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GEOTECHNICAL BOREHOLE LOG

FINAL 02/11/2017

BH05 BOREHOLE No

Sheet 1 of 3

Pict 2, USS	1	100 m	00				SYI		REFER FORM F:GE			REFERENCE No	H1	2905
REMARKS: Jel - Evergreen Formation. Standpipe piezometer installed. **REMARKS: Jel - Evergreen Formation. Standpipe piezometer installed. **Description of the piezometer installed.** **PRINT TABLE TOTAL TABLE	PROJECT	Воу	ne River	Bri	dge Repalcement									
The No. 240/45/175550 High Excessing product of the production of	LOCATION	Pier	2, LHS									COORDINATES 323468.9	9 E; 715990	5.7 N
MATERIAL DESCRIPTION	PROJECT No	FG	5482		SURFACE RL	114.55m	PLU	INGE 9	0°	DATE STAR	TED 10/07/201	7 GRID DATUM	MGA Z56	
Gravely SAND trace Cobbles Advancem Management of the process of t	JOB No	249	/435/37	7555	HEIGHT DATUM	AHD	BEA	RING _		DATE COMPLE	TED 11/07/201	7 DRILLER	NorthCoast	t Drilling
Gravelly SAND trace Cobbies (Althorum) River moist, loose. Fine to medium gravel. Irrace clay. A	DEPTH (m)	AUGER SASING WASH BORING	() 0/		MATERIAL DESC	CRIPTION	LITHOLOGY	USCS WEATHERING	STRENGTH	SPACING		AND		SAMPLES TESTS
SPT Solution Cabbles - 200mm 108.35 F Sitty CLAY trace Sand (Alluvium) Dark grey, molist, very stiff. High plasticity. Fine grained sand. Toom: Becomes with Sand, pale brown mottled pale grey, molist, hard. Medium to high plasticity. Fine grained sand. 108.55 Continued on next sheet REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. SPT SPT A70m: Cabbles - 200mm 4,76,5 SPT SPT A70m: Cabbles - 200mm 4,76,5 SPT SPT SPT 108.55 LOGGED BY REVIEWED B S. Louei S. Foley SPT Reviewed Between	- - - - - -			Α	(Alluvium) Brown grey, moist, lo Fine to medium grair	ose. ned sand. Fine					0.80m: Cobbles ~1	00mm	4, 5, 4 N=9 2, 2, 4	<u> </u>
F Silty CLAY trace Sand (Alluvium) Dark grey, moist, very stiff. High plasticity. Fine grained sand. G Drown mottled pale grey. Medium to high plasticity. Fine grained sand. I Silty Sandy CLAY (Alluvium) Pale brown mottled pale grey, moist, hard. Medium to high plasticity. Fine grained sand. I Silty Sandy CLAY (Alluvium) Pale grey, moist, very dense. Fine grained sand. I Silty Sandy Clay (Alluvium) Pale grey, moist, hard. Medium to high plasticity. Fine grained sand. I Silty Sandy Clay (Alluvium) Pale grey, moist, hard. Medium to high plasticity. Fine grained sand. I Silty Sandy Clay (Alluvium) Pale grey, moist, very dense. Fine grained sand. Fine grained sand. Fine grained sand. Fine grained sand. Trace to sand the sand trace fine grained sand. Trace to sand the sand trace fine grained sand. Trace fine graine	- - - - - - - -				3.00m: Becoming me and trace medium gr	edium dense ained gravel.		(SP)	- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	3.60m: Cobbles ~2	00mm	N=15 12, 9, 11	
SPT Silty CLAY trace Sand (Alluvium)	- - - - - - - - - - - - -					grained			- - - - - - - - - - - - - - - - - - -	-	4.70m: Cobbles ~1	00mm		=
Tools and the second se	- 100.00	<u>5</u>			Dark grey, moist, very High plasticity.		_		- - - - - - - - - - - - - - - - - - -		6.00m: Cobbles ~2	00mm		SPT
H Silty Sandy CLAY (Alluvium) Pale brown mottled pale grey, moist, hard. Medium to high plasticity. Fine grained sand. I Silty SAND (Residual) Pale grey, moist, very dense. Fine grained sand. Trace fine grained gravel. Continued on next sheet REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. LOGGED BY REVIEWED E S. Louei S. Foley	: :				7.00m: Becomes with	n Sand, pale irey.	_	(CH)		_				SPT
I Silty SAND (Residual) Pale grey, moist, very dense. Fine grained sand. Trace fine grained gravel. Continued on next sheet REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. LOGGED BY REVIEWED E S. Louei S. Foley	- 8 				Pale brown mottled p moist, hard. Medium to high plass	oale grey,	× × × ×	(CI)						SPT
REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. LOGGED BY REVIEWED BY S. Louei S. Foley	- 9 - - - - - -				Pale grey, moist, very Fine grained sand. Tr	dense.	X X X X X	(SM)	- - - - - - - - - -					SPT
S. Louei S. Foley														
	REMAF	RKS:	Je1 - E	ver	green Formation.	Standpipe p	iezo	met	er installed.				+	
TMR GEOTECHNICAL ROREHOLE LOG - CREATED WITH HOLERASE SL						T4 **	GEOTTO	HNICA: C:	DREMOITE FOR CONTATES	WITH HOLEBASE C.		S. Louei	S. I	oley

GEOTECHNICAL BOREHOLE LOG

FINAL 02/11/2017

BOREHOLE No BH05

Sheet 2 of 3

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 H12905 REFERENCE No PROJECT Boyne River Bridge Repalcement COORDINATES 323468.9 E; 7159905.7 N Pier 2, LHS LOCATION SURFACE RL 114.55m FG6482 PLUNGE 90° DATE STARTED 10/07/2017 grid datum MGA Z56 PROJECT No DRILLER NorthCoast Drilling 249/435/375550 DATE COMPLETED 11/07/2017 JOB No HEIGHT DATUM AHD BEARING USCS WEATHERING RQD ADDITIONAL DATA INTACT DEFECT SPACING SAMPLES TESTS Ξ LITHOLOGY AND TEST RESULTS ()% STRENGTH DEPTH (RΙ SAMP MATERIAL DESCRIPTION CORE REC % ᇳᆂᆂᄝᅿᅿᆿᆙᇬᇬᄝᇂᇂᇕ Silty SAND (Residual) Cont'd. ht (SM) 30/145mm ¹³ 101.45 (30) D (13.16m) SANDSTONE (Je1) A (13.17m) MW: Pale grey to grey minor MW mottled pale brown, fine grained, thinly bedded, mainly low strength. Is(50)=0.24 MPa ⇒ 13.85m-13.89m: XW, Sand Is(50)=0.29 MPa BP: 10° to 30° (5-7/m); PI/Ro; TI; 100 HW ☐ 14.00m-14.07m: BZ, DI (8) some Cly Vr - Js: 30° to 50° (1-2/m); Pl/Ro; TI; MW Is(50)=0.32 MPa Is(50)=0.09 MPa D (14.40m) some Cly Vr A (14.41m) - Js: 80° to 90° (<1/m); Un/Ro; TI; Cn XW or Cly Vr HW 15 100 XW D (15.30m) ⊐ 15.35m-15.39m: BZ, HW MW Is(50)=0.23 MPa Is(50)=0.12 MPa D (15.65m) A (15.66m) ⊐ 15.88m-15.91m: BZ, HW 16 ☐ 15.97m-16.03m; BZ. HW HW 16.10m-16.33m: BZ 100 ⇒ 16.42m-16.44m: BZ D (16.56m)-Is(50)=0.14 MPa A (16.57m) Is(50)=0.03 MPa Is(50)=0.01 MPa D (17.75m) A (17.76m) ⇒ 18.04m-18.07m: BZ, HW MW (0) Is(50)=0.01 MPa D (18.85m) 19 A (18.86m) D (19.50m) Is(50)=0.05 MPa A (19.52m)-Continued on next sheet REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. **LOGGED BY REVIEWED BY** S. Louei S. Foley TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

GEOTECHNICAL BOREHOLE LOG

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

FINAL 02/11/2017

BH05 BOREHOLE No

Sheet 3 of 3

H12905 REFERENCE No

PROJECT Boyne River Bridge Repalcement COORDINATES 323468.9 E; 7159905.7 N Pier 2, LHS LOCATION GRID DATUM MGA Z56 FG6482 SURFACE RL 114.55m PLUNGE 90° DATE STARTED 10/07/2017 PROJECT No DRILLER NorthCoast Drilling 249/435/375550 DATE COMPLETED 11/07/2017 JOB No HEIGHT DATUM AHD BEARING S USCS WEATHERING RQD ADDITIONAL DATA INTACT STRENGTH DEFECT SPACING SAMPLES TESTS Ξ LITHOLOGY AND TEST RESULTS ()% DEPTH (RΙ SAMP MATERIAL DESCRIPTION CORE REC % SANDSTONE (Je1) MW: Cont'd. Is(50)=0.05 MPa Is(50)=0.05 MPa D (20.35m) A (20.36m) MW 93.35 100 Is(50)=0.06 MPa Is(50)=0.05 MPa D (21.20m) 21.27m-21.41m: BZ Interbedded SANDSTONE/ HW (0) A (21.22m)-SILTSTONE (Je1) MW ¬ 21.60m-21.65m; HW. BZ MW: Pale grey, fine grained, very ____ 21.73m-21.79m: BZ, HW ____ 21.85m-21.95m: BZ 100 thinly bedded, mainly low strength. HW (6) - BP: 10° to 30° (5-7/m); PI/Sm-Ro; 22 □ 22.10m-22.14m: BZ, HW
 □ 22.22m-22.27m: BZ, HW TI; Cn or Cly Vr - Js: 60° to 80° (2-3/m); PI/Sm-Ro; TI; Cn or Cly Vr - Js: 80° to 90° (1-2/m); Un/Sm-Ro; Is(50)=0.21 MPa D (22.75m) TI-CD; Cn or Cly Vr 23 100 (35) ⊒ 23.30m-23.35m: BZ, DI MW Is(50)=0.01 MPa Is(50)=0.04 MPa D (23.40m)-A (23.42m)-23.85m-23.94m: HFZ Is(50)=0.07 MPa D (24.20m) Is(50)=0.19 MPa A (24.22m) 89.70 100 HW Borehole completed at 24.85m 25 26 27 29 REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. **LOGGED BY REVIEWED BY** S. Louei S. Foley TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI



STANDPIPE PIEZOMETER

BH05 BOREHOLE No Sheet 1 of 3

INSTALLATION LOG FOR GEOTECHNICAL TERMS AND **BH05** PIEZOMETER No SYMBOLS REFER FORM F:GEOT 017/8-2014 Boyne River Bridge Repalcement PROJECT COORDINATES 323468.9 E; 7159905.7 N Pier 2, LHS LOCATION GRID DATUM MGA Z56 FG6482 SURFACE RL 114.55m PLUNGE 90° DATE STARTED 10/07/2017 PROJECT No 249/435/375550 DATE COMPLETED 11/07/2017 DRILLER NorthCoast Drilling HEIGHT DATUM AHD BEARING ° JOB No **Standpipe Piezometer Construction Details** Ξ LITHOLOGY 50mm PVC Class No. 18 R.L. DEPTH (MATERIAL DESCRIPTION Depth (m) /RL Stick Up = 0.60m (m) **Backfill Details** (AHD) **Encased in Steel** Monument Gravelly SAND trace Cobbles (Alluvium) Rapid-set concrete 0.20m / 114.35 AHD Brown grey, moist, loose. Fine to medium grained sand. Fine grained gravel. 04/09/2017

3.00m: Becoming medium dense and trace medium grained gravel. 5.00m: Trace coarse grained gravel. Grout 108.35 Silty CLAY trace Sand (Alluvium) Dark grey, moist, very stiff. High plasticity. Fine grained sand. 7.00m: Becomes with Sand, pale brown mottled pale 106.55 Silty Sandy CLAY (Alluvium) Pale brown mottled pale grey, moist, hard. Medium to high plasticity. Fine grained sand. 105.55 Silty SAND (Residual) Pale grey, moist, very dense. Fine grained sand. Trace fine grained gravel.

Continued on next sheet

REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. **LOGGED BY REVIEWED BY** S. Louei S. Foley TMR STANDPIPE PIEZOMETER INSTALLATION LOG - CREATED WITH HOLEBASE SI

STANDPIPE PIEZOMETER INSTALLATION LOG

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

BOREHOLE No BH05

Sheet 2 of 3

PIEZOMETER No BH05

FINAL 02/11/2017

Boyne River Bridge Repalcement PROJECT Pier 2, LHS COORDINATES 323468.9 E; 7159905.7 N LOCATION plunge 90° grid datum MGA Z56 FG6482 SURFACE RL 114.55m DATE STARTED 10/07/2017 PROJECT No DATE COMPLETED 11/07/2017 249/435/375550 $_{\rm BEARING}~^{\circ}$ DRILLER NorthCoast Drilling HEIGHT DATUM AHD JOB No

INU	-	PEIGHT DATON ATTO	DEARING	DATE CONFEETED 11/07/2017	DRIELER WOLLTICOUST DITHI				
	>	<u> </u>	Standpipe Piezometer Construction Details						
R (r	t.L. (C)	<u> </u>		50mm PVC Class No. 18					
1	m)	MATERIAL DESCRIPTION	Depth (m) /RL	Stick Up = 0.60m	Backfill Details				
''	, E	<u> </u>	(AHD)	Encased in Steel	Dackilli Detalis				
	-	-		Monument					
		Silty SAND (Residual)							
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	×		11.05m / 103.50 AHD						
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	· ·	*** ***	11.85m / 102.70 AHD						
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		⊗							
101	1.45 ×	Ø							
	:	: SANDSTONE (Je1)							
	:	: MW: Pale grey to grey minor mottled pale brown,							
	:	Inne grained, thinly bedded, mainly low strength.							
	:	- BP: 10° to 30° (5-7/m); PI/Ro; TI; some Cly Vr							
	:	- Js: 30° to 50° (1-2/m); Pl/Ro; TI; some Cly Vr							
	:	- Js: 80° to 90° (<1/m); Un/Ro; TI; Cn or Cly Vr							
	:			抗毒素毒素 医毒素洗涤剂					
	:	:		(설문불통령 출흥분통통					
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	:		15.85m / 98.70 AHD	[(\$\forall \text{!} \forall \forall \text{!} \forall \tex	Top of slotted pipe Graded Sand				
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	:								

Continued on next sheet

REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed.

LOGGED BY REVIEWED BY

S. Louei S. Foley



STANDPIPE PIEZOMETER **INSTALLATION LOG**

BH05 BOREHOLE No Sheet 3 of 3

FOR GEOTECHNICAL TERMS AND BH05 PIEZOMETER No SYMBOLS REFER FORM F:GEOT 017/8-2014 Boyne River Bridge Repalcement PROJECT COORDINATES 323468.9 E; 7159905.7 N Pier 2, LHS LOCATION FG6482 SURFACE RL 114.55m PLUNGE 90° DATE STARTED 10/07/2017 GRID DATUM MGA Z56 PROJECT No DRILLER NorthCoast Drilling 249/435/375550 HEIGHT DATUM AHD BEARING ° DATE COMPLETED 11/07/2017 JOB No **Standpipe Piezometer Construction Details** DEPTH (m) LITHOLOGY 50mm PVC Class No. 18 R.L. MATERIAL DESCRIPTION Depth (m) /RL Stick Up = 0.60m (m) **Backfill Details** (AHD) **Encased in Steel** Monument SANDSTONE (Je1) MW: Cont'd. 93.35 Interbedded SANDSTONE/SILTSTONE (Je1) MW: Pale grey, fine grained, very thinly bedded, mainly low strength. - BP: 10° to 30° (5-7/m); PI/Sm-Ro; TI; Cn or Cly Vr - Js: 60° to 80° (2-3/m); Pl/Sm-Ro; TI; Cn or Cly Vr 22 - Js: 80° to 90° (1-2/m); Un/Sm-Ro; TI-CD; Cn or Cly 23 89.70 24.85m / 89.70 AHD Borehole completed at 24.85m 25 26 27 28 29 REMARKS: Je1 - Evergreen Formation. Standpipe piezometer installed. **LOGGED BY REVIEWED BY** S. Louei S. Foley

TMR STANDPIPE PIEZOMETER INSTALLATION LOG - CREATED WITH HOLEBASE SI

CORE PHOTO LOGDEPARTMENT OF TRANSPORT AND MAIN ROADS GEOTECHNICAL SECTION



			
Project Name	Boyne River Bridge Replacement		10/07/00/17
Project No.	FG6482	Date	12/07/2017
Borehole No.	BH05	Reference No.	H12905
Location	Pier 2, LHS	Start Depth (m)	13.10
Submitted By	S. Louei	Finish Depth (m)	24.85
Remarks			
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	I Rec	The Le Ran J	P.O. PII
1911 Pina To	200 han 1 200 han 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		UX An An T
0 100	200 300 400 SCALE (mm)	500 600	700

Page 1 of 2

CORE PHOTO LOGDEPARTMENT OF TRANSPORT AND MAIN ROADS GEOTECHNICAL SECTION



Project Name	Boyne River Bri	dge Renlace	ement							
Project No.	FG6482	-go Mopiaci		Date		12/07/2017				
Borehole No.	BH05			Reference N	lo.	H12905				
Location	Start Depth (m) 13.10									
LocationPier 2, LHSStart Depth (m)13.10Submitted ByS. LoueiFinish Depth (m)24.85										
Remarks										
0 100 200 300 400 500 600 700										
		SCA	IF (mm)							
SCALE (mm)										