

		Route 90 Extension	C	LIE	NT: [illor	Consulting	Ltd.					STHOLE NO: TH12-0	
		East Abutment (N: 5518994, E: 630311)	T.				u 5 =c / :		20.2	105			OJECT NO.: 6028208	
	PLE TY	FOR: Paddock Drilling Ltd. ✓PE GRAB SHELBY TUBE		_	<u>HOD:</u> LIT SP(oile B-59 / <i>A</i> ⊟BU		SS-3, <i>*</i>		n SSA ∕NORI	_	EVATION (m): 232.93 RY TOORE	
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE		•		PENETRATION # Becker Dynamic C SPT (Standard F (Blows/300 40 6) Total Unit (kN/m³)	TESTS) ◆	RAINED \$ + To La Poo	SHEAR ST prvane + QU × b Vane □ kket Pen. A kld Vane €	RENGTH		i i
15				G1:	80/		20 40 60	80	100	50	100 1	150 200	- 80 blows/150mm	
 		- power auger refusal at 15.39 m bgs - grey, cobbles to boulder below 15.39 m/ - dense to very dense	-	C11	152111	m							- Core Recovery: 41%	2
17				C18	3								- Core Recovery: 44%	2
- - - - - - - - - -				S19	A 33								- 23,20,13 blows/150 mm	2
19		LIMESTONE (Bedrock)		C19									- SPT Recovery: 83% - C19B RQD: 13% - Core Recovery: 51%	2
- - - 20		 yellowish grey, pockets of softer yellow, core angle: 90 degrees fine grained, no foliation close spacing, slightly altered faces, rough undulating joints R3, medium strong vuggy 		C19	C								- Core Recovery: 0%	2
21				S19				•					- 15,21,51 blows/150 mm - SPT Recovery: 47%	2
- 22		- oxidized, R2, weak to 22.25 m - laminated, evidence of water flow below 22.25 m		C20									- C20 RQD: 12% - Core Recovery: 79%	2
23 23		- white, R3, medium strong - gapped fractures (180 degrees to core axis) below 22.86 m - close spacing, unaltered, smooth planar faces												2
24		- close spacing, unancied, smooth planar faces		C2	1								- C21 RQD: 41% - Core Recovery: 85%	2
25				C22	2								- C22 RQD: 26% - Core Recovery: 100%	2
26				C2:	3								- C23 RQD: 82%	2
-27		END OF TEST HOLE AT 27.43 m IN BEDROCK												2
28 		Notes: 1. Power auger refusal at 15.39 m below ground surface in TILL. 2. HQ coring below 15.39 m. 3. Zero percent core recovery from 19.81 to 21.34 m below												2
29		ground surface. 4. Seepage observed at 14.33 m below ground surface. 5. Test hole grouted up to 0.31 m and sealed with bentonite chips to ground surface. 6. BGS - "below ground surface".												2
<u> 30 </u>		A=COM				R	OGGED BY: EVIEWED BY ROJECT ENG	/: Zeya	ad Shul		C		ETION DEPTH: 27.43 m ETION DATE: 11/29/12 Page	

	CT: Route 90 Extension		IEŅT	Dillon Consulting Ltd.		STHOLE NO: TH12-05		
	ON: East embankment side slope toe (N: 5519022, E: 63					OJECT NO.: 6028208		
	ACTOR: Paddock Drilling Ltd.			: Mobile B-59, 125 mm SSA		EVATION (m): 233.20		
SAMPLE	TYPE GRAB SHELBY TUBE		SPLIT	POON BULK	NO RECOVER	RY CORE	1	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	PENETRATION TESTS # Becker # ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 ■ Total Unit Wt ■ (kN/m²) 16 17 18 19 20 21 Plastic MC Liquid 20 40 60 80 100	ANNED SHEAR STRENGTH + Torvane + × QU × □ Lab Vane □ △ Pocket Pen. △ ♣ Field Vane ♣ (kPa) 50 100 150 200	COMMENTS	NOITAVA IA	
0	CLAY (Fill) - silty, trace organic, trace sand - brown, moist, stiff - intermediate plasticity				30 100 130 200		23	
-1 Ž	CLAY - trace silt - brown, moist, firm - high plasticity	<i>-</i> /	G50	1 0 -1.		- Gravel: 0.1%, Sand: 13.0%, Silt: 59.2%, Clay: 27.7%	23	
-2	SILT - light brown, moist, firm to stiff - intermediate plasticity CLAY		T51			- Tube Recovery: 100%	23	
-3	- brown, moist, stiff - high plasticity - greyish brown below 3.35 m	:	S52	•	L	- 2,2,3 blows/150 mm - SPT Recovery: 100%	23	
-4	- sand seam (102 mm thick) - silt inclusions to 9.14 m						22	
-5	- grey, firm to soft	_	T53			- Tube Recovery: 100%	22	
6			G54	•			22	
7							22	
-8			S55		L	- 2,2,3 blows/150 mm - SPT Recovery: 100%	22	
9	- silt lens up to 13 mm thick		G56				22	
-10							22	
-11	END OF TEST HOLE AT 11.28 m IN CLAY		T57			- Tube Recovery: 100%	22	
-12	Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings and sealed with bentonite chips upon completion.						22	
-13							22	
-14							21	
15								
	AECOM			LOGGED BY: Samuel O.		ETION DEPTH: 11.28 m		
	A=CU/YI			REVIEWED BY: Zeyad Shukr PROJECT ENGINEER: Zeyad		COMPLETION DATE: 11/29/12 Page 1 of		

TH12-04 (1 OF 2) TH12-04 (2 OF 2) TH12-05

NOTES:

- 1. THE TEST HOLE LOGS TH12-01, TH12-02, TH12-03, TH12-04 & TH12-05 PROVIDED FOR THIS PROJECT HAVE BEEN COMPILED FOR DESIGN PURPOSES ONLY. WHILE IT IS BELIEVED TO CORRECTLY REPRODUCE OR SUMMARIZE OBSERVATIONS MADE DURING TESTING, THE INFORMATION IS VALID ONLY FOR THE PRECISE LOCATIONS SHOWN AND IS NOT TO BE CONSTRUED AS GUARANTEEING THE ACTUAL MATERIALS AND CONDITIONS EXISTING THROUGHOUT THE SITE, THE TESTING METHODS USED MAY NOT HAVE DETERMINED THE PRESENCE, ABSENCE OR EXTENT OF BOULDERS, HARD OR SOFT FORMATIONS, WATER TABLES, ARTESIAN CONDITIONS AND OTHER VARIABLES. IT IS THE RESPONSIBILITY OF OTHERS USING THIS INFORMATION TO ENSURE THAT IT IS ADEQUATE FOR THEIR PURPOSES OR TO SUPPLEMENT IT WITH ADDITIONAL INFORMATION.
- 2. TEST HOLE LOGS ARE SHOWN FOR DESIGN PURPOSES ONLY. THE INFORMATION IS COMPILED FOR CONVENIENCE FROM THE "ROUTE 90 - GEOTECHNICAL INVESTIGATION, FEBRUARY 2013", PROVIDED BY AECOM. ALL DISCLAIMERS IN THIS REPORT ARE APPLICABLE. ADDITIONAL INFORMATION IS AVAILABLE IN THE REPORT AND IN CASE OF DISCREPANCY, THE GEOTECHNICAL REPORT GOVERNS.

UNDERGROUND STRUCTURES	B.M. ELEV.	_	DESIGNED BY N/A		ENGINEER'S SEAL	ENGINEER'S SEAL	THE CITY OF W	VINNIPEG
SUPV. U/G STRUCTURES DATE			DRAWN BY N/A				Winnipeg PUBLIC WORKS DE	PARTMENT
COMMITTEE			CHECKED BY N/A	DILLON			WAVERLEY WEST ARTERIAL ROADS PROJECT (WWARP) PART 3 - CONTRACT 2	CITY DRAWING NUMBER B242-13-07
NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. BUT NO GUARANTEE IS GIVEN			APPROVED BY N/A	CONSULTING			,	SHEET 07 OF 128
THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.	0 ISSUED FOR TENDER 1	3/08/08 MBL	HOR. SCALE AS SHOWN VERTICAL	RELEASED FOR CONSTRUCTION		ROJECT NUMBER	BORING LOGS 4 OF 4	CONSULTANT DRAWING NUMB
BEFORE PROCEEDING WITH CONSTRUCTION.	NO. REVISIONS	DATE BY	DATE 2013/08/01	DATE	12-	6606		

APEGIN Certificate of Authorization Dillon Consulting Limited (MB) No. 1789 Date: 2013/08/01