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**Queensland  
Government**

## ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND  
SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No    BH172   

SHEET    1    of    3   

REFERENCE No    12113   

PROJECT Mackay Ring Road Geotechnical Investigation - Stage 1  
 LOCATION Fursden Creek Overflow Bridge Pier 1; CH: 8710m; COORDINATES 721418.3 E; 7661032.6 N  
 PROJECT No FG6184 SURFACE R.L. 7.09m PLUNGE \_\_\_\_\_ DATE STARTED 20/10/14 GRID DATUM GDA 94 /MGA Zone 56  
 JOB No \_\_\_\_\_ HEIGHT DATUM AHD BEARING \_\_\_\_\_ DATE COMPLETED 21/10/14 DRILLER Saxon Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	WEATHERING										GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS						
								INTACT STRENGTH													DEFECT SPACING (mm)					
								USC	EH	VH	H	M	J	VL	EL	EC	VC					WC	W	VW	EW	
0	7.09					<b>Silty CLAY (ALLUVIUM)</b> Brown, dry to moist, firm to stiff. High plasticity.																				
1					A																			3,4,5 N=9	SPT	
2.20	4.99				B	<b>SAND (ALLUVIUM)</b> Pale brown, moist, loose. Fine grained sand.																			2,3,3 N=6	SPT
3					C																				2,4,5 N=9	SPT
4					D																				4,4,5 N=9	SPT
5					E	4.50m: Sand becoming coarser with depth.																			4,4,4 N=8	SPT
6					F	6.00m: Trace fine gravel.																			3,2,3 N=5	SPT
6.70	0.39				G	<b>Gravelly SAND (ALLUVIUM)</b> Pale brown, wet, medium dense. Fine to coarse grained sand. Fine to medium gravel.																			5,15,13 N=28	SPT
7.70	-0.61				H	<b>Sandy GRAVEL (ALLUVIUM)</b> Brown, wet, medium dense. Fine to medium gravel. Fine to coarse grained sand.																			11,11,10 N=21	SPT
8.70	-1.61				J	<b>Gravelly CLAY (ALLUVIUM)</b> Pale grey, moist to wet, stiff to very stiff. High plasticity. Fine to medium, subangular gravel.																			4,5,7 N=12	SPT
10																										

TMR JAN 15.GLB Log\_A\_ENGINNERING BOREHOLE LOG W LITHOLOGY FG6184 - BOREHOLES.GPJ <<DrawingFile>> Datget CPT Tool gInt.Add-In 04/03/2015 10:52

REMARKS Kgww - Wundaru Granodiorite;  
 # Sample failed along existing defect surface.

LOGGED BY  
**ME**

# ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND  
SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No   BH172    
SHEET   2   of   3    
REFERENCE No   12113  

PROJECT   Mackay Ring Road Geotechnical Investigation - Stage 1    
LOCATION   Fursden Creek Overflow Bridge Pier 1; CH: 8710m;   COORDINATES   721418.3 E; 7661032.6 N    
PROJECT No   FG6184   SURFACE R.L.   7.09m   PLUNGE        DATE STARTED   20/10/14   GRID DATUM   GDA 94 /MGA Zone 55    
JOB No        HEIGHT DATUM   AHD   BEARING        DATE COMPLETED   21/10/14   DRILLER   Saxon Drilling  

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD ( ) %	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	INTACT STRENGTH											DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS							
								USC	WEATHERING	EH	VH	H	M	J	VL	EL	EC	VC					C	W	VW	WW	EW		
10	-2.91				K	<b>Gravelly CLAY (ALLUVIUM)</b> (Cont'd)																						4,7,9 N=16	SPT
11					L																							5,9,10 N=19	SPT
11.90	-4.81				M	<b>Silty CLAY (RESIDUAL)</b> Pale grey, brown and black, moist, very stiff. High plasticity. Trace coarse grained sand. Trace fine gravel. Some calcite.																						7,9,10 N=19	SPT
13					N	Gradual increase in calcite and silt content with depth.																						7,10,13 N=23	SPT
14					P																							7,9,13 N=22	SPT
15					Q	15.00m: Becoming hard.																						14,18,16 N=34	SPT
15.60	-8.51				R	<b>GRANODIORITE (Kgwu)</b> XW: Recovered as pale grey and black, moist, very stiff to mainly hard Silty CLAY.																						6,11,13 N=24	SPT
17					S																							10,18,25 N=43	SPT
18					T																							15,16,28 N=44	SPT
19					U																							11,25,30/150	SPT
20																													

REMARKS   Kgwu - Wundaru Granodiorite;    
  # Sample failed along existing defect surface.  

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# ENGINEERING BOREHOLE LOG

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SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No   BH172    
SHEET   3   of   3    
REFERENCE No   12113  

PROJECT   Mackay Ring Road Geotechnical Investigation - Stage 1    
LOCATION   Fursden Creek Overflow Bridge Pier 1; CH: 8710m;   COORDINATES   721418.3 E; 7661032.6 N    
PROJECT No   FG6184   SURFACE R.L.   7.09m   PLUNGE            DATE STARTED   20/10/14   GRID DATUM   GDA 94 /MGA Zone 55    
JOB No            HEIGHT DATUM   AHD   BEARING            DATE COMPLETED   21/10/14   DRILLER   Saxon Drilling  

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH											DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS		
									EH	VH	H	M	J	L	VL	EL	EC	VC	W					WV	WV
20	-12.91				V	<b>GRANODIORITE (Kgwu)</b> XW: (Cont'd)	+	XW																21,30/110	SPT
20.80	-13.71				W	<b>MICRODIORITE (Kgwu)</b> MW: Grey, fine grained, massive, low to high strength. Defects: - Js; 0°-30° (5/m); Pl/Sm, TI; - Js; 30°-60° (5/m); Pl/Sm, TI;	+	MW																30/110	SPT
22	-15.36		(0)				+	HW																22.00m-22.30m: HW zone.	
22.45	-15.36					CORE LOSS	X	MW																22.45m-23.12m: Core Loss	
23	-16.03			51			X																		
23.12	-16.03			(51)		<b>GRANODIORITE (Kgwu)</b> SW: Pink and grey, medium to coarse grained, high to mainly very high strength. Defects: - Js; 0°-30° (2/m); Pl/Ro, TI-OP; - Js; 30°-60° (1/m); Pl/Ro, TI-OP;	+																	Is(50) = 0.71MPa; # A (23.35m) Is(50) = 1.71MPa; # D (23.40m)	
24				100			+																		
25				(81)			+	SW																Is(50) = 0.59MPa; # A (24.77m) Is(50) = 4.55MPa; # D (24.85m)	
26				100			+																		
27				(59)			+																	Is(50) = 8.46MPa D (26.80m) Is(50) = 6.21MPa A (27.00m)	
27.59	-20.50			100			+																		
28						Borehole terminated at 27.59m.																			
29																									
30																									

REMARKS   Kgwu - Wundaru Granodiorite;    
  # Sample failed along existing defect surface.  

LOGGED BY  
**ME**

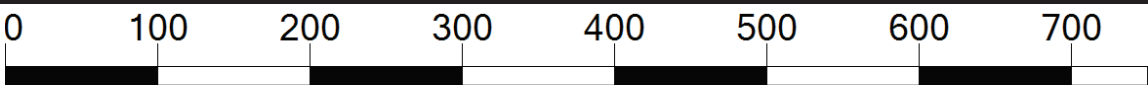
**CORE PHOTO LOG**

DEPARTMENT OF TRANSPORT & MAIN ROADS  
 Geotechnical Branch  
 35 Butterfield Street, HERSTON Qld 4006  
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Department of  
 Transport and Main Roads

Project Name	<b>Mackay – Ring Road</b>		
Project No	FG6184	Date	21/10/14
Borehole No	BH172	TMR H No	12113
Location	Fursden Creek Overflow Bridge	Start Depth (m)	21.75
Detail	Pier 1	Finish Depth (m)	27.59
Chainage	<b>8710m</b>	Submitted By	M.Ensor
Remarks			



SCALE 1:5