

Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Borehole No.

BH30R

Dates : 7/12/21 - 8/12/21

Job Number : Q0652

Ground Level : 239.10 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 284925.69E
210549.41 N
Co-ordinates to National Grid



Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotechnic.co.uk

Operator:
Samson
Drilling

Logged By:
S Picton

Sheet No.
1 Of 2

m Per
Page
2

All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Borehole No.

BH30R

Dates : 7/12/21 - 8/12/21

Job Number : Q0652

Ground Level : 239.10 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 284925.69E
210549.41 N
Co-ordinates to National Grid



Plas Newydd
Swansea
Tel: 01554744880
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All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence										Borehole No. BH31		
Client : Global Centre of Rail Excellence												
Dates : 29/11/21 - 1/12/21					Job Number : Q0652			Ground Level : 238.61 m A.O.D. Level to Ordnance Datum				
Location : Around washery area					Engineer : ARUP			Coordinates: 284880.77 E 210454.81 N Co-ordinates to National Grid				

m B.G.L.	Samples		Insitu Test Results		Strata				Water
	Depth	Type No. Blows	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
0	0.20	ES1			(0.70)	MADE GROUND - Grey sandy silty GRAVEL. Gravel is fine to coarse angular to sub-angular Limestone		(0.70)	
1	0.50 - 1.20	B2			0.70	MADE GROUND - Black dark grey slightly silty slightly clayey sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal		237.91	
	1.20	ES3	1.20	SPT (C) 10 (1-2-3-2-3)					
	1.20 - 1.70	B5							
2	2.00	ES6	2.00	SPT (C) 7 (1-1-2-1-2-2)					
	2.00 - 2.50	B8							
3	3.00	ES9	3.00	SPT (C) 10 (1-2-3-2-3)					
	3.00 - 3.50	B11			(6.00)			(6.00)	
4	4.00	ES12	4.00	SPT (C) 11 (3-3-3-2-3-3)					
	4.00 - 4.50	B14							
5	5.00	ES15	5.00	SPT (C) 14 (2-3-3-3-4-4)					
	5.00 - 5.50	B17							
6	6.50	ES18	6.50	SPT (C) 9 (2-3-3-2-2-2)					
	6.50 - 6.80	B20			6.70	Soft brown to dark brown fibrous PEAT		231.91	
	6.80	B1			(1.10)			(1.10)	
	6.80 - 7.30	D21 B22							
8	7.80	D23	8.00	SPT (S) 14 (2-3-3-4-4-3)	7.80	Soft to firm brown grey slightly sandy slightly gravelly slightly silty CLAY with low to medium cobble content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone, Siltstone and Sandstone. Cobbles are rounded to sub-rounded Sandstone		230.81	
	8.00 - 8.50	B25			(1.70)			(1.70)	
9	9.50 - 10.00	B27	9.50	SPT (C) 37 (5-8-9-9-9-10)	9.50	Medium dense to dense dark grey silty sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone		229.11	
10	10.00 - 10.40	B29	10.00	SPT (C) 35 (5-7-8-8-10-9)	(0.90)			(0.90)	
	10.60 - 10.80	B30	10.80	SPT (C) 50/40mm (25/45mm-50/40mm-)	10.60	Firm to stiff grey brown mottled slightly sandy gravelly CLAY with medium cobble and boulder content. Gravel is fine to coarse rounded to sub-rounded Siltstone and		228.21 (0.20) 228.01	

Hole Progress / Water Obs				Casing		Groundwater				Chiselling		
Date / Time	H. Depth	C. Depth	Water	Depth	Cas. Dia.	Struck	Rose To	Behaviour	Sealed	From	To	Hours
29/11/2021 16:00	3.00	3.00		10.60	150.00	6.80	3.50	Medium ground water strike at 3.50mbgl		9.60	10.00	1:00
30/11/2021 08:00	3.00	3.00								10.00	10.40	1:00
30/11/2021 16:00	10.00	10.00	4.20							10.60	10.80	1:00
01/12/2021 08:00	10.00	10.00	3.15									

Equipment / plant used: Dando 2000 cable percussive rig

Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. Cable Percussive GL-10.8mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotech.co.uk	Operator:	Logged By:	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	1 Of 2	11		

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Contract : Global Centre of Rail Excellence										Borehole No. BH31		
Client : Global Centre of Rail Excellence												
Dates : 29/11/21 - 1/12/21				Job Number : Q0652				Ground Level : 238.61 m A.O.D. Level to Ordnance Datum				
Location : Around washery area				Engineer : ARUP				Coordinates: 284880.77 E 210454.81 N Co-ordinates to National Grid				

m B.G.L.	Samples		Insitu Test Results		Strata					Red. Level A.O.D.	Water
	Depth	Type No. Blows	Depth	Test Results	Depth (Thickness)	Description	Legend				
11					10.80	Sandstone. Cobbles and boulders are rounded to sub-rounded Sandstone Weak to strong dark grey SILTSTONE. Recovered as fine to coarse angular to sub-angular GRAVEL (SOUTH WALES COAL MEASURES) Terminated at 10.80mbgl upon refusal. Progressed using rotary drilling methods		227.81			
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											

Hole Progress / Water Obs				Casing		Groundwater				Chiselling		
Date / Time	H. Depth	C. Depth	Water	Depth	Cas. Dia.	Struck	Rose To	Behaviour	Sealed	From	To	Hours

Equipment / plant used: Dando 2000 cable percussive rig
Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. Cable Percussive GL-10.8mbgl

 Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: P Osborn	Logged By: S Picton	Sheet No. 2 Of 2	m Per Page 11	All measurements in metres unless otherwise stated	
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Contract : Global Centre of Rail Excellence										Borehole No. BH31R	
Client : Global Centre of Rail Excellence											
Dates : 6/12/21 - 6/12/21					Job Number : Q0652					Ground Level : 238.61 m A.O.D. Level to Ordnance Datum	
Location :					Engineer : ARUP					Coordinates: 284880.77 E 210454.81 N Co-ordinates to National Grid	

m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/ Backfill
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.		
0									(0.70)	MADE GROUND - Grey sandy silty GRAVEL. Gravel is fine to coarse angular to sub-angular Limestone. Progressed using Cable Percussive Drilling techniques		237.91		
1									0.70	MADE GROUND - Black dark grey slightly silty slightly clayey sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal. Progressed using Cable Percussive Drilling techniques				
2														
3														
4									(6.10)					
5														
6														
7									6.80	Soft brown to dark brown fibrous PEAT. Progressed using Cable Percussive Drilling techniques		231.81		
8									7.80	Soft to firm brown grey slightly sandy slightly gravelly slightly silty CLAY with low to medium cobble content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone, Siltstone and Sandstone. Cobbles are rounded to sub-rounded Sandstone. Progressed using Cable Percussive Drilling techniques		230.81		
9									(1.70)					
10									9.50	Medium dense to dense dark grey silty sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone. Progressed using Cable Percussive Drilling techniques		229.11		
11									10.40	Medium dense to dense dark grey silty sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone. Progressed using Cable Percussive Drilling techniques		228.21		
12									(0.20)			228.01		
13									10.60	Firm to stiff grey brown mottled slightly sandy gravelly CLAY with medium cobble and boulder content. Gravel is fine to coarse rounded to sub-rounded Siltstone and Sandstone. Cobbles and boulders are rounded to sub-rounded Sandstone. Progressed using Cable Percussive Drilling techniques		227.81		
14									(5.20)					
15										Weak to strong dark grey SILTSTONE. Recovered as fine to coarse angular to sub-angular GRAVEL (SOUTH WALES COAL MEASURES). Progressed using Cable Percussive Drilling techniques				
16									16.00	Mudstone / Siltstone (Drillers Description)		222.61		
17									(1.10)	Coal (Drillers Description)				
18									17.10	Dark grey Mudstone (Drillers Description)		221.51		
19														
20														

Hole Progress / Water Obs				Casing		Groundwater				Flush		
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns
				11.70	115.00					10.80 - 35.00	Mist	100

Plant: Dando 2000 cable percussive rig

Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. No Groundwater Strike Observed. Cable Percussive GL-10.8mbgl, ODEX 10.8-11.7mbgl, Rotary 'open hole' 11.7-35.0mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By:	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	1 Of 2	21		

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Contract : Global Centre of Rail Excellence											Borehole No. BH31R		
Client : Global Centre of Rail Excellence													
Dates : 6/12/21 - 6/12/21					Job Number : Q0652					Ground Level : 238.61 m A.O.D. Level to Ordnance Datum			
Location :					Engineer : ARUP					Coordinates: 284880.77 E 210454.81 N Co-ordinates to National Grid			

m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/ Backfill
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.		
21									(8.40)	Dark grey Mudstone (Drillers Description)				
22														
23														
24														
25														
26									25.50 (1.00)	Coal (Drillers Description)		213.11		
27									26.50 (1.60)	Dark grey Mudstone (Drillers Description)		212.11		
28									28.10	Mudstone / Siltstone (Drillers Description)		210.51		
29														
30														
31														
32									(6.90)					
33														
34														
35									35.00	Terminated at 35.0mbgl (Scheduled Depth)		203.61		
36														
37														
38														
39														
40														
41														

Hole Progress / Water Obs				Casing		Groundwater				Flush		
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns

Plant: Dando 2000 cable percussive rig

Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. No Groundwater Strike Observed. Cable Percussive GL-10.8mbgl, ODEX 10.8-11.7mbgl, Rotary 'open hole' 11.7-35.0mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By:	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	2 Of 2	21		

Form Name: ROTARY. Version 2.11.000, 22/05/15 Output By: Phil Darby. Library File: C:\USERS\PHIL DARBY\ONEDRIVE - QUANTUM GEOTECHNIC LTD\QUANTUM 4.GLB.

Contract : Global Centre of Rail Excellence										Borehole No. BH32		
Client : Global Centre of Rail Excellence												
Dates : 6/12/21 - 6/12/21					Job Number : Q0652					Ground Level : 244.73 m A.O.D. Level to Ordnance Datum		
Location : Around washery area					Engineer : ARUP					Coordinates: 284967.95 E 210230.01 N Co-ordinates to National Grid		

m B.G.L.	Samples		Insitu Test Results		Strata				Legend	Red. Level A.O.D.	Water
	Depth	Type No. Blows	Depth	Test Results	Depth (Thickness)	Description					
0	0.20	ES1				Grass over soft to firm brown sandy gravelly silty CLAY with medium cobble content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone, Siltstone and Sandstone. Cobbles are rounded to sub-rounded Sandstone		(3.60)			
	0.50 - 1.00	B2									
1	1.00	ES3									
	1.20 - 1.70	B5	1.20	SPT (C) 50/190mm (2-4-9-21-20/40mm-)							
2	2.00	ES6	2.00	SPT (C) 50/125mm (7-10-27-23/50mm-)	(3.60)						
	2.00 - 2.50	B8									
3	3.00	ES9	3.00	SPT (C) 32 (4-7-7-8-8-9)							
	3.00 - 3.50	B11									
4	4.00	ES12	4.00	SPT (C) 50/225mm (8-10-12-15-23-)	3.60 (0.70)	Stiff grey brown mottled slightly sandy very gravelly CLAY with medium cobble and boulder content. Gravel is fine to coarse rounded to sub-rounded Siltstone and Sandstone. Cobbles and boulders are rounded to sub-rounded Sandstone		241.13 (0.70)			
	4.30 - 5.00	B14			4.30 (0.70)	Weak to strong dark grey black MUDSTONE with coal bands. Recovered as fine to coarse angular to sub-angular GRAVEL (SOUTH WALES COAL MEASURES)		240.43 (0.70)			
5			5.00	SPT (C) 50/100mm (22/55mm-36-14/25mm-)	5.00	Terminated at 5.00mbgl upon refusal. Progressed using rotary drilling methods		239.73			
6											
7											
8											
9											
10											

Hole Progress / Water Obs				Casing		Groundwater				Chiselling		
Date / Time	H. Depth	C. Depth	Water	Depth	Cas. Dia.	Struck	Rose To	Behaviour	Sealed	From	To	Hours
				4.50	150.00	4.50	3.80	Medium ground water strike at 4.50mbgl		1.20	1.60	1:00
										2.40	2.80	1:00
										4.70	5.00	1:00

Equipment / plant used: Dando 2000 cable percussive drill rig

Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. Cable Percussive GL-5.0mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	1 Of 1	11		

Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Dates: 9/12/21 - 14/12/21

Location :

Job Number : Q0652

Engineer : ARUP

Ground Level : 244.73 m A.O.D.
Level to Ordnance Datum

Coordinates: 284967.95 E
210230.01 N
Co-ordinates to Local Grid

Orientation & Inclination:

Orientation: N/A

Inclination: N/A

Borehole No. BH32R

0m B.G.L.	Run Details				Fracture Details				Samples		Insitu Tests		Strata				Discontinuities							Water	Install/ Backfill			
	Core Run	TCR %	SCR %	RQD %	Min	Avg	Max	FI	Depth	Type No. Blows	Depth	Test Results	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Depth (Thick-ness)	Dip	Direction	Fracture Set	Discontinuity Description							
														Grass over soft to firm brown sandy gravelly silty CLAY with medium cobble content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone, Siltstone and Sandstone. Cobbles are rounded to sub-rounded Sandstone. Progressed using Cable Percussive drilling methods														
													(3.60)															
													3.60 (0.70)	Stiff grey brown mottled slightly sandy very gravelly CLAY with medium cobble and boulder content. Gravel is fine to coarse rounded to sub-rounded Siltstone and Sandstone. Cobbles and boulders are rounded to sub-rounded Sandstone. Progressed using Cable Percussive drilling methods		241.13												
													4.30 (0.70)	Weak to strong dark grey black MUDSTONE with coal bands. Recovered as fine to coarse angular to sub-angular GRAVEL (SOUTH WALES COAL MEASURES). Progressed using Cable Percussive drilling methods		240.43												
													5.00	Weak dark grey MUDSTONE. Highly to completely weathered to fine to coarse angular gravel, locally sandy and clayey. (SOUTH WALES COAL MEASURES)		239.73												
	5.70 - 7.20		90	20	17				NI																			
	7.20 - 8.70		87	0	0				NI																			
	8.70 - 10.20												(6.80)															
10.20 - 11.70		73	25	0				NI																				
														 below 10.6mgl with one discontinuity set			10.60				10 to 20 degree discontinuity set (bedding) extremely closely spaced, smooth planar, tight to partly open, clean.							

Hole Progress / Water Obs				Casing		Groundwater				Flush				Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. No Groundwater Strike Observed. Cable Percussive GL-5.0mbgl, ODEX 5.0-5.7mbgl, Rotary coring 7.5-16.2mbgl, Rotary 'open hole' 16.2-35.0mbgl
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns	Colour	
				5.70	115.00					5.00 - 35.00	Mist	100		

Quantum Geotech

Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotechnic.co.uk

Operator:
P Osborn

Logged By:
S Picton

Logged Date:
07/12/2021

Equipment Used:
Rig: Dando 2000 cable percussive drill rig.

Sheet No.
1 Of 4

m Per Page
11

All measurements in metres unless otherwise stated

Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Dates: 9/12/21 - 14/12/21

Location :

Job Number : Q0652

Engineer : ARUP

Ground Level : 244.73 m A.O.D.
Level to Ordnance Datum

Coordinates: 284967.95 E
210230.01 N
Co-ordinates to Local Grid

Orientation & Inclination:

Orientation: N/A

Inclination: N/A

Borehole No. BH32R

11 12 13 14 15 16 17 18 19 20 21	Run Details				Fracture Details				Samples		Insitu Tests		Strata				Discontinuities						Water	Install/ Backfill
	Core Run	TCR %	SCR %	RQD %	Min	Avg	Max	FI	Depth	Type No. Blows	Depth	Test Results	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Depth (Thick-ness)	Dip	Direction	Fracture Set	Discontinuity Description			
		73	25	0				NI	11.10 - 11.15	C1							1.20				Between 10.9 and 11.0mbgl clayey fine to medium angular gravel infill.			
	11.70 - 13.20												11.80	Weak black COAL. Highly weathered to fine to coarse angular Gravel and cobbles. (SOUTH WALES COAL MEASURES)		232.93								
		57	5	0				NI																
	13.20 - 14.70												(3.20)											
		87	13	9				NI	13.85 - 14.00	C2														
	14.70 - 16.20							NI																
		90	63	63	200	240	250	3	15.10 - 15.35	C3			15.00	Medium strong to strong grey mudstone CONGLOMERATE with one discontinuity set. (SOUTH WALES COAL MEASURES)		229.73	15.00				10 to 15 degree discontinuity set closely spaced, smooth to rough undulating, tight to partly open, clean.. At 15.3mbgl possible slickened surface.			
													(1.20)				1.20							
	16.2											16.20	Mudstone and Siltstone (Drillers Description)		228.53									
Hole Progress / Water Obs				Casing		Groundwater				Flush				Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. No Groundwater Strike Observed. Cable Percussive GL-5.0mbgl, ODEX 5.0-5.7mbgl, Rotary coring 7.5-16.2mbgl, Rotary 'open hole' 16.2-35.0mbgl										
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns	Colour											
Quantum Geotech Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk Operator: P Osborn Logged By: S Picton Logged Date: 07/12/2021 Equipment Used: Rig: Dando 2000 cable percussive drill rig.										Sheet No. 2 Of 4	m Per Page 11	All measurements in metres unless otherwise stated	AGS											

Form Name: ROTARY A3. Version 2.11.000, 22/05/15 Output By: Phil Darby. Library File: C:\USERS\PHIL DARBY\ONEDRIVE - QUANTUM GEOTECHNIC LTD\QUANTUM 4.GLB.

Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Dates: 9/12/21 - 14/12/21

Location :

Job Number : Q0652

Engineer : ARUP

Ground Level : 244.73 m A.O.D.
Level to Ordnance Datum

Coordinates: 284967.95 E
210230.01 N
Co-ordinates to Local Grid

Orientation & Inclination:
Orientation: N/A
Inclination: N/A

Borehole No.
BH32R

22m B.G.L.

23

24

25

26

27

28

29

30

31

32

Run Details				Fracture Details				Samples		Insitu Tests		Strata				Discontinuities						Water	Install/ Backfill
Core Run	TCR %	SCR %	RQD %	Min	Avg	Max	FI	Depth	Type No. Blows	Depth	Test Results	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Depth (Thick-ness)	Dip	Direction	Fracture Set	Discontinuity Description			
												(18.80)											

Hole Progress / Water Obs				Casing		Groundwater				Flush				Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. No Groundwater Strike Observed. Cable Percussive GL-5.0mbgl, ODEX 5.0-5.7mbgl, Rotary coring 7.5-16.2mbgl, Rotary 'open hole' 16.2-35.0mbgl
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns	Colour	



Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotechnic.co.uk

Operator:
P Osborn

Logged By:
S Picton

Logged Date:
07/12/2021

Equipment Used:
Rig: Dando 2000 cable percussive drill rig.

Sheet No.
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m Per Page
11

All measurements in metres unless otherwise stated



Form Name: ROTARY A3. Version 2.11.000, 22/05/15 Output By: Phil Darby. Library File: C:\USERS\PHIL DARBY\ONEDRIVE - QUANTUM GEOTECHNIC LTD\QUANTUM 4.GLB.

Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Dates: 9/12/21 - 14/12/21

Location :

Job Number : Q0652

Engineer : ARUP

Ground Level : 244.73 m A.O.D.
Level to Ordnance Datum

Coordinates: 284967.95 E
210230.01 N
Co-ordinates to Local Grid

Orientation & Inclination:

Orientation: N/A

Inclination: N/A

Borehole No. BH32R

33m B.G.L.	Run Details				Fracture Details				Samples		Insitu Tests		Strata				Discontinuities							Water	Install/Backfill
	Core Run	TCR %	SCR %	RQD %	Min	Avg	Max	FI	Depth	Type No. Blows	Depth	Test Results	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Depth (Thick-ness)	Dip	Direction	Fracture Set	Discontinuity Description				
33																									
34																									
35													35.00	Terminated at 35.0mbgl (Scheduled Depth)		209.73									
36																									
37																									
38																									
39																									
40																									
41																									
42																									
43																									

Hole Progress / Water Obs

Date / Time

H. Depth

C. Depth

Water

Casing

Depth

Diam.

Groundwater

Struck

Rose To

Behaviour

Sealed

Flush

Depth

Type

Returns

Colour

Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. No Groundwater Strike Observed. Cable Percussive GL-5.0mbgl, ODEX 5.0-5.7mbgl, Rotary coring 7.5-16.2mbgl, Rotary 'open hole' 16.2-35.0mbgl



Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotechnic.co.uk

Operator:
P Osborn

Logged By:
S Picton

Logged Date:
07/12/2021

Equipment Used:
Rig: Dando 2000 cable percussive drill rig.

Sheet No.
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m Per Page
11

All measurements in metres unless otherwise stated



Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Borehole No.

BH32R

Dates : 9/12/21 - 14/12/21

Job Number : Q0652

Ground Level : 244.73 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 284967.95E
210230.01 N
Co-ordinates to National Grid



Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotech.co.uk

Operator:
P Osborn

Logged By:
S Picton

Sheet No.
1 Of 2

m Per
Page
2

All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Borehole No.

BH32R

Dates : 9/12/21 - 14/12/21

Job Number : Q0652

Ground Level : 244.73 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 284967.95E
210230.01 N
Co-ordinates to National Grid



Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotechnic.co.uk

Operator:
P Osborn

Logged By:
S Picton

Sheet No.
2 Of 2

m Per
Page
2

All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence										Borehole No. BH33		
Client : Global Centre of Rail Excellence												
Dates : 25/11/21 - 26/11/21					Job Number : Q0652			Ground Level : 230.51 m A.O.D. Level to Ordnance Datum				
Location : Around washery area					Engineer : ARUP			Coordinates: 284397.04 E 210700.88 N Co-ordinates to National Grid				

m B.G.L.	Samples		Insitu Test Results		Strata				Water
	Depth	Type No. Blows	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
0	0.20	ES1				MADE GROUND - Grass over black dark grey slightly silty slightly clayey sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal			
	0.50 - 1.00	B2							
1	1.00	ES3			(2.00)				
	1.20	SPT4	1.20	SPT (S) 6 (1-1-2-2-1-2)					
	1.20 - 1.70	B5							
2	2.00	ES6	2.00	SPT (S) 7 (1-1-2-2-2-1)	2.00	Soft brown to dark brown fibrous PEAT		228.51	
	2.00 - 2.50	B8							
	2.70	U1 - /%							
3	3.00	ES9	3.00	SPT (S) 6 (1-1-2-2-1-2)	(2.00)				
	3.00 - 3.50	SPT10 B11							
4	4.00	ES12	4.00	SPT (C) 9 (1-2-2-2-2-3)	4.00	Medium dense to dense dark grey silty sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone		226.51	
	4.00 - 4.50	B14			(0.90)				
5	4.90 - 5.00	D16	5.00	SPT (C) 50/100mm (14-9/30mm-39-11/25mm-)	4.90 (0.10) 5.00	Weak to strong dark grey MUDSTONE. Recovered as fine to coarse angular to sub-angular GRAVEL (SOUTH WALES COAL MEASURES) Terminated at 5.00mbgl upon refusal. Progressed using rotary drilling methods		225.61 (0.10) 225.51	
6									
7									
8									
9									
10									

Hole Progress / Water Obs				Casing		Groundwater				Chiselling		
Date / Time	H. Depth	C. Depth	Water	Depth	Cas. Dia.	Struck	Rose To	Behaviour	Sealed	From	To	Hours
25/11/2021 17:00	4.00	4.00	0.70	4.00	115.00	1.00	0.70	Medium ground water strike at 1.00mbgl		4.70	5.00	1:00
26/11/2021 08:00	4.00	4.00	2.60									

Equipment / plant used: Dando 2000 Cable Percussion rig
Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. Cable Percussive GL-5.0mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	1 Of 1	11		

Form Name: SA/SPT. Version 2.11.000, 22/05/15 Output By: Phil Darby. Library File: C:\USERS\PHIL DARBY\ONEDRIVE - QUANTUM GEOTECHNIC LTD\QUANTUM 4.GLB.

Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Borehole No.

BH33R

Dates : 1/12/21 - 2/12/21

Job Number : Q0652

Ground Level : 230.51 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 284397.04E
210700.88 N
Co-ordinates to National Grid



Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotechnic.co.uk

Operator:
P Osborn

Logged By:
S Picton

Sheet No.
1 Of 2

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Page
2

All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Borehole No.

BH33R

Dates : 1/12/21 - 2/12/21

Job Number : Q0652

Ground Level : 230.51 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 284397.04E
210700.88 N
Co-ordinates to National Grid



Plas Newydd
Swansea
Tel: 01554744880
email: enquiries@quantumgeotechnic.co.uk

Operator:
P Osborn

Logged By:
S Picton

Sheet No.
2 Of 2

m Per
Page
2

All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence										Borehole No. BH34		
Client : Global Centre of Rail Excellence												
Dates : 24/11/21 - 25/11/21					Job Number : Q0652			Ground Level : 232.64 m A.O.D. Level to Ordnance Datum				
Location : Around washery area					Engineer : ARUP			Coordinates: 284419.61 E 210543.60 N Co-ordinates to National Grid				

m B.G.L.	Samples		Insitu Test Results		Strata				Water
	Depth	Type No. Blows	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
0	0.20	ES1				MADE GROUND - Grass over black dark grey slightly silty clayey sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal			
	0.50 - 1.00	B2							
1	1.00	ES3							
	1.20	SPT4	1.20	SPT (S) 9 (2-3-3-2-2-2)	(3.30)			(3.30)	
	1.20 - 1.70	B5							
2	2.00	ES6	2.00	SPT (S) 11 (1-2-2-3-3-3)					
		SPT7							
		B8							
3	3.00	ES9	3.00	SPT (S) 11 (1-2-3-3-3-3)					
	3.30	SPT10			3.30	MADE GROUND - Soft brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse angular to sub-angular Mudstone		229.34	
	3.30 - 3.80	D11 B12						(1.50)	
4	4.00	ES13	4.00	SPT (S) 7 (1-1-2-1-2-2)	(1.50)				
	4.00 - 4.50	SPT14 B15							
5	5.00	ES16	5.00	SPT (S) 6 (1-2-1-2-1-2)	4.80	MADE GROUND - Soft grey silty CLAY with fibrous Peat		227.84	
		SPT17			(0.15)	MADE GROUND - Soft brown to dark brown fibrous PEAT		(0.15)	
					4.95			227.69	
6	6.00 - 6.50	B18			(1.95)			(1.95)	
	6.20	B1							
	6.50	U1 - /% SPT19	6.50	SPT (S) 12 (2-3-4-3-2-3)					
	6.50 - 6.90	B20							
7	7.50 - 8.00	B21			6.90	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash		225.74	
					(1.10)			(1.10)	
8	8.00	ES22	8.00	SPT (C) 34 (4-6-8-8-9-9)	8.00	Grey light brown mottled slightly clayey slightly silty sandy GRAVEL with medium cobble and boulder content. Gravel is fine to coarse sub-rounded to sub-angular Siltstone and Sandstone. Cobbles are rounded to sub-rounded Sandstone		224.64	
	8.00 - 8.50	B24			(1.90)			(1.90)	
9			9.50	SPT (C) 35 (5-7-8-8-9-10)					
10	9.90 - 10.00	B26	10.00	SPT (C) 50/100mm (10-15/35mm-36-14/25mm--)	9.90	Strong dark grey SILTSTONE (SOUTH WALES COAL MEASURES)		222.74	
					(0.10)	Terminated at 10.00mbgl upon refusal. Progressed using rotary drilling methods		(0.10)	
					10.00			222.64	

Hole Progress / Water Obs				Casing		Groundwater				Chiselling		
Date / Time	H. Depth	C. Depth	Water	Depth	Cas. Dia.	Struck	Rose To	Behaviour	Sealed	From	To	Hours
24/11/2021 17:00	8.00	8.00	4.60	10.00	150.00	3.50	2.40	Medium ground water strike at 3.50mbgl				
25/11/2021 08:00	8.00	8.00	4.00									

Equipment / plant used: Dando 2000 Cable Percussive rig

Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. Cable Percussive GL-10.0mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotech.co.uk	Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	1 Of 1	11		

Form Name: SA/SPT. Version 2.11.000, 22/05/15 Output By: Phil Darby. Library File: C:\USERS\PHIL DARBY\ONEDRIVE - QUANTUM GEOTECHNIC LTD\QUANTUM 4.GLB.

Contract : Global Centre of Rail Excellence										Borehole No. BH34R	
Client : Global Centre of Rail Excellence											
Dates : 1/12/21 - 1/12/21					Job Number : Q0652					Ground Level : 232.63 m A.O.D. Level to Ordnance Datum	
Location :					Engineer : ARUP					Coordinates: 284419.61 E 210543.60 N Co-ordinates to National Grid	

m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/ Backfill
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.		
0														
1									(3.30)	MADE GROUND - Grass over black dark grey slightly silty clayey sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal. Progressed using Cable Percussive drilling techniques				
2									3.30	MADE GROUND - Soft brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse angular to sub-angular Mudstone. Progressed using Cable Percussive drilling techniques		229.33		
3									(1.50)	MADE GROUND - Soft grey silty CLAY with fibrous Peat. Progressed using Cable Percussive drilling techniques		227.83		
4									4.80	MADE GROUND - Soft grey silty CLAY with fibrous Peat. Progressed using Cable Percussive drilling techniques		227.68		
5									(0.15)	MADE GROUND - Soft brown to dark brown fibrous PEAT. Progressed using Cable Percussive drilling techniques				
6									4.95	MADE GROUND - Soft brown to dark brown fibrous PEAT. Progressed using Cable Percussive drilling techniques		225.73		
7									(1.95)	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques		224.63		
8									6.90	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques		222.73		
9									(1.10)	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques		222.63		
10									8.00	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
11									(1.90)	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
12									9.90	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
13									(0.10)	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
14									10.00	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
15									(1.70)	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
16									11.70	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques		220.93		
17									(2.80)	MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
18										MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
19										MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				
20										MADE GROUND - Soft to firm black brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular Mudstone and ash. Progressed using Cable Percussive drilling techniques				

Hole Progress / Water Obs				Casing		Groundwater				Flush		
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns
				11.70	115.00	14.00 19.50	6.40	Medium groundwater inflow at 14.0mbgl Fast Groundwater inflow at 19.5mbgl		0.00 - 30.00	Mist	100

Plant: Dando 2000 Cable Percussive rig

Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. Cable Percussive GL-10.0mbgl, ODEX 10.0-11.7mbgl, Roatry 'open hole' 11.7-30.0mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By:	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	1 Of 2	21		

Form Name: ROTARY. Version 2.11.000, 22/05/15 Output By: Phil Darby. Library File: C:\USERS\PHIL DARBY\ONEDRIVE - QUANTUM GEOTECHNIC LTD\QUANTUM 4.GLB.

Contract : Global Centre of Rail Excellence											Borehole No. BH34R		
Client : Global Centre of Rail Excellence													
Dates : 1/12/21 - 1/12/21					Job Number : Q0652					Ground Level : 232.63 m A.O.D. Level to Ordnance Datum			
Location :					Engineer : ARUP					Coordinates: 284419.61 E 210543.60 N Co-ordinates to National Grid			

m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/ Backfill
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.		
21										Mudstone / Siltstone Bands (Drillers Description)				
22									22.10	Weak Coal (Drillers Description)		210.53		
23									(1.90)					
24									24.00	Mudstone / Siltstone Bands (Drillers Description)		208.63		
25														
26														
27									(6.00)					
28														
29														
30									30.00	Terminated at 30.0mbgl (Scheduled Depth)		202.63		
31														
32														
33														
34														
35														
36														
37														
38														
39														
40														
41														

Hole Progress / Water Obs				Casing		Groundwater				Flush		
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns

Plant: Dando 2000 Cable Percussive rig
Remarks: BH set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken. Cable Percussive GL-10.0mbgl, ODEX 10.0-11.7mbgl, Roatry 'open hole' 11.7-30.0mbgl

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		P Osborn	S Picton	2 Of 2	21		

Unit 8
Orton Enterprise Centre
Orton Southgate
Peterborough
PE2 6XU

SPT Hammer Ref: SAM1
Test Date: 02/05/2021
Report Date: 02/05/2021
File Name: SAM1.spt
Test Operator: PR

Instrumented Rod Data

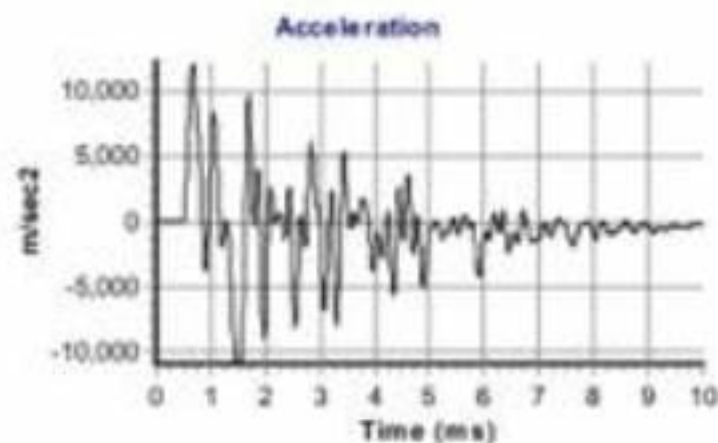
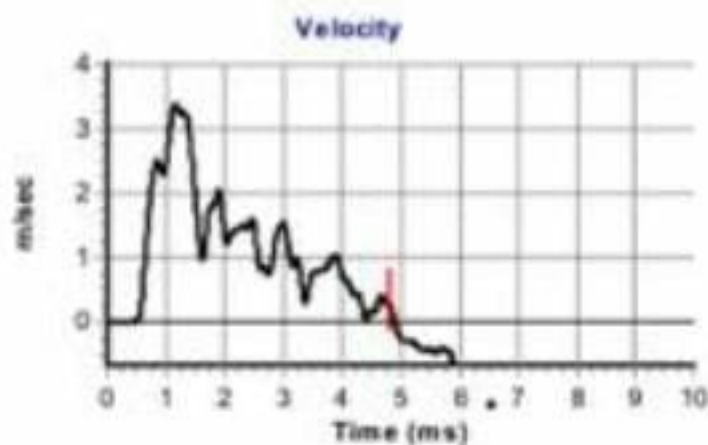
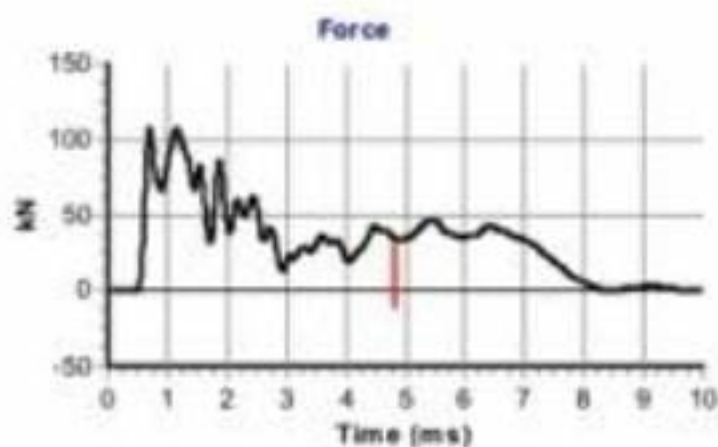
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.3
Assumed Modulus E_s (GPa): 208
Accelerometer No.1: 11853
Accelerometer No.2: 10332

SPT Hammer Information

Hammer Mass m (kg): 63.0
Falling Height h (mm): 760
SPT String Length L (m): 15.0

Comments / Location

Recommended calibration interval is 6 months, maximum 12



Calculations

Area of Rod A (mm²): 944
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 358

Energy Ratio E_r (%): **76**

P. Rodgman

Signed: PR
Title: Operator

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Unit 8
Orton Enterprise Centre
Orton Southgate
Peterborough
PE2 6XU

SPT Hammer Ref: XL140 (Sonic Dual Head)

Test Date: 28/12/2021

Report Date: 28/12/2021

File Name: XL140.spt

Test Operator: CR

Instrumented Rod Data

Diameter d_r (mm): 54

Wall Thickness t_r (mm): 6.3

Assumed Modulus E_a (GPa): 208

Accelerometer No.1: 11941

Accelerometer No.2: 11942

SPT Hammer Information

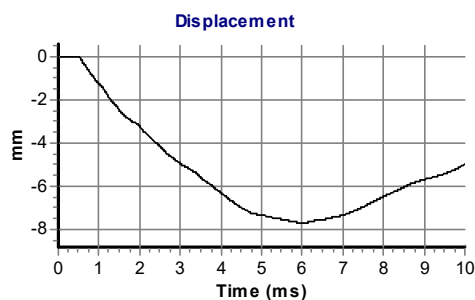
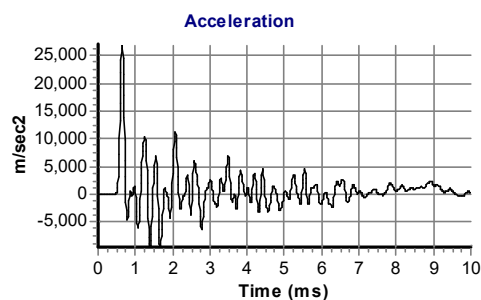
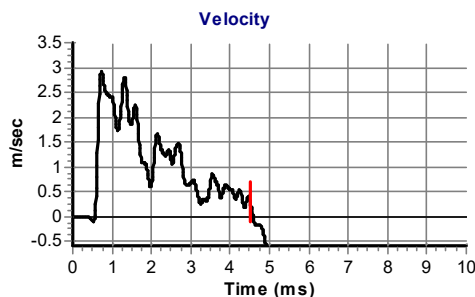
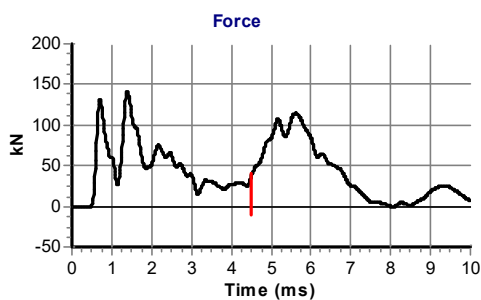
Hammer Mass m (kg): 63.5

Falling Height h (mm): 760

SPT String Length L (m): 15.0

Comments / Location

Recommended calibration interval is 6 months.
 Sonic CPT



Calculations

Area of Rod A (mm²): 944

Theoretical Energy E_{theor} (J): 473

Measured Energy E_{meas} (J): 382

Energy Ratio E_r (%): **71**

CR

Signed: CR

Title: Operator



SPT Calibration Report

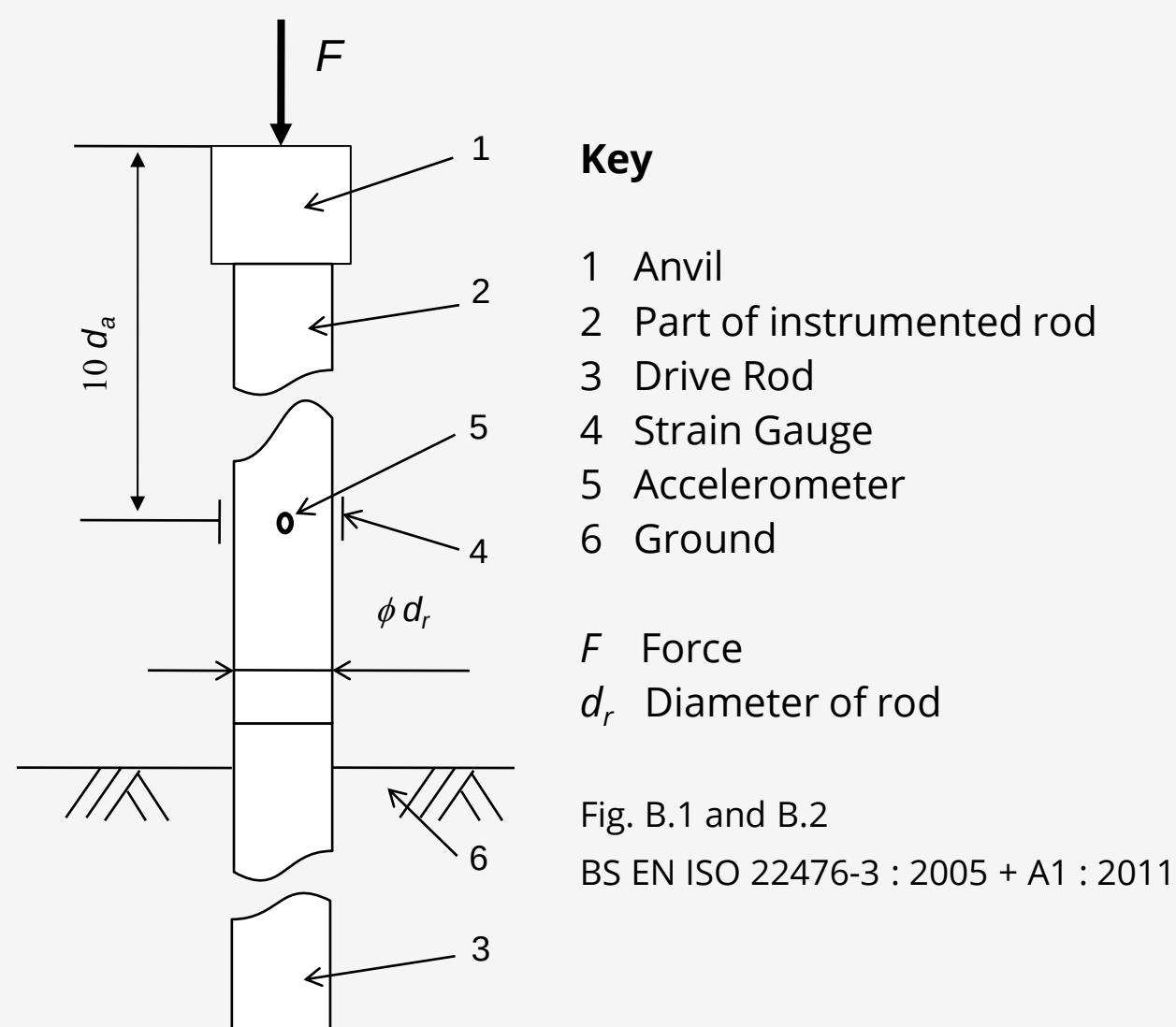
Hammer Energy Measurement Report

Type of Hammer SPT HAMMER
Test No EQU2808
Client QUANTUM GEOTECHNIC

Test Depth (m) 9.80
Mass of hammer $m = 63.5\text{kg}$
Falling height $h = 0.76\text{m}$
 $E_{\text{theor}} = m \times g \times h = 473\text{J}$

Characteristics of the instrumented rod

Diameter $d_r = 0.052\text{ m}$
Length of instrumented rod 0.558 m
Area $A = 11.61\text{ cm}^2$
Modulus $E_a = 206843\text{ MPa}$



DATE OF TEST VALID UNTIL HAMMER ID

21/04/2021 21/04/2022 Q2 AR830

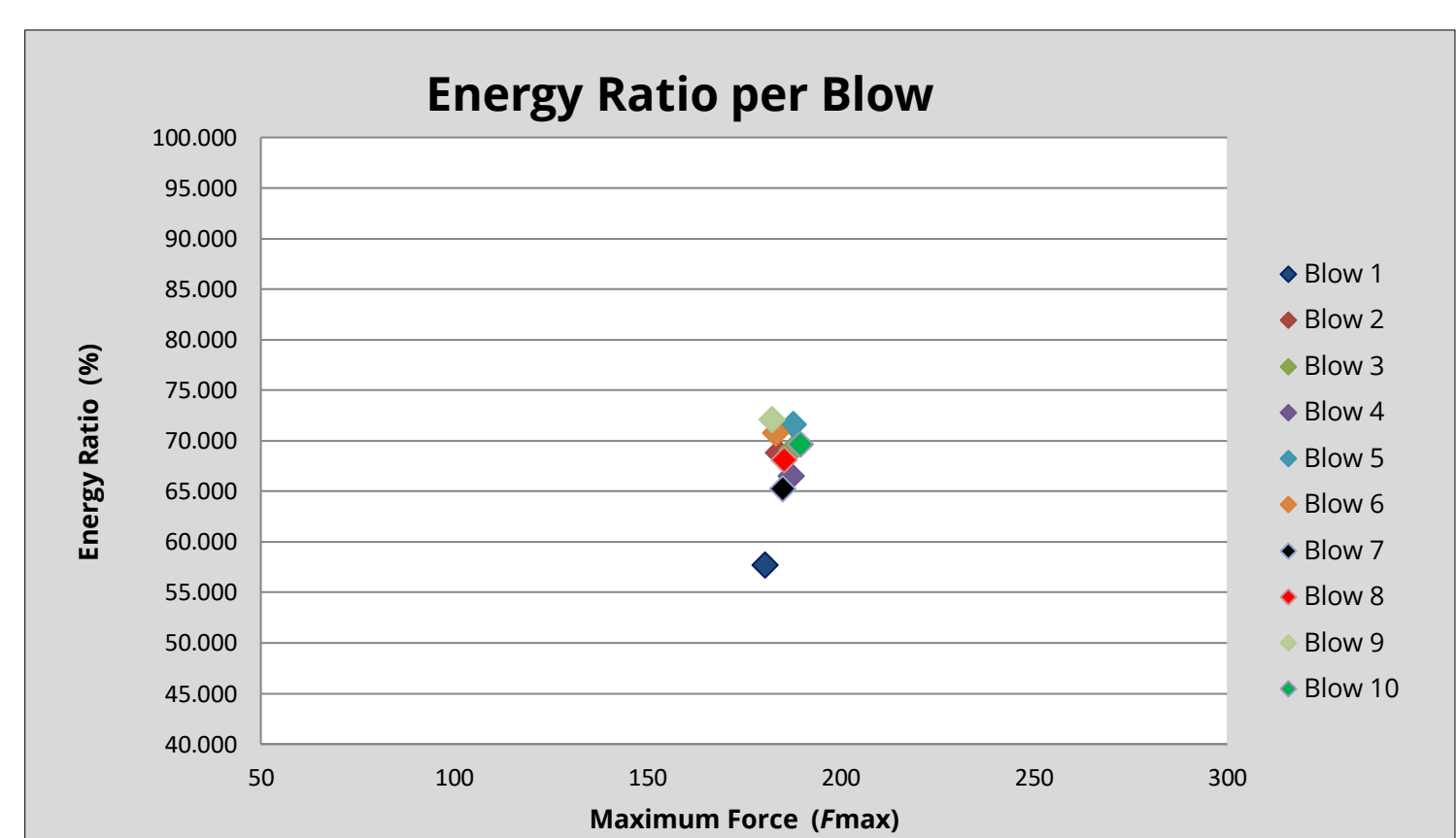
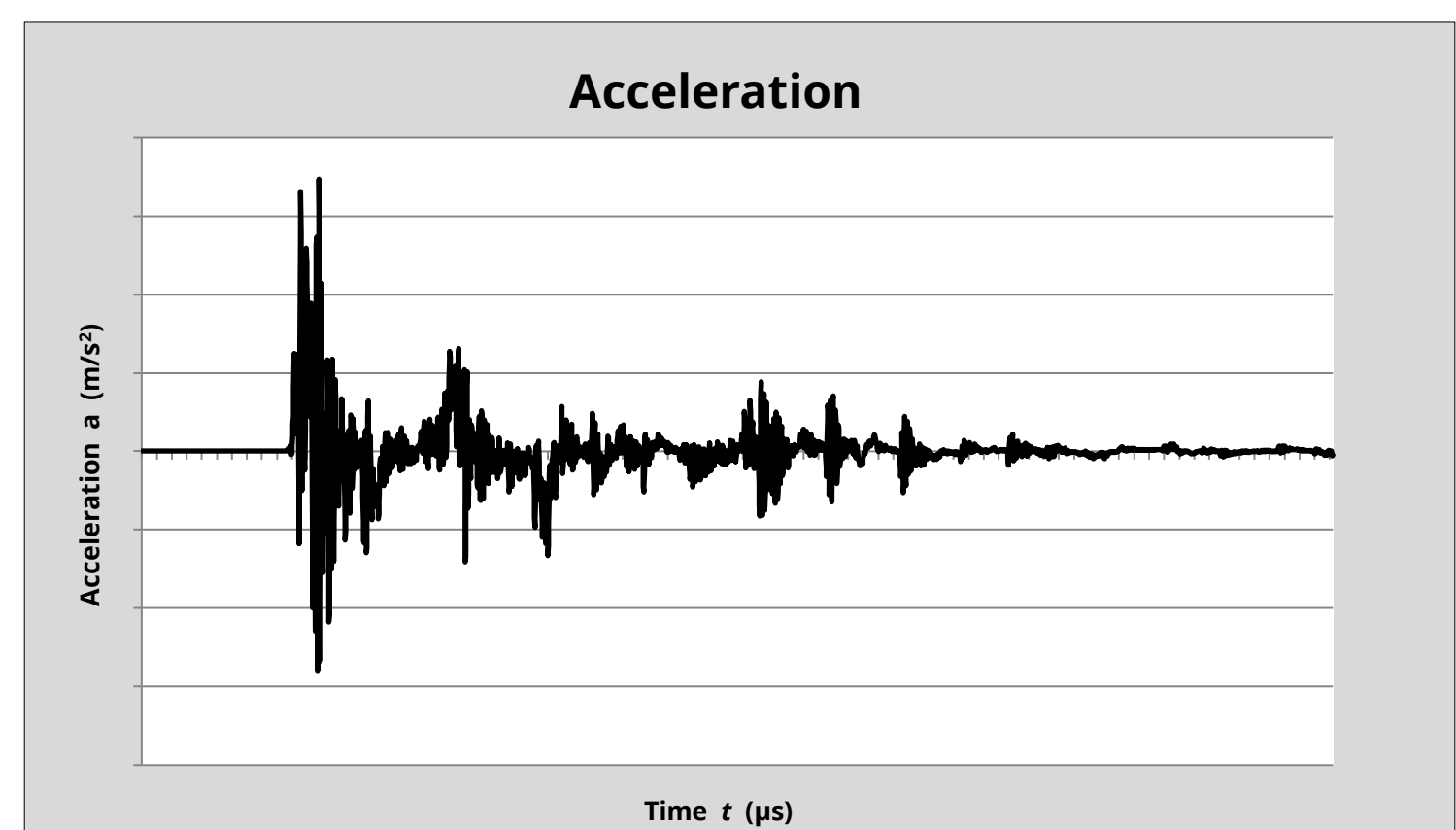
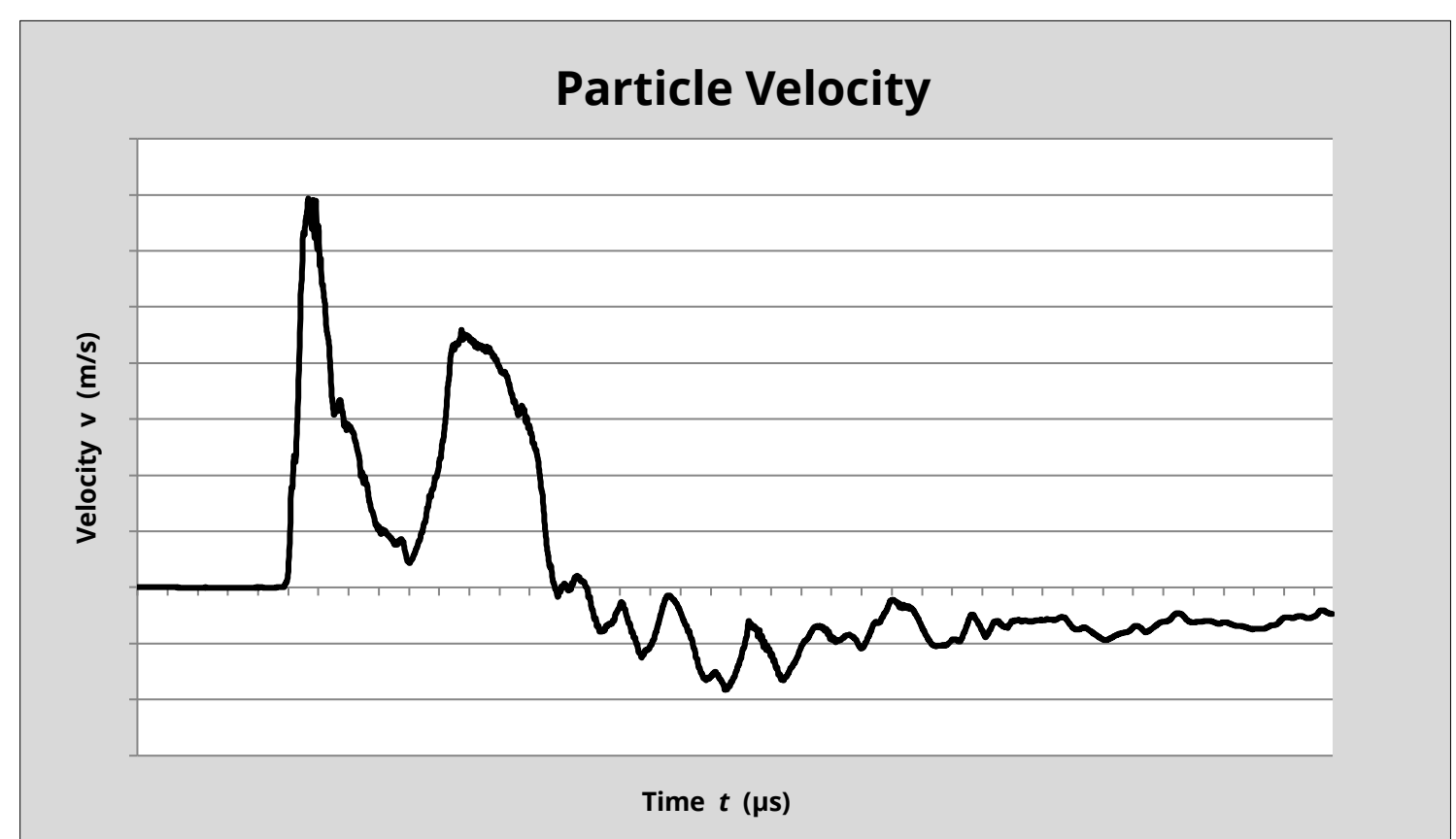
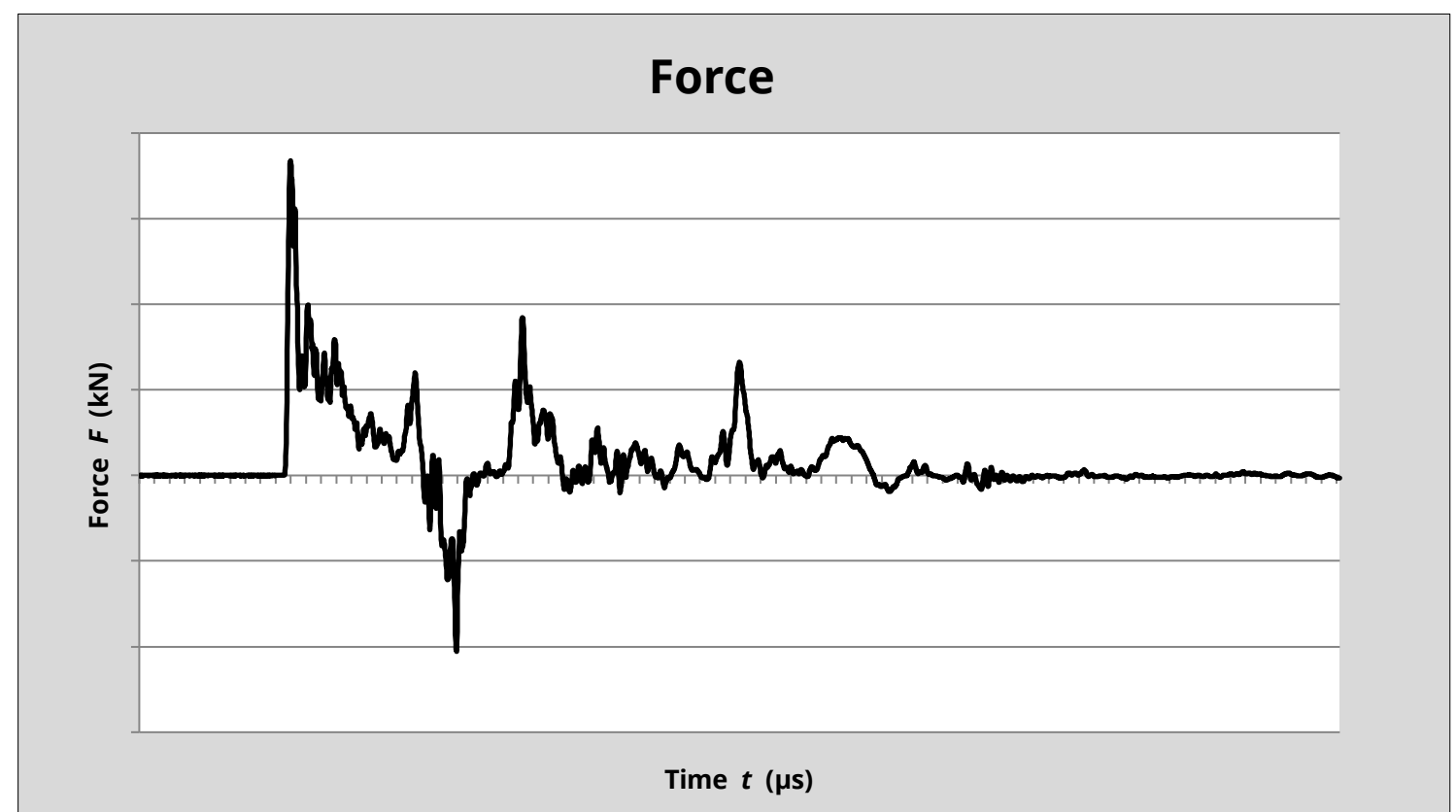
$E_{\text{meas}} = 0.320\text{ kN-m}$

$E_{\text{theor}} = 0.473\text{ kN-m}$

Comments

$$\text{Energy Ratio (Er)} = \frac{E_{\text{meas}}}{E_{\text{theor}}}$$

67.69%
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Equipe SPT Analyzer Operator

JL

Certificate prepared by

27/04/2021

Certificate checked by

27/04/2021

Certificate date

27/04/2021



SPT Calibration Report

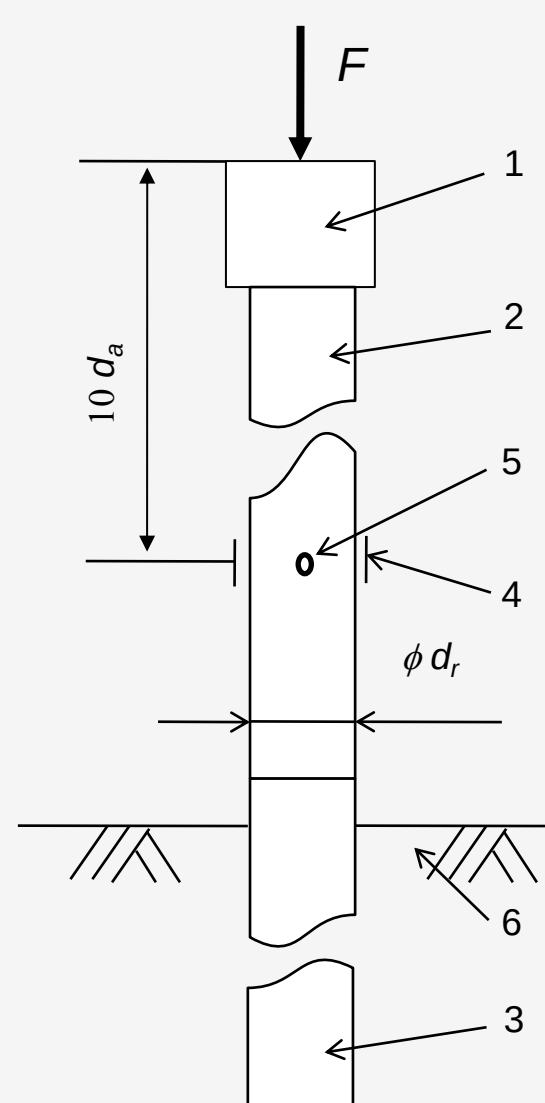
Hammer Energy Measurement Report

Type of Hammer SPT HAMMER
Test No EQU2810
Client QUANTUM GEOTECHNIC

Test Depth (m) 9.80
Mass of hammer $m = 63.5\text{kg}$
Falling height $h = 0.76\text{m}$
 $E_{\text{theor}} = m \times g \times h = 473\text{J}$

Characteristics of the instrumented rod

Diameter $d_r = 0.052\text{ m}$
Length of instrumented rod 0.558 m
Area $A = 11.61\text{ cm}^2$
Modulus $E_a = 206843\text{ MPa}$



Key

- 1 Anvil
- 2 Part of instrumented rod
- 3 Drive Rod
- 4 Strain Gauge
- 5 Accelerometer
- 6 Ground

F Force
 d_r Diameter of rod

Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

DATE OF TEST VALID UNTIL HAMMER ID

21/04/2021

21/04/2022

Q5

$E_{\text{meas}} = 0.285\text{ kN-m}$

$E_{\text{theor}} = 0.473\text{ kN-m}$

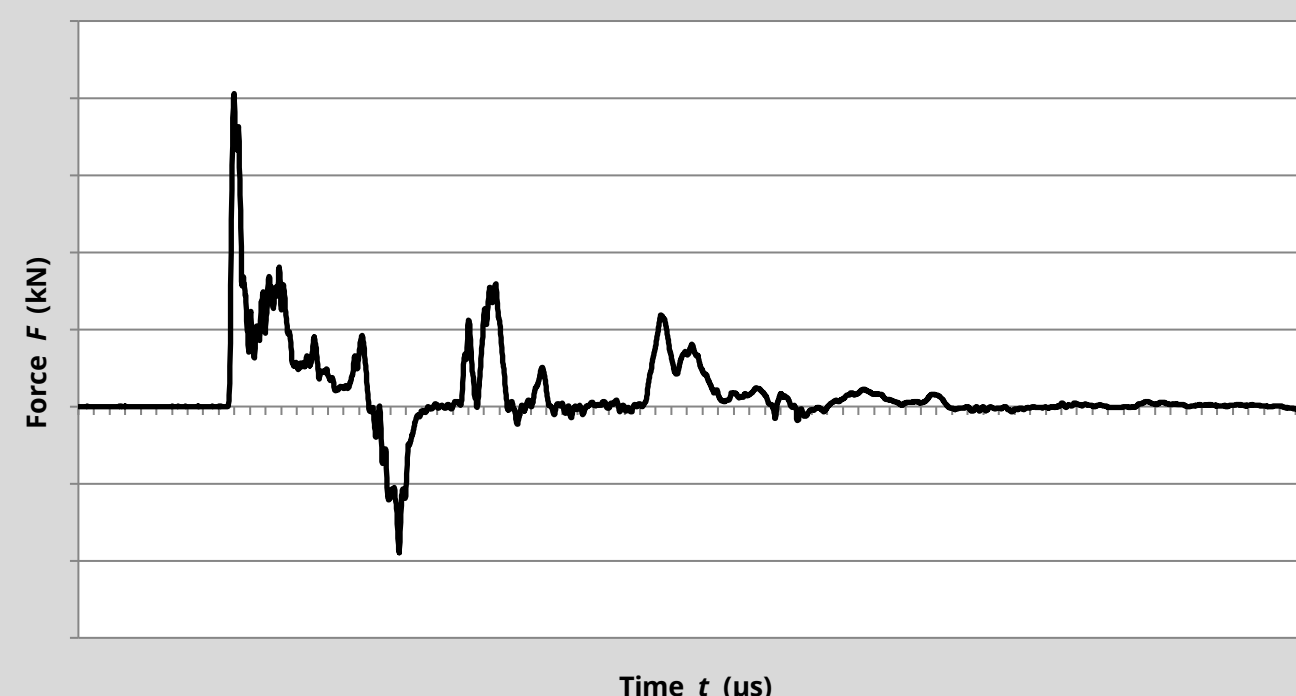
Comments

$$\text{Energy Ratio (Er)} = \frac{E_{\text{meas}}}{E_{\text{theor}}}$$

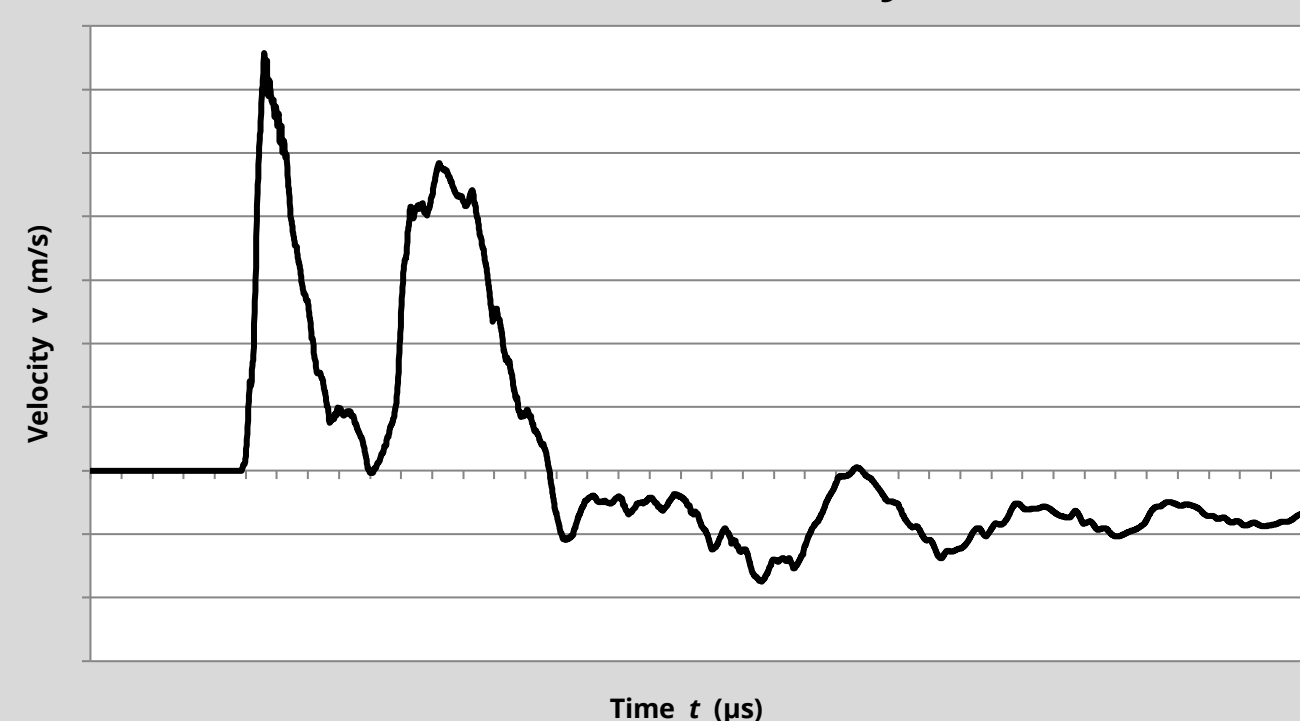
60.24%

© COPYRIGHT 2021

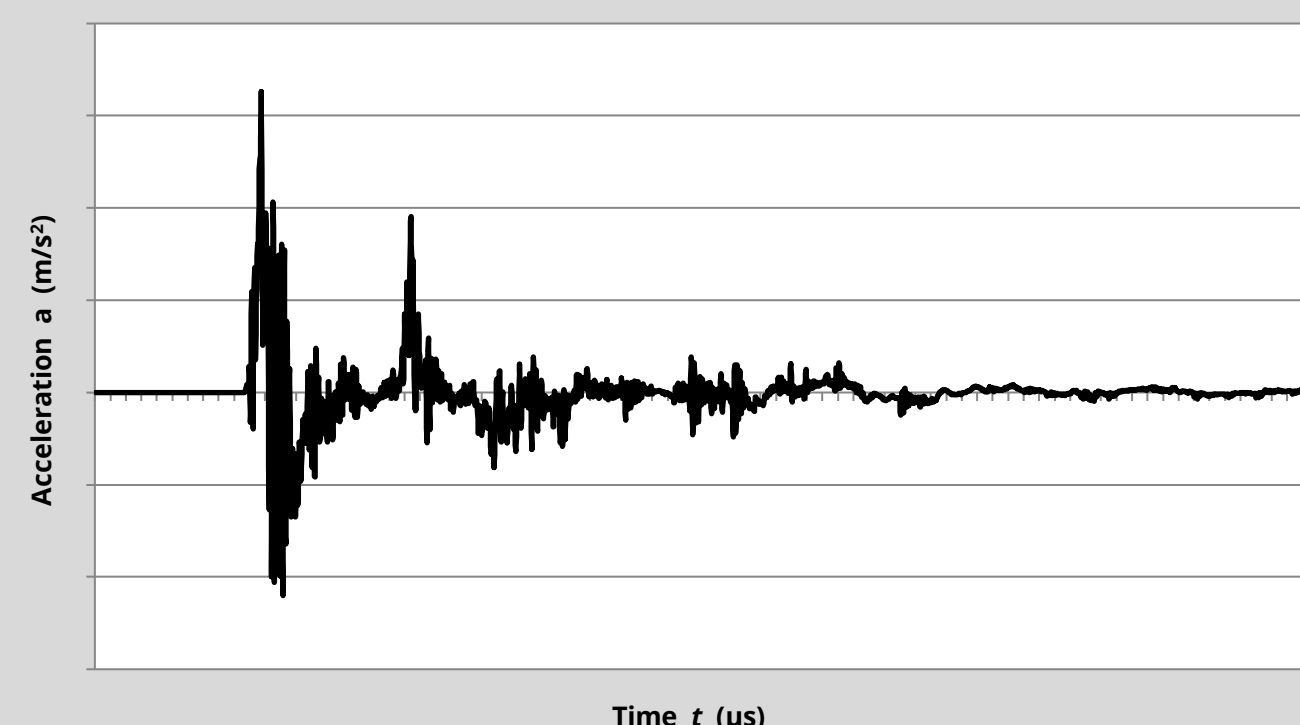
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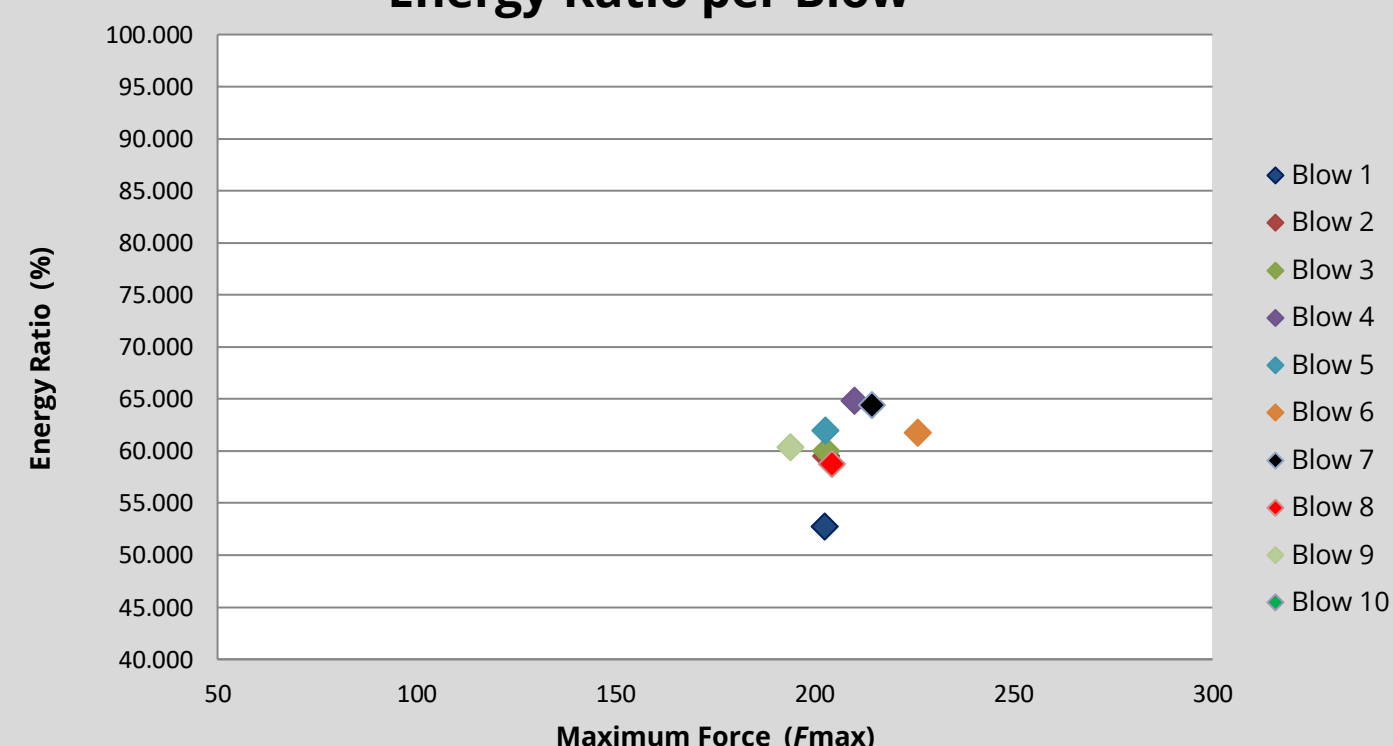
Particle Velocity



Acceleration



Energy Ratio per Blow



Equipe SPT Analyzer Operator

JL

Certificate prepared by

27/04/2021

Certificate checked by

27/04/2021

Certificate date

27/04/2021

KEY TO BOREHOLE AND TRIAL PIT LOGS

MATERIAL LEGENDS

	Made Ground		Topsoil		Clay
	Gravel		Sand		Silt
	Peat		Boulders		Cobbles
	Chalk		Conglomerate		Volcaniclastic
	Asphalt		Void		Mudstone
	Siltstone		Sandstone		Limestone
	Ironstone		Mudstone / Siltstone		Breccia
	Coal		Coral		Bedrock
	Shale		Gypsum		Igneous (Coarse Grained)
	Igneous (Fine Grained)		Igneous (Medium Grained)		Metamorphic (Coarse Grained)
	Metamorphic (Fine Grained)		Metamorphic (Medium Grained)		

INSTALLATION / BACKFILL DETAILS

	Arisings		Concrete		Bentonite cement grout
	Bentonite seal		Filter		Pea Gravel
	Plain pipe		Slotted pipe		Piezometer / Standpipe tip

NOTE:
Legend symbols in accordance with BS 5930 (2015)

KEY TO BOREHOLE AND TRIAL PIT LOGS

m.A.O.D. metres Above Ordnance Datum.

SAMPLE AND TEST TYPES

U	Undisturbed driven tube sample - 102mm diameter, 450mm long.
P	Undisturbed pushed piston sample - 102mm diameter, 1000mm long.
TW	Undisturbed thin walled push in sample - 100mm diameter, 750mm long.
B	Bulk disturbed sample.
BLK	Block Sample
CBR	Heavy duty undisturbed sample - 154 mm diameter (CBR mould).
D	Small disturbed sample.
LB	Large Bulk disturbed sample (for earthworks testing)
C	Core sample
W	Water sample
G	Gas sample
ES	Environmental sample (soil)
j	Jar sample
t	Tub sample
p	Pot sample
s	Small sample
v	Vial sample
S	Standard Penetration Test using split spoon sampler. (See Note).
C	Standard Penetration Test using a solid 60 degree cone. (See Note).

NOTE: Where a single value is quoted this is the N value for 300 mm penetration following a seating drive of 150 mm. Where this full penetration is not achieved the number of blows is quoted for the penetration below the seating drive eg. 63/160 mm.

Where total penetration is less than the seating drive this is indicated by a + and the number of blows for total penetration is quoted eg. +50/75 mm.

HV	Hand Vane Test. Vane undrained shear strength, c_u , quoted in kPa.
V	Borehole Vane Test. Vane undrained shear strength, c_u , quoted in kPa.
FHT/RHT	Falling / Rising Head Permeability Test.

CORE RUN DETAILS

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
FI	Fracture Index. NI - Non intact where > 25 No. per metre length.

WATER COLUMN SYMBOLS

	First water strike, second water strike etc.
	Standing water level after first strike, second strike etc.
	Seepage.

NOTE:
Legend symbols in accordance with BS 5930 (2015)

APPENDIX III – ENGINEERS MACHINE EXCAVATED TRENCH & PIT LOGS

Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP01	
Dates : 7/1/22 - 7/1/22				Job Number : Q0652		Ground Level : 229.98 m A.O.D. <i>Level to Ordnance Datum</i>		
Location : Around washery area				Engineer : ARUP		Coordinates: 284246.92 E 210515.99 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1			0.60	MADE GROUND - Grass over brown clayey sandy silty GRAVEL with high cobble and boulder content. Gravel is fine to coarse angular to sub-angular of Brick, Concrete and Mudstone. Cobbles are angular to sub-rounded Concrete and Brick with metal, glass and timber throughout.			
	0.50 -	B1			0.60	MADE GROUND - Loose black to dark grey slightly silty sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal, ash and clinker		229.38	
2	1.00 -	B2 ES2			2.20				
	2.00 -	B3 ES3							
	2.80 -	B4			2.80	Terminated at 2.80mbgl, sides unstable and collapsing. Unable to undertake soakaway test due to high ground water encountered		227.18	

PLAN 		Groundwater: High ground water strike at 1.80mbgl Stability: Unstable and collapsing below 1.00mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP01

Dates : 7/1/22 - 7/1/22

Job Number : Q0652

Ground Level : 229.98 m A.O.D.
Level to Ordnance Datum

Location : Around washery area

Engineer : ARUP

Coordinates: 284246.92 E
210515.99 N
Co-ordinates to National Grid



Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP02	
Dates : 7/1/22 - 7/1/22			Job Number : Q0652		Ground Level : 231.44 m A.O.D. <i>Level to Ordnance Datum</i>			
Location : Around washery area			Engineer : ARUP		Coordinates: 284410.81 E 210600.05 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Samples		Tests		Strata			WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	
1	0.20 -	B1			0.30	MADE GROUND - Black COAL		
	0.30 -	ES1			0.30	MADE GROUND - Red slightly sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Clinker and Slag with ash		231.14
	0.40 -	ES2			0.10			231.04
		B2			0.40			
2	1.00 -	B3 ES3			1.90	MADE GROUND - Loose black to dark grey slightly silty sandy GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal and ash		
	2.00 - 2.30 2.00 -	B4 ES4			2.30	Terminated at 2.80mbgl, sides unstable and collapsing. Unable to undertake soakaway test due to high ground water encountered		229.14

PLAN 		Groundwater: High ground water strike at 1.30mbgl Stability: Unstable and collapsing below 1.00mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP02

Dates : 7/1/22 - 7/1/22

Job Number : Q0652

Ground Level : 231.44 m A.O.D.
Level to Ordnance Datum

Location : Around washery area

Engineer : ARUP

Coordinates: 284410.81 E
210600.05 N
Co-ordinates to National Grid



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metres unless
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Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP03	
Dates : 10/1/22 - 10/1/22			Job Number : Q0652			Ground Level : 234.92 m A.O.D. <i>Level to Ordnance Datum</i>		
Location : Around washery area			Engineer : ARUP			Coordinates: 284554.78 E 210496.56 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1			0.60	MADE GROUND - Grass over loose black to dark grey slightly sandy silty GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal, ash, bricks and concrete ...At 0.10mbgl row of bricks encountered within side wall of pit			
	0.50 -	B1			0.60	MADE GROUND - Loose black dark grey silty sandy GRAVEL with medium cobble content. Gravel is fine to coarse angular to sub-angular Mudstone. Cobbles are angular to sub-angular Mudstone		234.32	
	0.80 - 1.00	ES2							
	1.00 -	B2							
2	2.00 -	B3 ES3			2.70	 sample at 2.0mbgl slightly sandy gravelly CLAY			
3	3.00 - 3.30 3.00 -	B4 ES4			3.30	Terminated at 3.30mbgl, sides unstable and collapsing no progress being made		231.62	

PLAN 	Groundwater: Slight ground water seepage at 2.80mbgl	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
	Stability: Unstable and collapsing below 1.50mbgl	
	Shoring: N/A	

Equipment Used: 9 tonne tracked 360 excavator

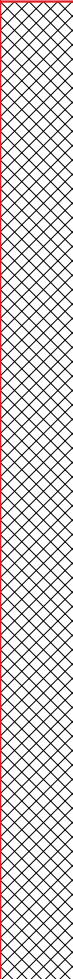
Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: J Lewis	Logged By: S Picton	Sheet No. 1 Of 2	m Per Page 5	All measurements in metres unless otherwise stated	
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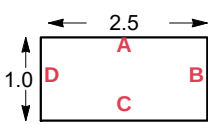
Contract : Global Centre of Rail Excellence		Trial Pit No.	
Client : Global Centre of Rail Excellence		TP03	
Dates : 10/1/22 - 10/1/22	Job Number : Q0652	Ground Level :	234.92 m A.O.D. <i>Level to Ordnance Datum</i>
Location : Around washery area	Engineer : ARUP	Coordinates:	284554.78 E 210496.56 N <i>Co-ordinates to National Grid</i>



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		J Lewis	S Picton	2 Of 2			

Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP04	
Dates : 10/1/22 - 10/1/22			Job Number : Q0652			Ground Level : 239.16 m A.O.D. <i>Level to Ordnance Datum</i>		
Location : Around washery area			Engineer : ARUP			Coordinates: 284819.63 E 210502.79 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1				MADE GROUND - Grass over loose black to dark grey slightly clayey sandy silty GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal, ash and timber			
	0.50 -	B1							
	1.00 -	B2 ES2							
2					3.60				
	2.00 -	B3 ES3							
3									
	3.00 -	B4 ES4							
	3.60 -	B5			3.60	Terminated at 3.60mbgl, unable to proceed past cobbles/boulders at base of pit		235.56	

PLAN 		Groundwater: Medium ground water strike at 1.50mbgl Stability: Unstable below 1.80mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

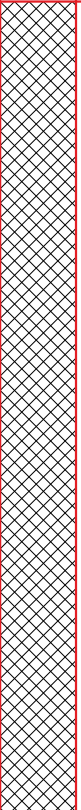
	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: J Lewis	Logged By: S Picton	Sheet No. 1 Of 2	m Per Page 5	All measurements in metres unless otherwise stated	
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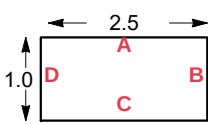
Contract : Global Centre of Rail Excellence		Trial Pit No.
Client : Global Centre of Rail Excellence		TP04
Dates : 10/1/22 - 10/1/22	Job Number : Q0652	Ground Level : 239.16 m A.O.D. <i>Level to Ordnance Datum</i>
Location : Around washery area	Engineer : ARUP	Coordinates: 284819.63 E 210502.79 N <i>Co-ordinates to National Grid</i>



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Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP05	
Dates : 10/1/22 - 10/1/22			Job Number : Q0652		Ground Level : 240.57 m A.O.D. <i>Level to Ordnance Datum</i>			
Location : Around washery area			Engineer : ARUP		Coordinates: 284970.62 E 210390.89 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1				MADE GROUND - Grass over loose black to dark grey slightly sandy slightly silty GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal, ash, bricks, roots and rootlets			
	0.50 -	B1 B2							
	1.00 -	B2 ES2							
2	2.00 -	B3 ES3			3.00	Terminated at 3.00mbgl, sides unstable and collapsing no progress being made		237.57	
	3.00 -	B4 ES4			3.00				

PLAN 		Groundwater: No ground water encountered Stability: Unstable and collapsing below 1.30mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP05

Dates : 10/1/22 - 10/1/22

Job Number : Q0652

Ground Level : 240.57 m A.O.D.
Level to Ordnance Datum

Location : Around washery area

Engineer : ARUP

Coordinates: 284970.62 E
210390.89 N
Co-ordinates to National Grid



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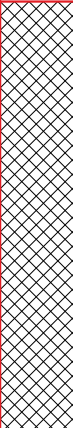
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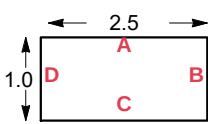
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Contract : Global Centre of Rail Excellence Client : Global Centre of Rail Excellence							Trial Pit No. TP06	
Dates : 10/1/22 - 10/1/22 Location : Around washery area			Job Number : Q0652 Engineer : ARUP			Ground Level : 237.14 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 285168.40 E 210396.23 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1				MADE GROUND - Grass over loose black to dark grey slightly sandy silty GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal, ash, roots and rootlets sample at 1.0mbgl sandy gravelly CLAY			
	0.50 -	B1			1.60				
	1.00 -	B2 ES2							
2					1.60	Firm grey brown mottled slightly sandy very gravelly CLAY with medium cobble and boulder content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone and Siltstone. Cobbles and boulders are rounded to sub-rounded Sandstone		235.54	
	2.00 -	B3 ES3			1.20				
	2.80 -	B4			2.80				
						Terminated at 2.80mbgl, unable to proceed past cobbles/boulders at base of pit		234.34	

PLAN 		Groundwater: No ground water encountered Stability: Unstable below 1.50mbgl Shoring: N/A		Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned	
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Equipment Used: 9 tonne tracked 360 excavator					
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Contract : Global Centre of Rail Excellence		Trial Pit No.
Client : Global Centre of Rail Excellence		TP06
Dates : 10/1/22 - 10/1/22	Job Number : Q0652	Ground Level : 237.14 m A.O.D. Level to Ordnance Datum
Location : Around washery area	Engineer : ARUP	Coordinates: 285168.40 E 210396.23 N Co-ordinates to National Grid



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		J Lewis	S Picton	2 Of 2			

Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP07	
Dates : 10/1/22 - 10/1/22			Job Number : Q0652			Ground Level : 232.57 m A.O.D. Level to Ordnance Datum		
Location : Around washery area			Engineer : ARUP			Coordinates: 285325.24 E 210402.83 N Co-ordinates to National Grid		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1				MADE GROUND - Grass over loose black to dark grey slightly sandy silty GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal, ash, metal, rubber, roots and rootlets			
	0.50 -	B1							
	1.00 -	B2 ES2							
2	2.00 -	B3 ES3			3.80				
3	3.00 -	B4 ES4							
4	3.80 - 4.00	B5			3.80	Firm grey brown mottled slightly sandy very gravelly CLAY with medium cobble and boulder content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone and Siltstone. Cobbles and boulders are rounded to sub-rounded Sandstone Terminated at 4.00mbgl specified depth		228.77	
					0.20				
	4.00 -	ES5			4.00				228.57

PLAN

Groundwater: Slight ground water seepage at 0.30mbgl,
Medium ground water strike at 2.60mbgl

Stability: Unstable and collapsing below 2.00mbgl

Shoring: N/A

Remarks: TP set out by QGL in liaison with ARUP.
Services checked and area CAT scanned

Equipment Used: 9 tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP07

Dates : 10/1/22 - 10/1/22

Job Number : Q0652

Ground Level : 232.57 m A.O.D.
Level to Ordnance Datum

Location : Around washery area

Engineer : ARUP

Coordinates: 285325.24 E
210402.83 N
Co-ordinates to National Grid



Contract : Global Centre of Rail Excellence							Trial Pit No. TP08	
Client : Global Centre of Rail Excellence								
Dates : 11/1/22 - 11/1/22			Job Number : Q0652		Ground Level : 243.46 m A.O.D. <i>Level to Ordnance Datum</i>			
Location : Around washery area			Engineer : ARUP		Coordinates: 284939.20 E 210661.10 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1				MADE GROUND - Loose black to dark grey slightly silty sandy GRAVEL with medium to high cobble and boulder content. Gravel is fine to coarse angular to sub-angular Mudstone. Cobbles and boulders are sub-angular to sub-rounded Mudstone with coal, ash and railway sleepers			
	0.50 -	B1							
	1.00 -	B2 ES2							
2					3.00				
	2.00 -	B3 ES3							
3	3.00 -	B4 ES4			3.00	Terminated at 3.00mbgl, sides unstable and collapsing no progress being made		240.46	

PLAN 		Groundwater: Slight ground water seepage at 0.80mbgl Stability: Unstable and collapsing below 0.50mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

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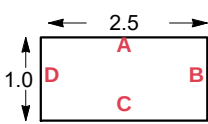
Contract : Global Centre of Rail Excellence		Trial Pit No.	
Client : Global Centre of Rail Excellence		TP08	
Dates : 11/1/22 - 11/1/22	Job Number : Q0652	Ground Level :	243.46 m A.O.D. <i>Level to Ordnance Datum</i>
Location : Around washery area	Engineer : ARUP	Coordinates:	284939.20 E 210661.10 N <i>Co-ordinates to National Grid</i>



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		J Lewis	S Picton	2 Of 2			

Contract : Global Centre of Rail Excellence Client : Global Centre of Rail Excellence							Trial Pit No. TP09	
Dates : 11/1/22 - 11/1/22 Location : Around washery area			Job Number : Q0652 Engineer : ARUP			Ground Level : 243.47 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 285134.98 E 210589.13 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.20 -	ES1				MADE GROUND - Grass over soft black to dark grey slightly sandy slightly gravelly silty CLAY with medium cobble content. Gravel is fine to coarse angular to sub-angular Mudstone. Cobbles are sub-angular to angular Mudstone with coal, ash, roots and rootlets			
	0.50 -	B1							
2	1.00 -	B2 ES2			2.00	MADE GROUND - Loose black to dark grey slightly sandy silty GRAVEL. Gravel is fine to coarse angular to sub-angular Mudstone with coal and ash		241.47	
	2.00 -	B3 ES3			2.00				
3	3.00 -	B4 ES4			2.00	Terminated at 4.00mbgl specified depth		239.47	
4	4.00 -	B5 ES5			4.00				

PLAN 		Groundwater: Slight ground water seepage at 0.20mbgl Stability: Unstable and collapsing below 2.00mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

 Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: J Lewis	Logged By: S Picton	Sheet No. 1 Of 2	m Per Page 5	All measurements in metres unless otherwise stated	
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Contract : Global Centre of Rail Excellence		Trial Pit No.	
Client : Global Centre of Rail Excellence		TP09	
Dates : 11/1/22 - 11/1/22	Job Number : Q0652	Ground Level :	243.47 m A.O.D. <i>Level to Ordnance Datum</i>
Location : Around washery area	Engineer : ARUP	Coordinates:	285134.98 E 210589.13 N <i>Co-ordinates to National Grid</i>



	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		J Lewis	S Picton	2 Of 2			

Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP10	
Dates : 7/12/21 - 7/12/21			Job Number : Q0652		Ground Level : 257.77 m A.O.D. <i>Level to Ordnance Datum</i>			
Location :			Engineer : ARUP		Coordinates: 283248.02 E 210699.94 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Samples		Tests		Strata			WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	
1	0.10 -	D1			0.15	TOPSOIL: Brown very gravelly CLAY with many rootlets.		
	0.30 -	D2			0.15	MADE GROUND: Brown clayey slightly sandy GRAVEL. Gravel is angular to sub angular fine to coarse siltstone.		257.62
	0.30 - 0.50	LB3			0.45			
	1.00 - 1.50	B4			0.60	MADE GROUND: Dark grey slightly clayey slightly sandy GRAVEL with low cobble content of siltstone. Gravel is angular to sub angular fine to coarse siltstone.		257.17
2	2.00 -	B5			2.00			
	2.00 - 2.50	LB5						
	2.60 -	D6			2.60	Trial Pit terminated at 2.6mbgl, sides collapsing, pit unstable.		255.17

PLAN 		Groundwater: No groundwater encountered Stability: Sides collapsing from surface Shoring: None	Remarks: Position marked out using co-ordinates supplied by the engineer. Area CAT and GENNY scanned with permit to excavate issued by QGL prior to starting work. On completion hole backfilled with arisings, compacted in layers in reverse order of excavation.
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Equipment Used: 9tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : GCRE Limited

**Trial Pit No.
TP10**

Dates : 7/12/21 - 7/12/21

Job Number : Q0652

Ground Level :

Location :

Engineer : Ove Arup and Partners
Ltd

Coordinates: 283248.02 E
210699.94 N
Co-ordinates to National Grid



Plas Newydd, Llanedi, Pontarddulais, Swansea
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Operator:
JL

Logged By:
A Jones

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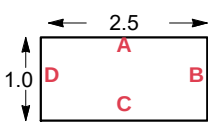
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Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP11	
Dates : 10/1/22 - 10/1/22			Job Number : Q0652		Ground Level : 251.09 m A.O.D. <i>Level to Ordnance Datum</i>			
Location :			Engineer : ARUP		Coordinates: 283484.77 E 210766.09 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Samples		Tests		Strata			WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	
1	0.01 -	D1			0.10	TOPSOIL: Brown clayey slightly sandy GRAVEL with many rootlets. Gravel is angular to sub angular fine to coarse siltstone. MADE GROUND: Dark grey slightly silty slightly sandy GRAVEL with medium cobble content and low boulder content of siltstone. Gravel is angular to sub angular fine to coarse siltstone, rare fine to medium coal and sub angular to sub rounded fine to coarse sandstone with plastic and timber.		250.99
	0.30 -	D2			0.10			
	0.50 - 1.00	LB3						
	1.50 - 2.00	LB4			2.60			
2					2.70	Trial pit terminated at 2.7mbgl, sides collapsing due to fast groundwater ingress.		248.39

PLAN 		Groundwater: Fast ground water ingress at 2.2mbgl Stability: Sides collapsing from 1.5mbgl. Shoring: None	Remarks: Position marked out using co-ordinates supplied by the engineer. Area CAT and GENNY scanned with permit to excavate issued by QGL prior to starting work. On completion hole backfilled with arisings, compacted in layers in reverse order of excavation.
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Equipment Used: 15Tonne tracked 360

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Contract : Global Centre of Rail Excellence

Client : GCRE Limited

Trial Pit No.

TP11

Dates : 10/1/22 - 10/1/22

Job Number : Q0652

Ground Level :

Location :

Engineer : Ove Arup and Partners
Ltd

Coordinates: 283484.77 E
210766.09 N
Co-ordinates to National Grid



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AA

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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP12

Dates : 11/1/21 - 11/1/21

Job Number : Q0652

Ground Level : 242.24 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 285143.13 E
210543.08 N
Co-ordinates to National Grid



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Operator:
QGL

Logged By:
P Darby

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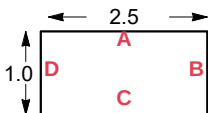
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otherwise stated



Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP13	
Dates : 11/1/21 - 11/1/21			Job Number : Q0652		Ground Level : 238.83 m A.O.D. <i>Level to Ordnance Datum</i>			
Location :			Engineer : ARUP		Coordinates: 285116.03 E 210469.73 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1						MADE GROUND - Dark grey to black very silty sandy GRAVEL with high cobble content. Gravel is fine to coarse angular mudstone. Cobbles are angular mudstone. At northern end of pit much cable, steel rope, metal sheeting, concrete cobbles and boulders, timber and occasional plastic bags.			
2					3.90				
3									
4					3.90 0.10 4.00	Grey slightly silty GRAVEL. Gravel is fine to coarse angular mudstone. Terminated at 4.0mbgl		234.93 234.83	

PLAN 	Groundwater: Moderate localised groundwater inflow between 3.8 and 3.9mbgl Stability: Signifint instability at norther end of pit Shoring: N/A	Remarks: Excavation restricted by nearby trees. Located approximately 1.5m from scheduled location
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Equipment Used: 13 tonne tracked excavator

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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP13

Dates : 11/1/21 - 11/1/21

Job Number : Q0652

Ground Level : 238.83 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 285116.03 E
210469.73 N
Co-ordinates to National Grid



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QGL

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All measurements in
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Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP14	
Dates : 11/1/22 - 11/1/22			Job Number : Q0652			Ground Level : 233.46 m A.O.D. <i>Level to Ordnance Datum</i>		
Location : Around washery area			Engineer : ARUP			Coordinates: 285232.47 E 210442.23 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1					2.30	MADE GROUND - Grass over loose black to dark grey slightly sandy silty GRAVEL with high cobble and boulder content. Gravel is fine to coarse angular to sub-angular Mudstone. Cobbles and boulders are sub-angular to angular Sandstone with coal, ash, metal, fabric, glass, clinker, bricks, bones, roots and rootlets			
2					2.30	Loose grey light brown mottled slightly sandy clayey GRAVEL with high cobble and boulder content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone and Siltstone. Cobbles and boulders are rounded to sub-rounded Sandstone with iron staining		231.16	
3					1.20				
					3.50	Terminated at 3.50mbgl, sides unstable and collapsing		229.96	

PLAN 		Groundwater: Slight ground water seepage at 2.30mbgl Stability: Unstable and collapsing Shoring: N/A	Remarks: TT set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

 Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: J Lewis	Logged By: S Picton	Sheet No. 1 Of 3	m Per Page 5	All measurements in metres unless otherwise stated	
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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP14

Dates : 11/1/22 - 11/1/22

Job Number : Q0652

Ground Level : 233.46 m A.O.D.
Level to Ordnance Datum

Location : Around washery area

Engineer : ARUP

Coordinates: 285232.47 E
210442.23 N
Co-ordinates to National Grid



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J Lewis

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All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP14

Dates : 11/1/22 - 11/1/22

Job Number : Q0652

Ground Level : 233.46 m A.O.D.
Level to Ordnance Datum

Location : Around washery area

Engineer : ARUP

Coordinates: 285232.47 E
210442.23 N
Co-ordinates to National Grid



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J Lewis

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All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP14A	
Dates : 11/1/22 - 11/1/22			Job Number : Q0652			Ground Level : 232.94 m A.O.D. <i>Level to Ordnance Datum</i>		
Location : Around washery area			Engineer : ARUP			Coordinates: 285233.98 E 210444.91 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1					1.70	MADE GROUND - Grass over loose black to dark grey slightly sandy silty GRAVEL with high cobble and boulder content. Gravel is fine to coarse angular to sub-angular Mudstone. Cobbles and boulders are sub-angular to angular Sandstone with coal, ash, metal,			
2					1.70 1.80	Loose grey light brown mottled slightly sandy very clayey GRAVEL with high cobble and boulder content. Gravel is fine to coarse sub-angular to sub-rounded Mudstone and Siltstone. Cobbles and boulders are rounded to sub-rounded Sandstone with iron staining		231.24	
3					3.50	Terminated at 3.50mbgl, sides unstable and collapsing		229.44	

PLAN 		Groundwater: No ground water encountered Stability: Unstable and collapsing Shoring: N/A	Remarks: TT set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

 Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: J Lewis	Logged By: S Picton	Sheet No. 1 Of 2	m Per Page 5	All measurements in metres unless otherwise stated	
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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP14A

Dates : 11/1/22 - 11/1/22

Job Number : Q0652

Ground Level : 232.94 m A.O.D.
Level to Ordnance Datum

Location : Around washery area

Engineer : ARUP

Coordinates: 285233.98 E
210444.91 N
Co-ordinates to National Grid



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email: enquiries@quantumgeotechnic.co.uk

Operator:
J Lewis

Logged By:
S Picton

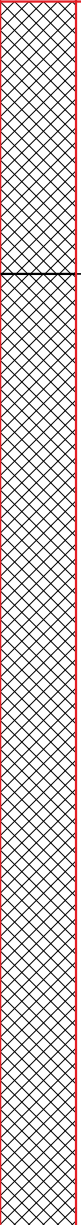
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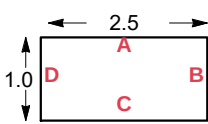
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Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP15	
Dates : 12/1/22 - 12/1/22			Job Number : Q0652			Ground Level : 248.11 m A.O.D. <i>Level to Ordnance Datum</i>		
Location :			Engineer : ARUP			Coordinates: 284779.25 E 210390.75 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1					1.00	MADE GROUND - Dense black very silty sandy GRAVEL with high cobble content. Gravel is fine to coarse sub-angular coal. Cobbles are sub-angular coal.			
					1.00	MADE GROUND - Dense grey slightly silty sandy GRAVEL with high cobble content and medium boulder content. Gravel is fine to coarse angular gravel. Cobbles and boulders are mudstone.		247.11	
2						 below 1.6mbgl loose to medium dense very silty sandy Gravel with low cobble and boulder content.			
					3.50				
3									
4									
					4.50	Terminated at 4.5mbgl		243.61	

PLAN 		Groundwater: Stability: Stable Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked, area CAT scanned and hand dug pit to 1.20mbgl undertaken No groundwater encountered
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Equipment Used: 13 tonne tracked excavator

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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP15

Dates : 12/1/22 - 12/1/22

Job Number : Q0652

Ground Level : 248.11 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 284779.25 E
210390.75 N
Co-ordinates to National Grid



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Operator:
QGL

Logged By:
P Darby

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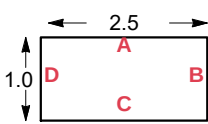
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Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP17	
Dates : 17/1/22 - 17/1/22			Job Number : Q0652			Ground Level : 247.22 m A.O.D. <i>Level to Ordnance Datum</i>		
Location : Around washery area			Engineer : ARUP			Coordinates: 284728.00 E 210394.00 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1					0.30	MADE GROUND - Dense dark grey slightly silty sandy GRAVEL with high cobble content and medium boulder content. Gravel is fine to coarse angular gravel. Cobbles and boulders are mudstone			
					0.30	MADE GROUND - Dense black very silty sandy GRAVEL with medium to high cobble content. Gravel is fine to coarse sub-angular coal. Cobbles are sub-angular coal and Mudstone		246.92	
2					3.70				
3									
4					4.00	Terminated at 4.00mbgl specified depth		243.22	

PLAN 		Groundwater: No ground water encountered Stability: Unstable below 2.50mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 9 tonne tracked 360 excavator

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: G Jones	Logged By: S Picton	Sheet No. 1 Of 2	m Per Page 5	All measurements in metres unless otherwise stated	
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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP17

Dates : 17/1/22 - 17/1/22

Job Number : Q0652

Ground Level : 247.22 m A.O.D.
Level to Ordnance Datum

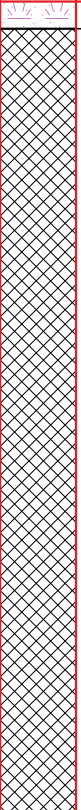
Location : Around washery area

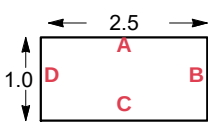
Engineer : ARUP

Coordinates: 284728.00 E
210394.00 N
Co-ordinates to National Grid



Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP18	
Dates : 6/12/21 - 6/12/21			Job Number : Q0652			Ground Level : 221.20 m A.O.D. Level to Ordnance Datum		
Location :			Engineer : ARUP			Coordinates: 283467.81 E 210253.53 N Co-ordinates to National Grid		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.50 - 1.00	B1 D1			0.10	TOPSOIL - Dark brown SILT / CLAY with many rootlets		221.10	
	0.50 -				0.10	MADE GROUND - Dark grey gravelly CLAY with low cobble content. Gravel is fine to coarse angular mudstone and rare coal. Cobbles are sub-angular mudstone. (COLLIERY SPOIL)			
2	1.50 - 2.00	B2 D2			2.90				
	1.50 -								
3	2.50 - 3.00	B3 D3							
	2.50 -								
					3.00	Terminated at 3.0mbgl due to significant instability		218.20	

PLAN 	Groundwater: Stability: Significant Instability Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked, area CAT scanned Damp between 1.5 and 2.5mbgl
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Equipment Used: 9 tonne tracked excavator

	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator: QGL	Logged By: P Darby	Sheet No. 1 Of 3	m Per Page 5	All measurements in metres unless otherwise stated	
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Contract : Global Centre of Rail Excellence

Client : Global Centre of Rail Excellence

Trial Pit No.

TP18

Dates : 6/12/21 - 6/12/21

Job Number : Q0652

Ground Level : 221.20 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : ARUP

Coordinates: 283467.81 E
210253.53 N
Co-ordinates to National Grid



Plas Newydd
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Operator:
QGL

Logged By:
P Darby

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m Per Page

All measurements in metres unless otherwise stated



Contract : Global Centre of Rail Excellence Client : Global Centre of Rail Excellence		Trial Pit No. TP18	
Dates : 6/12/21 - 6/12/21 Location :	Job Number : Q0652 Engineer : ARUP	Ground Level : 221.20 m A.O.D. <i>Level to Ordnance Datum</i>	Coordinates: 283467.81 E 210253.53 N <i>Co-ordinates to National Grid</i>



	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By:	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		QGL	P Darby	3 Of 3			

Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP19	
Dates : 8/12/21 - 8/12/21			Job Number : Q0652		Ground Level : 247.39 m A.O.D. Level to Ordnance Datum			
Location :			Engineer : ARUP		Coordinates: 282624.08 E 210468.10 N Co-ordinates to National Grid			

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.00 - 0.10	D1	0.3	Vane - P=36 - R=18kN/m2 Vane - P=40 - R=20kN/m2 Vane - P=32 - R=16kN/m2	0.20	TOPSOIL: Black slightly silty slightly sandy organic CLAY.		247.19	
	0.30 -	D2			0.20	Soft to firm yellowish brown grey sandy gravelly CLAY with low cobble content of sandstone. Gravel is sub angular to sub rounded fine to coarse sandstone.			
	0.50 - 1.00	LB3			0.85				
					1.05	Firm dark grey slightly sandy gravelly CLAY with low cobble content of sandstone. Gravel is angular to sub rounded fine to coarse sandstone, angular to sub angular fine to coarse siltstone.			246.34
2	1.50 -	B4		 at 1.5mbgl very silty / clayey slightly sandy Gravel					
3	2.50 - 3.00	LB5			2.95	with low boulder content of siltstone from 2.4mbgl		243.39	
4	3.20 -	D6							
	3.50 - 4.00	B7							
					4.00	Trial Pit terminated at scheduled depth of 4.0mbgl			

PLAN 		Groundwater: No groundwater encountered Stability: Stable Shoring: None	Remarks: Position marked out using co-ordinates supplied by the engineer. Area CAT and GENNY scanned with permit to excavate issued by QGL prior to starting work. Soakaway test carried out within pit. On completion hole backfilled with arisings, compacted in layers in reverse order of excavation.
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Equipment Used: 9tonne tracked 360 excavator							
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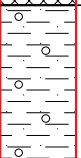
	Plas Newydd Swansea Tel: 01554744880 email: enquiries@quantumgeotechnic.co.uk	Operator:	Logged By:	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		JL	A Jones	1 Of 1	5		

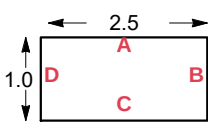
Contract : Global Centre of Rail Excellence Client : GCRE Limited		Trial Pit No. TP19
Dates : 8/12/21 - 8/12/21 Location :	Job Number : Q0652 Engineer : Ove Arup and Partners Ltd	Ground Level : 247.39 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 282624.08 E 210468.10 N <i>Co-ordinates to National Grid</i>



 Plas Newydd, Llanedi, Pontarddulais, Swansea SA4 0FQ Tel: 01554 744880 email: enquiries@quantumgeotech.co.uk	Operator: JL	Logged By: A Jones	Sheet No. 2 Of 2	m Per Page	All measurements in metres unless otherwise stated	
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Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP20	
Dates : 8/12/21 - 8/12/21			Job Number : Q0652			Ground Level : 275.01 m A.O.D. Level to Ordnance Datum		
Location :			Engineer : ARUP			Coordinates: 283231.19 E 211035.80 N Co-ordinates to National Grid		

m B.G.L.	Samples		Tests		Strata			WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	
1	0.00 - 0.05	D1			0.05	TOPSOIL: Brown clayey GRAVEL with many rootlets. Gravel is angular fine to coarse siltstone. MADE GROUND: Dark grey clayey slightly sandy GRAVEL with low cobble content and low boulder content of siltstone. Gravel is angular to sub angular fine to coarse siltstone and sandstone.		274.96
	0.30 -	D2			0.05			
	0.50 - 1.00	B3						
2	1.50 - 1.50 - 2.00	B4 LB4			3.35	Firm brown slightly sandy gravelly silty CLAY. Gravel is sub angular to sub rounded fine to coarse sandstone.		271.61
	2.50 - 3.00	B5						
	3.50 - 4.00	B6						
4	4.00 -	D7			4.00	Trial Pit terminated at scheduled depth of 4.0mbgl		271.01

PLAN 	Groundwater: No groundwater encountered Stability: Stable Shoring: None	Remarks: Position marked out using co-ordinates supplied by the engineer. Area CAT and GENNY scanned with permit to excavate issued by QGL prior to starting work. Soakaway test carried out within pit. On completion hole backfilled with arisings, compacted in layers in reverse order of excavation.
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Equipment Used: 9tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : GCRE Limited

Trial Pit No.

TP20

Dates : 8/12/21 - 8/12/21

Job Number : Q0652

Ground Level : 275.01 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : Ove Arup and Partners
Ltd

Coordinates: 283231.19 E
211035.80 N
Co-ordinates to National Grid



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All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP21	
Dates : 9/12/21 - 9/12/21			Job Number : Q0652		Ground Level : 230.34 m A.O.D. Level to Ordnance Datum			
Location :			Engineer : ARUP		Coordinates: 283037.70 E 211907.98 N Co-ordinates to National Grid			

m B.G.L.	Samples		Tests		Strata			WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	
1	0.10 -	D1			0.15	TOPSOIL: Brown slightly sandy gravelly CLAY with many rootlets. Gravel is angular to sub angular fine to coarse siltstone. MADE GROUND: Brownish grey clayey slightly sandy GRAVEL with low cobble content of siltstone. Gravel is angular to sub angular fine to coarse siltstone and sandstone.		230.19
	0.30 -	D2			0.15			
	0.50 - 1.00	B3						
	1.00 - 1.00 - 1.50	B4 LB4			1.45			
2	2.00 - 2.50	LB5			1.60	MADE GROUND: Brownish grey slightly clayey slightly sandy GRAVEL with low cobble content of siltstone. Gravel is angular to sub angular fine to coarse siltstone, sandstone and fine to medium coal.		228.74
					1.00			
	2.60 - 2.70	D6			2.60	Soft grey slightly sandy organic CLAY with rootlets		
3					0.10	Firm orange brown with grey mottling slightly sandy very gravelly silty CLAY with low cobble content of sandstone.		227.64
					2.70			
	3.00 - 3.50	B7			1.30			
4	4.00 -	D8			4.00	Trial Pit terminated at scheduled depth of 4.0mbgl		226.34

PLAN 		Groundwater: No groundwater encountered Stability: Sides collapsing 0-2.6mbgl Shoring: None	Remarks: Position marked out using co-ordinates supplied by the engineer. Area CAT and GENNY scanned with permit to excavate issued by QGL prior to starting work. Soakaway test carried out within pit. On completion hole backfilled with arisings, compacted in layers in reverse order of excavation.
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Equipment Used: 9tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : GCRE Limited

Trial Pit No.

TP21

Dates : 9/12/21 - 9/12/21

Job Number : Q0652

Ground Level : 230.34 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : Ove Arup and Partners
Ltd

Coordinates: 283037.70 E
211907.98 N
Co-ordinates to National Grid



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All measurements in
metres unless
otherwise stated



Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP22	
Dates : 8/12/21 - 8/12/21			Job Number : Q0652			Ground Level : 279.12 m A.O.D. Level to Ordnance Datum		
Location :			Engineer : ARUP			Coordinates: 282687.91 E 210984.95 N Co-ordinates to National Grid		

m B.G.L.	Samples		Tests		Strata			WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	
1	0.00 - 0.10	D1			0.10	TOPSOIL: Brown clayey sandy GRAVEL with many rootlets. Gravel is angular fine to coarse siltstone.		279.02
	0.20 - 0.50	LB2			0.10			
	0.60 -	D3			0.60	MADE GROUND: Brown clayey slightly sandy GRAVEL. Gravel is angular to sub angular fine to coarse siltstone and sandstone.		278.42
	1.00 - 1.50	B4			0.70			
2	2.00 - 2.50	LB5				MADE GROUND: Dark grey slightly clayey slightly sandy GRAVEL with low cobble content and low boulder content of siltstone. Gravel is angular to sub angular fine to coarse siltstone, sub angular sandstone and rare fine to medium coal.		
					3.60			
3	3.00 - 3.50	B6						
4	4.00 - 4.20	B7						
					4.30	Trial Pit terminated at 4.3mbgl, sides collapsing, pit unstable.		274.82

PLAN 	Groundwater: No groundwater encountered Stability: Sides collapsing Shoring: None	Remarks: Position marked out using co-ordinates supplied by the engineer. Area CAT and GENNY scanned with permit to excavate issued by QGL prior to starting work. On completion hole backfilled with arisings, compacted in layers in reverse order of excavation.
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Equipment Used: 9tonne tracked 360 excavator

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Contract : Global Centre of Rail Excellence

Client : GCRE Limited

Trial Pit No.

TP22

Dates : 8/12/21 - 8/12/21

Job Number : Q0652

Ground Level : 279.12 m A.O.D.
Level to Ordnance Datum

Location :

Engineer : Ove Arup and Partners
Ltd

Coordinates: 282687.91 E
210984.95 N
Co-ordinates to National Grid



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Operator:
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A Jones

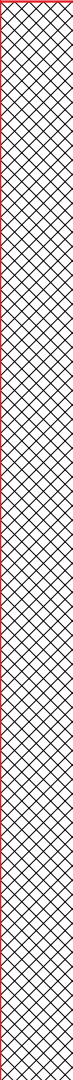
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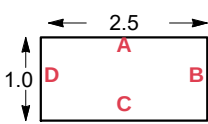
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metres unless
otherwise stated



Contract : Global Centre of Rail Excellence							Trial Pit No.	
Client : Global Centre of Rail Excellence							TP23	
Dates : 11/1/22 - 11/1/22			Job Number : Q0652			Ground Level : 248.13 m A.O.D. <i>Level to Ordnance Datum</i>		
Location : Around washery area			Engineer : ARUP			Coordinates: 281381.91 E 211314.37 N <i>Co-ordinates to National Grid</i>		

m B.G.L.	Samples		Tests		Strata				WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
1	0.50 - 0.50 - 1.00	B1 D1				MADE GROUND - Dense black to dark grey slightly sandy silty GRAVEL with high cobble and boulder content. Gravel is fine to coarse angular to sub-angular Mudstone. Cobbles and boulders are sub-angular to sub-rounded Mudstone and Siltstone			
	1.00 -	B2							
2	2.00 -	D2 B3			4.00				
3	3.00 -	D3 B4							
4	4.00 -	D4 B5			4.00	Terminated at 4.00mbgl specified depth		244.13	

PLAN 		Groundwater: No ground water encountered Stability: Unstable and collapsing below 2.00mbgl Shoring: N/A	Remarks: TP set out by QGL in liaison with ARUP. Services checked and area CAT scanned
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Equipment Used: 30 tonne tracked 360 excavator

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