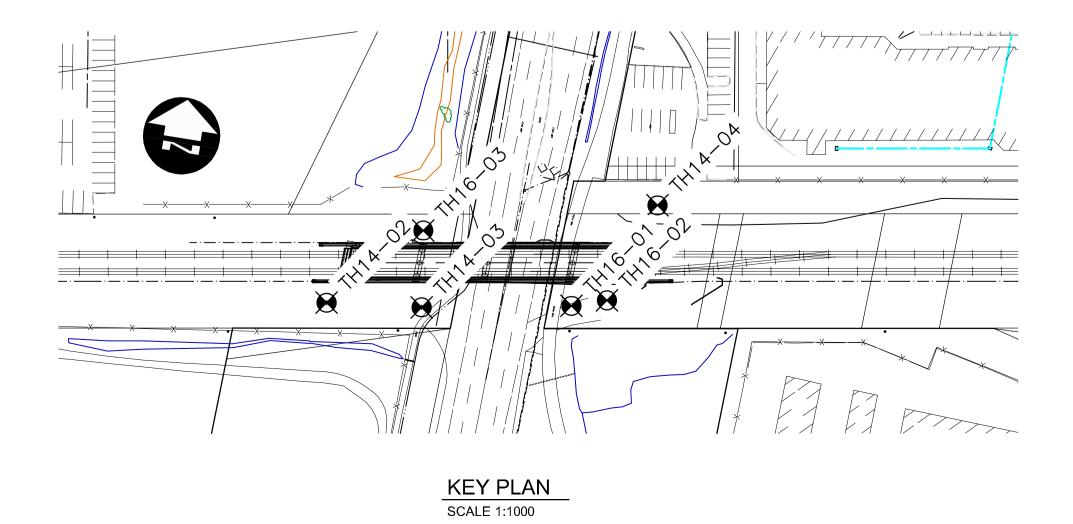


PROJECT: Waverley Underpass - Detailed Design  LOCATION: UTM: 14U,5523569 m N,630934 m E, 7.6 m south of			CN s	outh	track	·		PROJECT NO.: 60321148		
CONTRACTOR: Maple Leaf Drilling Ltd.  SAMPLE TYPE GRAB SHELBY TUBE				METHOD		I25 mm SSA/ HQ Coring ON ⊟BULK	O RECOVERY TORE	ELEVATION (m): 234.08		
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS	AR STRENGTH ne + 2 × ane □ Pen. △ ane •  O)	EI EVATION		
10	//		-			20 40 60 60 100 50 100	150 200	22		
-11				Т6				22		
-12		- some till inclusions, very soft below 12.3 m		S7	2 •	•	SPT Blows: (1,1,1) 100 % Recovery	22		
-13		Glacial Till (SILT)- some sand to sandy, some gravel to gravelly, trace to some clay						22		
-14		- light grey, very dense, moist to wet - low plasticity	X	S8	71		SPT Blows: (15,21,50) 44 % Recovery	220		
-15			<b>X</b>	S9	50/ 51mm	• >> <b>•</b>	SPT Blows: (50/51) 33 % Recovery	219		
-16			×	\$10	50/		CDT Player (50/54)	218		
-17	000000000000000000000000000000000000000			S10 G11	51mm		SPT Blows: (50/51) 66 % Recovery	217		
-18		LIMESTONE - very fine to fine grained - creamish white		S12	50/ 51mm	••••••••••••••••••••••••••••••••••••••	SPT Blows: (50/51) 10 % Recovery	216		
-19		- R3 - medium strong - laminated with fine grained SHALE - sub-horizontal bedding fracture - close to moderately closed spacing, gapped, clean - no evidence of water flow (class 2) - stepped to undulating, smooth to rough fractures		C1			C1 RQD: 64% C1 Recovery: 100 %	215		
20		- pinkish grey and white				LOGGED BY: Saba Ibrahim	COMPLETION DEPTH: 25.91	m		
	A <b>ECOM</b>					REVIEWED BY: Zeyad Shukri	COMPLETION DATE: 4/13/16	3		
						PROJECT ENGINEER: Zeyad Shukri	Pa	ge 2 of		

		Waverley Underpass - Detailed Design				Ilon Consulting Ltd. TESTHOLE NO: TH16-01	
LOCATION: UTM: 14U,5523569 m N,630934 m E, 7.6 m south of							
		TOR: Maple Leaf Drilling Ltd.		-		125 mm SSA/ HQ Coring ELEVATION (m): 234.08	
SAMF	PLE T	YPE GRAB SHELBY TUBE	X	SPL	IT SPO	ON BULK NO RECOVERY CORE	
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	16 17 18 19 20 21 Plastic MC Liquid (kPa)	ELEVATION
- 20	1222	done to widely enged undulating rough close to gapped				20 40 60 80 100 50 100 150 200	21/
- 20 - - -		- close to widely spaced, undulating, rough, close to gapped fractures		C2		C2 RQD: 66%	214
-				02		C2 Recovery: 100%	
							213
- - - -		- creamish grey - laminated with fine grained dark grey SHALE - planar fractures					
- -22 -				C3		C3 RQD: 23% C3 Recovery: 86%	212
- - - -							
-23 - -		<ul> <li>very close to closed spacing, close to gapped, clean</li> <li>stepped to undulating, smooth to rough fractures</li> </ul>					211
24		- R2 - weak - gapped to open, evidence of water flow (class 3)		C4		C4 RQD: 15% C4 Recovery: 100%	
		- creamish white					210
- - - -		<ul> <li>- Creamism white</li> <li>- R5 - very strong</li> <li>- sub-horizontal bedding fracture</li> <li>- close to moderately closed spacing, gapped to open , clean</li> </ul>					
25    		<ul><li>no evidence of water flow (class 2)</li><li>undulating to planar</li></ul>		C5		C5 RQD: 41% C5 Recovery: 100%, UCS=107.7 MPa	209
-		- prominent joint set between 25.4 to 25.6 m (20 to 45 degrees at core axis)  END OF TEST HOLE AT 25.9 m IN BEDROCK				303-107.7 WF a	
-26 -		Notes:  1. Power Auger Refusal at 18.3 m in Glacial TILL.					208
- - -		<ol> <li>Power Auger Refusal at 18.3 mill Gladial TILL.</li> <li>HQ coring below 18.3 m.</li> <li>No sloughing was observed upon drilling completion.</li> <li>No seepage was observed upon drilling completion.</li> </ol>					
27 27		5. Test hole backfilled with bentonite up to 1.0 m and plugged with auger cutting to ground surface.					207
-							
28 							206
- - - -							
- 29 							205
-							
A = COAA					<u> </u>	LOGGED BY: Saba Ibrahim COMPLETION DEPTH: 25.91 m	<u> </u>
		A=COM				REVIEWED BY: Zeyad Shukri COMPLETION DATE: 4/13/16 PROJECT ENGINEER: Zeyad Shukri Page 3	Of



					-	DII CON:	ENGINEER'S SEAL  R.B.		
					DESIGNED BY	RE	CHECKED BY	SSR	ERIC Member 22665
APEGIN OF Authorization					DRAWN BY	DB	APPROVED BY	DBW	
Certificate of Authorization  Dillon Consulting Limited (MB)  No. 1789 Date: 2017/01/09	0	ISSUED FOR TENDER	17/01/09	RE	HOR. SCALE VERTICAL	AS SHOWN AS SHOWN	RELEASED FOR CONSTRUCTION		CONSULTANT PROJECT NUMBER
No. 1789 Date: 2017/01/09	NO.	REVISIONS	DATE	BY	DATE		DATE		16-3353

THE INFORMATION ON THIS DRAWING HAS BEEN EXTRACTED FROM THE PRELIMINARY DESIGN GEOTECHNICAL REPORT PREPARED BY AECOM CANADA LTD, DATED JANUARY 2015 AND THE MEMORANDUM TITLED SUMMARY OF BEDROCK INVESTIGATION IN THE VICINITY OF THE PROPOSED CN BRIDGE- WAVERLEY STREET UNDERPASS PROJECT PREPARED BY AECOM CANADA LTD, DATED NOVEMBER 23, 2016. IN THE EVENT OF A DISCREPANCY BETWEEN THESE GEOTECHNICAL REPORTS AND THE INFORMATION PROVIDED ON THIS DRAWING, THE ORIGINAL GEOTECHNICAL REPORTS SHALL GOVERN. THE CONTRACTOR IS STRONGLY URGED TO REVIEW ALL AVAILABLE GEOTECHNICAL DATA.

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	Winnipeg
WEER	WAVERLEY STRE

## THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT

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WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB CONTRACT 2: UNDERPASS STRUCTURE, RAILWORKS,	CITY DRAWING NUMBER U-239-2016-C2-CS-011			
ROADWORKS, LAND DRAINAGE SEWER, PUMPING STATION AND LANDSCAPING WORKS	SHEET OF 085			
	CONSULTANT DRAWING NUMBER			
BORING LOGS - SHEET 5	C2-CS-011			