

# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH16	1.20	11.92	C		8	10	14	28	8		50/160					
BH16	2.00	11.12	C		7	7	9	7	6	7	29					
BH16	3.00	10.12	C		10	16	19	21	10		50/175					
BH16	4.00	9.12	C		25		50				50/35					
BH16	5.00	8.12	C		8	12	19	31			50/120					
BH16	6.00	7.12	C		7	7	6	7	8	7	28					
BH16	7.00	6.12	S		9	16	19	22	9		50/165					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

Printed: 07/09/2022



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 geotechnical and geoenvironmental specialists

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited				

[illegible]

Hammer No.:	SAM1	Remarks
Energy Ratio, Er (%):	75	

SWP Penetration under own weight (mm)

L - Split Spoon liner used

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**Engineer**

Pinnacle Consulting  
Engineers Limited

**Project No.**

PN224395

**Client**

Pinnacle Consulting Engineers Limited

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					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH18	1.20	9.83	S		9	10	8	7	9	10	34					
BH18	2.00	9.03	S		2	3	3	4	2	3	12					
BH18	3.00	8.03	S		4	6	15	15	20		50/225					
BH18	4.00	7.03	S		2	3	3	4	5	4	16					
BH18	5.00	6.03	S		2	2	3	4	4	5	16					
BH18	6.00	5.03	S		2	4	6	6	8	9	29					
BH18	7.00	4.03	S		1	1	2	3	3	3	11					
BH18	8.00	3.03	S		2	4	7	7	10	10	34					
BH18	9.00	2.03	S		2	3	3	6	9	10	28					
BH18	10.00	1.03	S		2	6	15	15	20		50/180					

<b>Hammer No.:</b>	JB14	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	63	

-/- Blows/penetration (mm) after seating

S - SPT with split spoon sampler

\*/- Total blows/penetration (mm)

C - SPT with cone

SWP Penetration under own weight (mm)

L - Split Spoon liner used

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					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH19	1.20	9.81	C		4	7	8	8	9	7	32					
BH19	2.00	9.01	C		5	8	9	9	10	10	38					
BH19	3.00	8.01	C		6	6	7	8	8	9	32					
BH19	4.00	7.01	C		5	7	7	7	8	8	30					
BH19	5.00	6.01	C		7	6	6	7	8	9	30					
BH19	5.50	5.51	C		9	9	10	10	16	14	50/290					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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<b>Client</b>	Pinnacle Consulting Engineers Limited				

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH20	1.20	9.81	C		8	10	9	14	14	14	51					
BH20	2.00	9.01	C		7	8	8	9	9	10	36					
BH20	3.00	8.01	C		5	8	9	7	5	5	26					
BH20	4.00	7.01	C		5	6	7	7	8	7	29					
BH20	5.00	6.01	S		9	11	12	14	14	10	50/250					

Hammer No.:	SAM1	Remarks
Energy Ratio, Er (%):	75	

SWP Penetration under own weight (mm)

L - Split Spoon liner used

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Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH21	1.20	9.83	C		9	16	23	27			50/265					
BH21	2.00	9.03	C		5	7	8	8	9	8	33					
BH21	3.00	8.03	C		6	9	8	9	9	10	36					
BH21	4.00	7.03	C		3	5	7	7	8	8	30					
BH21	5.00	6.03	S		6	10	11	13	15	11	50/270					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH22	1.20	9.50	C		8	8	9	9	10	9	37					
BH22	2.00	8.70	C		6	7	7	8	8	8	31					
BH22	3.00	7.70	C		5	7	7	8	8	9	32					
BH22	4.00	6.70	S		5	7	8	8	9	10	35					
BH22	5.00	5.70	S		7	8	9	8	9	9	35					
BH22	5.50	5.20	C		9	16	15	14	15	6	50/245					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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**Engineer**

Pinnacle Consulting  
Engineers Limited

Project No.

PN224395

**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH24	1.20	9.86	C		25		50				50/50					
BH24	2.00	9.06	C		25		50				50/65					
BH24	3.00	8.06	C		4	7	9	10	14	9	42					
BH24	4.00	7.06	C		6	7	7	8	7	8	30					
BH24	5.00	6.06	C		9	10	12	14	16	8	50/255					

Hammer No.:	SAM1	Remarks
Energy Ratio, Er (%):	75	

-/- Blows/penetration (mm) after seating

S - SPT with split spoon sampler

-\*/- Total blows/penetration (mm)

C - SPT with cone

SWP Penetration under own weight (mm)

L - Split Spoon liner used

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Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH25	1.20	9.80	C		3	4	3	4	5	5	17					
BH25	2.00	9.00	C		5	6	6	8	8	9	31					
BH25	3.00	8.00	C		5	6	9	14	17	8	48					
BH25	4.00	7.00	C		8	12	19	31			50/247					
BH25	5.00	6.00	C		7	8	8	9	10	12	39					
BH25	6.00	5.00	S		8	14	4	16	16	14	50/241					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH26	1.20	9.75	S		15	10	15	15	20		50/160					
BH26	2.00	8.95	S		15	10	15	15	20		50/175					
BH26	3.00	7.95	S		10	9	7	3	-	1	11					
BH26	4.00	6.95	S		1	2	2	2	2	2	8					
BH26	5.00	5.95	S		1	1	1	1	1	1	4					
BH26	6.00	4.95	S		-	-	-	-	-	-	0*/450					
BH26	7.00	3.95	S		1	1	2	2	1	2	7					
BH26	8.00	2.95	S		1	-	1	2	2	2	7					
BH26	9.00	1.95	S		10	15	15	15	20		50/225					

<b>Hammer No.:</b>	JB14	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	63	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH29	1.20	10.02	C		2	5	7	7	6	6	26					
BH29	2.00	9.22	C		7	9	12	12	10	12	46					
BH29	3.00	8.22	C		5	8	7	8	8	9	32					
BH29	4.00	7.22	S		4	5	6	6	7	7	26					
BH29	5.00	6.22	S		8	9	9	10	10	10	39					
BH29	5.50	5.72	S		9	11	12	13	14	11	50/255					

Hammer No.:	SAM1	Remarks
Energy Ratio, Er (%):	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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**JB Site Investigation**  
**Ramparts Business Park**  
**Berwick upon Tweed**  
**TD15 1TB**  
**Tel: 01289 304646**

SPT Hammer Ref: JB14  
 Test Date: 16/06/2022  
 Report Date: 14/07/2022  
 File Name: JB14.spt  
 Test Operator: JB

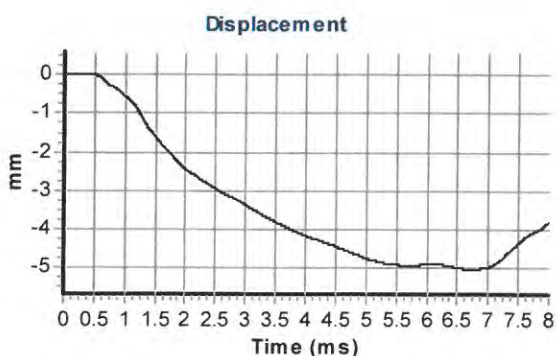
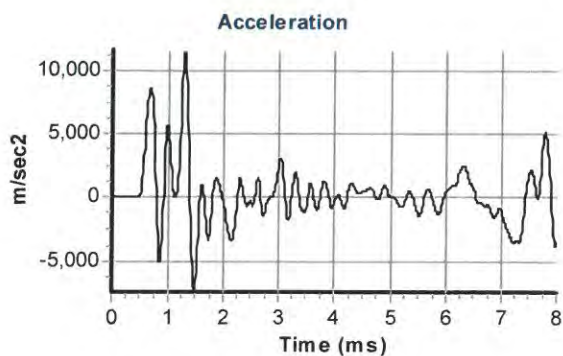
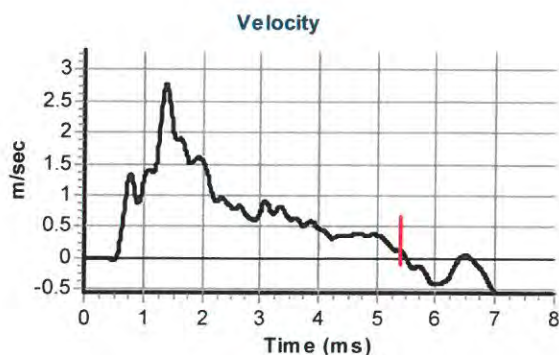
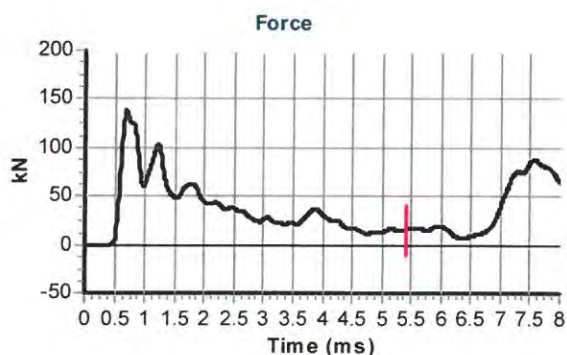
## Instrumented Rod Data

Diameter  $d_r$  (mm): 54  
 Wall Thickness  $t_r$  (mm): 6.1  
 Assumed Modulus  $E_a$  (GPa): 208  
 Accelerometer No.1: 6178  
 Accelerometer No.2: 5843

## SPT Hammer Information

Hammer Mass  $m$  (kg): 63.3  
 Falling Height  $h$  (mm): 760  
 SPT String Length  $L$  (m): 11.0

## Comments / Location



## Calculations

Area of Rod  $A$  (mm<sup>2</sup>): 918  
 Theoretical Energy  $E_{theor}$  (J): 473  
 Measured Energy  $E_{meas}$  (J): 300

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

**63**

Signed:  
 Title:





**Unit 8**  
**Orton Enterprise Centre**  
**Orton Southgate**  
**Peterborough**  
**PE2 6XU**

SPT Hammer Ref: SAM1  
Test Date: 05/05/2022  
Report Date: 05/05/2022  
File Name: SAM1.spt  
Test Operator: PR

**Instrumented Rod Data**

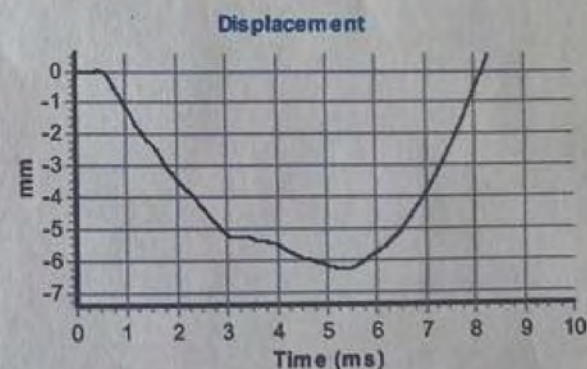
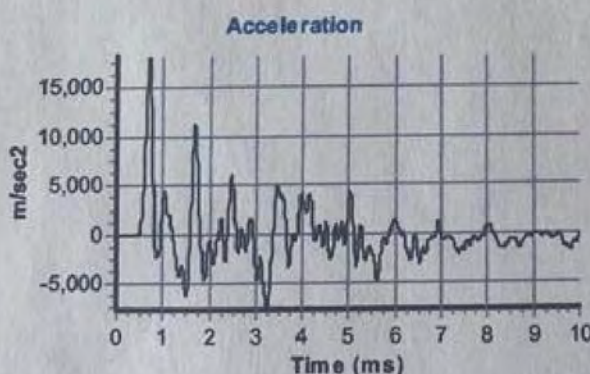
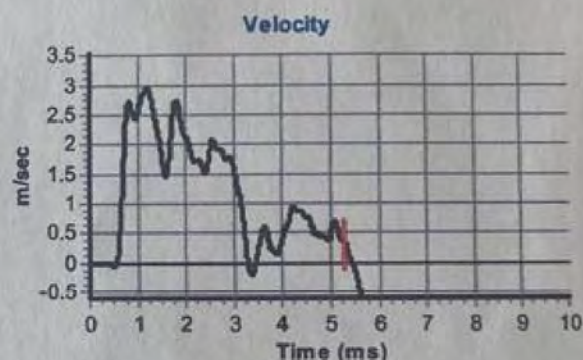
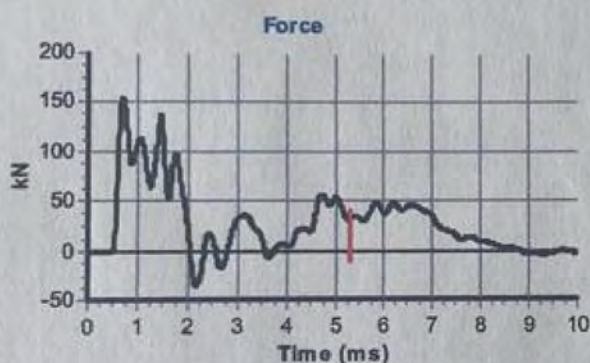
Diameter  $d_r$  (mm): 54  
Wall Thickness  $t_r$  (mm): 6.3  
Assumed Modulus  $E_a$  (GPa): 208  
Accelerometer No.1: 11853  
Accelerometer No.2: 10332

**SPT Hammer Information**

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

**Comments / Location**

Maximum calibration interval is 12 months

**Calculations**

Area of Rod A (mm<sup>2</sup>): 944  
Theoretical Energy  $E_{\text{theor}}$  (J): 473  
Measured Energy  $E_{\text{meas}}$  (J): 356

**Energy Ratio  $E_r$  (%):** **75**

*P. Rodgman*

Signed: PR  
Title: Operator

## **APPENDIX 4**

### **Cable Percussion -Rotary Follow-on Borehole Records**

# DATA SHEET - Symbols and Abbreviations used on Records



## Sample Types

B	Bulk disturbed sample
BLK	Block sample
C	Core sample
D	Small disturbed sample (tub/jar)
E	Environmental test sample
ES	Environmental soil sample
EW	Environmental water sample
G	Gas sample
L	Liner sample
LB	Large bulk disturbed sample
P	Piston sample (PF - failed P sample)
TW	Thin walled push in sample
U	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)
UT	Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample)
V	Vial sample
W	Water sample
#	Sample Not Recovered

## Insitu Testing / Properties

CBRP	CBR using TRL probe
CHP	Constant Head Permeability Test
COND	Electrical conductivity
TC	Thermal Conductivity
TR	Thermal Resistivity
HV	Strength from Hand Vane
ICBR	CBR Test
IDEN	Density Test
IRES	Resistivity Test
MEX	CBR using Mexecon Probe Test
PKR	Packer Permeability Test
PLT	Plate Load Test
PP	Strength from Pocket Penetrometer
Temp	Temperature
VHP	Variable Head Permeability Test
VN	Strength from Insitu Vane
w%	Water content
(All other strengths from undrained triaxial testing)	
S	Standard Penetration Test (SPT)
C	SPT with cone
N	SPT Result
-/-	Blows/penetration (mm) after seating drive
-*/- (mm)	Total blows/penetration
( )	Extrapolated value

## Groundwater

Water Strike	
Depth Water Rose To	

## Instrumentation

Seal

Filter

Seal

## Strata

Made Ground Granular

Made Ground Cohesive

Topsoil

Cobbles and Boulders

Gravel

Sand

Silt

Clay

Peat

**Note: Composite soil types shown by combined symbols**

Chalk

Limestone

Sandstone

Coal

## Strata, Continued

Mudstone

Siltstone

## Metamorphic Rock

Fine Grained

Medium Grained

Coarse Grained

## Igneous Rock

Fine Grained

Medium Grained

Coarse Grained

## Backfill Materials

Arisings

Bentonite

Concrete

Sand

Grout

Gravel

Asphalt/Tarmacadam

## Rotary Core

RQD Rock Quality Designation (% of intact core >100mm)

## FRACTURE INDEX

Fractures/metre

NI Non-intact core

NR No core recovery

AZCL Assumed zone of core loss

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327700.5 E 184190.8 N	<b>Borehole</b>	BH01
				<b>Ground Level</b>	10.86 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Description	Depth	Legend	Level (m OD)
0.20	D					MADE GROUND: Black tarmacadam.	0.19		10.67
0.20	ES					[MADE GROUND - TARMACADAM]			
0.20 - 0.60	B					MADE GROUND: Reddish brown slightly clayey gravelly medium sand.			
0.50	D					Gravel is angular fine to coarse of sandstone and limestone.	0.56		10.30
0.50	ES					[MADE GROUND]			
0.60 - 1.20	B					MADE GROUND: Light brown slightly sandy subangular to subrounded fine to coarse gravel of siltstone, sandstone and limestone.			
1.00	D					[MADE GROUND]	1.20		9.66
1.00	ES					Soft to firm brown gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of siltstone.			
1.20 - 1.65	D	(DRY)			S11	[RIVER TERRACE DEPOSITS-COHESIVE]			
1.20 - 1.65	D								
1.20 - 1.70	B								
1.80	D								
2.00 - 2.45		2.00 (DRY)			S12				
2.00	ES								
2.00 - 2.45	D								
2.00 - 2.50	B								
2.80	D								
3.00 - 3.45		3.00 (DRY)			S22		3.00		7.86
3.00	ES					Medium dense brown very sandy clayey GRAVEL. Gravel is subrounded fine to medium of sandstone and siltstone.			
3.00 - 3.45	D					[RIVER TERRACE DEPOSITS-GRANULAR]			
3.00 - 3.50	B								
3.80	D								
4.00 - 4.45		4.00 (1.50)			S14				
4.00	ES								
4.00 - 4.45	D								
4.00 - 4.50	B								
4.80	D			16					
5.00 - 5.45		5.00 (DRY)			S9		5.00		5.86
5.00	ES					Firm to stiff reddish brown gravelly CLAY. Gravel is subangular fine to medium of mudstone (Weathered mudstone).			
5.00 - 5.45	D					[ST MAUGHANS FORMATION-UPPER CLAY]			
5.00 - 5.50	B								
5.80	D								
6.00 - 6.38		6.00 (DRY)			S50/225mm				
6.00 - 6.38	D						6.38		4.48
						<i>Borehole continued by rotary techniques - see next page</i>			

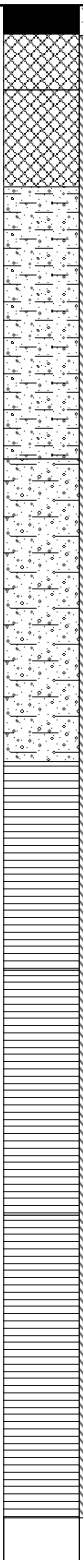
Boring				Progress				Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed
1.20	0.30	Inspection Pit	AC/RW	0.00			09/08/22	08:00	3.00	3.00	1.50	20	
6.38	0.15	Cable Percussion	WO/JT	3.00	3.00	DRY	09/08/22	17:00	15.00	10.50			
20.20	0.12	Rotary Core	CJ/JS	3.00	3.00	1.50	10/08/22	08:00					
				6.38	6.00	DRY	10/08/22	17:00					



<b>Remarks</b>	<p>Inspection pit hand excavated to 1.20m depth and no services were found.</p> <p>ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.</p> <p>Slow progress: 5.50-6.00m for 60 minutes.</p> <p>A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 14.00m to 18.00m with a flush cover installed.</p> <p>Backfill details from base of hole: bentonite seal up to 18.00m, gravel filter up to 12.00m, bentonite seal up to 0.20m, concrete up to ground level.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>	<p>Logged by RW</p> <p>Checked by JN</p> <p>Figure Sheet 1 of 4</p> <p>05/01/2023</p> <p><b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists</p>
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# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327700.5 E 184190.8 N	<b>Borehole</b>	BH01
				<b>Ground Level</b>	10.86 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50				
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)		
7.50 - 7.95  8.18 - 8.26 8.26 - 8.38 8.42 - 8.61 8.61 - 8.71 8.73 - 8.80 8.86 - 9.00 9.00 - 9.45	C26	6.00 - 7.50 (92mm)	6.00 ADDED	20 0	0	AZCL	<b>Borehole continued by rotary techniques - see below</b>  Firm to stiff dark reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone (Weathered mudstone). [ST MAUGHANS FORMATION-UPPER CLAY]	Between 6.00-7.19m, assumed zone of core loss.	8.00		2.86		
												NI	Between 7.19-7.50m, non-intact.
												NI	Extremely weak to weak reddish brown MUDSTONE with occasional closely to medium spaced nodules of light grey mudstone. [ST MAUGHANS FORMATION]
	C	9.00 - 10.50 (92mm)	9.00 ADDED	10 0	0	AZCL							
												C	C42

<b>Remarks</b>  Symbols and abbreviations are explained on the accompanying key sheets.  All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found.	Logged by	RW
		ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.	Checked by	JN
		Slow progress: 5.50-6.00m for 60 minutes.	Figure	Sheet 2 of 4
		A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 14.00m to 18.00m with a flush cover installed.		05/01/2023
		Backfill details from base of hole: bentonite seal up to 18.00m, gravel filter up to 12.00m, bentonite seal up to 0.20m, concrete up to ground level.		
		Logged in accordance with BS5930:2015 + A1:2020		
				


**Remarks** Inspection pit hand excavated to 1.20m depth and no services were found.  
 ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.  
 Slow progress: 5.50-6.00m for 60 minutes.  
 A 50mm standpipe was installed to 18.00m with a geowrapped slotted section from 14.00m to 18.00m with a flush cover installed.  
 Backfill details from base of hole: bentonite seal up to 18.00m, gravel filter up to 12.00m, bentonite seal up to 0.20m, concrete up to ground level.  
 Logged in accordance with BS5930:2015 + A1:2020

Logged by RW  
 Checked by JN  
 Figure Sheet 2 of 4  
 05/01/2023

PRELIMINARY


<p><b>Remarks</b></p> <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>	<p>Logged by RW</p> <p>Checked by JN</p> <p>Figure Sheet 3 of 4</p> <p>05/01/2023</p> <p><b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists</p>
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Project		Newport Quinn Phase 2		Engineer		Pinnacle Consulting Engineers Limited		Project No.		PN224395	
Client		Pinnacle Consulting Engineers Limited		National Grid Coordinates		327700.5 E 184190.8 N		Borehole		BH01	
								Ground Level		10.86 m OD	

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		19.00 - 20.20 (92mm)	10.50 ADDED					non-intact, recovered as gravel. Between 16.79-16.89m, non-intact, recovered as gravel. Between 17.06-17.16m, non-intact, recovered as gravel. Between 17.21-17.25m, non-intact, recovered as soft gravelly clay. Between 17.25-17.50m, horizontal to vertical, medium spaced, planar, smooth discontinuities. Between 17.50-18.00m, horizontal to inclined (45 deg.), c;losely spaced, planar, smooth discontinuities. Between 17.92-18.00m, extremely weak. Non-intact, recovered as sandy clay. Between 18.00-18.12m, non-intact, recovered as gravel. Between 18.12-18.30m, vertical, undulating, smooth discontinuity. Below 18.30m, becoming weak to medium strong. Between 18.30-18.75m, horizontal to inclined (30 - 45 deg.), extremely closely to closely spaced, planar, smooth discontinuities with black staining. Between 18.75-18.84m, non-intact, recovered as gravel. Between 18.84-19.00m, horizontal, closely spaced, planar to stepped, smooth discontinuities. Below 19.00m, strong. Between 19.00-19.05m, assumed zone of core loss. Between 19.13-19.19m, non-intact, recovered as gravel. Between 19.44-19.56m, vertical, undulating, smooth discontinuity. Between 19.56-19.61m, non-intact, recovered as gravel. Between 19.66-19.72m, non-intact, recovered as gravel. End of Borehole	20.20		-9.34

Boring				Progress				Groundwater						
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				19.00	10.50	2.40	22/08/22	08:00						
				20.20	10.50	ADDED	22/08/22	17:00						

Remarks

  
Symbols and abbreviations are explained on the accompanying key sheets.  
All dimensions are in metres.

Logged by

Checked by

Figure

RW

JN

Sheet 4 of 4

05/01/2023

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Logged in accordance with BS5930:2015 + A1:2020





# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327873.4 E 184219.4 N	<b>Borehole</b>	BH04A
				<b>Ground Level</b>	10.86 m OD

Sampling			Properties			Strata		Scale 1:50	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Description	Depth	Legend	Level (m OD)
0.25	D					MADE GROUND: Black tarmacadam.	0.20		10.66
0.25	ES					[MADE GROUND - TARMACADAM]			
0.25 - 0.55	B					MADE GROUND: Reddish brown gravelly medium sand. Gravel is angular to subangular fine to coarse of siltstone and sandstone.	0.60		10.26
0.60	D					[MADE GROUND]			
0.60	ES					PROBABLE MADE GROUND: Brown slightly gravelly medium sand with a low cobble content. Gravel is subangular to subrounded fine to coarse of siltstone and sandstone.	1.20		9.66
0.60 - 1.20	B					[MADE GROUND]			
1.00	D					Very stiff brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of siltstone and sandstone.			
1.00	ES					[RIVER TERRACE DEPOSITS-COHESIVE]			
1.20 - 1.46		1.20 (DRY)			C50/115mm				
1.20 - 1.70	B								
2.00 - 2.30		2.00 (DRY)			C50/145mm				
2.00 - 2.50	B			11					
3.00 - 3.45		3.00 (DRY)			C27	Below 3.00m, stiff.	3.10		7.76
3.00 - 3.50	B					Stiff reddish brown slightly sandy CLAY. [ST MAUGHANS FORMATION-UPPER CLAY]			
4.00 - 4.39		4.00 (3.90)			S50/237mm	Firm to stiff reddish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of mudstone. Some nodules of light grey clay (probable weathered bedrock). [ST MAUGHANS FORMATION-UPPER CLAY]	4.00		6.86
4.00 - 4.45	D					Below 4.00m, very stiff.			
						Borehole continued by rotary techniques - see next page			

<b>Remarks</b>  Symbols and abbreviations are explained on the accompanying key sheets.  All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found.	Logged by	AC
		ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.	Checked by	JN
		Slow progress: 1.80-3.00m for 150 minutes.	Figure	Sheet 1 of 4
		Chiselling: 3.70-4.00m for 60 minutes.		05/01/2023
		A 50mm standpipe was installed to 17.00m with a geowrapped slotted section from 15.00m to 17.00m with a flush cover installed. Backfill details from base of hole: bentonite seal up to 17.00m, gravel filter up to 15.00m, bentonite seal up to 0.30m, concrete up to ground level.		
Logged in accordance with BS5930:2015 + A1:2020			 geotechnical and geoenvironmental specialists	

**Remarks**

Inspection pit hand excavated to 1.20m depth and no services were found.

ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.

Slow progress: 1.80-3.00m for 150 minutes.

Chiselling: 3.70-4.00m for 60 minutes.

A 50mm standpipe was installed to 17.00m with a geowrapped slotted section from 15.00m to 17.00m with a flush cover installed.

Backfill details from base of hole: bentonite seal up to 17.00m, gravel filter up to 15.00m, bentonite seal up to 0.30m, concrete up to ground level.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AC  
Checked by JN  
Figure Sheet 1 of 4  
05/01/2023

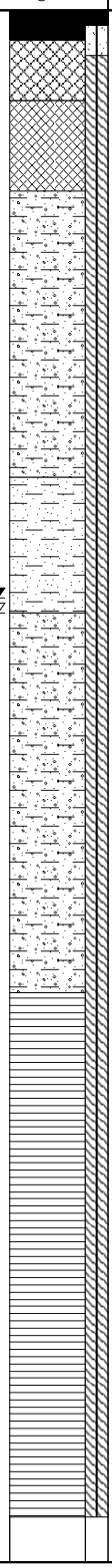
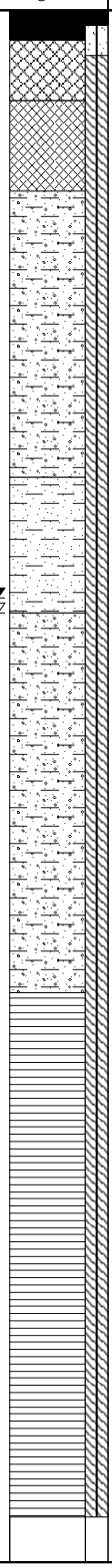
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# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327873.4 E 184219.4 N	<b>Borehole</b>	BH04A
				<b>Ground Level</b>	10.86 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50						
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)				
							<b>Borehole continued by rotary techniques - see below</b>								
		4.00 - 5.00 (92mm)	4.00 ADDED	44 0	0	AZCL	Firm to stiff reddish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of mudstone. Some nodules of light grey clay (probable weathered bedrock). [ST MAUGHANS FORMATION-UPPER CLAY]	Between 4.00-4.56m, assumed zone of core loss. Between 4.56-4.86m, non-intact, recovered as slightly gravelly slightly clayey sand. Between 4.86-5.00m, non-intact, recovered as clay. Between 8.00-5.31m, assumed zone of core loss. Below 5.31m, stiff to very stiff. between 5.31-5.43m, non-intact, recovered as gravel. Between 5.43-6.00m, non-intact, recovered as very stiff clay (Possible weathered mudstone) Between 6.00-6.52m, assumed zone of core loss.	6.52		4.34				
					NI										
					NI										
		5.00 - 6.00 (92mm)	4.00 ADDED	69 0	0	AZCL									
					NI										
5.52 - 5.60	C														
5.60 - 5.78	C														
5.78 - 5.94	C	6.00 - 7.50 (92mm)	4.00 ADDED	65 51	28	AZCL									
						NI	Extremely weak to weak reddish brown MUDSTONE with closely to medium spaced nodules of light grey mudstone. Horizontal to inclined (20 - 45 deg.), very closely to closely spaced, planar, smooth discontinuities. [ST MAUGHANS FORMATION]	Between 6.52-6.64m, non-intact, recovered as gravel. Between 7.32-7.38m, non-intact, recovered as gravel. Between 7.50-7.55m, assumed zone of core loss. Between 7.55-7.81m, non-intact, recovered as soft clay. Between 7.86-8.34m, inclined (45 - 50 deg.), medium spaced, planar, smooth discontinuities. Between 8.34-8.76m, horizontal to inclined (30 - 60 deg.), extremely closely to very closely spaced, planar to undulating, smooth to rough discontinuities with some gravel infill. Between 8.76-9.00m, non-intact, recovered as gravel. Between 9.00-9.66m, assumed zone of core loss. Between 9.66-10.02m, non-intact,							
6.65 - 6.80	C				11										
6.80 - 6.90	C				16										
		7.50 - 9.00 (92mm)	4.00 ADDED	96 51	33	NI									
					40										
						4									
7.93 - 8.10	C														
8.10 - 8.28	C					28									
						NI									
		9.00 - 10.50 (92mm)	4.00 ADDED	56 21	9	AZCL									
						NI									
9.95 - 20.05	C														
Boring							Progress			Groundwater					
Depth	Hole Dia.	Technique		Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.30	Inspection Pit		AC/RW WO/JT	0.00		DRY	10/08/22	08:00	4.00	3.30	3.90	20		Slow inflow.
4.45	0.15	Cable Percussion			1.20		DRY	10/08/22	17:00						
21.00	0.12	Rotary Core			1.20	1.20	DRY	16/08/22	08:00						
					4.45	4.00	3.90	16/08/22	17:00						

<b>Remarks</b>  Symbols and abbreviations are explained on the accompanying key sheets.  All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found.	Logged by	AC
		ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.	Checked by	JN
		Slow progress: 1.80-3.00m for 150 minutes.	Figure	Sheet 2 of 4
		Chiselling: 3.70-4.00m for 60 minutes.		05/01/2023
		A 50mm standpipe was installed to 17.00m with a geowrapped slotted section from 15.00m to 17.00m with a flush cover installed.		
Backfill details from base of hole: bentonite seal up to 17.00m, gravel filter up to 15.00m, bentonite seal up to 0.30m, concrete up to ground level.				
Logged in accordance with BS5930:2015 + A1:2020			geotechnical and geoenvironmental specialists	

**Remarks**  Inspection pit hand excavated to 1.20m depth and no services were found.  
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.  
Slow progress: 1.80-3.00m for 150 minutes.  
Chiselling: 3.70-4.00m for 60 minutes.  
A 50mm standpipe was installed to 17.00m with a geowrapped slotted section from 15.00m to 17.00m with a flush cover installed.  
Backfill details from base of hole: bentonite seal up to 17.00m, gravel filter up to 15.00m, bentonite seal up to 0.30m, concrete up to ground level.  
Logged in accordance with BS5930:2015 + A1:2020

Logged by AC  
Checked by JN  
Figure Sheet 2 of 4  
05/01/2023

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# BOREHOLE RECORD - Cable Percussion and Rotary


PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327873.4 E 184219.4 N	<b>Borehole</b>	BH04A
				<b>Ground Level</b>	10.86 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50								
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)						
10.93 - 11.00	C	9.00 - 10.50 (92mm)	4.00 ADDED	56 21	9	NI		recovered as soft gravelly clay. Between 10.02-10.16m, non-intact, recovered as gravel. Between 10.16-10.34m, horizontal, very closely to closely spaced, planar to undulating, smooth discontinuities. Between 10.34-10.36m, non-intact, recovered as gravel. Between 10.50-10.84m, assumed zone of core loss. Between 10.84-11.05m, non-intact, recovered as gravel. Between 11.05-12.00m, discontinuities have occasional soft clay infill. Between 11.27-11.49m, discontinuities are medium spaced. Between 11.61-11.74m, non-intact, recovered as gravel. Between 11.79-12.00m, non-intact, recovered as gravel. Between 12.00-12.10m, assumed zone of core loss. Between 12.10-12.17m, non-intact, recovered as soft slightly gravelly clay. Between 12.17-12.99m, horizontal, closely to medium spaced, planar to stepped, smooth discontinuities with some clay infill.									
						22											
						14											
		10.50 - 12.00 (92mm)	400.00 ADDED	77 38	14	AZCL											
						NI											
						10											
						NI											
		12.21 - 12.30	C	12.00 - 13.50 (92mm)	4.00 ADDED	93 85						66	AZCL				
													NI				
													7				
16																	
12.70 - 12.90	C					NI											
						13											
						NI											
						13.50 - 15.00 (92mm)					4.00 ADDED	100 60	8	NI			
														24			
														NI			
														20			
						14.45 - 14.56					C					NI	
																18	
																NI	
15.00 - 16.50 (92mm)	4.00 ADDED	88 67	0	AZCL													
				17													
				NI													
				33													
15.87 - 15.94	C					NI											
						28											
						16.50 - 18.00 (92mm)	4.00 ADDED	84 26	11	AZCL							
										33							
NI																	
44																	
16.43 - 16.50	C					NI											
						13											
						17.40 - 17.50	C					NI					
												13					
18.00 - 19.50 (92mm)	4.00 ADDED	90 41	9	AZCL													
				NI													
				27													
				NI													
19.20 - 19.33	C					25											
						NI											
						17											
						NI											
		19.50 - 21.00	4.00 ADDED					AZCL									
								NI									
								31									
								NI									
Boring						Progress				Groundwater							
Depth	Hole Dia.	Technique		Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater		
					4.00	4.00	2.40	24/08/22	08:00								
					9.00	9.00	2.10	24/08/22	17:00								
					9.00	9.00	2.40	25/08/22	08:00								
					21.00	12.00	2.10	25/08/22	17:00								

<b>Remarks</b>												Logged by AC	
Symbols and abbreviations are explained on the accompanying key sheets. All dimensions are in metres.												Checked by JN	
												Figure Sheet 3 of 4	
												05/01/2023	
Logged in accordance with BS5930:2015 + A1:2020												<b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists	



PRELIMINARY

<b>Remarks</b>  <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p>	<p>Logged in accordance with R55930:2015 + A1:2020</p>	<p>Logged by</p> <p>Checked by</p> <p>Figure</p>	<p>AC</p> <p>JN</p> <p>Sheet 4 of 4</p> <p>05/01/2023</p>
		<p><b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists</p>	

PRELIMINARY

**Project No.** PN224395

**Ground Level**      12.68   m OD



<b>Remarks</b> Symbols and abbreviations are explained on the accompanying key sheets. All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub. Slow progress: 3.00-4.00m for 150 minutes. Chiselling: 5.70-6.00m for 60 minutes. A 50mm standpipe was installed to 20.50m with a geowrapped slotted section from 13.0.00m to 20.50m with a flush cover installed. Backfill details from base of hole: gravel filter up to 13.00m, bentonite seal up to 0.30m, concrete up to ground level.	Logged by AC Checked by JN Figure Sheet 1 of 4 05/01/2023
		Logged in accordance with BS5930:2015 + A1:2020	

PRELIMINARY

**Project No.** PN224395

**Ground Level**      12.68   m OD

**Ground Level**      12.68   m OD








<b>Remarks</b>  Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub. Slow progress: 3.00-4.00m for 150 minutes. Chiselling: 5.70-6.00m for 60 minutes. A 50mm standpipe was installed to 20.50m with a geowrapped slotted section from 13.0.00m to 20.50m with a flush cover installed. Backfill details from base of hole: gravel filter up to 13.00m, bentonite seal up to 0.30m, concrete up to ground level. Logged in accordance with BS5930:2015 + A1:2020	Logged by AC Checked by JN Figure Sheet 2 of 4 05/01/2023
	

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328196.3 E 184235.5 N	<b>Borehole</b>	BH07
				<b>Ground Level</b>	12.68 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
10.10 - 10.23	C	9.00 - 10.50 (92mm)	9.00 ADDED	88 56	40	9		etween 9.00-9.18m, assumed zone of core loss.			
10.23 - 10.40	C					NI		Between 9.18-9.50m, non-intact, recovered as gravel.			
10.40 - 10.50	C	10.50 - 12.00 (92mm)	10.00 ADDED	85 36	0	AZCL		Between 9.90-9.94m, non-intact, recovered as gravel.			
						NI		Between 10.25-10.31m, non-intact, recovered as gravel.			
						60		Between 10.40-10.45m, non-intact, recovered as gravel.			
						33		Between 10.50-10.72m, assumed zone of core loss.			
						23		Between 10.72-10.92m, non-intact, recovered as gravel.			
						NI		Between 10.92-11.02m, horizontal, extremely closely to closely spaced, planar, smooth discontinuities.			
						22		Between 10.92-11.02m, vertical, planar, smooth discontinuity.			
						NI		Between 11.02-11.12m, non-intact, recovered as gravel.			
12.69 - 12.74	C	12.00 - 13.00 (92mm)	12.00 ADDED	64 29	13	AZCL		Between 11.21-11.37m, non-intact, recovered as gravel.			
						31		Between 11.63-11.77m, non-intact, recovered as gravel.			
						23		Between 11.86-12.00m, non-intact, recovered as gravel.			
						NI		Between 12.00-12.36m, assumed zone of core loss.			
13.43 - 13.48	C	13.00 - 14.50 (92mm)	13.00 ADDED	82 34	9	AZCL		Between 12.36-12.61m, non-intact, recovered as gravel.			
13.70 - 13.84	C					NI		Between 12.77-12.90m, thin bed of extremely weak to weak light grey mudstone with very closely spaced thick laminae of reddish brown mudstone.			
						31		Between 12.77-12.90m, discontinuities have clay infill.			
						NI		Between 12.90-13.00m, non-intact, recovered as gravel.			
						40		Between 13.00-13.27m, assumed zone of core loss.			
						14		Between 13.27-13.37m, non-intact, recovered as gravel.			
						NI		Between 13.37-13.56m, horizontal to inclined (45 deg.), extremely closely to closely spaced, planar, smooth discontinuities.			
						28		Between 13.56-13.64m, non-intact, recovered as gravel.			
						22		Between 13.69-13.71m, non-intact, recovered as gravel.			
14.72 - 15.00	C	14.50 - 16.00 (92mm)	13.00 ADDED	88 57	45	AZCL		Between 13.85-14.24m, non-intact, recovered as very soft slightly gravelly sandy clay.			
						NI		Between 14.31-14.41m, non-intact, recovered as gravel.			
						36		Between 14.50-14.67m, assumed zone of core loss.			
						8		Between 14.67-14.74m, non-intact, recovered as gravel.			
15.27 - 15.40	C					NI		Between 14.85-15.22m, horizontal to inclined (30 deg.), closely to medium spaced, planar, smooth discontinuities.			
15.60 - 15.67	C					16					
						NI					
						14					
						NI					
						AZCL					
						NI					
						30					
						3					
16.90 - 17.05	C	16.00 - 17.50 (92mm)	13.00 ADDED	94 67	62	AZCL		Very weak to weak reddish brown MUDSTONE. Discontinuities are horizontal to inclined (20 deg.), closely to medium spaced, planar, smooth with some clay infill. [ST MAUGHANS FORMATION]	16.35		-3.67
17.21 - 17.40	C					NI					
						14					
						NI					
						7					
						NI					
17.70 - 17.93	C	17.50 - 19.00 (92mm)	13.00 ADDED	87 84	69	AZCL					
18.00 - 18.06	C					8					
						21					
						9					
						NI					
						4					
18.90 - 19.00	C	19.00 - 20.53 (92mm)	13.00 ADDED	100 100	10 0						
						2					
19.85 - 19.95	C										

<b>Remarks</b>												Logged by AC	
<p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>												Checked by JN	
												Figure Sheet 3 of 4	
												05/01/2023	
													
												geotechnical and geoenvironmental specialists	

Remarks



Symbols and abbreviations are explained on the accompanying key sheets.  
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AC  
Checked by JN  
Figure Sheet 3 of 4  
05/01/2023

**GEOTECHNICS**  
geotechnical and geoenvironmental specialists

Project		Newport Quinn Phase 2		Engineer		Pinnacle Consulting Engineers Limited		Project No.		PN224395	
Client		Pinnacle Consulting Engineers Limited		National Grid Coordinates		328196.3 E 184235.5 N		Borehole		BH07	
								Ground Level		12.68 m OD	

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		19.00 - 20.53 (92mm)	13.00 ADDED	100 100	10 0	5		etween 15.22-15.36m, non-intact, recovered as gravel. Between 15.54-15.65m, non-intact, recovered as soft slightly gravelly clay. Between 15.86-16.00m, non-intact, recovered as gravel. Between 16.00-16.08m, assumed zone of core loss. Between 16.08-16.22m, non-intact, recovered as soft gravelly clay. Between 16.22-16.35m, horizontal to inclined, extremely closely to very closely spaced, undulating to stepped, smooth discontinuities.  Between 16.88-16.93m, non-intact, recovered as soft clay. Between 17.07-17.20m, non-intact, recovered as gravel. Between 17.46-17.50m, non-intact, recovered as clay. Between 17.50-17.69m, assumed zone of core loss. Between 18.26-18.31m, subhorizontal to inclined (10 deg.), closely spaced, planar, smooth discontinuities. Between 18.48-18.56m, non-intact, recovered as soft slightly gravelly clay. Between 18.80-18.86m, thin bed of weak light grey mudstone. Between 19.00-19.50m, closely spaced nodules of light grey mudstone. Between 19.00-19.96m, horizontal, widely spaced, planar, smooth discontinuities.  End of Borehole	20.53		-7.85

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheets.  
All dimensions are in metres.

Logged by

Checked by

Figure

AC

JN

Sheet 4 of 4

05/01/2023

GEOTECHNICS

geotechnical and geoenvironmental specialists

Logged in accordance with BS5930:2015 + A1:2020

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327827.4 E 184150.6 N	<b>Borehole</b>	BH10
				<b>Ground Level</b>	11.00 m OD



Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Description	Depth	Legend	Level (m OD)
0.25	D					MADE GROUND: Grey concrete.	0.19		10.81
0.25	ES					[MADE GROUND - CONCRETE]			
0.25 - 0.45	B					MADE GROUND: Brown gravelly medium sand. Gravel is subangular to subrounded fine to coarse of siltstone, sandstone and brick fragments.	0.45		10.55
0.45 - 1.20	B					[MADE GROUND]			
0.50	D					MADE GROUND: Brown very sandy clayey gravel with a low rounded cobble content of sandstone. Gravel is subrounded fine to coarse of sandstone and siltstone.			
0.50	ES					[MADE GROUND]			
1.00	D					Below 1.20m, medium dense.			
1.00	ES								
1.20 - 1.65		1.20 (DRY)			C15				
1.20 - 1.70	B								
2.00 - 2.45		2.00 (DRY)			C19				
2.00	ES								
2.00 - 2.50	B								
2.40	D								
3.00 - 3.45		3.00 (DRY)			C25	At 3.00m, geotextile.	3.00		8.00
3.00	ES					Firm to stiff light grey mottled light brown and dark brown slightly sandy slightly gravelly CLAY with occasional bands of silt. Gravel is subangular to subrounded fine of siltstone. Occasional fragments of wood.	3.30		7.70
3.10	D			41		[RIVER TERRACE DEPOSITS-COHESIVE]			
3.50 - 4.00	B					Soft to firm light grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine of siltstone.			
						[RIVER TERRACE DEPOSITS-COHESIVE]			
4.00 - 4.45	UTF								
4.00 - 4.50	B								
4.20	D			20					
5.00 - 5.45	UT					Firm to stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of sandstone, siltstone and mudstone (probable weathered bedrock).	4.80		6.20
5.00 - 5.50	B					[ST MAUGHANS FORMATION-UPPER CLAY]			
5.00 - 5.45			76			At 5.00m, high strength.			
5.50 - 6.00	B								
6.20 - 6.58		5.00 (6.00)			C50/225mm	Borehole continued by rotary techniques - see next page	6.20		4.80

Boring				Progress				Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed
0.19	0.30	Concrete Core	D Drill	0.00		DRY	10/08/22	08:00	6.00	6.00			
1.20	0.30	Inspection Pit	WO/JT	6.58	6.20	DRY	10/08/22	17:00					
6.58	0.15	Cable Percussion	WO/JT	6.58	6.20	5.20	15/08/22	08:00					
20.70	0.12	Rotary Core	CJ/JS	16.20	7.20	ADDED	15/08/22	17:00					

<b>Remarks</b>	<p>Inspection pit hand excavated to 1.20m depth and no services were found.</p> <p>ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.</p> <p>Chiselling: 5.90-6.20m for 60 minutes.</p> <p>A 50mm standpipe was installed to 6.50m with a geowrapped slotted section from 5.00 to 6.50m with a flush cover installed.</p> <p>Backfill details from base of hole: bentonite seal up to 6.50m, gravel filter up to 5.00m, bentonite seal up to 0.20m, concrete up to ground level.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>	<p>Logged by AC</p> <p>Checked by JN</p> <p>Figure Sheet 1 of 4</p> <p>05/01/2023</p> <p><b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists</p>
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PRELIMINARY



<b>Remarks</b> Symbols and abbreviations are explained on the accompanying key sheets. All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub. Chiselling: 5.90-6.20m for 60 minutes. A 50mm standpipe was installed to 6.50m with a geowrapped slotted section from 5.00 to 6.50m with a flush cover installed. Backfill details from base of hole: bentonite seal up to 6.50m, gravel filter up to 5.00m, bentonite seal up to 0.20m, concrete up to ground level.	Logged by AC Checked by JN Figure Sheet 2 of 4 05/01/2023
		Logged in accordance with BS5930:2015 + A1:2020	 geotechnical and geoenvironmental specialists

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327827.4 E 184150.6 N	<b>Borehole</b>	BH10
				<b>Ground Level</b>	11.00 m OD

Sampling/Testing		Drilling				Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend
10.45 - 10.58	C	8.70 - 10.20 (92mm) ADDED 10.20 - 11.70 (92mm) ADDED	7.20 ADDED 7.20 ADDED	87 67 90 70	36 46	AZCL 13 33 NI	Weak to medium strong reddish brown medium to coarse grained SANDSTONE. Discontinuities are horizontal, closely spaced, planar to undulating, smooth with occasional black staining. [ST MAUGHANS FORMATION]	etween 8.26-8.70m, discontinuities with some silt and sand infill. Between 8.60-8.70m, vertical, undulating, smooth discontinuity. Between 8.70-8.89m, assumed zone of core loss. Between 8.89-9.10m, non-intact, recovered as gravel. Below 9.10m, grading to medium strong sandstone. Between 9.10-9.46m, discontinuities with some sand and gravel infill. Between 9.46-9.50m, non-intact, recovered as gravel. Between 9.50-10.20m, discontinuities with sand infill. Between 10.20-10.34m, assumed zone of core loss. Between 10.57-10.62m, non-intact, recovered as gravel.	10.62	0.38
11.30 - 11.36	C					13				
11.53 - 11.70	C					28 NI				
11.90 - 12.05	C	11.70 - 13.20 (92mm)	7.20 ADDED	100 72	56	10 75 14 NI 16 NI 11				
12.33 - 12.41	C									
12.82 - 12.90	C									
13.08 - 13.20	C	13.20 - 14.70 (92mm)	7.20 ADDED	90 78	49	AZCL 33 NI 18 NI	Weak to medium strong reddish brown SILTSTONE with occasional nodules of light grey siltstone. Discontinuities are horizontal, closely spaced, planar and smooth. [ST MAUGHANS FORMATION]	Between 10.72-10.79m, non-intact, recovered as gravel including grey sandstone. Between 11.13-11.30m and between 11.37-11.52m, vertical, planar to undulating, smooth discontinuities with black staining. Between 11.77-11.93m, non-intact, recovered as gravel.	13.20	-2.20
13.70 - 13.96	C					11				
14.16 - 14.30	C									
14.70 - 15.05	C	14.70 - 16.20 (92mm)	7.20 ADDED	90 74	56	NI AZCL 5 12 NI NI 28 NI	Weak to medium strong reddish brown fine to medium grained SANDSTONE with occasional nodules of light grey sandstone. Discontinuities are horizontal, closely occasionally medium spaced, planar to undulating and smooth [ST MAUGHANS FORMATION]	Between 11.93-12.32m, horizontal to inclined (40 deg.), closely spaced, planar, smooth discontinuities. Between 12.32-12.36m, horizontal to inclined (45 deg.), very closely spaced, planar, smooth discontinuities with some sand infill.	14.66	-3.66
16.20 - 16.36	C	16.20 - 17.70 (92mm)	7.20 ADDED	100 96	67	13 NI 26 75	Weak reddish brown MUDSTONE with occasional nodules of grey mudstone. Discontinuities are horizontal to inclined (20 deg.), very closely to closely spaced, planar to undulating and smooth. [ST MAUGHANS FORMATION]	Between 12.57-12.63m, non-intact, recovered as gravel. Between 12.81-12.86m, non-intact, recovered as gravel.	15.61	-4.61
17.43 - 17.62	C					9				
17.90 - 18.12	C	17.70 - 19.20 (92mm)	7.20 ADDED	93 71	38	AZCL 35 8 22 30 NI 25	Weak to medium strong reddish brown fine to medium grained SANDSTONE. Discontinuities are horizontal to inclined (30 deg.), very closely to closely spaced, planar and smooth. [ST MAUGHANS FORMATION]	Between 13.20-13.35m, assumed zone of core loss. Between 13.41-13.47m, non-intact, recovered as gravel. Between 13.58-13.61m, non-intact, recovered as gravel. Between 13.61-14.61m, horizontal, very closely to medium spaced, planar to undulating, smooth discontinuities with black staining. Between 14.61-14.66m, non-intact, recovered as gravel.	17.08	-6.08
19.05 - 19.20	C	19.20 - 20.70 (92mm)	7.20 ADDED	100 92	45	13 NI 66	Extremely weak to weak reddish brown MUDSTONE. [ST MAUGHANS FORMATION] Medium strong to strong reddish brown fine to medium grained SANDSTONE. [ST MAUGHANS FORMATION]	Between 14.70-14.85m, assumed zone of core loss. Between 15.20-15.85m, horizontal to inclined (45 - 50 deg.), very closely to closely spaced, planar, smooth discontinuities with black staining. Between 15.85-15.91m,	19.43 19.79	-8.43 -8.79

<div>Remarks</div> <div></div> <div>Symbols and abbreviations are explained on the accompanying key sheets.</div> <div>All dimensions are in metres.</div> <div>Logged in accordance with BS5930:2015 + A1:2020</div>										<div>Logged by</div> <div>Checked by</div> <div>Figure</div> <div>AC</div> <div>JN</div> <div>Sheet 3 of 4</div> <div>05/01/2023</div>	
<div> geotechnical and geoenvironmental specialists</div>											

Remarks

AGS  
Symbols and abbreviations are explained on the accompanying key sheets.  
All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by AC  
Checked by JN  
Figure Sheet 3 of 4  
05/01/2023


**GEOTECHNICS**  
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Project		Newport Quinn Phase 2		Engineer		Pinnacle Consulting Engineers Limited		Project No.		PN224395	
Client		Pinnacle Consulting Engineers Limited		National Grid Coordinates		327827.4 E 184150.6 N		Borehole		BH10	
								Ground Level		11.00 m OD	

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
20.24 - 20.35	C	19.20 - 20.70 (92mm)	7.20 ADDED	100 92	45	14		<div>non-intact, recovered as gravel.</div> <div>Between 15.98-16.08m, non-intact, recovered as gravel.</div> <div>Between 16.15-16.20m, non-intact, recovered as gravel.</div> <div>Between 16.68-16.78m, vertical, undulating, smooth discontinuity.</div> <div>Between 16.87-16.89m, non-intact, recovered as gravel.</div> <div>Between 17.08-17.70m, horizontal, closely spaced, planar, smooth discontinuities.</div> <div>Between 17.41-17.66m, grading to light grey medium grained sandstone.</div> <div>Between 17.70-17.80m, assumed zone of core loss.</div> <div>Between 17.80-17.94m, horizontal, very closely spaced, planar, smooth discontinuities with some sand and gravel infill.</div> <div>Between 17.94-18.17m, horizontal, medium spaced, undulating, smooth discontinuities.</div> <div>Between 18.82-18.91m, non-intact, recovered as gravel.</div> <div>Between 18.92-19.04m, vertical, planar, smooth discontinuity.</div> <div>Between 18.92-19.20m, discontinuities with some sand infill.</div> <div>Between 19.43-19.53m, non-intact, recovered as gravel.</div> <div>Between 19.53-19.56m, horizontal to inclined (20 deg.), very closely spaced, planar, smooth discontinuities.</div> <div>Between 19.56-19.79m, horizontal, closely spaced, planar, smooth discontinuities with some clay infill.</div> <div>Between 19.79-20.04m, light grey, with closely spaced beds of red sandstone.</div> <div>Between 19.79-20.70m, horizontal to inclined (15 - 20 deg.), closely spaced, planar, smooth discontinuities.</div> <div>End of Borehole</div>	20.70	<div><div></div><div></div></div>	-9.70

Boring				Progress				Groundwater						
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks



Symbols and abbreviations are explained on the accompanying key sheets.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

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Figure

AC

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Sheet 4 of 4

05/01/2023

GEOTECHNICS

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# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328068.2 E 184185.7 N	<b>Borehole</b>	BH14A
				<b>Ground Level</b>	10.91 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Description	Depth	Legend	Level (m OD)
0.20	D					MADE GROUND: Grey concrete.	0.15		10.76
0.20	ES					[MADE GROUND - CONCRETE]			
0.20 - 0.60	B					MADE GROUND: Brown gravelly medium sand. Gravel is subangular to subrounded fine to coarse of sandstone and siltstone.	0.40		10.51
0.50	D					[MADE GROUND]			
0.50	ES					PROBABLE MADE GROUND: Dense brown slightly gravelly medium sand. Gravel is subangular to subrounded fine to medium of sandstone and siltstone.			
0.60 - 1.20	B					[MADE GROUND]			
1.00	D								
1.00	ES								
1.20 - 1.65		(DRY)			S40				
1.20 - 1.65	D								
1.20 - 1.70	B								
1.80	D								
2.00 - 2.30		2.00 (DRY)			S50/150mm				
2.00	ES						2.30		8.61
2.00 - 2.30	D					Soft to firm brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded medium to coarse of sandstone and siltstone.			
2.00 - 2.50	B					[RIVER TERRACE DEPOSITS-COHESIVE]			
2.80	D			12					
3.00 - 3.45		3.00 (DRY)			S21		3.00		7.91
3.00	ES					Stiff reddish brown slightly gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone lithorelicts. (Weathered calcareous mudstone).			
3.00 - 3.45	#					[ST MAUGHANS FORMATION-UPPER CLAY]			
3.00 - 3.45	D								
3.00 - 3.50	B								
3.80	D								
4.00 - 4.45		4.00 (DRY)			S15				
4.00	ES					Below 4.00m, firm.			
4.00 - 4.45	D								
4.00 - 4.50	B								
4.80	D								
5.00 - 5.45		5.00 (DRY)			S30				
5.00	ES					Below 5.00m, stiff			
5.00 - 5.45	D								
5.00 - 5.50	B								
5.80	D								
6.00 - 6.38		6.00 (DRY)			S50/230mm				
6.00 - 6.38	D					Below 6.00m, very stiff.			
						<i>Borehole continued by rotary techniques - see next page</i>			

Boring				Progress				Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed
0.15	0.30	Concrete Core	D-Drill	0.00			04/08/22	08:00					
1.20	0.30	Inspection Pit	AC/RW	2.30	2.00	DRY	04/08/22	18:00					
6.40	0.15	Cable Percussion	WN/JB	2.30	2.00	DRY	05/08/22	08:00					
21.00	0.12	Rotary Core	CJ/JS	5.45	4.50	DRY	05/08/22	18:00					



<b>Remarks</b>	<p>Inspection pit hand excavated to 1.20m depth and no services were found.</p> <p>ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.</p> <p>Chiselling: 1.80-2.60m for 240 minutes and 5.80-6.00m for 60 minutes.</p> <p>Borehole backfilled with bentonite pellets and topped with arisings on completion.</p>	<p>Logged by RW</p> <p>Checked by JN</p> <p>Figure Sheet 1 of 4</p> <p>05/01/2023</p>
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Symbols and abbreviations are explained on the accompanying key sheets.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

PRELIMINARY







<b>Remarks</b>  Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub. Chiselling: 1.80-2.60m for 240 minutes and 5.80-6.00m for 60 minutes. Borehole backfilled with bentonite pellets and topped with arisings on completion.	Logged by Checked by Figure	RW JN Sheet 2 of 4 05/01/2023
	 geotechnical and geoenvironmental specialists	

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328068.2 E 184185.7 N	<b>Borehole</b>	BH14A
				<b>Ground Level</b>	10.91 m OD



Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
10.80 - 10.90	C	9.00 - 10.50 (92mm)	9.00 ADDED	83 18	0	NI		undulating, smooth discontinuity. Between 9.00-9.25m, assumed zone of core loss.			
		10.50 - 12.00 (92mm)	9.00 ADDED	100 74	48	NI 75		Between 9.25-9.41m, recovered as very soft to soft slightly gravelly sandy clay.			
11.15 - 11.35	C					15		Between 9.69-10.50m, non-intact, recovered as very soft to soft slightly sandy slightly gravelly clay.			
						NI 33		Between 10.50-10.56m, non-intact, recovered as gravel.			
11.80 - 12.00	C					8		Between 10.97-11.04m, non-intact, recovered as gravel.			
						AZCL		Between 11.04-11.12m, horizontal to inclined (30 deg.), very closely to closely spaced, planar, smooth discontinuities.			
12.00 - 12.19	C	12.00 - 13.50 (92mm)	9.00 ADDED	97 92	66	14		Between 11.12-11.15m, non-intact, recovered as sand.			
						4		Between 11.49-11.54m, non-intact, recovered as very soft very sandy clay.			
12.80 - 12.90	C					NI 86		Between 11.62-11.66m, vertical, undulating, rough discontinuity with some clay infill.			
						7		Between 11.66-11.75m, non-intact, recovered as gravel.			
13.15 - 13.40	C							Between 12.00-12.04m, assumed zone of core loss.			
						8		Between 13.03-13.06m, non-intact, recovered as gravel.			
13.40 - 13.50	C	13.50 - 15.00 (92mm)	9.00 ADDED	71 64	45	AZCL		Between 13.50-13.93m, assumed zone of core loss.			
						8		Between 14.51-14.56m, non-intact, recovered as soft slightly gravelly clay.			
13.90 - 14.00	C							Between 14.56-14.80m, horizontal to inclined (20 - 30 deg.), medium spaced, undulating, rough discontinuities with some clay infill.			
						NI 8		Between 14.80-15.00m, inclined (15 - 20 deg.), closely spaced, planar, smooth discontinuities with some clay infill.			
14.00 - 14.10	C							Between 15.00-15.11m, assumed zone of core loss.			
						15		Between 16.04-16.14m, horizontal, very closely spaced, planar, smooth discontinuities.			
14.90 - 15.00	C	15.00 - 16.50 (92mm)	9.00 ADDED	100 83	71	NI	Extremely weak to weak light grey MUDSTONE with closely spaced beds of reddish brown mudstone (Dipping at 15-20 deg.). [ST MAUGHANS FORMATION]	Between 16.04-16.14m, vertical, planar, smooth discontinuities.			
						4		Between 16.27-16.40m, horizontal, very closely to closely spaced, planar, smooth discontinuities.			
16.15 - 16.25	C					33		Between 16.50-16.58m, assumed zone of core loss.			
						9		Between 16.58-16.66m, non-intact, recovered as gravel.			
16.77 - 16.88	C	16.50 - 18.00 (92mm)	9.00 ADDED	94 72	62	AZCL NI	Extremely weak to weak reddish brown MUDSTONE with occasional nodules of grey mudstone. Discontinuities are horizontal to inclined (10 - 45 deg.), closely to medium spaced, planar to undulating, smooth occasionally rough with some clay infill. [ST MAUGHANS FORMATION]	Between 17.78-18.00m, non-intact, recovered as soft to firm slightly gravelly clay.			
						11		Between 18.00-18.04m, assumed zone of core loss.			
17.45 - 17.65	C					18		Between 18.08-19.00m,			
						4					
17.77 - 17.88	C					9					
						NI					
18.80 - 18.90	C	18.00 - 19.50 (92mm)	9.00 ADDED	97 73	68	AZCL					
						100					
						NI					
						11					
		19.50 - 21.00	9.00 ADDED	100 94	53	9					
						21					

<b>Remarks</b>														Logged by RW	
<p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>														Checked by JN	
														Figure Sheet 3 of 4	
														05/01/2023	
															

PRELIMINARY

Project No. PN224395

**Ground Level**      10.91 m OD

<b>Remarks</b>  <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>	Logged by Checked by Figure	RW JN Sheet 4 of 4 05/01/2023
	 <p>geotechnical and geoenvironmental specialists</p>	

# BOREHOLE RECORD - Cable Percussion and Rotary

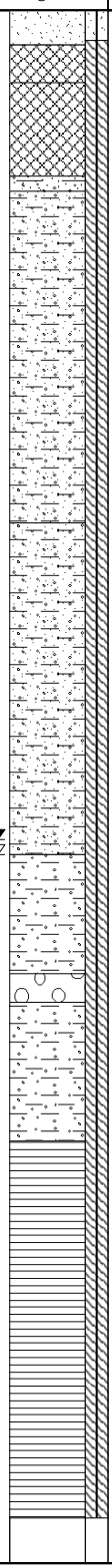
PRELIMINARY

Project			Newport Quinn Phase 2			Engineer			Pinnacle Consulting Engineers Limited			Project No.			PN224395		
Client			Pinnacle Consulting Engineers Limited			National Grid Coordinates			327715.8 E 184074.1 N			Borehole			BH17A		
												Ground Level			11.04 m OD		
Sampling			Properties			Strata						Scale 1:50					
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Description			Depth	Legend	Level (m OD)						
0.25	D					MADE GROUND: Grey concrete.			0.23		10.81						
0.25	ES					[MADE GROUND - CONCRETE]											
0.25 - 0.50	B					MADE GROUND: Dark grey mottled brown gravelly medium to coarse sand.			0.48		10.56						
0.50	D					Gravel is subangular to subrounded fine to coarse of siltstone, sandstone and clinker. Some fragments of wood and metal.											
0.50	ES					[MADE GROUND]											
0.50 - 0.80	B					MADE GROUND: Dark grey gravelly medium to coarse sand with a low cobble content. Gravel is subangular to subrounded fine to coarse of siltstone, sandstone and concrete.			1.10		9.94						
0.80 - 1.20	B					[MADE GROUND]			1.20		9.84						
1.00	D					MADE GROUND: Brown gravelly slightly clayey medium sand with a low cobble content. Gravel is subrounded medium to coarse of sandstone.											
1.00	ES					[MADE GROUND]											
1.20 - 1.65		(DRY)			C15	MADE GROUND: Brown gravelly slightly clayey medium sand with a low cobble content. Gravel is subrounded medium to coarse of sandstone.											
1.20 - 1.70	B					[MADE GROUND]											
2.00 - 2.45		2.00 (DRY)			C19	Soft light brown slightly sandy slightly gravelly CLAY with a low subrounded cobble content of sandstone. Gravel is subangular to subrounded fine to coarse of siltstone and sandstone.											
2.00	ES					[ALLUVIUM]											
2.00 - 2.50	B			10													
2.30	D																
3.00 - 3.45		3.00 (DRY)			C26												
3.00	ES																
3.00 - 3.40	B					Firm becoming stiff reddish brown slightly gravelly sandy CLAY with a low subrounded cobble content of mudstone and sandstone. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone.			3.40		7.64						
3.50 - 4.00	B					[ST MAUGHANS FORMATION-UPPER CLAY]											
4.00 - 4.45		4.00 (DRY)			S28												
4.00 - 4.45	D																
4.00 - 4.50	B			17													
4.05	D																
5.00 - 5.45		4.00 (DRY)			C45	At 5.00m, very stiff.											
5.00 - 5.50	B																
5.60 - 6.05		4.00 (5.50)			C50	Borehole continued by rotary techniques - see next page			5.60		5.44						



# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

Project		Newport Quinn Phase 2		Engineer		Pinnacle Consulting Engineers Limited		Project No.		PN224395									
Client		Pinnacle Consulting Engineers Limited		National Grid Coordinates		327715.8 E 184074.1 N		Borehole		BH17A									
								Ground Level		11.04 m OD									
Sampling/Testing		Drilling					Strata					Scale 1:50							
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)								
6.50 - 6.70  7.05 - 7.10 7.10 - 7.47 7.60 - 7.77  8.62 - 8.92  9.30 - 9.50	C	5.60 - 6.00 (92mm) 6.00 - 7.50 (92mm)  7.50 - 9.00 (92mm)  9.00 - 10.50 (92mm)	5.50 ADDED 6.00 ADDED  6.00 ADDED	14 0 90 12  90 86  86 86	0 12  74  80	AZCL	Borehole continued by rotary techniques - see below  Stiff dark reddish brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of mudstone (probable weathered bedrock). [ST MAUGHANS FORMATION-UPPER CLAY] BOULDER of weak to medium strong light grey medium to coarse grained sandstone (Possible sandstone bedrock). [ST MAUGHANS FORMATION-UPPER CLAY] Stiff dark reddish brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mudstone (probable weathered bedrock). [ST MAUGHANS FORMATION-UPPER CLAY] Extremely weak reddish brown MUDSTONE with medium to widely spaced beds of grey sandstone. Discontinuities are horizontal to inclined (20 deg.), closely to medium spaced, planar and smooth. [ST MAUGHANS FORMATION]	Between 5.60-5.93m, assumed zone of core loss. Between 5.93-6.00m, non-intact, recovered as clay. Between 6.00-6.14m, assumed zone of core loss. Between 6.14-6.39m, non-intact, recovered as stiff clay. Between 6.39-6.58m, horizontal, closely spaced, planar, smooth discontinuities. Between 6.58-7.50m, non-intact, recovered as clay. Between 7.64-8.36m, horizontal to inclined (20 deg.), widely spaced, planar to undulating, smooth discontinuities. Between 8.36-8.52m, thin bed of sandstone. Inclined (20 - 40 deg.), very closely to closely spaced, planar, smooth discontinuities. Between 8.94-9.00m, thin bed of sandstone. Between 9.00-9.21m, assumed zone of core loss. Between 9.21-9.25m, very thin bed of sandstone. Between 9.49-10.40m, horizontal,	6.39 6.58  7.50		4.65 4.46  3.54								
						NI													
						AZCL													
						NI													
						10													
						NI													
						3													
						37													
						8													
						AZCL													
14																			
2																			
Boring						Progress				Groundwater									
Depth	Hole Dia.	Technique		Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater				
0.23	0.30	Concrete Core		D Drill	0.00		DRY	09/08/22	08:00	5.60	4.00	5.50	20		Seepage.				
1.20	0.30	Inspection Pit		AC/RW	1.20		DRY	09/08/22	13:24										
6.05	0.15	Cable Percussion		PO/JT	1.20		DRY	11/08/22	08:00										
20.00	0.12	Rotary Core		CJ/JS	6.05	5.50	5.50	11/08/22	17:00										
Remarks												AGS Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub. Chiselling: 5.30-5.60m for 60 minutes A 50mm standpipe was installed to 12.00m with a geowrapped slotted section from 10.00m to 12.00m with a flush cover installed. Backfill details from base of hole: bentonite seal up to 12.00m, gravel filter up to 10.00m, bentonite seal up to 0.20m, concrete up to ground level. SPTs at 2.00m and 3.00m are likely to have encountered cobbles. Logged in accordance with BS5930:2015 + A1:2020				Logged by AC Checked by JN Figure Sheet 2 of 4 05/01/2023			
GEOTECHNICS geotechnical and geoenvironmental specialists																			



Symbols and abbreviations are explained on the accompanying key sheets.  
All dimensions are in metres.

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327715.8 E 184074.1 N	<b>Borehole</b>	BH17A
				<b>Ground Level</b>	11.04 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
10.25 - 14.40	C	9.00 - 10.50 (92mm)	6.00 ADDED	86 86	80			widely spaced, planar, smooth discontinuities.			
		10.50 - 12.00 (92mm)	6.00 ADDED	100 96	66	10		Between 10.68-11.10m, horizontal, medium spaced, planar, smooth discontinuities with some sand infill.			
						4		Between 11.10-11.49m, horizontal to inclined (45 deg.), closely spaced, planar, smooth discontinuities.	11.21		-0.17
11.40 - 11.50	C					9	Weak to medium strong reddish brown medium to coarse grained SANDSTONE.		11.49		-0.45
11.60 - 11.95	C						[ST MAUGHANS FORMATION]	Between 11.94-12.00m, non-intact, recovered as gravel.			
12.00 - 12.14	C	12.00 - 13.50 (92mm)	6.00 ADDED	95 85	81	AZCL	Extremely weak reddish brown MUDSTONE. Discontinuities are horizontal to inclined (20 deg.), planar to undulating and smooth with some sandy clay infill.	Between 12.00-12.07m, assumed zone of core loss.	12.19		-1.15
12.50 - 12.60	C					14		Between 12.07-12.19m, inclined (15 - 25 deg.), closely spaced, planar, smooth discontinuities with some sandy clay infill.	12.50		-1.46
						28	[ST MAUGHANS FORMATION]				
13.17 - 13.50	C					3	Weak reddish brown medium to coarse grained SANDSTONE. Discontinuities are inclined (15 - 20 deg.), closely spaced, planar and smooth with some sandy clay infill.	Between 12.28-12.43m, non-intact, recovered as sandy gravel.			
		13.50 - 15.00 (92mm)	6.00 ADDED	87 86	83	AZCL	[ST MAUGHANS FORMATION]	Between 12.43-12.50m, horizontal to inclined (40 deg.), closely spaced, planar, smooth discontinuities with some sand infill.			
14.07 - 14.50	C					2	Extremely weak to weak purplish brown MUDSTONE. Discontinuities are horizontal, medium to widely spaced, planar to undulating, smooth with some clay infill.	Between 12.62-12.95m, vertical, undulating, smooth discontinuity.			
						40	[ST MAUGHANS FORMATION]	Between 13.50-13.69m, assumed zone of core loss.			
						7		Between 13.69-17.22m, some nodules of light grey mudstone.			
		15.00 - 16.50 (92mm)	6.00 ADDED	100 80	75	NI		Between 14.69-14.74m, horizontal, very closely spaced, planar to undulating, smooth to rough discontinuities.			
15.80 - 15.95	C					6		Between 15.00-15.03m, non-intact, recovered as soft clay.			
16.15 - 16.30	C					6		Below 15.03m, horizontal to inclined (15 - 45 deg.), closely to medium spaced, planar to undulating, smooth to rough discontinuities with some clay infill.			
16.60 - 16.80	C	16.50 - 18.00 (92mm)	6.00 ADDED	96 92	70	NI		Between 15.65-15.76m, non-intact, recovered as gravel.			
16.95 - 17.20	C					5		Between 16.41-16.50m, non-intact, recovered as gravel.			
17.43 - 17.51	C					25	Weak to medium strong reddish brown fine to medium grained SANDSTONE with closely to medium spaced horizontal and vertical bands of light grey sandstone.	Between 16.50-16.56m, assumed zone of core loss.	17.22		-6.18
17.80 - 17.90	C					8	Discontinuities are inclined (15 - 20 deg.), closely to medium spaced, planar to undulating and smooth to rough.	Between 16.56-16.61m, non-intact, recovered as gravel.			
		18.00 - 18.50 (92mm)	6.00 ADDED	30 0	0	AZCL	[ST MAUGHANS FORMATION]	Between 17.53-17.77m, horizontal to inclined (20 - 45 deg.), very closely to closely spaced, planar to undulating, smooth discontinuities.			
18.50 - 18.95	C	18.50 - 20.00 (92mm)	6.00 ADDED			3	Extremely weak reddish brown MUDSTONE with occasional inclined (45 deg.) beds of grey mudstone.	Between 17.77-18.00m, horizontal, medium spaced, planar to undulating, rough discontinuities.	18.50		-7.46
						NI	[ST MAUGHANS FORMATION]	Between 18.00-18.35m, assumed zone of core loss.	19.20		-8.16
19.64 - 19.76	C						Strong reddish brown medium to coarse grained SANDSTONE with closely spaced beds of light grey sandstone.	Between 18.35-18.50m, non-intact, recovered as sandy gravel of light grey sandstone.			
19.85 - 20.00	C						[ST MAUGHANS FORMATION]		20.00		-8.96

<div>Remarks</div> <div></div> <div>Symbols and abbreviations are explained on the accompanying key sheets.</div> <div>All dimensions are in metres.</div> <div>Logged in accordance with BS5930:2015 + A1:2020</div>										<div>Logged by</div> <div>Checked by</div> <div>Figure</div> <div>AC</div> <div>JN</div> <div>Sheet 3 of 4</div> <div>05/01/2023</div>	
<div><div>geotechnical and geoenvironmental specialists</div></div>											

Remarks

AGS  
Symbols and abbreviations are explained on the accompanying key sheets.  
All dimensions are in metres.


Logged in accordance with BS5930:2015 + A1:2020

Logged by AC  
Checked by JN  
Figure Sheet 3 of 4  
05/01/2023

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PRELIMINARY

<p><b>Remarks</b></p> <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in</p>	<p>Logged by AC</p> <p>Checked by JN</p> <p>Figure Sheet 4 of 4</p> <p>05/01/2023</p>
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# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328219.0 E 184133.9 N	<b>Borehole</b>	BH23
				<b>Ground Level</b>	11.91 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Description	Depth	Legend	Level (m OD)
0.10 - 0.18	B					MADE GROUND: Black tarmacadam.	0.10		11.81
0.18 - 0.40	B					[MADE GROUND - TARMACADAM]			
0.25	D					MADE GROUND: Reddish brown sandy angular to subangular fine to coarse gravel of sandstone and concrete.	0.55		11.36
0.25	ES					[MADE GROUND]			
0.55 - 0.84	B					Between 0.18m and 0.40m, cobble of concrete.	0.84		11.07
0.60	D								
0.60	ES					MADE GROUND: Yellowish brown mottled greenish grey slightly gravelly slightly silty fine to medium sand. Gravel is subangular to subrounded fine to coarse of siltstone, sandstone and brick fragments.	1.40		10.51
0.84 - 1.20	B					[MADE GROUND]			
1.00	D					At 0.70m, clay pipe encountered.			
1.00	ES					MADE GROUND: Reddish brown mottled yellow slightly gravelly fine to coarse sand with some pockets of soft clay. Gravel is subrounded fine to coarse of siltstone and sandstone.			
1.20 - 1.65		1.20 (DRY)			C7	[MADE GROUND]			
1.20	D								
1.50	D								
1.50 - 1.80	B								
2.00 - 2.45		2.00 (DRY)			C21	Medium dense orangish brown mottled grey very gravelly clayey SAND. Gravel is subangular to subrounded fine to coarse of siltstone and sandstone.			
2.00	ES					[RIVER TERRACE DEPOSITS-GRANULAR]			
2.00 - 2.50	B								
2.20	D								
3.00 - 3.45		3.00 (DRY)			C27				
3.00 - 3.50	B								
3.20	D								
4.00 - 4.45		4.00 (DRY)			C23				
4.00 - 4.30	B								
4.20	D					Stiff dark reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of siltstone (probable weathered bedrock).	4.30		7.61
4.50 - 5.00	B			23		[ST MAUGHANS FORMATION-UPPER CLAY]			
4.70	D								
5.00 - 5.45		5.00 (DRY)			S37				
5.00 - 5.45	D								
5.00 - 5.50	B								
5.20	D								
6.00 - 6.45		6.00 (DRY)			S39		6.00		5.91
6.00 - 6.45	D					<i>Borehole continued by rotary techniques - see next page</i>			

<b>Remarks</b>  Symbols and abbreviations are explained on the accompanying key sheets.  All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found	Logged by	RW
		ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.	Checked by	JN
		Slow progress: 3.50-4.00m for 60 minutes.	Figure	Sheet 1 of 4
		A 50mm standpipe was installed to 13.00m with a geowrapped slotted section from 9.00m to 13.00m with a flush cover installed.		05/01/2023
		Backfill details from base of hole: bentonite seal up to 13.00m, gravel filter up to 9.00m, bentonite seal up to 0.20m, concrete up to ground level.		
Logged in accordance with BS5930:2015 + A1:2020			 geotechnical and geoenvironmental specialists	

**Remarks**  Inspection pit hand excavated to 1.20m depth and no services were found  
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.  
Slow progress: 3.50-4.00m for 60 minutes.  
A 50mm standpipe was installed to 13.00m with a geowrapped slotted section from 9.00m to 13.00m with a flush cover installed.  
Backfill details from base of hole: bentonite seal up to 13.00m, gravel filter up to 9.00m, bentonite seal up to 0.20m, concrete up to ground level.  
Logged in accordance with BS5930:2015 + A1:2020

Logged by RW  
Checked by JN  
Figure Sheet 1 of 4  
05/01/2023

# BOREHOLE RECORD - Cable Percussion and Rotary


PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328219.0 E 184133.9 N	<b>Borehole</b>	BH23
				<b>Ground Level</b>	11.91 m OD



Sampling/Testing		Drilling					Strata		Scale 1:50										
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)								
9.00 - 9.40	C50/ 255mm						<b>Borehole continued by rotary techniques - see below</b>												
		6.00 - 7.50 (92mm)	6.00 ADDED	55 0	0	AZCL	Extremely weak to very weak reddish brown MUDSTONE. [ST MAUGHANS FORMATION]	Between 6.00m and 6.68m, assumed zone of core loss. Between 6.68m and 6.84m, non-intact. At 6.90m, horizontal discontinuities, closely spaced, undulating, smooth, clean. Between 6.95m and 7.03m, subvertical discontinuity, undulating, smooth, clean. Between 7.00m and 7.50m, non-intact. Between 7.50m and 8.00m, assumed zone of core loss. Between 8.00m and 8.42m, non-intact. Between 8.40m and 8.50m, subvertical discontinuity, undulating, smooth, clean. Between 8.53m and 8.75m, and 8.89m and 9.00m, non-intact. Between 9.00m and 9.15m, assumed zone of core loss. Between 9.15m and 9.90m, non-intact. Recovered as gravelly clay. Between 9.93m and 10.50m,											
						NI													
						25													
		7.50 - 9.00 (92mm)	7.50 ADDED	67 4	0	AZCL													
						NI													
						27													
		9.00 - 10.50 (92mm)	10.50 ADDED	90 27	0	AZCL													
						NI													
						21													
		<b>Boring</b>									<b>Progress</b>					<b>Groundwater</b>			
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date				Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater		
1.20	0.30	Inspection Pit	PO/JT	0.00			27/07/22	08:00	12.00	10.50	11.00	20	11.00	Slow inflow.					
6.00	0.15	Cable Percussion	PO/JT	6.00	5.00	DRY	27/07/22	17:00											
19.50	0.12	Rotary Core	CJ/JS	6.00	6.00	4.00	01/08/22	08:00											
				10.50	10.50	8.10	01/08/22	17:00											

<b>Remarks</b>	<p>Inspection pit hand excavated to 1.20m depth and no services were found</p> <p>ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.</p> <p>Slow progress: 3.50-4.00m for 60 minutes.</p> <p>A 50mm standpipe was installed to 13.00m with a geowrapped slotted section from 9.00m to 13.00m with a flush cover installed.</p> <p>Backfill details from base of hole: bentonite seal up to 13.00m, gravel filter up to 9.00m, bentonite seal up to 0.20m, concrete up to ground level.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>	<p>Logged by RW</p> <p>Checked by JN</p> <p>Figure Sheet 2 of 4</p> <p>05/01/2023</p>
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PRELIMINARY

<b>Remarks</b>  <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p>	<p>Logged in accordance with R55930:2015 + A1:2020</p>	<p>Logged by</p> <p>Checked by</p> <p>Figure</p>	<p>RW</p> <p>JN</p> <p>Sheet 3 of 4</p> <p>05/01/2023</p>
		<p><b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists</p>	


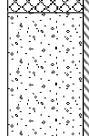
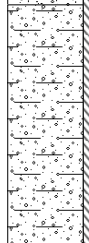
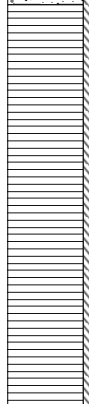


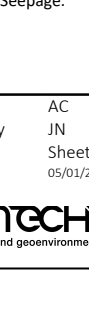
PRELIMINARY

<b>Remarks</b>  <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in</p>	Logged by Checked by Figure	RW JN Sheet 4 of 4 05/01/2023
	<div>              geotechnical and geoenvironmental specialists         </div>	

# BOREHOLE RECORD - Cable Percussion and Rotary



PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328006.4 E 184066.7 N	<b>Borehole</b>	BH27
				<b>Ground Level</b>	10.18 m OD

Sampling			Properties			Coordinates			Scale 1:50												
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Description	Depth	Legend	Level (m OD)												
0.15 - 0.36	B	(DRY)			C28	MADE GROUND: Black tarmacadam.	0.15		10.03												
0.20	D					[MADE GROUND - TARMACADAM]		9.82													
0.20	ES					MADE GROUND: Dark grey mottled black gravelly medium to coarse sand.															
0.36 - 1.20	B					Gravel is subangular to subrounded fine to coarse of asphalt, sandstone, aircrete, concrete and brick fragments.															
0.50	D					[MADE GROUND]															
0.50	ES					Light brown gravelly medium to coarse SAND. Gravel is subangular to subrounded fine to coarse of siltstone, sandstone and quartz (Possible Made Ground).															
1.00	D					[RIVER TERRACE DEPOSITS-GRANULAR]															
1.00	ES					Medium dense to dense light brown very sandy clayey GRAVEL. Gravel is subangular to subrounded fine to coarse of siltstone, sandstone and quartz.															
1.20 - 1.65	B					[RIVER TERRACE DEPOSITS-GRANULAR]															
1.20 - 1.70																					
2.00 - 2.45		2.00 (DRY)	C36							8.98											
2.00 - 2.50	B																				
2.80	D																				
3.00 - 3.45		3.00 (DRY)			C26	Stiff dark reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium of mudstone and sandstone (Weathered calcareous mudstone). [ST MAUGHANS FORMATION-UPPER CLAY]	2.80				7.38										
3.00 - 3.50	B																				
4.00 - 4.45		3.00 (DRY)					S29														
4.00	D																				
4.00 - 4.50	B																				
5.00 - 5.45		3.00 (DRY)											S35								
5.00	D																				
5.50 - 5.91		3.00 (DRY)	C50/260mm	Extremely weak dark reddish brown calcareous MUDSTONE. Recovered as clayey gravel. [ST MAUGHANS FORMATION]					5.50								4.68				
									5.91											4.27	
									Borehole continued by rotary techniques - see next page												



PRELIMINARY

<b>Remarks</b> Symbols and abbreviations are explained on the accompanying key sheets. All dimensions are in metres.	 Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1litre plastic tub. Chiselling: 5.20-5.50m for 60 minutes. Borehole backfilled with bentonite pellets and topped with arisings on completion.	Logged by AC Checked by JN Figure Sheet 2 of 4 05/01/2023
	Logged in accordance with R55930:2015 + A1:2020	 geotechnical and geoenvironmental specialists

# BOREHOLE RECORD - Cable Percussion and Rotary


PRELIMINARY


<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328006.4 E 184066.7 N	<b>Borehole</b>	BH27
				<b>Ground Level</b>	10.18 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
11.60 - 11.85	C	8.60 - 10.10 (92mm)	ADDED	45	16	NI	Weak light grey SILTSTONE. Discontinuities are horizontal and subhorizontal, closely spaced, planar and undulating, rough, some clay infill (up to 30mm). [ST MAUGHANS FORMATION]	(recovered as gravel). Below 9.57m, discontinuities are horizontal and subhorizontal. Between 9.81-9.87m, non-intact (recovered as gravel). Between 9.92-10.20m, non-intact (recovered as gravel). Between 10.36-10.50m, non-intact (recovered as gravel). Between 10.60-10.68m, non-intact (recovered as gravel). Between 10.81-10.96m, non-intact (recovered as gravel).	10.81	XXXXXX	-0.63
						NI					
						25					
						NI					
						20					
						15					
						NI					
						15					
						7					
						33					
12.10 - 12.23	C	11.60 - 13.10 (92mm)	ADDED	100	78	70	Very weak to weak reddish brown MUDSTONE. Discontinuities are horizontal and subhorizontal, very closely to closely spaced, planar, rough and smooth. [ST MAUGHANS FORMATION]	Between 12.45-12.85m, closely spaced siltstone laminae. Between 12.50-12.72m, vertical, undulating, smooth discontinuity. Between 12.84-13.05m, non-intact (recovered as gravel). Between 13.10-13.28m, assumed zone of core loss. Between 13.10-16.10m, closely spaced bands of grey mudstone. Between 13.28-13.38m, non-intact (recovered as clay). Between 13.38-14.60m, discontinuities are closely to medium spaced. Between 15.00-15.03m, non-intact (recovered as firm clay).	11.26	XXXXXX	-1.08
						7					
						33					
						12					
						33					
						16					
						NI					
						40					
						AZCL					
						NI					
13.75 - 13.88	C	13.10 - 14.60 (92mm)	ADDED	88	80	65		Between 15.97-16.07m, vertical, undulating, smooth discontinuity. Between 16.07-16.10m, non-intact (recovered as gravel). Between 17.44-17.60m, non-intact (recovered as gravel). Between 18.10-18.13m, vertical, undulating, rough discontinuity.			
						13					
						50					
						12					
						NI					
						3					
						24					
						26					
						NI					
						14					
15.47 - 15.60	C	14.60 - 16.10 (92mm)	ADDED	100	92	74		Between 17.44-17.60m, non-intact (recovered as gravel). Between 18.10-18.13m, vertical, undulating, rough discontinuity.			
						12					
						NI					
						3					
						24					
						26					
						NI					
						14					
						4					
						20					
16.25 - 16.40	C	16.10 - 17.60 (92mm)	ADDED	100	96	90		Between 19.10-19.21m, assumed zone of core loss.			
						10					
						NI					
						16					
						4					
						26					
						AZCL					
						80					
						92					
						92					
16.70 - 17.00	C	17.60 - 19.10 (92mm)	ADDED	100	96	80					
						10					
						NI					
						16					
						4					
						26					
						AZCL					
						80					
						92					
						92					
18.60 - 18.90	C	19.10 - 20.60 (92mm)	ADDED	92	92	80					
						47					
19.95 - 21.10	C										

<b>Remarks</b>												Logged by AC	
<p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>												Checked by JN	
												Figure Sheet 3 of 4	
												05/01/2023	
												<b>GEOTECHNICS</b>	
												geotechnical and geoenvironmental specialists	



PRELIMINARY

<p><b>Remarks</b> </p> <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in</p>	<p>Logged by AC</p> <p>Checked by JN</p> <p>Figure Sheet 4 of 4</p> <p>05/01/2023</p>
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**GEOTECHNICS**  
geotechnical and geoenvironmental specialists

PRELIMINARY



<b>Remarks</b> Symbols and abbreviations are explained on the accompanying key sheets. All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub. Slow progress: 1.50-2.00m for 90 minutes, 2.20-2.60m for 90 minutes and 3.00-3.80m for 195 minutes. Chiselling: 1.20-1.50m for 90 minutes and 4.20-4.50m for 60 minutes. 50mm standpipe was installed to 5.00m with a geowrapped slotted section from 3.00m to 5.00m with a flush cover installed. Backfill details from base of hole: bentonite seal up to 5.00m, gravel filter up to 3.00m, bentonite seal up to 0.20m, concrete up to ground level. Logged in accordance with R55930:2015 + A1:2020	Logged by RW Checked by JN Figure Sheet 1 of 4 05/01/2023
			

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	328110.5 E 184100.0 N	<b>Borehole</b>	BH28
				<b>Ground Level</b>	10.83 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
5.60 - 5.70 - 5.70 - 5.80	C	4.50 - 6.00 (92mm)	4.50 ADDED	82 17	0	AZCL	<b>Borehole continued by rotary techniques - see below</b>  Extremely weak to very weak reddish brown MUDSTONE. Discontinuities are horizontal and subhorizontal, very closely to closely spaced, planar and undulating, rough, clean. [ST MAUGHANS FORMATION]	Between 4.50-4.77m, assumed zone of core loss. Between 4.77-5.57m, non-intact (recovered as gravel).  Between 5.83-6.00m, non-intact (recovered as gravel). Between 6.00-7.14m, assumed zone of core loss. Between 7.14-7.50m, non-intact (recovered as gravel). Between 7.50-7.70m, assumed zone of core loss. Between 7.70-7.87m, non-intact (recovered as gravel). Some limestone gravel. Between 7.90-8.14m, non-intact (recovered as gravel). Between 8.23-8.26m, vertical, planar, smooth discontinuity. Between 8.26-8.32m, non-intact (recovered as gravel). Between 8.57-9.00m, non-intact (recovered as gravel). Between 9.00-9.12m, assumed zone of core loss. Between 9.12-9.25m, non-intact (recovered as gravel). Between 9.43-9.49m, non-intact (recovered as gravel). Between 9.49-9.64m, vertical, planar, smooth discontinuity. Between 9.97-10.26m, non-intact (recovered as clay and gravel).			
						NI					
						2					
	C	6.00 - 7.50 (92mm)	6.00 ADDED	24 0	0	NI					
						AZCL					
						NI					
	C50/ 225mm	7.50 - 9.00 (92mm)	7.50 ADDED	86 26	16	AZCL					
						NI					
						>50					
	C	9.00 - 10.50 (92mm)	9.00 ADDED	92 60	25	NI					
						33					
						NI					
7.50 - 7.88											
8.30 - 8.55											
9.65 - 9.75											

<b>Remarks</b>  Symbols and abbreviations are explained on the accompanying key sheets.  All dimensions are in metres.		Inspection pit hand excavated to 1.20m depth and no services were found.										Logged by	RW
		ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.										Checked by	JN
		Slow progress: 1.50-2.00m for 90 minutes, 2.20-2.60m for 90 minutes and 3.00-3.80m for 195 minutes.										Figure	Sheet 2 of 4  05/01/2023
		Chiselling: 1.20-1.50m for 90 minutes and 4.20-4.50m for 60 minutes.											
		50mm standpipe was installed to 5.00m with a geowrapped slotted section from 3.00m to 5.00m with a flush cover installed.											
		Backfill details from base of hole: bentonite seal up to 5.00m, gravel filter up to 3.00m, bentonite seal up to 0.20m, concrete up to ground level.											
Logged in accordance with BS5930:2015 + A1:2020													
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PRELIMINARY

Project	Newport Quinn Phase 2	Engineer	Pinnacle Consulting Engineers Limited	Project No.	PN224395
Client	Pinnacle Consulting Engineers Limited	National Grid Coordinates	328110.5 E 184100.0 N	Borehole	BH28
				Ground Level	10.83 m OD

Sampling/Testing		Drilling					Strata					Scale 1:50										
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)											
10.30 - 10.45	C	9.00 - 10.50 (92mm)	9.00 ADDED	92 60	25	NI		Between 10.50-10.65m, assumed zone of core loss. Between 10.50-11.00m, discontinuities are stepped. Between 10.81-10.85m, non-intact (recovered as gravel). Below 11.00m, clay infill in discontinuities (up to 30mm). Between 11.30-11.36m, non-intact (recovered as soft clay). Between 11.36-11.47m, non-intact (recovered as gravel). Between 11.89-12.00m, non-intact (recovered as soft clay). Between 12.00-12.04, band of limestone (non-intact, recovered as gravel). Between 12.22-12.28m, non-intact (recovered as soft clay). Between 12.88-12.98m, non-intact (recovered as soft clay). Between 13.14-13.50m, non-intact (recovered as gravel). Between 13.50-13.58m, assumed zone of core loss. Between 13.58-15.00m, non-intact (recovered as stiff reddish brown clay).														
						8																
		10.50 - 12.00 (92mm)				100 72						68	AZCL									
													12									
11.15 - 11.25	C					NI																
						5																
						11.50 - 11.80						C					25					
																	NI					
12.05 - 12.15	C	12.00 - 13.50 (92mm)	100 72	68	NI																	
					11																	
					10																	
					NI																	
14.88 - 15.00	C	13.50 - 15.00 (92mm)	94 0	0	NI	5																
						NI																
						12																
		15.00 - 16.50 (92mm)				100 93							63	4								
														NI								
														7								
														17								
		16.50 - 18.00 (92mm)				100 100							91	NI								
														4								
17.00 - 17.12	C					4																
17.55 - 17.95	C																					
19.90 - 20.00	C	18.00 - 19.50 (92mm)	68 8	0	AZCL			Between 18.00-18.47m, assumed zone of core loss.  Between 18.47-19.19m, non-intact (recovered as soft clay).														
						NI																
		19.50 - 21.00 (92mm)				100 80							67	NI								
														8								
														26								

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				4.50	4.50	DRY	03/08/22	08:00						
				12.00	9.00	10.90	03/08/22	14:22						
				12.00	9.00	3.10	14/08/22	08:00						
				21.00	12.00	ADDED	14/08/22	18:00						

Remarks



Symbols and abbreviations are explained on the accompanying key sheets.  
All dimensions are in metres.

Logged by

Checked by

Figure

RW

JN

Sheet 3 of 4

05/01/2023

Logged in accordance with BS5930:2015 + A1:2020



**GEOTECHNICS**  
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PRELIMINARY

Project No. PN224395

Borehole BH28

<b>Ground Level</b>	10.83 m OD
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<b>Remarks</b>  <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in metres.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>	Logged by Checked by Figure	RW JN Sheet 4 of 4 05/01/2023
	 <p>geotechnical and geoenvironmental specialists</p>	

# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327758.3 E 183952.4 N	<b>Borehole</b>	BH30
				<b>Ground Level</b>	10.99 m OD

Sampling			Properties			Coordinates	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w(%)	SPT N	Strata	Depth	Legend	Level (m OD)
0.40 - 0.80	B	(DRY)		15	C21	MADE GROUND: Grey concrete. [MADE GROUND - CONCRETE]	0.40		10.59
0.50	D					MADE GROUND: Reddish brown slightly gravelly slightly clayey medium sand with occasional pockets of soft reddish brown sandy clay. Gravel is subangular to subrounded fine to medium of siltstone and sandstone. [MADE GROUND]			
0.50	ES								
0.80 - 1.20	D								
1.00	ES								
1.20 - 1.65	B	2.00 (DRY)			C15	Firm reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of siltstone and sandstone. [ST MAUGHANS FORMATION-UPPER CLAY]	2.30		8.69
1.20 - 1.70	ES								
2.00 - 2.45	B	3.00 (DRY)			C22	Firm reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mudstone, siltstone and sandstone (probable weathered bedrock). [ST MAUGHANS FORMATION-UPPER CLAY]	4.10		6.89
2.00 - 2.50	B								
3.00 - 3.45	D								
3.30	B								
3.50 - 4.00	B	4.00 (DRY)			C27	Firm reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of mudstone, siltstone and sandstone (probable weathered bedrock). [ST MAUGHANS FORMATION-UPPER CLAY]	5.00		5.99
4.00 - 4.45	B								
5.00 - 5.45	B	4.50 (DRY)			S43	Borehole continued by rotary techniques - see next page			
5.00 - 5.30	D								
5.00 - 5.45	D								

Boring				Progress					Groundwater					
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.40	0.30	Concrete Core	D-Drill	0.00	4.00		28/07/22	15:37	10.00	7.50	4.30	20		Seepage.
1.20	0.30	Inspection Pit	JM/DG	1.20		DRY	28/07/22	17:00						
5.75	0.15	Cable Percussion	PO/JT	1.20		DRY	05/08/22	08:00						
20.20	0.12	Rotary Core	CJ/JS	4.45		DRY	05/08/22	18:00						

<b>Remarks</b>	<p>Inspection pit hand excavated to 1.20m depth and no services were found.</p> <p>ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.</p> <p>Chiselling: 5.00-5.30m for 60 minutes.</p> <p>50mm standpipe was installed to 11.00m with a geowrapped slotted section from 9.00m to 11.00m with a flush cover installed.</p> <p>Backfill details from base of hole: bentonite seal up to 11.00m, gravel filter up to 9.00m, bentonite seal up to 0.20m, concrete up to ground level.</p> <p>Logged in accordance with BS5930:2015 + A1:2020</p>	<p>Logged by RW</p> <p>Checked by JN</p> <p>Figure Sheet 1 of 4</p> <p>05/01/2023</p> <p><b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists</p>
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# BOREHOLE RECORD - Cable Percussion and Rotary

PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327758.3 E 183952.4 N	<b>Borehole</b>	BH30
				<b>Ground Level</b>	10.99 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
<p><i>Borehole continued by rotary techniques - see below</i></p>											
5.30 - 5.75	D	5.00 - 6.00 (92mm)	5.00 ADDED	70	68	AZCL	<p>Extremely weak to weak reddish brown mottled grey MUDSTONE. Discontinuities are horizontal to subhorizontal (up to 20 deg.), closely to medium spaced, planar to undulating, rough with some clay infill. [ST MAUGHANS FORMATION]</p>	<p>Between 5.00-5.30m, assumed zone of core loss. Between 5.00-5.32m, non-intact, recovered as gravel Between 6.00-6.10m, assumed zone of core loss. Between 6.10-6.76m, discontinuities are widely spaced, smooth. Between 6.88-7.22m, non-intact, recovered as subangular fine to coarse gravel. Between 7.40-7.50m, non-intact, recovered as subangular fine to coarse gravel. Between 7.50-7.66m, assumed zone of core loss. Between 7.66-7.71m, non-intact, recovered as subangular fine to medium gravel. Between 7.71-9.00m, discontinuities are very closely spaced, planar, smooth with some clay and gravel infill. Between 9.00-9.17m, assumed zone of core loss.</p>			
5.75 - 5.88	S61					8					
5.32 - 5.75	C										
5.75 - 5.88	C	6.00 - 7.50 (92mm)	6.00 ADDED	93	71	AZCL					
						3					
						8					
						NI					
7.30 - 7.45	C					11					
						NI					
7.70 - 7.85	C	7.50 - 9.00 (92mm)	7.50 ADDED	89	15	AZCL					
						NI					
						29					
8.85 - 8.94	C						<p>Medium strong to strong reddish brown mottled grey fine to medium SANDSTONE. Discontinuities are horizontal, closely spaced, planar, smooth and clean. [ST MAUGHANS FORMATION]</p>	<p>Between 9.17-9.23m, non-intact, recovered as subangular medium to coarse gravel. Between 9.17-9.53m, vertical vein (up to 2mm thick) of quartzite. Between 9.53-9.64m, non-intact,</p>	9.17		1.82
9.24 - 9.34	C	9.00 - 10.50 (92mm)	7.50 ADDED	88	32	AZCL					
						20					
9.40 - 9.50	C					NI					
						19					

Remarks		Inspection pit hand excavated to 1.20m depth and no services were found.	Logged by	RW
		ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.	Checked by	JN
		Chiselling: 5.00-5.30m for 60 minutes.	Figure	Sheet 2 of 4
		50mm standpipe was installed to 11.00m with a geowrapped slotted section from 9.00m to 11.00m with a flush cover installed.		05/01/2023
		Backfill details from base of hole: bentonite seal up to 11.00m, gravel filter up to 9.00m, bentonite seal up to 0.20m, concrete up to ground level.		
Symbols and abbreviations are explained on the accompanying key sheets.				
All dimensions are in metres.			geotechnical and geoenvironmental specialists	
Logged in accordance with BS5930:2015 + A1:2020				

**Remarks**  Inspection pit hand excavated to 1.20m depth and no services were found.  
ES sample = 1 x 60ml glass vial, 2 x 258ml amber glass jars and 1 x 1L plastic tub.  
Chiselling: 5.00-5.30m for 60 minutes.  
50mm standpipe was installed to 11.00m with a geowrapped slotted section from 9.00m to 11.00m with a flush cover installed.  
Backfill details from base of hole: bentonite seal up to 11.00m, gravel filter up to 9.00m, bentonite seal up to 0.20m, concrete up to ground level.  
Logged in accordance with BS5930:2015 + A1:2020

Logged by RW  
Checked by JN  
Figure Sheet 2 of 4  
05/01/2023

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## PRELIMINARY

<b>Project</b>	Newport Quinn Phase 2	<b>Engineer</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>National Grid Coordinates</b>	327758.3 E 183952.4 N	<b>Borehole</b>	BH30
				<b>Ground Level</b>	10.99 m OD

Sampling/Testing		Drilling					Strata		Scale 1:50		
Sample / SPT Depth	SPT N / Type	Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	TCR/ SCR (%)	RQD (%)	FI	General	Detail	Depth	Legend	Level (m OD)
		9.00 - 10.50 (92mm)	7.50 ADDED	88 67	32			recovered as slightly clayey subangular fine to coarse gravel.			
						NI					
		10.50 - 12.00 (92mm)	7.50 ADDED	97 84	71		Extremely weak to weak reddish brown mottled grey MUDSTONE. Discontinuities are subhorizontal to inclined (up to 40 deg.), closely to medium spaced, planar, smooth and rough with occasional clay infill. [ST MAUGHANS FORMATION]	Between 10.35-10.50m, non-intact, recovered as subangular medium to coarse gravel. Between 10.50-10.54m, assumed zone of core loss. Between 10.54-10.62m, non-intact, recovered as subangular fine to coarse gravel. Between 10.62-12.00m, occasional clay infill. Between 13.50-13.53m, assumed zone of core loss. Between 13.53-13.59m, non-intact, recovered as angular to subangular fine to coarse gravel. Between 14.52-14.56m, non-intact, recovered as subangular fine to medium gravel. Between 14.56-15.00m, discontinuities are horizontal, closely spaced, planar to undulating and rough. Below 15.00m, discontinuities are horizontal to subhorizontal (up to 20 deg.), closely spaced, planar to undulating, smooth. Between 15.20-15.46m, vertical discontinuity, undulating and smooth. Between 15.85-16.08m, non-intact, recovered as subangular fine to medium gravel. Between 16.50-16.57m, assumed zone of core loss. Between 16.57-16.77m, discontinuities are very closely to closely spaced. Between 16.58-16.65m, vertical discontinuity, undulating and smooth. Between 17.28-17.58m, discontinuities are medium spaced. Vertical discontinuity, undulating and smooth. Between 17.58-17.61m, non-intact, recovered as subangular fine to medium gravel.	10.35		0.64
						NI					
11.40 - 11.60	C					12					
11.88 - 12.00	C										
		12.00 - 13.50 (92mm)	7.50 ADDED	100 92	33						
						NI					
						13					
14.05 - 14.30	C	13.50 - 15.00 (92mm)	7.50 ADDED	95 91	71						
						NI					
						8					
						NI					
						9					
15.10 - 15.20	C	15.00 - 16.50 (92mm)	7.50 ADDED	100 68	64	15					
						23					
15.65 - 15.85	C					5					
15.87 - 15.97	C					15					
						NI					
						9					
16.75 - 16.88	C	16.50 - 18.00 (92mm)	7.50 ADDED	95 63	47						
						30					
						13					
						10	Medium strong reddish brown mottled grey SILTSTONE. Discontinuities are horizontal to subhorizontal (up to 30 deg.), very closely to closely spaced, planar, smooth and clean.	Between 18.23-18.39m, yellow staining on discontinuity surfaces. Between 18.39-18.43m, non-intact, recovered as subangular fine to medium gravel.			
17.80 - 17.96	C					31					
18.00 - 18.14	C	18.00 - 19.50 (92mm)	7.50 ADDED	100 76	54						
						17	Strong reddish brown medium to coarse grained SANDSTONE with vertical veins of quartzite. Discontinuities are horizontal, medium spaced, planar, smooth and clean.	Between 18.51-19.28m, discontinuities are closely to medium spaced. Between 18.52-19.28m, vertical discontinuity, planar to undulating, smooth with yellow staining on surfaces.			
						31					
						36					
19.15 - 19.22	C					7	[ST MAUGHANS FORMATION]	Between 19.14-19.20m, non-intact, recovered as subangular fine to medium gravel.			
		19.50 - 20.20 (92mm)	7.50 ADDED	100 64	40		Weak reddish brown MUDSTONE. Discontinuities are horizontal, closely spaced, planar, smooth and clean.	Between 19.28-19.39m, discontinuities are subhorizontal	19.50		-8.51
							[ST MAUGHANS FORMATION]		19.90		-8.91

Boring				Progress				Groundwater						
Depth	Hole Dia.	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				4.45	4.00	DRY	08/08/22	08:00						
				5.75	4.50	DRY	08/08/22	18:00						
				5.75	4.50	DRY	09/08/22	08:00						
				16.50	7.50	ADDED	09/08/22	17:00						

Remarks



Logged by

Checked by

Figure

RW

JN

Sheet 3 of 4

05/01/2023


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<

PRELIMINARY

<p><b>Remarks</b></p> <p>Symbols and abbreviations are explained on the accompanying key sheets.</p> <p>All dimensions are in</p>	<p>Logged by RW</p> <p>Checked by JN</p> <p>Figure Sheet 4 of 4</p> <p>05/01/2023</p>
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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH01	1.20	9.66	S		1	1	2	2	3	4	11					
BH01	2.00	8.86	S		1	1	2	3	3	4	12					
BH01	3.00	7.86	S		4	4	5	7	6	4	22					
BH01	4.00	6.86	S		4	3	4	3	4	3	14					
BH01	5.00	5.86	S		2	4	3	2	2	2	9					
BH01	6.00	4.86	S		10	15	15	15	20		50/225					

<b>Hammer No.:</b>	JB14	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	63	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH01	7.50	3.36	C		4	5	4	6	8	8	26					
BH01	9.00	1.86	C		3	7	9	8	11	14	42					
BH01	10.50	0.36	C		11	14	50				50/40					

<b>Hammer No.:</b>	TEC 130133	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	71	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH04A	1.20	9.66	C		8	12	24	26			50/115					
BH04A	2.00	8.86	C		9	16	19	31			50/145					
BH04A	3.00	7.86	C		10	8	7	6	7	7	27					
BH04A	4.00	6.86	S		9	12	14	16	17	3	50/237					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH07	1.20	11.48	C		5	6	7	8	8	9	32					
BH07	2.00	10.68	C		6	7	7	9	9	9	34					
BH07	3.00	9.68	C		8	10	12	16	14	8	50/265					
BH07	4.00	8.68	C		7	9	9	8	9	10	36					
BH07	5.00	7.68	S		7	7	8	8	9	8	33					
BH07	6.00	6.68	S		9	16	15	16	16	3	50/240					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH10	1.20	9.80	C		2	3	4	3	4	4	15					
BH10	2.00	9.00	C		3	5	4	5	5	5	19					
BH10	3.00	8.00	C		3	5	5	6	7	7	25					
BH10	6.20	4.80	C		9	16	16	15	19		50/225					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2

**Engineer**

Pinnacle Consulting  
Engineers Limited

**Project No.**

PN224395

**Client**

Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH14A	1.20	9.71	S		4	4	10	10	10	10	40					
BH14A	2.00	8.91	S		2	3	25	25			50/150					
BH14A	3.00	7.91	S		3	3	4	5	6	6	21					
BH14A	4.00	6.91	S		2	3	3	4	4	4	15					
BH14A	5.00	5.91	S		2	4	5	5	10	10	30					
BH14A	6.00	4.91	S		5	7	7	7	16	20	50/230					
Hammer No.:			JB14				Remarks									
Energy Ratio, Er (%):			63													

-/- Blows/penetration (mm) after seating

S - SPT with split spoon sampler

-\*/- Total blows/penetration (mm)

C - SPT with cone

SWP Penetration under own weight (mm)

L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2

**Engineer**

Pinnacle Consulting  
Engineers Limited

**Project No.**

PN224395

**Client**

Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH17A	1.20	9.84	C		3	3	4	4	3	4	15					
BH17A	2.00	9.04	C		3	4	5	4	5	5	19					
BH17A	3.00	8.04	C		4	6	6	7	7	6	26					
BH17A	4.00	7.04	S		7	7	6	8	7	7	28					
BH17A	5.00	6.04	C		8	10	10	10	12	13	45					
BH17A	5.60	5.44	C		7	9	8	12	14	16	50					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating

S - SPT with split spoon sampler

\*/- Total blows/penetration (mm)

C - SPT with cone

SWP Penetration under own weight (mm)

L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH23	1.20	10.71	C		1	1	2	1	2	2	7					
BH23	2.00	9.91	C		2	4	4	5	7	5	21					
BH23	3.00	8.91	C		3	5	7	7	6	7	27					
BH23	4.00	7.91	C		4	5	6	5	6	6	23					
BH23	5.00	6.91	S		7	8	9	9	9	10	37					
BH23	6.00	5.91	S		7	9	9	10	10	10	39					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2

**Engineer**

Pinnacle Consulting  
Engineers Limited

**Project No.**

PN224395

**Client**

Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH23	9.00	2.91	C		12	13	18	17	15		50/255					
BH23	12.00	-0.09	C		7	13	21	29			50/285					
BH23	19.50	-7.59	C		3	11	27	23			50/270					

<b>Hammer No.:</b>	TEC 130133	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	71	

-/- Blows/penetration (mm) after seating

S - SPT with split spoon sampler

\*/- Total blows/penetration (mm)

C - SPT with cone

SWP Penetration under own weight (mm)

L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH27	1.20	8.98	C		5	6	6	7	7	8	28					
BH27	2.00	8.18	C		7	8	8	9	9	10	36					
BH27	3.00	7.18	C		5	7	6	7	6	7	26					
BH27	4.00	6.18	S		6	6	7	7	8	7	29					
BH27	5.00	5.18	S		7	7	8	9	9	9	35					
BH27	5.50	4.68	C		9	10	12	13	14	11	50/260					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH27	8.60	1.58	C		6	13	22	28			50/145					
Hammer No.:			TEC 130133				Remarks									
Energy Ratio, Er (%):			71													

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH28	1.20	9.63	C		25		50				50/30					
BH28	2.00	8.83	C		6	19	36	14			50/100					
BH28	3.00	7.83	C		10	12	31	19			50/115					
BH28	4.00	6.83	C		7	8	9	10	10	9	38					
BH28	4.50	6.33	C		25		50				50/70					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

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# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH28	7.50	3.33	C			8	21	24	5		50/225					
Hammer No.:			TEC 130133				Remarks									
Energy Ratio, Er (%):			71													

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

Printed: 07/09/2022



**GEOTECHNICS**  
 geotechnical and geoenvironmental specialists



# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH30	1.20	9.79	C		2	3	5	5	6	5	21					
BH30	2.00	8.99	C		2	3	3	4	5	3	15					
BH30	3.00	7.99	C		3	4	6	6	5	5	22					
BH30	4.00	6.99	C		4	6	6	7	7	7	27					
BH30	5.00	5.99	S		7	9	10	10	11	12	43					

<b>Hammer No.:</b>	SAM1	<b>Remarks</b>
<b>Energy Ratio, Er (%):</b>	75	

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

Printed: 07/09/2022



**GEOTECHNICS**  
 geotechnical and geoenvironmental specialists

# FIELDWORK RESULTS - SPT Results Summary

**Project** Newport Quinn Phase 2      **Engineer** Pinnacle Consulting Engineers Limited      **Project No.** PN224395  
**Client** Pinnacle Consulting Engineers Limited

Hole	Depth (m bgl)	Depth (m OD)	SPT Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' value				
					0 - 75 (mm)	75 - 150 (mm)	0 - 75 (mm)	75 - 150 (mm)	150 - 225 (mm)	225 - 300 (mm)		10	20	30	40	50
BH30	5.30	5.69	S		9	12	14	15	16	16	61					
Hammer No.:			TEC 130133				Remarks									
Energy Ratio, Er (%):			71													

-/- Blows/penetration (mm) after seating      S - SPT with split spoon sampler  
 -\*/- Total blows/penetration (mm)      C - SPT with cone  
 SWP Penetration under own weight (mm)      L - Split Spoon liner used

Unit 25 Stella Gill Industrial Estate  
Pelton Fell  
Chester-le-Street  
DH2 2RG

## SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: TEC 130133  
Test Date: 17/12/2020  
Report Date: 17/12/2020  
File Name: 1904052.spt  
Test Operator: BP

### Instrumented Rod Data

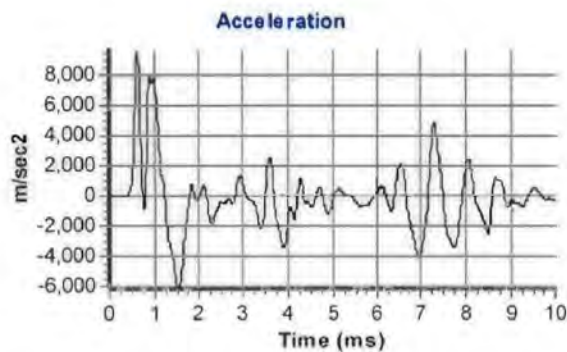
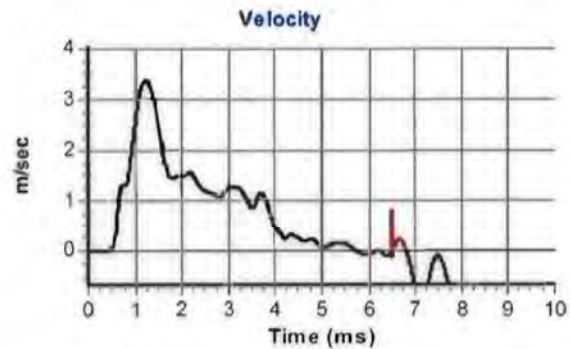
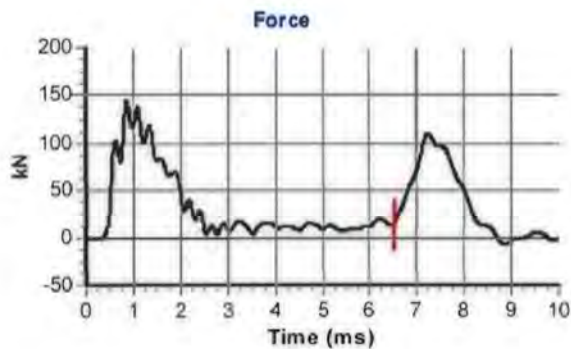
Diameter  $d_r$  (mm): 54  
Wall Thickness  $t_r$  (mm): 6.5  
Assumed Modulus  $E_a$  (GPa): 208  
Accelerometer No.1: 5991  
Accelerometer No.2: 5990

### SPT Hammer Information

Hammer Mass  $m$  (kg): 63.5  
Falling Height  $h$  (mm): 760  
SPT String Length  $L$  (m): 14.1

### Comments / Location

Mass and drop supplied by client



### Calculations

Area of Rod A ( $\text{mm}^2$ ): 970  
Theoretical Energy  $E_{\text{theor}}$  (J): 473  
Measured Energy  $E_{\text{meas}}$  (J): 334

Energy Ratio  $E_r$  (%):

71

Signed: Brian Proctor  
Title: Technician

The recommended calibration interval is 12 months

# **APPENDIX 5**

## **Rotary Core Photographs**

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH01 - Box I



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH01 - Box 2

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH01 - Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH01 - Box 4



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH01 - Box 5

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH04A - Box 1



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH04A - Box 2

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH04A - Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH04A - Box 4

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH04A - Box 5



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH04A - Box 6

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH07 - Box 1



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH07 - Box 2

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH07 - Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH07 - Box 4

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH07 - Box 5



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH07 - Box 6

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH10 - Box 1



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH10 - Box 2

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH10 - Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH10 - Box 4

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH10 - Box 5



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH14A - Box 1

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH14A - Box 2



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH14A - Box 3

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH14A - Box 4



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH14A - Box 5

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BHI7A - Box 1



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH17A - Box 2

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH17A - Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH17A - Box 4

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH17A - Box 5



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH17A - Box 6

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH23 - Box I

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH23- Box 2



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH23- Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH23- Box 4

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH27 - Box I



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH27 - Box 2

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH27 - Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH27 - Box 4

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH27 - Box 5



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH28 - Box I

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH28 - Box 2



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH28 - Box 3

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH28 - Box 4



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH28 - Box 5

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH30 - Box 1



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH30 - Box 2

# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH30 - Box 3



# PHOTOGRAPHS

Project Number : PN224395

Project : Former Quinn Radiator Factory Site, Newport, Wales



BH30 - Box 4

# **APPENDIX 6**

## **In-Situ Plate Load Test Results**

**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
Sheet I - Test Results

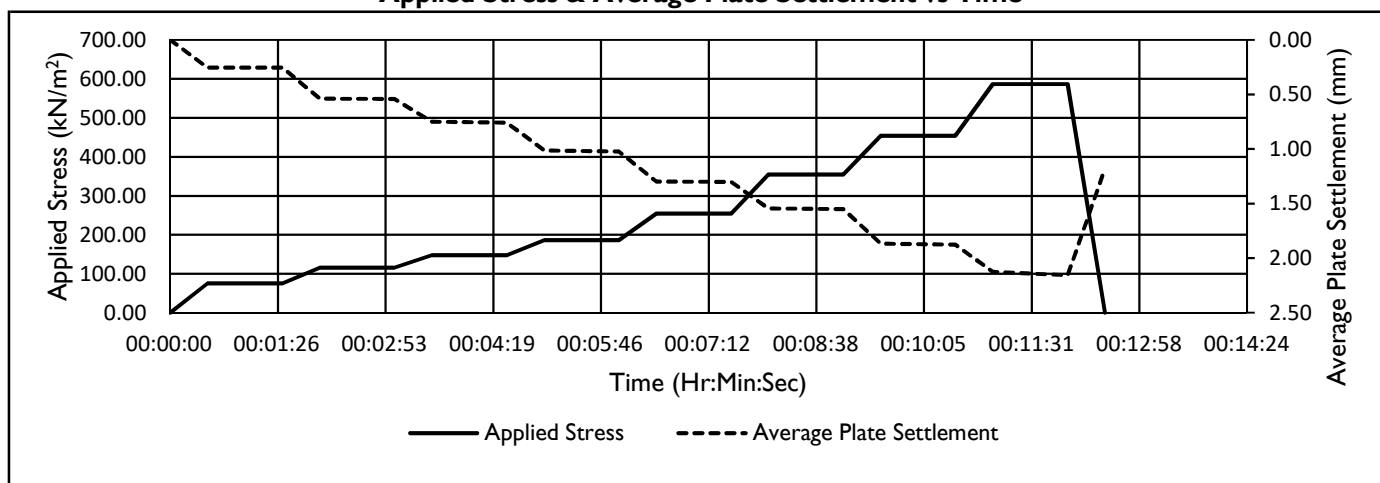
Project	Newport Quinn - Phase 2	Test Location	PLT01
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	02 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.23	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
5.30	74.98	0.25	
8.16	115.44	0.54	
10.44	147.70	0.76	
13.18	186.46	1.02	
18.01	254.79	1.30	
25.08	354.81	1.55	
32.09	453.98	1.88	
41.48	586.82	2.16	
0.00	0.00	1.18	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

254.8 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

90.0 MN/m<sup>2</sup>/m

Equivalent CBR Value

23.5 %

**Remarks**



**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
**Sheet I - Test Results**

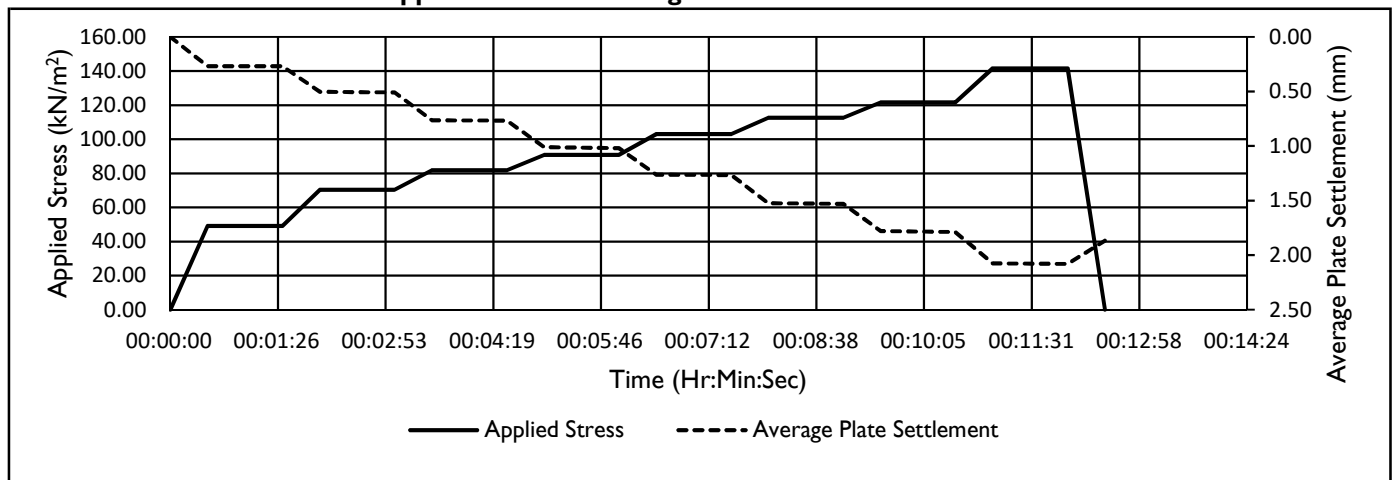
Project	Newport Quinn - Phase 2	Test Location	PLT02
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	03 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.44	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
3.47	49.09	0.27	
4.98	70.45	0.51	
5.78	81.77	0.77	
6.42	90.82	1.02	
7.28	102.99	1.27	
7.96	112.61	1.53	
8.60	121.67	1.79	
10.01	141.61	2.08	
0.00	0.00	1.87	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

103.0 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

36.4 MN/m<sup>2</sup>/m

Equivalent CBR Value

4.9 %

**Remarks**

# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT03
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	03 August 2022
		Test No	I

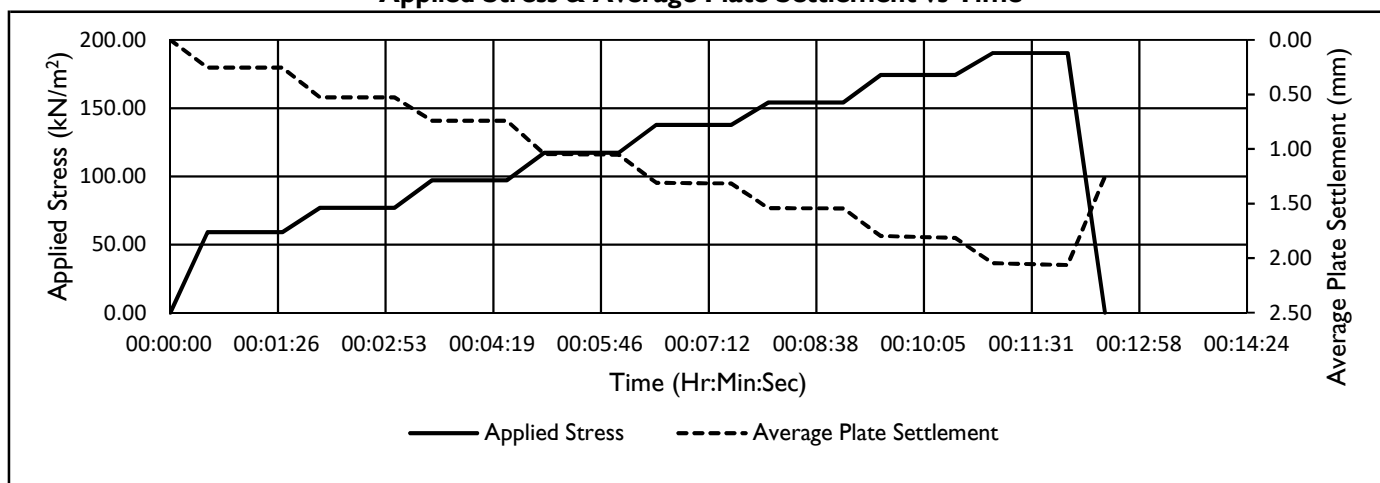
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.23	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
4.18	59.13	0.25	
5.43	76.82	0.53	
6.86	97.05	0.74	
8.29	117.28	1.05	
9.74	137.79	1.32	
10.89	154.06	1.54	
12.32	174.29	1.81	
13.46	190.42	2.06	
0.00	0.00	1.25	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

137.8 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

48.7 MN/m<sup>2</sup>/m

Equivalent CBR Value

8.1 %

Remarks

**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
Sheet I - Test Results

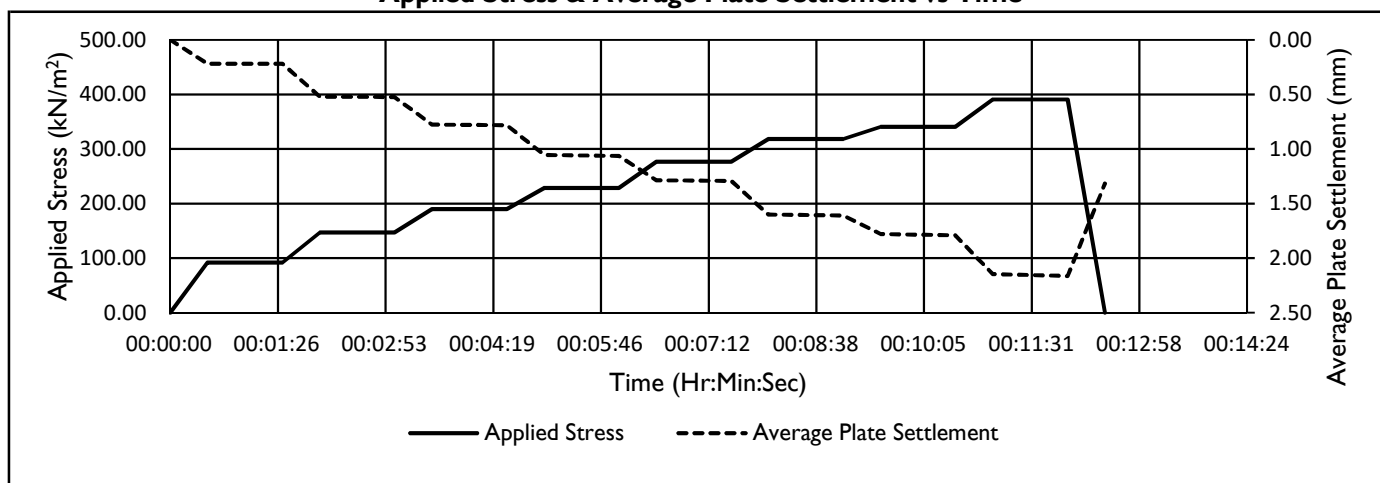
Project	Newport Quinn - Phase 2	Test Location	PLT04
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	04 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.22	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
6.52	92.24	0.22	
10.39	146.99	0.52	
13.41	189.71	0.78	
16.17	228.76	1.06	
19.56	276.72	1.29	
22.51	318.45	1.61	
24.10	340.95	1.79	
27.63	390.88	2.16	
0.00	0.00	1.32	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

276.7 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

97.8 MN/m<sup>2</sup>/m

Equivalent CBR Value

27.1 %

**Remarks**

# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT05
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	04 August 2022
		Test No	I

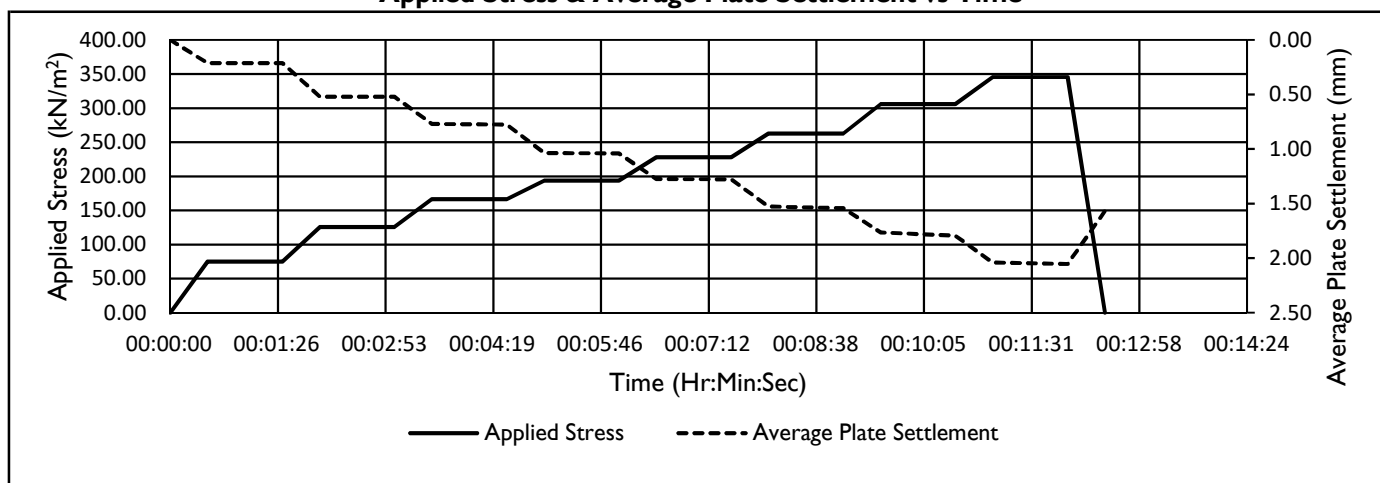
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.19	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
5.29	74.84	0.21	
8.87	125.48	0.52	
11.76	166.37	0.78	
13.69	193.67	1.04	
16.13	228.19	1.28	
18.59	262.99	1.54	
21.61	305.72	1.79	
24.43	345.61	2.05	
0.00	0.00	1.57	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

228.2 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

80.6 MN/m<sup>2</sup>/m

Equivalent CBR Value

19.4 %

Remarks



# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT07
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	01 August 2022
		Test No	I

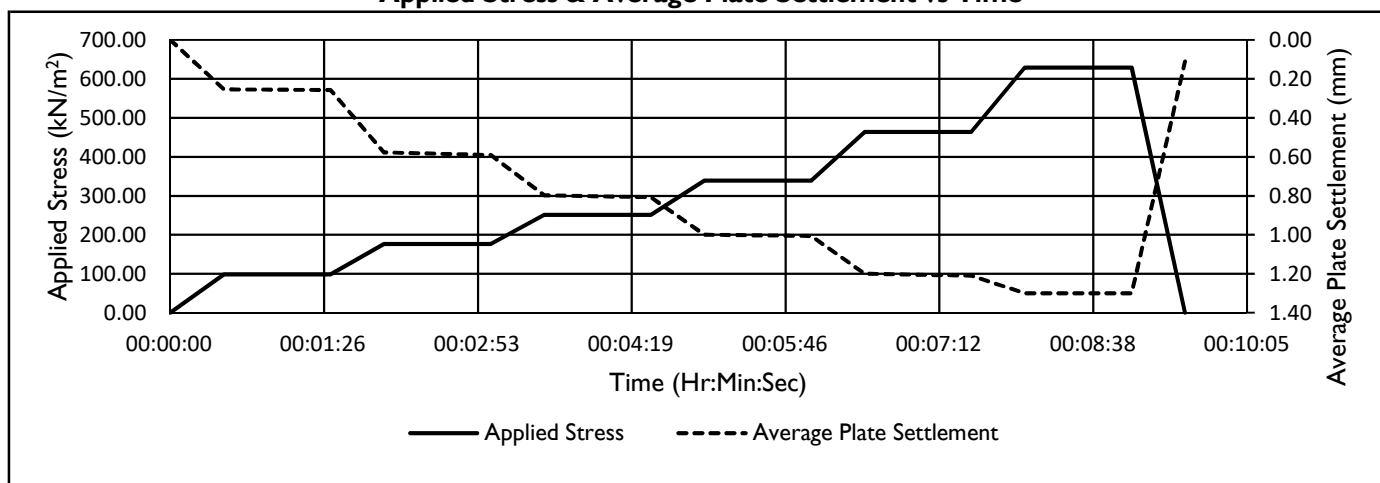
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.20	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
6.98	98.75	0.26	
12.48	176.56	0.59	
17.75	251.11	0.81	
23.97	339.11	1.01	
32.78	463.74	1.21	
44.47	629.12	1.30	
0.00	0.00	0.11	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

600.0 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

212.0 MN/m<sup>2</sup>/m

Equivalent CBR Value

103.7 %

Remarks

Form INS016 Rev 1  
**Sheet 1 - Test Results**

Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision 1 (2009)

## Test Results

The graph shows the relationship between applied stress and average plate settlement for two soil samples. The x-axis represents Applied Stress in  $\text{kN/m}^2$ , ranging from 0 to 600. The y-axis represents Average Plate Settlement in mm, ranging from 0 to 1.8, with the scale inverted (0 at the top). Two data series are plotted: one starting at (0, 0) and another starting at (0, 0.9). Both series show a non-linear increase in settlement with increasing stress, converging at approximately 520  $\text{kN/m}^2$  and 1.6 mm settlement.

Applied Stress ( $\text{kN/m}^2$ )	Average Plate Settlement (mm) - Series 1	Average Plate Settlement (mm) - Series 2
0	0.0	0.9
120	0.25	-
210	0.55	-
270	0.75	-
370	1.05	-
420	-	1.25
520	1.6	1.6

The graph displays two data series over a period of 10 minutes and 5 seconds. The left y-axis represents Applied Stress in  $\text{kN/m}^2$ , ranging from 0.00 to 600.00. The right y-axis represents Average Plate Settlement in mm, ranging from 0.00 to 2.00. The x-axis shows time in Hr:Min:Sec format.

Time (Hr:Min:Sec)	Applied Stress ( $\text{kN/m}^2$ )	Average Plate Settlement (mm)
00:00:00	0.00	0.00
00:00:15	120.00	0.10
00:01:26	120.00	0.10
00:02:53	210.00	0.10
00:04:19	280.00	0.10
00:05:46	360.00	0.10
00:07:12	420.00	0.10
00:08:38	520.00	0.10
00:09:05	0.00	0.15

### Remarks

**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
Sheet I - Test Results

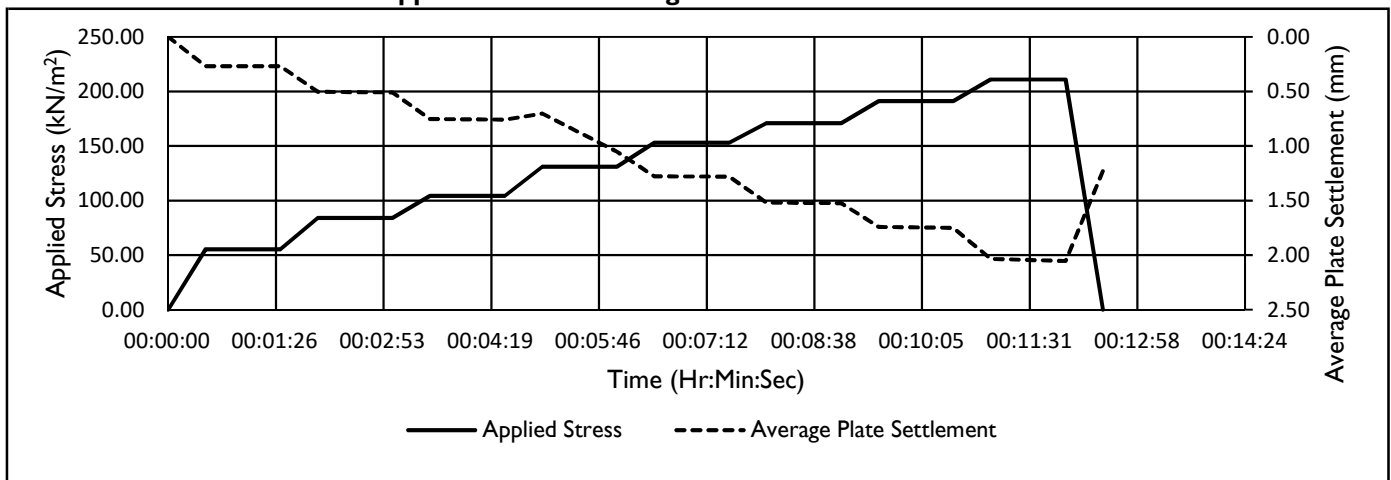
Project	Newport Quinn - Phase 2	Test Location	PLT09
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	03 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.24	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
3.91	55.32	0.27	
5.94	84.03	0.51	
7.38	104.41	0.76	
9.26	131.00	1.05	
10.83	153.21	1.28	
12.08	170.90	1.52	
13.52	191.27	1.75	
14.92	211.07	2.05	
0.00	0.00	1.23	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

153.2 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

54.1 MN/m<sup>2</sup>/m

Equivalent CBR Value

9.7 %

**Remarks**

# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT10
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	01 August 2022
		Test No	I

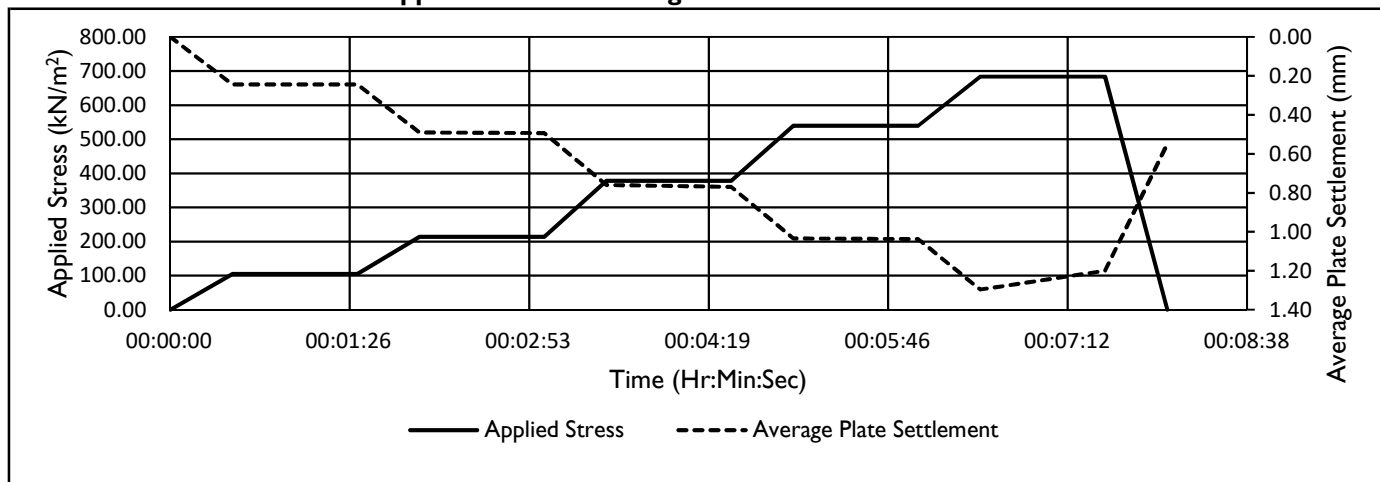
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.20	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
7.43	105.11	0.24	
15.14	214.19	0.49	
26.73	378.15	0.77	
38.13	539.43	1.04	
48.32	683.59	1.20	
0.00	0.00	0.55	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

683.6 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

241.6 MN/m<sup>2</sup>/m

Equivalent CBR Value

130.0 %

## Remarks

Equivalent CBR Value assumed to be 100%.

# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT11
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	04 August 2022
		Test No	I

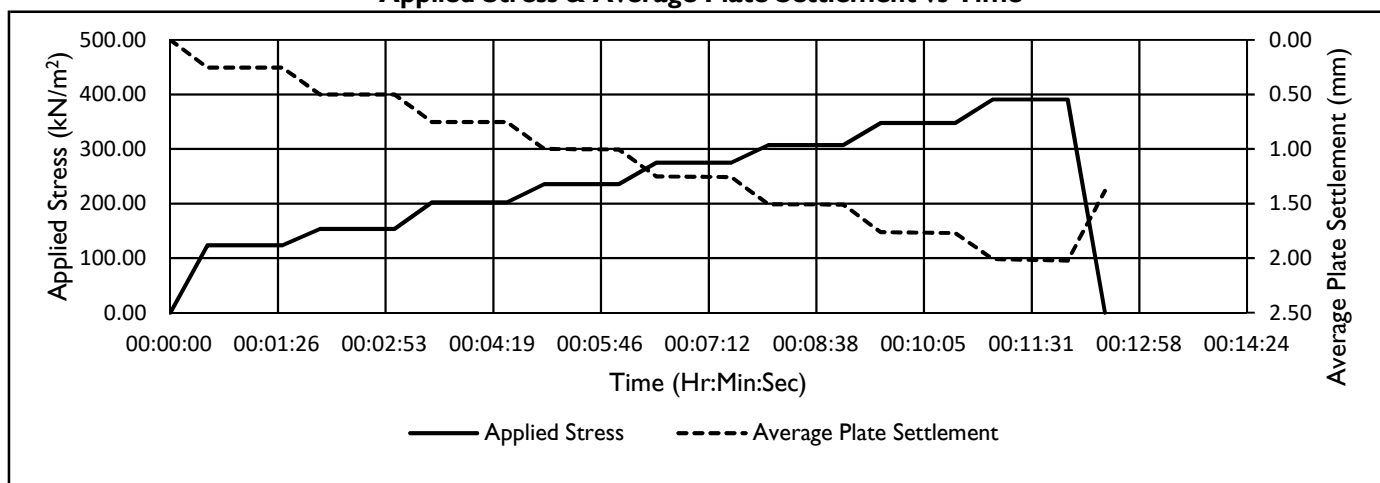
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.21	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
8.72	123.36	0.25	
10.87	153.78	0.50	
14.28	202.02	0.75	
16.66	235.69	1.00	
19.44	275.02	1.26	
21.72	307.28	1.51	
24.59	347.88	1.77	
27.64	391.03	2.02	
0.00	0.00	1.38	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

275.0 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

97.2 MN/m<sup>2</sup>/m

Equivalent CBR Value

26.8 %

Remarks



**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
Sheet I - Test Results

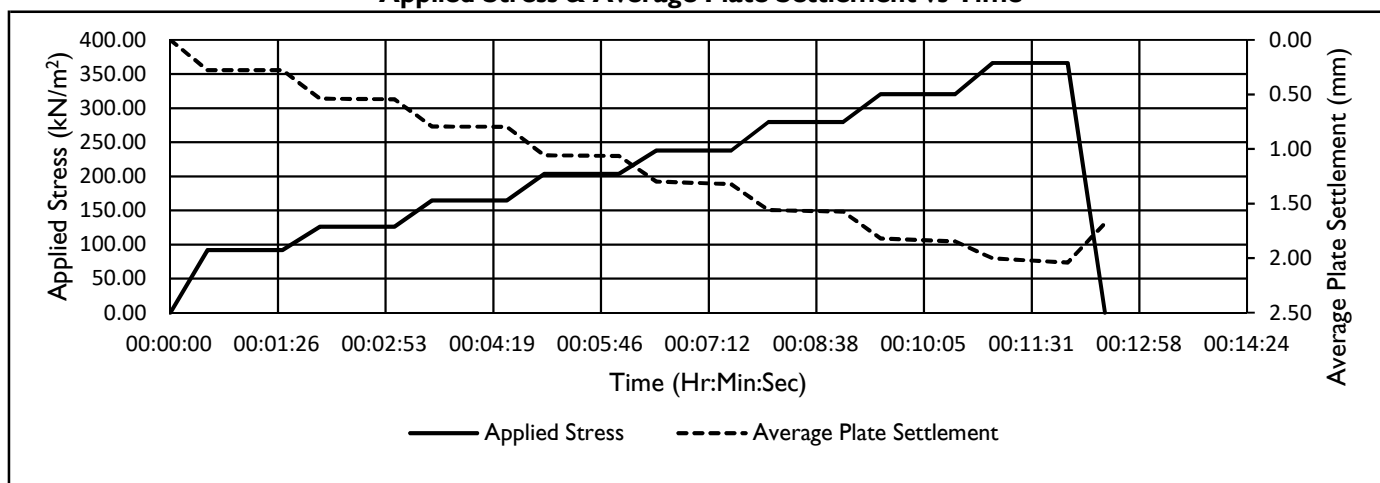
Project	Newport Quinn - Phase 2	Test Location	PLT12
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	05 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.15	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
6.51	92.10	0.28	
8.92	126.19	0.54	
11.63	164.53	0.80	
14.38	203.44	1.06	
16.81	237.81	1.32	
19.78	279.83	1.57	
22.64	320.29	1.85	
25.89	366.27	2.04	
0.00	0.00	1.68	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

237.8 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

84.0 MN/m<sup>2</sup>/m

Equivalent CBR Value

20.9 %

**Remarks**

# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT13
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	04 August 2022
		Test No	I

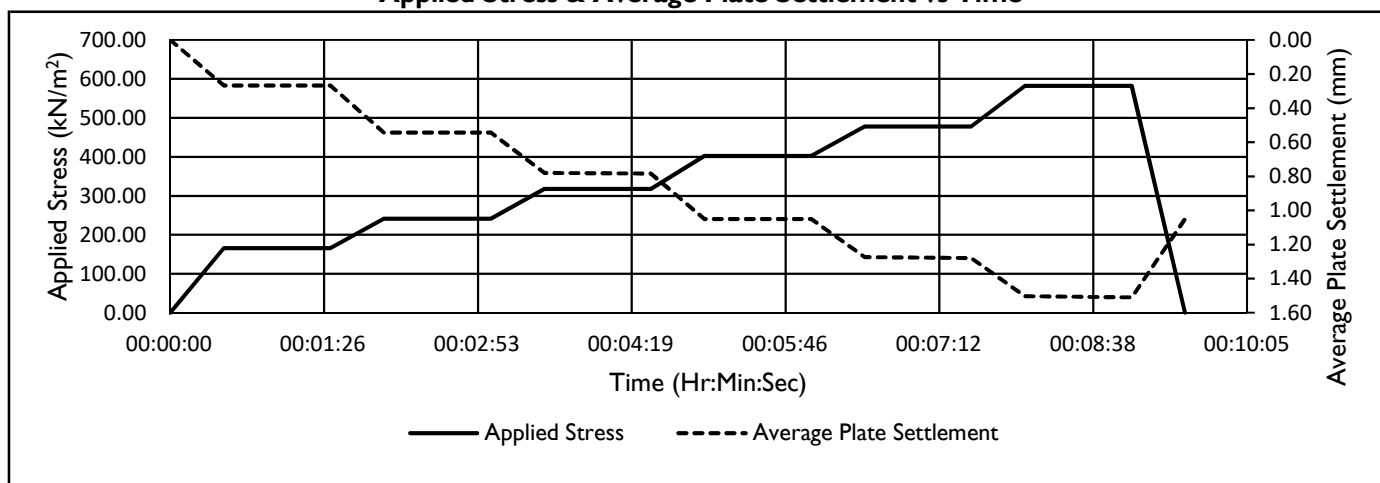
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.45	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
11.73	165.95	0.27	
17.05	241.21	0.54	
22.47	317.89	0.78	
28.46	402.63	1.05	
33.76	477.61	1.28	
41.15	582.15	1.51	
0.00	0.00	1.05	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

477.6 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

168.8 MN/m<sup>2</sup>/m

Equivalent CBR Value

69.9 %

Remarks

**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
Sheet I - Test Results

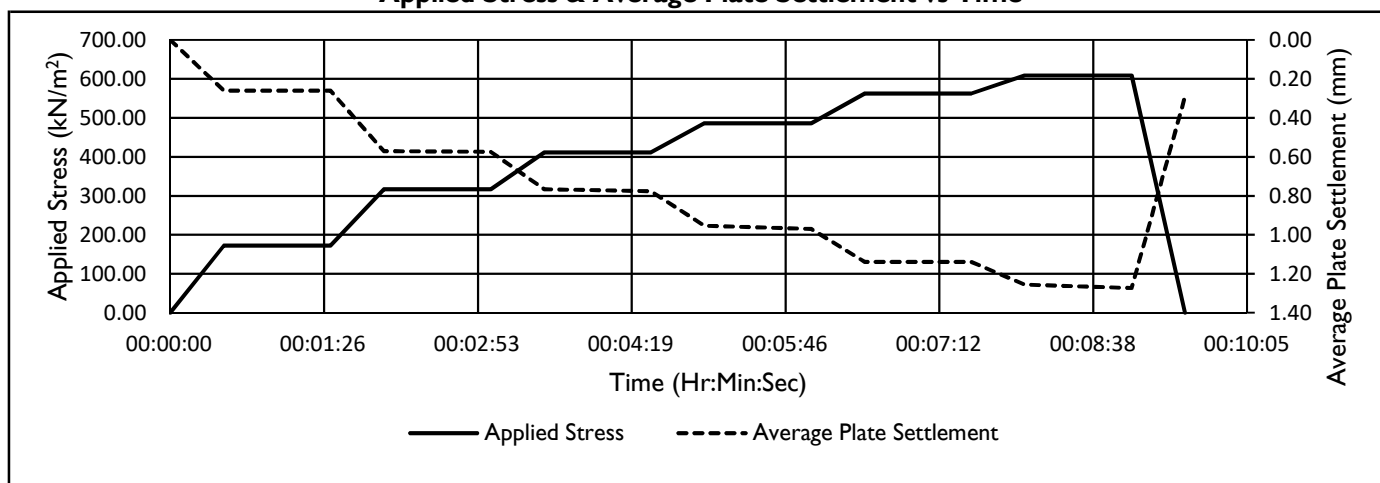
Project	Newport Quinn - Phase 2	Test Location	PLT14
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	01 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.20	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
12.20	172.59	0.26	
22.38	316.61	0.57	
29.08	411.40	0.78	
34.38	486.38	0.97	
39.75	562.35	1.14	
43.04	608.89	1.27	
0.00	0.00	0.29	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

585.0 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

206.7 MN/m<sup>2</sup>/m

Equivalent CBR Value

99.3 %

**Remarks**

# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT15
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	02 August 2022
		Test No	I

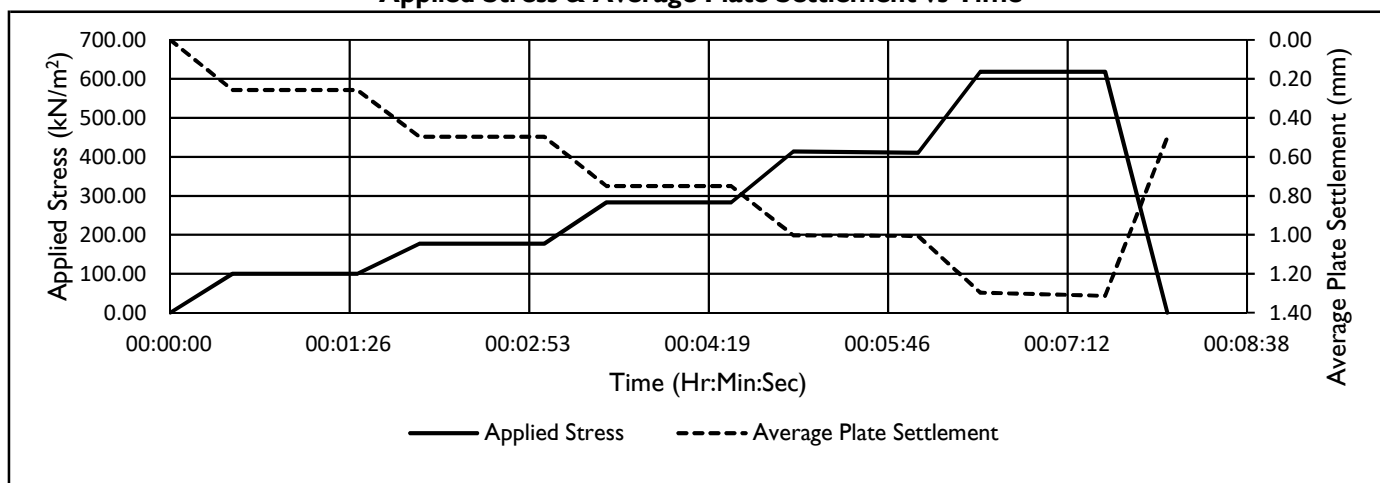
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.20	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
7.06	99.88	0.26	
12.55	177.55	0.50	
20.03	283.37	0.75	
29.03	410.69	1.01	
43.71	618.37	1.31	
0.00	0.00	0.50	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

585.0 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

206.7 MN/m<sup>2</sup>/m

Equivalent CBR Value

99.3 %

Remarks

# INSITU TESTING - Plate Load Test

Form INS016 Rev I  
Sheet I - Test Results

Project	Newport Quinn - Phase 2	Test Location	PLT16
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	02 August 2022
		Test No	I

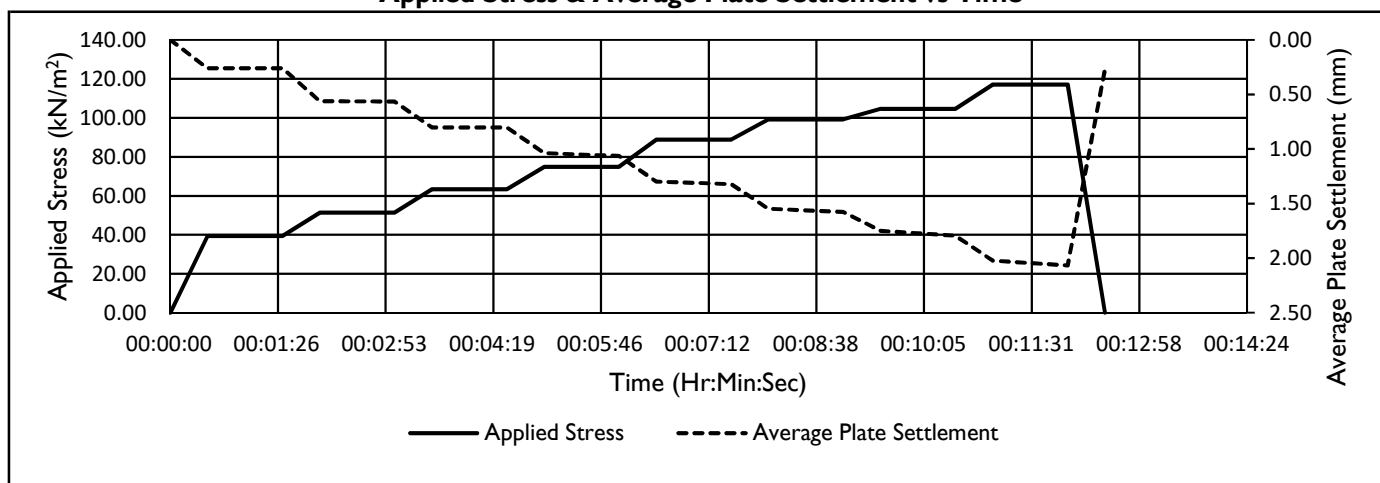
Test carried out in accordance with  
**BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.20	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

## Test Results

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
2.78	39.33	0.26	
3.63	51.35	0.56	
4.48	63.38	0.80	
5.29	74.84	1.06	
6.28	88.84	1.32	
7.01	99.17	1.58	
7.40	104.69	1.79	
8.28	117.14	2.07	
0.00	0.00	0.27	

## Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

88.8 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

31.4 MN/m<sup>2</sup>/m

Equivalent CBR Value

3.8 %

Remarks



**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
Sheet I - Test Results

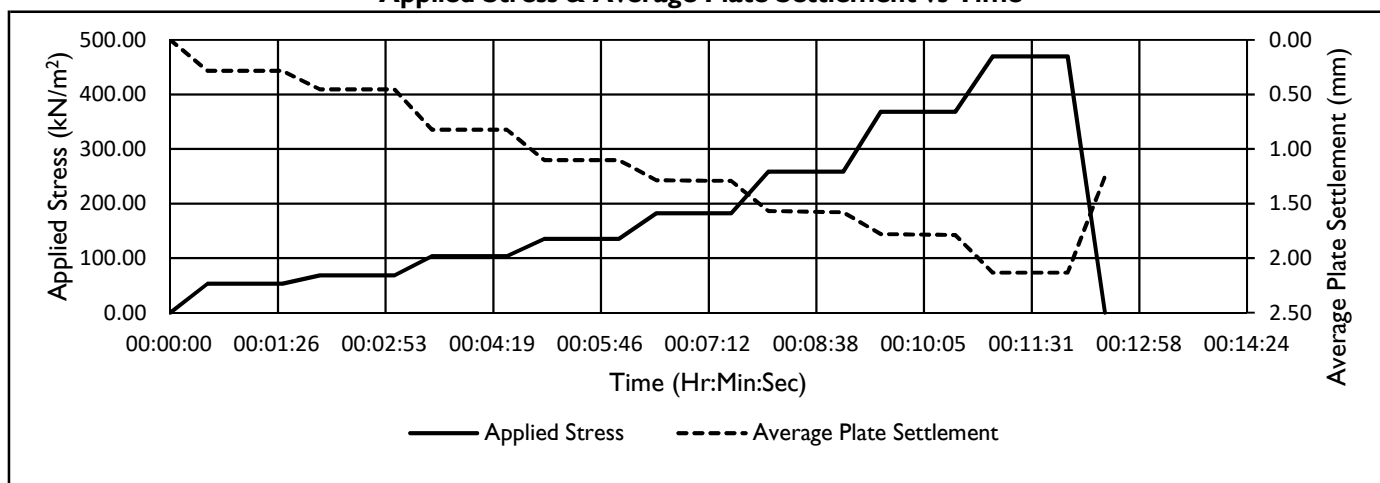
Project	Newport Quinn - Phase 2	Test Location	PLT17
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	03 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.45	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
3.76	53.19	0.28	
4.83	68.33	0.45	
7.33	103.70	0.82	
9.56	135.25	1.10	
12.90	182.50	1.29	
18.29	258.75	1.58	
26.03	368.25	1.79	
33.22	469.97	2.13	
0.00	0.00	1.25	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

182.5 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

64.5 MN/m<sup>2</sup>/m

Equivalent CBR Value

13.2 %

**Remarks**

**INSITU TESTING - Plate Load Test**Form INS016 Rev I  
Sheet I - Test Results

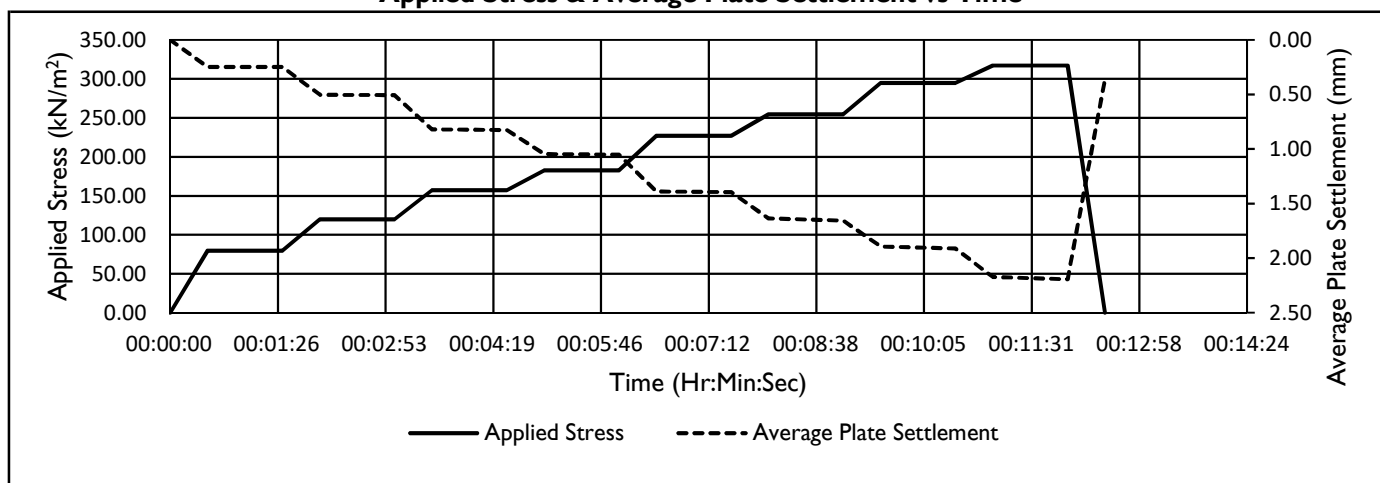
Project	Newport Quinn - Phase 2	Test Location	PLT18
		Project No	PN224395
Client	Pinnacle Consulting Engineers	Date	03 August 2022
		Test No	I

**Test carried out in accordance with  
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

Soil Description	MG - Reddish brown gravelly slightly silty fine to coarse sand.	Plate Diameter (mm)	300
Test Depth (m bgl)	0.40	Kentledge Type	JCB 3CX
Carried out by	AJ	Checked by	JSJ

**Test Results**

Applied Load (kN)	Applied Stress (kN/m <sup>2</sup> )	Average Plate Settlement (mm)	Applied Stress vs Average Plate Settlement
0.00	0.00	0.00	
5.62	79.51	0.25	
8.48	119.97	0.51	
11.11	157.17	0.83	
12.90	182.50	1.05	
16.06	227.20	1.39	
18.00	254.65	1.66	
20.83	294.68	1.91	
22.42	317.18	2.19	
0.00	0.00	0.36	

**Applied Stress & Average Plate Settlement vs Time**

Applied Stress at 1.25mm Settlement

210.0 kN/m<sup>2</sup>

Modulus of Subgrade Reaction

74.2 MN/m<sup>2</sup>/m

Equivalent CBR Value

16.8 %

**Remarks**

## **APPENDIX 7**

### **Monitoring Results**

**FIELDWORK -** *In Situ Gas Monitoring - Visit Record*

Project Newport Quinn Phase 2

**Client** Pinnacle Consulting Engineers Limited

**Project No.** PN224395

### Instrument used

Date 13/09/2022

**Meteorological Conditions:**

Ground Condition: 0

Precipitation: 0

Wind: 0

Cloud Cover: 0

Atmospheric Pressure Trend: 0

[illegible]

**FIELDWORK - In Situ Gas Monitoring - Visit Record**

<b>Project</b>	Newport Quinn Phase 2	<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Instrument used</b>				<b>Date</b>	20/09/2022

**Meteorological Conditions:**
 Ground Condition: 
 Precipitation: 
 Wind: 
 Cloud Cover: 
 Atmospheric Pressure Trend:

Location ID	Pipe Ref.	Installation Diameter (mm)	Time of Reading (hh:mm:ss)	Flow (Peak) (l/hr)	Flow (Steady) (l/hr)	Methane (Peak) (% v/v)	Methane (Steady) (% v/v)	Carbon Dioxide (Peak) (% v/v)	Carbon Dioxide (Steady) (% v/v)	Oxygen (Peak) (% v/v)	Oxygen (Steady) (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Air Temperature (°C)	Atmospheric Pressure (mb)	Diff. Pressure (Pa)	Depth to Water (m bgl)	Depth to Base (m bgl)	Remarks
BH01	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0	0		17.0	1028	0	2.68		
BH03	1	50		0.0	0.0	0.0	0.0	0.0	0.1	20.4	20.4	0	0		17.0	1028	0	2.25		
BH04A	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0	0		17.0	1028	0	2.62		
BH06	1	50		0.0	0.0	0.0	0.0	1.3	1.3	18.9	18.9	0	0		17.0	1027	0	1.80		
BH07	1	50		0.0	0.0	0.0	0.0	0.4	0.6	19.6	19.6	0	0		17.0	1027	0	4.95		
BH09	1	50		-28.0	0.0	1.0	1.0	1.7	1.7	18.7	18.7	0	0		17.0	1026	-198	2.28		
BH10	1	50		0.0	0.0	0.0	0.0	0.7	0.7	17.6	17.6	0	0		17.0	1025	0	2.83		
BH13	1	50																		
BH17A	1	50		9.0	0.0	0.0	0.0	0.1	0.1	19.8	19.8	0	0		17.0	1026	0	3.44		
BH19	1	50																3.03		Unable to monitor gas concentrations as no gas bung installed.
BH23	1	50																4.75		Unable to monitor gas concentrations as no gas bung installed.
BH25	1	50		0.0	0.0	0.0	0.0	0.5	0.5	8.5	8.5	0	0		20.0	1026	0	4.56		
BH28	1	50																3.45		Unable to monitor gas concentrations as gas bung open.
BH30	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.1	20.1	0	0		20.0	1026	0	3.25		
CP-BH101	2	50																2.10		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
CP-BH102	1	50																4.69		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
CP-BH103	1	50																1.30		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
RC-BH101	1	50		4.3	0.0	0.0	0.0	0.5	0.5	20.2	20.2	0	0		20.0	1026	0	2.26		
RC-BH102	1	50																2.66		Unable to monitor gas concentrations as gas bung open.
RC-BH103	1	50		0.0	0.0	0.0	0.0	0.3	0.3	15.0	13.3	0	0		20.0	1026	0	4.10		
RC-BH104	1	50																2.66		Unable to monitor gas concentrations as gas bung open.
RC-BH105	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.1	20.1	0	0		18.0	1023	0	3.12		
WS-BH102	1	50		0.0	0.0	0.0	0.0	0.9	0.9	20.0	20.0	0	0		18.0	1027	0	DRY		
WS-BH103	1	50		0.0	0.0	0.0	0.0	0.5	0.5	19.5	19.5	0	0		18.0	1026	0	DRY		
WS-BH104	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.3	20.2	0	0		18.0	1025	0	DRY		
WS-BH105	1	50		4.3	0.0	0.0	0.0	0.0	0.0	21.0	21.0	0	0		18.0	1026	0	0.73		



**FIELDWORK - In Situ Gas Monitoring - Visit Record**

<b>Project</b>	Newport Quinn Phase 2	<b>Client</b>	Pinnacle Consulting Engineers Limited	<b>Project No.</b>	PN224395
<b>Instrument used</b>				<b>Date</b>	26/09/2022

**Meteorological Conditions:**
 Ground Condition: 
 Precipitation: 
 Wind: 
 Cloud Cover: 
 Atmospheric Pressure Trend:

Location ID	Pipe Ref.	Installation Diameter (mm)	Time of Reading (hh:mm:ss)	Flow (Peak) (l/hr)	Flow (Steady) (l/hr)	Methane (Peak) (% v/v)	Methane (Steady) (% v/v)	Carbon Dioxide (Peak) (% v/v)	Carbon Dioxide (Steady) (% v/v)	Oxygen (Peak) (% v/v)	Oxygen (Steady) (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Air Temperature (°C)	Atmospheric Pressure (mb)	Diff. Pressure (Pa)	Depth to Water (m bgl)	Depth to Base (m bgl)	Remarks
BH01	1	50		0.0	0.0	0.0	0.0	0.3	0.3	20.0	19.7	0	0		15.0	1005	0	2.63		
BH03	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0	0		15.0	1005	0	2.13		
BH04A	1	50		22.0	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0	0		15.0	1005	230	2.60		
BH06	1	50		0.0	0.0	0.0	0.0	0.3	0.3	20.3	20.3	0	0		15.0	1006	0	1.79		
BH07	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.5	20.5	0	0		15.0	1005	0	4.95		
BH09	1	50		24.0	0.0	0.0	0.0	0.2	0.2	20.4	20.3	0	0		15.0	1004	240	2.29		
BH10	1	50		0.0	0.0	0.0	0.0	0.2	0.2	19.9	19.9	0	0		15.0	1004	0	2.79		
BH13	1	50													15.0					
BH17A	1	50		15.0	0.0	0.0	0.0	0.0	0.0	20.5	20.5	0	0		15.0	1004	90	3.56		
BH19	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.5	20.5	0	0		15.0	1003	0	3.00		
BH23	1	50		-26.0	0.0	0.0	0.0	0.0	0.0	20.6	20.6	0	0		17.0	1005	206	4.73		
BH25	1	50		0.0	0.0	0.0	0.0	0.0	0.0	19.1	19.1	0	0		17.0	1004	0	3.07		
BH28	1	50		0.8	0.6	0.0	0.0	0.0	0.0	20.6	20.6	0	0		17.0	1005	5	3.50		
BH30	1	50		47.0	0.0	0.0	0.0	0.0	0.0	20.6	20.6	0	0		17.0	1004	640	3.22		
CP-BH101	2	50																1.95		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
CP-BH102	1	50																3.92		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
CP-BH103	1	50																1.36		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
RC-BH101	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.6	20.6	0	0		17.0	1005	0	2.32		
RC-BH102	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.6	20.6	0	0		17.0	1004	0	2.64		
RC-BH103	1	50																2.35		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
RC-BH104	1	50																2.62		Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation.
RC-BH105	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.6	20.6	0	0		15.0	1005	0	3.08		
WS-BH102	1	50		0.0	0.0	0.0	0.0	0.0	0.0	20.6	20.5	0	0		15.0	1005	0	DRY		
WS-BH103	1	50					0.0								15.0					

## **APPENDIX 8**

### **Laboratory Test Results - Geotechnical**

## Classification and Strength

Symbol	C - Clay (0 - containing organic matter) Plasticity	M - Silt L - Low I - Intermediate H - High V - Very High E - Extremely High
$I_p$	Plasticity Index	
%	% retained on 425 $\mu$ m sieve, shown under $I_p$ value	
$w_L$	Liquid Limit	
$w_p$	Plastic Limit	
NP	Non-Plastic	
NAT	Sample tested in natural state	
w	Water Content	
$\rho_d$	Particle Density	
Test	<b>Quick undrained triaxial tests</b>	
	SS	Single stage - 102mm diameter.
	S3	Single stage - set of 3 38mm diameter.
	MS	Multistage - 102mm diameter.
	D	Drained Test
	HV	Hand Vane
	PP	Pocket Penetrometer ( $\text{kg}/\text{cm}^2$ )
	NST	Not suitable for test
$\gamma_b$	Bulk Density	
$\sigma_3$	Triaxial Cell Pressure	
$\sigma_1 - \sigma_3$	Deviator Stress	
##	Excessive Strain	
$c_u$	Undrained Cohesion	
c	Cohesion Intercept	
$\phi$	Angle of Shearing Resistance	
Linear Shrink	Linear Shrinkage	
Stab add-	Stabiliser which is added	

## Consolidation

$m_v$	Coefficient of Volume Compressibility
$c_{v50}$	Coefficient of Consolidation - Log t
$c_{v90}$	Coefficient of Consolidation - $\sqrt{t}$

## Rock

UF	Unacceptable Failure
----	----------------------

## Chemical Analysis

Acid Soluble	Total sulphate in specimen, expressed as $\text{SO}_3$ %, value in brackets expressed as $\text{SO}_4$ %
Water Soluble	Soluble sulphate in 2:1 water : soil extract, expressed as $\text{SO}_3$ g/l, value in brackets expressed as $\text{SO}_4$ g/l
In Water	Sulphate content of groundwater, expressed as $\text{SO}_3$ g/l, value in brackets expressed as $\text{SO}_4$ g/l
pH	pH value
Organic content	Organic content expressed as a percentage of dry weight
Chloride	Chloride Ion content expressed as a percentage of dry weight

## MCV, Compaction, CBR

MCV	Moisture Condition Value at natural water content
MCC	Moisture Condition Calibration
CCV	Chalk Crushing Value

### Compaction

Type	2.5	=	2.5 kg Rammer
	4.5	=	4.5 kg Rammer
	V	=	Vibrating Hammer
$\gamma_b$	Bulk Density		
$\gamma_d$	Dry Density		
<b>CBR California Bearing Ratio</b>			
Type	2.5	=	Test on Specimen Recompacted using 2.5 kg Rammer
	4.5	=	As above but using 4.5 kg Rammer
	V	=	As above but using Vibrating Hammer
	M	=	Test on open drive mould specimen cut in field
	S	=	Soaked Specimen

Top	CBR at top of mould
Bottom	CBR at bottom of mould
ND	None Detected

\* In the Sample Description denotes a laboratory only description

# Laboratory Test Certificate

Form REP008 Rev 3

<b>Issued To</b>	Geotechnics Ltd The Geotechnical Centre 203 Torrington Avenue Tile Hill Coventry, CV4 9AP	<b>Date of issue</b>	01.11.22
		<b>Issue No.</b>	1
		<b>Client Ref. No.</b>	N/A
		<b>Samples / Material Source</b>	
		Samples Recv'd	26.09.22
<b>Testing Start Date</b>	30.09.22	<b>Sample State</b>	As received
<b>Testing Complete</b>	31.10.22	<b>Sampled by</b>	Geotechnics Limited
<b>Comments</b>			
<b>Project No</b>	PN224395		
<b>Project Name</b>	Newport Quinn Phase 2.		

## Summary of Tests

Standard	Test Description	Test Quantity	UKAS
BS EN ISO 17892-1:2014	Water Content	32	Yes
BS EN ISO 17892-12:2018 Cl. 5.3 & 5.5	Liquid Limit and Plastic Limit (4 Points Method)	29	Yes
BS EN ISO 17892-4:2016 Cl. 5.2	Particle Size Distribution by Sieving Method	18	Yes
BS EN ISO 17892-4:2016 Cl. 5.4	Particle Size Distribution by Pipette Method	14	Yes
BS EN ISO 17892-8:2018	Shear Strength by Unconsolidated Undrained Triaxial Test - Single Stage	2	Yes
BS EN ISO 17892-5:2017	Incremental Loading Oedometer	1	Yes
BS 1377-4:1990 Cl. 3.3	2.5 kg Rammer Dry Density/Moisture Content Relationship (Compaction)	7	Yes
BS 1377-4:1990 Cl. 3.5	4.5 kg Rammer Dry Density/Moisture Content Relationship (Compaction)	7	Yes
BS 1377-4:1990 Cl. 7.2	California Bearing Ratio (CBR)	13	Yes
ASTM D5334-14	Determination of Thermal Conductivity of Soil and Soft Rock by Thermal Needle Probe	22	No

Note: Any descriptions, opinions or interpretations are outside the scope of UKAS accreditation.  
The results within this report relate only to the samples tested and received from the client.



Test Results checked and approved for issue.  
Signed for and on behalf of Geotechnics Limited

Paul Smart (Laboratory Testing Manager)

**GEOTECHNICS**  
geotechnical and geoenvironmental specialists


203 Torrington Avenue, Tile Hill,  
Coventry, CV4 9UT

## LABORATORY RESULTS - Classification and Strength


**Project** NEWPORT QUINN PHASE 2

**Project No:** PN224395

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I <sub>p</sub> (>425) %	w <sub>L</sub> %	w <sub>p</sub> %	w (p <sub>d</sub> ) %	Test	γ <sub>b</sub> (γ <sub>d</sub> ) <sup>3</sup> Mg/m <sup>3</sup>	σ <sub>3</sub> kN/m <sup>2</sup>	σ <sub>1</sub> -σ <sub>3</sub> kN/m <sup>2</sup>	c <sub>u</sub> kN/m <sup>2</sup>	c <sub>Avg</sub> kN/m <sup>2</sup>
BH01	4.80 (4.80)	D	N84040	Brown clayey very sandy GRAVEL (See Test Remarks Sheet for further information)		NST (76%)			15.7						
BH02	6.80 (6.80)	D	N84046	Brown slightly clayey GRAVEL.* (See Test Remarks Sheet for further information)		NST (86%)			12.0						
BH03	2.00- 2.50 (2.00)	B	N84047	Brown slightly gravelly slightly sandy CLAY.	CL	13 (65%)	32	19	10.6						
BH03	5.80 (5.80)	D	N84049	Brown mottled red slightly gravelly silty CLAY.	MH	23 (36%)	53	30	31.8						
BH04A	2.00- 2.50 (2.00)	B	N84051	Brown gravelly sandy CLAY.					11.0						
BH05	2.60 (2.60)	D	N84053	Brown slightly gravelly slightly sandy CLAY.	MV	34 (8%)	77	43	39.5						
BH06	1.20- 1.70 (1.20)	B	N84054	Brown slightly gravelly sandy CLAY.	CL	11 (7%)	26	15	9.3						
BH07	0.50 (0.50)	D	N84055	Brown mottled grey slightly gravelly slightly sandy CLAY.	CL	14 (32%)	31	17	13.5						
BH07	3.00 (3.00)	D	N84059	Brown slightly sandy clayey GRAVEL.					6.3						
BH07	5.05 (5.05)	D	N84060	Red mottled brown slightly sandy slightly gravelly CLAY.					26.2						
BH08	5.00- 5.45 (5.00)	D	N84063	Red mottled brown slightly sandy slightly gravelly CLAY.	CI	21 (14%)	43	22	27.8						
BH09	3.80 (3.80)	D	N84064	Brown slightly sandy slightly gravelly CLAY.	MI	17 (8%)	44	27	27.0						
BH09	4.00- 4.45 (4.00)	UT	N84065	Brown slightly sandy slightly gravelly CLAY.	CI	23 (1%)	49	26	33.3						
BH09	5.45- 5.50 (5.45)	D	N84067	Black mottled brown slightly gravelly CLAY with organic material.		(13%)	156	NP	141						
BH10	3.10 (3.10)	D	N84070	Brown mottled black slightly sandy slightly gravelly CLAY.	MH	20 (12%)	54	34	41.2						
BH10	4.20 (4.20)	D	N84071	Grey mottled brown slightly gravelly slightly sandy CLAY.	CL	11 (9%)	28	17	19.6						
BH10	5.00- 5.45 (5.14)	UT	N84072	Brown slightly gravelly sandy silty CLAY					32.2 <26.2>	SS	1.98	100	152	76	76

**Remarks**


NST - Not suitable for Test  
For Standards followed see Laboratory Test Certificate  
w% - ^ = Rock water content test; x = Aggregate moisture content test  
QUT Water Contents: <Failure Zone>, [After test]


  
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## LABORATORY RESULTS - Classification and Strength


**Project** NEWPORT QUINN PHASE 2

**Project No:** PN224395

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	$I_p$ ( $>425$ ) %	$w_L$ %	$w_p$ %	$w$ ( $p_d$ ) %	Test	$\gamma_b$ ( $\gamma_d$ ) <sup>3</sup> Mg/m <sup>3</sup>	$\sigma_3$ kN/m <sup>2</sup>	$\sigma_1 - \sigma_3$ kN/m <sup>2</sup>	$c_u$ kN/m <sup>2</sup>	$c_{Avg}$ kN/m <sup>2</sup>
BH11	1.20- 1.40 (1.20)	D	N84074	Brown slightly sandy slightly gravelly CLAY with cobbles. (See Test Remarks Sheet for further information)	CL	14 (74%)	32	18	11.3						
BH11	3.00- 3.50 (3.00)	B	N84075	Red mottled brown slightly gravelly slightly sandy CLAY.	MH	26 (34%)	60	34	35.7						
BH13	3.00- 3.45 (3.00)	D	N84081	Brown mottled red and grey slightly sandy slightly gravelly CLAY.	CI	25 (36%)	49	24	20.6						
BH13	4.80 (4.80)	D	N84082	Brown slightly clayey GRAVEL. (See Test Remarks Sheet for further information)		NST (83%)			9.5						
BH14A	2.80 (2.80)	D	N84083	Brown slightly gravelly CLAY.	CL	9 (48%)	24	15	12.1						
BH15	3.00- 3.45 (3.14)	UT	N84086	Firm reddish brown slightly gravelly silty CLAY					23.6 <24.8>	SS	2.00	60	127	64	64
BH15	3.50 (3.50)	D	N84087	Red mottled brown slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information)	CI	19 (61%)	40	21	22.4						
BH17A	2.30 (2.30)	D	N84094	Brown slightly sandy gravelly CLAY. (See Test Remarks Sheet for further information)	CL	17 (58%)	33	16	10.4						
BH17A	4.05 (4.05)	D	N84095	Red mottled brown slightly gravelly slightly sandy CLAY.	CL	17 (38%)	33	16	17.2						
BH18	3.80 (3.80)	D	N84099	Brown slightly gravelly slightly sandy CLAY.	CL	15 (63%)	32	17	11.5						
BH23	4.70 (4.70)	D	N84115	Red mottled brown slightly gravelly CLAY.	CI	15 (1%)	40	25	23.0						
BH24	2.00 (2.00)	D	N84118	Brown slightly gravelly sandy CLAY.	CI	17 (33%)	36	19	9.2						
BH25	1.00 (1.00)	D	N84120	Brown slightly sandy slightly gravelly CLAY.	CI	19 (51%)	41	22	10.9						
BH26	1.80 (1.80)	D	N84123	Brown slightly sandy slightly gravelly CLAY.	CL	15 (48%)	31	16	10.9						
BH26	4.00- 4.45 (4.00)	D	N84126	Brown mottled grey slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information)	MH	23 (12%)	52	29	32.5						
BH29	1.80 (1.80)	D	N84133	Brown gravelly sandy CLAY.	CL	12 (66%)	27	15	8.3						

**Remarks**


NST - Not suitable for Test  
For Standards followed see Laboratory Test Certificate  
w% - ^ = Rock water content test; x = Aggregate moisture content test  
QUT Water Contents: <Failure Zone>, [After test]


  
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## LABORATORY RESULTS - Classification and Strength

**Project** NEWPORT QUINN PHASE 2

**Project No:** PN224395

<b>Sample</b>					<b>Classification</b>					<b>Strength</b>					
Hole	Depth <small>(Specimen Depth) m</small>	Type	Sample Ref	Description	Symbol	I <sub>p</sub> <small>(&gt;425) %</small>	w <sub>L</sub> %	w <sub>p</sub> %	w <small>(p<sub>d</sub>) %</small>	Test	$\gamma_b$ <small>(<math>\gamma_d</math>) Mg/m³</small>	$\sigma_3$ kN/m²	$\sigma_1 - \sigma_3$ kN/m²	c <sub>u</sub> kN/m²	c <sub>Avg</sub> kN/m²
BH30	3.30 (3.30)	D	N84135	Brown mottled grey slightly gravelly CLAY.	CL	14 (22%)	29	15	14.6						

**Remarks** AGS NST - Not suitable for Test  
For Standards followed see Laboratory Test Certificate  
w% - ^ = Rock water content test; x = Aggregate moisture content test  
QUT Water Contents: <Failure Zone>, [After test]


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**LABORATORY RESULTS - Atterberg Limit**

**Project** NEWPORT QUINN PHASE 2

**Project No:** PN224395

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w <sub>L</sub> %	w <sub>p</sub> %
						Cone Pene.	Water % (Factor)					
BH01	4.80 (4.80)	D	N84040	Brown clayey very sandy GRAVEL (See Test Remarks Sheet for further information)  Test Remark: Unsuitable for testing due to insufficient fine material.	Not suitable for Test							
BH02	6.80 (6.80)	D	N84046	Brown slightly clayey GRAVEL.* (See Test Remarks Sheet for further information)  Test Remark: Unsuitable for testing due to insufficient fine material.	Not suitable for Test							
BH03	2.00- 2.50 (2.00)	B	N84047	Brown slightly gravelly slightly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	13	65%	32	19
BH03	5.80 (5.80)	D	N84049	Brown mottled red slightly gravelly silty CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			MH	23	36%	53	30
BH05	2.60 (2.60)	D	N84053	Brown slightly gravelly slightly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			MV	34	8%	77	43
BH06	1.20- 1.70 (1.20)	B	N84054	Brown slightly gravelly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	11	7%	26	15
BH07	0.50 (0.50)	D	N84055	Brown mottled grey slightly gravelly slightly sandy CLAY.	Fall Cone 4pt with decreasing water content, cone type: 80g/30, washed over 425um sieve			CL	14	32%	31	17
BH08	5.00- 5.45 (5.00)	D	N84063	Red mottled brown slightly sandy slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CI	21	14%	43	22
BH09	3.80 (3.80)	D	N84064	Brown slightly sandy slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			MI	17	8%	44	27

Remarks




  
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### LABORATORY RESULTS - Atterberg Limit

**Project** NEWPORT QUINN PHASE 2

**Project No:** PN224395

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w <sub>L</sub> %	w <sub>p</sub> %
						Cone Pene.	Water % (Factor)					
BH09	4.00- 4.45 (4.00)	UT	N84065	Brown slightly sandy slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CI	23	1%	49	26
BH09	5.45- 5.50 (5.45)	D	N84067	Black mottled brown slightly gravelly CLAY with organic material.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					13%	156	NP
BH10	3.10 (3.10)	D	N84070	Brown mottled black slightly sandy slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			MH	20	12%	54	34
BH10	4.20 (4.20)	D	N84071	Grey mottled brown slightly gravelly slightly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	11	9%	28	17
BH11	1.20- 1.40 (1.20)	D	N84074	Brown slightly sandy slightly gravelly CLAY with cobbles. (See Test Remarks Sheet for further information)	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	14	74%	32	18
BH11	3.00- 3.50 (3.00)	B	N84075	Red mottled brown slightly gravelly slightly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			MH	26	34%	60	34
BH13	3.00- 3.45 (3.00)	D	N84081	Brown mottled red and grey slightly sandy slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CI	25	36%	49	24
BH13	4.80 (4.80)	D	N84082	Brown slightly clayey GRAVEL. (See Test Remarks Sheet for further information)  Test Remark: Unsuitable for testing due to insufficient fine material.	Not suitable for Test							
BH14A	2.80 (2.80)	D	N84083	Brown slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	9	48%	24	15

Remarks



  
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**LABORATORY RESULTS - Atterberg Limit**


**Project** NEWPORT QUINN PHASE 2

**Project No:** PN224395

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w <sub>L</sub> %	w <sub>p</sub> %
						Cone Pene.	Water % (Factor)					
BH15	3.50 (3.50)	D	N84087	Red mottled brown slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information)  Test Remark: 1-point cone Insufficient sample for 4 point test.	Fall Cone 1pt with increasing water content, cone type: 80g/30, washed over 425um sieve	20.2 20.6	36.99 36.79  (1.094)	CI	19	61%	40	21
BH17A	2.30 (2.30)	D	N84094	Brown slightly sandy gravelly CLAY. (See Test Remarks Sheet for further information)  Test Remark: 1-point cone Insufficient sample for 4 point test.	Fall Cone 1pt with increasing water content, cone type: 80g/30, washed over 425um sieve	20.0 20.0	30.95 30.57  (1.057)	CL	17	58%	33	16
BH17A	4.05 (4.05)	D	N84095	Red mottled brown slightly gravelly slightly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	17	38%	33	16
BH18	3.80 (3.80)	D	N84099	Brown slightly gravelly slightly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	15	63%	32	17
BH23	4.70 (4.70)	D	N84115	Red mottled brown slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CI	15	1%	40	25
BH24	2.00 (2.00)	D	N84118	Brown slightly gravelly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CI	17	33%	36	19
BH25	1.00 (1.00)	D	N84120	Brown slightly sandy slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CI	19	51%	41	22
BH26	1.80 (1.80)	D	N84123	Brown slightly sandy slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	15	48%	31	16
BH26	4.00- 4.45 (4.00)	D	N84126	Brown mottled grey slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information)	Fall Cone 4pt with decreasing water content, cone type: 80g/30, washed over 425um sieve			MH	23	12%	52	29

Remarks




  
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LABORATORY RESULTS - Atterberg Limit

Project NEWPORT QUINN PHASE 2

Project No: PN224395

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w <sub>L</sub> %	w <sub>p</sub> %
						Cone Pene.	Water % (Factor)					
BH29	1.80 (1.80)	D	N84133	Brown gravelly sandy CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	12	66%	27	15
BH30	3.30 (3.30)	D	N84135	Brown mottled grey slightly gravelly CLAY.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve			CL	14	22%	29	15

Remarks 

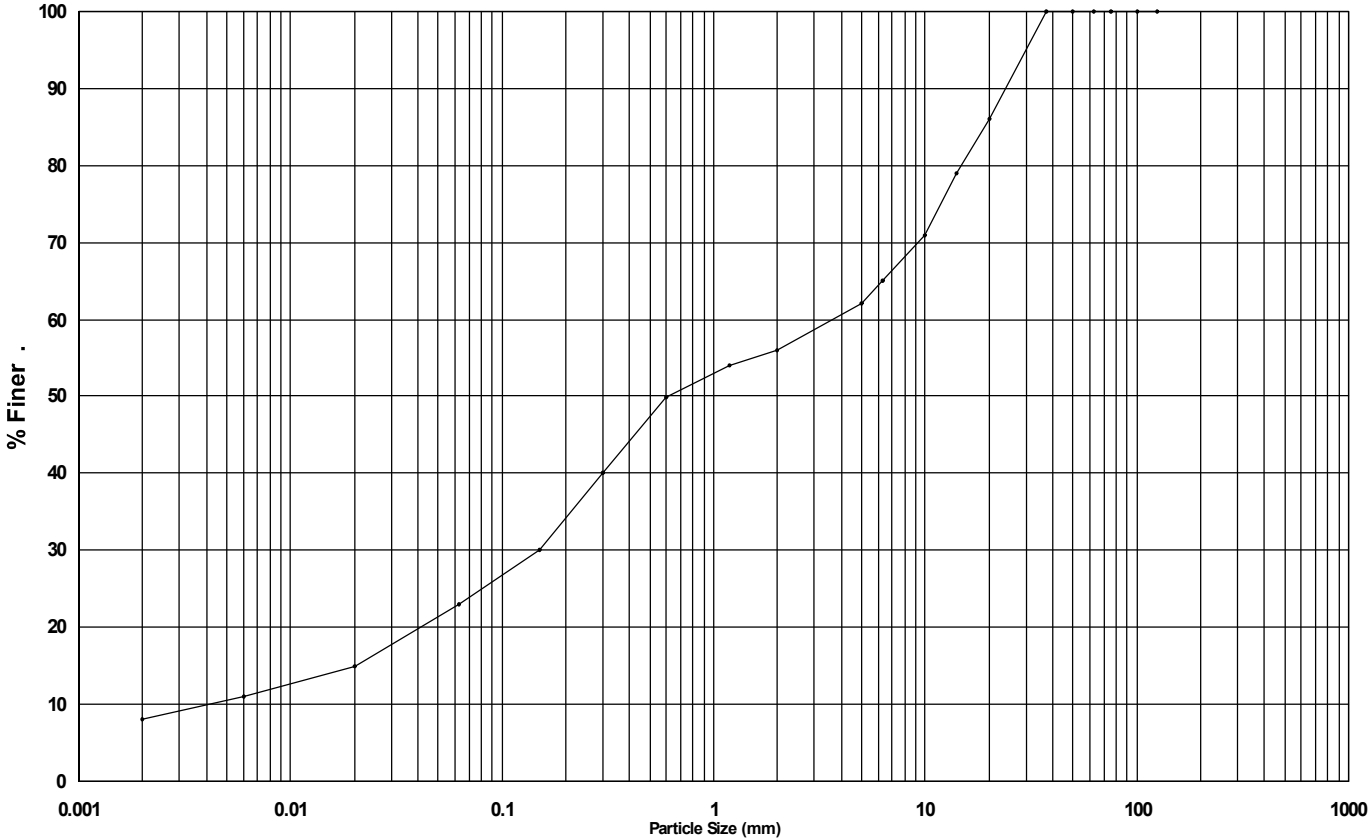
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH01  
Sample Depth 1.20-1.65m  
Sample Type D  
Sample Ref N84037

Project No: PN224395

Sample Description  
Brown sandy gravelly CLAY.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	8
SILT	15
SAND	33
GRAVEL	44
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	86
14 mm	79
10 mm	71
6.3 mm	65
5 mm	62
2 mm	56
1.18 mm	54
600 µm	50
300 µm	40
150 µm	30

Size	% Finer
63 µm	23
20 µm	15
6 µm	11
2 µm	8

Uniformity Coefficient	
803.26	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

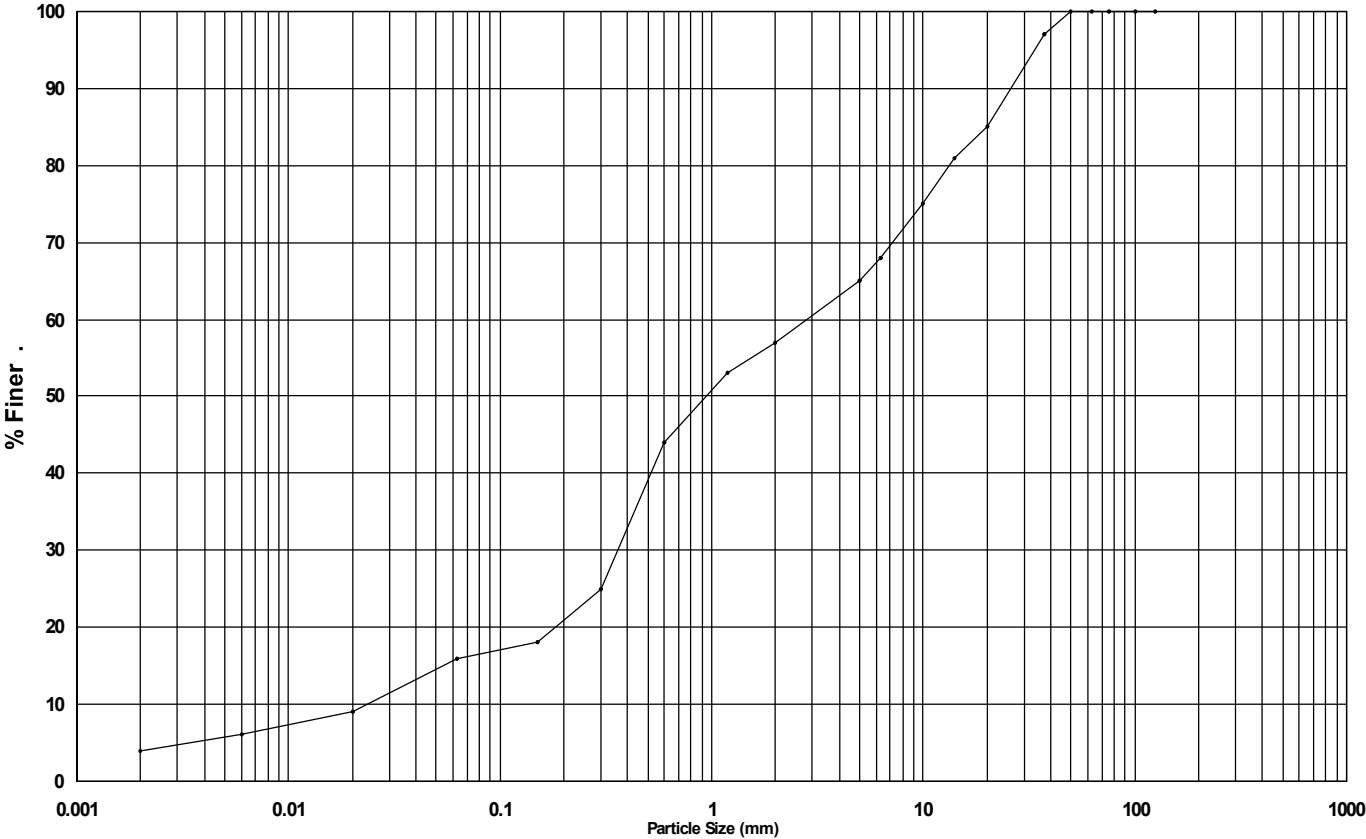
Project: NEWPORT QUINN PHASE 2

Hole BH01  
Sample Depth 4.00-4.50m  
Sample Type B  
Sample Ref N84039

Project No: PN224395

Sample Description

Brown very sandy GRAVEL with dark red clay pockets.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	4
SILT	12
SAND	41
GRAVEL	43
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	97
20 mm	85
14 mm	81
10 mm	75
6.3 mm	68
5 mm	65
2 mm	57
1.18 mm	53
600 µm	44
300 µm	25
150 µm	18

Size	% Finer
63 µm	16
20 µm	9
6 µm	6
2 µm	4

Uniformity Coefficient	
118.77	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

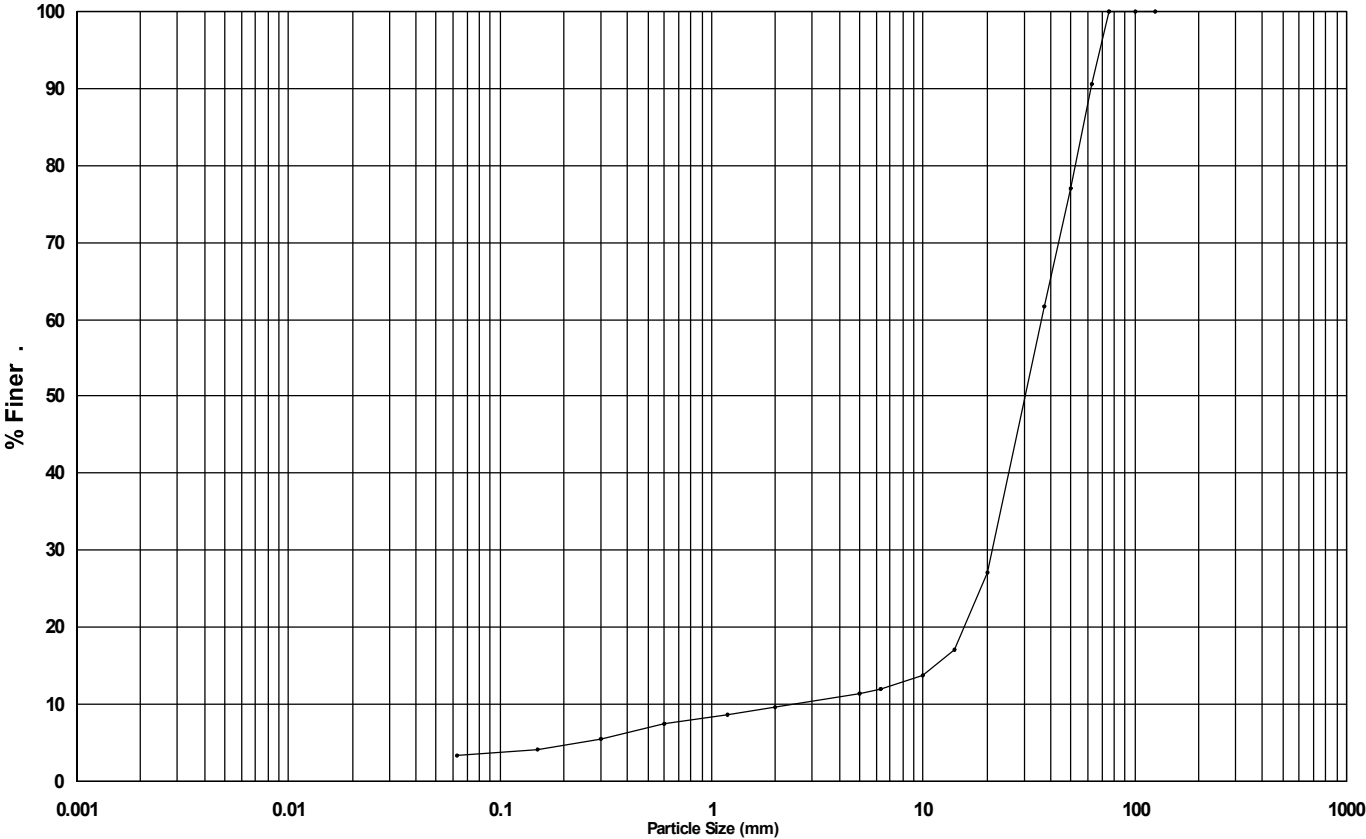
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84043

Sample Description

Brown slightly clayey sandy GRAVEL with cobbles.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	3
SAND	7
GRAVEL	81
COBBLES	9
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	91
50 mm	77
37.5 mm	62
20 mm	27
14 mm	17
10 mm	14
6.3 mm	12
5 mm	11
2 mm	10
1.18 mm	9
600 μm	8
300 μm	6
150 μm	4

Size	% Finer
63 μm	3

Uniformity Coefficient	
14.50	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

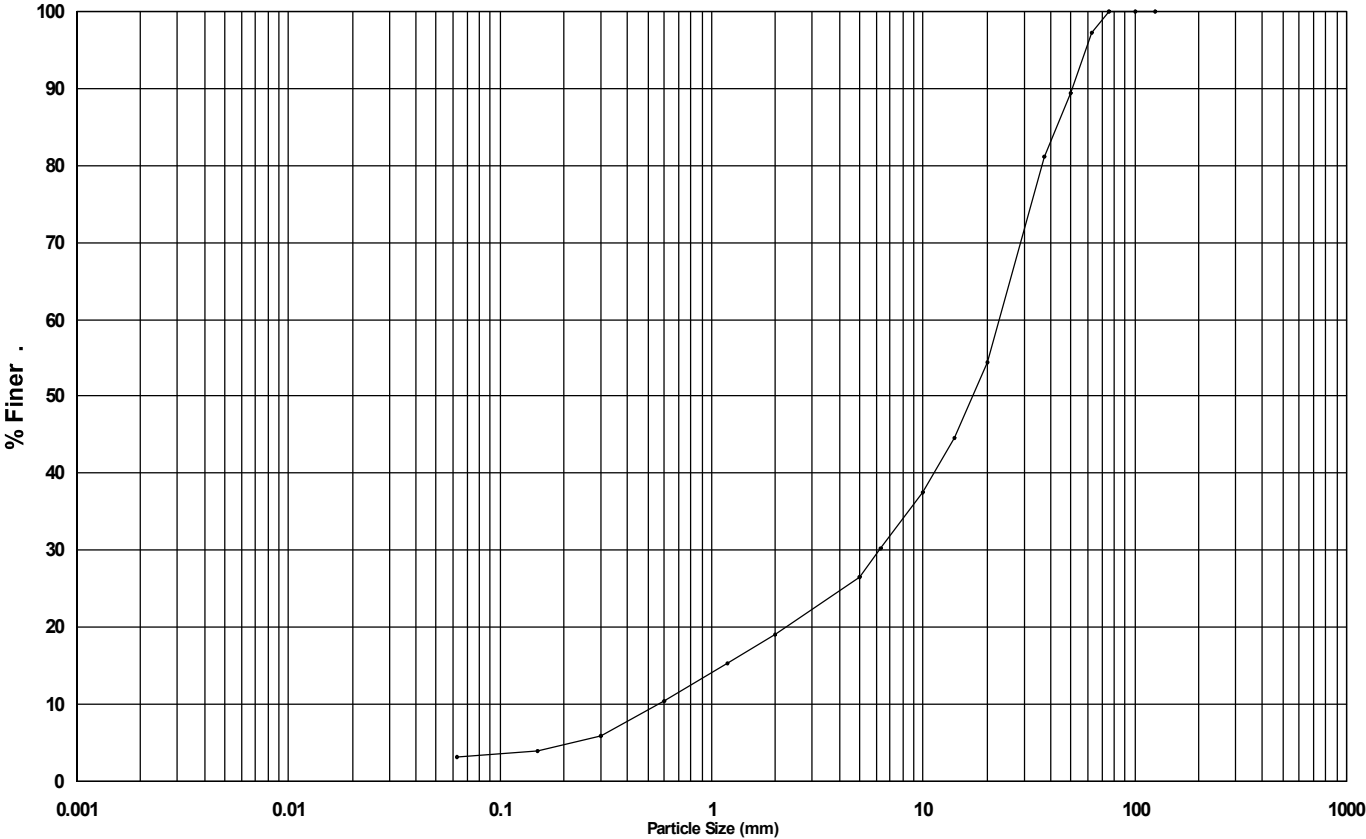
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02  
Sample Depth 4.00-4.50m  
Sample Type B  
Sample Ref N84045

Sample Description

Dark brown slightly clayey gravelly COBBLES. \*\*



Classification	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
CLAY	SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	3
SAND	16
GRAVEL	78
COBBLES	3
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	97
50 mm	89
37.5 mm	81
20 mm	54
14 mm	45
10 mm	37
6.3 mm	30
5 mm	27
2 mm	19
1.18 mm	15
600 µm	10
300 µm	6
150 µm	4

Size	% Finer
63 µm	3

Uniformity Coefficient	
40.35	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022



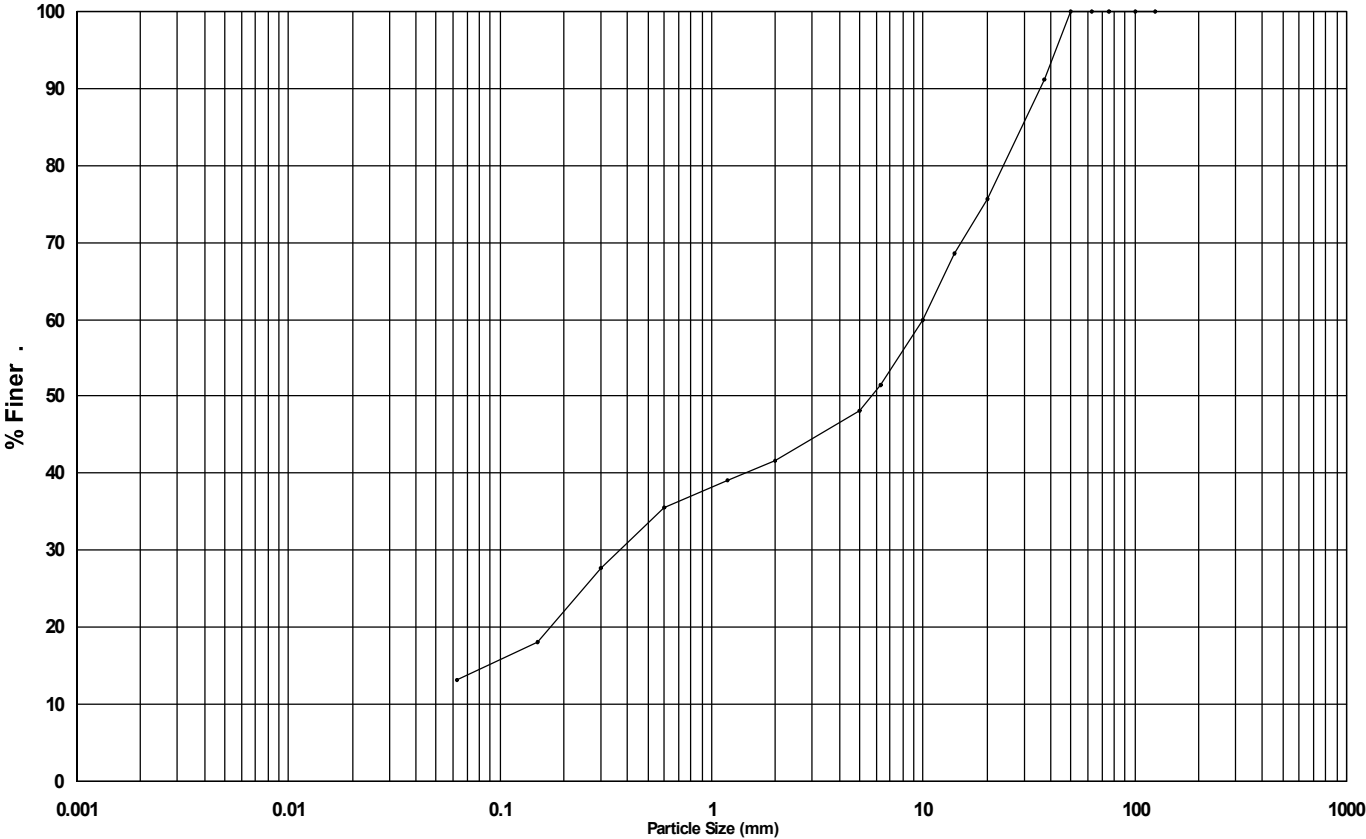
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH03  
Sample Depth 3.00-3.50m  
Sample Type B  
Sample Ref N84048

Sample Description  
Brown clayey very sandy GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	13
SAND	29
GRAVEL	58
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	91
20 mm	76
14 mm	69
10 mm	60
6.3 mm	51
5 mm	48
2 mm	42
1.18 mm	39
600 µm	36
300 µm	28
150 µm	18

Size	% Finer
63 µm	13

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

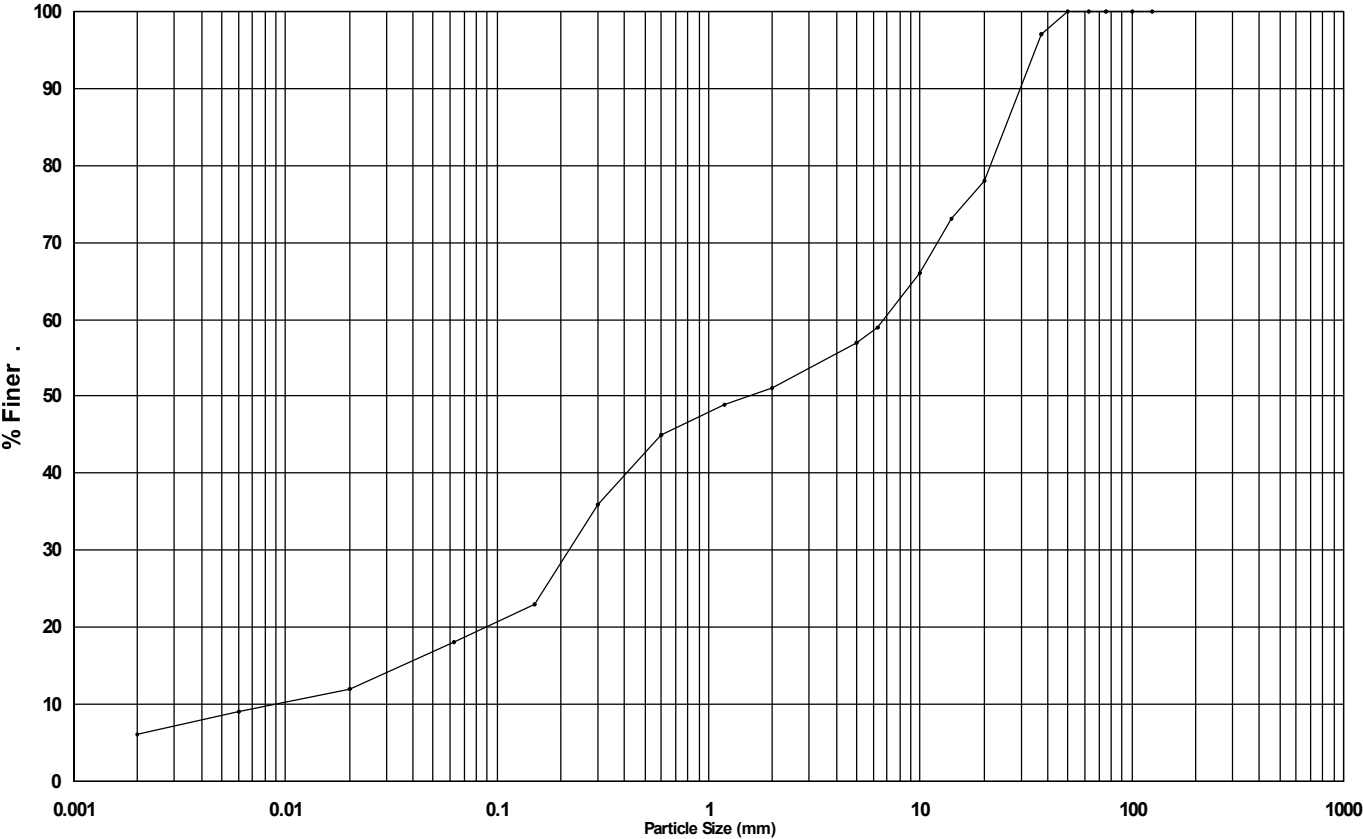
Project: NEWPORT QUINN PHASE 2

Hole BH07  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84058

Project No: PN224395

Sample Description

Brown slightly clayey slightly sandy GRAVEL.




Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	12
SAND	33
GRAVEL	49
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	97
20 mm	78
14 mm	73
10 mm	66
6.3 mm	59
5 mm	57
2 mm	51
1.18 mm	49
600 μm	45
300 μm	36
150 μm	23

Size	% Finer
63 μm	18
20 μm	12
6 μm	9
2 μm	6

Uniformity Coefficient	
685.74	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks  Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

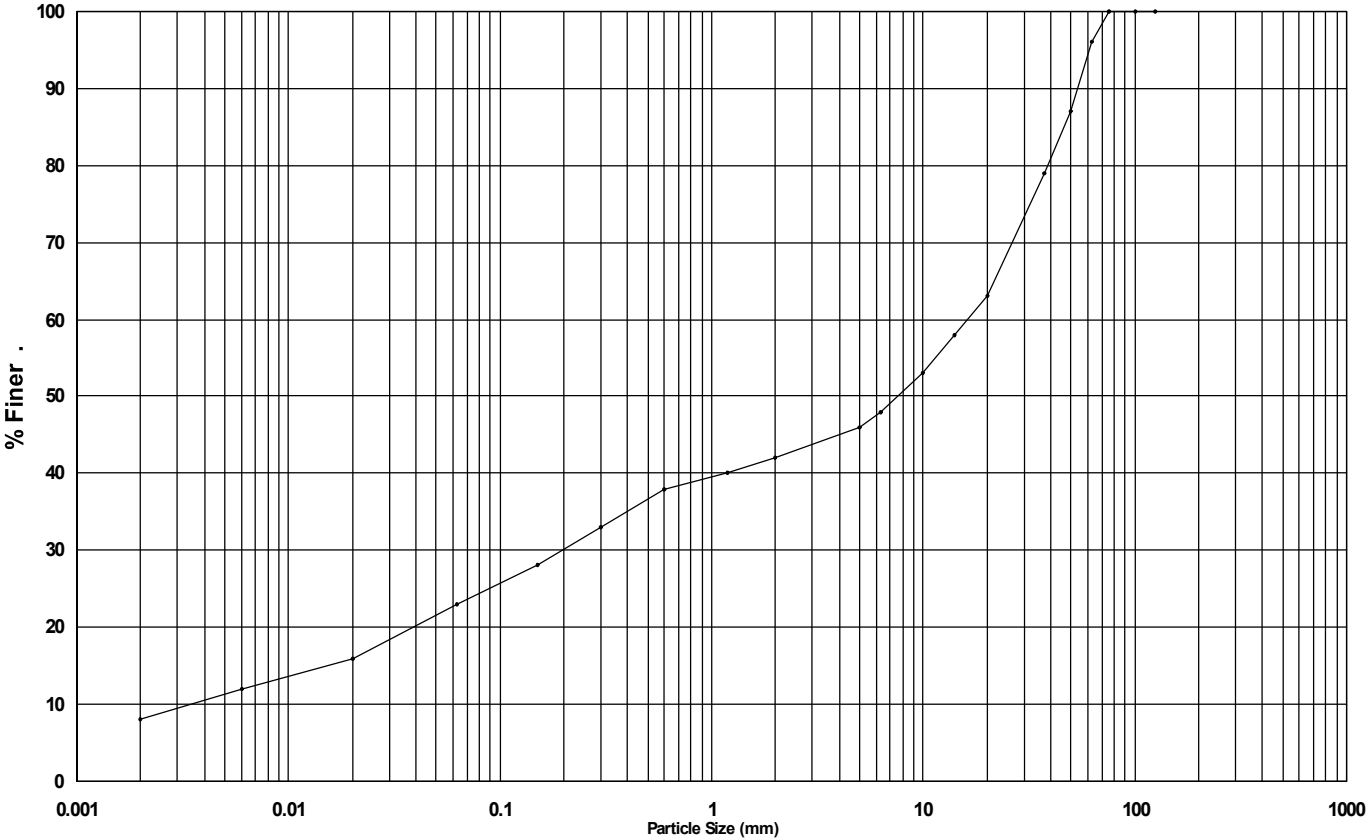
Project: NEWPORT QUINN PHASE 2

Hole BH08  
Sample Depth 3.00-3.50m  
Sample Type B  
Sample Ref N84062

Project No: PN224395

Sample Description

Brown slightly sandy clayey GRAVEL with cobbles.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	8
SILT	15
SAND	19
GRAVEL	54
COBBLES	4
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	96
50 mm	87
37.5 mm	79
20 mm	63
14 mm	58
10 mm	53
6.3 mm	48
5 mm	46
2 mm	42
1.18 mm	40
600 μm	38
300 μm	33
150 μm	28

Size	% Finer
63 μm	23
20 μm	16
6 μm	12
2 μm	8

Uniformity Coefficient	
4787.32	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

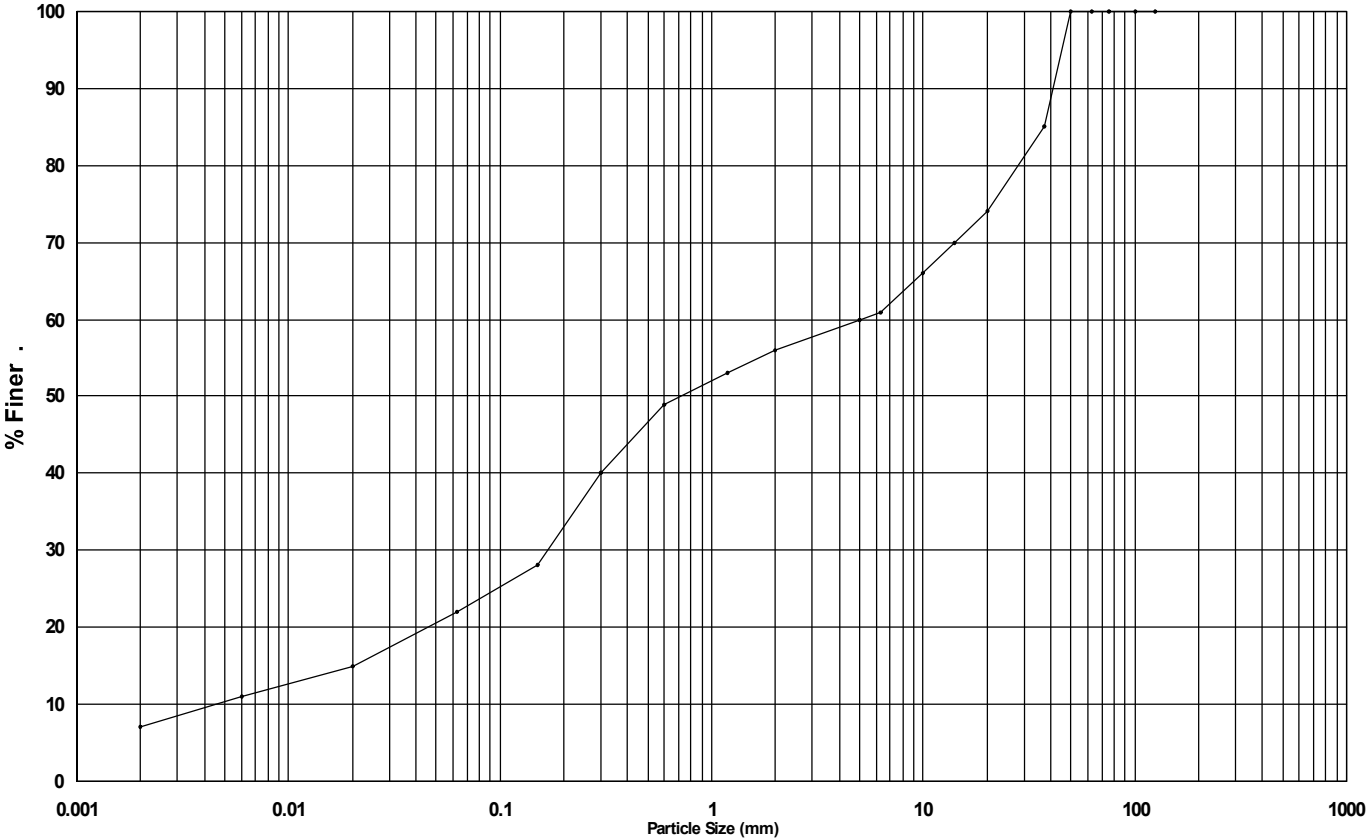
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH10  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84069

Sample Description  
Brown clayey very sandy GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	7
SILT	15
SAND	34
GRAVEL	44
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	85
20 mm	74
14 mm	70
10 mm	66
6.3 mm	61
5 mm	60
2 mm	56
1.18 mm	53
600 μm	49
300 μm	40
150 μm	28

Size	% Finer
63 μm	22
20 μm	15
6 μm	11
2 μm	7

Uniformity Coefficient	
1121.71	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

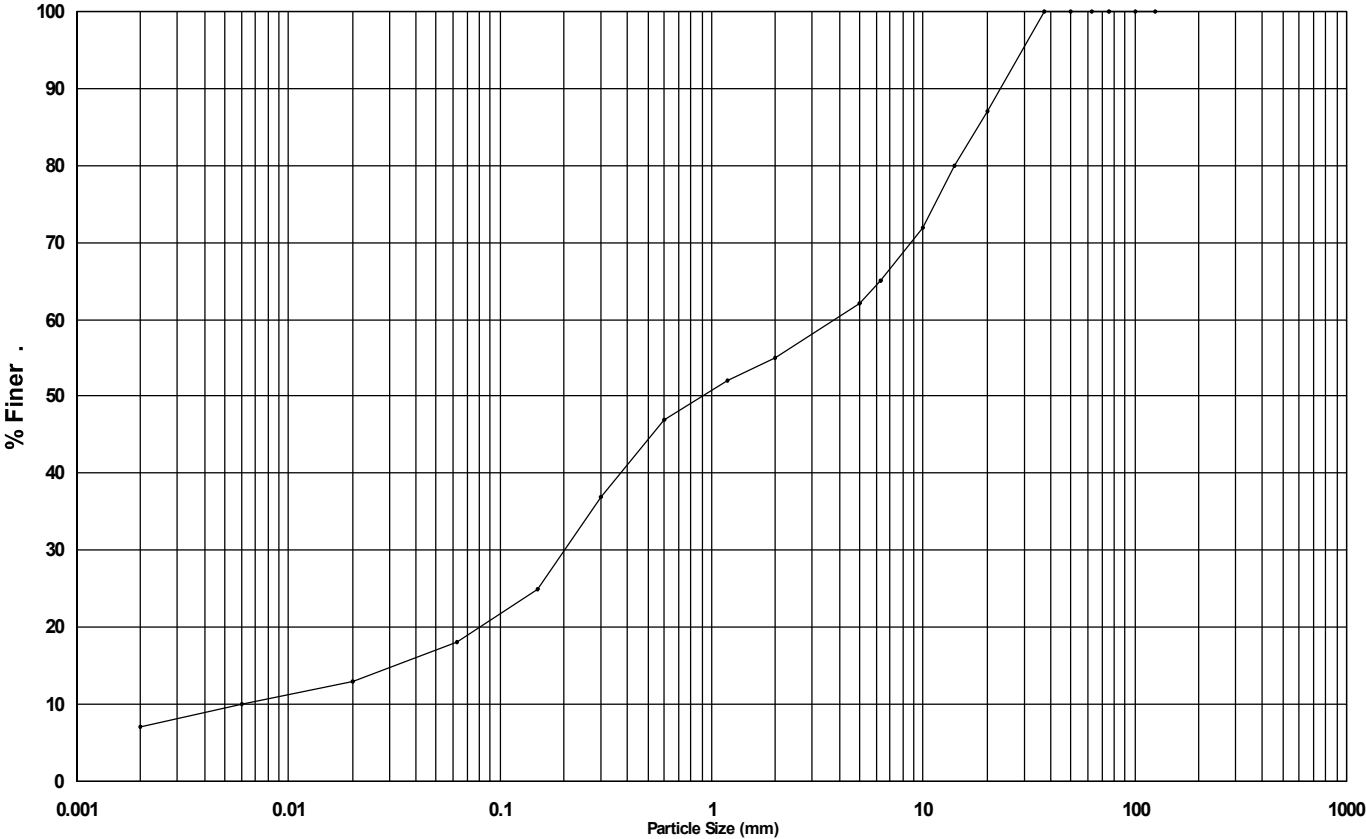
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH12  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84078

Project No: PN224395

Sample Description  
Brown clayey very sandy GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	7
SILT	11
SAND	37
GRAVEL	45
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	87
14 mm	80
10 mm	72
6.3 mm	65
5 mm	62
2 mm	55
1.18 mm	52
600 μm	47
300 μm	37
150 μm	25

Size	% Finer
63 μm	18
20 μm	13
6 μm	10
2 μm	7

Uniformity Coefficient	
538.63	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022



LABORATORY RESULTS - Particle Size Distribution

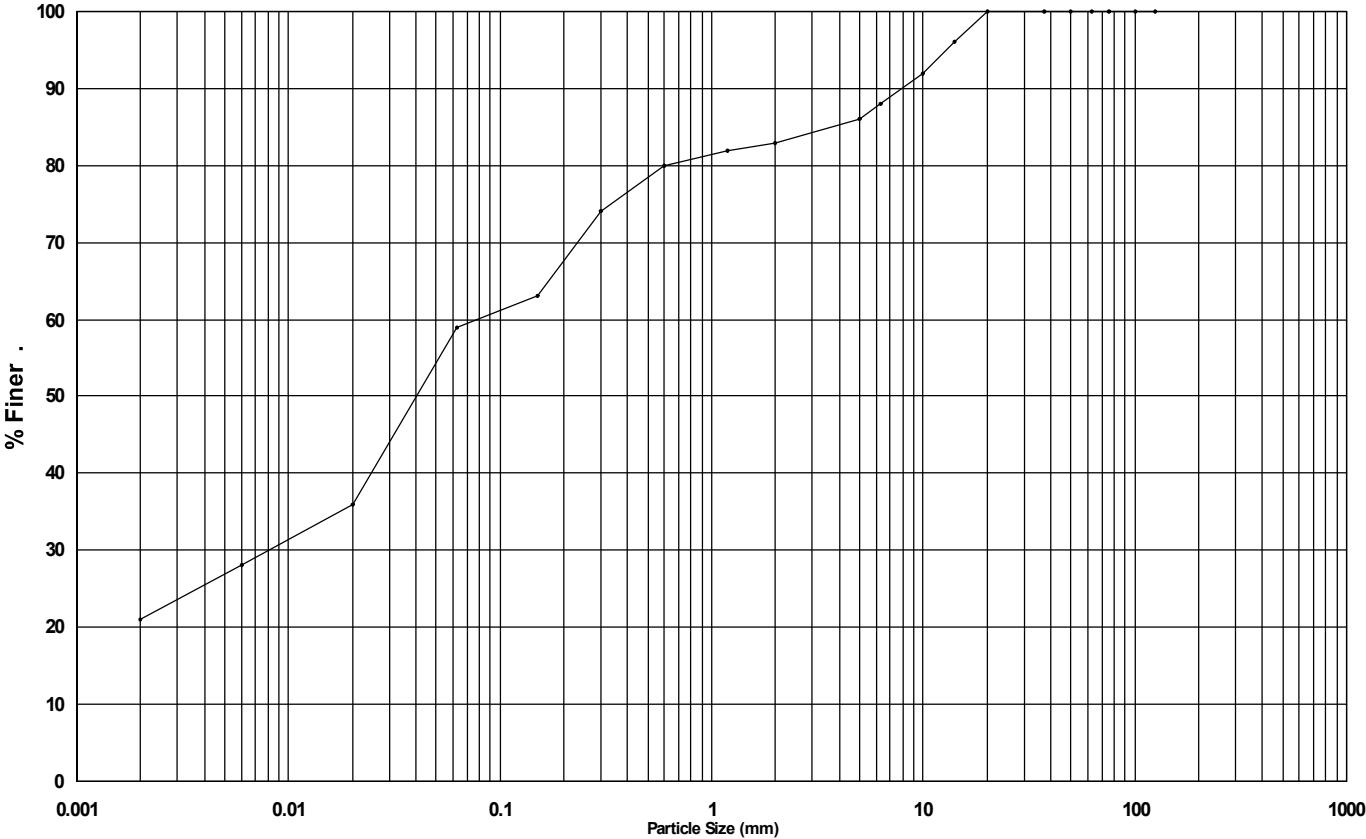
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH15  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84085

Sample Description

Brown mottled red slightly sandy slightly gravelly silty CLAY.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	21
SILT	38
SAND	24
GRAVEL	17
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	96
10 mm	92
6.3 mm	88
5 mm	86
2 mm	83
1.18 mm	82
600 μm	80
300 μm	74
150 μm	63

Size	% Finer
63 μm	59
20 μm	36
6 μm	28
2 μm	21

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

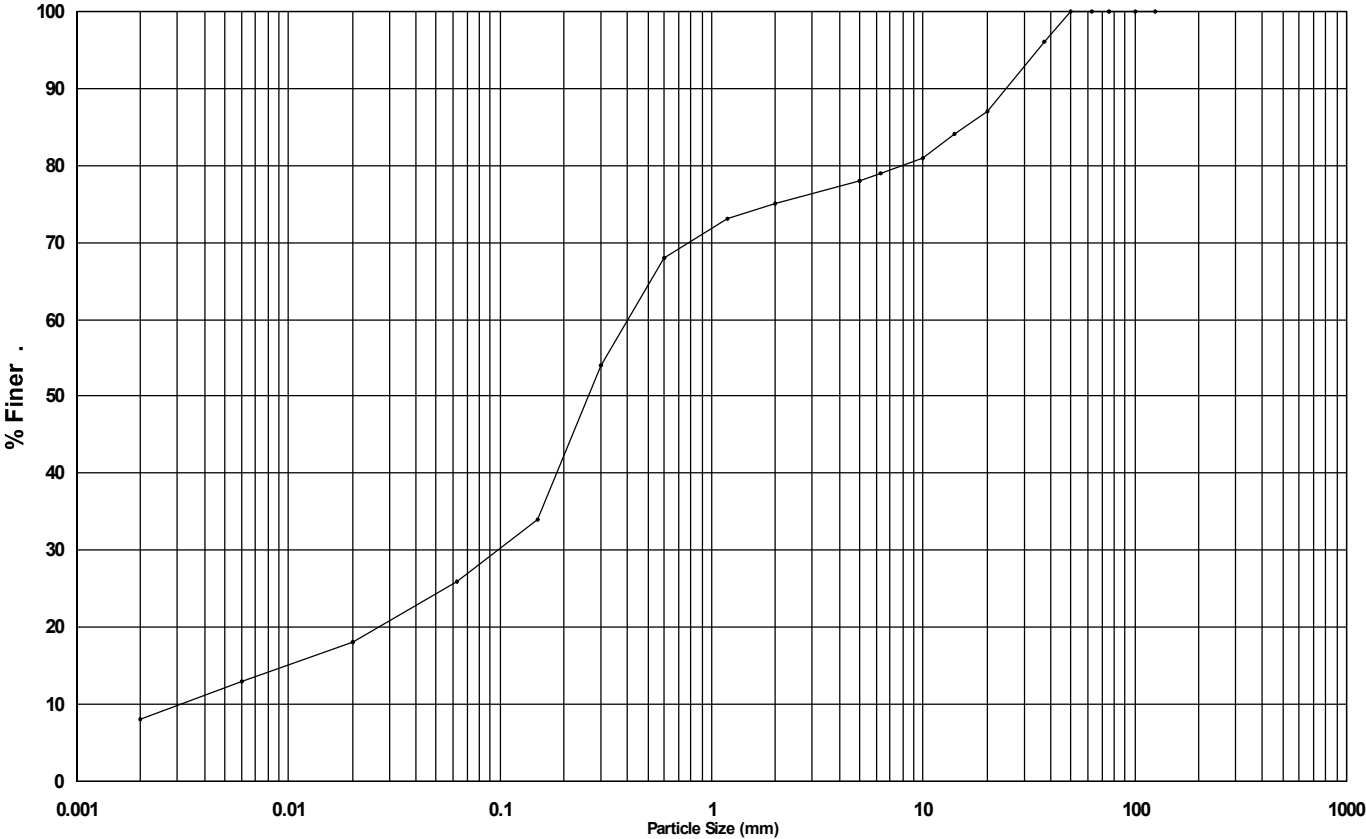
Project: NEWPORT QUINN PHASE 2

Hole BH16  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84089

Project No: PN224395

Sample Description

Brown slightly sandy slightly gravelly clayey SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	8
SILT	18
SAND	49
GRAVEL	25
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	96
20 mm	87
14 mm	84
10 mm	81
6.3 mm	79
5 mm	78
2 mm	75
1.18 mm	73
600 µm	68
300 µm	54
150 µm	34

Size	% Finer
63 µm	26
20 µm	18
6 µm	13
2 µm	8

Uniformity Coefficient	
138.53	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

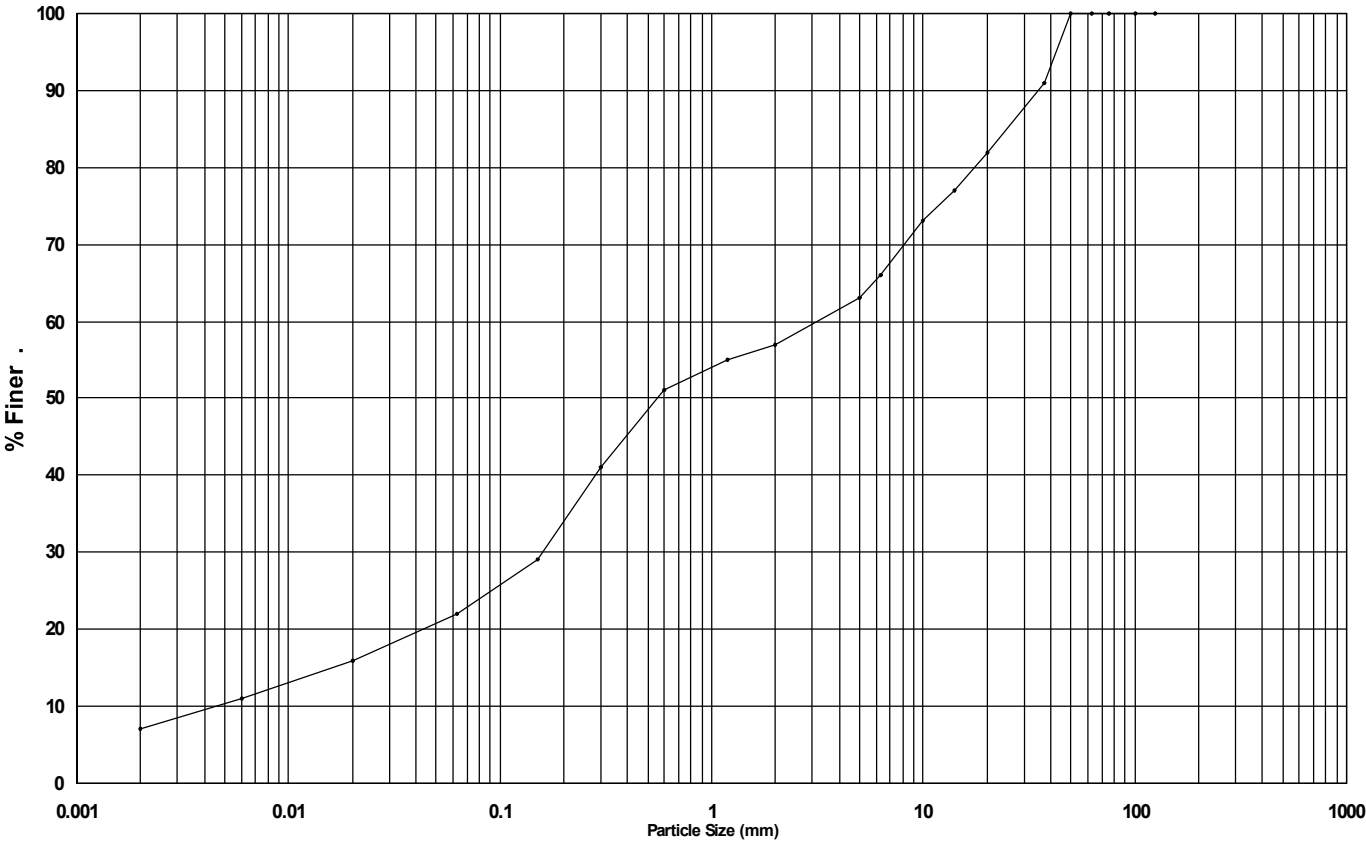
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH18  
Sample Depth 3.00-3.50m  
Sample Type B  
Sample Ref N84098

Project No: PN224395

Sample Description  
Brown clayey silty very sandy GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	7
SILT	15
SAND	35
GRAVEL	43
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	91
20 mm	82
14 mm	77
10 mm	73
6.3 mm	66
5 mm	63
2 mm	57
1.18 mm	55
600 μm	51
300 μm	41
150 μm	29

Size	% Finer
63 μm	22
20 μm	16
6 μm	11
2 μm	7

Uniformity Coefficient	
650.19	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

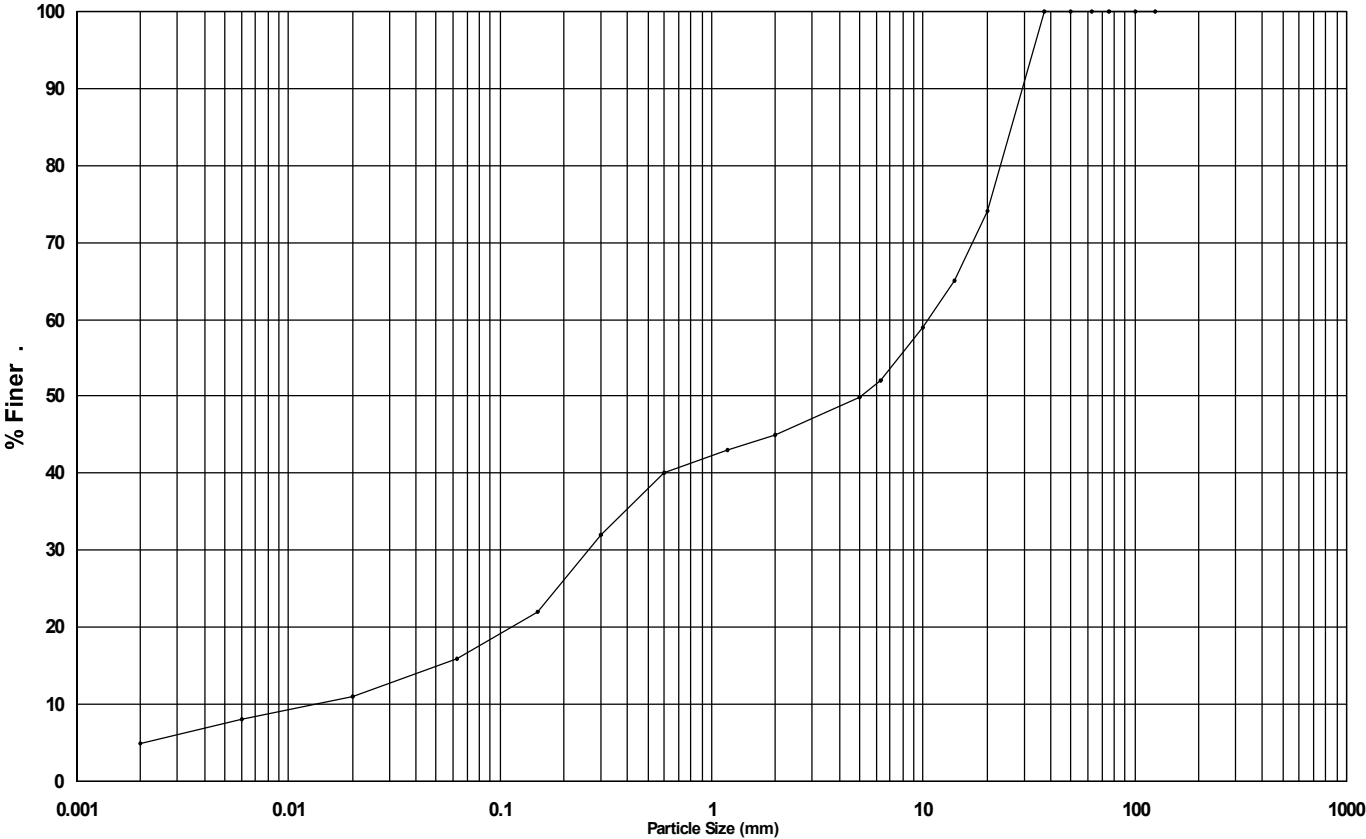
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH19  
Sample Depth 4.00-4.50m  
Sample Type B  
Sample Ref N84102

Project No: PN224395

Sample Description  
Brown clayey silty very sandy GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	5
SILT	11
SAND	29
GRAVEL	55
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	74
14 mm	65
10 mm	59
6.3 mm	52
5 mm	50
2 mm	45
1.18 mm	43
600 µm	40
300 µm	32
150 µm	22

Size	% Finer
63 µm	16
20 µm	11
6 µm	8
2 µm	5

Uniformity Coefficient	
753.07	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

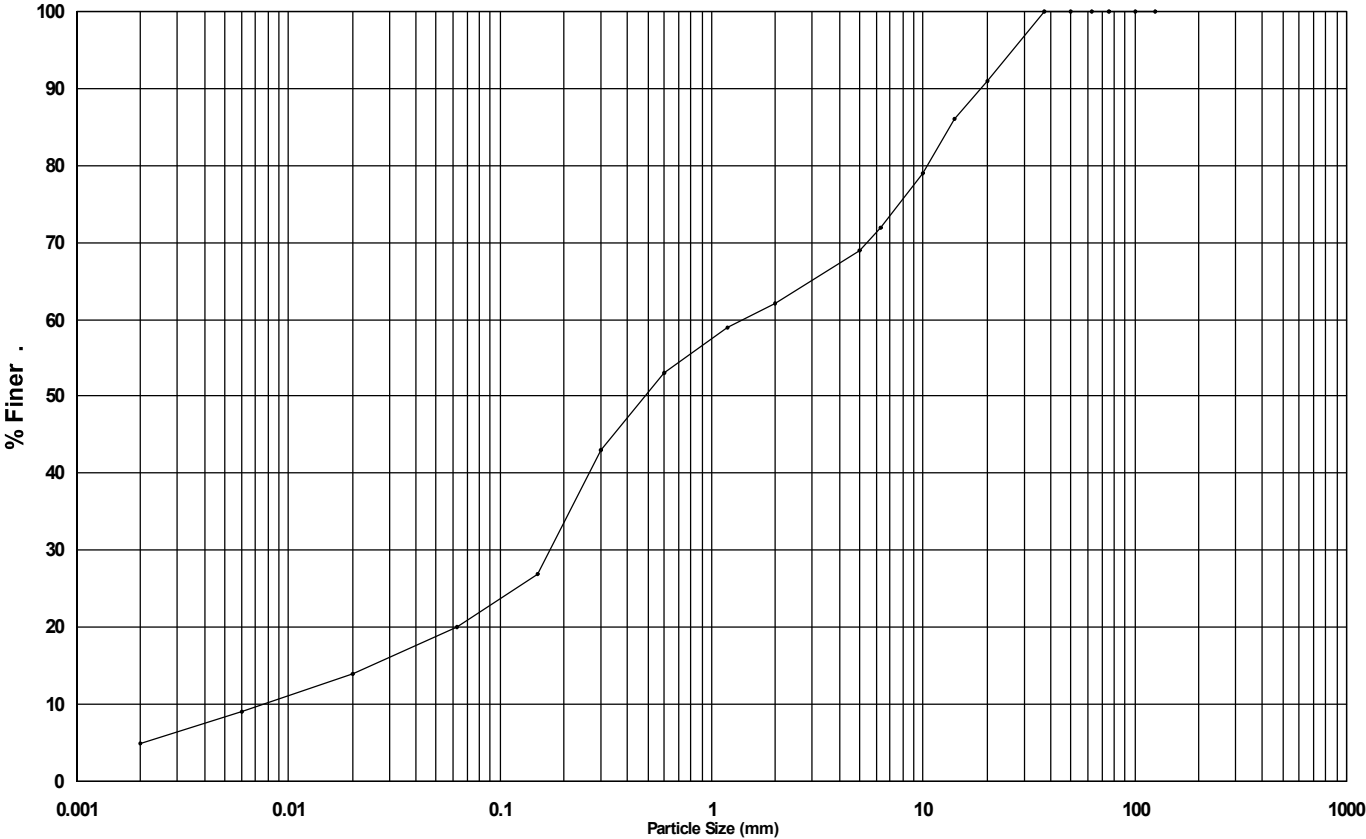
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH20  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84104

Project No: PN224395

Sample Description  
Brown clayey silty very gravelly SAND.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	5
SILT	15
SAND	42
GRAVEL	38
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	91
14 mm	86
10 mm	79
6.3 mm	72
5 mm	69
2 mm	62
1.18 mm	59
600 μm	53
300 μm	43
150 μm	27

Size	% Finer
63 μm	20
20 μm	14
6 μm	9
2 μm	5

Uniformity Coefficient	
174.39	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

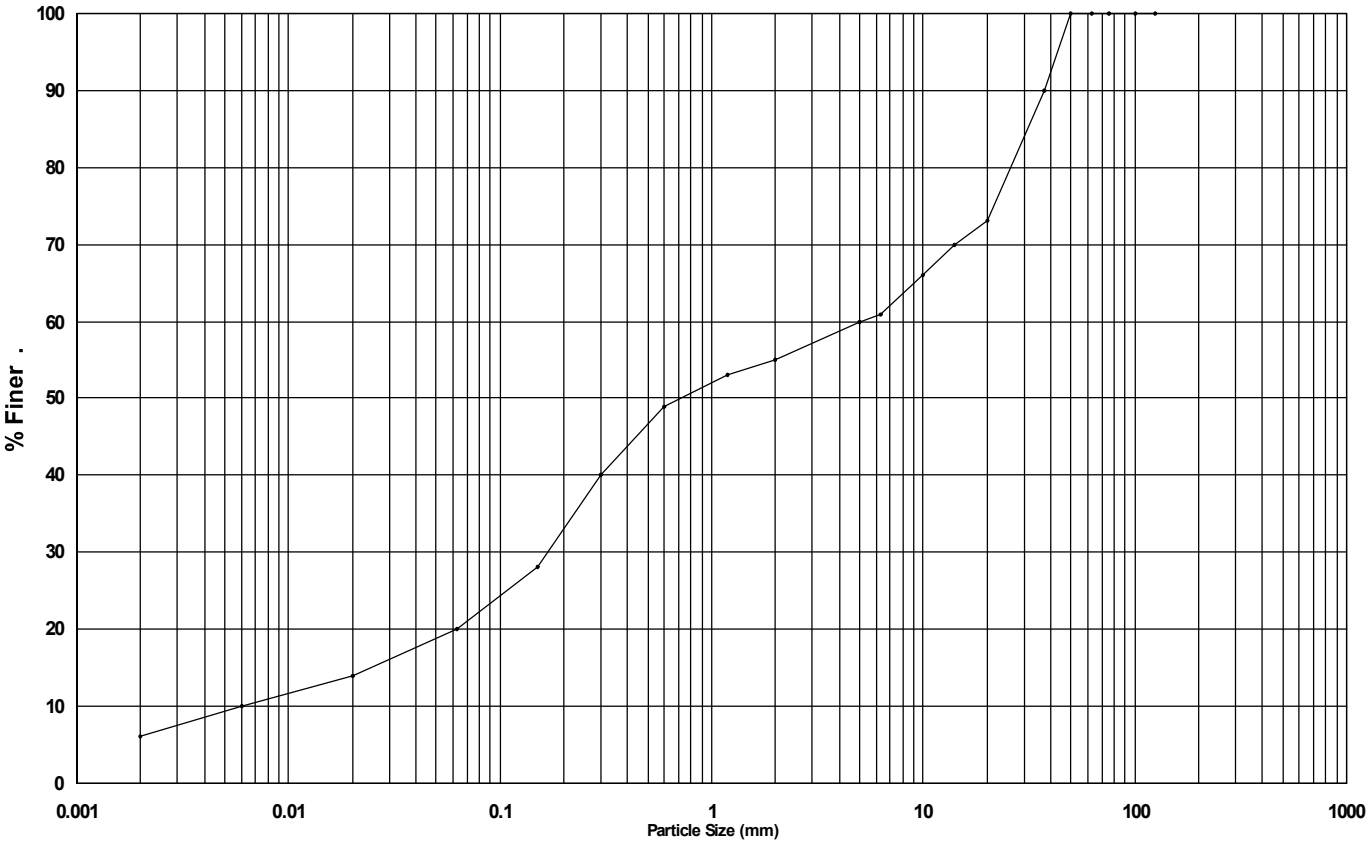
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH21  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84107

Sample Description  
Brown clayey silty very sandy GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	14
SAND	35
GRAVEL	45
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	90
20 mm	73
14 mm	70
10 mm	66
6.3 mm	61
5 mm	60
2 mm	55
1.18 mm	53
600 μm	49
300 μm	40
150 μm	28

Size	% Finer
63 μm	20
20 μm	14
6 μm	10
2 μm	6

Uniformity Coefficient	
792.36	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022



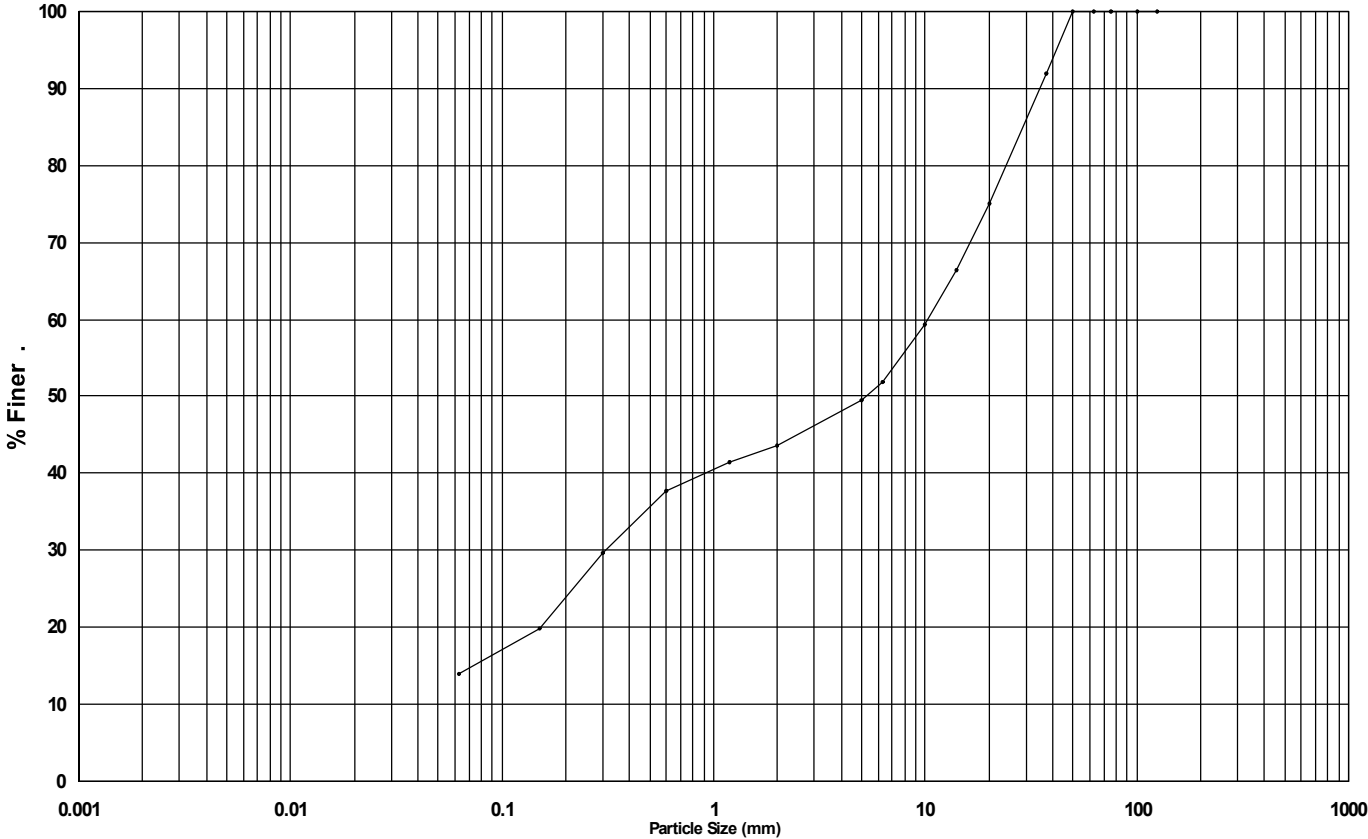
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH22  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84109

Sample Description  
Brown silty/clayey very sandy GRAVEL



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	14
SAND	30
GRAVEL	56
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	92
20 mm	75
14 mm	66
10 mm	59
6.3 mm	52
5 mm	49
2 mm	44
1.18 mm	41
600 μm	38
300 μm	30
150 μm	20

Size	% Finer
63 μm	14

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016

02/11/2022

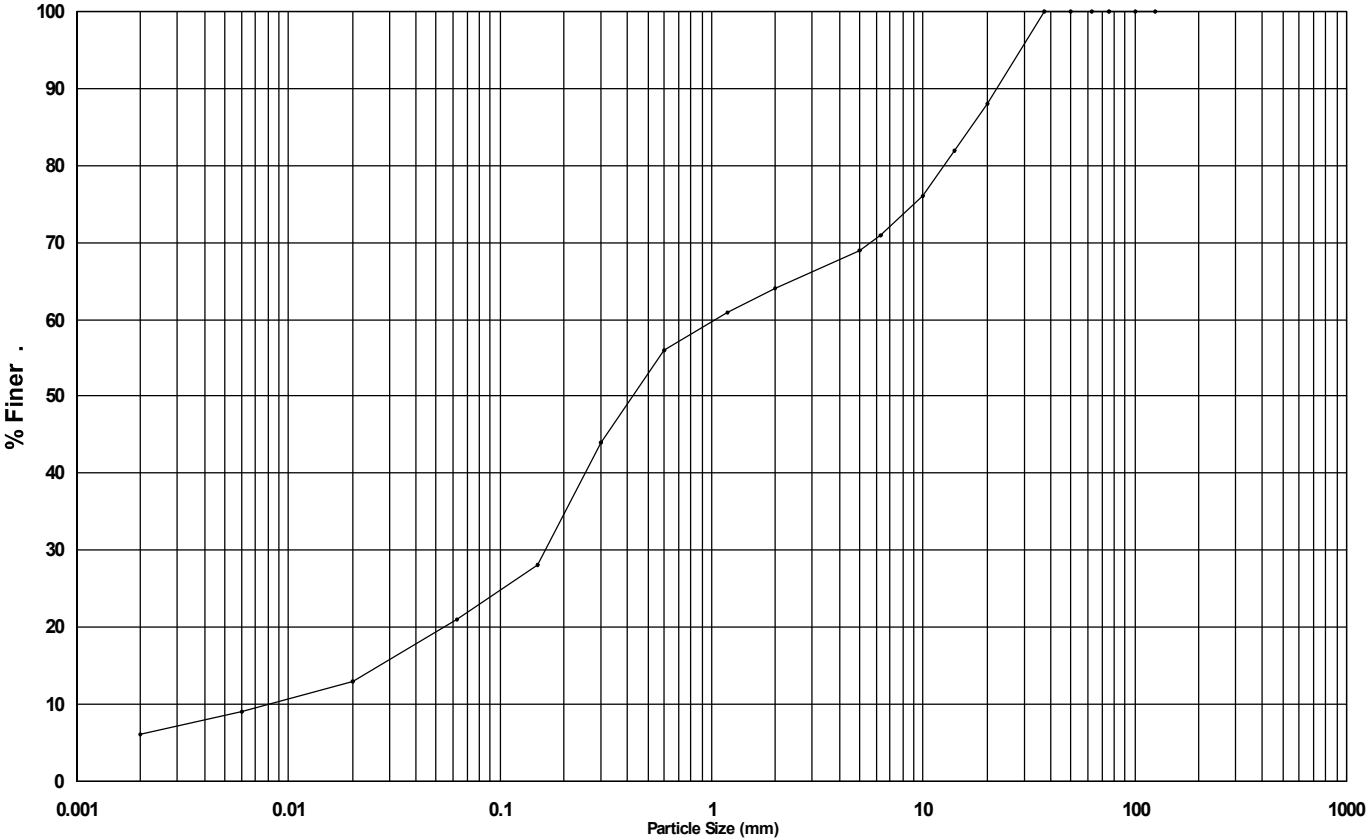
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH23  
Sample Depth 3.00-3.50m  
Sample Type B  
Sample Ref N84114

Sample Description  
Brown clayey silty very gravelly SAND.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	15
SAND	43
GRAVEL	36
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	88
14 mm	82
10 mm	76
6.3 mm	71
5 mm	69
2 mm	64
1.18 mm	61
600 µm	56
300 µm	44
150 µm	28

Size	% Finer
63 µm	21
20 µm	13
6 µm	9
2 µm	6

Uniformity Coefficient	
133.66	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

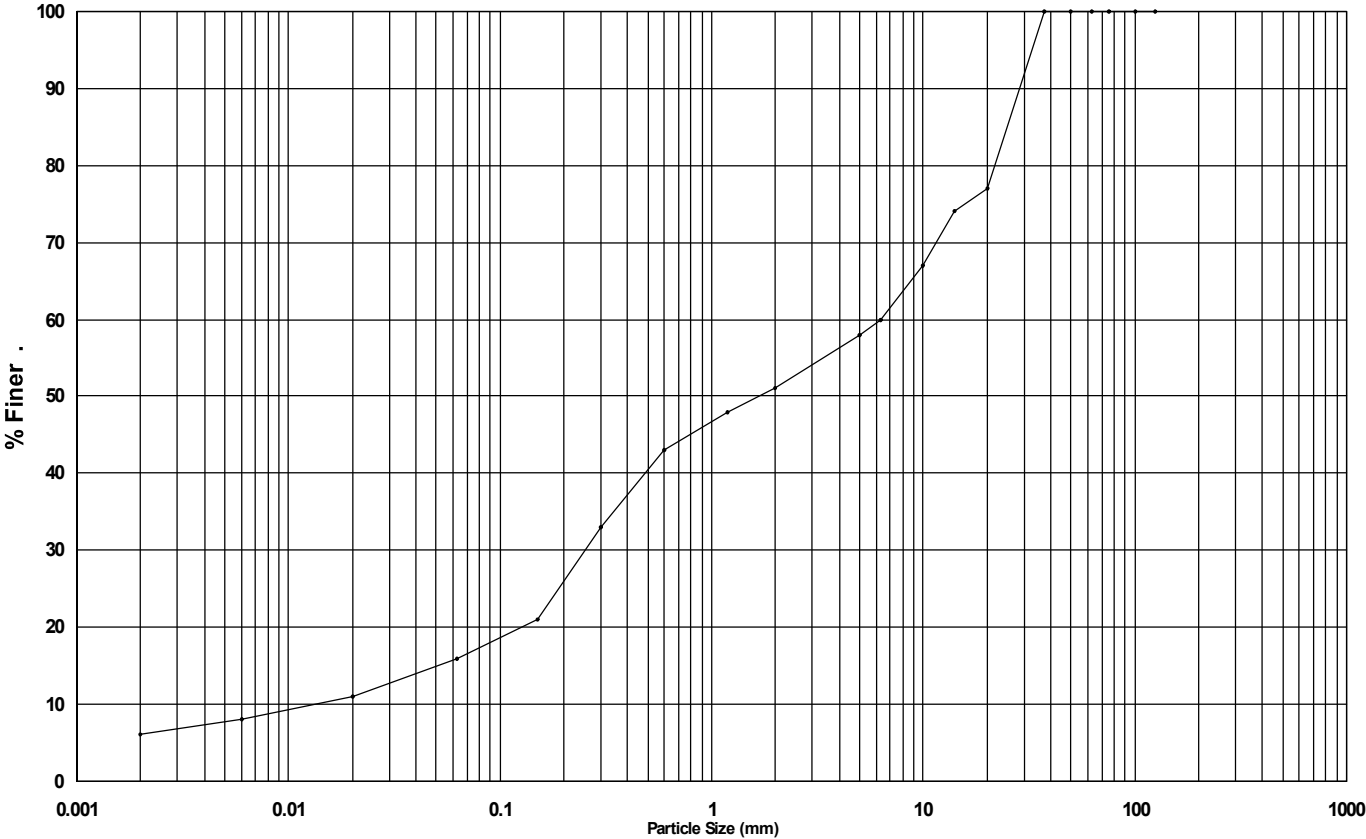
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH27  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84128

Project No: PN224395

Sample Description  
Brown clayey silty very sandy GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	10
SAND	35
GRAVEL	49
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	77
14 mm	74
10 mm	67
6.3 mm	60
5 mm	58
2 mm	51
1.18 mm	48
600 µm	43
300 µm	33
150 µm	21

Size	% Finer
63 µm	16
20 µm	11
6 µm	8
2 µm	6

Uniformity Coefficient	
526.38	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016  
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

# LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: NEWPORT QUINN PHASE 2

Hole BH10  
Sample Depth 5.00-5.45m  
Sample Type UT  
Sample Ref N84072

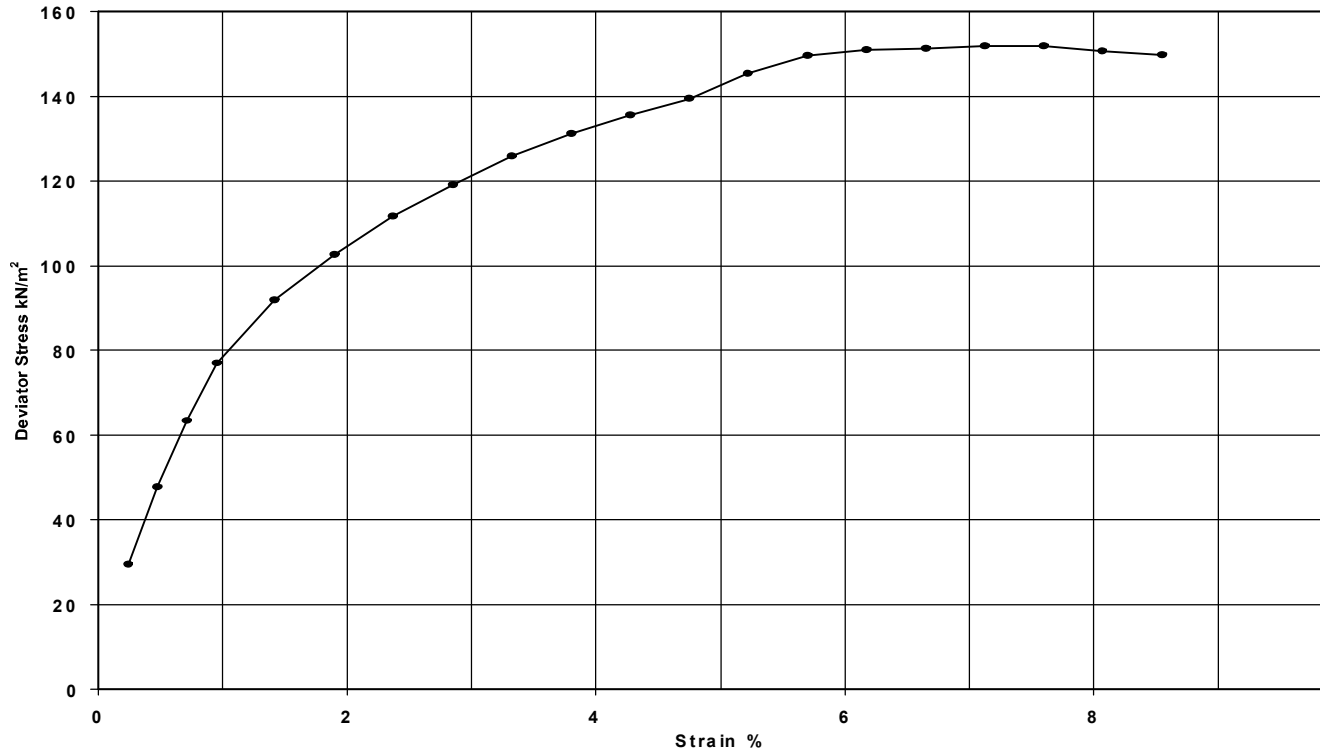
Project No: PN224395

## Sample Description

The following samples were combined to perform this test:

Brown slightly gravelly sandy silty CLAY

BS EN ISO 17892-8:2018



	Stage 1	Stage 2	Stage 3	Strain %	Corrected Deviator Stress kN/m <sup>2</sup>	Strain %	Corrected Deviator Stress kN/m <sup>2</sup>
Test Type	Single Stage			0.2	29.4		
Sample Condition	Undisturbed			0.5	47.6		
Orientation of sample	Vertical			0.7	63.4		
Initial Diameter (mm)	102.18			0.9	77.0		
Initial Length (mm)	210.62			1.4	91.9		
Initial Water Content (%)	32.2			1.9	102.5		
Initial Bulk Density (Mg/m <sup>3</sup> )	1.98			2.4	111.6		
Initial Dry Density (Mg/m <sup>3</sup> )	1.50			2.8	119.1		
Particle Density (Mg/m <sup>3</sup> )	2.65 Assumed			3.3	125.7		
Cell Pressure (kPa)	100			3.8	131.2		
'Specimen Height' at start of Shearing Stage (mm)	210.56			4.3	135.5		
Membrane Thickness/Correction (mm/kPa)	100 / 0.0000			4.7	139.4		
Rate of Strain (%/min)	1.9			5.2	145.3		
Corrected Deviator Stress (kPa)	152			5.7	149.6		
Undrained Shear Strength (kPa)	76			6.2	150.9		
Strain at Failure (%)	7.6			6.6	151.3		
Failure Zone Water Content (%)	26.2			7.1	151.7		
Water Content (after test) (%)				7.6	151.7		
Mode of Failure	Intermediate			8.1	150.6		
				8.5	149.7		

Remarks 

02/11/2022

GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: NEWPORT QUINN PHASE 2

Hole BH10  
Sample Depth 5.00-5.45m  
Sample Type UT  
Sample Ref N84072

Project No: PN224395



Remarks



02/11/2022

GEOTECHNICS

# LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: NEWPORT QUINN PHASE 2

Hole BH15

Sample Depth 3.00-3.45m

Project No: PN224395

Sample Type UT

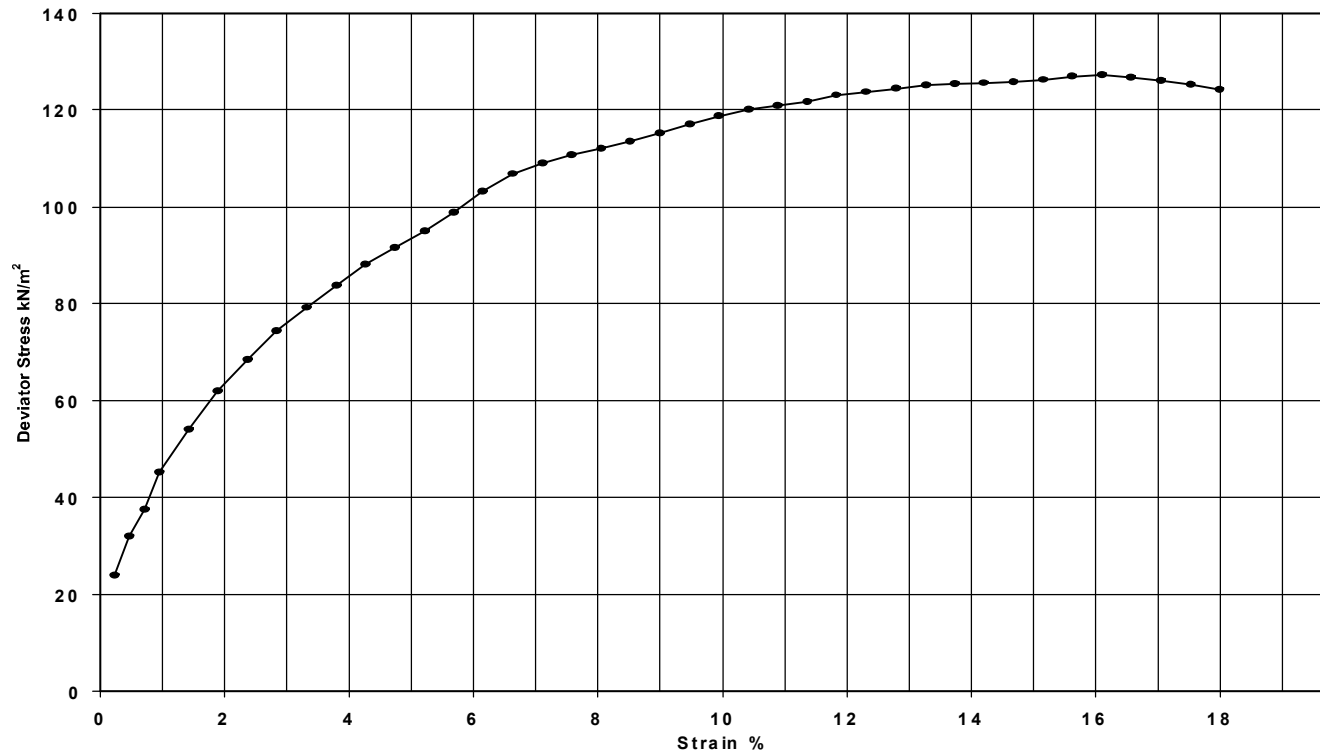
Sample Ref N84086

## Sample Description

The following samples were combined to perform this test:

Firm reddish brown slightly gravelly silty CLAY

BS EN ISO 17892-8:2018



	Stage 1	Stage 2	Stage 3	Strain %	Corrected Deviator Stress kN/m <sup>2</sup>	Strain %	Corrected Deviator Stress kN/m <sup>2</sup>
Test Type	Single Stage			0.2	24.0	9.9	118.7
Sample Condition	Undisturbed			0.5	32.0	10.4	120.1
Orientation of sample	Vertical			0.7	37.4	10.9	121.0
Initial Diameter (mm)	102.34			0.9	45.1	11.4	121.7
Initial Length (mm)	211.24			1.4	54.1	11.8	123.0
Initial Water Content (%)	23.6			1.9	62.0	12.3	123.8
Initial Bulk Density (Mg/m <sup>3</sup> )	2.00			2.4	68.5	12.8	124.5
Initial Dry Density (Mg/m <sup>3</sup> )	1.62			2.8	74.3	13.3	125.1
Particle Density (Mg/m <sup>3</sup> )	2.65 Assumed			3.3	79.2	13.7	125.5
Cell Pressure (kPa)	60			3.8	83.7	14.2	125.6
'Specimen Height' at start of Shearing Stage (mm)	211.19			4.3	88.1	14.7	125.8
Membrane Thickness/Correction (mm/kPa)	100 / 0.0000			4.7	91.5	15.1	126.2
Rate of Strain (%/min)	1.9			5.2	94.9	15.6	126.9
Corrected Deviator Stress (kPa)	127			5.7	98.7	16.1	127.3
Undrained Shear Strength (kPa)	64			6.2	103.2	16.6	126.8
Strain at Failure (%)	16.1			6.6	106.9	17.0	126.1
Failure Zone Water Content (%)	24.8			7.1	109.1	17.5	125.3
Water Content (after test) (%)				7.6	110.7	18.0	124.3
Mode of Failure	Plastic			8.0	112.0		
				8.5	113.6		
				9.0	115.1		
				9.5	117.1		

Remarks

02/11/2022

**GEOTECHNICS**



LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project:	NEWPORT QUINN PHASE 2	Hole	BH15
		Sample Depth	3.00-3.45m
		Sample Type	UT
Project No:	PN224395	Sample Ref	N84086



Remarks 

02/11/2022

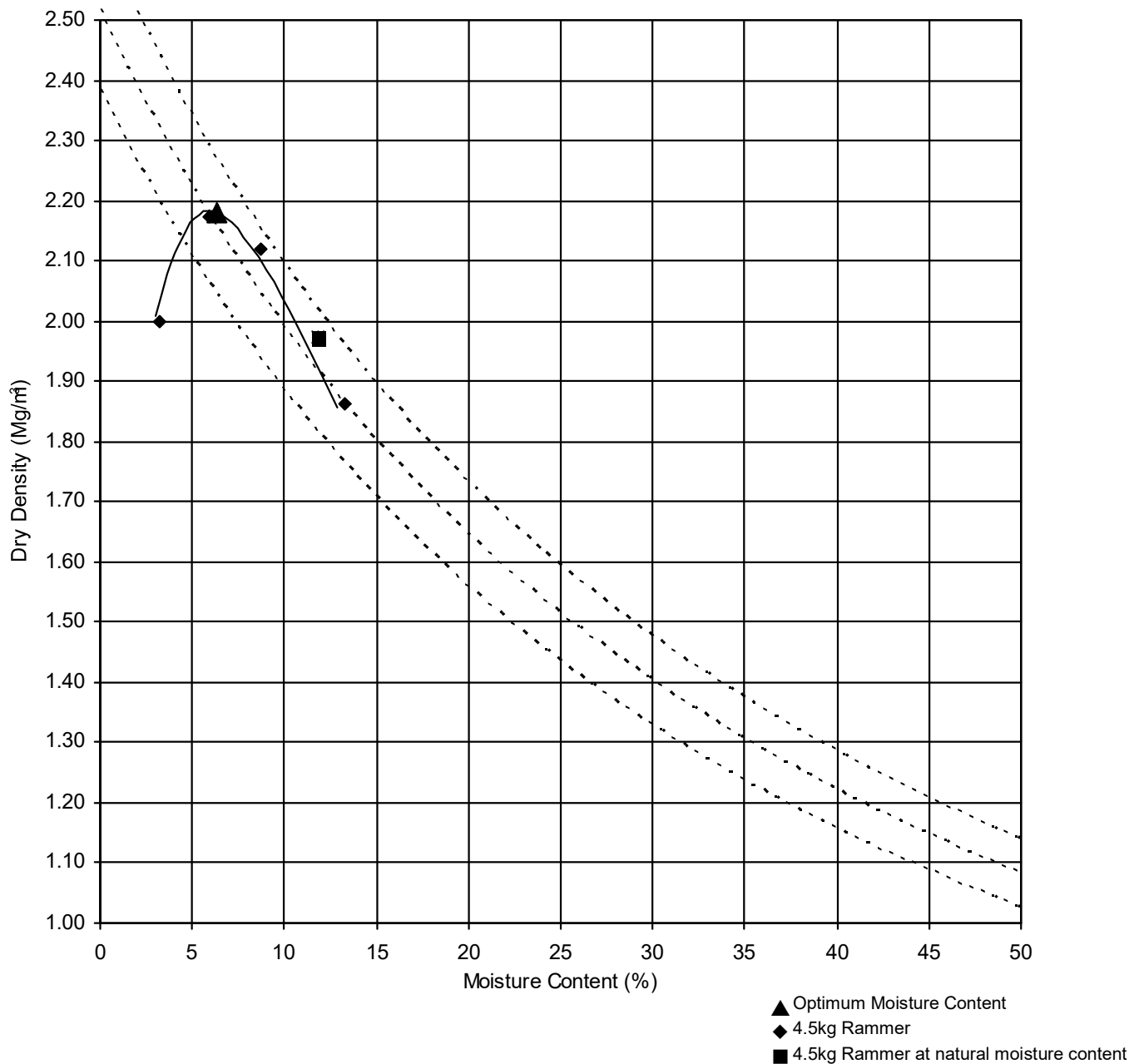
GEOTECHNICS

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84042




Optimum Moisture Content 6.3  
Maximum Dry Density 2.18 Mg/m<sup>3</sup>

Particles retained on 37.5mm 14 %  
20mm sieve 23 %

Particle Density 2.65 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
4.5kg Rammer

Description Brown slightly gravelly SAND.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

**GEOTECHNICS**  
geotechnical and geoenvironmental specialists

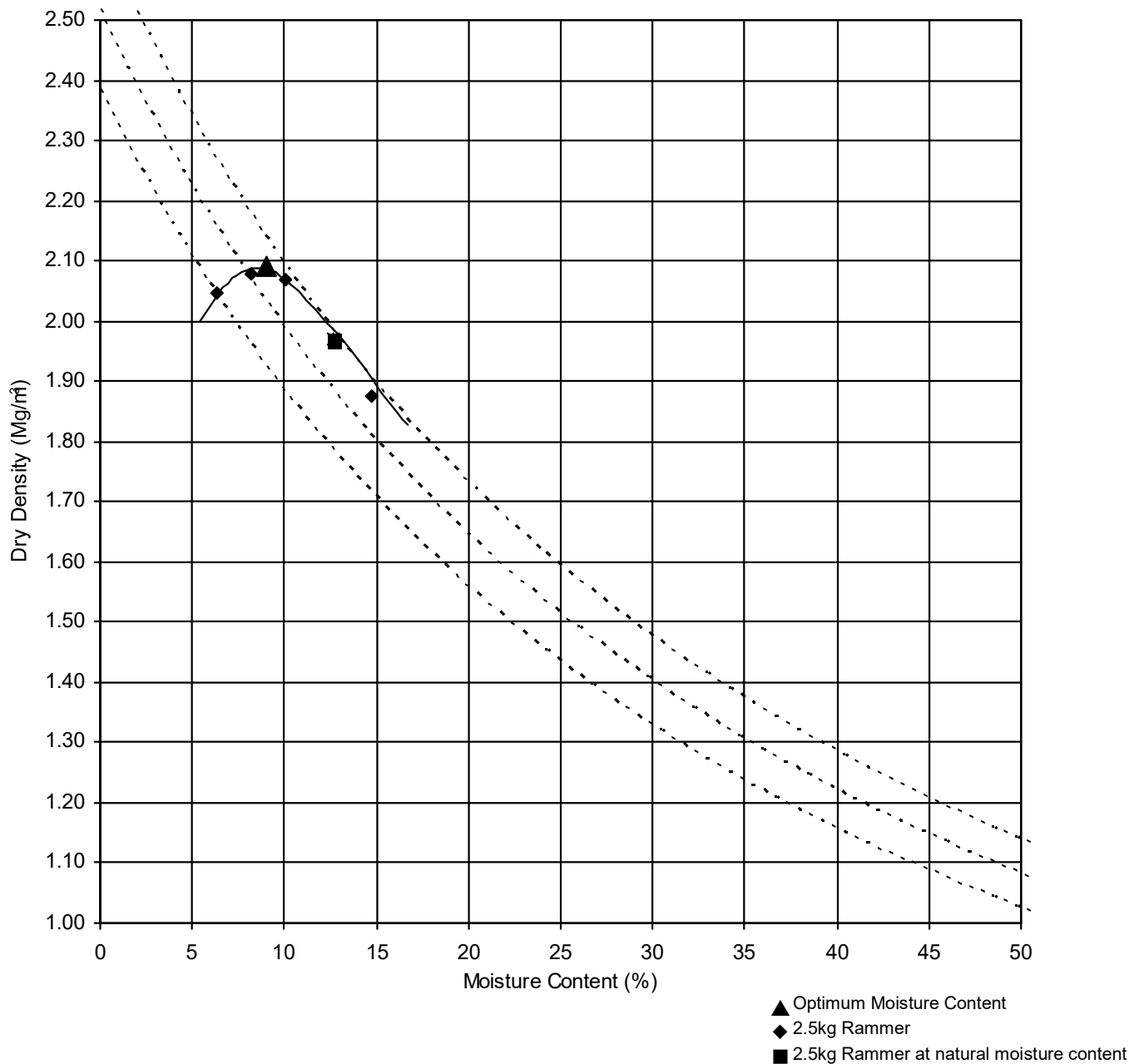
02/11/2022

# LABORATORY RESULTS - Compaction

**Project:** NEWPORT QUINN PHASE 2

**Project No:** PN224395


**Hole** BH04A  
**Sample Depth** 1.20-1.70m  
**Sample Type** B  
**Sample Ref** N84050



<b>Optimum Moisture Content</b>	9.0
<b>Maximum Dry Density</b>	2.09 Mg/m <sup>3</sup>
<b>Particle Density</b>	2.65 (Ass'm) Mg/m <sup>3</sup>
<b>Preparation</b>	Single Sample 2.5kg Rammer

Particles retained on 37.5mm	3 %
20mm sieve	11 %

**Description** Brown slightly gravelly sandy CLAY.

**Remarks**  BS1377 Part 4 1990 : Clause 3.3 and 3.4

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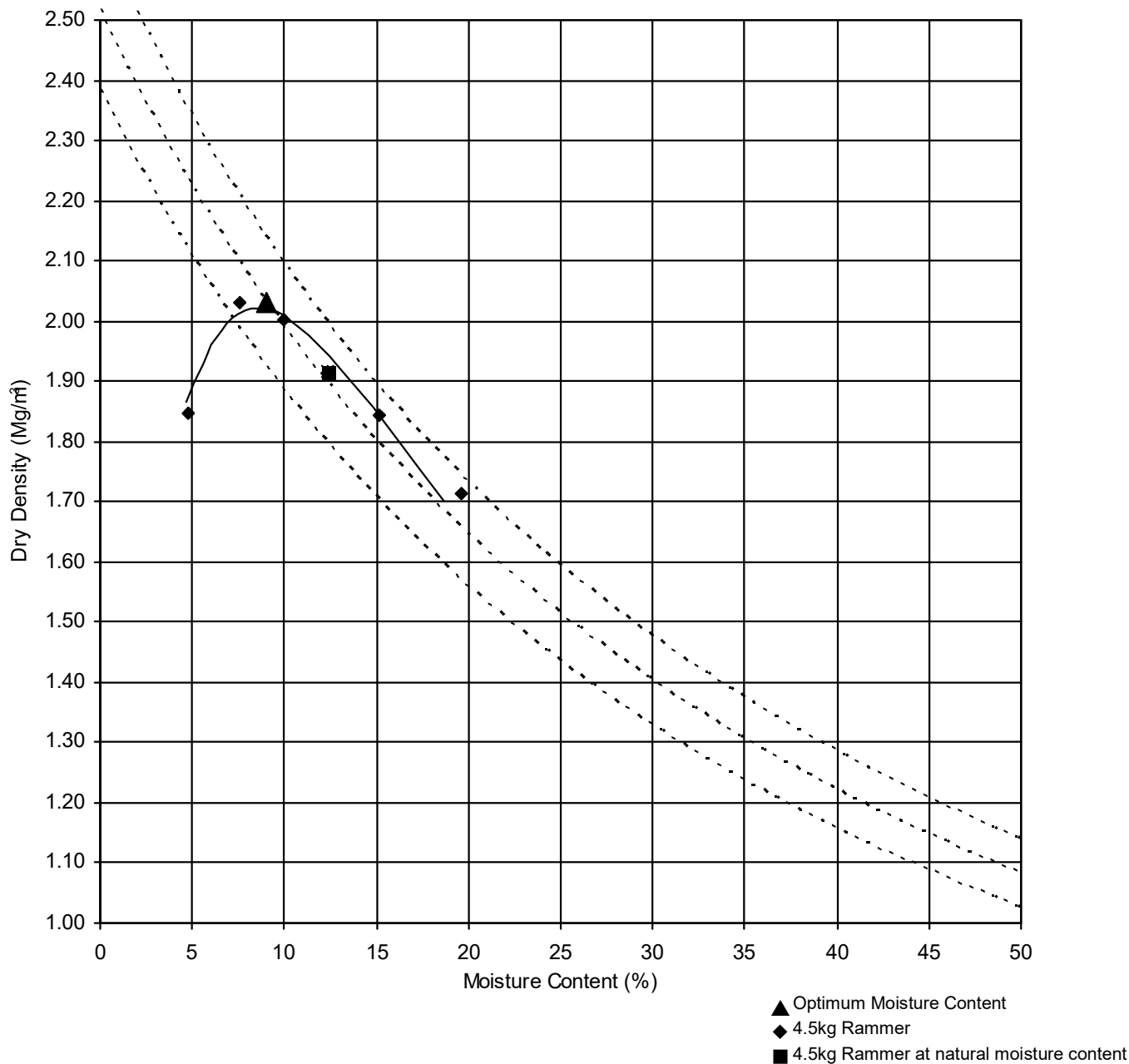
02/11/2022

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH05  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84052




Optimum Moisture Content 9.0  
Maximum Dry Density 2.03 Mg/m<sup>3</sup>

Particles retained on 37.5mm 0 %  
20mm sieve 11 %

Particle Density 2.65 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
4.5kg Rammer

Description Brow slightly gravelly slightly sandy CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

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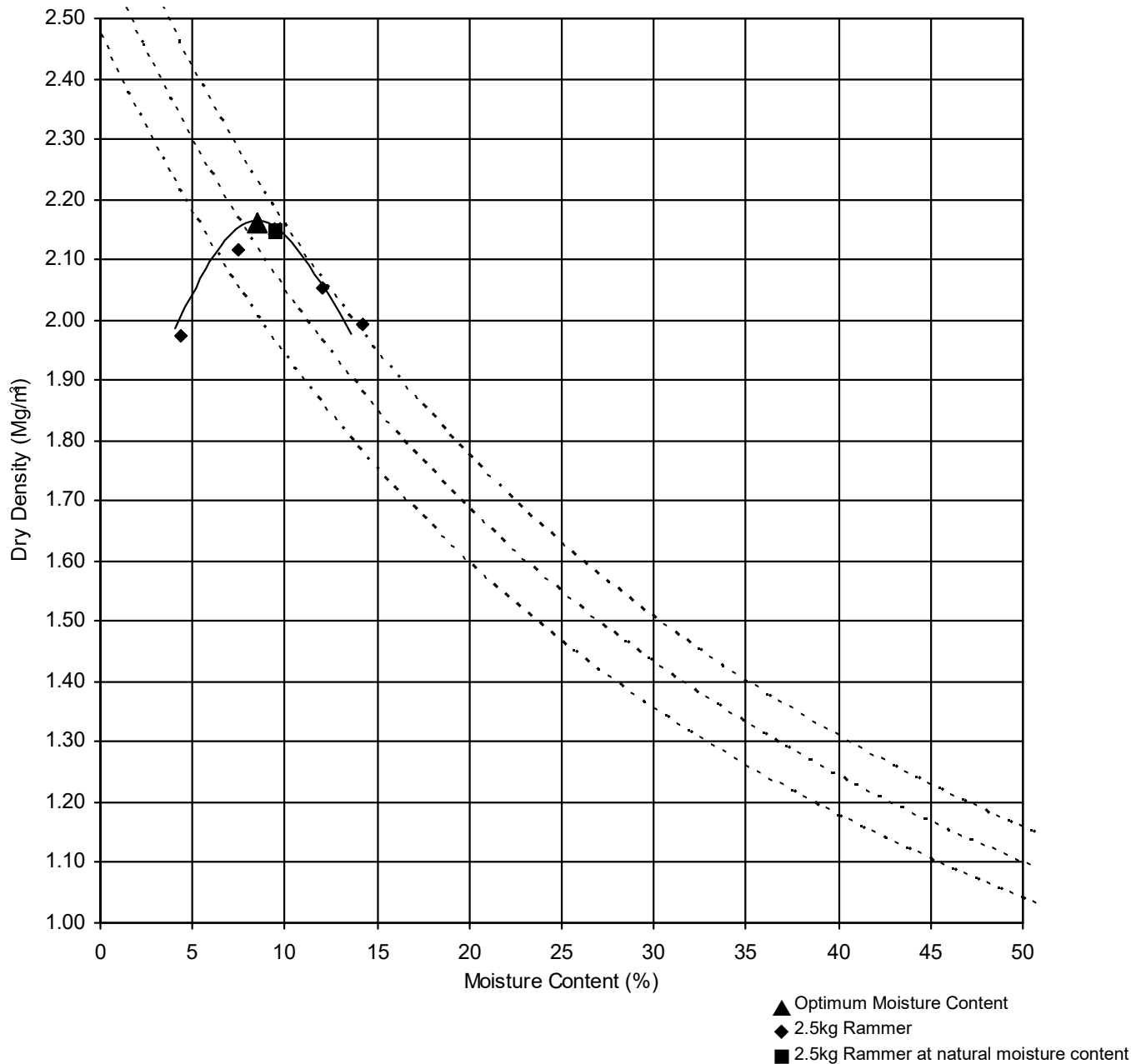
02/11/2022

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH08  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84061




Optimum Moisture Content 8.5  
Maximum Dry Density 2.16 Mg/m<sup>3</sup>

Particles retained on 37.5mm 11 %  
20mm sieve 34 %

Particle Density 2.75 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
2.5kg Rammer

Description Brown slightly sandy clayey GRAVEL.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

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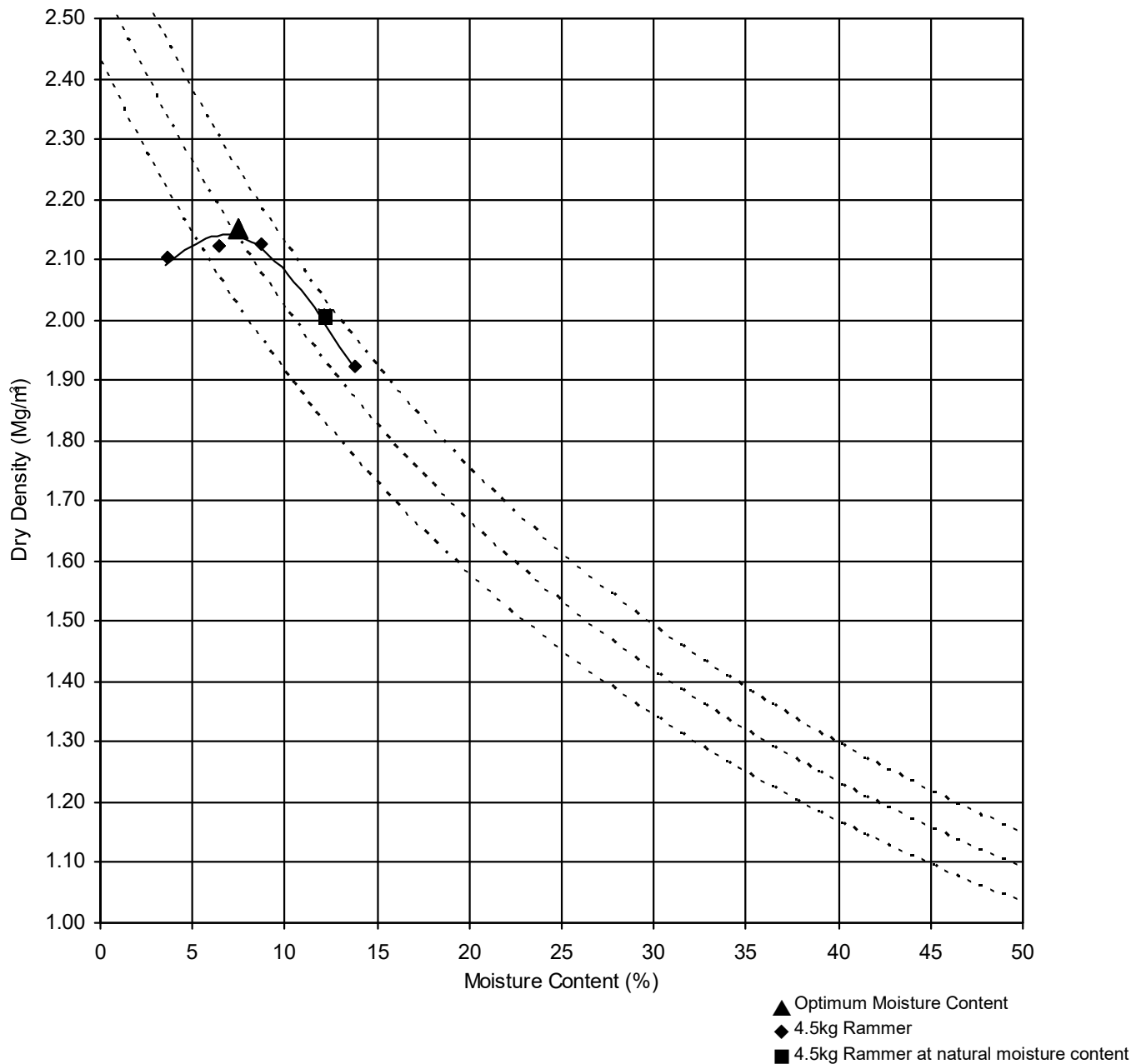
02/11/2022

# LABORATORY RESULTS - Compaction

**Project:** NEWPORT QUINN PHASE 2

**Project No:** PN224395

**Hole** BH13  
**Sample Depth** 1.20-1.70m  
**Sample Type** B  
**Sample Ref** N84079




**Optimum Moisture Content** 7.5  
**Maximum Dry Density** 2.15 Mg/m<sup>3</sup>

Particles retained on 37.5mm 5 %  
 20mm sieve 13 %

Particle Density 2.70 (Ass'm) Mg/m<sup>3</sup>  
 Preparation Single Sample  
 4.5kg Rammer

Description Brown slightly gravelly clayey SAND.

**Remarks**  BS1377 Part 4 1990 : Clause 3.5 and 3.6

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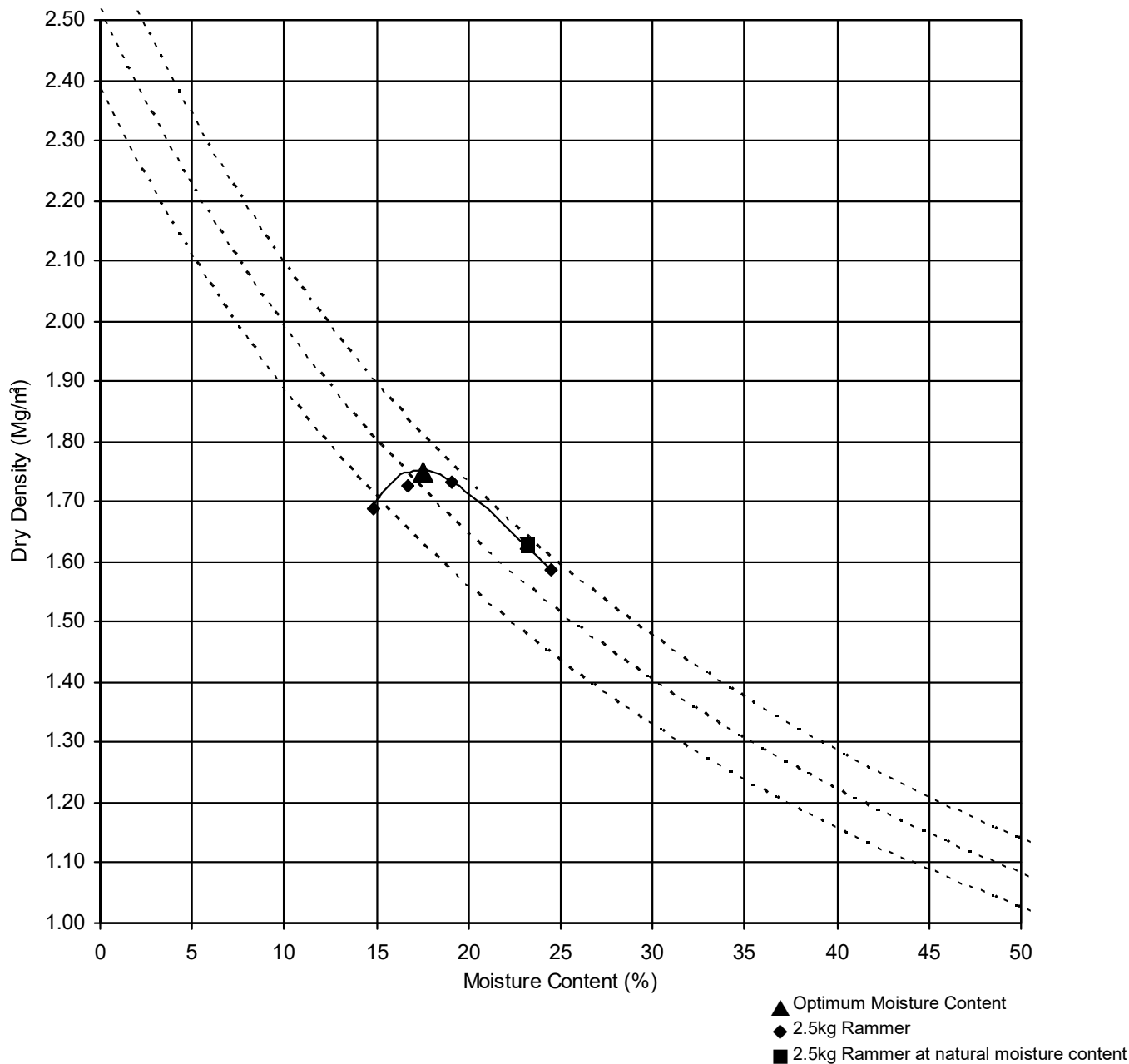


# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH14A  
Sample Depth 3.00-3.45m  
Sample Type D  
Sample Ref N84084




Optimum Moisture Content 17.5  
Maximum Dry Density 1.75 Mg/m<sup>3</sup>

Particles retained on 37.5mm 0 %  
20mm sieve 0 %

Particle Density 2.65 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
2.5kg Rammer

Description Brown mottled red slightly gravelly CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4  
Combined with B 4.00-4.50m

**GEOTECHNICS**  
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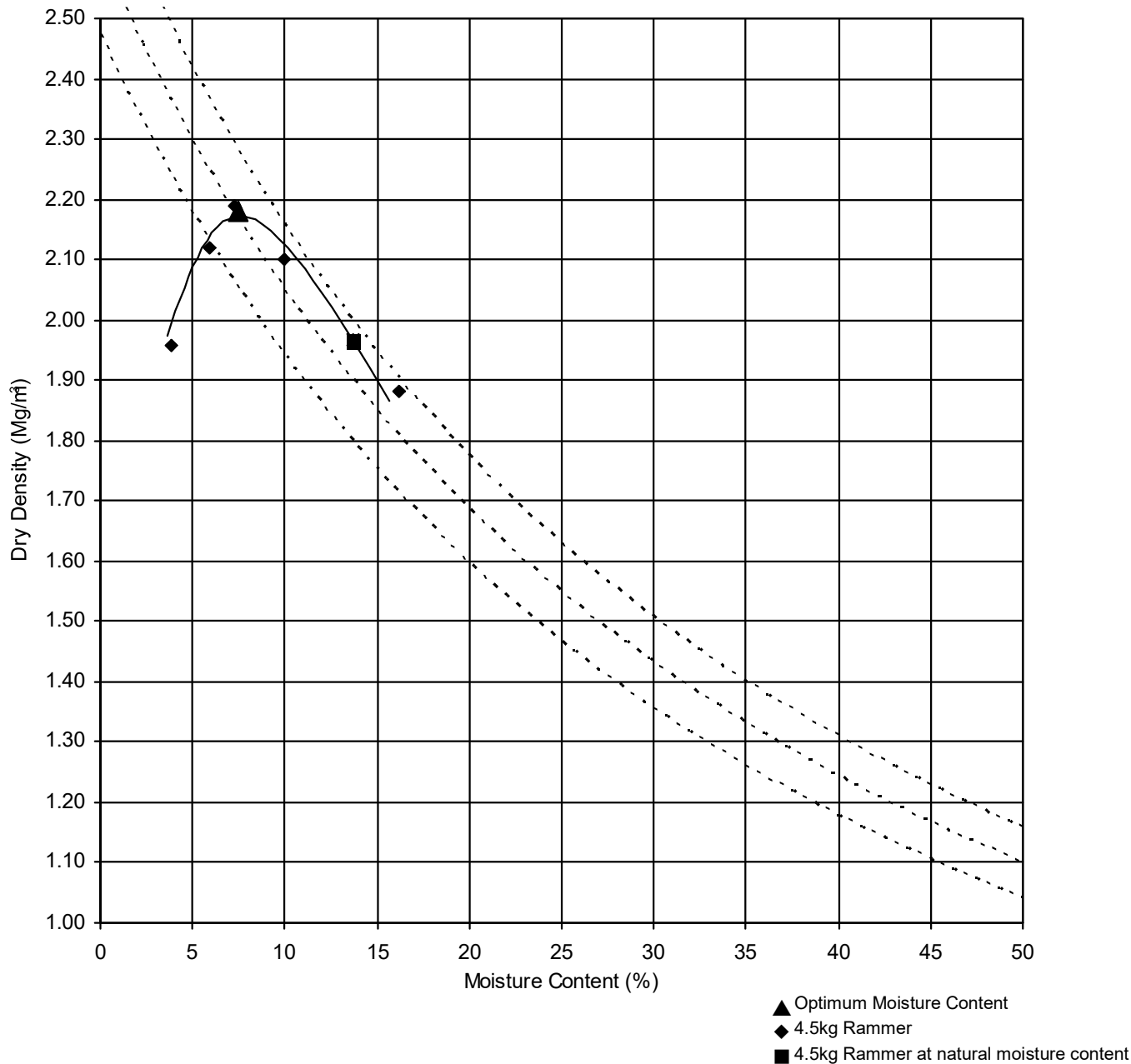
02/11/2022

# LABORATORY RESULTS - Compaction

**Project:** NEWPORT QUINN PHASE 2

**Project No:** PN224395

**Hole** BH16  
**Sample Depth** 3.00-3.50m  
**Sample Type** B  
**Sample Ref** N84090



**Optimum Moisture Content** 7.5  
**Maximum Dry Density** 2.18 Mg/m<sup>3</sup>

Particles retained on 37.5mm 18 %  
 20mm sieve 27 %

Particle Density 2.75 (Ass'm) Mg/m<sup>3</sup>  
 Preparation Single Sample  
 4.5kg Rammer

Description Brown slightly sandy slightly gravelly clayey SILT.

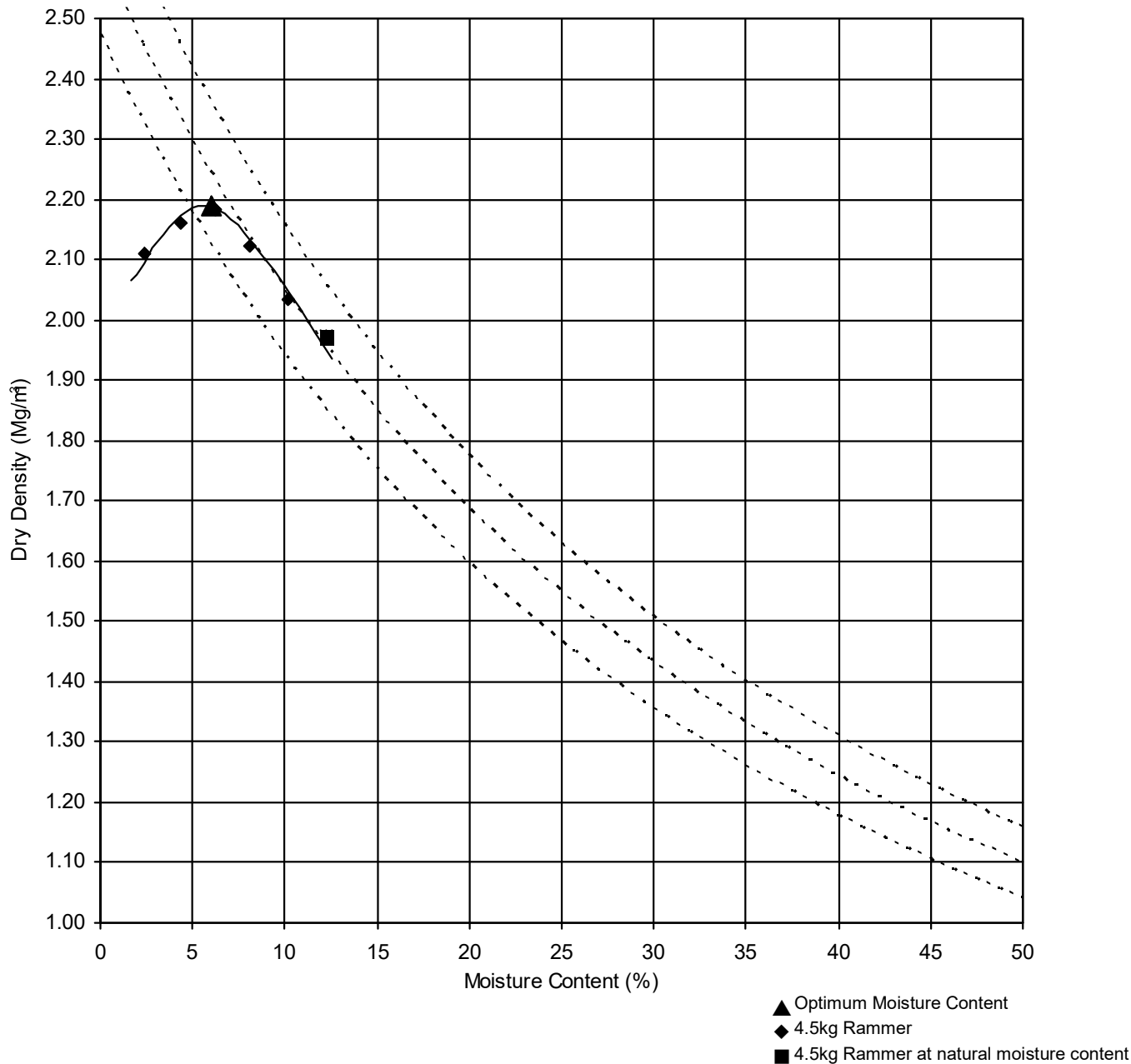
**Remarks** BS1377 Part 4 1990 : Clause 3.5 and 3.6

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH17A  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84093




Optimum Moisture Content 6.0  
Maximum Dry Density 2.19 Mg/m<sup>3</sup>

Particles retained on 37.5mm 5 %  
20mm sieve 21 %

Particle Density 2.75 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
4.5kg Rammer

Description Brown slightly gravelly slightly sandy CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

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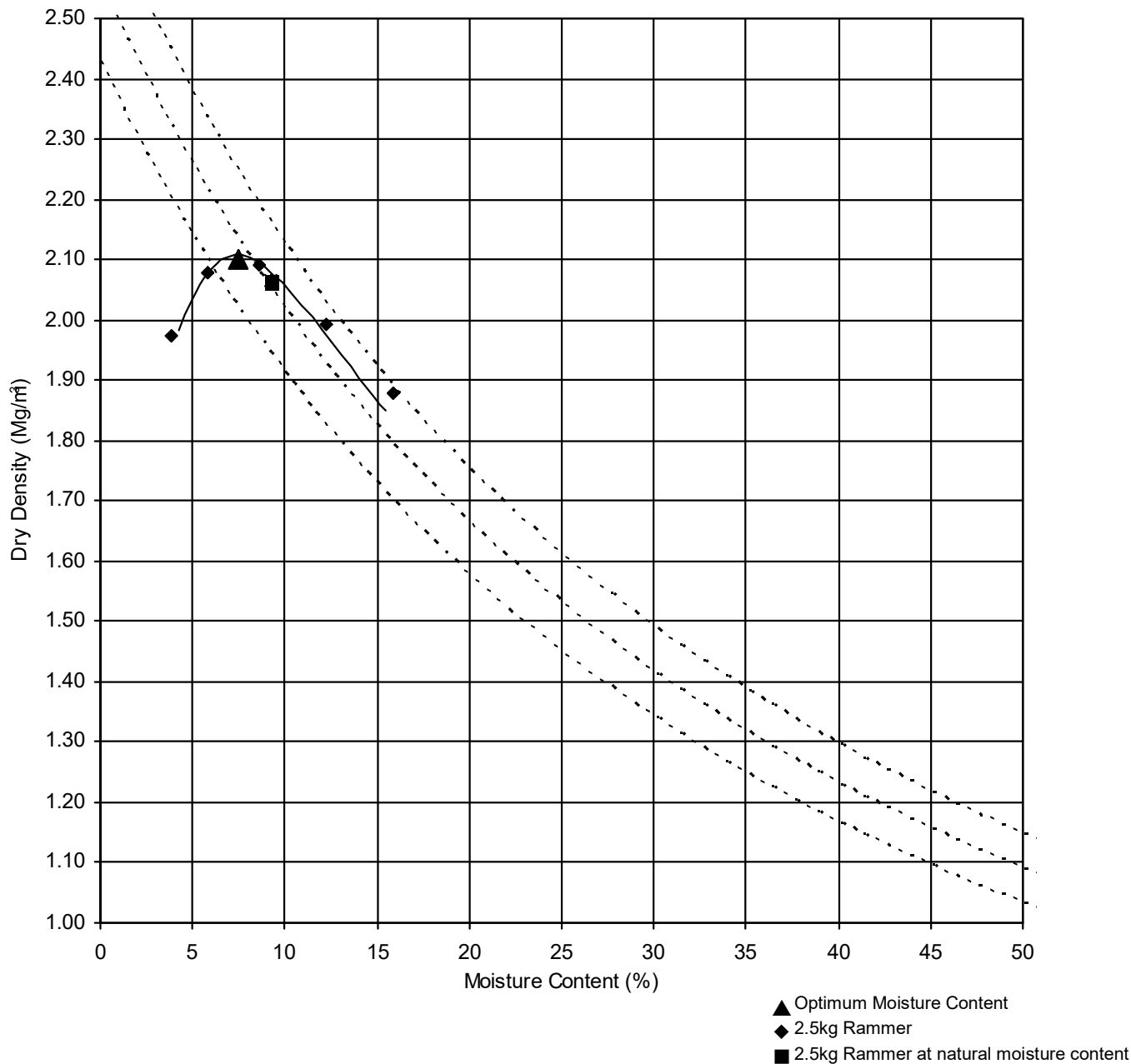
02/11/2022

# LABORATORY RESULTS - Compaction

**Project:** NEWPORT QUINN PHASE 2

**Project No:** PN224395

**Hole** BH19  
**Sample Depth** 2.00-2.50m  
**Sample Type** B  
**Sample Ref** N84101



**Optimum Moisture Content** 7.5  
**Maximum Dry Density** 2.10 Mg/m<sup>3</sup>

Particles retained on 37.5mm 8 %  
 20mm sieve 18 %

Particle Density 2.70 (Ass'm) Mg/m<sup>3</sup>  
 Preparation Single Sample  
 2.5kg Rammer

Description Brown clayey sandy GRAVEL.

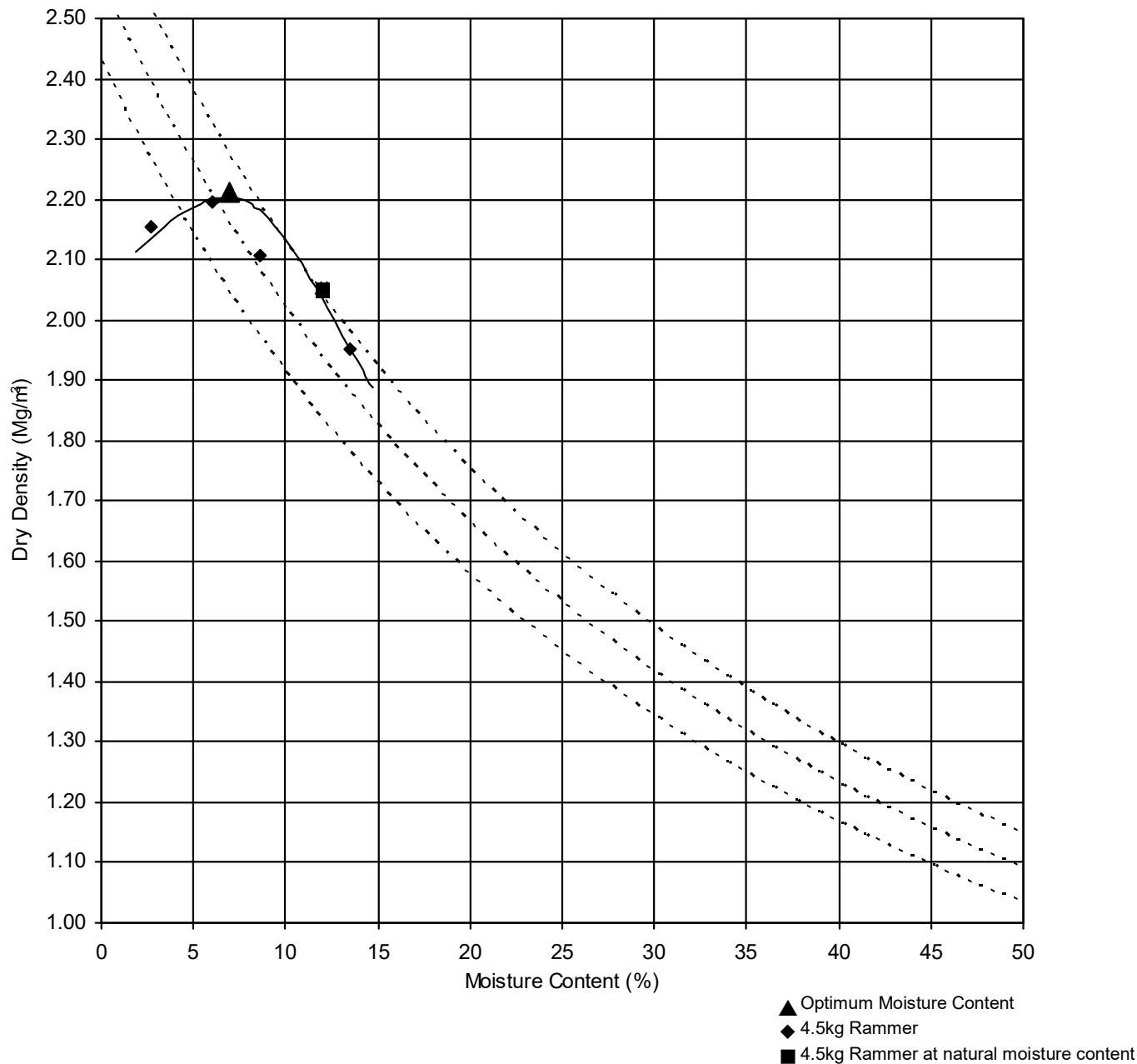
**Remarks** BS1377 Part 4 1990 : Clause 3.3 and 3.4

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH20  
Sample Depth 3.00-3.50m  
Sample Type B  
Sample Ref N84105




Optimum Moisture Content 7.0  
Maximum Dry Density 2.21 Mg/m<sup>3</sup>

Particles retained on 37.5mm 6 %  
20mm sieve 28 %

Particle Density 2.70 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
4.5kg Rammer

Description Brown clayey silty very gravelly SAND.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

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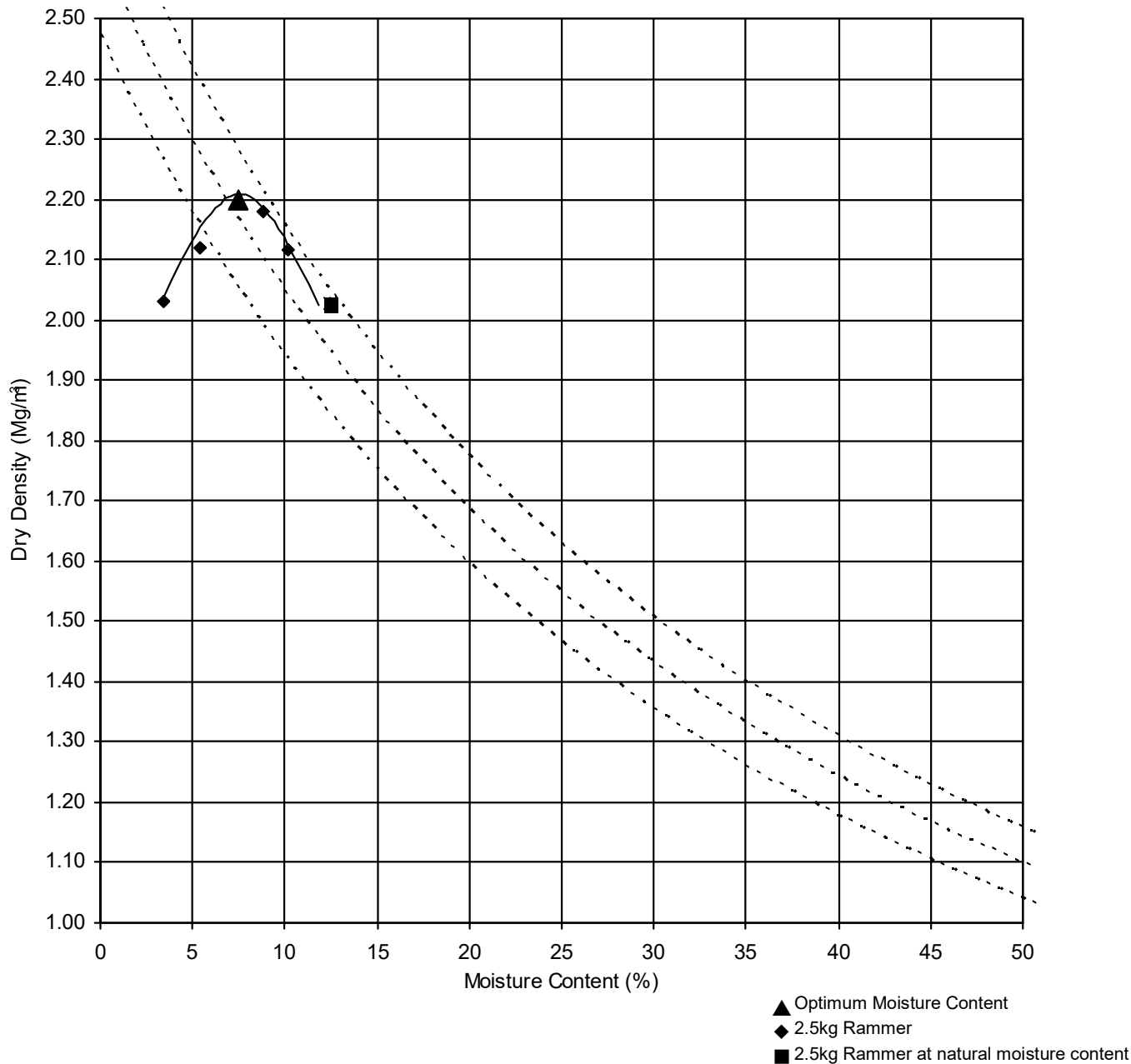
02/11/2022

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH24  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84116




Optimum Moisture Content 7.5  
Maximum Dry Density 2.20 Mg/m<sup>3</sup>

Particles retained on 37.5mm 6 %  
20mm sieve 9 %

Particle Density 2.75 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
2.5kg Rammer

Description Brown slightly sandy slightly gravelly CLAY with cobbles.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

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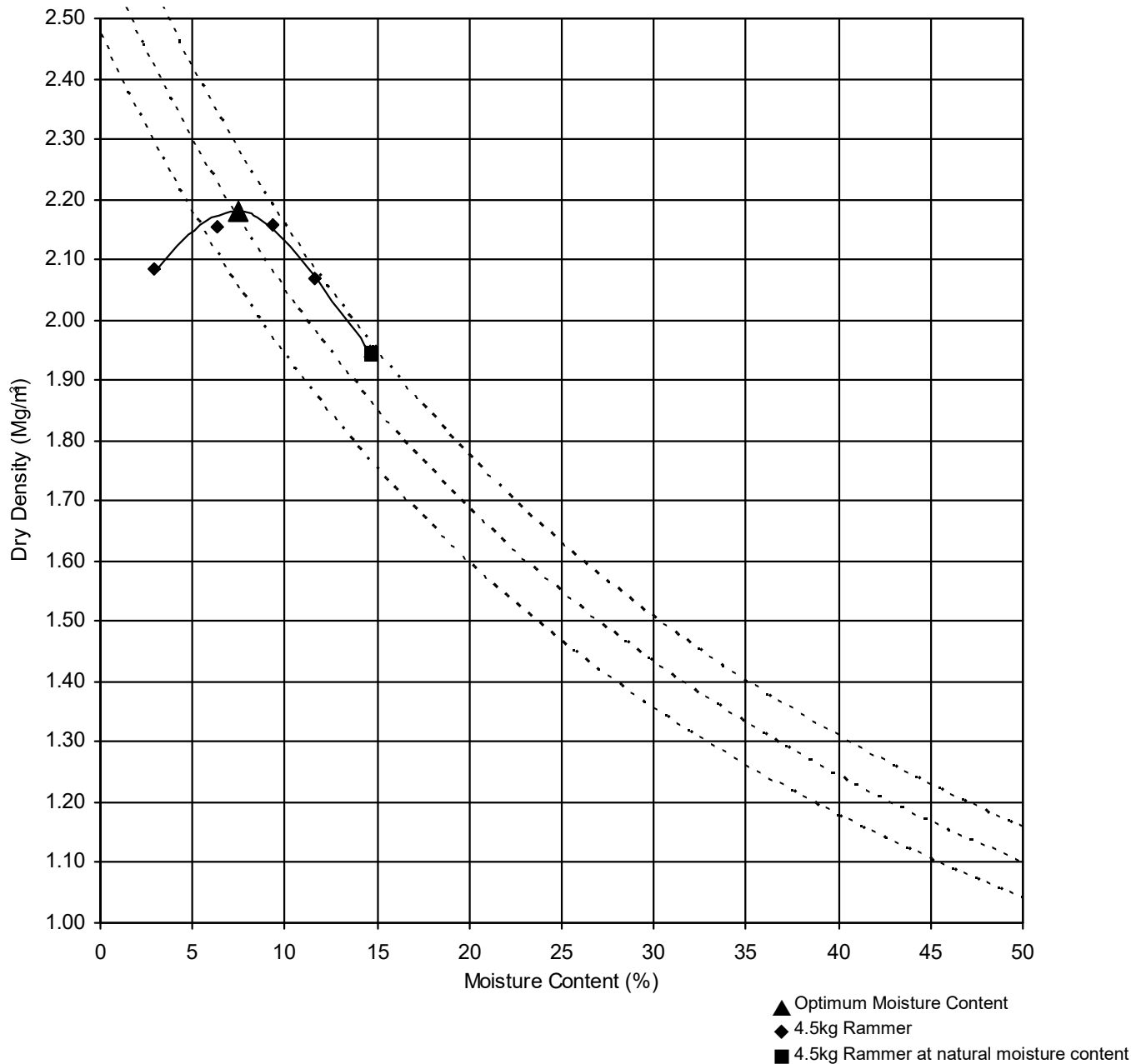


# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH25  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84121




Optimum Moisture Content 7.5  
Maximum Dry Density 2.18 Mg/m<sup>3</sup>

Particles retained on 37.5mm 5 %  
20mm sieve 16 %

Particle Density 2.75 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
4.5kg Rammer

Description Brown slightly sandy slightly gravelly CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

**GEOTECHNICS**  
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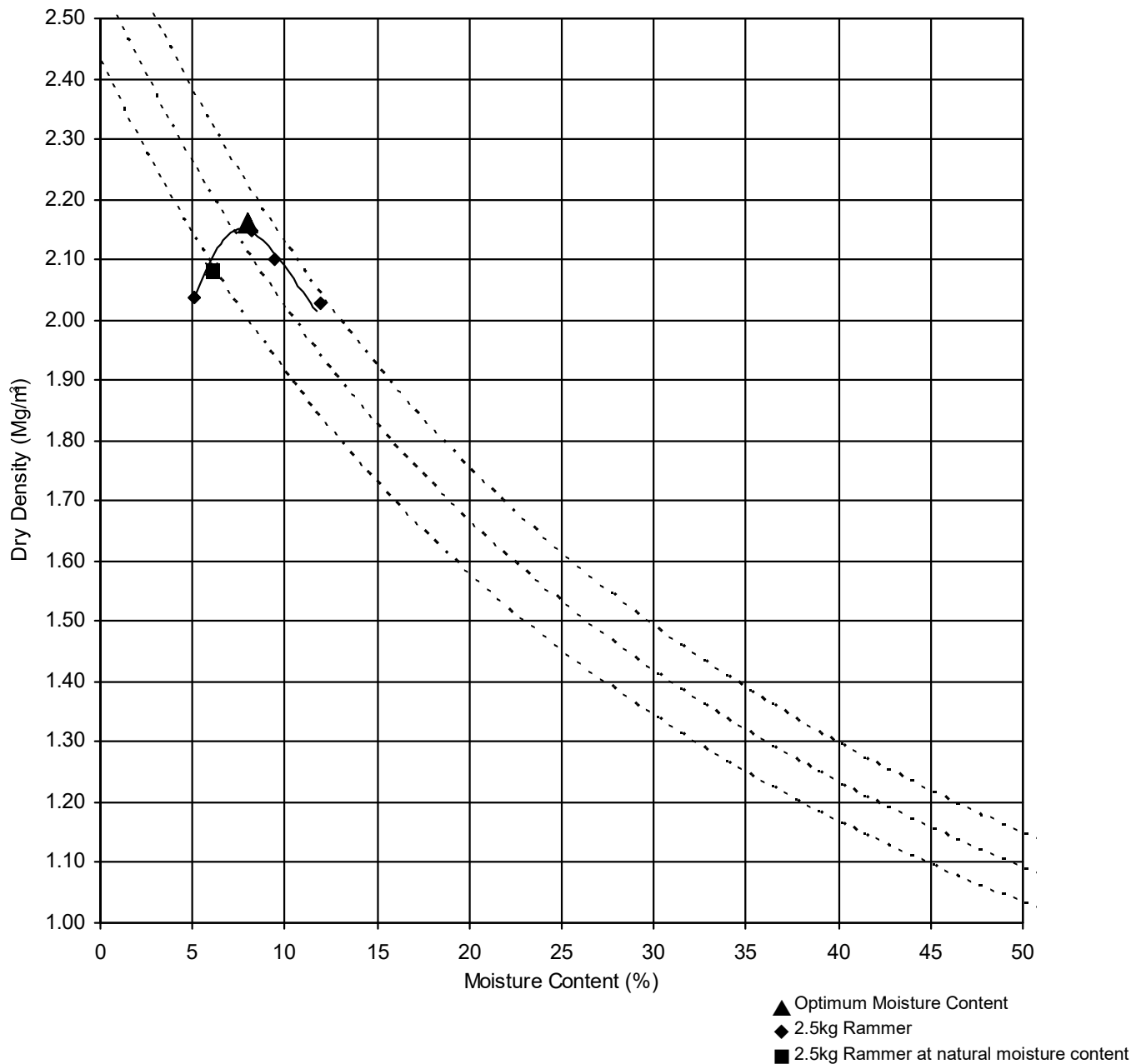
02/11/2022

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH27  
Sample Depth 0.36-1.20m  
Sample Type B  
Sample Ref N84127




Optimum Moisture Content 8.0  
Maximum Dry Density 2.16 Mg/m<sup>3</sup>

Particles retained on 37.5mm 14 %  
20mm sieve 30 %

Particle Density 2.70 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
2.5kg Rammer

Description Brown gravelly SAND.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

**GEOTECHNICS**  
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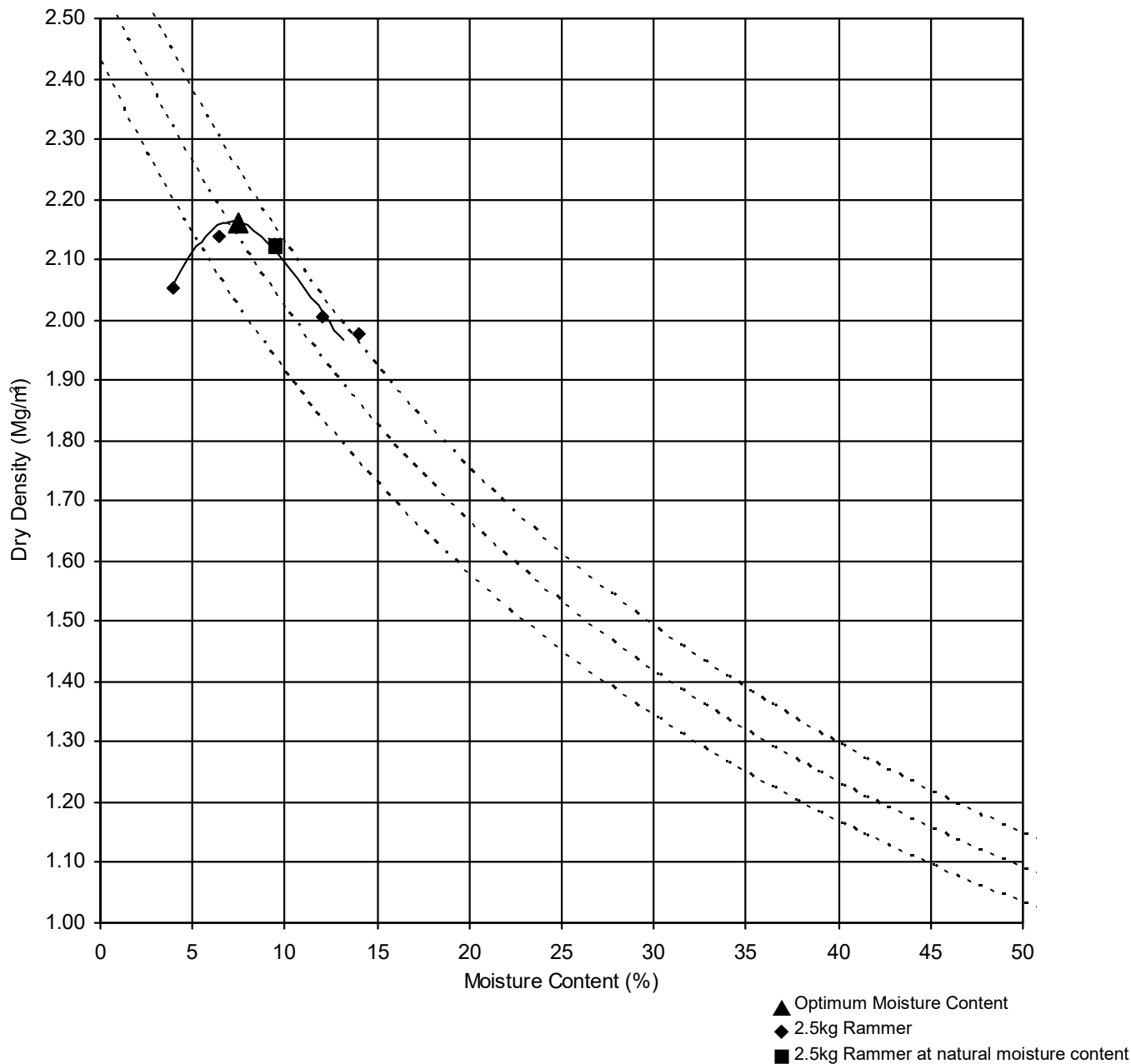
02/11/2022

# LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH29  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84134




Optimum Moisture Content 7.5  
Maximum Dry Density 2.16 Mg/m<sup>3</sup>

Particles retained on 37.5mm 11 %  
20mm sieve 26 %

Particle Density 2.70 (Ass'm) Mg/m<sup>3</sup>  
Preparation Single Sample  
2.5kg Rammer

Description Brown gravelly sandy CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

**GEOTECHNICS**  
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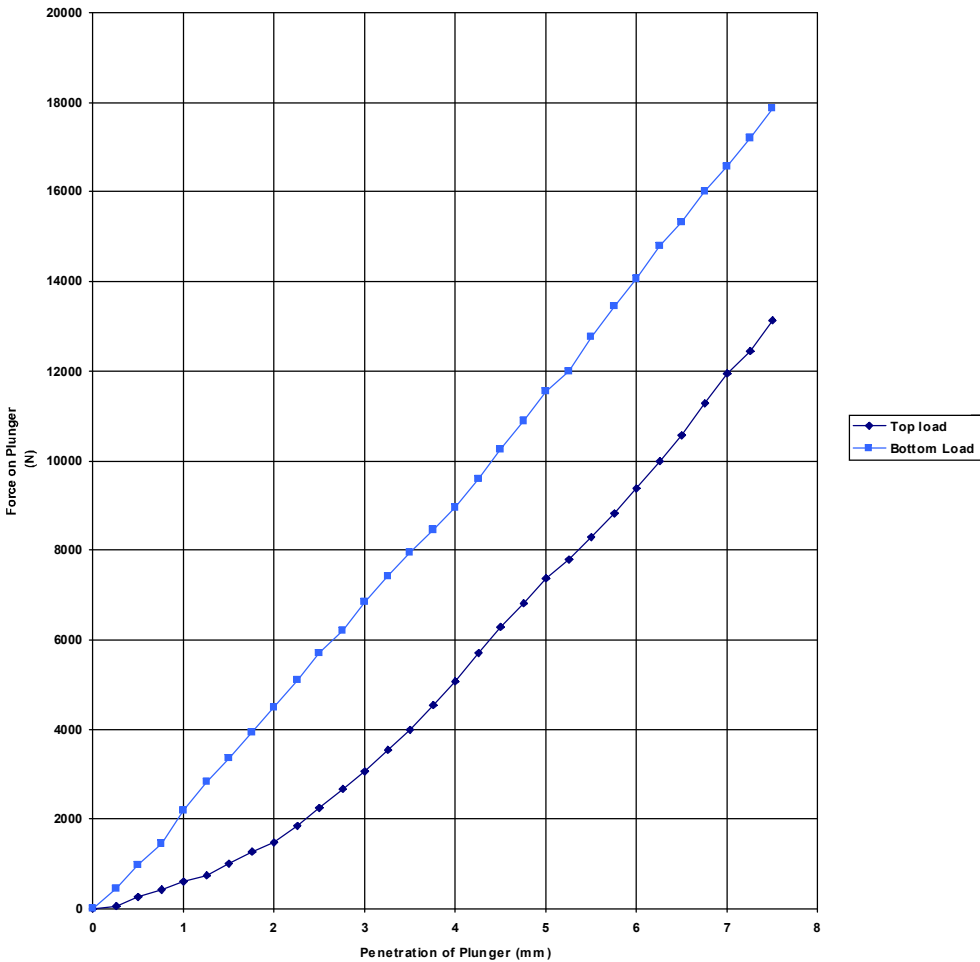
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH01  
Sample Depth 0.50m  
Sample Type D  
Sample Ref N84035

Sample Description  
Reddish brown clayey gravelly SAND.



Penetration	Top (N)	Bottom (N)
0.25mm	54	440
0.50mm	264	987
0.75mm	413	1459
1.00mm	610	2180
1.25mm	740	2814
1.50mm	999	3362
1.75mm	1259	3939
2.00mm	1468	4495
2.25mm	1859	5107
2.50mm	2258	5717
2.75mm	2669	6217
3.00mm	3058	6847
3.25mm	3550	7427
3.50mm	3990	7964
3.75mm	4551	8458

Penetration	Top (N)	Bottom (N)
4.00mm	5065	8947
4.25mm	5696	9594
4.50mm	6284	10249
4.75mm	6828	10892
5.00mm	7370	11556
5.25mm	7802	11998
5.50mm	8289	12749
5.75mm	8820	13453
6.00mm	9388	14066
6.25mm	9981	14784
6.50mm	10561	15327
6.75mm	11292	15999
7.00mm	11942	16554
7.25mm	12453	17208
7.50mm	13143	17866

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	27.0 %
Bulk Density (Mg/m <sup>3</sup> )	2.20
Dry Density (Mg/m <sup>3</sup> )	2.11
Hand Calculation	No

CBR	Top	Bottom
Value	37	58
w%	3.1	5.4

Remarks Combined with B 0.20-0.60m

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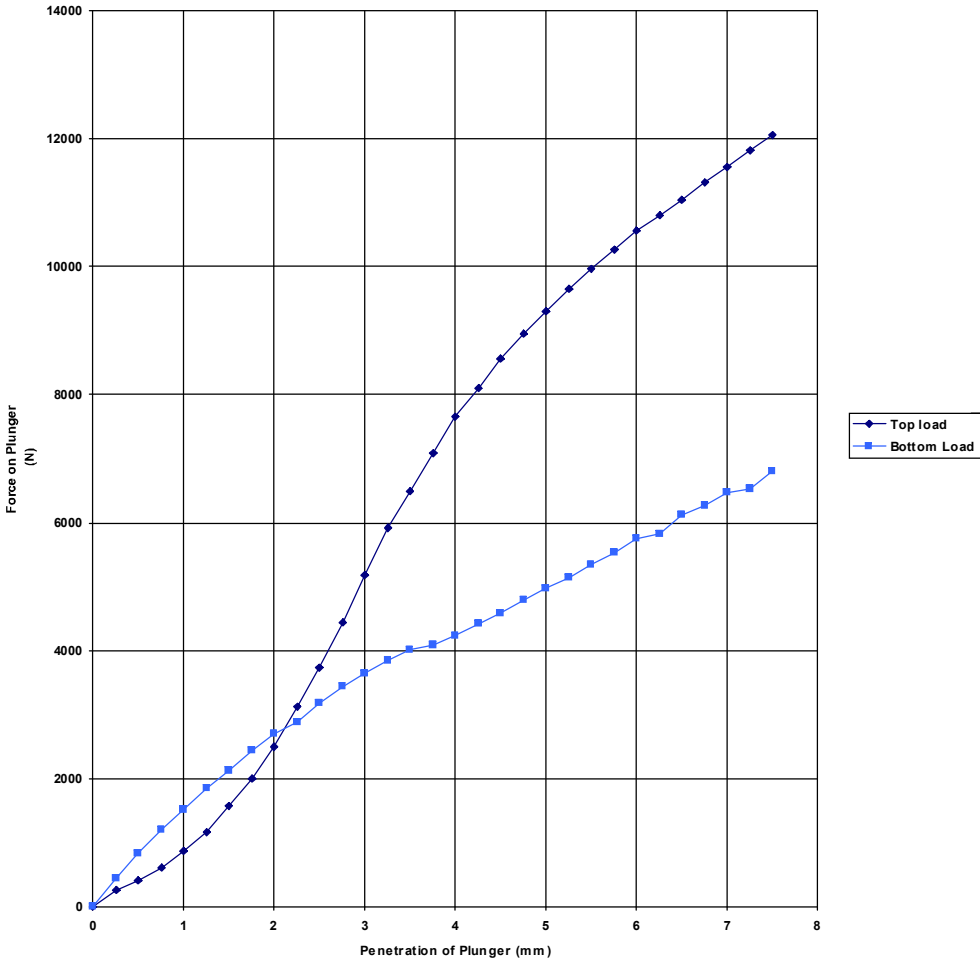
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH01  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84036

Sample Description  
Brown sandy gravelly CLAY



Penetration	Top (N)	Bottom (N)
0.25mm	261	445
0.50mm	403	826
0.75mm	606	1209
1.00mm	871	1519
1.25mm	1169	1843
1.50mm	1569	2130
1.75mm	1997	2437
2.00mm	2500	2697
2.25mm	3117	2884
2.50mm	3727	3186
2.75mm	4437	3433
3.00mm	5173	3644
3.25mm	5918	3854
3.50mm	6489	4015
3.75mm	7092	4090

Penetration	Top (N)	Bottom (N)
4.00mm	7652	4240
4.25mm	8105	4411
4.50mm	8569	4580
4.75mm	8955	4784
5.00mm	9311	4975
5.25mm	9652	5150
5.50mm	9973	5348
5.75mm	10272	5528
6.00mm	10565	5744
6.25mm	10807	5828
6.50mm	11048	6122
6.75mm	11312	6278
7.00mm	11554	6473
7.25mm	11821	6533
7.50mm	12056	6798

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	3.3 %
Bulk Density (Mg/m <sup>3</sup> )	2.16
Dry Density (Mg/m <sup>3</sup> )	2.02
Hand Calculation	No

CBR	Top	Bottom
Value	47	25
w%	7.5	7.3

Remarks AGS Combined with B 2.00-2.50m

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

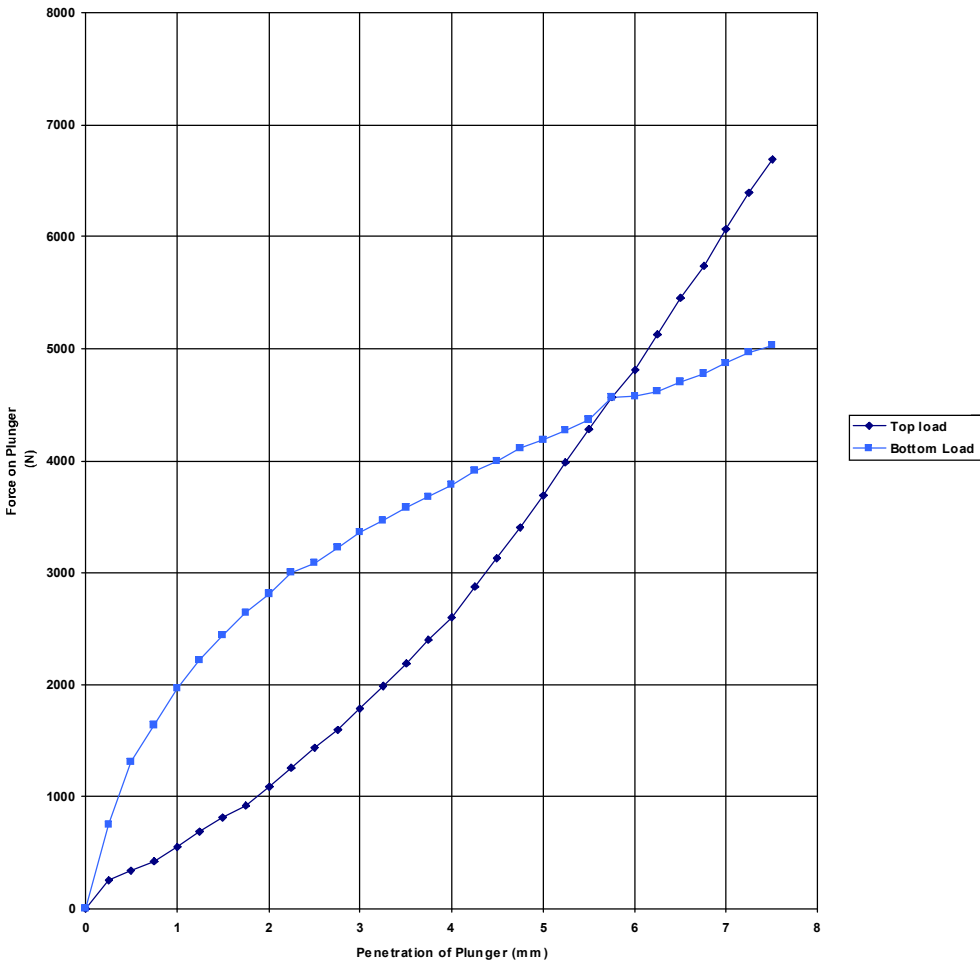
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02  
Sample Depth 0.55-1.20m  
Sample Type B  
Sample Ref N84041

Sample Description

Brown gravelly SAND with cobbles.



Penetration	Top (N)	Bottom (N)
0.25mm	257	750
0.50mm	333	1309
0.75mm	420	1639
1.00mm	551	1961
1.25mm	690	2222
1.50mm	810	2438
1.75mm	924	2640
2.00mm	1090	2811
2.25mm	1259	3001
2.50mm	1433	3085
2.75mm	1601	3222
3.00mm	1785	3362
3.25mm	1986	3466
3.50mm	2185	3586
3.75mm	2399	3677

Penetration	Top (N)	Bottom (N)
4.00mm	2602	3782
4.25mm	2873	3907
4.50mm	3123	3995
4.75mm	3404	4111
5.00mm	3691	4187
5.25mm	3982	4266
5.50mm	4277	4369
5.75mm	4569	4561
6.00mm	4805	4580
6.25mm	5127	4620
6.50mm	5450	4702
6.75mm	5742	4777
7.00mm	6069	4870
7.25mm	6395	4962
7.50mm	6692	5028

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	26.0 %
Bulk Density (Mg/m³)	2.14
Dry Density (Mg/m³)	1.98
Hand Calculation	No

CBR	Top	Bottom
Value	18	23
w%	8.0	8.1

Remarks AGS

02/11/2022



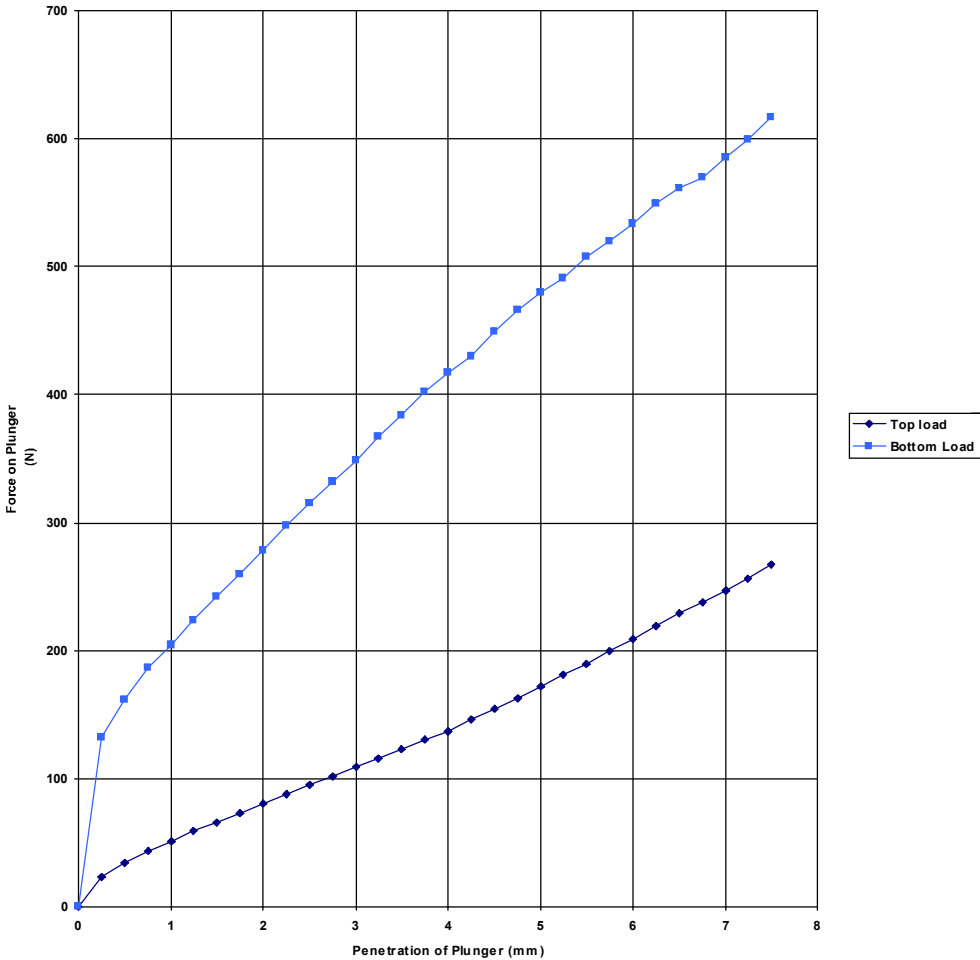
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH06  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84054

Sample Description  
Brown slightly gravelly sandy CLAY.



Penetration	Top (N)	Bottom (N)
0.25mm	23	132
0.50mm	34	162
0.75mm	43	187
1.00mm	51	204
1.25mm	59	224
1.50mm	66	242
1.75mm	73	260
2.00mm	80	278
2.25mm	88	298
2.50mm	95	315
2.75mm	102	332
3.00mm	109	349
3.25mm	116	367
3.50mm	123	384
3.75mm	130	402

Penetration	Top (N)	Bottom (N)
4.00mm	137	417
4.25mm	146	430
4.50mm	154	449
4.75mm	163	466
5.00mm	172	480
5.25mm	181	491
5.50mm	190	508
5.75mm	200	520
6.00mm	209	534
6.25mm	219	549
6.50mm	229	561
6.75mm	238	570
7.00mm	247	585
7.25mm	256	599
7.50mm	267	617

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	20.9 %
Bulk Density (Mg/m <sup>3</sup> )	2.28
Dry Density (Mg/m <sup>3</sup> )	2.06
Hand Calculation	No

CBR	Top	Bottom
Value	0.86	2.4
w%	11.0	10.4

Remarks AGS

02/11/2022

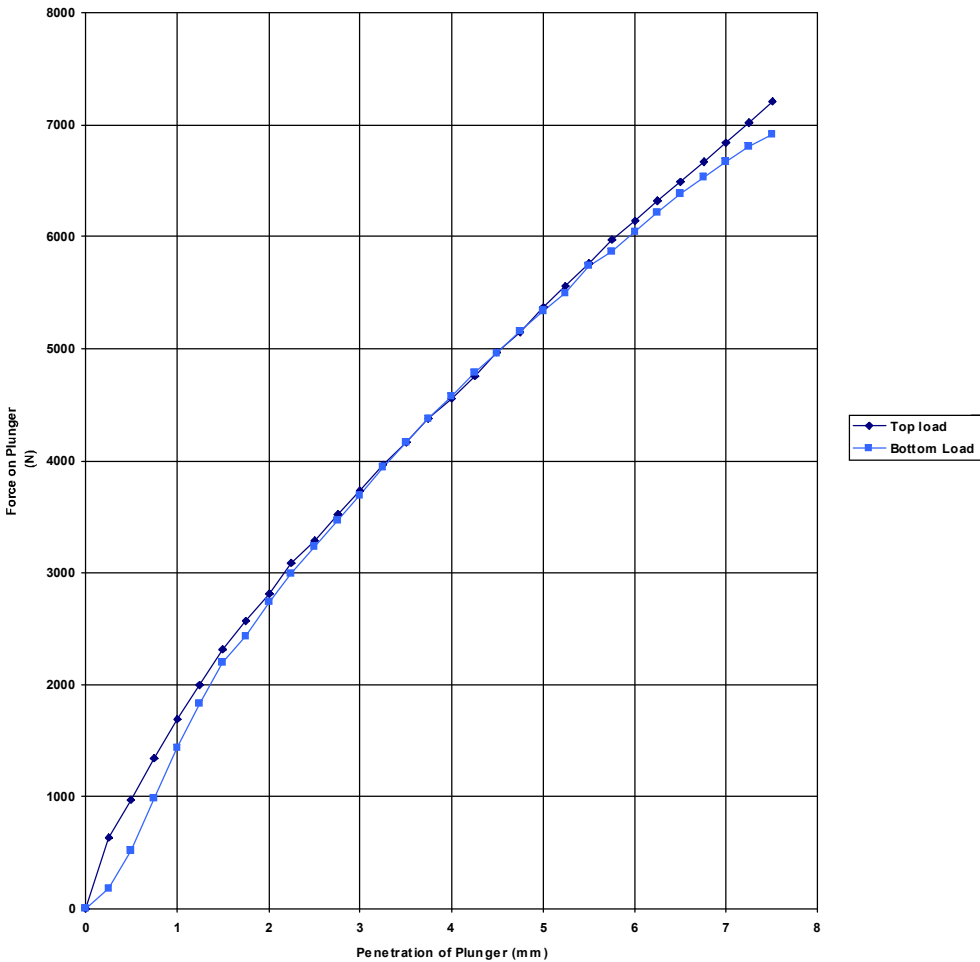
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH07  
Sample Depth 0.60-0.90m  
Sample Type B  
Sample Ref N84056

Sample Description  
Brown slightly gravelly SAND.



Penetration	Top (N)	Bottom (N)
0.25mm	631	179
0.50mm	974	521
0.75mm	1345	983
1.00mm	1689	1441
1.25mm	1998	1830
1.50mm	2311	2195
1.75mm	2573	2428
2.00mm	2808	2738
2.25mm	3090	2993
2.50mm	3289	3238
2.75mm	3518	3470
3.00mm	3729	3688
3.25mm	3964	3947
3.50mm	4168	4159
3.75mm	4378	4372

Penetration	Top (N)	Bottom (N)
4.00mm	4553	4576
4.25mm	4752	4783
4.50mm	4963	4960
4.75mm	5145	5159
5.00mm	5367	5341
5.25mm	5555	5500
5.50mm	5757	5739
5.75mm	5969	5865
6.00mm	6140	6041
6.25mm	6319	6212
6.50mm	6490	6386
6.75mm	6666	6526
7.00mm	6838	6666
7.25mm	7013	6803
7.50mm	7211	6911

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	21.6 %
Bulk Density (Mg/m³)	2.20
Dry Density (Mg/m³)	2.02
Hand Calculation	No

CBR	Top	Bottom
Value	27	27
w%	8.7	9.2

Remarks AGS

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

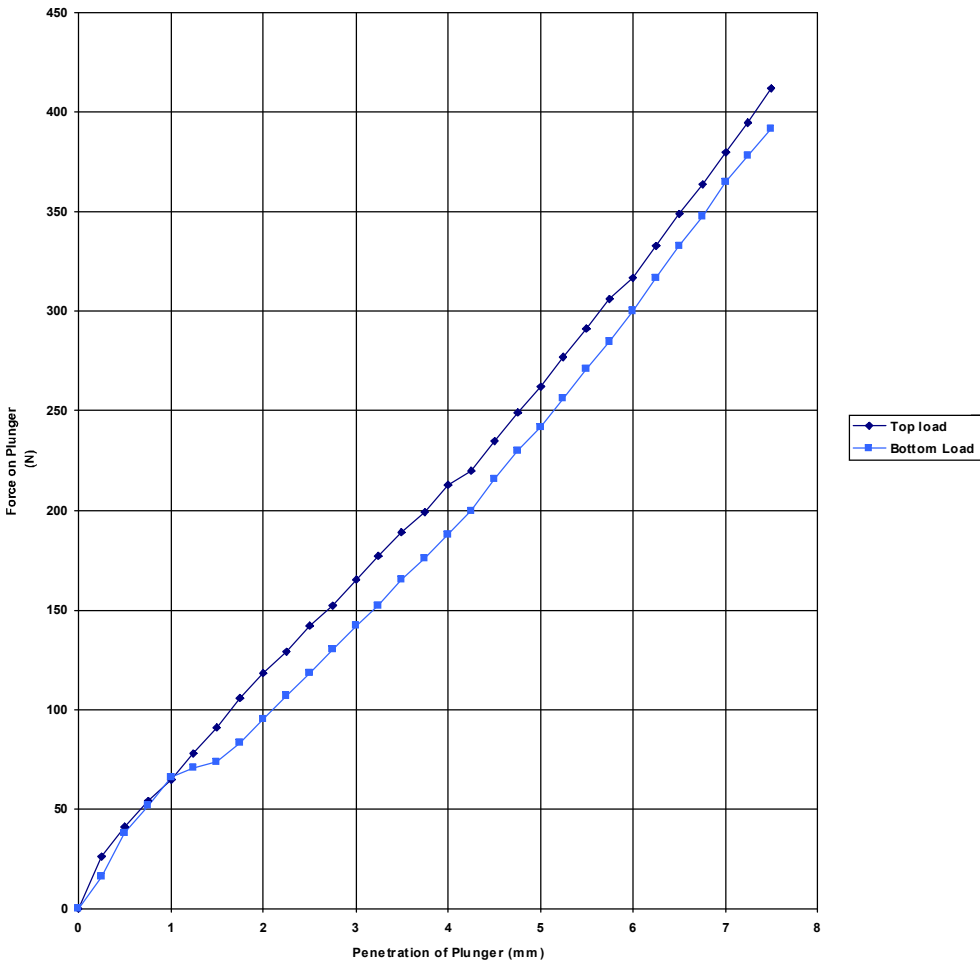
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH12  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84077

Sample Description

Brown slightly sandy gravelly CLAY with cobbles.



Penetration	Top (N)	Bottom (N)
0.25mm	26	16
0.50mm	41	38
0.75mm	54	52
1.00mm	65	66
1.25mm	78	71
1.50mm	91	74
1.75mm	106	83
2.00mm	118	95
2.25mm	129	107
2.50mm	142	118
2.75mm	152	130
3.00mm	165	142
3.25mm	177	152
3.50mm	189	165
3.75mm	199	176

Penetration	Top (N)	Bottom (N)
4.00mm	213	188
4.25mm	220	200
4.50mm	235	216
4.75mm	249	230
5.00mm	262	242
5.25mm	277	256
5.50mm	291	271
5.75mm	306	285
6.00mm	317	300
6.25mm	333	317
6.50mm	349	333
6.75mm	364	348
7.00mm	380	365
7.25mm	395	378
7.50mm	412	392

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	11.0	%
Bulk Density (Mg/m <sup>3</sup> )	2.24	
Dry Density (Mg/m <sup>3</sup> )	2.03	
Hand Calculation	No	

CBR	Top	Bottom
Value	1.3	1.2
w%	11.0	10.4

Remarks AGS

02/11/2022

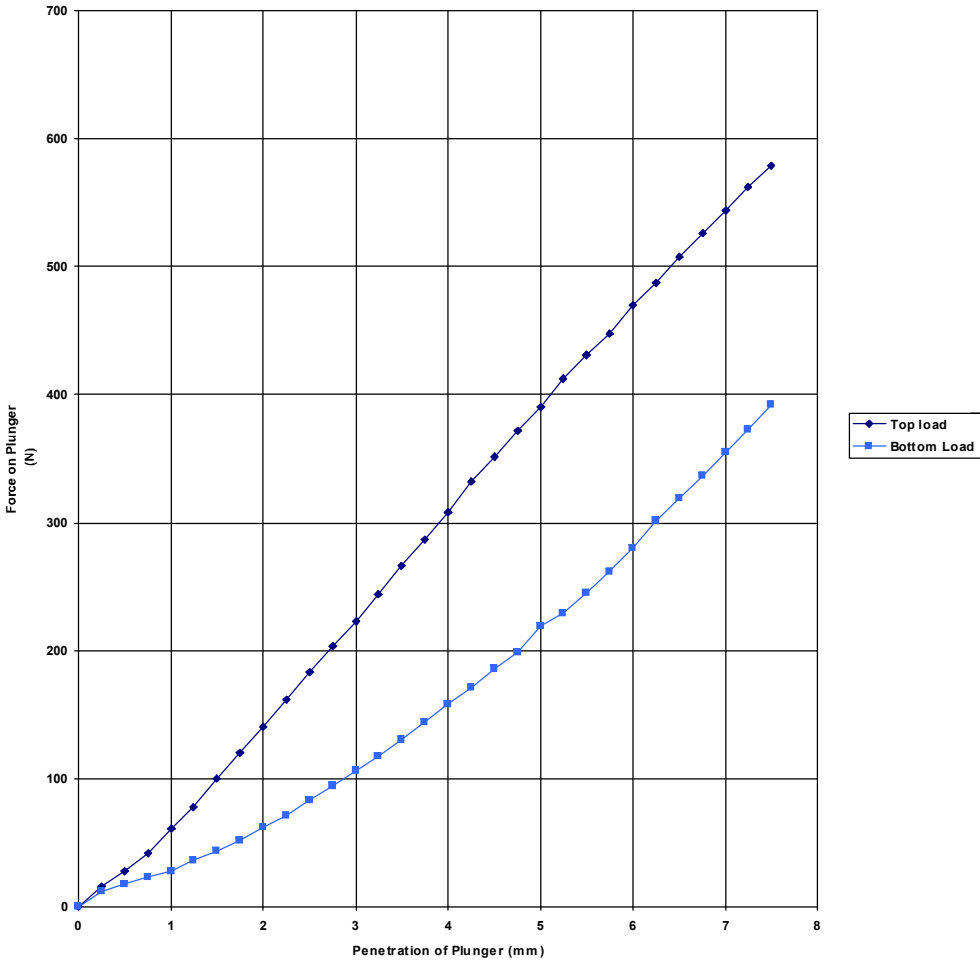
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH16  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84088

Sample Description  
Brown slightly sandy slightly gravelly clayey SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	16	12
0.50mm	28	18
0.75mm	42	23
1.00mm	61	28
1.25mm	78	36
1.50mm	100	43
1.75mm	120	52
2.00mm	141	62
2.25mm	162	71
2.50mm	183	83
2.75mm	203	94
3.00mm	223	106
3.25mm	244	117
3.50mm	266	130
3.75mm	287	144

Penetration	Top (N)	Bottom (N)
4.00mm	308	158
4.25mm	332	171
4.50mm	351	186
4.75mm	372	199
5.00mm	390	219
5.25mm	412	229
5.50mm	431	245
5.75mm	448	262
6.00mm	470	280
6.25mm	487	301
6.50mm	508	319
6.75mm	526	337
7.00mm	544	355
7.25mm	562	373
7.50mm	579	392

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	12.8	%
Bulk Density (Mg/m <sup>3</sup> )	2.16	
Dry Density (Mg/m <sup>3</sup> )	1.89	
Hand Calculation	No	

CBR	Top	Bottom
Value	2.0	1.1
w%	14.7	14.4

Remarks AGS

02/11/2022

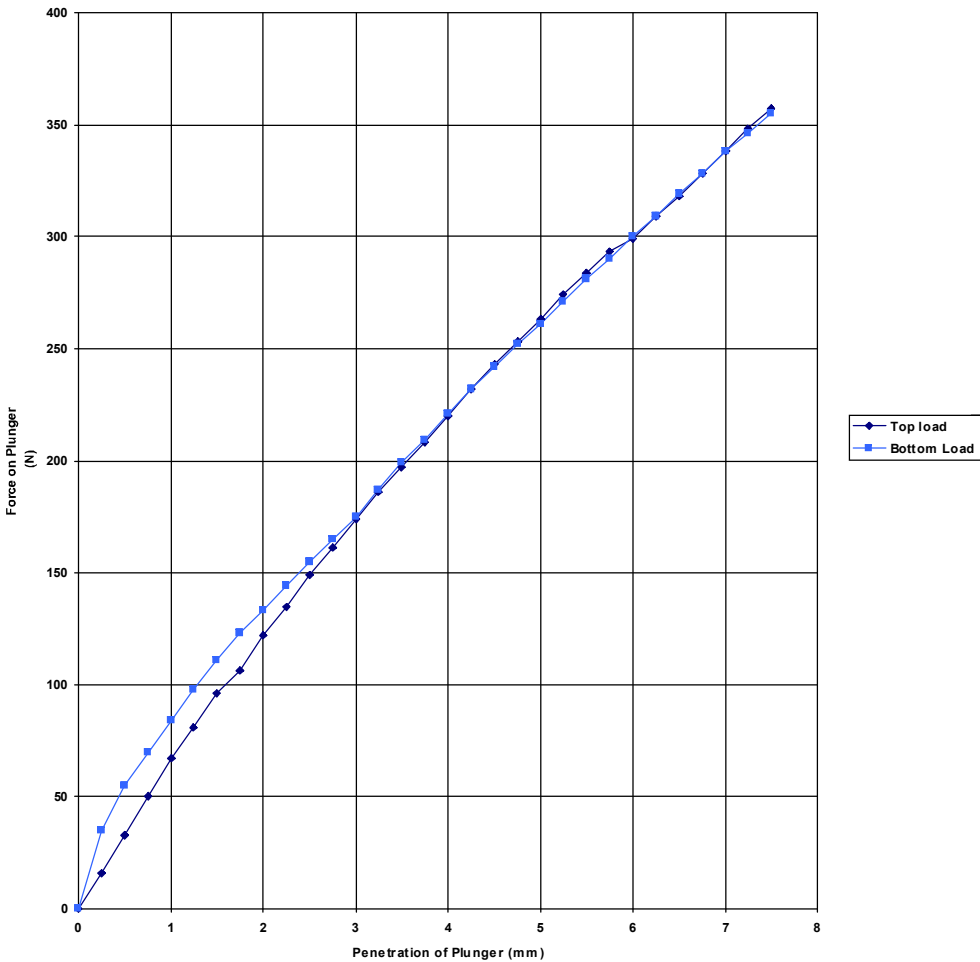
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH18  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84096

Sample Description  
Brown slightly gravelly CLAY.



Penetration	Top (N)	Bottom (N)
0.25mm	16	35
0.50mm	33	55
0.75mm	50	70
1.00mm	67	84
1.25mm	81	98
1.50mm	96	111
1.75mm	106	123
2.00mm	122	133
2.25mm	135	144
2.50mm	149	155
2.75mm	161	165
3.00mm	174	175
3.25mm	186	187
3.50mm	197	199
3.75mm	208	209

Penetration	Top (N)	Bottom (N)
4.00mm	220	221
4.25mm	232	232
4.50mm	243	242
4.75mm	253	252
5.00mm	263	261
5.25mm	274	271
5.50mm	284	281
5.75mm	293	290
6.00mm	299	300
6.25mm	309	309
6.50mm	318	319
6.75mm	328	328
7.00mm	338	338
7.25mm	348	346
7.50mm	357	355

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	6.3 %
Bulk Density (Mg/m³)	2.24
Dry Density (Mg/m³)	1.96
Hand Calculation	No

CBR	Top	Bottom
Value	1.3	1.3
w%	13.7	13.9

Remarks AGS

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

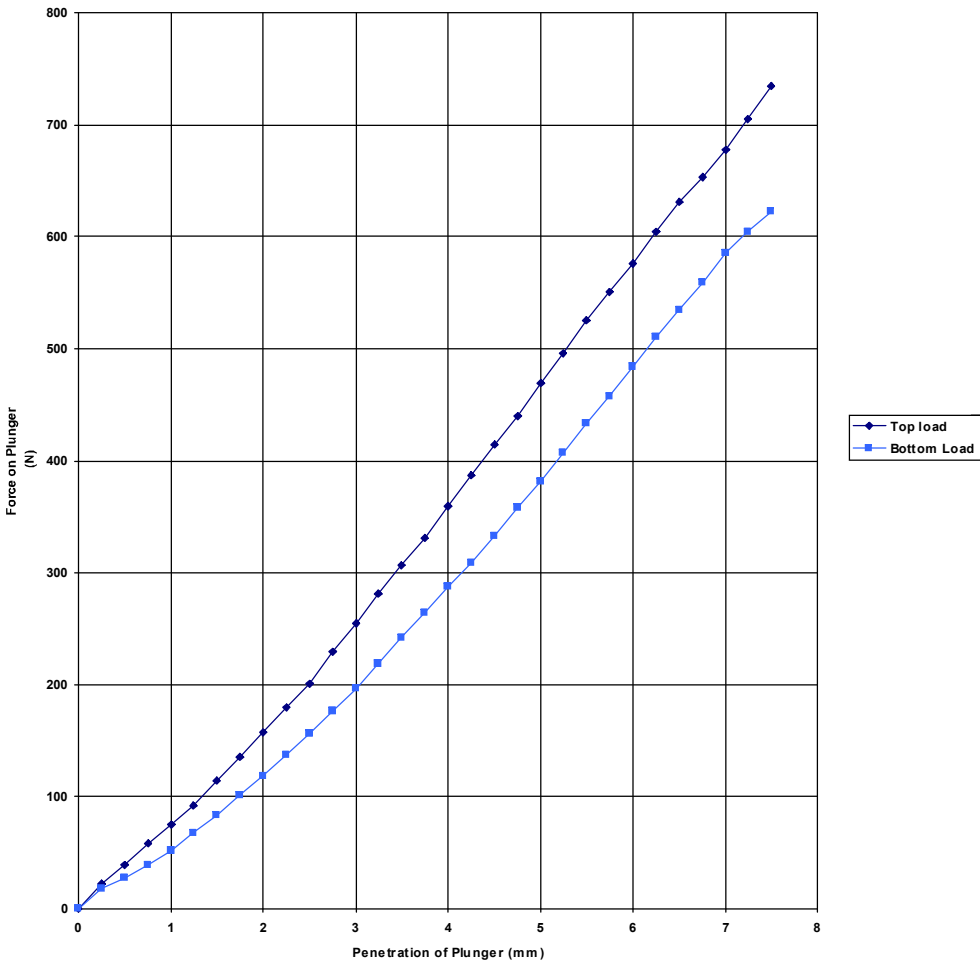
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH21  
Sample Depth 1.20-1.70m  
Sample Type B  
Sample Ref N84106

Sample Description

Brown clayey silty very sandy GRAVEL.



Penetration	Top (N)	Bottom (N)
0.25mm	22	18
0.50mm	39	28
0.75mm	58	39
1.00mm	75	52
1.25mm	92	68
1.50mm	114	84
1.75mm	135	101
2.00mm	157	118
2.25mm	180	137
2.50mm	201	156
2.75mm	229	177
3.00mm	255	197
3.25mm	281	219
3.50mm	307	242
3.75mm	331	264

Penetration	Top (N)	Bottom (N)
4.00mm	359	287
4.25mm	387	309
4.50mm	414	333
4.75mm	440	358
5.00mm	469	382
5.25mm	496	407
5.50mm	525	433
5.75mm	551	458
6.00mm	576	484
6.25mm	604	510
6.50mm	631	535
6.75mm	653	559
7.00mm	677	585
7.25mm	705	605
7.50mm	734	622

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	16.7 %
Bulk Density (Mg/m³)	2.29
Dry Density (Mg/m³)	2.06
Hand Calculation	No

CBR	Top	Bottom
Value	2.4	1.9
w%	11.3	10.9

Remarks AGS

02/11/2022



LABORATORY RESULTS - CBR Force Penetration

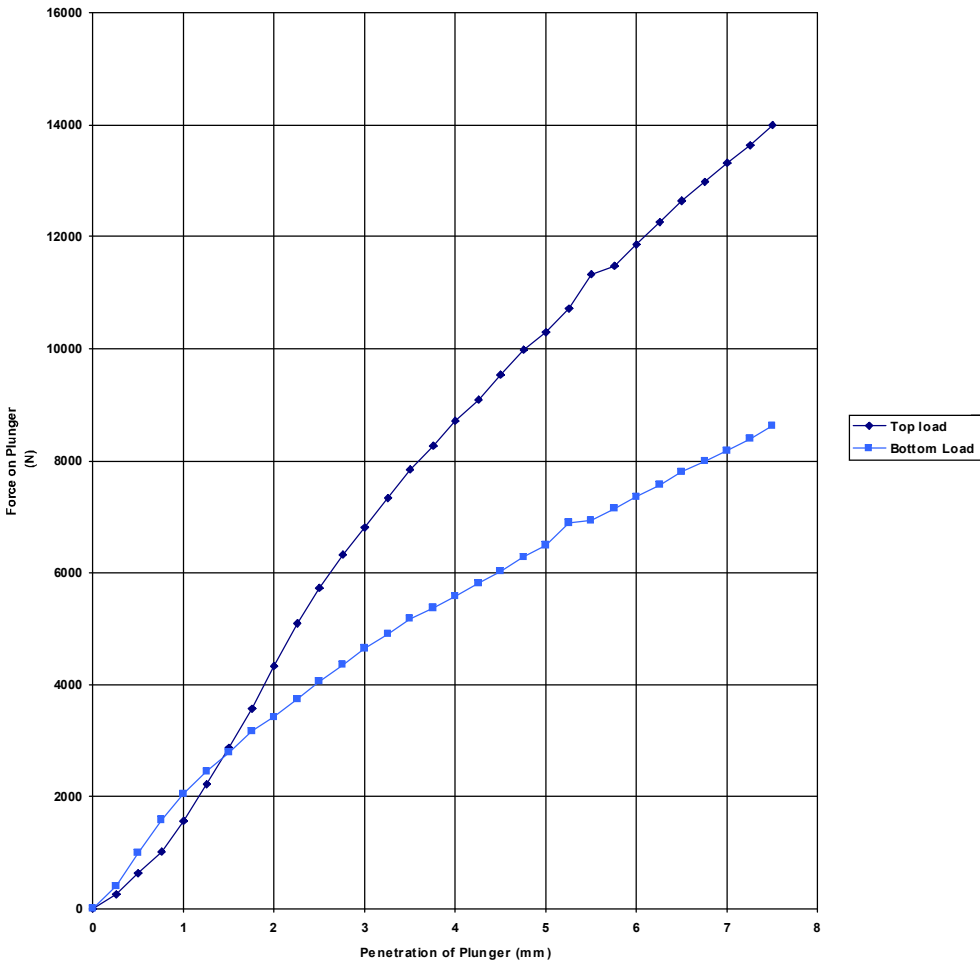
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH22  
Sample Depth 0.30-1.20m  
Sample Type B  
Sample Ref N84138

Sample Description

Brown silty/clayey very sandy GRAVEL



Penetration	Top (N)	Bottom (N)
0.25mm	245	409
0.50mm	629	997
0.75mm	1015	1581
1.00mm	1559	2054
1.25mm	2223	2460
1.50mm	2876	2799
1.75mm	3566	3161
2.00mm	4340	3426
2.25mm	5088	3747
2.50mm	5723	4050
2.75mm	6324	4352
3.00mm	6798	4641
3.25mm	7338	4909
3.50mm	7839	5171
3.75mm	8270	5372

Penetration	Top (N)	Bottom (N)
4.00mm	8699	5584
4.25mm	9097	5810
4.50mm	9540	6022
4.75mm	9972	6276
5.00mm	10292	6484
5.25mm	10708	6898
5.50mm	11329	6928
5.75mm	11469	7148
6.00mm	11852	7352
6.25mm	12250	7566
6.50mm	12642	7790
6.75mm	12969	7995
7.00mm	13318	8174
7.25mm	13640	8401
7.50mm	14001	8615

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	28.0 %
Bulk Density (Mg/m³)	2.12
Dry Density (Mg/m³)	2.01
Hand Calculation	No

CBR	Top	Bottom
Value	51	32
w%	5.3	5.4

Remarks AGS

02/11/2022

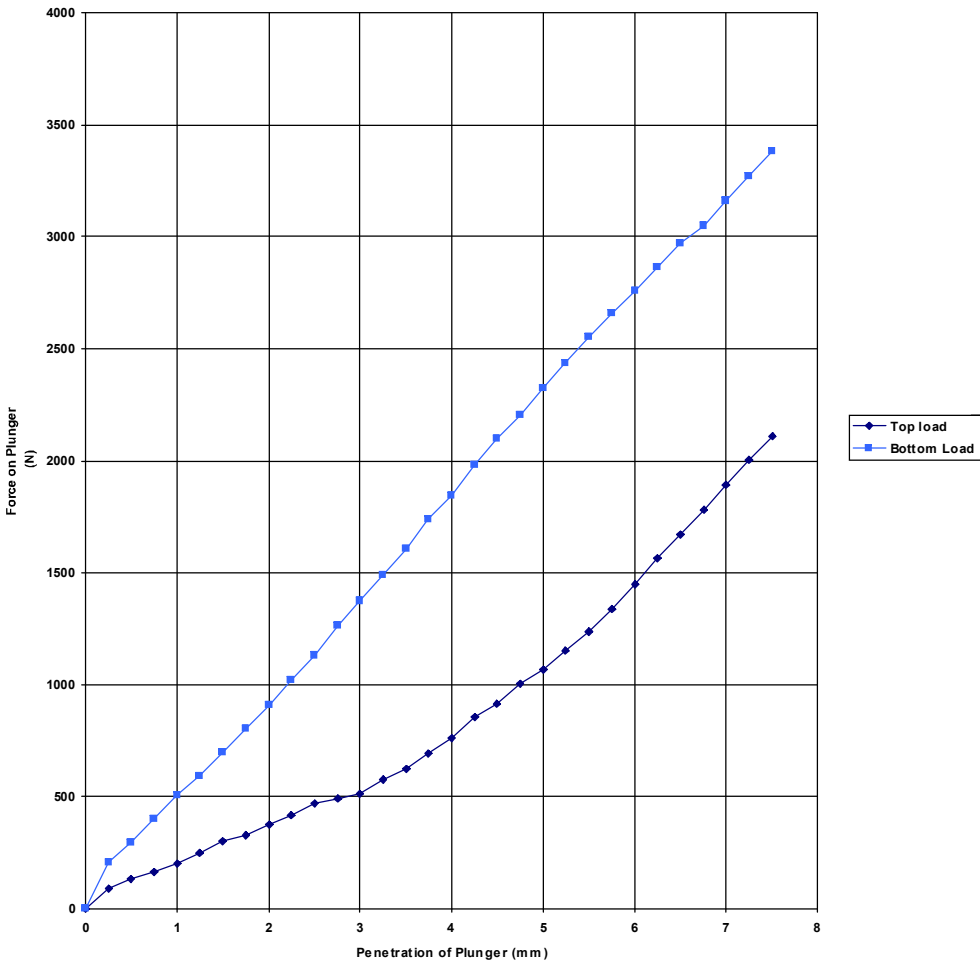
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH23  
Sample Depth 1.50-1.80m  
Sample Type B  
Sample Ref N84112

Sample Description  
Brown clayey silty very gravelly SAND.



Penetration	Top (N)	Bottom (N)
0.25mm	90	204
0.50mm	131	298
0.75mm	163	403
1.00mm	202	508
1.25mm	248	594
1.50mm	299	698
1.75mm	330	803
2.00mm	376	908
2.25mm	416	1022
2.50mm	469	1132
2.75mm	490	1262
3.00mm	515	1376
3.25mm	575	1490
3.50mm	623	1605
3.75mm	691	1737

Penetration	Top (N)	Bottom (N)
4.00mm	763	1846
4.25mm	854	1982
4.50mm	916	2096
4.75mm	1004	2205
5.00mm	1069	2323
5.25mm	1152	2434
5.50mm	1237	2550
5.75mm	1339	2656
6.00mm	1448	2759
6.25mm	1563	2862
6.50mm	1672	2971
6.75mm	1781	3050
7.00mm	1894	3161
7.25mm	2004	3272
7.50mm	2106	3380

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	27.6	%
Bulk Density (Mg/m³)	2.12	
Dry Density (Mg/m³)	1.96	
Hand Calculation	No	

CBR	Top	Bottom
Value	5.4	12
w%	8.2	8.2

Remarks AGS

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

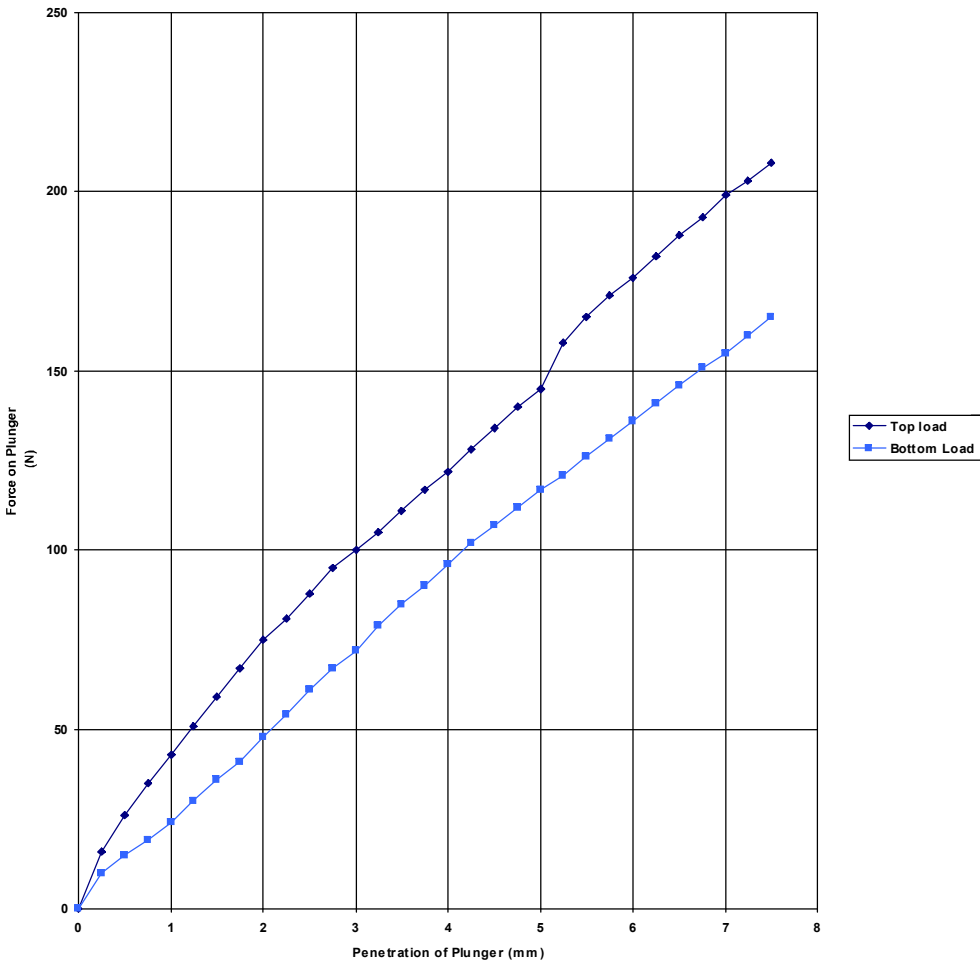
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH26  
Sample Depth 2.00-2.50m  
Sample Type B  
Sample Ref N84124

Sample Description

Brown slightly sandy slightly gravelly CLAY.



Penetration	Top (N)	Bottom (N)
0.25mm	16	10
0.50mm	26	15
0.75mm	35	19
1.00mm	43	24
1.25mm	51	30
1.50mm	59	36
1.75mm	67	41
2.00mm	75	48
2.25mm	81	54
2.50mm	88	61
2.75mm	95	67
3.00mm	100	72
3.25mm	105	79
3.50mm	111	85
3.75mm	117	90

Penetration	Top (N)	Bottom (N)
4.00mm	122	96
4.25mm	128	102
4.50mm	134	107
4.75mm	140	112
5.00mm	145	117
5.25mm	158	121
5.50mm	165	126
5.75mm	171	131
6.00mm	176	136
6.25mm	182	141
6.50mm	188	146
6.75mm	193	151
7.00mm	199	155
7.25mm	203	160
7.50mm	208	165

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	17.3 %
Bulk Density (Mg/m³)	2.23
Dry Density (Mg/m³)	1.97
Hand Calculation	No

CBR	Top	Bottom
Value	0.73	0.59
w%	13.2	13.2

Remarks AGS

02/11/2022

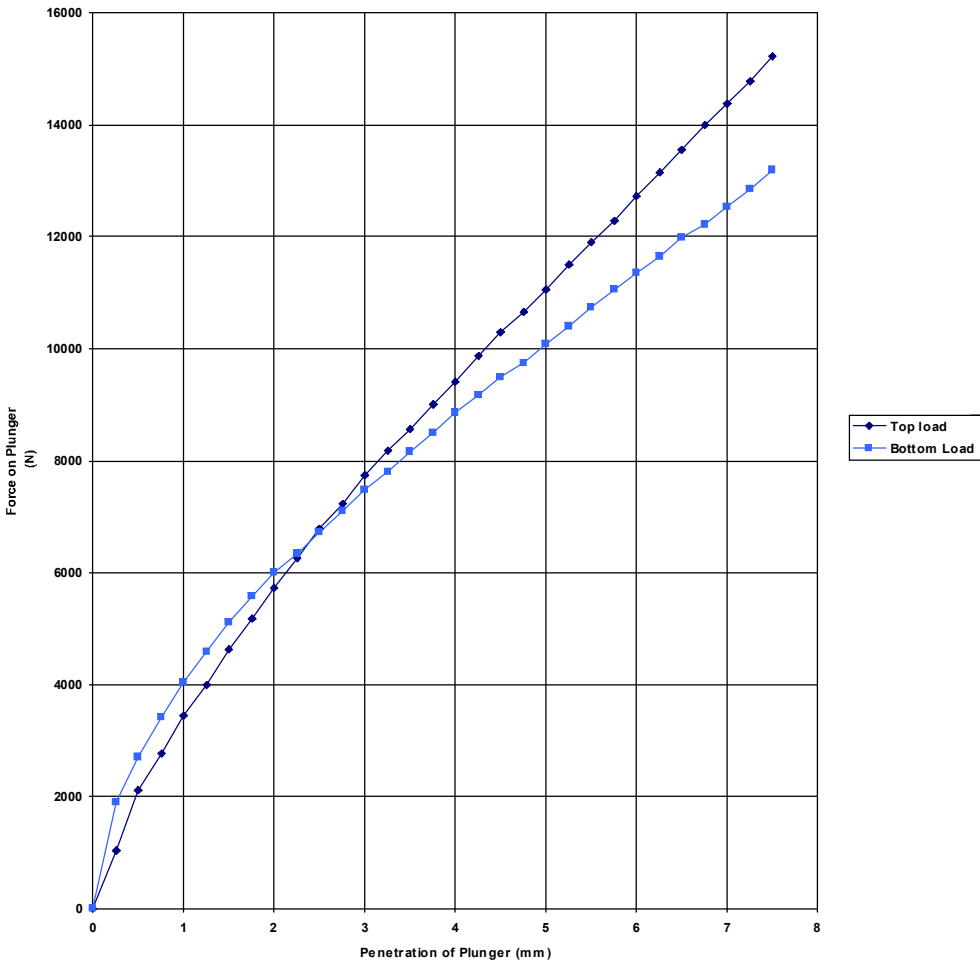
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH29  
Sample Depth 0.90-1.20m  
Sample Type B  
Sample Ref N84131

Sample Description  
Brown slightly clayey gravelly SAND.



Penetration	Top (N)	Bottom (N)
0.25mm	1034	1892
0.50mm	2110	2705
0.75mm	2776	3414
1.00mm	3450	4038
1.25mm	3996	4584
1.50mm	4620	5115
1.75mm	5182	5575
2.00mm	5726	5997
2.25mm	6255	6338
2.50mm	6778	6722
2.75mm	7230	7099
3.00mm	7742	7472
3.25mm	8171	7801
3.50mm	8567	8151
3.75mm	9009	8492

Penetration	Top (N)	Bottom (N)
4.00mm	9407	8849
4.25mm	9872	9183
4.50mm	10287	9500
4.75mm	10652	9747
5.00mm	11054	10076
5.25mm	11497	10401
5.50mm	11900	10743
5.75mm	12288	11053
6.00mm	12733	11340
6.25mm	13143	11639
6.50mm	13549	11974
6.75mm	13992	12219
7.00mm	14364	12539
7.25mm	14782	12852
7.50mm	15227	13191

Test Type	2.5kg
Method	BS1377 Part 4 1990 : Clause 7.0
Surcharge	13.60 kg
	41.6 %
Bulk Density (Mg/m³)	2.20
Dry Density (Mg/m³)	2.05
Hand Calculation	No

CBR	Top	Bottom
Value	55	51
w%	7.2	7.0

Remarks AGS

02/11/2022

# LABORATORY RESULTS - MCV, Compaction, CBR

Project NEWPORT QUINN PHASE 2

Project No: PN224395

Sample					MCV		Compaction					CBR				
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	MCV	w	Type	w (Opt) %	$\rho_d$ Mg/m <sup>3</sup>	$\gamma_b$ Mg/m <sup>3</sup>	$\gamma_d$ (Max) Mg/m <sup>3</sup>	Type	Top		Bottom	
						%							CBR %	w %	CBR %	w %
BH01	0.50 (0.50)	D	N84035	Reddish brown clayey gravelly SAND. (See Test Remarks Sheet for further information)						2.20	2.11	2.5kg	37	3.1	58	5.4
BH01	1.20- 1.70 (1.20- 1.70)	B	N84036	Brown sandy gravelly CLAY (See Test Remarks Sheet for further information)						2.16	2.02	2.5kg	47	7.5	25	7.3
BH02	0.55- 1.20 (0.55- 1.20)	B	N84041	Brown gravelly SAND with cobbles.						2.14	1.98	2.5kg	18	8.0	23	8.1
BH02	1.20- 1.70 (1.20- 1.70)	B	N84042	Brown slightly gravelly SAND.			4.5kg	(6.3) 11.8* 13.3 5.9 8.7 3.2	2.65a	*2.21 2.11 2.30 2.31 2.06	(2.18) *1.97 1.86 2.17 2.12 2.00					
BH04A	1.20- 1.70 (1.20- 1.70)	B	N84050	Brown slightly gravelly sandy CLAY.			2.5kg	(9.0) 12.6* 14.7 6.3 8.2 10.1	2.65a	*2.22 2.15 2.18 2.25 2.28	(2.09) *1.97 1.87 2.05 2.08 2.07					
BH05	2.00- 2.50 (2.00- 2.50)	B	N84052	Brow slightly gravelly slightly sandy CLAY.			4.5kg	(9.0) 12.4* 19.6 7.6 9.9 15.2 4.7	2.65a	*2.15 2.05 2.19 2.20 2.13 1.94	(2.03) *1.92 1.71 2.03 2.00 1.85 1.85					
BH06	1.20- 1.70 (1.20- 1.70)	B	N84054	Brown slightly gravelly sandy CLAY.						2.28	2.06	2.5kg	0.86	11.0	2.4	10.4
BH07	0.60- 0.90 (0.60- 0.90)	B	N84056	Brown slightly gravelly SAND.						2.20	2.02	2.5kg	27	8.7	27	9.2
BH08	1.20- 1.70 (1.20- 1.70)	B	N84061	Brown slightly sandy clayey GRAVEL.			2.5kg	(8.5) 9.4* 12.0 14.3 4.4 7.5	2.75a	*2.35 2.30 2.28 2.06 2.27	(2.16) *2.15 2.05 1.99 1.98 2.12					

## Remarks

Particle Density - a=assumed, m=measured  
w% - \* = at natural moisture content; x = aggregate moisture content  
# = stabilised, see relevant test plot for details  
NST = Not suitable for Test  
For Standards followed see Laboratory Test Certificate

# LABORATORY RESULTS - MCV, Compaction, CBR

Project NEWPORT QUINN PHASE 2

Project No: PN224395

Sample					MCV		Compaction					CBR				
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	MCV	w	Type	w (Opt) %	$\rho_d$ Mg/m <sup>3</sup>	$\gamma_b$ Mg/m <sup>3</sup>	$\gamma_d$ (Max) Mg/m <sup>3</sup>	Type	Top		Bottom	
						%							CBR %	w %	CBR %	w %
BH12	1.20- 1.70 (1.20- 1.70)	B	N84077	Brown slightly sandy gravelly CLAY with cobbles.						2.24	2.03	2.5kg	1.3	11.0	1.2	10.4
BH13	1.20- 1.70 (1.20- 1.70)	B	N84079	Brown slightly gravelly clayey SAND.			4.5kg	(7.5) 12.1* 3.7 8.7 13.8 6.4	2.70a	*2.25 2.18 2.31 2.19 2.26	(2.15) *2.01 2.10 2.13 1.92 2.12					
BH14A	3.00- 3.45 (3.00- 3.45)	D	N84084	Brown mottled red slightly gravelly CLAY. (See Test Remarks Sheet for further information)			2.5kg	(17.5) 23.2* 24.5 14.9 16.8 19.1	2.65a	*2.01 1.98 1.94 2.02 2.06	(1.75) *1.63 1.59 1.69 1.73 1.73					
BH16	1.20- 1.70 (1.20- 1.70)	B	N84088	Brown slightly sandy slightly gravelly clayey SILT.						2.16	1.89	2.5kg	2.0	14.7	1.1	14.4
BH16	3.00- 3.50 (3.00- 3.50)	B	N84090	Brown slightly sandy slightly gravelly clayey SILT.			4.5kg	(7.5) 13.7* 6.0 7.3 10.0 16.2 3.8	2.75a	*2.24 2.25 2.35 2.31 2.19 2.03	(2.18) *1.97 2.12 2.19 2.10 1.88 1.96					
BH17A	2.00- 2.50 (2.00- 2.50)	B	N84093	Brown slightly gravelly slightly sandy CLAY.			4.5kg	(6.0) 6.2 8.1 2.4 12.2* 4.4 10.2	2.75a	2.32 2.29 2.16 *2.22 2.26 2.24	(2.19) 2.18 2.12 2.11 *1.97 2.16 2.03					
BH18	1.20- 1.70 (1.20- 1.70)	B	N84096	Brown slightly gravelly CLAY.						2.24	1.96	2.5kg	1.3	13.7	1.3	13.9
BH19	2.00- 2.50 (2.00- 2.50)	B	N84101	Brown clayey sandy GRAVEL.			2.5kg	(7.5) 9.3* 3.9 5.8 8.6 12.3 15.9	2.70a	*2.26 2.05 2.20 2.27 2.24 2.18	(2.10) *2.07 1.97 2.08 2.09 1.99 1.88					

## Remarks

Particle Density - a=assumed, m=measured  
w% - \* = at natural moisture content; x = aggregate moisture content  
# = stabilised, see relevant test plot for details  
NST = Not suitable for Test  
For Standards followed see Laboratory Test Certificate

**GEOTECHNICS**  
geotechnical and geoenvironmental specialists



# LABORATORY RESULTS - MCV, Compaction, CBR

Project NEWPORT QUINN PHASE 2

Project No: PN224395

Sample					MCV		Compaction					CBR				
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	MCV	w	Type	w (Opt) %	$\rho_d$ Mg/m <sup>3</sup>	$\gamma_b$ Mg/m <sup>3</sup>	$\gamma_d$ (Max) Mg/m <sup>3</sup>	Type	Top		Bottom	
						%							CBR %	w %	CBR %	w %
BH20	3.00- 3.50 (3.00- 3.50)	B	N84105	Brown clayey silty very gravelly SAND.			4.5kg	(7.0) 11.9* 2.7 6.1 8.6 13.5	2.70a	*2.30 2.21 2.33 2.29 2.21	(2.21) *2.05 2.15 2.19 2.11 1.95					
BH21	1.20- 1.70 (1.20- 1.70)	B	N84106	Brown clayey silty very sandy GRAVEL.						2.29	2.06	2.5kg	2.4	11.3	1.9	10.9
BH22	0.30- 1.20 (0.30- 1.20)	B	N84138	Brown silty/clayey very sandy GRAVEL						2.12	2.01	2.5kg	51	5.3	32	5.4
BH23	1.50- 1.80 (1.50- 1.80)	B	N84112	Brown clayey silty very gravelly SAND.						2.12	1.96	2.5kg	5.4	8.2	12	8.2
BH24	1.20- 1.70 (1.20- 1.70)	B	N84116	Brown slightly sandy slightly gravelly CLAY with cobbles.			2.5kg	(7.5) 12.5* 3.4 5.4 8.8 10.2	2.75a	*2.28 2.10 2.23 2.37 2.33	(2.20) *2.03 2.03 2.12 2.18 2.12					
BH25	1.20- 1.70 (1.20- 1.70)	B	N84121	Brown slightly sandy slightly gravelly CLAY.			4.5kg	(7.5) 14.6* 2.9 6.4 9.3 11.6	2.75a	*2.23 2.15 2.29 2.36 2.31	(2.18) *1.95 2.09 2.15 2.16 2.07					
BH26	2.00- 2.50 (2.00- 2.50)	B	N84124	Brown slightly sandy slightly gravelly CLAY.						2.23	1.97	2.5kg	0.73	13.2	0.59	13.2
BH27	0.36- 1.20 (0.36- 1.20)	B	N84127	Brown gravelly SAND.			2.5kg	(8.0) 6.1* 5.0 8.2 9.5 11.9	2.70a	*2.21 2.14 2.33 2.30 2.27	(2.16) *2.09 2.04 2.15 2.10 2.03					
BH29	0.90- 1.20 (0.90- 1.20)	B	N84131	Brown slightly clayey gravelly SAND.						2.20	2.05	2.5kg	55	7.2	51	7.0

## Remarks

Particle Density - a=assumed, m=measured  
w% - \* = at natural moisture content; x = aggregate moisture content  
# = stabilised, see relevant test plot for details  
NST = Not suitable for Test  
For Standards followed see Laboratory Test Certificate

### LABORATORY RESULTS - MCV, Compaction, CBR

**Project** NEWPORT QUINN PHASE 2

**Project No:** PN224395

[illegible]Remarks 

Particle Density - a=assumed, m=measured  
w% - \* = at natural moisture content; x = aggregate moisture content  
# = stabilised, see relevant test plot for details  
NST = Not suitable for Test  
For Standards followed see Laboratory Test Certificate

**GEOTECHNICS**  
geotechnical and geoenvironmental specialists

# LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project Newport Quinn

Project No PN224395

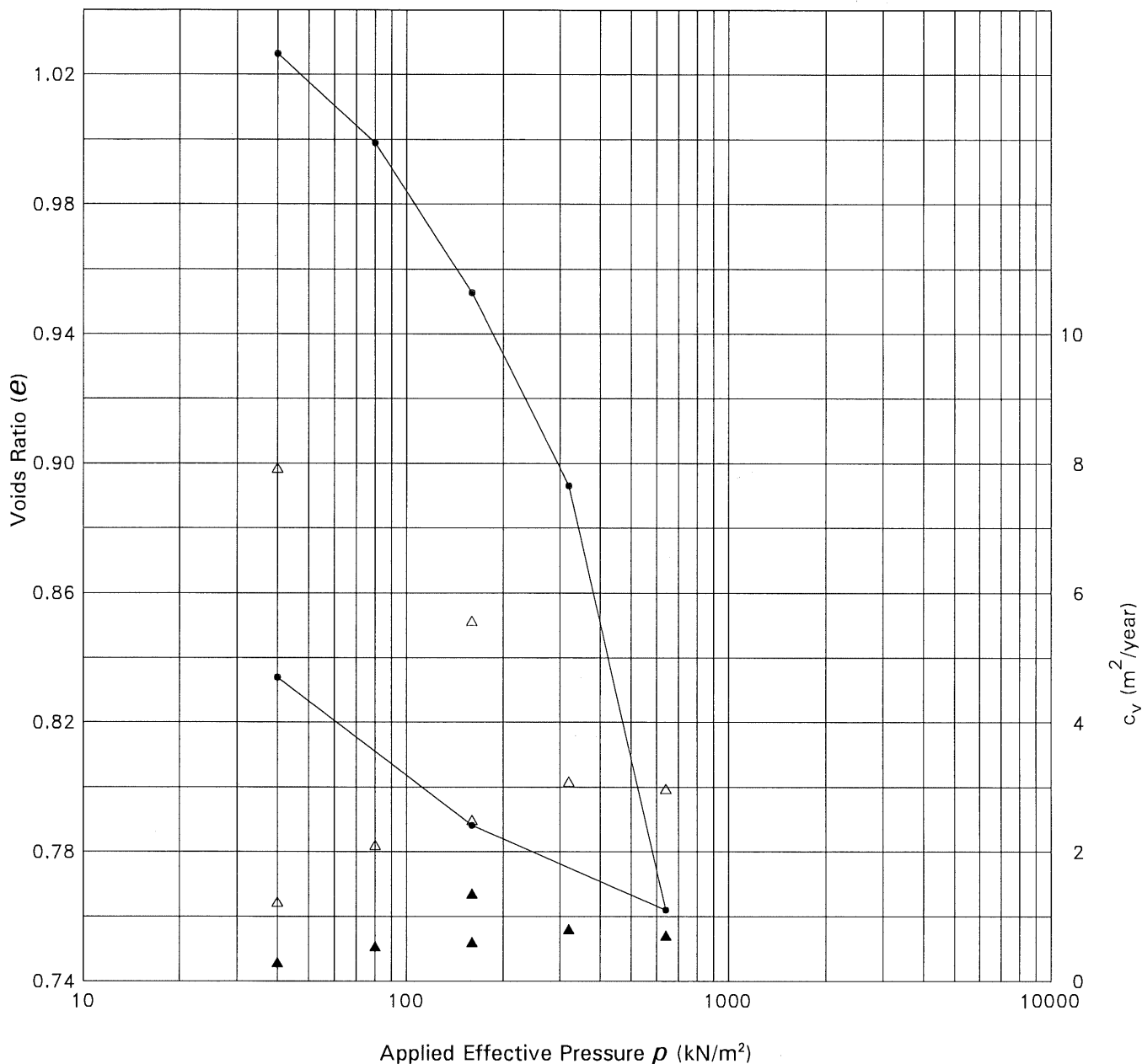
Borehole BH09

Sample Depth 4.00 - 4.45 m

Sample Type U

Client

Symbols: Voids Ratio  $\bullet$ ,  $c_{v50}$   $\blacktriangle$ ,  $c_{v90}$   $\triangle$



Applied Pressure	kN/m <sup>2</sup>	0-40	40-80	80-160	160-320	320-640	640-160	160-40			
m <sub>v</sub>	m <sup>2</sup> /MN	0.44	0.34	0.29	0.19	0.22	0.03	0.21			
c <sub>v50</sub> Log Time	m <sup>2</sup> /yr	-	0.53	0.60	0.80	0.70	1.35	0.29			
c <sub>v90</sub> Root Time	m <sup>2</sup> /yr	-	2.10	2.49	3.08	2.97	5.57	1.22			
Voids Ratio		1.026	0.999	0.953	0.893	0.762	0.788	0.834			
Description N84065 - Firm reddish brown slightly gravelly silty CLAY				Specimen Diameter	74.550	mm	Initial Water Content		41.35	%	
				Initial Height	18.700	mm	Final Water Content		34.73	%	
				Particle Density	2.65 Assumed		Initial Saturation		100	%	
				Initial Voids Ratio	1.063	Initial Bulk Density		1.82	Mg/m <sup>3</sup>		
						Initial Dry Density		1.28	Mg/m <sup>3</sup>		

Remarks Laboratory temperature  $20^\circ C \pm 3^\circ C$   
Specimen cut vertically from middle of sample  
Test performed in accordance with BS EN ISO 17892-5:2017  
Average laboratory temperature during test  $20^\circ C$



# LABORATORY REPORT



4043

**Contract Number: PSL22/7077**

Report Date: 22 November 2022  
Client's Reference: PN224395  
Client Name: Geotechnics  
203 Torrington Avenue  
Tile Hill  
Coventry  
CV4 9UT

**For the attention of: Paul Smart**

Contract Title: Newport Quinn Phase 2  
Date Received: 2/11/2022  
Date Commenced: 2/11/2022  
Date Completed: 22/11/2022

**Notes: Opinions and Interpretations are outside the UKAS Accreditation**

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

Checked and Approved Signatories:

A Watkins  
(Director)

R Berriman  
(Quality Manager)

S Royle  
(Laboratory Manager)

L Knight  
(Assistant Laboratory Manager)

  
S Eyre  
(Senior Technician)

T Watkins  
(Senior Technician)

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Page 1 of

## SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

**PSL**  
Professional Soils Laboratory

Newport Quinn

**Contract No:****PSL22/7077****Client Ref:****PN224395**

# ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH09

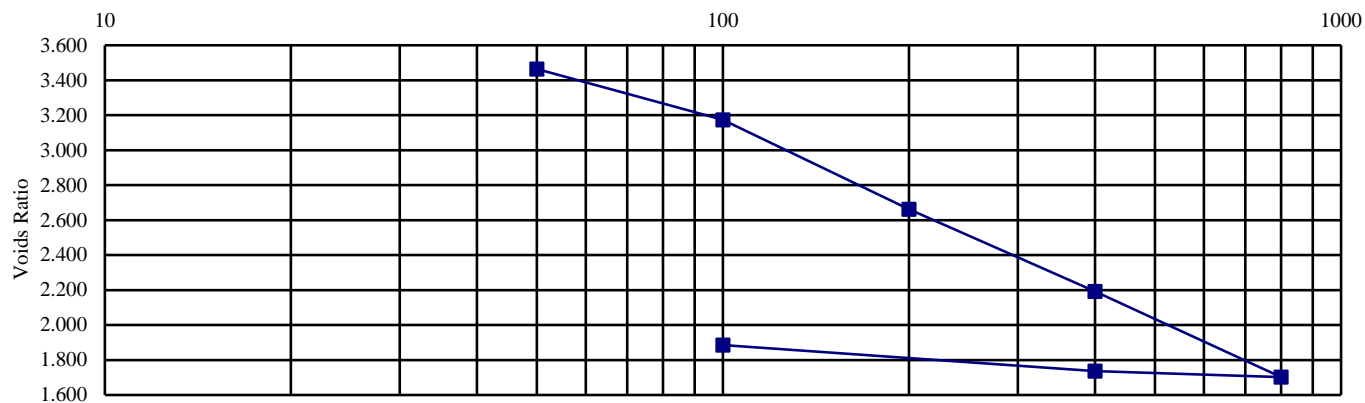
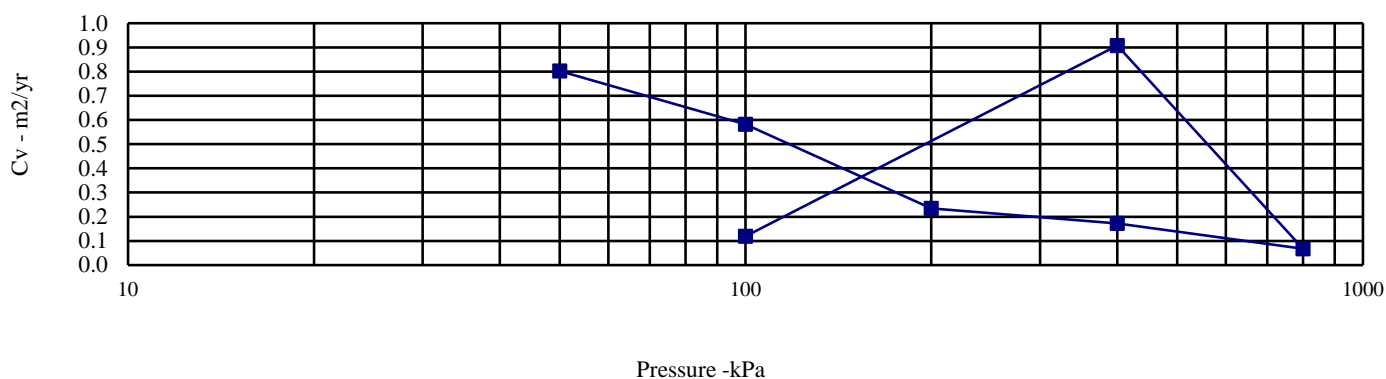
Top Depth (m): 5.00

Sample Number: N84066

Base Depth (m) : 5.45

Sample Type: UT

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	133	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	1.28	0	50	1.515	0.803	Method used to	
Dry Density (Mg/m3):	0.55	50	100	1.303	0.582	determine CV:	T90
Voids Ratio:	3.830	100	200	1.223	0.234	Nominal temperature	
Degree of saturation:	91.7	200	400	0.643	0.173	during test ' C:	20
Height (mm):	19.938	400	800	0.383	0.068	Remarks:	
Diameter (mm)	75.01	800	400	0.032	0.908	See summary of soil descriptions	
Particle Density (Mg/m3):	2.65	400	100	0.182	0.118		
Assumed							



Newport Quinn

Contract No:

PSL22/7077

Client Ref:

PN224395





## Certificate of Analysis

**Certificate Number** 22-18896

**Issued:** 29-Sep-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-18896

**Client Reference** PN224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** 28 Soil samples.

**Date Received** 23-Sep-22

**Date Started** 23-Sep-22

**Date Completed** 29-Sep-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



2139

## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-18896

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2062081	2062082	2062083	2062084	2062085	2062086	2062087	2062088	2062089	2062090	2062091
Sample ID	BH01	BH01	BH03	BH04	BH05	BH06	BH10	BH11	BH12	BH14A	BH15
Depth	1.20	5.80	2.00-2.50	3.00-3.50	1.00	2.00-2.50	1.00	2.00-2.50	1.00	1.80	1.80
Other ID											
Sample Type	D	D	D	D	D	D	D	D	D	D	D
Sampling Date	n/s	10/08/2022	n/s	n/s	n/s	n/s	n/s	n/s	11/08/2022	04/08/2022	02/08/2022
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units											
<b>Metals</b>														
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
<b>Inorganics</b>														
pH	DETSC 2008#		pH	7.8	8.8	7.1	8.3	7.9	8.3	8.4	7.1	7.7	10.5	8.0
Organic matter	DETSC 2002#	0.1	%											
Ammonia Aqueous Extract as N	DETSC 2119	10	mg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Chloride Aqueous Extract	DETSC 2055	1	mg/l	6.8	18	4.7	7.0	13	6.0	4.7	3.7	6.2	23	4.1
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.7	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	15	34	16	14	12	12	27	< 10	12	64	15
Sulphur as S, Total	DETSC 2320	0.01	%	< 0.01	0.02	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.05	< 0.01
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.02	0.04	0.02	0.03	0.02	0.01	0.02	< 0.01	< 0.01	0.07	< 0.01

## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-18896

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2062092	2062093	2062094	2062095	2062096	2062097	2062098	2062099	2062100	2062101	2062102
Sample ID	BH18	BH18	BH20	BH21	BH22	BH23	BH24	BH25	BH27	BH28	BH28
Depth	4.00-4.45	4.80	0.80	5.00-5.45	3.90	1.00	4.00	0.55	1.00	2.70	3.80
Other ID											
Sample Type	D	D	D	D	D	D	D	D	D	D	D
Sampling Date	03/08/2022	03/08/2022	n/s	31/08/2022	02/08/2022	26/07/2022	n/s	28/07/2022	n/s	n/s	29/07/2022
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units											
<b>Metals</b>														
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
<b>Inorganics</b>														
pH	DETSC 2008#		pH	7.4	7.0	8.0	7.0	7.3	7.7	8.8	11.1	10.7	7.5	7.0
Organic matter	DETSC 2002#	0.1	%											
Ammonia Aqueous Extract as N	DETSC 2119	10	mg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Chloride Aqueous Extract	DETSC 2055	1	mg/l	6.4	5.7	4.2	8.3	6.3	15	11	29	5.9	3.5	5.3
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	24	29	32	19	17	13	29	99	13	17	15
Sulphur as S, Total	DETSC 2320	0.01	%	< 0.01	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.21	0.01	< 0.01	< 0.01
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.02	0.02	0.03	0.01	< 0.01	0.02	0.03	0.29	0.02	0.01	< 0.01

## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-18896

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2062103	2062104	2062105	2062106	2062107	2062108
Sample ID	BH29	BH29	BH30	BH30	BH09	BH26
Depth	1.00	4.00	1.00	5.00-5.45	4.50-5.00	4.80
Other ID						
Sample Type	D	D	D	D	D	D
Sampling Date	n/s	28/07/2022	28/07/2022	05/08/2022	n/s	11/08/2022
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
<b>Metals</b>									
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	< 10	< 10	< 10	< 10		
<b>Inorganics</b>									
pH	DETSC 2008#		pH	8.5	6.6	7.2	11.2		
Organic matter	DETSC 2002#	0.1	%					0.7	21
Ammonia Aqueous Extract as N	DETSC 2119	10	mg/l	< 10	< 10	< 10	< 10		
Chloride Aqueous Extract	DETSC 2055	1	mg/l	2.1	11	6.3	30		
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	< 1.0	< 1.0	< 1.0	< 1.0		
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	20	42	25	92		
Sulphur as S, Total	DETSC 2320	0.01	%	< 0.01	< 0.01	< 0.01	0.07		
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.01	0.02	0.01	0.25		

## Information in Support of the Analytical Results

Our Ref 22-18896  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2062081	BH01 1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062082	BH01 5.80 SOIL	10/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062083	BH03 2.00-2.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062084	BH04 3.00-3.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062085	BH05 1.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062086	BH06 2.00-2.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062087	BH10 1.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062088	BH11 2.00-2.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062089	BH12 1.00 SOIL	11/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062090	BH14A 1.80 SOIL	04/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062091	BH15 1.80 SOIL	02/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	

## Information in Support of the Analytical Results

Our Ref 22-18896  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2062092	BH18 4.00-4.45 SOIL	03/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062093	BH18 4.80 SOIL	03/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062094	BH20 0.80 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062095	BH21 5.00-5.45 SOIL	31/08/22	PT 1L	Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2062096	BH22 3.90 SOIL	02/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062097	BH23 1.00 SOIL	26/07/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062098	BH24 4.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062099	BH25 0.55 SOIL	28/07/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062100	BH27 1.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062101	BH28 2.70 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
2062102	BH28 3.80 SOIL	29/07/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062103	BH29 1.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	



## Information in Support of the Analytical Results

Our Ref 22-18896  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2062104	BH29 4.00 SOIL	28/07/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062105	BH30 1.00 SOIL	28/07/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062106	BH30 5.00-5.45 SOIL	05/08/22	PT 1L	Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2062107	BH09 4.50-5.00 SOIL		PT 1L	Sample date not supplied, Organic Matter (Manual) (28 days)	
2062108	BH26 4.80 SOIL	11/08/22	PT 500ml	Organic Matter (Manual) (28 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



# LABORATORY REPORT



4043

**Contract Number: PSL22/6080**

Report Date: 05 October 2022  
Client's Reference: PN224395  
Client Name: Geotechnics  
203 Torrington Avenue  
Tile Hill  
Coventry  
CV4 9UT

**For the attention of: Josh Noble**

Contract Title: Newport Quinn Phase 2  
Date Received: 21/9/2022  
Date Commenced: 21/9/2022  
Date Completed: 5/10/2022

**Notes: Opinions and Interpretations are outside the UKAS Accreditation**

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

Checked and Approved Signatories:

A Watkins  
(Director)

R Berriman  
(Quality Manager)

S Royle  
(Laboratory Manager)

L Knight  
(Assistant Laboratory Manager)

  
S Eyre  
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# SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm <sup>2</sup> )	D <sub>c</sub> <sup>2</sup>	D <sub>c</sub> (mm)	Failure Load (P)		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH01	8.18		I	Perp	75	30	2250	2864.79	53.52	-	0.71	0.25	1.031	0.26	Valid	
BH01	8.26		A	Perp	80	27	2160	2750.20	52.44	-	0.18	0.07	1.022	0.07	Valid	
BH01	8.61		A	Perp	80	28	2240	2852.06	53.40	-	0.31	0.11	1.030	0.11	Valid	
BH01	8.73		A	Perp	80	28	2240	2852.06	53.40	-	0.27	0.09	1.030	0.10	Valid	
BH01	8.86		A	Perp	80	30	2400	3055.77	55.28	-	0.17	0.06	1.046	0.06	Valid	
BH01	10.70		A	Perp	80	26	2080	2648.34	51.46	-	0.89	0.34	1.013	0.34	Valid	
BH01	12.50		A	Perp	80	28	2240	2852.06	53.40	-	0.30	0.11	1.030	0.11	Valid	
BH01	12.83		A	Perp	80	27	2160	2750.20	52.44	-	0.17	0.06	1.022	0.06	Valid	
BH01	13.05		A	Perp	80	30	2400	3055.77	55.28	-	2.88	0.94	1.046	0.99	Valid	
BH01	13.40		A	Perp	80	32	2560	3259.49	57.09	-	0.84	0.26	1.062	0.27	Valid	
BH01	15.37		A	Perp	80	28	2240	2852.06	53.40	-	1.81	0.63	1.030	0.65	Valid	
BH01	16.42		A	Perp	80	28	2240	2852.06	53.40	-	1.21	0.42	1.030	0.44	Valid	
BH01	18.00		A	Perp	80	25	2000	2546.48	50.46	-	0.88	0.35	1.004	0.35	Valid	
BH01	18.92		A	Perp	80	30	2400	3055.77	55.28	-	1.20	0.39	1.046	0.41	Valid	
BH01	19.95		A	Perp	80	48	3840	4889.24	69.92	-	3.11	0.64	1.163	0.74	Valid	

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 <b>PSL</b> Professional Soils Laboratory	Newport Quinn Phase 2		Contract No:
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			Client Ref:
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# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		$D_c^2$	$D_c$ (mm)	Failure Load		$I_s$ (MPa)	Corr Fac F	$I_{s50}$ (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH01	8.26		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH01	8.61		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH01	8.73		D	Par	-	80	6400	80.00	-	0.44	0.069	1.236	0.08	Valid	
BH01	8.86		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH01	10.70		D	Par	-	80	6400	80.00	-	1.00	0.156	1.236	0.19	Valid	
BH01	12.50		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	
BH01	12.83		D	Par	-	80	6400	80.00	-	0.12	0.019	1.236	0.02	Valid	
BH01	13.05		D	Par	-	80	6400	80.00	-	2.63	0.411	1.236	0.51	Valid	
BH01	13.40		D	Par	-	80	6400	80.00	-	0.91	0.142	1.236	0.18	Valid	
BH01	15.37		D	Par	-	80	6400	80.00	-	1.26	0.197	1.236	0.24	Valid	
BH01	16.42		D	Par	-	80	6400	80.00	-	1.03	0.161	1.236	0.20	Valid	
BH01	18.00		D	Par	-	80	6400	80.00	-	0.97	0.152	1.236	0.19	Valid	
BH01	18.92		D	Par	-	80	6400	80.00	-	1.14	0.178	1.236	0.22	Valid	
BH01	19.95		D	Par	-	80	6400	80.00	-	2.78	0.434	1.236	0.54	Valid	

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Newport Quinn Phase 2

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# SUMMARY OF POINT LOAD TEST RESULTS



ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm <sup>2</sup> )	D <sub>c</sub> <sup>2</sup>	D <sub>c</sub> (mm)	Failure Load (P)		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH04A	5.52		A	Perp	80	38	3040	3870.65	62.21	-	0.22	0.06	1.103	0.06	Valid	
BH04A	5.60		A	Perp	80	47	3760	4787.38	69.19	-	0.17	0.04	1.157	0.04	Valid	
BH04A	5.78		A	Perp	80	40	3200	4074.37	63.83	-	0.22	0.05	1.116	0.06	Valid	
BH04A	6.65		A	Perp	80	38	3040	3870.65	62.21	-	0.11	0.03	1.103	0.03	Valid	
BH04A	6.80		A	Perp	80	39	3120	3972.51	63.03	-	0.38	0.10	1.110	0.11	Valid	
BH04A	8.10		A	Perp	80	42	3360	4278.08	65.41	-	0.18	0.04	1.128	0.05	Valid	
BH04A	9.95		A	Perp	80	28	2240	2852.06	53.40	-	0.27	0.09	1.030	0.10	Valid	
BH04A	10.93		A	Perp	80	25	2000	2546.48	50.46	-	0.18	0.07	1.004	0.07	Valid	
BH04A	12.21		A	Perp	80	28	2240	2852.06	53.40	-	0.28	0.10	1.030	0.10	Valid	
BH04A	14.45		A	Perp	80	30	2400	3055.77	55.28	-	0.74	0.24	1.046	0.25	Valid	
BH04A	15.87		A	Perp	80	30	2400	3055.77	55.28	-	0.37	0.12	1.046	0.13	Valid	
BH04A	16.43		A	Perp	80	28	2240	2852.06	53.40	-	0.80	0.28	1.030	0.29	Valid	
BH04A	17.40		A	Perp	80	34	2720	3463.21	58.85	-	0.14	0.04	1.076	0.04	Valid	
BH04A	19.20		A	Perp	80	38	3040	3870.65	62.21	-	0.20	0.05	1.103	0.06	Valid	

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

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 <b>4043</b>		<b>Newport Quinn Phase 2</b>	<b>Contract No:</b>
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			<b>Client Ref:</b>
			<b>PN224395</b>

# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH04A	5.52		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH04A	5.60		D	Par	-	80	6400	80.00	-	0.21	0.033	1.236	0.04	Valid	
BH04A	5.78		D	Par	-	80	6400	80.00	-	0.16	0.025	1.236	0.03	Valid	
BH04A	6.65		D	Par	-	80	6400	80.00	-	0.06	0.009	1.236	0.01	Valid	
BH04A	6.80		D	Par	-	80	6400	80.00	-	0.24	0.038	1.236	0.05	Valid	
BH04A	8.10		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH04A	9.95		D	Par	-	80	6400	80.00	-	0.23	0.036	1.236	0.04	Valid	
BH04A	10.93		D	Par	-	80	6400	80.00	-	0.10	0.016	1.236	0.02	Valid	
BH04A	12.21		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH04A	14.45		D	Par	-	80	6400	80.00	-	0.63	0.098	1.236	0.12	Valid	
BH04A	15.87		D	Par	-	80	6400	80.00	-	0.40	0.063	1.236	0.08	Valid	
BH04A	16.43		D	Par	-	80	6400	80.00	-	0.76	0.119	1.236	0.15	Valid	
BH04A	17.40		D	Par	-	80	6400	80.00	-	0.18	0.028	1.236	0.03	Valid	
BH04A	19.20		D	Par	-	80	6400	80.00	-	0.15	0.023	1.236	0.03	Valid	

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Newport Quinn Phase 2

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# SUMMARY OF POINT LOAD TEST RESULTS



ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm <sup>2</sup> )	D <sub>c</sub> <sup>2</sup>	D <sub>c</sub> (mm)	Failure Load (P)		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH07	7.86		I	Perp	37	24	888	1130.64	33.62	-	0.30	0.27	0.836	0.22	Valid	
BH07	8.32		A	Perp	80	28	2240	2852.06	53.40	-	0.20	0.07	1.030	0.07	Valid	
BH07	9.94		A	Perp	80	27	2160	2750.20	52.44	-	0.18	0.07	1.022	0.07	Valid	
BH07	10.10		I	Perp	32	21	672	855.62	29.25	-	0.21	0.25	0.786	0.19	Valid	
BH07	10.40		A	Perp	80	27	2160	2750.20	52.44	-	0.22	0.08	1.022	0.08	Valid	
BH07	12.69		A	Perp	80	25	2000	2546.48	50.46	-	0.11	0.04	1.004	0.04	Valid	
BH07	13.43		A	Perp	80	28	2240	2852.06	53.40	-	0.22	0.08	1.030	0.08	Valid	
BH07	13.70		A	Perp	80	27	2160	2750.20	52.44	-	0.20	0.07	1.022	0.07	Valid	
BH07	15.27		A	Perp	80	36	2880	3666.93	60.56	-	0.21	0.06	1.090	0.06	Valid	
BH07	15.60		A	Perp	80	48	3840	4889.24	69.92	-	0.26	0.05	1.163	0.06	Valid	
BH07	16.90		A	Perp	80	47	3760	4787.38	69.19	-	0.20	0.04	1.157	0.05	Valid	
BH07	17.21		A	Perp	80	33	2640	3361.35	57.98	-	0.47	0.14	1.069	0.15	Valid	
BH07	18.00		A	Perp	80	27	2160	2750.20	52.44	-	0.18	0.07	1.022	0.07	Valid	
BH07	18.90		A	Perp	80	38	3040	3870.65	62.21	-	0.22	0.06	1.103	0.06	Valid	
BH07	19.85		A	Perp	80	43	3440	4379.94	66.18	-	0.37	0.08	1.134	0.10	Valid	

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			<b>Client Ref:</b>
			<b>PN224395</b>



# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH07	8.32		D	Par	-	80	6400	80.00	-	0.28	0.044	1.236	0.05	Valid	
BH07	9.94		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH07	10.40		D	Par	-	80	6400	80.00	-	0.17	0.027	1.236	0.03	Valid	
BH07	12.69		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	
BH07	13.43		D	Par	-	80	6400	80.00	-	0.21	0.033	1.236	0.04	Valid	
BH07	13.70		D	Par	-	80	6400	80.00	-	0.16	0.025	1.236	0.03	Valid	
BH07	15.27		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	
BH07	15.60		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH07	16.90		D	Par	-	80	6400	80.00	-	0.21	0.033	1.236	0.04	Valid	
BH07	17.21		D	Par	-	80	6400	80.00	-	0.33	0.052	1.236	0.06	Valid	
BH07	18.00		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	
BH07	18.90		D	Par	-	80	6400	80.00	-	0.23	0.036	1.236	0.04	Valid	
BH07	19.85		D	Par	-	80	6400	80.00	-	0.49	0.077	1.236	0.09	Valid	

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# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm <sup>2</sup> )	D <sub>c</sub> <sup>2</sup>	D <sub>c</sub> (mm)	Failure Load (P)		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH10	6.74		A	Perp	80	28	2240	2852.06	53.40	-	0.77	0.27	1.030	0.28	Valid	
BH10	7.50		A	Perp	80	25	2000	2546.48	50.46	-	1.01	0.40	1.004	0.40	Valid	
BH10	8.45		A	Perp	80	30	2400	3055.77	55.28	-	0.38	0.12	1.046	0.13	Valid	
BH10	8.98		A	Perp	80	31	2480	3157.63	56.19	-	1.01	0.32	1.054	0.34	Valid	
BH10	9.47		A	Perp	80	38	3040	3870.65	62.21	-	0.27	0.07	1.103	0.08	Valid	
BH10	11.30		A	Perp	80	30	2400	3055.77	55.28	-	2.71	0.89	1.046	0.93	Valid	
BH10	11.90		A	Perp	80	31	2480	3157.63	56.19	-	2.37	0.75	1.054	0.79	Valid	
BH10	12.33		A	Perp	80	27	2160	2750.20	52.44	-	1.30	0.47	1.022	0.48	Valid	
BH10	12.82		A	Perp	80	27	2160	2750.20	52.44	-	4.21	1.53	1.022	1.56	Valid	
BH10	13.08		A	Perp	80	28	2240	2852.06	53.40	-	2.01	0.70	1.030	0.73	Valid	
BH10	14.16		A	Perp	80	31	2480	3157.63	56.19	-	1.53	0.48	1.054	0.51	Valid	
BH10	16.20		A	Perp	80	27	2160	2750.20	52.44	-	1.94	0.71	1.022	0.72	Valid	
BH10	17.43		A	Perp	80	30	2400	3055.77	55.28	-	0.88	0.29	1.046	0.30	Valid	
BH10	19.05		A	Perp	80	37	2960	3768.79	61.39	-	1.94	0.51	1.097	0.56	Valid	
BH10	20.24		A	Perp	80	28	2240	2852.06	53.40	-	0.89	0.31	1.030	0.32	Valid	

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# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		$D_c^2$	$D_c$ (mm)	Failure Load		$I_s$ (MPa)	Corr Fac F	$I_{s50}$ (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH10	6.74		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH10	7.50		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH10	8.45		D	Par	-	80	6400	80.00	-	0.43	0.067	1.236	0.08	Valid	
BH10	8.98		D	Par	-	80	6400	80.00	-	0.88	0.138	1.236	0.17	Valid	
BH10	9.47		D	Par	-	80	6400	80.00	-	0.36	0.056	1.236	0.07	Valid	
BH10	11.30		D	Par	-	80	6400	80.00	-	1.98	0.309	1.236	0.38	Valid	
BH10	11.90		D	Par	-	80	6400	80.00	-	2.45	0.383	1.236	0.47	Valid	
BH10	12.33		D	Par	-	80	6400	80.00	-	1.17	0.183	1.236	0.23	Valid	
BH10	12.82		D	Par	-	80	6400	80.00	-	3.04	0.475	1.236	0.59	Valid	
BH10	13.08		D	Par	-	80	6400	80.00	-	3.85	0.602	1.236	0.74	Valid	
BH10	14.16		D	Par	-	80	6400	80.00	-	1.48	0.231	1.236	0.29	Valid	
BH10	16.20		D	Par	-	80	6400	80.00	-	2.64	0.413	1.236	0.51	Valid	
BH10	17.43		D	Par	-	80	6400	80.00	-	0.71	0.111	1.236	0.14	Valid	
BH10	19.05		D	Par	-	80	6400	80.00	-	1.84	0.288	1.236	0.36	Valid	
BH10	20.24		D	Par	-	80	6400	80.00	-	0.70	0.109	1.236	0.14	Valid	

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# SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm <sup>2</sup> )	D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load (P)		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH14A	7.15		A	Perp	80	37	2960	3768.79	61.39	-	0.24	0.06	1.097	0.07	Valid	
BH14A	8.03		A	Perp	80	37	2960	3768.79	61.39	-	0.20	0.05	1.097	0.06	Valid	
BH14A	8.50		A	Perp	80	34	2720	3463.21	58.85	-	0.22	0.06	1.076	0.07	Valid	
BH14A	10.80		A	Perp	80	28	2240	2852.06	53.40	-	0.18	0.06	1.030	0.07	Valid	
BH14A	11.80		A	Perp	80	30	2400	3055.77	55.28	-	0.19	0.06	1.046	0.07	Valid	
BH14A	12.00		A	Perp	80	44	3520	4481.80	66.95	-	0.20	0.04	1.140	0.05	Valid	
BH14A	12.80		A	Perp	80	32	2560	3259.49	57.09	-	0.22	0.07	1.062	0.07	Valid	
BH14A	13.40		A	Perp	80	36	2880	3666.93	60.56	-	0.18	0.05	1.090	0.05	Valid	
BH14A	13.90		A	Perp	80	32	2560	3259.49	57.09	-	0.16	0.05	1.062	0.05	Valid	
BH14A	14.00		A	Perp	80	40	3200	4074.37	63.83	-	0.27	0.07	1.116	0.07	Valid	
BH14A	14.90		I	Perp	72	38	2736	3483.58	59.02	-	0.24	0.07	1.078	0.07	Valid	
BH14A	16.15		A	Perp	80	32	2560	3259.49	57.09	-	0.20	0.06	1.062	0.07	Valid	
BH14A	16.77		A	Perp	80	40	3200	4074.37	63.83	-	0.20	0.05	1.116	0.05	Valid	
BH14A	17.77		A	Perp	80	38	3040	3870.65	62.21	-	0.19	0.05	1.103	0.05	Valid	
BH14A	18.80		A	Perp	80	30	2400	3055.77	55.28	-	0.22	0.07	1.046	0.08	Valid	
BH14A	20.22		A	Perp	80	30	2400	3055.77	55.28	-	0.22	0.07	1.046	0.08	Valid	

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 <b>PSL</b> Professional Soils Laboratory	Newport Quinn Phase 2		Contract No:
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# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH14A	7.15		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH14A	8.03		D	Par	-	80	6400	80.00	-	0.16	0.025	1.236	0.03	Valid	
BH14A	8.50		D	Par	-	80	6400	80.00	-	0.19	0.030	1.236	0.04	Valid	
BH14A	10.80		D	Par	-	80	6400	80.00	-	0.16	0.025	1.236	0.03	Valid	
BH14A	11.80		D	Par	-	80	6400	80.00	-	0.15	0.023	1.236	0.03	Valid	
BH14A	12.00		D	Par	-	80	6400	80.00	-	0.18	0.028	1.236	0.03	Valid	
BH14A	12.80		D	Par	-	80	6400	80.00	-	0.17	0.027	1.236	0.03	Valid	
BH14A	13.40		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH14A	13.90		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH14A	14.00		D	Par	-	80	6400	80.00	-	0.19	0.030	1.236	0.04	Valid	
BH14A	16.15		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH14A	16.77		D	Par	-	80	6400	80.00	-	0.18	0.028	1.236	0.03	Valid	
BH14A	17.77		D	Par	-	80	6400	80.00	-	0.17	0.027	1.236	0.03	Valid	
BH14A	18.80		D	Par	-	80	6400	80.00	-	0.24	0.038	1.236	0.05	Valid	
BH14A	20.22		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	

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# SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm <sup>2</sup> )	D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load (P)		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH17A	6.50		A	Perp	80	44	3520	4481.80	66.95	-	0.38	0.08	1.140	0.10	Valid	
BH17A	7.05		A	Perp	80	38	3040	3870.65	62.21	-	0.32	0.08	1.103	0.09	Valid	
BH17A	7.60		A	Perp	80	38	3040	3870.65	62.21	-	0.36	0.09	1.103	0.10	Valid	
BH17A	9.30		A	Perp	80	40	3200	4074.37	63.83	-	0.24	0.06	1.116	0.07	Valid	
BH17A	10.25		A	Perp	80	34	2720	3463.21	58.85	-	0.14	0.04	1.076	0.04	Valid	
BH17A	11.40		A	Perp	80	40	3200	4074.37	63.83	-	0.40	0.10	1.116	0.11	Valid	
BH17A	12.00		A	Perp	80	44	3520	4481.80	66.95	-	0.31	0.07	1.140	0.08	Valid	
BH17A	12.50		A	Perp	80	36	2880	3666.93	60.56	-	0.30	0.08	1.090	0.09	Valid	
BH17A	15.80		A	Perp	80	38	3040	3870.65	62.21	-	0.48	0.12	1.103	0.14	Valid	
BH17A	16.15		A	Perp	80	37	2960	3768.79	61.39	-	0.37	0.10	1.097	0.11	Valid	
BH17A	16.60		A	Perp	80	45	3600	4583.66	67.70	-	0.88	0.19	1.146	0.22	Valid	
BH17A	16.95		A	Perp	80	30	2400	3055.77	55.28	-	0.94	0.31	1.046	0.32	Valid	
BH17A	17.43		A	Perp	80	47	3760	4787.38	69.19	-	1.08	0.23	1.157	0.26	Valid	
BH17A	17.80		A	Perp	80	50	4000	5092.96	71.36	-	0.41	0.08	1.174	0.09	Valid	
BH17A	19.64		A	Perp	80	38	3040	3870.65	62.21	-	18.99	4.91	1.103	5.41	Valid	
BH17A	19.85		A	Perp	80	28	2240	2852.06	53.40	-	9.21	3.23	1.030	3.33	Valid	

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

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 <b>PSL</b> Professional Soils Laboratory	Newport Quinn Phase 2		Contract No:
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			Client Ref:
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# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH17A	6.50		D	Par	-	80	6400	80.00	-	1.04	0.163	1.236	0.20	Valid	
BH17A	7.05		D	Par	-	80	6400	80.00	-	0.40	0.063	1.236	0.08	Valid	
BH17A	7.60		D	Par	-	80	6400	80.00	-	0.47	0.073	1.236	0.09	Valid	
BH17A	9.30		D	Par	-	80	6400	80.00	-	0.38	0.059	1.236	0.07	Valid	
BH17A	10.25		D	Par	-	80	6400	80.00	-	0.17	0.027	1.236	0.03	Valid	
BH17A	11.40		D	Par	-	80	6400	80.00	-	0.36	0.056	1.236	0.07	Valid	
BH17A	12.00		D	Par	-	80	6400	80.00	-	0.43	0.067	1.236	0.08	Valid	
BH17A	12.50		D	Par	-	80	6400	80.00	-	0.32	0.050	1.236	0.06	Valid	
BH17A	15.80		D	Par	-	80	6400	80.00	-	0.41	0.064	1.236	0.08	Valid	
BH17A	16.15		D	Par	-	80	6400	80.00	-	0.50	0.078	1.236	0.10	Valid	
BH17A	16.60		D	Par	-	80	6400	80.00	-	0.47	0.073	1.236	0.09	Valid	
BH17A	16.95		D	Par	-	80	6400	80.00	-	0.26	0.041	1.236	0.05	Valid	
BH17A	17.43		D	Par	-	80	6400	80.00	-	1.54	0.241	1.236	0.30	Valid	
BH17A	17.80		D	Par	-	80	6400	80.00	-	0.21	0.033	1.236	0.04	Valid	
BH17A	19.64		D	Par	-	80	6400	80.00	-	22.14	3.459	1.236	4.27	Valid	
BH17A	19.85		D	Par	-	80	6400	80.00	-	10.82	1.691	1.236	2.09	Valid	

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

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## SUMMARY OF POINT LOAD TEST RESULTS

## ISRM Suggested Methods : 2007

[illegible]

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



## Newport Quinn Phase 2

**Contract No:**

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**Client Ref:****PN224395**

# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH23	11.80		D	Par	-	80	6400	80.00	-	0.24	0.038	1.236	0.05	Valid	
BH23	12.95		D	Par	-	80	6400	80.00	-	0.30	0.047	1.236	0.06	Valid	
BH23	14.70		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH23	15.15		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH23	15.68		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH23	16.37		D	Par	-	80	6400	80.00	-	0.29	0.045	1.236	0.06	Valid	
BH23	16.90		D	Par	-	80	6400	80.00	-	0.27	0.042	1.236	0.05	Valid	
BH23	17.10		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH23	17.90		D	Par	-	80	6400	80.00	-	0.26	0.041	1.236	0.05	Valid	

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



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## SUMMARY OF POINT LOAD TEST RESULTS

## ISRM Suggested Methods : 2007

[illegible]

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

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## Newport Quinn Phase 2

**Contract No:**

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**Client Ref:**

**PN224395**

# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH27	6.80		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	
BH27	7.03		D	Par	-	80	6400	80.00	-	0.30	0.047	1.236	0.06	Valid	
BH27	9.65		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	
BH27	12.10		D	Par	-	80	6400	80.00	-	0.53	0.083	1.236	0.10	Valid	
BH27	13.75		D	Par	-	80	6400	80.00	-	0.30	0.047	1.236	0.06	Valid	
BH27	15.47		D	Par	-	80	6400	80.00	-	0.44	0.069	1.236	0.08	Valid	
BH27	16.25		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH27	19.95		D	Par	-	80	6400	80.00	-	0.24	0.038	1.236	0.05	Valid	

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



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## SUMMARY OF POINT LOAD TEST RESULTS

## ISRM Suggested Methods : 2007

[illegible]

**\*Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

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## Newport Quinn Phase 2

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# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		$D_c^2$	$D_c$ (mm)	Failure Load		$I_s$ (MPa)	Corr Fac F	$I_{s50}$ (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH28	5.60		D	Par	-	80	6400	80.00	-	0.21	0.033	1.236	0.04	Valid	
BH28	5.70		D	Par	-	80	6400	80.00	-	0.21	0.033	1.236	0.04	Valid	
BH28	9.65		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH28	10.30		D	Par	-	80	6400	80.00	-	0.12	0.019	1.236	0.02	Valid	
BH28	11.15		D	Par	-	80	6400	80.00	-	0.13	0.020	1.236	0.03	Valid	
BH28	12.05		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH28	14.88		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH28	17.00		D	Par	-	80	6400	80.00	-	0.16	0.025	1.236	0.03	Valid	
BH28	19.90		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	

**\*Note** All testing carried out on samples at as received water content

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# SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm <sup>2</sup> )	D <sub>c</sub> <sup>2</sup>	D <sub>e</sub> (mm)	Failure Load (P)		I <sub>s</sub> (MPa)	Corr Fac F	I <sub>s50</sub> (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH30	5.75		A	Perp	80	43	3440	4379.94	66.18	-	0.23	0.05	1.134	0.06	Valid	
BH30	7.30		A	Perp	80	50	4000	5092.96	71.36	-	0.22	0.04	1.174	0.05	Valid	
BH30	7.70		A	Perp	80	49	3920	4991.10	70.65	-	0.17	0.03	1.168	0.04	Valid	
BH30	8.85		A	Perp	80	47	3760	4787.38	69.19	-	0.17	0.04	1.157	0.04	Valid	
BH30	9.24		A	Perp	80	37	2960	3768.79	61.39	-	4.99	1.32	1.097	1.45	Valid	
BH30	9.40		A	Perp	80	42	3360	4278.08	65.41	-	7.01	1.64	1.128	1.85	Valid	
BH30	11.88		A	Perp	80	40	3200	4074.37	63.83	-	0.17	0.04	1.116	0.05	Valid	
BH30	15.10		A	Perp	80	32	2560	3259.49	57.09	-	0.15	0.05	1.062	0.05	Valid	
BH30	15.87		A	Perp	80	24	1920	2444.62	49.44	-	0.61	0.25	0.995	0.25	Valid	
BH30	16.75		A	Perp	80	30	2400	3055.77	55.28	-	0.28	0.09	1.046	0.10	Valid	
BH30	17.80		A	Perp	80	40	3200	4074.37	63.83	-	1.30	0.32	1.116	0.36	Valid	
BH30	18.00		A	Perp	80	32	2560	3259.49	57.09	-	1.02	0.31	1.062	0.33	Valid	
BH30	19.15		A	Perp	80	27	2160	2750.20	52.44	-	0.18	0.07	1.022	0.07	Valid	

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# SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		$D_c^2$	$D_c$ (mm)	Failure Load		$I_s$ (MPa)	Corr Fac F	$I_{s50}$ (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH30	5.75		D	Par	-	80	6400	80.00	-	0.21	0.033	1.236	0.04	Valid	
BH30	7.30		D	Par	-	80	6400	80.00	-	0.31	0.048	1.236	0.06	Valid	
BH30	7.70		D	Par	-	80	6400	80.00	-	0.20	0.031	1.236	0.04	Valid	
BH30	8.85		D	Par	-	80	6400	80.00	-	0.22	0.034	1.236	0.04	Valid	
BH30	9.24		D	Par	-	80	6400	80.00	-	5.15	0.805	1.236	0.99	Valid	
BH30	9.40		D	Par	-	80	6400	80.00	-	6.94	1.084	1.236	1.34	Valid	
BH30	11.88		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	
BH30	15.10		D	Par	-	80	6400	80.00	-	0.17	0.027	1.236	0.03	Valid	
BH30	15.87		D	Par	-	80	6400	80.00	-	0.69	0.108	1.236	0.13	Valid	
BH30	16.75		D	Par	-	80	6400	80.00	-	0.24	0.038	1.236	0.05	Valid	
BH30	17.80		D	Par	-	80	6400	80.00	-	1.19	0.186	1.236	0.23	Valid	
BH30	18.00		D	Par	-	80	6400	80.00	-	1.69	0.264	1.236	0.33	Valid	
BH30	19.15		D	Par	-	80	6400	80.00	-	0.14	0.022	1.236	0.03	Valid	

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# DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH01		C	8.42	8.61	80	160	2.0	1984	2.47	9.2	2.26	20.2	4.0	Brittle	29/09/22	
BH01		C	11.61	11.80	80	160	2.0	1904	2.37	11	2.14	33.2	6.6	Brittle	29/09/22	
BH01		C	14.32	14.50	80	160	2.0	2145	2.67	5.4	2.53	65.2	13.0	Brittle	29/09/22	
BH01		C	15.55	15.70	80	160	2.0	2108	2.62	8.9	2.41	48.2	9.6	Brittle	29/09/22	
BH04A		C	7.93	8.10	80	160	2.0	1898	2.36	15	2.06	22.1	4.4	Brittle	29/09/22	
BH04A		C	12.70	12.90	80	160	2.0	1890	2.35	20	1.96	18.7	3.7	Brittle	29/09/22	
BH07		C	10.23	10.40	80	160	2.0	1924	2.39	13	2.12	22.4	4.5	Brittle	29/09/22	
BH07		C	14.72	15.00	80	160	2.0	2011	2.50	8.5	2.30	28.2	5.6	Brittle	29/09/22	
BH07		C	17.70	17.93	80	160	2.0	1994	2.48	13	2.19	22.6	4.5	Brittle	29/09/22	
BH10		C	9.90	10.10	80	160	2.0	1808	2.25	5.9	2.12	25.6	5.1	Brittle	29/09/22	
BH10		C	10.45	10.58	80	140	1.8	1608	2.28	12	2.04	10.2	2.0	Brittle	29/09/22	
BH10		C	11.53	11.70	80	150	1.9	2100	2.78	5.5	2.64	31.2	6.2	Brittle	29/09/22	
BH10		C	13.70	13.96	80	160	2.0	1998	2.48	7.8	2.30	38.8	7.7	Brittle	29/09/22	
BH10		C	14.70	15.05	80	160	2.0	2184	2.72	4.7	2.59	29.2	5.8	Brittle	29/09/22	
BH10		C	17.90	18.12	80	160	2.0	1881	2.34	7.1	2.18	26.7	5.3	Brittle	29/09/22	
BH14A		C	6.90	7.15	80	160	2.0	2002	2.49	14	2.18	98.7	19.6	Brittle	29/09/22	
BH14A		C	11.15	11.35	80	160	2.0	1987	2.47	23	2.02	19.2	3.8	Brittle	29/09/22	
BH14A		C	13.15	13.40	80	160	2.0	1899	2.36	14	2.07	24.1	4.8	Brittle	29/09/22	
BH14A		C	17.45	17.65	80	160	2.0	2014	2.50	9.7	2.28	26.8	5.3	Brittle	29/09/22	



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

# DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH17A		C	7.10	7.47	80	160	2.0	2008	2.50	8.7	2.30	27.1	5.4	Brittle	29/09/22	
BH17A		C	8.62	8.92	80	160	2.0	2014	2.50	15	2.17	10.2	2.0	Brittle	29/09/22	
BH17A		C	11.60	11.95	80	160	2.0	1994	2.48	10	2.25	14.2	2.8	Brittle	29/09/22	
BH17A		C	13.17	13.50	80	160	2.0	2101	2.61	5.1	2.49	38.2	7.6	Brittle	29/09/22	
BH17A		C	14.07	14.50	80	160	2.0	1802	2.24	5.3	2.13	8.2	1.6	Brittle	29/09/22	
BH17A		C	18.50	18.95	80	160	2.0	1788	2.22	6.5	2.09	4.2	0.8	Brittle	29/09/22	
BH23		C	16.10	16.37	80	160	2.0	2002	2.49	14	2.18	20.4	4.1	Brittle	29/09/22	
BH23		C	16.65	16.90	80	160	2.0	1986	2.47	14	2.17	23.7	4.7	Brittle	29/09/22	
BH23		C	17.60	17.90	80	160	2.0	1899	2.36	14	2.06	18.9	3.8	Brittle	29/09/22	
BH27		C	11.60	11.85	80	160	2.0	2000	2.49	9.3	2.27	20.2	4.0	Brittle	29/09/22	
BH27		C	16.70	17.00	80	160	2.0	2006	2.49	13	2.21	27.2	5.4	Brittle	29/09/22	
BH27		C	18.60	18.90	80	160	2.0	2011	2.50	14	2.20	24.8	4.9	Brittle	29/09/22	
BH28		C	8.30	8.55	80	160	2.0	1886	2.34	17	2.01	21.2	4.2	Brittle	29/09/22	
BH28		C	11.50	11.80	80	160	2.0	1883	2.34	15	2.04	18.8	3.7	Brittle	29/09/22	
BH28		C	17.55	17.95	80	160	2.0	1891	2.35	12	2.11	19.1	3.8	Brittle	29/09/22	
BH30		C	5.32	5.75	80	160	2.0	2104	2.62	6.5	2.46	30.2	6.0	Brittle	29/09/22	
BH30		C	11.40	11.60	80	160	2.0	2148	2.67	5.0	2.54	65.7	13.1	Brittle	29/09/22	
BH30		C	14.05	14.30	80	160	2.0	2104	2.62	3.8	2.52	28.2	5.6	Brittle	29/09/22	
BH30		C	15.65	15.85	80	160	2.0	2081	2.59	3.1	2.51	27.1	5.4	Brittle	29/09/22	



Newport Quinn Phase 2

Contract No:

PSL22/6080



Client Ref:

PN224395

# LABORATORY RESULTS - Test Remarks

Project NEWPORT QUINN PHASE 2

Project No: PN224395

Sample				Laboratory Remark
Hole	Depth (Specimen Depth) m	Type	Sample Ref	
BH01	0.50 (0.50)	D	N84035	CBR Test - Combined with B 0.20-0.60m
BH01	1.20- 1.70 (1.20- 1.70)	B	N84036	CBR Test - Combined with B 2.00-2.50m
BH01	4.80 (4.80)	D	N84040	Atterberg Limit Test - Unsuitable for testing due to insufficient fine material.
BH02	6.80 (6.80)	D	N84046	Atterberg Limit Test - Unsuitable for testing due to insufficient fine material.
BH11	1.20- 1.40 (1.20- 1.40)	D	N84074	Water Content Test - WC & PI combined with D 1.80m
BH13	4.80 (4.80)	D	N84082	Atterberg Limit Test - Unsuitable for testing due to insufficient fine material.
BH14A	3.00- 3.45 (3.00- 3.45)	D	N84084	Compaction 2.5kg - Combined with B 4.00-4.50m
BH15	3.50 (3.50)	D	N84087	Atterberg Limit Test - 1-point cone Insufficient sample for 4 point test.
BH17A	2.30 (2.30)	D	N84094	Atterberg Limit Test - 1-point cone Insufficient sample for 4 point test.
BH26	4.00- 4.45 (4.00- 4.45)	D	N84126	Water Content Test - WC & PI combined with 5.80m B
<b>Remarks</b> 				
				

## **APPENDIX 9**

### **Laboratory Test Results - Contamination (Soil)**



## Certificate of Analysis

**Certificate Number** 22-15257

**Issued:** 16-Aug-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-15257

**Client Reference** PN224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** 6 Soil samples.

**Date Received** 08-Aug-22

**Date Started** 08-Aug-22

**Date Completed** 16-Aug-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



2139

## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2042859	2042860	2042861	2042862	2042863	2042864
Sample ID	BH13	BH14	BH22	BH25	BH27	BH29
Depth	0.50	0.50	1.00	1.00	1.00	1.00
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	02/08/2022	02/08/2022	27/07/2022	29/07/2022	27/07/2022	27/07/2022
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
<b>Metals</b>									
Arsenic	DETSC 2301#	0.2	mg/kg	5.4	5.1	6.4	4.1	5.4	3.4
Barium	DETSC 2301#	1.5	mg/kg	130	480	64	180	60	75
Beryllium	DETSC 2301#	0.2	mg/kg	0.4	0.3	0.6	0.5	0.4	0.8
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7	3.4	< 0.2	1.8	0.3	1.0
Cadmium	DETSC 2301#	0.1	mg/kg	0.9	1.0	< 0.1	0.6	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	19	1000	13	20	30	7.0
Copper	DETSC 2301#	0.2	mg/kg	12	77	9.7	9.8	9.4	7.7
Lead	DETSC 2301#	0.3	mg/kg	27	27	7.2	16	6.1	3.5
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	17	14	23	12	22	11
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	4.6	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	15	170	16	16	17	7.9
Zinc	DETSC 2301#	1	mg/kg	73	110	47	53	38	32
<b>Petroleum Hydrocarbons</b>									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50	1.86	< 1.50	< 1.50	1.57
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	1.42	< 1.20	3.26	2.48	< 1.20	1.99
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	1.70	< 1.50	3.05	2.52	< 1.50	2.38
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40	< 3.40	< 3.40	< 3.40	< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	11.76	10.46	< 10.00	< 10.00
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	1.02	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40	< 1.40	28.49	< 1.40	< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00	< 10.00	< 10.00	30.74	< 10.00	< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	12.26	11.45	15.36	41.19	11.51	13.11



# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2042859	2042860	2042861	2042862	2042863	2042864
Sample ID	BH13	BH14	BH22	BH25	BH27	BH29
Depth	0.50	0.50	1.00	1.00	1.00	1.00
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	02/08/2022	02/08/2022	27/07/2022	29/07/2022	27/07/2022	27/07/2022
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
<b>VOCs</b>									
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2042859	2042860	2042861	2042862	2042863	2042864
Sample ID	BH13	BH14	BH22	BH25	BH27	BH29
Depth	0.50	0.50	1.00	1.00	1.00	1.00
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	02/08/2022	02/08/2022	27/07/2022	29/07/2022	27/07/2022	27/07/2022
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

SVOCs									
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Acenaphthylene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Acenaphthene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Fluorene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		

# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2042859	2042860	2042861	2042862	2042863	2042864
Sample ID	BH13	BH14	BH22	BH25	BH27	BH29
Depth	0.50	0.50	1.00	1.00	1.00	1.00
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	02/08/2022	02/08/2022	27/07/2022	29/07/2022	27/07/2022	27/07/2022
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Phenanthrene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Anthracene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Fluoranthene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Pyrene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Benzo(a)anthracene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Chrysene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Benzo(b)fluoranthene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Benzo(k)fluoranthene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Benzo(a)pyrene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Indeno(123cd)pyrene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Dibenzo(ah)anthracene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Benzo(ghi)perylene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1		< 0.1		
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1		< 0.1		

## Summary of Asbestos Analysis

### Soil Samples

*Our Ref* 22-15257

*Client Ref* PN224395

*Contract Title* Newport Quinn Phase 2

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2042859	BH13 0.50	SOIL	NAD	none	Josh Best
2042860	BH14 0.50	SOIL	NAD	none	Josh Best
2042861	BH22 1.00	SOIL	NAD	none	Josh Best
2042862	BH25 1.00	SOIL	NAD	none	Josh Best
2042863	BH27 1.00	SOIL	NAD	none	Josh Best
2042864	BH29 1.00	SOIL	NAD	none	Josh Best

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: \* - not included in laboratory scope of accreditation.

## Information in Support of the Analytical Results

Our Ref 22-15257  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

					Inappropriate container for tests
		Date			
Lab No	Sample ID	Sampled	Containers Received	Holding time exceeded for tests	tests
2042859	BH13 0.50 SOIL	02/08/22	GJ 250ml x2, GJ 60ml, PT 1L		
2042860	BH14 0.50 SOIL	02/08/22	GJ 250ml x2, GJ 60ml, PT 1L		
2042861	BH22 1.00 SOIL	27/07/22	GJ 250ml x2, GJ 60ml, PT 1L	VOC (7 days)	
2042862	BH25 1.00 SOIL	29/07/22	GJ 250ml x2, GJ 60ml, PT 1L	VOC (7 days)	
2042863	BH27 1.00 SOIL	27/07/22	GJ 250ml x2, GJ 60ml, PT 1L	VOC (7 days)	
2042864	BH29 1.00 SOIL	27/07/22	GJ 250ml x2, GJ 60ml, PT 1L	VOC (7 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



## Certificate of Analysis

*Certificate Number* 22-15280

*Issued:* 16-Aug-22

*Client* Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

*Our Reference* 22-15280

*Client Reference* PN224395

*Order No* ON34492

*Contract Title* Newport Quinn Phase 2

*Description* One Soil sample.

*Date Received* 08-Aug-22

*Date Started* 08-Aug-22

*Date Completed* 16-Aug-22

*Test Procedures* Identified by prefix DETSn (details on request).

*Notes* Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

*Approved By*

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



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## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-15280

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2043009
Sample ID	BH18
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	03/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
<b>Metals</b>				
Arsenic	DETSC 2301#	0.2	mg/kg	4.5
Barium	DETSC 2301#	1.5	mg/kg	290
Beryllium	DETSC 2301#	0.2	mg/kg	0.3
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	5.9
Cadmium	DETSC 2301#	0.1	mg/kg	1.1
Chromium	DETSC 2301#	0.15	mg/kg	430
Copper	DETSC 2301#	0.2	mg/kg	61
Lead	DETSC 2301#	0.3	mg/kg	62
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Nickel	DETSC 2301#	1	mg/kg	40
Selenium	DETSC 2301#	0.5	mg/kg	1.9
Vanadium	DETSC 2301#	0.8	mg/kg	91
Zinc	DETSC 2301#	1	mg/kg	190
<b>Petroleum Hydrocarbons</b>				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	1.91
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	< 0.60
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	12.36



## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-15280

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2043009
Sample ID	BH18
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	03/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
<b>VOCs</b>				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01

## Summary of Chemical Analysis Soil Samples

Our Ref 22-15280

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2043009
Sample ID	BH18
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	03/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01

## Summary of Asbestos Analysis Soil Samples

*Our Ref* 22-15280

*Client Ref* PN224395

*Contract Title* Newport Quinn Phase 2

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2043009	BH18 1.00	SOIL	Chrysotile	Chrysotile present as fibre bundles	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: \* -not included in laboratory scope of accreditation.

## Information in Support of the Analytical Results

Our Ref 22-15280  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2043009	BH18 1.00 SOIL	03/08/22	GJ 250ml x2, GJ 60ml, PT 1L		
<p>Key: G-Glass P-Plastic J-Jar T-Tub</p> <p>DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.</p>					

### Soil Analysis Notes

<p>Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.</p> <p>Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.</p> <p>The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.</p>
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### Disposal

<p>From the issue date of this test certificate, samples will be held for the following times prior to disposal :-</p> <p>Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months</p>
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End of Report



## Certificate of Analysis

**Certificate Number** 22-15764

**Issued:** 19-Aug-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-15764

**Client Reference** PN224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** One Soil sample.

**Date Received** 12-Aug-22

**Date Started** 12-Aug-22

**Date Completed** 19-Aug-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



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# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-15764

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2045230
Sample ID	BH14A
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	n/s
Sampling Time	n/s

Test	Method	LOD	Units	
<b>Metals</b>				
Arsenic	DETSC 2301#	0.2	mg/kg	5.2
Barium	DETSC 2301#	1.5	mg/kg	240
Beryllium	DETSC 2301#	0.2	mg/kg	0.4
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7
Cadmium	DETSC 2301#	0.1	mg/kg	0.6
Chromium	DETSC 2301#	0.15	mg/kg	14
Copper	DETSC 2301#	0.2	mg/kg	34
Lead	DETSC 2301#	0.3	mg/kg	29
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Nickel	DETSC 2301#	1	mg/kg	24
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	19
Zinc	DETSC 2301#	1	mg/kg	110
<b>Petroleum Hydrocarbons</b>				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	< 0.60
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	12.02

# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-15764

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2045230
Sample ID	BH14A
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	n/s
Sampling Time	n/s

Test	Method	LOD	Units	
<b>VOCs</b>				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01



## Summary of Chemical Analysis Soil Samples

Our Ref 22-15764

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2045230
Sample ID	BH14A
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	n/s
Sampling Time	n/s

Test	Method	LOD	Units	
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01

## Summary of Asbestos Analysis Soil Samples

*Our Ref* 22-15764

*Client Ref* PN224395

*Contract Title* Newport Quinn Phase 2

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2045230	BH14A 2.00	SOIL	NAD	none	Darryl Fletcher
Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.					

## Information in Support of the Analytical Results

Our Ref 22-15764  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2045230	BH14A 2.00 SOIL		GJ 250ml x2, GJ 60ml, PT 1L	Sample date not supplied, Aliphatics/Aromatics (14 days), Boron (365 days), BTEX (14 days), EPH/Aliphatic/Aromatic (14 days), Mercury (28 days), ICP WS Boron (182 days), Metals ICP (182 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



## Certificate of Analysis

**Certificate Number** 22-15981

**Issued:** 30-Aug-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-15981

**Client Reference** PN224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** 2 Soil samples.

**Date Received** 16-Aug-22

**Date Started** 16-Aug-22

**Date Completed** 30-Aug-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



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## Summary of Chemical Analysis Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2046349	2046350
Sample ID	BH04A	BH10
Depth	0.60	0.50
Other ID		
Sample Type	ES	ES
Sampling Date	10/08/2022	10/08/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>Metals</b>					
Arsenic	DETSC 2301#	0.2	mg/kg	6.2	4.1
Barium	DETSC 2301#	1.5	mg/kg	390	330
Beryllium	DETSC 2301#	0.2	mg/kg	0.5	0.4
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	< 0.2	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	0.5	0.5
Chromium	DETSC 2301#	0.15	mg/kg	11	18
Copper	DETSC 2301#	0.2	mg/kg	9.5	14
Lead	DETSC 2301#	0.3	mg/kg	14	24
Mercury	DETSC 2325#	0.05	mg/kg	0.07	< 0.05
Nickel	DETSC 2301#	1	mg/kg	20	20
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	16	30
Zinc	DETSC 2301#	1	mg/kg	78	90
<b>Petroleum Hydrocarbons</b>					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	0.08	0.12
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20	2.68
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50	2.21
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00	10.42
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	3.55	1.32
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40	< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	< 10.00	14.86

# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2046349	2046350
Sample ID	BH04A	BH10
Depth	0.60	0.50
Other ID		
Sample Type	ES	ES
Sampling Date	10/08/2022	10/08/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>VOCs</b>					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2046349	2046350
Sample ID	BH04A	BH10
Depth	0.60	0.50
Other ID		
Sample Type	ES	ES
Sampling Date	10/08/2022	10/08/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
<b>SVOCs</b>					
Phenol	DETSC 3433	0.1	mg/kg		< 0.1
Aniline	DETSC 3433*	0.1	mg/kg		< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg		< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg		< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg		< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg		< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg		< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg		< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg		< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg		< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg		< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg		< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg		< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg		< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg		< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg		< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg		< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg		< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg		< 0.1
Acenaphthylene	DETSC 3433	0.1	mg/kg		< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg		< 0.1
Acenaphthene	DETSC 3433	0.1	mg/kg		< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg		< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg		< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg		< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg		< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg		< 0.1



## Summary of Chemical Analysis Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2046349	2046350
Sample ID	BH04A	BH10
Depth	0.60	0.50
Other ID		
Sample Type	ES	ES
Sampling Date	10/08/2022	10/08/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg		< 0.1
Fluorene	DETSC 3433	0.1	mg/kg		< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg		< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg		< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg		< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg		< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg		< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg		< 0.1
Phenanthrene	DETSC 3433	0.1	mg/kg		< 0.1
Anthracene	DETSC 3433	0.1	mg/kg		< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg		< 0.1
Fluoranthene	DETSC 3433	0.1	mg/kg		< 0.1
Pyrene	DETSC 3433	0.1	mg/kg		< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg		< 0.1
Benzo(a)anthracene	DETSC 3433	0.1	mg/kg		< 0.1
Chrysene	DETSC 3433	0.1	mg/kg		< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg		< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg		< 0.1
Benzo(b)fluoranthene	DETSC 3433	0.1	mg/kg		< 0.1
Benzo(k)fluoranthene	DETSC 3433	0.1	mg/kg		< 0.1
Benzo(a)pyrene	DETSC 3433	0.1	mg/kg		< 0.1
Indeno(123cd)pyrene	DETSC 3433	0.1	mg/kg		< 0.1
Dibenzo(ah)anthracene	DETSC 3433	0.1	mg/kg		< 0.1
Benzo(ghi)perylene	DETSC 3433	0.1	mg/kg		< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg		< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg		< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg		< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg		< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg		< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg		< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg		< 0.1

## Summary of Asbestos Analysis Soil Samples

*Our Ref* 22-15981

*Client Ref* PN224395

*Contract Title* Newport Quinn Phase 2

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2046349	BH04A 0.60	SOIL	NAD	none	Ben Rose
2046350	BH10 0.50	SOIL	NAD	none	Ben Rose

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: \* - not included in laboratory scope of accreditation.

## Information in Support of the Analytical Results

Our Ref 22-15981  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Hold time exceeded for tests	Inappropriate container for tests
2046349	BH04A 0.60 SOIL	10/08/22	GJ 250ml x2, GJ 60ml, PT 1L		
2046350	BH10 0.50 SOIL	10/08/22	GJ 250ml x2, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



## Certificate of Analysis

**Certificate Number** 22-16491

**Issued:** 26-Aug-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-16491

**Client Reference** PN224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** One Soil sample.

**Date Received** 22-Aug-22

**Date Started** 23-Aug-22

**Date Completed** 26-Aug-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

Kirk Bridgewood  
General Manager



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## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-16491

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2049007
Sample ID	BH11
Depth	2.00
Other ID	4
Sample Type	ES
Sampling Date	16/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
<b>Metals</b>				
Arsenic	DETSC 2301#	0.2	mg/kg	8.0
Barium	DETSC 2301#	1.5	mg/kg	57
Beryllium	DETSC 2301#	0.2	mg/kg	0.7
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	24
Copper	DETSC 2301#	0.2	mg/kg	17
Lead	DETSC 2301#	0.3	mg/kg	7.1
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Nickel	DETSC 2301#	1	mg/kg	26
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	55
Zinc	DETSC 2301#	1	mg/kg	64
<b>Petroleum Hydrocarbons</b>				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	1.70
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	2.42
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	1.46
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	14.21

## Summary of Chemical Analysis

### Soil Samples

Our Ref 22-16491

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2049007
Sample ID	BH11
Depth	2.00
Other ID	4
Sample Type	ES
Sampling Date	16/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
<b>VOCs</b>				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01

## Summary of Chemical Analysis Soil Samples

Our Ref 22-16491

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2049007
Sample ID	BH11
Depth	2.00
Other ID	4
Sample Type	ES
Sampling Date	16/08/2022
Sampling Time	n/s

Test	Method	LOD	Units	
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01



## Summary of Asbestos Analysis Soil Samples

*Our Ref* 22-16491

*Client Ref* PN224395

*Contract Title* Newport Quinn Phase 2

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2049007	BH11 4 2.00	SOIL	NAD	none	Vicky Convery

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: \* - not included in laboratory scope of accreditation.

## Information in Support of the Analytical Results

Our Ref 22-16491  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

Lab No	Sample ID	Date		Holding time exceeded for tests	Inappropriate container for tests
		Sampled	Containers Received		
2049007	BH11 2.00 SOIL	16/08/22	GJ 250ml, GJ 60ml, PT 500ml		
Key: G-Glass P-Plastic J-Jar T-Tub DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.					

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377. Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis. The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.
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### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :- Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months
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End of Report



## Certificate of Analysis

**Certificate Number** 22-17090

**Issued:** 09-Sep-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-17090

**Client Reference** PN224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** 2 Soil samples.

**Date Received** 31-Aug-22

**Date Started** 31-Aug-22

**Date Completed** 09-Sep-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



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# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-17090

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2052062	2052063
Sample ID	BH09	BH20
Depth	0.30	1.00
Other ID		
Sample Type	ES	ES
Sampling Date	10/08/2022	10/08/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>Metals</b>					
Arsenic	DETSC 2301#	0.2	mg/kg	3.4	21
Barium	DETSC 2301#	1.5	mg/kg	560	560
Beryllium	DETSC 2301#	0.2	mg/kg	0.3	0.5
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	3.9	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	1.3	0.4
Chromium	DETSC 2301#	0.15	mg/kg	210	15
Copper	DETSC 2301#	0.2	mg/kg	46	9.5
Lead	DETSC 2301#	0.3	mg/kg	55	16
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	22	21
Selenium	DETSC 2301#	0.5	mg/kg	1.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	77	24
Zinc	DETSC 2301#	1	mg/kg	200	66
<b>Petroleum Hydrocarbons</b>					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic >EC10-EC12	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC12-EC16	DETSC 3521#	1.2	mg/kg	< 1.20	< 1.20
Aliphatic >EC16-EC21	DETSC 3521#	1.5	mg/kg	< 1.50	< 1.50
Aliphatic >EC21-EC35	DETSC 3521#	3.4	mg/kg	< 3.40	< 3.40
Aliphatic C5-C35	DETSC 3521*	10	mg/kg	< 10.00	< 10.00
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic >EC10-EC12	DETSC 3521#	0.9	mg/kg	< 0.90	< 0.90
Aromatic >EC12-EC16	DETSC 3521#	0.5	mg/kg	< 0.50	< 0.50
Aromatic >EC16-EC21	DETSC 3521#	0.6	mg/kg	< 0.60	< 0.60
Aromatic >EC21-EC35	DETSC 3521#	1.4	mg/kg	12.49	< 1.40
Aromatic C5-C35	DETSC 3521*	10	mg/kg	14.76	< 10.00
TPH Ali/Aro Total C5-C35	DETSC 3521*	10	mg/kg	23.28	11.48

# Summary of Chemical Analysis

## Soil Samples

Our Ref 22-17090

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2052062	2052063
Sample ID	BH09	BH20
Depth	0.30	1.00
Other ID		
Sample Type	ES	ES
Sampling Date	10/08/2022	10/08/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>VOCs</b>					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

## Summary of Chemical Analysis Soil Samples

Our Ref 22-17090

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2052062	2052063
Sample ID	BH09	BH20
Depth	0.30	1.00
Other ID		
Sample Type	ES	ES
Sampling Date	10/08/2022	10/08/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Naphthalene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01

## Summary of Asbestos Analysis Soil Samples

*Our Ref* 22-17090

*Client Ref* PN224395

*Contract Title* Newport Quinn Phase 2

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2052062	BH09 0.30	SOIL	NAD	none	Ben Rose
2052063	BH20 1.00	SOIL	NAD	none	Ben Rose

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: \* - not included in laboratory scope of accreditation.



## Information in Support of the Analytical Results

Our Ref 22-17090  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2052062	BH09 0.30 SOIL	10/08/22	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX (14 days), EPH/Aliphatic/Aromatic (14 days), VOC (7 days)	
2052063	BH20 1.00 SOIL	10/08/22	GJ 250ml x2, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX (14 days), EPH/Aliphatic/Aromatic (14 days), VOC (7 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

## **APPENDIX 10**

### **Laboratory Test Results - Contamination (Groundwater)**



## Certificate of Analysis

**Certificate Number** 22-18372

**Issued:** 26-Sep-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-18372

**Client Reference** PN214233

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** 2 Water samples.

**Date Received** 16-Sep-22

**Date Started** 16-Sep-22

**Date Completed** 26-Sep-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood  
General Manager



2139

## Summary of Chemical Analysis

### Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

Lab No	2058943	2058944
Sample ID	BH01	BH06
Depth	0.30	0.50
Other ID		
Sample Type	EW	EW
Sampling Date	13/09/2022	13/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>Metals</b>					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.1	0.52
Barium, Dissolved	DETSC 2306	0.26	ug/l	640	220
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	31	180
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03
Calcium, Dissolved	DETSC 2306	0.09	mg/l	65	72
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25
Copper, Dissolved	DETSC 2306	0.4	ug/l	< 0.4	1.0
Lead, Dissolved	DETSC 2306	0.09	ug/l	< 0.09	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	0.8	2.4
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	2.2	< 0.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	6.7	4.0
<b>Inorganics</b>					
pH	DETSC 2008		pH	7.2	7.3
Dissolved Organic Carbon	DETSC 2085	2	mg/l	< 2.0	2.3
<b>Petroleum Hydrocarbons</b>					
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	3.4
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	16
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	94
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10	110
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l	< 10	110
<b>PAHs</b>					
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01

## Summary of Chemical Analysis

### Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

Lab No	2058943	2058944
Sample ID	BH01	BH06
Depth	0.30	0.50
Other ID		
Sample Type	EW	EW
Sampling Date	13/09/2022	13/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20

## Summary of Chemical Analysis

### Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

Lab No	2058943	2058944
Sample ID	BH01	BH06
Depth	0.30	0.50
Other ID		
Sample Type	EW	EW
Sampling Date	13/09/2022	13/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>VOCs</b>					
Dichlorodifluoromethane	DETSC 3432	1	ug/l	< 1	< 1
Chloromethane	DETSC 3432	1	ug/l	< 1	< 1
Vinyl Chloride	DETSC 3432	1	ug/l	< 1	< 1
Bromomethane	DETSC 3432	1	ug/l	< 1	< 1
Chloroethane	DETSC 3432	1	ug/l	< 1	< 1
Trichlorofluoromethane	DETSC 3432*	1	ug/l	< 1	< 1
1,1-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1
Methylene Chloride	DETSC 3432*	27	ug/l	< 27	< 27
Trans-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1
1,1-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1
Cis-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1
2,2-dichloropropane	DETSC 3432*	2	ug/l	< 2	< 2
Bromochloromethane	DETSC 3432	4	ug/l	< 4	< 4
Chloroform	DETSC 3432	1	ug/l	< 1	< 1
1,1,1-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1
1,1-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1
Carbon tetrachloride	DETSC 3432	1	ug/l	< 1	< 1
Benzene	DETSC 3432	1	ug/l	< 1	< 1
1,2-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1
Trichloroethylene	DETSC 3432*	1	ug/l	< 1	< 1
1,2-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1
Dibromomethane	DETSC 3432	1	ug/l	< 1	< 1
Bromodichloromethane	DETSC 3432	4	ug/l	< 4	< 4
cis-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1
Toluene	DETSC 3432	1	ug/l	< 1	< 1
trans-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1
1,1,2-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1
Tetrachloroethylene	DETSC 3432	1	ug/l	< 1	< 1
1,3-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1
Dibromochloromethane	DETSC 3432	1	ug/l	< 1	< 1
1,2-dibromoethane	DETSC 3432	1	ug/l	< 1	< 1
Chlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
1,1,1,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1
Ethylbenzene	DETSC 3432	1	ug/l	< 1	< 1
m+p-Xylene	DETSC 3432	2	ug/l	< 2	< 2
o-Xylene	DETSC 3432	1	ug/l	< 1	< 1
Styrene	DETSC 3432	1	ug/l	< 1	< 1
Bromoform	DETSC 3432	1	ug/l	< 1	< 1
Isopropylbenzene	DETSC 3432	1	ug/l	< 1	< 1
1,1,2,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1
Bromobenzene	DETSC 3432	1	ug/l	< 1	< 1

## Summary of Chemical Analysis

### Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

Lab No	2058943	2058944
Sample ID	BH01	BH06
Depth	0.30	0.50
Other ID		
Sample Type	EW	EW
Sampling Date	13/09/2022	13/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
1,2,3-trichloropropane	DETSC 3432	1	ug/l	< 1	< 1
n-propylbenzene	DETSC 3432	1	ug/l	< 1	< 1
2-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1
1,3,5-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1
4-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1
Tert-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1
1,2,4-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1
sec-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1
p-isopropyltoluene	DETSC 3432	1	ug/l	< 1	< 1
1,3-dichlorobenzene	DETSC 3432	2	ug/l	< 2	< 2
1,4-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
n-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1
1,2-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
1,2-dibromo-3-chloropropane	DETSC 3432	1	ug/l	< 1	< 1
1,2,4-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
Hexachlorobutadiene	DETSC 3432	1	ug/l	< 1	< 1
1,2,3-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
MTBE	DETSC 3432*	1	ug/l	< 1	< 1
<b>SVOCs</b>					
Phenol	DETSC 3434*	1	ug/l	< 1.0	
Aniline	DETSC 3434*	1	ug/l	< 1.0	
2-Chlorophenol	DETSC 3434*	1	ug/l	< 1.0	
Benzyl Alcohol	DETSC 3434*	1	ug/l	< 1.0	
2-Methylphenol	DETSC 3434*	1	ug/l	< 1.0	
Bis(2-chloroisopropyl)ether	DETSC 3434*	1	ug/l	< 1.0	
3&4-Methylphenol	DETSC 3434*	1	ug/l	< 1.0	
Bis(2-chloroethoxy)methane	DETSC 3434*	1	ug/l	< 1.0	
2,4-Dimethylphenol	DETSC 3434*	1	ug/l	< 1.0	
2,4-Dichlorophenol	DETSC 3434*	1	ug/l	< 1.0	
1,2,4-Trichlorobenzene	DETSC 3434*	1	ug/l	< 1.0	
4-Chloro-3-methylphenol	DETSC 3434*	1	ug/l	< 1.0	
2-Methylnaphthalene	DETSC 3434*	1	ug/l	< 1.0	
Hexachlorocyclopentadiene	DETSC 3434*	1	ug/l	< 1.0	
2,4,6-Trichlorophenol	DETSC 3434*	1	ug/l	< 1.0	
2,4,5-Trichlorophenol	DETSC 3434*	1	ug/l	< 1.0	
2-Chloronaphthalene	DETSC 3434*	1	ug/l	< 1.0	
2-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0	
2,4-Dinitrotoluene	DETSC 3434*	1	ug/l	< 1.0	
3-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0	
4-Nitrophenol	DETSC 3434*	1	ug/l	< 1.0	
Dibenzofuran	DETSC 3434*	1	ug/l	< 1.0	
2,6-Dinitrotoluene	DETSC 3434*	1	ug/l	< 1.0	



## Summary of Chemical Analysis

### Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

Lab No	2058943	2058944
Sample ID	BH01	BH06
Depth	0.30	0.50
Other ID		
Sample Type	EW	EW
Sampling Date	13/09/2022	13/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
2,3,4,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0	
Diethylphthalate	DETSC 3434*	1	ug/l	< 1.0	
4-Chlorophenylphenylether	DETSC 3434*	1	ug/l	< 1.0	
4-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0	
Diphenylamine	DETSC 3434*	1	ug/l	< 1.0	
4-Bromophenylphenylether	DETSC 3434*	1	ug/l	< 1.0	
Hexachlorobenzene	DETSC 3434*	1	ug/l	< 1.0	
Bis(2-ethylhexyl)ester	DETSC 3434*	1	ug/l	< 1.0	
Pentachlorophenol	DETSC 3434*	1	ug/l	< 1.0	
Di-n-butylphthalate	DETSC 3434*	1	ug/l	< 1.0	
Butylbenzylphthalate	DETSC 3434*	1	ug/l	< 1.0	
Bis(2-ethylhexyl)phthalate	DETSC 3434*	1	ug/l	< 1.0	
Di-n-octylphthalate	DETSC 3434*	1	ug/l	< 1.0	
1,4-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0	
Dimethylphthalate	DETSC 3434*	1	ug/l	< 1.0	
1,3-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0	
2,3,5,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0	
Azobenzene	DETSC 3434*	1	ug/l	< 1.0	
Carbazole	DETSC 3434*	1	ug/l	< 1.0	
1-Methylnaphthalene	DETSC 3434*	1	ug/l	< 1.0	

## Information in Support of the Analytical Results

Our Ref 22-18372  
Client Ref PN214233  
Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

Lab No	Sample ID	Date		Containers Received	Holding time exceeded for tests	Inappropriate container for tests
		Sampled				
2058943	BH01 0.30 WATER	13/09/22		GB 1L x2, GV x2, PB 1L x2	pH/Cond/TDS (1 days)	
2058944	BH06 0.50 WATER	13/09/22		GB 1L x2, GV x2, PB 1L x2	pH/Cond/TDS (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-  
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



## Certificate of Analysis

**Certificate Number** 22-19512

**Issued:** 07-Oct-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-19512

**Client Reference** PC224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** 4 Water samples.

**Date Received** 30-Sep-22

**Date Started** 30-Sep-22

**Date Completed** 07-Oct-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

Kirk Bridgewood  
General Manager



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## Summary of Chemical Analysis

### Water Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

Lab No	2065525	2065526	2065527	2065528
Sample ID	BH09	BH10	BH17	BH19
Depth				
Other ID				
Sample Type	EW	EW	EW	EW
Sampling Date	26/09/2022	26/09/2022	26/09/2022	26/09/2022
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
<b>Metals</b>							
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	3.9	1.1	1.2	3.7
Barium, Dissolved	DETSC 2306	0.26	ug/l	990	390	290	190
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	520	43	76	610
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	0.14	< 0.03	< 0.03
Calcium, Dissolved	DETSC 2306	0.09	mg/l	110	53	42	90
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25	< 0.25	< 0.25
Copper, Dissolved	DETSC 2306	0.4	ug/l	0.7	2.5	2.1	3.1
Lead, Dissolved	DETSC 2306	0.09	ug/l	< 0.09	0.70	1.6	0.14
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	0.03	0.04	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	11	4.2	3.0	7.4
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.1	13	1.9	0.71
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	< 0.6	1.6	2.3	< 0.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	36	17	27	17
<b>Inorganics</b>							
pH	DETSC 2008		pH	6.3	6.7	7.1	6.8
Dissolved Organic Carbon	DETSC 2085	2	mg/l	40	7.2	3.1	12
<b>Petroleum Hydrocarbons</b>							
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	13	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	17	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	20	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	20	< 1.0	< 1.0	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	71	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	48	16	10	9.8
Aromatic C12-C16	DETSC 3072*	1	ug/l	110	32	22	18
Aromatic C16-C21	DETSC 3072*	1	ug/l	120	34	23	18
Aromatic C21-C35	DETSC 3072*	1	ug/l	58	10	7.4	6.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	340	91	63	52
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l	410	91	64	52
<b>PAHs</b>							
Naphthalene	DETSC 3304	0.05	ug/l	0.34	0.06	< 0.05	0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	0.20	0.08	0.05	0.03
Acenaphthene	DETSC 3304	0.01	ug/l	0.19	0.08	0.06	0.04
Fluorene	DETSC 3304	0.01	ug/l	0.15	0.09	0.06	0.05
Phenanthrene	DETSC 3304	0.01	ug/l	0.32	0.18	0.15	0.14

## Summary of Chemical Analysis

### Water Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

Lab No	2065525	2065526	2065527	2065528
Sample ID	BH09	BH10	BH17	BH19
Depth				
Other ID				
Sample Type	EW	EW	EW	EW
Sampling Date	26/09/2022	26/09/2022	26/09/2022	26/09/2022
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Anthracene	DETSC 3304	0.01	ug/l	0.06	0.04	0.03	0.02
Fluoranthene	DETSC 3304	0.01	ug/l	0.18	0.11	0.10	0.07
Pyrene	DETSC 3304	0.01	ug/l	0.13	0.10	0.14	0.05
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.07	0.04	0.03	0.01
Chrysene	DETSC 3304	0.01	ug/l	0.04	0.03	0.02	0.02
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.05	0.03	0.02	0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.02	0.01	0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.04	0.02	0.02	0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.03	0.02	0.02	0.02
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.02	0.02	0.02	0.01
PAH Total	DETSC 3304	0.2	ug/l	1.9	0.91	0.71	0.54

## Summary of Chemical Analysis

### Water VOC/SVOC Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

Lab No	2065525	2065526
Sample ID	BH09	BH10
Depth		
Other ID		
Sample Type	EW	EW
Sampling Date	26/09/2022	26/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
<b>VOCs</b>					
Dichlorodifluoromethane	DETSC 3432	1	ug/l	< 1	< 1
Chloromethane	DETSC 3432	1	ug/l	< 1	< 1
Vinyl Chloride	DETSC 3432	1	ug/l	< 1	< 1
Bromomethane	DETSC 3432	1	ug/l	< 1	< 1
Chloroethane	DETSC 3432	1	ug/l	< 1	< 1
Trichlorofluoromethane	DETSC 3432*	1	ug/l	< 1	< 1
1,1-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1
Methylene Chloride	DETSC 3432*	27	ug/l	< 27	< 27
Trans-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1
1,1-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1
Cis-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1
2,2-dichloropropane	DETSC 3432*	2	ug/l	< 2	< 2
Bromochloromethane	DETSC 3432	4	ug/l	< 4	< 4
Chloroform	DETSC 3432	1	ug/l	< 1	< 1
1,1,1-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1
1,1-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1
Carbon tetrachloride	DETSC 3432	1	ug/l	< 1	< 1
Benzene	DETSC 3432	1	ug/l	< 1	< 1
1,2-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1
Trichloroethylene	DETSC 3432*	1	ug/l	< 1	< 1
1,2-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1
Dibromomethane	DETSC 3432	1	ug/l	< 1	< 1
Bromodichloromethane	DETSC 3432	4	ug/l	< 4	< 4
cis-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1
Toluene	DETSC 3432	1	ug/l	< 1	< 1
trans-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1
1,1,2-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1
Tetrachloroethylene	DETSC 3432	1	ug/l	< 1	< 1
1,3-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1
Dibromochloromethane	DETSC 3432	1	ug/l	< 1	< 1
1,2-dibromoethane	DETSC 3432	1	ug/l	< 1	< 1
Chlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
1,1,1,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1
Ethylbenzene	DETSC 3432	1	ug/l	< 1	< 1
m+p-Xylene	DETSC 3432	2	ug/l	< 2	< 2
o-Xylene	DETSC 3432	1	ug/l	< 1	< 1
Styrene	DETSC 3432	1	ug/l	< 1	< 1
Bromoform	DETSC 3432	1	ug/l	< 1	< 1
Isopropylbenzene	DETSC 3432	1	ug/l	< 1	< 1
1,1,2,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1
Bromobenzene	DETSC 3432	1	ug/l	< 1	< 1

## Summary of Chemical Analysis

### Water VOC/SVOC Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

Lab No	2065525	2065526
Sample ID	BH09	BH10
Depth		
Other ID		
Sample Type	EW	EW
Sampling Date	26/09/2022	26/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
1,2,3-trichloropropane	DETSC 3432	1	ug/l	< 1	< 1
n-propylbenzene	DETSC 3432	1	ug/l	< 1	< 1
2-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1
1,3,5-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1
4-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1
Tert-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1
1,2,4-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1
sec-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1
p-isopropyltoluene	DETSC 3432	1	ug/l	< 1	< 1
1,3-dichlorobenzene	DETSC 3432	2	ug/l	< 2	< 2
1,4-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
n-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1
1,2-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
1,2-dibromo-3-chloropropane	DETSC 3432	1	ug/l	< 1	< 1
1,2,4-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
Hexachlorobutadiene	DETSC 3432	1	ug/l	< 1	< 1
1,2,3-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1
MTBE	DETSC 3432*	1	ug/l	< 1	< 1
<b>SVOCs</b>					
Phenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Aniline	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2-Chlorophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Benzyl Alcohol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2-Methylphenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Bis(2-chloroisopropyl)ether	DETSC 3434*	1	ug/l	< 1.0	< 1.0
3&4-Methylphenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Bis(2-chloroethoxy)methane	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2,4-Dimethylphenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2,4-Dichlorophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
1,2,4-Trichlorobenzene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
4-Chloro-3-methylphenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2-Methylnaphthalene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Hexachlorocyclopentadiene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2,4,6-Trichlorophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2,4,5-Trichlorophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2-Chloronaphthalene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2,4-Dinitrotoluene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
3-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0	< 1.0
4-Nitrophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Dibenzofuran	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2,6-Dinitrotoluene	DETSC 3434*	1	ug/l	< 1.0	< 1.0



## Summary of Chemical Analysis

### Water VOC/SVOC Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

Lab No	2065525	2065526
Sample ID	BH09	BH10
Depth		
Other ID		
Sample Type	EW	EW
Sampling Date	26/09/2022	26/09/2022
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
2,3,4,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Diethylphthalate	DETSC 3434*	1	ug/l	< 1.0	< 1.0
4-Chlorophenylphenylether	DETSC 3434*	1	ug/l	< 1.0	< 1.0
4-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Diphenylamine	DETSC 3434*	1	ug/l	< 1.0	< 1.0
4-Bromophenylphenylether	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Hexachlorobenzene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Bis(2-ethylhexyl)ester	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Pentachlorophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Di-n-butylphthalate	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Butylbenzylphthalate	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Bis(2-ethylhexyl)phthalate	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Di-n-octylphthalate	DETSC 3434*	1	ug/l	< 1.0	< 1.0
1,4-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Dimethylphthalate	DETSC 3434*	1	ug/l	< 1.0	< 1.0
1,3-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
2,3,5,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Azobenzene	DETSC 3434*	1	ug/l	< 1.0	< 1.0
Carbazole	DETSC 3434*	1	ug/l	< 1.0	< 1.0
1-Methylnaphthalene	DETSC 3434*	1	ug/l	< 1.0	< 1.0

## Information in Support of the Analytical Results

Our Ref 22-19512  
 Client Ref PC224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

					Inappropriate container for tests
		Date			
Lab No	Sample ID	Sampled	Containers Received	Holding time exceeded for tests	tests
2065525	BH09 WATER	26/09/22	GB 1L x2, GV x2, PB 1L x2	pH/Cond/TDS (1 days)	
2065526	BH10 WATER	26/09/22	GB 1L x2, GV x2, PB 1L x2	pH/Cond/TDS (1 days)	
2065527	BH17 WATER	26/09/22	GB 1L x2, GV x2, PB 1L x2	pH/Cond/TDS (1 days)	
2065528	BH19 WATER	26/09/22	GB 1L x2, GV x2, PB 1L x2	pH/Cond/TDS (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-  
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



## Certificate of Analysis

**Certificate Number** 22-20262

**Issued:** 17-Oct-22

**Client** Geotechnics LTD  
The Geotechnical Centre  
Unit 1B Borders Ind. Park  
River Lane  
Saltney  
Chester  
CH4 8RJ

**Our Reference** 22-20262

**Client Reference** PN224395

**Order No** ON34492

**Contract Title** Newport Quinn Phase 2

**Description** 4 Water samples.

**Date Received** 10-Oct-22

**Date Started** 10-Oct-22

**Date Completed** 17-Oct-22

**Test Procedures** Identified by prefix DETSn (details on request).

**Notes** Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

**Approved By**

Kirk Bridgewood  
General Manager



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## Summary of Chemical Analysis

### Water Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2069357	2069358	2069359	2069360
Sample ID	BH23	BH25	BH28	BH30
Depth	5.00-6.00	2.00-3.00	3.00-4.00	2.00-3.00
Other ID				
Sample Type	EW	EW	EW	EW
Sampling Date	05/10/2022	05/10/2022	05/10/2022	05/10/2022
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
<b>Metals</b>							
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.70	1.3	0.27	0.79
Barium, Dissolved	DETSC 2306	0.26	ug/l	160	680	110	250
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	38	2100	56	220
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	0.09
Calcium, Dissolved	DETSC 2306	0.09	mg/l	40	85	38	50
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.64	< 0.25	1.4	2.1
Copper, Dissolved	DETSC 2306	0.4	ug/l	3.4	1.6	1.6	3.1
Lead, Dissolved	DETSC 2306	0.09	ug/l	< 0.09	< 0.09	< 0.09	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	0.02	< 0.01	0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	1.6	5.3	0.7	1.4
Selenium, Dissolved	DETSC 2306	0.25	ug/l	7.4	0.67	0.34	0.83
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	1.4	< 0.6	0.7	2.8
Zinc, Dissolved	DETSC 2306	1.3	ug/l	5.7	11	5.4	21
<b>Inorganics</b>							
pH	DETSC 2008		pH	7.6	6.9	7.5	7.5
Dissolved Organic Carbon	DETSC 2085	2	mg/l	4.4	13	6.9	3.7
<b>Petroleum Hydrocarbons</b>							
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10	< 10
<b>PAHs</b>							
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	0.01	< 0.01	< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01

## Summary of Chemical Analysis

### Water Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2069357	2069358	2069359	2069360
Sample ID	BH23	BH25	BH28	BH30
Depth	5.00-6.00	2.00-3.00	3.00-4.00	2.00-3.00
Other ID				
Sample Type	EW	EW	EW	EW
Sampling Date	05/10/2022	05/10/2022	05/10/2022	05/10/2022
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.01	< 0.01	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.03	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20	< 0.20	< 0.20

## Summary of Chemical Analysis

### Water VOC Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2069358	2069359	2069360
Sample ID	BH25	BH28	BH30
Depth	2.00-3.00	3.00-4.00	2.00-3.00
Other ID			
Sample Type	EW	EW	EW
Sampling Date	05/10/2022	05/10/2022	05/10/2022
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
<b>VOCs</b>						
Dichlorodifluoromethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Chloromethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Vinyl Chloride	DETSC 3432	1	ug/l	< 1	< 1	< 1
Bromomethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Chloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Trichlorofluoromethane	DETSC 3432*	1	ug/l	< 1	< 1	< 1
1,1-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Methylene Chloride	DETSC 3432*	27	ug/l	< 27	< 27	< 27
Trans-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Cis-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
2,2-dichloropropane	DETSC 3432*	2	ug/l	< 2	< 2	< 2
Bromochloromethane	DETSC 3432	4	ug/l	< 4	< 4	< 4
Chloroform	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,1-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Carbon tetrachloride	DETSC 3432	1	ug/l	< 1	< 1	< 1
Benzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Trichloroethylene	DETSC 3432*	1	ug/l	< 1	< 1	< 1
1,2-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Dibromomethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Bromodichloromethane	DETSC 3432	4	ug/l	< 4	< 4	< 4
cis-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Toluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
trans-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,2-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Tetrachloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,3-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Dibromochloromethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dibromoethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Chlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,1,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Ethylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
m+p-Xylene	DETSC 3432	2	ug/l	< 2	< 2	< 2
o-Xylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Styrene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Bromoform	DETSC 3432	1	ug/l	< 1	< 1	< 1
Isopropylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,2,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Bromobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1

## Summary of Chemical Analysis

### Water VOC Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

Lab No	2069358	2069359	2069360
Sample ID	BH25	BH28	BH30
Depth	2.00-3.00	3.00-4.00	2.00-3.00
Other ID			
Sample Type	EW	EW	EW
Sampling Date	05/10/2022	05/10/2022	05/10/2022
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
1,2,3-trichloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
n-propylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
2-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,3,5-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
4-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Tert-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2,4-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
sec-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
p-isopropyltoluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,3-dichlorobenzene	DETSC 3432	2	ug/l	< 2	< 2	< 2
1,4-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
n-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dibromo-3-chloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2,4-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Hexachlorobutadiene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2,3-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
MTBE	DETSC 3432*	1	ug/l	< 1	< 1	< 1



## Information in Support of the Analytical Results

Our Ref 22-20262  
 Client Ref PN224395  
 Contract Newport Quinn Phase 2

### Containers Received & Deviating Samples

					Inappropriate container for tests
Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	
2069357	BH23 5.00-6.00 WATER	05/10/22	GB 1L x2, GV x2, PB 1L x2	Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	
2069358	BH25 2.00-3.00 WATER	05/10/22	GB 1L x2, GV x2, PB 1L x2	Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	
2069359	BH28 3.00-4.00 WATER	05/10/22	GB 1L x2, GV x2	Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	
2069360	BH30 2.00-3.00 WATER	05/10/22	GB 1L x2, GV x2, PB 1L x2	Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

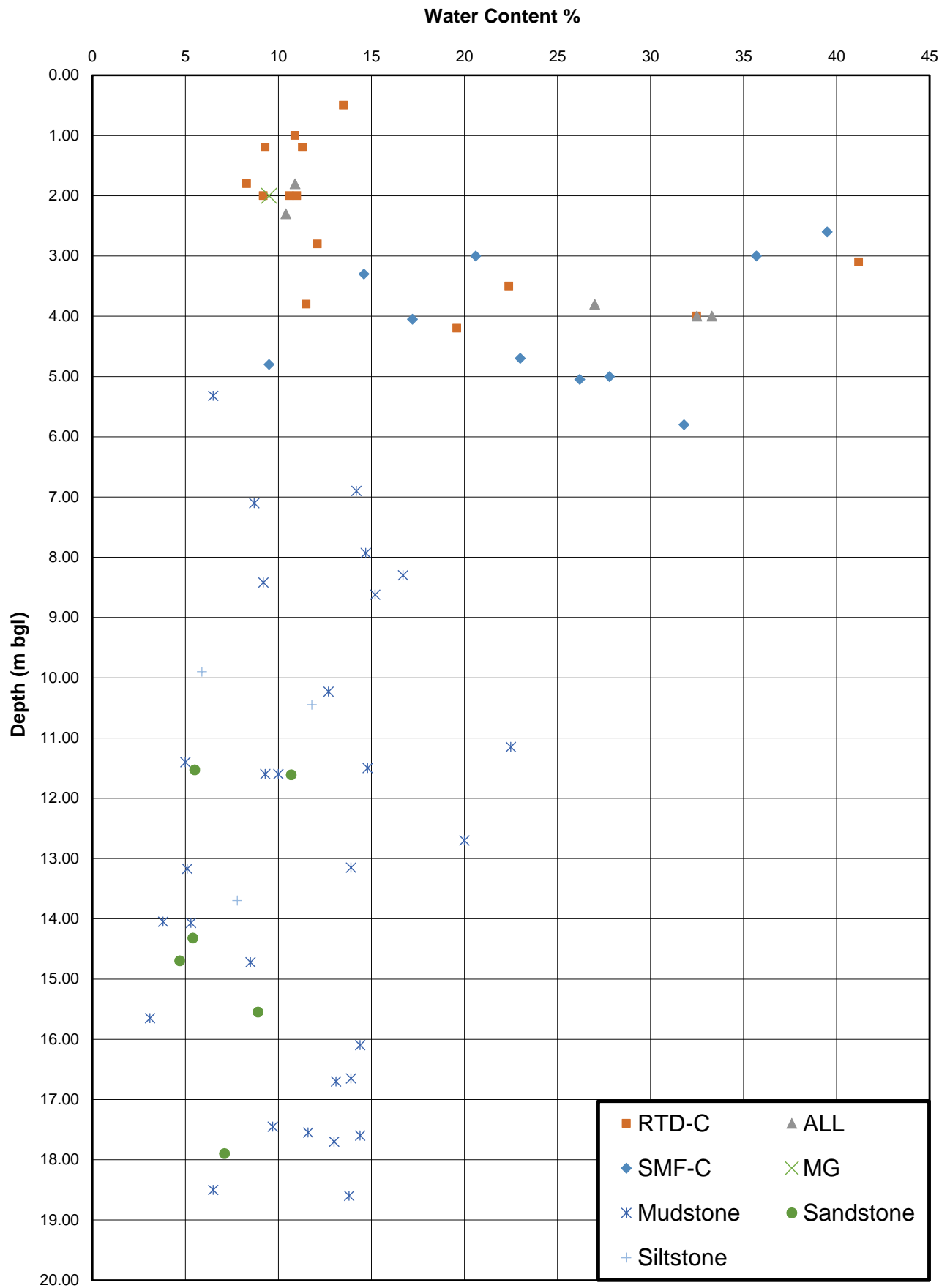
### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-  
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

# **APPENDIX II**

## **Material Property Plots**



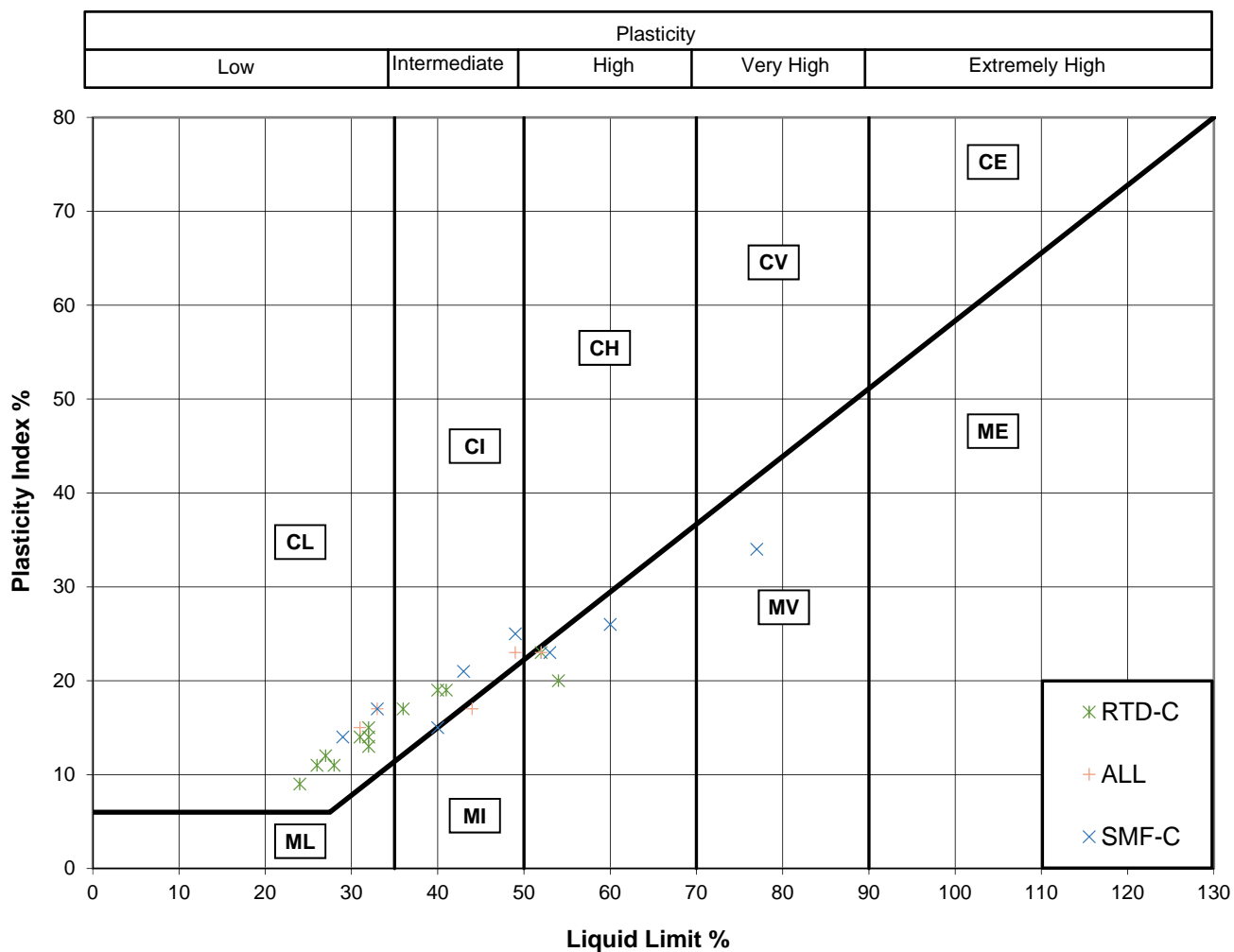
**Job No** PN224395

**Date** 16/12/2022

**Figure** 1

Newport Quinn  
Water Content vs Depth Profile

**GEOTECHNICS**

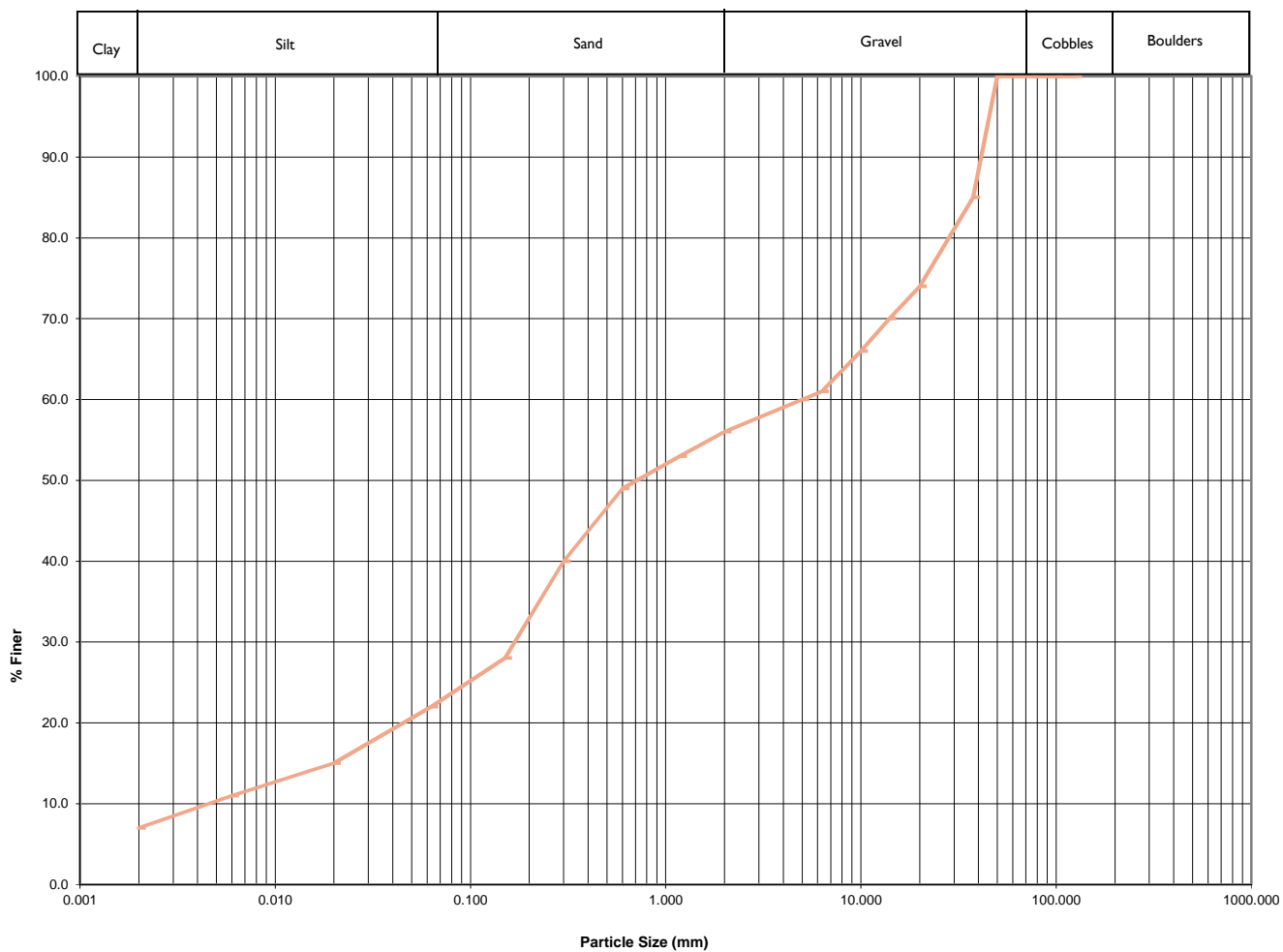


Soil Type	Plasticity Characteristics
C Clay	L Low
	I Intermediate
M Silt	H High
	V Very High
	E Extremely High

Job No PN224395  
Date 16/12/2022  
Figure 2

Newport Quinn  
Plasticity Chart

**GEOTECHNICS**



BH10 2.00m B

Made Ground

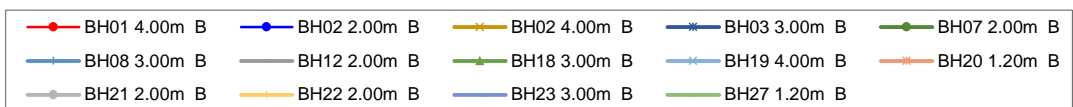
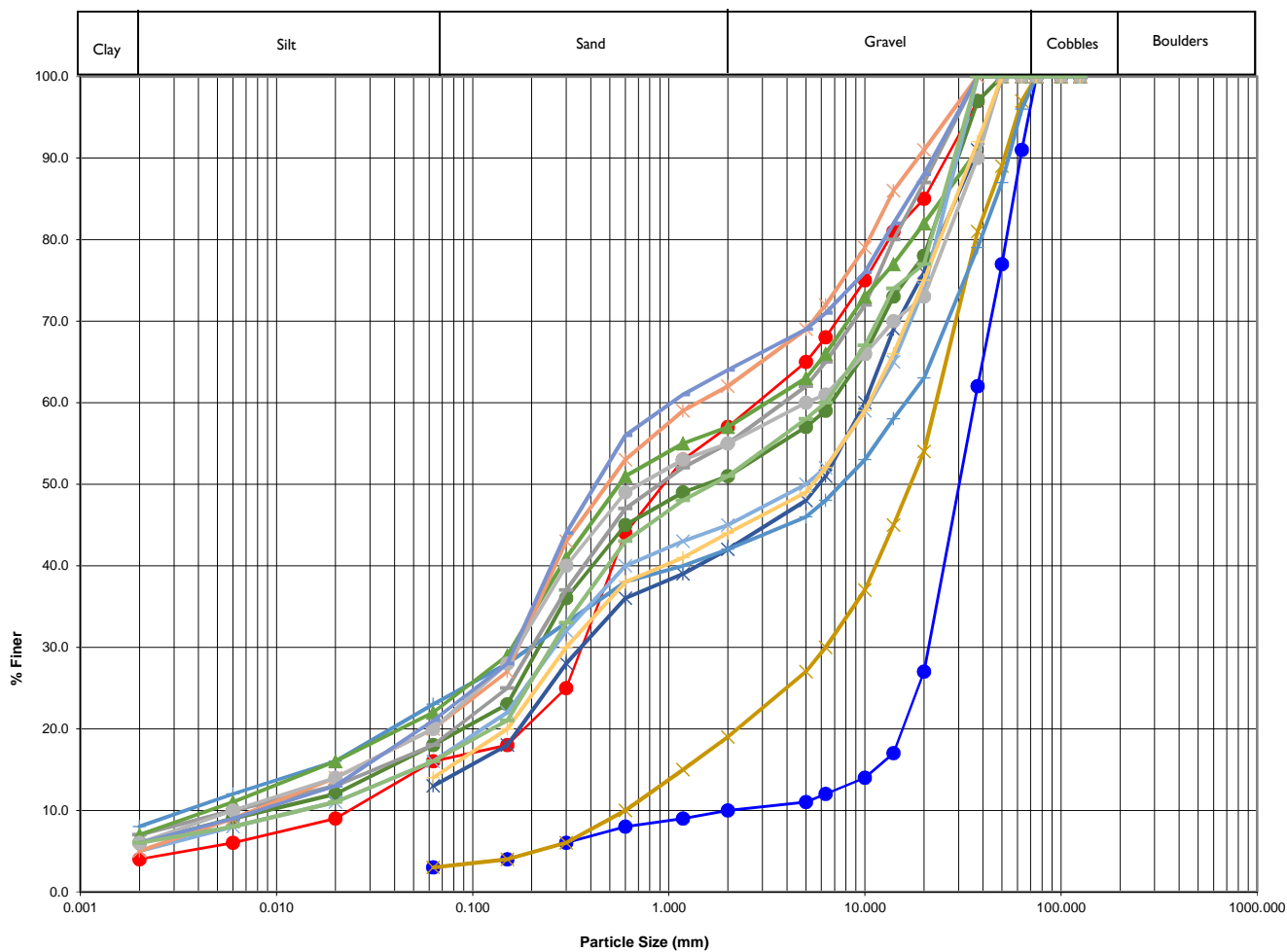
Job No PN224395

Date 03/01/2023

Figure 3.1

Newport Quinn  
Summary of Particle Size Distribution  
Analyses

GEOTECHNICS



### River Terrace Deposits - Granular

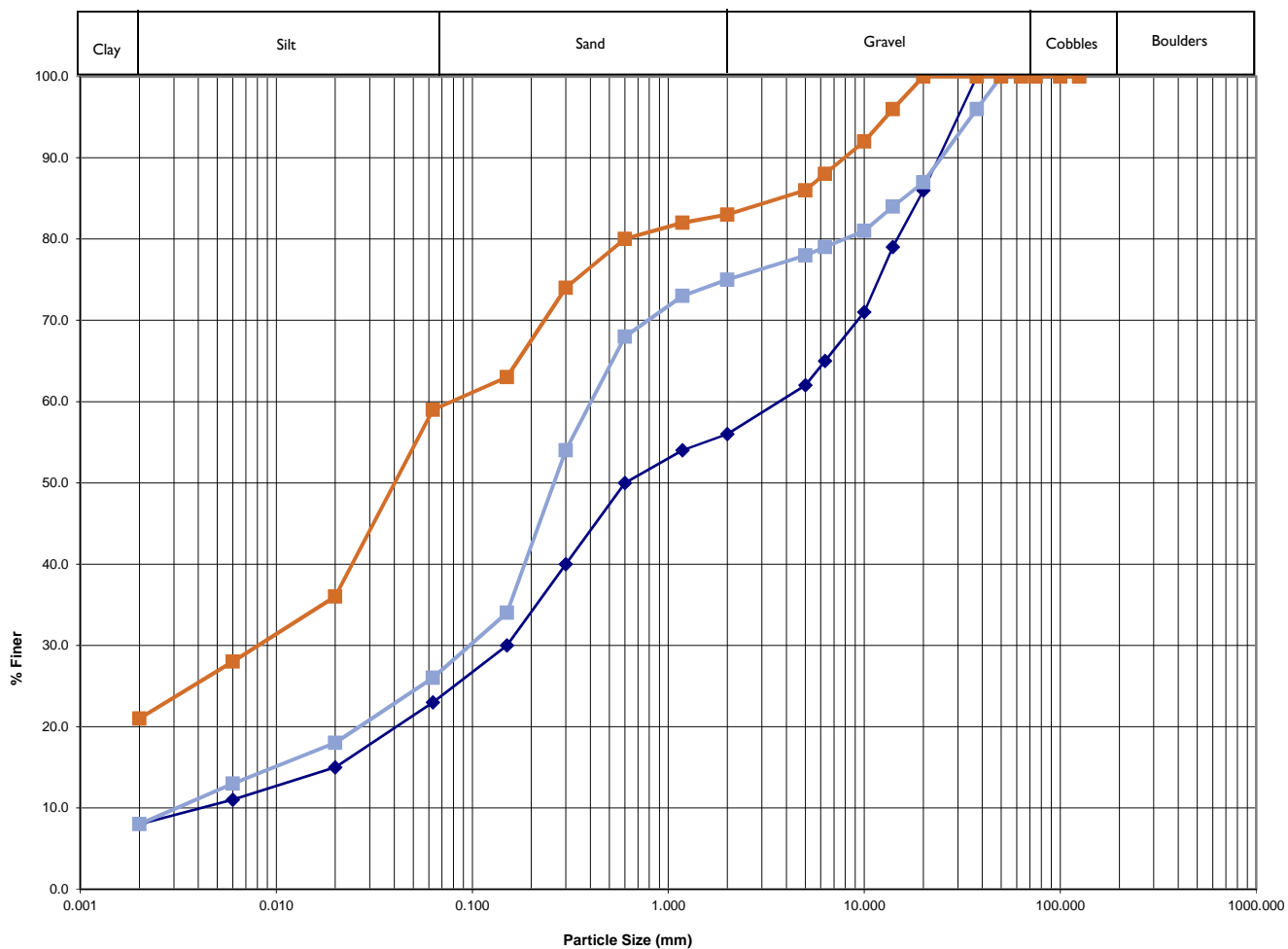
Job No PN224395

Date 03/01/2023

Figure 3.2

Newport Quinn  
Summary of Particle Size Distribution  
Analyses

**GEOTECHNICS**



—◆— BH01 1.20m D    —■— BH16 2.00m B    —■— BH15 2.00m B

### River Terrace Deposits - Cohesive

**Job No** PN224395

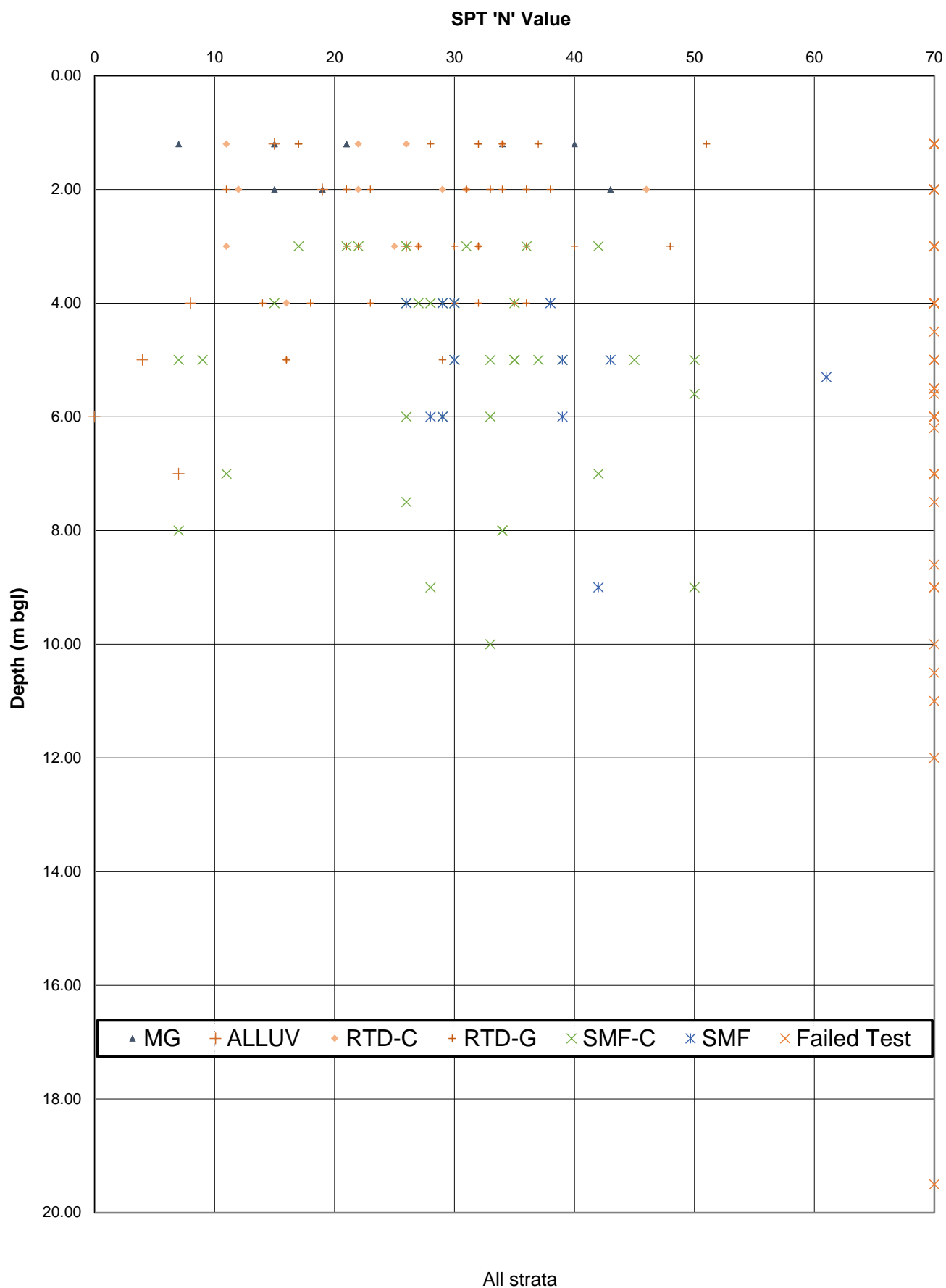
**Date** 03/01/2023

**Figure** 3.2

Newport Quinn  
Summary of Particle Size Distribution  
Analyses

**GEOTECHNICS**

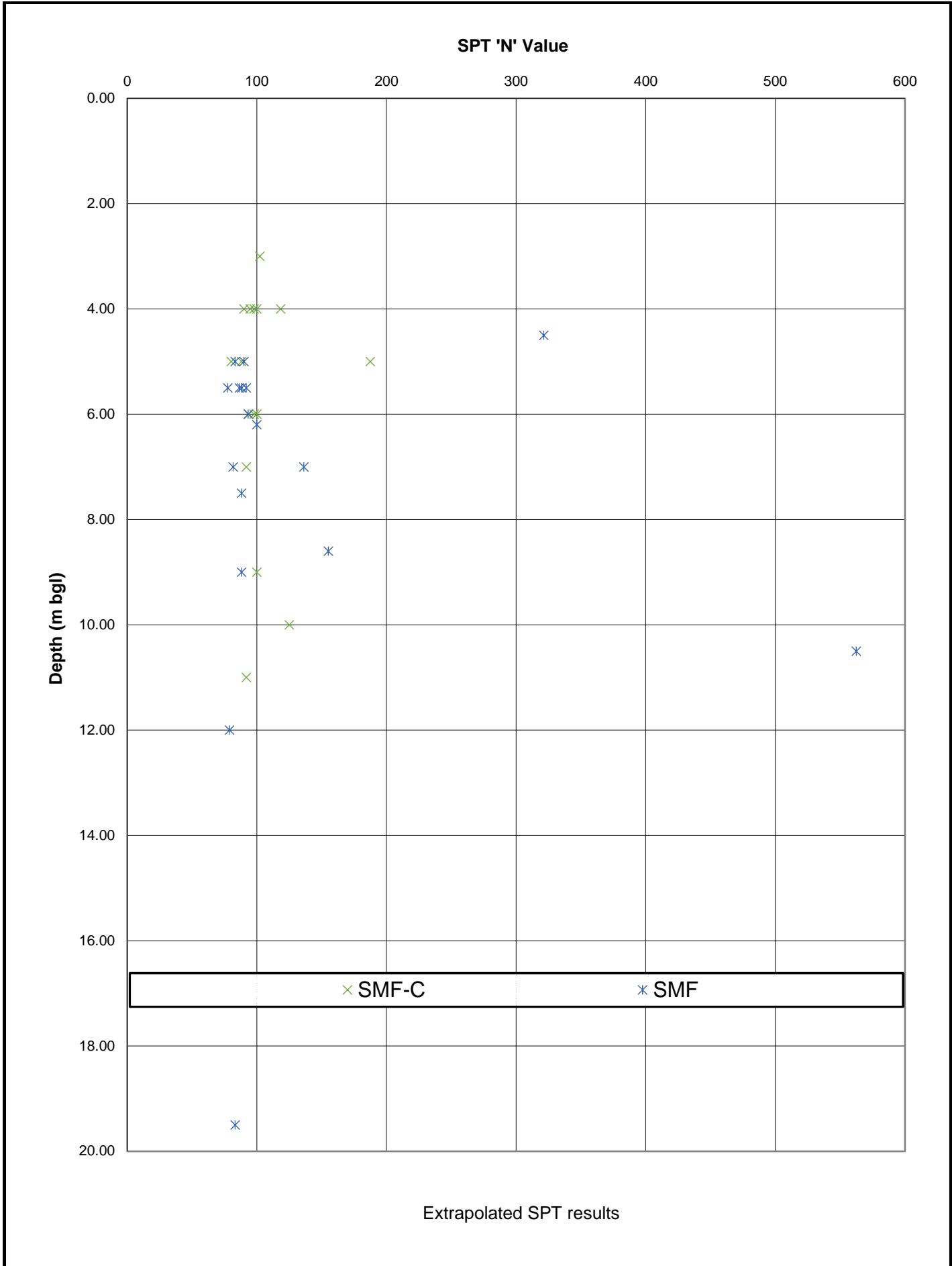


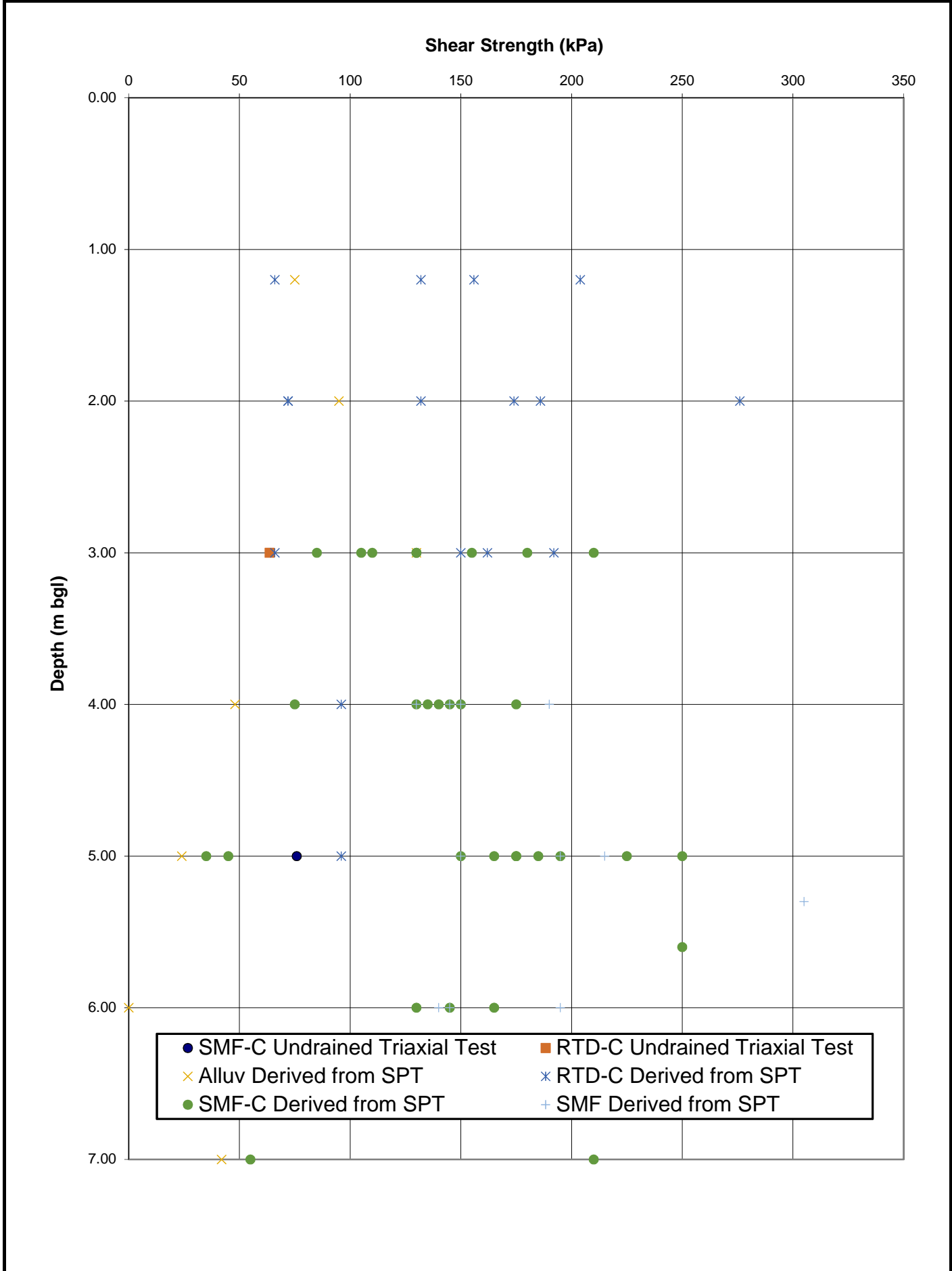


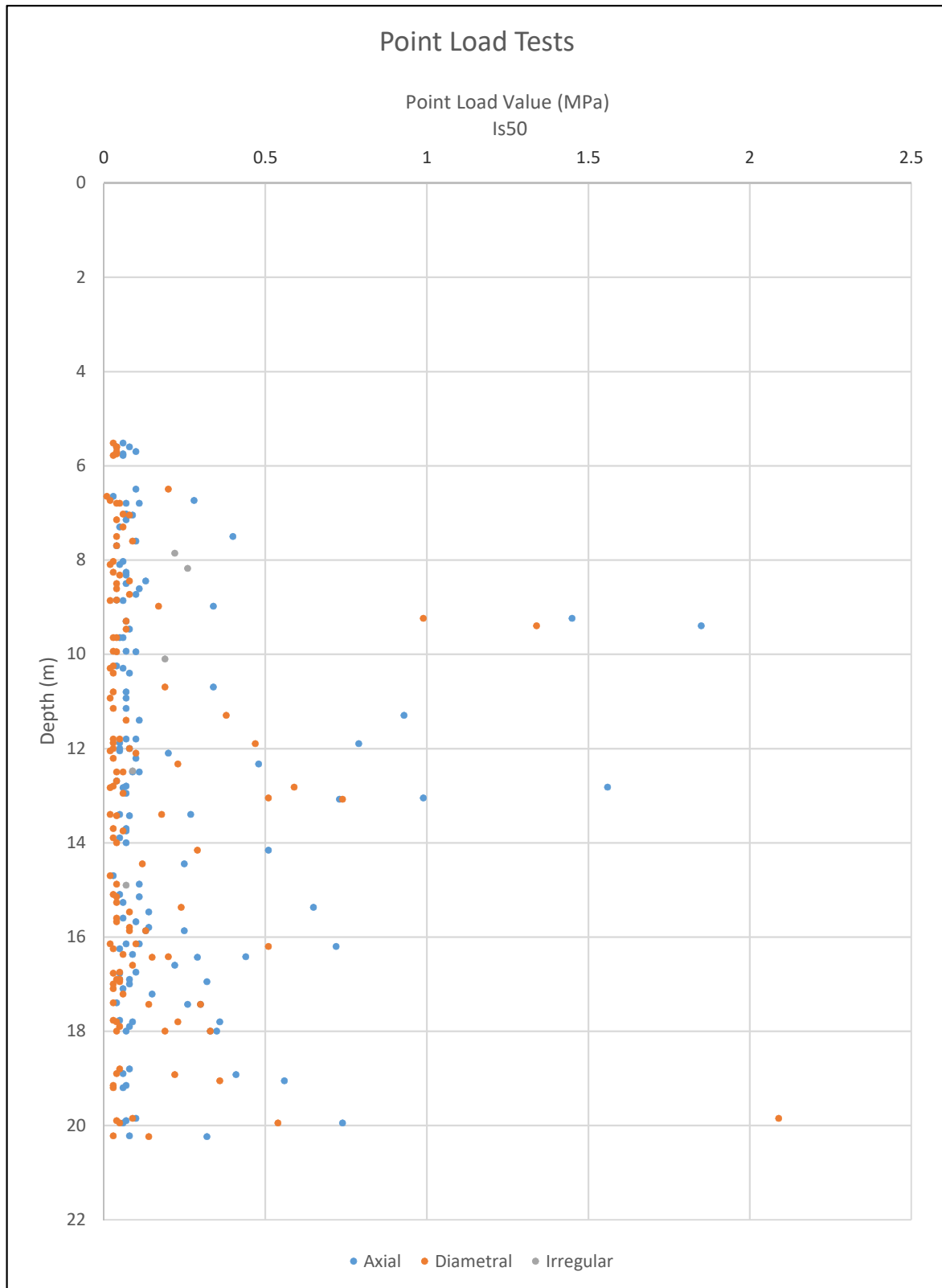
<b>Job No</b>	PN224395
<b>Date</b>	16/12/2022
<b>Figure</b>	4.1

## Newport Quinn SPT vs Depth Profile

# GEOTECHNICS





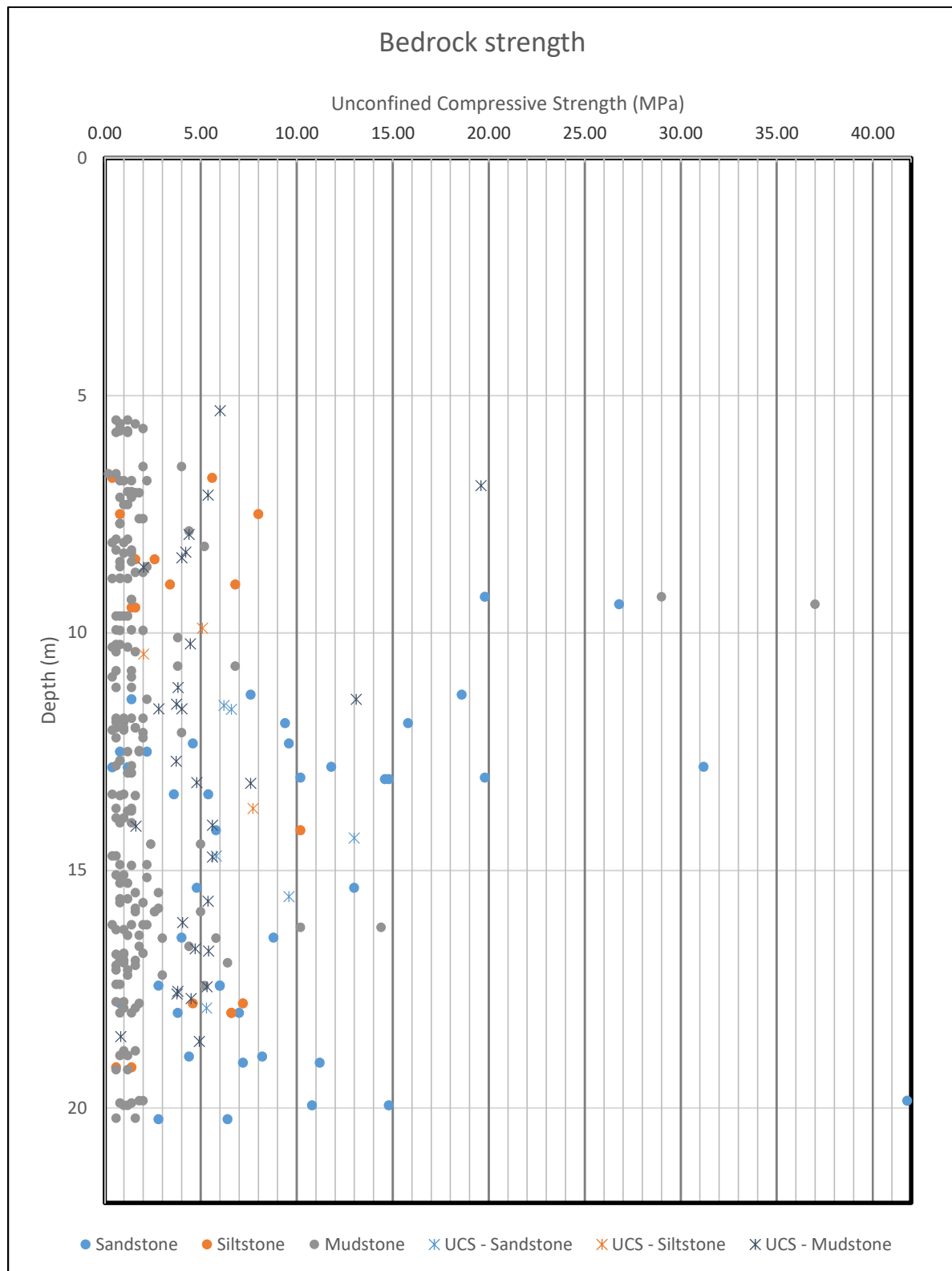


N.B. Point load Is50 values 3.33MPa (19.85m bgl), 4.27MPa (19.64m bgl) and 5.41MPa (19.64m bgl) have been omitted to allow a more appropriate scale.

**Job No** PN224395  
**Date** 01/11/2022  
**Figure** 6

Newport Quinn  
 Point Load Test vs Depth Chart

**GEOTECHNICS**



Strength derived from point load test results and direct from  
unconfined compressive strength (UCS) test results.

*N.B. Point load derived values 67kPa and 108kPa at 19.64m and 19.85m depth have been omitted to allow more appropriate scale.*

**Job No** PN224395  
**Date** 01/11/2022  
**Figure** 7

Newport Quinn  
Bedrock Strength vs Depth Chart

**GEOTECHNICS**

# DATA SHEET

**Project:** Newport Quinn

**Project No.:** PN224395

**Table 1: Summary of Measured and Derived Material Parameters  
Made Ground**

Parameter	Number of Tests	Range	Average	Figure Number	Remarks
Water Content (%)	1	9.5	9.5	1	
Atterberg Limits					No tests. Material mostly granular.
<u>Particle Size Distribution</u>	1			3.1	
% Gravel		44	-		
% Sand		34	-		
% Silt		15	-		
% Clay		7	-		
SPT N Value	13	15 - 43	26	4	Five additional tests did not achieve full penetration.
<u>Chemical Conditions</u>	7				
pH		7.2 - 11.1	8.6		
Ammonia Aqueous Extract as N		<10			
Chloride Aqueous Extract		3.50 - 29.0	13.5		
Nitrate Aqueous Extract as NO <sub>3</sub>		<1.0 - 1.7	1.7		
Water soluble sulphate content SO <sub>4</sub> (mg/l)		12 - 99	36.7		
Total Sulphur S (%)		<0.01 - 0.21	0.13		
Total sulphate SO <sub>4</sub> (%)		0.01 - 0.29	0.06		Average excluding <0.01 values.
<u>CBR</u>	1				
Top (%)		37			
Bottom (%)		58			From laboratory tests. Recompact at as-received moisture content using 2.5 kg rammer.

# DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

**Table 2: Summary of Measured and Derived Material Parameters**  
**Alluvium**

Parameter	Number of Tests	Range	Average	Figure Number	Remarks
Water Content (%)	4	10.4 - 141	43	1	The water content of 141% was from material described as peat.
Atterberg Limits	6			2	One sample was described as peat with a liquid limit of 160% and was non-plastic.
Liquid Limit (%)		31 - 160	62		
Plastic Limit (%)		16 - 29	23		
Plasticity Index (%)		15 - 23	19		
Modified Plasticity Index (%)	5	7 - 23	15		After NHBC Standards, Chapter 4.2
SPT N Value	7	0 - 26	11	4	
Undrained Shear Strength (kN/m <sup>2</sup> )				5	No direct laboratory tests.
Estimated from SPT N Values		0 - 130	59		After Stroud & Butler (1978)
Organic Content (%)	2	0.7 - 21	11		
Compaction	1				2.5 kg rammer
Optimum moisture content (%)		6.0			
Maximum dry density (Mg/m <sup>3</sup> )		2.19			
CBR	2				
Top (%)		0.73 - 18	9.4		From laboratory tests. Recompactd at as-received moisture content using 2.5 kg rammer.
Bottom (%)		0.59 - 23	11.8		
Thermal Conductivity	2				
Thermal Conductivity (W/(m.k))		2.54 - 2.57	2.56		
Thermal Resistivity ((m.k)/W)		0.39	0.39		
Temperature (°C)		19.4 - 20.3	20		



# DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

**Table 3: Summary of Measured and Derived Material Parameters  
River Terrace Deposits - Cohesive**

Parameter	Number of Tests	Range	Average	Figure Number	Remarks
Water Content (%)	15	8 - 41	16	1	
<u>Atterberg Limits</u>	14			2	
Liquid Limit (%)		24 - 54	35		
Plastic Limit (%)		15 - 34	20		
Plasticity Index (%)		9 - 23	15		
Modified Plasticity Index (%)	16	4 - 20	9		After NHBC Standards, Chapter 4.2
<u>Particle Size Distribution</u>	3			3.2	
% Cobbles		0	-		
% Gravel		17 - 44	-		
% Sand		24 - 49	-		
% Silt		15 - 38	-		
% Clay		8 - 21	-		
SPT N Value	28	11 - 46	23	4	Twelve tests did not achieve full penetration.
<u>Undrained Shear Strength (kN/m<sup>2</sup>)</u>				5	
Undrained Shear Strength (kN/m <sup>2</sup> )	1	64			Unconsolidated undrained triaxial test.
Estimated from SPT N Values	16	24 - 276	123		After Stroud & Butler (1978)
<u>Chemical Conditions</u>	8				
pH		7.0 - 8.3	7.63		
Ammonia Aqueous Extract as N		<10			
Chloride Aqueous Extract		3.70 - 7.00	5.55		
Nitrate Aqueous Extract as NO <sub>3</sub>		<1.0 - 1.0			
Water soluble sulphate content SO <sub>4</sub> (mg/l)		12 - 29	17.8		
Total Sulphur S (%)		<0.01 - 0.01			
Total sulphate SO <sub>4</sub> (%)		<0.01 - 0.03	0.02		Average excluding <0.01 values.
<u>Compaction</u>	5				2.5 kg rammer
Optimum moisture content (%)		7.5 - 9	8		
Maximum dry density (Mg/m <sup>3</sup> )		2.03 - 2.20	2.13		

<u>CBR</u>	5				
Top (%)		0.73 - 47	10		From laboratory tests. Recompacted at as-received moisture content using 2.5 kg rammer.
Bottom (%)		0.59 - 25	6		
<u>Thermal Conductivity</u>	7				
Thermal Conductivity (W/(m.k))		1.24 - 3.37	2.29		
Thermal Resistivity ((m.k)/W)		0.30 - 0.81	0.48		
Temperature (°C)		19.3 - 20.3	19.9		

# DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

**Table 4: Summary of Measured and Derived Material Parameters**  
**River Terrace Deposits - Granular**

Parameter	Number of Tests	Range	Average	Figure Number	Remarks
<u>Particle Size Distribution</u>	14			3.2	
% Cobbles		0 - 9	-		
% Gravel		36 - 81	-		
% Sand		7 - 43	-		
% Silt		~10 - 15	-		
% Clay		3 - 14	-		
SPT N Value	47	11 - 51	29	4	Eighteen tests did not achieve full penetration.
<u>Chemical Conditions</u>	5				
pH		7.7 - 10.7	8.58		
Ammonia Aqueous Extract as N		<10			
Chloride Aqueous Extract		2.10 - 6.20	4.50		
Nitrate Aqueous Extract as NO <sub>3</sub>		<1.0			
Water soluble sulphate content SO <sub>4</sub> (mg/l)		12 - 32	18.4		
Total Sulphur S (%)		<0.01 - 0.01			
Total sulphate SO <sub>4</sub> (%)		<0.01 - 0.03	0.02		Average excluding <0.01 values.
<u>Compaction</u>	7				2.5 kg rammer
Optimum moisture content (%)		6 - 9	7.5		
Maximum dry density (Mg/m <sup>3</sup> )		2.10 - 2.21	2.16		
<u>CBR</u>	7				
Top (%)		1.30 - 55	23		From laboratory tests. Recompacted at as-received
Bottom (%)		1.2 - 51	21		moisture content using 2.5 kg rammer.
<u>Thermal Conductivity</u>	10				
Thermal Conductivity (W/(m.k))		1.80 - 2.78	2.37		
Thermal Resistivity ((m.k)/W)		0.36 - 0.55	0.43		
Temperature (°C)		17.8 - 20.6	19.8		

# DATA SHEET

**Project:** Newport Quinn

**Project No.:** PN224395

**Table 5: Summary of Measured and Derived Material Parameters  
St. Maughan's Formation - Clay**

Parameter	Number of Tests	Range	Average	Figure Number	Remarks
Water Content (%)	9	9.5 - 40	24	1	
<u>Atterberg Limits</u>	7			2	
Liquid Limit (%)		29 - 77	47		
Plastic Limit (%)		15 - 43	26		
Plasticity Index (%)		14 - 34	22		
Modified Plasticity Index (%)	7	11 - 31	17		After NHBC Standards, Chapter 4.2
SPT N Value	55	7 - 50	30	4	Seventeen tests did not achieve full penetration.
<u>Undrained Shear Strength (kN/m<sup>2</sup>)</u>				5	
Unconsolidated Undrained Triaxial (kN/m <sup>2</sup> )	1	76	76		Unconsolidated undrained triaxial test.
Estimated from SPT N Values	38	35 - 250	149		After Stroud & Butler (1978)
<u>Chemical Conditions</u>	3				
pH		7.3 - 8.8	8.3		
Ammonia Aqueous Extract as N		<10			
Chloride Aqueous Extract		6.3 - 18	12		
Nitrate Aqueous Extract as NO <sub>3</sub>		<1.0			
Water soluble sulphate content SO <sub>4</sub> (mg/l)		17 - 34	27		
Total Sulphur S (%)		<0.01 - 0.02			
Total sulphate SO <sub>4</sub> (%)		<0.01 - 0.40	0.01		Average excluding <0.01 values.
<u>Compaction</u>	1				2.5 kg rammer
Optimum moisture content (%)		18			
Maximum dry density (Mg/m <sup>3</sup> )		1.75			
<u>Thermal Conductivity</u>	2				
Thermal Conductivity (W/(m.k))		2.60 - 2.71	2.66		
Thermal Resistivity ((m.k)/W)		0.37 - 0.38	0.38		
Temperature (°C)		17.8 - 20.6	19.1		

# DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

**Table 6: Summary of Measured and Derived Parameters  
Bedrock - St. Maughan's Formation**

Parameter	Number of Tests	Range	Average	Figure Number	Remarks
SPT N Value	29	26 - 61	36	4	Seventeen tests did not achieve full penetration.
<u>Point Load - Sandstone</u>					
Is <sub>50</sub> (MN/m <sup>2</sup> ) Axial	9	0.06 - 1.56	0.57		
Is <sub>50</sub> (MN/m <sup>2</sup> ) Diametral	25	0.02 - 4.27	0.58		
<u>Point Load - Siltstone</u>					
Is <sub>50</sub> (MN/m <sup>2</sup> ) Axial	9	0.07 - 0.51	0.28		
Is <sub>50</sub> (MN/m <sup>2</sup> ) Diametral	8	0.02 - 0.33	0.12		
<u>Point Load - Mudstone</u>					
Is <sub>50</sub> (MN/m <sup>2</sup> ) Axial	100	0.03 - 5.41	0.21		
Is <sub>50</sub> (MN/m <sup>2</sup> ) Diametral	98	0.01 - 0.51	0.06		
<u>Unconfined Compressive Strength</u>					
Sandstone (MN/m <sup>2</sup> )	6	5.31 - 13.00	7.75		
Siltstone (MN/m <sup>2</sup> )	3	2.03 - 7.72	4.95		
Mudstone (MN/m <sup>2</sup> )	29	0.84 - 19.60	5.15		
<u>Moisture Content</u>					
Sandstone (%)	6	4.7 - 10.7	7.1		
Siltstone (%)	3	5.8 - 11.8	8.5		
Mudstone (%)	30	3.1 - 32	12		
<u>Atterberg Limits - Mudstone (Clay)</u>	1			2	
Liquid Limit (%)		53			
Plastic Limit (%)		30			
Plasticity Index (%)		15			
<u>Chemical Conditions</u>	4				
pH		6.6 - 11	8		
Ammonia Aqueous Extract as N		<10			
Chloride Aqueous Extract		5.3 - 30	14		
Nitrate Aqueous Extract as NO <sub>3</sub>		<1.0			

Water soluble sulphate content SO <sub>4</sub> (mg/l)		15 - 92	42		
Total Sulphur S (%)		<0.01 - 0.07			
Total sulphate SO <sub>4</sub> (%)		<0.01 - 0.25	0.09		Average excluding <0.01 values.
<u>Thermal Conductivity</u>	I				
Thermal Conductivity (W/(m.k))		1.18			
Thermal Resistivity ((m.k)/W)		0.85			
Temperature (°C)		19.1			

# **APPENDIX 12**

## **Geological Sections**



# DATA SHEET - Symbols and Abbreviations used on Records



## Sample Types

B	Bulk disturbed sample
BLK	Block sample
C	Core sample
D	Small disturbed sample (tub/jar)
E	Environmental test sample
ES	Environmental soil sample
EW	Environmental water sample
G	Gas sample
L	Liner sample
LB	Large bulk disturbed sample
P	Piston sample (PF - failed P sample)
TW	Thin walled push in sample
U	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)
UT	Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample)
V	Vial sample
W	Water sample
#	Sample Not Recovered

## Insitu Testing / Properties

CBRP	CBR using TRL probe
CHP	Constant Head Permeability Test
COND	Electrical conductivity
TC	Thermal Conductivity
TR	Thermal Resistivity
HV	Strength from Hand Vane
ICBR	CBR Test
IDEN	Density Test
IRES	Resistivity Test
MEX	CBR using Mexecon Probe Test
PKR	Packer Permeability Test
PLT	Plate Load Test
PP	Strength from Pocket Penetrometer
Temp	Temperature
VHP	Variable Head Permeability Test
VN	Strength from Insitu Vane
w%	Water content
(All other strengths from undrained triaxial testing)	
S	Standard Penetration Test (SPT)
C	SPT with cone
N	SPT Result
-/-	Blows/penetration (mm) after seating drive
-*/- (mm)	Total blows/penetration
( )	Extrapolated value

## Groundwater

Water Strike	
Depth Water Rose To	

## Instrumentation

Seal

Filter

Seal

## Strata

Made Ground Granular

Made Ground Cohesive

Topsoil

Cobbles and Boulders

Gravel

Sand

Silt

Clay

Peat

**Note: Composite soil types shown by combined symbols**

Chalk

Limestone

Sandstone

Coal

## Strata, Continued

Mudstone

Siltstone

## Metamorphic Rock

Fine Grained

Medium Grained

Coarse Grained

## Igneous Rock

Fine Grained

Medium Grained

Coarse Grained

## Backfill Materials

Arisings

Bentonite

Concrete

Sand

Grout

Gravel

Asphalt/Tarmacadam

## Rotary Core

RQD Rock Quality Designation (% of intact core >100mm)

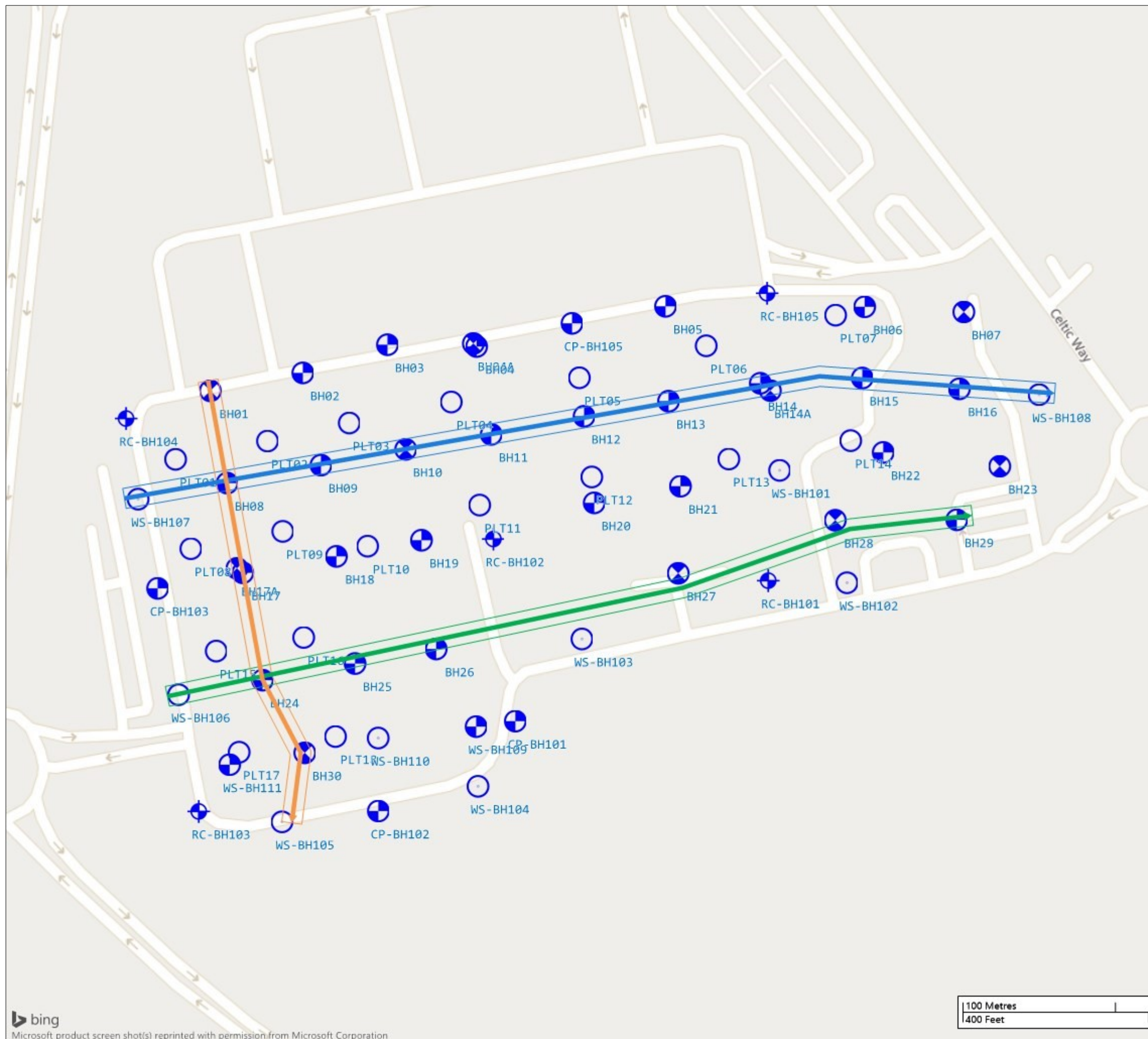
## FRACTURE INDEX

Fractures/metre

NI Non-intact core

NR No core recovery

AZCL Assumed zone of core loss



#### Legend

- Sections - Section line A-A'
- Sections - Section line B-B'
- Sections - Section line C-C'
- Locations By Type - CP
- Locations By Type - CP+RC
- Locations By Type - DS
- Locations By Type - DS+RC
- Locations By Type - PLT

# GEOTECHNICS

geotechnical and geoenvironmental specialists

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Engineer:

**Pinnacle Consulting Engineers Limited**

Client:

**Pinnacle Consulting Engineers Limited**

Project:

**Newport Quinn Phase 2**

Drawing Title:

**Cross Section Layout with Exploratory Holes**

Scale:

**1:2500 at A3**

Date:

**07/02/2023**

Project No.:


**PN224395**

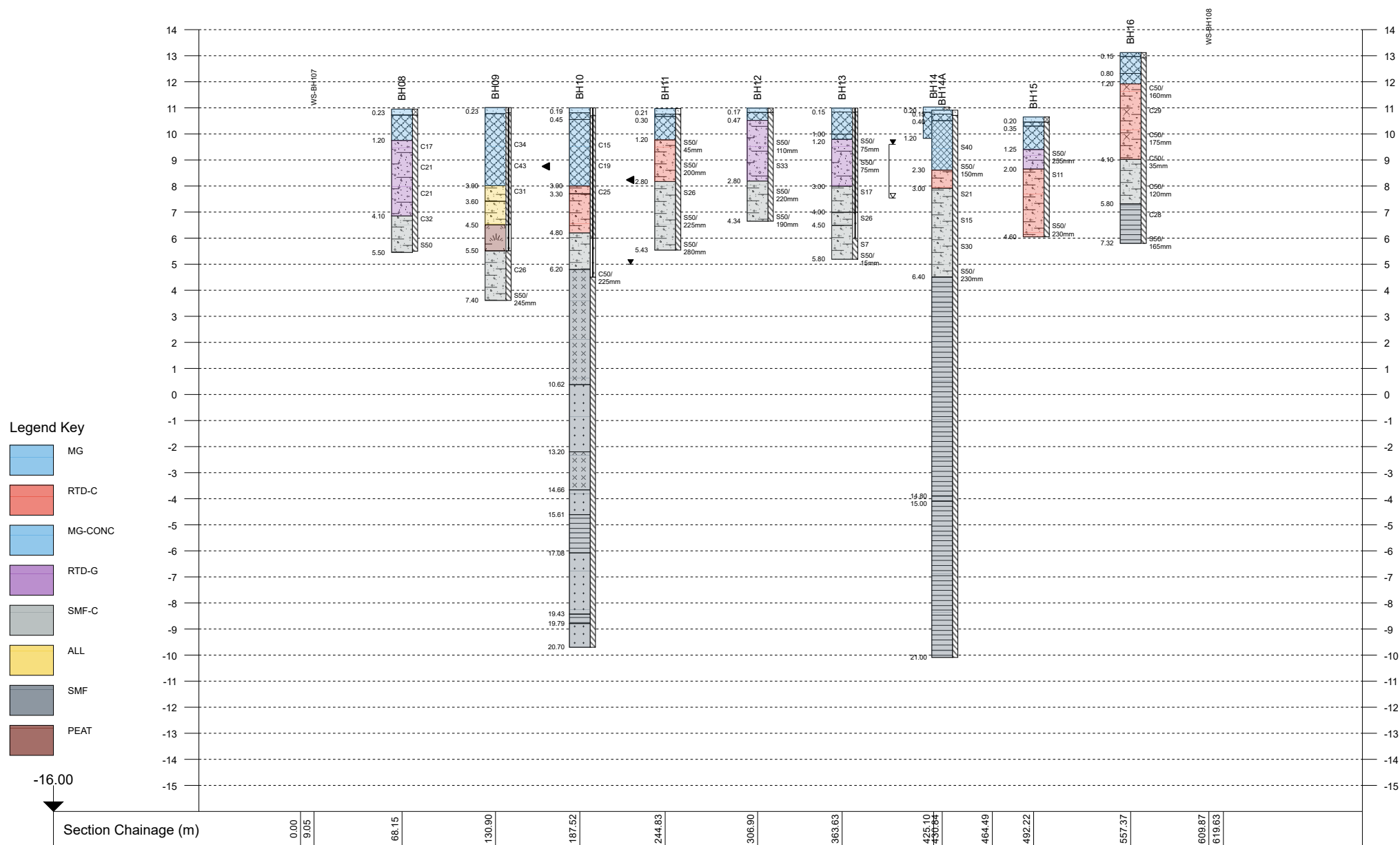
**Exploratory Hole**


**Location Plan**

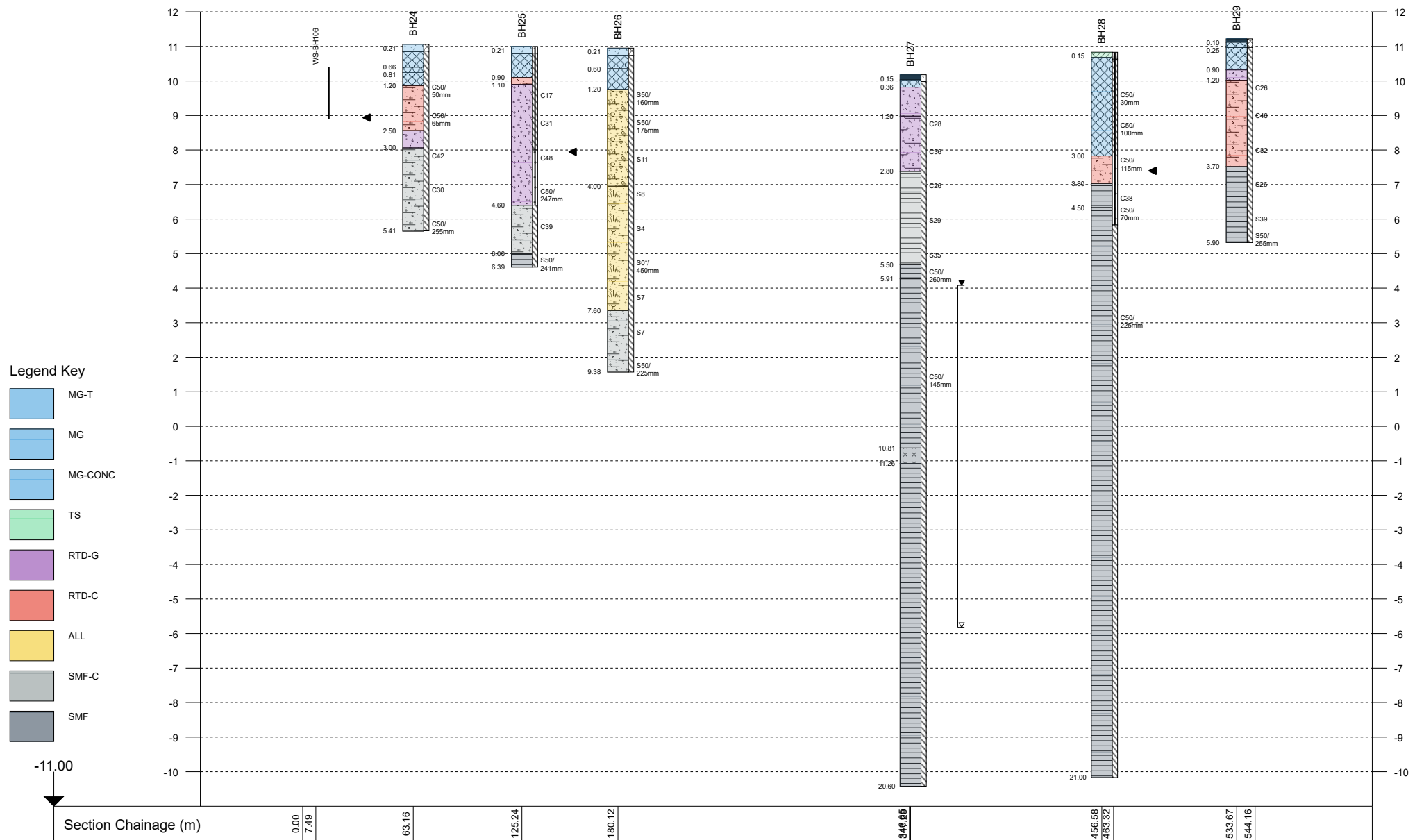



Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

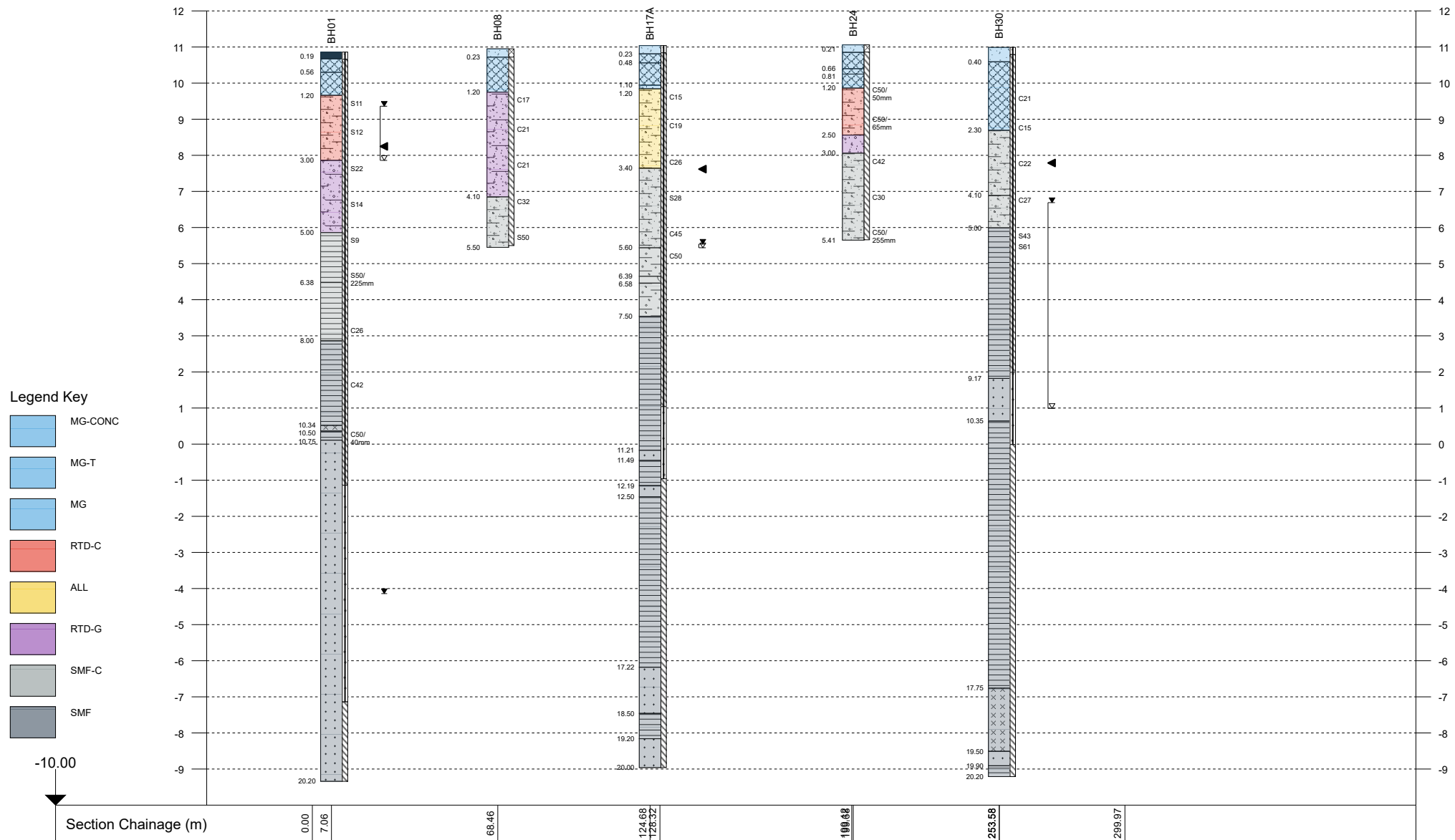
Project: <b>Newport Quinn Phase 2</b>	Title: <b>Section Line A-A'</b>	Unit 1B Borders Industrial Park River Lane Saltney Chester CH4 8RJ	Phone: 01244 671117  Email: mail@geotechnics.co.uk  www.geotechnics.co.uk	 <b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists
	Vertical Scale: <b>1:200</b>			
Project No.: <b>PN224395</b>	Horizontal Scale: <b>1:3500</b>			
Client: <b>Pinnacle Consulting Engineers Limited</b>	Engineer: <b>Pinnacle Consulting Engineers Limited</b>			



Project: <b>Newport Quinn Phase 2</b>	Title: <b>Section Line B-B'</b>	Unit 1B Borders Industrial Park River Lane Saltney Chester CH4 8RJ	Phone: 01244 671117  Email: mail@geotechnics.co.uk  www.geotechnics.co.uk	 <b>GEOTECHNICS</b> geotechnical and geoenvironmental specialists
Project No.: <b>PN224395</b>	Vertical Scale: <b>1:152</b>			
Client: <b>Pinnacle Consulting Engineers Limited</b>	Horizontal Scale: <b>1:3000</b>	Engineer: <b>Pinnacle Consulting Engineers Limited</b>		



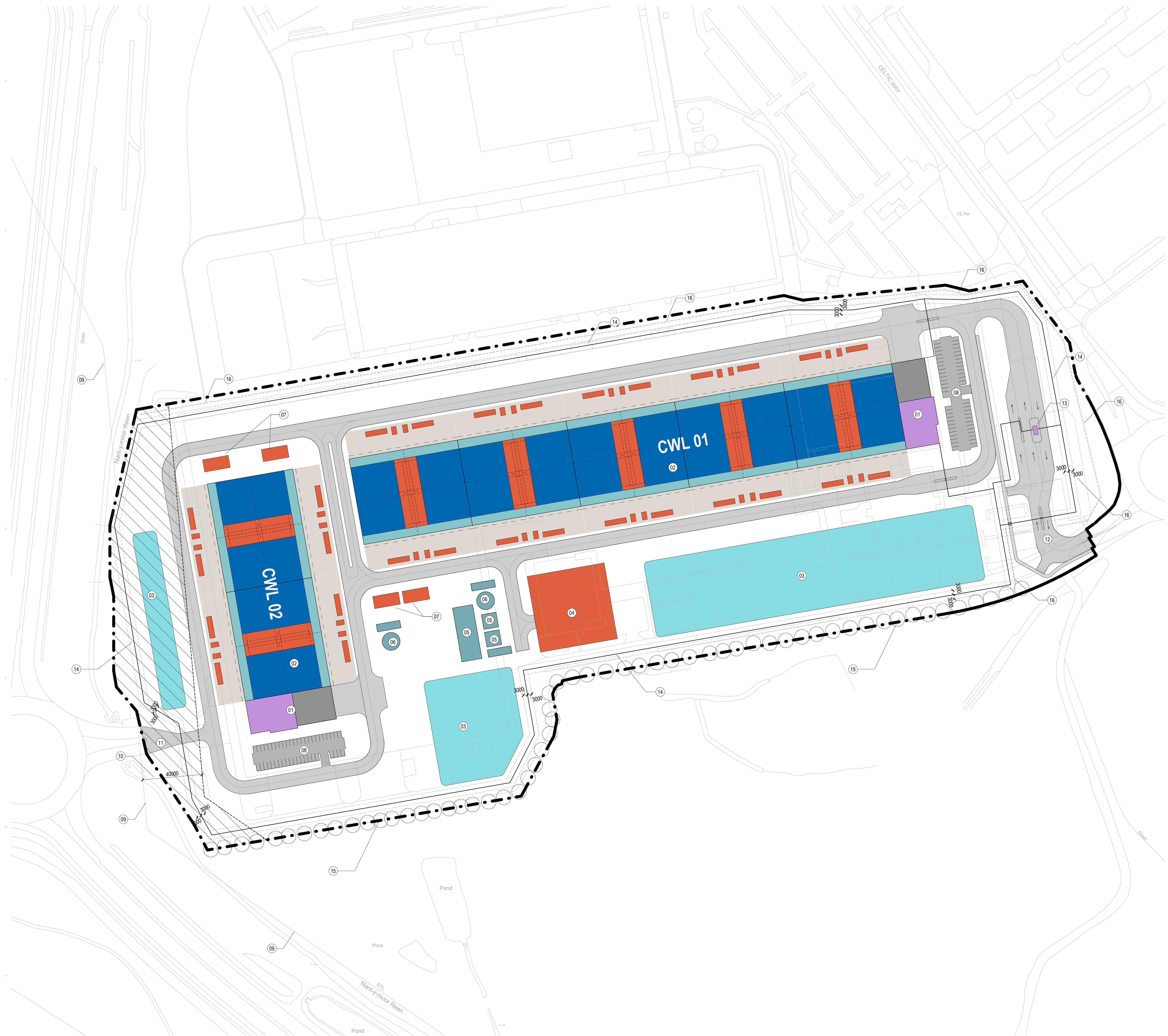
Project: <b>Newport Quinn Phase 2</b>	Title: <b>Section Line C-C'</b>	Unit 1B Borders Industrial Park River Lane Saltney Chester CH4 8RJ	Phone: 01244 671117  Email: mail@geotechnics.co.uk  www.geotechnics.co.uk	 geotechnical and geoenvironmental specialists
	Vertical Scale: <b>1:150</b>			
Project No.: <b>PN224395</b>	Horizontal Scale: <b>1:2000</b>			
Client: <b>Pinnacle Consulting Engineers Limited</b>	Engineer: <b>Pinnacle Consulting Engineers Limited</b>			



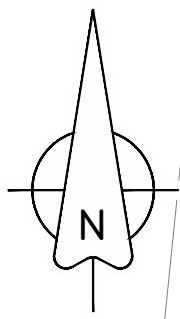
# **APPENDIX I3**

## **Proposed Layout**









GENERAL NOTES

- DO NOT SCALE THIS DRAWING. WORK ONLY TO FIGURED DIMENSIONS.
- FOR ALL RELEVANT NOTES, REFER TO STRUCTURAL AND CIVIL ENGINEERING PERFORMANCE SPECIFICATION.
- ANY DISCREPANCIES ARE TO BE REPORTED TO PINNACLE CONSULTING ENGINEERS IMMEDIATELY.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SUB-CONTRACTORS DRAWINGS AND DETAILS.

LEGEND

- SITE BOUNDARY
- PROPOSED LEVELS
- EXISTING LEVELS
- PROPOSED GRADIENT
- MINOR CONTOUR (0.100M INTERVALS)
- MAJOR CONTOUR (0.500M INTERVALS)
- RETAINING WALL



FOR INFORMATION	SC	JJ	03.06.21
DESCRIPTION	BY	CHK	DATE
CLIENT			

PROJECT  
NEWPORT SDD MSFT

DRAWING TITLE  
LEVELS STRATEGY

**PINNACLE**  
CONSULTING ENGINEERS

ALCHEMY,  
BESSEMER ROAD,  
WELWYN GARDEN CITY,  
HERTS.  
ALY THE. TELEPHONE: 01707 527 630  
NORWICH LONDON DUBLIN THE HAGUE

DRAWING STATUS			
INFORMATION			
SCALE @ A3	DATE	DRAWN BY	CHECKED
1:750	JUN '21	SC	JJ
DRG NO	REVISION		
C210420-PIN-XX-XX-DR-C-SK011	P01		

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