FINAL 02/11/2017

Queensland Government

GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **BH10**

Sheet 1 of 4

REFERENCE No **H12969**

PROJECT Boyne River Bridge Repalcement

LOCATION Pier 4, RHS

COORDINATES 323435.1 E; 7159875.8 N

PROJECT No FG6482 | SURFACE RL 114.05m | PLUNGE 90° | DATE STARTED 02/09/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 04/09/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	SAMPLE	MATERIAL DESCRIPTION	USCS WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
1		A	Gravelly SAND with Cobbles (Alluvium) Yellow, brown and grey, wet, loose to medium dense. Fine to coarse grained sand, fine to medium grained gravel, with some coarse grained gravel and cobbles. Trace silt. Some grey clayey sand layers.		1, 1, 5 N=6	SPT
2		B		(SW)	1, 9, 9 N=18	SPT
3		C			6, 7, 6 N=13	SPT
4		D			8, 10, 11 N=21	SPT
5	109.25	E	Sandy GRAVEL with Silt (Alluvium) Grey and brown grey, moist, medium dense. Fine to medium grained gravel, medium to coarse grained sand.	(GW -GM)	5, 9, 14 N=23	SPT
6	108.55	F	Gravelly SAND (Alluvium) Brown grey, moist, medium dense. Fine to coarse grained sand, fine to medium grained gravel with silt and clay. From 7.00m: Trace clay, dense.	(SW-SM)	6, 12, 14 N=26	SPT
7		G			13, 16, 26 N=42	SPT
8	105.80	H	Silty CLAY (Residual) Brown pale grey and purple brown, moist, hard, medium plasticity.	(CI)	5, 16, 20 N=36	SPT
9	105.05	I	SANDSTONE (Je1) XW: Recovered as Sandy Clay. moist, hard. Grey brown and purple brown, fine grained, very low strength.	XW	18, 30/100mm	SPT
	104.05					

Continued on next sheet

REMARKS: Je1 - Evergreen Formation. Hole offset due to flowing river channel.

LOGGED BY	REVIEWED BY
M. Hayes	S. Foley

Queensland Government

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BOREHOLE No **BH10**

Sheet 2 of 4

REFERENCE No **H12969**

PROJECT Boyne River Bridge Repalcement

LOCATION Pier 4, RHS

COORDINATES 323435.1 E; 7159875.8 N

PROJECT No FG6482 | SURFACE RL 114.05m | PLUNGE 90° | DATE STARTED 02/09/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 04/09/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USCS WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
11			J	SANDSTONE (Je1) XW: Cont'd.	XW	8, 26, 30/100mm	SPT
	102.85		K			30/50mm hb	SPT
12		(20)		SANDSTONE (Je1) XW: Yellow brown and red brown, fine grained, indistinct bedded, mainly extremely low strength. Defects overprinted by pervasive weathering. -Js 5°-10° (5-10/m), Pl/Ro, Cly Ct	HW XW MW XW MW	11.20m: Petrographic report 11.30m-11.34m: XW Is(50)=4.30 MPa Is(50)=5.50 MPa	D (12.17m) A (12.18m)
13		100 (5)		From 13.8m: Becoming grey brown, possible shear zone	XW	Is(50)=0.04 MPa Is(50)=0.02 MPa	D (13.45m) A (13.47m)
14	99.40		CORE LOSS		XW	14.65m-14.70m: HW	
15		93 (30)		SANDSTONE (Je1) HW: Yellow brown and grey, fine to medium grained, bedding indistinct, extremely low to very low strength. - BP: 15°-20° (2/m) Pl/Ro, Tl, Cly Vr 16.00 Light grey. 16.95 Yellow brown.	HW	15.00m: J 50°, Un/Ro, 50mm fragmented zone. Is(50)=0.17 MPa Is(50)=0.07 MPa	D (15.40m) A (15.42m)
16			CORE LOSS				
17	96.75	73 (30)			XW HW		
18				SANDSTONE (Je1) MW: Pale grey, fine to medium grained, thinly bedded, low to medium strength. -J 0°-5° (1-2/m), Pl/Ro, partially drill induced. - BP: 20°-25° (5/m), Pl/Ro, Tl, Cly Vr From 18.30: Very low to low strength.	MW XW HW MW	Is(50)=1.10 MPa Is(50)=0.54 MPa Is(50)=0.27 MPa Is(50)=0.51 MPa	D (17.57m) A (17.59m) D (18.25m) A (18.26m)
19		100 (50)				19.10m-19.15m: XW 19.15m-19.20m: SW	
	94.05	100 (50)			XW MW XW MW	Is(50)=1.70 MPa Is(50)=0.49 MPa 19.98m-20.00m: XW	D (19.65m) A (19.67m)

Continued on next sheet

REMARKS: Je1 - Evergreen Formation. Hole offset due to flowing river channel.

LOGGED BY	REVIEWED BY
M. Hayes	S. Foley

FINAL 02/11/2017

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GEOTECHNICAL BOREHOLE LOG

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BOREHOLE No **BH10**

Sheet 3 of 4

REFERENCE No **H12969**

PROJECT Boyne River Bridge Repalcement

LOCATION Pier 4, RHS

COORDINATES 323435.1 E; 7159875.8 N

PROJECT No FG6482 | SURFACE RL 114.05m | PLUNGE 90° | DATE STARTED 02/09/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 04/09/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USCS WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
21		89 (69)	CORE LOSS	SANDSTONE (Je1) HW: Yellow brown and light grey, fine grained, thinly bedded, very low strength. Bedding 60°. Numerous tight micro defects 30°-60°. Rock fabric and defects overprinted by weathering.	HW / MW / HW / MW	20.40m-21.20m: BZ 20.55m-20.60m: XW Cly 20.70m-20.75m: XW Is(50)=0.28 MPa Is(50)=0.06 MPa	D (21.25m) A (21.27m)
	92.47						
22				SANDSTONE (Je1) SW: Light grey and orange brown, fine to medium grained, thinly to medium bedded, very low to medium strength. -Js 10°-20° (1-2/m), Pl/Sm, Fe St -Js 30°-45° (2-3/m), Pl/Sm, Fe St Indistinct bedding 45°-60°.	SW / MW / SW	22.20m-22.25m: XW Sandy clay infill	
23						Is(50)=0.46 MPa Is(50)=1.20 MPa UCS=8.41 MPa Is(50)=0.28 MPa Is(50)=0.64 MPa	D (22.80m) A (22.82m) (23.13m) D (23.27m) A (23.28m)
	90.60	100 (49)		SANDSTONE (Je1) MW: Brown and grey, fine to medium grained, thinly bedded, very low to low strength. -J 30°-45° (2-3/m), Un/Ro, TI, Fe St -J 50°-65° (4-5/m) Pl-Un/Sm, TI, Fe St.	MW	24.35m-24.60m: Very closely spaced fractured zones. Js 60°-70° Pl/Sm every 20mm-50mm. 24.60m-24.65m: HW	
24		100 (71)		From 24.95m: Medium to high strength, slightly weathered, grey and yellow brown. From 25.75m: Very low to low strength, highly weathered, yellow brown.	XW / MW / SW / HW		
25						Is(50)=0.58 MPa Is(50)=0.40 MPa	D (25.67m) A (25.68m)
26	87.95	100 (46)		SANDSTONE (Je1) SW: Light grey, fine grained, thinly bedded, bedding 30°-40°, medium strength. -J 10°-20° (3-4/m), Pl/Ro, OP, Fe St or Cn -J 30°-45° (3-4/m), Pl/Sm, OP, Fe St or Cn	HW	Is(50)=0.02 MPa Is(50)=0.13 MPa UCS=12.60 MPa Is(50)=0.77 MPa Is(50)=0.06 MPa	D (26.09m) A (26.10m) (26.29m) D (26.45m) A (26.47m)
27					SW	27.45m-27.75m: BZ	
28		100 (57)			MW / SW	28.50m-28.55m: MW Is(50)=0.05 MPa Is(50)=0.30 MPa	D (27.92m) A (27.94m)
29		100 (50)		29.0m: Becoming medium to coarse grained	MW / SW	Is(50)=0.23 MPa Is(50)=0.24 MPa Is(50)=0.38 MPa Is(50)=0.69 MPa	D (28.93m) A (28.94m) D (29.44m) A (29.45m)
	84.05						

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REMARKS: Je1 - Evergreen Formation. Hole offset due to flowing river channel.

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BOREHOLE No **BH10**

Sheet 4 of 4

REFERENCE No **H12969**

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COORDINATES 323435.1 E; 7159875.8 N

PROJECT No FG6482 | SURFACE RL 114.05m | PLUNGE 90° | DATE STARTED 02/09/2017 | GRID DATUM MGA Z56

JOB No 249/435/375550 | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 04/09/2017 | DRILLER NorthCoast Drilling

DEPTH (m)	R.L. (m)	AUGER	CASING	WASH BORING	CORE DRILLING	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (EC VC C M W VW EW)	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
31						100 (70)		SANDSTONE (Je1) SW: Cont'd.		SW	M	C EC M	30.35m-30.50m: BZ	
											VL-L	M		
										MW	M	M	Is(50)=0.37 MPa Is(50)=0.48 MPa	D (31.15m) A (31.17m)
											M	M	31.60m-31.65m: XW Residual silty sand	
32								31.85m: Becoming fine grained.			M	M	Is(50)=0.38 MPa Is(50)=0.27 MPa	D (31.55m) A (31.56m)
						100 (87)					M	M	Is(50)=0.65 MPa Is(50)=0.70 MPa	D (32.10m) A (32.15m)
													32.25m-32.30m: BZ	
33												M	32.75m-32.85m: BZ	
										SW			Is(50)=1.30 MPa Is(50)=0.64 MPa	D (33.24m) A (33.26m)
												VC		
34											M	M		
												M	Is(50)=0.86 MPa Is(50)=0.65 MPa	D (34.60m) A (34.62m)
35										MW		M		
	78.50					100				SW			Is(50)=0.43 MPa Is(50)=0.53 MPa	D (35.30m) A (35.32m)
								Borehole completed at 35.55m						
36														
37														
38														
39														

REMARKS: Je1 - Evergreen Formation. Hole offset due to flowing river channel.

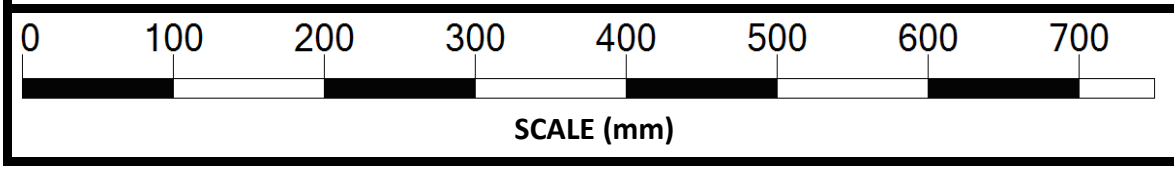
LOGGED BY	REVIEWED BY
M. Hayes	S. Foley

TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Queensland Government

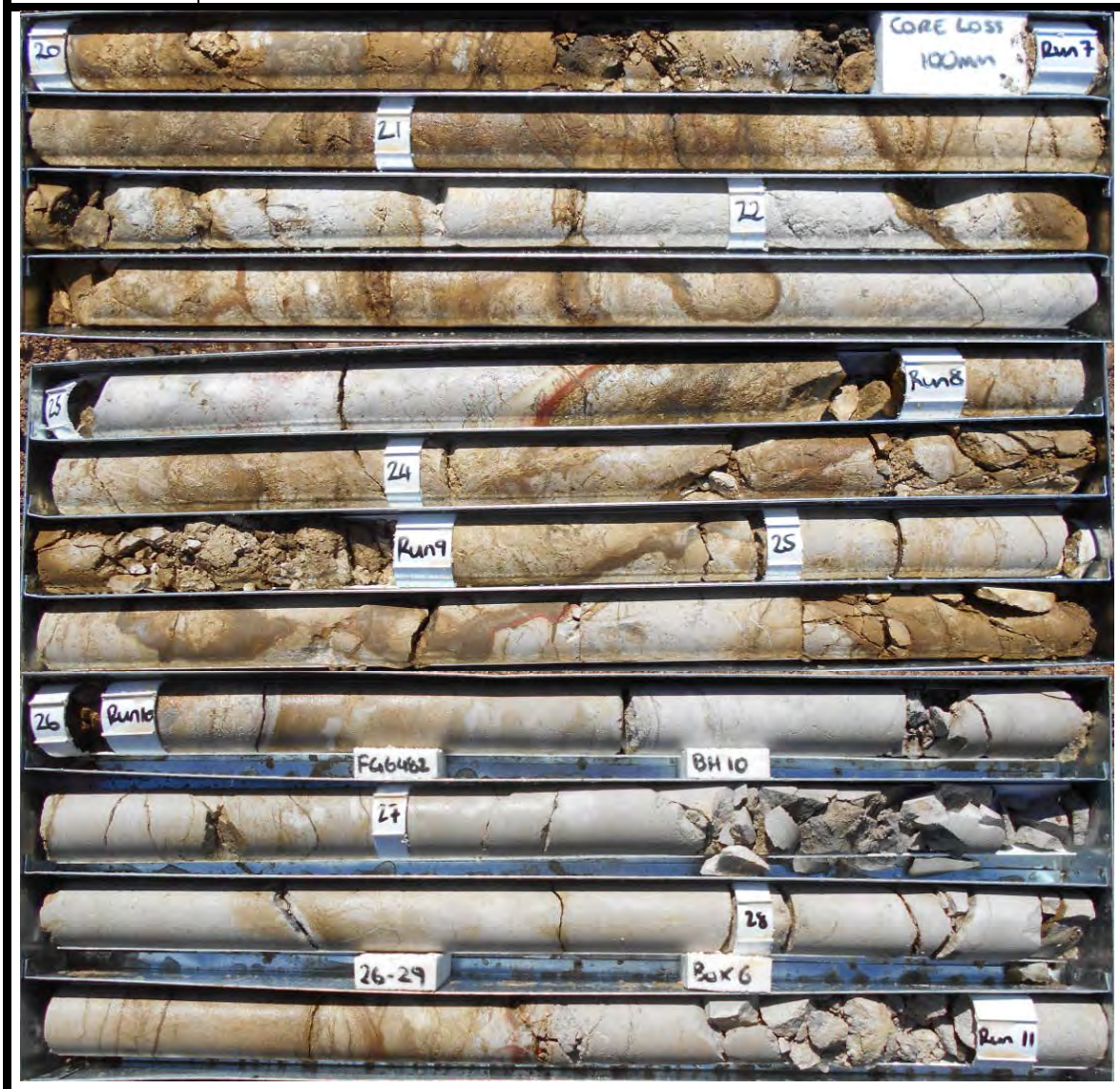
Project Name	**Boyne River Bridge Replacement**		
Project No.	FG6482	Date	04/09/17
Borehole No.	BH10	Reference No.	H12969
Location	Pier 4, RHS	Start Depth (m)	11.20
Submitted By	M. de Gee	Finish Depth (m)	35.55
Remarks			

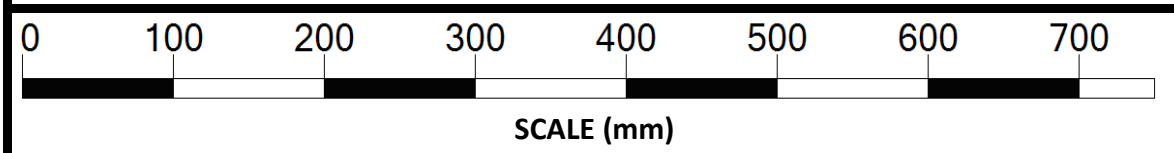


CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Queensland Government

Project Name	**Boyne River Bridge Replacement**		
Project No.	FG6482	Date	04/09/17
Borehole No.	BH10	Reference No.	H12969
Location	Pier 4, RHS	Start Depth (m)	11.20
Submitted By	M. de Gee	Finish Depth (m)	35.55
Remarks			





CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Queensland Government

Project Name	**Boyne River Bridge Replacement**		
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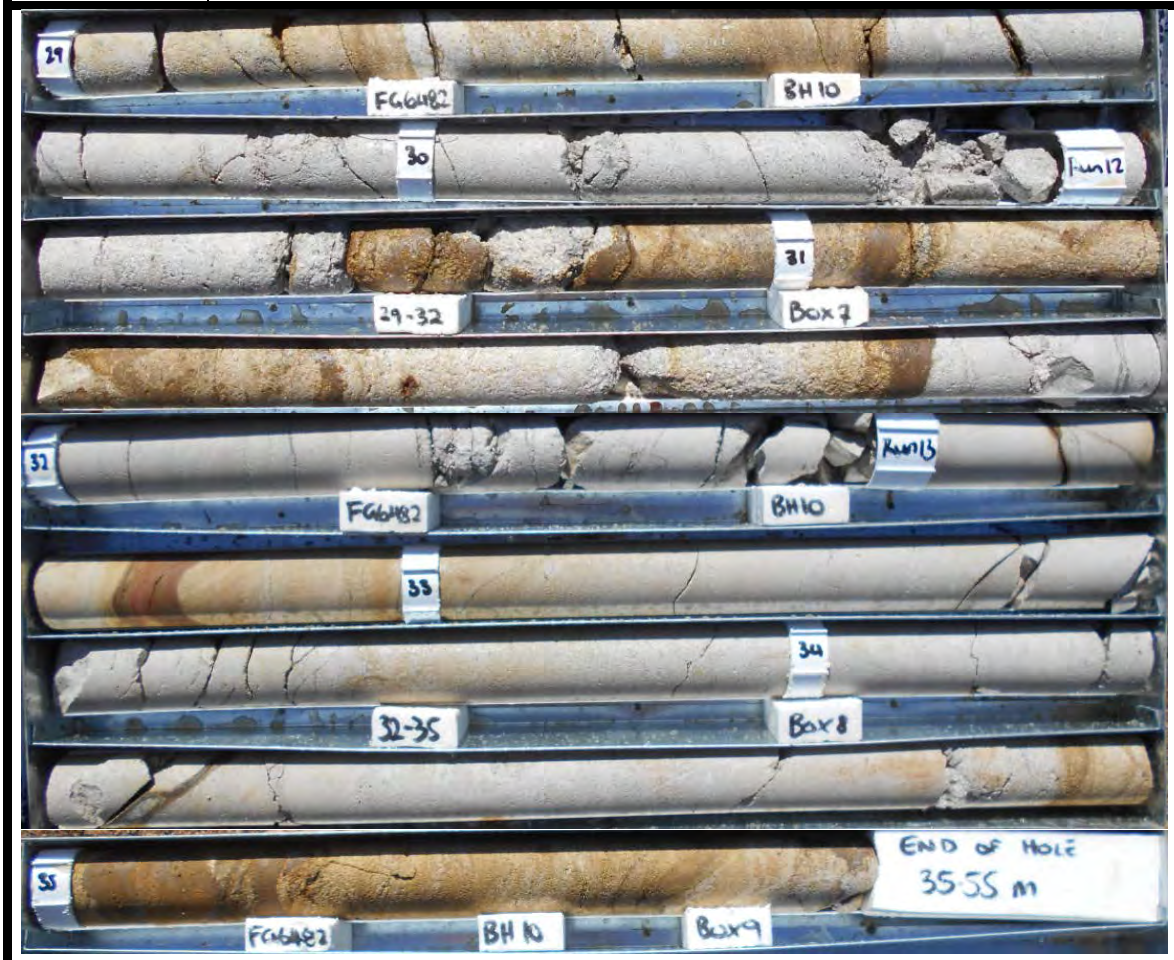
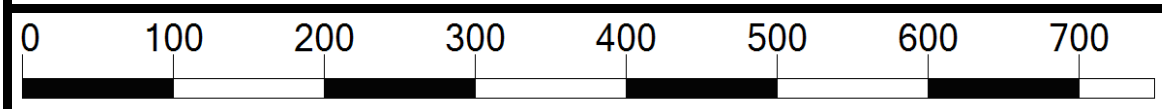
Submitted By	M. de Gee	Finish Depth (m)	35.55
Remarks			





SCALE (mm)