

Certificate No. 642











Certificate No. 007883

GROUND INVESTIGATION NEWTON STEWART FLOOD PROTECTION SCHEME



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Approved By	C Rodger	Technical Manager	Date	14 th August 2018
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GROUND INVESTIGATION

NEWTON STEWART FLOOD PROTECTION SCHEME

Ground Investigation Fieldwork & Laboratory Testing

& Report No:- S/NSFPS/0418/Fact.

Project:-

GROUND INVESTIGATION NEWTON STEWART FLOOD PROTECTION SCHEME

Ground Investigation Fieldwork & Laboratory Testing

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1:0 INTRODUCTION

Messrs Holequest Limited were commissioned by SWECO to undertake a ground investigation, for the proposed Newton Stewart Flood Protection Scheme.

1:1 The ground investigation works consisted of excavation of 16No. Boreholes by Light Cable Percussion, Rotary Open and Core Drilling techniques, 35No. machine excavated Trial Pits, and 16No. Hand Excavated Trial Pits all at predetermined locations to instructed depths. The various strata penetrated were recorded and sampled, and laboratory testing was undertaken as required.

The results of the investigation are presented in the form of a factual report, covering the Ground Investigation Fieldwork and Laboratory Testing.

The terminology adopted (Code of practice for site investigations B.S. 5930: 1999, BSEN ISO 14688 and BSEN ISO 14689) in the preparation of the descriptions for the soils and rocks encountered during this investigation is detailed in Appendix I of this report.

- 1:2 The site works were undertaken during the period 13th to 23rd December 2017 and 15th January to 23rd February 2018.
- 1:3 The weather during the site works was principally overcast with occasional to many heavy showers of rain, periods of frost through to dry and with rare sunny periods. However, was in general consistent for the time of year.

2:0 THE SITE LOCATION

The works are located either immediately adjacent to, or in close proximity to the River Cree, which flows from north to south through the town.

Drawings detailing the works location, split as per each design Option, are presented in Appendix II, these drawings were prepared by SWECO based on the as drilled survey provided by Holequest Ltd.

Generally, the works areas can be described as follows:

Option 6: The works are located within public soft landscaping / managed grassed areas and streetscapes within Newton Stewart, and on narrow access paths (core paths) along the banks of the River Cree.

Option 7: The works are located in farmland and narrow core paths along the banks of the River Cree, together with works in proximity to the abutments of the A75 bridge.

Option 24: The works are located on farmland adjacent to River Cree.

Sparling Bridge GI: GI located on public landscaping, narrow access paths and farmland adjacent to the River Cree.

The centre of the site is located at nominally Ordinance Survey National Grid Reference NGR: NX 41234 65240.

3:0 SITE WORKS & IN-SITU TESTING

Light Cable Percussion Boring

3:1 The sinking of Boreholes BH1-OP6, BH2-OP6, BH2A-OP6, BH3-OP6 and BH14-OP6 were undertaken by a Dando 2000 Light Cable Percussion boring rig equipped with 200mm diameter boring tools and casing as appropriate. Due to the nature of the ground conditions encountered no "Undisturbed" samples could be obtained. However, environmental samples, bulk disturbed samples and in-situ standard penetration tests undertaken where appropriate.

Rotary Boreholes

3:2 Rotary drilling was undertaken at all Boreholes including TP9-OP6, changed from a Trial Pit to a Borehole on SWECO instruction, using a tracked Comacchio GEO205 or Massenza MI5 hydraulic top drive rotary drilling rig as noted on the relevant borehole records.

Rotary casing was sunk where appropriate using the Symetrix simultaneous casing systems and down-the-hole hammer. As the name implies, the system is such that the casing follows immediately behind the drill bit, thus keeping the borehole stable in the overburden. Upon reaching the required depth the drill string is reversed, allowing the concentric part of the drill bit to be released and withdrawn from the lined hole leaving the casing in place, and where appropriate U80 or U100 Samples, Standard Penetration Tests, Rotary Core Drilling and / or Rotary Open hole Drilling was undertaken to the full depth of the Boreholes as determined by SWECO.

It will be appreciated that accurate sampling of the overburden and solid geology is not possible with air flushed full hole rotary drilling methods specified, and therefore strata descriptions may not be in precise accord with BSENISO 14688/14689.

Trial Pits

3:3 The Trial Pits were excavated using a wheeled backhoe excavator or a 5t rubber tracked excavator as allowed by access restrictions on site. The Trial Pits were logged, sampled, and photographed by an Engineer from Holequest Ltd. HPSW2, TT1 East and TT1 West were excavated to identify utilities locations and were not logged for geotechnical purposes.

It should be noted that the strengths / relative densities reported on the trial pit records and the descriptions contained therein are based on visual assessment, trial pit stability, ease of excavation and where appropriate in-situ test results.

In-situ Testing

3:4 In-situ testing was undertaken in the boreholes and comprised of the following:-

- Standard Penetration Test
- Constant Flow Permeability Test in Ground Water Monitoring Installations

3:5 The records of the site works and in-situ testing are summarised in Appendix III (SPT) and Appendix V (Permeability tests).

Ground Water

3:6 Ground water observations during the drilling of the boreholes and excavation of the trial pits are presented on the individual logs.

Groundwater monitoring wells comprising 50mm ID HDPE geo-wrapped casing and screen were installed in the Boreholes as directed by SWECO. The installation details are summarised on the appropriate borehole record.

Water levels taken during the fieldwork period are summarised in Appendix V

4:0 LABORATORY TESTING

A programme of soil laboratory testing, scheduled by SWECO, was undertaken at the UKAS accredited laboratory of Professional Soils Laboratory Limited. The tests where appropriate were undertaken in accordance with British Standard 1377 "Methods of Tests for Soils for Civil Engineering Purposes" or as indicated otherwise. The various tests undertaken are as follows:-

- 2) PARTICLE SIZE DISTRIBUTION BY WET SIEVE
- 3) PARTICLE SIZE DISTRIBUTION BY SEDIMENTATION
- 4) LIQUID AND PLASTIC LIMITS
- 5) UNCONSOLIDATED UNDRAINED TRIAXIAL (MULTISTAGE)
- 6) ONE DIMENSIONAL CONSOLIDATION
- 7) DRY DENSITY / MOISTURE CONTENT RELATIONSHIP 2.5KG HAMMER
- 8) CONSOLIDATED DRAINED SHEARBOX (PEAK ONLY)

A programme of rock laboratory testing, scheduled by SWECO, was undertaken at the UKAS accredited laboratory of MATtest Limited. The various tests undertaken are as follows:-

- 1) UNCONFINED COMPRESSIVE STRENGTH ASTM D7012-14
- 2) POINT LOAD STRENGTH ISRM (2007)

A programme of laboratory testing for environmental parameters on soils, water and leachates, scheduled by SWECO was undertaken at the UKAS accredited laboratory of Concept Life Sciences Ltd, on behalf of Messrs Holequest Limited. The soil and water samples were tested for one or more of the following:-

- 1) CYANIDE TOTAL
- 2) CYANIDE FREE
- 3) THIOCYANTE
- 4) pH
- 5) ORGANIC MATTER
- 6) SULPHATE (TOTAL)
- 7) SULPHUR (TOTAL)
- 8) ARSENIC
- 9) BORON (WATER SOLUBLE)
- 10) CADMIUM
- 11) CALCIUM
- 12) CONDUCTIVITY
- 13) CHROMIUM (TRIVALENT)
- 14) CHROMIUM (HEXAVALENT)
- 15) COPPER
- 16) DISOLVED ORGANIC CARBON
- **17)** LEAD
- 18) MERCURY
- 19) NICKEL
- 20) SELEMIUM
- **21) ZINC**
- 22) VANADIUM
- 23) AMMONIACAL NITROGEN
- 24) SULPHIDE
- 25) CHLORIDE
- 26) NITRATE
- 27) PAH USEPA16
- 28) TPH CWG
- 29) TPH BANDED
- 30) BTEX/MTBE
- 31) PHENOLS (MONO)
- 32) ASBESTOS ID
- 33) ASBESTOS QUANTIFICATION

The Geotechnical and Environmental Laboratory Test Results are summarised in Appendix IV.

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for HOLEQUEST LTD

Dated:- August 2018

Approved By:-

C. Rodger (Technical Manager) for HOLEQUEST LTD &©ajb

Dated:- August 2018

APPENDIX I

Terminology Adopted In Description of Soil and Rocks

TERMINOLOGY ADOPTED IN DESCRIPTION OF SOILS

- 1. The description and classification of soils has been carried out using as a general basis the British Standard Code of Practice for Site Investigations B.S.5930 2015 and BSENISO 14688 / 14689
- 2. Soils containing 35% or more of material passing a 0.06mm sieve will be classified as **CLAY** or **SILT** as appropriate.
- 3. The relative densities of granular materials given in this report are based upon visual inspection of the borehole / excavation and the results of in-situ standard penetration and cone penetration tests, where carried out

The classification is as follows:-

TABLE 1 Non-cohesive Granular Materials

N - Value	Relative Density
Below 4	Very Loose
4 to 10	Loose
10 to 30	Medium Dense
30 to 50	Dense
50 and Over	Very Dense

TABLE 2A Cohesive Materials (Field Description)

TERM USED FOR FIELD DESCRIPTION	CONSISTENCY DESCRIPTION DEFINITION
Very Soft	Finger easily pushed in up to 25mm. Exudes between fingers
Soft	Finger pushed in up to 10mm. Moulds by light finger pressure
Firm	Thumb makes impression easily. Cannot be moulded by fingers, rolls in the hand to a 3mm thick thread without breaking or crumbling
Stiff	Can beindented slightly by thumb. Crumbles in rolling a 3mm thick thread, but can then be remoulded into a lump
Very Stiff	Can be indented slightly by thumb nail. Cannot be moulded but crumbles under pressure.
Hard	Can be scratched by thumbnail

TABLE 2B Cohesive Materials (Measured Strength Classification)

TERM BASED ON MEASUREMENT	UNDRAINED STRENGTH CLASSIFICATION DEFINITION C_{u} , in kPa
Extremely low	<10
Very low	10 – 20
Low	20 – 40
Medium	40 – 75
High	75 – 150
Very high	150 – 300
Extremely high	300 - 600

4. The consistency of 'fine soils' given in this report is based on both visual inspection of the sample and the results of in-situ and / or laboratory tests, where carried out.

** Note:- When very stiff cohesive materials (generally with a significant proportion of cobbles and boulders) are encountered, the term Hard may be included in the description to enhance the descriptive term of very stiff, especially where cohesive materials were difficult to progress through, or could not be penetrated by normal light cable percussion boring methods.

BOREHOLE & TRIAL PIT RECORDS SYMBOLS & ABBREVIATIONS USED:-

U	80mm or 100mm diam. "Undisturbed"	80mm diam sample in windowless sampling / rotary boreholes,
	sample	100mm diam sample in light cable percussion boreholes
P	Piston Sample "Undisturbed"	
D	Disturbed sample	
В	Bulk Disturbed sample	
W	Water Sample	
ES	Soil Contamination Sample	
EW	Water Contamination Sample	
SPT	Standard Penetration Test	Split Spoon Sampler - Blow count for 300mm penetration = 'N'
		value
CPT	Standard Cone penetration Test	Solid Cone replaces split spoon sampler, as above blow count for
		'N' value
V	In-situ Borehole Vane Test	
VHP	Variable Head Permeability Test	
CHP	Constant Head Permeability test	
PT	Borehole Packer Test	

ROTARY CORE DRILLING

TCR	Total Core Recovery	Ratio of core recovered (solid and non intact) to length of core
SCR	Solid Core Recovery	run Ratio of solid core recovered to length of core run
SCK	Solid Cole Recovery	Ratio of solid core recovered to length of core run
RQD	Rock Quality Designation	Ratio of solid core pieces longer than 100mm to length of core
		run
FI	Fracture Index	Count of the number of spacing of fractures over an arbitary
		length of core of similar intensity of fracturing. Commonly
		reported as Fracture Index (FI, number of fractures per metre) or
		as Fracture Spacing (If,mm).

GROUND WATER

depth (m)	Ground Water Level	Initial ingress level recorded in water strikes column
comments	Standing Ground Water Level	Time observation or a.m. ground water level recorded in the
		remarks section of the borehole / trial pit record.

ADDITIONAL INFORMATION

HVT	Hand Vane Tests	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records
HPT	Hand Penetrometer Tests	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records
CBR	California Bearing Ratio Test	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records
PBT	Plate Bearing Test	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records

Additional Notes:-

- 1) Ground water levels vary and therefore the observations recorded on the borehole and trial pit records are as observed at the time of the investigation.
- 2) The comments and opinions expressed in this report are based on the ground conditions observed at each location during the site works and on the results of any tests undertaken in-situ or in the laboratory on the samples obtained during the site works.

REFERENCE BIBLIOGRAPHY USED IN REPORTING & TESTING

British Standards:- Code of Practice for Site Investigation BS5930, 2015

BS EN 14688 Part 1: 2002 BS EN 14688 Part 2: 2002 BS EN 14689 Part 1: 2003

Methods of Test for Soils for Civil Engineering Purposes BS 1377

Testing Of Aggregates BS 812

Code of Practice for Foundations BS8004 Code of Practice for Earthworks BS 6031 Code of Practice for Ground Anchorages BS 8081

Cathodic Protection BS 7361

Scottish Development Department Specification for Roads & Bridgeworks - Soil Suitability for Earthworks

Use of the Moisture Condition Apparatus

Head K.H. The Manual of Soil Laboratory Testing Vol. 1 to 3.

Terzaghi K. & Peck B.P. Soil Mechanics in Engineering Practice - Wiley

Tomlinson M.J. Foundation Design & Construction - Pitman

Lambe & Whitman Soil Mechanics - Wiley

Blyth F.G.H. & A Geology for Engineers - Arnold

de Freitas M.H.

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Burland J.B. & Burbridge M.C.

Scotland

Settlement of Foundations on Sand and Gravel (Glasgow & West of

Association Centenary Celebrations Invited Lectures 1984)

Forde M.C. Earthworks: Selection & Compaction (University of Edinburgh)

B.R.E. Publications

EXPLANATION OF GRAPHIC LOGS FOR BEDROCK CORES

The style of presentation of the graphic logs is guided principally by BS5930:2015, with its interpretation refined by reference to other sources listed below. The logs are set out in columns, with each page carrying standard header and footer banners. The information contained within each column is outlined here.

1. DEPTH

The drillers' depth is given in meters (m), normally relative to ground surface but to another datum, if noted. Depth relative to a survey datum may be given, as available.

2. BOX

The core-box numbers are given, and the depth range of the core contained within that box is marked off.

3. RUNS

The depth range of each core run is marked in this column.

4. NOTES

Brief notes specific to short core sections at given depths are recorded in this column, or if they are too long, they are expanded in the 'Description' column with labels A, B, C, &c.

5. TCR, SCR and RQD

Total core recovery, solid core recovery, and rock quality designation respectively.

TCR is an estimate of the proportion by volume of the run length that is represented by material recovered from the hole and placed in the core box, irrespective of its state of division.

SCR is that proportion of the run length that is represented by core segments that span the full diameter of the hole, irrespective of their individual axial lengths.

RQD measures the proportion of the core, within the given length of borehole, that consists of unbroken sections whose individual axial lengths exceed 100mm. It leads to the descriptive classification of fracture state given in section 8 of the scheme of description and classification of rocks for applications in engineering. These parameters are calculated for each length of core as delimited by the horizontal rules in the column, generally either a box length or a drilling run, whichever is the shorter.

The background to this column is shaded to indicate graphically the values of these three index parameters. RQD is the darkest, SCR intermediate, and TCR the palest. Where values are equal, RQD takes precedence over SCR, and SCR likewise over TCR.

It is an unavoidable consequence of drilling and core recovery that fractures will be induced in the rock, additional to those of natural origin, and that such artifacts are likely to be much more common in certain rocks (eg. laminated mudstones) than in others (eg. dolerite). The RQD parameter thus represents a minimum estimate of the in situ value and should be interpreted in the context of the engineering requirement to be placed on the bedrock structure, especially in relation to whether loads are likely to be tensile, or compressive, or both. TCR is dependent not only on the inherent nature of the rock, but in certain difficult circumstances, also on the drilling method and the skills of the drilling team.

6. FRC

In selected applications, this column logs individual fracture (or discontinuity) surfaces in the style described by Norbury, Child and Spink (in Hawkins, 1986, pp331-342).

7. LOG

This column is ornamented conventionally according to rock type, using symbols recommended in BS5930:2015, but refined as necessary according to geological and engineering requirements. Rockhead, if clearly identified, rather than subject to deep weathering or periglacial frost shattering, is shown as a full line. The arbitrarily determined bottom of the hole, as well as any gaps, is marked by a zig-zag line. Clear boundaries between rock types are marked by full lines; transitional boundaries, where one rock type grades into another, are shown by pecked lines or by gradational ornament if the transition is extended.

To the right of the column, numbers link the rock types shown in the graphic log to their descriptions, adjacent, while brief notes on contact relationships between successive rock types are given, where those contacts are preserved.

8. DESCRIPTION

The standard format of the systematic description is given in the appendix, together with determinative tables and figures for a variety of features. Any extensions to the standard are included in (parentheses). Drillers' notes are contained within [brackets] while salient interpretations that can be stated briefly are enclosed by {braces}.

Where a rock unit consists of two or more intimately-related rock types, eg. alternating mudstones and siltstones, the general features are given first, followed by detailed descriptions of the component rock types.

Colours are generally given using the Munsell scheme, described in the Rock Color Chart referenced below. This element of the description may contain mention of colours arising from alteration, ie. processes occuring near the time of the formation of the rock rather than resulting from more-recent chemical and physical weathering under current or recent climatic regimes. The strength estimates as contained within these descriptions are based on a visual inspection of the rock material in the context of table 7.

9. REFERENCES AND BIBLIOGRAPHY

British Standards Institution, 2015, 'Code of Practice for site investigations', BS5930:2015. Collinson, J. D. and Thompson, D. B., 1982, 'Sedimentary Structures', George Allen & Unwin, ISBN 0-04-552017-8.

Dutro, J. T., Dietrich, R.V. and Foose, R.M. (eds.), 1989, 'AGI Data Sheets', 3rd edition, American Geological Institute, ISBN 0-922152-01-2.

Geological Society Engineering Group Working Party, 1970, 'The logging of rock cores for engineering purposes', *Quarterly Journal of Engineering Geology*, 3, 1-24.

Geological Society Engineering Group Working Party, 1972, 'The preparation of maps and plans in terms of engineering geology', *Quarterly Journal of Engineering Geology*, 5, 293-382. Geological Society Engineering Group Working Party, 1977, 'The description of rock masses for engineering purposes', *Quarterly Journal of Engineering Geology*, 10, 355-388.

Hawkins, A. B. (ed.), 1986, 'Site Investigation Practice - assessing BS5930, The Geological Society, ISBN 0-903317-34-6.

Rock Color Chart Committee, 1991, 'Rock Color Chart', 7th edition, The Geological Society of America.

Tucker, M. E., 1982, 'The Field Description of Sedimentary Rocks', The Open University Press, ISBN 0-470-27239-2.

Weltman, A. J. and Head, J. M., 1983, 'Site Investigation Manual', Construction Industry Research and Information Association, ISBN 086017 1965.

West, G., 1991, ' <i>The Field Description of Engineering Soils and Rocks</i> ', Geological Society of London Professional Handbook Series, Open University Press, ISBN 0-335-15208-2.

A scheme of description and classification of rocks for applications in engineering

This scheme refers to the description of rock specimens as presented in the form of hand specimens acquired either from cored boreholes or from natural or artificial exposures (as available, for example, on hill slopes and river banks, or in excavations). The methods applied are based simply on visual inspection, supplemented by a hand lens (typically ×10 magnification) and a light hammer (to expose unweathered surfaces and/or to give a preliminary assessment of rock strength). The scheme is based on BS5930:2015, although with some re-ordering and some extensions. Thus to facilitate laboratory and/or fieldwork, the assessment of rock strength (listed first in the *Standard*, but which requires the specimen to be destroyed) is postponed until other features of the material have been described. On occasion, it may be useful to extend the *Standard* to give appropriate additional detail. Such extensions can be enclosed in (parentheses).

1.1 The general structure of the description

The principal components of the description are:

- 1 Strength.
- 2 Structure;
- 3 Colour:
- 4 Texture, fabric
- 5 Grain size;
- 6 ROCK NAME.
- 7 Additional features;
- 8 State of weathering;
- 9 Fracture state;

Some details of these components follow and there is a concluding list of further sources of reference.

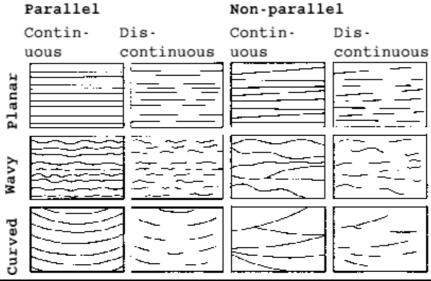
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1:2 Structure

The dimensions are given by:

Spacing or dim-	Composit- ional	Specimen size:	
ension	layering	Slab (1D)	Block (3D)
>6r	n	Extremely wide	
6r	n		
	Very thick	Very wide	Very large
2r	n		
	Thick	Wide	Large
600mr	n		
	Medium	Medium	Medium
200mr	n		
	Thin	Close	Small
60mr	n		
	Very thin	Very close	Very small
20mr	n		
	Thickly	Extremely	
	laminated	close	
бmr	n		
	Thinly laminated	spaced	blocky, tabular or columnar.

Compositional layering refers to stratification in sedimentary or some igneous rocks or to foliation in metamorphic or certain igneous rocks. Terms in the third and fourth columns can be applied to fragments of rock separated along natural fractures, cleavage or schitosity surfaces, and similar.



Descriptive terms for bedding/foliation, eg. *planar parallel discontinuous*. After Collinson & Thompson, 1982, fig. 2.6

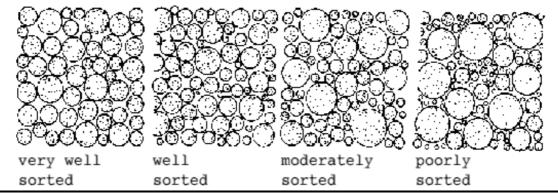
1:3 Colour

The standard colours are:

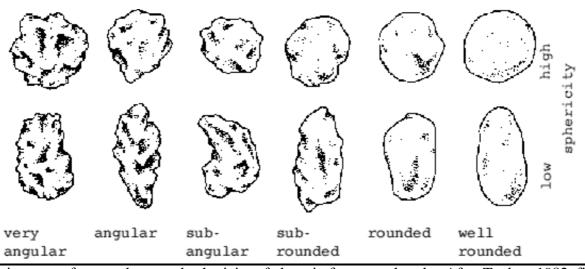
Colour	Supplemented		
	as needed	by:and:	
red	light	pinkish	
pink	dark	reddish	
yellow	mottled	yellowish	
brown	etc	brownish	
olive		etc	
green			
blue			
white			
grey			
black			
etc			

See also GEOLOGICAL SOCIETY OF AMERICA, *Rock Color Char*t 1991 for an outline of the Munsell scheme, which gives a much more precise definition of colours.

1:4 Texture



Descriptive terms for the degree of sorting in fragmental rocks. After Tucker, 1982, fig. 4.1.



Descriptive terms for roundness and sphericity of clasts in fragmental rocks. After Tucker, 1982, fig. 4.3.

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1:5 Grain size

The standard grain sizes are:

Grain size/mm	Bedded rocks	Foliated/massive crystalline rocks
20		
	RUDACEOUS	COARSE
6		
2		
	- coars	e
0.6		
0.2	ARENACEOUS - mediu	m MEDIUM
	- fin	ie
0.06	Normal limit o	of unaided vision
	ARGILLACEOUS	FINE
0.002		
	-	
	Amorphous or c	ryptocrystalline

This may be extended using the Wentworth-Lane scale, below.

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THE WENTWORTH-LANE SCALE OF GRAIN SIZE classification

phi:	size/mm	class:	
-9	512	Boulders	
-8	256		1
-7	128	Cobbles:	large
-6	64		small
-5	32	Gravel:	very coarse
-4	16		coarse
			medium
-3	8		fine
-2	4		very fine
-1	2	Sand:	very coarse
0	1		
1	1/2		coarse
2	1/4		medium
3	1/8		fine
4	1/16		very fine
5	1/32	silt:	coarse
			medium
6	1/64		fine
7	1/128		very fine
8	1/256	Mud:	coarse
9	1/512		medium
10	1/1024		
		1	fine

The 'phi' number is calculated as minus the logarithm to the base two of the grain size in mm.

1:6 Rock-type classifications

Sedimentary rocks

Grain size designation minerals Sediment grains mainly of siliceous minerals At least 50% of grains are of carbonate Rudaceous CON- GLOMERATE (rounded clasts cemented in a finer matrix) BRECCIA (angular fragments in a finer matrix) Coarse arenaceous 0.6 Medium arenaceous 0.7 Medium arenaceous COSANDSTONE Calcarenite Calcarenite TUFF or TUFFACEOUS SANDSTONE Calcibilite TUFF or TUFFACEOUS SILTSTONE Argillaceous MUDSTONE Calcillutite Calcilutite Notes: Solution At least 50% of grains are of volcanic origin At least 50% of grains are of volcanic origin At least 50% of grains are of volcanic origin At least 50% of grains are of volcanic origin At least 50% of grains are of volcanic origin At least 50% of grains are of volcanic origin At least 50% of grains are of volcanic origin Accilitate (with rounded clasts) or VOLCANIC BRECCIA (with angular clasts, in a finer matrix) Fuff or TUFF or TUFFACEOUS SILTSTONE Argillaceous MUDSTONE Calcilutite O.002 Amorphous or cryptocrystalline	CCuiiii	emary rocks			
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Medium arenaceous O.2 Fine arenaceous O.06 Limit of unaided vision Argillaceous MUDSTONE Calcarenite TUFF or TUFFACEOUS SANDSTONE Calcisiltite TUFF or TUFFACEOUS SILTSTONE Calcisiltite TUFF or TUFFACEOUS SILTSTONE Calcilutite Calcilutite Calcilutite					
arenaceous O.2 Fine arenaceous O.06 Limit of unaided vision Argillaceous MUDSTONE Calcisiltite TUFF or TUFFACEOUS SILTSTONE Calcilutite Calcilutite Calcilutite	0.6				
Fine arenaceous 0.06 Limit of unaided SILTSTONE Calcisiltite TUFF or TUFFACEOUS SILTSTONE Argillaceous MUDSTONE Calcilutite 0.002 Amorphous or cryptocrystalline Fine arenaceous Calcisiltite TUFF or TUFFACEOUS SILTSTONE Calcilutite			SANDSTONE	Calcarenite	TUFFACEOUS
0.06 Limit of unaided SILTSTONE Calcisiltite TUFF or TUFFACEOUS SILTSTONE Argillaceous MUDSTONE Calcilutite 0.002 Amorphous or cryptocrystalline Calcisiltite TUFF or TUFFACEOUS SILTSTONE Calcilutite	0.2				
vision TUFFACEOUS SILTSTONE Argillaceous MUDSTONE Calcilutite 0.002 Amorphous or cryptocrystalline TUFFACEOUS SILTSTONE	0.06		CH TCTONE	Calabatica.	THE
0.002 Amorphous or Flint, chert cryptocrystalline	0.06		SILISIONE	Calcisitite	TUFFACEOUS
cryptocrystalline	0.002	Argillaceous	MUDSTONE	Calcilutite	
	N		Flint, chert		

Notes:

1 Rocks composed of more than 50% carbonate are more usually known as LIMESTONE if the carbonate mineral is mostly calcite (CaCO₃) or DOLOMITE/DOLOMITIC LIMESTONE if the cabonate mineral is predominantly dolomite (CaMg(CO₃)₂).

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Metamo Grain size/m m	orphic rocks Grain size designation	Foliated rocks	Non-foliated rocks
20		GNEISS: well-developed but often widely spaced foliation sometimes with schistose layers.	
	Coarse		
6		MIGMATITE: mixed granitic and gneissose/schistose components.	AMPHIBOLITE MARBLE QUARTZITE BRECCIA (as associated with faulting)
2		Separation by grain size is less important amongst metamorphic rocks	
			SERPENTINE
0.6			HORNFELS
	Medium	SCHIST: well developed, perhaps undulose foliation, with crystal grains aligned.	
0.2		with crystal grains angled.	
0.06	Unaided vision limit		
	Fine	PHYLLITE: slightly undulose foliation. SLATE: well-developed planar cleavage.	
0.002			
	Amorphous or cryptocrystalline	MYLONITE: usually thinly laminated.	

Notes:

1 *Porphyroblast* refers to distinctly larger crystals arising by new growth during metamorphism. *Augen* or *porphyroclast* refers to distinctly larger crystals surviving after deformation during metamorphism.

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Igneous	rocks				
Grain size/m m	Grain size designatio n	'Acid' (essential quartz and feldspar - leucocratic)	'Inter- mediate' (some quartz, essential feldspar - mesocratic)	'Basic' (little or no quartz, abundant feldspar - melanocratic)	'Ultrabasic' (no quartz, little or no feldspar - melanocratic)
20	Coarse	GRANITE	DIORITE	GABBROS	PYROXENITE PERIDOTITE
6					
2					
0.6	Medium	MICRO- GRANITE	MICRO- DIORITE	DOLERITE	
0.2					
0.06	Limit of unaide	ed vision			
0.002	Fine	RHYOLITE	ANDESITE	BASALT	
	Amorphous or crypto-crystalline	OBSIDIAN	VOLCANIC GLASSor	PITCHSTONE	

Notes:

- 1 'Acid', 'intermediate', 'basic' and 'ultrabasic' are somewhat dated terms relating to the amount of SiO₂ in the chemical analysis of the rock (larger to smaller in this ordering). The coarse and medium grained categories of these rocks tend also to range from pale to darker colours because of variation in the proportion of lighter to darker minerals in their constitution. Thus an alternative designation might be *lecocratic* (less than one third dark mineals); *mesocratic* (from one third to two thirds dark minerals); *melanocratic* (greater than two thirds dark minerals). For reasons related to their microscopic texture, the colours of fine grained igneous rocks are not a good guide to identification.
- 2 Some igneous rocks are described as *porphyritic*; they contain scattered crystals (called *phenocrysts*) that are distinctly above the average grain size for the rock.

1:7 Weathering

Weathering and alteration of rock material

Fresh

No visible sign of weathering of the rock material.

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Discoloured

The colour of the original fresh rock material is changed and is evidence of weathering. The degree of change from the original colour should be indicated. If the colour change is confined to particular mineral constituents, this should be mentioned.

Decomposed

The rock is weathered to the condition of a soil in which the original material fabric is still intact, but some or all of the mineral grains are decomposed.

Disintegrated

The rock is weathered to the condition of a soil in which the original material fabric is still intact. The rock is friable, but the mineral grains are not decomposed.

Weathering grades of rock mass

Fresh (I)

Unchanged from original state.

Slightly weathered (II)

Slight discolouration, slight weakening.

Moderately weathered (III)

Considerably weakened, penetrative discolouration, large pieces cannot be broken by hand

Highly weathered (IV)

Large pieces cannot be broken by hand. Does not readily disaggreagte (slake) when dry sample immersed in water.

Completely weathered (V)

Considerably weakened, slakes. Original texture apparent.

Residual soil (VI)

Soil derived by in-situ weathering, but retaining none of the original texture or fabric.

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1:8 Fracture / discontinuity state

Types:

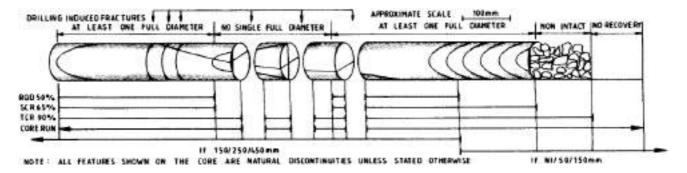
- Joint
- Fault
- Bedding
- Cleavage
- Induced
- Closed/Incipient (non standard term visible fracture with some remaining tensile strength)
- Dulling / Dull (non standard term distinguishing between natural and drill induced fractures)

Descriptors:

- Number of sets
- Orientation
- Spacing
- Persistence or extent
- Termination
- Surface roughness
- Wall strength
- Wall weathering/alteration
- Aperture
- The term "face" is introduced to counter a weakness in Eurocode 7, which does not allow for "non matching" joint faces in it's terminology. Where a fracture is described as having a face, the shape of the face of the rock core on the one side bears no obvious relationship to the shape on the other. There is therefore no way of determining the aperture of the fracture.
- Infilling

Definitions:

- Solid core: core spans full diameter through its axis
- Total core recovery (TCR): proportion (as %) of core material recovered to total length of core run.
- Solid core recovery (SCR): proportion (as %) of solid core to total length of core run.
- Rock quality designation (RQD): proportion (as %) of solid core segments of length ≥100mm to total length of core run.
- Fracture index: number of fractures per unit length (commonly one meter).
- Fracture spacing: interval between adjacent fractures on the scan line.



Illustrating descriptive terms for fracture logging. Adapted from Norbury et al., 1986, fig. 1.

Overall designation of rock mass, based on RQD:

RQD/% Term

0
Very poor
25
Poor
50
Fair
75
Good
90
Excellent
100

1:9 Strength

Term (with typical unconfined compressive strength/MPa)	Criteria	Typical examples
Extremely weak (<1.0)	Indented by thumbnail	Some weakly compacted sedimentary rocks
Very weak (1.0 to 5.0)	Crumbles under firm blows with point of geological hammer, can be peeled with a pocket knife	some very highly weathered igneous or metamorphic rocks
Weak (5.0 to 25.0)	Can be peeled with a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	boulder clays.
Medium strong (25.0 to 50.0)	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	Some sedimentary rocks, some foliated metamorphic rocks, highly weathered igneous and metamorphic rocks.
Strong (50 to 100)	Specimen requires more than one blow of geological hammer to fracture it	Some low-grade metamorphic rocks, marbles, some strongly silica cemented sandstones, some weathered metamorphic and igneous rocks.
Very strong (100 to 250)	Specimen requies many blows of geological hammer to fracture it	Mainly plutonic, hypabyssal and extrusive igneous rocks (medium to coarse grained), sedimentary quartzites, strong slates, gneisses, peridotites.
Extremely strong (>250)	Specimen can only be chipped with geological hammer	Fine grained igneous rocks; metamorphic quartzites, some hornfelses.

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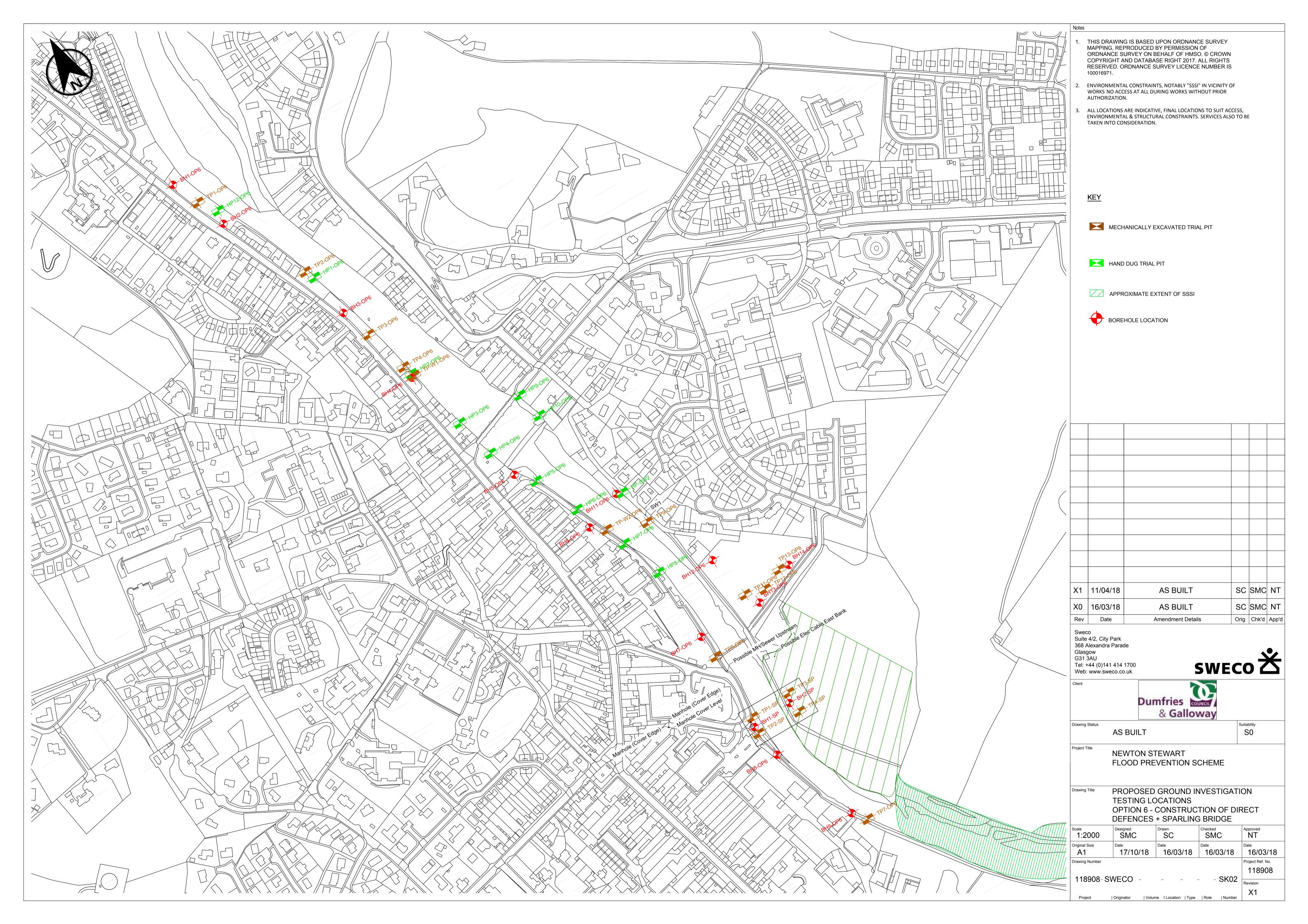
2:0 References and bibliography

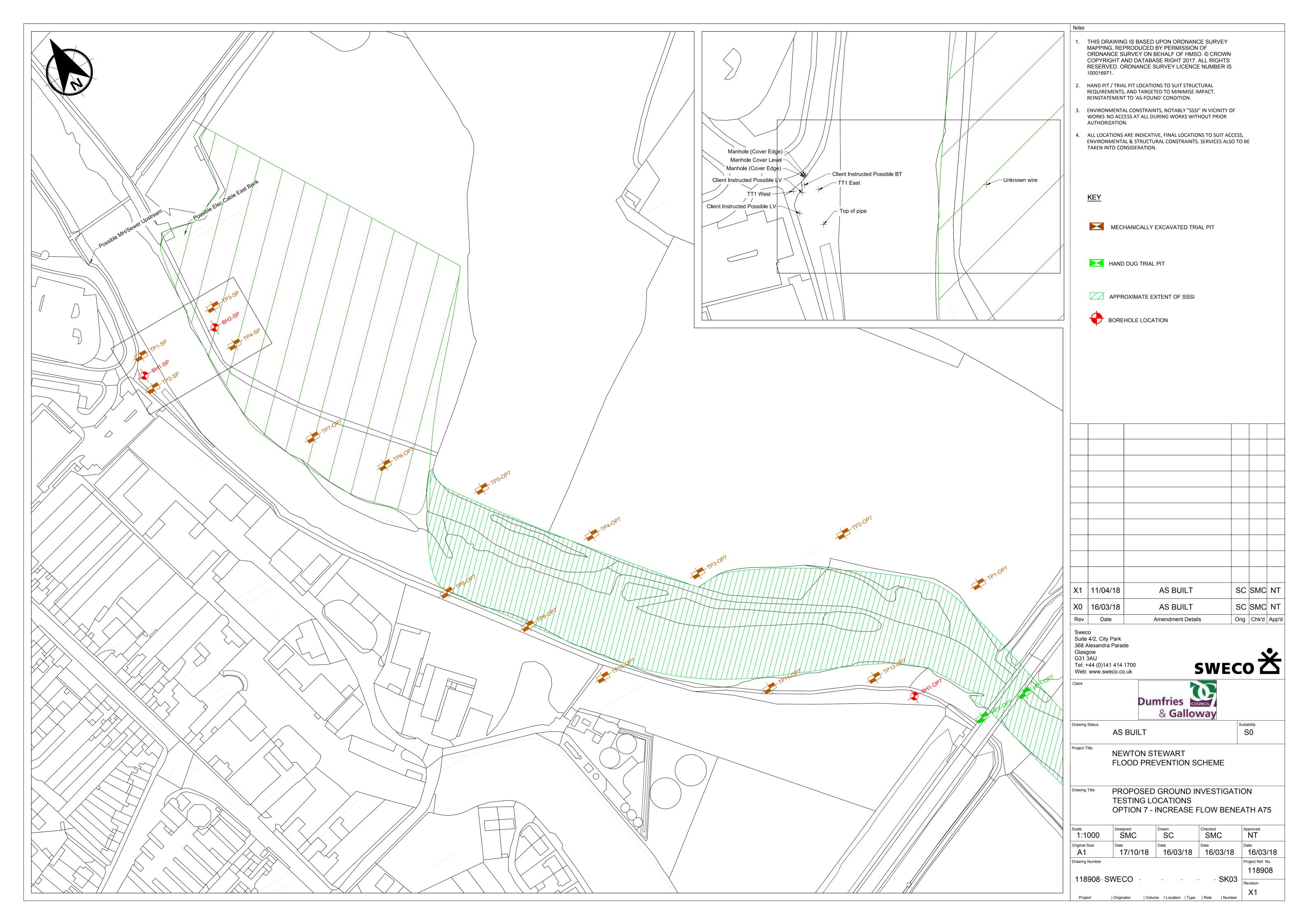
- British Standards Institution, 2015, 'Code of Practice for site investigations', BS5930:2015.
- Collinson, J. D. and Thompson, D. B., 1982, 'Sedimentary Structures', George Allen & Unwin, ISBN 0-04-552017-8.
- Dutro, J. T., Dietrich, R.V. and Foose, R.M. (eds.), 1989, '*AGI Data Sheets*', 3rd edition, American Geological Institute, ISBN 0-922152-01-2.
- Geological Society Engineering Group Working Party, 1970, 'The logging of rock cores for engineering purposes', *Quarterly Journal of Engineering Geology*, **3**, 1-24.
- Geological Society Engineering Group Working Party, 1972, 'The preparation of maps and plans in terms of engineering geology', *Quarterly Journal of Engineering Geology*, **5**, 293-382.
- Geological Society Engineering Group Working Party, 1977, 'The description of rock masses for engineering purposes', *Quarterly Journal of Engineering Geology*, **10**, 355-388.
- Hawkins, A. B. (ed.), 1986, 'Site Investigation Practice assessing BS5930, The Geological Society, ISBN 0-903317-34-6.
- Norbury, D. R., Child, G. H. & Spink, T. W., A critical review of section 8 (BS5930) soil and rock description. In Hawkins, A. B. (ed.), 1986, pp331-342.
- Rock Color Chart Committee, 1991, 'Rock Color Chart', 7th edition, The Geological Society of America.
- Tucker, M. E., 1982, '*The Field Description of Sedimentary Rocks*', The Open University Press, ISBN 0-470-27239-2.
- Weltman, A. J. and Head, J. M., 1983, 'Site Investigation Manual', Construction Industry Research and Information Association, ISBN 086017 1965.
- •West, G., 1991, 'The Field Description of Engineering Soils and Rocks', Geological Society of London Professional Handbook Series, Open University Press, ISBN 0-335-15208-2.

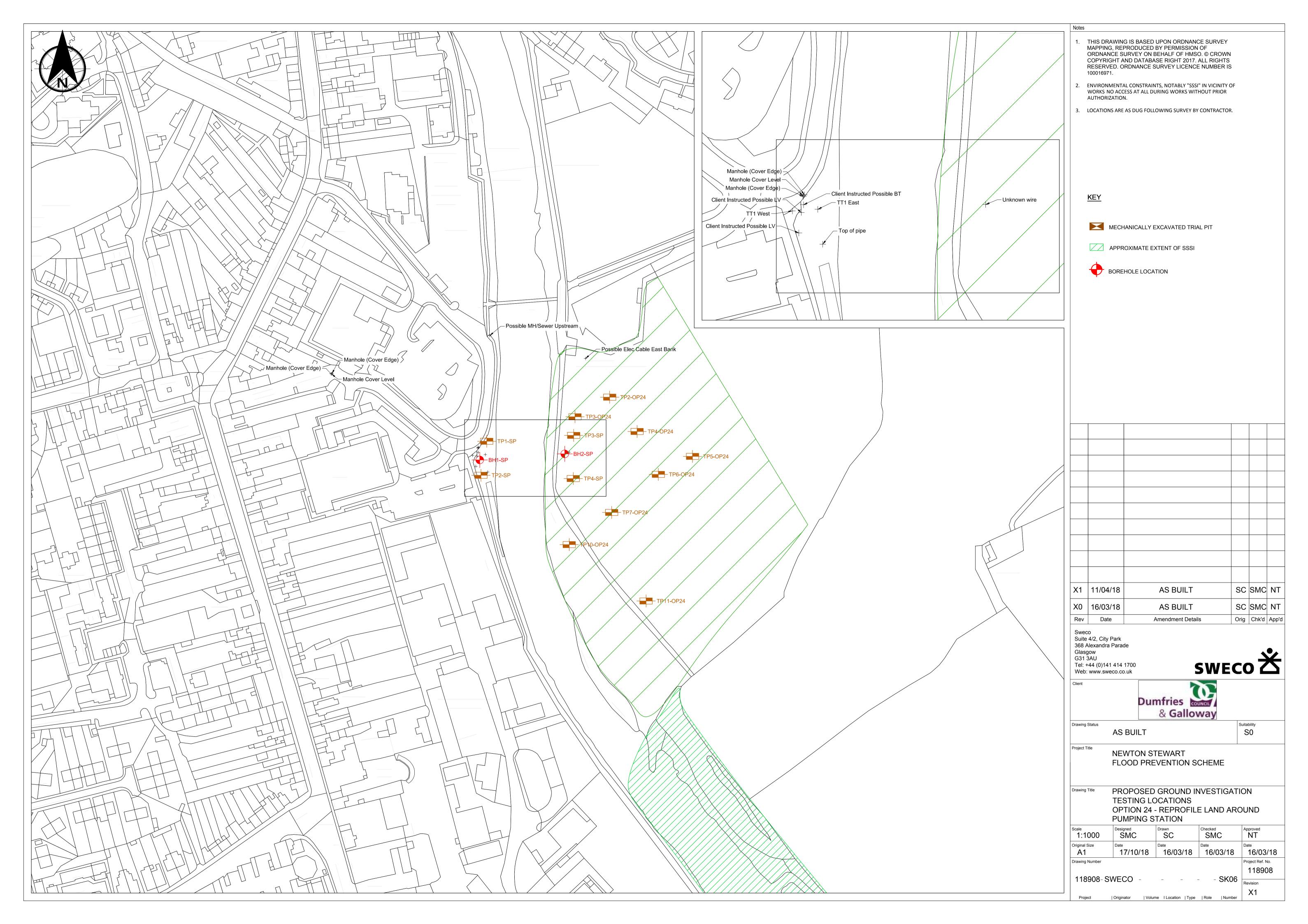
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APPENDIX II

Borehole & Trial Pit Location Plan







APPENDIX III

Borehole & Trial Pit Records



Certificate No. 642











Certificate No. 007883

Reference	Easting	Northing	Level (m ODN)
BH1-SP	241242.675	565144.772	9.238
BH2-SP	241297.315	565148.683	7.561
BH1-OP6	240948.715	566124.095	15.004
BH2-OP6	240979.611	566048.039	14.046
BH2A-OP6	240980.100	566049.300	14.050
BH3-OP6	241054.871	565871.328	10.943
BH4-OP6	241089.059	565754.690	9.570
BH5-OP6	241139.807	565580.638	9.148
BH7-OP6	241242.253	565279.550	7.992
BH8-OP6	241250.000	565099.302	9.441
BH9-OP6	241294.904	564986.199	8.464
BH11-OP6	241240.514	565493.291	8.252
BH12-OP6	241304.378	565357.366	8.308
BH13-OP6	241329.323	565279.663	8.086
BH14-OP6	241386.187	565302.529	7.311
BH1-0P7	241566.161	564717.077	5.222
HP1-OP6	241045.853	565929.231	10.294
HP1A-OP6	241045.853	565929.231	10.294
HP2-OP6	241091.033	565759.429	9.359
HP2A-OP6	241091.033	565759.429	9.359
HP3-OP6	241112.872	565673.420	9.466
HP4-OP6	241127.314	565619.723	9.201
HP5-OP6	241160.034	565559.455	8.865
HP6-OP6	241186.970	565501.284	8.626
HP7-OP6	241217.492	565432.565	8.291
HP8-OP6	241237.008	565378.291	7.833
HP9-OP6	241197.348	565665.356	9.190
HP10-OP6	241206.244	565630.228	8.650
HP11-OP6	240966.866	566108.533	12.503
HP12-OP6	240982.363	566065.922	12.101
HP1-OP7	241628.171	564683.148	4.950
HP2-OP7	241597.030	564683.017	5.248
HP-SW2	241248.149	565490.710	8.486
TP1-OP6	240964.981	566088.093	14.281
TP2-OP6	241039.300	565941.550	10.337
TP3-OP6	241068.978	565830.720	10.057
TP4-OP6	241086.670	565772.030	9.465
TP5-OP6	241245.445	565248.066	8.061

241308.983	564969.091	7.907
241256.527	565441.755	8.073
241318.366	565297.838	7.683
241344.077	565290.944	7.657
241372.562	565303.577	7.440
241092.848	565755.685	8.258
241206.617	565459.755	6.702
		9.097
		5.780
		5.780
		9.696
		6.228
		6.271
		6.625
241340.137	564926.191	6.696
241374.345	564881.438	6.386
241399.436	564828.473	6.434
241488.342	564768.460	5.872
241550.030	564740.261	5.022
241246 255	565148 237	8.903
		9.051
241200.001	300147.710	3.001
241247.132	565156.800	8.629
241243.429	565134.911	9.415
241303.050	565160.562	7.420
241302.775	565132.807	7.339
241226 202	ECE10E 120	7 07/
		7.874
		7.460
		7.935
		6.859
		7.638
		7.596
		6.652
241349.595	000034.100	7.043
	241256.527 241318.366 241344.077 241372.562 241092.848 241206.617 241638.196 241439.393 241485.955 241579.347 241393.343 241347.028 241316.121 241340.137 241374.345 241399.436 241488.342 241550.030 241246.255 241238.087 241247.132 241243.429 241303.050	241256.527 565441.755 241318.366 565297.838 241344.077 565290.944 241372.562 565303.577 241092.848 565755.685 241206.617 565459.755 241638.196 564758.480 241439.393 564911.124 241485.955 564855.483 241579.347 564830.281 241393.343 564972.471 241347.028 565017.081 241340.137 564926.191 241374.345 564881.438 241399.436 564828.473 241488.342 564768.460 241550.030 565147.0261 241247.132 565156.800 241243.429 565134.911 241303.050 565160.562 241302.775 565132.807 241343.818 565163.081 241379.457 565147.051 241357.484 565135.503 241300.177 565090.351

		H	()II	EO	UE	ST				ehole No
	-	4	LIN	\mathbf{MI}	ΓED	~ I)	Galas	hiels		1-OP6 et 1 of 2
niect N	ame									et 1 of 2 le Type
0.20					Co. orde: 240040E E66124N	e/Rotary				
illing Me	ethods:- Ro	otary op	en hole	e, Sym	etrix 17	'0mm di	iam, GL	- 5.8m		entation
	R	otary co	ored, 12	101 w	ater flu	sh, 5.8	- 10.5m			90
	& Gallowa	ау Со	uncil						Dates: 12/01/2018-23/01/2018	ged By RR / FN
					g			Legend	Stratum Description	
	. ,					0.20	14.80		MADE GROUND comprising Dark brown clayey sandy Topsoil	-
<u>. 61.</u>	0.20	ES							MADE GROUND comprising Dark brown very clayey fine to coarsand and fine to coarse rounded to subangular Gravel with low	se
	0.50	ES								
• •									slightly organic fine to coarse Sand with low cobble content	-
	1.20	SPT			2)	1.30	13.70		Soft orange brown slightly sandy gravelly silty CLAY with low	
	1.50	ES	(1,2	,·, <u>-</u> ,	-,	. -	40.5=		cobble and boulder content and rare roots (Possible Made Grour (BD from 1.6m, Non Plastic)	ıd)
						1.75	13.25	× × ×	Obstructed on boulder at approx 1.7m	
	1.60-2.70	В						× * × *	fine to coarse subrounded to angular GRAVEL with high cobble a	
								× * * *	lithologies but predominantly of grey Meta-sandstone (wacke)*	-
	2.80							* * * * *		F
		(25	for 75m	ım/50 f	or 75mi	n)		* ^ * * * * * *		-
								* * * * *		-
	2.70-4.30	В						× × × ×		-
								^		-
	4 30	ÇDT	.	N-50				× * * *		-
	4.30				or 75mi	n)		× × × ×		ļ.
								× * * *		ļ
	4.30-5.80	В						*		-
								× * × *		-
		65-		N. =:				*****	Grey META-SANDSTONE / META-SILTSTONE (wacke)*	
	5.80	(25	for 75m	N=50 m/50 f	AZCL or 75mi	5.80 n)	9.20		Weak to medium strong, laminated, thinly to medium bedded (di	,
	5.80-6.70	89	72	22	25				META-SANDSTONE with META-SILTSTONE laminae and occa beds of medium to coarse grained Meta-sandstone, variable light	
					KII				Quartz veins - sub mm to 10mm thick, slightly to moderately	3 - 7
									Set 1: 10 - 30 degrees, very closely to medium spaced,	-
	6.70-7 70	100	40	15	>50					-
				-	18				persistence observed to 200mm, terminating at intersection or in	-
									rock where seen, planar to undulating, rough, tight to partly open. Both with patchy reddish brown staining / coatings.	[
	7.70-8.30	100	42	0						-
										F
	0.00.0.10	400		^	>50					-
	8.30-9.10	100	U	U						-
										-
	9.10-9.70	100	0	0	35					-
					>50	9.75	5.25			
		TCD	SCB	DOD.		50	3.20			ļ
⊥ marks:	Hand excavate					n	1			.og Statı
	No groundwate Hard strata / sl	er encour low progr	ntered ress from	1.7 - 1.	75m (1 h	r)			11004	-
	* Denotes visu Borehole Term	al assess	sment of o	descript	tion base uction	d on air flu stalled to	ushed bore	ehole returns	HQ01 1:50	Final

		Н	0L	EQ	UE	ST	Winst	uest Ltd on Road						Boreho BH1-0	
			LI	\overline{MI}	ΈĪ)	Galasl	hiels 1896 752	205					Sheet 2	
Project N	ame	_				Pr	oject N							Hole	
	Stewart FP	S					7/082	•0.	Co	-ords:	24094	9E - 566124N		Cable/F	
	ethods:- Ro	tary or	en hol	e, Sym	etrix 1	70mm di	am, GL	- 5.8m						Orienta	
	Ro	tary co	red, T2	2101 w	ater flu	ısh, 5.8	- 10.5m		Le	evel:	15.00	m AOD		90	
Client:- Dumfries	& Gallowa	у Со	uncil						Da	ates:	12/01/	2018-23/01/201	18 B	Logge MY / RF	
ell Water		otary			EI	Depth (m)	Level	Legend				Stratum Descriptio	n		
Strikes	9.70-10.50	TCR 100	13 13 13 13 13 13 13 13 13 13 13 13 13 1	0	FI 40	10.50	4.50	Legend	with oc veins to - 30 de undulat closely termina rough,	casional o 5mm, r grees, cl ting, roug to close ating at in tight to o	light grey noderately osely to m gh, partly o ly spaced, ntersection pen.	ish grey medium grai Quartz and reddish by weathered, Discont reddium spaced, termi open. Set 2: 45 - 90 do persistence observe n or in rock where se	ined META- brown Haem inuities; Ser nation unse egrees, very ed to 350mn en, undulati	natite t 1: 10 een, v n, ing,	-12
															-1
															-1 -1 -1
															-1
lemarks:	Hand excavate No groundwate Hard strata / sl * Denotes visua	er encour ow progr	ntered ress from	ice from	75m (1 h	r)	iohe 11	hala/				SPT Hamme HQ01	r Scal		Status

		C	Н	OLEQUE LIMITEI	ST	Winst Galasi		0.5			ВІ	orehole N	6
							1896 7522	95				heet 1 of	
	ect Na		20			oject N	10.	Co-ords:	24098	0E - 566048N		Hole Type Cable	Э
		tewart FF		le percussion, 200n		7/082	0.F.m					rientation	
	_	511 10US LI	grit cab	le percussion, 2001	iiii ulaiii,	GL - 1.	55111	Level:	14.05	m AOD		90	
	nt:- nfries	& Gallow	-					Dates:	12/01/	2018		ogged By / BMY / F	
ıll	Water Strikes	Sampl Depth (m)	es & Ir	Situ Testing Results	Depth (m)	Level (m CD)	Legend			Stratum Description			
		0.10	В	riodulio	0.20	13.85		MADE GROUN	ID compris	ing Dark brown silty san	dy Topsoil		+
		0.20 0.20	B ES		0.20	13.03				sing Brown silty gravelly f ncludes Bricks and Brick		e Sand	-
		0.50 0.65	ES B		0.65	13.40			•	ing Dark grey silty grave			ł
		0.65	ES					slightly organic	Sand with	low cobble content, Incl	udes Bricks,	arse	ŀ
		1.00 1.20	ES SPT	N=50				fragements of s	Slate, Lime	Mortar and locally slight	tly Ashy.		-
		1.30	В	(2,6/50 for 5mm)	1.36	12.69		Greywacke	Cobble / b	oulder obstruction at 1.3	5m	1	1
										nd of Borehole at 1.36 m		/	F
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			Туре	Results									L
mŧ	arks:	No groundwa	ter encou		2m					SPT Hammer	Scale	Log Sta	ıtu
		Hard strata / s	slow programment or sinated or	ress from 1.35m (2 hrs)						HQ04	1:50	Final	

		H	OLI	EQ	UE	ST	Winst	uest Ltd on Road						Borehole N -12A-OI	
			LII	ľΙΜ	ED)	Galasl	niels 1896 7522	95					Sheet 1 of	
Project N	ame					Pr	oject N							Hole Type	
•	Stewart FP	S					7/082		Co-ords:	: 2	240980	E - 566049N	С	able/Rota	ıry
Orilling M		tary op	oen hole	e, Sym	etrix 17	70mm di	GL - 1.6 am, GL - 10.5m		Level:		14.05 r	n AOD	(Orientation 90	1
Client:- Dumfries	& Gallowa	·	·		<u> </u>	, 0.0			Dates:	2	22/01/2	2018-25/01/2018		Logged B IY / RR / F	-
'ell Water Strikes	Sample Depth (m)	es & In		Testing	g	Depth (m)	Level (m CD)	Legend				Stratum Description	*		
		71 -				0.20	13.85		MADE GROUN	ND	comprisi	ng Dark brown silty sa ng Brown silty gravelly	fine to coar		
						0.65	13.40		MADE GROUN	ND	comprisi	cludes Bricks and Bric	elly fine to c	oarse	-
												ow cobble content, Ind fortar and locally sligh		S,	-1
						1.60	12.45		Van danaa ara		araura aile	y very sandy fine to co		dito	-
								× * × * × * × *				to medium cobble and			-2
	1.60-2.80	В						x							-
	2.80	SPT		N=50				× × × × × × × × × × × × × × × × × × ×							-
		(6,18/25	,25 for 2	25mm)			X							-:
	2.80-4.30	В						× × × × × × ×							
								× × × × × ×							-
	4.30	SPT	,10/13,1	N=50	or Emn	,									
		(7,	,10/13,1	0,20,11	OI SIIIII	")		x							-
	4.30-5.50	В				5.10	8.95	* * * *	Grev META-SA	NI	DSTONE	/ META-SILTSTONE	,		- ;
	5.50	SPT (25	for 35m	N=50 T	arz#Mmi	5.50	8.55					dium strong, laminate		dded	-
	5.50-6.40	100	83	63	4	,			to medium grai	ine AM	d METAS MUDSTOI	rk grey, variably light g SANDSTONE, with lan NE and quartz veins lo ely weathered	ninae to very		- (
									Discontinuities; Set1; 10-30deg intersection wh	; g; v nere	ery close	to widely spaced term lanar to undulating, sn		gh,	
	6.40-7.60	100	64	49	17				terminating at it	g, v inte	ersection	to medium space, pe where seen, planar to	undulating,		- 7
										lo	cally, pat	art open, yellowish bro chy yellowish or reddis		on	-
	7.60-8.50	100	100	92	4										-8
	0.50.000		FC	F0											-
	8.50-9.00	66	56	50	NI				20mm very with 60deg			ed mudstone - fault ro t	ck, associat	ed	- 9
															-
	9.00-10.50	100	90	83	8										-
		TCR	SCR		FI						Т	Continued next sheet	1	1	<u> </u>
.emarks:	Hand excavate * Denotes visus	al asses	sment of	descripti	ion base		ushed bore	hole returns				SPT Hammer	Scale	Log Sta	ıtu
	Hard strata / sl Groundwater e				hrs)							HQ01	1:50	Fina	1

H	•	Н	ÓΓ	EQ	UE	ST	Holeq Winst Galasl	uest Ltd on Road hiels							orehole N I 2A-O l	
			LI.	MI.	EL	,		1896 752	295					S	heet 2 of	2
Project N							oject N	lo.	Co-ordo:	24	10000	E - 566049	DNI		Hole Typ	
	Stewart FF						7/082		Co-olus.	24	10900	- 500048	JIN		able/Rota	-
	lethods:- Li Ri Ri	otary op	en hol	e, Sym	etrix 17	m diam, 70mm di ısh, 5.5	am, GL	6m - 5.5m	Level:	14	l.05 n	n AOD			rientation 90	
Client:- Dumfrie:	s & Gallowa								Dates:	22	2/01/2	018-25/01/	/2018		ogged B / / RR / I	-
ell Wate Strike	r For Signature Property of the Property of th	Rotary	Corin SCR		FI	Depth (m)	Level (m CD)	Legend			(Stratum Desc	ription			
						10.50	3.55		Strong, locally v (dip 45-70 deg) to medium grail lenses of MET/50mm. Slightly Discontinuities; Set1; 10-30deg intersection whight to part ope Set2; 40-70deg terminating at it smooth to roug faces to 30mm coating to sub r	, greined fined fi	y to dan METAS DSTON oderate y close seen, pl y close ection th to pa lly, pato ill.	k grey, variably ANDSTONE, vile and quartz villy weathered to widely spacanar to undula to medium spawhere seen, plut open, yellow	y light gr with lam yeins loc ed term ting, sm ace, per anar to vish brov r reddisl	rey, fine inae to very trailly abundar inating at ooth to rough sistant to 150 undulating, wn staining c	thin It to n, Omm,	
emarks	: Hand excavate * Denotes visu	TCR ed service	e clearan	nce from	FI GL - 1.2r	m ed on air flu	ished bore	shole returns				SPT Ham	nmer	Scale	Log Sta	atu
	Hard strata / s Groundwater e Borehole term 63mm diam H	low progrence encounter inated or	ress fron red at 4.0 n engine	n 1.4m (2 0m ers instru	2 hrs) action							HQ01		1:50	Fina	ı

		H	()L	EO	IJE	ST		uest Ltd on Road					orehole N	
	-	•		$\vec{\mathbf{M}}$	ΓEΓ)	Galas		295				H3-OP heet 1 of	
oject Na	ame						roject N						Hole Type	
-	tewart FP	PS					7/082		Co-ords:	241055	5E - 565871N		able/Rota	
	ethods:- Lig	ght cab	le perc	ussion	, 150m	m diam	, GL - 3.	7m		40.5:	405		rientation	
	R	otary op	oen hol	e, Sym	etrix 17	70mm d	iam, GL - 10.5m	- 5.5m	Level:	10.94 r	n AOD		90	_
lient:- umfries	& Gallowa	•	·	-		,			Dates:	15/01/2	2018-26/01/2018		ogged By	
Water Strikes	Sample				g	Depth	Level (m CD)	Legend			Stratum Description	<u> </u>		T
Suikes	Depth (m) 0.10	Type B	F	Results		(m) 0.10	10.84	****	MADE GROUND		ng Dark brown silty sar	ndy Topsoil v	vith /	+
	0.20 0.40 0.50	ES B ES				0.40	10.54		Sand with mediur	n cobble	ng Dark grey silty grave content, Includes Brick	elly fine to co	arse /	-
	4.00								of Glass and Coa		ng Brown silty sandy lo	cally very sa	ndy fine	F
	1.00 1.20	ES		N=45					to coarse rounde	d to angu	lar Gravel with high cob lightly organic, Include:	oble content,		-
	1.20-1.65	В (11,18/2		75mm)				Coal fragments.		g, e. garne, morade.	on and		F
	1.50	ES				1.80	9.14							ŀ
	2.00	CPT		N=50			9.14	×	Very dense grey s angular GRAVEL		ty sandy fine to coarse cobble content	rounded to		F
	2.00-2.45	В (18,25/2	5,25 for	75mm)			X			•			F
								^						F
	2.90	w						× * × *						F
	3.00 3.00	CPT	(8,19/23	N=50 3.27 for	75mm\			×						ŀ
	2.00	- '	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, 101				× × × ×						ŀ
	2.80-4.40	В				3.70	7.24	× × ×	Daniel	'''	d. Carlo	de al Control		Ŧ
								× × × ×	GRAVEL with me	n silty sar edium to h	ndy fine to coarse round nigh cobble and boulder	ned to angula r content*	ar	Ŀ
								× × × × ×						ŀ
	4.40	SPT	(5.7/	N=42 8,10,10	,14)			× × × ×						F
	4.00-5.50	В	(-,-,-	, -,	. ,			× × × ×						F
						5.10	5.84							Ė
									Grey META-SAN	DSTONE	•			ŀ
	5.50	SPT (25	for 75n	N=50 nm/50 t	or 75m	5.50 m)	5.44		Weak to medium	strong, la	aminated to thickly bed	lded (dip		ŧ
	5.50-6.20	100	14	0	>50				by faulting, dark b	rownish o	rupted, locally brecciate grey to dark grey, fine to IE with light grey Quart	o medium	lly and	Ŀ
					>500			-			Moderately to highly w		ny anu	F
								-	Set1; 5-30deg,ex		lose to medium spaced lanar to undulating, sm			-
									tight to part open		close to medium space	· ·		F
	6.20-7.70	100	55	53	9				intersection wher	e seen, p	lanar to undulating, rou angish or reddish browr	igh, tight to	· ·	-
									mm fill.	•	ludstone between 6.1 -	Ü		ŀ
											ree dipping Fault.	·		F
														F
	7.70-8.70	100	23	0	>50				With laminae	of Meta-r	nudstone between 8.0	- 9.6m		-
														-
					00									ŀ
					20									-
	8.70-9.60	83	30	0	>50									-
								-						F
														F
		TCR	SCR		FI					T	Continued next sheet	Ι		ļ
marks:	Hand excavate Hard strata / s	low prog	ress from	n 1.2 - 2.	0m (2 hr:	s) and fror					SPT Hammer	Scale	Log Sta	.tı
	Water added i	in order to	o advanc	e boreho	ale throug	nh aranula	ar strata fro	m 12 - 29m	Groundwater		HQ01	1:50	1	

		H	()[.	EQ.	UE	ST	Winst	uest Ltd on Road							orehole N H3-OP	
	-	•	LI	πĭ	ĔΖ	ST	Galasl		95						n 3-OP heet 2 of	
roject Nan	me						oject N								Hole Type	
lewton Ste		S					7/082		Co-ords:	241	1055E	- 56587	'1N		able/Rota	
rilling Meth	hods:- Lig	ht cabl	e perc	ussion,	, 150m	m diam,	GL - 3.7	7 m							Prientation	•
	Rot	tary op	en hol	e, Sym	etrix 17	'0mm di	am, GL - 10.5m	- 5.5m	Level:	10.	94 m	AOD			90	
lient:-									Dates:	15/	/01/2C	18-26/01	1/2018		ogged B	
umfries &		•					1		Dates.	10/	01/20	710 20/01	1/2010	DI	F/ RR/ FN	/
Ⅱ Water Strikes □		TCR	Corin SCR		FI	Depth (m)	Level (m CD)	Legend			St	ratum Des	cription			
	0.60-10.50	100	61	28	15	10.50	0.44		Weak to mediu 60-90deg), exte by faulting, darf grained METAS laminae of Meta Discontinuities; Set1; 5-30deg, intersection wh tight to part ope Set2; 50-90deg intersection when many fault open, dark mm fill.	ensivel c brow SANDS amuds extremere seen ere seen , extre	ly disrupinish grush gru	oted, locally ey to dark gr with light gr loderately to se to mediur nar to undulate ose to medionar to undulate	brecciate rey, fine to rey Quart: o highly w m spaced ating, sm um space ating, rou ish browr	ed / sheared o medium z Veins loca eathered. I, terminating ooth to roug ed, terminati igh, tight to	lly and g at h, ng at	
W	ard strata / slo /ater added in	w progr order to	ess from advanc	ce from 1.2 - 2.0 e boreho	om (2 hr: ole throug	s) and fron	r strata froi	m (3 hrs) m 1.2 - 2.9m, (Groundwater			SPT Har HQ0		Scale 1:50	Log Sta	

			H	OLEOUF	CT		uest Ltd on Road					orehole No
			11	OLEQUE LIMITED		Galasl	niels					H4-OP
				LIMITED			1896 7522	95				Sheet 1 of 2
•	ect Na					oject N	lo.	Co-ords	241020⊏	- 565755N		Hole Type
		tewart FP				7/082		00 0103.	Z41003L	- 30373311		Rotary
rilli	ng Me			en hole, Symetrix 17 red, T2101 water flu				Level:	9.57 m A	OD		Orientation 90
liei	 ∩t:-											ogged By
un	nfries	& Gallowa	ау Со	uncil				Dates:	17/01/20	18-01/02/2018	ВМ	Y/RR/FI
ı	Water Strikes	Sample Depth (m)		Situ Testing Results	Depth (m)	Level (m CD)	Legend	1	Str	atum Description		
		0.20	ES		0.15	9.42		MADE GROUND with some roots		Dark brown to black	clayey san	dy Topsoil
		0.20 0.50 0.50	B ES B		0.40	9.17		MADE GROUND	O comprising	Black slightly organi Roots, Rootlets, As	ic silty grave h and China	elly
		0.50			0.80	8.77		MADE GROUND	O comprising	Grey mottled brown	silty fine to	coarse
• • •		1.00 1.00	ES B		1.00	8.57	XXXX\ 	cobble content, F	Predominantl [®]	lar to subangular Gi	ravel with m fragments	edium /[of
		1.30	ES		1.30	8.27	<u> </u>	Masonry, Lime M				//}
		1.30 1.30-1.75	B U					silty Clay with me	edium to coa	Soft orange brown s rse gravel sized poo o coarse Gravel as	kets of silty	y gravelly
		1.30-2.80	В					Soft orange brow	vn sandy sligl	ntly gravelly silty CL	AY	/ [
		1.30-2.80	В					Soft becoming finitermediate plas		mottled brown sand	y silty CLAY	of .
								intermediate plas	Sucity.			
			0.07									-
		2.80 2.80	SPT U	N=30 (2,6/6,6,8,10)	2.80	6.77	x × × ,			y fine to coarse rou		ular
							× * × *	No recovery			content	-
		2.80-4.20	В				× * , × *					E
		2.00-4.20					× × × ×					-
							× × ×					-
	\square	4.20	SPT	N=50	4.10	5.47	0.00	Very dense grey	gravelly cobb	oly BOULDERS, Pre	dominantly	of -
			(25	for 5mm/50 for 25mm	1)			Meta-sandstone	(wacke) but a	also include Microgr	anite and B	asalt
												-
												<u>[</u>
												-
												[
					6.00	3.57						
		5.50-6.80	В		5.00	3.37	× × × *	Very dense grey GRAVEL with his	silty sandy fir	ne to coarse rounde d boulder content*	d to angular	·
							x	;				[
		0.00	0.57	N. 50			× × × ×					-
		6.80	SPT (9	N=50 14/16,15,19 for 75mm)		* * * * * * *					E
							× × × ×					-
							× × ×					E
		6.80-8.30	В				× × × ×					-
							^					-
							× × × *					F
		8.30	SPT (11,1	N=50 4 for 25mm/50 for 50n	nm)		× × × ×					ļ
			`		-		× × ×					F
							× × ×					-
		8.30-9.80	В				* * * * * * *					Ē
							× × × ×					-
							× × ,× ,					ļ
		9.80	SPT B (9	N=50 12/15,21,14 for 50mm)		× × × ×					F
			Type	Results	,		X-7 (X) 4		Cor	tinued next sheet		-

Hand excavated service clearance from GL - 1.3m Groundwater encountered at 4.2m * Denotes visual assessment of description based on air flushed borehole returns Borehole terminated on engineers instruction 63mm diam HDPE Gas / Groundwater monitor installed to 11.0m

SPT Hammer HQ01

1:50

F		H	[0]	LEQ IMI	UE	ST	Holeq Winst Galasl	uest Ltd on Road hiels					orehole N H4-OP	
			L.	IMI.	LET)		1896 75229	5			s	heet 2 of	2
Project	t Name					Pr	oject N	lo.		044	.=		Hole Type	e
Vewto	n Stewart F	PS				17	7/082		Co-ords:	241089	9E - 565755N		Rotary	
Drilling	Methods:-	Rotary	pen h	ole, Sym	netrix 1	70mm di	iam, GL	- 11.3m	Lovoli	0 57 m	40D	0	Orientation	า
		Rotary	corea,	12101 V	vater fit	usn, 11.3	3 - 15.9n	1	Level:	9.57 m	IAOD		90	
Client:-			ou noi						Dates:	17/01/2	2018-01/02/2018		ogged By	-
	ies & Gallov				.~	- ·	T					BM	Y / RR / F	-Μ
	ater Samp ikes Depth (m)			u Testin Results		Depth (m)	Level (m CD)	Legend			Stratum Description			
	9.80-11.30)				40.00	4.00		/ery dense grey GRAVEL with hi	silty sand gh cobble	y fine to coarse rounder and boulder content*	d to angular		
						10.90	-1.33		Grey META-SAN	NDSTONE	*		,	-1
	11.30	SPT	v= 4 0	N=50	£ - 50	11.30	-1.73		Medium strong to	o strona o	greenish grey, fine to me	edium grain	ed	+
	11.30-12.0			5mm/50	ipi sum	1(1)			METASANDSTC	ONE with a	a few light grey Quartz a derately locally highly w	ind commor	n reddish	ŀ
	155 12.0	.00	"		>50			::::::	Discontinuities:	,	emely closely to closely			F
					<i>></i> 500			::::::	erminating at interminating at intermina	tersection	where seen, planar to u	undulating,		-1
	12.00-12.9	0 100	33	0				:::::::	Set 2, 40 - 90 de	grees, ext	tremely closely to closel or in rock, persistance			-
						-		::::: -		o undulati	ng, smooth commonly			-
					18				Both sets with re	ed brown o	coatings and up to 2mm t as platy, angular Grave	fill.	11.3	Ė,
	12.90-13.7	0 100	35	35					- 11.4m and			or between	11.0	-
	12.90-13.7	0 100	35	35										F
	13.70-14.7	0 100	6	0	>50				- 15.1m [*]	asandstor	ne (Fault Rock) betweer			
	14.70-15.9	0 100	62	0										-1
						15.90	-6.33			En	d of Borehole at 15.90 m			-1
														-
														-
														-1
														ŀ
														-
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														-
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														-
														-
														F
														ŀ
		TCR	SCF	R RQD	FI	-							_	E
emarl	KS: Hand excava						ushed bore				SPT Hammer	Scale	Log Sta	atu

			H	OLEQUE LIMITED	$\overline{\mathrm{ST}}$	Winst	uest Ltd on Road		Borehole No
			4	LIMITED)	Galasl	hiels 1896 752	205	Sheet 1 of 2
roi	ect Na	ame				oject N		253	Hole Type
-		tewart FP	s			7/082	10.	Co-ords: 241140E - 565581N	Rotary
		ethods:- Ro	otary op	pen hole, Symetrix 17 pred, T2101 water flu	70mm di	am, GL		Level: 9.15 m AOD	Orientation 90
	nt:- nfries	& Gallowa	ау Соі	uncil				Dates: 07/02/2018-19/02/2018	Logged By BMY / CE / FN
11	Water Strikes			Situ Testing	Depth (m)	Level (m CD)	Legend	Stratum Description	-
	Strikes	Depth (m)	Туре	Results	, ,	(- /		TARMAC	
		0.20 0.20 0.50	ES B ES		0.18 0.25	8.97 8.90		MADE GROUND comprising Pinkish brown silty rounded to angular Gravel	sandy fine to coarse
		0.50	В					MADE GROUND comprising Bluish grey slightly coarse angular to subangular Gravel with mediu	
		1.00 1.00	ES B		1.20	7.95			
		1.30	В	N=35 (9,10/8,8,10,9)				MADE GROUND comprising Bluish grey silty sa sandy with depth fine to coarse angular to subar with medium cobble content*	
		2.80	СРТ	N=50 9,11/12,8,30 for 75mm)				- - - - - - - - - - - - - - - - - - -
		2.80-4.30	В						-
		4.30	СРТ	N=45 (8,10/9,11,11,14)	4.10	5.05		Dense to very dense grey brown silty sandy fine rounded to angular GRAVEL and COBBLES*	to coarse
		4.30-5.80	В						-
		5.80	CPT (25	N=50 for 75mm/50 for 75mm	m)				-

	1.30-2.80	В									-2
	2.80	CPT (§	N=50 1,11/12,8,30 for 75mm)							-3
	2.80-4.30	В									
	4.30	СРТ	N=45 (8,10/9,11,11,14)	4.10	5.05		Dense to very dense grey rounded to angular GRAV	brown silty sandy fine to EL and COBBLES*	coarse		-4
	4.30-5.80	В									
	5.80	CPT (25	N=50 for 75mm/50 for 75mi	m)							-
	5.80-7.30	В		6.80	2.35		Dense dark brown silty gr	avelly fine to medium S/	AND*		
	7.30	СРТ	N=40 (7,8/9,9,8,14)				zonec cam zom emy go				1
	7.30-8.80	В		7.80	1.35	****** ***** ***** *****	Very dense dark grey brow to medium SAND with pos	wn to dark grey silty to ve ssible lenses of Clay tow	ery silty fine vards base.*		
	8.80	CPT (25	N=50 for 75mm/50 for 75mi	m)							
	8.80-10.30	В									
		Туре	Results					Continued next sheet		I	L
emarks:	* Denotes visu Groundwater e	al asses encounte	e clearance from GL - 1.2r sment of description base red at approx 4.1m n engineers instruction	m ed on air flu	ished bor	ehole returns	s	SPT Hammer HQ03	Scale 1:50	Log Stat	

Borehole terminated on engineers instruction 63mm diam HDPE gas / Groundwater monitor installed to 13.0m

			H	0L	EQ	UE	ST	Winst	uest Ltd on Road						Borehole 3H5-O	
				LI	MI^{γ}	ГЕІ)	Galasi Tel: 0	hiels 1896 7522	95					Sheet 2	
Projec	ct Na	me					Pr	oject N							Hole Ty	
Newto	on St	ewart FP	S					7/082		Co-ords:	241	1140E	E - 565581N		Rotary	
Drillin	g Met	thods:- Ro Ro	tary op	en hol	le, Sym 2101 w	netrix 1°	70mm d Jsh. 14.3	iam, GL 3 - 19.3n	- 14.3m n	Level:	9.1	5 m <i>F</i>	AOD		Orientati	on
Client	·•_														90 Logged	By
		& Gallowa	у Со	uncil						Dates:	07/0	02/20)18-19/02/2018	ВМ	лу / СЕ /	
	Vater trikes	Sample	s & Ir			ıg	Depth (m)	Level (m CD)	Legend			St	tratum Description			
	likes	Depth (m)	Туре	ŀ	Results		(111)	(III CD)	XXXX	Very dense dar	k grey	brown	to dark grey silty to v	ery silty fin	e	-
		10.30	CPT (25	for 75r	N=50 nm/50 f	for 75m	10.30 m)	-1.15		to medium SAN Grey sandy silty			ble lenses of Clay to	wards base	e.*	\dashv
			,							(BD from 10.3n			c)			-
		10.30-11.80	В													-1
			_													-
																-
																F
																-1 -
		11.80-13.30	В													-
		11.60-13.30	Ь													-
)																-1
																-
							13.50	-4.35		Grey META-SA	NDST	ONE /	META-SILTSTONE*			_
	1	13.30-14.30	В													-1
							14.30	-5.15								₫,
						20	14.30	-5.15		METASANDST	ONE v	with ma	t grey, fine to coarse any discontinuous ge	ntle and st	eep dipping	Ė
	1	14.30-15.10	88	45	15	>50				Discontinuities		Ū	ly, locally moderately			ŀ
										intersection wh	extrem ere se	en, pla	se to medium space nar to undulating, sm	o, termination	ugh,	-1
										tight to open. Set2; 60-90deg 300mm, termin	, very o	close to	o medium spaced, pe section where seen, p	ersistant to		F
		15.10-16.40	85	81	50	14				undulating, smo	ooth to	rough,	tight to partly open. own and brown coati			F
		10.10 10.10	00	01							,			9-		-1
							_									-
						30										-
																Ė
	1	16.40-17.90	97	77	44	10										-1
																-
																ŀ
						1										-1
																ŀ
	1	17.90-19.20	100	92	78											ŀ
																f,
]	10.00	40.45								-1
							19.30	-10.15				End o	of Borehole at 19.30 m			-
																ţ
			TCR	SCR	RQD	FI										
ema		Hand excavated * Denotes visua	d service	clearan	nce from	GL - 1.2		ushed borr	hole returns				SPT Hammer	Scale	Log S	tatu
		Groundwater ei	ncounte	red at ap		m	ou on all III	aanau DUIt	more retuills				HQ03	1:50	_	

	C	H	OLEQUE:	ST	Winst Galasi		В	Borehole No B H7-OP6
						1896 752		Sheet 1 of 2
oject Na ewton S	ame tewart FP	S			oject N 7/082	lo.	Co-ords: 241242E - 565280N	Hole Type Rotary
illing Me	ethods:- Ro Ro	otary op otary co	oen hole, Symetrix 17 ored, T2101 water flu	0mm di sh, 11.8	iam, GL 3 - 17.5n	- 11.8m n	Level: 7.99 m AOD	Orientation 90
ient:- umfries	& Gallowa	ау Со	uncil				Dates: 12/01/2018-17/01/2018	Logged By CE / FM
Water Strikes	Sample Depth (m)		Results	Depth (m)	Level (m CD)	Legend	Stratum Description	
	Deptii (iii)	Туре	resuits	0.15	7.84		TARMAC	
<u>A</u>	0.30	ES		0.20 0.25	7.79 7.74		CONCRETE	
	0.50 0.50	ES B		0.35	7.64	$\otimes \otimes $	TARMAC	/ ŧ
	0.00			0.80	7.19		MADE GROUND comprising Brown slightly silty fine to coars and fine to coarse rounded to subangular Gravel	e Sand
	1.00 1.00	ES B				 	MADE GROUND comprising Brown silty very sandy fine to co	parse /-
	1.30	SPT	N=28				rounded to angular Gravel with high cobble content, Includes Bricks, Roots (up to 30mm diam), and fine Coal fragments.	
			(4,6/7,7,6,8)				MADE GROUND comprising Brown silty fine to coarse Sand	and fine
							to coarse rounded to subangular Gravel with low cobble cont Includes rare fine to medium gravel of Masonry and Coal.*	
	1.30-2.80	В					mode rate into te modalin graver or masonly and coan.	-:
				2.40	5.59			
				2.40	3.39		Soft locally very soft grey locally gravelly silty CLAY* (BD from 2.8m, Non Plastic)	-
						<u> </u>	70% Recovery of U80 at 2.8m	-
	2.80-3.80	U				<u> </u>		F
	2.80-4.30	В						
	3.80	SPT	N=13					-
			(1,2/2,3,4,4)	4.10	3.89			
	4.30	SPT	N=24	4.10	3.03	× × × ×	Medium dense to very dense with depth grey silty very sandy to coarse rounded to subangular GRAVEL with low to mediu:	fine m
			(5,6/5,6,7,6)			× × ×	cobble content after approx 5.1m, Gravel and cobbles of mix lithologies.*	∍d
						× × × ×	nu lologies.	
	4.30-5.80	В				× × ×		<u> </u>
						× × ×		-
						× × ×		ŧ
	5.80	CPT	N=50			××××		
			(10,11/50 for 75mm)			× × ×		-
						× × × ×		Ę
	5.80-7.30	В				× × × ×		ļ
		-				× × ×		Ē
						× × ×		-
	7.30	CPT	N=50			× × ×		F
			for 75mm/50 for 75mm	n)		x * x *		-
						× × × *		Ē
	7.30-8.80	В				× × ×		-
	0.50	-		8.20	-0.21	<u>-</u>	Soft grey CLAY of intermediate plasticity with closely spaced	
							silty partings*	ļ
	8.80	SPT	N=9			 		F
	3.00]	(2,2/2,2,2,3)			E-E-E	No recovery of U80 between 8.8 - 9.8m	
	8.80-9.80	U				====		E
	8.80-10.30	В						[
	0.00-10.30							ļ
		T: :	Deside					Į.
marke:	Hand average	Type	Results clearance from GL - 1.2m		1	1	CONTINUED THE SCORE	1 6 5 01 - 1
	* Denotes visu Groundwater e	al asses:	sment of description based	d on air fl	ushed bore	ehole returns	SPT Hammer Scale HQ03 1:50	Log Statu
	Borehole termi						HQ03 1:50	Final

Н		H	OLI LIN	EQ	UE	ST	Winst Galasl			Borehole No BH7-OP6
			1111	VII I	لانت			1896 752	295	Sheet 2 of 2
Project N							oject N	lo.	Co-ords: 241242E - 565280N	Hole Type
	tewart FP						7/082		00 01d3. 241242L - 3002001V	Rotary
Drilling Me	ethods:- Ro						am, GL 3 - 17.5m		Level: 7.99 m AOD	Orientation
	NO.	nary co	ileu, iz	.101 W	alei IIu	1511, 11.0	5 - 17.511	'	Level. 7.99 III AOD	90
Client:- Dumfries	& Gallowa	у Со	uncil						Dates: 12/01/2018-17/01/2018	Logged By CE / FM
Vell Water Strikes	Sample Depth (m)	Type		esting esults	g	Depth (m)	Level (m CD)	Legend	Stratum Description	
	Dopar (III)	Турс	10	Courto		. ,	,		Soft grey CLAY of intermediate plasticity with closely space	ed -
	10.30	SPT		N=46 0,11,11	1,14)	10.30	-2.31		silty partings* Dense brown silty sandy fine to coarse rounded to angular with low cobble content*	GRAVEL .
	10.30-11.80	В								-1 -1 -
	11.80	SPT (25	for 75m	N=50 nm/50 f 0	or 75mı NI	11.60 11.80 m)	-3.61 -3.81	33335	Reddish brown META-SANDSTONE (wacke)*Unstable conditions encountered between approx 11.6 - Additional casing installed	- 13.3m
	11.80-12.40	B 83	0	U	AZCL	12.40	-4.41		Strong, dark purplish grey veined light greenish / pinkish gr fine to coarse grained META-SANDSTONE (wacke) with s 15mm thick Quartz veins, slightly weathered, Recovered Non-intact as gravel to cobble sized fragments.	
		00				13.30	-5.31		Reddish brown META-SANDSTONE (wacke)*	-1
	13.30-13.90	100	42	0	NI 25 NI	10.00	0.01		Strong, dark purplish grey, fine to coarse grained META-SANDSTONE (wacke) with sub mm to 15mm thick to pinkish grey Quartz veins, slightly weathered. Discontinuities;	light greenish
	13.90-15.00	100	41	18	25 >50	14.35 14.55	-6.36 -6.56		Set 1: 0 - 30 degrees, very closely to closely spaced, terminating at intersection where seen, planar to undulating rough, tight to partly open. Set 2: 45 - 90 degrees, very closely to closely spaced, persistance observed to 200mm, terminating at intersection rock, planar to undulating, smooth to rough, tight to partly open. Both sets with dark purplish brown staining.	
	15.00-16.10	86	56	0	AZCL	15.20 15.25	-7.21 -7.26		Soft to extremely weak, foliated (dip approx 70 degrees), purplish brown, FAULT ROCK including light pinkish grey (veins in top 100mm, highly to completely weathered, Top surface dips approx 60 degrees, Bottom surface dips a 25 degrees. Discontinuities in random orientations in top 100mm below	approx
									commonly extremely closely spaced, parallel to fabric. Weak to strong, thinly to medium bedded, weakly foliated (dipping 30 - 45 degrees) and brecciated, dark greensih to purplish grey mottled dark purplish brown, fine to medium	/ -1
	16.10-17.50	100	24	8	>50				grained META-SANDSTONE and subordinate META-SILT: light grey Veins, moderately to highly weathered. Discontinuities, extremely closely spaced in random orientations, terminating at intersection where seen, undulating, rough, tight to open. Lost flush water returns after approx 15.0m	STONE, with
						17.50	-9.51		Firm, dark purplish brown, crushed FAULT ROCK Weak to strong, thinly to medium bedded, weakly foliated (dipping 30 - 45 degrees), dark greensih to purplish grey mottled dark purplish brown, fine to medium grained META-SANDSTONE and subordinate META-SILTSTONE Veins, moderately to highly weathered. Discontinuities;	with light grey
									Set 1: 0 - 45 degrees, extremely closely to closely spaced, terminating at intersection where seen, planer to undulating rough to smooth, occasionally with crushed Siltstone fill to 20mm thick. Set 2: 50 - 90 degrees, very closely to medium spaced, persistance observed to 150mm, terminating at intersection rock where seen, planar to undulating, rough to smooth, tig to partly open.	n or in
									End of Borehole at 17.50 m	-
Domor!:-:		TCR	SCR		FI		L		1 1	1.
cemarks:	Hand excavated * Denotes visua Groundwater el Borehole termin	al assess ncounter nated on	sment of or red at 4.1 engineer	descript m rs instru	tion base action	m ed on air flu		hole returns	SPT Hammer Scale HQ03 1:50	

			H	OLFOUR	ST	Holeq	uest Ltd				Borehole No
			11	TIMITED		Galasl	niels				SH8-OP6
								295			Sheet 1 of 2
	ject Na		_			-	lo.	Co-ords: 24	11250E - 565099N		Hole Type
											Rotary Orientation
rII	ling ivie	et noas:- Ro Ro	otary op otary co	oen hole, Symetrix 17 ored, T2101 water flu	'0mm di sh, 10.3	iam, GL 3 - 15.2m	- 10.3m า	Level: 9.	44 m AOD	'	90
lic	ent:-										Logged By
		atewart FPS 17/082 ethods:- Rotary open hole, Symetrix 170mm diam, GL - 10 Rotary cored, T2101 water flush, 10.3 - 15.2m & Galloway Council Samples & In Situ Testing Depth Level				Dates: 16	6/01/2018-15/02/201	ρ Ι	T / CE / FM		
II	Water		-		Depth	Level	II				1 / CL / I W
	Strikes				(m)	, ,	Legend	TARMAC	Stratum Description	1	
		0.30	В					MADE GROUND co	omprising Light grey slightly	silty sandy fir	ne to
		0.30	ES			1	*******		to angular Gravel (Sub-Bas		
							\mathbb{Z}	fine to coarse Sand	omprising Black silty gravelly (possibly slightly organic), I		elly /[-
						-			Ash and Coal debris.	<i>c</i>	
					1.20	8.24		slightly organic San	omprising Grey silty gravelly d, Includes fragments of Bri		· /[
				(∠,4/3,∠,∠,3)			\\	debrisBecoming brown	n in colour between 0.6 - 0.7	m .	//‡
							 		omprising Brown silty very groobble content, Includes Bri		nonte / F
		1.30-2.80	В					of Brick / Clay Pipe.		uns and magn	
									omprising Loose to medium Sand and fine to coarse ang		rey brown
									with lenses of very clayey Sa		y [
		2.80	SPT								-
											-
		0.00.4.00	_								-
	\subseteq	2.80-4.30	В		2 00	E 64					-
					3.00	3.04	× × × ×		e greyish brown becoming o dy fine to coarse rounded su		
		4.30	CPT	N=48			× * * *	with low cobble and		3	-
							× × . ×				-
							× × × ×				-
		4.30-5.80	В				* * * *				-
							× × × ×				Ė
							× × × ×				-
		5.80			n)		× × ×				-
			(20	.5. 75	,		X				<u>-</u>
							x				-
		5.80-7.30	В				x				Ę
							^```x^`X X`X`X				-
		7 20	СБТ	N-50	7 20	214	× × ×				
		1.30	OPI		1.30	2.14			h brown very clayey sandy fi r GRAVEL with low cobble a		ontent*
									332310		
	:]	7.30-8.80	В								-
											-
		8.80									-
			(25	tor 75mm/50 for 75mr	n)						-
					9.30	0.14		Very dense grey bro	own slightly silty gravelly CO	BBLES with I	ow
		8.80-10.30	В				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	boulder content pred	dominantly of Meta-sandsto	ne (wacke)*	
	:										-
	1		Туре	Results					Continued next sheet		-

Remarks: Hand excavated service clearance from GL - 1.2m
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater encountered at 3.8m
Borehole terminated on engineers instruction
63mm diam HDPE Gas / groundwater monitor installed to 10.0m

SPT Hammer HQ03

Scale Log Status 1:50 Final

		Н	$0\overline{L}$	EQ	UĒ	ST	Winst	uest Ltd on Road						rehole N	
			LI	Μľ	CEL)	Galasl	niels 1896 7522	95					neet 2 of	
roject N	lame					P	roject N							lole Typ	
-	Stewart FP	S					7/082		Co-ords:	2412	50E - 565099N			Rotary	
rilling M	lethods:- Ro	tary op	en hol	le, Sym	etrix 1	70mm d	iam, GL	- 10.3m						rientatio	n
	Ro	tary co	ored, T	2101 w	ater flu	ush, 10.	3 - 15.2m	1	Level:	9.44	m AOD			90	
lient:-									Detec	40/04	1/0040 45/00/0	24.0	L	ogged B	у
umfries	S & Galloway Council Samples & In Situ Testing			Dates:	16/0	1/2018-15/02/20	J18	MT	/ CE / F	M					
II Water Strikes					g		Level (m CD)	Legend			Stratum Descrip	tion			
	2 op ()	. , , , ,		toounto			-0.56		Grey META-SA	NDSTO	NE / META-SILTSTO	NE*			
		CPT (25	for 75r	N=50 nm/50 f	or 75m	10.30 m)	-0.86		Strong to mediu	ım stron	g, locally weak, thick	ly bedded (dip		-
	10.30-10.80	80_	70	20]''			to medium grain	ned MET	own locally mottled grassANDSTONE, with	n subordina	ate		ŀ
					7				METASILTSTC Slightly to mode		h occasional light gre eathered.	ey quartz ve	eins to 1	15mm.	<u> </u>
					,				Discontinuities. Set1; 0-35deg,	close to	medium sapced, teri	minating at			- 1
	10.80-12.10	85	72	59					intersection who tight to partly or	ere seen	, planar to undulating	g, smooth to	o rough	١,	
						-			Set2; 60-90deg	, extreme	ely close to medium ntersection where se	spaced, pe en, planar	rsistant to	to	-
									undulating, smo	oth to ro	ough, tight to open. dark brown coatings.	•			-
		2.10-13.70 94 62 50 15 3.70-15.20 100 82 61					J.				Ė				
		30-10.80 80 70 75 mm/50 for 75 mm) -0.85 30-10.80 80 70 70 mm) -0.86 30 70 70 mm/50 for 75 mm) -0.86 31 mm/50 for 75 mm/50 for 75 mm) -0.86 31 mm/50 for 75								-					
										-					
	12.10-13.70										Ė				
											-				
										ŀ					
															-
															-
															ŀ
	13.70-15.20	100	82	61											-
															-
						15.20	-5.76								<u>'</u>
						10.20	0.70				End of Borehole at 15.20) m			-
															F
															Ė,
															ŀ
															-
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															ŧ
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		15.20								-					
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															F
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.m = :-!	<u> </u>		SCR		FI									_	\bot
marks	* Denotes visus	al asses	sment of	f descript	GL - 1.2	m ed on air fl	ushed bore	hole returns			SPT Hamm	er So	cale	Log Sta	atu
	Groundwater e			8m ers instru	ıction						HQ03	1	:50	Fina	ı

			H	OLEQUE LIMITED	ST		uest Ltd on Road		Borehole No
			4	LIMITED))	Galasl	hiels		3H9-OP6
.	oot Na	200.0					1896 7522	95	Sheet 1 of 2 Hole Type
-	ect Na	ame tewart FP	20			oject N 7/082	10.	Co-ords: 241295E - 564986N	Cable/Rotary
				pen hole, Symetrix 17			- 12 4m		Orientation
		Ro	otary co	ored, T2101 water flu	ish, 12.4	1 - 17.4m	1 2.7111	Level: 8.46 m AOD	90
-	nt:- nfries	& Gallowa	ау Со	uncil				Dates: 17/01/2018-12/02/2018	Logged By IT / CE / FM
I	Water Strikes	Sample Depth (m)	es & In Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description	
		0.20	ES		0.10	8.36		TARMAC	
		0.30 0.50	B ES		0.30	8.16		MADE GROUND comprising Grey slightly silty sandy fine to subrounded to angular Gravel (Sub-base)	coarse
		0.50	E9					Firm locally soft grey mottled brown and rarely black slightly sandy silty CLAY of very high plasticity with occasional lens	y
	3	1.00	ES					of silty Sand and pockets of organic debris.	es [
					1.20	7.26		Firm grey mottled brown and rarely black slightly sandy silty	
]	1.30-1.75	U					CLAY with occasional lenses of silty Sand and pockets of o debris*	rganic
									-
		1.30-2.80	В		0.00	0.00			-
					2.20	6.26		Very dense dark brown to light brown silty to very silty fine to coarse SAND and fine to coarse rounded to angular GRAVI	
								includes fragments of timber / organic debris and occasional rootlets*	
		2.80	SPT	N=50 for 75mm/50 for 75mi	m)			Tooliets	-
	_		(20		,				
					2.50	4.06			-
::		2.80-4.30	В		3.50	4.96	× * . * *	Very dense light brown slightly silty sandy fine to coarse rounded to angular GRAVEL with low to high cobble and bo	oulder
							× * × *	content*	-
		4.20	CDT	N FO			X		-
		4.30	SPT (25	N=50 for 75mm/50 for 75mi	m)		× × ×		-
							× × ×		Ē
		4.30-5.80	В				× × ×		-
]	0.00	-				* * * * * * * *		ļ
	!						× × ×		-
		5.80	CPT	N=50			× × × ×		[
]		(1	10,12/24,26 for 75mm)			^		-
							x * * *		-
		5.80-7.30	В				× × × ×		
]						X		-
							× × × ×		-
]	7.30	CPT (0	N=50	.\		× × × ×		-
			(9	,12/13,12,25 for 75mm	')		X		-
							* * * * * * * *		ļ
	!	7.30-8.80	В				× * × *		-
							× × × × ×		-
]						^ · · · · · · · · · · · · · · · · · · ·		Ē
: :	1	8.80	SPT	N=36 (9,9/10,8,7,11)	8.80	-0.34	X 2	Dense to very dense dark brown to brownish grey silty very fine to coarse GRAVEL with low to high cobble and boulder	sandy

В

Туре

8.80-10.30

Remarks: Hand excavated service clearance from GL - 1.2m

* Denotes visual assessment of description based on air flushed borehole returns
Groundwater encountered at 3.0m
Borehole terminated on engineers instruction
63mm diam HDPE Gas / groundwater monitor installed to 10.0m

Results

SPT Hammer HQ03

Continued next sheet

Dense to very dense dark brown to brownish grey silty very sandy fine to coarse GRAVEL with low to high cobble and boulder content*

Scale 1:50

Log Status Final

		H	0L	EQ	UE	ST	Winst	uest Ltd on Road					orehole N H9-OP	
		•	LI	\overline{M}	ΓĔΙ)	Galasl	niels 1896 7522)5				heet 2 of	
roject N	ame	-				Pr	oject N						Hole Type	
•	Stewart FP	S					7/082		Co-ords:	241295	5E - 564986N		able/Rota	
rilling Mo	ethods:- Ro	tary op	oen hol	le, Sym	netrix 1	70mm di	iam, GL 1 - 17.4n	- 12.4m	Level:	8.46 m	AOD	(Orientation	1
	RO	nary co	orea, 12	2101 V	vater nt	JSN, 12.4	+ - 17.411	1	Level.	0.40 111	AOD		90	
lient:- umfries	& Gallowa	ıv Co	uncil						Dates:	17/01/2	2018-12/02/2018		Logged By	
Water	Sample			Testin	ıq	Depth	Level					IVII	/ CE / FI	VI T
Strikes		Туре		Results		(m)	(m CD)	Legend	Dansa ta yary dar		Stratum Description prown to brownish grey	eilty vory ea	andy	╀
	10.30	SPT (25	for 75r	N=50 mm/50	for 75m	m) 10.80	-2.34		ine to coarse GR content*	RAVEL wit	th low to high cobble an	d boulder		
	10.30-11.80	В							Grey META-SAN	DSTONE	/ META-SILTSTONE*			
	11.80	SPT (25	for 75r	N=50 mm/50	for 75m	,								
					AZCL	12.40	-3.94		occasionally red, sparse light greer	fine to co nish and p	60 degrees), dark reddis arse grained METASAI binkish grey quartz vein	NDSTONE '	with	Ī
14.00 15.50					NII.				modertely to high Discontinuities:	•		امانین	a d	-
	12.40-14.00	63	38	16	INI			::::: -		ersection	es, extremely closely to where seen, planar to u		ed,	-
									Set 2; dipping 45	- 90 degr	ees, extremely closely t ved to 220mm, termina	to closely		-
	10.30-11.80 B 11.80 SPT N=50 (25 for 75mm/50 for 75mm) 12.40 -3.94 So Sign Process So Sign P						::::::	ntersection or in Both sets with da	rock, und ark reddish	ulating, rough, tight to on brown coatings / stain	ppen. s.		È.	
		Recovered No Cobbles betw		as angular to subround - 13.3m	ded Gravel a	and	F							
		A2CL 12.40 -3.94							-					
	14.00-15.50									Ė.				
								-	Extremely wea	ak to med STONE be	lium strong, variably breetween 15.0 - 16.5m	ecciated		-
														E
														E
	15.50-16.50	100	16	0	>50									E.
														[
	16.50-17.40	94	82	38	20									-
						17 40	-8 94							-
							0.54			End	d of Borehole at 17.40 m			-
				-										
														ŀ
														-
														-
														-
														-
														ŀ
		TCR	SCR	RQD	FI									-
marks:	Hand excavate * Denotes visua	d service	e clearan	nce from			ished bore	hole returns			SPT Hammer	Scale	Log Sta	ıtu
	Groundwater e		red at 3.	0m	uction	on an ill					HQ03	1:50	Final	

			H	OLEGIIE	ST		uest Ltd on Road		Borehole N	
			11	OLEQUE LIMITED) NI	Galas	hiels	205	BH11-OF	
							1896 752	295	Sheet 1 of	
Project						oject N	10.	Co-ords: 241241E - 565493N	Hole Type)
		tewart FP		pen hole, Symetrix 17		7/082	40.0		Rotary Orientation	
		Ro	otary of	ored, T2101 water flu	ish, 13.3	3 - 17.8n	- 13.3III N	Level: 8.25 m AOD	90	
Client:- Dumfri		& Gallowa	ay Co	uncil				Dates: 25/01/2018-02/02/2018	Logged By MT / CE / FN	
Wa Wa	ater	Sample	es & Ir	Situ Testing	Depth	Level (m CD)	Legend	Stratum Description	IWIT / OL / IT	
Stri	ikes	Depth (m)	Туре	Results	(m)	(m CD)	20g0:::0	Dark brown clayey very sandy gravelly TOPSOIL with	ow cobble	├
<u> </u>		0.20 0.20	B ES					content and occasional medium to coarse gravel size grey mottled orange firm silty Clay	d pockets of	-
		0.50	ES							ŀ
		0.90	В		0.90	7.35		District Control of Co	ID 201.1	-
		1.00	ES		1.20	7.05	75.50	Black very clayey gravelly fine to medium organic SAN cobble content	ID with low	-1
		1.30	SPT	N=11 (1,1/1,2,3,5)	1.20	7.00	XX XX	Medium dense dark brown very silty gravelly fine to co (possibly slightly organic)*	arse SAND	-
				, , , , , ,			X, X, X	(possibly slightly organic)		F
			_				X			-2
		1.30-2.80	В				XXXX			-
							XX			ŀ
							X. X. X			-
							X X X X			-3
					3.10	5.15	3×1×-X	Firm light grey brown slightly sandy slightly gravelly sil	ty	ţ,
			l _					CLAY*		Ė
		2.80-4.30	В		3.70	4.55		Madium dance to dence gravials brown alove, fine to	Saras CAND	-
								Medium dense to dense greyish brown clayey fine to cand fine to coarse rounded to subangular GRAVEL inc	cludes	Ę
		4.00	CDT	N. OC				possible thin lenses of Clay*		ŀ
		4.30	SPT	N=26 (6,7/6,7,7,6)						
										-
		400 500								Ę
		4.30-5.80	В							ţ,
										F
		5.80	SPT	N=40						-
		0.00	371	(8,9/10,9,10,11)						-6
-	\subseteq				6.20	2.05		Very dense grey silty sandy fine to coarse rounded to	subangular	‡
		5.80-7.30	В				* * * *	GRAVEL with low cobble and boulder content*	Jasangulai	-
		0.00-1.30					× × × *			-
							× × × *			-7
		7.30	SPT	N=50			× × ×			-
		7.00		(10,11/50 for 75mm)			× × ×			-
							× × × ×			Ė
		7.30-8.80	В				× × ×			- 8
		7.50-0.00					× * × *			Ė
							× × ×			Ē
		0.00	0.5-	N 50			* . * *			ŀ
		8.80	SPT	N=50 for 75mm/50 for 75m	 /		(1) (1) X			ţ

		8.80	SPT (25	N=50 for 75mm/50 for 75mi	m)	× × × × × × × × × × × × × × × × × × ×						- 9 July 100 03
		8.80-10.30	B	Results		X X X X X X X X X X X X X X X X X X X			Continued next sheet			Sendard Borehole Log v2 dated 2:
Rem	arks:	* Denotes visua Groundwater e Borehole termi	d service al asses ncounter nated or	e clearance from GL - 1.2r sment of description base	d on air flu	hole retur	ns		SPT Hammer HQ03	Scale 1:50	Log Stat	SN: HOMBBASE 3.1 (BM 426.72)

		H	OLE(UE	ST	Winst	uest Ltd on Road				orehole No	
			LIMI	TED)	Galasl	niels 1896 7522	295			heet 2 of 2	
Project N	ame Stewart FP	<u> </u>				oject N		Co-ords: 24124	1E - 565493N		Hole Type Rotary	
	ethods:- Ro	tary op	pen hole, Sy pred, T2101	metrix 17 water flu	70mm di	iam, GL	- 13.3m 1	Level: 8.25 n	n AOD	С	rientation 90	l
Client:- Dumfries	& Gallowa	у Со	uncil					Dates: 25/01/	2018-02/02/2018		ogged By	
'ell Water Strikes			Situ Test		Depth	Level (m CD)	Legend		Stratum Description	1	, 52,	
Surves	Depth (m) 10.30	SPT (25	Resul N=5r for 75mm/5r)	(m) m)	(III CD)	× × × × × × × × × × × × × × × × × × ×	Very dense grey silty sand GRAVEL with low cobble	dy fine to coarse rounded	d to subangu	ılar	-
	10.30-11.80	В										-1
	11.80	`	N=50 for 75mm/50		m) 12.40	-4.15		Grey META-SANDSTONI	F / META-SII TSTONE*			-1
	11.80-13.30	В							z / Mz i / O Z i O i O i Z			- - -1
	13.30	·	N=50 for 75mm/50	0 for 75mi >50	13.30 m)	-5.05		Strong, locally medium st 30-50deg), dark grey, fine occasional metamudston- pinkish grey quartz / haen moderatley weathered.	e to medium grained MET e laminae and light gree	FASANDSTO	ONE with	- - - - -
	13.30-14.80	0-14.80 83 53 30 26 >50 O-16.30 100 87 72		Discontinuities. Set1; 5-30deg, very close intersection where seen, tight to part open. Set2; 40-90deg, very clos terminating at intersectior rough, tight to part open. coating occassional sub r	planar to undulating, smooth e to close spaced, persion, planar to undulating, s Patchy orangish or reddi	ooth to rough stent to 200r mooth to						
	14.80-16.30	100	87 72	14								1
	16.30-17.80	97	69 42	>50								-1
				22	17.80	-9.55		Eı	nd of Borehole at 17.80 m			-1:
												- - - -1
			SCR RQE									
lemarks:	Hand excavate * Denotes visua Groundwater e Borehole termi 63mm diam HI	al asses: ncounte nated or	sment of descr red at 6.2m rengineers ins	ription base truction	d on air fl		hole returns		SPT Hammer HQ03	Scale 1:50	Log Stat	tu

			H	OLEGIIE	ST	Holeq Winst	uest Ltd on Road					orehole No
			11	OLEQUE LIMITED		Galasl	hiels	\~				112-OP
:	t NI						1896 75229)5 				heet 1 of 2
-	ect Na	ame tewart FP	9			oject N 7/082	10.	Co-ords:	24130	4E - 565357N		Hole Type Rotary
				en hole, Symetrix 17			- 13.9m				0	rientation
		Ro	tary co	ored, T2101 water flu	sh, 13.9	9 - 18.8n	1	Level:	8.31 m	AOD		90
	nt:-							Б.	40/04/	2010 10/00/0010	L	ogged By
un	nfries	& Gallowa						Dates:	18/01/2	2018-12/02/2018	BM	//RR/F
II	Water Strikes	Sample Depth (m)	es & In Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend			Stratum Description		
		0.20	ES		0.20	8.11		Dark brown silty	sandy TC	PSOIL with some rootler content	ets and low t	0
		0.20 0.50	B ES				× × × ×	Grey brown loc	ally slightly	organic at top clayey s	andy fine to	
		0.50	В					coarse rounded content	l to subrou	nded GRAVEL with high	h cobble and	boulder
•		1.00	ES				× • • •					-
	$ \nabla $	1.00 1.30	B SPT	N=50	1.20	7.11	×××	Very dense bec	oming med	dium dense with depth	grey silty very	,
			(6,19	for 50mm/31,19 for 25	mm)		× × × ×	sandy fine to co nedium cobble	arse round and bould	led to subangular GRA er content*	VEL with low	to
							× × × ×					ļ
		1.30-2.80	В				× × × × ×					ŀ
							x					-
							* * * * * * *					[
		2.80	SPT (10	N=40 ,15 for 25mm/14,6,9,1	1)		^					-
							x * * * *					-
		2.80-4.30	В				× × × ×					[-
		2.00 4.00	5				^					
							×					-
		4.30	SPT	N=17			× × ×					-
				(3,6/6,4,4,3)			× × ×					[
							x					[
		4.30-5.80	В				× × × ×					-
							x * .					-
			0.D.T				× × × ×					[-
		5.80	SPT	N=21 (2,3/3,4,7,7)			× × × ×					-
							x * .					-
		5.80-7.30	В				× × × *					[-
							× × × ×					Ę
							× × × *					-
		7.30	SPT	N=20			× × × × ×					<u> </u>
				(1,3/5,3,5,7)			x * * *					-
					7.80	0.51	x: ** . x	Firm grey slight	ly sandy lo	cally slightly gravelly sil	Ity CLAY*	
		7.30-8.80	В									-
												Ė
												-
		8.80-9.25	U									-
		2.20 0.20	-									Ė
		8.80-10.30	В									-
			-									<u>-</u>
			Туре	Results								

^{*} Denotes visual assessment of description based on air flushed borehole returns Groundwater ingress from surface in service clearance and encountered from 1.3m Borehole terminated on engineers instruction 63mm diam HDPE Gas / Groundwater monitor installed to 13.0m

HQ01

1:50 Log

g Status Final

		H		EQ	UE	ST	Holeq Winst Galasl	uest Ltd on Road							nole No	
			LH	MIT	EL)		11896 7522 <u>9</u>	95					Shee	t 2 of 2	2
Projec	ct Name					Pr	oject N	lo.	Colordo	24	120/	E ECESEZNI		Hole	е Туре	:
	on Stewart FF						7/082		Co-olus.	24	1304	E - 565357N			otary	
Drilling	g Methods:- R R						iam, GL 9 - 18.8n		Level:	8.3	31 m	AOD			ntation 90	
Client:	<u>.</u> -														ged By	,
	ries & Gallow	ay Co	uncil						Dates:	18/	/01/2	018-12/02/2018	В	•	RR / FI	
	/ater Samplerikes Depth (m)		n Situ 1	Testin	g	Depth (m)	Level (m CD)	Legend	I			Stratum Description	!			
	Depth (m)	Type		tesuits		(111)	(III OD)		Firm grey slight	ly sar		ally slightly gravelly sil	ty CLAY*			
		l							No recovery	of U1	100 be	tween 10.3 - 10.75m				
	10.30-10.75	U														
	10.30-11.80	В														- -11
	10.00 11.00															
						11.50	-3.19					r fine to coarse rounded	d to suba	ngular		
	11.80	SPT	13/13,14	N=50	or 25m	m)		×	GRAVEL with h	igh co	obble	and boulder content*				·
		(6,	13/13,12	+, 13,6 10	JI 23111	"''		x								-12 -
								× × × × ×								-
	11.80-13.30	В						× * * *								-
®								× × × × ×							-	- -13
	13.30	SPT		N=50	, =0			× × ×							-	
	13.30-13.90	(10, ²	15 for 25	5mm/50	for 50	13.50	-5.19	X. X. X.	Grey META-SA	NDS1	TONE	/ META-SILTSTONE*				
	13.90	SPT		N=50		13.90	-5.59		Strong Josephyn	vook t	to mo	dium atrong above 15 C	m thin to	a tiak		
		(2	5 for 5m	nm/50 f	o A Z Golor	1)		:::::::	bedded (dip40-6	60deg	g), dar	dium strong above 15.0 k grey, fine to medium ght grey quartz veins to	grained		, [14
								::::::				ally moderately weather		COMMINO	"	-
	13.90-15.30	82	43	18	>50			::::::	Set1; 0-30deg,			lose to wide spaced, te anar to undulating, rou				-
				-		-		:::::::	open.			to medium spaced, pe				- -15
									undulating, smo	oth to	o roug	rsection where seen, p h, tight to part open.				-
									Both sets with p	atchy	y dark	brown coating to sub n	nm fill.			·
					17											- - -16
	15.30-16.80	100	83	42												
						-										
															Ī	- -17 -
	16.80-18.20	100	90	68												
					7										<u> </u>	- - -18
															ŀ	
	18.20-18.80	100	100	100											ŀ	-
						18.80	-10.49				E	of Boreholo et 19 00				.
											⊨no	d of Borehole at 18.80 m			F	- -19 -
															F	
															ļ	-
		TCP	SCR	BOD	FI	-									ļ	
Remar	rks: Hand excavat	TCR ed service	e clearan	ce from (GL - 1.2	m	1					SPT Hammer	Scal	e Ir	og Stat	US
	* Denotes visi Groundwater	ual asses ingress fr	ssment of rom surfa	descripti ce in ser	ion base vice clea	ed on air fl		ehole returns red from 1.3m				HQ01	1:50		Final	J
	Borehole term 63mm diam H	inated or IDPE Ga	n enginee s / Ground	dwater m	ction nonitor i	nstalled to	13.0m						1.50	´	ı ıııaı	

			H	OLEGHE	ST		uest Ltd on Road							ole No
			11	OLEQUE LIMITED) NI	Galasl	niels						BH13	
							1896 75229	95 T					Sheet	
-	ect Na		_			oject N	lo.	Co-ords:	241	1329E	- 565280N			Туре
		tewart FP		and bala Comments A		7/082	40.0						Rot Orient	•
I IIIII	ing ivie	etnous:- Ro Ro	otary op otary co	en hole, Symetrix 17 ored, T2101 water flu	rumm a ısh, 13.9	iam, GL 9 - 20.0m	- 13.9m า	Level:	8.0	9 m A	OD		9(
lieı	nt:-												Logge	
		& Gallowa	у Со	uncil				Dates:	18/	01/201	18-07/02/20 ⁻	18 F	BMY / R	-
II	Water			Situ Testing	Depth	Level	Legend			Str	atum Description			,
	Strikes	Depth (m)	Туре	Results	(m) 0.10	(m CD) 7.99		Dark brown silty	/ sand		OIL with many ro			
		0.20 0.20	ES B				× × × × ~	Grey brown slig	htly or	rganic ve	ry clayey sandy	fine to coar	se	
		0.50 0.50	ES B		0.50	7.59	*******				EL with low cobb to coarse round		paular	
								GRAVEL with Id				ded to suba	irigulai	Ē
		1.00 1.00	ES B		1.20	6.89	× × ×							
		1.30	SPT	N=42 (6,15/14,9,9,10)	1.20	0.00		Dense grey silty GRAVEL*	/ sand	ly fine to	coarse rounded	to subangu	ılar	-
				,			* * * * * * * *							ļ
]	4 20 0 00	,				^` . * ^ * × * . * *							-
		1.30-2.80	В				× × × *							[
							× × × ×							-
		2.80	SPT	N=50			× × × × ×							Ė
		2.00		9/12,14,14,10 for 50mi	m)		× × × *							-
							* * * *							-
		2.80-4.30	В				× × × × × ×							-
					3.80	4.29	x × x	Coft to firm loo	ally ati	ff grove	lightly sandy slig	abth		
									AÝ wi	th lenses	of Sand and G			F
										-	een 4.3 - 4.75m			-
		4.30-4.75	U						01 0 1	oo boliik	JOH 1.0 1.7 OH			-
														-
		4.30-5.80	В											-
														-
		5.80	SPT	N=27 (7,10/5,7,8,7)										-
														-
		5.80-7.30	В											ţ
		ა.o∪- <i>1</i> .პU	D				基基							ŧ
														-
														ŧ
		7.30-7.75	U				至基金							ŧ
														F
		7.30-8.80	В		8.00	0.09		Medium dense	becom	nina verv	dense with dep	th grev slial	htly siltv	
							^ × ^ *	sandy fine to co	arse r	ounded t	to subangular G	RAVEL with	n low to	ŀ
							* * * * * * * * * * * * * * * * * * *	g man dopan						F
		8.80	SPT	N=22			* * * *							ţ
	.]			(6,6/7,4,3,8)			× × × ×							
							* * * * * * *							ļ
		8.80-10.30	В				* * * * *							ŀ
							x							Ē
	1		Туре	Results	1		X+ 7 - 2 X- 12-			Con	tinued next sheet			<u> </u>

^{*} Denotes visual assessment of description based on air flushed borehole returns Groundwater ingress from surface during service clearance and encountered from 2.5m Borehole terminated on engineers instruction 63mm diam HDPE Gas / Groundwater monitor installed to 14.0m

HQ01

Scale Log State 1:50 Final

		H	I()	EO	H	ST		quest Ltd ton Road					orehole No	
		11	I.I	MI	TET))	Galas	hiels	207				113-OP	
roject N	lama								<u> </u>				heet 2 of 2 Hole Type	
-		S					•	NO.	Co-ords:	2413	29E - 565280N	'	Rotary	
			en ho	le, Sym	etrix 1			- 13.9m				C	Prientation	_
3 -	es & Galloway Council ter Samples & In Situ Testing Depth Level (m CD) Leg Depth (m) Type Results Depth (m CD) Leg 10.30 SPT N=50 (7,11/13,15,22 for 60mm) 11.80 SPT N=50 (13,12 for 50mm/18,32 for 25mm) 13.30-13.90 B		m	Level:	8.09	m AOD		90						
lient:-)umfries		•							Dates:	18/01	/2018-07/02/2018		ogged By Y / RR / FN	
Wate Strike:	Sample Depth (m)				g		Level (m CD)	Legend			Stratum Description			
		(7	,11/13,		r 60mn	1)		X X X X X X X X X X X X X X X X X X X	sandy fine to co	arse rou	g very dense with depth gre nded to subangular GRAVE ind boulder content*	y slightly s EL with low	to [-1
	11.80 SPT N=49 (13,12 for 25mm/13,12,12,12) 11.80-13.30 B 13.30 SPT (13,12 for 50mm/18,32 for 25mm) B 13.90-14.60 B 71 14.80 SPT N=50 14.60-15.10 SPT N=50 14.60-15.10 SPT N=50 14.60-15.10 SPT N=50 15.75mm/50 for 25mm)						- - - - - - - - - - - - - - - - - - -	- - - - - 1						
		(13,12	for 50r		32 for 2		-5.81	X					-	
• • •			36	21	24	10.00	0.01		brecciated, dark METASANDST cleaved metam	c brownis ONE with udstone,	edded (dip70deg), extensive of grey, fine to medium grain occasional very thin partir light grey quartz and reddis on throughout. Moderately w	ned igs of very sh brown	Ť	- 1
	13.90-14.60 13.90-14.80 B 71 14.80 14.60-15.10 SPT 2025 for 25mm/50 for 25mm/50 15.10-16.10 100 48 42 11 >50 16.10-17.60 100 69 48		intersection who tight to part ope Set2: 45-90deg	ere seen n verv clo	se to medium spaced, term, planar to undulating, smoo	oth to roug	h, <u>-</u>	- - - 1 - 1						
			undulating, smo	oth to ro	ntersection where seen, pla ugh, tight to open. rown coatings to sub mm fi		-							
							- - - - -							
						- - - - - - - -								
							- - - - - - - - - - - - - - - - - - -							
	18.90-20.00	100	80	59	6								- - - - - - -	
		•	1	-]					End of Borehole at 20.00 m		<u> </u>	_
∍marks	 Hand excavate * Denotes visus Groundwater ir Borehole termi 	al asses: ngress fr	sment o om surfa	f descrip ace durin	tion base g service	ed on air fl	ushed bor e and enco	ehole returns ountered from	2.5m		SPT Hammer HQ01	Scale 1:50	Log State	u

		H	OLEQUE LIMITED	ST	Winst	uest Ltd on Road		Borehole BH14-C	
		4	LIMITED		Galasi	hiels 1896 7522	05	Sheet 1	
Project	Name				oject N		93	Hole Ty	
-	Stewart FF	PS			7/082	10.	Co-ords: 241386E - 565303N	Cable/Ro	
			pen hole, Symetrix 17			- 13.3m		Orientati	
9	R	otary co	ored, T2101 water flu	sh, 13.3	3 - 18.5n	1	Level: 7.31 m AOD	90	
Client:-								Logged	Ву
)umfrie	es & Gallow	ay Co	uncil				Dates: 18/01/2018-16/02/2018	MT/DF/	RF
ell Wat	ter Sampl	es & Ir	Situ Testing	Depth (m)	Level (m CD)	Legend	Stratum Description		
Suik	2 op ()	Туре	Results	(111)	(III CD)		Dark brown silty sandy TOPSOIL		-
ļ:K	0.20	ES		0.30	7.01		Brown silty gravelly fine to medium locally slightly org	anic	\dashv
	0.50	ES					SAND	arno	-
	1.00	ES		1.00	6.31	**************************************	Very dense brown silty sandy fine to coarse rounded	0	
							subangular GRAVEL with high cobble content, Grave of varying lithologies.	and copples	ŀ
						× × × ×			
	2.00	CPT	N=50			×			ŀ
	2.00		,16/19,23,8 for 75mm)	0.0-		* * * *			-
				2.30	5.01	x * * *	Medium dense becoming very dense grey slightly silty to coarse rounded to angular GRAVEL with low to high	sandy fine	
7	Z _{2.80}	SPT	N=50				boulder content	ili cobble allu	
	2.60	(10,	12/16,17,10,7 for 50mi	m)		× × × ×			
						××××			
	2.80-4.30	В				x * * *			
	2.00 1.00					× * × *			
						* * * *			
	4.30	SPT	N=10			x			-
			(5,6/3,2,2,3)			× × ×			
						× ^ × ×			ŀ
	4.30-5.80	В				× × × ×			
						× × ×			
						×			
	5.80	SPT	N=50 2,2/6,14,29,1 for 5mm)			× × × ×			
		(-				× × ×			
						×			
	5.80-7.30	В				× × × ×			
						× × ×			
	7.30	SPT	N_EO			×			
	7.30		N=50 18/24,16,10 for 50mm)		× × × ×			
						× × ×			ŀ
	7.30-8.80	В				× × × × ×			}
						× × × ×			
						x * x *			ļ
						× × × ×			
						* * * * * * * *			
						x			
	8.80-10.30	В				× × ×			-
						^			ļ
1:::1		Туре			1	1 × × × × × × × × × × × × × × × × × × ×			- 1

Remarks: Hand excavated service clearance from GL - 1.2m

* Denotes visual assessment of description based on air flushed borehole returns Hard strata / slow progress from 1.3 - 2.3 (3 hrs)

Groundwater encountered at 2.8m, rising to 1.1m after several days Borehole terminated on engineers instruction
63mm diam HDPE Gas / Groundwater monitor installed to 13.0m

SPT Hammer HQ01

Scale Log Status 1:50

Final

		H	0L	EQ MI	UE	\overline{ST}	Winst	uest Ltd on Road						Borehole N	
			LI	MI^{\prime}	ΓEI)	Galasi Tel: 0	hiels 1896 7522	295					Sheet 2 of	
Proiec	ct Name					Pı	roject N							Hole Type	
-	on Stewart FF	PS					7/082		Co-ords:	24	1386I	E - 565303N		Cable/Rota	ary
Drilling	g Methods:- R	otary o	pen hol	le, Sym	etrix 17	70mm d	iam, GL 3 - 18.5n	- 13.3m	Level:	73	31 m /	40D		Orientation	n
011 /		otary co	orea, r	2101 W	/ater no	1511, 13.	3 - 10.311	1	Level.	7.5	JI III /			90	
Client: Dumfr	:- ries & Gallow	av Co	uncil						Dates:	18/	/01/20	018-16/02/2018	2	Logged B	
	ater Sampl			Testin	g	Depth	Level						IV	II / DF / K	<u> </u>
Str	rikes Depth (m)	Туре	F	Results		(m)	(m CD)	Legend	Medium dense	hecor		tratum Description ery dense grey slightl	v silty sand	/ fine	╀
	10.30	SPT		N=50				X	to coarse round	ded to	angula	r GRAVEL with low	to high cobb	ole and	-
		(20,	,5 for 15	5mm/50	tor 50n	im)		× × × ×							Ė
								× × × ×							[.
	10.30-11.80	В						× × × ×							-1·
∄								× × × ×							-
	11.80	SPT		N=50				^``.*`. X`*.X							-
			(5,20/30	0,20 for	25mm)			× × ×							-1:
								^ · · · · · · · · · · · · · · · · · · ·							ļ
	11.80-13.30	В						x							
								*							-1
	13.30	SPT		-N=50	,	13.30	-5.99	x							
	10.00		5 for 25	mm/50	for 5mr 36	n)	0.55		brown mottled	greeni	ish grey	ium bedded (dip10-2 y, fine to coarse MET	ASĂNDST	ONE	ŀ
					>50				quartz veins to	20mm	of META n, Mode	MUDSTONE with or erately to locally high	casional lig ly weathere	ght grey d.	-
	13.30-14.70	100	66	37	>30				Discontinuities; Set1; 5-20deg,	es; g, extremely close to medium spaced, terminating at where seen, planar to undulating, smooth to rough,				-1	
									tight to open, or	ccasic	onally w	rith cruched rock fill t lose to wide spaced	o 25mm.		F
										ating a	at inter	section where seen,		10	
									Both sets with	dark re	eddish	brown coating.			-1:
															F
	14.70-16.20	100	89	45	16										
															-
															-16
	16.20-17.20	100	70	45											
															-13
															F
	17.20-18.50	100	52	29	35										-18
															F
						18.50	-11.19					of Double In 140 TO			-
											⊨nd	of Borehole at 18.50 m			-
															-19
															-
		700	000	D02											-
—. ≀emar	rks: Hand excavate	TCR ed servic	SCR e clearar	-	FI GL - 1.2	l m	1					SPT Hammer	Scale	Log Sta	atı ı
	* Denotes visu Hard strata / s	ual asses slow prog	sment of	f descrip n 1.3 - 2.	tion base 3 (3 hrs)	ed on air fl		ehole returns				HQ01	1:50	Final	
	Groundwater Borehole term	inated or	n engine	ers instru	uction	n after sev nstalled to	•						1.50	Final	•

			H	OLEGHE	ST		uest Ltd on Road					orehole No	
			11	OLEQUE LIMITED		Galasl	niels	_				P9-OP6	
_							1896 75229	25				heet 1 of 2	
oject			c			oject N	Ю.	Co-ords:	24125	7E - 565442N		Hole Type)
		tewart FP		en hole, Symetrix 17		7/082	10.00					Rotary Prientation	_
IIII IG	, ivie	Ro	tary op	ored, T2101 water flu	sh, 13.3	3 - 17.9m	· 13.3111 1	Level:	8.07 m	n AOD		90	
ient:-	_											ogged By	_
		& Gallowa	у Со	uncil				Dates:	26/01/	2018-07/02/2018		/CE/FM	
	ater_ ikes	Sample Depth (m)	s & In	Situ Testing Results	Depth (m)	Level (m CD)	Legend			Stratum Description	ļ		
		0.20	ES	results		,		Dark brown silty	/ sandy gra	avelly TOPSOIL grading	to brown sil	ty -	-
320		0.30	В				i	gravelly fine to r ow cobble cont	nedium si ent with de	ightly organic SAND with epth (Possible Made Gro	n rootlets an ound)	d [-
		0.50 0.50	ES B		0.70	7.37							Ē
		1.00	ES		0.80	7.27		Brown slightly s Made Ground)	andy grav	elly CLAY with lenses of	Sand (Poss	sible	Ė
		1.00	B SPT	N=27	1.30	6.77	XXXX E	Black silty grave	elly fine to	medium slightly organic	SAND*		Ė
		1.50	O1 1	(3,3/6,7,6,8)	1.50	0.77	X X X 1	Medium dense prayelly fine to d	to dense li coarse SA	ght grey brown silty to w ND with occasional clay	ery silty lenses*	Ŧ	ŀ
							XXXX			•		Ę	F
		1.30-2.80	В									ļ	Ŀ
							XXXX					<u> </u>	-
	$_{\square}$						X.X.X.X X.X.X.X					Ė	Ė
-	\preceq	2.80	SPT	N=36 (7,8/9,8,9,10)			XXXX						-
				, , , , ,			****					-	F
		2.80-4.30	В		3.40	4.67	3.43.43.48 1.43.43.43.11	Dense locally ve	ery dense	grey brown silty sandy fi	ne to coarse		-
		2.60-4.30	ь				Х.Х.Х.Х.	ounded to angu	ulár GRAV	EL with low to medium	cobble conte	ent*	-
							× × ×						Ŀ
		4.30	CPT	N=47			×					[F
				(9,11/10,12,11,14)			× × × ×						-
							× × ×						Ė
		4.30-5.80	В				*						ŀ
							× × ×					[Ė
		5.00	CDT	N. 50			*					-	-
		5.80	CPT (25	N=50 for 75mm/50 for 75mr	n)		× × ×					-	Ē
							× × × ×					-	Ė
		5.80-7.30	В				* * * * * * * * *					-	-
							× × × ×					[Ė
							× × × × × ×					ŀ	F
		7.30	CPT	N=37 (8,9/10,8,8,11)			*					-	-
				(, -,-,-,-,-,			* * * *					ļ.	-
		7 20 0 00	ם				^``.*`* *`*.**					<u> </u>	Ŀ
		7.30-8.80	В				X					E	Ė
							×					-	ŀ
		8.80	CPT	N=50			*					ļ.	F
			(25	for 75mm/50 for 75mi	n)		××××					<u> </u>	-
							× ,						-
		8.80-10.30	В				X X X					F	ŀ
							x					Ę	F
1			Туре	Results						Continued next sheet		<u> </u>	Ĺ
marl	KS:	Hand excavate	d service	e clearance from GL - 1.2r sment of description base	n					SPT Hammer	Scale	Log Stat	h

Borehole terminated on engineers instruction
63mm diam HDPE Gas / Groundwater monitor installed to 12.0m

HQ03

		Н	OLE	OHE	ST	Holeq	uest Ltd on Road				orehole N	
		11	OLE LIM	HTEL) D I	Galasl	niels	0.5			P9-OP(
Project N	amo					oject N	1896 7522	95 			heet 2 of Hole Type	
-	ame Stewart FP	S				0ject iv 7/082	10.	Co-ords: 24125	7E - 565442N	'	Rotary	,
Drilling Mo	ethods:- Ro	tary op	en hole, S	Symetrix 1	70mm d	am, GL	- 13.3m	Lovel: 9.07 m	n AOD	С	rientation	1
	K	otary co	ored, T210	vi water ii	usn, 13.	3 - 17.91	1	Level: 8.07 n	TAOD		90	
Client:- Dumfries	& Gallowa	av Coi	uncil					Dates: 26/01/	2018-07/02/2018		.ogged By ·/ CE / FN	
/ell Water	Sample	s & In	Situ Tes		Depth	Level	Legend		Stratum Deparintion	IVII	/ OL / I I	VI
Strikes	Depth (m)	Туре	Resi	ults	(m)	(m CD)	Legend	Dense locally very dense	Stratum Description grey brown silty sandy fi	ine to coarse	<u> </u>	F
	10.30	CPT	N= (10,10/8,				× × × × ×	rounded to angular GRAV	EL with low to medium	cobble conte	ent*	-
			(10,10/0,	0,11,11)	10.70	-2.63	× × × ×		:: OLANG			-
	10.30-11.80	В						Light grey slightly sandy s	silty CLAY*			-1
	10.30-11.00	D										-
					11.60	-3.53		Danas annu hanna ailte an		da d 4a - a - a - d -		-
	11.80	CPT	N= (8,9/10,				* * * * * * * * *	Dense grey brown silty sa GRAVEL with medium co			ar	Ē.,
w)—				, , ,			× × × ×					-12
	11.80-13.30	В					× × × × ×					[
					12.70	-4.63	12 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Grey META-SANDSTONI	E / META-SILTSTONE (wacke)*		E
												-1:
	13.30	CPT (25	N= for 75mm/	50 /50 for 75m	13.30 m)	-5.23		Medium strong to strong,	thin to thickly bedded, lo	ocally		ŧ
								laminated (dip20deg), dar grey, fine to coarse graine thinly bedded METAMUD	ed METASANDSTONE,	with subordi	nate	
	13.30-14.80	100	50 2	0				locally. Slightly weathered Discontinuities.		- VOITIS 10 ZOI		-1
								Set1; 0-30deg extremely of intersection where seen,				
								tight to partly open. Set2; 45-90deg, very clos			nm,	
								terminate at intersection v smooth to rough, tight to p Both sets with patchy dark	part open.	•	ill	-1:
								Dour colo mar palony dan	g		•••	
	14.80-16.30	100	69 6	7								-
												-10
												-
												-
	16.30-17.90	100	97 7	4								-17
												-
												-
					17.90	-9.83		Eı	nd of Borehole at 17.90 m			- 18
												-
												-
												-19
												ļ. '
												-
			SCR RC							1		<u></u>
lemarks:	Hand excavate * Denotes visus	al assess	sment of des	rom GL - 1.2 scription bas	lm ed on air fl	ushed bore	hole returns		SPT Hammer	Scale	Log Sta	tus
	Groundwater e Borehole termi	nated on		nstruction ater monitor i	nstalled to	12.0m			HQ03	1:50	Final	

			H	OLEQUE LIMITEI	IST	Winst	uest Ltd on Road			Borehole N	
			4	LIMITEI	D	Galasl	niels 1896 7522	95		Sheet 1 of	
	ject Na wton S	ame tewart FP			Pr	oject N 7/082			241566E - 564717N	Hole Typ Rotary	
Dril	ling Me			en hole, Symetrix 1 red, T2101 water fl				Level:	5.22 m AOD	Orientation 90	n
	nt:- nfries	& Gallowa	ау Соц	uncil				Dates:	17/01/2018-30/01/2018	Logged B MT / CE / F	
/ell	Water Strikes	Sample Depth (m)	es & In Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend	-	Stratum Description	•	
		,		resume	0.00			Brown clayey s	andy gravelly TOPSOIL		-
<u> </u>		0.20 0.20 0.50	B ES ES		0.20	5.02			dark brown clayey sandy fine to coars itly organic with depth	e GRAVEL	
		1.00	ES								-1
		1.30	SPT	N=28 (5,7/6,7,8,7)							-
		1.30-2.80	В		1.80	3.42		rounded to ang	own silty fine to coarse SAND and fine ular GRAVEL with medium to high col , cobbles and boulders of mixed litholo	oble and boulder	-2
		2.80	СРТ	N=35 (7,8/8,9,8,10)							-3
		2.80-4.30	В		3.50	1.72	X X X X X X X X X X X X X X X X X X X	Loose light gre fine to medium	y to grey very silty locally slightly grave SAND*	lly	
		4.30	SPT	N=9 (3,3/2,2,3,2)							-4
		4.30-5.80	В								-5
		5.80	SPT	N=6 (2,1/2,1,2,1)			X X X X X X X X X X X X X X X X X X X				-6

	1.50		(5,7/6,7,8,7)				
	1.30-2.80	В		1.80	3.42		Dense grey brown silty fine to coarse SAND and fine to coarse rounded to angular GRAVEL with medium to high cobble and boulder content, Gravel, cobbles and boulders of mixed lithologies.*
∇	2.80	СРТ	N=35 (7,8/8,9,8,10)				
	2.80-4.30	В		3.50	1.72	× × × × × × × × × × × × × × ×	Loose light grey to grey very silty locally slightly gravelly fine to medium SAND*
	4.30	SPT	N=9 (3,3/2,2,3,2)			X X X X X X X X X X X X X X X X X X X	
	4.30-5.80	В					
	5.80	SPT	N=6 (2,1/2,1,2,1)				
	5.80-7.30	В					
	7.30	SPT	N=6 (1,1/2,1,2,1)			x	
	7.30-8.80	В					
	8.80	SPT	N=6 (1,1/1,2,1,2)				
						$T \vee X \times X$	
	8.80-10.30	В	Results			X	Continued next sheet

Groundwater encountered at 1.0m and 2.8m
* Denotes visual assessment of description based on air flushed borehole returns
Borehole terminated on engineers instruction
63mm diam HDPE Gas / Groundwater monitor installed to 14.0m

HQ03

1:50 Final

-		Н	ÓΓ	EQ	UE	ST	Holeq Winst Galasi	uest Ltd on Road hiels	Borehole No BH1-OP7
			LI	M1.1	ľEL)		1896 7522	95 Sheet 2 of 2
Project							oject N	lo.	Co-ords: 241566E - 564717N Hole Type
	Stewart FP						7/082		Rolary
Drilling I	Methods:- Ro Ro	tary op tary co	pen ho pred. T	le, Sym 2101 w	etrix 1 ⁻ ater flu	70mm d ush. 14.8	iam, GL 3 - 19.8n	- 14.8m า	Level: 5.22 m AOD Orientation
Olianati									90
Client:- Dumfrie	s & Gallowa					1			Dates: 17/01/2018-30/01/2018 Logged By MT / CE / FM
ell Wate		s & Ir Type		Testin Results	g	Depth (m)	Level (m CD)	Legend	Stratum Description
	10.30-11.80	В							Loose light grey to grey very silty locally slightly gravelly fine to medium SAND* Unable to undertake SPT Test at 10.3m due to differential hydrostatic head Unable to undertake SPT Test at 11.8m due to differential hydrostatic head Unable to undertake SPT Test at 11.8m due to differential hydrostatic head
	13.30-14.80	В				13.90 14.50 14.80	-8.68 -9.28 -9.58		Unable to undertake SPT Test at 13.3m due to differential hydrostatic head Grey brown silty fine to coarse SAND and fine to coarse angular to subangular rarely rounded GRAVEL with medium cobble content* Reddish brown META-SANDSTONE* Strong locally weak to medium strong, dark reddish grey, fine to
	14.80-15.60	42	0	0	NI				coarse grained METASANDSTONE including mainly steep dipping light yellowish grey quartz veins to 20mm and reddish brown haematite veins generally <2mm. Slightly to moderately, locally highly weathered. Discontinuities;
	15.60-16.30	0	0	0					Set1; 5-30deg, extremely close to close, terminating at intersection where seen, planar to undulating, rough, tight to open. Set2; (below 18.0m) 50-90deg, close spaced, terminating at intersection where seen, persistent to 150mm, planar to undulating expects the rough either to not only tith person.
	16.30-17.40	86	73	45					undulating, smooth to rough, tight to part open, with patchy greenish brown or reddish brown stain. Unstable conditions encountered between 14.8 - 16.3m - Additional casing installed
	17.40-18.40	95	50	40	15				-1
	18.40-19.80	100	82	40		19.80	-14.58		-1
		TCR	SCP	RQD	FI	. 5.50	1		End of Borehole at 19.80 m
 Remarks	S: Hand excavate Groundwater e * Denotes visua Borehole termi 63mm diam HI	d service ncounte al asses nated or	e clearar red at 1. sment o n engine	nce from .0m and 2 if descript ers instru	GL - 1.2 2.8m tion base action	ed on air fl		ehole returns	SPT Hammer Scale Log Status HQ03 1:50 Final

		H	OLFOUR	ST	Holeg	uest Ltd on Road		Borehole No
		11	OLEQUE LIMITEI) N I	Galas	hiels	-	BH1-SP
						1896 7522	95 	Sheet 1 of 2
Project N					oject N	10.	Co-ords: 241243E - 565145N	Hole Type
	Stewart FF		an hala Cumatriy 1		7/082	10.00		Rotary Orientation
Drilling N	Ro	otary of otary co	pen hole, Symetrix 1 pred, T2101 water flu	70mm ai ush, 13.3	am, GL 3 - 18.7n	- 13.3M 1	Level: 9.24 m AOD	90
Client:- Dumfries	s & Gallowa	ay Co	uncil				Dates: 21/12/2017-23/12/2017	Logged By CE / FM
Well Wate	r Sample	es & Ir	Situ Testing	Depth	Level	Legend	Stratum Description	1
Strike	S Depth (m)	Туре	Results	(m) 0.10	(m CD) 9.14	XXXX	MADE GROUND comprising silty sandy Topsoil with ro	otlets
	0.20	В				****	MADE GROUND comprising clayey slightly organic fine	to coarse
	0.50	В		0.50	8.74		Sand and fine to coarse rounded to angular Gravel that Plastic, Paper and Brick	includes
							MADE GROUND comprising clayey gravelly fine to coa intermixed with brown clayey sandy fine to coarse round	rse Sand
							angular Gravel with medium cobble content, locally slig	htly
	1.30	SPT	N=26				organic, Includes Bricks, fragments of Brick, Masonry, Coal.*	ass and
			(5,6/7,6,6,7)					-
								-
	1.30-2.80	В						
								Ė
								[
	2.80	SPT	N=28					-
..			(10,11/6,7,8,7)					-
	2.80-4.30	В						<u>-</u>
	2.00 4.00							<u> </u>
								[
	4.00	CDT	N. 50	4.00	4.04			-
	4.30	SPT	N=50 (4,4/50 for 75mm)	4.30	4.94	××××	Dark brown silty locally gravelly fine to coarse organic S with thin lenses of Clay, Gravel and Cobbles*	SAND
						××××	with thin lenses of Glay, Graver and Gobbies	-
						x		<u></u>
	4.30-5.80	В				X X X		
						××××		
	,			5.60	3.64	(A) X (B) X (B) (B) (B) (B)	Dense locally medium dense grey silty fine to coarse Sa	AND and
	5.80	SPT	N=31 (8,9/7,7,8,9)				fine to coarse rounded to angular GRAVEL with low loc cobble and boulder content, Gravel, cobbles and boulder	ally high
			(0,0/1,7,0,0)				mixed lithologies.*	ers or
	5.80-7.30	В						
								Ė
	7.30	СРТ	N=34					-
			(7,8/9,9,8,8)					Ē
								ļ
	7.30-8.80	В						-
		_						Ė
								ļ
	0 00	CPT	N_26					ļ
	8.80	CPI	N=26 (5,6/6,7,6,7)					
								ļ
								ļ
	8.80-10.30	В						Ę
								ļ
1111111	1	Type	Poculto	1	1	++++	Cantia and a sad about	<u> </u>

Туре

Remarks: Hand excavated service clearance from GL - 1.2m

* Denotes visual assessment of description based on air flushed borehole returns
Groundwater encountered at 5.8m
Borehole terminated on engineers instruction
63mm diam HDPE Gas / Groundwater monitor installed to 13.0m

Results

SPT Hammer HQ03

Continued next sheet

Scale 1:50

Log Status Final

			Н	0L	EΩ	UE	ST		uest Ltd on Road					orehole N	
		-		LI	ΜΙΊ	ΓĔΙ)	Galasl	hiels 1896 7522	05				BH1-SP heet 2 of	
Proje	ect Na	ame					Pr	oject N		.,,,,				Hole Type	
-		tewart FP	S					7/082		Co-ords:	24124	3E - 565145N		Rotary	
Drillin	ng Me	ethods:- Ro	tary op	en hol	e, Sym	etrix 17	70mm di ush, 13.3	am, GL	- 13.3m	Level:	0.24 n	n AOD	С	rientation)
OI:		- KC	nary cc	neu, 12	2101 W	alei III	JSII, 13.3	0 - 10.711	!	Level.	3.24 11			90	
Clien Dum		& Gallowa	у Со	uncil						Dates:	21/12/	2017-23/12/2017		ogged By	/
	Water Strikes	Sample Depth (m)	es & In Type		Testin Results	g	Depth (m)	Level (m CD)	Legend	1		Stratum Description			
		10.30 10.30-11.80 11.80	CPT B		N=32 8/8,9,6, N=36 7/7,9,9,		12.40	-3.16		fine to coarse r cobble and bou mixed lithologie	ounded to Ider conte es.*	nse grey silty fine to coa angular GRAVEL with lo nt, Gravel, cobbles and l	ow locally hig boulders of	nd gh	-111
W		13.30 13.30-14.80	CPT (25	for 75n 64	N=50 hm/50 f	or 75m 15 AZCL	- 13.30 m)	-4.06		at 16.0m), grey 17.1m, fine to r mainly intact, o (occasionally w degrees, slightl 14.7m. Discontinuities Set 1: dipping 1 terminating at i	stained re nedium gr ccasionall ith reddish y weather (Excluding 0 - 30 deg ntersection	grees, closely to wide spa n where seen, planar to u	1 and below NE (wacke) z veins g 10 - 90 ed between 1 aced,	including	-13
		14.80-16.40	100	93	86	. 3				observed to 650 seen, planar to open.	egrees, ve Omm, term undulating reddish bro	ery closely to wide space ninating at intersection or g, smooth to rough, tight own stains / coatings, or	r in rock whe to partly		-15
		16.40-18.00	100	88	71	11									- - - 17 - - - - - -
		18.00-18.90	100	86	86	6	18.90	-9.66							- 18 - - - - - -
			TCR	SCR	ROD	FI	10.00	0.00			E	nd of Borehole at 18.90 m			-19
Rema		Hand excavate * Denotes visua Groundwater e Borehole termi 63mm diam HI	d service al assess ncounter nated on	clearan sment of red at 5.8 engine	nce from f descript 8m ers instru	GL - 1.2 tion base action	ed on air flu		chole returns			SPT Hammer HQ03	Scale 1:50	Log Sta	

			H	OLEQUE LIMITED	ST	Winst	uest Ltd on Road		Borehole BH2-S	
			4	LIMITED		Galasl	niels 1896 752	205		
)	in at Ni							293	Sheet 1 o	
	ject N	ame stewart FP				oject N 7/082	10.	Co-ords: 241297E - 565149N	Rotary	•
				an hala Cumatriu 17			10.25		Orientation	
ווזכ	iing ivie	Ro	otary op	oen hole, Symetrix 17 oen hole, 115mm dia	m, 10.3	- 10.7m		Level: 7.56 m AOD	90	JI I
مناد	ent:-		otary co	ored, T2101 water flu 15.7m	sh, 10.3	3 - 10.5m	ո &		Logged I	R _V
		& Gallowa						Dates: 15/12/2017-20/12/2017	CE / FM	-
	Water			Situ Testing	Depth	Level			CE / FIV	<u> </u>
ell	Strikes	Depth (m)		Results	(m)	(m CD)	Legend	Stratum Description		
2.5	2							Dark brown clayey sandy becoming gravelly with depth with many rootlets	n TOPSOIL	-
								,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Ē
					0.60	6.96		Brown silty locally slightly organic fine to coarse SANI	o and	\dashv
								fine to coarse rounded to angular GRAVEL with media content	ım cobble	+,
					1.20	6.36				
		1.30	CPT	N=8 (1,2/2,2,2,2)	0	0.00	× * × *	Loose to dense becoming very dense with depth grey fine to coarse rounded to subangular GRAVEL with hi	silty sandy ah cobble and	-
				, , , , , , , , , , , , , , , , , , , ,			× × × ×	boulder content, Gravel, cobbles and boulders of mixe lithologies.*	ed	Ē
							× * * *			ŀ
		1.30-2.80	В				X			-2
							× × × *			-
							× * . * *			-
		2.80	CPT	N=31			× * × *			Ė
				(6,12/12,6,7,6)			× × ×			-3
							*			-
		2.80-4.30	В				^ · · · · · · · · · · · · · · · · · · ·			Ē
							× × × *			-
	:						× * _× × *			-4
		4.30	CPT	N=38			× * _× × *			E
	::	4.00	0. 1	(7,8/14,7,8,9)			× * × *			-
							^ × ×			Ē
		4.30-5.80	В				× × × *			- 5
	:	4.30-3.60	В				× * _× * *			-
							× * × ×			-
	:						×			-
	:	5.80	CPT	N=17 (8,5/5,4,4,4)			× × ×			-6
	:						× * . * . *			F
	:						× × × ×			F
		5.80-7.30	В				× * . * *			F
							× × ×			+-
•							x * *			F'
		7.30	CPT (25	N=50 for 75mm/50 for 75mr	n)		× * × *			ŀ
			,_5		,		× * × ×			ŀ
	:						× × × ×			-
		7.30-8.80	В							3-
	:						× × ×			-
							× * × *			ŀ
	:	8.80	CPT	N=50	-)		× * × *			Ė
			(25	for 75mm/50 for 75mr	n)		× * × *			-6
:							× ; ,			-
		8.80-10.30	В				^ * * * * * * * *			Ė
	:						× × × *			f
٠. ٠	.:		Туре	Results	9.90	-2.34				7

Remarks: Hand Excavated Service clearance from GL - 1.2m

* Denotes visual assessment of description based on air flushed borehole returns
Groundwater encountered at approx 1.8m
Borehole terminated on engineers instruction
63mm diam HDPE Gas / Groundwater monitor installed to 10.0m

SPT Hammer HQ03

1:50

Scale Log Status Final

		H	()I.	EO	UE	ST		uest Ltd on Road				orehole N	
	-	**	LI	MI	ΓEL)	Galasl		05			H2-SF heet 2 of	
roject N	lame						oject N		93			Hole Typ	
•	Stewart FP	S					7/082	10.	Co-ords: 24129	97E - 565149N		Rotary	•
rilling M	ethods:- Ro									100	0	rientatio	n
							- 10.7m 3 - 10.5m		Level: 7.56 n	n AOD		90	
lient:-			15.7m						Dates: 15/12/	/2017-20/12/2017		ogged B	y
	& Gallowa	•		Toctin		D	l				(CE / FM	_
Water Strikes		Type		Results	ig	Depth (m)	(m CD)	Legend		Stratum Description			\perp
	10.30	CPT		√N=50	_				Dark reddish brown MET.	A-SANDSTONE / META	-SILTSTONE	E (wacke)*	Ė
	10.30-10.50	0(25	fo ^Q 75r	mm/50	for 75m	m)							-
						10.70	-3.14		Weak to medium strong,				+
	10.70-11.40	100	71	0					dark reddish brown speck META-SANDSTONE (wa	cke), includes minor dis	continuous li	d ght grey	-
									Quartz veins mainly <2mi clasts of Siltstone to 15m	m, moderately weathere			-
									Discontinuities (Excluding Set 1: dipping 0 - 30 degr	rees, very closely to med			ŀ
					28				terminating at intersection rough, tight to partly open	۱.	0,		ŀ
	11.40-12.70	100	38	0	20				Set 2: dipping 40 - 90 deg spaced, persistance obse	erved to 400mm, termina	iting at		-
									intersection or in rock wh to moderately wide. Both occasional patchy greens	sets with reddish brown			ŀ
					1				occasional paterty greens	sin grey coating.			
													ŀ
	12.70-13.60	100	56	0		13.25	-5.69	××××××× ××××××××	Extremely weak to weak,	laminated to thinly bedd	ed (dipping 3	35 -	+
					>50			××××××× ××××××× ×××××××	65 degrees), brecciated a grey, fine grained META-	above 13.6m, dark reddis	sh brown to		F
					10	13.75	-6.19	*****	with occasional light grey weathered. Discontinuitie	Quartz veins, moderate es (Excluding intact veins	ly to highly), random	,	ŀ
	13.60-14.60	100	45	35	12				orientation, extremely cloplanar, smooth, tight to pa	artly open.			/-
					>50				Between 13.6 - 13.75m m closely to closely spaced	, persistance observed to	100mm,	nely	!
									terminating at intersection tight.	n, planar to undulating, s	mooth,		-
									Medium strong, medium degrees) dark reddish bro	to thickly bedded (dippin	g 10 - 65		-
	14.60-15.70	100	66	18	25				META-SANDSTONE (wa veins to 20mm thick, mod	icke), occasional intact li	ght grey qua	rtz	
									weathered. Discontinuities (Excluding		,		
						15.70	-8.14		Set 1: dipping 10 - 30 dec terminating at intersection				
									rough, tight to partly open Set 2: dipping 50 - 90 deg	grees, very closely to clos			ŀ
									persistance observed to 1 rock where seen, planar t			rin	-
									to partly open. Both sets with reddish bro				-
										ak, brecciated, laminate TSTONE between 14.25		own	Ē
									E	and of Borehole at 15.70 m			-
													ŀ
													ŀ
													F
													-
													ļ
													-
													-
													-
													-
		TCR	SCR	RQD	FI								_
marks:	Hand Excavate	d Servic	e cleara	nce from	GL - 1.2			h-l- '		SPT Hammer	Scale	Log Sta	 atu
	* Denotes visus Groundwater e					ed on air flu	ushed bore	nole returns		HQ03	1:50		

	HOL	EQ MI'I	UES	1 (Holequest Ltd Winston Road Galashiels Fel: 01896 75229	T.		Trialpit TPW1-0 Sheet 1	OP6 of 1
Project Name					ect No.		93E - 565756N m AOD	Date	
Newton Stew	ethod:- Hand ex	vcavat	ad GI	17/0		Level: 8.26 p	1.00m	05/02/20 Scal	
LACAVATION		noavai	cu, GL	. 0.011	I		1.00111	1:25	
Client:						Depth 69 0.60m 0		Logged	Bv
Dumfries & G	Salloway Council					0.00111 0		BMY / F	-
Samples & In Depth (m) Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20 ES 0.20 B 0.50 ES 0.50 B		0.30	7.96 7.66	alle alle alle silve alle alle alle alle alle alle alle a		rn to black psuedofibrous ine to coarse GRAVEL v Trialpit Comple	rith low to medium cobble conte	ent	
						Trialpit Comple	te at 0.60 m		-1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -
Remarks:	Trial pit sides sta Trial pit terminate Groundwater end	ed due	to wate	er ingres	SS	30 mins			L L L Status

HOLEQUEST Holequest Ltd Winston Road Galashiels Tel: 01896 752295										Trialpit No TPW2-OF Sheet 1 of	
•						ect No. 182		77E - 565460N n AOD	Date 05/02/2018		3
		ethod:- Hand	excavat	ted, GL			Dimensions:	1.00m	Scale		
Client:							Depth 69 1.10m 0		1:25 Logged By		
Dumfries & Galloway Council						1.10m 0			BMY / FM		
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D				
0.20 0.20	ES B					coarse rounded to	comprising Black clayey on angular Gravel with low on the hina and Brick fragments.	organic fine to coarse Sand a cobble and boulder content a	nd fine to t		
0.50 0.50 1.00 1.00	ES B ES B		0.50	6.20		MADE GROUND Matrix surrounding	comprising Black clayey s g cobbles noted organic	andy gravelly Cobbles and B	oulders,		-1
1.00			1.10	5.60	XXXXX		Trialpit Comple	te at 1.10 m			-
											-3
											-4
Remarks: Trial pit sides stable during excavation Trial pit terminated due to water ingress.										og Stat	tus
Groundy	vater:	Groundwater e	ncounte	red at 1	1.0m					Final	

HULEQUEST Winston Road Galashiels TP									Trialpit No P1-OP6 heet 1 of 1					
Project	9			Proj				Date						
	art FPS			17/0			m AOD	25/01/2018		3				
Excavat	lethod:- 3T Mir	ni Exca	ator, G	SL - 1.6	Dimensions		2.00m		Scale					
Olianati						Depth	0.60m			1:25	_			
Client:	Salloway Counci	ı				1.60m	0.6		Lo	gged By FM				
		Situ Testing		Level							LIVI			
Depth (m)	Туре	Results	Depth (m)	(m AOD)	Legend				escription					
0.20	ES		0.45	13.83		MADE GROUND comprising Dark brown clayey sandy gravelly Topsoil with medium to high cobble and boulder content MADE GROUND comprising Dark grey mottled light brown and yellowish light brown clayey to very clayey fine to coarse Sand and fine to coarse angular								
0.80	В					Includes Bricks, fra	to subangular Gravel with medium to high cobble and boulder content, Includes Bricks, fragments of Brick, Masonry, Slate, Roots, Rootlets and thin lenses of Demo Rubble, Slightly organic to organic where dark grey.							
1.00	ES		1.10	13.18		Soft orange brown	slightly sandy gra	avelly si	Ity CLAY of very high			-1 -1		
1.30	D					Soft orange brown slightly sandy gravelly silty CLAY of very high plasticity with low cobble and boulder content (Possible Made Ground)								
1.50	ES		1.60	12.68		Boulder obstru		it Comple	te at 1.60 m			-		
												-2 - - - - - - -		
												- - - - -		
											Log Stat Final	Sandard Triabil Loc v2 dated 27th Nov 03		
Remarks:		Trial pit terminated on boulder obstruction and trial pit sides colapsing at depth									Log Status			
Groundwater: No groundwater encountered							ı ıııaı	HoleBA5						

		HOI	EQ	UES	T F	Holequest Ltd Winston Road			Trialpit No		
HOLEQUEST Holequest Ltd Winston Road Galashiels Tel: 01896 752295									TP2-OP6 Sheet 1 of 1		
Project Name Project No.							295 Sh Co-ords: 241039E - 565942N			'	
Newton Stewart FPS 17/082								1 m AOD	Date 25/01/2018		
Excavation Method:- 3T Mini Excavator, GL - 2.4m							Dimensions:	2.00m	Scale		
							Depth &		1:25		
Client:							_ Depth 69: 2.40m 9:		Logged By		
	Dumfries & Galloway Council								FM	1	
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend		Stratum [Description			
0.20 0.40 0.50 1.00 1.40 1.50 1.90 2.00	ES B ES B ES D D		0.05 2.30 2.40	8.04 7.94		MADE GROUND MADE GROUND silty to silty sandy content, Includes and Roots, Pocke Becoming ve	re,	-1 -2			
Remarks		Trial pit sides co	ollapsin ted due	g with d	epth apse.				Log Sta		
Grounder									Final	ı	
Groundwater: No groundwater encountered											

H		HOI	EQ	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5		Trialpit No P3-OP6 Sheet 1 of 1]
Project N		. 500			1 -	ect No.		69E - 565831N	Date]
Newton S Excavation		ethod:- 3T Min	i Excav	ator. G	17/0 L - 2.0		Level: 10.06 Dimensions:	m AOD 2.00m	26/01/2018 Scale	┨
				,			l -	2.00111	1:25	l
Client:							Depth 59 2.00m 69		Logged By	1
		alloway Council Situ Testing	Depth	Level			L		BMY / FM	┨
	Туре	Results	(m)	(m AOD)	Legend	MADE CROUND	Stratum D	escription ilty sandy Topsoil with rootlets		┨
0.20 0.50 0.60	ES ES B		0.10	9.96		MADE GROUND of fine to coarse ang	comprising Light grey broular to subangular Grave antly of Masonry, Includes	own mottled dark brown silty very s I with high cobble and boulder s also variable proportions of	andy	
1.00	ES		0.95	9.11		MADE GROUND	comprising Light yellowis	d Clinker at approx 0.7m h brown mottled dark brown silty v	-1	
1.40	D					Mortar / Masonry f		e content predominantly of Lime um to coarse gravel and cobble		
1.40 B 1.50 ES 1.50 8.56 MADE GROUND comprising Grey brown silty sandy fine to coasubangular Gravel with low cobble content, Includes rare fine to gravel of Masonry and Brick fragments.								ilty sandy fine to coarse rounded to Includes rare fine to medium)	
								-	ı	
2.00	ES	2.00 8.06 Trialpit Complete at 2.00 m							-2	ı
									-3	Trabeli I nav U dalad 29th Mov (12
Remarks:		Trial pit sides co	ollapsin	g with d	epth				Log Status	(476.72) Standa
Groundwa	ater:	No groundwater			ihae.			Final	RASE 3.1 (B)	

					т	Jolograst I td			Trialpit No	$\overline{}$
		HOI	EQ	UES	$\frac{1}{3}$	Holequest Ltd Winston Road			_	
		1.1	imih	FD	(Galashiels	_		TP4-OP	
						Tel: 01896 75229			Sheet 1 of	1
Project					1 -	ect No.		87E - 565772N	Date	_
		art FPS	· -	, ,	17/0			m AOD	29/01/2018	8
Excava	ition ivi	ethod:- 3T Min	ı Exca	ator, G	iL - 2.0	m	Dimensions:	2.00m	Scale 1:25	
Client:							Depth 69 1.90m			
	00 8 G	alloway Council	ı				1.90m Ö		Logged By	
		Situ Testing	Depth	Level					BMY / RR / F	IVI
Depth (m)	Туре	Results	(m)	(m AOD)	Legend		Stratum D	<u> </u>		
0.20 0.50 0.50	ES B		0.05	9.42		MADE GROUND of gravelly fine to coat Masonry, Includes MADE GROUND of clavey locally slight	rse Sand with high cobb variable quantities of As comprising Dark brown n	ottled orange and black silty ver		
1.00 1.00	ES B		0.90	8.57		(generally <2mm th	n locally stiff with depth s nick) of silty fine to medi Locally with Roots / Roo	andy silty CLAY with lenses um Sand and organic debris tlets.		-1
1.60	В		1.80 1.90	7.67 7.57		Reddish brown slig content		oarse GRAVEL with high cobbl	e	-2
										-3
										- 4
Remarks	1	Trial pit sides st	able du	ring exc	cavation	1			Log Sta	ıtus
		Trial pit termina	ted at s	chedule	ed depth	n.			209 010	
Groundy	vater:	Groundwater er	ncounte	red at 1	.4m (Se	eepage from west	terly face) and 1.8m	<u> </u>	Final	l

ŀ	* () H0]	LEQ IMI'	UES) V	Holequest Ltd Vinston Road Galashiels Cel: 01896 7522	T		TP	rialpit No	6
Project Newtor		art FPS			Proj	ect No. 182		45E - 565248N m AOD	08	Date /02/2018	3
Excava	tion Me	ethod:- Hand	excavat	ed, GL	1.2m		Dimensions:	1.00m		Scale	
Client:							_ Depth 69 1.20m 09		1.0	1:25 ogged By	
		alloway Counci					1.20111 0			ЛY / FM	
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	<u> </u>			
0.20 0.20 0.50 0.50	ES B		0.40	7.66		and rootlets throu	ighout, Includes fragments	ilty sandy gravelly Topsoil w s of Brick and Coal. own silty sandy fine to coarse Includes fragments of Brick	e rounded		-
1.00 1.00	ES B		0.80	7.26		MADE GROUND	comprising Brown silty to htly organic Sand, Include	very silty gravelly fine to me s occasional fragments of C	edium Coal.		-1
											-3
Remarks	S:	Approx 400mm Trial pit termina	diam V	C pipe chedule	encounted depth	ered at 1.0m				Log Sta	tus
Groundw	vater:	No groundwate								Final	

-		HOL	LEQ IMI'	UE		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5		Trialpit No 「P7-OP6 Sheet 1 of	6
Project					-	ect No.		09E - 564969N	Date	
		vart FPS	: -	otor (17/0				05/02/2018	3
Excava	lion iv	lethod:- 3T Min	i Exca	ator, C	JL - 1.0	1111	Dimensions:	2.00m	Scale 1:25	
Client:							Depth 59 1.60m 0		Logged By	\dashv
Dumfrie	es & G	Salloway Council					1.00111 0		FM	
Samp Depth (m)		Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20	Type ES	Results	0.30	7.61		MADE GROUND	comprising Dark brown s	ilty sandy Topsoil with some rootle ght orange brown slightly sandy ve ome rootlets and occasional		-
0.50	ES		0.50	7.41		Coal fragments.				
0.70	B					rarely black slightly becoming thinly la	very soft to soft light grey y sandy silty CLAY, Occa minated with depth (Lam um to coarse Sand).	y mottled orange and sional silty partings at top inae includes Silt, Clay, fine to		- - -
1.50	В		1.40	6.51			ttled grey slightly sandy g	ravelly CLAY with low cobble and		-
1.50			1.60	6.31		boulder content	cobbles / boulders at 1.6	· · ·	7	.
							Trialpit Comple			-2
										4
Remarks	3:	Trial pit sides st Trial pit termin a	able du	ring ex	cavation	n h.			Log Sta	tus
Cross-	ınto:::					•••			Final	
Groundw	vater:	No groundwate	encou	ntered					. IIIdi	Š

ŀ	K	HOI	EQ	UES		Holequest Ltd Vinston Road Galashiels Fel: 01896 752295			Trialpi TP11- Sheet	OP6 1 of 1		
Project Newton		ırt FPS			Proj 17/0			18E - 565298N n AOD	Da 31/01/			
		thod:- JCB 30	CX, GL	2.4n			Dimensions:	3.00m	Sca	ale		
Client:							Depth 69:		1:2			
	es & Ga	alloway Council					2.40m ö		Logge FM	-		
Samp Depth (m)	les & In S	itu Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription				
0.20	ES		0.20	7.48		rootlets		g dark brown silty sandy Tops				
			0.40	7.28		rounded to angular G	Gravel with medium col	ally very silty sandy fine to coar oble and low boulder content n silty very sandy fine to coarse				
0.50 0.50	ES B		0.00	6.00		to subangular Gravel	with low cobble conte	nt				
			0.80 0.90	6.88 6.78	X X X X X X X		Orange brown silty gravelly fine to medium locally coarse SAND					
1.00	ES						slightly silty sandy fine . and COBBLES with h			-1		
1.50	В		1.80	5.88	× × × × × × × × × × × × × × × × × × ×	Stained / coated	Stained / coated Black (Possibly Geothite) from 1.5 - 1.8m					
2.20	В		1.60	5.66		Grey slightly silty sar cobble content	ded to angular GRAVEL with lo	wc	-2			
	2.40 5.28						Trialpit Comple	le at 2.40 III		-3		
Remarks		Trial pit sides co	ted due	to colla	apsing /	ning with depth undermining.	0			Status		

Groundwater:

Groundwater ingress from surface and encountered at 1.8m

ŀ		HOI	LEQ IMI'	UES red		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		TP	rialpit No 1 2-OP6 eet 1 of 1		
Project Newtor		e vart FPS			Proj 17/0	ect No. 182		14E - 565291N n AOD	30	Date /01/2018		
		ethod:- JCB 3	CX, GL	- 2.3n		,,,,,	Dimensions:	3.00m	1	Scale		
Client:							Depth 69 2.30m 9			1:25 ogged By		
	es & G	alloway Counci	I				2.30m Ö			FM		
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum De	escription				
0.20	ES		0.10	7.56		MADE GROUND	comprising Orange brown	Ity sandy Topsoil with root a slightly silty sandy fine to ole content locally intermix	coarse			
0.50	ES		0.35	7.31		MADE GROUND	comprising Grey silty loca r Gravel with low cobble o	ally very silty sandy fine to content	coarse	-		
0.70	В		0.90	6.76						-		
1.00 1.20	ES B		0.30	0.70		Brown silty gravell	y fine to medium SAND			-1 -		
			1.45 6.21 Dark reddish brown silty sandy fine to coarse rounded to subangular GR. with low cobble content									
					* * * * * * * * * * * *	with low cobble content						
2.00	В									-2		
							Trialpit Comple	le at 2.30 III		-4		
Remarks		Trial pit sides s Trial pit termina	table du	ring ex	cavation ed depth)).				Log Statu		
Groundy	vater:	Groundwater e	ncounte	red at 1	1.5m					Final		

F) HOI	EQ	UES	ST y	Holequest Ltd Winston Road Galashiels	Trialpit No		
				៤៤០		Tel: 01896 752295	Sheet 1 of	1	
Project						ect No. Co-ords: 241373E - 565304N	Date	_	
		art FPS	27 01	0.0	17/0		30/01/201	8	
Excava	LION IVIE	ethod:- JCB 30	JA, GL	2.311	1	Dimensions: 3.00m	Scale 1:25		
Client:						Depth & 2.30m 6.	Logged B		
	es & G	alloway Council				2.30m 9	FM	У	
Samp	oles & In	Situ Testing	Depth	Level	Legend	Stratum Description			
Depth (m)	Туре	Results	(m)	(m AOD)	Legend	Dark brown silty very sandy locally gravelly TOPSOIL with many rootlets		+	
0.20 0.40 0.50 1.00	ES B ES B	B ES 0.30 7.14 Dark reddish brown very silty gravelly to very gravelly fine to medium SAND with low cobble content and many rootlets (Possibly slightly organic) Dark reddish brown silty sandy fine to coarse rounded to subangular GRAVEL with low cobble content, Includes beds (<250mm thick) of fine to medium rounded to subrounded Gravel ES Stained / coated Black (possibly Geothite) after 1.5m							
								-3	
Remarks	3:	Trial pit sides st Trial pit termina	able du	ring exc	cavation		Log Sta	atus	
Groundw	vater:	Groundwater er			-		Fina	I	

				I	Holequest Ltd			Trialpit No	
	HOLI	EQU	UES) 7	Vinston Road			TP1-OP7	
	LIN	$\overline{\Gamma}$ IM	ED	(Galashiels Tel: 01896 752295	5		Sheet 1 of 1	
Project Name					1		38E - 564758N	Date	
Newton Stew				17/0			n AOD	06/02/2018	
	ethod:- 3T Mini E	Excav	ator, C			Dimensions:	2.00m	Scale	
						Г		1:25	
Client:						Depth 59 2.50m 0		Logged By	
	alloway Council							FM	
Samples & In Depth (m) Type		Depth (m) (Level m AOD)	Legend		Stratum D	escription		
0.20 ES		0.35	8.75		slightly organic CLA	AY with rootlets	rey brown slightly sandy silty	,	
0.50 ES		0.33	0.73		Firm locally very so mottled orange bro fissured towards to organics.	oft becoming very soft to wn silty CLAY of high plans in the plans with black coatings and the coatings are coatings.	soft after 2.0m grey locally asticity occasionally closely d includes pockets / lenses of		
1.00 ES 1.00 B								-1	
2.00 B								-2	
		2.50	0.00					-	
	'	2.50	6.60			Trialpit Comple	te at 2.50 m		
								-	
								-	
								-3	
								-	
								-	
								-	
								-	
								-	
								-	
								-4	
								-	
								-	
								ļ.	
								-	
								-	
David I		. 1						-	
Remarks:	Trial pit sides stab	ole dur d at so	ing exc chedule	cavation ed depth).			Log Status	
Groundwater:	No groundwater e	encour	ntered					Final	

-		NOI L	EQ IMI	UE	51	Holequest Ltd Winston Road Galashiels Fel: 01896 75229:	5		Trialpit No TP2-OP Sheet 1 of	7
Project Newtor		e vart FPS			Proj 17/0	ect No. 082		9E - 564830N n AOD	Date 06/02/2018	3
		ethod:- 3T Mir	i Exca	ator, (Dimensions:	2.00m	Scale 1:25	
Client: Dumfrie	es & G	Salloway Counci	1				Depth 59 2.50m 6		Logged By	/
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD	Legend		Stratum De	escription		
0.20 0.50 0.60	ES ES B		0.35	9.35		slightly organic CL	AY with rootlets soft becoming soft locally	ey brown slightly sandy silty very soft after 1.7m light nd black silty CLAY of very high with black coatings	1	
1.00 ES becoming grey locally mottled dark grey to black in colour with organic lenses and pockets between 1.2 - 2.5m									-1	
1.60	В							-2		
2.50	В		2.50	7.20			Trialpit Complet	e at 2.50 m		-3
										Standard Triable I conv2 dated 22th May 173
Remarks	3:	Trial pit sides s Trial pit termina	table du	ring ex chedul	cavation ed depth)).			Log Sta	tus
Groundw	vater:	No groundwate	r encou	ntered					Final	RASE 3.1

		IIO	ιτΩ	יתוו	т пу	Holequest Ltd			Trialpit No	,
		ĮΠŲ	LEQ		C	Vinston Road Salashiels			TP3-OP	
			11/11	ЕБ		Tel: 01896 75229			Sheet 1 of	1
Project		e vart FPS			Proj	ect No.		86E - 564855N m AOD	Date 31/01/201	,
		ethod:- JCB 3	CX, GL	1.8n		,OZ	Dimensions:	3.00m	Scale	\dashv
									1:25	
Client:							Depth 69:		Logged B	у
		Salloway Counci		Level					FM	
Depth (m)	Туре	Results	Depth (m)	(m AOD)	Legend	Dorle brown oilte	Stratum D	<u> </u>		
0.20	ES					Dark brown slify s	andy TOPSOIL grading to	o dark reddish brown silty gravelly potlets with depth	y	
			0.60	5.18	× × × .	Grey slightly silty	sandy fine to coarse roun	ded to subangular GRAVEL with		†
0.80	В				×××××	low to medium co	obbie content			-
1.00	ES									-1 -1
	1.80 3.98 Trialpit Complete at 1.80 m									-
										-2
										-3
										Spendard Triabel Loov 2 dated 27M Nov 03
Remarks	3:	Trial pit sides o	collapsin	g with c	lepth apse.				Log Sta	itus 8
Groundw	vater:	Groundwater e	ncounte	red at 0).9m				Fina	HeBASE 3.1

		IIO	<u>Γ</u> ΓΩ		η η Ι	Holequest Ltd			Trialpit No	
		TIO!	LEQ IMI			Vinston Road Salashiels			TP4-OP7	7
			11/11			Tel: 01896 7522			Sheet 1 of	1
Project Newtor		e art FPS			17/0	ect No. 182	Co-ords: 241579 Level: 9.70 m	9E - 564830N AOD	Date 31/01/2018	3
		ethod:- JCB 3	CX, GL	1.8m		· · · · · · · · · · · · · · · · · · ·	Dimensions:	3.00m	Scale	
0"							Depth 509 1.80m 0		1:25	
Client:	28 A	alloway Counc	il				1.80m °		Logged By FM	′
Samp	oles & In	Situ Testing	Depth	Level	Legend		Stratum Des	ecription	I IVI	П
Depth (m)	Туре	Results	(m)	(m AOD)	Logoria	Dark brown silty	sandy TOPSOIL grading to d	dark reddish brown silty gravelly	У	\vdash
0.20 0.50 0.80	ES ES		0.60	9.10		fine to medium s	ange brown silty locally very so	tlets		
1.00	ES									
1.00	ES		1.15	8.55		Grey slightly silty low to medium o	y sandy fine to coarse rounde cobble content	ed to subangular GRAVEL with		
1.80	В		1.80	7.90	× × ×		Trialpit Complete			-
										-2
										-3 -
										4
Remarks	 S:	Trial pit sides of	 collapsin	g and u	ndermin	ing with depth			Log Stat	tus
		Trial pit termina							Final	į
Groundw	vater:	Groundwater e	encounte	red at 0).6m				rinai	0 4 0 -1 -1 -1

		IIAI			ım F	Holequest Ltd			Trialpit No	5
		H 01	LEQ IMI') V	Vinston Road Galashiels			TP5-OP	7
			IMI	LED	T	Tel: 01896 75229	95		Sheet 1 of	1
Project		e vart FPS			Proj.	ect No.		93E - 564972N m AOD	Date 31/01/201	۵
		ethod:- JCB 3	CX. GL	- 2.2n		16Z	Dimensions:	3.00m	Scale	$^{\circ}$
			,				-		1:25	
Client:							Depth 69:		Logged By	у
		Salloway Counci Situ Testing	Depth	Level			L		FM	\Box
Depth (m)	Туре	Results	(m)	(m AOD)	Legend	Dark brown silty s	Stratum D	escription o dark reddish brown silty gravelly	,	
0.20	ES					fine to medium sli	ghtly organic Sand with r	odark reddish brown siny graven potlets with depth	,	-
			0.60	5.63	× * × *	Grey silty sandy fin	ne to coarse rounded to a	angular GRAVEL with low to	·	†
0.80	В				× × × ×					
1.00	ES				X X X X X X X X X X X X X X X X X X X					-1
1.80	В		2.20	4.03					-2	
			2.20	4.03	***********		Trialpit Comple	ete at 2.20 m		
										Orderd Triabel Lone/2 dated 27th Wor 03
Remarks	l s:	Trial pit sides re	elatively	stable	during e	excavation			Log Sta	itus 3
Oral	iotor:	Trial pit termina							Final	SE 31 (Bk
Groundw	ater:	Groundwater e	ricounte	red at 1	.ım				' '''	. BA

		**		****	V TO I	Holequest Ltd			Trialpit No	\neg
		HOI	ĿŲ	UES) \	Winston Road			P6-OP7	- 1
		L	MI^{λ}	ΓED	(Galashiels Fel: 01896 75229	5		Sheet 1 of 7	
Project	Name	 e				ect No.		47E - 565017N	Date	
		art FPS			17/0				19/12/2017	,
Excavat	tion M	lethod:- 3T Min	i Exca	vator, C	SL - 2.0	m	Dimensions:	3.50m	Scale	
0" (Depth 695.		1:25	4
Client:	00 8 G	Palloway Council					2.00m (c)		Logged By	
		Salloway Council Situ Testing	Depth	Level					FM	\dashv
Depth (m)	Туре	Results	(m)	(m AOD)	Legend	Doub bassas silta sa	Stratum D	escription OIL with many roots and rootlets		_
0.20 0.50 0.90 1.00	ES B ES B		0.80	5.47 5.27		grading to light bro slightly organic find Brown mottled blad Grey locally with m silty sandy to very	own silty to very silty slighte to medium Sand with reconstruction of the control	ntly gravelly locally cotlets		-1
			2.00	4.27			Trialpit Comple	ete at 2.00 m		
Remarks	::	Trial pit sides u Trial pit termina	ndermir ted due	ning with	n depth erminin	g.			Log Stat	S I IRM 428 72) Sandard Triabil Lon V2 dated 27th Nov 03
Trial pit terminated due to undermining. Groundwater: Groundwater encountered at 0.95m										HoleBASE 3.

-		NOI L	EQ	UES		Holequest Ltd Winston Road Galashiels			Trialpit No TP7-OP7
Duningt	Name					Γel: 01896 75229		405 5050501	Sheet 1 of 1 Date
Project Newton		art FPS			17/0	ect No.		16E - 565056N m AOD	19/12/2017
		lethod:- 3T Mir	i Exca	ator. C			Dimensions:	4.50m	Scale
							ľ	4.00111	1:25
Client:							Depth 605.		Logged By
Dumfrie	es & G	Salloway Counci	l						FM
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription	
0.20 0.50 0.50	ES ES B	Noodhe		,		grading to brown s	andy very gravelly TOPS ilty to very silty slightly g dium Sand with rootlets	OlL with many roots and rootlets ravelly locally slightly	
1.00	ES		1.00	5.63					1
1.10	В					Grey slightly silty fi subangular GRAV	ine to coarse SAND and EL	fine to medium rounded to	ļ '
1.60	В		1.20	5.43		Grey to reddish br coarse SAND with boulders of mixed	own with depth slightly s high cobble and boulde lithologies.	ilty very gravelly fine to r content, Gravel, cobbles and	
			1.80	4.83	*\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				-
									-3
Remarks	 s:	Trial pit sides u	ndermir	ing with	n depth	<u> </u>			Log Status
		Trial pit termina				y.			Final
Groundw	/ater:	Groundwater e	ncounte	red at 1	.15m				Final

ŀ		1 H0	LEQ IMI'	UES red) V	Holequest Ltd Winston Road Galashiels Fel: 01896 7522	95		Trialpit No TP8-OP7 Sheet 1 of 1
Project Newtor		e vart FPS			Proj 17/0	ect No. 082	Co-ords: 241340l Level: 6.70 m	E - 564926N AOD	Date 05/02/2018
Excava	tion M	ethod:- 3T Mii	ni Exca	vator, C	SL - 1.9	m	Dimensions:	2.00m	Scale 1:25
Client:							Depth 69 1.90m 9		Logged By
		Salloway Counc	II Depth	Level					FM
Depth (m)	Туре	Results	(m)	(m AOD)	Legend		Stratum Desc	·	
0.20	ES		0.30	6.40		MADE GROUND to coarse Sand a	O comprising Dark brown silty O comprising Light brown to grund fine to coarse rounded to a content, Includes rare Bricks a	ey brown silty to very silty angular Gravel with low to	fine
0.80	В								
1.00	ES								-1
			1.20	5.50		MADE GROUND Gravel with mediand Glass.	comprising Brown silty sand um to high cobble content, Ind	y fine to coarse rounded to cludes rare fragments of E	o angular Brick
1.50	ES								-
1.80	В		1.90	4.80			Trialpit Complete a	t 1 90 m	
									-3
Remarks	s:	Slight collapse	of trial pated due	oit sides	with de	pth, Trial pit sid	es undermining with dep	oth	Log Statu
Trial pit terminated due to collapse / undermining. Groundwater: Groundwater encountered at 1.8m									Final

-		NOI L	EQ IMI'	UES	SI	Tolequest Ltd Vinston Road Galashiels Fel: 01896 752295	TPS	alpit No 9-OP7 et 1 of 1	
Project		art FPS			Proj.	ect No. Co-ords: 241374E - 564881N 82 Level: 6.39 m AOD		Date 02/2018	
		ethod:- 3T Mir	i Exca	ator, C				Scale	\dashv
Olianati						Depth & E 2.10m & O		1:25	4
Client: Dumfrie	es & G	alloway Counci	l			2.10m e	_	ged By FM	1
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend	Stratum Description			1
0.20	ES		0.50	5.89		MADE GROUND comprising Dark brown silty sandy gravelly Topsoil w cobble and boulder content, Includes rare Glass fragments. MADE GROUND comprising Dark grey brown silty fine to coarse Sand to coarse rounded to angular Gravel, Includes fragments of China and	and fine		
1.00	B ES		1.10	5.29		MADE GROUND comprising Light grey brown very clayey very sandy fin	ne to	-1	ı
1.50	ES		1.40	4.99		coarse angular to tabular occasionally subrounded Gravel with low cobcontent, Includes occasional fragments of orange brown Tile. Light grey brown clayey sandy fine to coarse angular to tabular occasionally subrounded GRAVEL with low to medium cobble content, some rootlets and lenses / pockets (up to cobble sized) of silty fine to	ble		
1.80	В					coarse Sand and Peaty debris.		-2	2
						Trialpit Complete at 2.10 m		-3	3
								-4	Endand Triabil Los v2 daged 27th Nov 03
Remarks] S:	Trial pit sides s Trial pit termina	l table du ited at s	l Iring ex schedule	cavation ed depth		L	og Statu	3.1 (Bld 426.72) Ste
Groundw	vater:								

		IIO			nn I	Holequest Ltd			Trialpit No
		1 H0	LE Q		ST	Winston Road Galashiels			TP10-OP7
			11/111	LED		Tel: 01896 75229	95		Sheet 1 of 1
Project Newtor		e art FPS			Proj 17/0	ect No. 082		99E - 564828N m AOD	Date 22/01/2018
Excava	ition M	ethod:- JCB 3	CX, GL	- 2.4n	n		Dimensions:	3.00m	Scale 1:25
Client:							Depth 69 2.40m 09		Logged By
Dumfri	es & G	alloway Counc	il				2.40111 0		FM
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription	
			0.10	6.33			comprising Dark brown s		
0.20	ES						comprising Dark brownis subangular Gravel	h grey slightly silty sandy fine to	-
0.50	ES		0.40 0.50	6.03 5.93		MADE GROUND	comprising Firm to very sudes fragments of Brick a	stiff grey sandy slightly gravelly	
0.70	В					MADE GROUND		y very clayey very sandy fine to	coarse
			0.85	5.58		Very soft to soft da	ark brown sandy slightly o	gravelly slightly organic CLAY	
1.00 1.00	ES B					Ť			-1
1.50	ES		1.40	5.03		Greyish brown slig with low cobble co	ghtly silty sandy fine to co ontent, Gravel and cobble	parse rounded to angular GRAV es of varying lithologies.	EL
2.00	В								-2
			2.40	4.03	x * x *		Trialpit Comple	ete at 2.40 m	
									-3 -
									-
									-
									-
Remarks		Trial pit sides on Trial pit termina	ated due	to coll	apse.				Log Status
Groundy	vater:	Groundwater e	ncounte	red at	1.2m				Final

F		HOL	EQ	UES	I v	olequest Ltd inston Road alashiels	TP	rialpit No
Droiget	Nome				1	el: 01896 752295		neet 1 of 1 Date
Project Newton		e art FPS			17/0	ct No. Co-ords: 241488E - 564 32 Level: 5.87 m AOD		2/01/2018
		ethod:- JCB 30	CX, GL	- 2.3m	1	-	0m	Scale
								1:25
Client:						Depth 69 2.30m 6		ogged By
		Salloway Council						FM
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	egend	Stratum Description		
0.20	ES					Dark brown clayey sandy gravelly TOPSOIL grading to be medium locally slightly organic SAND with depth, include rootlets throughout.	orown silty fine to ing roots and	
			0.70	5.17		Dark reddish brown slightly silty sandy fine to coarse roo GRAVEL with high cobble and low boulder content	unded to angular	-
1.00 1.00	ES B			X · X · X · X · X · X · X · X · X · X ·				-1
			2.30	3.57	* x	Trialpit Complete at 2.30 m		
								-3
Remarks	 s:	Trial pit sides co	ollansin	a with de	oth			Log Status
		trial pit terminat	ed due	to collap	se.			Log Status
Groundw	vater:	Groundwater er	ncounte	red at 1.	8m			Final

						Iolequest Ltd			Trialpit No
		HOI HOI	LEO.	UES	T :	Vinston Road			TP12-OP7
		L	[MI	$\widetilde{\mathbf{ED}}$	_ (alashiels el: 01896 752295			Sheet 1 of 1
Project	Name	·				ect No. Co-o	rdo: 0/15	50E - 564740N	Date
-		art FPS			17/0			m AOD	22/01/2018
		lethod:- JCB 30	CX, GL	- 2.35			ensions:	3.00m	Scale
			•					0.00	1:25
Client:							pth E09.		Logged By
		Salloway Council							FM
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum [Description	
0.20 0.50 0.60	ES ES B		0.50	4.52		/ litter debris Becoming very gravelly	/ after approx 0.	oots, rootlets and rare crisp pace. 2m e SAND with low cobble conten	-
1.00	ES		1.10	3.92		medium Sand along riv Grey brown becoming orar tine to coarse rounded to s content, Gravel, cobbles ar	verside TP face nge brown with oubangular GRA nd boulders of n	depth slightly silty slightly sandy	m boulder
1.60	В		2.35	2.67	× × × × × × × × × × × × × × × × × × ×		Trialpit Compl	ete at 2.35 m	-2
									-3
									-4
Remarks	 s:	Trial pit sides co	l ollapsin	g and u	ndermir	ing with depth			Log Status
		Trial pit termina	ted due	to colla	apse.	•			Log Otatus
Groundwater: Groundwater encountered at 0.9m								Final	

	ПОГЕ	QUES	m H	Tolequest Ltd	Trialpit No
	HOLE	ILLED GTOP	G	Vinston Road Falashiels	TP2-OP24
Droingt Name			_	el: 01896 752295	Sheet 1 of 1 Date
Project Name Newton Stew			17/0	ect No. Co-ords: 241326E - 565185N 82 Level: 7.87 m AOD	14/12/2017
Excavation M	ethod:- JCB 3CX,	GL - 3.35r	n	Dimensions: 5.50m	Scale
Olianti				Depth & 500 C C C C C C C C C C C C C C C C C C	1:25
Client: Dumfries & G	alloway Council			3.35m + +	Logged By FM
Samples & In	Situ Testing De	epth Level m) (m AOD)	Legend	Stratum Description	
Depth (m) Type	Results (n	11) (1117100)		Dark brown silty sandy becoming very gravelly towards base TOPSOIL v	<i>v</i> ith
0.20 ES 0.50 ES	0.0	50 7.37		roots and rootlets	
0.80 B	O.	7.07		Dark reddish brown silty to very silty gravelly fine to medium SAND (possibly slightly organic) (Non Plastic)	
1.00 ES		20 0 0 7			-1
1.80 B	1.	20 6.67		Dark reddish brown slightly silty sandy fine to coarse rounded to subangular GRAVEL with low cobble content, Gravel and cobbles of mix lithologies.	ed -
		30 5.57	× × × × × × × × × × × × × × × × × × ×	Grey silty fine to coarse SAND	
2.80 B	2.3	50 5.37		Grey becoming reddish brown with depth slightly silty sandy fine to coars rounded to angular GRAVEL with low to high cobble and boulder conten Gravel, cobbles and boulders of mixed lithologies.	se 3
	3.:	35 4.52		Trialpit Complete at 3.35 m	
					-4
Remarks:	Trial pit sides collar Trial pit terminated	due to colla	osing / ı	ing with depth undermining.	Log Status

Groundwater:

Groundwater encountered at 2.4m

H	HO:	LEQ	UES TED		Iolequest Ltd Vinston Road Galashiels	Trialpit No TP3-OP24	
Project N					ect No. Co-ords: 241304E - 565173N	Sheet 1 of 1 Date	
-	Stewart FPS			17/0		13/12/2017	
Excavation	on Method:- JCB 3	CX, GL	2.65r	m	Dimensions: 5.50m	Scale	
Client:					Depth & C	1:25	
	& Galloway Counc	il			2.65m + + + + + + + + + + + + + + + + + + +	Logged By FM	
Samples	s & In Situ Testing	Depth	Level (m AOD)	Legend	Stratum Description		
0.20 0.50 0.60	ES ES B ES B	0.40	7.06		Dark brown becoming orange brown with depth silty sandy TOI rootlets and low cobble and boulder content towards base Dark orange brown silty gravelly fine to coarse SAND with low content and rare boulders, includes some rootlets towards top content and rare boulders, includes some rootlets towards top bark brownish grey becoming grey with depth slightly silty sand coarse rounded to subangular GRAVEL with high cobble content boulder content Gravel, cobbles and boulders of mixed litholog	cobble -1	
2.50	В	2.10	5.36 4.81		Grey slightly sandy to sandy fine to coarse rounded to subangu with high cobble content and low boulder content. Gravel, cobb boulders of mixed lithologies. Trialpit Complete at 2.65 m		
Remarks:	Trial pit sides o	collapsin	g with d	epth an	d undermining below approx 2.1m	Log Status	
Remarks: Trial pit sides collapsing with depth and undermining below approx 2.1m Trial pit terminated due to collapsing / undermining. Groundwater: groundwater encountered at 2.1m							

Groundwater:

groundwater encountered at 2.1m

-		9 H0	LEQ IMI'	UES		Holequest Ltd Vinston Road Galashiels Fel: 01896 752295	TP4-	pit No OP24 t 1 of 1
Project					Proj	ect No. Co-ords: 241344E - 565163N		ate
		ethod:- JCB	3CX. GL	- 2.95	17/0 m			2/2017 cale
			,					:25
Client:	00 ° C	Collowov Counc	ς;			Depth 5 2.95m +		ged By
		Salloway Counc Situ Testing	Depth	Level	Lagand	Sur Pouri for	_	M
Depth (m)	Туре	Results	(m)	(m AOD)	Legend	Stratum Description Dark brown silty sandy TOPSOIL with some rootlets. Becoming very	r gravelly	
0.20	ES		0.40	7.54	2.7 X . 7	after approx 0.25m Dark reddish brown very silty gravelly becoming very gravelly with de		
0.50	ES B					fine to coarse SAND with low cobble content and rootlets towards to (possibly slightly organic towards top).	p	
1.00	ES							-1
1.80	В		1.40	6.54		Dark brownish grey silty sandy fine to coarse rounded to subangular with low to medium cobble content. Shallow dipping bed (<5 degrees) of possibly very sandy Gravel 200mm thick observed in TP sidewall at approx 1.7m.		-2
2.70	В		2.60	5.34	×××	Grey slightly sandy fine to coarse rounded to subangular GRAVEL w cobble and boulder content	vith low	
			2.95	4.99		Trialpit Complete at 2.95 m		-3 - - - - - - - - -
								-
Remarks: Trial pit sides collapsing with depth and undermining below 2.6m Trial pit terminated due to collapsing / undermining.								g Status
Groundwater: Groundwater encountered at 2.6m								Final

-		O HOI	EQ MI	UES red		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5		TP5	alpit No OP24 eet 1 of 1	- 1
Project	Nam	e			_	ect No.		79E - 565147N		Date	┪
		vart FPS			17/0)82	Level: 6.86	m AOD	13/	12/2017	
Excava	tion M	1ethod:- JCB 30	CX, GL	2.3n	า		Dimensions:	5.50m		Scale 1:25	
Client:							Depth 59.2:			gged By	┥
		Galloway Council					2.00111 —			FM	
Samp Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription			
0.20	ES		0.40	6.46	3.4.5.7	Dark brown silty sa		y fine to coarse SAND		-	
0.50	ES B	Light brown silty to very silty slightly gravelly fine to coarse SAND grading to medium to coarse with depth. Includes thin lenses of reddish brown staining towards base.								-	
1.00	ES									-	1
1.70	В		2.30	5.26 4.56		Grey becoming red GRAVEL with med lithologies.	ddish brown silty sandy f lium to high cobble conte	ine to coarse rounded to angul ent. Gravel and cobbles of mixe	ar ed	-	2
			2.30	4.50			Trialpit Comple	ete at 2.30 m			
										- - - - - -	3
											ndard Triabel Log v2 dated 27th Nov 03
Remarks	 s:	Trial pit underm	ining b	lelow 1.6	 65m				I	 _og Statu	JS 126.72) Stan
		Trial pit termina				g. 				Final	E 3.1 (Bld -
Groundw	ater:	Groundwater er	ncounte	ered at 1	I.65m					rııdı	HoleBAS

T CONTRACTOR	JAI FAIIFC	Holequest Ltd		Trialpit No
	HOLEQUES LIMITED	Winston Road Galashiels		TP6-OP24
		101. 01070 732		Sheet 1 of 1
Project Name Newton Stewart FPS		Project No. 17/082	Co-ords: 241357E - 565136N Level: 7.64 m AOD	Date 13/12/2017
Excavation Method:- J	CB 3CX, GL - 3.3m	177002	Dimensions: 5.50m	Scale
			Depth 5	1:25
Client:			3.30m (Logged By
Dumfries & Galloway C Samples & In Situ Testing				FM
Depth (m) Type Results	Depth Level (m AOD)	egend	Stratum Description	
0.20 ES 0.50 ES	0.40 7.24	after approx 0.	y gravelly fine to coarse SAND with some rootlets (Possi	
0.80 B	0.70 6.94	subangular GR	rown silty sandy locally very sandy fine to coarse rounded RAVEL with medium cobble content, Gravel and cobbles	d to of mixed
1.00 ES	2.30 5.34	rounded to sub	g reddish brown with depth slighlty sandy fine to coarse vangular occasionally angular or tabular GRAVEL with m ntent and low boulder content, Gravel, cobbles and bould gies.	
3.30 B	3.30 4.34		Trialpit Complete at 3.30 m	····
				-4
Remarks: Trial pit u	ndermining below applerminated due to under	rox 2.5m		Log Status

Conditions becoming damp at 2.3m, Groundwater encountered at 2.5m

Groundwater:

Final

ŀ		1 H0	LEQ	UES		Holequest Ltd Winston Road Galashiels Tel: 01896 752	295		Trialpit No TP7-OP24 Sheet 1 of 1		
Project	Name					ect No.		7E - 565111N	Date		
		art FPS			17/0)82	Level: 7.60 m		13/12/2017		
Excava	ition M	ethod:- JCB 3	BCX, GL	3.0m	1		Dimensions:	5.50m	Scale 1:25		
Client:							Depth		Logged By		
		Salloway Counc	1	Г	Г				FM		
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum De	scription			
0.20 0.50 0.65	ES ES B		0.45	7.15		after approx 0.2	own silty sandy fine to coarse content, Gravel and cobbles	rounded to subangular GR/			
1.00	ES		1.00 6.60 Dark reddish brown silty slightly gravelly fine to coarse SAND, Incl lenses (<100mm thick) of fine and fine to medium Gravel.								
1.50	В		1.90	5.70		coarse rounded	Light grey to dark grey becoming reddish brown with depth sandy fine to coarse rounded to angular GRAVEL with medium cobble and low boulder content. Gravel, cobbles and boulders of mixed lithologies.				
2.50	В		3.00	4.60			Trialpit Complete	at 3.00 m	-3		
									-4		
Remarks	S:	Trial pit sides o	collapsin ated due	g with d	lepth an	d undermining undermining	below 2.4m		Log Status		
Trial pit terminated due to collapsing / undermining. Groundwater: Groundwater encountered at 2.4m									Final		

			LEQ	UES		Holequest Ltd Vinston Road Galashiels Cel: 01896 752	2295		Trialpit No TP10-OP2 Sheet 1 of	24
Project Newtor		e art FPS			17/0	ect No.		00E - 565090N m AOD	Date 19/12/2017	7
		ethod:- 3T M	lini Exca	ator, C			Dimensions:	4.50m	Scale	
							Depth 5		1:25	
Client:							Depth & 50.00m		Logged By	,
		alloway Coun							J FM	
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend		Stratum D	<u> </u>		
0.20	ES					grading to brow	ry sandy very gravelly TOPS vn silty to very silty slightly g medium Sand with rootlets	OIL with many roots and ro ravelly locally slightly	otlets	
0.80	В								-	-
1.00	ES		0.95	5.70		Grey slightly si rounded to sub	lty fine to coarse SAND and angular GRAVEL	fine to medium rarely coars	se	-1 -1
1.30	В		1.15	5.50	X X X X X X X X X X X X X X X X X X X	coarse SAND very soft Silt / 0	eddish brown and occasiona with lenses (generally <100r Clay of low plasticity and fine cobble and boulder content	nm thick) of medium to coa to medium rounded Grave	arse Sand,	
			2.00	4.65	** * * *		Trialpit Comple			-2
										-34
Remarks		Trial pit sides	undormi:	ing with	n donth				· -	<u>_</u>
Remarks	J.	Trial pit sides	nated due	to und	ermining	j .			Log Stat	ius
Groundy	vater:	Groundwater	encounte	red at 1	.0m				Final	

		HOL	EQ	UES	T	Holequest Ltd Winston Road	Trialpit No	- 1					
		LI	MI^{\prime}	ΓED	· - (Jaiasilieis	Sheet 1 of	- 1					
Project	Name	<i>-</i>				ect No. Co-ords: 241350E - 565054N	Date						
-		art FPS			17/0		14/12/2017	7					
Excavat	tion M	ethod:- JCB 30	X, GL	- 2.7m	1	Dimensions: 5.50m	Scale						
						Depth &	1:25						
Client:						Depth & C C C C C C C C C C C C C C C C C C	Logged By	/					
		Salloway Council					FM						
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend	Stratum Description							
0.20	ES		0.80	6.24		Dark brown silty sandy gravelly TOPSOIL grading to brown very silty slightly organic fine to medium Sand with roots and rootlets throughout Diffuse margin to brown silty fine to coarse SAND with some roots and rootlets (Non Plantic)							
1.00	ES B		1.50	5.54		Bluish grey slightly silty fine to coarse SAND Partly decomposed tree surrounded by Peaty debris encountered at appr 1.7m	ox	-1					
2.00	В		2.70	4.34		Grey becoming reddish brown with depth slightly silty sandy fine to coarse rounded to angular GRAVEL with high cobble content, Gravel and cobbles of mixed lithologies.		-2					
						Trialpit Complete at 2.70 m		-					
								-3					
								-4					
Remarks		Trial nit sides as	llancin	g and i	ndermir	ning with denth		-					
кетпагкѕ	•	Trial pit sides co	mapsin ted due	y and ul	riuermir erminin	шу мин аерин g.	Log Sta	tus					
Groundw	ater:	Groundwater en	al pit sides collapsing and undermining with depth al pit terminated due to undermining. oundwater encountered at 2.0m										

		***			New F	Holequest Ltd		-	Trialpit No	\neg
		HOI LI	LEQ	UES	ST ż	Winston Road			Γ Ρ1-S Ρ	
		L	ľMľ	(ED	(T	Galashiels Fel: 01896 75229	15		heet 1 of	- 1
Project	Name					ect No.		47E - 565157N	Date	_
-		vart FPS			17/0				9/12/2017	7
Excava	tion M	lethod:- 3T Min	i Exca	ator, C	3L - 2.0	m	Dimensions:	3.50m	Scale	
							Depth မြ		1:25	
Client:							Depth $\frac{\mathcal{E}}{\mathcal{L}}$ 2.00m	ι	ogged By	<i>'</i>
		Salloway Council Situ Testing		l sust	1 1				FM	-
Depth (m)	Туре	Results	Depth (m)	Level (m AOD)	Legend		Stratum D	•		
0.20 0.50 0.50	ES ES B		0.60	8.03		and fine to coarse cobble content, Ind Filters and many F	rounded to angular Grav cludes fragments of Slate Roots / Rootlets.	ery clayey organic fine to coarse Sar rel of low plasticity with low e, Brick, Masonry, rare Air		-
						fine to coarse San	d and fine to medium oc	ttled brown and dark grey very claye casionally coarse Gravel with	y	-
0.80	В					lenses (<200 thick Includes variable parties and Masonry.	or very clayey organic s proportions of Ash, Coal,	Sand and low cobble content, Bricks and fragments of Brick,		
1.00	ES					The and Masonly.				-1
1.50	ES									-
1.80	В					Intermixed with angular Grave	n reddish brown silty san I between 1.7 - 2.0m	dy fine to medium subrounded to		-
2.00	ES		2.00	6.63			Trialpit Comple	ete at 2.00 m		-2
										-3
Remarks	 s:	Slight collapse	of trial r	oit sides	with de	oth			Log Ctat	
	. •	Trial pit termina	ted at s	chedule	ed depth	1			Log Sta	เนอ
Groundw	vater:								Final	

-		O HOL	LEQ IMI	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		Trialpit No TP2-SP Sheet 1 of 1
Project	Name	e			Proj	ect No.		243E - 565135N	Date
		art FPS			17/0			m AOD	19/12/2017
Excava	tion iv	lethod:- 3T Mir	II Exca	vator, C	JL - 1.8	i5m	Dimensions:	3.50m	Scale 1:25
Client:							Depth (c)		Logged By
Dumfrie	es & G	Salloway Counci	I				1.00111		FM
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum	Description	
0.20	ES		0.20	9.22		rootlets		silty sandy gravelly Topsoil with ma	
0.50 0.50	ES B					of intermediate pla with cobble sized gravelly Sand and	asticity and fine to coars pockets of sandy slightl low cobble / boulder co	very clayey organic fine to coarse Se rounded to angular Gravel y gravelly Clay and silty ontent, Includes fragments of Coal, and some Roots / rootlets.	sand
1.00	ES								-1
1.50 1.50	ES B		1.35	8.07		slightly organic cla rounded to angula	ayey locally very clayey	mottled light brown and black local very sandy fine to coarse e content predominantly of Bricks, Glass / Glass bottles	ly
						11014400 1011000 01	7 on and magmond of	oldoo / Glado Bolloo.	-
1.80	ES		1.85	7.57		. Obstruction o	n possible corragated T Trialpit Comp	in Sheet at 1.85m Dete at 1.85 m	-2
									-3
									-4
									-
									-
									-
Remarks	S:	Slight collapse Trial pit termina	of trial pated at s	oit sides schedule	with de ed depth	pth n.			Log Status
Groundw	vater:								Final

-		HOI	LEQ IMI'	UES red		Holequest Ltd Winston Road Galashiels Fel: 01896 75229:	5	7	Trialpit No	
Project	Name	 e				ect No.		03E - 565161N	Date	\exists
		vart FPS			17/0				5/12/2017	,
Excava	tion M	lethod:- JCB 30	CX, GL	3.0n	n		Dimensions:	5.50m	Scale 1:25	
Client:							3.00m (2)	-	ogged By	\dashv
	es & C	Salloway Council					3.00111	'	FM	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum Do	escription		
0.20	ES	riodate	0.40	7.02		low boulder conten	t	pth TOPSOIL with rootlets and		-
0.50	ES				× * × × ×	GRAVEL with some	e roots and rootlets (loca	ally slightly organic)		
0.70	B ES		4.00	0.00		Sand becoming	g more predominant with	depth		-1
			1.20	6.22	× × × × × ×	Greyish brown slig	htly silty medium to coars	se SAND		-
1.70	В		3.00	4.42	X X X X X X X X X X X X X X X X X X X	rounded to subang silty sandy gravelly cobbles and boulde	ular GRAVEL with high o		ng	-2
Remarks	:	Trial pit sides co	ollapsin	g with c	iepth				Log Stat	48-723: Sandard Triabat Log v2 dated 27th Nov 03
Komarks	•	Trial pit termina	ted due	to colla	apse.					31 (Bid 426
Groundw	ater:								Final	HoleBASE

	—	HOI	EQ	UES		Jaiasmeis	Trialpit No TP4-SF Sheet 1 of	•	
Project Newtor		art FPS			Proj 17/0	ect No. Co-ords: 241303E - 565133N Level: 7.34 m AOD	Date 13/12/201	7	
		thod:- JCB 30	CX, GL	2.5m		Dimensions: 5.50m	Scale	•	
Client:						Depth & E	1:25 Logged B	.,	
Dumfrie		alloway Council				2.50m 49	FM	у	
Samp Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description			
0.20 0.50 0.50	ES ES B		0.40	6.94		Dark brown silty sandy TOPSOIL with some rootlets, becoming very gravelly with low cobble content towards base Dark reddish brown silty to very silty gravelly fine to coarse slightly organic SAND with occasional rootlets			
1.00	ES		0.85	6.49		Dark reddish brown silty sandy fine to coarse rounded to subangular GRAVEL with low cobble content, Gravel and cobbles of mixed lithologies.		-1	
1.50	В		1.20	6.14		Brown very silty gravelly fine to coarse SAND			
			1.70	5.64	x	Diffuse margin to Grey becoming reddish brown with depth silty sandy fine to coarse GRAVEL with medium cobble and low boulder content, Gravel, cobbles and boulders of mixed lithologies.		-2	
2.50	В		2.50	4.84		Trialpit Complete at 2.50 m		-3	
								-4	
								-	
Remarks	S:	Trial pit sides co	ollapsin ted due	g with d	lepth an apsing /	d undermining below 1.9m undermining.	Log Sta	atus	
Trial pit terminated due to collapsing / undermining. Groundwater:									

HOLEQUEST Holequest Ltd Winston Road Galashiels Tel: 01896 752295 HOLEQUEST Holequest Ltd Winston Road Galashiels Tel: 01896 752295 Sheet										
Project	Namo					ect No. Co-ords: 241046E - 565929N	Date	\dashv		
-		art FPS			17/0		19/01/201	8		
		lethod:- Hand E	xcava	ted, GL			Scale			
						Depth E	1:13			
Client:						Depth 5 0.50m 6	Logged B	у		
		Salloway Council Situ Testing	5 4				MT / FM			
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description				
0.20 0.20 0.50	B E S E S	results	0.05	9.79		MADE GROUND comprising Red single size Gravel MADE GROUND comprising Grey silty very gravelly fine to coarse Sand wi high cobble and boulder content, includes much Bricks and Masonry, Voide noted around conjoined cobbles / boulders with depth where cobbles / boulders predominant. Pinch bar inserted approx 0.5m below boulder with no resistance - voice Trialpit Complete at 0.50 m	age	-1		
_								-		
Remarks	:	Trial pit terminat See attached sk	ted due tetch fo	to boul	ders - te ation de	o be re-excavated with 3T Mini Excavator to confirm wall base.	Log Sta	atus		
See attached sketch for foundation detail Groundwater: No groundwater encountered										

F		HOL	EQ	UES		Holequest Ltd Winston Road Galashiels			Trialpit No	P6
-		111	1411	را الداد		Tel: 01896 75229			Sheet 1 of	1
Project Newton		rt EDS			Proj 17/0	ect No.		46E - 565929N 0 m AOD	Date 24/01/201	۵
		thod:- 3T Mini	Fxca	ator G			Dimensions:	1.50m	24/01/201 Scale	0
				۵.01, د	_ 1.0			1.50111	1:13	
Client:							Depth 69:		Logged B	y
		lloway Council							MT / FM	
Samp Depth (m)	les & In Si Type	itu Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
1.00	ES		1.00	9.29		high cobble and be noted around conjc boulders predomin	oulder content, Includes ined cobbles / boulders ant.	,	y sandy	
Remarks		Trial pit terminat detail	ed due	to wate	er ingres	ss from existing flo	oodwall. See attach	ed sketch for foundation	Log Sta	atus
Ground			0011545	rod ct -	nnro:: 4	6m cooping the	ough oviction well t	rom rivor	Fina	,
Groundw	rater:	Groundwater en	counte	red at a	ipprox 1	.om - seeping thr	ough existing wall f	IOIII IIVEI	I IIIA	. 1

Newton Stewart FPS HP1A-OP6 Section

2.00 Existing Ground Level 1.60 Floodwall Foundation Type / Level not confirmed - HP terminated due to seepage through floodwall

Denotes approximate nuterwool

Marke

All dimensions are in rection unless otherwise specified.
 Sankinual temperation data as provided by Sweco UK
Ltd where applicable.

Drawing -

HP1-OP6 Sketch

No- Haio	GONSFPS/065	Not	Te Soule
	F.Murray C.Bodger		04.04.17

Project

Newton Stewart FPS

Clert-

Dumfries & Galloway Council



Wireton Rood Calestick TO1 204

Tet 01895 752295 Email: Info@holequest.co.uk

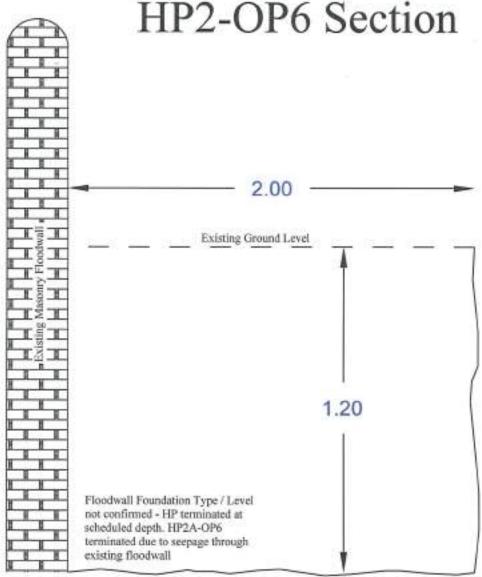
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H	HOLE	EQUES	Holequest Winston R Galashiels Tel: 01896	oad	Trialpit No HP2-OP6 Sheet 1 of 1		
Project Name Newton Stew			Project No. 17/082	Co-ords: 241091E - 565759N Level: 9.36 m AOD	Date 19/01/2018		
Excavation M	lethod:- Hand Exc	cavated, GL	- 1.2m	Dimensions: 1.00m Depth	Scale 1:13		
Client: Dumfries & G	Salloway Council			Depth E 09 0	Logged By MT / FM		
Samples & In Depth (m) Type		epth Level (m) (m AOD)	Legend	Stratum Description			
	9.26 MADE GROUND comprising Dark brown silty sandy Topsoil MADE GROUND comprising Brown silty very gravelly fine to coarse Sand with medium cobble content, Includes Ash, Brick and much Masonry.						
0.30 B 0.30 ES		0.30 9.06	MADE GF Sand with	ROUND comprising Black slightly organic silty gravelly fine low cobble content, Includes Ash and some Brick.	to coarse		
0.50 B ES 0.90 B 1.00 ES		9.50 8.86	>>>>> with medi	ROUND comprising Brown silty locally gravelly fine to coar um cobble content that includes Ash and cobble sized poo own sandy Clay with depth	se Sand ckets of		
		8.16		Trialpit Complete at 1.20 m			
Remarks:	Trial pit terminated base. See attache	d sketch for f	d depth - To be r oundation detail	e-excavated with 3T Mini excavator to confirm	wall Log Status		

-		HOL	EQ	UES		Holequest Ltd Winston Road Galashiels			Trialpit N	
			T TAT 1			Γel: 01896 75229	T		Sheet 1 o	f 1
Project					-	ect No.		91E - 565759N	Date	
		art FPS			17/0			m AOD	24/01/201	18
Excava	tion M	ethod:- 3T Mini	i Exca	ator, C	SL - 0.7	m	Dimensions:	1.50m	Scale 1:13	
Client:							Depth 69:			
	nc & G	Salloway Council					0.70m °		Logged E MT / FM	
		Situ Testing	Depth	Level					IVI I / FIVI	
Depth (m)	Туре	Results	(m)	(m AOD)	Legend			escription		
						MADE GROUND	comprising Dark brown s	ilty sandy Topsoil		
			0.10	9.26		MADE GROUND of medium cobble co	comprising Brown silty wintent, Includes Ash, Brid	ery gravelly fine to coarse Sand k and much Masonry.	l with	
			0.30	9.06		MADE GROUND of fine to coarse San some Brick	comprising Black slightly d with low cobble conter	organic silty gravelly t, Includes Ash and		_
			0.50	8.86		coarse Sand with	comprising Brown silty lo medium cobble content ets of orange brown san	hat includes Ash and		
			0.70	8.66						
			0.70	0.00			Trialpit Compl	ete at 0.70 m		
										-
										-1
										-
										-
										-
										+
										$\mid \cdot \mid$
										+
Remarks	<u> </u>	Trial pit terminat foundation detail	ted due	to wate	er ingres	ss through existin	g floodwall. See att	ached sketch for	Log St	atus
Groundw	ater:	Groundwater en	counte	red at C).7m - S	eepage through	existing floodwall		Fina	al

Newton Stewart FPS HP2-OP6 Section



~

Decartes approximate subservest

Mos

All dimensions are in meters unless observice specified.
 Barbround topographical data as provided by Swess UKLM where applicable.

Driveting

HP2-OP6 Sketch

Drawing Soliton
No. Horizonas Parace Net To Solito
Drawe No. F.Murray Delta 04.04.17

trave to: F.Murray over 04.04.17 traveled by: C. Rodger 04.04.17

Project-

Newton Stewart FPS

Cleet-

Dumfries & Galloway Council



Wester Road Galastists TO1 20A

Tet: 01896 752295 Fax: 01899 761515 Ernait Info@holequest.co.uk

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Project	Name	HOL	EQ	UES) V	Vinston Road Galashiels	Trialpit No P3-OP heet 1 of Date	6			
Newton					17/0		4/01/2018	8			
Excavat	tion Me	ethod:- 3T Mini	Exca	vator, C	SL - 0.9		Scale				
01: 1						Depth 69 0.90m 0	1:13	_			
Client:	20 & G	alloway Council				0.90m O	Logged By MT / FM	/			
		Situ Testing	Depth	Level	Legend	Stratum Description	IVII / I IVI				
0.20 0.20 0.50	ES B ES	Trial nit terminal	0.90	to water		MADE GROUND comprising Grey brown silty very gravelly fine to coarse Sand with medium cobble and boulder content with depth, Includes Bricks, fragments of Brick and occasionally Masonry Trislpit Complete at 0.90 m		-1			
Remarks	S:	i riai pit terminat foundation detai	ed due Is	to wate	er ingres	ss through existing floodwall. See attcahed sketch for	Log Sta	tus			
Groundw	foundation details undwater: Groundwater encountered at 0.9m - Seepage through existing floodwall Final										

Newton Stewart FPS HP3-OP6 Section

2.00 Existing Ground Level 0.90 Floodwall Foundation Type / Level not confirmed - HP terminated due to seepage through existing floodwall

Denotes approximate suferment entent of excession

Not

All dimensions are in nectors unions otherwise specified.
 Businessand topographical data as provided by Sween UK.
Ltd where applicable.

Drawing:

HP3-OP6 Sketch

Drawing
No: HOLOGICINEFPS/807
Net To Sode

Drave By- F.Murray Checked By- C. Rodger Date: 04.04.17

Bridge

Newton Stewart FPS

Chest

Dumfries & Galloway Council



Winston Road Galasticks TO1 ZDA

Tel: 01856 752255 Emait Info@holequest.co.uk

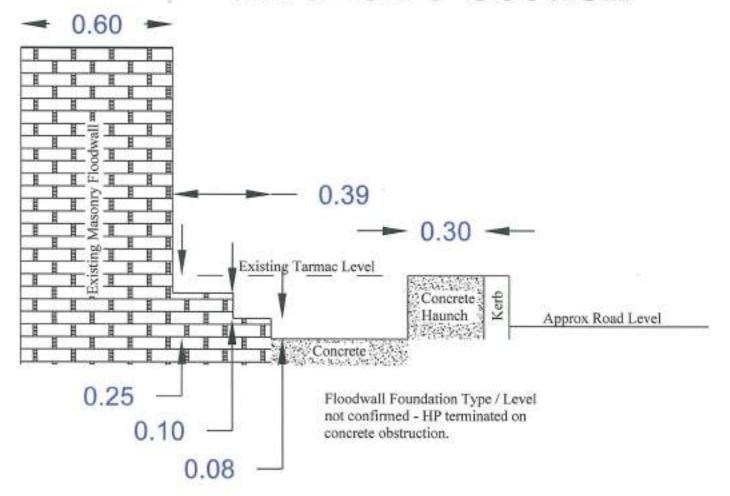
Par: 01090 751515 Web: www.holequest.co.uk

-		HOL	LEQ IMI'	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		Trialpit No HP4-OP Sheet 1 of	6
Project						ect No.		27E - 565620N	Date	
		art FPS			17/0			m AOD	25/01/201	8
Excavat	tion M	ethod:- Hand E	xcava	ted, Gl	1.2m	1	Dimensions:	1.00m	Scale 1:13	
Client:							Depth 69 1.20m 0			
	es & G	alloway Council					1.20m ö		Logged B	У
Samp	les & In	Situ Testing	Depth	Level	Legend		Stratum D	occription	,	
Depth (m)	Туре	Results	(m)	(m AOD)	XXXXX	MADE GROUND	comprising White single	•		
0.20 0.20 0.50	B ES		0.05	9.15 8.60		MADE GROUND with low cobble co	comprising Dark brown s intent, Includes much Asi	ilty very gravelly fine to coarse so ny debris and occasional Bricks solve the same of the same of the same solve the same of the same occasional solve of the same occasional solve of the same occasional solve	5 .	
1.00	ES		1.20	8.00			Trialpit Comple	to at 1.20 m		-1
Remarks	 5:	Trial pit termina	ted at s	chedule	ll ed depth	n. See attached s	ketch for foundation	detail	Log Sta	atus
		,			•					
Groundw	ater:	No groundwate	r encou	ntered					Fina	I

Newton Stewart FPS Divertion approximate outerwant extent of exervision HP4-OP6 Section Existing Fenceline All directaions are in metrics unless atherwise specified. Backtound topographical data as provided by Sween UK Ltd where applicable. HP4-OP6 Sketch Not To Sook HO/DGONS/PS/608 Existing Ground Level F.Murray Date: 04.04.17 0.20 Cwelved By- C.Rodger Detr- 04.04.17 Newton Stewart FPS Dumfries & Galloway Council 1.20 Masonr Floodwall Foundation Type / Level not confirmed - HP terminated at scheduled depth. Gelachies info@holequest.co.uk 01090 752295 01886 751515

F		HOL	EQ	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5			HP:	alpit No 5-OP6 et 1 of 1	$\left \right $
Project	Nama					ect No.		2/4/4	60E - 565560N		Date	\dashv
-		art FPS			17/0				m AOD		02/2018	ı
		lethod:- Hand e	xcavat	ed. GL			Dimensions		0.60m		Scale	┨
				,					0.00111		1:13	ı
Client:							Depth 0.25m	1.00m		Loc	ged By	1
	es & G	Salloway Council					0.23111	_			Y/FM	ı
Sampl	les & In	Situ Testing	Depth (m)	Level (m AOD)	Legend		Str	ratum D	Pescription			1
Depth (m)	Туре	Results	(111)	(III AOD)	XXXX	MADE GROUND o						┨
			0.15	8.72		MADE GROUND o	comprising Grey	silty sar	ndy fine to coarse angular Gravel .25 - 0.28m ete at 0.25 m		-1	
											-	
Remarks	:	See attached sk	etch fo	r termin	ation d	etail				L	og Status	;
Groundw	ater:	No groundwater	encou	ntered							Final	

Newton Stewart FPS HP5-OP6 Section



Ownerse approximate substresses senset of expansion

Nation

All directacions are in metros articas etherwise specified.
 Bookcound topographical duta as pravided by thereis LIX Ltd where applicable.

Drawingo

HP5-OP6 Sketch

Pranct-

Newton Stewart FPS

Clark-

Dumfries & Galloway Council



Wester Road Galoshels TO1 204

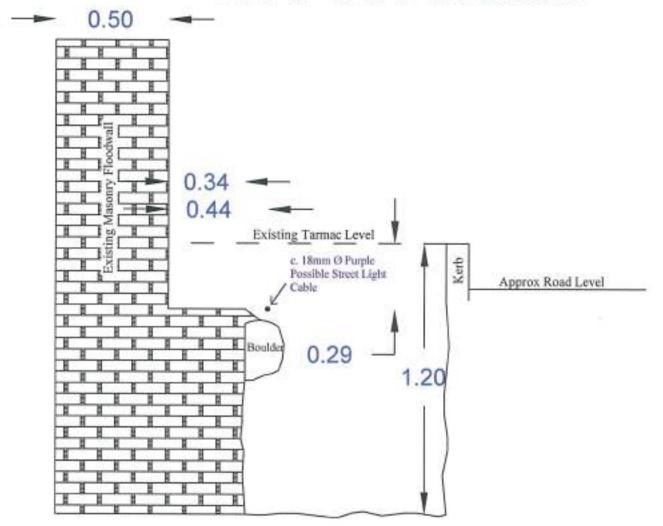
Tet 01895 752295 info@holequest.co.uk

Pax: 01896 761616

www.holequest.co.uk

-		HOL	LEQ IMI'	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		Trialpit No HP6-OP6 Sheet 1 of 1
Project		e vart FPS			Proj 17/0	ect No.		87E - 565501N m AOD	Date 06/02/2018
		ethod:- Hand I	Excava	ted, Gl			Dimensions:	1.00m	Scale
							Depth 69 1.20m 0		1:13
Client:	25 & C	alloway Counci	l				1.20m 9		Logged By BMY / FM
Samp	les & In	Situ Testing	Depth	Level (m AOD)	Legend		Stratum F	Description	DIVIT / T IVI
Depth (m)	Туре	Results	(ṁ)	(III AOD)		TARMAC	Ollulari E	200011211011	
			0.09	8.54		MADE GROUND	comprising Grey brown s	silty sandy fine to coarse rounded	i to
0.20 0.20	ES B		0.15	8.48		angular Gravel MADE GROUND	comprsing Dark grey bro	own locally slightly organic silty ve d Gravel, Includes Tile, China an	ery
0.50 0.50	ES B		0.50	8.13		sandy fine to coar	comprising Dark grey brounders angular to subrounderna, Glass and Bone.	own locally organic very clayey ve d Gravel with low cobble content	ery ,
1.50			1.20	7.43			Trialpit Compl	ete at 1.20 m	
Remarks		Trial pit sides s			cavation	ı. See attached s	ketch for foundation	ı details	Log Statu

Newton Stewart FPS HP6-OP6 Section



Floodwall Foundation Type / Level not confirmed - HP terminated at scheduled depth. Denotes egyroximata automosi

Note

All dimensions are in matrix unless otherwise specified.
 Burlevand topographical state as provided by Swecs LIC LIS where applicable.

Drawing.

HP6-OP6 Sketch

Drawing Scale:

Mo: HolibacinsFinate Rec. To Scale

brown the F. Murtay Dela: 04.04.17

browled to: C. Rodger Date: 04.04.17

Projecto

Newton Stewart FPS

Chien

Dumfries & Galloway Council



Wireten Read Goleshiels 101 20A

Tel: 01896 752295 Info@nolequest.sc.uk

Fax: 01898-751515

www.holoquest.co.uk

-		NOI L	LEQ IMI	UES red		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		Trialpit No HP7-OP6 Sheet 1 of 1
Project						ect No.		17E - 565433N	Date
		art FPS			17/0			m AOD	05/02/2018
Excava	tion IV	lethod:- Hand E	-xcava	ited, Gl	1.1m	1	Dimensions:	1.00m	Scale 1:13
Client:							Depth 69 1.10m 6		Logged By
	es & G	Salloway Council					1.10m ö		BMY / FM
Samp	les & In	Situ Testing	Depth	Level (m AOD)	Legend		Stratum D	escription	
Depth (m)	Туре	Results	(m)		XXXX	TARMAC	Ollutain B	Состраст	
			0.05	8.24		MADE GROUND	comprising Grey brown s	ilty sandy fine to coarse rounde	ed to
						angular Gravel			
0.20 0.20	ES B		0.18	8.11		MADE GROUND	comprising brownish gre	y silty fine to coarse Sand	
									-
			0.34	7.95		MADE GROUND	comprising Dark grey loc	ally mottled yellowish brown si	lty
						sandy fine to coar	se subrounded to angula	r Gravel with low to medium co Fimber and lenses of Masonry	bble
0.50	ES					debris.		,	
0.50	В								
									-
									-
1.00 1.00	ES B								-1
			1.10	7.19		· ·			
							Trialpit Comple	ete at 1.10 m	
									-
									-
									-
									-
									_
									}
									-
									Ţ
									-
Doml-	<u></u>	Triol oit sides of	obla -	rin a -:	001/04:-	Coo ottock and a	kotob for form -1-4:	dotoil	
Remarks	·.	rriai pit sides si	.adie dl	ırıng ex	cavation	i. See attached s	ketch for foundation	uetali	Log Status
Groundw	iator:	No groundwate	r ancou	intered					Final
Giouriaw	aitl.	ino groundwate	i c ncou	iiileieu					

Denotes approximate autorinost extent of expandice Newton Stewart FPS o.50 - HP7-OP6 Section - All directions are in metres unless attenues specified. Beckroored top-ographical data as prayited by Sweso UK. List where applicable Drawing -HP7-OP6 Sketch 0.46 HQ/DGCNGFPSIOT Not To Scale. Existing Tarmac Level Date: 04,04,17 F.Murray c. 18mm Ø Purple Kerb Checked by C.Rodger Dete- 04.04.17 Possible Street Light Approx Road Level Newton Stewart FPS 0.26 Dumfries & Galloway Council Floodwall Foundation Type / Level Whitien Road not confirmed - HP terminated at

scheduled depth.

Erroit 01606 752296

Galashiels TD1 2DA

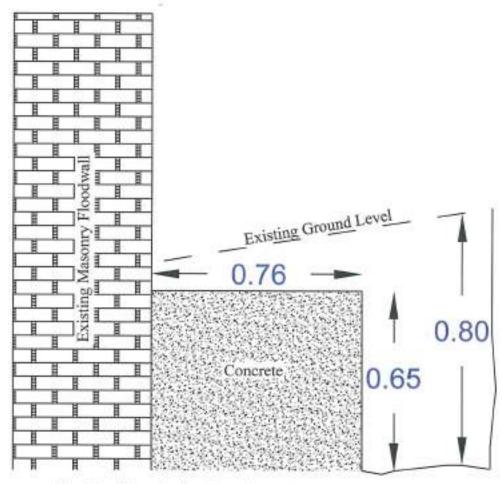
01696 761615

Info@holinguest.co.uk

ivervi.hologuest.co.uk

-	K	HOL	EQ MI'I	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		Trialpit N HP8-OF Sheet 1 o	P6	
Project					1	ect No.		37E - 565378N	Date		
Newton					17/0			m AOD	24/01/20	18	
Excava	tion Me	ethod:- Hand E	xcava	ted, GL	0.8n	1	Dimensions:	1.00m	Scale 1:13		
Client:							Depth 69 0.80m 0		Logged E	21/	
	es & Ga	alloway Council					0.80m Ö		BMY / FN		
		Situ Testing	Depth (m)	Level (m AOD)	Legend		Stratum D	escription			
Depth (m)	Туре	Results		, ,	****	MADE GROUND		ilty sandy Topsoil with many roo	tlets	+	
0.20 0.20 0.50 0.50	ES B		0.05	7.78		MADE GROUND	comprising Dark brown s	ilty slightly organic fine to coarse			
0.80	ES B		0.80	7.03			Trialpit Comple	te at 0.80 m		The base of Tacks but and a decided 40th but	
Remarks: Trial pit terminated on engineers instruction . See attached sketch for foundation detail Log											
Groundw	bundwater: Groundwater encountered at 0.55m										

Newton Stewart FPS HP8-OP6 Section



Floodwall Foundation Type / Level not confirmed - HP terminated at scheduled depth.

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Denintes approximate automost

Name

At dissessions are in reatins unless eitherwise opeobled.
 Bookround topographical data as provided by Swess UK.
 List where applicable.

irawing :-

HP8-OP6 Sketch

Drawing No. HQID	GCINEFFE/012	Station - New	To Scale
Drawn By:-	F.Murray	Date:	04.04.17
Charlest Sec.	C Rodow	Plante.	DA DA 47

Project

Newton Stewart FPS

Dies.

Dumfries & Galloway Council



Winston Read Golastivis 7D1 2DA

01896 752296

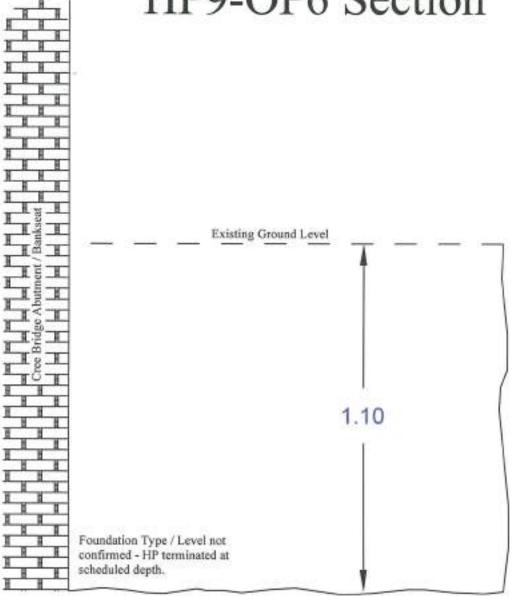
info@howquest.co.uk

Fax: 01890 751515

www.holeguest.co.uk

-		HOL	LEQ	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		Trialpit No HP9-OP Sheet 1 of	6
Project					1 -	ect No.		97E - 565665N	Date	
		art FPS	_		17/0			m AOD	30/01/2018	3
Excava	tion ivi	ethod:- Hand E	excava	tea, Gi	`1.`Iff	1	Dimensions:	1.00m	Scale 1:13	
Client:							Depth 69 1.10m		Logged By	$\overline{\mathcal{A}}$
	es & G	alloway Council					1.10111 6		BMY / FM	
	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20 0.20 0.20	MADE GROUND comprising Dark brown to black sandy gravelly Topsoil with low cobble content, Includes Bricks, Glass, Roots and Lime Mortar. MADE GROUND comprising Dark brown to black silty very gravelly fine to coarse slightly organic Sand with low cobble content, Includes fragments of China, Glass and Coal. MADE GROUND comprising Dark brown to black silty very gravelly fine to coarse slightly organic Sand with low cobble content, Includes fragments of China, Glass and Coal. MADE GROUND comprising Dark grey brown organic very clayey sandy fine to coarse angular Gravel with medium cobble content									
1.00	ES B		1.10	8.09			Trialpit Comple	ete at 1.10 m		-1
						_				-
Remarks	5 :	Trial pit sides st	able du	iring ex	cavation	n. See attached s	ketch for foundation	detail	Log Sta	tus
Groundw	/ater:	No groundwate	r encou	ntered					Final	

Newton Stewart FPS HP9-OP6 Section



Densites approximate natureosi

- All dimensions are in metres unless attenwise specified Bestroard topigraphical data as provided by Sveca UK UR where applicable.

HP9-OP6 Sketch

Disul	kg.	Scole:-
Max	HQ/DGCNSFP9/313	Net To Scale
	- Ethania	

thested by C.Rodger

Dose- 04.04.17

Newton Stewart FPS

Dumfries & Galloway Council



Galashiele 7D1 2DA

01896 752296 D1896 751515 info@nolequest.co.uk

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-		O HOI	LEQ IMI'	UES		Holequest Ltd Vinston Road Galashiels Fel: 01896 752295	HP	ialpit No 10-OP6 eet 1 of 1	- 1	
Project						ect No. Co-ords: 241206E - 565630N		Date		
		art FPS			17/0		31,	/01/2018	_	
Excavat	tion M	ethod:- Hand E	xcava	ted, Gl	1.0n			Scale 1:13	1	
Client:						Depth E 0.00m 0.00m			4	
	es & G	alloway Council				1.00m °C		gged By 1Y / FM	ı	
Samp	les & In	Situ Testing	Depth	Level	Legend	Stratum Deparintion	1		1	
0.20 0.20 0.20	ES B	Results	(m)	(m AOD)	Legellu	Stratum Description MADE GROUND comprising Dark brown silty sandy gravelly Topsoil that includes Pottery / China at top.	t			
1.00	ES B		1.00	7.65		Trialpit Complete at 1.00 m		Log Statu	1	
Remarks: Trial pit sides stable during excavation. See attached sketch for foundation detail Groundwater: Groundwater encountered at approx 1.0m										

Newton Stewart FPS HP10-OP6 Section

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Denotes approximate sutermost extent of execution

Nates

 At Smansions are in metric unless atherwise specified.
 Basicoand lopographical data as provided by Swees UK List where applicable.

ravina -

HP10-OP6 Sketch

Driving Scale: Scale: Mo To Scale

Driving By: F.Murray Delc. 04.04.17

Checked By: C.Rodger

Date: 04.04.17

by C.Rodger Des Q

Project-

Newton Stewart FPS

Climby.

Dumfries & Galloway Council

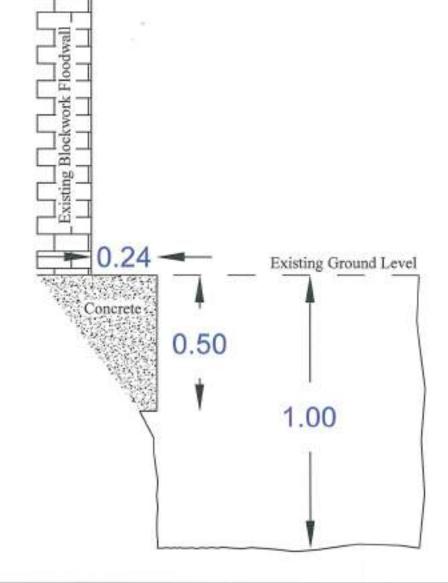


Winston Road Gelashiels TO1 204

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H	HO I	LEQ IMI	UES		Holequest Ltd Vinston Road Galashiels Cel: 01896 75229	5		Trialpit HP11-C Sheet 1	P6
Project N				1 -	ect No.		67E - 566109N	Date	
	Stewart FPS			17/0			m AOD	29/01/20	
Excavati	on Method:- Hand	Excava	tea, GL	1.2m	1	Dimensions:	1.00m	Scale 1:13	
Client:						Depth 69 1.20m		Logged	
	s & Galloway Coun	cil				1.20111 0		BMY / F	
	es & In Situ Testing	Depth (m)	Level	Legend		Stratum D	escription		
	Type Results ES B ES B	1.20	(m AOD)	Legend	ılar to rounded Gravel w	rganic silty fine to coarse Sand ith high cobble and boulder ss, China, Bricks, Masonry,	and	-1	
Remarks:				cavation	Trial pit terminat	ed at scheduled de	pth.	Log S	Status

		HOL	LEQ IMI'	UES		Vinston Road Galashiels	Trialpit No P12-OP heet 1 of	6
Project					-	ect No. Co-ords: 240982E - 566066N	Date	
		art FPS		41 ()	17/0		9/01/2018	4
Excava	lion iv	lethod:- Hand E	=xcava	ieu, GL	1.211		Scale 1:13	
Client:						Depth မြို့ 1.20m ဝ	ogged By	\dashv
	es & G	Salloway Council				1.20m G	BMY / FM	
Samp	les & In	Situ Testing	Depth (m)	Level (m AOD)	Legend			
Depth (m) Type Results (m) (m AOD 0.20 ES 0.20 ES 0.50 11.60					Legend	Stratum Description MADE GROUND comprising Dark brown organic silty fine to coarse Sand and fine to coarse angular to rounded Gravel with high cobble and boulder content, Includes variable quantities of Glass, China,Kitchen Sink and Roots. Orange brown very clayey very sandy fine to coarse angular to subrounded GRAVEL with low cobble content (Possible Made Ground)		-1
			1.20	10.90		Trialpit Complete at 1.20 m	Log Stat	Sandard Triabit Loy 2 dated 27th Nev 03
Remarks	: ::	Trial pit sides st	able du	ring exc	cavation	Trial pit terminated at scheduled depth.	Log Stat	tus
Fir								
Groundwater: No groundwater encountered Fir								

-		HOL	EQ IMI'	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	95		HP1	pit No -OP7 et 1 of 1
Project					-	ect No.		1628E - 564683N		Date
		art FPS			17/0			95 m AOD	05/0	2/2018
Excava	tion M	lethod:- Hand I	Excava	ted, Gl	0.95	m	Dimensions:	1.00m		cale
Client:							Depth	0.60m		:13
	25 & C	Salloway Council					0.95m	9.0		ged By ′ / FM
	les & In	Situ Testing	Depth (m)	Level	Lagand		011	- Daniel Co	DIVIT	/ 1 101
0.20 0.20 0.50 0.50	Type ESB ESB	Results	0.95	4.00	Legend	MADE GROUND coarse angular to	comprising Reddish subangular Gravel w	m Description brown silty to very silty sandy fine to ith high cobble and boulder content make a silty to very silty sandy fine to ith high cobble and boulder content my silty sandy fi		-1
Remarks	;;	Trial pit sides st	able du	ring ex	cavation	. See attached s	ketch for founda	tion detail	Lo	og Status
Groundw	/ater:	Groundwater er	ncounte	red at C).9m				1	Final

Newton Stewart FPS **HP1-OP7 Section**

Existing Ground Level 0.95 Foundation Type / Level not confirmed - HP terminated due to groundwater ingress.

Centres opproximate outermost

All dimensions are in meters unless otherwise specified -Backround topographical data on provided by Swere UK

HP1-OP7 Sketch

Mot To Seale

F.Murray

Date: 04.04.17

Newton Stewart FPS

Dumfries & Galloway Council



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-		HOL	EQ	UES		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5	н	Trialpit No	7
Project Name Project No. Co-ords: 241597E - 564683N Newton Stewart FPS 17/082 Level: 5.25 m AOD									Date	
		art FPS ethod:- JCB 30	X GI	- 1 85r)82	Level: 5.25 r	3.00m	01/02/2018 Scale	3
LXCava	tion ivi	CITIOG. 30D 30	on, GL	1.001			_	3.00111	1:13	
Client:							Depth		ogged By	$\overline{}$
		alloway Council					<u> </u>		FM	
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.40	ES		0.50	4.75		low boulder conter	omprising Reddish brow coarse angular to suba	ilty gravelly fine to coarse Sand with and leaf debris. In silty to very silty locally very ngular Gravel with medium cobble		
1.00 1.00	ES B									-1
1.80	ES		1.80 1.85	3.45		Cobbles	comprising Reddish brow Trialpit Comple	n silty gravelly fine to coarse angula	ar	O Production of State Control of State C
Remarks	;;	Trial pit sides sta Trial pit terminat	able du	iring exc	avation) Iction			Log Sta	tus
		See attached sk	etch fo	r founda	tion de	etail			Final	200
Groundw	Groundwater: Groundwater encountered at 1.5m									

Newton Stewart FPS HP2-OP7 Section

Existing Ground Level 1.85 Foundation Type / Level not confirmed - HP terminated due to groundwater ingress.

~

Denotes approximate outernost and of approximate

Med

At directions are it metres uties otherwise specified.

- Sactaward topographical data as provided by Sweca
UK Ltd where applicable.

Dirawing -

HP2-OP7 Sketch

Only No: HODGCNSPPSION liane.

Not To Scale

Drawn By: F.Murray

Detr. 04.04.17

Project

Newton Stewart FPS

Chiefs

Dumfries & Galloway Council



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Tel: 01896 752295 Erneit Info@nowquest.co.uk

Fax: 01896 751515

West: sown.holequest.co.uk

APPENDIX IV

Laboratory Testing



LABORATORY REPORT



Contract Number: PSL18/0518

Report Date: 23 February 2018

Client's Reference:

Client Name: Holequest Ltd

> Winston Road Galashiels TD1 2DA

For the attention of: Craig Rodger

Contract Title: **Newton Stewart FPS**

Date Received: 1/2/2018 Date Commenced: 1/2/2018 Date Completed: 23/2/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson A Watkins R Berriman (Director) (Director) (Quality Manager)

Rule

L Knight C Marshall A Fry (Senior Technician) (Senior Technician) (Laboratory Manager)

Page 1 of

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Doncaster DN4 0AR

tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642

e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP7		BD	0.50		Brown slightly gravelly very silty SAND.
TP7		BD	1.10		Brown gravelly SAND.
TP7		BD	1.60		Dark brown very gravelly slightly silty SAND with cobbles.



Newton Stewart FPS

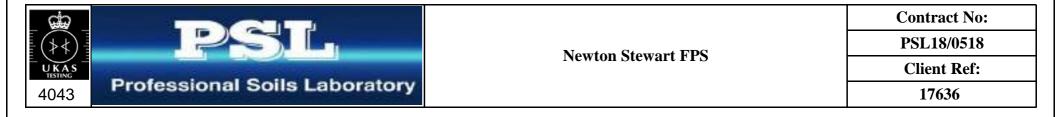
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377: PART 2: 1990)

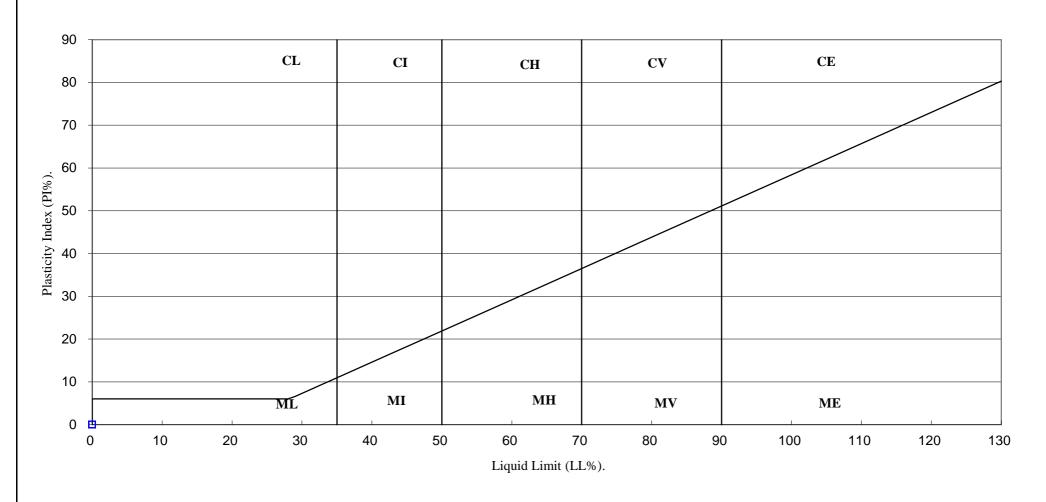
Hole	Sample	Sample	Тор	Base	Moisture Content	Linear Shrinkage	Particle Density	Liquid Limit	Plastic Limit	Plasticity Index	Passing .425mm	Remarks
Number	Number	Type	Depth	Depth	%	%	Mg/m^3	%	%	%	%	
			m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
TP7		BD	0.50		28							
TP7		BD	1.60		5.6							

SYMBOLS: NP: Non Plastic

^{*:} Liquid Limit and Plastic Limit Wet Sieved.



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





Newton Stewart FPS

PARTICLE SIZE DISTRIBUTION TEST

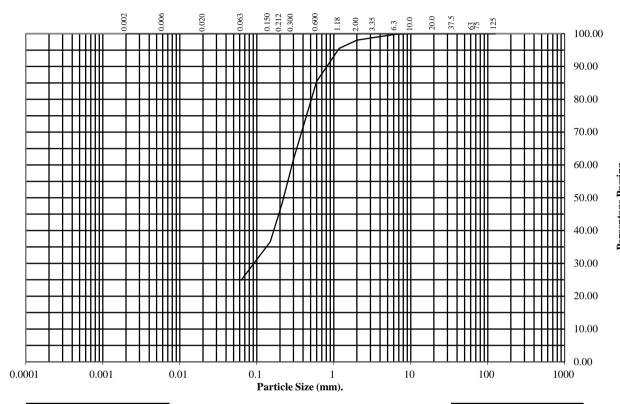
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP7 Top Depth (m): 0.50

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage			
Sieve (mm)	Passing			
125	100			
75	100			
63	100			
37.5	100			
20	100			
10	100			
6.3	100			
3.35	99			
2	98			
1.18	96			
0.6	85			
0.3	62			
0.212	48			
0.15	37			
0.063	25			

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 2 73 25

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

PARTICLE SIZE DISTRIBUTION TEST

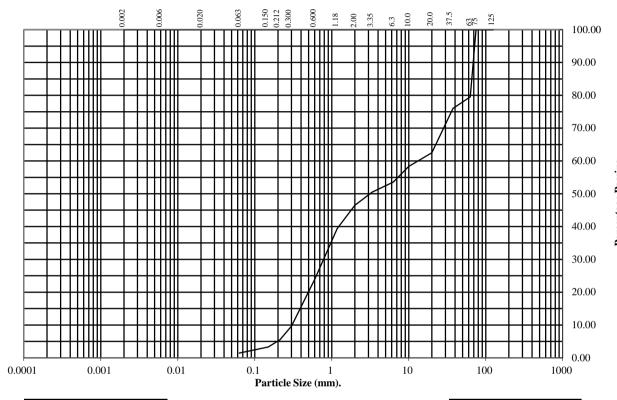
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP7 Top Depth (m): 1.60

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage			
Sieve (mm)	Passing			
125	100			
75	100			
63	80			
37.5	76			
20	62			
10	58			
6.3	54			
3.35	50			
2	47			
1.18	39			
0.6	24			
0.3	10			
0.212	5			
0.15	3			
0.063	1			

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	20 33 46 1

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

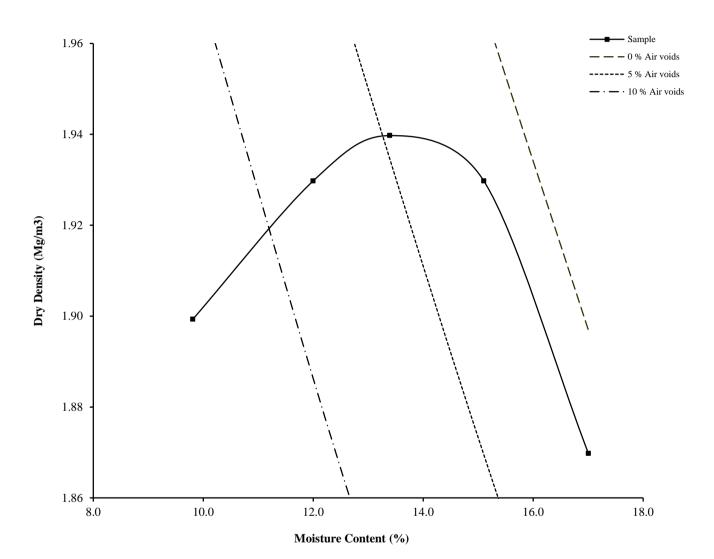
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377: Part 4: 1990

Hole Number: TP7 Top Depth (m): 1.10

Sample Number: Base Depth (m):

Sample Type: BD



Initial Moisture Content:		13	Method of Compaction:	Separate Samples	
Particle Density (Mg/m3): 2.80		Assumed	Material Retained on 37.5 mm Test Sieve (%):		4
Maximum Dry Density (Mg	/m3):	1.94	Material Retained on 20.0 mm Test Sieve	9	
Optimum Moisture Content	(%):	13			
Remarks					

_ ⇔ ↓	PSL
UKAS TESTING 4043	Professional Soils Laboratory

See summary of soil descriptions.

Newton Stewart FPS

Contract
PSL18/0518
Client Ref
17636



LABORATORY REPORT



Contract Number: PSL18/0518

Report Date: 23 February 2018

Client's Reference:

Client Name: Holequest Ltd

> Winston Road Galashiels TD1 2DA

For the attention of: Craig Rodger

Contract Title: **Newton Stewart FPS**

Date Received: 1/2/2018 Date Commenced: 1/2/2018 Date Completed: 23/2/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

R Gunson A Watkins R Berriman (Director) (Director) (Quality Manager)

Rule

L Knight C Marshall A Fry (Senior Technician) (Senior Technician) (Laboratory Manager)

Page 1 of

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP2		BD	0.80		Brown SAND.
TP2		BD	1.80		Brown sandy silty GRAVEL with cobbles.
TP11		BD	1.00		Brown very silty SAND.
TP3		BD	0.60		Brown gravelly silty SAND.
TP4		BD	1.80		Dark brown sandy GRAVEL with cobbles.
TP5		BD	0.70		Brown gravelly very silty SAND.
TP6		BD	0.80		Brown very gravelly slightly clayey SAND.
TP7		BD	1.50		Brown gravelly very silty SAND.
TP10		BD	0.80		Brown gravelly very silty SAND.
TP10		BD	1.30		Brown slightly gravelly very sandy CLAY.



Newton Stewart FPS

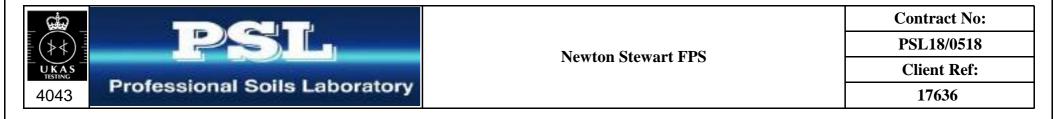
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377: PART 2: 1990)

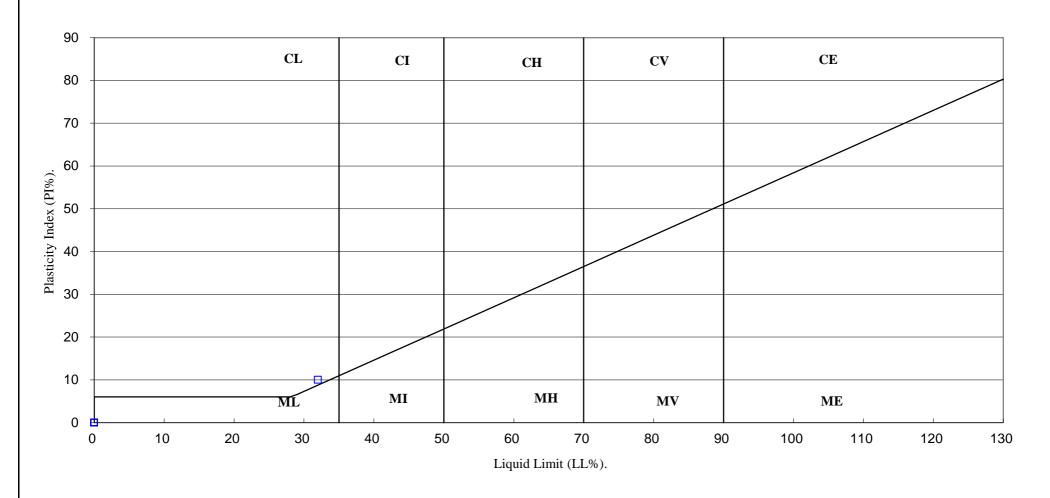
					Moisture	Linear	Particle	Liquid	Plastic	Plasticity	Passing	
Hole	Sample	Sample	Top	Base	Content	Shrinkage	Density	Limit	Limit	Index	.425mm	Remarks
Number	Number	Type	Depth	Depth	%	%	Mg/m^3	%	%	%	%	
			m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
TP2		BD	0.80		20				NP			
TP11		BD	1.00		17				NP			
TP10		BD	1.30		23			32	22	10	93	Low plasticity CL.

SYMBOLS: NP: Non Plastic

^{*:} Liquid Limit and Plastic Limit Wet Sieved.



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





Newton Stewart FPS

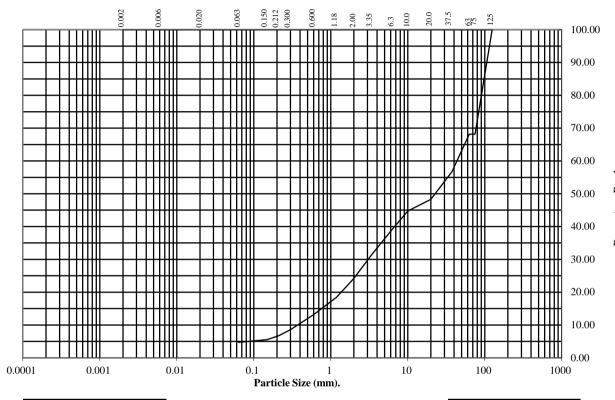
PARTICLE SIZE DISTRIBUTION TEST

BS1377: Part 2: 1990 Wet Sieve, Clause 9.2

Hole Number: TP2 1.80 Top Depth (m):

Sample Number: Base Depth(m):

BD**Sample Type:**



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	68
63	68
37.5	57
20	48
10	45
6.3	39
3.35	31
2	24
1.18	18
0.6	13
0.3	9
0.212	7
0.15	6
0.063	5

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	32 44 19 5

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Newton Stewart FPS

Contract No:
PSL18/0518
Client Ref:
17636

PSL005 Nov 15 Page of

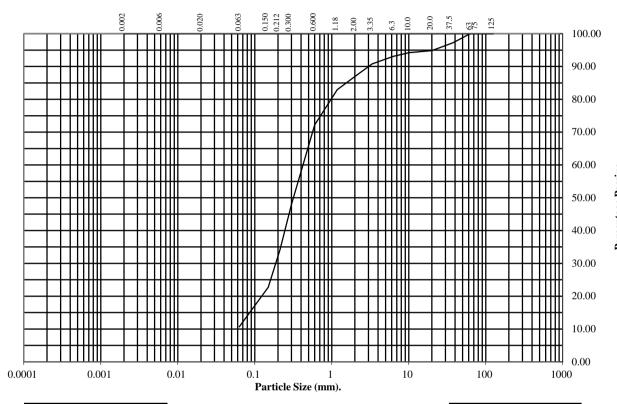
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP3 Top Depth (m): 0.60

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	97
20	95
10	94
6.3	93
3.35	91
2	87
1.18	83
0.6	72
0.3	48
0.212	34
0.15	23
0.063	11

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 13 76 11

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

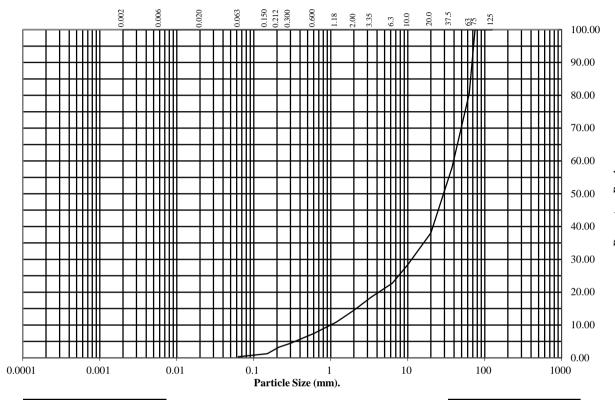
Contract No:
PSL18/0518
Client Ref:
17636

BS1377 : Part 2 : 1990 Wet Sieve, Clause 9.2

Hole Number: TP4 Top Depth (m): 1.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	81
37.5	58
20	38
10	28
6.3	23
3.35	18
2	14
1.18	11
0.6	7
0.3	4
0.212	3
0.15	1
0.063	0

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	19 67 14 0

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

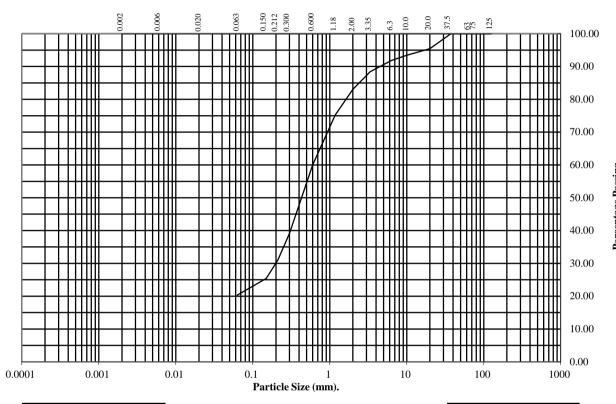
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP5 Top Depth (m): 0.70

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	95
10	93
6.3	92
3.35	88
2	83
1.18	75
0.6	60
0.3	39
0.212	31
0.15	25
0.063	20

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 17 63 20

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

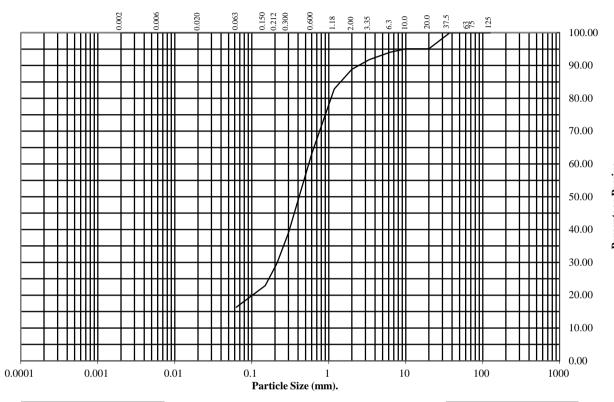
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP7 Top Depth (m): 1.50

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	95
10	95
6.3	94
3.35	92
2	89
1.18	83
0.6	63
0.3	39
0.212	30
0.15	23
0.063	16

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 11 73 16

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

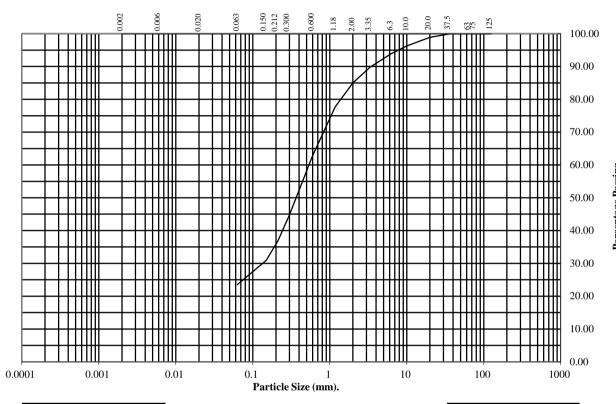
Contract No:
PSL18/0518
Client Ref:
17636

BS1377 : Part 2 : 1990 Wet Sieve, Clause 9.2

Hole Number: TP10 Top Depth (m): 0.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	99
10	96
6.3	94
3.35	90
2	85
1.18	78
0.6	63
0.3	45
0.212	37
0.15	31
0.063	23

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 15 62 23

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

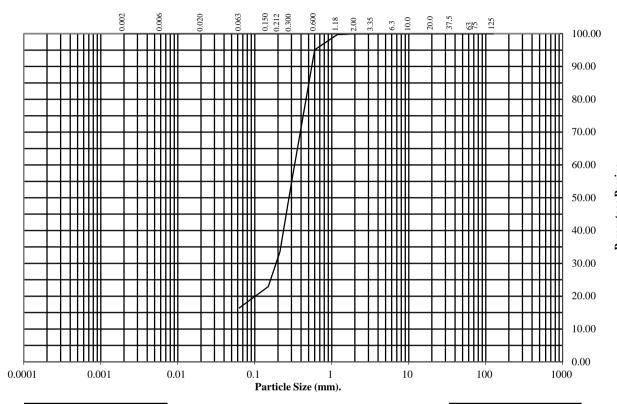
Contract No:
PSL18/0518
Client Ref:
17636

BS1377 : Part 2 : 1990 Wet Sieve. Clause 9.2

Hole Number: TP11 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	95
0.3	55
0.212	34
0.15	23
0.063	16

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 0 84 16

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

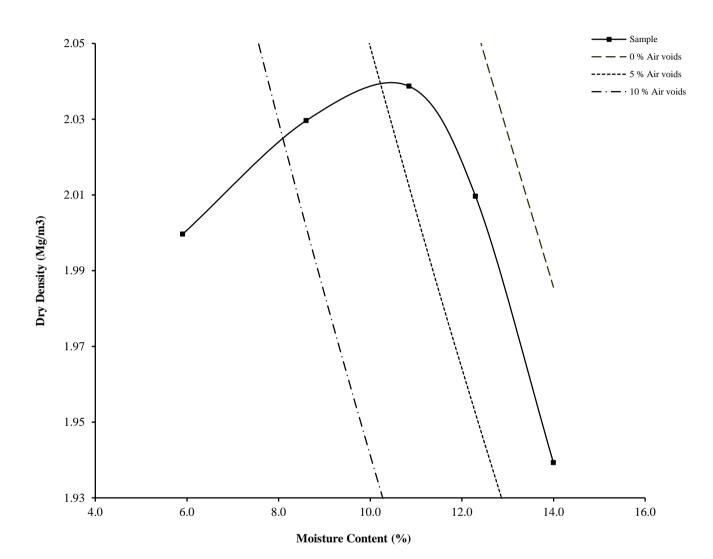
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377: Part 4: 1990

Hole Number: TP6 Top Depth (m): 0.80

Sample Number: Base Depth (m):

Sample Type: BD



Initial Moisture Content:		9.8	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3): 2.75		Assumed	Material Retained on 37.5 mm Test Sieve	10	
Maximum Dry Density (Mg/m3):		2.04	Material Retained on 20.0 mm Test Sieve (%):		19
Optimum Moisture Content (%):		10			
Remarks					



See summary of soil descriptions.

Newton Stewart FPS

Contract
PSL18/0518
Client Ref
17636

of



LABORATORY REPORT



Contract Number: PSL18/0518

Report Date: 23 February 2018

Client's Reference:

Client Name: Holequest Ltd

> Winston Road Galashiels TD1 2DA

For the attention of: Craig Rodger

Contract Title: **Newton Stewart FPS**

Date Received: 1/2/2018 Date Commenced: 1/2/2018 Date Completed: 23/2/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

R Gunson A Watkins R Berriman (Director) (Director) (Quality Manager)

Rule

L Knight C Marshall A Fry (Senior Technician) (Senior Technician) (Laboratory Manager)

Page 1 of

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e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP1		BD	0.50		Brown gravelly very sandy CLAY.
TP1		BD	0.80		Dark brown very sandy very silty GRAVEL.
TP2		BD	0.50		Brown gravelly sandy CLAY.
TP2		BD	1.50		MADE GROUND dark brown very sandy silty gravel.
TP3		BD	0.70		Dark brown very sandy silty GRAVEL with cobbles.
TP4		BD	1.50		Dark brown gravelly very silty SAND.
TP4		BD	2.50		Greyish brown very sandy GRAVEL.



Newton Stewart FPS

Contract No:
PSL18/0518
Client Ref:
17636

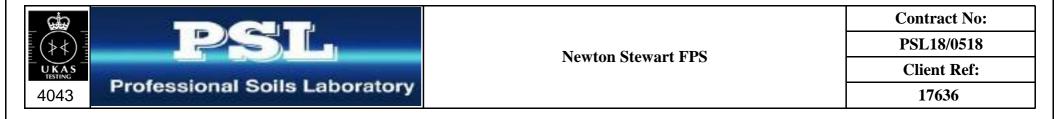
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377: PART 2: 1990)

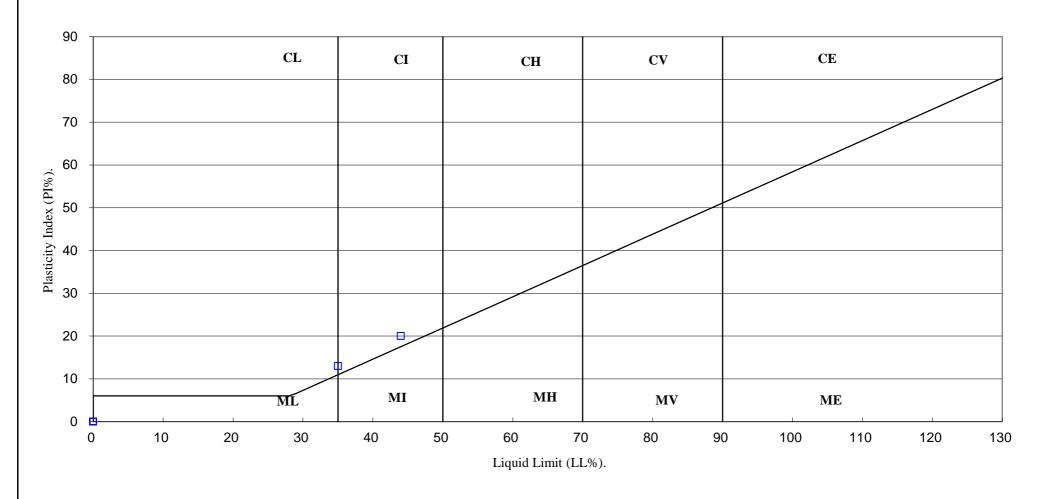
Hole	Sample	Sample	Тор	Base	Moisture Content	Linear Shrinkage	Particle Density	Liquid Limit	Plastic Limit	Plasticity Index	Passing .425mm	Remarks
Number	Number	Type	Depth	Depth	%	%	Mg/m ³	%	%	%	%	
			m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
TP1		BD	0.50		15			35	22	13	80	Low plasticity CL.
TP1		BD	0.80		28							
TP2		BD	0.50		18			44	24	20	84	Intermediate plasticity CI.
TP2		BD	1.50		25							

SYMBOLS: NP: Non Plastic

^{*:} Liquid Limit and Plastic Limit Wet Sieved.



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





Newton Stewart FPS

Contract No:	
PSL18/0518	
Client Ref:	
17636	

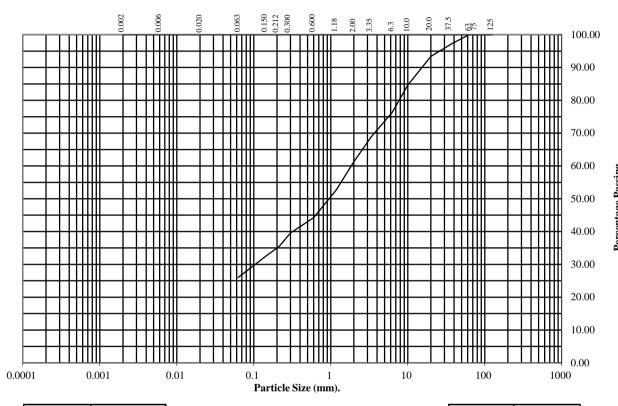
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP1 Top Depth (m): 0.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	97
20	93
10	85
6.3	76
3.35	69
2	61
1.18	53
0.6	44
0.3	40
0.212	35
0.15	33
0.063	26

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 39 35 26

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

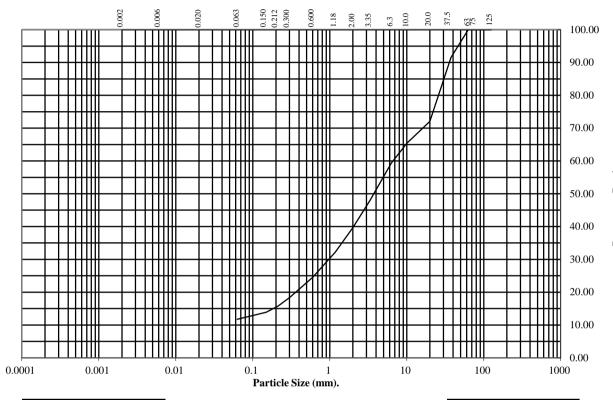
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP2 Top Depth (m): 1.50

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	92
20	72
10	65
6.3	59
3.35	48
2	40
1.18	32
0.6	25
0.3	18
0.212	16
0.15	14
0.063	12

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 60 28 12

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

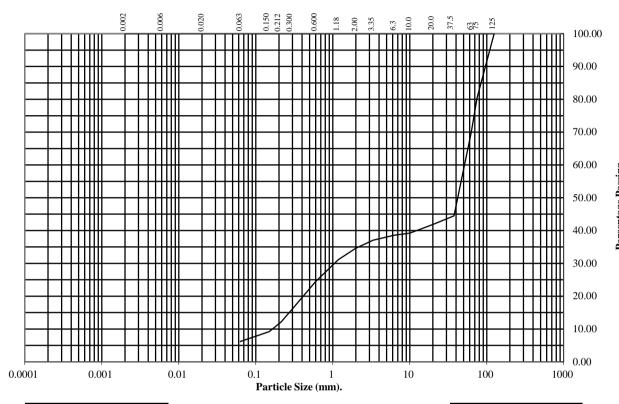
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP3 Top Depth (m): 0.70

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	80
63	70
37.5	45
20	42
10	39
6.3	39
3.35	37
2	35
1.18	31
0.6	24
0.3	16
0.212	12
0.15	9
0.063	6

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	30 35 29 6

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

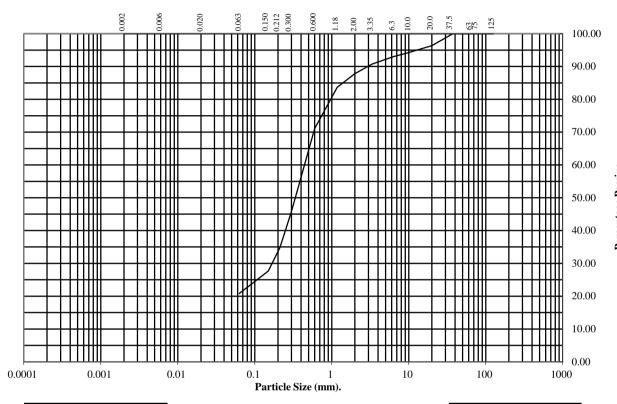
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP4 Top Depth (m): 1.50

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	96
10	94
6.3	93
3.35	91
2	88
1.18	84
0.6	71
0.3	46
0.212	35
0.15	28
0.063	21

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 12 67 21

Remarks:

See Summary of Soil Descriptions



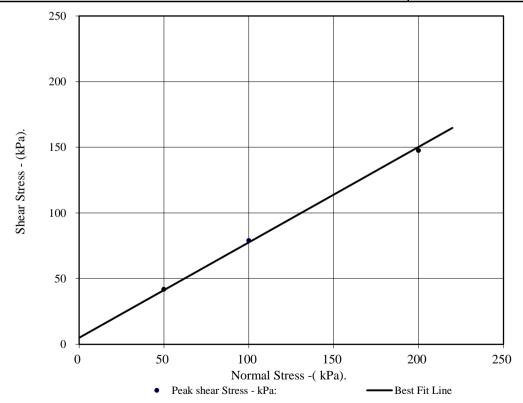


Newton Stewart FPS

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:		TP4	Top Depth:		2.5	50
Sample Number:			Base Depth	:		
Sample Conditions:		Submerged	Sample Typ	ре	В	D
Particle Density - Mg/m3:	2.65	Assumed	Remarks:			
Sample Preparation:	Remoulded	using hand tamped effor	t.			
· · ·	Material tes	sted passing 2mm sieve				
Sample Description:	See summa	ry of soil descriptions.				
STAGE				1	2	3
		Initial Conditions				
Height - mm:				19.54	19.54	19.54
Length - mm:				60.03	60.03	60.03
Moisture Content - %:				12	12	12
Bulk Density - Mg/m3:				1.99	2.00	2.00
Dry Density - Mg/m3:				1.77	1.78	1.78
Voids Ratio:				0.495	0.488	0.488
Normal Pressure- kPa				50	100	200
		Consolidation Stage	e			
Consolidated Height - mm:				19.19	19.10	18.83
		Shearing Stage				
Rate of Strain (mm/min)				0.800	0.800	0.800
Displacement at peak shear	stress (mm)			9.00	7.00	7.00
Peak shear Stress - kPa:				42	79	148
	F	inal Consolidated Cond	litions			
Moisture Content - %:			-	19	19	19
Bulk Density - Mg/m3:		2.03	2.05	2.08		
Dry Density - Mg/m3:				1.70	1.73	1.75
		Peak				
Angle of Shearing Resistance	ce:(0)				36	
Effective Cohesion - kPa:					5	





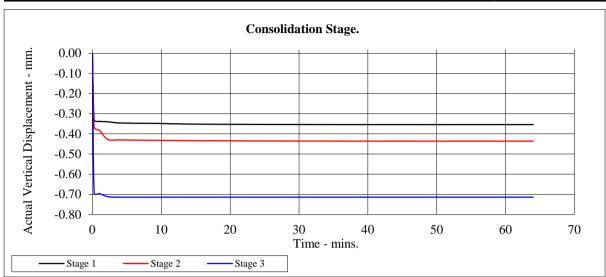


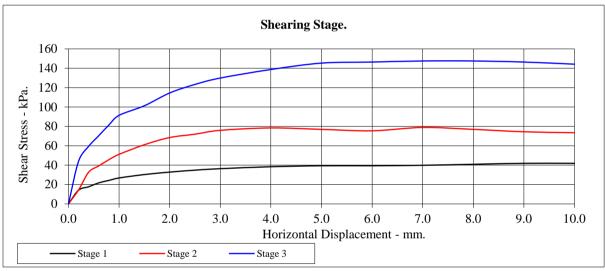
Newton Stewart FOS

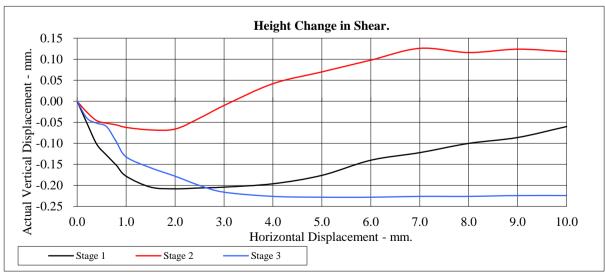
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	TP4	Top Depth:	2.50
Sample Number:		Base Depth:	











Newton Stewart FOS



LABORATORY REPORT



4043

Contract Number: PSL18/1203

Report Date: 06 April 2018

Client's Reference: 17/082

Client Name: Holequest

Winston Road Galashiels TD1 2DA

For the attention of: Graham

Contract Title: Newton Stwart FPS

Date Received: 14/3/2018 Date Commenced: 14/3/2018 Date Completed: 6/4/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

R Gunson A Watkins R Berriman (Director) (Director) (Quality Manager)

£##

L Knight S Eyre A Fry

(Senior Technician) (Senior Technician) (Senior Technician)

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Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP11-OP7		BD	1.00		Dark brown sandy GRAVEL with cobbles.
TPW1-OP6		BD	0.50		Dark brown sandy slightly clayey silty GRAVEL with cobbles.
TP1-OP6		BD	0.80		MADE GROUND dark brown very sandy clayey gravel.
TP1-OP6		D	1.30		Brown gravelly slightly sandy very silty CLAY.
TP1-OP7		BD	1.00		Brown mottled grey slightly gravelly slightly sandy CLAY.
TP1-OP7		BD	2.00		Brown slightly sandy very silty CLAY.
TP2-OP6		BD	1.40		Brown sandy slightly clayey GRAVEL with cobbles.
TP2-OP7		BD	0.60		Brown slightly gravelly slightly sandy CLAY.
TP2-OP7		BD	1.60		Brown mottled grey slightly sandy CLAY.
TP4-OP6		BD	1.00		Brown mottled grey slightly gravelly very sandy very silty CLAY.
TP7-OP6		BD	1.50		Brown mottled grey very gravelly sandy very silty CLAY.
TP8-OP7		BD	1.80		Brown sandy slightly silty GRAVEL with cobbles.
TP9-OP7		BD	1.80		Brown sandy slightly clayey silty GRAVEL with cobbles.
TP9-OP6		BD	1.00		Brown very gravelly clayey very silty SAND.
TP9-OP6		BD	4.30		Brown mottled grey sandy slightly silty GRAVEL.
TP9-OP6		BD	10.30		Brown very sandy silty GRAVEL.
BH1-OP6		BD	1.60		Brown sandy GRAVEL.
BH1-OP6		BD	2.70		Brown sandy slightly silty GRAVEL.
BH2A-OP6		BD	2.80		Brown very sandy silty GRAVEL.



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Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
ВНЗ-ОР6		BD	1.20		Brown sandy slightly silty GRAVEL.
ВНЗ-ОР6		BD	2.00		Brown gravelly SAND.
BH4-OP6		BD	1.30		Brown slightly gravelly sandy CLAY.
BH4-OP6		U	1.30		Soft brown very silty CLAY.
BH5-OP6		BD	1.30		Grey sandy slightly silty GRAVEL.
BH5-OP6		BD	10.30		Brown slightly gravelly slightly clayey SAND.
BH5-OP6		BD	11.80		Brown slightly gravelly very sandy CLAY.
BH7-OP6		U80	2.80		Very soft brown mottled grey very gravelly sandy CLAY.
BH7-OP6		BD	2.80		Brown mottled grey sandy clayey GRAVEL.
BH7-OP6		BD	4.30		Brown mottled grey very sandy slightly silty GRAVEL.
BH7-OP6		BD	8.80		Grey slightly gravelly sandy CLAY.
BH8-OP6		BD	1.30		Brown very sandy clayey silty GRAVEL.
BH8-OP6		BD	4.30		Brown very sandy slightly clayey silty GRAVEL.
BH9-OP6		BD	0.30		Brown slightly gravelly slightly sandy CLAY.
BH9-OP6		U	1.30		Very soft brown slightly gravelly sandy CLAY with some organic material.
BH9-OP6	·	BD	1.30		Brown very gravelly sandy CLAY with some organic material.
BH11-OP6		BD	1.30		Brown gravelly slightly clayey SAND.
BH11-OP6		BD	2.80		Brown mottled grey very gravelly very sandy CLAY.
BH12-OP6		BD	1.30		Brown very sandy silty GRAVEL.



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Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH13-OP6		BD	1.30		Brown sandy clayey silty GRAVEL.
BH13-OP6		BD	4.30		Brown sandy clayey silty GRAVEL.
BH13-OP6		BD	5.80		Brown mottled grey slightly gravelly slightly sandy very silty CLAY.
BH13-OP6		U	7.30		Soft grey slightly sandy very silty CLAY.
BH14-OP6		BD	2.00		Brown slightly sandy slightly silty GRAVEL with cobbles.
BH1-OP7		BD	1.30		Brown sandy silty GRAVEL.
BH1-OP7		BD	2.80		Brown slightly gravelly slightly clayey silty SAND.
BH1-OP7		BD	4.30		Brown slightly gravelly silty SAND.
BH1-OP7		BD	5.80		Brown very silty SAND.



Newton Stewart FPS

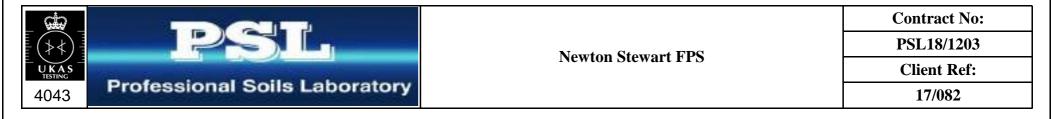
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377: PART 2: 1990)

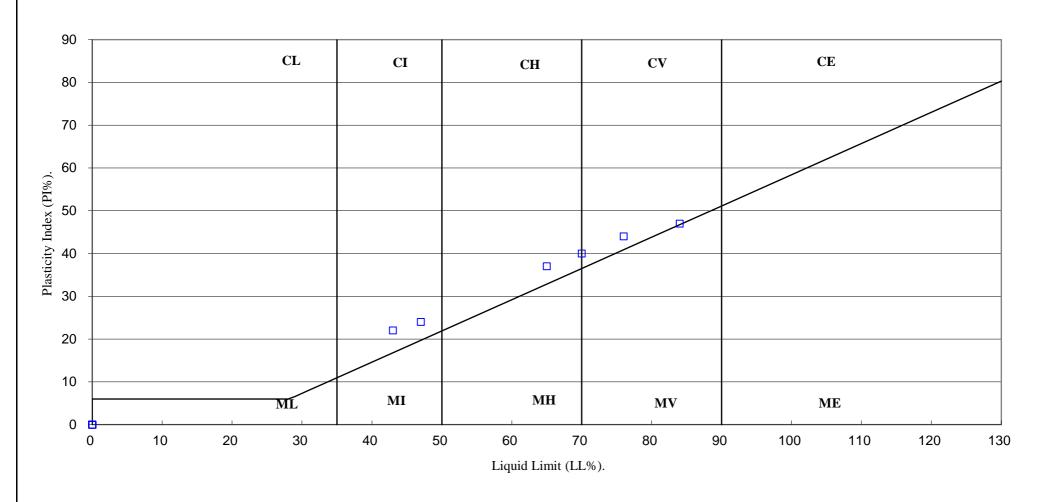
Hole Number	Sample Number	Sample Type	Top Depth	Base Depth	Moisture Content	Linear Shrinkage %	Particle Density Mg/m ³	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing .425mm	Remarks
			m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
TP1-OP6		D	1.30		35			84	37	47	78	Very high plasticity CV.
TP1-OP7		BD	1.00		43			65	28	37	93	High plasticity CH.
TP2-OP7		BD	0.60		32			70	30	40	93	Very high plasticity CV.
TP4-OP6		BD	1.00		29							
BH1-OP6		BD	1.60		5.1				NP			
BH4-OP6		BD	1.30		31			47	23	24	92	Intermediate plasticity CI.
BH5-OP6		BD	10.30		20				NP			
BH7-OP6		BD	2.80		17				NP			
BH7-OP6		BD	8.80		37			43	21	22	97	Intermediate plasticity CI.
BH9-OP6		BD	0.30		41			76	32	44	91	Very high plasticity CV.
BH13-OP6		BD	4.30		12				NP			

SYMBOLS: NP: Non Plastic

^{*:} Liquid Limit and Plastic Limit Wet Sieved.



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.





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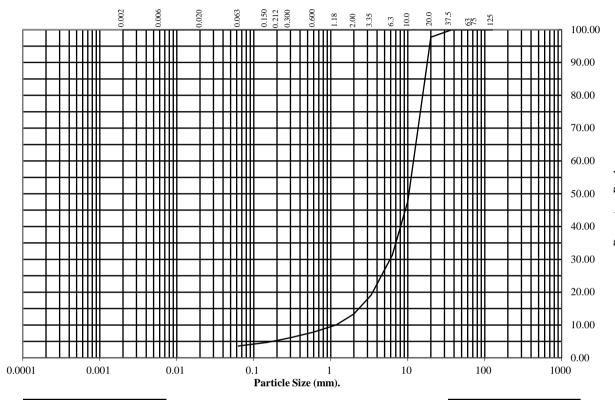
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH1-OP6 Top Depth (m): 2.70

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	98
10	48
6.3	31
3.35	19
2	13
1.18	10
0.6	8
0.3	6
0.212	5
0.15	5
0.063	4

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 87 9 4

Remarks:

See Summary of Soil Descriptions





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PSL18/1203
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17/082

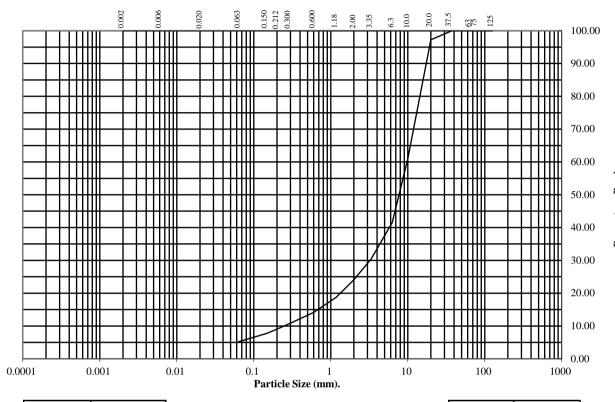
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH1-OP7 Top Depth (m): 1.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	97
10	61
6.3	42
3.35	30
2	24
1.18	19
0.6	14
0.3	11
0.212	9
0.15	8
0.063	5

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 76 19 5

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

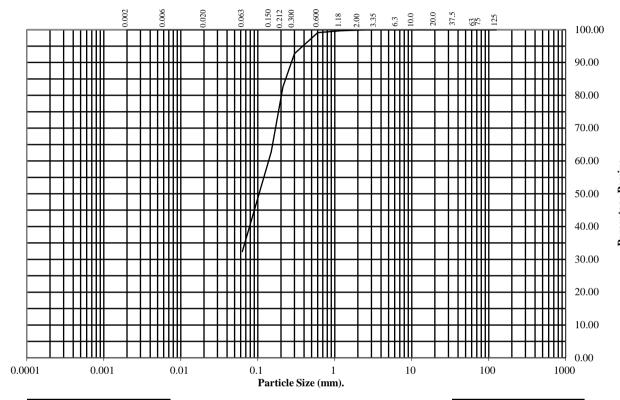
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH1-OP7 Top Depth (m): 5.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	99
0.3	93
0.212	83
0.15	63
0.063	32

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 0 68 32

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No: PSL18/1203 Client Ref: 17/082

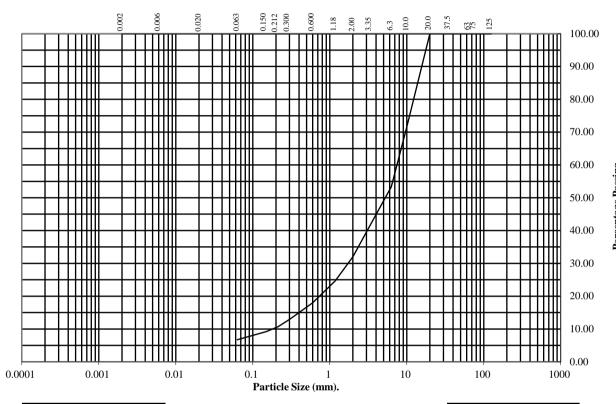
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: BH2A-OP6 Top Depth (m): 2.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	72
6.3	53
3.35	42
2	32
1.18	25
0.6	18
0.3	13
0.212	11
0.15	9
0.063	7

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 68 25 7

Remarks:

See Summary of Soil Descriptions





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Client Ref:
17/082

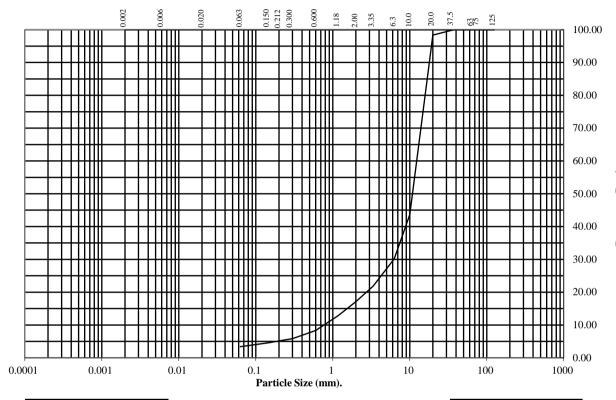
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: BH3-OP6 Top Depth (m): 1.20

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	98
10	44
6.3	30
3.35	22
2	17
1.18	13
0.6	8
0.3	6
0.212	5
0.15	5
0.063	3

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 83 14 3

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

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Client Ref:
17/082

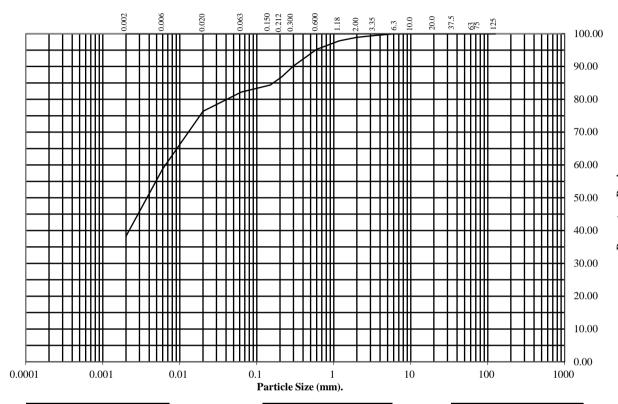
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH4-OP6 Top Depth (m): 1.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	99
1.18	98
0.6	95
0.3	90
0.212	87
0.15	84
0.063	82

Particle	Percentage
Diameter	Passing
0.02	76
0.006	59
0.002	38

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	1
Sand	17
Silt	44
Clay	38

Remarks:

See Summary of Soil Descriptions





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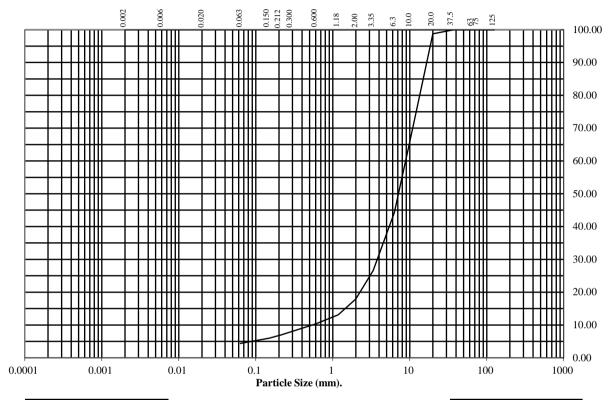
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH5-OP6 Top Depth (m): 1.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	99
10	66
6.3	44
3.35	27
2	18
1.18	13
0.6	10
0.3	8
0.212	7
0.15	6
0.063	4

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 82 14 4

Remarks:

See Summary of Soil Descriptions





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PSL18/1203
Client Ref:
17/082

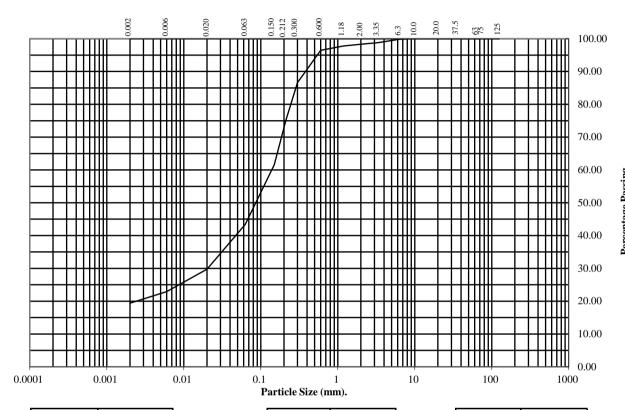
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH5-OP6 Top Depth (m): 11.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	98
0.6	96
0.3	87
0.212	75
0.15	62
0.063	43

Particle	Percentage
Diameter	Passing
0.02	30
0.006	23
0.002	19

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	2
Sand	55
Silt	24
Clay	19

Remarks:

See Summary of Soil Descriptions





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17/082

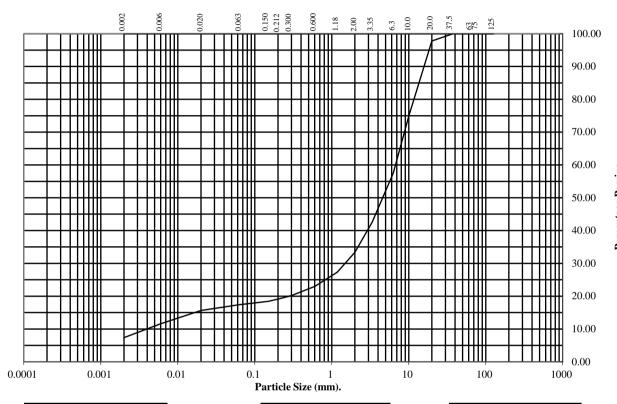
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH7-OP6 Top Depth (m): 2.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	98
10	75
6.3	58
3.35	43
2	33
1.18	27
0.6	23
0.3	20
0.212	19
0.15	18
0.063	17

Particle	Percentage
Diameter	Passing
0.02	16
0.006	12
0.002	7

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	67
Sand	16
Silt	10
Clay	7

Remarks:

See Summary of Soil Descriptions





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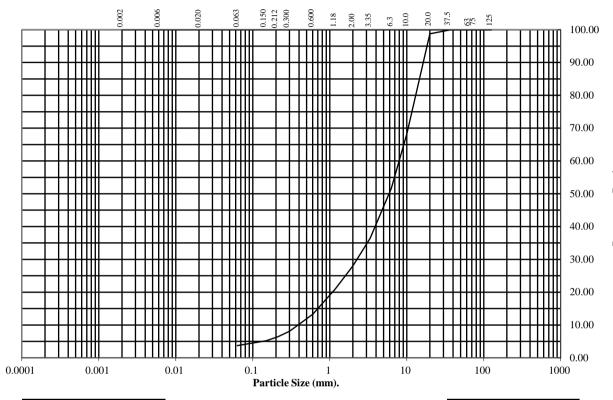
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: BH7-OP6 Top Depth (m): 4.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	99
10	68
6.3	52
3.35	36
2	28
1.18	21
0.6	13
0.3	8
0.212	6
0.15	5
0.063	4

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 72 24 4

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

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PSL18/1203
Client Ref:
17/082

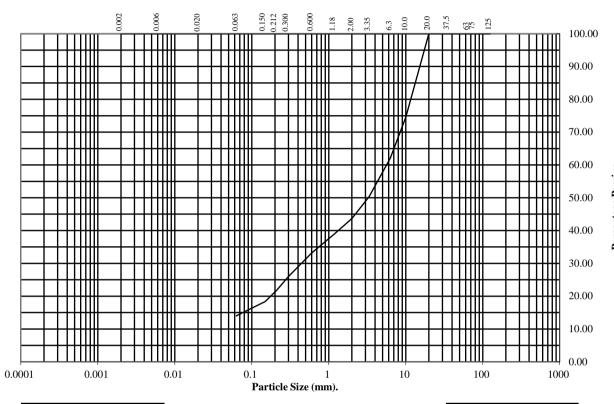
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH8-OP6 Top Depth (m): 1.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	75
6.3	62
3.35	50
2	44
1.18	39
0.6	33
0.3	26
0.212	22
0.15	18
0.063	14

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 56 30 14

Remarks:

See Summary of Soil Descriptions





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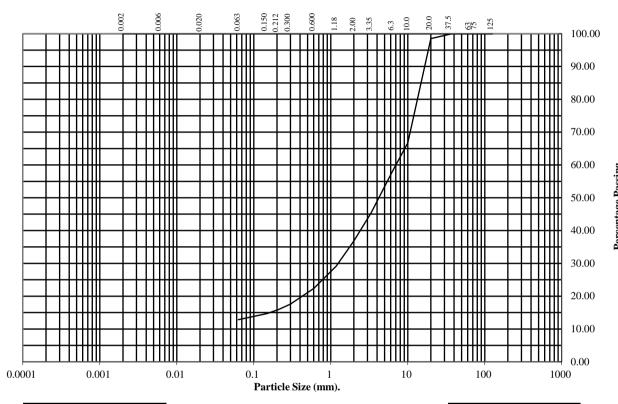
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH8-OP6 Top Depth (m): 4.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	98
10	67
6.3	58
3.35	45
2	37
1.18	29
0.6	22
0.3	18
0.212	16
0.15	15
0.063	13

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 63 24 13

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No:
PSL18/1203
Client Ref:
17/082

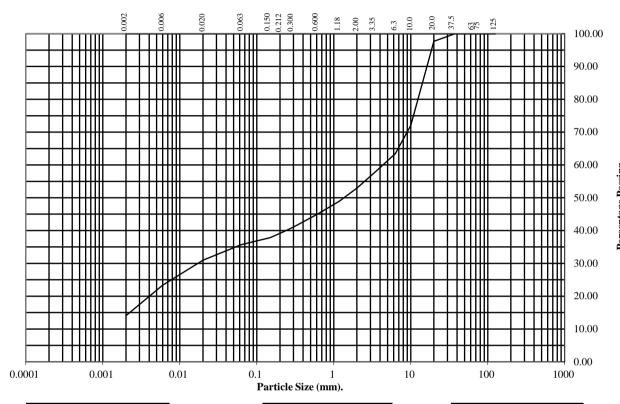
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH9-OP6 Top Depth (m): 1.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	98
10	72
6.3	63
3.35	58
2	53
1.18	49
0.6	45
0.3	41
0.212	39
0.15	38
0.063	36

Particle	Percentage
Diameter	Passing
0.02	31
0.006	23
0.002	14

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	47
Sand	17
Silt	22
Clay	14

Remarks:

See Summary of Soil Descriptions





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Contract No: PSL18/1203 Client Ref: 17/082

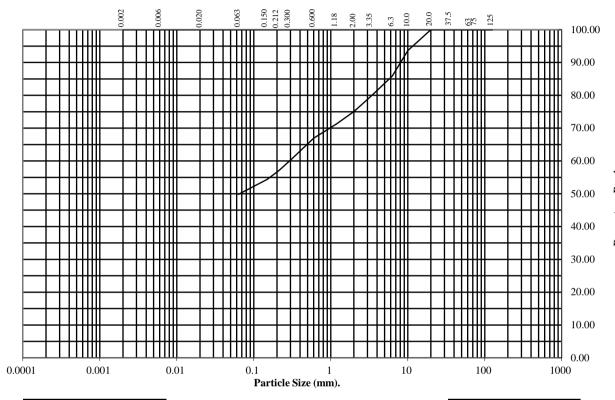
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: BH11-OP6 Top Depth (m): 2.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	94
6.3	86
3.35	80
2	75
1.18	71
0.6	67
0.3	60
0.212	57
0.15	54
0.063	50

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 25 25 50

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

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PSL18/1203
Client Ref:
17/082

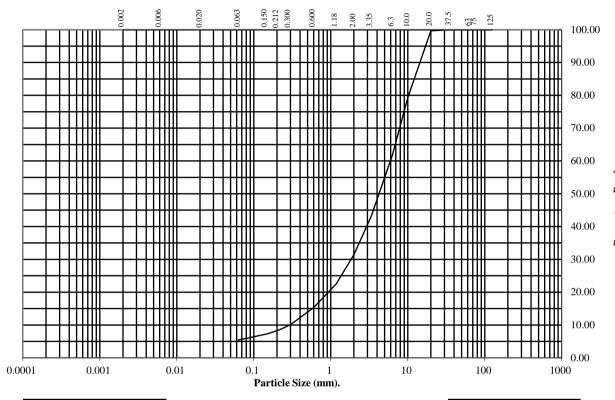
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: BH12-OP6 Top Depth (m): 1.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	79
6.3	62
3.35	43
2	31
1.18	23
0.6	15
0.3	10
0.212	8
0.15	7
0.063	5

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 69 26 5

Remarks:

See Summary of Soil Descriptions





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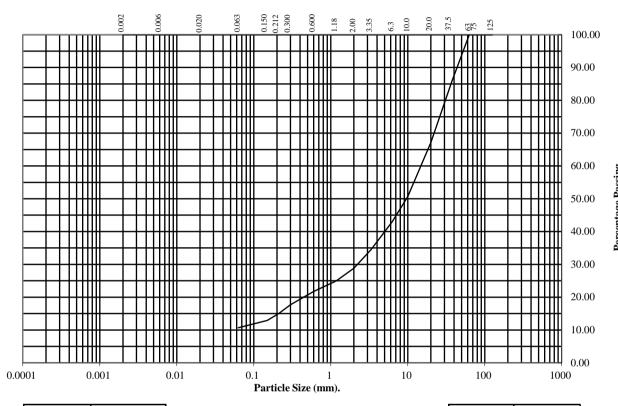
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH13-OP6 Top Depth (m): 1.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	86
20	67
10	51
6.3	43
3.35	35
2	29
1.18	25
0.6	22
0.3	18
0.212	15
0.15	13
0.063	11

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 71 18 11

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No:
PSL18/1203
Client Ref:
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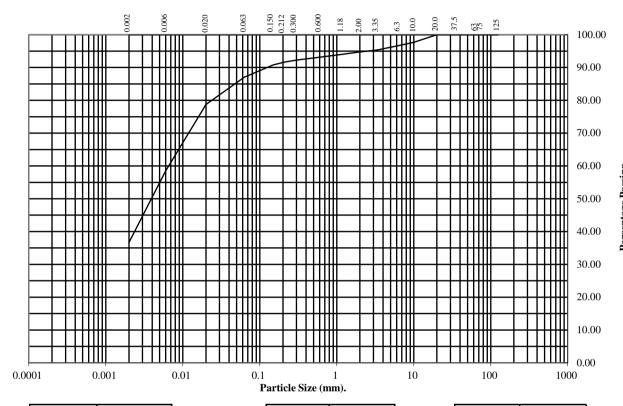
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH13-OP6 Top Depth (m): 5.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	97
3.35	95
2	95
1.18	94
0.6	93
0.3	92
0.212	92
0.15	91
0.063	87

Particle	Percentage
Diameter	Passing
0.02	79
0.006	58
0.002	37

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	5
Sand	8
Silt	50
Clay	37

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No:
PSL18/1203
Client Ref:
17/082

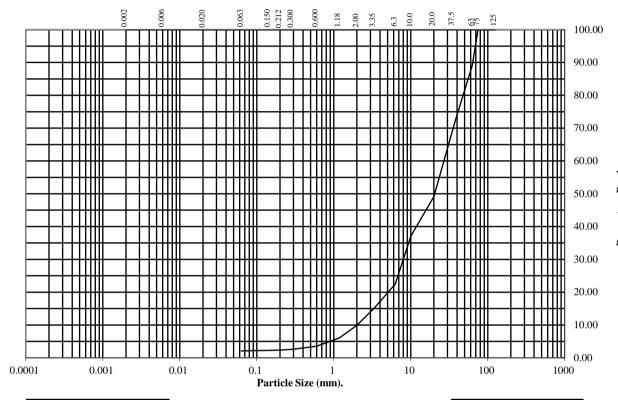
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: BH14-OP6 Top Depth (m): 2.00

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	89
37.5	72
20	49
10	37
6.3	22
3.35	15
2	10
1.18	6
0.6	4
0.3	3
0.212	2
0.15	2
0.063	2

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	11 79 8 2

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

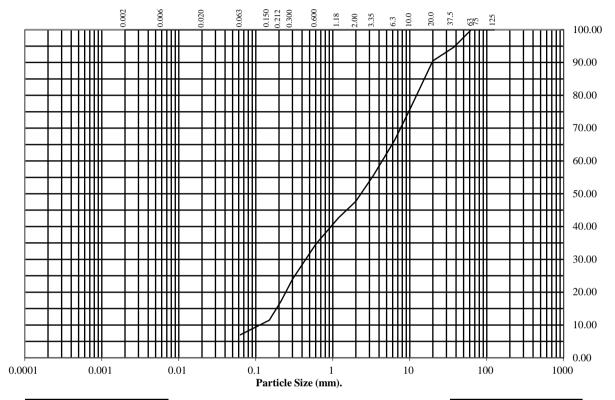
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP1-OP6 Top Depth (m): 0.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	95
20	91
10	76
6.3	66
3.35	55
2	48
1.18	43
0.6	35
0.3	24
0.212	17
0.15	11
0.063	7

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 52 41 7

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No:
PSL18/1203
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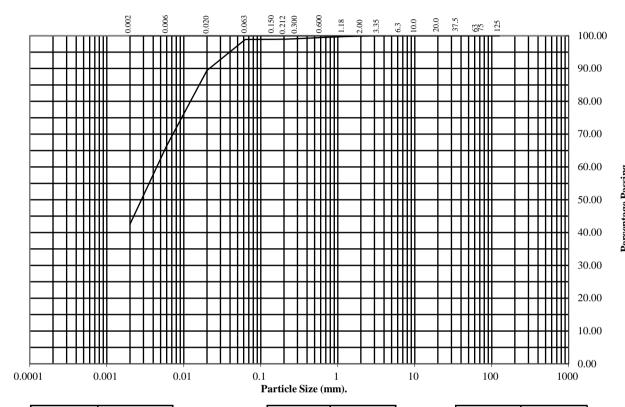
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP1-OP7 Top Depth (m): 2.00

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	99
0.3	99
0.212	99
0.15	99
0.063	99

Particle	Percentage
Diameter	Passing
0.02	89
0.006	66
0.002	43

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	0
Sand	1
Silt	56
Clay	43

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No:
PSL18/1203
Client Ref:
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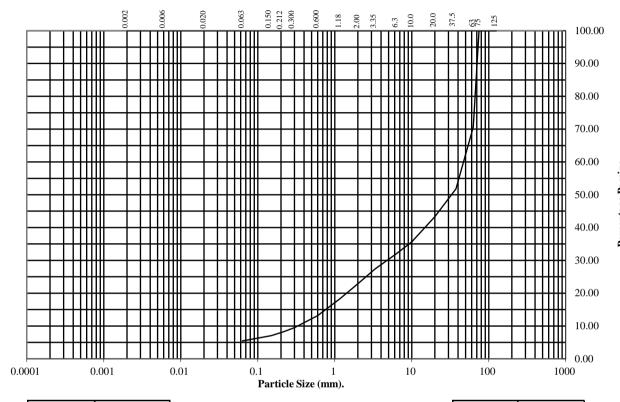
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP2-OP6 Top Depth (m): 1.40

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	71
37.5	52
20	43
10	36
6.3	32
3.35	27
2	23
1.18	18
0.6	13
0.3	10
0.212	8
0.15	7
0.063	5

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	29 48 18 5

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No:
PSL18/1203
Client Ref:
17/082

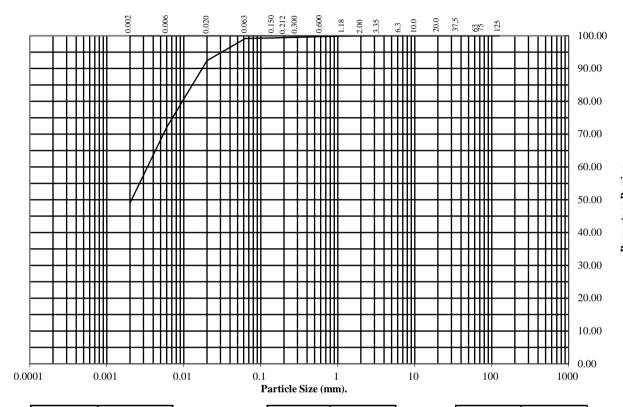
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP2-OP7 Top Depth (m): 1.60

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	100
0.212	99
0.15	99
0.063	99

Particle	Percentage
Diameter	Passing
0.02	92
0.006	72
0.002	49

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	0
Sand	1
Silt	50
Clay	49

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

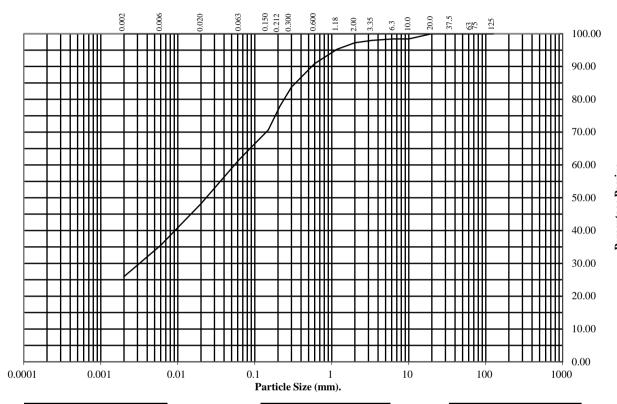
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP4-OP6 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	98
3.35	98
2	97
1.18	95
0.6	91
0.3	84
0.212	78
0.15	71
0.063	62

Particle	Percentage
Diameter	Passing
0.02	48
0.006	36
0.002	26

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	3
Sand	35
Silt	36
Clay	26

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No: PSL18/1203 Client Ref: 17/082

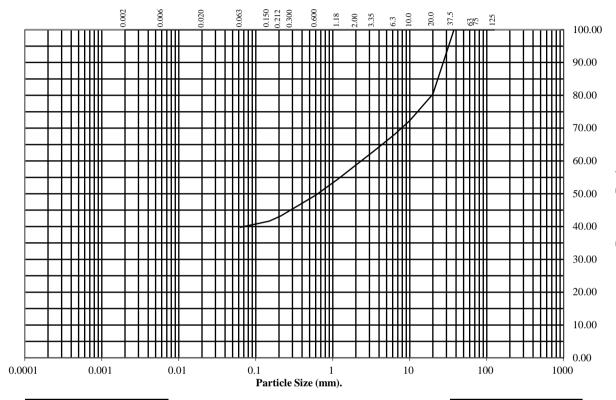
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP7-OP6 Top Depth (m): 1.50

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	80
10	72
6.3	68
3.35	63
2	59
1.18	55
0.6	50
0.3	45
0.212	43
0.15	42
0.063	40

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 41 19 40

Remarks:

See Summary of Soil Descriptions





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Contract No:
PSL18/1203
Client Ref:
17/082

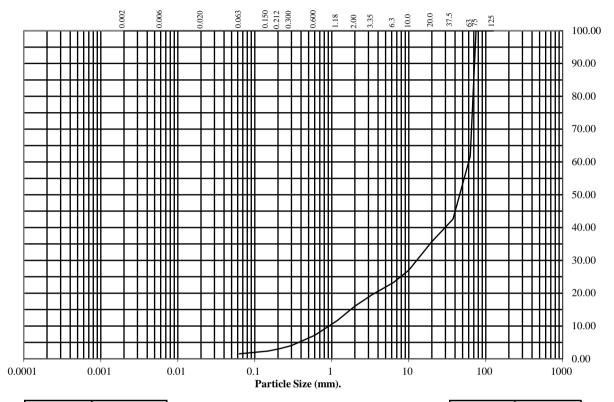
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP8-OP7 Top Depth (m): 1.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	62
37.5	43
20	36
10	27
6.3	23
3.35	20
2	16
1.18	12
0.6	7
0.3	4
0.212	3
0.15	2
0.063	2

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	38 46 14 2

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

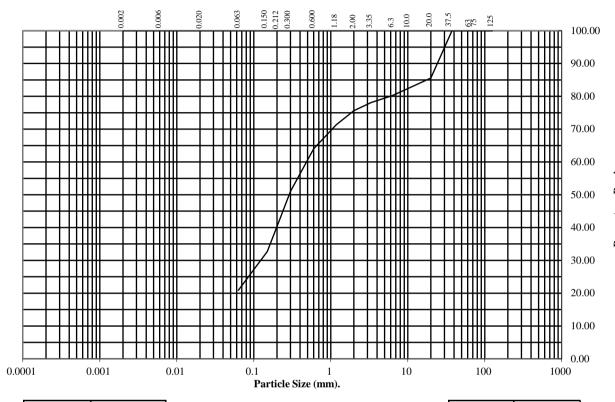
Contract No:
PSL18/1203
Client Ref:
17/082

BS1377 : Part 2 : 1990 Wet Sieve, Clause 9.2

Hole Number: TP9-OP6 Top Depth (m): 1.00

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	86
10	82
6.3	80
3.35	78
2	76
1.18	71
0.6	64
0.3	51
0.212	42
0.15	33
0.063	21

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 24 55 21

Remarks:

See Summary of Soil Descriptions





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Contract No:
PSL18/1203
Client Ref:
17/082

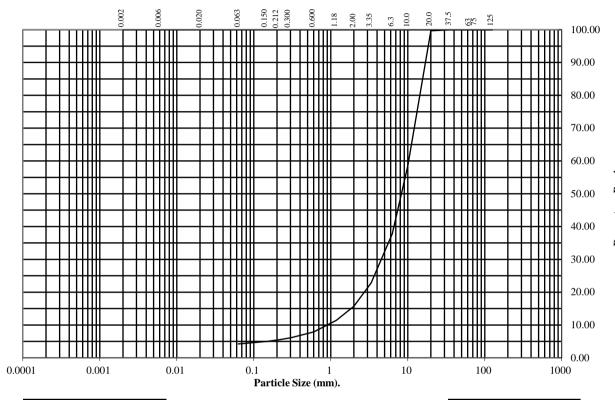
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP9-OP6 Top Depth (m): 4.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	58
6.3	38
3.35	23
2	16
1.18	11
0.6	8
0.3	6
0.212	6
0.15	5
0.063	4

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	0 84 12 4

Remarks:

See Summary of Soil Descriptions





Newton Stewart FPS

Contract No: PSL18/1203 Client Ref: 17/082

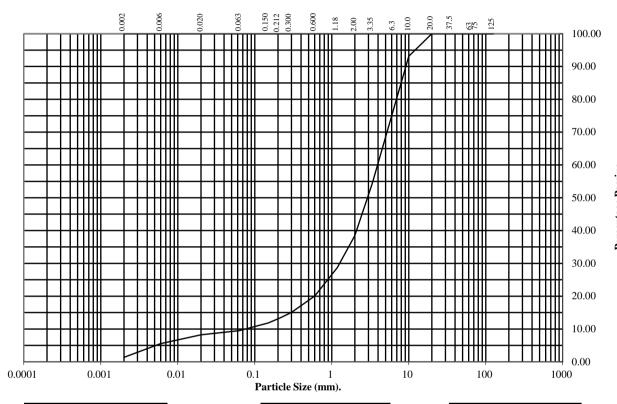
BS1377: Part 2: 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP9-OP6 Top Depth (m): 10.30

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	100
63	100
37.5	100
20	100
10	93
6.3	77
3.35	54
2	38
1.18	29
0.6	20
0.3	15
0.212	13
0.15	12
0.063	10

Particle	Percentage
Diameter	Passing
0.02	8
0.006	6
0.002	1

Soil	Total
Fraction	Percentage
Cobbles	0
Gravel	62
Sand	28
Silt	9
Clay	1

Remarks:

See Summary of Soil Descriptions





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Contract No:
PSL18/1203
Client Ref:
17/082

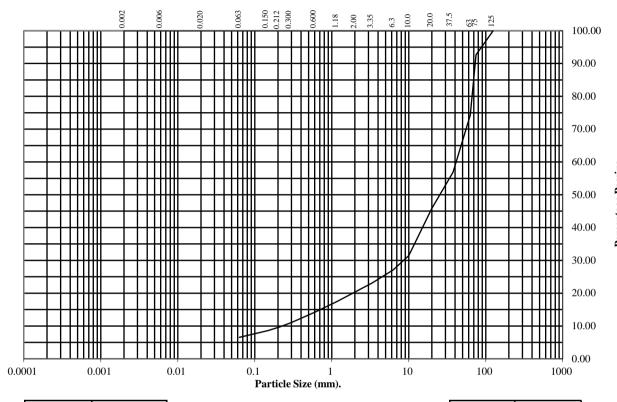
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP9-OP7 Top Depth (m): 1.80

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	93
63	74
37.5	57
20	46
10	31
6.3	27
3.35	23
2	20
1.18	18
0.6	14
0.3	11
0.212	10
0.15	9
0.063	7

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	26 54 13 7

Remarks:

See Summary of Soil Descriptions





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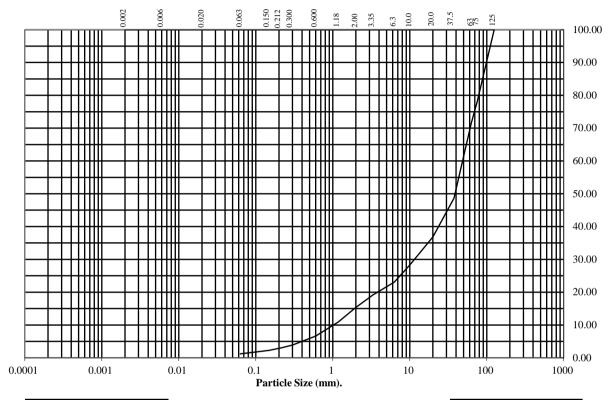
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TP11-OP7 Top Depth (m): 2.00

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	78
63	71
37.5	49
20	37
10	28
6.3	23
3.35	19
2	15
1.18	11
0.6	7
0.3	4
0.212	3
0.15	2
0.063	1

Soil	Total				
Fraction	Percentage				
Cobbles Gravel Sand Silt/Clay	29 56 14 1				

Remarks:

See Summary of Soil Descriptions





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Contract No:
PSL18/1203
Client Ref:
17/082

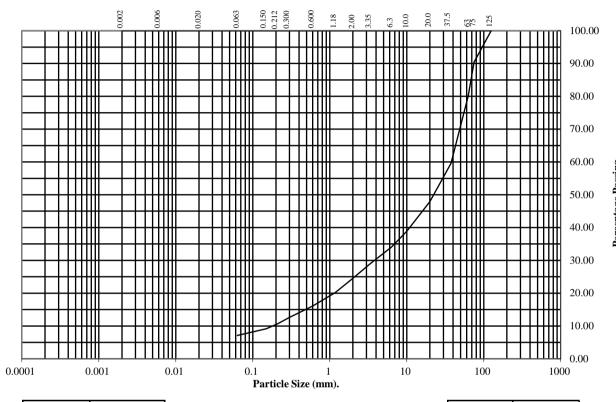
BS1377: Part 2: 1990

Wet Sieve, Clause 9.2

Hole Number: TPW1-OP6 Top Depth (m): 0.50

Sample Number: Base Depth(m):

Sample Type: BD



BS Test	Percentage
Sieve (mm)	Passing
125	100
75	90
63	80
37.5	60
20	48
10	39
6.3	34
3.35	29
2	25
1.18	20
0.6	16
0.3	13
0.212	11
0.15	9
0.063	7

Soil	Total
Fraction	Percentage
Cobbles Gravel Sand Silt/Clay	20 55 18 7

Remarks:

See Summary of Soil Descriptions





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Contract No:
PSL18/1203
Client Ref:
17/082

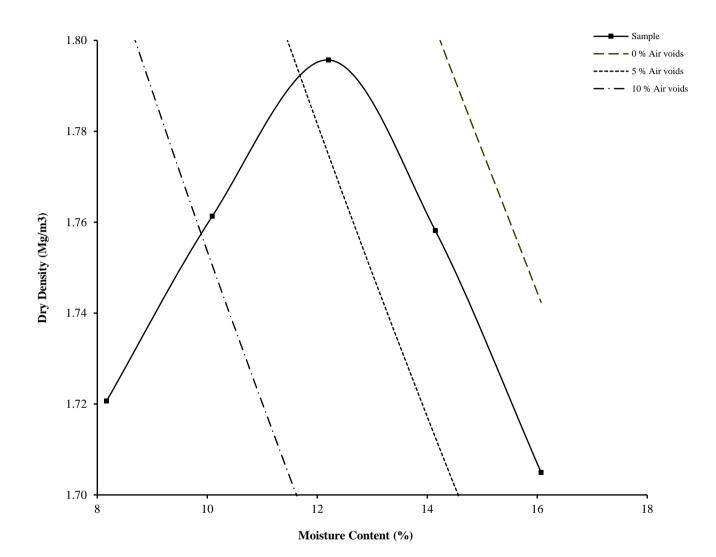
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377: Part 4: 1990

Hole Number: BH1-OP7 Top Depth (m): 2.80

Sample Number: Base Depth (m):

Sample Type: BD



Initial Moisture Content:		20	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	rticle Density (Mg/m3): 2.42 Assumed Material Retained on 37.5 mm Test Sieve (%):				0
Maximum Dry Density (Mg	/m3):	1.80	Material Retained on 20.0 mm Test Sieve	0	
Optimum Moisture Content	(%):	12			
Remarks			•		

Remarks

See summary of soil descriptions.



Newton Stewart FPS

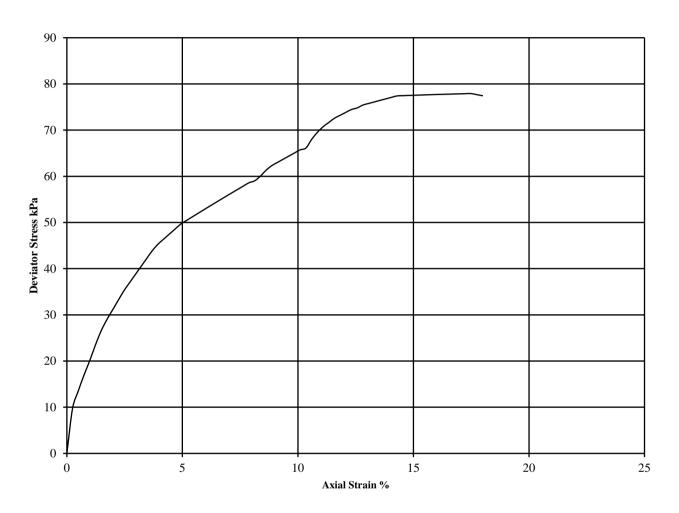
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377: Part7: 1990: Clause 9

Hole Number: BH4-OP6 Top Depth (m): 1.30

Sample Number: Base Depth (m):

Sample Type U



Diamet	er (mm):	102	Height	(mm):	207	Test:	UU M	ultistage	Remarks
	Moisture	Bulk	Dry	Cell	Corr. Max.	Shear	Failure	Mode	Undisturbed Sample
Specimen	Content	Density	Density	Pressure	Deviator	Strength	Strain	of	Sample taken from top of tube
	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain = 2 %/min
					(kPa)	(kPa)			Latex Membrane used 0.2 mm thick
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Correction applied (kPa)
1	33	1.89	1.42	15	59	30	8.1		0.36 0.35 0.34
				30	66	33	10.3		See summary of soil descriptions
				60	78	39	17.5	Plastic	



Newton Stewart FPS

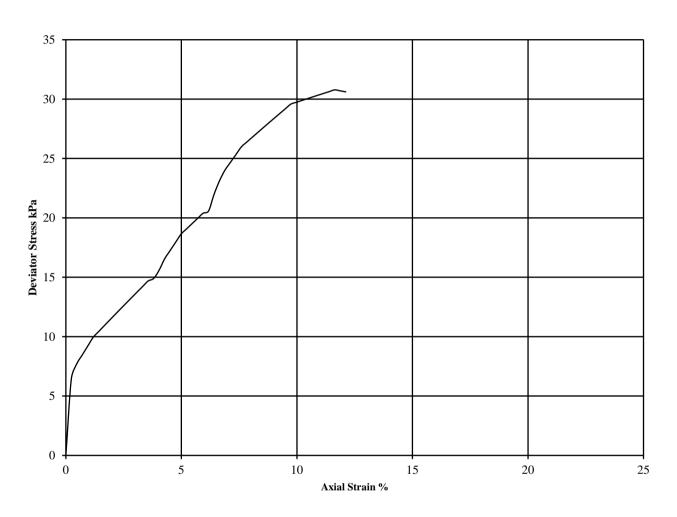
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377: Part7: 1990: Clause 9

Hole Number: BH7-OP6 Top Depth (m): 2.80

Sample Number: Base Depth (m):

Sample Type U80



Diamet	er (mm):	76	Height	(mm):	160	Test:	UU Mı	ultistage	Remarks
	Moisture	Bulk	Dry	Cell	Corr. Max.	Shear	Failure	Mode	Undisturbed Sample
Specimen	Content	Density	Density	Pressure	Deviator	Strength	Strain	of	Sample taken from top of tube
	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain = 2 %/min
					(kPa)	(kPa)			Latex Membrane used 0.2 mm thick
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Correction applied (kPa)
1	32	1.88	1.43	30	15	7	3.8		0.49 0.48 0.47
			·	60	21	10	6.2		See summary of soil descriptions
				120	31	15	11.6	Plastic	



Newton Stewart FPS

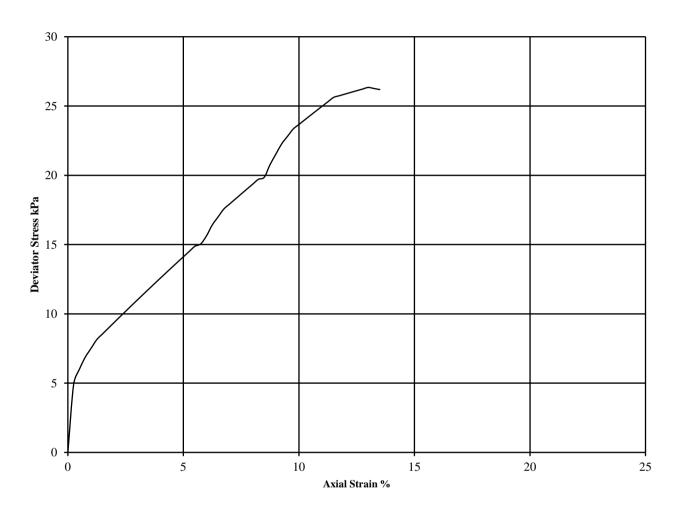
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number: BH9-OP6 Top Depth (m): 1.30

Sample Number: Base Depth (m):

Sample Type U80



Diamet	er (mm):	n): 101 Height (mm)		(mm):	202	Test:	UU Mı	ultistage	Remarks	
	Moisture	Bulk	Dry	Cell	Corr. Max.	Shear	Failure	Mode	Undisturbed Sample	
Specimen	Content	Density	Density	Pressure	Deviator	Strength	Strain	of	Sample taken from top of tube	
	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain = 2 %/min	
					(kPa)	(kPa)			Latex Membrane used 0.2 mm thick	
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Correction applied (kPa)	
1	44	1.76	1.23	15	15	8	5.8		0.37 0.36 0.35	
				30	20	10	8.5		See summary of soil descriptions	
				60	26	13	13.0	Plastic		



Newton Stewart FPS

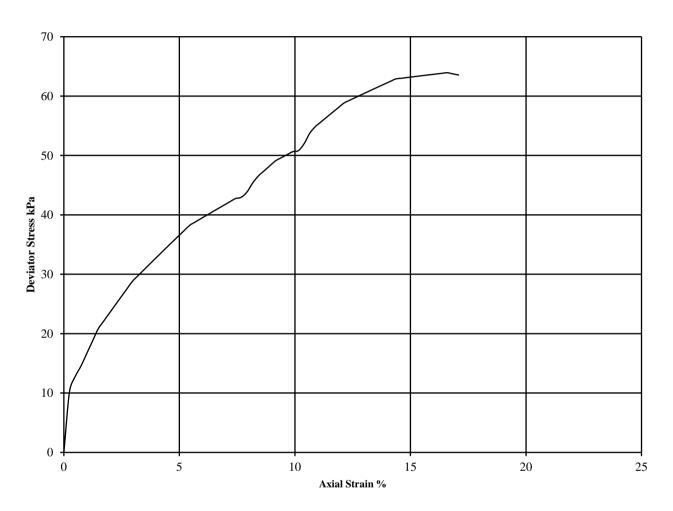
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377: Part7: 1990: Clause 9

Hole Number: BH13-OP6 Top Depth (m): 7.30

Sample Number: Base Depth (m):

Sample Type U



Diamet	Diameter (mm): 102 Height		(mm):	206	Test:	UU Mı	ultistage	Remarks		
	Moisture	Bulk	Dry	Cell	Corr. Max.	Shear	Failure	Mode	Undisturbed Sample	
Specimen	Content	Density	Density	Pressure	Deviator	Strength	Strain	of	Sample taken from top of tube	
	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain = 2 %/min	
					(kPa)	(kPa)			Latex Membrane used 0.2 mm thick	
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Correction applied (kPa)	
1	35	1.97	1.46	35	43	21	7.7		0.36 0.35 0.34	
			·	75	51	25	10.2		See summary of soil descriptions	
				150	64	32	16.6	Plastic		



Newton Stewart FPS

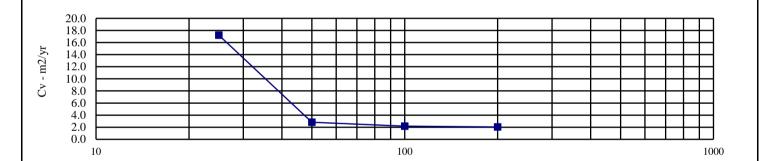
BS 1377: Part 5: 1990: Clause 3

Hole Number: BH4-OP6 Top Depth (m): 1.30

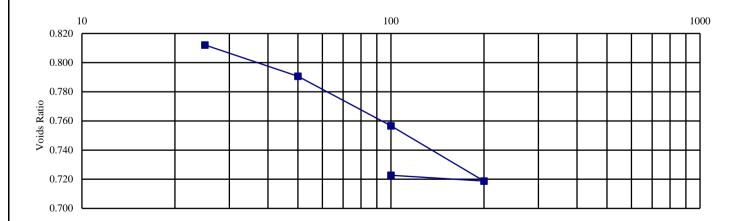
Sample Number: Base Depth (m):

Sample Type: U

Initial Conditions	nitial Conditions			Mv	Cv	Specimen location			
Moisture Content (%):	33	kP	a	m2/MN	m2/yr	within tube:	Top		
Bulk Density (Mg/m3):	1.91	0	25	0.776	17.209	Method used to			
Dry Density (Mg/m3):	1.43	25	50	0.474	2.818	determine CV:	T90		
Voids Ratio:	0.848	50	100	0.380	2.174	Nominal temperature			
Degree of saturation:	104.0	100	200	0.216	2.039	during test 'C: 20			
Height (mm):	19.896	200	100	0.023	-	Remarks:	Remarks:		
Diameter (mm)	75.058					See summary of soil descriptions			
Particle Density (Mg/m3):	2.65								
Assumed	2.03								



Pressure -kPa





Newton Stewart FPS

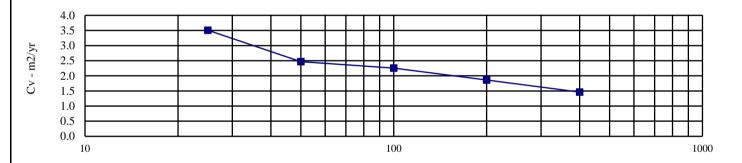
BS 1377: Part 5: 1990: Clause 3

Hole Number: BH7-OP6 Top Depth (m): 2.80

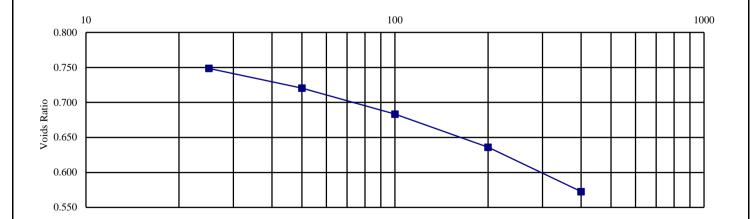
Sample Number: Base Depth (m):

Sample Type: U80

Initial Conditions	Pressure Range Mv Cv Specimen location								
Moisture Content (%):	32	kPa		m2/MN	m2/yr	within tube: Top			
Bulk Density (Mg/m3):	1.90	0 25		1.917	3.508	Method used to			
Dry Density (Mg/m3):	1.44	25	50	0.647	2.468	determine CV: T90			
Voids Ratio:	0.837	50	100	0.431	2.258	Nominal temperature			
Degree of saturation:	100.8	100	200	0.281	1.860	during test 'C:	20		
Height (mm):	19.884	200	400	0.194	1.463	Remarks:	Remarks:		
Diameter (mm)	75.22					See summary of soil descriptions			
Particle Density (Mg/m3):	2.65								
Assumed	2.03								



Pressure -kPa





Newton Stewart FPS

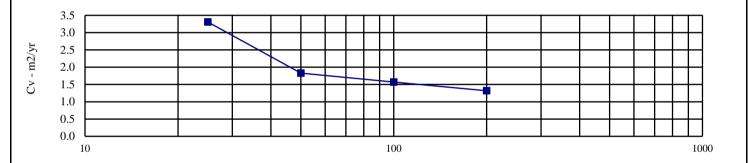
BS 1377: Part 5: 1990: Clause 3

Hole Number: BH9-OP6 Top Depth (m): 1.30

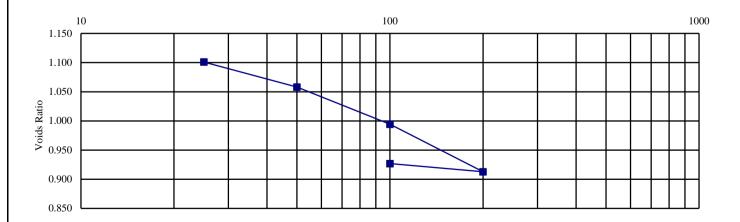
Sample Number: Base Depth (m):

Sample Type: U

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	44	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	1.77	0	25	1.014	3.306	Method used to	
Dry Density (Mg/m3):	1.23	25	50	0.817	1.828	determine CV:	T90
Voids Ratio:	1.156	50	100	0.619	1.569	Nominal temperature	
Degree of saturation:	100.5	100	200	0.409	1.318	during test 'C:	20
Height (mm):	19.836	200	100	0.073	-	Remarks:	
Diameter (mm)	75.06					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed	2.03						



Pressure -kPa





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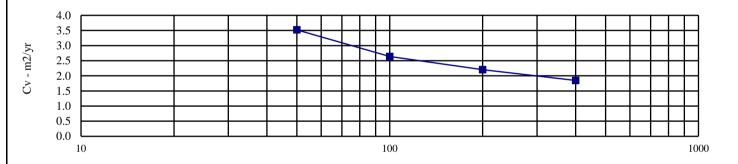
BS 1377: Part 5: 1990: Clause 3

Hole Number: BH13-OP6 Top Depth (m): 7.30

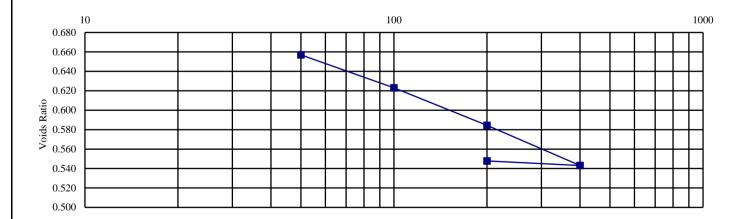
Sample Number: Base Depth (m):

Sample Type: U

Initial Conditions	Pressure Range		Mv	Cv	Specimen location		
Moisture Content (%):	35	kPa	a	m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	1.96	0	50	1.747	3.519	Method used to	
Dry Density (Mg/m3):	1.46	50	100	0.409	2.638	determine CV:	T90
Voids Ratio:	0.815	100	200	0.238	2.205	Nominal temperature	
Degree of saturation:	112.5	200	400	0.130	1.848	during test 'C:	20
Height (mm):	19.876	400	200	0.015	-	Remarks:	
Diameter (mm)	75.02					See summary of soil descriptions	
Particle Density (Mg/m3):	2.65						
Assumed	2.03						



Pressure -kPa

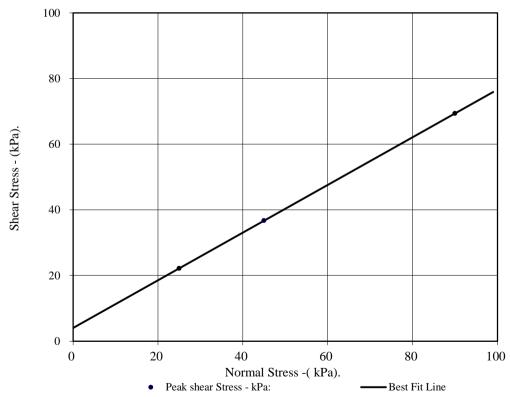




Newton Stewart FPS

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:		BH3-OP6	Top Dept	h:	2.0	00
Sample Number:			Base Dep	th:		
Sample Conditions:		Submerged	Sample T	ype	В	D
Particle Density - Mg/m3:	2.65	Assumed	Remarks	:		
Sample Preparation:	Remoulded	using 2.5kg effort.				
		ted passing 2mm sieve				
Sample Description:	See summa	ry of soil descriptions	S.			
STAGE				1	2	3
		Initial Condition	ıs			
Height - mm:				19.54	19.54	19.54
Length - mm:				60.03	60.03	60.03
Moisture Content - %:				14	14	14
Bulk Density - Mg/m3:				1.75	1.75	1.76
Dry Density - Mg/m3:				1.53	1.53	1.54
Voids Ratio:				0.728	0.731	0.719
Normal Pressure- kPa				25	45	90
		Consolidation Sta	age			
Consolidated Height - mm:				19.25	18.70	18.54
		Shearing Stage	2			
Rate of Strain (mm/min)				0.600	0.600	0.600
Displacement at peak shear s	stress (mm)			9.00	9.00	5.00
Peak shear Stress - kPa:				22	37	69
	F	inal Consolidated Co	nditions			
Moisture Content - %:				21	22	20
Bulk Density - Mg/m3:				1.77	1.82	1.85
Dry Density - Mg/m3:				1.46	1.50	1.54
	<u> </u>	Peak	<u> </u>			
Angle of Shearing Resistance	e:(0)				36	
Effective Cohesion - kPa:					4	



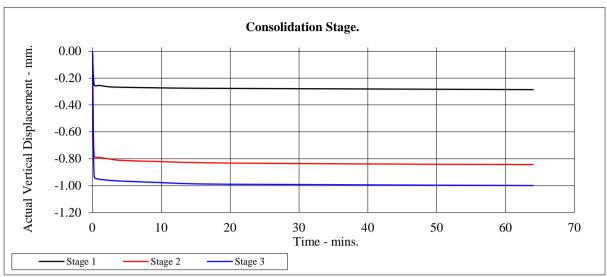


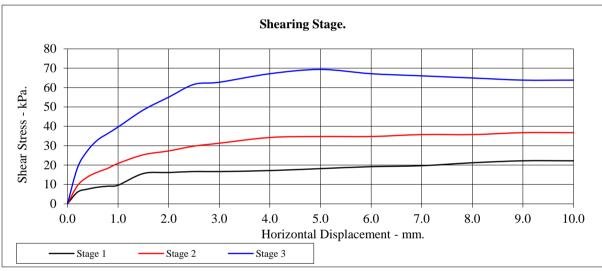


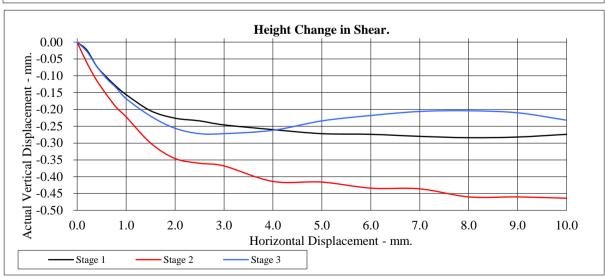
Newton Stewart FPS

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	ВНЗ-ОР6	Top Depth:	2.00
Sample Number:		Base Depth:	







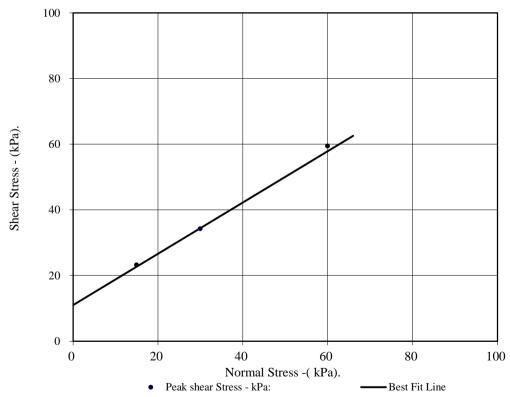




Newton Stewart FPS

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	BH11-OP6		Top Depth	Top Depth:		80
Sample Number:			Base Depti	h:		
Sample Conditions:		Submerged	Sample Ty	pe	В	D
Particle Density - Mg/m3:	2.65	Assumed	Remarks:			
Sample Preparation:	Remoulded	using 2.5kg effort.				
Sample Freparation.	Material tes	ted passing 2mm sieve				
Sample Description:	See summa	ry of soil descriptions	•			
STAGE				1	2	3
		Initial Condition	S			
Height - mm:				19.54	19.54	19.54
Length - mm:				60.03	60.03	60.03
Moisture Content - %:				22	22	22
Bulk Density - Mg/m3:				2.03	2.04	2.04
Dry Density - Mg/m3:				1.66	1.67	1.67
Voids Ratio:				0.598	0.590	0.583
Normal Pressure- kPa				15	30	60
		Consolidation Sta	ge			
Consolidated Height - mm:				18.42	17.49	17.41
		Shearing Stage				
Rate of Strain (mm/min)				0.600	0.600	0.600
Displacement at peak shear s	tress (mm)			5.00	5.00	6.00
Peak shear Stress - kPa:				23	34	59
	F	inal Consolidated Cor	ditions			
Moisture Content - %:				22	21	20
Bulk Density - Mg/m3:				2.15	2.27	2.29
Dry Density - Mg/m3:				1.77	1.87	1.91
		Peak				
Angle of Shearing Resistance	e:(0)				38	
Effective Cohesion - kPa:					11	



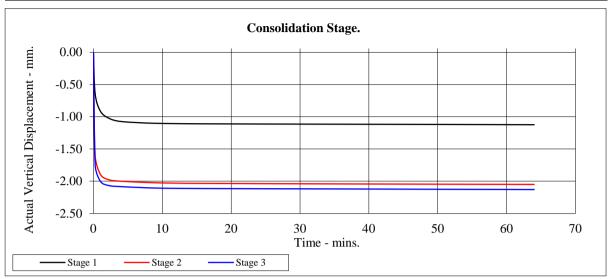


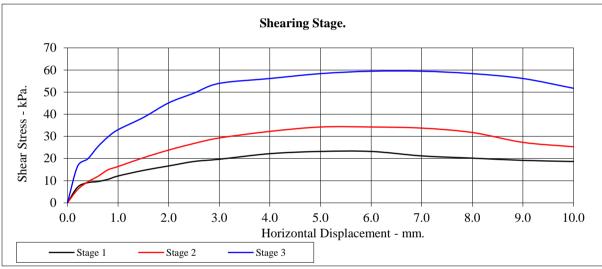


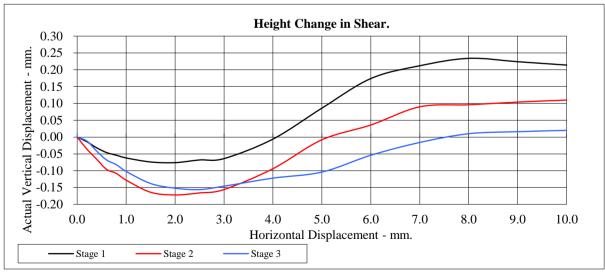
Newton Stewart FPS

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	BH11-OP6	Top Depth:	1.30
Sample Number:		Base Depth:	







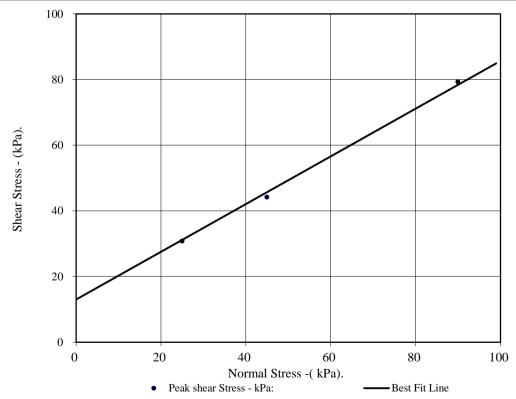




Newton Stewart FPS

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	BH1-OP7		Top Depth	Top Depth:		80
Sample Number:			Base Depti	n:		
Sample Conditions:		Submerged	Sample Ty	pe	В	D
Particle Density - Mg/m3:	2.65	Assumed	Remarks:			
Sample Preparation:	Remoulded	using 2.5kg effort.				
		ed passing 2mm sieve				
Sample Description:	See summa	ry of soil descriptions	5.			
STAGE				1	2	3
		Initial Condition	ıs			
Height - mm:				19.54	19.54	19.54
Length - mm:				60.03	60.03	60.03
Moisture Content - %:				20	20	20
Bulk Density - Mg/m3:				2.07	2.04	2.04
Dry Density - Mg/m3:				1.72	1.70	1.70
Voids Ratio:				0.539	0.562	0.555
Normal Pressure- kPa				25	45	90
		Consolidation Sta	ige			
Consolidated Height - mm:				19.28	18.66	18.59
		Shearing Stage	!			
Rate of Strain (mm/min)				0.600	0.600	0.600
Displacement at peak shear s	tress (mm)			3.00	3.00	3.00
Peak shear Stress - kPa:				31	44	79
	Fi	nal Consolidated Co	nditions			
Moisture Content - %:				19	18	18
Bulk Density - Mg/m3:				2.09	2.13	2.15
Dry Density - Mg/m3:	·	<u> </u>	·	1.76	1.80	1.82
		Peak				
Angle of Shearing Resistance	e:(0)				36	
Effective Cohesion - kPa:					13	



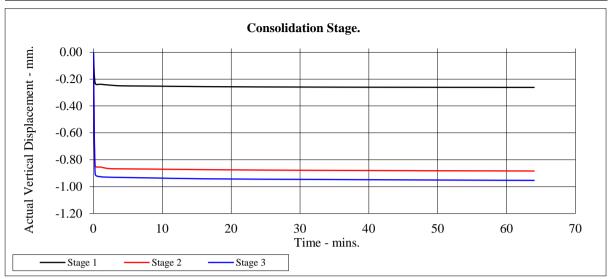


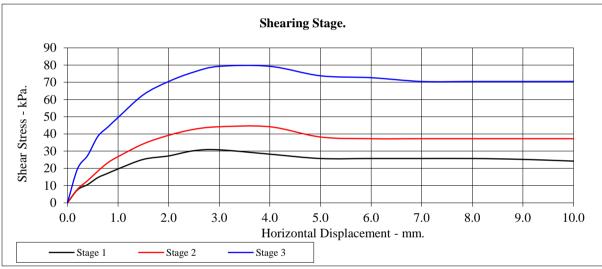


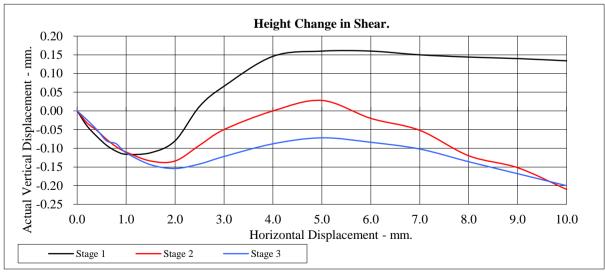
Newton Stewart FPS

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	BH1-OP7	Top Depth:	4.30
Sample Number:		Base Depth:	











Newton Stewart FPS

LABORATORY TEST CERTIFICATE



10 Queenslie Point Queenslie Industrial Estate 120 Stepps Road Glasgow

Glasgow G33 3NQ

Tel: 0141 774 4032 Fax: 0141 774 3552

email: info@mattest.org Website: www.mattest.org

Certificate No: 18/309 - 01

Client : Holequest Limited

Winston Road Galashiels TD1 2DA

Craig Rodger

Dear Sirs,

To:

LABORATORY TESTING OF ROCK

Introduction

We refer to samples taken from Newton Stewart FPS and delivered to our laboratory on 16th March 2018.

Material & Source

Sample Reference : See Report Plates

Sampled By : Client

Sampling Certificate : Not Supplied

Location : See Report Plates

Description : Rock

Date Sampled : Not Supplied

Date Tested : 16th March 2018 Onwards

Source : 17/082 - Newton Stewart FPS

Test Results;

As Detailed On Page 2 to Page 11 inclusive

Comments:

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory. All remaining samples for this project will be disposed of 28 days after issue of this test certificate.

Remarks;

Approved for Issue		
	Date	26/03/2018
T McLelland (Director)	•	

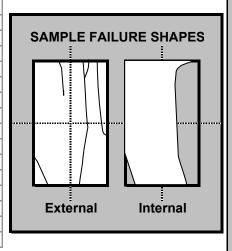


Issue No. 01 Page 1 of 11

HOLEQUEST LIMITED NEWTON STEWART FPS



BOREHOLE		BH1-OP7
SAMPLE		C C
SAIVIPLE		
DEPTH	m	16.90
SAMPLE DIAMETER	mm	79.08
SAMPLE HEIGHT	mm	184.35
TEST CONDITION		As Received
RATE OF LOADING	kN/s	0.5
TEST DURATION	min.sec	8.05
DATE OF TESTING		22/03/2018
LOAD FRAME USED		2000kN
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown
FAILURE LOAD	kN	231.2
UNCONFINED COMPRESSIVE STRENGTH	MPa	47.1
WATER CONTENT (ISRM Suggested Methods)	%	0.3
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.69
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.68



BOREHOLE			
SAMPLE			
DEPTH	m	SAMP	LE FAILURE SHAPES
SAMPLE DIAMETER	mm		<u></u>
SAMPLE HEIGHT	mm		
TEST CONDITION			
RATE OF LOADING	kN/s		
TEST DURATION	min.sec		
DATE OF TESTING			
LOAD FRAME USED			
LOAD DIRECTION WITH RESPECT TO LITHOLOGY			
FAILURE LOAD	kN		
UNCONFINED COMPRESSIVE STRENGTH	MPa		
WATER CONTENT (ISRM Suggested Methods)	%	Exte	ernal Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³		

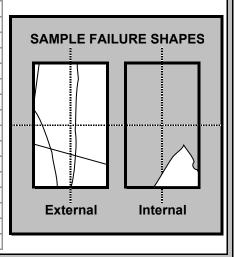
BOREHOLE				
SAMPLE				
DEPTH	m	SAMPLE FAIL	URE SHAPES	3
SAMPLE DIAMETER	mm			
SAMPLE HEIGHT	mm			
TEST CONDITION				
RATE OF LOADING	kN/s			
TEST DURATION	min.sec			
DATE OF TESTING				
LOAD FRAME USED				
LOAD DIRECTION WITH RESPECT TO LITHOLOGY				
FAILURE LOAD	kN			
UNCONFINED COMPRESSIVE STRENGTH	MPa			
WATER CONTENT (ISRM Suggested Methods)	%	External	Internal	
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³			
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³			

Tested in accordance with ASTM D7012 - 14

HOLEQUEST LIMITED NEWTON STEWART FPS



BOREHOLE		BH8-OP6
SAMPLE		С
DEPTH	m	11.10
SAMPLE DIAMETER	mm	78.65
SAMPLE HEIGHT	mm	179.83
TEST CONDITION		As Received
RATE OF LOADING	kN/s	0.5
TEST DURATION	min.sec	5.55
DATE OF TESTING		22/03/2018
LOAD FRAME USED		2000kN
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown
FAILURE LOAD	kN	163.4
UNCONFINED COMPRESSIVE STRENGTH	MPa	33.6
WATER CONTENT (ISRM Suggested Methods)	%	0.5
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.69
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.67



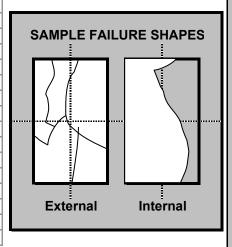
BOREHOLE		
SAMPLE		
DEPTH	m	SAMPLE FAILURE SHAPES
SAMPLE DIAMETER	mm	
SAMPLE HEIGHT	mm	
TEST CONDITION		
RATE OF LOADING	kN/s	
TEST DURATION	min.sec	
DATE OF TESTING		
LOAD FRAME USED		
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		
FAILURE LOAD	kN	
UNCONFINED COMPRESSIVE STRENGTH	MPa	
WATER CONTENT (ISRM Suggested Methods)	%	External Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	

BOREHOLE			
SAMPLE			
DEPTH	m	SAMPLE FAIL	URE SHAPES
SAMPLE DIAMETER	mm		
SAMPLE HEIGHT	mm		
TEST CONDITION			
RATE OF LOADING	kN/s		
TEST DURATION	min.sec		
DATE OF TESTING			
LOAD FRAME USED			
LOAD DIRECTION WITH RESPECT TO LITHOLOGY			
FAILURE LOAD	kN		
UNCONFINED COMPRESSIVE STRENGTH	MPa		
WATER CONTENT (ISRM Suggested Methods)	%	External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³		

Tested in accordance with ASTM D7012 - 14



BOREHOLE		BH11-OP6
SAMPLE		С
DEPTH	m	15.10
SAMPLE DIAMETER	mm	79.80
SAMPLE HEIGHT	mm	154.02
TEST CONDITION		As Received
RATE OF LOADING	kN/s	0.5
TEST DURATION	min.sec	4.47
DATE OF TESTING		22/03/2018
LOAD FRAME USED		2000kN
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown
FAILURE LOAD	kN	122.5
UNCONFINED COMPRESSIVE STRENGTH	MPa	24.5
WATER CONTENT (ISRM Suggested Methods)	%	0.4
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.64
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.63



Test specimen does not meet specified length / diameter ratio requirements

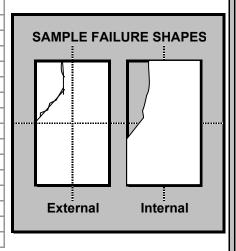
BOREHOLE			
SAMPLE			
DEPTH	m	SAMPLE FAIL	URE SHAPES
SAMPLE DIAMETER	mm		
SAMPLE HEIGHT	mm		
TEST CONDITION			
RATE OF LOADING	kN/s		
TEST DURATION	min.sec		
DATE OF TESTING			
LOAD FRAME USED			
LOAD DIRECTION WITH RESPECT TO LITHOLOGY			
FAILURE LOAD	kN		
UNCONFINED COMPRESSIVE STRENGTH	MPa		
WATER CONTENT (ISRM Suggested Methods)	%	External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³		

BOREHOLE				
SAMPLE				
DEPTH	m	SAMPLE FAIL	URE SHAPES	
SAMPLE DIAMETER	mm			
SAMPLE HEIGHT	mm			
TEST CONDITION				
RATE OF LOADING	kN/s			
TEST DURATION	min.sec			
DATE OF TESTING				
LOAD FRAME USED				
LOAD DIRECTION WITH RESPECT TO LITHOLOGY				
FAILURE LOAD	kN			
UNCONFINED COMPRESSIVE STRENGTH	MPa			
WATER CONTENT (ISRM Suggested Methods)	%	External	Internal	
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³			
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³			

Tested in accordance with ASTM D7012 - 14



BOREHOLE		BH13-OP6
SAMPLE		С
DEPTH	m	16.10
SAMPLE DIAMETER	mm	79.53
SAMPLE HEIGHT	mm	151.58
TEST CONDITION		As Received
RATE OF LOADING	kN/s	0.6
TEST DURATION	min.sec	3.11
DATE OF TESTING		22/03/2018
LOAD FRAME USED		2000kN
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown
FAILURE LOAD	kN	110.2
UNCONFINED COMPRESSIVE STRENGTH	MPa	22.2
WATER CONTENT (ISRM Suggested Methods)	%	0.2
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.66
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.66



Test specimen does not meet specified length / diameter ratio requirements

BOREHOLE				
SAMPLE				
DEPTH	m		SAMPLE FAIL	URE SHAPES
SAMPLE DIAMETER	mm			
SAMPLE HEIGHT	mm			
TEST CONDITION				
RATE OF LOADING	kN/s			
TEST DURATION	min.sec			
DATE OF TESTING				
LOAD FRAME USED				
LOAD DIRECTION WITH RESPECT TO LITHOLOGY				
FAILURE LOAD	kN			
UNCONFINED COMPRESSIVE STRENGTH	MPa			
WATER CONTENT (ISRM Suggested Methods)	%		External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³			
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	·		

BOREHOLE			
SAMPLE			
DEPTH	m	SAMPLE FAIL	URE SHAPES
SAMPLE DIAMETER	mm		
SAMPLE HEIGHT	mm		
TEST CONDITION			
RATE OF LOADING	kN/s		
TEST DURATION	min.sec		
DATE OF TESTING			
LOAD FRAME USED			
LOAD DIRECTION WITH RESPECT TO LITHOLOGY			
FAILURE LOAD	kN		
UNCONFINED COMPRESSIVE STRENGTH	MPa		
WATER CONTENT (ISRM Suggested Methods)	%	External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³		_

Tested in accordance with ASTM D7012 - 14



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH1-OP6	C C C		CONTENT	TEST * (see below)	DIAMETER	DIAMETER	SEPARATION	LOAD		

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale

did not register a reading

* I = IRREGULAR TEST D = DIAMETRAL TEST A = AXIAL TEST

Mean Is(50) - Axial tests	2.81
Mean Is(50) - Diametrical tests	2.15
Ia(50)	1.30

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH1-OP7	C C C		CONTENT	TEST *	DIAMETER	DIAMETER	SEPARATION	LOAD		

NOTE: N/M - Not measured

NOTE: A dash (-) signifies that scale

did not register a reading

* I = IRREGULAR TEST D = DIAMETRAL TEST A = AXIAL TEST

Mean Is(50) - Axial tests	3.22
Mean Is(50) - Diametrical tests	2.25
Ia(50)	1.43

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH3-OP6	C C C C		CONTENT	TEST * (see below)	DIAMETER	DIAMETER	SEPARATION	LOAD		

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale

did not register a reading

* I = IRREGULAR TEST D = DIAMETRAL TEST A = AXIAL TEST

Mean Is(50) - Axial tests	1.42
Mean Is(50) - Diametrical tests	1.10
la(50)	1.30

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH8-OP6	C C	10.60 10.70	As Received As Received	D A A D A	78.52 78.52 78.52 78.76 78.76	78.52 55.46 72.19 78.76 54.44	78.52 30.76 52.12 78.76 29.55	35.26 15.21 29.09 >40 10.09	5.72 4.95 5.58 >6.45 3.40	7.01 5.18 6.59 >7.91 3.54
	С	11.00	As Received	A D A	78.76 78.49 78.49	56.72 78.49 69.51	32.08 78.49 48.35	12.16 29.46 21.00	3.78 4.78 4.35	4.00 5.86 5.04
	С	11.30	As Received	A D A	78.49 79.20 79.20	64.07 79.20 52.62	41.08 79.20 27.46	19.91 11.76 17.67	4.85 1.87 6.38	5.42 2.31 6.53
	С	11.90	As Received	A D A A	79.20 80.26 80.26 80.26	63.41 80.26 63.53 66.35	39.87 80.26 39.50 43.08	20.85 17.24 12.09 15.80	5.19 2.68 2.99 3.59	5.77 3.31 3.34 4.08

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale

did not register a reading

* I = IRREGULAR TEST D = DIAMETRAL TEST A = AXIAL TEST

Mean Is(50) - Axial tests	4.95
Mean Is(50) - Diametrical tests	3.70
Ia(50)	1.34

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH11-OP6	C C C		CONTENT	TEST * (see below)	DIAMETER	DIAMETER	SEPARATION	LOAD		

NOTE: N/M - Not measured

NOTE: A dash (-) signifies that scale

did not register a reading

* I = IRREGULAR TEST D = DIAMETRAL TEST A = AXIAL TEST

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH13-OP6	C C C		CONTENT	TEST *	DIAMETER	DIAMETER	SEPARATION	LOAD		

NOTE: N/M - Not measured

NOTE: A dash (-) signifies that scale

did not register a reading

* I = IRREGULAR TEST D = DIAMETRAL TEST A = AXIAL TEST

Mean Is(50) - Axial tests	4.35
Mean Is(50) - Diametrical tests	3.13
Ia(50)	1.39

Tested in accordance with ISRM (2007)



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Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 704816-1

Date of Report: 08-Jan-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference:

Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 14-Dec-2017

Date Analysis Started: 20-Dec-2017 Date Analysis Completed: 08-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical

Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference:

Soil Analysed as Soil

Miscellaneous

			Conce	ot Reference	704816 002	704816 004	704816 011	704816 016
		Custon	ner Samp	le Reference	TP3-OP24 0.5m	TP4-OP24 0.2m	TP6-OP24 0.5m	SP-TP4 0.2m
			D	ate Sampled	13-DEC-2017	13-DEC-2017	13-DEC-2017	13-DEC-2017
Determinand	Method	Test Sample	LOD	Units				
Cyanide(free)	T4	AR	1	mg/kg	<1	<1	<1	<1
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10	<10	<10
Chromium VI	T82	A40	1	mg/kg	<1	<1	<1	<1
pН	T7	A40			6.0	6.2	5.7	6.1
Sulphide	T4	AR	10	mg/kg	<10	<10	<10	<10
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1	<1	<1
SO4(Total)	T82	A40	0.01	%	0.07	0.15	0.10	0.15
Organic Matter	T2	A40	0.1	%	1.2	8.6	3.1	5.3
Chloride (2:1)	T686	AR	0.5	mg/l	1.5	3.2	2.1	4.1
Asbestos ID	T27	AR		1.32	N.D.	N.D.	N.D.	N.D.
Chromium (trivalent)	T85	AR	2	mg/kg	56	61	59	61
Vanadium	T82	A40	1	mg/kg	33	45	40	44
Nitrate (2:1)	T686	AR	1.0	mg/l	<1.0	2.5	1.1	<1.0

Project Site: Newton Stewart FPS

Customer Reference:

Soil Analysed as Soil

TPH (CWG)

			Conce	ot Reference	704816 002	704816 004	704816 011	704816 016
		Custor	ner Sampl	le Reference	TP3-OP24 0.5m	TP4-OP24 0.2m	TP6-OP24 0.5m	SP-TP4 0.2m
			D	ate Sampled	13-DEC-2017	13-DEC-2017	13-DEC-2017	13-DEC-2017
Determinand	Method	Test Sample	LOD	Units				
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	<10	<10	<10	<10
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	<10	<10	<10	<10
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	<10	<10	<10	<10
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	<10	<10	<10	<10
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	<10	<10	<10	<10
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	<10	<10	<10	<10
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C21-C35 aromatic)	Т8	AR	1	ma/ka	<1	<1	<1	<1

Project Site: Newton Stewart FPS

Customer Reference:

Soil Analysed as Soil

PAH (USEPA 16)

			Concep	ot Reference	704816 002	704816 004	704816 011	704816 016
		Custon	ner Sampl	le Reference	TP3-OP24 0.5m	TP4-OP24 0.2m	TP6-OP24 0.5m	SP-TP4 0.2r
			D	ate Sampled	13-DEC-2017	13-DEC-2017	13-DEC-2017	13-DEC-201
Determinand	Method	Test Sample	LOD	Units				
Naphthalene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Fluorene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	0.02	0.02	<0.01	0.01
Anthracene	T149	AR	0.01	mg/kg	0.01	<0.01	<0.01	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	0.03	0.04	0.01	0.03
Pyrene	T149	AR	0.01	mg/kg	0.03	0.03	<0.01	0.03
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.01	⁽¹³⁾ 0.01	(13) < 0.01	⁽¹³⁾ 0.01
Chrysene	T149	AR	0.01	mg/kg	0.02	0.02	<0.01	0.02
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	0.02	0.04	<0.01	0.03
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.01	0.02	<0.01	0.02
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.01	0.01	<0.01	0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.01	0.02	<0.01	0.02

Project Site: Newton Stewart FPS

Customer Reference:

Soil Analysed as Soil

ICRCL (Table 3:metals)

			Concep	t Reference	704816 002	704816 004	704816 011	704816 016
		Custon	ner Sampl	e Reference	TP3-OP24 0.5m	TP4-OP24 0.2m	TP6-OP24 0.5m	SP-TP4 0.2m
			D	ate Sampled	13-DEC-2017	13-DEC-2017	13-DEC-2017	13-DEC-2017
Determinand	Method	Test Sample	LOD	Units				
Arsenic	T82	A40	2	mg/kg	14	22	20	21
Boron (water-soluble)	T82	A40	1	mg/kg	<1	<1	<1	<1
Cadmium	T82	A40	1	mg/kg	<1	<1	<1	<1
Chromium	T82	A40	1	mg/kg	56	61	59	61
Copper	T82	A40	1	mg/kg	17	33	22	23
Lead	T82	A40	3	mg/kg	27	76	29	82
Mercury	T82	A40	1	mg/kg	<1	<1	<1	<1
Nickel	T82	A40	1	mg/kg	45	42	45	42
Selenium	T82	A40	3	mg/kg	<3	<3	<3	<3
Zinc	T82	A40	1	mg/kg	87	120	110	120

Index to symbols used in 704816-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

GC/MS Headspace - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T8	GC/FID
T85	Calc
T4	Colorimetry
T149	GC/MS (SIR)
T54	GC/MS (Headspace)
T82	ICP/OES (Sim)
T686	Discrete Analyser
T2	Grav
T27	PLM
T7	Probe

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Arsenic	T82	A40	2	mg/kg	U	002,004,011,016
Boron (water-soluble)	T82	A40	1	mg/kg	U	002,004,011,016
Cadmium	T82	A40	1	mg/kg	U	002,004,011,016
Chromium	T82	A40	1	mg/kg	U	002,004,011,016
Copper	T82	A40	1	mg/kg	U	002,004,011,016
Lead	T82	A40	3	mg/kg	U	002,004,011,016
Mercury	T82	A40	1	mg/kg	U	002,004,011,016
Nickel	T82	A40	1	mg/kg	U	002,004,011,016
Selenium	T82	A40	3	mg/kg	U	002,004,011,016
Zinc	T82	A40	1	mg/kg	U	002,004,011,016
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	N	002,004,011,016
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	N	002,004,011,016
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	N	002,004,011,016
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	N	002,004,011,016
TPH (C12-C16 aliphatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	N	002,004,011,016
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	N	002,004,011,016
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	N	002,004,011,016
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	N	002,004,011,016
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	N	002,004,011,016
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	N	002,004,011,016
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	N	002,004,011,016
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	002,004,011,016
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	N	002,004,011,016
Cyanide(free)	T4	AR	1	mg/kg	U	002,004,011,016
Cyanide(Total)	T4	AR	1	mg/kg	U	002,004,011,016
Thiocyanate	T4	A40	10	mg/kg	N	002,004,011,016
Chromium VI	T82	A40	1	mg/kg	N	002,004,011,016
pH	T7	A40			U	002,004,011,016
Sulphide	T4	AR	10	mg/kg	N	002,004,011,016
Phenols(Mono)	T4	AR	1	mg/kg	U	002,004,011,016
SO4(Total)	T82	A40	0.01	%	N	002,004,011,016
Organic Matter	T2	A40	0.1	%	N	002,004,011,016
Chloride (2:1)	T686	AR	0.5	mg/l	N	002,004,011,016
Asbestos ID	T27	AR			SU	002,004,011,016

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Chromium (trivalent)	T85	AR	2	mg/kg	N	002,004,011,016
Vanadium	T82	A40	1	mg/kg	U	002,004,011,016
Nitrate (2:1)	T686	AR	1.0	mg/l	N	002,004,011,016
Naphthalene	T149	AR	0.01	mg/kg	U	002,004,011,016
Acenaphthylene	T149	AR	0.01	mg/kg	U	002,004,011,016
Acenaphthene	T149	AR	0.01	mg/kg	U	002,004,011,016
Fluorene	T149	AR	0.01	mg/kg	U	002,004,011,016
Phenanthrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Anthracene	T149	AR	0.01	mg/kg	U	002,004,011,016
Fluoranthene	T149	AR	0.01	mg/kg	U	002,004,011,016
Pyrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	002,004,011,016
Chrysene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	002,004,011,016





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Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 705022-1

Date of Report: 08-Jan-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 19-Dec-2017

Date Analysis Started: 20-Dec-2017

Date Analysis Completed: 08-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Miscellaneous

	705022 020				
	TP2-OP24 0.50M				
	14-DEC-2017				
Determinand	Method	Test Sample	LOD	Units	
Cyanide(free)	T4	AR	1	mg/kg	<1
Cyanide(Total)	T4	AR	1	mg/kg	<1
Thiocyanate	T4	A40	10	mg/kg	<10
Chromium VI	T82	A40	1	mg/kg	<1
pН	T7	A40			5.4
Sulphide	T4	AR	10	mg/kg	<10
Phenols(Mono)	T4	AR	1	mg/kg	<1
SO4(Total)	T82	A40	0.01	%	0.12
Organic Matter	T2	A40	0.1	%	7.1
Chloride (2:1)	T686	AR	0.5	mg/l	1.8
Asbestos ID	T27	AR		1.10	N.D.
Chromium (trivalent)	T85	AR	2	mg/kg	54
Vanadium	T82	A40	1	mg/kg	38
Nitrate (2:1)	T686	AR	1.0	mg/l	9.1

Concept Reference: 705022

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

TPH (CWG)

	705022 020								
	Customer Sample Reference								
			D	ate Sampled	14-DEC-2017				
Determinand	Method	Test Sample	LOD	Units					
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	<10				
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	<10				
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	<10				
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	<1				
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	<1				
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	<1				
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	<1				
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	<10				
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	<10				
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	<10				
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1				
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	<1				
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	<1				
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	<1				

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

PAH (USEPA 16)

			Concep	t Reference	705022 020
	TP2-OP24 0.50M				
	14-DEC-2017				
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T149	AR	0.01	mg/kg	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	<0.01
Fluorene	T149	AR	0.01	mg/kg	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	0.01
Anthracene	T149	AR	0.01	mg/kg	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	0.02
Pyrene	T149	AR	0.01	mg/kg	0.02
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ <0.01
Chrysene	T149	AR	0.01	mg/kg	0.01
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	0.02
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.01
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	<0.01
Benzo(ghi)Pervlene	T149	AR	0.01	ma/ka	0.01

Concept Reference: 705022

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

PCB EC7 Suite (EK)

	705022 020						
		Custor	ner Samp	le Reference	TP2-OP24 0.50M		
		1.0	D	ate Sampled	14-DEC-2017		
Determinand	Method	Test Sample	LOD	Units			
PCB BZ#101	T149	AR	1	μg/kg	<1		
PCB BZ#118	T149	AR	1	μg/kg	<1		
PCB BZ#138	T149	AR	1	μg/kg	<1		
PCB BZ#153	T149	AR	1	μg/kg	<1		
PCB BZ#180	T149	AR	1	μg/kg	<1		
PCB BZ#28	T149	AR	1	μg/kg	<1		
PCB BZ#52	T149	AR	1	μg/kg	<1		

Concept Reference: 705022

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

ICRCL (Table 3:metals)

			Concer	ot Reference	705022 020
	TP2-OP24 0.50M				
			D	ate Sampled	14-DEC-2017
Determinand	Method	Test Sample	LOD	Units	
Arsenic	T82	A40	2	mg/kg	17
Boron (water-soluble)	T82	A40	1	mg/kg	<1
Cadmium	T82	A40	1	mg/kg	<1
Chromium	T82	A40	1	mg/kg	54
Copper	T82	A40	1	mg/kg	22
Lead	T82	A40	3	mg/kg	54
Mercury	T82	A40	1	mg/kg	<1
Nickel	T82	A40	1	mg/kg	38
Selenium	T82	A40	3	mg/kg	<3
Zinc	T82	A40	1	mg/kg	100

Index to symbols used in 705022-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T8	GC/FID
T85	Calc
T149	GC/MS (SIR)
T27	PLM
T82	ICP/OES (Sim)
T4	Colorimetry
T54	GC/MS (Headspace)
T2	Grav
T7	Probe
T686	Discrete Analyser

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	N	020
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	N	020
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	N	020
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	N	020
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	N	020
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	N	020
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	N	020
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	N	020
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	N	020
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	N	020
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	N	020
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	N	020
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	020
TPH (C21-C35 aromatic)	Т8	AR	1	mg/kg	N	020
Naphthalene	T149	AR	0.01	mg/kg	U	020
Acenaphthylene	T149	AR	0.01	mg/kg	U	020
Acenaphthene	T149	AR	0.01	mg/kg	U	020
Fluorene	T149	AR	0.01	mg/kg	U	020
Phenanthrene	T149	AR	0.01	mg/kg	U	020
Anthracene	T149	AR	0.01	mg/kg	U	020
Fluoranthene	T149	AR	0.01	mg/kg	U	020
Pyrene	T149	AR	0.01	mg/kg	U	020
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	020
Chrysene	T149	AR	0.01	mg/kg	U	020
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	U	020
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	020
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	020
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	020
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	020
Arsenic	T82	A40	2	mg/kg	U	020
Boron (water-soluble)	T82	A40	1	mg/kg	U	020
Cadmium	T82	A40	1	mg/kg	U	020
Chromium	T82	A40	1	mg/kg	U	020
Copper	T82	A40	1	mg/kg	U	020
Lead	T82	A40	3	mg/kg	U	020
Mercury	T82	A40	1	mg/kg	U	020
Nickel	T82	A40	1	mg/kg	U	020
Selenium	T82	A40	3	mg/kg	U	020
Zinc	T82	A40	1	mg/kg	U	020
Cyanide(free)	T4	AR	1	mg/kg	U	020

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	020
Thiocyanate	T4	A40	10	mg/kg	N	020
Chromium VI	T82	A40	1	mg/kg	N	020
pH	T7	A40			U	020
Sulphide	T4	AR	10	mg/kg	N	020
Phenols(Mono)	T4	AR	1	mg/kg	U	020
SO4(Total)	T82	A40	0.01	%	N	020
Organic Matter	T2	A40	0.1	%	N	020
Chloride (2:1)	T686	AR	0.5	mg/l	N	020
Asbestos ID	T27	AR			SU	020
Chromium (trivalent)	T85	AR	2	mg/kg	N	020
Vanadium	T82	A40	1	mg/kg	U	020
Nitrate (2:1)	T686	AR	1.0	mg/l	N	020
PCB BZ#101	T149	AR	1	μg/kg	U	020
PCB BZ#118	T149	AR	1	μg/kg	U	020
PCB BZ#138	T149	AR	1	μg/kg	U	020
PCB BZ#153	T149	AR	1	μg/kg	U	020
PCB BZ#180	T149	AR	1	μg/kg	U	020
PCB BZ#28	T149	AR	1	μg/kg	U	020
PCB BZ#52	T149	AR	1	μg/kg	U	020





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Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 706864-1

Date of Report: 08-Jan-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Fraser Murray

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 21-Dec-2017

Date Analysis Started: 04-Jan-2018

Date Analysis Completed: 08-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil

Analysed as Soil

SWECO Soil Suite 1

	706864 015				
	TP6-OP7 0.5m				
			D	ate Sampled	19-DEC-2017
Determinand	Method	Test Sample	LOD	Units	
Cyanide(Total)	T4	AR	1	mg/kg	<1
Cyanide(free)	T4	AR	1	mg/kg	<1
Thiocyanate	T4	A40	10	mg/kg	<10
Organic Matter	T2	A40	0.1	%	5.8
Arsenic	T82	A40	2	mg/kg	13
Mercury	T82	A40	1	mg/kg	<1
Selenium	T82	A40	3	mg/kg	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1
Cadmium	T82	A40	1	mg/kg	<1
Chromium (trivalent)	T85	AR	2	mg/kg	49
Chromium (hexavalent)	T82	A40	1	mg/kg	<1
Copper	T82	A40	1	mg/kg	16
Lead	T82	A40	3	mg/kg	31
Nickel	T82	A40	1	mg/kg	37
Zinc	T82	A40	1	mg/kg	90
Vanadium	T82	A40	1	mg/kg	29
Asbestos ID	T27	AR			N.D.
pН	T7	A40			4.8
SO4(Total)	T82	A40	0.01	%	0.06
Sulphide	T4	AR	10	mg/kg	<10
Chloride	T686	AR	1	mg/kg	4
Nitrate	T686	AR	1	mg/kg	15
Phenols(Mono)	T4	AR	1	mg/kg	<1

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil

Analysed as Soil

SWECO Soil Suite 2

		706864 002	706864 007			
		SP-TP1 0.5m	SP-TP2 0.5m			
			D	ate Sampled	19-DEC-2017	19-DEC-2017
Determinand	Method	Test Sample	LOD	Units		
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10
Organic Matter	T2	A40	0.1	%	5.9	11.4
Arsenic	T82	A40	2	mg/kg	30	18
Mercury	T82	A40	1	mg/kg	<1	1
Selenium	T82	A40	3	mg/kg	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1	1
Cadmium	T82	A40	1	mg/kg	3	1
Chromium (trivalent)	T85	AR	2	mg/kg	36	30
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1
Copper	T82	A40	1	mg/kg	100	81
Lead	T82	A40	3	mg/kg	1100	450
Nickel	T82	A40	1	mg/kg	49	43
Zinc	T82	A40	1	mg/kg	630	380
Vanadium	T82	A40	1	mg/kg	40	37
Asbestos ID	T27	AR			N.D.	Amosite Detected
рН	T7	A40			7.5	8.1
SO4(Total)	T82	A40	0.01	%	0.14	0.15
Sulphide	T4	AR	10	mg/kg	<10	<10
Chloride	T686	AR	1	mg/kg	13	12
Nitrate	T686	AR	1	mg/kg	1	12
Phenols(Mono)	T4	AR	1	ma/ka	<1	<1

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

Concept Reference 706864 015								
Customer Sample Reference TP6-OP7 0.5m								
Date Sampled 19-DEC-2017								
Determinand	Method	Test Sample	LOD	Units				
TPH (C8-C10)	T8	AR	1	mg/kg	<1			
TPH (C10-C12)	T8	AR	1	mg/kg	<1			
TPH (C12-C16)	Т8	AR	1	mg/kg	<1			
TPH (C16-C21)	T8	AR	1	mg/kg	<1			
TPH (C21-C35)	T8	AR	1	mg/kg	8			



Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

			706864 002	706864 007	706864 015		
		Custon	SP-TP1 0.5m	SP-TP2 0.5m	TP6-OP7 0.5m		
			ate Sampled	19-DEC-2017	19-DEC-2017	19-DEC-2017	
Determinand	Method	Test Sample	LOD	Units			
Naphthalene	T149	AR	0.01	mg/kg	0.30	0.37	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	1.6	0.66	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	0.56	0.17	<0.01
Fluorene	T149	AR	0.01	mg/kg	1.4	0.33	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 18	⁽¹³⁾ 3.5	⁽¹³⁾ <0.01
Anthracene	T149	AR	0.01	mg/kg	5.3	1.3	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	38	11	<0.01
Pyrene	T149	AR	0.01	mg/kg	30	9.5	<0.01
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 17	(13) 5.5	⁽¹³⁾ <0.01
Chrysene	T149	AR	0.01	mg/kg	13	4.4	<0.01
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	17	7.4	<0.01
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	6.1	2.8	<0.01
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	14	6.4	<0.01
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	7.2	3.1	<0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	1.9	0.77	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	9.0	4.0	<0.01
PAH(total)	T149	AR	0.01	mg/kg	180	61	<0.01

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

CWG with BTEX and MTBE (EK)

			Conce	pt Reference	706864 002	706864 007
		Custor	ner Samp	le Reference	SP-TP1 0.5m	SP-TP2 0.5m
			D	ate Sampled	19-DEC-2017	19-DEC-2017
Determinand	Method	Test Sample	LOD	Units		
Benzene	T54	AR	1	μg/kg	(13) <1	(9,13) <2
Toluene	T54	AR	1	μg/kg	<1	(9) <2
EthylBenzene	T54	AR	1	μg/kg	<1	⁽⁹⁾ <2
M/P Xylene	T54	AR	1	μg/kg	<1	⁽⁹⁾ <2
O Xylene	T54	AR	1	μg/kg	<1	⁽⁹⁾ <2
Methyl tert-Butyl Ether	T54	AR	1	μg/kg	(13) <1	⁽⁹⁾ <2
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	<10	⁽⁹⁾ <20
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	<10	⁽⁹⁾ <20
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	<10	⁽⁹⁾ <20
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	2	2
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	4	3
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	9	8
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	<10	⁽⁹⁾ <20
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	<10	⁽⁹⁾ <20
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	<10	20
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	14	5
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	130	49
TPH (C21-C35 aromatic)	T8	AR	1	ma/ka	210	130

Index to symbols used in 706864-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

TPH, PAH and Phenols - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised.

GC/MS Headspace - sample 007 diluted due to poor internal standard recovery.

GC/MS Headspace (sample 007) - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T149	GC/MS (SIR)
T7	Probe
T112	ICP/OES (SIM)(Water Extract)
T27	PLM
T85	Calc
T4	Colorimetry
T8	GC/FID
T2	Grav
T54	GC/MS (Headspace)
T82	ICP/OES (Sim)
T686	Discrete Analyser

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
TPH (C8-C10)	Т8	AR	1	mg/kg	N	015
TPH (C10-C12)	T8	AR	1	mg/kg	U	015
TPH (C12-C16)	Т8	AR	1	mg/kg	U	015
TPH (C16-C21)	T8	AR	1	mg/kg	U	015
TPH (C21-C35)	T8	AR	1	mg/kg	U	015
Naphthalene	T149	AR	0.01	mg/kg	U	002,007,015
Acenaphthylene	T149	AR	0.01	mg/kg	U	002,007,015
Acenaphthene	T149	AR	0.01	mg/kg	U	002,007,015
Fluorene	T149	AR	0.01	mg/kg	U	002,007,015
Phenanthrene	T149	AR	0.01	mg/kg	U	002,007,015
Anthracene	T149	AR	0.01	mg/kg	U	002,007,015
Fluoranthene	T149	AR	0.01	mg/kg	U	002,007,015
Pyrene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	002,007,015
Chrysene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	002,007,015
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	002,007,015
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	002,007,015
PAH(total)	T149	AR	0.01	mg/kg	U	002,007,015
Cyanide(Total)	T4	AR	1	mg/kg	U	002,007,015
Cyanide(free)	T4	AR	1	mg/kg	U	002,007,015
Thiocyanate	T4	A40	10	mg/kg	N	002,007,015
Organic Matter	T2	A40	0.1	%	N	002,007,015
Arsenic	T82	A40	2	mg/kg	U	002,007,015
Mercury	T82	A40	1	mg/kg	U	002,007,015
Selenium	T82	A40	3	mg/kg	U	002,007,015
Boron (water-soluble)	T112	A40	1	mg/kg	U	002,007,015
Cadmium	T82	A40	1	mg/kg	U	002,007,015

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Chromium (trivalent)	T85	AR	2	mg/kg	N	002,007,015
Chromium (hexavalent)	T82	A40	1	mg/kg	N	002,007,015
Copper	T82	A40	1	mg/kg	U	002,007,015
Lead	T82	A40	3	mg/kg	U	002,007,015
Nickel	T82	A40	1	mg/kg	U	002,007,015
Vanadium	T82	A40	1	mg/kg	U	002,007,015
Zinc	T82	A40	1	mg/kg	U	002,007,015
Asbestos ID	T27	AR			SU	002,007,015
pH	T7	A40			U	002,007,015
SO4(Total)	T82	A40	0.01	%	N	002,007,015
Chloride	T686	AR	1	mg/kg	N	002,007,015
Sulphide	T4	AR	10	mg/kg	N	002,007,015
Nitrate	T686	AR	1	mg/kg	N	002,007,015
Phenols(Mono)	T4	AR	1	mg/kg	U	002,007,015
Benzene	T54	AR	1	μg/kg	U	002,007
Toluene	T54	AR	1	μg/kg	U	002,007
EthylBenzene	T54	AR	1	μg/kg	U	002,007
M/P Xylene	T54	AR	1	μg/kg	U	002,007
O Xylene	T54	AR	1	μg/kg	U	002,007
Methyl tert-Butyl Ether	T54	AR	1	μg/kg	U	002,007
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	N	002,007
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	N	002,007
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	N	002,007
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	N	002,007
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	N	002,007
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	N	002,007
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	N	002,007
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	N	002,007
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	N	002,007
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	N	002,007
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	N	002,007
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	N	002,007
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	002,007
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	N	002,007



Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 707520-1

Date of Report: 12-Jan-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 21-Dec-2017

Date Analysis Started: 09-Jan-2018

Date Analysis Completed: 12-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

This report should not be reproduced except in full without the written approval of the laboratory Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

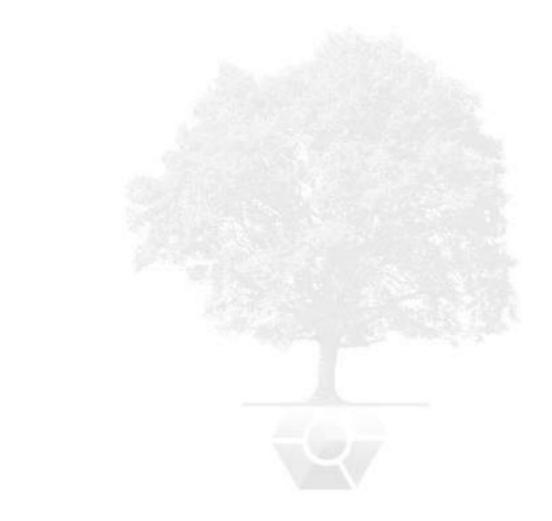
Customer Reference: 17/082

Soil Analysed as Soil

Miscellaneous

	707520 001							
	e Reference	SP-TP2 0.5m						
	ate Sampled	19-DEC-2017						
Determinand	Method	Test	LOD	Units				

	0 2 0.0				
	19-DEC-2017				
Determinand	Method	Test Sample	LOD	Units	
Asbestos Quantification	T27	AR	0.001	%	Amosite Detected
					<0.001



Index to symbols used in 707520-1

Value	Description
AR	As Received
S	Analysis was subcontracted
U	Analysis is UKAS accredited

Notes

This report should be read in conjunction with previous report number 706864.

Method Index

Value	Description
T27	PLM

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Ashestos Quantification	T27	AR	0.001	%	SU	001



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Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 709955-1

Date of Report: 29-Jan-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 18-Jan-2018
Date Analysis Started: 22-Jan-2018
Date Analysis Completed: 29-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil SWECO Soil Suite 2 Analysed as Soil

Concept Reference 709955 002

Customer Sample Reference BH8-OP6 0								
			D	ate Sampled	16-JAN-2018			
Determinand	Method	Test Sample	LOD	Units				
Cyanide(Total)	T4	AR	1	mg/kg	<1			
Cyanide(free)	T4	AR	1	mg/kg	<1			
Thiocyanate	T4	A40	10	mg/kg	<10			
Organic Matter	T2	A40	0.1	%	7.9			
Arsenic	T82	A40	2	mg/kg	47			
Mercury	T82	A40	1	mg/kg	<1			
Selenium	T82	A40	3	mg/kg	<3			
Boron (water-soluble)	T112	A40	1	mg/kg	⁽⁶⁸⁾ 1			
Cadmium	T82	A40	1	mg/kg	2			
Chromium (trivalent)	T85	AR	2	mg/kg	44			
Chromium (hexavalent)	T82	A40	1	mg/kg	⁽⁶⁴⁾ <1			
Copper	T82	A40	1	mg/kg	200			
Lead	T82	A40	3	mg/kg	540			
Nickel	T82	A40	1	mg/kg	110			
Zinc	T82	A40	1	mg/kg	810			
Vanadium	T82	A40	1	mg/kg	68			
Asbestos ID	T27	AR			N.D.			
pН	T7	A40			6.8			
SO4(Total)	T82	A40	0.01	%	0.13			
Chloride	T686	AR	1	mg/kg	7			
Sulphide	T4	AR	10	mg/kg	<10			
Nitrate	T686	AR	1	mg/kg	2			
Phenols(Mono)	T4	AR	1	mg/kg	<1			

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

	709955 002				
	le Reference	BH8-OP6 0.5m			
	16-JAN-2018				
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T149	AR	0.01	mg/kg	0.03
Acenaphthylene	T149	AR	0.01	mg/kg	0.04
Acenaphthene	T149	AR	0.01	mg/kg	0.01
Fluorene	T149	AR	0.01	mg/kg	0.02
Phenanthrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.19
Anthracene	T149	AR	0.01	mg/kg	0.06
Fluoranthene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.31
Pyrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.37
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.21
Chrysene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.22
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.29
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.09
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.26
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.13
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.04
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.17
PAH(total)	T149	AR	0.01	ma/ka	2.4

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

CWG with BTEX and MTBE (EK)

			Concep	ot Reference	709955 002
		Custon	ner Sampl	e Reference	BH8-OP6 0.5m
			Da	ate Sampled	16-JAN-2018
Determinand	Method	Test Sample	LOD	Units	
Benzene	T54	AR	1	μg/kg	(9,13) <2
Toluene	T54	AR	1	μg/kg	⁽⁹⁾ <2
EthylBenzene	T54	AR	1	μg/kg	⁽⁹⁾ <2
M/P Xylene	T54	AR	1	μg/kg	(9) <2
O Xylene	T54	AR	1	μg/kg	⁽⁹⁾ <2
Methyl tert-Butyl Ether	T54	AR	1	μg/kg	(13,9) <2
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	⁽⁹⁾ <20
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	⁽⁹⁾ <20
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	⁽⁹⁾ <20
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	<1
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	2
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	1
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	1
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	⁽⁹⁾ <20
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	(9) < 20
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	⁽⁹⁾ <20
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	<1
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	3
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	8
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	25

Index to symbols used in 709955-1

Value	Description					
AR	As Received					
A40	Assisted dried < 40C					
N.D.	Not Detected					
13	Results have been blank corrected.					
64	Analysis was performed by an alternative technique					
9	LOD raised due to dilution of sample					
68	Outside scope of UKAS accreditation					
S	Analysis was subcontracted					
U	Analysis is UKAS accredited					
N	Analysis is not UKAS accredited					

Notes

GC/MS Headspace - sample 002 diluted due to poor internal standard recovery.

 $\label{eq:decomposition} \mbox{Due to our recent instrument failure, water soluble boron results have been reported as unaccredited.}$

These instrument delays are expected for a minimum of another week.

The analytical method used here is identical to our accredited instrument, the only difference being that we have not issued analytical data to UKAS.

All calibrations and QC samples have been analysed and are acceptable in accordance with our accredited method.

Method Index

Value	Description						
T112	ICP/OES (SIM)(Water Extract)						
T27	PLM						
T54	GC/MS (Headspace)						
T2	Grav						
T4	Colorimetry						
T82	ICP/OES (Sim)						
T85	Calc						
T149	GC/MS (SIR)						
T7	Probe						
T686 Discrete Analyser							
T8 GC/FID							

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	002
Cyanide(free)	T4	AR	1	mg/kg	U	002
Thiocyanate	T4	A40	10	mg/kg	N	002
Organic Matter	T2	A40	0.1	%	N	002
Arsenic	T82	A40	2	mg/kg	U	002
Mercury	T82	A40	1	mg/kg	U	002
Selenium	T82	A40	3	mg/kg	U	002
Boron (water-soluble)	T112	A40	1	mg/kg	U	002
Cadmium	T82	A40	1	mg/kg	U	002
Chromium (trivalent)	T85	AR	2	mg/kg	N	002
Chromium (hexavalent)	T82	A40	1	mg/kg	N	002
Copper	T82	A40	1	mg/kg	U	002
Lead	T82	A40	3	mg/kg	U	002
Nickel	T82	A40	1	mg/kg	U	002
Vanadium	T82	A40	1	mg/kg	U	002
Zinc	T82	A40	1	mg/kg	U	002
Asbestos ID	T27	AR			SU	002
pH	T7	A40			U	002
SO4(Total)	T82	A40	0.01	%	N	002
Chloride	T686	AR	1	mg/kg	N	002
Sulphide	T4	AR	10	mg/kg	N	002
Nitrate	T686	AR	1	mg/kg	N	002
Phenols(Mono)	T4	AR	1	mg/kg	U	002
Naphthalene	T149	AR	0.01	mg/kg	U	002
Acenaphthylene	T149	AR	0.01	mg/kg	U	002
Acenaphthene	T149	AR	0.01	mg/kg	U	002
Fluorene	T149	AR	0.01	mg/kg	U	002

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Phenanthrene	T149	AR	0.01	mg/kg	U	002
Anthracene	T149	AR	0.01	mg/kg	U	002
Fluoranthene	T149	AR	0.01	mg/kg	U	002
Pyrene	T149	AR	0.01	mg/kg	U	002
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	002
Chrysene	T149	AR	0.01	mg/kg	U	002
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	002
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	002
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	002
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	002
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	002
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	002
PAH(total)	T149	AR	0.01	mg/kg	U	002
Benzene	T54	AR	1	μg/kg	U	002
Toluene	T54	AR	1	μg/kg	U	002
EthylBenzene	T54	AR	1	μg/kg	U	002
M/P Xylene	T54	AR	1	μg/kg	U	002
O Xylene	T54	AR	1	μg/kg	U	002
Methyl tert-Butyl Ether	T54	AR	1	μg/kg	U	002
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	N	002
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	N	002
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	N	002
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	N	002
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	N	002
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	N	002
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	N	002
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	N	002
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	N	002
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	N	002
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	N	002
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	N	002
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	002
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	N	002



Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 710547-1

Date of Report: 29-Jan-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 20-Jan-2018

Date Analysis Started: 23-Jan-2018

Date Analysis Completed: 29-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Kimberley Macmaster Customer Relations Manager Issued by :
Kimberley Macmaster
Customer Relations Manager

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil

Analysed as Soil

SWECO Soil Suite 1

	710547 004				
	BH4-OP6 0.2m				
	17-JAN-2018				
Determinand	Method	Test Sample	LOD	Units	
Cyanide(Total)	T4	AR	1	mg/kg	<1
Cyanide(free)	T4	AR	1	mg/kg	<1
Thiocyanate	T4	A40	10	mg/kg	<10
Organic Matter	T2	A40	0.1	%	24.6
Arsenic	T82	A40	2	mg/kg	65
Mercury	T82	A40	1	mg/kg	1
Selenium	T82	A40	3	mg/kg	<3
Boron (water-soluble)	T112	A40	1	mg/kg	1
Cadmium	T82	A40	1	mg/kg	2
Chromium (trivalent)	T85	AR	2	mg/kg	47
Chromium (hexavalent)	T82	A40	1	mg/kg	(64) <1
Copper	T82	A40	1	mg/kg	270
Lead	T82	A40	3	mg/kg	780
Nickel	T82	A40	1	mg/kg	180
Vanadium	T82	A40	1	mg/kg	150
Zinc	T82	A40	1	mg/kg	1200
Asbestos ID	T27	AR			N.D.
pН	T7	A40			7.1
SO4(Total)	T82	A40	0.01	%	0.19
Chloride	T686	AR	1	mg/kg	4
Sulphide	T4	AR	10	mg/kg	<10
Nitrate	T686	AR	1	mg/kg	6
Phenols(Mono)	T4	AR	1	mg/kg	<1

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Concept Reference 710547 004								
Customer Sample Reference BH4-OP6 0.2m								
	Date Sampled 17-JAN-201							
Determinand	Method	Test Sample	LOD	Units				
TPH (C8-C10)	T8	AR	1	mg/kg	<1			
TPH (C10-C12)	T8	AR	1	mg/kg	<1			
TPH (C12-C16)	T8	AR	1	mg/kg	5			
TPH (C16-C21)	T8	AR	1	mg/kg	20			
TPH (C21-C35)	T8	AR	1	mg/kg	120			



Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

	710547 004				
	BH4-OP6 0.2m				
	17-JAN-2018				
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T149	AR	0.01	mg/kg	0.11
Acenaphthylene	T149	AR	0.01	mg/kg	0.13
Acenaphthene	T149	AR	0.01	mg/kg	0.02
Fluorene	T149	AR	0.01	mg/kg	0.04
Phenanthrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.58
Anthracene	T149	AR	0.01	mg/kg	0.25
Fluoranthene	T149	AR	0.01	mg/kg	1.8
Pyrene	T149	AR	0.01	mg/kg	1.7
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 1.3
Chrysene	T149	AR	0.01	mg/kg	1.1
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	1.8
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.59
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	1.4
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.65
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.20
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.71
PAH(total)	T149	AR	0.01	ma/ka	12

Index to symbols used in 710547-1

	•
Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
64	Analysis was performed by an alternative technique
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Thiocyanate analysis was carried out by Concept Life Sciences Braintree.

Due to our recent instrument failure, water soluble boron results have been reported as unaccredited.

These instrument delays are expected for a minimum of another week.

The analytical method used here is identical to our accredited instrument, the only difference being that we have not issued analytical data to UKAS.

All calibrations and QC samples have been analysed and are acceptable in accordance with our accredited method.

Method Index

Value	Description
T7	Probe
T149	GC/MS (SIR)
T8	GC/FID
T2	Grav
T4	Colorimetry
T82	ICP/OES (Sim)
T112	ICP/OES (SIM)(Water Extract)
T686	Discrete Analyser
T27	PLM
T85	Calc

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	004
Cyanide(free)	T4	AR	1	mg/kg	U	004
Thiocyanate	T4	A40	10	mg/kg	N	004
Organic Matter	T2	A40	0.1	%	N	004
Arsenic	T82	A40	2	mg/kg	U	004
Mercury	T82	A40	1	mg/kg	U	004
Selenium	T82	A40	3	mg/kg	U	004
Boron (water-soluble)	T112	A40	1	mg/kg	U	004
Cadmium	T82	A40	1	mg/kg	U	004
Chromium (trivalent)	T85	AR	2	mg/kg	N	004
Chromium (hexavalent)	T82	A40	1	mg/kg	N	004
Copper	T82	A40	1	mg/kg	U	004
Lead	T82	A40	3	mg/kg	U	004
Nickel	T82	A40	1	mg/kg	U	004
Vanadium	T82	A40	1	mg/kg	U	004
Zinc	T82	A40	1	mg/kg	U	004
Asbestos ID	T27	AR			SU	004
pH	T7	A40			U	004
SO4(Total)	T82	A40	0.01	%	N	004
Chloride	T686	AR	1	mg/kg	N	004
Sulphide	T4	AR	10	mg/kg	N	004
Nitrate	T686	AR	1	mg/kg	N	004
Phenols(Mono)	T4	AR	1	mg/kg	U	004
TPH (C8-C10)	T8	AR	1	mg/kg	N	004
TPH (C10-C12)	T8	AR	1	mg/kg	U	004
TPH (C12-C16)	T8	AR	1	mg/kg	U	004
TPH (C16-C21)	T8	AR	1	mg/kg	U	004
TPH (C21-C35)	T8	AR	1	mg/kg	U	004
Naphthalene	T149	AR	0.01	mg/kg	U	004
Acenaphthylene	T149	AR	0.01	mg/kg	U	004
Acenaphthene	T149	AR	0.01	mg/kg	U	004
Fluorene	T149	AR	0.01	mg/kg	U	004

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Phenanthrene	T149	AR	0.01	mg/kg	U	004
Anthracene	T149	AR	0.01	mg/kg	U	004
Fluoranthene	T149	AR	0.01	mg/kg	U	004
Pyrene	T149	AR	0.01	mg/kg	U	004
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	004
Chrysene	T149	AR	0.01	mg/kg	U	004
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	004
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	004
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	004
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	004
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	004
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	004
PAH(total)	T149	AR	0.01	mg/kg	U	004





Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 712221-1

Date of Report: 07-Feb-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 24-Jan-2018

Date Analysis Started: 30-Jan-2018

Date Analysis Completed: 07-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Emma Hilton Customer Service Advisor Issued by : Emma Hilton

Customer Service Advisor F Utt

Project Site: Newton Stewart FPS

Customer Reference: 17/082

T686

AR

Nitrate

Phenols(Mono)

Soil SWECO Soil Suite 1 Analysed as Soil

			Conce	ot Reference	712221 001	712221 003	712221 006	712221 014
		Custon	ner Sampl	e Reference	BH14-OP6 0.5m	HP1-OP6 0.5m	HP2-OP6 1.0m	TP10-OP7 0.5m
			D	ate Sampled	18-JAN-2018	19-JAN-2018	19-JAN-2018	22-JAN-2018
Determinand	Method	Test Sample	LOD	Units				
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10	<10	<10
Organic Matter	T2	A40	0.1	%	3.6	2.2	5.5	3.0
Arsenic	T82	A40	2	mg/kg	16	25	23	23
Mercury	T82	A40	1	mg/kg	<1	<1	<1	<1
Selenium	T82	A40	3	mg/kg	<3	<3	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1
Cadmium	T82	A40	1	mg/kg	<1	3	3	<1
Chromium (trivalent)	T85	AR	2	mg/kg	56	40	53	55
Chromium (hexavalent)	T82	A40	1	mg/kg	⁽⁶⁴⁾ <1	(64) <1	(64) <1	⁽⁶⁴⁾ <1
Copper	T82	A40	1	mg/kg	19	140	71	37
Lead	T82	A40	3	mg/kg	28	1000	590	76
Nickel	T82	A40	1	mg/kg	44	46	56	55
Vanadium	T82	A40	1	mg/kg	36	42	51	51
Zinc	T82	A40	1	mg/kg	100	670	540	130
Asbestos ID	T27	AR			N.D.	N.D.	N.D.	N.D.
pН	T7	A40			5.9	8.1	7.8	6.4
SO4(Total)	T82	A40	0.01	%	0.07	0.25	0.10	0.07
Chloride	T686	AR	1	mg/kg	2	3	4	3
Sulphide	T4	AR	10	mg/kg	<10	<10	<10	<10

mg/kg

mg/kg

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

			Concep	t Reference	712221 001	712221 003	712221 006	712221 014
		Custon	ner Sampl	e Reference	BH14-OP6 0.5m	HP1-OP6 0.5m	HP2-OP6 1.0m	TP10-OP7 0.5m
			Da	ate Sampled	18-JAN-2018	19-JAN-2018	19-JAN-2018	22-JAN-2018
Determinand	Method	Test Sample	LOD	Units				
TPH (C8-C10)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C10-C12)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C12-C16)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C16-C21)	T8	AR	1	mg/kg	<1	3	<1	<1
TPH (C21-C35)	T8	AR	1	mg/kg	<1	28	9	6



Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

			Conce	pt Reference	712221 001	712221 003	712221 006	712221 014
		Custon	ner Samp	le Reference	BH14-OP6 0.5m	HP1-OP6 0.5m	HP2-OP6 1.0m	TP10-OP7 0.5m
			D	ate Sampled	18-JAN-2018	19-JAN-2018	19-JAN-2018	22-JAN-2018
Determinand	Method	Test Sample	LOD	Units				
Naphthalene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	0.01	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	0.01	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	<0.01	<0.01
Fluorene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	<0.01	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	<0.01	0.18	0.08	0.01
Anthracene	T149	AR	0.01	mg/kg	<0.01	0.07	0.02	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	<0.01	0.53	0.23	0.01
Pyrene	T149	AR	0.01	mg/kg	<0.01	0.48	0.23	0.01
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	(13) < 0.01	⁽¹³⁾ 0.31	⁽¹³⁾ 0.12	(13) < 0.01
Chrysene	T149	AR	0.01	mg/kg	<0.01	0.28	0.12	<0.01
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	<0.01	0.48	0.19	<0.01
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	<0.01	0.18	0.07	<0.01
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	<0.01	0.37	0.15	<0.01
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	<0.01	0.22	0.09	<0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	<0.01	0.06	0.02	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	<0.01	0.28	0.10	<0.01
PAH(total)	T149	AR	0.01	mg/kg	<0.01	3.4	1.4	0.03

Index to symbols used in 712221-1

Value	Description						
A40	Assisted dried < 40C						
AR	As Received						
N.D.	Not Detected						
64	Analysis was performed by an alternative technique						
13	Results have been blank corrected.						
9	LOD raised due to dilution of sample						
S	Analysis was subcontracted						
U	Analysis is UKAS accredited						
N	Analysis is not UKAS accredited						

Notes

Pah soil- LOD has been raised for sample 003 due to sample consistency.

ICPOES analysis carried out at Concept Life Sciences Braintree.

Method Index

Value	Description
T4	Colorimetry
T82	ICP/OES (Sim)
T8	GC/FID
T27	PLM
T112	ICP/OES (SIM)(Water Extract)
T2	Grav
T7	Probe
T85	Calc
T149	GC/MS (SIR)
T686	Discrete Analyser

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	001,003,006,014
Cyanide(free)	T4	AR	1	mg/kg	U	001,003,006,014
Thiocyanate	T4	A40	10	mg/kg	N	001,003,006,014
Organic Matter	T2	A40	0.1	%	N	001,003,006,014
Arsenic	T82	A40	2	mg/kg	U	001,003,006,014
Mercury	T82	A40	1	mg/kg	U	001,003,006,014
Selenium	T82	A40	3	mg/kg	U	001,003,006,014
Boron (water-soluble)	T112	A40	1	mg/kg	U	001,003,006,014
Cadmium	T82	A40	1	mg/kg	U	001,003,006,014
Chromium (trivalent)	T85	AR	2	mg/kg	N	001,003,006,014
Chromium (hexavalent)	T82	A40	1	mg/kg	N	001,003,006,014
Copper	T82	A40	1	mg/kg	U	001,003,006,014
Lead	T82	A40	3	mg/kg	U	001,003,006,014
Nickel	T82	A40	1	mg/kg	U	001,003,006,014
Vanadium	T82	A40	1	mg/kg	U	001,003,006,014
Zinc	T82	A40	1	mg/kg	U	001,003,006,014
Asbestos ID	T27	AR			SU	001,003,006,014
pH	T7	A40			U	001,003,006,014
SO4(Total)	T82	A40	0.01	%	N	001,003,006,014
Chloride	T686	AR	1	mg/kg	N	001,003,006,014
Sulphide	T4	AR	10	mg/kg	N	001,003,006,014
Nitrate	T686	AR	1	mg/kg	N	001,003,006,014
Phenols(Mono)	T4	AR	1	mg/kg	U	001,003,006,014
TPH (C8-C10)	T8	AR	1	mg/kg	N	001,003,006,014
TPH (C10-C12)	T8	AR	1	mg/kg	U	001,003,006,014
TPH (C12-C16)	T8	AR	1	mg/kg	U	001,003,006,014
TPH (C16-C21)	T8	AR	1	mg/kg	U	001,003,006,014
TPH (C21-C35)	T8	AR	1	mg/kg	U	001,003,006,014
Naphthalene	T149	AR	0.01	mg/kg	U	001,003,006,014
Acenaphthylene	T149	AR	0.01	mg/kg	U	001,003,006,014
Acenaphthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Fluorene	T149	AR	0.01	mg/kg	U	001,003,006,014

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Phenanthrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Anthracene	T149	AR	0.01	mg/kg	U	001,003,006,014
Fluoranthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Pyrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001,003,006,014
Chrysene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001,003,006,014
PAH(total)	T149	AR	0.01	mg/kg	U	001,003,006,014





Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 712932-1

Date of Report: 13-Feb-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 26-Jan-2018

Date Analysis Started: 02-Feb-2018

Date Analysis Completed: 12-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

SWECO Soil Suite 1

			Conce	ot Reference	712932 002	712932 020
		Custor	ner Sampl	e Reference	HP8-OP6 @ 0.5m	TP2-OP6 @ 1.0m
			D	ate Sampled	24-JAN-2018	25-JAN-2018
Determinand	Method	Test Sample	LOD	Units		
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10
Organic Matter	T2	A40	0.1	%	3.8	3.6
Arsenic	T82	A40	2	mg/kg	22	24
Mercury	T82	A40	1	mg/kg	<1	<1
Selenium	T82	A40	3	mg/kg	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	(309,64) <1	(64,309) <1
Cadmium	T82	A40	1	mg/kg	<1	1
Chromium (trivalent)	T85	AR	2	mg/kg	33	46
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1
Copper	T82	A40	1	mg/kg	43	130
Lead	T82	A40	3	mg/kg	210	740
Nickel	T82	A40	1	mg/kg	35	51
Vanadium	T82	A40	1	mg/kg	30	44
Zinc	T82	A40	1	mg/kg	190	520
Asbestos ID	T27	AR			N.D.	N.D.
pН	T7	A40			7.4	8.0
SO4(Total)	T82	A40	0.01	%	0.15	0.26
Chloride	T686	AR	1	mg/kg	9	5
Sulphide	T4	A40	10	mg/kg	<10	<10
Nitrate	T686	AR	1	mg/kg	29	1
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1

Concept Reference: 712932

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

SWECO Soil Suite 2

			Conce	ot Reference	712932 009
	HP4-OP6 @ 0.5m				
	ate Sampled	25-JAN-2018			
Determinand	Method	Test Sample	LOD	Units	
Cyanide(Total)	T4	AR	1	mg/kg	<1
Cyanide(free)	T4	AR	1	mg/kg	<1
Thiocyanate	T4	A40	10	mg/kg	<10
Organic Matter	T2	A40	0.1	%	11.8
Arsenic	T82	A40	2	mg/kg	57
Mercury	T82	A40	1	mg/kg	2
Selenium	T82	A40	3	mg/kg	<3
Boron (water-soluble)	T112	A40	1	mg/kg	(309,64) <1
Cadmium	T82	A40	1	mg/kg	9
Chromium (trivalent)	T85	AR	2	mg/kg	45
Chromium (hexavalent)	T82	A40	1	mg/kg	<1
Copper	T82	A40	1	mg/kg	200
Lead	T82	A40	3	mg/kg	1400
Nickel	T82	A40	1	mg/kg	95
Vanadium	T82	A40	1	mg/kg	68
Zinc	T82	A40	1	mg/kg	1700
Asbestos ID	T27	AR			N.D.
рН	T7	A40			7.3
SO4(Total)	T82	A40	0.01	%	0.42
Chloride	T686	AR	1	mg/kg	5
Sulphide	T4	A40	10	mg/kg	<10
Nitrate	T686	AR	1	mg/kg	4
Phenols(Mono)	T4	AR	1	mg/kg	<1

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

		712932 002	712932 020			
		HP8-OP6 @ 0.5m	TP2-OP6 @ 1.0m			
		24-JAN-2018	25-JAN-2018			
Determinand	Method	Test Sample	LOD	Units		
TPH (C8-C10)	T8	AR	1	mg/kg	<1	<1
TPH (C10-C12)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16)	T8	AR	1	mg/kg	<1	<1
TPH (C16-C21)	T8	AR	1	mg/kg	6	3
TPH (C21-C35)	T8	AR	1	mg/kg	78	36

Concept Reference: 712932

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

			Concor	ot Reference	712932 002	712932 009	712932 020
		0					
		Custon	e Reference		HP4-OP6 @ 0.5m		
			Da	ate Sampled	24-JAN-2018	25-JAN-2018	25-JAN-2018
Determinand	Method	Test Sample	LOD	Units	W.Day		
Naphthalene	T149	AR	0.01	mg/kg	0.02	0.01	0.03
Acenaphthylene	T149	AR	0.01	mg/kg	0.08	0.01	0.12
Acenaphthene	T149	AR	0.01	mg/kg	0.01	0.01	0.02
Fluorene	T149	AR	0.01	mg/kg	0.03	0.01	0.04
Phenanthrene	T149	AR	0.01	mg/kg	0.18	0.20	0.51
Anthracene	T149	AR	0.01	mg/kg	0.14	0.04	0.16
Fluoranthene	T149	AR	0.01	mg/kg	1.1	0.28	1.0
Pyrene	T149	AR	0.01	mg/kg	1.0	0.26	0.93
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.59	⁽¹³⁾ 0.15	⁽¹³⁾ 0.55
Chrysene	T149	AR	0.01	mg/kg	0.46	0.14	0.48
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.74	0.24	0.94
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.25	0.08	0.30
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.54	0.15	0.68
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.22	0.08	0.36
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.07	0.03	0.10
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.21	0.09	0.43
PAH(total)	T149	AR	0.01	mg/kg	5.7	1.8	6.7

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

CWG with BTEX and MTBE (EK)

			Concep	t Reference	712932 009
		Custor	ner Sampl	e Reference	HP4-OP6 @ 0.5m
			Da	ate Sampled	25-JAN-2018
Determinand	Method	Test Sample	LOD	Units	
Benzene	T54	AR	1	μg/kg	(9,13) <2
Toluene	T54	AR	1	μg/kg	(9) <2
EthylBenzene	T54	AR	1	μg/kg	⁽⁹⁾ <2
M/P Xylene	T54	AR	1	μg/kg	⁽⁹⁾ <2
O Xylene	T54	AR	1	μg/kg	(9) <2
Methyl tert-Butyl Ether	T54	AR	1	μg/kg	(9,13) <2
TPH (C5-C6 aliphatic)	T54	AR	10	μg/kg	<10
TPH (C6-C8 aliphatic)	T54	AR	10	μg/kg	<10
TPH (C8-C10 aliphatic)	T54	AR	10	μg/kg	<10
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	<1
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	<1
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	<1
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	2
TPH (C6-C7 aromatic)	T54	AR	10	μg/kg	<10
TPH (C7-C8 aromatic)	T54	AR	10	μg/kg	<10
TPH (C8-C10 aromatic)	T54	AR	10	μg/kg	<10
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	<1
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	2
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	4

Index to symbols used in 712932-1

Value	Description					
AR	As Received					
A40	Assisted dried < 40C					
N.D.	Not Detected					
13	Results have been blank corrected.					
64	Analysis was performed by an alternative technique					
309	The sample extraction is outside the scope of UKAS accreditation					
9	LOD raised due to dilution of sample					
S	Analysis was subcontracted					
U	Analysis is UKAS accredited					
N	Analysis is not UKAS accredited					

Notes

ICP/OES analysis was carried out by Concept Life Sciences Braintree.

Method Index

Value	Description
T4	Colorimetry
T8	GC/FID
T85	Calc
T686	Discrete Analyser
T82	ICP/OES (Sim)
T2	Grav
T149	GC/MS (SIR)
T27	PLM
T112	ICP/OES (SIM)(Water Extract)
T7	Probe
T54	GC/MS (Headspace)

Downwell (1947 Am	Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Controlled T. AS	Cyanide(Total)	T4		1	ma/ka	- 11	002 009 020
Triggeristence	• \ /						
Cognet Matter 72	, ,						
Marenic	•						
Marcing Title And 1							
Seeigna						U	
Boom personalative	-			3		U	
Community Tell A&Q 1 mykg 1 02.000.020	Boron (water-soluble)	T112	A40	1		U	002,009,020
Coronamy (Descoration)	Cadmium	T82	A40	1		U	002,009,020
Capper	Chromium (trivalent)	T85	AR	2	mg/kg	N	002,009,020
Laad	Chromium (hexavalent)	T82	A40	1	mg/kg	N	002,009,020
Marie Table A40	Copper	T82	A40	1	mg/kg	U	002,009,020
Vanodevine	Lead	T82	A40	3	mg/kg	U	002,009,020
Zenc	Nickel	T82	A40	1	mg/kg	U	002,009,020
Authorition 172	Vanadium	T82	A40	1	mg/kg	U	002,009,020
Mathematics	Zinc	T82	A40	1	mg/kg	U	002,009,020
SOAFTCROIN	Asbestos ID	T27	AR			SU	002,009,020
Coloride	pH	T7	A40			U	002,009,020
Sulphide	SO4(Total)	T82	A40	0.01	%	N	002,009,020
Number 1586 AR	Chloride	T686	AR	1	mg/kg	N	002,009,020
PenelaikMonco	Sulphide	T4	A40	10	mg/kg	N	002,009,020
TPH (CEC-10)	Nitrate	T686	AR	1	mg/kg	N	002,009,020
TPH (C12-C16)	Phenols(Mono)	T4	AR	1	mg/kg	U	002,009,020
TPH (C16-C21) T8 AR 1 mg/kg U 002.020 TPH (C16-C21) T8 AR 1 mg/kg U 002.020 TPH (C17-C35) T8 AR 1 mg/kg U 002.020 TPH (C21-C35) T8 AR 1 mg/kg U 002.020 Naphthalene T149 AR 0.01 mg/kg U 002.000.020 Acenaphthyene T149 AR 0.01 mg/kg U 002.009.020 Acenaphthyene T149 AR 0.01 mg/kg U 002.009.020 Themanthrene T149 AR 0.01 mg/kg U 002.009.020 Phenanthrene T149 AR 0.01 mg/kg U 002.009.020 Phenanthrene T149 AR 0.01 mg/kg U 002.009.020 Themanthrene T149 AR 0.01 mg/kg U 002.009.020 Phenanthrene T149 AR 0.01 mg/kg U 002.009.020 Themanthrene T149 AR 0.01 mg/kg U 002.009.020 Themant	TPH (C8-C10)	T8	AR	1	mg/kg	N	002,020
TPH (C16-C21)	TPH (C10-C12)	T8	AR	1	mg/kg	U	002,020
TPH (C21-C35)	TPH (C12-C16)	T8	AR	1	mg/kg	U	002,020
Naphthalene	TPH (C16-C21)	T8	AR	1	mg/kg	U	002,020
Acenaphthylene	TPH (C21-C35)	T8	AR	1	mg/kg	U	002,020
Accesaphthene	Naphthalene	T149	AR	0.01	mg/kg	U	002,009,020
Fluorene	Acenaphthylene	T149	AR	0.01	mg/kg	U	002,009,020
Phenanthrene	Acenaphthene	T149		0.01	mg/kg		002,009,020
Anthracene T149 AR 0.01 mg/kg U 002,009,020 Fluoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(a)Anthracene T149 AR 0.01 mg/kg U 002,009,020 Benzo(b)Iluoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(k)Iluoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(p)Iluoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(p)Iluoranthene T149 AR 0.01 mg/kg U 002,009,020 Dibenzo(a)Anthracene T149 AR 0.01 mg/kg <t< td=""><td>Fluorene</td><td></td><td></td><td></td><td>mg/kg</td><td></td><td></td></t<>	Fluorene				mg/kg		
Fluoranthene	Phenanthrene						
Pyrene							
Benzo(a)Anthracene T149 AR 0.01 mg/kg U 002,009,020 Chysene T149 AR 0.01 mg/kg U 002,009,020 Benzo(k)/luoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(a)/Pyrene T149 AR 0.01 mg/kg U 002,009,020 Indeno(123-cd)/Pyrene T149 AR 0.01 mg/kg U 002,009,020 Indeno(123-cd)/Pyrene T149 AR 0.01 mg/kg U 002,009,020 Indeno(123-cd)/Pyrene T149 AR 0.01 mg/kg U 002,009,020 Benzo(ghi)Perylene T149 AR 0.01 mg/kg U 002,009,020 Benzcene T54 AR 1 µg/kg U 002,009,020 PAH(total) T149 AR 0.01 mg/kg U 002,009,020 Benzene T54 AR 1 µg/kg U 002,009,020							
Chrysene							
Benzo(b)fluoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(k)fluoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(a)Pyrene T149 AR 0.01 mg/kg U 002,009,020 Indenc(123-cd)Pyrene T149 AR 0.01 mg/kg U 002,009,020 Benzo(gh)Penylene T149 AR 0.01 mg/kg U 002,009,020 Benzo(gh)Penylene T149 AR 0.01 mg/kg U 002,009,020 Benzene T149 AR 0.01 mg/kg U 002,009,020 Benzene T54 AR 1 µg/kg U 009 EthylBenzene T54 AR 1 µg/kg U 009 MPF Xylene T54 AR 1 µg/kg U 009 Methyl tetr-Butyl Ether T54 AR 1 µg/kg U 009 TPH (C6-C8							
Benzo(k)fluoranthene T149 AR 0.01 mg/kg U 002,009,020 Benzo(a)Pyrene T149 AR 0.01 mg/kg U 002,009,020 Indeno(123-cd)Pyrene T149 AR 0.01 mg/kg U 002,009,020 Dibenzo(ghi)Perylene T149 AR 0.01 mg/kg U 002,009,020 Benzo(ghi)Perylene T149 AR 0.01 mg/kg U 002,009,020 Benzene T54 AR 0.01 mg/kg U 002,009,020 Benzene T54 AR 1 µg/kg U 009,009 Benzene T54 AR 1 µg/kg U 009 EthylBenzene T54 AR 1 µg/kg U 009 MyP Xylene T54 AR 1 µg/kg U 009 Methyl tert-Butyl Ether T54 AR 1 µg/kg U 009 TPH (C5-C6 aliphatic)	•						
Benzo(a)Pyrene							
Indeno(123-cd)Pyrene							
Dibenzo(ah)Anthracene	1,7,						
Benzo(ghi)Perylene T149 AR 0.01 mg/kg U 002,009,020 PAH(total) T149 AR 0.01 mg/kg U 002,009,020 Benzene T54 AR 1 μg/kg U 009 Toluene T54 AR 1 μg/kg U 009 EthylBenzene T54 AR 1 μg/kg U 009 M/P Xylene T54 AR 1 μg/kg U 009 Methyl tert-Butyl Ether T54 AR 1 μg/kg U 009 Methyl tert-Butyl Ether T54 AR 1 μg/kg U 009 TPH (C5-C6 aliphatic) T54 AR 1 μg/kg N 009 TPH (C6-C8 aliphatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aliphatic) T8 AR							
PAH(total)							
Benzene							
Toluene T54 AR 1 μg/kg U 009 EthylBenzene T54 AR 1 μg/kg U 009 MP Xylene T54 AR 1 μg/kg U 009 Methyl tert-Butyl Ether T54 AR 1 μg/kg U 009 Methyl tert-Butyl Ether T54 AR 1 μg/kg U 009 TPH (C5-C6 aliphatic) T54 AR 10 μg/kg N 009 TPH (C6-C3 aliphatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aliphatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C2 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C2 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C2 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C2 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C2 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C2 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T54 AR 10 μg/kg N 009 TPH (C21-C35 aliphatic) T54 AR 10 μg/kg N 009 TPH (C21-C35 aliphatic) T54 AR 10 μg/kg N 009 TPH (C21-C35 aliphatic) T54 AR 10 μg/kg N 009 TPH (C21-C35 aliphatic) T54 AR 10 μg/kg N 009 TPH (C21-C36 aromatic) T54 AR 10 μg/kg N 009 TPH (C3-C4 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009							
EthylBenzene T54 AR 1 µg/kg U 009 M/P Xylene T54 AR 1 µg/kg U 009 O Xylene T54 AR 1 µg/kg U 009 Methyl tert-Butyl Ether T54 AR 1 µg/kg U 009 TPH (C5-C6 aliphatic) T54 AR 10 µg/kg N 009 TPH (C6-C8 aliphatic) T54 AR 10 µg/kg N 009 TPH (C8-C10 aliphatic) T54 AR 10 µg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C15 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C3 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C3 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C10 aromatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 µg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 µg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 µg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 µg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 µg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 µg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009							
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O Xylene T54 AR 1 μg/kg U 009 Methyl tert-Butyl Ether T54 AR 1 μg/kg U 009 TPH (C5-C6 aliphatic) T54 AR 10 μg/kg N 009 TPH (C6-C8 aliphatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aliphatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T8 AR 1 mg/kg N 009 TPH (C8-C10 aromatic)							
Methyl tert-Butyl Ether T54 AR 1 μg/kg U 009 TPH (C5-C6 aliphatic) T54 AR 10 μg/kg N 009 TPH (C6-C8 aliphatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aliphatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromati							
TPH (C5-C6 aliphatic) T54 AR 10 μg/kg N 009 TPH (C6-C8 aliphatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aliphatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromatic)	•						
TPH (C6-C8 aliphatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aliphatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009							
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TPH (C10-C12 aliphatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009							
TPH (C12-C16 aliphatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T54 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009							
TPH (C16-C21 aliphatic) T8 AR 1 mg/kg N 009 TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009	1			1			
TPH (C21-C35 aliphatic) T8 AR 1 mg/kg N 009 TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009		T8	AR	1		N	009
TPH (C6-C7 aromatic) T54 AR 10 μg/kg N 009 TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009		T8	AR	1		N	009
TPH (C7-C8 aromatic) T54 AR 10 μg/kg N 009 TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009		T54	AR	10		N	009
TPH (C8-C10 aromatic) T54 AR 10 μg/kg N 009 TPH (C10-C12 aromatic) T8 AR 1 mg/kg N 009 TPH (C12-C16 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009		T54	AR	10		N	009
TPH (C12-C16 aromatic) T8 AR 1 mg/kg N 009 TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009		T54	AR	10		N	009
TPH (C16-C21 aromatic) T8 AR 1 mg/kg N 009	TPH (C10-C12 aromatic)	Т8	AR	1		N	009
	TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	N	009
TPH (C21-C35 aromatic)	TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	N	009
· · · · · · · · · · · · · · · · · · ·	TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	N	009



Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 714275-1

Date of Report: 19-Feb-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 30-Jan-2018

Date Analysis Started: 08-Feb-2018

Date Analysis Completed: 16-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil

Analysed as Soil

SWECO Soil Suite 1

			Conce	t Reference	714275 005
		Custon	ner Sampl	e Reference	TP3-OP6 0.5m
			D	ate Sampled	26-JAN-2018
Determinand	Method	Test Sample	LOD	Units	
Cyanide(Total)	T4	AR	1	mg/kg	<1
Cyanide(free)	T4	AR	1	mg/kg	<1
Thiocyanate	T4	A40	10	mg/kg	<10
Organic Matter	T2	A40	0.1	%	4.0
Arsenic	T82	A40	2	mg/kg	22
Mercury	T82	A40	1	mg/kg	<1
Selenium	T82	A40	3	mg/kg	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1
Cadmium	T82	A40	1	mg/kg	<1
Chromium (trivalent)	T85	AR	2	mg/kg	35
Chromium (hexavalent)	T82	A40	1	mg/kg	<1
Copper	T82	A40	1	mg/kg	99
Lead	T82	A40	3	mg/kg	680
Nickel	T82	A40	1	mg/kg	76
Vanadium	T82	A40	1	mg/kg	69
Zinc	T82	A40	1	mg/kg	240
Asbestos ID	T27	AR			N.D.
pH	T7	A40			8.2
SO4(Total)	T82	A40	0.01	%	0.19
Sulphide	T4	A40	10	mg/kg	<10
Chloride	T686	AR	1	mg/kg	5
Nitrate	T686	AR	1	mg/kg	3
Phenols(Mono)	T4	AR	1	mg/kg	<1

Concept Reference: 714275

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

	ot Reference	714275 005			
	le Reference	TP3-OP6 0.5m			
	26-JAN-2018				
Determinand	Method	Test Sample	LOD	Units	
TPH (C8-C10)	T8	AR	1	mg/kg	<1
TPH (C10-C12)	T8	AR	1	mg/kg	<1
TPH (C12-C16)	T8	AR	1	mg/kg	1
TPH (C16-C21)	T8	AR	1	mg/kg	14
TPH (C21-C35)	T8	AR	1	mg/kg	130

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

			Conce	ot Reference	714275 005
		Custor	ner Samp	le Reference	TP3-OP6 0.5m
			D	ate Sampled	26-JAN-2018
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T149	AR	0.01	mg/kg	0.06
Acenaphthylene	T149	AR	0.01	mg/kg	0.47
Acenaphthene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.05
Fluorene	T149	AR	0.01	mg/kg	0.08
Phenanthrene	T149	AR	0.01	mg/kg	1.0
Anthracene	T149	AR	0.01	mg/kg	0.52
Fluoranthene	T149	AR	0.01	mg/kg	3.5
Pyrene	T149	AR	0.01	mg/kg	3.2
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	2.3
Chrysene	T149	AR	0.01	mg/kg	2.2
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	3.7
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	1.3
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	2.6
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	1.3
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.29
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	1.6
PAH(total)	T149	AR	0.01	mg/kg	24

Index to symbols used in 714275-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
N.D.	Not Detected
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

PAH soil - sample diluted to bring within calibration range.

Method Index

Value	Description					
T27	PLM					
T7	Probe					
T82	ICP/OES (Sim)					
T686	Discrete Analyser					
T112	ICP/OES (SIM)(Water Extract)					
T149	GC/MS (SIR)					
T2	Grav					
Т8	GC/FID					
T4	Colorimetry					
T85	Calc					

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	005
Cyanide(free)	T4	AR	1	mg/kg	U	005
Thiocyanate	T4	A40	10	mg/kg	N	005
Organic Matter	T2	A40	0.1	%	N	005
Arsenic	T82	A40	2	mg/kg	U	005

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Mercury	T82	A40	1	mg/kg	U	005
Selenium	T82	A40	3	mg/kg	U	005
Boron (water-soluble)	T112	A40	1	mg/kg	U	005
Cadmium	T82	A40	1	mg/kg	U	005
Chromium (trivalent)	T85	AR	2	mg/kg	N	005
Chromium (hexavalent)	T82	A40	1	mg/kg	N	005
Copper	T82	A40	1	mg/kg	U	005
Lead	T82	A40	3	mg/kg	U	005
Nickel	T82	A40	1	mg/kg	U	005
Vanadium	T82	A40	1	mg/kg	U	005
Zinc	T82	A40	1	mg/kg	U	005
Asbestos ID	T27	AR			SU	005
pH	T7	A40			U	005
SO4(Total)	T82	A40	0.01	%	N	005
Chloride	T686	AR	1	mg/kg	N	005
Sulphide	T4	A40	10	mg/kg	N	005
Nitrate	T686	AR	1	mg/kg	N	005
Phenols(Mono)	T4	AR	1	mg/kg	U	005
TPH (C8-C10)	T8	AR	1	mg/kg	N	005
TPH (C10-C12)	T8	AR	1	mg/kg	U	005
TPH (C12-C16)	T8	AR	1	mg/kg	U	005
TPH (C16-C21)	T8	AR	1	mg/kg	U	005
TPH (C21-C35)	T8	AR	1	mg/kg	U	005
Naphthalene	T149	AR	0.01	mg/kg	U	005
Acenaphthylene	T149	AR	0.01	mg/kg	U	005
Acenaphthene	T149	AR	0.01	mg/kg	U	005
Fluorene	T149	AR	0.01	mg/kg	U	005
Phenanthrene	T149	AR	0.01	mg/kg	U	005
Anthracene	T149	AR	0.01	mg/kg	U	005
Fluoranthene	T149	AR	0.01	mg/kg	U	005
Pyrene	T149	AR	0.01	mg/kg	U	005
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	005
Chrysene	T149	AR	0.01	mg/kg	U	005
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	005
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	005
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	005
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	005
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	005
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	005
PAH(total)	T149	AR	0.01	mg/kg	U	005



Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 714291-1

Date of Report: 19-Feb-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 30-Jan-2018

Date Analysis Started: 08-Feb-2018

Date Analysis Completed: 19-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

SWECO Soil Suite 1

		t Reference	714291 001	714291 013		
		e Reference	TP11-OP6 0.2m	HP10-OP6 0.2m		
		Date Sampled			31-JAN-2018	31-JAN-2018
Determinand	Method	Test Sample	LOD	Units		
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10
Organic Matter	T2	A40	0.1	%	4.0	3.5
Arsenic	T82	A40	2	mg/kg	9	29
Mercury	T82	A40	1	mg/kg	<1	<1
Selenium	T82	A40	3	mg/kg	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1	(9) <2
Cadmium	T82	A40	1	mg/kg	<1	3
Chromium (trivalent)	T85	AR	2	mg/kg	35	50
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1
Copper	T82	A40	1	mg/kg	28	110
Lead	T82	A40	3	mg/kg	46	1900
Nickel	T82	A40	1	mg/kg	37	57
Zinc	T82	A40	1	mg/kg	100	760
Vanadium	T82	A40	1	mg/kg	37	46
Asbestos ID	T27	AR			N.D.	N.D.
pН	T7	A40			8.1	6.3
SO4(Total)	T82	A40	0.01	%	0.10	0.19
Sulphide	T4	A40	10	mg/kg	<10	<10
Chloride	T686	AR	1	mg/kg	8	11
Nitrate	T686	AR	1	mg/kg	<1	<1
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1

Concept Reference: 714291

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

		714291 001	714291 013			
		le Reference	TP11-OP6 0.2m	HP10-OP6 0.2m		
	31-JAN-2018	31-JAN-2018				
Determinand	Method	Test Sample	LOD	Units		- 84
TPH (C8-C10)	T8	AR	1	mg/kg	<1	<1
TPH (C10-C12)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16)	T8	AR	1	mg/kg	<1	<1
TPH (C16-C21)	T8	AR	1	mg/kg	2	3
TPH (C21-C35)	T8	AR	1	mg/kg	44	58

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

			Conce	714291 001	714291 013	
		TP11-OP6 0.2m	HP10-OP6 0.2m			
			D	ate Sampled	31-JAN-2018	31-JAN-2018
Determinand	Method	Test Sample	LOD	Units		
Naphthalene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.02	⁽⁹⁾ <0.05
Acenaphthylene	T149	AR	0.01	mg/kg	0.02	0.28
Acenaphthene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.02	0.05
Fluorene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.02	0.20
Phenanthrene	T149	AR	0.01	mg/kg	0.09	1.3
Anthracene	T149	AR	0.01	mg/kg	0.06	0.41
Fluoranthene	T149	AR	0.01	mg/kg	0.46	2.2
Pyrene	T149	AR	0.01	mg/kg	0.42	1.9
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	0.27	1.0
Chrysene	T149	AR	0.01	mg/kg	0.26	0.99
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.43	1.4
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.15	0.47
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.31	0.96
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.16	0.50
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.03	0.11
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.19	0.57
PAH(total)	T149	AR	0.01	mg/kg	2.9	12

Index to symbols used in 714291-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

PAH soil - sample 001 diluted due to sample consistency, sample 002 diluted to bring within calibration range.

ICP/OES Sample 013 water soluble Boron ran at dilution due to sample matrix.

Method Index

Value	Description					
T8	GC/FID					
T85	Calc					
T149	GC/MS (SIR)					
T82	ICP/OES (Sim)					
T112	ICP/OES (SIM)(Water Extract)					
T2	Grav					
T27	PLM					
T686	Discrete Analyser					
T4	Colorimetry					
T7	Probe					

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	001,013
Cyanide(free)	T4	AR	1	mg/kg	U	001,013
Thiocyanate	T4	A40	10	mg/kg	N	001,013
Organic Matter	T2	A40	0.1	%	N	001,013

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Arsenic	T82	A40	2	mg/kg	U	001,013
Mercury	T82	A40	1	mg/kg	U	001,013
Selenium	T82	A40	3	mg/kg	U	001,013
Boron (water-soluble)	T112	A40	1	mg/kg	U	001,013
Cadmium	T82	A40	1	mg/kg	U	001,013
Chromium (trivalent)	T85	AR	2	mg/kg	N	001,013
Chromium (hexavalent)	T82	A40	1	mg/kg	N	001,013
Copper	T82	A40	1	mg/kg	U	001,013
Lead	T82	A40	3	mg/kg	U	001,013
Nickel	T82	A40	1	mg/kg	U	001,013
Vanadium	T82	A40	1	mg/kg	U	001,013
Zinc	T82	A40	1	mg/kg	U	001,013
Asbestos ID	T27	AR			SU	001,013
pН	T7	A40			U	001,013
SO4(Total)	T82	A40	0.01	%	N	001,013
Chloride	T686	AR	1	mg/kg	N	001,013
Sulphide	T4	A40	10	mg/kg	N	001,013
Nitrate	T686	AR	1	mg/kg	N	001,013
Phenols(Mono)	T4	AR	1	mg/kg	U	001,013
TPH (C8-C10)	T8	AR	1	mg/kg	N	001,013
TPH (C10-C12)	T8	AR	1	mg/kg	U	001,013
TPH (C12-C16)	T8	AR	1	mg/kg	U	001,013
TPH (C16-C21)	T8	AR	1	mg/kg	U	001,013
TPH (C21-C35)	Т8	AR	1	mg/kg	U	001,013
Naphthalene	T149	AR	0.01	mg/kg	U	001,013
Acenaphthylene	T149	AR	0.01	mg/kg	U	001,013
Acenaphthene	T149	AR	0.01	mg/kg	U	001,013
Fluorene	T149	AR	0.01	mg/kg	U	001,013
Phenanthrene	T149	AR	0.01	mg/kg	U	001,013
Anthracene	T149	AR	0.01	mg/kg	U	001,013
Fluoranthene	T149	AR	0.01	mg/kg	U	001,013
Pyrene	T149	AR	0.01	mg/kg	U	001,013
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001,013
Chrysene	T149	AR	0.01	mg/kg	U	001,013
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	001,013
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	001,013
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001,013
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001,013
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001,013
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001,013
PAH(total)	T149	AR	0.01	mg/kg	U	001,013



Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 715241-1

Date of Report: 21-Feb-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Fraser Murray

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 08-Feb-2018

Date Analysis Started: 13-Feb-2018

Date Analysis Completed: 21-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Emma Hilton Customer Service Advisor Issued by : Emma Hilton

Customer Service Advisor F Utt

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Ana

SWECO Soil Suite 1

Analysed as Soil

		715241 020	715241 030			
		Custon	ner Samp	le Reference	TP9-OP7 1.00M	HP6-OP6 1.00M
			D	ate Sampled	05-FEB-2018	06-FEB-2018
Determinand	Method	Test Sample	LOD	Units		
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10
Organic Matter	T2	A40	0.1	%	3.9	3.6
Arsenic	T82	A40	2	mg/kg	20	26
Mercury	T82	A40	1	mg/kg	<1	6
Selenium	T82	A40	3	mg/kg	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1	1
Cadmium	T82	A40	1	mg/kg	<1	2
Chromium (trivalent)	T85	AR	2	mg/kg	46	51
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1
Copper	T82	A40	1	mg/kg	50	220
Lead	T82	A40	3	mg/kg	170	1400
Nickel	T82	A40	1	mg/kg	55	73
Zinc	T82	A40	1	mg/kg	190	680
Vanadium	T82	A40	1	mg/kg	38	50
Asbestos ID	T27	AR			N.D.	N.D.
pН	T7	A40			6.8	7.4
SO4(Total)	T82	A40	0.01	%	0.06	0.18
Chloride	T686	AR	1	mg/kg	3	140
Sulphide	T4	A40	10	mg/kg	<10	<10
Nitrate	T686	AR	1	mg/kg	7	<1
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

	715241 020	715241 030										
	TP9-OP7 1.00M	HP6-OP6 1.00M										
	05-FEB-2018	06-FEB-2018										
Determinand	Method	Test Sample	LOD	Units								
TPH (C8-C10)	T8	AR	1	mg/kg	<1	<1						
TPH (C10-C12)	T8	AR	1	mg/kg	<1	<1						
TPH (C12-C16)	T8	AR	1	mg/kg	<1	<1						
TPH (C16-C21)	T8	AR	1	mg/kg	<1	19						
TPH (C21-C35)	T8	AR	1	mg/kg	22	140						



Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

	Concept Reference									
	TP9-OP7 1.00M	HP6-OP6 1.00M								
			D	ate Sampled	05-FEB-2018	06-FEB-2018				
Determinand	Method	Test Sample	LOD	Units						
Naphthalene	T149	AR	0.01	mg/kg	0.01	0.18				
Acenaphthylene	T149	AR	0.01	mg/kg	0.01	0.42				
Acenaphthene	T149	AR	0.01	mg/kg	<0.01	0.06				
Fluorene	T149	AR	0.01	mg/kg	0.01	0.25				
Phenanthrene	T149	AR	0.01	mg/kg	0.08	3.5				
Anthracene	T149	AR	0.01	mg/kg	0.02	0.97				
Fluoranthene	T149	AR	0.01	mg/kg	0.21	6.3				
Pyrene	T149	AR	0.01	mg/kg	0.21	6.5				
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	0.14	3.2				
Chrysene	T149	AR	0.01	mg/kg	0.11	2.6				
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.17	3.7				
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.06	1.3				
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.15	3.5				
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.08	1.6				
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.02	0.44				
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.10	2.0				
PAH(total)	T149	AR	0.01	mg/kg	1.4	37				

Index to symbols used in 715241-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
N.D.	Not Detected
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Sulphide, cyanide and phenols analysis carried out at Concept Life Sciences Braintree.

Method Index

Value	Description
T4	Colorimetry
T112	ICP/OES (SIM)(Water Extract)
T82	ICP/OES (Sim)
T85	Calc
T149	GC/MS (SIR)
T686	Discrete Analyser
T2	Grav
Т8	GC/FID
T27	PLM
T7	Probe

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	020,030
Cyanide(free)	T4	AR	1	mg/kg	U	020,030
Thiocyanate	T4	A40	10	mg/kg	N	020,030
Organic Matter	T2	A40	0.1	%	N	020,030
Arsenic	T82	A40	2	mg/kg	U	020,030
Mercury	T82	A40	1	mg/kg	U	020,030
Selenium	T82	A40	3	mg/kg	U	020,030
Boron (water-soluble)	T112	A40	1	mg/kg	U	020,030
Cadmium	T82	A40	1	mg/kg	U	020,030
Chromium (trivalent)	T85	AR	2	mg/kg	N	020,030
Chromium (hexavalent)	T82	A40	1	mg/kg	N	020,030
Copper	T82	A40	1	mg/kg	U	020,030
Lead	T82	A40	3	mg/kg	U	020,030
Nickel	T82	A40	1	mg/kg	U	020,030
Vanadium	T82	A40	1	mg/kg	U	020,030
Zinc	T82	A40	1	mg/kg	U	020,030
Asbestos ID	T27	AR			SU	020,030
pН	T7	A40			U	020,030
SO4(Total)	T82	A40	0.01	%	N	020,030
Chloride	T686	AR	1	mg/kg	N	020,030
Sulphide	T4	A40	10	mg/kg	N	020,030
Nitrate	T686	AR	1	mg/kg	N	020,030
Phenols(Mono)	T4	AR	1	mg/kg	U	020,030
TPH (C8-C10)	T8	AR	1	mg/kg	N	020,030
TPH (C10-C12)	T8	AR	1	mg/kg	U	020,030
TPH (C12-C16)	T8	AR	1	mg/kg	U	020,030
TPH (C16-C21)	T8	AR	1	mg/kg	U	020,030
TPH (C21-C35)	T8	AR	1	mg/kg	U	020,030
Naphthalene	T149	AR	0.01	mg/kg	U	020,030
Acenaphthylene	T149	AR	0.01	mg/kg	U	020,030
Acenaphthene	T149	AR	0.01	mg/kg	U	020,030
Fluorene	T149	AR	0.01	mg/kg	U	020,030
Phenanthrene	T149	AR	0.01	mg/kg	U	020,030
Anthracene	T149	AR	0.01	mg/kg	U	020,030
Fluoranthene	T149	AR	0.01	mg/kg	U	020,030
Pyrene	T149	AR	0.01	mg/kg	U	020,030

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	020,030
Chrysene	T149	AR	0.01	mg/kg	U	020,030
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	020,030
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	020,030
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	020,030
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	020,030
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	020,030
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	020,030
PAH(total)	T149	AR	0.01	mg/kg	U	020,030





Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 716422-1

Date of Report: 05-Mar-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Fraser Murray

Customer Job Reference: 17/082 Customer Purchase Order: 17552

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 14-Feb-2018

Date Analysis Started: 19-Feb-2018

Date Analysis Completed: 05-Mar-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Kimberley Macmaster Customer Relations Manager Issued by :
Kimberley Macmaster
Customer Relations Manager

Project Site: Newton Stewart FPS

Customer Reference: 17/082

T27

T7

T82

T686

T4

T686

T4

AR

A40

A40

AR

A40

AR

0.01

10

1

mg/kg

mg/kg

mg/kg

mg/kg

Soil SWECO Soil Suite 1

Asbestos ID

SO4(Total)

Chloride

Sulphide

Phenols(Mono)

Nitrate

рΗ

Analysed as Soil

			Conce	ot Reference	716422 001	716422 002	716422 003	716422 006
		Custon	ner Sampl	e Reference	HP11-OP6 0.5m	HP12-OP6 1.0m	TP4-OP6 0.2m	HP2-OP7 0.4n
			D	ate Sampled	12-FEB-2018	12-FEB-2018	29-JAN-2018	05-FEB-2018
Determinand	Method	Test Sample	LOD	Units				
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10	<10	<10
Organic Matter	T2	A40	0.1	%	4.5	1.8	8.0	2.8
Arsenic	T82	A40	2	mg/kg	23	13	37	13
Mercury	T82	A40	1	mg/kg	2	<1	10	<1
Selenium	T82	A40	3	mg/kg	<3	<3	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1	<1	<1	<1
Cadmium	T82	A40	1	mg/kg	2	<1	<1	<1
Chromium (trivalent)	T85	AR	2	mg/kg	48	43	52	33
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1	<1	<1
Copper	T82	A40	1	mg/kg	140	38	140	23
Lead	T82	A40	3	mg/kg	2300	29	1600	100
Nickel	T82	A40	1	mg/kg	45	53	69	60
Vanadium	T82	A40	1	mg/kg	47	33	71	26
Zinc	T82	A40	1	mg/kg	670	64	410	120

N.D.

8.0

0.23

12

<10

5

N.D.

7.7

0.04

4

<10

6

N.D.

7.7

0.19

1

<10

19

N.D.

6.1

0.08

13

<10

27

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

			Concep	t Reference	716422 001	716422 002	716422 003	716422 006
		Custon	ner Sampl	e Reference	HP11-OP6 0.5m	HP12-OP6 1.0m	TP4-OP6 0.2m	HP2-OP7 0.4m
			Da	ate Sampled	12-FEB-2018	12-FEB-2018	29-JAN-2018	05-FEB-2018
Determinand	Method	Test Sample	LOD	Units				
TPH (C8-C10)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C10-C12)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C12-C16)	T8	AR	1	mg/kg	1	<1	<1	<1
TPH (C16-C21)	T8	AR	1	mg/kg	1	<1	18	1
TPH (C21-C35)	T8	AR	1	mg/kg	36	11	76	27



Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Total and Speciated USEPA16 PAH (EK)

			Conce	ot Reference	716422 001	716422 002	716422 003	716422 006
		Custon	ner Sampl	e Reference	HP11-OP6 0.5m	HP12-OP6 1.0m	TP4-OP6 0.2m	HP2-OP7 0.4m
			D	ate Sampled	12-FEB-2018	12-FEB-2018	29-JAN-2018	05-FEB-2018
Determinand	Method	Test Sample	LOD	Units				
Naphthalene	T149	AR	0.01	mg/kg	0.03	⁽⁹⁾ <0.50	0.04	⁽⁹⁾ <0.02
Acenaphthylene	T149	AR	0.01	mg/kg	0.05	⁽⁹⁾ <0.50	0.06	⁽⁹⁾ <0.02
Acenaphthene	T149	AR	0.01	mg/kg	0.02	⁽⁹⁾ <0.50	0.05	⁽⁹⁾ <0.02
Fluorene	T149	AR	0.01	mg/kg	0.03	⁽⁹⁾ <0.50	0.12	⁽⁹⁾ <0.02
Phenanthrene	T149	AR	0.01	mg/kg	0.44	⁽⁹⁾ <0.50	1.9	0.05
Anthracene	T149	AR	0.01	mg/kg	0.16	⁽⁹⁾ <0.50	<0.01	⁽⁹⁾ <0.02
Fluoranthene	T149	AR	0.01	mg/kg	0.82	⁽⁹⁾ <0.50	3.6	0.16
Pyrene	T149	AR	0.01	mg/kg	0.76	⁽⁹⁾ <0.50	3.2	0.15
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.46	(13,9) < 0.50	1.6	(13) 0.09
Chrysene	T149	AR	0.01	mg/kg	0.49	⁽⁹⁾ <0.50	1.3	0.08
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.54	⁽⁹⁾ <0.50	1.6	0.14
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.18	⁽⁹⁾ <0.50	0.61	0.05
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.40	⁽⁹⁾ <0.50	1.3	0.10
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.18	⁽⁹⁾ <0.50	0.51	0.05
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.06	⁽⁹⁾ <0.50	0.17	0.02
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.22	⁽⁹⁾ <0.50	0.51	0.06
PAH(total)	T149	AR	0.01	mg/kg	4.8	<0.50	17	0.95

Index to symbols used in 716422-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Cyanide and Phenols analysis was performed at Concept Life Sciences Manchester.

PAH soils - samples diluted due to sample consistency.

Method Index

Value	Description
T27	PLM
T85	Calc
T149	GC/MS (SIR)
T686	Discrete Analyser
T4	Colorimetry
T2	Grav
T112	ICP/OES (SIM)(Water Extract)
T7	Probe
T8	GC/FID
T82	ICP/OES (Sim)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	001-003,006
Cyanide(free)	T4	AR	1	mg/kg	U	001-003,006
Thiocyanate	T4	A40	10	mg/kg	N	001-003,006
Organic Matter	T2	A40	0.1	%	N	001-003,006
Arsenic	T82	A40	2	mg/kg	U	001-003,006
Mercury	T82	A40	1	mg/kg	U	001-003,006
Selenium	T82	A40	3	mg/kg	U	001-003,006
Boron (water-soluble)	T112	A40	1	mg/kg	U	001-003,006
Cadmium	T82	A40	1	mg/kg	U	001-003,006
Chromium (trivalent)	T85	AR	2	mg/kg	N	001-003,006
Chromium (hexavalent)	T82	A40	1	mg/kg	N	001-003,006
Copper	T82	A40	1	mg/kg	U	001-003,006
Lead	T82	A40	3	mg/kg	U	001-003,006
Nickel	T82	A40	1	mg/kg	U	001-003,006
Vanadium	T82	A40	1	mg/kg	U	001-003,006
Zinc	T82	A40	1	mg/kg	U	001-003,006
Asbestos ID	T27	AR			SU	001-003,006
pH	T7	A40			U	001-003,006
SO4(Total)	T82	A40	0.01	%	N	001-003,006
Chloride	T686	AR	1	mg/kg	N	001-003,006
Sulphide	T4	A40	10	mg/kg	N	001-003,006
Nitrate	T686	AR	1	mg/kg	N	001-003,006
Phenols(Mono)	T4	AR	1	mg/kg	U	001-003,006
TPH (C8-C10)	T8	AR	1	mg/kg	N	001-003,006
TPH (C10-C12)	T8	AR	1	mg/kg	U	001-003,006
TPH (C12-C16)	T8	AR	1	mg/kg	U	001-003,006
TPH (C16-C21)	Т8	AR	1	mg/kg	U	001-003,006
TPH (C21-C35)	Т8	AR	1	mg/kg	U	001-003,006
Naphthalene	T149	AR	0.01	mg/kg	U	001-003,006
Acenaphthylene	T149	AR	0.01	mg/kg	U	001-003,006
Acenaphthene	T149	AR	0.01	mg/kg	U	001-003,006
Fluorene	T149	AR	0.01	mg/kg	U	001-003,006
Phenanthrene	T149	AR	0.01	mg/kg	U	001-003,006

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Anthracene	T149	AR	0.01	mg/kg	U	001-003,006
Fluoranthene	T149	AR	0.01	mg/kg	U	001-003,006
Pyrene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001-003,006
Chrysene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001-003,006
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001-003,006
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001-003,006
PAH(total)	T149	AR	0.01	mg/kg	U	001-003,006





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Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF

Tel: 01355 573340 Fax: 01355 573341

Report Number: 707561-1

Date of Report: 16-Jan-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17570

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 09-Jan-2018

Date Analysis Started: 09-Jan-2018

Date Analysis Completed: 16-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by :
Ashleigh Cunningham
Customer Service Adviso

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Miscellaneous

			Concep	t Reference	707561 001	707561 002	707561 005	707561 005 707561 007	
Customer Sample Reference					OP24-TP2 0.8m	OP24-TP10 0.8m	OP24-TP11 1.0m	SP-TP1 0.8m	SP-TP3 0.7m
	Date Sampled				08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018
Determinand	Determinand Method Test Sample LOD Units								
Organic Matter	T2	A40	0.1	%	1.3	1.9	1.1	11.5	2.9

Concept Reference: 707561

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

BRE SD1 Soil tests

			Conce	707561 004	707561 006	707561 008	707561 009	
		Custor	ner Samp	SP-TP1 0.5m	SP-TP2 0.5m	SP-TP3 0.7m	SP-TP4 0.5m	
			D	ate Sampled	08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018
		Tast		1.77				
Determinand	Method	Comple	Test LOD Units					

Determinand	Method	Test Sample	LOD	Units	972-10		1.33	
pН	T7	A40		1000	8.0	8.3	6.2	5.9
SO4(Total)	T102	AR	0.01	%	0.08	0.09	0.05	(NR)
Sulphur (total)	Т6	A40	0.01	%	0.36	0.52	0.19	(NR)

Concept Reference: 707561

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Leachate 2:1 Analysed as Water

BRE SD1 2:1 Leachate tests

Sulphate

		1000	Conce	ot Reference	707561 004	707561 006	707561 008	707561 009
į	Customer Sample Reference						SP-TP3 0.7m	SP-TP4 0.5m
			D	ate Sampled	08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018
Determinand	Method	Test Sample	LOD	Units	F-81			
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	<0.05	<0.05	<0.05
Chloride	T686	2:1	1	mg/l	4	3	1	1
Magnesium	T82	2:1	1	mg/l	2	1	<1	<1
Nitrate	T686	2.1	0.5	ma/l	4.7	9.4	1.2	2.3

Index to symbols used in 707561-1

Value	Description						
A40	Assisted dried < 40C						
AR	As Received						
2:1	Leachate 2:1						
NR	No Result						
U	Analysis is UKAS accredited						
N	Analysis is not UKAS accredited						

Notes

Sample 009 for ICP OES Sulphur and HCL acid sulphate and Sulphide being reported as NR due to sample matrix affecting testing.

Method Index

Value	Description
T82	ICP/OES (Sim)
T686	Discrete Analyser
T6	ICP/OES
T7	Probe

T102	ICP/OES (HCl extract)
T2	Grav

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Organic Matter	T2	A40	0.1	%	N	001-003,005,007
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	004,006,008-009
Chloride	T686	2:1	1	mg/l	U	004,006,008-009
Magnesium	T82	2:1	1	mg/l	N	004,006,008-009
Nitrate	T686	2:1	0.5	mg/l	U	004,006,008-009
Sulphate	T82	2:1	10	mg/l	N	004,006,008-009
pH	T7	A40			U	004,006,008-009
SO4(Total)	T102	AR	0.01	%	N	004,006,008-009
Sulphur (total)	T6	A40	0.01	%	N	004,006,008-009





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Concept Life Sciences Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel: 01355 573340

Fax: 01355 573340

Report Number: 720972-1

Date of Report: 19-Mar-2018

Customer: Holequest

Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17738

Customer Site Reference: Newton Stewart FPS

Date Job Received at Concept: 08-Mar-2018

Date Analysis Started: 11-Mar-2018

Date Analysis Completed: 19-Mar-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs
All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical
Services Quality Manual



Report checked and authorised by : Emma Hilton Customer Service Advisor Issued by : Emma Hilton

Customer Service Advisor F Utt

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Miscellaneous

			Concep	t Reference	720972 005	720972 006	720972 010	720972 011	720972 012
		Custon	ner Sampl	e Reference	TP13-OP6 0.4m	TPW1-OP6 0.2m	TP2-OP6 0.4m	TP2-OP7 2.5m	TP4-OP7 0.8n
		Da	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	
Determinand	Determinand Method Test Sample LOD Units			Units					
Organic Matter	T2	A40			2.1	13.0	2.7	4.6	1.4

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Miscellaneous

			Concep	t Reference	720972 014	720972 015	720972 021	720972 022	720972 024
		Custon	ner Sampl	e Reference	TP9-OP6 0.5m	TP9-OP6 1.0m	BH11-OP6 0.9m	BH11-OP6 1.3m	BH12-OP6 0.5m
Date Sampled					06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Determinand Method Test LOD Units								
Determinand	Wethou	Sample	LOD	Units					
Organic Matter	T2	A40	0.1	%	6.9	5.0	4.9	1.5	0.8

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Miscellaneous						
			Conce	ot Reference	720972 025	720972 026
		Custon	ner Samp	e Reference	BH13-OP6 0.5m	BH14-OP6 2.8m
		- 4	D	ate Sampled	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units	THE STATE OF	
Organic Matter	T2	A40	0.1	%	1.7	0.5

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Soil Suite

			Concep	t Reference	720972 001	720972 002	720972 003	720972 004	720972 007
		Custor	ner Sampl	e Reference	HP10-OP6 0.2m	HP11-OP6 0.2m	HP12-OP6 0.2m	TP12-OP7 0.6m	HP1-OP6 0.2m
Date Sample					06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units					
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted	Extracted	Extracted
рН	T7	A40			5.9	7.4	6.4	6.6	8.4
(Acid Soluble) SO4	T192	A40	0.01	%	0.08	0.16	0.12	0.04	0.18
Sulphur (total)	T6	A40	0.01	%	0.03	0.07	0.07	0.02	0.09

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Soil Suite									
			Concep	t Reference	720972 008	720972 009	720972 010	720972 013	720972 014
		Custon	ner Sampl	e Reference	HP2-OP7 1.0m	HP8-OP6 0.2m	TP2-OP6 0.4m	TP7-OP6 0.7m	TP9-OP6 0.5m
			D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units	3000				100
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted	Extracted	Extracted
рН	T7	A40			7.8	7.7	7.9	6.9	6.3
(Acid Soluble) SO4	T192	A40	0.01	%	0.02	0.12	0.19	0.05	0.12
Sulphur (total)	T6	A40	0.01	%	<0.01	0.10	0.07	0.03	0.05

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Soil Analysed as Soil

Soil Suite

			Concep	t Reference	720972 016	720972 017	720972 018	720972 019	720972 020
		Custor	ner Sampl	e Reference	BH1-OP6 0.5m	BH4-OP6 0.5m	BH5-OP6 0.2m	BH7-OP6 1.0m	BH8-OP6 0.5m
			D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units					
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted	Extracted	Extracted
pН	T7	A40			7.1	7.8	11.8	8.1	7.2
(Acid Soluble) SO4	T192	A40	0.01	%	0.09	0.18	0.28	0.12	0.07
Sulphur (total)	T6	A40	0.01	%	0.05	0.07	0.12	0.04	0.04

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Analysed as Soil

Soil Suite

			Concep	t Reference	720972 021	720972 023	720972 027
		Custon	ner Sampl	e Reference	BH11-OP6 0.9m	BH12-OP6 0.2m	BH1-OP7 1.3m
			D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units			
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted
pН	T7	A40			6.0	6.8	7.0
(Acid Soluble) SO4	T192	A40	0.01	%	0.08	0.07	0.03
Sulphur (total)	T6	A40	0.01	%	0.03	0.03	0.02

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Leachate 2:1

Analysed as Water

Suite A

	·		Concep	t Reference	720972 001	720972 002	720972 003	720972 004	720972 007
		Custon	ner Sampl	e Reference	HP10-OP6 0.2m	HP11-OP6 0.2m	HP12-OP6 0.2m	TP12-OP7 0.6m	HP1-OP6 0.2m
			Da	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Test Sample	LOD	Units						
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	T686	2:1	1	mg/l	1	9	2	<1	<1
Magnesium	T82	2:1	1	mg/l	2	4	3	1	1
Nitrate	T686	2:1	0.5	mg/l	2.0	11	10	3.5	2.3
Dissolved SO4(Total)	T285	2:1	10	mg/l	<10	30	11	<10	<10

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Leachate 2:1

Analysed as Water

Suite A

			Conce	ot Reference	e 720972 008	720972 009	720972 010	720972 013	720972 014
		Custon	ner Samp	le Reference	HP2-OP7 1.0m	HP8-OP6 0.2m	TP2-OP6 0.4m	TP7-OP6 0.7m	TP9-OP6 0.5m
			D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units			ACETY.	Mu. 3	
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	T686	2:1	1	mg/l	1	1	<1	2	2
Magnesium	T82	2:1	1	mg/l	5	3	2	<1	4
Nitrate	T686	2:1	0.5	mg/l	1.3	19	1.9	6.5	13
Dissolved SO4(Total)	T285	2:1	10	mg/l	<10	38	<10	<10	21

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Leachate 2:1 Suite A Analysed as Water

			Concep	t Reference	720972 016	720972 017	720972 018	720972 019	720972 020
		Custor	ner Sampl	e Reference	BH1-OP6 0.5m	BH4-OP6 0.5m	BH5-OP6 0.2m	BH7-OP6 1.0m	BH8-OP6 0.5m
			D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units	- 5	al.			
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	<0.05	0.11	<0.05	<0.05
Chloride	T686	2:1	1	mg/l	1	1	15	9	2
Magnesium	T82	2:1	1	mg/l	2	<1	<1	<1	2
Nitrate	T686	2:1	0.5	mg/l	5.9	3.0	0.6	4.2	2.4
Dissolved SO4(Total)	T285	2:1	10	ma/l	<10	11	100	17	<10

Concept Reference: 720972

Project Site: Newton Stewart FPS

Customer Reference: 17/082

Leachate 2:1 Analysed as Water

Suite A

			Concep	t Reference	720972 021	720972 023	720972 027
		Custon	ner Sampl	e Reference	BH11-OP6 0.9m	BH12-OP6 0.2m	BH1-OP7 1.3m
			D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units			
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	<0.05	<0.05
Chloride	T686	2:1	1	mg/l	2	<1	<1
Magnesium	T82	2:1	1	mg/l	<1	7	3
Nitrate	T686	2:1	0.5	mg/l	6.5	8.4	<0.5
Dissolved SO4(Total)	T285	2:1	10	mg/l	51	<10	<10

Index to symbols used in 720972-1

Value	Description
2:1	Leachate 2:1
A40	Assisted dried < 40C
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T82	ICP/OES (Sim)
T686	Discrete Analyser
T2	Grav
T6	ICP/OES
T192	HCI Extraction/ICP/OES (TRL 447 T2)
T285	ICP/OES (SIM) (Filtered)
T7	Probe

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References	
Leach Prep (2:1)	T2	AR			N	001-004,007-010,013-014,016-021,023,027	
pH	T7	A40			U	001-004,007-010,013-014,016-021,023,027	
(Acid Soluble) SO4	T192	A40	0.01	%	N	001-004,007-010,013-014,016-021,023,027	
Sulphur (total)	T6	A40	0.01	%	N	001-004,007-010,013-014,016-021,023,027	
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	001-004,007-010,013-014,016-021,023,027	
Chloride	T686	2:1	1	mg/l	U	001-004,007-010,013-014,016-021,023,027	
Magnesium	T82	2:1	1	mg/l	N	001-004,007-010,013-014,016-021,023,027	
Nitrate	T686	2:1	0.5	mg/l	U	001-004,007-010,013-014,016-021,023,027	
Dissolved SO4(Total)	T285	2:1	10	mg/l	N	001-004,007-010,013-014,016-021,023,027	
Organic Matter	T2	A40	0.1	%	N	005-006,010-012,014-015,021-022,024-026	

APPENDIX V

In-situ Testing







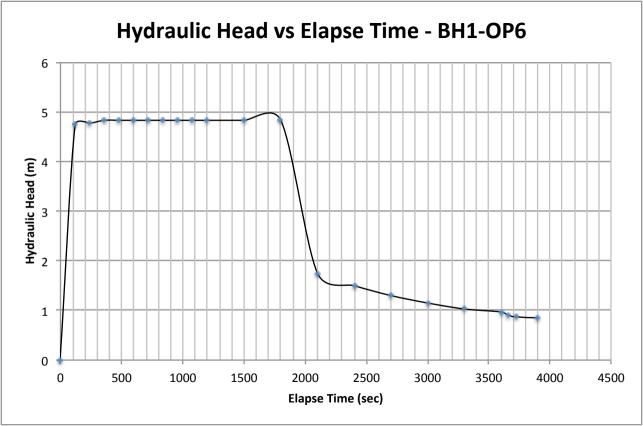






		Dormoohility	Toot in a Barah	ole using Open Sys	otomo		
		Permeability	according to IS		stems		
Project		Newton Stev		Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17.	/082
Test Method		Constant	Flow	Test No.	1	Date	23.04.18
Drilling Method	1	Rotary Ope	en Hole	Static			
				Hydraulic	4.80		
				Head (m)			
Borehole No.	BH1-OP6	Easting (m)	240948.715	Northing (m)	566124.095	Elevation	15.004
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	6.00	Length (m)	5.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.24	4.74	4.74				
240	3.24	4.77	0.03				
360	3.24	4.83	0.06				
480	3.24	4.83	0				
600	3.24	4.83	0				
720	3.24	4.83	0				
840	3.24	4.83	0				
960	3.24	4.83	0				
1080	3.24	4.83	0				
1200	3.24	4.83	0				
1500	3.24	4.83	0				
1800	3.24	4.83	0				
2100	Hole Filled	1.75	-3.08				
2400		1.5	-0.25				
2700		1.3	-0.2				
3000		1.15	-0.15				
3300		1.03	-0.12				

ı	1	1	I	1	I	I
	3600	0.97	-0.06			
	3660	0.9	-0.07			
	3720	0.87	-0.03			
	3900	0.85	-0.02			





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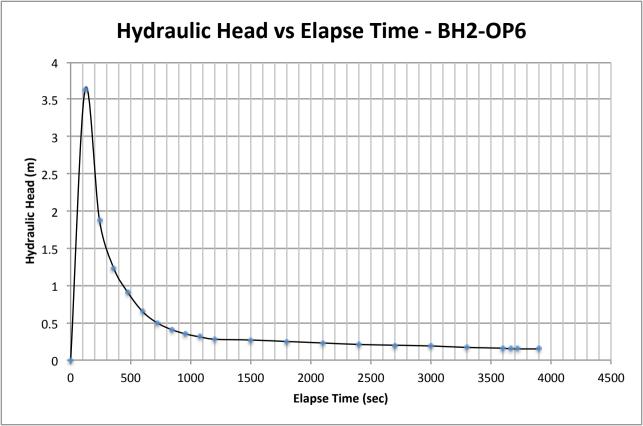




ite No. 007883

		Permeability		nole using Open Sys	stems		
Project		Newton Stev	according to IS	SO 22282-2 Client			nd Galloway
-		SWEC		Contract Number		Council 17/082	
Engineer Test Method		Constant		Test No.	1	Date 23.04.18	
Drilling Method		Rotary Ope		Static	<u>'</u>	Date	23.04.10
Drilling Method		Notary Ope	ii i ioie	Hydraulic	3.80		
				Head (m)	3.00		
Borehole No.	BH2-OP6	Easting (m)	240979.611	Northing (m)	566048.039	Elevation	14.046
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	5.00	Length (m)	4.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	1.5	3.63	3.63				
240	Hole Filled	1.88	-1.75				
360		1.23	-0.65				
480		0.9	-0.33				
600		0.65	-0.25				
720		0.5	-0.15				
840		0.41	-0.09				
960		0.35	-0.06				
1080		0.31	-0.04				
1200		0.28	-0.03				
1500		0.27	-0.01				
1800		0.25	-0.02				
2100		0.23	-0.02				
2400		0.21	-0.02				
2700		0.2	-0.01				
3000		0.19	-0.01				
3300		0.17	-0.02				

		,		•	•
3600	0.16	-0.01			
3660	0.15	-0.01			
3720	0.15	0			
3900	0.15	0			









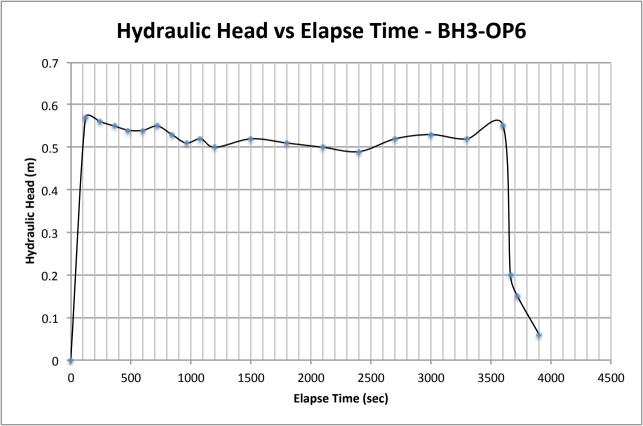






		Permeability	Test in a Boreh	ole using Open Sys	stems		
			according to IS	O 22282-2			
Project		Newton Stev	vart FPS	Client		Dumfries and Galloway Council	
Engineer		SWEC		Contract Number			/082
Test Method		Constant		Test No.	1	Date	24.04.18
Drilling Method		Rotary Ope		Static			
_				Hydraulic	2.80		
				Head (m)			
Borehole No.	BH3-OP6	Easting (m)	241054.871	Northing (m)	565871.328	Elevation	10.943
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	5.00	Length (m)	4.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	2.8	0.57	0.57				
240	2.8	0.56	-0.01				
360	2.8	0.55	-0.01				
480	2.8	0.54	-0.01				
600	2.8	0.54	0				
720	2.8	0.55	0.01				
840	2.8	0.53	-0.02				
960	2.8	0.51	-0.02				
1080	2.8	0.52	0.01				
1200	2.8	0.5	-0.02				
1500	2.8	0.52	0.02				
1800	2.8	0.51	-0.01				
2100	2.8	0.5	-0.01				
2400	2.8	0.49	-0.01				
2700	2.8	0.52	0.03				
3000	2.8	0.53	0.01				
3300	2.8	0.52	-0.01				

ĺ	3600	2.8	0.55	0.03		
	3660		0.2	-0.35		
	3720		0.15	-0.05		
	3900		0.06	-0.09		











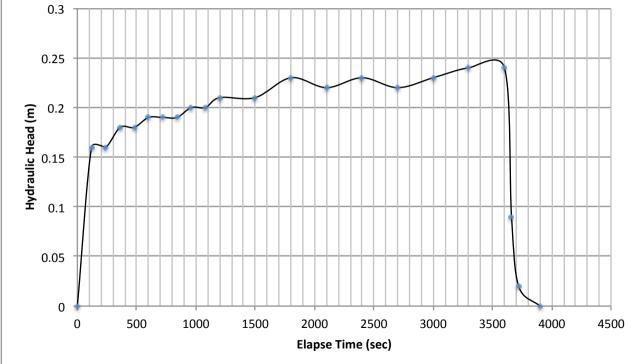




		Permeability	Test in a Boreh	ole using Open Sys	stams		
		remeability	according to IS		stems		
Project		Newton Stev		Client		Dumfries and Galloway Council	
Engineer		SWEC	Ю	Contract Number		17.	/082
Test Method	est Method Constant Flo		Flow	Test No.	1	Date	24.04.18
Drilling Method	1	Rotary Ope	en Hole	Static			
				Hydraulic	2.10		
				Head (m)			
Borehole No.	BH5-OP6	Easting (m)	241139.807	Northing (m)	565580.638	Elevation	9.148
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	4.50	Lower level (m)	13.00	Length (m)	8.5
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.56	0.16	0.16				
240	3.56	0.16	0				
360	3.56	0.18	0.02				
480	3.56	0.18	0				
600	3.56	0.19	0.01				
720	3.56	0.19	0				
840	3.56	0.19	0				
960	3.56	0.2	0.01				
1080	3.56	0.2	0				
1200	3.56	0.21	0.01				
1500	3.56	0.21	0				
1800	3.56	0.23	0.02				
2100	3.56	0.22	-0.01				
2400	3.56	0.23	0.01				
2700	3.56	0.22	-0.01				
3000	3.56	0.23	0.01				
3300	3.56	0.24	0.01				

ı				1	1	ĺ	İ
	3600	3.56	0.24	0			
	3660		0.09	-0.15			
	3720		0.02	-0.07			
	3900		0	-0.02			

Hydraulic Head vs Elapse Time - BH5-OP6









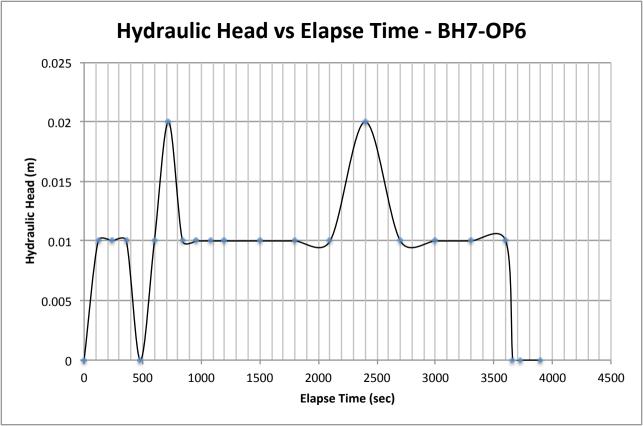






		Permeability	Test in a Borehor according to IS	ole using Open Sys O 22282-2	tems		
Project		Newton Stev		Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	23.04.18
Drilling Method		Rotary Ope	en Hole	Static			
				Hydraulic	2.40		
			ı	Head (m)			
Borehole No.	BH07-OP6	Easting (m)	241242.253	Northing (m)	565279.55	Elevation	7.99
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	12.00	Length (m)	11.
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆/
0	0	0	0				
120	2.88	0.01	0.01				
240	2.88	0.01	0				
360	2.88	0.01	0				
480	2.88	0	-0.01				
600	2.88	0.01	0.01				
720	2.88	0.02	0.01				
840	2.88	0.01	-0.01				
960	2.88	0.01	0				
1080	2.88	0.01	0				
1200	2.88	0.01	0				
1500	2.88	0.01	0				
1800	2.88	0.01	0				
2100	2.88	0.01	0				
2400	2.88	0.02	0.01				
2700	2.88	0.01	-0.01				
3000	2.88	0.01	0				
3300	2.88	0.01	0				

3600	2.88	0.01	0		
3660		0	-0.01		
3720		0	0		
3900		0	0		















		Dormochility	Tost in a Paral	nole using Open Sys	stoms		
		Permeability	according to IS		stems		
Project		Newton Stewart FPS		Client		Dumfries and Galloway Council	
Engineer		SWEC	Ю	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	23.04.18
Drilling Method	I	Rotary Ope	en Hole	Static			
				Hydraulic	3.90		
	1			Head (m)			
Borehole No.	BH8-OP6	Easting (m)	241250	Northing (m)	565099.302	Elevation	9.441
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	4.00	Lower level (m)	10.00	Length (m)	6.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.16	0.84	0.84				
240	3.16	1.99	1.15				
360	3.16	3.05	1.06				
480	3.16	3.1	0.05				
600	3.16	3.13	0.03				
720	3.16	3.12	-0.01				
840	3.16	3.15	0.03				
960	3.16	3.14	-0.01				
1080	3.16	3.12	-0.02				
1200	3.16	3.13	0.01				
1500	3.16	3.1	-0.03				
1800	3.16	3.14	0.04				
2100	3.16	3.13	-0.01				
2400	3.16	3.13	0				
2700	3.16	3.14	0.01				
3000	3.16	3.13	-0.01				
3300	3.16	3.12	-0.01				

1	1		1		1	I	I
	3600	3.16	3.12	0			
	3660		1.06	-2.06			
	3720		0.27	-0.79			
	3900		0.23	-0.04			

Hydraulic Head vs Elapse Time - BH8-OP6 3.5 2.5 Hydraulic Head (m) 1.5 0.5 Elapse Time(sec)







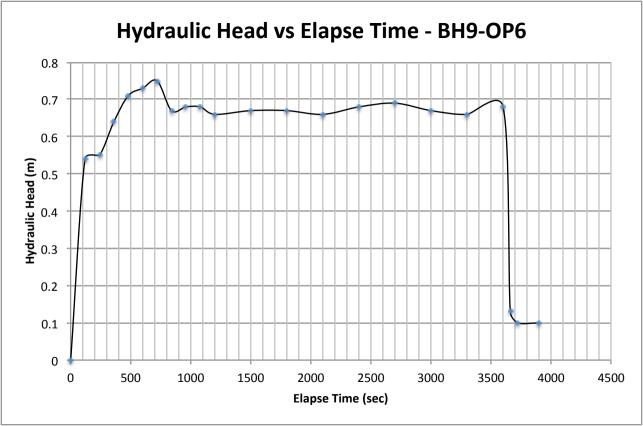






		Permeability		ole using Open Sys	stems		
Project		according to IS		Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	23.04.18
Drilling Method			en Hole	Static			
				Hydraulic	3.90		
				Head (m)			
Borehole No.	Borehole No. BH9-OP6 Easting (m)		241294.904	Northing (m)	564986.199	Elevation	8.464
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	10.00	Length (m)	9.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.12	0.54	0.54				
240	3.12	0.55	0.01				
360	3.12	0.64	0.09				
480	3.12	0.71	0.07				
600	3.12	0.73	0.02				
720	3.12	0.75	0.02				
840	3.12	0.67	-0.08				
960	3.12	0.68	0.01				
1080	3.12	0.68	0				
1200	3.12	0.66	-0.02				
1500	3.12	0.67	0.01				
1800	3.12	0.67	0				
2100	3.12	0.66	-0.01				
2400	3.12	0.68	0.02				
2700	3.12	0.69	0.01				
3000	3.12	0.67	-0.02				
3300	3.12	0.66	-0.01			_	

i i	ì	i	i		i	i
3600	3.12	0.68	0.02			
3660		0.13	-0.55			
3720		0.1	-0.03			
3900		0.1	0			









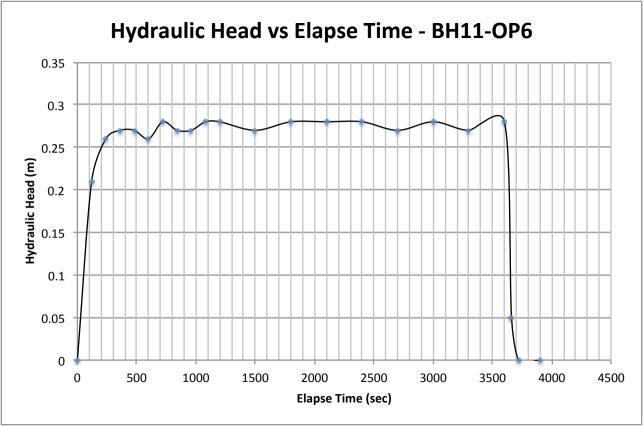






		Permeability		ole using Open Sys	stems		
Project		according to IS Newton Stewart FPS		Client		Dumfries and Galloway Council	
Engineer		SWEC		Contract Number		17/082	
Test Method		Constant		Test No.	1	Date	25.04.18
Drilling Method		Rotary Ope		Static			
J				Hydraulic	2.10		
				Head (m)			
Borehole No.	BH11-OP6	Easting (m)	241240.514	Northing (m)	565493.291	Elevation	8.252
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	12.00	Length (m)	11.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.74	0.21	0.21				
240	3.74	0.26	0.05				
360	3.74	0.27	0.01				
480	3.74	0.27	0				
600	3.74	0.26	-0.01				
720	3.74	0.28	0.02				
840	3.74	0.27	-0.01				
960	3.74	0.27	0				
1080	3.74	0.28	0.01				
1200	3.74	0.28	0				
1500	3.74	0.27	-0.01				
1800	3.74	0.28	0.01				
2100	3.74	0.28	0				
2400	3.74	0.28	0				
2700	3.74	0.27	-0.01				
3000	3.74	0.28	0.01				
3300	3.74	0.27	-0.01				

i i		i	i		i	i
3600	3.74	0.28	0.01			
3660		0.05	-0.23			
3720		0	-0.05			
3900		0	0			









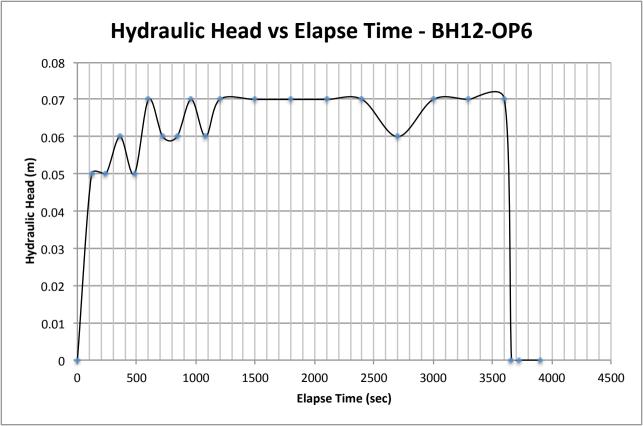






		Permeability	Test in a Boreh according to IS	ole using Open Sys	stems		
Project		Newton Stewart FPS		Client		Dumfries and Galloway Council	
Engineer		SWEC		Contract Number		17/082	
Test Method		Constant		Test No.	1	Date	25.04.18
Drilling Method		Rotary Ope	en Hole	Static			
-				Hydraulic	3.10		
				Head (m)			
Borehole No.	BH12-OP6	Easting (m)	241304.378	Northing (m)	565357.366	Elevation	8.30
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	13.00	Length (m)	12.
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆/
0	0	0	0				
120	4.32	0.05	0.05				
240	4.32	0.05	0				
360	4.32	0.06	0.01				
480	4.32	0.05	-0.01				
600	4.32	0.07	0.02				
720	4.32	0.06	-0.01				
840	4.32	0.06	0				
960	4.32	0.07	0.01				
1080	4.32	0.06	-0.01				
1200	4.32	0.07	0.01				
1500	4.32	0.07	0				
1800	4.32	0.07	0				
2100	4.32	0.07	0				
2400	4.32	0.07	0				
2700	4.32	0.06	-0.01				
3000	4.32	0.07	0.01				
3300	4.32	0.07	0				

1	1	1	i .	Ī	i	1	1
3600	4.32	0.07	0				
3660		0	-0.07				
3720		0	0				
3900		0	0				





cate No. 642







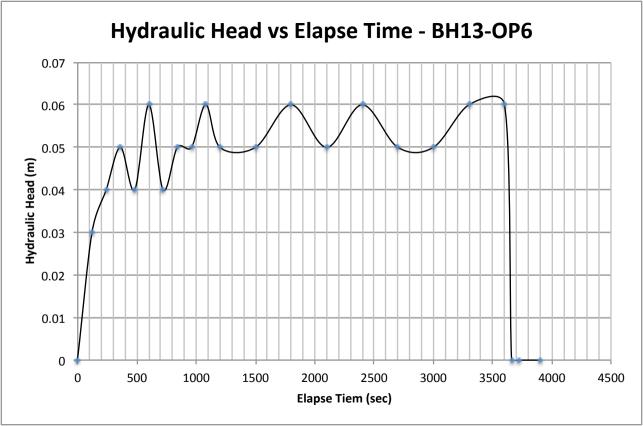




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		D b !!!!	Tankin a Danah	-1	-1		
		Permeability	according to IS	iole using Open Sys	stems		
Project		Newton Stev		Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17.	/082
Test Method		Constant	Flow	Test No.	1	Date	25.04.18
Drilling Method	I	Rotary Ope	en Hole	Static			
				Hydraulic	2.20		
				Head (m)			
Borehole No.	BH13-OP6	Easting (m)	241329.323	Northing (m)	565279.663	Elevation	8.066
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	14.00	Length (m)	13.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	4.4	0.03	0.03				
240	4.4	0.04	0.01				
360	4.4	0.05	0.01				
480	4.4	0.04	-0.01				
600	4.4	0.06	0.02				
720	4.4	0.04	-0.02				
840	4.4	0.05	0.01				
960	4.4	0.05	0				
1080	4.4	0.06	0.01				
1200	4.4	0.05	-0.01				
1500	4.4	0.05	0				
1800	4.4	0.06	0.01				
2100	4.4	0.05	-0.01				
2400	4.4	0.06	0.01				
2700	4.4	0.05	-0.01				
3000	4.4	0.05	0				
3300	4.4	0.06	0.01				

I	I		I	1	I	I	I
3600	4.4	0.06	0				
3660		0	-0.06				
3720		0	0				
3900		0	0				





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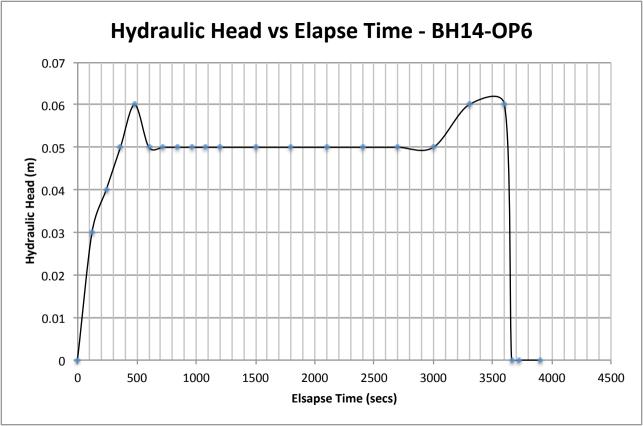




icate No. 007883

		Permeability		ole using Open Sys	stems		
Project		Newton Stev	according to IS	Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	25.04.18
Drilling Method	Drilling Method		en Hole	Static			
				Hydraulic	1.90		
				Head (m)			
Borehole No.	BH14-OP6	Easting (m)	241386.187	Northing (m)	565302.529	7.311	
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	13.00	Length (m)	12.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.74	0.03	0.03				
240	3.74	0.04	0.01				
360	3.74	0.05	0.01				
480	3.74	0.06	0.01				
600	3.74	0.05	-0.01				
720	3.74	0.05	0				
840	3.74	0.05	0				
960	3.74	0.05	0				
1080	3.74	0.05	0				
1200	3.74	0.05	0				
1500	3.74	0.05	0				
1800	3.74	0.05	0				
2100	3.74	0.05	0				
2400	3.74	0.05	0				
2700	3.74	0.05	0				
3000	3.74	0.05	0				
3300	3.74	0.06	0.01				

I	I		I	1	I	I	I
3600	3.74	0.06	0				
3660		0	-0.06				
3720		0	0				
3900		0	0				





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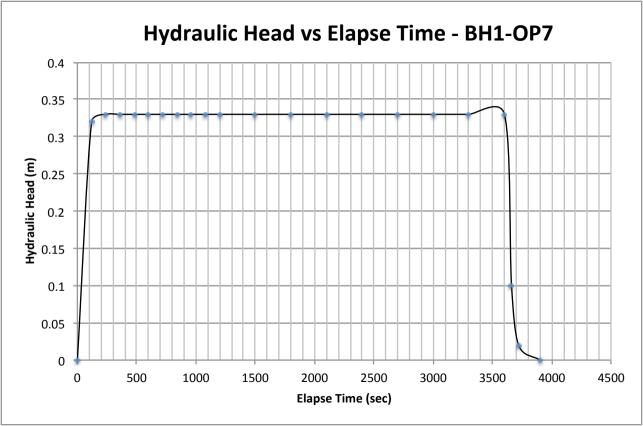




ite No. 007883

		Permeability		nole using Open Sys	stems		
Project		Newton Stev	according to IS	Client		Dumfries and Galloway Council	
Engineer		SWEC	0	Contract Number		17/082	
Test Method		Constant		Test No.	1	Date	24.04.18
Drilling Method		Rotary Ope	en Hole	Static			
	3			Hydraulic	1.10		
				Head (m)			
Borehole No.	BH1-OP7	Easting (m)	241566.161	Northing (m)	564717.077	Elevation	5.222
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	14.00	Length (m)	13.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.07	0.32	0.32				
240	3.07	0.33	0.01				
360	3.07	0.33	0				
480	3.07	0.33	0				
600	3.07	0.33	0				
720	3.07	0.33	0				
840	3.07	0.33	0				
960	3.07	0.33	0				
1080	3.07	0.33	0				
1200	3.07	0.33	0				
1500	3.07	0.33	0				
1800	3.07	0.33	0				
2100	3.07	0.33	0				
2400	3.07	0.33	0				
2700	3.07	0.33	0				
3000	3.07	0.33	0				
3300	3.07	0.33	0				

	i	i	i	i	i	i
3600	3.07	0.33	0			
3660		0.1	-0.23			
3720		0.02	-0.08			
3900		0	-0.02			





cate No. 642







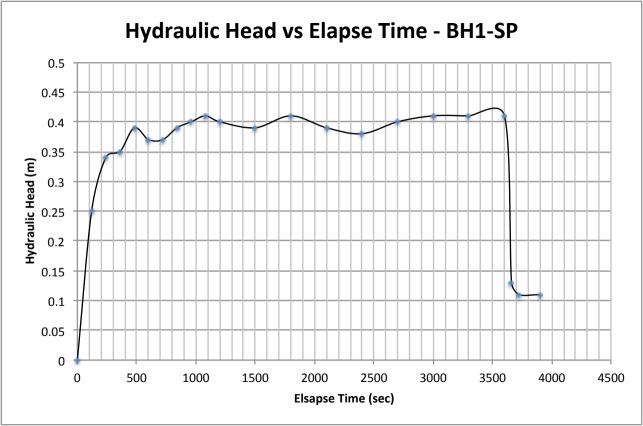




icate No. 007883

		Permeability		ole using Open Sys	stems		
Project		Newton Stev	according to IS	Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17/	/082
Test Method				Test No.	1	Date	23.04.18
Drilling Method		Rotary Ope	en Hole	Static			
				Hydraulic	3.50		
				Head (m)			
Borehole No.	BH1-SP	Easting (m)	241242.675	Northing (m)	565144.772	Elevation	9.238
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	3.00	Lower level (m)	13.00	Length (m)	10.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	2.81	0.25	0.25				
240	2.81	0.34	0.09				
360	2.81	0.35	0.01				
480	2.81	0.39	0.04				
600	2.81	0.37	-0.02				
720	2.81	0.37	0				
840	2.81	0.39	0.02				
960	2.81	0.4	0.01				
1080	2.81	0.41	0.01				
1200	2.81	0.4	-0.01				
1500	2.81	0.39	-0.01				
1800	2.81	0.41	0.02				
2100	2.81	0.39	-0.02				
2400	2.81	0.38	-0.01				
2700	2.81	0.4	0.02				
3000	2.81	0.41	0.01				
3300	2.81	0.41	0				

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	3600	2.81	0.41	0			
	3660		0.13	-0.28			
	3720		0.11	-0.02			
	3900		0.11	0			





cate No. 642







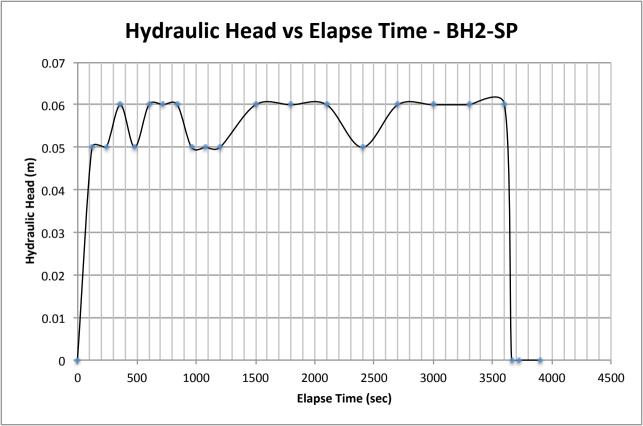




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		Pormoability	Tost in a Boroh	ole using Open Sys	stoms		
		remeability	according to IS		stems		
Project		Newton Stewart FPS		Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	24.04.18
Drilling Method	1	Rotary Ope	en Hole	Static			
				Hydraulic	1.60		
				Head (m)			
Borehole No.	BH2-SP	Easting (m)	241297.315	Northing (m)	565148.683	Elevation	7.561
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	10.00	Length (m)	9.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	4.25	0.05	0.05				
240	4.25	0.05	0				
360	4.25	0.06	0.01				
480	4.25	0.05	-0.01				
600	4.25	0.06	0.01				
720	4.25	0.06	0				
840	4.25	0.06	0				
960	4.25	0.05	-0.01				
1080	4.25	0.05	0				
1200	4.25	0.05	0				
1500	4.25	0.06	0.01				
1800	4.25	0.06	0				
2100	4.25	0.06	0				
2400	4.25	0.05	-0.01				
2700	4.25	0.06	0.01				
3000	4.25	0.06	0				
3300	4.25	0.06	0				

I	I		I	1	I	i	i
3600	4.25	0.06	0				
3660		0	-0.06				
3720		0	0				
3900		0	0				



APPENDIX VI

Photographic Records









CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH02A OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH02A OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH03 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH03 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH04 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH04 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH04 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH05 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH05 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH03 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH07 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH07 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH08 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH08 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH9 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH09 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH9 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH09 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH11 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH11 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH12 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH12 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH13 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH13 OP6











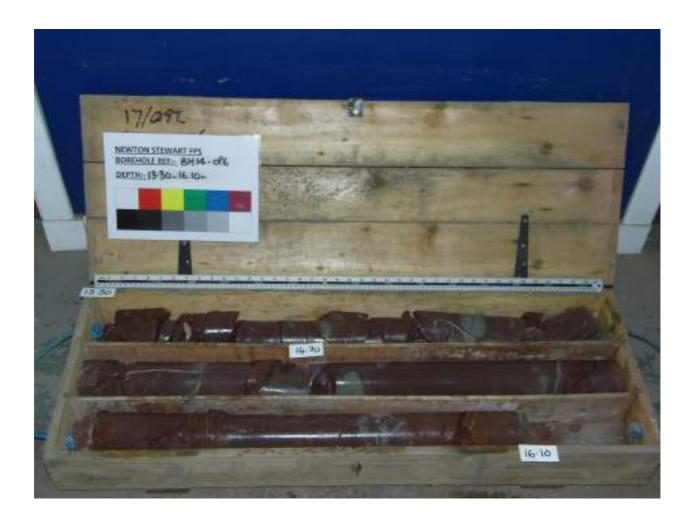




CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH14 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH14 OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH01 SP















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH01 SP















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH02 SP















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

BH02 SP















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP1-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP1-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP1-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP2-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP2-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP2-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP3-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP3-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP4-OP6











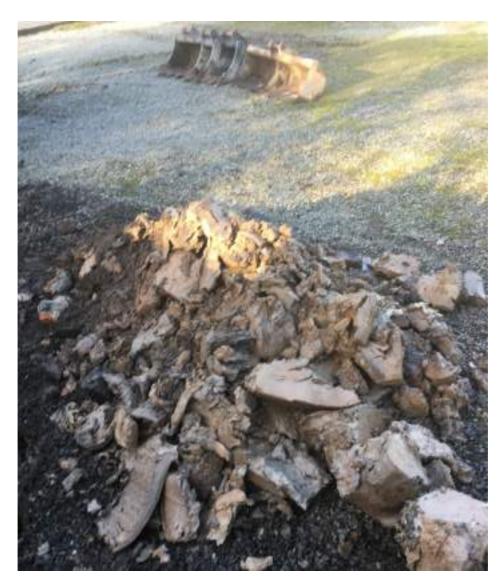




CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP4-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP11-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP13-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP13-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TW1-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TW1-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TW2-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TW2-OP6











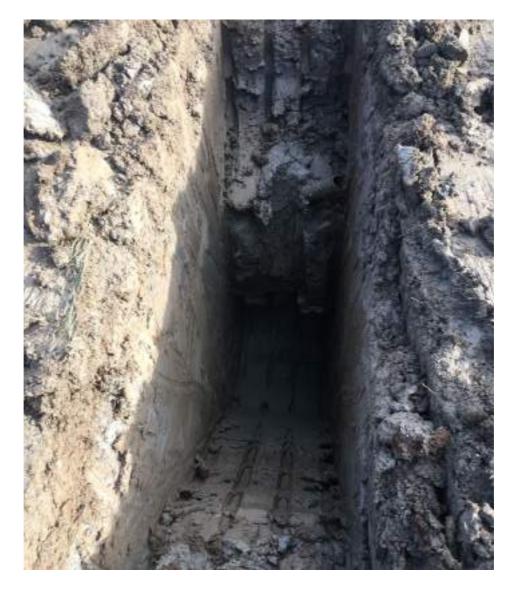




CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP1-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP1-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP1-OP7









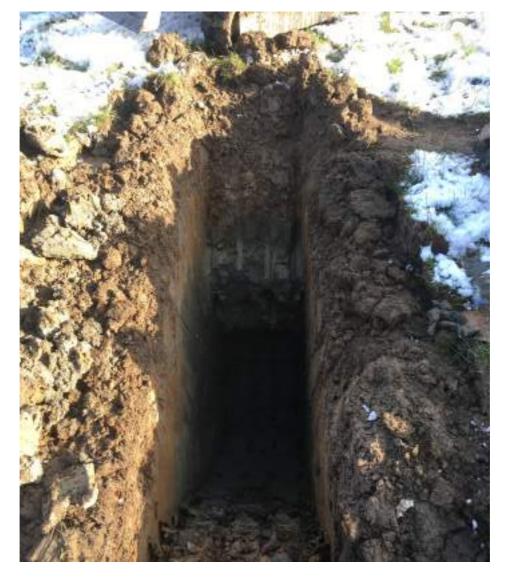






CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP3-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP3-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP4-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP4-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP5-OP7











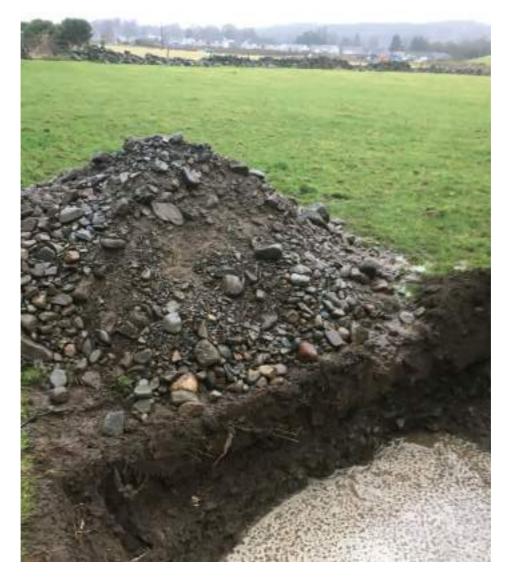




CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP5-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP6-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP6-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP8-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP8-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP9-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP9-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP9-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP10-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP10-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP10-OP7















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO









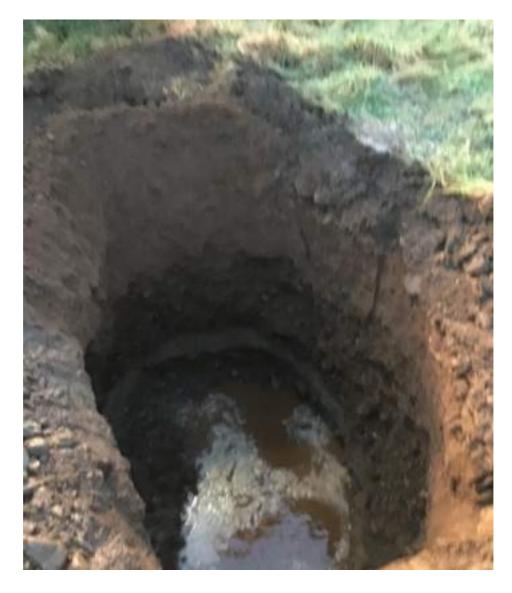






CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP3-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP3-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP4-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP4-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP5-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP5-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP6-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP6-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP6-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP7-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP10-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP10-OP24















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

TP10-OP24











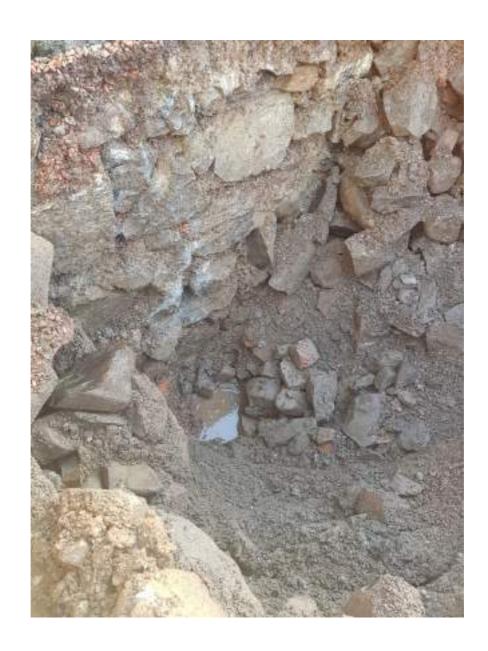




CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP1-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP1-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP2-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP2-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP2A-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP2A-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP3-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP4-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP4-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP4-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP5-OP6











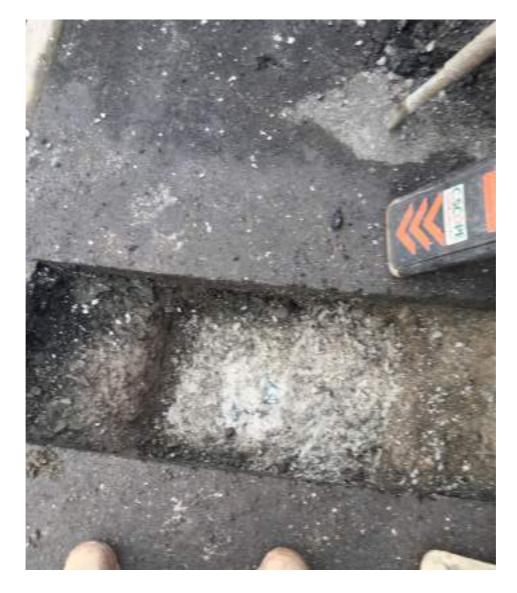




CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP5-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP6-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP7-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP8-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP10-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP11-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP11-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP12-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP12-OP6















CLIENT: Dumfries and Galloway Council

ENGINEER: SWECO

HP2-OP7







APPENDIX VII

SPT Hammer Energy Ratio Certificates



Holequest Ltd

Winston Road

Galashiels TD1 2DA

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: HQ01 0412

Test Date:

04/12/2017

Report Date:

19/04/2018

File Name:

HQ01 0412.spt

Test Operator:

Instrumented Rod Data

Diameter dr (mm):

54

Wall Thickness t_r (mm):

6.7

Assumed Modulus Ea (GPa): 208

Accelerometer No.1:

10334

Accelerometer No.2:

11794

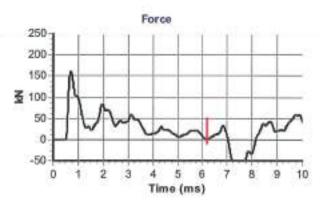
SPT Hammer Information

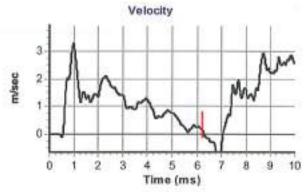
Hammer Mass m (kg):

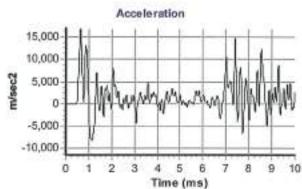
Falling Height h (mm): 760

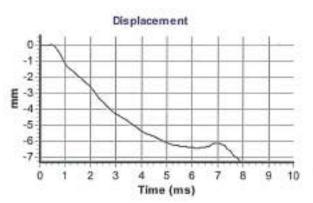
SPT String Length L (m): 16.3

Comments / Location









Calculations

Area of Rod A (mm2):

996

Theoretical Energy Etheor (J):

473 345

Measured Energy E_{meas} (3):

Signed: Fraser Murray

73

Title: Assistant Contracts Manager

Energy Ratio E, (%):



SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: HQ02 0412

Test Date: 04/12/2017

Report Date: 19/04/2018

File Name: HQ02 0412.spt

Test Operator: FM

Holequest Ltd Winston Road Galashiels TD1 2DA

Instrumented Rod Data

Diameter d_r (mm): 54 Wall Thickness t_r (mm): 6.7

Assumed Modulus Ea (GPa): 208

Accelerometer No.1:

10334

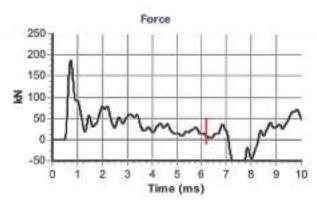
Accelerometer No.2:

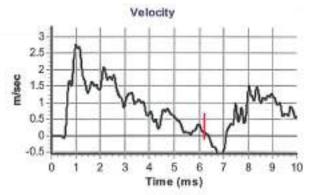
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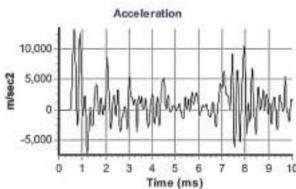
SPT Hammer Information

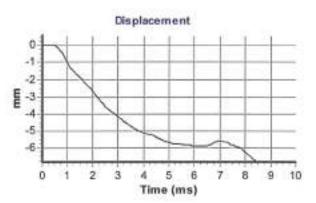
Hammer Mass m (kg): 63.5 Falling Height h (mm): 760 SPT String Length L (m): 16.3

Comments / Location









Calculations

Area of Rod A (mm2):

996

Theoretical Energy Etheor (J):

473

Measured Energy E_{meas} (J):

339

Energy Ratio E (%):

72

Signed: Fraser Murray

Title:

Assistant Contracts Manager



Holequest Ltd

Winston Road

Galashiels TD1 2DA

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: HQ03 0412

Test Date:

04/12/2017

Report Date:

19/04/2018

File Name:

HQ03 0412.spt

Test Operator:

Instrumented Rod Data

Diameter dr (mm):

54

Wall Thickness t_f (mm):

6.7

Assumed Modulus E_a (GPa): 208

Accelerometer No.1:

10334

Accelerometer No.2:

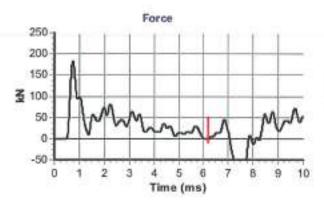
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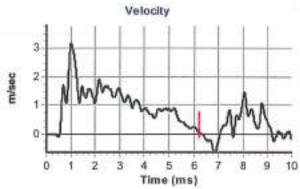
SPT Hammer Information

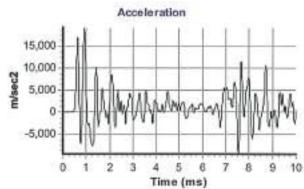
Hammer Mass m (kg): Falling Height h (mm): 760

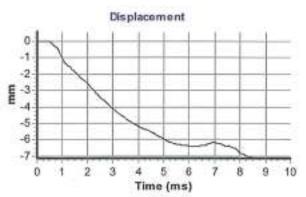
SPT String Length L (m): 16.3

Comments / Location









Calculations

Area of Rod A (mm2):

996

Theoretical Energy Etheor (J):

473

Measured Energy E_{meas} (J):

346

Energy Ratio E r (%):

73

Signed: Fraser Murray

Title:

Assistant Contracts Manager



Holeguest Ltd

Winston Road

Galashiels TD1 2DA

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: HQ04 0412

Test Date:

04/12/2017

Report Date:

19/04/2018

File Name:

HQ04 0412.spt

Test Operator:

Instrumented Rod Data

Diameter d_r (mm):

54

Wall Thickness t_r (mm):

6.7

Assumed Modulus Ea (GPa): 208

Accelerometer No.1: Accelerometer No.2: 10334 11794

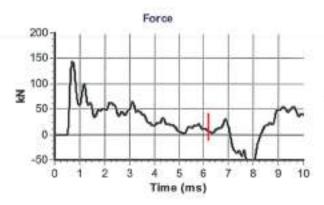
SPT Hammer Information

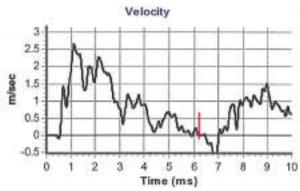
Hammer Mass m (kg): 63.5

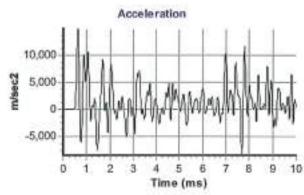
Falling Height h (mm): 760

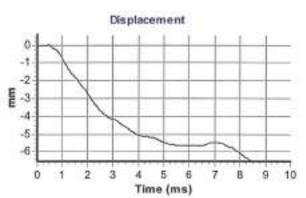
SPT String Length L (m): 16.3

Comments / Location









Calculations

Area of Rod A (mm2):

996

Theoretical Energy Etheor (J):

473

Measured Energy E_{meas} (J):

334

Energy Ratio E, (%):

71

Signed: Fraser Murray

Title:

Assistant Contracts Manager