

BALFOUR BEATTY

PROPOSED CAMBUSHINNIE 400Kv SUBSTATION HAUL ROAD, CAMBUSHINNIE PERTH AND KINROSS

REPORT ON GROUND INVESTIGATION

Client: Contract Number: 26786

Balfour Beatty

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Maxim Office Park

Parklands Avenue

Eurocentral

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Date of Issue: 13 December 2024

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PROPOSED CAMBUSHINNIE 400Kv SUBSTATION HAUL ROAD, CAMBUSHINNIE PERTH AND KINROSS

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Checked & Approved:		
FM Raeburn	Chief Engineer	13 December 2024

For and on Behalf of Raeburn Drilling and Geotechnical Limited Trading as Igne

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APPENDIX E: ARCHAEOLOGICAL CLERK OF WORKS REPORT

Guard Archaeology Report Ref. 6660

Socotec Test Report - 24112027



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REPORT ON GROUND INVESTIGATION

Contract No. 26762

13 December 2024

1. INTRODUCTION

It is proposed to construct a new 400kV substation at Cambushinnie, immediately west of the existing Braco 275kV substation. Associated with the development is a haul road between Easter Feddal and the A822, via the B8033. On the instructions of Balfour Beatty and to the specification of the Designer WSP, an investigation was carried out to provide information on the ground conditions for design and construction of the proposed works and in relation to any geochemical contamination of the site. A factual report only was requested.

The comments given in this report and any opinions expressed therein are based on the ground conditions encountered during the site work, on the results of any in-situ or laboratory testing and any professional third party input. Whilst every effort has been made to ensure the accuracy of the data supplied and any analysis or interpretation derived from it, the possibility exists of variations in the ground, groundwater and ground gas conditions around, below and between the extent of the exploratory positions. No liability can be accepted for any such variations in these conditions. Furthermore, any recommendations are specific to the development as detailed in this Report and no liability will be accepted should they be used for the design of alternative schemes, by third parties, without prior consultation with Raeburn Drilling & Geotechnical Limited trading as Igne.



2. LOCATION OF SITE

The site comprises a liner route between the A822 at approximate national grid reference NN836090 and Gamekeeper's Cottage at Easter Feddal (approximate National Grid reference NN824092).

A plan showing the approximate location of the site is given in Figure A1 in Appendix A.

3. GROUND INVESTIGATION

3.1 Site Work

The site work was carried out during the period 15 to 25 October 2024, in accordance with the guidelines laid down in EN1997-2:2007 (Ref. 1), BS5930 (Ref. 2), BS10175 (Ref. 3) and in-house procedures. The results of the site work are given in Appendix B.

Two boreholes (Nos. BH01 and BH02) were sunk by rota-sonic and core drilling methods and a further seven (Nos. WS01 to WS07) were undertaken using continuous percussion boring. In addition, twenty-two trial pits (Nos. TP01 to TP22) were excavated by machine. Lastly, four pavement cores were undertaken where the route crossed tarmacked roads. All of the positions are shown on the site plan (Fig. A2 in Appendix A). The depths of the boreholes and trial pits, the descriptions of the strata encountered and comments on the ground-water conditions are given in the borehole and trial pit records (Figs. B1 to B31). The positions and depths of the boreholes, trial pits and pavement cores were determined by the Designer and were set out on site by Raeburn Drilling & Geotechnical Limited trading as Igne, in conjunction with the Designer.

Disturbed and 100mm diameter tube samples were taken at the depths shown on the borehole and trial pit records and were despatched, together with the rock cores, to the depot at Hamilton for examination and storage. Geochemical soil samples were taken directly into tubs. Samples for volatiles analysis were taken into vials, filling the container completely such that no voids were present. Geochemical samples were stored on site and transported to the laboratory in coolboxes. Each sample was uniquely identified and a transmittal note system used throughout sample transfer.



Photographs were taken of the rock core, pavement cores and the trial pits, together with the associated spoil heaps. A copy is presented as Figures B32 to B81.

Standard (split-barrel sampler) penetration tests (Ref. 4) were made to assess the relative density of the materials encountered. The values of penetration resistance, given in the borehole records, are not corrected for energy ratio, or in any other way. The references to relative density under the heading "Description of Strata" in the borehole records are based on the field values of penetration resistance uncorrected for the effects of overburden pressure. Two sets of equipment were used for the tests and the Hammer Energy Test Reports are presented as Figures B82 and B83. The set that was used in each borehole is noted in the "Remarks" section of the borehole record.

Soakaway tests (Ref. 5) were undertaken in trial pits TP03, TP09, TP10, TP11, TP12 and TP15. The results will follow publication of this report.

Dynamic Cone Penetrometer (DCP) tests (Ref. ??) were undertaken adjacent to trial pits TP01 to TP12, TP16 to TP18 and TP20 to TP22. The results are given as Figures B84 to B102, in Appendix B, which include plots of cumulative blow count against depth and California bearing ratio (CBR) against depth.

To assess the shear strength of the soils, hand vane tests (Ref. 7) were carried out within the trial pits. The depth of the tests and the results are given on the trial pit records. However, it should be recognised that the theory behind the evaluation of vane test results assumes a smooth cylindrical failure surface. Due to the presence of gravel and indeed sand, this was not the case with most of these tests. As such, many of the results are likely to be erroneously high.

A nominal 50mm diameter perforated standpipe was installed in each of boreholes BH01, BH02 and WS01 to WS04, WS06 and WS07, details of which are given on the relevant records. Tests were subsequently carried out to determine the methane, carbon dioxide, carbon monoxide, hydrogen sulphide and oxygen contents of the gas in the standpipes. In addition, water level readings were taken in the instruments. The results of the monitoring are given in Figure B .



During the monitoring visit on 10 December 2024, the standpipes in boreholes BH01, WS01, WS02, WS03, WS04 and WS06 were purged of three well volumes. Thereafter, water samples were taken by bailer, before being transferred to one litre glass and plastic bottles. The water samples were delivered to the laboratory in coolboxes.

The ground levels and co-ordinates at the borehole and trial pit positions, given on the records, were determined using a Global Positioning System and are related to Ordnance Datum and the National Grid, respectively.

3.2 Laboratory Testing

A test schedule was forwarded by the Designer. The laboratory testing was carried out by Terra Tek Limited (trading as Igne) and Socotec Limited. Both hold UKAS Accreditation for the scheduled tests.

The geotechnical laboratory testing was carried out in accordance with the referenced testing procedures given below. The results are given in Appendix C and comprised the following:

Description of Test	Figures	Ref
Moisture Content Tests	C1 to C4	8
Liquid and Plastic Limit Tests	C5 to C15	8
Particle Size Distribution Tests	C16 to C52	8
Determination of Dry Density/Water Content Relationship	C53 to C56	9
California Bearing Ratio Tests	C57 to C61	9
Unconsolidated Undrained Single Stage Triaxial Compression Tests	C62 to C69	9
Point Load tests	C70	10
BRE Tests – Socotec Test Report – 24112491		11

In addition, chemical contamination testing was carried out on thirty-six samples of made ground/soil. As noted earlier, the analyses were undertaken by Socotec Limited and test reports 24111509 and 241122027 are presented in Appendix D.

The results of the groundwater sampling described above will follow publication of the draft report.



Finally, the works involving excavations were observed by an Archaeological Clerk of Works (ACoW) and the report from the ACoW is given in Appendix E.

Principal Geochemist

Chief Engineer

For and on Behalf of Raeburn Drilling and Geotechnical Limited Trading as Igne Ground Investigation Department Hamilton

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- (1) BS EN 1997-2. Eurocode 7 : Geotechnical design Part 2 : Design assisted by laboratory testing. 2007.
- (2) BS5930:2015+A1:2020: Code of Practice for Ground Investigations, British Standards Institution, 2020.
- (3) BS10175: Code of Practice for the Investigation of Potentially Contaminated Sites, British Standards Institution, 2011 + A1:2013.
- (4) BS EN ISO 22476-3: Geotechnical investigation and testing. Field testing. Standard penetration test, 2005.
- (5) BRE Digest 365. Soakaway Design. Building Research Establishment. Sept., 1991.
- (6) https://www.standardsforhighways.co.uk/dmrb
- (7) BS1377-7:1990 Methods of test for soils for civil engineering purposes shear strength tests (total stress)
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- (11) BRE Special Digest 1. Concrete in Aggressive Ground. Building Research Establishment. 2005.

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w igne	Client: Balfour Beatty
	Engineer: Balfour Beatty

Contract No: 26762

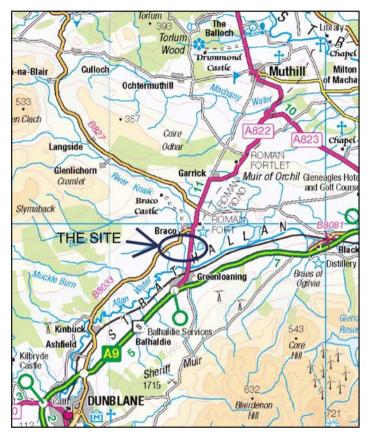


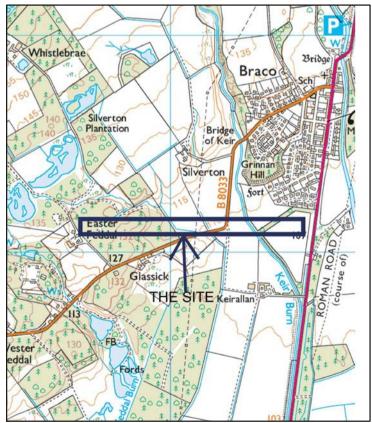
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RDG LOCATION PLAN File: P.\GINTWPROJECTS\26762.GPJ Printed: 12/12/2024 16:55:59 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

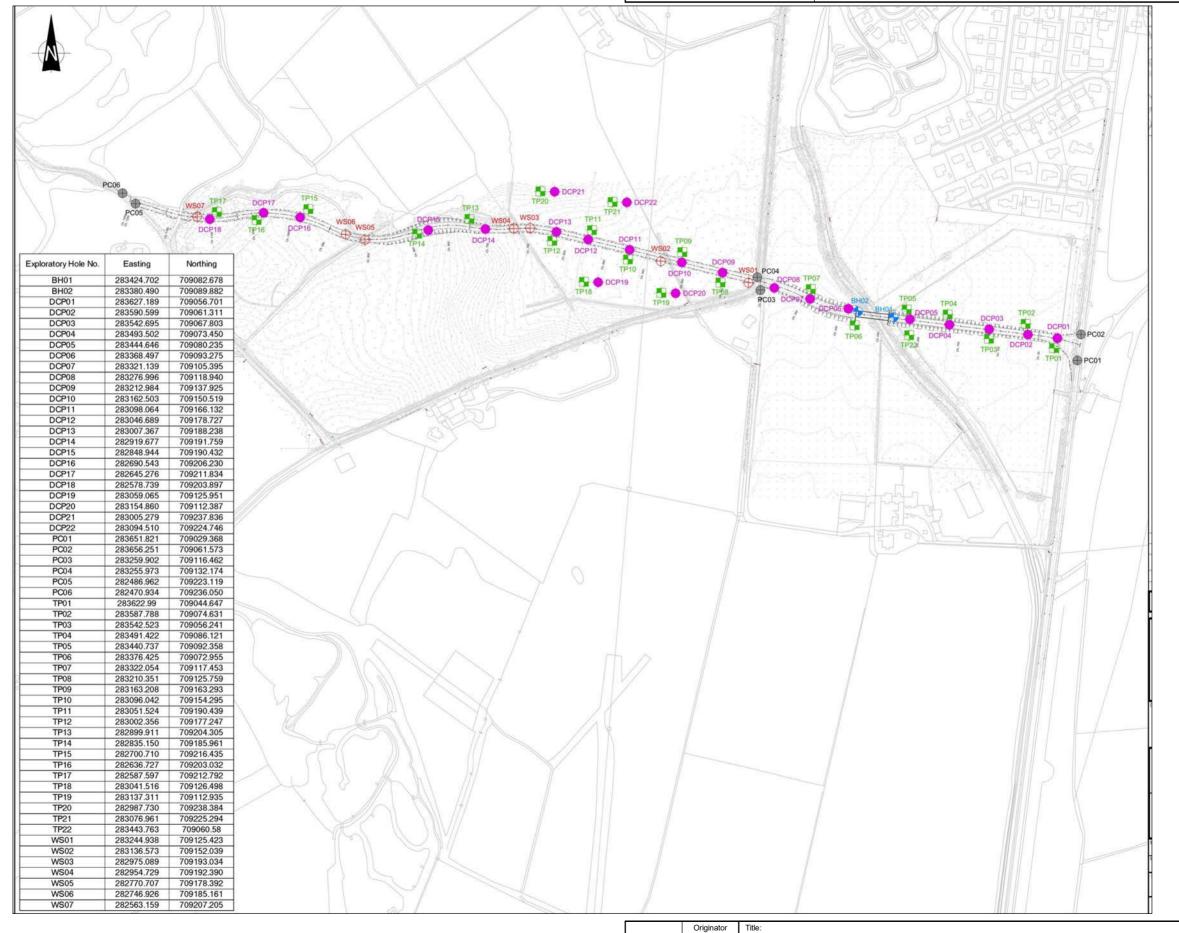
LOCATION PLAN



Fig No:

Contract No: 26762

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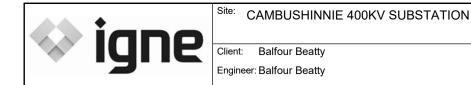


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SITE PLAN



A2



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APPENDIX B SITE WORKS



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Contract No: 26762

Client: Balfour Beatty
Engineer: Balfour Beatty

Boring

The standard method of boring in soil for ground investigation is known as the cable tool method. It uses various tools worked on a wire cable, typically a shell in non-cohesive soils such as sand and gravel, and a clay cutter in cohesive soils such as clay. Very dense soils, boulders or other hard obstructions are disturbed or broken up by chiselling and the fragments removed with the shell. Where the ground conditions require, the borehole is lined with driven steel casings of such sizes that the bottom of the borehole is not less than 125mm diameter.

Where there are constraints upon access, alternative methods of soft ground boring are available. However, each has limitations that need to be taken into account when assessing their suitability and the ground conditions inferred from their results.

Rotary Drilling

Rotary drilling is employed to extend ground investigation beyond the practical limit of cable tool boring in hard formations, commonly rock. Core drilling is used to obtain continuous intact samples of the formation and is generally undertaken with double tube swivel type core barrels fitted with tungsten or diamond bits as appropriate to formation type and hardness. Open-hole rotary drilling using tricone rock roller bits or tungsten insert drag bits, or down-the-hole hammers, is carried out where more limited information is sufficient, strata identification being made from cuttings only. Open-hole rotary drilling methods may also be employed for fast penetration of soils where detailed sampling is not required, prior to coring at depth. Air or water is the flushing medium normally used with rotary drilling methods. Where the ground conditions require, the borehole is lined with inserted or drilled-in casing. Rotary percussion allows dynamic sampling within soils.

Sonic Drilling

Sonic drilling is employed as an alternative boring method for soft ground and rock. The sonic rig operates much like any conventional top-drive rotary rig. The main difference is that a sonic drill rig has a specially designed hydraulically powered drill head or oscillator which produces adjustable high frequency vibratory forces. Sonic samples are extruded direct to plastic liner bags or semi-rigid plastic liners for rapid inspection. Bulk and small disturbed samples are then taken from the plastic liner bags.

Trial Pits

Trial pits are excavated by hand or machine for a number of purposes such as avoiding services, exposing foundations or obtaining a better view of shallow ground conditions.

Samples and In-situ Tests

Tube samples of cohesive soils are generally taken with a 100mm internal diameter open drive sampler known as a U100, with an area ratio of 30%. The sampler is driven into the soil at the bottom of the borehole by a sliding hammer. After a sample is taken, the drive head and cutting shoe are unscrewed from the sample tube and any wet or disturbed soil removed from either end. The sample tube is then sealed with wax and fitted with plastic end caps.

A range of more specialised equipment, e.g. thin walled open drive sampler (UT100), piston or foil samplers, may be used to obtain higher quality samples in conditions where conventional open drive sampling is impracticable or unsatisfactory. The UT100 sampler is specifically utilised to obtain class 1 samples of cohesive soils as required under BS EN1997-2.

Disturbed samples are taken from the boring tools or trial pits at regular intervals. The samples are sealed in airtight containers. Bulk samples are large disturbed samples from the boring tools, or from trial pits, generally where tube samples are unavailable.

The Standard Penetration Test, SPT, in accordance with BS EN ISO 22476-3, determines the resistance of soil to the penetration of a split barrel sampler. A 50mm diameter split barrel sampler is driven 450mm into the soil using a 63.5kg hammer with a 760mm drop, and the penetration resistance, the "N" value, is expressed as the number of blows required to achieve 300mm penetration below an initial penetration of 150mm, the seating drive, through any disturbed soil at the bottom of the borehole.

In coarse soils, the Cone Penetration Test (CPT) is conducted in the same manner as the SPT but using a 50mm diameter 60 degree apex solid cone point to replace the split barrel sampler.

Peat Probing

Generally, peat probing is carried out using a Mackintosh Probe. The probe is pushed through the peat until resistance is met then the depth at which this occurred is recorded.

Groundwater

Borehole water levels are recorded, together with the depths at which seepages or inflows of groundwater are detected and the observations noted on the borehole or trial pit records. These observations may not give an accurate indication of groundwater conditions, for the following reasons:

- (a) The trial pit or borehole is rarely left standing at the relevant depth for sufficient time for the water level to reach equilibrium.
- (b) A permeable stratum may have been sealed off by the borehole casing.
- (c) It may have been necessary to add water to the borehole to facilitate progress.
- (d) There may be seasonal, tidal or other effects at the site.

A more accurate record of groundwater behaviour may be obtained from standpipes or standpipe piezometers.

Gases

Determination and measurement of gases in the ground, commonly in relation to landfills, may be made directly from the ground surface, where a hole is formed by driving a solid and rigid steel spike to depths normally in the range 1.0 to 1.5m. Gas emissions are analysed using an appropriate portable analyser. However, research has shown that the small sample hole size and smearing effects can give a false negative result.

Where more accurate or longer term measurement of emissions is required, gas monitoring standpipes are installed in boreholes.





Balfour Beatty

Engineer: Balfour Beatty

SOIL SAMPLES

U (X) General purpose tube sample; X No of blows to drive sampler

Client:

Piston Piston sample

NOTE: Tube samples are 100mm diameter unless otherwise specified in the remarks. Suffix 'a' indicates sample not recovered; suffix 'b' indicates full penetration of sampler not obtained;

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Nominal Diameter (mm)

Core

54

76

92

113

75

Borehole

76

100

121

146

108

Other casing and borehole diameter sizes are available and may be used where

suffix 'c' indicates full penetration of sampler but limited recovery

D/J/T/V Small Disturbed/Jar/Tub/Vial sample

B/LB Bag/Large Bag sample

UT (X) Thin walled push in sampler (type OS-T/W); X No of blows to drive sampler

ET Sample appropriate for geochemical analyses (tub)

CORE RECOVERY AND ROCK QUALITY

C Core Sample

TCR Total Core Recovery: The total core recovered expressed as a percentage of the core run length

SCR Solid Core Recovery: The core recovered as solid cylinders expressed as a percentage of the core run length

RQD Rock Quality Designation: The core recovered as solid cylinders of length 100mm or more expressed as a percentage of core run length.

RO-S/RO-R Rotary Open Hole Drilling through Soil / Rotary Open Hole Drilling through Rock
FI Fracture Index: The number of discontinuities expressed as fractures per metre

Flush "Depth" indicates depth down to which recorded "Returns" relate

NI Non Intact

NR No Recovery (assumed)

GROUND-WATER

W Water Sample

 ¥
 Ground-water encountered

 ¥
 Depth to which ground-water rose

 ¥
 Ground-water cut off by the casing

 WS
 Water Sample from Standpipe

IN SITU AND FIELD TESTS

SPT=X a/b (pen) Standard penetration test (split barrel sampler(SPT)or cone (CPT)); X is the penetration (N) value;

OFT=X a/b (pen) 'a' is blow/75mm for seating drive; 'b' is blows/75mm for test drive; (pen) is test drive penetration if less than 300mm.

CBR California bearing ratio test
MCV Moisture condition value test

K Permeability test
HP Hand penetrometer test

FV Field vane test

HV Hand vane test (I = Initial, R = Residual)

ID Density test

PID Photo Ionisation Detector (ppm)

LEGENDS

Material legends are in accordance with ISO 710-1 and 710-2 # before a description indicates that it is based on the Driller's record.

INSTALLATIONS (BACKFILL)

, <u>A</u>

Concrete



Bentonite



Snoil



Bentonite/cement grout



Sand



Solid pipe



Gravel



Slotted pipe



Porous element



Wooden plug



Asphalt

ROTARY DRILLING SIZES

Letter

Standard N

Н

Non-standard

412

required. Details will be on the individual BH logs.

DIMENSIONS

All dimensions in metres unless otherwise stated.



Client: Balfour Beatty

Engineer: Balfour Beatty

Contract No: 26762

BH01

Inspection Pit to Sonic Boring to Sonic Coring to

1.20m 17.70m 20.70m

Scale 1:50

Location:

FMR

Final

Orientation: Vertical

Equipment: Hand Tools, Track Mounted Boart Longyear LS250 Mini Sonic; T2-101 Core Barrel; Water Flush

Progress	Sar	nples		Те	ests	Casing	Level (mAOD)	Donth	Description of Strate	euc	Water		Back
2	Depth	Туре	Depth		Result	Depth	(MAOD)	⊅ebtu	Description of Strata	Legend	Depth	Symbol	D
10	0.00	WS B, D, ES						-	Dark brown sandy clayey TOPSOIL with frequent rootlets. Sand is fine to coarse			<u> </u>	
								0.50	Madium dance and dance byour plays, fine to ecouse CAND and fine				` c
								1	Medium dense and dense brown clayey fine to coarse SAND and fine to coarse subangular to rounded GRAVEL of various lithologies including sandstone, quartz and basalt with cobbles. Cobbles are subrounded and rounded of sandstone, quartz and basalt. Locally	, p			
	0.80	B, D, ES							subrounded and rounded of sandstone, quartz and basalt. Locally passing to sandy very silty gravel	. o		ĦĖ	1
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								-	Very soft and soft slightly gravelly slightly sandy CLAY of very low and low strength. Sand is fine to coarse. Gravel is fine to coarse subangula to rounded of various lithologies including sandstone, quartz and basa				
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10								- 0.50	Medium dense brown slightly gravelly very silty fine SAND. Gravel is fine subrounded and rounded gravel of sandstone and quartz	×		laН	
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	CT	JDI	ן טע						100 Water 1.20 20.70		31		



Client: Balfour Beatty

Engineer: Balfour Beatty

Contract No: 26762

BH01

Inspection Pit to Sonic Boring to Sonic Coring to

1.20m 17.70m 20.70m

Location:

Orientation: Vertical

Equipment: Hand Tools, Track Mounted Boart Longyear LS250 Mini Sonic; T2-101 Core Barrel; Water Flush

Progress	Sar	nples		Te	ests		Casino	Level (mAOD)	Denth	Description of Strata	Legend	Water Ba
7 50,	Depth	Туре	Depth		Resu	ılt	Depth	(IIIAOD)	Берш	Description of Strata	• • •	Depth Depth
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			13.20	SPT=17	<u>2.1 /3</u>	3.4.5. <u>5</u>	13.20		12.20 - - - - - -	Initially soft becoming stiff brown sandy CLAY of low to high strength with frequent thin bands of brown sand. Sand is fine	· · · · · · · · · · · · · · · · · · ·	
	14.70- 14.70	UT(27)		SPT>50	22/6	s.10.20.14	16.20		- - - - - - -			
			17.70	TCR	(240) SCR R				16.50 ⁻ 17.70 ⁻	Reddish brown fine and medium grained SANDSTONE recovered as sandy fine to coarse angular and subangular gravel with cobbles. Sand is fine and medium. Cobbles are subangular of sandstone Moderately weak locally extremely weak pinkish grey medium to coarse grained SANDSTONE with randomly orientated calcite veins. No clear evidence of weathering. Two fracture sets. No.1: Close to medium spaced, subhorizontal, with undulose rough joints, occasional clay infill. No.2: Widely spaced, 65° with undulose rough joints	× · · · · ·	
			19.20	150	150	7 64 10	2.7		- - - - - -	spaced, subhorizontal, with undulose rough joints, occasional clay infill. No.2: Widely spaced, 65° with undulose rough joints		
# Ar No Th	n inspec o ground	d-water o tration Te	as exca bservat	vated b ions are e carrie	y hand e record d out u	ded due ising Tr	to the us	I W	r flush.	led Chiselling Flush To From To hh:mm Returns Type From (m) To (m)	Hole Diam 150 101	. Boring C 17.70 20.70
	k & App FMR	Sta	atus nal							100 Water 1.20 20.70	S	31 heet 2 of 3 cale 1:50

Driller	Originator		Groun	d-water		Water	Added		Chiselling			FI	ush		
СТ	JDUD	Struck	Rose To	Time(min)	Cut Off	From	То	From	То	hh:mm	Returns	Type	From (m)	To (m)]
Ci	3000										100	Water	1.20	20.70	1
															1
Chk & App	Status	1													
FMR	Final														



	•
	Idne
-	19116

Balfour Beatty

Engineer: Balfour Beatty

BH01

Inspection Pit to Sonic Boring to Sonic Coring to

Contract No: 26762

1.20m 17.70m 20.70m

Location:

Orientation: Vertical

Client:

Equipment: Hand Tools, Track Mounted Boart Longyear LS250 Mini Sonic; T2-101 Core Barrel; Water Flush

ress	Sar	nples		Т	Tests			Casing	Level		D	pue	Water	Ba	ackfill
Rei # A N T	Depth	Туре	Depth		Re	sult		Depth	(mAOD)	Depth	Description of Strata	Legend	Depth	Symbol	Dept
			19.20				7			_					
										-					
23/10)							17.70		20.70			3.10m		20.
										-	END OF BOREHOLE				
										-					
										-					
										-					
										-					
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D -	marl:-:											Hole	Т Т	o Dep	oth
r.e. #	marks: Descrip	tion base	d on Dri	ller's lo	og.							Diam.	. Borin	g (Casi
A	n inspec o groun	tion base tion pit w d-water o tration Te	as exca bservati	vated l ons ar	by ha	nd to a	a dept due to	th of 1.2 the use	om to cle	ear serv er flush.	ices.	101	20.70	,	17.7
Т	ne Pene	tration Te	ests were	e carrie	ed ou	t usinç	g Trip	Hamme	r RD53.						
												ł			

Ground-water
Struck Rose To Time(min) Cut Off

Water Added From To

From

hh:mm

Returns

Style: BOREHOLE NEW

Driller

СТ

Chk & App

FMR

Originator

JDUD

Status

Final

				_
Flu	ısh			П
Type	From (m)	To (m)		ľ
Water	1.20	20.70		ı
				ı
			1	ı
			_	ı

Fig No:

В1 Sheet 3 of 3 Scale 1:50



Balfour Beatty

Engineer: Balfour Beatty

BH02

Inspection Pit to Sonic Boring to

Contract No: 26762

1.20m 17.70m

Location:

Orientation: Vertical

Client:

Equipment: Hand Tools, Track Mounted Boart Longyear LS250 Mini Sonic; Water Flush

ဒ္ဌ	C	mnles		Τ.	nete		Level	-		70		Bac	ckfil
Progress		nples	Donth	16	ests	Casing Depth	(mAOD)	Depth	Description of Strata	<u> </u>	Water Depth	l l	Dep
<u>آ</u> 4/10	Depth	Туре	Depth		Result	Борит		0.10	Dark brown sandy clayey TOPSOIL with frequent rootlets. Sand is fine	V///			<i>-</i> е
700 100 100 100 100 100 100 100 100 100	0.20	B, D, ES						-	to coarse Brown very sandy very silty fine to coarse subangular to rounded GRAVEL of various lithologies including sandstone, quartz and basalt with cobbles. Sand is fine to coarse. Cobbles are subrounded and rounded of sandstone, quartz and basalt. Locally silty	0 t 0 t			0.
	0.80	B, D, ES						-	rounded of saridstone, quartz and basait. Locally stity	D t			1.
	1.20	B, D, ES	1.20	SPT=42	4.8 /8.10.10.14	0.00		-	at 1.20m: Dense	. b			
								-		D t			
	2.20	ES						-	at 2.70m: Medium dense	ο. · · · · · · · · · · · · · · · · · · ·			
			2.70	SPT=23	1.4 /5.6.6.6	2.70		_	at 2.70m. Wedidin dense	p t			
	3.20	ES						- -		. b			
			4.00	SPT=15	3.3 /4.3.4.4	4.20		_		b t			
			4.20		<u> </u>	4.20		_		ρ t t			
								4.90 ⁻ -	Loose and medium dense locally loose brown silty fine SAND	· . b			
/10			5.70	SPT=7	1.2 /1.1.2.3	5.70		-		⊢ • • ⊢	2.30m		
								_			1.90m		
								-		·!			
	7.20	D UT(13)				7.20		-					
								_					
								-					
			8.70	SPT=11	<u>2.1 /1.2.3.5</u>	8.70		-					
								-					
200	narks:							-		Hole	Т Т	Depth	<u>1(</u>
# Ar No Th	Descrip n inspec o groun ne Pene	tration Te	as excav bservationsts sts were	rated bons are carrie	g. y hand to a dep recorded due to d out using Trip dpipe was instal	Hamme	r RD53.			Diam. 150 101	14.70 17.70) Ca	as
-	Driller CT	Origii JDI		Struck	Ground-wate Rose To Time(r			ater Add	ed Chiselling Flush To From To hh:mm Returns Type From (m) To (m) 100 Water 1.20 17.70	Fig No:			_
	k & App FMR	Sta Fir	tus nal								2 eet 1 o ale 1:50		

Driller	Originator		Groun	d-water		Water	Added		Chiselling			Fl	ush		
СТ	JDUD	Struck	Rose To	Time(min)	Cut Off	From	То	From	То	hh:mm	Returns	Type	From (m)	To (m)	
Ci	3000										100	Water	1.20	17.70	
															1
Chk & App	Status	1													1
FMR	Final														
. ' ''''`	I IIIai														



Client: Engineer: Balfour Beatty

Balfour Beatty

BH02 Inspection Pit to Sonic Boring to

Contract No: 26762

1.20m 17.70m

Location:

Orientation: Vertical

Equipment: Hand Tools, Track Mounted Boart Longyear LS250 Mini Sonic; Water Flush

12.13 (100)/36.1- (115) 7.14 /18.22.10 (180)	10.20	(mAOD)	10.50 ⁻	Description of Strata Brown fine to coarse SAND and fine to coarse subangular to rounded GRAVEL of sandstone, quartz and basalt with cobbles. Cobbles are subangular to rounded of sandstone and basalt	0 . 0 . 0 . 0 1 	Depth	Symbol
7.14 /18.22.10			- - -	Brown fine to coarse SAND and fine to coarse subangular to rounded GRAVEL of sandstone, quartz and basalt with cobbles. Cobbles are subangular to rounded of sandstone and basalt			
7.14 /18.22.10	4 11.70		- - -	Brown fine to coarse SAND and fine to coarse subangular to rounded GRAVEL of sandstone, quartz and basalt with cobbles. Cobbles are subangular to rounded of sandstone and basalt			
7.14 /18.22.10	4 11.70		- - - - 11.70	GRAVEL of sandstone, quartz and basalt with cobbles. Cobbles are subangular to rounded of sandstone and basalt		-	
7.14 /18.22.10	4 11.70		11.70		. p. t		
7.14 /18.22.10	4 11.70		11.70		. 0.	Ē	\equiv
7.14 /18.22.10	11.70		11.70		64	L	
7.14 /18.22.10	11.70		11.70			-	\equiv
7.14 /18.22.10				Firm brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to rounded of sandstone, quartz and basalt			\equiv
			_	is line to coarse subangular to rounded or sandstone, quartz and basait		Ē	\equiv
			_		<u>•</u> •	Ė	=
						-	=
			_		-0		\equiv
			_		<u> </u>		\equiv
	13.20		_			Ė	=
			13.60	Reddish brown fine and medium grained SANDSTONE recovered as			=
			_	sandy fine to coarse angular and subangular gravel with cobbles and boulders. Sand is fine to coarse. Cobbles and boulders are angular and			\equiv
				subangular		Ē	\equiv
			_			Ė	\equiv
SCR RQD FI			14.70				\equiv
150 41				Moderately weak locally extremely weak pinkish grey medium grained SANDSTONE with randomly orientated calcite veins. Generally, no clear evidenceof weathering, except between 15.30m and 15.45m where the rock is weathered to residual clay and below 17.00m where the matrix is destructured. Two fracture sets. No.1: Close to medium			\equiv
>20)		_	where the rock is weathered to residual clay and below 17.00m where the matrix is destructured. Two fracture sets. No.1: Close to medium		Ė	\equiv
			_	spaced, subhorizontal, with undulose rough joints, occasional clay infill. No.2: Widely spaced, 65° with undulose rough joints			\equiv
			-			F	
7			_				\equiv
150 46			-				\equiv
			-		::::		\equiv
5			_				
	-		_		::::		\equiv
>20	4		17.20	Medium strong pinkish grey BASALT with quartz inclusions. No clear		E	\equiv
2	44.70		17.70	Medium strong pinkish grey BASALT with quartz inclusions. No clear evidence of weathering. Two fracture sets. No.1: Medium spaced, subhorizontal, with undulose and rough joints. No.2: One fracture, 65°, with stepped and rough joints		1 00	
	14.70		-	END OF BOREHOLE	+ *-†	1.80m	
			-				
			_				
			_				
			-				
			_				
			_				
			-				
					Hole	Tc	Deptl
. -	.д. г	20 1			Diam.	. Boring	C
y nand to a dep recorded due t	to the us	e of wate	ar servi r flush.	ces.	101	17.70	
Jan. 10			10.00m.				
d out using Trip					<u> </u>		
d out using Trip Ipipe was insta				To From To hh:mm Returns Type From (m) To (m)	-		
d out using Trip dpipe was insta Ground-wate				100 Water 1.20 17.70			
d out using Trip dpipe was insta Ground-wate	l				ı Sh	neet 2 of	2
/	ecorded due out using Trippipe was insta	ecorded due to the us out using Trip Hamme pipe was installed to a Ground-water	ecorded due to the use of wate out using Trip Hammer RD53. pipe was installed to a depth of Ground-water W	ecorded due to the use of water flush. out using Trip Hammer RD53. pipe was installed to a depth of 10.00m. Ground-water Water Add	out using Trip Hammer RD53. pipe was installed to a depth of 10.00m. Ground-water Water Added Chiselling Flush	hand to a depth of 1.20m to clear services. ecorded due to the use of water flush. out using Trip Hammer RD53. sipe was installed to a depth of 10.00m. Ground-water Water Added Chiselling Flush Rose To Time(min) Cut Off From To From To hh:mm Returns Type From (m) To (m) Eight No. Ei	hand to a depth of 1.20m to clear services. ecorded due to the use of water flush. out using Trip Hammer RD53. sipe was installed to a depth of 10.00m. Ground-water Water Added Chiselling Flush Rose To Time(min) Cut Off From To From To hh:mm Returns Type From (m) To (m)

Driller	Originator		Groun	d-water		Water	Added		Chiselling			Flu	ush		
CT	JDUD	Struck	Rose To	Time(min)	Cut Off	From	To	From	To	hh:mm	Returns	Type	From (m)	To (m)	1
CI	3000										100	Water	1.20	17.70	1
														1	1
Chk & App	Status	1												1	1
FMR	Final													1	
	i iiiai													1	1
														1 '	1



Client: Balfour Beatty

Engineer: Balfour Beatty

Contract No: 26762

WS01

Inspection Pit to WLS to

1.20m 4.65m

Location:

Orientation: Vertical

Equipment: Hand Tools, Track Mounted Boart Longyear LS250 Mini Sonic; Water flush

gres		mples	 	Те	ests	Casing	Level (mAOD)	Depth	Description of Strata	Legend	Water		ackf
<u>a</u>	Depth	Туре	Depth		Result	Depth		- - ***			Depth	Symbol	De
5/10 024	0.00 0.20	B, WS B, ES						0.25 -	Dark brown sandy TOPSOIL with frequent rootlets. Sand is fine to coarse				0.
									Medium dense reddish brown gravelly silty fine to coarse SAND. Gravel is fine to coarse subangular to rounded of various lithologies including sandstone, quartz and basalt. Passing to very sandy silty gravel	٥٠٠			0.
	0.50	D						-	sandstone, quartz and basalt. Passing to very sandy silty gravel towards base.	· · · · · · ·		PH.	
	0.80	B, ES						-		ρ			
	1.00	D 50		CDT-44	40/0000					٠ . ١			
	1.20 1.20- 2.20	D, ES UL(262)	1.20	SPT=14	1.3 /3.2.3.6	2.20		-					
	2.20							1.65 -	Madian dans and link harman links about for the control of the	ļ. · . · .			
								-	Medium dense reddish brown slightly clayey fine to coarse SAND and fine to coarse subangular to rounded GRAVEL of various lithologies including sandstone, quartz and basalt with cobbles. Cobbles are surrounded and rounded of sandstone and basalt	0			
		D, ES						_	surrounded and rounded of sandstone and basalt	0	Y		
	2.20 2.20-	D UL(201)	2.20	SPT=37	6.9 /12.12.7.6	2.20				0			
	3.20	, ,						_		0.0	<u> </u>		
								_				M.	ļ
	3.00	D, ES								0		H.	
5/10	3.20 3.20-	B, D UL(106)	3.20	SPT=33	10.8 /9.8.8.8	2.20		-		0		0	
	4.20	JE(100)								p t		0	
										0 0		٥	·
										ο.		0	,
	4.20	D	4.20	SPT=14	4.3 /3.3.4.4	4.20		-		0		0	
										0		0	١.
5/10						4.20	-	4.65 -	END OF BOREHOLE	- · · ·	2.10m	0	4
								_					
								_					
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								-					
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Rem	narks:	<u> </u>	I			1	I			Hole		Го De	
#[Descrip	tion base	d on Drill	er's log	ı. y hand to a de	nth of 1.2	Om to ala	ar cond	nec .	Diam 110			2.2
Gr	ound-w	ater was	encount	ered at	a depth of 2.5	0m.			JCS.				
Th	e borel	nole was t	erminate	ed at 4.0	d out using Trip 65m on an obs	struction.							
Α:	50mm (diameter p	perforate	d stand	dpipe was insta	alled to a	depth of	3.00m.					
	Oriller	Origin	nator		Ground-wat			ater Add		Fig N	0:		
	JW	JDI		Struck 2.50	2.05 5.0	00	Off Fro	m T	To From To hh:mm Returns Type From (m) To (m)				
Chi	k & App	Sta	tus	2.50 2.50	2.05 10. 2.05 15.	00 00					33 heet 1 d	of 1	
UII	√ α ∨hh	J	wo	2.50	2.05 20.		1	- 1		1 3	HEEL I (71 I	

ı																			
1	Driller	Originator		Grour	nd-water		Water	Added		Chiselling			Flu	ısh			Fig No:		
H	JW	JDUD	Struck	Rose To	Time(min)	Cut Off	From	To	From	To	hh:mm	Returns	Type	From (m)	To (m)		1 lg 110.		
	JVV	JDOD	2.50	2.05	5.00														
i			2.50	2.05	10.00												B3		
	Chk & App	Status	2.50 2.50	2.05 2.05	15.00 20.00											1	She	et 1 of 1	
١	FMR	Final	2.50	2.03	20.00												Scal	e 1:50	
٦																			



Site: CAMBUSHINNIE 400KV SUBSTATION

Equipment: Hand Tools, Yammar mouted terrier

Client: Balfour Beatty

Engineer: Balfour Beatty

Orientation: Vertical

1.20

Final

FMR

1.00

20.00

Contract No: 26762

WS02

Inspection Pit to WLS to

1.20m 5.00m

Scale 1:50

Backfill Progress Level E-mail: enquiries.raeburndrilling@igne.com Samples Tests Water Legen Casino mAOD Description of Strata Depth Depth Depth Depth Type Depth Result Depth Dark brown sandy TOPSOIL with frequent rootlets. Sand is fine to 0.20 0.20 ES 0.45 0.50 0.45 0.50 Medium dense brown very gravelly silty fine to coarse SAND with cobbles. Gravel is fine to coarse subangular to rounded of various lithologies including sandstone, quartz and basalt. Cobbles are subangular to rounded of sandstone, quartz and basalt B, ES Ö 0.80 D 1.00 Ō 1.20 1.20-2.20 B, D, ES UL(301) 6.7 /8.10.7.7 1.20 1.20 1.65 Printed: 13/12/2024 10:00:51 Raeburn Drilling and Geotechnical trading as IGNE, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 Medium dense reddish brown fine to coarse SAND and fine to coarse subangular to rounded GRAVEL of various lithologies including sandstone, quartz and basalt with cobbles. Cobbles are subangular and subrounded of sandstone and quartz . °. 2.00 D, ES . o. 5.3 /4.3.3.5 2 20 2.20 ŪL(266) . b. 3.00 D ٥. D UL(227) PT=10 2.2 /3.2.2.3 3.20 3.20 PT=14 1.1 /2.3.4.5 4.20 D UL(85) 4.20 ٥. 4.65 . b. 5.00 0.90m 5.00 4.20 END OF BOREHOLE P:\GINTW\PROJECTS\26762.GPJ+44 (0)1698 710999 Hole To Depth Remarks: Diam. Boring Casing # Description based on Driller's log. An inspection pit was excavated by hand to a depth of 1.20m to clear services. 5.00 Ground-water was encountered at a depth of 1.20m.
The Penetration Tests were carried out using Trip Hammer TERR22.
A 50mm diameter perforated standpipe was installed to a depth of 4.65m. File: Style: BOREHOLE NEW Flush e From (m) To (m) Water Added rom To Ground-water Fig No: Driller Originator Struck Rose To Time(min) Cut Off From hh:mm Returns Туре JDUD JW 1.20 1.20 1.20 1.00 1.00 1.00 5.00 10.00 15.00 1.00 B4 Chk & App Status Sheet 1 of 1

iane
igne

Site: CAMBUSHINNIE 400KV SUBSTATION

Equipment: Hand Tools, Yammar mouted terrier

Client: Balfour Beatty

Engineer: Balfour Beatty

Orientation: Vertical

Ground-water

Rose To Time(min)

5.00 10.00 15.00

20.00

1.00 1.00 0.80

0.75

Cut Off

From

From

hh:mm

Returns

Туре

Contract No: 26762

WS03

Inspection Pit to Percussion to

1.20m 3.50m

Backfill Progress Samples Tests Level E-mail: enquiries.raeburndrilling@igne.com Water Legen Casino mAOD Description of Strata Depth Depth Depth Result Depth Depth Depth Type Dark brown sandy TOPSOIL with frequent rootlets. Sand is fine to 0.10 16/10 2024 0.20 coarse 0.10 B ES Soft brown sandy CLAY. Sand is fine to coarse 0.50 0.50 B, D 0.75 B ES Dense and very dense reddish brown slightly gravelly silty fine to coarse SAND. Gravel is fine and medium occasionally coarse subangular to rounded of predominantly sandstone and rare quartz. Locally passing to very sandy silty gravel 0.75 0.80 ٥ 1.00 D 1.20 1.20-2.20 B, D, ES UL(409) 2.3 /6.18.15.17 0.00 o. 1.20 Printed: 13/12/2024 10:00:55 Raeburn Drilling and Geotechnical trading as IGNE, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 o. 2.00 D, ES ٥[.] . . B, D UL(460) 4.8 /12.7.4.4 3 20 2.20 PT=27 ٥. 3.00 D. ES o. 3.20 D PT>50 6.14 /20.30 (150) 3.20 3.20 3.50 3.20 3.50 3.00m END OF BOREHOLE P:\GINTW\PROJECTS\26762.GPJ+44 (0)1698 710999 Hole To Depth Remarks: # Description based on Driller's log.

An inspection pit was excavated by hand to a depth of 1.20m to clear services.

Ground-water was encountered at a depth of 1.20m.

The Penetration Tests were carried out using Trip Hammer TERR22.

The borehole was terminated 3.50m on an obstruction.

A 50mm diameter perforated standpipe was installed to a depth of 3.50m. Diam. Boring Casing 110 3.50 3.20 File:

Style: BOREHOLE NEW

Driller

JW

Chk & App

FMR

Originator

JDUD

Status

Final

Struck

1.20 1.20 1.20

1.20

Fig No:

Flush From (m) To (m)

B5 Sheet 1 of 1 Scale 1:50

	*
	IANO
	Iane
_	-2

E-mail: enquiries.raeburndrilling@igne.com

Printed: 13/12/2024 10:00:58 Raeburn Drilling and Geotechnical trading as IGNE, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177

Site: CAMBUSHINNIE 400KV SUBSTATION

Equipment: Hand Tools, Yammar mouted terrier

Client: Balfour Beatty

Engineer: Balfour Beatty

Orientation: Vertical

Contract No: 26762

WS04

Inspection Pit to Percussion to

1.20m 2.40m

Backfill Progress Level Samples Tests Water Legen Casino mAOD Description of Strata Depth Depth Depth Depth Depth Type Depth Result 17/10 2024 Dark brown sandy TOPSOIL with frequent rootlets 0.20 ES 0.40 0.40 0.50 Reddish brown very gravelly silty fine to coarse SAND. Gravel is fine to coarse subangular to rounded of various lithologies including sandstone, quartz and basalt 0.50 B D × B, ES 0.80 ە: .× 1.00 D 1.20 1.20 1.20-2.20 D, ES UL(89) 1.2 /1.3.3.1 1.20 Loose reddish brown fine to coarse SAND and fine to coarse subangular to rounded GRAVEL of various lithologies including sandstone, quartz and basalt 1.20 ٥. ٥. 2.00 2.00 Very dense reddish brown clayey fine to coarse SAND and fine to coarse angular and subangular GRAVEL of sandstone with cobbles. Cobbles are angular and subangular of sandstone 2.00 D. ES ٥. D 2.20 3.5 /10.12.28 2 20 2.20 PT>50 2.40 2.20m END OF BOREHOLE Hole To Depth Remarks: Boring Diam. Casing # Description based on Driller's log. An inspection pit was excavated by hand to a depth of 1.20m to clear services. 110 An inspection pit was excavated by haird to a depth of 1.20m to clear service from the rest was encountered at a depth of 1.10m.

The Penetration Tests were carried out using Trip Hammer TERR22.

The borehole was termianted at 2.40m on an obstruction.

A 50mm diameter perforated standpipe was installed to a depth of 2.40m.

Chiselling

hh:mm

Returns

From

P:\GINTW\PROJECTS\26762.GPJ+44 (0)1698 710999 File: Style: BOREHOLE NEW

Chk & App

FMR

Status

Final

Ground-water Driller Originator Struck Rose To Time(min) Cut Off From JDUD JW 1.10 1.10 1.10 0.90 0.90 0.90 5.00 10.00 15.00

0.90

20.00

1.10

Flu	ısh			F
Туре	From (m)	To (m)		ı · ·
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B6 Sheet 1 of 1 Scale 1:50

Fig No:

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Site: CAMBUSHINNIE 400KV SUBSTATION

Balfour Beatty

Engineer: Balfour Beatty

Client:

Contract No: 26762

WS05

Inspection Pit to WLS to

1.20m 2.80m

Orientation: Vertical Equipment: Hand Tools, Yammar mouted terrier Backfill Progress Level E-mail: enquiries.raeburndrilling@igne.com Samples Tests Legend Water Casino mAOD Description of Strata Depth Depth Depth Depth Depth Type Depth Result Dark brown sandy TOPSOIL with frequent rootlets. Sand is fine to 18/10 2024 0.20 ES 0.40 0.40 B, D Medium dense reddish brown gravelly fine to coarse SAND with cobbles. Gravel is fine to coarse subangular to rounded of various lithologies including sandstone, quartz and basalt. Cobbles are subangular and subrounded of sandstone 0.80 B, ES D 1.00 1.20 1.20-2.20 D, ES UL 4.6 /6.10.0.4 1.20 1.20 Printed: 13/12/2024 10:01:02 Raeburn Drilling and Geotechnical trading as IGNE, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 2.00 D. ES 2.20 Very dense reddish brown clayey fine to coarse SAND and fine to coarse angular and subangular GRAVEL of sandstone with cobbles. Cobbles are angular and subangular of sandstone

Soft reddish brown slightly gravelly sandy CLAY of low strength with cobbles. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded of sandstone and rare quartz. Cobbles are angular and subangular of sandstone

END OF BOREHOLE D UL 2.20 2.20-2.80 3.7 /12.12.8.8 2.20 2.20 2.40 2.80 2.80 0.40m 2.80 25 (0)/50 (0) 2.80 2.80 P:\GINTW\PROJECTS\26762.GPJ+44 (0)1698 710999 Hole To Depth Remarks: # Description based on Driller's log.

Description pit was excavated by hand to a depth of 1.20m to clear services.

Ground-water was encountered at a depth of 1.10m.

The borehole was terminated at 2.80m on an obstruction.

The Penetration Tests were carried out using Trip Hammer TERR22. Diam. Boring Casing

Water Added rom To

From

From

hh:mm

Returns

Туре

Ground-water

Rose To Time(min)

5.00 10.00 15.00

20.00

0.80 0.70 0.70

0.60

Cut Off

2.20

Flush From (m) To (m)

Fig No:

B7

Sheet 1 of 1

Scale 1:50

File: Style: BOREHOLE NEW

Driller

JW

Chk & App

FMR

Originator

JDUD

Status

Final

Struck

1.00 1.00 1.00

1.00



FMR

Final

Site: CAMBUSHINNIE 400KV SUBSTATION

Equipment: Hand Tools, Yammar mouted terrier

Client: Balfour Beatty

Engineer: Balfour Beatty

Orientation: Vertical

Contract No: 26762

WS06

Inspection Pit to WLS to

1.20m 3.55m

Scale 1:50

Backfill Progress Level E-mail: enquiries.raeburndrilling@igne.com Samples Tests Water Legen Casino mAOD Description of Strata Depth Depth Depth Depth Depth Type Depth Result Dark brown sandy TOPSOIL with frequent rootlets 18/10 2024 ES B 0.20 0.30 0.30 Medium dense reddish brown very gravelly silty fine to coarse SAND with cobbles. Gravel is fine to coarse subangular to rounded of various lithologies including sandstone, quartz and basalt. Cobbles are subangular and subrounded of sandstone 0.50 0.50 D 4 | | | | | | | | | | | | | | | | | 0.80 B, ES D 1.00 D, ES 1.20 3.4 /5.7.6.5 1.20 1.20 Ō 1.60 1.65 Printed: 13/12/2024 10:01:05 Raeburn Drilling and Geotechnical trading as IGNE, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 Firm reddish brown slightly gravelly sandy CLAY with cobbles. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded of sandstone and rare quartz. Cobbles are angular and subangular of 2.00 D. ES sandstone 2.20 D 6.11 /10.10.11.11 2.20 2.20 3 00 3.00 D. ES 3.20 D PT>50 9.10 /10.15.50 3.20 3.20 3.55 3.55 3.20 3.20m END OF BOREHOLE P:\GINTW\PROJECTS\26762.GPJ+44 (0)1698 710999 Hole To Depth Remarks: Diam. Boring Casing # Description based on Driller's log. An inspection pit was excavated by hand to a depth of 1.20m to clear services. 110 3.55 An inspection pit was excavated by haird to a depth of 1.20m. Ground-water was encountered at a depth of 1.00m. The Penetration Tests were carried out using Trip Hammer TERR22. The borehole was termianted at 3.55m on an obstruction. A 50mm diameter perforated standpipe was installed to a depth of 3.00m. File: Style: BOREHOLE NEW Ground-water Fig No: Driller Originator Struck Rose To Time(min) Cut Off From hh:mm Returns Туре From (m) To (m) From JDUD JW 1.00 1.00 1.00 0.80 0.75 0.70 5.00 10.00 15.00 **B8** Chk & App Status Sheet 1 of 1 1.00 0.65 20.00

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Site: CAMBUSHINNIE 400KV SUBSTATION

Balfour Beatty Client:

Engineer: Balfour Beatty

Orientation: Vertical

Equipment: Hand Tools, Yammar mouted terrier

WS07

Contract No: 26762

Inspection Pit to WLS to

1.20m 3.40m

Sheet 1 of 1

Scale 1:50

Progress Backfill Samples Tests Level E-mail: enquiries.raeburndrilling@igne.com Legend Water Casino mAOD Description of Strata Depth Depth Depth Result Depth Depth Depth Type Dark brown sandy TOPSOIL with frequent rootlets. Sand is fine to 18/10 2024 0.20 0.20 ES 0.40 0.50 B D Medium dense reddish brown very gravelly silty fine to coarse SAND with cobbles. Gravel is fine to coarse subangular to rounded of various lithologies including sandstone, quartz and basalt. Cobbles are subangular and subrounded of sandstone B, ES 0.80 D 1.00 D, ES UL 1.20 2.6 /4.4.6.6 1.20 Printed: 13/12/2024 10:01:09 Raeburn Drilling and Geotechnical trading as IGNE, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 2.00 D, ES PT=15 1.1 /2.3.5.5 2.20 2.20 ŨL(206) 1.15m 3.00 D. ES D UL(80) 3.20 3.20 3.40 3.20 3.40 3 40 3.00m 3.20 PT>50 25 (0)/50 (10) END OF BOREHOLE 3.40 P:\GINTW\PROJECTS\26762.GPJ+44 (0)1698 710999 Hole To Depth Remarks: # Description based on Driller's log.

An inspection pit was excavated by hand to a depth of 1.20m to clear services.

Ground-water was encountered at a depth of 1.00m.

The Penetration Tests were carried out using Trip Hammer TERR22.

The borehole was terminated at 3.40m due to an obstruction.

A 50mm diameter perforated standpipe was installed to a depth of 3.40m. Diam. Boring Casing File: Flush From (m) To (m) Fig No: Driller Originator Struck Rose To Time(min) Cut Off From hh:mm Returns Туре From JDUD JW 1.00 1.00 1.00 1.00 0.90 0.90 0.90 5.00 10.00 15.00 0.90 B9

Style: BOREHOLE NEW

Chk & App

FMR

Status

Final

0.90

20.00

		•					: CAI	MBUS	HINN	IE 400K\	/ SUBS	STAT	ION				Contrac		2676	2	
		Ì	g			01:		D 16	.								Trial Pit				
			יצ	ш		Clie		Balfour Balfour	-								Trial Pit to			2.4	40m
						Eng	jirieer. i	Dalloui	Беацу												
Loc	cation:			C	Orientatio	on: Ver	rtical		Equ	ipment: 8T	Tracked	Excav	ator								
Ŋ								Level									Width -		Length)m Backfill
Progress	Depth	mples Type	Depth	Tes	Result		Casing Depth	(mAOD)	Depth			Desc	ription of	Strata				Legend	Wate Depth	r 5	Dept
23/10 2024		.,,,,	3000		- 100 an		<u> </u>			Dark brown	gravelly	slightly o	layey fine	e to coars	se SAND	with low	cobble	1.1.7		<u></u>	8
2024	0.20	D, ES, LB							0.40	Dark brown content. Gr and mudst	one. Cobb	oles are	subangul	ar to rou	nded of n	nudstone	one .	9.0	1	\otimes	8
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										sandstone	and muds	stone						9.0		\otimes	×
	1.20	D, ES							_									30.8			8
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						Eng	gineer: I	Balfour	Beatty												. 10				,,,,,,
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(A)							1	I		ı										Width			_ength -		
Progress		mples	Donth		sts		Casing Depth	Level (mAOD)	Depth				Des	criptio	n of S	Strata) dec		Water Depth	Symbol	ackfill
3/10 024	Depth	Туре	Depth	1	Result		Берит			Dar	k brown	gravell	y slightly	clayey	y fine	to coa	rse S	AND v	vith me	edium	- - Joi		Берит	\$ ₩	Depth
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	0.50	D, ES							-	Ligh	nt bluish AVEL of	brown s	sandy sil	ty fine sandst	to co	arse si vith hiç	ubano gh col	gular t	o roun	ded . Sand is e and	8,0	9.X			
	4.00								-	mud	to coars dstone	se. Cob	bles are	suban	igular	to rou	naea	of sar	naston	e and	•) ;	0 °			
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ır	iai pit te	rminated	at a de	ptn of 1.	90m due	to grou	ınd-wat	er ingres	S.																
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Ch	k & App	Sta	atus																		>		811 neet 1	of 1	
	FMR		nal																				ale 1:		

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Progress	Depth	mples Type	Depth		Result		Casing Depth	(mAOD	Depth	n			Desc	ription of	Strata				Legend	Water Depth	Symbol	Depth
23/10 2024		D, ES,							0.65	-	ight brown ne to coars	slightly e subar	gravelly s igular to	slightly sil rounded	ty fine to of sands	coarse tone	SAND. Gr	avel is	3. 7. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.		Š W	
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	1.50	D, ES								-												
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''	pic to			, 51 2.0	auc	_ 5,00																
	Driller	Oria	inator			d-water			Vater Ad	dded		Chiselling				ush			Fig N	O:		
	•		JB	Struck	Rose To	Time(m	nin) Cut	Off Fr	om	То	From	То	hh:mm	Returns	Туре	From (m	To (m)			_{o.} 312		
	nk & App FMR		atus nal															H	s	heet 1 cale 1:		

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		_				Eng	jineer: I	Balfour	Beatty		Trial Pit to	1		3.00	0m
Loc	cation:				Orientatio	n. Ve	rtical		Fa	uipment: 8T Tracked Excavator	<u> </u>				
					0110111411					Appropriate of Transition Executation		4.50			
SS	Sa	mples		Te	sts			Level	Г		Width -		Length -	Ba	m ackfill
Progress	Depth	T	Depth		Result		Casing Depth	(mAOD	Depth	Description of Strata		Legend	Water Depth	Symbol	Dept
2024 2024 Progress		ļ ,,	<u> </u>							Dark brown gravelly slightly clayey fine to coarse SAND with med	ļium	John			<u> </u>
2024										Dark brown gravelly slightly clayey fine to coarse SAND with med cobble content. Gravel is fine to coarse subangular to rounded of sandstone and mudstone. Cobbles are subangular to rounded of mudstone	f	5. <u>0.</u> 9		***	
	0.50	D, ES, LB								· · · · · · · · · · · · · · · · · · ·)-//			
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									1.00	Light brown slightly gravelly silty fine to coarse SAND. Gravel is fi coarse angular to subrounded of sandstone and mudstone Light brown very sandy silty fine to coarse subangular to rounder	1	% · · · ×			
										Light brown very sandy silty fine to coarse subangular to rounder GRAVEL of mudstone and sandstone with high cobble content. Sine to coarse. Cobbles are subangular to rounded of sandstone	3and is and	· · ·			
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	Drillo-	0-:	ingtor	1	Groun	d-water		I V	Vater Ad	ded Chiselling Flush		Fig. N		\perp	
	Driller		inator JB	Struck	Rose To					To From To hh:mm Returns Type From (m) To (m)		Fig No			
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							: CAI	MBUS	HINN	IIE 400KV SUBSTATION	Contrac	t No: 💈	26762	2	
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						Eng	jineer: I	Balfour	Beatty		Trial Pit to	,		3.1	Эm
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											Width -	1.80m	Length -	2.50	m
Progress	Sa	mples		Te	sts		Casing	Level (mAOD)	Donth	Description of Strata		Legend	Water	Ва	ackfill
22/10 2024 2024	Depth	Туре	Depth	1	Result		Depth	(IIIAOD)	Deptil	•			Depth	Symbol	Dept
22/10 2024	0 1								_	Dark brown gravelly slightly clayey fine to coarse SAND with lov content. Gravel is fine to coarse subangular to rounded of sand and mudstone. Cobbles are subangular to rounded of mudston	v cobble stone	5.0.			
									-	and mudstone. Cobbles are subangular to rounded or mudston	E	.0.9			
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									0.95			9, 79			
									-	Light brown sandy slightly silty fine to coarse subangular to rour GRAVEL of mudstone and sandstone with high cobble content. fine to coarse. Cobbles are subangular to rounded of sandstone mudstone	e and	* 0 ×			
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	1.00	D, L3							-						
									-			3.6%			
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Ree T G T T															
\vdash	Driller	Orio	ginator	L	Ground				Vater Add			Fig N	0.		
	•	-	RJB	Struck	Rose To	Time(m	nin) Cut	Off Fro	om T	To	_		o. 314		
С	hk & App	St	atus										heet 1	of 1	
1	FMR	Fi	inal								1	S	cale 1:5	50	

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																			Width -	1.70m	Length	- 2.80)m
Progress	Sa	mples		Te	ests		Casing	Level (mAOD)	Denth				Desc	ription of	f Strata					Legend	Water		ackfill
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Tr	narks: ial pit C	AT scanr	ned prio	r to exca	vation to	check	for serv	ices.												Hole Diam			Casin
Th	ne walls	of the pit	t collaps	ed throu	a depth o	cavatio	on - side	walls col	lased.														
Tr	ial pit te	erminated	l at a de	pth of 2.	90m due	to side	ewall co	llapse an	d groun	nd-wat	ter ingress												
-	Driller		inator	Struck		nd-wate			Vater Ad	lded To	From	Chiselling To	hh:mm	Returns	Type	Flush	n (m)	To (m)		Fig N	o:		
_		\perp	JB			-,									7,53					F	315		
	k & App		atus																1	s	heet 1		
	FMR	Fi	nal																	S	cale 1:	50	

		•					: CAI	ИBUS	HINI	VIE 400K	V SUBS	STAT	ION				Contrac	ct No:	<u> 2676</u>	<u></u>	
	22	Ì															Trial Pi	t No.			
4			u		E	Clie	nt: [Balfour	Beatty	1							TP0	7			
		_				Eng	ineer: [Balfour	Beatty	1							Trial Pit to	0		2.5	50m
Loc	cation:			T	Orientatio	nr. Vei	tical		Fa	uipment: 8T	Tracked	Fycav	ator				-				
					0.10111411				-9	dipinioni. 01	rracitoa	<u> L</u> AGG.	ato:					4.00		0.00	
SS	Sa	mples		Te	sts			Level									Width -			_ В	m Backfill
Progress	Depth	ľ	Depth		Result		Casing Depth	(mAOD)	Depth	1		Desci	ription of	Strata				Legend	Wate Depth	1 2	Dept
<u>∩</u> 17/10		7.	<u> </u>							Light brow	n gravelly	slightly s	silty fine to	coarse	SAND wi	th mediu	m	₩. (A.) ×. (9.)		₩	× .
2024										Light brow cobble cor sandstone sandstone	and muds	el is fine stone. Co	to coars obbles ar	e angula e angula	to subro	ounded of	f f	×.09.			8
17/10 2024 Progress	0.50	B, D, ES							0.60			dy eilty f	ine to co	aree and	ılar to eu	hrounder	4	× × ·	i d	\otimes	×
										Light brow GRAVEL fine to coa	of mudstor	e and s es are a	andstone ngular ar	with low	cobble coular of s	ontent. S andstone	and is	. ·o.×			X
									-									%. °	:	\otimes	×
										_								% . °	:		×
	1.50	D, ES								-								%	d :	\otimes	×
																		%. °			8
																		œ٠. °		\otimes	8
17/10	0.50	D D F0							2.50	<u> </u>								&	2.30	m 💥	2.50
	2.50	B, D, ES								-		END	OF BOI	REHOLE							
									_												
										_											
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										-											
Re	marks:																	Hole	<u> </u>	To De	pth
Т	rial pit C	AT scanr							20									Diam	1. Bo	oring	Casing
T	he walls	of the pit	collaps	sed throu	ghout exc	cavatio	n - side	walls col	lased.	d-water ingres	ss.										
	PIL IC		a uc	۰.۵ ۱۰ ۱۰۰ ۲۰۰	- J.II GUE	5146	001	.apoo aili	_ groun	a.o. iligies											
	Duill -	0	in at - :		Group	d-water		1 14	Vater Ad	ded I	Chiselling		1	Flu	ısh		1	F			
l	Driller		inator RB	Struck 2.30	Rose To					To From	To	hh:mm	Returns		From (m)	To (m)	1	Fig N			
C	hk & App	Sta	atus																B16 Sheet 1	of 1	
	FMR		nal																cale 1		

						Site	: CAI	MBUS	HINN	IE 400KV SUBSTATION	Contrac	ot No:	2676	32	
		ì			6						Trial Pi	t No.			
			ч			Clie		Balfour	-		TP0				
						Eng	ineer: [Balfour	Beatty		Trial Pit to	,		2.2	20m
Loc	ation:			(Orientatio	n: Ver	tical		Equ	pment: 8T Tracked Excavator					
											Width -		Length		
17/10 2024	Sa	mples			sts		Casing	Level (mAOD)	Depth	Description of Strata		Legend	Water		ackfill
2 17/10	Depth	Туре	Depth		Result		Depth	Ì			oles	<u>9</u>	Depth	l lodmy8	Depth
2024	0.20	D, ES							-	Light brown gravelly slightly silty fine to coarse SAND with coblination of sandstone and subangular of sandstone mudstone. Cobbles are angular to subrounded of sandstone	and	×.05.		\otimes	X X
	0.50	LB							0.70			8. 8. 8 8. 8. 8			×
									-	Light brown very sandy silty fine to coarse angular to subrounc GRAVEL of mudstone and sandstone with medium cobble cor Sand is fine to coarse. Cobbles are angular and subangular of	led ntent.	% · · ·	•		×
	1.20	D, ES								sand is fine to coarse. Cobbles are angular and subangular of sandstone and mudstone		%. 0%			X
	1.20	D, LO							-			% «		\otimes	×
												% . · ·	L	\otimes	×
									_			%. °	¥ 		×
7/10	2.20	B, D, ES LB	,					1	2.20	END OF BOREHOLE		+	1.90r	n XXX	2.20
									-						
									-						
									_						
									-						
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									-						
									-						
									-						
	marks:						,					Hole Diam		To De	pth Casing
G	round-v	vater was	encoun	itered at	vation to c a depth of ghout exca	f 1.90r	n as ra	pid ingre					\top		
										-water ingress.					
	Driller	_	inator JB	Struck	Ground Rose To				/ater Add	Chiselling Flush Form To hh:mm Returns Type From (m) To (m	1)	Fig N	0:		
				1.90							43	1	317		
	nk & App FMR		atus nal										heet 1 cale 1		
		i i					1	1	1						

		ż					: CAI	MBUS	HINN	IE 400K\	/ SUB	SIAI	ION				Contract Trial Pit		2676	2_	
V	(4)		gı		6	Clie	nt: I	Balfour	Beatty								TP0				
	_	_	7	_		Eng	jineer: I	Balfour	Beatty								Trial Pit to	ı		2.2	20m
Loc	ation:			C	Orientatio	n: Ver	tical		Equ	ipment: 8T	Tracked	Excav	ator				_				
SS	Saı	nples		Tes	sts			Level									Width -		Length Water	В	ackfill
Progress	Depth	Туре	Depth		Result		Casing Depth	(mAOD)	Depth			Desc	ription of	Strata				Legend	Depth	1 2	Dept
18/10 2024	0.20	D, ES, LB							0.60	Light brown to coarse a											
	1.20	D, ES, LB							-	Light brown GRAVEL of Sand is fin sandstone	n very sar f sandsto e to coars	dy silty f ne and n e. Cobbl	ine to coa nudstone es are ar	arse ang with me igular to	ular to su dium cob subround	brounde bble conte ded of	d ent.	% · · · · · · · · · · · · · · · · · · ·			XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
18/10	2.20	D, ES, LB							2.20			— <u>— — — — — — — — — — — — — — — — — — </u>	O OF BOI	REHOLE				. ox	▼ 1.90r	n 💥	2.20
		LB																			
Ren	narks:								- - - - - - -									Hole		To De	
Tr Gi Tr	rial pit C round-v ne walls	ater was of the pit	ned prior to encounter collapsed at a depth	red at a throug	a depth o phout exc	f 1.90r avatio	m as ra n - side	pid ingres walls coll	ased.	l-water ingres	s.							Diam	i. Bo		Casing
	Driller	_	nator	Struck	Groun Rose To	d-water Time(m			/ater Add	ed From	Chiselling To	hh:mm	Returns	Fli Type	ush From (m)	To (m)	-	Fig N	0:		
	ık & App FMR	Sta	JB atus nal	1.90	1.030 10			5 110					. country	.,,,,,	, , sm (m)	, (III)		s	318 heet 1		

		_					: CA	MBUS	HIN	INIE	400KV	SUB	STAT	ION				(Contrac	t No: 2	2676	2	
4		ì	П		6													7	Trial Pit	No.			
			Ч			Clie		Balfour		•								<u> </u>	TP1(2.0	00m
						Eng	jineer:	Balfour	веа	щ													
Loc	ation:			'	Orientatio	on: Vei	rtical		E	quipn	nent: 8T 1	racked	l Excav	ator									
SS	Sai	nples	1	Te	ete			Level										١	Nidth -		Length	B)m Backfill
Progress	Depth	Type	Depth		Result		Casing Depth	(mAOD	Dep	th			Desc	ription of	Strata					Legend	Water Depth	r 💆	Depth
₾ 8/10 024											Dark greyish cobble conte andstone a	n brown s	slightly g	ravelly sil	ty fine to	coarse	SAND	with led of	ow	₩. (V.) ×. (V.)			*
										- r	andstone a nudstone	nd muds	stone. Co	obbles ar	e angula	r to sub	rounde	ed of		×. 9. 8.			×
	0.50	D, ES							0.6	F	Reddish bro	wn grave	elly sligh	tly silty fin	e to coa	rse SAI	ND with	low ed of		», ў. », ў.			×
	1.00	LB								- r	Reddish bro cobble conte sandstone. nudstone. L	Cobbles ocally pa	are angl assing to	ular to su very sar	brounde ndy silty (d of sar gravel	ndstone	and		3. 8. 9			×
																				\$. \$. \$			×
	1.50	D, ES								-										× × ×	¥	\bowtie	
8/10									2.0	0										× 2	1.90n	n 💥	2.00
										Ţ			ENI	O OF BOI	REHOLE								
										-													
										-													
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Don	narks:																			Hole		To De	pth
Tr	ial pit C				vation to				inflow											Diam			Casing
Th	ne walls	of the pit	collaps	ed throu	ghout exc 00m due	cavatio	n - side	ewalls col															
	Driller	Oriai	inator			d-water			Vater /			Chiselling				ush				Fig N	o:		
·			JB	Struck 1.70	Rose To	Time(m	nin) Cu	t Off Fr	om	То	From	То	hh:mm	Returns	Туре	From (ı	m) To ((m)			_{o.} 319		
	k & App		atus																		heet 1	of 1	
	FMR	Fi	nal																	S	cale 1:	.50	

		_					: CAl	MBUS	HINN	NIE 4	400KV	SUB	STAT	ION						Contrac	t No:	267	62)	
4		ì			6															Trial Pit					
			Ч			Clie		Balfour	•											TP1				1.90	lm
						Eng	jineer: I	Balfour	Beatty	'										marrica	,			1.50	
Loc	ation:			(Orientatio	on: Ver	rtical		Eq	uipme	ent: 8T 7	Гrаске	d Excav	/ator											
(A)								T		1										Width -		Leng	jth -		
Progress		nples	Donth	Te			Casing Depth	Level (mAOD)	Depth				Desc	ription o	f Strat	a					Legend	Wa De	- 1	l od	ckfill
8/10 2024	Depth	Туре	Depth		Result		Берит			Da	ırk greyisl	n brown	slightly g	ravelly s	ilty fine	e to co	oarse	SAND) with			1 00	Pui	₩	Depth
2024										of	ark greyish edium cob sandston ndstone	ble con e and m	tent. Gra udstone.	vel is fine Cobbles	e to co s are a	arse ingula	angula ar to si	ar to s ubroui	ubrou nded	inded of	9. 7. 2. 8. 9.			₩	
	0.50	D, ES							0.60			wn ver	aravelly	siltv fine	to coa	arse S	SAND	with h	iah co	obble	1^) 8.7	7		\bowtie	
										Co Co	eddish bro ntent. Gra obbles are	avel is fí angula	ně to coá r to subro	rse angu ounded o	ular to s of sand	subro Istone	unded and	d of sa mudst	andsto tone	one.	× 9.			₩	
	1.00	LB																			X 8.)		₩	
	1.50	D, ES																			× 8.			₩	
8/10		,							1.90												×. 6.	¥ 1.9	00m	₩	1.90
0/10								-	-				ENI	D OF BC	REHO	DLE						3- 1.3	20111	XXXX.	1.00
										-															
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										-															
	narks: ial nit C	AT scanr	ned prior	r to exca	vation to	check	for sen	rices													Hole Dian		To Boring	o Dep g (th Casing
Gı	round-v	ater was	encoun	itered at	a depth o	of 1.85	m as ra	pid ingre																	
					00m due																				
	Driller		inator JB	Struck	Groun Rose To	d-water Time(m			Vater Adom	ded To	From	Chiselling To	hh:mm	Returns	тур	Flusi e F	h rom (m	n) To	(m)		Fig N	lo:		,	
				1.85																43		B20			
	k & App FMR		atus nal																	1	1	heet cale			
					I		- 1							I	1				- 1		1 3	Jaic		-	

							: CAI	MBUS	HINN	ΝE	400KV	SUB	STAT	ION					Contra	ct No:	26	762	<u> </u>	
4		ì			6														Trial Pi	it No.				
			Ч			Clie		Balfour	_										TP1				2.20	Om.
						Eng	jineer: E	Balfour	Beatty	′									marrice				2.2	om
Loc	ation:			(Orientatio	on: Ver	tical		Eq	uipm	ent: 8T T	racked	Excav	ator										
w																			Width -		Len	gth -		
Progress		nples	Donth	Te			Casing Depth	Level (mAOD	Depth				Desc	ription of	Strata					Legend		ater epth	Symbol	ackfill
7/10	Depth	Туре	Depth		Result		Берш			D	ark greyish w cobble c	brown	slightly g	ravelly cl	ayey fin	ne to c	oarse	SAND	with) <i>ot.</i>		-pui	\ ₩₩	Depth
2024	0.20	D, ES, LB								lo sa	w cobble c andstone	ontent. (Gravel is	fine to c	oarse a	ıngula	r to su	bround	ded of	\$ <u>.0 .</u>	3		₩	
									0.60	R	eddish bro	wn grave	elly silty	fine to co	arse SA	AND v	vith me	edium	cobble	b '/ .	7		▓	
									_	C	eddish bro ontent. Gra obbles are	vel is fin angular	e to coa to subro	rse angu ounded o	lar to su f sands	ubrour tone	nded c	of sand	stone.	×.0.				
	1.20	D, ES								-										\$. 8. \$.) Ce		\bowtie	
																				\$. 8. \$. 8.			\bowtie	
																				×. &.	Q N			
8/10									2.20	1) Ø.		Dry	\bowtie	2.20
0/10	2.20	D, ES, LB								Τ-			ENI	OF BO	REHOL	Ē -						Diy		
										-														
										-														
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Rer	narks:																			Hol	le L	Т	o Dep	oth
Tr	ial pit C	AT scanr ater was			vation to	check	for serv	ices.												Dia	m.	Borin	g	Casing
Th	ne walls	of the pit	collaps	ed throu	ghout exc 20m due				lased.															
	•		·					·																
	Driller	Origi	inator			d-water			Vater Ad	ded		Chiselling				Flush				Fig 1	No.			
			JB	Struck	Rose To					То	From	То	hh:mm	Returns	Туре		m (m)	To (m)			ъ. В21	1		
	k & App		atus																			ı et 1 o	f 1	
	FMR	Fi	nal																	8	Scale	1:50	0	

							: CA	MBUS	MIH	IIE 400KV SUBSTATION	Contrac	t No: 2	26762	2	
	23	ì			6						Trial Pit	No.			
×			u		E	Clie	ent: I	Balfour	Beatty		TP1	3			
		_				Enç	gineer: l	Balfour	Beatty		Trial Pit to	1		3.2	0m
Loc	ation:			1	Orientatio	nr Ve	rtical		Fa	uipment: 8T Tracked Excavator	-				
									-9			4.00		0.50	
SS	Sa	mples		Te	sts			Level			Width -		Length - Water	В	m ackfill
Progress	Depth	T.	Depth		Result		Casing Depth	(mAOD	Depth	Description of Strata		Legend	Depth	Symbol	Dept
23/10 2024			1							Dark brown slightly gravelly slightly silty fine to coarse SAND. Grafine to coarse angular to subrounded of sandstone and mudston	avel is	,xo,			
2024										ille to coalse aliqual to subjourted of satistione and middston	5				
	0.50	D, ES, LB							0.70			×			
										Light brown very gravelly silty fine to coarse SAND with low cobb boulder content. Gravel is fine to coarse angular to subrounded of	le and of	3677 5.0.8		\bowtie	
									-	Light brown very gravelly silty fine to coarse SAND with low cobb boulder content. Gravel is fine to coarse angular to subrounded a sandstone and mudstone. Cobbles are subangular to round of sandstone and mudstone. Boulders are subangular to rounded a sandstone and mudstone up to 700mm	of	× 0.9			
										canadana ana maadana ap ta 700mm		×0.0		\bowtie	
	1.50	D, ES, LB										×0.7			
									_), (), ()		\bowtie	
												\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			
	2.50	D, ES,							2.40	Light brown very sandy very silty fine to coarse angular to subrou GRAVEL of mudstone and sandstone with low cobble and bould	ınded	9. · ·			
	2.50	LB LS,								GRAVEL of mudstone and sandstone with low cobble and bould content. Sand is fine to coarse. Cobbles are angular to subrounc sandstone. Boulders are angular and subangular of sandstone u	ed of	. · o.×			
									-	500mm	p to	%		\bowtie	
23/10)								3.20	END OF BOREHOLE		لانم أ	Dry	***	3.20
									-						
									-						
									-						
									-						
									-						
	narks:		1									Hole Diam		To Dep	pth Casing
G	round-v	vater was	not end	countered				ices.						.5	
					roughout 20m due 1			- possibl	e bedro	ck.					
	Driller	Oria	inator			d-wate			Vater Ad			Fig N	o:		
		1	JB	Struck	Rose To	Time(n	nin) Cut	Off Fr	om	To From To hh:mm Returns Type From (m) To (m)		-	322		
	nk & App	1	atus								4		heet 1 c	of 1	
	FMR	Fi	nal									S	cale 1:5	0	

		_				Site	CAI	MBUS	HIN	NIE	400K\	/ SUE	STAT	ION				Contra	ct No:	267	62		
	23	ì			6													Trial Pi	t No.				-
7	8		u		E	Clie	nt: I	Balfour	Beatt	Зу								TP1	4				
		_				Eng	ineer: [Balfour	Beatt	Зу								Trial Pit t	0			3.40	m
Loc	cation:				Orientation	n: Ver	tical		Fo	maiur	ent: 8T	Tracke	d Exca	ator				1					
										1								147: 111	0.00		0		
SSS	Sa	mples	Т	 Te	sts			Level										Width -		Wa	4	Ва	n ickfill
Øigne.com Progress	Depth	Туре	Depth	n	Result		Casing Depth	(mAOD	Dept	h			Desc	ription of	Strata				Legend	De	pth	Symbol	Depti
E-mail: enquiries.raeburnaniiing@igne.com 0577 Progress	0									Li	ght browr parse ang	gravelly	/ slightly s	silty fine to	coarse	SAND. C	Gravel is f	fine to	,×0,		×		
									0.40)											×	▓	
Laepr	0.50	D, ES, LB								- G	ght browr RAVEL o ne to coar oulders ai ocally pas	f sandsto se Cobl	one with I	ow cobble	e and bo	ulder cor ded of sa	itent. Sar andstone	nd is	. • ×			▓	
alles										- Bo	oulders ar ocally pas	re angula sing to s	ar and su ilty sand	bangular and grav	of sands el	tone up t	o 500mn	n.	% · · · ×		8	▓	
en c]									% . · ×	:	8	▓	
<u> </u>	4.50	D E0								-									% . · ·	:	×	▓	
	1.50	D, ES								1									% · · · · · · ·		×	▓	
7-06]									× .		8	▓	
										+									.o x	[8	▓	
	2.50	D, ES,								1									×		8	▓	
		LB]									· .0×		×	▓	
										-									% . ·		×	▓	
E 25/10	0								3.40	, -									% · · ×		Dry 8	▓	3.40
, P.										Ţ			ENI	O OF BO	REHOLE				Τ				
000										-													
nsii A										1													
Finned: 13/12/224 10/02:46 Raeburn Drilling and Geogedinical trading as IGNE, Whisteberry KG, Tramilion MLS OTP 16: 01096-711177]													
ds										4													
adii a										1													
2 2										1													
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2										-													
										1													
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5										+													
Re	marks: rial pit C	CAT scan	ned pric	or to exca	vation to	check f	for serv	rices.											Hole Dian		To Boring	Dept	th Casing
	Fround-\ he walls	water was s of the pi	not en t stood	countered vertical th	d. rroughout	excav	ation.																
Re T. C. L. T. C.	rial pit te	erminated	d at a de	epth of 3.2	20m due	to unde	erminin	g of exca	avator	due to	restriction	s on pit	size due	to landow	ner's res	trictions.							
	Driller	1	inator	Struck	Groun Rose To	d-water Time(m	in) Cut		Vater A	dded To	From	Chiselling To	hh:mm	Returns	FI Type	ush From (m	To (m)		Fig N	lo:			
<u> </u>		K	lJB															43		B23			
ונ	hk & App FMR		atus i nal															A.			1 of		
Otyk	•	''																	8	cale	1:50		

							CAI	MBUS	HINN	IE 400KV SUBSTATION			26762	2	
~			П	П	6	Clier	nt: E	Balfour	Beatty		Trial Pit				
		•		•		Engi		Balfour	-		Trial Pit to	0		1.90	 Эт
Loc	ation:			-	Orientatio	n: Vert	ical		Equ	ipment: 8T Tracked Excavator	-				
Ø	_							11			Width -		Length -		
ssad 55024 55024	Sa Depth	mples Type	Depth	Te	sts Result		Casing Depth	Level (mAOD)	Depth	Description of Strata		Legend	Water Depth	Symbol	ackfi De
5/10 2024									-	Dark brown slightly gravelly silty fine to coarse SAND with deco routlets. Gravel is fine to coarse subangular to rounded of sand	nposed Istone	×			
	0.50	D, ES							0.50	and mudstone Light brown slightly gravelly clayey fine to coarse SAND. Grave to coarse angular to subrounded of sandstone. Locally passing	is fine	× °			
									-	to coarse angular to subrounded of sandstone. Locally passing sandy silty gravel	to very	. · · · · ·			
	1.00	LB							_			. a			
		D, ES							-			· · · ·			
5/10									1.90	END OF BOREHOLE		. — a	▼ 1.85m		1.
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	narks:											Hole Diam		To Dep	oth Cas
G	round-v	vater was	encoun	tered at	vation to o a depth o roughout	of 1.80m	ı as ra	ices. pid ingre	SS.						
					90m due t			er ingres	s.						
	Duille	1 0			Group	d-water		1 14	Vater Ado	ed Chiselling Flush		<u> </u>			
	Driller	-	inator JB	Struck 1.80	Rose To		n) Cut			ro From To hh:mm Returns Type From (m) To (m)	=	Fig No			
	k & App		atus										324 heet 1 d	of 1	
	FMR	Fi	nal									So	cale 1:5	0	

		_				Site:	CAN	ЛBUS	HINN	IE 400KV SUBSTATION	Contrac	ct No:	26762	2	
		ì	gi								Trial Pit	t No.			
,			ЧI			Clier		Balfour I	-		TP1			0.00	
						Engi	neer: E	Balfour I	Beatty		Trial Pit to)		2.00	m
Loc	ation:			0	Prientation	n: Vert	iical		Equ	pment: 8T Tracked Excavator					
									Ш.		Width -		Length -		
Progress		mples		Test			Casing	Level (mAOD)	Depth	Description of Strata		Legend	Water		ckfill
원 5/10	Depth	Туре	Depth		Result	_	Depth			Dark brown gravelly silty fine to coarse SAND with decom	posed	.xo. ·	Depth	Symbol	Depth
5/10 2024									-	Dark brown gravelly silty fine to coarse SAND with decom rootlets. Gravel is fine to coarse subangular to rounded or and mudstone	fsandstone	×			
	0.50	D, ES										× .			
									-			· · · · ×			
	1.00	LB										···×			
	1.50	D, ES							1.50			, °. `x			
	1.50	D, L3								Brown slightly gravelly slightly sandy SILT. Sand is fine to Gravel is fine to coarse angular to subrounded of sandsto	coarse. ne	×	L		
5/10						\dashv			2.00	END OF BOREHOLE		× .× 2	1.95m		2.00
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															44
Т	marks:	AT scanr	ed prior to) excava	ation to c	:heck fo	or servi	ces.	-			Hole Diam		To Deping C	oth Casing
T G T	rial pit C Fround-v he walls	ater was of the pit	ed prior to	red at a d througl	a depth of hout exca	f 1.90m avatior	n as rap n.	oid ingres							
T G T	rial pit C Fround-v he walls	ater was of the pit	encounte collapsed	red at a d througl	a depth of hout exca	f 1.90m avatior	n as rap n.	oid ingres		ewall collapse.					
T G T	rial pit C Fround-v he walls	ater was of the pit	encounte collapsed	red at a d througl	a depth of hout exca Om due to	f 1.90m avatior o groui	n as rap n.	oid ingres	s and sid			Diam	n. Borii		
T G T	rial pit C Fround-v he walls	vater was of the pit rminated Origi	encounte collapsed at a depth	ered at a d through h of 2.00	a depth of hout exca	f 1.90m avatior o groui	n as rap n. nd-wate	oid ingresser ingress	s and sid		To (m)	Diam	o:		
T G T T	rial pit C Ground-v he walls rial pit te	of the pit	encounte collapsed at a deptr	ered at a d througl h of 2.00	a depth of hout exca 0m due to Ground	f 1.90m avatior o groui	n as rap n. nd-wate	oid ingresser ingress	s and sid	ed Chiselling Flush	To (m)	Diam	n. Borii	ng C	

		_					: CAl	MBUS	HIN	NIE	400KV	SUB	STAT	ION					Contr	act No	o: 2	2676	2	
		ì			6														Trial	Pit No				
			Ч			Clie		Balfour											TP Trial P				1	35m
						Eng	gineer: l	Balfour	Beatt	У									InaiP	It to			1.	35m
Loc	ation:				Orientatio	on: Ve	rtical		Ec	quipm	nent: 8T	Fracke	d Exca	/ator										
																			Width			Length		
Progress		mples		Te			Casing	Level (mAOD	Deptl	h			Desc	ription o	of Strat	а				1	Legend	Water		Backfill
2 4/10	Depth	Туре	Depth	-	Result		Depth				ark brown	sliahtly	gravelly s	silty fine	to coar	se SA	AND wi	th deco	mposed	-xo		Depth	Symbol	Depth
4/10 024	0.20	D							0.40		ark brown ootlets. Gra nd mudsto									· .			\otimes	X
	0.50	D, ES, LB								- G	ark brown RAVEL of	sandy s sandsto	lightly sil one. San	ty fine to d is fine t	coarse to coar	e angı se	ular an	d suba	ngular	% .	.o.x		▓	8
										-										% .		•		X
	1.00	D							1.25	_										9.	.o.x	*-		4 25
4/10									1.35	+-			EN	D OF BC	OREHO	DE -				-+	-+	1.20m	1	1.35
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	narks:																				Hole Diam.	Bor	To De	epth Casing
Gı	round-v	vater was	encoun	itered at	vation to a depth o	of 1.00	m as m		nflow.												<i>y</i>		g	ouog
					roughout 35m due			er ingres	S.															
	Driller	Origi	inator			d-wate			Vater A			Chiselling				Flush				+	ig No	 D:		
			JB	Struck 1.00	Rose To	Time(n	nin) Cut	Off Fr	om	То	From	То	hh:mm	Returns	з Тур	e Fr	rom (m)	To (m)			326		
	k & App		atus																			neet 1	of 1	
ı	FMR	Fi	nal																			cale 1:		

							: CAI	MBUS	AIH	INIE	400KV	SUB	STAT	ION				Contrac	t No:	2676	2	
		j	П															Trial Pit				
			У			Clie		Balfour Balfour		-								Trial Pit to			2.6	60m
						Eng	Jirieer. I	Dalloui	Беа	ııy												
Loc	ation:			'	Orientatio	on: Vei	rtical		E	quipr	ment: 8T	Tracke	d Excav	ator								
2024 21/10 2024	80	mnloo		To	oto			Level										Width -			R	m ackfill
Progress	Depth	mples Type	Depth		sts Result		Casing Depth	(mAOD	Dep	th			Desc	ription of	Strata				Legend	Water Depth	<u>0</u>	Depth
21/10 2024		,,	<u>'</u>]	Dark brown to coarse ar	slightly	gravelly o	clayey fine	e to coars	se SANI	D. Gravel i	s fine	· 6		<u>₩</u>	'
2024									0.3	5	Light brown								, · . · o			
	0.50	D, ES, LB								-\t	o coarse ar Light grey s subrounded	ngular to lightly sa	subroun	ided of santly silty file	andstone ne to coa	rse ang	ular to	ulky	% · · ·			
]	passing to s	silty sand	l and gra	vel	and is iii	16 10 00	aise. Luca	illy	%· °×	:	\bowtie	
										-									9 ×	:		
	1.50	D, ES								1									% · · ·			
										-									% · · · · ×			
																			% «			
										_									%			
21/10	2.50	D, ES, LB						1	2.60	-			ENI	O OF BO	REHOLE				÷ • · · ·	2.55n	1 8888	2.60
										-												
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	narks:	AT scanı	ned prio	r to exca	vation to	check	for serv	vices											Hole Diam		To De	pth Casing
G	roundw	ater was of the pi	encoun	etered as	seepage	e belov	v 1.90m	١.	lased.													
Tr	ial pit te	erminated	l at a de	pth of 2.6	50m due	to side	wall col	lapse.														
	Driller		inator JB	Struck	Groun Rose To	d-water Time(m			Vater A	Added To	From	Chiselling To	hh:mm	Returns	Fli Type	ush From (m	n) To (m)		Fig N			
Ch	k & Ann																			327	of 1	
	ik & App FMR		nal															-		heet 1 cale 1:		

							: CA	MBUS	HINN	IIE 4	00KV	SUE	STAT	ION						Contrac	t No:	2676	2	
		ì			6															Trial Pit	No.			
			Ч			Clie		Balfour	•											TP1			1.:	90m
						Enç	jineer:	Balfour	веащу															
Loc	ation:			(Orientatio	on: Ve	rtical		Equ	uipme	ent: 8T	Tracke	d Exca	vator										
S	S o	malaa	1	To	ata .			Level												Width -			B)m Backfill
Progress	Depth	mples Type	Depth	Te	Result		Casing Depth	(mAOD	Depth				Desc	cription	of S	trata					Legend	Water Depth	r g	Depth
1/10 1/24	'	71	<u> </u>							Da	rk brown coarse su	slightly	gravelly	clayey	fine to	o coars	se SA	ND. G	ravel is	s fine	<u> </u>			'
1/10 1/10 1/10 1/10 1/10 1/10 1/10 1/10									0.30		ht brown										ρ			
	0.50	D, ES							-		oarse ar	ngulai k	Jabioui	idea oi	Jan	3510110								8
	1.00	LB							0.90	Lig	ht grey v AVEL of bbles are	ery san	dy slightl	y silty fi	ne to	coars	e angi	ular to	subro	unded	ο	4	\otimes	
									-	- Co silty	bbles are sand ar	angula nd grave	ir and su	bangula	ar of	sandst	one. L	ocally	passi	ng to	0			
	1.50	D, ES							-												0			8
1/10)		_						1.90					D OF E	~~~	-1701					0 _ 9	1.85r	n ₩	1.90
									-				EIN	DOFE	OKE	HOLE	•							
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																					Hole		To De	nth
Tr					vation to																Dian			Casing
Th	he walls	of the pit	collaps	ed throu	a depth o	cavatio	n - side	walls col																
11	патрісте	minated	at a dep	puror i.s	90m due	to side	wall co	liapse.																
	D."				Cr	d weter		1 1/	Vator 1	tod 1		Chicallia	,			F	uch				<u> </u>			
	Driller	-	inator JB	Struck 1.70	Rose To	d-wate			Vater Add	To	From	Chiselling To	hh:mm	Retur	ns	Type	ush From	(m) T	o (m)		Fig N			
Ch	nk & App	Sta	atus	1.70																		328 heet 1	of 1	
	FMR		nal																		1	cale 1		

		_					: CA	MBUS	HIN	NIE	400KV	SUB	STAT	ION					Contrac	t No:	2676	2	
		ì			6														Trial Pit				
			Ч			Clie		Balfour		•								-	TP20			3 (00m
						Eng	gineer:	Balfour	Beatt	ty									mar it to			0.0	Join
Loc	cation:			(Orientatio	on: Ve	rtical		E	quipn	nent: 8T	Fracked	Excav	ator									
Ø								Linual											Width -		Length)m Backfill
Progress	Depth	nples Type	Depth	Te	sts Result		Casing Depth	Level (mAOD	Dept	h			Desc	ription of	Strata					Legend	Water Depth	. <u> </u>	Depth
7/10		Туре	Берит		rtesuit		Dop			L	ight brown	gravelly	slightly o	clayey fin	e to coa	rse SAN	ND with	low c	obble	Joll		<i>\ \overline{</i>	Вери
2024	0.20	D, ES								a	ight brown ontent. Gra ingular to s	ubround	e to coa ed of sar	rse angu ndstone	iar to su	bround	ea. Cor	obies a	are	5. <u>0.</u>		\otimes	×
	0.50	LB							0.60		irm dark bi Gravel is fin	rown slig	htly grav	elly sand	y CLAY	. Sand i	s fine to	o coar	se.	<i>P7/</i>			×
			0.80	HV at 0.80 HV at 0.80 HV at 0.80	m I=40 R= m I=28 R= m I=22 R=	10kPa 10kPa 10kPa]	oraveris iiri	e to coai	se suba	rigulai ai	iu subio	unueu	oi sano	isione		<u>-</u> -			×
	1.20	D, ES							1.20) L	ight brown ontent. Gra	very gra	velly cla	yey fine t	o coarse	SAND	with lo	w cob	ble				×
										a	ingular to s	ubround	e to coa ed of sar	rse angu ndstone	iar to su	bround	ea. Cor	obies a	are	5. <u>0.</u>			×
										-										77			×
	2.20	D, ES								1										F: 0: (×
	2.50	LB								-										2.0.0	▼		×
	2.50									1)./			X
7/10								-	3.00	-			— — ENI	O OF BO	REHOL	E				F.O. 3	2.70r	n	3.00
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Rer	marks:																			Hole		To De	
G	round-v	ater was	encoun	tered at	vation to o	of 2.50	m as m	oderate i												Diam	n. Boi	ring	Casing
					ghout exc 00m due t				lased.														
	Driller	_	inator .	Qtr.,-Ir		d-wate			Vater A			Chiselling	hhimi	Dotum		lush	(m) T-	(m)		Fig N	o:		
		R.	JB	Struck 2.50	Rose To	e(n	Cui	t Off Fro	2111	То	From	То	hh:mm	Returns	Туре	1 10(11)	(m) To	(111)			329		
	nk & App FMR		atus nal																1		heet 1		
		"	iai								1									l s	cale 1:	50	

		_					: CA	MBUS	HINI	NIE	400KV	SUB	STAT	ION					Contrac	t No:	2670	62		
		ì			6														Trial Pit	No.				
	\		Ч			Clie		Balfour											TP2				3.10m	
						Eng	gineer:	Balfour	Beatty	y									That Pit to)			3.10m	
Loc	ation:				Orientation	on: Ve	rtical		Eq	uipm	nent: 8T	Tracked	d Excav	/ator										
- 10																			Width -		Lengtl	h - 2.		
gress	Sai	mples			sts		Casing	Level (mAOD) Depth	1			Desc	ription of	f Strata					Legend	Wate	er .	Back	
Progress Progress	Depth	Туре	Depth	1	Result		Depth				ark brown	slightly	aravelly o	clavey fin	e to coa	rse SA	ND G	aravel is	s fine	- 	Dept	.n	odm S S M D€	pth
024									0.35		ark brown coarse ar									- · · · ·	<u>-</u>	8		
] 6	ight brown oarse angı	gravelly ular to su	clayey fi ubrounde	ne to coa ed of san	arse SAI dstone	ND. Gr	avel is	s fine to	1	· · · · ·	1	×		
										-										· • · ·		8		
	1.00	D, ES, LB								1										. · · · · ·		*		
									1.50											· o · ·	_	×		
										- C	ight brown ontent. Gra obbles are	gravelly avel is fir angular	slightly one to coa	clayey fin irse angu pangular	e to coa llar to su of sands	irse SA ibround stone	ND w	ith low sandst	cobble one.	5.0.	,	8		
	2.00	D, ES								-		9		g) 0.9	7	×		
																				F. V. 4		*		
])7	,	×		
										-										2.00.	,	**		
1/10	3.00	D, ES, LB							3.10	╄-			ENI	D OF BO	REHOL	<u> </u>				<u> </u>		Ory 🎗	₩ 3	10
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Rer	narks:																			Hole			Depth	_
G	round-v	vater was	not end	countered																Dian	1. De	oring	Cas	ng
					ghout exe 10m due				lased.															
	Driller	Orig	inator	Ct		d-water			Vater Ac			Chiselling		D-4		lush	- /w-\l -	Ta ()		Fig N	lo:			_
		R	JB	Struck	Rose To	ııme(n	nin) Cut	Off Fr	JIII I	То	From	То	hh:mm	Returns	Туре	From	n (m)	10 (M)	44		B30			
	k & App		atus																44	S	Sheet '		1	
	FMR	Fi	nal																	S	cale 1	1:50		

	Site: CAMBUSHINNIE 400KV SUBSTATION Contract					t No:	No: 26762															
	23	ì																Trial Pi	t No.			
	Client: Balfour Beatty Engineer: Balfour Beatty Trial Pit					2																
		_				Engi	ineer: l	Balfour	Beatty	y								Trial Pit to)		3	3.00m
Lo	cation:				Orientation	n: Ver	tical		Fo	uipm	ent: 8T	Tracke	d Exca	/ator								
										11								\A/: III	4.00		0.5	.0
mo SSS	Sa	mples		 Te	sts			Level										Width -		Wate	_ I	Backfill
@igne.com	Depth	Туре	Depth	n	Result		Casing Depth	(mAOD	Depth	n			Desc	ription of	Strata				Legend	Depti	1 8	Depth
8 22/1 202	0									D	ark brown ontent. Gr nd mudsto	gravelly	/ slightly	clayey fin	e to coars	se SAND	with low	cobble	Joll			<u>;</u>
III V	1									ar	nd mudsto	one. Cob	bles are	subangu	lar to rou	nded of n	nudstone	torie	5. <u>0.</u> 2		▓	\otimes
E-mail: enquiries.raeburndrilling@igne.com	0.60	D, ES,							0.70	-)		▓	\otimes
uiries.		LB								ļ	ght brown RAVEL on the to coar	sandy	slightly sil	ty fine to	coarse s	ubangula	r to roun	ded	9 (1)		▓	\otimes
l: end										fir	ne to coar udstone	se. Cobl	oles are s	subangula	ar to roun	ded of sa	andstone	and	* 0 ×		▓	$\stackrel{>}{\otimes}$
E-ma										-									29	\$	₩	
	1.60	D, ES								1									19.4 19.4		▓	\otimes
8-711]									3.6%		▓	\otimes
: 0168										-									8.8	,	▓	
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Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Borehole No. BH01



Style: CORE PHOTOS File: P.\GiNTWAPROJECTS\26762.GPJ Printed: 12/12/2024 11:04:26 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mait: enquiries@raebumndrilling.com Originator RB Chk & App Status CJH Final

PHOTOGRAPHS OF ROCK CORE





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Borehole No. BH02



Style: CORE PHOTOS File: P.\GiNTWAPROJECTS\26762.GPJ Printed: 12/12/2024 11:04:30 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mait: enquiries@raebumndrilling.com Originator RB Chk & App Status CJH Final

PHOTOGRAPHS OF ROCK CORE





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Borehole No. **PC01**



Originator

CB

Chk & App Status

CJH Final

PHOTOGRAPHS OF PAVEMENT CORES





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Borehole No. **PC02**



Style: CORE PHOTOS File: P.\GINTWAPROJECTS\26782.GPJ Printed: 12/12/2024 15:59:01 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com		Originator	
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PHOTOGRAPHS OF PAVEMENT CORES





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Borehole No. PC03



Style: CORE PHOTOS File: P./GINTWAPROJECTS\26762.GPJ Printed: 12/12/2024 15:59:08 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raeburndrilling.com		Originator	
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PHOTOGRAPHS OF PAVEMENT CORES





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Borehole No. **PC04**



Originator

CB

Chk & App Status

CJH Final

PHOTOGRAPHS OF PAVEMENT CORES





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP01**





TP PHOTOS File: P./GINTWPROJECTS/26762.GPJ Printed: 12/12/2024 11:05:47 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumndrilling.com Originator RB Chk & App Status CJH Final

Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP01**



	Originator
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Title:

Style: TP PHOTOS File: P.\GiNTW/PROJECTS\26762.GFU Printed: 12/12/2024 11:05:47 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS



Balfour Beatty Engineer: Balfour Beatty

Client:

Contract No: 26762

Trial Pit No. **TP02**





Originator RB Chk & App Status CJH Final

Title:

TP PHOTOS File: P:\G\NTW\PROJECTS\26762.GPJ Printed: 12/12/2024 11:05:56 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP02**



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PHOTOGRAPHS OF TRIAL PITS



Contract No: 26762

Trial Pit No. **TP03**

Client: Balfour Beatty
Engineer: Balfour Beatty





Originator
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Chk & App Status
CJH Final

Title:

TP PHOTOS File: P./GINTW/PROJECTS/26762_GPJ Printed: 12/12/2024 11:06:05 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-71177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP03**



	Originator
	RB
Chk & App	Status
CJH	Final

Title:

PHOTOGRAPHS OF TRIAL PITS



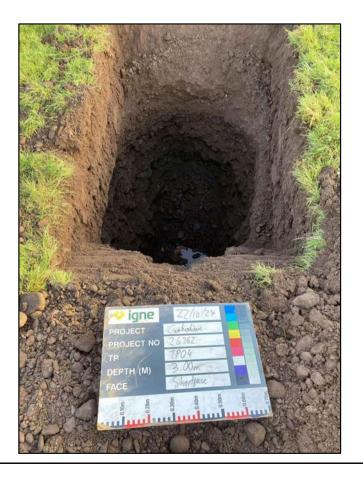


Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP04**





Originator
RB
Chk & App Status
CJH Final

Title:

TP PHOTOS File: P./GINTW/PROJECTS/26762_GPJ Printed: 12/12/2024 11:06:14 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP04**



	Originator
	RB
Chk & App	Status
CJH	Final

Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP05**





Originator
RB
Chk & App Status
CJH Final

Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP05**



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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP06**



Style: TP PHOTOS File: P.\GINTWAPROJECTS\28762.GPJ Printed: 13/12/2024 14:58:07 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com		Originator	
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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP06**



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	RB	
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PHOTOGRAPHS OF TRIAL PITS



Fig No:

B49



Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP07**





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Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP07**



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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty Engineer: Balfour Beatty Contract No: 26762

Trial Pit No. **TP08**





Style: TP PHOTOS File: P.\GINTWPROJECTS\26762.GFJ Printed: 13/12/2024 14:58:34 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com Originator RB Chk & App Status CJH

Final

Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty Engineer: Balfour Beatty Contract No: 26762

Trial Pit No. **TP08**



Style: TP PHOTOS File: P.\GINTWPROJECTS\26762.GFJ Printed: 13/12/2024 14:58:34 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com Originator Title: RB Chk & App Status

Final

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PHOTOGRAPHS OF TRIAL PITS



Fig No:

B53



Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP09**





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Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP09**



Style: TP PHOTOS Flie: P.\GINTWPROJECTS\28762.GFJ Printed: 13/12/2024 14:58:51 Raeburn Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raeburndrilling.com Originator Title: RB Chk & App Status CJH Final

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP10**





TP PHOTOS File: P:\GINTWNPROJECTS\26762.GPJ Printed: 12/12/2024 14:09:22 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com Originator RB Chk & App Status CJH Final

Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP10**



Originator
RB
Chk & App Status
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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP11**





Originator
RB
Chk & App Status
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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP11**



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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP12**





Originator
RB
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CJH Final

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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP12**



Style: TP PHOTOS File: P.\GINTWAPROJECTS\28762.GPJ Printed: 12/12/2024 14:09.46 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com		Originator	
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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP13**





Originator
RB
Chk & App Status
CJH Final

Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP13**



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PHOTOGRAPHS OF TRIAL PITS



Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP14**





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Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP14**



	Originator	Title:
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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP15**





Originator
RB
Chk & App Status
CJH Final

Title:

TP PHOTOS File: P:\GINTWPROJECTS\26762.GPJ Printed: 12/12/2024 14:10:15 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP15**



	Originator	
	RB	
Chk & App	Status	
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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP16**





Originator Title:

RB

Chk & App Status

CJH Final

PHOTOGRAPHS OF TRIAL PITS



Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP16**



Originator
RB
Chk & App Status
CJH Final

TP PHOTOS File: P:\GINTWNPROJECTS\26762.GPJ Printed: 12/12/2024 14:12:56 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP17**





Originator
RB
Chk & App Status
CJH Final

Title:

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP17**



Originator

RB

Chk & App Status

CJH Final

TP PHOTOS File: P:\GINTW\PROJECTS\26762.GPJ Printed: 12/12/2024 14:13:05 Raeburn Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raeburndrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP18**





Originator
RB
Chk & App Status
CJH Final

Title:

TP PHOTOS File: P:\GINTWPROJECTS\26762.GPJ Printed: 12/12/2024 14-13:13 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP18**



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PHOTOGRAPHS OF TRIAL PITS



Contract No: 26762

Trial Pit No. **TP19**

Client: Balfour Beatty
Engineer: Balfour Beatty





Originator

RB

Chk & App Status

CJH Final

Title:

TP PHOTOS File: P:\GINTWPROJECTS\26762.GPJ Printed: 12/12/2024 14:13:21 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP19**



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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP20**





Originator Title:

RB

Chk & App Status

CJH Final

TP PHOTOS File: P./GINTW/PROJECTS/26762_GPJ Printed: 12/12/2024 14:13:31 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP20**



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PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP21**





Originator
RB
Chk & App Status
CJH Final

Title:

TP PHOTOS File: P:\GINTWPROJECTS\26762.GPJ Printed: 12/12/2024 14:15:04 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP21**



	Originator	
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Style: TP PHOTOS File: P:\GiNTW/PROJECTS\26762.GFU Printed: 12/12/2024 14:15:05 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP22**





Originator
RB
Chk & App Status
CJH Final

Title:

File: P./GNTWAPROJECTS/26762_GPJ Printed: 1/2/12/2024 14:15:12 Raeburn Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raeburndrilling.com

PHOTOGRAPHS OF TRIAL PITS





Client: Balfour Beatty
Engineer: Balfour Beatty

Contract No: 26762

Trial Pit No. **TP22**



Originator

RB

Chk & App Status

CJH Final

Title:

TP PHOTOS File: P:\GINTWPROJECTS\26762.GPJ Printed: 12/12/2024 14:15:12 Raebum Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177 E-mail: enquiries@raebumdrilling.com

PHOTOGRAPHS OF TRIAL PITS



Balfour Beatty

Engineer: Balfour Beatty

igne

Client:

SPT Hammer Energy Test Report in accordance with BSEN ISO 22476-3:2005

Contract No: 26762

Whistleberry Road Hamilton ML3 OHP

SPT Hammer Ref: RD53 2024 Test Date: 05/02/2024

Report Date: 05/02/2024 File Name: RD53 2024.spt

Test Operator:

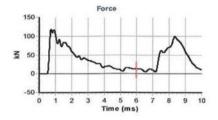
Instrumented Rod Data

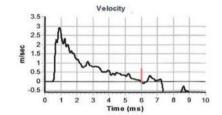
Diameter d_r (mm): 54 Wall Thickness t_r (mm): 6.6 Assumed Modulus Ea (GPa): 208 Accelerometer No.1: 69559 Accelerometer No.2: 69560

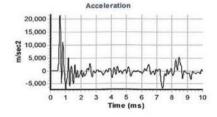
SPT Hammer Information

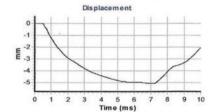
Hammer Mass m (kg): Falling Height h (mm): 760 SPT String Length L (m): 14.5

Comments / Location









Calculations

Area of Rod A (mm2): 983 Theoretical Energy E_{theor} (J): 473 Measured Energy E_{meas} (J): 339

Energy Ratio E_r (%): 72

The recommended calibration interval is 12 months

Signed: Kevin Steele

Title: **Drilling Store Manager**

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Originator RB Chk & App Status

CJH

SPT HAMMER ENERGY REPORT - RD53



Fig No:

Printed: 12/12/2024 14:22:58 Raeburn Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-71177 E-mail: enquiries@raeburndrilling.com File: P:\GINTW\PROJECTS\26762.GPJ

NAMEBOX

Final

Balfour Beatty

Engineer: Balfour Beatty

Client:

SPT Hammer Energy Test Report in accordance with BSEN ISO 22476-3:2005

Contract No: 26762

SPT Hammer Ref: TER22 2024

Test Date:

12/06/2024

Report Date:

12/06/2024

File Name:

TER22 2024.spt

Test Operator:

Instrumented Rod Data

Diameter d_r (mm):

Whistleberry Road

Hamilton

ML3 OHP

54

Wall Thickness t_r (mm):

6.8 Assumed Modulus Ea (GPa): 208

Accelerometer No.1:

69559

Accelerometer No.2:

69560

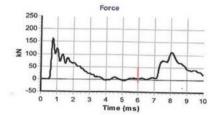
SPT Hammer Information

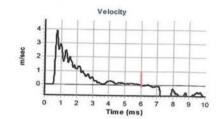
Hammer Mass m (kg):

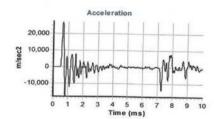
Falling Height h (mm): 760

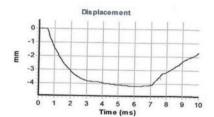
SPT String Length L (m): 14.5

Comments / Location









Calculations

Area of Rod A (mm2):

1008

Theoretical Energy E_{theor} (J):

473

Measured Energy E_{meas} (J):

348

Energy Ratio E_r (%):

73

Signed: Kevin Steele

Title:

Drilling Store Manager

The recommended calibration interval is 12 months

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Originator СВ Chk & App Status CJH Final

Printed: 12/12/2024 16:22:50 Raeburn Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-71177 E-mail: enquiries@raeburndrilling.com

File: P:\GINTW\PROJECTS\26762.GPJ

Style: A4 NAMEBOX

SPT HAMMER ENERGY TEST REPORT - TERR22





Date tested

Tested by

CAMBUSHINNIE HAUL ROAD

Client Balfour Beatty

Engineer WSP

23/10/2024

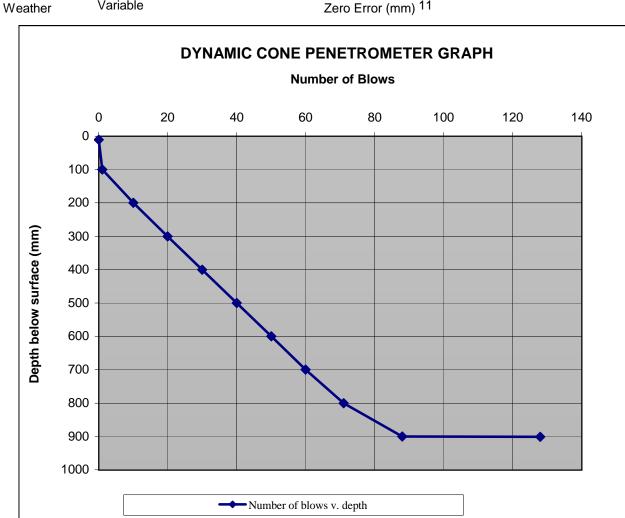
Variable

JW

Test Location 1 DCP No.

Contract No 26762

Zero Error (mm) 11



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
11	100	1	1	Unknown	89.00	3
100	900	88	87	Unknown	9.20	29
900	901	128	40	Unknown	0.03	14907

Remarks:

Cone Angle 60°

UKAS accredited test - No

Test abandoned due to refusal of test equipment; less than 4mm penetration in 40 blows

Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B84 Sheet 1 of 1

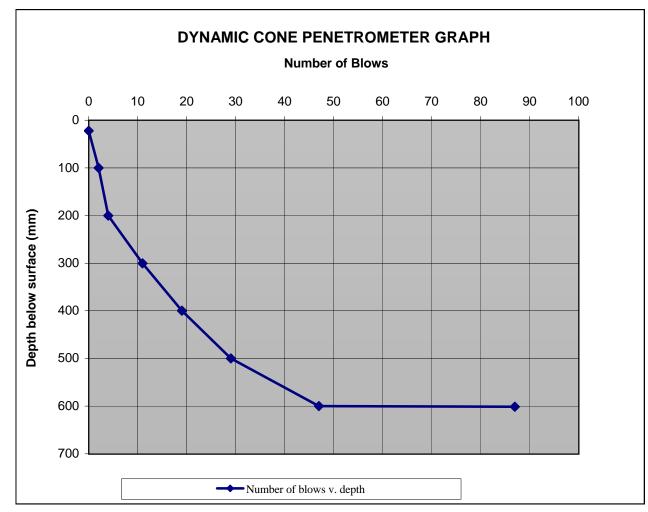
Balfour Beatty

Engineer WSP

Test Location

Contract No 26762





Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
22	200	4	4	Unknown	44.50	5
200	600	47	43	Unknown	9.30	29
600	601	87	40	Unknown	0.03	14907

Remarks:

Cone Angle 60°

UKAS accredited test - No

Test abandoned due to refusal of test equipment; less than 4mm penetration in 40 blows

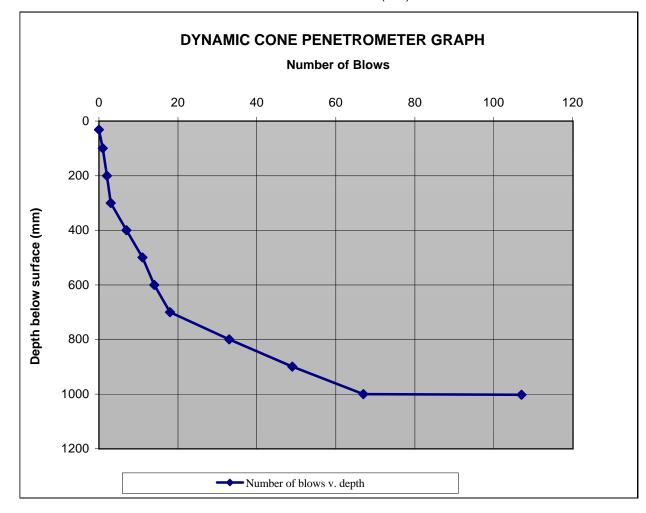
Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B85 Sheet 1 of 1



Contract No 26762

Client Balfour Beatty

Engineer WSP



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
32	300	3	3	Unknown	89.33	3
300	700	18	15	Unknown	26.67	9
700	1000	67	49	Unknown	6.12	44
1000	1003	107	40	Unknown	0.08	4667

Remarks:

Cone Angle 60°

UKAS accredited test - No

Test abandoned due to refusal of test equipment; less than 4mm penetration in 40 blows

Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B86 Sheet 1 of 1

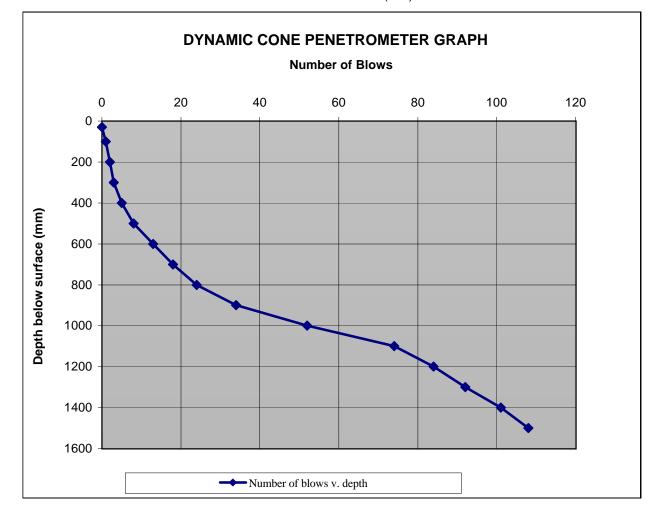


Contract No 26762

Client Balfour Beatty

Engineer WSP

Date tested 22/10/2024 **Test Location** JW 4 DCP No. Tested by Variable Zero Error (mm) ²⁹ Weather



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
29	400	5	5	Unknown	74.20	3
400	900	34	29	Unknown	17.24	15
900	1100	74	40	Unknown	5.00	55
1100	1500	108	34	Unknown	11.76	22

Remarks:

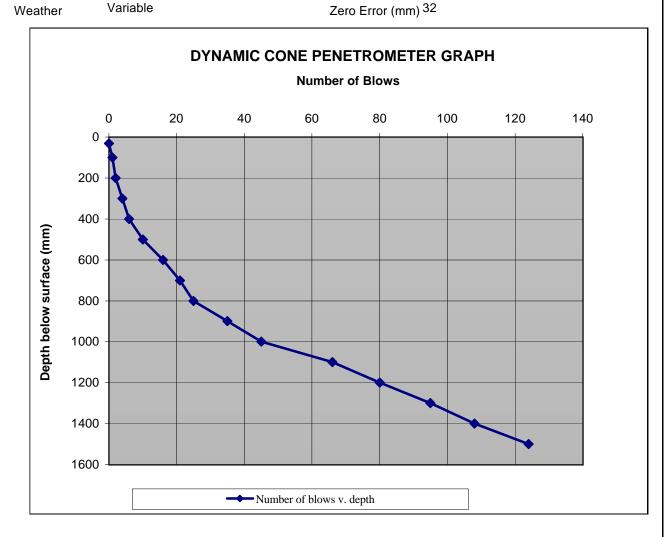
Project No A15413-1 : 13/12/2024 14:40:50	Rema Cone UKAS			
	Originator	Checked & Approved	Dynamic Cone Penetrometer	_
Lab Proj	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B87 Sheet 1 of 1



Contract No 26762

Client Balfour Beatty WSP

Date tested 22/10/2024 **Test Location** JW 4 DCP No. Tested by



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
32	400	6	6	Unknown	61.33	4
400	800	25	19	Unknown	21.05	12
800	1100	66	41	Unknown	7.32	37
1100	1500	124	58	Unknown	6.90	39

Remarks:

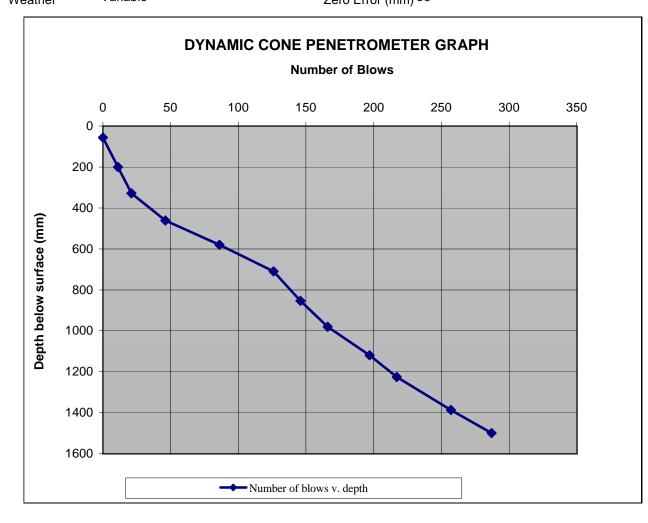
.15413-1 : 13/12/2024 14:40:53		rks: Angle 60° accredited te	st - No	
Project No A	Originator	Checked & Approved	Dynamic Cone Penetrometer	
Lab Proj	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B88 Sheet 1 of 1



Contract No 26762

Client Balfour Beatty WSP

Date tested 16/10/2024 **Test Location** JD 6 Tested by DCP No. Variable Zero Error (mm) ⁵⁶ Weather



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
56	329	21	21	Unknown	13.00	20
329	461	46	25	Unknown	5.28	52
461	710	126	70	Unknown	3.56	79
710	1500	287	161	Unknown	4.91	56

Remarks:

15413-1: 13/12/2024 14:40:57		rks: Angle 60° accredited te	st - No	
Project No A	Originator	Checked & Approved	Dynamic Cone Penetrometer	
Lab Proj	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B89 Sheet 1 of 1



16/10/2024

JD

Date tested

Tested by

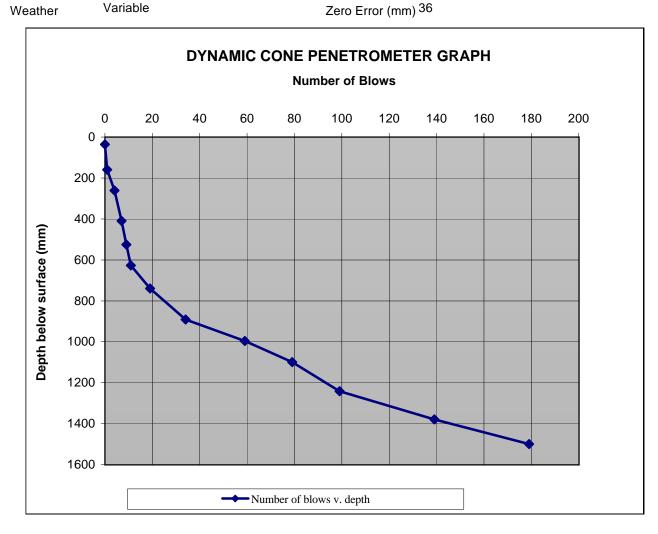
CAMBUSHINNIE HAUL ROAD

Client Balfour Beatty

Engineer WSP

> **Test Location** 7 DCP No.

Contract No 26762



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
36	627	11	11	Unknown	53.73	4
627	892	34	23	Unknown	11.52	23
892	1242	99	65	Unknown	5.38	51
1242	1500	179	80	Unknown	3.23	88

Remarks:

No A15413-1: 13/12/2024 14:41:00	Rema Cone UKAS			
Project No A	Originator	Checked & Approved	Dynamic Cone Penetrometer	
Lab Proj	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B90 Sheet 1 of 1



Contract No 26762

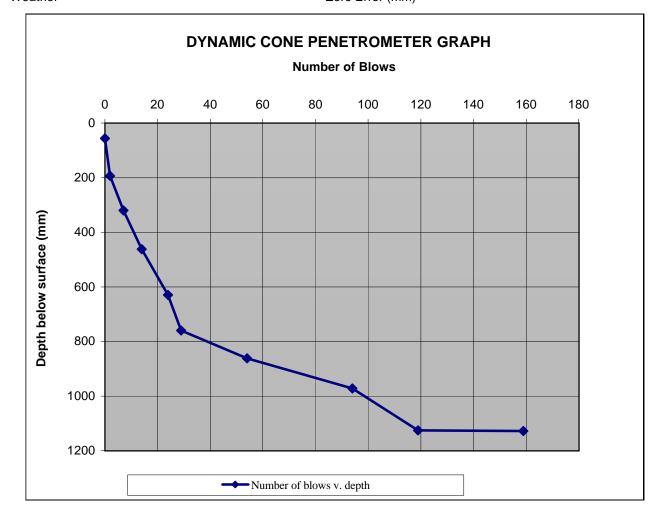
Client Balfour Beatty

Engineer WSP

Date tested 15/10/2024 Test Location ~

Tested by JD DCP No. 8

Weather Variable Zero Error (mm) 56



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
56	760	29	29	Unknown	24.28	10
760	972	94	65	Unknown	3.26	87
972	1126	119	25	Unknown	6.16	44
1126	1128	159	40	Unknown	0.05	7165

Remarks:

Cone Angle 60°

UKAS accredited test - No

Test abandoned due to refusal of test equipment; less than 4mm penetration in 40 blows

וממו ואסו	Originator	Checked & Approved	Dynamic Cone Penetrometer	
- Cab	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B91 Sheet 1 of 1



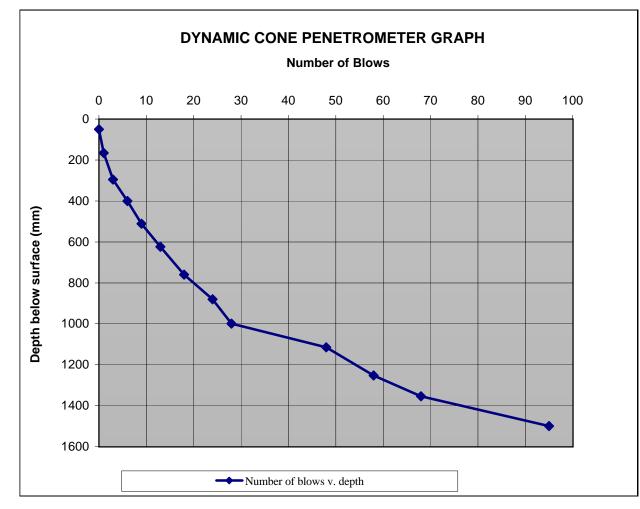
Client Balfour Beatty

Engineer WSP

> **Test Location** 9 DCP No.

Contract No 26762

Date tested 16/10/2024 JD Tested by Variable Zero Error (mm) 50 Weather



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
50	1000	28	28	Unknown	33.93	7
1000	1115	48	20	Unknown	5.75	48
1115	1355	68	20	Unknown	12.00	22
1355	1500	95	27	Unknown	5.37	51

Remarks:

15413-1 : 13/12/2024 14:41:07		rks: Angle 60° accredited te	st - No	
Project No A	Originator	Checked & Approved	Dynamic Cone Penetrometer	
Lab Proj	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B92 Sheet 1 of 1



Balfour Beatty

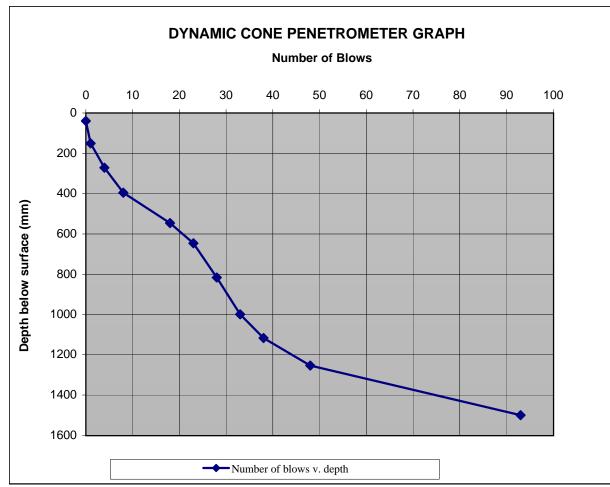
Engineer WSP

Date tested 16/10/2024

10 DCP No.

Contract No 26762

Test Location JD Tested by Variable Zero Error (mm) 40 Weather



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
40	396	8	8	Unknown	44.50	5
396	647	23	15	Unknown	16.73	15
647	1000	33	10	Unknown	35.30	7
1000	1254	48	15	Unknown	16.93	15
1254	1500	93	45	Unknown	5.47	50

Remarks:

Originator	Checked & Approved	Dynamic Cone Penetrometer	_
CL	13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B93 Sheet 1 of 1



Date tested

Tested by

Site CAMBUSHINNIE HAUL ROAD

Balfour Beatty

Engineer WSP

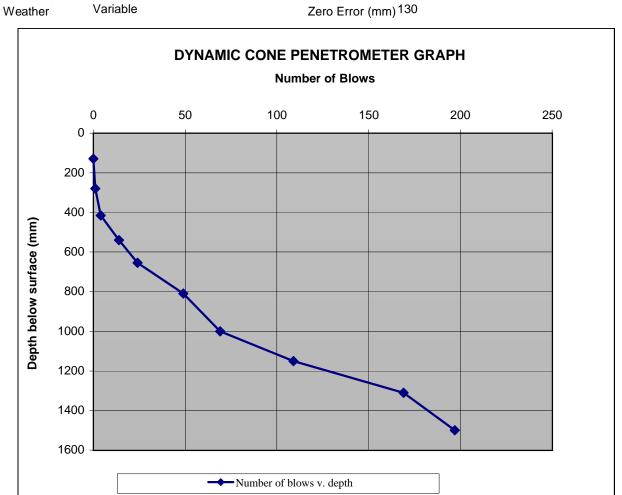
17/10/2024

JD

Test Location ~

DCP No. 11

Contract No 26762



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
130	415	4	4	Unknown	71.25	3
415	655	24	20	Unknown	12.00	22
655	810	49	25	Unknown	6.20	44
810	1000	69	20	Unknown	9.50	28
1000	1310	169	100	Unknown	3.10	91
1310	1500	197	28	Unknown	6.79	40

Remarks:

Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B94 Sheet 1 of 1



Weather

e CAMBUSHINNIE HAUL ROAD

Balfour Beatty

Engineer WSP

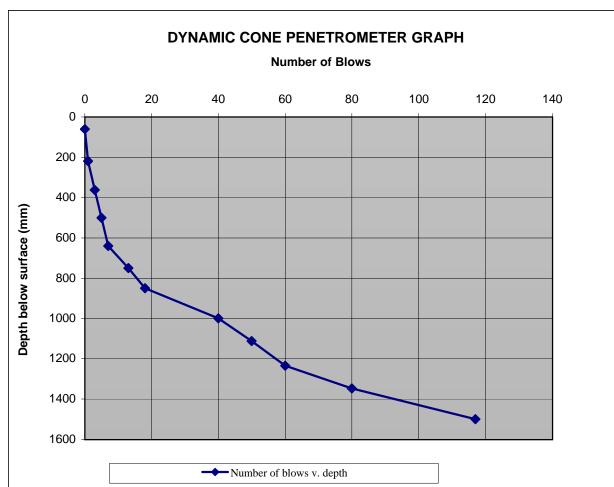
Date tested 17/10/2024
Tested by JD

Variable

Test Location ~
DCP No. 12

Contract No 26762

Zero Error (mm) ⁶⁰



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
60	640	7	7	Unknown	82.86	3
640	850	18	11	Unknown	19.09	13
850	1000	40	22	Unknown	6.82	40
1000	1234	60	20	Unknown	11.70	22
1234	1500	117	57	Unknown	4.67	59

Remarks:

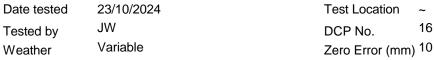
Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B95 Sheet 1 of 1

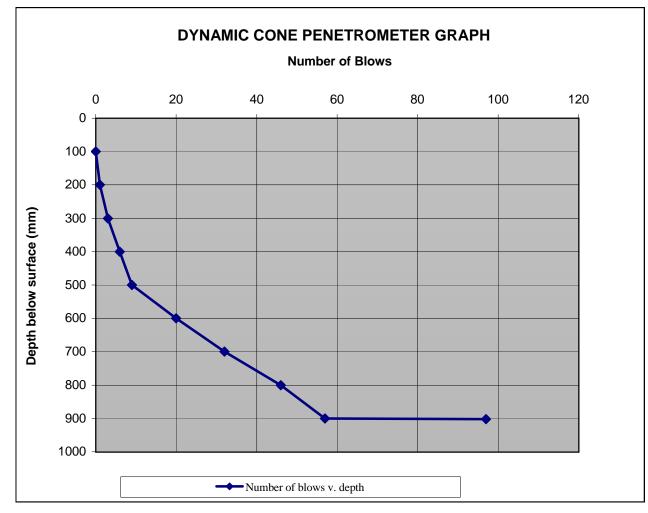
Client Balfour Beatty

Engineer WSP

Test Location

Contract No 26762





Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
100	500	9	9	Unknown	44.44	5
500	900	57	48	Unknown	8.33	32
900	902	97	40	Unknown	0.05	7165

Remarks:

Cone Angle 60°

UKAS accredited test - No

Test abandoned due to refusal of test equipment; less than 4mm penetration in 40 blows

Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B96 Sheet 1 of 1



JW

Date tested

Tested by

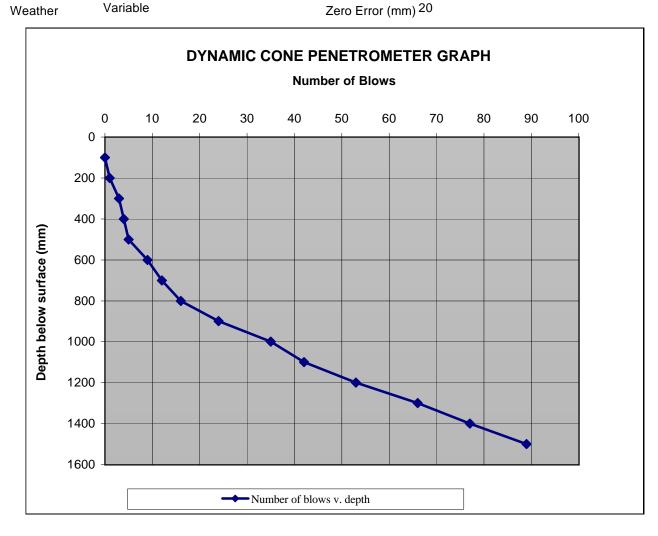
CAMBUSHINNIE HAUL ROAD

Contract No 26762

Client Balfour Beatty

Engineer WSP

23/10/2024 **Test Location** 17 DCP No. Zero Error (mm) 20



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
100	300	3	3	Unknown	66.67	4
300	500	5	2	Unknown	100.00	2
500	800	16	11	Unknown	27.27	9
800	1500	89	73	Unknown	9.59	28

Remarks:

201 100	Originator	Checked & Approved	Dynamic Cone Penetrometer	
Lab I	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B97 Sheet 1 of 1



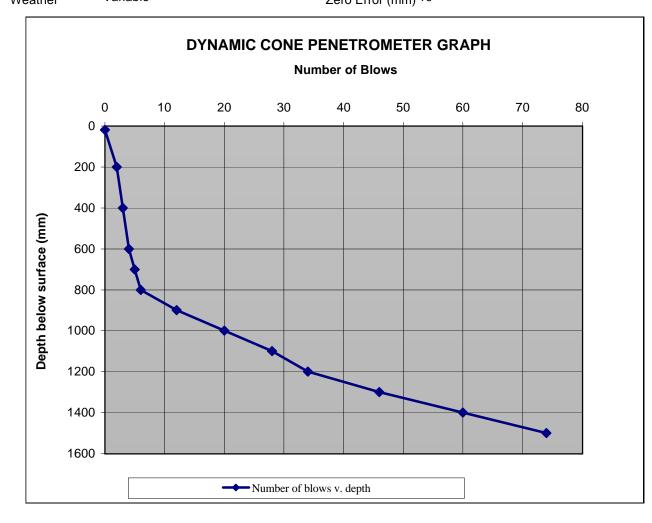
Contract No 26762

Client Balfour Beatty
Engineer WSP

Date tested 23/10/2024 Test Location ~

Tested by JW DCP No. 18

Weather Variable Zero Error (mm) 19



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
19	200	2	2	Unknown	90.50	3
200	800	6	4	Unknown	150.00	2
800	1200	34	28	Unknown	14.29	18
1200	1500	74	40	Unknown	7.50	36

Remarks:

Lab Project No A15413-1: 13/12/2024 14:41:44

Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B98 Sheet 1 of 1



Contract No 26762

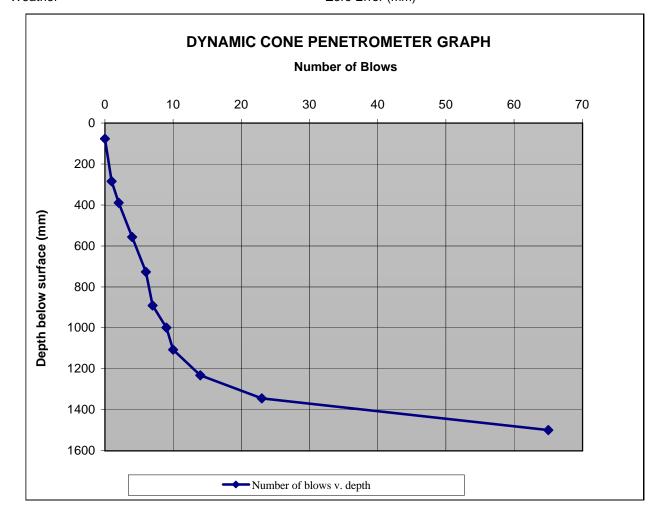
Client Balfour Beatty

Engineer WSP

Date tested 17/10/2024 Test Location ~

Tested by JD DCP No. 19

Weather Variable Zero Error (mm) 76



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
76	1108	10	10	Unknown	103.20	2
1108	1232	14	4	Unknown	31.00	8
1232	1345	23	9	Unknown	12.56	21
1345	1500	65	42	Unknown	3.69	76

Remarks:

Cone Angle 60° UKAS accredited test - No

1011100	Originator	Checked & Approved	Dynamic Cone Penetrometer	
	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B99 Sheet 1 of 1

Lab Project No A15413-1: 13/12/2024 14:41:47



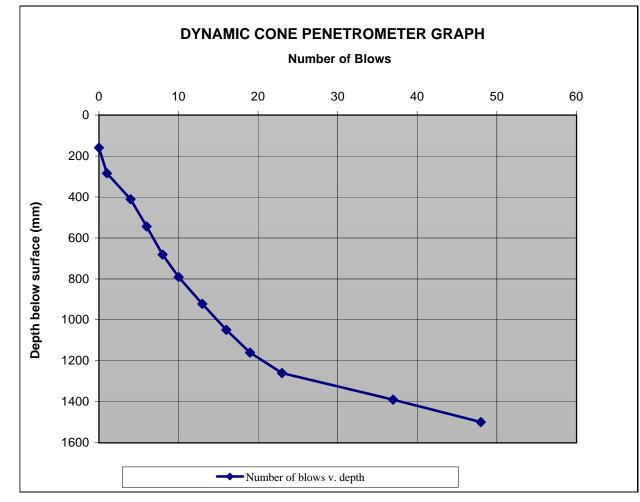
Client Balfour Beatty

Engineer WSP

> **Test Location** 20 DCP No.

Contract No 26762

Date tested 17/10/2024 JD Tested by Variable Zero Error (mm) 160 Weather



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
160	284	1	1	Unknown	124.00	2
284	412	4	3	Unknown	42.67	6
412	1260	23	19	Unknown	44.63	5
1260	1500	48	25	Unknown	9.60	28

Remarks:

 Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B100 Sheet 1 of 1



Contract No 26762

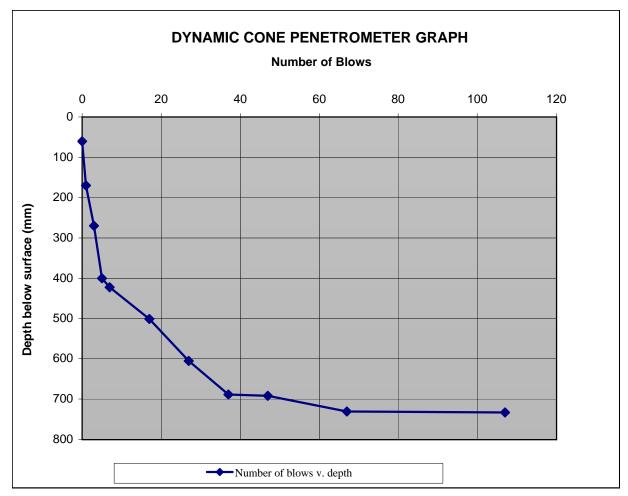
Balfour Beatty

Engineer WSP

Date tested 18/10/2024 Test Location ~

Tested by JD DCP No. 21

Weather Variable Zero Error (mm) 60



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
60	400	5	5	Unknown	68.00	3
400	689	37	32	Unknown	9.03	29
689	692	47	10	Unknown	0.30	1078
692	731	67	20	Unknown	1.95	149
731	733	107	40	Unknown	0.05	7165

Remarks:

Cone Angle 60°

UKAS accredited test - No

Test abandoned due to refusal of test equipment; less than 4mm penetration in 40 blows

Originator	Checked & Approved	Dynamic Cone Penetrometer	
CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B101 Sheet 1 of 1



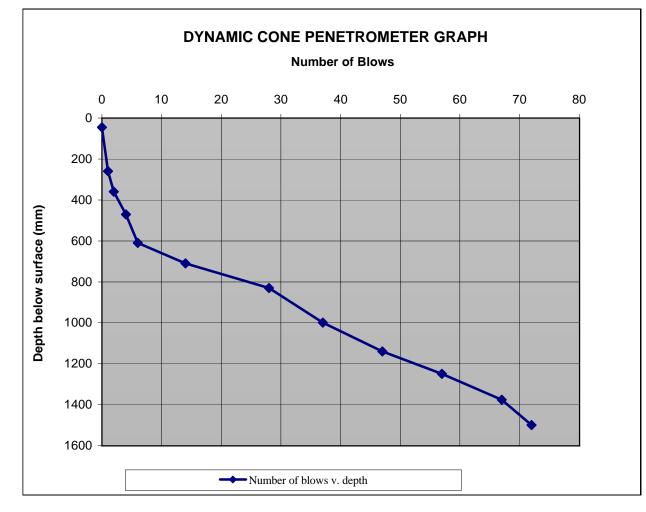
Client Balfour Beatty

Engineer WSP

> **Test Location** 22 DCP No.

Contract No 26762

Date tested 17/10/2024 JD Tested by Variable Zero Error (mm) 45 Weather



Start Depth (mm)	Finish Depth (mm)	No. of Blows	Blows per Layer	Material	DCP mm/blow	Estimated average CBR over depth range (%)
45	610	6	6	Unknown	94.17	2
610	830	28	22	Unknown	10.00	26
830	1376	67	39	Unknown	14.00	19
1376	1500	72	5	Unknown	24.80	10

Remarks:

Cone Angle 60°

UKAS accredited test - No

Test abandoned due to refusal of test equipment; less than 4mm penetration in 40 blows

ובחו ואם	Originator	Checked & Approved	Dynamic Cone Penetrometer	
במה - יכ	CL	CD 13/12/2024	In-house procedure TP166 with reference to CS 229 cl 6 of the DMRB	B102 Sheet 1 of 1



Site: CAMBUSHINNIE 400KV SUBSTATION

Balfour Beatty Engineer: Balfour Beatty Contract No: 26762

Water level measurements taken from ground level.

Borehole No.	yed n OD)	Base ipe (m	Date /Time	oheric sure ar)	0	as Co	mposi	tion		ential sure	Flow	Depth to Water	th (OX	Remarks	
	Surveyed Level (m OD)	Depth to Base of Standpipe (m)		Atmospheric Pressure (mBar)	Atmose Armose CH4 (%vol) (The		O ₂ (%vol)	H ₂ S	CO (ppm)	Differential Pressure	(l/hr)	(m) (mBGL)	Depth (mAOD)		
BH01			21/11/24 11:34	983	0.00	0.20	20.20	0.00	1.00	0.00	0.00	3.30		Dry, hazy, cool	
			21/11/24 11:35		0.00	3.90	14.10	0.00	3.00					Dry, hazy, cool	
			21/11/24 11:36		0.00	4.00	13.40	0.00	1.00					Dry, hazy, cool	
			21/11/24 11:37		0.00	4.00	13.20	0.00	1.00					Dry, hazy, cool	
			21/11/24 11:38		0.00	4.10	13.10	0.00	5.00					Dry, hazy, cool	
			21/11/24 11:39		0.00	4.10	13.10	0.00	3.00					Dry, hazy, cool	
			03/12/24 13:24	1008	0.00	0.50	20.00	0.00	0.00	0.00	0.00	3.17		Dry, sunny, mild	
			03/12/24 13:25		0.00	3.70	15.80	0.00	0.00					Dry, sunny, mild	
			03/12/24 13:26		0.00	3.90	13.40	0.00	0.00					Dry, sunny, mild	
			03/12/24 13:27		0.00	3.90	13.00	0.00	1.00					Dry, sunny, mild	
			03/12/24 13:28		0.00	3.90	12.90	0.00	1.00					Dry, sunny, mild	
			03/12/24 13:29		0.00	3.90	12.90	0.00	0.00					Dry, sunny, mild	
			10/12/24 09:17	1028	0.00	0.00	20.00	0.00	3.00	0.00	0.00	2.83		Dry, sunny, cold	
			10/12/24 09:18		0.00	4.00	13.30	0.00	1.00					Dry, sunny, cold	
			10/12/24 09:19		0.00	4.10	12.30	0.00	0.00					Dry, sunny, cold	
			10/12/24 09:20		0.00	4.10	12.10	0.00	0.00					Dry, sunny, cold	
			10/12/24 09:21		0.00	4.10	12.10	0.00	0.00					Dry, sunny, cold	
			10/12/24 09:22		0.00	4.10	12.10	0.00	0.00					Dry, sunny, cold	
BH02			21/11/24 12:11	982	0.00	3.60	16.80	0.00	0.00	0.00	0.00	2.73		Dry, hazy, cool	
			21/11/24 12:12		0.00	2.10	18.40	0.00	0.00					Dry, hazy, cool	
			21/11/24 12:13		0.00	2.10	18.60	0.00	1.00					Dry, hazy, cool	
			21/11/24 12:14		0.00	2.10	18.60	0.00	0.00					Dry, hazy, cool	
			21/11/24 12:15		0.00	2.10	18.60	0.00	1.00					Dry, hazy, cool	
			21/11/24 12:16		0.00	2.10	18.70	0.00	1.00					Dry, hazy, cool	
			03/12/24 11:52	1008	0.00	0.00	19.80	0.00	0.00	0.00	0.00	2.45		Dry, sunny, mild	
			03/12/24 11:53		0.00	0.90	20.10	0.00	0.00	-	-			Dry, sunny, mild	
			03/12/24 11:54		0.00	2.20	19.00	0.00	0.00					Dry, sunny, mild	
			03/12/24 11:55		0.00	2.40	18.40	0.00	0.00					Dry, sunny, mild	
			03/12/24 11:56		0.00	2.60	18.20	0.00	0.00					Dry, sunny, mild	
			03/12/24 11:57		0.00	2.60	18.20	0.00	1.00					Dry, sunny, mild	
			10/12/24 10:45	1028	0.00	3.10	17.30	0.00	0.00	0.00	0.00	2.27		Dry, sunny, cold	
			10/12/24 10:45	1020	0.00	1.90	17.70	0.00	0.00	0.00	0.00	2.21		Dry, sunny, cold	
	+		10/12/24 10:46		0.00	1.90	17.70	0.00	0.00					Dry, sunny, cold	
	+		10/12/24 10:47		0.00	1.90	17.90	0.00	0.00					Dry, sunny, cold	
	+		10/12/24 10:48		0.00	1.90	17.90	0.00	0.00					Dry, sunny, cold	
	+		10/12/24 10:49		0.00	1.90	17.90	0.00	0.00					Dry, sunny, cold	
WS01	+-			982						0.00	0.00	1.99			
VVOUI	+		21/11/24 12:28	902	0.00	2.00	18.40	0.00	0.00	0.00	0.00	1.99		Dry, hazy, cool	
	+		21/11/24 12:29		0.00	4.50	17.10	0.00	0.00					Dry, hazy, cool	
	+		21/11/24 12:30		0.00	4.50	16.90	0.00	0.00					Dry, hazy, cool	
	+		21/11/24 12:31		0.00	4.70	18.60	0.00	1.00					Dry, hazy, cool	
	+		21/11/24 12:32		0.00	4.80	16.80	0.00	0.00		 		Dry, hazy, cool		
	+		21/11/24 12:33		0.00	4.80	16.70	0.00	1.00					Dry, hazy, cool	
						No gas test possible as gas									
	0-11	_ _	ide.											valve removed	
	Originato JMcM		itle:	RESUL							ΞL			Fig No:	
Chk & App	JMcM Status Final				TS C						ΞL			B103 Sheet 1 of	





Site: CAMBUSHINNIE 400KV SUBSTATION

Balfour Beatty Engineer: Balfour Beatty Contract No: 26762

Water level measurements taken from ground level.

Borehole No.	yed n OD)	Base ipe (rr	Date /Time	oheric sure ar)	G	as Co	mposi	tion		ential sure	Flow	Depth to Water	th OC)	Remarks	
	Surveyed Level (m OD)	Depth to Base of Standpipe (m)		Atmospheric Pressure (mBar)	CH ₄ (%vol)	CO ₂ (%vol)	O ₂ (%vol)	H ₂ S	CO (ppm)	Differential Pressure	(l/hr)	(m) (mBGL)	Depth (mAOD)		
WS01			03/12/24 00:00									1.19		Dry, sunny, mild	
			10/12/24 11:10	1027	0.00	1.90	17.90	0.00	0.00	0.00	0.00	0.76		Dry, sunny, cold	
			10/12/24 11:11		0.00	3.30	17.20	0.00	0.00					Dry, sunny, cold	
			10/12/24 11:12		0.00	3.30	17.20	0.00	0.00					Dry, sunny, cold	
			10/12/24 11:13		0.00	3.30	17.10	0.00	0.00					Dry, sunny, cold	
			10/12/24 11:14		0.00	3.30	17.10	0.00	0.00					Dry, sunny, cold	
			10/12/24 11:15		0.00	3.30	17.10	0.00	0.00					Dry, sunny, cold	
WS02			21/11/24 12:45	982	0.00	4.30	17.50	0.00	0.00	0.00	0.00	0.91		Dry, hazy, cool	
			21/11/24 12:46		0.00	6.20	16.20	0.00	0.00					Dry, hazy, cool	
			21/11/24 12:47		0.00	6.20	16.20	0.00	0.00					Dry, hazy, cool	
			21/11/24 12:48		0.00	6.20	16.20	0.00	0.00					Dry, hazy, cool	
			21/11/24 12:49		0.00	6.30	16.10	0.00	0.00					Dry, hazy, cool	
			21/11/24 12:50		0.00	6.30	16.10	0.00	0.00					Dry, hazy, cool	
			03/12/24 12:16	1008	0.00	0.50	19.90	0.00	0.00	0.00	0.00	0.35		Dry, sunny, mild	
			03/12/24 12:17		0.00	0.80	20.20	0.00	0.00					Dry, sunny, mild	
			03/12/24 12:18		0.00	1.50	20.10	0.00	0.00					Dry, sunny, mild	
			03/12/24 12:19		0.00	1.60	20.20	0.00	0.00					Dry, sunny, mild	
			03/12/24 12:20		0.00	1.60	20.20	0.00	0.00					Dry, sunny, mild	
			03/12/24 12:21		0.00	1.60	20.10	0.00	0.00					Dry, sunny, mild	
			10/12/24 12:38	1027	0.00	2.00	18.40	0.00	0.00	0.00	0.00	0.68		Dry, sunny, cold	
			10/12/24 12:39		0.00	0.70	20.00	0.00	0.00					Dry, sunny, cold	
			10/12/24 12:40		0.00	0.40	20.40	0.00	0.00					Dry, sunny, cold	
			10/12/24 12:41		0.00	0.30	20.50	0.00	0.00					Dry, sunny, cold	
			10/12/24 12:42		0.00	0.30	20.60	0.00	0.00					Dry, sunny, cold	
			10/12/24 12:43		0.00	0.40	20.00	0.00	0.00					Dry, sunny, cold	
WS03			21/11/24 13:00	982	0.00	6.00	16.80	0.00	0.00	0.00	0.00	0.16		Dry, hazy, cool	
			21/11/24 13:01		0.00	0.70	19.60	0.00	0.00					Dry, hazy, cool	
			21/11/24 13:02											Test stopped due to ingress	
														of water	
			03/12/24 12:30	1006	0.00	0.40	20.10	0.00	0.00	0.00	0.00	GL		Dry, sunny, mild	
			03/12/24 12:31											Test stopped due to water	
														ingress	
			10/12/24 12:03	1027	0.00	2.00	17.70	0.00	0.00	0.00	0.00	GL		Dry, sunny, cold	
			10/12/24 12:04											Test stopped due to water	
														ingress	
WS04			21/11/24 13:16	982	0.00	0.60	18.90	0.00	1.00	0.00	0.00	0.81		Dry, hazy, cool	
			21/11/24 13:17		0.00	0.60	20.10	0.00	0.00					Dry, hazy, cool	
			21/11/24 13:18		0.00	0.50	20.30	0.00	0.00					Dry, hazy, cool	
			21/11/24 13:19		0.00	0.50	20.50	0.00	1.00					Dry, hazy, cool	
	1		21/11/24 13:20		0.00	0.40	20.50	0.00	1.00					Dry, hazy, cool	
	1		21/11/24 13:21		0.00	0.30	20.50	0.00	0.00					Dry, hazy, cool	
			03/12/24 12:51	1006	0.00	0.00	19.60	0.00	0.00	0.00	0.00	0.65		Dry, sunny, mild	
			03/12/24 12:52		0.00	0.40	19.80	0.00	0.00					Dry, sunny, mild	
			03/12/24 12:53		0.00	0.60	20.00	0.00	0.00					Dry, sunny, mild	
	Originato	r Titl		<u> </u>	1	1	1	I		<u>I</u>	1	<u> </u>		Fig No:	
	JMcM			RESUL	TS C	F GA	AS AP	ND W	ATE	R LEV	EL				





Site: CAMBUSHINNIE 400KV SUBSTATION

Balfour Beatty Engineer: Balfour Beatty Contract No: 26762

Water level measurements taken from ground level.

Borehole No.	yed n OD)	Base ipe (m	Date /Time	oheric sure ar)	G	as Co	mposi	tion		ential	Flow	Depth to Water	# O	Remarks
	Surveyed Level (m OD)	Depth to Base of Standpipe (m)		Atmospheric Pressure (mBar)	CH ₄ (%vol)	CO ₂ (%vol)	O ₂ (%vol)	H ₂ S	CO (ppm)	Differential Pressure	(l/hr)	(m) (mBGL)	Depth (mAOD)	
WS04			03/12/24 12:54		0.00	0.70	20.10	0.00	0.00					Dry, sunny, mild
			03/12/24 12:55		0.00	0.70	20.10	0.00	0.00					Dry, sunny, mild
			03/12/24 12:56		0.00	0.80	20.20	0.00	1.00					Dry, sunny, mild
			10/12/24 13:47	1027	0.00	0.30	19.60	0.00	0.00	0.00	0.00	0.59		Dry, sunny, cold
			10/12/24 13:48		0.00	0.50	19.90	0.00	0.00					Dry, sunny, cold
			10/12/24 13:49		0.00	0.50	19.90	0.00	0.00					Dry, sunny, cold
			10/12/24 13:50		0.00	0.50	19.90	0.00	0.00					Dry, sunny, cold
			10/12/24 13:51		0.00	0.50	20.00	0.00	0.00					Dry, sunny, cold
			10/12/24 13:52		0.00	0.40	20.00	0.00	0.00					Dry, sunny, cold
WS06			21/11/24 13:34	980	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.53		Dry, sunny, cool
			21/11/24 13:35		0.00	0.50	20.50	0.00	0.00					Dry, sunny, cool
			21/11/24 13:36		0.00	0.40	20.60	0.00	0.00					Dry, sunny, cool
			21/11/24 13:37		0.00	0.30	20.70	0.00	0.00					Dry, sunny, cool
			21/11/24 13:38		0.00	0.20	20.70	0.00	0.00					Dry, sunny, cool
			21/11/24 13:39		0.00	0.10	20.70	0.00	1.00					Dry, sunny, cool
			03/12/24 14:35	1005	0.00	0.80	18.90	0.00	0.00	0.00	0.00	0.23		Dry, sunny, mild
			03/12/24 14:36		0.00	0.70	20.00	0.00	0.00					Dry, sunny, mild
			03/12/24 14:37		0.00	0.70	20.20	0.00	0.00					Dry, sunny, mild
			03/12/24 14:38		0.00	0.60	20.40	0.00	0.00					Dry, sunny, mild
			03/12/24 14:39		0.00	0.50	20.40	0.00	0.00					Dry, sunny, mild
			03/12/24 14:40		0.00	0.50	20.40	0.00	0.00					Dry, sunny, mild
			10/12/24 14:30	1024	0.00	0.40	19.70	0.00	0.00	0.00	0.00	0.25		Dry, sunny, cold
			10/12/24 14:31		0.00	0.00	20.60	0.00	0.00					Dry, sunny, cold
			10/12/24 14:32		0.00	0.00	20.70	0.00	1.00					Dry, sunny, cold
			10/12/24 14:33		0.00	0.00	20.70	0.00	0.00					Dry, sunny, cold
			10/12/24 14:34											Test stopped due to water
														ingress
WS07			21/11/24 13:51	979	0.00	0.00	20.30	0.00	0.00	0.00	0.00	0.61		Dry, sunny, cool
			21/11/24 13:52		0.00	0.00	20.60	0.00	0.00					Dry, sunny, cool
			21/11/24 13:53		0.00	0.00	20.60	0.00	0.00					Dry, sunny, cool
			21/11/24 13:54		0.00	0.00	20.60	0.00	0.00					Dry, sunny, cool
			21/11/24 13:55		0.00	0.00	20.70	0.00	0.00					Dry, sunny, cool
			21/11/24 13:56		0.00	0.00	20.60	0.00	0.00					Dry, sunny, cool
			03/12/24 14:18	1005	0.00	3.60	17.60	0.00	0.00	0.00	0.00	0.45		Dry, sunny, mild
			03/12/24 14:19		0.00	2.30	16.60	0.00	0.00					Dry, sunny, mild
			03/12/24 14:20		0.00	2.30	17.00	0.00	0.00					Dry, sunny, mild
			03/12/24 14:21		0.00	2.30	17.10	0.00	0.00					Dry, sunny, mild
			03/12/24 14:22		0.00	2.30	17.30	0.00	0.00					Dry, sunny, mild
			03/12/24 14:23		0.00	2.00	17.50	0.00	0.00					Dry, sunny, mild
			10/12/24 15:19	1024	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.42		Dry, sunny, cold
			10/12/24 15:20		0.00	3.30	17.90	0.00	0.00					Dry, sunny, cold
			10/12/24 15:21											Test stopped due to water
														ingress
	Originato	r Tit	le:											Fig No:
	JMcM			RESUL							EL			
Chk & App	Status	-		NAC	DNITO	ואוםר		CTA	NDDI	DEC				B103



^	Site: CAMBUSHINNIE 400KV SUBSTATION	Contr
	Client: Balfour Beatty Engineer: Balfour Beatty	

Contract No: 26762

CAMBUSHINNIE 400KV SUBSTATION

Balfour Beatty

Engineer: Balfour Beatty

Contract No: 26762

STANDARD

CLASSIFICATION TESTS

TEST

BS EN ISO 17892-1:2014 Determination of water content

Determination of liquid limit BS 1377: 1990: Part 2: 4.3 and 4.4

Determination of liquid and plastic limits BS EN ISO 17892-12:2018 Determination of bulk density BS EN ISO 17892-2:2014 Determination of particle density BS EN ISO 17892-3:2016 Determination of particle size distribution BS EN ISO 17892-4:2016

CHEMICAL TESTS

Determination of organic matter content BS 1377: 1990: Part 3: 3.4 Determination of mass loss on ignition BS 1377: 1990: Part 3: 4.3

Determination of sulphate content of soil and groundwater BS 1377: 1990: Part 3: 5.2. 5.3 and 5.5 Determination of chloride content BS 1377: 1990: Part 3: 7.2 and 7.3

Determination of pH value BS 1377: 1990: Part 3: 9.5

COMPACTION-RELATED TESTS

Determination of dry density/moisture content relationship BS 1377: 1990: Part 4: 3.3 to 3.6

Determination of moisture condition value (MCV) SDD Tech Memo SH7/83; SDD Appls Guide No.1 Rev. 1989

BS 1377: 1990: Part 4: 7.4 Determination of California Bearing Ratio (CBR)

CONSOLIDATION AND STRENGTH TESTS

Incremental loading oedemeter test BS FN ISO 17892-5:2017 Unconfined compression test BS EN ISO 17892-7:2018 Unconsolidated undrained triaxial test BS EN ISO 17892-8:2018 Consolidated triaxial compression tests on water saturated soils BS EN ISO 17892-9:2018

BS 1377: 1990 Lab Vane Tests

Direct shear tests BS EN ISO 17892-10:2019 Permeability tests BS EN ISO 17892-11:2019 BS EN ISO 17892-6:2017 Fall cone test

ROCK TESTS

Printed: 12/12/2024 16:48:43 Raeburn Drilling and Geotechnical, Whistleberry Rd, Hamilton ML3 0HP Tel: 01698-711177

Determination of point load strength ISRM Commission on Testing Methods, 1985

Determination of unconfined compressive strength ASTM D7012-14

BS EN 1097-2-2010 and BS 818: Part 2: 1990 LA Abrasion Tests

Magnesium Soundness Tests BS EN 1367-2

Slake durability ISRM Suggested methods Rock porosity / density ISRM Suggested methods



Raeburn Drilling & Geotechnical Ltd t/a igne H

Whistleberry Road Hamilton ML6 OHP

For the attention of Ramsay Bell

Report No: A15413-1

Issue No: 01

Date of issue: 26/11/2024

LABORATORY TEST REPORT

Project Name	Э	CAMBUSHINNIE HAU	IL ROAD				
Project Numb	oer	A15413-1	Date samples received				
Your Ref		26762	Date written instructions receive	ed (07/11/2024		
Purchase Ord	der	26762	Date testing commenced		11/11/2024		
		Please find enclos	sed the results as summarised below				
Figure / Table	Test Quantity		Description		ISO 17025 Accredited		
54 Determination of Water Content							
	11	11 Atterberg Limit					
37 Particle Size Distribution							
4 Moisture Content / Dry Density Relationship					Yes		
	5	California Bearing Ratio			Yes		
	4	Unconsolidated Undrained	Yes				
	2	Point Load Index		Yes			
Remarks:				y to symbols use	ed in this report		
	Interim resui	ts. Oedometer & Chemistry to	o follow s/c	: Testing was sub-	contracted		

Issued by: C Donnelly

Laboratory Coordinator

26/11/2024

Approved Signatories: C Donnelly - Laboratory Coordinator, C Loudon - Field Services Manager, S McDonagh - Laboratory Supervisor, S Gilchrist - Quality Supervisor, R Hobson - Field Services Manager, T Johnson - Senior Technician

Unless we are notified to the contrary, any remaining samples will dispossed of, 4 weeks after the date this report was issued Results contained in this report are provisional unless signed by an approved signatory

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The enclosed results remain the property of Terra Tek Limited (Trading as igne) and we reserve the right to withdraw

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 $\underline{https://forms.office.com/pages/responsepage.aspx?id=CwCZTjwYeUGWZfDBJbk1q0fy8UwdJQhLttd3\acute{H}BD1SytUMzNYWTdFVVpMWjdHREcwQUq1MDJLM09OTi4u\&wdLOR_wdloredulled. With the temperature of the following the following$







62 Rochsolloch Road, Airdrie, ML6 9BG Tel: +44 (0)1236 747 949 Fax: +44 (0)1236 747 849 airdrie@igne.com

www.igne.com

Terra Tek Ltd is registered in Scotland. SC121594 Offices in Airdrie, Aston Clinton, Barnsley, Daventry Version 026 - 01/09/2023 1212 - Moisture Content Table - A15413-1.xls

Sample Identification

Site CAMBUSHINNIE HAUL ROAD

Client **Balfour Beatty**

Engineer WSP

Contract No

26762

1212 - Moisture Co	Exploratory Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Non Enginering Description	Water Content %				
	BH01	0.80		В	2030056	Brown silty sandy fine to coarse GRAVEL with cobbles	13				
	BH01	1.20		В	2030057	Brown silty SAND and GRAVEL. Gravel is fine to coarse	16				
	BH01	11.70		UT 2030061		Brown gravelly very silty SAND. Gravel is fine to coarse	24.6				
	BH01	14.70		UT	2030062	Brown gravelly very silty SAND. Gravel is fine to coarse	22.8				
	BH01	5.70		UT	2030059	Brown gravelly very silty SAND. Gravel is fine to coarse	23.6				
	BH01	8.70		UT	2030060	Brown gravelly very silty SAND. Gravel is fine to coarse	22.6				
	BH02	0.80		В	2030065	Brown slightly silty sandy fine to coarse GRAVEL with cobbles	6.6				
	BH02	1.20		D	2030066	Brown silty very sandy fine to coarse GRAVEL with cobbles	7.3				
	BH02	7.20		D	2030067	Brown slightly sandy SILT	34				
	TP01	2.20		D	2030072	Brown slightly silty sandy fine to coarse GRAVEL	10.1				
	TP02	1.50		D	2030073	Brown silty sandy fine to coarse GRAVEL	9				
06:31	TP03	1.50		D	2030076	Brown silty sandy fine to coarse GRAVEL	9.6				
Lab Project No A15413-1 : 26/11/2024 12:06:31	TP03	2.00		LB	2030075	Brown slightly silty sandy fine to coarse GRAVEL with cobbles	7.9				
3-1:26/11	TP04	0.50		D	2030077	Brown gravelly very silty SAND. Gravel is fine to coarse	20.5				
41541	Notes			•							
oject No /	Originator	Checked Approve		De		tion of the Water Content					
Lab Pr	AM	26/11/202	14		BS	BS EN ISO 17892-1:2014 Figure					

62 Rochsolloch Road, Airdrie, ML6 9BG

,	Originator	Checked & Approved
	АМ	<u>CD</u>



Balfour Beatty

Engineer

WSP

			ngineer	WSP		
	Sample Identifi	cation				
Exploratory Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Non Enginering Description	Water Content %
TP04	2.50		D	2030078	Brown silty very sandy fine to coarse GRAVEL	9.8
TP05	2.60		D	2030081	Brown slightly silty sandy fine to coarse GRAVEL	8.8
TP06	1.50		D	2030083	Brown silty very gravelly SAND. Gravel is fine to coarse	17.5
TP07	2.50		D	2030084	Brown silty very sandy fine to coarse GRAVEL	12.2
TP08	1.20		D	2030086	Brown silty very sany fine to coarse GRAVEL	18.6
TP09	2.20		D	2030088	Brown slightly silty sandy fine to coarse GRAVEL	17.6
TP10	1.50		D	2030089	Brown silty sandy fine to coarse GRAVEL	14.3
TP12	1.20		D	2030092	Brown silty very gravelly SAND . Gravel is fine to coarse	10.9
TP12	2.20		D	2030093	Brown silty gravelly SAND . Gravel is fine to coarse	10.9
TP13	1.50		LB	2030095	Brown silty SAND and GRAVEL. Gravel is fine to coarse	15
TP13	2.50		LB	2030096	Brown silty SAND and GRAVEL with cobbles. Gravel is fine to coarse	13.3
TP14	0.50		LB	2030100	Brown silty very sandy fine to coarse GRAVEL. Gravel is fine to coarse	16
TP14	2.50		LB	2030101	Brown silty SAND and GRAVEL. Gravel is fine to coarse	15.9
TP15	0.50		D	2030103	Brown silty gravelly SAND . Gravel is fine to coarse	20.7

Lab Project No A15413-1: 26/11/2024 12:06:31 Notes

62 Rochsolloch Road, Airdrie, ML6 9BG

,	Originator	Checked & Approved
	АМ	<u>CD</u>

Determination of the Water Content BS EN ISO 17892-1:2014



Contract No

26762

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Client **Balfour Beatty**

	_	ı	Engineer	WSP		
;	Sample Identifi	cation				
Exploratory Hole	Depth m	Sample Ref	e Sample Type	Lab Sample ID	Non Enginering Description	Water Content %
TP15	1.50		D	2030104	Brown silty gravelly SAND . Gravel is fine to coarse	20.6
TP16	1.00		LB	2030105	Brown silty gravelly SAND . Gravel is fine to coarse	21.8
TP17	0.50		D	2030108	Brown silty very sandy fine to coarse GRAVEL	18.1
TP18	2.50		D	2030110	Brown silty SAND and GRAVEL. Gravel is fine to coarse	17.8
TP19	1.50		D	2030113	Brown silty SAND and GRAVEL. Gravel is fine to coarse	11.3
TP20	1.20		D	2030115	Brown silty gravelly SAND . Gravel is fine to coarse	15.2
TP21	1.00		D	2030117	Brown silty gravelly SAND . Gravel is fine to coarse	18.2
TP21	3.00		D	2030118	Brown silty gravelly SAND . Gravel is fine to coarse	15.9
WS01	0.50		D	2030122	Brown gravelly silty SAND. Gravel is fine to coarse	21.1
WS01	1.00		D	2030123	Brown gravelly silty SAND. Gravel is fine to coarse	21
WS01	1.20		UL	2030120	Brown silty very sandy fine to coarse GRAVEL	13.8
WS01	2.00		D	2030124	Brown silty very sandy fine to coarse GRAVEL	10.2
WS01	4.20		D	2030125	Brown gravelly silty SAND. Gravel is fine to coarse	19.1
WS02	1.20		D	2030130	Brown silty SAND and GRAVEL. Gravel is fine to coarse	13.1
INULES						

Lab Project No A15413-1 : 26/11/2024 12:06:32 62 Rochsolloch Road, Airdrie, ML6 9BG

Checked & Originator Approved AM 26/11/2024

Determination of the Water Content BS EN ISO 17892-1:2014



Contract No

26762

Version 026 - 01/09/2023	1212 - Moisture Content Table - A15413-1.xls

Balfour Beatty

Engineer

WSP

Comple Identification						
Sample Identification						
Exploratory Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Non Enginering Description	Water Content %
WS03	0.50		D	2030137	Brown gravelly silty SAND. Gravel is fine to medium	32.9
WS03	2.20		В	2030136	Brown slightly gravelly silty SAND. Gravel is fine to medium	18
WS04	0.80		В	2030141	Brown silty very gravelly SAND. Gravel is fine to coarse	20.3
WS04	2.20		D	2030140	Brown silty very sandy fine to coarse GRAVEL	8.7
WS05	0.40		D	2030143	Brown very silty SAND	32.3
WS05	2.20		D	2030145	Brown silty SAND and GRAVEL. Gravel is fine to coarse	10.6
WS05	2.20		UL	2030147	Brown silty SAND and GRAVEL. Gravel is fine to coarse	9.6
WS05	2.80		D	2030146	Brown silty very sandy fine to coarse GRAVEL	18.2
WS06	2.20		D	2030149	Brown silty very sandy fine to coarse GRAVEL	10.8
WS06	3.00		D	2030150	Brown silty SAND and GRAVEL. Gravel is fine to coarse	13
WS07	1.20		D	2030153	Brown silty SAND and GRAVEL. Gravel is fine to coarse	17.3
WS07	1.20		UL	2030155	Brown silty very sandy fine to coarse GRAVEL	16.6
 Notes						

62 Rochsolloch Road, Airdrie, ML6 9BG

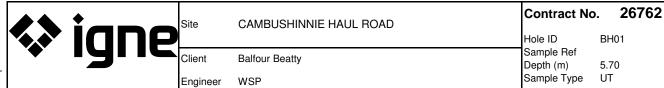
Lab Project No A15413-1 : 26/11/2024 12:06:33	WS07	1.20
A1541	Notes	
ject No ,	Originator	Checked & Approved
Lab Pro	АМ	<u>CD</u> 26/11/2024

Determination of the Water Content BS EN ISO 17892-1:2014



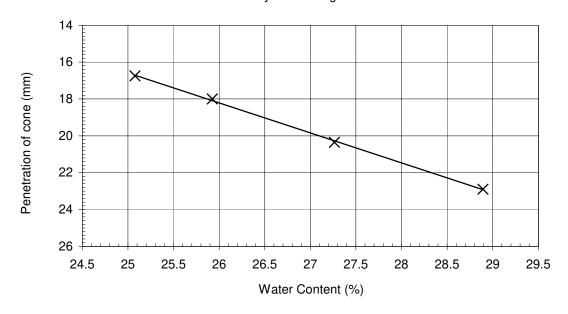
Contract No

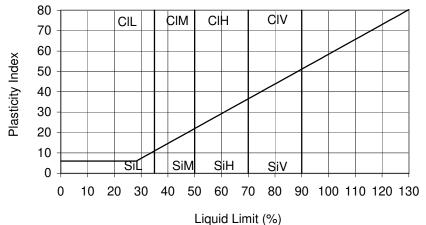
26762



Non Engineering Description: Brown gravelly very silty SAND. Gravel is fine to coarse

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

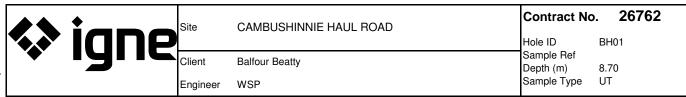
As Received Water Content : (BS EN ISO 17892-1:2014) 23.6 % Percentage retained on 425 μ m sieve : 23 % Liquid Limit : 27 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425µm sieve: 30.6 %

Originator	Checked & Approved	Plasti
СМ	<u>CD</u> 26/11/2024	

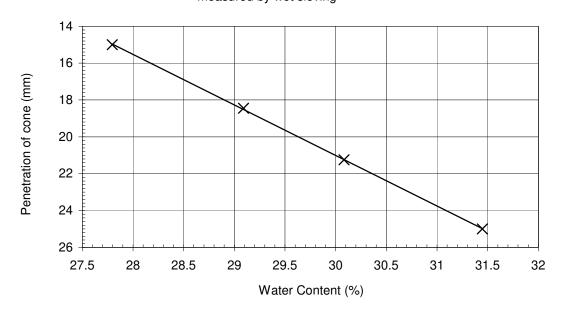
Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index

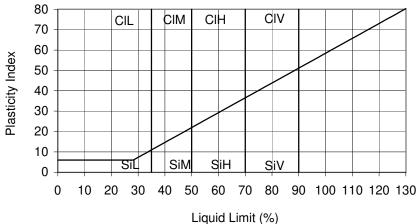




Non Engineering Description: Brown gravelly very silty SAND. Gravel is fine to coarse

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

As Received Water Content : (BS EN ISO 17892-1:2014) 22.6 % Percentage retained on 425 μ m sieve : 9 % Liquid Limit : 30 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425µm sieve: 24.8 %

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index	
СМ	CD	BS EN ISO 17892-12:2018 Clause 5.3	
CIVI	26/11/2024	BS EN ISO 17892-12:2018 Clause 5.5	





Client Balfour Beatty

Engineer WSP

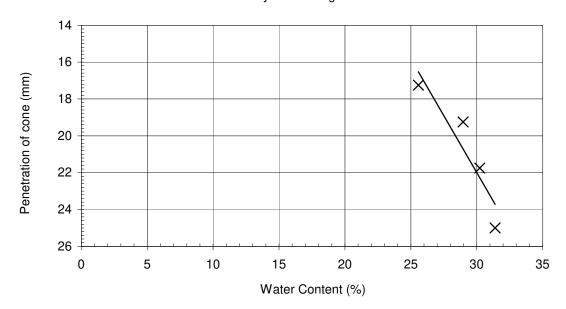
Contract No. 26762

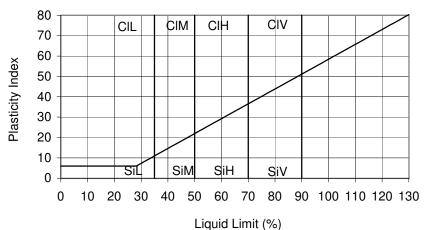
Hole ID Sample Ref BH01

Depth (m) 11.70 Sample Type UT

Non Engineering Description: Brown gravelly very silty SAND. Gravel is fine to coarse

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

As Received Water Content : (BS EN ISO 17892-1:2014) 24.6 % Percentage retained on 425 μ m sieve : 9 % Liquid Limit : 28 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425µm sieve: 27.0 %

Originator	Approved
СМ	CD 26/11/2024

Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index





Client Balfour Beatty

Engineer WSP

Contract No. 26762

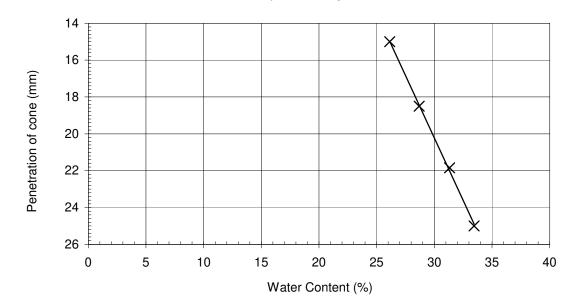
Hole ID Sample Ref

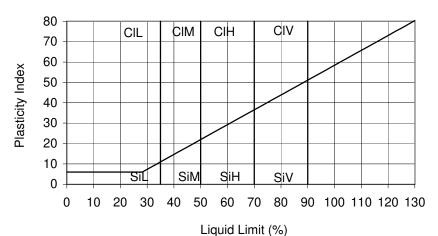
BH01

Depth (m) 14.70 Sample Type UT

Non Engineering Description: Brown gravelly very silty SAND. Gravel is fine to coarse

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

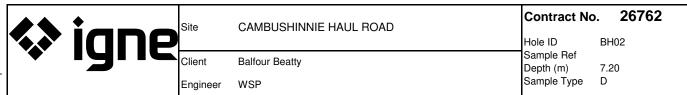
As Received Water Content : (BS EN ISO 17892-1:2014) 22.8 % Percentage retained on 425 μ m sieve : 12 % Liquid Limit : 30 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425µm sieve: 25.9 %

Originator	Approved
СМ	CD 26/11/2024

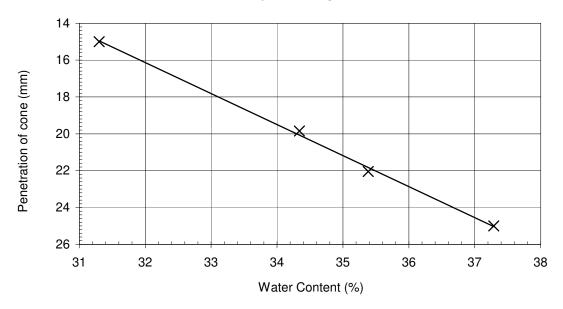
Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index

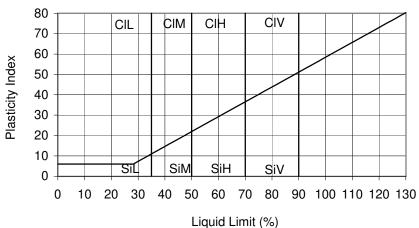




Non Engineering Description: Brown slightly sandy SILT

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





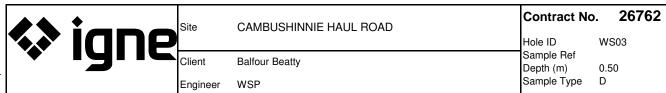
Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

As Received Water Content : (BS EN ISO 17892-1:2014) 34.0 % Percentage retained on 425 μ m sieve : 6 % Liquid Limit : 34 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425µm sieve: 36.2 %

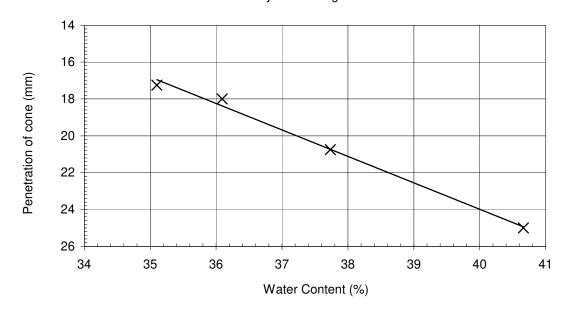
Originator		iquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index	
CM	<u>CD</u> 26/11/2024	BS EN ISO 17892-12:2018 Clause 5.3	
Civi		BS EN ISO 17892-12:2018 Clause 5.5	

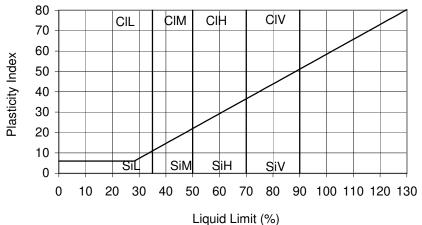




Non Engineering Description: Brown gravelly silty SAND. Gravel is fine to medium

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

As Received Water Content : (BS EN ISO 17892-1:2014) 32.9 % Percentage retained on 425 μ m sieve : 26 % Liquid Limit : 37 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425µm sieve: 44.5 %

Originator	Checked & Approved	Liquid I Plas
СМ	<u>CD</u> 26/11/2024	

Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index



Balfour Beatty

Engineer WSP

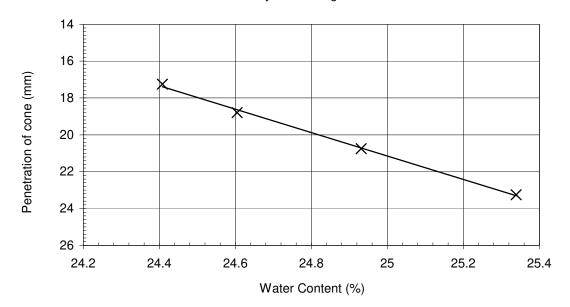
Contract No. 26762

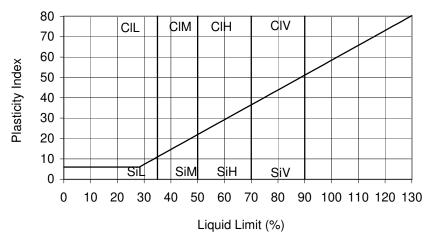
Hole ID Sample Ref WS05

Depth (m) 2.20 Sample Type D

Non Engineering Description: Brown silty SAND and GRAVEL. Gravel is fine to coarse

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

As Received Water Content : (BS EN ISO 17892-1:2014) 10.6 % Percentage retained on 425 μ m sieve : 52 % Liquid Limit : 25 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425µm sieve: 22.1 %

Originator	Checked & Approved
СМ	CD 26/11/2024

Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index





Client Balfour Beatty

Engineer WSP

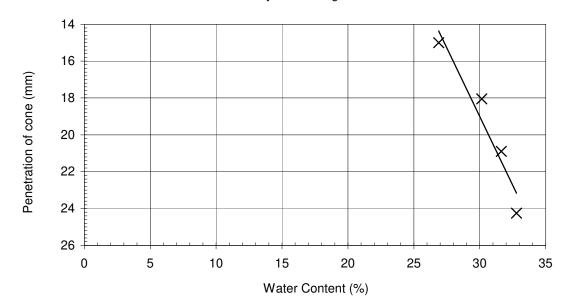
Contract No. 26762

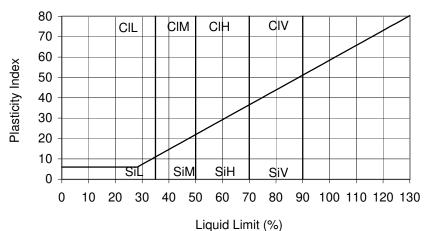
Hole ID Sample Ref WS05

Depth (m) 2.80 Sample Type D

Non Engineering Description: Brown silty very sandy fine to coarse GRAVEL

Preparation : Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone **Results**:

As Received Water Content : (BS EN ISO 17892-1:2014) 18.2 % Percentage retained on 425 μ m sieve : 71 % Liquid Limit : 31 % Plastic Limit : Non-Plastic %

Equivalent water content of material passing 425 μ m sieve : 62.8 %

Originator	Approved
СМ	<u>CD</u> 26/11/2024

Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index





Client **Balfour Beatty**

WSP Engineer

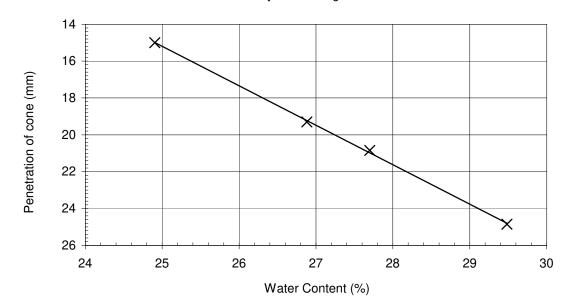
Contract No. 26762

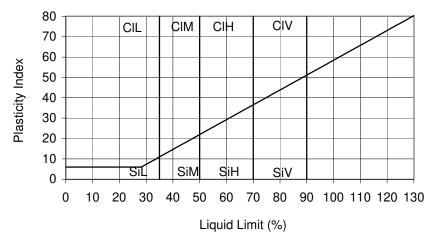
Hole ID WS06 Sample Ref

2.20 Depth (m) Sample Type D

Non Engineering Description: Brown silty very sandy fine to coarse GRAVEL

Preparation: Sample oven dried, Percentage retained on 425µm sieve measured by wet sieving





Sample was determined to be Non-Plastic after preparation Liquid Limit was determined by mixing using increasing water content and 30° cone Results:

> As Received Water Content: (BS EN ISO 17892-1:2014) 10.8 % Percentage retained on 425µm sieve: 61 % Liquid Limit: 27 % Plastic Limit: Non-Plastic %

> Equivalent water content of material passing 425µm sieve : 27.7 %

Originator	Checked & Approved
СМ	CD 26/11/2024

Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index

