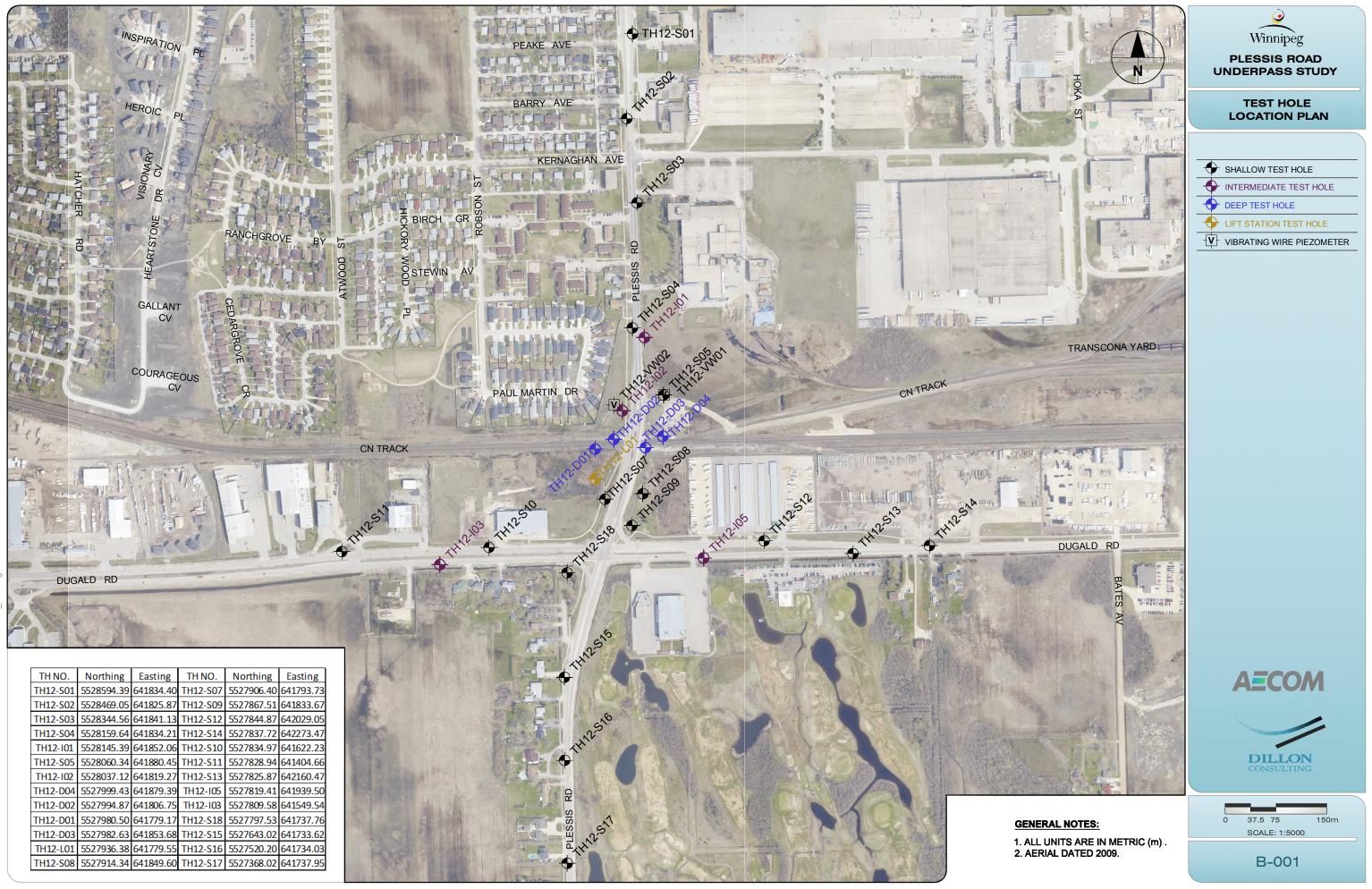
APPENDIX 'A'

GEOTECHNICAL REPORT



AECOM Canada Ltd.

GENERAL STATEMENT

NORMAL VARIABILITY OF SUBSURFACE CONDITIONS

The scope of the investigation presented herein is limited to an investigation of the subsurface conditions as to suitability for the proposed project. This report has been prepared to aid in the evaluation of the site and to assist the engineer in the design of the facilities. Our description of the project represents our understanding of the significant aspects of the project relevant to the design and construction of earth work, foundations and similar. In the event of any changes in the basic design or location of the structures as outlined in this report or plan, we should be given the opportunity to review the changes and to modify or reaffirm in writing the conclusions and recommendations of this report.

The analysis and recommendations presented in this report are based on the data obtained from the borings and test pit excavations made at the locations indicated on the site plans and from other information discussed herein. This report is based on the assumption that the subsurface conditions everywhere are not significantly different from those disclosed by the borings and excavations. However, variations in soil conditions may exist between the excavations and, also, general groundwater levels and conditions may fluctuate from time to time. The nature and extent of the variations may not become evident until construction. If subsurface conditions differ from those encountered in the exploratory borings and excavations, are observed or encountered during construction, or appear to be present beneath or beyond excavations, we should be advised at once so that we can observe and review these conditions and reconsider our recommendations where necessary.

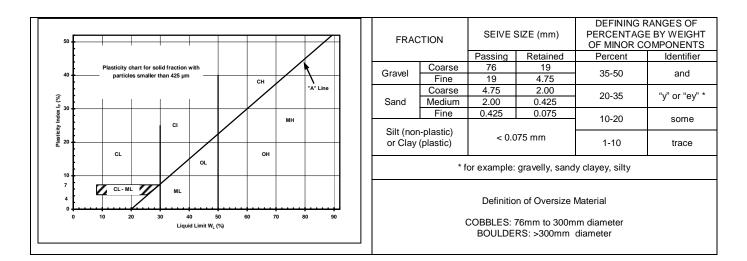
Since it is possible for conditions to vary from those assumed in the analysis and upon which our conclusions and recommendations are based, a contingency fund should be included in the construction budget to allow for the possibility of variations which may result in modification of the design and construction procedures.

In order to observe compliance with the design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated, we recommend that all construction operations dealing with earth work and the foundations be observed by an experienced soils engineer. We can be retained to provide these services for you during construction. In addition, we can be retained to review the plans and specifications that have been prepared to check for substantial conformance with the conclusions and recommendations contained in our report.

EXPLANATION OF FIELD & LABORATORY TEST DATA

					AECOM	USCS		Laborator	y Classification Crite	eria
		Descripti	on		Log Symbols	Classification	Fines (%)	Grading	Plasticity	Notes
		CLEAN GRAVELS	Well graded sandy gravels or no fi	, with little	220	GW	0-5	C _U > 4 1 < C _C < 3		
	GRAVELS (More than 50% of coarse	(Little or no fines)	Poorly graded sandy gravels or no fi	, with little		GP	0-5	Not satisfying GW requirements		Dual symbols if 5-
OILS	fraction of gravel size)	DIRTY GRAVELS	Silty gravels, s grave			GM	> 12		Atterberg limits below "A" line or W _P <4	12% fines. Dual symbols if above "A" line and
AINED SC		(With some fines)	Clayey grave sandy gr			GC	> 12		Atterberg limits above "A" line or W _P <7	4 <w<sub>P<7</w<sub>
COARSE GRAINED SOILS		CLEAN SANDS	Well graded gravelly sands or no fi	s, with little		SW	0-5	C _U > 6 1 < C _C < 3		$C_{U} = \frac{D_{60}}{D_{10}}$
CO/	SANDS (More than 50% of	(Little or no fines)	Poorly grade gravelly sands or no fi	s, with little	000	SP	0-5	Not satisfying SW requirements		$C_{U} = \frac{D_{60}}{D_{10}}$ $C_{C} = \frac{(D_{30})^{2}}{D_{10} x D_{60}}$
	coarse fraction of sand size)	DIRTY SANDS	Silty sand-silt m			SM	> 12		Atterberg limits below "A" line or W _P <4	
		(With some fines)	Clayey s sand-clay n			SC	> 12		Atterberg limits above "A" line or W _P <7	
	SILTS (Below 'A' line	W _L <50	Inorganic silf clayey fine sa slight pla	ands, with		ML				
	negligible organic content)	W _L >50	Inorganic sil plastic			МН				
SOILS	CLAYS	W _L <30	Inorganic cla clays, sandy low plasticity,	clays of		CL				
FINE GRAINED SOILS	(Above 'A' line negligible organic	30 <w<sub>L<50</w<sub>	Inorganic clay clays of m plastic	iedium		CI			Classification is Based upon Plasticity Chart	
FINE (content)	W _L >50	Inorganic cla plasticity, fa	, ,		СН				
	ORGANIC SILTS & CLAYS	W _L <50	Organic si organic silty cl plastic	lays of low		OL				
	(Below 'A' line)	W _L >50	Organic clay plastic			ОН				
н		INIC SOILS	Peat and oth organic			Pt		on Post fication Limit		r odour, and often s texture
		Asphalt			Till					
		Concrete			Bedrock fferentiated)				AE	MOC
X	\bigotimes	Fill			Bedrock mestone)					

When the above classification terms are used in this report or test hole logs, the designated fractions may be visually estimated and not measured.



LEGEND OF SYMBOLS

Laboratory and field tests are identified as follows:

- qu undrained shear strength (kPa) derived from unconfined compression testing.
- T_v undrained shear strength (kPa) measured using a torvane
- pp undrained shear strength (kPa) measured using a pocket penetrometer.
- L_v undrained shear strength (kPa) measured using a lab vane.
- F_v undrained shear strength (kPa) measured using a field vane.
- γ bulk unit weight (kN/m³).
- SPT Standard Penetration Test. Recorded as number of blows (N) from a 63.5 kg hammer dropped 0.76 m (free fall) which is required to drive a 51 mm O.D. Raymond type sampler 0.30 m into the soil.
- DPPT Drive Point Pentrometer Test. Recorded as number of blows from a 63.5 kg hammer dropped 0.76 m (free fall) which is required to drive a 50 mm drive point 0.30 m into the soil.
- w moisture content (W_L, W_P)

The undrained shear strength (Su) of a cohesive soil can be related to its consistency as follows:

Su (kPa)	CONSISTENCY
<12	very soft
12 – 25	soft
25 - 50	medium or firm
50 - 100	stiff
100 – 200	very stiff
200	hard

The resistance (N) of a non-cohesive soil can be related to compactness condition as follows

N – BLOWS/0.30 m	COMPACTNESS
0 - 4	very loose
4 - 10	loose
10 - 30	compact
30 - 50	dense
50	very dense

CONTRACTOR: Maple Leaf Drilling Ld. METHOD: Model B-40, 125 rm SSA ELEVATION (m): 232.7 SAMPLE TYPE GRAd		STHOLE NO: TH12-D DJECT NO.: 6027304			g	/innipe	y of \	T: Cit awn			sis Road Underpass ssis South Bound/CN Rail Inter			
BACKFILL TYPE DENTONITE GRAVEL Isource GOUT CUTTINGS SAND Image: Solution of the second seco	0		A ELE	SSA			Nobil							
Image: Second									_	E				
End of the second of the se					_	_	1	LOUGH]]s	GRAVEL	BENTONITE	YPE	FILL 1	ACK
0 SAMD (FII) - some gravel, some clay - brown, dv CLAY (FII) - bace sand, trace gravel -gev, dv, firm - gev, dv, firm - Intermediate plasticity S147 - Intermediate plasticity S148 - S S148 - G S148 - S S148 - Intermediate plasticity S149 - Intermediate plasticity S150 - Intermediate plasticity S150 - Intermediate plasticity S150 <		COMMENTS	+ Torvane + XQU × Lab Vane □ A Pocket Pen. A € Field Vane € (kPa)	est) ♦ 80 100 0 21	ecker ¥ mic Cone dard Pen Te s/300mm) 60 8 I Unit Wt ■ N/m) 19 20 MC Liqui	₩ E ◇ Dyna PT (Stan (Blow 20 40 Tota (17 18 Plastic	- <u>0</u> 5	SAMPLE # SPT (N)		CRIPTION	SOIL DESCRIF	PIEZOMETER	SOIL SYMBOL	DEPTH (m)
1 • grey, dry, frm 2 CLAV • grey, dry, frm • S147 • • • • • • • • • • • • • • • • • • •		2 <u></u>								ne clay	SAND (Fill) - some gravel, some clay - brown, dry)
2 grey, dry, frm - intermediate plasticity 3 4 5 6 7 8 9 11 1 1 1 1 1 1 1 1	2				· · · · · · · · · · · · · · · · · · ·	•		146	G	gravel	CLAY (Fill) - trace sand, trace gravel - grey, dry, firm		\bigotimes	
 4 5 6 7 8 9 11 ■ 	2	- 3, 3, 3 blows/150 mm - SPT Recovery: 20%						47 6	s		- grey, dry, firm			2
5 → SPT Recovery: 100% 6 → SPT Recovery: 100% 7 → S	2	- 3, 0, 2 blows/150 mm - SPT Recovery: 100%			•			48 2	s	2				5
 - spT Recovery: 100% - trace silt inclusions, moist, soft below 7.62 m - spT Recovery: 100% - spT Recovery: 100% - 2, 1, 2 blows/150 mm - SpT Recovery: 100% - 2, 1, 2 blows/150 mm 	2	- 2, 1, 2 blows/150 mm - SPT Recovery: 100%	Δ		•			49 3	s					÷
8 9 10 11 11 11 11 10 11 10 11 10 11 10 10								50 4	s	Z				,
		- 2, 1, 2 blows/150 mm - SPT Recovery: 100%						51 3	s	oft below 7.62 m	- trace silt inclusions, moist, soft below			8
	2	- 2, 1, 2 blows/150 mm			•				Y					0
12 13 14	2											⊻		1
	2	- - - - - - - -						154	G					2
														3
	:												4	
15 LOGGED BY: Sam O. COMPLETION DEPTH: 23.77				0	RV. Com	GGED								5
AECOM REVIEWED BY: Sam O. COMPLETION DATE: 12/10/20											ΔΞϹΟΜ			

LOCA	ATION	I: Ple	sis Road Underpass ssis South Bound/CN Rail	Intersection, West Sh	oulde	er Lav				0					PRC	STHOLE NO: TH12-D DJECT NO.: 6027304	1
CON	TRAC	CTOR:	Maple Leaf Drilling Ltd.							125 m		A			ELE	VATION (m): 232.70	
SAMP	PLE T	YPE	GRAB	SHELBY TUBE	<u> </u>		IT SPC	ON		BUL			<u> </u>	NO RE			
BACK	FILL	TYPE	BENTONITE	GRAVEL]]slo	UGH			GRO	UT	1	\square	CUTTI	NGS	SAND	
DEPTH (m)	SOIL SYMBOL	SLOTTED PIEZOMETER	SOIL DESC	RIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	◆ SP 0 2 16 17	¥ B	IUnitWt (N/m ³) 19 MC Li	e ◇ Test) ◆) 80 10	<u>0</u> 1	×C □Lab △Pocke ♥Field (kl	vane + tU × Vane □ et Pen. ∠ Vane ® Pa)	7	COMMENTS	
15						G155	i							1 - 			
·16										· · · · · · · · · · · · · · · · · · ·							2
17			- some sand, trace gravel			G156			•								2
18			LIMESTONE DOLOMITIC (Bee	irock)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	S157	55/ 152mn	1	D			•				- 55 blows/150 mm	2
19			 light grey to white, mottled yel degrees fine to medium grained, no fo moderately close spacing, rou slightly altered joints 	liation ugh undulating joints,		-						· · · · · · · · · · · · · · · · · · ·	•				2
20			 Ř2 to R3 (weák to medium st fossiliferous, vuggy fractured to 20.73 m below gr 	-		C1										- C1 RQD: 9% - Core Recovery: 45%	2
21						C2										- C2 RQD: 71% - Core Recovery: 87%	2
22						_							•••••••••••••••••••••••••••••••••••••••				2
23			END OF TEST HOLE AT 23.77			C3				••••••	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	•••••••			- C3 RQD: 96% - Core Recovery: 100%	2
24			Notes: 1. Power auger refusal at 19.20 on BEDROCK. 2. HQ coring below 19.20 m.) m below ground surface													2
25 26			3. Seepage observed at 18.41 4. Installed 25 mm diameter sta (SP12-02) to 21.34 m with 3.05 0.90 m stick-up. Above ground	andpipe piezometer 5 m of screen bottom, and protective casing installed	I.												2
20			 Test hole backfilled with san from 17.83 to 13.72 m, plugged backfilled with auger cuttings to bentonite to ground surface. Ground water monitoring: 	d with bentonite to 12.19 m 0 0.61 m and sealed with	1,						· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			· · · · ·	
28			- October 26, 2012 at 10.60 - October 31, 2012 at 10.40	m (Elev. xxx) m (Elev. xxx)													
29											· · · · · · · · · · · · · · · · · · ·		• • • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·			:
30													· · · · · · · · · · · · · · · · · · ·				
			AECOM							BY: Sa D BY: (ETION DEPTH: 23.77 m ETION DATE: 12/10/26	1
												l Shukri			Page	2	

					City	of Wi	nnipeg			Hole No: TH12-D	
		I: Plessis South Bound/CN Rail Intersection, West Shou						-		ECT NO.: 6027304	1
							3-40, 125 mm SSA			ATION (m): 232.99	
SAMP	PLE TY	(PE GRAB SHELBY TUBE		JSPLI	T SPO	1	BULK		ECOVERY	CORE	1
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	◆ SP 0 20 16 17	■ Total Unit Wt ■ (kN/m³) 18 19 20 21 astic MC Liquid	□ Lab Vane □ ○ △ Pocket Pen. / � Field Vane ✔ 1 (kPa)		COMMENTS	ELEVATION (m)
0		SAND - gravelly, trace organics - brown to black, moist to wet, loose to compact		G96							232
2		CLAY - grey, moist to wet, stiff		G97			•				231
3		- trace roots, black, wet, toxic odour, steel bar debris up to 3.96 m									23
4		- trace organics, moist to wet		G99 T100				XA			22
5				G101	-		•				22
7		- soft, wet below 7.01 m		G102			•				22
8				T103							22
9 10 11 12 13 14		- trace silt inclusions (< 5 mm dia.)		G104			•				22
1			$\left \right $	G105 T106							2:
2				G107					·		2
3				G107							2
4				T109				Δ.			2
5							GED BY: Sam O.			ION DEPTH: 21.95 m	
		AECOM					IEWED BY: Omer E JECT ENGINEER: 2			ION DATE: 12/10/22 Page	1 (

			ad Underpass	ail Intersection, West Sh			City	of Winnipe	eg		_	THOLE NO: TH12-D0 DJECT NO.: 6027304	
			e Leaf Drilling Ltd). Mo	hilo R-10	125 mm SS	٨	_	VATION (m): 232.99	1
SAMP		· · · · · ·		SHELBY TUBE			T SPO			A NO R			
SAIVIP		IPE	GRAB			JSPLI	I SPU	`					1
DEPTH (m)	SOIL SYMBOL		SOIL DESC	RIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	₩ E	MC Liquid	□ Lab Vane [0 △ Pocket Pen.	- 	COMMENTS	
15													
-16						G110							21
-17						G111 G112							2
18						0112							2
19		- fine to media	white, core angle: 90 um grained, no foliation	on							•••••••••••••••••••••••••••••••••••••••		2
20		 close spacin 	ng, rough undulating eak to medium stron , filled vuggs	joints, slightly altered joints		C1						- C1 RQD: 26% - Core Recovery: 66%	
21						C2			· · · · · · · · · · · · · · · · · · ·			- C2 RQD: 72% - Core Recovery: 100%	2
22	<u> </u>	Notes:	T HOLE AT 21.95 m	IN BEDROCK below ground surface on							•••••••••••••••••••••••••••••••••••••••		2
23		BEDROCK. 2. HQ coring 3. Test hole q	below 18.90 m. prouted up to 13.72 m	, plugged with bentonite from h auger cuttings to ground									2
24		surface.		0 0 0									2
25											· · · · · · · · · · · · · · · · · · ·		2
26													2
27											•••••••••••••••••••••••••••••••••••••••		2
28											· · · · · · · · · · · · · · · · · · ·		2
29													2
30									· · · · · · · · · · · · · · · · · · ·				
									BY: Sam O.			ETION DEPTH: 21.95 m	
			A <u>E</u> CO/					REVIEWE	D BY: Omer I	Fissa	COMPL	ETION DATE: 12/10/22	

		Plessis Road Underpass	_		City	of W	'innipeg				OLE NO: TH12-D	
		I: Plessis North Bound/CN Rail Intersection, East Sh	_		יע יי	hilo	B-40, 125 mm	501	۸		CT NO.: 6027304 ²	1
	PLE TY	TOR: Maple Leaf Drilling Ltd. (PE GRAB SHELBY TUBE			J: IVIC IT SPO		B-40, 125 mm BULK	JSF	A NO RE		FION (m): 233.28	
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	(N) TAS	◆ S 0	PENETRATION TEST	est) ♦ 0 100	UNDRAINED SHEAR STR + Torvane + × QU × □ Lab Vane □ △ Pocket Pen. △ ♥ Field Vane ♥ (kPa)	ENGTH	COMMENTS	
0		SAND (Fill) - some gravel - dark brown, moist to dry							50 100 15	50 200		2
1		CLAY (Fill) - some sand, trace gravel - black to brown, moist to dry		G113			•					2
2		CLAY - dark brown, dry, firm - intermediate plasticity		G115								
5		- some silt, light brown		T116								
•				G117								
		- grey, firm to stiff		G118								
,		- moist to wet, soft below 6.01 m		T119								
				G120			•					
1				G121								
0		- firm to soft below 9.60 m		T122								
1				G123			•					
2				G124								
3				T125								
4				G126								
5						LO	GGED BY: Sam	0.	C	OMPLETIC	ON DEPTH: 22.25 m	
		AECOM				RE	VIEWED BY: Or DJECT ENGINE	ner E	Eissa C		ON DATE: 12/10/23 Page	

		: Plessis Road Underp N: Plessis North Bound		tersection Fact Sh		ENT:	City	of Wi	nnipeg			THOLE NO: TH12-DO	
		CTOR: Maple Leaf Drill			_)∙ Mr	hile F	3-40, 125 mm SS/	Δ	_	VATION (m): 233.28	1
SAMP			ing Liu.	SHELBY TUBE			IT SPC		BULK		RECOVE		
SAIVIE								1					
DEPTH (m)	SOIL SYMBOL	soil d	DESCRII	PTION	SAMPLE TYPE	SAMPLE #	SPT (N)	◆ SP 0 2 16 17		+ Torvane - ×QU× □Lab Vane △ Pocket Pen ♥ Field Vane (kPa)	+ ⊐ . △	COMMENTS	
15												-	2
-16											•••••••••••••••••••••••••••••••••••••••		2.
-17						G127					· · · · · · · · · · · · · · · · · · ·		2
18		- some gravel, trace cobble	es below 17.9	8 m		G128			•				2
19		LIMESTONE DOLOMITIC - light grey to white, mottle - fine to medium grained, r - close spacing, rough und	d yellow, core no foliation lulating joints,			C1					•••••••••••••••••••••••••••••••••••••••	- C1 RQD: 73%	2
20		 R2 to R3 (weak to mediu fossiliferous, vuggy healed joint slightly altered joint below 	um strong)	· · · ·							•••••••••••••••••••••••••••••••••••••••	- Core Recovery: 92%	2
21		- rough planar joint				C2						- C2 RQD: 60% - Core Recovery: 94%	2
22	200	END OF TEST HOLE AT 2 Notes: 1. Power auger refusal at 7 BEDROCK.									•••••••••••••••••••••••••••••••••••••••		2
23		 2. HQ coring below 18.90 i 3. Test hole backfilled with 	m. I bentonite an	d auger cuttings.							· · · · · · · · · · · · · · · · · · ·	· · ·	2
24													2
25											•••••••••••••••••••••••••••••••••••••••		2
26													2
27													2
28											•••••••••••••••••••••••••••••••••••••••		2
29													2
30								1		·····			
		AEC							GED BY: Sam O. IEWED BY: Omer E			ETION DEPTH: 22.25 m ETION DATE: 12/10/23	
									JECT ENGINEER:		JOWIL	Page	2

		Plessis Road Underpass		_		_	of V	/innipeg			_	STHOLE NO: TH12-DO	
		I: Plessis North Bound/CN Rail	Intersection, East Sh				h !! -				-	DJECT NO.: 6027304	1
		TOR: Maple Leaf Drilling Ltd.						B-40, 175 mm l	HSA			VATION (m): 233.08	
SAMP	PLE TY	(PE GRAB	SHELBY TUBE		JSPL	T SPO	ON	BULK					
DEPTH (m)	SOIL SYMBOL	SOIL DESCR	RIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)		Total Unit Wt (kN/m ³) 17 18 19 20 Plastic MC Liquid	st) ♦ 0 100 21	♣ Field Vane ♣ (kPa)		COMMENTS	
0		TOPSOIL - some gravel, trace sand - black, dry			G129			•				· · ·	
1		CLAY - grey, dry, firm - intermediate plasticity							· · · · · · ·			· · ·	2
2		SILT			G131				· · · · · ·	· · · · · · · · · · · · · · · · · · ·			2
3		- light brown, moist to wet, soft			G132								2
4		CLAY - grey, dry, stiff - intermediate plasticity							· · · · · · ·				2
5					T133				1	Δ		Gravel: 0%, Sand: 6.6%, Silt: 21.4%, Clay: 72.0%	2
6		- firm below 6.01 m			G134				· · · · · · ·				2
7					G135				· · · · · ·				2
8					T136				· · · · · · ·				2
9		- trace silt inclusions, moist to wet, so	ft below 9.14 m		G137								2
10					G138				· · · · · ·			· · · ·	
11					T139					A		· · · ·	2
12					G140				· · · · · ·			- - - - - - -	
3					G141				· · · · · · ·				
4					T142				· · · · · · · · · · · · · · · · · · ·			· · ·	
15										·····			
			•		1	1	LO	GGED BY: Sam (0.	C(OMPL	ETION DEPTH: 23.77 m	
		AECOM						VIEWED BY: Om				ETION DATE: 12/10/24	

		Plessis Road Underpass				of W	'innipeg					STHOLE NO: TH12-D	
		I: Plessis North Bound/CN Rail Intersection, East She CTOR: Maple Leaf Drilling Ltd.	_			hilo	B-40, 175	mm LIC	Δ			DJECT NO.: 6027304 VATION (m): 233.08	1
SAMPI					D: IVIC		<u>В-40, 175</u> В		A		RECOVE		
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	E #	SPT (N)	♦ S 0	PENETRATIOI * Becke \$ Dynamic O PT (Standard (Blows/300 0 40 6 Total Unit (kN/m 7 18 1 Plastic MC	N TESTS r ₩ Cone Pen Test) 0mm) 0 80 10 Wt)	21	AINED SHEAR + Torvane × QU × □ Lab Vane △ Pocket Per ♥ Field Vane (kPa) 50 100	STRENGTH + D n. A	COMMENTS	
15 -16 -17 -18 -20 -21 -22 -23 -24 -25 -26 -27 -28 -29		 trace gravel, wet below 16.76 m LIMESTONE (Bedrock) light grey to white, core angle: 90 degrees fine to medium grained, no foliation moderately close spacing, rough undulating joints, unaltered joints R2 to R3 (weak to medium strong) fossiliferous, filled vuggs high calcium limestone rough planar joint END OF TEST HOLE AT 23.77 m IN BEDROCK Notes: Nower auger refusal at 17.68 m below ground surface on BEDROCK. H2 coring below 17.68 m. Seepage observed at 16.76 m below ground surface. Test hole backfilled with bentonite and auger cuttings. 		G143 G144 C1 C2 C3 C4								- C1 RQD: 33% - Core Recovery: 82% - C2 RQD: 35% - Core Recovery: 100% - C3 RQD: 45% - Core Recovery: 100% - C4 RQD: 99% - Core Recovery: 100%	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
30						LO	GGED BY:	Sam O.		······································	COMPL	ETION DEPTH: 23.77 m	<u> </u>
		AECOM					VIEWED B	Y: Omer GINEER:			COMPL	ETION DATE: 12/10/24 Page	

			oad Underpass Road North Bound,	Fast Shoulder	CLIE	ENT:	City	of W	/innipeg			STHOLE NO: TH12-10 DJECT NO.: 6027304	
			ble Leaf Drilling Ltd.		MET	THOI)· Tr	ack I	Nounted MP5, 125	mm SSA	_	VATION (m): 231.78	I
SAMP			GRAB	SHELBY TUBE			IT SPC						
DEPTH (m)	SOIL SYMBOL		SOIL DESCI	RIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	♦ S 0	PENETRATION TESTS	UNDRAINED SHEAR S + Torvane + × QU × □ Lab Vane [△ Pocket Pen. ♥ Field Vane 1 (kPa)	TRENGTH - - -	COMMENTS	
0		- light brown CLAY - silty	y, some silt, trace sand to grey, moist, loose to , trace sand rey, moist, soft to stiff city	compact		G7 G8			•				2
2		- grey belov	v 2.1 m		X	S9	6	•				3,3,3 blows/150 mm	2
3						G10 G11			•	+ Δ +Δ		Gravel: 0%, Sand: 1.0%, Silt: 12.5%, Clay: 86.5%	2
5		- stiff below	4.U M										
6						G12			•	Δ			
7						G13			•			· · · · ·	
3 9						T14 G15			•		· · · · · · · · · · · · · · · · · · ·		
10		Notes:	ST HOLE AT 9.14 m IN age or sloughing observe backfilled with auger cu										:
11													
12													
13 14													
15									GGED BY: Sam O.		Compl	ETION DEPTH: 9.14 m	
			AECON	1					VIEWED BY: Omer I OJECT ENGINEER:		COMPL	ETION DATE: 12/10/9 Page	

PRO.	JECT	: Ples	ssis Road Underpass		CLI	ENT:	City	of W	innipeg				TES	THOLE NO: TH12-102	2
			essis Road South Bound, W	est Shoulder Lawn	1								_	JECT NO .: 6027304	1
			: Maple Leaf Drilling Ltd.								mm SSA	_		VATION (m): 232.34	
SAMF			GRAB	SHELBY TUBE	-	_	IT SPC	ON			-		RECOVER		
BACK	FILL	TYPE	BENTONITE	GRAVEL	[]]	SLC	UGH	1		GROUT	1	∕]сит		SAND	
DEPTH (m)	SOIL SYMBOL	PIEZOMETER	SOIL DESC	RIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	♦ S 0 16 1	Plastic MC	er ¥ Cone ◇ Pen Test) ♦ 0mm) 60 80 100 t Wt ■	0 △ Po ● 1	Forvane - ≺QU × ab Vane icket Pen eld Vane (kPa)	+ n. Δ	COMMENTS	ELEVATION (m)
= 0	<u>}}</u> }		TOPSOIL - some clay, some sa	nd, trace gravel, trace					20 40 0	80 10	0 50	100	150 200		
-1			organics - dark brown, moist, loose CLAY (Fill) - trace silt, trace san - grey, moist to dry, very stiff - low to intermediate plasticity SILT - some clay, trace sand - light brown to grey, moist to dr		 	G51						Δ.			232
-3			- low plasticity CLAY - some silt - greyish brown, moist, firm - intermediate plasticity - brown below 2.29 m			G52		· · · · · · · · · · · · · · · · · · ·)		+ Δ.				230
-4			- grey below 3.81 m									· · · · · · · · · · · · · · · · · · ·			229
5						G53 T54					+ \(\textbf{A}\) + \(\textbf{A}\)			- Tube Recovery: 100%	228
-6						G55)		+ \(\Lambda\)				226
- 8			- silt inclusions, trace gravel bel - up to 12.70 mm thick sub-roun	ow 7.62 m ded limestone clast		T56		· · · · · · · · · · · · · · · · · · ·			+4			- Tube Recovery: 100%	225
9						G57		· · · · · · · · · · · · · · · · · · ·			1	· · · · · · · · · · · · · · · · · · ·			224 -
GDT 13/3/19															223 -
NNIM FWN FL			END OF TEST HOLE AT 11.28	m IN CLAY		T58					+			- Tube Recovery: 100%	221
LOG OF TEST HOLE TEST PIT LOGS-PRU-66223041.6PJ UMA WINLGOT 133/19 10 11 11 11 11 11 11 11 11 11 11 11 11 1			Notes: 1. No seepage or sloughing obs 2. Installed 25 mm diameter stal (SP12-01) to 10.67 m with 3.05 0.82 m stick-up. Above ground 3. Test hole backfilled with sand	ndpipe piezometer m of screen bottom, and protective casing installed											220
			 b) the statistic descent of the statistical descent of the statist	led with auger cuttings to te to ground surface. m (Elev. xxx)											219 -
			- ULIUNEI 51, 2012 dl 10.101	וו נבושי. אאא								· · · · · · · · · · · · · · · · · · ·			218 -
OF TE			AECOM						GGED BY:	Sam O. Y: Omer E	licco			ETION DEPTH: 11.28 m ETION DATE: 12/10/10	
00											Zeyad Shu				1 of 1

	SOIL DESCRIPTION				D: Tra IT SPO (N) LdS	00N	PENETRA * Be > Dynar PT (Stanc (Blows 20 40 Total (ki 7 18	BUL ATION TE ecker # mic Cond dard Per s/300mn 60 Unit Wt N/m ³)	ESTS e � n Test) ♠ n) 80 100	UNDRA		EAR STR /ane + U × /ane □	ELEV COVEF		
CAMPLE TOBUH NUBOR N	ASPHALT (114 mm) CLAY FILL (Subbase) - trace sand, trace organic - grey, moist CLAY - some organic - dark brown, moist, stiff - intermediate plasticity			SPL	IT SPO	00N	PENETRA * Be > Dynar PT (Stanc (Blows 20 40 Total (ki 7 18	BUL ATION TE ecker # mic Cond dard Per s/300mn 60 Unit Wt N/m ³)	K ESTS n Test) ♦ n) 80 100	UNDRA	INED SHE + Torva × QU □ Lab V	EAR STR /ane + U × /ane □	COVER	RY CORE	ON (m)
(W) HLdEID 0 1 2 3 4	ASPHALT (114 mm) CLAY FILL (Subbase) - trace sand, trace organic - grey, moist CLAY - some organic - dark brown, moist, stiff - intermediate plasticity			#		● SF 0 2 16 1	PENETRA	ATION TE ecker # mic Con dard Per s/300mn 60 I Unit Wt N/m ³)	ESTS e � n Test) ♠ n) 80 100		INED SHE + Torva ×QU □ Lab V	EAR STR /ane + U × /ane □	RENGTH		(m) WO
1 2 3 4	CLAY FILL (Subbase) - trace sand, trace organic - grey, moist CLAY - some organic - dark brown, moist, stiff - intermediate plasticity					1 2	20 40	<u> </u>	20 21 Liquid 80 100	1	 Field \ (kP) 50 10 	Vane 🕈 Pa)		COMMENTS	
2 3 4 5 6	- intermediate plasticity		1								· · · · · · · · · · · · · · · · · · ·				23
3 4 5 6				G84				· · · · · · · · · · · · · · · · · · ·							2
4	- silt inclusions below 3.05 m			G85				•			· · · · · · · · · · · · · · · · · · ·				2
5 6	- silt lens (up to 25.4 mm thick)			T86				· · · · · · · · · · · · · · · · · · ·						- Tube Recovery: 100%	2
				100										- Tube Recovery. 100%	2
1	- trace gravel, laminated, intermediate to high plasticity be 6.10 m	elow		S87) 						- 3,3,5 blows/150 mm - SPT Recovery: 100%	2
8				G88						+~					2
°				T89						+ 4				- Tube Recovery: 100%	2
10	END OF TEST HOLE AT 9.75 m IN CLAY Notes: 1. No seepage observed. 2. Test hole remained open to 9.14 m below ground surfa completion of drilling. 3. Test hole backfilled with auger cuttings and sealed with														2
12	asphalt plug upon completion.										· · · · · · · · · · · · · · · · · · ·				2
13															2
14															
15	AECOM					LOC					· · · · · · · · · · · · · · · · · · ·	C(

	: Plessis Road Underpass	CLI	ENT:	City	of V	innipeg				HOLE NO: TH12-10	
	N: Dugal Road East Bound, South Shoulder			\ _		An				ECT NO.: 6027304	1
	CTOR: Maple Leaf Drilling Ltd.							mm SSA		ATION (m): 229.94	
DEPTH (m)	GRAB SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	(N) LAS	♦ S 0	PENETRATION * Beckel Opnamic C PT (Standard) (Blows/300 20 40 6 Total Unit (KN/m) 7 18 11 Plastic MC 20 40 6	N TESTS r ₩ cone Pen Test) ♦ Immi) 0 80 100 Wt ■ 9 20 2 Liquid	UNDRAINED SHEAR S + Torvane + × QU × □ Lab Vane [△ Pocket Pen ♥ Field Vane 1 (kPa)			
0	Sand and Gravel (Fill) - trace silt - brown, moist, compact		G16		•			· · · · · · · · · · · · · · · · · · ·			
1	CLAY - trace silt - brown to black, moist, stiff - intermediate plasticity - silty to 1.52 m - some silt, brownish grey to grey below 1.52 m		G17			•					2
2									· · · · · · · · · · · · · · · · · · ·		2
3			G18								2
4			G19			1	h	+ 🛆			
ō			G20								
6 7			620								
3	END OF TEST HOLE AT 7.62 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings upon completion.		G21								2
9											
10											
11											
12											
12 13 14											
14									· · · · · · · · · · · · · · · · · · ·		
				•		GGED BY:				TION DEPTH: 7.62 m	<u> </u>
	AECOM							Eissa Zeyad Shukri	COMPLET	TON DATE: 12/10/9 Page	1

		Plessis Road Underpass	(CLIE	ENT:	City	of W	innipe	eg								STHOLE NO: TH12-LO	
		I: East of Plessis Road		\ <i>\</i> []]		. ד.		10.101			105		C ^				DJECT NO.: 6027304	I
		TOR: Maple Leaf Drilling Ltd.				D: Tra					1251	mm S		1.0.0			VATION (m): 232.06	
SAIVIF	PLE TY	PE GRAB SHELBY TU	JRF		JSPL	IT SPC	1		BL							COVE		-
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION		SAMPLE TYPE	SAMPLE #	SPT (N)	◆ SI 0 2 16 1	¥ I	MC	¥ one ven Tes nm) 0 80 Wt∎ 20 Liquic	st) ✦ 0 100 1 21		+ Toi × (□ Lab △ Pock € Fiek	rvane - QU × Vane xet Pen	+ □ n. △	ENGTH 0 200	COMMENTS	
0		TOPSOIL - some clay, some organics, trace sand - dark brown, moist, hard																
	3333	- grey, dry, intermediate plasticity below 0.30 m	/		G27			•		· · · · · i · · · · · i			2 · · · · · · 2 · · · · · · · 3 · · · · · · ·	· · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			
1		SILT - some clay, trace sand - light grey to grey, moist, soft								••••			 	 	· · · · · ·			
		 low to intermediate plasticity 			G28								· · · · · · · · · · · · · · · · · · ·	Δ	•••••			
		CLAY - brown, moist, firm to stiff											 	 	••••			
2		 intermediate to high plasticity greyish brown below 1.52 m 											; ;	· ; · · · · ·				
								(* * * * * * * * (* * * * * * * *	• • • • • •	••••			} · · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · ·	••••			
3					G29) 			 (Z	 	· · · · · ·				
													 	· · · · · · · · · · · · · ·				
								((•••••	••••			
4													 	· · · · · ·				
					G30							+ \	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · ·			
5					T31				•		••••••	+X:	; ;	 	••••		- Tube Recovery: 100%	
		- grey, soft to firm below 5.18 m			1								; } }	· · · · · · · · · · · · · · · · · · ·	· · · · ·			
,								· · · · · · · · · · · · · · · · · · ·		••••			· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •	••••			
D													 	 	••••	••••		
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7								(* • • • • • • (* • • • • • •		••••			} · · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			
					G32								 	· · · · · ·	••••			
-					T33								· · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · ·		- Tube Recovery: 100%	
5)]	• • • • • •	••••			
													· · · · · · · · · · · · · · · · · · ·	• • • • • •	· · · · ·			
9													· · · · · · · · ·	••••••	••••			
														· ·	· · · . · · · .		5 5 5	
10														· · · · · · · · · · · · · · · · · · ·				
10								·····	• • • • • • •	•••••	· · · · · ·		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · ·	••••			
		- silt inclusions, soft below 10.67 m			G34									• • • • • •	••••			
11							 						; ;	 				
													2 · · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			
12										••••	· · · · · ·		· · · · · · · · · · · · · · · · · · ·	• • • • • • •	••••			
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3								(* • • • • • • • (* • • • • • • • (• • • • • • •		••••	· · · · · ·		; ; ;	· þ. · · · · · þ. · · · ·	••••			
					G35		 					 		· · · · · · · ·				
14														- · · · · · · · · · · · · · · · · · · ·				
													; ; ;	 	· · ·) · · ·) · · ·)			
15								· · · · · · ·							••••			
J				1	I	1	LOC	GGED	BY:	Sam	0.		<u></u>		CC	OMPL	ETION DEPTH: 17.98 m	
		AECOM					RE	/IEWE	ED BY	: On	ner Ei	issa					ETION DATE: 12/10/10	

		Plessis Road Underpass		CLI	ENT:	City	of V	/innipeg			Hole No: TH12-LO	
		I: East of Plessis Road			TUO?	<u> </u>					ECT NO.: 6027304	1
		TOR: Maple Leaf Drilling Ltd.						Mounted M			ATION (m): 232.06	
SAMPL	E IY	(PE GRAB	SHELBY TUBE		SPL	IT SPC	DON	BI		RECOVERY	CORE	
DEPTH (m)	SOIL SYMBOL	SOIL DESCR	RIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	0	PENETRATION	□ Lab Vane △ Pocket Per ④ Field Vane 1 (kPa)	+ 	COMMENTS	
15												
-16												2
17					G36							2
18		- limestone cobble up to 0.08 m thick END OF TEST HOLE AT 17.98 m ON Notes:	I BEDROCK		G37							2
19		 Power auger refusal at 17.98 m be BEDROCK. Seepage observed at 10.97 m beld 3. Test hole remained open to 12.80 after completion of drilling. 	ow ground surface. m below ground surface									2
20		 Test hole backfilled with auger cutt 	ings upon completion.									
21												
22												2
23												
24												
25												
26												
27												
28												
29												
30								0055 511	 · · · · · · · · · · · · · · · · · · ·			
		AECOM						GGED BY: VIEWED BY			ION DEPTH: 17.98 m ION DATE: 12/10/10	
									Zeyad Shukri		Page	2 4

1 N A A		: Plessis Road Underpass N: Plessis Road North Bour	d Curb Lano			City (of Winnipe	ÿ			THOLE NO: TH12-S0 DJECT NO.: 6027304	
		CTOR: Maple Leaf Drilling L		MFT	ГНОГ) [,] Tra	ck Mounte	ed MP5, 125	mm SSA	_	VATION (m): 232.68	I
SAMP			SHELBY TUBE			T SPO				RECOVE		
DEPTH (m)	SOIL SYMBOL		CRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)		MC Liquid	□ Lab Vane [○ △ Pocket Pen. ④ Field Vane 1 (kPa)	- 	COMMENTS	
0 -1		ASPHALT (114 mm) CONCRETE (Base) - grey, dry, bonded SILT - clayey, trace sand - brown, moist, soft - low to intermediate plasticity CLAY - trace sand - brown, moist, sliff			G165 G166		•					2:
3		 intermediate plasticity, silt lense greyish brow, laminated below grey, firm below 3.05 m 	es (up to 25.4 mm thick dia.) 1.52 m	\times	G167 S168				À.		- 2, 2, 4 blows/150 mm - SPT Recovery: 100%	2
4 5		- moist to wet below 3.96 m END OF TEST HOLE AT 4.57 m Notes: 1. No seepage or sloughing obs 2. Test hole backfilled with auge	erved.		G169				Δ			2
6 7		asphalt plug upon completion.										2
8												2
9 10												2
11												2
12												2
13 14												
15		AECO	• •					BY: Sam O. D BY: Omer I			ETION DEPTH: 4.57 m ETION DATE: 12/10/31	2

		: Plessis Road Underpass N: Plessis Road South Bour	nd Curb Lano	CLIE	ENT:	City	of Winnipeg				THOLE NO: TH12-SO	
		TOR: Maple Leaf Drilling L		MFT)· Tra	ack Mounted MP5	125 m	nm SSA	_	VATION (m): 232.39	I
SAMPL			SHELBY TUBE			T SPO						
DEPTH (m)	SOIL SYMBOL		CRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	■ Total Unit Wt (kN/m ³) 16 17 18 19	♦ Test) ◆ 80 100	JNDRAINED SHEAR S + Torvane + ×QU × □ Lab Vane [△ Pocket Pen. � Field Vane (kPa) 50 100] 	COMMENTS	
0 -1 -2 -3		ASPHALT (114 mm) CONCRETE (Base) - grey, dry, bonded FILL (Subbase) - some clay, sor - greyish black, moist, firm CLAY - brown, moist, stiff - intermediate plasticity, laminate - silt inclusions, firm below 3.05 r	ed		G170 G171		•		Δ.			2:
-4		- silty sand pocket - greyish brown, trace gravel, tra			G172 G173 S174		•				- 2, 2, 4 blows/150 mm	2
6		END OF TEST HOLE AT 5.03 m Notes: 1. No seepage or sloughing obs 2. Test hole backfilled with auge asphalt plug upon completion.									- SPT Recovery: 100%	2
8												2
9												2
10												2
12												2
13												2
15		A	•				LOGGED BY: Sa				ETION DEPTH: 5.03 m	2
		AECO	Μ				REVIEWED BY: 0 PROJECT ENGIN	Omer Eis	isa		ETION DATE: 12/10/31 Page	1

		Plessis Road Un		ist Shoulder Lawn	CLI	ENT:	City	of Winn	peg			THOLE NO: TH12-S0 DJECT NO.: 6027304	
		TOR: Maple Leaf			MF	ГНОГ)· Tra	ack Mou	nted MP5, 12	5 mm SSA	_	VATION (m): 232.38	
	PLE T		RAB	SHELBY TUBE			T SPO				RECOVE		
DEPTH (m)	SOIL SYMBOL		L DESCR		SAMPLE TYPE	SAMPLE #	SPT (N)	♦ D ♦ SPT (S 0 20		UNDRAINED SHEAR S + Torvane - × QU × □ Lab Vane 00 △ Pocket Pen � Field Vane 21 (kPa)	STRENGTH + 	COMMENTS	
0		TOPSOIL (Fill) - som - greyish black, moist CLAY - brown, moist, stiff - intermediate plastic	t, stiff			G175 G176 G177			•	Δ.			2
3		- greyish brown, trace - silt lens (up to 50.80	e oxidation below) mm thick dia.)	3.05 m	X	S178	7	•				- 2, 3, 4 blows/150 mm - SPT Recovery: 100%	2
5		- firm below 4.50 m				G179 G180			•				2
6		- grey below 5.79 m	- AT 6 55 m IN CI	ΔΥ		S181	8	•	•	Δ		- 2, 3, 5 blows/150 mm - SPT Recovery: 100%	2
7 8		Notes: 1. No seepage or slo 2. Test hole backfiller											2
9													2
10													
11													
12													
13 14													
15								LOGGE	DBY: Sam O.		COMPL	ETION DEPTH: 6.55 m	2
		ΔΞ	COM					<u> </u>	VED BY: Omer			ETION DATE: 12/10/31	

		: Plessis Road Underpass	CLI	ENT:	City	of Winnipeg			THOLE NO: TH12-S	
		N: Plessis Road South Bound, West Shoulder Lawn			<u> </u>			_	DJECT NO.: 6027304	1
						ack Mounted MP5, 12			VATION (m): 231.85	
SAMP	ר EE	YPE GRAB SHELBY TUBE		JSPL T	IT SPC		NO R			
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS	+ Torvane + ×QU × □ Lab Vane [△ Pocket Pen. ◆ Field Vane • (kPa)	-] 	COMMENTS	
0		TOPSOIL (Fill) - some clay, some organics, trace sand - dark brown, moist, soft							2 	
1		SILT - some clay, trace organics - brown, moist, soft - low to intermediate plasticity		G182						23
2		CLAY - brown, moist, stiff - intermediate plasticity, laminated		G183						23
3		- greyish brown, trace oxidation below 2.74 m - silt lens (up to 50.80 mm thick dia.)		S184	9	•			- 2, 4, 5 blows/150 mm - SPT Recovery: 100%	22
4										2
5		- grey, soft to firm below 5.03 m		S185	9	•		· · · · · · · · · · · · · · · · · · ·	- 2, 4, 5 blows/150 mm - SPT Recovery: 100%	2
6		- silt inclusions, trace sand below 5.79 m		G186 S187		•			- 2, 3, 4 blows/150 mm	2
7		END OF TEST HOLE AT 6.55 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings upon completion.		10/				· · · · · · · · · · · · · · · · · · ·	- SPT Recovery: 100%	2:
8		 rest hole backfilled with auger cuttings upon completion. 							· · · ·	2
9									· · ·	2
10								· · · · · · · · · · · · · · · · · · ·		2
11										2
12								• • • • • • • • • • • • • • • • • • • •		2
13									· • •	2
14										2
15							· · · · · · · · · · · · · · · · · · ·			2
		AECOM				LOGGED BY: Sam O. REVIEWED BY: Omer			ETION DEPTH: 6.55 m ETION DATE: 12/10/31	
						PROJECT ENGINEER:			Page	1 c

		Plessis Road Underpass	CLI	ENT	: City	of W	innipeg				STHOLE NO: TH12-S	
		I: Plessis Road North Bound, East Shoulder Lawn	N 45		<u>р т</u>		An				DJECT NO.: 6027304	
		CTOR: Maple Leaf Drilling Ltd.					Nounted M				EVATION (m): 232.23	
SAMP	PLE T	YPE GRAB SHELBY TUBE		SPL	IT SPC	1	BL			NO RECOVE		-
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	♦ SI 0 : 16 1	Plastic MC	₩ bone <>/td> ven Test) ◆ nnm) 0 80 100 Wt ■ 20 2° Liquid		vane + U X vane □ vt Pen. △ Vane ● Pa)	COMMENTS	
0		TOPSOIL - organic, trace roots - black, moist		G1				80 100	0 <u>50</u> 10	0 150 20		2
		CLAY - trace sand, trace silt								· · · · · · · · · · · · · · · · · · ·		
1		 brownish grey, moist, stiff to very stiff intermediate plasticity 		G2		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		- 	2
2		- brown, wet, stiff, high plasticity below 1.8 m		G3					+ ^	· · · · · · · · · · · · · · · · · · ·	2 2 2 2 2 2 2	
3				_		 						
				T4					+×			
1		END OF TEST HOLE AT 4.57 m IN CLAY		G5 G6					<u></u>			
ō		Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings upon completion.						· · · · · · · · · · · · · · · · · · ·				
6												
7								· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		
8										· · · · · · · · · · · · · · · · · · ·		
9												
10												
11												
						· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	- 	
12												
13								· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
4												
15												
											ETION DEPTH: 4.57 m	
		AECOM					IEWED BY		zeyad Shukri	COIVIPL	ETION DATE: 12/10/9 Page	1

		Plessis Road Underpass	CLI	ENT:	City	of W	<i>'innipeg</i>				STHOLE NO: TH12-S	
		V: Plessis Road South Bound, West Shoulder Lawn	NACT	ГЦОІ	ר. ד _{יי}	ack M	Nounted MP5,	125	mm CCV		DJECT NO.: 6027304	1
SAMP		CTOR: Maple Leaf Drilling Ltd.			J: TR IT SPC			125		RECOVE	EVATION (m): 232.19	
SAIVIP						1		rs				
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	♦ S 0 16	# Becker # Opnamic Cone < PT (Standard Pen To (Blows/300mm) 20 40 60 8 ■ Total Unit Wt ■ (kN/m) 7 18 19 2 Plastic MC Liqu	> est) ♦ 80 100	+ Torvar × QU 3 □ Lab Var △ Pocket F ● Field Va (kPa)	e + ≺ ne □ ren. △	COMMENTS	
0	\otimes	FILL - sandy, some gravel, some clay brown, moist to dry, very stiff										2
1		SILT - some clay, trace sand - light grey to grey, moist, soft to firm						<pre></pre>	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
1		- low plasticity CLAY		G38								2
2		 brown, moist to dry, stiff intermediate plasticity 						· · · · · · · · · · · · · · · · · · ·				
		- trace oxidation, silt inclusions below 2.28 m						· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	·····		2
3		- greyish brown - grey, firm below 3.20 m		G39					+ Δ			2
4				G40					+ 🛆	· · · · · · · · · · · · · · · · · · ·	Gravel: 0%, Sand: 0%,	2
5				T41					+ A	•••••••••••••••••••••••••••••••••••••••	Silt: 12.4%, Clay: 87.6% - Tube Recovery: 100%	2
6		- moist to wet, soft below 6.01 m									- 	2
7				G42						· · · · · · · · · · · · · · · · · · ·		2
8		END OF TEST HOLE AT 8.23 m IN CLAY		T43			•				- Tube Recovery: 100%	2
9		Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings upon completion.						· · · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		
							· · · · · · · · · · · · · · · · · · ·					
10								· · · · · · · · · · · · · · · · · · ·				2
11								· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		2
12							· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	•••••		
13								· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		
14												
15								: :	· · · · · · · · · · · · · · · · · · ·	·····		
							GGED BY: Sam		licco		ETION DEPTH: 8.23 m	
		AECOM					VIEWED BY: O OJECT ENGINE				ETION DATE: 12/10/10 Page	1

			ad Underpass oad North Bound, E	ast Shoulder	CLI	ENT:	City o	f Winnipeg				HOLE NO: TH12-S IECT NO.: 6027304	
			e Leaf Drilling Ltd.		ME	гног)· Tra	ck Mounted	MP5 125	mm SSA		ATION (m): 232.21	
	LE TY		GRAB	SHELBY TUBE			IT SPOC		BULK		O RECOVER'		
			GIVID					PENETRATI					
DEPTH (m)	SOIL SYMBOL		SOIL DESCF	RIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	 ★ Becl > Dynamic ◆ SPT (Standar (Blows/3) 20 40 ■ Total U (kN/i) 	xer ₩ : Cone ◇ d Pen Test) ◆ 00mm) 60 80 10 mit Wt ■ m) 19 20 2	+ Torva × QU □ Lab Va △ Pocket ♣ Field V. 1 (kPa	ne + × ne □ Pen. △ ane �)	COMMENTS	
0		TOPSOIL - or - black, moist	rganic		/	0.00							2
		CLAY				G22			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
1		 dark grey, d intermediate silt inclusion 	ry, hard e plasticity, dessicated is to 1.52 m			G23		•			· · · · · · · · · · · · · · · · · · ·		2
2								· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		2
3		- grey, moist	to wet, firm to stiff, high	plasticity below 2.74 m		G24				+ Δ			2
4		ooff to firm	at holow 4.24 m			005		· · · · · · · · · · · · · · · · · · ·					2
5		Son to Tirm, W	et below 4.26 m			G25 T26		• • • • • • • • • • • • • • • • • • •	•	+∆: +X∆:			
6						G26B					· · · · · · · · · · · · · · · · · · ·		
7		Notes: 1. No seepag	T HOLE AT 6.10 m IN (le or sloughing observe backfilled with auger cut	d.									2
I				0 I									2
8													2
9													2
10								· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		2
11								· · · · · · · · · · · · · · · · · · ·					2
12													
13													
14													
15								· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		
								LOGGED BY				TION DEPTH: 6.10 m	
			AECON					REVIEWED	BY: Omer E	Eissa	COMPLE	TION DATE: 12/9/10	

LOCATION: PEOLECTION:			Plessis Road Underpass		ENT:	City	of V	/innipeg						THOLE NO: TH12-S	
SAMPLE TYPE GRAG SALE SALE SALE SALE SALE SALE SALE SALE			-		τυΛι	<u>م</u> . Ма	hilo	P /0 125 m	m 55/	<u>۱</u>					I
Image: Solution of the second seco			· •							4					
0 TOPSOIL - some dry, sowe dry, sowe dry, sowe dry, some dry, sowe dry, some dry, sowe dr		SYMBOL					♦ S	PENETRATION TE * Becker * > Dynamic Cone PT (Standard Pen (Blows/300mm 20 40 60 ■ Total Unit Wt (kI/m ³) 17 18 19 Plastic MC Li	STS → Test) ← → 80 100 ■ 20 21 iquid	-	INED SHE + Torva × QU □ Lab Va △ Pocket ④ Field V (kPa	AR STF ane + J × ane □ Pen. ∠ /ane € a)	RENGTH	COMMENTS	
- brown, mods, slift - grey, intermediate plasticity - grey, intermediate plasticity - grey, intermediate lositicity below 3.35 m - grey, intermediate to high plasticity below 3.35 m - G159 - grey, intermediate to high plasticity below 3.35 m - G159 - grey, intermediate to high plasticity below 3.35 m - G159 - grey, intermediate to high plasticity below 3.35 m - G151 - grey, intermediate to high plasticity below 3.35 m - G151 - grey, intermediate to high plasticity below 3.35 m - G153 - G161 - CA - september 2 - G163 - G163 - G164 - No operation or sloughing observed. - SPT Recovery: 100%. - SPT Recovery: 100%. - SPT Recovery: 100%. - SPT Recovery: 100%. - SPT Recovery: 100%. - No scepage or sloughing observed. - SPT Recovery: 100%. - No scepage or sloughing observed. - SPT Recovery: 100%. - No scepage or sloughing observed. - SPT Recovery: 100%. - No scepage or sloughing observed. - SPT Recovery: 100%. - No scepage or sloughing observed. - SPT Recovery: 100%. - No scepage or sloughing observed. - SPT Recovery: 100%. -	0								-80 100			<u> </u>	50 200		2
2	1		 brown, moist, stiff intermediate plasticity silt lens (25.4 mm thick) 		G158						Δ	· · · · · · · · · · · · · · · · · · ·			2
 - grey, intermediate to high plasticity below 3.35 m - SPT Recovery: 100% - SPT Recovery: 100% - 1, 2, 3 blows/150 mm - SPT Recovery: 100% - 1, 2, 3 blows/150 mm - SPT Recovery: 100% - 1, 2, 3 blows/150 mm - SPT Recovery: 100% 	2 3				G159							· · · · · · · · · · · · · · · · · · ·			2
5 Image: state of the stat	4		- grey, intermediate to high plasticity below 3.35 m		S160							· · · · · · · · · · · · · · · · · · ·		- 1, 2, 3 blows/150 mm - SPT Recovery: 100%	2
 SPT Recovery: 100% SPT Recovery: 100% S164 S164 S164 S164 S164 S164 S164 SPT Recovery: 100% SPT Re	5				G161							· · · · · · · · · · · · · · · · · · ·			
 8 9 I. 1, 2, 3 blows/150 mm S164 S164<td>6</td><td></td><td></td><td>X</td><td>S162</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td>	6			X	S162										
 END OF TEST HOLE AT 9.60 m IN CLAY Notes: No seepage or sloughing observed. Test hole backfilled with auger cuttings and sealed with bentonile at ground surface upon completion. 	8				G163					Δ.					2
10 Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings and sealed with bentonite at ground surface upon completion. 11 12 13 14 15	9				S164					Δ					
	10		Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings and sealed with									· · · · · · · · · · · · · · · · · · ·		- 5РТ кесоvery: 100%	2
15															
	14											· · · · · · · · · · · · · · · · · · ·			
	15								· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	<u> </u>	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
LOGGED BY: Sam O.COMPLETION DEPTH: 9.60 mREVIEWED BY: Omer EissaCOMPLETION DATE: 12/10/27			ΔΞϹΟΜ							issa					

		: Plessis Road Underpass	CL	IEN	T:	City	of W	/innipeg			STHOLE NO: TH12-S	
		N: Dugald Road West Bound, Curb Lane			05	-				_	DJECT NO.: 6027304	1
		CTOR: Maple Leaf Drilling Ltd.						Mounted MP5, 125			EVATION (m): 233.07	
SAMP	LE T	YPE GRAB SHELBY TUBE		X SF	PLIT	r spo		BULK		RECOVE		T
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION			SAMPLE #	SPT (N)	◆ S 0 16	PENETRATION TESTS		+ □ 1. Δ	COMMENTS	
0		ASPHALT (114 mm) SAND and GRAVEL Fill (Base) - brown, dry, loose	5								9	
·1		CLAY (Fill) - trace sand - grey, moist to dry, very stiff - intermediate plasticity		G	74			•	Δ		· · · · · · · · · · · · · · · · · · ·	23
-2		CLAY - brown, moist, stiff - intermediate plasticity		G	75			•	+			23
- 3		- silt inclusions, laminated, trace oxidation below 2.13 m		Τ	76				· + Δ		- Tube Recovery: 100%	2
-5				s;	77			1			- 3,3,4, blows/150 mm - SPT Recovery: 100%	2
6		- brown to grey, soft to firm		G	78			•	+		Gravel: 0%, Sand: 0%, Silt: 32.5%, Clay: 67.5%	2
7				_							- - - - - - - -	2
8		- grey, moist, intermediate to high plasticity below 7.62 m - silt lens (up to 25.4 mm thick) END OF TEST HOLE AT 8.23 m IN CLAY Notes:		T7	79				+		- Tube Recovery: 100%	2
9		 No seepage or sloughing observed. Test hole backfilled with auger cuttings and sealed with asphalt plug upon completion. 										2
10												2
11												2
12												2
13											· · · · ·	2
14 15											· · · · ·	2
								GGED BY: Sam O.			ETION DEPTH: 8.23 m	
		AECOM						VIEWED BY: Omer E OJECT ENGINEER: 2		COMPL	ETION DATE: 12/10/11 Page	1

		: Plessis Road Underpass N: Dugald Road West Bound, N	lorth Shoulder	CLI	ENT	: City	of W	nnipeg						_	THOLE NO: TH12-S	
		CTOR: Maple Leaf Drilling Ltd.		ME	тно	D: Tra	ack N	lounted	MP5	5, 125	mm S	SSA			VATION (m): 232.65	
SAMP		· · · · ·	SHELBY TUBE			IT SPC			BULK				NO RE	ECOVE		
DEPTH (m)	SOIL SYMBOL	SOIL DESCF		SAMPLE TYPE	SAMPLE #	SPT (N)	◆ SF 0 2 16 1	PENETRAT	ker ¥ c Cone rd Pen 00mm) 60 nit Wt m ³) 19	♦ Test) ◆ 80 10	0	+ Tor × C □ Lab △ Pock ● Field (k	vane + QU × Vane ⊡ et Pen. ⊿ I Vane € Pa)	<u>^</u>	COMMENTS	
0 -1 -2 -3		SAND and GRAVEL (Fill) - trace clay - brown, dry, loose CLAY - trace sand, trace gravel - grey, moist, stiff - intermediate plasticity - silt inclusions, silt lens (up to 51 mm - greyish brown, trace oxidation, lam	n thick) below 1.52 m		G80 S81					1					- 2,3,4 blows/150 mm - SPT Recovery: 100%	23 23 23 23 23 22
-5					T82										- Tube Recovery: 100%	22
.7		END OF TEST HOLE AT 6.10 m IN 0 Notes: 1. No seepage observed. 2. Test hole remained open to 4.57 r completion of drilling. 3. Test hole backfilled with auger cut	n below ground surface afte	er	. 603											2:
8 9																2:
10														·		2
11 12														·		2
13																2
-14 15									/. C -	~ 0						2
		AECON						GED B IEWED			Eissa				ETION DEPTH: 6.10 m ETION DATE: 12/11/10	
								JECT E				Shukri			Page	e 1 r

CONTRACTOR: Maple Lost Dalling Lid. METHOD: Track Mounted MP5, 125 rm SSA ELEVATION (n): 232.99 SAMPLE TYPE FRAME SAMPLE TYPE FRAME REPORT OF THE SAMPLE TYPE FRAME REPORT OF THE SAMPLE TYPE COMMENTS FRAME REPORT OF THE SAMPLE TYPE SAMPLE TYPE REPORT OF THE SAMPLE TYPE REPORT OF			Plessis Road Underpass	North Shoulder	CLI	ENT:	City	of Winnipeg			IOLE NO: TH12-S1 CT NO.: 6027304 ²	
SAMPLE TYPE GRAB Solution Solution Common Sector Se			-		MF	гног)· Tra	ack Mounted MP5 12	5 mm SSA			I
Solution Solution Solution Solution Comments 0 Solution Solution Solution Solution Comments 0 Solution Solution Solution Solution Solution Comments 0 Solution Solution <th></th>												
0 SAND and CANAPL [FM] - trace signality. 0 SAND and CANAPL [FM] - trace signality. 0 CAX (FM] - trace gravely. trace signality. 1 - terminodial to high plasticity - list sam (GA1 m hick) - ery, web, objected 3 - list sam (GA1 m hick) - ery, web, objected - ery, web, objected 3 - ery, web, objected 4 - ery, web, objected 5 - ery, web, objected 6 - ery, web, objected 7 - ery, web, objected 8 - ery, web, objected 9 - ery, web, objected 10 - ery, web, objected 11 - ery, web, objected 12 - ery, web, objected 13 - ery, web, objected 14 - ery, web, objected 15 - ery, web, objected 16 - ery, web, objected 17 - ery, web, objected 18 - ery, web, objected 19 - ery, web, objected 11 - ery, web, objected		SYMBOL			TYPE	#		PENETRATION TESTS	UNDRAINED SHEAR S' + Torvane + × QU × □ Lab Vane [00 △ Pocket Pen. ♥ Field Vane ¢ (kPa)	RENGTH 		
CLAY (FB) - tace gravel, tace sand 9 1	0			ay, trace organics								
- brown, vary still, intermediate to high plasticity - still sam (Lik 1) http://	-1		CLAY (Fill) - trace gravel, trace sar	ıd		G71		•	+ Δ			2:
- two plasticity TT - two plasticity TT 1. Seepage closeved at 0.30 m below ground surface. 1. Seepage closeved. 2. No sloughing observed. 3. Test Noble backfild with auger cullings and sealed with bentonite upon completion. 5 6 7 1 8 1 9 1 10 1 11 1 12 1 13 1 14 1 15 100GGED BY: Sam 0.	2		 silt seam (0.61 m thick) 	igh plasticity		G72		•	+ 🛆			2
2. No solution gobserved. 3. Test hole backflow with auger cuttings and sealed with bemonte upon completion. 6			- low plasticity END OF TEST HOLE AT 3.35 m IN Notes:			T73						2
7 8 9 10 11 12 13 14 15 100 10 100			 No sloughing observed. Test hole backfilled with auger c 	-								2
3 3 9 10 11 1 12 12 12 12 12 12 12 12 12 12 12 1	5											2
0	7											
10 11 12 13 14 15 LOGGED BY: Sam O. LOGGED BY: Sam O. LOGGED BY: Sam O.	3											
11 12 13 14 15 10GGED BY: Sam 0. COMPLETION DEPTH: 3.35 m	9											2
12 13 14 15 LOGGED BY: Sam 0.												2
13 14 15 LOGGED BY: Sam Q. COMPLETION DEPTH: 3.35 m												2
14 15 LOGGED BY: Sam Q. COMPLETION DEPTH: 3.35 m												
LOGGED BY: Sam Q. COMPLETION DEPTH: 3.35 m												
	15											
A=COM REVIEWED BY: Omer Eissa COMPLETION DATE: 12/10/11			AECON	Λ				REVIEWED BY: Omer				

		: Plessis Road Underpass	(CLI	ENT:	City	of W	innipeg			Hole No: TH12-S	
		N: Dugald Road East Bound, Curb Lane								_	JECT NO.: 6027304	1
		CTOR: Maple Leaf Drilling Ltd.						Nounted MP5, 125			/ATION (m): 232.99	
SAMP	PLE T	YPE GRAB SHELBY TUBI			SPL	IT SPC	1	BULK		ECOVER	Y CORE	T
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION		SAMPLE TYPE	SAMPLE #	SPT (N)	◆ SI 0 : 16 1	PENETRATION TESTS	Field Vane (kPa)	- С	COMMENTS	
0 -1		ASPHALT (152 mm) SAND and GRAVEL FILL (Base) - brown, dry, loose - some organic, some sand, trace clay, trace gravel - dark brown, moist to dry CLAY - trace sand, trace gravel - grey, moist to dry, stiff intermediate placticity.		-	G59			•	Δ.			2
·2 ·3		 intermediate plasticity greyish brown, silt inclusions, trace oxidation below 1.52 m 			G60				Δ.			2
4		- trace sand, trace gravel - grey, wet - silt lens (25.4 mm thick) below 3.05 m										2
5		- greyish brown, moist, firm below 5.18 m			G61 T62			l	+ Δ + Δ		- Tube Recovery: 100%	
6												
7 8		END OF TEST HOLE AT 7.62 m IN CLAY Notes:			G63				+ \(\Lambda\)			2
9		 No seepage observed. Test hole remained open to 3.66 m below ground surface completion of drilling. Test hole backfilled with auger cuttings and sealed with asphalt plug upon completion. 	after									
10												
11												2
12 13												
14												2
15												
		AECOM						GGED BY: Sam O. /IEWED BY: Omer E			TION DEPTH: 7.62 m TION DATE: 12/10/11	
								DJECT ENGINEER:			Page	1 (

			Road Underpass I Road West Bound, N	lorth Shouldor	CLI	ENT:	City	of Wi	nnipeg			THOLE NO: TH12-S1 DJECT NO.: 6027304	
		-	aple Leaf Drilling Ltd.		ME	ГНΟΙ	D· Tra	ack M	ounted MP5, 125	mm SSA	_	VATION (m): 233.28	<u> </u>
SAMP			GRAB	SHELBY TUBE			IT SPO				RECOVE		
DEPTH (m)	SOIL SYMBOL		SOIL DESC		SAMPLE TYPE	SAMPLE #	SPT (N)	F ♦ SF 0 2 16 1	ENETRATION TESTS ★ Becker ★ ◊ Dynamic Cone ◊ (Blows/300mm) 0 40 60 80 10 ■ Total Unit W t ■ (kk//m)	UNDRAINED SHEAR S + Torvane - × QU × □ Lab Vane △ Pocket Pen � Field Vane	STRENGTH + 	COMMENTS	
0		brown, c	d GRAVEL (Fill)- trace clay Iry, loose	, trace organics						0 50 100	150 200		2
1		- grey, mo	II) - trace sand bist to dry, stiff to very stiff diate plasticity			G65			•	Δ			2
2		- brown, r - intermed	noist, stiff diate plasticity, silt inclusion (up to 0.61 m thick), trace c	s xidation below 2.29 m									2
3		- trace sa - grey, mo	nd sist, firm to stiff below 3.35 i	n	X	G66 S67	7				Δ.	- 3,3,4 blow/150 mm - SPT Recovery: 100%	
5		- trace silt	, greyish brown, laminated	below 4.57 m		G68				+ 🛆			
6		- grey				T/A		· · · · · · · · · · · · · · · · · · ·				Tubo Dopovor 1000/	
7		- sand len	ises (0.02 m thick) up to 7.	16 M		T69 G70						- Tube Recovery: 100%	
8		Notes: 1. No see 2. Test ho	TEST HOLE AT 7.62 m IN page observed. le remained open to 3.66 r n of drilling.	CLAY n below ground surface afte		G/U		· · · · · · · · · · · · · · · · · · ·		<i>τ</i> Δ			
9		3. Test ho	le backfilled with auger cut	tings upon completion.									2
10													2
12								· · · · · · · · · · · · · · · · · · ·					
13								· · · · · · · · · · · · · · · · · · ·				- - - - - -	
14								· · · · · · · · · · · · · · · · · · ·					
15								LOC	GED BY: Sam O.		COMPL	ETION DEPTH: 7.62 m	
			AECON						IEWED BY: Omer E			ETION DATE: 12/10/11	

		: Plessis Road Underpass	CLI	ENT:	City	of Win	nipeg		_	THOLE NO: TH12-S	
		N: Plessis Road South Bound, West Shoulder	N A		\ -				_	JECT NO.: 6027304	1
		CTOR: Maple Leaf Drilling Ltd.					ounted MP5, 12			VATION (m): 233.35	
SAMP	LE I	YPE GRAB SHELBY TUBE		SPL	IT SPC						1
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	♦ SPT 0 20 16 17	Total Unit Wt (kN/m ³) 18 19 20 stic MC Liquid	□ Lab Vane [100 △ Pocket Pen. ● Field Vane 21 (kPa)	- 	COMMENTS	
0	\bigotimes	SAND and GRAVEL (Fill)- trace clay - brown, dry, loose - clayey, some organic \- dark brown, moist to dry, stiff to very stiff	_					· · · · · · · · · · · · · · · · · · ·			23
1		CLAY - grey to dark grey, moist to dry, stiff to very stiff - low to intermediate plasticity		G90			•	Δ.			23
2		- brown, moist, stiff below 2.13 m - intermediate plasticity, silt inclusions		G91							2
3		- silt lenses (up to 76.2 mm thickness) to 3.50 m		S92	6	•	•			- 2,3,3 blows/150 mm - SPT Recovery: 100%	2
4		- firm below 4.57 m								The D	2
ō				T93				+ \(\(\)	•••••••••••	- Tube Recovery: 100%	2
6		- grey, high plasticity below 6.10 m		G94 S95	7	•		Δ		- 2,3,4 blows/150 mm - SPT Recovery: 100%	2
7		END OF TEST HOLE AT 6.55 m IN CLAY Notes: 1. No seepage observed. 2. Test hole remained open to 3.96 m below ground surface after completion of drilling. 3. Test hole backfilled with auger cuttings upon completion.									2
8						· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		2
9											2
10									•••••••••••••••••••••••••••••••••••••••		2
11											2
12											
13									•••••••••••••••••••••••••••••••••••••••		2
14									•••••••••••••••••••••••••••••••••••••••		
15				1	<u> </u>	LOG	GED BY: Sam O	····	COMPL	ETION DEPTH: 6.55 m	<u> </u>
		AECOM					EWED BY: Ome			ETION DATE: 12/10/11	

		: Plessis Road Underpass	CLI	ENT:	City	of Winnipeg		TESTHOLE NO: TH12-S	
		N: Plessis Road South Bound, West Shoulder						PROJECT NO.: 602730	
		CTOR: Maple Leaf Drilling Ltd.				ack Mounted MP5, 125 mm		ELEVATION (m): 233.55	5
SAMP	ר E T	YPE GRAB SHELBY TUBE		SPL	IT SPC		NO RE		_
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS UNE	DRAINED SHEAR STR + Torvane + × QU × □ Lab Vane □ △ Pocket Pen. △ � Field Vane � (kPa) 50 100 15	COMMENTS	
0 1		SAND and GRAVEL (Fill) - trace clay, trace organics - brown, moist, loose to compact CLAY (Fill) - trace organics, trace sand							23
2		CLAY (Fill) - trace organics, trace sand - dark brown to black, moist, stiff - low to intermediate plasticity CLAY - trace sand - brown, moist, firm to stiff - intermediate plasticity, silt inclusions, laminated		G188		•			23
3				G189		•			2
4		 silt lens (up to 76.20 mm thick) trace oxidation below 3.51 m grey, below 4.57 m 		G190		•			2
5		END OF TEST HOLE AT 5.03 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings upon completion.		S191	7			- 2, 3, 4 blows/150 mm - SPT Recovery: 100%	2
6 7								· · · · · · · · · · · · · · · · · · ·	2
8									2
9									2
10									2
11									2
12								· · · · · · · · · · · · · · · · · · ·	2
13									2
15									2
		AECOM				LOGGED BY: Sam O. REVIEWED BY: Omer Eissa		OMPLETION DEPTH: 5.03 m OMPLETION DATE: 12/10/31	
						PROJECT ENGINEER: Zeya			e 1 c

		: Plessis Road Unde J: Plessis Road Sou		et Shouldor	CLI	ENT:	City o	f Winnipeg			-	THOLE NO: TH12-S1 DJECT NO.: 6027304	
		TOR: Maple Leaf D			MET	ги∩г). Tra	ck Mounted MP	5 125	mm SSA		VATION (m): 233.53	<u> </u>
SAMP				SHELBY TUBE			J. TTAC			NO RI			
SAIVIP		IPE GRAI	5										
DEPTH (m)	SOIL SYMBOL		DESCRIF		SAMPLE TYPE	SAMPLE #	SPT (N	PENETRATION TE	ne ◇ n Test) ◆ n) 80 100	+ Torvane + ×QU × □Lab Vane □ △ Pocket Pen. / ♣ Field Vane € (kPa)) Δ	COMMENTS	
0		SAND and GRAVEL (Fi - brown, moist, loose to	II) - trace clay, tra compact	ace organics			-			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	-	23
1	\bigotimes	CLAY (Fill) - trace organ - dark brown to black, m \- low to intermediate pla	nics, trace sand noist, stiff isticity		Г	G192				Δ			23
2		CLAY - brown, moist, stiff - intermediate plasticity,	silt inclusions, la	minated		G193		•			· · · · · · · · · · · · · · · · · · ·		23
3		- greyish brown, firm be - sand and silt lens (up t		\$)		S194	4	•				- 1, 1, 3 blows/150 mm - SPT Recovery: 100%	2
4		- trace gravel below 3.9 END OF TEST HOLE A		Y		G195							2
5		Notes: 1. No seepage or sloug 2. Test hole backfilled w	hing observed.								·: ·: ·: ·: ·: ·: ·:		2
6													2
8													2
9											•••••••••••••••••••••••••••••••••••••••		2
10													2
11													2
12											· · · · · · · · · · · · · · · · · · ·		2
13													2
14											· · · · · · · · · · · · · · · · · · ·		2
15										· · · · · · · · · · · · · · · · · · ·			2
		A - 4						LOGGED BY: S				ETION DEPTH: 4.57 m	
			COM					REVIEWED BY: PROJECT ENGI			JOIVIPL	ETION DATE: 12/10/31 Page	1 1

		· · · · ·		ENT	City	of W	innipeg				-	STHOLE NO: TH12-S	
		I: Plessis/Dugald Intersection, South West Corner Lawn TOR: Maple Leaf Drilling Ltd.			D. Tr	ack N	Nounted MF	05 17F	mm CCV			DJECT NO.: 6027304 VATION (m): 232.47	<u> </u>
	PLE TY				IT SPC								
DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	♦ S 0	PENETRATION T	ESTS ≨ n Test) ♦ m) 80 100	UNDRAINEI + C A P		TRENGTH ⊢ □ . △		
0		TOPSOIL - some clay, some organics, trace sand - dark brown, moist to dry				1		-1 _{80 100}	50	100	150 200	o 	-
-1		SILT - some clay, trace sand - grey, moist, firm to stiff - low plasticity - trace oxidation		G44					+ \			· · · · · ·	2
2		CLAY - brown, moist, firm to stiff - intermediate plasticity, silt inclusions								· · · · · · · · · · · · · · · · · · ·			2
3		- grey below 3.35 m		G45 T46			•		 +			- Tube Recovery: 100%	2
4 5				G47					+				2
6		 firm, intermediate to high plasticity below 5.79 m trace sand, trace gravel sand lenses (0.02 m thick) up to 7.16 m 		T48				· · · · · · · · · · · · · · · · · · ·	+A				2
7				G49			0		+		•••••••••••••••••••••••••••••••••••••••		2
8		END OF TEST HOLE AT 7.62 m IN CLAY Notes: 1. No seepage observed. 2. Test hole remained open to 4.57 m below ground surface after completion of drilling.											2
9 10		3. Test hole backfilled with auger cuttings upon completion.											2
11													2
12											•••••••••••••••••••••••••••••••••••••••		2
12 13												· · · · ·	
14												· · · · ·	
15		AECOM					GGED BY: S /IEWED BY:		issa			ETION DEPTH: 7.62 m ETION DATE: 12/10/10	