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ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

Moreton Bay Rail Link **PROJECT** Fill 16, Ch.8750 COORDINATES 504515.5 E; 6988609.5 N LOCATION PROJECT No_FG5921_____ DATE STARTED 28/6/11 GRID DATUM MGA94 Zone 56 SURFACE R.L. __1.30m_ PLUNGE _____ DATE COMPLETED 28/6/11_ JOB No 250/120/3 HEIGHT DATUM AHD BEARING DRILLER R&D Drilling Pty Ltd R.L. RQD INTACT DEFECT ADDITIONAL DATA STRENGTH **SPACING** ()% (m) DEPTH (m) MATERIAL AND GRAPHIC SAMPLE CASING WASHED CORE DE CORENT C **DESCRIPTION** TESTS SAMPL WEAT

WEAT

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S000 CORF **TEST RESULTS** OSC REC % 0 11111 Silty CLAY (Topsoil) Based on Driller's logs only Grey, moist, soft. 0.80 DD = 1.00t/m³; WD = 1.60t/m³; MC = 62.8% Silty CLAY (Estuarine) U100 Yellow grey and dark grey to black, moist, mainly very soft to soft. В Su(kPa)=18**FSV** High plasticity. High organic content; contains minor plant DD = 0.80t/m³; WD = 1.50t/m³; MC = 90.6%; LL-75%, PI=50%, LS=18+ materials at top. С U100 Becoming dark grey to black below 1.5m depth. - 2 (¢H/OH) D Su(kPa)=19-2 FSV FG5921 MORETON BAY RAIL LINK GPJ. <<DrawingFile>> Datgel CPT Tool gINt Add-in 06/10/2011 14/45 $DD = 0.80t/m^3$; $WD = 1.50t/m^3$ Ε U100 MC = 97.2%F Su(kPa)=28-3 FSV -2.20 U100 Clayey SAND (Alluvial) Dark grey and yellow brown, moist, fine grained, very loose. 2,1/150 Н SPT Iron stained in parts. N>50 Becoming wet at 4m. (\$M/SP) HW.2.2 SPT N=44,10,10 K SPT N=20 -5.20 SAND LIB_01A.GLB LOG A_ENGINEERING BOREHOLE LOGW LITHOLOGY Yellow brown, moist, medium grained, mainly medium dense. 7.9.10 Minor clay fraction in parts; wet at 8m. SPT 6,9,8 SPT (SM) 6.6.6 SPT N=12 LOGGED BY REMARKS_ BW/SG



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ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BH20 **BOREHOLE No** _2_ of _3_ SHEET __<u>H11031_</u>_ REFERENCE No

PROJECT Moreton Bay Rail Link Fill 16, Ch.8750 COORDINATES 504515.5 E; 6988609.5 N LOCATION PROJECT No FG5921 SURFACE R.L. 1.30m PLUNGE ____ DATE STARTED 28/6/11 GRID DATUM MGA94 Zone 56 JOB No 250/120/3 HEIGHT DATUM AHD BEARING DATE COMPLETED 28/6/11 DRILLER R&D Drilling Pty Ltd R.L. RQD INTACT DEFECT AÜGER CASING WASH BORING CORE DRILLING ADDITIONAL DATA STRENGTH **SPACING** ()% (m) DEPTH (m) MATERIAL AND SAMPLE **DESCRIPTION** SAMPLI TESTS WEAT

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S000 CORF **TEST RESULTS** nsc REC % 10 -8.70 1111 (SM) -8.95 SPT N=9 Clayey SAND (Alluvial) Pale grey, moist, fine grained, medium (\$M/SP) Low plasticity. 4,7,7 Q SPT N=14 -10.20 Clayey SAND (Residual) Yellow brown, moist, medium grained, medium dense. 6,10,18 Iron staining throughout. R SPT FG5921 MORETON BAY RAIL LINK.GPJ <<DrawingFile>> Datgel CPT Tool gINt Add-In 06/10/2011 14:45 (\$M/SP) 5.8.11 S SPT N=19 -12.50 SANDSTONE Fine to medium grained, massive, poorly cemented sedimentary rock mainly 11.19.35 SPT N>50 comprising sand-sized particles HW: Mottled yellow brown, moist, dense to very dense silty sand. Relict rock fabric structure visible throughout. HW 10,10,27 SPT U N = 37Becoming very low strength below 16m. (0) -15.20 CLAYSTONE Coal seams Fine grained sedimentary rock mainly Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY 100 comprising clay-sized particles (74)MW: Grey to dark grey, thickly bedded and slightly laminated; mainly low strength. Contains thin carbonaceous bands (coal) below 16.5m, approx. 150mm thick; 90 displays cracking and desiccated structure on drying. (81) MW Defects: - Drilling-induced bedding / lamination partings @ 5-10° (4/m) Coal seams Defect surfaces are mainly medium to closely spaced, planar, smooth, closed, $DD = 2.24t/m^3$; $WD = 2.38t/m^3$ UCS MC = 6.6%; UCS=7.5MPa clean or minor iron stained. Is(50) = 0.32MPaX 100 Is(50) = 0.63MPa0 (46) Mudstone interheds (See over) LOGGED BY REMARKS_ BW/SG



ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No ______BH20 ___ SHEET ___3__ of __3__ REFERENCE No _____H11031 ___

Moreton Bay Rail Link **PROJECT** Fill 16, Ch.8750 COORDINATES 504515.5 E; 6988609.5 N LOCATION PROJECT No_FG5921_____ DATE STARTED 28/6/11 GRID DATUM MGA94 Zone 56 SURFACE R.L. __1.30m_ PLUNGE _____ DATE COMPLETED 28/6/11_ DRILLER R&D Drilling Pty Ltd JOB No 250/120/3 HEIGHT DATUM AHD BEARING R.L. RQD INTACT DEFECT ADDITIONAL DATA STRENGTH **SPACING** ()% (m) DEPTH (m) MATERIAL LITHOLOGY AND GRAPHIC SAMPLE CASURE CA **DESCRIPTION** SAMPL TESTS CORF **TEST RESULTS** nsc REC % 20 CLAYSTONE Mudstone interbeds MW MW: (Cont'd) -19.20 **SANDSTONE** Is(50) = 0.94MPa Is(50) = 0.99MPa SW: Pale grey, fine to medium grained, 100 0 massive with slightly laminated; medium to (100)- 21 high strength. Is(50) = 0.61MPaIs(50) = 1.03MPaContains thin carbonaceous bands below 24m. Defects: Drilling-induced lamination partings @ 5° DD = 2.30t/m³; MC = 2.1%; UCS=17.4MPa Defect surfaces are mainly medium to 100 Is(50) = 0.40MPawidely spaced, planar and irregular, slightly Is(50) = 0.87MPa(100) FG5921 MORETON BAY RAIL LINK.GPJ <<DrawingFile>> Datgel CPT Tool gINt Add-In 06/10/2011 14:45 rough, closed and clean. SW Is(50) = 1.11MPa Is(50) = 1.33MPaО 100 Is(50) = 2.89MPaIs(50) = 3.71MPa0 (98) Is(50) = 0.36MPaIs(50) = 0.45MPa0 -23.52 100 Borehole terminated at 24.82m - 25 26 LIB_01A.GLB LOG A_ENGINEERING BOREHOLE LOGW LITHOLOGY - 28 - 29 9 LOGGED BY REMARKS_ BW/SG



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Project Name	Moreton Bay Rail	Link (MBRL)		
Project No	FG5921		Date	28/06/11
Borehole No	BH 20		TMR H No	11012
Location	Hays Inlet Rail Bridge		Start Depth (m)	16.00
Detail	Abutment B		Finish Depth (m)	24.82
Chainage	8745 Approx		Submitted By	BW
Remarks				
18 8 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	210 SPM	PR 1000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	31.0 31.03.0
		a	A Parties	34.0 39.62
0 100	200 30	00 400 L	500 600	mm

SCALE 1:5