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BOREHOLE RECORD






HOLE

BH02

SHEET 1

OF 5

CLIENT	TMR	LOGGED BY	Robyn Shaw
PROJECT	BHAP Cattle and Frances Creeks Upgrade Project Ground Investigation	CHECKED BY	Nathan Roberts
CONTRACTOR	Cairns Drilling Pty Ltd	DRILLED DATE	27-Aug-13 to 28-Aug-13
DRILL MODEL	MST 1500	ANGLE	
DRILLER	Mick Bacon (Cairns Drilling)	BEARING	-
		HOLE DIAMETER	()
		GROUND LEVEL LOCATION	409605 E 7928473 N
		ELEVATION DATUM	Australian Height Datum
		COORDINATE SYSTEM	Map Grid of Australia (MGA 1994)

DRILLING		STRATA		MATERIAL DESCRIPTION		CONDITION		OBSERVATION								
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Plasticity / Grain Size, Colour, Minor Components	WATER/ MOISTURE	CONSISTENCY							SOIL ORIGIN, STRUCTURE, ETC.		
	mAHD	m					COHESIVE				NON COHESIVE					
							VS	SL	ST	VST	H	VL	LD		VD	
B		0.15	SP		PAVEMENT/BASE COURSE. Gravelly SAND with Clay (SP) fine to medium grained, brown, gravel is fine grained, subangular to subrounded, moist.	M										FILL
SPTLS N=3 3;1,2		1														
U		1.20	CH		CLAY trace sand (CH) high plasticity, dark grey-black, sand is fine grained, trace root material, slight organic odour, moist. 1.20m - 2.50m CLAY, as above, grey mottled dark grey, trace root/plant material	M										ALV
SPTLS N=6 2;3,3		2														
U		3.20	SP		Clayey SAND with Gravel (SP) fine to medium grained, grey, clay shows red-brown staining/mottling, gravel is fine grained, subangular to subrounded, trace coarse quartz grains Dmax 2mm, moist.	M										ALV
SPTLS N=14 4;6,8		4	CH		Sandy CLAY (CH) high plasticity, grey mottled brown, sand is fine to medium grained, moist.	M										ALV
U		5														
SPTLS N=35 7;16,19		6														
U		7.00	SP		Clayey SAND (SP) fine grained, pale grey, moist.	M										ALV
SPTLS N=15 11;9,6		8			.... 7.45m - 8.50m SAND trace Gravel and Clay, fine to coarse grained, high quartz content, Gravel - quartz Dmax 6mm											
U		9			.... 8.50m SAND trace Gravel and Clay, fine to medium grained, grey, subrounded, gravel is fine grained, subrounded, quartz sand											
SPTLS N=27 8;12,15		9		 9.50m As above, trace coarse sand grains											

NOTES	JOB 231518-07
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 Log: 1.0.1 AUSTRALIA GENERAL BOREHOLE LOG (rev 15 Jun 11 checked ABACP Feb 2006)
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CLIENT	TMR	
PROJECT	BHAP Cattle and Frances Creeks Upgrade Project Ground Investigation	
CONTRACTOR	Cairns Drilling Pty Ltd	ANGLE
DRILL MODEL	MST 1500	BEARING
DRILLER	Mick Bacon (Cairns Drilling)	HOLE DIAMETER

LOGGED BY	Robyn Shaw
CHECKED BY	Nathan Roberts
DRILLED DATE	27-Aug-13 to 28-Aug-13
GROUND LEVEL	
LOCATION	409605 E 7928473 N
ELEVATION DATUM	Australian Height Datum
COORDINATE SYSTEM	Map Grid of Australia (MGA 1994)

DRILLING	STRATA			MATERIAL DESCRIPTION	CONDITION								OBSERVATION		
	SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH		GROUP SYMBOL	LEGEND	SOIL TYPE Plasticity / Grain Size, Colour, Minor Components	WATER/MOISTURE	CONSISTENCY					SOIL ORIGIN, STRUCTURE, ETC.	
mAHD		m	VS	SL					ST	VST	H	VL	LD		VD
SPTLS N=16 6,7,9				SP	Clayey SAND (SP) fine grained, pale grey, moist. (continued) 10.00m SAND trace Clay and Gravel, coarse grained, subangular, high quartz content, gravel is fine to medium grained, elongate and subrounded										ALV
SPTLS N=22 8;11,11		11			.... 11.50m As above, sand is medium to coarse grained										
		12													
		12.60		CH	Sandy CLAY (CH) high plasticity, grey mottled red-brown, sand is medium to coarse grained moist.	M									ALV
SPTLS N=28 10;13,15		13.00		SP	SAND with Clay trace Gravel (SP) medium to coarse grained, grey with red-brown patches, gravel is fine to medium grained, subrounded, quartz and lithic fragments(sandstone) moist.	M									ALV
		14													
SPTLS N=55 28;29,26		15			.... 14.50m As above, gravel Dmax 20mm large rounded quartz grains and sandstone fragments, thin fissile black fragments, lignite coal fragments	M									
		16			.... 15.30m As above, coarse sand										
SPTLS N=49 9;19,30		16			.... 16.50m As above, gravel content increases (rig bouncing)	M									
B		16.90		CH	CLAY trace Sand (CH) high plasticity, grey, sand is fine grained, moist.	M									ALV
SPTLS N=25 8;11,14		18			.... 17.50m CLAY trace Sand, high plasticity, grey mottled orange-brown, sand is fine to medium grained	M									
SPTLS N=225** 30/40s		19.00		SW	Clayey SAND (SW) fine to coarse grained, grey with red-brown patches/staining, quartz rich with cemented horizontal bands ~3mm thick, strained dark red/brown, high quartz content, moist.	M									ALV

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CLIENT	TMR	LOGGED BY	Robyn Shaw
PROJECT	BHAP Cattle and Frances Creeks Upgrade Project Ground Investigation	CHECKED BY	Nathan Roberts
CONTRACTOR	Cairns Drilling Pty Ltd	DRILLED DATE	27-Aug-13 to 28-Aug-13
DRILL MODEL	MST 1500	GROUND LEVEL	409605 E 7928473 N
DRILLER	Mick Bacon (Cairns Drilling)	LOCATION	Australian Height Datum
ANGLE		ELEVATION DATUM	Map Grid of Australia (MGA
BEARING	-	COORDINATE SYSTEM	1994)
HOLE DIAMETER	()		

DRILLING	STRATA		GROUP SYMBOL	LEGEND	MATERIAL DESCRIPTION	WATER/MOISTURE	CONDITION								OBSERVATION
	R.L.	DEPTH					CONSISTENCY				SOIL ORIGIN, STRUCTURE, ETC.				
SAMPLE, TEST, BIT, SUPPORT, ETC.	mAHD	m			SOIL TYPE Plasticity / Grain Size, Colour, Minor Components	VS	SL	ST	VST	H	VL	LD	VD		
SPTLS N=75* 19;30/120		20.50	SW		Clayey SAND (SW) fine to coarse grained, grey with red-brown patches/staining, quartz rich with cemented horizontal bands ~3mm thick, strained dark red/brown, high quartz content, moist. (continued)									ALV	
		21	CI		CLAY with Sand (CI) intermediate to high plasticity, grey stained red-brown, sand is medium to coarse grained, subvertical cemented sand bands ~3mm thick, quartz grains, moist.	M								ALV	
		22			.... 21.50m As above, no hard sand identified in clay but may have washed out									
SPTLS N=75* 20;30/120		22			.... 22.40m Sand content increases, coarse grained									
		23													
SPTLS N=75** 30/120s		23.50	SP		Clayey SAND with Gravel (SP) coarse grained quartz sand, grey, gravel is fine grained quartz Dmax 3mm, moist.	M								ALV	
		24													
B		24.40	CH		CLAY with Sand trace Gravel (CH) high plasticity, grey mottled red-brown, sand is fine to medium grained, Gravel is quartz Dmax 3mm, moist.	M								ALV	
SPTLS N=75* 19;30/120		25			.... 25.00m Sandy CLAY, high plasticity, sand is coarse grained quartz, in concentrated bands, slightly cemented									
		26													
SPTLS N=38 11;15,23		26.50	SP		Clayey SAND trace Gravel (SP) coarse grained, grey, gravel is fine grained quartz clasts, moist.	M								ALV	
		27													
		28			.... 28.00m As above, coarse quartz sand with clay and fine gravel sized quartz grains Dmax 4mm	M								
		29													
SPTLS N=75** 30/120s		29.50	CI		Sandy CLAY (CI) intermediate to high plasticity, grey, sand is fine to medium grained, trace coarse quartz grains, moist.	M								ALV	

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CLIENT	TMR	LOGGED BY	Robyn Shaw
PROJECT	BHAP Cattle and Frances Creeks Upgrade Project Ground Investigation	CHECKED BY	Nathan Roberts
CONTRACTOR	Cairns Drilling Pty Ltd	DRILLED DATE	27-Aug-13 to 28-Aug-13
DRILL MODEL	MST 1500	ANGLE	
DRILLER	Mick Bacon (Cairns Drilling)	BEARING	-
		HOLE DIAMETER	()
		GROUND LEVEL	
		LOCATION	409605 E 7928473 N
		ELEVATION DATUM	Australian Height Datum
		COORDINATE SYSTEM	Map Grid of Australia (MGA 1994)

DRILLING	STRATA				MATERIAL DESCRIPTION	CONDITION								OBSERVATION		
	SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL		LEGEND	WATER/MOISTURE	CONSISTENCY								
		SOIL TYPE	Plasticity / Grain Size, Colour, Minor Components								SOIL ORIGIN, STRUCTURE, ETC.					
	mAHD	m				VS		SL	ST	VST		H	VL	LD	VD	
			CI		Sandy CLAY (CI) intermediate to high plasticity, grey, sand is fine to medium grained, trace coarse quartz grains, moist. <i>(continued)</i>										ALV	
SPTLS	N=113** 30/80s	31			.... 30.50m As above										
					.... 31.00m Sandy CLAY, intermediate to high plasticity, grey, sand is medium grained, sand content increases with depth										
		32														
SPTLS	N=113* 22,30/80				.... 32.50m Sandy CLAY, intermediate to high plasticity, grey with dark red and orange staining, sand is medium grained										
					.... 32.90m Becomes dark red										
		33														
					.... 33.30m Sand grain size increases to coarse, quartz Dmax 2mm										
		34														
SPTLS	N=180** 30/50s				.... 34.00m As above, sand is medium grained										
		35														
					.... 35.50m Sandy CLAY, high plasticity, grey, sand is fine to medium grained, very hard										
		36														
		37														
SPTLS	N=64** 30/140s															
		38														
		39														
SPTLS	N=86** 30/105s			 38.50m Sandy CLAY, high plasticity, grey, sand is coarse, angular quartz Dmax 2mm											
		40.01														
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BOREHOLE RECORD

HOLE

SHEET 5

BH02

OF 5

CLIENT	TMR	LOGGED BY	Robyn Shaw
PROJECT	BHAP Cattle and Frances Creeks Upgrade Project Ground Investigation	CHECKED BY	Nathan Roberts
		DRILLED DATE	27-Aug-13 to 28-Aug-13
CONTRACTOR	Cairns Drilling Pty Ltd	ANGLE	
DRILL MODEL	MST 1500	BEARING	-
DRILLER	Mick Bacon (Cairns Drilling)	HOLE DIAMETER	()
		GROUND LEVEL LOCATION	409605 E 7928473 N
		ELEVATION DATUM	Australian Height Datum
		COORDINATE SYSTEM	Map Grid of Australia (MGA 1994)

DRILLING	STRATA				MATERIAL DESCRIPTION	CONDITION	OBSERVATION				
	SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL				LEGEND	WATER / MOISTURE	CONSISTENCY	
		mAHD	m							COHESIVE	NON COHESIVE
SPTLS	30/10s										
					Borehole completed at 40.01m depth						
		41									
		42									
		43									
		44									
		45									
		46									
		47									
		48									
		49									

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