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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH40

SHEET 1 OF 6

Client: QUEENSLAND MAIN ROADS

Project: TUGUN BYPASS GEOTECHNICAL INVESTIGATION

Borehole Location: Airport Tunnel

Project Number: 2134070C

Date Commenced: 10/6/05

Date Completed: 16/6/05

Recorded By: MCM

Log Checked By: *dmv*

Drill Model/Mounting: LEWIS 350 TRACKED RIG

Hole Angle: 90°

Surface RL: 0.7 m AHD

Borehole Diameter: 100 mm

Bearing: ---

Co-ords: E 50378.6 N 86991 PMG

Borehole Information						Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	RL(m) AHD	DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
										VS FB VL VLL VLD VLT VST VD VT	HAND PENETROMETER (kPa)	
TC	NII		0.20				OH		Clayey SILT: high plasticity, black, organic rich.	M		TOP SOIL
			0				SP		SAND: fine to medium grained, grey-brown.	W		ESTUARINE/ FLOODPLAIN/TIDAL DELTA DEPOSITS
			1									
			2									
			3									
			4									
			5									
			6									
			7									
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This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.



BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH40

SHEET 2 OF 6

Client: QUEENSLAND MAIN ROADS
Project: TUGUN BYPASS GEOTECHNICAL INVESTIGATION
Borehole Location: Airport Tunnel
Project Number: 2134070C

Date Commenced: 10/6/05
Date Completed: 16/6/05
Recorded By: MCM
Log Checked By: DAW

Drill Model/Mounting: LEWIS 350 TRACKED RIG Hole Angle: 90° Surface RL: 0.7 m AHD
Borehole Diameter: 100 mm Bearing: --- Co-ords: E 50378.6 N 86991 PMG

Borehole Information						Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	RL(m) AHD	DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB												
				10.50	SPT 1,2,1 N=3	SPT		CH	Silty CLAY: high plasticity, dark brown/dark grey. (continued)	W		
				10				SC	Clayey SAND: medium grained, dark grey.			
				11								
				11								
				12								
				12								
				13								
				13.50	SPT 5,6,8 N=14	SPT		SP	SAND: medium grained, grey and white.			
				14								
				14								
				15.00	SPT 7,10,15 N=25	SPT		SC	SAND: medium grained, dark grey.			
				15								
				16								
				16.50	SPT 16,28,30 /115mm	SPT		SP	SAND: medium grained, grey and dark grey.			
				17								
				17								
				18.00	SPT 4,6,8 N=15	SPT		SC	Clayey SAND: medium grained, dark grey with fine grained gravel.			
				18								
				19								
				19.50	SPT 9,5,4 N=9	SPT		CH	CLAY: high plasticity, dark grey and SAND: medium grained, grey.			
				19								

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.



BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH40

SHEET 3 OF 6

Client: QUEENSLAND MAIN ROADS

Project: TUGUN BYPASS GEOTECHNICAL INVESTIGATION

Borehole Location: Airport Tunnel

Project Number: 2134070C

Date Commenced: 10/6/05

Date Completed: 16/6/05

Recorded By: MCM

Log Checked By: DAW

Drill Model/Mounting: LEWIS 350 TRACKED RIG

Hole Angle: 90°

Surface RL: 0.7 m AHD

Borehole Diameter: 100 mm

Bearing: ---

Co-ords: E 50378.6 N 86991 PMG

Borehole Information						Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	RL(m) AHD	DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB								CH	CLAY: high plasticity, dark grey and SAND: medium grained, grey. (continued)	W		
				20								
				21	SPT 3,4,8 N=12	SPT		CH	CLAY: high plasticity, dark grey.			
				21.10								
				21								
				22								
				22								
				23								
				23								
				24	SPT 6,15,8 N=23	SPT		SC	Clayey SAND: medium grained, dark grey.			
				24								
				25								
				25								
				26								
				26								
				27	SPT 14,20,24 N=44	SPT		SP	SAND: medium to coarse grained, grey.			
				27								
				28								
				28								
				29								
				29								

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.



BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH40

SHEET 4 OF 6

Client: QUEENSLAND MAIN ROADS
Project: TUGUN BYPASS GEOTECHNICAL INVESTIGATION
Borehole Location: Airport Tunnel
Project Number: 2134070C

Date Commenced: 10/6/05
Date Completed: 16/6/05
Recorded By: MCM
Log Checked By: *am*

Drill Model/Mounting: LEWIS 350 TRACKED RIG Hole Angle: 90° Surface RL: 0.7 m AHD
Borehole Diameter: 100 mm Bearing: --- Co-ords: E 50378.6 N 86991 PMG

Borehole Information						Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	RL(m) AHD	DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB					SPT 15,15 /40mm	SPT		SC	Clayey SAND: medium to coarse grained, dark grey, with a trace of fine to coarse grained gravel.	W		
				30								
				31								
				31								
				32								
				32								
				33	SPT 15 /50mm	SPT		SC	Clayey SAND: medium grained, pale grey.	M		RESIDUAL SOIL % passing 0.425mm=86% % passing 0.075mm=38%
				33								
				34								
				34								
				35								
				35								
				36	SPT 15 /55mm	SPT			... with fine to medium grained gravel.			
				36								
				37					REFER TO CORED BOREHOLE LOG			
				37								
				38								
				38								
				39								
				39								

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

Client: QUEENSLAND MAIN ROADS
Project: TUGUN BYPASS GEOTECHNICAL INVESTIGATION
Borehole Location: Airport Tunnel
Project Number: 2134070C

Date Commenced: 10/6/05
Date Completed: 16/6/05
Recorded By: MCM
Log Checked By: 081/

Drill Model/Mounting:	LEWIS 350 TRACKED RIG	Hole Angle:	90°	Surface RL:	0.7 m AHD
Borehole Diameter:	100 mm	Bearing:	---	Co-ords:	E 50378.6 N 86991 PMG

Borehole Information						Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12
METHOD	SUPPORT	WATER	CORE RECOVERY	RQD	RL(m) AHD DEPTH(m)	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	WEATHERING EL 0.03 VL 0.1 L 0.3 M 1 MH 3 VH 10 EH 30	INFERRED STRENGTH (σ_{50}) MPa	AVERAGE DEFECT SPACING mm	STRUCTURE AND ADDITIONAL OBSERVATIONS
					-30 31 -31 32 -32 33 -33 34 -34 35 -35 36 -36						
NMLC	M				-37 -37 38 -38 39 -39		COMMENCE CORING AT 37 m GREYWACKE: medium grained, grey, steeply bedded.	MW			WEATHERED ROCK 37.05, 37.24, 37.44, 37.48m: B, P, C, 30 - 60° 37.58m: J, P, Clay coating (2mm), 60°. 37.65, 37.66, 37.67m: B, P, Clay coating (1mm), 30°. 37.74m: B, P, C, 20°. 37.81m: J, R, C, 70°. 38.03, 38.09m: J, P, C, 60°. 38.25, 38.35, 38.37, 38.41m: B, P, C, 40°. 38.48 - 38.88m: Broken zone.
			71	38	39.85		CORE LOSS				
					39.85		GREYWACKE: medium grained, grey, steeply bedded.	MW			39.75m: B, R, C, 20°. 39.80m: J, S, C, 70°.
This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.											



CORED BOREHOLE ENGINEERING LOG

BOREHOLE NO.

BH40

SHEET 6 OF 6

Client:	QUEENSLAND MAIN ROADS	Date Commenced:	10/6/05
Project:	TUGUN BYPASS GEOTECHNICAL INVESTIGATION	Date Completed:	16/6/05
Borehole Location:	Airport Tunnel	Recorded By:	MCM
Project Number:	2134070C	Log Checked By:	PAW

Drill Model/Mounting:	LEWIS 350 TRACKED RIG	Hole Angle:	90°	Surface RL:	0.7 m AHD
Borehole Diameter:	100 mm	Bearing:	---	Co-ords:	E 50378.6 N 86991 PMG

Borehole Information						Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	
METHOD	SUPPORT	WATER	CORE RECOVERY	RQD	RL(m) AHD	DEPTH(m)	GRAPHIC LOG	SOIL/ROCK MATERIAL FIELD DESCRIPTION	WEATHERING	INFERRED STRENGTH I _{p(50)} MPa	AVERAGE DEFECT SPACING mm	STRUCTURE AND ADDITIONAL OBSERVATIONS
NMLC			49	11	40.66 40.78	40		GREYWACKE: medium grained, grey, steeply bedded. (continued)	MW	0.03 0.1 0.3 1 3 10	30 100 300 1000 3000	39.91m: B, S, C, 25°. 40.07m: J, P, C, 60°. 40.18, 40.22m: B, P, C, 25°. 40.35, 40.41, 40.43m: J, P, V, 60°. 40.49, 40.56, 40.74, 40.76m: B, R, C, 20°.
						41		AGILLITE: dark grey. CORE LOSS				
						42		END OF BOREHOLE AT 41.90 m				
						43						
						44						
						45						
						46						
						47						
						48						
						49						

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

Project: Tugun Bypass Geotechnical Investigation
Borehole: BH40
Start Depth: 37.00m
Finish Depth: 41.90m

	BH40	2134070C	TUGUN	16-06-05
37				
38				LOST
39	LOST		EOR	
40				LOST
41	LOST			EOR H9603