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BOREHOLE No	BH03
SHEET	_1_ of _7_
REFERENCE No	

PROJECT	BURDEKIN REA	<u>ALIGNMENT BRIDGE PRELIMINARY FOU</u>	<u>NDAT</u>	<u>ON</u> I	<u>NVESTIGATION</u>	<u> </u>	CEPT / F	<u>PLANNING STA</u>	GE	
LOCATION	Pier 8 @ CH105	5 <u>210</u>				-	COORDIN	NATES <u>540908</u>	. <u>5 E; 7828345.8</u>	<u> </u>
PROJECT No	<u>FG5945</u>	SURFACE R.L. <u>13.25m</u> PLUNGE			DATE STAR	RTED <u>10</u>	<u>/9/11</u>	GRID DATUM	<u> PMBH</u>	
JOB No	_5/10L/951	_ HEIGHT DATUM _AHD BEARING			DATE COMPLET	TED <u>12</u>	/9/11	DRILLER	R&D Drilling F	Pty Ltd
R.L. (m)	AUGER ANGER WASH BORING CORE DALLING CORE CORE EC % SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT DEF STRENGTH SPA (m エチェミュラゴ 名の名	FECT ACING mm)	SATILIC FOO	ADDITIONAL I AND TEST RESUI		SAMPLES TESTS
		Clayey SILT (ALLUVIAL) Dark brown, moist, mainly firm to stiff. Low plasticity; some tree roots in topsoil.								- - - - - - - - - -
-1 	<u>A</u>								2,2,2 N=4	SPT
Datgel CPT Tool glNt Add-in 1201/201	В			(ML)					2,2,2 N=4	SPT =
SMMENT BRIDGE GPJ «Chawing Fig.	С								2,2,4 N=6	SPT
00.007 F65945 BURDENN REALIZE	D								7,5,7 N=12	SPT =
5.65	E	Becoming high plastic, silty clay @ 7.0m.							4,4,4 N=8	SPT =
OLD DMR_LIB_01A.GLB Log A_ENGINEERING BORFHOLE LOG WUTHOLOGY FG8945 BURDEGNINENT BRIDGE GPJ <- Oranginia Add-In 1201/2012 08:37 1	F	Silty SAND (ALLUVIAL) Brown, moist, medium dense. Fine to medium grained sand.		(SM)					7,9,10 N=19	SPT
3.85 81 84 10 10 10 3.25		Silty CLAY (ALLUVIAL) (See over)		(CH)						- - - - -
REMARK	S						 		OGGED BY BW / MS	



LIB_01A.GLB

ENGINEERING BOREHOLE LOG

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

BOREHOLE No	BH03
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REFERENCE No	

BURDEKIN REALIGNMENT BRIDGE PRELIMINARY FOUNDATION INVESTIGATION - CONCEPT / PLANNING STAGE **PROJECT** LOCATION Pier 8 @ CH105210 COORDINATES 540908.5 E; 7828345.8 N PROJECT No _FG5945 _ _ _ _ DATE STARTED _10/9/11__ GRID DATUM PMBH SURFACE R.L. <u>13.25m</u> PLUNGE ____ DRILLER R&D Drilling Pty Ltd 5/<u>10</u>L/<u>951</u>___ HEIGHT DATUM _AHD __ BEARING _____ JOB No DATE COMPLETED 12/9/11 R.L. INTACT DEFECT STRENGTH ADDITIONAL DATA (m) ()% STRENGTH SPACING (mm)

STRENGTH SPACING (mm)

STRENGTH SPACING (mm) SPACING MATERIAL DEPTH (AND SAMPLE DESCRIPTION AUGER CASING WASH E CORE D TESTS CORF **TEST RESULTS** nsc REC % 10 3.25 Silty CLAY (ALLUVIAL) (Cont'd) 4,6,9 N=15 SPT Mottled dark grey, brown and orange, moist, stiff to very stiff. (CH) High plasticity. 1.75 Silty SAND (ALLUVIAL) 6,6,8 SPT Brown, moist, medium dense. N=14 Fine to medium grained sand; some FGS945 BURDEKIN REALIGNMENT BRIDGE.GPJ «DrawingFile» Datgel CPT Tool gilkt Add-In 12/01/2012 08:07 medium grained gravel. 6,6,6 SPT (SP) 8,10,10 Κ SPT N = 207,11,14 SPT N=25 -3.26 **Gravelly SAND (ALLUVIAL)** Brown, moist, mainly medium dense to Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY occasionally dense. Fine to medium grained sand; fine to coarse grained gravel. 10,10,14 SPT Κ (SP) 9.13.17 SPT N = 309 LOGGED BY REMARKS _ BW / MS



BOREHOLE No	BH03
SHEET	_3_ of _7_
REFERENCE No	

PROJECT	BURDEKIN	<u>REA</u>	<u>LIGNMENT BRIDGE PRELIMINAR</u>	RY FOUNDATION	<u> </u>	<u>NVESTIGA</u> 1	<u> ION - CC</u>	NCE	PT / PLANNING S	STAGE	
LOCATION	Pier 8 @ CH	1 <u>05</u> 2	<u>210 </u>					CO	ORDINATES <u>540</u>	908. <u>5 E; 7828345.</u> 8	<u> </u>
PROJECT N	o <u>FG5945</u>		SURFACE R.L. <u>13.25m</u> PL	UNGE		DATE S	TARTED _	<u> 10/9/1</u>	_1 GRID DATU	M <u>PMBH</u>	
JOB No	<u>5/10L/951</u>		HEIGHT DATUM <u>AHD</u> BEA	ARING		DATE COM	PLETED _	12/9/1	1 DRILLE	R R&D Drilling F	Pty Ltd
R.L. (m)	AUGER CASING CASING COASH BORING COASH BORING COASH BORING COASH BORING COASH BORING COASH BORING	ш	MATERIAL	,0GY	IERING	INTACT STRENGTH ボチェ≥」ゔ゙゚゚゚゚	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONA ANI		ES
20 -6.76	CORE CORE	SAMPLE	DESCRIPTION	ПТНОСОСУ	USC		20 500 500 - 2000	GRAPH	TEST RE	SULTS	SAMPLES
			Gravelly SAND (ALLUVIAL) (Cont'd)				- : : : : : : : : : : : : : : : : : : :				-
-		М								10,9,11 N=20	SPT
- -21							= : : : : : : : : : : : : : : : : : : :			14-20	- - - -
-							-				- -
-22											-
72012 08:07		N								14,12,15 N=27	SPT -
23 - 23											- - -
100 gint A						-	- : : : : : : : : : : : : : : : : : : :				- -
Datgel CPT		Р					-			14,14,15 N=29	SPT
- 24 - - - -											-
PJ < <draw< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>- : : : : : : : : : : : : : : : : : : :</td><td></td><td></td><td></td><td>- - -</td></draw<>							- : : : : : : : : : : : : : : : : : : :				- - -
0 - 25 - 25		Q			(SP)					11,13,23 N=36	SPT -
LIGNMENT		Q					- : : : : : : : : : : : : : : : : : : :			N=36	- JF 1
48 - 26 - 26 - 26											- -
55945 BUR							- · · · · · · · · · · · · · · · · · · ·				:
9 - - - - - - - - - - - - - - - - - - -		R					- - - -			8,9,17 N=26	SPT :
00 W LITH											-
OREHOLE I							-				- - -
OLD DMR, LIB, 01A GLB LOg A ENGINEERING BOREHOLE LOG W LITHOLOGY FG5945 BURDEKIN RFALIGNMENT BRIDGE GPJ. < C) 2847 374 474 174 174 174 174 174 174 174 174 1		S					=: : : : : : : : : : : : : : : : : : :			10,13,12 N=25	SPT
A ENGIN											- - -
- 29 - 29 - 1							- : : : : : : : : : : : : : : : : : : :				- -
MR LIB 01							=			12 12 15	-
30 -16.76		Т					- : : : : : :			12,12,15 N=27	SPT :
REMARK										LOGGED BY BW / MS	
								- — -			



BOREHOLE No	BH03
SHEET	_4_ of _7_
REFERENCE No	

PROJECT	BURDEKIN REA	<u>LIGNMENT BRIDGE PRELIMINARY F</u>	OUNDAT	<u>ION</u> I	<u>NVESTIGA</u>	T <u>ION - CC</u>	NCEPT	<u> / PLANNING STA</u>	<u>GE</u>	
LOCATION	Pier 8 @ CH1052	<u>210</u>					COOR	DINATES <u>540908</u>	. <u>5 E; 7828345.8</u>	<u> </u>
PROJECT No	o <u>FG5945</u>	SURFACE R.L. <u>13.25m</u> PLUNG	GE		DATE S	TARTED _	10/9/11	GRID DATUM	PMBH	
JOB No	_5/10L/951	HEIGHT DATUM <u>AHD</u> BEARIN	NG		DATE COM	IPLETED _	12/9/11	DRILLER	R&D Drilling F	Pty Ltd_
R.L. (m)	AVGER CASING CAS	MATERIAL DESCRIPTION	ПТНОГОСУ	USC WEATHERING	INTACT STRENGTH ボチェミュラゴ	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL D AND TEST RESUL		SAMPLES
-		Gravelly SAND (ALLUVIAL) (Cont'd)		(SP)						-
-17.16 	U	Silty CLAY (ALLUVIAL) Mottled grey to yellow brown, moist, v stiff. Medium to high plasticity.	- — — - ery						8,10,13 N=23	SPT
- - - - - - 32									25	-
-34 -34 -35 -36 -37 -38 -24.76 -38 -26.56 -40 -26.76	V								8,13,18 N=31	SPT
- 34 	w			(CI - CH)					7,11,16 N=27	SPT
- 36	x								7,9,14 N=23	SPT
37	Y								6,10,14 N=24	SPT
-24.76		Sand content increasing with depth.								
		Silty SAND (ALLUVIAL) Yellow brown, moist, very dense.								
- 39	Z	Fine to medium grained sand.		(SM)					16,25,27 N>50	SPT -
-26.56 40 -26.76	1	GRANODIORITE XW: (See over)		(XOALV)						
REMARK									OGGED BY BW / MS	



BOREHOLE No	BH03
SHEET	_5_ of _7_
REFERENCE No	

PROJE						<u>LIGNMENT BRIDGE PRELIMINARY FOUI</u>	<u>NDAT</u>	<u>ION</u>	<u>INVESTIG</u>	ATION - CO	<u>ONCI</u>		
LOCATI				<u>@ C</u> ⊦								OORDINATES <u>540908.5 E; 7828345</u> .	
						SURFACE R.L. <u>13.25m</u> PLUNGE _							
JOB No)	_5/	<u>10L</u>	<u>/951</u>		HEIGHT DATUM <u>AHD</u> BEARING _			DATE CO	OMPLETED .	12/9/	11 DRILLER R&D Drilling	Pty Ltd_
:PTH (m)	R.L. (m) 26.76		WASH BURING CORE DRILLING	RQD ()% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	nsc	INTACT STRENGTI	DEFECT H SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
-44 -43 -43 -44 -44	31.76			(0) 91 (0) 100 (64)		GRANODIORITE Intrusive, crystalline, coarse grained, acidigneous rock XW: (Cont'd) Generally exhibits the engineering properties of mottled yellow, grey and brown, moist, hard sandy clay. Mainly low to medium plasticity. Becoming white to pale grey, dense, fine to coarse grained clayey sand and extremely low strength rock with depth.	d	xv				18,30,30 N>50 30/50mm,HB N>50	SPT
46	33.76			100 (57)		HW: White and grey, fine to coarse grained, massive, extremely low strength.		н۷	,			DD = 2.20t/m³; WD = 2.30t/m³; MC = 4.6%; SOIL UCS=135kPa	
- 48 - 48 48	35.96			84 (0) 78 (0)	X	XW: Generally exhibits the engineering properties of white, grey and brown, moist very dense, fine to coarse grained clayey sand.	,	xv					
50 -	36.76			100 (20)		HW: White grey to brown, fine to coarse grained, massive, extremely low strength.		HV	v		† — -	ls(50) = 0.03MPa	0
	MARKS	S _									<u>.</u> 	LOGGED BY BW / MS	
		_						- — -				- BVV / IVIS	



BOREHOLE No	BH03
SHEET	_6_ of _7_
REFERENCE No	

JOB No R.L. (m) H	o <u>FG59</u>	RQD ()%							10/9/									
JOB No R.L. (m) H	AUGER CASING WASH BORING CORE DRILLING	RQD ()%									DATUM P	<u>MBH</u> _						
R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD ()%		HEIGHT DATUM <u>AHD</u> BEARING			DATE COM	IDI ETED	40101		o <u>FG5945</u> SURFACE R.L. <u>13.25m</u> PLUNGE DATE STARTED <u>10/9/11</u> GRID DATUM <u>PMBH</u>							
(m)	AUGE CASIN WASH CORE	()%						IPLETED -	12/9/	<u>11</u>	DRILLER R	&D Drilling F	Pty Ltd					
	, , , , , ,	REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH ボデェミュラゴ	DEFECT SPACING (mm)	GRAPHIC LOG		OITIONAL DATAND ST RESULTS		SAMPLES					
-51 		100 (47) 89 (63) 100 (44)		GRANODIORITE HW: White grey to brown, fine to coarse grained, massive, very low to low strength. Defects: - Joints @ 40° (3/m) - Joints @ 70° (1/m) Defects are generally medium to widely spaced, surfaces are generally planar, rough, open and weathered. Feldspar-rich MW zone from 52.45-52.67m.		HW				XW zone XW zone Core loss XW zone	Is(50) Is(50)	= 0.07MPa = 0.05MPa = 0.03MPa = 0.07MPa	x - 0					
-41.28 -41.28 -43.06 -55 -57 -57 -58 -59 -60 -46.76		100 (100)		MW: White and grey, medium to coarse grained, massive, very high strength. Defects: - Joints @ 45° (2/m) Defects are generally widely spaced, planar, rough, open and iron stained. SW: White grey to pale pink, medium to coarse grained, massive, very high strength. Defects: Generally rare.		MW					Is(50) Is(50) UC Is(50) UC Is(50)	= 8.81MPa = 7.92MPa = 8.81MPa S=106MPa = 4.63MPa = 7.10MPa = 8.35MPa = 6.82MPa = 6.19MPa	x					
59 		100 (100)				sw					Is(50) UC Is(50)	= 5.61MPa S=129MPa = 6.60MPa GGED BY W / MS	x .					



BOREHOLE No	BH03
SHEET	_7_ of _7_
REFERENCE No	

PROJECT	BURE	DEKIN I	<u>REA</u>	<u>LIGNMENT BRIDGE PRELIMINARY FOUN</u>	<u>DAT</u> I	<u>ON</u> I	<u>NVEST</u>	<u>IGA</u>	T <u>ION - CC</u>	<u>NCE</u>	PT/PLANNI	<u>ING STA</u>	<u>GE</u>	
LOCATION	Pier 8	<u>@ CH</u>	<u>CH105210</u> COORDINATES 540908.5 E; 7828345.8 N											
PROJECT No	<u>FG59</u>	<u>45</u>		SURFACE R.L. <u>13.25m</u> PLUNGE _			DA	TE S	TARTED _	<u> 10/9/1</u>	_1 GRID	DATUM _	<u> PMBH</u>	
JOB No	<u>5/10L</u>	/951		HEIGHT DATUM <u>AHD</u> BEARING _			DATE	COM	IPLETED _	12/9/1	<u>1</u> D	RILLER .	R&D Drilling F	Pty Ltd_
R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	SC EATHERING	INTAC STRENC		DEFECT SPACING (mm)	GRAPHIC LOG		ITIONAL D AND ST RESUL		SAMPLES
- - - - - - - - - - - - - - - - - - -	AUG CAS WAK ORE	100 (100)	SAM	GRANODIORITE SW: (Cont'd)	HIT	OSU & A	五 末 → 1 → 1 → 1 → 1 → 1 → 1 → 1 → 1 → 1 →		- 20 - 600 - 600 - 600 - 200	GRA	TES	Is(5) Is(5) Is(5) Is(5) Is(5) Is(5) Is(5) Is(5)	0) = 7.57MPa 0) = 7.50MPa 0) = 6.50MPa 0) = 6.50MPa 0) = 5.41MPa 0) = 6.83MPa 0) = 6.83MPa 0) = 8.38MPa 0) = 3.77MPa 0) = 5.95MPa	X X X X X X X X X X X X X X X X X X X
-52.65		100					:					ls(5	0) = 8.82MPa	x
1000 100 100 100 100 100 100 100 100 10				Borehole terminated at 65.89m										
REMARK	s	 	 		- -					- - -			OGGED BY BW / MS	



Project Name	Burdekin River Bridge Realignment		
Project No	FG 5945	Date	12/09/11
Borehole No	BH 3	TMR H No	
Location	Abutment B	Start Depth (m)	42.00
Detail		Finish Depth (m)	65.89
Chainage		Submitted By	BW
Remarks			
	1		





Project Name	Burdekin River Bridge Realignment		
Project No	FG 5945	Date	12/09/11
Borehole No	BH 3	TMR H No	
Location	Abutment B	Start Depth (m)	42.00
Detail		Finish Depth (m)	65.89
Chainage		Submitted By	BW
Remarks			





Project Name	Rundakin Diyan Ruidaa Daalianmant		
Project Name Project No	Burdekin River Bridge Realignment FG 5945	Date	12/09/11
Borehole No	BH 3	TMR H No	12/09/11
Location	Abutment B	Start Depth (m)	42.00
Detail	Addition b	Finish Depth (m)	65.89
Chainage		Submitted By	BW
Remarks		Submitted by	В
Kemarks			
	And the second s		070
630	63.7.1 64.0		
			98'S
) 100	200 300 400	500 600	mm