APPENDIX 'A'

GEOTECHNICAL REPORT

AECOM

City of Winnipeg

Inkster Boulevard Widening West of Brookside Boulevard Subsurface Investigation

Prepared by:

AECOM Canada Ltd.
99 Commerce Drive, Winnipeg, MB, Canada R3P 0Y7
T 204.477.5381 F 204.284.2040 www.aecom.com

Project Number:

0265 411 01 (4)

Date:

April, 2009

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This Disclaimer is attached to and forms part of the Report.

AECOM
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April 27, 2009

Project Number: 0265 411 01 (4)

Mr. Ron Bruce, P.Eng.
AECOM Canada Ltd.
2 – 1600 Ness Avenue
Madison Square
Winnipeg, Manitoba
R3J 3W7

Dear Sir:

Re: Inkster Boulevard Widening West of Brookside Boulevard
Field and Laboratory Investigation

AECOM Canada Ltd. is pleased to present our report on the above referenced project. If you have any questions, please do not hesitate to contact Nelson Ferreira at our office.

Sincerely,

AECOM Canada Ltd.

Ron Typliski, P.Eng.
Vice-President, Manitoba District
Canada West Region
/dh

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Revision Log

Revision #	Revised By	Date	Issue / Revision Description
1	N. Ferreira	April 27/09	Final

Signature Page

Report Prepared By:	Report Reviewed By:
Ryan Belbas, B.Sc., EIT	Nelson Ferreira, M.Sc., P.Eng.

PROVINCE OF MANITOBA
N. J. FERREIRA
Member
22892
REGISTERED PROFESSIONAL ENGINEER
Apr 17, 2009

APEGM
Certificate of Authorization
AECOM Canada Ltd. (MB)
No. 4671 Date: 09/04/27

Table of Contents

Appendices

1. Summary

This report summarizes the results of the subsurface investigation completed for the proposed Inkster Boulevard Widening west of Brookside Boulevard. It is our understanding that the four lane roadway proposed between Brookside Boulevard and Keewatin Street is to be extended 1.1 km to the west of Brookside Boulevard. Information regarding the subsurface conditions along the proposed extension is provided for design and construction.

2. Field Investigation and Laboratory Program

A total of 21 test holes were drilled for the proposed Inkster Boulevard widening extension at the locations shown on Figures 1 to 3. Seventeen of the test holes were drilled within the existing Inkster Boulevard shoulder and road embankment along the proposed alignment. The remaining four test holes were drilled within the shoulder and road embankment along Oakpoint Highway and Roy Roche Drive within 200 m of the intersection with Inkster Boulevard. Test hole logs have been prepared for each test hole and are included in Appendix A.

The field investigation was conducted on March 13, 17 and 21, 2009. Depending on the depth to power auger refusal, the test holes were drilled to depths of 1.5 m to the maximum depth drilled of 3.1 m below ground surface. Drilling was completed by Paddock Drilling Ltd. using a Brat 22 truck mounted drill rig equipped with 125 mm diameter solid stem augers. The sub-surface investigation was supervised and documented by Geoff Nolette of AECOM. Guardian Traffic Services provided traffic protection during drilling.

The pavement structure (asphalt and/or concrete) was cored at 9 locations within 2.2 m of an adjacent test hole. The core hole locations are shown on Figures 1 to 3. The coring was conducted by Quality Coring using a portable coring machine equipped with a hollow 150 mm diameter diamond core drill bit and supervised and documented by Geoff Nolette of AECOM. Photographs of the core samples are included in Appendix B (the core sample from TH-09-66 was not photographed). No tests were conducted on the core samples.

Other pertinent information such as groundwater and drilling conditions were also recorded during the field investigations. Disturbed (auger cuttings) samples retrieved during the field investigation were transported to AECOM's material testing laboratory for further testing.

The laboratory testing program consisted of moisture content determination, Atterberg limits and hydrometer tests. The laboratory information has been included on the test hole logs and a summary table of the laboratory test results has been included in Appendix A.

Test hole locations were surveyed and the UTM coordinates are provided on the test hole logs and Figure 1 to 3.

Figures

Test Hole Plan

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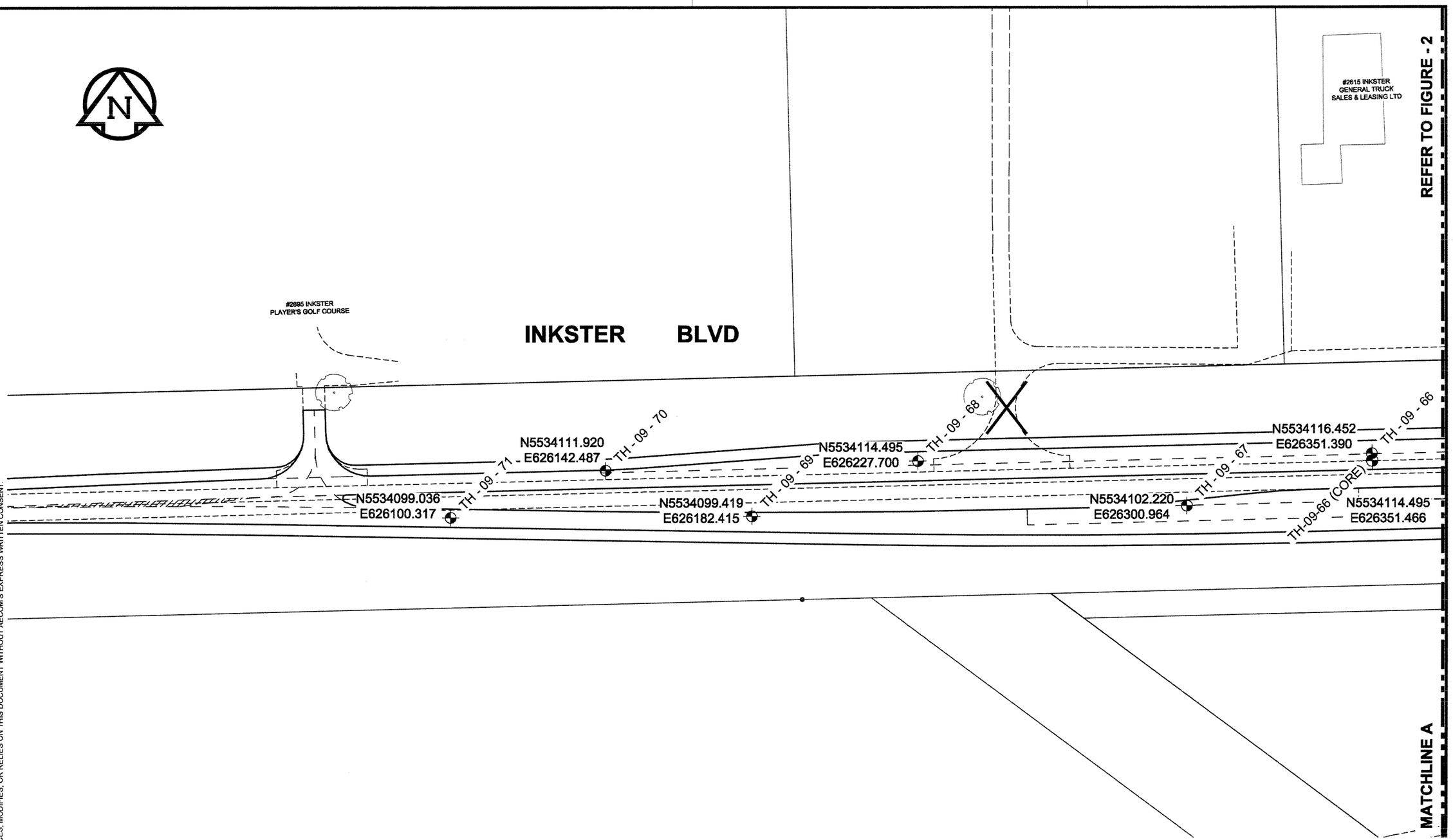

PLAN

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Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
West of Brookside Boulevard
Figure - 1

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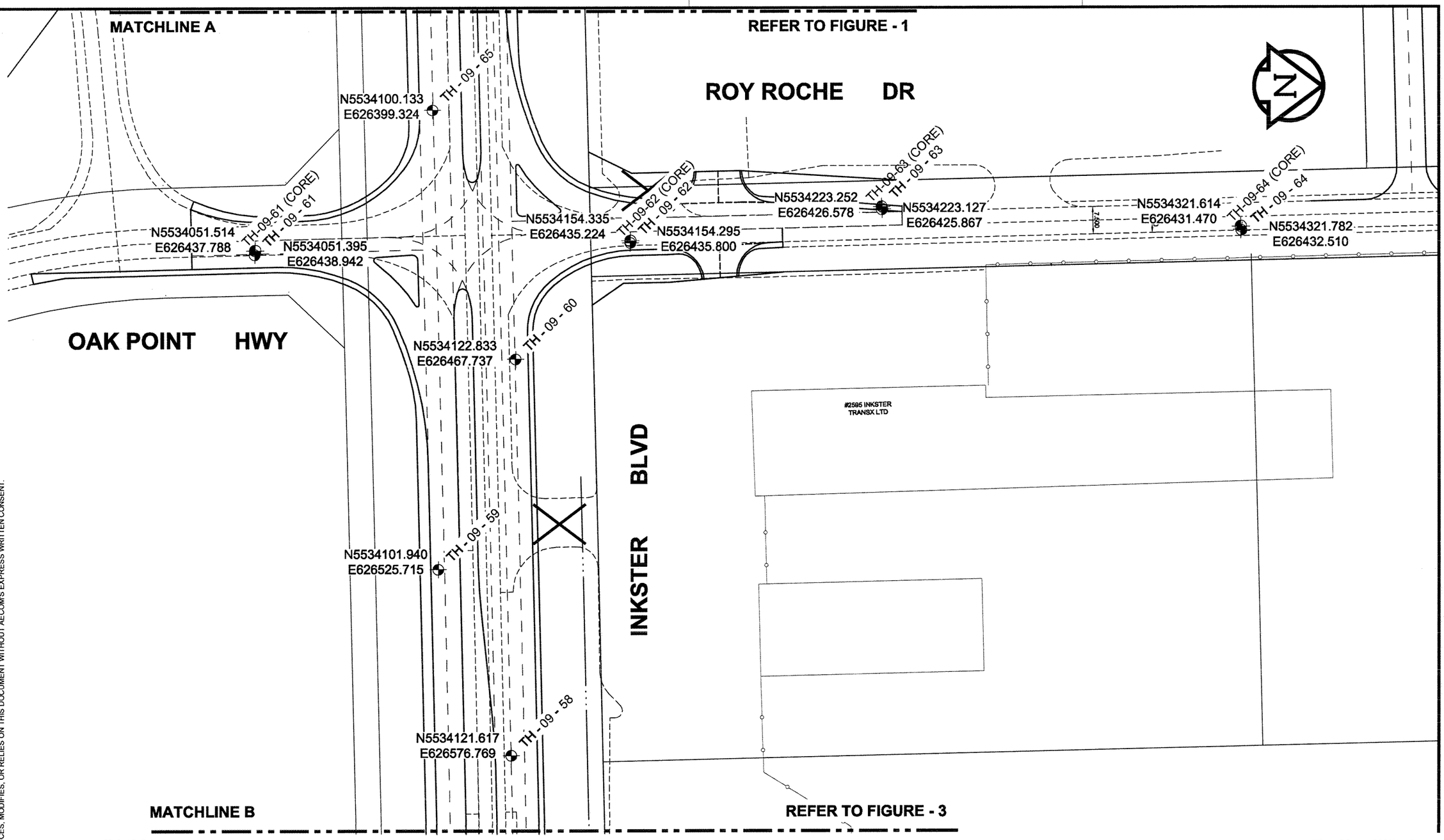

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Inkster Boulevard - Testhole Locations
West of Brookside Boulevard

Figure - 2

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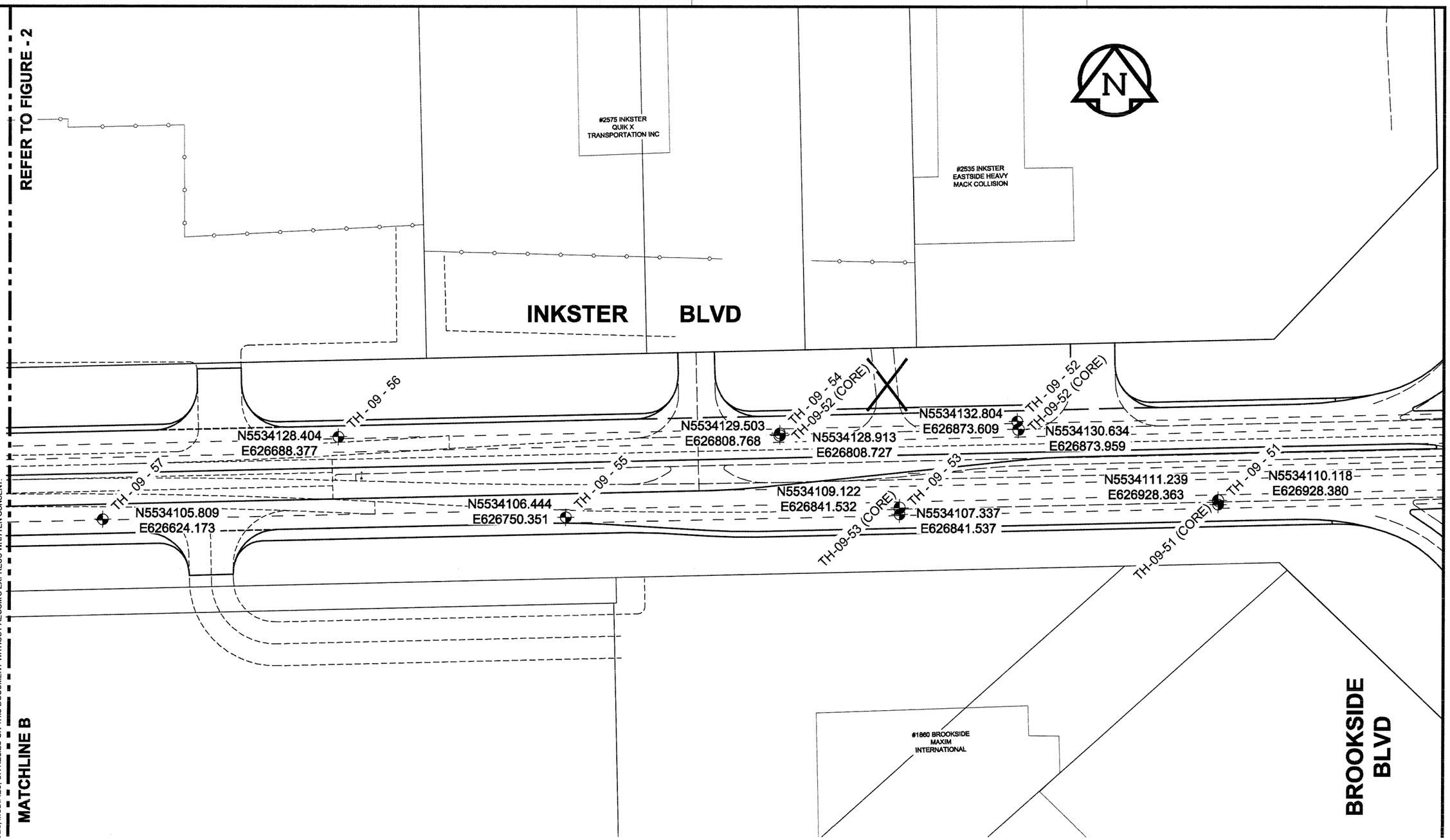

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Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
West of Brookside Boulevard
Figure - 3

Appendix A
Test Hole Logs

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

Description				UMA Log Symbols	USCS Classification	Laboratory Classification Criteria			
						Fines (%)	Grading	Plasticity	Notes
COARSE GRAINED SOILS	GRAVELS (More than 50% of coarse fraction of gravel size)	CLEAN GRAVELS (Little or no fines)	Well graded gravels, sandy gravels, with little or no fines		GW	0-5	$C_U > 4$ $1 < C_C < 3$		Dual symbols if 5-12% fines. Dual symbols if above "A" line and $4<W_P<7$ $C_U = \frac{D_{60}}{D_{10}}$ $C_C = \frac{(D_{30})^2}{D_{10} x D_{60}}$
			Poorly graded gravels, sandy gravels, with little or no fines		GP	0-5	Not satisfying GW requirements		
		DIRTY GRAVELS (With some fines)	Silty gravels, silty sandy gravels		GM	> 12		Atterberg limits below "A" line or $W_P<4$	
			Clayey gravels, clayey sandy gravels		GC	> 12		Atterberg limits above "A" line or $W_P<7$	
	SANDS (More than 50% of coarse fraction of sand size)	CLEAN SANDS (Little or no fines)	Well graded sands, gravelly sands, with little or no fines		SW	0-5	$C_U > 6$ $1 < C_C < 3$		
			Poorly graded sands, gravelly sands, with little or no fines		SP	0-5	Not satisfying SW requirements		
		DIRTY SANDS (With some fines)	Silty sands, sand-silt mixtures		SM	> 12		Atterberg limits below "A" line or $W_P<4$	
			Clayey sands, sand-clay mixtures		SC	> 12		Atterberg limits above "A" line or $W_P<7$	
FINE GRAINED SOILS	SILTS (Below 'A' line negligible organic content)	$W_L<50$	Inorganic silts, silty or clayey fine sands, with slight plasticity		ML			Classification is Based upon Plasticity Chart	
		$W_L>50$	Inorganic silts of high plasticity		MH				
	CLAYS (Above 'A' line negligible organic content)	$W_L<30$	Inorganic clays, silty clays, sandy clays of low plasticity, lean clays		CL				
		$30<W_L<50$	Inorganic clays and silty clays of medium plasticity		CI				
		$W_L>50$	Inorganic clays of high plasticity, fat clays		CH				
	ORGANIC SILTS & CLAYS (Below 'A' line)	$W_L<50$	Organic silts and organic silty clays of low plasticity		OL				
		$W_L>50$	Organic clays of high plasticity		OH				
HIGHLY ORGAINIC SOILS			Peat and other highly organic soils		Pt	Von Post Classification Limit		Strong colour or odour, and often fibrous texture	

	Asphalt		Till		
	Concrete		Bedrock (Undifferentiated)		
	Fill		Bedrock (Limestone)		

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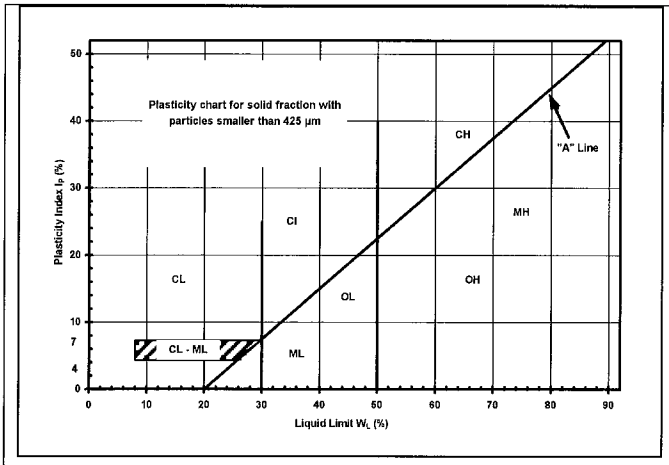
When the above classification terms are used in this report or test hole logs, the designated fractions may be visually estimated and not measured.



FRACTION		SEIVE SIZE (mm)		DEFINING RANGES OF PERCENTAGE BY WEIGHT OF MINOR COMPONENTS	
		Passing	Retained	Percent	Identifier
Gravel	Coarse	76	19	35-50	and
	Fine	19	4.75		
Sand	Coarse	4.75	2.00	20-35	"y" or "ey" *
	Medium	2.00	0.425		
	Fine	0.425	0.075	10-20	some
Silt (non-plastic) or Clay (plastic)		< 0.075 mm		1-10	trace

* for example: gravelly, sandy clayey, silty

Definition of Oversize Material

COBBLES: 76mm to 300mm diameter
BOULDERS: >300mm diameter

LEGEND OF SYMBOLS

Laboratory and field tests are identified as follows:

q_u - 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/m^3).

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

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City of Winnipeg
Inkster Widening - Brookside Boulevard to Keewatin Street - West of Brookside Blvd.
Subsurface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-51	N - 5534110.118, E - 626928.380	Concrete	205			Sand and Gravel (Fill)	0.2	0.3	7.9							
	N - 5534111.239, E - 626928.363 (Core)						0.5	0.6	7.2							
							0.8	0.9	7.5							
						Clay (Fill)	1.1	1.2	12.5							
							1.4	1.5	20.1							
						Clay	1.7	1.8	31.5							
							2.0	2.1	26.4							
							2.6	2.7	26.2							
TH-09-52	N - 5534132.804, E - 626873.609	Asphalt	150			Sand and Gravel (Fill)	0.2	0.3	6.7							
	N - 5534130.634, E - 626873.959 (Core)						0.5	0.6	6.0							
						Clay (Fill)	0.8	0.9	22.8	0.0	10.4	23.0	66.6	24.6	79.8	55.2
							1.1	1.2	31.4							
						Clay	1.4	1.5	32.1							
							1.7	1.8	28.8							
							2.0	2.1	34.4							
							2.6	2.7	39.7							
TH-09-53	N - 5534109.122, E - 626841.532	Concrete	205			Sand and Gravel (Fill)	0.2	0.3	7.2							
	N - 5534109.122m, E - 626841.532 (Core)						0.5	0.6	6.8							
						Clay (Fill)	0.8	0.9	14.4							
							1.1	1.2	19.7							
							1.4	1.5	35.9	0.0	3.6	19.6	76.8	25.0	77.8	52.8
							1.7	1.8	35.9							
						Clay	2.0	2.1	35.8							
							2.6	2.7	39.1							
TH-09-54	N - 5534129.503, E - 626808.768	Asphalt	125			Sand (Fill)	0.2	0.3	5.8							
	N - 5534128.913, E - 626808.727 (Core)						0.5	0.6	6.5							
							0.8	0.9	12.4							
						Clay (Fill)	1.1	1.2	32.0							
						Clay	1.4	1.5	43.0							
							1.7	1.8	38.1							
							2.0	2.1	34.2							
							2.6	2.7	37.4							
TH-09-55	N - 5534106.444, E - 626750.351					Sand (Fill)	0.2	0.3	6.3							
							0.5	0.6	5.6							
							0.8	0.9	5.0							
						Clay (Fill)	1.1	1.2	18.4							
							1.4	1.5	19.2							
							1.7	1.8	23.6							
						Clay	2.0	2.1	14.1							
							2.6	2.7	18.9							
TH-09-56	N - 5534128.404, E - 626688.377					Sand and Gravel (Fill)	0.2	0.3	7.3							
						Clay (Fill)	0.5	0.6	29.1							
							0.8	0.9	26.1	2.0	34.4	38.1	25.6	19.3	38.7	19.4
							1.1	1.2	19.9							
							1.4	1.5	37.4							
							1.7	1.8	33.3							
						Clay	2.0	2.1	25.5							
							2.6	2.7	34.7							
TH-09-57	N - 5534105.809, E - 626624.173					Sand and Gravel (Fill)	0.2	0.3	23.6							
							0.5	0.6	16.9							
						Clay (Fill)	0.8	0.9	20.1							
							1.1	1.2	24.6							
						Clay	1.4	1.5	36.4							
							1.7	1.8	25.7							
						Silt	2.0	2.1	9.6							
						Silt (Till)	2.6	2.7	10.3							

City of Winnipeg
Inkster Widening - Brookside Boulevard to Keewatin Street - West of Brookside Blvd.
Subsurface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-58	N - 5534121.617, E - 626576.769					Sand and Gravel (Fill)	0.2	0.3	5.2							
						Clay (Fill)	0.5	0.6	20.5							
							0.8	0.9	21.0							
							1.1	1.2	38.0							
							1.4	1.5	46.3							
						Clay	1.7	1.8	19.1							
						Silt	2.0	2.1	14.2							
						Silt (Till)	2.6	2.7	11.4							
TH-09-59	N - 5534101.940, E - 626525.715					Clay	0.2	0.3	31.9							
							0.5	0.6	27.4							
							0.8	0.9	29.0							
							1.1	1.2	26.8							
							1.4	1.5	21.8	1.2	27.9	40.3	30.6	17.4	40.1	22.7
						Silt (Till)	1.7	1.8	22.3							
							2.0	2.1	10.4							
							2.6	2.7	10.1							
TH-09-60	N - 5534122.833, E - 626467.737			Crushed Limestone (Fill)	50	Sand and Gravel (Fill)	0.2	0.3	6.9							
						Clay	0.5	0.6	28.3							
							0.8	0.9	28.4							
							1.1	1.2	45.7							
							1.4	1.5	25.2							
						Sand and Gravel (Till)	1.7	1.8	10.0							
TH-09-61	N - 5534051.395, E - 626438.942	Asphalt	75	Crushed Limestone (Fill)	530	Crushed Limestone (Fill)	0.2	0.3	4.2							
	N - 5534051.514, E - 626437.788 (Core)						0.5	0.6	4.0							
						Silt (Till)	0.8	0.9	11.0							
							1.1	1.2	10.7							
						Sand (Till)	1.4	1.5	9.1							
TH-09-62	N - 5534154.295, E - 626435.800	Asphalt	100			Sand and Gravel (Fill)	0.2	0.3	7.2							
	N - 5534154.335, E - 626435.224 (Core)					Clay (Fill)	0.5	0.6	19.6							
							0.8	0.9	20.3							
							1.1	1.2	25.3							
						Clay	1.4	1.5	31.9							
						Silt (Till)	1.7	1.8	13.1							
							2.0	2.1	13.2							
						Sand (Till)	2.3	2.4	7.2							
TH-09-63	N - 5534223.127, E - 626425.867	Asphalt	100			Sand and Gravel (Fill)	0.2	0.3	6.7							
	N - 5534223.252, E - 626426.578 (Core)					Clay (Fill)	0.5	0.6	27.5							
						Silt (Till)	0.8	0.9	33.5							
							1.1	1.2	31.0							
							1.4	1.5	37.7							
							1.7	1.8	46.5							
							2.0	2.1	92.4							
						Sand (Till)	2.3	2.4	9.9							
TH-09-64	N - 5534321.782, E - 626432.510	Asphalt	100			Sand (Fill)	0.2	0.3	6.0							
	N - 5534321.614, E - 626431.470 (Core)						0.5	0.6	10.0							
						Clay (Fill)	0.8	0.9	23.6							
							1.1	1.2	19.3							
						Clay	1.4	1.5	45.1							
						Silt (Till)	1.7	1.8	11.7							
							2.0	2.1	10.1							
							2.3	2.4	7.7							

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Subsurface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-65	N - 5534100.133, E - 626399.324					Clay (Fill)	0.2	0.3	17.3							
							0.5	0.6	27.0							
							0.8	0.9	19.8							
							1.1	1.2	27.2							
						Silt	1.4	1.5	19.0	1.2	41.6	35.7	21.5	14.1	33.7	19.6
						Clay	1.7	1.8	24.3							
						Silt (Till)	2.0	2.1	13.4							
							2.6	2.7	11.0							
TH-09-66	N - 5534116.452, E - 626351.39	Asphalt	125			Sand and Gravel (Fill)	0.2	0.3	5.8							
	N - 5534114.495, E - 626351.466 (Core)						0.5	0.6	17.0							
							0.8	0.9	17.7							
						Clay	1.1	1.2	26.1							
							1.4	1.5	21.7							
						Silt (Till)	1.7	1.8	17.0							
							2.0	2.1	12.4							
						Sand (Till)	2.6	2.7	6.9							
TH-09-67	N - 5534102.220, E - 626300.964					Clay (Fill)	0.2	0.3	7.1							
							0.5	0.6	15.5							
							0.8	0.9	19.3							
							1.1	1.2	27.2							
							1.4	1.5	41.4							
						Clay	1.7	1.8	24.5							
							2.0	2.1	34.8							
							2.6	2.7	38.5							
TH-09-68	N - 5534114.495, E - 626227.700					Sand and Gravel (Fill)	0.2	0.3	5.0							
							0.5	0.6	11.7							
						Clay	0.8	0.9	22.3							
							1.1	1.2	30.5	1.6	28.1	41.4	28.9	26.4	46.9	20.5
							1.4	1.5	32.7							
							1.7	1.8	22.3							
							2.0	2.1	22.8							
						Silt (Till)	2.7	2.8	11.5							
TH-09-69	N - 5534099.419, E - 626182.415					Clay (Fill)	0.2	0.3	26.0							
						Sand (Fill)	0.5	0.6	12.2	10.6	46.9	29.3	13.2	14.8	19.8	5.0
							0.8	0.9	7.0							
						Clay (Fill)	1.1	1.2	25.2							
							1.4	1.5	23.1							
						Clay	1.7	1.8	32.4							
							2.0	2.1	28.5							
							2.6	2.7	25.9							
TH-09-70	N - 5534111.920, E - 626142.487					Sand and Gravel (Fill)	0.2	0.3	5.0							
							0.5	0.6	20.2							
							0.8	0.9	22.6							
						Clay (Fill)	1.1	1.2	21.6							
							1.4	1.5	33.3							
						Clay	1.7	1.8	45.0							
							2.0	2.1	34.9							
							2.6	2.7	26.2							
TH-09-71	N - 5534099.036, E - 626100.317					Sand and Gravel (Fill)	0.2	0.3	6.2							
						Clay (Fill)	0.5	0.6	23.5							
							0.8	0.9	17.9							
							1.1	1.2	34.3							
							1.4	1.5	33.2							
						Clay	1.7	1.8	29.9							
							2.0	2.1	29.6							
							2.6	2.7	30.0							

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-51**
LOCATION: UTM - N 5534110.118 E 626928.380		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 236.56

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

PENETRATION TESTS: ✳ Becker ✳ | ◇ Dynamic Cone ◇ | ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 | ■ Total Unit Wt ■ (kN/m^3) 16 17 18 19 20 21 | Plastic MC Liquid 20 40 60 80 100

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		CONCRETE (205 mm)				
		SAND AND GRAVEL (Fill) - silty - light brown - compact to dense, dry to moist - fine grained sand to coarse grained gravel - poorly graded - sub-angular and sub-rounded gravel		G09		
				G10		236
				G11		
1		CLAY (Fill) - silty, trace sand, trace gravel (< 5 mm dia.) - dark brown - firm, moist - high plasticity - sub-angular gravel		G12		
				G13		
		CLAY - silty, trace sand - dark brown - stiff, moist - high plasticity		G14		235
2				G15		
		- trace sulphide inclusions (< 10 mm dia.) below 2.4 m				234
				G16		
		- silt lenses (< 2 mm dia.) below 2.7 m				
3		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings. 3. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-51 (CORE). Cored test hole located 1.1 m north (UTM N - 5534111.239, E - 626928.363).				233
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/17/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-52**
LOCATION: UTM - N 5534132.804 E 626873.609		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 236.69

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS / Total Unit Wt (kN/m³) / Plastic MC Liquid	ELEVATION
0		ASPHALT (150 mm)					
		SAND AND GRAVEL (Fill) - silty - light brown - compact to dense, dry to moist - fine grained sand to coarse grained gravel - poorly graded - sub-angular and sub-rounded gravel		G49			
				G50			236
		CLAY (Fill) - silty, some sand - dark brown - firm, moist - high plasticity - sub-angular gravel		G51			
1				G52			
		CLAY - silty, trace sulphide inclusions (< 10 mm dia.) - dark brown - stiff, moist - high plasticity		G53			
				G54			235
2				G55			
		- stiff below 2.4 m					
				G56			234
3		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings. 3. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-52 (CORE). Cored test hole located 2.2 m south (UTM N - 5534130.634, E - 626873.959).					233
4							

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/17/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

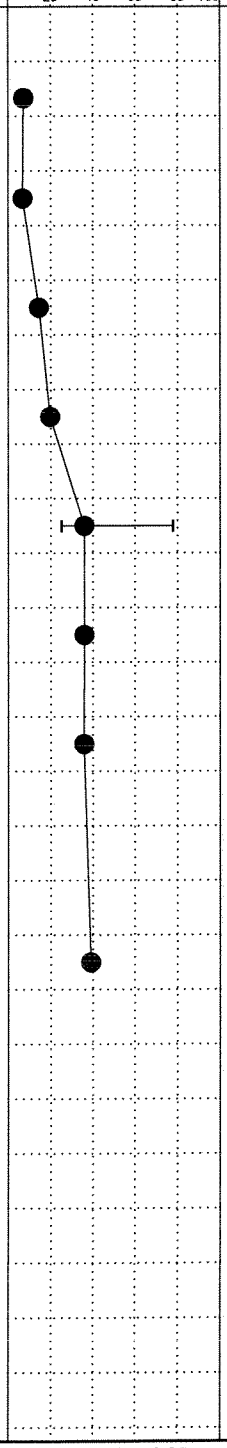
LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-53**
LOCATION: UTM - N 5534109.122 E 626841.532		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 237.07

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		CONCRETE (205 mm)				237
		SAND AND GRAVEL (Fill) - silty - light brown - compact to dense, dry to moist - fine grained sand to coarse grained gravel, poorly graded - sub-angular gravel - trace clay, trace silt and brown below 0.3 m		G01 G02		
1		CLAY (Fill) - some silt, trace sand, trace gravel (< 10 mm dia.), trace organics - dark brown - firm, moist - high plasticity - sub-angular gravel		G03 G04 G05 G06		236
2		CLAY - silty, trace sand - brown - very stiff, moist - high plasticity		G07		235
		- some sulphide inclusions (< 25 mm dia,) and stiff below 2.7 m		G08		
3		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings. 3. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-53 (CORE). Cored test hole located 1.8 m north (UTM N - 5534109.122, E - 626841.532).				234
4						

PENETRATION TESTS
✳ Becker ✳
◇ Dynamic Cone ◇
◆ SPT (Standard Pen Test) ◆
(Blows/300mm)
0 20 40 60 80 100
■ Total Unit Wt ■
(kN/m^3)
16 17 18 19 20 21
Plastic MC Liquid
20 40 60 80 100



AECOM	LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
	REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/17/09
	PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-54**
LOCATION: UTM - N 5534129.503 E 626808.768		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 237.33

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		ASPHALT (125 mm)				
		SAND (Fill) - silty, some gravel - light brown - compact to dense, dry - fine grained sand to coarse grained gravel - poorly graded - sub-angular gravel		G57 G58 G59		237
1		CLAY (Fill) - silty, trace sand, trace gravel (< 20 mm dia.) - brown - soft to firm, moist - high plasticity - sub-angular gravel		G60		
		CLAY - silty, trace sand, trace sulphide inclusions (< 25 mm dia.), trace organics, trace rootlets - dark brown to black - soft to firm, moist - high plasticity		G61		236
		- firm below 1.7 m - dark brown below 1.8 m		G62		
2		- very stiff below 2.0 m		G63		235
				G64		
3		- silt lense (300 mm thick) below 2.9 m				
		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings. 3. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-54 (CORE). Cored test hole located 0.6 m south (UTM N - 5534128.913, E - 626808.727).				234
4						

PENETRATION TESTS
✳ Becker ✳
◇ Dynamic Cone ◇
◆ SPT (Standard Pen Test) ◆
(Blows/300mm)
0 20 40 60 80 100
■ Total Unit Wt ■
(kN/m³)
16 17 18 19 20 21
Plastic MC Liquid
20 40 60 80 100

AECOM	LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
	REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/17/09
	PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-55**
LOCATION: UTM - N 5534106.444 E 626750.351		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 237.63

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS / Total Unit Wt / Plastic MC Liquid	ELEVATION
0		SAND (Fill)- silty, trace gravel - light brown - compact to dense, dry to moist - fine grained sand to coarse grained gravel - poorly graded - sub-angular and sub-rounded gravel		G161			
				G162			237
				G163			
1		CLAY (Fill) - silty, trace sand, trace gravel (< 20 mm dia.), trace organics - dark brown to black - stiff, moist - high plasticity - sub-angular gravel		G164			
				G165			236
				G166			
2		CLAY - silty, trace to some sand - greyish brown - very stiff, moist - high plasticity - sub-angular gravel - trace silt inclusions (< 25 mm dia.), trace sulphide inclusions (< 10 mm dia.) and stiff below 2.1 m		G167			
				G168			235
3		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings.					
							234
4							

PENETRATION TESTS: ✳ Becker ✳ ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100
■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21
Plastic MC Liquid 20 40 60 80 100

AECOM	LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
	REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
	PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-56**
LOCATION: UTM - N 5534128.404 E 626688.377		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 238.04

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		SAND AND GRAVEL (Fill) - silty - brown, compact to dense, dry to moist - fine grained sand to coarse grained gravel, poorly graded, sub-angular gravel	■	G81		238
		CLAY (Fill) - silty, sandy, trace gravel (< 10 mm dia.), trace organics - dark brown - firm, moist - intermediate plasticity - sub-angular gravel	■	G82		
			■	G83		
1			■	G84		237
			■	G85		
			■	G86		
		CLAY - silty, trace sand - brown grey - stiff, moist - high plasticity	■	G87		
2		SILT - trace gravel (< 15 mm dia.) - light brown, soft, moist, low plasticity, sub-angular gravel				236
		CLAY - silty, trace sand, trace sulphide inclusions (< 10 mm dia.) - brown - stiff, moist - high plasticity	■	G88		
3						235
		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings.				
4						

PENETRATION TESTS
✳ Becker ✳
◇ Dynamic Cone ◇
◆ SPT (Standard Pen Test) ◆
(Blows/300mm)
0 20 40 60 80 100
■ Total Unit Wt ■
(kN/m^3)
16 17 18 19 20 21
Plastic MC Liquid
20 40 60 80 100

AECOM	LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
	REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
	PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd. | CLIENT: City of Winnipeg | TESTHOLE NO: **TH-09-57**

LOCATION: UTM - N 5534105.809 E 626624.173 | PROJECT NO.: 0265-411-01

CONTRACTOR: Paddock Drilling Ltd. | METHOD: Bratt 22, 125 mm SSA | ELEVATION (m): 238.60

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		TOPSOIL (100 mm)				
		SAND AND GRAVEL (Fill) - silty, trace clay -dark brown - compact to dense, dry to moist - fine grained sand to coarse grained gravel - poorly graded - sub-angular and sub-rounded gravel		G73		
				G74		238
		CLAY (Fill) - silty, trace sand, trace gravel (< 10 mm dia.), trace organics - dark brown to black - stiff, moist - high plasticity - sub-angular gravel		G75		
1				G76		
		CLAY - silty, trace to some sand, trace sulphide inclusions (< 10 mm dia.) - dark brown - firm to stiff, moist - high plasticity		G77		
				G78		237
2		SILT - light brown - soft, moist - low plasticity		G79		
		SILT (Till) - trace clay, trace sand, trace gravel (< 25 mm dia.) - light brown, firm, moist, low plasticity, sub-angular and sub-rounded gravel		G80		236
		END OF TEST HOLE AT 2.7 m IN SILT TILL Notes: 1. Power auger refusal at 2.7 m 2. No seepage or soughing observed. 3. Test hole backfilled with auger cuttings.				
3						235
4						

PENETRATION TESTS
✳ Becker ✳
◇ Dynamic Cone ◇
◆ SPT (Standard Pen Test) ◆
(Blows/300mm)
0 20 40 60 80 100
■ Total Unit Wt ■
(kN/m³)
16 17 18 19 20 21
Plastic MC Liquid
20 40 60 80 100

AECOM

LOGGED BY: Geoffrey Nolette | COMPLETION DEPTH: 2.74 m

REVIEWED BY: Nelson Ferreira | COMPLETION DATE: 3/17/09

PROJECT ENGINEER: Nelson Ferreira | Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-58**
LOCATION: UTM - N 5534121.617 E 626576.769		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 239.27

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

PENETRATION TESTS: ✳ Becker ✳ ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 ■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21 Plastic MC Liquid 20 40 60 80 100

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		SAND AND GRAVEL (Fill) - silty - brown, compact to dense, dry to moist - fine grained sand to coarse grained gravel, poorly graded - sub-angular gravel		G89		239
		CLAY (Fill) - silty, trace sand, trace gravel (< 5 mm dia.) - dark brown - firm, moist - intermediate plasticity - sub-angular gravel		G90		
1				G91		
				G92		238
				G93		
		CLAY - silty, trace to some sand - brown, firm to stiff, moist - high plasticity - sub-angular gravel		G94		
2		SILT - light brown - soft, moist - low plasticity		G95		237
		- some gravel below 2.4 m				
		SILT (Till) - trace clay, trace sand, trace gravel (< 25 mm dia.) - light brown - stiff, moist - low plasticity - sub-angular and sub-rounded gravel		G96		
3		END OF TEST HOLE AT 3.1 m IN SILT TILL Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings.				236
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-59**
LOCATION: UTM - N 5534101.940 E 626525.715		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 239.54

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS: Becker / Dynamic Cone / SPT (Standard Pen Test) (Blows/300mm) 0 20 40 60 80 100; Total Unit Wt (kN/m³) 16 17 18 19 20 21; Plastic MC Liquid 20 40 60 80 100	ELEVATION
0		TOPSOIL (100 mm)					
		CLAY - silty, sandy, trace gravel (< 5 mm dia.) - brown - firm to stiff, moist - intermediate plasticity - sub-angular gravel		G65			
				G66			239
				G67			
1				G68			
				G69			238
		SILT (Till) - trace clay, trace sand, trace gravel (< 25 mm dia.) - light brown - firm to stiff, moist - low plasticity - sub-angular and sub-rounded gravel		G70			
2				G71			237
				G72			
		END OF TEST HOLE AT 2.7 m IN SILT TILL Notes: 1. Power auger refusal at 2.7 m. 2. No seepage or sloughing observed. 3. Test hole backfilled with auger cuttings.					236
3							
4							

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 2.74 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/17/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-60**
LOCATION: UTM - N 5534122.833 E 626467.737		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 234.13

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⧄ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		CRUSHED LIMESTONE (50 mm) - light brown, compact to dense, dry to moist, 20 mm down, trace fines				234
		SAND AND GRAVEL (Fill) - trace clay, trace silt, trace organics - dark brown - compact to dense, dry - fine grained sand to medium grained gravel, poorly graded - sub-angular gravel	■	G97		
		CLAY - silty, trace sand, trace gravel (max. size 10 mm), trace organics - dark brown - firm, moist - intermediate plasticity - sub-angular gravel	■	G98		
			■	G99		
1			■	G100		233
		- stiff and high plasticity below 1.4 m	■	G101		
		SAND AND GRAVEL (Till) - silty, trace clay - light brown, compact to dense, dry to moist - fine grained sand to medium grained gravel, poorly graded - sub-angular gravel	■	G102		
2		END OF TEST HOLE AT 1.8 m IN SAND AND GRAVEL TILL Notes: 1. Power auger refusal at 1.8 m. 2. No seepage or sloughing observed. 3. Test hole backfilled with auger cuttings.				232
3						231
4						

PENETRATION TESTS
✳ Becker ✳
◇ Dynamic Cone ◇
◆ SPT (Standard Pen Test) ◆
(Blows/300mm)
0 20 40 60 80 100
■ Total Unit Wt ■
(kN/m^3)
16 17 18 19 20 21
Plastic MC Liquid
20 40 60 80 100

AECOM	LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 1.83 m
	REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
	PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-61**
LOCATION: UTM - N 5534051.395 E 626438.942		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.51

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS ✳ Becker ✳ ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 ■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21 Plastic MC Liquid 20 40 60 80 100	ELEVATION
0		ASPHALT (75 mm)					
		CRUSHED LIMESTONE (530 mm) - light brown - compact to dense, dry to moist - 20 mm down, trace fines		G17			
				G18			240
		SILT (Till) - some sand, trace clay, trace gravel (< 15 mm dia.) - light brown - firm, moist - low to intermediate plasticity - sub-angular gravel		G19			
1				G20			
		SAND (Till) - silty, trace gravel (< 10 mm dia.) - light brown, compact, dry to moist - fine to coarse grained sand, poorly graded - sub-angular gravel		G21			239
		END OF TEST HOLE AT 1.5 m IN SAND TILL Notes: 1. Power auger refusal at 1.5 m. 2. No seepage or sloughing observed. 3. Geotextile fabric at 1.2 m. 4. Test hole backfilled with auger cuttings. 5. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-61 (CORE). Cored test hole located 1.2 m west (UTM N - 5534051.514, E - 626437.788).					
2							238
3							237
4							

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 1.52 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/13/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-62**
LOCATION: UTM - N 5534154.295 E 626435.800		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.37

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

PENETRATION TESTS: ✳ Becker ✳ | ◇ Dynamic Cone ◇ | ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 | ■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21 | Plastic MC Liquid 20 40 60 80 100

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		ASPHALT (100 mm)				
		SAND AND GRAVEL (Fill) - silty, trace clay - light brown - compact to dense, moist to wet - fine grained sand to coarse grained gravel, poorly graded - sub-angular gravel		G25		240
		CLAY (Fill) - silty, trace sand, trace gravel (< 15 mm dia.), trace silt inclusions (< 5 mm dia.), trace organics - dark brown to black - firm, moist - high plasticity - sub-angular gravel		G26 G27		
1				G28		
		CLAY - silty, trace sand, trace sulphide inclusions (< 25 mm dia.) - brown - firm to stiff, moist - high plasticity		G29		239
		SILT (Till) - clayey, trace sand, trace gravel (max. size 15 mm) - light brown - firm, moist - intermediate plasticity - sub-angular gravel		G30		
2		- soft below 2.0 m		G31		
		SAND (Till) - silty, trace clay inclusions (< 10 mm dia.), trace gravel - light brown, compact to dense, dry to moist - fine grained sand to medium grained gravel, poorly graded, sub-angular gravel		G32		238
		END OF TEST HOLE AT 2.4 m IN SAND TILL Notes: 1. Power auger refusal at 2.4 m. 2. No seepage or sloughing observed. 3. Test hole backfilled with auger cuttings. 4. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-62 (CORE). Cored test hole located 0.6 m west (UTM N - 5534154.335, E - 626435.224).				
3						237
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 2.44 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/13/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-63**
LOCATION: UTM - N 5534223.127 E 626425.867		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.44

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS ✳ Becker ✳ ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 ■ Total Unit Wt ■ (kN/m^3) 16 17 18 19 20 21 Plastic MC Liquid 20 40 60 80 100	ELEVATION
0		ASPHALT (100 mm)					
		SAND AND GRAVEL (Fill) - silty - light brown, compact to dense, dry to moist - fine grained sand to coarse grained gravel, poorly graded, sub-angular gravel		G33			
		CLAY (Fill) - silty, trace sand, trace gravel (< 5 mm dia.) - dark brown - firm to stiff, moist - high plasticity - sub-angular and sub-rounded gravel		G34			240
1		SILT (Till) - sandy, trace gravel (max. size 5 mm) - light brown - soft, moist - low plasticity - sub-angular gravel		G35			
				G36			
				G37			239
				G38			
2				G39			
		SAND (Till) - silty, some gravel (max. size 15 mm) - light brown, compact to dense, dry to moist - fine to coarse grained sand, poorly graded, sub-rounded gravel		G40			238
		END OF TEST HOLE AT 2.4 m IN SAND TILL Notes: 1. Power auger refusal at 2.4 m. 2. No seepage or sloughing observed. 3. Test hole backfilled with auger cuttings. 4. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-63 (CORE). Cored test hole located 0.7 m east (UTM N - 5534223.252, E - 626426.578).					
3							237
4							

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 2.44 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/17/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-64**
LOCATION: UTM - N 5534321.782 E 626432.510		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.27

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

PENETRATION TESTS: ✳ Becker ✳ | ◇ Dynamic Cone ◇ | ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 | ■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21 | Plastic MC Liquid 20 40 60 80 100

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		ASPHALT (100 mm)				
		SAND (Fill) - silty, some gravel - light brown - compact to dense, dry - fine grained sand to coarse grained gravel, poorly graded - sub-angular and sub-rounded gravel		G41		240
		- clay lense (75 mm dia.) below 0.3 m		G42		
		CLAY (Fill)- silty, trace sand, trace gravel (< 10 mm dia.), trace sulphide inclusions (< 5 mm dia.), trace organics - dark brown - firm, moist - high plasticity		G43		
1				G44		
		SAND AND GRAVEL (Fill) - silty - light brown, compact, moist, fine grained sand to coarse grained gravel - poorly graded, sub-angular and sub-rounded gravel				239
		CLAY - silty, trace sand - dark brown - firm, moist, high plasticity		G45		
		SILT (Till) - trace clay, sandy, trace gravel (< 25 mm dia.) - light brown - firm, moist - low plasticity - sub-angular and sub-rounded gravel		G46		
2				G47		238
				G48		
		END OF TEST HOLE AT 2.4 m IN SILT TILL Notes: 1. Power auger refusal at 2.4 m. 2. No seepage or sloughing observed. 3. Test hole backfilled with auger cuttings. 4. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-64 (CORE). Cored test hole located 1.1 m east (UTM N - 5534321.614, E - 626431.470).				
3						237
4						

AECOM	LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 2.44 m
	REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/17/09
	PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-65**
LOCATION: UTM - N 5534100.133 E 626399.324		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.77

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

PENETRATION TESTS: ✳ Becker ✳ | ◇ Dynamic Cone ◇ | ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 | ■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21 | Plastic MC Liquid 20 40 60 80 100

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		CLAY (Fill) - silty, sandy, trace gravel (< 5 mm dia.), trace sulphide inclusions (< 30 mm dia.) - brown - firm, moist - intermediate plasticity - sub-angular and sub-rounded gravel		G153		
				G154		
				G155		240
1				G156		
		SILT - trace clay - light brown (oxidized) - soft, moist - low plasticity		G157		
		CLAY - silty, trace sand - brown - firm to stiff, moist - high plasticity		G158		239
2		SILT (Till) - sandy, trace clay, trace gravel (< 25 mm dia.) - light brown - soft, moist - low plasticity - sub-angular and sub-rounded gravel		G159		
		- some gravel and very stiff below 2.4 m		G160		
		END OF TEST HOLE AT 2.7 m IN SILT TILL Notes: 1. Power auger refusal at 2.7 m. 2. No seepage or sloughing observed. 3. Test hole backfilled with auger cuttings.				238
3						
						237
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 2.74 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-66**
LOCATION: UTM - N 5534116.452 E 626351.390		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 241.19

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

PENETRATION TESTS: ✳ Becker ✳ | ◇ Dynamic Cone ◇ | ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100 | ■ Total Unit Wt ■ (kN/m^3) 16 17 18 19 20 21 | Plastic MC Liquid 20 40 60 80 100

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		ASPHALT (125 mm)				
		SAND AND GRAVEL (Fill) -silty, trace clay, some oxidations - grey - compact to dense, moist - fine grained sand to medium grained gravel - poorly graded - sub-angular gravel		G105		241
				G106		
				G107		
1		CLAY - silty, trace sand, trace gravel (< 15 mm dia.), trace organics - dark brown to black - firm, moist - intermediate to high plasticity - sub-rounded gravel		G108		240
		- dark brown and very stiff below 1.4 m		G109		
		SILT (Till) - trace clay, trace sand, trace gravel (< 45 mm dia.) - light brown - firm, moist - low plasticity - sub-angular gravel		G110		
2				G111		239
		- soft below 2.0 m				
		SAND (Till) - silty, some gravel, trace clay - light brown, compact dense, dry to moist - fine grained sand to coarse grained gravel, poorly graded, sub-rounded gravel		G112		
		END OF TEST HOLE AT 2.7 m IN SAND TILL				
3		Notes: 1. Power auger refusal at 2.7 m. 2. No seepage or sloughing observed. 3. Test hole backfilled with auger cuttings. 4. Pavement structure cored with 150 mm hollow diameter diamond core drill bit in supplemental test hole, TH-09-65 (CORE). Cored test hole located 2.0 m south (UTM N - 5534114.495, E - 626351.466).				238
4						

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 2.74 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-67**
LOCATION: UTM - N 5534102.220 E 626300.964		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 241.15

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS / Total Unit Wt / Plastic MC Liquid	ELEVATION
0		SAND AND GRAVEL (Fill) - silty - light brown, compact to dense, dry to moist, fine grained sand to coarse grained, gravel, poorly graded, sub-angular and sub-rounded gravel					241
		CLAY (Fill) - silty, trace sand, trace gravel (< 10 mm dia.), trace organics - dark brown to black - firm to stiff, moist - intermediate to high plasticity - sub-angular gravel		G145			
				G146			
				G147			
1				G148			240
				G149			
		CLAY - silty, trace to some sand - brown - firm to stiff, moist - high plasticity - sub-angular gravel		G150			
2		- trace sulphide inclusions (< 10 mm dia.) and brown below 1.8 m		G151			239
		- stiff below 2.0 m					
				G152			
3		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings.					238
4							

PENETRATION TESTS: ✳ Becker ✳ ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100
Total Unit Wt (kN/m³) 16 17 18 19 20 21
Plastic MC Liquid 20 40 60 80 100

AECOM	LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m	
	REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09	
	PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1	

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-68**
LOCATION: UTM - N 5534114.495 E 626227.700		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 241.14

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS / Total Unit Wt / Plastic MC Liquid	ELEVATION
0		SAND AND GRAVEL (Fill) - silty, trace clay - light brown - compact to dense, moist - fine grained sand to medium grained gravel - poorly graded - sub-angular gravel	■	G113			241
			■	G114			
		CLAY - silty, sandy, trace gravel (< 20 mm dia.) - brown - firm, moist - intermediate plasticity - sub-angular gravel	■	G115			
1			■	G116			240
			■	G117			
			■	G118			
		- trace sulphide inclusions (< 10 mm dia.) and very stiff below 2.0 m					
2			■	G119			239
		SILT (Till) - some sand, trace clay, trace gravel (< 25 mm dia.) - light brown - firm, moist, low plasticity - sub-angular gravel	■	G120			
3		END OF TEST HOLE AT 3.1 m IN SILT TILL Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings					238
4							

PENETRATION TESTS: ✳ Becker ✳ ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100; ■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21; Plastic MC Liquid 20 40 60 80 100

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-69**
LOCATION: UTM - N 5534099.419 E 626182.415		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.87

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS: Becker / Dynamic Cone / SPT (Standard Pen Test) (Blows/300mm) 0 20 40 60 80 100; Total Unit Wt (kN/m³) 16 17 18 19 20 21; Plastic MC Liquid 20 40 60 80 100	ELEVATION
0		CLAY (Fill) - silty, trace sand, trace gravel (< 5 mm dia.), trace organics - dark brown - firm, moist, high plasticity - sub-angular gravel		G137			
		SAND (Fill) - silty, some clay, some gravel - brown, compact to dense, dry to moist, low plasticity - fine grained sand to coarse grained gravel - well graded - sub-angular gravel		G138 G139			240
1		CLAY (FILL) - silty, trace sand, trace gravel (< 15 mm dia.), some organics - dark brown to black - firm, moist - high plasticity - sub-angular gravel		G140 G141			
		CLAY - silty, trace sand - brown - very stiff, moist - high plasticity - sub-angular gravel		G142			239
2		- trace sulphide inclusions (< 10 mm dia.) and brown below 1.7 m - stiff below 1.8 m		G143			
				G144			238
3		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings					237
4							

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-70**
LOCATION: UTM - N 5534111.920 E 626142.487		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.96

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	PENETRATION TESTS: ✳ Becker ✳ ◇ Dynamic Cone ◇ ◆ SPT (Standard Pen Test) ◆ (Blows/300mm) 0 20 40 60 80 100; ■ Total Unit Wt ■ (kN/m³) 16 17 18 19 20 21; Plastic MC Liquid 20 40 60 80 100	ELEVATION
0		SAND AND GRAVEL (Fill) - silty, some clay - brown - compact to dense, moist - fine grained sand to coarse grained gravel - poorly graded - sub-angular gravel		G121			
				G122			
				G123			
1							240
				G124			
		CLAY (Fill) - silty, some gravel (< 5 mm dia.), trace sand, trace organics - brown, firm to stiff, moist - intermediate to high plasticity - sub-angular and sub-rounded gravel		G125			
		CLAY - silty, trace sand, trace organics - dark brown to black - firm to stiff, moist - high plasticity		G126			
2				G127			239
		- trace sulphide inclusions (< 10 mm dia.) and stiff below 2.4 m		G128			
3							238
		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or sloughing observed. 2. Test hole backfilled with auger cuttings.					
4							237

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

PROJECT: Inkster Boulevard Widening - West of Brookside Blvd.	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-71**
LOCATION: UTM - N 5534099.036 E 626100.317		PROJECT NO.: 0265-411-01
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 240.69

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	SPT (N)	ELEVATION
0		SAND AND GRAVEL (Fill) - silty - brown, compact to dense, dry to moist - fine grained sand to coarse grained gravel, poorly graded - sub-angular gravel		G129		
		CLAY (Fill) - silty, trace sand, trace gravel (< 5 mm dia.), trace organics - dark brown - firm, moist - intermediate plasticity - sub-angular gravel		G130		
				G131		240
1				G132		
				G133		
		CLAY - silty, trace sand - brown - firm, moist - intermediate plasticity - sub-angular gravel		G134		239
		- trace sulphide inclusions (< 5 mm dia.) and brown below 1.6 m - very stiff below 1.8 m		G135		
2						
				G136		238
3		END OF TEST HOLE AT 3.1 m IN CLAY Notes: 1. No seepage or soughing observed. 2. Test hole backfilled with auger cuttings.				
						237
4						

PENETRATION TESTS
✳ Becker ✳
◇ Dynamic Cone ◇
◆ SPT (Standard Pen Test) ◆
(Blows/300mm)
0 20 40 60 80 100
■ Total Unit Wt ■
(kN/m³)
16 17 18 19 20 21
Plastic MC Liquid
20 40 60 80 100

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 3/21/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

LOG OF TEST HOLE INKSTER WEST TH LOGS.GPJ UMA WINN.GDT 4/24/09

Appendix B
Photos of Core Samples

Photo 1: Core sample from TH-09-51.

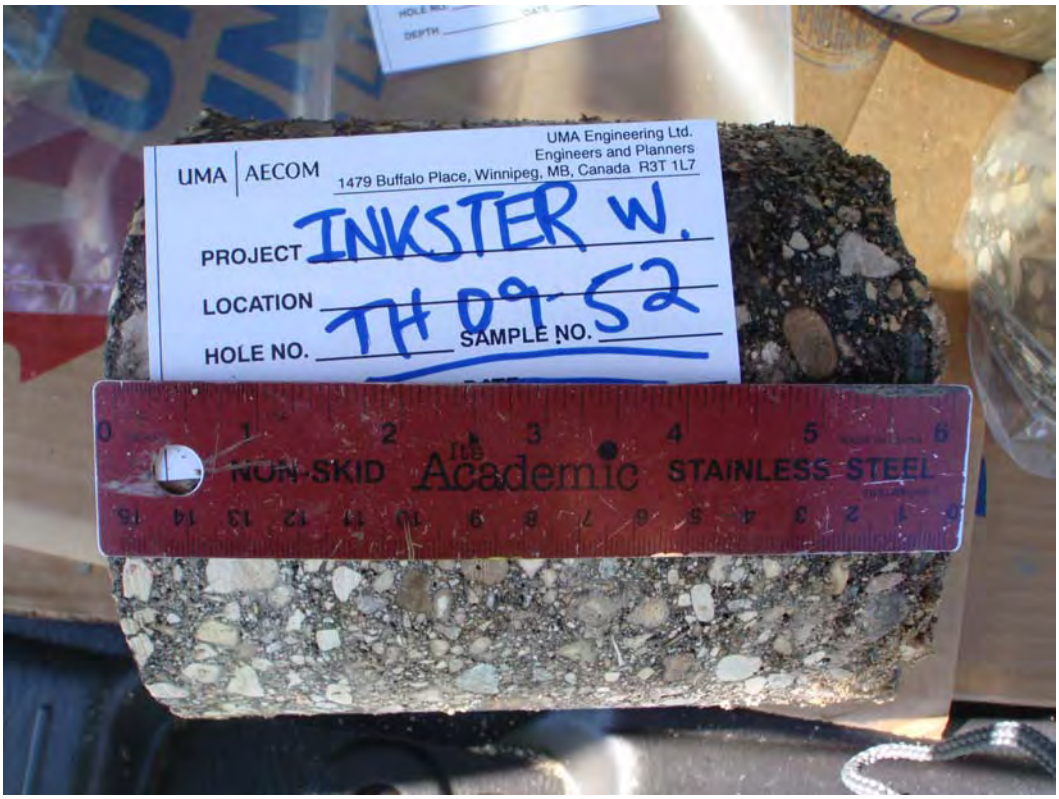


Photo 2: Core sample from TH-09-52.

Photo 3: Core sample from TH-09-53

Photo 4: Core sample from TH-09-54

Photo 5: Core sample from TH-09-61.

Photo 6: Core sample from TH-09-62.

Photo 7: Core sample from TH-09-63

Photo 8: Core sample from TH-09-64

AECOM

City of Winnipeg

Inkster Boulevard Widening Brookside Boulevard to Keewatin Street Subsurface Investigation

Prepared by:

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Project Number:

0265 411 00 (4.4.2)

Date:

March, 2009

Statement of Qualifications and Limitations

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AECOM
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March 9, 2009

Project Number: 0265 411 00 (4.4.2)

Mr. Ron Bruce, P.Eng.
AECOM Canada Ltd.
2 – 1600 Ness Avenue
Madison Square
Winnipeg, Manitoba
R3J 3W7

Dear Sir:

Re: Inkster Boulevard Widening Field and Laboratory Investigation

AECOM Canada Ltd. is pleased to present our report on the above referenced project. If you have any questions, please do not hesitate to contact Nelson Ferreira or Jared Baldwin of our office.

Sincerely,
AECOM Canada Ltd.

Ron Typliski, P.Eng.
Vice-President, Manitoba District
Canada West Region
/dh

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Revision Log

Revision #	Revised By	Date	Issue / Revision Description
1	N. Ferreira	March 9/09	Final

Signature Page

Report Prepared By:

for Jared Baldwin, M.Sc., EIT

Report Reviewed By:

PROVINCE OF MANITOBA
Mar 9/09
J. E.
TALLIN
REGISTERED PROFESSIONAL ENGINEER

Jeff Tallin, P.Eng.

APEGM
Certificate of Authorization
AECOM Canada Ltd. (MB)
No. 4671 Date: 09/03/09

Table of Contents

Appendices

1. Summary

This report summarizes the results of the subsurface investigation completed for the proposed Inkster Boulevard Widening between Brookside Boulevard and Keewatin Street. The project consists of construction of a four lane roadway between Brookside Boulevard and King Edward Street and King Edward Street and Keewatin Street, and updates to the intersections at Inkster Boulevard and Brookside Boulevard, King Edward Street, and Keewatin Street. Information regarding the subsurface conditions along the multi-use path is provided for design and construction.

2. Field Investigation and Laboratory Program

A total of 50 test holes were drilled along the proposed Inkster Boulevard alignment widening between Brookside Boulevard and Keewatin Street at the locations shown on Figures 1 to 7.

The field investigation was split in two phases. The first phase was conducted on January 22 and 23, 2009 and comprised drilling the test holes along the proposed east bound alignment and multi-use path. These test holes were drilled to a depth of 3.1 m below ground surface by Paddock Drilling Ltd. using an Acker SS2 Maruca track drill equipped with 125 mm diameter solid stem augers. The first phase of the investigation was supervised by Jared Baldwin, EIT of AECOM.

The second phase was conducted on January 27, 28 and 31, 2009 and comprised drilling the test holes along the existing alignment of Inkster Boulevard and intersecting streets. These test holes were drilled to a depth of 3.1 m below ground surface by Paddock Drilling Ltd. using a Brat 22 (January 27 and 28) and Canterra CT250 (January 31) truck mounted drills equipped with 125 mm diameter solid stem augers. The pavement structure (asphalt and/or concrete) was cored by Quality Coring using a portable coring machine equipped with a hollow 150 mm diameter diamond core drill bit. TH-09-38 was cored but was not drilled due to the proximity to overhead and buried services. During this phase traffic protection was provided by Guardian Traffic Services. Two test holes, TH-09-08 and TH-09-35, were drilled on the shoulder adjacent to the locations cored in the pavement core due to proximity to moving traffic. The second phase of the investigation was supervised by Geoff Nolette of AECOM.

Other pertinent information such as groundwater and drilling conditions were also recorded during the field investigations. Disturbed (auger cuttings) samples retrieved during the field investigation were transported to AECOM's material testing laboratory for further testing.

The laboratory testing program consisted of moisture content determination, Atterberg limits and hydrometer tests. The laboratory information has been included on the test hole logs and a summary table of the laboratory test results has been included in Appendix A.

Test hole locations were surveyed and marked and any changes to their location as a result of buried and overhead services were recorded, marked and surveyed. UTM coordinates are provided on the test hole logs.

Photographs of the core samples of the existing pavement are included in Appendix B. No tests were conducted on the core samples.

Figures

Test Hole Plan

B SIZE 11" x 17" (279.4mm x 431.8mm)

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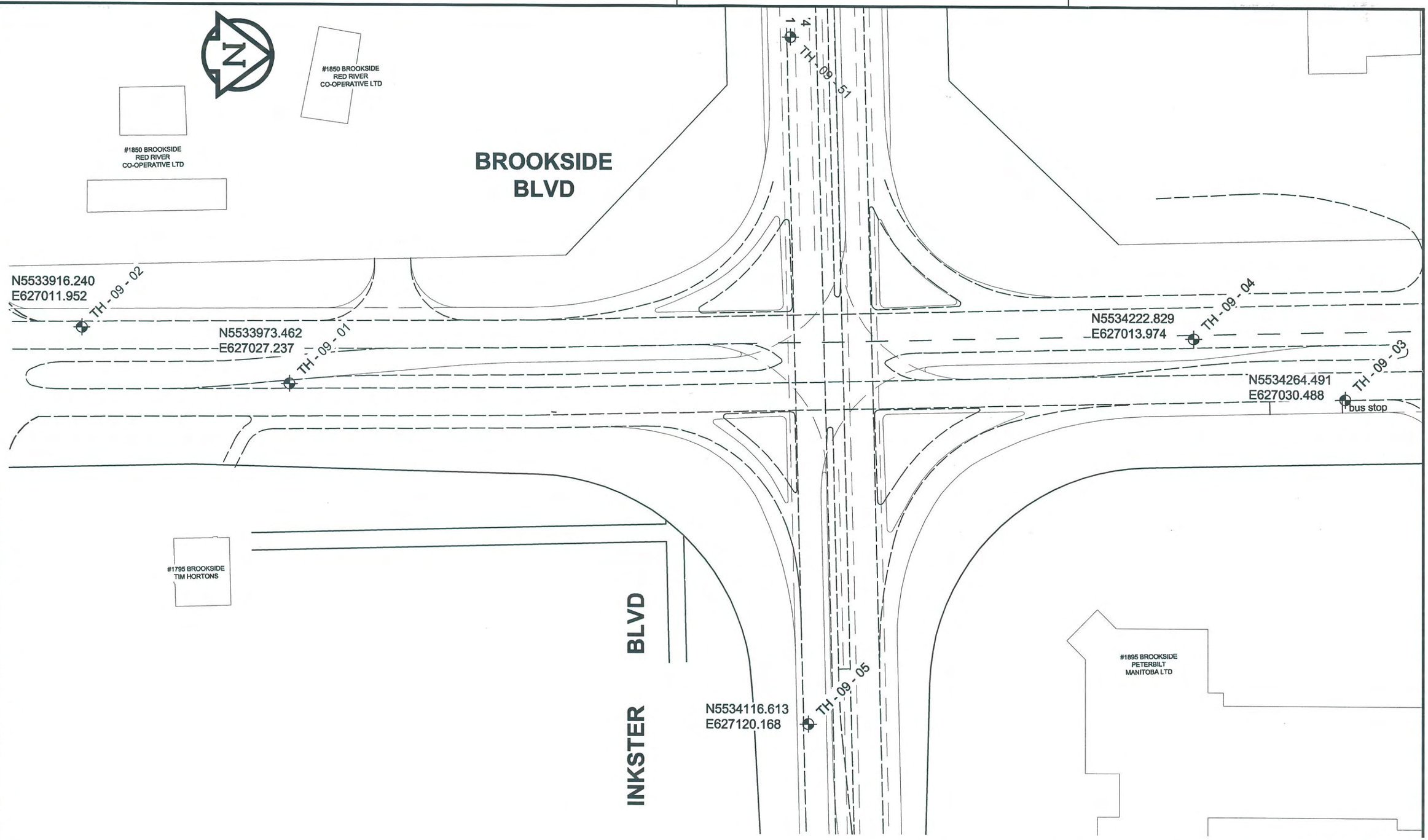

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The City of Winnipeg
Public Works Department- Transportation Engineering Division
Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
Brookside Boulevard to Keewatin Street
Figure - 1

B SIZE 11" x 17" (279.4mm x 431.8mm)
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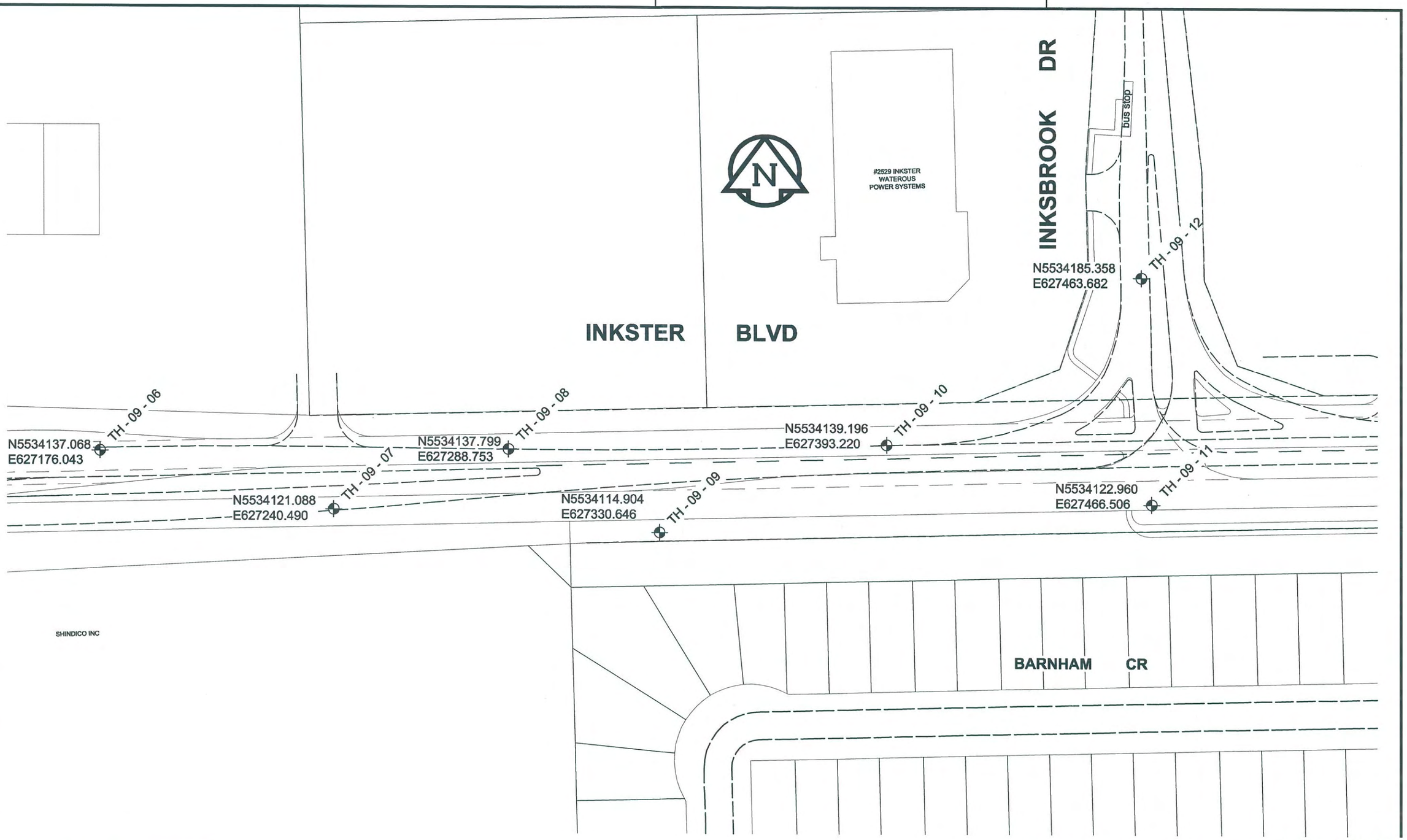

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Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
Brookside Boulevard to Keewatin Street

Figure - 2

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#2525 INKSTER FORT GARRY INDUSTRIES LTD

#2521 INKSTER FORT GARRY FIRE TRUCKS

N

MOBILE ST

INKSTER BLVD

N5534167.296
E627871.833
TH - 09 - 21

bus stop

N5534149.473
E627825.863
TH - 09 - 19

N5534143.756
E627587.411
TH - 09 - 14

N5534146.202
E627685.939
TH - 09 - 16

N5534128.903
E627773.266
TH - 09 - 18

N5534127.010
E627639.475
TH - 09 - 15

N5534118.510
E627559.372
TH - 09 - 13

N5534118.993
E627715.510
TH - 09 - 17

N5534124.981
E627866.020
TH - 09 - 20

N5534122.691
E627890.477
TH - 09 - 22

BARNHAM CR

TALLMAN ST

ALSIP DR

BURROWS AVE

0 10 20 m SCALE 1:1000

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Public Works Department- Transportation Engineering Division
Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
Brookside Boulevard to Keewatin Street
Figure - 3

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CLEVELAND ST

INKSTER BLVD

TH - 09 - 24
N5534152.363
E627950.493

TH - 09 - 26
N5534156.725
E628141.312

TH - 09 - 29
N5534158.426
E628208.809

TH - 09 - 30
N5534141.000
E628244.818

TH - 09 - 23

bus stop

TH - 09 - 25
N5534130.681
E628040.626

TH - 09 - 27
N5534132.840
E628186.686

TH - 09 - 28
N5534132.430
E628207.508

N5534125.383
E627913.564

PUBLIC RESERVE

BURDICK PL

EDGECOMBE COVE

BURDICK PL

GROVERDALE AVE

0 10 20 m SCALE 1:1000

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Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
Brookside Boulevard to Keewatin Street
Figure - 4

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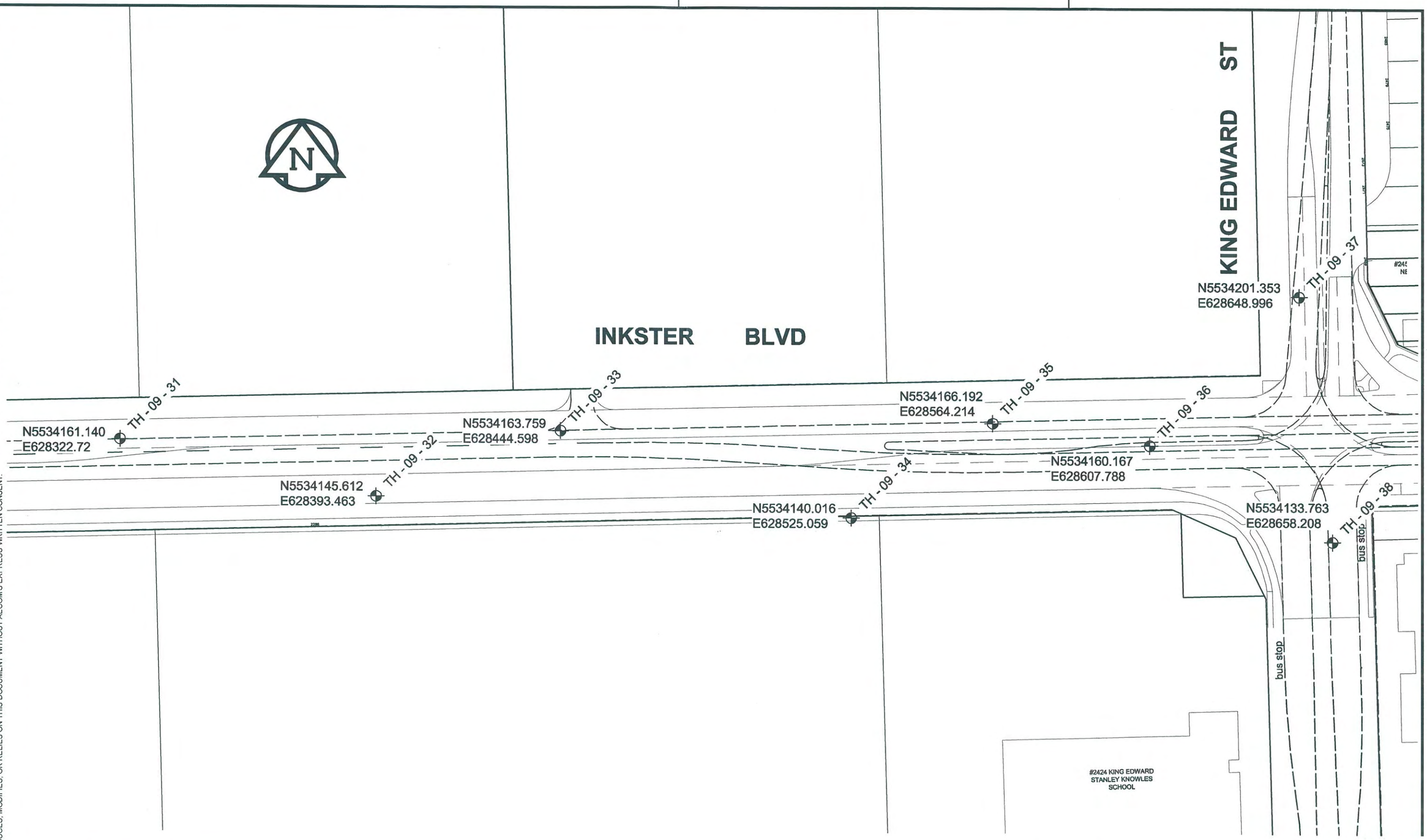

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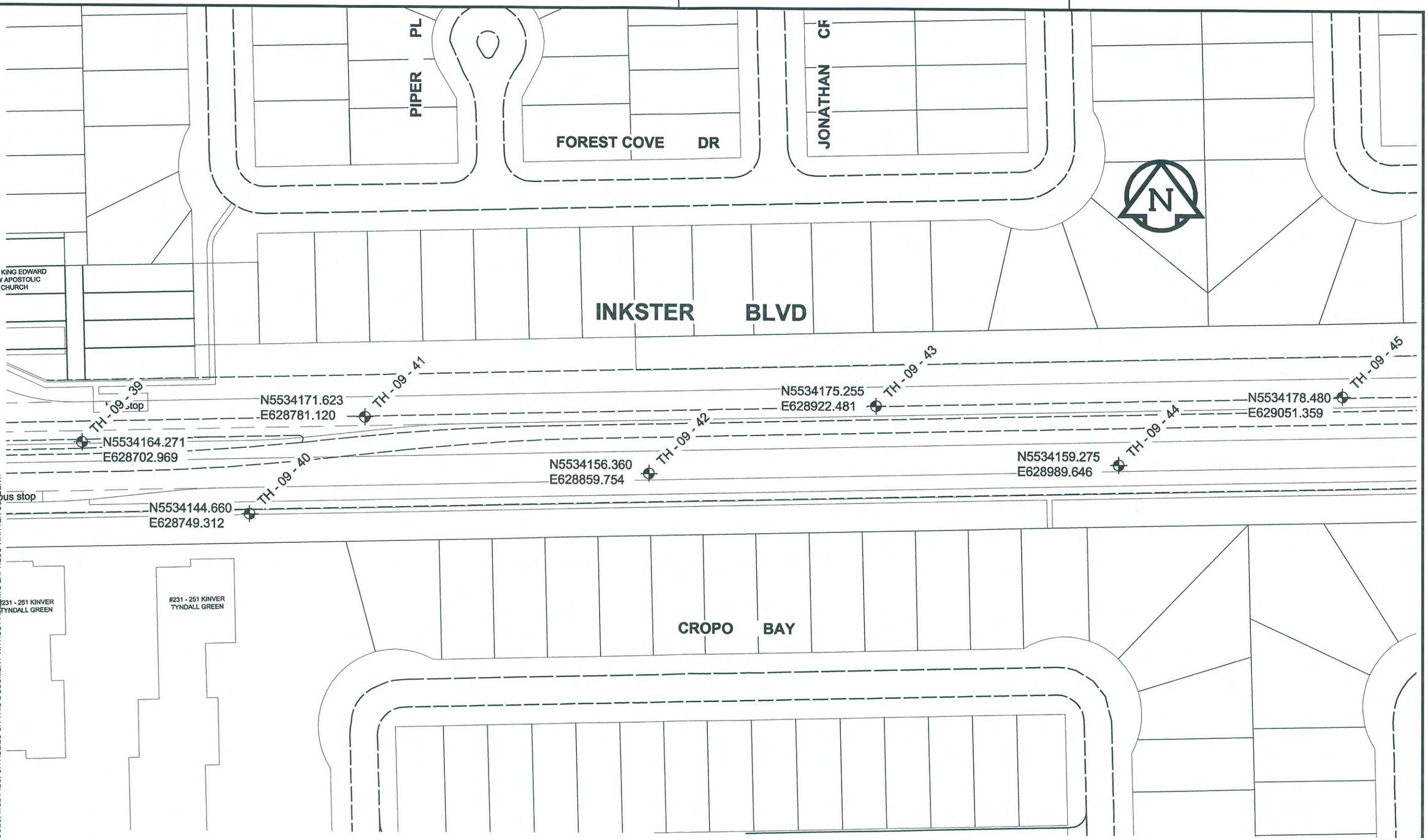
Public Works Department- Transportation Engineering Division
Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
Brookside Boulevard to Keewatin Street
Figure - 5



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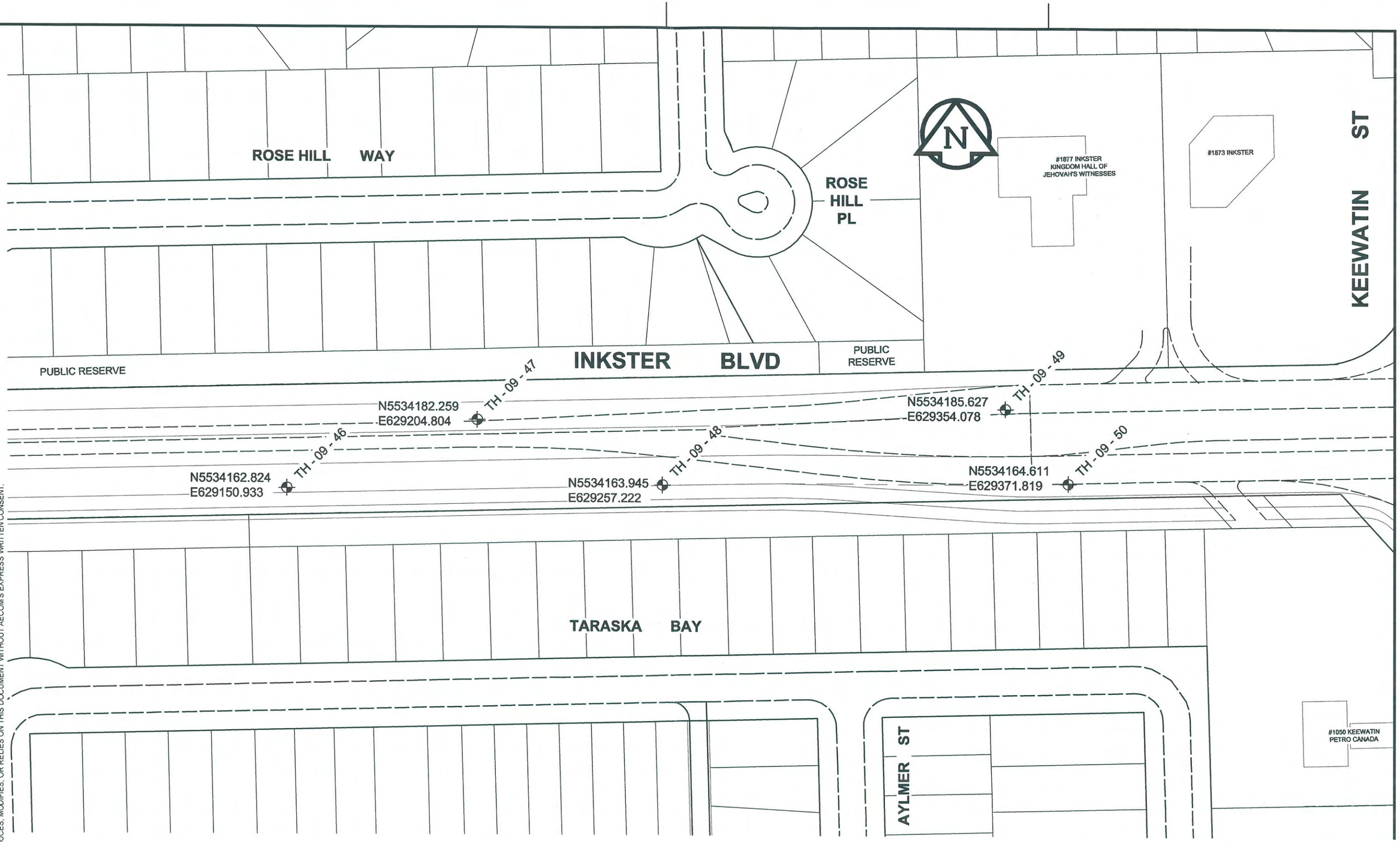
Public Works Department- Transportation Engineering Division
Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
Brookside Boulevard to Keewatin Street

Figure - 6



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Inkster Boulevard Widening and Rehabilitation

Inkster Boulevard - Testhole Locations
Brookside Boulevard to Keewatin Street
Figure - 7

Appendix A
Test Hole Logs

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.

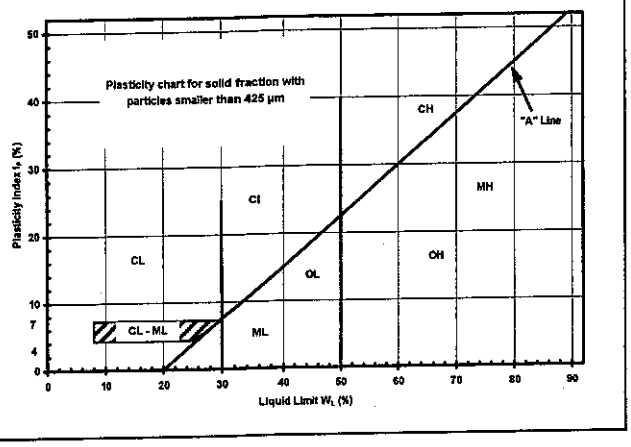
In order to observe compliance with the design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated, we recommend that all construction operations dealing with earth work and the foundations be observed by an experienced 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

Description				UMA Log Symbols	USCS Classification	Laboratory Classification Criteria			
						Fines (%)	Grading	Plasticity	Notes
COARSE GRAINED SOILS	GRAVELS (More than 50% of coarse fraction of gravel size)	CLEAN GRAVELS (Little or no fines)	Well graded gravels, sandy gravels, with little or no fines		GW	0-5	$C_U > 4$ $1 < C_C < 3$		Dual symbols if 5-12% fines. Dual symbols if above "A" line and $4<W_P<7$ $C_U = \frac{D_{60}}{D_{10}}$ $C_C = \frac{(D_{30})^2}{D_{10} x D_{60}}$
			Poorly graded gravels, sandy gravels, with little or no fines		GP	0-5	Not satisfying GW requirements		
		DIRTY GRAVELS (With some fines)	Silty gravels, silty sandy gravels		GM	> 12		Atterberg limits below "A" line or $W_P<4$	
			Clayey gravels, clayey sandy gravels		GC	> 12		Atterberg limits above "A" line or $W_P<7$	
	SANDS (More than 50% of coarse fraction of sand size)	CLEAN SANDS (Little or no fines)	Well graded sands, gravelly sands, with little or no fines		SW	0-5	$C_U > 6$ $1 < C_C < 3$		
			Poorly graded sands, gravelly sands, with little or no fines		SP	0-5	Not satisfying SW requirements		
		DIRTY SANDS (With some fines)	Silty sands, sand-silt mixtures		SM	> 12		Atterberg limits below "A" line or $W_P<4$	
			Clayey sands, sand-clay mixtures		SC	> 12		Atterberg limits above "A" line or $W_P<7$	
FINE GRAINED SOILS	SILTS (Below 'A' line negligible organic content)	$W_L<50$	Inorganic silts, silty or clayey fine sands, with slight plasticity		ML			Classification is Based upon Plasticity Chart	
		$W_L>50$	Inorganic silts of high plasticity		MH				
	CLAYS (Above 'A' line negligible organic content)	$W_L<30$	Inorganic clays, silty clays, sandy clays of low plasticity, lean clays		CL				
		$30<W_L<50$	Inorganic clays and silty clays of medium plasticity		CI				
		$W_L>50$	Inorganic clays of high plasticity, fat clays		CH				
	ORGANIC SILTS & CLAYS (Below 'A' line)	$W_L<50$	Organic silts and organic silty clays of low plasticity		OL				
		$W_L>50$	Organic clays of high plasticity		OH				
HIGHLY ORGAINIC SOILS			Peat and other highly organic soils		Pt	Von Post Classification Limit		Strong colour or odour, and often fibrous texture	

	Asphalt		Till		AECOM
	Concrete		Bedrock (Undifferentiated)		
	Fill		Bedrock (Limestone)		

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



FRACTION		SEIVE SIZE (mm)		DEFINING RANGES OF PERCENTAGE BY WEIGHT OF MINOR COMPONENTS	
		Passing	Retained	Percent	Identifier
Gravel	Coarse	76	19	35-50	and
	Fine	19	4.75		
Sand	Coarse	4.75	2.00	20-35	"y" or "ey" *
	Medium	2.00	0.425		
	Fine	0.425	0.075	10-20	some
Silt (non-plastic) or Clay (plastic)		< 0.075 mm		1-10	trace

* for example: gravelly, sandy clayey, silty

Definition of Oversize Material

COBBLES: 76mm to 300mm diameter
BOULDERS: >300mm diameter

LEGEND OF SYMBOLS

Laboratory and field tests are identified as follows:

- q_u - 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/m^3).
- 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

AECOM

City of Winnipeg
Inkster Widening - Brookside Boulevard to Keewatin Street
Subsurface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-01	N - 5533973.462, E - 627027.237	Asphalt	152	Concrete	355											
						Gravel (Fill)	0.4	0.5	7.1							
						Sand and Clay (Fill)	0.5	0.6	11.0							
						Sand and Clay (Fill)	0.8	0.9	10.9	12.0	39.9	29.0	19.0	13.1	32.5	19.4
						Clay	1.1	1.2	36.7							
						Clay	1.4	1.5	37.1							
						Clay	1.7	1.8	43.7							
						Clay	2.0	2.1	35.8							
						Clay	2.6	2.7	38.0							
TH-09-02	N - 5533916.240, E - 627011.952	Asphalt	101	Concrete	203											
						Sand (Pit Run)	0.3	0.5	9.6							
						Sand (Pit Run)	0.5	0.6	9.3							
						Clay	0.8	0.9	21.4							
						Clay	1.1	1.2	22.4							
						Clay	1.4	1.5	23.7							
						Clay	1.7	1.8	23.2							
						Clay	2.0	2.1	27.3							
						Clay	2.6	2.7	37.4							
TH-09-03	N - 5534264.491, E - 627030.488			Concrete	254											
						Sand (Limestone)	0.3	0.4	24.4							
						Clay	0.5	0.6	39.6							
						Clay	0.8	0.9	37.9							
						Clay	1.1	1.2	37.2							
						Clay	1.4	1.5	49.6							
						Clay	1.7	1.8	41.6							
						Clay	2.0	2.1	40.4							
						Clay	2.6	2.7	45.4							
TH-09-04	N - 5534222.829, E - 627103.974	Asphalt	101	Concrete	254											
						Sand and Clay (Fill)	0.3	0.4	23.3							
						Clay	0.5	0.6	38.3							
						Clay	0.8	0.9	36.3							
						Clay	1.1	1.2	36.9							
						Clay	1.4	1.5	42.2							
						Clay	1.7	1.8	44.5							
						Clay	2.0	2.1	48.3							
						Clay	2.6	2.7	39.3							
TH-09-05	N - 5534116.613, E - 627120.168	Asphalt	101													
						Sand and Clay (Fill)	0.2	0.3	14.9							
						Sand (Pit Run)	0.5	0.6	8.0							
						Clay (Fill)	0.8	0.9	14.3							
						Clay (Fill) and Clay	1.1	1.2	27.9	3.0	19.7	23.7	53.6	14.4	55.9	41.5
						Clay	1.4	1.5	37.5							
						Clay	1.7	1.8	30.4							
						Clay	2.0	2.1	36.6							
						Clay	2.6	2.7	41.9							
TH-09-06	N - 5534137.068, E - 627176.043	Asphalt	152													
						Sand (Pit Run)	0.2	0.3	7.3							
						Sand (Pit Run)	0.5	0.6	8.7							
						Clay	0.8	0.9	30.2	0.0	9.4	17.5	73.1	24.7	75.2	50.5
						Clay	1.1	1.2	33.0							
						Clay	1.4	1.5	36.9							
						Clay	1.7	1.8	39.7							
						Clay	2.0	2.1	41.2							
						Clay	2.6	2.7	46.3							
TH-09-07	N - 5534121.088, E - 627240.490	Asphalt	101													
						Sand (Fill)	0.2	0.3	5.9							
						Clay	0.5	0.6	5.6							
						Clay	0.8	0.9	14.0							
						Clay	1.1	1.2	16.1							
						Clay	1.4	1.5	13.2							
						Clay	1.7	1.8	34.9							
						Clay	2.0	2.1	22.8							
						Clay	2.6	2.7	44.0							

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Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-08	N - 5534137.799, E - 627288.753 on shoulder	Asphalt	174			Sand (Pit Run)	0.2	0.3	10.1							
						Sand (Pit Run)	0.5	0.6	7.6							
						Clay	0.8	0.9	13.6							
						Clay	1.1	1.2	30.0							
						Clay	1.4	1.5	32.8							
						Clay	1.7	1.8	32.7							
						Clay	2.0	2.1	35.4							
						Clay	2.6	2.7	42.2							
TH-09-09	N - 5534114.904, E - 627330.646						0.2	0.3	28.8							
						Clay	0.5	0.6	23.2	30.8	17.5	16.9	34.8	21.8	59.1	37.3
						Clay	0.8	0.9	25.4							
						Clay	1.1	1.2	30.3							
						Clay	1.4	1.5	40.0							
						Clay	1.7	1.8	45.8							
						Clay	2.0	2.1	53.3							
						Clay	2.6	2.7	53.6							
TH-09-10	N - 5534139.196, E - 627393.220	Asphalt	178													
						Sand (Pit Run)	0.2	0.3	4.8							
						Clay	0.5	0.6	5.3							
						Clay	0.8	0.9	29.7							
						Clay	1.1	1.2	36.6							
						Clay	1.4	1.5	34.1							
						Clay	1.7	1.8	27.3							
						Clay	2.0	2.1	32.7							
						Clay	2.6	2.7	42.6							
TH-09-11	N - 5534122.960, E - 627466.506					Clay	0.2	0.3	37.6							
						Clay	0.5	0.6	37.8							
						Clay	0.8	0.9	30.2							
						Clay	1.1	1.2	31.8							
						Clay	1.4	1.5	38.2							
						Clay	1.7	1.8	43.1							
						Clay	2.0	2.1	47.9							
						Clay	2.6	2.7	37.2							
TH-09-12	N - 5534185.358, E - 627463.682			Concrete	241											
						Sand (Limestone) and Clay	0.2	0.4	19.9							
						Clay	0.5	0.6	25.6	0.0	35.2	22.6	42.2	20.3	58.9	38.6
						Clay	0.8	0.9	30.1							
						Clay	1.1	1.2	36.8							
						Clay	1.4	1.5	34.6							
						Clay	1.7	1.8	34.8							
						Clay	2.0	2.1	43.1							
						Clay	2.6	2.7	55.0							
TH-09-13	N - 5534118.510, E - 627559.372					Clay	0.2	0.3	19.1							
						Clay	0.5	0.6	33.6							
						Clay	0.8	0.9	21.5							
						Clay	1.1	1.2	24.1							
						Silt	1.4	1.5	22.3							
						Silt	1.7	1.8	37.4							
						Clay	2.0	2.1	43.0							
						Clay	2.6	2.7	60.7							
TH-09-14	N - 5534143.756, E - 627587.411	Asphalt	178													
						Sand (Limestone)	0.2	0.3	7.3							
						Sand (Limestone)	0.5	0.6	6.0							
						Clay	0.8	0.9	28.5							
						Clay	1.1	1.2	24.8	1.6	47.0	25.8	25.6	15.7	33.8	18.1
						Silt	1.4	1.5	15.8							
						Clay	1.7	1.8	28.3							
						Clay	2.0	2.1	38.1							
						Clay	2.6	2.7	46.1							

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Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-15	N - 5534127.010, E - 627639.475					Silt	0.2	0.3	27.2							
						Silt	0.5	0.6	23.4							
						Clay	0.8	0.9	35.4							
						Clay	1.1	1.2	40.3							
						Clay	1.4	1.5	45.4							
						Clay	1.7	1.8	49.7							
						Clay	2.0	2.1	55.6							
						Clay	2.6	2.7	55.3							
TH-09-16	N - 5534146.202, E - 627685.939	Asphalt	178													
						Sand (Fill)	0.2	0.3	6.5							
						Sand (Fill)	0.5	0.6	6.8							
						Clay	0.8	0.9	26.5							
						Clay	1.1	1.2	28.1							
						Silt	1.4	1.5	26.2							
						Clay and Silt	1.7	1.8	19.5							
						Clay	2.0	2.1	36.9							
						Clay	2.6	2.7	40.2							
TH-09-17	N - 5534118.993, E - 627715.510	Asphalt	63	Concrete	165											
						Sand (Limestone)	0.2	0.4	4.7							
						Sand (Limestone)	0.5	0.6	10.9							
						Clay	0.8	0.9	32.4							
						Clay and Silt	1.1	1.2	19.7							
						Clay and Silt	1.4	1.5	23.6							
						Clay	1.7	1.8	28.7							
						Clay	2.0	2.1	39.6							
						Clay	2.6	2.7	58.5							
TH-09-18	N - 5534128.903, E - 627773.266					Clay	0.2	0.3	31.2							
						Clay	0.5	0.6	27.7							
						Clay	0.8	0.9	29.5	0.0	14.8	41.3	43.9	21.8	47.3	25.5
						Clay	1.1	1.2	25.7							
						Clay	1.4	1.5	24.3							
						Clay	1.7	1.8	30.2							
						Clay	2.0	2.1	42.3							
						Clay	2.6	2.7	50.3							
TH-09-19	N - 5534149.473, E - 627825.863	Asphalt	203													
						Sand (Fill)	0.2	0.4	13.2							
						Sand (Fill)	0.5	0.6	13.4							
						Clay	0.8	0.9	18.6							
						Clay	1.1	1.2	39.7							
						Clay and Silt	1.4	1.5	32.1							
						Silt	1.7	1.8	22.4							
						Clay	2.0	2.1	31.0							
						Clay	2.6	2.7	36.1							
TH-09-20	N - 5534124.981, E - 627866.020					Clay	0.2	0.3	19.3							
						Clay	0.5	0.6	18.5							
						Clay	0.8	0.9	25.0							
						Clay and Silt	1.1	1.2	20.9							
						Clay and Silt	1.4	1.5	26.6							
						Clay and Silt	1.7	1.8	27.3							
						Clay and Silt	2.0	2.1	24.3							
						Clay and Silt	2.6	2.7	23.3							
TH-09-21	N - 5534167.296, E - 627871.833	Asphalt	76													
						Sand and Gravel (Fill)	0.2	0.3	2.6							
						Clay	0.5	0.6	28.1							
						Clay	0.8	0.9	29.5							
						Clay	1.1	1.2	41.0							
						Clay	1.4	1.5	37.9							
						Clay and Silt	1.7	1.8	24.2							
						Silt	2.0	2.1	23.6							
						Clay	2.6	2.7	46.9							

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Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-22	N - 5534122.691, E - 627890.477	Asphalt	168													
						Sand and Clay (Fill)	0.2	0.3	15.4							
						Sand and Clay (Fill)	0.5	0.6	19.1							
						Clay	0.8	0.9	28.9							
						Clay and Silt	1.1	1.2	21.6							
						Clay	1.4	1.5	26.2							
						Clay and Silt	1.7	1.8	23.1							
						Clay and Silt	2.0	2.1	23.5							
						Clay	2.6	2.7	39.0							
TH-09-23	N - 5534125.383, E - 627913.564					Clay	0.2	0.3	20.5							
						Clay	0.5	0.6	28.5							
						Clay and Silt	0.8	0.9	25.5							
						Clay and Silt	1.1	1.2	29.9							
						Clay and Silt	1.4	1.5	26.4							
						Silt	1.7	1.8	29.3							
						Silt	2.0	2.1	27.0							
						Silt	2.6	2.7	26.8							
TH-09-24	N - 5534152.363, E - 627950.493	Asphalt	229													
						Sand (Pit Run)	0.2	0.4	7.5							
						Sand (Pit Run)	0.5	0.6	9.9							
						Clay	0.8	0.9	28.9							
						Clay	1.1	1.2	26.1							
						Clay	1.4	1.5	23.5							
						Clay	1.7	1.8	28.2							
						Clay	2.0	2.1	27.3							
						Silt	2.6	2.7	23.9							
TH-09-25	N - 5534130.681, E - 628040.626					Clay	0.2	0.3	24.0							
						Clay	0.5	0.6	27.2							
						Clay	0.8	0.9	24.3							
						Clay and Silt	1.1	1.2	27.7							
						Silt	1.4	1.5	25.2							
						Silt	1.7	1.8	24.0							
						Silt	2.0	2.1	22.7							
						Silt	2.6	2.7	28.0							
TH-09-26	N - 5534156.725, E - 628141.312	Asphalt	178													
						Sand (Pit Run)	0.2	0.3	7.6							
						Sand (Pit Run)	0.5	0.6	6.8							
						Clay	0.8	0.9	26.5	0.0	14.3	44.0	41.8			
						Clay	1.1	1.2	26.1							
						Clay	1.4	1.5	27.6							
						Silt	1.7	1.8	20.4							
						Silt	2.0	2.1	22.6							
						Clay	2.6	2.7	37.4							
TH-09-27	N - 5534132.840, E - 628186.686					Clay	0.2	0.3	27.4							
						Clay	0.5	0.6	34.2	0.0	20.6	35.3	44.1	16.6	55.6	39.0
						Silt	0.8	0.9	17.4							
						Silt	1.1	1.2	19.7							
						Silt	1.4	1.5	31.1							
						Clay	1.7	1.8	32.5							
						Clay	2.0	2.1	43.3							
						clay	2.6	2.7	53.5							
TH-09-28	N - 5534132.430, E - 628207.508	Asphalt	114													
						Sand (Pit Run)	0.2	0.3	8.8							
						Clay	0.5	0.6	27.4							
						Clay	0.8	0.9	29.1							
						Clay	1.1	1.2	38.8							
						Clay	1.4	1.5	33.2							
						Clay	1.7	1.8	36.9							
						Clay	2.0	2.1	47.2							
						Clay	2.6	2.7	40.8							

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Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-29	N - 5534158.426, E - 628208.809	Asphalt	178													
						Sand (Fill)	0.2	0.3	8.3							
						Sand (Fill)	0.5	0.6	6.4							
						Clay	0.8	0.9	28.9							
						Clay	1.1	1.2	26.7							
						Clay	1.4	1.5	38.8							
						Silt	1.7	1.8	22.5							
						Silt	2.0	2.1	19.7							
						Clay	2.6	2.7	36.2							
TH-09-30	N - 5534141.000, E - 628244.818					Clay	0.2	0.3	27.5							
						Clay	0.5	0.6	24.5							
						Clay	0.8	0.9	30.1							
						Clay	1.1	1.2	29.8							
						Silt	1.4	1.5	28.7							
						Silt	1.7	1.8	29.1							
						Silt	2.0	2.1	24.7							
						Silt	2.6	2.7	24.0							
TH-09-31	N - 5534161.140, E - 628322.72	Asphalt	178													
						Sand (Fill)	0.2	0.3	12.8							
						Sand and Clay (Fill)	0.5	0.6	15.7							
						Clay	0.8	0.9	27.8							
						Clay	1.1	1.2	35.7							
						Clay and Silt	1.4	1.5	30.0							
						Clay and Silt	1.7	1.8	31.4							
						Silt	2.0	2.1	21.6							
						Clay	2.6	2.7	34.2							
TH-09-32	N - 5534145.612, E - 628393.463					Clay	0.2	0.3	46.0							
						Clay	0.5	0.6	38.6							
						Silt	0.8	0.9	23.6							
						Silt	1.1	1.2	26.4							
						Clay	1.4	1.5	34.3							
						Clay	1.7	1.8	43.9							
						Clay	2.0	2.1	44.6							
						Clay	2.6	2.7	48.6							
TH-09-33	N - 5534163.759, E - 628444.598	Asphalt	152													
						Sand and Clay (Fill)	0.2	0.3	12.2							
						Sand and Clay (Fill)	0.5	0.6	14.4							
						Clay	0.8	0.9	51.5							
						Clay	1.1	1.2	47.8							
						Clay	1.4	1.5	31.2							
						Clay	1.7	1.8	31.9							
						Clay	2.0	2.1	33.5							
						Clay and Silt	2.6	2.7	24.6							
TH-09-34	N - 5534140.016, E - 628525.059					Clay	0.2	0.3	29.3							
						Clay	0.5	0.6	40.3							
						Clay and Silt	0.8	0.9	19.4	0.0	12.9	43.5	34.1	12.9	38.4	25.5
						Clay	1.1	1.2	34.1							
						Clay and Silt	1.4	1.5	31.7							
						Clay and Silt	1.7	1.8	24.5							
						Clay	2.0	2.1	31.7							
						Clay	2.6	2.7	37.2							
TH-09-35	N - 5534166.192, E - 628564.214 on shoulder	Asphalt	254													
						Sand and Gravel (Fill)	0.3	0.4	5.3							
						Sand and Clay (Fill)	0.5	0.6	9.9							
						Clay	0.8	0.9	24.1							
						Clay and Silt	1.1	1.2	27.7							
						Clay and Silt	1.4	1.5	26.5	0.0	23.1	41.1	35.7	21.7	50.9	29.2
						Silt	1.7	1.8	24.1							
						Silt	2.0	2.1	21.3							
						Clay	2.6	2.7	29.1							

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Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-36	N - 5534160.167, E - 628607.788	Asphalt	254													
						Sand (Pit Run)	0.3	0.4	5.4							
						Sand (Pit Run) and Clay	0.5	0.6	19.8							
						Clay	0.8	0.9	50.2							
						Clay	1.1	1.2	37.9							
						Clay	1.4	1.5	22.0							
						Silt	1.7	1.8	22.6							
						Silt	2.0	2.1	22.1							
						Clay	2.6	2.7	37.8	0.0	2.1	18.9	79.0	28.8	90.0	61.2
TH-09-37	N - 5534201.353, E - 628648.996	Asphalt	101													
						Sand (Fill)	0.2	0.3	9.3							
						Sand (Fill)	0.5	0.6	11.6							
						Clay	0.8	0.9	23.2							
						Clay	1.1	1.2	30.2							
						Clay	1.4	1.5	42.7							
						Clay	1.7	1.8	47.9							
						Clay	2.0	2.1	39.5							
						Clay	2.6	2.7	54.6							
TH-09-38	N - 5534133.763, E - 628658.208	Asphalt	114													
TH-09-39	N - 5534164.271, E - 628702.969	Asphalt	127													
						Sand (Fill)	0.4	0.5	7.1							
						Sand (Fill)	0.5	0.6	11.0							
						Clay	0.8	0.9	10.9							
						Clay	1.1	1.2	36.7							
						Clay and Silt	1.4	1.5	37.1							
						Silt	1.7	1.8	43.7							
						Silt	2.0	2.1	35.8							
						Clay	2.6	2.7	38.0							
TH-09-40	N - 5534144.660, E - 628749.312					Clay	0.2	0.3	21.4							
						Clay	0.5	0.6	18.1							
						Clay	0.8	0.9	26.3							
						Clay	1.1	1.2	27.8							
						Clay and Silt	1.4	1.5	25.2							
						Silt	1.7	1.8	23.0							
						Silt	2.0	2.1	22.7							
						Silt	2.6	2.7	23.7							
TH-09-41	N - 5534171.623, E - 628781.120	Asphalt	254													
						Sand (Fill)	0.3	0.4	13.3							
						Clay and Silt	0.5	0.6	11.0							
						Clay and Silt	0.8	0.9	17.2							
						Clay	1.1	1.2	33.0							
						Clay	1.4	1.5	36.8							
						Silt	1.7	1.8	23.0							
						Silt	2.0	2.1	22.7							
						Clay	2.6	2.7	30.6							
TH-09-42	N - 5534156.360, E - 628859.754					Clay	0.2	0.3	33.2							
						Clay	0.5	0.6	28.3							
						Clay	0.8	0.9	32.5	2.1	37.8	31.5	28.6	14.7	30.6	15.9
						Clay	1.1	1.2	31.5							
						Clay	1.4	1.5	38.1							
						Clay	1.7	1.8	39.3							
						Clay	2.0	2.1	45.5							
						Clay	2.6	2.7	54.2							
TH-09-43	N - 5534175.255, E - 628922.481	Asphalt	203													
						Sand (Pit Run)	0.2	0.4	5.2							
						Sand (Pit Run)	0.5	0.6	9.0							
						Clay	0.8	0.9	29.4							
						Clay	1.1	1.2	47.7							
						Clay	1.4	1.5	34.2							
						Clay and Silt	1.7	1.8	26.0							
						Silt	2.0	2.1	25.5							
						Silt	2.6	2.7	22.8							

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Inkster Widening - Brookside Boulevard to Keewatin Street
Subsurface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Location (m)		Moisture Content	Hydrometer Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Start	End	(%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Plastic Limit	Liquid Limit	Plasticity Index
TH-09-44	N - 5534159.275, E - 628989.646					Clay	0.2	0.3	34.3							
						Clay	0.5	0.6	43.6							
						Clay	0.8	0.9	31.1							
						Silt	1.1	1.2	25.6							
						Silt	1.4	1.5	26.1							
						Silt	1.7	1.8	22.7							
						Clay	2.0	2.1	35.6							
						Clay	2.6	2.7	42.8							
TH-09-45	N - 5534178.480, E - 629051.359	Asphalt	177													
						Sand (Fill)	0.2	0.3	8.0							
						Sand (Fill)	0.5	0.6	8.6							
						Clay	0.8	0.9	56.8							
						Silt	1.1	1.2	30.8							
						Silt	1.4	1.5	25.4							
						Clay and Silt	1.7	1.8	22.2							
						Clay and Silt	2.0	2.1	23.2							
						Clay	2.6	2.7	30.8							
TH-09-46	N - 5534162.824, E - 629150.933					Clay	0.2	0.3	18.9							
						Clay	0.5	0.6	25.5	0.0	15.2	39.1	45.7	15.6	53.4	37.8
						Clay	0.8	0.9	39.3							
						Clay	1.1	1.2	37.0							
						Clay	1.4	1.5	33.6							
						Clay	1.7	1.8	41.2							
						Clay	2.0	2.1	41.0							
						Clay	2.6	2.7	44.2							
TH-09-47	N - 5534182.259, E - 629204.804	Asphalt	127													
						Sand (Fill)	0.2	0.3	6.2							
						Sand (Fill)	0.5	0.6	8.3							
						Clay	0.8	0.9	28.0							
						Clay	1.1	1.2	46.5							
						Clay	1.4	1.5	39.8							
						Clay and Silt	1.7	1.8	24.9							
						Clay	2.0	2.1	29.0							
						Clay	2.6	2.7	37.9							
TH-09-48	N - 5534163.945, E - 629257.222					Clay	0.2	0.3	30.7							
						Clay	0.5	0.6	36.4							
						Clay	0.8	0.9	27.7							
						Clay	1.1	1.2	27.5							
						Clay	1.4	1.5	34.0							
						Clay	1.7	1.8	37.1							
						Clay	2.0	2.1	45.2							
						Clay	2.6	2.7	46.5							
TH-09-49	N - 5534185.627, E - 629354.078	Asphalt	101													
						Sand (Limestone)	0.2	0.3	6.4							
						Sand (Limestone)	0.5	0.6	4.9							
						Sand (Limestone)	0.8	0.9	5.2							
						Sand (Limestone) and Clay	1.1	1.2	13.4	0.0	28.4	56.4	12.5	14.8	19.4	4.6
						Clay	1.4	1.5	32.6							
						Clay	1.7	1.8	47.0							
						Clay	2.0	2.1	34.6							
						Clay	2.6	2.7	55.2							
TH-09-50	N - 5534164.611, E - 629371.819			Concrete	254											
						Gravel (Limestone)	0.3	0.4	7.5							
						Gravel (Limestone)	0.5	0.6	6.2							
						Gravel (Limestone)	0.8	0.9	13.1							
						Clay	1.1	1.2	34.0							
						Clay	1.4	1.5	43.0							
						Clay	1.7	1.8	45.0							
						Clay	2.0	2.1	45.6							
						Clay	2.6	2.7	51.1							

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-01**
LOCATION: N - 5533973.462, E - 627027.237		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 236.199

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (152 mm)				236
		CONCRETE (355 mm)				
		GRAVEL (Fill) - sandy, grey, dry, well graded, subangular	■	G193		
		SAND and CLAY (Fill) - silty, trace gravel (<6 mm dia.) - dark brown - frozen, moist and firm when thawed - intermediate to high plasticity	■	G194		
			■	G195	Gradation: Gravel = 12.0%, Sand = 39.9%, Silt = 29.0%, Clay = 19.0%	
1		CLAY - silty, some sand, trace gravel (<6 mm dia.) - brown - frozen to 1.5 m, frozen and soft when thawed - high plasticity	■	G196		235
			■	G197		
		- some silt inclusions (<3 mm dia.), firm below 1.5 m	■	G198		
2			■	G199		234
			■	G200		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				233
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/28/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-02**
LOCATION: N - 5533916.240, E - 627011.952		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 236.286

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (101 mm)				
		CONCRETE (203 mm)				236
		SAND (Pit Run) - some silt, trace gravel (<6 mm dia.) - brown - frozen, moist when thawed - well graded	■	G137 G138		
1		CLAY - sandy, silty, trace gravel (<6 mm dia.) - brown - frozen, moist and soft to firm when thawed - low to intermediate plasticity	■	G139 G140		235
		CLAY - silty, some sand, trace silt inclusions (<5 mm dia.) - brown - moist, firm - high plasticity	■	G141 G142		
2		- trace gravel (<6 mm dia.), firm to stiff below 1.8 m	■	G143		234
			■	G144		
3		End of test hole at 2.7 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				233
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/27/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-03**
LOCATION: N - 5534264.491, E - 627030.488		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 236.179

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		CONCRETE (254 mm)				236
		SAND (Limestone) - some gravel (<6 mm dia.), some silt, brown, frozen, moist when thawed, well graded		G177		
		- geotextile at 1.3 m				
		CLAY - silt, some sand, trace organics - dark brown - frozen to 1.8 m, moist and firm when thawed - intermediate to high plasticity		G178 G179		
1				G180		235
		- brown, stiff, high plasticity below 1.2 m		G181		
				G182		
		- trace silt inclusions (<5 mm dia.) below 1.8 m				
2				G183		234
		- firm below 2.1 m				
				G184		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				233
4						

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/27/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-04**
LOCATION: N - 5534222.829, E - 627103.974		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 236.263

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (101 mm)				
		CONCRETE (254 mm)				236
		SAND and CLAY (Fill) - silty, trace gravel (<6 mm dia.), brown and dark grey, frozen, moist and soft to firm when thawed, intermediate to high plasticity	■	G185		
		CLAY - silty, some sand, trace organics - dark grey - frozen to 1.8 m, moist and firm when thawed - high plasticity	■	G186		
			■	G187		
1		- dark brown, firm below 0.9 m	■	G188		235
		- trace silt inclusions (<5 mm dia.), brown, stiff below 1.2 m	■	G189		
			■	G190		
2			■	G191		234
		- firm below 2.1 m				
			■	G192		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				233
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/27/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-05**
LOCATION: N - 5534116.613, E - 627120.168		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 235.609

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (101 mm)				
		SAND and CLAY (Fill) - silty, some gravel (<12 mm dia.) - dark brown - frozen, moist and firm when thawed - intermediate to high plasticity		G201		
		SAND (Pit Run) - gravelly (<19 mm dia), some clay, some silt - brown - frozen, moist when thawed - well graded		G202		235
		CLAY (Fill) - silty, some sand, some gravel (<12 mm dia.) - dark brown - frozen, moist and firm when thawed - intermediate to high plasticity		G203		
1				G204	Gradation: Gravel = 3.0%, Sand = 19.7%, Silt = 23.7%, Clay = 53.6%	
		CLAY - silty, some sand, trace gravel (<6 mm dia.) - brown - frozen to 1.5 m, moist and soft to firm when thawed - high plasticity		G205		
				G206		234
		- firm below 1.8 m				
2				G207		
		- trace silt inclusions (<5 mm dia.), trace precipitates (<3 mm dia.) below 2.1 m				
				G208		233
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
						232
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/28/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-06**
LOCATION: N - 5534137.068, E - 627176.043		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 235.545

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (152 mm)				
		SAND (Pit Run) - trace to some gravel (<6 mm dia.) - brown - frozen, moist when thawed - well graded		G169 G170		235
1		CLAY - some silt, trace sand, trace gravel (<6 mm dia.) - dark brown - frozen to 1.5 m, moist and stiff when thawed - high plasticity		G171 G172 G173	Gradation: Sand = 9.4%, Silt = 17.5%, Clay = 73.1%	
		- brown, high plasticity below 1.5 m		G174		234
2		- trace silt inclusions (<10 mm dia.), stiff, trace precipitates below 1.8 m		G175		
		- firm below 2.7 m		G176		233
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloghing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/27/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-07**
LOCATION: N - 5534121.088, E - 627240.490		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 235.85

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ⊠ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (101 mm)				
		SAND (Fill) - trace gravel (<12 mm dia.) - brown - frozen, moist when thawed - well graded		G249 G250		
		CLAY - silty, sandy, some gravel (<10 mm dia.) - brown - frozen, dy to moist and soft when thawed - intermediate to high placticity		G251 G252 G253		235
1						
		CLAY - silty, some sand - brown - frozen to 2.1 m, moist and firm when thawed - high plasticity - intermittent clay and silt pockets (<0.08 m thick) between 1.8 and 2.1 m		G254 G255 G256		234
2						
						233
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
						232
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-08**
LOCATION: N - 5534137.799, E - 627288.753 - on shoulder		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 236.031

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (174 mm)				236
		SAND (Pit Run) - gravelly (<19 mm dia.), some silt - brown - frozen, moist when thawed - well graded		G385		
				G386		
		- wet when thawed below 0.8 m		G387		
1		CLAY - silty, some sand - dark brown - frozen to 1.7 m, moist and firm when thawed - high plasticity		G388		235
				G389		
				G390		
2				G391		234
		- trace silt inclusions (<5 mm dia.), stiff below 2.1 m				
				G392		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				233
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-09**
LOCATION: N - 5534114.904, E - 627330.646		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 235.444

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - gravelly (<10 mm dia.), some sand, some silt - mottled brown and grey - frozen, moist and soft to firm when thawed - high plasticity	■	G1		
			■	G2	Gradation: Gravel = 30.8%, Sand = 17.5%, Silt = 16.9%, Clay = 34.8%	235
		CLAY - silty, some sand, some organics - dark grey - frozen to 0.9 m, moist and stiff when thawed - intermediate to high plasticity	■	G3		
1		- 0.08 m silt lense, light brown, moist, firm at 0.9 m				
		CLAY - silty, trace sand - brown - moist, stiff - high plasticity	■	G4		
			■	G5		234
			■	G6		
		- trace silt inclusions (<5 mm dia.) below 1.8 m				
2			■	G7		
		- mottled brown and grey, firm below 2.1 m				233
			■	G8		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-10**
LOCATION: N - 5534139.196, E - 627393.220		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 236.035

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (178 mm)				236
		SAND (Pit Run) - gravelly (<19 mm dia.) - brown - frozen, moist when thawed - well graded		G377		
				G378		
		CLAY - silty, sandy, some organics - black - frozen to 1.5 m, moist and soft when thawed - intermediate to high plasticity		G379		
1				G380		235
		- some sand below 1.2 m		G381		
		- soft to firm below 1.5 m		G382		
		CLAY - silty, some sand - brown - moist, firm - high plasticity		G383		
2		- trace silt inclusions (<5 mm dia.), stiff, trace precipitates (<3 mm dia.) below 2.1 m				234
				G384		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				233
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: TH-09-11
LOCATION: N - 5534122.960, E - 627466.506		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 235.169

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, trace sand - brown - frozen, moist and soft when thawed - high plasticity		G9		235
		CLAY - silty, some sand, some organics - black - frozen, moist and soft when thawed - intermediate to high plasticity		G10		
				G11		
1		CLAY - silty, trace sand, trace gravel (<8 mm dia.) - brown - frozen to 1.2 m, moist and stiff to very stiff when thawed - high plasticity		G12		234
				G13		
		- trace silt inclusions (<3 mm dia.) below 1.2 m				
		- trace gravel (<19 mm dia.) below 1.7 m		G14		
2				G15		233
		- some silt inclusions (<10 mm dia.), firm to stiff below 2.1 m				
				G16		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-12**
LOCATION: N - 5534185.358, E - 627463.682		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 235.787

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		CONCRETE (241 mm)				
		SAND (Limestone) - some gravel (<12 mm dia.), trace silt, light brown, frozen, moist when thawed, well graded		G145		
		CLAY - silty, sandy, some organics - black - frozen, moist and firm when thawed - high plasticity		G146	Gradation: Sand = 35.2%, Silt = 22.6%, Clay = 42.2%	
				G147		235
1				G148		
		CLAY - silty, some sand - brown - frozen to 1.7 m, moist and firm to stiff when thawed - high plasticity		G149		
				G150		234
		- trace silt inclusions (<5 mm dia.), stiff below 1.8 m				
2				G151		
		- trace sand inclusions (<5 mm dia.) below 2.1 m				
				G152		
		- mottled brown and grey, firm below 2.7 m				233
3						
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/27/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-13**
LOCATION: N - 5534118.510, E - 627559.372		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 236.021

SAMPLE TYPE ■ GRAB ▯ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, some sand, some organics, trace gravel (<10 mm dia.), brown and black, frozen, moist and soft when thawed, high plasticity	■	G17		
		CLAY - silty, some sand, some organics - black - frozen, moist and soft when thawed - intermediate to high plasticity	■	G18		
		CLAY - silty, trace sand - brown - frozen, moist and stiff when thawed - high plasticity	■	G19		
1			■	G20		235
		SILT - some clay, some sand - light brown - moist, soft to firm - intermediate plasticity	■	G21		
			■	G22		
		CLAY - silty, trace sand - brown - moist, firm to stiff - high plasticity	■	G23		
2		- trace silt inclusions (<10 mm dia.) below 2.1 m				234
			■	G24		
		- mottled brown and grey, soft to firm below 2.7 m				
3						233
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-14**
LOCATION: N - 5534143.756, E - 627587.411		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 236.094

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (178 mm)				236
		SAND (Limestone) - some gravel (<12 mm dia.), trace silt - light brown - frozen, moist when thawed - well graded	■	G369		
			■	G370		
		CLAY - silty, some some, trace to some organics - dark grey and black - frozen, moist and soft when thawed - intermediate to high plasticity	■	G371		
1			■	G372	Gradation: Gravel = 1.6%, Sand = 47.0%, Silt = 25.8%, Clay = 25.6%	235
		- sandy below 1.2 m				
		SILT - some clay to clayey, some sand - light brown - frozen, moist and soft to firm when thawed - low to intermediate plasticity	■	G373		
		CLAY - silty, some sand - brown - frozen to 1.8 m, moist and firm to stiff when thawed - high plasticity	■	G374		
2			■	G375		234
		- trace silt inclusions (<5 mm dia.), trace precipitates (<3 mm dia.) below 2.1 m				
			■	G376		
3		- trace sand below 2.7 m				233
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-15**
LOCATION: N - 5534127.010, E - 627639.475		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 235.183

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ▨ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		SILT - some clay to clayey, some sand, brown, frozen, moist and soft to firm when thawed, low to intermediate plasticity	■	G25		235
		- light brown below 0.3 m	■	G26		
		CLAY - silty, trace sand - brown - frozen to 0.9 m, moist and stiff to very stiff when thawed - high plasticity	■	G27		
1			■	G28		234
			■	G29		
		- 0.03 m silt pocket at 1.5 m	■	G30		
		- trace silt inclusions (<3 mm dia.), firm to stiff below 1.8 m	■	G31		233
2						
		- grey below 2.4 m	■	G32		
		- trace gravel (<20 mm dia.), soft to firm below 2.7 m				
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-16**
LOCATION: N - 5534146.202, E - 627685.939		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 235.92

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (178 mm)				
		SAND (Fill) - gravelly (<19 mm dia.), some silt - light brown - frozen, moist when thawed - well graded		G361 G362		
1		CLAY - silty, some sand, some organics - black - frozen, moist and soft to firm when thawed - intermediate to high plasticity		G363 G364		235
		SILT - some clay to clayey - light brown - frozen to 1.5 m, moist to wet and soft when thawed - low to intermediate plasticity		G365		
		CLAY and SILT - some sand - light brown - moist, soft to firm - intermediate to high plasticity		G366		234
2		CLAY - silty, some sand - light brown - dry to moist, stiff - high plasticity		G367		
		- trace silt inclusions (<5 mm dia.) below 2.7 m		G368		233
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						232

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-17**
LOCATION: N - 5534118.993, E - 627715.510		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 235.61

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ⊠ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (63 mm)				
		CONCRETE (165 mm)				
		SAND (Limestone) - silty, gravelly (<19 mm dia.) - light brown - frozen, moist when thawed - well graded		G153 G154		235
1		CLAY - silty, some sand, some organics - black - frozen, moist, soft to firm when thawed - intermediate to high plasticity		G155		
		CLAY and SILT - trace to some sand - light brown and light grey - frozen to 1.5 m, moist and soft to firm when thawed - intermediate plasticity		G156 G157		234
2		CLAY - silty, some sand - brown - moist, stiff - high plasticity		G158 G159		
		- trace silt inclusions (<5 mm dia.) below 2.1 m		G160		233
3		- firm below 2.7 m				
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/27/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-18**
LOCATION: N - 5534128.903, E - 627773.266		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 235.146

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				235
		CLAY - silty, trace sand - brown - frozen, moist and soft when thawed - high plasticity		G33		
		CLAY - silty, some sand - brown - frozen to 0.6 m, moist and soft when thawed - intermediate to high plasticity		G34 G35 G36 G37 G38	Gradation: Sand = 14.8%, Silt = 41.3%, Clay = 43.9%	
1						234
2		CLAY - silty, trace sand, brown, moist, firm to stiff, high plasticity - trace silt inclusions (<5 mm dia.) below 2.1 m - 0.03 m silt pocket at 2.4 m		G39 G40		233
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-19**
LOCATION: N - 5534149.473, E - 627825.863		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 235.638

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (203 mm)				
		SAND (Fill) - silty, some clay, some gravel (<6 mm dia.) - light brown - frozen, moist to wet when thawed - well graded - clayey below 0.5 m	■	G353		
			■	G354		
		CLAY - silty, some sand, trace to some organics - dark brown and black - frozen, moist and soft when thawed - intermediate to high plasticity	■	G355		235
1			■	G356		
		CLAY and SILT - trace to some sand - light brown - frozen, moist and soft when thawed - intermediate plasticity	■	G357		
		SILT - some clay to clayey, trace sand - light brown - wet, firm - low to intermediate plasticity	■	G358		234
2		CLAY - silty, some sand - brown - moist, stiff - high plasticity	■	G359		
			■	G360		233
		- trace silt inclusions (<5 mm dia.) below 2.7 m				
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-20**
LOCATION: N - 5534124.981, E - 627866.020		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 235.102

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ▨ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				235
		CLAY - silty, some sand, trace gravel (<20 mm dia.) - brown - frozen, moist and firm when thawed - high plasticity		G41		
		- 0.08 m silt lense at 0.5 m		G42		
		CLAY - silty, some sand, some organics, black, frozen, moist and stiff when thawed, intermediate to high plasticity		G43		
1		CLAY and SILT - some sand - light brown - moist, soft to firm - intermediate plasticity		G44		234
				G45		
				G46		
2				G47		233
		- some gravel (<20 mm dia.) below 2.6 m		G48		
		CLAY - silty, trace sand - brown - moist, firm - high plasticity				
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-21**
LOCATION: N - 5534167.296, E - 627871.833		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 235.137

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (76 mm)				
		SAND and GRAVEL (Fill) - some silt, grey - dry - well graded		G345		235
		CLAY - silty, sandy, some organics - black - frozen, moist and soft when thawed - intermediate to high plasticity		G346		
				G347		
1				G348		234
		CLAY - silty, some sand, trace silt inclusions (<5 mm dia.) - brown - frozen to 1.5 m, moist and firm when thawed - high plasticity		G349		
		CLAY and SILT - some sand - light brown - moist, soft - intermediate plasticity		G350		
2		SILT - some clay to clayey, some sand - light brown - moist to wet, firm - low to intermediate plasticity		G351		233
		CLAY - silty, some sand - brown - moist, stiff - high plasticity		G352		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				232
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/28/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-22**
LOCATION: N - 5534122.691, E - 627890.477		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 234.97

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (168 mm)				
		SAND and CLAY (Fill) - silty, some gravel (<25 mm dia.) - dark brown - frozen, dry to moist and firm when thawed - intermediate to high plasticity		G161		
				G162		
		CLAY - silty, some sand, some organics - black - frozen, moist and soft to firm when thawed - intermediate to high plasticity		G163		
1						234
		CLAY and SILT - some sand - light brown - frozen, moist and firm when thawed - intermediate plasticity		G164		
		CLAY - silty, some sand - brown - frozen to 1.5 m, moist and firm when thawed - high plasticity		G165		
		CLAY and SILT - some sand - light brown - moist, soft to firm - intermediate to high plasticity		G166		
2				G167		233
		CLAY - silty, some sand, trace silt inclusions (<5 mm dia.) - brown - moist, stiff - high plasticity		G168		
3						232
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						231

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/27/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-23**
LOCATION: N - 5534125.383, E - 627913.564		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 234.674

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, trace sand - brown - frozen, moist and firm when thawed - high plasticity	■	G49		
		CLAY - silty, some sand, some organics - black - frozen, moist and firm when thawed - intermediate to hight plasticity	■	G50		234
		CLAY and SILT - some sand - light brown - moist, soft to firm - intermediate plasticity	■	G51		
1		- brown below 1.1 m	■	G52		
			■	G53		
		SILT - clayey, trace sand - mottled brown and light brown - moist, very soft - low to intermediate plasticity	■	G54		233
2			■	G55		
		- some sand inclusions (<10 mm dia.), trace oxidation below 2.1 m				
			■	G56		232
3		End of test hole at 3.1 m in SILT Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-24**
LOCATION: N - 5534152.363, E - 627950.493		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 235.289

SAMPLE TYPE ■ GRAB ▯ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (229 mm)				
		SAND (Pit Run) - some gravel (<12 mm dia.), some silt - brown - frozen, moist when thawed - well graded		G337 G338		235
1		CLAY - silty, some sand, some orgaincs - black - frozen, moist and soft to firm when thawed - intermediate to high plasticity		G339 G340		
		- trace organics, dark grey and black below 1.2 m		G341		234
		CLAY - silty, some sand - brown - frozen to 2.0 m, moist and stiff when thawed - high plasticity		G342 G343		
2						233
		SILT - some clay to clayey, trace sand - light brown - wet, soft to firm - low to intermediate plasticity		G344		
3						232
		End of test hole at 3.4 m in SILT Notes: 1) No sloughing. 2) Trace seepage in silt layer. 3) Backfilled test hole with auger cuttings.				
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.35 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-25**
LOCATION: N - 5534130.681, E - 628040.626		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 234.693

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, trace sand - brown - frozen, moist and soft when thawed - high plasticity		G57 G58		234
		CLAY - silty, trace sand, some organics - black - frozen, moist and firm when thawed - intermediate to high plasticity		G59		
1		CLAY and SILT - some sand, brown - moist, firm - intermediate plasticity - laminated (<1 mm thick)		G60		
		SILT - some clay, some sand - light brown - moist, very soft to soft - low to intermediate plasticity		G61 G62 G63 G64		233 232
2		CLAY - silty, trace sand - brown - moist, firm - high plasticity				
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-26**
LOCATION: N - 5534156.725, E - 628141.312		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 234.884

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (178 mm)				
		SAND (Pit Run) - some gravel (<12 mm dia.), some silt - light brown - frozen, moist when thawed - well graded		G321 G322		
1		CLAY - silty, some sand, some organics - black - frozen to 1.5 m, moist and soft to firm when thawed - intermediate to high plasticity - trace silt inclusions (<3 mm dia.) below 1.2 m		G323 G324 G325	Gradation: Sand = 14.3%, Silt = 44.0%, Clay = 41.8%	234
2		SILT - some clay, trace sand - light brown - moist to wet, soft to firm - low to intermediate plasticity		G326 G327		233
		CLAY - silty, some sand - brown - moist, firm to stiff - high plasticity		G328		232
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-27**
LOCATION: N - 5534132.840, E - 628186.686		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 233.992

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, trace sand - brown - frozen, moist and firm when thawed - high plasticity		G65		
		CLAY - silty, sandy, some organics - black - frozen, moist and firm when thawed - high plasticity		G66	Gradation: Sand = 20.6%, Silt = 35.3%, Clay = 44.1%	
		SILT - some clay to clayey, some sand, light grey, moist, firm, low to intermediate plasticity		G67		
1		- light brown below 0.9 m		G68		233
		- brownish-organge below 1.2 m		G69		
		CLAY - silty, trace sand - brown - moist, very stiff - high plasticity		G70		
2				G71		232
		- trace silt inclusions (<3 mm dia.), stiff below 2.1 m				
		- 0.15 m silt lense at 2.6 m		G72		
		- firm to stiff below 2.7 m				
3						231
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/22/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-28**
LOCATION: N - 5534132.430, E - 628207.508		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 234.474

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (114 mm)				
		SAND (Pit Run) - some gravel (<12 mm dia.), brown, frozen, moist when thawed, well graded		G209		
		CLAY - silty, sandy, trace gravel (<6 mm dia.) - brown - frozen to 1.5 m, moist and soft to firm when thawed - high plasticity		G210		234
				G211		
1				G212		
		- firm when thawed below 1.2 m		G213		233
				G214		
		- trace silt inclusions (<5 mm dia.), trace sand inclusions (<5 mm dia.), stiff below 1.8 m		G215		
2						232
				G216		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/28/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: TH-09-29
LOCATION: N - 5534158.426, E - 628208.809		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 234.815

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ⊠ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (178 mm)				
		SAND (Fill) - trace gravel (<6 mm dia.), trace silt - light brown - frozen, moist when thawed - well graded		G329 G330		
1		CLAY - silty, some sand, some organics - black - frozen, moist and soft when thawed - intermediate to high plasticity		G331 G332 G333		234
		SILT - some sand, trace to some clay - light brown - frozen to 1.8 m, mist and soft to firm when thawed - low to intermediate plasticity		G334 G335		233
2		CLAY - silty, some sand, trace silt inclusions (<3 mm dia.) - brown - moist, stiff - high plasticity		G336		232
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-30**
LOCATION: N - 5534141.000, E - 628244.818		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 233.984

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, some sand, some organics, black - frozen, moist and soft when thawed - intermediate to high plasticity		G73		
		CLAY - silty, trace sand - light brown and brown - frozen, moist and soft to firm when thawed - high plasticity		G74		
				G75		
1		- trace silt inclusions (<5 mm dia.) below 0.9 m		G76		233
		SILT - some clay, trace sand - light brown - frozen to 1.5 m, moist and very soft when thawed - low to intermediate plasticity		G77		
				G78		
2		- 0.08 clay lense at 2.0 m		G79		232
		- 0.08 m clay lense at 2.6 m		G80		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 o

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-31**
LOCATION: N - 5534161.140, E - 628322.72		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 234.731

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ⊠ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (178 mm)				
		SAND (Fill) - some clay, some silt, some gravel (<12 mm dia.), light brown and brown, frozen, moist to wet when thawed, well graded	■	G313		
		SAND and CLAY (Fill) - silty, some gravel (<12 mm dia.) - brown - frozen, moist and firm when thawed - intermediate to high plasticity	■	G314		
		CLAY - silty, some sand, some organics - black - frozen, moist and firm when thawed - intermediate to high plasticity	■	G315		234
1			■	G316		
		CLAY and SILT - some sand - light brown - frozen, moist and firm when thawed - intermediate plasticity	■	G317		
			■	G318		233
2		SILT - some clay to clayey - light brown - moist to wet, soft - low to intermediate plasticity	■	G319		
		CLAY - silty, some sand, trace silt inclusions (<5 mm dia.) - brown - moist, stiff - high plasticity	■	G320		232
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-32**
LOCATION: N - 5534145.612, E - 628393.463		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 233.773

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, some sand, some organics - dark grey - frozen, moist and soft to firm when thawed - intermediate to high plasticity		G81 G82		
		SILT - some clay to clayey, some sand - light brown - frozen to 0.9 m, moist and very soft when thawed - low to intermediate plasticity		G83 G84		233
1						
		CLAY - silty, trace sand - brown - moist, firm to stiff - high plasticity		G85 G86		232
2				G87		
		- trace silt inclusions (<3 mm dia.) below 2.1 m				
		- 0.03 m silt lense at 2.4 m		G88		231
3						
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				230
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-33**
LOCATION: N - 5534163.759, E - 628444.598		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 234.661

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (152 mm)				
		SAND and CLAY (Fill) - silty, trace gravel (<12 mm dia.) - brown - frozen, moist and firm when thawed - intermediate to high plasticity		G305 G306		
		CLAY - silty, some sand, some organics - black - frozen, moist and soft when thawed - intermediate to high plasticity		G307 G308		234
1						
		CLAY - silty, some sand - brown - frozen to 1.8 m, moist and stiff when thawed - high plasticity		G309 G310		233
		- trace silt inclusions (<5 mm dia.) below 1.8 m				
2				G311		
		CLAY and SILT - some sand - mottled brown and light brown - moist, soft to firm - intermediate plasticity		G312		232
3						
		End of test hole at 4.0 m in CLAY and SILT Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-34**
LOCATION: N - 5534140.016, E - 628525.059		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 234.33

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ▨ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, trace sand, trace silt inclusions (<5 mm dia.) - brown - frozen, moist and soft to firm when thawed - high plasticity	■	G89		234
			■	G90		
		CLAY and SILT - some sand - light brown - frozen, moist and firm when thawed - intermediate plasticity	■	G91	Gradation: Sand = 12.5%, Silt = 43.5%, Clay = 34.1%	
1		CLAY - silty, some sand, some organics - black - frozen, moist and firm when thawed - intermediate to hight plasticity	■	G92		233
		CLAY and SILT - some sand - light brown - frozen to 1.8 m, moist and soft to firm when thawed - intermediate plasticity	■	G93		
			■	G94		
2		CLAY - silty, some sand, trace silt inclusions (<3 mm dia.) - brown - moist, firm to stiff - high plasticity	■	G95		232
			■	G96		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-35**
LOCATION: N - 5534166.192, E - 628564.214 - on shoulder		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 234.566

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (254 mm)				
		SAND and GRAVEL (Fill) - some silt, light brown, frozen, moist when thawed, well graded		G297		
		SAND and CLAY (Fill) - silty, trace gravel (<6 mm dia.), dark grey and brown, frozen, dry to moist and firm when thawed,- intermediate to high plasticity		G298		234
		CLAY - silty, some sand, some organics - black - frozen, moist and firm when thawed - intermediate to high plasticity		G299		
1		CLAY and SILT - sandy - grey - frozen, moist and soft when thawed - intermediate to high plasticity		G300		
				G301	Gradation: Sand = 23.1%, Silt = 41.1%, Clay = 35.7%	233
		SILT - some clay to clayey - light brown - frozen to 1.8 m, moist to wet and soft when thawed - low to intermediate plasticity		G302		
2				G303		232
		CLAY - silty, some sand - brown - moist, stiff - high plasticity		G304		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-36**
LOCATION: N - 5534160.167, E - 628607.788		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 234.481

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (254 mm)				
		SAND (Pit Run) - gravelly (<19 mm dia.) - brown - frozen, moist when thawed - well graded		G241		234
				G242		
		CLAY - silty, some sand, some orgainc, trace gravel (<6 mm dia.) - dark grey and black - frozen, moist and firm when thawed - intermediate to high plasticity		G243		
1				G244		
				G245		233
		SILT - clayey, trace sand - light brown and light grey - moist, firm - low to intermediate plasticity		G246		
2				G247		232
		CLAY - some silt, trace sand inclusions (<3 mm dia.) - brown and light brown - moist, stiff - high plasticity		G248	Gradation: Sand = 2.1 %, Silt = 18.9%, Clay = 79.0%	
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/28/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-37**
LOCATION: N - 5534201.353, E - 628648.996		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 233.447

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (101 mm)				
		SAND (Fill) - some gravel (<12 mm dia.), some silt - light brown - frozen, moist when thawed - well graded		G225		
		- brown and grey below 0.5 m		G226		233
		CLAY - silty, some sand - brown - frozen to 1.5 m, moist and soft to firm when thawed - high plasticity		G227		
1				G228		
		- trace precipitates (<5 mm dia.) below 1.2 m		G229		232
		- trace silt inclusions (<5 mm dia.), stiff below 1.5 m		G230		
2				G231		
		- 0.10 m silt pocket at 2.1 m				231
				G232		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				230
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/29/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-38**
LOCATION: N - 5534133.763, E - 628658.208		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 233.575

SAMPLE TYPE ■ GRAB ||| SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⊘ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #		COMMENTS	ELEVATION (m)
0	■	ASPHALT (114 mm)					233
1							232
2							231
3							230
4							

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 0.12 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/29/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-39**
LOCATION: N - 5534164.271, E - 628702.969		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 234.392

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (127 mm)				
		SAND (Fill) - some gravel (<12 mm dia.), trace silt - brown - frozen, moist when thawed - well graded		G217		
				G218		234
		CLAY - silty, some sand, some organics - black - frozen, moist and soft when thawed - intermediate to high plasticity		G219		
1				G220		
		CLAY and SILT - some sand - light brown - frozen, moist and soft when thawed - intermediate plasticity		G221		233
		SILT - some clay, some sand - light brown - wet, firm - low to intermediate plasticity		G222		
2				G223		
						232
		CLAY - silty, some sand - brown - moist, stiff - high plasticity		G224		
3						
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/28/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-40**
LOCATION: N - 5534144.660, E - 628749.312		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 234.219

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ▨ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, some sand, some gravel (<10 mm dia.) - brown - frozen, moist and soft to firm when thawed - high plasticity	■	G97		234
			■	G98		
		- trace gravel (<10 mm dia.), stiff below 0.8 m	■	G99		
1		- 0.03 m silt pocket at 1.1 m	■	G100		233
		CLAY and SILT - some sand, trace organics - grey and brown - frozen, moist and soft when thawed - intermediate plasticity	■	G101		
		SILT - some clay, some sand - light brown - moist, very soft to soft - low to intermediate plasticity	■	G102		
2			■	G103		232
		- clayey below 2.3 m				
		- soft to firm below 2.6 m	■	G104		
		CLAY - silty, trace sand - brown - moist, stiff - high plasticity				
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-41**
LOCATION: N - 5534171.623, E - 628781.120		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 234.188

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ▮ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (254 mm)				234
		SAND (Fill) - silty, some gravel (<12 mm dia.), trace clay, light brown, frozen, wet when thawed, poorly graded	■	G289		
		CLAY and SILT - sandy, trace gravel (<6 mm dia.) - light brown - frozen, moist and soft to firm when thawed - intermediate plasticity	■	G290		
			■	G291	Gradation: Gravel = 2.1%, Sand = 37.8%, Silt = 31.5%, Clay = 28.6%	
1		CLAY - silty, some sand, some organics - black - frozen to 1.7 m, moist and soft when thawed - intermediate to high plasticity	■	G292		233
			■	G293		
		SILT - clayey, trace sand - light brown - moist, soft - low to intermediate plasticity	■	G294		
2			■	G295		232
		CLAY - silty, trace sand, trace silt inclusions (<5 mm dia.) - brown - moist, stiff - high plasticity	■	G296		
3		End of test hole at 3.1 in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				231
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-42**
LOCATION: N - 5534156.360, E - 628859.754		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 232.963

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, some sand - brown - frozen, moist and soft when thawed - high plasticity		G105		
				G106		
		CLAY - silty, some sand, some organics, black, frozen, moist and soft when thawed, intermediate to high plasticity		G107		
		CLAY - silty - brown and light brown - moist, firm - intermediate to high plasticity		G108		232
1		- trace sand, brown, high plasticity below 1.4 m		G109		
				G110		
		- trace silt inclusions (<3 mm dia.) below 1.8 m				231
2				G111		
		- firm to stiff below 2.1 m				
				G112		
		- mottled brown and grey, soft to firm below 2.7 m				230
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						229

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-43**
LOCATION: N - 5534175.255, E - 628922.481		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 233.891

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (203 mm)				
		SAND (Pit Run) - some gravel (<12 mm dia.), some silt - brown - frozen, moist when thawed - well graded		G281		
				G282		
		CLAY - silty, some sand, trace to some organics - black and dark grey - frozen, moist and soft when thawed - intermediate to high plasticity		G283		
1						233
		CLAY - silty, some sand - grey and brown - frozen, moist and firm when thawed - high plasticity		G284		
		- brown below 1.4 m		G285		
		CLAY and SILT - some sand - light brown - moist, soft - intermediate plasticity		G286		
2		SILT - clayey, trace sand - light brown - moist to wet, soft to firm - low to intermediate plasticity		G287		232
				G288		
3		CLAY - silty, some sand - brown - moist, firm - high plasticity				231
		End of test hole at 3.4 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						230

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.35 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-44**
LOCATION: N - 5534159.275, E - 628989.646		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 233.138

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				233
		CLAY - silty, some organics, trace sand - dark grey - frozen, moist and soft to firm when thawed - intermediate to high plasticity		G113		
		- grey below 0.5 m		G114		
		- mottled grey and brown below 0.8 m		G115		
1		SILT - some clay to clayey, some sand - light brown - moist, soft - low to intermediate plasticity		G116		232
				G117		
				G118		
2		CLAY - silty, trace sand - brown - moist, firm to stiff - high plasticity		G119		231
		- 0.3 m silt lense at 2.3 m				
		- trace silt inclusions (<3 mm dia.), mottled brown and grey below 2.4 m		G120		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				230
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-45**
LOCATION: N - 5534178.480, E - 629051.359		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 233.87

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (177 mm)				
		SAND (Fill) - some gravel (<12 mm dia.), trace silt - brown - frozen, moist when thawed - well graded		G273 G274		
1		CLAY - silty, some sand, some organics - black - frozen, moist and firm when thawed - intermediate to high plasticity		G275		233
		SILT - clayey, trace sand - light grey - moist, soft - low to intermediate plasticity - light brown below 1.4 m		G276 G277		
2		CLAY and SILT - some sand - light brown and brown - moist, firm - intermediate plasticity		G278 G278		232
		CLAY - silty, some sand, trace silt inclusions (<5 mmd dia.) - brown - moist, firm - high plasticity		G280		231
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						230

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-46**
LOCATION: N - 5534162.824, E - 629150.933		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 232.763

SAMPLE TYPE ■ GRAB ▥ SHELBY TUBE ☒ SPLIT SPOON ▤ BULK ⁄ NO RECOVERY ◧ CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - gravelly (<10 mm dia.), silty, some sand - mottled brown and grey - frozen, moist and soft to firm when thawed - high plasticity		G121		
				G122	Gradation: Sand = 15.2%, Silt = 39.1%, Clay = 45.7%	
		- silty, no gravel below 0.6 m				232
		CLAY - silty, some sand, some organics - dark grey - frozen to 0.9 m, moist and stiff when thawed - intermediate to high plasticity		G123		
1				G124		
		CLAY - silty, trace sand - grey - moist, stiff - high plasticity		G125		
		- mottled grey and brown below 1.5 m		G126		231
2				G127		
		- 0.03 m silt pocket at 2.4 m		G128		
		- grey, firm to stiff below 2.7 m				230
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				229
4						

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-47**
LOCATION: N - 5534182.259, E - 629204.804		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 233.313

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (127 mm)				
		SAND (Fill) - gravelly (<19 mmd dia.), some silt - light brown - frozen, moist when thawed - well graded		G265 G266		233
1		CLAY - silty, some sand, some organics - black and dark brown - frozen, moist and firm when thawed - intermediate to high plasticity		G267 G268 G269		232
		CLAY and SILT - some sand - light brown - moist, firm - intermediate plasticity		G270		
2		CLAY - silty, some sand - brown - moist, soft to firm - high plasticity		G271 G272		231
		- trace silt inclusions (<5 mm dia.), stiff below 2.7 m				
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				230
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-48**
LOCATION: N - 5534163.945, E - 629257.222		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Acker SS2 Maruca, 125 mm SSA	ELEVATION (m): 232.188

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ORGANICS - topsoil				
		CLAY - silty, some sand, trace gravel (<10 mm dia.) - brown - frozen, moist and soft when thawed - high plasticity		G129		232
				G130		
		CLAY - silty, some sand, trace organics, dark grey, frozen, moist and soft when thawed, intermediate to high plasticity				
		CLAY - silty, some sand - brown - frozen to 1.2 m, moist and firm to stiff when thawed - intermediate to high plasticity		G131		
1				G132		231
		- trace sand below 1.2 m		G133		
		- brown, high plasticity below 1.5 m		G134		
2				G135		230
		- 0.05 m silt pocket at 2.1 m				
		- trace silt inclusions (<3 mm dia.) below 2.6 m		G136		
3						229
		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				
4						

AECOM

LOGGED BY: Jared Baldwin	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/23/08
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-49**
LOCATION: N - 5534185.627, E - 629354.078		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Canterra CT 250, 125 mm SSA	ELEVATION (m): 232.018

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		ASPHALT (101 mm)				
		SAND (Limestone) - some gravel to gravelly (<19 mm dia.) - light brown - frozen, moist when thawed - well graded		G257		
				G258		
				G259		
1					Gradation: Sand = 28.4%, Silt = 56.4%, Clay = 15.2%	231
		CLAY - silty, some sand - brown - frozen to 1.8 m, moist and firm to stiff when thawed - high plasticity		G260		
				G261		
				G262		
		- trace silt inclusions (<3 mm dia.) below 1.8 m				
2				G263		230
				G264		
		- firm below 2.7 m				
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				229
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/31/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

PROJECT: Inkster Boulevard Widening	CLIENT: City of Winnipeg	TESTHOLE NO: **TH-09-50**
LOCATION: N - 5534164.611, E - 629371.819		PROJECT NO.: 0265-411-00
CONTRACTOR: Paddock Drilling Ltd.	METHOD: Bratt 22, 125 mm SSA	ELEVATION (m): 232.03

SAMPLE TYPE: GRAB | SHELBY TUBE | SPLIT SPOON | BULK | NO RECOVERY | CORE

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	COMMENTS	ELEVATION (m)
0		CONCRETE (254 mm)				232
		GRAVEL (Limestone) - some sand, trace silt - light brown - frozen, moist when thawed - well graded - subangular		G233 G234 G235		
1		CLAY - silty, some sand - brown - frozen to 1.5 m, moist and firm when thawed - high plasticity		G236 G237 G238		231
2		- trace silt inclusions (<5 mm dia.), stiff, trace precipitates (<5 mm dia.) below 1.8 m		G239		230
		- firm below 2.7 m		G240		
3		End of test hole at 3.1 m in CLAY Notes: 1) No sloughing. 2) No seepage. 3) Backfilled test hole with auger cuttings.				229
4						

AECOM

LOGGED BY: Geoffrey Nolette	COMPLETION DEPTH: 3.05 m
REVIEWED BY: Nelson Ferreira	COMPLETION DATE: 1/28/09
PROJECT ENGINEER: Nelson Ferreira	Page 1 of 1

ENVIRO (VAPOUR/F2/F3) INKSTER WIDENING - EAST.GPJ UMA.GDT 3/9/09

Appendix B
Photos of Core Samples

Photo 1: Core sample from TH-09-01

Photo 2: Core sample from TH-09-02

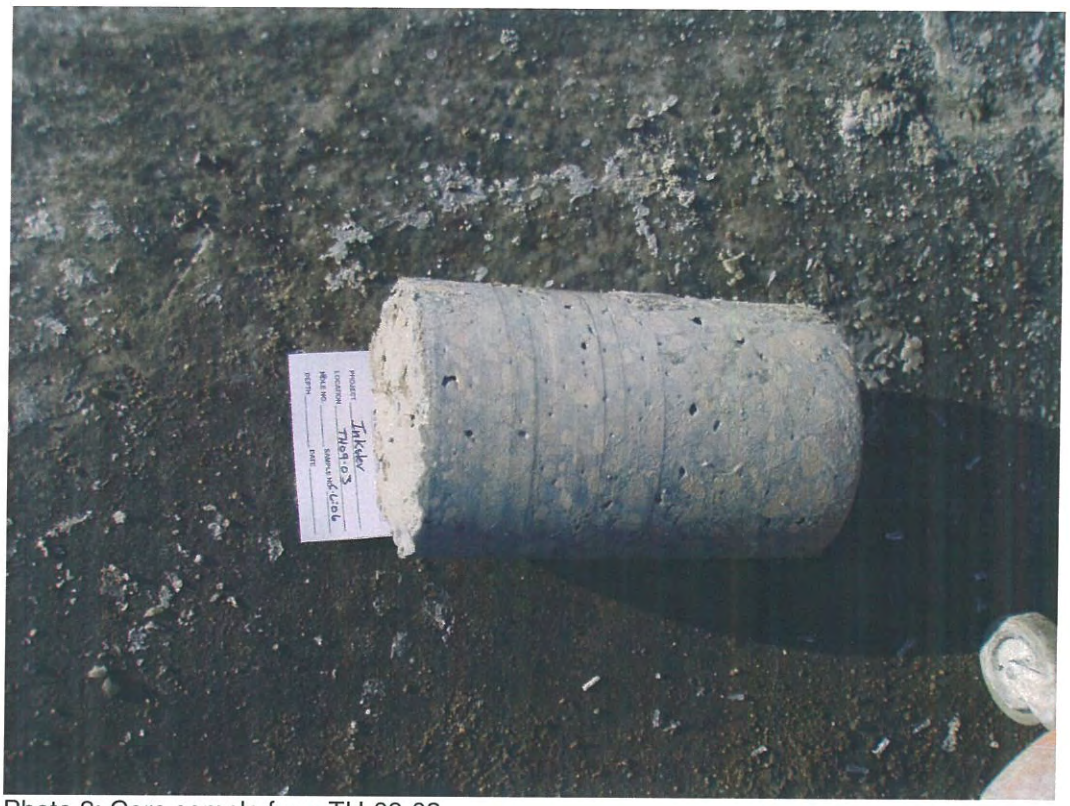

Photo 3: Core sample from TH-09-03

Photo 4: Core sample from TH-09-04

Photo 5: Core sample from TH-09-05

Photo 6: Core sample from TH-09-06

Photo 7: Core sample from TH-09-07

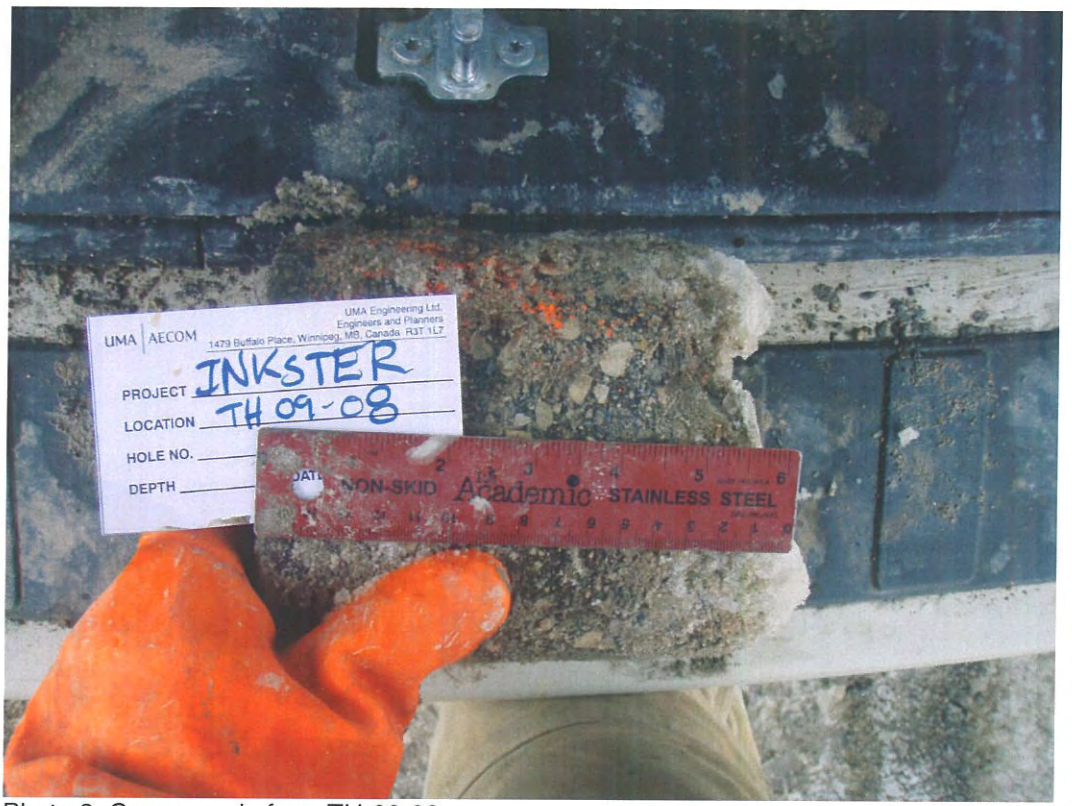

Photo 8: Core sample from TH-09-08

Photo 9: Core sample from TH-09-10

Photo 10: Core sample from TH-09-12

Photo 11: Core sample from TH-09-14

Photo 12: Core sample from TH-09-16

Photo 13: Core sample from TH-09-17

Photo 14: Core sample from TH-09-19

Photo 15: Core sample from TH-09-21

Photo 16: Core sample from TH-09-22

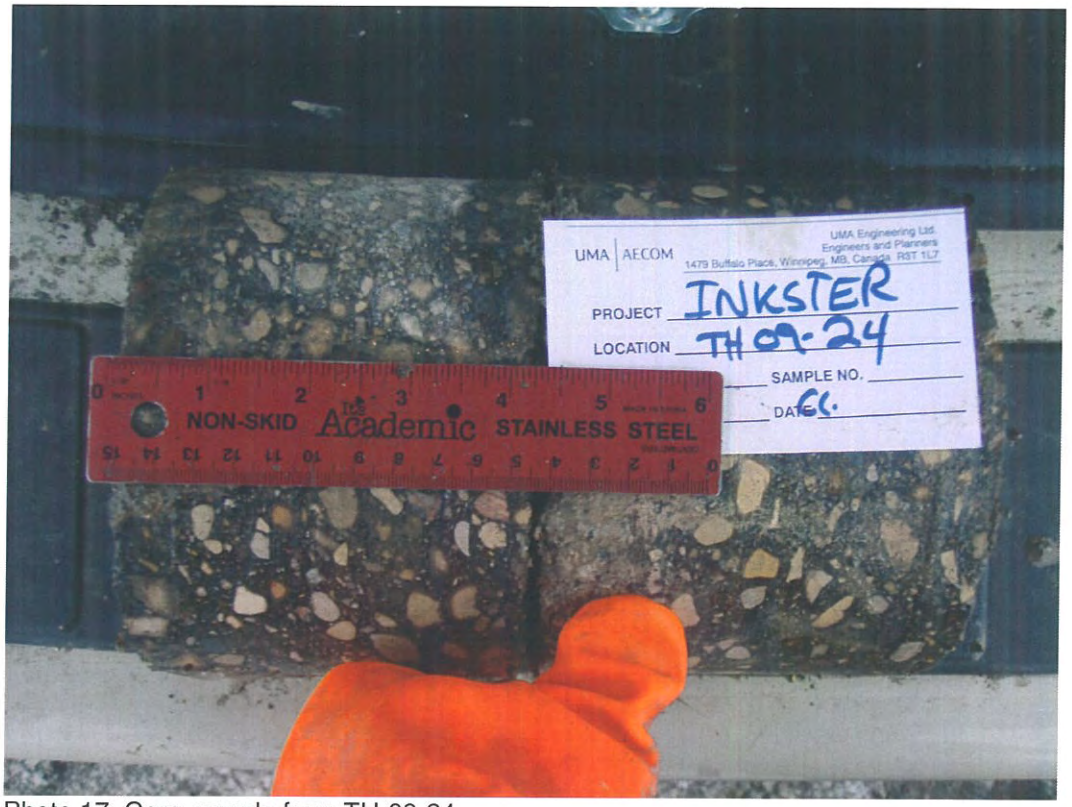

Photo 17: Core sample from TH-09-24

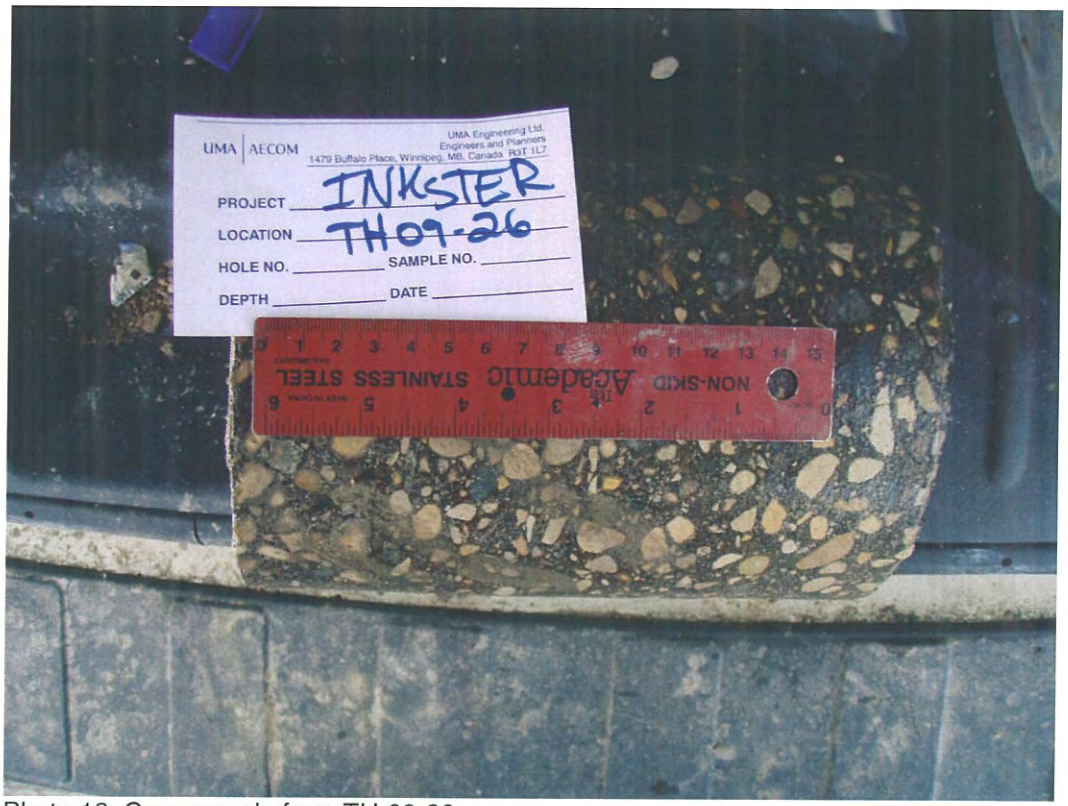

Photo 18: Core sample from TH-09-26

Photo 19: Core sample from TH-09-28

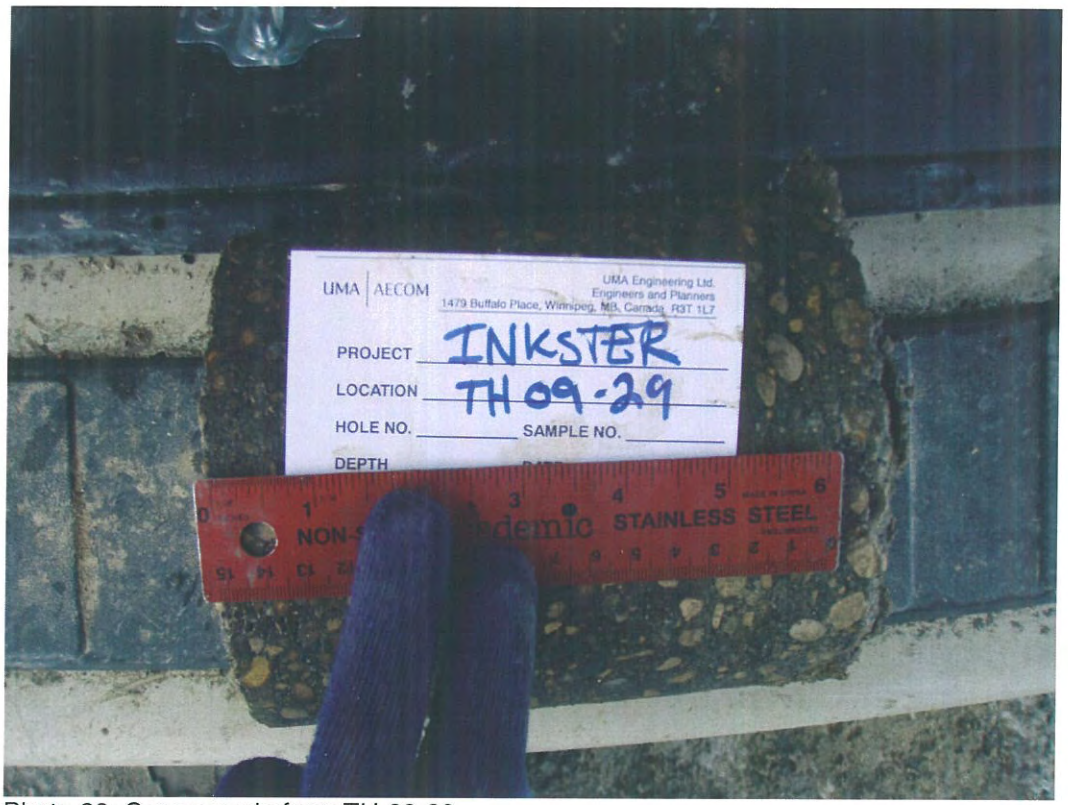

Photo 20: Core sample from TH-09-29

Photo 21: Core sample from TH-09-31

Photo 22: Core sample from TH-09-33

Photo 23: Core sample from TH-09-35 (labeled incorrectly in photo)

Photo 24: Core sample from TH-09-36

Photo 25: Core sample from TH-09-37

Photo 26: Core sample from TH-09-38 (incorrectly labeled in photo)

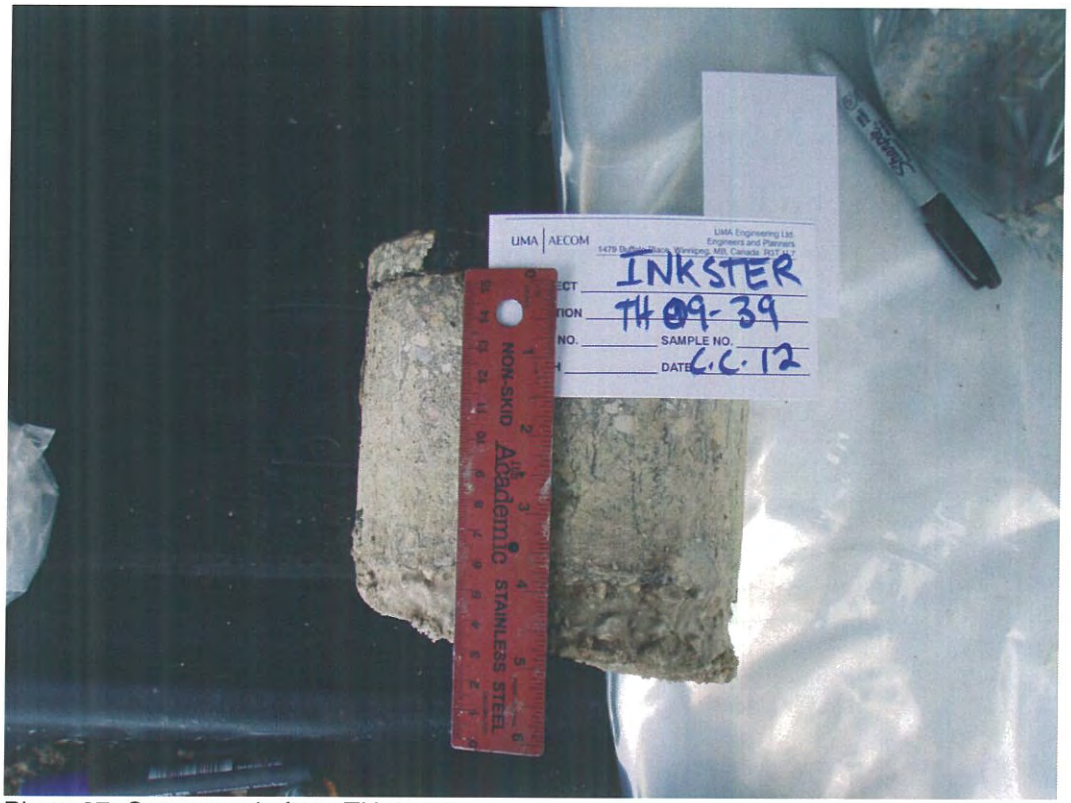

Photo 27: Core sample from TH-09-39

Photo 28: Core sample from TH-09-41

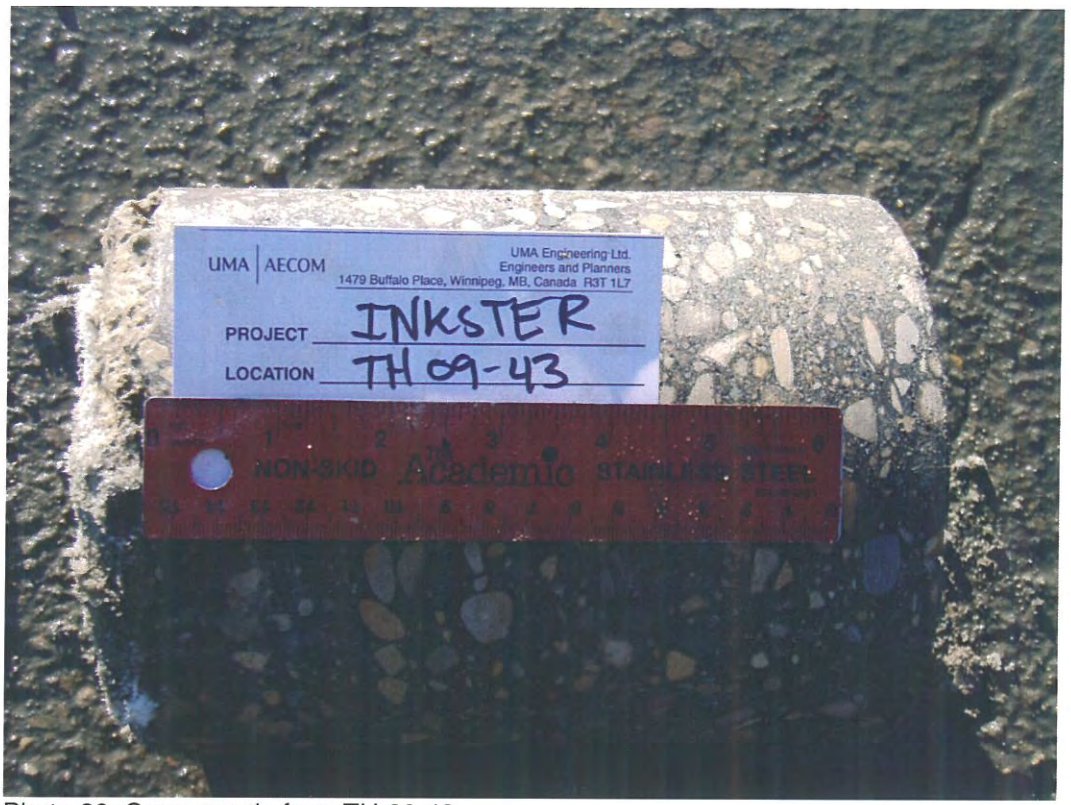

Photo 29: Core sample from TH-09-43

Photo 30: Core sample from TH-09-45

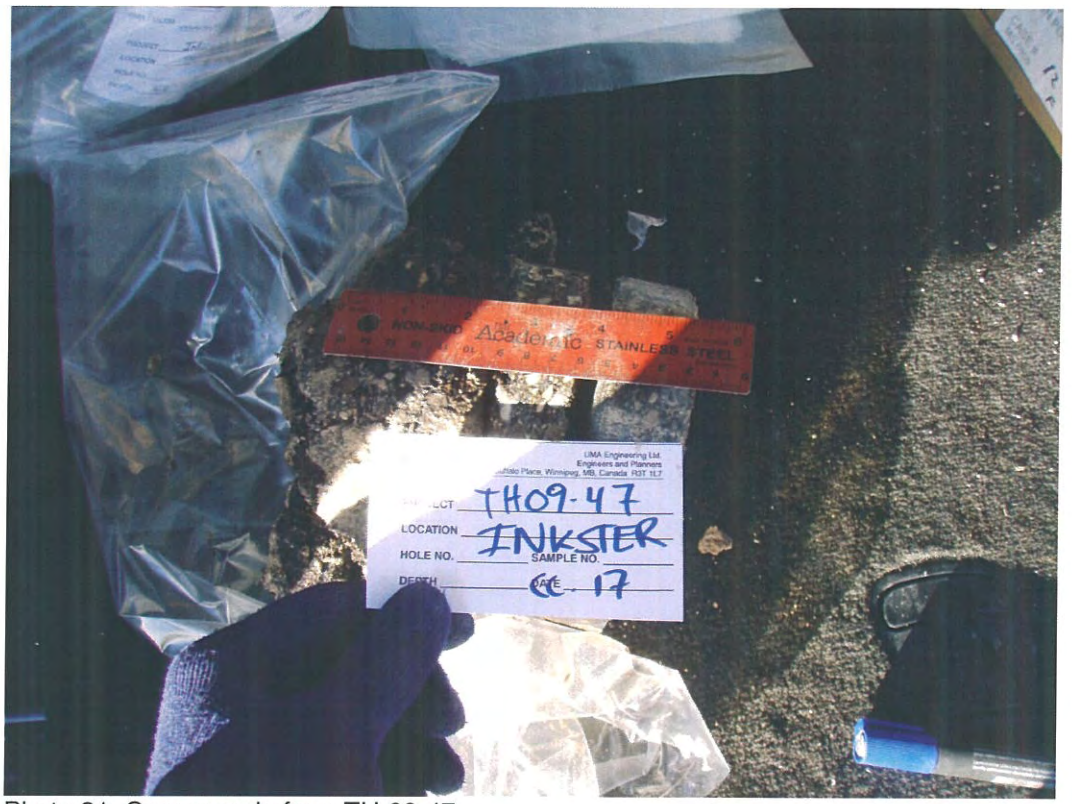

Photo 31: Core sample from TH-09-47

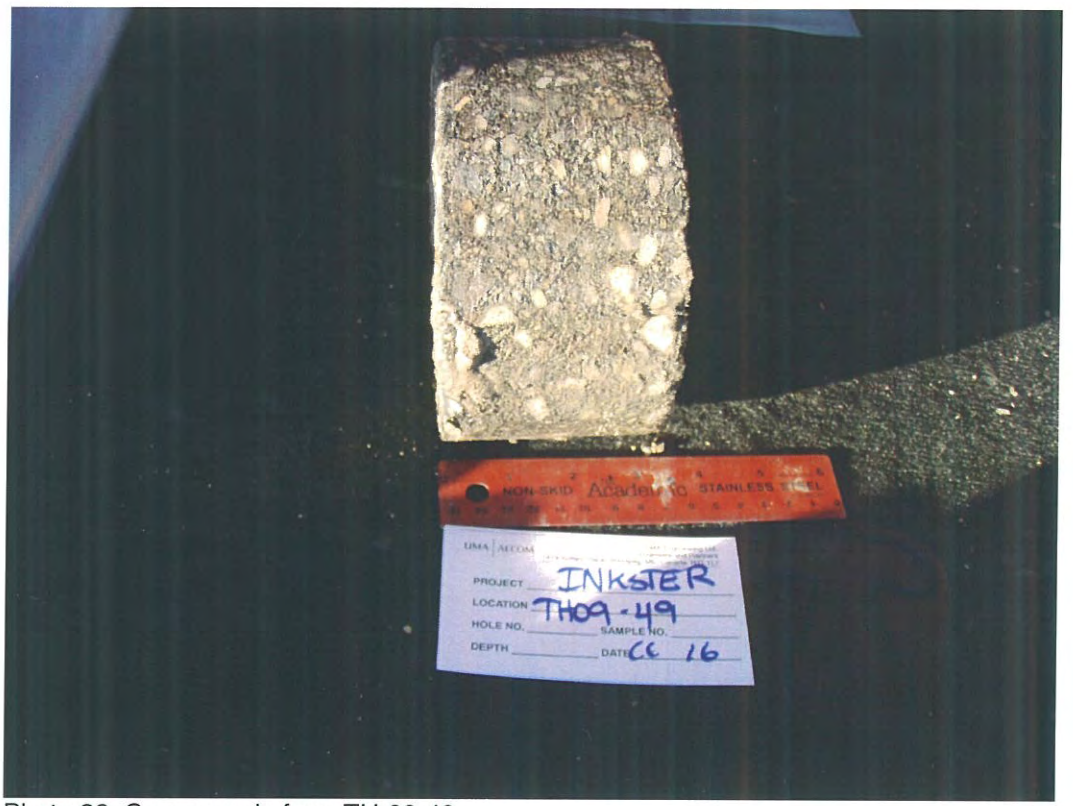

Photo 32: Core sample from TH-09-49

Photo 33: Core sample from TH-09-50