

APPENDIX

INLAND
RAIL 

G

Geotechnical Investigation Results

Part 4 of 4

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

APPENDIX

G

Geotechnical Investigation Results

Geotechnical Laboratory Results Certificates

Part 3 of 3

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

ATTERBERG LIMITS TEST REPORT

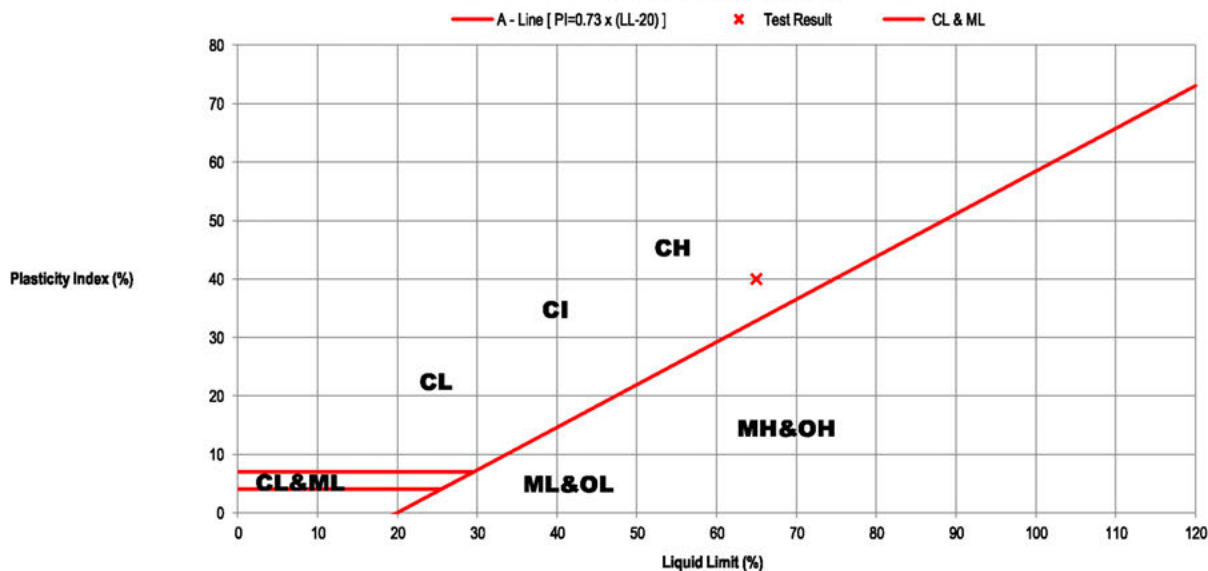
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101957-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4070
Project	Inland Rail B2G	Test Date	31/01/2019
Project No.	1897791	Report Date	4/02/2019
Bore Hole	310-01-BH2624	Client Sample No.	310-01-BH2624-S00665-ATT : 310-01-BH2624-S00665-MOI
Description	SPT	Depth From (m)	6.65
		Depth To (m)	6.95

RESULTS OF TESTING

Liquid Limit (%)	65	
Plastic Limit (%)	25	
Plasticity Index (%)	40	
Linear Shrinkage (%)	16.5	Curling Occurred
Moisture Content (%)	10.7	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park

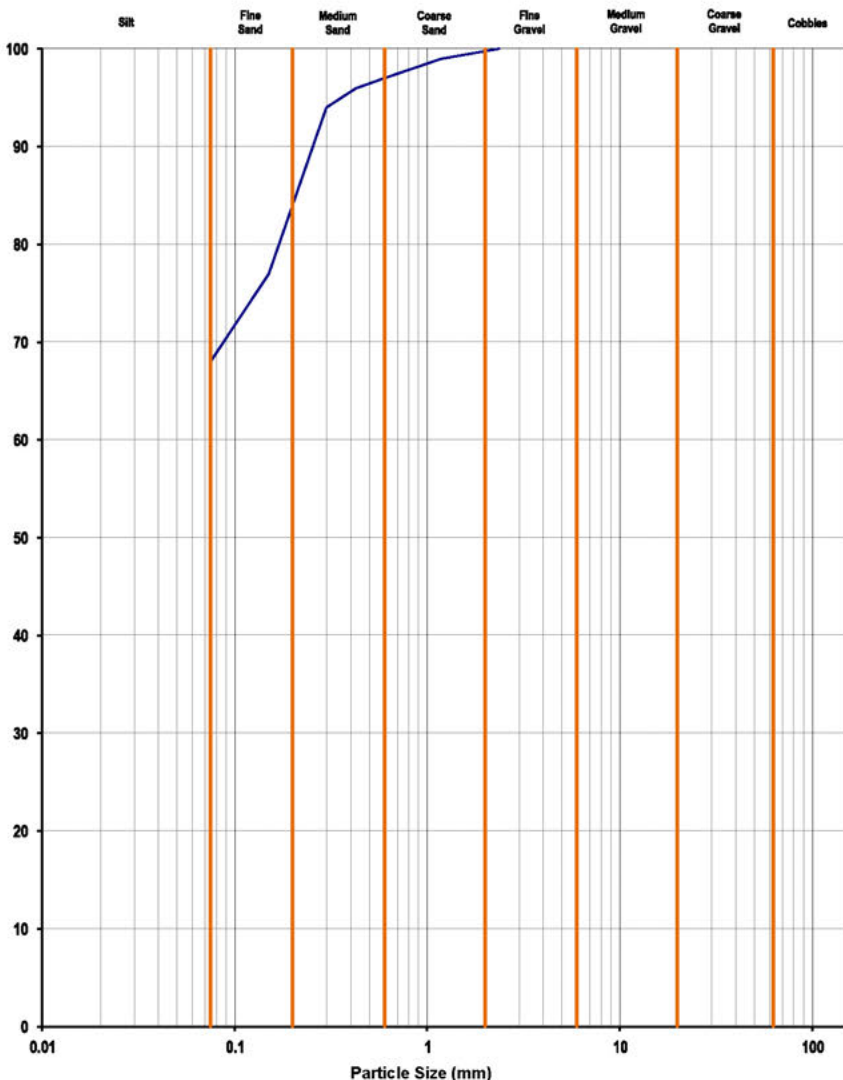


Laboratory No. 9926

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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101959-G			
Address	PO Box 1734 MILTON BC QLD 4064			Request No	R4_BH_Rev0_4070			
Project	Inland Rail B2G							
Project No	1897791		Client Sample No	310-01-BH2624-S01530				
Bore Hole	310-01-BH2624		Depth From (m)	15.3		Depth To (m)	15.35	
Description	SPT							
Sieve Size (mm)	Passing %							
150.0								
75.0								
63.0								
53.0								
37.5								
26.5								
19.0								
13.2								
9.5								
6.7								
4.75								
2.36	100							
1.18	99							
0.600	97							
0.425	96							
0.300	94							
0.150	77							
0.075	68							
NOTES/REMARKS:		- Moisture Content 12.3% Sample/s supplied by the client						

Page 1 of 1 REP03903

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ATTERBERG LIMITS TEST REPORT

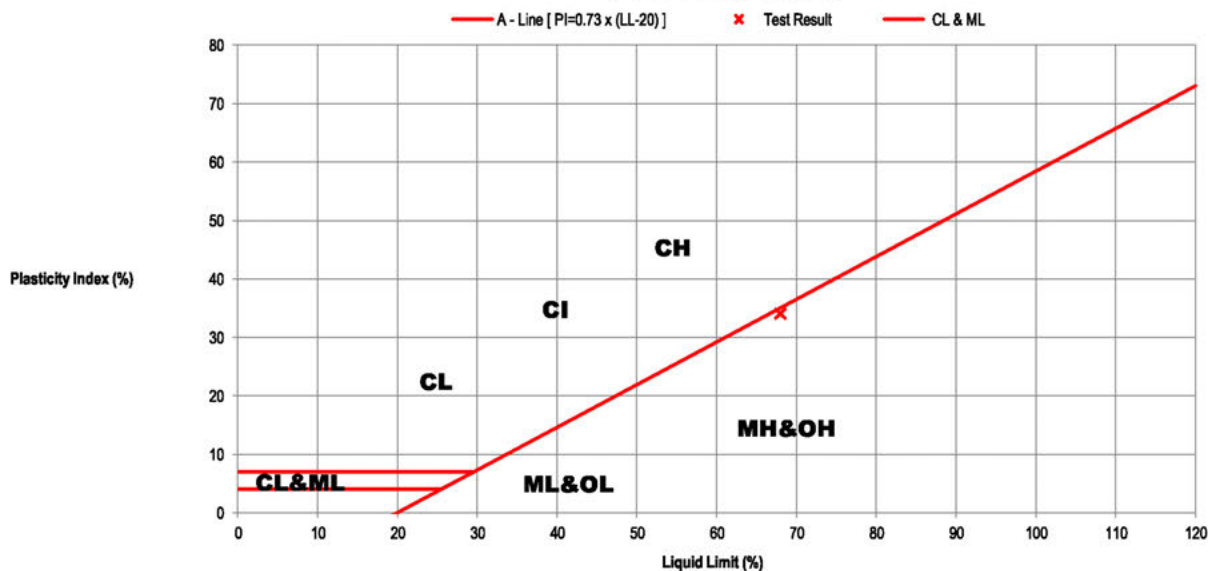
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101932-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4060
Project	Inland Rail B2G	Test Date	30/01/2019
Project No.	1897791	Report Date	4/02/2019
Bore Hole	310-01-BH2343	Client Sample No.	310-01-BH2343-S00050-ATT : 310-01-BH2343-S00050-MOI
Description	SPT	Depth From (m)	0.5
		Depth To (m)	0.95

RESULTS OF TESTING

Liquid Limit (%) 68
Plastic Limit (%) 34
Plasticity Index (%) 34
Linear Shrinkage (%) 16.5 **Curling Occurred**
Moisture Content (%) 24.8
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

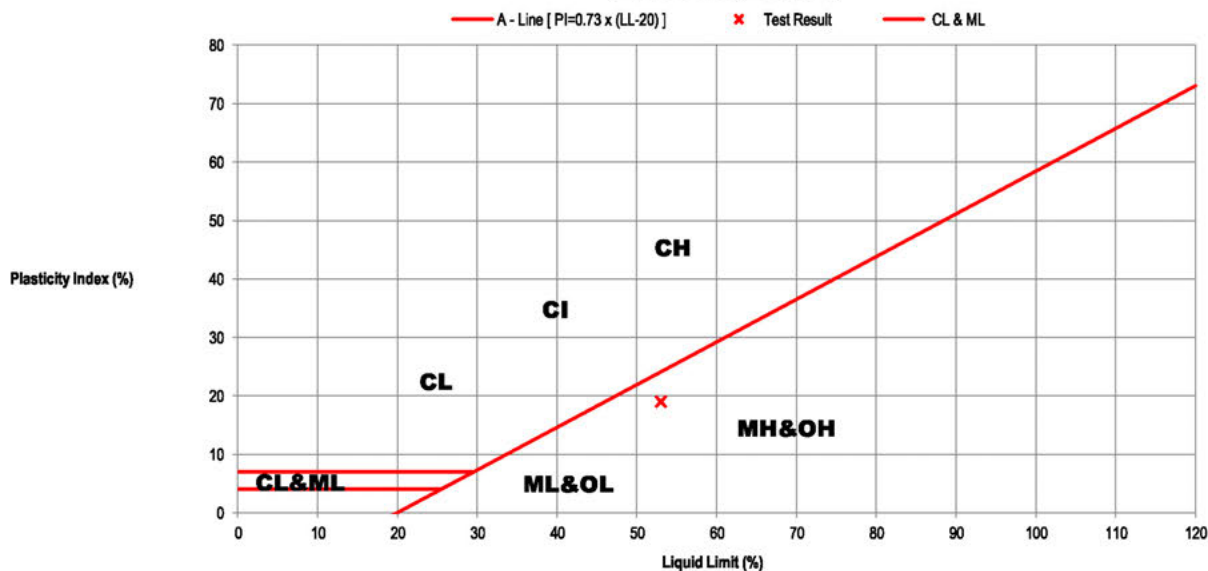
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101934-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4060
Project	Inland Rail B2G	Test Date	31/01/2019
Project No.	1897791	Report Date	4/02/2019
Bore Hole	310-01-BH2343	Client Sample No.	310-01-BH2343-S00350-ATT : 310-01-BH2343-S00350-MOI
Description	SPT	Depth From (m)	3.5
		Depth To (m)	3.95

RESULTS OF TESTING

Liquid Limit (%)	53	
Plastic Limit (%)	34	
Plasticity Index (%)	19	
Linear Shrinkage (%)	10.5	Curling Occurred
Moisture Content (%)	23.2	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

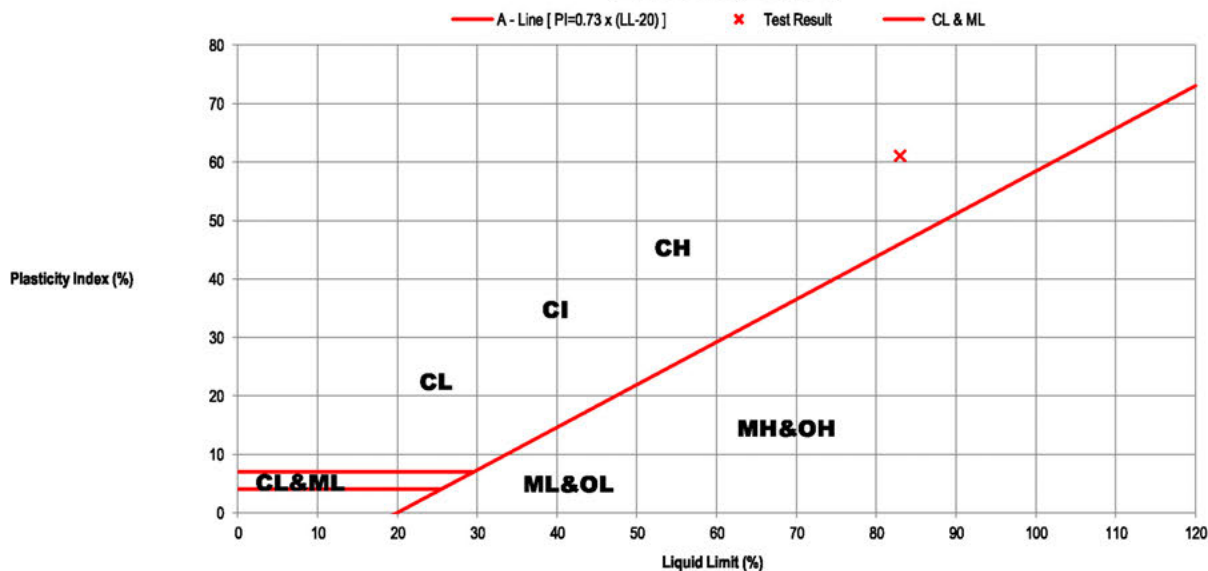
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101857-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4040
Project	Inland Rail B2G	Test Date	2/02/2019
Project No.	1897791	Report Date	7/02/2019
Bore Hole	310-01-BH2214	Client Sample No.	310-01-BH2214-S02030-ATT : 310-01-BH2214-S02030-MOI
Description	SPT	Depth From (m)	20.3
		Depth To (m)	20.75

RESULTS OF TESTING

Liquid Limit (%)	83	
Plastic Limit (%)	22	
Plasticity Index (%)	61	
Linear Shrinkage (%)	14.5	Cracking & Curling Occurred
Moisture Content (%)	21.3	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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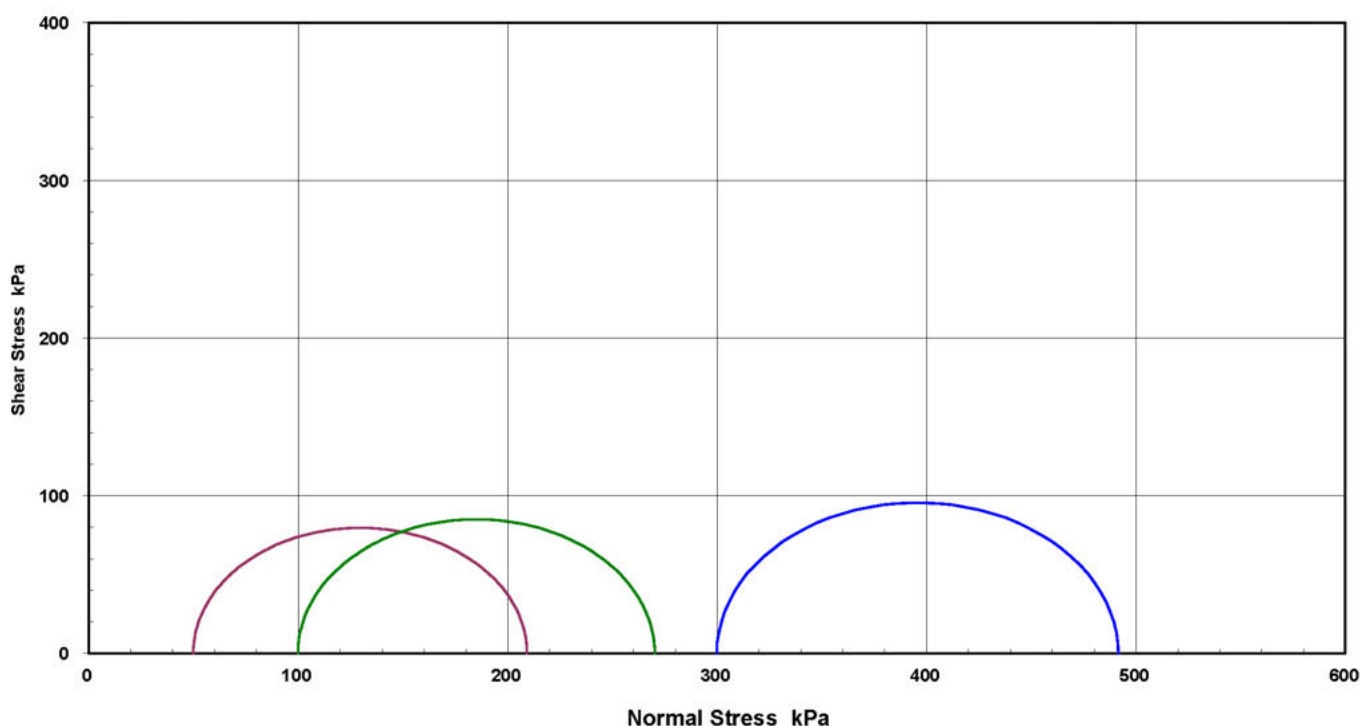
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TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client	Golder Associates Pty Limited	Report No.	GA101865- UU
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4040
Project	Inland Rail B2G	Test Date	23/01/2019
		Report Date	24/01/2019
Project No.	1897791	Client Sample No.	310-01-BH2215-U01790
BoreHole	310-01-BH2215	Depth From (m)	17.9
		Depth To (m)	18.53
Description	U	Sample Type	Single Individual Undisturbed Specimen

Mohr Circle Diagram



MOISTURE CONTENTS			Initial 32.2 %	Final 32.2 %	Failure Criteria		Peak Shear Stress	
SAMPLE & TEST DETAILS					FAILURE DETAILS			
Sample Details			Confining Pressure	Principal Stresses		Deviator Stress	Strain	
				s ₁	s ₃			
Initial Height	127.1	mm		209 kPa	50 kPa	159 kPa	2.70 %	
Initial Diameter	63.4	mm		270 kPa	100 kPa	170 kPa	3.48 %	
Wet Density	1.89	t/m ³		492 kPa	300 kPa	192 kPa	5.80 %	
Dry Density	1.43	t/m ³						
Rate of Strain	0.590	% / min						

Notes/Remarks:

Graph not to scale

Tested as received

Page 1 of 3 REP2601

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

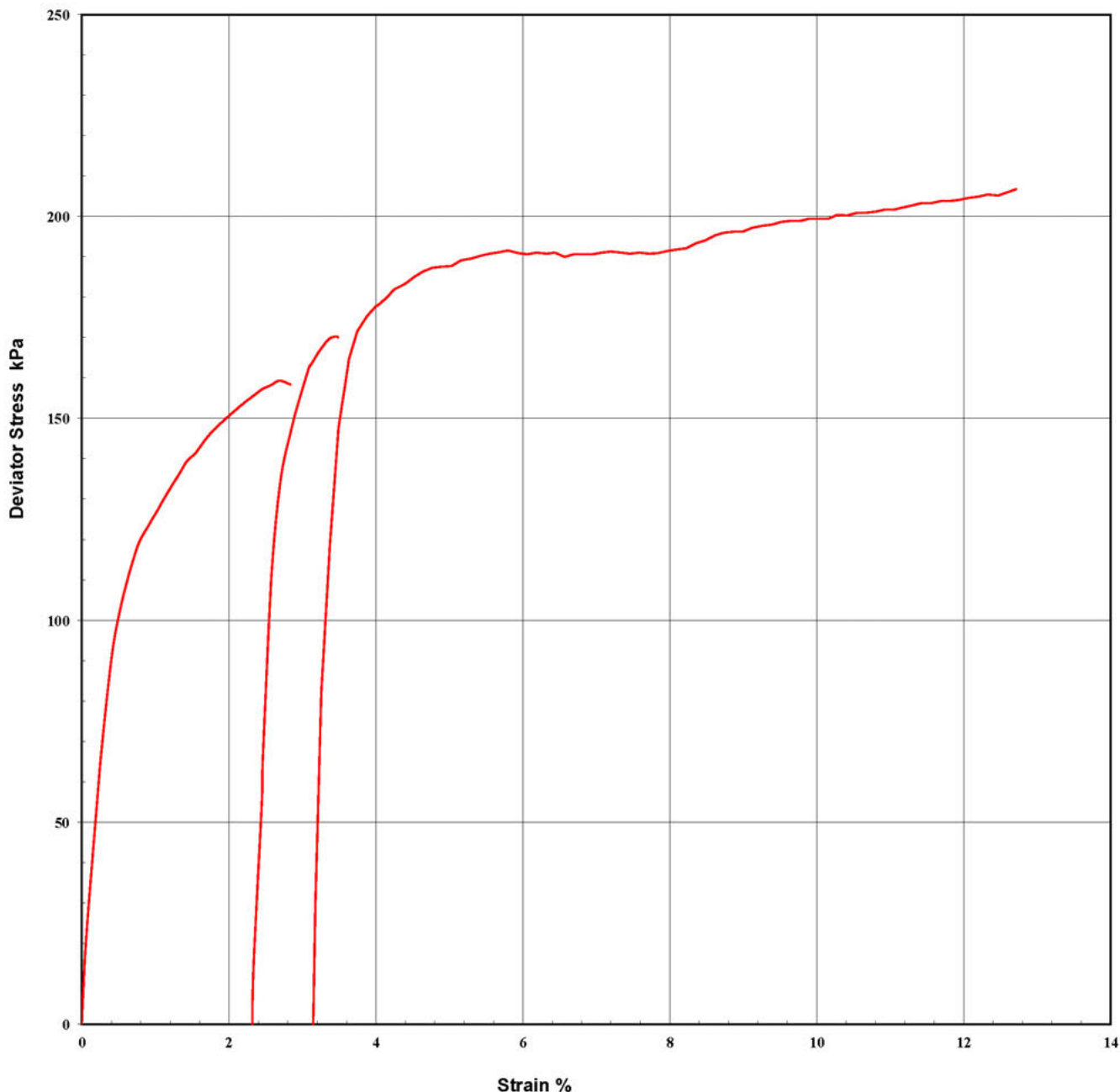
TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101865- UU

Stress/Strain Diagram



Notes/Remarks:

Graph not to scale

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TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101865- UU

CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	BEFORE TEST
LAB SAMPLE No.	101865	DATE: 18/01/19
BOREHOLE:	310-01-BH2215	DEPTH: 17.9



CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	AFTER TEST
LAB SAMPLE No.	101865	DATE: 23/01/19
BOREHOLE:	310-01-BH2215	DEPTH: 17.9



Notes/Remarks:
Graph not to scale

Photo not to scale
Tested as received

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

ATTERBERG LIMITS TEST REPORT

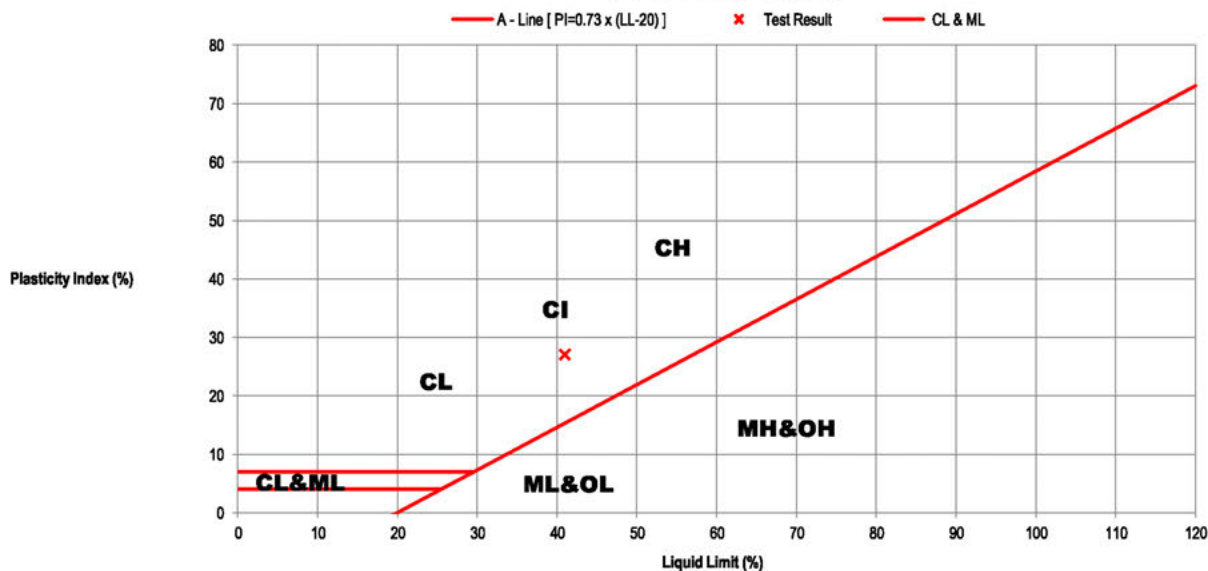
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101869-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4040
Project	Inland Rail B2G	Test Date	4/02/2019
Project No.	1897791	Report Date	7/02/2019
Bore Hole	310-01-BH2221	Client Sample No.	310-01-BH2221-S00840-ATT : 310-01-BH2221-S00840-MOI
Description	SPT	Depth From (m)	8.4
		Depth To (m)	8.85

RESULTS OF TESTING

Liquid Limit (%) 41
Plastic Limit (%) 14
Plasticity Index (%) 27
Linear Shrinkage (%) 10.0 **Curling Occurred**
Moisture Content (%) 17.0
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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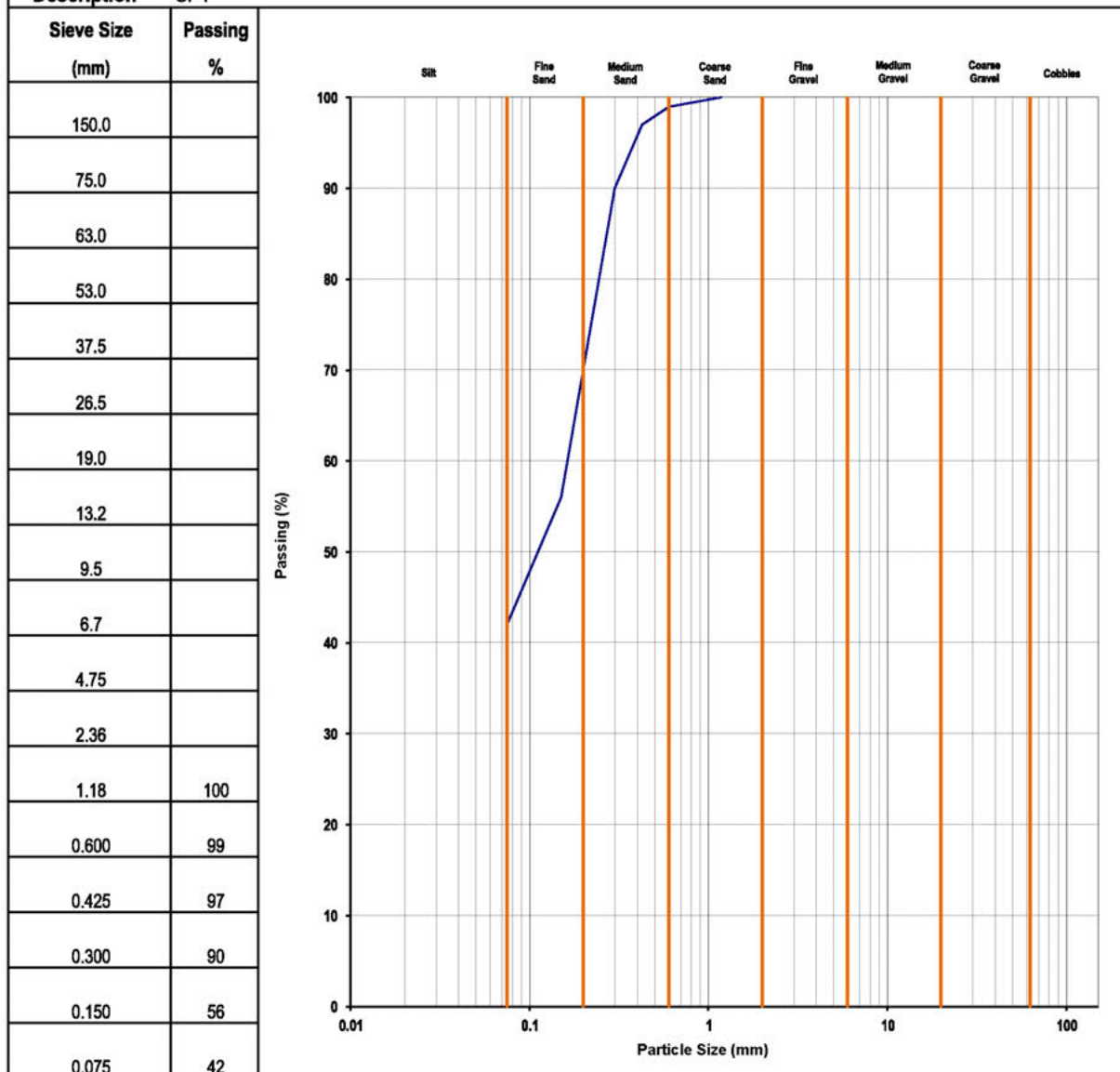
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101871-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R4_BH_Rev0_4040
		Test Date	8/2/2019
		Report Date	8/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-BH2221-S01140-PSD : 310-01-BH2221-S01140-MOI		
Bore Hole	310-01-BH2221	Depth From (m)	11.4	Depth To (m)	11.85

Description	SPT
--------------------	-----



NOTES/REMARKS:

-
Moisture Content 16.1%
Sample/s supplied by the client

Page 1 of 1 REP03903

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ATTERBERG LIMITS TEST REPORT

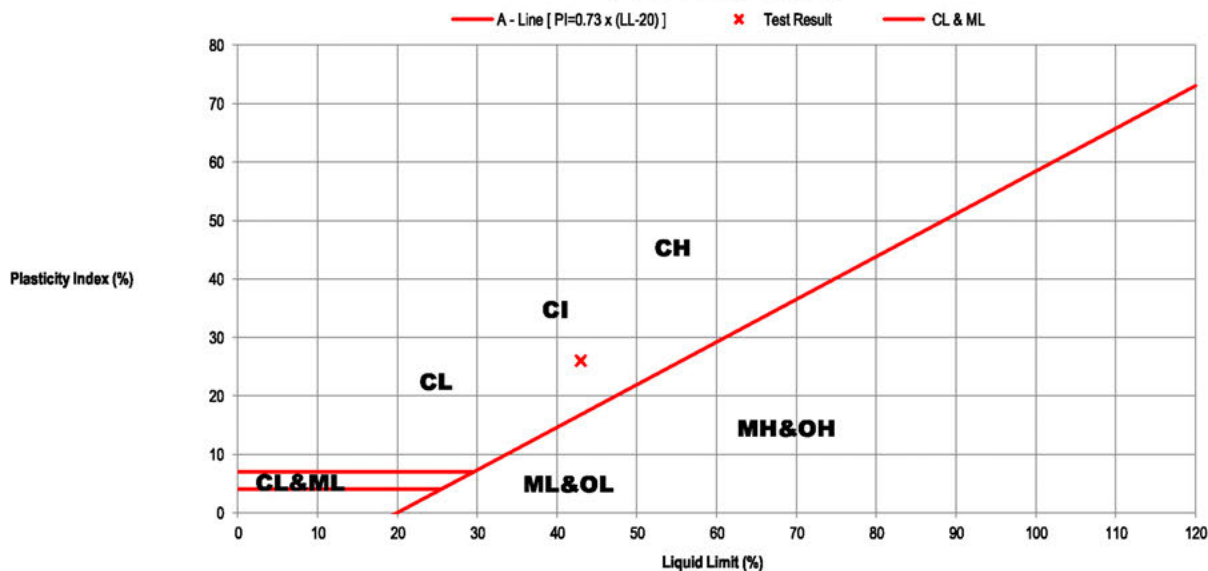
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101872-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4040
Project	Inland Rail B2G	Test Date	4/02/2019
Project No.	1897791	Report Date	7/02/2019
Bore Hole	310-01-BH2221	Client Sample No.	310-01-BH2221-S01890-ATT : 310-01-BH2221-S01890-MOI
Description	SPT	Depth From (m)	18.9
		Depth To (m)	19.35

RESULTS OF TESTING

Liquid Limit (%) 43
 Plastic Limit (%) 17
 Plasticity Index (%) 26
 Linear Shrinkage (%) 12.0 Curling Occurred
 Moisture Content (%) 20.2
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

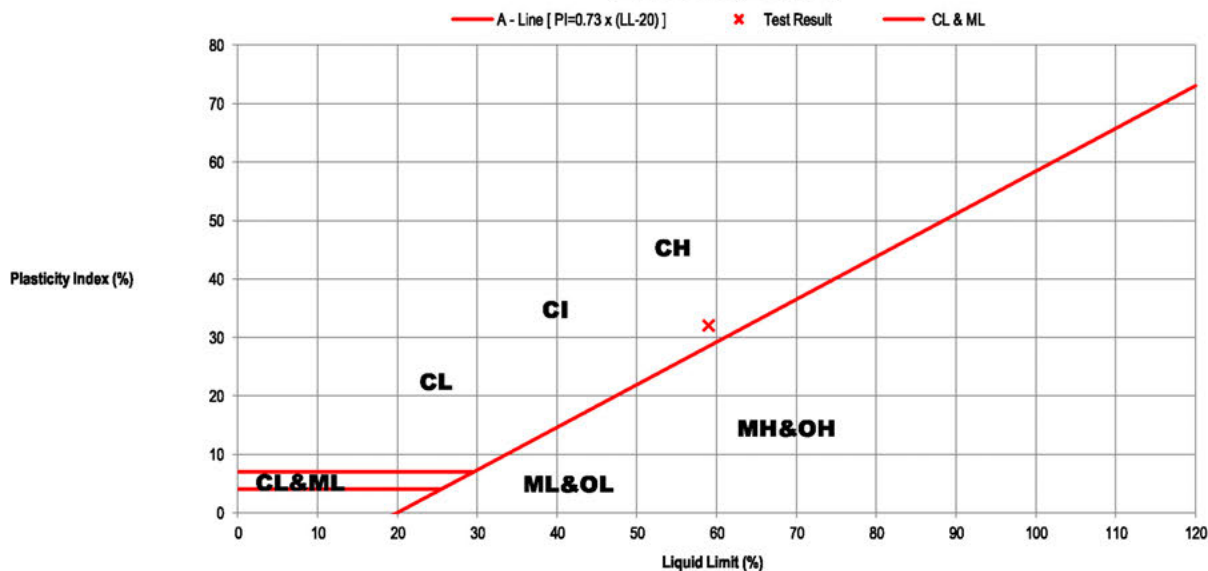
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101898-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4050
Project	Inland Rail B2G	Test Date	5/02/2019
Project No.	1897791	Report Date	7/02/2019
Bore Hole	310-01-BH2327	Client Sample No.	310-01-BH2327-S00650-ATT : 310-01-BH2327-S00650-MOI
Description	SPT	Depth From (m)	6.5
		Depth To (m)	6.95

RESULTS OF TESTING

Liquid Limit (%)	59	
Plastic Limit (%)	27	
Plasticity Index (%)	32	
Linear Shrinkage (%)	15.5	Curling Occurred
Moisture Content (%)	19.1	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

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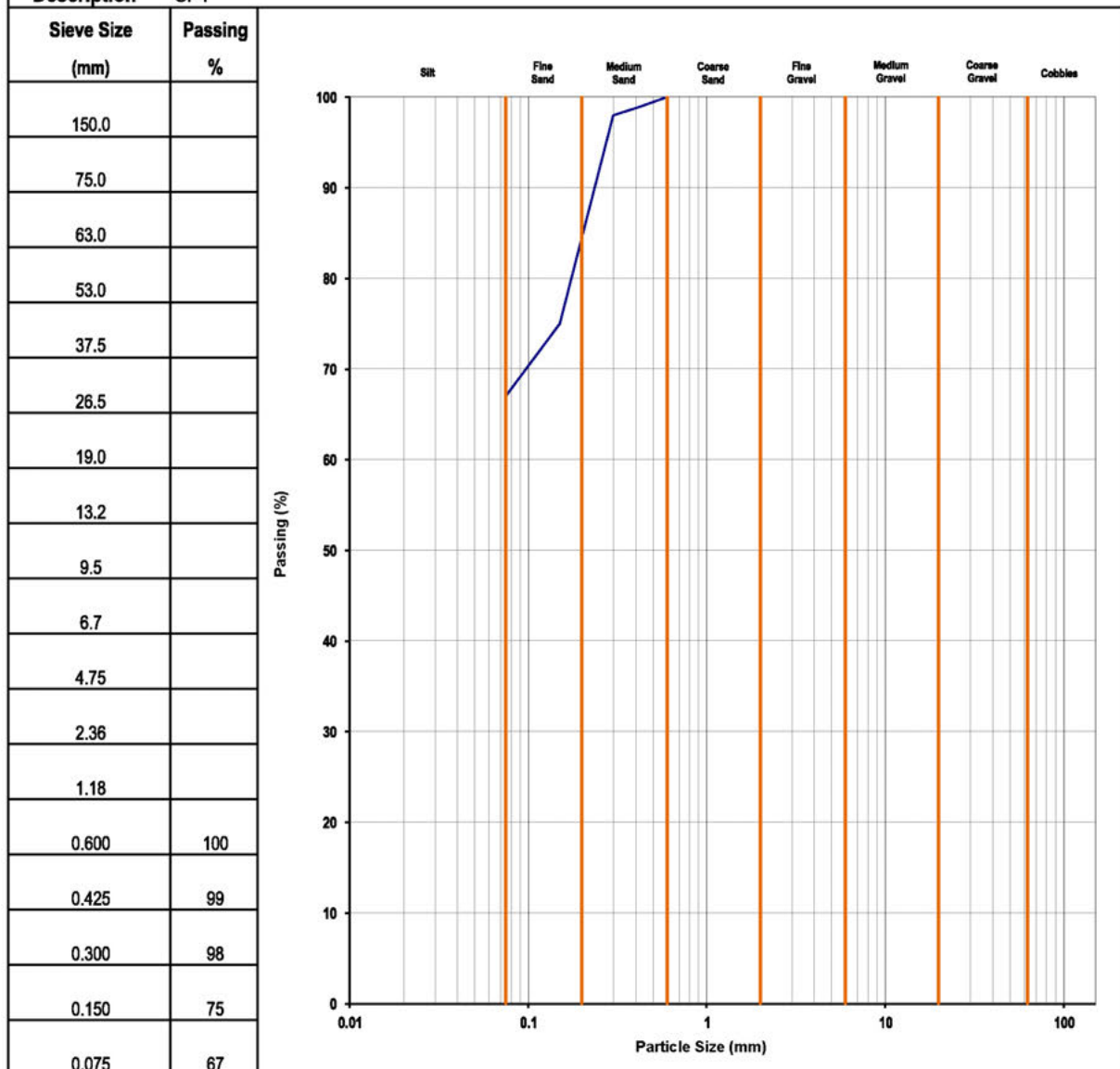
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101898-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R4_BH_Rev0_4050
		Test Date	8/2/2019
		Report Date	8/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-BH2327-S00650-PSD : 310-01-BH2327-S00650-MOI		
Bore Hole	310-01-BH2327	Depth From (m)	6.5	Depth To (m)	6.95
Description	SPT				



NOTES/REMARKS:

-
Moisture Content 19.1%
Sample/s supplied by the client

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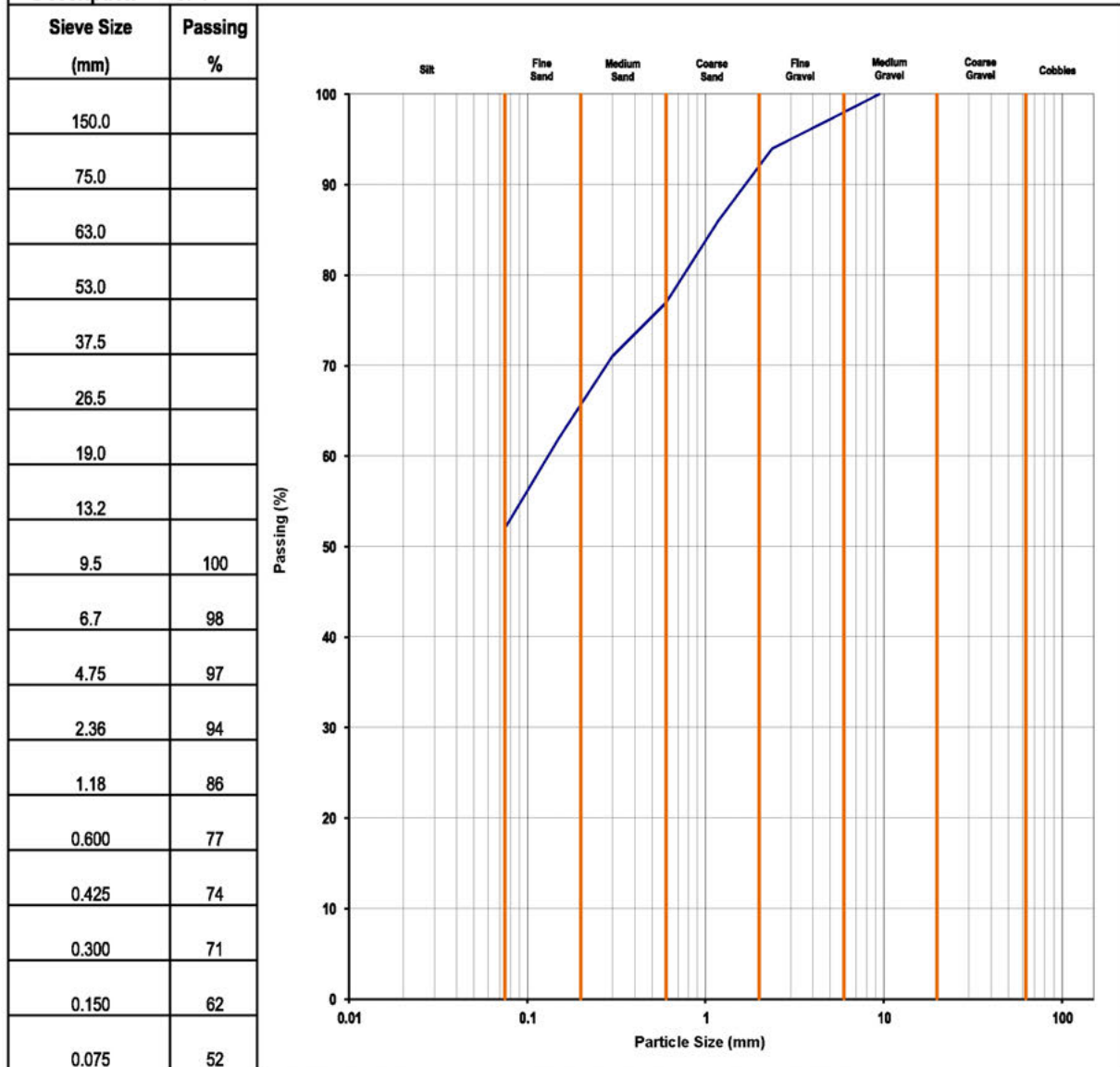
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101941-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R4_BH_Rev0_4070
		Test Date	5/2/19-8/2/19
		Report Date	8/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-BH2612-S00050-PSD : 310-01-BH2612-S00050-MOI		
Bore Hole	310-01-BH2612	Depth From (m)	0.5	Depth To (m)	0.95
Description	SPT				



NOTES/REMARKS:

-
Moisture Content 10.7%
Sample/s supplied by the client

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ATTERBERG LIMITS TEST REPORT

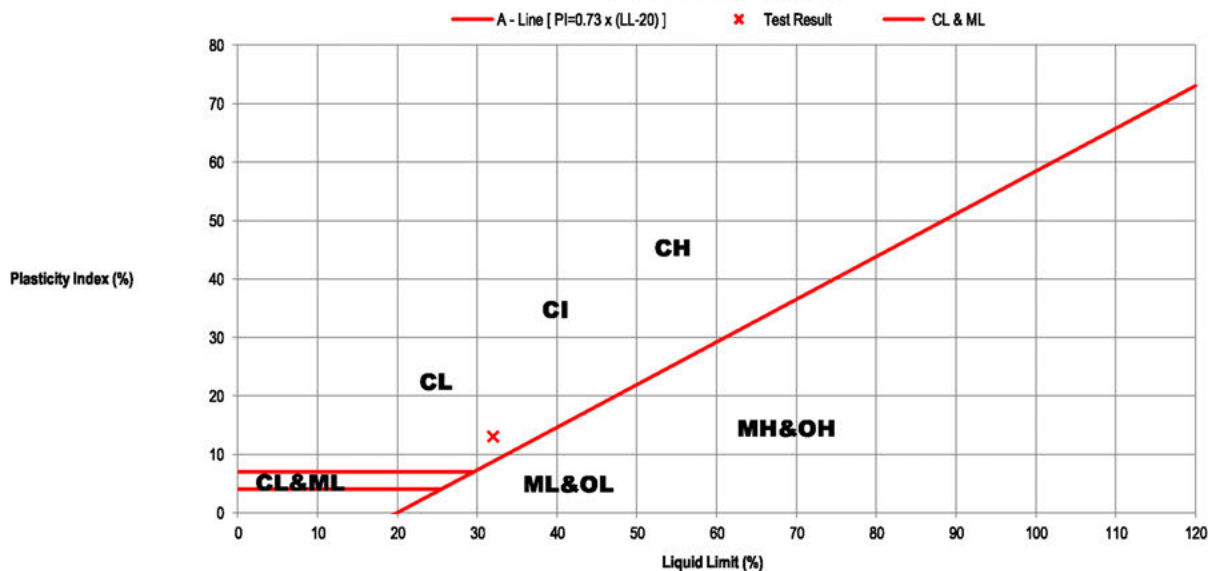
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101943-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R4_BH_Rev0_4070
Project	Inland Rail B2G	Test Date	5/02/2019
Project No.	1897791	Report Date	7/02/2019
Bore Hole	310-01-BH2612	Client Sample No.	310-01-BH2612-S00350-ATT : 310-01-BH2612-S00350-MOI
Description	SPT	Depth From (m)	3.5
		Depth To (m)	3.95

RESULTS OF TESTING

Liquid Limit (%)	32	
Plastic Limit (%)	19	
Plasticity Index (%)	13	
Linear Shrinkage (%)	4.0	Curling Occurred
Moisture Content (%)	9.5	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

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EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102353 - 102353-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	18/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102353-EM
Client Sample No	310-01-DH2519-EMC
Bore Hole	310-01-DH2519-B00010
Depth From (m)	0.1
Depth To (m)	0.6
Description	BDS
Emerson Class Number	5

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102354 - 102354-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	16/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102354-EM
Client Sample No	310-01-DH2519-EMC
Bore Hole	310-01-DH2519-S00050
Depth From (m)	0.5
Depth To (m)	0.95
Description	SPT
Emerson Class Number	2

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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REP00402

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park



Laboratory No. 9926

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102355 - 102355-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	16/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102355-EM
Client Sample No	310-01-DH2519-EMC
Bore Hole	310-01-DH2519-S00200
Depth From (m)	2
Depth To (m)	2.45
Description	SPT
Emerson Class Number	2

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102356 - 102356-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	18/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102356-EM
Client Sample No	310-01-DH2520-EMC
Bore Hole	310-01-DH2520-B00010
Depth From (m)	0.1
Depth To (m)	0.6
Description	BDS
Emerson Class Number	4

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102360 - 102360-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	16/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102360-EM
Client Sample No	310-01-DH2523-EMC
Bore Hole	310-01-DH2523-B00010
Depth From (m)	0.1
Depth To (m)	0.6
Description	BDS
Emerson Class Number	2

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102364 - 102364-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	18/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102364-EM
Client Sample No	310-01-DH2542-EMC
Bore Hole	310-01-DH2542-B00010
Depth From (m)	0.1
Depth To (m)	0.5
Description	BDS
Emerson Class Number	5

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102368 - 102368-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	16/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102368-EM
Client Sample No	310-01-BH2229-EMC
Bore Hole	310-01-BH2229-S00050
Depth From (m)	0.5
Depth To (m)	0.95
Description	SPT
Emerson Class Number	3

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102383-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102383
Client Sample No	310-01-BH2229-PLA
Bore Hole	310-01-BH2229-C02038
Depth From/To (m)	20.51-20.54
Description	C
Is (MPa)	0.12
Is(50) (MPa)	0.12
Load Direction	Axial

NOTES/REMARKS: Tested as received

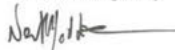
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102383-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102383
Client Sample No	310-01-BH2229-PLD
Bore Hole	310-01-BH2229-C02038
Depth From/To (m)	21.23-21.30
Description	C
Is (MPa)	0.11
Is(50) (MPa)	0.11
Load Direction	Diametral

NOTES/REMARKS: Tested as received

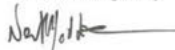
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client	Golder Associates Pty Limited	Report No.	GA102384-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	12/02/2019
Project No.	1897791	Depth From (m)	23
Bore Hole	310-01-BH2229-C02135	Depth To (m)	23.16
Description	C	Report Date	13/02/2019
Sample Type	Single Individual Rock Core Specimen	Sample No.	310-01-BH2229-UCY : 310-01-BH2229-MOI

Uniaxial Compressive Strength 2.58 MPa

Young's Modulus

Poisson Ratio

Tangent 0.586 GPa

0.208

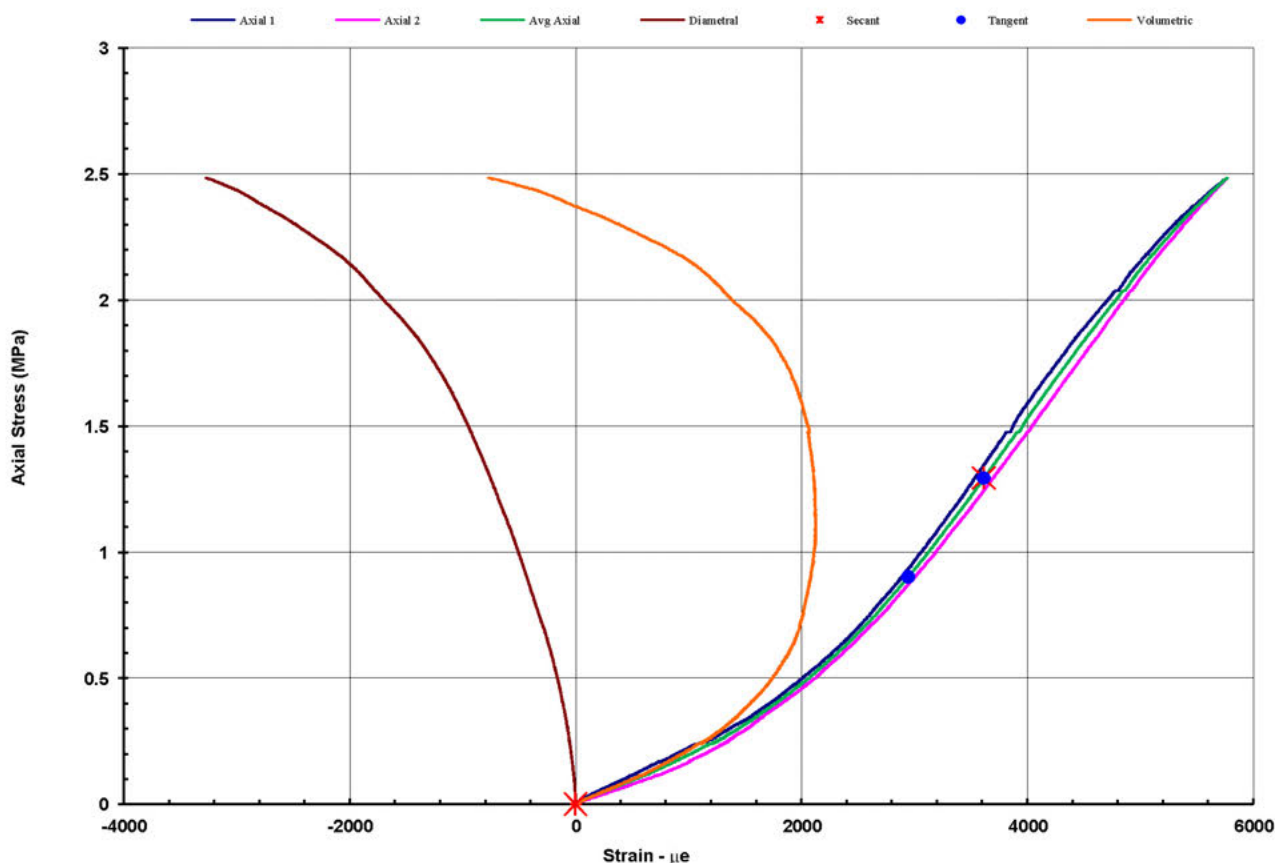
from 35 % to 50 % of Max UCS

Secant 0.358 GPa

0.208

from 0 % to 50 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client Golder Associates Pty Limited		Report No. GA102384-MOD	
Average Sample Diameter (mm)	59.6	Moisture Content (%)	7.3
Sample Height (mm)	164.4	Wet Density (t/m ³)	2.06
Duration of Test (min)	23.28	Dry Density (t/m ³)	1.92
Rate of Displacement (mm/min)	0.10	Bedding (°)	5
Mode of Failure	Shear	Test Apparatus	100kN Compression Machine

CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	BEFORE TEST
LAB SAMPLE No. 102384	DATE: 12/02/19
BOREHOLE: 310-01-BH2229-C02135	DEPTH: 21.35



CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	AFTER TEST
LAB SAMPLE No. 102384	DATE: 12/02/19
BOREHOLE: 310-01-BH2229-C02135	DEPTH: 21.35



Notes/Remarks:

Sample/s supplied by client

Photo not to scale

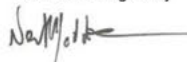
Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102384-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102384
Client Sample No	310-01-BH2229-PLA
Bore Hole	310-01-BH2229-C02135
Depth From/To (m)	23.00-23.03
Description	C
Is (MPa)	0.23
Is(50) (MPa)	0.23
Load Direction	Axial

NOTES/REMARKS: Tested as received

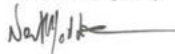
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102384-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102384
Client Sample No	310-01-BH2229-PLD
Bore Hole	310-01-BH2229-C02135
Depth From/To (m)	23.03-23.11
Description	C
Is (MPa)	0.19
Is(50) (MPa)	0.21
Load Direction	Diametral

NOTES/REMARKS: Tested as received

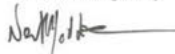
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client	Golder Associates Pty Limited	Report No.	GA102385-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	11/02/2019
Project No.	1897791	Depth From (m)	26.53
Bore Hole	310-01-BH2229-C02435	Depth To (m)	26.69
Description	C	Report Date	12/02/2019
Sample Type	Single Individual Rock Core Specimen	Sample No.	310-01-BH2229-UCY : 310-01-BH2229-MOI

Uniaxial Compressive Strength 0.948 MPa

Young's Modulus

Tangent 0.096 GPa

Secant 0.104 GPa

Poisson Ratio

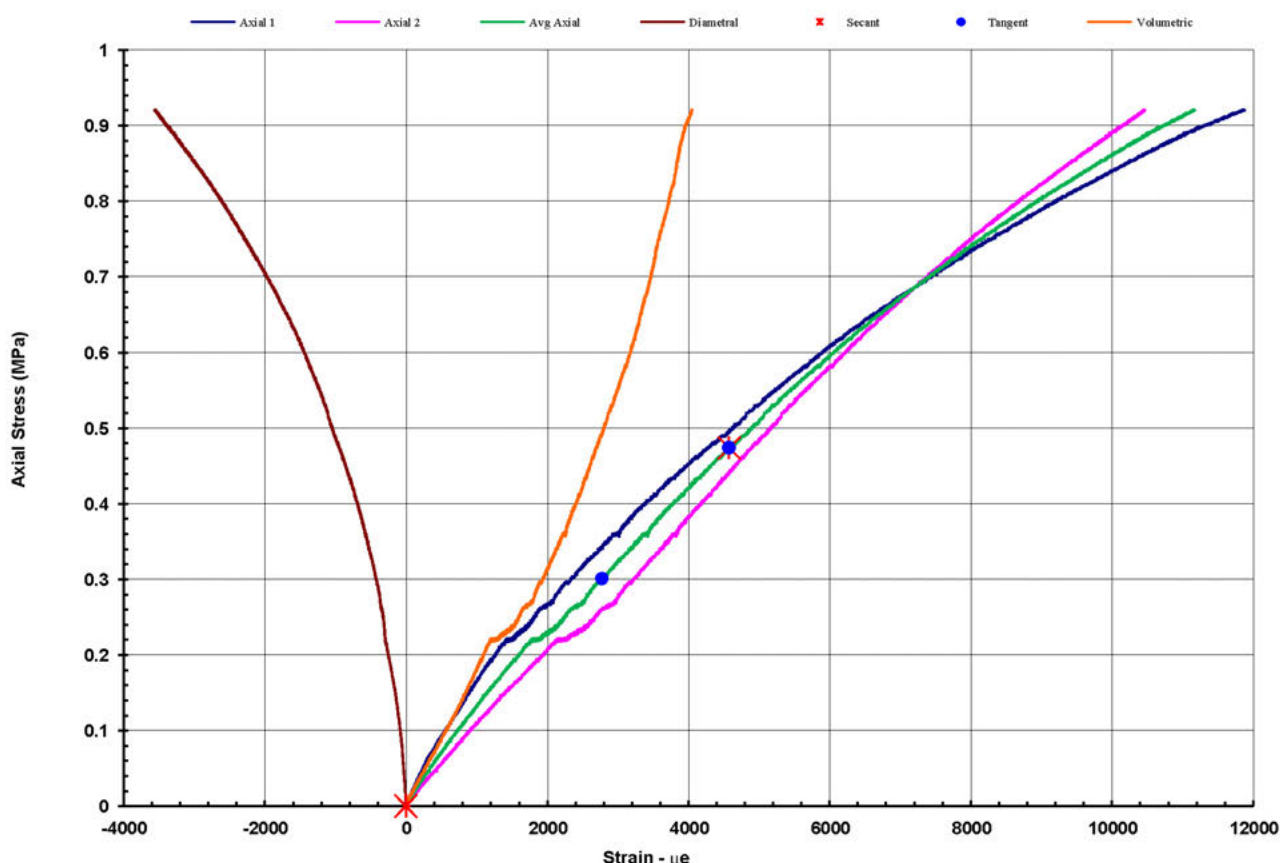
0.206

0.206

from 32 % to 50 % of Max UCS

from 0 % to 50 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client Golder Associates Pty Limited		Report No. GA102385-MOD	
Average Sample Diameter (mm)	60.4	Moisture Content (%)	11.5
Sample Height (mm)	161.9	Wet Density (t/m ³)	2.20
Duration of Test (min)	35.93	Dry Density (t/m ³)	1.97
Rate of Displacement (mm/min)	0.10	Bedding (°)	20
Mode of Failure	Shear	Test Apparatus	100kN Compression Machine

CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	BEFORE TEST
LAB SAMPLE No. 102385	DATE: 11/02/19
BOREHOLE: 310-01-BH2229-C02435	DEPTH: 24.35



CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	AFTER TEST
LAB SAMPLE No. 102385	DATE: 11/02/19
BOREHOLE: 310-01-BH2229-C02435	DEPTH: 24.35



Notes/Remarks:

Sample/s supplied by client

Photo not to scale

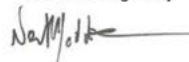
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102385-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102385
Client Sample No	310-01-BH2229-PLA
Bore Hole	310-01-BH2229-C02435
Depth From/To (m)	26.69-26.72
Description	C
Is (MPa)	0.13
Is(50) (MPa)	0.13
Load Direction	Axial

NOTES/REMARKS: Tested as received

Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102385-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102385
Client Sample No	310-01-BH2229-PLD
Bore Hole	310-01-BH2229-C02435
Depth From/To (m)	26.62-26.69
Description	C
Is (MPa)	0.15
Is(50) (MPa)	0.16
Load Direction	Diametral

NOTES/REMARKS: Tested as received

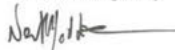
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102386-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102386
Client Sample No	310-01-BH2229-PLA
Bore Hole	310-01-BH2229-C02735
Depth From/To (m)	28.31-28.36
Description	C
Is (MPa)	0.26
Is(50) (MPa)	0.24
Load Direction	Axial

NOTES/REMARKS: Tested as received

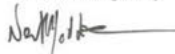
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102386-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102386
Client Sample No	310-01-BH2229-PLD
Bore Hole	310-01-BH2229-C02735
Depth From/To (m)	28.36-28.44
Description	C
Is (MPa)	0.19
Is(50) (MPa)	0.21
Load Direction	Diametral

NOTES/REMARKS: Tested as received

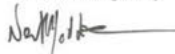
Sample/s supplied by the client

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



N. Maddison



Laboratory No. 9926

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102387 - 102387-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	18/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102387-EM
Client Sample No	310-01-BH2248-EMC
Bore Hole	310-01-BH2248-S00050
Depth From (m)	0.5
Depth To (m)	0.95
Description	SPT
Emerson Class Number	4

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client	Golder Associates Pty Limited	Report No.	GA102406-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	11/02/2019
Project No.	1897791	Depth From (m)	27.34
Bore Hole	310-01-BH2248-C02710	Depth To (m)	27.5
Description	C	Report Date	12/02/2019
Sample Type	Single Individual Rock Core Specimen	Sample No.	310-01-BH2248-UCY : 310-01-BH2248-MOI

Uniaxial Compressive Strength 4.16 MPa

Young's Modulus

Tangent 1.06 GPa

Secant 1.26 GPa

Poisson Ratio

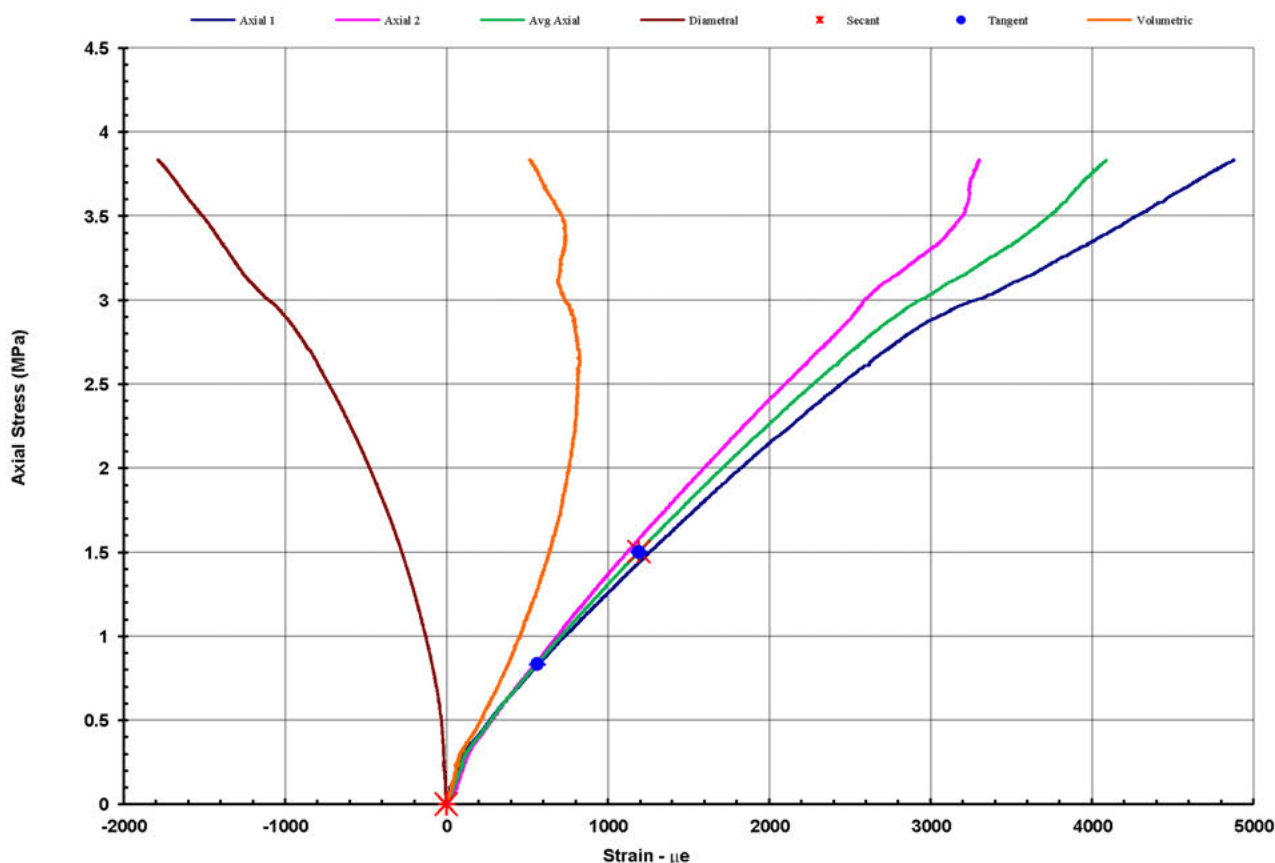
0.232

0.233

from 20 % to 36 % of Max UCS

from 0 % to 36 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

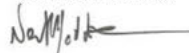
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client Golder Associates Pty Limited		Report No. GA102406-MOD	
Average Sample Diameter (mm)	60.4	Moisture Content (%)	7.1
Sample Height (mm)	161.8	Wet Density (t/m ³)	2.34
Duration of Test (min)	23.32	Dry Density (t/m ³)	2.18
Rate of Displacement (mm/min)	0.10	Bedding (°)	20
Mode of Failure	Axial Splitting	Test Apparatus	100kN Compression Machine

CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	BEFORE TEST
LAB SAMPLE No. 102406	DATE: 11/02/19
BOREHOLE: 310-01-BH2248-C02710	DEPTH: 27.1



CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	AFTER TEST
LAB SAMPLE No. 102406	DATE: 11/02/19
BOREHOLE: 310-01-BH2248-C02710	DEPTH: 27.1



Notes/Remarks:

Sample/s supplied by client

Photo not to scale

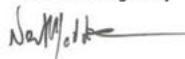
Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102406-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102406
Client Sample No	310-01-BH2248-PLA
Bore Hole	310-01-BH2248-C02710
Depth From/To (m)	27.56-27.59
Description	C
Is (MPa)	0.43
Is(50) (MPa)	0.41
Load Direction	Axial

NOTES/REMARKS: Tested as received

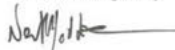
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102406-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102406
Client Sample No	310-01-BH2248-PLD
Bore Hole	310-01-BH2248-C02710
Depth From/To (m)	27.50-27.56
Description	C
Is (MPa)	0.51
Is(50) (MPa)	0.54
Load Direction	Diametral

NOTES/REMARKS: Tested as received

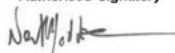
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client	Golder Associates Pty Limited	Report No.	GA102407-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	11/02/2019
Project No.	1897791	Report Date	12/02/2019
Bore Hole	310-01-BH2248-C02760	Sample No.	310-01-BH2248-UCY : 310-01-BH2248-MOI
Depth From (m)	27.7		
Depth To (m)	27.86		
Description	C		
Sample Type	Single Individual Rock Core Specimen		

Uniaxial Compressive Strength 5.24 MPa

Young's Modulus

Poisson Ratio

Tangent 0.495 GPa

0.163

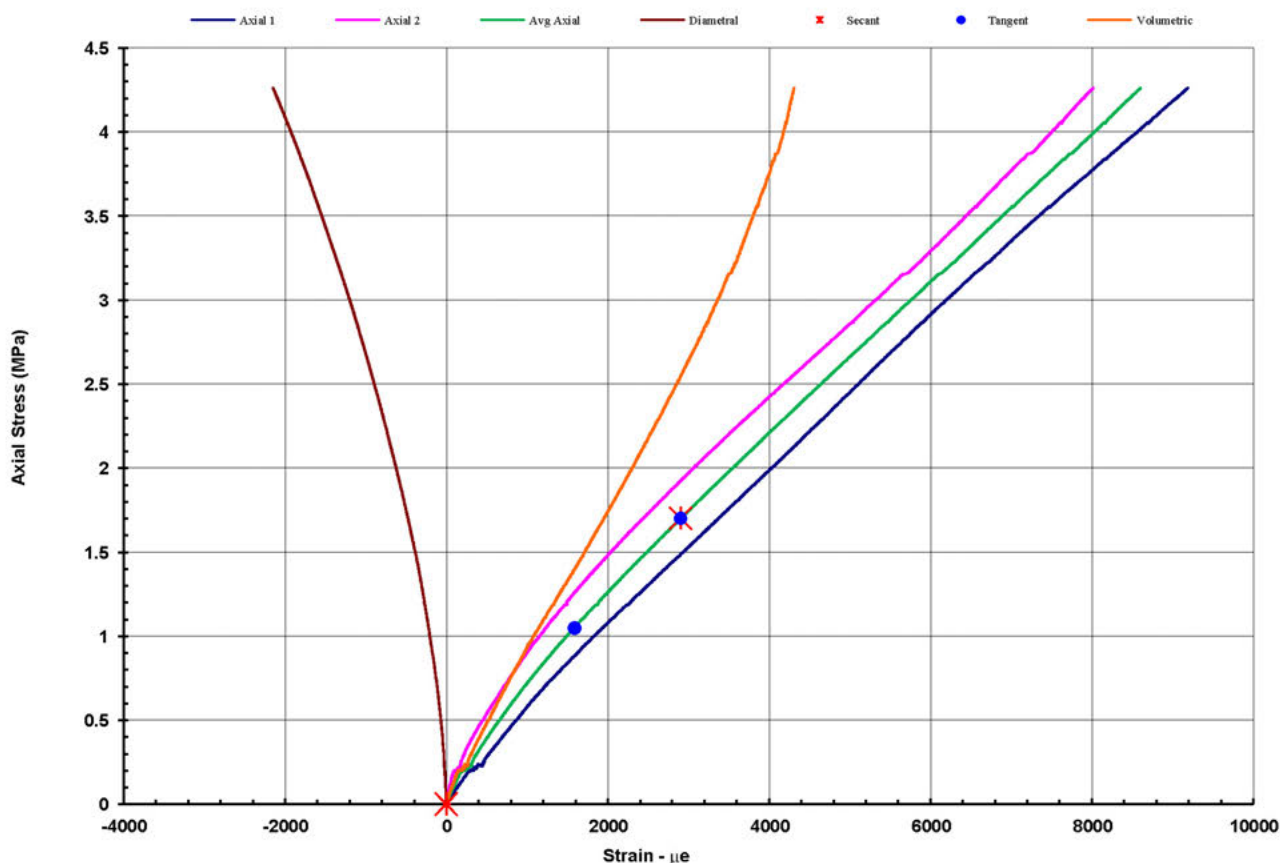
from 20 % to 32 % of Max UCS

Secant 0.585 GPa

0.163

from 0 % to 32 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

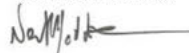
Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client Golder Associates Pty Limited		Report No. GA102407-MOD	
Average Sample Diameter (mm)	60.3	Moisture Content (%)	7.7
Sample Height (mm)	161.4	Wet Density (t/m ³)	2.36
Duration of Test (min)	31.55	Dry Density (t/m ³)	2.19
Rate of Displacement (mm/min)	0.10	Bedding (°)	10
Mode of Failure	Conical	Test Apparatus	100kN Compression Machine

CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	BEFORE TEST
LAB SAMPLE No.	102407	DATE: 11/02/19
BOREHOLE:	310-01-BH2248-C02760	DEPTH: 27.6



CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	AFTER TEST
LAB SAMPLE No.	102407	DATE: 11/02/19
BOREHOLE:	310-01-BH2248-C02760	DEPTH: 27.6



Notes/Remarks:

Sample/s supplied by client

Photo not to scale

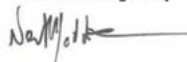
Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102407-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102407
Client Sample No	310-01-BH2248-PLA
Bore Hole	310-01-BH2248-C02760
Depth From/To (m)	27.68-27.71
Description	C
Is (MPa)	0.56
Is(50) (MPa)	0.55
Load Direction	Axial

NOTES/REMARKS: Tested as received

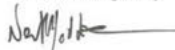
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102407-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102407
Client Sample No	310-01-BH2248-PLD
Bore Hole	310-01-BH2248-C02760
Depth From/To (m)	27.60-27.68
Description	C
Is (MPa)	0.23
Is(50) (MPa)	0.25
Load Direction	Diametral

NOTES/REMARKS: Tested as received

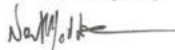
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102408-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102408
Client Sample No	310-01-BH2248-PLA
Bore Hole	310-01-BH2248-C02900
Depth From/To (m)	29.61-29.64
Description	C
Is (MPa)	0.42
Is(50) (MPa)	0.39
Load Direction	Axial

NOTES/REMARKS: Tested as received

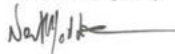
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102408-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102408
Client Sample No	310-01-BH2248-PLD
Bore Hole	310-01-BH2248-C02900
Depth From/To (m)	29.64-29.71
Description	C
Is (MPa)	0.23
Is(50) (MPa)	0.25
Load Direction	Diametral

NOTES/REMARKS: Tested as received

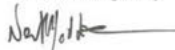
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102409 - 102409-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	16/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102409-EM
Client Sample No	310-01-BH2337-EMC
Bore Hole	310-01-BH2337-S00050
Depth From (m)	0.5
Depth To (m)	0.9
Description	SPT
Emerson Class Number	3

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102416-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102416
Client Sample No	310-01-BH2337-PLA
Bore Hole	310-01-BH2337-C00375
Depth From/To (m)	5.07-5.10
Description	C
Is (MPa)	0.84
Is(50) (MPa)	0.79
Load Direction	Axial

NOTES/REMARKS: Tested as received

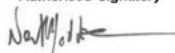
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102416-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102416
Client Sample No	310-01-BH2337-PLD
Bore Hole	310-01-BH2337-C00375
Depth From/To (m)	5.10-5.18
Description	C
Is (MPa)	0.79
Is(50) (MPa)	0.84
Load Direction	Diametral

NOTES/REMARKS: Tested as received

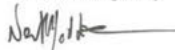
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102418-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102418
Client Sample No	310-01-BH2337-C00565-PLA
Bore Hole	310-01-BH2337
Depth From/To (m)	5.65-6.75
Description	C
Is (MPa)	0.32
Is(50) (MPa)	0.30
Load Direction	Axial

NOTES/REMARKS: Tested as received

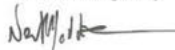
Sample/s supplied by the client

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Authorised Signatory



N. Maddison



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102418-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102418
Client Sample No	310-01-BH2337-PLD
Bore Hole	310-01-BH2337-C00565
Depth From/To (m)	5.79-5.86
Description	C
Is (MPa)	1.16
Is(50) (MPa)	1.24
Load Direction	Diametral

NOTES/REMARKS: Tested as received

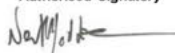
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102421-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102421
Client Sample No	310-01-BH2337-PLA
Bore Hole	310-01-BH2337-C00860
Depth From/To (m)	8.70-8.73
Description	C
Is (MPa)	0.09
Is(50) (MPa)	0.08
Load Direction	Axial

NOTES/REMARKS: Tested as received

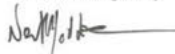
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102421-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102421
Client Sample No	310-01-BH2337-PLD
Bore Hole	310-01-BH2337-C00860
Depth From/To (m)	8.60-8.68
Description	C
Is (MPa)	0.02
Is(50) (MPa)	0.01
Load Direction	Diametral

NOTES/REMARKS: Tested as received

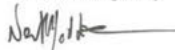
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102422-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102422
Client Sample No	310-01-BH2337-PLA
Bore Hole	310-01-BH2337-C00945
Depth From/To (m)	9.50-9.53
Description	C
Is (MPa)	2.62
Is(50) (MPa)	2.30
Load Direction	Axial

NOTES/REMARKS: Tested as received

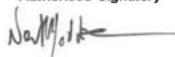
Sample/s supplied by the client

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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102422-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102422
Client Sample No	310-01-BH2337-PLD
Bore Hole	310-01-BH2337-C00945
Depth From/To (m)	9.53-9.60
Description	C
Is (MPa)	2.50
Is(50) (MPa)	2.62
Load Direction	Diametral

NOTES/REMARKS: Tested as received

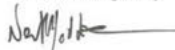
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102425-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102425
Client Sample No	310-01-BH2337-PLA
Bore Hole	310-01-BH2337-C01350
Depth From/To (m)	13.62-13.65
Description	C
Is (MPa)	2.56
Is(50) (MPa)	2.17
Load Direction	Axial

NOTES/REMARKS: Tested as received

Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102425-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102425
Client Sample No	310-01-BH2337-PLD
Bore Hole	310-01-BH2337-C01350
Depth From/To (m)	13.55-13.62
Description	C
Is (MPa)	0.67
Is(50) (MPa)	0.71
Load Direction	Diametral

NOTES/REMARKS: Tested as received

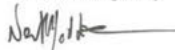
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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102427-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102427
Client Sample No	310-01-BH2337-PLA
Bore Hole	310-01-BH2337-C01465
Depth From/To (m)	14.88-14.91
Description	C
Is (MPa)	1.18
Is(50) (MPa)	1.13
Load Direction	Axial

NOTES/REMARKS: Tested as received

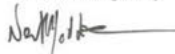
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		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102427
Client Sample No	310-01-BH2337-PLD
Bore Hole	310-01-BH2337-C01465
Depth From/To (m)	14.91-15.00
Description	C
Is (MPa)	0.98
Is(50) (MPa)	0.91
Load Direction	Diametral

NOTES/REMARKS: Tested as received

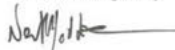
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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102431-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102431
Client Sample No	310-01-BH2338-PLA
Bore Hole	310-01-BH2338-C00268
Depth From/To (m)	3.05-3.08
Description	C
Is (MPa)	4.37
Is(50) (MPa)	4.01
Load Direction	Axial

NOTES/REMARKS: Tested as received

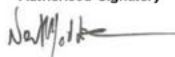
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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102431-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102431
Client Sample No	310-01-BH2338-PLD
Bore Hole	310-01-BH2338-C00268
Depth From/To (m)	3.08-3.16
Description	C
Is (MPa)	3.64
Is(50) (MPa)	3.93
Load Direction	Diametral

NOTES/REMARKS: Tested as received

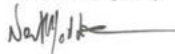
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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102432-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102432
Client Sample No	310-01-BH2338-PLA
Bore Hole	310-01-BH2338-C00320
Depth From/To (m)	3.20-3.23
Description	C
Is (MPa)	3.59
Is(50) (MPa)	3.33
Load Direction	Axial

NOTES/REMARKS: Tested as received

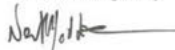
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		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102432
Client Sample No	310-01-BH2338-PLD
Bore Hole	310-01-BH2338-C00320
Depth From/To (m)	3.23-3.31
Description	C
Is (MPa)	0.67
Is(50) (MPa)	0.73
Load Direction	Diametral

NOTES/REMARKS: Tested as received

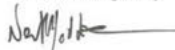
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102433-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102433
Client Sample No	310-01-BH2338-PLA
Bore Hole	310-01-BH2338-C00347
Depth From/To (m)	3.64-3.67
Description	C
Is (MPa)	5.63
Is(50) (MPa)	4.97
Load Direction	Axial

NOTES/REMARKS: Tested as received

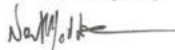
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POINT LOAD TEST REPORT

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		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102433
Client Sample No	310-01-BH2338-PLD
Bore Hole	310-01-BH2338-C00347
Depth From/To (m)	3.67-3.74
Description	C
Is (MPa)	0.84
Is(50) (MPa)	0.92
Load Direction	Diametral

NOTES/REMARKS: Tested as received

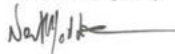
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102443-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102443
Client Sample No	310-01-BH2338-PLA
Bore Hole	310-01-BH2338-C01281
Depth From/To (m)	12.81-12.84
Description	C
Is (MPa)	1.25
Is(50) (MPa)	1.23
Load Direction	Axial

NOTES/REMARKS: Tested as received

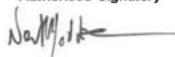
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102443-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102443
Client Sample No	310-01-BH2338-PLD
Bore Hole	310-01-BH2338-C01281
Depth From/To (m)	12.91-13.00
Description	C
Is (MPa)	0.92
Is(50) (MPa)	0.99
Load Direction	Diametral

NOTES/REMARKS: Tested as received

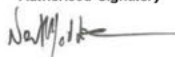
Sample/s supplied by the client

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



N. Maddison



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102446-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	13/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102446
Client Sample No	310-01-BH2338-PLA
Bore Hole	310-01-BH2338-C01382
Depth From/To (m)	14.12-14.15
Description	C
Is (MPa)	1.16
Is(50) (MPa)	1.00
Load Direction	Axial

NOTES/REMARKS: Tested as received

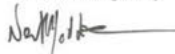
Sample/s supplied by the client

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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102446-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102446
Client Sample No	310-01-BH2338-PLD
Bore Hole	310-01-BH2338-C01382
Depth From/To (m)	14.15-14.22
Description	C
Is (MPa)	0.18
Is(50) (MPa)	0.19
Load Direction	Diametral

NOTES/REMARKS: Tested as received

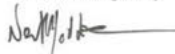
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102451-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102451
Client Sample No	310-01-BH2341-PLA
Bore Hole	310-01-BH2341-C00790
Depth From/To (m)	8.48-8.51
Description	C
Is (MPa)	0.18
Is(50) (MPa)	0.16
Load Direction	Axial

NOTES/REMARKS: Tested as received

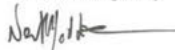
Sample/s supplied by the client

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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102451-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102451
Client Sample No	310-01-BH2341-PLD
Bore Hole	310-01-BH2341-C00790
Depth From/To (m)	8.40-8.48
Description	C
Is (MPa)	0.02
Is(50) (MPa)	0.02
Load Direction	Diametral

NOTES/REMARKS: Tested as received

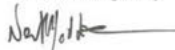
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102452-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102452
Client Sample No	310-01-BH2341-PLA
Bore Hole	310-01-BH2341-C00914
Depth From/To (m)	11.00-11.03
Description	C
Is (MPa)	0.36
Is(50) (MPa)	0.37
Load Direction	Axial

NOTES/REMARKS: Tested as received

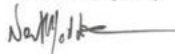
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102452-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102452
Client Sample No	310-01-BH2341-PLD
Bore Hole	310-01-BH2341-C00914
Depth From/To (m)	11.10-11.19
Description	C
Is (MPa)	0.05
Is(50) (MPa)	0.05
Load Direction	Diametral

NOTES/REMARKS: Tested as received

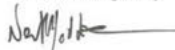
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client	Golder Associates Pty Limited	Report No.	GA102453-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	12/02/2019
Project No.	1897791	Depth From (m)	13.45
Bore Hole	310-01-BH2341-C01124	Depth To (m)	13.61
Description	C	Report Date	13/02/2019
Sample Type	Single Individual Rock Core Specimen	Sample No.	310-01-BH2341-UCY : 310-01-BH2341-MOI

Uniaxial Compressive Strength 7.21 MPa

Young's Modulus

Tangent 0.385 GPa

Secant 0.330 GPa

Poisson Ratio

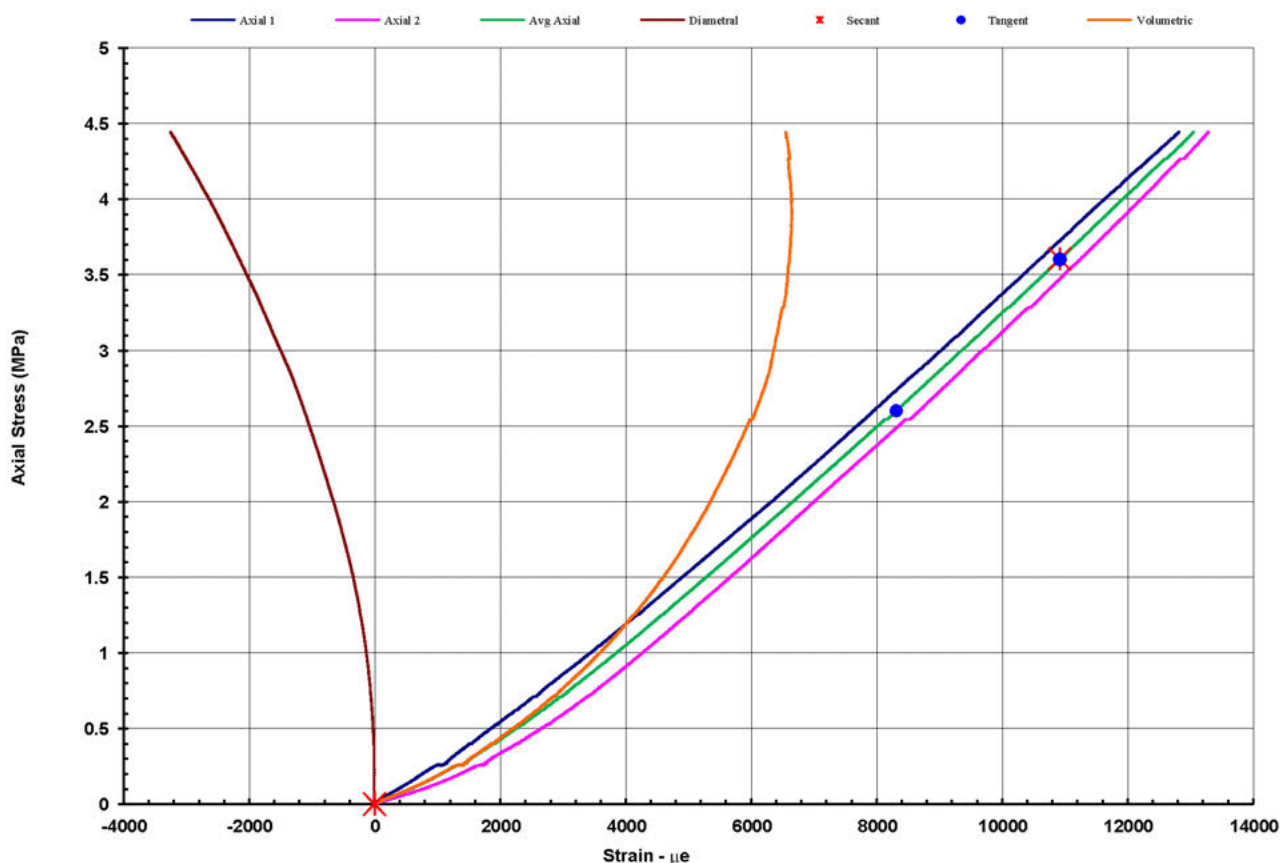
0.197

0.197

from 36 % to 50 % of Max UCS

from 0 % to 50 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

Tested as received.

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N. Maddison
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client Golder Associates Pty Limited		Report No. GA102453-MOD	
Average Sample Diameter (mm)	60.7	Moisture Content (%)	6.6
Sample Height (mm)	154.8	Wet Density (t/m ³)	2.34
Duration of Test (min)	40.93	Dry Density (t/m ³)	2.19
Rate of Displacement (mm/min)	0.10	Bedding (°)	15
Mode of Failure	Conical	Test Apparatus	100kN Compression Machine

CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	BEFORE TEST
LAB SAMPLE No. 102453	DATE: 12/02/19
BOREHOLE: 310-01-BH2341-C01124	DEPTH: 11.24



CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	AFTER TEST
LAB SAMPLE No. 102453	DATE: 12/02/19
BOREHOLE: 310-01-BH2341-C01124	DEPTH: 11.24



Notes/Remarks:

Sample/s supplied by client

Photo not to scale

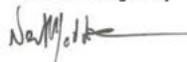
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102453-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102453
Client Sample No	310-01-BH2341-PLA
Bore Hole	310-01-BH2341-C01124
Depth From/To (m)	11.87-11.90
Description	C
Is (MPa)	0.23
Is(50) (MPa)	0.24
Load Direction	Axial

NOTES/REMARKS: Tested as received

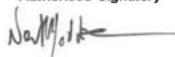
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102453-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102453
Client Sample No	310-01-BH2341-PLD
Bore Hole	310-01-BH2341-C01124
Depth From/To (m)	12.87-12.96
Description	C
Is (MPa)	0.22
Is(50) (MPa)	0.23
Load Direction	Diametral

NOTES/REMARKS: Tested as received

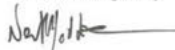
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client	Golder Associates Pty Limited	Report No.	GA102454-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	12/02/2019
Project No.	1897791	Depth From (m)	13.96
Bore Hole	310-01-BH2341-C01124	Depth To (m)	14.08
Description	C	Report Date	13/02/2019
Sample Type	Single Individual Rock Core Specimen	Sample No.	310-01-BH2341-UCY : 310-01-BH2341-MOI

Uniaxial Compressive Strength 9.30 MPa

Young's Modulus

Tangent 0.781 GPa

Secant 0.805 GPa

Poisson Ratio

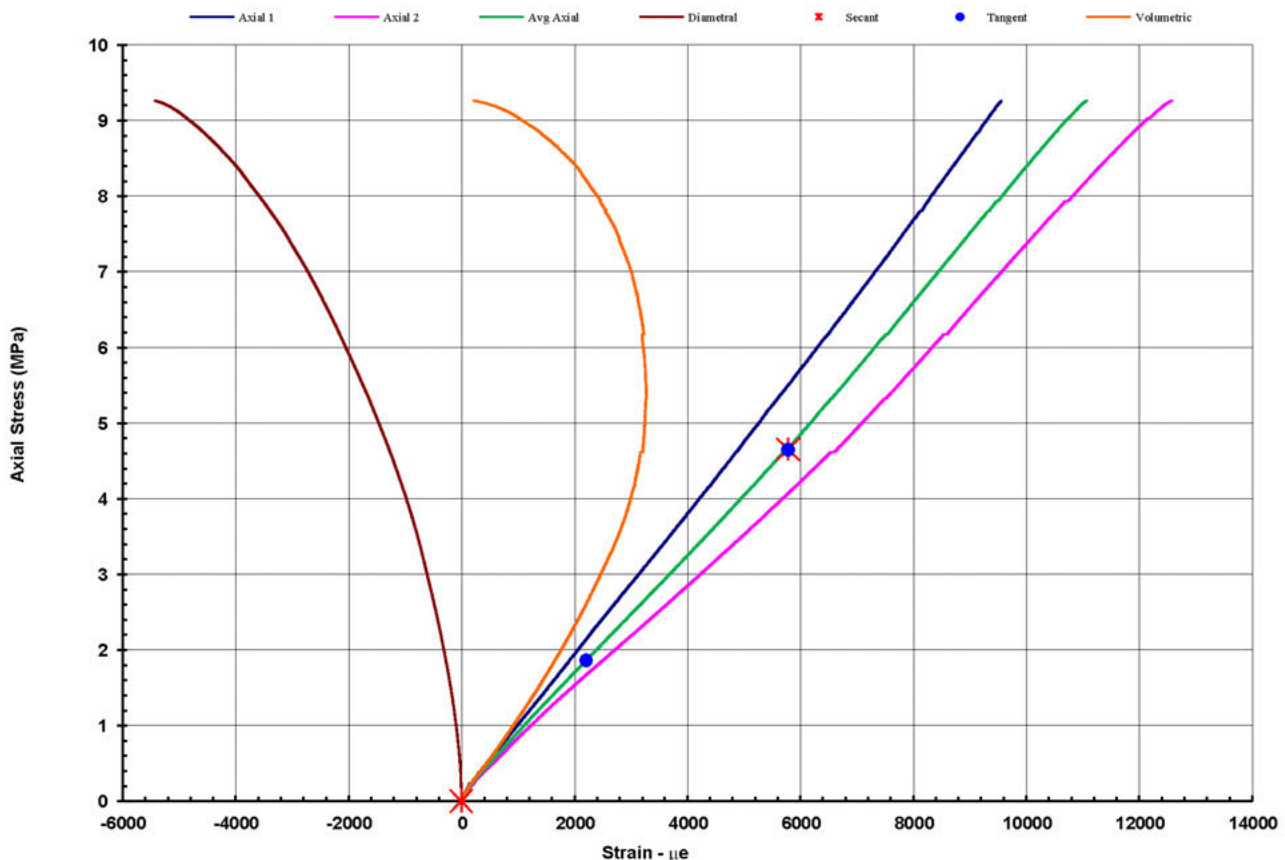
0.222

0.222

from 20 % to 50 % of Max UCS

from 0 % to 50 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

The length to diameter ratio falls outside the test method limits of 2.5:1 to 3.0:1.

Sample/s supplied by client

Graph not to scale

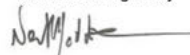
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.2 & AS 4133.1.1.1

Client	Golder Associates Pty Limited	Report No.	GA102454-MOD
Average Sample Diameter (mm)	60.8	Moisture Content (%)	6.3
Sample Height (mm)	107.7	Wet Density (t/m ³)	2.35
Duration of Test (min)	29.23	Dry Density (t/m ³)	2.21
Rate of Displacement (mm/min)	0.10	Bedding (°)	10
Mode of Failure	Conical	Test Apparatus	100kN Compression Machine

CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	BEFORE TEST
LAB SAMPLE No.	102454	DATE: 12/02/19
BOREHOLE:	310-01-BH2341-C01124	DEPTH: 11.24



CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	AFTER TEST
LAB SAMPLE No.	102454	DATE: 12/02/19
BOREHOLE:	310-01-BH2341-C01124	DEPTH: 11.24



Notes/Remarks:

The length to diameter ratio falls outside the test method limits of 2.5:1 to 3.0:1.

Sample/s supplied by client

Photo not to scale

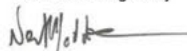
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102454-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102454
Client Sample No	310-01-BH2341-PLA
Bore Hole	310-01-BH2341-C01124
Depth From/To (m)	13.75-13.78
Description	C
Is (MPa)	1.27
Is(50) (MPa)	1.13
Load Direction	Axial

NOTES/REMARKS: Tested as received

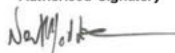
Sample/s supplied by the client

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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102454-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102454
Client Sample No	310-01-BH2341-PLD
Bore Hole	310-01-BH2341-C01124
Depth From/To (m)	13.78-13.85
Description	C
Is (MPa)	0.11
Is(50) (MPa)	0.12
Load Direction	Diametral

NOTES/REMARKS: Tested as received

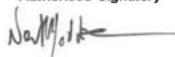
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102455-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102455
Client Sample No	310-01-BH2341-C01124-PLA
Bore Hole	310-01-BH2341
Depth From/To (m)	13.18-13.21
Description	C
Is (MPa)	0.56
Is(50) (MPa)	0.56
Load Direction	Axial

NOTES/REMARKS: Tested as received

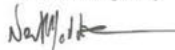
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102455-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102455
Client Sample No	310-01-BH2341-PLD
Bore Hole	310-01-BH2341-C01124
Depth From/To (m)	13.10-13.18
Description	C
Is (MPa)	0.42
Is(50) (MPa)	0.45
Load Direction	Diametral

NOTES/REMARKS: Tested as received

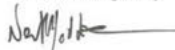
Sample/s supplied by the client

Page 1 of 1 REP02102

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



N. Maddison



Laboratory No. 9926

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102456-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102456
Client Sample No	310-01-BH2341-PLA
Bore Hole	310-01-BH2341-C01424
Depth From/To (m)	14.53-14.56
Description	C
Is (MPa)	0.40
Is(50) (MPa)	0.41
Load Direction	Axial

NOTES/REMARKS: Tested as received

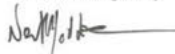
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102456-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102456
Client Sample No	310-01-BH2341-PLD
Bore Hole	310-01-BH2341-C01424
Depth From/To (m)	14.42-14.49
Description	C
Is (MPa)	0.08
Is(50) (MPa)	0.09
Load Direction	Diametral

NOTES/REMARKS: Tested as received

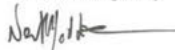
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

EMERSON CLASS NUMBER TEST REPORT

Test Method: AS 1289 3.8.1

Client	Golder Associates Pty Limited	Report No.	GA102457 - 102457-EM
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	18/02/2019
		Report Date	18/02/2019
		Project No	1897791

RESULTS OF TESTING

Sample No	GA102457-EM
Client Sample No	310-01-BH2346-EMC
Bore Hole	310-01-BH2346-S00050
Depth From (m)	0.5
Depth To (m)	0.77
Description	SPT
Emerson Class Number	4

NOTES/REMARKS:

Sample/s supplied by the client

Tested with Distilled water at 22°C

Page 1 of 1

REP00402

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C. Park



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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102462-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102462
Client Sample No	310-01-BH2346-PLA
Bore Hole	310-01-BH2346-C00380
Depth From/To (m)	4.51-4.54
Description	C
Is (MPa)	0.36
Is(50) (MPa)	0.35
Load Direction	Axial

NOTES/REMARKS: Tested as received

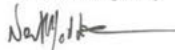
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102462-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102462
Client Sample No	310-01-BH2346-PLD
Bore Hole	310-01-BH2346-C00380
Depth From/To (m)	4.38-4.48
Description	C
Is (MPa)	0.75
Is(50) (MPa)	0.79
Load Direction	Diametral

NOTES/REMARKS: Tested as received

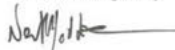
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102464-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102464
Client Sample No	310-01-BH2346-PLA
Bore Hole	310-01-BH2346-C00550
Depth From/To (m)	5.88-5.91
Description	C
Is (MPa)	0.57
Is(50) (MPa)	0.56
Load Direction	Axial

NOTES/REMARKS: Tested as received

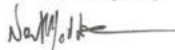
Sample/s supplied by the client

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POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102464-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102464
Client Sample No	310-01-BH2346-PLD
Bore Hole	310-01-BH2346-C00550
Depth From/To (m)	5.91-6.00
Description	C
Is (MPa)	0.08
Is(50) (MPa)	0.09
Load Direction	Diametral

NOTES/REMARKS: Tested as received

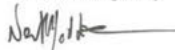
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102468-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102468
Client Sample No	310-01-BH2346-PLA
Bore Hole	310-01-BH2346-C00920
Depth From/To (m)	9.60-9.63
Description	C
Is (MPa)	0.09
Is(50) (MPa)	0.09
Load Direction	Axial

NOTES/REMARKS: Tested as received

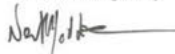
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102468-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102468
Client Sample No	310-01-BH2346-PLD
Bore Hole	310-01-BH2346-C00920
Depth From/To (m)	9.60-9.70
Description	C
Is (MPa)	0.30
Is(50) (MPa)	0.33
Load Direction	Diametral

NOTES/REMARKS: Tested as received

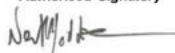
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102471-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	13/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102471
Client Sample No	310-01-BH2346-PLA
Bore Hole	310-01-BH2346-C01220
Depth From/To (m)	12.43-12.46
Description	C
Is (MPa)	0.23
Is(50) (MPa)	0.22
Load Direction	Axial

NOTES/REMARKS: Tested as received

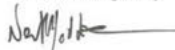
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102471-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102471
Client Sample No	310-01-BH2346-PLD
Bore Hole	310-01-BH2346-C01220
Depth From/To (m)	12.40-12.50
Description	C
Is (MPa)	0.04
Is(50) (MPa)	0.04
Load Direction	Diametral

NOTES/REMARKS: Tested as received

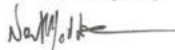
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.1

Client	Golder Associates Pty Limited	Report No.	GA102473-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	12/02/2019
Project No.	1897791	Depth From (m)	17.15
Bore Hole	310-01-BH2346-C01470	Depth To (m)	17.3
Description	C	Report Date	13/02/2019
Sample Type	Single Individual Rock Core Specimen	Sample No.	310-01-BH2346-UCY : 310-01-BH2346-MOI

Uniaxial Compressive Strength 89.2 MPa

Young's Modulus

Tangent 55.7 GPa

Secant 54.6 GPa

Poisson Ratio

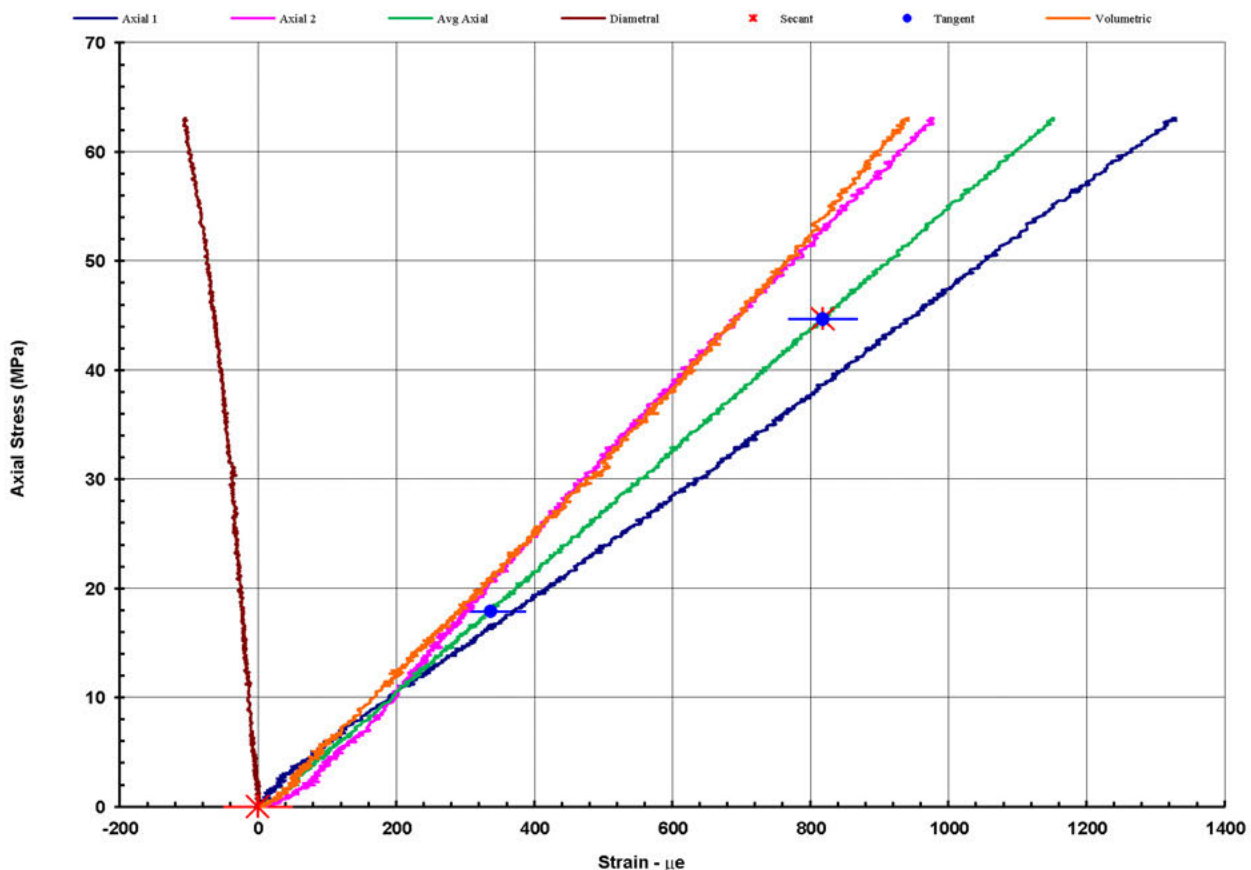
0.075

0.075

from 20 % to 50 % of Max UCS

from 0 % to 50 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

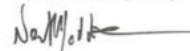
Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.1

Client	Golder Associates Pty Limited	Report No.	GA102473-MOD
Average Sample Diameter (mm)	61.1	Moisture Content (%)	1.6
Sample Height (mm)	157.5	Wet Density (t/m ³)	2.76
Duration of Test (min)	10.38	Dry Density (t/m ³)	2.72
Rate of Loading (MPa/min)	8.59	Bedding (°)	Nil
Mode of Failure	Conical	Test Apparatus	Kelba 1000kN Load Cell

CLIENT: Golder Associates Pty Limited

PROJECT: Inland Rail B2G

BEFORE TEST

LAB SAMPLE No. 102473

DATE: 12/02/19

BOREHOLE: 310-01-BH2346-C01470

DEPTH: 14.7



CLIENT: Golder Associates Pty Limited

PROJECT: Inland Rail B2G

AFTER TEST

LAB SAMPLE No. 102473

DATE: 12/02/19

BOREHOLE: 310-01-BH2346-C01470

DEPTH: 14.7



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

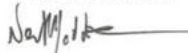
Tested as received.

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102473-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	13/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102473
Client Sample No	310-01-BH2346-PLA
Bore Hole	310-01-BH2346-C01470
Depth From/To (m)	17.00-17.03
Description	C
Is (MPa)	3.06
Is(50) (MPa)	2.70
Load Direction	Axial

NOTES/REMARKS: Tested as received

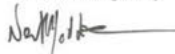
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102473-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	12/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102473
Client Sample No	310-01-BH2346-PLD
Bore Hole	310-01-BH2346-C01470
Depth From/To (m)	17.03-17.11
Description	C
Is (MPa)	0.79
Is(50) (MPa)	0.85
Load Direction	Diametral

NOTES/REMARKS: Tested as received

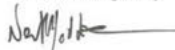
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.1

Client	Golder Associates Pty Limited	Report No.	GA102475-MOD
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	12/02/2019
Project No.	1897791	Depth From (m)	20.14
Bore Hole	310-01-BH2346-C01980	Depth To (m)	20.31
Description	C	Report Date	13/02/2019
Sample Type	Single Individual Rock Core Specimen	Sample No.	310-01-BH2346-UCY : 310-01-BH2346-MOI

Uniaxial Compressive Strength 102 MPa

Young's Modulus

Tangent 39.3 GPa

Secant 34.7 GPa

Poisson Ratio

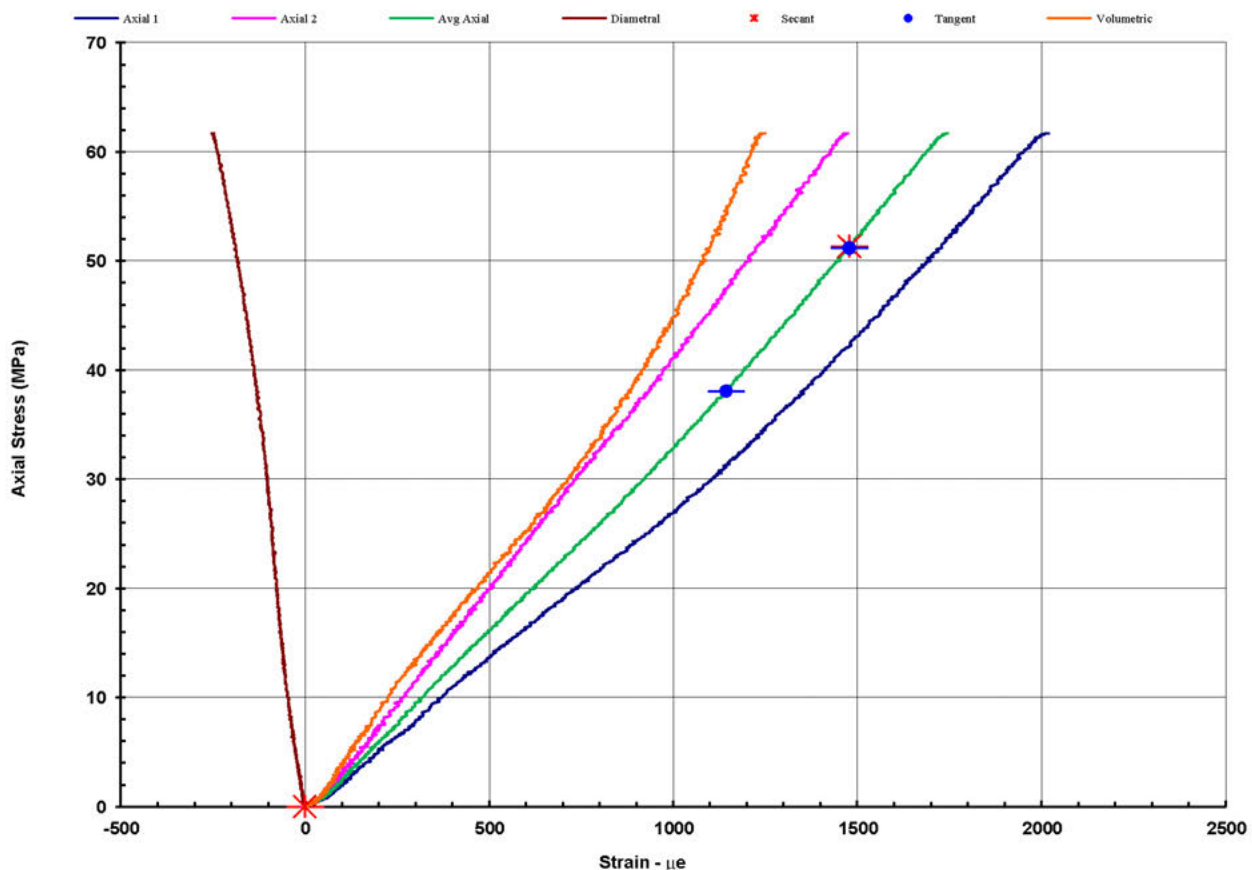
0.128

0.128

from 37 % to 50 % of Max UCS

from 0 % to 50 % of Max UCS

Axial Stress vs Strain Plots



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

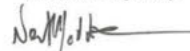
Tested as received.

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N. Maddison



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Trilab Pty Ltd ABN 25 065 630 506

ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

UNIAXIAL COMPRESSIVE STRENGTH & DEFORMATION TEST REPORT

Test Method: AS 4133.4.3.1

Client Golder Associates Pty Limited		Report No. GA102475-MOD	
Average Sample Diameter (mm)	61.0	Moisture Content (%)	1.7
Sample Height (mm)	162.2	Wet Density (t/m ³)	2.77
Duration of Test (min)	9.80	Dry Density (t/m ³)	2.73
Rate of Loading (MPa/min)	10.43	Bedding (°)	Nil
Mode of Failure	Disintegration	Test Apparatus	Kelba 1000kN Load Cell

CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	BEFORE TEST
LAB SAMPLE No. 102475	DATE: 12/02/19
BOREHOLE: 310-01-BH2346-C01980	DEPTH: 19.8



CLIENT: Golder Associates Pty Limited	
PROJECT: Inland Rail B2G	AFTER TEST
LAB SAMPLE No. 102475	DATE: 12/02/19
BOREHOLE: 310-01-BH2346-C01980	DEPTH: 19.8



Notes/Remarks:

Sample/s supplied by client

Graph not to scale

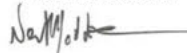
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102475-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	13/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102475
Client Sample No	310-01-BH2346-PLA
Bore Hole	310-01-BH2346-C01980
Depth From/To (m)	20.31-20.34
Description	C
Is (MPa)	4.07
Is(50) (MPa)	3.67
Load Direction	Axial

NOTES/REMARKS: Tested as received

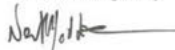
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102475-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102475
Client Sample No	310-01-BH2346-PLD
Bore Hole	310-01-BH2346-C01980
Depth From/To (m)	20.34-20.41
Description	C
Is (MPa)	6.31
Is(50) (MPa)	6.75
Load Direction	Diametral

NOTES/REMARKS: Tested as received

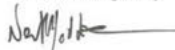
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102478-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	13/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102478
Client Sample No	310-01-BH2346-PLA
Bore Hole	310-01-BH2346-C02340
Depth From/To (m)	23.47-23.5
Description	C
Is (MPa)	2.45
Is(50) (MPa)	2.24
Load Direction	Axial

NOTES/REMARKS: Tested as received

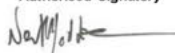
Sample/s supplied by the client

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

POINT LOAD TEST REPORT

Test Method: AS 4133.4.1

Client	Golder Associates Pty Limited	Report No.	GA102478-PL
		Request No	R6 and R7_Rev0_COC
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	11/02/2019
		Report Date	12/02/2019
Project	Inland Rail B2G		
Project No	1897791		

Trilab Sample No.	102478
Client Sample No	310-01-BH2346-PLD
Bore Hole	310-01-BH2346-C02340
Depth From/To (m)	23.40-23.47
Description	C
Is (MPa)	0.40
Is(50) (MPa)	0.43
Load Direction	Diametral

NOTES/REMARKS: Tested as received

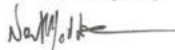
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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

ATTERBERG LIMITS TEST REPORT

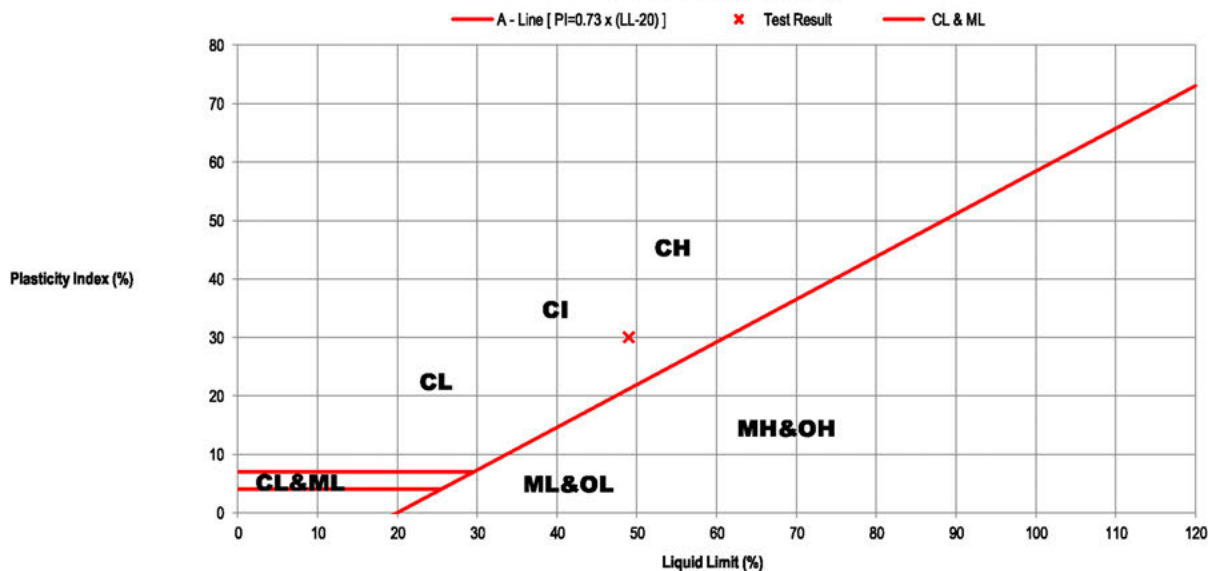
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102353-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	19/02/2019
Project No.	1897791	Report Date	21/02/2019
Bore Hole	310-01-DH2519-B00010	Client Sample No.	310-01-DH2519-ATT : 310-01-DH2519-MOI
Description	BDS	Depth From (m)	0.1
		Depth To (m)	0.6

RESULTS OF TESTING

Liquid Limit (%) 49
Plastic Limit (%) 19
Plasticity Index (%) 30
Linear Shrinkage (%) 14.5 **Curling Occurred**
Moisture Content (%) 12.9
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

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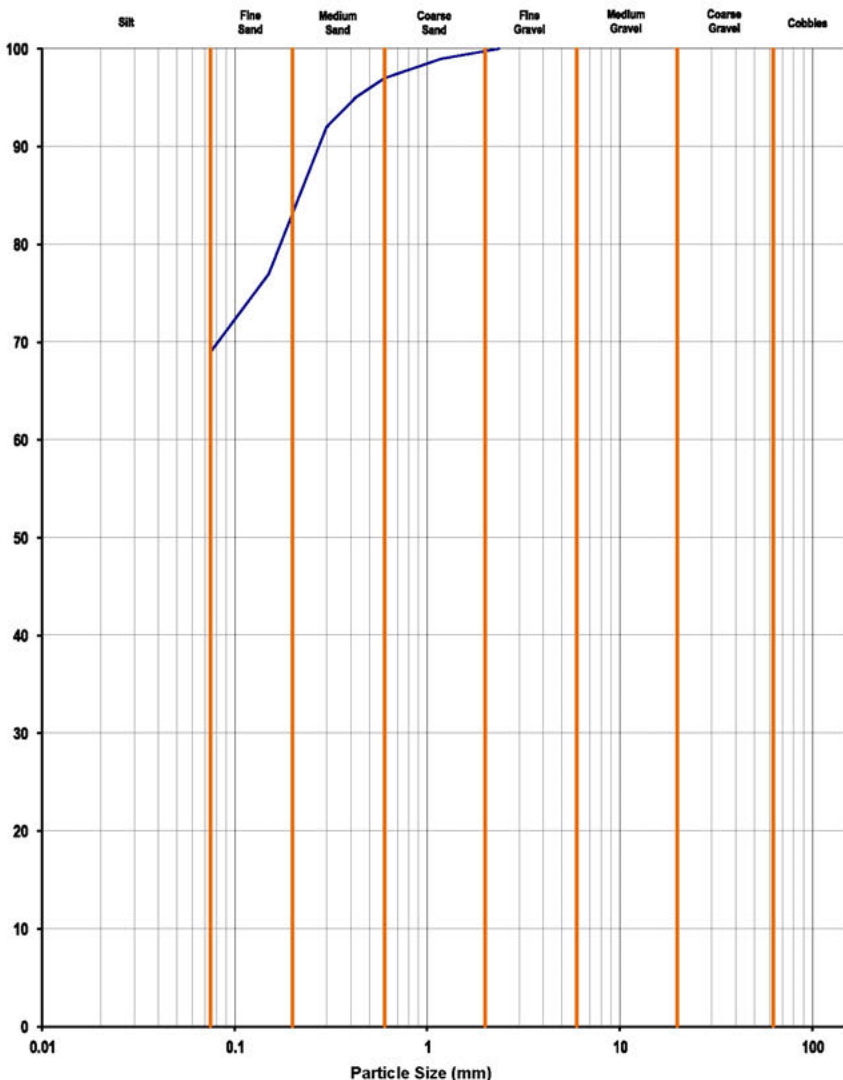
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Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA102353-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2519-PSD : 310-01-DH2519-MOI		
Bore Hole	310-01-DH2519-B00010	Depth From (m)	0.1	Depth To (m)	0.6
Description	BDS				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	100
1.18	99
0.600	97
0.425	95
0.300	92
0.150	77
0.075	69



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 69% passing for 0.075 mm and rises to 100% passing at 2.36 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.85 mm), Coarse Sand (0.85 - 2.36 mm), Fine Gravel (2.36 - 4.75 mm), Medium Gravel (4.75 - 9.5 mm), Coarse Gravel (9.5 - 20 mm), and Cobbles (> 20 mm).

NOTES/REMARKS:

-
Moisture Content 12.9%
Sample/s supplied by the client

Page 1 of 1 REP03903

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ATTERBERG LIMITS TEST REPORT

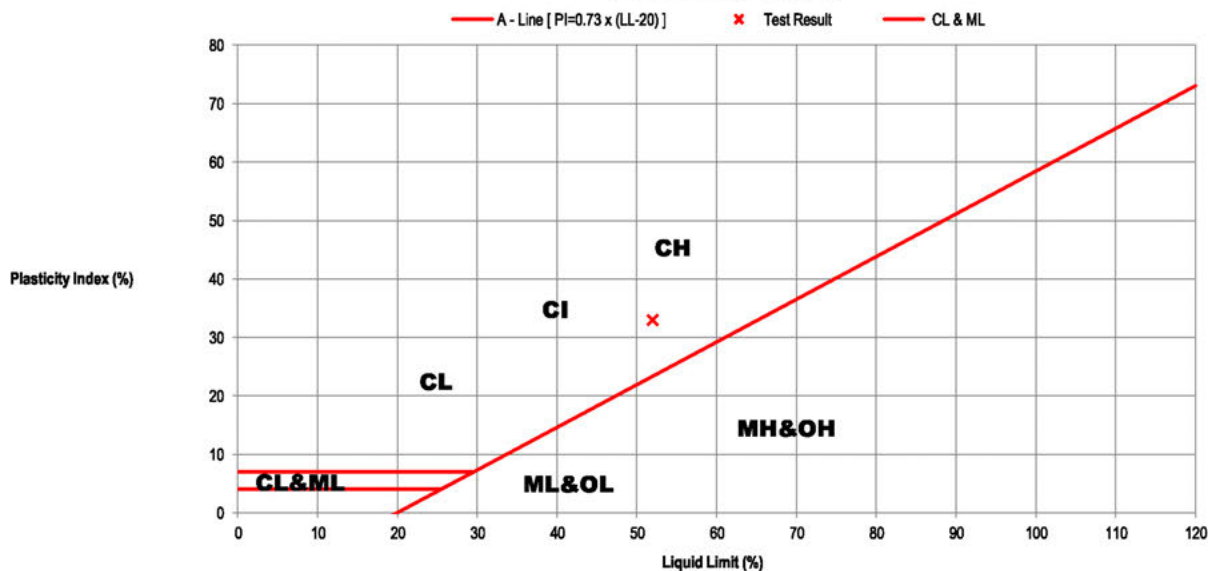
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102354-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	19/02/2019
Project No.	1897791	Report Date	21/02/2019
Bore Hole	310-01-DH2519-S00050	Client Sample No.	310-01-DH2519-ATT : 310-01-DH2519-MOI
Description	SPT	Depth From (m)	0.5
		Depth To (m)	0.95

RESULTS OF TESTING

Liquid Limit (%) 52
Plastic Limit (%) 19
Plasticity Index (%) 33
Linear Shrinkage (%) 15.5 **Curling Occurred**
Moisture Content (%) 12.1
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

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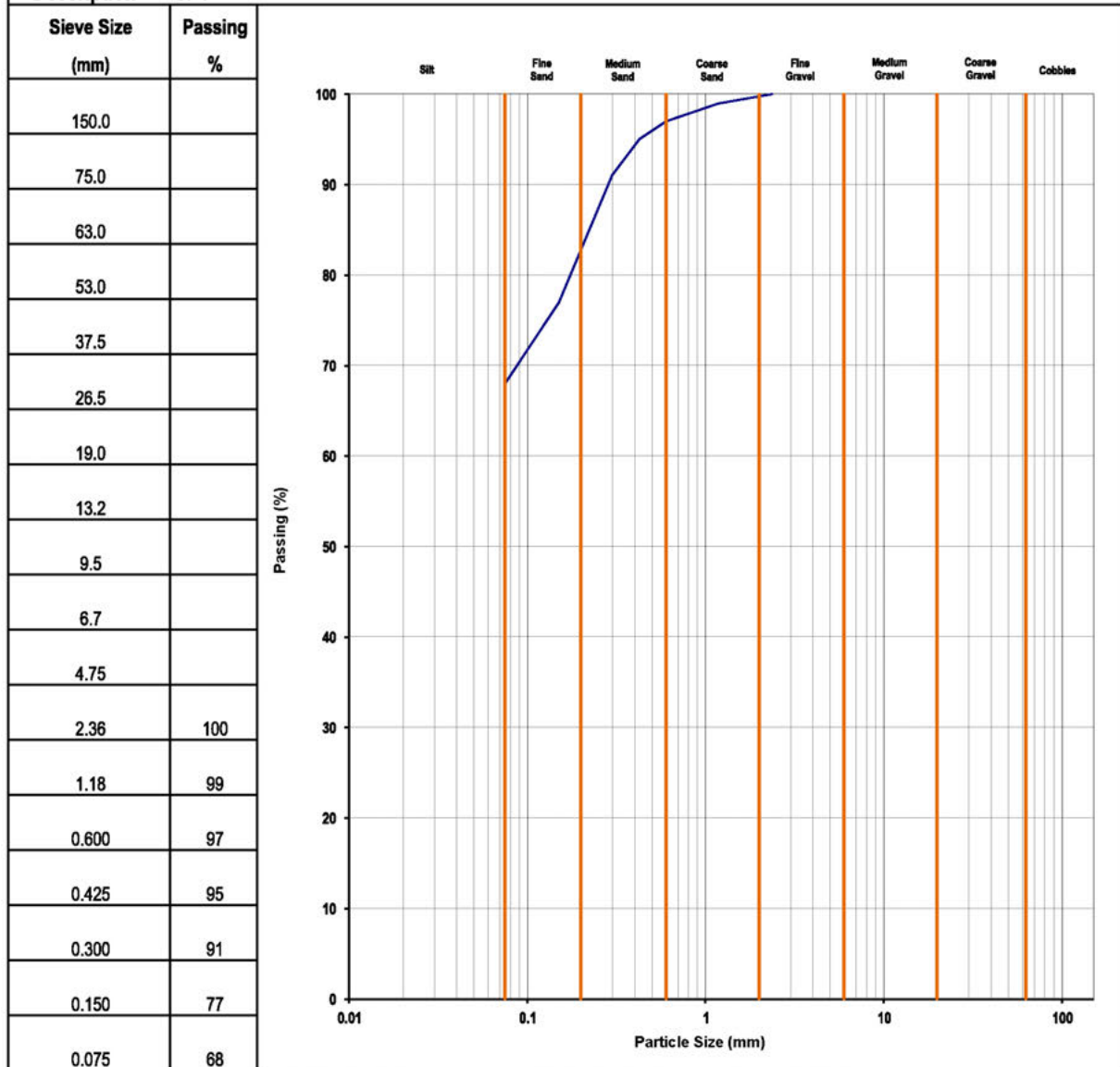
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102354-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	16/2/19-21/2/19
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2519-PSD : 310-01-DH2519-MOI		
Bore Hole	310-01-DH2519-S00050	Depth From (m)	0.5	Depth To (m)	0.95
Description	SPT				



NOTES/REMARKS:

-
Moisture Content 12.1%
Sample/s supplied by the client

Page 1 of 1 REP03903

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ATTERBERG LIMITS TEST REPORT

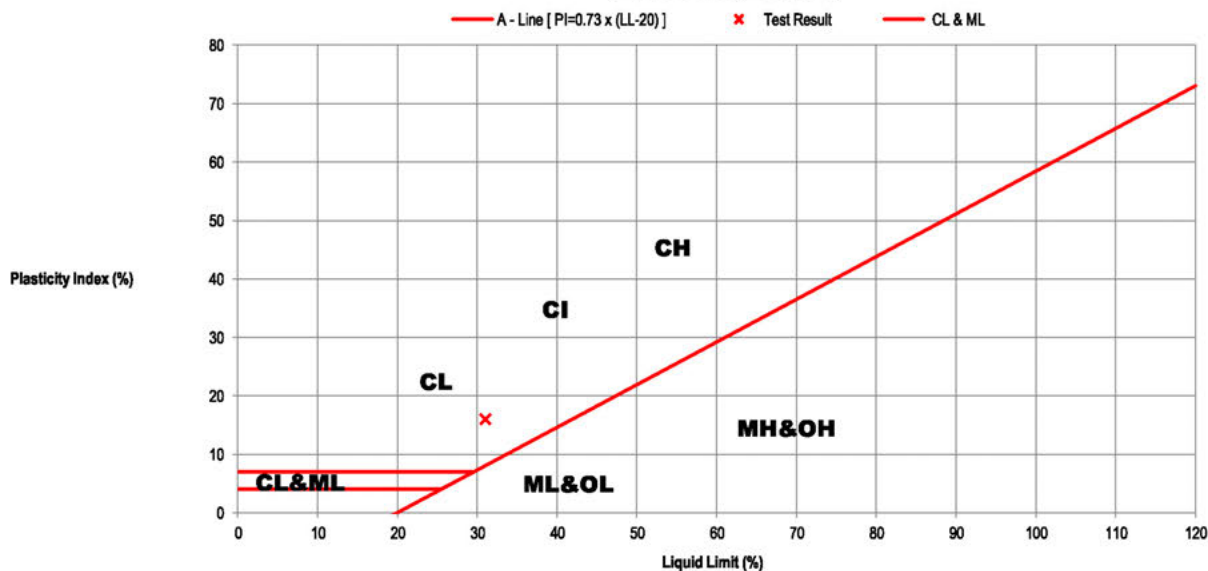
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102355-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	19/02/2019
Project No.	1897791	Report Date	21/02/2019
Bore Hole	310-01-DH2519-S00200	Client Sample No.	310-01-DH2519-ATT : 310-01-DH2519-MOI
Description	SPT	Depth From (m)	2
		Depth To (m)	2.45

RESULTS OF TESTING

Liquid Limit (%)	31	
Plastic Limit (%)	15	
Plasticity Index (%)	16	
Linear Shrinkage (%)	8.0	Curling Occurred
Moisture Content (%)	7.8	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

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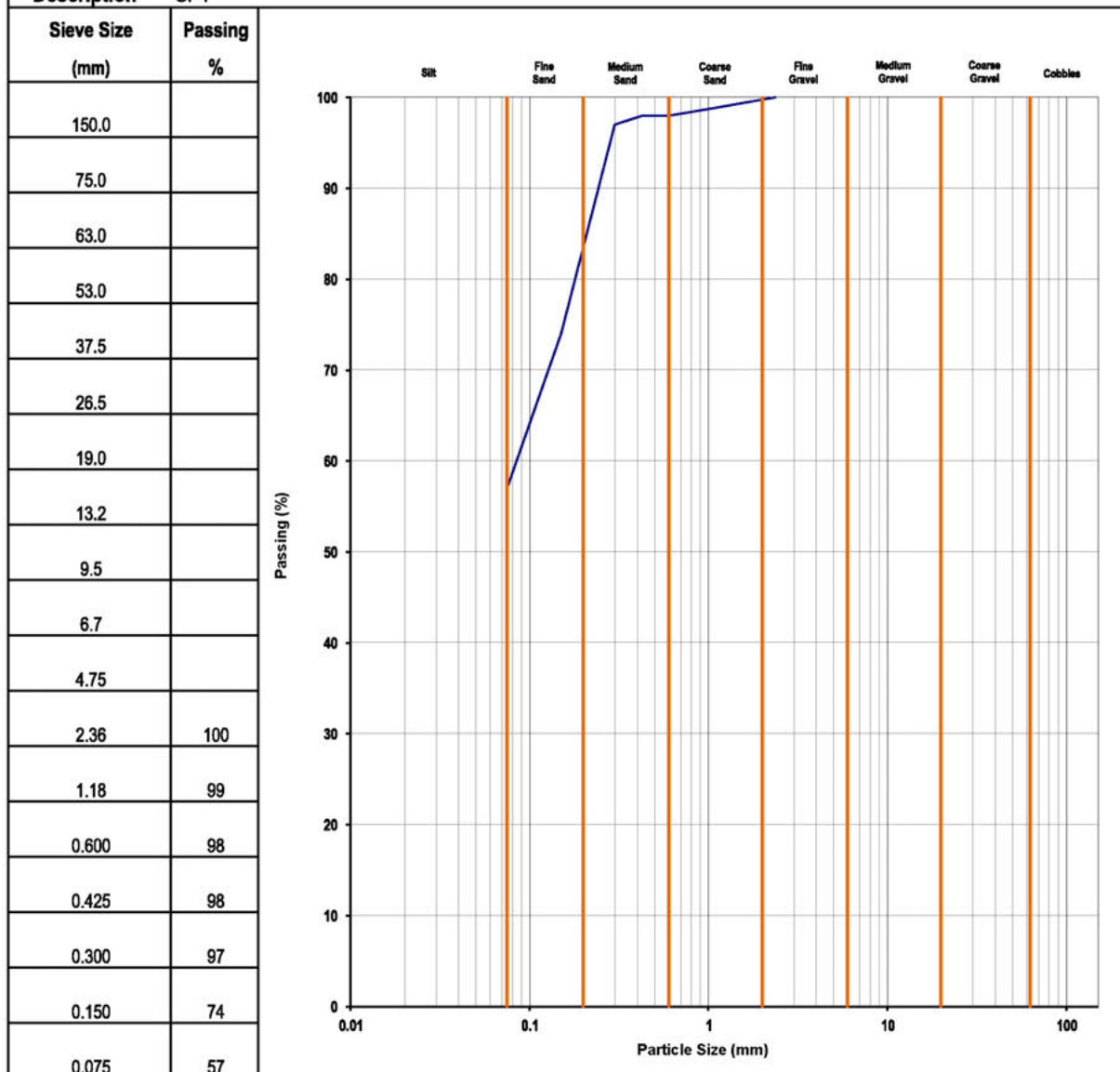
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102355-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	16/2/19-21/2/19
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2519-PSD : 310-01-DH2519-MOI		
Bore Hole	310-01-DH2519-S00200	Depth From (m)	2	Depth To (m)	2.45

Description	SPT
--------------------	-----



NOTES/REMARKS:	-
	Moisture Content 7.8%
	Sample/s supplied by the client

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ATTERBERG LIMITS TEST REPORT

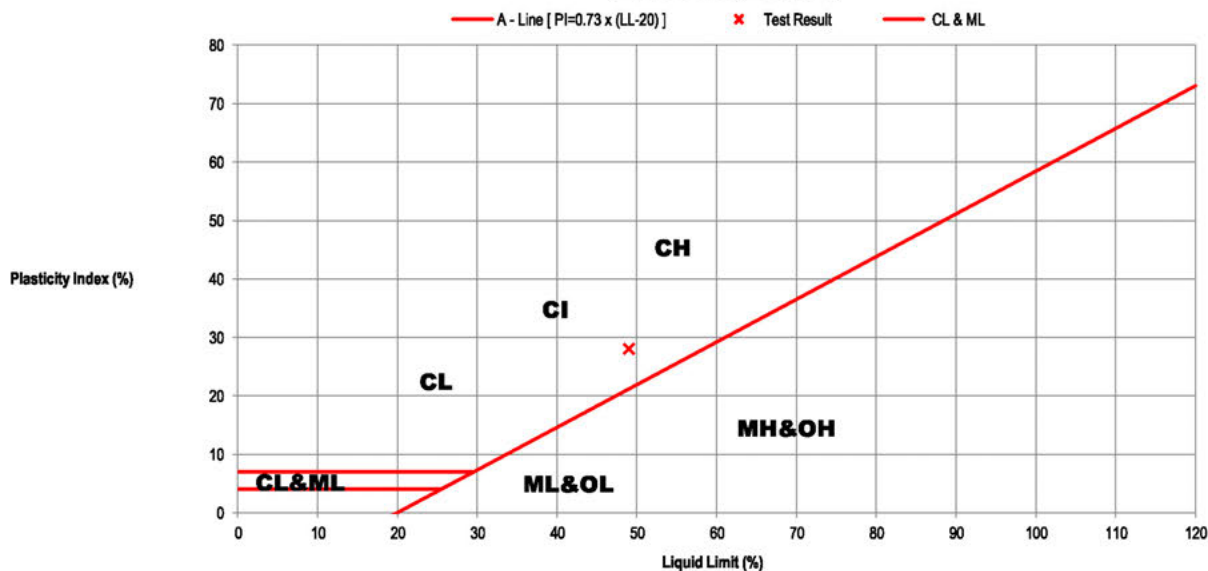
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102356-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	19/02/2019
Project No.	1897791	Report Date	21/02/2019
Bore Hole	310-01-DH2520-B00010	Client Sample No.	310-01-DH2520-ATT : 310-01-DH2520-MOI
Description	BDS	Depth From (m)	0.1
		Depth To (m)	0.6

RESULTS OF TESTING

Liquid Limit (%)	49	
Plastic Limit (%)	21	
Plasticity Index (%)	28	
Linear Shrinkage (%)	14.0	Curling Occurred
Moisture Content (%)	15.2	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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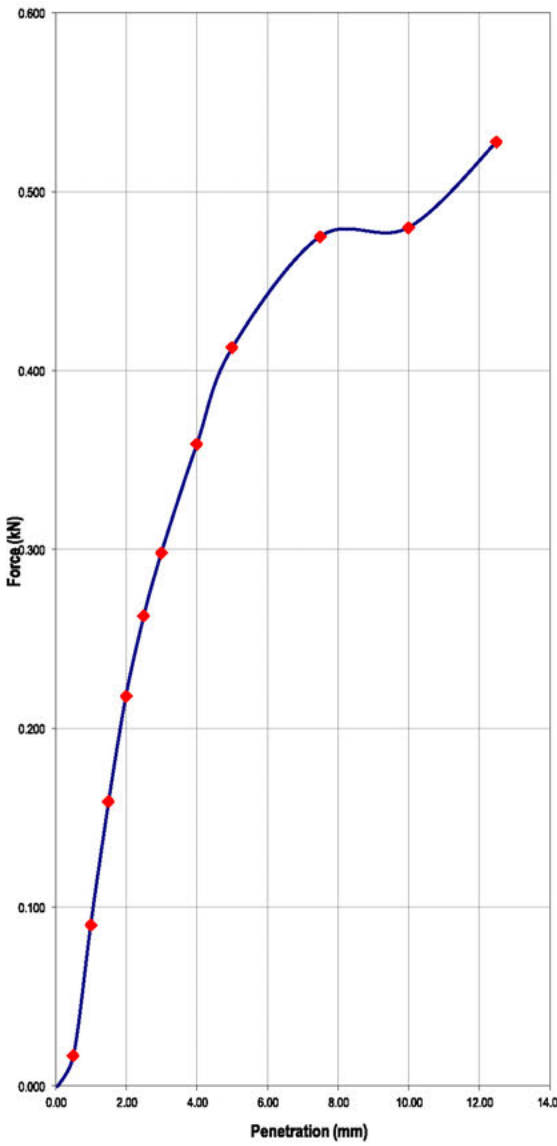
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA102356-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project No.	1897791	Test Date	16/2/19-22/2/19
Project	Inland Rail B2G	Report Date	22/02/2019

Test Results

Bore Hole/Test Pit	310-01-DH2520-B00010	Force v's Penetration  The graph plots Force (kN) on the y-axis (0.000 to 0.600) against Penetration (mm) on the x-axis (0.00 to 14.00). The curve starts at (0,0), rises steeply to approximately (4, 0.4), and then continues to rise more gradually, reaching about 0.55 kN at 12.5 mm penetration.
Client Sample No.	310-01-DH2520-CBR : 310-01-DH2520-MOI : 310-01-DH2520-COM	
Depth From/To(m)	0.10-0.60	
Description	Sandy CLAY - brown	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	15.2	
Maximum Dry Density (t/m ³)	1.69	
Optimum Moisture Content (%)	18.7	
Nominated/Achieved Dry Density (t/m ³)	1.61 / 1.61	
Nominated/Achieved Moisture Content (%)	18.7 / 18.7	
Laboratory Density Ratio (%)	95.0	
Laboratory Moisture Ratio (%)	100.2	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	3.7	
Moisture Content of Top 30 mm (%)	28.8	
Moisture Content of Remainder (%)	19.5	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	2	

Notes/Remarks :

Sample/s supplied by the client

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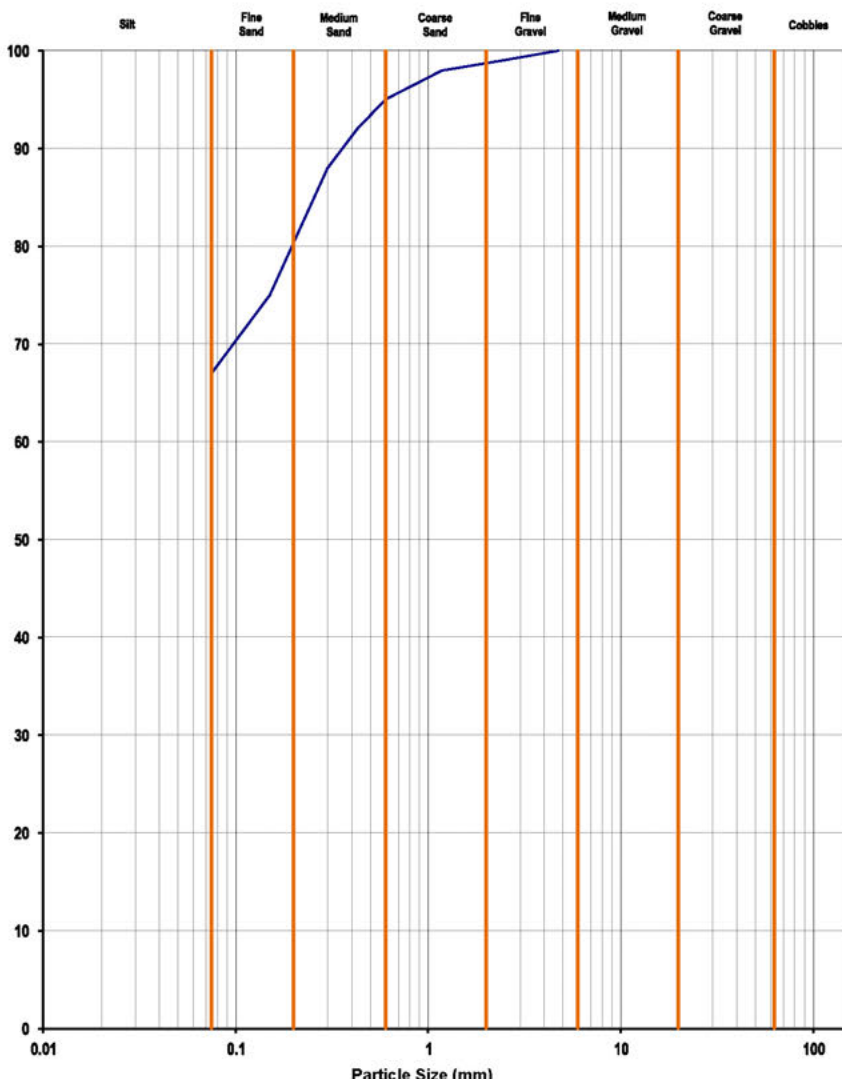
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102356-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	16/2/19-21/2/19
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2520-PSD : 310-01-DH2520-MOI		
Bore Hole	310-01-DH2520-B00010	Depth From (m)	0.1	Depth To (m)	0.6

Description		BDS
Sieve Size (mm)	Passing %	
150.0		 The graph shows the particle size distribution for sample BDS. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 67% passing for 0.075 mm, rises to 75% at 0.150 mm, 88% at 0.300 mm, 92% at 0.425 mm, 95% at 0.600 mm, 98% at 1.18 mm, 99% at 2.36 mm, and reaches 100% at 4.75 mm. Vertical lines indicate the boundaries for Soil, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles.
75.0		
63.0		
53.0		
37.5		
26.5		
19.0		
13.2		
9.5		
6.7		
4.75	100	
2.36	99	
1.18	98	
0.600	95	
0.425	92	
0.300	88	
0.150	75	
0.075	67	

NOTES/REMARKS:	-
	Moisture Content 15.2%
	Sample/s supplied by the client

Page 1 of 1 REP03903

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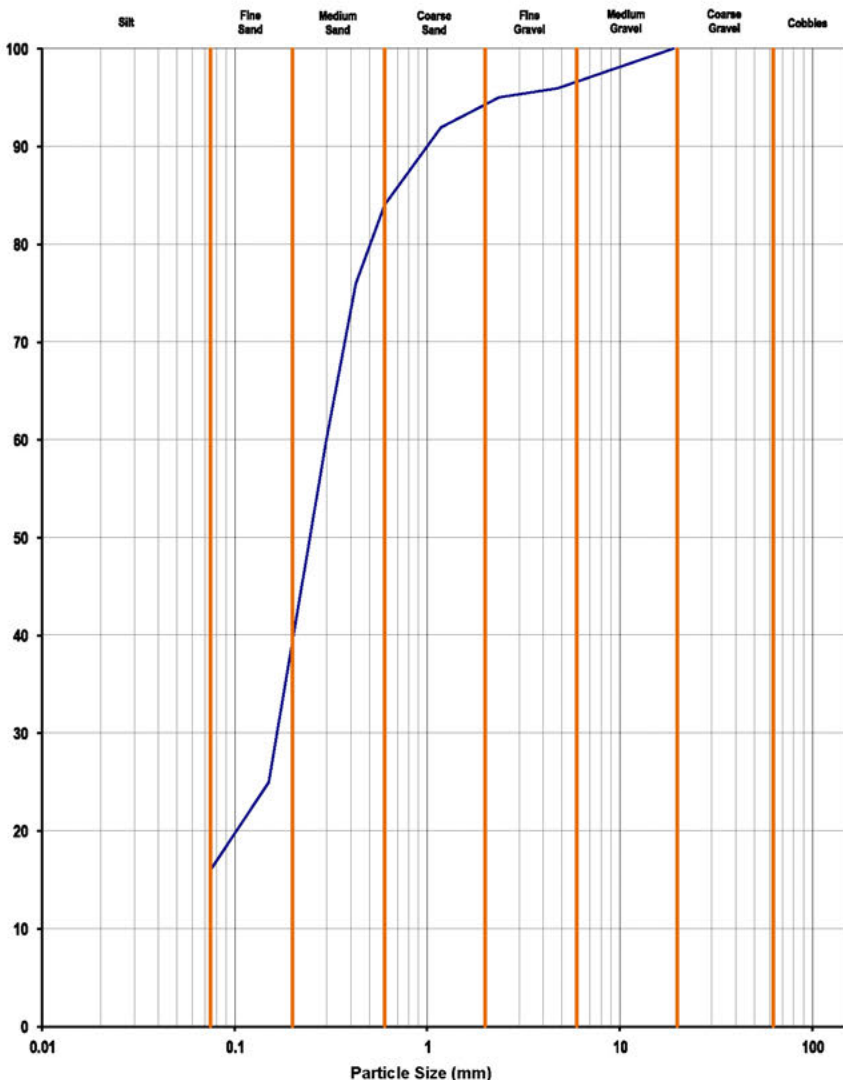
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA102358-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2520-PSD : 310-01-DH2520-MOI		
Bore Hole	310-01-DH2520-S00200	Depth From (m)	2	Depth To (m)	2.45
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	100
9.5	98
6.7	97
4.75	96
2.36	95
1.18	92
0.600	84
0.425	76
0.300	60
0.150	25
0.075	16



NOTES/REMARKS:

-

Moisture Content 3.6%

Sample/s supplied by the client

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ATTERBERG LIMITS TEST REPORT

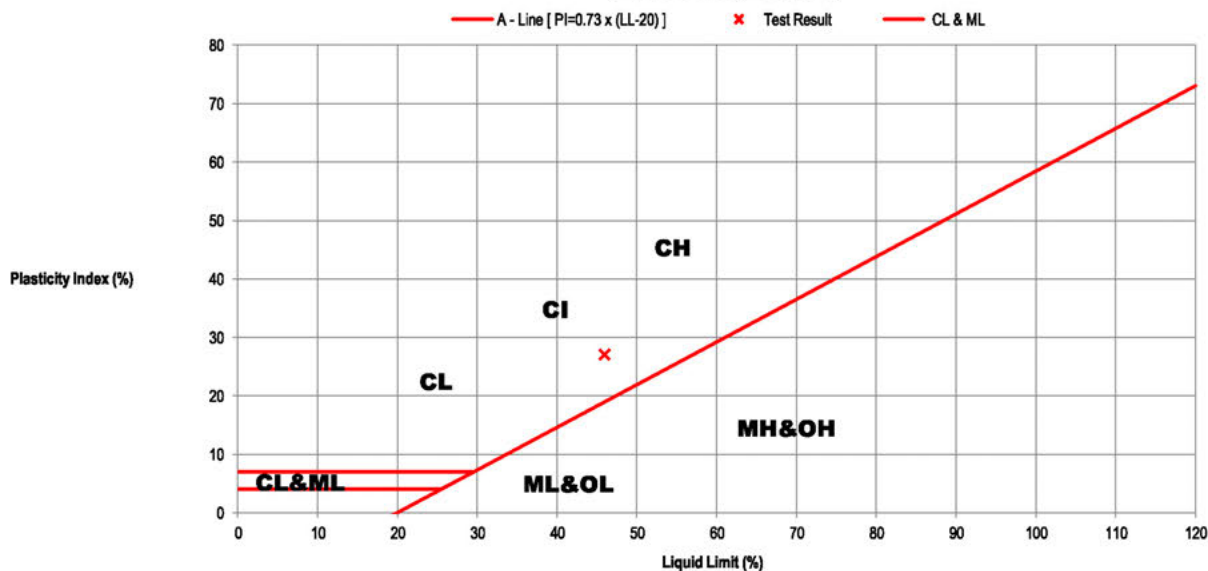
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102360-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	19/02/2019
Project No.	1897791	Report Date	21/02/2019
Bore Hole	310-01-DH2523-B00010	Client Sample No.	310-01-DH2523-ATT : 310-01-DH2523-MOI
Description	BDS	Depth From (m)	0.1
		Depth To (m)	0.6

RESULTS OF TESTING

Liquid Limit (%) 46
Plastic Limit (%) 19
Plasticity Index (%) 27
Linear Shrinkage (%) 14.5 **Curling Occurred**
Moisture Content (%) 12.4
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

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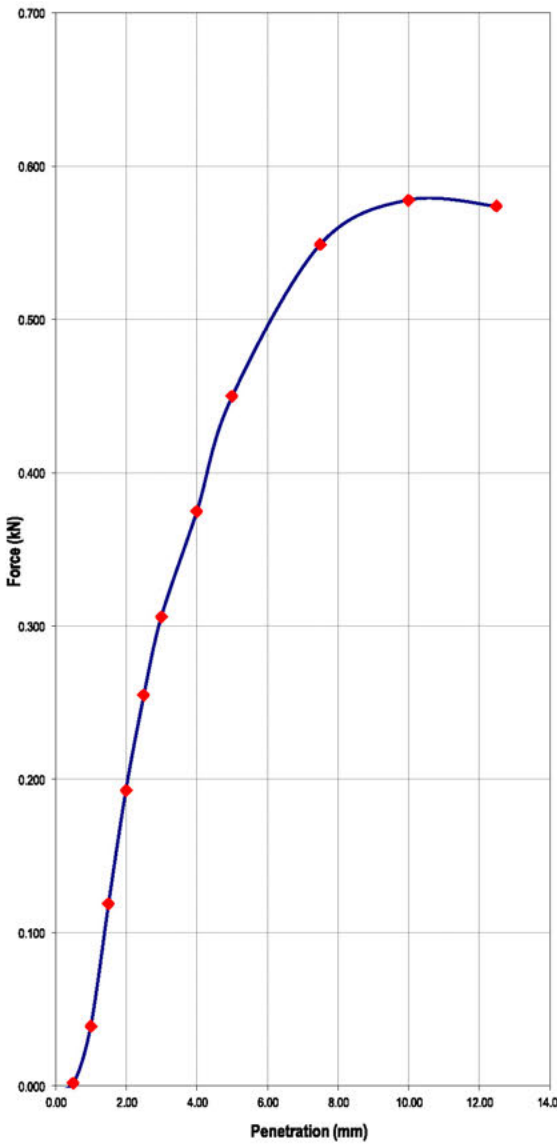
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA102360-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project No.	1897791	Test Date	16/2/19-22/2/19
Project	Inland Rail B2G	Report Date	22/02/2019

Test Results

Bore Hole/Test Pit	310-01-DH2523-B00010	Force v's Penetration  The graph plots Force in kN on the y-axis (0.000 to 0.700) against Penetration in mm on the x-axis (0.00 to 14.00). The curve starts at (0,0), rises sharply to about 0.35 kN at 4 mm, and then continues to rise more gradually, reaching a peak of approximately 0.65 kN at 10 mm, before slightly declining to about 0.62 kN at 12 mm.
Client Sample No.	310-01-DH2523-CBR : 310-01-DH2523-MOI : 310-01-DH2523-COM	
Depth From/To(m)	0.10-0.60	
Description	Sandy CLAY - brown	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	12.4	
Maximum Dry Density (t/m ³)	1.66	
Optimum Moisture Content (%)	18.0	
Nominated/Achieved Dry Density (t/m ³)	1.58 / 1.58	
Nominated/Achieved Moisture Content (%)	18.0 / 18.3	
Laboratory Density Ratio (%)	95.3	
Laboratory Moisture Ratio (%)	101.5	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	4.9	
Moisture Content of Top 30 mm (%)	29.9	
Moisture Content of Remainder (%)	23.2	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	2.5	

Notes/Remarks :

Sample/s supplied by the client

Page: 1 of 1 REP00304

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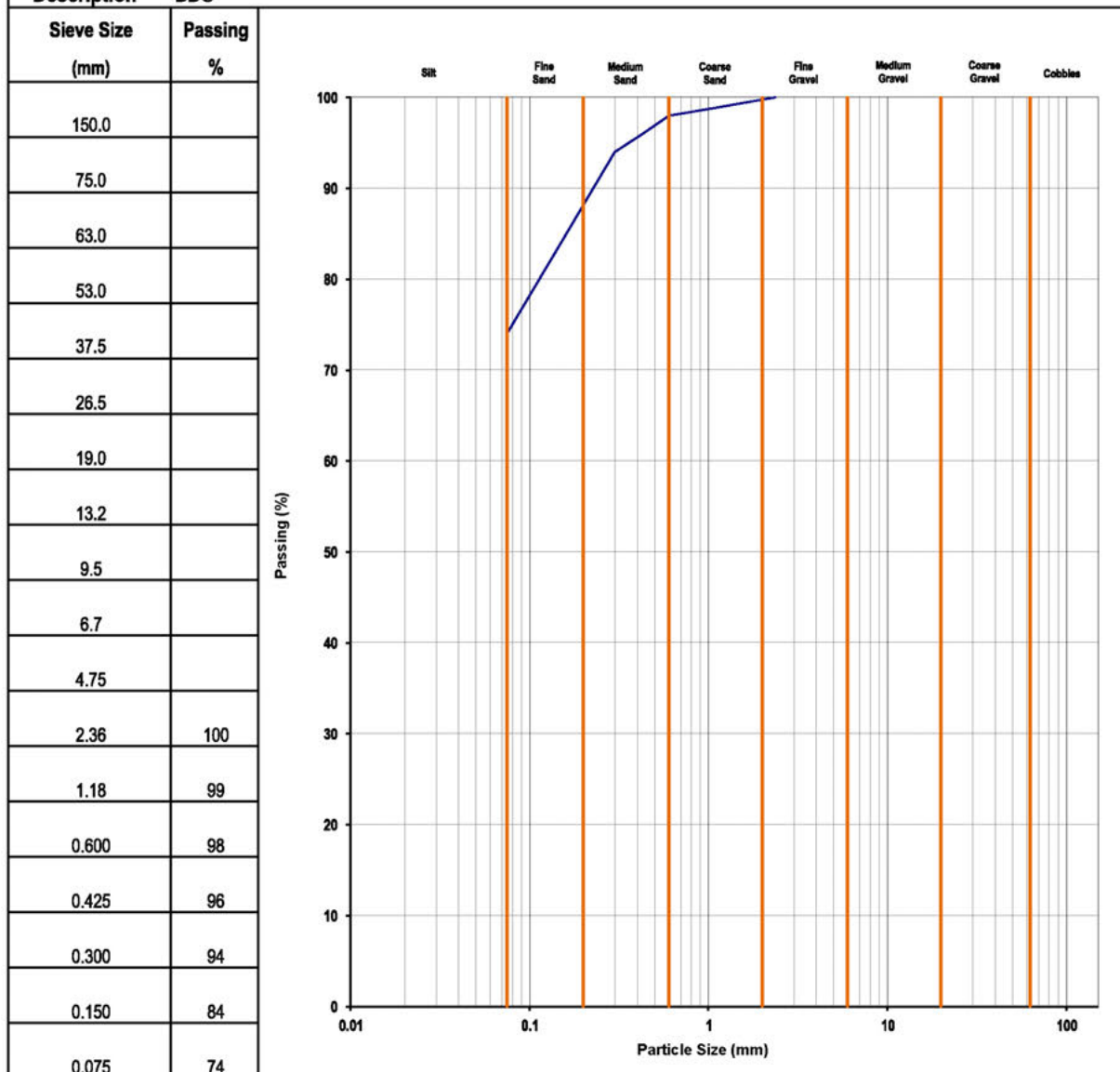
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102360-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	16/2/19-21/2/19
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2523-PSD : 310-01-DH2523-MOI		
Bore Hole	310-01-DH2523-B00010	Depth From (m)	0.1	Depth To (m)	0.6

Description	BDS
--------------------	-----



NOTES/REMARKS:	-
	Moisture Content 12.4%
	Sample/s supplied by the client

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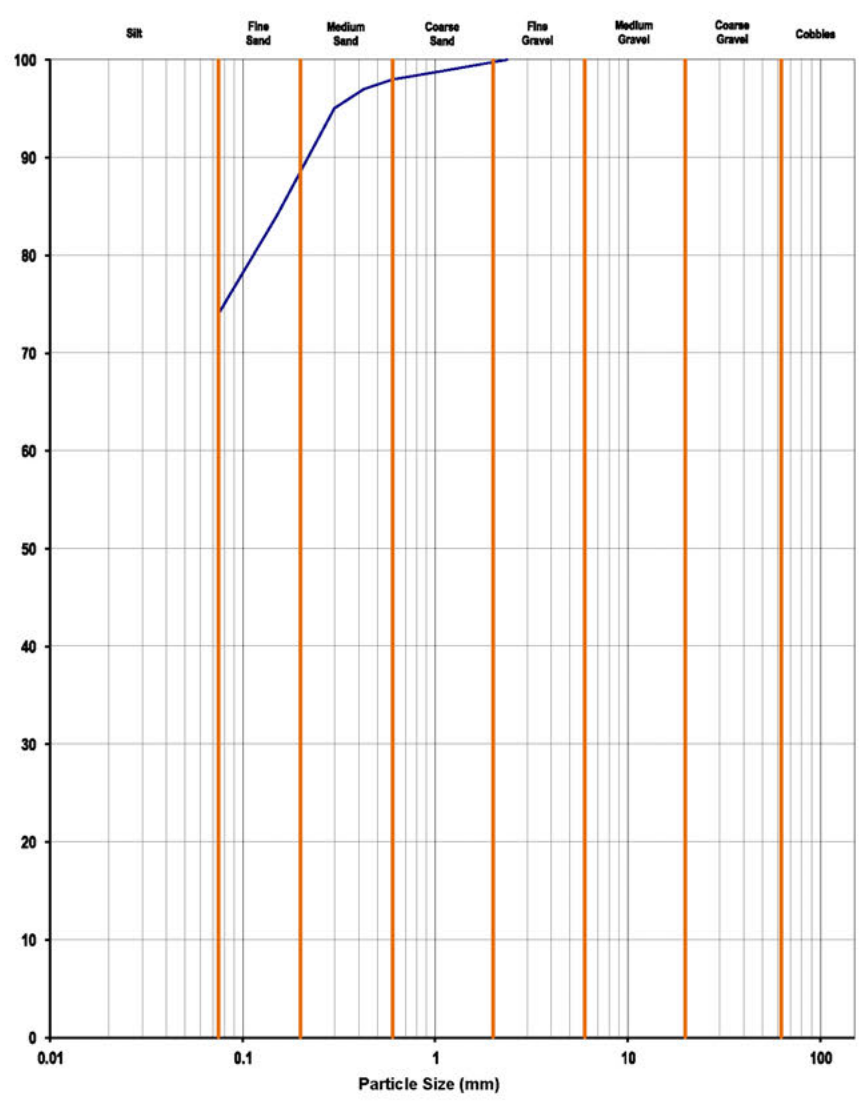
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA102362-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2523-PSD : 310-01-DH2523-MOI		
Bore Hole	310-01-DH2523-S00200	Depth From (m)	2	Depth To (m)	2.45
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	100
1.18	99
0.600	98
0.425	97
0.300	95
0.150	84
0.075	74



The graph plots Passing (%) on the y-axis (0 to 100) against Particle Size (mm) on a logarithmic x-axis (0.01 to 100). Vertical lines indicate sieve sizes: 0.075, 0.150, 0.300, 0.425, 0.600, 1.18, 2.36, 4.75, 6.7, 9.5, 13.2, 19.0, 26.5, 37.5, 53.0, 63.0, 75.0, 150.0. The curve starts at 74% passing for 0.075mm and rises to 100% passing at 2.36mm.

NOTES/REMARKS:

-
Moisture Content 12.8%
Sample/s supplied by the client

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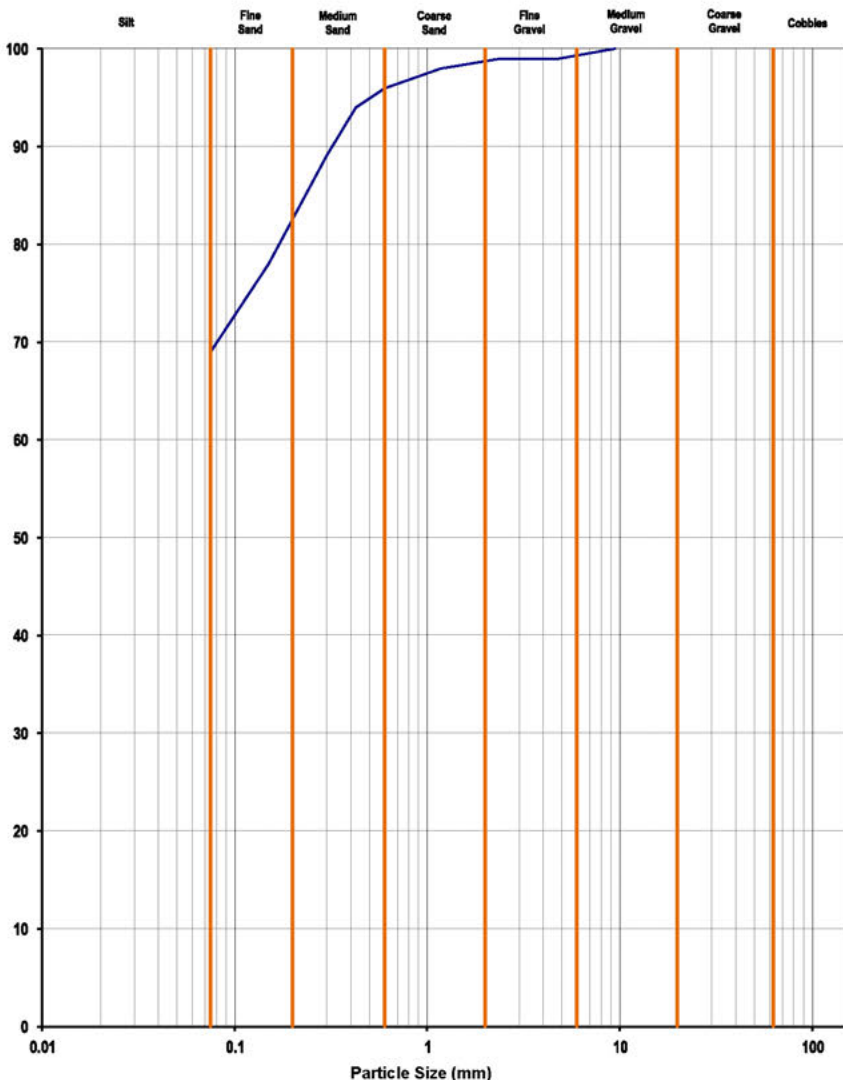
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA102363-G		
Address	PO Box 1734 MILTON BC QLD 4064			Request No	R6 and R7_Rev0_COC		
Project	Inland Rail B2G						
Project No	1897791		Sample No	310-01-DH2523-PSD : 310-01-DH2523-MOI			
Bore Hole	310-01-DH2523-S00300		Depth From (m)	3	Depth To (m)	3.45	
Description	SPT						
Sieve Size (mm)	Passing %						
150.0							
75.0							
63.0							
53.0							
37.5							
26.5							
19.0							
13.2							
9.5	100						
6.7	99						
4.75	99						
2.36	99						
1.18	98						
0.600	96						
0.425	94						
0.300	89						
0.150	78						
0.075	69						
NOTES/REMARKS:		- Moisture Content 15.9% Sample/s supplied by the client					

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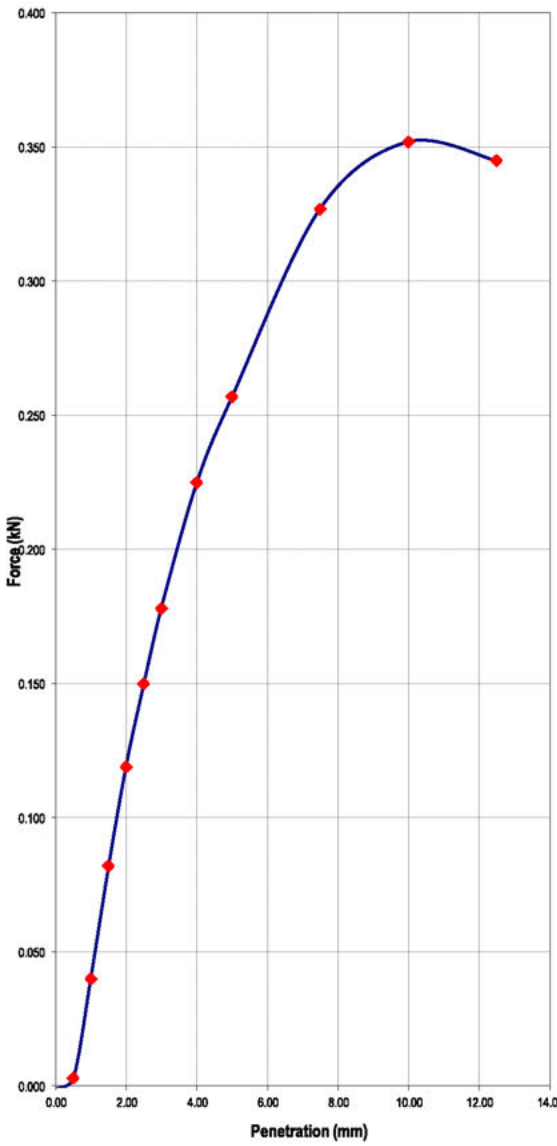
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA102364-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project No.	1897791	Test Date	16/2/19-22/2/19
Project	Inland Rail B2G	Report Date	22/02/2019

Test Results

Bore Hole/Test Pit	310-01-DH2542-B00010	Force v's Penetration  The graph plots Force (kN) on the y-axis (0.000 to 0.400) against Penetration (mm) on the x-axis (0.00 to 14.00). The curve starts at (0,0), rises steeply through points like (2, 0.12), (4, 0.23), and (6, 0.32), reaching a peak of approximately 0.35 kN at 10 mm penetration, before slightly declining to about 0.34 kN at 12 mm.
Client Sample No.	310-01-DH2542-CBR : 310-01-DH2542-MOI : 310-01-DH2542-COM	
Depth From/To(m)	0.10-0.50	
Description	CLAY - brown	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	25.6	
Maximum Dry Density (t/m³)	1.36	
Optimum Moisture Content (%)	30.1	
Nominated/Achieved Dry Density (t/m³)	1.29 / 1.29	
Nominated/Achieved Moisture Content (%)	30.1 / 30.0	
Laboratory Density Ratio (%)	95.1	
Laboratory Moisture Ratio (%)	99.7	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	7.8	
Moisture Content of Top 30 mm (%)	50.5	
Moisture Content of Remainder (%)	35.6	
CBR Penetration (mm)	5.0	
CBR VALUE (%)	1.5	

Notes/Remarks :

Sample/s supplied by the client

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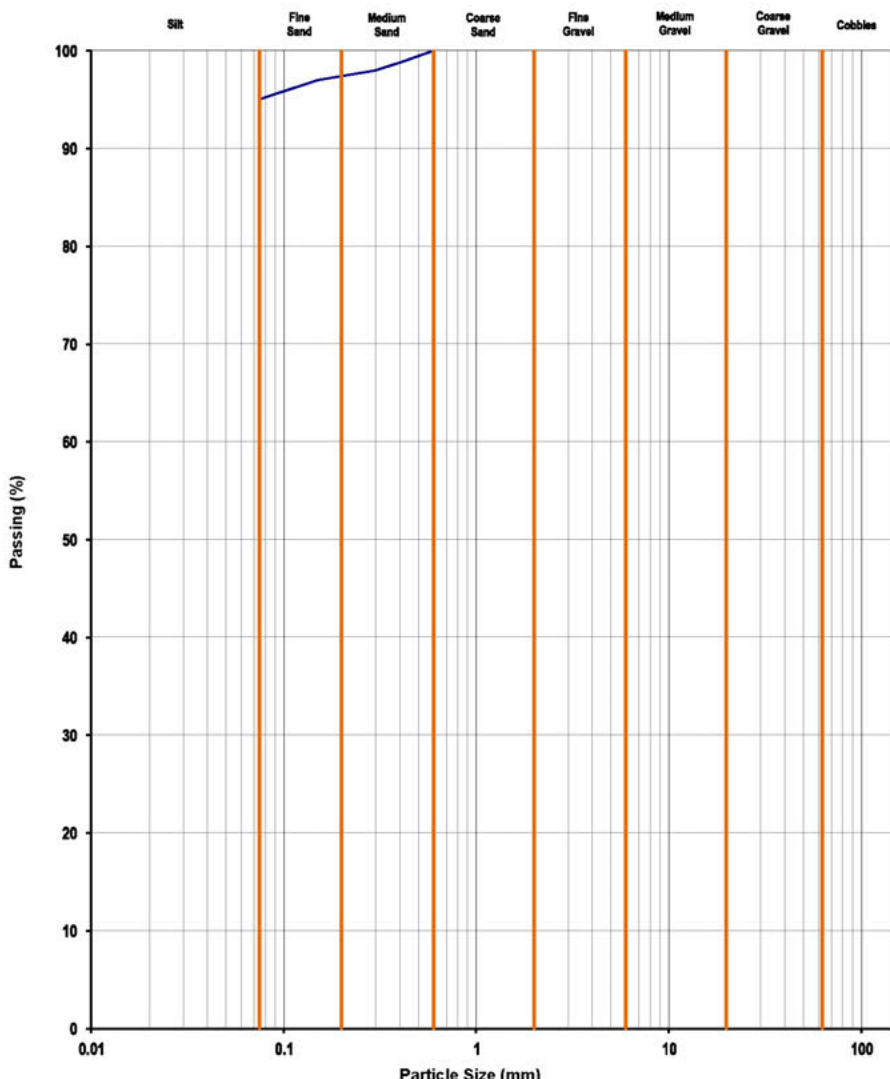
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102364-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	16/2/19-21/2/19
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-DH2542-PSD : 310-01-DH2542-MOI		
Bore Hole	310-01-DH2542-B00010	Depth From (m)	0.1	Depth To (m)	0.5

Description		BDS
Sieve Size (mm)	Passing %	
150.0		
75.0		
63.0		
53.0		
37.5		
26.5		
19.0		
13.2		
9.5		
6.7		
4.75		
2.36		
1.18		
0.600	100	
0.425	99	
0.300	98	
0.150	97	
0.075	95	



The graph displays the particle size distribution for sample BDS. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The distribution curve is a blue line that starts at 95% passing for 0.075 mm and remains relatively flat until approximately 0.15 mm, then rises to 100% passing at 0.600 mm. The graph is divided into regions for Soil, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles by vertical orange lines.

Particle Size (mm)	Passing (%)
0.075	95
0.150	97
0.300	98
0.425	99
0.600	100

NOTES/REMARKS:	-
	Moisture Content 25.6%
	Sample/s supplied by the client

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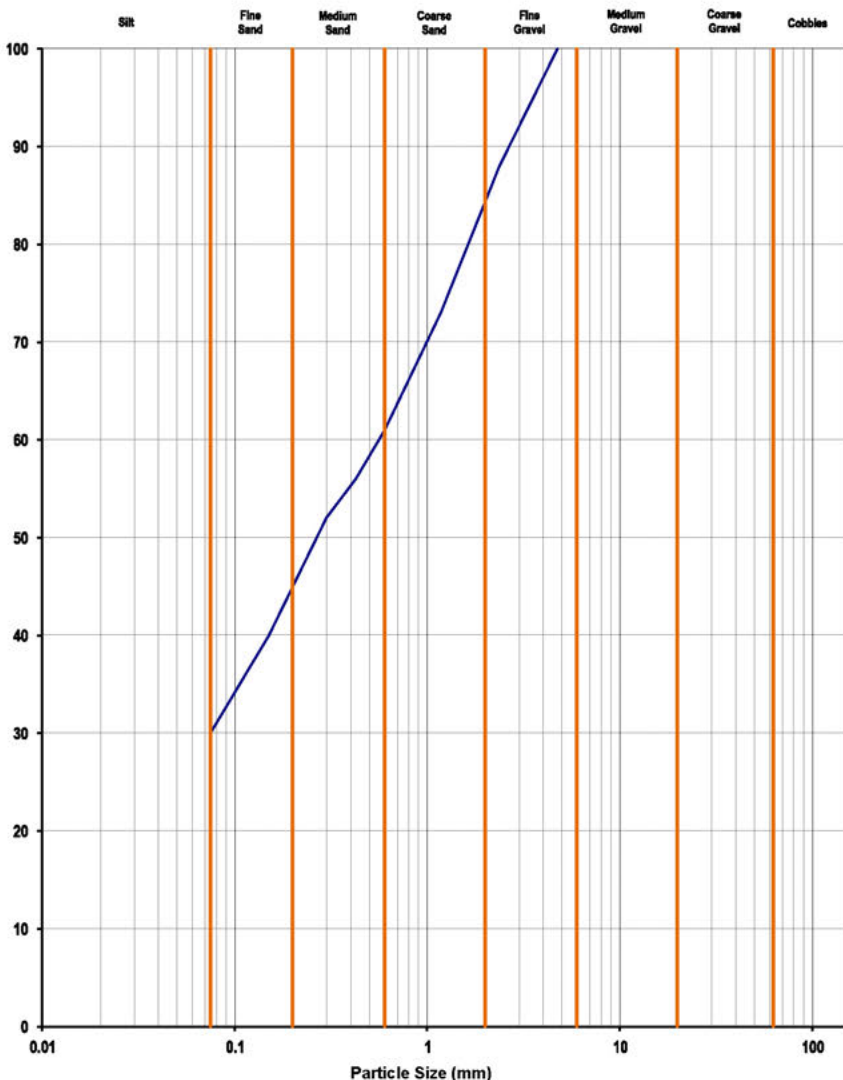
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA102366-G		
Address	PO Box 1734 MILTON BC QLD 4064			Request No	R6 and R7_Rev0_COC		
Project	Inland Rail B2G						
Project No	1897791		Sample No	310-01-DH2542-PSD : 310-01-DH2542-MOI			
Bore Hole	310-01-DH2542-S00200		Depth From (m)	2	Depth To (m)	2.295	
Description	SPT						
Sieve Size (mm)	Passing %						
150.0							
75.0							
63.0							
53.0							
37.5							
26.5							
19.0							
13.2							
9.5							
6.7							
4.75	100						
2.36	88						
1.18	73						
0.600	61						
0.425	56						
0.300	52						
0.150	40						
0.075	30						
NOTES/REMARKS:		- Moisture Content 18.1% Sample/s supplied by the client					

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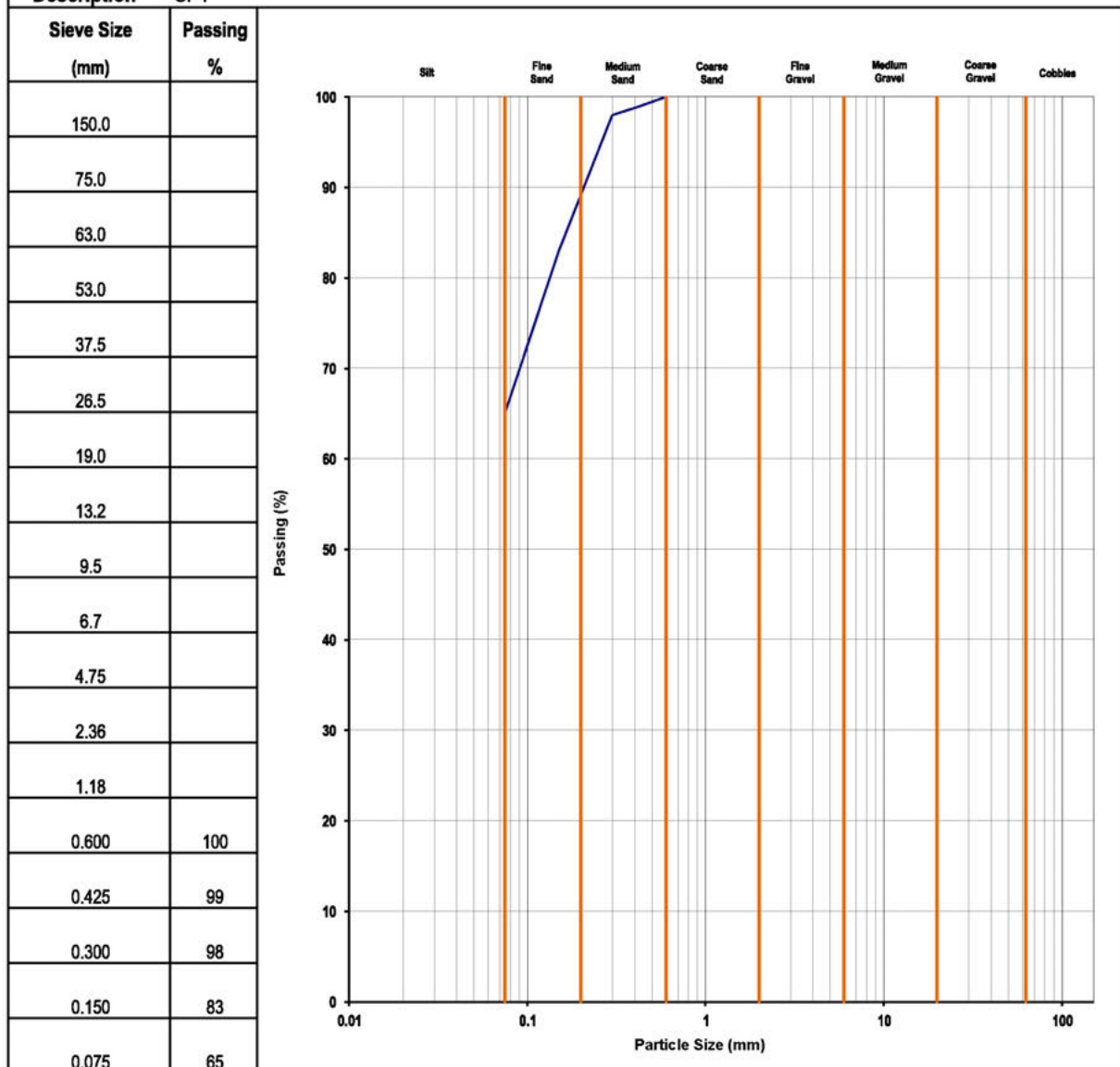
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102368-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	16/2/19-21/2/19
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-BH2229-PSD : 310-01-BH2229-MOI		
Bore Hole	310-01-BH2229-S00050	Depth From (m)	0.5	Depth To (m)	0.95
Description	SPT				



NOTES/REMARKS:

-
Moisture Content 8.4%
Sample/s supplied by the client

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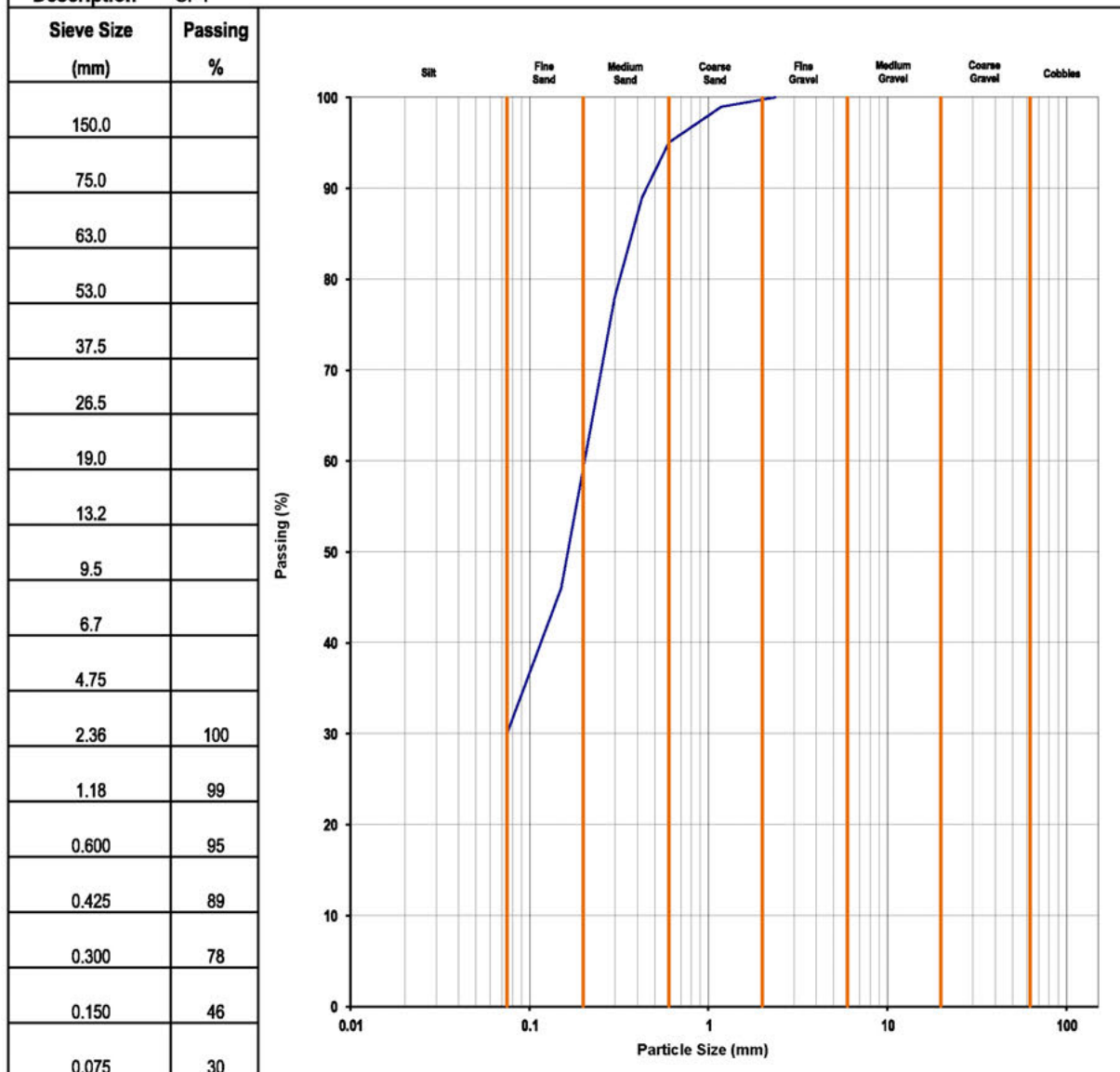
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102369-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	16/2/19-21/2/19
Project No	1897791	Report Date	21/2/2019
Bore Hole	310-01-BH2229-S00200	Sample No	310-01-BH2229-PSD : 310-01-BH2229-MOI
Depth From (m)	2	Depth To (m)	2.45
Description	SPT		



NOTES/REMARKS:

-
Moisture Content 5.2%
Sample/s supplied by the client

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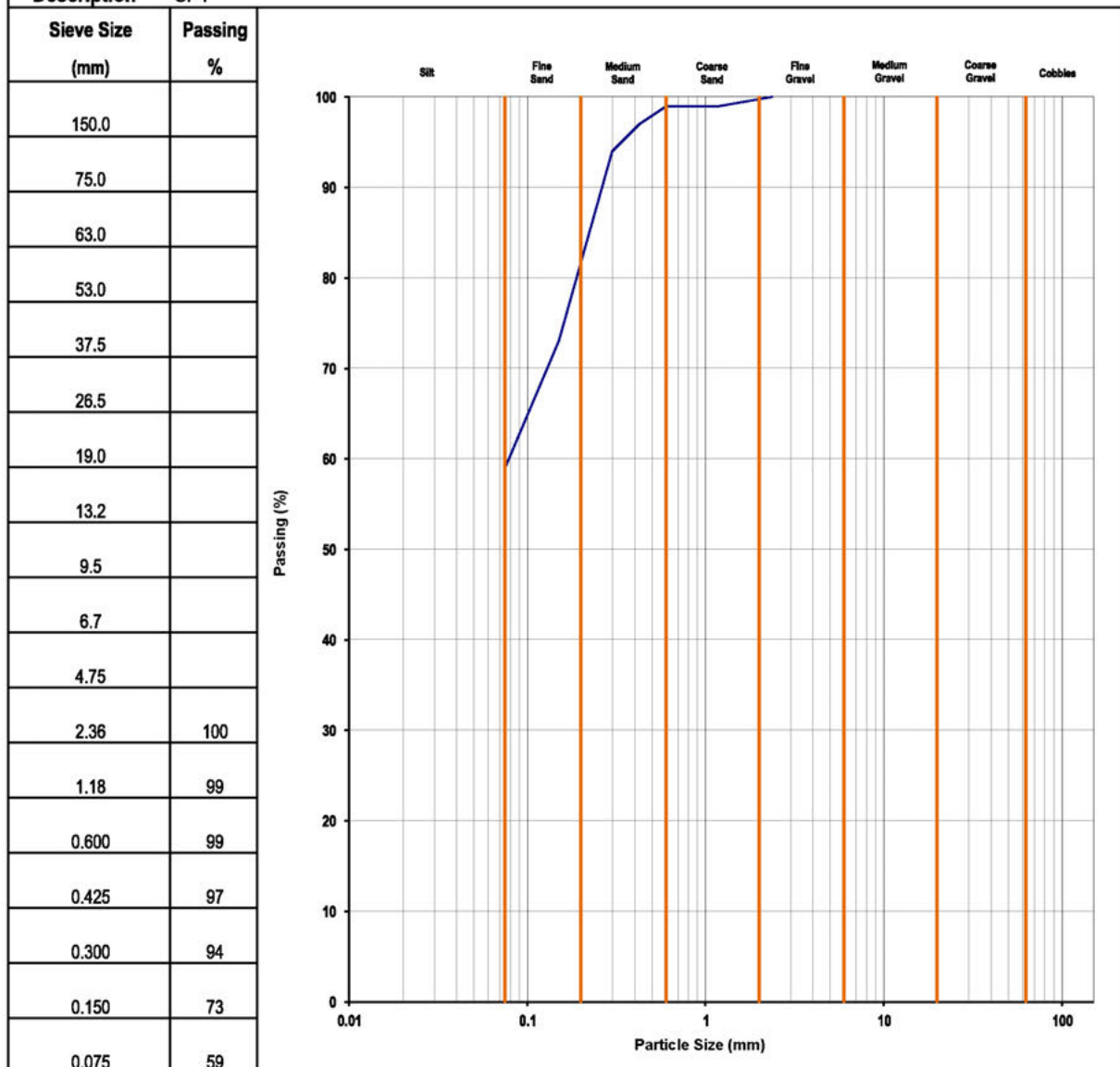
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102372-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	0/1/1900
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-BH2229-PSD : 310-01-BH2229-MOI		
Bore Hole	310-01-BH2229-S00650	Depth From (m)	6.5	Depth To (m)	6.95
Description	SPT				



NOTES/REMARKS:

-
Moisture Content 13%
Sample/s supplied by the client

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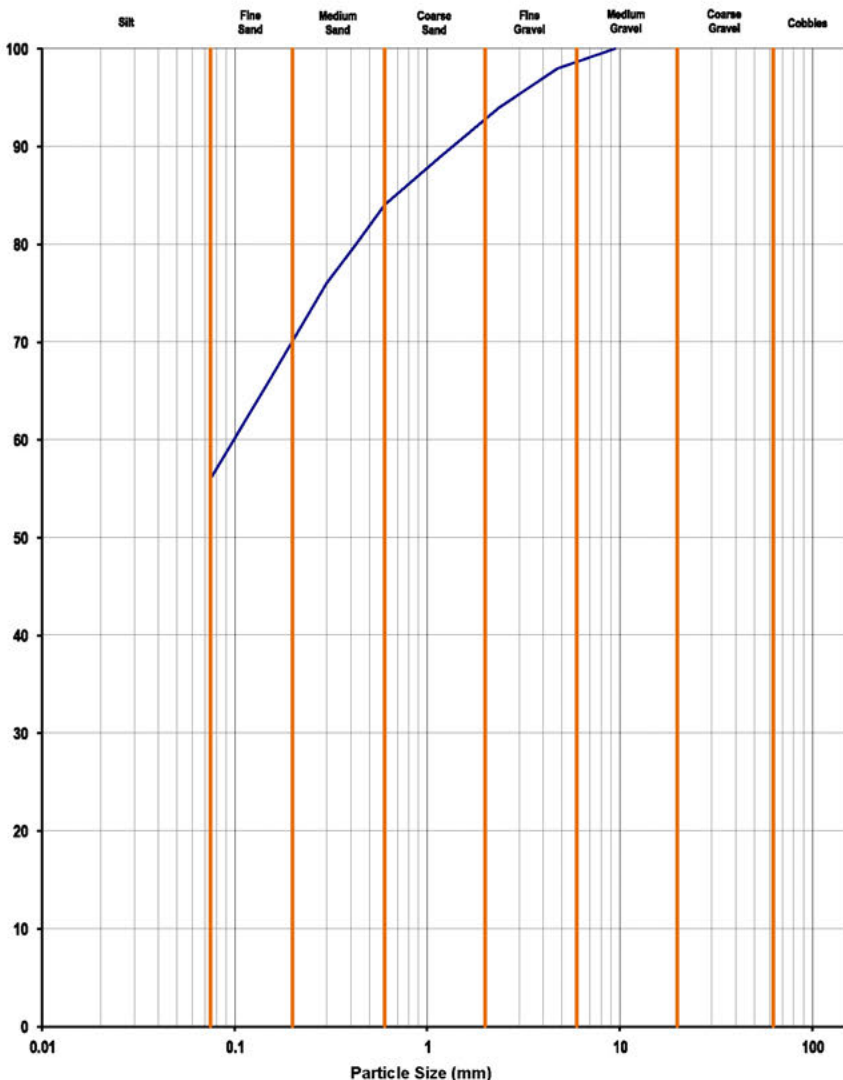


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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA102377-G			
Address	PO Box 1734 MILTON BC QLD 4064			Request No	R6 and R7_Rev0_COC			
Project	Inland Rail B2G							
Project No	1897791		Sample No	310-01-BH2229-PSD : 310-01-BH2229-MOI				
Bore Hole	310-01-BH2229-S01430		Depth From (m)	14.3		Depth To (m)	14.75	
Description	SPT							
Sieve Size (mm)	Passing %							
150.0								
75.0								
63.0								
53.0								
37.5								
26.5								
19.0								
13.2								
9.5	100							
6.7	98							
4.75	98							
2.36	94							
1.18	89							
0.600	84							
0.425	80							
0.300	76							
0.150	66							
0.075	56							
NOTES/REMARKS:		- Moisture Content 23.2% Sample/s supplied by the client						

Page 1 of 1 REP03903

Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations, and/or measurements included in this document are traceable to Australian/National Standards.

Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park



Laboratory No. 9926

The results of calibrations and tests performed apply only to the specific instrument or sample at the time of test unless otherwise clearly stated.

Reference should be made to Trilab's "Standard Terms and Conditions of Business" for further details.

Trilab Pty Ltd ABN 25 065 630 506

Test Method: AS 1289 3.6.1, 2.1.1

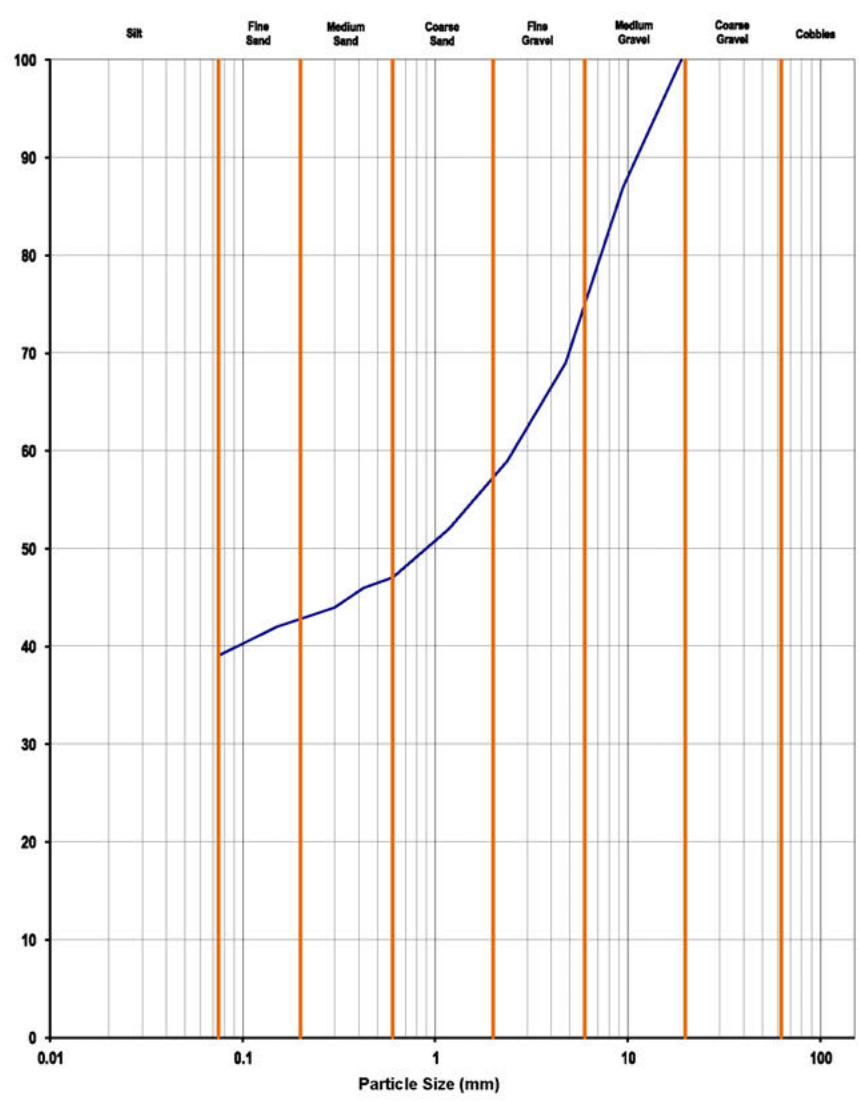
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA102392-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-BH2248-PSD : 310-01-BH2248-MOI		
Bore Hole	310-01-BH2248-S00800	Depth From (m)	8	Depth To (m)	8.45
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	100
13.2	94
9.5	87
6.7	79
4.75	69
2.36	59
1.18	52
0.600	47
0.425	46
0.300	44
0.150	42
0.075	39



NOTES/REMARKS:

-

Moisture Content 24.3%

Sample/s supplied by the client

Page 1 of 1 REP03903

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C. Park



Laboratory No. 9926

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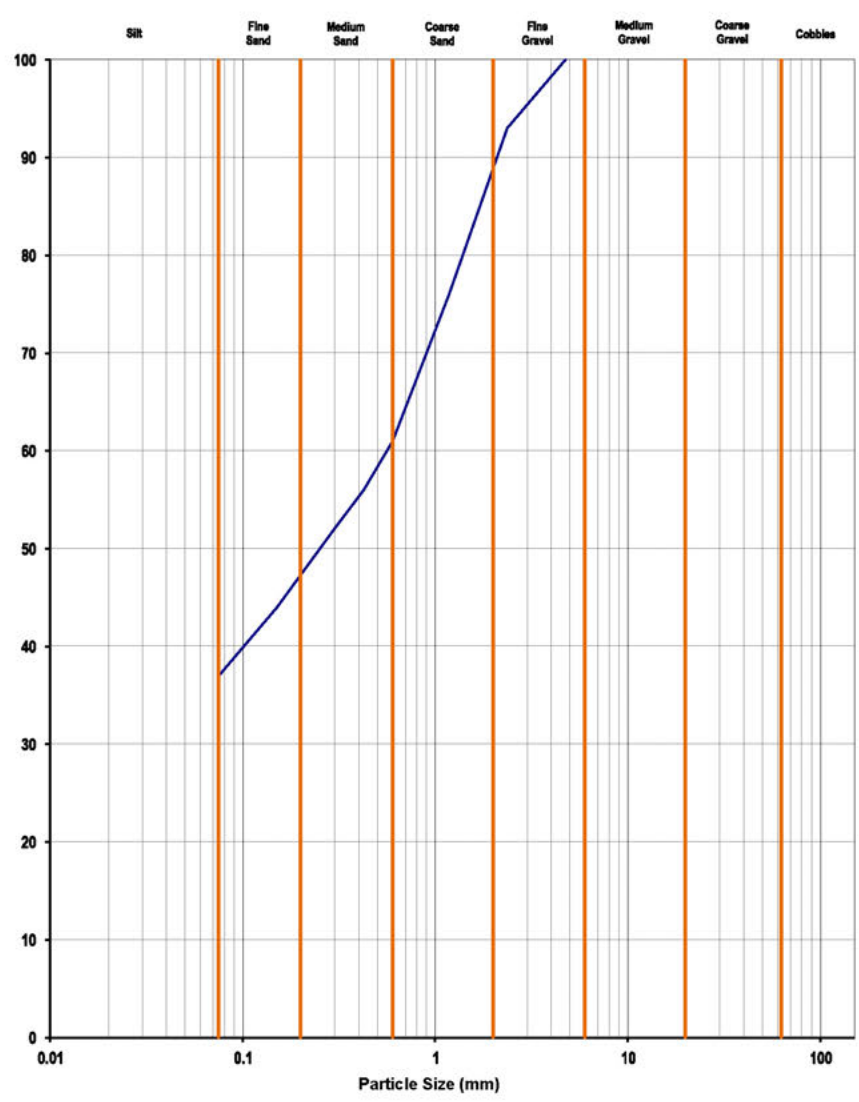
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited		Report No.	GA102409-G
Address	PO Box 1734 MILTON BC	QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G			
Project No	1897791	Sample No	310-01-BH2337-PSD : 310-01-BH2337-MOI	
Bore Hole	310-01-BH2337-S00050	Depth From (m)	0.5	Depth To (m) 0.9
Description	SPT			

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	100
2.36	93
1.18	76
0.600	61
0.425	56
0.300	52
0.150	44
0.075	37



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 37% passing for 0.075 mm and rises to 100% passing at 4.75 mm. Vertical lines indicate the boundaries for Soil, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles.

NOTES/REMARKS:

-
Moisture Content 12.6%
Sample/s supplied by the client

Page 1 of 1 REP03903

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

ATTERBERG LIMITS TEST REPORT

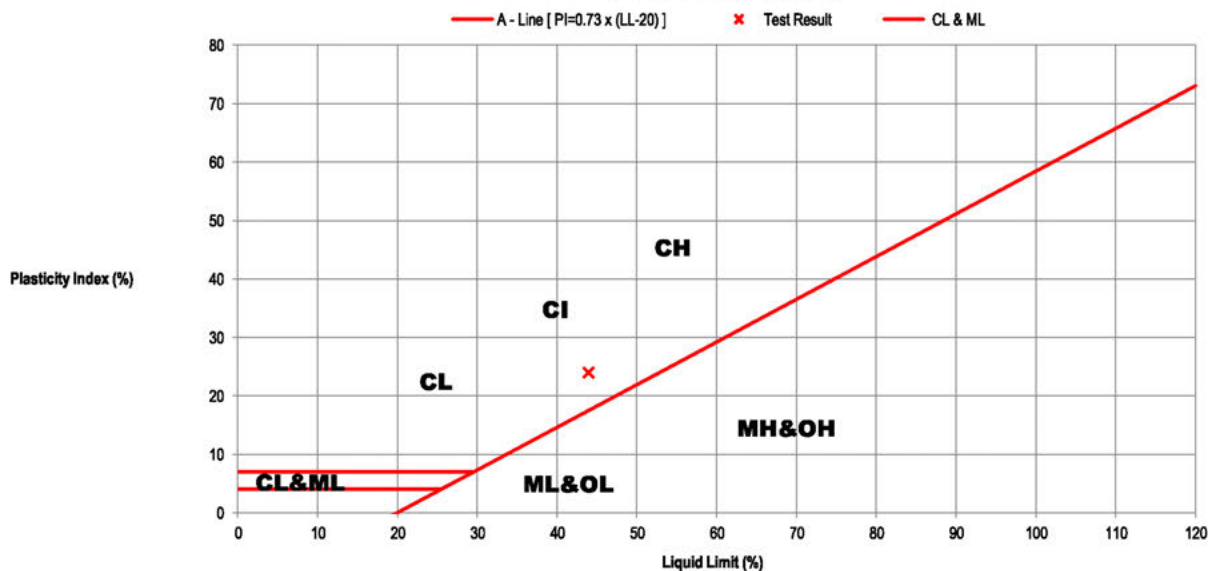
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102447-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	19/02/2019
Project No.	1897791	Report Date	21/02/2019
Bore Hole	310-01-BH2341-S00200	Client Sample No.	310-01-BH2341-ATT : 310-01-BH2341-MOI
Description	SPT	Depth From (m)	2
		Depth To (m)	2.45

RESULTS OF TESTING

Liquid Limit (%) 44
 Plastic Limit (%) 20
 Plasticity Index (%) 24
 Linear Shrinkage (%) 12.0 Curling Occurred
 Moisture Content (%) 13.5
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations, and/or measurements included in this document are traceable to Australian/National Standards.

Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

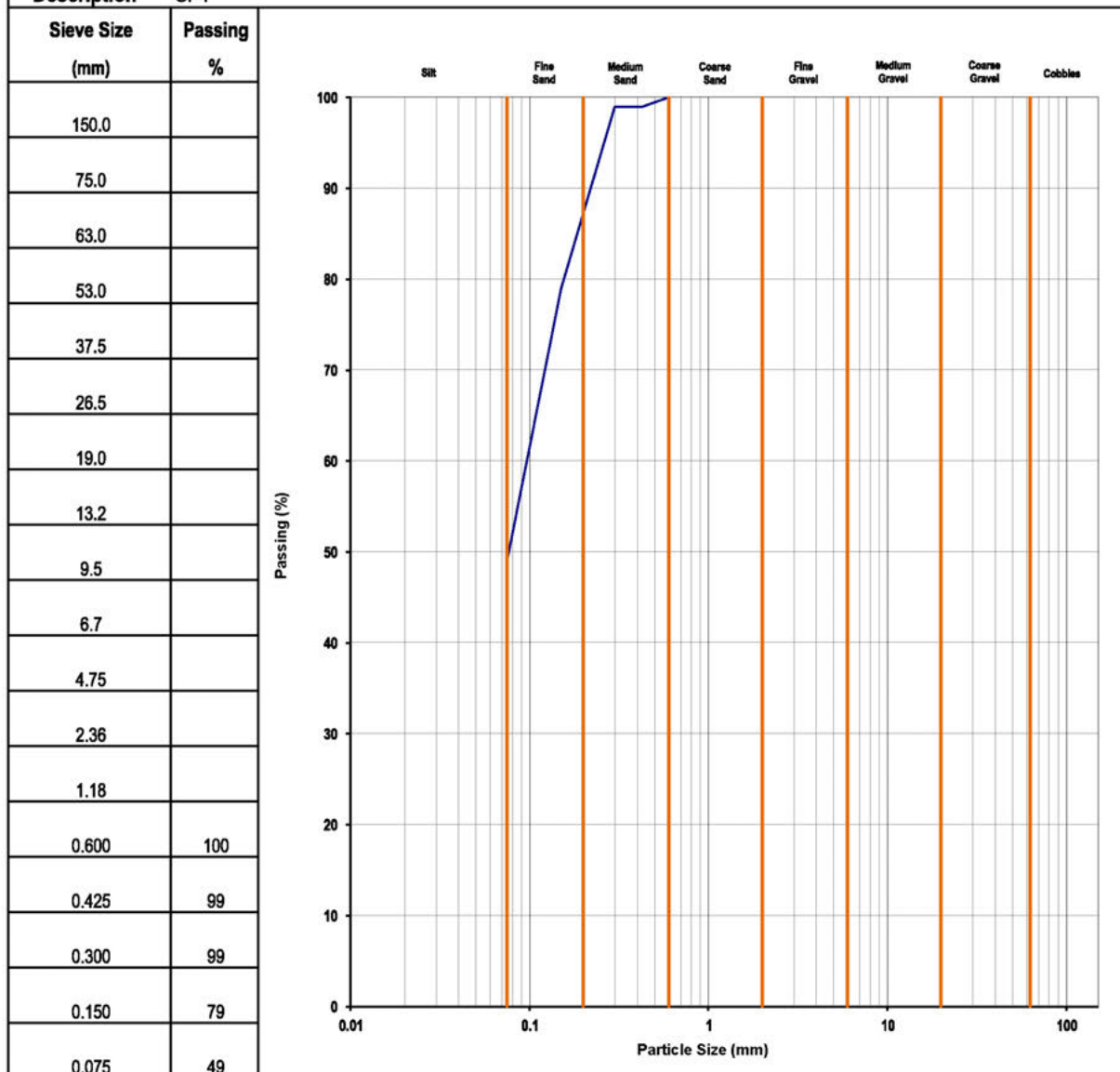
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA102447-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R6 and R7_Rev0_COC
		Test Date	16/2/19-21/2/19
		Report Date	21/2/2019

Project	Inland Rail B2G				
Project No	1897791	Sample No	310-01-BH2341-PSD : 310-01-BH2341-MOI		
Bore Hole	310-01-BH2341-S00200	Depth From (m)	2	Depth To (m)	2.45

Description	SPT
--------------------	-----



NOTES/REMARKS:	-
	Moisture Content 13.5%
	Sample/s supplied by the client

Page 1 of 1 REP03903

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park



Laboratory No. 9926

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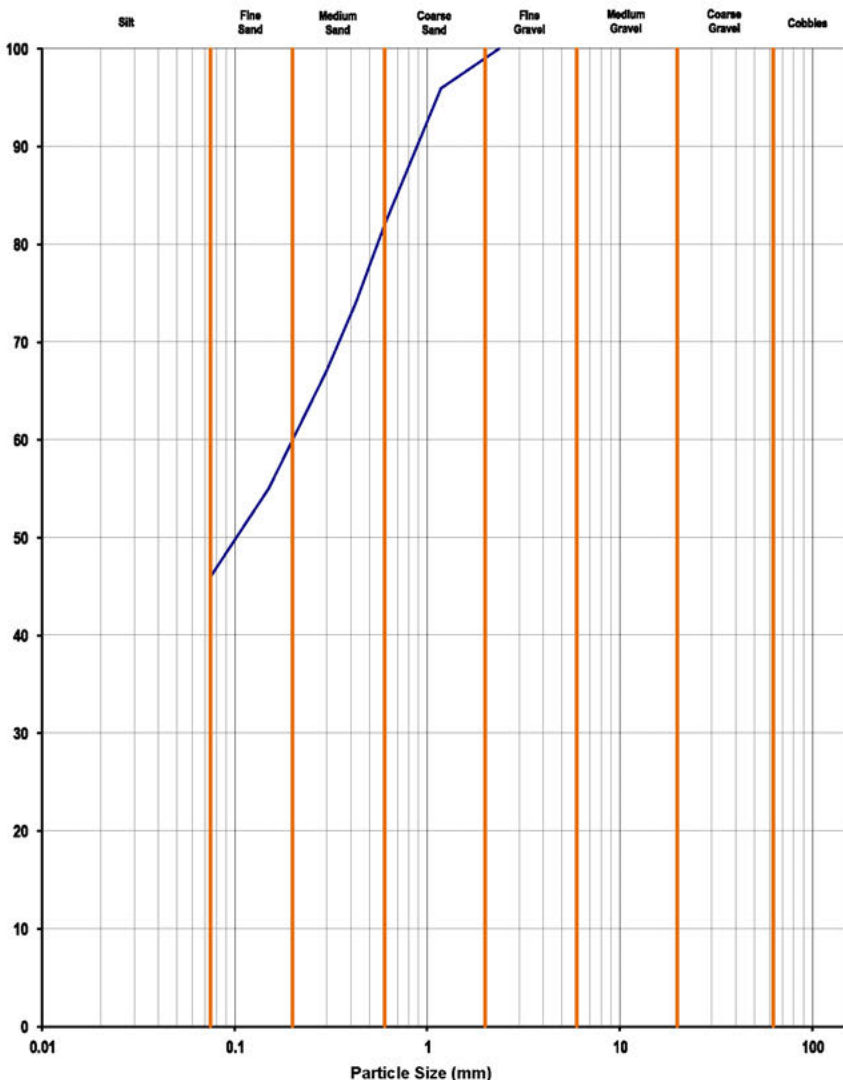
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited		Report No.	GA102457-G
Address	PO Box 1734 MILTON BC	QLD 4064	Request No	R6 and R7_Rev0_COC
Project	Inland Rail B2G			
Project No	1897791	Sample No	310-01-BH2346-PSD : 310-01-BH2346-MOI	
Bore Hole	310-01-BH2346-S00050	Depth From (m)	0.5	Depth To (m) 0.77
Description	SPT			

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	100
1.18	96
0.600	82
0.425	74
0.300	67
0.150	55
0.075	46



The graph plots 'Passing (%)' on the y-axis (0 to 100) against 'Particle Size (mm)' on a logarithmic x-axis (0.01 to 100). Vertical lines divide the graph into soil texture regions: Silt, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles. A blue curve represents the test data, starting at approximately 46% passing for 0.075mm and reaching 100% passing at 2.36mm.

NOTES/REMARKS:

-
Moisture Content 11.4%
Sample/s supplied by the client

Page 1 of 1 REP03903

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park



Laboratory No. 9926

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Reference should be made to Trilab's "Standard Terms and Conditions of Business" for further details.
Trilab Pty Ltd ABN 25 065 630 506

CERTIFICATE OF ANALYSIS

Work Order : **EB1903667**
Client : **TRILAB PTY LTD**
Contact : **MR CHRIS CHANNON**
Address : **346A BILSEN RD**
GEEBUNG QLD, AUSTRALIA 4031
Telephone : **+61 07 3265 5656**
Project : **1897791 - Inland Rail B2G**
Order number : **BNE 1902018**
C-O-C number : **---**
Sampler : **---**
Site : **---**
Quote number : **EN/333**
No. of samples received : **5**
No. of samples analysed : **5**

Page : **1 of 2**
Laboratory : **Environmental Division Brisbane**
Contact : **Customer Services EB**
Address : **2 Byth Street Stafford QLD Australia 4053**
Telephone : **+61-7-3243 7222**
Date Samples Received : **13-Feb-2019 12:41**
Date Analysis Commenced : **20-Feb-2019**
Issue Date : **21-Feb-2019 17:24**



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: ROCK
 (Matrix: SOIL)

Client sample ID

				102383 / 310-01-BH2229-C0203 8 / 20.38-21.35m	102405 / 310-01-BH2248-C0263 9 / 26.39-27.10m	102415 / 310-01-BH2337-C0034 0 / 3.40-3.75m	102420 / 310-01-BH2337-C0073 5 / 7.35-8.60m	102426 / 310-01-BH2337-C0141 0 / 14.10-14.65m
Client sampling date / time				13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00	13-Feb-2019 00:00
Compound	CAS Number	LOR	Unit	EB1903667-001	EB1903667-002	EB1903667-003	EB1903667-004	EB1903667-005
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	8.9	9.0	8.4	8.1	7.7
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	40	<10	<10	<10
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	20	<10	<10	40	110

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EB1903667	Page	: 1 of 4
Client	: TRILAB PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: MR CHRIS CHANNON	Telephone	: +61-7-3243 7222
Project	: 1897791 - Inland Rail B2G	Date Samples Received	: 13-Feb-2019
Site	: ----	Issue Date	: 21-Feb-2019
Sampler	: ----	No. of samples received	: 5
Order number	: BNE 1902018	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA002: pH 1:5 (Soils)									
Soil Glass Jar - Unpreserved (EA002)									
102383 / 310-01-BH2229-C02038 / 20.38-21.35m, 102415 / 310-01-BH2337-C00340 / 3.40-3.75m, 102426 / 310-01-BH2337-C01410 / 14.10-14.65m		102405 / 310-01-BH2248-C02639 / 26.39-27.10m, 102420 / 310-01-BH2337-C00735 / 7.35-8.60m,	13-Feb-2019	20-Feb-2019	20-Feb-2019	✓	20-Feb-2019	20-Feb-2019	✓
ED040S : Soluble Sulfate by ICPAES									
Soil Glass Jar - Unpreserved (ED040S)									
102383 / 310-01-BH2229-C02038 / 20.38-21.35m, 102415 / 310-01-BH2337-C00340 / 3.40-3.75m, 102426 / 310-01-BH2337-C01410 / 14.10-14.65m		102405 / 310-01-BH2248-C02639 / 26.39-27.10m, 102420 / 310-01-BH2337-C00735 / 7.35-8.60m,	13-Feb-2019	20-Feb-2019	13-Mar-2019	✓	21-Feb-2019	20-Mar-2019	✓
ED045G: Chloride by Discrete Analyser									
Soil Glass Jar - Unpreserved (ED045G)									
102383 / 310-01-BH2229-C02038 / 20.38-21.35m, 102415 / 310-01-BH2337-C00340 / 3.40-3.75m, 102426 / 310-01-BH2337-C01410 / 14.10-14.65m		102405 / 310-01-BH2248-C02639 / 26.39-27.10m, 102420 / 310-01-BH2337-C00735 / 7.35-8.60m,	13-Feb-2019	20-Feb-2019	13-Mar-2019	✓	21-Feb-2019	20-Mar-2019	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Chloride Soluble By Discrete Analyser	ED045G	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	5	40.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	5	40.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Dry and Crush	EN84	SOIL	In house

QUALITY CONTROL REPORT

Work Order	: EB1903667	Page	: 1 of 3
Client	: TRILAB PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: MR CHRIS CHANNON	Contact	: Customer Services EB
Address	: 346A BILSEN RD GEEBUNG QLD, AUSTRALIA 4031	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 07 3265 5656	Telephone	: +61-7-3243 7222
Project	: 1897791 - Inland Rail B2G	Date Samples Received	: 13-Feb-2019
Order number	: BNE 1902018	Date Analysis Commenced	: 20-Feb-2019
C-O-C number	: ---	Issue Date	: 21-Feb-2019
Sampler	: ---		
Site	: ---		
Quote number	: EN/333		
No. of samples received	: 5		
No. of samples analysed	: 5		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002: pH 1:5 (Soils) (QC Lot: 2194266)									
EB1903667-001	102383 / 310-01-BH2229-C02038 / 20.38-21.35m	EA002: pH Value	----	0.1	pH Unit	8.9	8.8	0.00	0% - 20%
ED040S: Soluble Major Anions (QC Lot: 2194267)									
EB1903667-001	102383 / 310-01-BH2229-C02038 / 20.38-21.35m	ED040S: Sulfate as SO ₄ 2-	14808-79-8	10	mg/kg	<10	<10	0.00	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 2194268)									
EB1903667-001	102383 / 310-01-BH2229-C02038 / 20.38-21.35m	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA002: pH 1:5 (Soils) (QCLot: 2194266)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98	102
				----	7 pH Unit	100	98	102
ED040S: Soluble Major Anions (QCLot: 2194267)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	500 mg/kg	102	90	114
ED045G: Chloride by Discrete Analyser (QCLot: 2194268)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	100.0	83	119
				<10	5000 mg/kg	106	83	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

SHRINK SWELL INDEX TEST REPORT

Test Method AS 1289 7.1.1

Client	Golder Associates Pty Limited	Report No.	GA102357-ISS
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
		Test Date	25/2/19-1/3/19
		Report Date	1/03/2019

Project	Inland Rail B2G
Description	U

Sample No.	310-01-DH2520-U00050-SST : 310-01-DH2520-U00050-MOI
Client ID	310-01-DH2520
Depth (m)	0.5-0.7

RESULTS OF TESTING

SWELL SPECIMEN

Swell Pressure (kPa) *	-
Wet Density (t/m³)	2.06
Initial Moisture Content (%)	12.8
Final Moisture Content (%)	22.6
Swell (%)	5.2

SHRINKAGE SPECIMEN

Estimated Inert Inclusions (%)	< 5
Extent of Crumbling	Moderate
Extent of Cracking	Nil
Moisture (%)	15.6
Shrinkage (%)	1.2

SHRINK SWELL INDEX (Iss) (%)	2.1
-------------------------------------	------------

Notes/Remarks:

Sample/s supplied by client

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Page: 1 of 1 REP02304

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

SHRINK SWELL INDEX TEST REPORT

Test Method AS 1289 7.1.1

Client Golder Associates Pty Limited	Report No. GA102361-ISS
	Request No. R6 and R7_Rev0_COC
Address PO Box 1734 MILTON BC QLD 4064	Test Date 25/2/19-1/3/19
	Report Date 1/03/2019
Project Inland Rail B2G	
Description U	
Sample No.	310-01-DH2523-U00050-SST : 310-01-DH2523-U00050-MOI
Client ID	310-01-DH2523
Depth (m)	0.5-0.7
RESULTS OF TESTING	
SWELL SPECIMEN	
Swell Pressure (kPa) *	-
Wet Density (t/m³)	2.20
Initial Moisture Content (%)	12.4
Final Moisture Content (%)	20.4
Swell (%)	12.3
SHRINKAGE SPECIMEN	
Estimated Inert Inclusions (%)	< 5
Extent of Crumbling	Nil
Extent of Cracking	Minor
Moisture (%)	13.4
Shrinkage (%)	1.8
SHRINK SWELL INDEX (Iss) (%)	4.4
Notes/Remarks:	
Sample/s supplied by client Tested as received Page: 1 of 1 REP02304	

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

ATTERBERG LIMITS TEST REPORT

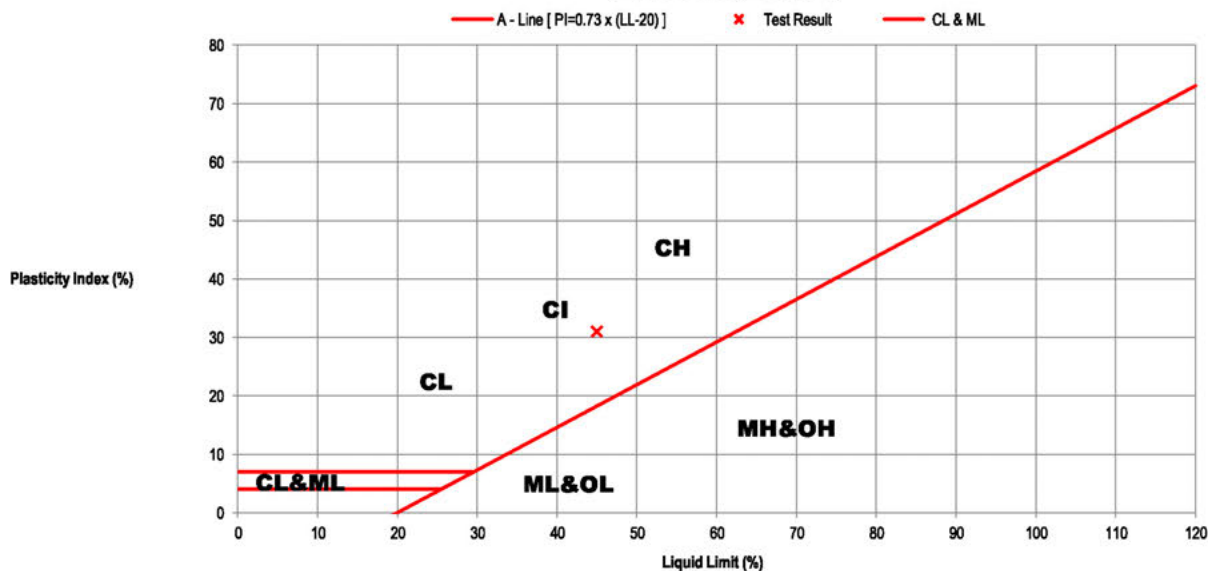
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102362-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	21/02/2019
Project No.	1897791	Report Date	28/02/2019
Bore Hole	310-01-DH2523	Client Sample No.	310-01-DH2523-S00200-ATT : 310-01-DH2523-S00200-MOI
Description	SPT	Depth From (m)	2
		Depth To (m)	2.45

RESULTS OF TESTING

Liquid Limit (%) 45
Plastic Limit (%) 14
Plasticity Index (%) 31
Linear Shrinkage (%) 13.0 **Curling Occurred**
Moisture Content (%) 12.8
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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REP00102

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ATTERBERG LIMITS TEST REPORT

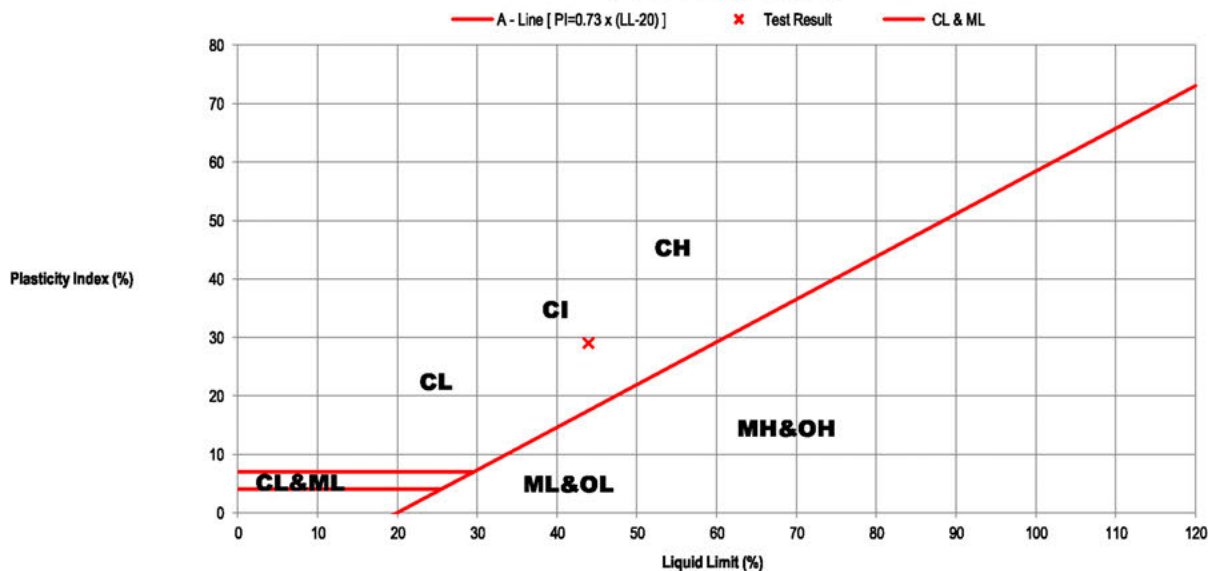
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102363-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	21/02/2019
Project No.	1897791	Report Date	28/02/2019
Bore Hole	310-01-DH2523	Client Sample No.	310-01-DH2523-S00300-ATT : 310-01-DH2523-S00300-MOI
Description	SPT	Depth From (m)	3
		Depth To (m)	3.45

RESULTS OF TESTING

Liquid Limit (%)	44	
Plastic Limit (%)	15	
Plasticity Index (%)	29	
Linear Shrinkage (%)	13.0	Curling Occurred
Moisture Content (%)	15.9	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

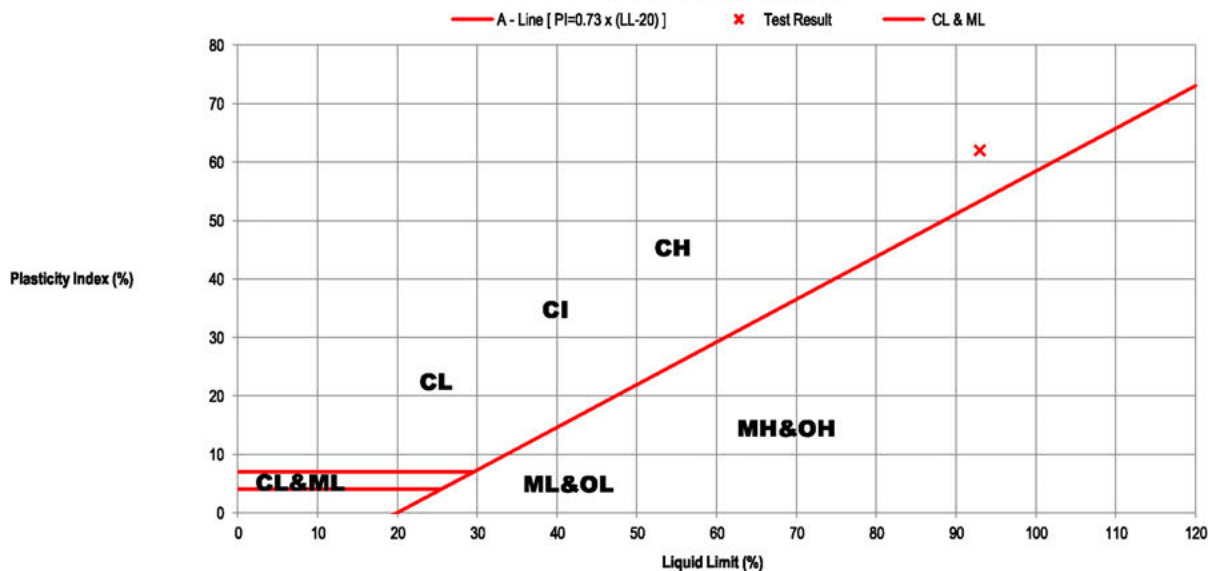
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102364-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	21/02/2019
Project No.	1897791	Report Date	28/02/2019
Bore Hole	310-01-DH2542	Client Sample No.	310-01-DH2542-B00010-ATT : 310-01-DH2542-B00010-MOI
Description	BDS	Depth From (m)	0.1
		Depth To (m)	0.5

RESULTS OF TESTING

Liquid Limit (%)	93	
Plastic Limit (%)	31	
Plasticity Index (%)	62	
Linear Shrinkage (%)	13.5	Cracking & Curling Occurred
Moisture Content (%)	25.6	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

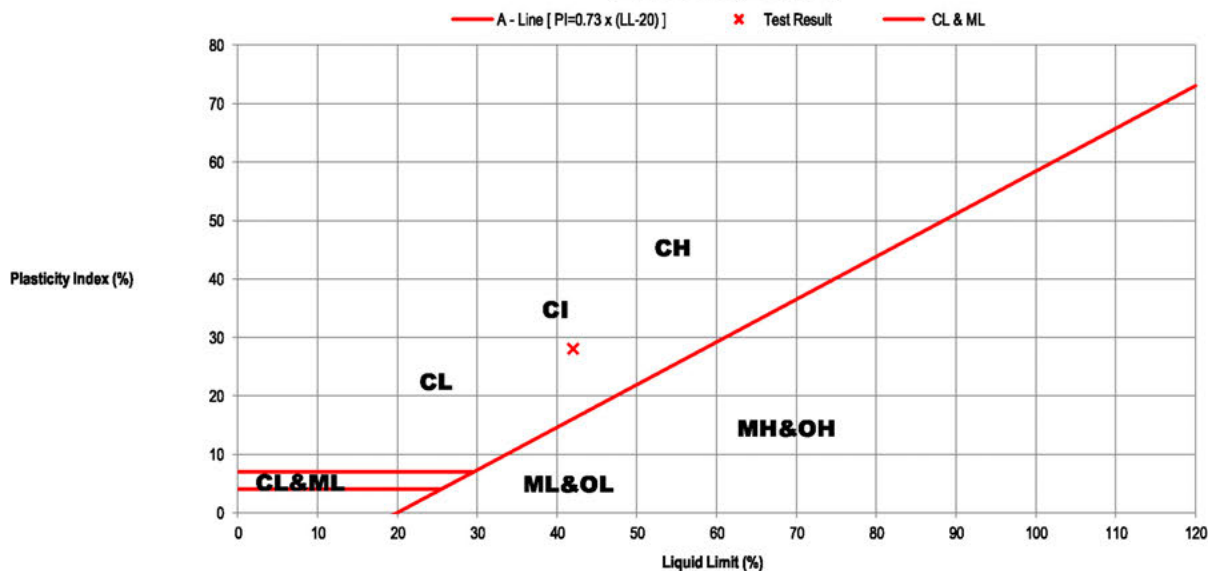
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102372-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	21/02/2019
Project No.	1897791	Report Date	28/02/2019
Bore Hole	310-01-BH2229	Client Sample No.	310-01-BH2229-S00650-ATT : 310-01-BH2229-S00650-MOI
Description	SPT	Depth From (m)	6.5
		Depth To (m)	6.95

RESULTS OF TESTING

Liquid Limit (%)	42	
Plastic Limit (%)	14	
Plasticity Index (%)	28	
Linear Shrinkage (%)	12.5	Curling Occurred
Moisture Content (%)	13.0	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

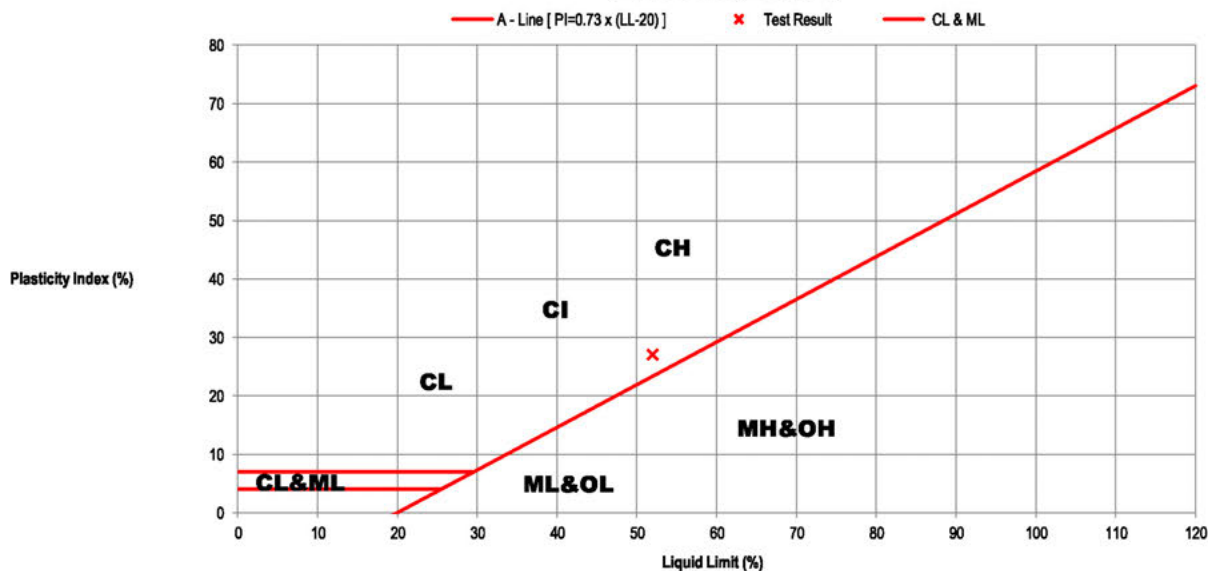
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102377-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	21/02/2019
Project No.	1897791	Report Date	28/02/2019
Bore Hole	310-01-BH2229	Client Sample No.	310-01-BH2229-S01430-ATT : 310-01-BH2229-S01430-MOI
Description	SPT	Depth From (m)	14.3
		Depth To (m)	14.75

RESULTS OF TESTING

Liquid Limit (%) 52
Plastic Limit (%) 25
Plasticity Index (%) 27
Linear Shrinkage (%) 13.0 **Curling Occurred**
Moisture Content (%) 23.2
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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SHRINK SWELL INDEX TEST REPORT

Test Method AS 1289 7.1.1

Client Golder Associates Pty Limited		Report No. GA102390-ISS
		Request No. R6 and R7_Rev0_COC
Address PO Box 1734 MILTON BC QLD 4064		Test Date 25/2/19-1/3/19
		Report Date 1/03/2019
Project Inland Rail B2G		
Description U		
Sample No.	310-01-BH2248-U00500-SST : 310-01-BH2248-U00500-MOI	
Client ID	310-01-BH2248	
Depth (m)	5-5.25	
RESULTS OF TESTING		
SWELL SPECIMEN		
Swell Pressure (kPa) *	-	
Wet Density (t/m³)	1.80	
Initial Moisture Content (%)	33.3	
Final Moisture Content (%)	38.3	
Swell (%)	0.6	
SHRINKAGE SPECIMEN		
Estimated Inert Inclusions (%)	< 5	
Extent of Crumbling	Major	
Extent of Cracking	Minor	
Moisture (%)	31.0	
Shrinkage (%)	4.6	
SHRINK SWELL INDEX (Iss) (%)	2.8	
Notes/Remarks:		
Sample/s supplied by client Tested as received Page: 1 of 1 REP02304		

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

ATTERBERG LIMITS TEST REPORT

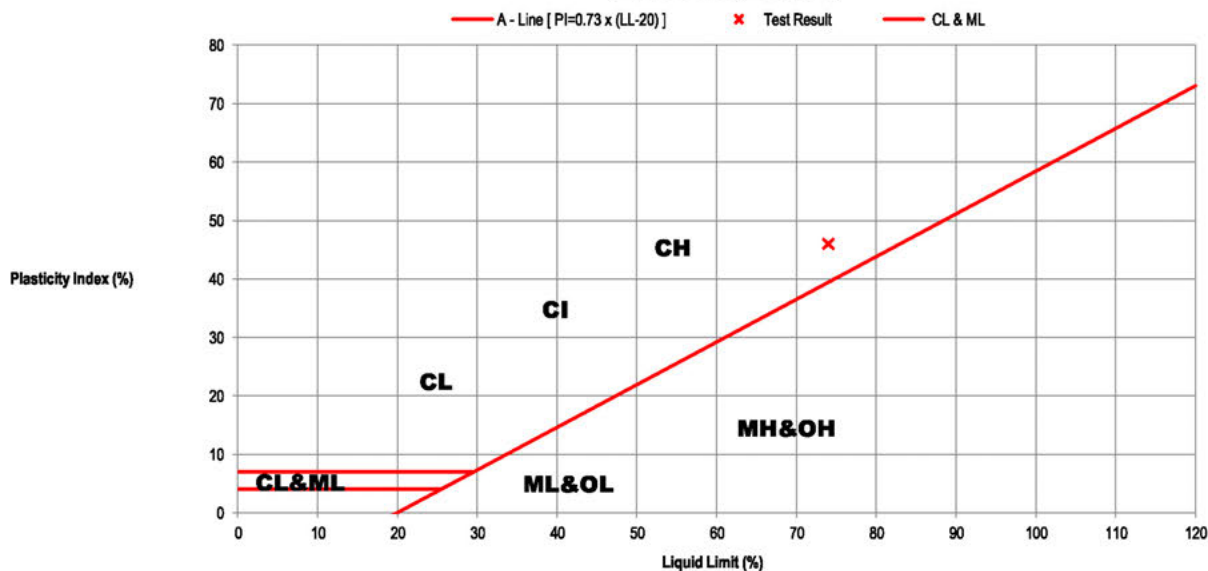
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA102392-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R6 and R7_Rev0_COC
Project	Inland Rail B2G	Test Date	21/02/2019
Project No.	1897791	Report Date	28/02/2019
Bore Hole	310-01-BH2248	Client Sample No.	310-01-BH2248-S00800-ATT : 310-01-BH2248-S00800-MOI
Description	SPT	Depth From (m)	8
		Depth To (m)	8.45

RESULTS OF TESTING

Liquid Limit (%)	74	
Plastic Limit (%)	28	
Plasticity Index (%)	46	
Linear Shrinkage (%)	20.5	Curling Occurred
Moisture Content (%)	24.3	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

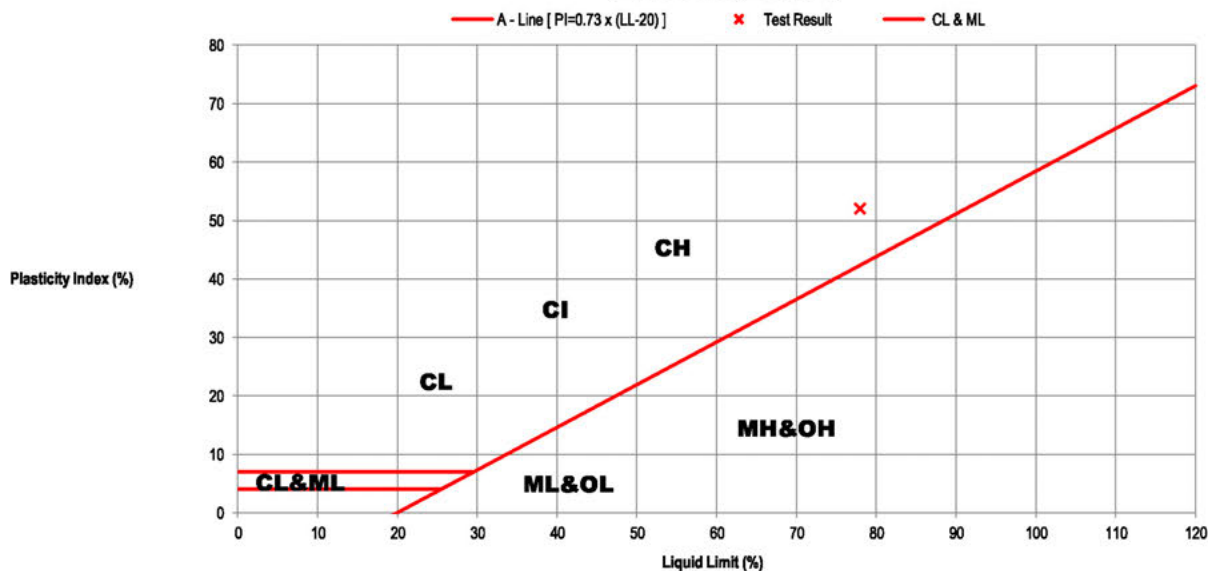
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101115-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2231-S00400	Client Sample No.	310-01-BH2231
Description	SPT	Depth From (m)	4
		Depth To (m)	4.45

RESULTS OF TESTING

Liquid Limit (%) 78
 Plastic Limit (%) 26
 Plasticity Index (%) 52
 Linear Shrinkage (%) 20.0 Curling Occurred
 Moisture Content (%) 34.4
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

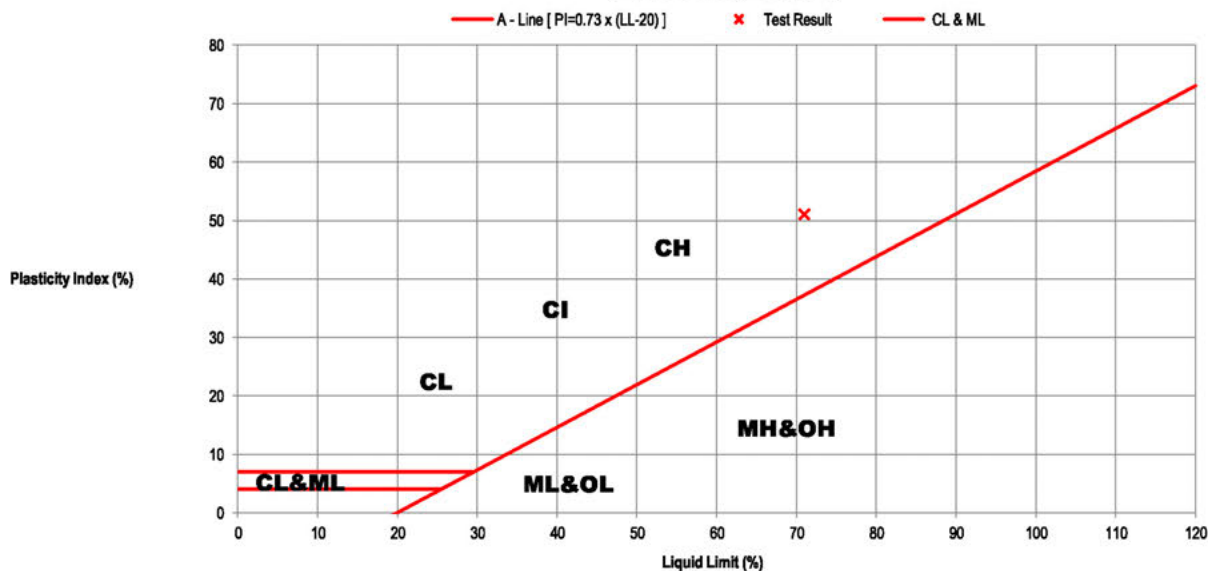
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101121-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2231-S01750	Client Sample No.	310-01-BH2231
Description	SPT	Depth From (m)	17.5
		Depth To (m)	17.95

RESULTS OF TESTING

Liquid Limit (%) 71
 Plastic Limit (%) 20
 Plasticity Index (%) 51
 Linear Shrinkage (%) 18.0 Curling Occurred
 Moisture Content (%) 23.8
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

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Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

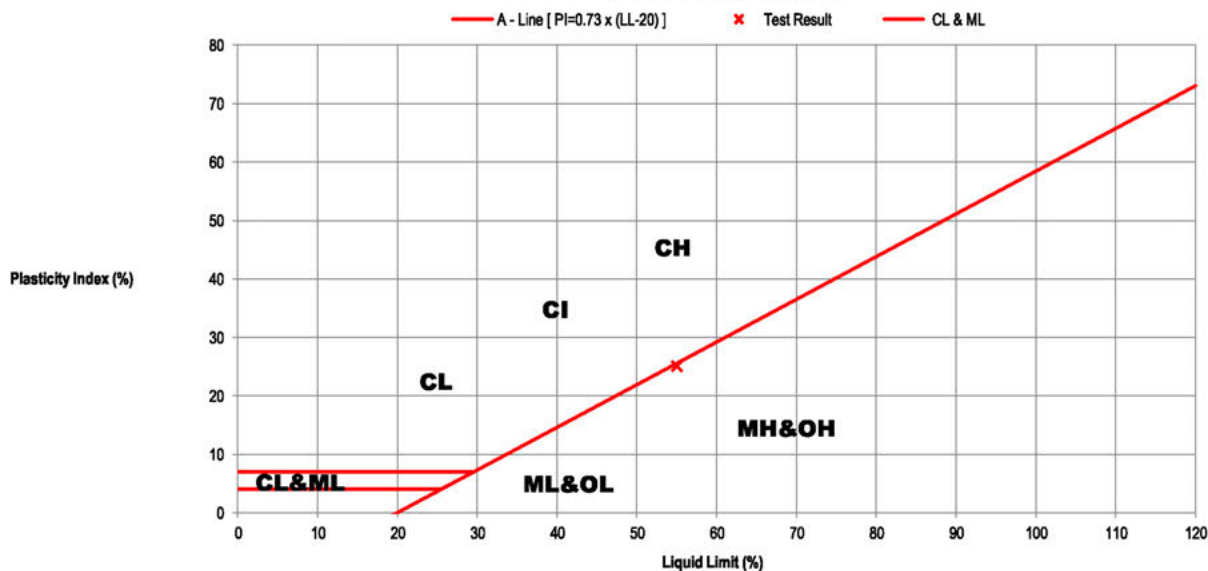
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100499-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4040_TR_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-BH2230	Client Sample No.	310-01-BH2230-S01580
Description	SPT	Depth From (m)	15.8
		Depth To (m)	16.25

RESULTS OF TESTING

Liquid Limit (%) 55
Plastic Limit (%) 30
Plasticity Index (%) 25
Linear Shrinkage (%) 13.0 **Curling Occurred**
Moisture Content (%) 18.6
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

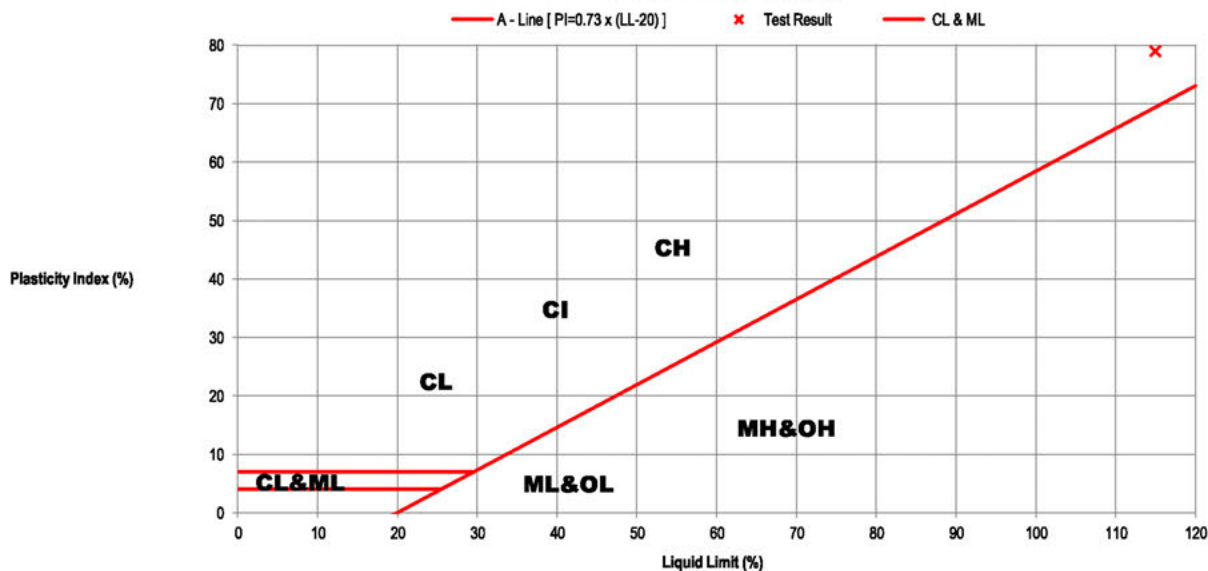
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100500-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4040_TR_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-BH2232	Client Sample No.	310-01-BH2232-U00150
Description	U	Depth From (m)	1.5
		Depth To (m)	1.95

RESULTS OF TESTING

Liquid Limit (%)	115	
Plastic Limit (%)	36	
Plasticity Index (%)	79	
Linear Shrinkage (%)	19.5	Cracking & Curling Occurred
Moisture Content (%)	34.9	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

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ATTERBERG LIMITS TEST REPORT

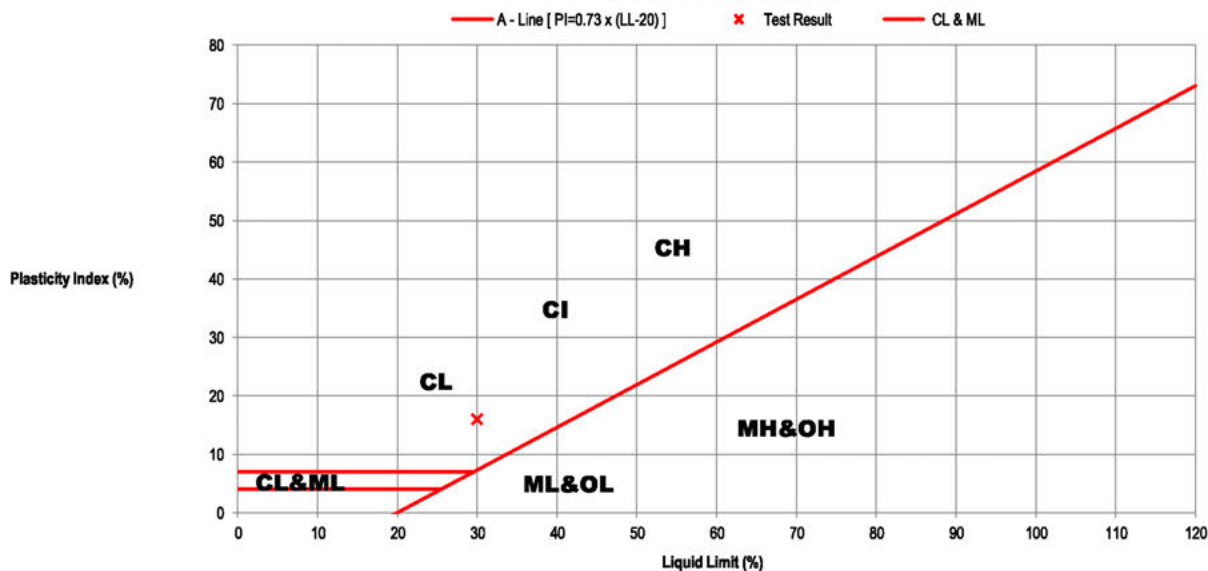
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101123-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2231-S02050	Client Sample No.	310-01-BH2231
Description	SPT	Depth From (m)	20.5
		Depth To (m)	20.95

RESULTS OF TESTING

Liquid Limit (%) 30
Plastic Limit (%) 14
Plasticity Index (%) 16
Linear Shrinkage (%) 8.5 **Curling Occurred**
Moisture Content (%) 16.7
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

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Trilab Pty Ltd ABN 25 065 630 506

ATTERBERG LIMITS TEST REPORT

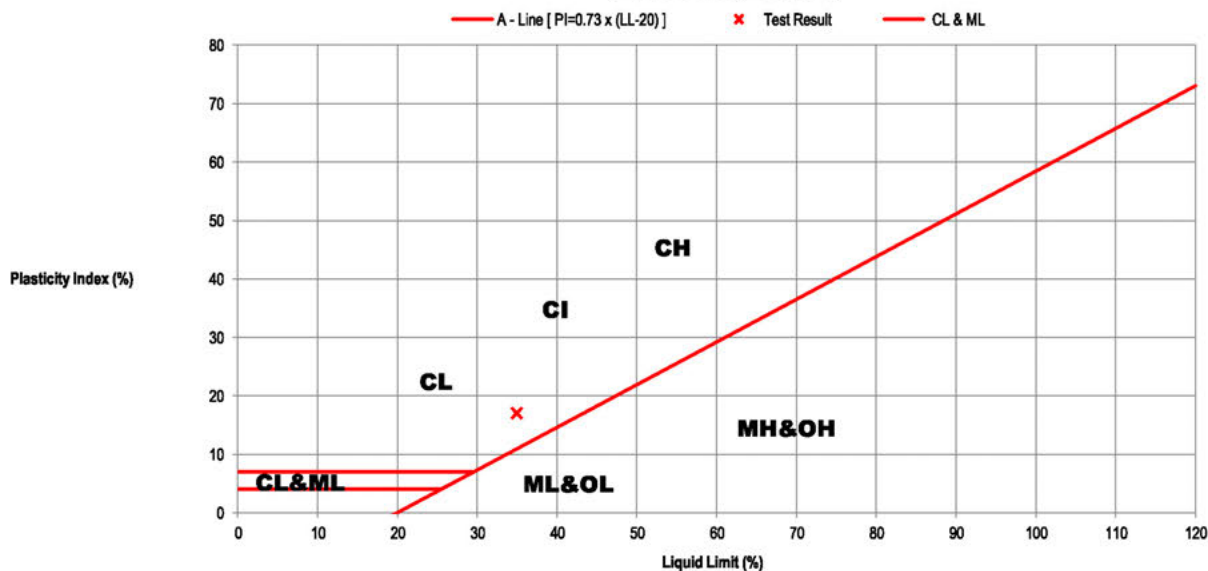
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101124-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2231-S02350	Client Sample No.	310-01-BH2231
Description	SPT	Depth From (m)	23.5
		Depth To (m)	23.91

RESULTS OF TESTING

Liquid Limit (%) 35
Plastic Limit (%) 18
Plasticity Index (%) 17
Linear Shrinkage (%) 9.5 **Curling Occurred**
Moisture Content (%) 16.5
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

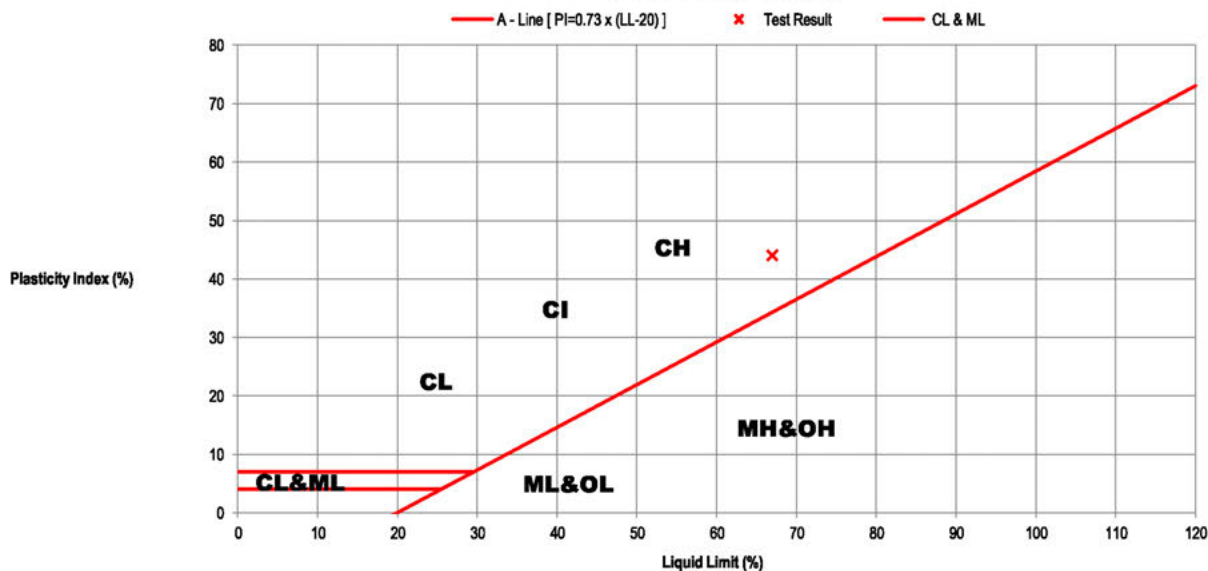
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101125-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2233-S00200	Client Sample No.	310-01-BH2233
Description	SPT	Depth From (m)	2
		Depth To (m)	2.45

RESULTS OF TESTING

Liquid Limit (%) 67
Plastic Limit (%) 23
Plasticity Index (%) 44
Linear Shrinkage (%) 16.5 **Curling Occurred**
Moisture Content (%) 15.1
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

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REP00102

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Authorised Signatory



C. Park



Laboratory No. 9926

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ATTERBERG LIMITS TEST REPORT

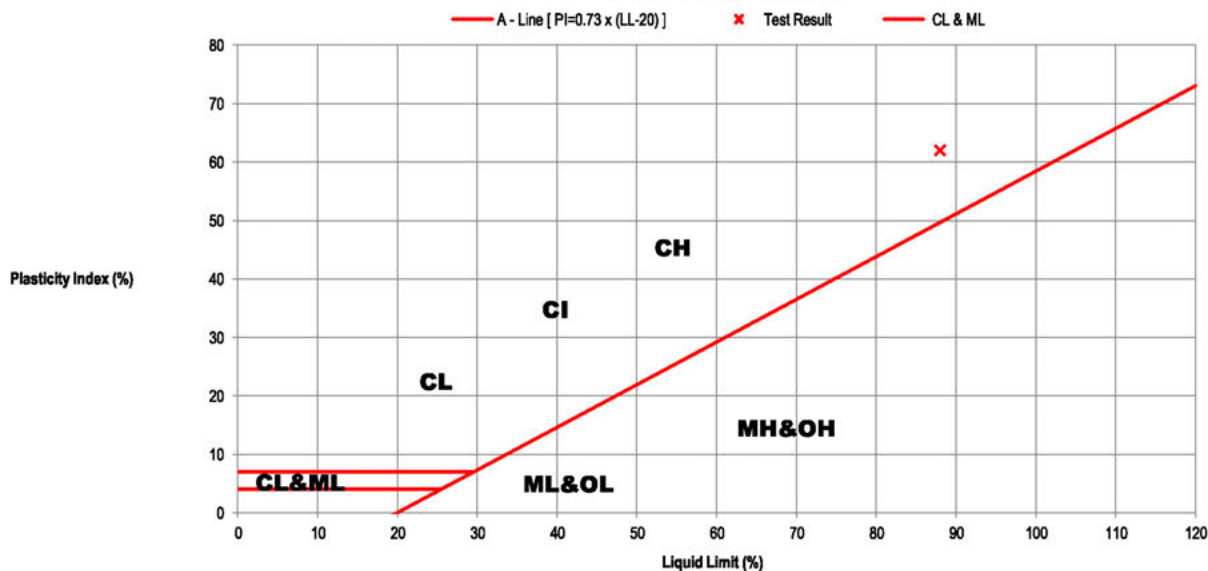
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101116-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	9/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2231-U00550	Client Sample No.	310-01-BH2231
Description	U	Depth From (m)	5.5
		Depth To (m)	6

RESULTS OF TESTING

Liquid Limit (%)	88	
Plastic Limit (%)	26	
Plasticity Index (%)	62	
Linear Shrinkage (%)	23.5	Cracking & Curling Occurred
Moisture Content (%)	22.8	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

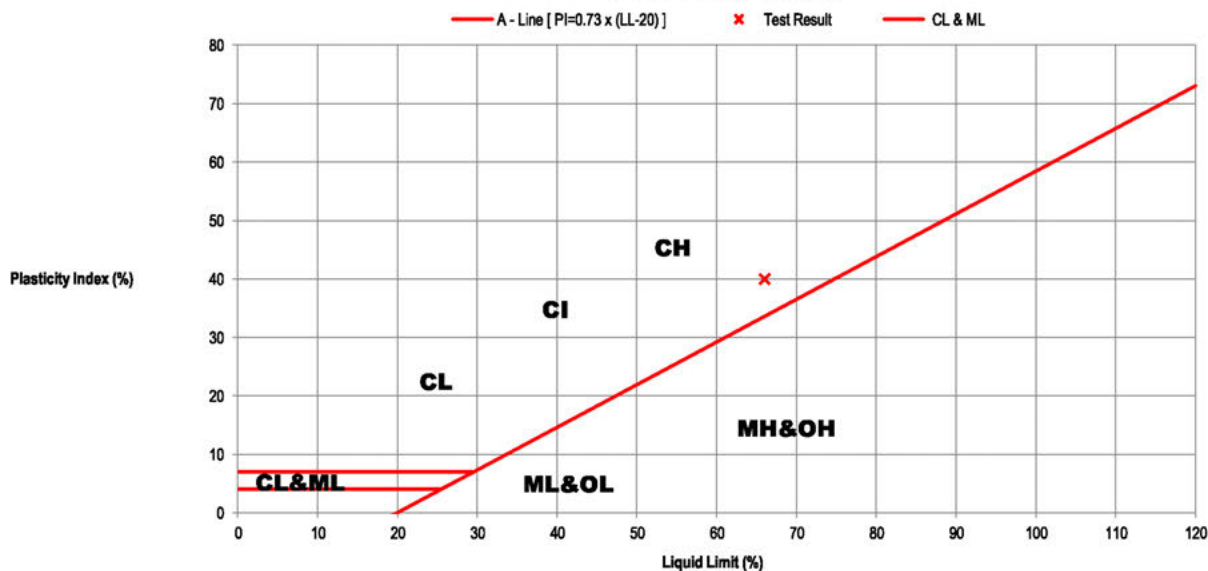
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100480-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2524	Client Sample No.	310-01-DH2524-U00350
Description	U50	Depth From (m)	3.5
		Depth To (m)	3.95

RESULTS OF TESTING

Liquid Limit (%)	66	
Plastic Limit (%)	26	
Plasticity Index (%)	40	
Linear Shrinkage (%)	19.5	Cracking & Curling Occurred
Moisture Content (%)	21.8	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

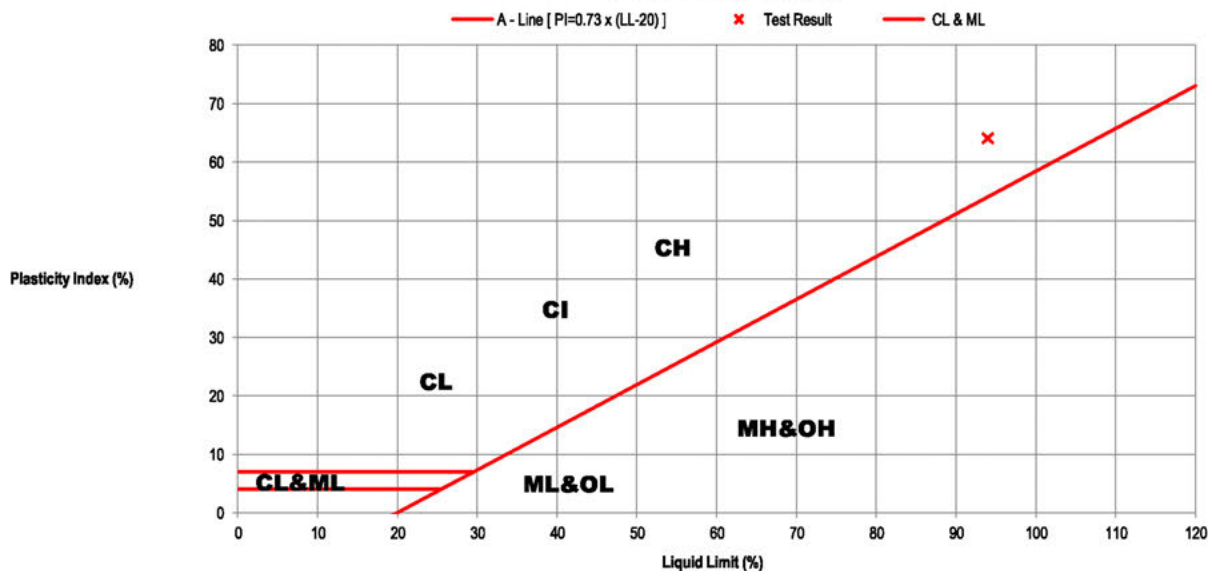
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100483-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2525	Client Sample No.	310-01-DH2525-U00100
Description	U	Depth From (m)	1
		Depth To (m)	1.45

RESULTS OF TESTING

Liquid Limit (%)	94	
Plastic Limit (%)	30	
Plasticity Index (%)	64	
Linear Shrinkage (%)	23.5	Cracking & Curling Occurred
Moisture Content (%)	32.7	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

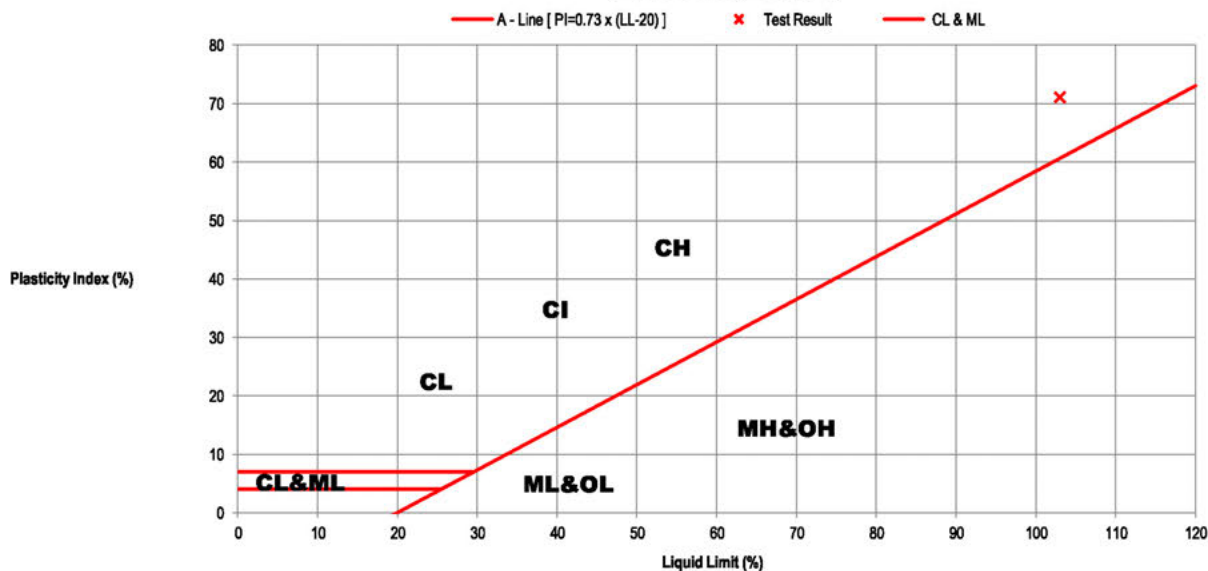
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100485-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2526	Client Sample No.	310-01-DH2526-S00050
Description	SPT	Depth From (m)	0.5
		Depth To (m)	0.95

RESULTS OF TESTING

Liquid Limit (%) 103
 Plastic Limit (%) 32
 Plasticity Index (%) 71
 Linear Shrinkage (%) 22.0 Curling Occurred
 Moisture Content (%) 23.1
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

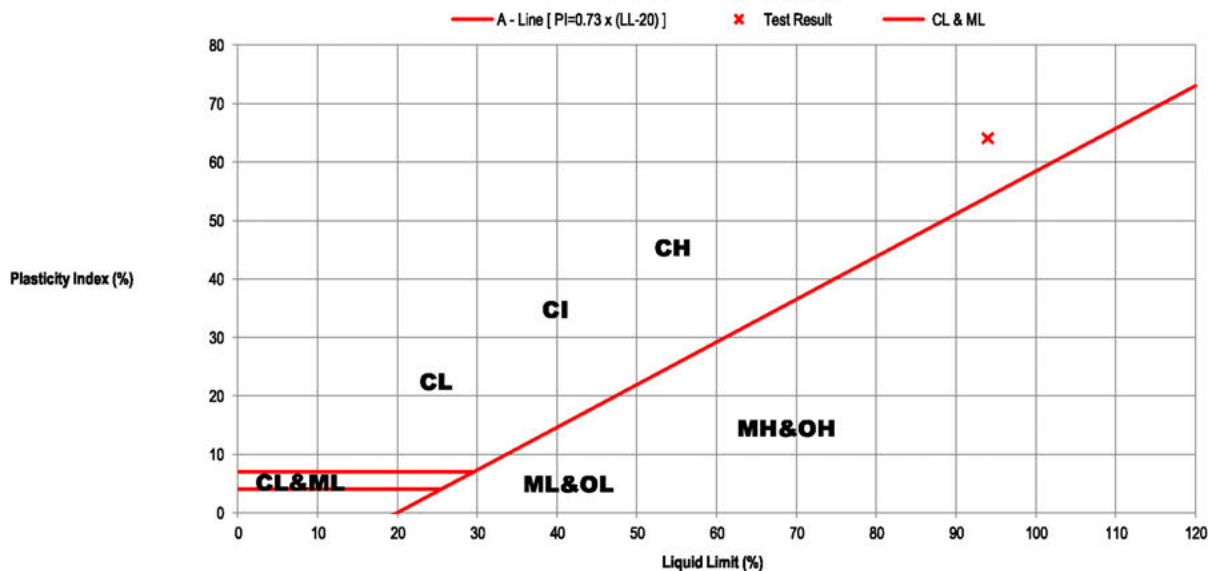
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100488-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2527	Client Sample No.	310-01-DH2527-U00100
Description	U50	Depth From (m)	1
		Depth To (m)	1.45

RESULTS OF TESTING

Liquid Limit (%)	94	
Plastic Limit (%)	30	
Plasticity Index (%)	64	
Linear Shrinkage (%)	21.0	Cracking & Curling Occurred
Moisture Content (%)	28.9	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

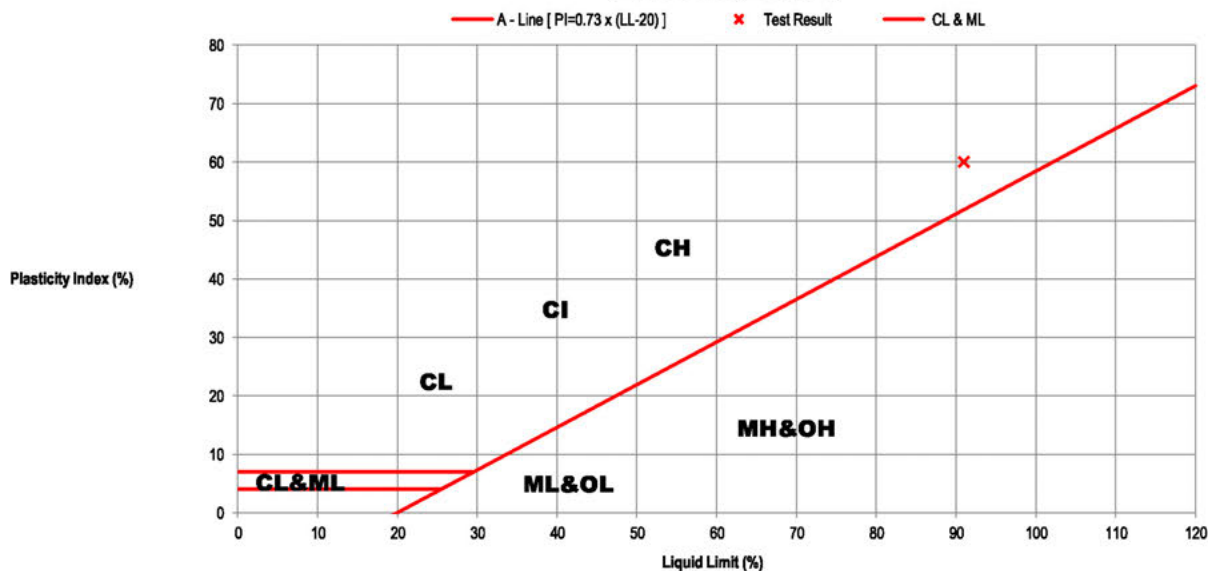
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100490-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	19/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2528	Client Sample No.	310-01-DH2528-U00100
Description	U	Depth From (m)	1
		Depth To (m)	1.34

RESULTS OF TESTING

Liquid Limit (%)	91	
Plastic Limit (%)	31	
Plasticity Index (%)	60	
Linear Shrinkage (%)	19.5	Cracking & Curling Occurred
Moisture Content (%)	33.6	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

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ATTERBERG LIMITS TEST REPORT

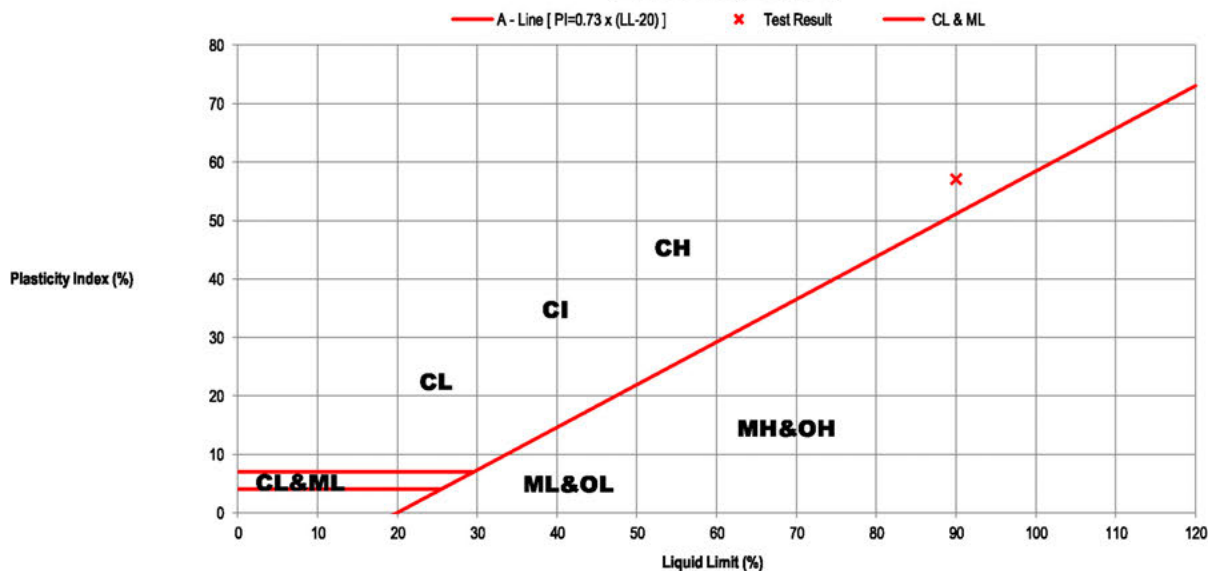
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100491-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2528	Client Sample No.	310-01-DH2528-S00200
Description	SPT	Depth From (m)	2
		Depth To (m)	2.45

RESULTS OF TESTING

Liquid Limit (%) 90
 Plastic Limit (%) 33
 Plasticity Index (%) 57
 Linear Shrinkage (%) 22.0 Curling Occurred
 Moisture Content (%) 27.2
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

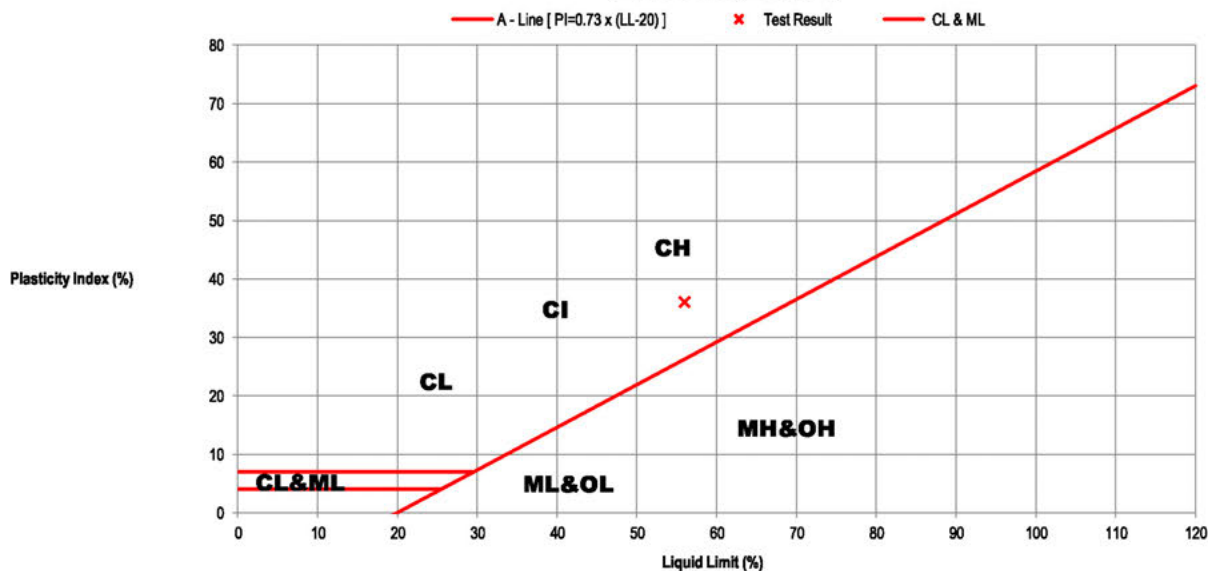
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100492-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	13/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2529	Client Sample No.	310-01-DH2529-B00010
Description	BDS	Depth From (m)	0.1
		Depth To (m)	0.4

RESULTS OF TESTING

Liquid Limit (%) 56
Plastic Limit (%) 20
Plasticity Index (%) 36
Linear Shrinkage (%) 16.5 **Curling Occurred**
Moisture Content (%) 10.2
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

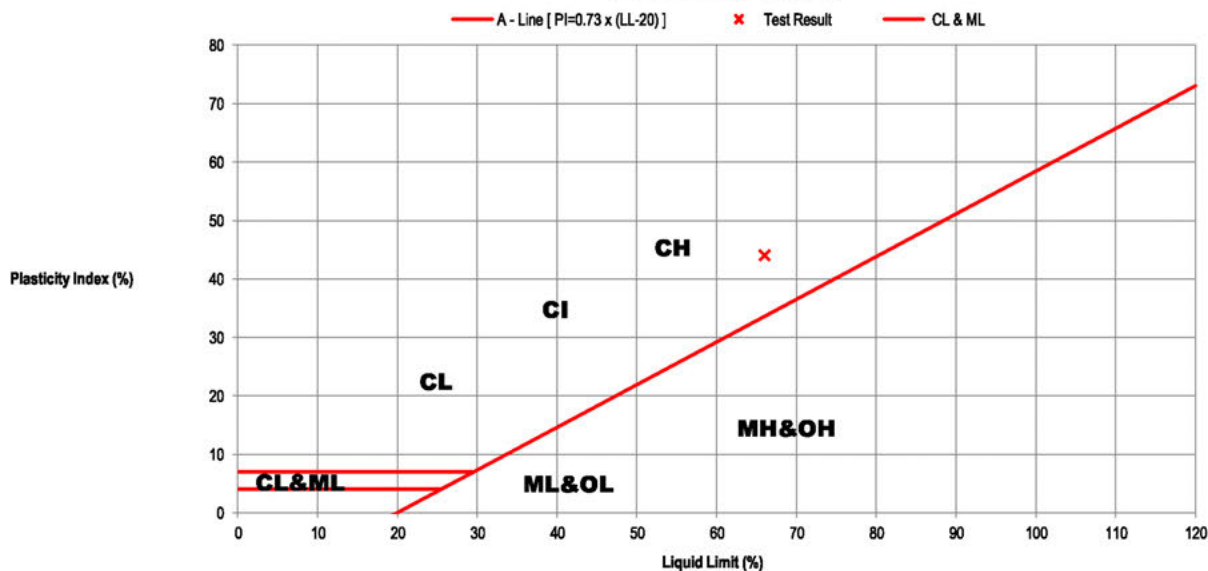
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100494-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-DH2529	Client Sample No.	310-01-DH2529-S00200
Description	SPT	Depth From (m)	2
		Depth To (m)	2.45

RESULTS OF TESTING

Liquid Limit (%)	66	
Plastic Limit (%)	22	
Plasticity Index (%)	44	
Linear Shrinkage (%)	9.5	Cracking & Curling Occurred
Moisture Content (%)	16.9	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

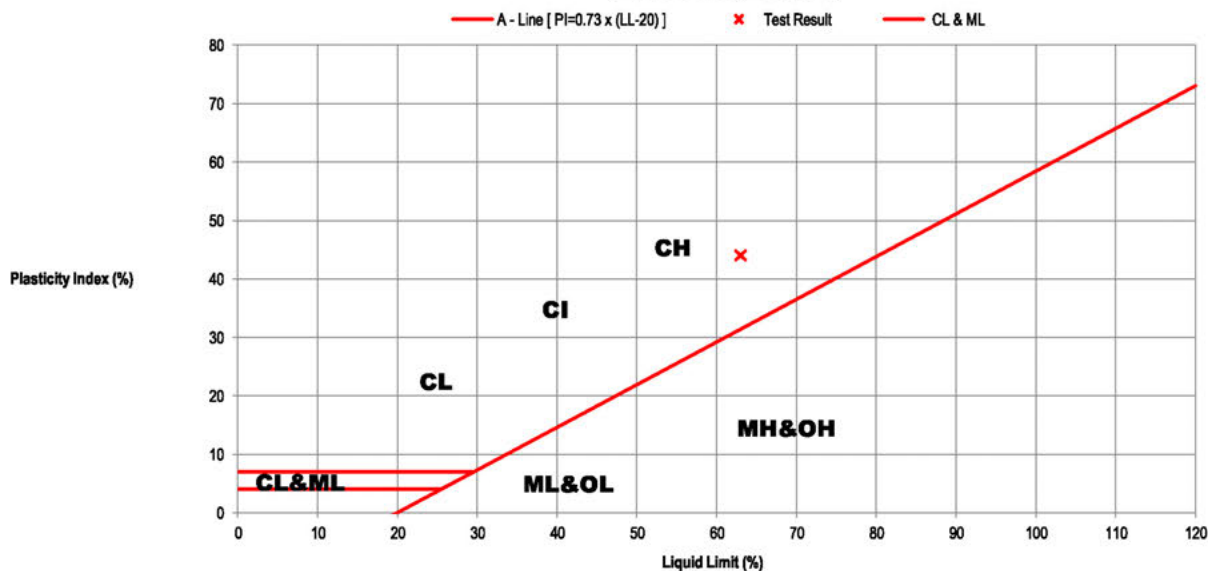
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100495-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4040_TR_R1
Project	Inland Rail - B2G	Test Date	19/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-BH2230	Client Sample No.	310-01-BH2230-U00200
Description	U	Depth From (m)	2
		Depth To (m)	2.45

RESULTS OF TESTING

Liquid Limit (%) 63
Plastic Limit (%) 19
Plasticity Index (%) 44
Linear Shrinkage (%) 18.5 **Curling Occurred**
Moisture Content (%) 17.6
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

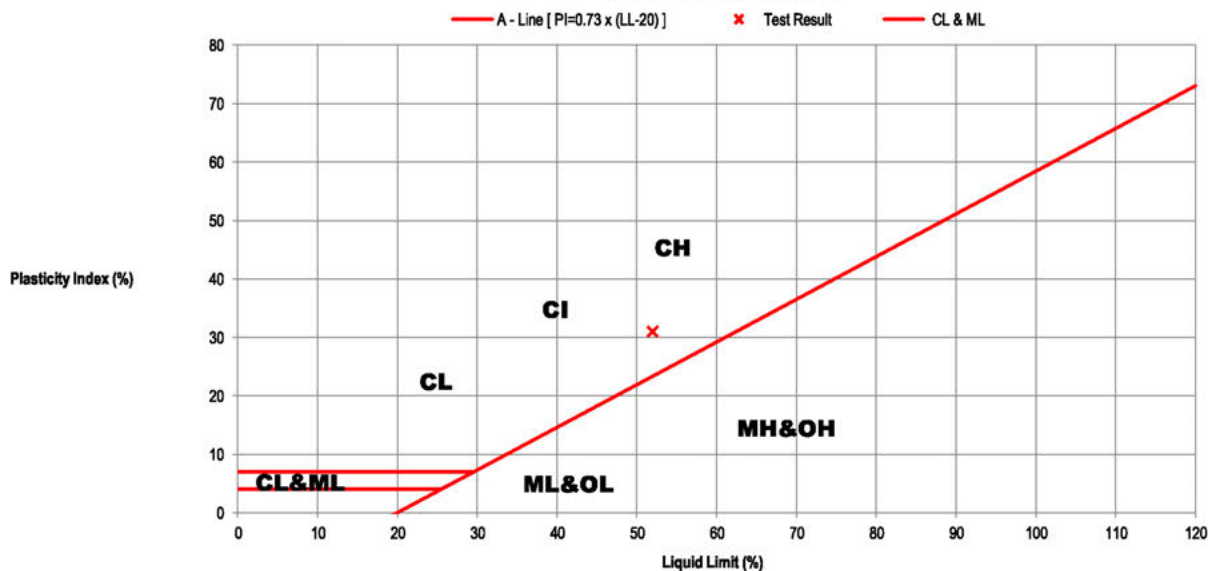
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100504-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4040_TR_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-BH2232	Client Sample No.	310-01-BH2232-S02180
Description	SPT	Depth From (m)	21.8
		Depth To (m)	22.25

RESULTS OF TESTING

Liquid Limit (%) 52
 Plastic Limit (%) 21
 Plasticity Index (%) 31
 Linear Shrinkage (%) 15.0 Curling Occurred
 Moisture Content (%) 19.8
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

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ATTERBERG LIMITS TEST REPORT

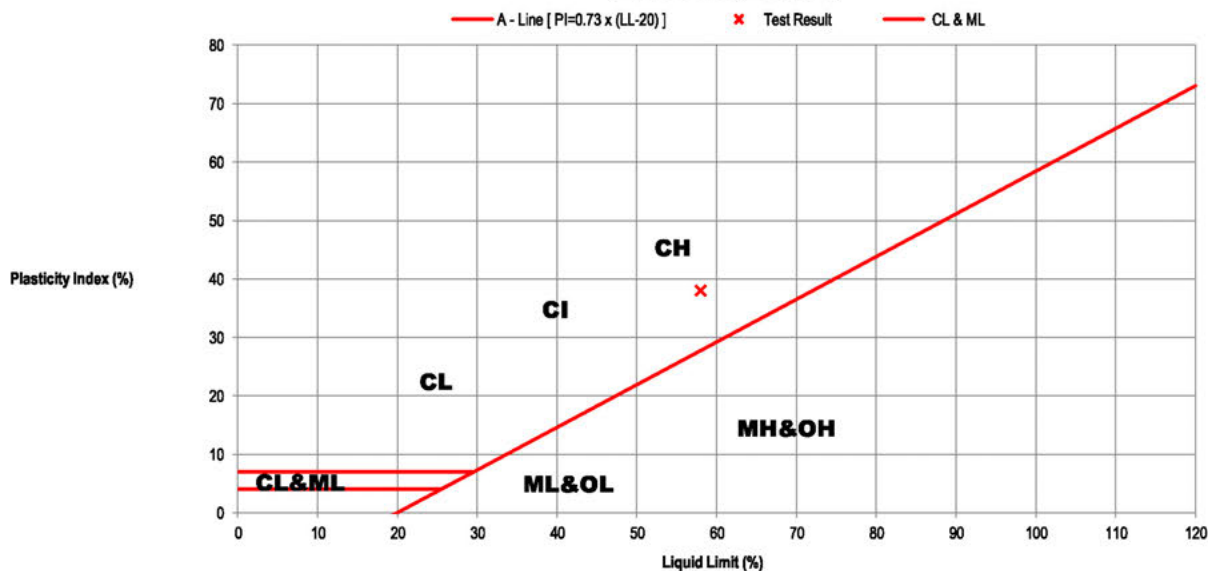
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100505-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4040_TR_R1
Project	Inland Rail - B2G	Test Date	19/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-BH2234	Client Sample No.	310-01-BH2234-S00350
Description	SPT	Depth From (m)	3.5
		Depth To (m)	3.95

RESULTS OF TESTING

Liquid Limit (%) 58
 Plastic Limit (%) 20
 Plasticity Index (%) 38
 Linear Shrinkage (%) 18.0 Curling Occurred
 Moisture Content (%) 16.5
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



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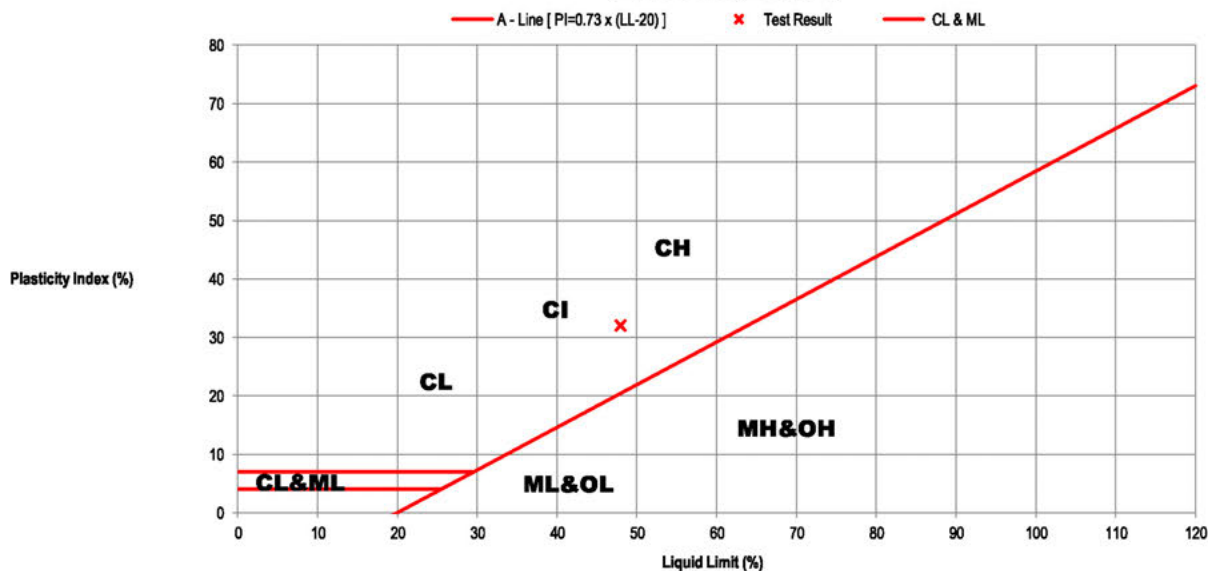
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA100508-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4040_TR_R1
Project	Inland Rail - B2G	Test Date	20/07/2018
Project No.	1897791	Report Date	24/07/2018
Bore Hole	310-01-BH2234	Client Sample No.	310-01-BH2234-S01730
Description	SPT	Depth From (m)	17.3
		Depth To (m)	17.75

RESULTS OF TESTING

Liquid Limit (%) 48
Plastic Limit (%) 16
Plasticity Index (%) 32
Linear Shrinkage (%) 13.5 **Curling Occurred**
Moisture Content (%) 20.3
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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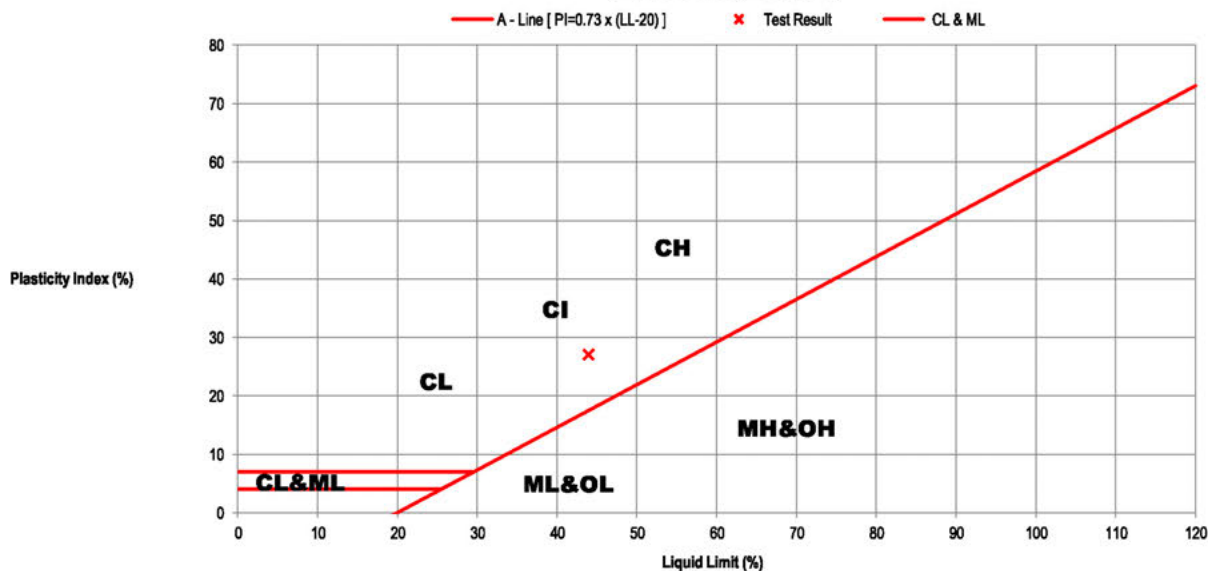
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101126-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	6/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2233-S00400	Client Sample No.	310-01-BH2233
Description	SPT	Depth From (m)	4
		Depth To (m)	4.45

RESULTS OF TESTING

Liquid Limit (%) 44
Plastic Limit (%) 17
Plasticity Index (%) 27
Linear Shrinkage (%) 12.0 **Curling Occurred**
Moisture Content (%) 20.1
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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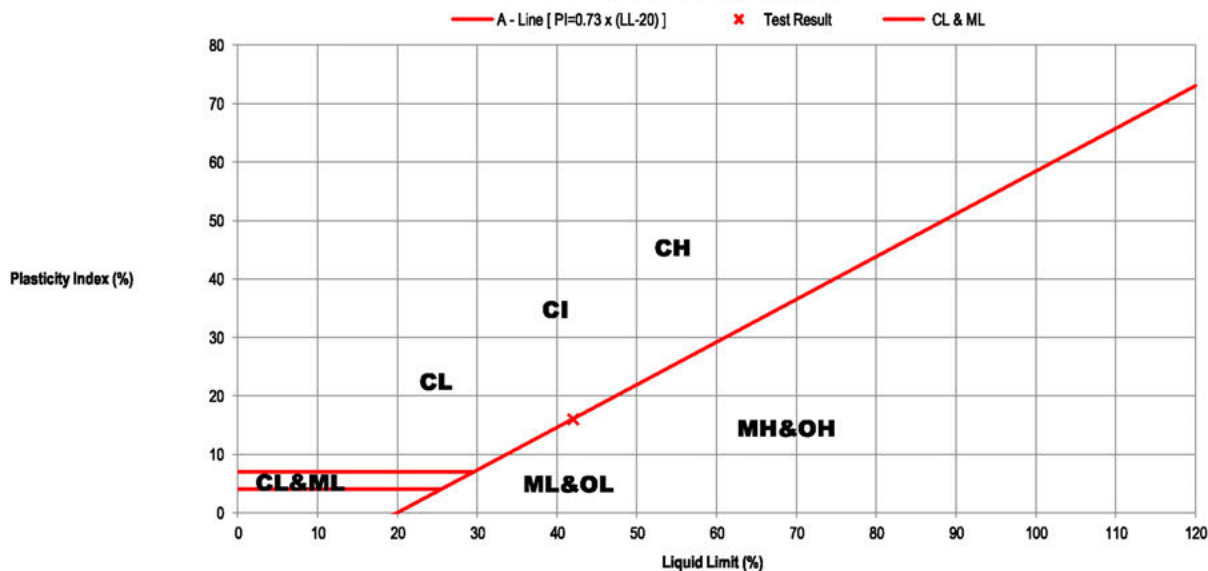
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101131-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	6/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2233-S01450	Client Sample No.	310-01-BH2233
Description	SPT	Depth From (m)	14.5
		Depth To (m)	14.95

RESULTS OF TESTING

Liquid Limit (%)	42	
Plastic Limit (%)	26	
Plasticity Index (%)	16	
Linear Shrinkage (%)	8.0	Cracking & Curling Occurred
Moisture Content (%)	34.8	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Channon



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

ATTERBERG LIMITS TEST REPORT

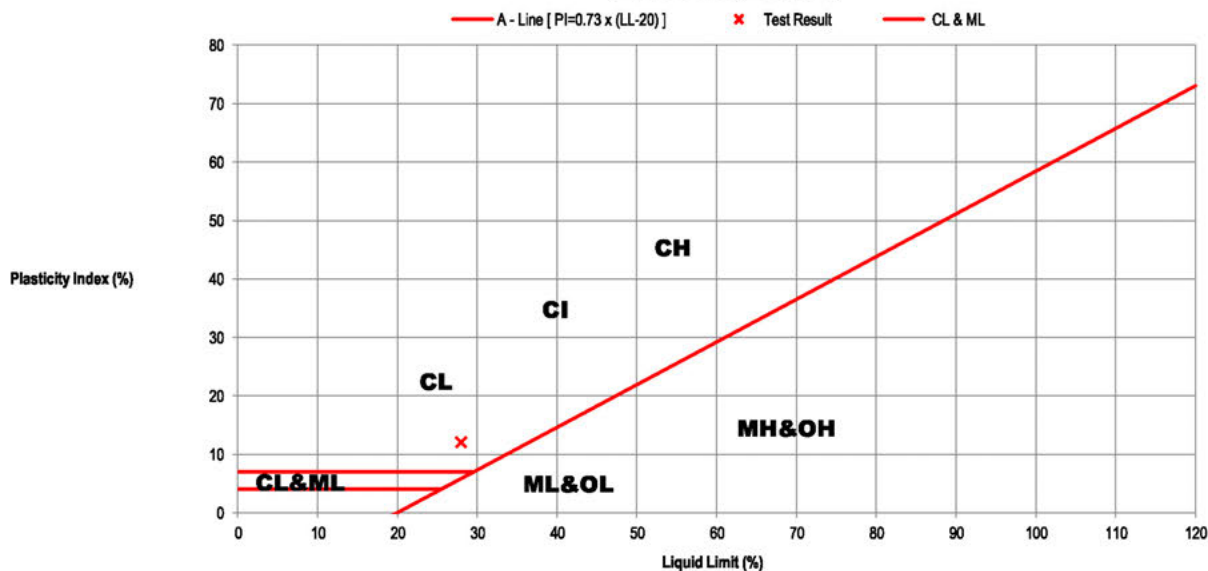
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101133-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	6/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2233-S02050	Client Sample No.	310-01-BH2233
Description	SPT	Depth From (m)	20.5
		Depth To (m)	20.95

RESULTS OF TESTING

Liquid Limit (%) 28
Plastic Limit (%) 16
Plasticity Index (%) 12
Linear Shrinkage (%) 5.5 **Curling Occurred**
Moisture Content (%) 18.0
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Page: 1 of 1

REP00102

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ATTERBERG LIMITS TEST REPORT

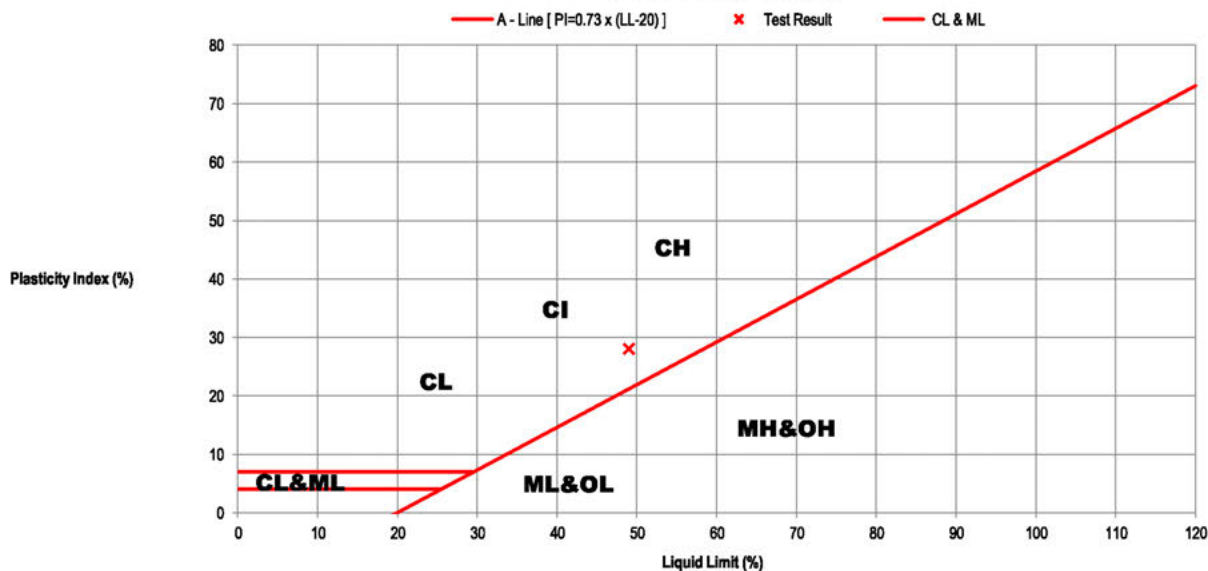
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101134-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2233-S02650	Client Sample No.	310-01-BH2233
Description	SPT	Depth From (m)	26.5
		Depth To (m)	26.95

RESULTS OF TESTING

Liquid Limit (%) 49
 Plastic Limit (%) 21
 Plasticity Index (%) 28
 Linear Shrinkage (%) 11.0 Curling Occurred
 Moisture Content (%) 20.3
 Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

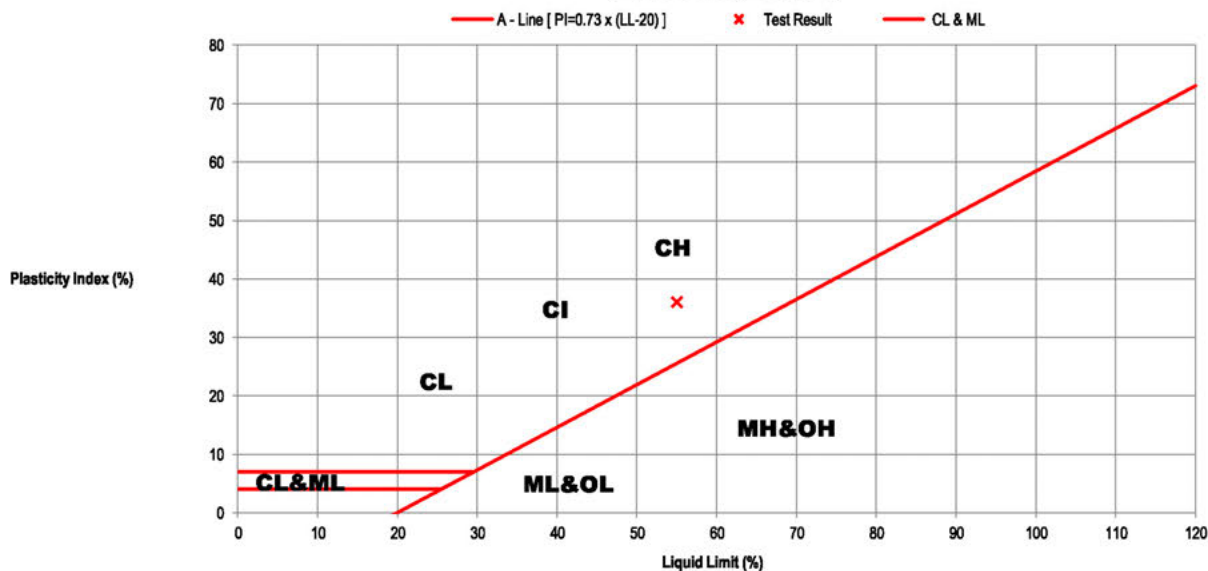
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101135-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2235-S00380	Client Sample No.	310-01-BH2235
Description	SPT	Depth From (m)	3.8
		Depth To (m)	4.25

RESULTS OF TESTING

Liquid Limit (%)	55	
Plastic Limit (%)	19	
Plasticity Index (%)	36	
Linear Shrinkage (%)	14.5	Cracking & Curling Occurred
Moisture Content (%)	26.7	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

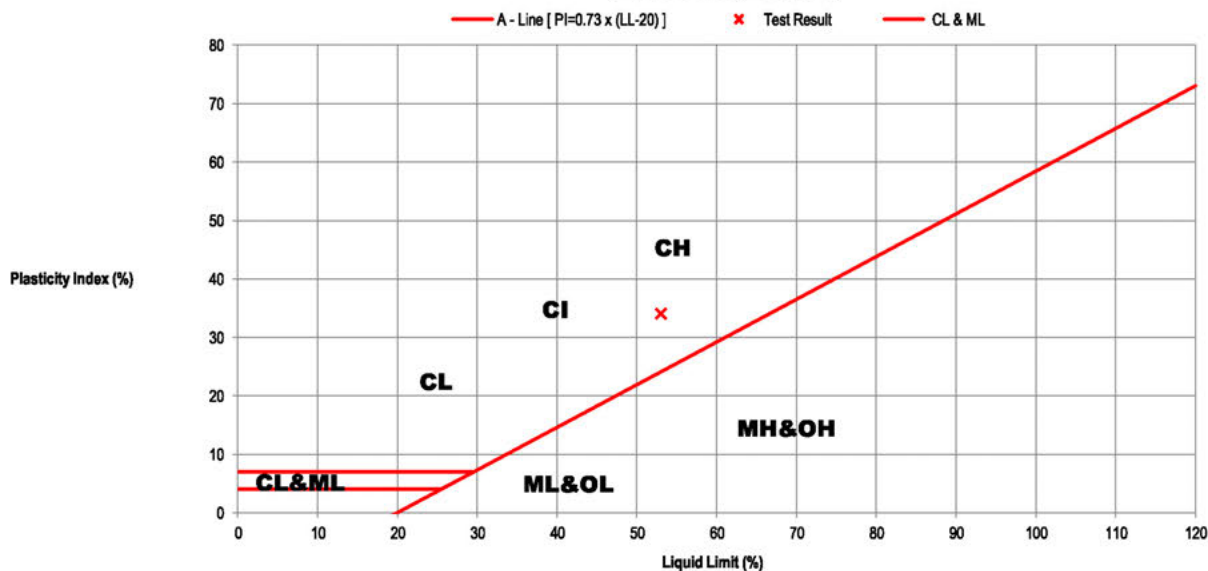
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101136-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2235-S00530	Client Sample No.	310-01-BH2235
Description	SPT	Depth From (m)	5.3
		Depth To (m)	5.75

RESULTS OF TESTING

Liquid Limit (%) 53
Plastic Limit (%) 19
Plasticity Index (%) 34
Linear Shrinkage (%) 15.0 **Curling Occurred**
Moisture Content (%) 16.2
Preparation Method Dry Sieved and Oven Dried

Plasticity Chart



Remarks:

Sample/s supplied by client

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Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

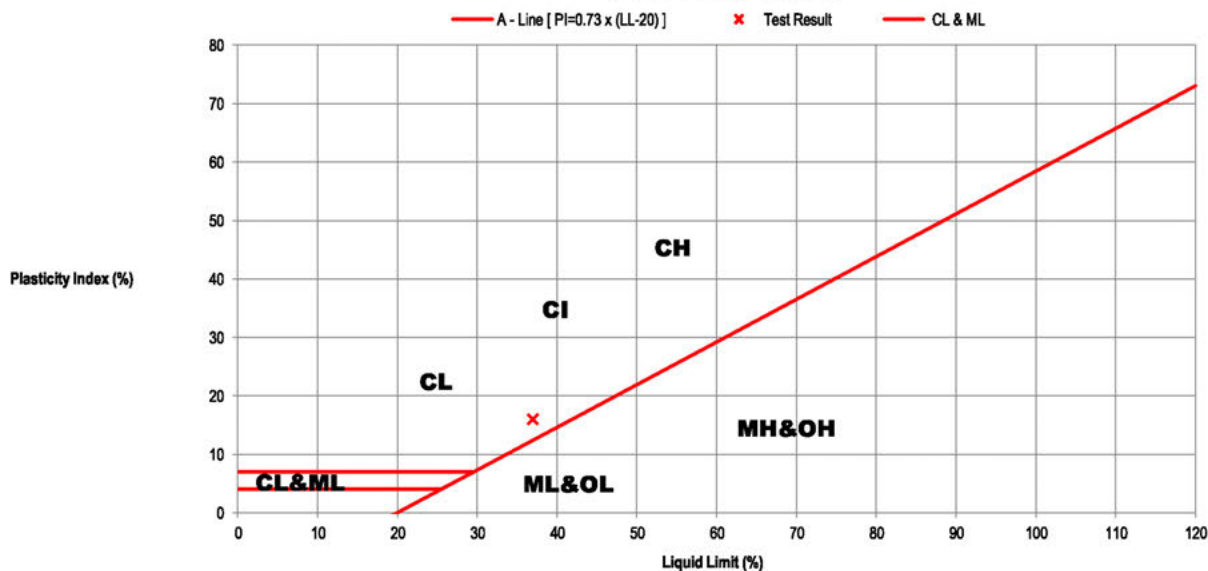
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101142-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	8/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2235-S01880	Client Sample No.	310-01-BH2235
Description	SPT	Depth From (m)	18.8
		Depth To (m)	19.25

RESULTS OF TESTING

Liquid Limit (%)	37	
Plastic Limit (%)	21	
Plasticity Index (%)	16	
Linear Shrinkage (%)	6.0	Cracking & Curling Occurred
Moisture Content (%)	23.0	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

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ATTERBERG LIMITS TEST REPORT

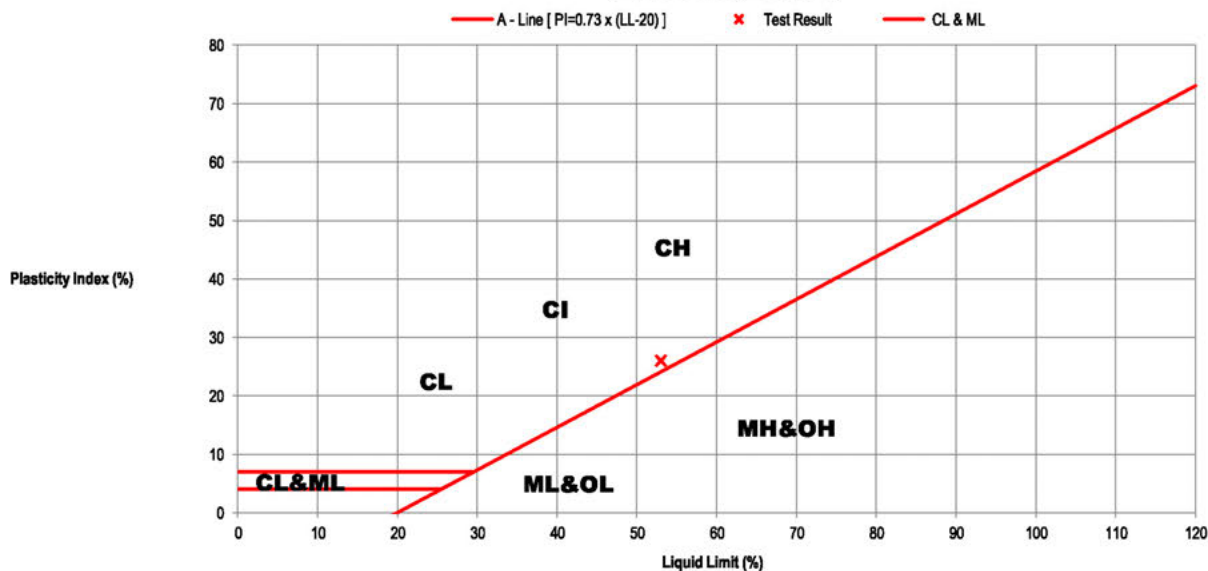
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101143-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2235-S02180	Client Sample No.	310-01-BH2235
Description	SPT	Depth From (m)	21.8
		Depth To (m)	22.25

RESULTS OF TESTING

Liquid Limit (%)	53	
Plastic Limit (%)	27	
Plasticity Index (%)	26	
Linear Shrinkage (%)	14.5	Curling Occurred
Moisture Content (%)	30.5	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

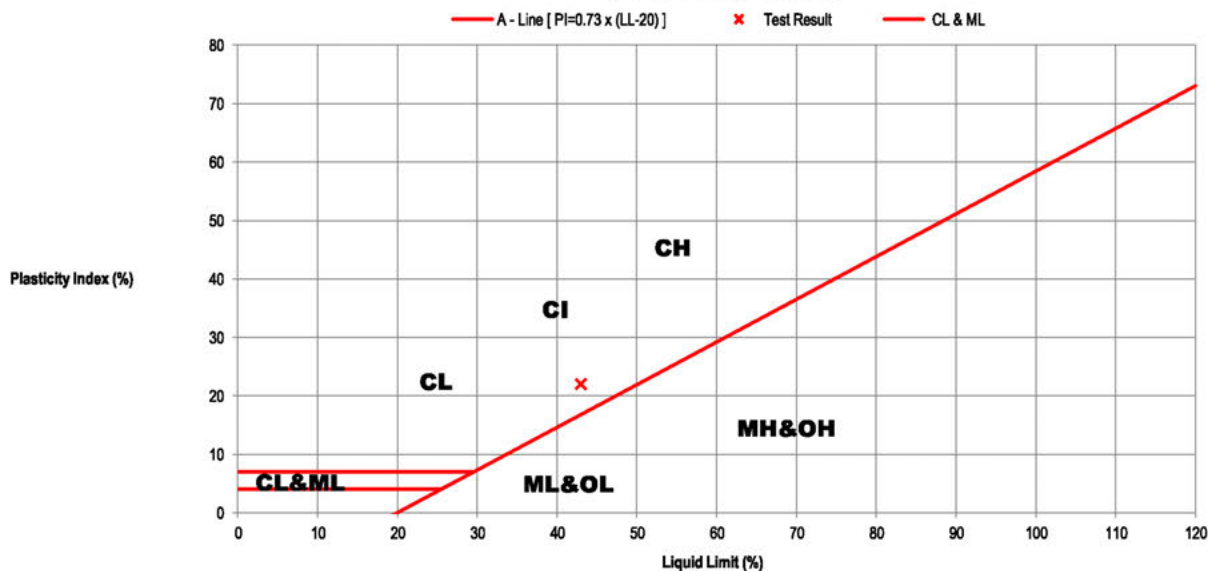
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101145-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2235-S03230	Client Sample No.	310-01-BH2235
Description	SPT	Depth From (m)	32.3
		Depth To (m)	32.75

RESULTS OF TESTING

Liquid Limit (%)	43	
Plastic Limit (%)	21	
Plasticity Index (%)	22	
Linear Shrinkage (%)	12.0	Cracking & Curling Occurred
Moisture Content (%)	25.4	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

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ATTERBERG LIMITS TEST REPORT

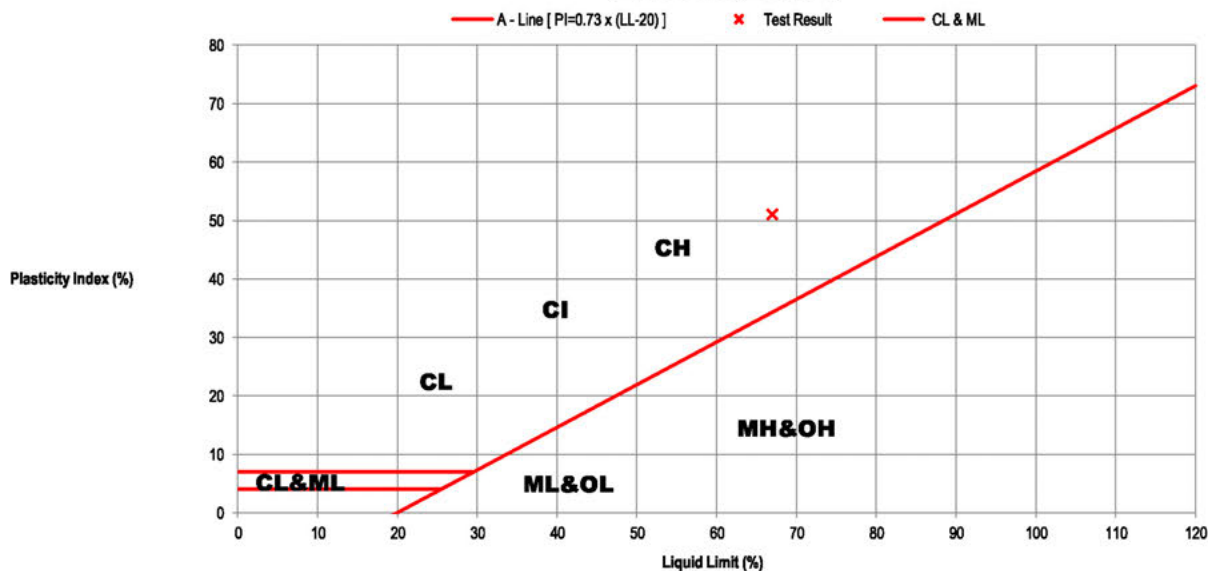
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101146-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2236-S00100	Client Sample No.	310-01-BH2236
Description	SPT	Depth From (m)	1
		Depth To (m)	1.45

RESULTS OF TESTING

Liquid Limit (%)	67	
Plastic Limit (%)	16	
Plasticity Index (%)	51	
Linear Shrinkage (%)	19.5	Cracking & Curling Occurred
Moisture Content (%)	19.2	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

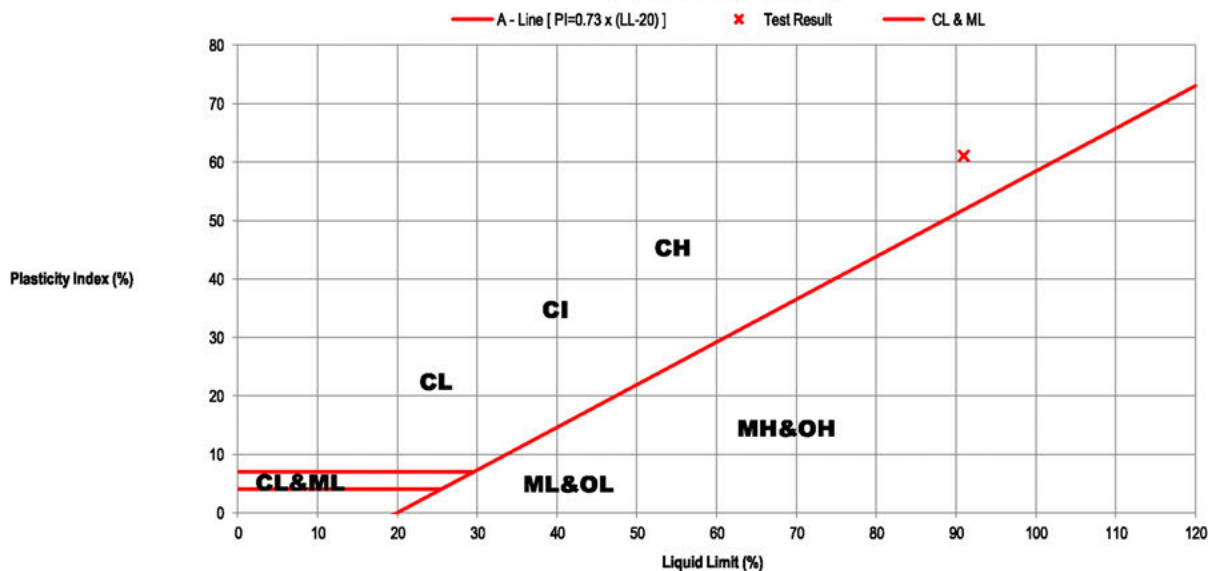
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101148-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2236-S00550	Client Sample No.	310-01-BH2236
Description	SPT	Depth From (m)	5.5
		Depth To (m)	5.95

RESULTS OF TESTING

Liquid Limit (%)	91	
Plastic Limit (%)	30	
Plasticity Index (%)	61	
Linear Shrinkage (%)	23.0	Cracking & Curling Occurred
Moisture Content (%)	34.1	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

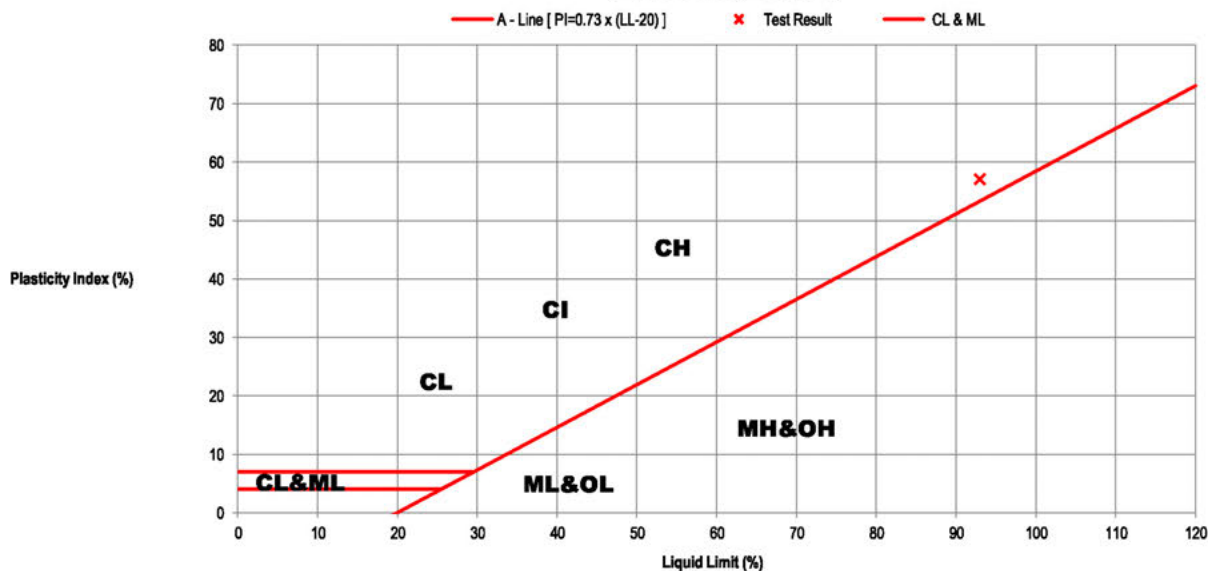
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101150-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2236-S01450	Client Sample No.	310-01-BH2236
Description	SPT	Depth From (m)	14.5
		Depth To (m)	14.95

RESULTS OF TESTING

Liquid Limit (%)	93	
Plastic Limit (%)	36	
Plasticity Index (%)	57	
Linear Shrinkage (%)	22.5	Cracking & Curling Occurred
Moisture Content (%)	34.7	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

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ATTERBERG LIMITS TEST REPORT

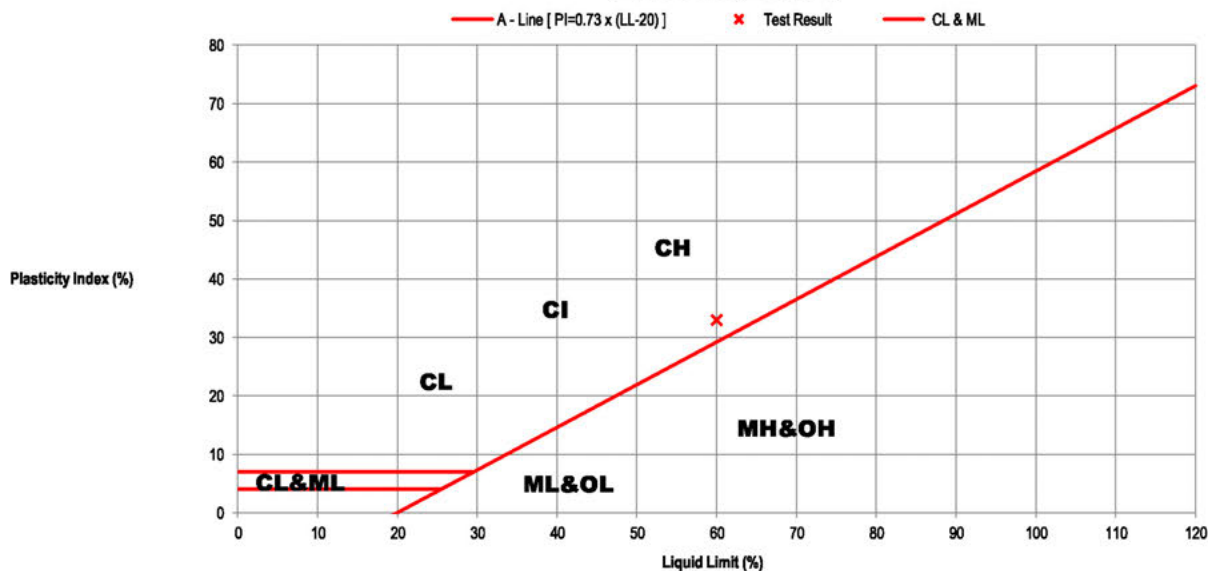
Test Method: AS 1289 2.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1

Client	Golder Associates Pty Limited	Report No.	GA101152-AL
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No.	1897791	Report Date	12/11/2018
Bore Hole	310-01-BH2236-S02050	Client Sample No.	310-01-BH2236
Description	SPT	Depth From (m)	20.5
		Depth To (m)	20.95

RESULTS OF TESTING

Liquid Limit (%)	60	
Plastic Limit (%)	27	
Plasticity Index (%)	33	
Linear Shrinkage (%)	16.5	Cracking & Curling Occurred
Moisture Content (%)	30.5	
Preparation Method	Dry Sieved and Oven Dried	

Plasticity Chart



Remarks:

Sample/s supplied by client

Tested as received

Page: 1 of 1

REP00102

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Test Method: AS 1289 3.8.1

RESULTS OF TESTING	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

Sample No	Bore Hole	Depth From (m)	Depth To (m)	Description	Emerson Class Number
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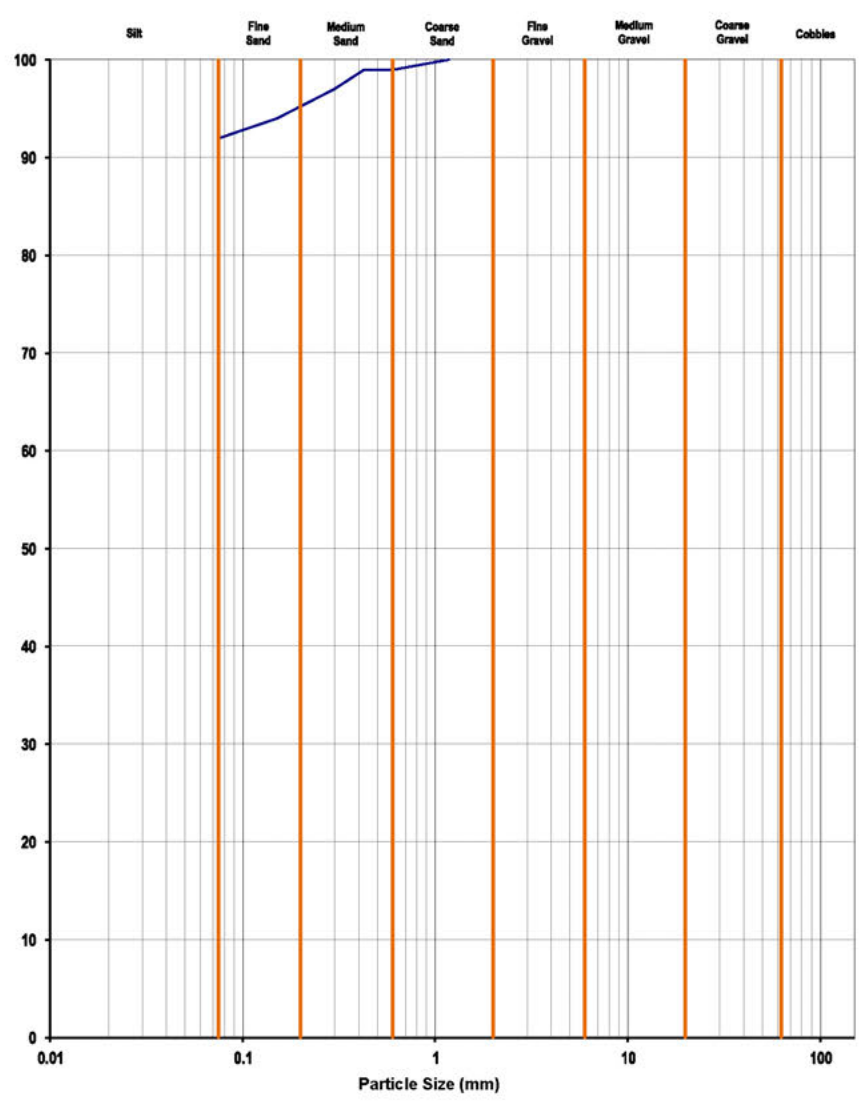
ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101115-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2231		
Bore Hole	310-01-BH2231-S00400	Depth From (m)	4	Depth To (m)	4.45
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	100
0.600	99
0.425	99
0.300	97
0.150	94
0.075	92



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 92% passing for 0.075 mm and rises to 100% passing at 1.18 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.85 mm), Coarse Sand (0.85 - 2.0 mm), Fine Gravel (2.0 - 4.75 mm), Medium Gravel (4.75 - 20 mm), Coarse Gravel (20 - 60 mm), and Cobbles (> 60 mm).

NOTES/REMARKS:

-
Moisture Content 34.4%
Sample/s supplied by the client

Page 1 of 1 REP03903

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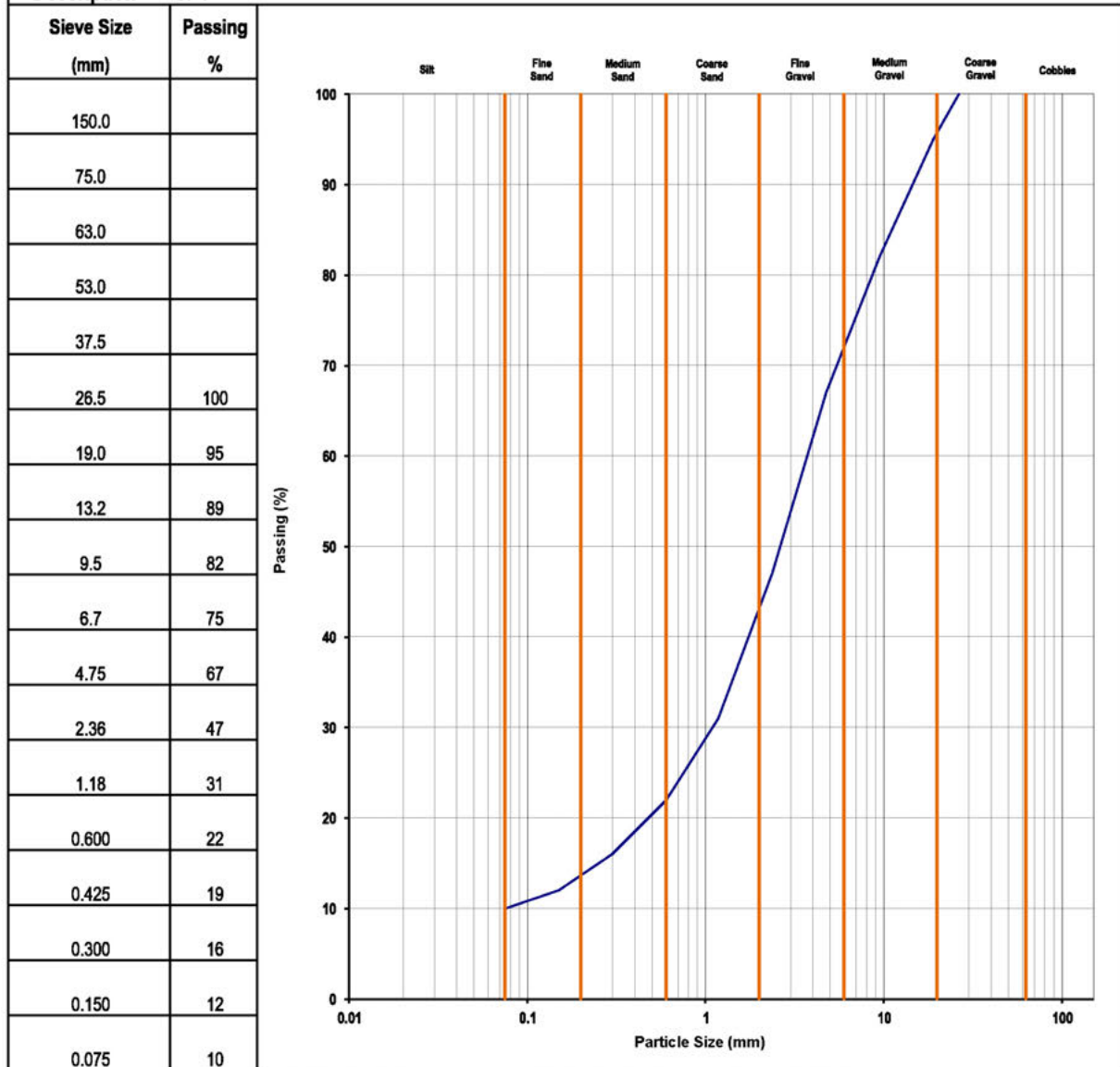
Reference should be made to Trilab's "Standard Terms and Conditions of Business" for further details.

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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101118-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No	1897791	Report Date	14/11/2018
Bore Hole	310-01-BH2231-S00850	Client Sample No	310-01-BH2231
Description	SPT	Depth From (m)	8.5
		Depth To (m)	8.95



NOTES/REMARKS:

-
Moisture Content 13.8%
Sample/s supplied by the client

Page 1 of 1 REP03903

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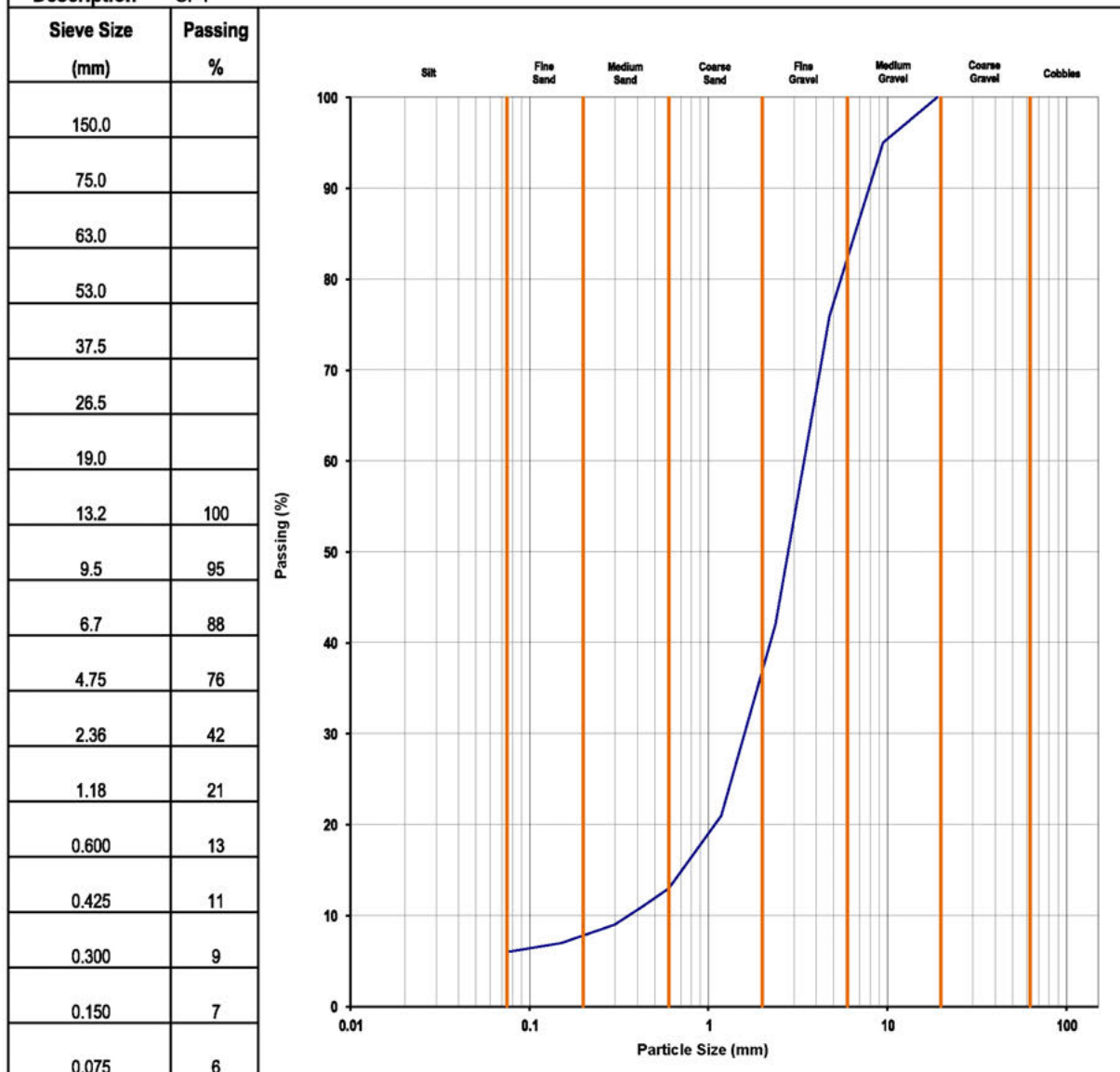
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101119-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	7/11/2018
Project No	1897791	Report Date	14/11/2018
Bore Hole	310-01-BH2231-S01300	Client Sample No	310-01-BH2231
Description	SPT	Depth From (m)	13
		Depth To (m)	13.45



NOTES/REMARKS:

-
Moisture Content 12.8%
Sample/s supplied by the client

Page 1 of 1 REP03903

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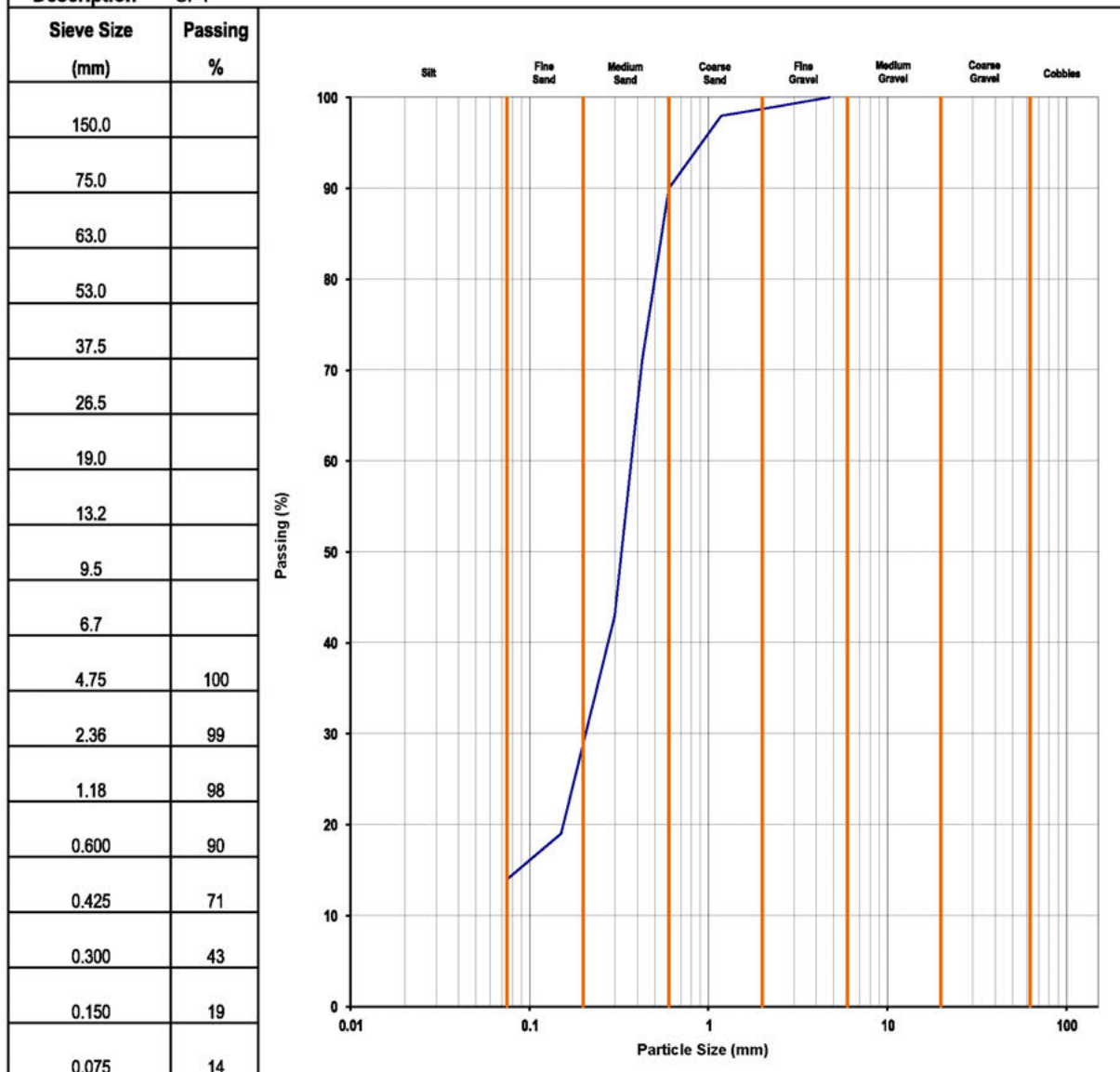
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101120-G
				Request No	R3_BH_Rev1_4040
Address	PO Box 1734 MILTON BC	QLD	4064	Test Date	31/10/18-8/11/18
				Report Date	8/11/2018
Project	Inland Rail B2G				
Project No	1897791		Client Sample No	310-01-BH2231	
Bore Hole	310-01-BH2231-S01450		Depth From (m)	14.5	Depth To (m) 14.95

Description SPT



NOTES/REMARKS:

-
Moisture Content 20.8%
Sample/s supplied by the client

Page 1 of 1 REP03903

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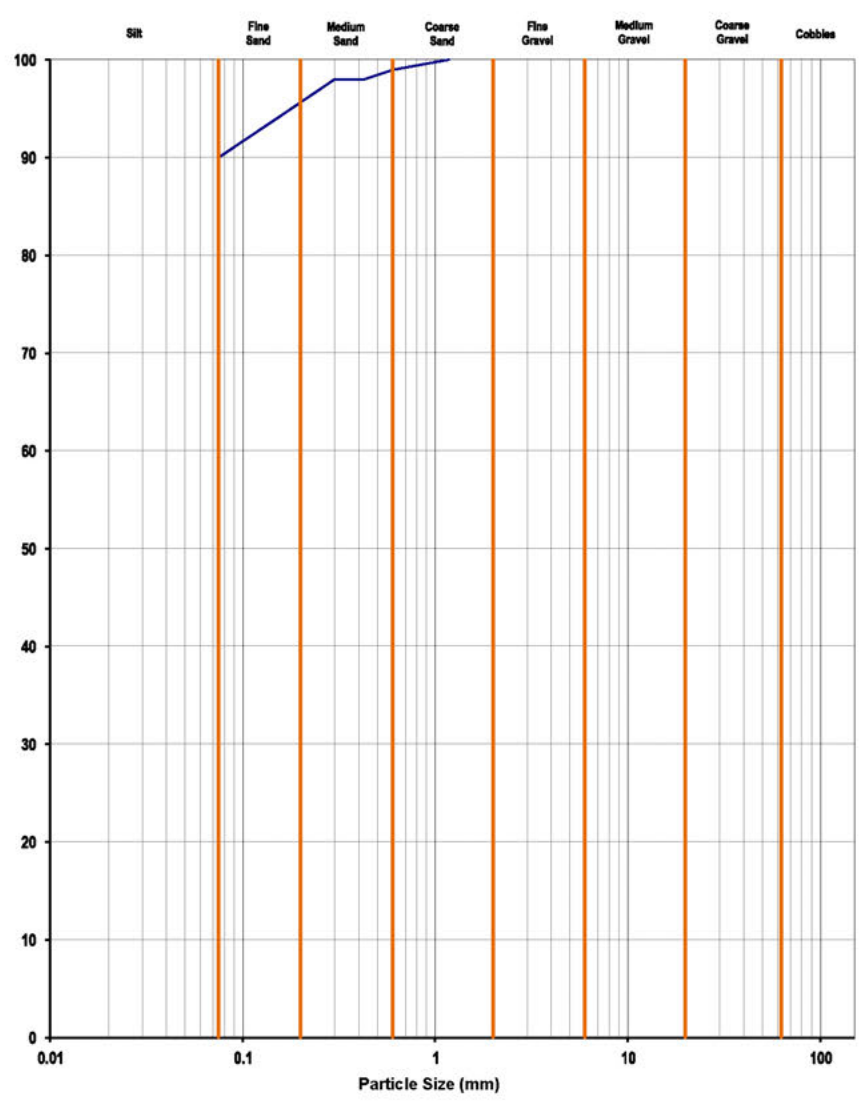
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101121-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2231		
Bore Hole	310-01-BH2231-S01750	Depth From (m)	17.5	Depth To (m)	17.95
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	100
0.600	99
0.425	98
0.300	98
0.150	94
0.075	90



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at 100% passing for 0.075 mm and remains at 100% until approximately 0.15 mm, then drops to 94% at 0.3 mm, 98% at 0.425 mm, 98% at 0.6 mm, and finally to 99% at 1.18 mm. Vertical lines indicate the boundaries for Soil, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles.

NOTES/REMARKS:

-
Moisture Content 23.8%
Sample/s supplied by the client

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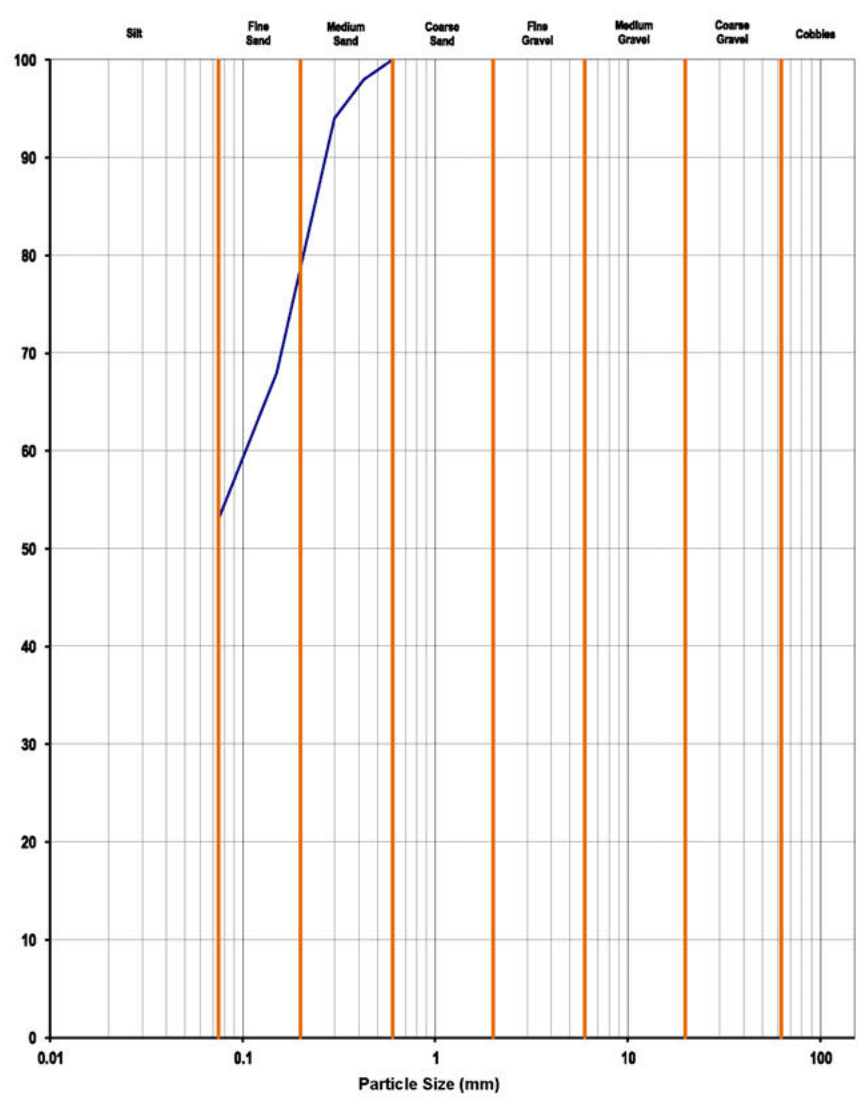
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101123-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2231		
Bore Hole	310-01-BH2231-S02050	Depth From (m)	20.5	Depth To (m)	20.95
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	
0.600	100
0.425	98
0.300	94
0.150	68
0.075	53



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 53% passing for 0.075 mm and reaches 100% passing at 0.600 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.850 mm), Coarse Sand (0.850 - 2.0 mm), Fine Gravel (2.0 - 4.75 mm), Medium Gravel (4.75 - 20 mm), Coarse Gravel (20 - 60 mm), and Cobbles (> 60 mm).

NOTES/REMARKS:

-
Moisture Content 16.7%
Sample/s supplied by the client

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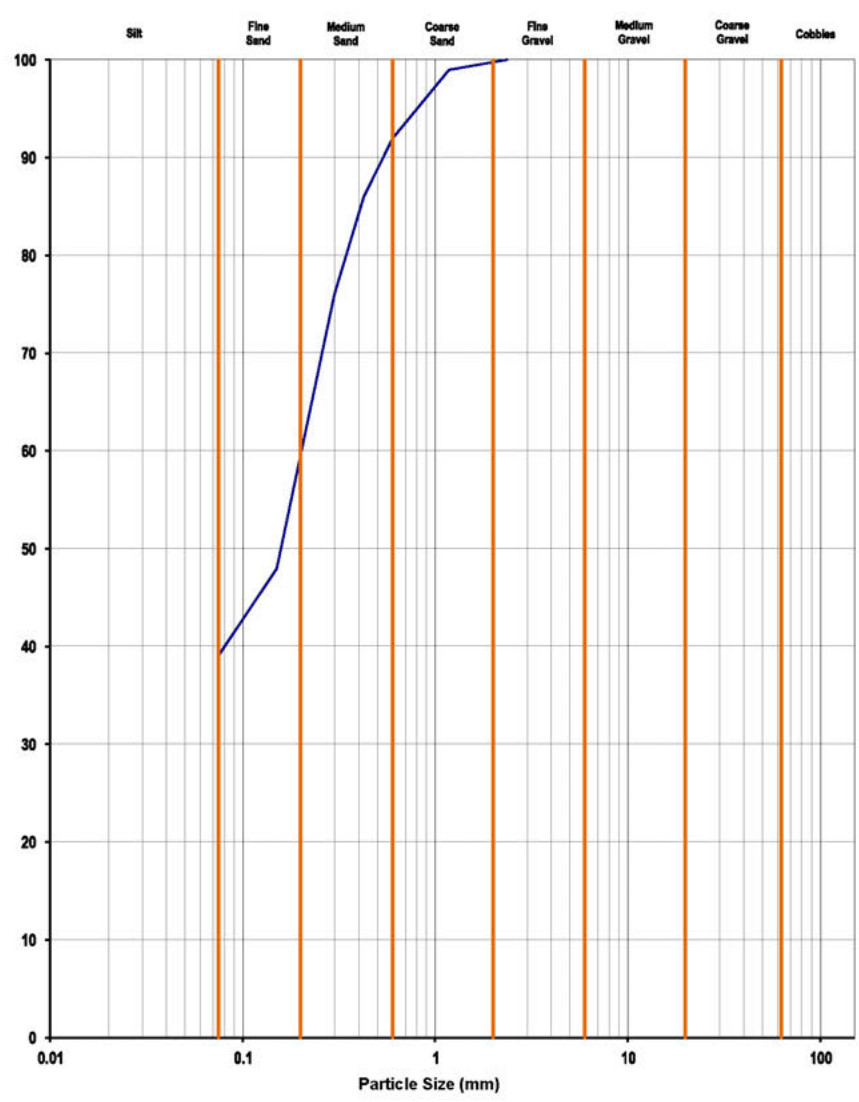
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101124-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2231		
Bore Hole	310-01-BH2231-S02350	Depth From (m)	23.5	Depth To (m)	23.91
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	100
1.18	99
0.600	92
0.425	86
0.300	76
0.150	48
0.075	39



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 39% passing for 0.075 mm and rises to 100% passing at 2.36 mm. Vertical lines indicate the boundaries for Soil, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles.

NOTES/REMARKS:

-
Moisture Content 16.5%
Sample/s supplied by the client

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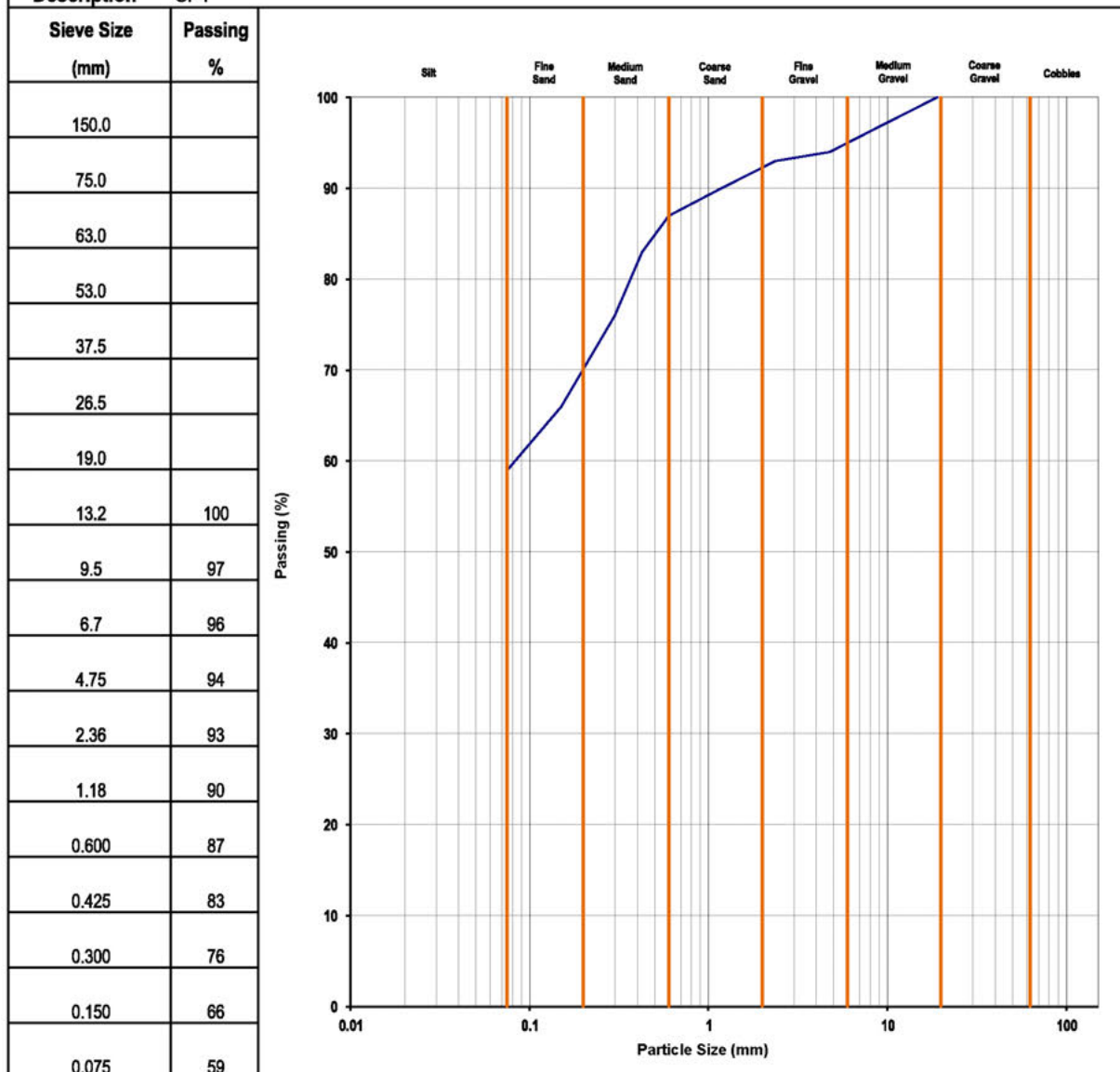
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101125-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	5/11/2018
Project No	1897791	Report Date	14/11/2018
Bore Hole	310-01-BH2233-S00200	Client Sample No	310-01-BH2233
Depth From (m)	2	Depth To (m)	2.45

Description SPT



NOTES/REMARKS:

-
Moisture Content 15.1%
Sample/s supplied by the client

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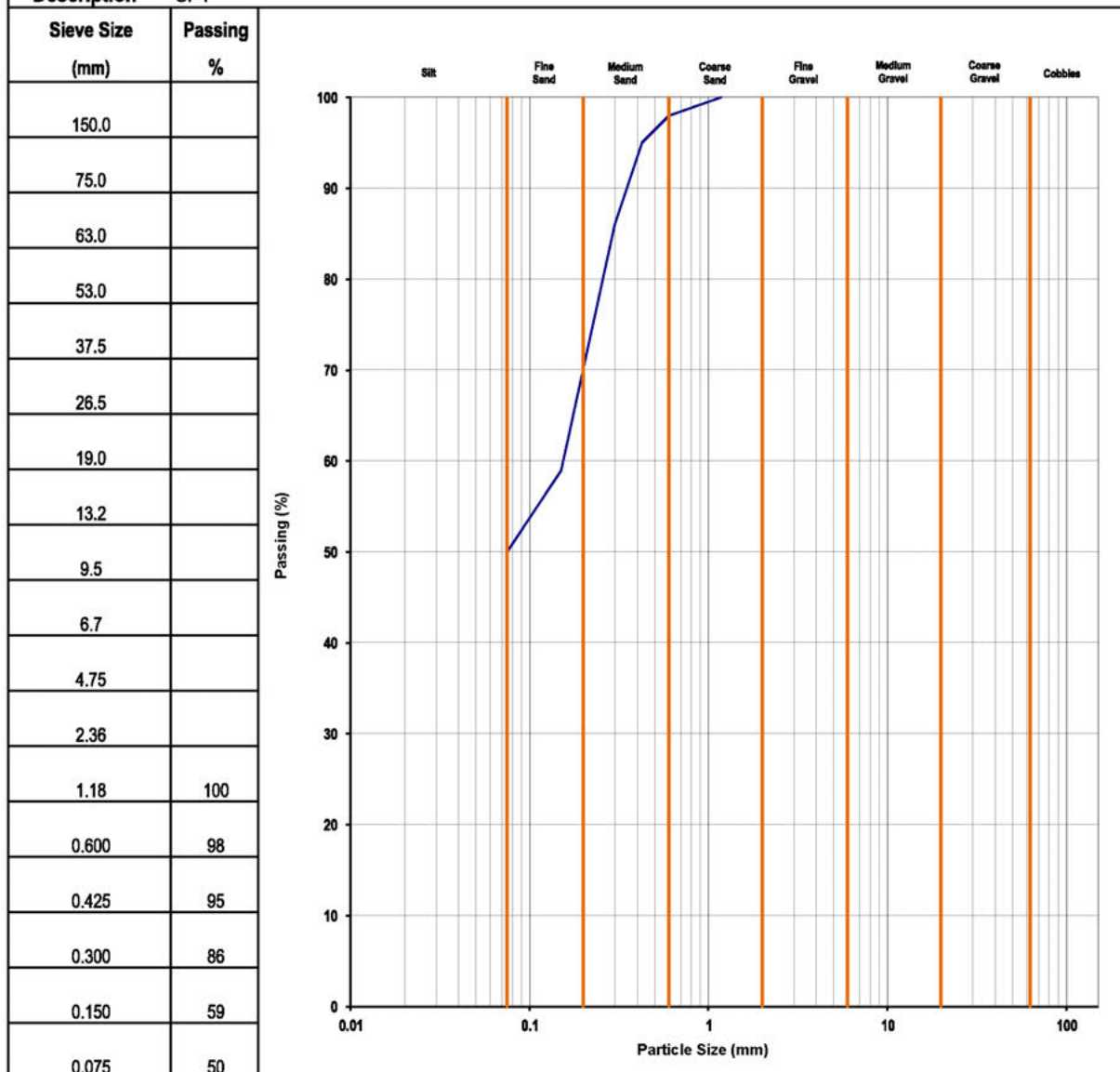
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101126-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
		Test Date	5/11/2018
		Report Date	14/11/2018

Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2233		
Bore Hole	310-01-BH2233-S00400	Depth From (m)	4	Depth To (m)	4.45

Description	SPT
--------------------	-----



NOTES/REMARKS:	-
	Moisture Content 20.1%
	Sample/s supplied by the client

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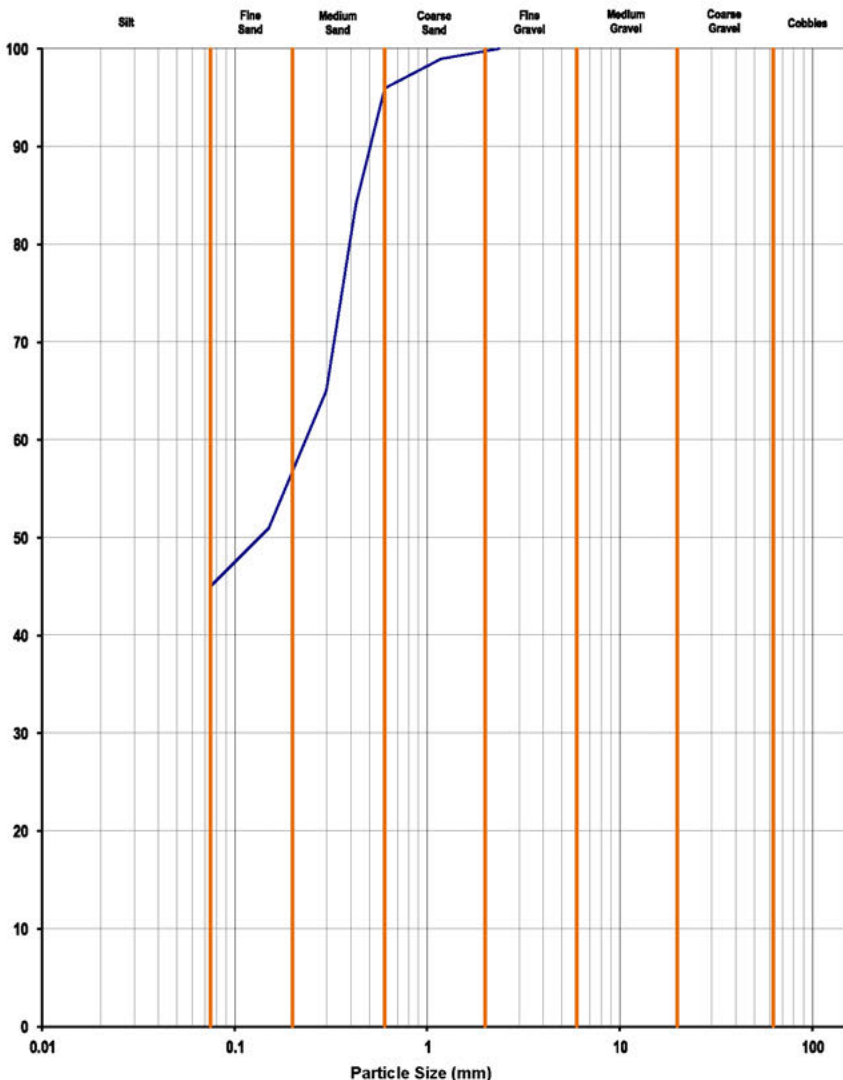
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101127-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2233		
Bore Hole	310-01-BH2233-S00550	Depth From (m)	5.5	Depth To (m)	5.95
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	100
1.18	99
0.600	96
0.425	84
0.300	65
0.150	51
0.075	45



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 45% passing for 0.075 mm and rises to 100% passing at 2.36 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.85 mm), Coarse Sand (0.85 - 2.36 mm), Fine Gravel (2.36 - 4.75 mm), Medium Gravel (4.75 - 9.5 mm), Coarse Gravel (9.5 - 20 mm), and Cobbles (> 20 mm).

NOTES/REMARKS:

-
Moisture Content 20%
Sample/s supplied by the client

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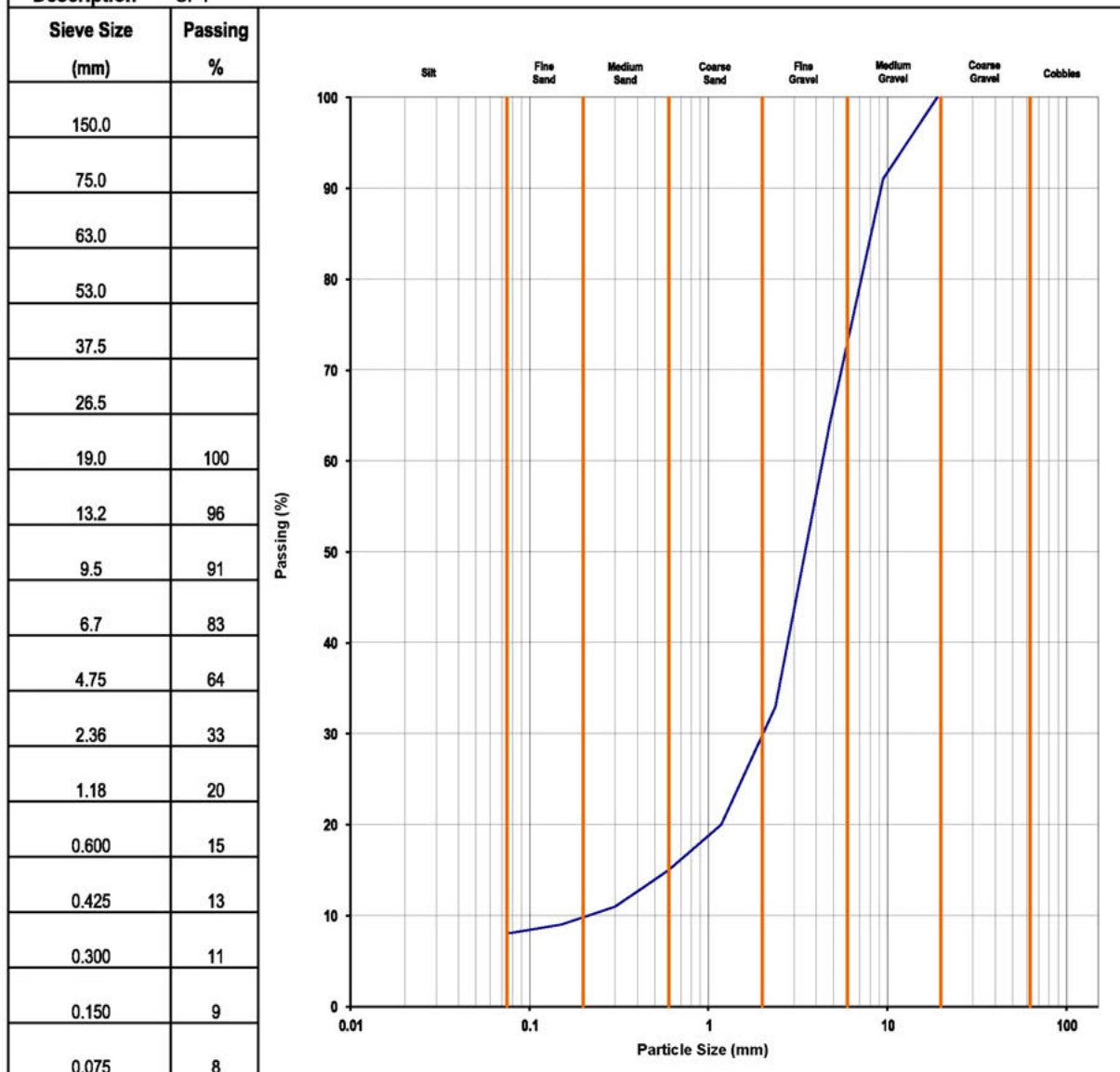
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101129-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	5/11/2018
Project No	1897791	Report Date	14/11/2018
Bore Hole	310-01-BH2233-S01000	Client Sample No	310-01-BH2233
Description	SPT	Depth From (m)	10
		Depth To (m)	10.45



NOTES/REMARKS:

-
Moisture Content 10.3%
Sample/s supplied by the client

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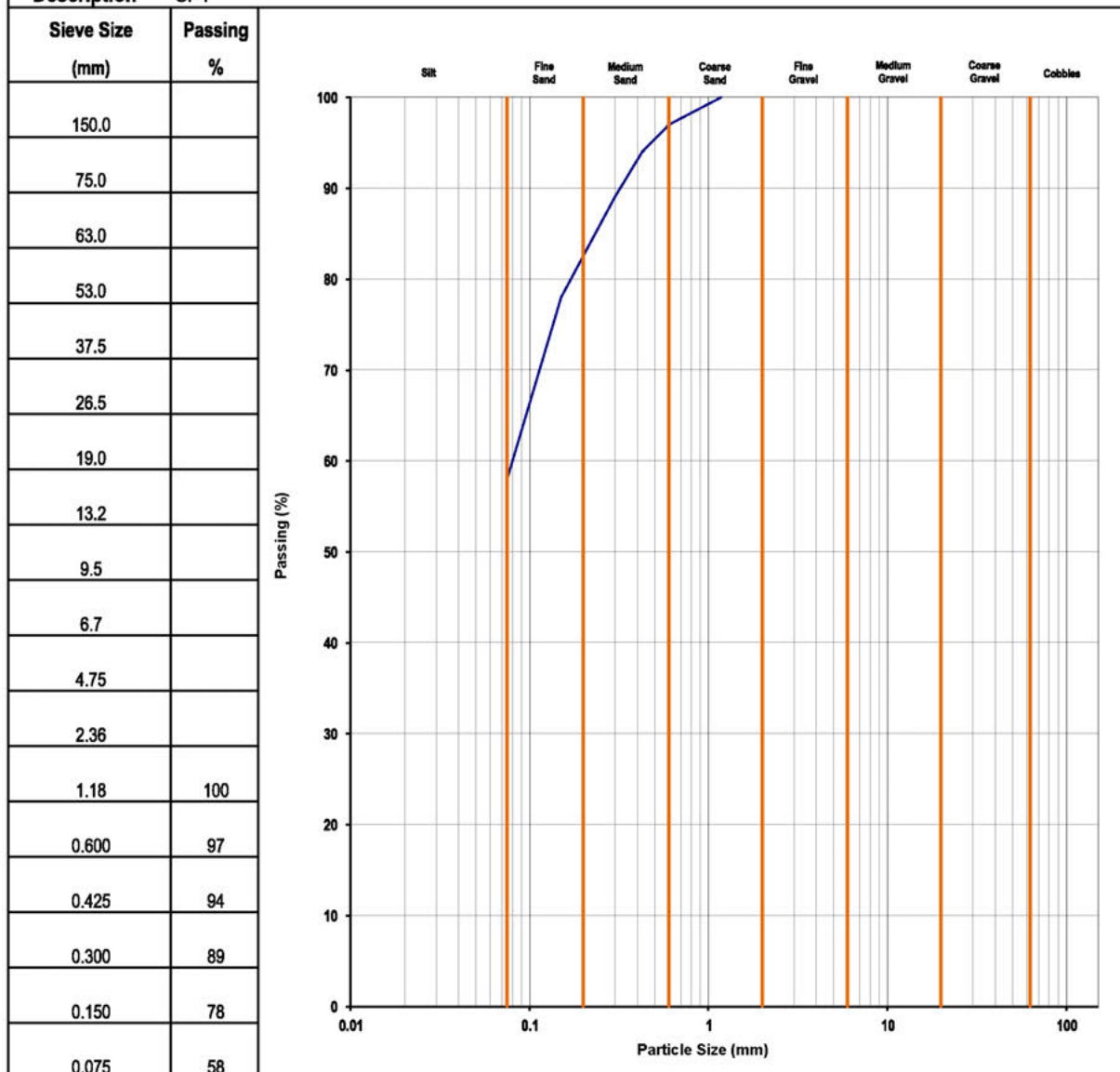
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101131-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
		Test Date	5/11/2018
		Report Date	14/11/2018

Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2233		
Bore Hole	310-01-BH2233-S01450	Depth From (m)	14.5	Depth To (m)	14.95

Description	SPT
--------------------	-----



NOTES/REMARKS:	-
	Moisture Content 34.8%
	Sample/s supplied by the client

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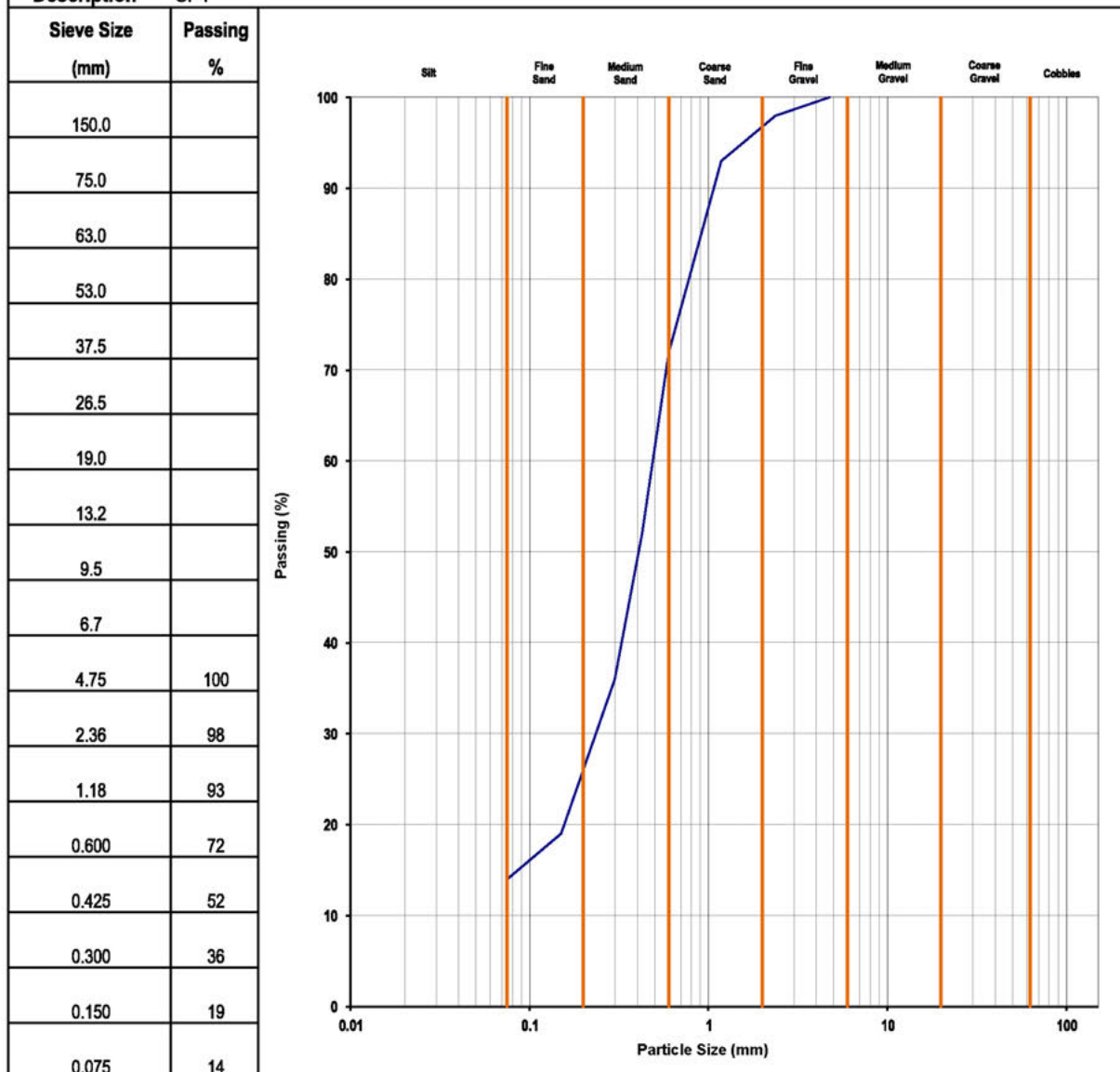
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101133-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
		Test Date	5/11/2018
		Report Date	14/11/2018

Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2233		
Bore Hole	310-01-BH2233-S02050	Depth From (m)	20.5	Depth To (m)	20.95

Description	SPT
--------------------	-----



NOTES/REMARKS:

-
Moisture Content 18%
Sample/s supplied by the client

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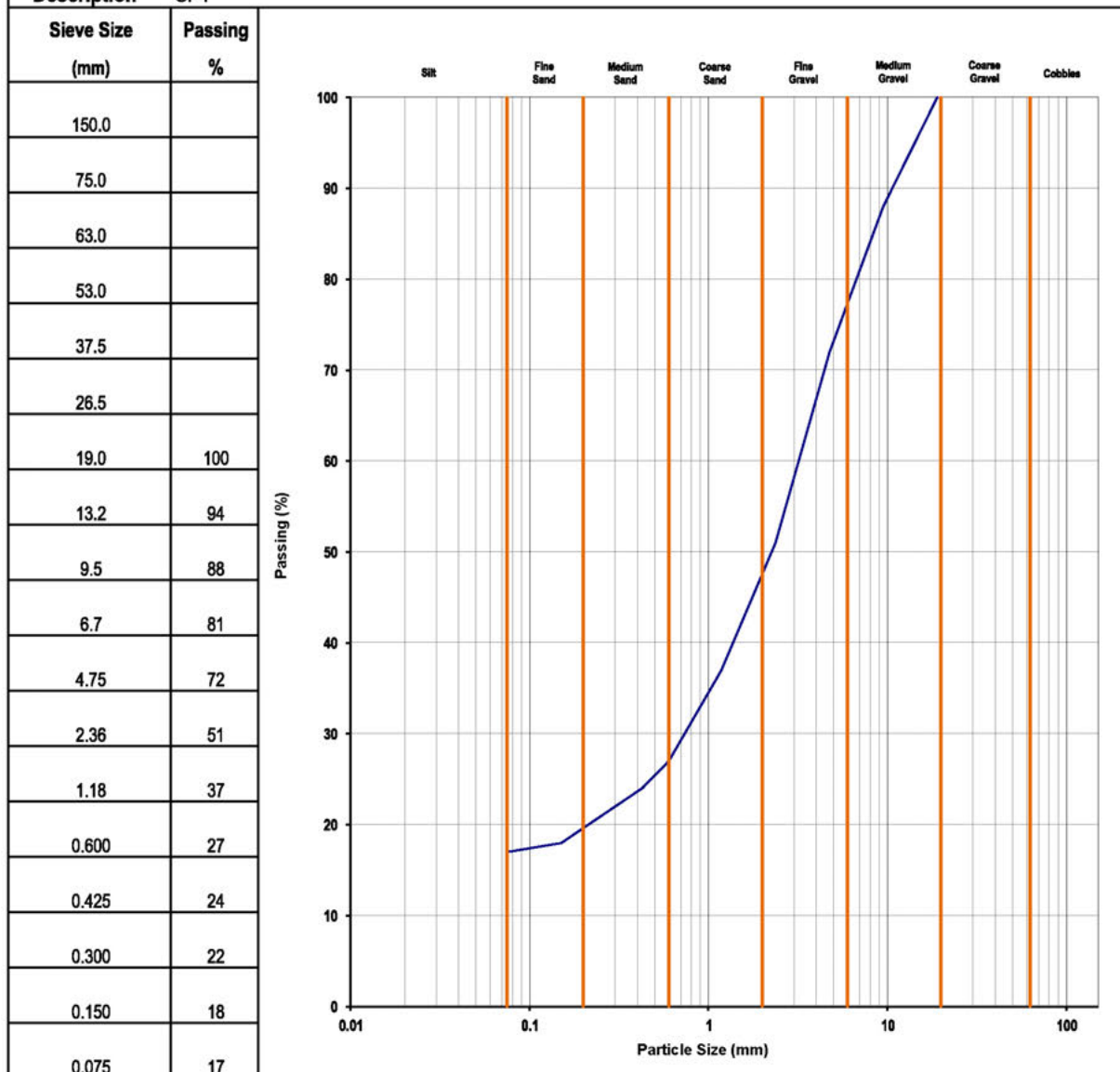
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA100502-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	4040_TR_R1
Project	Inland Rail - B2G	Test Date	29/6/18-4/7/18
Project No	1897791	Report Date	4/7/2018
Bore Hole	310-01-BH2232	Client Sample No	310-01-BH2232-S01280
Depth From (m)	12.8	Depth To (m)	13.25

Description SPT



NOTES/REMARKS:

-
Moisture Content 24.3%
Sample/s supplied by the client

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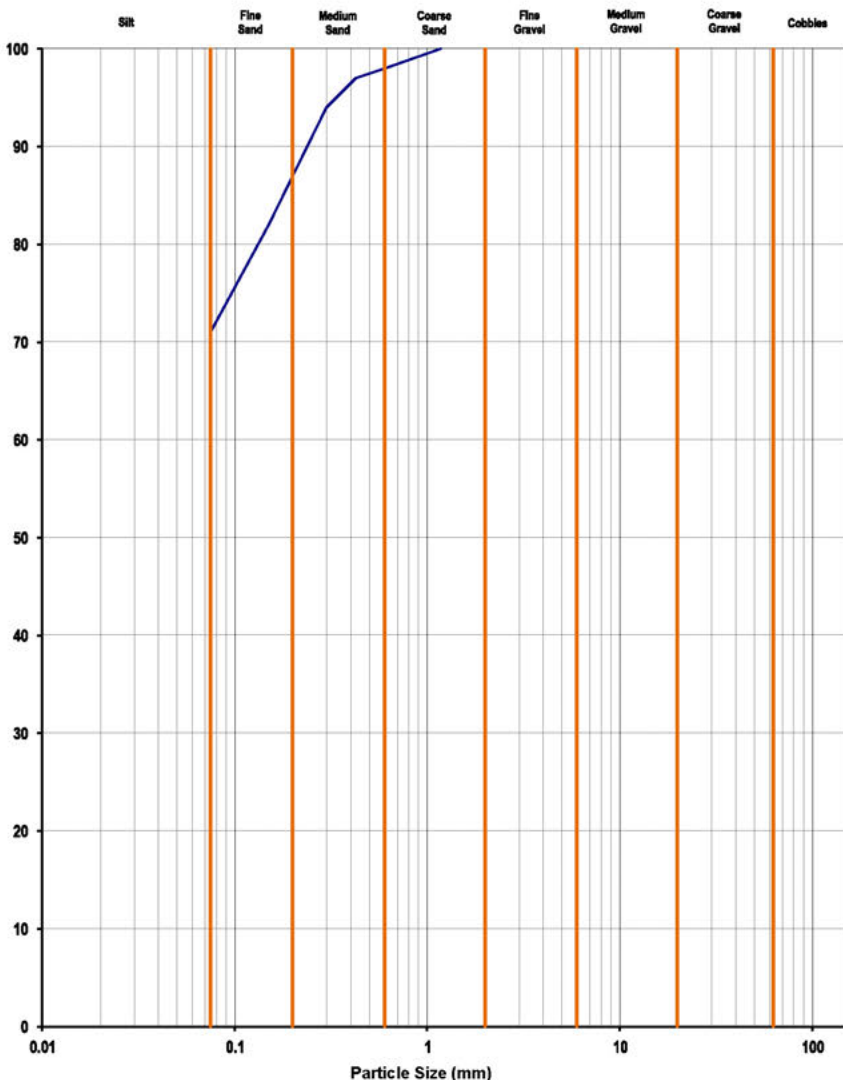
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA100503-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	4040_TR_R1
Project	Inland Rail - B2G				
Project No	1897791	Client Sample No	310-01-BH2232-S01580		
Bore Hole	310-01-BH2232	Depth From (m)	15.8	Depth To (m)	16.25
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	100
0.600	98
0.425	97
0.300	94
0.150	82
0.075	71



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 71% passing for 0.075 mm and reaches 100% passing at 1.18 mm. Vertical lines indicate the boundaries for soil types: Silt, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles.

NOTES/REMARKS:

-
Moisture Content 16.9%
Sample/s supplied by the client

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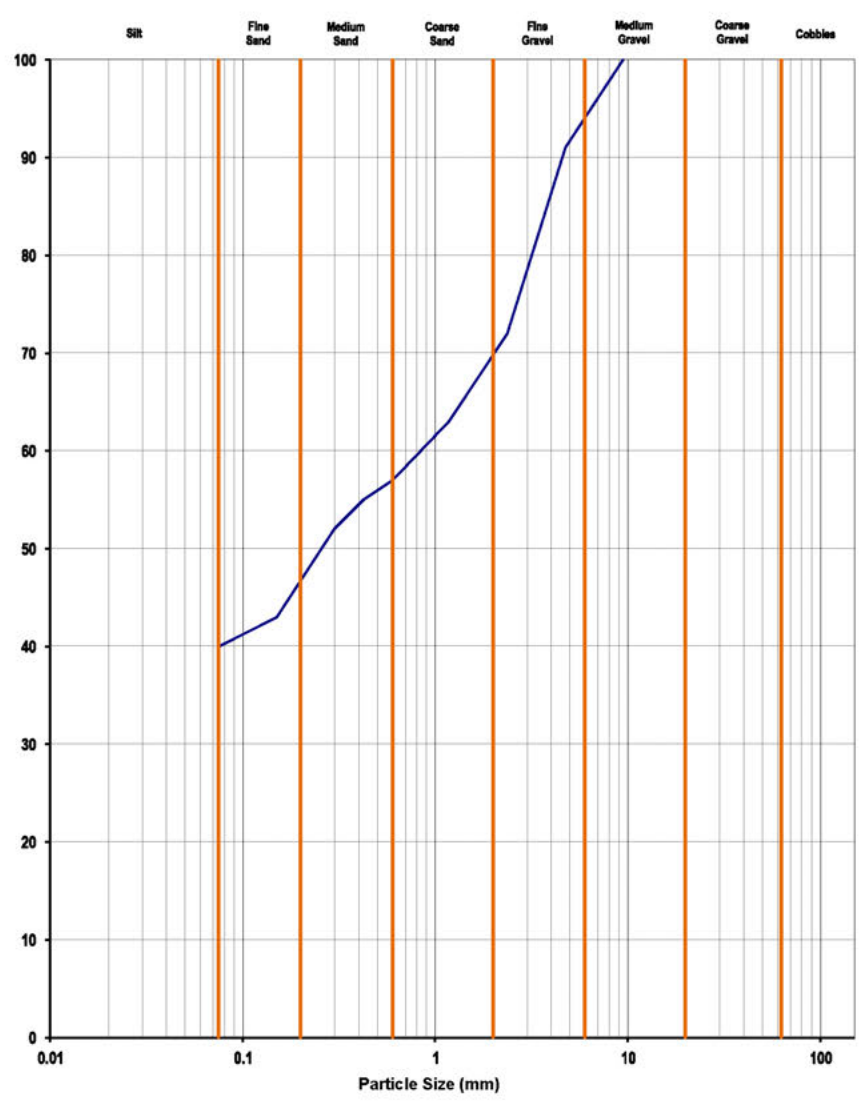
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA100496-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	4040_TR_R1
Project	Inland Rail - B2G				
Project No	1897791	Client Sample No	310-01-BH2230-S00930		
Bore Hole	310-01-BH2230	Depth From (m)	9.3	Depth To (m)	9.75
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	100
6.7	97
4.75	91
2.36	72
1.18	63
0.600	57
0.425	55
0.300	52
0.150	43
0.075	40



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 40% passing for 0.075 mm and rises to 100% passing at 9.5 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.85 mm), Coarse Sand (0.85 - 2.0 mm), Fine Gravel (2.0 - 4.75 mm), Medium Gravel (4.75 - 20 mm), Coarse Gravel (20 - 60 mm), and Cobbles (> 60 mm).

NOTES/REMARKS:

-
Moisture Content 19.7%
Sample/s supplied by the client

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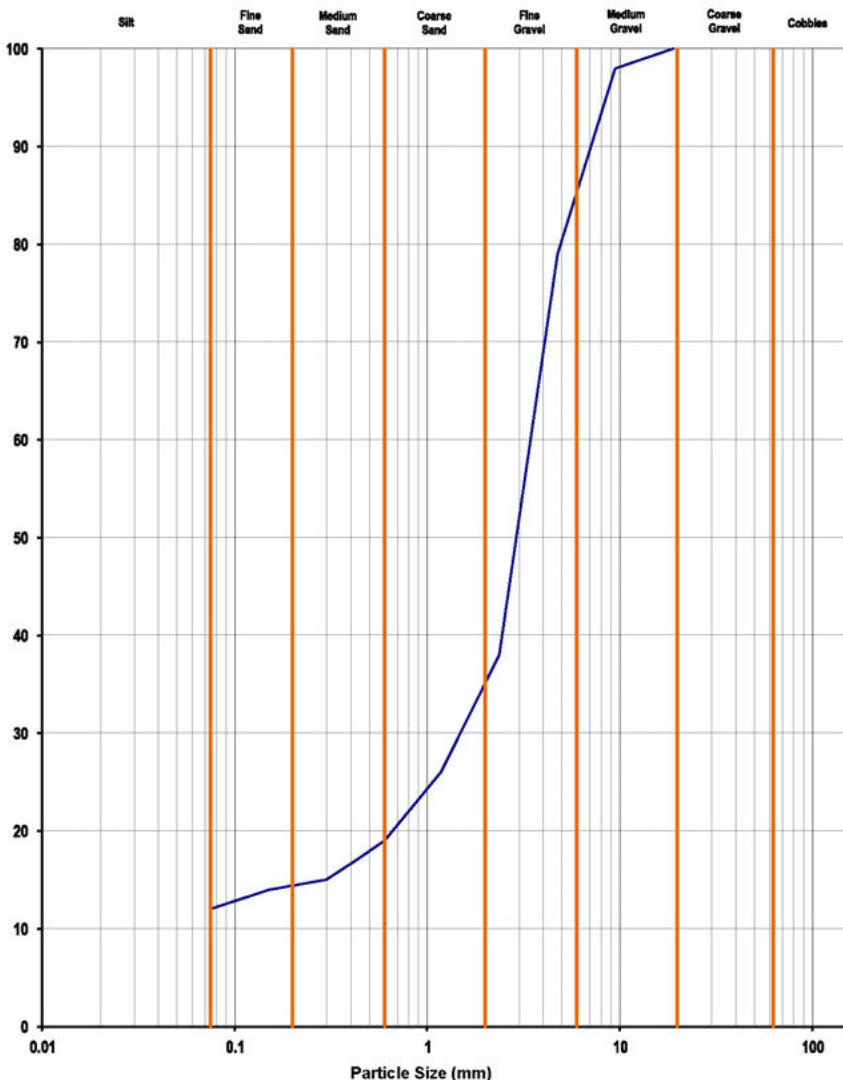
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA100498-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	4040_TR_R1
				Test Date	29/6/18-4/7/18
				Report Date	4/7/2018
Project	Inland Rail - B2G				
Project No	1897791	Client Sample No	310-01-BH2230-S01230		
Bore Hole	310-01-BH2230	Depth From (m)	12.3	Depth To (m)	12.75
Description	SPT				
Sieve Size (mm)	Passing %				
150.0					
75.0					
63.0					
53.0					
37.5					
26.5					
19.0	100				
13.2	99				
9.5	98				
6.7	91				
4.75	79				
2.36	38				
1.18	26				
0.600	19				
0.425	17				
0.300	15				
0.150	14				
0.075	12				
NOTES/REMARKS:		- Moisture Content 15.5% Sample/s supplied by the client			

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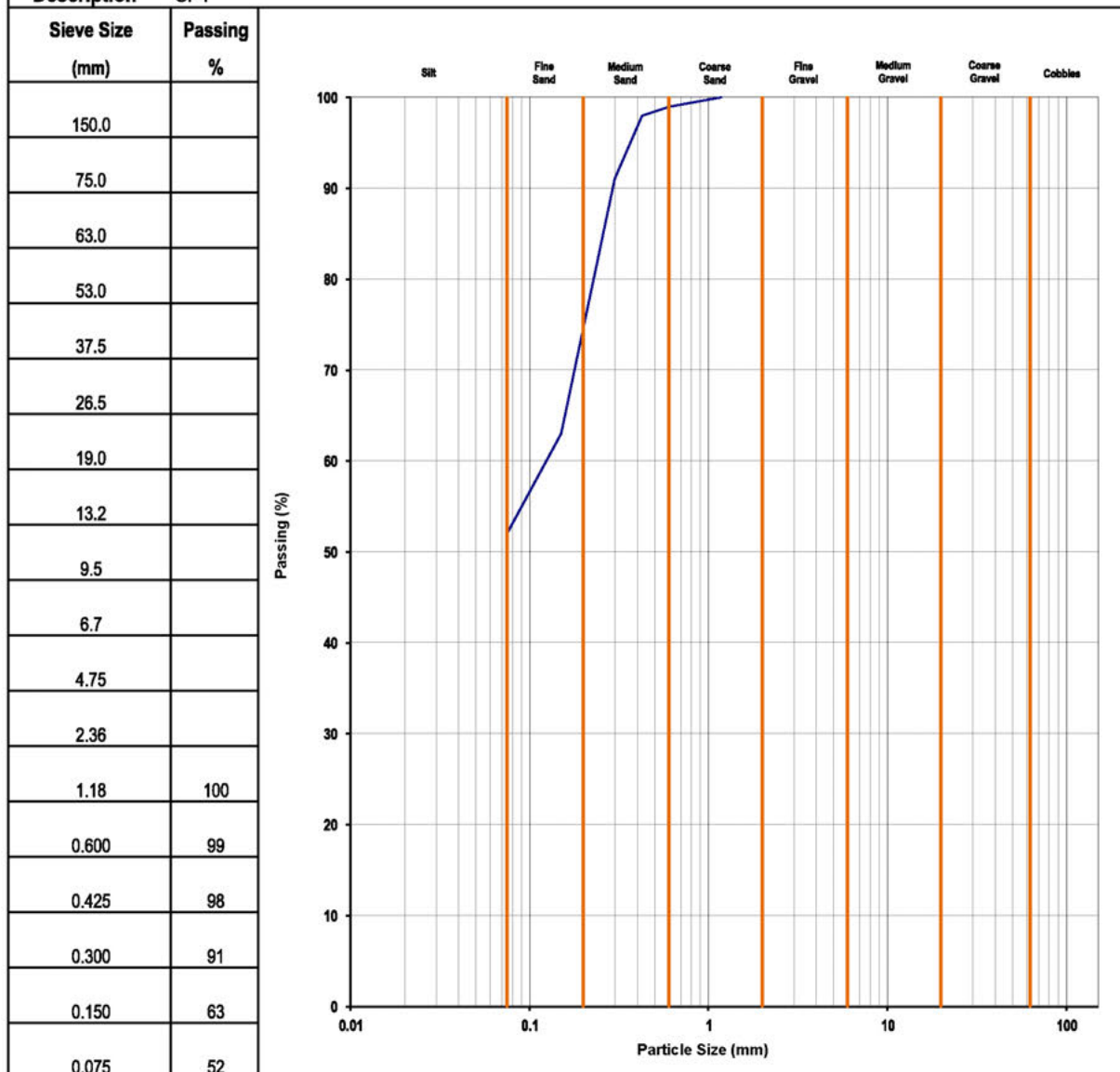
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited		Report No.	GA100506-G
Address	PO Box 1734 MILTON BC	QLD 4064	Request No	4040_TR_R1
Project	Inland Rail - B2G		Test Date	29/6/18-4/7/18
Project No	1897791	Client Sample No	310-01-BH2234_S00650	
Bore Hole	310-01-BH2234	Depth From (m)	6.5	Depth To (m) 6.95
Description	SPT			



NOTES/REMARKS:

-
Moisture Content 14%
Sample/s supplied by the client

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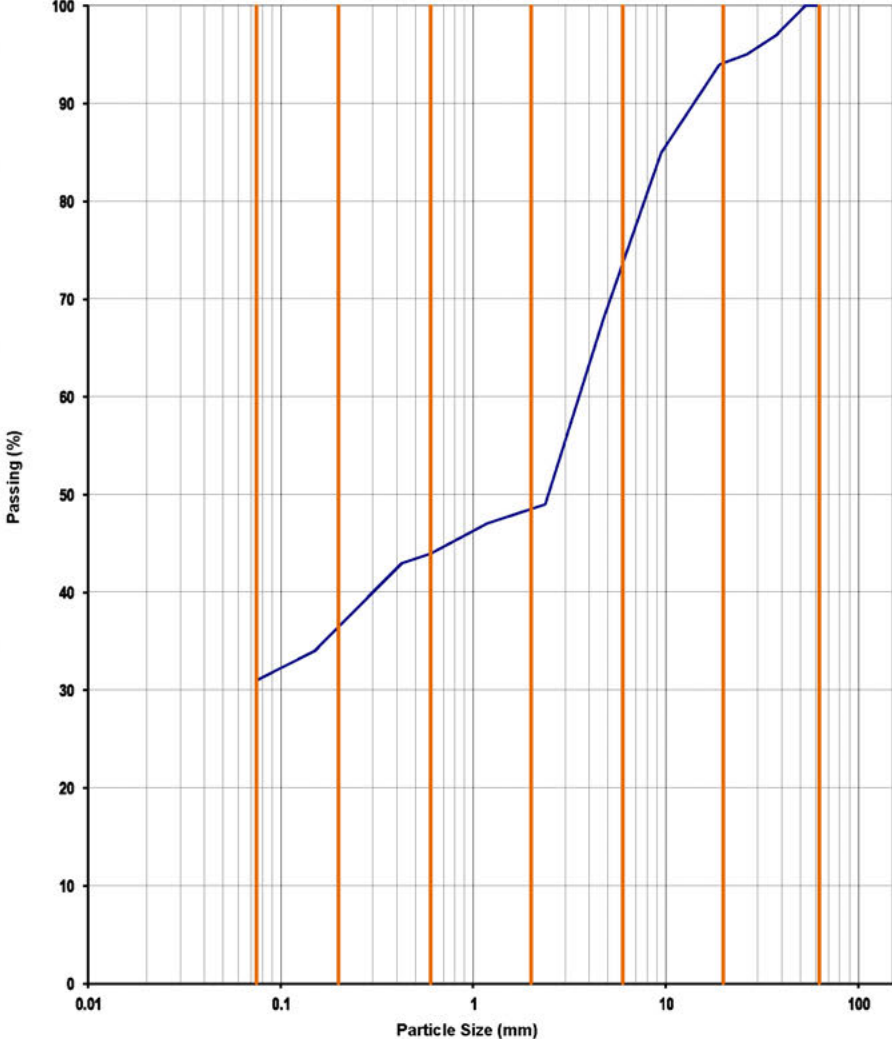
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA100479-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	4030_DH_R1
		Test Date	29/6/18-5/7/18
		Report Date	5/7/2018

Project	Inland Rail - B2G				
Project No	1897791	Client Sample No	310-01-DH2524-B00010		
Bore Hole	310-01-DH2524	Depth From (m)	0.1	Depth To (m)	0.5

Description		BDS
Sieve Size (mm)	Passing %	 The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 31% passing for 0.075mm and rises to 100% passing at 75mm. Vertical lines indicate the boundaries for Soil, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles.
150.0		
75.0		
63.0		
53.0	100	
37.5	97	
26.5	95	
19.0	94	
13.2	91	
9.5	85	
6.7	79	
4.75	68	
2.36	49	
1.18	47	
0.600	44	
0.425	43	
0.300	40	
0.150	34	
0.075	31	

NOTES/REMARKS:	-
	Moisture Content 17.1%
	Sample/s supplied by the client

Page 1 of 1 REP03903

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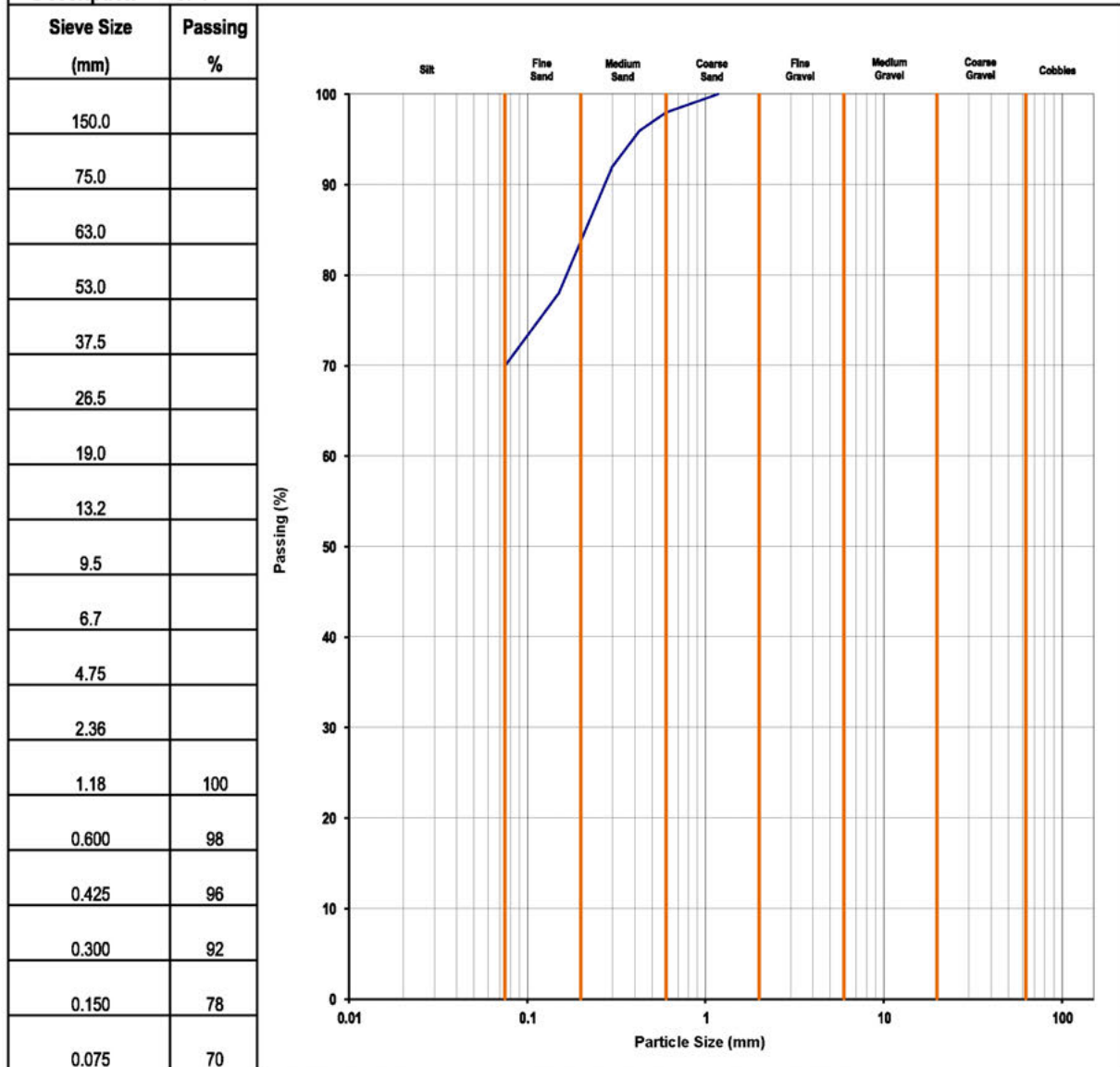
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA100509-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	4040_TR_R1
		Test Date	29/6/18-4/7/18
		Report Date	4/7/2018

Project	Inland Rail - B2G				
Project No	1897791	Client Sample No	310-01-BH2234-S02030		
Bore Hole	310-01-BH2234	Depth From (m)	20.3	Depth To (m)	20.75

Description	SPT
--------------------	-----



NOTES/REMARKS:	-
	Moisture Content 18.5%
	Sample/s supplied by the client

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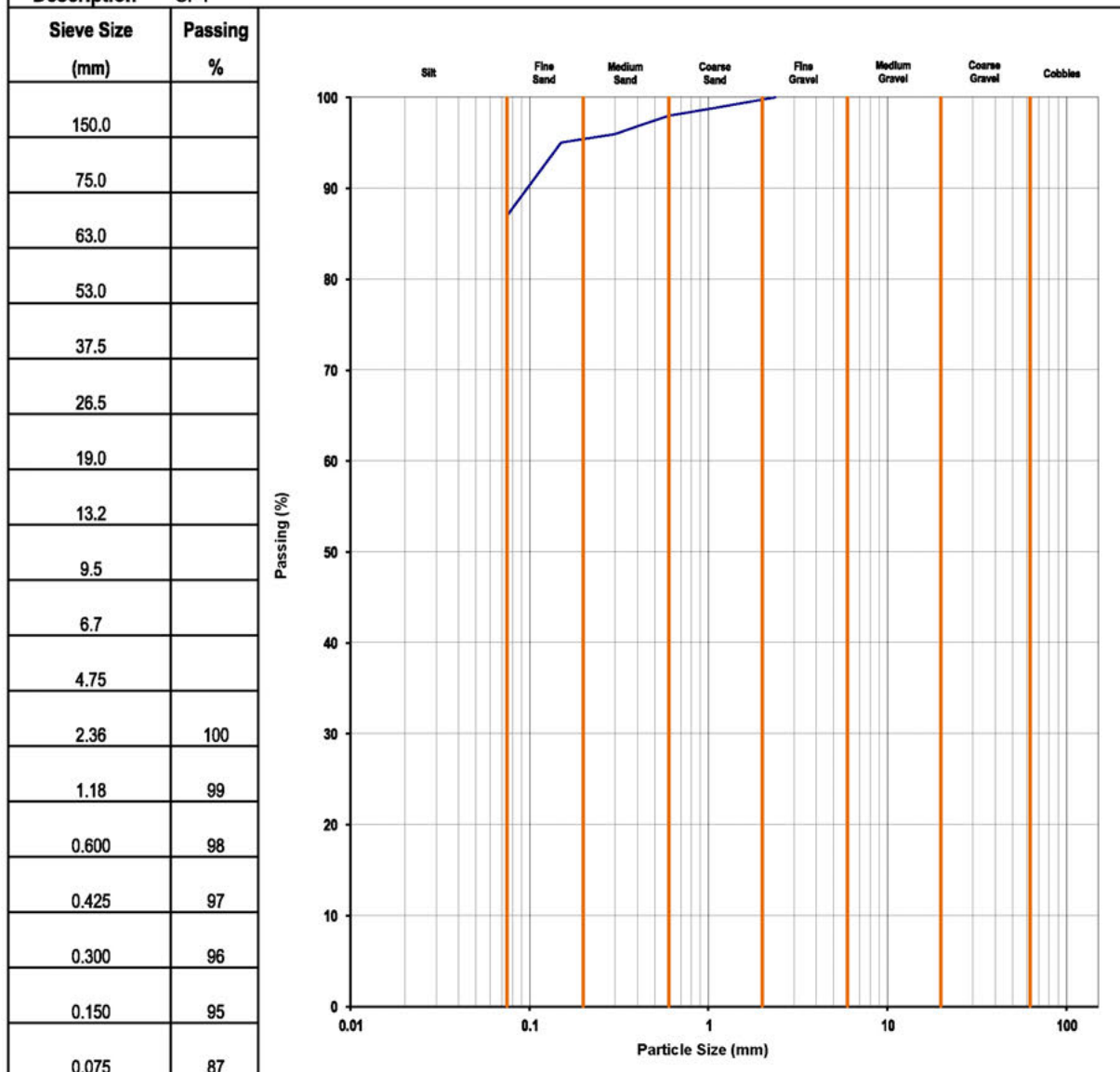
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101134-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	31/10/18-7/11/18
Project No	1897791	Client Sample No	310-01-BH2233
Bore Hole	310-01-BH2233-S02650	Depth From (m)	26.5
		Depth To (m)	26.95

Description SPT



NOTES/REMARKS:

-
Moisture Content 20.3%
Sample/s supplied by the client

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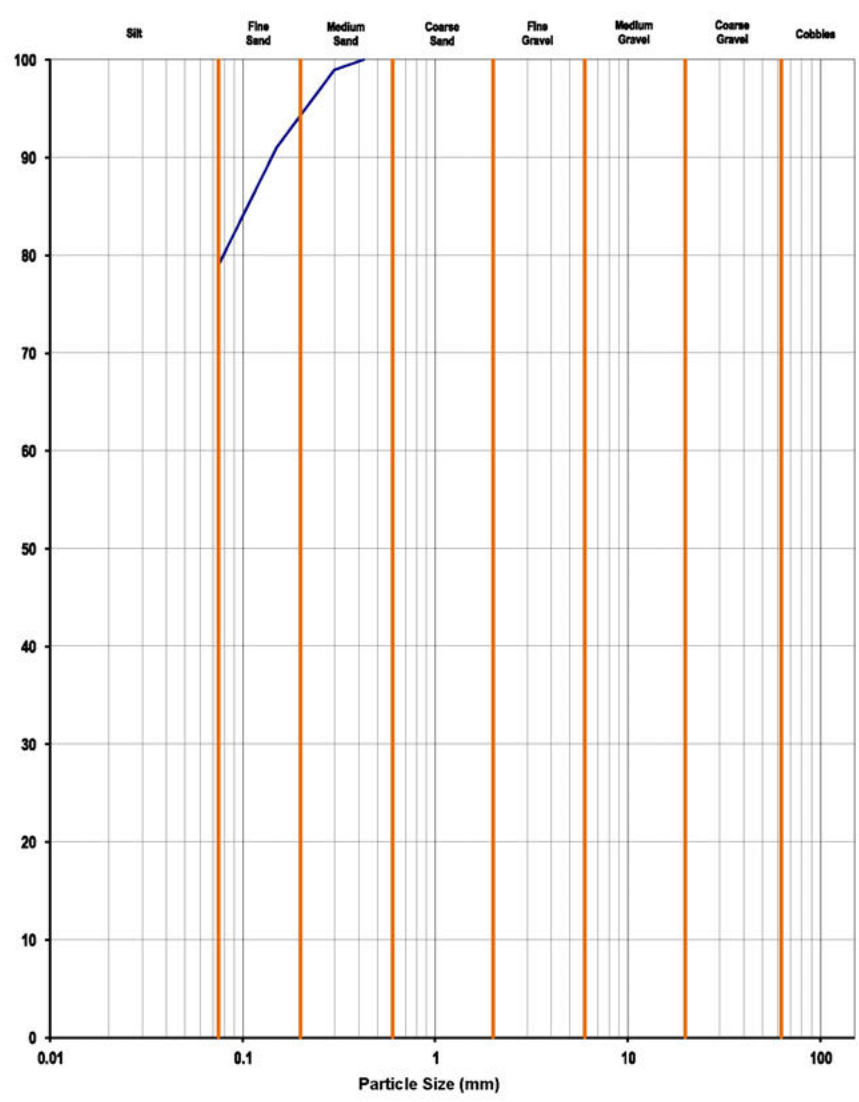
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101135-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2235		
Bore Hole	310-01-BH2235-S00380	Depth From (m)	3.8	Depth To (m)	4.25
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	
0.600	
0.425	100
0.300	99
0.150	91
0.075	79



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 79% passing for 0.075 mm and reaches 100% passing at 0.425 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.85 mm), Coarse Sand (0.85 - 2.0 mm), Fine Gravel (2.0 - 4.75 mm), Medium Gravel (4.75 - 9.5 mm), Coarse Gravel (9.5 - 20 mm), and Cobbles (> 20 mm).

NOTES/REMARKS:

-
Moisture Content 26.7%
Sample/s supplied by the client

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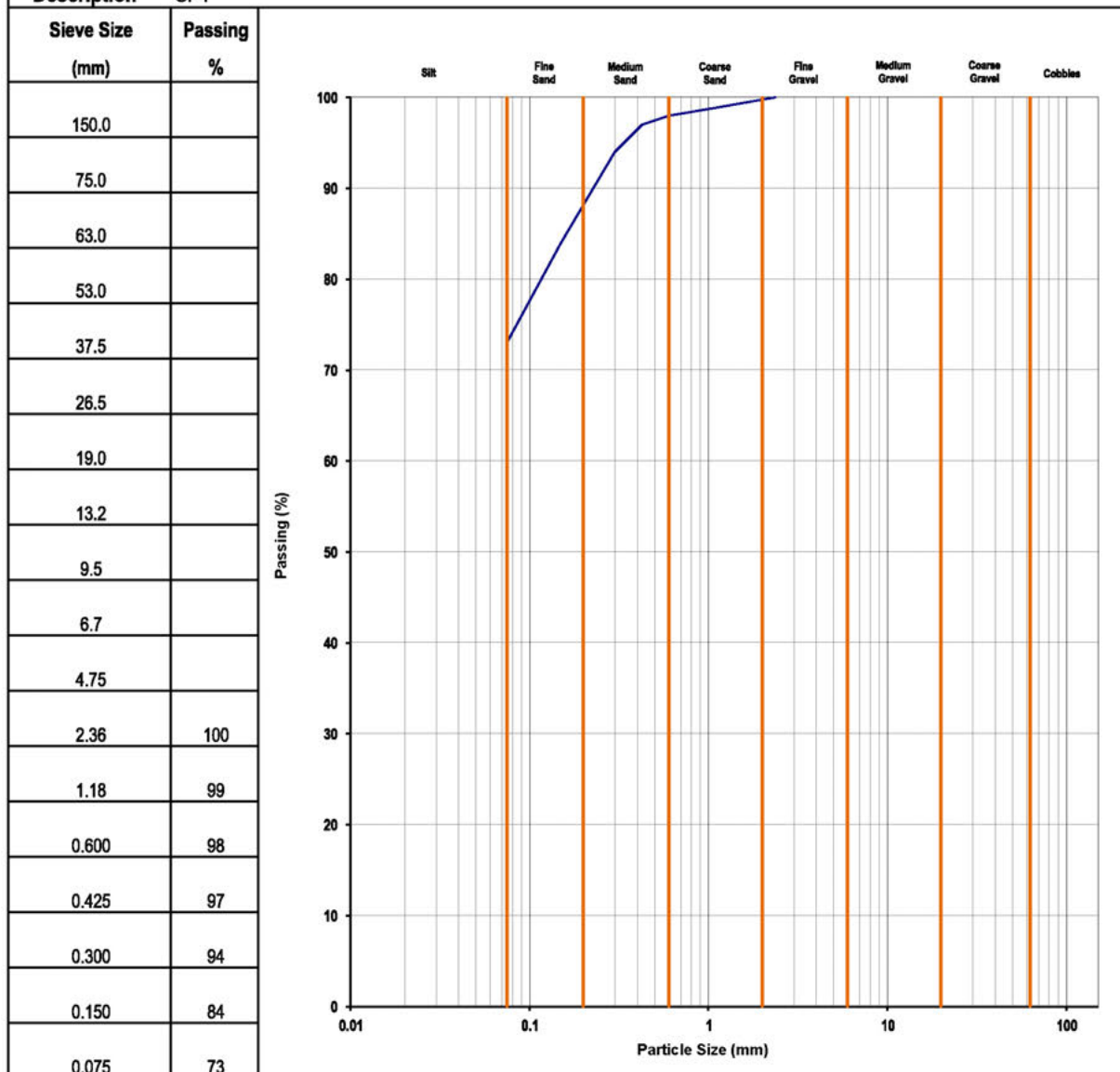
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101136-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	31/10/18-7/11/18
Project No	1897791	Client Sample No	310-01-BH2235
Bore Hole	310-01-BH2235-S00530	Depth From (m)	5.3
		Depth To (m)	5.75

Description SPT



NOTES/REMARKS:

-
Moisture Content 16.2%
Sample/s supplied by the client

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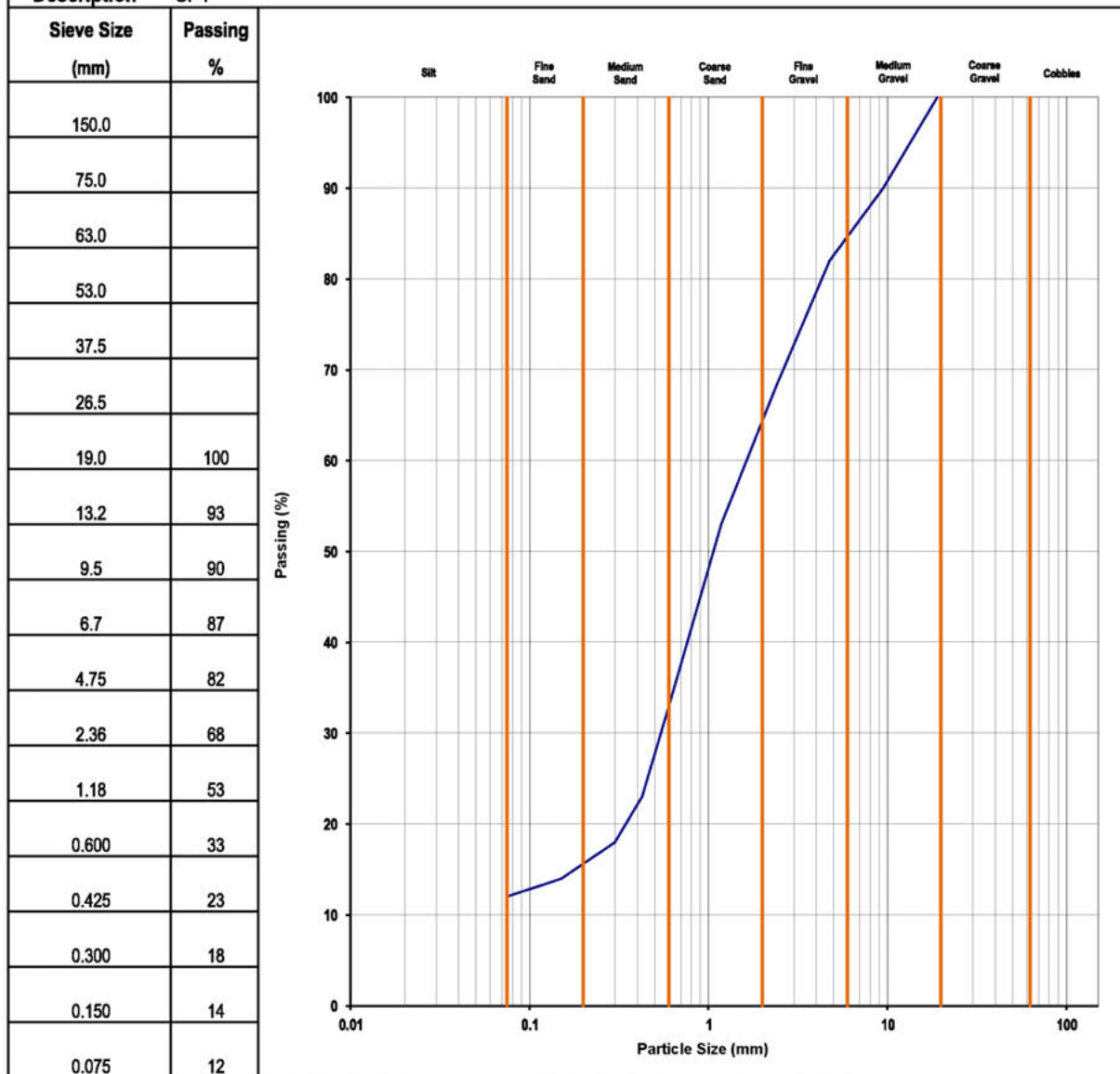
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101138-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	31/10/18-7/11/18
Project No	1897791	Client Sample No	310-01-BH2235
Bore Hole	310-01-BH2235-S00830	Depth From (m)	8.3
Description	SPT	Depth To (m)	8.75



NOTES/REMARKS:

-
Moisture Content 10.4%
Sample/s supplied by the client

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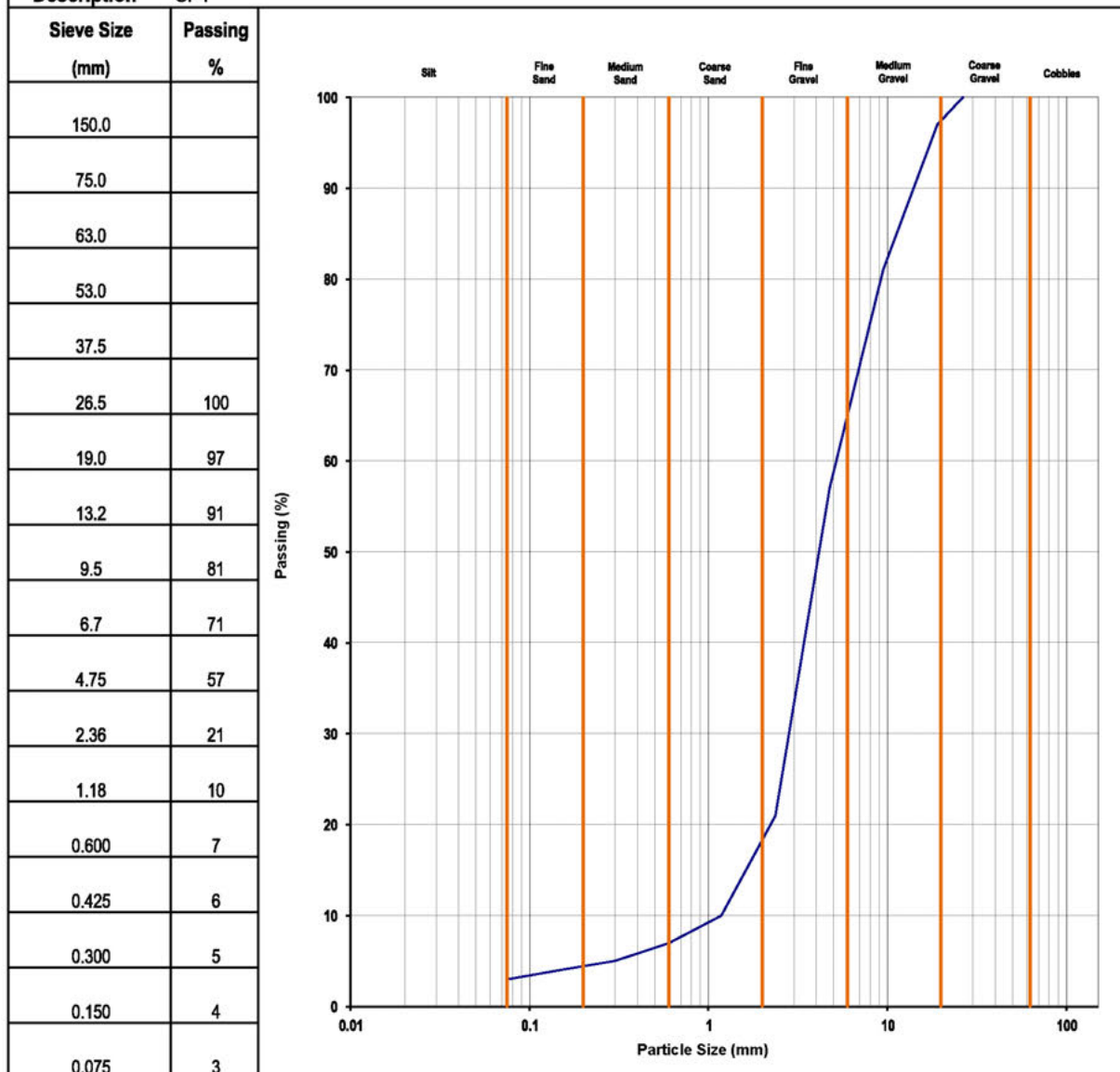
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101139-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	31/10/18-8/11/18
Project No	1897791	Client Sample No	310-01-BH2235
Bore Hole	310-01-BH2235-S00980	Depth From (m)	9.8
		Depth To (m)	10.25

Description SPT



NOTES/REMARKS:

-
Moisture Content 8.5%
Sample/s supplied by the client

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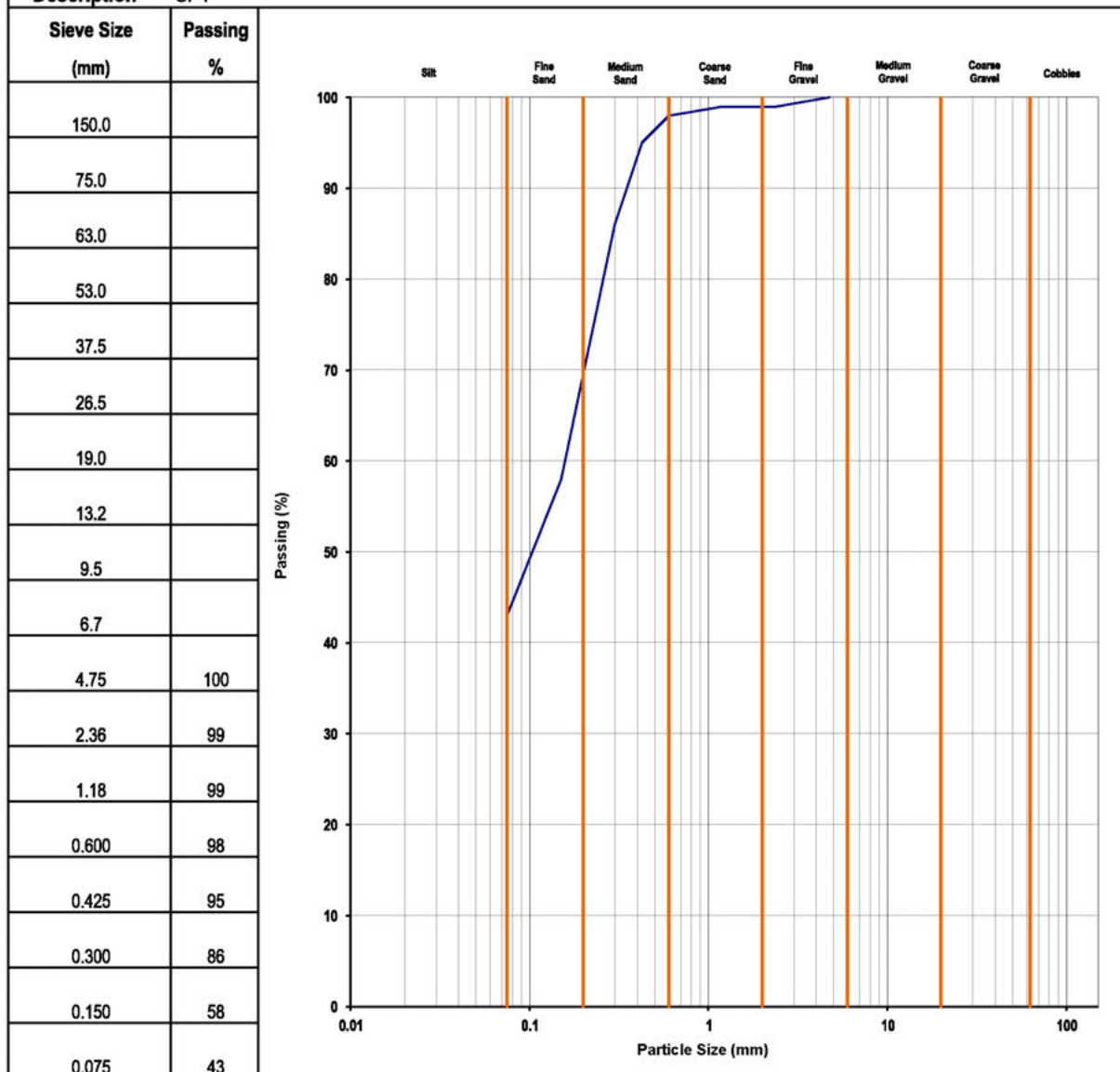
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Goldier Associates Pty Limited	Report No.	GA101142-G
Address	PO Box 1734 MILTON BC QLD 4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	31/10/18-8/11/18
Project No	1897791	Client Sample No	310-01-BH2235
Bore Hole	310-01-BH2235-S01880	Depth From (m)	18.8
		Depth To (m)	19.25

Description SPT



NOTES/REMARKS:

-
Moisture Content 23%
Sample/s supplied by the client

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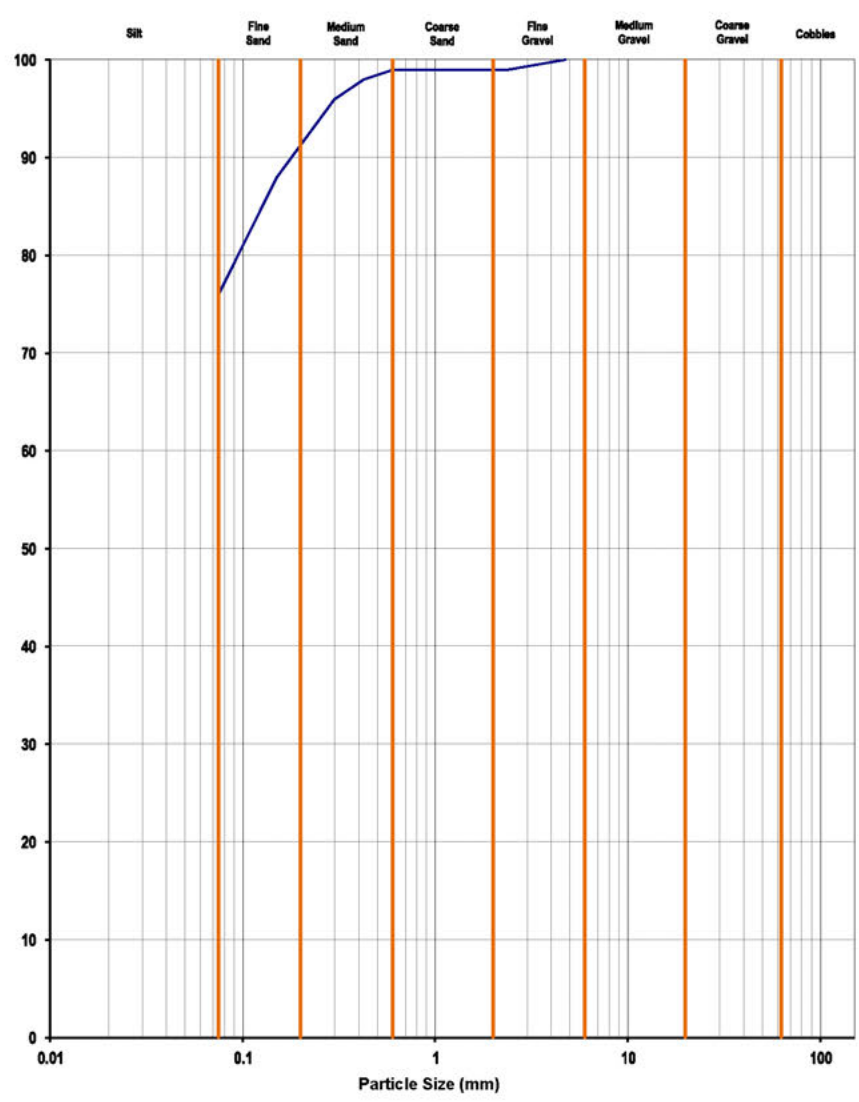
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101143-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2235		
Bore Hole	310-01-BH2235-S02180	Depth From (m)	21.8	Depth To (m)	22.25
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	100
2.36	99
1.18	99
0.600	99
0.425	98
0.300	96
0.150	88
0.075	76



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at approximately 76% passing for 0.075 mm and rises to 100% passing at 4.75 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.85 mm), Coarse Sand (0.85 - 2.0 mm), Fine Gravel (2.0 - 4.75 mm), Medium Gravel (4.75 - 20 mm), Coarse Gravel (20 - 60 mm), and Cobbles (> 60 mm).

NOTES/REMARKS:

-
Moisture Content 30.5%
Sample/s supplied by the client

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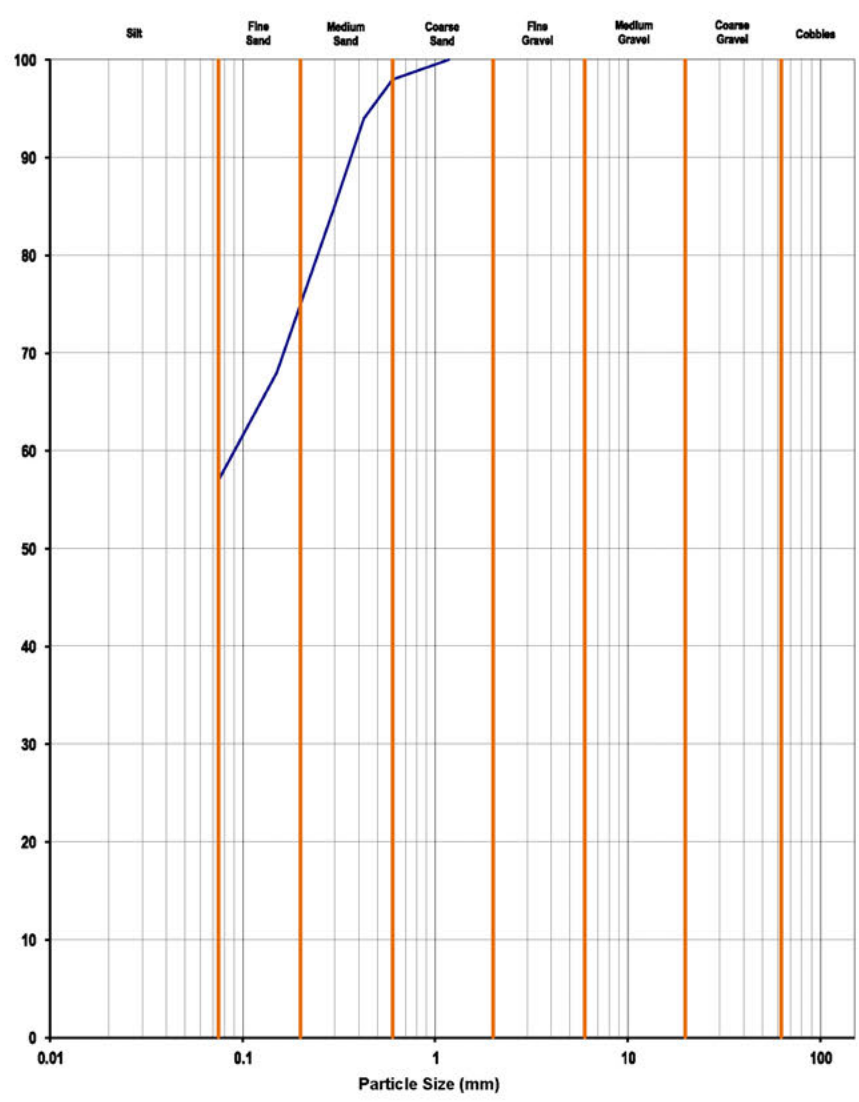
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101145-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2235		
Bore Hole	310-01-BH2235-S03230	Depth From (m)	32.3	Depth To (m)	32.75
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	100
0.600	98
0.425	94
0.300	85
0.150	68
0.075	57



The graph plots Passing (%) on the y-axis (0 to 100) against Particle Size (mm) on a logarithmic x-axis (0.01 to 100). Vertical lines indicate sieve sizes: 0.075, 0.150, 0.300, 0.425, 0.600, 1.18, 2.36, 4.75, 6.7, 9.5, 13.2, 19.0, 26.5, 37.5, 53.0, 63.0, 75.0, 150.0. The curve starts at approximately 57% passing for 0.075 mm and reaches 100% passing at 1.18 mm.

NOTES/REMARKS:

-
Moisture Content 25.4%
Sample/s supplied by the client

Page 1 of 1 REP03903

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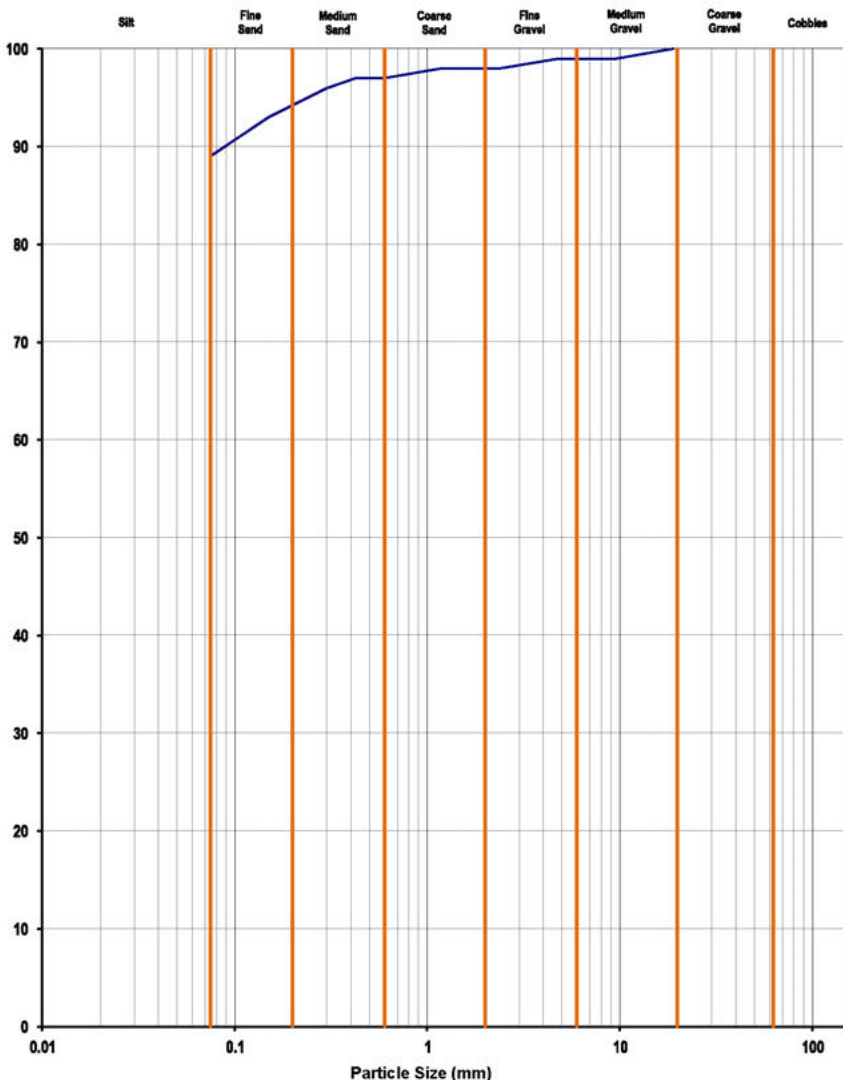
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101146-G	
Address	PO Box 1734 MILTON BC QLD 4064			Request No	R3_BH_Rev1_4040	
Project	Inland Rail B2G					
Project No	1897791		Client Sample No	310-01-BH2236		
Bore Hole	310-01-BH2236-S00100		Depth From (m)	1	Depth To (m)	1.45
Description	SPT					
Sieve Size (mm)	Passing %					
150.0						
75.0						
63.0						
53.0						
37.5						
26.5						
19.0						
13.2	100					
9.5	99					
6.7	99					
4.75	99					
2.36	98					
1.18	98					
0.600	97					
0.425	97					
0.300	96					
0.150	93					
0.075	89					
NOTES/REMARKS:		- Moisture Content 19.2% Sample/s supplied by the client				

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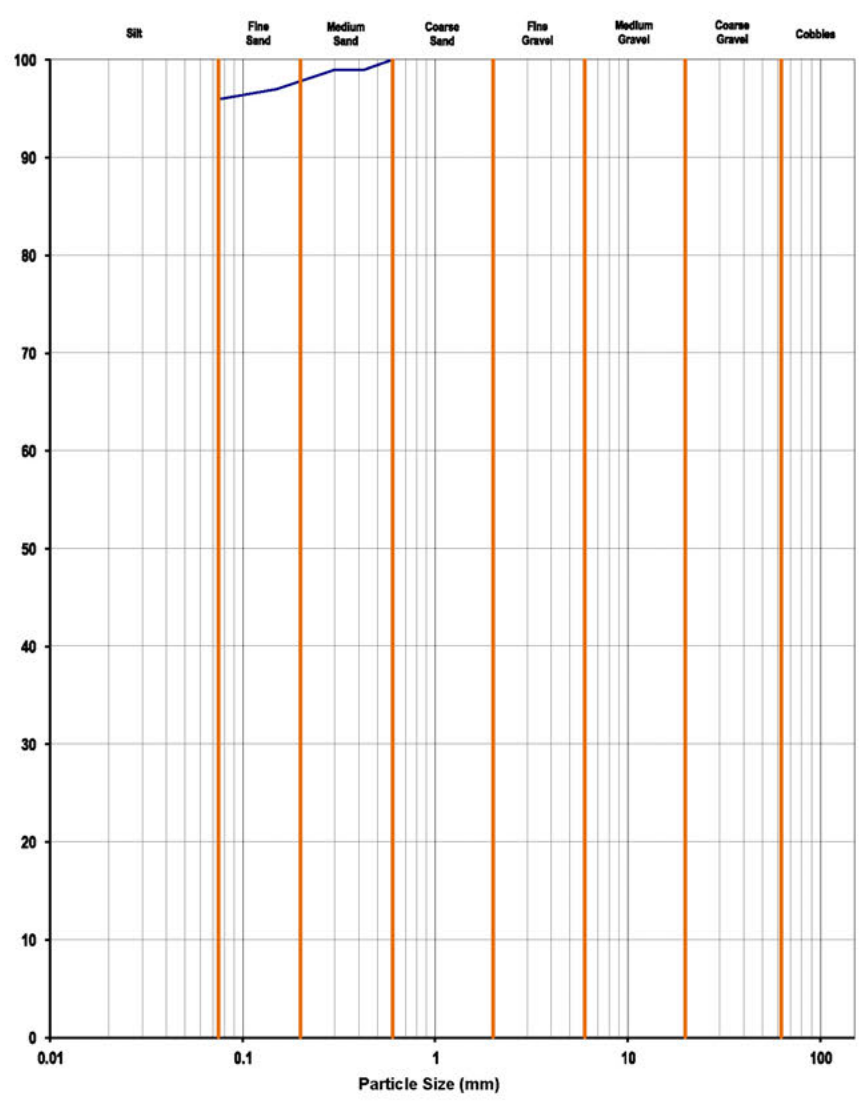
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101148-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2236		
Bore Hole	310-01-BH2236-S00550	Depth From (m)	5.5	Depth To (m)	5.95
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	
0.600	100
0.425	99
0.300	99
0.150	97
0.075	96



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at 100% passing for 0.075 mm and remains at 100% until approximately 0.25 mm, then drops to about 96% at 0.075 mm. Vertical lines indicate the boundaries for soil classification: Silt (< 0.075 mm), Fine Sand (0.075 - 0.425 mm), Medium Sand (0.425 - 0.85 mm), Coarse Sand (0.85 - 2.0 mm), Fine Gravel (2.0 - 4.75 mm), Medium Gravel (4.75 - 9.5 mm), Coarse Gravel (9.5 - 20 mm), and Cobbles (> 20 mm).

NOTES/REMARKS:

-
Moisture Content 34.1%
Sample/s supplied by the client

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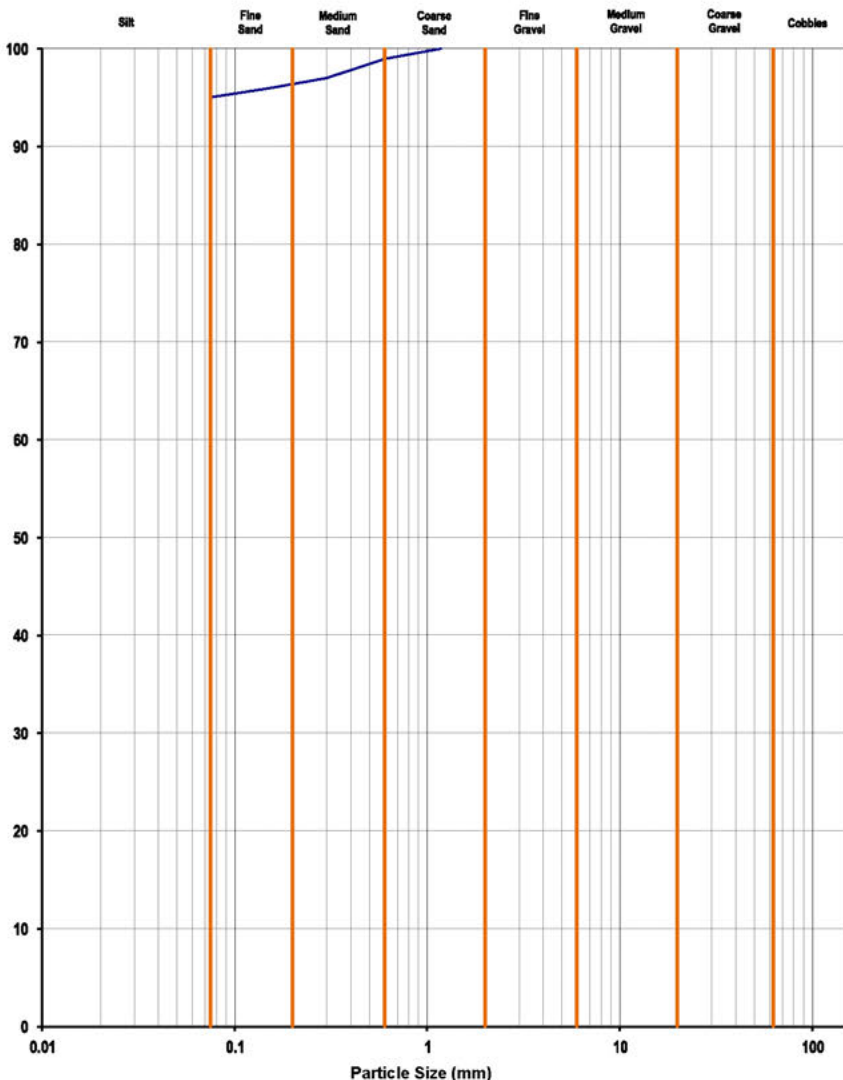
Trilab Pty Ltd ABN 25 065 630 506

PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101150-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2236		
Bore Hole	310-01-BH2236-S01450	Depth From (m)	14.5	Depth To (m)	14.95
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	
13.2	
9.5	
6.7	
4.75	
2.36	
1.18	100
0.600	99
0.425	98
0.300	97
0.150	96
0.075	95



The graph shows the particle size distribution curve for the sample. The x-axis represents Particle Size (mm) on a logarithmic scale from 0.01 to 100. The y-axis represents Passing (%) from 0 to 100. The curve starts at 100% passing for 0.075 mm and remains at 100% until approximately 0.15 mm, then gradually decreases to about 95% at 0.075 mm. Vertical lines indicate the boundaries for Soil, Fine Sand, Medium Sand, Coarse Sand, Fine Gravel, Medium Gravel, Coarse Gravel, and Cobbles.

NOTES/REMARKS:

-
Moisture Content 34.7%
Sample/s supplied by the client

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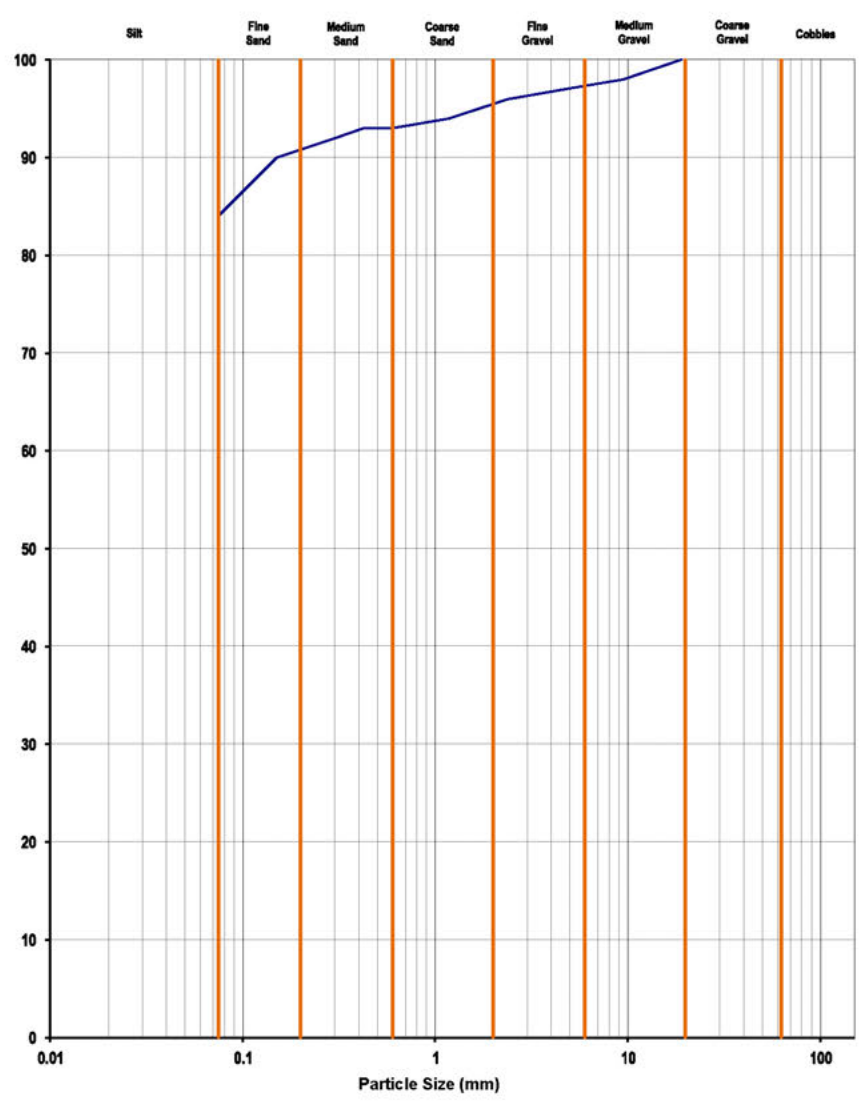
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PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.6.1, 2.1.1

Client	Golder Associates Pty Limited			Report No.	GA101152-G
Address	PO Box 1734 MILTON BC	QLD	4064	Request No	R3_BH_Rev1_4040
Project	Inland Rail B2G				
Project No	1897791	Client Sample No	310-01-BH2236		
Bore Hole	310-01-BH2236-S02050	Depth From (m)	20.5	Depth To (m)	20.95
Description	SPT				

Sieve Size (mm)	Passing %
150.0	
75.0	
63.0	
53.0	
37.5	
26.5	
19.0	100
13.2	98
9.5	98
6.7	97
4.75	97
2.36	96
1.18	94
0.600	93
0.425	93
0.300	92
0.150	90
0.075	84



NOTES/REMARKS:

-

Moisture Content 30.5%

Sample/s supplied by the client

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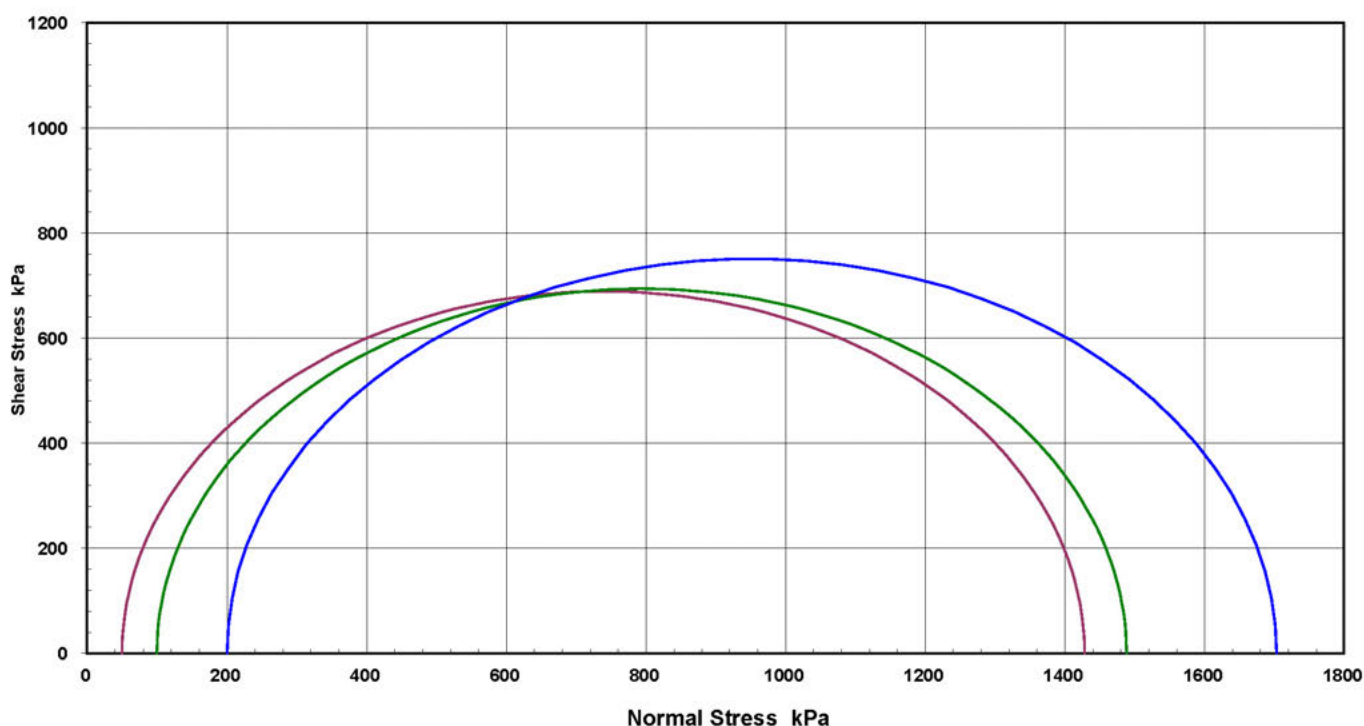
Trilab Pty Ltd ABN 25 065 630 506

TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client	Golder Associates Pty Limited	Report No.	GA101116- UU
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	20/11/2018
		Report Date	21/11/2018
Project No.	1897791	Client Sample No.	310-01-BH2231
BoreHole	310-01-BH2231-U00550	Depth From (m)	5.5
		Depth To (m)	6
Description	U	Sample Type	Single Individual Undisturbed Specimen

Mohr Circle Diagram



MOISTURE CONTENTS			Initial 22.8 %	Final 22.8 %	Failure Criteria		Peak Shear Stress	
SAMPLE & TEST DETAILS					FAILURE DETAILS			
Sample Details			Confining Pressure	Principal Stresses		Deviator Stress	Strain	
				S ₁	S ₃			
Initial Height	102.3	mm	50 kPa 100 kPa 200 kPa	1428 kPa	50 kPa	1378 kPa	1.94 %	
Initial Diameter	47.3	mm		1489 kPa	100 kPa	1389 kPa	2.00 %	
Wet Density	1.98	t/m ³		1703 kPa	200 kPa	1503 kPa	2.96 %	
Dry Density	1.61	t/m ³						
Rate of Strain	0.489	% / min						

Notes/Remarks:

Graph not to scale

Tested as received

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Trilab Pty Ltd ABN 25 065 630 506

ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

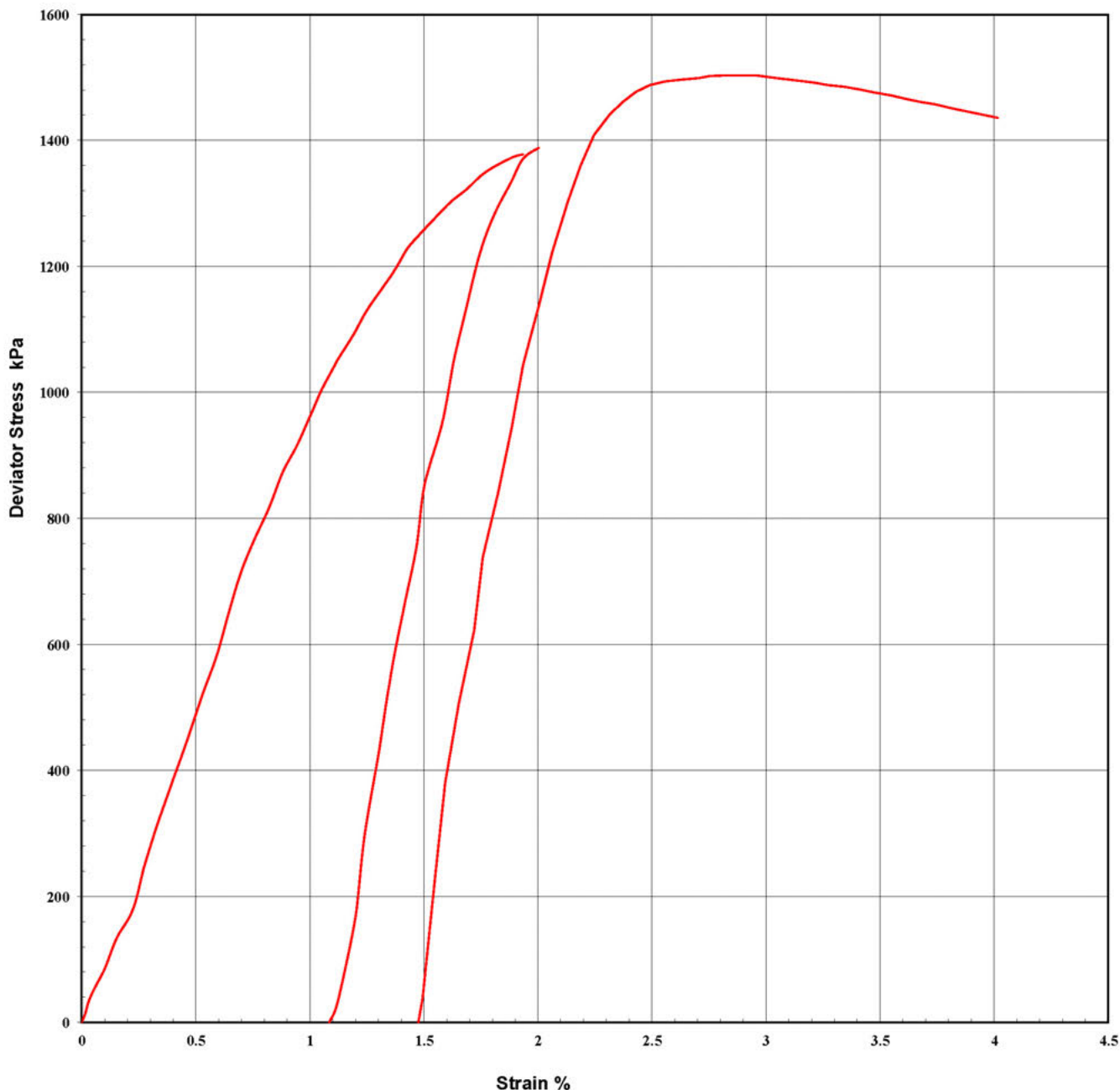
TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101116- UU

Stress/Strain Diagram



Notes/Remarks:

Graph not to scale

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101116- UU

CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	BEFORE TEST
LAB SAMPLE No.	101116	DATE: 01/11/18
BOREHOLE:	310-01-BH2231-U00550	DEPTH: 5.5



PROJECT:	Inland Rail B2G	AFTER TEST
LAB SAMPLE No.	101116	DATE: 20/11/18
BOREHOLE:	310-01-BH2231-U00550	DEPTH: 5.5



Notes/Remarks:
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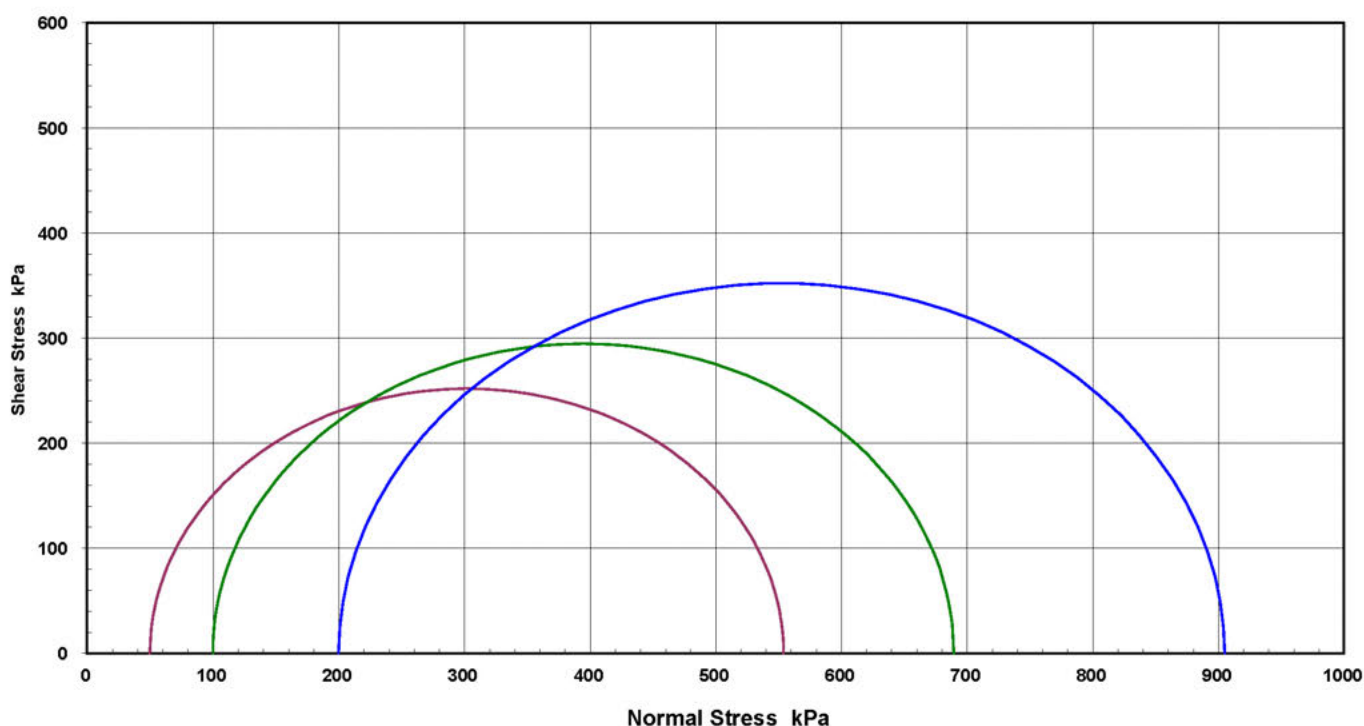
ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client	Golder Associates Pty Limited	Report No.	GA101132- UU
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	20/11/2018
		Report Date	22/11/2018
Project No.	1897791	Client Sample No.	310-01-BH2233
BoreHole	310-01-BH2233-U01750	Depth From (m)	17.5
		Depth To (m)	17.89
Description	U	Sample Type	Single Individual Undisturbed Specimen

Mohr Circle Diagram



MOISTURE CONTENTS		Initial 15.4 %	Final 15.4 %	Failure Criteria			Peak Shear Stress	
SAMPLE & TEST DETAILS				FAILURE DETAILS				
Sample Details		Confining Pressure		Principal Stresses		Deviator Stress	Strain	
Initial Height	99.5 mm	50 kPa		S ₁	S ₃	504 kPa	1.64 %	
Initial Diameter	47.7 mm	100 kPa		554 kPa	50 kPa	590 kPa	2.27 %	
Wet Density	2.09 t/m ³	200 kPa		690 kPa	100 kPa	705 kPa	4.42 %	
Dry Density	1.81 t/m ³			905 kPa	200 kPa			
Rate of Strain	0.503 % / min							

Notes/Remarks:

Graph not to scale

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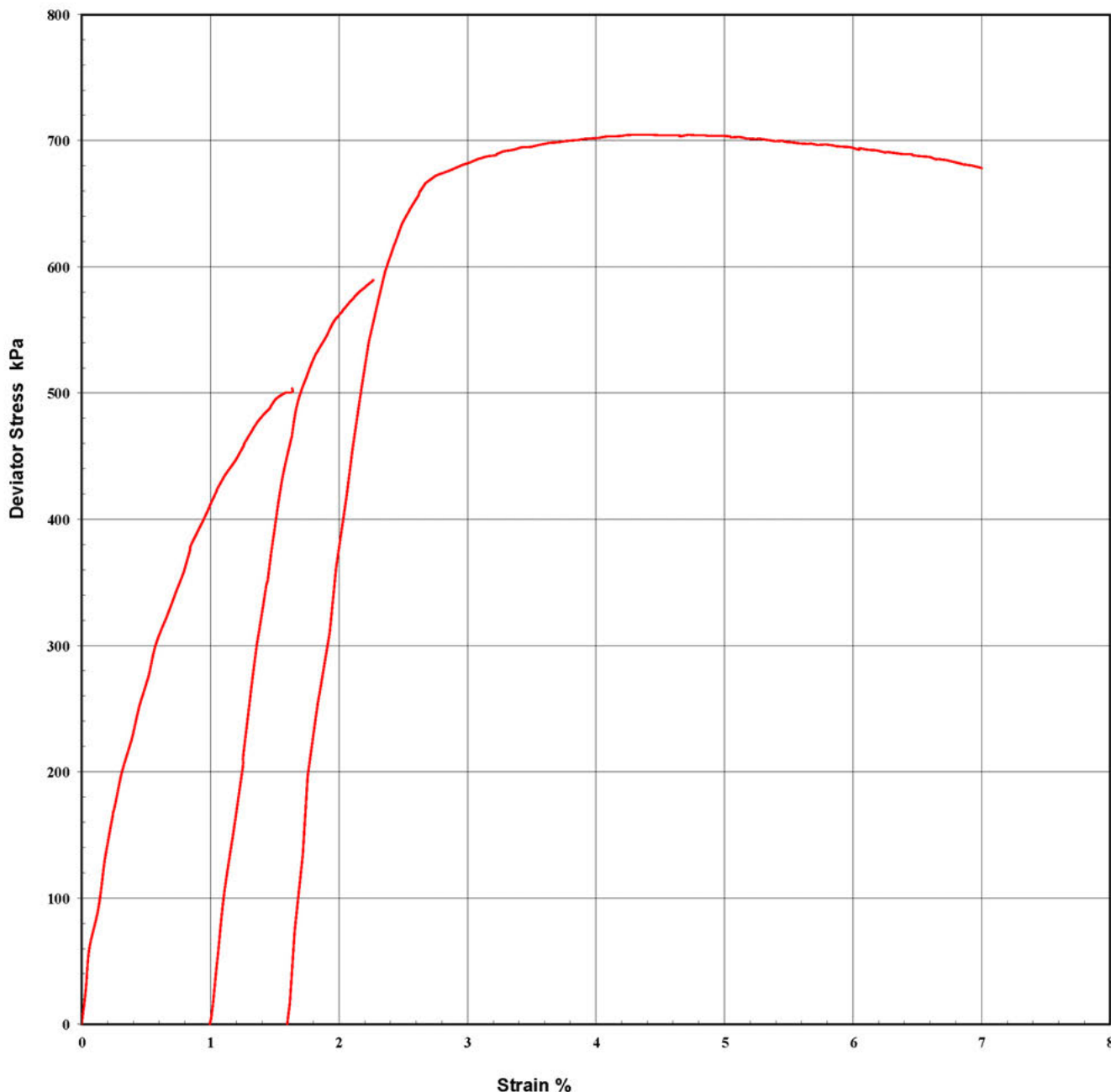
TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101132- UU

Stress/Strain Diagram



Notes/Remarks:

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ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101132- UU

CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	BEFORE TEST
LAB SAMPLE No.	101132	DATE: 01/11/18
BOREHOLE:	310-01-BH2233-U01750	DEPTH: 17.5



CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	AFTER TEST
LAB SAMPLE No.	101132	DATE: 20/11/18
BOREHOLE:	310-01-BH2233-U01750	DEPTH: 17.5



Notes/Remarks:
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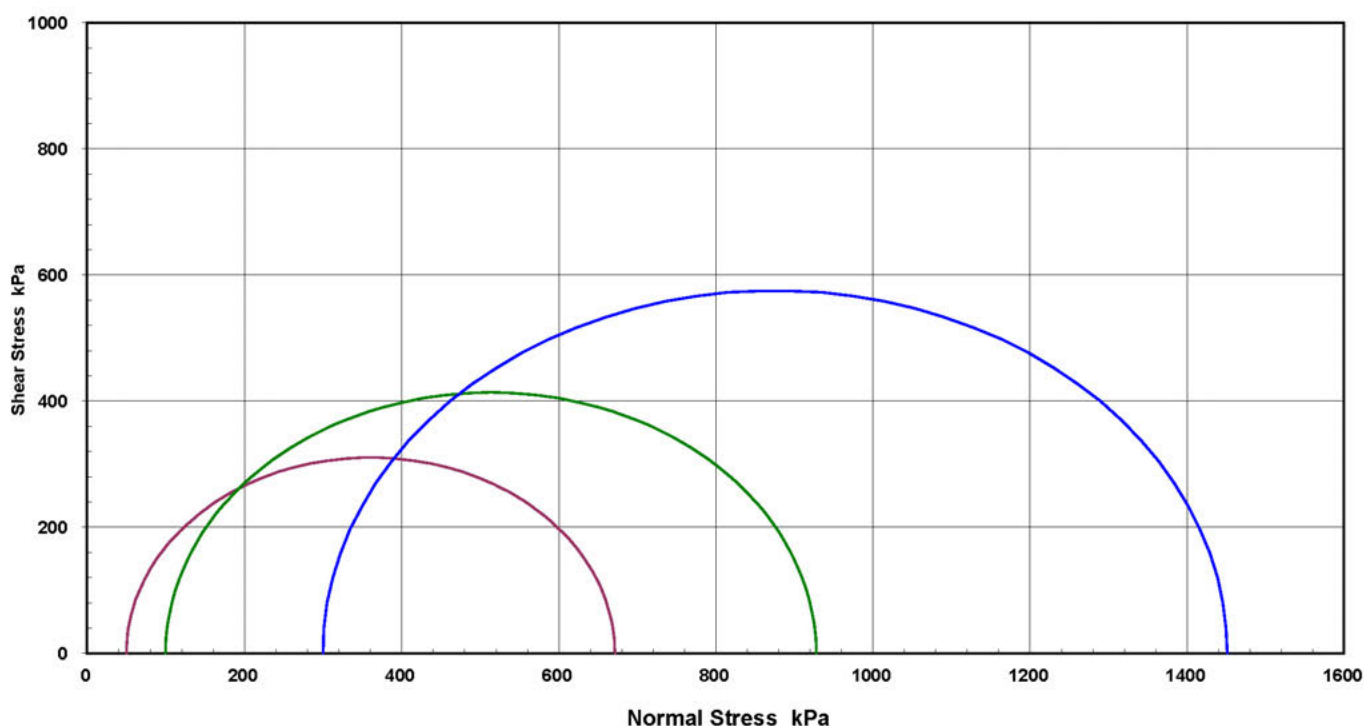
ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client	Golder Associates Pty Limited	Report No.	GA101144- UU
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	R3_BH_Rev1_4040
Project	Inland Rail B2G	Test Date	21/11/2018
		Report Date	22/11/2018
Project No.	1897791	Client Sample No.	310-01-BH2235
BoreHole	310-01-BH2235-U02530	Depth From (m)	25.3
		Depth To (m)	25.68
Description	U	Sample Type	Single Individual Undisturbed Specimen

Mohr Circle Diagram



MOISTURE CONTENTS			Initial 32.7 %	Final 32.7 %	Failure Criteria		Peak Shear Stress	
SAMPLE & TEST DETAILS					FAILURE DETAILS			
Sample Details			Confining Pressure	Principal Stresses		Deviator Stress	Strain	
				s ₁	s ₃			
Initial Height	128.1	mm	50 kPa 100 kPa 300 kPa	672 kPa	50 kPa	622 kPa	2.69 %	
Initial Diameter	60.1	mm		928 kPa	100 kPa	828 kPa	4.66 %	
Wet Density	1.78	t/m ³		1452 kPa	300 kPa	1152 kPa	6.29 %	
Dry Density	1.34	t/m ³						
Rate of Strain	0.390	% / min						

Notes/Remarks:

Graph not to scale

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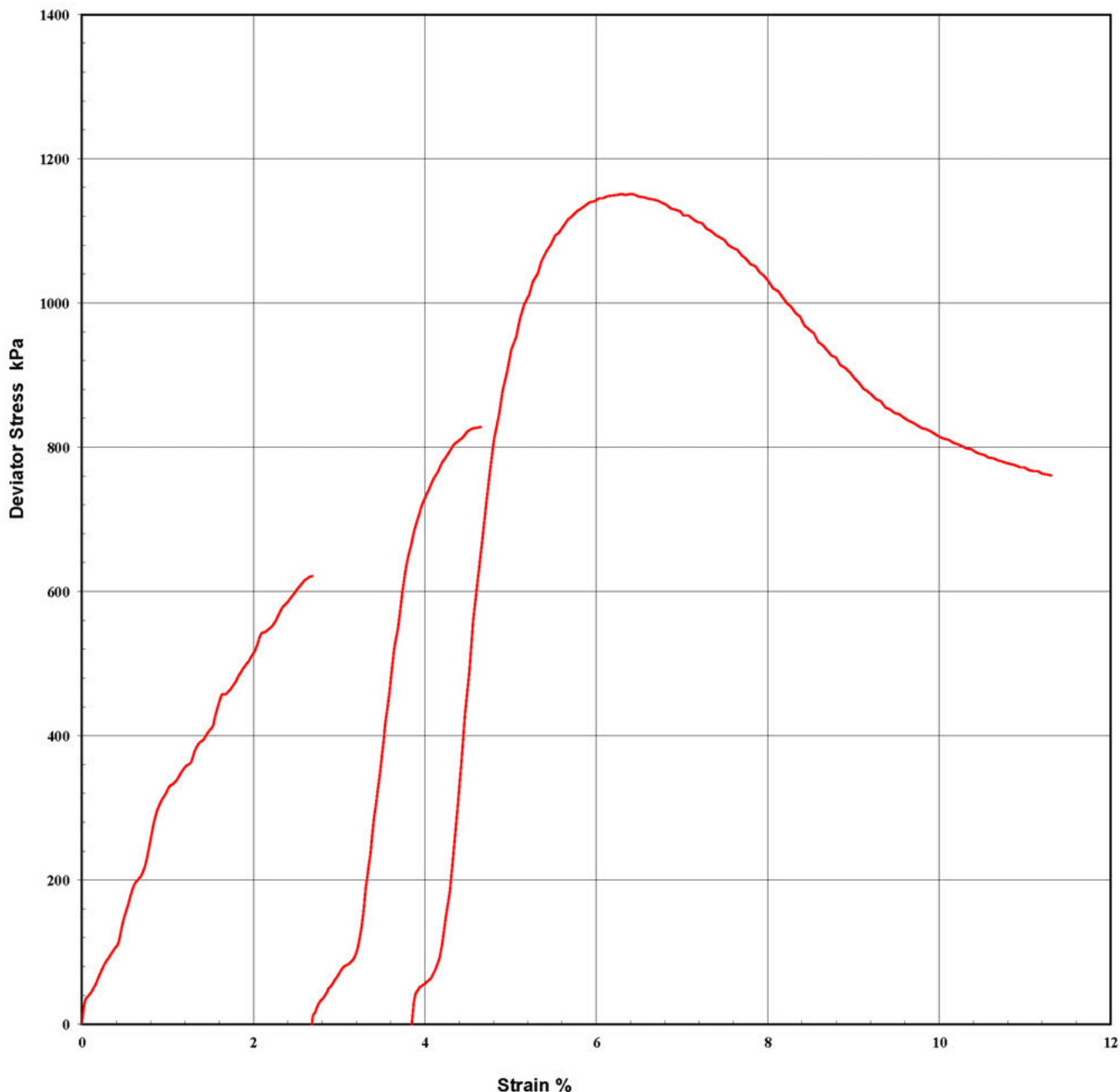
TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101144- UU

Stress/Strain Diagram



Notes/Remarks:

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TRIAXIAL TEST REPORT

Test Method: AS1289.6.4.1

Client Golder Associates Pty Limited

Report No. GA101144- UU

CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	BEFORE TEST
LAB SAMPLE No.	101144	DATE: 01/11/18
BOREHOLE:	310-01-BH2235-U02530	DEPTH: 25.3



CLIENT:	Golder Associates Pty Limited	
PROJECT:	Inland Rail B2G	AFTER TEST
LAB SAMPLE No.	101144	DATE: 21/11/18
BOREHOLE:	310-01-BH2235-U02530	DEPTH: 25.3



Notes/Remarks:
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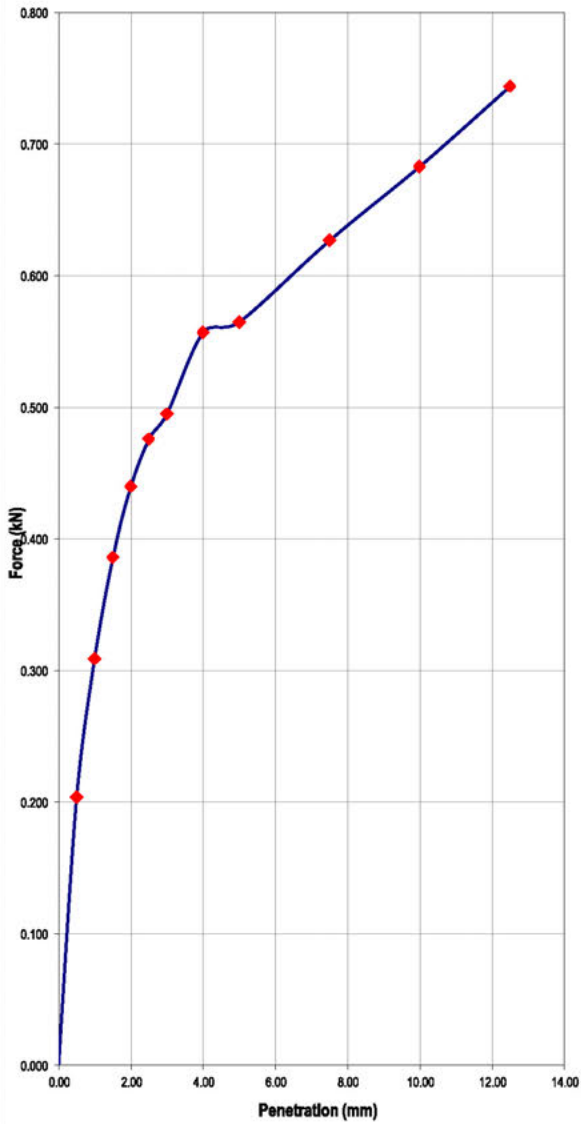
ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100479-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project No.	1897791	Test Date	27/18-9/7/18
Project	Inland Rail - B2G	Report Date	9/07/2018

Test Results

Bore Hole/Test Pit	310-01-DH2524	Force v's Penetration 
Client Sample No.	310-01-DH2524-B00010	
Depth From/To(m)	0.10-0.50	
Description	Clayey GRAVEL - brown	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	17.1	
Maximum Dry Density (t/m³)	1.72	
Optimum Moisture Content (%)	17.8	
Nominated/Achieved Dry Density (t/m³)	1.72 / 1.72	
Nominated/Achieved Moisture Content (%)	17.8 / 17.9	
Laboratory Density Ratio (%)	99.9	
Laboratory Moisture Ratio (%)	100.5	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	0.9	
Moisture Content of Top 30 mm (%)	24.6	
Moisture Content of Remainder (%)	19.6	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	3.5	

Notes/Remarks :

Sample/s supplied by the client

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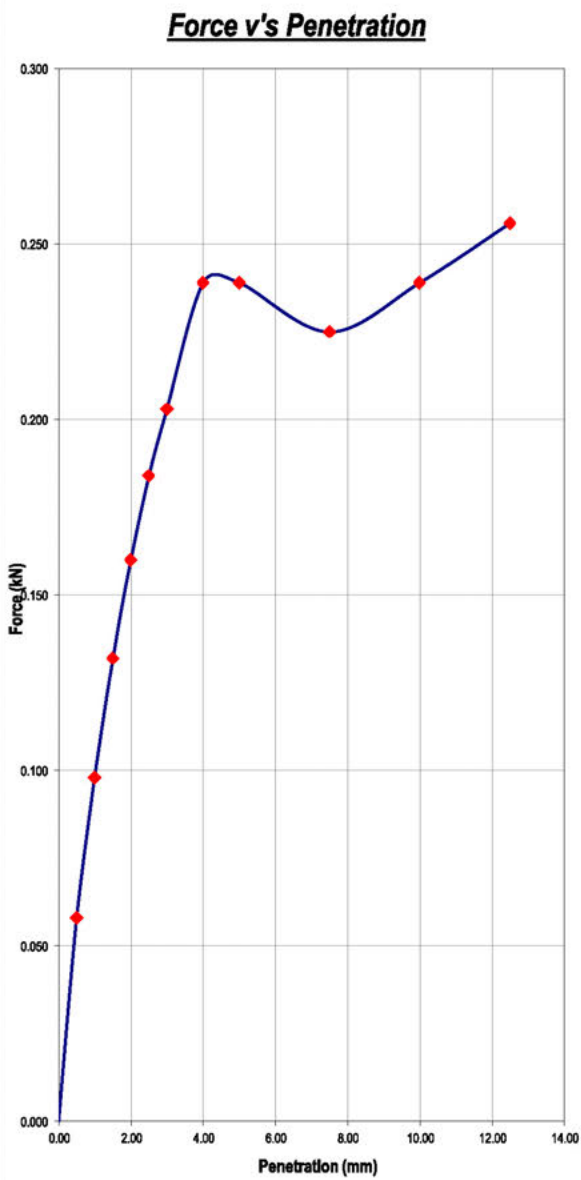
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100482-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project No.	1897791	Test Date	2/7/18-9/7/18
Project	Inland Rail - B2G	Report Date	9/07/2018

Test Results

Bore Hole/Test Pit	310-01-DH2525	 Force v's Penetration
Client Sample No.	310-01-DH2525-B00010	
Depth From/To(m)	0.10-0.50	
Description	CLAY - black	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	27.9	
Maximum Dry Density (t/m³)	1.41	
Optimum Moisture Content (%)	27.1	
Nominated/Achieved Dry Density (t/m³)	1.41 / 1.41	
Nominated/Achieved Moisture Content (%)	27.1 / 27.2	
Laboratory Density Ratio (%)	99.9	
Laboratory Moisture Ratio (%)	100.2	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	7.1	
Moisture Content of Top 30 mm (%)	48.1	
Moisture Content of Remainder (%)	31.6	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	1.5	

Notes/Remarks :

Sample/s supplied by the client

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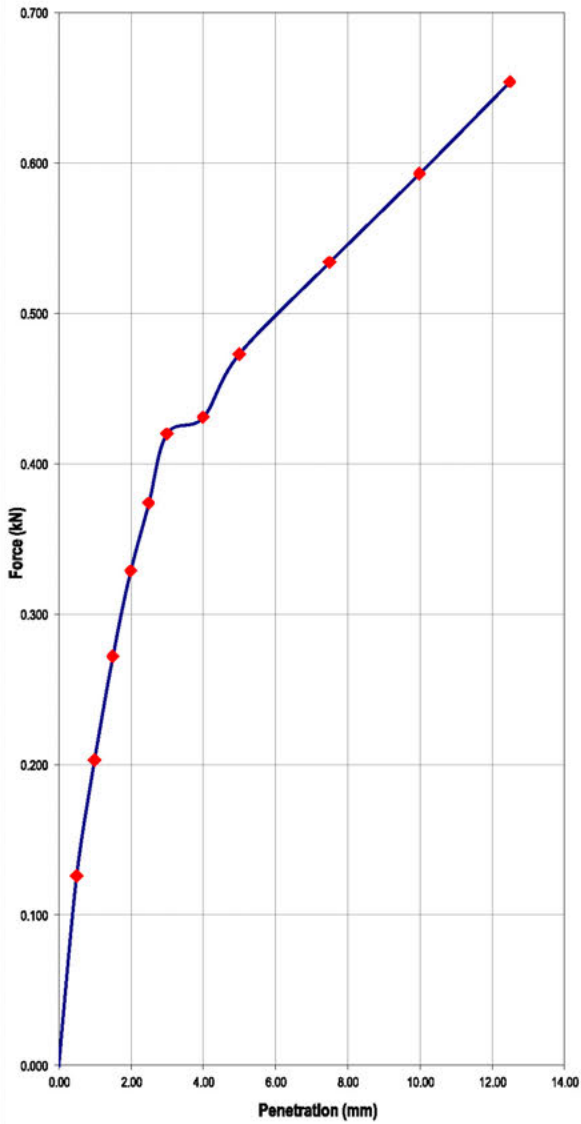
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100484-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project No.	1897791	Test Date	2/7/18-9/7/18
Project	Inland Rail - B2G	Report Date	9/07/2018

Test Results

Bore Hole/Test Pit	310-01-DH2526	<u>Force v's Penetration</u> 
Client Sample No.	310-01-DH2526-B00010	
Depth From/To(m)	0.10-0.50	
Description	CLAY - black	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	20.8	
Maximum Dry Density (t/m³)	1.35	
Optimum Moisture Content (%)	27.2	
Nominated/Achieved Dry Density (t/m³)	1.35 / 1.35	
Nominated/Achieved Moisture Content (%)	27.2 / 27.1	
Laboratory Density Ratio (%)	100.1	
Laboratory Moisture Ratio (%)	99.8	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	4.2	
Moisture Content of Top 30 mm (%)	40.9	
Moisture Content of Remainder (%)	30.5	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	3	

Notes/Remarks :

Sample/s supplied by the client

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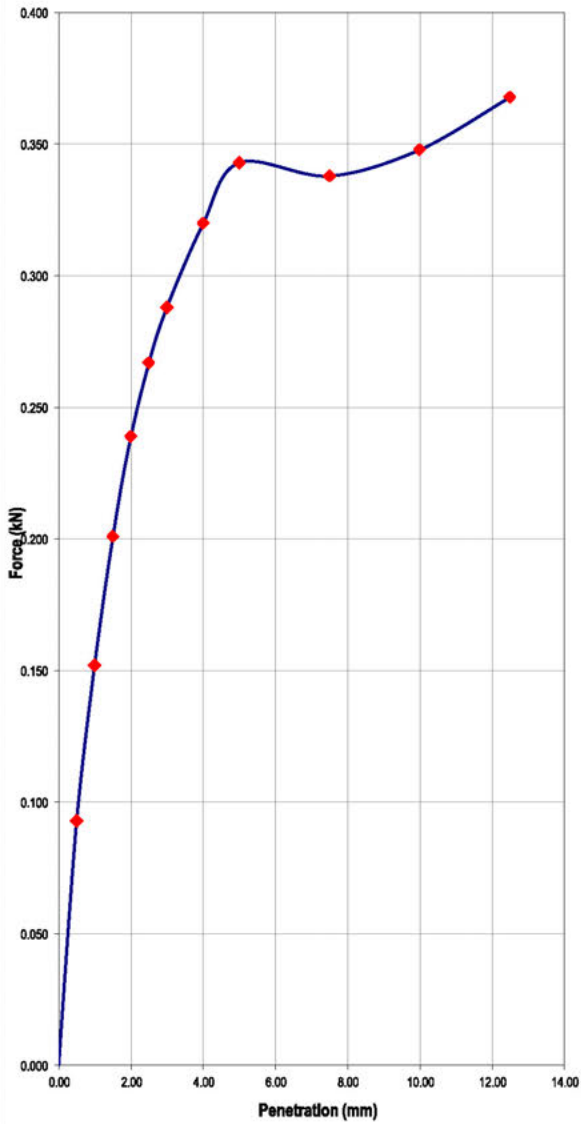
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100486-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project No.	1897791	Test Date	27/18-9/7/18
Project	Inland Rail - B2G	Report Date	9/07/2018

Test Results

Bore Hole/Test Pit	310-01-DH2527	Force v's Penetration 
Client Sample No.	310-01-DH2527-B00010	
Depth From/To(m)	0.10-0.40	
Description	CLAY - black	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	32.2	
Maximum Dry Density (t/m³)	1.42	
Optimum Moisture Content (%)	27.5	
Nominated/Achieved Dry Density (t/m³)	1.42 / 1.42	
Nominated/Achieved Moisture Content (%)	27.5 / 27.6	
Laboratory Density Ratio (%)	100.3	
Laboratory Moisture Ratio (%)	100.3	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	4.5	
Moisture Content of Top 30 mm (%)	46.0	
Moisture Content of Remainder (%)	33.8	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	2	

Notes/Remarks :

Sample/s supplied by the client

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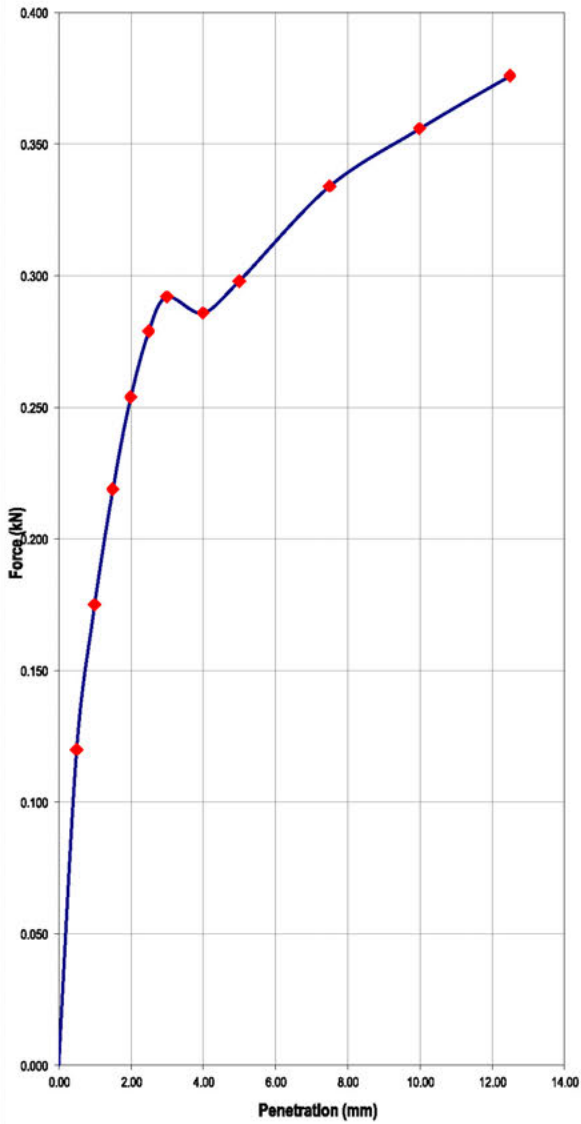
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100489-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project No.	1897791	Test Date	4/07/2018
Project	Inland Rail - B2G	Report Date	11/07/2018

Test Results

Bore Hole/Test Pit	310-01-DH2528	Force v's Penetration 
Client Sample No.	310-01-DH2528-B00010	
Depth From/To(m)	0.10-0.40	
Description	CLAY - black	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	31.2	
Maximum Dry Density (t/m³)	1.51	
Optimum Moisture Content (%)	27.7	
Nominated/Achieved Dry Density (t/m³)	1.51 / 1.51	
Nominated/Achieved Moisture Content (%)	27.7 / 27.9	
Laboratory Density Ratio (%)	99.8	
Laboratory Moisture Ratio (%)	100.8	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	4.3	
Moisture Content of Top 30 mm (%)	40.6	
Moisture Content of Remainder (%)	30.9	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	2	

Notes/Remarks :

Sample/s supplied by the client

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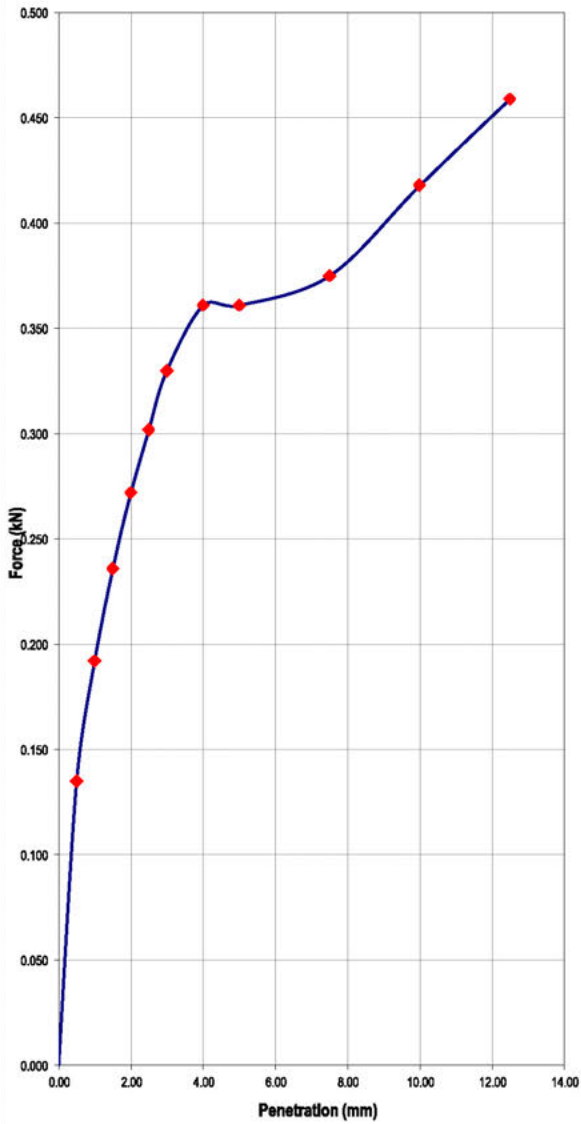
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CALIFORNIA BEARING RATIO TEST REPORT

Test Method: AS 1289.6.1.1 & AS 1289.2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100492-CBR
Address	PO Box 1734 MILTON BC QLD 4064	Request No.	4030_DH_R1
Project No.	1897791	Test Date	2/7/18-9/7/18
Project	Inland Rail - B2G	Report Date	9/07/2018

Test Results

Bore Hole/Test Pit	310-01-DH2529	Force v's Penetration 
Client Sample No.	310-01-DH2529-B00010	
Depth From/To(m)	0.10-0.40	
Description	CLAY - brown	
Compaction Criteria	Standard	
Condition of Specimen	Soaked	
Field Moisture Content (%)	10.2	
Maximum Dry Density (t/m³)	1.66	
Optimum Moisture Content (%)	19.3	
Nominated/Achieved Dry Density (t/m³)	1.66 / 1.66	
Nominated/Achieved Moisture Content (%)	19.3 / 19.2	
Laboratory Density Ratio (%)	100.1	
Laboratory Moisture Ratio (%)	99.3	
Percentage Retained 19 mm (%) (Not Included in Sample)	0	
Period of Soak (Days)	4	
Surcharge (kg)	4.5	
Swell (%)	4.5	
Moisture Content of Top 30 mm (%)	31.1	
Moisture Content of Remainder (%)	20.9	
CBR Penetration (mm)	2.5	
CBR VALUE (%)	2.5	

Notes/Remarks :

Sample/s supplied by the client

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C. Park



Laboratory No. 9926

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Reference should be made to Trilab's "Standard Terms and Conditions of Business" for further details.

Trilab Pty Ltd ABN 25 065 630 506

SHRINK SWELL INDEX TEST REPORT

Test Method AS 1289 7.1.1

Client	Golder Associates Pty Limited	Report No.	GA100490-ISS
		Request No.	4030_DH_R1
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	2/07/2018
		Report Date	9/07/2018
Project	Inland Rail - B2G		
Client Sample No.	310-01-DH2528-U00100		
Sample No.	100490		
Client ID	310-01-DH2528		
Depth (m)	1-1.34		
RESULTS OF TESTING			
SWELL SPECIMEN			
Swell Pressure (kPa) *	200		
Wet Density (t/m³)	1.81		
Initial Moisture Content (%)	33.6		
Final Moisture Content (%)	40.8		
Swell (%)	3.4		
SHRINKAGE SPECIMEN			
Estimated Inert Inclusions (%)	5-10		
Extent of Crumbling	Nil		
Extent of Cracking	High - Extreme		
Moisture (%)	29.4		
Shrinkage (%)	8.1		
SHRINK SWELL INDEX (Iss) (%)	5.5		

Notes/Remarks:

* Swell pressure determination in accordance with test method AS4133.3.3

Sample/s supplied by client

Tested as received

Page: 1 of 1 REP02304

Accredited for compliance with ISO/IEC 17025 - Testing.
 The results of the tests, calibrations, and/or measurements included in this document
 are traceable to Australian/National Standards.

Tested at Trilab Brisbane Laboratory

Authorised Signatory



C. Park



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

SHRINK SWELL INDEX TEST REPORT

Test Method AS 1289 7.1.1

Client	Golder Associates Pty Limited	Report No.	GA100480-ISS
		Request No.	4030_DH_R1
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	2/07/2018
		Report Date	9/07/2018
Project	Inland Rail - B2G		
Client Sample No.	310-01-DH2524-U00350		
Sample No.	100480		
Client ID	310-01-DH2524		
Depth (m)	3.5-3.95		
RESULTS OF TESTING			
SWELL SPECIMEN			
Swell Pressure (kPa) *	125		
Wet Density (t/m³)	1.95		
Initial Moisture Content (%)	21.8		
Final Moisture Content (%)	24.2		
Swell (%)	0.2		
SHRINKAGE SPECIMEN			
Estimated Inert Inclusions (%)	5-10		
Extent of Crumbling	Nil		
Extent of Cracking	High - Extreme		
Moisture (%)	21.3		
Shrinkage (%)	3.2		
SHRINK SWELL INDEX (Iss) (%)		1.9	

Notes/Remarks:

* Swell pressure determination in accordance with test method AS4133.3.3

Sample/s supplied by client

Tested as received

Page: 1 of 1 REP02304

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C. Park



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Trilab Pty Ltd

ABN 25 065 630 506

SHRINK SWELL INDEX TEST REPORT

Test Method AS 1289 7.1.1

Client Golder Associates Pty Limited	Report No. GA100495-ISS
	Request No. 4040 TR R1
Address PO Box 1734 MILTON BC QLD 4064	Test Date 27/06/2018
	Report Date 2/07/2018
Project Inland Rail - B2G	
Client Sample No. 310-01-BH2230-U00200	
Sample No.	100495
Client ID	310-01-BH2230
Depth (m)	2-2.45
RESULTS OF TESTING	
SWELL SPECIMEN	
Swell Pressure (kPa) *	500
Wet Density (t/m³)	2.08
Initial Moisture Content (%)	17.6
Final Moisture Content (%)	26.0
Swell (%)	9.2
SHRINKAGE SPECIMEN	
Estimated Inert Inclusions (%)	<5
Extent of Crumbling	Nil
Extent of Cracking	Slight
Moisture (%)	18.1
Shrinkage (%)	4.1
SHRINK SWELL INDEX (Iss) (%)	4.8

Notes/Remarks:

* Swell pressure determination in accordance with test method AS4133.3.3

Sample/s supplied by client

Tested as received

Page: 1 of 1 REP02304

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Tested at Trilab Brisbane Laboratory

Authorised Signatory



C. Park



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

SHRINK SWELL INDEX TEST REPORT

Test Method AS 1289 7.1.1

Client	Golder Associates Pty Limited	Report No.	GA100500-ISS
		Request No.	4040_TR_R1
Address	PO Box 1734 MILTON BC QLD 4064	Test Date	27/06/2018
		Report Date	2/07/2018
Project	Inland Rail - B2G		
Client Sample No.	310-01-BH2232-U00150		
Sample No.	100500		
Client ID	310-01-BH2232		
Depth (m)	1.5-1.95		
RESULTS OF TESTING			
SWELL SPECIMEN			
Swell Pressure (kPa) *	150		
Wet Density (t/m³)	1.79		
Initial Moisture Content (%)	36.8		
Final Moisture Content (%)	41.6		
Swell (%)	2.7		
SHRINKAGE SPECIMEN			
Estimated Inert Inclusions (%)	<5		
Extent of Crumbling	Nil		
Extent of Cracking	High - Extreme		
Moisture (%)	38.1		
Shrinkage (%)	15.1		
SHRINK SWELL INDEX (Iss) (%)		9.1	

Notes/Remarks:

* Swell pressure determination in accordance with test method AS4133.3.3

Sample/s supplied by client

Tested as received

Page: 1 of 1 REP02304

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Authorised Signatory



C. Park



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Trilab Pty Ltd

ABN 25 065 630 506

MOISTURE CONTENT TEST REPORT

Test Method: AS 1289 2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100501-MC
Address	PO Box 1734 MILTON BC QLD 4064	Workorder No.	0004419
Project	Inland Rail - B2G	Report Date	01/08/2018

Sample No.	100501						
Test Date	29/06/2018						
Client ID	310-01-BH2232-S00600						
Depth (m)	6.00-6.45						
Moisture Content (%)	25.1						

Sample No.							
Test Date							
Client ID							
Depth (m)							
Moisture Content (%)							

Sample No.							
Test Date							
Client ID							
Depth (m)							
Moisture Content (%)							

NOTES/REMARKS:

Sample/s supplied by the client

Page 1 of 1 REP01202

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Tested at Trilab Brisbane Laboratory.

Authorised Signatory



C. Park



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

MOISTURE CONTENT TEST REPORT

Test Method: AS 1289 2.1.1

Client	Golder Associates Pty Limited	Report No.	GA100487-MC
Address	PO Box 1734 MILTON BC QLD 4064	Workorder No.	0004418
Project	Inland Rail - B2G	Report Date	05/07/2018

Sample No.	100487						
Test Date	29/06/2018						
Client ID	310-01-DH2527-S00050						
Depth (m)	0.50-0.95						
Moisture Content (%)	34.4						

Sample No.							
Test Date							
Client ID							
Depth (m)							
Moisture Content (%)							

Sample No.							
Test Date							
Client ID							
Depth (m)							
Moisture Content (%)							

NOTES/REMARKS:

Sample/s supplied by the client

Page 1 of 1 REP01202

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Authorised Signatory



C. Park



Laboratory No. 9926

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Trilab Pty Ltd ABN 25 065 630 506

ACCURATE QUALITY RESULTS FOR TOMORROW'S ENGINEERING

CERTIFICATE OF ANALYSIS

Work Order : EB1818669 Amendment : 1 Client : TRILAB PTY LTD Contact : MR CHRIS CHANNON Address : 346A BILSEN RD GEEBUNG QLD, AUSTRALIA 4031 Telephone : +61 07 3265 5656 Project : 1897791 - Inland Rail - B2G - Phase 4040 Order number : C-O-C number : Sampler : Site : Quote number : EN/333/17 No. of samples received : 12 No. of samples analysed : 5	Page : 1 of 2 Laboratory : Environmental Division Brisbane Contact : Customer Services EB Address : 2 Byth Street Stafford QLD Australia 4053 Telephone : +61-7-3243 7222 Date Samples Received : 01-Aug-2018 14:34 Date Analysis Commenced : 02-Aug-2018 Issue Date : 10-Aug-2018 15:56
--	---



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- Amendment (10/08/2018): This report has been amended and re-released to separate samples at the client's request. All analysis results are as per the previous report.

Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				100481 / 310-01-DH2524 / 5.00-5.45m	100483 / 310-01-DH2525 /1.00-1.45m	100484 / 310-01-DH2526 / 0.10-0.50m	100487 / 310-01-DH2527 / 0.50-0.95m	100493 / 310-01-DH2529 / 0.50-0.95m
Client sampling date / time				02-Jul-2018 00:00	02-Jul-2018 00:00	02-Jul-2018 00:00	02-Jul-2018 00:00	02-Jul-2018 00:00
Compound	CAS Number	LOR	Unit	EB1818669-008	EB1818669-009	EB1818669-010	EB1818669-011	EB1818669-012
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	18.6	24.5	17.8	24.4	10.7
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	100	40	20	380
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	480	820	60	20	340

CERTIFICATE OF ANALYSIS

Work Order : **EB1819045**
Client : **TRILAB PTY LTD**
Contact : **MR CHRIS CHANNON**
Address : **346A BILSEN RD**
GEEBUNG QLD, AUSTRALIA 4031
Telephone : **+61 07 3265 5656**
Project : **1897791 - Inland Rail - B2G - Phase 4040**
Order number : **---**
C-O-C number : **---**
Sampler : **---**
Site : **---**
Quote number : **EN/333/17**
No. of samples received : **2**
No. of samples analysed : **2**

Page : **1 of 2**
Laboratory : **Environmental Division Brisbane**
Contact : **Customer Services EB**
Address : **2 Byth Street Stafford QLD Australia 4053**
Telephone : **+61-7-3243 7222**
Date Samples Received : **07-Aug-2018 11:11**
Date Analysis Commenced : **07-Aug-2018**
Issue Date : **10-Aug-2018 15:30**



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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

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Where moisture determination has been performed, results are reported on a dry weight basis.

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

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 ~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				100497 / 310-01-BH2230 / 10.80-11.09m	100501 / 310-01-BH2232 / 6.00-6.45m	----	----	----
Client sampling date / time				02-Jul-2018 00:00	02-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB1819045-001	EB1819045-002	-----	-----	-----
				Result	Result	---	---	---
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	13.4	18.3	---	---	---
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	10	---	---	---
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	130	700	---	---	---

CERTIFICATE OF ANALYSIS

Work Order : EB1815915 Amendment : 1 Client : TRILAB PTY LTD Contact : THE ADMIN RESULTS Address : 346A BILSEN RD GEEBUNG QLD, AUSTRALIA 4031 Telephone : +61 07 3265 5656 Project : 1897791 - Inland Rail - B2G - Phase 4040 Order number : BNE 1907001 C-O-C number : --- Sampler : --- Site : --- Quote number : EN/333/17 No. of samples received : 7 No. of samples analysed : 7	Page : 1 of 4 Laboratory : Environmental Division Brisbane Contact : Customer Services EB Address : 2 Byth Street Stafford QLD Australia 4053 Telephone : +61-7-3243 7222 Date Samples Received : 02-Jul-2018 15:15 Date Analysis Commenced : 03-Jul-2018 Issue Date : 03-Jul-2018 11:59
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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (03/07/2018): This report has been amended as a result of a request to change sample identification number to reflect the COC received by ALS from Tania Purvis on 03/07/2018. All analysis results are as per the previous report.



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				100497 / 310-01-BH2230 / 10.80-11.09m	100501 / 310-01-BH2232 / 6.00-6.45m	100481 / 310-01-DH2524 / 5.00-5.45m	100483 / 310-01-DH2525 / 1.00-1.45m	100484 / 310-01-DH2526 / 0.10-0.50m
Client sampling date / time				02-Jul-2018 00:00	02-Jul-2018 00:00	02-Jul-2018 00:00	02-Jul-2018 00:00	02-Jul-2018 00:00
Compound	CAS Number	LOR	Unit	EB1815915-001	EB1815915-002	EB1815915-008	EB1815915-009	EB1815915-010
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	8.0	8.3	8.3	7.1	7.4



Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				100487 / 310-01-DH2527 / 0.50-0.95m	100493 / 310-01-DH2529 / 0.50-0.95m	---	---	---
Client sampling date / time				02-Jul-2018 00:00	02-Jul-2018 00:00	---	---	---
Compound	CAS Number	LOR	Unit	EB1815915-011	EB1815915-012	-----	-----	-----
				Result	Result	---	---	---
EA002: pH 1:5 (Soils)								
pH Value	---	0.1	pH Unit	8.6	9.0	---	---	---

CERTIFICATE OF ANALYSIS

Work Order : **EB1826986**
Client : **TRILAB PTY LTD**
Contact : **MR CHRIS CHANNON**
Address : **346A BILSEN RD**
GEEBUNG QLD, AUSTRALIA 4031
Telephone : **+61 07 3265 5656**
Project : **1897791 Inland Rail B2G**
Order number : **1911014**
C-O-C number : **---**
Sampler : **---**
Site : **---**
Quote number : **EN/333**
No. of samples received : **14**
No. of samples analysed : **14**

Page : **1 of 5**
Laboratory : **Environmental Division Brisbane**
Contact : **Customer Services EB**
Address : **2 Byth Street Stafford QLD Australia 4053**
Telephone : **+61-7-3243 7222**
Date Samples Received : **07-Nov-2018 13:08**
Date Analysis Commenced : **07-Nov-2018**
Issue Date : **14-Nov-2018 15:39**



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<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

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~ = Indicates an estimated value.



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				101108 / 310-01-BH2201-S0052 0 / 5.20-5.65m	101110 / 310-01-BH2201-S0082 0 / 8.20-8.65m	101111 / 310-01-BH2201-S0112 0 / 11.20-11.33m	101117 / 310-01-BH2231-S0070 0 / 7.00-7.45m	101122 / 310-01-BH2231-S0190 0 / 19.00-19.45m
Client sampling date / time				[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]
Compound	CAS Number	LOR	Unit	EB1826986-001	EB1826986-002	EB1826986-003	EB1826986-004	EB1826986-005
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	9.2	9.1	9.3	8.9	8.4
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	13.3	13.1	17.1	22.4	17.1
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	<10	30	<10
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	20	20	20	260	10



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				101125 / 310-01-BH2233-S0020 0 / 2.00-2.45m	101128 / 310-01-BH2233-S0070 0 / 7.00-7.45m	101130 / 310-01-BH2233-S0130 0 / 13.00-13.45m	101137 / 310-01-BH2235-S0068 0 / 6.80-7.25m	101140 / 310-01-BH2235-U0117 5 / 11.75-12.00m
Client sampling date / time				[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]
Compound	CAS Number	LOR	Unit	EB1826986-006	EB1826986-007	EB1826986-008	EB1826986-009	EB1826986-010
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	9.3	8.9	8.0	8.8	8.6
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	15.1	13.7	19.8	9.8	25.8
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	100	<10	<10	10	<10
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	210	130	20	20	10



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				101141 / 310-01-BH2235-S0158 0 / 15.80-16.25m	101147 / 310-01-BH2236-S0040 0 / 4.00-4.45m	101149 / 310-01-BH2236-S0100 0 / 10.00-10.45m	101151 / 310-01-BH2236-S0160 0 / 16.00-16.45m	----
Client sampling date / time				[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]	[06-Nov-2018]	----
Compound	CAS Number	LOR	Unit	EB1826986-011	EB1826986-012	EB1826986-013	EB1826986-014	-----
Result				Result	Result	Result	Result	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	8.7	8.7	8.7	8.6	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	27.1	23.7	25.2	26.5	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	230	370	660	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	10	440	320	340	----