BOREHOLE LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Cross River Rail - Phase 1
LOCATION: Noble Street, Fairfield

SURFACE LEVEL: 20.4 m AHD
EASTING: 502768
NORTHING: 6958035
DIP/AZIMUTH: -90°/--

BORE No: CRR103
PROJECT No: 74321.00
DATE: 15 April 2010
SHEET 1 OF 4

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.1	ASPHALTIC CONCRETE										
	0.3	FILLING - moderately compacted, grey sandy gravel filling, fine to coarse grained sand and fine gravel fractions, with some silt, dry to moist										
20		SILTY CLAY - very stiff, red-brown and grey mottled, high plasticity silty clay with trace of fine to medium grained sand, moist (Residual)										
	1								S			10,12,15 N = 27
19												
	2								S			10,13,14 N = 27
18	2.5	TUFF - extremely low to very low strength, extremely weathered, grey and red-brown mottled tuff, subhorizontal flattening lineation										
	3							(See attached sheet for abbreviations)	S			30/150mm
17		- becoming very low strength										
	3.8	TUFF - extremely low strength, highly weathered, fractured, grey and purple-brown mottled tuff, subhorizontal flattening lineation (poorly lithified)						Defects generally overprinted by pervasive weathering				
	4	- becoming grey						4.15m: J, 70°, un, ti				
16		- bcoming purple-grey						4.35m: J, 30°, un, sm, cf 10mm	C	100	57	
	4.5	- becoming grey						4.44m: J, 25°, pl, sm, cf 10mm				
		SANDSTONE - extremely low strength, highly weathered, fractured, grey fine to medium grained sandstone, bedding at 10° (poorly lithified)						4.53m: J, 35°, pl, sm, cf 5mm				
		- becoming grey and orange-brown						4.64m: J, 65°, un, sm, cf 3mm				
								4.8m: J, 60°, pl, ro, cc				

RIG: MD300 **DRILLER:** Taberner **LOGGED:** MAH **CASING:** HW to 3.5m

TYPE OF BORING: Auger 0.00-3.80m, NMLC Core 3.80-20.00m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: PVC standipe installed

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: CJB
Date: 24/6/10

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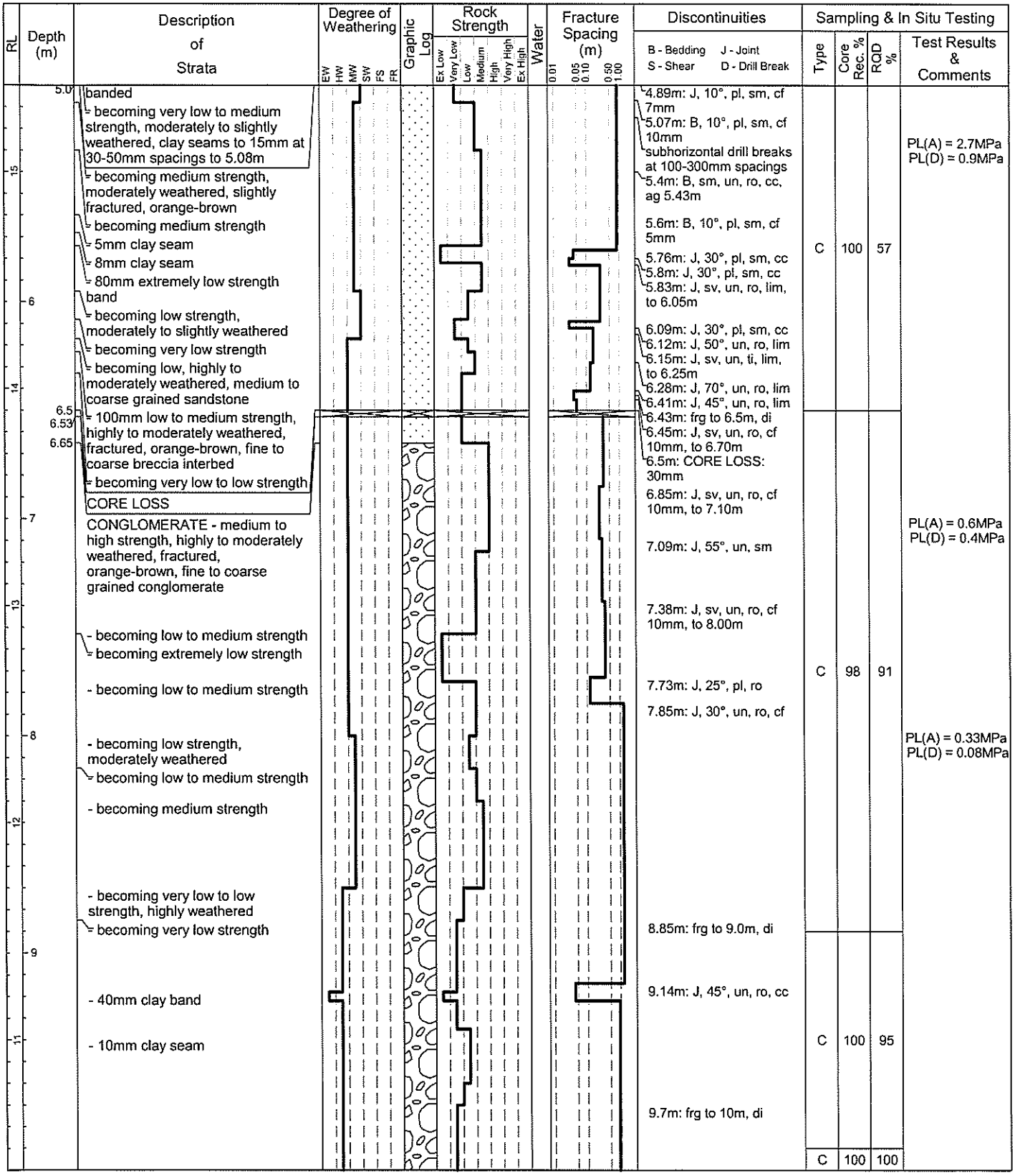
SHEET 2 OF 4



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BORE No: CRR103
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SHEET 3 OF 4

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	10.0	CONGLOMERATE (as before) becoming moderately weathered, grey and yellow-brown mottled						10.15m: J, 45°, pl, sm, cf 4mm 10.3m: frg to 10.5m, di 10.37m: J, 45°, un, sm, lim, cc				
10												
	11	- becoming moderately to slightly weathered							C	100	100	PL(A) = 0.02MPa
9												
	12	CORE LOSS						12m: CORE LOSS: 300mm				
	12.0											
	12.3	- becoming extremely low strength, moderately weathered - becoming very low strength						12.6m: J, 60°, un, ro	C	63	37	
8	12.8	CORE LOSS						12.8m: CORE LOSS: 300mm				
	13											
	13.1	- becoming slightly weathered						13.26m: J, 20°, un, ti, lim				
7		- becoming moderately weathered										
		- becoming slightly weathered							C	86	73	
	14											PL(A) = 0.03MPa PL(D) = 0.04MPa
6		- high strength zone										PL(A) = 1.56MPa PL(D) = 1.23MPa
	14.95											

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CHECKED
Initials: CRS
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	15.0	SILTSTONE - extremely low strength, extremely weathered, fractured, grey, siltstone						Numerous drilling induced breaks in extremely low to low strength rock				
		- becoming extremely low to very low strength banded, slightly to moderately weathered						15.5m: J, 60°, pl, sm, cc				
	16											PL(A) = 0.09MPa
		- becoming slightly carbonaceous						16.54m: J, 50°, un, sm, cc	C	100	27	
	17							16.85m: J, 60°, un, sm, cc				
								17.45m: J, 65°, un, sm				
								17.55m: J, 50°, un, sm				
		- becoming low strength, fresh, bedding subhorizontal										
		- becoming low strength										
	18											
									UCS			2.301 MPa
		- becoming extremely low strength, moderately weathered, crush zone to 19.65m						18.83m: crush zone to 19.67m				
		- 20mm clay seam										
	19	- 50mm clay band							C	100	56	
									LAB			PL(A) = 0.33MPa
									LAB			PL(A) = 0.3MPa
									LAB			PL(D) = 0.04MPa
									LAB			PL(D) = 0.17MPa
		- becoming low to medium strength						19.65m: J, 40°, pl, sm				
		- bedding at 10°						19.87m: J, 30°, pl, sm				
	19.98	Bore discontinued at 19.98m										

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CHECKED
Initials: GB3
Date: 24/6/10

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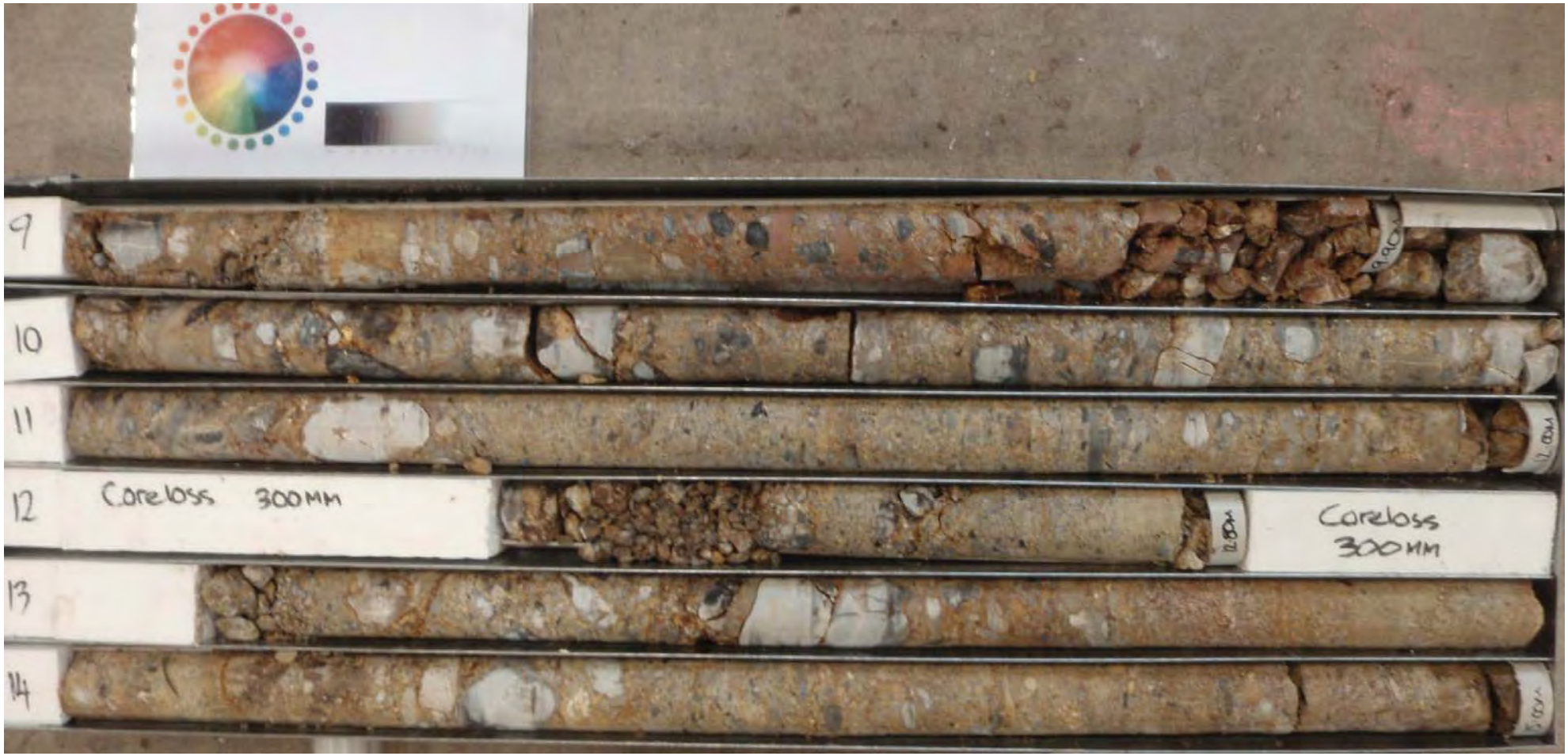
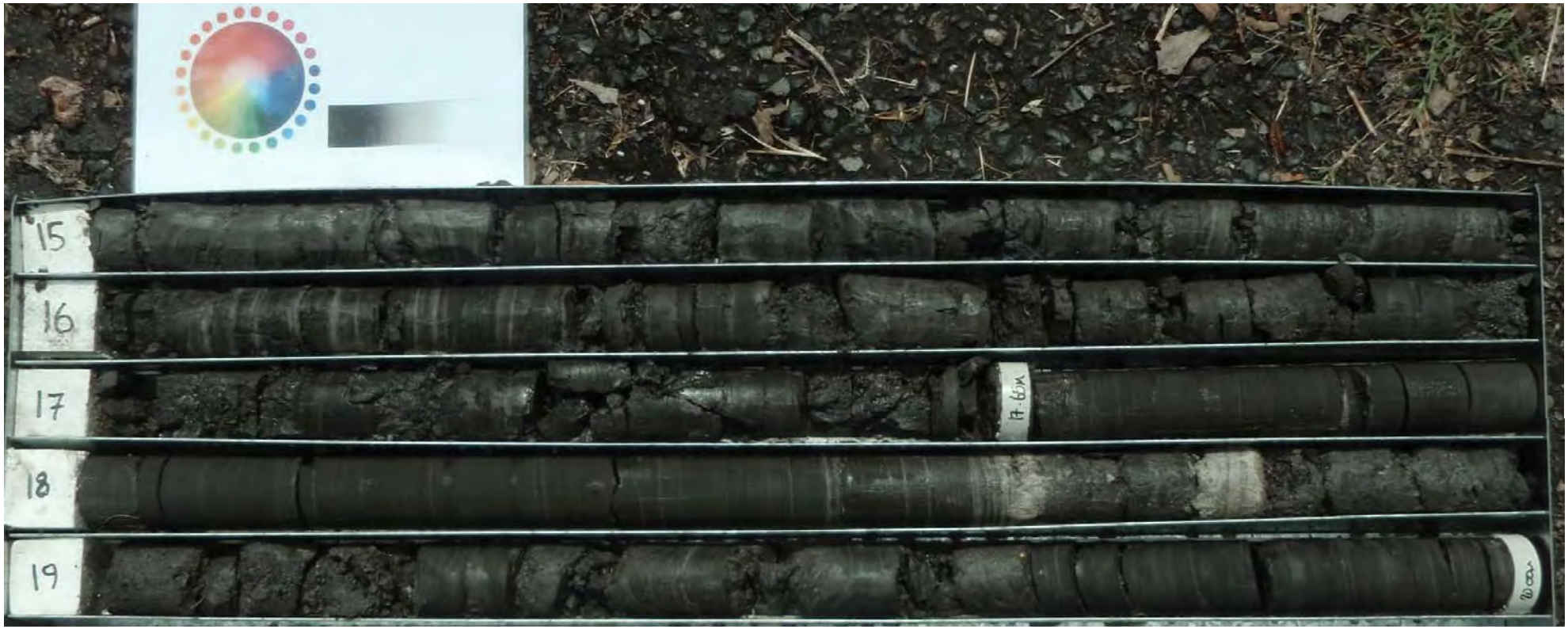
CROSS RIVER RAIL – PHASE 1 GEOTECHNICAL INVESTIGATION	BORE CRR103	Project 74321.00	Douglas Partners Geotechnics - Environment - Groundwater





CROSS RIVER RAIL – PHASE 1 GEOTECHNICAL INVESTIGATION	BORE CRR103	Project 74321.00	Douglas Partners Geotechnics - Environment - Groundwater