EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

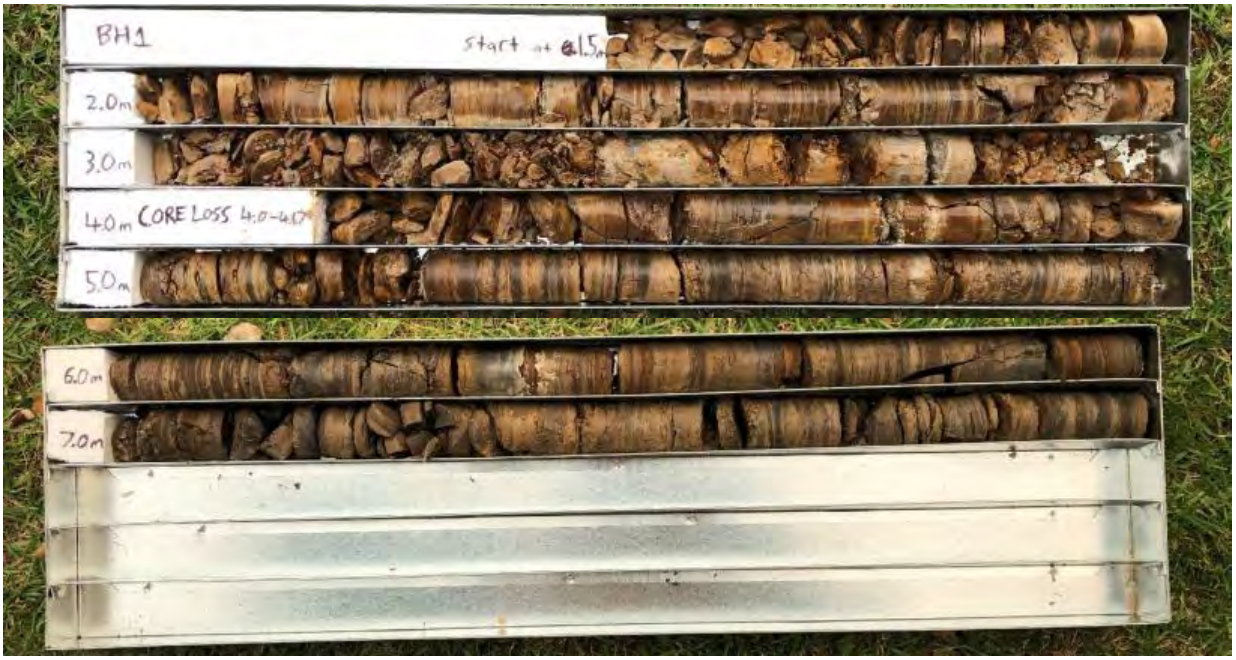
BOREHOLE NUMBER BH1

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 19/12/19 **COMPLETED** 19/12/19 **R.L. SURFACE** 63.5 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	Is(50) MPa (D- diametral, A- axial)	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
						Continued from non-cored borehole						
				2		SHALE: Grey and orange, moderately weathered, highly fractured, very low to low strength.	MW		A 1.3	36		EC - VC, 0-10 degrees, Pt, Sm, Fe.
			61			As above but light grey.						Jt 2.4 - 2.5, 80 degrees, Fe, Sm, Pln.
												Clay, 0 degrees. Jt 2.6 -2.7, 80 degrees, Sm, Fe,
				3					A 0.6			
			60							0		
				4					A 2			
			59							0		
	-			5					A 0.32			VC - C, 0-10 degrees, Pt, Sm, Fe.
			58									
				6					D 1.88 A 0.12	77		
			57									
	▼			7					A 0.72			
			56									
				8								
						BH1 terminated at 8m						
			55									
				9								
			54									
				10								

BH1 Core Photographs



Project: Geotechnical Investigation
Address: 235 Grose Vale Road, North Richmond, NSW
Client: St John of God Health Care Inc
Date: 19/12/2019

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH2

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 63.6 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
						ASPHALT: 30 mm.		
		63.5			ML	FILL: Sandy SILT with gravel: Brown, dry, fine to medium angular gravel, base coarse.		
							Environmental sample	
	-		0.5					
					GW-GM	XW SHALE: Grey and brown, dry, laminated, recovered as silty gravel with clay.	Environmental sample	
		63.0						
			1.0				Environmental sample	
						Borehole BH2 continued as cored hole		
		62.5						
			1.5					
		62.0						
			2.0					

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BOREHOLE NUMBER BH2

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 63.6 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	Is(50) MPa (D- diametral, A- axial)	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
					Continued from non-cored borehole						
					SHALE: Light grey and orange, moderatley weathered, low strength.	MW		A 0.29			
		62									VC, Pt, 0-5 degrees, Sm, Fe.
			2		As above but dark grey and orange, medium strength and highly fractured.			A 0.47	42		
		61									
			3					A 0.21			
		60									
			4					D 5.48 A 0.42	75		
	-	59									
			5					A 0.21			VC to C, Pt, 0-5 degrees, Sm, Fe.
		58									
			6					A 0.33			
		57							81		
			7								
		56									
			8		BH2 terminated at 7.8m						
		55									
			9								

BH2 Core Photographs

Project: Geotechnical Investigation
Address: 235 Grose Vale Road, North Richmond, NSW
Client: St John of God Health Care Inc
Date: 19/12/2019

EP Risk Management
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Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH3

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 63.5 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-		63.0	0.5			ASPHALT: 20 mm. FILL: Sandy silty GRAVEL: Brown, dry, fine to medium angular gravel, base coarse.	Environmental sample Environmental sample	
			62.5	1.0			Borehole BH3 continued as cored hole		
			62.0	1.5					
			61.5	2.0					

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BOREHOLE NUMBER BH3

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 63.5 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	$Is_{(50)}$ MPa D- diametral A- axial	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
						Continued from non-cored borehole						
				1		SHALE : Grey with red stains, highly weathered, low to very low strength, highly fractured, thinely bedded.	HW		A 0.034	<<		VC, Pt, 0-10 degrees, R, Fe.
			62			As above but dark grey.						C, Pt, 0-10 degrees, R, Fe.
				2					A 0.044	36		
			61			SANDSTONE: Brown, fine to medium grained, medoeratley weathered.	MW					
						SHALE: Red, moderately weathered, low to very low strength.	MW					
				3					A 0.12			W, Pt, 0-10 degrees, R, Fe.
			60									
				4								
			59							43		
				5		As above but slightly weathered.	SW		A 0.45			
			58									
				6					D 22.8 A 0.79			
			57							60		
				7					A 0.55			
			56									
						BH3 terminated at 7.5m						
			55	8								
				9								

BH3 Core Photographs

Project: Geotechnical Investigation
Address: 235 Grose Vale Road, North Richmond, NSW
Client: St John of God Health Care Inc
Date: 17/12/2019

EP Risk Management
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Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH4

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 62.6 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
		62.5			GW	ASPHALT: 20 mm. FILL: Sandy silty GRAVEL: Dark brown, dry, fine to coarse angular gravel, base coarse.	Environmental sample and QA/QC samples	
			0.5		CL-ML	XW SHALE: Grey, dry, fine, laminated, recovered as silty CLAY/clayey SILT with gravel.	Environmental sample	
	-	62.0						
			1.0				Environmental sample	
		61.5						
			1.5				Environmental sample	
		61.0				Borehole BH4 continued as cored hole		
			2.0					

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BOREHOLE NUMBER BH4

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 62.6 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	Is(50) MPa (D- diametral, A- axial)	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
					Continued from non-cored borehole						
		61			SHALE: Light grey and orange, moderatley weathered, low strength.	MW					
			2					A 0.12	36		VC, Pt, 0-10 degrees, Sm, Fe.
					SANDSTONE: Light orange-grey, highly weathered, low strength,						
		60									
			3		SHALE: Light grey and orange, moderatley weathered, low to medium strength.			A 0.81			
		59							45		VC - C, Jt, 60 degrees, Sm, Fe.
			4					A 0.34			
		58									
			5					A 1.2	52		
		57									
			6					D 18.3 A 2.7			
		56									
			7					A 1.2	61		
		55									
			8					D 9.14 A 1.9			
					BH4 terminated at 8.2m						
		54									
			9								
		53									
			10								

BH4 Core Photographs

Project: Geotechnical Investigation
Address: 235 Grose Vale Road, North Richmond, NSW
Client: St John of God Health Care Inc
Date: 18/12/2019

EP Risk Management
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BOREHOLE NUMBER BH5

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 62.9 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-		62.5	0.5		ML	ASPHALT: 20 mm. FILL: Sandy SILT with gravel: Brown, dry, medium to coarse angular gravel.	UCS Environmental sample Environmental sample	
			62.0 61.5 61.0	1.0 1.5 2.0			Borehole BH5 continued as cored hole		

EP Risk Management
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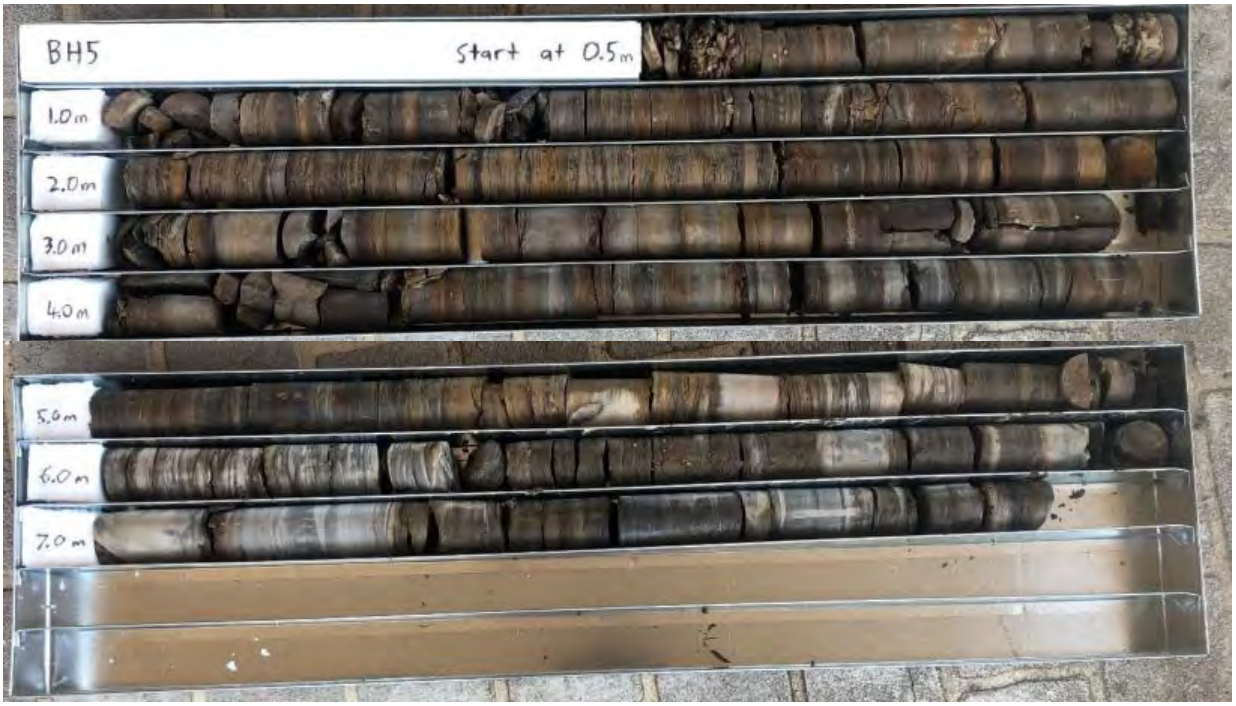
BOREHOLE NUMBER BH5

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 17/12/19 **COMPLETED** 17/12/19 **R.L. SURFACE** 62.9 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength (EL VL L M H VH EH)	Is(50) MPa (D- diametral, A- axial)	RQD %	Defect Spacing mm (30 100 300 1000 3000)	Defect Description
						Continued from non-cored borehole						
			62	1		SHALE: Light grey and orange, moderatley weathered, highly fractured.	MW		A 4.9	<<		EC, Pt, 0-5 degrees, R, Fe.
						As above but dark grey and orange.						Jt, 30 degrees, Sm, Fe.
			61	2					A 2.3	58		VC, Pt, 0-10 degrees, R, Fe.
			60	3								C, Pt 0 - 10 degrees, Sm, Fe.
	-		59	4						45		
			58	5					A 0.97			
			57	6					D 1.28 A 0.55	54		
			56	7					A 1.6			
			55									
			54	8		BH5 terminated at 7.9m						
				9								

BH5 Core Photographs



Project: Geotechnical Investigation
Address: 235 Grose Vale Road, North Richmond, NSW
Client: St John of God Health Care Inc
Date: 18/12/2019

EP Risk Management
3/19 Bolton Street
Newcastle NSW 2300
Telephone: 02 4048 2845

BOREHOLE NUMBER BH7

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 58 **DATUM** m AHD
DRILLING CONTRACTOR EP Risk **SLOPE** 90° **BEARING** -
EQUIPMENT Hand Auger **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-				ML	FILL: Sandy SILT with gravel.	ACM W/W% and environmental sample Environmental sample	Glass Geofab layer
		57.5	0.5			Borehole BH7 terminated at 0.5m		
		57.0	1.0					
		56.5	1.5					
		56.0	2.0					

EP Risk Management
3/19 Bolton Street
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BOREHOLE NUMBER BH8

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 58 **DATUM** m AHD
DRILLING CONTRACTOR EP Risk **SLOPE** 90° **BEARING** -
EQUIPMENT Hand Auger **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-	57.5	0.5			FILL: Sandy SILT: Grey, dry, organic material.	Environmental sample.	
		57.0	1.0					
		56.5	1.5			Borehole BH8 terminated at 1m		
		56.0	2.0					

EP Risk Management
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BOREHOLE NUMBER BH9

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 65.55 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
		65.5			GW	FILL: Sandy GRAVEL with silt: Light grey and brown, dry, medium to coarse angular gravel, basecoarse.		
			0.5				Environmental sample	
	-	65.0				XW SHALE: Grey, dry, fine to coarse gravel, laminated, recovered as silty gravel.	UCS	
			1.0					
		64.5						
						Borehole BH9 terminated at 1.2m		
			1.5					
		64.0						
			2.0					

EP Risk Management
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BOREHOLE NUMBER BH10

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 62.5 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
						FILL: Sandy SILT: Brown, dry, loose, trace fine to medium sub angular gravel, medium dense.		
							Environmental sample	
		62.0	0.5					
							Environmental sample	
					CL	Sandy Silty CLAY: Grey and brown mottled red, dry, very stiff, low to medium plasticity, hgh strength.		
	-						Environmental sample	
		61.5	1.0					
							UCS and environmental sample.	
		61.0	1.5					
						XW SHALE: Grey, dry, fine to medium grained, laminated, recovered as silty gravel.		
		60.5	2.0			Borehole BH10 terminated at 1.9m		

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BOREHOLE NUMBER BH11

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 61.2 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
					GW	ASPHALT: 20 mm. FILL: Sandy silty GRAVEL: Grey, dry, fine to medium angular gravel.		
		61.0					Environmental sample	
			0.5		CL	Sandy silty CLAY: Red and brown, dry, very stiff, low plasticity.		
							Environmental sample	
		60.5						
	-					XW SHALE: Grey, dry, fine grained, laminated, recovered as silty clayey gravel.		
			1.0					
							Environmental sample	
		60.0						
			1.5					
		59.5						
						Borehole BH11 terminated at 1.7m		
			2.0					

EP Risk Management
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BOREHOLE NUMBER BH12

CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 52 **DATUM** m AHD
DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -
EQUIPMENT Geo Probe **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
					ML	FILL: Sandy SILT with gravel: Brown, dry, loose to medium dense.		
							Environmental sample	
		51.5	0.5					
					CL	Sandy silty CLAY: Red and brown, dry, very stiff, low plasticity, trace sub rounded gravel.	Environmental sample	
	-	51.0	1.0				Environmental sample	
							CBR	
		50.5	1.5					
		50.0	2.0					

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BOREHOLE NUMBER BH12

CLIENT St John of God Health Care **PROJECT NAME** PSI and Geotechnical Investigation

PROJECT NUMBER EP1494 **PROJECT LOCATION** 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 52 **DATUM** m AHD

DRILLING CONTRACTOR Terratest **SLOPE** 90° **BEARING** -

EQUIPMENT Geo Probe **HOLE LOCATION**

HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-	49.5	2.5		CL	Sandy silty CLAY: Red and brown, dry, very stiff, low plasticity, trace sub rounded gravel. *(continued)*	Enironmental sample	
		49.0	3.0		CL	As above but becoming XW SHALE.	CBR	
		48.5	3.5			Borehole BH12 terminated at 3m		
		48.0	4.0					

EP Risk Management
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BOREHOLE NUMBER BH13

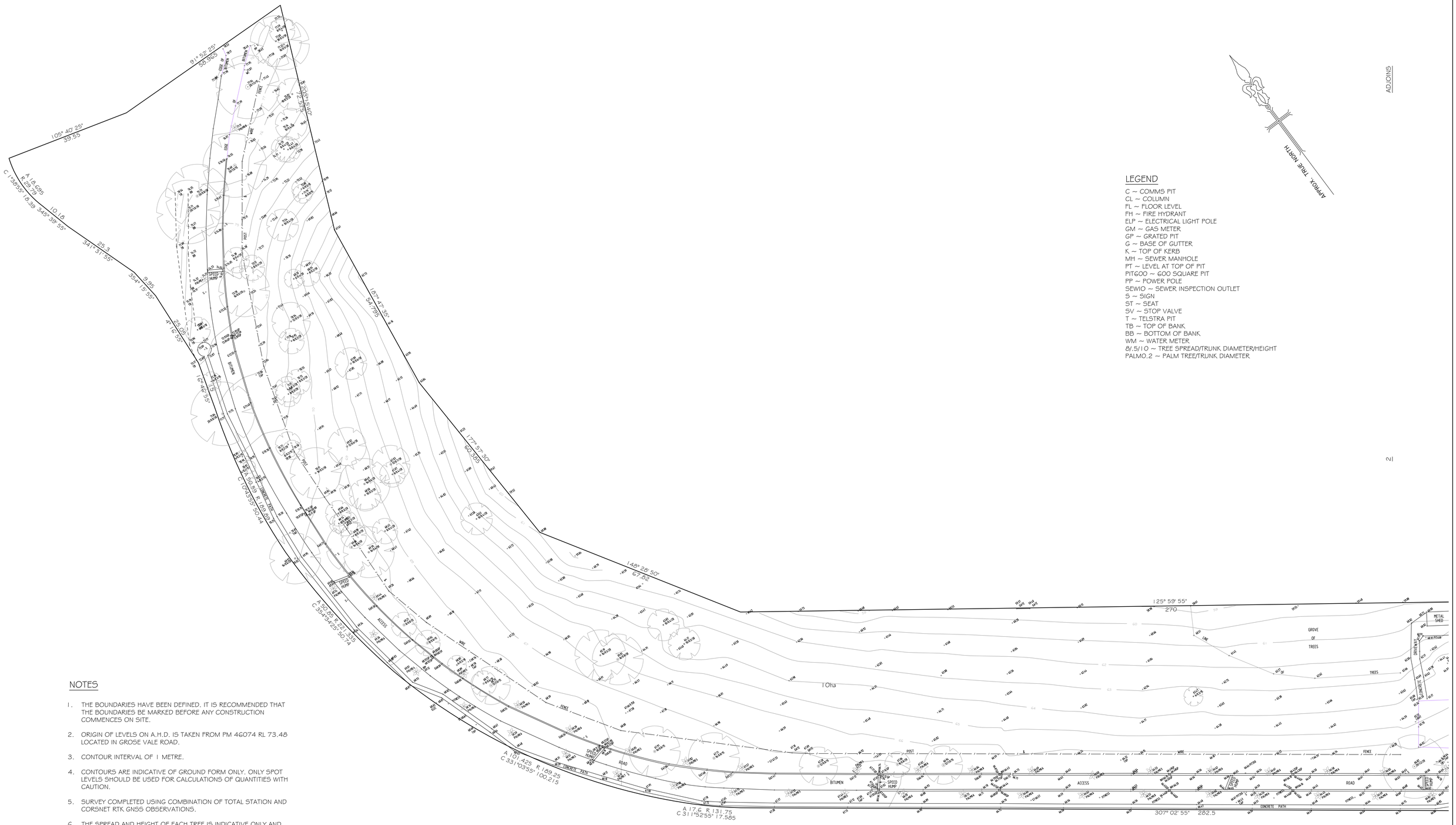
CLIENT St John of God Health Care
PROJECT NAME PSI and Geotechnical Investigation
PROJECT NUMBER EP1494
PROJECT LOCATION 235 Grose Vale Road, North Richmond, NSW

DATE STARTED 18/12/19 **COMPLETED** 18/12/19 **R.L. SURFACE** 57.8 **DATUM** m AHD
DRILLING CONTRACTOR EP Risk **SLOPE** 90° **BEARING** -
EQUIPMENT Hand Auger **HOLE LOCATION**
HOLE SIZE **LOGGED BY** NM **CHECKED BY** JY
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
	-	57.5	0.5			FILL: Sandy silty GRAVEL: Grey, dry, fine to medium angular shale gravels.	Environmental sample, QC and QA samples	
		57.0	1.0			Borehole BH13 terminated at 0.5m		
		56.5	1.5					
		56.0	2.0					

Appendix D

SITE SURVEY PLANS



LEGEND

C ~ COMMS PIT
CL ~ COLUMN
FL ~ FLOOR LEVEL
FH ~ FIRE HYDRANT
ELP ~ ELECTRICAL LIGHT POLE
GM ~ GAS METER
GP ~ GRATED PIT
G ~ BASE OF GUTTER
K ~ TOP OF KERB
MH ~ SEWER MANHOLE
PT ~ LEVEL AT TOP OF PIT
PIT600 ~ 600 SQUARE PIT
PP ~ POWER POLE
SEWIO ~ SEWER INSPECTION OUTLET
S ~ SIGN
ST ~ SEAT
SV ~ STOP VALVE
T ~ TELSTRA PIT
TB ~ TOP OF BANK
BB ~ BOTTOM OF BANK
WM ~ WATER METER
8/.5/10 ~ TREE SPREAD/TRUNK DIAMETER/HEIGHT
PALM0.2 ~ PALM TREE/TRUNK DIAMETER

NOTES

1. THE BOUNDARIES HAVE BEEN DEFINED. IT IS RECOMMENDED THAT THE BOUNDARIES BE MARKED BEFORE ANY CONSTRUCTION COMMENCES ON SITE.
2. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM PM 46074 RL 73.48 LOCATED IN GROSE VALE ROAD.
3. CONTOUR INTERVAL OF 1 METRE.
4. CONTOURS ARE INDICATIVE OF GROUND FORM ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
5. SURVEY COMPLETED USING COMBINATION OF TOTAL STATION AND CORSNET RTK GNSS OBSERVATIONS.
6. THE SPREAD AND HEIGHT OF EACH TREE IS INDICATIVE ONLY AND CANNOT BE SHOWN ACCURATELY WITHOUT VERY DETAILED FURTHER SURVEY. THE SHAPE AND SIZE OF SPREAD OF THE TREE MAY VARY DUE TO LACK OF UNIFORMITY OF THE BRANCHES, TRUNK AND OTHER REASONS.

0 10 15 20 30 40 50 60
SCALE 1:400 @ A0

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SURVEY: M.C.	Mark Castelletti Surveying REGISTERED SURVEYOR ABN: 38 840 577 857 1 Mahony Road, Constitution Hill NSW 2145 Phone/Fax: (02) 9688 1592 Mobile: 0418 332 563 Email: mcsurveying@dodo.com.au	DATE: 05/06/19	CLIENT: ST JOHN OF GOD HEALTH CARE
DESIGN:		R.R.: 1:400	PLAN SHOWING DETAIL AND LEVELS ON AHD OVER LOT 11 IN DP 1134453 AT GROSE VALE ROAD, NORTH RICHMOND
DRAWN: M.L.		DATUM: AHD	
CHECKED: M.C.		REF: C3019	
		SHT. 1 OF 2 SHTS.	L.G.A.: HAWKESBURY

SHEET 2

ADJOINS

LEGEND

C ~ COMMS PIT
CL ~ COLUMN
FL ~ FLOOR LEVEL
FH ~ FIRE HYDRANT
ELP ~ ELECTRICAL LIGHT POLE
GM ~ GAS METER
GP ~ GRATED PIT
G ~ BASE OF GUTTER
K ~ TOP OF KERB
MH ~ SEWER MANHOLE
PT ~ LEVEL AT TOP OF PIT
PIT600 ~ 600 SQUARE PIT
PP ~ POWER POLE
SEWIO ~ SEWER INSPECTION OUTLET
S ~ SIGN
ST ~ SEAT
SV ~ STOP VALVE
T ~ TELSTRA PIT
TB ~ TOP OF BANK
BB ~ BOTTOM OF BANK
WM ~ WATER METER
8/5/10 ~ TREE SPREAD/TRUNK DIAMETER/HEIGHT
PALMO.2 ~ PALM TREE/TRUNK DIAMETER

NOTES

1. THE BOUNDARIES HAVE BEEN DEFINED. IT IS RECOMMENDED THAT THE BOUNDARIES BE MARKED BEFORE ANY CONSTRUCTION COMMENCES ON SITE.
2. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM PM 46074 RL 73.48 LOCATED IN GROSE VALE ROAD.
3. CONTOUR INTERVAL OF 1 METRE.
4. CONTOURS ARE INDICATIVE OF GROUND FORM ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
5. SURVEY COMPLETED USING COMBINATION OF TOTAL STATION AND CORSNET RTK GNSS OBSERVATIONS.
6. THE SPREAD AND HEIGHT OF EACH TREE IS INDICATIVE ONLY AND CANNOT BE SHOWN ACCURATELY WITHOUT VERY DETAILED FURTHER SURVEY. THE SHAPE AND SIZE OF SPREAD OF THE TREE MAY VARY DUE TO LACK OF UNIFORMITY OF THE BRANCHES, TRUNK AND OTHER REASONS.

SHEET

0 10 15 20 30 40 50 60
SCALE 1:400 @ A0

SURVEY: M.C.	Mark Castelletti Surveying REGISTERED SURVEYOR ABN: 38 840 577 857 1 Mahony Road, Constitution Hill NSW 2145 Phone/Fax: (02) 9688 1592 Mobile: 0418 332 563 Email: mcsurveying@dodo.com.au	DATE: 05/06/19	CLIENT: ST JOHN OF GOD HEALTH CARE
DESIGN:		R.R.: 1:400	PLAN SHOWING DETAIL AND LEVELS ON AHD OVER LOT 11 IN DP 1134453 AT GROSE VALE ROAD, NORTH RICHMOND
DRAWN: M.L.		DATUM: AHD	
CHECKED: M.C.		REF: C3019	
		SHT. 2 OF 2 SHTS.	L.G.A.: HAWKESBURY

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Appendix E

LABORATORY CERTIFICATES OF ANALYSIS

SYDNEY LABORATORY
Coffey Testing Pty Ltd
ABN 92 114 364 046
32 Hope Street, Melrose Park NSW 2114 Australia
ph: +61 2 8876 0500

Test report - uniaxial compressive strength

client:	*COFFEY TESTING PTY LTD*	job no:	***TESTSYDS 00010AA***
Principal:	*EP RISK MANAGEMENT*		
project:	*TESTNEWC00017AA - RICHMOND HOSPITAL GEOTECH*	report date:	*5 February 2020*
location:	*RICHMOND*	borehole:	***BH1***
test procedure:	*AS 4133.1.1.1 and 4133.4.2.1*	date received:	*29 January 2020*
test apparatus:	*Avery with 200 kN CAS load cell 4222*		*page 1 of 1*

All samples were tested in an "As Received" condition.
Top platen 228 mm. Bottom platen 75 mm

QESTLab work order ID / depth / QESTLab sample ID	date tested / test duration	height / average diameter / height/dia ratio	uniaxial compressive strength MPa	wet density / moisture content	sample description / bedding/foliation	Client's Sample ID / failure mechanism
SYDS20W00003 / ***6.50 to 6.60 m*** / *SYDS20S00007*	*30 Jan 20* / *3.84 min*	*86 mm* / *51.2 mm* / *1.68:1*	***1.88***	***2.4 t/m³*** / ***6.9 %***	*Claystone* / *Bedding planes are at an angle of 90° to the axis of loading*	*bedding & axial*

before testing

after testing

SYDS_001R

NATA ACCREDITED FOR TECHNICAL COMPETENCE

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.

NATA Accredited Laboratory No. 431

Date: *5 Feb 2020*

Authorised Signature:
Alan Cocks
Rock Testing Manager

SYDNEY LABORATORY
Coffey Testing Pty Ltd
ABN 92 114 364 046
32 Hope Street, Melrose Park NSW 2114 Australia
ph: +61 2 8876 0500

Test report - uniaxial compressive strength

client:	*COFFEY TESTING PTY LTD*	job no:	***TESTSYDS 00010AA***
Principal:	*EP RISK MANAGEMENT*		
project:	*TESTNEWC00017AA - RICHMOND HOSPITAL GEOTECH*	report date:	*5 February 2020*
location:	*RICHMOND*	borehole:	***BH2***
test procedure:	*AS 4133.1.1.1 and 4133.4.2.1*	date received:	*29 January 2020*
test apparatus:	*Avery with 200 kN CAS load cell 4222*		*page 1 of 1*

All samples were tested in an "As Received" condition.

QESTLab work order ID / depth / QESTLab sample ID	date tested / test duration	height / average diameter / height/dia ratio	uniaxial compressive strength **MPa**	wet density / moisture content	sample description / bedding/foliation	Client's Sample ID / failure mechanism
SYDS20W00003 / ***4.40 to 4.50 m*** / *SYDS20S00008*	*30 Jan 20* / *4.11 min*	*105 mm* / *51.6 mm* / *2.04:1*	***5.48***	***2.5 t/m³*** / ***5.7 %***	*Shale* / *Bedding planes are at an angle of 80° to the axis of loading*	*bedding & axial*

before testing

after testing

SYDS_001R

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NATA Accredited Laboratory No. 431

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Authorised Signature:
Alan Cocks
Rock Testing Manager

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ABN 92 114 364 046
32 Hope Street, Melrose Park NSW 2114 Australia
ph: +61 2 8876 0500

Test report - uniaxial compressive strength

client:	*COFFEY TESTING PTY LTD*	job no:	***TESTSYDS 00010AA***
Principal:	*EP RISK MANAGEMENT*		
project:	*TESTNEWC00017AA - RICHMOND HOSPITAL GEOTECH*	report date:	*5 February 2020*
location:	*RICHMOND*	borehole:	***BH3***
test procedure:	*AS 4133.1.1.1 and 4133.4.2.1*	date received:	*29 January 2020*
test apparatus:	*Avery with 200 kN CAS load cell 4222*		*page 1 of 1*

All samples were tested in an "As Received" condition.

QESTLab work order ID / depth / QESTLab sample ID	date tested / test duration	height / average diameter / height/dia ratio	uniaxial compressive strength **MPa**	wet density / moisture content	sample description / bedding/foliation	Client's Sample ID / failure mechanism
SYDS20W00003 / ***6.20 to 6.40 m*** / *SYDS20S00009*	*31 Jan 20* / *8.14 min*	*146 mm* / *51.4 mm* / *2.84:1*	***22.8***	***2.7 t/m³*** / ***2.7 %***	*Shale* / *Bedding planes are at an angle of 90° to the axis of loading*	*Shear*

before testing

after testing

SYDS_001R

\\Ct-fs\zct\Sydney\Data\50. ROCK TESTING_TESTSYD-Rocks\TESTSYDS00010AA Richmond Hospital Geotech\[BH3 UCS.xlsm]Report

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NATA Accredited Laboratory No. 431

Date: *5 Feb 2020*

Authorised Signature:
Alan Cocks
Rock Testing Manager

SYDNEY LABORATORY
Coffey Testing Pty Ltd
ABN 92 114 364 046
32 Hope Street, Melrose Park NSW 2114 Australia
ph: +61 2 8876 0500

Test report - uniaxial compressive strength

client:	*COFFEY TESTING PTY LTD*	job no:	***TESTSYDS 00010AA***
Principal:	*EP RISK MANAGEMENT*		
project:	*TESTNEWC00017AA - RICHMOND HOSPITAL GEOTECH*	report date:	*5 February 2020*
location:	*RICHMOND*	borehole:	***BH4***
test procedure:	*AS 4133.1.1.1 and 4133.4.2.1*	date received:	*29 January 2020*
test apparatus:	*Avery with 200 kN CAS load cell 4222*		*page 1 of 1*

All samples were tested in an "As Received" condition.
Top platen 228 mm, Bottom platen 75 mm

QESTLab work order ID / depth / QESTLab sample ID	date tested / test duration	height / average diameter / height/dia ratio	uniaxial compressive strength MPa	wet density / moisture content	sample description / bedding/foliation	Client's Sample ID / failure mechanism
SYDS20W00003 *5.90 to 6.00 m* *SYDS20S00011*	*31 Jan 20* *8.20 min*	*149 mm* *51.7 mm* *2.89:1*	***18.3***	***2.5 t/m³*** ***3.0 %***	*Shale* *Bedding planes are at an angle of 85° to the axis of loading*	*shear*
SYDS20W00003 *8.00 to 8.20 m* *SYDS20S00010*	*4 Feb 20* *5.64 min*	*147 mm* *51.5 mm* *2.86:1*	***9.14***	***2.6 t/m³*** ***2.7 %***	*Shale* *Bedding planes are at an angle of 80° to the axis of loading*	*bedding & shear*

5.90 to 6.00 m

8.00 to 8.20 m

SYDS_001R

\\Ct-fs\zct\Sydney\Data\50. ROCK TESTING_TESTSYD-Rocks\TESTSYDS00010AA Richmond Hospital Geotech\[BH4 UCS.xlsm]Data Entry

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NATA Accredited Laboratory No. 431

Date: *5 Feb 2020*

Authorised Signature:
Alan Cocks
Rock Testing Manager

SYDNEY LABORATORY
Coffey Testing Pty Ltd
ABN 92 114 364 046
32 Hope Street, Melrose Park NSW 2114 Australia
ph: +61 2 8876 0500

Test report - uniaxial compressive strength

client:	*COFFEY TESTING PTY LTD*	job no:	***TESTSYDS 00010AA***
Principal:	*EP RISK MANAGEMENT*		
project:	*TESTNEWC00017AA - RICHMOND HOSPITAL GEOTECH*	report date:	*5 February 2020*
location:	*RICHMOND*	borehole:	***BH5***
test procedure:	*AS 4133.1.1.1 and 4133.4.2.1*	date received:	*29 January 2020*
test apparatus:	*Avery with 200 kN CAS load cell 4222*		*page 1 of 1*

All samples were tested in an "As Received" condition.

QESTLab work order ID / depth / QESTLab sample ID	date tested / test duration	height / average diameter / height/dia ratio	uniaxial compressive strength **MPa**	wet density / moisture content	sample description / bedding/foliation	Client's Sample ID / failure mechanism
SYDS20W00003 / ***5.90 to 6.00 m*** / *SYDS20S00012*	*4 Feb 20* / *4.00 min*	*143 mm* / *51.4 mm* / *2.79:1*	***1.28***	***2.4 t/m³*** / ***7.8 %***	*Shale* / *Bedding planes are at an angle of 80° to the axis of loading*	*bedding & axial*

before testing

after testing

SYDS_001R

\\Ct-fs\zct\Sydney\Data\50. ROCK TESTING_TESTSYD-Rocks\TESTSYDS00010AA Richmond Hospital Geotech\[BH5 UCS.xlsm]Data Entry

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NATA Accredited Laboratory No. 431

Date: *5 Feb 2020*

Authorised Signature:
Alan Cocks
Rock Testing Manager

Newcastle Laboratory

Coffey Testing Pty Ltd
ABN 92 114 364 046
16 Callistemon Close
Warabrook NSW 2304

Phone: +61 2 4016 2300

Report No: CBR:NEWC20S-00066
Issue No: 1

California Bearing Ratio Test Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: - **TRN:** -

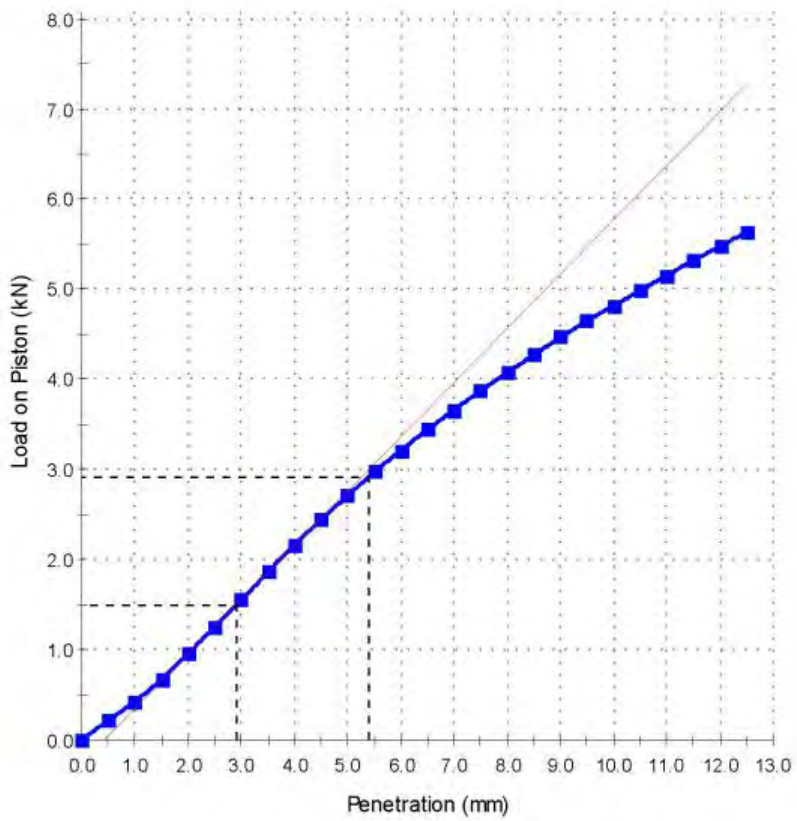
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: Chris Blackford (Geotechnician)
WORLD RECOGNISED ACCREDITATION
NATA Accredited Laboratory Number:431
Date of Issue: 29/01/2020

Sample Details

Sample ID:	NEWC20S-00066	**Sampling Method:**	Submitted by client
Client ID:	-	**Material:**	Existing Ground
Date Sampled:	19/12/2019	**Source:**	On-Site
Date Submitted:	19/12/2019	**Specification:**	No Specification
Date Tested:	28/01/2020		
Project Location:	Richmond, NSW		
Sample Location:	BH9 - 0.5 - 1.0m		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**15**
Dry Density before Soaking (t/m³):	1.96
Density Ratio before Soaking (%):	100.0
Moisture Content before Soaking (%):	11.4
Moisture Ratio before Soaking (%):	100.5
Dry Density after Soaking (t/m³):	1.96
Density Ratio after Soaking (%):	100.0
Swell (%):	0.0
Moisture Content of Top 30mm (%):	15.0
Moisture Content of Remaining Depth (%):	12.9
Compaction Hammer Used:	Standard
	AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	200
Plasticity Determination Method:	Visual/Tactile

——— AS 1289.2.1.1 ———

In Situ (Field) Moisture Content (%):	6.2

Comments

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Newcastle Laboratory

Coffey Testing Pty Ltd
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Warabrook NSW 2304

Phone: +61 2 4016 2300

Report No: CBR:NEWC20S-00068
Issue No: 1

California Bearing Ratio Test Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: - **TRN:** -

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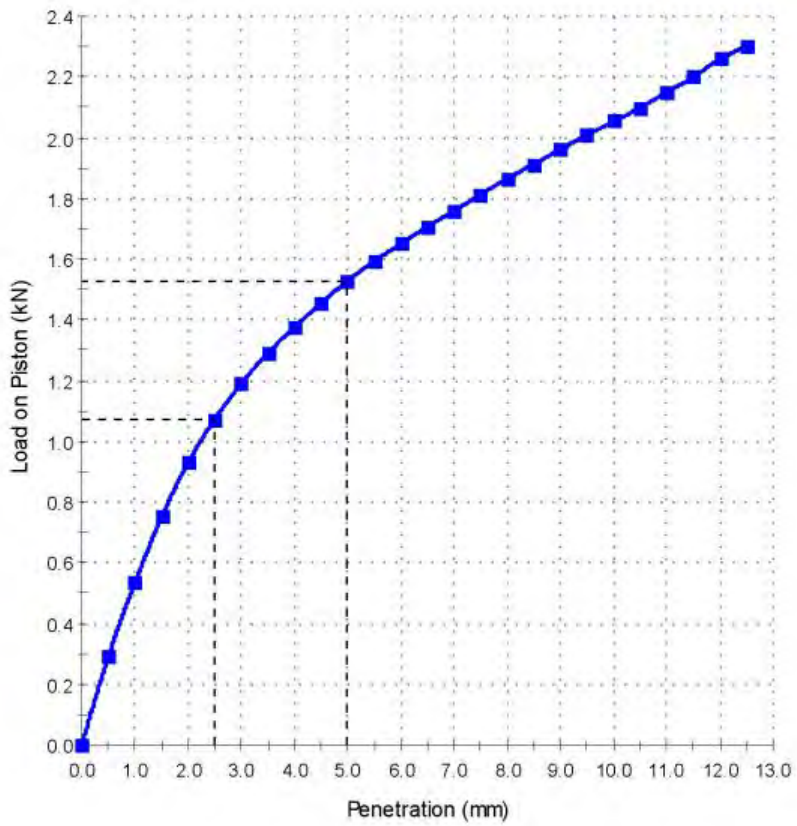
Approved Signatory: Chris Blackford (Geotechnician)
WORLD RECOGNISED ACCREDITATION
NATA Accredited Laboratory Number:431
Date of Issue: 29/01/2020

Sample Details

Sample ID:	NEWC20S-00068	**Sampling Method:**	Submitted by client
Client ID:	-	**Material:**	Existing Ground
Date Sampled:	19/12/2019	**Source:**	On-Site
Date Submitted:	19/12/2019	**Specification:**	No Specification
Date Tested:	27/01/2020		
Project Location:	Richmond, NSW		
Sample Location:	BH12 - 1.0 - 1.5m		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 2.5mm (%):	**8**
Dry Density before Soaking (t/m³):	1.64
Density Ratio before Soaking (%):	100.0
Moisture Content before Soaking (%):	21.8
Moisture Ratio before Soaking (%):	101.0
Dry Density after Soaking (t/m³):	1.64
Density Ratio after Soaking (%):	99.5
Swell (%):	0.0
Moisture Content of Top 30mm (%):	24.1
Moisture Content of Remaining Depth (%):	21.2
Compaction Hammer Used:	Standard
	AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	169
Plasticity Determination Method:	Visual/Tactile

——— AS 1289.2.1.1 ———

In Situ (Field) Moisture Content (%):	16.0

Comments

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Warabrook NSW 2304

Phone: +61 2 4016 2300

Report No: NEWC20S-00065-1
Issue No: 1

Material Test Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: - **TRN:** -

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Approved Signatory: Chris Blackford (Geotechnician)
WORLD RECOGNISED ACCREDITATION
NATA Accredited Laboratory Number:431
Date of Issue: 29/01/2020

Sample Details

Sample ID: NEWC20S-00065
Client Sample: -
Date Sampled: 19/12/2019
Source: On-Site
Material: Existing Ground
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Richmond, NSW
Sample Location: BH5 - 0.0 - 0.3m

Other Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Air-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	6.5	
Mould Length (mm)		125	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	26	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	12	
Date Tested		24/01/2020	

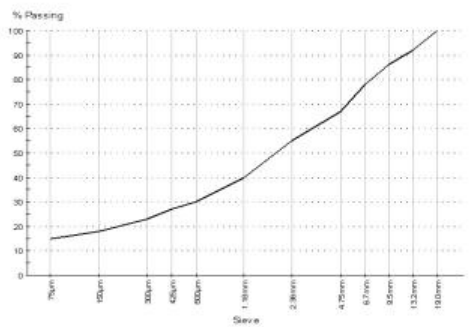
Particle Size Distribution

Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 17/01/2020

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	92	
9.5mm	86	
6.7mm	78	
4.75mm	67	
2.36mm	55	
1.18mm	40	
600µm	30	
425µm	27	
300µm	23	
150µm	18	
75µm	15	

Chart



Comments

N/A

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Phone: +61 2 4016 2300

Report No: NEWC20S-00067-1
Issue No: 1

Material Test Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: - **TRN:** -

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Approved Signatory: Chris Blackford (Geotechnician)
WORLD RECOGNISED ACCREDITATION
NATA Accredited Laboratory Number:431
Date of Issue: 29/01/2020

Sample Details

Sample ID: NEWC20S-00067
Client Sample: -
Date Sampled: 19/12/2019
Source: On-Site
Material: Existing Ground
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Richmond, NSW
Sample Location: BH10 - 1.0 - 1.5m

Other Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Air-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	9.5	
Mould Length (mm)		249.5	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	35	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	18	
Plasticity Index (%)	AS 1289.3.3.1	17	
Date Tested		28/01/2020	

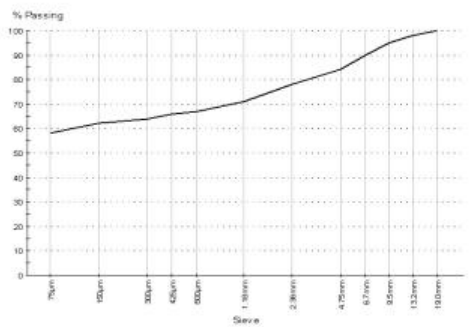
Particle Size Distribution

Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 17/01/2020

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	98	
9.5mm	95	
6.7mm	90	
4.75mm	84	
2.36mm	78	
1.18mm	71	
600µm	67	
425µm	66	
300µm	64	
150µm	62	
75µm	58	

Chart



Comments

N/A

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Coffey Testing Pty Ltd
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16 Callistemon Close
Warabrook NSW 2304

Phone: +61 2 4016 2300

Report No: NEWC20S-00069-1
Issue No: 1

Material Test Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: - **TRN:** -

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.

Approved Signatory: Chris Blackford (Geotechnician)
WORLD RECOGNISED ACCREDITATION
NATA Accredited Laboratory Number:431
Date of Issue: 29/01/2020

Sample Details

Sample ID: NEWC20S-00069
Client Sample: -
Date Sampled: 19/12/2019
Source: On-Site
Material: Existing Ground
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Richmond, NSW
Sample Location: BH12 - 2.5 - 3.0m

Other Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Air-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	16.0	
Mould Length (mm)		125	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	57	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	23	
Plasticity Index (%)	AS 1289.3.3.1	34	
Date Tested		24/01/2020	

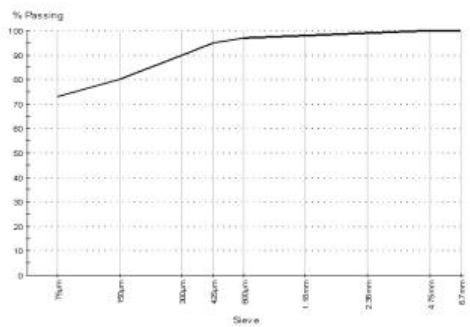
Particle Size Distribution

Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 17/01/2020

Note: Sample Washed

Sieve Size	% Passing	Limits
6.7mm	100	
4.75mm	100	
2.36mm	99	
1.18mm	98	
600µm	97	
425µm	95	
300µm	90	
150µm	80	
75µm	73	

Chart



Comments

N/A

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Newcastle Laboratory

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16 Callistemon Close
Warabrook NSW 2304

Phone: +61 2 4016 2300

Report No: RS:NEWC20S-00141
Issue No: 1

Rock Strength Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: **TRN:**

Approved Signatory: Greg Eveleigh
(Geotechnician)
431
Date of Issue: 7/02/2020

Sample Details

Sample ID: NEWC20S-00141
Field ID: 1
Date Sampled: 19/12/2019
Date Submitted: 19/12/2019
Project Location: Richmond, NSW
Sample Location: Various
Test Method: AS 4133.4.1
Sampling Method: Submitted by client
Material: Existing Ground
Source: On-Site
Specification: No Specification

General Details

Test Machine: 19595
Moisture Condition: D
Storage History: Unknown
Loading Rate: 30s-3min

Core Specimen					Diametral				Axial				
Sample ID	Rock Type	Location	Sample Dimensions	Depth	P kN	Is MPa	Is(50) MPa	Failure Mode	P kN	Is MPa	Is(50) MPa	Failure Mode	Ia(50) MPa
NEWC20S00141	ClayStone	BH1		from 2.00 to 2.00 m					1.07	1.8	1.3	substance	
NEWC20S00142	ClayStone	BH1		from 3.00 to 3.00 m					0.60	0.78	0.60	substance	
NEWC20S00143	ClayStone	BH1		from 4.20 to 4.20 m					0.83	3.4	2.0	substance	
NEWC20S00144	ClayStone	BH1		from 5.00 to 5.00 m					0.27	0.43	0.32	substance	
NEWC20S00145	ClayStone	BH1		from 6.00 to 6.00 m					0.27	0.12	0.12	substance	
NEWC20S00146	ClayStone	BH1		from 7.00 to 7.00 m					0.11	0.084	0.072	substance	

Comments

size measurements and required ratios out of standards limits.

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Newcastle Laboratory

Coffey Testing Pty Ltd
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Phone: +61 2 4016 2300

Report No: RS:NEWC20S-00147
Issue No: 1

Rock Strength Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: **TRN:**

Approved Signatory: Greg Eveleigh
(Geotechnician)
431
Date of Issue: 7/02/2020

Sample Details

Sample ID: NEWC20S-00147
Field ID: 7
Date Sampled: 19/12/2019
Date Submitted: 19/12/2019
Project Location: Richmond, NSW
Sample Location: Various
Test Method: AS 4133.4.1
Sampling Method: Submitted by client
Material: Existing Ground
Source: On-Site
Specification: No Specification

General Details

Test Machine: 19595
Moisture Condition: Dry
Storage History: Unknown
Loading Rate: 30s-3min

Core Specimen					Diametral				Axial				
Sample ID	Rock Type	Location	Sample Dimensions	Depth	P kN	Is MPa	Is(50) MPa	Failure Mode	P kN	Is MPa	Is(50) MPa	Failure Mode	Ia(50) MPa
NEWC20S00147	ClayStone	BH2		from 1.00 to 1.00 m					0.56	0.31	0.29	substance	
NEWC20S00148	ClayStone	BH2		from 2.00 to 2.00 m					0.95	0.50	0.47	substance	
NEWC20S00149	ClayStone	BH2		from 3.00 to 3.00 m					0.41	0.23	0.21	substance	
NEWC20S00150	ClayStone	BH2		from 4.00 to 3.00 m					0.46	0.54	0.42	substance	
NEWC20S00151	ClayStone	BH2		from 5.00 to 5.00 m					0.25	0.26	0.21	substance	
NEWC20S00152	ClayStone	BH2		from 6.00 to 6.00 m					0.50	0.39	0.33	substance	
NEWC20S00153	ClayStone - Untestable	BH2		from 7.00 to 7.00 m									

Comments

size measurements and required ratios out of standards limits.

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Phone: +61 2 4016 2300

Report No: RS:NEWC20S-00153
Issue No: 1

Rock Strength Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: **TRN:**

Approved Signatory: Greg Eveleigh
(Geotechnician)
431
Date of Issue: 7/02/2020

Sample Details

Sample ID: NEWC20S-00153
Field ID: 13
Date Sampled: 19/12/2019
Date Submitted: 19/12/2019
Project Location: Richmond, NSW
Sample Location: Various
Test Method: AS 4133.4.1
Sampling Method: Submitted by client
Material: Existing Ground
Source: On-Site
Specification: No Specification

General Details

Test Machine: 19595
Moisture Condition: D
Storage History: Unknown
Loading Rate: 30sec-3min

Core Specimen					Diametral				Axial				
Sample ID	Rock Type	Location	Sample Dimensions	Depth	P kN	Is MPa	Is(50) MPa	Failure Mode	P kN	Is MPa	Is(50) MPa	Failure Mode	Ia(50) MPa
Newc20s-00154	Claystone	BH3		from 1.00 to 1.00 m					0.07	0.036	0.034	substance	
Newc20s-00155	Claystone	BH3		from 2.00 to 2.00 m					0.12	0.042	0.044	substance	
Newc20s-00156	Claystone	BH3		from 3.00 to 3.00 m					0.17	0.13	0.12	substance	
Newc20s-00157	Untestable	BH3		from 4.00 to 4.00 m					0.00				
Newc20s-00158	Claystone	BH3		from 5.00 to 5.00 m					0.60	0.53	0.45	substance	
Newc20s-00159	Claystone	BH3		from 6.00 to 6.00 m					1.35	0.88	0.79	substance	
Newc20s-00160	Claystone	BH3		from 7.00 to 7.00 m					1.26	0.57	0.55	substance	

Comments

size measurements and required ratios out of standards limits.

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Report No: RS:NEWC20S-00161
Issue No: 1

Rock Strength Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: **TRN:**

Approved Signatory: Greg Eveleigh
(Geotechnician)
431
Date of Issue: 7/02/2020

Sample Details

Sample ID: NEWC20S-00161
Field ID: 21
Date Sampled: 19/12/2019
Date Submitted: 19/12/2019
Project Location: Richmond, NSW
Sample Location: Various
Test Method: AS 4133.4.1
Sampling Method: Submitted by client
Material: Existing Ground
Source: On-Site
Specification: No Specification

General Details

Test Machine: 19595
Moisture Condition: Wet
Storage History: Unknown
Loading Rate: 30sec-3min

Core Specimen					Diametral				Axial				
Sample ID	Rock Type	Location	Sample Dimensions	Depth	P kN	Is MPa	Is(50) MPa	Failure Mode	P kN	Is MPa	Is(50) MPa	Failure Mode	Ia(50) MPa
NEWC20S00161	ClayStone	2.0							0.21	0.13	0.12	substance	
NEWC20S00162	ClayStone	3.0							1.39	0.91	0.81	substance	
NEWC20S00163	ClayStone	4.0							0.65	0.37	0.34	substance	
NEWC20S00164	ClayStone	5.0							2.53	1.3	1.2	substance	
NEWC20S00165	ClayStone	6.0							5.78	2.8	2.7	substance	
NEWC20S00166	ClayStone	7.0							1.72	1.4	1.2	substance	
NEWC20S00167	ClayStone	8.0							2.98	2.2	1.9	substance	

Comments

size measurements and required ratios out of standards limits.

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Phone: +61 2 4016 2300

Report No: RS:NEWC20S-00168
Issue No: 1

Rock Strength Report

Client: EP Risk Management
PO Box 57
Lochinvar NSW 2321

Principal:
Project No.: TESTNEWC00017AA
Project Name: EP1494-2 Richmond Hospital Geotech
Lot No.: **TRN:**

Approved Signatory: Greg Eveleigh
(Geotechnician)
431
Date of Issue: 7/02/2020

Sample Details

Sample ID: NEWC20S-00168
Field ID: 28
Date Sampled: 19/12/2019
Date Submitted: 19/12/2019
Project Location: Richmond, NSW
Sample Location: Various
Test Method: AS 4133.4.1
Sampling Method: Submitted by client
Material: Existing Ground
Source: On-Site
Specification: No Specification

General Details

Test Machine: 19595
Moisture Condition: Dry
Storage History: Unknown
Loading Rate: 30sec-3min

Core Specimen					Diametral				Axial				
Sample ID	Rock Type	Location	Sample Dimensions	Depth	P kN	Is MPa	Is(50) MPa	Failure Mode	P kN	Is MPa	Is(50) MPa	Failure Mode	Ia(50) MPa
NEWC20S00168	ClayStone	BH5		from 1.00 to 1.00 m					7.65	5.6	4.9	substance	
NEWC20S00169	ClayStone	BH5		from 2.00 to 2.00 m					4.44	2.5	2.3	substance	
NEWC20S00170	ClayStone- Untestable	BH5		from 3.00 to 3.00 m									
NEWC20S00171	ClayStone- Untestable	BH5		from 4.00 to 4.00 m									
NEWC20S00172	ClayStone	BH5		from 5.00 to 5.00 m					1.18	1.2	0.97	substance	
NEWC20S00173	ClayStone	BH5		from 6.00 to 6.00 m					0.86	0.62	0.55	substance	
NEWC20S00174	ClayStone	BH5		from 7.00 to 7.00 m					2.55	1.8	1.6	substance	

Comments

size measurements and required ratios out of standards limits.

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