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								_		FINAL 1	7/03/2016
" AT				(GE	OTECHNIC	AL		BOREHOLE No	BI	1269
		eensland		E	BO	REHOLE L	OG	_	Sheet 1 of 4		
	🗶 Go	vernment		SYM		GEOTECHNICAL TERMS REFER FORM F:GEOT 01			REFERENCE No	H1	.2420
PROJECT	Mackay Ring	g Road									
LOCATION	Calrossie Rd	- Embankment						(COORDINATES 720888.0	E; 765773	85.7 N
PROJECT No	FG6184	SURFACE RL	12.11m	PLUN	IGE 9	0°	DATE STAR	TED 15/08/2015	GRID DATUM	ida 94 / N	/IGA Z55
JOB No	242/10G/90	16 HEIGHT DATUM	A.H.D. B	EARII	NG_		DATE COMPLE	TED 17/08/2015	DRILLER S	axon Drill	ing
(m) R.L. (m)	RQD ()% Source drained Core drained REC %	비 에 MATERIAL DESI	CRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH 표,북,ᆍ,ᆃ,ᅴ,키,쿄 입,옺,	DEFECT SPACING ບ,≅,≥,≷,ຟ		ADDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
- 11.81		(Topsoil)		X		 	1 1 1 1				-
		Silty CLAY trace sand Pale brown, dry to m very stiff. Fine grained sand, hi	oist, stiff to							3, 7, 8 N=15	SPT
- 2 - 2 		В			(CH)					5, 6, 8 N=14	SPT
- 3 		C 3.00m: becomes bro orange and grey, ver								6, 8, 12 N=20	SPT
7.81	-	Clayey SAND (Alluviu Grey brown, wet, loc Fine grained sand. SAND trace clay (Allu Pale brown grey, wet Fine to coarse graine	vium) ;, loose.		(SC)					3, 4, 3 N=7	SPT
- -		E Becoming medium d	ense.							6, 7, 9 N=16	SPT
- - - - - - - - - - - - - - - - - - -		F 7.00m: becomes me	dium to coarse		(SP)					6, 11, 16 N=27	SPT
- - - - - - - - - - - - - - - 8		G grained sand, trace f gravel.								6, 6, 11 N=17	SPT
- ° 		H Becoming dense.								9, 15, 17 N=32	SPT
2.11		CLAY (Alluvium) Dark brown, wet, stif High plasticity.	f to very stiff.		(CH)					2, 5, 10 N=15	SPT
		Continued on n	ext sheet			I	I				
REMAR	KS: Kgwu =	= Wundaru Granodio	rite						LOGGED BY	REVIE	WED BY
									T.Goosey	S.I	oley

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								FINAL 1	7/03/2016
A A A A A A A A A A A A A A A A A A A	E.			GE	OTECHNICAL		BOREHOLE No	B	H269
		ensland		BC	REHOLE LOG		Sheet	2 of 4	
BAR	Gov	ernment	SYN		GEOTECHNICAL TERMS AND REFER FORM F:GEOT 017/8-2014		REFERENCE No	H	12420
PROJECT	Mackay Ring Ro	bad							
LOCATION	Calrossie Rd - E	mbankment				C	OORDINATES 720888.0	E; 765773	35.7 N
PROJECT No	FG6184	SURFACE RL 12.11m	PLU	NGE S	DATE STAF	RTED 15/08/2015	GRID DATUM	GDA 94 / N	/IGA Z55
JOB No	242/10G/906	HEIGHT DATUM A.H.D.	BEAF		DATE COMPLE	TED 17/08/2015	DRILLER S	axon Drill	ing
	RQD		~	ğ	INTACT DEFECT		ADDITIONAL DATA		
DEPTH (m) BEPTH (m) (m) MGER	COASTING WASH BORING CORE DRILLING COLE DRILLING SAMPLE SAMPLE	MATERIAL DESCRIPTION	гітногосу	USCS WEATHERING			AND TEST RESULTS		SAMPLES TESTS
2.01	Š≩ŭ	CLAY (Alluvium)		(CH)					0.07
1.76	J	Clayey SAND (Alluvium) Grey, wet, medium dense.		(SC)				4, 5, 7 N=12	SPT
		Fine to medium grained sand. SAND trace clay (Alluvium)	/		+				-
11		Pale brown, wet, medium dense.			<u>+</u>				-
	к	Fine to coarse grained sand.			+			6, 6, 7 N=13	SPT
				(SP)					
- 12									
	L				+			5, 8, 10 N=18	SPT
-					+			11-10	-
0.69		Clayey SAND trace gravel (Alluvium)							-
13	м	Pale brown grey, wet, medium dense.						8, 9, 11	SPT
		Fine to coarse grained sand.		(SC)				N=20	
			1		-				-
- 1.89		Silty CLAY trace sand (Alluvium)	×		·				SPT
	N	Pale grey and brown, moist, hard. Fine grained sand, high plasticity.	×		+			10, 13, 18 N=31	
			×		+				
- 15				(CH)					
	0				+			11, 21, 25 N=46	SPT
			×		+				-
-3.89		Claugu CAND (Allunium)	×						
	Р	Clayey SAND (Alluvium) Grey brown, wet, medium dense.						8, 11, 16 N=27	SPT
		Fine to medium grained sand.		(SC)					-
-4.89									
	Q	SAND trace clay (Alluvium) Pale brown grey, wet, dense.						12, 16, 21	SPT
		Fine to medium grained sand.						N=37	-
									-
- 18 -	R	18.00m: becomes medium dense. Fine to coarse grained sand.						11, 9, 14	SPT
E				(SP)				N=23	_
									-
19	s	19.00m: trace gravel.							SPT
								16, 19, 20 N=39	- 3F1
									-
7.89		Continued on next sheet			<u> </u>	<u> </u>			
REMARKS	S: Kgwu = V	/undaru Granodiorite					LOGGED BY	REVIE	WED BY
							T.Goosey		Foley
		TMR	GEOTECH	HNICAL B	DREHOLE LOG - CREATED WITH HOLEBASE SI		- 1		/

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									_		FINAL 1	7/03/2016
1. 20	àre						GE	OTECHNICAL		BOREHOLE No	BI	1269
		Ø			ensland		BO	REHOLE LOG		Sheet 3	of 4	
18 ye	Ľ	9	Go	Ve	ernment	SYI		GEOTECHNICAL TERMS AND REFER FORM F:GEOT 017/8-2014	4	REFERENCE No	H1	2420
PROJECT	Μ	acka	ay Ring	g Ro	ad							
LOCATION	Ca	Iros	ssie Rd	- E	mbankment					COORDINATES 720888.0	E; 765773	35.7 N
PROJECT No	KOJECT No FG6184 SURFACE RL 12.11m PLUNGE 90° DATE STARTED 15/08/2015 GRID DATUM GDA									DA 94 / N	/IGA Z55	
JOB No	B No 242/10G/906 HEIGHT DATUM A.H.D. BEARING DATE COMPLETED 17/08/2015								DRILLER S	axon Drill	ing	
Ê			RQD ()%			3	ßN	INTACT DEFECT		ADDITIONAL DATA AND		S
DEPTH (m) B'T' (m)	AUGER CASING WASH BORING	CORE DRILLING	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	STRENGTH SPACING 표독표독교국교 입유민독독		TEST RESULTS		SAMPLES TESTS
					Clayey SAND (Alluvium) Pale grey, wet, medium dense. Fine to coarse grained sand, low to medium plasticity.		(SC)				9, 10, 12 N=22	SPT
				U	Sandy CLAY (Alluvium) Pale grey, moist, very stiff. Fine grained sand, high plasticity. 22.00m: becomes hard		(CH)				7, 8, 16 N=24	SPT
					GRANODIORITE (Kgwu) XW: Recovered as brown grey,						16, 16, 28 N=44	SPT
- 23 - 23 				W	mottled black and white, wet, very dense, clayey sand. Fine to coarse grained sand.	+ + + + + + + + + +					30/100 hb	
- 24 - 24 				X		+ + + + + + + + + + + + + +	xw				30/100 hb	
- 25				Y		+ + + + + + + + + + + +					30, 30/50 hb	SPT
- 26 - 26 				Ζ		· + + + + + + + + + + + + + + + + + + +					30/100 hb	_
15.34			(0)	CORE	CORE LOSS GRANODIORITE (Kgwu)	• +			27.00m-27.90m: NN	1LC coring		-
- - - 28 - - - - -			50	AA	XW: Recovered as brown grey, wet, very dense, gravelly sand. Fine to coarse grained sand.	+ + + + + + + + + + + + + + + +	xw		— 27.90m-29.05m: Ro	ck Roller	30/100 hb	
- <u>29</u> - <u>16.89</u> - <u>-</u> 			(100)		GRANODIORITE (Kgwu) SW: Dark grey and pale grey, coarse grained, porphyritic, very high to extremely high strength. (See over)	+ + + + + + + + + + + + + + + + + +	sw	VH-EH W		Is(51	30/50 hb D)=7.40 MPa	SPT D (29.15m)
D C1 · · · · · ·					Continued on next sheet							
KEMAR	К5:	ΚĮ	gwu =	: W	/undaru Granodiorite					LOGGED BY T.Goosey		WED BY Foley

TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

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													FINAL 1	7/03/2016
	·31	ÀC.						GE	OTECHN	IICAL		BOREHOLE No	B	H269
			Qu	le	ensland			BO	REHOLE	LOG		Sheet	4 of 4	
			Go)V(ernment		SY		GEOTECHNICAL TE REFER FORM F:GE			REFERENCE No	H	12420
PROJEC	т	Mac	ckay Rin	g Ro	bad						(
LOCATIO	ЛС	Calr	ossie Ro	d - E	mbankment							COORDINATES 720888.0	E; 76577	35.7 N
PROJEC	T No	FG6	184		SURFACE RL	12.11m	PLU	JNGE 9	0°	DATE STAL	RTED 15/08/201	5 GRID DATUM	3DA 94 / I	MGA Z55
JOB No		242,	/10G/9	06	HEIGHT DATUM	4.H.D.	BEA	RING _		DATE COMPL	ETED 17/08/201	5 DRILLER	Saxon Drill	ling
_			RQD				≻	Ű	INTACT	DEFECT		ADDITIONAL DATA		
DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING	()% CORE REC%	SAMPLE	MATERIAL DESC	RIPTION	ГІТНОГОСУ	USCS WEATHERING	STRENGTH	SPACING		AND TEST RESULTS		SAMPLES TESTS
					GRANODIORITE (Kgwu SW: (Cont'd) Js: 0° to 10°; (<1/m); F Js: 35° to 45°; (1/m); F	Pl/Ro; TI; Cn;	+ + + + + + + + + + + + + + + + + + + +					uc	CS=87.50 MPa E=81.2 GPa v= 0.21	(30.22m)
- 							+++++++++++++++++++++++++++++++++++++++	•		w			50)=7.40 MPa 50)=6.50 MPa	 D (31.15m) A (31.16m)
- - - 32 -			<u>100</u> (100)		-		+ + + + + + + + + + +	sw	ЕН	M 		Is(50	0)=11.00 MPa	 A (32.15m)
- - - - - - - - - - - - - - - - - - -							· + + + + + + + + + + + + + + + + + + +	•		M		15(5)	0)=12.00 MPa	– – – – – – D (33.10m)–
-	-21.49						+				33.37m: DI		50)=8.90 MPa	
-														
RE	MAR	KS:	Kgwu	= V	/undaru Granodior	ite						LOGGED BY	REVIE	EWED BY
												T.Goosey	S.	Foley
						TMF	GEOTEC	HNICAL BO	DREHOLE LOG - CREATED	VITH HOLEBASE SI		•	•	

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CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Indiker Name Indiker Varing Node (buge 2) Project No. FG6184 Borehole No. BH 269 Indiker Name FG6184 Date 17/08/15 Borehole No. BH 269 Indiker Name FG6184 Abutment A, RHS Finish Depth (m) Coalinge Submitted By M.Ensor Remarks CORE SPT 5 ROCK ROLLER SP50 BALES BOX1 BALES BOX2 BALES SPT 5 ROCK ROLLER SP50 BALES BALES	Project Name	Mackay – Ring Road (S	Stane 2)		
Borehole No. BH 269 Location Calrossie Road Overpass Start Depth (m) 27.00 Detail Abutment A, RHS Finish Depth (m) 33.60 Chainage Submitted By M.Ensor Remarks CORE LOSS BOX1 BH259 BH259 BH259 BH259 BH259 BOX1 BH259 BOX2 BH259	-		hage 2)	Date	17/08/15
Location Calrossie Road Overpass Start Depth (m) 27.00 Detail Abutment A, RHS Finish Depth (m) 33.60 Chainage Submitted By M.Ensor Remarks					
Detail Abutment A, RHS Finish Depth (m) 33.60 Chainage Submitted By M.Ensor Remarks			S		
Chainage Remarks FG5184 CORE LOSS BH249 BH249 FG5184 BH249 BH24		· · · ·			
Remarks PG6184 BH269 BH269 CORE LOSS BOX1 BH269 BH2					
PUGIBAL DORE LOSS N BH249 SPTS ROCK ROLLER ST BUX1 BH249 BH249 BH269 BH2				Oublinitiou Dy	WI.Ensor
CORE LOSS HH269 H	4e	FG\$184		11.0.0	
BHZEY SPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS	8 00	DE IO	CC w	M.K.R	
BHZEY SPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS	N UU	RE LU.	33 *		
SPECIAL AND	BH	269		BOX1	
PROCK ROLLER	A CONTRACT	SPT 5	DDCK		-D -2
PROCK ROLLER		N HB N=NAN	RULK	KULLI	-K 80
Fig M.R.R BH269 B0X 2 BH269 B0X 2 BH269 B0X 3 BH269 B0X 3	0	La companyation and the second second			-
Fig M.R.R BH269 B0X 2 BH269 B0X 2 BH269 B0X 3 BH269 B0X 3	S RUC	K PULI	FR	SPIEN	and the second
BH269 BH269 BH269 BH269 BH269 BH269 M.R.R. BH269 BH269 C	AILUC	NULL		30/50 AM	A ALTER A
BH269 BH269 BH269 BH269 BH269 BH269 M.R.R. BH269 BH269 C	1 1 2 2 2 1 1 S	Contraction of Street Street	18	ASTRONO PARTY AND	S CONTRACT
BH269 BH269 BH269 BH269 BH269 BH269 M.R.R. BH269 BH269 C					Sector 1
Tréi BHZ 69 M.R.R. BOX 3 MAR BOX 3 M	FGG	184		M.H	RR
Tréi BHZ 69 M.R.R. BOX 3 MAR BOX 3 M	(S)	at sold all a			an of the second
Tréi BHZ 69 M.R.R. BOX 3 MAR BOX 3 M	m in sea	P 4 THE LA LA	terne with a fill sta	Con the Contraction of the	
FIGIBI- BHZ69 M.R. R BOX 3	BH	2.69		B	0X2
FIGIBI- BHZ69 M.R. R BOX 3	Contractor of the	en la parte		Contraction of the	1 2 Walk
FIGIBI- BHZ69 M.R. R BOX 3	The second support				
FIGIBI- BHZ69 M.R. R BOX 3	1 - Barrison				Service Service
	State &			32. 1	
					No. of Concession, Name
	100 mg	With Lot.	prist 1		O.
		RH2 60	MR	8 BOX 3	M
	FG618	G DR209	1.1.1.	and the second se	-
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0 100 200 300 400 500 600 700					• .
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DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Indiker Name Indiker Varing Node (buge 2) Project No. FG6184 Borehole No. BH 269 Indiker Name FG6184 Date 17/08/15 Borehole No. BH 269 Indiker Name FG6184 Abutment A, RHS Finish Depth (m) Coalinge Submitted By M.Ensor Remarks CORE SPT 5 ROCK ROLLER SP50 BALES BOX1 BALES BOX2 BALES SPT 5 ROCK ROLLER SP50 BALES BALES	Project Name	Mackay – Ring Road (S	Stane 2)		
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Location Calrossie Road Overpass Start Depth (m) 27.00 Detail Abutment A, RHS Finish Depth (m) 33.60 Chainage Submitted By M.Ensor Remarks					
Detail Abutment A, RHS Finish Depth (m) 33.60 Chainage Submitted By M.Ensor Remarks			S		
Chainage Remarks FG5184 CORE LOSS BH249 BH249 FG5184 BH249 BH24		· · · ·			
Remarks PG6184 BH269 BH269 CORE LOSS BOX1 BH269 BH2					
PUGIBAL DORE LOSS N BH249 SPTS ROCK ROLLER ST BUX1 BH249 BH249 BH269 BH2				Oublinitiou Dy	WI.Ensor
CORE LOSS HH269 H	4e	FG\$184		11.0.0	
BHZEY SPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS ROCK ROLLER SSPTS	8 00	DE IO	CC w	M.K.R	
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SPECIAL AND	BH	269		BOX1	
PROCK ROLLER	A CONTRACT	SPT 5	DDCK		-D -2
PROCK ROLLER		N HB N=NAN	RULK	KULLI	-K 80
Fig M.R.R BH269 B0X 2 BH269 B0X 2 BH269 B0X 3 BH269 B0X 3	0	La companyation and the second second			-
Fig M.R.R BH269 B0X 2 BH269 B0X 2 BH269 B0X 3 BH269 B0X 3	S RUC	K PULI	FR	SPIEN	and the second
BH269 BH269 BH269 BH269 BH269 BH269 M.R.R. BH269 BH269 C	AILUC	NULL		30/50 AM	A ALTER A
BH269 BH269 BH269 BH269 BH269 BH269 M.R.R. BH269 BH269 C	1 1 2 2 2 1 1 S	Contraction of Street Street	18	ASTRONO PARTY AND	S CONTRACT
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Tréi BHZ 69 M.R.R. BOX 3 MAR BOX 3 M	FGG	184		M.H	RR
Tréi BHZ 69 M.R.R. BOX 3 MAR BOX 3 M	(S)	at sold all a			an of the second
Tréi BHZ 69 M.R.R. BOX 3 MAR BOX 3 M	m in sea	P 4 THE LA LA	terne with a fill sta	Con the Contraction of the	
FIGIBI- BHZ69 M.R. R BOX 3	BH	269		B	0X2
FIGIBI- BHZ69 M.R. R BOX 3	Contractor of the	en la parte		Contraction of the	1 2 Walk
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	100 mg	With Lot.	prist 1		O.
		RH2 60	MR	8 BOX 3	M
	FG618	G DR209	1.1.1.	and the second se	-
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