

# ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710  
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 900 Fax: 01772 735 999

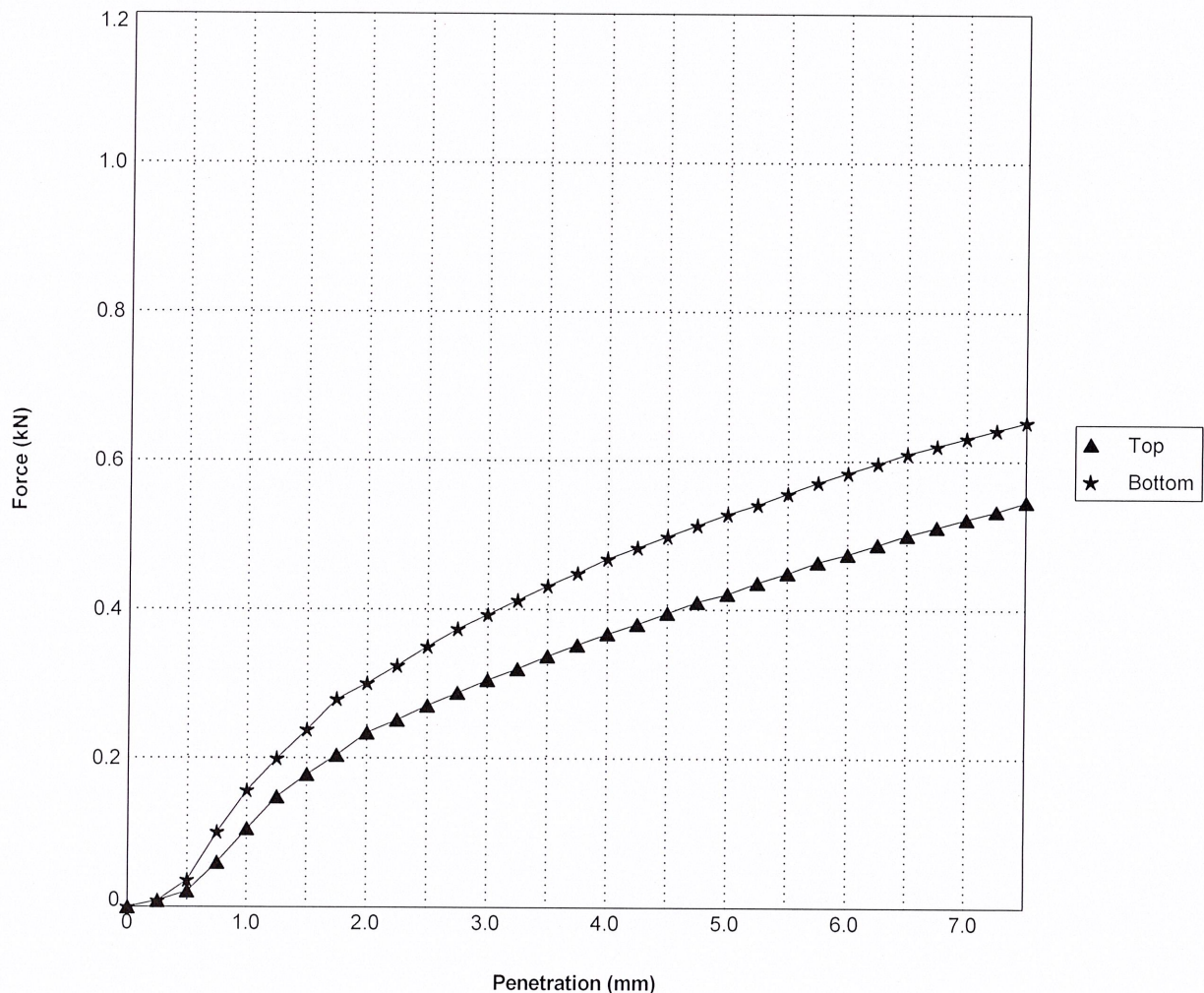
## DETERMINATION OF THE CALIFORNIA BEARING RATIO

BS 1377 : Part 4 : 1990 and Part 2 : Clause 3.2 : 1990

Exploratory Hole No.- **S3\_TPA\_TP101** Sample No.- **B5**

Depth (m)- **1.10**

"As Received" Moisture Content (%) :	30	Surcharge (Kg) :	6
Retained on 20mm (%) :	0.0	Seating Load (N) :	Top 10 / Bottom 10
Correction Needed :	No	Test Moisture Content (%) :	Top 30 / Bottom 29
Soaking Time (Days) :	N/A	Bulk Density (Mg/m <sup>3</sup> ) :	1.93
Swelling (mm) :	N/A	Dry Density (Mg/m <sup>3</sup> ) :	1.49
Date Tested :	28/10/2021	CBR Value (%) :	Top 2.1 / Bottom 2.7
Preparation Method :	4.5kg Compaction		
Remarks :			



For description of sample please refer to the Laboratory Sample Description Sheet

Contract Title :-

Prairie Phase 4

Client :-

Tees Valley Combined Authority



Signed :-

*msero*

Name

**M. SELKIRK**

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Date of issue :-

15/11/2021

Certificate No :-

CBR/4355/S3\_TPA\_TP101/B5/1.10/1

AEG Contract No. :-

**4355**



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## DETERMINATION OF THE CALIFORNIA BEARING RATIO

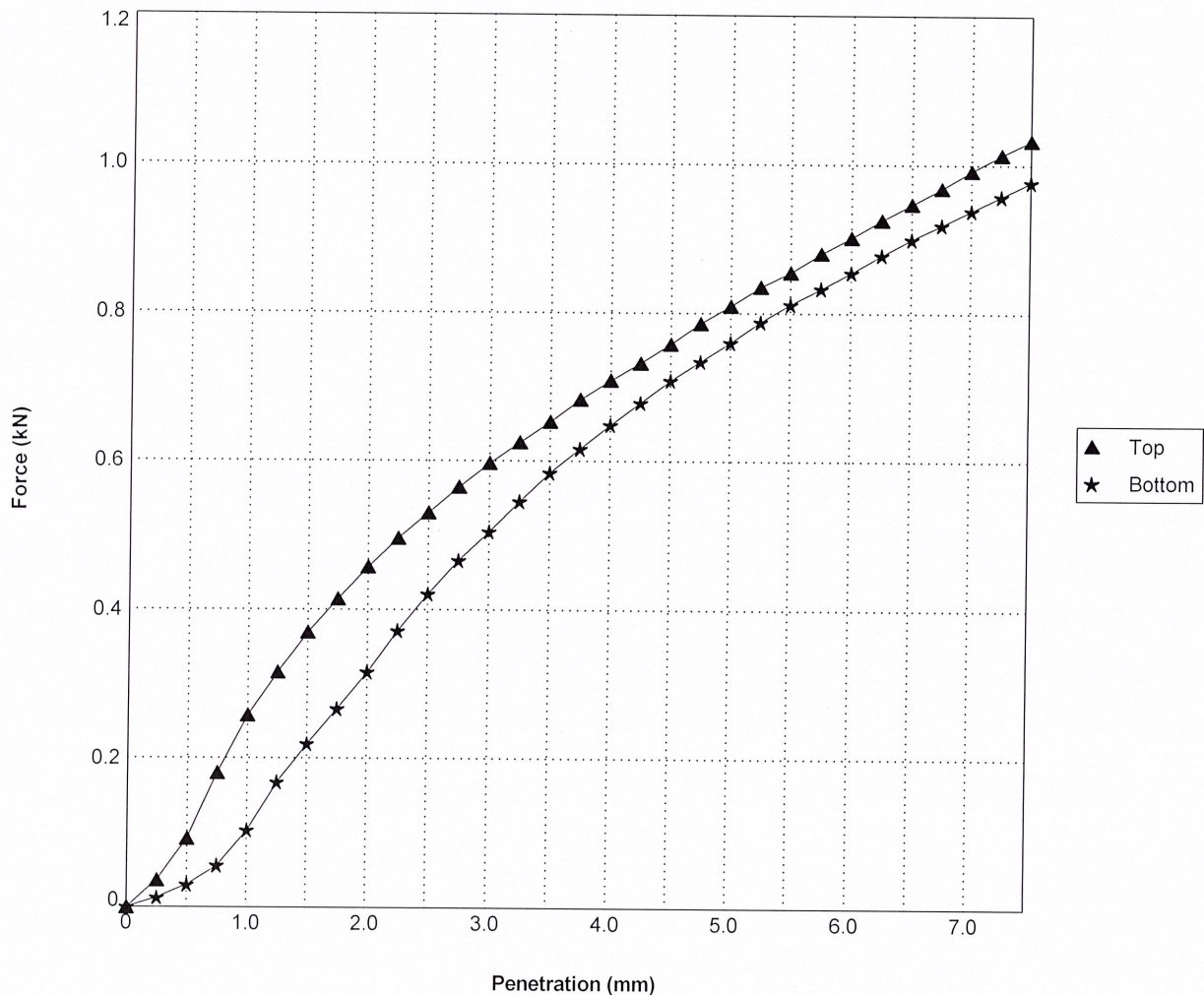
BS 1377 : Part 4 : 1990 and Part 2 : Clause 3.2 : 1990

Exploratory Hole No.- **S3\_TPA\_TP104** Sample No.- **J4**

Depth (m)- **1.70**

"As Received" Moisture Content (%) :	Surcharge (Kg) :	6
Retained on 20mm (%) :	Seating Load (N) :	Top 10 / Bottom 10
Correction Needed :	Test Moisture Content (%) :	Top 25 / Bottom 24
Soaking Time (Days) :	Bulk Density (Mg/m <sup>3</sup> ) :	2.04
Swelling (mm) :	Dry Density (Mg/m <sup>3</sup> ) :	1.64
Date Tested :	CBR Value (%) :	Top 4.1 / Bottom 3.8
Preparation Method :	4.5kg Compaction	

Remarks :



For description of sample please refer to the Laboratory Sample Description Sheet

Contract Title :-

Prairie Phase 4

Client :-

Tees Valley Combined Authority



Signed :- *msone*

Name :- **M. SELKIRK**

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Date of issue :-  
15/11/2021

Certificate No :-  
CBR/4355/S3\_TPA\_TP104/J4/1.70/1

AEG Contract No. :-  
**4355**



## Determination of One Dimensional Consolidation Properties

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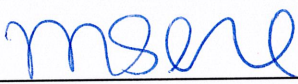
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Regional Office: Unit 20, Business Development Centre, Earsan Wharf, Blackburn, BB1 5BL - Tel: 0172735300 Fax: 0172735999

## ONE DIMENSIONAL CONSOLIDATION PROPERTIES BS 1377 : PART 5 : 1990 : CLAUSE 3

Exploratory Hole No	<b>S3_BHA03</b>	Sample	<b>U5</b>	Depth (m)	<b>6.50m</b>
Specimen Type	<b>Undisturbed</b>	Orientation	<b>Vertical</b>	Specific Depth (m)	<b>6.60m</b>
	INITIAL	FINAL			
Height	18.9	16.7	mm	Particle Density (Assumed)	2.70
Diameter	75.07	75.07	mm	Degree of Saturation (%)	90.3
Moisture Content	28.0	29.0	%	Test Duration (Days)	6
Wet Density	1.88	2.04	Mg/m <sup>3</sup>	Date Tested	29/10/2021
Dry Density	1.47	1.58	Mg/m <sup>3</sup>		

Square Root of Time Fitting Method				
Pressure Range kN/m <sup>2</sup>	Mv m <sup>2</sup> /MN	Cv m <sup>2</sup> /yr	Temp C	Voids Ratio
Initial				0.837
0 - 50	0.617	.	21	0.781
50 - 100	0.411	4.05	20	0.744
100 - 200	0.297	3.85	20	0.692
200 - 50	0.114	Swelling	20	0.721
50 - 200	0.153	4.66	20	0.682
200 - 400	0.158	3.82	20	0.628

For sample description please refer to the Laboratory Sample Description Sheet.

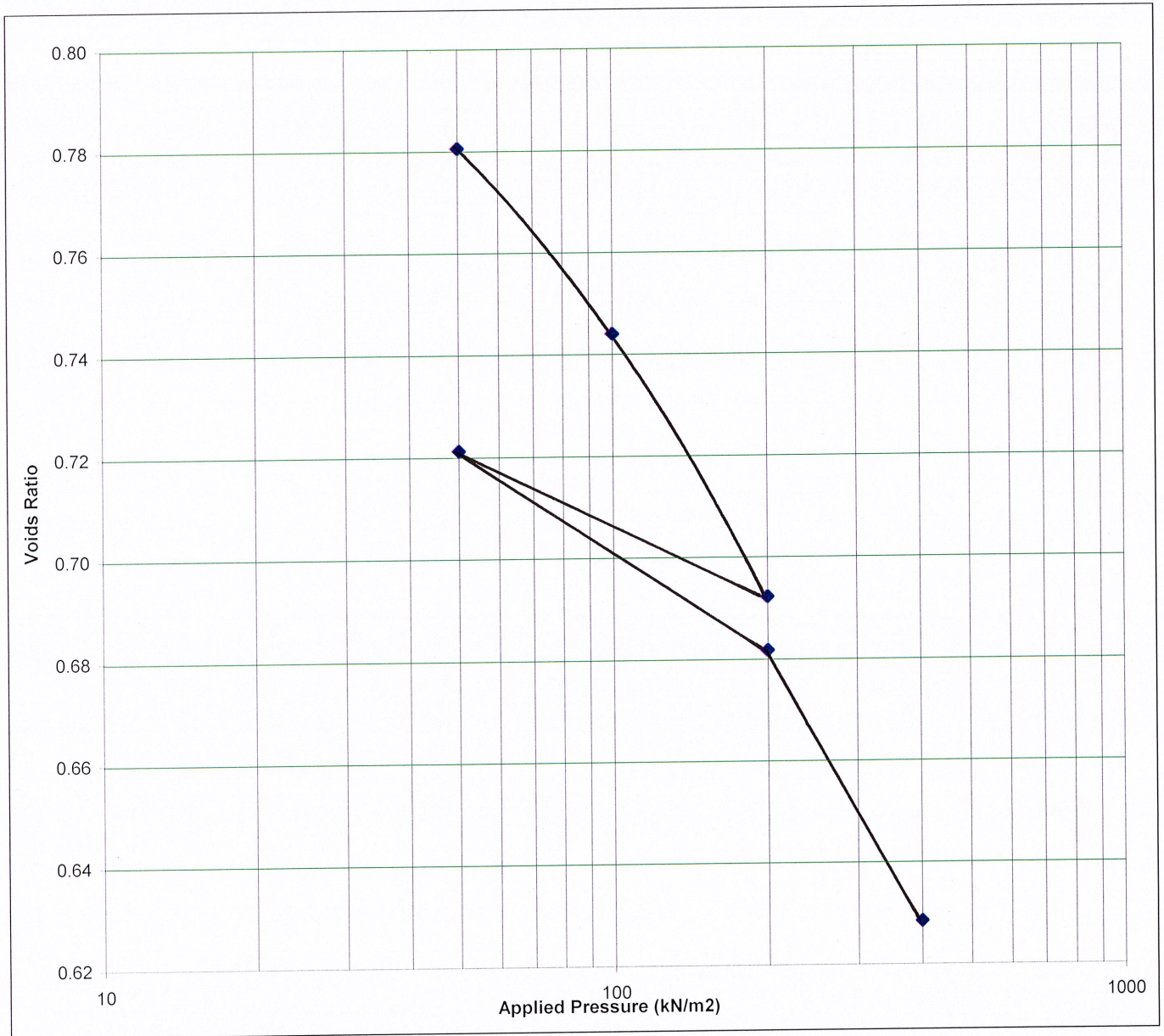
Contract Title: <b>Prairie Phase 4</b>		Client: <b>Tees Valley Combined Authority</b>	
	Signed: 	Name: <b>M. SELKIRK</b>	Page 1 of 2
	Date of Issue: 09/11/2021	Certificate No: 4355/A	AEG Contract No: 4355

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## ONE DIMENSIONAL CONSOLIDATION PROPERTIES BS 1377 : PART 5 : 1990 : CLAUSE 3

Exploratory Hole No	S3_BHA03	Sample	U5	Depth (m)	6.50m
Specimen Type	Undisturbed	Orientation	Vertical	Specific Depth (m)	6.60m



Contract Title: <b>Prairie Phase 4</b>	Client: <b>Tees Valley Combined Authority</b>
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	Signed: <i>M. Selkirk</i>	Name: <b>M. SELKIRK</b>	Page 2 of 2	
	Date of Issue: 09/11/2021	Certificate No: 4355/A	AEG Contract No: 4355	

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## ONE DIMENSIONAL CONSOLIDATION PROPERTIES BS 1377 : PART 5 : 1990 : CLAUSE 3

Exploratory Hole No	<b>S3_BHA04</b>	Sample	<b>U4</b>	Depth (m)	<b>3.00m</b>
Specimen Type	<b>Undisturbed</b>	Orientation	<b>Vertical</b>	Specific Depth (m)	<b>3.05m</b>
	INITIAL	FINAL			
Height	18.7	17.5	mm	Particle Density (Assumed)	2.70
Diameter	75.12	75.12	mm	Degree of Saturation (%)	99.9
Moisture Content	25.4	22.1	%	Test Duration (Days)	7
Wet Density	2.01	2.10	Mg/m <sup>3</sup>	Date Tested	01/11/2021
Dry Density	1.60	1.72	Mg/m <sup>3</sup>		

Square Root of Time Fitting Method				
Pressure Range kN/m <sup>2</sup>	Mv m <sup>2</sup> /MN	Cv m <sup>2</sup> /yr	Temp C	Voids Ratio
Initial				0.686
0 - 25	0.681	.	20	0.658
25 - 50	0.332	4.76	20	0.644
50 - 100	0.203	5.86	20	0.627
100 - 50	0.010	Swelling	20	0.628
50 - 100	0.027	14.16	20	0.626
100 - 200	0.132	6.62	21	0.604
200 - 400	0.098	8.21	22	0.573

For sample description please refer to the Laboratory Sample Description Sheet.

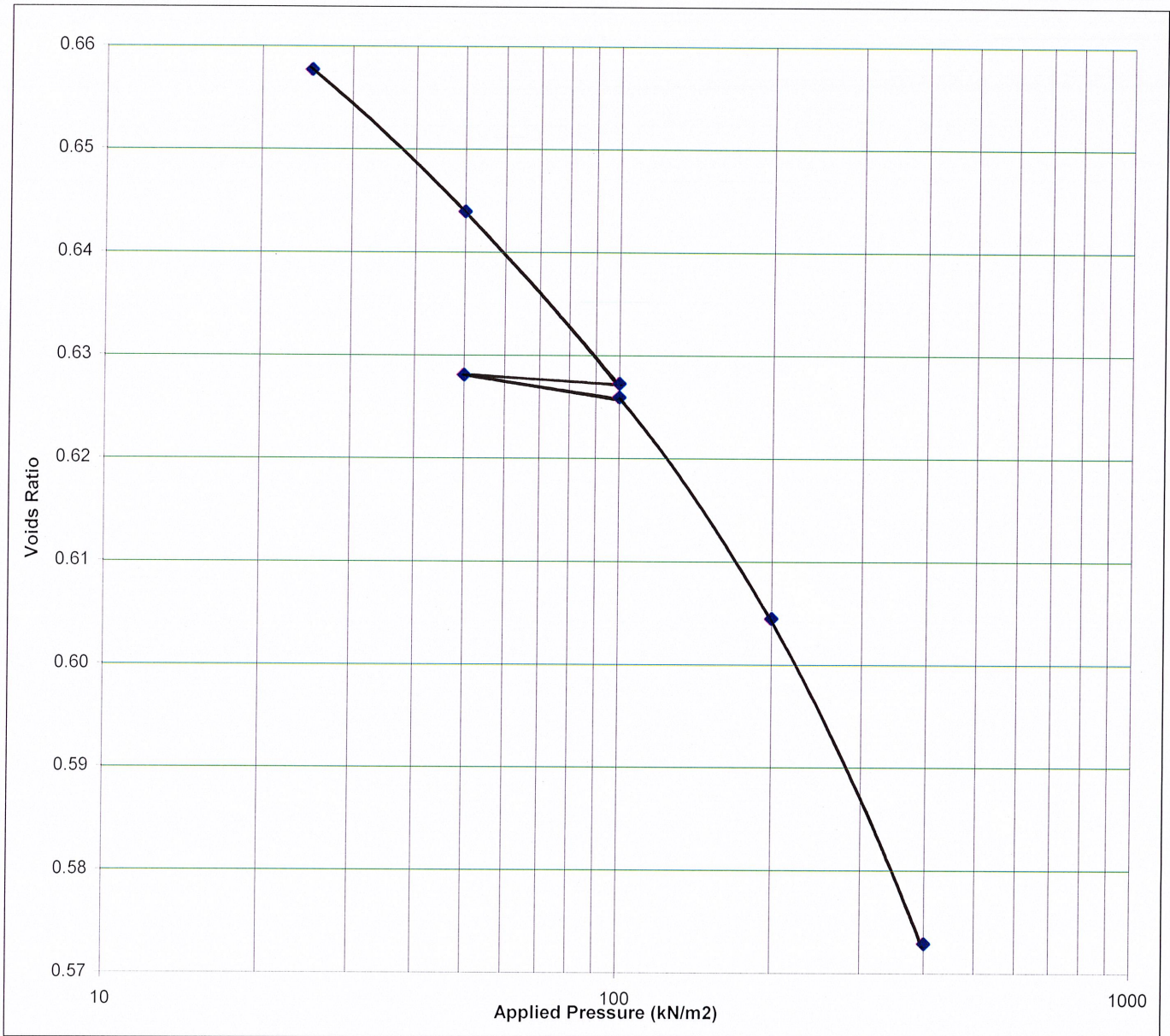
Contract Title: <b>Prairie Phase 4</b>		Client: <b>Tees Valley Combined Authority</b>	
	Signed: 	Name: <b>M. SELKIRK</b>	Page 1 of 2
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			 1367

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## ONE DIMENSIONAL CONSOLIDATION PROPERTIES BS 1377 : PART 5 : 1990 : CLAUSE 3

Exploratory Hole No	S3_BHA04	Sample	U4	Depth (m)	3.00m
Specimen Type	Undisturbed	Orientation	Vertical	Specific Depth (m)	3.05m



Contract Title: <b>Prairie Phase 4</b>	Client: <b>Tees Valley Combined Authority</b>
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	Signed: <i>M. Selkirk</i>	Name: <b>M. SELKIRK</b>	Page 2 of 2	
	Date of Issue: 11/11/2021	Certificate No: 4355/C	AEG Contract No: 4355	

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## ONE DIMENSIONAL CONSOLIDATION PROPERTIES BS 1377 : PART 5 : 1990 : CLAUSE 3

Exploratory Hole No	<b>S3_BHA04</b>	Sample	<b>U9</b>	Depth (m)	<b>5.00m</b>
Specimen Type	<b>Undisturbed</b>	Orientation	<b>Vertical</b>	Specific Depth (m)	<b>5.10m</b>
Height	INITIAL 18.9	FINAL 17.4	mm	Particle Density (Assumed)	2.70
Diameter	75.03	75.03	mm	Degree of Saturation (%)	91.0
Moisture Content	17.9	17.8	%	Test Duration (Days)	6
Wet Density	2.08	2.21	Mg/m <sup>3</sup>	Date Tested	29/10/2020
Dry Density	1.76	1.87	Mg/m <sup>3</sup>		

Square Root of Time Fitting Method				
Pressure Range kN/m <sup>2</sup>	Mv m <sup>2</sup> /MN	Cv m <sup>2</sup> /yr	Temp C	Voids Ratio
Initial				0.531
0 - 50	0.224	.	21	0.514
50 - 100	0.174	6.12	20	0.501
100 - 200	0.144	3.89	20	0.479
200 - 100	0.029	Swelling	20	0.483
100 - 400	0.078	3.32	20	0.449
400 - 800	0.067	3.58	20	0.410

For sample description please refer to the Laboratory Sample Description Sheet.

Contract Title: <b>Prairie Phase 4</b>		Client: <b>Tees Valley Combined Authority</b>	
	Signed: 	Name: <b>M. SELKIRK</b>	
	Date of Issue: 09/11/2021	Certificate No: 4355/B	AEG Contract No: 4355
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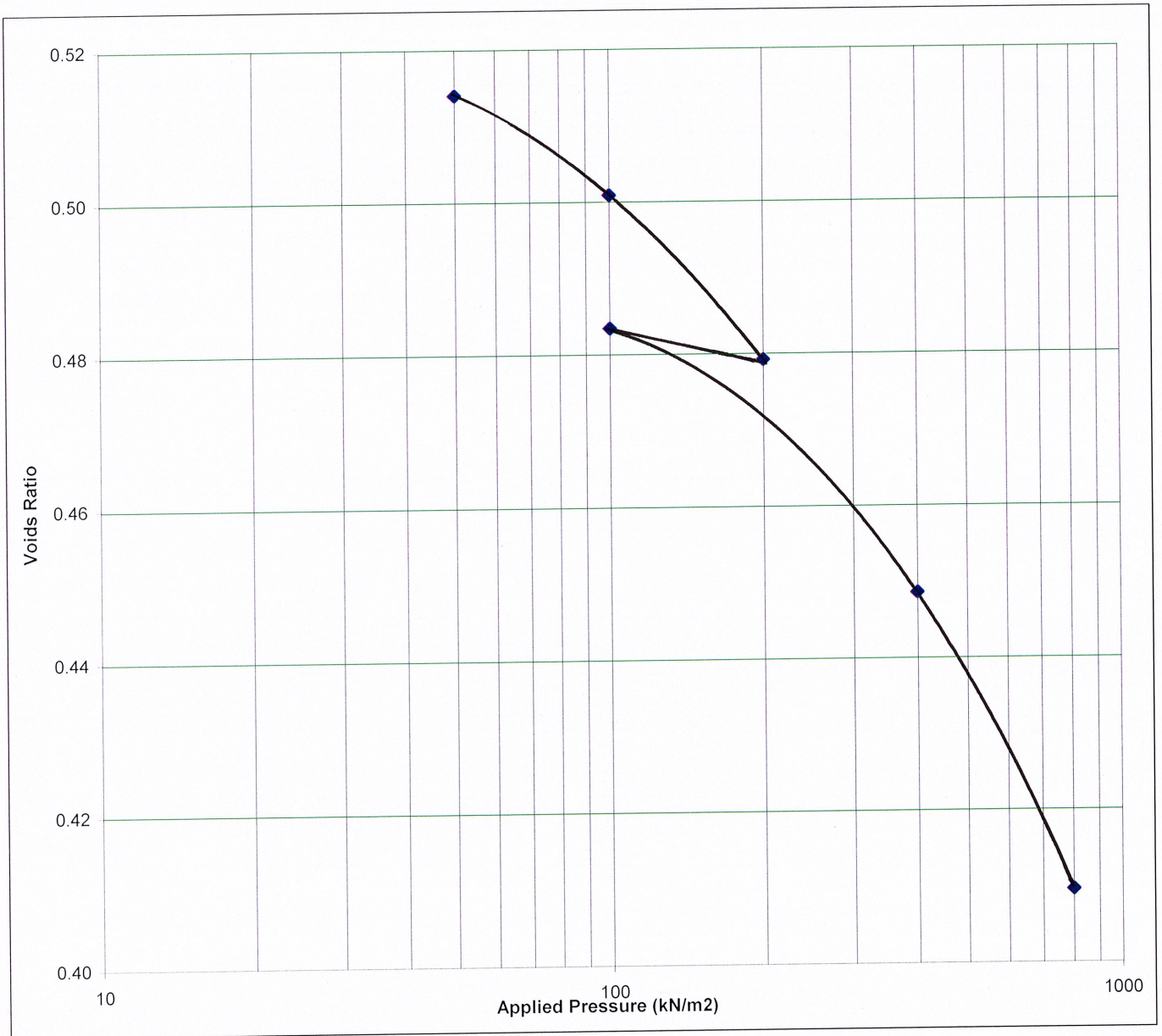


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## ONE DIMENSIONAL CONSOLIDATION PROPERTIES BS 1377 : PART 5 : 1990 : CLAUSE 3

Exploratory Hole No	<b>S3_BHA04</b>	Sample	<b>U9</b>	Depth (m)	<b>5.00m</b>
Specimen Type	<b>Undisturbed</b>	Orientation	<b>Vertical</b>	Specific Depth (m)	<b>5.10m</b>



Contract Title:

**Prairie Phase 4**

Client:

**Tees Valley Combined Authority**



Signed:

*M. Selkirk*

Name:

**M. SELKIRK**

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Date of Issue:

09/11/2021

Certificate No:

4355/B

AEG Contract No:

4355



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**Undrained Shear Strength in Triaxial Cell  
without Pore Water Pressure Measurement**



# ALLIED EXPLORATION & GEOTECHNICS LIMITED


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## UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

BS 1377 : Part 7 : Clauses 8 & 9 : 1990 Part 2 Clause 3.2

Exploratory Hole	Sample ID	Specific Depth (m)	Diameter (mm)	Length (mm)	Prep. Method	Stage No.	Initial Moisture Content (%)	Bulk Density (Mg/m <sup>3</sup> )	Dry Density (Mg/m <sup>3</sup> )	Membrane Thickness (mm)	Membrane Correction (kPa)	Cell Pressure (kPa)	Corrected Deviator Stress (kPa)	Failure Strain (%)	Mode of Failure	cu (kPa)	Date Tested
S3_BHA03	6.50 U5	6.65	103.9	210.2	REMOULDED	1	35	1.91	1.42	0.3	0.60	125	99	9.0	BR	49	28/10/2021
S3_BHA03	8.50 U11	8.60	104.4	199.7	REMOULDED	1	17	2.15	1.84	0.3	0.30	175	227	18.0	P	113	29/10/2021
S3_BHA04	3.00 U4	3.10	104.8	210.6	REMOULDED	1	30	1.93	1.49	0.4	1.35	60	58	18.5	BR	29	29/10/2021
S3_BHA04	5.00 U9	5.15	103.0	211.0	REMOULDED	1	15	2.22	1.93	0.4	0.40	100	318	14.5	C	159	28/10/2021

For description of sample please refer to the Laboratory Sample Description Sheet. Please note the rate of strain was 2% per minute and the orientation of the test specimen was vertical. Latex membrane used.

	Date of issue :- 17/11/2021	Certificate No :- TXL/4355/1	Signed :- <i>M. Selvaraj</i>	Name :- <b>M. SELVARAJ</b>	Page 1 of 1
	Client :- Tees Valley Combined Authority	Contract Title :- Prairie Phase 4		AEG Contract No :- 4355	



## Determination of Moisture Content of Rock

