.30	7	B						

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit collapsed at 2.30m bgl.
3. Groundwater seepage encountered at 2.10m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

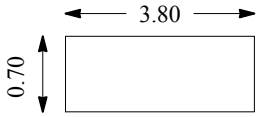
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**86.20**	**E:474964.0 N:255006.1**	**1** of **2**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite, flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.50) 0.50	
0.60	1	ES	JJV			Orange gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and quartzite. (OADBY MEMBER)	(0.40) 0.90	
1.00 1.00 1.00	2 3	D B V	c_u=62/55/52			Firm to stiff grey mottled orange slightly sandy slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to medium chalk, quartzite. (OADBY MEMBER) . . . 1.90m bgl, becomming more blue and less gravelly.	(1.50) 2.40	
2.40 2.40 2.40	4 5	D B V	c_u=80/85/85			Stiff grey mottled dark brown silty CLAY. (OADBY MEMBER)	(0.50) 2.90	
3.10 3.10	6 7	D B				Medium dense orange brown gravelly fine to coarse SAND. With occasional cobbles sized flint. Gravel is subangular to subrounded fine to coarse quartzite and flint. (GLACIOFLUVIAL DEPOSITS)	(1.60)	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit sides collapsing below 2.90m bgl.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

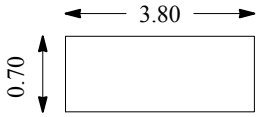
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**86.20**	**E:474964.0 N:255006.1**	**2** of **2**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
4.30	8	D				Medium dense orange brown gravelly fine to coarse SAND. With occasional cobbles sized flint. Gravel is subangular to subrounded fine to coarse quartzite and flint. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 2.90m from previous sheet)*	4.50	
						Trial pit terminated at 4.50m depth.		

Plan (Not to Scale)



General Remarks

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

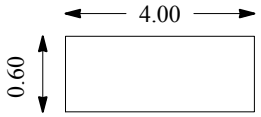
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**29.08.14**	**89.07**	**E:474468.0 N:255501.0**	**1** of **1**
	End: **29.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
0.40	1	ES	JJV			Firm to stiff grey mottled light brown slightly gravelly CLAY. Gravel is subangular fine to medium chalk. (OADBY MEMBER)	(0.80) 1.10	
1.20	2	D				Orange brown mottled grey clayey SILT/ silty CLAY. (OADBY MEMBER)	1.30	
1.20	3	B				Firm to stiff dark grey blue mottled brown silty CLAY. (OADBY MEMBER)		
2.50	4	D					(3.00)	
2.50		V	c_u=90/82/97					
3.50	5	B						
4.30	6	D				Trial pit terminated at 4.30m depth.	4.30	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

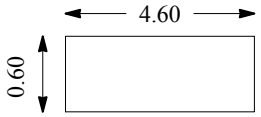
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**29.08.14**	**92.33**	**E:474369.9 N:255422.0**	**1** of **2**
	End: **29.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES	JJV			Dark brown slightly gravelly sandy CLAY. gravel is subangular to subrounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
0.90	2	D				Firm orangish brown slightly gravelly sandy CLAY. gravel is subangular to subrounded fine to medium quartzite and flint. (OADBY MEMBER)	(0.60) 1.00	
1.30 1.30	3	B V	c_u=79/83/92			Firm to stiff grey mottled brown CLAY with occasional gravel sized chalk and fine to coarse sand pockets. (OADBY MEMBER)		
2.20 2.20	4	D V	c_u=90/90/100				(2.60)	
3.40		V	c_u=115/110/100					
3.60	5	D					3.60	
						Grey silty CLAY and clayey SILT with iron staining. (OADBY MEMBER)		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

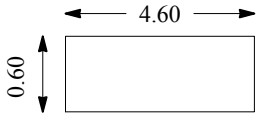
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**29.08.14**	**92.33**	**E:474369.9 N:255422.0**	**2** of **2**
	End: **29.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grey silty CLAY and clayey SILT with iron staining. (OADBY MEMBER) *(stratum copied from 3.60m from previous sheet)*	(0.90)	
4.50	6	D				Trial pit terminated at 4.50m depth.	4.50	

Plan (Not to Scale)



General Remarks

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

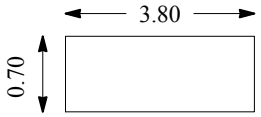
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**87.26**	**E:474688.0 N:255107.0**	**1** of **2**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES	JJV			Dark brown slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and flint. With roots and rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
						Orange brown slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite and flint. With roots and rootlets. (SUBSOIL)	(0.40) 0.70	
0.80	2	D				Firm to stiff grey brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to medium quartzite. (OADBY MEMBER)		
1.00		V	c_u=75/72/70				(0.60)	
1.20	3	B					1.30	
						Stiff firm grey mottled brown silty CLAY with sand veins. (OADBY MEMBER)		
2.10	4	B						
2.10	5	D						
2.10		V	c_u=90/100/90				(2.40)	
3.20	6	B						
3.20		V	c_u=95/92/97				3.70	
3.80	7	D				Orange brown slightly fine sandy silty CLAY/clayey SILT. (OADBY MEMBER)	(0.40)	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

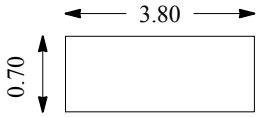
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**87.26**	**E:474688.0 N:255107.0**	**2** of **2**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
							4.10	
4.40	8	B				Medium dense orange brown gravelly coarse SAND. Gravel is subangular to subrounded fine to medium quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.50)	
							4.60	
						Trial pit terminated at 4.60m depth.		

Plan (Not to Scale)



General Remarks

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

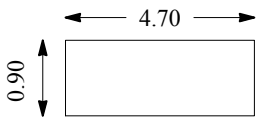
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**85.14**	**E:475088.0 N:254754.0**	**1** of **1**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly gravelly CLAY. Gravel is subangular to rounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.35) 0.35	
						Stiff friable orange brown mottled grey gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk, quartzite and flint. (OADBY MEMBER)		
0.90	1	D						
0.90	2	B						
0.90	3	ES	JJV					
1.50	4	D					(2.65)	
						. . . 2.30m bgl, becoming grey.		
2.80	5	D					3.00	
						Stiff light blue grey laminated very silty CLAY and very clayey SILT interlaminated. (Weathering Grade C) (WHITBY MUDSTONE FORMATION)	(1.20)	
3.80	6	D					4.20	
						Trial pit terminated at 4.20m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

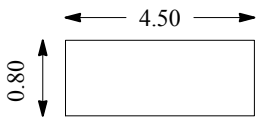
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP15 (S)**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**81.31**	**E:475378.0 N:254474.9**	**1** of **1**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES	JJV			Grass over brown slightly clayey slightly gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium flint and quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
1.30	4	D				Firm buff orange mottled grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk. (OADBY MEMBER)	(1.00) 1.40	
1.60 1.60	2 3	B D		≈		Medium dense orange brown fine to medium slightly gravelly SAND. Gravel is subangular to subrounded fine to medium quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.40) 1.80	
						Trial pit terminated at 1.80m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater seepage encountered at 1.70m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

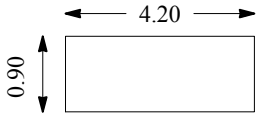
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**82.78**	**E:475254.0 N:254444.0**	**1** of **1**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES	JJV			Grass over dark brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium quartzite and occasional chalk. (AGRICULTURAL TOPSOIL)	(0.30)	
0.20	2	D				(TOPSOIL)	0.30	
						Firm orange brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium quartzite and chalk. (SUBSOIL)	0.40	
						Stiff orange mottled grey gravelly CLAY. gravel is subangular to rounded fine to coarse chalk and quartzite and flint. (OADBY MEMBER)		
1.10	3	D						
1.10	4	B						
1.20		V	c_u=>120				(2.70)	
2.00	5	D				. . . 2.00m bgl, becoming grey and fine selenite crystals.		
2.00	6	B						
2.20		V	c_u=96/94/100					
							3.10	
3.20	7	D				Stiff grey clayey SILT with occasional rare gravel sized chalk and iron staining. (OADBY MEMBER)	(1.00)	
4.00	8	D						
4.00	9	B					4.10	
						Trial pit terminated at 4.10m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

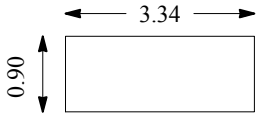
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP17**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**82.76**	**E:475314.0 N:254245.0**	**1** of **1**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES	JJV			Dark brown slightly gravelly clayey SAND. Gravel is subangular to subrounded fine to medium quartzite and flint. With rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
0.20	2	D				Light brown slightly gravelly clayey CLAY. Gravel is subangular to subrounded fine to medium quartzite and flint. (SUBSOIL)	0.50	
0.60	3	D				Firm to stiff light brown orange mottled grey gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk and quartzite. (OADBY MEMBER)	0.70	
0.60	4	B						
0.60		V	c_u=60/72/60					
						Stiff grey mottled brown slightly sandy very silty CLAY/ very clayey SILT. Gravel is subangular to subrounded fine to medium chalk. (OADBY MEMBER)	(1.90)	
1.00	5	D						
1.00	6	B						
1.10		V	c_u=82/105/75					
2.00	7	D					2.60	
						Stiff grey mottled brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk. (OADBY MEMBER)	(1.00)	
2.90	8	D						
3.40	9	D						
3.40		V	c_u=110/120/120				3.60	
3.60	10	D				Trial pit terminated at 3.60m depth due to lifting machine.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody + DBench**	

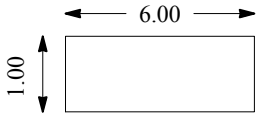
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP19**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**86.25**	**E:475073.0 N:254324.0**	**1** of **1**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES	JJV			Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite, flint. With rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
0.40	2	D				Firm orange brown slightly gravelly CLAY. Gravel is subangular to rounded quartzite. (SUBSOIL)	0.50	
1.50	3	D				Firm light brown gravelly CLAY. Gravel is subangular to rounded fine to medium chalk and quartzite. (OADBY MEMBER)	(1.40) 1.90	
2.00	4	D				Stiff to firm blue grey mottled orange brown gravelly silty CLAY. Gravel is fine to coarse occasional cobbles sized chalk and selenite crystals. (OADBY MEMBER)	(1.90) 3.80	
3.50	5	D				Trial pit terminated at 3.80m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

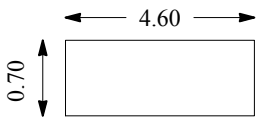
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP20 (S)**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**87.54**	**E:474952.0 N:254607.0**	**1** of **1**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES	JJV			Brown slightly gravelly slightly clayey fine to medium SAND. Gravel is subangular to subrounded fine to medium quartzite and flint. With rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
0.80	2	D				Light orange brown slightly clayey slightly gravelly fine to medium SAND. gravel is subangular to subrounded fine to medium quartzite. (SUBSOIL)	(0.50) 0.90	
1.50	3	D				Firm buff orange slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk and quartzite. (OADBY MEMBER) . . . 0.90m bgl, becoming clayey.	(0.90) 1.80	
2.00	4	D		▼1		Light brown slightly clayey fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.40) 2.20	
						Trial pit terminated at 2.20m depth due to water entering.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable with slight collapse from 1.80m bgl and trial pit completly collapsed at 2.20m bgl.
3. Groundwater encountered at 2.20m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

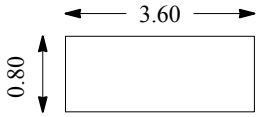
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP21**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**86.97**	**E:474989.1 N:254691.0**	**1** of **1**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES	JJV			Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite, flint, roots and rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.35) 0.35	
0.50	2	D				Stiff to very stiff brown mottled grey slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse chalk, quartzite and occasional flint. With occasional cobbles of flint. (OADBY MEMBER)		
0.50-1.00	3	B						
0.50		V	c_u=80					
1.30		V	c_u=120/100/60				(2.55)	
2.30	4	D				. . . 2.30m bgl, becoming more blue grey and less gravelly.	2.90	
2.30	5	B						
3.00	6	D				Stiff light grey laminated SILT/CLAY with occasional chalk fragments. (OADBY MEMBER)	(1.20)	
						Trial pit terminated at 4.10m depth.	4.10	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

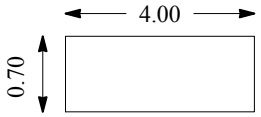
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**88.83**	**E:474897.6 N:254867.7**	**1** of **2**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES	JJV			Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite, flint, roots and rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
0.60	2	D				Firm to stiff orange brown mottled grey gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to coarse quartzite, flint and chalk. (SUBSOIL)	(0.50) 0.90	
1.00	3	D				Firm to stiff grey blue mottled orange brown slightly gravelly very silty CLAY/ very clayey SILT. Gravel is subangular to subrounded fine to coarse chalk and quartzite. (OADBY MEMBER)		
1.00	4	B						
1.00		V	c_u=87/97/90					
1.80	5	D					(2.00)	
1.80	6	B						
1.80		V	c_u=94/87/80					
2.50	7	D						
2.50		V	c_u=80/79/80				2.90	
3.00	8	D				Firm to stiff light brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium ironstone and quartzite. (OADBY MEMBER)	(0.30) 3.20	
3.30	10	B		≈		Orange brown gravelly fine to medium SAND. Gravel is subangular to subrounded quartzite and ironstone. (GLACIOFLUVIAL DEPOSITS)	(0.50) 3.70	
3.30	9	D						
4.00	11	D				Stiff blue grey mottled dark grey CLAY with occasional fossils. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
4.00		V	c_u=120/115/>120				(1.10)	

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

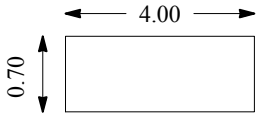
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP22**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**88.83**	**E:474897.6 N:254867.7**	**2** of **2**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Stiff blue grey mottled dark grey CLAY with occasional fossils. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 3.70m from previous sheet)*	4.80	
4.80	12	D						
4.80	13	B				Trial pit terminated at 4.80m depth.		

Plan (Not to Scale)



General Remarks

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

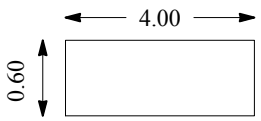
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP23**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**29.08.14** End: **29.08.14**	**94.31**	**E:474531.0 N:255212.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium quartzite and flint. With roots. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
0.40	1	ES	JJV			Brown slightly clayey medium SAND. With pockets of clay. (GLACIOFLUVIAL DEPOSITS)		
0.90	2	D					(1.50)	
1.50	3	B				. . . 1.40m bgl, becoming lighter.	1.90	
						Trial pit terminated at 1.90m depth due to collapse.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit unstable during excavation, and collapsed at 1.70m bgl.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

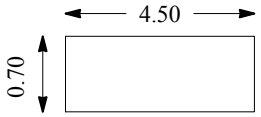
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**84.62**	**E:475165.0 N:254183.0**	**1** of **2**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
						Orange brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium quartzite and flint. (SUBSOIL)	0.50	
0.70 0.70	1	ES V	JJV c_u=90/95/97			Firm orange brown gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk and quartzite. (OADBY MEMBER)	(0.50) 1.00	
1.00	2	D				Firm grey mottled orange gravely CLAY. Gravel is subangular to rounded fine to coarse chalk. (OADBY MEMBER)	(2.10) 3.10	
2.40	3	D						
3.20	4	D				Grey brown clayey GRAVEL. Gravel is subangular to subrounded fine to medium chalk, quartzite and mudstone. (OADBY MEMBER)	(0.70) 3.80	
3.50	5	D						
3.90	6	D				*Description on next sheet*		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater not encountered.
4. Trial pit back filled with arisings.

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

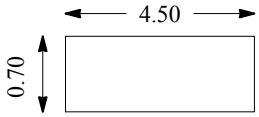
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP24**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**84.62**	**E:475165.0 N:254183.0**	**2** of **2**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark grey blue slightly gravelly SILT. Gravel is subrounded to rounded fine to medium occasional coarse chalk and mudstone. (OADBY MEMBER) *(stratum copied from 3.80m from previous sheet)*	(0.70)	
4.50	7	D				Trial pit terminated at 4.50m depth.	4.50	

Plan (Not to Scale)



General Remarks

All dimensions in metres | Scale: **1:22**

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

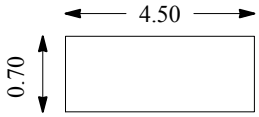
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP25**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**86.91**	**E:474979.0 N:254353.0**	**1** of **1**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium quartzite flint. With rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40)	
0.40	1	D					0.40	
						Light orange brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded quartzite and flint. (SUBSOIL)	0.50	
				≈		Firm to stiff orange brown mottled grey slightly gravelly CLAY. Gravel is subangular to rounded fine to medium chalk and quartzite. (OADBY MEMBER)		
1.00	2	D						
1.00		V	c_u=97/108/110				(1.20)	
							1.70	
1.70		V	c_u=>120/75			Stiff grey orange brown mottled grey slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk and coal. Gravel contains crystals and cobbles sized chalk. (OADBY MEMBER)		
2.10	3	D						
							(2.10)	
3.00	4	D						
							3.80	
						Trial pit terminated at 3.80m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater seepage encountered at 0.70m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

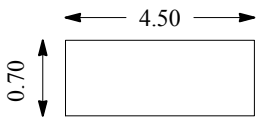
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP26**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**89.51**	**E:474863.0 N:254497.0**	**1** of **1**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Dark brown clayey slightly gravelly fine to coarse SAND. Gravel is subangular to rounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
						Orange brown clayey fine to coarse SAND. (SUBSOIL)	0.50	
						Orange brown fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)	(0.60) 1.10	
1.00	1	D						
						Light orange brown gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium quartzite, flint and chalk. (GLACIOFLUVIAL DEPOSITS)	(1.20) 2.30	
1.60	2	D		≈				
				▼2				
2.40	3	D				Firm to stiff dark grey blue CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	(0.30) 2.60	
2.60	4	D				Trial pit terminated at 2.60m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater seepage encountered at 1.70m and groundwater encountered at 2.15m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

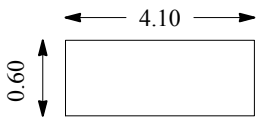
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP27**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**29.08.14**	**95.99**	**E:474357.9 N:255050.0**	**1** of **1**
	End: **29.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30	1	ES	JJV			Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
						Orange brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium quartzite and flint. With fine to coarse SAND and pockets. (SUBSOIL)	(0.30) 0.70	
0.80	2	D				Stiff dark grey brown gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and quartzite. (OADBY MEMBER)	(0.70) 1.40	
1.50	3	D				Firm to stiff orange brown slightly sandy gravelly CLAY/clayey GRAVEL. Gravel is subangular to subrounded fine to coarse quartzite and flint. (OADBY MEMBER)	(0.30) 1.70	
1.50	4	B						
1.80	5	D		▼1		Orange brown slightly silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse quartzite. (GLACIOFLUVIAL DEPOSITS) . . . 1.70m bgl, becoming damp. . . . 2.00m bgl, becoming damp with depth.	(0.50) 2.20	
2.10	6	D						
						Trial pit terminated at 2.20m depth due to collapsing.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater encountered at 2.10m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

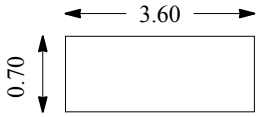
DRAFT
TRIAL PIT LOG

Contract:	Client:	Trial Pit:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**TP28**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**29.08.14**	**97.93**	**E:474394.0 N:254791.0**	**1** of **1**
	End: **29.08.14**			

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES	JJV			Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to coarse quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
						Stiff to firm orange brown grey mottled orange slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk and quartzite. With occasional sand pockets. (OADBY MEMBER)	(0.30) 0.70	
0.80	2	D				Stiff to firm grey mottled brown CLAY. (Weathering Grade E) (OADBY MEMBER)		
1.10	3	B				. . . 0.80m and 1.80m bgl, sandy sitly pocket.		
1.80	4	D		≈				
1.80		V	c_u=70/72/75				(3.30)	
2.90	5	B						
2.90		V	c_u=120/110					
3.50	6	D				. . . 3.50m bgl, crystals of selenite.		
							4.00	
4.00	7	D				Trial pit terminated at 4.00m depth.		

Plan (Not to Scale)



General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Trial pit remained stable during excavation.
3. Groundwater seepage encountered at 1.80m bgl.
4. Trial pit back filled with arisings.

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

Method Used:	Plant Used:	Logged By:	Checked By:
Machine dug	**Tracked excavator**	**LMoody**	

PHOTOGRAPHIC LOG – Trial pits – M1 Junction 15

Photo No.	**Date:**
1	28.8.14

Direction Photo Taken:

N/A

Description:

TP1

Photo No.	**Date:**
2	28.8.14

Direction Photo Taken:

N/A

Description:

TP2

Photo No.	Date:	
3	28.8.14	
Direction Photo Taken: N/A		
Description: TP3		

Photo No.	Date:	
4	28.8.14	
Direction Photo Taken: N/A		
Description: TP4		

Photo No.	Date:	
5	27.8.14	
Direction Photo Taken: N/A		
Description: TP7		

Photo No.	Date:	
6	27.8.14	
Direction Photo Taken: N/A		
Description: TP9		

Photo No.	Date:	
7	28.8.14	
Direction Photo Taken: N/A		
Description: TP10		

Photo No.	Date:	
8	29.8.14	
Direction Photo Taken: N/A		
Description: TP11		

Photo No.	Date:	
9	29.8.14	
Direction Photo Taken: N/A		
Description: TP12		

Photo No.	Date:	
10	27.8.14	
Direction Photo Taken: N/A		
Description: TP14		

Photo No.	Date:	
11	27.8.14	
Direction Photo Taken: N/A		
Description: TP16		

Photo No.	Date:	
12	27.8.14	
Direction Photo Taken: N/A		
Description: TP17		

Photo No.	Date:	
13	27.8.14	
Direction Photo Taken: N/A		
Description: TP21		

Photo No.	Date:	
14	29.8.14	
Direction Photo Taken: N/A		
Description: TP23		

Photo No.	Date:	
15	29.8.14	
Direction Photo Taken: N/A		
Description: TP27		

Photo No.	Date:	
16	29.8.14	
Direction Photo Taken: N/A		
Description: TP28		

APPENDIX D
WINDOW SAMPLER BOREHOLE LOGS

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS1**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**21.08.14**	**80.70**	**E:475467.0 N:254741.0**	**1** of **1**
	End: **21.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.30	1	ES	JJV			Dark brown sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium quartzite and mudstone. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.50	2	D				Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded quartzite. (SUBSOIL)	(0.30) 0.70	
	0.80	3	D				Orangish brown fine to medium SAND. (OADBY MEMBER)	(0.30) 1.00	
	1.00	4	D				Firm light orangish brown gravelly CLAY. Gravel is subrounded to rounded fine to medium chalk. (OADBY MEMBER)	1.20	
1.20 - 2.00 (99mm dia) 100% rec	1.20-1.65	1	SPT	N=11			Firm to stiff grey mottled orangish brown gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk and quartzite. (OADBY MEMBER)	(0.70)	
	1.50	5	D				. . . 1.30m and 1.40m bgl, sand band. . . . 1.60m and 1.65m bgl, gravel band of subangular fine to coarse ironstone.	1.90	
2.00 - 3.00 (85mm dia) 100% rec	2.00-2.45	2	SPT	N=19			Firm to stiff grey slightly gravelly silty CLAY. Gravel is subrounded to rounded fine to coarse chalk, flint and mudstone. (OADBY MEMBER)		
	2.80	6	D					(2.10)	
3.00 - 4.00 (75mm dia) 100% rec	3.00-3.45	3	SPT	N=32					
	3.60	7	D		▼1			4.00	
	4.00-4.43	4	SPT	N=55*			Window sample hole terminated at 4.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater encountered at 4.00m bgl.
4. Borehole backfilled with arising upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS2**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**21.08.14** End: **21.08.14**	**82.99**	**E:475280.0 N:254939.0**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	D				Dark brown slightly gravelly slightly sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite and mudstone. With frequent rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.50	2	ES	JJV			Light brown fine to medium SAND with rare subrounded, fine to medium grained quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.80)	
	0.90	3	D					1.20	
1.20 - 2.00 (99mm dia) 100% rec	1.20-1.65	1	SPT	N=12			Medium dense orangish brown fine to coarse SAND and GRAVEL. Gravel is subrounded to rounded fine to coarse chalk, quartzite, flint, mudstone and ironstone. (GLACIOFLUVIAL DEPOSITS)	(0.30) 1.50	
	1.40	4	D						
	1.50	5	D				Light orangish brown fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)	1.60	
	1.80	6	D				Dense orangish brown SAND and GRAVEL. Gravel is subrounded fine to coarse chalk, quartzite, mudstone and flint. (GLACIOFLUVIAL DEPOSITS)	(0.90)	
2.00 - 3.00 (85mm dia) 100% rec	2.00-2.45	2	SPT	N=36				2.50	
	2.60-2.70	7	D				Dense orangish brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	2.75	
	2.80	8	D				Stiff dark grey slightly gravelly SILT. Gravel is subrounded to rounded fine to medium chalk. (OADBY MEMBER)	3.00	
	3.00-3.44	3	SPT	N=53*			Window sample hole terminated at 3.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and water monitoring well installed to 3.00m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**21.08.14**	**84.55**	**E:475081.0 N:255131.1**	**1** of **2**
	End: **21.08.14**			

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.40	1	ES	JJV			Dark brown sandy CLAY. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.50) 0.50	
	0.80	2	D				Orangish brown slightly sandy CLAY. With occasional gravel of subrounded fine to coarse quartzite. (OADBY MEMBER)	(0.70) 1.20	
1.20 - 2.00 (99mm dia) 100% rec	1.20-1.65	1	SPT	N=10			Firm grey mottled brownish orange slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium ironstone. (OADBY MEMBER)	(0.30) 1.50	
	1.30	3	D						
	1.70	4	D				Medium dense orangish brown slightly gravelly fine to coarse SAND. Gravel is subrounded fine to medium quartzite and ironstone. (GLACIOFLUVIAL DEPOSITS)		
2.00 - 3.00 (85mm dia) 100% rec	2.00-2.45	2	SPT	N=28					
	2.90	5	D				. . . 2.50m and 2.60m bgl, becomes gravelly.	(2.10)	
3.00 - 4.00 (75mm dia) 100% rec	3.00-3.45	3	SPT	N=11			. . . 3.00m bgl, becoming loose. (Possible drilling related)		
	3.30	6	D					3.60	
	3.70	7	D				Firm light grey mottled orange sandy CLAY. (GLACIOFLUVIAL DEPOSITS)	3.80	
4.00 - 5.00 (65mm dia) 100% rec	4.00-4.45	4	SPT	N=20			Medium dense orangish brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)		

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and water monitoring well installed to 6.00m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**21.08.14**	**84.55**	**E:475081.0 N:255131.1**	**2** of **2**
	End: **21.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (65mm dia) 100% rec	4.50	8	D				Medium dense orangish brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 3.80m from previous sheet)*	(2.20)	
	5.00-5.45	5	SPT	N=20			. . . 5.00m bgl, damp.		
5.00 - 6.00 (55mm dia) 100% rec	5.80	9	D					6.00	
	6.00-6.45	6	SPT	N=27			. . . 6.00m bgl, becoming more dense. Window sample hole terminated at 6.00 m depth.		

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS4**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14**	**85.10**	**E:474892.0 N:255316.1**	**1** of **2**
	End: **19.08.14**			

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Brown slightly gravelly sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite and mudstone. With occasional rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.50	1	ES	JJV			Firm stiff orangish brown slightly sandy CLAY. (OADBY MEMBER)	(1.00)	
	1.20-1.65	1	SPT	N=15					
	1.20	2	D					1.40	
1.20 - 2.00 (99mm dia) 100% rec							Medium dense orangish brown gravelly fine to coarse SAND. Gravel is subrounded fine to coarse quartzite and mudstone. (GLACIOFLUVIAL DEPOSITS)		
	1.70	3	D						
	2.00-2.45	2	SPT	N=19				(1.80)	
2.00 - 3.00 (85mm dia) 100% rec									
	2.60	4	D						
	3.00-3.45	3	SPT	N=22				3.20	
3.00 - 4.00 (75mm dia) 100% rec							Medium dense orangish brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)		
	3.80	5	D						
	4.00-4.45	4	SPT	N=38			. . . At 4.00m bgl becominbg dense with depth.	(1.80)	
4.00 - 5.00 (65mm dia) 100% rec									
	4.40-4.60	6	D						

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and water monitoring well installed to 5.00m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS4**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14**	**85.10**	**E:474892.0 N:255316.1**	**2** of **2**
	End: **19.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (65mm dia) 100% rec							Medium dense orangish brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 3.20m from previous sheet)*	5.00	
	5.00-5.44	5	SPT	N=53*			Window sample hole terminated at 5.00 m depth.		

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS5**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14**	**89.64**	**E:474734.0 N:255473.0**	**1** of **2**
	End: **19.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.30	1	ES	JJV			Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite, mudstone and brick. With frequent rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.50	2	D				Soft orangish brown mottled grey slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium quartzite, mudstone and rare brick. (SUBSOIL)	(0.40) 0.80	
	0.60	3	D						
1.20 - 2.00 (99mm dia) 40% rec	1.20-1.65	1	SPT	N=8			Firm orangish brown slightly gravelly sandy CLAY. Gravel is subrounded to rounded fine to coarse quartzite, mudstone and rare ironstone. (OADBY MEMBER)	(1.20) 2.00	
	1.70	4	D						
2.00 - 3.00 (85mm dia) 100% rec	2.00-2.45	2	SPT	N=13			Firm to stiff dark bluish grey CLAY. With occasional selenite. (OADBY MEMBER)		
	2.50	5	D						
3.00 - 4.00 (75mm dia) 100% rec	3.00-3.45	3	SPT	N=15			. . . 3.00m bgl, becoming stiff with depth.		
	3.70	6	D						
4.00 - 5.00 (65mm dia) 100% rec	4.00-4.45	4	SPT	N=19				(4.00)	

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Borehole backfilled with arising upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS5**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14**	**89.64**	**E:474734.0 N:255473.0**	**2** of **2**
	End: **19.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (65mm dia) 100% rec	4.80	7	D				Firm to stiff dark bluish grey CLAY. With occasional selenite. (OADBY MEMBER) *(stratum copied from 2.00m from previous sheet)*		
	5.00-5.45	5	SPT	N=26					
5.00 - 6.00 (55mm dia) 100% rec								6.00	
	6.00-6.34	6	SPT	N=79*			Window sample hole terminated at 6.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS6**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**90.76**	**E:474555.0 N:255542.0**	**1** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	ES				Dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite, mudstone with frequent rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.70	2	D				Orange brown CLAY with occasional gravel of subrounded to rounded fine to medium quartzite mudstone and chalk. (OADBY MEMBER)	(0.80) 1.20	
1.20 - 2.00 (115mm dia) 100% rec	1.20-1.65	1	SPT	N=11			Firm grey mottled orange CLAY with occasional subrounded to rounded chalk, quartzite and ironstone. (OADBY MEMBER)		
	1.70	3	D						
2.00 - 3.00 (99mm dia) 90% rec	2.00-2.45	2	SPT	N=11				(2.10)	
	2.60	4	D						
3.00 - 4.00 (85mm dia) 100% rec	3.00-3.45	3	SPT	N=15				3.30	
	3.90	5	D				Stiff grey mottled brown CLAY with occasional selenite. (OADBY MEMBER)		
4.00 - 5.00 (75mm dia) 100% rec	4.00-4.45	4	SPT	N=19				(1.70)	

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and water monitoring well installed to 6.00m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS6**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**90.76**	**E:474555.0 N:255542.0**	**2** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (75mm dia) 100% rec	4.80	6	D				Stiff grey mottled brown CLAY with occasional selenite. (OADBY MEMBER) *(stratum copied from 3.30m from previous sheet)*	5.00	
	5.00-5.45	5	SPT	N=23			Stiff grey CLAY. (OADBY MEMBER)	(1.00)	
5.00 - 6.00 (65mm dia) 50% rec	5.50	7	D					6.00	
	6.00-6.45	6	SPT	N=35			Window sample hole terminated at 6.00 m depth.		

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS7**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**87.79**	**E:474409.0 N:255507.0**	**1** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	D				Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite with frequent rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
	0.40	2	ES				Soft orange brown slightly sandy CLAY with occasional gravel of subangular to subrounded fine to Medium quartzite. (OADBY MEMBER)	(0.90) 1.20	
	1.00	3	D						
1.20 - 2.00 (115mm dia) 70% rec	1.20-1.65	1	SPT	N=8			Firm orange mottled grey CLAY. (OADBY MEMBER)	(1.10) 2.30	
	1.60	4	D						
2.00 - 3.00 (99mm dia) 100% rec	2.00-2.45	2	SPT	N=11			Firm grey mottled brown CLAY. (OADBY MEMBER)		
	2.70	5	D				. . . 2.70m bgl, selenite.		
3.00 - 4.00 (85mm dia) 100% rec	3.00-3.45	3	SPT	N=14	▼1			(1.70) 4.00	
	3.80	6	D				. . . 3.80m bgl, shell fragments.		
4.00 - 4.50 (75mm dia) 100% rec	4.00-4.45	4	SPT	N=22			Stiff orange brown CLAY with occasional ironstone. (OADBY MEMBER)	(0.30) 4.30	
	4.30	7	D				Dense orange gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium quartzite.	4.50	
	4.40-4.50	8	D						

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater encountered at 3.10m bgl.
4. Borehole backfilled with arising upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS7**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**87.79**	**E:474409.0 N:255507.0**	**2** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	4.50-4.93	5	SPT	N=55*			(GLACIOFLUVIAL DEPOSITS) . . . 4.40m bgl, gravel band of quartzite. Window sample hole terminated at 4.50 m depth.		

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS8**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**94.28**	**E:474394.0 N:255349.0**	**1** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	ES				Dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium quartzite and mudstone with frequent rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.60	2	D				Orange brown sandy CLAY with occasional gravel of subrounded to rounded fine to medium chalk and quartzite. (SUBSOIL)	0.50	
	1.10	3	D				Soft grey mottled orange CLAY. (OADBY MEMBER)		
1.20 - 2.00 (115mm dia) 100% rec	1.20-1.65	1	SPT	N=7				(1.90)	
	1.30	4	D						
	1.70	5	D						
2.00 - 3.00 (99mm dia) 100% rec	2.00-2.45	2	SPT	N=7				2.40	
	2.80	6	D		▼1		Loose to medium dense orange mottled grey clayey fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)	(0.90)	
3.00 - 4.00 (85mm dia) 90% rec	3.00-3.45	3	SPT	N=15				3.30	
	3.90	7	D				Stiff grey CLAY. (GLACIOFLUVIAL DEPOSITS)	(0.70)	
4.00 - 5.00 (75mm dia) 0% rec	4.00-4.45	4	SPT	N=23			Medium dense light brown fine to medium SAND. Running sand. (GLACIOFLUVIAL DEPOSITS)	4.00 (1.00)	

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater encountered at 2.90m bgl.
4. Gas and water monitoring well installed to 5.00m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS8**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**94.28**	**E:474394.0 N:255349.0**	**2** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (75mm dia) 0% rec ▼							Medium dense light brown fine to medium SAND. Running sand. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 4.00m from previous sheet)*	5.00	
							Window sample hole terminated at 5.00 m depth.		

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS9**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14** End: **19.08.14**	**91.05**	**E:474620.0 N:255203.1**	**1** of **2**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Dark brown slightly gravelly slightly clayey SAND. Gravel is subrounded to rounded fine to medium quartzite, mudstone and rare flint. With frequent rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.40	1	ES	JJV			Orangish brown slightly gravelly clayey fine to coarse SAND. Gravel is subrounded to rounded fine to coarse quartzite and mudstone. (GLACIOFLUVIAL DEPOSITS)	(0.80)	
	0.90	2	D					1.20	
1.20 - 2.00 (99mm dia) 100% rec	1.20-1.65	1	SPT	N=8			Soft orangish brown sandy CLAY. (OADBY MEMBER)	(0.70)	
	1.70	3	D					1.90	
2.00 - 3.00 (85mm dia) 100% rec	2.00-2.45	2	SPT	N=11			Firm dark bluish grey CLAY. With occasional selenite. (OADBY MEMBER)		
	2.90	4	D						
3.00 - 4.00 (75mm dia) 100% rec	3.00-3.45	3	SPT	N=15			. . . From 3.00m bgl becoming form to stiff with depth.		
	3.70	5	D					(4.10)	
4.00 - 5.00 (65mm dia) 100% rec	4.00-4.45	4	SPT	N=20					

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and water monitoring well installed to 5.50m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS9**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	End: **19.08.14**	**91.05**	**E:474620.0 N:255203.1**	**2** of **2**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (65mm dia) 100% rec	4.60	6	D				Firm dark bluish grey CLAY. With occasional selenite. (OADBY MEMBER) *(stratum copied from 1.90m from previous sheet)*		
	5.00-5.45	5	SPT	N=24					
5.00 - 6.00 (55mm dia) 30% rec	5.40	7	D						
	6.00-6.42	6	SPT	N=57*				6.00	
							Window sample hole terminated at 6.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14**	**85.67**	**E:474804.0 N:255019.0**	**1** of **1**
	End: **19.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20-0.20	1	ES	JJV			Brown slightly gravelly clayey fine to medium SAND. Gravel is subrounded fine quartzite and brick. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
							Orangish brown slightly gravelly sandy CLAY. Gravel is subrounded to rounded fine to coarse quartzite and mudstone. (SUBSOIL)	0.60	
							Stiff dark bluish grey CLAY. (OADBY MEMBER)		
	1.20-1.65	1	SPT	N=8					
1.20 - 2.00 (99mm dia) 100% rec	1.50-1.50	2	D					(1.80)	
	2.00-2.45	2	SPT	N=11			. . . 2.00m bgl, becoming firm more sandy.	2.40	
2.00 - 3.00 (85mm dia) 100% rec							Orangish brown slightly clayey gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to medium quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.40) 2.80	
	2.80-2.80	3	D				Orangish brown slightly clayey fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	3.00	
	3.00-3.16	3	SPT	N=250*			Window sample hole terminated at 3.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Borehole backfilled with arising upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Hand dug	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**21.08.14**	**87.13**	**E:474980.0 N:254861.0**	**1** of **1**
	End: **21.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	ES				Dark brown slightly gravelly slightly sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite and mudstone. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.80	2	D				Soft to firm orange brown slightly gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse quartzite, flint and mudstone. (OADBY MEMBER)	(0.80) 1.20	
1.20 - 2.00 (115mm dia) 100% rec	1.20-1.65	1	SPT	N=9			Firm orange brown gravelly CLAY. Gravel is subangular to rounded fine to medium quartzite, chalk and flint. (OADBY MEMBER)	(0.40) 1.60	
	1.30	3	D						
	1.80	4	D				Firm orange brown gravelly sandy CLAY. Gravel is subangular to rounded quartzite chalk and flint. (OADBY MEMBER)	(0.90) 2.50	
2.00 - 3.00 (99mm dia) 90% rec	2.00-2.45	2	SPT	N=13					
	2.40	5	D				Medium dense orange brown fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	(0.70) 3.20	
	2.80	6	D						
3.00 - 4.00 (85mm dia) 90% rec	3.00-3.45	3	SPT	N=16					
	3.20	7	D				Stiff to firm grey mottled brown CLAY. (Weathering grade E) (WHITBY MUDSTONE FORMATION)	(0.40) 3.60	
	3.60	8	D				Stiff to firm grey silty CLAY (WHITBY MUDSTONE FORMATION)	(0.40) 4.00	
	3.90	9	D						
	4.00-4.44	4	SPT	N=53*			Window sample hole terminated at 4.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and water monitoring well installed to 4.00m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**21.08.14**	**83.30**	**E:475171.0 N:254686.1**	**1** of **1**
	End: **21.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Dark brown slightly gravelly slightly CLAY. Gravel is subrounded to rounded fine to medium quartzite and mudstone. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.30) 0.30	
	0.40	1	D				Orange brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium quartzite. (SUBSOIL)	0.50	
	0.60	2	ES				Light orange brown gravelly CLAY. Gravel is subrounded to rounded fine to medium chalk, flint, quartzite. (OADBY MEMBER)	(0.70)	
	1.10	3	D					1.20	
1.20 - 2.00 (115mm dia) 100% rec	1.20-1.65	1	SPT	N=12			Firm grey mottled orange gravelly CLAY. Gravel is subangular to subrounded fine to medium occasionally coarse chalk, quartzite, ironstone and occasionally coal. (OADBY MEMBER)	(1.10)	
	1.40	4	D						
	2.00-2.45	2	SPT	N=18			. . . 2.00m bgl becoming firm to stiff.	2.30	
2.00 - 3.00 (99mm dia) 100% rec	2.40	5	D				Stiff grey mottled orange CLAY. (OADBY MEMBER)	(0.40)	
								2.70	
	2.80	6	D				Stiff grey clayey SILT. (OADBY MEMBER)		
	3.00-3.45	3	SPT	N=22			. . . 2.90m bgl, becoming laminated.		
3.00 - 4.00 (85mm dia) 100% rec							. . . 3.30m and 3.60m bgl, becoming damp.	(1.30)	
	3.90	7	D		1			4.00	
	4.00-4.42	4	SPT	N=57*			Window sample hole terminated at 4.00 m depth.		

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater encountered 4.00m bgl.
4. Borehole backfilled with arising upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**96.02**	**E:474348.0 N:255154.0**	**1** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.20	1	ES				Dark brown slightly gravelly slightly sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite, chalk and mudstone. (AGRICULTURAL TOPSOIL)	(0.30)	
							(TOPSOIL)	0.30	
	0.40	2	D				Orange brown slightly gravelly CLAY. Gravel is subangular to rounded fine to medium quartzite and occasional chalk. (SUBSOIL)	(0.30)	
								0.60	
	1.00	3	D				Brown gravelly CLAY. Gravel is subrounded to rounded chalk. (OADBY MEMBER)	(0.60)	
								1.20	
1.20 - 2.00 (115mm dia) 100% rec	1.20-1.65	1	SPT	N=11			Firm dark grey mottled orange gravelly CLAY. Gravel is subangular to subrounded fine to medium occasionally coarse chalk, quartzite. (OADBY MEMBER)		
	1.40	4	D						
	1.80	5	D				. . . 1.70m bgl, gravel becomes fine to medium.	(1.40)	
2.00 - 3.00 (99mm dia) 70% rec	2.00-2.45	2	SPT	N=10					
								2.60	
	2.70	6	D				Firm to stiff dark grey mottled brown CLAY. (OADBY MEMBER)		
3.00 - 4.00 (85mm dia) 5% rec	3.00-3.45	3	SPT	N=12			. . . 3.00m and 3.20m bgl, clay was softer.	(1.60)	
	3.90	7	D						
	4.00-4.45	4	SPT	N=18			. . . 4.00m bgl becoming stiff.		
4.00 - 5.00 (75mm dia) 100% rec	4.20	8	D					4.20	
							Description on next sheet		

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Borehole backfilled with arising upon completion.
5. No recovery at 5.60m bgl.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

DRAFT
WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14** End: **20.08.14**	**96.02**	**E:474348.0 N:255154.0**	**2** of **2**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (75mm dia) 100% rec	4.80	9	D				Stiff dark grey CLAY. (Weathering Grade D) (WHITBY MUDSTONE FORMATION) *(stratum copied from 4.20m from previous sheet)*		
	5.00-5.45	5	SPT	N=21				(1.80)	
								6.00	
	6.00-6.45	6	SPT	N=31			Window sample hole terminated at 6.00 m depth.		

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**96.32**	**E:474373.0 N:254955.1**	**1** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Dark brown slightly gravelly slightly sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40)	
								0.40	
	0.60	1	ES	JJV			Orangish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded medium to coarse quartzite. (OADBY MEMBER)	(0.80)	
	1.00	2	D					1.20	
	1.20-1.65	1	SPT	N=10			Firm grey mottled orangish brown CLAY. (OADBY MEMBER)	(0.80)	
1.20 - 2.00 (99mm dia) 100% rec	1.60	3	D					2.00	
	2.00-2.45	2	SPT	N=10			Firm to stiff grey mottled brown CLAY. (OADBY MEMBER)	(1.30)	
2.00 - 3.00 (85mm dia) 100% rec	2.70	4	D					3.30	
	3.00-3.45	3	SPT	N=12			Firm grey mottled orangish brown sandy CLAY. (OADBY MEMBER)	(0.30)	
3.00 - 4.00 (75mm dia) 90% rec	3.50	5	D					3.60	
	3.80	6	D		≈		Firm to stiff dark grey mottled dark brown CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) . . . 3.70m bgl, laminated.		
	4.00-4.45	4	SPT	N=12			. . . 4.00m to 5.00m bgl, no recovery	(1.40)	
4.00 - 5.00 (65mm dia) 0% rec									

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater seepage encountered at 4.00m bgl.
4. Borehole backfilled with arising upon completion.
5. No recovery between 4.00m and 5.00m bgl, due to groundwater ingress.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14** End: **20.08.14**	**96.32**	**E:474373.0 N:254955.1**	**2** of **2**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (65mm dia) 0% rec							Firm to stiff dark grey mottled dark brown CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 3.60m from previous sheet)*	5.00	
	5.00-5.45	5	SPT	N=27			Window sample hole terminated at 5.00 m depth.		

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14**	**98.55**	**E:474405.0 N:254699.0**	**1** of **2**
	End: **19.08.14**			

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
	0.10	1	ES	JJV			Dark brown slightly clayey very sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite and mudstone. With frequent rootlets. (AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.40) 0.40	
	0.50	2	D				Orangish brown slightly clayey very sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite and mudstone. With frequent rootlets. (SUBSOIL)	0.60	
	0.70	3	D				Loose light brown gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse quartzite, flint and chalk. (OADBY MEMBER)	(0.60) 1.20	
1.20 - 2.00 (99mm dia) 100% rec	1.20-1.65 1.20	1 4	SPT D	N=18			Stiff orangish brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite, chalk and mudstone. (OADBY MEMBER)	1.40	
	1.60	5	D				Firm dark greyish brown mottled brown slightly gravelly CLAY. Gravel is subrounded fine to medium chalk. (OADBY MEMBER)	(0.70) 2.10	
2.00 - 3.00 (85mm dia) 100% rec	2.00-2.45	2	SPT	N=12			Firm dark brownish grey slightly sandy CLAY. With rare fine selenite crystals. (OADBY MEMBER)	(0.90) 3.00	
	2.80	6	D						
3.00 - 4.00 (75mm dia) 100% rec	3.00-3.45	3	SPT	N=12			Firm dark grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	(3.00)	
	3.70	7	D						
4.00 - 5.00 (65mm dia) 100% rec	4.00-4.45	4	SPT	N=14					

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater not encountered.
4. Gas and water monitoring well installed to 6.00m bgl upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**19.08.14**	**98.55**	**E:474405.0 N:254699.0**	**2** of **2**
	End: **19.08.14**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (65mm dia) 100% rec	4.90	8	D				Firm dark grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 3.00m from previous sheet)*		
	5.00-5.45	5	SPT	N=20			. . . 5.00m bgl, becoming stiff.		
5.00 - 6.00 (55mm dia) 100% rec	5.60	9	D					6.00	
	6.00-6.44	6	SPT	N=53*			Window sample hole terminated at 6.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**97.64**	**E:474430.6 N:254538.2**	**1** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Dark brown slightly gravelly slightly sandy CLAY. Gravel is subrounded to rounded fine to medium quartzite. With numerous rootlets. (AGRICULTURAL TOPSOIL)	(0.30)	
	0.30	1	ES	JJV			(TOPSOIL)	0.30	
	0.50	2	D				Orangish brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium quartzite. (SUBSOIL)	(0.50)	
								0.80	
	1.10	3	D				Firm to stiff to firm light greyish brown mottled orangish brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse chalk, quartzite and rare ironstone. (OADBY MEMBER)		
1.20 - 2.00 (99mm dia) 100% rec	1.20-1.65	1	SPT	N=15				(1.50)	
	1.70	4	D						
	2.00-2.45	2	SPT	N=21			. . . 2.00m bgl becoming stiff		
								2.30	
2.00 - 3.00 (85mm dia) 100% rec							Stiff dark grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine and coarse quartzite, sandstone and mudstone. With occasional shell fragments. (OADBY MEMBER)		
	2.80	5	D						
	3.00-3.45	3	SPT	N=25				(1.70)	
3.00 - 4.00 (75mm dia) 100% rec									
	3.80	6	D		▼1				
								4.00	
	4.00-4.45	4	SPT	N=17			Medium dense dark brown fine to medium SAND. (GLACIOFLUVIAL DEPOSITS)		
4.00 - 5.00 (65mm dia) 40% rec	4.10	7	D					(0.90)	

Drilling Progress and Water Observations

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug pit inspection pit dug to 1.20m bgl.
3. Groundwater encountered at 3.70m bgl.
4. Borehole backfilled with arising upon completion.

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

PRELIMINARY WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**WS16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14**	**97.64**	**E:474430.6 N:254538.2**	**2** of **2**
	End: **20.08.14**			

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
4.00 - 5.00 (65mm dia) 40% rec							Medium dense dark brown fine to medium SAND. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 4.00m from previous sheet)*	4.90	
	4.90	8	D				Stiff dark grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	(1.10)	
	5.00-5.45	5	SPT	N=20					
5.00 - 6.00 (55mm dia) 10% rec									
	5.90	9	D					6.00	
	6.00-6.45	6	SPT	N=34			Window sample hole terminated at 6.00 m depth.		

Drilling Progress and Water Observations

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

General Remarks

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

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**Dynamic Sampling UK Ltd**	**LMoody**	

APPENDIX E
CABLE PERCUSSION BOREHOLE LOGS

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP1**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**18.08.14** End: **19.08.14**	**90.77**	**E:474650.0 N:255462.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.30	1	B				Brown slightly gravelly slightly clayey SAND. Gravel is subrounded fine to medium quartzite and rare brick. With frequent roots. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.30	
0.20	2	ES					0.75	
0.80-1.20	3	B				Firm light brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse quartzite. With rare rootlets. (SUBSOIL)		
1.20-1.65	4	B				Firm becoming stiff with depth greyish brown mottled orangish brown fissured slightly gravelly CLAY. Gravel is subrounded fine to medium chalk. Fissures are indistinctly orientated. (OADBY MEMBER)	(1.85)	
1.20-1.65	5	SPT	N=10					
2.00-2.45	5	B				. . . Becoming orangish brown from 2.00m bgl.		
2.00-2.45	7	SPT	N=12				2.60	
2.60	6	D				Stiff dark brownish grey slightly sandy slightly silty CLAY. (OADBY MEMBER)		
3.00-3.45	7	B					(1.40)	
3.00-3.45	10	SPT	N=22				4.00	
4.00-4.45	8	B				Stiff grey slightly silty CLAY. (OADBY MEMBER)		
4.00-4.45	12	SPT	N=20					
5.00-5.45	9	B				. . . from 5.00m bgl, with occasional light grey silty partings.		
5.00-5.45	14	SPT	N=24				(2.80)	
6.00	10	D						
6.50-6.95	11	B						
6.50-6.95	17	SPT	N=30				6.80	
						Firm orangish brown sandy silty CLAY. (OADBY MEMBER)	(0.70)	
							7.50	
7.50	12	D				Orangish brown slightly gravelly medium coarse SAND. Gravel is subrounded fine to medium subrounded mudstone. (GLACIOFLUVIAL DEPOSITS)	7.80	
7.80	13	D						
8.00-8.45	14	B				Dense orangish brown fine SAND. (GLACIOFLUVIAL DEPOSITS)	(0.80)	
8.00-8.45	21	SPT	N=34				8.60	
8.60	15	D				*Description on next sheet*		

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

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 15.45m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 15.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP1**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**18.08.14** End: **19.08.14**	**90.77**	**E:474650.0 N:255462.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.50-9.95	16	D				Dense orangish brown medium SAND. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 8.60m from previous sheet)*		
9.50-9.95	24	SPT	N=36					
10.50	17	D						
11.00-11.45	18	B						
11.00-11.45	27	SPT	N=35					
12.00	19	D					(6.85)	
12.50-12.95	20	B						
12.50-12.95	30	SPT	N=33					
13.50	21	D						
14.00-14.45	22	B						
14.00-14.45	33	SPT	N=35					
15.00-15.45	35	SPT	N=35					
						Borehole terminated at 15.45m depth.	15.45	

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

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

General Remarks

6. Water added to assist drilling between 8.50m to 10.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP2**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**95.89**	**E:474502.0 N:255316.0**	**1** of **3**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.40	1	B				Brown slightly gravelly slightly clayey SAND. Gravel is subrounded fine to medium quartzite and rare brick. With frequent roots. (AGRICULTURAL TOPSOIL)	0.40	
0.40-0.80	2	B				(TOPSOIL)		
0.50	3	ES				Light brown mottled orangish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine and coarse quartzite. (SUBSOIL)	0.80	
0.80-1.20	4	B					1.20	
1.20-1.70	5	U	27 blows			Firm becoming stiff with depth light greyish brown fissured slightly gravelly CLAY. Gravel is subrounded fine to medium chalk. Fissures are indistinctly orientated. (OADBY MEMBER)		
1.70	6	D						
1.80	7	D						
2.00-2.45	1	SPT	N=11	▼		Soft to firm brown mottled grey sandy CLAY. Sand is fine. (OADBY MEMBER)	(1.70)	
2.00-2.45	8	B				. . . from 2.00m bgl, becoming orangish brown.		
2.90	9	D					2.90	
3.00-3.45	2	SPT	N=13			Firm dark grey mottled orangish brown silty CLAY with rare fine selenite. (OADBY MEMBER)	(0.70)	
3.00-3.45	10	B					3.60	
3.80	11	D				Firm to stiff dark grey CLAY with rare fine selenite. (OADBY MEMBER)		
4.00-4.45	3	SPT	N=20					
4.00-4.45	12	B						
4.80	13	D						
5.00-5.45	4	SPT	N=21					
5.00-5.45	14	B						
6.00	15	D						
6.50-6.95	5	SPT	N=22					
6.50-6.95	16	B						
7.50	17	D					(8.10)	
8.00-8.50	18	U	36 blows			. . . From 8.00m bgl, becoming stiff to very stiff with depth.		
8.00		V	c_u=260					
8.50	19	D						

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
27/08/14	10:00	2.30	2.00	150	2.30
27/08/14	10:20	2.30	2.00	150	2.10
27/08/14	17:30	15.00	15.00	150	Dry
28/08/14	10:00	15.00	15.00	150	13.20
28/08/14	17:00	20.45	20.00	150	18.70

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 20.45m bgl.
4. Groundwater encountered at 2.30m bgl.
5. Gas and groundwater monitoring well installed to 20.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP2**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**95.89**	**E:474502.0 N:255316.0**	**2** of **3**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	20	D				Firm to stiff dark grey CLAY with rare fine selenite. (OADBY MEMBER) *(stratum copied from 3.60m from previous sheet)*		
9.50-10.00	21	U	71 blows					
10.00	22	D						
10.50	23	D						
11.00-11.45	6	SPT	N=30					
11.00-11.45	24	B						
							11.70	
11.80	25	D				Dense orange brown slightly gravelly clayey medium SAND. Gravel is subangular fine to medium quartzite. (GLACIOFLUVIAL DEPOSITS)		
12.50-12.95	7	SPT	N=21					
12.50-12.95	26	B						
13.50	27	D						
14.00-14.45	8	SPT	N=31					
14.00-14.45	28	B						
15.00	29	D						
15.50-15.95	9	SPT	N=63			. . . From 15.50m bgl, becoming dense to very dense with depth.		
15.50-15.95	30	B					(8.75)	
16.50	31	D						
17.00-17.45	10	SPT	N=62					
17.00-17.45	32	B						

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

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

General Remarks

6. Water added to assist drilling between 15.00m to 20.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP2**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14**	**95.89**	**E:474502.0 N:255316.0**	**3** of **3**
	End: **27.08.14**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
18.00	33	D				Dense orange brown slightly gravelly clayey medium SAND. Gravel is subangular fine to medium quartzite. (GLACIOFLUVIAL DEPOSITS) *(stratum copied from 11.70m from previous sheet)*		
18.50-18.95	11	SPT	N=65					
18.50-18.95	34	B						
19.50	35	D						
20.00-20.45	12	SPT	N=54					
							20.45	
						Borehole terminated at 20.45m bgl.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14** End: **29.08.14**	**84.07**	**E:474793.0 N:255181.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.35	1	B				Brown slightly clayey slightly gravelly SAND. Gravel is subrounded fine to coarse quartzite, flint and rare brick. With frequent roots. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.30	
0.35-1.20	2	B				Soft to firm light brown mottled grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	(0.90)	
1.00	3	ES					1.20	
1.20-1.65	1	SPT	N=20			Stiff orangish brown gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint chalk and ironstone. (OADBY MEMBER)	(0.60)	
1.20-1.65	4	B					1.80	
1.80	5	D				Medium dense gravelly fine to medium SAND. Gravel is subangular to subrounded fine to medium ironstone. (GLACIOFLUVIAL DEPOSITS)		
2.00-2.45	2	SPT	N=26					
2.00-2.45	6	B						
2.80	7	D						
3.00-3.45	3	SPT	N=25					
3.00-3.45	8	B						
3.80	9	D						
4.00-4.45	4	SPT	N=19					
4.00-4.45	10	B					(5.40)	
4.80	11	D						
5.00-5.45	5	SPT	N=20					
5.00-5.45	12	B						
6.00	13	D						
6.50-6.95	6	SPT	N=17					
6.50-6.95	14	B						
7.20	15	D					7.20	
7.50-8.00	16	U	74 blows			Firm becoming stiff to very stiff dark blueish grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
8.00	14	D						
8.50	18	D						

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

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
12.20	12.80	00:30

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 13.25m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 12.80m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP3**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14** End: **29.08.14**	**84.07**	**E:474793.0 N:255181.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.50	19	U	60 blows			Firm becoming stiff to very stiff dark blueish grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 7.20m from previous sheet)*	(4.70)	
9.50	20	D						
10.00	21	D						
10.50-11.00	22	U	80 blows					
11.00	23	D						
11.50	24	D					11.90	
12.00-12.19	7	SPT	N=217*			Moderately strong dark grey MUDSTONE. (Weathering Grade C) (WHITBY MUDSTONE FORMATION)	(1.35)	
12.00-12.45	25	B						
12.80-13.04	8	SPT	N=107*				13.25	
						Borehole terminated at 13.25m bgl due to hard strata.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP4**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**02.09.14**	**84.94**	**E:475018.1 N:255080.1**	**1** of **2**
	End: **02.09.14**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium flint, quartzite and rare chalk. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.40	
0.50-1.00	1	B				Firm light brown mottled grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (SUBSOIL)	(0.90)	
1.20-1.70	2	U	60 blows				1.30	
1.20		V	c_u=16			Medium dense orangish brown slightly gravelly fine to coarse SAND. gravel is subangular to subrounded fine to medium ironstone. (GLACIOFLUVIAL DEPOSITS)		
1.70	3	D						
1.80	4	D						
2.00-2.45	1	SPT	N=21					
2.00-2.45	5	B						
2.80	6	D						
3.00-3.45	2	SPT	N=16					
3.00-3.45	7	B		▼			(4.45)	
3.80	8	D						
4.00-4.45	3	SPT	N=18					
4.00-4.45	9	B						
4.80	10	D						
5.00-5.45	4	SPT	N=18					
5.00-5.45	11	B					5.75	
6.00	12	D				Medium dense orangish brown slightly sandy subrounded to rounded fine to medium GRAVEL of quartzite. (GLACIOFLUVIAL DEPOSITS)		
6.50-6.95	5	SPT	N=21					
6.50-6.95	13	B					(2.15)	
7.90	14	D					7.90	
8.00-8.45	6	SPT	N=38			Stiff to very stiff dark grey silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
8.00-8.45	15	B				. . . 8.50m bgl, becoming stiff with depth.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
02/09/14	10:00	3.40	3.00	150	3.40
02/09/14	10:20	3.40	3.00	150	3.30
02/09/14	16:00	15.00	12.50	150	Dry

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 15.45m bgl.
4. Groundwater encountered at 3.40m bgl.
5. Gas and groundwater monitoring well installed to 8.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP4**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**02.09.14** End: **02.09.14**	**84.94**	**E:475018.1 N:255080.1**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	16	D				Stiff to very stiff dark grey silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 7.90m from previous sheet)*	(7.55)	
9.50-9.95	7	SPT	N=41					
9.50-9.95	17	B						
10.50	18	D						
11.00-11.45	8	SPT	N=53					
11.00-11.45	19	B						
12.00	20	D						
12.50-12.95	9	SPT	N=59					
12.50-12.95	21	B						
13.50	22	D						
14.00-14.45	10	SPT	N=63					
14.00-14.45	23	B						
15.00-15.45	11	SPT	N=59					
						Borehole terminated at 15.45m bgl.	15.45	

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

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

General Remarks

6. Water added to assist drilling between 1.30m to 8.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP5**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**01.09.14**	**88.22**	**E:474880.0 N:254940.0**	**1** of **2**
	End: **01.09.14**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft dark brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint and quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.40	
						Firm lightly brown occassionally mottled grey slightly gravelly slightly sandy CLAY. Gravel is subrounded fine to coarse chalk. (SUBSOIL)	(0.80) 1.20	
1.20-1.70	1	U	30 blows			Stiff orangish brown mottled grey brown slightly gravelly slightly sandy CLAY. Gravel is subrounded fine to medium chalk. (OADBY MEMBER)		
1.20		V	c_u=122					
1.70	2	D						
1.80	3	D					(1.45)	
2.00-2.50	4	U	31 blows					
2.00		V	c_u=84					
2.50	5	D					2.65	
2.80	6	D				Firm to stiff grey brown mottled dark grey CLAY. (OADBY MEMBER)		
3.00-3.50	7	U	43 blows					
3.50	8	D						
3.80	9	D					(2.75)	
4.00-4.50	10	U	52 blows			. . . 4.00m bgl becoming stiff.		
4.00		V	c_u=195					
4.50	11	D						
4.80	12	D						
5.00-5.50	13	U	54 blows				5.40	
5.50	14	D				Medium dense Light orangish brown slightly clayey sandy GRAVEL. Gravel is subangular to subrounded fine to medium quartzite. (GLACIOFLUVIAL DEPOSITS)	(1.20)	
6.00-6.45	1	SPT	N=15					
6.00-6.45	15	B					6.60	
6.80	16	D				Very stiff dark grey slightly silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
7.00-7.50	17	U	64 blows					
7.00		V	c_u=268					
7.50	18	D						
7.80	19	D						
8.00-8.45	2	SPT	N=37					
8.00-8.45	20	B						
						. . . 8.50m bgl, becoming stiffer with depth.		

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

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 15.45m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 8.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP5**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**01.09.14**	**88.22**	**E:474880.0 N:254940.0**	**2** of **2**
	End: **01.09.14**			

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	21	D				Very stiff dark grey slightly silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 6.60m from previous sheet)*	(8.85)	
9.50-9.95	3	SPT	N=42					
9.50-9.95	22	B						
10.50	23	D						
11.00-11.45	4	SPT	N=49					
11.00-11.45	24	B						
12.00	25	D						
12.50-12.95	5	SPT	N=53					
12.50-12.95	26	B						
13.50	27	D						
14.00-14.45	6	SPT	N=50					
14.00-14.45	28	B						
15.00-15.45	7	SPT	N=60					
						Borehole terminated at 15.45m bgl.	15.45	

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

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

General Remarks

6. Water added to assist drilling between 5.40m to 6.60m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP6**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**03.09.14** End: **03.09.14**	**84.31**	**E:475123.0 N:254837.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint, quartzite, rare brick and pottery. (AGRICULTURAL TOPSOIL)	0.30	
0.50-1.00	1	B				(TOPSOIL) Firm light brown sandy very silty CLAY/ very clayey SILT (OADBY MEMBER)		
1.20-1.70	2	U	51 blows				(2.10)	
1.70	3	D						
2.00-2.50	4	U	0% recovery			. . . 2.00m - 2.45m bgl, no recovery.	2.40	
2.50	5	D				Soft grey SILT. (OADBY MEMBER)	2.70	
2.80-3.00	6	B				Firm light brown slightly gravelly slightly sandy CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)		
3.00-3.50	7	U	36 blows					
3.00		V	c_u=50			. . . 3.10m bgl, becoming gravelly.		
3.50	8	D					(2.00)	
3.80	9	D						
4.00-4.45	1	SPT	N=18					
4.00-4.45	10	B					4.70	
4.80	11	D				Soft grey slightly sandy slightly clayey SILT. (OADBY MEMBER)		
5.00-5.45	2	SPT	N=9					
5.00-5.45	12	B					(1.50)	
6.20	13	D					6.20	
6.50-6.95	3	SPT	N=25			Stiff dark grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	(0.80)	
6.50-6.95	14	B					7.00	
7.50	15	D		1		Firm to stiff grey silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
8.00-8.45	4	SPT	N=23					
8.00-8.45	16	B						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
03/09/14	08:00	7.90	7.50	150	7.90
03/09/14	08:20	7.90	-	150	7.10
03/09/14	12:10	12.10	-	150	11.40
03/09/14	17:00	13.60	12.00	150	12.10

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
13.50	14.00	00:30

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 14.45m bgl.
4. Groundwater encountered at 7.90m and 12.10m bgl..
5. Gas and groundwater monitoring well installed

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP6**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**03.09.14**	**84.31**	**E:475123.0 N:254837.0**	**2** of **2**
	End: **03.09.14**			

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00	17	D				Firm to stiff grey silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 7.00m from previous sheet)*	(6.10)	
9.50-9.95	5	SPT	N=44					
9.50-9.95	18	B						
10.50	19	D						
11.00-11.45	6	SPT	N=44					
11.00-11.45	20	B						
				2				
12.50-12.94	7	SPT	N=84*					
12.50-12.95	21	B					13.10	
						Moderately strong grey MUDSTONE. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)	(1.35)	
14.00-14.21	8	SPT(c)	N=100*					
14.00-14.45	22	B					14.45	
						Borehole terminated at 14.45m bgl due to hard strata.		

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

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

General Remarks

to 8.00m bgl.
6. Water added to assist drilling between 3.10m to 4.70m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP7**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**03.09.14** End: **03.09.14**	**80.72**	**E:475379.0 N:254732.0**	**1** of **1**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.20	1	B				Soft brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint, quartzite, chalk, rare metal and brick. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.20	
0.20-1.20	2	B				Soft to firm light brown slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse flint and chalk. (OADBY MEMBER)	(1.00) 1.20	
1.20-1.65	1	SPT	N=8			Loose to medium dense light brown slightly gravelly coarse SAND. Gravel is subangular to subrounded fine to coarse flint and chalk. (OADBY MEMBER)	(0.90) 2.10	
1.20-1.65	3	B						
2.00-2.45	2	SPT	N=22			Stiff dark grey slightly gravelly silty CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)		
2.00-2.45	4	B						
3.00-3.45	3	SPT	N=27					
3.00-3.45	5	B					(3.50)	
4.00-4.45	4	SPT	N=27					
4.00-4.45	6	B						
5.00-5.45	5	SPT	N=31					
5.00-5.45	7	B					5.60	
5.60	8	D				Stiff to very stiff dark grey silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
6.00-6.36	6	SPT	N=73*				(1.20)	
6.00-6.45	9	B					6.80	
7.00-7.07	7	SPT(c)	N=500*			Moderately strong grey SILTSTONE. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)	7.10	
7.00	10	D				Stiff dark grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	7.30	
7.50	11	D				Moderately strong grey Mudstone. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)	7.50	
						Borehole terminated at 7.50m blg due to hard strata.		

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

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
6.80	6.90	00:15
7.30	7.50	01:00

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 7.50m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 6.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP8**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14** End: **21.08.14**	**81.70**	**E:475255.0 N:254607.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.25	1	B				TOPSOIL: brown slightly gravelly slightly clayey SAND. Gravel is subrounded fine to medium quartzite, flint and rare plastic. With frequent roots. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.25	
0.20	2	ES	Jx2+V					
0.25-0.60	3	B					0.70	
0.60-1.20	4	B				Light brown slightly gravelly clayey SAND. Gravel is subangular to subrounded fine to coarse quartzite and flint. With rare rootlets. (SUBSOIL)	(0.50)	
							1.20	
1.20-1.65	1	SPT	N=7			Greyish brown mottled orangish brown slightly gravelly slightly clayey SAND. Gravel is subangular to subrounded fine to medium chalk and flint. (OADBY MEMBER)		
1.20-1.65	11	B						
2.00-2.45	2	SPT	N=3			Loose orangish brown silty SAND. (OADBY MEMBER)	(1.80)	
2.00-2.45	12	B						
							3.00	
3.00-3.38	3	SPT	N=28			Stiff grey sandy CLAY with a low cobble content. Cobbles are subrounded chalk. (OADBY MEMBER)	(1.00)	
3.00-3.45	13	B				. . . between 3.10m and 3.80m bgl, pushed cobble with minimal, sandy recovery.		
							4.00	
4.00-4.45	4	SPT(c)	N=29			Stiff to very stiff dark grey slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)		
4.00-4.45	14	B					(2.00)	
5.00-5.45	5	U	130 blows 65% recovery					
5.00		V	c_u=296			. . . between 5.30m and 5.50m bgl, water bearing sandy band encountered		
5.50	6	D						
							6.00	
6.00-6.45	5	SPT(c)	N=40			Very stiff grey slightly silty CLAY. With occasional selenite. (Weathering Grade D) (WHITBY MUDSTONE FORMATION)	(0.70)	
6.00-6.45	15	B						
				▼1			6.70	
6.70-6.80	7	B				Medium strong grey MUDSTONE, with frequent fossils. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)		
6.80-6.89	6	SPT(c)	N=333*				7.00	
6.80-7.00	8	B				Very stiff grey slightly silty CLAY. With occasional selenite. (Weathering Grade D) (WHITBY MUDSTONE FORMATION)	(1.00)	
7.10	9	D						
7.50-7.95	7	SPT(c)	N=40					
7.50-7.95	16	B						
							8.00	
						Medium to weak dark grey MUDSTONE. (Weathering Grade D) (WHITBY MUDSTONE FORMATION)	8.10	
8.50	10	D				Very stiff dark grey slightly silty CLAY. With occasional selenite. (WHITBY MUDSTONE FORMATION)	(0.90)	
							9.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
20/08/14	10:00	6.80	6.00	150	6.80
20/08/14	10:20	6.80	6.00	150	3.90

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
3.00	3.50	01:30
6.70	6.80	00:30
6.80	7.00	00:30
9.00	9.10	00:45

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 9.10m bgl.
4. Groundwater encountered at 6.80m bgl.
5. Gas and groundwater monitoring well installed to 9.10m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Hand dug	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP8**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**20.08.14** End: **21.08.14**	**81.70**	**E:475255.0 N:254607.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.10	8	SPT(c)	N=273*			Medium strong thinly bedded dark brownish grey SILTSTONE. (WHITBY MUDSTONE FORMATION)	9.10	× × × ×
9.00-9.10	17	B						
9.10-9.19	9	SPT(c)	N=300*			Borehole terminated at 9.10m bgl due to hard strata.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Hand dug	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP9**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14**	**82.09**	**E:475349.0 N:254328.0**	**1** of **2**
	End: **28.08.14**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.20-1.20	1	B				Brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.20	
1.20-1.65	2	U	110 blows 70% recovery			Firm to stiff dark grey mottled brown slightly gravelly silty CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	(2.80)	
1.70	3	D						
2.00-2.45	1	SPT	N=19					
2.00-2.45	4	B						
3.00-3.45	5	U	125 blows 90% recovery			Stiff dark grey occasionally mottled brown slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	3.00 (1.00)	
3.50	6	D					4.00	
4.00-4.45	2	SPT	N=17			Medium dense brown slightly gravelly fine to medium SAND. Gravel is subrounded fine to medium chalk. (OADBY MEMBER)	(1.50)	
4.00-4.45	7	B						
5.00-5.45	8	U	125 blows 100% recovery					
5.00		V	c_u=158				5.50	
5.50	9	D				Stiff dark grey slightly gravelly slightly sandy silty CLAY. Gravel is subrounded fine to medium chalk. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
6.00-6.45	3	SPT	N=30					
6.00-6.48	10	B						
7.00	11	D						
7.50-7.95	12	U	120 blows 90% recovery				(5.50)	
8.00	13	D						
8.50	14	D						

Boring Progress and Water Observations

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

Chiselling / Slow Progress

From	To	Duration (hh:mm)
11.00	11.10	01:00

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 11.10m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 11.10m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP9**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**28.08.14** End: **28.08.14**	**82.09**	**E:475349.0 N:254328.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45	4	SPT	N=35			Stiff dark grey slightly gravelly slightly sandy silty CLAY. Gravel is subrounded fine to medium chalk. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 5.50m from previous sheet)*		
9.00-9.45	15	B						
10.00	16	D						
10.50-10.95	17	U	130 blows 90% recovery					
11.00	18	D					11.00	
11.00-11.10	19	D				Moderately strong grey SILTSTONE. (Weathering Grade D) (WHITBY MUDSTONE FORMATION)	11.10	
						Borehole terminated at 11.10m bgl due to hard strata.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	End: **01.09.14**	**83.56**	**E:475232.0 N:254221.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.20-1.20	1	B				Soft brown slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse flint, quartzite and rare chalk. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.20	
1.20-1.65	2	U	110 blows 70% recovery			Soft to firm brown mottled grey and rarely orangish brown slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	(1.80)	
1.70	3	D					2.00	
2.00-2.45	1	SPT	N=17			Firm to stiff dark brown mottled grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)		
2.00-2.45	4	B						
3.00-3.45	5	U	125 blows 90% recovery				(2.00)	
3.50	6	D					4.00	
4.00-4.45	2	SPT	N=29			Stiff to very stiff dark grey mottled brownish grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)		
4.00-4.45	7	B				. . . 4.50m bgl, occasional silty band.		
5.00-5.45	8	U	125 blows 100% recovery			. . . 5.00m bgl, becoming stiffer with depth.		
5.50	9	D						
6.00-6.45	3	SPT	N=31					
6.00-6.45	10	B						
7.00	11	D					(7.00)	
7.50-7.95	12	U	120 blows 90% recovery					
8.00	13	D						
8.50	14	D						

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

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
14.00	14.10	01:00

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 12.00m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 5.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP10**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**29.08.14** End: **01.09.14**	**83.56**	**E:475232.0 N:254221.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45	4	SPT	N=30			Stiff to very stiff dark grey mottled brownish grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER) *(stratum copied from 4.00m from previous sheet)*		
9.00-9.45	15	B						
10.00	16	D						
10.50	17	U	130 blows 90% recovery					
							11.00	
11.00	18	D				Moderately strong grey MUDSTONE. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)	11.10	
12.00-12.45	5	SPT	N=37			Very stiff dark grey mottled brownish grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
12.00	19	D						
12.00-12.45	20	B					(2.90)	
13.00	21	D						
13.50-13.95	22	U	130 blows 70% recovery					
							14.00	
14.00	23	D				Moderately strong dark grey SILTSTONE. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)	14.10	
14.10-14.16	6	SPT(c)	N=600*					
14.10	24	D				Borehole terminated at 14.10m bgl due to hard strata.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**02.09.14**	**83.38**	**E:475114.9 N:254548.4**	**1** of **2**
	End: **02.09.14**			

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.30	1	B				Brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is subangular fine to coarse flint and quartzite. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.30	
0.30-1.20	2	B				Soft to firm light brown mottled grey sandy CLAY. (OADBY MEMBER)	(1.70)	
1.20-1.65	1	SPT	N=9					
1.20-1.65	3	B						
1.20-1.65	4	B					2.00	
2.00-2.45	2	SPT	N=10			Firm brown slightly gravelly slightly sandy CLAY. Gravel is subrounded fine to medium chalk and flint. (OADBY MEMBER)	(0.50)	
2.00-2.45	5	B					2.50	
2.00-2.45	6	B						
2.50	7	D				Orangish brown clayey fine SAND. (OADBY MEMBER)	2.70	
2.70	8	D				Firm grey slightly sandy gravelly CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	(0.80)	
3.00-3.45	9	U	125 blows 95% recovery				3.50	
3.50	10	D				Stiff grey gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse sandstone and chalk. Includes cobbles of sandstone. (OADBY MEMBER)		
4.00-4.45	3	SPT(c)	N=31					
4.00-4.45	11	B						
5.00-5.45	4	SPT(c)	N=45			. . . At 5.00m bgl, becoming very stiff with depth.	(3.10)	
5.00-5.45	12	B						
6.00-6.45	5	SPT	N=33					
6.00-6.45	13	B					6.60	
6.60	14	D				Very stiff grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
7.00	15	D						
7.50-7.95	16	U	130 blows 80% recovery				(2.20)	
8.00	17	D						
8.50	18	D		▼			8.80	
8.80-9.00	19	B				*Description on next sheet*	9.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
02/09/14	10:00	8.80	7.50		8.80
02/09/14	10:20	8.80	7.50		5.10

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
8.80	9.00	00:30
10.80	11.00	01:00

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 11.10m bgl.
4. Groundwater encountered at 8.80m bgl.
5. Gas and groundwater monitoring well installed to 10.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP11**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**02.09.14**	**83.38**	**E:475114.9 N:254548.4**	**2** of **2**
	End: **02.09.14**			

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.37	6	SPT	N=67*			Moderately weak grey SILTSTONE. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)		
9.00-9.45	20	B						
						Stiff grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	(1.80)	
10.00	21	D						
10.50-10.85	7	SPT	N=77*					
10.50-10.95	22	B					10.80	
						Moderately strong light grey SILTSTONE. (Weathering Grade B) (WHITBY MUDSTONE FORMATION)	11.10	
11.00-11.07	8	SPT(c)	N=600*					
11.00-11.10	23	B						
						Borehole terminated at 11.10m blg due to hard strata.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP12**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**01.09.14** End: **02.09.14**	**85.83**	**E:475002.0 N:254427.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				Brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint quartzite brick and sandstone. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.25	
0.25-1.20	2	B				Soft to firm light brown slightly gravelly slightly sandy CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	(1.45)	
1.20	3	U	35 blows 90% recovery					
1.70	4	D				Orangish brown slightly clayey fine to medium SAND. (OADBY MEMBER)	1.70 2.00	
2.00-2.45	1	SPT	N=5			Soft to firm light orangish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine ironstone and chalk. (OADBY MEMBER)	(1.70)	
2.00-2.45	5	B						
3.00-3.45	2	SPT(c)	N=9				3.70	
3.00-3.45	6	B						
4.00-4.45	3	SPT	N=21			Firm to stiff grey slightly gravelly silty CLAY. Gravel is subrounded fine to coarse chalk. (OADBY MEMBER)	(1.30)	
4.00-4.45	7	B					5.00	
5.00-5.45	8	U	130 blows 60% recovery			Very stiff grey silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)		
5.00		V	c_u=234					
5.50	9	D						
6.00-6.45	4	SPT	N=45					
6.00-6.45	10	B						
7.00	11	D						
7.50-7.95	12	U	130 blows 80% recovery				(7.45)	
8.00	13	D						
8.50	14	D						

Boring Progress and Water Observations

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

Chiselling / Slow Progress

From	To	Duration (hh:mm)

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 12.45m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 5.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP12**

Contract Ref:	Start: **01.09.14** End: **02.09.14**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598		**85.83**	**E:475002.0 N:254427.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.38 9.00-9.45	5 15	SPT B	N=67*			Very stiff grey silty CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION) *(stratum copied from 5.00m from previous sheet)*		
10.00	16	D						
10.50-10.85 10.50-10.95	6 17	SPT B	N=75*					
11.50	18	D						
12.00-12.33	7	SPT	N=79*					
							12.45	
						Borehole terminated at 12.45m bgl.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14** End: **27.08.14**	**83.99**	**E:475192.0 N:254386.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10-1.20	1	B				Soft dark brown slightly gravelly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse quartzite and flint. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.10	
0.25	2	ES	Jx2+v					
						Firm to stiff brown mottled grey slightly gravelly silty CLAY. Gravel is subrounded fine to medium chalk. (OADBY MEMBER)		
1.20-1.65	3	U	130 blows 85% recovery					
1.70	4	D					(3.40)	
2.00-2.45	1	SPT	N=14					
2.00-2.45	5	B						
3.00-3.45	6	U	120 blows 100% recovery			. . . From 3.00m bgl, becoming stiff with depth.		
3.50	7	D					3.50	
						Stiff grey rarely mottled brown slightly gravelly slightly silty CLAY. Gravel is subrounded fine occasionally medium chalk. (OADBY MEMBER)		
4.00-4.45	2	SPT	N=24					
4.00-4.45	8	B						
5.00-5.45	9	U	125 blows 100% recovery				(3.50)	
5.50	10	D						
6.00-6.45	3	SPT	N=24					
6.00-6.45	11	B						
7.00	12	D					7.00	
						Dense grey silty fine SAND. (OADBY MEMBER)		
7.50-7.95	4	SPT	N=51*			. . . from 7.50m bgl, becoming slightly gravelly with gravel of subrounded fine chalk.	(1.50)	
7.50-7.95	13	B						
8.50	14	D					8.50	
						Dense light grey SILT. (OADBY MEMBER)		

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

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

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 13.00m bgl.
4. Groundwater not encountered.
5. Gas and groundwater monitoring well installed to 13.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP13**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**27.08.14** End: **27.08.14**	**83.99**	**E:475192.0 N:254386.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.43 9.00-9.45	5 15	SPT B	N=55*			Dense light grey SILT. (OADBY MEMBER) *(stratum copied from 8.50m from previous sheet)*	(1.50) 10.00	
10.00	16	D				Stiff dark grey slightly gravelly CLAY. Gravel is subrounded fine to medium chalk. (OADBY MEMBER)	(1.00) 11.00	
10.50-10.95	17	U	130 blows 80% recovery					
11.00	18	D				Stiff dark grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	(1.90) 12.90	
11.50	19	D						
12.00-12.40 12.00-12.45	6 20	SPT B	N=61*					
12.90-12.97 12.90-13.00	7 21	SPT(c) D	N=600*			Moderately dark grey MUDSTONE recovered of subangular fine to coarse gravel. (Weathering Grade B) (WHITBY MUDSTONE FORMATION) Borehole terminated at 13.00m bgl due to hard strata.	13.00	

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

DRAFT
BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP14**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**26.08.14**	**79.92**	**E:475451.0 N:254653.1**	**1** of **1**
	End: **26.08.14**			

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Soft brown slightly gravelly sandy silty CLAY. Gravel is subangular to subrounded fine to coarse quartzite, flint and rare brick with occasional rootlets.	0.30	
0.50-1.00	1	B				(AGRICULTURAL TOPSOIL) (TOPSOIL)	(0.80)	
				▼		Soft brown mottled grey slightly gravelly sandy CLAY. Gravel is subrounded fine to medium quartzite, flint and chalk. (OADBY MEMBER)	1.10	
1.10	2	D						
1.20-1.70	3	U	35 blows			Firm to stiff dark grey mottled dark brown slightly gravelly silty CLAY. Gravel is subrounded fine to medium chalk with pockets of grey silt. (OADBY MEMBER)	(1.80)	
1.20		V	c_u=96					
1.70	4	D						
1.80	5	D						
2.00-2.50	6	U	61 blows					
2.50	7	D					2.90	
2.80	8	D						
3.00-3.45	1	SPT	N=34			Stiff/ dense grey mottled brown slightly sandy SILT. (OADBY MEMBER)	(1.00)	
3.00-3.45	9	B					3.90	
3.80	10	D						
4.00-4.45	2	SPT	N=46			Stiff to very stiff dark grey CLAY. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	(0.90)	
4.00-4.45	11	B					4.80	
4.80	12	D				Moderately strong dark grey MUDSTONE recovered as subangular fine to coarse gravel. (Weathering Grade C) (WHITBY MUDSTONE FORMATION)		
5.00-5.30	3	SPT(c)	N=103*					
5.00-5.45	13	B						
5.60	14	D					(2.20)	
6.00-6.30	4	SPT(c)	N=97*					
6.00-6.45	15	B						
							7.00	
7.00	16	D				Weak horizontal bedded dark grey slightly silty MUDSTONE. (Weathering Grade C) (WHITBY MUDSTONE FORMATION)	(0.95)	
7.50-7.67	5	SPT	N=284*					
							7.95	
						Borehole termianted at 7.95m bgl.		

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
26/08/14	10:00	1.20	1.20	150	1.20
26/08/14	10:20	1.20	1.20	150	1.20

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
5.30	5.70	00:45
6.80	7.50	01:00

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 7.95m bgl.
4. Groundwater encountered at 1.20m bgl.
5. Gas and groundwater monitoring well installed to 5.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP15**

Contract Ref:	Start: **22.08.14** End: **26.08.14**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598		**80.89**	**E:475385.0 N:254581.0**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.30	1	B				Brown slightly gravelly slightly clayey SAND. Gravel is subrounded fine to medium quartzite and flint. With frequent roots.	0.30	
0.25	2	ES	Jx2+v			(AGRICULTURAL TOPSOIL)		
0.30-1.20	3	B				(TOPSOIL)		
						Brownish orange slightly gravelly sandy CLAY. Gravel is subrounded fine to coarse flint.	(0.90)	
						(OADBY MEMBER)	1.20	
1.20-1.65	1	SPT	N=6			Soft to firm brownish orange slightly gravelly sandy CLAY. Gravel is subrounded fine to medium chalk.	(0.80)	
1.20-1.65	4	B				(OADBY MEMBER)	2.00	
2.00-2.45	2	SPT	N=17			Firm to stiff dark grey mottled brown slightly gravelly sandy CLAY. Gravel is subrounded fine to coarse chalk.		
2.00-2.45	5	B				(OADBY MEMBER)	(1.50)	
3.00-3.45	3	SPT	N=21					
3.00-3.45	6	B					3.50	
						Dense brown slightly gravelly fine SAND. Gravel is subrounded fine to medium chalk and flint.		
4.00-4.42	4	SPT	N=57*			(GLACIOFLUVIAL DEPOSITS)		
4.00-4.45	7	B					(1.70)	
5.00-5.41	5	SPT	N=58*				5.20	
						Stiff dark grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk.	(0.80)	
						(GLACIOFLUVIAL DEPOSITS)	6.00	
6.00-6.45	8	U	130 blows 80% recovery			Stiff dark grey slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk.	(0.50)	
						(REWORKED WHITBY MUDSTONE FORMATION)	6.50	
6.50-6.70	9	B				Moderately weak grey MUDSTONE. With frequent fossils.		
6.50	10	D				(Weathering Grade C)		
6.75	11	D				(WHITBY MUDSTONE FORMATION)	(1.00)	
7.00	12	D					7.50	
7.50-7.93	6	SPT(c)	N=45			Moderately strong dark grey SILTSTONE.	7.60	
7.50-7.95	13	B				(Weathering Grade C)		
						(WHITBY MUDSTONE FORMATION)		
						Stiff dark blueish grey CLAY.	(1.20)	
						(Weathering Grade E)		
8.50	14	D				(WHITBY MUDSTONE FORMATION)		
							8.80	
8.80-8.90	7	SPT(c)	N=300*			*Description on next sheet*	8.90	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
22/08/14	10:00	3.50	3.00	150	3.50
22/08/14	10:20	3.50	3.00	150	1.60

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
6.50	6.70	00:30
7.50	7.60	00:30
8.80	8.90	01:00

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 8.90m bgl.
4. Groundwater encountered 3.50m bgl.
5. Gas and groundwater monitoring well installed to 8.90m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP15**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**22.08.14** End: **26.08.14**	**80.89**	**E:475385.0 N:254581.0**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Depth	No	Type	Results					
						Strong dark grey SILTSTONE. (Weathering Grade D) (WHITBY MUDSTONE FORMATION)		
						Borehole terminated at 8.90m bgl due to hard strata.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP16**

Contract Ref:	Start: **21.08.14** End: **22.08.14**	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598		**81.34**	**E:475345.0 N:254552.1**	**1** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.25	1	B				Brown slightly gravelly slightly clayey SAND. Gravel is subrounded fine to medium quartzite and flint. With frequent roots. (AGRICULTURAL TOPSOIL) (TOPSOIL)	0.25	
0.25-0.90	2	B				Brownish orange slightly clayey slightly gravelly SAND. Gravel is subrounded fine to coarse flint. (GLACIOFLUVIAL DEPOSITS)	(0.65) 0.90	
0.90-1.20	3	B				Medium dense llght orangish brown slightly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse flint. (GLACIOFLUVIAL DEPOSITS)		
1.20-1.65	1	SPT	N=12					
1.20	4	B					(2.10)	
2.00-2.35	2	SPT	N=5					
2.00	5	B					3.00	
3.00-3.45	3	SPT	N=51*			Stiff to very stiff dark grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (GLACIOFLUVIAL DEPOSITS)	3.35	
3.00	6	B				Dense brownish grey fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	(0.65) 4.00	
4.00-4.43	4	SPT	N=55*			Very stiff dark grey slightly sandy silty CLAY. (GLACIOFLUVIAL DEPOSITS)	4.40	
4.00	7	B		▼		Dense brown clayey SAND and GRAVEL. Gravel is subangular to subrounded fine to medium mudstone, chalk and rare coal fragments. (GLACIOFLUVIAL DEPOSITS)	(0.60) 5.00	
5.00-5.45	5	SPT	N=51*			Dense brown slightly gravelly fine to coarse SAND. Gravel is subrounded fine to medium chalk and occasional quartzite. (GLACIOFLUVIAL DEPOSITS)	(0.70) 5.70	
5.00	8	B						
5.70	9	D				Dense grey slightly gravelly silty fine to coarse SAND. Gravel is subrounded fine to coarse chalk. (GLACIOFLUVIAL DEPOSITS)	6.00	
6.00-6.45	6	SPT	N=51*			Stiff dark grey slightly gravelly CLAY. Gravel is subrounded fine to coarse chalk. (GLACIOFLUVIAL DEPOSITS)	6.40	
6.00	10	B				Dense brownish grey fine to coarse SAND. (GLACIOFLUVIAL DEPOSITS)	6.70	
6.70-7.00	11	B				Grey MUDSTONE. With frequent fossils. (Weathering Grade C) (WHITBY MUDSTONE FORMATION)	7.00	
7.00	12	D				Stiff to very stiff grey slightly silty CLAY. With occasional selenite. (Weathering Grade E) (WHITBY MUDSTONE FORMATION)	(1.00) 8.00	
7.50-7.95	13	U	130 blows 70% recovery c_u=302			Dark grey MUDSTONE. (Weathering Grade C) (WHITBY MUDSTONE FORMATION)	8.10	
7.50		V				Stiff to very stiff dark grey slightly silty CLAY. With occasional selenite.	(0.90) 9.00	
8.00	14	D						
8.50	15	D						

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
21/08/14	10:00	5.00	4.50	150	5.00
21/08/14	10:20	5.00	4.50	150	3.00

Chiselling / Slow Progress		
From	To	Duration (hh:mm)
6.70	7.00	00:45
9.00	9.10	01:00

General Remarks

1. Location scanned with GPR prior to breaking ground. No services detected.
2. Hand dug inspection pit to 1.20m bgl.
3. Borehole advanced to 9.10m bgl.
4. Groundwater encountered at 5.00m bgl.
5. Gas and groundwater monitoring well installed to 5.00m bgl.

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

PRELIMINARY BOREHOLE LOG

Contract:	Client:	Borehole:
M1 Junction 15, Northampton	**Roxhill Developments Ltd**	**CP16**

Contract Ref:	Start:	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:
312598	**21.08.14** End: **22.08.14**	**81.34**	**E:475345.0 N:254552.1**	**2** of **2**

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.06	7	SPT(c)	N=750*			(Weathering Grade E) (WHITBY MUDSTONE FORMATION)	9.10	× × × ×
9.10-9.16	8	SPT(c)	N=600*			Medium strong thinly bedded dark brownish grey SILTSTONE. (Weathering Grade C) (WHITBY MUDSTONE FORMATION)		
						Borehole terminated at 9.10m bgl due to hard strata.		

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

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

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Dando 150**	**P.B. Drilling Ltd**	**MLawson**	

APPENDIX F
IN-SITU SOAKAWAY TEST RESULTS

STRUCTURAL SOILS LTD

INSITU TESTING REPORT

Report No. 744983R.01(00)

Date	02-September-2014	Contract	M1, Junction 15

Client RSK Environment Limited
Address Abbey Park
Humber Road
Coventry
CV3 4AQ

For the Attention of Darren Bench

Order received	18-August-2014	Client Reference	312598
Testing Started	26-August-2014	Client Order No.	P0243168
Testing Completed	26-August-2014	Instruction Type	Written

Test(s) undertaken (Not UKAS Accredited)

3no. Insitu soakaway tests carried out at locations specified by client.

Testing undertaken in the Laboratory

Environmental conditions (if relevant)

The results represent the ground conditions at the specified locations and depths at the time of testing.

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of .
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

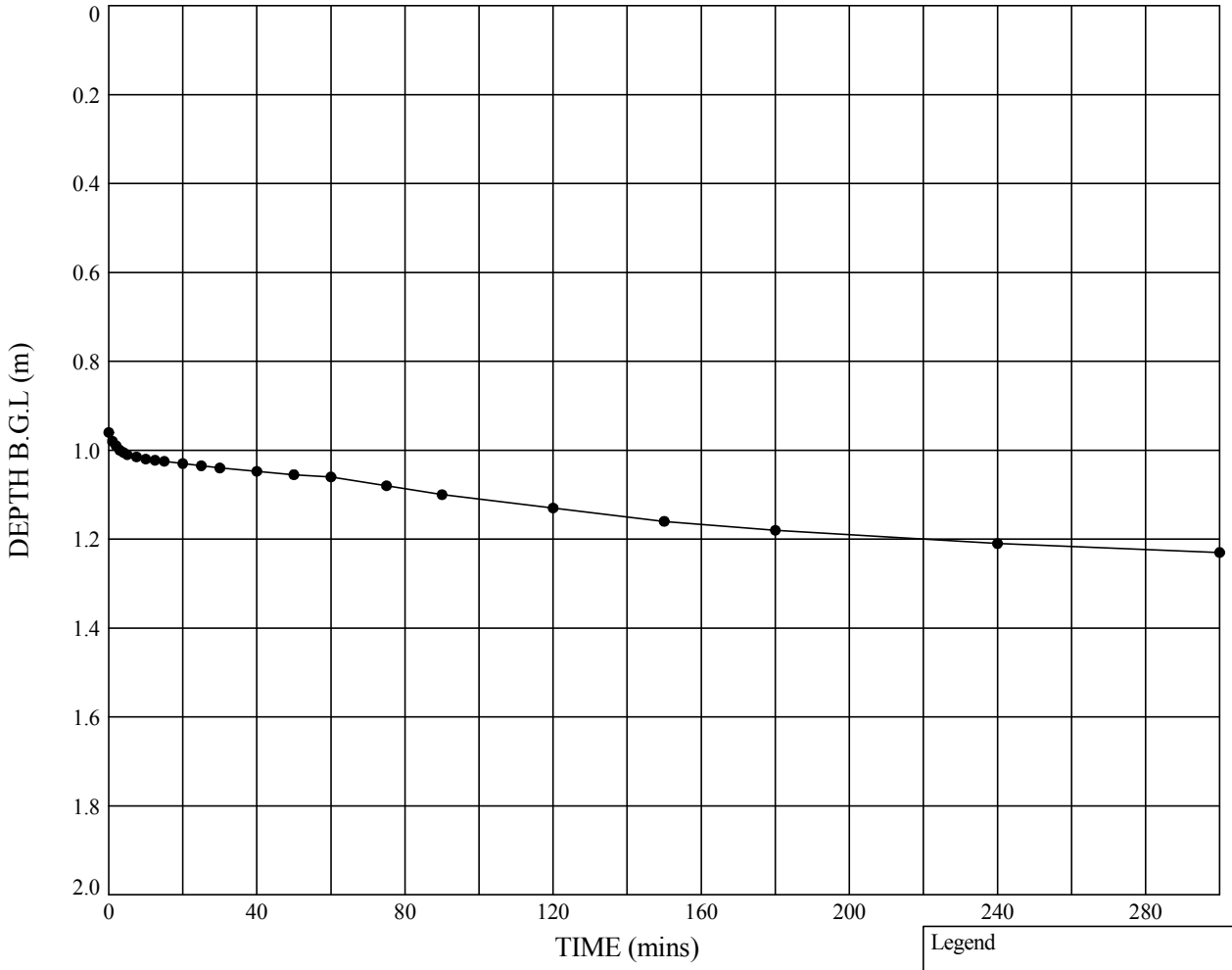
Structural Soils Ltd 1a Princess Street Bedminster Bristol BS3 4AG Tel.0117 9471000 Fax.0117 9471004 e-mail justin.barrett@soils.co.uk

FULL SCALE SOAKAWAY TEST

Non standard test

Soakaway Test - Position ID : **TPS5**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Test 1

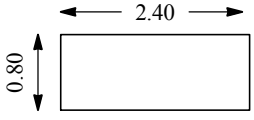
Pit start depth:	=	**1.85**	m
Pit final depth:	=	**1.70**	m
Effective depth, De	=	**0.74**	m
Effective storage volume, $V_{p75\text{-}25}$	=	**0.7104**	m^3
Surface area, a_{p50}	=	**4.2880**	m^2
Time, $t_{p75\text{-}25}$	=	**NA**	secs
Infiltration rate, f	=	**NA**	m/s

Notes: Test 1 - Insufficient drop in water to level to calculate infiltration rate.

Legend

● Test 1 (26.08.14)

Plan (Not to scale)



No Bearing Taken

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date	Checked By	Date
	01/09/14		**01/09/14**

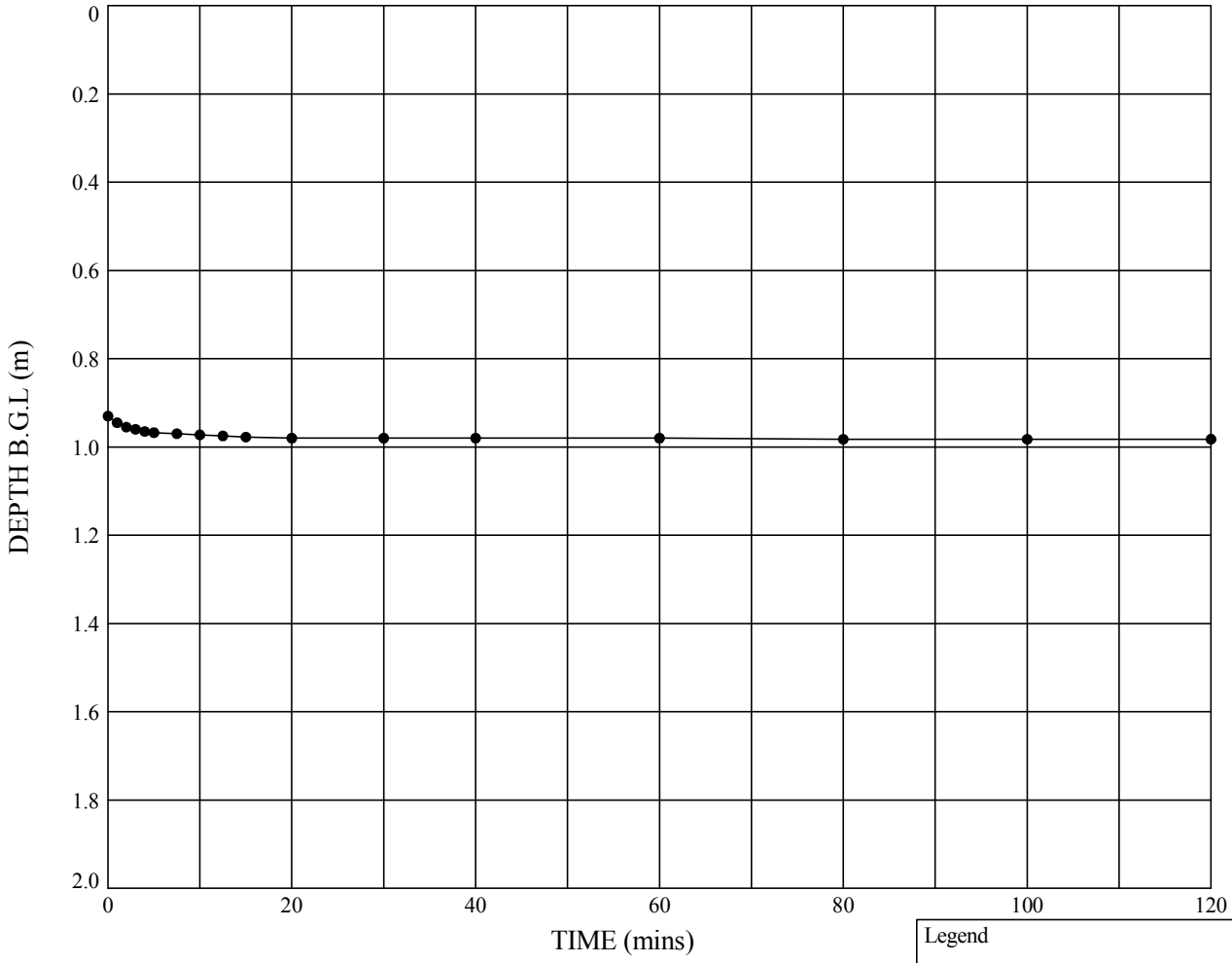
Contract	Contract Ref:
M1, Junction 15	**744983**

FULL SCALE SOAKAWAY TEST

Non standard test

Soakaway Test - Position ID : **TPS15**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



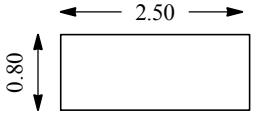
Test 1

Legend

● Test 1 (26.08.14)

Pit start depth:	=	**1.85**	m
Pit final depth:	=	**1.85**	m
Effective depth, De	=	**0.92**	m
Effective storage volume, $V_{p75\text{-}25}$	=	**0.9200**	m^3
Surface area, a_{p50}	=	**5.0360**	m^2
Time, $t_{p75\text{-}25}$	=	**NA**	secs
Infiltration rate, f	=	**NA**	m/s

Plan (Not to scale)



No Bearing Taken

Notes: Test 1 - Standing water in pit prior to test. Insufficient drop in water level to calculate infiltration rate.

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date	Checked By	Date
	01/09/14		**01/09/14**

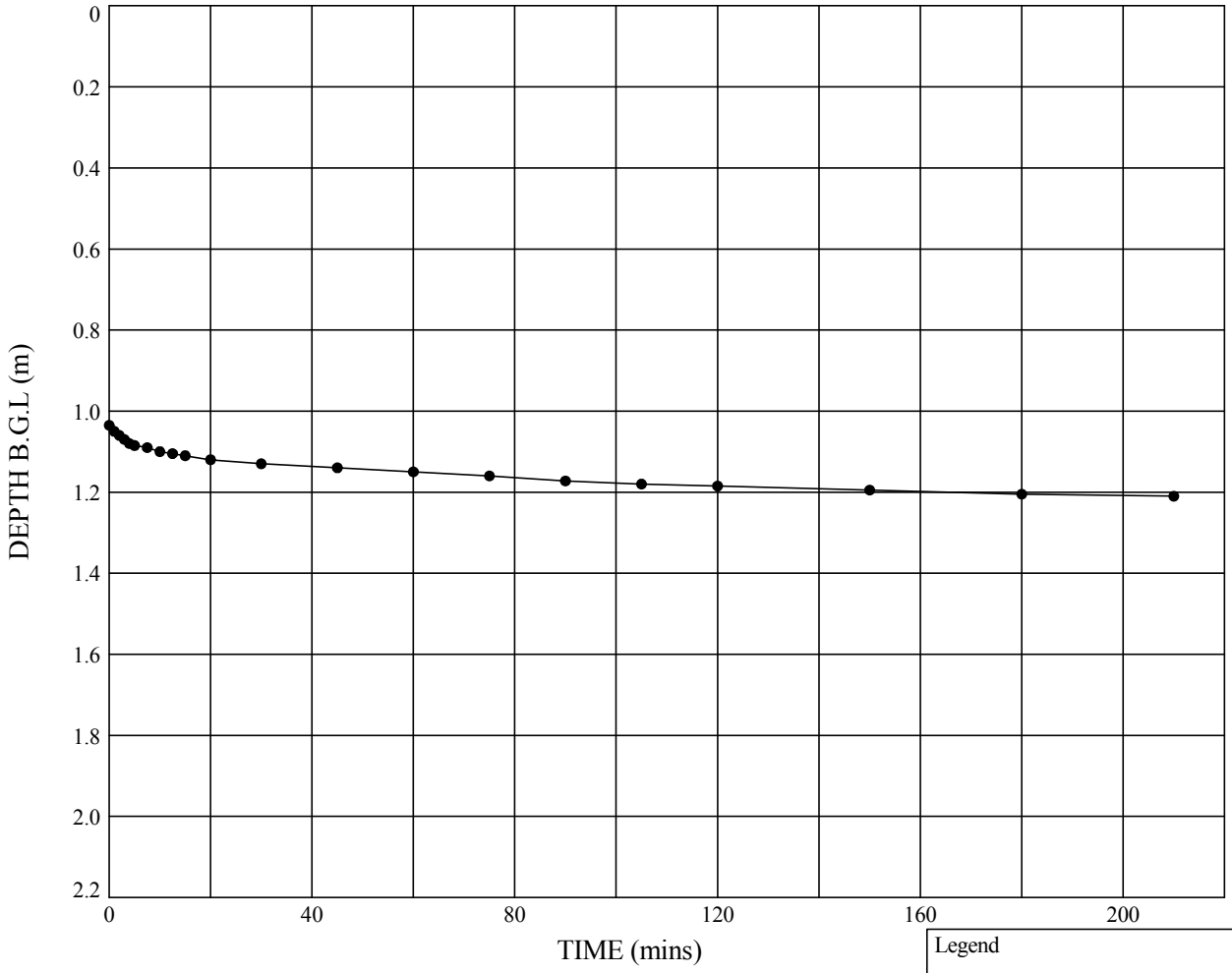
Contract	Contract Ref:
M1, Junction 15	**744983**

FULL SCALE SOAKAWAY TEST

Non standard test

Soakaway Test - Position ID : **TPS20**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



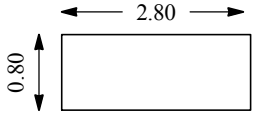
Legend

● Test 1 (26.08.14)

Pit start depth:	=	**2.05**	m
Pit final depth:	=	**1.98**	m
Effective depth, De	=	**0.95**	m
Effective storage volume, V_{p75-25}	=	**1.0584**	m^3
Surface area, a_{p50}	=	**5.6420**	m^2
Time, t_{p75-25}	=	**NA**	secs
Infiltration rate, f	=	**NA**	m/s

Notes: Test 1 - Standing water in pit prior to test. Insufficient drop in water level to calculate infiltration rate.

Plan (Not to scale)



No Bearing Taken

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date	Checked By	Date
	01/09/14		**01/09/14**

Contract	Contract Ref:
M1, Junction 15	**744983**

APPENDIX G
GEOTECHNICAL LABORATORY TESTING RESULTS

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 14/04815
Issue Number: 1 **Date:** 22 September, 2014

Client:
RSK Environment Ltd Coventry
Humber Road, Abbey Park
Coventry
UK
CV3 4AQ

Project Manager: Darren Bench
Project Name: Junction 15 M1 West
Project Ref: 312598
Order No: N/A
Date Samples Received: 09/09/14
Date Instructions Received: 09/09/14
Date Analysis Completed: 22/09/14

Prepared by:

Gill Scott
Laboratory Manager

Approved by:

Iain Haslock
Analytical Consultant

Envirolab Job Number: 14/04815

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04815/1	14/04815/2	14/04815/3	14/04815/4	14/04815/5	14/04815/6	14/04815/7	14/04815/8	Units	Method ref
Client Sample No	9	16	23	29						
Client Sample ID	BH1	BH1	BH1	BH1	BH2	BH2	BH2	BH2		
Depth to Top	2.60	6.00	8.60	12.00	1.80	3.80	7.50	10.50		
Depth To Bottom										
Date Sampled										
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
MCERTS Sample Matrix Code	6	6	1	1	5	5	5	5		
% Stones >10mm$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	7.83	7.90	9.01	8.78	8.45	7.99	8.03	8.23	pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	1610	575	41	11	59	344	345	200	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	2.49	0.24	<0.02	<0.02	0.07	0.23	0.21	0.05	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.97	0.40	<0.01	<0.01	0.04	0.56	0.53	0.03	% w/w	A-T-024s

Envirolab Job Number: 14/04815

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04815/9	14/04815/10	14/04815/11	14/04815/12	14/04815/13	14/04815/14	14/04815/15	14/04815/16	Units	Method ref
Client Sample No										
Client Sample ID	BH2	BH3	BH3	BH8	BH9	BH9	BH13	BH13		
Depth to Top	13.50	2.80	4.80	8.50	1.70	7.00	1.70	7.50		
Depth To Bottom										
Date Sampled										
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
MCERTS Sample Matrix Code	4A	1A	1A	5	5A	5	5A	5		
% Stones >10mm$_A^{\#}$	6.5	9.1	4.8	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	8.49	7.78	7.92	7.55	8.25	8.09	8.42	7.97	pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	89	<10	<10	578	149	290	72	821	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.05	<0.02	<0.02	0.24	0.06	0.14	0.04	0.24	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.03	<0.01	<0.01	0.89	0.05	0.26	0.02	0.80	% w/w	A-T-024s

Envirolab Job Number: 14/04815

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04815/17	14/04815/18	14/04815/19	14/04815/20					Units	Method ref
Client Sample No										
Client Sample ID	BH13	BH14	BH14	TP14						
Depth to Top	11.50	1.70	2.80	1.50						
Depth To Bottom										
Date Sampled				27-Aug-14						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
MCERTS Sample Matrix Code	5	6A	5	5						
% Stones >10mm$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					% w/w	A-T-044
pH BRE$_D^{M\#}$	7.80	8.01	7.93	8.42					pH	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	628	219	327	83					mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.22	0.14	0.17	0.05					% w/w	A-T-028s
Sulphur BRE (total)$_D$	1.04	0.71	0.69	0.03					% w/w	A-T-024s

REPORT NOTES

Notes - Soil chemical analysis

All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.
Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.
All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.
All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts.
Superscript "M" indicates method accredited to MCERTS.
If results are in italic font they are associated with an AQC failure and are not accredited. The results may be unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified a being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER.
Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

STRUCTURAL SOILS LTD

TEST REPORT

Report No. 745045R.01(00) 1774

Date 15-October-2014 Contract Junction 15 M1 West

Client RSK Environment Limited
Address Abbey Park
Humber Road
Coventry
CV3 4AQ

For the Attention of Darren Bench

Samples submitted by client	15-September-2014	Client Reference	312598
Testing Started	19-September-2014	Client Order No.	None
Testing Completed	12-October-2014	Instruction Type	Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests

1.01	Moisture Content (oven drying method) BS1377:Part 2:1990:clause 3.2
1.03	Liquid Limit (one point method) & Plastic Limit BS1377:Part 2:1990,clause 4.4/5.3
1.10	Particle Size Distribution wet sieve method BS1377:Part 2:1990,clause 9.2
3.02	Dry density/moisture content relationship 4.5kg rammer method BS1377:Part 4:1990 clause 3.5
3.06	Moisture condition value natural moisture content BS1377:Part 4:1990,clause 5.4
3.07	Moisture condition value/moisture content relationship BS1377:Part 4:1990,clause 5.5
3.10	California Bearing Ratio BS1377:Part 4:1990,clause 7.4
5.05	Undrained shear strength triaxial compression without pore pressure measurement (multistage loading) BS1377:Part 7:1990,clause 9.4

Not UKAS Acredited Tests

1.13	Particle Size Distribution sedimentation hydrometer method BS1377:Part 2: 1990,clause 9.5
4.01	One-dimensional consolidation BS1377:Part 5:1990,clause 3.5
P97	Hand Vane

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of .
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd 1a Princess Street Bedminster Bristol BS3 4AG Tel.0117 9471000 Fax.0117 9471004 e-mail just.barrett@soils.co.uk

TESTING VERIFICATION CERTIFICATE

1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with Structural Soils Ltd Laboratory Quality Assurance Manual, Issue 6, January 2010 all results sheets and summaries of results issued by the laboratory are checked by an approved signatory. This check will also involve checking of at least 10% of calculations for each test type to ensure that data has been correctly entered into the computer and calculated. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Assurance Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **15/10/2014 07:13:08**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Justin Barrett (Laboratory Manager)

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Contract: **Junction 15 M1 West**

Job No: **745045**

SUMMARY OF MOISTURE CONTENT TESTS

In accordance with clause 3.2 of BS1377:Part 2

Exploratory Position ID	Sample Ref	Depth (m)	Sample Type	Moisture Content (%)
BH1	**10**	**3.00**	**DSPT**	**25**
BH1	**12**	**4.00**	**DSPT**	**21**
BH1	**14**	**5.00**	**DSPT**	**25**
BH1	**17**	**6.50**	**DSPT**	**27**
BH2		**3.00**	**DSPT**	**24**
BH2		**4.00**	**DSPT**	**32**
BH2		**5.00**	**DSPT**	**21**
BH2		**6.50**	**DSPT**	**22**
TP6		**2.60**	**B**	**8.7**
TP11		**3.50**	**B**	**26**
TP13	**2**	**2.10**	**LB**	**28**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

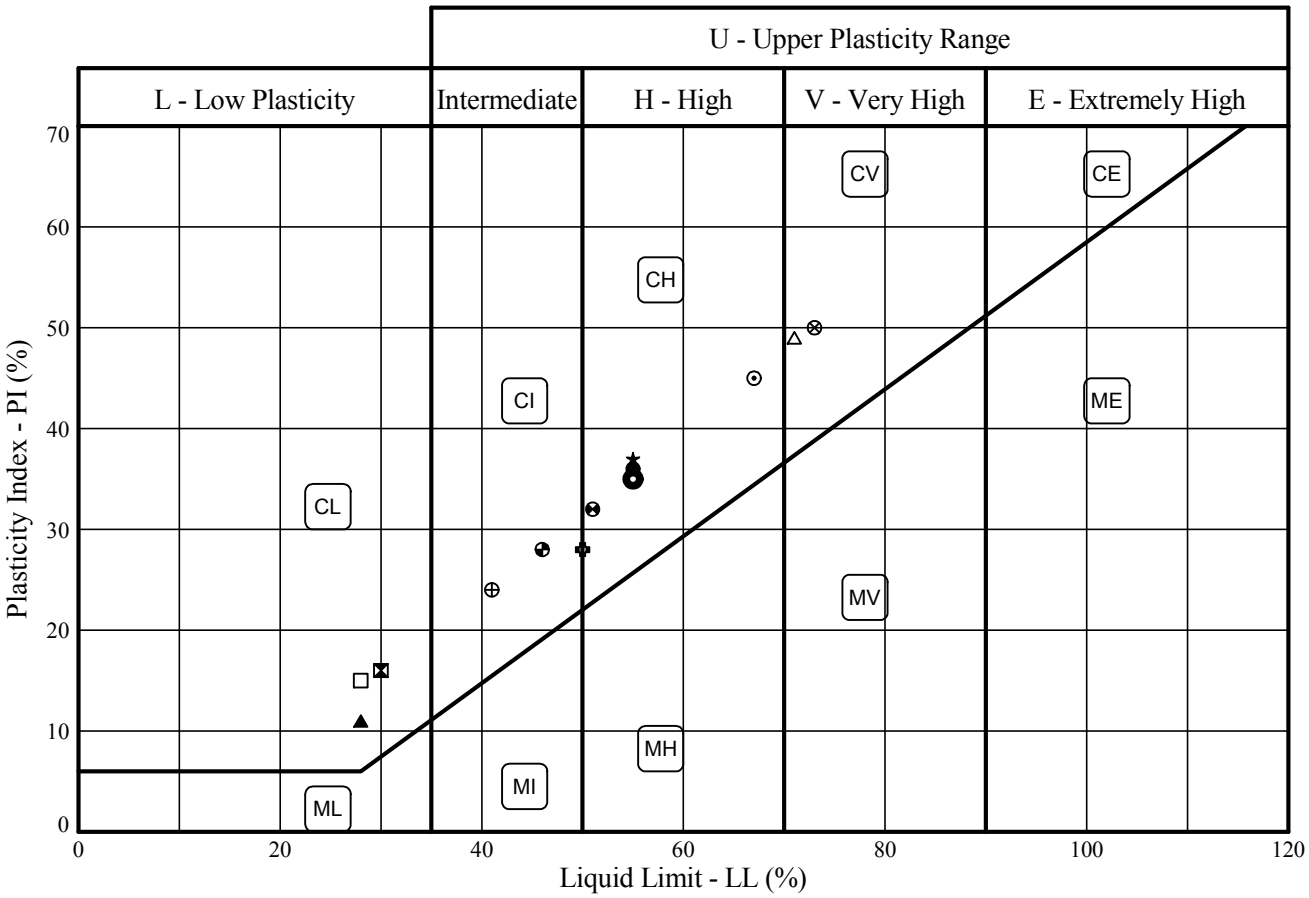
STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract:	Contract Ref:
Junction 15 M1 West	**745045**

PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1999
Testing in accordance with BS1377-2:1990



Sample Identification				BS Test Method #	Preparation Method +	MC	LL	PL	PI	<425um	
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%	
●	BH1	7DSPT	2.00	3.2/4.4/5.3/5.4	4.2.3	24	55	19	36	100	
⊠	BH1	19D	7.50	3.2/4.4/5.3/5.4	4.2.4	19	30	14	16	88	
▲	BH2	DSPT	2.00	3.2/4.4/5.3/5.4	4.2.3	24	28	17	11	87	
★	BH2	D	4.80	3.2/4.4/5.3/5.4	4.2.3	22	55	18	37	100	
⊙	BH2	U	8.19	3.2/4.4/5.3/5.4	4.2.3	22	67	22	45	100	
✿	BH3	U	7.79	3.2/4.4/5.3/5.4	4.2.3	19	50	22	28	100	
◉	BH5	U	1.20	3.2/4.4/5.3/5.4	4.2.3	30	55	20	35	100	
△	BH5	U	3.00	3.2/4.4/5.3/5.4	4.2.3	28	71	22	49	100	
⊗	BH5	U	5.15	3.2/4.4/5.3/5.4	4.2.3	29	73	23	50	100	
⊕	BH6	U	1.45	3.2/4.4/5.3/5.4	4.2.3	25	41	17	24	98	
□	BH8	12U	5.00	3.2/4.4/5.3/5.4	4.2.3	13	28	13	15	92	
⊖	BH9	2U	1.24	3.2/4.4/5.3/5.4	4.2.3	14	51	19	32	100	
◓	BH10	2U	1.25	3.2/4.4/5.3/5.4	4.2.3	23	46	18	28	99	

Tested in accordance with the following clauses of BS1377-2:1990.

3.2 - Moisture Content
4.3 - Cone Penetrometer Method
4.4 - One Point Cone Penetrometer Method
4.6 - One Point Casagrande Method
5.3 - Plastic Limit Method
5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

4.2.3 - Natural State
4.2.4 - Wet Sieved

Key: * = Non standard test, NP = Non plastic.

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

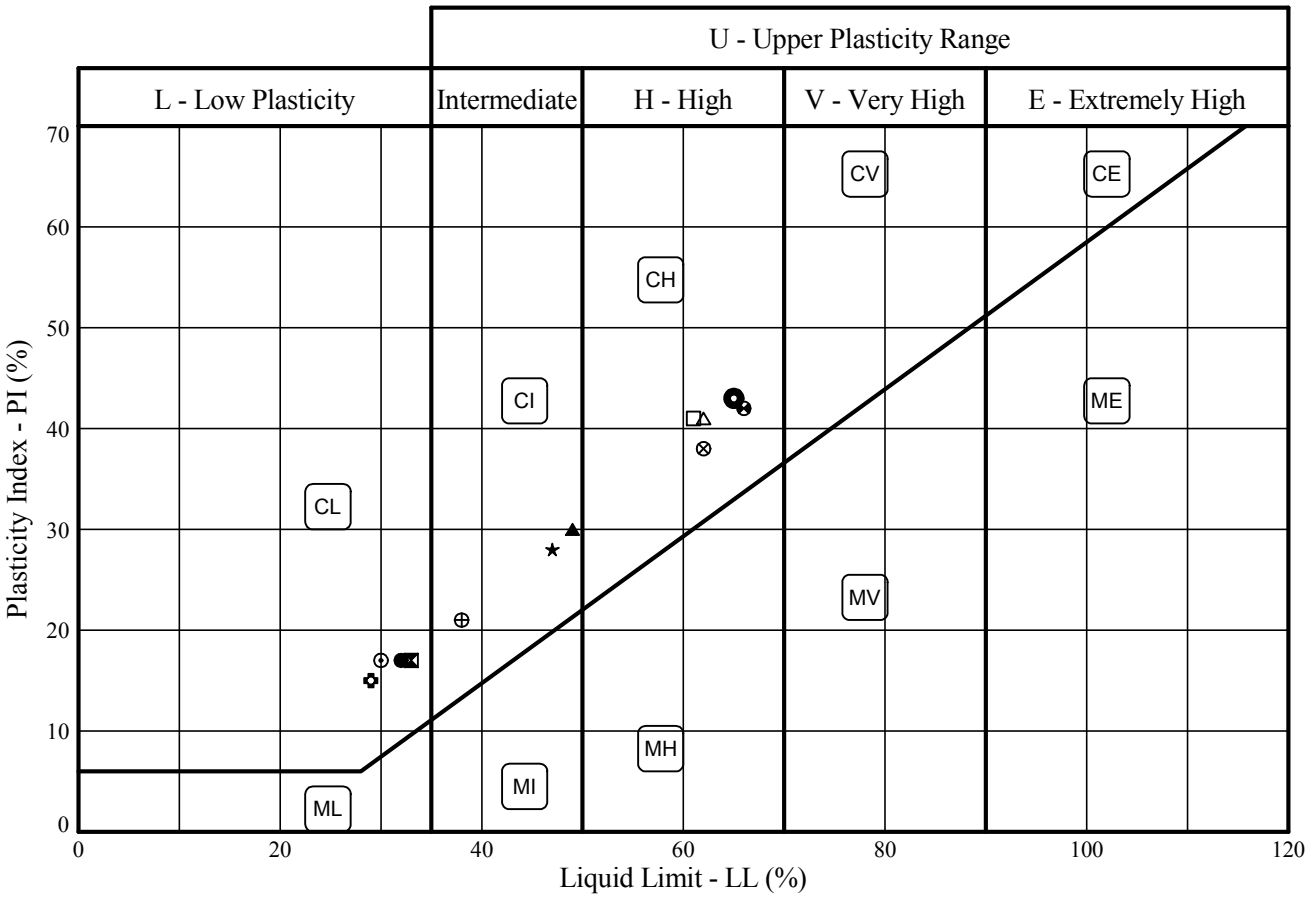
STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1999
Testing in accordance with BS1377-2:1990



Sample Identification				BS Test Method #	Preparation Method +	MC	LL	PL	PI	<425um	
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%	
●	BH11	9U	3.03	3.2/4.4/5.3/5.4	4.2.3	15	32	15	17	91	
⊠	BH12	3U	1.30	3.2/4.4/5.3/5.4	4.2.3	10	33	16	17	100	
▲	BH13	3U	1.44	3.2/4.4/5.3/5.4	4.2.3	20	49	19	30	99	
★	BH13	7U	3.00	3.2/4.4/5.3/5.4	4.2.3	22	47	19	28	99	
⊙	BH14	U	2.35	3.2/4.4/5.3/5.4	4.2.3	14	30	13	17	86	
✿	BH15	14U	6.18	3.2/4.4/5.3/5.4	4.2.3	12	29	14	15	95	
●	TP2	1LB	1.20	3.2/4.4/5.3/5.4	4.2.3	25	65	22	43	99	
△	TP2	2LB	2.80	3.2/4.4/5.3/5.4	4.2.3	26	62	21	41	100	
⊗	TP2	B	4.40	3.2/4.4/5.3/5.4	4.2.3	30	62	24	38	100	
⊕	TP7	B	1.20	3.2/4.4/5.3/5.4	4.2.4	18	38	17	21	56	
□	TP10	1LB	1.00	3.2/4.4/5.3/5.4	4.2.3	24	61	20	41	94	
⊛	TP10	2LB	2.40	3.2/4.4/5.3/5.4	4.2.3	27	66	24	42	99	
	TP10	3LB	3.10	3.2/4.4/5.3/5.4	4.2.4	8.9	NP	NP	NP	46	

Tested in accordance with the following clauses of BS1377-2:1990.

3.2 - Moisture Content
4.3 - Cone Penetrometer Method
4.4 - One Point Cone Penetrometer Method
4.6 - One Point Casagrande Method
5.3 - Plastic Limit Method
5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

4.2.3 - Natural State
4.2.4 - Wet Sieved

Key: * = Non standard test, NP = Non plastic.

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

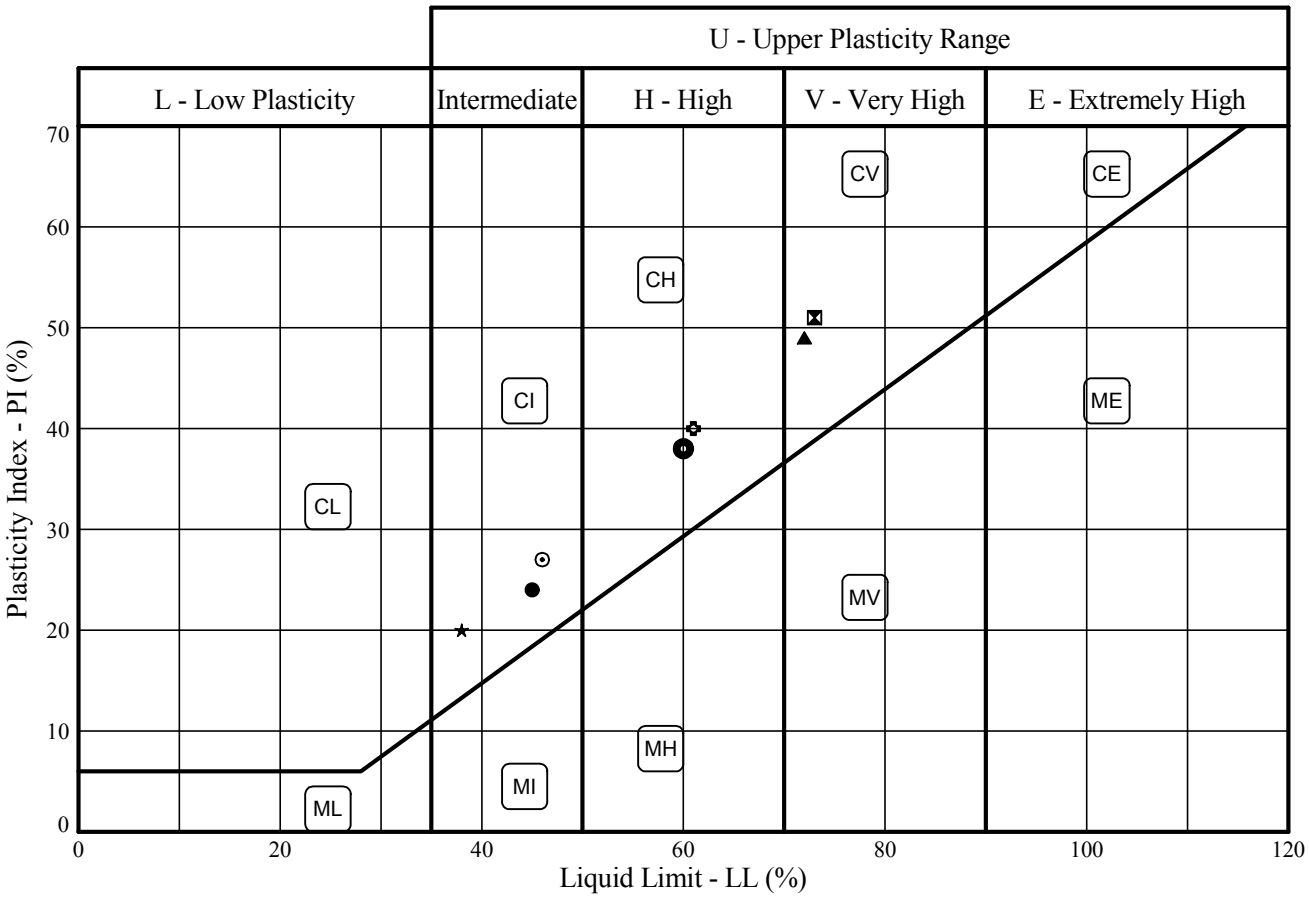
STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1999
Testing in accordance with BS1377-2:1990



Sample Identification				BS Test Method #	Preparation Method +	MC	LL	PL	PI	<425um
	Exploratory Position ID	Sample	Depth (m)			%	%	%	%	%
●	TP11	B	1.20	3.2/4.4/5.3/5.4	4.2.3	28	45	21	24	99
⊠	TP13	1LB	1.20	3.2/4.4/5.3/5.4	4.2.3	30	73	22	51	99
▲	TP13	3LB	3.20	3.2/4.4/5.3/5.4	4.2.3	29	72	23	49	100
★	TP14	D	3.80	3.2/4.4/5.3/5.4	4.2.3	23	38	18	20	100
⊙	TP17	B	1.00	3.2/4.4/5.3/5.4	4.2.3	22	46	19	27	99
✿	TP22	B	1.00	3.2/4.4/5.3/5.4	4.2.3	21	61	21	40	98
◉	TP22	B	1.80	3.2/4.4/5.3/5.4	4.2.3	27	60	22	38	100

Tested in accordance with the following clauses of BS1377-2:1990.

3.2 - Moisture Content
4.3 - Cone Penetrometer Method
4.4 - One Point Cone Penetrometer Method
4.6 - One Point Casagrande Method
5.3 - Plastic Limit Method
5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

4.2.3 - Natural State
4.2.4 - Wet Sieved

Key: * = Non standard test, NP = Non plastic.

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% <425um	MCV (%)	% retained on 20 mm sieve	Description of Sample
BH1	7	DSPT	2.00	24	55	19	36	100			Dark brown CLAY
BH1	10	DSPT	3.00	25							Dark brown CLAY
BH1	12	DSPT	4.00	21							Dark grey CLAY
BH1	14	DSPT	5.00	25							Dark grey CLAY
BH1	17	DSPT	6.50	27							Dark grey mottled orange CLAY
BH1	19	D	7.50	19	30	14	16	88			Orangish brown slightly sandy slightly gravelly CLAY
BH2		DSPT	2.00	24	28	17	11	87			Orange mottled grey slightly gravelly sandy CLAY
BH2		DSPT	3.00	24							Dark brown CLAY

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% <425um	MCV (%)	% retained on 20 mm sieve	Description of Sample
BH2		DSPT	4.00	32							Grey mottled brown CLAY
BH2		D	4.80	22	55	18	37	100			Dark grey CLAY
BH2		DSPT	5.00	21							Dark brown CLAY
BH2		DSPT	6.50	22							Dark grey CLAY
BH2		U	8.19	22	67	22	45	100			Dark grey CLAY
BH3		U	7.79	19	50	22	28	100			Grey slightly sandy CLAY
BH5		U	1.20	30	55	20	35	100			Brown mottled grey CLAY
BH5		U	3.00	28	71	22	49	100			Brown mottled grey CLAY

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% <425um	MCV (%)	% retained on 20 mm sieve	Description of Sample
BH5		U	5.15	29	73	23	50	100			Brown mottled grey CLAY
BH6		U	1.45	25	41	17	24	98			Light brown mottled dark brown slightly gravelly CLAY
BH8	12	U	5.00	13	28	13	15	92			Grey mottled brown slightly gravelly slightly sandy CLAY
BH9	2	U	1.24	14	51	19	32	100			Brown mottled grey slightly gravelly CLAY
BH10	2	U	1.25	23	46	18	28	99			Grey mottled orangish brown mottled grey slightly gravelly CLAY
BH11	9	U	3.03	15	32	15	17	91			Grey mottled orangish brown slightly gravelly slightly sandy CLAY
BH12	3	U	1.30	10	33	16	17	100			Orangish brown mottled grey sandy CLAY
BH13	3	U	1.44	20	49	19	30	99			Orangish brown mottled grey slightly gravelly CLAY

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% <425um	MCV (%)	% retained on 20 mm sieve	Description of Sample
BH13	7	U	3.00	22	47	19	28	99			Brownish grey mottled orange slightly gravelly CLAY
BH14		U	2.35	14	30	13	17	86			Greyish brown slightly sandy slightly gravelly CLAY
BH15	14	U	6.18	12	29	14	15	95			Grey slightly gravelly slightly sandy CLAY
TP2	1	LB	1.20	25	65	22	43	99			Light brown slightly gravelly slightly sandy CLAY
TP2	2	LB	2.80	26	62	21	41	100	10.9	0	Grey slightly sandy CLAY
TP2		B	4.40	30	62	24	38	100			Dark brown slightly sandy CLAY
TP6		B	2.60	8.7							Reddish brown very gravelly SAND
TP7		B	1.20	18	38	17	21	56			Yellowish brown slightly gravelly slightly sandy silty CLAY

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% <425um	MCV (%)	% retained on 20 mm sieve	Description of Sample
TP10	1	LB	1.00	24	61	20	41	94	10.7	0	Dark brown slightly gravelly slightly sandy CLAY
TP10	2	LB	2.40	27	66	24	42	99			Brown mottled grey slightly sandy CLAY
TP10	3	LB	3.10	8.9	NP	NP	NP	46			Orangish brown very gravelly SAND
TP11		B	1.20	28	45	21	24	99			Light brown slightly gravelly slightly sandy silty CLAY
TP11		B	3.50	26							Grey CLAY
TP13	1	LB	1.20	30	73	22	51	99	10.8	0	Dark brown slightly gravelly slightly sandy CLAY
TP13	2	LB	2.10	28					12.2	0	Dark brown slightly sandy CLAY
TP13	3	LB	3.20	29	72	23	49	100	12.6	0	Light brown slightly sandy CLAY

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% <425um	MCV (%)	% retained on 20 mm sieve	Description of Sample
TP14		D	3.80	23	38	18	20	100			Dark grey CLAY
TP17		B	1.00	22	46	19	27	99			Brown mottled grey slightly gravelly slightly sandy CLAY
TP22		B	1.00	21	61	21	40	98			Dark brown mottled grey slightly sandy slightly gravelly CLAY
TP22		B	1.80	27	60	22	38	100			Brown mottled grey slightly gravelly slightly sandy CLAY

STRUCTURAL SOILS LTD

Contract: **Junction 15 M1 West**

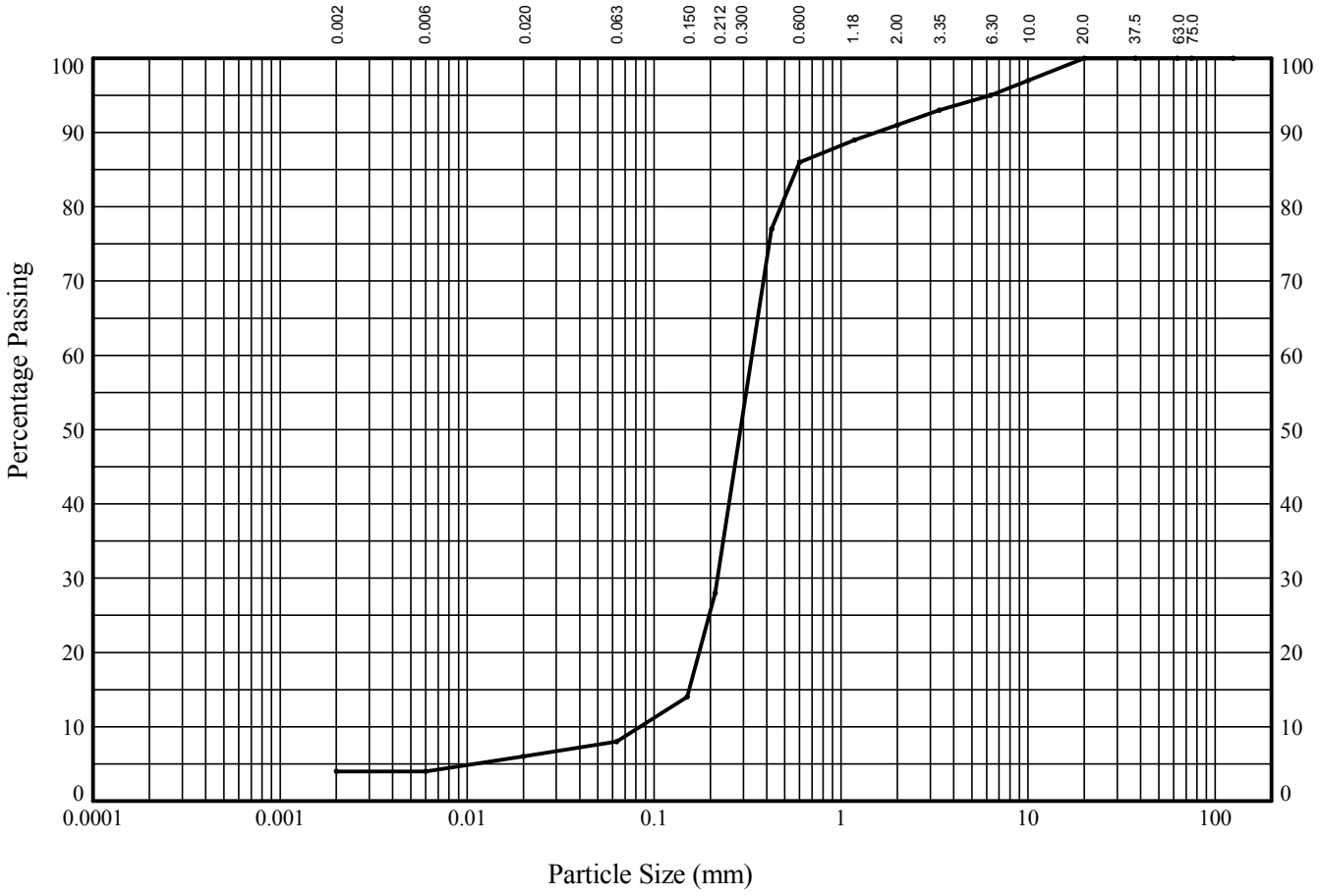
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Borehole : **BH1** Sample Ref: **25** Sample Type: **B** Depth (m): **9.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	97
6.30	95
3.35	93
2.00	91
1.18	89
0.600	86
0.425	77
0.212	28
0.150	14
0.063	8

Particle Diameter	Percentage Passing
0.02	**6**
0.006	**4**
0.002	**4**

Soil Fraction	Sieve Percentage
GRAVEL	**9**
SAND	**83**
SILT	**4**
CLAY	**4**

Soil Description:
Brown slightly clayey gravelly SAND

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

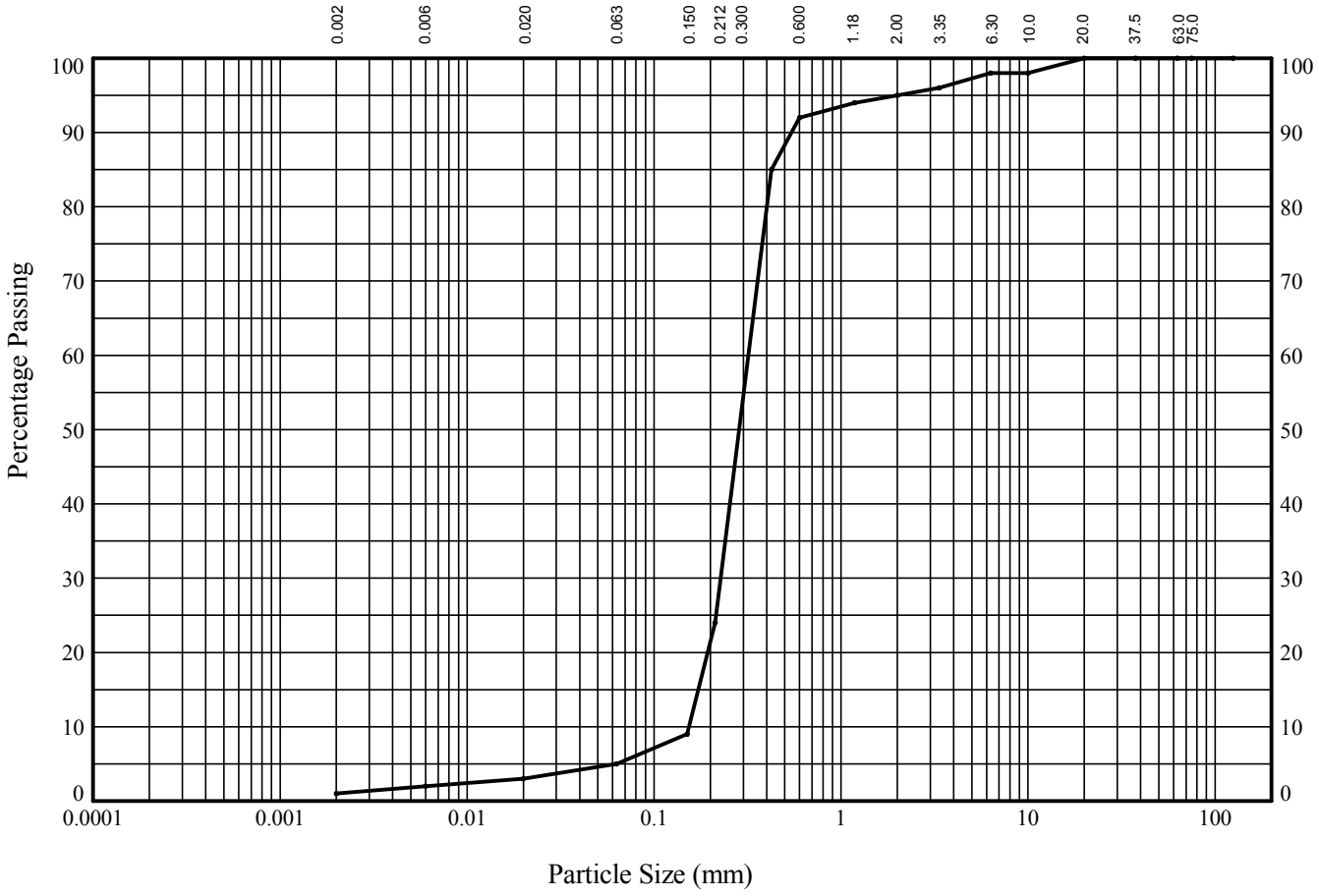
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Borehole : **BH1** Sample Ref: **34** Sample Type: **B** Depth (m): **14.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	98
6.30	98
3.35	96
2.00	95
1.18	94
0.600	92
0.425	85
0.212	24
0.150	9
0.063	5

Particle Diameter	Percentage Passing
0.02	**3**
0.006	**2**
0.002	**1**

Soil Fraction	Sieve Percentage
GRAVEL	**5**
SAND	**90**
SILT	**4**
CLAY	**1**

Soil Description:
Brown slightly silty slightly gravelly SAND

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

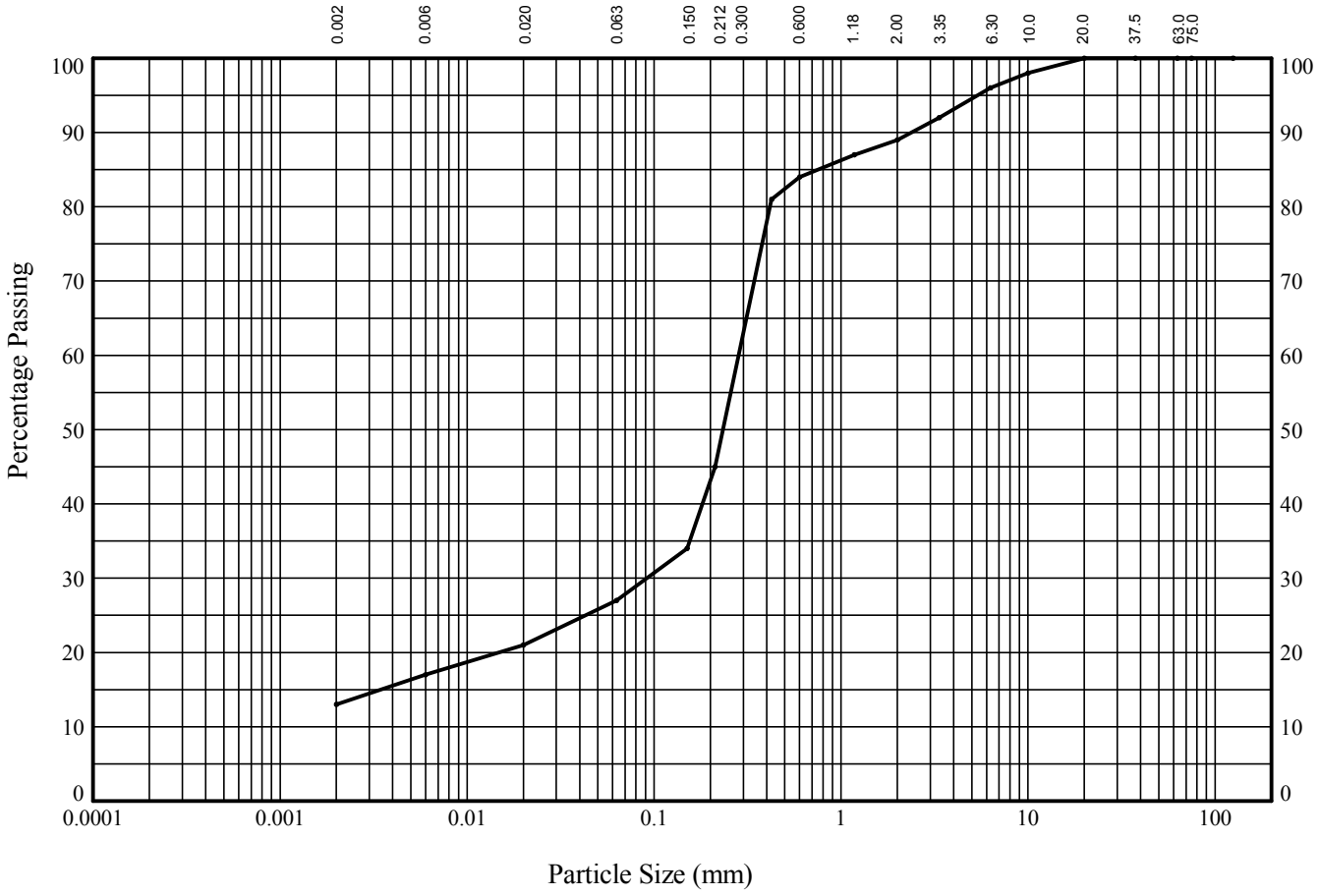
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Borehole : **BH2** Sample Ref: Sample Type: **B** Depth (m): **12.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	98
6.30	96
3.35	92
2.00	89
1.18	87
0.600	84
0.425	81
0.212	45
0.150	34
0.063	27

Particle Diameter	Percentage Passing
0.02	**21**
0.006	**17**
0.002	**13**

Soil Fraction	Sieve Percentage
GRAVEL	**11**
SAND	**62**
SILT	**14**
CLAY	**13**

Soil Description:
Brown gravelly clayey SAND

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

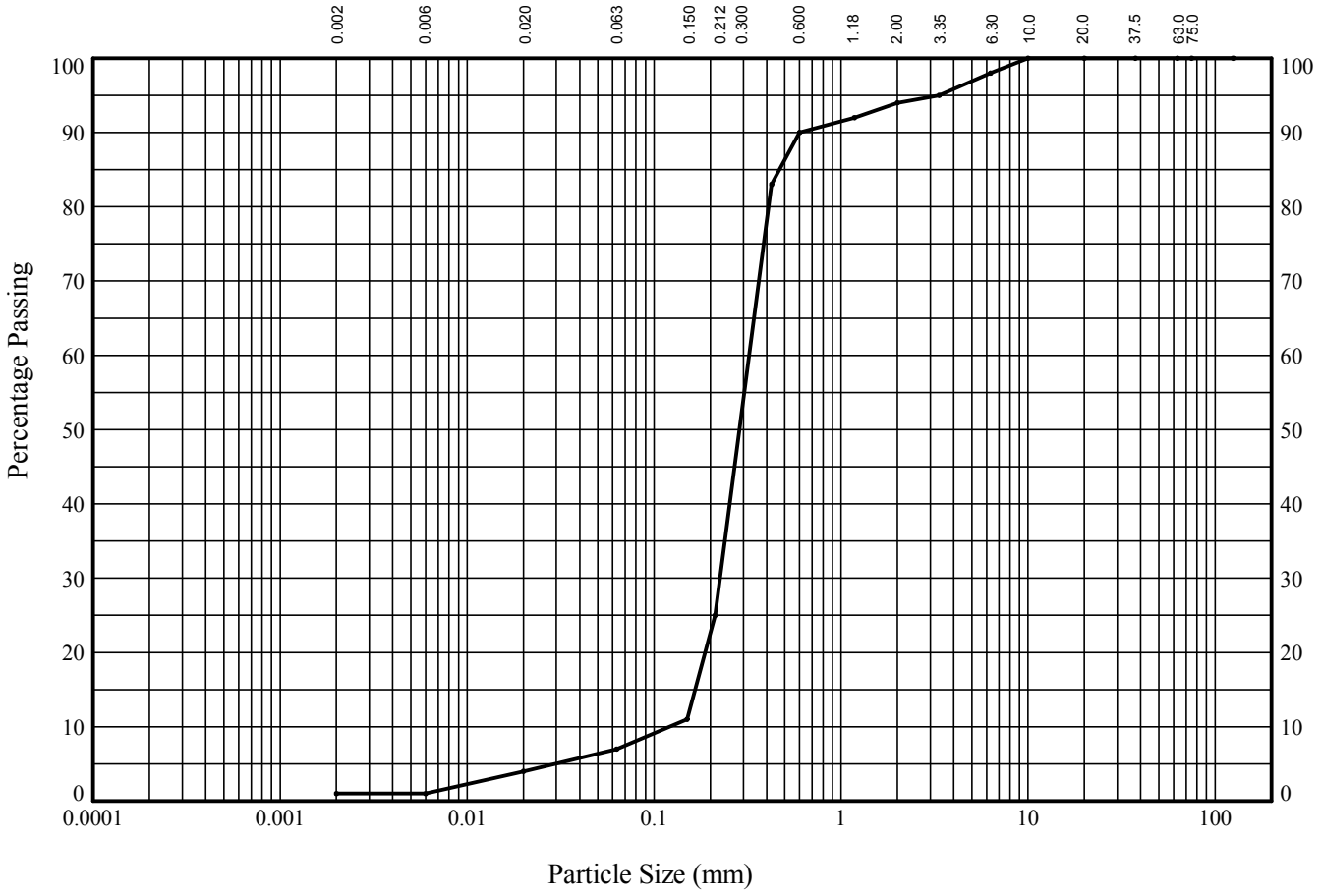
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Borehole : **BH3** Sample Ref: Sample Type: **B** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	98
3.35	95
2.00	94
1.18	92
0.600	90
0.425	83
0.212	25
0.150	11
0.063	7

Particle Diameter	Percentage Passing
0.02	**4**
0.006	**1**
0.002	**1**

Soil Fraction	Sieve Percentage
GRAVEL	**6**
SAND	**87**
SILT	**6**
CLAY	**1**

Soil Description:
Orangish brown gravelly silty SAND

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
ALAN FROST	**11/10/14**

Contract: **Junction 15 M1 West**

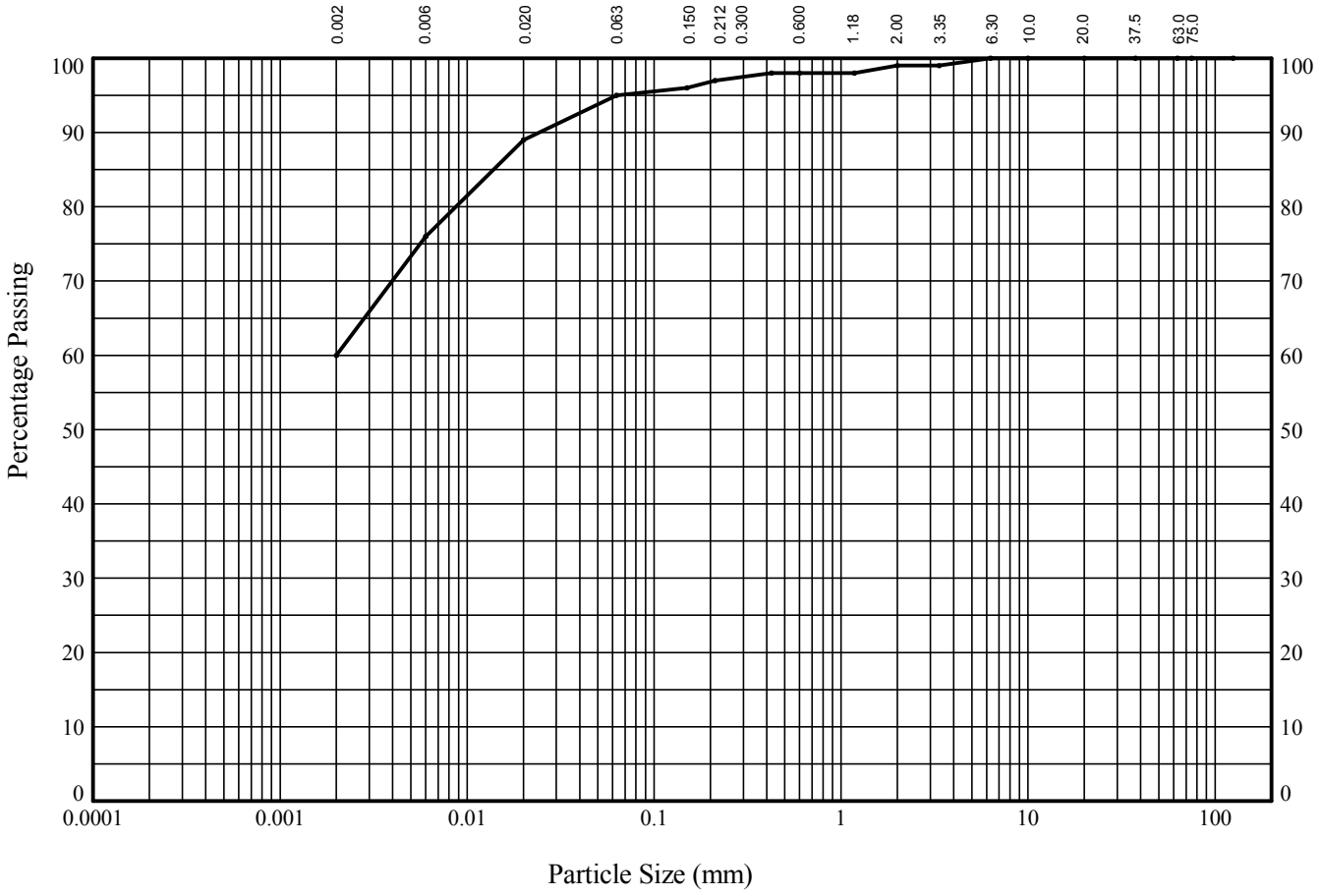
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP2** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	99
2.00	99
1.18	98
0.600	98
0.425	98
0.212	97
0.150	96
0.063	95

Particle Diameter	Percentage Passing
0.02	**89**
0.006	**76**
0.002	**60**

Soil Fraction	Sieve Percentage
GRAVEL	**1**
SAND	**4**
SILT	**35**
CLAY	**60**

Soil Description:
Light brown slightly gravelly slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

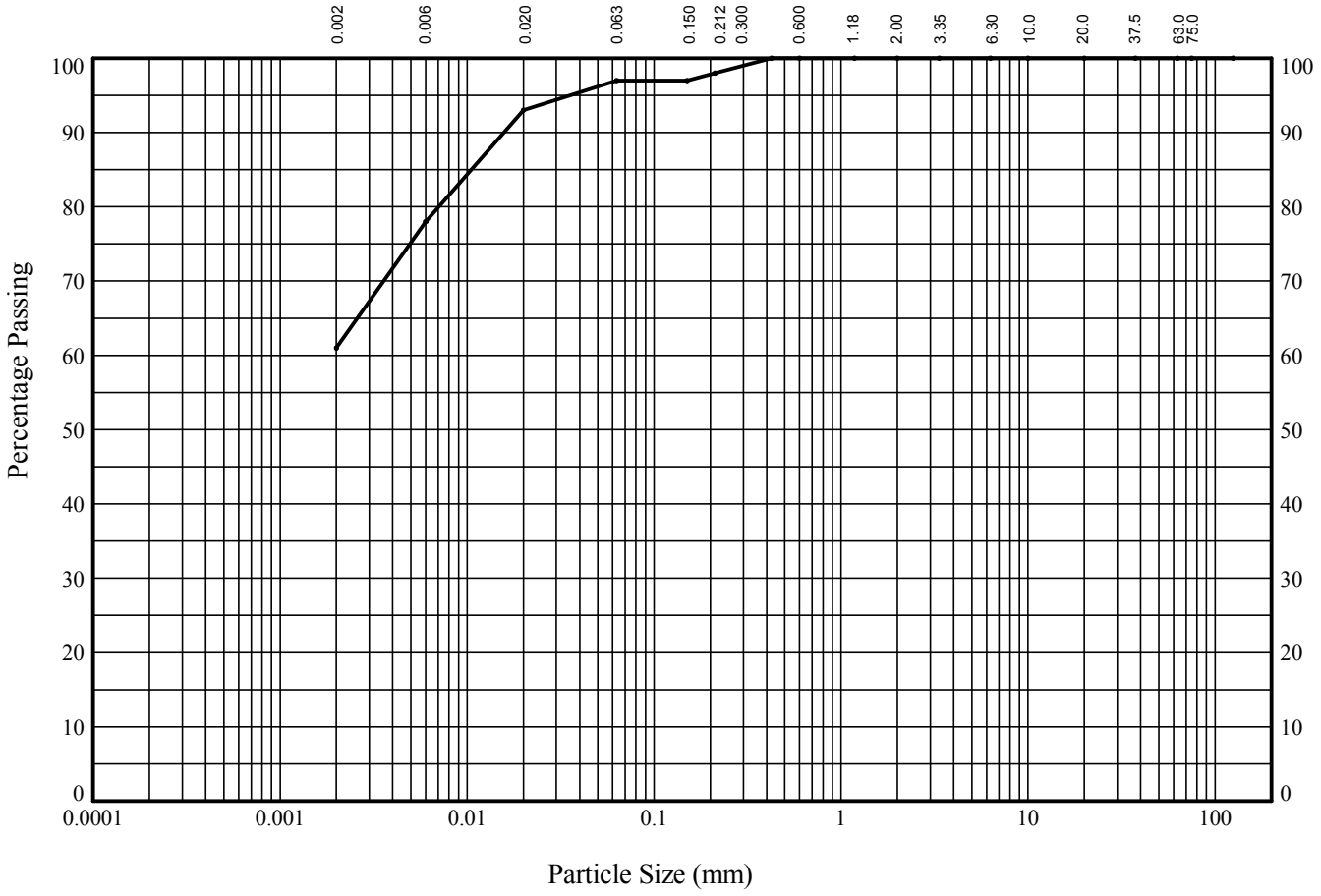
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP2** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.80**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	100
2.00	100
1.18	100
0.600	100
0.425	100
0.212	98
0.150	97
0.063	97

Particle Diameter	Percentage Passing
0.02	**93**
0.006	**78**
0.002	**61**

Soil Fraction	Sieve Percentage
GRAVEL	**0**
SAND	**3**
SILT	**36**
CLAY	**61**

Soil Description:
Grey slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
ALAN FROST	**11/10/14**

Contract: **Junction 15 M1 West**

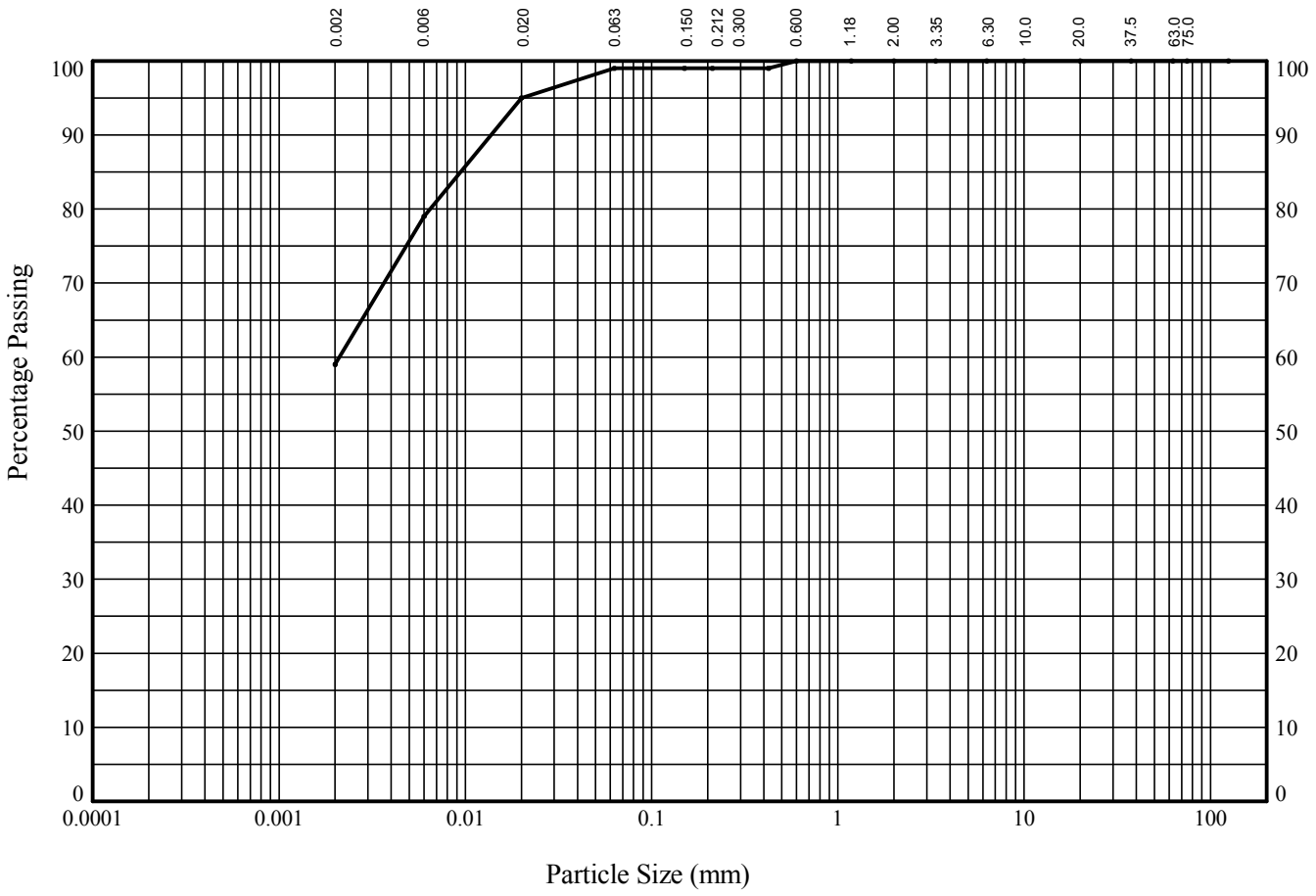
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP2** Sample Ref: Sample Type: **B** Depth (m): **4.40**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	100
2.00	100
1.18	100
0.600	100
0.425	99
0.212	99
0.150	99
0.063	99

Particle Diameter	Percentage Passing
0.02	**95**
0.006	**79**
0.002	**59**

Soil Fraction	Sieve Percentage
GRAVEL	**0**
SAND	**1**
SILT	**40**
CLAY	**59**

Soil Description:
Dark brown slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

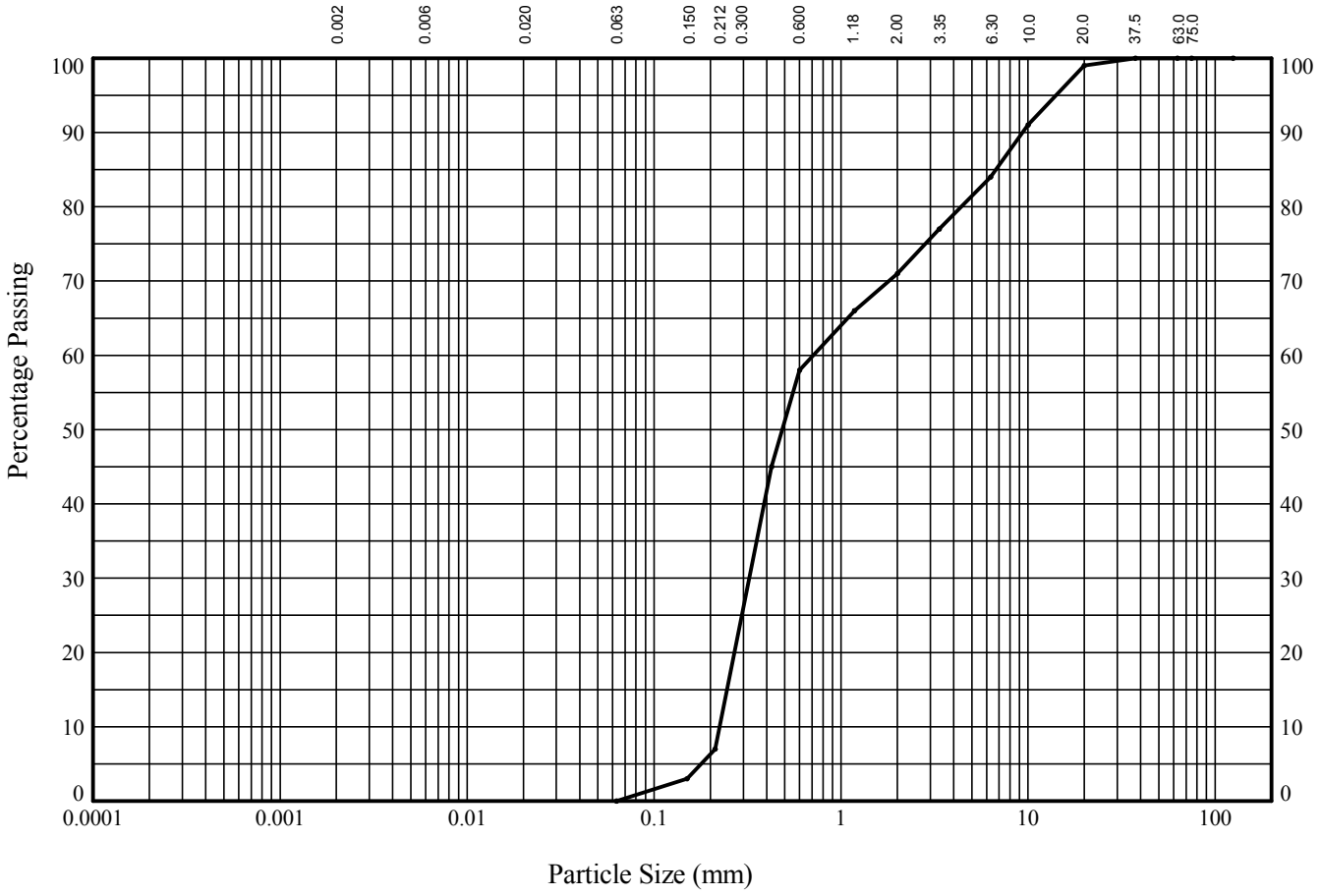
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP6** Sample Ref: Sample Type: **B** Depth (m): **2.60**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	99
10.0	91
6.30	84
3.35	77
2.00	71
1.18	66
0.600	58
0.425	45
0.212	7
0.150	3
0.063	0

Particle Diameter	Percentage Passing

Soil Fraction	Sieve Percentage
GRAVEL	**29**
SAND	**71**
SILT/CLAY	**0**

Soil Description:
Reddish brown very gravelly SAND

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**11/10/14**

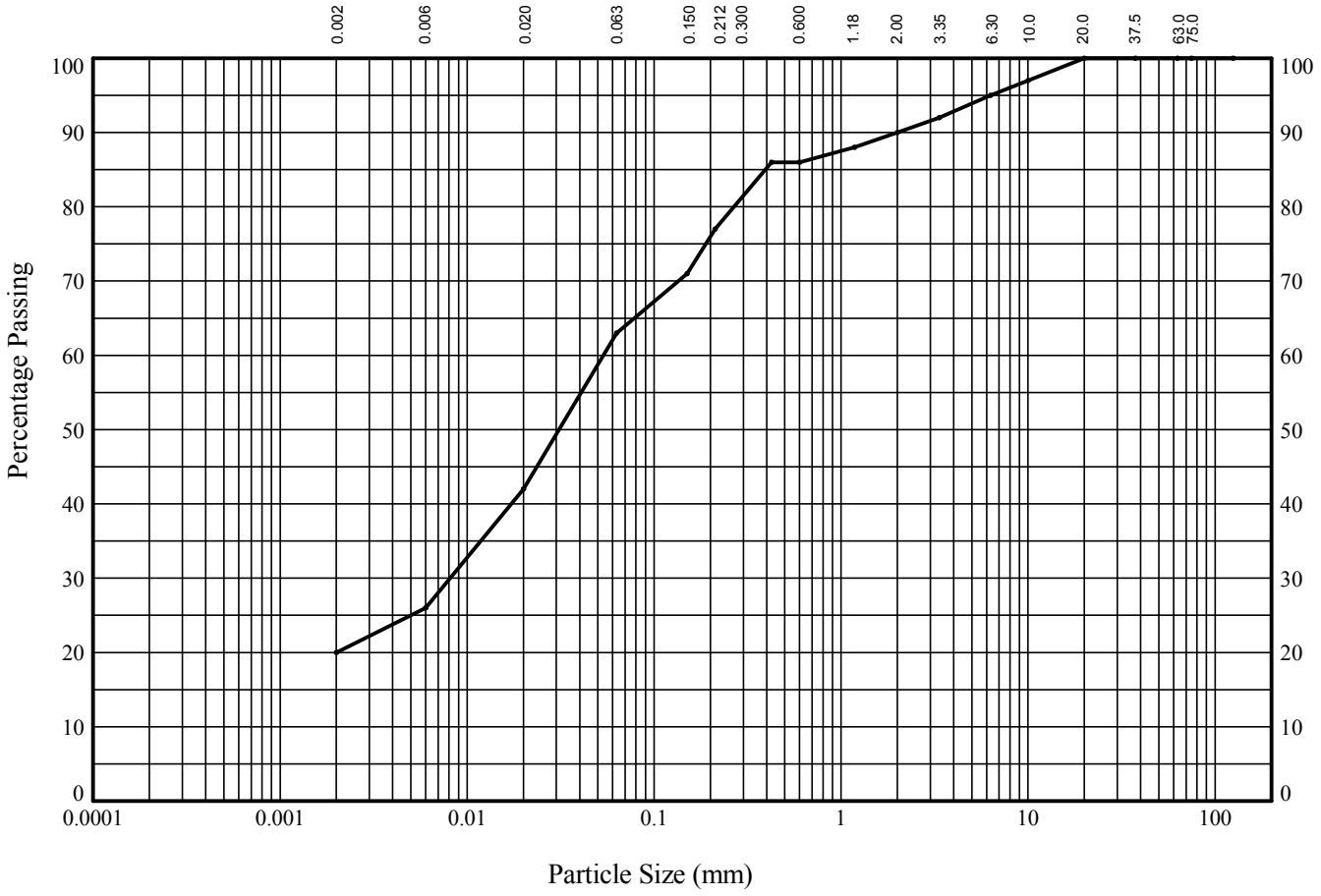
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP7** Sample Ref: Sample Type: **B** Depth (m): **1.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	97
6.30	95
3.35	92
2.00	90
1.18	88
0.600	86
0.425	86
0.212	77
0.150	71
0.063	63

Particle Diameter	Percentage Passing
0.02	**42**
0.006	**26**
0.002	**20**

Soil Fraction	Sieve Percentage
GRAVEL	**10**
SAND	**27**
SILT	**43**
CLAY	**20**

Soil Description:
Yellowish brown slightly gravelly slightly sandy silty CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D. Frost — **ALAN FROST**	**11/10/14**

Contract: **Junction 15 M1 West**

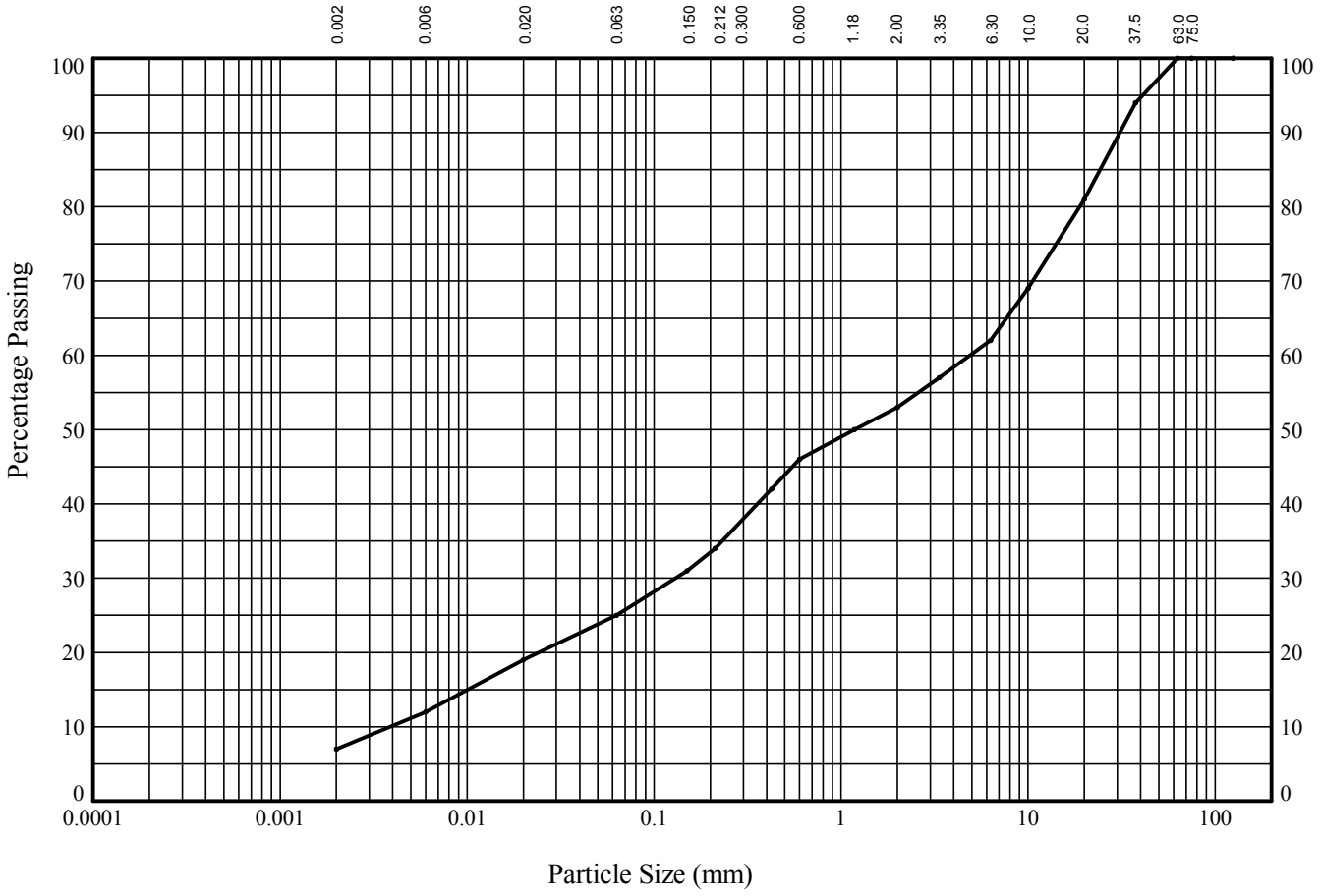
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP7** Sample Ref: Sample Type: **B** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	94
20.0	81
10.0	69
6.30	62
3.35	57
2.00	53
1.18	50
0.600	46
0.425	42
0.212	34
0.150	31
0.063	25

Particle Diameter	Percentage Passing
0.02	**19**
0.006	**12**
0.002	**7**

Soil Fraction	Sieve Percentage
GRAVEL	**47**
SAND	**28**
SILT	**18**
CLAY	**7**

Soil Description:
Brown silty very sandy GRAVEL

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**11/10/14**

Contract: **Junction 15 M1 West**

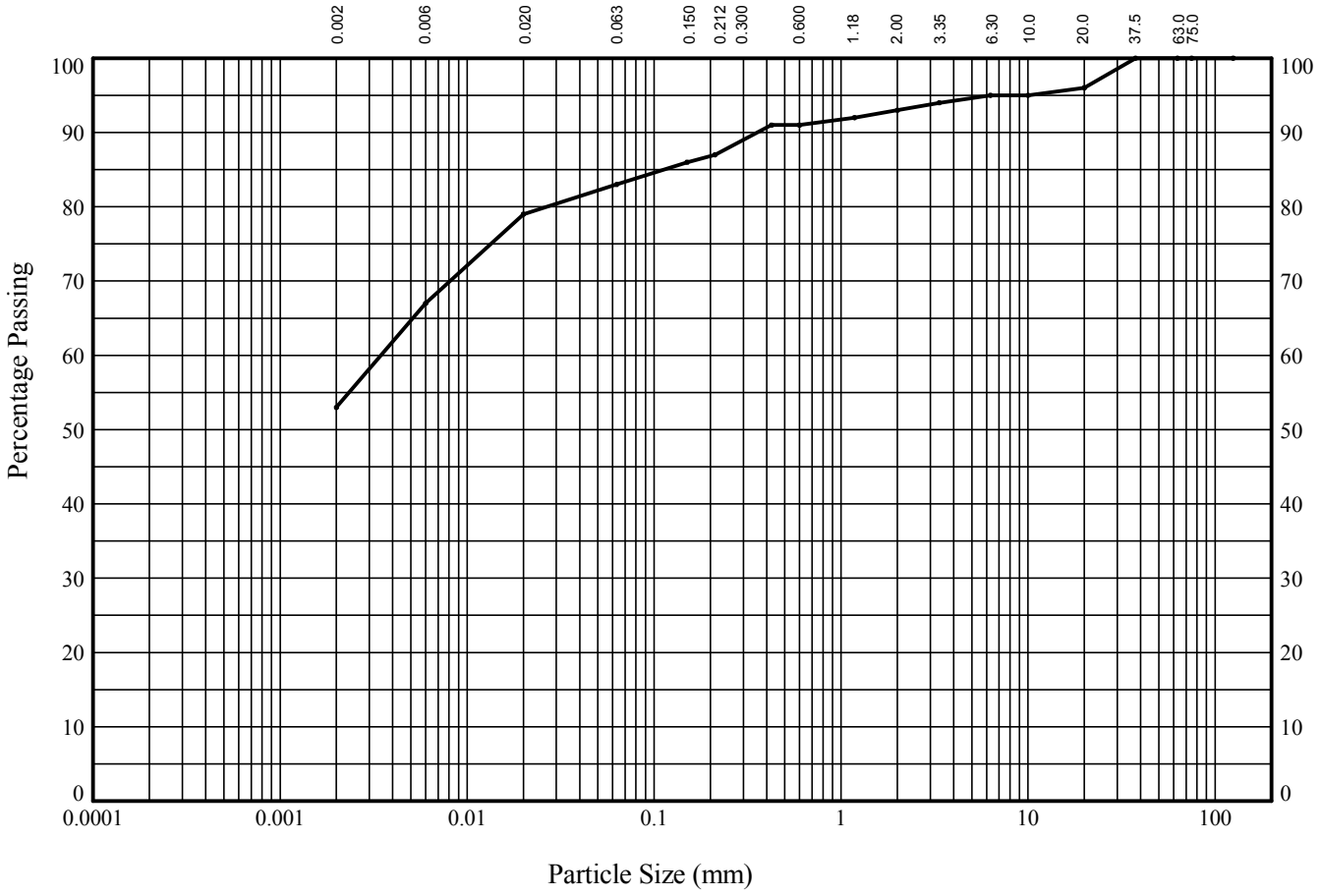
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP10** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	96
10.0	95
6.30	95
3.35	94
2.00	93
1.18	92
0.600	91
0.425	91
0.212	87
0.150	86
0.063	83

Particle Diameter	Percentage Passing
0.02	**79**
0.006	**67**
0.002	**53**

Soil Fraction	Sieve Percentage
GRAVEL	**7**
SAND	**10**
SILT	**30**
CLAY	**53**

Soil Description:
Dark brown slightly gravelly slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**11/10/14**

Contract: **Junction 15 M1 West**

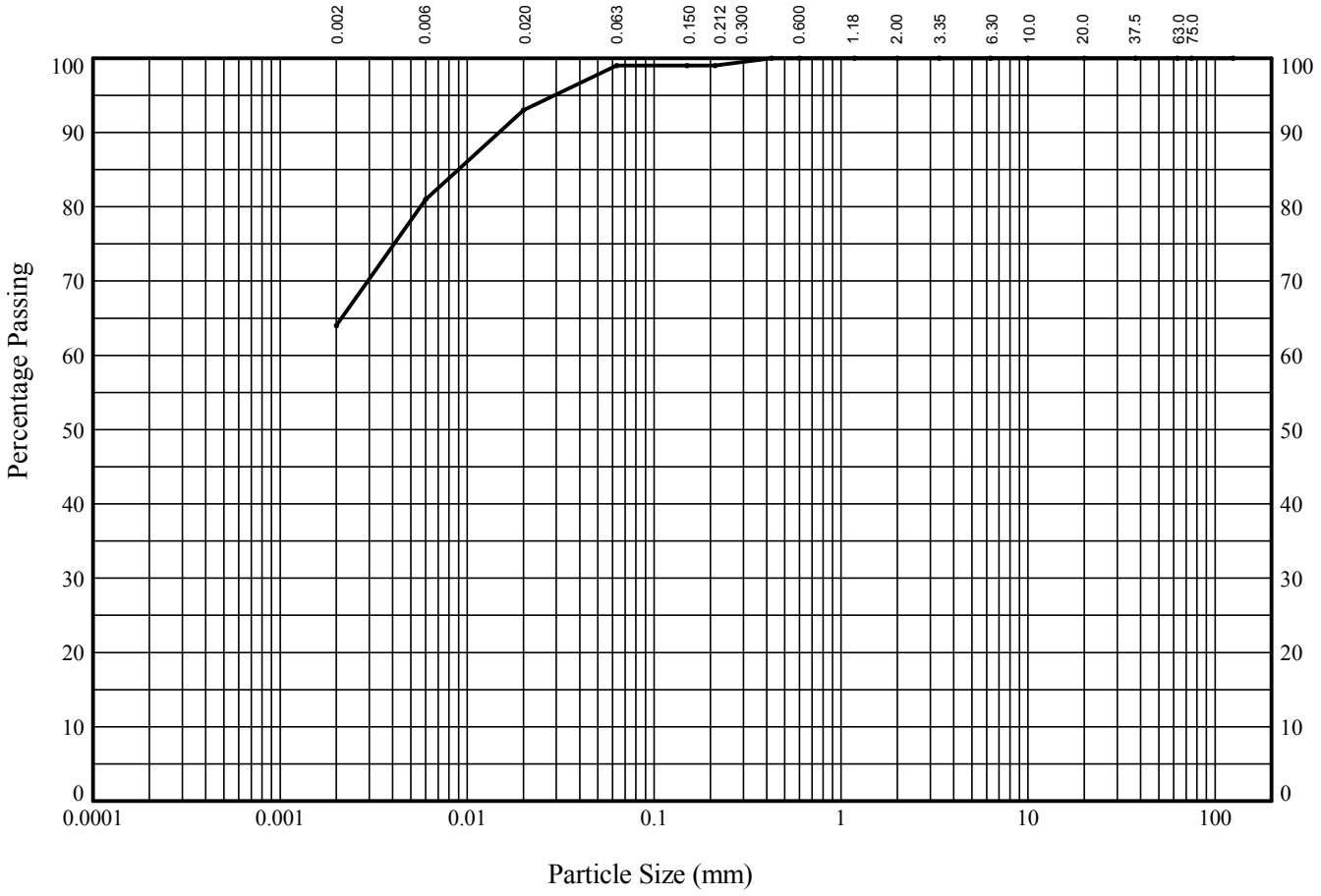
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP10** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.40**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	100
2.00	100
1.18	100
0.600	100
0.425	100
0.212	99
0.150	99
0.063	99

Particle Diameter	Percentage Passing
0.02	**93**
0.006	**81**
0.002	**64**

Soil Fraction	Sieve Percentage
GRAVEL	**0**
SAND	**1**
SILT	**35**
CLAY	**64**

Soil Description:
Brown mottled grey slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

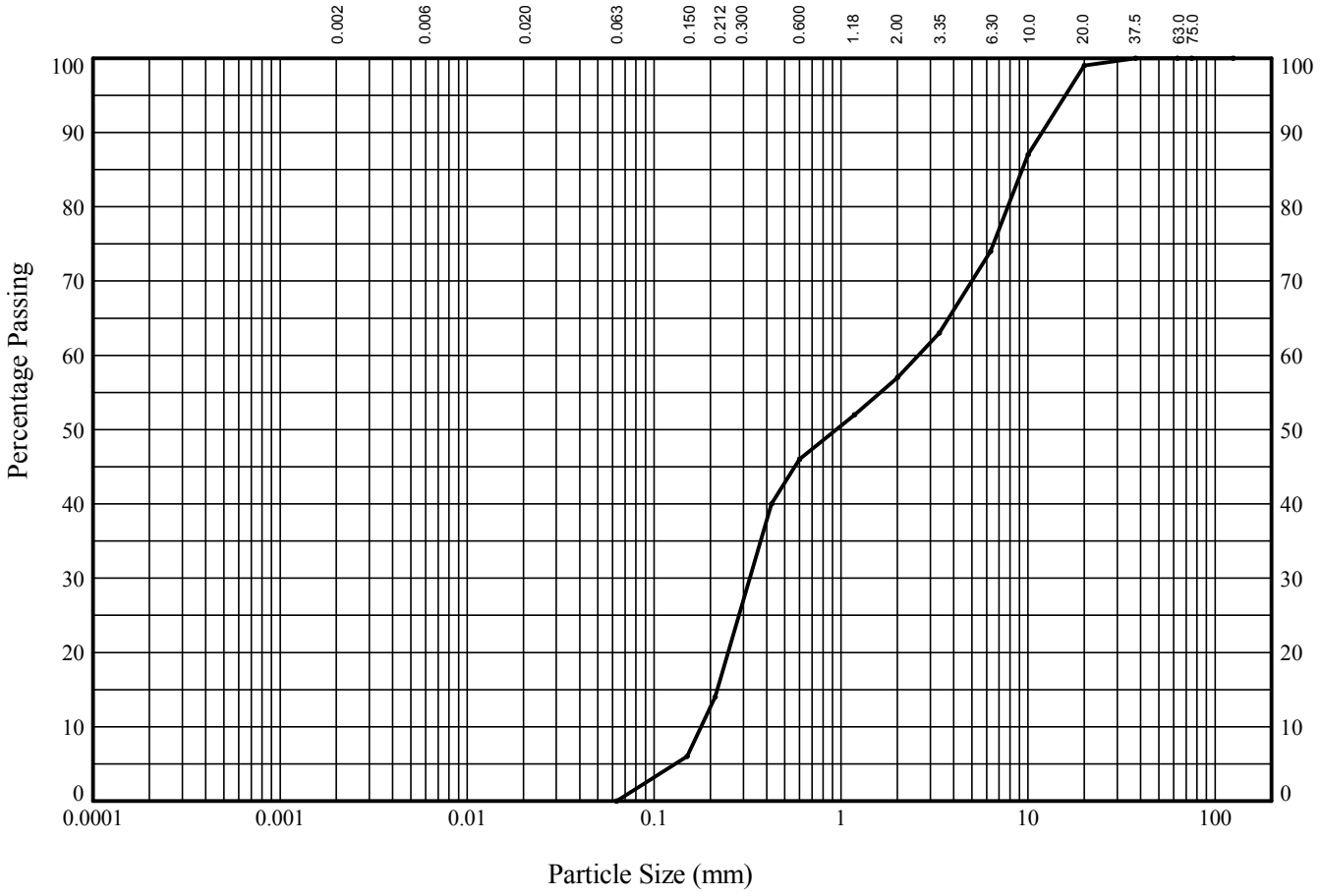
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP10** Sample Ref: **3** Sample Type: **LB** Depth (m): **3.10**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	99
10.0	87
6.30	74
3.35	63
2.00	57
1.18	52
0.600	46
0.425	40
0.212	14
0.150	6
0.063	0

Particle Diameter	Percentage Passing

Soil Fraction	Sieve Percentage
GRAVEL	**43**
SAND	**57**
SILT/CLAY	**0**

Soil Description:
Orangish brown very gravelly SAND

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**11/10/14**

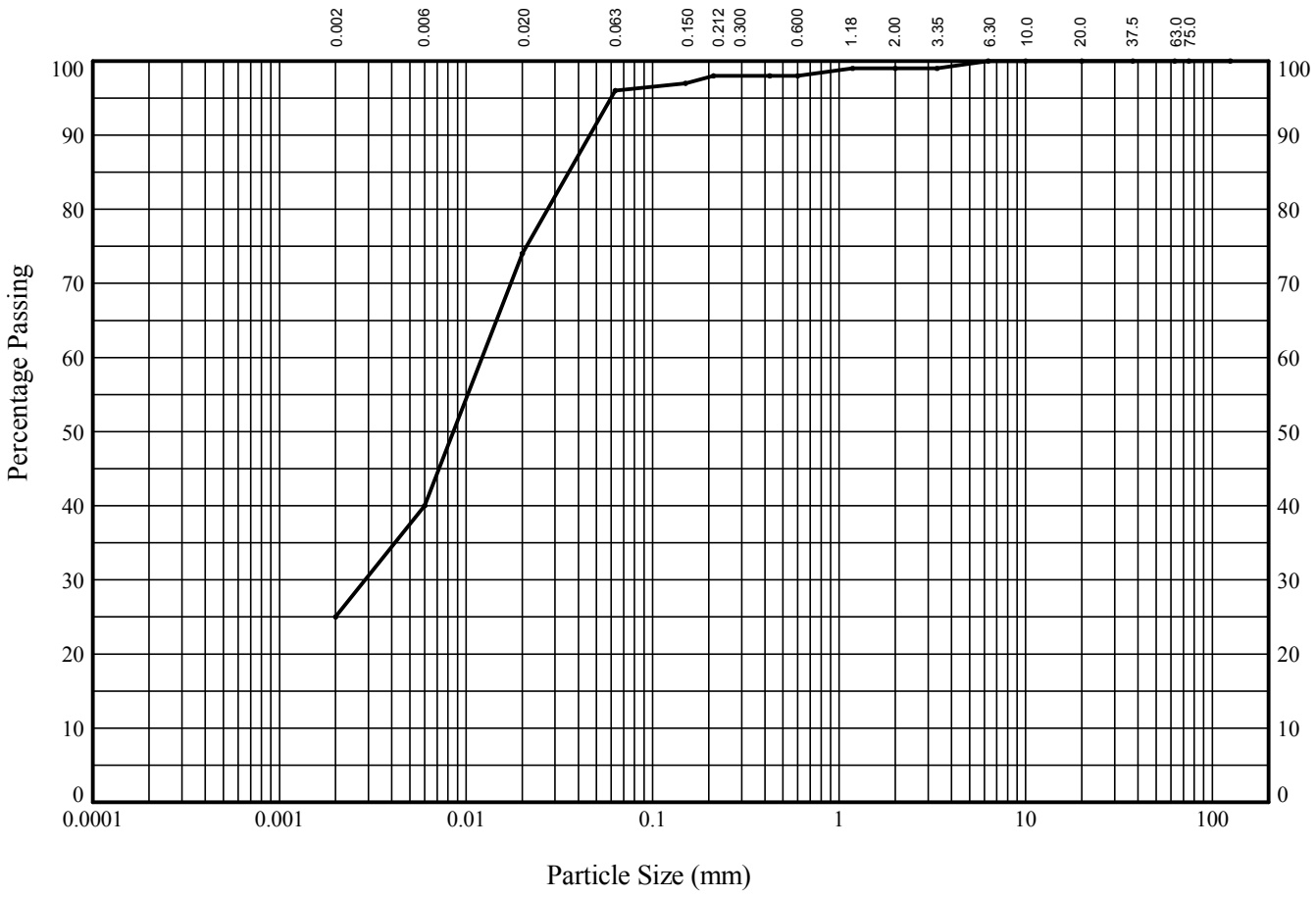
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP11** Sample Ref: Sample Type: **B** Depth (m): **1.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	99
2.00	99
1.18	99
0.600	98
0.425	98
0.212	98
0.150	97
0.063	96

Particle Diameter	Percentage Passing
0.02	**74**
0.006	**40**
0.002	**25**

Soil Fraction	Sieve Percentage
GRAVEL	**1**
SAND	**3**
SILT	**71**
CLAY	**25**

Soil Description:
Light brown slightly gravelly slightly sandy silty CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
ALAN FROST	**11/10/14**

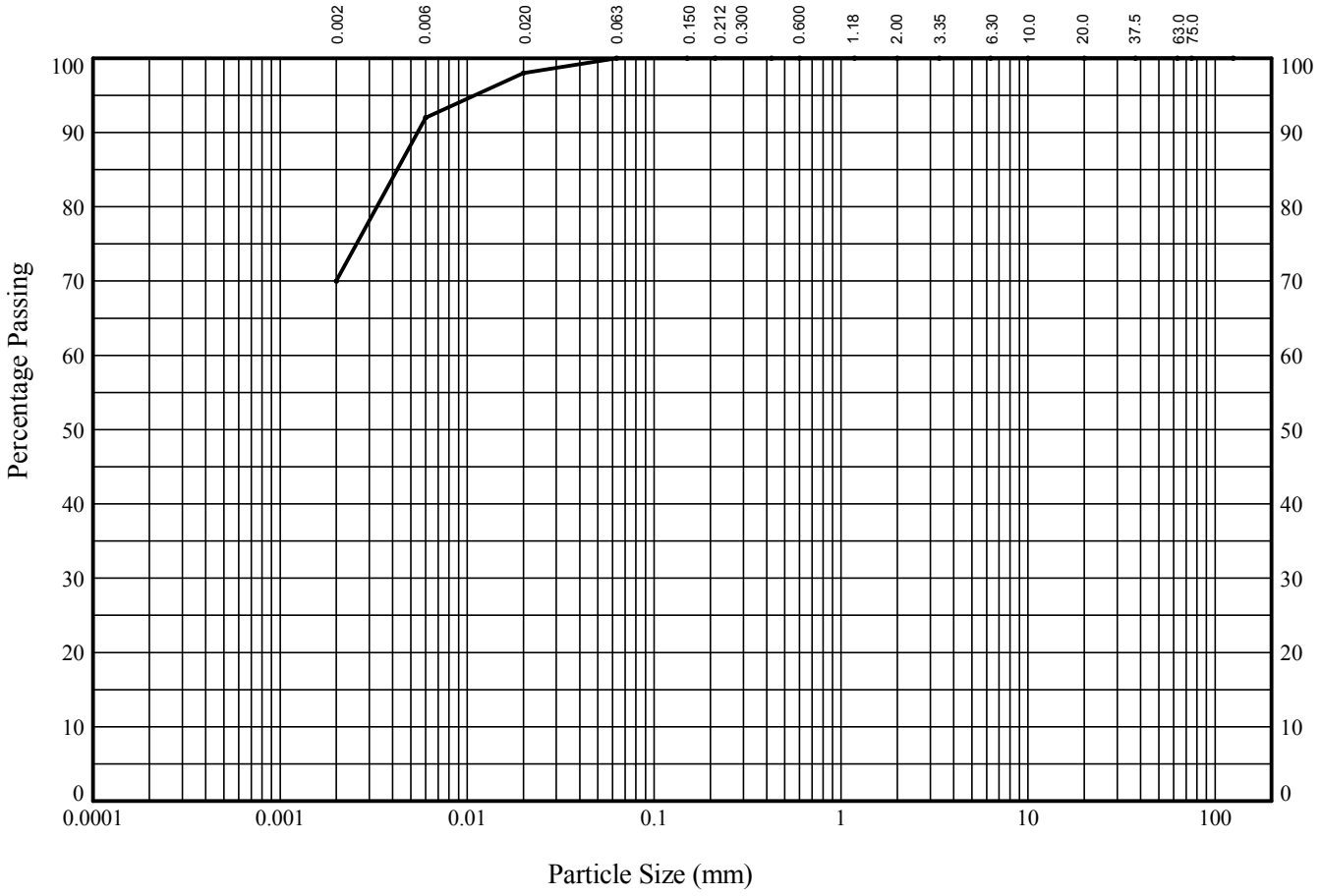
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP11** Sample Ref: Sample Type: **B** Depth (m): **3.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	100
2.00	100
1.18	100
0.600	100
0.425	100
0.212	100
0.150	100
0.063	100

Particle Diameter	Percentage Passing
0.02	**98**
0.006	**92**
0.002	**70**

Soil Fraction	Sieve Percentage
GRAVEL	**0**
SAND	**0**
SILT	**30**
CLAY	**70**

Soil Description:
Grey CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

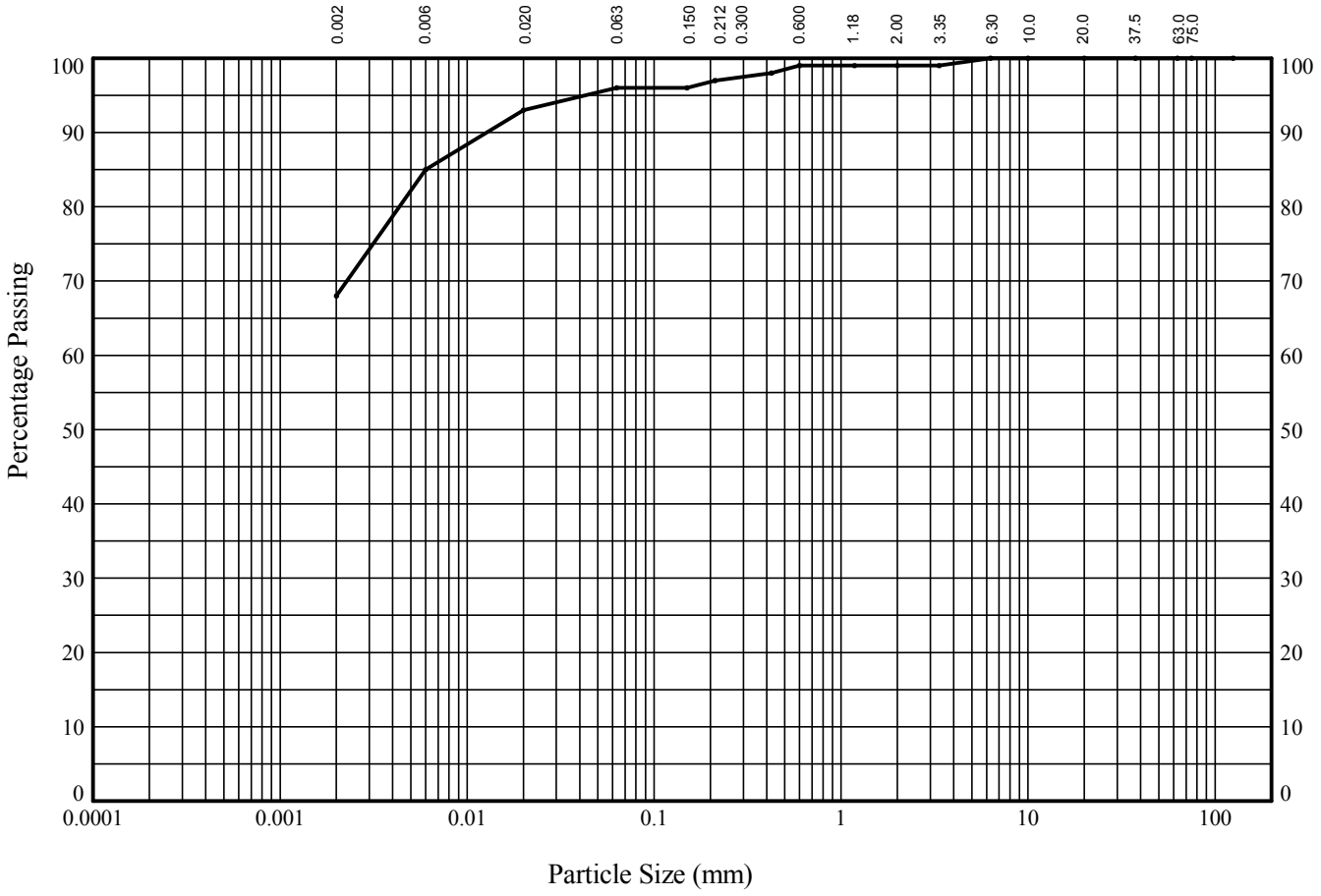
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP13** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	99
2.00	99
1.18	99
0.600	99
0.425	98
0.212	97
0.150	96
0.063	96

Particle Diameter	Percentage Passing
0.02	**93**
0.006	**85**
0.002	**68**

Soil Fraction	Sieve Percentage
GRAVEL	**1**
SAND	**3**
SILT	**28**
CLAY	**68**

Soil Description:
Dark brown slightly gravelly slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

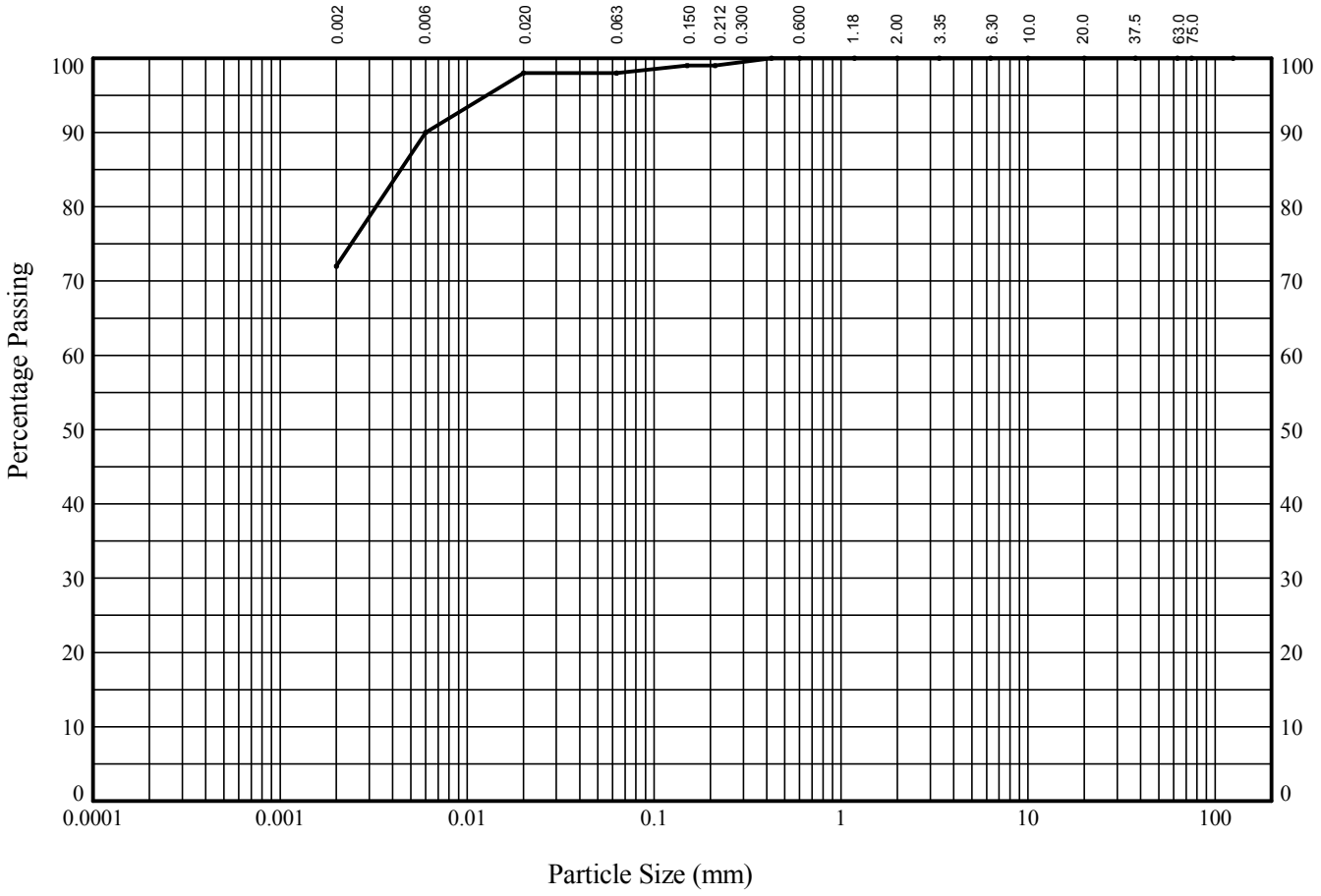
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP13** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.10**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	100
2.00	100
1.18	100
0.600	100
0.425	100
0.212	99
0.150	99
0.063	98

Particle Diameter	Percentage Passing
0.02	**98**
0.006	**90**
0.002	**72**

Soil Fraction	Sieve Percentage
GRAVEL	**0**
SAND	**2**
SILT	**26**
CLAY	**72**

Soil Description:
Dark brown slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**11/10/14**

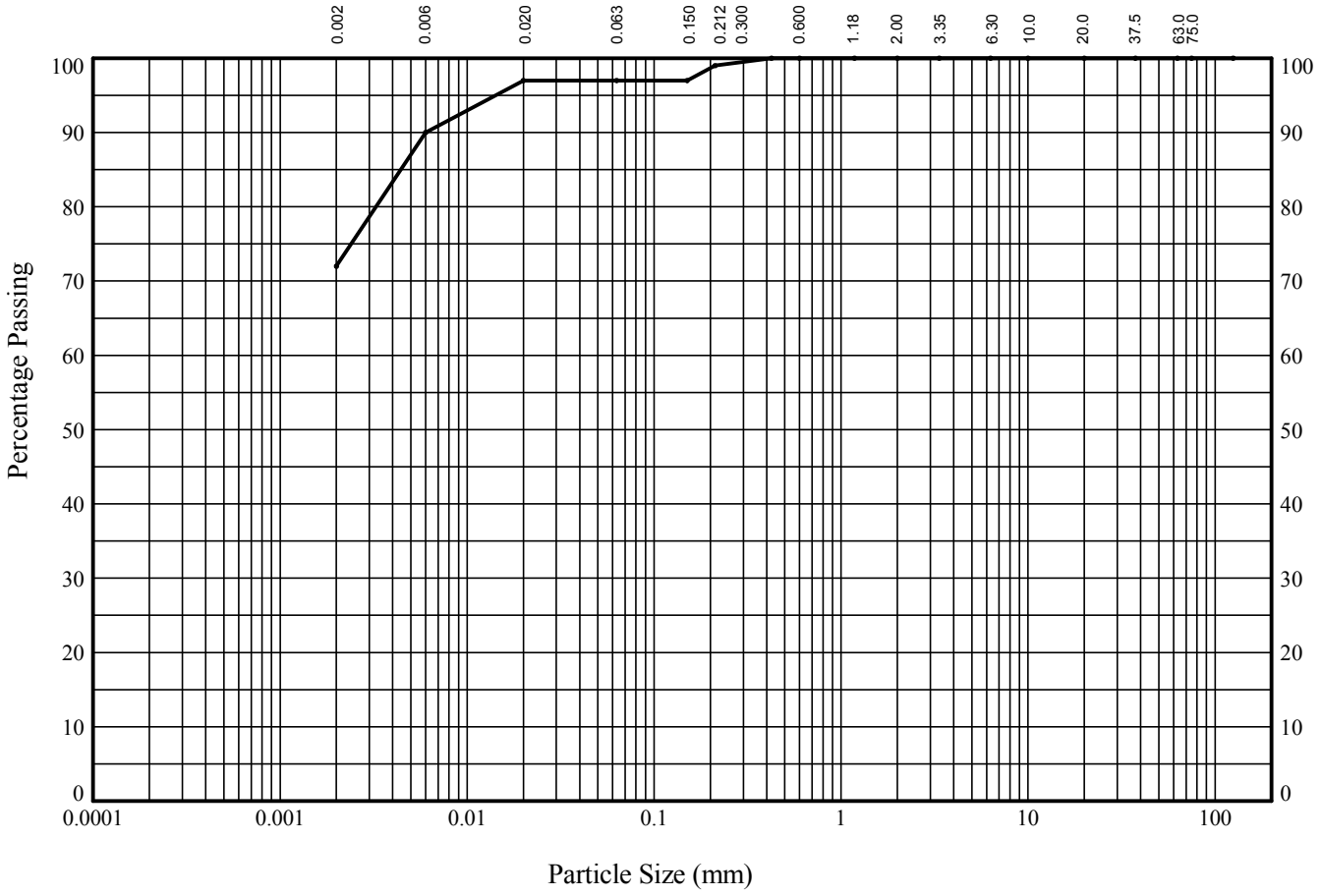
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP13** Sample Ref: **3** Sample Type: **LB** Depth (m): **3.20**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	100
2.00	100
1.18	100
0.600	100
0.425	100
0.212	99
0.150	97
0.063	97

Particle Diameter	Percentage Passing
0.02	**97**
0.006	**90**
0.002	**72**

Soil Fraction	Sieve Percentage
GRAVEL	**0**
SAND	**3**
SILT	**25**
CLAY	**72**

Soil Description:
Light brown slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

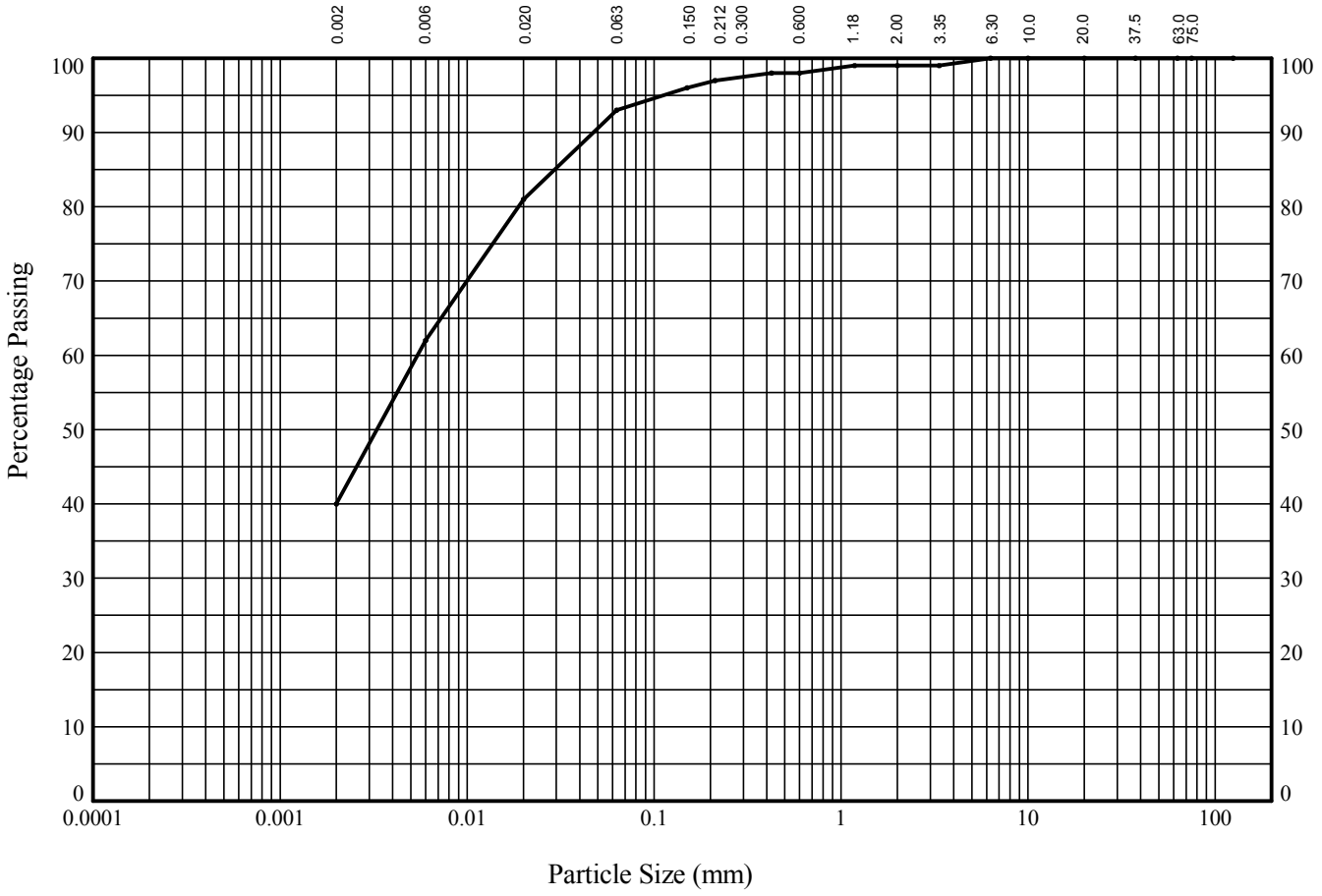
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP17** Sample Ref: Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	99
2.00	99
1.18	99
0.600	98
0.425	98
0.212	97
0.150	96
0.063	93

Particle Diameter	Percentage Passing
0.02	**81**
0.006	**62**
0.002	**40**

Soil Fraction	Sieve Percentage
GRAVEL	**1**
SAND	**6**
SILT	**53**
CLAY	**40**

Soil Description:
Brown mottled grey slightly gravelly slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D. Frost — **ALAN FROST**	**11/10/14**

Contract: **Junction 15 M1 West**

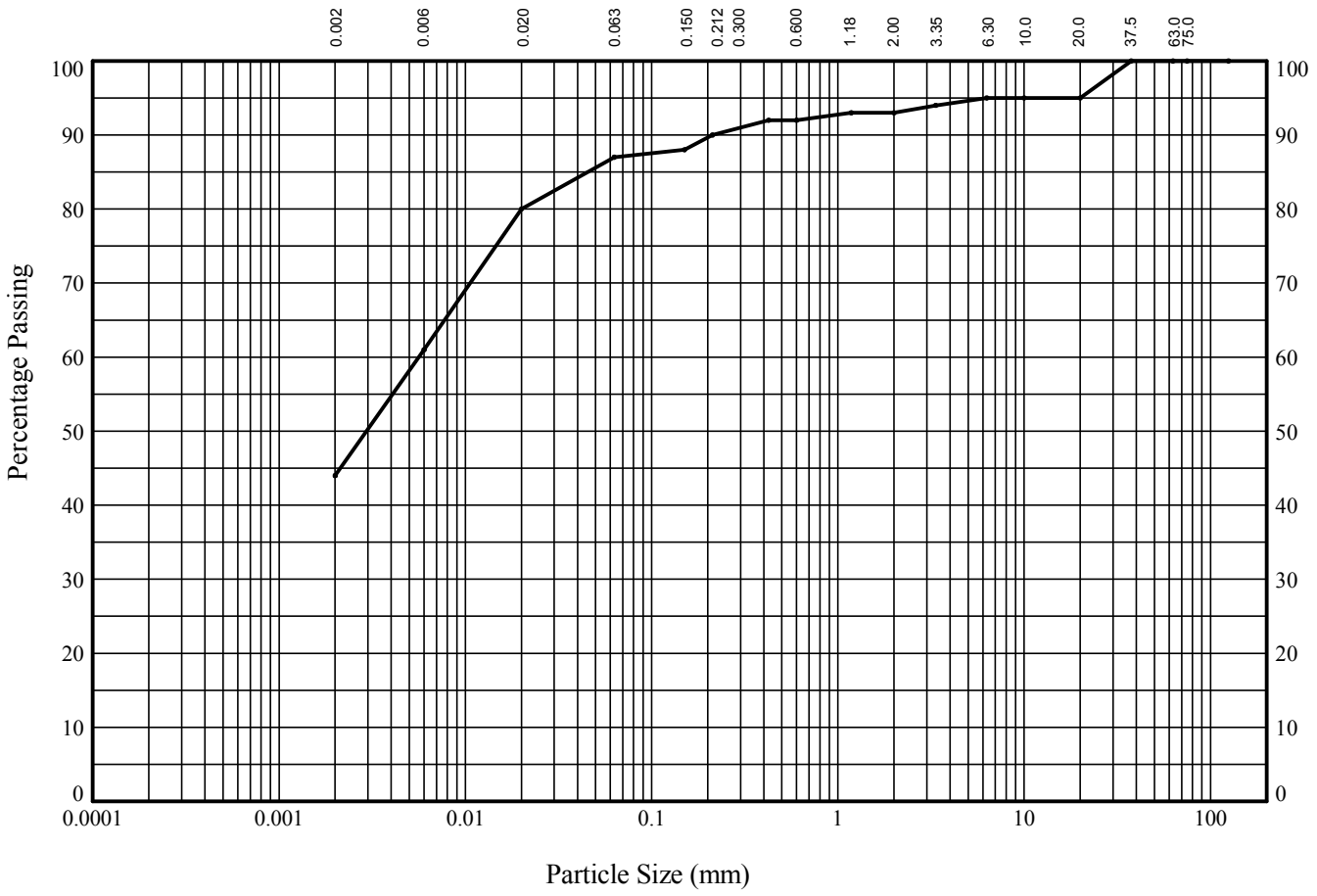
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP22** Sample Ref: Sample Type: **B** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	95
10.0	95
6.30	95
3.35	94
2.00	93
1.18	93
0.600	92
0.425	92
0.212	90
0.150	88
0.063	87

Particle Diameter	Percentage Passing
0.02	**80**
0.006	**61**
0.002	**44**

Soil Fraction	Sieve Percentage
GRAVEL	**7**
SAND	**6**
SILT	**43**
CLAY	**44**

Soil Description:
Dark brown mottled grey slightly sandy slightly gravelly CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**11/10/14**

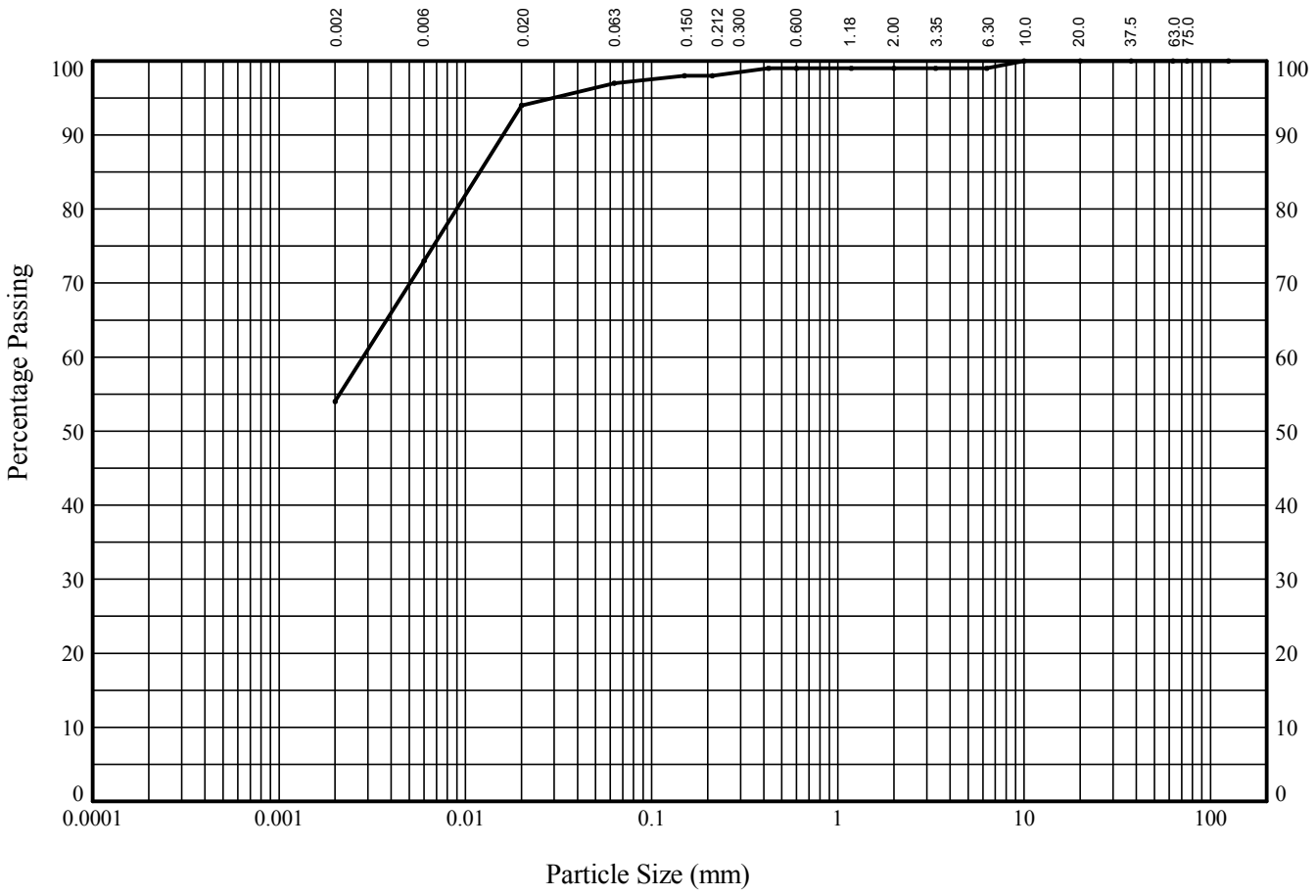
Contract: **Junction 15 M1 West**

Contract Ref: **745045**

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP22** Sample Ref: Sample Type: **B** Depth (m): **1.80**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	99
3.35	99
2.00	99
1.18	99
0.600	99
0.425	99
0.212	98
0.150	98
0.063	97

Particle Diameter	Percentage Passing
0.02	**94**
0.006	**73**
0.002	**54**

Soil Fraction	Sieve Percentage
GRAVEL	**1**
SAND	**2**
SILT	**43**
CLAY	**54**

Soil Description:
Brown mottled grey slightly gravelly slightly sandy CLAY

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
ALAN FROST	**11/10/14**

Contract: **Junction 15 M1 West**

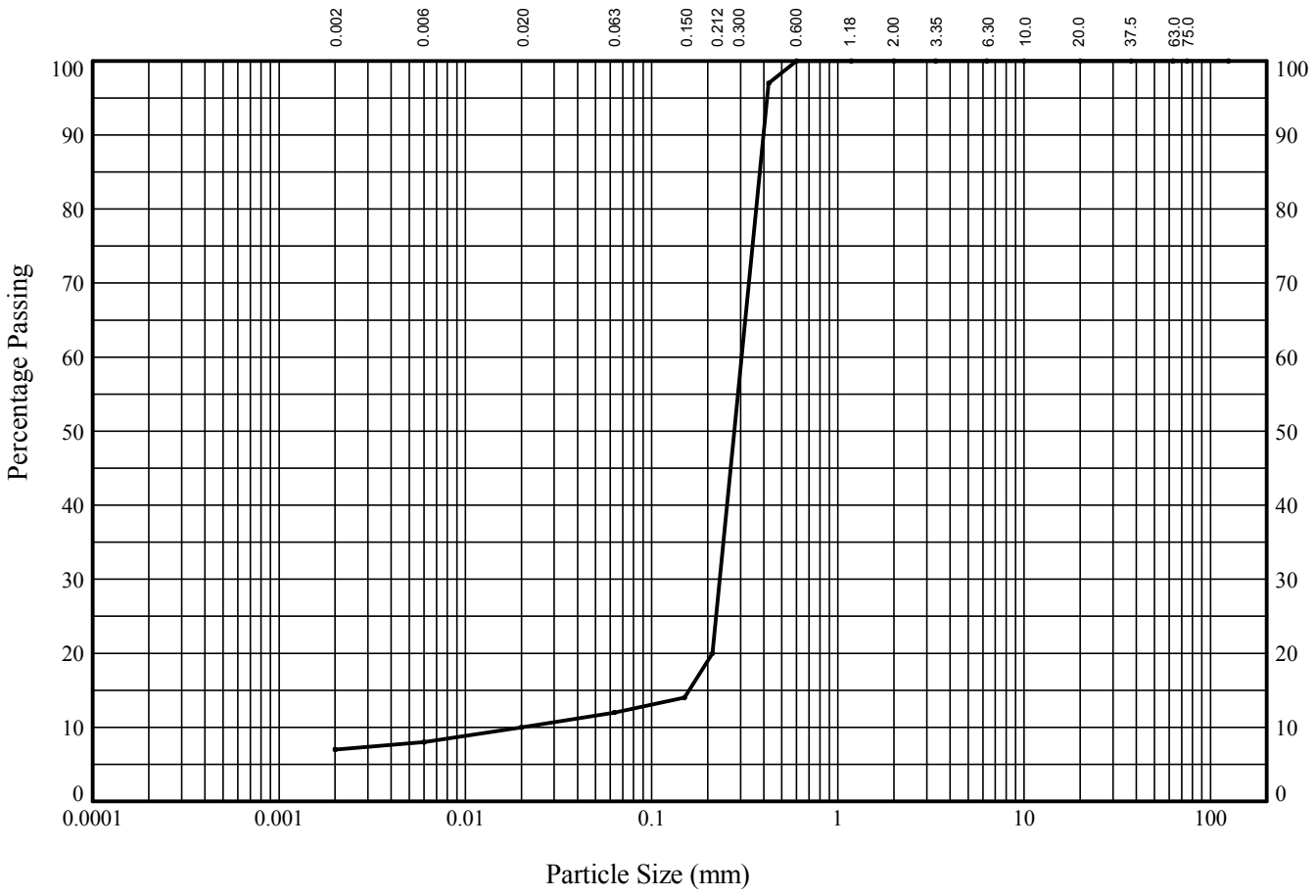
Contract Ref: **745045**

AGS

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 9.2,9.5 of BS1377:Part 2:1990

Trial Pit : **TP23** Sample Ref: Sample Type: **B** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve (mm)	Percentage Passing
125.0	100
75.0	100
63.0	100
37.5	100
20.0	100
10.0	100
6.30	100
3.35	100
2.00	100
1.18	100
0.600	100
0.425	97
0.212	20
0.150	14
0.063	12

Particle Diameter	Percentage Passing
0.02	**10**
0.006	**8**
0.002	**7**

Soil Fraction	Sieve Percentage
GRAVEL	**0**
SAND	**88**
SILT	**5**
CLAY	**7**

Soil Description:
Orangish brown clayey SAND

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D. Frost — **ALAN FROST**	**11/10/14**

Contract: **Junction 15 M1 West**

Contract Ref: **745045**

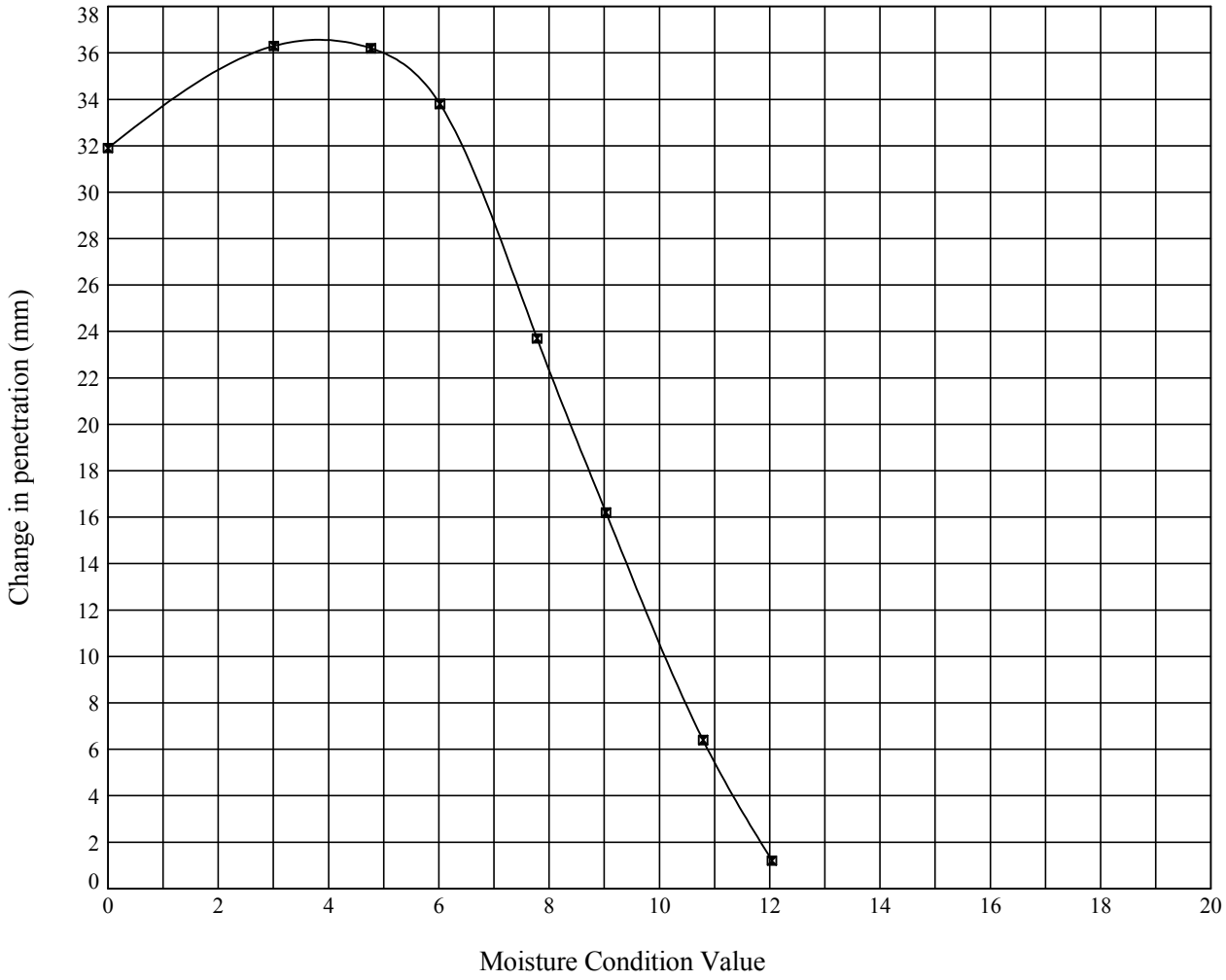
AGS

MOISTURE CONDITION VALUE

In accordance with clause 5 of BS1377:Part 4:1990

Trial Pit : **TP2** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.80**

Description : **Grey slightly sandy CLAY**



Moisture Content :	=	26	%
Percentage retained on 20 mm sieve :	=	0	%
Moisture Condition Value :	=	10.9	
Interpretation of curve:	=	Steepest straight line	

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Fre	**ALAN FROST**	**11/10/14**

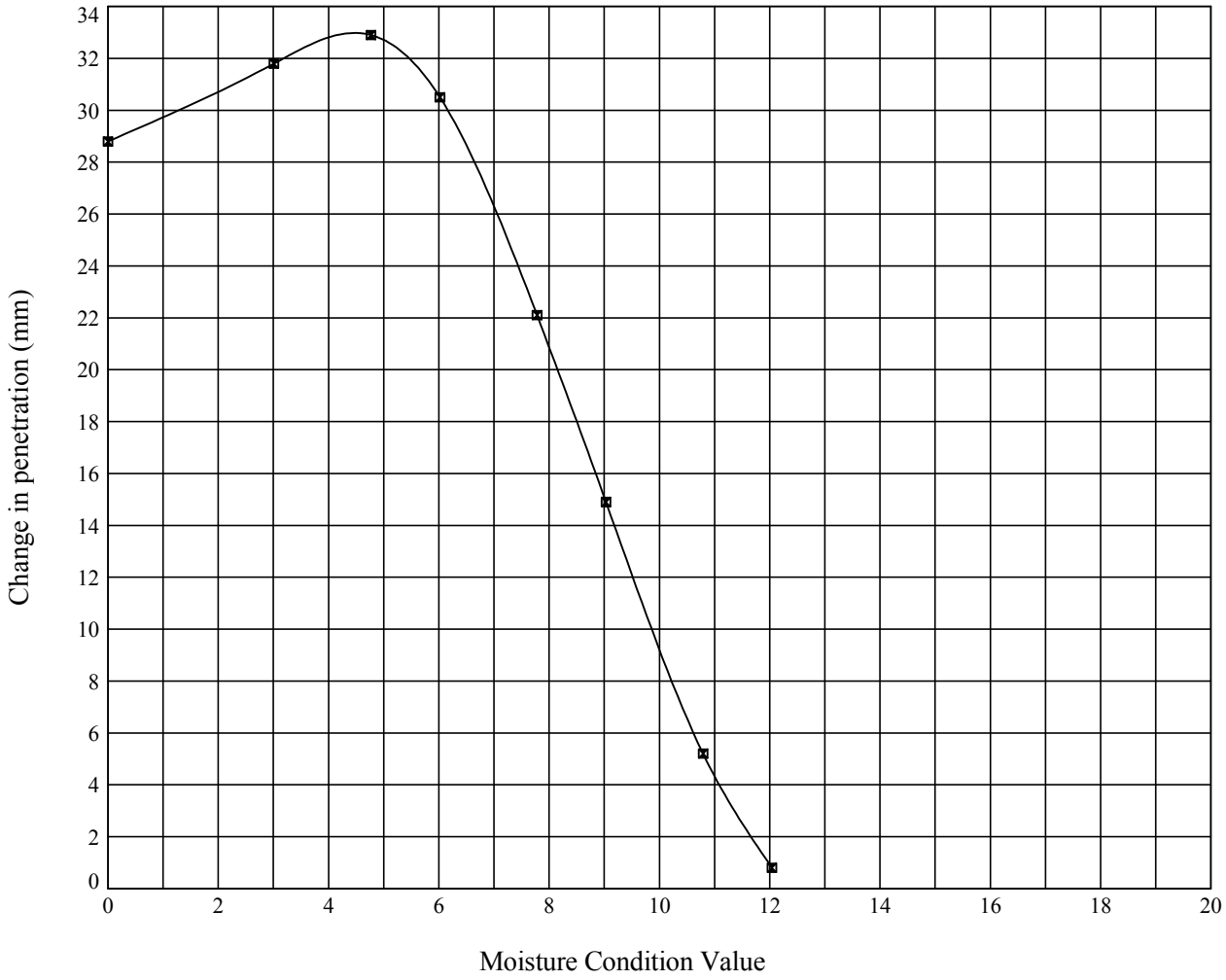
Contract	Contract Ref:
Junction 15 M1 West	**745045**

MOISTURE CONDITION VALUE

In accordance with clause 5 of BS1377:Part 4:1990

Trial Pit : **TP10** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.00**

Description : **Dark brown slightly gravelly slightly sandy CLAY**



Moisture Content :	=	24	%
Percentage retained on 20 mm sieve :	=	0	%
Moisture Condition Value :	=	10.7	
Interpretation of curve:	=	Steepest straight line	

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

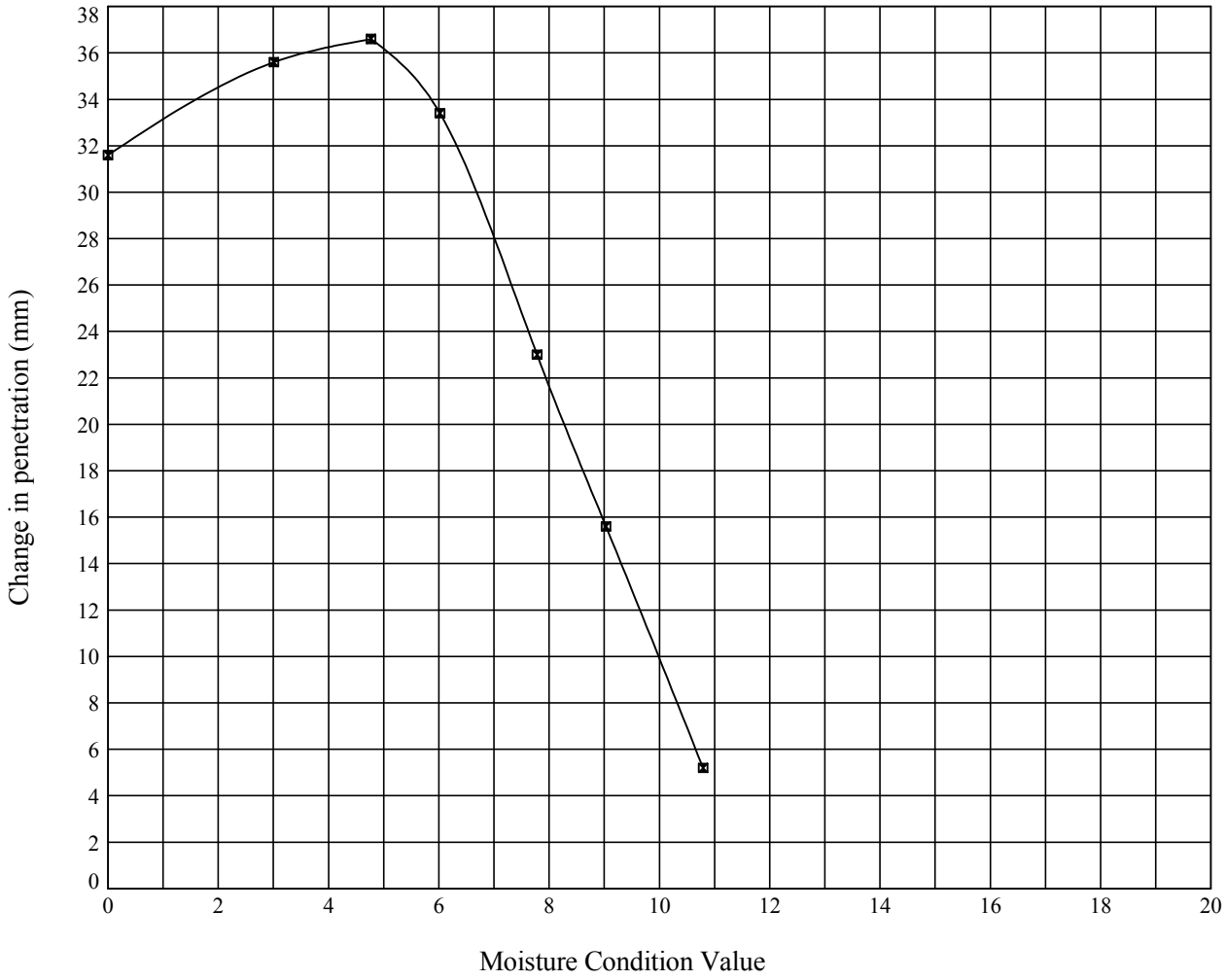
Contract	Contract Ref:
Junction 15 M1 West	**745045**

MOISTURE CONDITION VALUE

In accordance with clause 5 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**

Description : **Dark brown slightly gravelly slightly sandy CLAY**



Moisture Content :	=	29	%
Percentage retained on 20 mm sieve :	=	0	%
Moisture Condition Value :	=	10.8	
Interpretation of curve:	=	Steepest straight line	

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

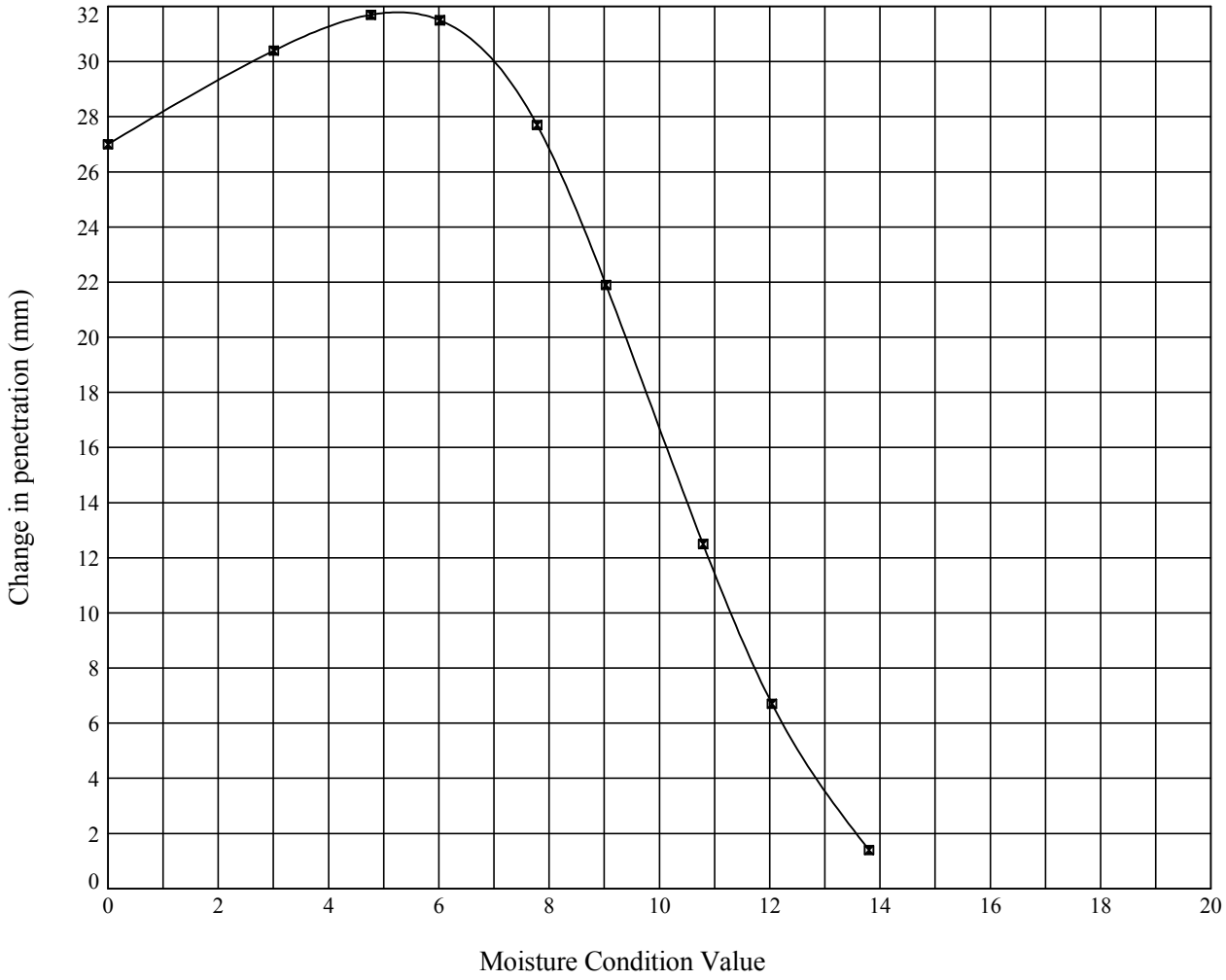
Contract	Contract Ref:
Junction 15 M1 West	**745045**

MOISTURE CONDITION VALUE

In accordance with clause 5 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.10**

Description : **Dark brown slightly sandy CLAY**



Moisture Content :	= 28	%
Percentage retained on 20 mm sieve :	= 0	%
Moisture Condition Value :	= 12.2	
Interpretation of curve:	= Steepest straight line	

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

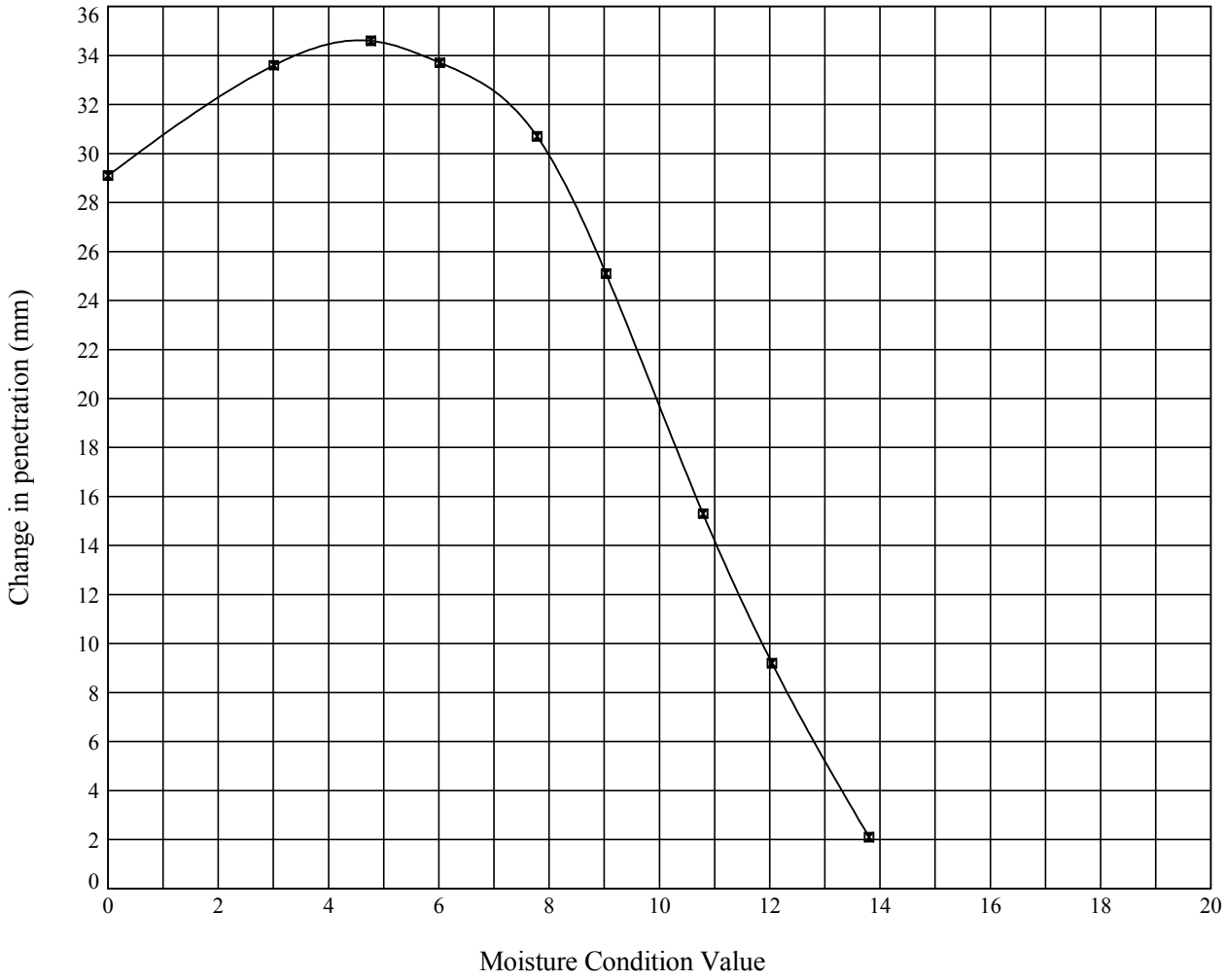
Contract	Contract Ref:
Junction 15 M1 West	**745045**

MOISTURE CONDITION VALUE

In accordance with clause 5 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **3** Sample Type: **LB** Depth (m): **3.20**

Description : **Light brown slightly sandy CLAY**



Moisture Content :	= 28	%
Percentage retained on 20 mm sieve :	= 0	%
Moisture Condition Value :	= 12.6	
Interpretation of curve:	= Steepest straight line	

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Fre	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

MOISTURE CONDITION VALUE CALIBRATION

In accordance with clause 5.5 of BS1377:Part 4:1990

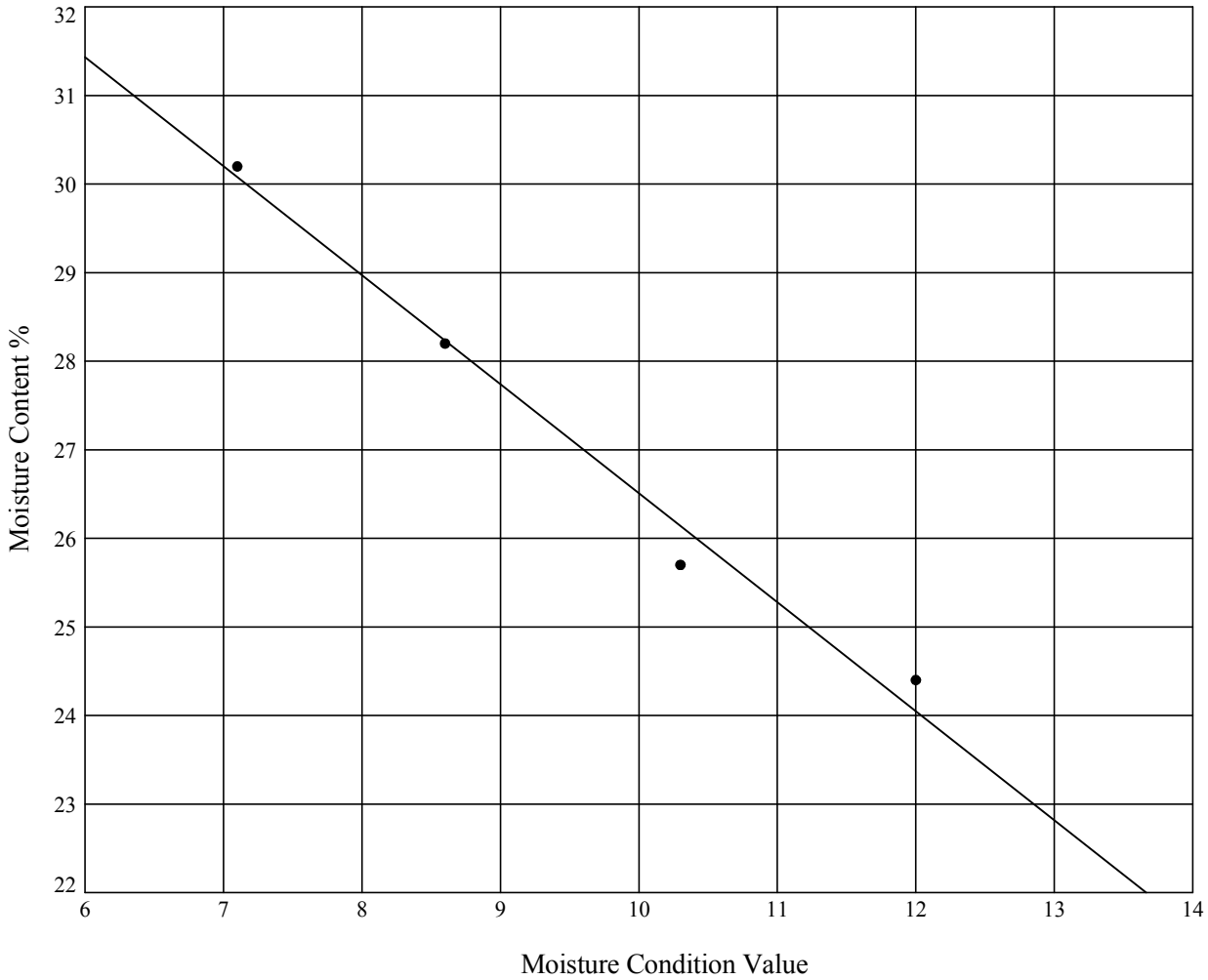
Trial Pit : **TP2** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**

Percentage retained on 20mm sieve : **0**

Description : **Light brown slightly gravelly slightly sandy CLAY**

Single/Separate Sample Used : **Separate**

Test Number	1	2	3	4	5
Moisture Content	25.7	24.4	28.2	30.2	-
MCV	10.3	12.0	8.6	7.1	-



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS 1a Princess Street Bedminster Bristol BS3 4AG	Compiled By		Date
	A.D.Frost	**ALAN FROST**	**11/10/14**
	Contract **Junction 15 M1 West**	Contract Ref: **745045**	

MOISTURE CONDITION VALUE CALIBRATION

In accordance with clause 5.5 of BS1377:Part 4:1990

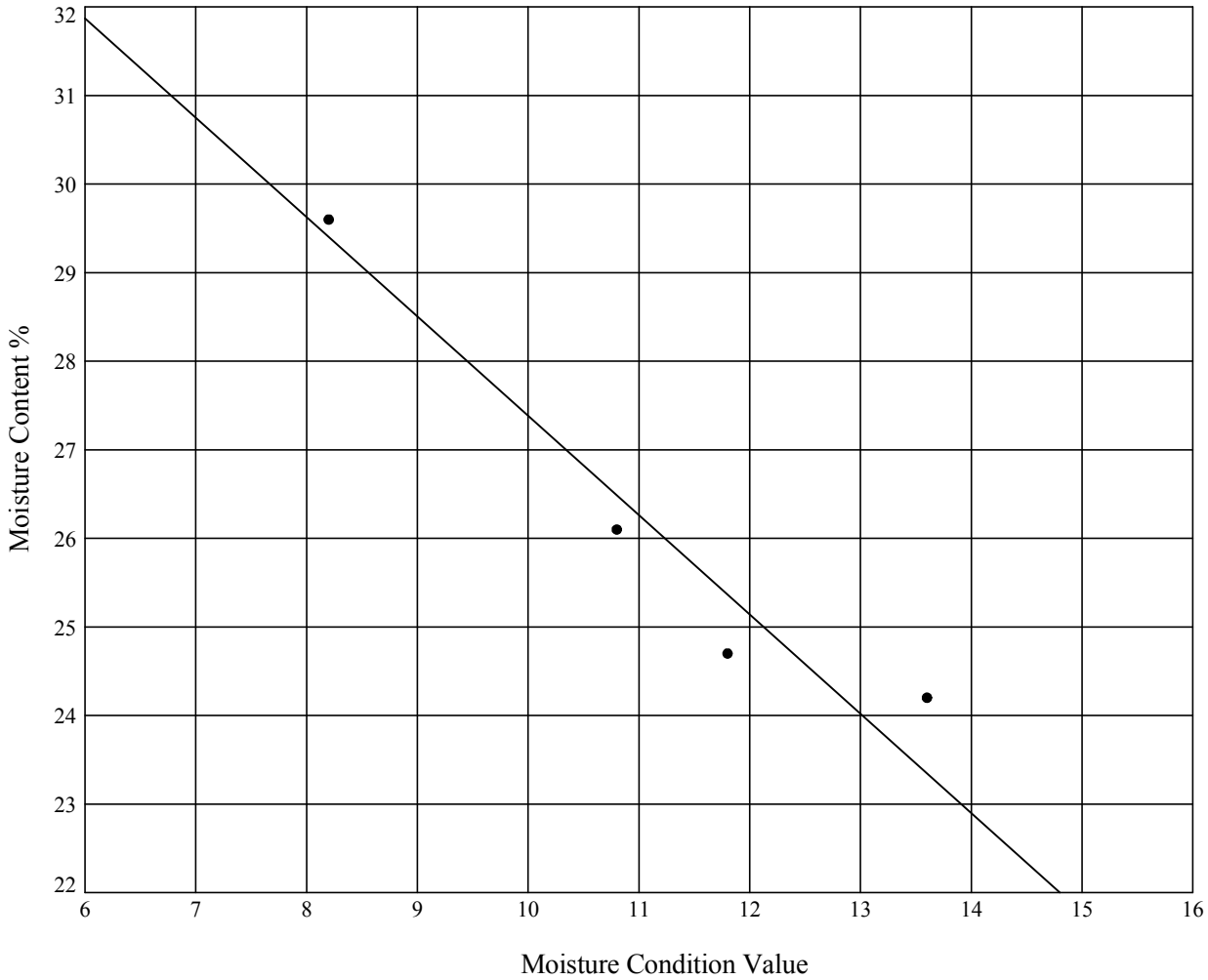
Trial Pit : **TP2** Sample Ref: Sample Type: **B** Depth (m): **4.40**

Percentage retained on 20mm sieve : **0**

Description : **Dark brown slightly sandy CLAY**

Single/Separate Sample Used : **Separate**

Test Number	1	2	3	4	5
Moisture Content	24.2	24.7	29.6	26.1	-
MCV	13.6	11.8	8.2	10.8	-



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

MOISTURE CONDITION VALUE CALIBRATION

In accordance with clause 5.5 of BS1377:Part 4:1990

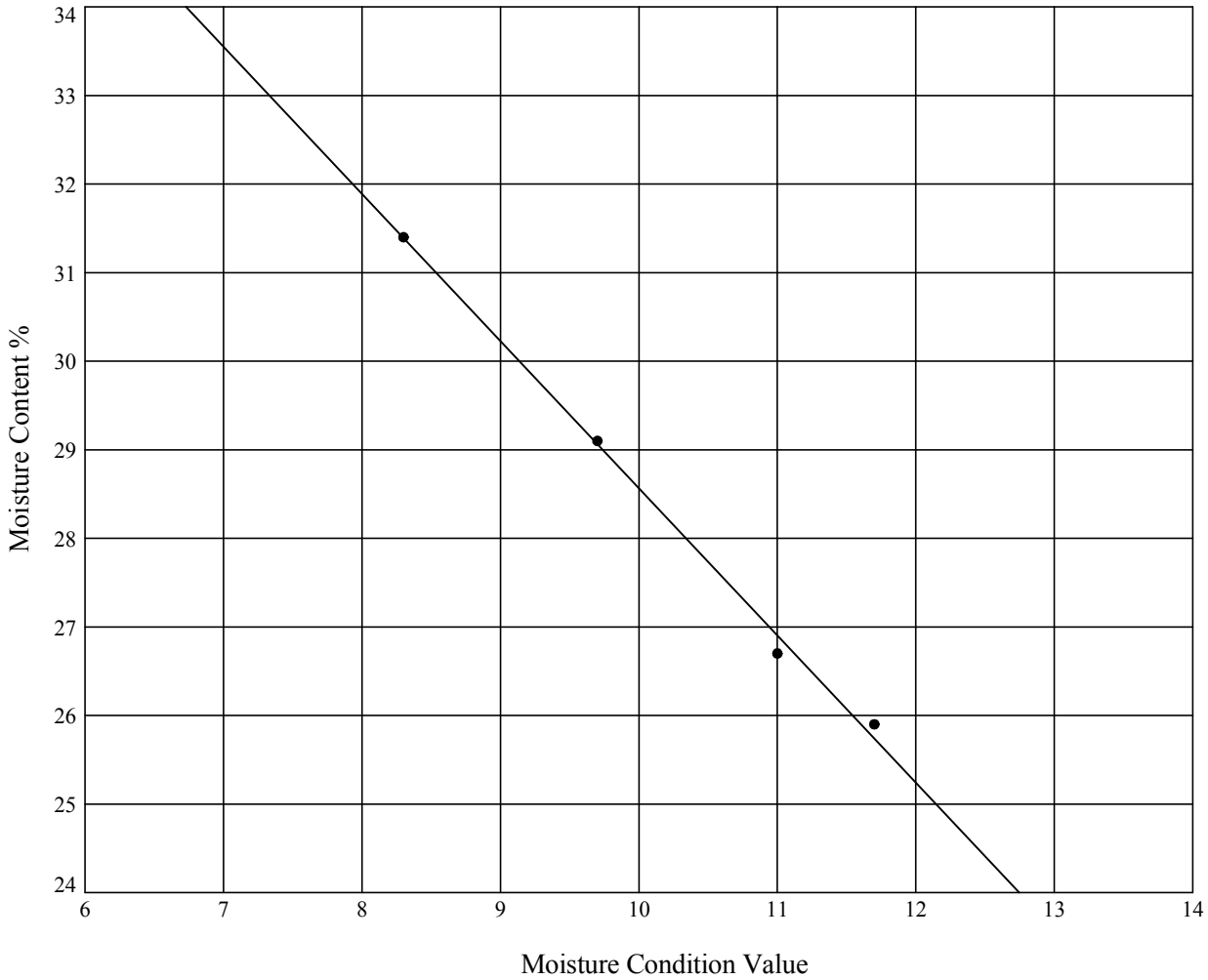
Trial Pit : **TP10** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.40**

Percentage retained on 20mm sieve : **0**

Description : **Brown mottled grey slightly sandy CLAY**

Single/Separate Sample Used : **Separate**

Test Number	1	2	3	4	5
Moisture Content	26.7	25.9	29.1	31.4	-
MCV	11.0	11.7	9.7	8.3	-



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

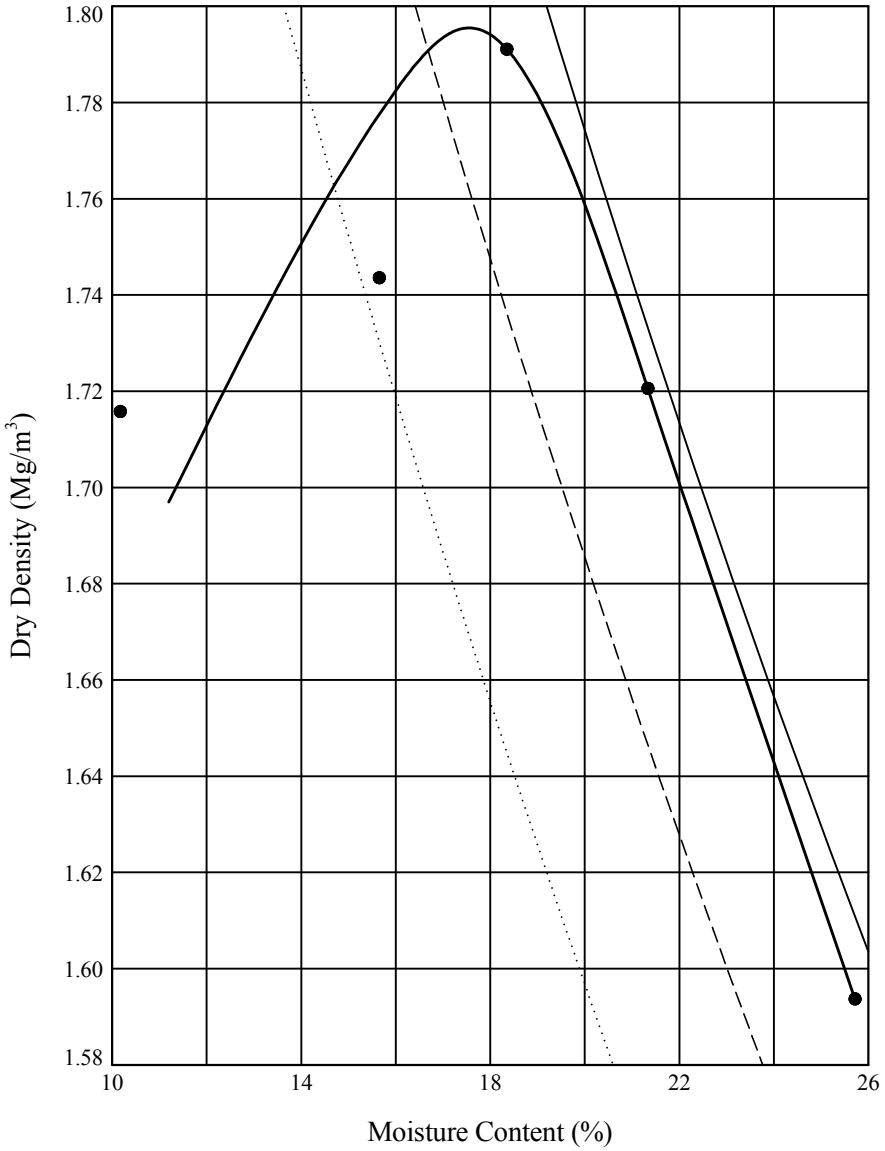
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP2** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**



Initial Sample Conditions		Test Details		Test Results	
Initial Moisture Content (%)	: **26**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m³)	: **1.80**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	: **18**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould	: **Proctor**	Method Used:	**Clause 3.5**
Particle Density - assumed (Mg/m³)	: **2.75**			Remarks:	
Size of Soil Pieces	: **<20mm**	Separate samples were used.			

Sample Description	Key to Air Voids Lines		
Light brown slightly gravelly slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

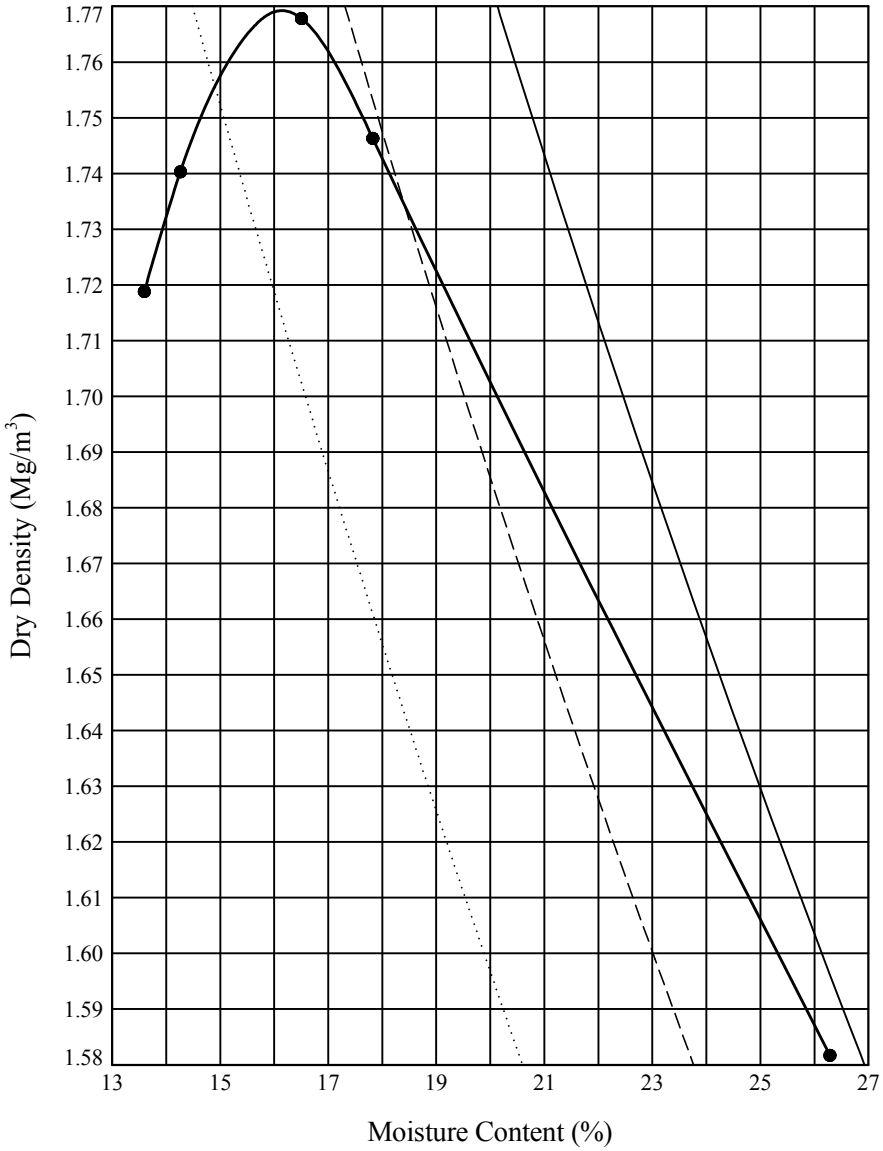
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP2** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.80**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**26**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m^3)	:	**1.77**
% Retained on 37.5mm BS Sieve	:	**0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	:	**16**
% Retained on 20.0mm BS Sieve	:	**0**	Type of Mould	: **Proctor**	Method Used: **Clause 3.5**		
Particle Density - assumed (Mg/m^3)	:	**2.75**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Separate samples were used.				

Sample Description	Key to Air Voids Lines		
Grey slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

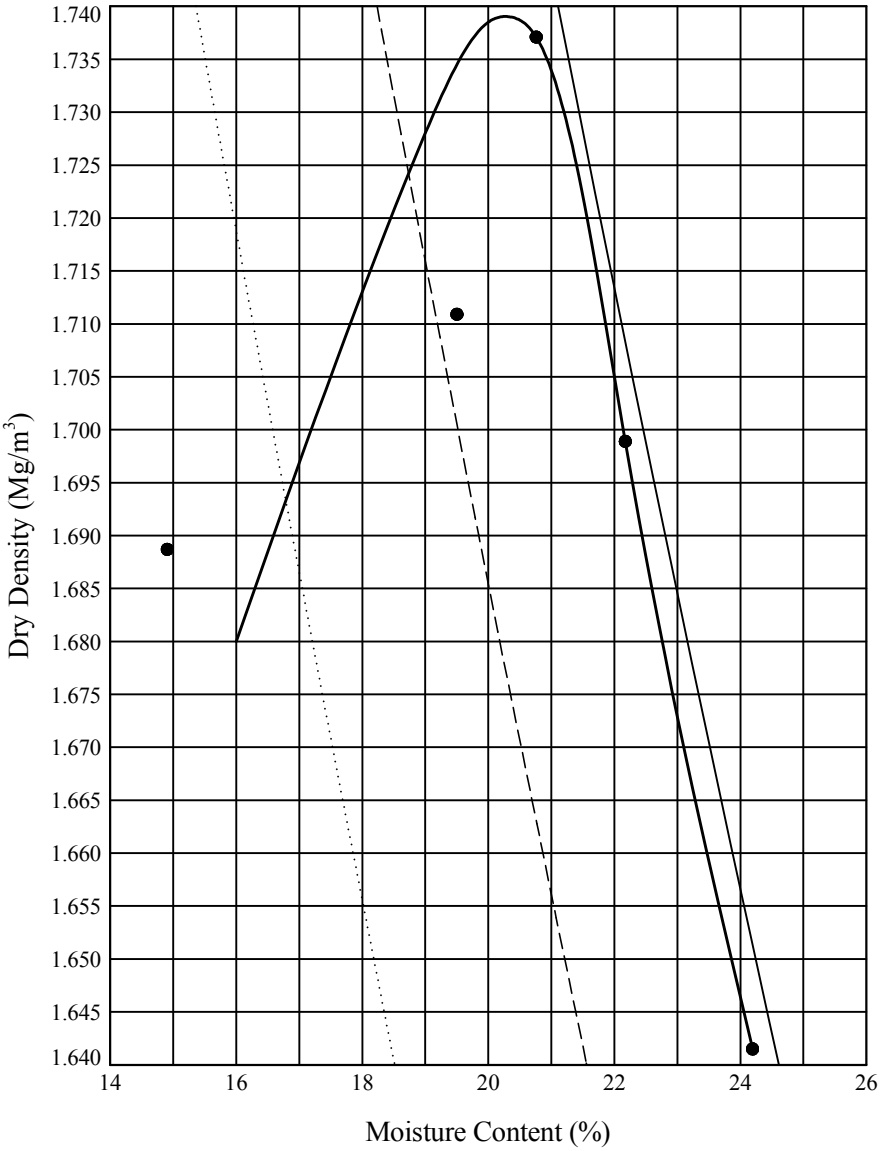
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP2** Sample Ref: Sample Type: **B** Depth (m): **4.40**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**24**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m^3)	:	**1.74**
% Retained on 37.5mm BS Sieve	:	**0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	:	**20**
% Retained on 20.0mm BS Sieve	:	**0**	Type of Mould	: **Proctor**	Method Used: **Clause 3.5**		
Particle Density - assumed (Mg/m^3)	:	**2.75**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Separate samples were used.				

Sample Description	Key to Air Voids Lines		
Dark brown slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

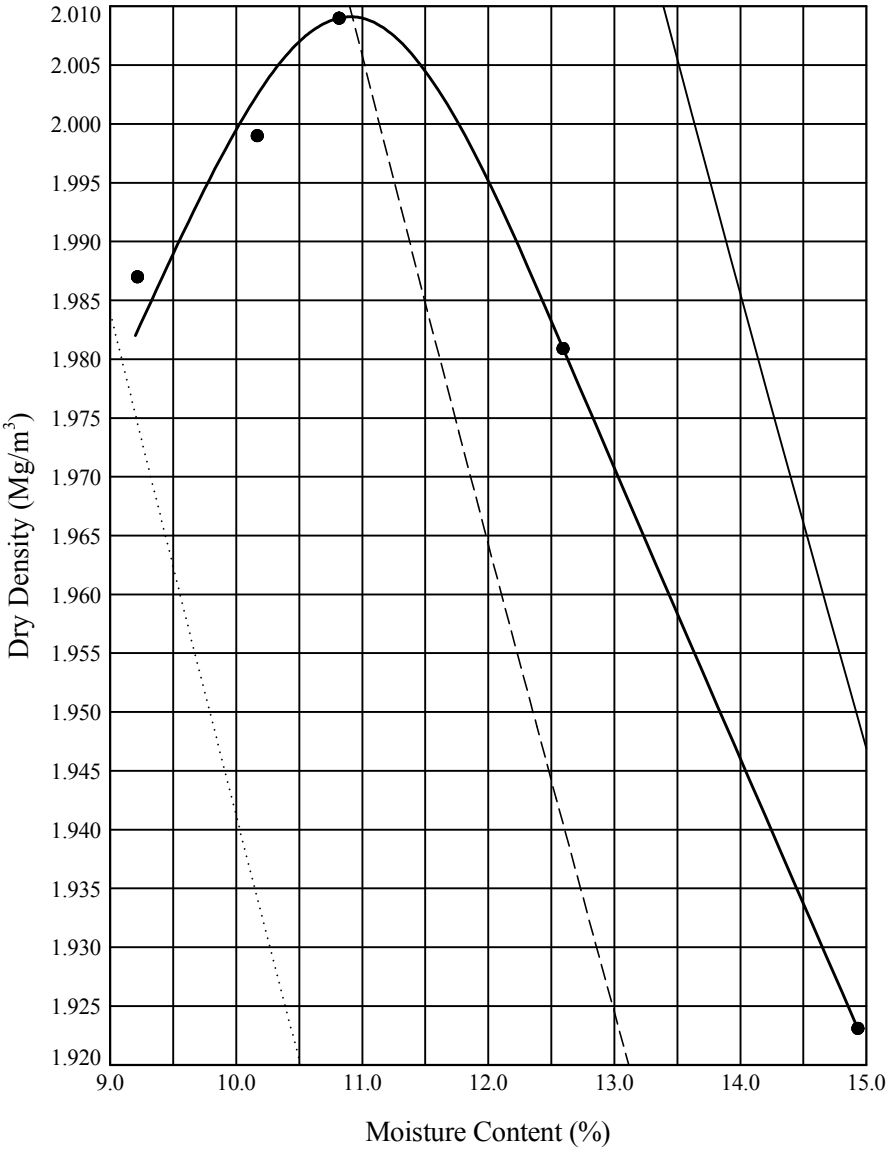
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP6** Sample Ref: Sample Type: **B** Depth (m): **2.60**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**9.2**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m^3)	:	**2.01**
% Retained on 37.5mm BS Sieve	:	**0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	:	**11**
% Retained on 20.0mm BS Sieve	:	**1**	Type of Mould	: **Proctor**	Method Used: **Clause 3.5**		
Particle Density - assumed (Mg/m^3)	:	**2.75**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Separate samples were used.				

Sample Description	Key to Air Voids Lines		
Reddish brown very gravelly SAND	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

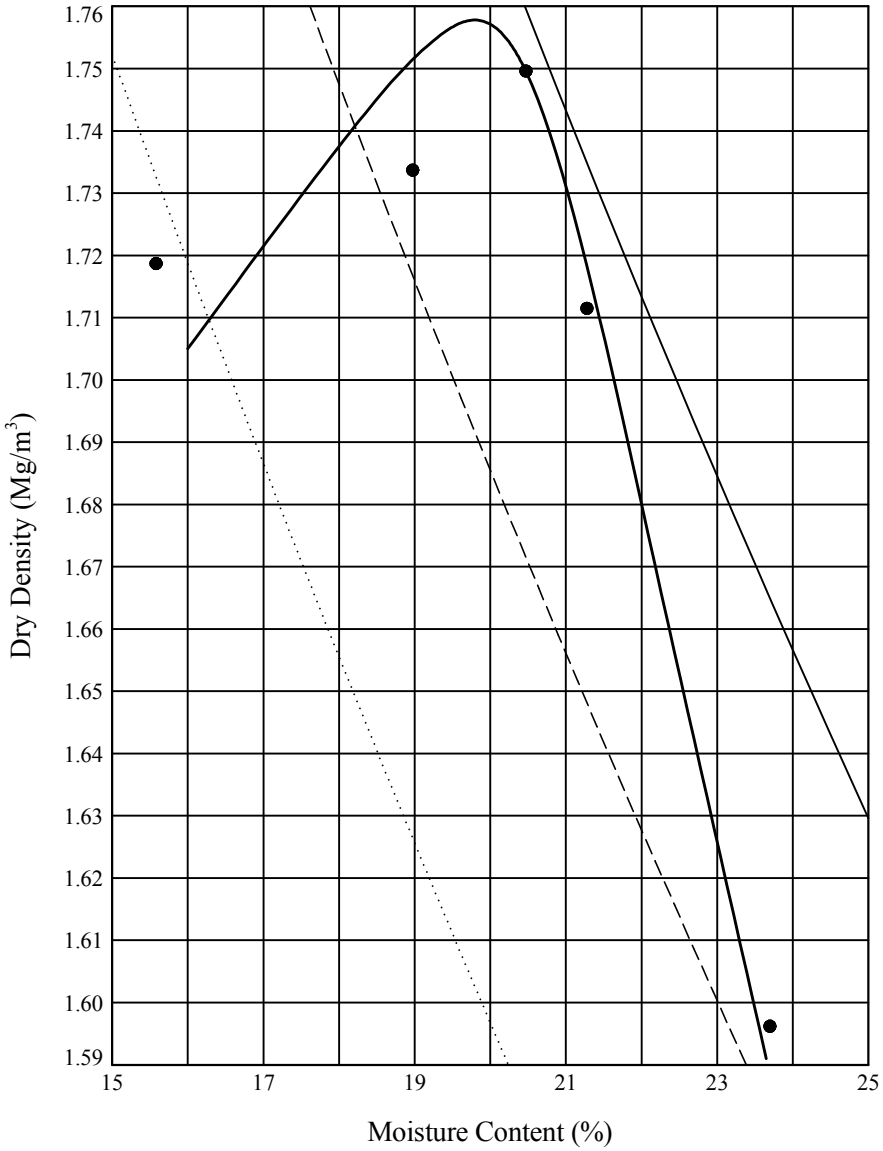
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP10** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.00**



Initial Sample Conditions		Test Details		Test Results	
Initial Moisture Content (%)	: **24**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m^3)	: **1.76**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	: **20**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould	: **Proctor**	Method Used:	**Clause 3.5**
Particle Density - assumed (Mg/m^3)	: **2.75**			Remarks:	
Size of Soil Pieces	: **<20mm**	Separate samples were used.			

Sample Description	Key to Air Voids Lines		
Dark brown slightly gravelly slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

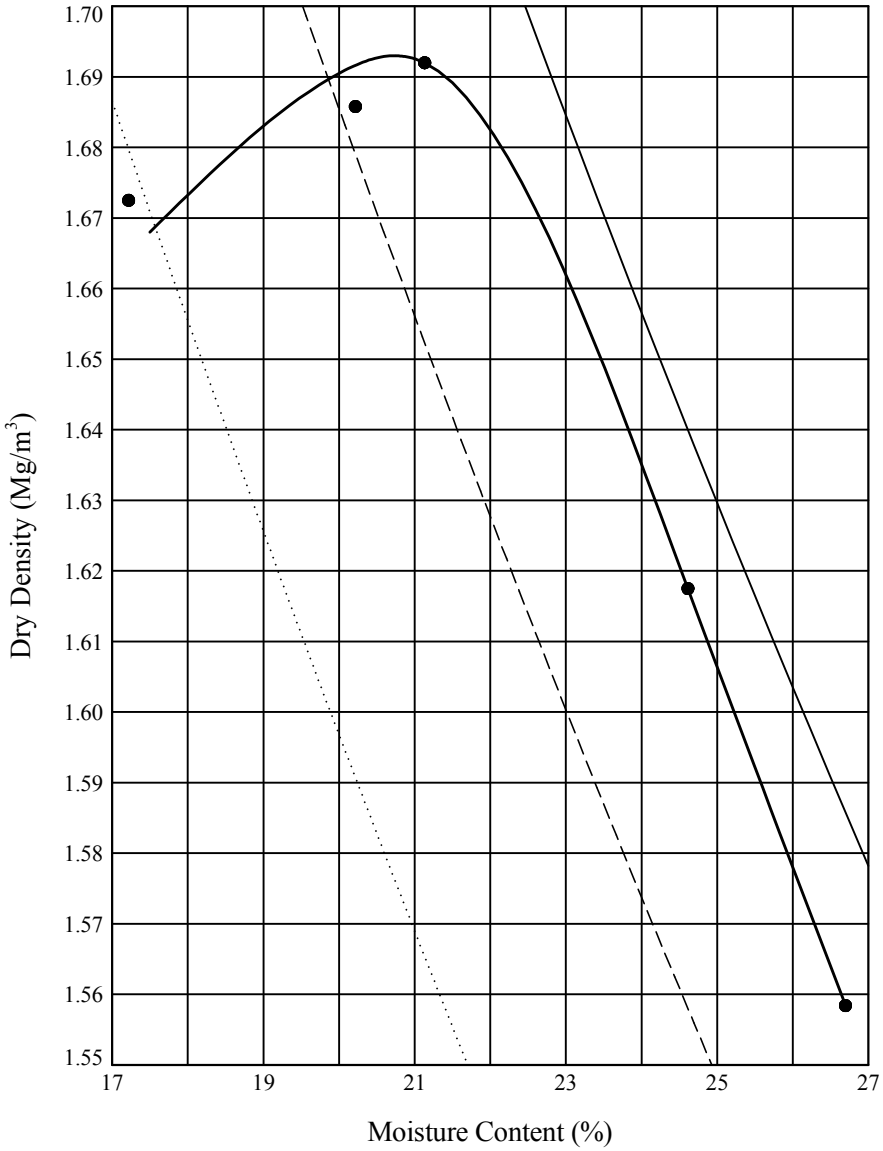
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP10** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.40**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%)	: **27**	Compaction Type : **Heavy**	Maximum Dry Density (Mg/m³) : **1.69**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **21**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m³)	: **2.75**		Remarks:
Size of Soil Pieces	: **<20mm**	Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Brown mottled grey slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

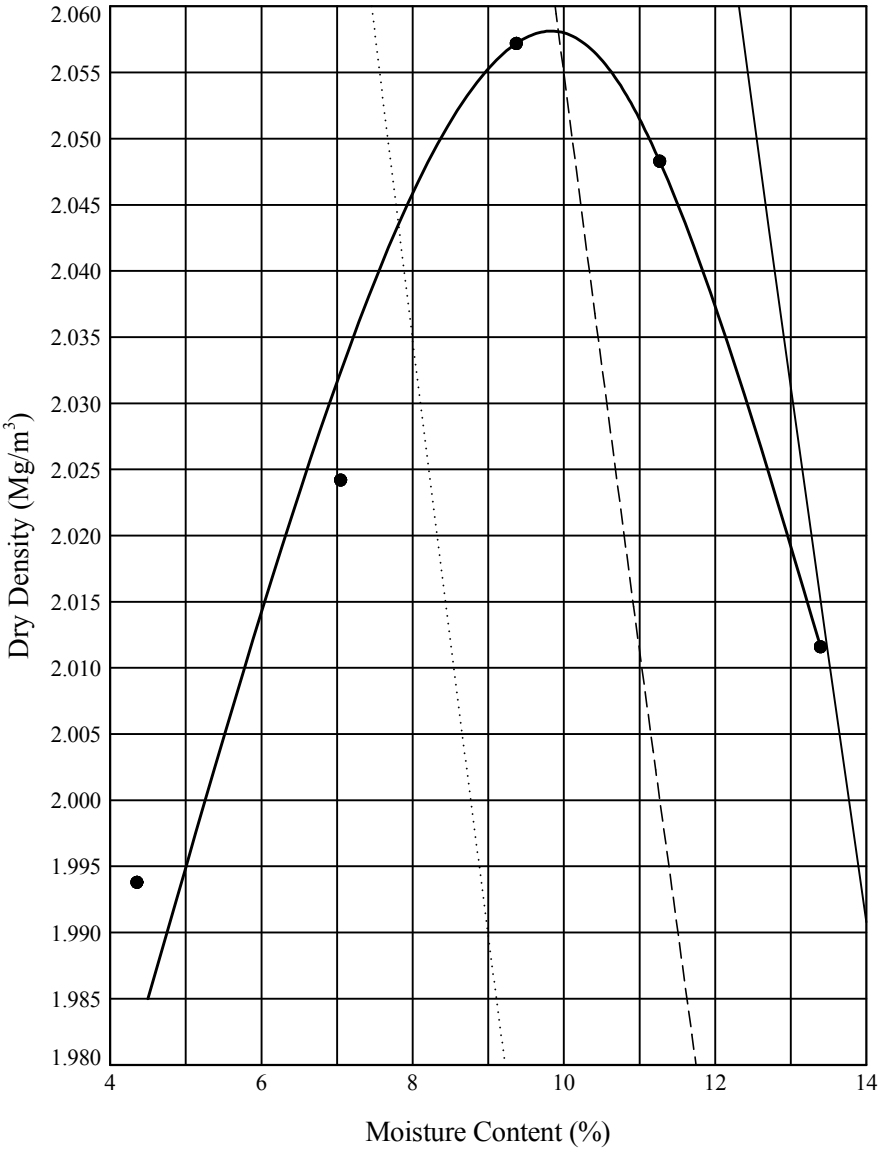
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP10** Sample Ref: **3** Sample Type: **LB** Depth (m): **3.10**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%) : **7.0**		Compaction Type : **Heavy**	Maximum Dry Density (Mg/m³) : **2.06**
% Retained on 37.5mm BS Sieve : **0**		Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **9.8**
% Retained on 20.0mm BS Sieve : **0**		Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m³) : **2.76**			Remarks:
Size of Soil Pieces : **<20mm**		Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Orangish brown very gravelly SAND	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

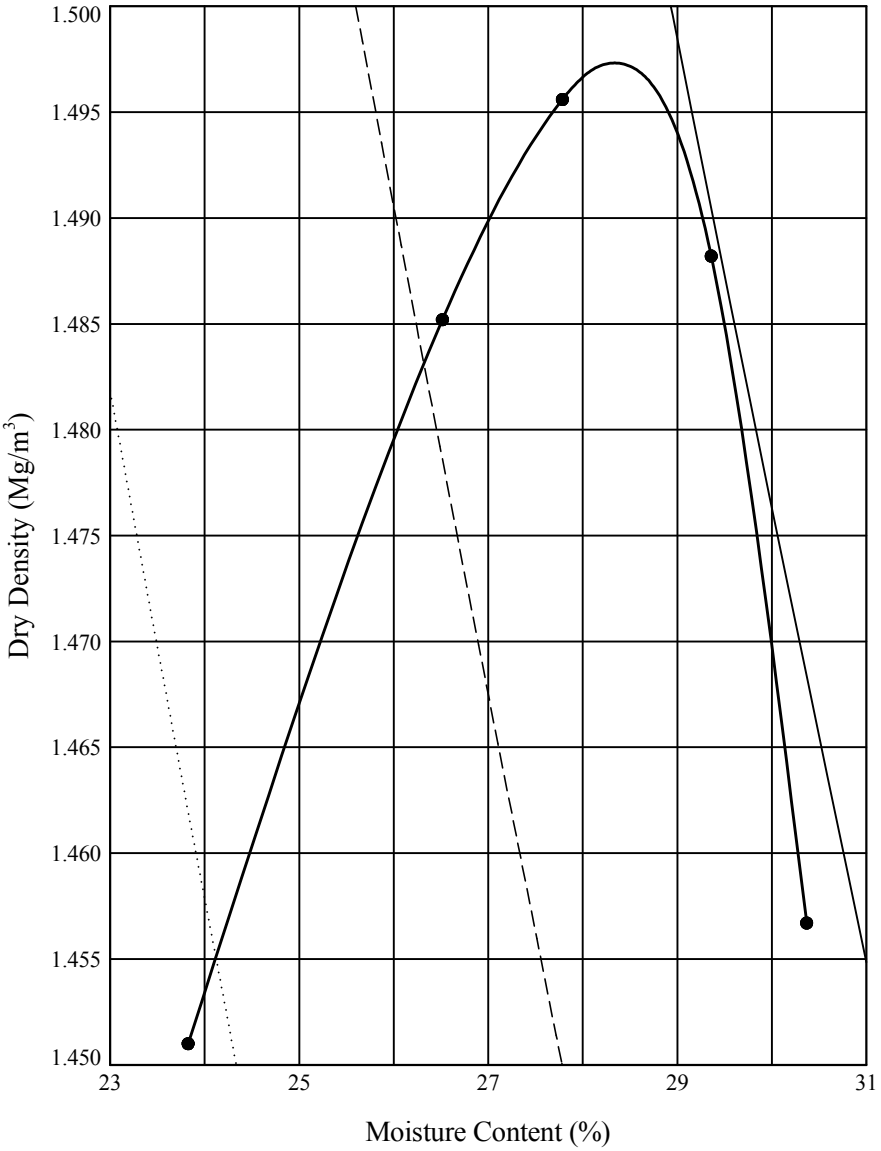
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP11** Sample Ref: Sample Type: **B** Depth (m): **1.20**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**29**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m^3)	:	**1.50**
% Retained on 37.5mm BS Sieve	:	**0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	:	**28**
% Retained on 20.0mm BS Sieve	:	**0**	Type of Mould	: **Proctor**	Method Used: **Clause 3.5**		
Particle Density - assumed (Mg/m^3)	:	**2.65**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Separate samples were used.				

Sample Description	Key to Air Voids Lines		
Light brown slightly gravelly slightly sandy silty CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

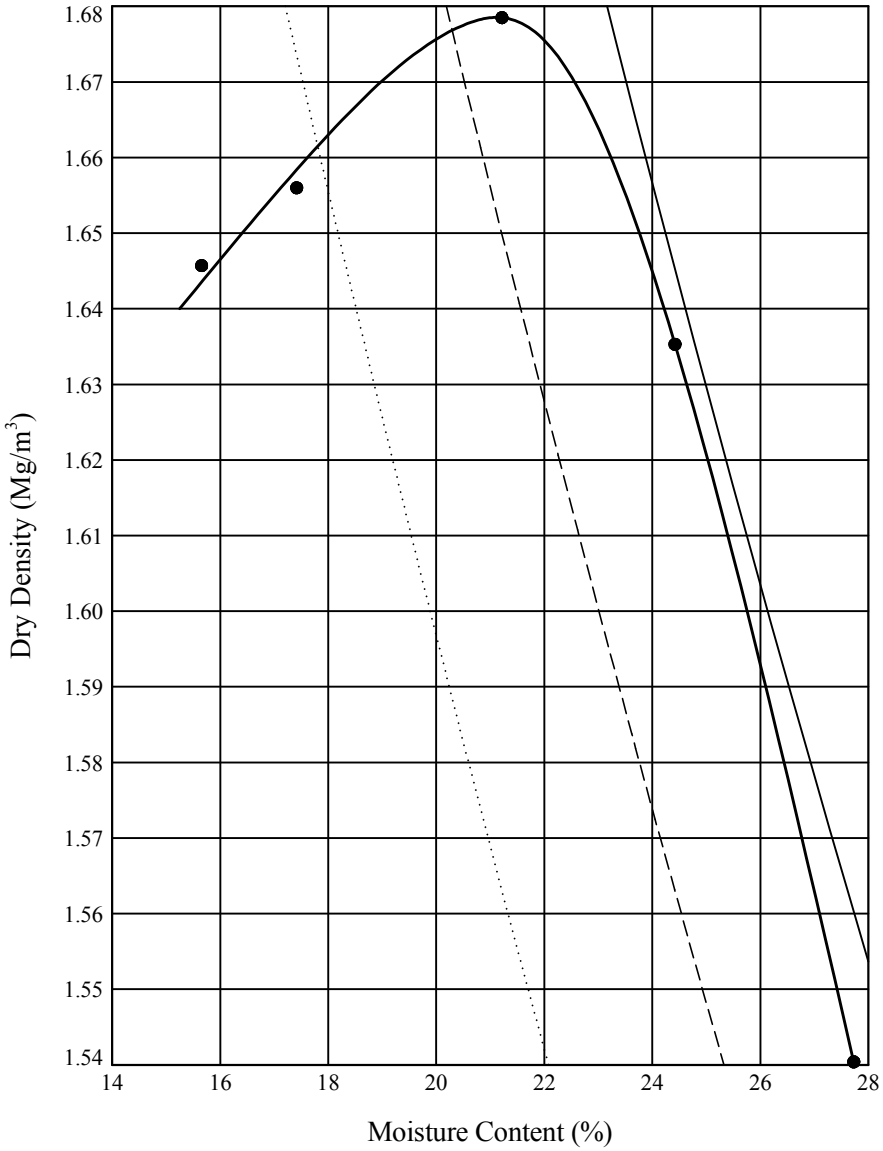
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP11** Sample Ref: Sample Type: **B** Depth (m): **3.50**



Initial Sample Conditions			Test Details		Test Results		
Initial Moisture Content (%)	:	**28**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m^3)	:	**1.68**
% Retained on 37.5mm BS Sieve	:	**0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	:	**21**
% Retained on 20.0mm BS Sieve	:	**0**	Type of Mould	: **Proctor**	Method Used: **Clause 3.5**		
Particle Density - assumed (Mg/m^3)	:	**2.75**			Remarks:		
Size of Soil Pieces	:	**<20mm**	Separate samples were used.				

Sample Description	Key to Air Voids Lines		
Grey CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

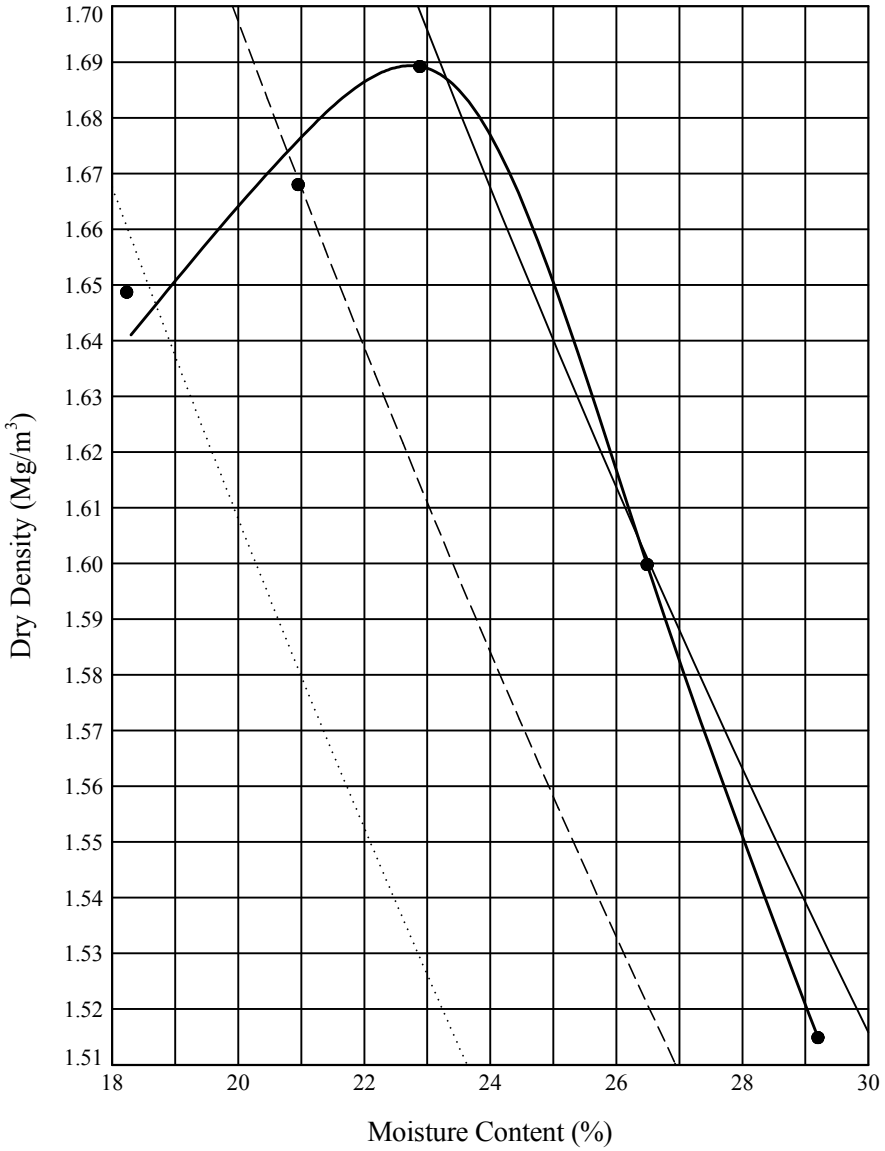
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%)	: **29**	Compaction Type : **Heavy**	Maximum Dry Density (Mg/m³) : **1.69**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **23**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m³)	: **2.78**		Remarks:
Size of Soil Pieces	: **<20mm**	Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Dark brown slightly gravelly slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

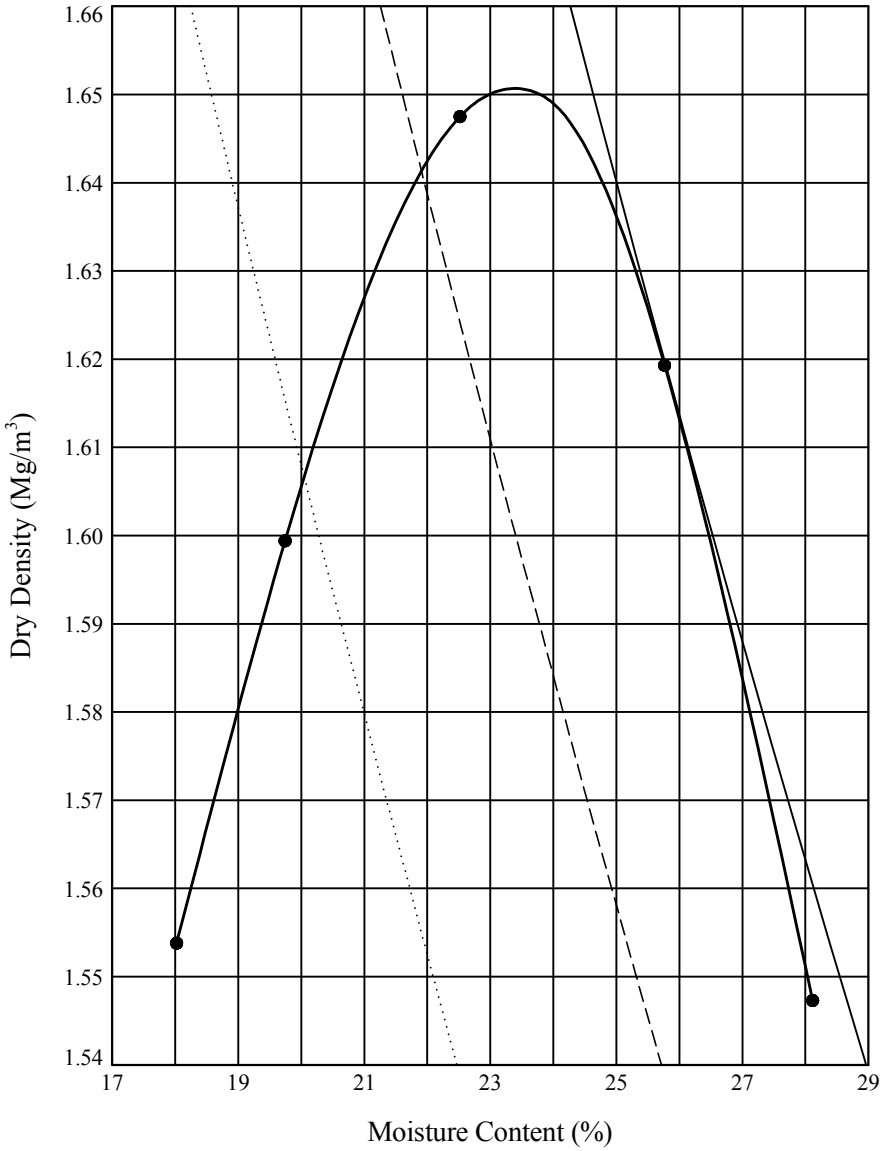
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.10**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%)	: **28**	Compaction Type : **Heavy**	Maximum Dry Density (Mg/m^3) : **1.65**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **23**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m^3)	: **2.78**		Remarks:
Size of Soil Pieces	: **<20mm**	Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Dark brown slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

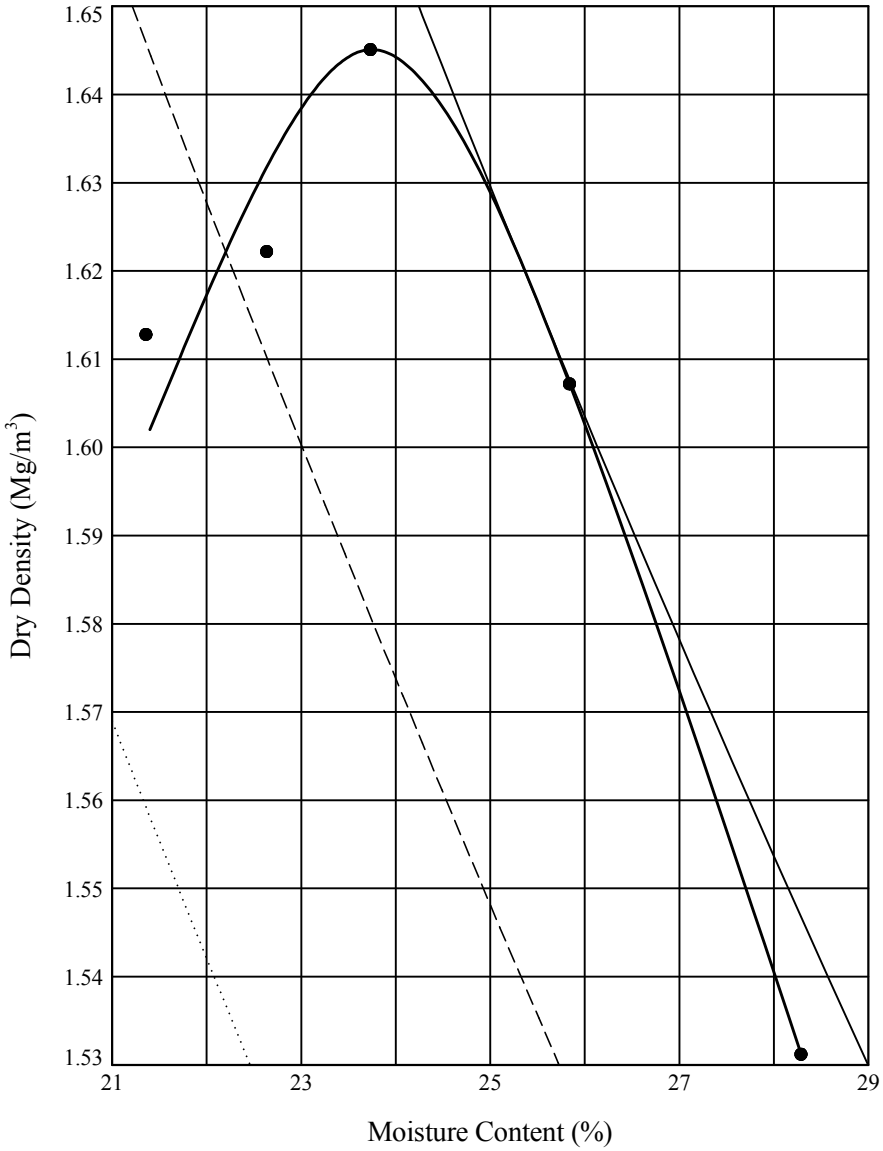
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **3** Sample Type: **LB** Depth (m): **3.20**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%)	: **28**	Compaction Type : **Heavy**	Maximum Dry Density (Mg/m³) : **1.65**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **24**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m³)	: **2.75**		Remarks:
Size of Soil Pieces	: **<20mm**	Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Light brown slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

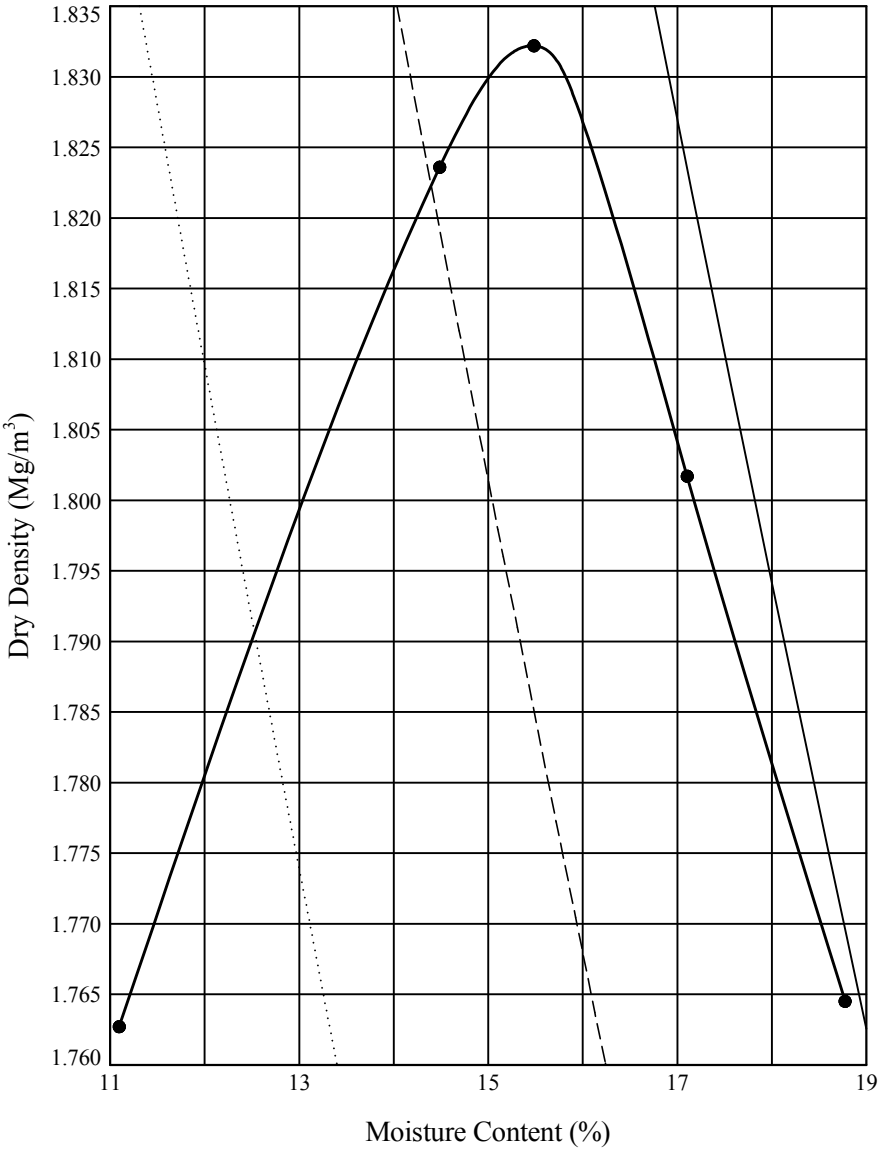
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP17** Sample Ref: Sample Type: **B** Depth (m): **1.00**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%)	: **19**	Compaction Type : **Heavy**	Maximum Dry Density (Mg/m^3) : **1.83**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **15**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m^3)	: **2.65**		Remarks:
Size of Soil Pieces	: **<20mm**	Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Brown mottled grey slightly gravelly slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**12/10/14**

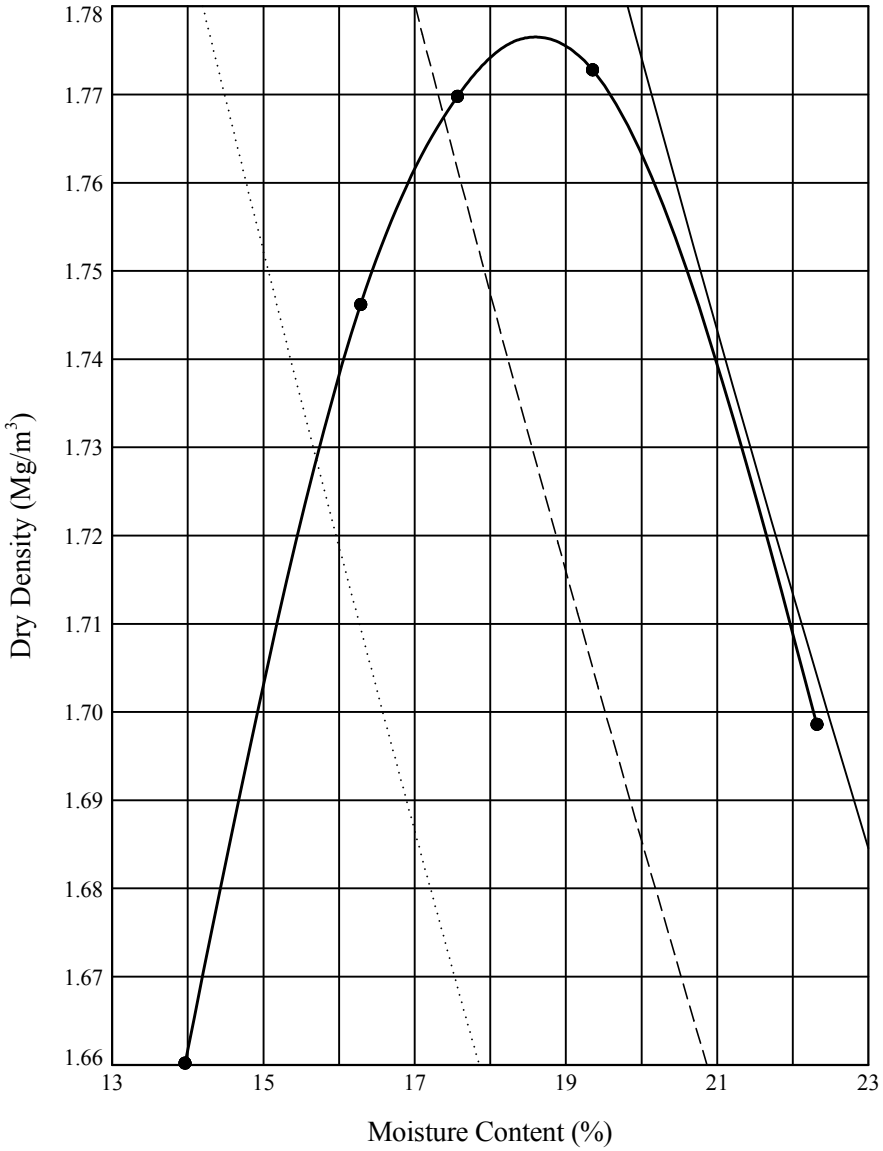
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP22** Sample Ref: Sample Type: **B** Depth (m): **1.00**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%)	: **22**	Compaction Type : **Heavy**	Maximum Dry Density (Mg/m³) : **1.78**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **19**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m³)	: **2.75**		Remarks:
Size of Soil Pieces	: **<20mm**	Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Dark brown mottled grey slightly sandy slightly gravelly CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**12/10/14**

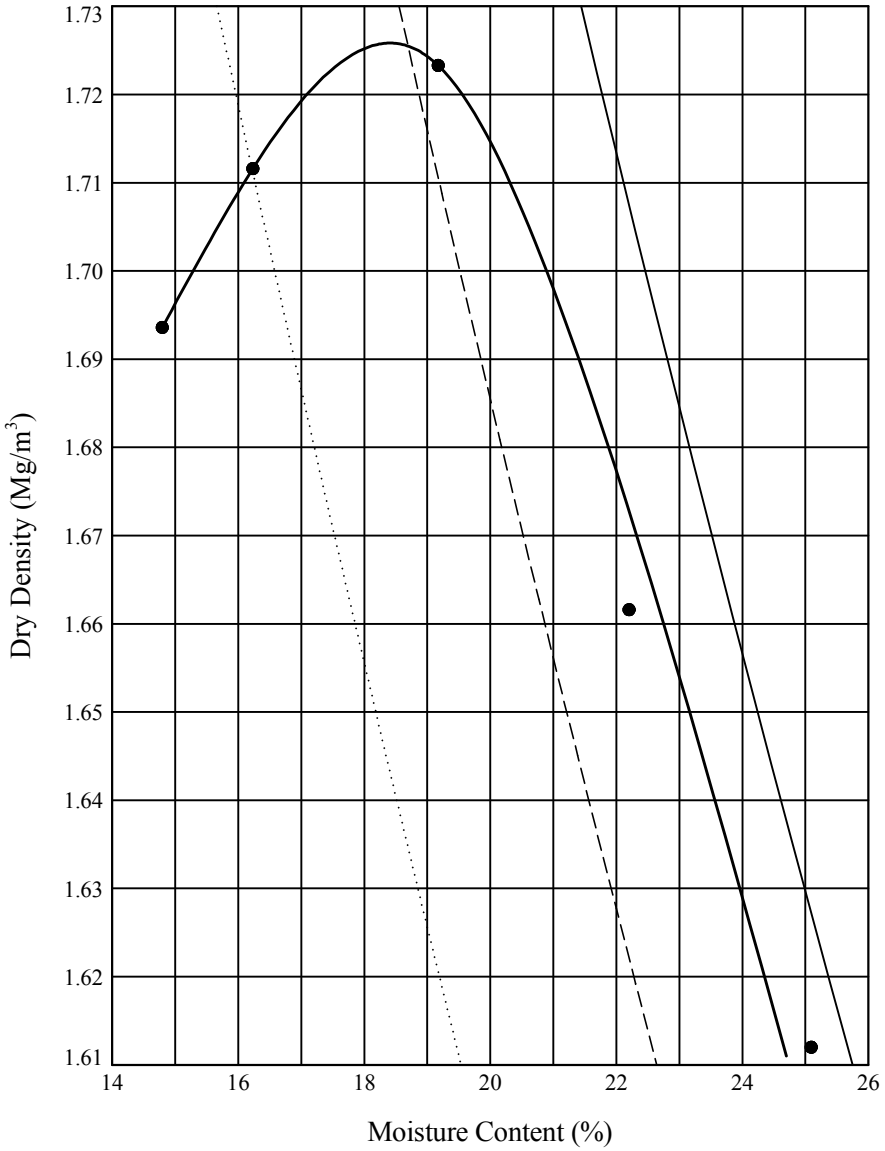
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP22** Sample Ref: Sample Type: **B** Depth (m): **1.80**



Initial Sample Conditions		Test Details	Test Results
Initial Moisture Content (%) : **25**		Compaction Type : **Heavy**	Maximum Dry Density (Mg/m³) : **1.73**
% Retained on 37.5mm BS Sieve : **0**		Mass of Rammer (kg): **4.5**	Optimum Moisture Content (%) : **18**
% Retained on 20.0mm BS Sieve : **0**		Type of Mould : **Proctor**	Method Used: **Clause 3.5**
Particle Density - assumed (Mg/m³) : **2.75**			Remarks:
Size of Soil Pieces : **<20mm**		Separate samples were used.	

Sample Description	Key to Air Voids Lines		
Brown mottled grey slightly gravelly slightly sandy CLAY	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By	Date
A.D.Frost — **ALAN FROST**	**12/10/14**

Contract: **Junction 15 M1 West**

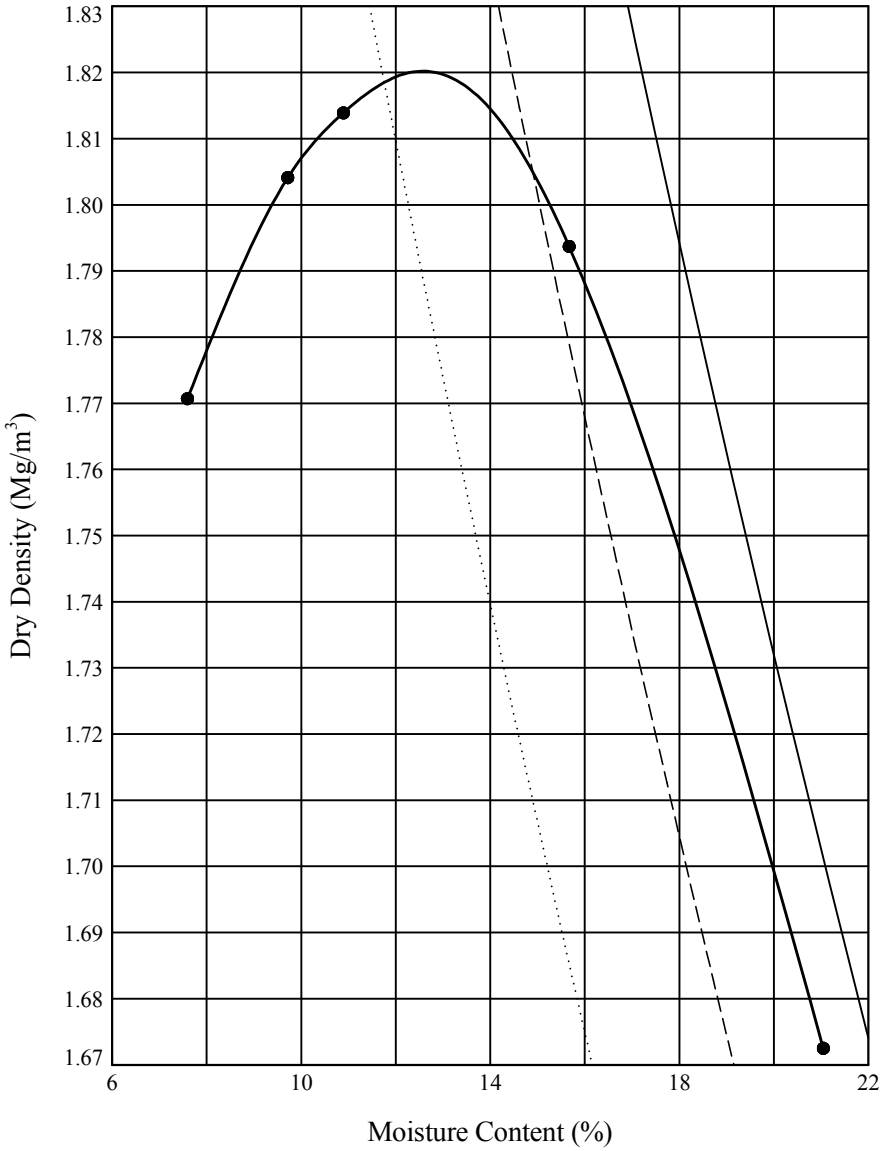
Contract Ref: **745045**

AGS

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP TEST

In accordance with clauses 3.3,3.4,3.5,3.6,3.7 of BS1377:Part 4:1990

Trial Pit : **TP23** Sample Ref: Sample Type: **B** Depth (m): **1.50**



Initial Sample Conditions		Test Details		Test Results	
Initial Moisture Content (%)	: **16**	Compaction Type	: **Heavy**	Maximum Dry Density (Mg/m³)	: **1.82**
% Retained on 37.5mm BS Sieve	: **0**	Mass of Rammer (kg):	**4.5**	Optimum Moisture Content (%)	: **13**
% Retained on 20.0mm BS Sieve	: **0**	Type of Mould	: **Proctor**	Method Used:	**Clause 3.5**
Particle Density - assumed (Mg/m³)	: **2.65**			Remarks:	
Size of Soil Pieces	: **<20mm**	Separate samples were used.			

Sample Description	Key to Air Voids Lines		
Orangish brown clayey SAND	——— 0%	– – – – 5%	····· 10%

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**12/10/14**

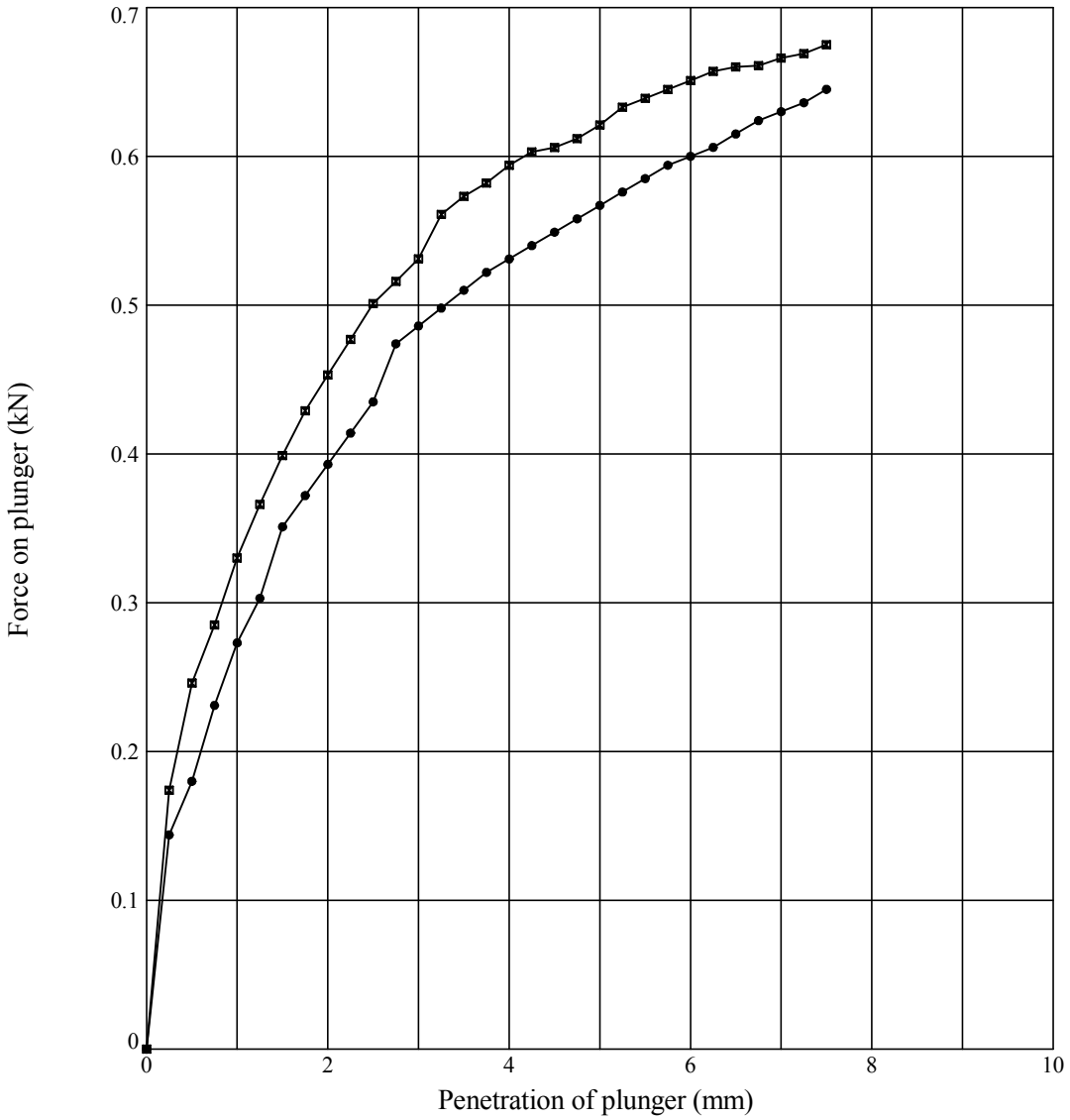
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP2** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**26**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**26**	**26**
Initial Bulk Density (Mg/m^3)	:	**2.00**	Surcharge (kg)	:	**4.5**	CBR value (%)	**3.3**	**3.8**
Initial Dry Density (Mg/m^3)	:	**1.58**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Light brown slightly gravelly slightly sandy CLAY	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

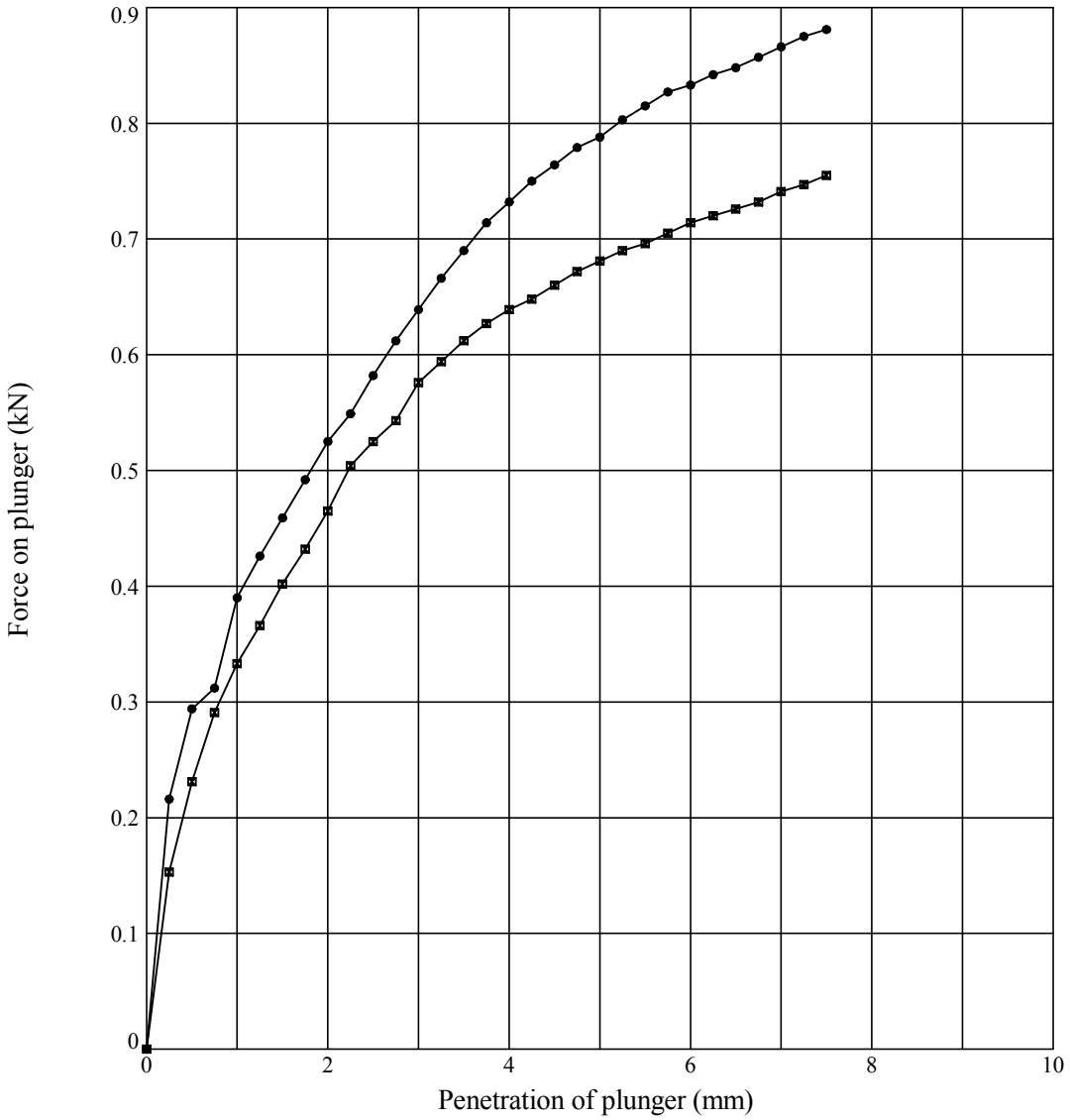
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP2** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.80**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**26**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**26**	**26**
Initial Bulk Density (Mg/m^3)	:	**1.98**	Surcharge (kg)	:	**4.5**	CBR value (%)	**4.4**	**4.0**
Initial Dry Density (Mg/m^3)	:	**1.57**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Grey slightly sandy CLAY	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

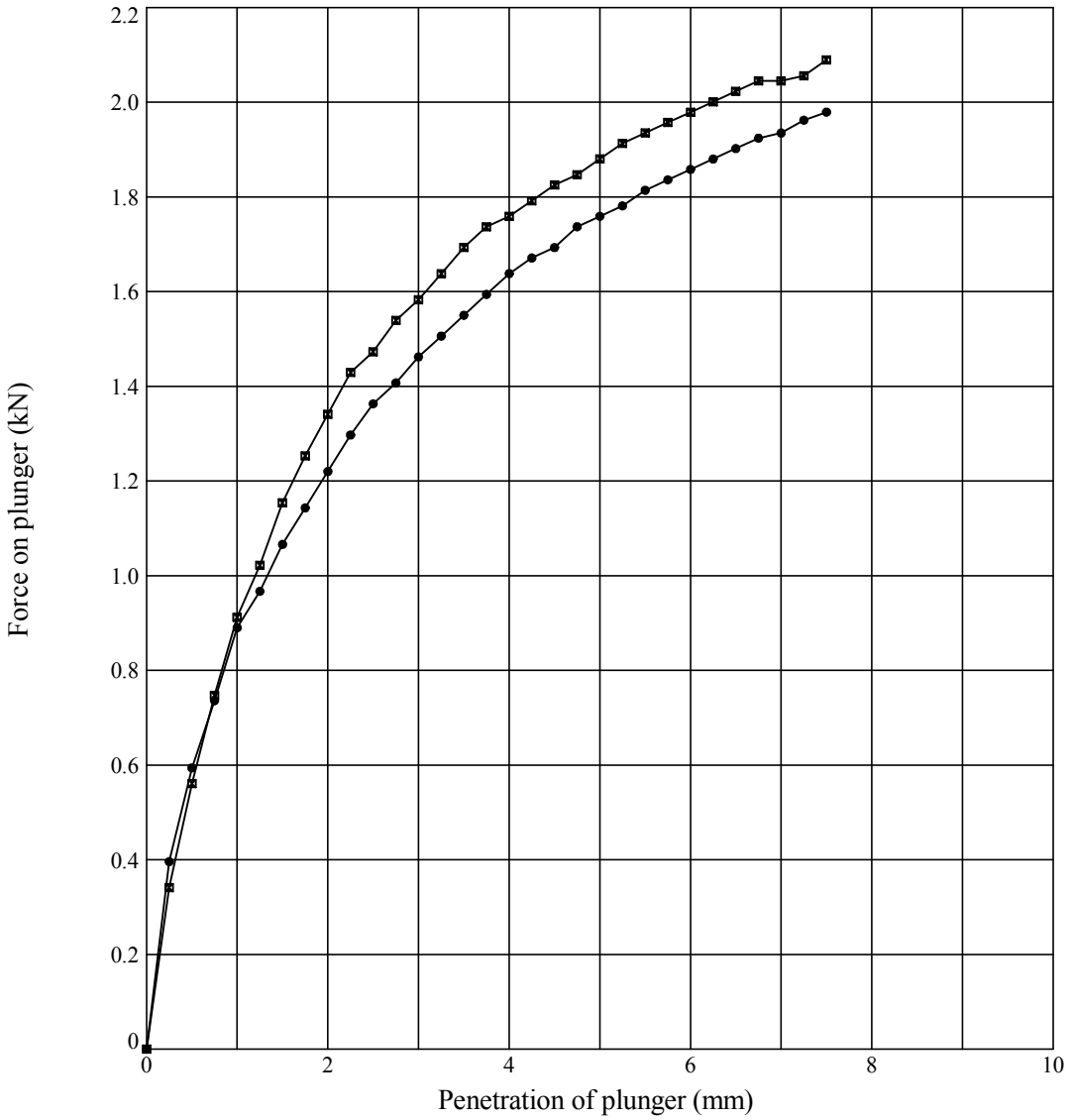
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP2** Sample Ref: Sample Type: **B** Depth (m): **4.40**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**24**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**23**	**23**
Initial Bulk Density (Mg/m^3)	:	**2.05**	Surcharge (kg)	:	**4.5**	CBR value (%)	**10**	**11**
Initial Dry Density (Mg/m^3)	:	**1.66**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Dark brown slightly sandy CLAY	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

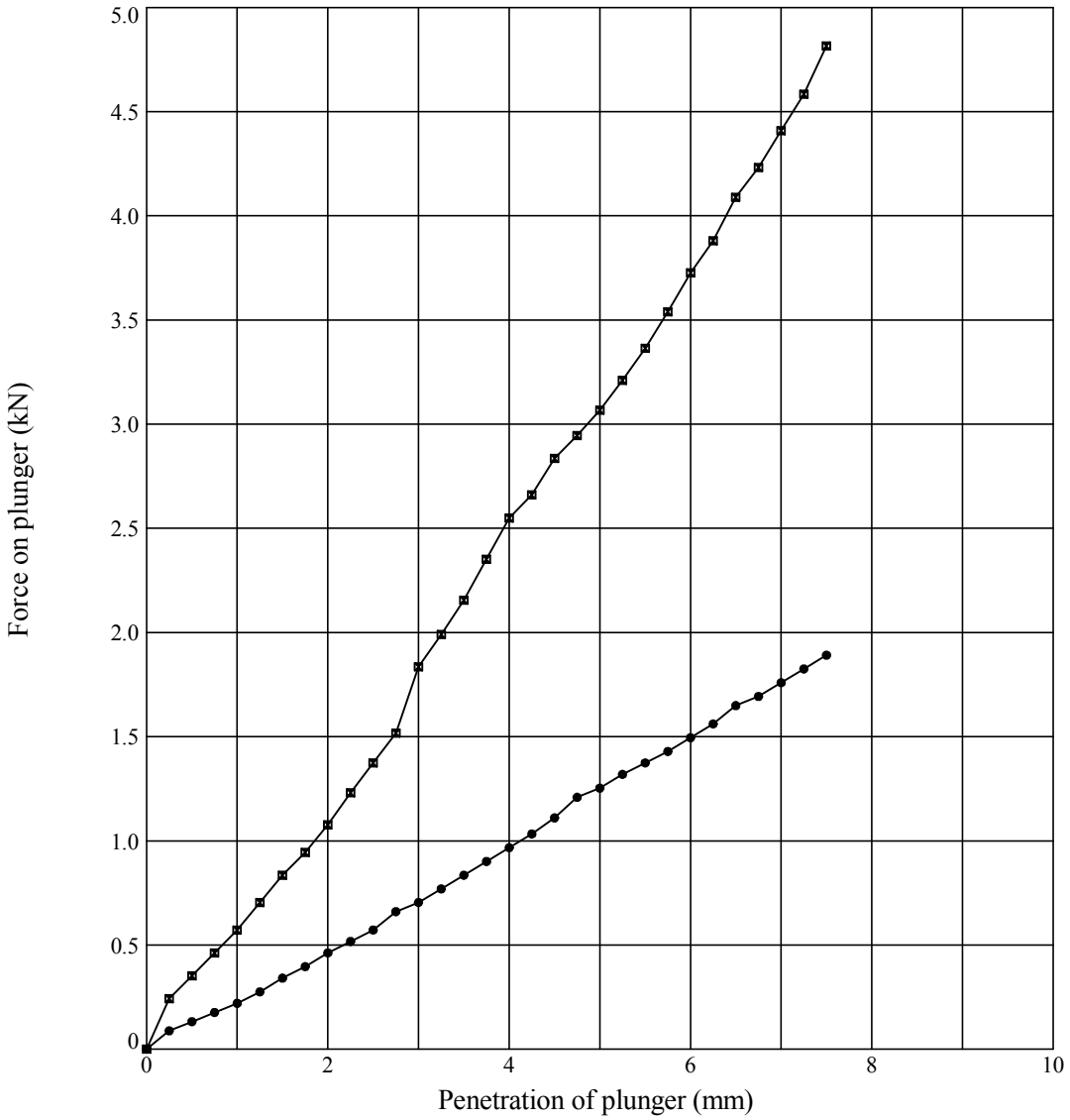
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP6** Sample Ref: Sample Type: **B** Depth (m): **2.60**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**9.2**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**9.9**	**9.4**
Initial Bulk Density (Mg/m^3)	:	**2.14**	Surcharge (kg)	:	**4.5**	CBR value (%)	**6.3**	**15**
Initial Dry Density (Mg/m^3)	:	**1.96**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**1**	Swelling (mm)	:				

Sample Description	Key
Reddish brown very gravelly SAND	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

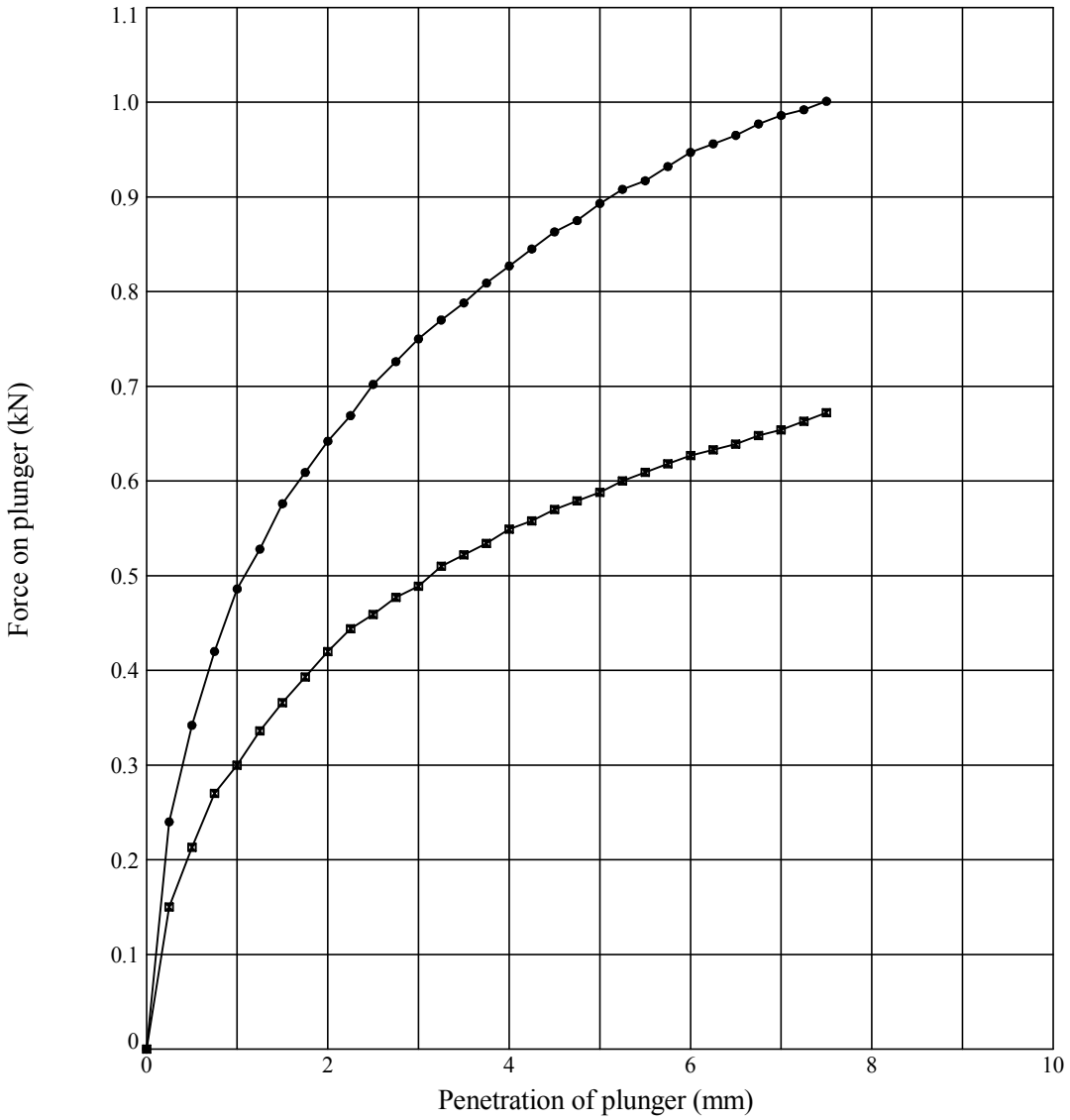
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP10** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.00**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**24**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**24**	**25**
Initial Bulk Density (Mg/m^3)	:	**2.00**	Surcharge (kg)	:	**4.5**	CBR value (%)	**5.3**	**3.5**
Initial Dry Density (Mg/m^3)	:	**1.61**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Dark brown slightly gravelly slightly sandy CLAY	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

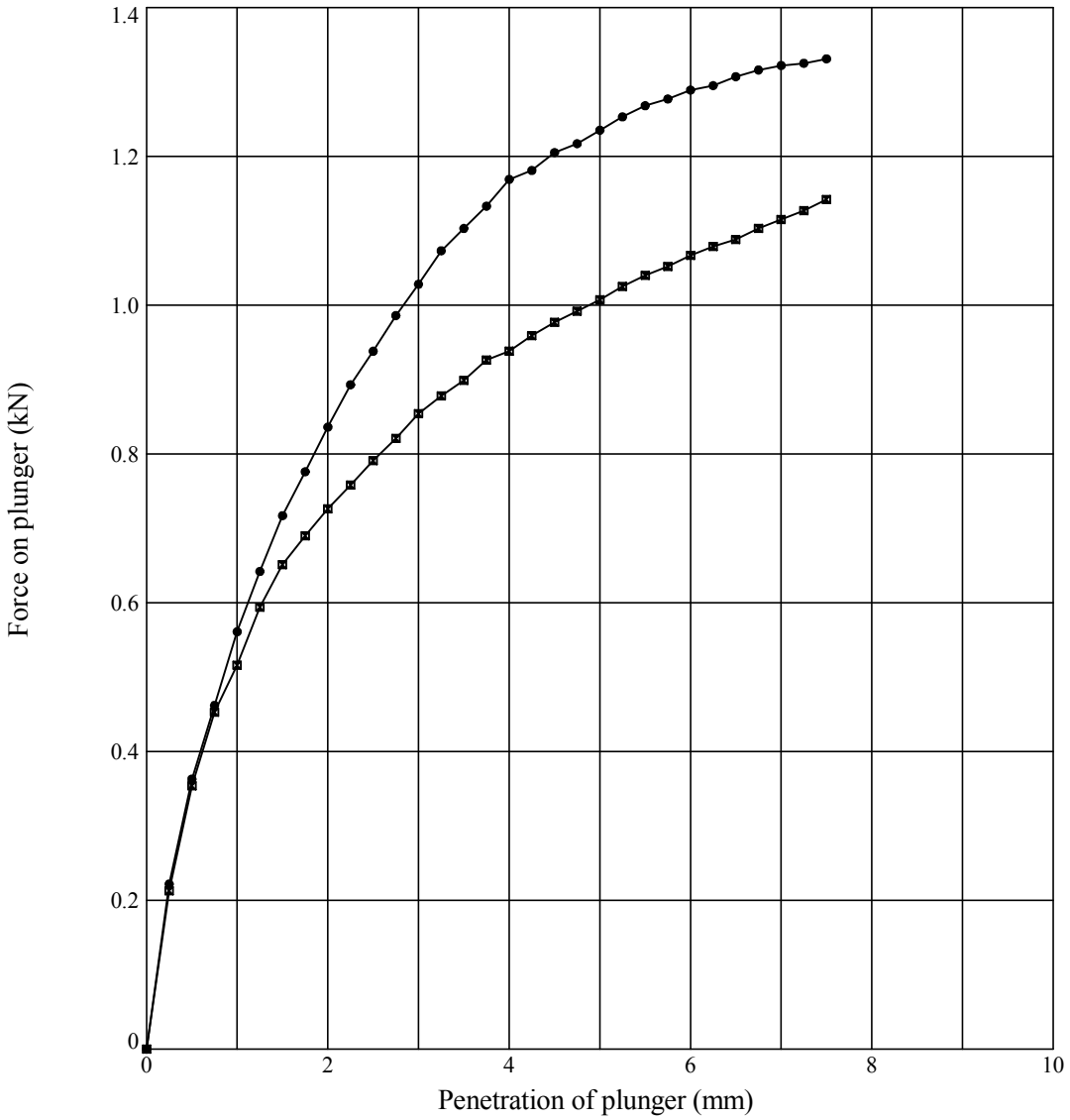
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP10** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.40**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**27**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**27**	**27**
Initial Bulk Density (Mg/m^3)	:	**1.97**	Surcharge (kg)	:	**4.5**	CBR value (%)	**7.1**	**6.0**
Initial Dry Density (Mg/m^3)	:	**1.55**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Brown mottled grey slightly sandy CLAY	● **Top** ⊠ **Base**

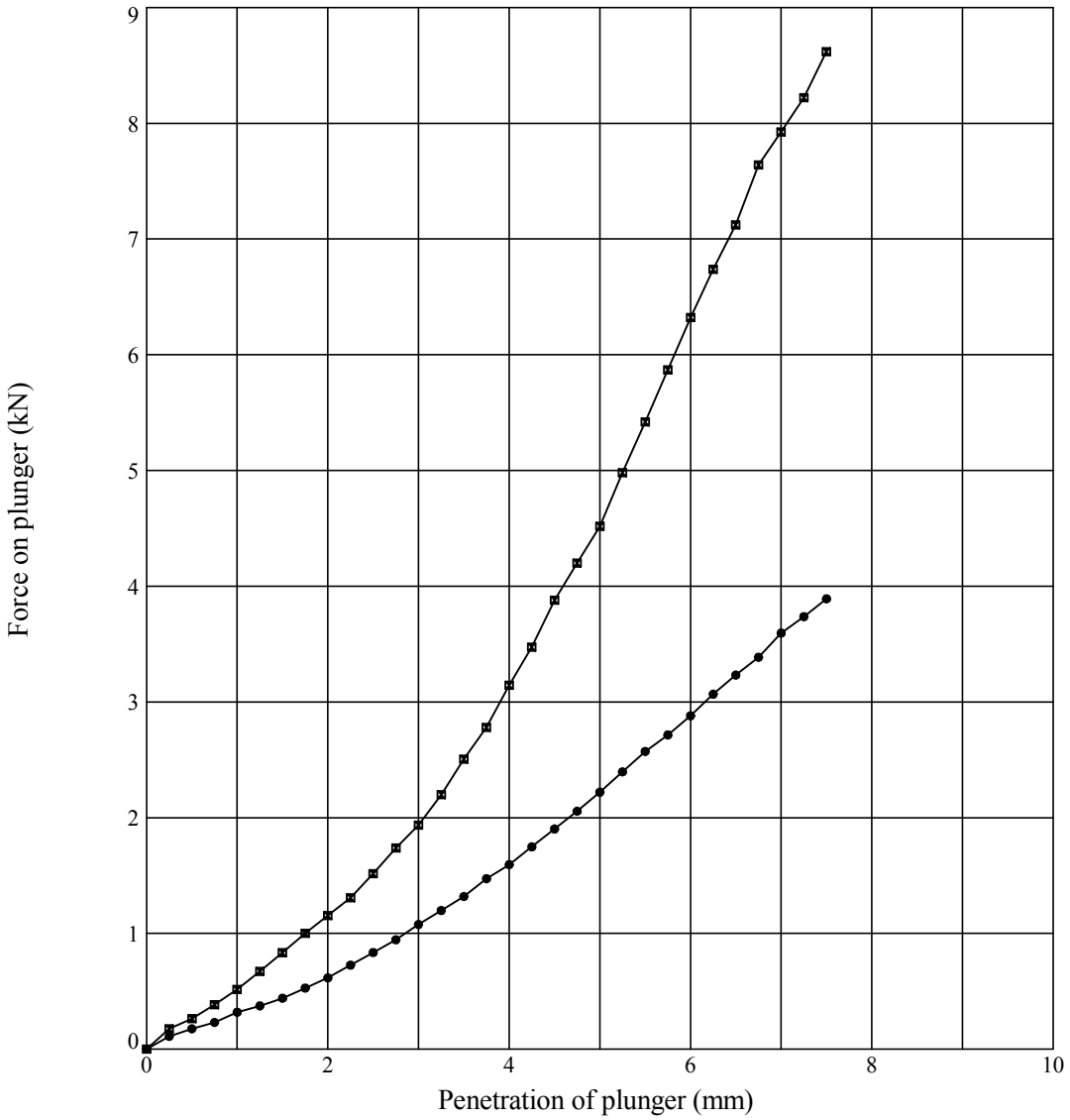
Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

	Compiled By	Date
STRUCTURAL SOILS 1a Princess Street Bedminster Bristol BS3 4AG	A.D. Frost — **ALAN FROST**	**11/10/14**
	Contract: **Junction 15 M1 West**	Contract Ref: **745045**

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP10** Sample Ref: **3** Sample Type: **LB** Depth (m): **3.10**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**7.4**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**7.4**	**7.6**
Initial Bulk Density (Mg/m^3)	:	**2.15**	Surcharge (kg)	:	**4.5**	CBR value (%)	**11**	**23**
Initial Dry Density (Mg/m^3)	:	**2.00**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Orangish brown very gravelly SAND	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

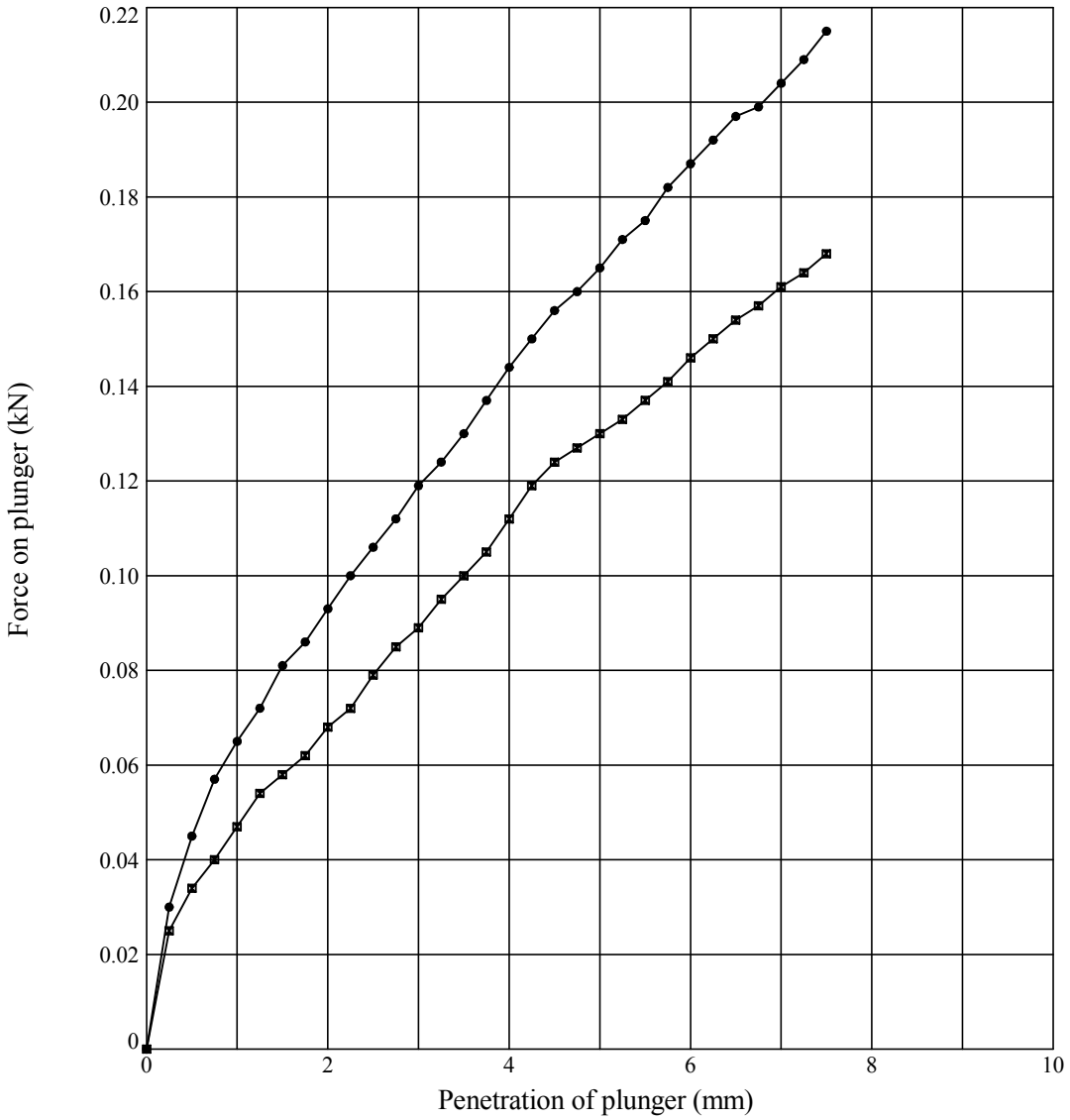
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP11** Sample Ref: Sample Type: **B** Depth (m): **1.20**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**29**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**29**	**29**
Initial Bulk Density (Mg/m^3)	:	**1.91**	Surcharge (kg)	:	**4.5**	CBR value (%)	**0.83**	**0.70**
Initial Dry Density (Mg/m^3)	:	**1.48**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Light brown slightly gravelly slightly sandy silty CLAY	● **Top** ⊠ **Base**

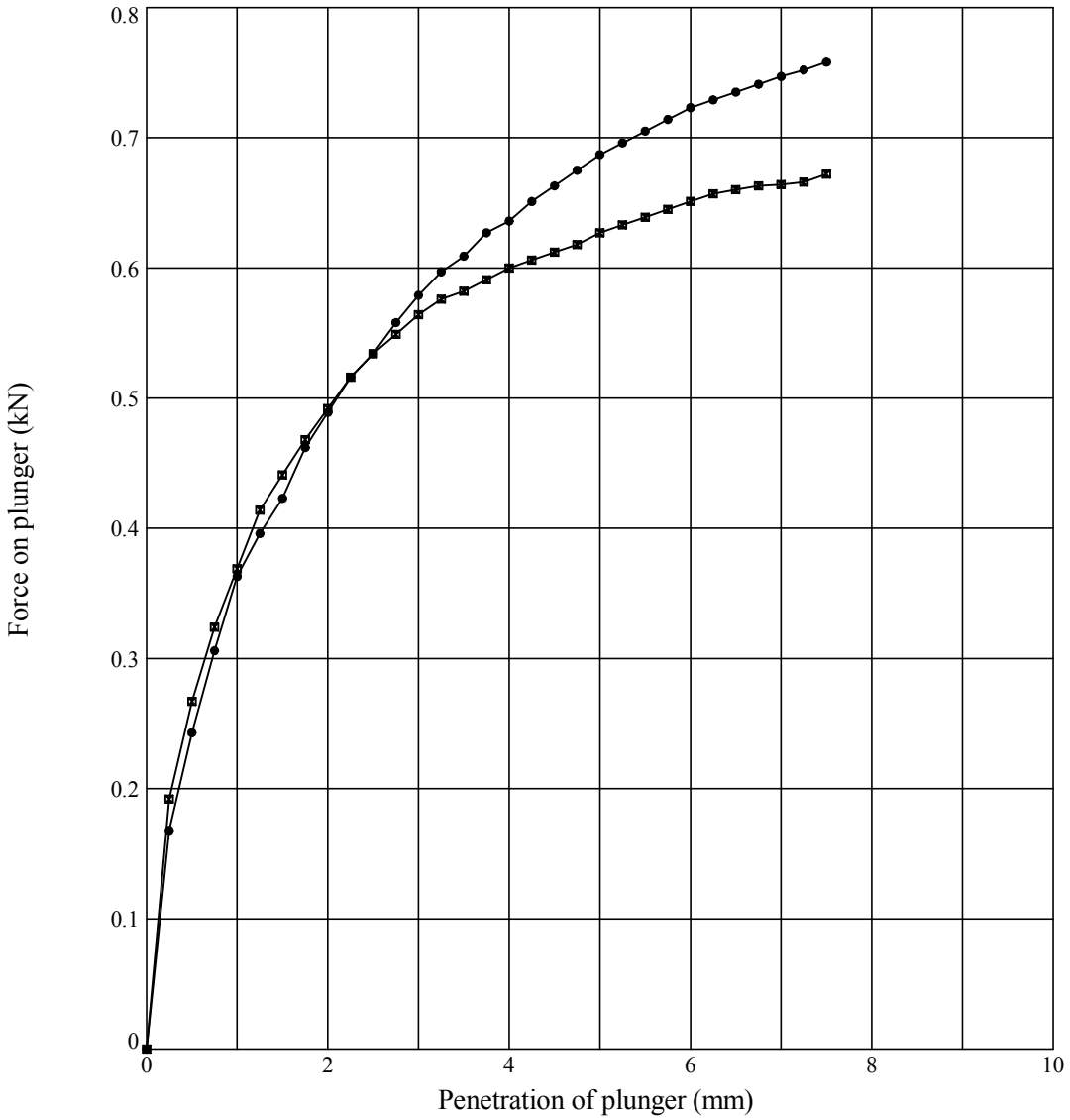
Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

	Compiled By	Date
STRUCTURAL SOILS 1a Princess Street Bedminster Bristol BS3 4AG	A.D. Frost **ALAN FROST**	**11/10/14**
	Contract: **Junction 15 M1 West**	Contract Ref: **745045**

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **1** Sample Type: **LB** Depth (m): **1.20**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**29**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**29**	**29**
Initial Bulk Density (Mg/m^3)	:	**1.95**	Surcharge (kg)	:	**4.5**	CBR value (%)	**4.0**	**4.0**
Initial Dry Density (Mg/m^3)	:	**1.51**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Dark brown slightly gravelly slightly sandy CLAY	● **Top** ⊠ **Base**

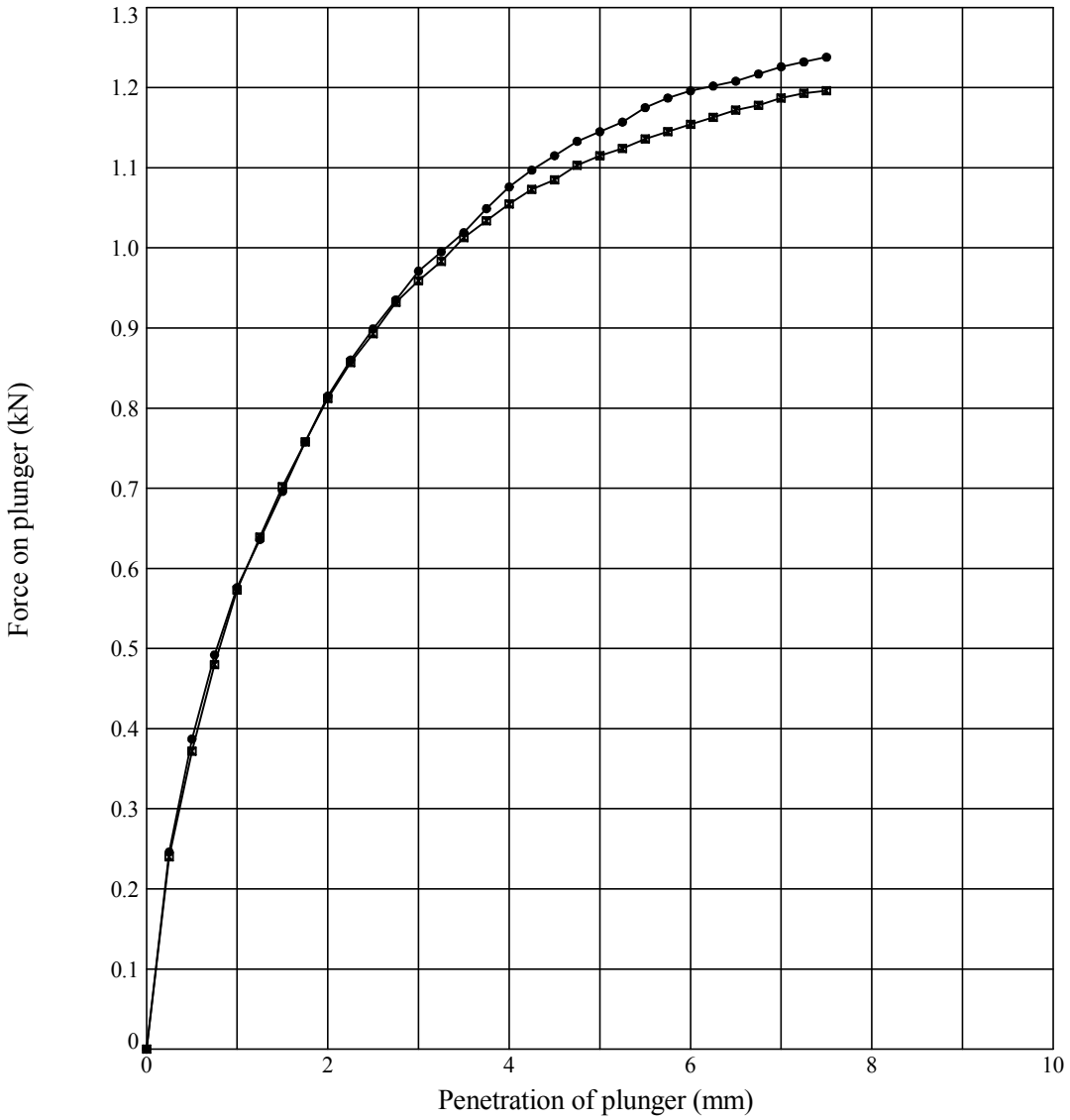
Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

	Compiled By	Date
STRUCTURAL SOILS 1a Princess Street Bedminster Bristol BS3 4AG	A.D. Frost **ALAN FROST**	**11/10/14**
	Contract: **Junction 15 M1 West**	Contract Ref: **745045**

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **2** Sample Type: **LB** Depth (m): **2.10**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**28**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**28**	**28**
Initial Bulk Density (Mg/m^3)	:	**1.97**	Surcharge (kg)	:	**4.5**	CBR value (%)	**6.8**	**6.7**
Initial Dry Density (Mg/m^3)	:	**1.54**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Dark brown slightly sandy CLAY	● **Top** ⊠ **Base**

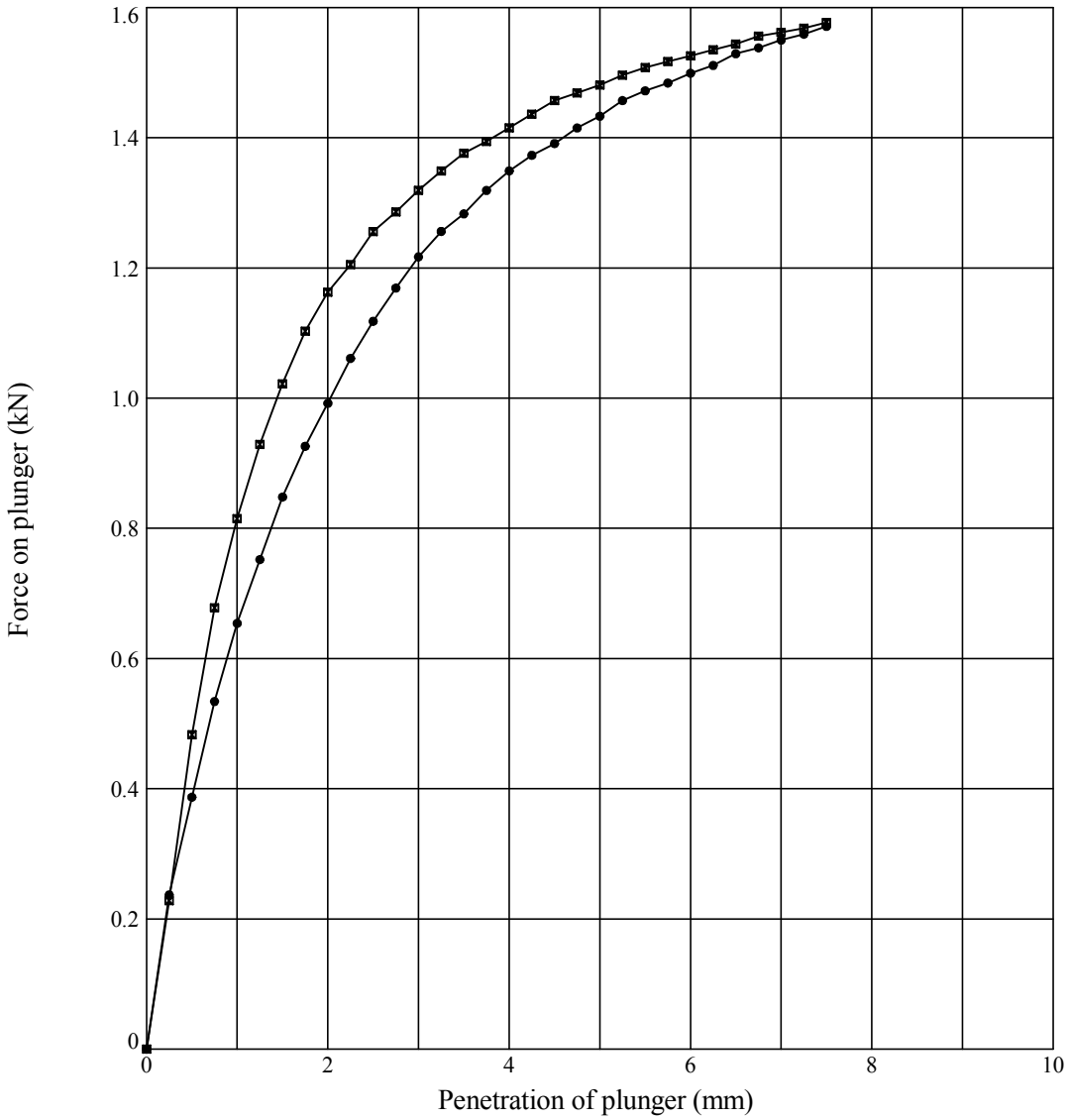
Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

	Compiled By	Date
STRUCTURAL SOILS 1a Princess Street Bedminster Bristol BS3 4AG	A.D. Frost — **ALAN FROST**	**11/10/14**
	Contract: **Junction 15 M1 West**	Contract Ref: **745045**

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP13** Sample Ref: **3** Sample Type: **LB** Depth (m): **3.20**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**28**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**28**	**28**
Initial Bulk Density (Mg/m^3)	:	**1.98**	Surcharge (kg)	:	**4.5**	CBR value (%)	**8.4**	**9.5**
Initial Dry Density (Mg/m^3)	:	**1.55**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Light brown slightly sandy CLAY	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

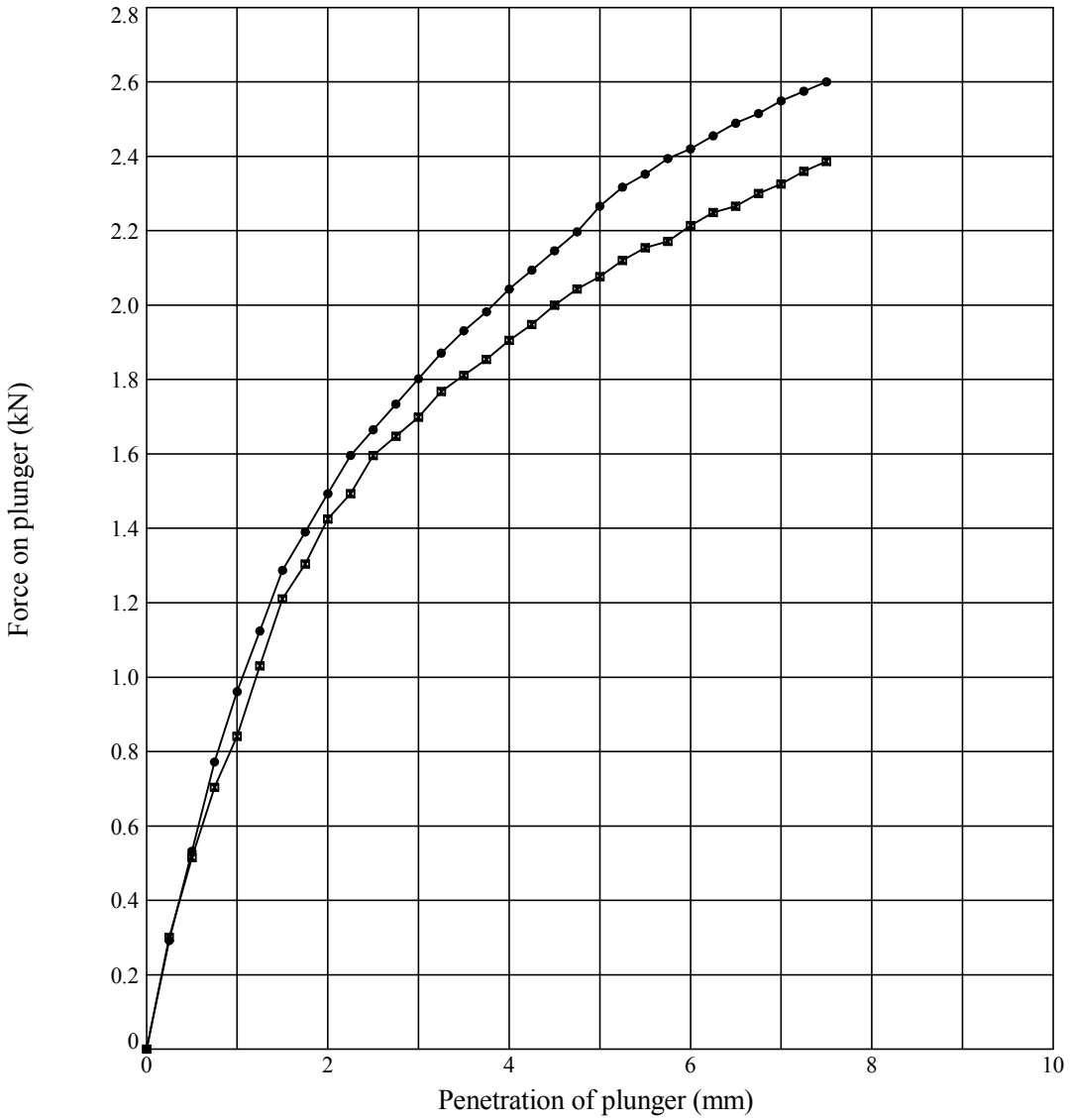
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP22** Sample Ref: Sample Type: **B** Depth (m): **1.00**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**20**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**20**	**21**
Initial Bulk Density (Mg/m^3)	:	**2.09**	Surcharge (kg)	:	**4.5**	CBR value (%)	**13**	**12**
Initial Dry Density (Mg/m^3)	:	**1.74**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Dark brown mottled grey slightly sandy slightly gravelly CLAY	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

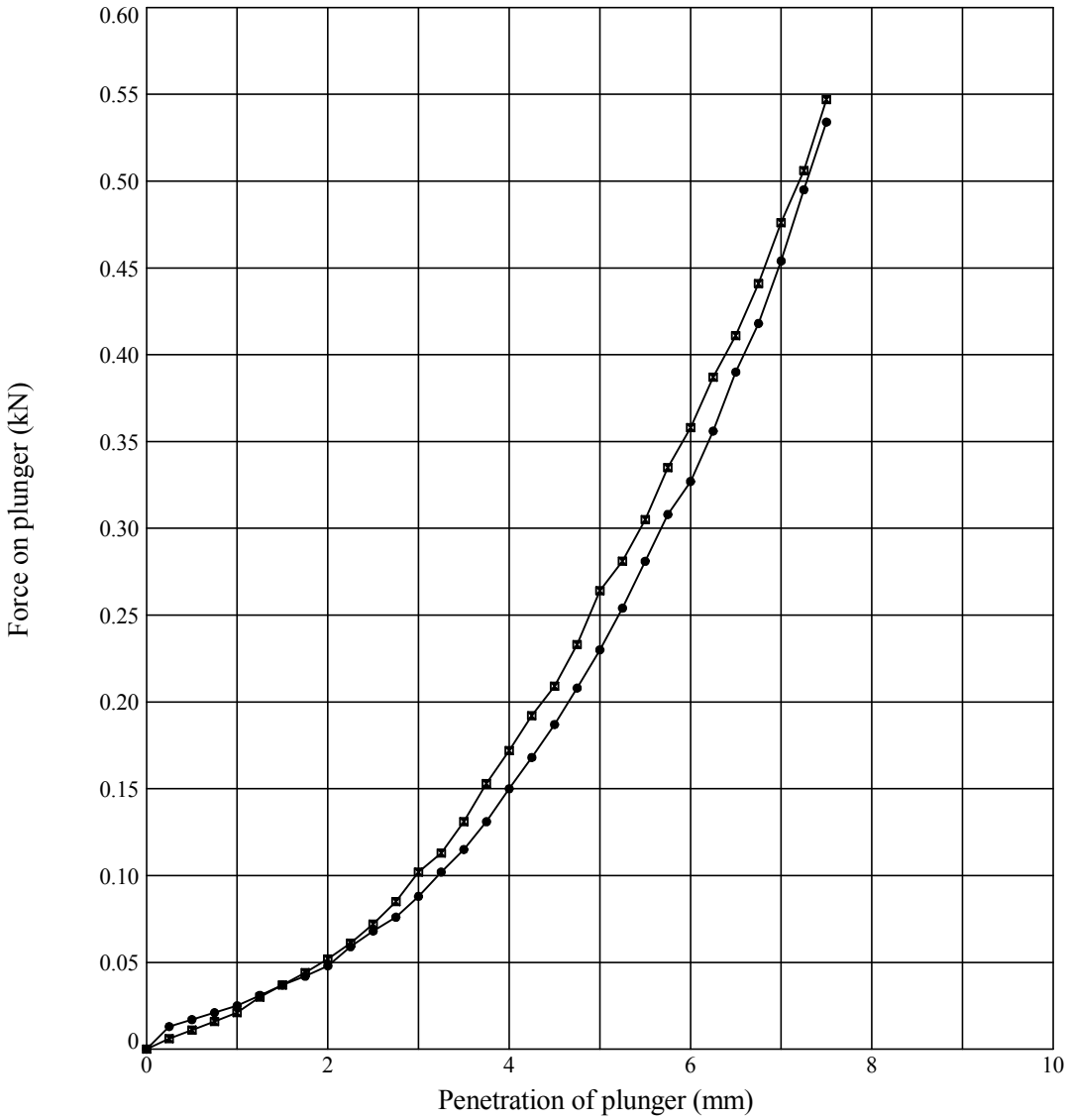
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

LABORATORY CALIFORNIA BEARING RATIO TEST

In accordance with clause 7 of BS1377:Part 4:1990

Trial Pit : **TP23** Sample Ref: Sample Type: **B** Depth (m): **1.50**



Initial Sample Conditions			Test Details			Test Results	Top	Base
Initial Moisture Content (%)	:	**16**	Compaction Type	:	**4.5 kg Dynamic**	Moisture Content (%)	**16**	**16**
Initial Bulk Density (Mg/m^3)	:	**2.03**	Surcharge (kg)	:	**4.5**	CBR value (%)	**1.2**	**1.3**
Initial Dry Density (Mg/m^3)	:	**1.75**	Soaking Time (hrs)	:		Remarks:		
% retained on 20mm sieve	:	**0**	Swelling (mm)	:				

Sample Description	Key
Orangish brown clayey SAND	● **Top** ⊠ **Base**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

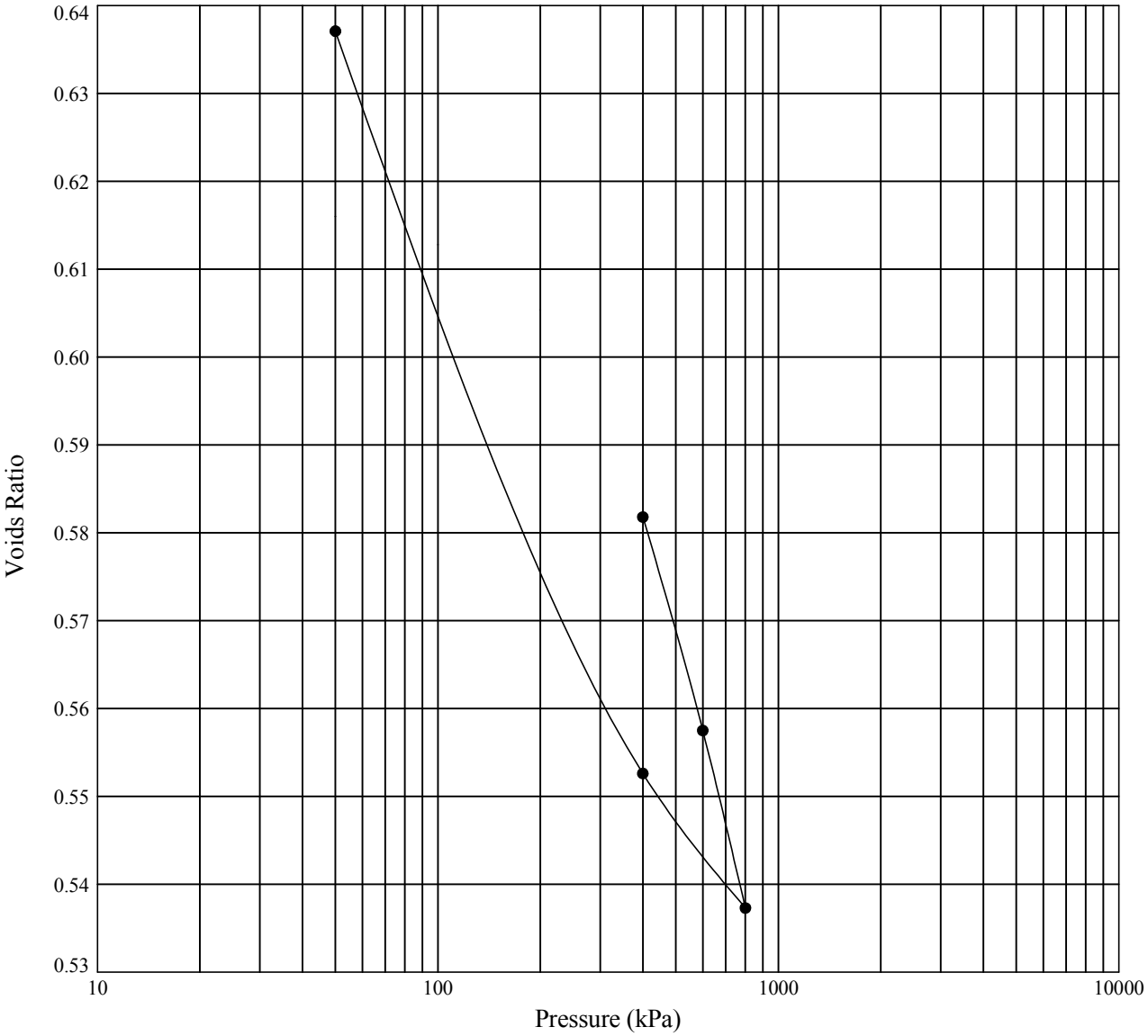
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH2** Sample Ref: Sample Type: **U** Depth (m): **8.20**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**24**	Moisture Content (%)	:	**26**
Bulk Density (Mg/m^3)	:	**2.02**	Bulk Density (Mg/m^3)	:	**2.05**
Dry Density (Mg/m^3)	:	**1.63**	Dry Density (Mg/m^3)	:	**1.62**
Void Ratio	:	**0.6217**	Void Ratio	:	**0.6371**

Specimen Details			
Description	Height (mm)	:	**18.90**
	Diameter (mm)	:	**75.86**
Dark grey CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 50	**Sample**	**Swelling**
50 - 100	**Sample**	**Swelling**
100 - 200	**Sample**	**Swelling**
200 - 400	**0.073**	**1.5**
400 - 600	**0.077**	**0.48**
600 - 800	**0.065**	**0.33**
800 - 400	**NA**	**NA**
400 - 50	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

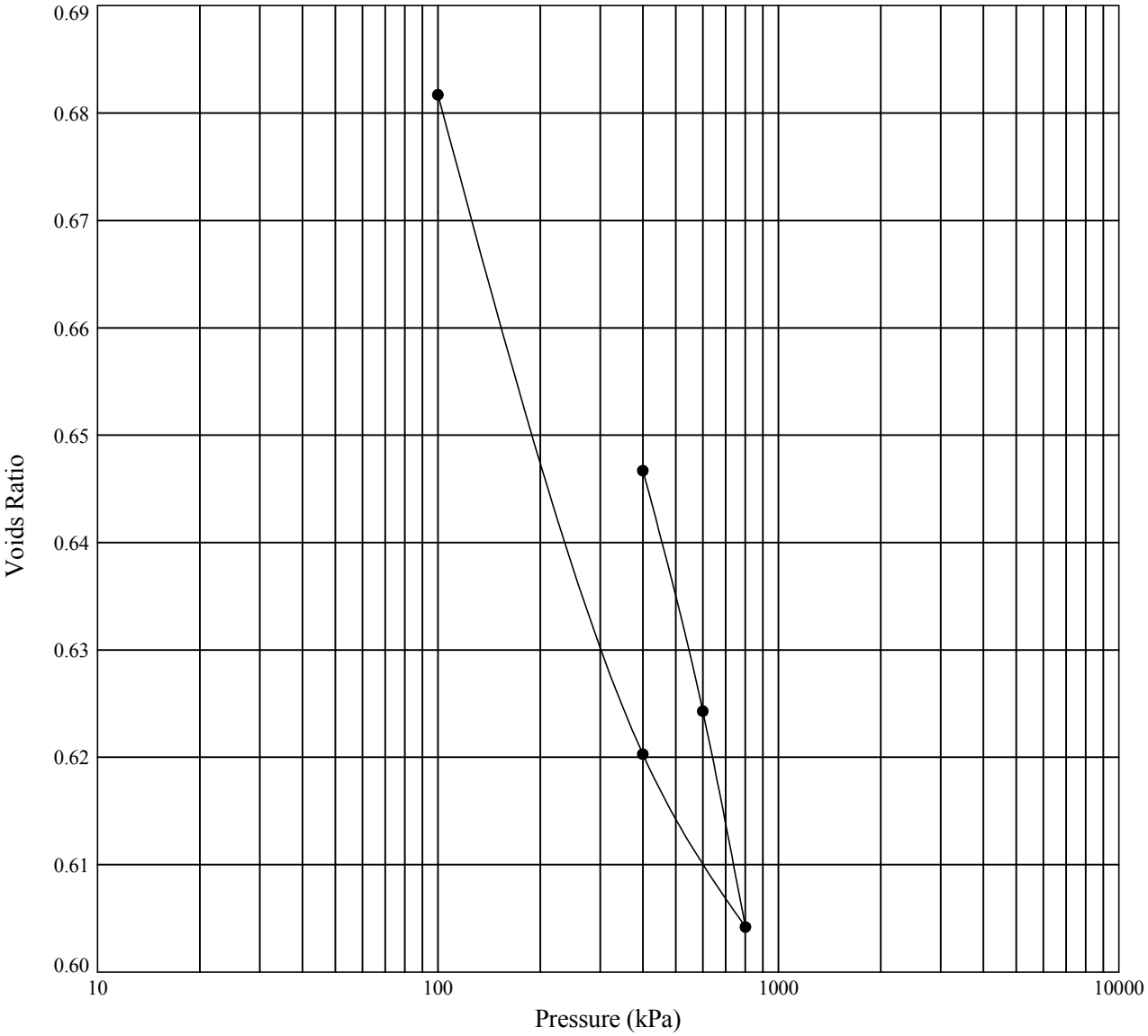
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH2** Sample Ref: Sample Type: **U** Depth (m): **9.81**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**27**	Moisture Content (%)	:	**28**
Bulk Density (Mg/m^3)	:	**2.00**	Bulk Density (Mg/m^3)	:	**2.02**
Dry Density (Mg/m^3)	:	**1.58**	Dry Density (Mg/m^3)	:	**1.58**
Void Ratio	:	**0.6806**	Void Ratio	:	**0.6817**

Specimen Details			
Description	Height (mm)	:	**19.08**
Dark grey CLAY	Diameter (mm)	:	**76.04**
	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 100	**Sample**	**Swelling**
100 - 200	**Sample**	**Swelling**
200 - 400	**0.057**	**8.3**
400 - 600	**0.068**	**1.1**
600 - 800	**0.062**	**0.45**
800 - 400	**NA**	**NA**
400 - 100	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

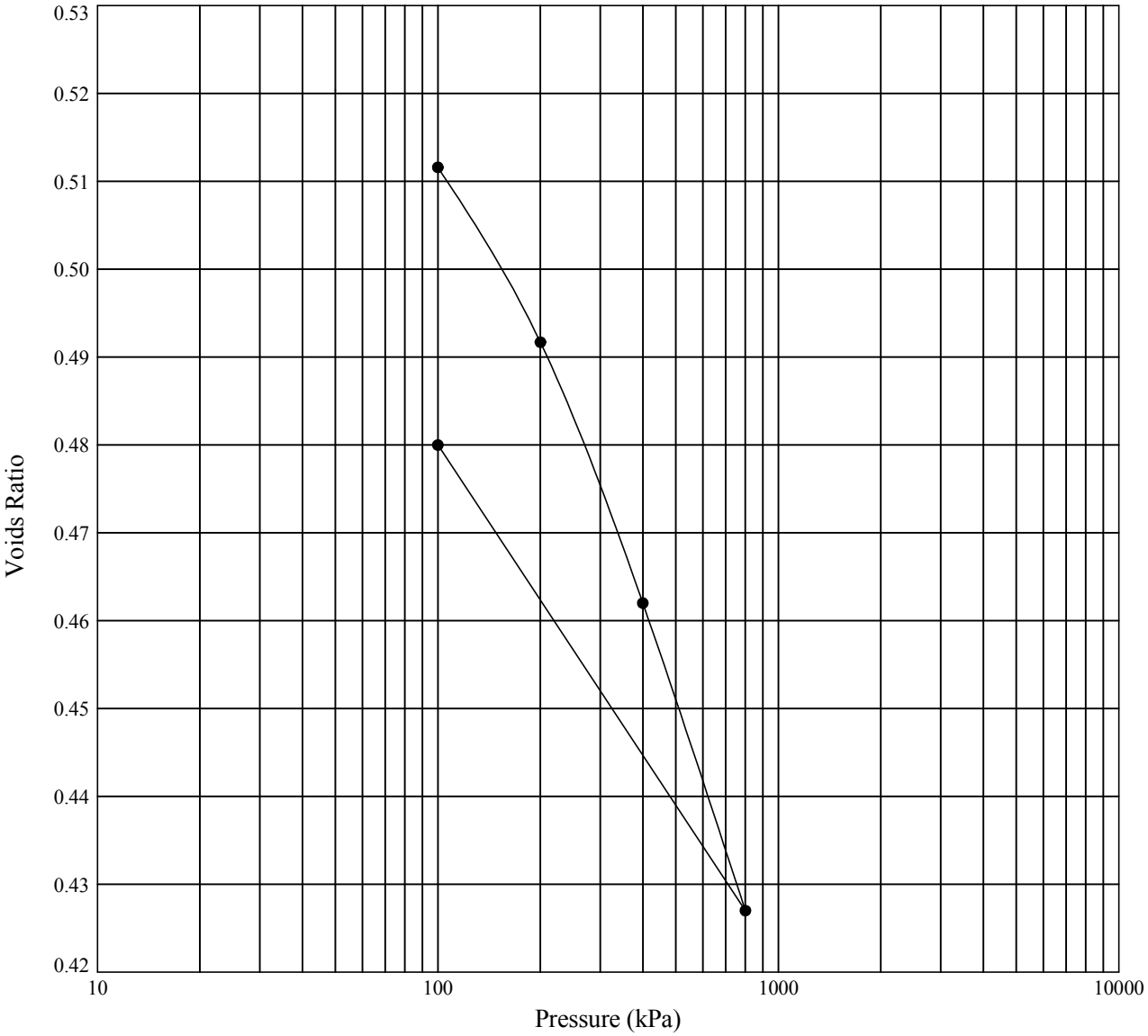
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH3** Sample Ref: Sample Type: **U** Depth (m): **7.77**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**20**	Moisture Content (%)	:	**20**
Bulk Density (Mg/m^3)	:	**2.08**	Bulk Density (Mg/m^3)	:	**2.14**
Dry Density (Mg/m^3)	:	**1.73**	Dry Density (Mg/m^3)	:	**1.78**
Void Ratio	:	**0.5288**	Void Ratio	:	**0.4800**

Specimen Details			
Description	Height (mm)	:	**19.43**
	Diameter (mm)	:	**75.08**
Grey slightly sandy CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 50	**Sample**	**Swelling**
50 - 100	**0.11**	**13**
100 - 200	**0.13**	**0.76**
200 - 400	**0.099**	**0.77**
400 - 800	**0.060**	**0.76**
800 - 100	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

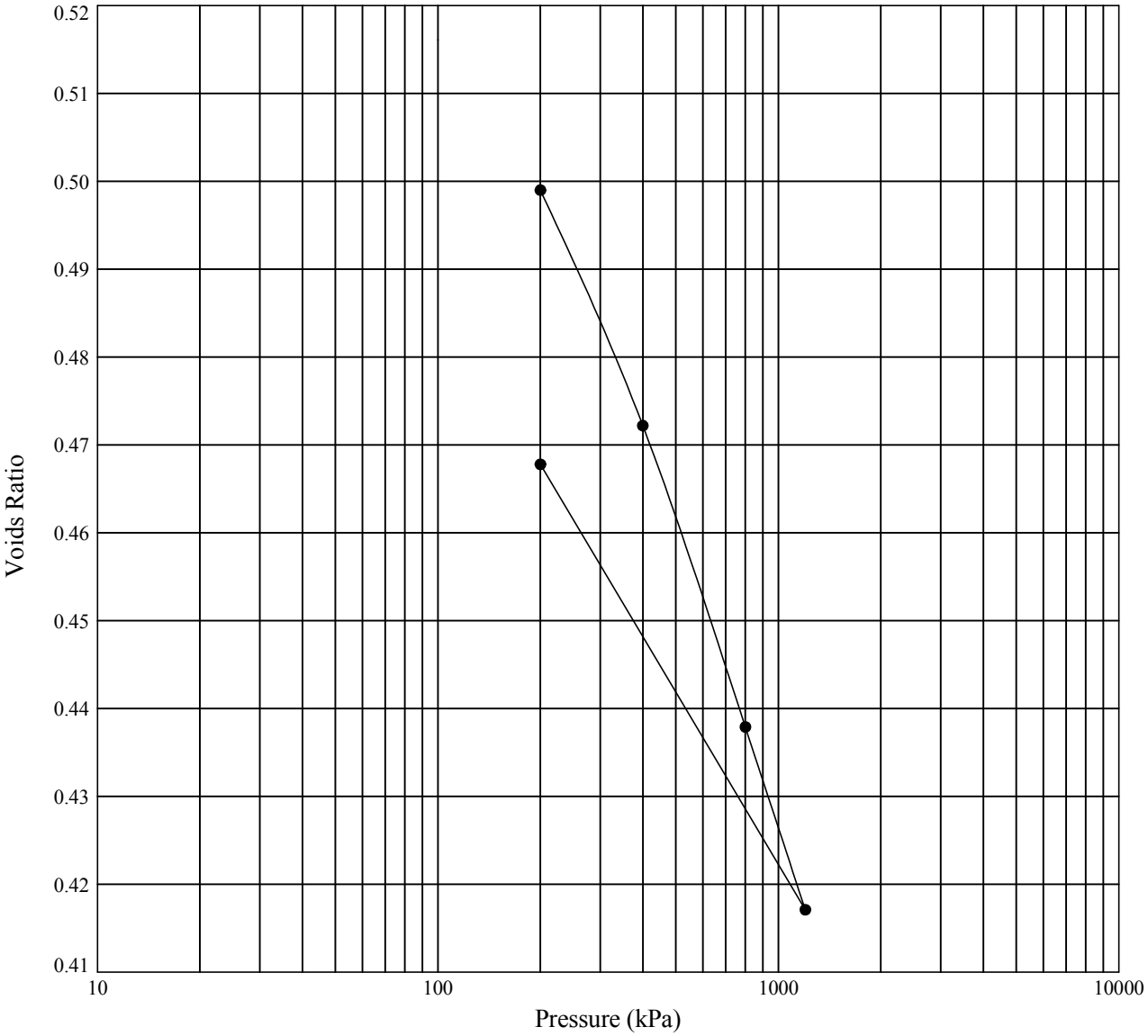
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH3** Sample Ref: Sample Type: **U** Depth (m): **9.21**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**20**	Moisture Content (%)	:	**20**
Bulk Density (Mg/m^3)	:	**2.08**	Bulk Density (Mg/m^3)	:	**2.16**
Dry Density (Mg/m^3)	:	**1.73**	Dry Density (Mg/m^3)	:	**1.80**
Void Ratio	:	**0.5295**	Void Ratio	:	**0.4678**

Specimen Details			
Description	Height (mm)	:	**19.10**
Grey CLAY	Diameter (mm)	:	**76.04**
	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 100	**Sample**	**Swelling**
100 - 200	**0.11**	**2.6**
200 - 400	**0.089**	**0.95**
400 - 800	**0.058**	**0.97**
800 - 1200	**0.036**	**1.2**
1200 - 200	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

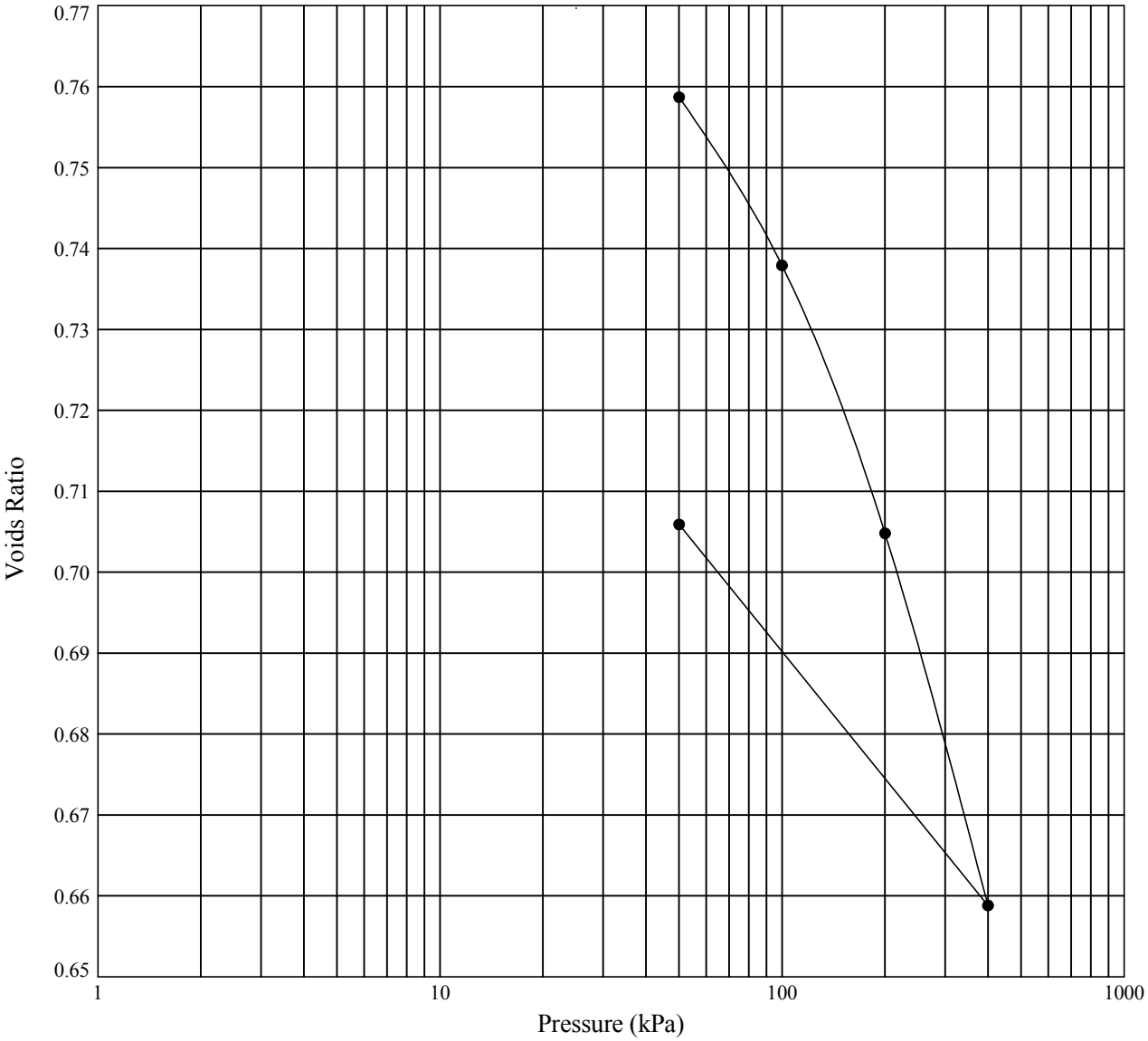
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH5** Sample Ref: Sample Type: **U** Depth (m): **1.22**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**30**	Moisture Content (%)	:	**29**
Bulk Density (Mg/m^3)	:	**1.94**	Bulk Density (Mg/m^3)	:	**2.00**
Dry Density (Mg/m^3)	:	**1.49**	Dry Density (Mg/m^3)	:	**1.55**
Void Ratio	:	**0.7756**	Void Ratio	:	**0.7059**

Specimen Details			
Description	Height (mm)	:	**19.17**
Brown mottled grey CLAY	Diameter (mm)	:	**76.04**
	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 25	**Sample**	**Swelling**
25 - 50	**0.25**	**1.8**
50 - 100	**0.24**	**1.6**
100 - 200	**0.19**	**1.9**
200 - 400	**0.14**	**1.6**
400 - 50	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

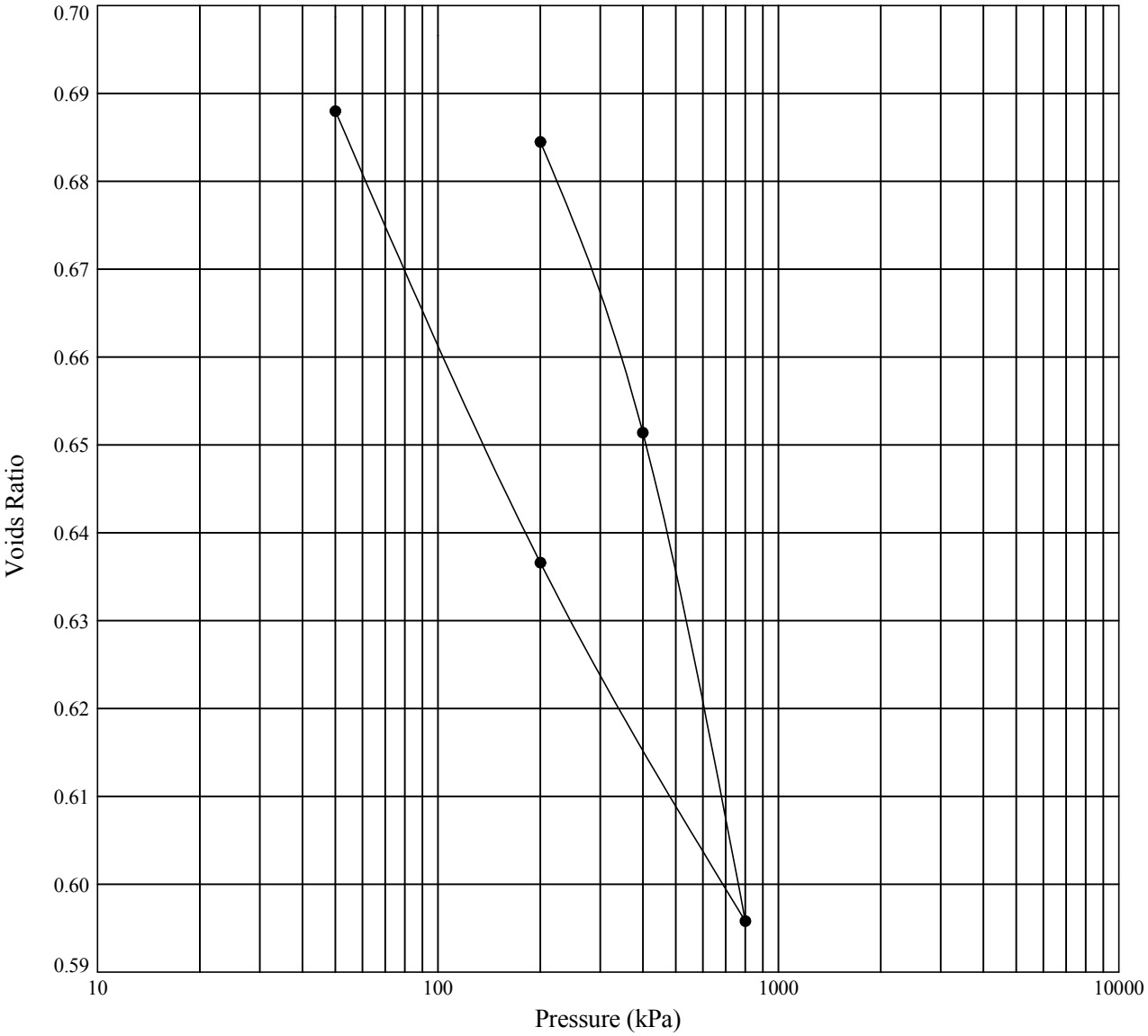
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH5** Sample Ref: Sample Type: **U** Depth (m): **3.02**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**26**	Moisture Content (%)	:	**28**
Bulk Density (Mg/m^3)	:	**1.97**	Bulk Density (Mg/m^3)	:	**2.00**
Dry Density (Mg/m^3)	:	**1.55**	Dry Density (Mg/m^3)	:	**1.57**
Void Ratio	:	**0.7042**	Void Ratio	:	**0.6880**

Specimen Details			
Description	Height (mm)	:	**18.88**
Brown mottled grey CLAY	Diameter (mm)	:	**74.96**
	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 50	**Sample**	**Swelling**
50 - 100	**Sample**	**Swelling**
100 - 200	**0.071**	**12**
200 - 400	**0.098**	**0.89**
400 - 800	**0.084**	**0.71**
800 - 200	**NA**	**NA**
200 - 50	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

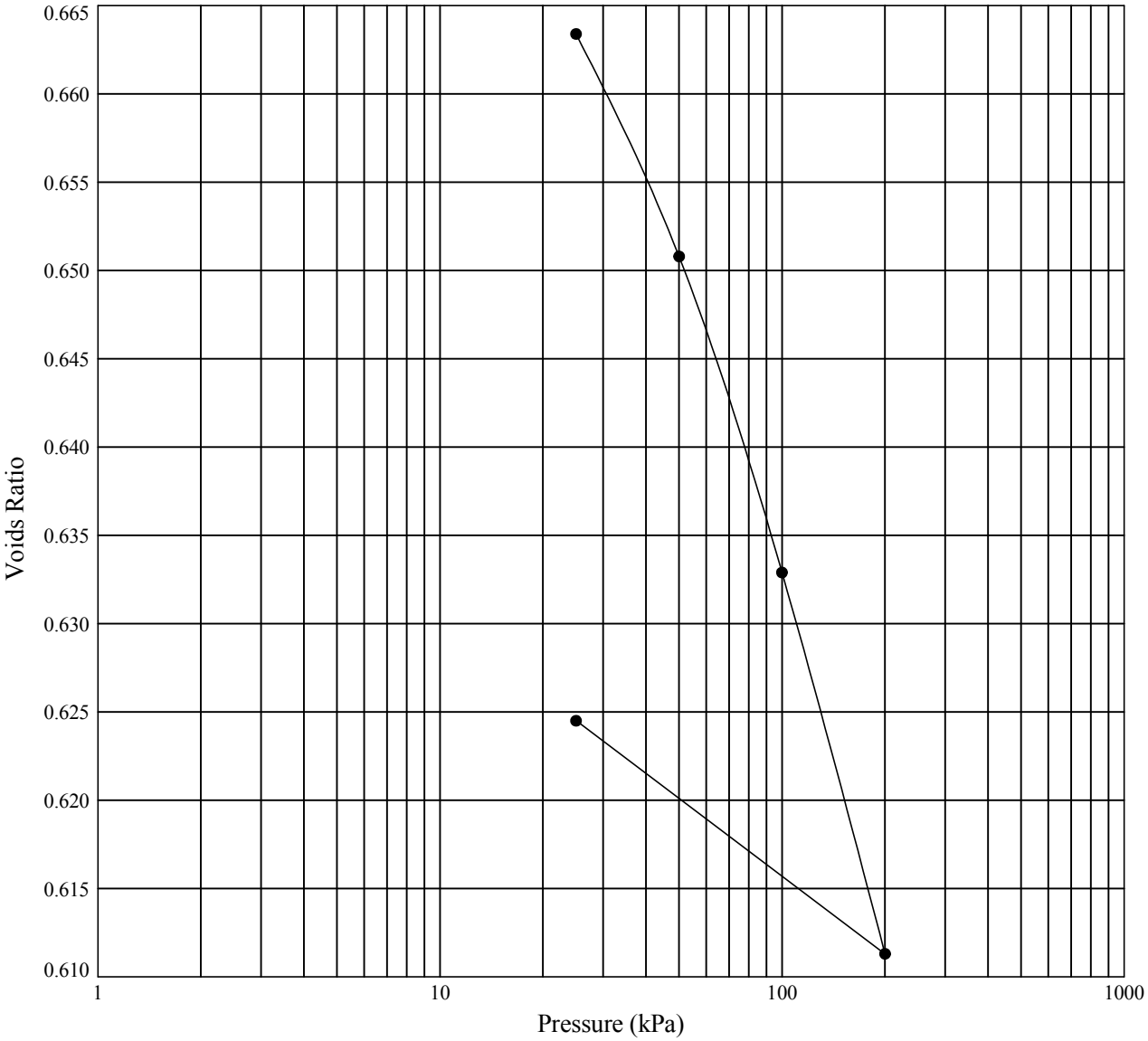
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH6** Sample Ref: Sample Type: **U** Depth (m): **1.48**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**27**	Moisture Content (%)	:	**26**
Bulk Density (Mg/m^3)	:	**1.98**	Bulk Density (Mg/m^3)	:	**2.05**
Dry Density (Mg/m^3)	:	**1.57**	Dry Density (Mg/m^3)	:	**1.63**
Void Ratio	:	**0.6932**	Void Ratio	:	**0.6245**

Specimen Details			
Description	Height (mm)	:	**18.94**
	Diameter (mm)	:	**74.97**
Light brown mottled dark brown CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 25	**0.70**	**14**
25 - 50	**0.30**	**27**
50 - 100	**0.22**	**15**
100 - 200	**0.13**	**19**
200 - 25	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

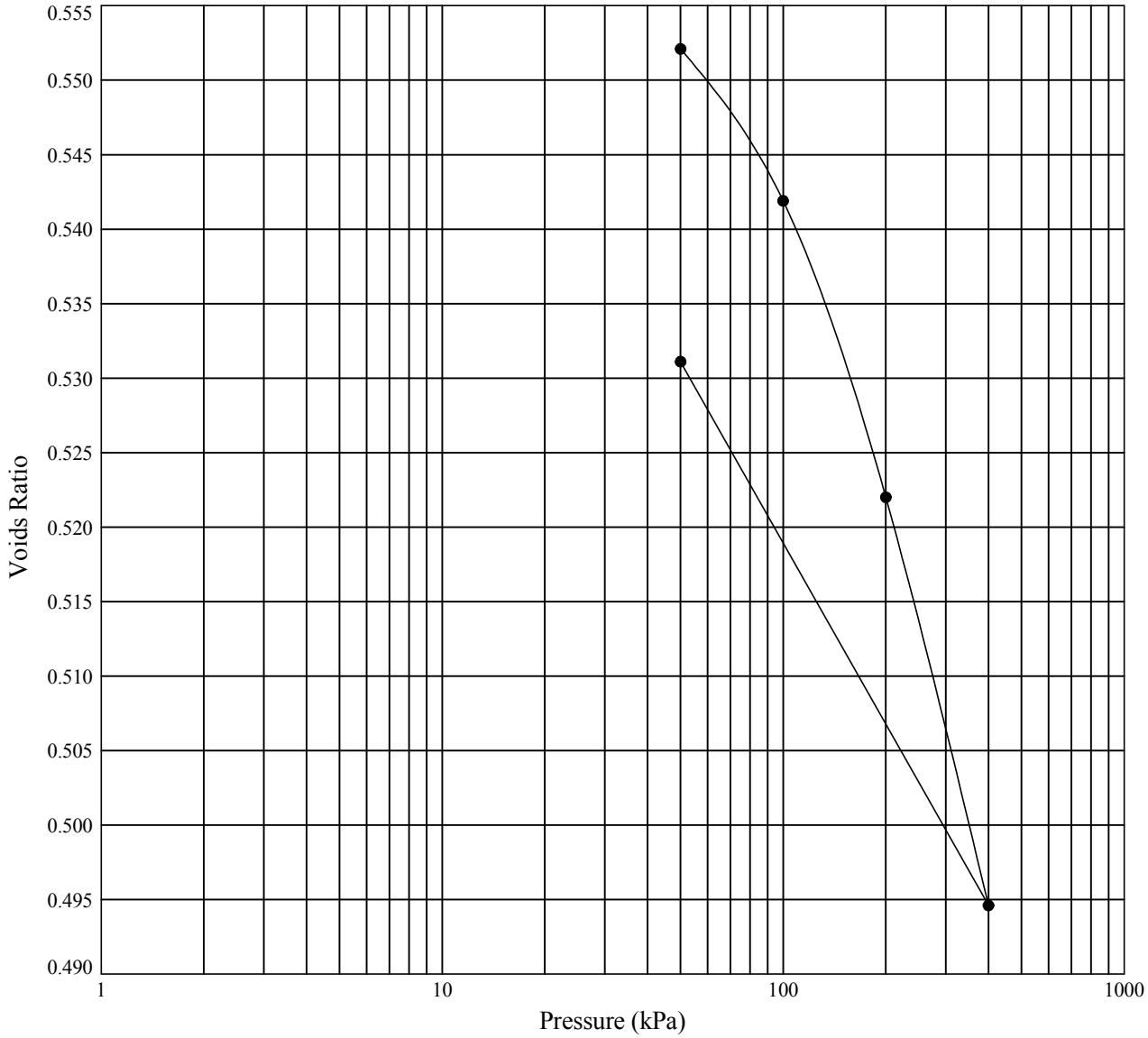
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH9** Sample Ref: **2** Sample Type: **U** Depth (m): **1.45**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**22**	Moisture Content (%)	:	**22**
Bulk Density (Mg/m^3)	:	**2.07**	Bulk Density (Mg/m^3)	:	**2.11**
Dry Density (Mg/m^3)	:	**1.69**	Dry Density (Mg/m^3)	:	**1.73**
Void Ratio	:	**0.5639**	Void Ratio	:	**0.5311**

Specimen Details			
Description	Height (mm)	:	**19.01**
	Diameter (mm)	:	**74.98**
Brown mottled grey slightly gravelly CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 50	**0.15**	**44**
50 - 100	**0.13**	**2.1**
100 - 200	**0.13**	**1.4**
200 - 400	**0.090**	**1.5**
400 - 50	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

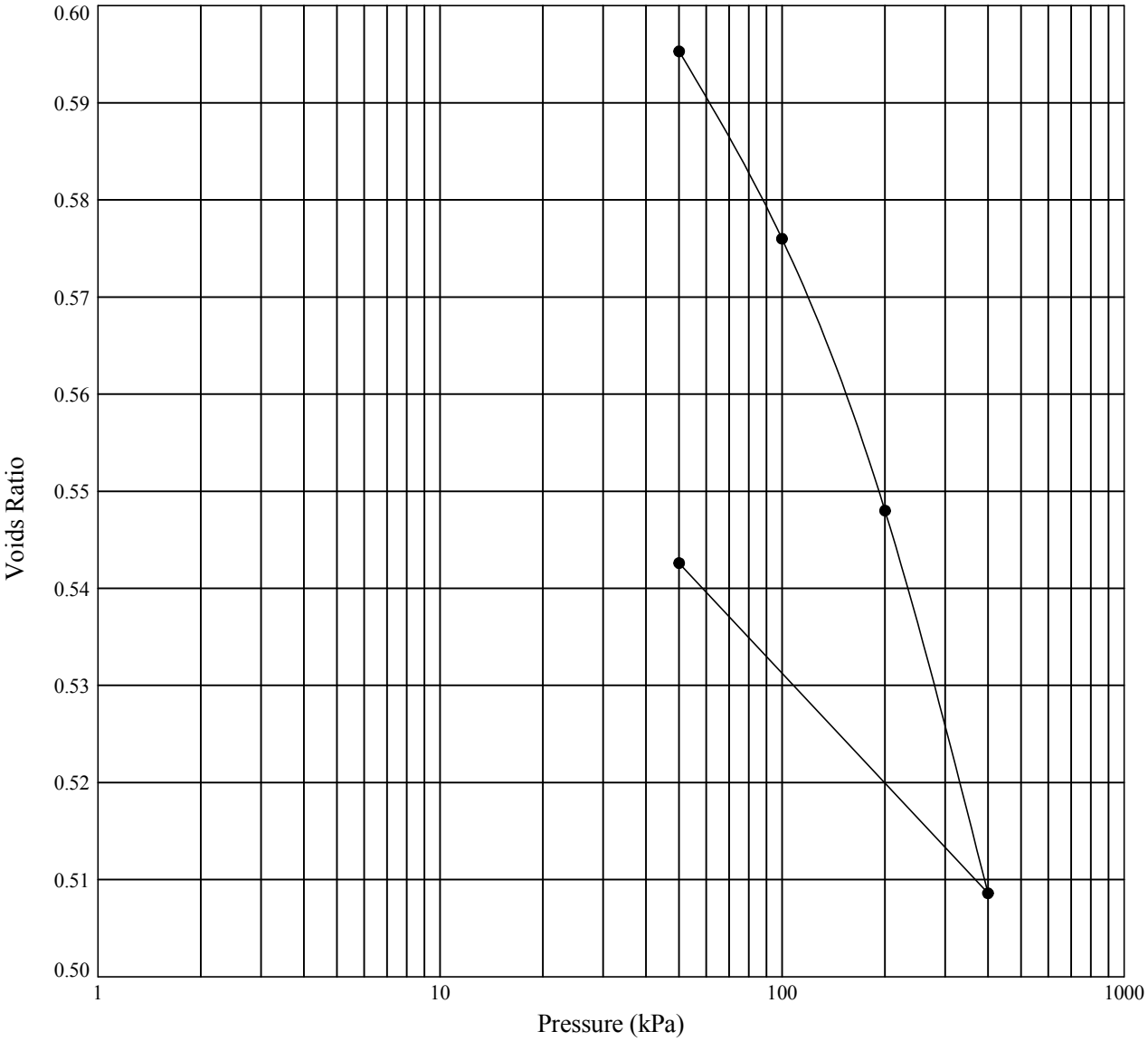
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH10** Sample Ref: **2** Sample Type: **U** Depth (m): **1.44**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**24**	Moisture Content (%)	:	**23**
Bulk Density (Mg/m^3)	:	**2.03**	Bulk Density (Mg/m^3)	:	**2.11**
Dry Density (Mg/m^3)	:	**1.63**	Dry Density (Mg/m^3)	:	**1.71**
Void Ratio	:	**0.6242**	Void Ratio	:	**0.5426**

Specimen Details			
Description	Height (mm)	:	**18.92**
	Diameter (mm)	:	**75.03**
Grey mottled orangish brown mottled grey slightly gravelly CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 50	**0.36**	**0.83**
50 - 100	**0.24**	**1.2**
100 - 200	**0.18**	**1.8**
200 - 400	**0.13**	**3.4**
400 - 50	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

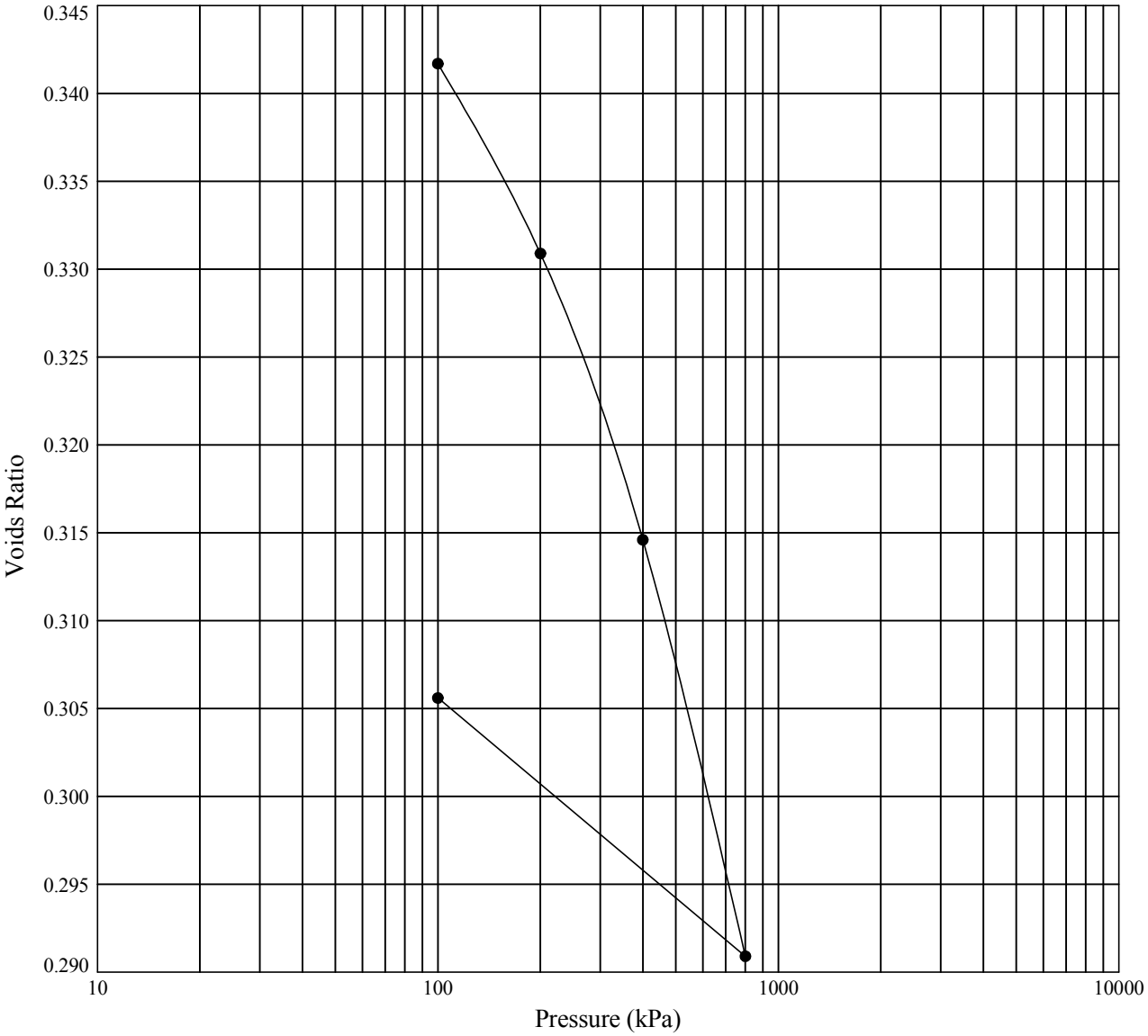
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH11** Sample Ref: **9** Sample Type: **U** Depth (m): **3.24**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**14**	Moisture Content (%)	:	**14**
Bulk Density (Mg/m^3)	:	**2.18**	Bulk Density (Mg/m^3)	:	**2.32**
Dry Density (Mg/m^3)	:	**1.91**	Dry Density (Mg/m^3)	:	**2.03**
Void Ratio	:	**0.3872**	Void Ratio	:	**0.3056**

Specimen Details			
Description	Height (mm)	:	**19.77**
	Diameter (mm)	:	**75.06**
Grey mottled orangish brown slightly gravelly slightly sandy CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 100	**0.33**	**60**
100 - 200	**0.081**	**15**
200 - 400	**0.061**	**15**
400 - 800	**0.045**	**12**
800 - 100	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

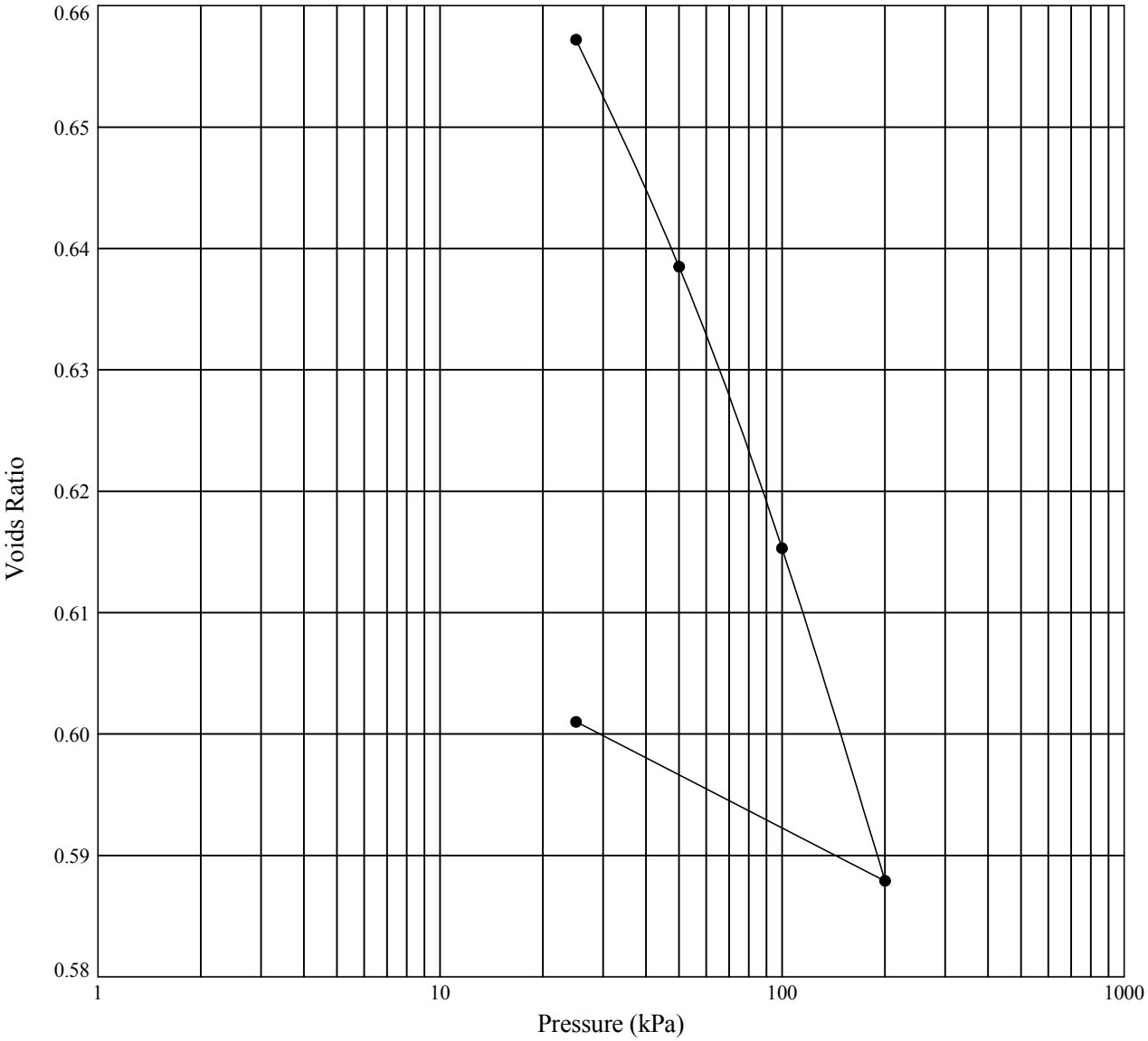
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH12** Sample Ref: **3** Sample Type: **U** Depth (m): **1.58**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**29**	Moisture Content (%)	:	**26**
Bulk Density (Mg/m^3)	:	**1.96**	Bulk Density (Mg/m^3)	:	**2.08**
Dry Density (Mg/m^3)	:	**1.52**	Dry Density (Mg/m^3)	:	**1.65**
Void Ratio	:	**0.7385**	Void Ratio	:	**0.6010**

Specimen Details			
Description	Height (mm)	:	**20.54**
	Diameter (mm)	:	**75.28**
Orangish brown mottled grey sandy CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 25	**1.9**	**1.6**
25 - 50	**0.45**	**3.8**
50 - 100	**0.28**	**5.6**
100 - 200	**0.17**	**7.0**
200 - 25	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

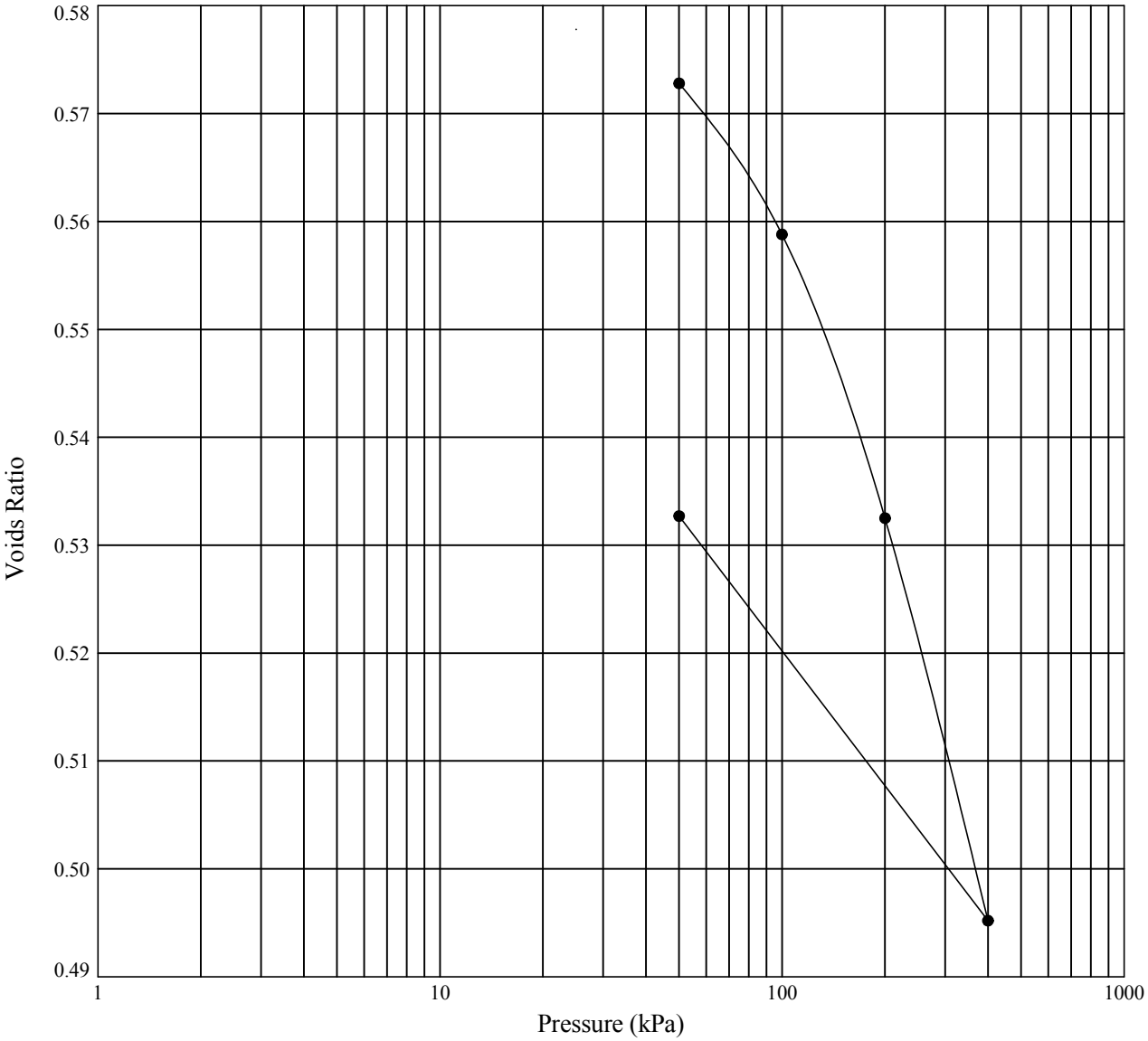
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH13** Sample Ref: **3** Sample Type: **U** Depth (m): **1.22**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**22**	Moisture Content (%)	:	**22**
Bulk Density (Mg/m^3)	:	**2.05**	Bulk Density (Mg/m^3)	:	**2.11**
Dry Density (Mg/m^3)	:	**1.67**	Dry Density (Mg/m^3)	:	**1.73**
Void Ratio	:	**0.5849**	Void Ratio	:	**0.5327**

Specimen Details			
Description	Height (mm)	:	**19.05**
	Diameter (mm)	:	**74.98**
Orangish brown mottled grey slightly gravelly CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 25	**Sample**	**Swelling**
25 - 50	**0.13**	**31**
50 - 100	**0.18**	**2.7**
100 - 200	**0.17**	**3.0**
200 - 400	**0.12**	**1.4**
400 - 50	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

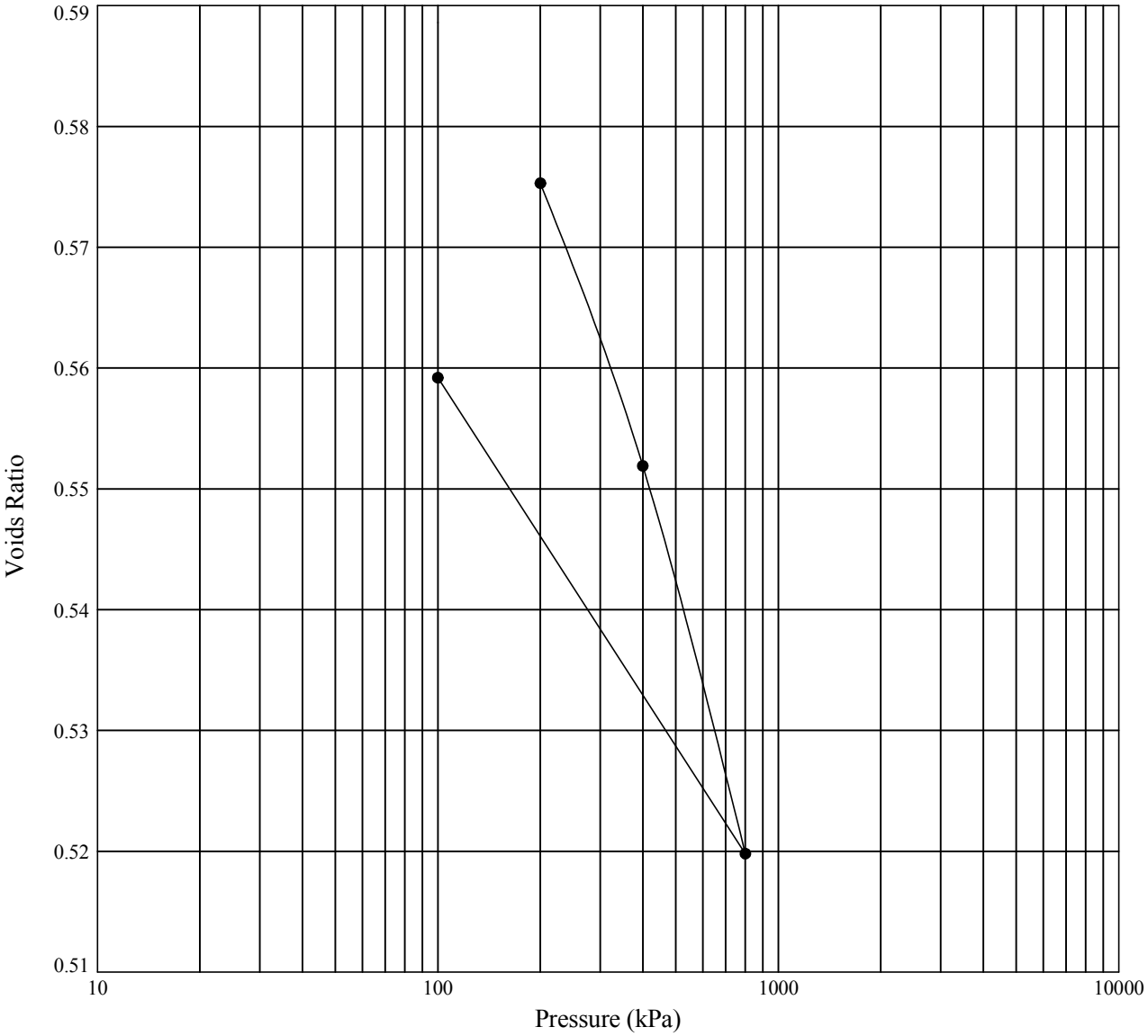
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH13** Sample Ref: **7** Sample Type: **U** Depth (m): **3.31**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**23**	Moisture Content (%)	:	**23**
Bulk Density (Mg/m^3)	:	**2.02**	Bulk Density (Mg/m^3)	:	**2.10**
Dry Density (Mg/m^3)	:	**1.65**	Dry Density (Mg/m^3)	:	**1.70**
Void Ratio	:	**0.6094**	Void Ratio	:	**0.5592**

Specimen Details			
Description	Height (mm)	:	**19.02**
	Diameter (mm)	:	**74.97**
Brownish grey mottled orange slightly gravelly CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 100	**Sample**	**Swelling**
100 - 200	**0.084**	**13**
200 - 400	**0.074**	**15**
400 - 800	**0.052**	**13**
800 - 100	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

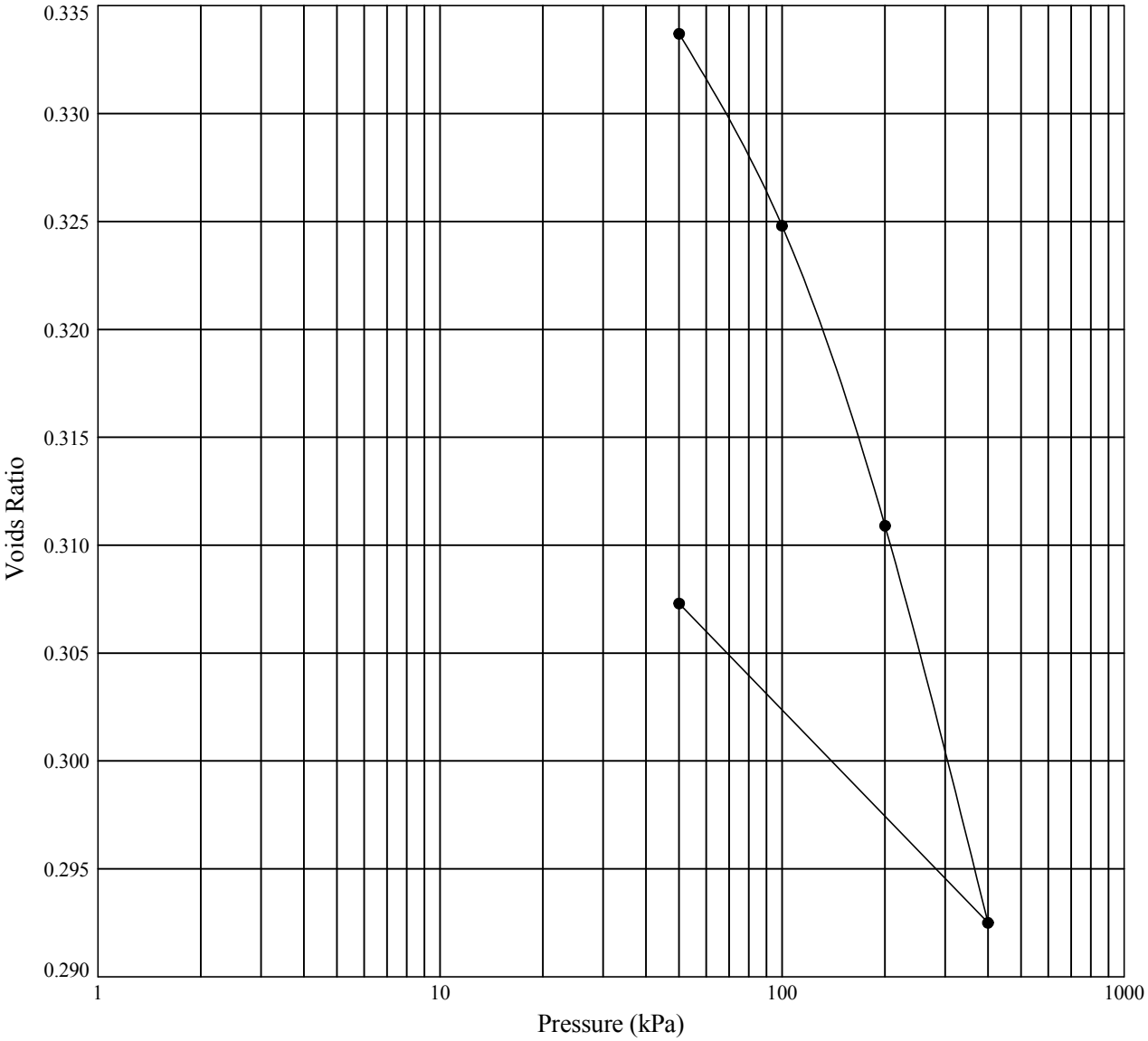
Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH14** Sample Ref: Sample Type: **U** Depth (m): **2.33**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**13**	Moisture Content (%)	:	**13**
Bulk Density (Mg/m^3)	:	**2.23**	Bulk Density (Mg/m^3)	:	**2.29**
Dry Density (Mg/m^3)	:	**1.97**	Dry Density (Mg/m^3)	:	**2.03**
Void Ratio	:	**0.3481**	Void Ratio	:	**0.3073**

Specimen Details			
Description	Height (mm)	:	**19.88**
Greyish brown slightly sandy slightly gravelly CLAY	Diameter (mm)	:	**75.05**
	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 50	**0.21**	**23**
50 - 100	**0.13**	**3.7**
100 - 200	**0.10**	**10**
200 - 400	**0.070**	**13**
400 - 50	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

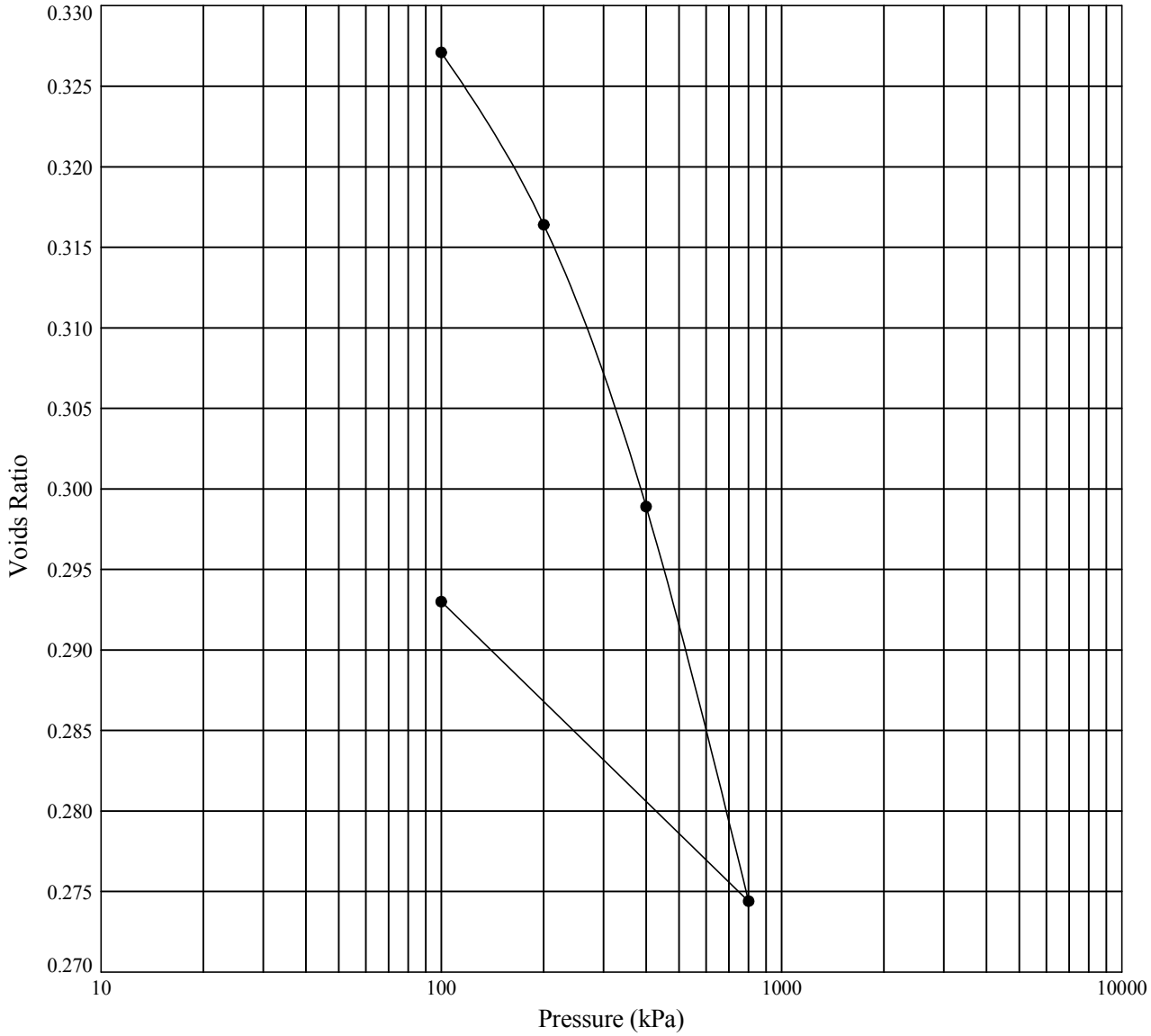
Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

ONE DIMENSIONAL CONSOLIDATION TEST

In accordance with BS1377:Part 5:1990

Borehole : **BH15** Sample Ref: **14** Sample Type: **U** Depth (m): **6.25**



Initial Specimen Condition			Final Specimen Condition		
Moisture Content (%)	:	**12**	Moisture Content (%)	:	**12**
Bulk Density (Mg/m^3)	:	**2.22**	Bulk Density (Mg/m^3)	:	**2.31**
Dry Density (Mg/m^3)	:	**1.97**	Dry Density (Mg/m^3)	:	**2.06**
Void Ratio	:	**0.3419**	Void Ratio	:	**0.2930**

Specimen Details			
Description	Height (mm)	:	**19.08**
	Diameter (mm)	:	**74.96**
Grey slightly gravelly slightly sandy CLAY	Particle Density (Mg/m^3) (assumed)	:	**2.65**
	Swelling Pressure (kPa)	:	**NA**

Test Results		
Pressure Range (kPa)	Mv (m^2/MN)	Cv (m^2/yr)
0 - 100	**0.11**	**21**
100 - 200	**0.081**	**6.3**
200 - 400	**0.066**	**9.4**
400 - 800	**0.047**	**6.4**
800 - 100	**NA**	**NA**

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	**ALAN FROST**	**11/10/14**

Contract	Contract Ref:
Junction 15 M1 West	**745045**

SUMMARY OF LABORATORY HAND PENETROMETER & VANE TEST RESULTS

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content (%)	Vane Type	Average Reading (kPa)	Sample Description
BH2		U	8.00	22	HVP	260	Greyish brown CLAY
BH4		U	1.34	17	HVP	16	Brown silty SAND
BH5		U	1.20	27	HVP	122	Brown mottled grey CLAY
BH5		U	2.10	31	HVP	84	Brown mottled grey CLAY
BH5		U	4.40	26	HVP	195	Grey mottled brown CLAY with occasional gypsum
BH5		U	7.12	21	HVP	268	Grey CLAY
BH6		U	3.29	17	HVP	50	Brown slightly gravelly slightly sandy CLAY
BH8	12	U	5.12	13	HVP	296	Grey mottled brown slightly sandy CLAY

Key : HVP = Hand Vane (Peak), HVR = Hand Vane (Remoulded), PP = Pocket Penetrometer.

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date	Contract Ref:
A.D.Frost	**ALAN FROST**	**11.10.14**	**745045**
Contract: **Junction 15 M1 West**			

SUMMARY OF LABORATORY HAND PENETROMETER & VANE TEST RESULTS

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content (%)	Vane Type	Average Reading (kPa)	Sample Description
BH9	10	U	5.35	18	HVP	158	Grey mottled orange and brown slightly gravelly slightly sandy CLAY
BH12	11	U	5.11	22	HVP	234	Grey CLAY
BH14		U	1.59	21	HVP	96	Brown mottled reddish brown and grey slightly gravelly slightly sandy
							CLAY
BH16	20	U	7.74	19	HVP	302	Grey CLAY

Key : HVP = Hand Vane (Peak), HVR = Hand Vane (Remoulded), PP = Pocket Penetrometer.

Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date	Contract Ref:
A.D.Frost	**ALAN FROST**	**11.10.14**	**745045**
Contract: **Junction 15 M1 West**			

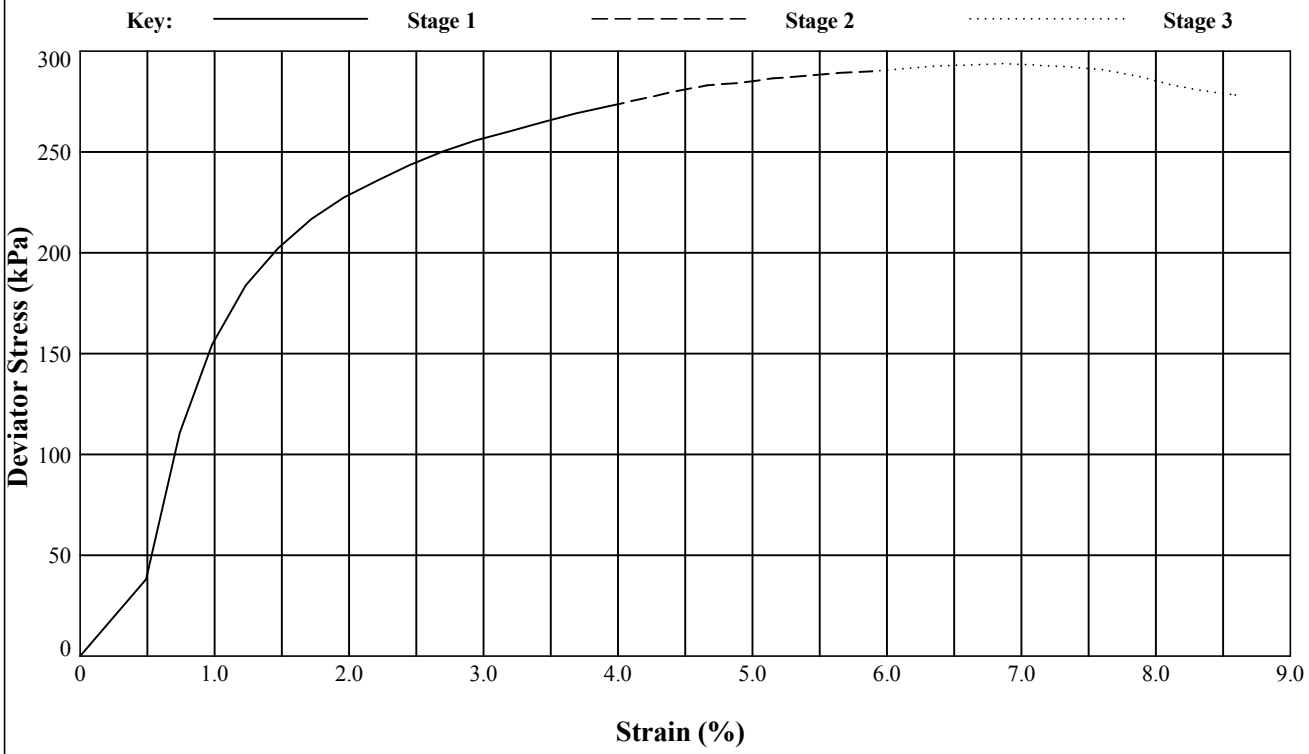
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH2** Sample Ref: Sample Type: **U** Depth (m): **9.61**

Description : **Dark grey CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.45		
	Height	(mm)	203.79		
	Moisture Content	(%)	25		
	Bulk Density	(Mg/m^3)	2.01		
	Dry Density	(Mg/m^3)	1.61		
TEST DETAILS	Membrane Thickness	(mm)	0.96	0.96	0.96
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	100	200	300
	Membrane Correction	(kPa)	1.01	1.42	1.60
	Corrected Deviator Stress	(kPa)	273	290	294
	Undrained Shear Strength	(kPa)	136	145	147
	Strain at Failure	(%)	3.9	5.9	6.9
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

	Compiled By	Date
STRUCTURAL SOILS 1a Princess Street Bedminster Bristol BS3 4AG	A.D.Frost — ALAN FROST	11/10/14
	Contract: **Junction 15 M1 West**	Contract Ref: **745045**

UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

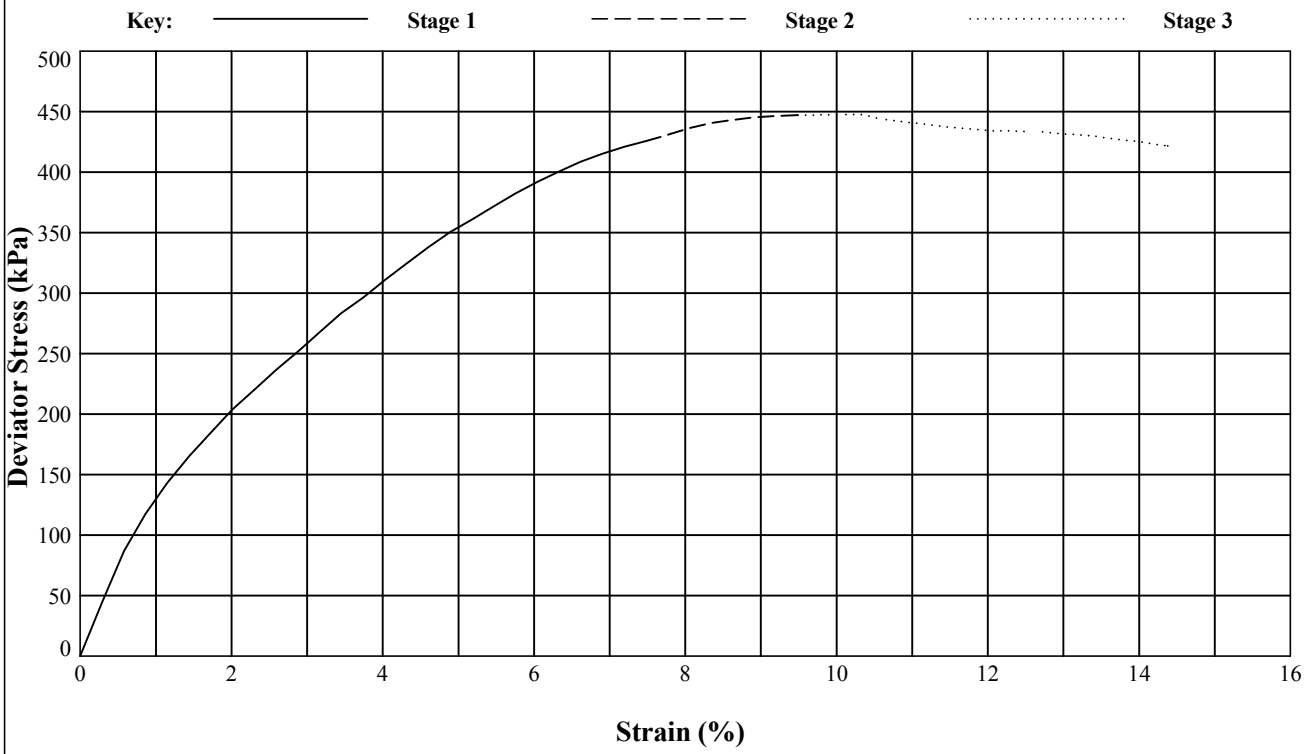
In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH3** Sample Ref: Sample Type: **U** Depth (m): **7.50**

Description : **Grey slightly sandy CLAY**

Remarks : **Non-standard sample height**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.12		
	Height	(mm)	173.88		
	Moisture Content	(%)	19		
	Bulk Density	(Mg/m^3)	2.10		
	Dry Density	(Mg/m^3)	1.77		
TEST DETAILS	Membrane Thickness	(mm)	0.65	0.65	0.65
	Rate of Axial Displacement	(%/min)	1.44	1.44	1.44
	Cell Pressure	(kPa)	100	200	300
	Membrane Correction	(kPa)	1.15	1.39	1.46
	Corrected Deviator Stress	(kPa)	426	447	448
	Undrained Shear Strength	(kPa)	213	224	224
	Strain at Failure	(%)	7.5	9.5	10.1
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

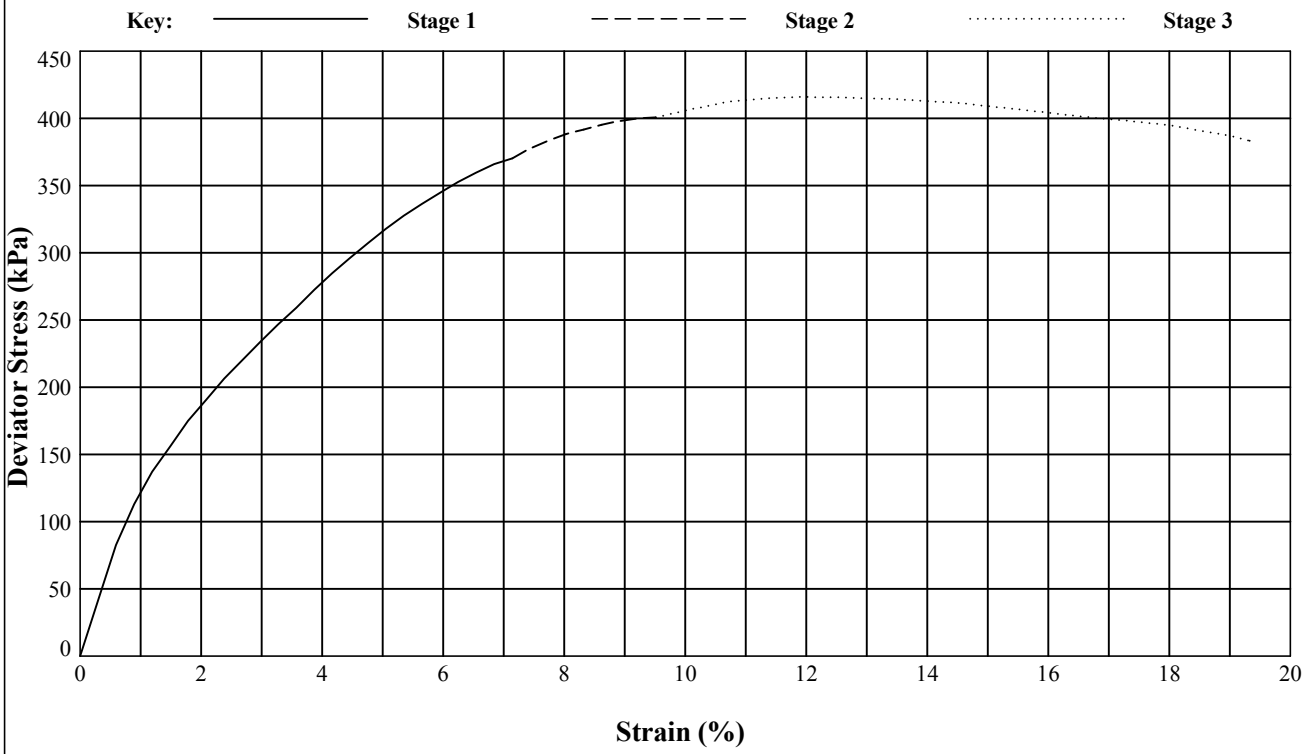
In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH3** Sample Ref: Sample Type: **U** Depth (m): **9.00**

Description : **Grey CLAY**

Remarks : **Non-standard sample height**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.34		
	Height	(mm)	168.17		
	Moisture Content	(%)	19		
	Bulk Density	(Mg/m^3)	2.10		
	Dry Density	(Mg/m^3)	1.76		
TEST DETAILS	Membrane Thickness	(mm)	0.89	0.89	0.89
	Rate of Axial Displacement	(%/min)	1.49	1.49	1.49
	Cell Pressure	(kPa)	80	160	320
	Membrane Correction	(kPa)	1.51	1.90	2.24
	Corrected Deviator Stress	(kPa)	370	401	416
	Undrained Shear Strength	(kPa)	185	200	208
	Strain at Failure	(%)	7.1	9.5	11.9
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

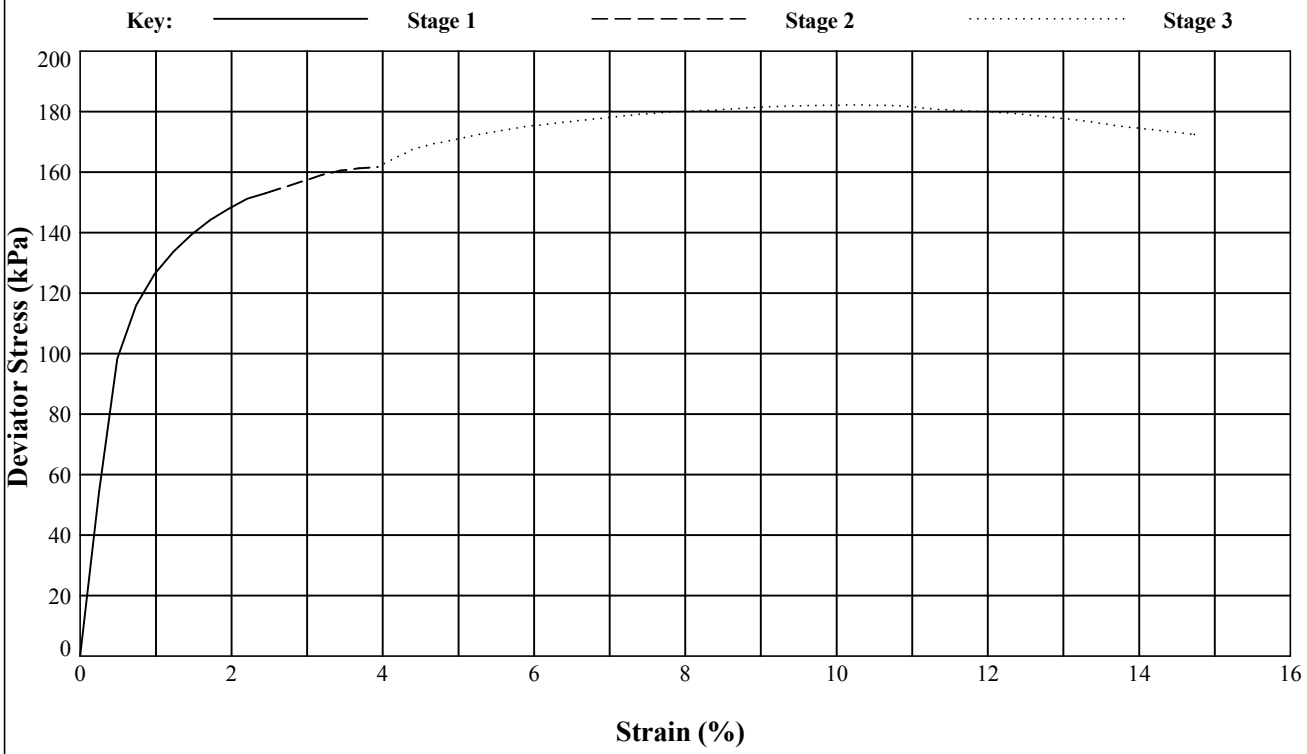
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH5** Sample Ref: Sample Type: **U** Depth (m): **3.22**

Description : **Brown mottled grey CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.96		
	Height	(mm)	203.72		
	Moisture Content	(%)	29		
	Bulk Density	(Mg/m^3)	1.94		
	Dry Density	(Mg/m^3)	1.50		
TEST DETAILS	Membrane Thickness	(mm)	0.61	0.61	0.61
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	50	100	200
	Membrane Correction	(kPa)	0.41	0.64	1.40
	Corrected Deviator Stress	(kPa)	153	162	182
	Undrained Shear Strength	(kPa)	77	81	91
	Strain at Failure	(%)	2.4	3.9	10.3
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

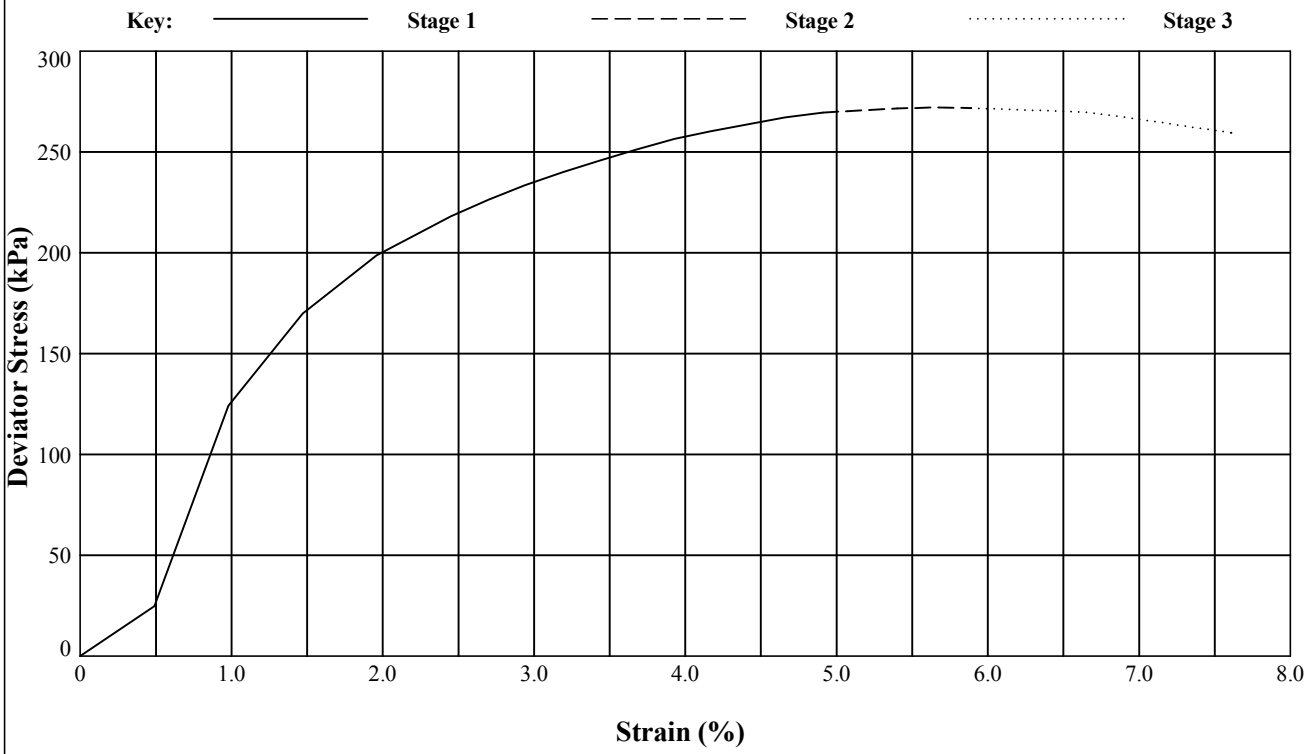
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH5** Sample Ref: Sample Type: **U** Depth (m): **5.15**

Description : **Brown mottled grey CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.29		
	Height	(mm)	203.75		
	Moisture Content	(%)	30		
	Bulk Density	(Mg/m^3)	1.96		
	Dry Density	(Mg/m^3)	1.50		
TEST DETAILS	Membrane Thickness	(mm)	0.88	0.88	0.88
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	100	200	300
	Membrane Correction	(kPa)	1.15	1.27	1.31
	Corrected Deviator Stress	(kPa)	270	272	272
	Undrained Shear Strength	(kPa)	135	136	136
	Strain at Failure	(%)	4.9	5.6	5.9
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

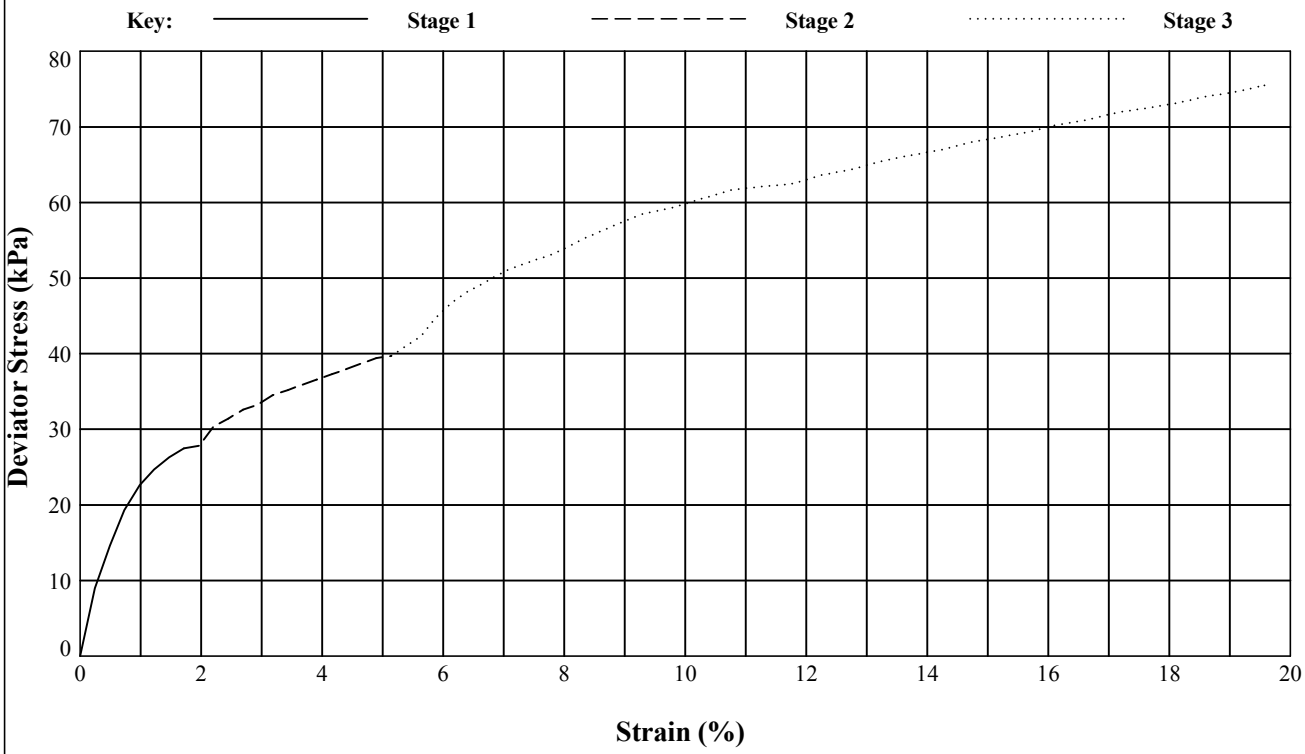
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH6** Sample Ref: Sample Type: **U** Depth (m): **1.26**

Description : **Light brown mottled dark brown CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	100.43		
	Height	(mm)	204.35		
	Moisture Content	(%)	24		
	Bulk Density	(Mg/m^3)	1.87		
	Dry Density	(Mg/m^3)	1.50		
TEST DETAILS	Membrane Thickness	(mm)	0.39	0.39	0.39
	Rate of Axial Displacement	(%/min)	1.22	1.22	1.22
	Cell Pressure	(kPa)	40	80	160
	Membrane Correction	(kPa)	0.19	0.54	1.46
	Corrected Deviator Stress	(kPa)	28	40	76
	Undrained Shear Strength	(kPa)	14	20	38
	Strain at Failure	(%)	1.7	5.1	19.6
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

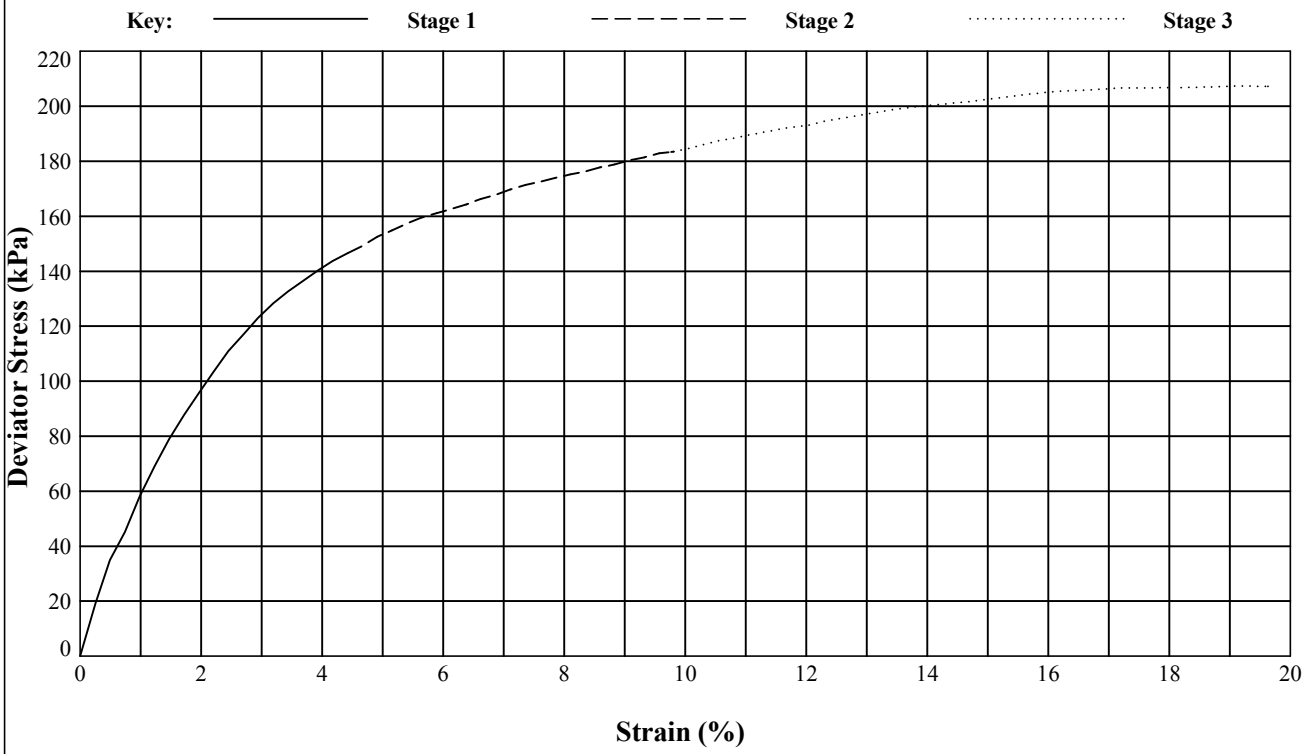
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH9** Sample Ref: **2** Sample Type: **U** Depth (m): **1.24**

Description : **Brown mottled grey slightly gravelly CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	99.68		
	Height	(mm)	203.82		
	Moisture Content	(%)	22		
	Bulk Density	(Mg/m^3)	2.07		
	Dry Density	(Mg/m^3)	1.69		
TEST DETAILS	Membrane Thickness	(mm)	0.72	0.72	0.72
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	50	100	150
	Membrane Correction	(kPa)	0.87	1.64	2.66
	Corrected Deviator Stress	(kPa)	147	184	207
	Undrained Shear Strength	(kPa)	73	92	104
	Strain at Failure	(%)	4.4	9.8	19.1
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

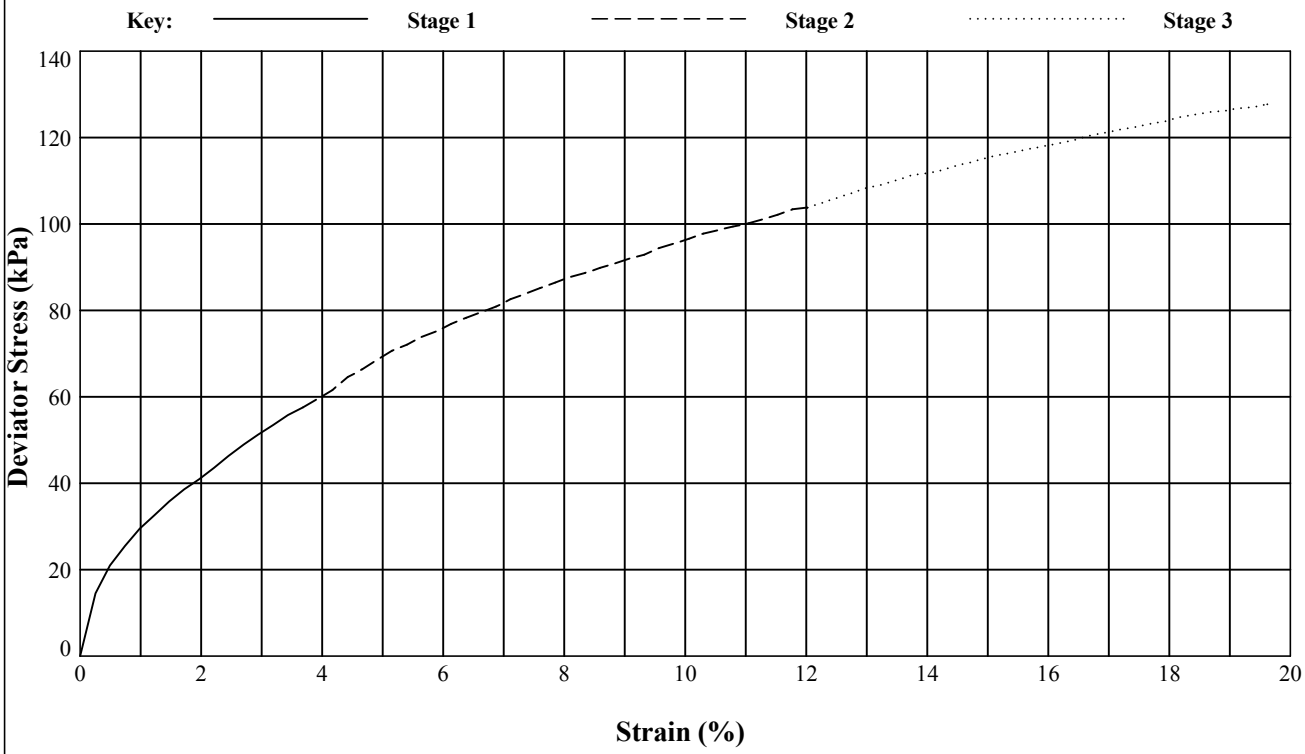
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH10** Sample Ref: **2** Sample Type: **U** Depth (m): **1.25**

Description : **Grey mottled orangish brown mottled grey slightly gravelly CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.57		
	Height	(mm)	203.82		
	Moisture Content	(%)	24		
	Bulk Density	(Mg/m^3)	2.03		
	Dry Density	(Mg/m^3)	1.64		
TEST DETAILS	Membrane Thickness	(mm)	0.40	0.40	0.40
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	50	100	150
	Membrane Correction	(kPa)	0.39	1.02	1.47
	Corrected Deviator Stress	(kPa)	58	104	128
	Undrained Shear Strength	(kPa)	29	52	64
	Strain at Failure	(%)	3.7	12.0	19.6
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

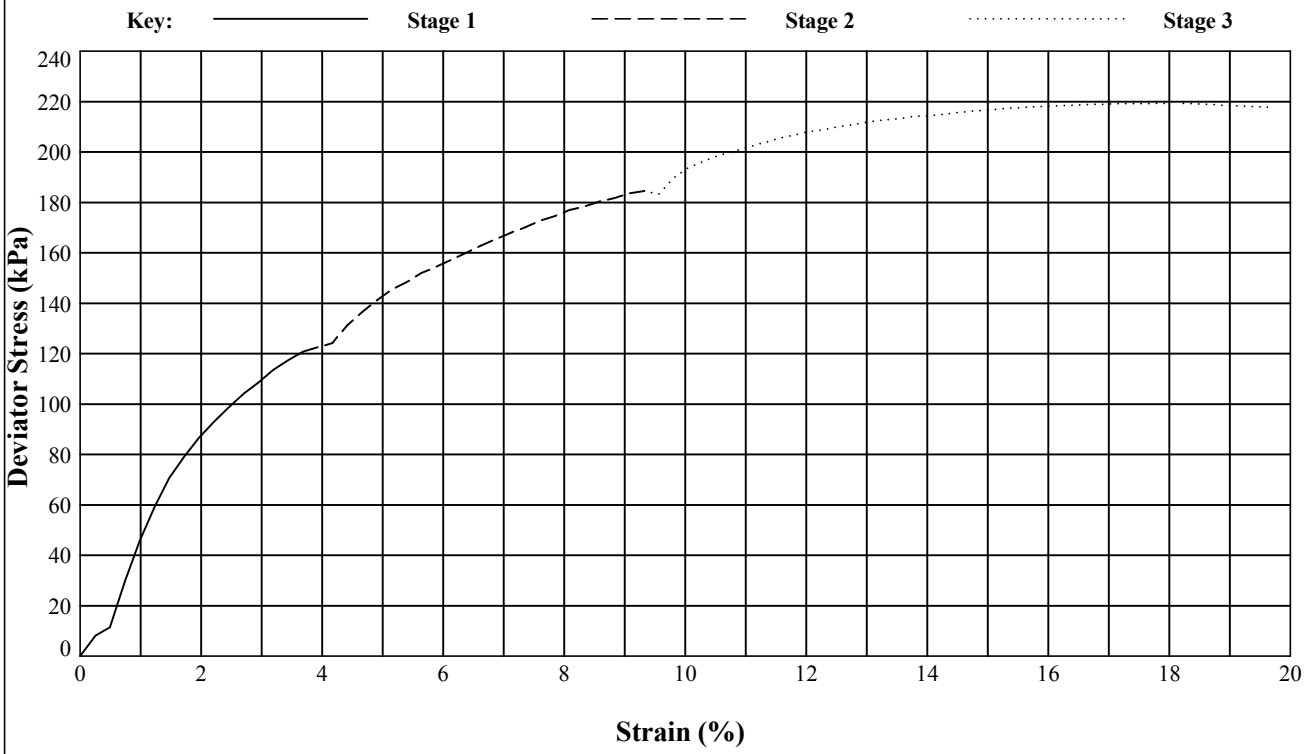
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH11** Sample Ref: **9** Sample Type: **U** Depth (m): **3.03**

Description : **Grey mottled orangish brown slightly gravelly slightly sandy CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	100.67		
	Height	(mm)	203.92		
	Moisture Content	(%)	17		
	Bulk Density	(Mg/m^3)	2.09		
	Dry Density	(Mg/m^3)	1.79		
TEST DETAILS	Membrane Thickness	(mm)	0.86	0.86	0.86
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	100	200	300
	Membrane Correction	(kPa)	0.86	1.86	3.02
	Corrected Deviator Stress	(kPa)	121	185	219
	Undrained Shear Strength	(kPa)	60	92	110
	Strain at Failure	(%)	3.7	9.3	18.1
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

	Compiled By	Date
STRUCTURAL SOILS 1a Princess Street Bedminster Bristol BS3 4AG	A.D.Frost — ALAN FROST	11/10/14
	Contract: **Junction 15 M1 West**	Contract Ref: **745045**

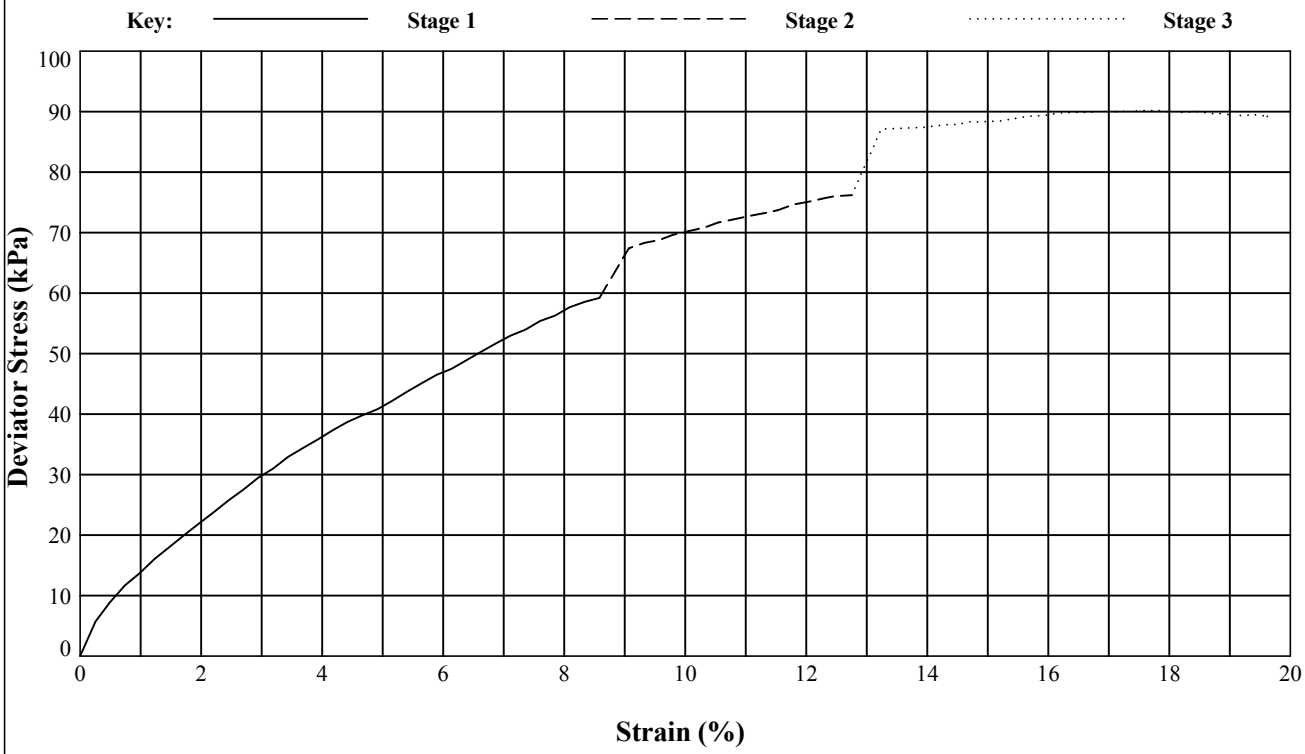
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH12** Sample Ref: **3** Sample Type: **U** Depth (m): **1.30**

Description : **Orangish brown mottled grey sandy CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.25		
	Height	(mm)	203.86		
	Moisture Content	(%)	26		
	Bulk Density	(Mg/m^3)	2.01		
	Dry Density	(Mg/m^3)	1.59		
TEST DETAILS	Membrane Thickness	(mm)	0.38	0.38	0.38
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	40	80	160
	Membrane Correction	(kPa)	0.75	1.00	1.28
	Corrected Deviator Stress	(kPa)	59	76	90
	Undrained Shear Strength	(kPa)	30	38	45
	Strain at Failure	(%)	8.6	12.8	17.7
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

AGS

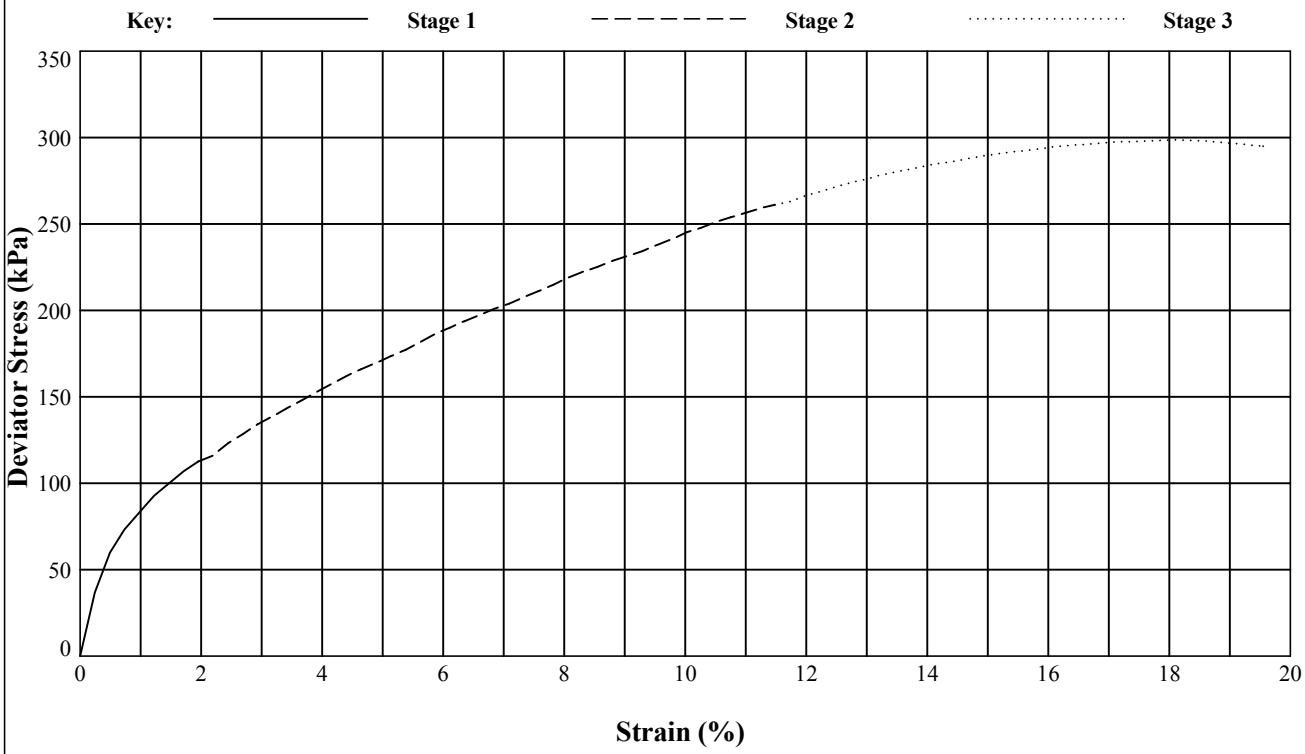
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH13** Sample Ref: **3** Sample Type: **U** Depth (m): **1.24**

Description : **Orangish brown mottled grey slightly gravelly CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.51		
	Height	(mm)	204.63		
	Moisture Content	(%)	21		
	Bulk Density	(Mg/m^3)	2.06		
	Dry Density	(Mg/m^3)	1.70		
TEST DETAILS	Membrane Thickness	(mm)	0.87	0.87	0.87
	Rate of Axial Displacement	(%/min)	1.22	1.22	1.22
	Cell Pressure	(kPa)	100	200	300
	Membrane Correction	(kPa)	0.47	2.13	2.97
	Corrected Deviator Stress	(kPa)	113	261	299
	Undrained Shear Strength	(kPa)	56	131	149
	Strain at Failure	(%)	2.0	11.5	18.1
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

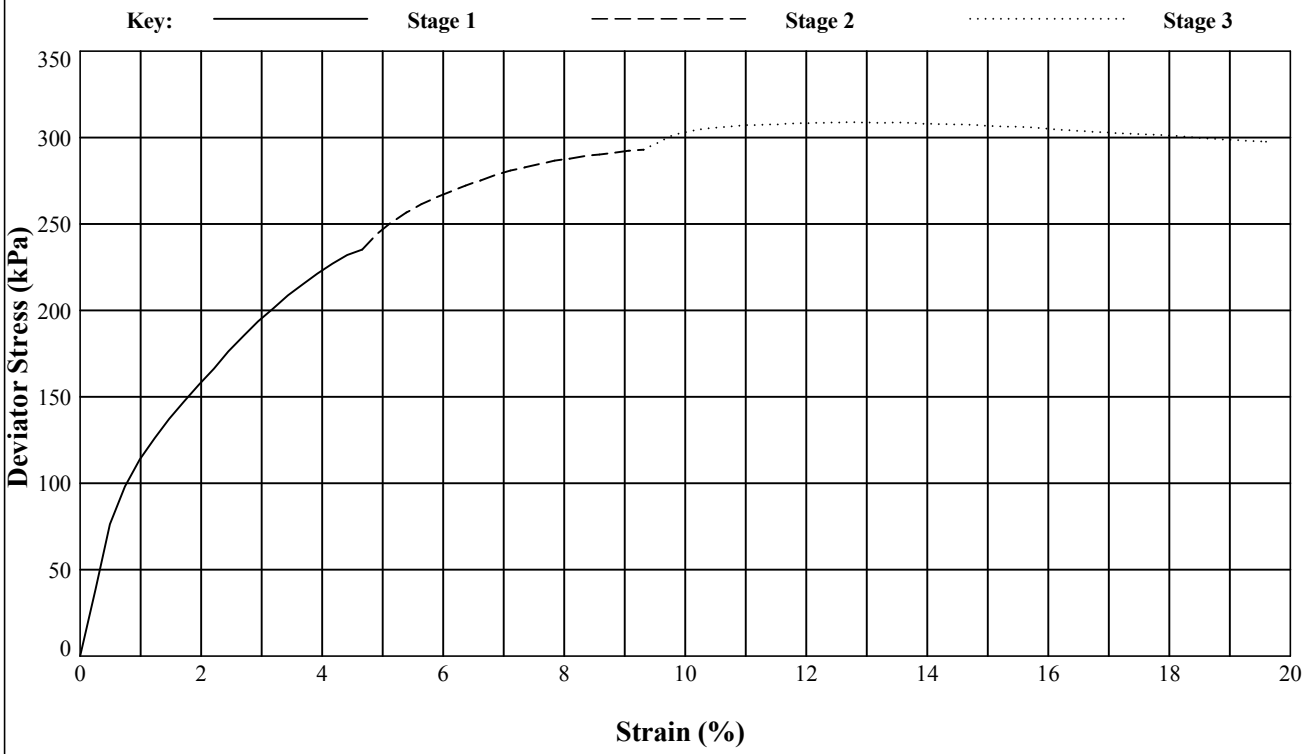
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH13** Sample Ref: **7** Sample Type: **U** Depth (m): **3.07**

Description : **Brownish grey mottled orange slightly gravelly CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	102.86		
	Height	(mm)	204.06		
	Moisture Content	(%)	22		
	Bulk Density	(Mg/m^3)	2.07		
	Dry Density	(Mg/m^3)	1.69		
TEST DETAILS	Membrane Thickness	(mm)	0.73	0.73	0.73
	Rate of Axial Displacement	(%/min)	1.23	1.23	1.23
	Cell Pressure	(kPa)	100	200	300
	Membrane Correction	(kPa)	0.90	1.54	1.93
	Corrected Deviator Stress	(kPa)	235	293	309
	Undrained Shear Strength	(kPa)	118	147	154
	Strain at Failure	(%)	4.7	9.3	12.7
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

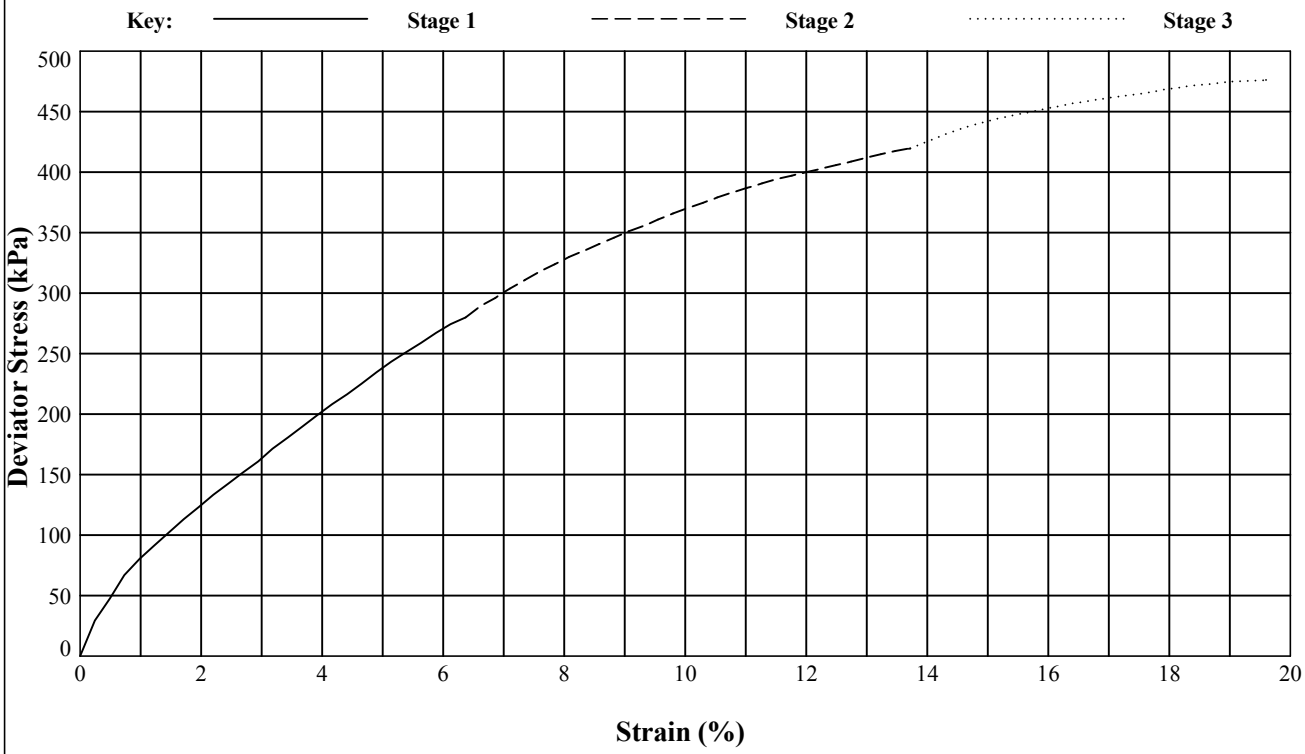
UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH14** Sample Ref: Sample Type: **U** Depth (m): **2.09**

Description : **Greyish brown slightly sandy slightly gravelly CLAY**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	103.08		
	Height	(mm)	204.11		
	Moisture Content	(%)	13		
	Bulk Density	(Mg/m^3)	2.28		
	Dry Density	(Mg/m^3)	2.02		
TEST DETAILS	Membrane Thickness	(mm)	0.88	0.88	0.88
	Rate of Axial Displacement	(%/min)	1.22	1.22	1.22
	Cell Pressure	(kPa)	40	80	160
	Membrane Correction	(kPa)	1.38	2.45	3.21
	Corrected Deviator Stress	(kPa)	280	420	476
	Undrained Shear Strength	(kPa)	140	210	238
	Strain at Failure	(%)	6.4	13.7	19.6
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

UNCONSOLIDATED QUICK UNDRAINED (MULTI-STAGE) TRIAXIAL COMPRESSION TEST

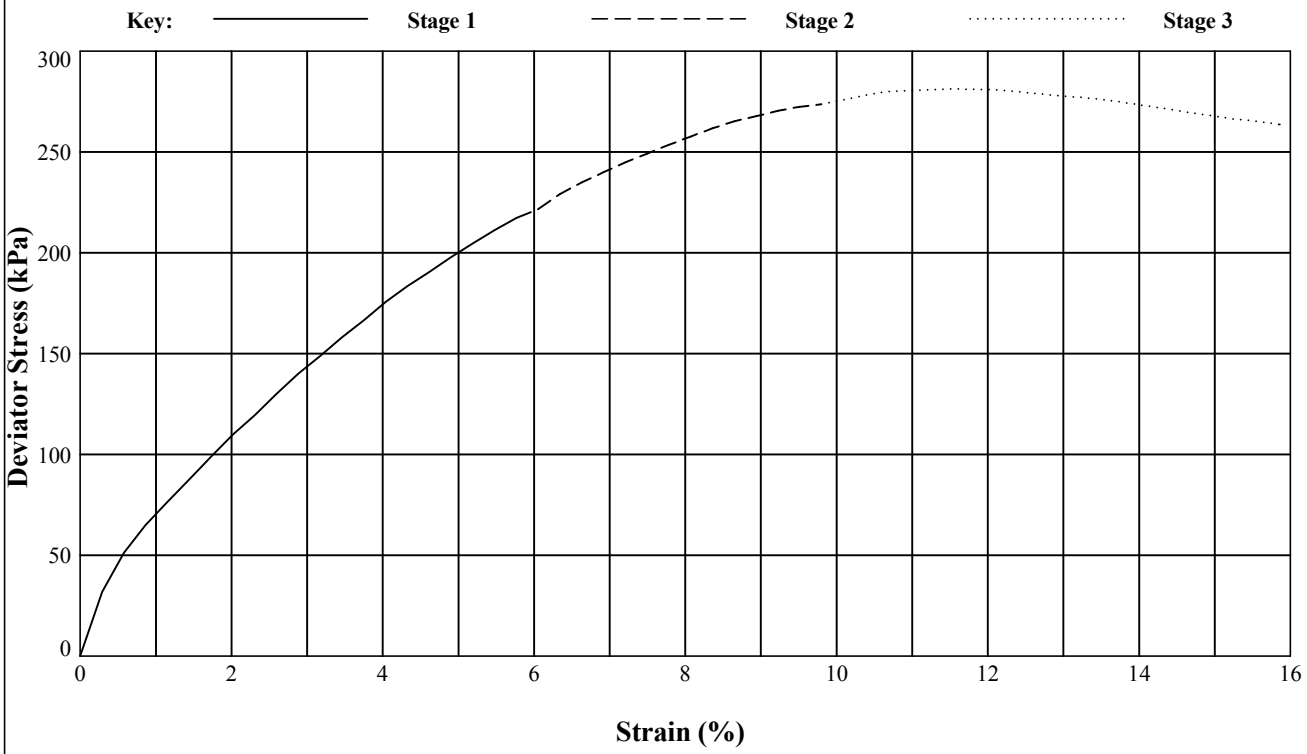
In accordance with BS1377:Part 7:1990, Clause 9

Borehole : **BH15** Sample Ref: **14** Sample Type: **U** Depth (m): **6.00**

Description : **Grey slightly sandy CLAY**

Remarks : **Non-standard sample height**

STAGE NUMBER			1	2	3
SAMPLE DETAILS	Sample Condition		Undisturbed		
	Orientation of sample		Vertical		
	Diameter	(mm)	101.58		
	Height	(mm)	173.44		
	Moisture Content	(%)	19		
	Bulk Density	(Mg/m^3)	2.12		
	Dry Density	(Mg/m^3)	1.79		
TEST DETAILS	Membrane Thickness	(mm)	0.85	0.85	0.85
	Rate of Axial Displacement	(%/min)	1.44	1.44	1.44
	Cell Pressure	(kPa)	100	200	300
	Membrane Correction	(kPa)	1.25	1.90	2.13
	Corrected Deviator Stress	(kPa)	217	274	281
	Undrained Shear Strength	(kPa)	109	137	141
	Strain at Failure	(%)	5.8	9.8	11.5
	Mode of Failure				Compound



Approved Signatories: J.BARRETT A.FROST M.STOKES S.HANDCOCK S.PHILP J.SHALLCROSS

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
A.D.Frost	ALAN FROST	11/10/14

Contract	Contract Ref:
Junction 15 M1 West	**745045**

APPENDIX H
CHEMICAL LABORATORY CERTIFICATES FOR SOIL ANALYSIS

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 14/04743
Issue Number: 1 **Date:** 17 September, 2014

Client:
RSK Environment Ltd Coventry
Humber Road, Abbey Park
Coventry
UK
CV3 4AQ

Project Manager: Darren Bench/Michael Lawson
Project Name: Junction 15 M1 West
Project Ref: 312598
Order No: N/A
Date Samples Received: 27/08/14
Date Instructions Received: 04/09/14
Date Analysis Completed: 17/09/14

Prepared by:

Carolyn Field
Sales Executive

Approved by:

Iain Haslock
Analytical Consultant

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/1	14/04743/4	14/04743/11	14/04743/12	14/04743/13	14/04743/14	14/04743/17	14/04743/24	Units	Method ref
Client Sample No	S2									
Client Sample ID	CP1	WS1	WS8	WS9	WS10	WS11	WS14	TP6		
Depth to Top	0.20	0.30	0.50	0.40	0.20	0.20	0.60	0.30		
Depth To Bottom										
Date Sampled	18-Aug-14	21-Aug-14	20-Aug-14	19-Aug-14	19-Aug-14	21-Aug-14	20-Aug-14	28-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6AE	5AE	5AE	1A	6AE	5E	5A	6E		
% Stones >10mm$_A^{\#}$	9.6	3.7	4.6	3.5	6.6	<0.1	23.8	<0.1	% w/w	A-T-044
pH$_D^{M\#}$	7.82	7.50	7.84	8.03	7.86	7.26	7.64	7.33	pH	A-T-031s
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	A-T-050s
Total Organic Carbon$_D^{M\#}$	1.72	1.59	0.35	0.21	2.35	1.44	0.43	2.27	% w/w	A-T-032s
Arsenic$_D^{M\#}$	9	10	10	12	16	12	6	12	mg/kg	A-T-024s
Cadmium$_D^{M\#}$	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	A-T-024s
Copper$_D^{M\#}$	14	14	10	8	16	14	8	16	mg/kg	A-T-024s
Chromium$_D^{M\#}$	35	33	30	16	32	27	29	34	mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-040s
Lead$_D^{M\#}$	27	31	12	12	31	28	11	30	mg/kg	A-T-024s
Mercury$_D$	0.18	0.29	0.17	<0.17	0.20	<0.17	0.18	0.18	mg/kg	A-T-024s
Nickel$_D^{M\#}$	21	23	19	15	21	22	20	25	mg/kg	A-T-024s
Selenium$_D^{M\#}$	<1	<1	<1	<1	<1	<1	<1	1	mg/kg	A-T-024s
Zinc$_D^{M\#}$	60	65	50	49	69	67	39	70	mg/kg	A-T-024s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/1	14/04743/4	14/04743/11	14/04743/12	14/04743/13	14/04743/14	14/04743/17	14/04743/24	Units	Method ref
Client Sample No	S2									
Client Sample ID	CP1	WS1	WS8	WS9	WS10	WS11	WS14	TP6		
Depth to Top	0.20	0.30	0.50	0.40	0.20	0.20	0.60	0.30		
Depth To Bottom										
Date Sampled	18-Aug-14	21-Aug-14	20-Aug-14	19-Aug-14	19-Aug-14	21-Aug-14	20-Aug-14	28-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6AE	5AE	5AE	1A	6AE	5E	5A	6E		
Pest-c										
Mevinphos	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Dichlorvos	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
alpha-Hexachlorocyclohexane (HCH)	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Diazinon	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Heptachlor	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Aldrin	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
beta-Hexachlorocyclohexane (HCH)	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Methyl Parathion	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Malathion	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Fenitrothion	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Heptachlor Epoxide	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Parathion (Ethyl Parathion)	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
p,p-DDE	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
p,p-DDT	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
p,p-Methoxychlor	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
p,p-TDE (DDD)	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
o,p-DDE	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
o,p-DDT	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
o,p-Methoxychlor	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
o,p-TDE (DDD)	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Endosulphan I	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Endosulphan II	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Endosulphan Sulphate	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Endrin	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Ethion	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Dieldrin	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Azinphos-methyl	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/1	14/04743/4	14/04743/11	14/04743/12	14/04743/13	14/04743/14	14/04743/17	14/04743/24	Units	Method ref
Client Sample No	S2									
Client Sample ID	CP1	WS1	WS8	WS9	WS10	WS11	WS14	TP6		
Depth to Top	0.20	0.30	0.50	0.40	0.20	0.20	0.60	0.30		
Depth To Bottom										
Date Sampled	18-Aug-14	21-Aug-14	20-Aug-14	19-Aug-14	19-Aug-14	21-Aug-14	20-Aug-14	28-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6AE	5AE	5AE	1A	6AE	5E	5A	6E		
PAH 16										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	0.04	0.05	<0.04	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	0.05	0.07	<0.04	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	0.07	0.07	<0.05	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06	<0.06	0.07	<0.06	<0.06	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03	mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	A-T-019s
PAH (total 16)$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	0.24	0.22	<0.08	<0.08	mg/kg	A-T-019s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/1	14/04743/4	14/04743/11	14/04743/12	14/04743/13	14/04743/14	14/04743/17	14/04743/24	Units	Method ref
Client Sample No	S2									
Client Sample ID	CP1	WS1	WS8	WS9	WS10	WS11	WS14	TP6		
Depth to Top	0.20	0.30	0.50	0.40	0.20	0.20	0.60	0.30		
Depth To Bottom										
Date Sampled	18-Aug-14	21-Aug-14	20-Aug-14	19-Aug-14	19-Aug-14	21-Aug-14	20-Aug-14	28-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6AE	5AE	5AE	1A	6AE	5E	5A	6E		
Nitrogen Pests										
Ametryn	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Atraton	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Atrazine	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Prometon	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Prometryn	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Propazine	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Simazine	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Simetryn	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Terbuthylazine	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon
Terbutryn	<50	<50	-	<50	-	<50	-	-	µg/kg	Subcon

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/1	14/04743/4	14/04743/11	14/04743/12	14/04743/13	14/04743/14	14/04743/17	14/04743/24	Units	Method ref
Client Sample No	S2									
Client Sample ID	CP1	WS1	WS8	WS9	WS10	WS11	WS14	TP6		
Depth to Top	0.20	0.30	0.50	0.40	0.20	0.20	0.60	0.30		
Depth To Bottom										
Date Sampled	18-Aug-14	21-Aug-14	20-Aug-14	19-Aug-14	19-Aug-14	21-Aug-14	20-Aug-14	28-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code		5AE	5AE	1A	6AE	5E	5A	6E		
TPH CWG										
Ali >C5-C6$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C10-C12$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C12-C16$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C16-C21$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C21-C35$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-022+23s
Aro >C5-C7$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C16-C21$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C21-C35$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-022+23s
TPH (Ali & Aro)$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-022+23s
BTEX - Benzene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
MTBE$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/25	14/04743/26	14/04743/27	14/04743/28	14/04743/33	14/04743/34	14/04743/40	14/04743/41	Units	Method ref
Client Sample No										
Client Sample ID	TP7	TP8	TP8	TP9	TP14	TP16	TP24	TP25		
Depth to Top	0.20	0.35	0.80	0.80	0.90	0.40	0.20	0.40		
Depth To Bottom		0.60								
Date Sampled	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	26-Aug-14	26-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6E	5A	5E	5	5A		6E	6A		
% Stones >10mm$_A^{\#}$	<0.1	6.3	<0.1	<0.1	9.5	-	<0.1	8.7	% w/w	A-T-044
pH$_D^{M\#}$	7.50	8.42	8.08	8.05	8.44	-	7.85	7.96	pH	A-T-031s
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	mg/kg	A-T-050s
Total Organic Carbon$_D^{M\#}$	2.17	0.44	0.74	0.85	1.18	-	2.43	1.67	% w/w	A-T-032s
Arsenic$_D^{M\#}$	11	9	13	11	11	-	9	10	mg/kg	A-T-024s
Cadmium$_D^{M\#}$	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	mg/kg	A-T-024s
Copper$_D^{M\#}$	14	6	12	9	13	-	17	16	mg/kg	A-T-024s
Chromium$_D^{M\#}$	28	19	27	22	24	-	32	31	mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	-	<1	<1	mg/kg	A-T-040s
Lead$_D^{M\#}$	30	12	21	18	11	-	30	26	mg/kg	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	0.23	0.67	-	<0.17	0.26	mg/kg	A-T-024s
Nickel$_D^{M\#}$	20	14	26	18	23	-	28	26	mg/kg	A-T-024s
Selenium$_D^{M\#}$	1	<1	<1	1	<1	-	1	<1	mg/kg	A-T-024s
Zinc$_D^{M\#}$	68	42	53	43	48	-	66	65	mg/kg	A-T-024s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/25	14/04743/26	14/04743/27	14/04743/28	14/04743/33	14/04743/34	14/04743/40	14/04743/41	Units	Method ref
Client Sample No										
Client Sample ID	TP7	TP8	TP8	TP9	TP14	TP16	TP24	TP25		
Depth to Top	0.20	0.35	0.80	0.80	0.90	0.40	0.20	0.40		
Depth To Bottom		0.60								
Date Sampled	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	26-Aug-14	26-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6E	5A	5E	5	5A		6E	6A		
Pest-c										
Mevinphos	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Dichlorvos	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
alpha-Hexachlorocyclohexane (HCH)	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Diazinon	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Heptachlor	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Aldrin	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
beta-Hexachlorocyclohexane (HCH)	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Methyl Parathion	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Malathion	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Fenitrothion	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Heptachlor Epoxide	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Parathion (Ethyl Parathion)	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
p,p-DDE	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
p,p-DDT	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
p,p-Methoxychlor	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
p,p-TDE (DDD)	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
o,p-DDE	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
o,p-DDT	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
o,p-Methoxychlor	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
o,p-TDE (DDD)	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Endosulphan I	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Endosulphan II	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Endosulphan Sulphate	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Endrin	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Ethion	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Dieldrin	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Azinphos-methyl	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/25	14/04743/26	14/04743/27	14/04743/28	14/04743/33	14/04743/34	14/04743/40	14/04743/41	Units	Method ref
Client Sample No										
Client Sample ID	TP7	TP8	TP8	TP9	TP14	TP16	TP24	TP25		
Depth to Top	0.20	0.35	0.80	0.80	0.90	0.40	0.20	0.40		
Depth To Bottom		0.60								
Date Sampled	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	26-Aug-14	26-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6E	5A	5E	5	5A		6E	6A		
PAH 16										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	-	<0.07	<0.07	mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06	<0.06	<0.06	-	<0.06	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	<0.08	-	<0.08	<0.08	mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	-	<0.07	<0.07	mg/kg	A-T-019s
PAH (total 16)$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	<0.08	-	<0.08	<0.08	mg/kg	A-T-019s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/25	14/04743/26	14/04743/27	14/04743/28	14/04743/33	14/04743/34	14/04743/40	14/04743/41	Units	Method ref
Client Sample No										
Client Sample ID	TP7	TP8	TP8	TP9	TP14	TP16	TP24	TP25		
Depth to Top	0.20	0.35	0.80	0.80	0.90	0.40	0.20	0.40		
Depth To Bottom		0.60								
Date Sampled	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	26-Aug-14	26-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6E	5A	5E	5	5A		6E	6A		
Nitrogen Pests										
Ametryn	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Atraton	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Atrazine	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Prometon	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Prometryn	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Propazine	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Simazine	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Simetryn	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Terbuthylazine	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon
Terbutryn	<50	-	-	-	-	<50	-	<50	µg/kg	Subcon

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/25	14/04743/26	14/04743/27	14/04743/28	14/04743/33	14/04743/34	14/04743/40	14/04743/41	Units	Method ref
Client Sample No										
Client Sample ID	TP7	TP8	TP8	TP9	TP14	TP16	TP24	TP25		
Depth to Top	0.20	0.35	0.80	0.80	0.90	0.40	0.20	0.40		
Depth To Bottom		0.60								
Date Sampled	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	27-Aug-14	26-Aug-14	26-Aug-14		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
MCERTS Sample Matrix Code	6E	5A	5E	5	5A		6E	6A		
TPH CWG										
Ali >C5-C6$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
Ali >C10-C12$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Ali >C12-C16$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Ali >C16-C21$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Ali >C21-C35$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-022+23s
Aro >C5-C7$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Aro >C16-C21$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Aro >C21-C35$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-022+23s
TPH (Ali & Aro)$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	A-T-022+23s
BTEX - Benzene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s
MTBE$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/48								Units	Method ref
Client Sample No										
Client Sample ID	CPBH2									
Depth to Top	0.50									
Depth To Bottom										
Date Sampled	18-Aug-14									
Sample Type	Soil									
MCERTS Sample Matrix Code	5									
% Stones >10mm$_A^{\#}$	<0.1								% w/w	A-T-044
pH$_D^{M\#}$	7.71								pH	A-T-031s
Phenols - Total by HPLC$_A$	<0.2								mg/kg	A-T-050s
Total Organic Carbon$_D^{M\#}$	0.51								% w/w	A-T-032s
Arsenic$_D^{M\#}$	17								mg/kg	A-T-024s
Cadmium$_D^{M\#}$	<0.5								mg/kg	A-T-024s
Copper$_D^{M\#}$	12								mg/kg	A-T-024s
Chromium$_D^{M\#}$	31								mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1								mg/kg	A-T-040s
Lead$_D^{M\#}$	20								mg/kg	A-T-024s
Mercury$_D$	<0.17								mg/kg	A-T-024s
Nickel$_D^{M\#}$	25								mg/kg	A-T-024s
Selenium$_D^{M\#}$	<1								mg/kg	A-T-024s
Zinc$_D^{M\#}$	66								mg/kg	A-T-024s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/48								Units	Method ref
Client Sample No										
Client Sample ID	CPBH2									
Depth to Top	0.50									
Depth To Bottom										
Date Sampled	18-Aug-14									
Sample Type	Soil									
MCERTS Sample Matrix Code	5									
PAH 16										
Acenaphthene$_A^{M\#}$	<0.01								mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01								mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02								mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04								mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04								mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05								mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05								mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07								mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06								mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04								mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08								mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01								mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03								mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03								mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03								mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07								mg/kg	A-T-019s
PAH (total 16)$_A^{M\#}$	<0.08								mg/kg	A-T-019s

Envirolab Job Number: 14/04743

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04743/48								Units	Method ref
Client Sample No										
Client Sample ID	CPBH2									
Depth to Top	0.50									
Depth To Bottom										
Date Sampled	18-Aug-14									
Sample Type	Soil									
MCERTS Sample Matrix Code	5									
TPH CWG										
Ali >C5-C6$_A^\#$	<0.01								mg/kg	A-T-022s
Ali >C6-C8$_A^\#$	<0.01								mg/kg	A-T-022s
Ali >C8-C10$_A^\#$	<0.01								mg/kg	A-T-022s
Ali >C10-C12$_A^\#$	<0.1								mg/kg	A-T-023s
Ali >C12-C16$_A^\#$	<0.1								mg/kg	A-T-023s
Ali >C16-C21$_A^\#$	<0.1								mg/kg	A-T-023s
Ali >C21-C35$_A^\#$	<0.1								mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1								mg/kg	A-T-022+23s
Aro >C5-C7$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C7-C8$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C8-C9$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C9-C10$_A^\#$	<0.01								mg/kg	A-T-022s
Aro >C10-C12$_A^\#$	<0.1								mg/kg	A-T-023s
Aro >C12-C16$_A^\#$	<0.1								mg/kg	A-T-023s
Aro >C16-C21$_A^\#$	<0.1								mg/kg	A-T-023s
Aro >C21-C35$_A^\#$	<0.1								mg/kg	A-T-023s
Total Aromatics$_A$	<0.1								mg/kg	A-T-022+23s
TPH (Ali & Aro)$_A$	<0.1								mg/kg	A-T-022+23s
BTEX - Benzene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - Toluene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - m & p Xylene$_A^\#$	<0.01								mg/kg	A-T-022s
BTEX - o Xylene$_A^\#$	<0.01								mg/kg	A-T-022s
MTBE$_A^\#$	<0.01								mg/kg	A-T-022s

REPORT NOTES

Notes - Soil chemical analysis
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General
This report shall not be reproduced, except in full, without written approval from Envirolab.
Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.
All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.
All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts.
Superscript "M" indicates method accredited to MCERTS.
If results are in italic font they are associated with an AQC failure and are not accredited. The results may be unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified a being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER.
Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

APPENDIX I
CHEMICAL LABORATORY CERTIFICATES FOR GROUNDWATER ANALYSIS

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 14/04819
Issue Number: 1 **Date:** 22 September, 2014

Client: RSK Environment Ltd Coventry
Humber Road, Abbey Park
Coventry
UK
CV3 4AQ

Project Manager: Darren Bench
Project Name: Junction 15 M1 West
Project Ref: 312598
Order No: N/A
Date Samples Received: 09/09/14
Date Instructions Received: 09/09/14
Date Analysis Completed: 19/09/14

Prepared by:

Georgia King
Administrative Assistant

Approved by:

Iain Haslock
Analytical Consultant

UKAS TESTING
1247

Envirolab Job Number: 14/04819

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04819/1	14/04819/2	14/04819/3	14/04819/4	14/04819/5	14/04819/6	14/04819/7	14/04819/8	Units	Method ref
Client Sample No										
Client Sample ID	CP3	WS6	WS8	CP5	CP6	CP14	CP7	CP11		
Depth to Top	5.33	0.51	1.42	5.11	3.40	0.56	0.85	4.40		
Depth To Bottom										
Date Sampled	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
MCERTS Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
pH (w)$_A^\#$	7.76	7.87	7.89	7.78	7.80	7.94	7.83	7.80	pH	A-T-031w
Redox Potential (w)$_A$	255	253	251	247	243	241	239	237	mV	A-T-048
Electrical conductivity @ 20degC (w) DEFAULT$_A^\#$	524	2290	287	720	806	796	760	722	µs/cm	A-T-037w
Dissolved oxygen$_A$	8.2	6.8	4.5	4.9	4.8	4.2	5.3	3.9	mg/l	A-T-048
Hardness Total$_A^\#$	412	1169	2200	2382	630	1048	2189	522	mg/l Ca CO3	A-T-049w
Ammoniacal nitrogen (w)$_A^\#$	0.10	0.15	<0.02	0.04	0.07	0.09	0.08	0.10	mg/l	A-T-033w
Phenols - Total by HPLC (w)$_A$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-050w
Arsenic (dissolved)$_A^\#$	1	1	5	1	3	5	9	2	µg/l	A-T-025w
Boron (dissolved)$_A^\#$	60	101	117	102	63	63	94	101	µg/l	A-T-025w
Cadmium (dissolved)$_A^\#$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-025w
Copper (dissolved)$_A^\#$	4	4	<1	<1	4	30	7	4	µg/l	A-T-025w
Chromium (dissolved)$_A^\#$	7	9	<1	<1	11	12	4	10	µg/l	A-T-025w
Chromium (hexavalent) (w)$_A^\#$	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/l	A-T-040w
Lead (dissolved)$_A^\#$	8	4	<1	<1	5	116	2	6	µg/l	A-T-025w
Mercury (dissolved)$_A^\#$	<0.1	0.2	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	µg/l	A-T-025w
Nickel (dissolved)$_A^\#$	2	3	15	30	7	19	21	4	µg/l	A-T-025w
Selenium (dissolved)$_A^\#$	2	10	1	<1	<1	1	23	16	µg/l	A-T-025w
Zinc (dissolved)$_A^\#$	27	53	27	21	23	68	78	33	µg/l	A-T-025w

Envirolab Job Number: 14/04819

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04819/1	14/04819/2	14/04819/3	14/04819/4	14/04819/5	14/04819/6	14/04819/7	14/04819/8	Units	Method ref
Client Sample No										
Client Sample ID	CP3	WS6	WS8	CP5	CP6	CP14	CP7	CP11		
Depth to Top	5.33	0.51	1.42	5.11	3.40	0.56	0.85	4.40		
Depth To Bottom										
Date Sampled	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14	05-Sep-14		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
MCERTS Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG										
Ali >C5-C6 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C10-C12 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C12-C16 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C16-C21 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C21-C35 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aliphatics $(w)_A$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
Aro >C5-C7 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C9 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C9-C10 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C10-C12 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C12-C16 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C16-C21 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C21-C35 $(w)_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aromatics $(w)_A$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
TPH (Ali & Aro) $(w)_A$	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
BTEX - Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
MTBE $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 14/04819

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04819/9	14/04819/10							Units	Method ref
Client Sample No										
Client Sample ID	CP13	CP9								
Depth to Top	2.79	4.83								
Depth To Bottom										
Date Sampled	05-Sep-14	05-Sep-14								
Sample Type	Water - EW	Water - EW								
MCERTS Sample Matrix Code	N/A	N/A								
pH (w)$_A^\#$	8.16	7.98							pH	A-T-031w
Redox Potential (w)$_A$	235	236							mV	A-T-048
Electrical conductivity @ 20degC (w) DEFAULT$_A^\#$	2240	2660							µs/cm	A-T-037w
Dissolved oxygen$_A$	4.9	5.8							mg/l	A-T-048
Hardness Total$_A^\#$	1930	1713							mg/l Ca CO3	A-T-049w
Ammoniacal nitrogen (w)$_A^\#$	0.59	0.22							mg/l	A-T-033w
Phenols - Total by HPLC (w)$_A$	<0.01	<0.01							mg/l	A-T-050w
Arsenic (dissolved)$_A^\#$	5	2							µg/l	A-T-025w
Boron (dissolved)$_A^\#$	385	416							µg/l	A-T-025w
Cadmium (dissolved)$_A^\#$	<1	<1							µg/l	A-T-025w
Copper (dissolved)$_A^\#$	8	6							µg/l	A-T-025w
Chromium (dissolved)$_A^\#$	12	9							µg/l	A-T-025w
Chromium (hexavalent) (w)$_A^\#$	<0.05	<0.05							mg/l	A-T-040w
Lead (dissolved)$_A^\#$	10	9							µg/l	A-T-025w
Mercury (dissolved)$_A^\#$	<0.1	<0.1							µg/l	A-T-025w
Nickel (dissolved)$_A^\#$	9	10							µg/l	A-T-025w
Selenium (dissolved)$_A^\#$	5	2							µg/l	A-T-025w
Zinc (dissolved)$_A^\#$	1170	254							µg/l	A-T-025w

Envirolab Job Number: 14/04819

Client Project Name: Junction 15 M1 West

Client Project Ref: 312598

Lab Sample ID	14/04819/9	14/04819/10							Units	Method ref
Client Sample No										
Client Sample ID	CP13	CP9								
Depth to Top	2.79	4.83								
Depth To Bottom										
Date Sampled	05-Sep-14	05-Sep-14								
Sample Type	Water - EW	Water - EW								
MCERTS Sample Matrix Code	N/A	N/A								
TPH CWG										
Ali >C5-C6 $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
Ali >C8-C10 $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
Ali >C10-C12 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Ali >C12-C16 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Ali >C16-C21 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Ali >C21-C35 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Total Aliphatics $(w)_A$	<5	<5							µg/l	A-T-022+23w
Aro >C5-C7 $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
Aro >C8-C9 $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
Aro >C9-C10 $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
Aro >C10-C12 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Aro >C12-C16 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Aro >C16-C21 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Aro >C21-C35 $(w)_A^{\#}$	<5	<5							µg/l	A-T-023w
Total Aromatics $(w)_A$	<5	<5							µg/l	A-T-022+23w
TPH (Ali & Aro) $(w)_A$	<5	<5							µg/l	A-T-022+23w
BTEX - Benzene $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w
MTBE $(w)_A^{\#}$	<1	<1							µg/l	A-T-022w

REPORT NOTES

Notes - Soil chemical analysis
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General
This report shall not be reproduced, except in full, without written approval from Envirolab.
Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.
All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.
All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts.
Superscript "M" indicates method accredited to MCERTS.
If results are in italic font they are associated with an AQC failure and are not accredited. The results may be unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified a being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER.
Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

APPENDIX J
GAS AND GROUNDWATER MONITORING RESULTS

IN-SITU GAS MONITORING RESULTS

[Pressures]	Previous	During	Start	End	Equipment Used & Remarks
Round 1	Falling	Falling	1010	1007	Ground: Dry + Wind: Light + Air Temp: 16DegC
Round 2	Rising	Constant	1013	1013	Ground: Dry + Wind: None + Air Temp: 21DegC
Round 3	Falling	Fluctuating	1009	1010	Ground: Wet + Wind: Light + Air Temp: 14DegC
Round 4	Falling	Rising	1003	1005	Ground: Damp + Wind: Medium + Air Temp: 15DegC

Exploratory Position ID	Monitoring Round	Measured Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP1	1	11.52	05/09/2014 09:47:00	1009	1009	-0.1$_{(I)}$	11.44	0.0	0.0	20.7	0.0	0.0	0.0	
CP1	1	---	15 secs	-	-	0.0$_{(SS)}$	-	0.8	0.0	20.1	0.0	0.0	0.0	
CP1	1	---	30 secs	-	-	-	-	1.3	0.0	19.1	0.0	0.0	0.0	
CP1	1	---	60 secs	-	-	-	-	1.5	0.0	18.6	0.0	0.0	0.0	
CP1	1	---	90 secs	-	-	-	-	1.6	0.0	18.5	0.0	0.0	0.0	
CP1	1	---	120 secs	-	-	-	-	1.8	0.0	18.2	0.0	0.0	0.0	
CP1	1	---	180 secs	-	-	-	-	1.9	0.0	18.0	0.0	0.0	0.0	
CP1	1	---	240 secs	-	-	-	-	1.9	0.0	17.9	0.0	0.0	0.0	
CP1	1	---	300 secs	-	-	-	-	1.9	0.0	17.9	0.0	0.0	0.0	
CP1	1	---	360 secs	-	-	-	-	1.9	0.0	17.9	0.0	0.0	0.0	
CP1	2	11.51	09/09/2014 10:41:00	1014	1013	0.0$_{(I)}$	11.43	0.0	0.0	20.8	0.0	0.0	0.0	
CP1	2	---	15 secs	-	-	0.0$_{(SS)}$	-	0.0	0.1	20.9	1.0	0.0	0.0	
CP1	2	---	30 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP1	2	---	60 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP1	2	---	90 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP1	2	---	120 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP1	2	---	180 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP1	2	---	240 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

RSK Environment Ltd
Abbey Park
Humber Road
Coventry
CV3 4AQ

Compiled By	Date	Checked By	Date	Contract Ref:
	30/09/14			312598

Contract: **M1 Junction 15, Northampton**

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP1	2	---	300 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP1	3	11.52	15/09/2014 10:27:00	1008	1009	$1.0_{(I)}$	11.43	0.0	0.0	20.6	0.0	0.0	0.0	
CP1	3	---	15 secs	-	-	$1.1_{(SS)}$	-	2.1	0.0	18.5	0.0	0.0	0.0	
CP1	3	---	30 secs	-	-	-	-	2.1	0.0	18.0	0.0	0.0	0.0	
CP1	3	---	60 secs	-	-	-	-	2.1	0.0	17.9	0.0	0.0	0.0	
CP1	3	---	90 secs	-	-	-	-	2.1	0.0	17.9	0.0	0.0	0.0	
CP1	3	---	120 secs	-	-	-	-	2.1	0.0	17.9	0.0	0.0	0.0	
CP1	3	---	180 secs	-	-	-	-	2.1	0.0	17.9	0.0	0.0	0.0	
CP1	3	---	240 secs	-	-	-	-	2.1	0.0	17.9	0.0	0.0	0.0	
CP1	3	---	300 secs	-	-	-	-	2.1	0.0	17.9	0.0	0.0	0.0	
CP1	4	11.52	24/09/2014 12:27:00	1005	1005	$0.0_{(I)}$	11.46	0.0	0.0	20.8	0.0	0.0	0.0	
CP1	4	---	15 secs	-	-	$0.0_{(SS)}$	-	1.9	0.0	18.4	0.0	0.0	0.0	
CP1	4	---	30 secs	-	-	-	-	1.9	0.0	17.8	0.0	0.0	0.0	
CP1	4	---	60 secs	-	-	-	-	2.0	0.0	17.8	0.0	0.0	0.0	
CP1	4	---	90 secs	-	-	-	-	2.0	0.0	17.8	0.0	0.0	0.0	
CP1	4	---	120 secs	-	-	-	-	2.0	0.0	17.8	0.0	0.0	0.0	
CP1	4	---	180 secs	-	-	-	-	2.0	0.0	17.8	0.0	0.0	0.0	
CP1	4	---	240 secs	-	-	-	-	2.0	0.0	17.8	0.0	0.0	0.0	
CP1	4	---	300 secs	-	-	-	-	2.0	0.0	17.8	0.0	0.0	0.0	
CP2	1	5.00	05/09/2014 10:29:00	1007	1007	$0.1_{(I)}$	DRY	0.0	0.0	20.7	0.0	0.0	0.0	
CP2	1	---	15 secs	-	-	$0.0_{(SS)}$	-	1.0	0.0	18.4	0.0	0.0	0.0	
CP2	1	---	30 secs	-	-	-	-	1.2	0.0	17.3	0.0	0.0	0.0	
CP2	1	---	60 secs	-	-	-	-	1.3	0.0	16.8	0.0	0.0	0.0	
CP2	1	---	90 secs	-	-	-	-	1.3	0.0	16.7	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP2	1	---	120 secs	-	-	-	-	1.3	0.0	16.8	0.0	0.0	0.0	
CP2	1	---	180 secs	-	-	-	-	1.4	0.0	16.8	0.0	0.0	0.0	
CP2	1	---	240 secs	-	-	-	-	1.3	0.0	16.8	0.0	0.0	0.0	
CP2	1	---	300 secs	-	-	-	-	1.1	0.0	16.8	0.0	0.0	0.0	
CP2	2	5.07	09/09/2014 11:02:00	1013	1013	$0.0_{(I)}$	DRY	0.0	0.0	20.7	0.0	0.0	0.0	
CP2	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	19.9	0.0	0.0	0.0	
CP2	2	---	30 secs	-	-	-	-	0.1	0.0	19.7	0.0	0.0	0.0	
CP2	2	---	60 secs	-	-	-	-	0.2	0.0	19.6	0.0	0.0	0.0	
CP2	2	---	90 secs	-	-	-	-	0.2	0.0	19.4	0.0	0.0	0.0	
CP2	2	---	120 secs	-	-	-	-	0.2	0.0	19.3	0.0	0.0	0.0	
CP2	2	---	180 secs	-	-	-	-	0.2	0.0	19.1	0.0	0.0	0.0	
CP2	2	---	240 secs	-	-	-	-	0.3	0.0	18.9	0.0	0.0	0.0	
CP2	2	---	300 secs	-	-	-	-	0.3	0.1	18.7	1.0	0.0	0.0	
CP2	2	---	360 secs	-	-	-	-	0.3	0.0	18.6	0.0	0.0	0.0	
CP2	2	---	420 secs	-	-	-	-	0.3	0.0	18.6	0.0	0.0	0.0	
CP2	2	---	480 secs	-	-	-	-	0.3	0.0	18.6	0.0	0.0	0.0	
CP2	3	5.05	15/09/2014 11:05:00	1009	1009	$0.6_{(I)}$	DRY	0.0	0.0	20.8	0.0	0.0	0.0	
CP2	3	---	15 secs	-	-	$0.4_{(SS)}$	-	2.1	0.0	16.8	0.0	0.0	0.0	
CP2	3	---	30 secs	-	-	-	-	1.9	0.0	16.4	0.0	0.0	0.0	
CP2	3	---	60 secs	-	-	-	-	1.7	0.0	16.8	0.0	0.0	0.0	
CP2	3	---	90 secs	-	-	-	-	1.7	0.0	16.9	0.0	0.0	0.0	
CP2	3	---	120 secs	-	-	-	-	1.7	0.0	17.0	0.0	0.0	0.0	
CP2	3	---	180 secs	-	-	-	-	1.6	0.0	17.0	0.0	0.0	0.0	
CP2	3	---	240 secs	-	-	-	-	1.6	0.0	17.0	0.0	0.0	0.0	
CP2	3	---	300 secs	-	-	-	-	1.6	0.0	17.0	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP2	4	19.60	24/09/2014 10:50:00	1002	1003	$0.7_{(I)}$	16.52	0.0	0.0	20.8	0.0	0.0	0.0	
CP2	4	---	15 secs	-	-	$0.7_{(SS)}$	-	2.2	0.0	17.0	0.0	0.0	0.0	
CP2	4	---	30 secs	-	-	-	-	2.1	0.0	16.0	0.0	0.0	0.0	
CP2	4	---	60 secs	-	-	-	-	2.0	0.0	16.2	0.0	0.0	0.0	
CP2	4	---	90 secs	-	-	-	-	2.0	0.0	16.3	0.0	0.0	0.0	
CP2	4	---	120 secs	-	-	-	-	2.0	0.0	16.3	0.0	0.0	0.0	
CP2	4	---	180 secs	-	-	-	-	1.9	0.0	16.3	0.0	0.0	0.0	
CP2	4	---	240 secs	-	-	-	-	1.9	0.0	16.3	0.0	0.0	0.0	
CP2	4	---	300 secs	-	-	-	-	1.9	0.0	16.3	0.0	0.0	0.0	
CP3	1	12.33	05/09/2014 09:11:00	1009	1009	$0.0_{(I)}$	5.33	0.0	0.0	20.6	0.0	0.0	0.0	
CP3	1	---	15 secs	-	-	$0.0_{(SS)}$	-	0.3	0.0	20.1	0.0	0.0	0.0	
CP3	1	---	30 secs	-	-	-	-	0.3	0.0	20.0	0.0	0.0	0.0	
CP3	1	---	60 secs	-	-	-	-	0.2	0.0	20.1	0.0	0.0	0.0	
CP3	1	---	90 secs	-	-	-	-	0.2	0.0	20.2	0.0	0.0	0.0	
CP3	1	---	120 secs	-	-	-	-	0.2	0.0	20.2	0.0	0.0	0.0	
CP3	1	---	180 secs	-	-	-	-	0.2	0.0	20.2	0.0	0.0	0.0	
CP3	1	---	240 secs	-	-	-	-	0.3	0.0	20.1	0.0	0.0	0.0	
CP3	1	---	300 secs	-	-	-	-	0.2	0.0	20.2	0.0	0.0	0.0	
CP3	2	12.40	09/09/2014 10:16:00	1013	1013	$0.0_{(I)}$	5.49	0.0	0.0	20.9	0.0	0.0	0.0	
CP3	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.2	0.0	20.8	0.0	0.0	0.0	
CP3	2	---	30 secs	-	-	-	-	0.2	0.0	20.8	0.0	0.0	0.0	
CP3	2	---	60 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP3	2	---	90 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP3	2	---	120 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP3	2	---	180 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP3	2	---	240 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP3	2	---	300 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP3	3	12.41	15/09/2014 10:00:00	1009	1009	$0.0_{(I)}$	5.51	0.0	0.0	20.8	0.0	0.0	0.0	
CP3	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.3	0.0	20.8	0.0	0.0	0.0	
CP3	3	---	30 secs	-	-	-	-	0.2	0.0	20.8	0.0	0.0	0.0	
CP3	3	---	60 secs	-	-	-	-	0.2	0.0	20.9	0.0	0.0	0.0	
CP3	3	---	90 secs	-	-	-	-	0.2	0.0	20.9	0.0	0.0	0.0	
CP3	3	---	120 secs	-	-	-	-	0.2	0.0	20.9	0.0	0.0	0.0	
CP3	3	---	180 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP3	3	---	240 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP3	3	---	300 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP3	4	12.39	24/09/2014 12:57:00	1005	1005	$0.0_{(I)}$	5.65	0.0	0.0	20.5	0.0	0.0	0.0	
CP3	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.7	0.0	19.8	0.0	0.0	0.0	
CP3	4	---	30 secs	-	-	-	-	0.5	0.1	19.9	1.0	0.0	0.0	
CP3	4	---	60 secs	-	-	-	-	0.3	0.0	20.2	0.0	0.0	0.0	
CP3	4	---	90 secs	-	-	-	-	0.2	0.1	20.4	1.0	0.0	0.0	
CP3	4	---	120 secs	-	-	-	-	0.2	0.0	20.4	0.0	0.0	0.0	
CP3	4	---	180 secs	-	-	-	-	0.1	0.0	20.6	0.0	0.0	0.0	
CP3	4	---	240 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP3	4	---	300 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP4	1	5.16	04/09/2014 15:07:00	1007	1007	$0.0_{(I)}$	4.47	0.1	0.0	20.6	-	0.0	0.0	
CP4	1	---	15 secs	-	-	$0.0_{(SS)}$	-	1.2	0.0	18.5	-	1.0	0.0	
CP4	1	---	30 secs	-	-	-	-	1.2	0.0	18.0	-	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP4	1	---	60 secs	-	-	-	-	1.2	0.0	17.9	-	0.0	0.0	
CP4	1	---	90 secs	-	-	-	-	1.2	0.0	17.8	-	0.0	0.0	
CP4	1	---	120 secs	-	-	-	-	1.3	0.0	17.8	-	0.0	0.0	
CP4	1	---	180 secs	-	-	-	-	1.3	0.0	17.7	-	0.0	0.0	
CP4	1	---	240 secs	-	-	-	-	1.3	0.0	17.7	-	0.0	0.0	
CP4	1	---	300 secs	-	-	-	-	1.3	0.0	17.7	-	0.0	0.0	
CP4	2	5.15	09/09/2014 08:57:00	1013	1013	$0.0_{(I)}$	4.51	0.0	0.0	20.5	0.0	0.0	0.0	
CP4	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.2	0.0	20.4	0.0	0.0	0.0	
CP4	2	---	30 secs	-	-	-	-	0.2	0.0	20.4	0.0	0.0	0.0	
CP4	2	---	60 secs	-	-	-	-	0.2	0.0	20.4	0.0	0.0	0.0	
CP4	2	---	90 secs	-	-	-	-	0.2	0.0	20.4	0.0	0.0	0.0	
CP4	2	---	120 secs	-	-	-	-	0.2	0.0	20.4	0.0	0.0	0.0	
CP4	2	---	180 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP4	2	---	240 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP4	2	---	300 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP4	3	5.15	15/09/2014 08:44:00	1009	1009	$0.0_{(I)}$	4.53	0.0	0.0	20.8	0.0	0.0	0.0	
CP4	3	---	15 secs	-	-	$0.0_{(SS)}$	-	1.4	0.0	18.6	0.0	0.0	0.0	
CP4	3	---	30 secs	-	-	-	-	1.4	0.0	17.9	0.0	0.0	0.0	
CP4	3	---	60 secs	-	-	-	-	1.4	0.0	17.8	0.0	0.0	0.0	
CP4	3	---	90 secs	-	-	-	-	1.4	0.0	17.9	0.0	0.0	0.0	
CP4	3	---	120 secs	-	-	-	-	1.4	0.0	18.2	0.0	0.0	0.0	
CP4	3	---	180 secs	-	-	-	-	1.4	0.0	18.3	0.0	0.0	0.0	
CP4	3	---	240 secs	-	-	-	-	1.4	0.0	18.1	0.0	0.0	0.0	
CP4	3	---	300 secs	-	-	-	-	1.4	0.0	18.1	0.0	0.0	0.0	
CP4	4	5.15	24/09/2014 13:16:00	1005	1005	$0.0_{(I)}$	4.56	0.0	0.0	20.8	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP4	4	---	15 secs	-	-	0.0$_{(SS)}$	-	0.6	0.0	20.4	0.0	0.0	0.0	
CP4	4	---	30 secs	-	-	-	-	0.6	0.0	20.3	0.0	0.0	0.0	
CP4	4	---	60 secs	-	-	-	-	0.6	0.0	20.3	0.0	0.0	0.0	
CP4	4	---	90 secs	-	-	-	-	0.7	0.0	20.1	0.0	0.0	0.0	
CP4	4	---	120 secs	-	-	-	-	0.9	0.0	19.6	0.0	0.0	0.0	
CP4	4	---	180 secs	-	-	-	-	1.0	0.0	19.1	0.0	0.0	0.0	
CP4	4	---	240 secs	-	-	-	-	1.1	0.1	18.4	1.0	0.0	0.0	
CP4	4	---	300 secs	-	-	-	-	1.2	0.0	18.0	0.0	0.0	0.0	
CP4	4	---	360 secs	-	-	-	-	1.2	0.0	17.8	0.0	0.0	0.0	
CP4	4	---	420 secs	-	-	-	-	1.2	0.0	17.8	0.0	0.0	0.0	
CP5	1	6.50	05/09/2014 13:05:00	1007	1007	0.0$_{(I)}$	5.11	0.0	0.0	20.6	0.0	0.0	0.0	
CP5	1	---	15 secs	-	-	0.0$_{(SS)}$	-	0.5	0.0	19.9	0.0	0.0	0.0	
CP5	1	---	30 secs	-	-	-	-	0.5	0.0	19.8	0.0	0.0	0.0	
CP5	1	---	60 secs	-	-	-	-	0.5	0.0	19.7	0.0	0.0	0.0	
CP5	1	---	90 secs	-	-	-	-	0.5	0.0	19.7	0.0	0.0	0.0	
CP5	1	---	120 secs	-	-	-	-	0.5	0.0	19.7	0.0	0.0	0.0	
CP5	1	---	180 secs	-	-	-	-	0.5	0.0	19.6	0.0	0.0	0.0	
CP5	1	---	240 secs	-	-	-	-	0.5	0.0	19.7	0.0	0.0	0.0	
CP5	1	---	300 secs	-	-	-	-	0.5	0.0	19.7	0.0	0.0	0.0	
CP5	2	6.46	09/09/2014 08:45:00	1013	1013	-0.1$_{(I)}$	5.14	0.1	0.0	20.7	0.0	0.0	0.0	
CP5	2	---	15 secs	-	-	-0.1$_{(SS)}$	-	0.1	0.0	20.6	0.0	0.0	0.0	
CP5	2	---	30 secs	-	-	-	-	0.1	0.0	20.6	0.0	0.0	0.0	
CP5	2	---	60 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP5	2	---	90 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP5	2	---	120 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP5	2	---	180 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP5	2	---	240 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP5	2	---	300 secs	-	-	-	-	0.1	0.0	20.6	0.0	0.0	0.0	
CP5	3	6.44	15/09/2014 08:30:00	1009	1009	$0.0_{(I)}$	5.13	0.0	0.0	20.8	0.0	0.0	0.0	
CP5	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.6	0.0	20.0	0.0	0.0	0.0	
CP5	3	---	30 secs	-	-	-	-	0.6	0.0	19.7	0.0	0.0	0.0	
CP5	3	---	60 secs	-	-	-	-	0.6	0.0	19.7	0.0	0.0	0.0	
CP5	3	---	90 secs	-	-	-	-	0.6	0.0	19.7	0.0	0.0	0.0	
CP5	3	---	120 secs	-	-	-	-	0.6	0.0	19.7	0.0	0.0	0.0	
CP5	3	---	180 secs	-	-	-	-	0.6	0.0	19.6	0.0	0.0	0.0	
CP5	3	---	240 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
CP5	3	---	300 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
CP5	3	---	360 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
CP5	4	6.39	24/09/2014 14:41:00	1004	1004	$0.0_{(I)}$	5.16	0.0	0.0	20.4	0.0	0.0	0.0	
CP5	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.8	0.0	19.2	0.0	0.0	0.0	
CP5	4	---	30 secs	-	-	-	-	0.9	0.0	18.9	0.0	0.0	0.0	
CP5	4	---	60 secs	-	-	-	-	0.9	0.0	18.9	0.0	0.0	0.0	
CP5	4	---	90 secs	-	-	-	-	0.9	0.0	18.9	0.0	0.0	0.0	
CP5	4	---	120 secs	-	-	-	-	0.9	0.0	18.8	0.0	0.0	0.0	
CP5	4	---	180 secs	-	-	-	-	0.9	0.0	18.8	0.0	0.0	0.0	
CP5	4	---	240 secs	-	-	-	-	0.9	0.0	18.8	0.0	0.0	0.0	
CP5	4	---	300 secs	-	-	-	-	0.9	0.0	18.7	0.0	0.0	0.0	
CP6	1	10.85	04/09/2014 14:24:00	1007	1007	$0.1_{(I)}$	3.33	0.1	0.0	20.5	-	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

RSK Environment Ltd
Abbey Park
Humber Road
Coventry
CV3 4AQ

Compiled By	Date	Checked By	Date	Contract Ref:
	30/09/14			**312598**

Contract: **M1 Junction 15, Northampton**

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP6	1	---	15 secs	-	-	$0.2_{(SS)}$	-	0.6	0.0	19.7	-	0.0	0.0	
CP6	1	---	30 secs	-	-	-	-	0.6	0.0	19.7	-	2.0	0.0	
CP6	1	---	60 secs	-	-	-	-	0.6	0.0	19.7	-	2.0	1.0	
CP6	1	---	90 secs	-	-	-	-	0.6	0.0	19.7	-	1.0	1.0	
CP6	1	---	120 secs	-	-	-	-	0.6	0.0	19.7	-	1.0	1.0	
CP6	1	---	180 secs	-	-	-	-	0.5	0.0	19.4	-	1.0	1.0	
CP6	1	---	240 secs	-	-	-	-	0.5	0.0	19.2	-	1.0	1.0	
CP6	1	---	300 secs	-	-	-	-	0.4	0.0	18.9	-	1.0	1.0	
CP6	1	---	360 secs	-	-	-	-	0.4	0.0	18.7	-	1.0	1.0	
CP6	1	---	420 secs	-	-	-	-	0.3	0.0	18.6	-	1.0	0.0	
CP6	1	---	480 secs	-	-	-	-	0.3	0.0	18.5	-	0.0	0.0	
CP6	1	---	540 secs	-	-	-	-	0.3	0.0	18.5	-	1.0	0.0	
CP6	1	---	600 secs	-	-	-	-	0.3	0.0	18.6	-	1.0	0.0	
CP6	2	10.42	09/09/2014 09:37:00	1013	1013	$-0.8_{(I)}$	3.38	0.1	0.0	20.6	0.0	0.0	0.0	
CP6	2	---	15 secs	-	-	$-0.2_{(SS)}$	-	0.4	0.0	20.3	0.0	0.0	0.0	
CP6	2	---	30 secs	-	-	-	-	0.4	0.0	20.2	0.0	0.0	0.0	
CP6	2	---	60 secs	-	-	-	-	0.4	0.0	20.2	0.0	0.0	0.0	
CP6	2	---	90 secs	-	-	-	-	0.4	0.0	20.3	0.0	0.0	0.0	
CP6	2	---	120 secs	-	-	-	-	0.5	0.0	19.1	0.0	0.0	0.0	
CP6	2	---	180 secs	-	-	-	-	0.6	0.0	17.6	0.0	0.0	0.0	
CP6	2	---	240 secs	-	-	-	-	0.7	0.0	16.5	0.0	0.0	0.0	
CP6	2	---	300 secs	-	-	-	-	0.8	0.0	15.6	0.0	0.0	0.0	
CP6	2	---	360 secs	-	-	-	-	0.8	0.0	15.0	0.0	0.0	0.0	
CP6	2	---	420 secs	-	-	-	-	0.9	0.0	14.9	0.0	0.0	0.0	
CP6	2	---	480 secs	-	-	-	-	0.9	0.0	14.9	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP6	2	---	540 secs	-	-	-	-	0.9	0.0	15.0	0.0	0.0	0.0	
CP6	3	10.40	15/09/2014 09:23:00	1009	1009	$1.0_{(I)}$	3.37	0.0	0.0	20.5	0.0	0.0	0.0	
CP6	3	---	15 secs	-	-	$0.1_{(SS)}$	-	0.5	0.0	19.2	0.0	0.0	0.0	
CP6	3	---	30 secs	-	-	-	-	0.5	0.0	19.1	0.0	0.0	0.0	
CP6	3	---	60 secs	-	-	-	-	0.5	0.0	19.1	0.0	0.0	0.0	
CP6	3	---	90 secs	-	-	-	-	0.5	0.0	19.1	0.0	0.0	0.0	
CP6	3	---	120 secs	-	-	-	-	0.5	0.0	19.1	0.0	0.0	0.0	
CP6	3	---	180 secs	-	-	-	-	0.6	0.0	18.4	0.0	0.0	0.0	
CP6	3	---	240 secs	-	-	-	-	1.0	0.0	16.1	0.0	0.0	0.0	
CP6	3	---	300 secs	-	-	-	-	1.3	0.0	14.8	0.0	0.0	0.0	
CP6	3	---	360 secs	-	-	-	-	1.4	0.0	14.5	0.0	0.0	0.0	
CP6	3	---	420 secs	-	-	-	-	1.4	0.0	14.8	0.0	0.0	0.0	
CP6	3	---	480 secs	-	-	-	-	1.3	0.0	15.4	0.0	0.0	0.0	
CP6	3	---	540 secs	-	-	-	-	1.2	0.0	16.0	0.0	0.0	0.0	
CP6	3	---	600 secs	-	-	-	-	1.2	0.0	16.6	0.0	0.0	0.0	
CP6	4	10.29	24/09/2014 14:03:00	1004	1004	$0.0_{(I)}$	3.40	0.0	0.0	20.7	0.0	0.0	0.0	
CP6	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.6	0.0	18.7	0.0	0.0	0.0	
CP6	4	---	30 secs	-	-	-	-	0.7	0.0	18.6	0.0	0.0	0.0	
CP6	4	---	60 secs	-	-	-	-	0.7	0.0	18.6	0.0	0.0	0.0	
CP6	4	---	90 secs	-	-	-	-	0.7	0.0	18.5	0.0	0.0	0.0	
CP6	4	---	120 secs	-	-	-	-	0.7	0.0	18.5	0.0	0.0	0.0	
CP6	4	---	180 secs	-	-	-	-	0.7	0.0	18.4	0.0	0.0	0.0	
CP6	4	---	240 secs	-	-	-	-	1.3	0.0	16.8	0.0	0.0	0.0	
CP6	4	---	300 secs	-	-	-	-	1.4	0.0	16.6	0.0	0.0	0.0	
CP6	4	---	360 secs	-	-	-	-	1.4	0.0	16.9	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP6	4	---	420 secs	-	-	-	-	1.4	0.0	17.3	0.0	0.0	0.0	
CP7	1	3.85	04/09/2014 13:39:00	1008	1008	$0.1_{(I)}$	0.85	0.1	0.0	20.9	-	0.0	0.0	
CP7	1	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.9	-	1.0	0.0	
CP7	1	---	30 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP7	1	---	60 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP7	1	---	90 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP7	1	---	120 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP7	1	---	180 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP7	1	---	240 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP7	1	---	300 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP7	2	3.47	09/09/2014 12:47:00	1013	1013	$0.0_{(I)}$	0.83	0.0	0.0	20.7	0.0	0.0	0.0	
CP7	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP7	2	---	30 secs	-	-	-	-	0.0	0.0	20.6	0.0	0.0	0.0	
CP7	2	---	60 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP7	2	---	90 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP7	2	---	120 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP7	2	---	180 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP7	2	---	240 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP7	2	---	300 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP7	3	3.46	15/09/2014 12:40:00	1010	1010	$0.0_{(I)}$	0.83	0.0	0.0	20.5	0.0	0.0	0.0	
CP7	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.4	0.0	0.0	0.0	
CP7	3	---	30 secs	-	-	-	-	0.1	0.0	20.4	0.0	0.0	0.0	
CP7	3	---	60 secs	-	-	-	-	0.1	0.0	20.4	0.0	0.0	0.0	
CP7	3	---	90 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP7	3	---	120 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP7	3	---	180 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP7	3	---	240 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP7	3	---	300 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP7	4	3.46	24/09/2014 15:15:00	1005	1005	$0.0_{(I)}$	0.85	0.0	0.0	20.4	0.0	0.0	0.0	
CP7	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP7	4	---	30 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP7	4	---	60 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP7	4	---	90 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP7	4	---	120 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP7	4	---	180 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP7	4	---	240 secs	-	-	-	-	0.0	0.0	20.6	0.0	0.0	0.0	
CP7	4	---	300 secs	-	-	-	-	0.0	0.0	20.6	0.0	0.0	0.0	
CP8	1	2.46	04/09/2014 12:32:00	1009	1009	$0.1_{(I)}$	1.50	0.1	0.0	20.9	-	0.0	0.0	
CP8	1	---	15 secs	-	-	$0.0_{(SS)}$	-	1.3	0.0	19.5	-	1.0	0.0	
CP8	1	---	30 secs	-	-	-	-	1.3	0.0	19.0	-	0.0	0.0	
CP8	1	---	60 secs	-	-	-	-	1.3	0.0	18.9	-	0.0	0.0	
CP8	1	---	90 secs	-	-	-	-	1.3	0.0	18.9	-	0.0	0.0	
CP8	1	---	120 secs	-	-	-	-	1.3	0.0	18.9	-	1.0	0.0	
CP8	1	---	180 secs	-	-	-	-	1.4	0.0	18.8	-	0.0	0.0	
CP8	1	---	240 secs	-	-	-	-	1.6	0.0	18.4	-	0.0	0.0	
CP8	1	---	300 secs	-	-	-	-	1.9	0.0	17.9	-	0.0	0.0	
CP8	1	---	360 secs	-	-	-	-	2.0	0.0	17.9	-	0.0	0.0	
CP8	1	---	420 secs	-	-	-	-	2.0	0.0	17.8	-	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP8	1	---	480 secs	-	-	-	-	2.0	0.0	17.8	-	0.0	0.0	
CP8	2	2.42	09/09/2014 13:27:00	1013	1013	$-0.1_{(I)}$	1.50	0.0	0.0	20.6	0.0	0.0	0.0	
CP8	2	---	15 secs	-	-	$-0.1_{(SS)}$	-	1.6	0.0	18.3	0.0	0.0	0.0	
CP8	2	---	30 secs	-	-	-	-	1.6	0.0	18.2	0.0	0.0	0.0	
CP8	2	---	60 secs	-	-	-	-	1.6	0.0	18.1	0.0	0.0	0.0	
CP8	2	---	90 secs	-	-	-	-	1.6	0.0	18.1	0.0	0.0	0.0	
CP8	2	---	120 secs	-	-	-	-	1.6	0.0	18.1	0.0	0.0	0.0	
CP8	2	---	180 secs	-	-	-	-	1.7	0.0	18.0	0.0	1.0	0.0	
CP8	2	---	240 secs	-	-	-	-	2.0	0.0	17.6	0.0	0.0	0.0	
CP8	2	---	300 secs	-	-	-	-	2.2	0.0	17.4	0.0	0.0	0.0	
CP8	2	---	360 secs	-	-	-	-	2.2	0.0	17.4	0.0	0.0	0.0	
CP8	2	---	420 secs	-	-	-	-	2.2	0.0	17.4	0.0	0.0	0.0	
CP8	3	2.35	15/09/2014 13:30:00	1010	1010	$0.0_{(I)}$	1.47	0.0	0.0	20.8	0.0	0.0	0.0	
CP8	3	---	15 secs	-	-	$0.0_{(SS)}$	-	1.8	0.0	19.1	0.0	0.0	0.0	
CP8	3	---	30 secs	-	-	-	-	1.8	0.0	18.5	0.0	0.0	0.0	
CP8	3	---	60 secs	-	-	-	-	1.8	0.0	18.5	0.0	0.0	0.0	
CP8	3	---	90 secs	-	-	-	-	1.8	0.0	18.4	0.0	0.0	0.0	
CP8	3	---	120 secs	-	-	-	-	1.8	0.0	18.4	0.0	0.0	0.0	
CP8	3	---	180 secs	-	-	-	-	1.9	0.0	18.4	0.0	0.0	0.0	
CP8	3	---	240 secs	-	-	-	-	2.1	0.0	18.1	0.0	0.0	0.0	
CP8	3	---	300 secs	-	-	-	-	2.1	0.0	18.1	0.0	0.0	0.0	
CP8	3	---	360 secs	-	-	-	-	2.1	0.0	18.1	0.0	0.0	0.0	
CP8	4	2.35	24/09/2014 16:08:00	1005	1005	$0.0_{(I)}$	1.47	0.0	0.0	20.4	0.0	0.0	0.0	
CP8	4	---	15 secs	-	-	$0.0_{(SS)}$	-	1.5	0.0	19.0	0.0	0.0	0.0	
CP8	4	---	30 secs	-	-	-	-	1.5	0.0	18.7	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP8	4	---	60 secs	-	-	-	-	1.5	0.0	18.6	0.0	0.0	0.0	
CP8	4	---	90 secs	-	-	-	-	1.5	0.0	18.5	0.0	0.0	0.0	
CP8	4	---	120 secs	-	-	-	-	1.6	0.0	18.4	0.0	0.0	0.0	
CP8	4	---	180 secs	-	-	-	-	1.6	0.0	18.3	0.0	0.0	0.0	
CP8	4	---	240 secs	-	-	-	-	1.7	0.0	18.2	0.0	0.0	0.0	
CP8	4	---	300 secs	-	-	-	-	1.7	0.0	18.2	0.0	0.0	0.0	
CP8	4	---	360 secs	-	-	-	-	1.7	0.0	18.2	0.0	0.0	0.0	
CP9	1	10.57	04/09/2014 10:53:00	1010	1010	$0.1_{(I)}$	4.83	0.1	0.0	20.7	-	0.0	0.0	
CP9	1	---	15 secs	-	-	$0.1_{(SS)}$	-	0.5	0.0	19.6	-	1.0	0.0	
CP9	1	---	30 secs	-	-	-	-	0.4	0.0	19.8	-	1.0	0.0	
CP9	1	---	60 secs	-	-	-	-	0.3	0.0	20.1	-	1.0	0.0	
CP9	1	---	90 secs	-	-	-	-	0.3	0.0	20.1	-	1.0	0.0	
CP9	1	---	120 secs	-	-	-	-	0.2	0.0	20.1	-	0.0	0.0	
CP9	1	---	180 secs	-	-	-	-	0.2	0.0	20.1	-	0.0	0.0	
CP9	1	---	240 secs	-	-	-	-	0.3	0.0	20.1	-	0.0	0.0	
CP9	1	---	300 secs	-	-	-	-	0.3	0.0	20.1	-	0.0	0.0	
CP9	1	---	360 secs	-	-	-	-	0.3	0.0	20.1	-	0.0	0.0	
CP9	2	10.55	09/09/2014 14:15:00	1013	1013	$0.0_{(I)}$	4.83	0.0	0.0	20.8	0.0	0.0	0.0	
CP9	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.6	0.0	0.0	0.0	
CP9	2	---	30 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP9	2	---	60 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP9	2	---	90 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP9	2	---	120 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP9	2	---	180 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP9	2	---	240 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP9	2	---	300 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP9	2	---	360 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP9	3	10.55	15/09/2014 14:18:00	1010	1010	$0.0_{(I)}$	4.70	0.0	0.0	20.4	0.0	0.0	0.0	
CP9	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.4	0.0	19.9	0.0	0.0	0.0	
CP9	3	---	30 secs	-	-	-	-	0.2	0.0	20.1	0.0	0.0	0.0	
CP9	3	---	60 secs	-	-	-	-	0.1	0.0	20.3	0.0	0.0	0.0	
CP9	3	---	90 secs	-	-	-	-	0.1	0.0	20.4	0.0	0.0	0.0	
CP9	3	---	120 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP9	3	---	180 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP9	3	---	240 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP9	3	---	300 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP9	4	10.57	24/09/2014 16:46:00	1005	1005	$0.0_{(I)}$	4.95	0.0	0.0	20.8	0.0	0.0	0.0	
CP9	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.4	0.0	20.3	0.0	0.0	0.0	
CP9	4	---	30 secs	-	-	-	-	0.4	0.0	20.3	0.0	0.0	0.0	
CP9	4	---	60 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP9	4	---	90 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP9	4	---	120 secs	-	-	-	-	0.1	0.0	20.6	0.0	0.0	0.0	
CP9	4	---	180 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP9	4	---	240 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP9	4	---	300 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP9	4	---	360 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP9	4	---	420 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP10	1	4.96	04/09/2014 10:38:00	1010	1010	$-0.1_{(I)}$	DRY	0.1	0.0	20.5	-	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP10	1	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.3	-	0.0	0.0	
CP10	1	---	30 secs	-	-	-	-	0.1	0.0	19.9	-	1.0	0.0	
CP10	1	---	60 secs	-	-	-	-	0.1	0.0	19.7	-	1.0	0.0	
CP10	1	---	90 secs	-	-	-	-	0.1	0.0	19.5	-	1.0	0.0	
CP10	1	---	120 secs	-	-	-	-	0.1	0.0	19.3	-	1.0	0.0	
CP10	1	---	180 secs	-	-	-	-	0.1	0.0	19.1	-	1.0	0.0	
CP10	1	---	240 secs	-	-	-	-	0.1	0.0	18.9	-	1.0	0.0	
CP10	1	---	300 secs	-	-	-	-	0.1	0.0	18.8	-	1.0	0.0	
CP10	2	4.96	09/09/2014 14:29:00	1013	1013	$0.0_{(I)}$	4.90	0.0	0.0	20.7	0.0	0.0	0.0	
CP10	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	18.8	0.0	0.0	0.0	
CP10	2	---	30 secs	-	-	-	-	0.1	0.0	18.5	0.0	0.0	0.0	
CP10	2	---	60 secs	-	-	-	-	0.1	0.0	18.4	0.0	0.0	0.0	
CP10	2	---	90 secs	-	-	-	-	0.1	0.0	18.3	0.0	0.0	0.0	
CP10	2	---	120 secs	-	-	-	-	0.1	0.0	18.2	0.0	0.0	0.0	
CP10	2	---	180 secs	-	-	-	-	0.1	0.0	17.9	0.0	0.0	0.0	
CP10	2	---	240 secs	-	-	-	-	0.1	0.0	17.8	0.0	0.0	0.0	
CP10	2	---	300 secs	-	-	-	-	0.1	0.0	17.6	0.0	0.0	0.0	
CP10	3	4.99	15/09/2014 14:40:00	1010	1010	$0.0_{(I)}$	4.70	0.0	0.0	20.4	0.0	0.0	0.0	
CP10	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.2	0.0	18.1	0.0	0.0	0.0	
CP10	3	---	30 secs	-	-	-	-	0.2	0.0	17.5	0.0	0.0	0.0	
CP10	3	---	60 secs	-	-	-	-	0.2	0.0	17.4	0.0	0.0	0.0	
CP10	3	---	90 secs	-	-	-	-	0.2	0.0	17.2	0.0	0.0	0.0	
CP10	3	---	120 secs	-	-	-	-	0.2	0.0	17.0	0.0	0.0	0.0	
CP10	3	---	180 secs	-	-	-	-	0.2	0.0	16.8	0.0	0.0	0.0	
CP10	3	---	240 secs	-	-	-	-	0.2	0.0	16.4	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP10	3	---	300 secs	-	-	-	-	0.2	0.0	16.2	0.0	0.0	0.0	
CP10	4	4.99	24/09/2014 16:59:00	1005	1005	0.0$_{(I)}$	4.31	0.0	0.0	20.8	0.0	0.0	0.0	
CP10	4	---	15 secs	-	-	0.0$_{(SS)}$	-	0.3	0.0	17.2	0.0	0.0	0.0	
CP10	4	---	30 secs	-	-	-	-	0.4	0.0	16.2	0.0	0.0	0.0	
CP10	4	---	60 secs	-	-	-	-	0.4	0.0	16.0	0.0	0.0	0.0	
CP10	4	---	90 secs	-	-	-	-	0.4	0.0	15.8	0.0	0.0	0.0	
CP10	4	---	120 secs	-	-	-	-	0.4	0.0	15.7	0.0	0.0	0.0	
CP10	4	---	180 secs	-	-	-	-	0.4	0.0	15.4	0.0	0.0	0.0	
CP10	4	---	240 secs	-	-	-	-	0.4	0.0	15.2	0.0	0.0	0.0	
CP10	4	---	300 secs	-	-	-	-	0.4	0.0	14.8	0.0	0.0	0.0	
CP11	1	10.48	04/09/2014 12:16:00	1009	1009	0.0$_{(I)}$	4.36	0.1	0.0	20.8	-	0.0	0.0	
CP11	1	---	15 secs	-	-	0.0$_{(SS)}$	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	1	---	30 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	1	---	60 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	1	---	90 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	1	---	120 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	1	---	180 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	1	---	240 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	1	---	300 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP11	2	10.45	09/09/2014 13:39:00	1013	1013	0.0$_{(I)}$	4.40	0.1	0.0	20.6	0.0	0.0	0.0	
CP11	2	---	15 secs	-	-	0.0$_{(SS)}$	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP11	2	---	30 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP11	2	---	60 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP11	2	---	90 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP11	2	---	120 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP11	2	---	180 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP11	2	---	240 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP11	2	---	300 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP11	3	10.45	15/09/2014 13:41:00	1010	1010	$0.0_{(I)}$	4.39	0.0	0.0	20.4	0.0	0.0	0.0	
CP11	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.2	0.0	20.2	0.0	0.0	0.0	
CP11	3	---	30 secs	-	-	-	-	0.2	0.0	20.3	0.0	0.0	0.0	
CP11	3	---	60 secs	-	-	-	-	0.1	0.0	20.3	0.0	0.0	0.0	
CP11	3	---	90 secs	-	-	-	-	0.1	0.0	20.4	0.0	0.0	0.0	
CP11	3	---	120 secs	-	-	-	-	0.1	0.0	20.4	0.0	0.0	0.0	
CP11	3	---	180 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP11	3	---	240 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP11	3	---	300 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP11	4	10.44	24/09/2014 16:19:00	1004	1005	$0.0_{(I)}$	4.41	0.0	0.0	20.8	0.0	0.0	0.0	
CP11	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.2	0.0	20.6	0.0	0.0	0.0	
CP11	4	---	30 secs	-	-	-	-	0.2	0.0	20.6	0.0	0.0	0.0	
CP11	4	---	60 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
CP11	4	---	90 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP11	4	---	120 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP11	4	---	180 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP11	4	---	240 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP11	4	---	300 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
CP12	1	4.12	04/09/2014 11:54:00	1010	1010	$0.2_{(I)}$	1.48	0.1	0.0	20.9	-	0.0	0.0	
CP12	1	---	15 secs	-	-	$0.2_{(SS)}$	-	0.1	0.0	20.2	-	2.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP12	1	---	30 secs	-	-	-	-	0.2	0.0	19.8	-	3.0	0.0	
CP12	1	---	60 secs	-	-	-	-	0.2	0.0	19.7	-	3.0	0.0	
CP12	1	---	90 secs	-	-	-	-	0.2	0.0	19.7	-	3.0	0.0	
CP12	1	---	120 secs	-	-	-	-	0.2	0.0	19.6	-	3.0	0.0	
CP12	1	---	180 secs	-	-	-	-	0.2	0.0	19.4	-	3.0	0.0	
CP12	1	---	240 secs	-	-	-	-	0.2	0.0	19.4	-	3.0	0.0	
CP12	1	---	300 secs	-	-	-	-	0.2	0.0	19.4	-	3.0	0.0	
CP12	2	4.01	09/09/2014 13:51:00	1013	1013	$0.0_{(I)}$	1.53	0.0	0.0	20.4	0.0	0.0	0.0	
CP12	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	19.4	0.0	0.0	0.0	
CP12	2	---	30 secs	-	-	-	-	0.1	0.0	19.4	0.0	0.0	0.0	
CP12	2	---	60 secs	-	-	-	-	0.1	0.0	19.3	0.0	0.0	0.0	
CP12	2	---	90 secs	-	-	-	-	0.1	0.0	19.3	0.0	0.0	0.0	
CP12	2	---	120 secs	-	-	-	-	0.1	0.0	19.3	0.0	0.0	0.0	
CP12	2	---	180 secs	-	-	-	-	0.1	0.0	19.1	0.0	0.0	0.0	
CP12	2	---	240 secs	-	-	-	-	0.1	0.0	19.1	0.0	0.0	0.0	
CP12	2	---	300 secs	-	-	-	-	0.1	0.0	19.1	0.0	0.0	0.0	
CP12	3	4.00	15/09/2014 13:55:00	1010	1010	$0.0_{(I)}$	1.50	0.0	0.0	20.5	0.0	0.0	0.0	
CP12	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.2	0.0	19.8	0.0	0.0	0.0	
CP12	3	---	30 secs	-	-	-	-	0.3	0.0	19.6	0.0	0.0	0.0	
CP12	3	---	60 secs	-	-	-	-	0.3	0.0	19.6	0.0	0.0	0.0	
CP12	3	---	90 secs	-	-	-	-	0.3	0.0	19.5	0.0	0.0	0.0	
CP12	3	---	120 secs	-	-	-	-	0.3	0.0	19.5	0.0	0.0	0.0	
CP12	3	---	180 secs	-	-	-	-	0.3	0.0	19.4	0.0	0.0	0.0	
CP12	3	---	240 secs	-	-	-	-	0.3	0.0	19.4	0.0	0.0	0.0	
CP12	3	---	300 secs	-	-	-	-	0.3	0.0	19.4	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP12	4	---	24/09/2014 16:28:00	-	1005	-	-	-	-	-	-	-	-	
	Remarks: Installation buried as a result of the field being ploughed.													
CP13	1	12.14	04/09/2014 11:11:00	1010	1010	0.1$_{(I)}$	2.76	0.1	0.0	20.8	-	0.0	0.0	
CP13	1	---	15 secs	-	-	0.0$_{(SS)}$	-	0.8	0.0	20.1	-	2.0	0.0	
CP13	1	---	30 secs	-	-	-	-	0.7	0.0	19.8	-	2.0	0.0	
CP13	1	---	60 secs	-	-	-	-	0.7	0.0	19.8	-	2.0	0.0	
CP13	1	---	90 secs	-	-	-	-	0.7	0.0	19.8	-	2.0	0.0	
CP13	1	---	120 secs	-	-	-	-	0.7	0.0	19.8	-	2.0	0.0	
CP13	1	---	180 secs	-	-	-	-	0.7	0.0	19.7	-	2.0	0.0	
CP13	1	---	240 secs	-	-	-	-	0.7	0.0	19.7	-	2.0	0.0	
CP13	1	---	300 secs	-	-	-	-	0.8	0.0	19.4	-	2.0	0.0	
CP13	1	---	360 secs	-	-	-	-	0.8	0.0	19.3	-	2.0	0.0	
CP13	1	---	420 secs	-	-	-	-	0.8	0.0	19.3	-	2.0	0.0	
CP13	2	12.05	09/09/2014 14:05:00	1013	1013	0.0$_{(I)}$	2.59	0.0	0.0	20.5	0.0	0.0	0.0	
CP13	2	---	15 secs	-	-	0.0$_{(SS)}$	-	0.2	0.0	20.4	0.0	0.0	0.0	
CP13	2	---	30 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP13	2	---	60 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP13	2	---	90 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP13	2	---	120 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP13	2	---	180 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP13	2	---	240 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP13	2	---	300 secs	-	-	-	-	0.2	0.0	20.5	0.0	0.0	0.0	
CP13	3	12.04	15/09/2014 14:07:00	1010	1010	0.0$_{(I)}$	2.44	0.0	0.0	20.4	0.0	0.0	0.0	
CP13	3	---	15 secs	-	-	0.0$_{(SS)}$	-	0.3	0.0	20.0	0.0	0.0	0.0	
CP13	3	---	30 secs	-	-	-	-	0.2	0.0	20.1	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP13	3	---	60 secs	-	-	-	-	0.2	0.0	20.2	0.0	0.0	0.0	
CP13	3	---	90 secs	-	-	-	-	0.1	0.0	20.3	0.0	0.0	0.0	
CP13	3	---	120 secs	-	-	-	-	0.1	0.0	20.3	0.0	0.0	0.0	
CP13	3	---	180 secs	-	-	-	-	0.1	0.0	20.3	0.0	0.0	0.0	
CP13	3	---	240 secs	-	-	-	-	0.1	0.0	20.3	0.0	0.0	0.0	
CP13	3	---	300 secs	-	-	-	-	0.1	0.0	20.3	0.0	0.0	0.0	
CP13	4	12.01	24/09/2014 16:36:00	1005	1005	$0.0_{(I)}$	2.34	0.0	0.0	20.9	0.0	0.0	0.0	
CP13	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP13	4	---	30 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP13	4	---	60 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP13	4	---	90 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP13	4	---	120 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP13	4	---	180 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP13	4	---	240 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP13	4	---	300 secs	-	-	-	-	0.1	0.0	20.8	0.0	0.0	0.0	
CP14	1	5.20	04/09/2014 13:22:00	1009	1009	$0.1_{(I)}$	0.55	0.1	0.0	20.8	-	0.0	0.0	
CP14	1	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.7	-	0.0	0.0	
CP14	1	---	30 secs	-	-	-	-	0.1	0.0	20.8	-	0.0	0.0	
CP14	1	---	60 secs	-	-	-	-	0.1	0.0	20.8	-	0.0	0.0	
CP14	1	---	90 secs	-	-	-	-	0.1	0.0	20.8	-	0.0	0.0	
CP14	1	---	120 secs	-	-	-	-	0.1	0.0	20.8	-	0.0	0.0	
CP14	1	---	180 secs	-	-	-	-	0.1	0.0	20.8	-	0.0	0.0	
CP14	1	---	240 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP14	1	---	300 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP14	2	5.02	09/09/2014 12:58:00	1013	1013	$0.0_{(I)}$	0.55	0.0	0.0	20.9	0.0	0.0	0.0	
CP14	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP14	2	---	30 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP14	2	---	60 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP14	2	---	90 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP14	2	---	120 secs	-	-	-	-	0.0	0.0	21.0	0.0	0.0	0.0	
CP14	2	---	180 secs	-	-	-	-	0.0	0.0	21.0	0.0	0.0	0.0	
CP14	2	---	240 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP14	2	---	300 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
CP14	3	5.14	15/09/2014 12:52:00	1010	1010	$0.0_{(I)}$	0.55	0.0	0.0	20.5	0.0	0.0	0.0	
CP14	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP14	3	---	30 secs	-	-	-	-	0.0	0.0	20.4	0.0	0.0	0.0	
CP14	3	---	60 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP14	3	---	90 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP14	3	---	120 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP14	3	---	180 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP14	3	---	240 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP14	3	---	300 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	
CP14	4	5.10	24/09/2014 15:29:00	1005	1005	$0.0_{(I)}$	0.54	0.0	0.0	20.6	0.0	0.0	0.0	
CP14	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP14	4	---	30 secs	-	-	-	-	0.1	0.0	20.4	0.0	0.0	0.0	
CP14	4	---	60 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP14	4	---	90 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP14	4	---	120 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP14	4	---	180 secs	-	-	-	-	0.0	0.0	20.5	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP14	4	---	240 secs	-	-	-	-	0.0	0.0	20.6	0.0	0.0	0.0	
CP14	4	---	300 secs	-	-	-	-	-	-	-	-	-	-	
	Remarks: Test stopped short at 250 seconds after water drawn up analyser hose.													
CP15	1	7.80	04/09/2014 13:06:00	1009	1009	0.1$_{(I)}$	1.10	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	15 secs	-	-	0.0$_{(SS)}$	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	30 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	60 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	90 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	120 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	180 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	240 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	1	---	300 secs	-	-	-	-	0.1	0.0	20.9	-	0.0	0.0	
CP15	2	7.78	09/09/2014 13:07:00	1013	1013	0.0$_{(I)}$	1.11	0.0	0.0	20.8	0.0	0.0	0.0	
CP15	2	---	15 secs	-	-	0.0$_{(SS)}$	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP15	2	---	30 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP15	2	---	60 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP15	2	---	90 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP15	2	---	120 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP15	2	---	180 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP15	2	---	240 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP15	2	---	300 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
CP15	3	7.78	15/09/2014 13:03:00	1010	1010	0.0$_{(I)}$	1.10	0.0	0.0	20.6	0.0	0.0	0.0	
CP15	3	---	15 secs	-	-	0.0$_{(SS)}$	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP15	3	---	30 secs	-	-	-	-	0.1	0.0	20.5	0.0	0.0	0.0	
CP15	3	---	60 secs	-	-	-	-	0.0	0.0	20.6	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP15	3	---	90 secs	-	-	-	-	0.0	0.0	20.6	0.0	0.0	0.0	
CP15	3	---	120 secs	-	-	-	-	0.0	0.0	20.6	0.0	0.0	0.0	
CP15	3	---	180 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP15	3	---	240 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP15	3	---	300 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
CP15	4	7.76	24/09/2014 15:43:00	1005	1005	$0.0_{(I)}$	1.13	0.0	0.0	20.4	0.0	0.0	0.0	
CP15	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.0	0.0	20.2	0.0	0.0	0.0	
CP15	4	---	30 secs	-	-	-	-	0.0	0.0	20.2	0.0	0.0	0.0	
CP15	4	---	60 secs	-	-	-	-	0.0	0.0	20.2	0.0	0.0	0.0	
CP15	4	---	90 secs	-	-	-	-	0.0	0.0	20.2	0.0	0.0	0.0	
CP15	4	---	120 secs	-	-	-	-	0.0	0.0	20.2	0.0	0.0	0.0	
CP15	4	---	180 secs	-	-	-	-	0.0	0.0	20.3	0.0	0.0	0.0	
CP15	4	---	240 secs	-	-	-	-	0.0	0.0	20.2	0.0	0.0	0.0	
CP15	4	---	300 secs	-	-	-	-	0.0	0.0	20.2	0.0	0.0	0.0	
CP16	1	4.51	04/09/2014 12:50:00	1009	1009	$0.1_{(I)}$	1.19	0.1	0.0	20.6	-	0.0	0.0	
CP16	1	---	15 secs	-	-	$0.1_{(SS)}$	-	0.3	0.0	20.5	-	0.0	0.0	
CP16	1	---	30 secs	-	-	-	-	0.3	0.0	20.5	-	0.0	0.0	
CP16	1	---	60 secs	-	-	-	-	0.3	0.0	20.5	-	0.0	0.0	
CP16	1	---	90 secs	-	-	-	-	0.3	0.0	20.6	-	0.0	0.0	
CP16	1	---	120 secs	-	-	-	-	0.3	0.0	20.6	-	0.0	0.0	
CP16	1	---	180 secs	-	-	-	-	0.3	0.0	20.6	-	0.0	0.0	
CP16	1	---	240 secs	-	-	-	-	0.3	0.0	20.7	-	0.0	0.0	
CP16	1	---	300 secs	-	-	-	-	0.3	0.0	20.7	-	0.0	0.0	
CP16	2	4.54	09/09/2014 13:16:00	1013	1013	$0.0_{(I)}$	1.23	0.0	0.0	20.6	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP16	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.6	0.0	19.7	0.0	0.0	0.0	
CP16	2	---	30 secs	-	-	-	-	0.5	0.0	19.8	0.0	0.0	0.0	
CP16	2	---	60 secs	-	-	-	-	0.4	0.0	19.9	0.0	0.0	0.0	
CP16	2	---	90 secs	-	-	-	-	0.4	0.0	19.9	0.0	0.0	0.0	
CP16	2	---	120 secs	-	-	-	-	0.4	0.0	20.0	0.0	0.0	0.0	
CP16	2	---	180 secs	-	-	-	-	0.4	0.0	20.0	0.0	0.0	0.0	
CP16	2	---	240 secs	-	-	-	-	0.4	0.0	20.1	0.0	0.0	0.0	
CP16	2	---	300 secs	-	-	-	-	0.4	0.0	20.1	0.0	0.0	0.0	
CP16	3	4.51	15/09/2014 13:18:00	1010	1010	$0.0_{(I)}$	1.21	0.0	0.0	20.8	0.0	0.0	0.0	
CP16	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.6	0.0	20.2	0.0	0.0	0.0	
CP16	3	---	30 secs	-	-	-	-	0.5	0.0	20.1	0.0	0.0	0.0	
CP16	3	---	60 secs	-	-	-	-	0.5	0.0	20.2	0.0	0.0	0.0	
CP16	3	---	90 secs	-	-	-	-	0.5	0.0	20.2	0.0	0.0	0.0	
CP16	3	---	120 secs	-	-	-	-	0.5	0.0	20.2	0.0	0.0	0.0	
CP16	3	---	180 secs	-	-	-	-	0.5	0.0	20.3	0.0	0.0	0.0	
CP16	3	---	240 secs	-	-	-	-	0.4	0.0	20.3	0.0	0.0	0.0	
CP16	3	---	300 secs	-	-	-	-	0.5	0.0	20.3	0.0	0.0	0.0	
CP16	3	---	360 secs	-	-	-	-	0.5	0.0	20.2	0.0	0.0	0.0	
CP16	3	---	420 secs	-	-	-	-	0.5	0.0	20.2	0.0	0.0	0.0	
CP16	4	4.51	24/09/2014 15:56:00	1005	1005	$-0.1_{(I)}$	1.27	0.0	0.0	20.4	0.0	0.0	0.0	
CP16	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.7	0.0	19.5	0.0	0.0	0.0	
CP16	4	---	30 secs	-	-	-	-	0.6	0.0	19.5	0.0	0.0	0.0	
CP16	4	---	60 secs	-	-	-	-	0.6	0.0	19.6	0.0	0.0	0.0	
CP16	4	---	90 secs	-	-	-	-	0.5	0.0	19.7	0.0	0.0	0.0	
CP16	4	---	120 secs	-	-	-	-	0.5	0.0	19.7	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
CP16	4	---	180 secs	-	-	-	-	0.5	0.0	19.8	0.0	0.0	0.0	
CP16	4	---	240 secs	-	-	-	-	0.5	0.0	19.8	0.0	0.0	0.0	
CP16	4	---	300 secs	-	-	-	-	0.5	0.0	19.8	0.0	0.0	0.0	
WS2	1	3.18	04/09/2014 13:59:00	1008	1008	0.1$_{(I)}$	DRY	0.1	0.0	20.7	-	0.0	0.0	
WS2	1	---	15 secs	-	-	0.0$_{(SS)}$	-	1.4	0.0	19.2	-	0.0	0.0	
WS2	1	---	30 secs	-	-	-	-	1.4	0.0	19.1	-	0.0	0.0	
WS2	1	---	60 secs	-	-	-	-	1.4	0.0	19.1	-	0.0	0.0	
WS2	1	---	90 secs	-	-	-	-	1.5	0.0	19.0	-	0.0	0.0	
WS2	1	---	120 secs	-	-	-	-	1.5	0.0	19.0	-	0.0	0.0	
WS2	1	---	180 secs	-	-	-	-	1.5	0.0	18.9	-	0.0	0.0	
WS2	1	---	240 secs	-	-	-	-	1.6	0.0	18.9	-	0.0	0.0	
WS2	1	---	300 secs	-	-	-	-	1.6	0.0	18.9	-	0.0	0.0	
WS2	1	---	360 secs	-	-	-	-	1.6	0.0	18.9	-	0.0	0.0	
WS2	2	3.19	09/09/2014 09:25:00	1013	1013	0.0$_{(I)}$	DRY	0.0	0.0	20.7	0.0	0.0	0.0	
WS2	2	---	15 secs	-	-	0.0$_{(SS)}$	-	1.6	0.0	19.4	0.0	0.0	0.0	
WS2	2	---	30 secs	-	-	-	-	1.6	0.0	19.1	0.0	0.0	0.0	
WS2	2	---	60 secs	-	-	-	-	1.6	0.0	19.0	0.0	0.0	0.0	
WS2	2	---	90 secs	-	-	-	-	1.7	0.0	19.0	0.0	0.0	0.0	
WS2	2	---	120 secs	-	-	-	-	1.7	0.0	19.0	0.0	0.0	0.0	
WS2	2	---	180 secs	-	-	-	-	1.7	0.0	19.0	0.0	0.0	0.0	
WS2	2	---	240 secs	-	-	-	-	1.7	0.0	19.0	0.0	0.0	0.0	
WS2	2	---	300 secs	-	-	-	-	1.7	0.0	18.9	0.0	0.0	0.0	
WS2	3	3.18	15/09/2014 09:10:00	1009	1009	0.1$_{(I)}$	DRY	0.0	0.0	20.6	0.0	0.0	0.0	
WS2	3	---	15 secs	-	-	0.1$_{(SS)}$	-	1.7	0.0	19.7	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS2	3	---	30 secs	-	-	-	-	1.7	0.0	19.4	0.0	0.0	0.0	
WS2	3	---	60 secs	-	-	-	-	1.7	0.0	19.3	0.0	0.0	0.0	
WS2	3	---	90 secs	-	-	-	-	1.8	0.0	19.3	0.0	0.0	0.0	
WS2	3	---	120 secs	-	-	-	-	1.8	0.0	19.3	0.0	0.0	0.0	
WS2	3	---	180 secs	-	-	-	-	1.8	0.0	19.3	0.0	0.0	0.0	
WS2	3	---	240 secs	-	-	-	-	1.8	0.0	19.3	0.0	0.0	0.0	
WS2	3	---	300 secs	-	-	-	-	1.8	0.0	19.3	0.0	0.0	0.0	
WS2	4	3.18	24/09/2014 13:49:00	1004	1004	$0.0_{(I)}$	DRY	0.0	0.0	20.7	0.0	0.0	0.0	
WS2	4	---	15 secs	-	-	$0.0_{(SS)}$	-	1.5	0.0	20.0	0.0	0.0	0.0	
WS2	4	---	30 secs	-	-	-	-	1.5	0.0	19.8	0.0	0.0	0.0	
WS2	4	---	60 secs	-	-	-	-	1.5	0.0	19.8	0.0	0.0	0.0	
WS2	4	---	90 secs	-	-	-	-	1.5	0.0	19.8	0.0	0.0	0.0	
WS2	4	---	120 secs	-	-	-	-	1.5	0.0	19.7	0.0	0.0	0.0	
WS2	4	---	180 secs	-	-	-	-	1.6	0.0	19.7	0.0	0.0	0.0	
WS2	4	---	240 secs	-	-	-	-	1.6	0.0	19.7	0.0	0.0	0.0	
WS2	4	---	300 secs	-	-	-	-	1.6	0.0	19.7	0.0	0.0	0.0	
WS3	1	4.67	04/09/2014 15:19:00	1006	1006	$0.2_{(I)}$	4.47	0.1	0.0	20.5	-	0.0	0.0	
WS3	1	---	15 secs	-	-	$0.3_{(SS)}$	-	1.4	0.0	19.3	-	1.0	0.0	
WS3	1	---	30 secs	-	-	-	-	1.4	0.0	18.8	-	0.0	0.0	
WS3	1	---	60 secs	-	-	-	-	1.4	0.0	18.7	-	0.0	0.0	
WS3	1	---	90 secs	-	-	-	-	1.4	0.0	18.7	-	0.0	0.0	
WS3	1	---	120 secs	-	-	-	-	1.4	0.0	18.7	-	0.0	0.0	
WS3	1	---	180 secs	-	-	-	-	1.5	0.0	18.6	-	0.0	0.0	
WS3	1	---	240 secs	-	-	-	-	1.6	0.0	18.5	-	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS3	1	---	300 secs	-	-	-	-	1.7	0.0	18.5	-	0.0	0.0	
WS3	1	---	360 secs	-	-	-	-	1.7	0.0	18.4	-	0.0	0.0	
WS3	1	---	420 secs	-	-	-	-	1.8	0.0	18.3	-	0.0	0.0	
WS3	1	---	480 secs	-	-	-	-	1.9	0.0	18.2	-	0.0	0.0	
WS3	1	---	540 secs	-	-	-	-	1.9	0.0	18.1	-	0.0	0.0	
WS3	1	---	600 secs	-	-	-	-	2.0	0.0	18.1	-	0.0	0.0	
WS3	2	4.66	09/09/2014 09:06:00	1013	1013	$0.0_{(I)}$	4.49	0.0	0.0	20.5	0.0	0.0	0.0	
WS3	2	---	15 secs	-	-	$0.0_{(SS)}$	-	1.3	0.0	19.4	0.0	0.0	0.0	
WS3	2	---	30 secs	-	-	-	-	1.3	0.0	19.1	0.0	0.0	0.0	
WS3	2	---	60 secs	-	-	-	-	1.3	0.0	19.1	0.0	0.0	0.0	
WS3	2	---	90 secs	-	-	-	-	1.3	0.0	19.0	0.0	0.0	0.0	
WS3	2	---	120 secs	-	-	-	-	1.3	0.0	19.0	0.0	0.0	0.0	
WS3	2	---	180 secs	-	-	-	-	1.4	0.0	19.0	0.0	0.0	0.0	
WS3	2	---	240 secs	-	-	-	-	1.4	0.0	18.9	0.0	0.0	0.0	
WS3	2	---	300 secs	-	-	-	-	1.6	0.0	18.8	0.0	0.0	0.0	
WS3	2	---	360 secs	-	-	-	-	1.7	0.0	18.6	0.0	0.0	0.0	
WS3	2	---	420 secs	-	-	-	-	1.8	0.0	18.5	0.0	0.0	0.0	
WS3	2	---	480 secs	-	-	-	-	1.9	0.0	18.4	0.0	0.0	0.0	
WS3	2	---	540 secs	-	-	-	-	2.0	0.0	18.2	0.0	0.0	0.0	
WS3	2	---	600 secs	-	-	-	-	2.2	0.0	18.0	0.0	0.0	0.0	
WS3	3	4.66	15/09/2014 08:53:00	1009	1009	$0.1_{(I)}$	4.50	0.0	0.0	20.5	0.0	0.0	0.0	
WS3	3	---	15 secs	-	-	$0.1_{(SS)}$	-	1.9	0.0	19.1	0.0	0.0	0.0	
WS3	3	---	30 secs	-	-	-	-	1.9	0.0	18.6	0.0	0.0	0.0	
WS3	3	---	60 secs	-	-	-	-	1.9	0.0	18.6	0.0	0.0	0.0	
WS3	3	---	90 secs	-	-	-	-	2.0	0.0	18.5	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS3	3	---	120 secs	-	-	-	-	2.0	0.0	18.5	0.0	0.0	0.0	
WS3	3	---	180 secs	-	-	-	-	2.1	0.0	18.4	0.0	0.0	0.0	
WS3	3	---	240 secs	-	-	-	-	2.1	0.0	18.4	0.0	0.0	0.0	
WS3	3	---	300 secs	-	-	-	-	2.2	0.0	18.3	0.0	0.0	0.0	
WS3	3	---	360 secs	-	-	-	-	2.2	0.0	18.3	0.0	0.0	0.0	
WS3	3	---	420 secs	-	-	-	-	2.3	0.0	18.2	0.0	0.0	0.0	
WS3	3	---	480 secs	-	-	-	-	2.3	0.0	18.1	0.0	0.0	0.0	
WS3	3	---	540 secs	-	-	-	-	2.4	0.0	18.1	0.0	0.0	0.0	
WS3	3	---	600 secs	-	-	-	-	2.4	0.0	18.1	0.0	0.0	0.0	
WS3	4	4.65	24/09/2014 13:30:00	1005	1005	$0.0_{(I)}$	4.52	0.0	0.0	20.7	0.0	0.0	0.0	
WS3	4	---	15 secs	-	-	$0.0_{(SS)}$	-	1.8	0.0	18.9	0.0	0.0	0.0	
WS3	4	---	30 secs	-	-	-	-	1.8	0.0	18.5	0.0	0.0	0.0	
WS3	4	---	60 secs	-	-	-	-	1.9	0.0	18.5	0.0	0.0	0.0	
WS3	4	---	90 secs	-	-	-	-	1.9	0.0	18.5	0.0	0.0	0.0	
WS3	4	---	120 secs	-	-	-	-	1.9	0.0	18.6	0.0	0.0	0.0	
WS3	4	---	180 secs	-	-	-	-	1.9	0.0	18.6	0.0	0.0	0.0	
WS3	4	---	240 secs	-	-	-	-	1.9	0.0	18.5	0.0	0.0	0.0	
WS3	4	---	300 secs	-	-	-	-	1.9	0.0	18.4	0.0	0.0	0.0	
WS4	1	4.86	05/09/2014 09:32:00	1009	1009	$0.0_{(I)}$	DRY	0.0	0.0	20.6	0.0	0.0	0.0	
WS4	1	---	15 secs	-	-	$0.0_{(SS)}$	-	1.1	0.0	19.6	0.0	0.0	0.0	
WS4	1	---	30 secs	-	-	-	-	1.1	0.0	19.2	0.0	0.0	0.0	
WS4	1	---	60 secs	-	-	-	-	1.1	0.0	19.2	0.0	0.0	0.0	
WS4	1	---	90 secs	-	-	-	-	1.1	0.0	19.2	0.0	0.0	0.0	
WS4	1	---	120 secs	-	-	-	-	1.1	0.0	19.3	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS4	1	---	180 secs	-	-	-	-	1.0	0.0	19.5	0.0	0.0	0.0	
WS4	1	---	240 secs	-	-	-	-	1.0	0.0	19.5	0.0	0.0	0.0	
WS4	1	---	300 secs	-	-	-	-	1.0	0.0	19.5	0.0	0.0	0.0	
WS4	2	4.83	09/09/2014 10:28:00	1013	1013	$-0.1_{(I)}$	DRY	0.0	0.0	20.9	0.0	0.0	0.0	
WS4	2	---	15 secs	-	-	$-0.1_{(SS)}$	-	0.3	0.0	20.5	0.0	0.0	0.0	
WS4	2	---	30 secs	-	-	-	-	0.3	0.0	20.4	0.0	0.0	0.0	
WS4	2	---	60 secs	-	-	-	-	0.3	0.0	20.4	0.0	0.0	0.0	
WS4	2	---	90 secs	-	-	-	-	0.3	0.0	20.4	0.0	0.0	0.0	
WS4	2	---	120 secs	-	-	-	-	0.3	0.0	20.4	0.0	0.0	0.0	
WS4	2	---	180 secs	-	-	-	-	0.3	0.0	20.5	0.0	0.0	0.0	
WS4	2	---	240 secs	-	-	-	-	0.3	0.0	20.5	0.0	0.0	0.0	
WS4	2	---	300 secs	-	-	-	-	0.3	0.0	20.4	0.0	0.0	0.0	
WS4	3	4.83	15/09/2014 10:11:00	1009	1009	$0.0_{(I)}$	DRY	0.0	0.0	20.8	0.0	0.0	0.0	
WS4	3	---	15 secs	-	-	$0.0_{(SS)}$	-	1.2	0.0	19.8	0.0	0.0	0.0	
WS4	3	---	30 secs	-	-	-	-	1.2	0.0	19.3	0.0	0.0	0.0	
WS4	3	---	60 secs	-	-	-	-	1.3	0.0	19.3	0.0	0.0	0.0	
WS4	3	---	90 secs	-	-	-	-	1.3	0.0	19.2	0.0	0.0	0.0	
WS4	3	---	120 secs	-	-	-	-	1.3	0.0	19.2	0.0	0.0	0.0	
WS4	3	---	180 secs	-	-	-	-	1.3	0.0	19.2	0.0	0.0	0.0	
WS4	3	---	240 secs	-	-	-	-	1.3	0.0	19.2	0.0	0.0	0.0	
WS4	3	---	300 secs	-	-	-	-	1.4	0.0	19.1	0.0	0.0	0.0	
WS4	3	---	360 secs	-	-	-	-	1.3	0.0	19.1	0.0	0.0	0.0	
WS4	3	---	420 secs	-	-	-	-	1.3	0.0	19.2	0.0	0.0	0.0	
WS4	3	---	480 secs	-	-	-	-	1.3	0.0	19.2	0.0	0.0	0.0	
WS4	4	4.83	24/09/2014 12:10:00	1005	1005	$0.0_{(I)}$	DRY	0.0	0.0	20.8	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS4	4	---	15 secs	-	-	$0.0_{(SS)}$	-	1.2	0.0	19.6	0.0	0.0	0.0	
WS4	4	---	30 secs	-	-	-	-	1.2	0.0	19.3	0.0	0.0	0.0	
WS4	4	---	60 secs	-	-	-	-	1.2	0.0	19.4	0.0	0.0	0.0	
WS4	4	---	90 secs	-	-	-	-	1.1	0.0	19.5	0.0	0.0	0.0	
WS4	4	---	120 secs	-	-	-	-	1.1	0.0	19.6	0.0	0.0	0.0	
WS4	4	---	180 secs	-	-	-	-	0.9	0.0	20.1	0.0	0.0	0.0	
WS4	4	---	240 secs	-	-	-	-	0.9	0.0	20.1	0.0	0.0	0.0	
WS4	4	---	300 secs	-	-	-	-	0.9	0.0	20.0	0.0	0.0	0.0	
WS6	1	5.60	05/09/2014 10:15:00	1009	1009	$-0.1_{(I)}$	0.51	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	30 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	60 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	90 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	120 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	180 secs	-	-	-	-	0.1	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	240 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	1	---	300 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	2	5.58	09/09/2014 10:52:00	1013	1013	$0.0_{(I)}$	0.57	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	2	---	30 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	2	---	60 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	2	---	90 secs	-	-	-	-	0.0	0.0	20.7	0.0	0.0	0.0	
WS6	2	---	120 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
WS6	2	---	180 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS6	2	---	240 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
WS6	2	---	300 secs	-	-	-	-	0.0	0.0	20.8	0.0	0.0	0.0	
WS6	3	5.63	15/09/2014 10:37:00	1009	1009	$0.0_{(I)}$	0.58	0.1	0.0	20.7	0.0	0.0	0.0	
WS6	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.1	0.0	20.9	0.0	0.0	0.0	
WS6	3	---	30 secs	-	-	-	-	0.1	0.0	20.9	0.0	0.0	0.0	
WS6	3	---	60 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
WS6	3	---	90 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
WS6	3	---	120 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
WS6	3	---	180 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
WS6	3	---	240 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
WS6	3	---	300 secs	-	-	-	-	0.0	0.0	20.9	0.0	0.0	0.0	
WS6	4	5.53	24/09/2014 11:25:00	1004	1004	$0.2_{(I)}$	0.53	0.0	0.0	20.4	0.0	0.0	0.0	
WS6	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.0	0.0	20.2	0.0	0.0	0.0	
WS6	4	---	30 secs	-	-	-	-	0.0	0.0	20.2	0.0	0.0	0.0	
WS6	4	---	60 secs	-	-	-	-	0.0	0.0	20.3	0.0	0.0	0.0	
WS6	4	---	90 secs	-	-	-	-	0.0	0.0	20.3	0.0	0.0	0.0	
WS6	4	---	120 secs	-	-	-	-	0.0	0.0	20.3	0.0	0.0	0.0	
WS6	4	---	180 secs	-	-	-	-	0.0	0.0	20.3	0.0	0.0	0.0	
WS6	4	---	240 secs	-	-	-	-	0.0	0.0	20.3	0.0	0.0	0.0	
WS6	4	---	300 secs	-	-	-	-	0.0	0.0	20.3	0.0	0.0	0.0	
WS8	1	2.40	05/09/2014 11:15:00	1007	1007	$0.0_{(I)}$	1.42	0.0	0.0	20.7	0.0	0.0	0.0	
WS8	1	---	15 secs	-	-	$0.0_{(SS)}$	-	0.6	0.0	19.9	0.0	0.0	0.0	
WS8	1	---	30 secs	-	-	-	-	0.6	0.0	19.7	0.0	0.0	0.0	
WS8	1	---	60 secs	-	-	-	-	0.6	0.0	19.6	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS8	1	---	90 secs	-	-	-	-	0.6	0.0	19.6	0.0	0.0	0.0	
WS8	1	---	120 secs	-	-	-	-	0.6	0.0	19.6	0.0	0.0	0.0	
WS8	1	---	180 secs	-	-	-	-	0.5	0.0	19.6	0.0	0.0	0.0	
WS8	1	---	240 secs	-	-	-	-	0.5	0.0	20.1	0.0	0.0	0.0	
WS8	1	---	300 secs	-	-	-	-	0.5	0.0	20.1	0.0	0.0	0.0	
WS8	2	2.39	09/09/2014 11:16:00	1013	1013	$0.0_{(I)}$	1.36	0.0	0.0	20.6	0.0	0.0	0.0	
WS8	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.4	0.0	20.0	0.0	0.0	0.0	
WS8	2	---	30 secs	-	-	-	-	0.4	0.1	19.9	1.0	0.0	0.0	
WS8	2	---	60 secs	-	-	-	-	0.4	0.1	19.9	1.0	0.0	0.0	
WS8	2	---	90 secs	-	-	-	-	0.4	0.1	19.9	1.0	0.0	0.0	
WS8	2	---	120 secs	-	-	-	-	0.4	0.1	19.9	1.0	0.0	0.0	
WS8	2	---	180 secs	-	-	-	-	0.5	0.1	19.8	1.0	0.0	0.0	
WS8	2	---	240 secs	-	-	-	-	0.8	0.1	19.4	1.0	0.0	0.0	
WS8	2	---	300 secs	-	-	-	-	0.8	0.1	19.3	1.0	0.0	0.0	
WS8	2	---	360 secs	-	-	-	-	0.8	0.1	19.3	1.0	0.0	0.0	
WS8	3	2.38	15/09/2014 10:52:00	1009	1009	$-0.1_{(I)}$	1.33	0.0	0.0	20.9	0.0	0.0	0.0	
WS8	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.7	0.0	20.2	0.0	0.0	0.0	
WS8	3	---	30 secs	-	-	-	-	0.7	0.0	19.9	0.0	0.0	0.0	
WS8	3	---	60 secs	-	-	-	-	0.7	0.0	19.9	0.0	0.0	0.0	
WS8	3	---	90 secs	-	-	-	-	0.7	0.0	19.9	0.0	0.0	0.0	
WS8	3	---	120 secs	-	-	-	-	0.7	0.0	19.9	0.0	0.0	0.0	
WS8	3	---	180 secs	-	-	-	-	0.8	0.0	19.9	0.0	0.0	0.0	
WS8	3	---	240 secs	-	-	-	-	0.9	0.0	19.8	0.0	0.0	0.0	
WS8	3	---	300 secs	-	-	-	-	1.0	0.0	19.8	0.0	0.0	0.0	
WS8	3	---	360 secs	-	-	-	-	1.0	0.0	19.8	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

RSK Environment Ltd
Abbey Park
Humber Road
Coventry
CV3 4AQ

Compiled By	Date	Checked By	Date	Contract Ref:
	30/09/14			**312598**

Contract: **M1 Junction 15, Northampton**

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS8	3	---	420 secs	-	-	-	-	1.0	0.0	19.8	0.0	0.0	0.0	
WS8	4	2.36	24/09/2014 11:10:00	1003	1003	$0.0_{(I)}$	1.34	0.0	0.0	20.8	0.0	0.0	0.0	
WS8	4	---	15 secs	-	-	$0.0_{(SS)}$	-	0.7	0.0	20.2	0.0	0.0	0.0	
WS8	4	---	30 secs	-	-	-	-	0.7	0.0	20.0	0.0	0.0	0.0	
WS8	4	---	60 secs	-	-	-	-	0.7	0.0	20.0	0.0	0.0	0.0	
WS8	4	---	90 secs	-	-	-	-	0.7	0.0	19.8	0.0	0.0	0.0	
WS8	4	---	120 secs	-	-	-	-	0.8	0.0	19.7	0.0	0.0	0.0	
WS8	4	---	180 secs	-	-	-	-	0.9	0.0	19.5	0.0	0.0	0.0	
WS8	4	---	240 secs	-	-	-	-	0.9	0.0	19.4	0.0	0.0	0.0	
WS8	4	---	300 secs	-	-	-	-	0.9	0.0	19.4	0.0	0.0	0.0	
WS9	1	5.58	05/09/2014 11:23:00	1006	1007	$0.0_{(I)}$	5.56	0.0	0.0	20.7	0.0	0.0	0.0	
WS9	1	---	15 secs	-	-	$0.0_{(SS)}$	-	1.5	0.0	18.2	0.0	0.0	0.0	
WS9	1	---	30 secs	-	-	-	-	1.6	0.0	17.6	0.0	0.0	0.0	
WS9	1	---	60 secs	-	-	-	-	1.6	0.0	17.6	0.0	0.0	0.0	
WS9	1	---	90 secs	-	-	-	-	1.6	0.0	17.5	0.0	0.0	0.0	
WS9	1	---	120 secs	-	-	-	-	1.6	0.0	17.5	0.0	0.0	0.0	
WS9	1	---	180 secs	-	-	-	-	1.6	0.0	17.4	0.0	0.0	0.0	
WS9	1	---	240 secs	-	-	-	-	1.5	0.0	17.5	0.0	0.0	0.0	
WS9	1	---	300 secs	-	-	-	-	1.5	0.0	17.6	0.0	0.0	0.0	
WS9	2	5.45	09/09/2014 11:29:00	1013	1013	$0.0_{(I)}$	DRY	0.0	0.0	20.5	0.0	0.0	0.0	
WS9	2	---	15 secs	-	-	$0.0_{(SS)}$	-	1.3	0.0	18.3	0.0	0.0	0.0	
WS9	2	---	30 secs	-	-	-	-	1.3	0.0	18.0	0.0	0.0	0.0	
WS9	2	---	60 secs	-	-	-	-	1.4	0.0	18.0	0.0	0.0	0.0	
WS9	2	---	90 secs	-	-	-	-	1.4	0.0	17.9	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS9	2	---	120 secs	-	-	-	-	1.4	0.0	17.8	0.0	0.0	0.0	
WS9	2	---	180 secs	-	-	-	-	1.4	0.0	17.7	0.0	0.0	0.0	
WS9	2	---	240 secs	-	-	-	-	1.5	0.0	17.5	0.0	0.0	0.0	
WS9	2	---	300 secs	-	-	-	-	1.6	0.0	17.3	0.0	0.0	0.0	
WS9	2	---	360 secs	-	-	-	-	1.6	0.0	17.1	0.0	0.0	0.0	
WS9	2	---	420 secs	-	-	-	-	1.7	0.1	17.0	1.0	0.0	0.0	
WS9	2	---	480 secs	-	-	-	-	1.8	0.1	16.8	1.0	0.0	0.0	
WS9	2	---	540 secs	-	-	-	-	1.8	0.1	16.9	1.0	0.0	0.0	
WS9	2	---	600 secs	-	-	-	-	1.8	0.0	17.2	0.0	0.0	0.0	
WS9	3	5.52	15/09/2014 11:16:00	1009	1009	$0.0_{(I)}$	5.07	0.0	0.0	20.3	0.0	0.0	0.0	
WS9	3	---	15 secs	-	-	$0.0_{(SS)}$	-	1.8	0.0	18.6	0.0	0.0	0.0	
WS9	3	---	30 secs	-	-	-	-	1.8	0.0	18.1	0.0	0.0	0.0	
WS9	3	---	60 secs	-	-	-	-	1.8	0.0	18.0	0.0	0.0	0.0	
WS9	3	---	90 secs	-	-	-	-	1.8	0.0	18.0	0.0	0.0	0.0	
WS9	3	---	120 secs	-	-	-	-	1.9	0.0	18.0	0.0	0.0	0.0	
WS9	3	---	180 secs	-	-	-	-	1.9	0.0	17.9	0.0	0.0	0.0	
WS9	3	---	240 secs	-	-	-	-	2.0	0.0	17.8	0.0	0.0	0.0	
WS9	3	---	300 secs	-	-	-	-	2.0	0.0	17.6	0.0	0.0	0.0	
WS9	3	---	360 secs	-	-	-	-	2.1	0.0	17.5	0.0	0.0	0.0	
WS9	3	---	420 secs	-	-	-	-	2.2	0.0	17.4	0.0	0.0	0.0	
WS9	3	---	480 secs	-	-	-	-	2.2	0.0	17.2	0.0	0.0	0.0	
WS9	3	---	540 secs	-	-	-	-	2.3	0.0	17.3	0.0	0.0	0.0	
WS9	3	---	600 secs	-	-	-	-	2.1	0.0	17.7	0.0	0.0	0.0	
WS9	4	5.50	24/09/2014 12:45:00	1005	1005	$0.0_{(I)}$	4.30	0.0	0.0	20.7	0.0	0.0	0.0	
WS9	4	---	15 secs	-	-	$0.0_{(SS)}$	-	1.9	0.0	18.5	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS9	4	---	30 secs	-	-	-	-	1.9	0.0	17.8	0.0	0.0	0.0	
WS9	4	---	60 secs	-	-	-	-	1.9	0.0	17.7	0.0	0.0	0.0	
WS9	4	---	90 secs	-	-	-	-	2.0	0.0	17.7	0.0	0.0	0.0	
WS9	4	---	120 secs	-	-	-	-	2.0	0.0	17.5	0.0	0.0	0.0	
WS9	4	---	180 secs	-	-	-	-	2.1	0.0	17.4	0.0	0.0	0.0	
WS9	4	---	240 secs	-	-	-	-	2.1	0.0	17.3	0.0	0.0	0.0	
WS9	4	---	300 secs	-	-	-	-	2.1	0.0	17.2	0.0	0.0	0.0	
WS11	1	3.98	04/09/2014 14:45:00	1007	1007	$0.1_{(I)}$	2.78	0.1	0.0	20.8	-	0.0	0.0	
WS11	1	---	15 secs	-	-	$0.1_{(SS)}$	-	2.0	0.0	19.2	-	0.0	0.0	
WS11	1	---	30 secs	-	-	-	-	2.1	0.0	18.8	-	0.0	0.0	
WS11	1	---	60 secs	-	-	-	-	2.1	0.0	18.8	-	0.0	0.0	
WS11	1	---	90 secs	-	-	-	-	2.1	0.0	18.8	-	1.0	0.0	
WS11	1	---	120 secs	-	-	-	-	2.1	0.0	18.8	-	0.0	0.0	
WS11	1	---	180 secs	-	-	-	-	2.1	0.0	18.7	-	0.0	0.0	
WS11	1	---	240 secs	-	-	-	-	2.2	0.0	18.7	-	0.0	0.0	
WS11	1	---	300 secs	-	-	-	-	2.2	0.0	18.6	-	0.0	0.0	
WS11	1	---	360 secs	-	-	-	-	2.2	0.0	18.6	-	0.0	0.0	
WS11	2	3.97	09/09/2014 09:52:00	1013	1013	$0.0_{(I)}$	2.79	0.1	0.0	20.5	0.0	0.0	0.0	
WS11	2	---	15 secs	-	-	$0.0_{(SS)}$	-	2.2	0.0	19.4	0.0	0.0	0.0	
WS11	2	---	30 secs	-	-	-	-	2.2	0.0	19.1	0.0	0.0	0.0	
WS11	2	---	60 secs	-	-	-	-	2.2	0.0	19.0	0.0	0.0	0.0	
WS11	2	---	90 secs	-	-	-	-	2.2	0.0	18.9	0.0	0.0	0.0	
WS11	2	---	120 secs	-	-	-	-	2.3	0.0	18.9	0.0	0.0	0.0	
WS11	2	---	180 secs	-	-	-	-	2.3	0.0	18.7	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS11	2	---	240 secs	-	-	-	-	2.3	0.0	18.6	0.0	0.0	0.0	
WS11	2	---	300 secs	-	-	-	-	2.4	0.0	18.4	0.0	0.0	0.0	
WS11	2	---	360 secs	-	-	-	-	2.4	0.0	18.3	0.0	0.0	0.0	
WS11	2	---	420 secs	-	-	-	-	2.4	0.0	18.1	0.0	0.0	0.0	
WS11	3	3.98	15/09/2014 09:39:00	1009	1009	0.0$_{(I)}$	2.80	0.0	0.0	20.3	0.0	0.0	0.0	
WS11	3	---	15 secs	-	-	0.0$_{(SS)}$	-	2.3	0.0	19.1	0.0	0.0	0.0	
WS11	3	---	30 secs	-	-	-	-	2.3	0.0	18.8	0.0	0.0	0.0	
WS11	3	---	60 secs	-	-	-	-	2.3	0.0	18.8	0.0	0.0	0.0	
WS11	3	---	90 secs	-	-	-	-	2.3	0.0	18.8	0.0	0.0	0.0	
WS11	3	---	120 secs	-	-	-	-	2.3	0.0	18.8	0.0	0.0	0.0	
WS11	3	---	180 secs	-	-	-	-	2.4	0.0	18.8	0.0	0.0	0.0	
WS11	3	---	240 secs	-	-	-	-	2.4	0.0	18.8	0.0	0.0	0.0	
WS11	3	---	300 secs	-	-	-	-	2.4	0.0	18.8	0.0	0.0	0.0	
WS11	4	3.97	24/09/2014 14:24:00	1004	1004	0.0$_{(I)}$	2.85	0.0	0.0	20.4	0.0	0.0	0.0	
WS11	4	---	15 secs	-	-	0.0$_{(SS)}$	-	2.2	0.0	18.9	0.0	0.0	0.0	
WS11	4	---	30 secs	-	-	-	-	2.3	0.0	18.7	0.0	0.0	0.0	
WS11	4	---	60 secs	-	-	-	-	2.3	0.0	18.7	0.0	0.0	0.0	
WS11	4	---	90 secs	-	-	-	-	2.3	0.0	18.6	0.0	0.0	0.0	
WS11	4	---	120 secs	-	-	-	-	2.3	0.0	18.6	0.0	0.0	0.0	
WS11	4	---	180 secs	-	-	-	-	2.3	0.0	18.6	0.0	0.0	0.0	
WS11	4	---	240 secs	-	-	-	-	2.3	0.0	18.6	0.0	0.0	0.0	
WS11	4	---	300 secs	-	-	-	-	2.3	0.0	18.6	0.0	0.0	0.0	
WS15	1	5.31	05/09/2014 13:46:00	1007	1007	0.0$_{(I)}$	1.50	0.0	0.0	20.6	0.0	0.0	0.0	
WS15	1	---	15 secs	-	-	0.0$_{(SS)}$	-	0.7	0.0	19.6	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS15	1	---	30 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	1	---	60 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	1	---	90 secs	-	-	-	-	0.8	0.0	19.4	0.0	0.0	0.0	
WS15	1	---	120 secs	-	-	-	-	0.8	0.0	19.4	0.0	0.0	0.0	
WS15	1	---	180 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	1	---	240 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	1	---	300 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	2	5.28	09/09/2014 12:24:00	1011	1011	$0.0_{(I)}$	1.48	0.0	0.0	20.5	0.0	0.0	0.0	
WS15	2	---	15 secs	-	-	$0.0_{(SS)}$	-	0.5	0.0	19.6	0.0	0.0	0.0	
WS15	2	---	30 secs	-	-	-	-	0.5	0.0	19.5	0.0	0.0	0.0	
WS15	2	---	60 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	
WS15	2	---	90 secs	-	-	-	-	0.6	0.0	19.2	0.0	0.0	0.0	
WS15	2	---	120 secs	-	-	-	-	0.7	0.0	19.1	0.0	0.0	0.0	
WS15	2	---	180 secs	-	-	-	-	0.7	0.0	19.1	0.0	0.0	0.0	
WS15	2	---	240 secs	-	-	-	-	0.7	0.0	19.1	0.0	0.0	0.0	
WS15	2	---	300 secs	-	-	-	-	0.7	0.0	19.1	0.0	0.0	0.0	
WS15	3	5.29	15/09/2014 12:15:00	1008	1008	$0.0_{(I)}$	1.48	0.0	0.0	20.4	0.0	0.0	0.0	
WS15	3	---	15 secs	-	-	$0.0_{(SS)}$	-	0.6	0.0	19.8	0.0	0.0	0.0	
WS15	3	---	30 secs	-	-	-	-	0.6	0.0	19.7	0.0	0.0	0.0	
WS15	3	---	60 secs	-	-	-	-	0.6	0.0	19.6	0.0	0.0	0.0	
WS15	3	---	90 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	3	---	120 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	3	---	180 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	3	---	240 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	
WS15	3	---	300 secs	-	-	-	-	0.7	0.0	19.5	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

IN-SITU GAS MONITORING RESULTS

Exploratory Position ID	Monitoring Round	Installation Depth (mbgl)	Date & Time of Monitoring (elapsed time)	Borehole Pressure (mb)	Atmos Pressure (mb)	Gas Flow (l/hr)	Water Depth (mbgl)	Carbon Dioxide (% / vol)	Methane (% / vol)	Oxygen (% / vol)	LEL (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
WS15	4	5.28	24/09/2014 15:01:00	1004	1004	$-0.1_{(I)}$	1.50	0.1	0.0	20.3	0.0	0.0	0.0	
WS15	4	---	15 secs	-	-	$-0.1_{(SS)}$	-	0.5	0.0	19.5	0.0	0.0	0.0	
WS15	4	---	30 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	
WS15	4	---	60 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	
WS15	4	---	90 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	
WS15	4	---	120 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	
WS15	4	---	180 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	
WS15	4	---	240 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	
WS15	4	---	300 secs	-	-	-	-	0.5	0.0	19.4	0.0	0.0	0.0	

Key: I = Initial, P = Peak, SS = Steady State. Note: LEL = Lower Explosive Limit = 5% v/v.

RSK Environment Ltd
Abbey Park
Humber Road
Coventry
CV3 4AQ

Compiled By	Date	Checked By	Date	Contract Ref:
	30/09/14			**312598**

Contract: **M1 Junction 15, Northampton**

Page: **39** of **39**