APPENDIX 'A'

GEOTECHNICAL REPORT

Quality Engineering | Valued Relationships

Morrison Hershfield

RFP 547-2023 McGregor-Inkster Geotech. Investigation

Prepared for:
Ron Bruce, P. Eng.
Morrison Hershfield
Suite 1, 59 Scurfield Blvd
Winnipeg, MB.
R3Y 1V2

Project Number: 1000-001-33

Date: January 22, 2024

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TREK GEOTECHNICAL Quality Engineering | Valued Relationships

January 22, 2024 Our File No. 1000-001-33

Ron Bruce, P. Eng.
Morrison Hershfield
Suite 1, 59 Scurfield Blvd
Winnipeg, MB.
R3Y 1V2

RE: RFP 547-2023 McGregor-Inkster Geotech. Investigation

TREK Geotechnical Inc. is pleased to submit our Final Report for the geotechnical investigation for RFP 547-2023 McGregor-Inkster Geotech. Investigation project.

Please contact the undersigned should you have any questions.

Sincerely,

TREK Geotechnical Inc.
Per:

Nelson John Ferreira, Ph.D., P.Eng.
Senior Geotechnical Engineer

Encl.

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Revision History

Revision No.	Author	Issue Date	Description
0	AD	January 22, 2024	Final Report

Authorization Signatures

Prepared By: _____

Kate Franklin M.Sc. (Geotechnical Engineering)
Technical Support Specialist

PROVINCE OF MANITOBA
N.J. FERREIRA
Member
22892
REGISTERED PROFESSIONAL ENGINEER

Reviewed By: _____

Nelson John Ferreira, Ph.D., P.Eng.
Senior Geotechnical Engineer

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
TREK GEOTECHNICAL INC.
No. 4877

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1.0 Introduction

This report summarizes the results of the road investigation completed for the RFP 547-2023 McGregor-Inkster Geotech. Investigation project. The project included collecting pavement cores and drilling test holes ~~McGregor Street (Church Avenue to McAdam Avenue)~~ and Inkster Boulevard (Main Street to Milner Street). The test hole information collected describes the pavement structure of the existing road as well as the soil stratigraphy beneath the pavement structure. The investigation was carried out following the City of Winnipeg RFP No. 547-2023.

2.0 Road Investigation

The investigation included coring of pavement at 61 locations with drilling of test holes at 24 of the cored locations. Morrison Hershfield selected the investigation locations as shown on Figures 01 to 11 (attached) and the table below summarizes the investigation program per street.

Table 1: Road Investigation Program

Street	# of Locations	Investigation
~~**McGregor Street – Recon**~~ (Church Av to McAdam Av)	~~10~~	~~Pavement Cores and Test Holes~~
Inkster Blvd EB - Recon (Main St to Sinclair St)	10	Pavement Cores and Test Holes
~~**Inkster Blvd WB - Recon**~~ (McPhillips St to Wiginton St)	~~4~~	~~Pavement Cores and Test Holes~~
Inkster Blvd EB - Rehab (Sheppard St to Milner St)	3	Pavement Cores
Inkster Blvd EB – Mill/Fill (Fife St to McPhillips St)	9	Pavement Cores
~~**Inkster Blvd WB – Rehab**~~ (Lansdowne Av to McPhillips St)	~~4~~	~~Pavement Cores~~
~~**Inkster Blvd WB – Rehab**~~ (Airles St to CPR Tracks)	~~6~~	~~Pavement Cores~~
~~**Inkster Blvd WB – Mill/Fill**~~ (Arlington St to Parr St)	~~3~~	~~Pavement Cores~~
~~**Inkster Blvd WB – Rehab**~~ (Parr St to Andrews St)	~~8~~	~~Pavement Cores~~
Inkster Blvd EB - Rehab (Salter St to Aikins St)	3	Pavement Cores

The road investigation was conducted between December 14th and December 21st, 2022. The pavement structure (asphalt/concrete) was cored by Tyler Green of TREK Geotechnical Inc. (TREK) using a portable coring press equipped with a hollow 150 mm or 220 mm diameter diamond core drill bits. The test holes were drilled by Kate Franklin to a depth of 2.0 m below road surface by Maple Leaf Drilling Ltd. using a truck mounted drill rig equipped with 125 mm and 200 mm diameter solid stem augers. The sub-surface conditions were observed during drilling and visually classified by Kate Franklin of

TREK. Other pertinent information such as groundwater and drilling conditions were also recorded during the drilling investigation. Disturbed (auger cuttings) samples and bulk samples retrieved during the sub-surface investigation were transported to TREK's material testing laboratory for further testing. Pavement core samples were also retrieved and logged at TREK's material testing laboratory.

Core and test hole logs noted on the summary tables and test hole locations are based on UTM coordinates obtained using a hand-held GPS, and their location relative to the nearest address or intersection, measured distance from the edge of pavement, or other permanent features.

The laboratory testing program consisted of moisture content determination on all samples, as well as Atterberg limits, and grain size analysis (hydrometer methods) on select samples between 0.6 and 0.9 m below pavement as well as Standard Proctor and CBR testing. Information gathered for each street package is included in separate appendices (Appendices A to D). The information provided in the Appendices includes test hole logs, laboratory testing summary tables and results, photos of the concrete cores, and summary of pavement compressive strength.

Thirteen CBR's were completed on bulk samples of the soil units present below the pavement. Tests were performed on clay and silt materials encountered within the prescribed sample depth for CBR testing and the results are shown in the table below.

Table 2: CBR Testing Summary

Sample Description	Street	Depth (m)	SPMDD (kg/m^3)	Opt. Moisture (%)	Percent Proctor (%)	Moisture Content (%)	CBR Value at 2.54 mm	CBR Value at 5.08 mm
Silt	McGregor Street (TH23-02)	0.9-2.1	1866	12.9	95.2	13.8	6.8%	5.7%
Silt	McGregor Street (TH23-04)	0.9-1.8	1680	19.4	95.2	19.3	2.1%	2.1%
Clay	McGregor Street (TH23-07)	0.9-1.8	1594	23.2	95.0	23.5	2.3%	1.9%
Clay	McGregor Street (TH23-09)	1.5-2.1	1565	24.1	95.1	24.1	3.4%	2.8%
Clay	McGregor Street (TH23-09, TH23-10)	0.9-1.5	1507	26.1	95.0	26.2	2.0%	1.64%
Clay	Inkster Boulevard (TH23-11)	1.5-2.1	1535	26.1	95.5	26.5	2.6%	1.9%
Clay	Inkster Boulevard (TH23-13)	1.5-2.1	1606	23.0	95.0	23.2	2.8%	2.3%
Clay	Inkster Boulevard (TH23-13, TH23-14, TH23-15)	0.9-1.5 0.9-2.1 1.5-2.1	1507	25.1	95.0	25.4	1.7%	1.4%

Sample Description	Street	Depth (m)	SPMDD (kg/m^3)	Opt. Moisture (%)	Percent Proctor (%)	Moisture Content (%)	CBR Value at 2.54 mm	CBR Value at 5.08 mm
Clay	Inkster Boulevard (TH23-16, TH23-17)	0.9-2.1 0.9-1.5	1514	24.8	95.2	24.8	1.6%	1.4%
Silt	Inkster Boulevard (TH23-19, TH23-11)	0.9-1.5	1907	12.6	95.3	12.6	7.4%	4.5%
Clay	Inkster Boulevard (TH23-19, TH23-20)	1.5-2.1 0.9-2.1	1522	25.8	95.3	25.7	1.5%	1.3%
Silt	Inkster Boulevard (TH23-21, TH23-22, TH23-24, TH23-25)	0.9-1.5 0.9-1.2	1860	13.8	94.9	14.0	10.5%	9.0%
Clay	Inkster Boulevard (TH23-23, TH23-24)	1.2-2.1	1464	28.2	95.1	28.5	1.8%	1.5%

The test hole logs include a description of the soil units encountered during drilling and other pertinent information such as groundwater conditions and a summary of the laboratory testing results. The soils were classified in general accordance with the Unified Soil Classification System (USCS) and the AASHTO soil classification system (American Association of state highway and transportation officials). The AASHTO system classifies soils based on laboratory testing results from Atterberg Limits and grain size testing methods (hydrometer and mechanical sieve method). Where laboratory testing was not conducted, the AASHTO classification of the soils were interpreted based on a visual assessment as indicated with a (I) on the test hole logs and attached tables. For cohesive soils, the AASHTO system uses a combination of testing results to determine the Group Index of the soils and thus, were only determined where sufficient laboratory test data was available.

3.0 Closure

The information provided in this report is in accordance with current engineering principles and practices (Standard of Practice). The findings of this report were based on information provided (field investigation, laboratory testing, geometries). Soil conditions are natural deposits that can be highly variable across a site. If sub-surface conditions are different than the conditions previously encountered on-site or those presented here, we should be notified to adjust our findings if necessary.

All information provided in this report is subject to our standard terms and conditions for engineering services, a copy of which is provided to each of our clients with the original scope of work, or a mutually executed standard engineering services agreement. If these conditions are not attached, and you are not already in possession of such terms and conditions, contact our office and you will be promptly provided with a copy.

This report has been prepared by TREK Geotechnical Inc. (the Consultant) for the exclusive use of Morrison Hershfield (the Client) and their agents for the work product presented in the report. Any findings or recommendations provided in this report are not to be used or relied upon by any third parties, except as agreed to in writing by the Client and Consultant prior to use.

Figures

1000 001 33
Morrison Hershfield
RFP 547-2023 McGregor-Inkster

KEY PLAN
SCALE: N.T.S.

0 50 100 150 m
SCALE = 1 : 3 000 (279 mm x 432 mm)

LEGEND:
- PAVEMENT CORE (TREK, 2023)
- TEST HOLE (TREK, 2023)

NOTES:
1. AERIAL IMAGERY FROM CITY OF WINNIPEG (2021) .

Figure 02
Test Hole and Pavement Core Location Plan

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TREK GEOTECHNICAL

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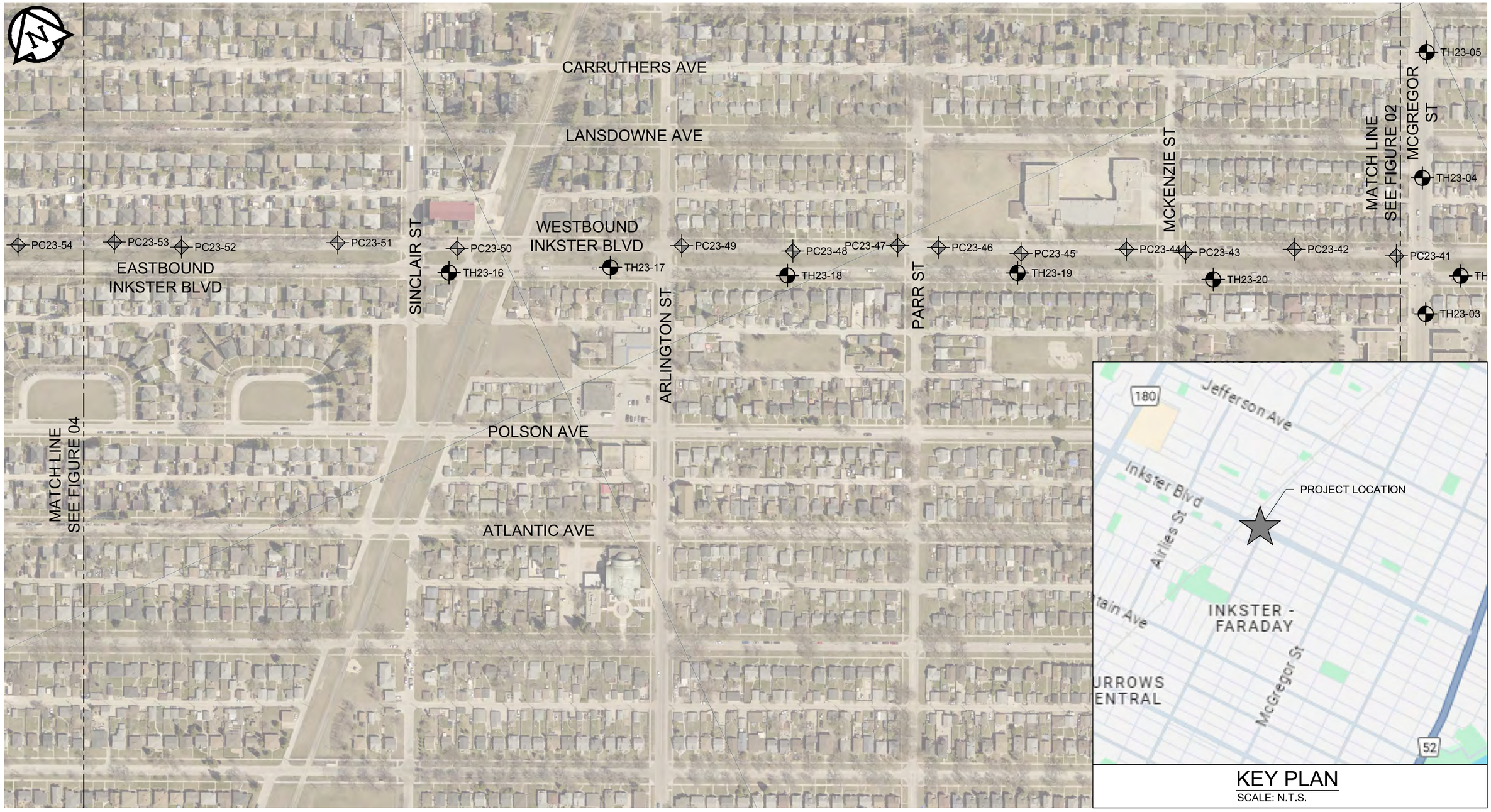
Morrison Hershfield
RFP 547-2023 McGregor-Inkster



KEY PLAN
SCALE: N.T.S.

0 50 100 150 m
SCALE = 1 : 3 000 (279 mm x 432 mm)

LEGEND:
- PAVEMENT CORE (TREK, 2023)
- TEST HOLE (TREK, 2023)

NOTES:
1. AERIAL IMAGERY FROM CITY OF WINNIPEG (2021) .

Figure 03
Test Hole and Pavement Core Location Plan

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TREK GEOTECHNICAL

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Morrison Hershfield
RFP 547-2023 McGregor-Inkster

0 50 100 150 m
SCALE = 1 : 3 000 (279 mm x 432 mm)

LEGEND:
- PAVEMENT CORE (TREK, 2023)
- TEST HOLE (TREK, 2023)

NOTES:
1. AERIAL IMAGERY FROM CITY OF WINNIPEG (2021) .

Figure 04
Test Hole and Pavement Core Location Plan

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TREK GEOTECHNICAL

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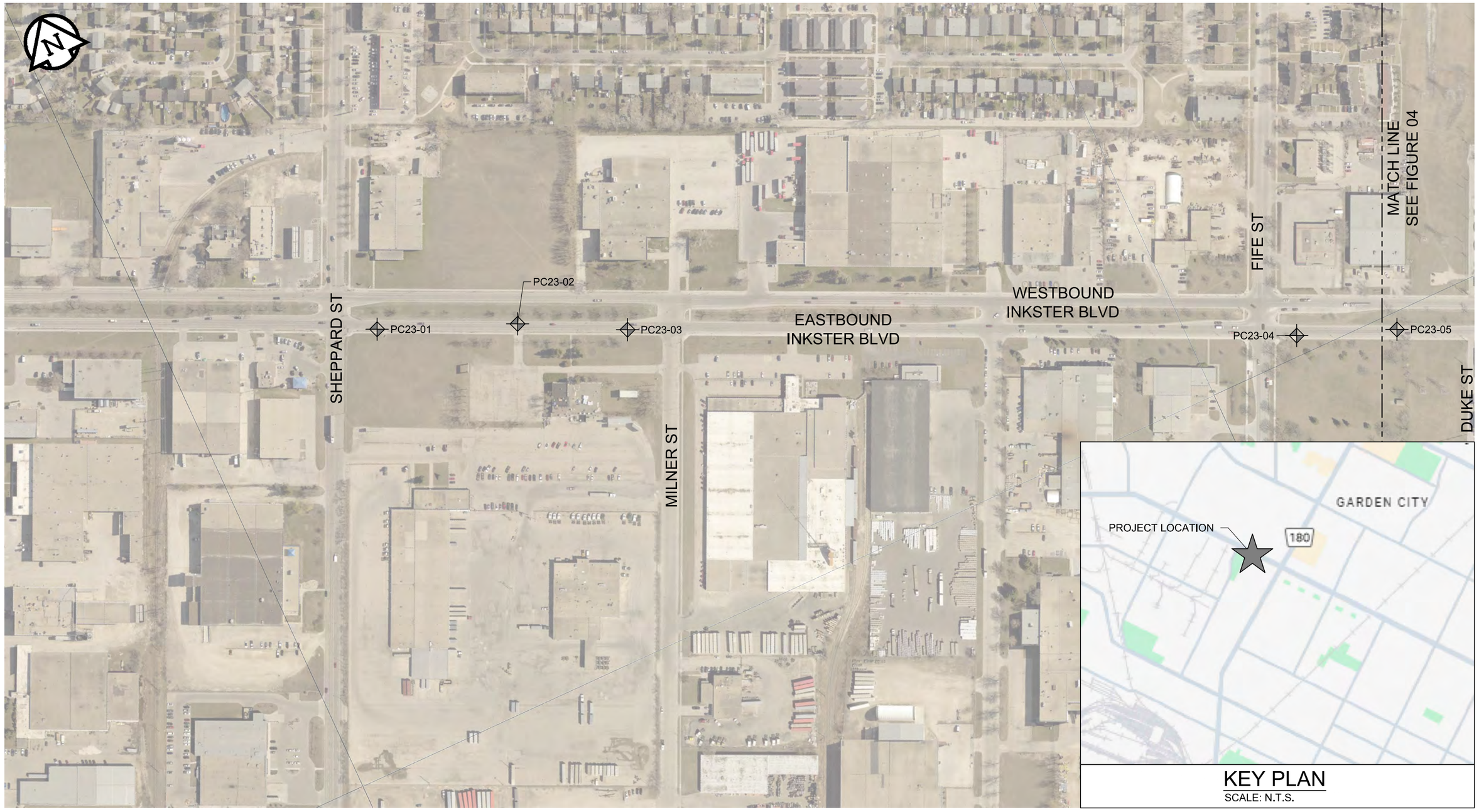
Morrison Hershfield
RFP 547-2023 McGregor-Inkster



KEY PLAN
SCALE: N.T.S.

0 50 100 150 m
SCALE = 1 : 3 000 (279 mm x 432 mm)

LEGEND:
- PAVEMENT CORE (TREK, 2023)
- TEST HOLE (TREK, 2023)

NOTES:
1. AERIAL IMAGERY FROM CITY OF WINNIPEG (2021) .

Figure 05
Test Hole and Pavement Core Location Plan

Appendix B

Test Hole Logs, Summary Table, Lab Testing Results and Photographs of Pavement Core Samples
Inkster Boulevard Eastbound– Sinclair Street to Main Street

EXPLANATION OF FIELD AND LABORATORY TESTING

GENERAL NOTES

1. Classifications are based on the Unified Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
2. Descriptions on these test hole logs apply only at the specific test hole locations and at the time the test holes were drilled. Variability of soil and groundwater conditions may exist between test hole locations.
3. When the following classification terms are used in this report or test hole logs, the primary and secondary soil fractions may be visually estimated.

Major Divisions			USCS Classi-fication	Symbols	Typical Names	Laboratory Classification Criteria	
Coarse-Grained soils (More than half the material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than 4.75 mm)	Clean gravel (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain size curve, depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows: Less than 5 percent..... GW, GP, SW, SP; More than 12 percent..... GM, GC, SM, SC; 6 to 12 percent..... Borderline case4s requiring dual symbols*	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP		Poorly-graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW
		Gravel with fines (Appreciable amount of fines)	GM		Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4
			GC		Clayey gravels, gravel-sand-silt mixtures		Atterberg limits above "A" line or P.I. greater than 7
	Sands (More than half of coarse fraction is smaller than 4.75 mm)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_U = \frac{D_{60}$ greater than 6; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP		Poorly-graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM		Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4
			SC		Clayey sands, sand-clay mixtures		Atterberg limits above "A" line or P.I. greater than 7
Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)	Silts and Clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock floor, silty or clayey fine sands or clayey silts with slight plasticity		
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			OL		Organic silts and organic silty clays of low plasticity		
	Silts and Clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or distomaceous fine sandy or silty soils, organic silts		
			CH		Inorganic clays of high plasticity, fat clays		
			OH		Organic clays of medium to high plasticity, organic silts		
	Highly Organic Soils		Pt		Peat and other highly organic soils	Von Post Classification Limit	Strong colour or odour, and often fibrous texture

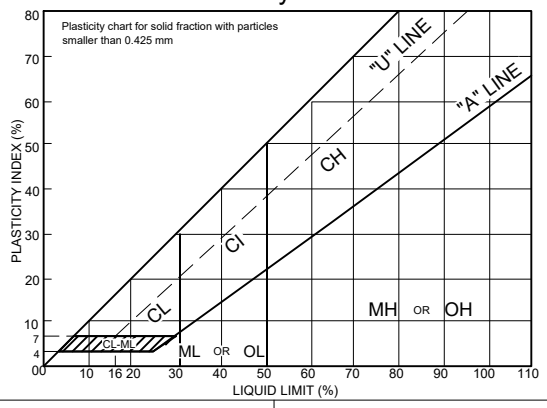
Above "A" line with P.I. between 4 and 7 are border-line cases requiring use of dual symbols

Above "A" line with P.I. between 4 and 7 are border-line cases requiring use of dual symbols

Particle Size		
Material	mm	ASTM Sieve sizes
Sand		
Coarse	2.00 to 4.75	#10 to #4
Medium	0.425 to 2.00	#40 to #10
Fine	0.075 to 0.425	#200 to #40
Silt or Clay	< 0.075	< #200

Particle Size		
Material	mm	ASTM Sieve Sizes
Boulders	> 300	> 12 in.
Cobbles	75 to 300	3 in. to 12 in.
Gravel		3/4 in. to 3 in.
Coarse	19 to 75	
Fine	4.75 to 19	#4 to 3/4 in.

Plasticity Chart



* Borderline classifications used for soils possessing characteristics of two groups are designated by combinations of groups symbols. For example; GW-GC, well-graded gravel-sand mixture with clay binder.

Other Symbol Types

	Asphalt		Bedrock (undifferentiated)		Cobbles
	Concrete		Limestone Bedrock		Boulders and Cobbles
	Fill		Cemented Shale		Silt Till
			Non-Cemented Shale		Clay Till

EXPLANATION OF FIELD AND LABORATORY TESTING

LEGEND OF ABBREVIATIONS AND SYMBOLS

LL - Liquid Limit (%)
PL - Plastic Limit (%)
PI - Plasticity Index (%)
MC - Moisture Content (%)
SPT - Standard Penetration Test
RQD - Rock Quality Designation
Qu - Unconfined Compression
Su - Undrained Shear Strength

VW - Vibrating Wire Piezometer
SI - Slope Inclinometer

▽ Water Level at Time of Drilling

▼ Water Level at End of Drilling

▼ Water Level After Drilling as Indicated on Test Hole Logs

FRACTION OF SECONDARY SOIL CONSTITUENTS ARE BASED ON THE FOLLOWING TERMINOLOGY

TERM	EXAMPLES	PERCENTAGE
and	and CLAY	35 to 50 percent
"y" or "ey"	clayey, silty	20 to 35 percent
some	some silt	10 to 20 percent
trace	trace gravel	1 to 10 percent
with *	with silt, with sand	> 35 percent

* Used when the material is classified based on behaviour as a cohesive material

TERMS DESCRIBING CONSISTENCY OR COMPACTION CONDITION

The Standard Penetration Test blow count (N) of a non-cohesive soil can be related to compactness condition as follows:

Descriptive Terms	SPT (N) (Blows/300 mm)
Very loose	< 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very dense	> 50

The Standard Penetration Test blow count (N) of a cohesive soil can be related to its consistency as follows:

Descriptive Terms	SPT (N) (Blows/300 mm)
Very soft	< 2
Soft	2 to 4
Firm	4 to 8
Stiff	8 to 15
Very stiff	15 to 30
Hard	> 30

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

Descriptive Terms	Undrained Shear Strength (kPa)
Very soft	< 12
Soft	12 to 25
Firm	25 to 50
Stiff	50 to 100
Very stiff	100 to 200
Hard	> 200

Sub-Surface Log

Test Hole TH23-11

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532686, E-633689
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	200mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 20, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number
		ASPHALT - 145 mm thick		
		CONCRETE - 210 mm thick		PC23-22
0.5		CLAY - silty, trace gravel (<20 mm diam.) to 0.8 m - dark grey, moist, stiff to very stiff - high plasticity, AASHTO: A-7-6 (I)		G97
		SILT - trace to some clay, trace sand - light brown - moist, soft - low plasticity - AASHTO: A-4 (1)		G98
1.0				G99
1.5				G100
		CLAY - silty - brown - moist, firm to stiff - high plasticity - AASHTO: A-7-6 (I)		G101
2.0				G102
				G103
2.5		- grey below 2.8 m		G104
				G105
3.0				

Bulk Unit Wt (kN/m³): 16 17 18 19 20 21

Particle Size (%): 0 20 40 60 80 100

PL MC LL: 0 20 40 60 80 100

Undrained Shear Strength (kPa): 0 50 100 150 200 250

Test Type: △ Torvane △ | ✤ Pocket Pen. ✤ | ☒ Qu ☒ | ○ Field Vane ○

END TEST HOLE AT 3.0 m IN CLAY.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 1.5 m depth (B106A), and 1.5 and 2.1 m depth (B106B).
5. Test Hole located in front of #514 Inkster Blvd, Eastbound lane, 1.0 m South of North curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

Sub-Surface Log

Test Hole TH23-12

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532600, E-633861
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	125mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 20, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number
		ASPHALT - 125 mm thick		
		CONCRETE - 175 mm thick		PC23-23
0.5		CLAY - silty, trace gravel (<20 mm diam.) to 0.8 m, trace sand to 0.8 m - dark grey - moist, stiff to very stiff - high plasticity - AASHTO: A-7-6 (I) - grey below 0.6 m		G107
				G108
1.0				G109
		SILT - some clay - light brown - moist, soft - low to intermediate plasticity - AASHTO: A-4 (I)		G110
1.5				G111
		CLAY - silty - brown - moist, firm to stiff - high plasticity - AASHTO: A-7-6 (I)		G112
2.0				G113
2.5				G114
				G115
3.0		END TEST HOLE AT 3.0 m IN CLAY.		

Bulk Unit Wt (kN/m³): 16 17 18 19 20 21

Particle Size (%): 0 20 40 60 80 100

PL MC LL: 0 20 40 60 80 100

Undrained Shear Strength (kPa)

Test Type: △ Torvane △ ✤ Pocket Pen. ✤ ☒ Qu ☒ ○ Field Vane ○

0 50 100 150 200 250

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Test Hole located in front of #466 Inkster Blvd, Eastbound lane, 0.7 m North of South curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

Sub-Surface Log

Test Hole TH23-13
1 of 1

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532513, E-634060
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	200mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 20, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m³) 16 17 18 19 20 21 / Particle Size (%) 0 20 40 60 80 100 / PL MC LL 0 20 40 60 80 100	Undrained Shear Strength (kPa) Test Type: Torvane, Pocket Pen., Qu, Field Vane 0 50 100 150 200 250
		ASPHALT - 160 mm thick		PC23-24		
		CONCRETE - 150 mm thick				
0.5		CLAY - silty, trace gravel (<20 mm diam.) to 0.8 m - dark grey - moist, very stiff - high plasticity - AASHTO: A-7-6 (59) - grey below 0.6 m		G116		
				G117		
1.0				G118		
		SILT - clayey - brown - moist, firm - low to intermediate plasticity - AASHTO: A-6 (I)		G119		
1.5				G120		
		CLAY - silty - brown - moist, very stiff - high plasticity - AASHTO: A-7-6 (I)		G121		
2.0				G122		
		SILT - clayey, trace sand, trace gravel (<20 mm diam.) - brown - moist, firm to stiff - low to intermediate plasticity - AASHTO: A-6 (I)		G123		
2.5				G124		
3.0						

END TEST HOLE AT 3.0 m IN SILT AND CLAY.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 1.5 m depth (B125A), and 1.5 and 2.1 m depth (B125B).
5. Test Hole located in front of #404 Inkster Blvd, Eastbound lane, 4.5 m North of South curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

SUB-SURFACE LOG LOGS 2024-01-22 MCGREGOR INKSTER 0_B_KF 1000-001-33.GPJ TREK.GDT 1/22/24

Sub-Surface Log

Test Hole TH23-14

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532417, E-634255
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	125mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 20, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Material Description	Sample Type	Sample Number	Bulk Unit Wt (kN/m³) 16 17 18 19 20 21 / Particle Size (%) 0 20 40 60 80 100 / PL MC LL	Undrained Shear Strength (kPa) 0 50 100 150 200 250
	ASPHALT - 105 mm thick				
	CONCRETE - 185 mm thick		PC23-25		
	SAND - and GRAVEL (<30 mm diam.), light brown, moist, angular				
	CLAY - silty, trace sand - dark grey - moist - stiff to very stiff - high plasticity - AASHTO: A-7-6 (61) - transition grey to brown between 0.6 - 1.5 m		G126		
0.5			G127		
1.0			G128		
			G129		
1.5	- brown below 1.5 m		G130		
			G131		
2.0			G132		
	SILT - some clay - brown - moist - soft to very soft - low to intermediate plasticity - AASHTO: A-4 (I)		G133		
2.5			G134		
3.0					

END TEST HOLE AT 3.0 m IN SILT.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 2.1 m depth (B135).
5. Test Hole located in front of #320 Inkster Blvd, Eastbound lane, 1.1 m North of South curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

Sub-Surface Log

Test Hole TH23-15

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532285, E-634548
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	125mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 20, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number
		ASPHALT - 190 mm thick		PC23-26
		CONCRETE - 140 mm thick		
0.5		CLAY - silty, trace gravel (<20 mm diam.) - dark grey - moist, very stiff - high plasticity - AASHTO: A-7-6 (I)		G136
1.0		SILT - clayey - brown - moist, firm - low to intermediate plasticity - AASHTO: A-6 (I)		G137
				G138
1.5				G139
2.0		CLAY - silty - brown - moist, very stiff - high plasticity - AASHTO: A-7-6 (I)		G140
				G141
2.5		- stiff below 2.2 m		G142
				G143
3.0				G144

Bulk Unit Wt (kN/m³): 16 17 18 19 20 21

Particle Size (%): 0 20 40 60 80 100

PL MC LL: 0 20 40 60 80 100

Undrained Shear Strength (kPa)

Test Type: △ Torvane △ ✤ Pocket Pen. ✤ ☒ Qu ☒ ○ Field Vane ○

0 50 100 150 200 250

END TEST HOLE AT 3.0 m IN CLAY.

Notes:

1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 1.5 m depth (B145A), and 1.5 and 2.1 m depth (B145B).
5. Test Hole located in front of #234 Inkster Blvd, Eastbound lane, 1.2 m South of North curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

SUB-SURFACE LOG LOGS 2024-01-22 MCGREGOR INKSTER 0_B_KF 1000-001-33.GPJ TREK.GDT 1/22/24

Sub-Surface Log

Test Hole TH23-16

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5533026, E-632955
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	125mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 21, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m³) 16 17 18 19 20 21 / Particle Size (%) 0 20 40 60 80 100 / PL MC LL 0 20 40 60 80 100	Undrained Shear Strength (kPa) Test Type: Torvane, Pocket Pen., Qu, Field Vane 0 50 100 150 200 250
		ASPHALT - 65 mm thick				
		CONCRETE - 215 mm thick		PC23-27		
		CLAY - silty, trace sand, trace gravel (<20 mm diam.) to 0.6 m - dark grey - moist, very stiff - high plasticity - AASHTO: A-7-6 (62)				
0.5				G146		
				G147		
1.0				G148		
		- grey below 0.6 m				
				G149		
1.5				G150		
				G151		
2.0						
		SILT - some clay - brown - moist, soft to very soft - low to intermediate plasticity - AASHTO: A-4 (I)		G152		
2.5				G153		
				G154		
3.0						

END TEST HOLE AT 3.0 m IN SILT.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 2.1 m depth (B155).
5. Test Hole located in front of #806 Inkster Blvd, Eastbound lane, 0.9 m North of South curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

SUB-SURFACE LOG LOGS 2024-01-22 MCGREGOR INKSTER 0_B_KF 1000-001-33.GPJ TREK.GDT 1/22/24

Sub-Surface Log

Test Hole TH23-17
1 of 1

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532976, E-633074
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	200mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 21, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m³) 16 17 18 19 20 21 / Particle Size (%) 0 20 40 60 80 100 / PL MC LL	Undrained Shear Strength (kPa) Test Type: Torvane, Pocket Pen., Qu, Field Vane 0 50 100 150 200 250
		ASPHALT - 90 mm thick				
		CONCRETE - 140 mm thick		PC23-28		
		CLAY - silty, trace sand - dark grey - moist, very stiff - high plasticity - AASHTO: A-7-6 (I)				
0.5				G156		
				G157		
1.0				G158		
				G159		
1.5						
		SILT - clayey - brown - moist, firm - low to intermediate plasticity - AASHTO: A-6 (I)		G160		
2.0				G161		
		- trace to some clay, trace sand, soft below 2.1 m				
				G162		
2.5						
		- very soft below 2.5 m		G163		
		CLAY - silty - grey and brown mottled, moist, firm to stiff - high plasticity - AASHTO: A-7-6 (I)				
3.0				G164		

END TEST HOLE AT 3.0 m IN CLAY.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 1.7 m depth (B165A), and 1.7 and 2.1 m depth (B165B).
5. Test Hole located in front of #784 Inkster Blvd, Eastbound lane, 1.3 m South of North curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

SUB-SURFACE LOG LOGS 2024-01-22 MCGREGOR INKSTER 0_B_KF 1000-001-33.GPJ TREK.GDT 1/22/24

Sub-Surface Log

Test Hole TH23-18

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532911, E-633200
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	125mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 21, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m³) 16 17 18 19 20 21 / Particle Size (%) 0 20 40 60 80 100 / PL MC LL	Undrained Shear Strength (kPa) Test Type: △ Torvane △ ✤ Pocket Pen. ✤ ☒ Qu ☒ ○ Field Vane ○ 0 50 100 150 200 250
		ASPHALT - 215 mm thick				
		CONCRETE - 200 mm thick		PC23-29		
0.5		CLAY - silty, trace gravel (<20 mm diam.) - dark grey - moist, stiff to very stiff - high plasticity - AASHTO: A-7-6 (I)		G166		
				G167		
1.0				G168		
		- grey below 0.6 m		G169		
1.5		- silt pocket (<40mm diam.) at 1.5 m		G170		
2.0				G171		
		SILT - clayey - brown, moist, firm to stiff - low to intermediate plasticity - AASHTO: A-6 (I)		G172		
2.5		CLAY - silty - grey and brown mottled - moist, stiff - high plasticity - AASHTO: A-7-6 (I)		G173		
3.0				G174		

END TEST HOLE AT 3.0 m IN CLAY.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 2.1 m depth (B175).
5. Test Hole located in front of #750 Inkster Blvd, Eastbound lane, 1.2 m North of South curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

SUB-SURFACE LOG LOGS 2024-01-22 MCGREGOR INKSTER 0_B_KF 1000-001-33.GPJ TREK.GDT 1/22/24

Sub-Surface Log

Test Hole TH23-19

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532836, E-633368
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	125mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 21, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number
		ASPHALT - 180 mm thick		PC23-30
		CONCRETE - 120 mm thick		
0.5		CLAY - silty, trace gravel (<20 mm diam.) - dark grey, moist, very stiff - high plasticity - AASHTO: A-7-6 (I)		G176
		SILT - clayey, trace sand - brown - moist, soft - low to intermediate plasticity - AASHTO: A-6 (15)		G177
1.0				G178
1.5				G179
		CLAY - silty - grey - moist, stiff - high plasticity - AASHTO: A-7-6 (I)		G180
2.0				G181
		- trace silt inclusions (<20mm diam.) between 2.1 and 2.4 m		G182
2.5				G183
				G184
3.0				

Bulk Unit Wt (kN/m³): 16 17 18 19 20 21

Particle Size (%): 0 20 40 60 80 100

PL MC LL: 0 20 40 60 80 100

Undrained Shear Strength (kPa)

Test Type: △ Torvane △ | ✤ Pocket Pen. ✤ | ☒ Qu ☒ | ○ Field Vane ○

0 50 100 150 200250

END TEST HOLE AT 3.0 m IN CLAY.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 1.5 m depth (B185A), and 1.5 and 2.1 m depth (B185B).
5. Test Hole located in front of #636 Inkster Blvd, Eastbound lane, 1.0 m South of North curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

Sub-Surface Log

Test Hole TH23-20

Client:	Morrison Hershfield	**Project Number:**	1000-001-33
Project Name:	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Location:**	UTM N-5532766, E-633508
Contractor:	Maple Leaf Drilling	**Ground Elevation:**	Top of Pavement m
Method:	125mm Solid Stem Auger, B40 Mobile Truck Mount	**Date Drilled:**	December 21, 2023

Sample Type: Grab (G) | Shelby Tube (T) | Split Spoon (SS) / SPT | Split Barrel (SB) / LPT | Core (C)

Particle Size Legend: Fines | Clay | Silt | Sand | Gravel | Cobbles | Boulders

Depth (m)	Soil Symbol	MATERIAL DESCRIPTION	Sample Type	Sample Number	Bulk Unit Wt (kN/m³) 16 17 18 19 20 21 / Particle Size (%) 0 20 40 60 80 100 / PL MC LL 0 20 40 60 80 100	Undrained Shear Strength (kPa) Test Type: Torvane, Pocket Pen., Qu, Field Vane 0 50 100 150 200 250
		ASPHALT - 130 mm thick				
		CONCRETE - 310 mm thick		PC23-31		
		CLAY - silty, trace gravel (<20 mm diam.) to 0.5 m - dark grey - moist, stiff - high plasticity - AASHTO: A-7-6 (68)				
0.5				G186		
				G187		
1.0		- grey below 0.5 m		G188		
				G189		
1.5				G190		
				G191		
2.0				G192		
				G193		
2.5						
		SILT - some clay - brown, moist, soft - low to intermediate plasticity - AASHTO: A-4 (I)		G194		
3.0						

END TEST HOLE AT 3.0 m IN SILT.

Notes:
1. Seepage or sloughing not observed.
2. Test Hole open to 3.0 m depth immediately after drilling.
3. Test Hole backfilled with cuttings, granular fill and cold patch asphalt.
4. Bulk samples were collected between 0.9 m and 2.1 m depth (B195).
5. Test Hole located in front of #576 Inkster Blvd, Eastbound lane, 1.2 m North of South curb.

Logged By: Kate Franklin **Reviewed By:** N.J Ferreira **Project Engineer:** Nelson Ferreira

SUB-SURFACE LOG LOGS 2024-01-22 MCGREGOR INKSTER 0_B_KF 1000-001-33.GPJ TREK.GDT 1/22/24

RFP 547-2023 McGregor - Inkster Geotech. Investigation
Sub-Surface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)		Moisture Content (%)	Grain Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Top (m)	Bottom (m)		Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Plastic	Liquid	Plasticity Index
TH23-11	UTM : 5532686 N, 633689 E Located in front of #514 Inkster Blvd, Eastbound lane, 1.0 m South of North curb	Asphalt	145	Concrete	210	Clay, AASHTO: A-7-6 (I)	0.5	0.6	34							
						Silt, AASHTO: A-4 (1)	0.8	0.9	19							
						Silt, AASHTO: A-4 (1)	1.1	1.2	20	11	85	4	0	18	21	3
						Silt, AASHTO: A-4 (1)	1.4	1.5	22							
						Clay, AASHTO: A-7-6 (I)	1.7	1.8	40							
						Clay, AASHTO: A-7-6 (I)	2.0	2.1	45							
						Clay, AASHTO: A-7-6 (I)	2.3	2.4	52							
						Clay, AASHTO: A-7-6 (I)	2.6	2.7	50							
						Clay, AASHTO: A-7-6 (I)	2.9	3.0	51							
TH23-12	UTM : 5532600 N, 633861 E Located in front of #466 Inkster Blvd, Eastbound lane, 0.7 m North of South curb	Asphalt	125	Concrete	175	Clay, AASHTO: A-7-6 (I)	0.5	0.6	37							
						Clay, AASHTO: A-7-6 (I)	0.8	0.9	34							
						Clay, AASHTO: A-7-6 (I)	1.1	1.2	32							
						Silt, AASHTO: A-4 (I)	1.4	1.5	23							
						Silt, AASHTO: A-4 (I)	1.7	1.8	22							
						Clay, AASHTO: A-7-6 (I)	2.0	2.1	33							
						Clay, AASHTO: A-7-6 (I)	2.3	2.4	39							
						Clay, AASHTO: A-7-6 (I)	2.6	2.7	49							
						Clay, AASHTO: A-7-6 (I)	2.9	3.0	51							
TH23-13	UTM : 5532513 N, 634060 E Located in front of #404 Inkster Blvd, Eastbound lane,4.5 m North of South curb	Asphalt	160	Concrete	150	Clay, AASHTO: A-7-6 (59)	0.5	0.6	36							
						Clay, AASHTO: A-7-6 (59)	0.8	0.9	32							
						Clay, AASHTO: A-7-6 (59)	1.1	1.2	29	69	30	1	0	22	75	52
						Silt, AASHTO: A-6 (I)	1.4	1.5	24							
						Silt, AASHTO: A-6 (I)	1.7	1.8	34							
						Clay, AASHTO: A-7-6 (I)	2.0	2.1	32							
						Clay, AASHTO: A-7-6 (I)	2.3	2.4	35							
						Silt, AASHTO: A-6 (I)	2.6	2.7	25							
						Silt, AASHTO: A-6 (I)	2.9	3.0	23							

RFP 547-2023 McGregor - Inkster Geotech. Investigation
Sub-Surface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)		Moisture Content (%)	Grain Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Top (m)	Bottom (m)		Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Plastic	Liquid	Plasticity Index
TH23-14	UTM : 5532417 N, 634255 E Located in front of #320 Inkster Blvd, Eastbound lane, 1.1 m North of South curb	Asphalt	105	Concrete	185	Clay, AASHTO: A-7-6 (61)	0.5	0.6	33							
						Clay, AASHTO: A-7-6 (61)	0.8	0.9	35							
						Clay, AASHTO: A-7-6 (61)	1.1	1.2	30	69	28	3	0	20	77	56
						Clay, AASHTO: A-7-6 (61)	1.4	1.5	31							
						Clay, AASHTO: A-7-6 (61)	1.7	1.8	30							
						Clay, AASHTO: A-7-6 (61)	2.0	2.1	34							
						Clay, AASHTO: A-7-6 (61)	2.3	2.4	25							
						Silt, AASHTO: A-4 (I)	2.6	2.7	24							
						Silt, AASHTO: A-4 (I)	2.9	3.0	23							
TH23-15 (PC23-26)	UTM : 5532285 N, 634548 E Located in front of #234 Inkster Blvd, Eastbound lane, 1.2 m South of North curb	Asphalt	190	Concrete	140	Clay, AASHTO: A-7-6 (I)	0.5	0.6	34							
						Silt, AASHTO: A-6 (I)	0.8	0.9	23							
						Silt, AASHTO: A-6 (I)	1.1	1.2	25							
						Silt, AASHTO: A-6 (I)	1.4	1.5	23							
						Clay, AASHTO: A-7-6 (I)	1.7	1.8	31							
						Clay, AASHTO: A-7-6 (I)	2.0	2.1	35							
						Clay, AASHTO: A-7-6 (I)	2.3	2.4	45							
						Clay, AASHTO: A-7-6 (I)	2.6	2.7	44							
						Clay, AASHTO: A-7-6 (I)	2.9	3.0	52							
TH23-16	UTM : 5533026 N, 632955 E Located in front of #806 Inkster Blvd, Eastbound lane, 0.9 m North of South curb	Asphalt	65	Concrete	150	Clay, AASHTO: A-7-6 (62)	0.5	0.6	33							
						Clay, AASHTO: A-7-6 (62)	0.8	0.9	29							
						Clay, AASHTO: A-7-6 (62)	1.1	1.2	35	75	23	2	0	28	83	54
						Clay, AASHTO: A-7-6 (62)	1.4	1.5	30							
						Clay, AASHTO: A-7-6 (62)	1.7	1.8	31							
						Clay, AASHTO: A-7-6 (62)	2.0	2.1	31							
						Silt, AASHTO: A-4 (I)	2.3	2.4	25							
						Silt, AASHTO: A-4 (I)	2.6	2.7	23							
						Silt, AASHTO: A-4 (I)	2.9	3.0	21							

RFP 547-2023 McGregor - Inkster Geotech. Investigation
Sub-Surface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)		Moisture Content (%)	Grain Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Top (m)	Bottom (m)		Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Plastic	Liquid	Plasticity Index
TH23-17	UTM : 5532976 N, 633074 E Located in front of #784 Inkster Blvd, Eastbound lane, 1.3 m South of North curb	Asphalt	90	Concrete	140	Clay, AASHTO: A-7-6 (I)	0.5	0.6	35							
						Clay, AASHTO: A-7-6 (I)	0.8	0.9	31							
						Clay, AASHTO: A-7-6 (I)	1.1	1.2	32							
						Clay, AASHTO: A-7-6 (I)	1.4	1.5	28							
						Silt, AASHTO: A-6 (I)	1.7	1.8	23							
						Silt, AASHTO: A-6 (I)	2.0	2.1	23							
						Silt, AASHTO: A-6 (I)	2.3	2.4	24							
						Silt, AASHTO: A-6 (I)	2.6	2.7	23							
						Clay, AASHTO: A-7-6 (I)	2.9	3.0	47							
TH23-18	UTM : 5532911 N, 633200 E Located in front of #750 Inkster Blvd, Eastbound lane, 1.2 m North of South curb	Asphalt	215	Concrete	200	Clay, AASHTO: A-7-6 (I)	0.5	0.6	35							
						Clay, AASHTO: A-7-6 (I)	0.8	0.9	29							
						Clay, AASHTO: A-7-6 (I)	1.1	1.2	30							
						Clay, AASHTO: A-7-6 (I)	1.4	1.5	30							
						Clay, AASHTO: A-7-6 (I)	1.7	1.8	35							
						Clay, AASHTO: A-7-6 (I)	2.0	2.1	34							
						Silt, AASHTO: A-6 (I)	2.3	2.4	23							
						Clay, AASHTO: A-7-6 (I)	2.6	2.7	46							
						Clay, AASHTO: A-7-6 (I)	2.9	3.0	46							
TH23-19	UTM : 5532836 N, 633368 E Located in front of #636 Inkster Blvd, Eastbound lane, 1.0 m South of North curb	Asphalt	180	Concrete	120	Clay, AASHTO: A-7-6 (I)	0.5	0.6	30							
						Silt, AASHTO: A-6 (15)	0.8	0.9	22							
						Silt, AASHTO: A-6 (15)	1.1	1.2	24	25	71	4	0	15	32	17
						Silt, AASHTO: A-6 (15)	1.4	1.5	23							
						Clay, AASHTO: A-7-6 (I)	1.7	1.8	35							
						Clay, AASHTO: A-7-6 (I)	2.0	2.1	39							
						Clay, AASHTO: A-7-6 (I)	2.3	2.4	43							
						Clay, AASHTO: A-7-6 (I)	2.6	2.7	50							
						Clay, AASHTO: A-7-6 (I)	2.9	3.0	55							

RFP 547-2023 McGregor - Inkster Geotech. Investigation
Sub-Surface Investigation

Test Hole No.	Test Hole Location	Pavement Surface		Pavement Structure Material		Subgrade Description	Sample Depth (m)		Moisture Content (%)	Grain Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)		Top (m)	Bottom (m)		Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Plastic	Liquid	Plasticity Index
TH23-20	UTM : 5532766 N, 633508 E Located in front of #576 Inkster Blvd, Eastbound lane, 1.2 m North of South curb	Asphalt	130	Concrete	180	Clay, AASHTO: A-7-6 (68)	0.5	0.6	39							
						Clay, AASHTO: A-7-6 (68)	0.8	0.9	32							
						Clay, AASHTO: A-7-6 (68)	1.1	1.2	31	73	26	1	0	25	84	59
						Clay, AASHTO: A-7-6 (68)	1.4	1.5	30							
						Clay, AASHTO: A-7-6 (68)	1.7	1.8	33							
						Clay, AASHTO: A-7-6 (68)	2.0	2.1	36							
						Clay, AASHTO: A-7-6 (68)	2.3	2.4	37							
						Clay, AASHTO: A-7-6 (68)	2.6	2.7	25							
						Silt, AASHTO: A-6 (I)	2.9	3.0	24							

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Moisture Content Report
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Project No. 1000-001-33
Client Morrison Hershfield
Project RFP 547-2023 McGregor-Inkster Geotech. Investigation

Sample Date 19-Dec-23
Test Date 08-Jan-24
Technician KF

Test Hole	TH23-11	TH23-11	TH23-11	TH23-11	TH23-11	TH23-11
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G97	G98	G99	G100	G101	G102
Tare ID	D31	W72	Z134	H31	H15	AB68
Mass of tare	8.5	8.5	8.6	8.3	8.7	6.9
Mass wet + tare	235.6	224.5	484.4	252.1	230.5	234.1
Mass dry + tare	178.0	189.9	404.0	207.5	166.8	163.7
Mass water	57.6	34.6	80.4	44.6	63.7	70.4
Mass dry soil	169.5	181.4	395.4	199.2	158.1	156.8
Moisture %	34.0%	19.1%	20.3%	22.4%	40.3%	44.9%

Test Hole	TH23-11	TH23-11	TH23-11	TH23-12	TH23-12	TH23-12
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G103	G104	G105	G107	G108	G109
Tare ID	A8	W95	D9	K26	AB58	AB71
Mass of tare	8.1	8.6	8.7	8.6	6.9	6.6
Mass wet + tare	233.7	206.8	222.7	225.7	150.4	213.3
Mass dry + tare	156.9	140.4	150.0	167.1	113.7	163.7
Mass water	76.8	66.4	72.7	58.6	36.7	49.6
Mass dry soil	148.8	131.8	141.3	158.5	106.8	157.1
Moisture %	51.6%	50.4%	51.5%	37.0%	34.4%	31.6%

Test Hole	TH23-12	TH23-12	TH23-12	TH23-12	TH23-12	TH23-12
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G110	G111	G112	G113	G114	G115
Tare ID	W14	D17	H50	A28	F86	W44
Mass of tare	8.7	8.7	8.5	8.2	8.3	8.6
Mass wet + tare	241.8	241.6	250.9	225.1	230.6	242.3
Mass dry + tare	198.3	200.0	191.2	164.8	157.7	163.5
Mass water	43.5	41.6	59.7	60.3	72.9	78.8
Mass dry soil	189.6	191.3	182.7	156.6	149.4	154.9
Moisture %	22.9%	21.7%	32.7%	38.5%	48.8%	50.9%

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Project No. 1000-001-33
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Sample Date 19-Dec-23
Test Date 08-Jan-24
Technician KF

Test Hole	TH23-13	TH23-13	TH23-13	TH23-13	TH23-13	TH23-13
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G116	G117	G118	G119	G120	G121
Tare ID	A1	L14	I85	E14	W88	N48
Mass of tare	6.8	6.8	6.8	6.9	8.5	8.5
Mass wet + tare	241.5	219.9	429.7	238.4	245.6	276.1
Mass dry + tare	179.8	168.6	335.7	194.2	185.6	211.0
Mass water	61.7	51.3	94.0	44.2	60.0	65.1
Mass dry soil	173.0	161.8	328.9	187.3	177.1	202.5
Moisture %	35.7%	31.7%	28.6%	23.6%	33.9%	32.1%

Test Hole	TH23-13	TH23-13	TH23-13	TH23-14	TH23-14	TH23-14
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G122	G123	G124	G126	G127	G128
Tare ID	Z39	N110	W59	K23	F18	M90
Mass of tare	8.6	8.6	8.7	8.6	8.6	6.8
Mass wet + tare	237.5	266.3	256.9	204.8	210.6	424.6
Mass dry + tare	178.6	215.5	209.8	155.7	158.5	327.3
Mass water	58.9	50.8	47.1	49.1	52.1	97.3
Mass dry soil	170.0	206.9	201.1	147.1	149.9	320.5
Moisture %	34.6%	24.6%	23.4%	33.4%	34.8%	30.4%

Test Hole	TH23-14	TH23-14	TH23-14	TH23-14	TH23-14	TH23-14
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G129	G130	G131	G132	G133	G134
Tare ID	E07	N93	F66	AC34	N21	W47
Mass of tare	6.8	8.5	8.7	6.7	8.9	8.5
Mass wet + tare	200.9	225.5	201.1	217.5	257.4	263.9
Mass dry + tare	155.5	175.5	152.3	175.0	208.8	216.4
Mass water	45.4	50.0	48.8	42.5	48.6	47.5
Mass dry soil	148.7	167.0	143.6	168.3	199.9	207.9
Moisture %	30.5%	29.9%	34.0%	25.3%	24.3%	22.8%

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Sample Date 19-Dec-23
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Technician KF

Test Hole	TH23-15	TH23-15	TH23-15	TH23-15	TH23-15	TH23-15
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G136	G137	G138	G139	G140	G141
Tare ID	W92	E119	M93	Z02	E06	H73
Mass of tare	8.6	8.6	6.9	6.9	6.9	8.6
Mass wet + tare	234.2	203.2	237.5	226.8	223.0	232.6
Mass dry + tare	177.5	167.3	192.0	185.6	172.3	174.1
Mass water	56.7	35.9	45.5	41.2	50.7	58.5
Mass dry soil	168.9	158.7	185.1	178.7	165.4	165.5
Moisture %	33.6%	22.6%	24.6%	23.1%	30.7%	35.3%

Test Hole	TH23-15	TH23-15	TH23-15	TH23-16	TH23-16	TH23-16
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G142	G143	G144	G146	G147	G148
Tare ID	M77	M94	E08	H41	Z123	I68
Mass of tare	6.7	6.9	6.8	8.6	8.4	6.9
Mass wet + tare	242.5	220.0	216.0	222.8	219.6	438.4
Mass dry + tare	169.5	154.4	144.5	169.6	172.6	327.3
Mass water	73.0	65.6	71.5	53.2	47.0	111.1
Mass dry soil	162.8	147.5	137.7	161.0	164.2	320.4
Moisture %	44.8%	44.5%	51.9%	33.0%	28.6%	34.7%

Test Hole	TH23-16	TH23-16	TH23-16	TH23-16	TH23-16	TH23-16
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G149	G150	G151	G152	G153	G154
Tare ID	E42	M92	W103	E84	E89	P36
Mass of tare	8.5	6.9	8.6	6.7	6.9	8.8
Mass wet + tare	198.6	228.1	217.4	269.5	258.6	282.5
Mass dry + tare	154.8	175.9	167.5	216.6	211.4	234.7
Mass water	43.8	52.2	49.9	52.9	47.2	47.8
Mass dry soil	146.3	169.0	158.9	209.9	204.5	225.9
Moisture %	29.9%	30.9%	31.4%	25.2%	23.1%	21.2%

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Sample Date 19-Dec-23
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Technician KF

Test Hole	TH23-17	TH23-17	TH23-17	TH23-17	TH23-17	TH23-17
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G156	G157	G158	G159	G160	G161
Tare ID	N24	E62	W53.	E17	H35	N04
Mass of tare	8.5	6.8	8.5	6.9	8.5	8.7
Mass wet + tare	216.7	256.0	229.0	238.2	242.1	250.7
Mass dry + tare	162.8	196.7	175.9	187.7	198.2	205.2
Mass water	53.9	59.3	53.1	50.5	43.9	45.5
Mass dry soil	154.3	189.9	167.4	180.8	189.7	196.5
Moisture %	34.9%	31.2%	31.7%	27.9%	23.1%	23.2%

Test Hole	TH23-17	TH23-17	TH23-17	TH23-18	TH23-18	TH23-18
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G162	G163	G164	G166	G167	G168
Tare ID	H65	E13	F135	M10	P21	F153
Mass of tare	8.8	6.8	8.6	6.6	8.4	8.5
Mass wet + tare	281.5	249.5	247.1	231.9	234.9	224.8
Mass dry + tare	227.9	204.1	170.4	173.6	183.6	174.8
Mass water	53.6	45.4	76.7	58.3	51.3	50.0
Mass dry soil	219.1	197.3	161.8	167.0	175.2	166.3
Moisture %	24.5%	23.0%	47.4%	34.9%	29.3%	30.1%

Test Hole	TH23-18	TH23-18	TH23-18	TH23-18	TH23-18	TH23-18
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G169	G170	G171	G172	G173	G174
Tare ID	E87	P31	E37	N80	E19	E54
Mass of tare	6.7	8.4	7.1	8.5	8.5	6.7
Mass wet + tare	224.9	239.1	270.7	283.2	244.9	248.4
Mass dry + tare	175.0	179.8	203.9	232.6	170.1	172.1
Mass water	49.9	59.3	66.8	50.6	74.8	76.3
Mass dry soil	168.3	171.4	196.8	224.1	161.6	165.4
Moisture %	29.6%	34.6%	33.9%	22.6%	46.3%	46.1%

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Sample Date 19-Dec-23
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Technician KF

Test Hole	TH23-19	TH23-19	TH23-19	TH23-19	TH23-19	TH23-19
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G176	G177	G178	G179	G180	G181
Tare ID	F127	Z91	E56	N113	AB73	AC15
Mass of tare	8.4	8.6	6.8	8.6	7.1	7.0
Mass wet + tare	234.9	258.4	476.8	203.6	245.5	212.4
Mass dry + tare	182.9	212.6	385.5	167.1	183.4	154.7
Mass water	52.0	45.8	91.3	36.5	62.1	57.7
Mass dry soil	174.5	204.0	378.7	158.5	176.3	147.7
Moisture %	29.8%	22.5%	24.1%	23.0%	35.2%	39.1%

Test Hole	TH23-19	TH23-19	TH23-19	TH23-20	TH23-20	TH23-20
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G182	G183	G184	G186	G187	G188
Tare ID	N61	A39	N85	F71	N83	M39
Mass of tare	8.6	8.5	8.5	8.5	8.7	6.8
Mass wet + tare	231.3	237.8	231.7	246.4	214.9	411.7
Mass dry + tare	164.2	161.1	152.6	179.4	164.5	316.9
Mass water	67.1	76.7	79.1	67.0	50.4	94.8
Mass dry soil	155.6	152.6	144.1	170.9	155.8	310.1
Moisture %	43.1%	50.3%	54.9%	39.2%	32.3%	30.6%

Test Hole	TH23-20	TH23-20	TH23-20	TH23-20	TH23-20	TH23-20
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G189	G190	G191	G192	G193	G194
Tare ID	Z114	N112	D3	P85	E470	AC24
Mass of tare	8.4	8.7	8.4	8.6	8.7	6.8
Mass wet + tare	215.0	236.2	231.5	225.1	235.7	239.2
Mass dry + tare	167.6	179.6	172.6	166.1	190.2	194.0
Mass water	47.4	56.6	58.9	59.0	45.5	45.2
Mass dry soil	159.2	170.9	164.2	157.5	181.5	187.2
Moisture %	29.8%	33.1%	35.9%	37.5%	25.1%	24.1%

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Technician KF

Test Hole	TH23-11	TH23-11	TH23-11	TH23-11	TH23-11	TH23-11
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G97	G98	G99	G100	G101	G102
Tare ID	D31	W72	Z134	H31	H15	AB68
Mass of tare	8.5	8.5	8.6	8.3	8.7	6.9
Mass wet + tare	235.6	224.5	484.4	252.1	230.5	234.1
Mass dry + tare	178.0	189.9	404.0	207.5	166.8	163.7
Mass water	57.6	34.6	80.4	44.6	63.7	70.4
Mass dry soil	169.5	181.4	395.4	199.2	158.1	156.8
Moisture %	34.0%	19.1%	20.3%	22.4%	40.3%	44.9%

Test Hole	TH23-11	TH23-11	TH23-11	TH23-12	TH23-12	TH23-12
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G103	G104	G105	G107	G108	G109
Tare ID	A8	W95	D9	K26	AB58	AB71
Mass of tare	8.1	8.6	8.7	8.6	6.9	6.6
Mass wet + tare	233.7	206.8	222.7	225.7	150.4	213.3
Mass dry + tare	156.9	140.4	150.0	167.1	113.7	163.7
Mass water	76.8	66.4	72.7	58.6	36.7	49.6
Mass dry soil	148.8	131.8	141.3	158.5	106.8	157.1
Moisture %	51.6%	50.4%	51.5%	37.0%	34.4%	31.6%

Test Hole	TH23-12	TH23-12	TH23-12	TH23-12	TH23-12	TH23-12
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G110	G111	G112	G113	G114	G115
Tare ID	W14	D17	H50	A28	F86	W44
Mass of tare	8.7	8.7	8.5	8.2	8.3	8.6
Mass wet + tare	241.8	241.6	250.9	225.1	230.6	242.3
Mass dry + tare	198.3	200.0	191.2	164.8	157.7	163.5
Mass water	43.5	41.6	59.7	60.3	72.9	78.8
Mass dry soil	189.6	191.3	182.7	156.6	149.4	154.9
Moisture %	22.9%	21.7%	32.7%	38.5%	48.8%	50.9%

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Test Hole	TH23-13	TH23-13	TH23-13	TH23-13	TH23-13	TH23-13
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G116	G117	G118	G119	G120	G121
Tare ID	A1	L14	I85	E14	W88	N48
Mass of tare	6.8	6.8	6.8	6.9	8.5	8.5
Mass wet + tare	241.5	219.9	429.7	238.4	245.6	276.1
Mass dry + tare	179.8	168.6	335.7	194.2	185.6	211.0
Mass water	61.7	51.3	94.0	44.2	60.0	65.1
Mass dry soil	173.0	161.8	328.9	187.3	177.1	202.5
Moisture %	35.7%	31.7%	28.6%	23.6%	33.9%	32.1%

Test Hole	TH23-13	TH23-13	TH23-13	TH23-14	TH23-14	TH23-14
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G122	G123	G124	G126	G127	G128
Tare ID	Z39	N110	W59	K23	F18	M90
Mass of tare	8.6	8.6	8.7	8.6	8.6	6.8
Mass wet + tare	237.5	266.3	256.9	204.8	210.6	424.6
Mass dry + tare	178.6	215.5	209.8	155.7	158.5	327.3
Mass water	58.9	50.8	47.1	49.1	52.1	97.3
Mass dry soil	170.0	206.9	201.1	147.1	149.9	320.5
Moisture %	34.6%	24.6%	23.4%	33.4%	34.8%	30.4%

Test Hole	TH23-14	TH23-14	TH23-14	TH23-14	TH23-14	TH23-14
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G129	G130	G131	G132	G133	G134
Tare ID	E07	N93	F66	AC34	N21	W47
Mass of tare	6.8	8.5	8.7	6.7	8.9	8.5
Mass wet + tare	200.9	225.5	201.1	217.5	257.4	263.9
Mass dry + tare	155.5	175.5	152.3	175.0	208.8	216.4
Mass water	45.4	50.0	48.8	42.5	48.6	47.5
Mass dry soil	148.7	167.0	143.6	168.3	199.9	207.9
Moisture %	30.5%	29.9%	34.0%	25.3%	24.3%	22.8%

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Moisture Content Report
ASTM D2216-98

Project No. 1000-001-33
Client Morrison Hershfield
Project RFP 547-2023 McGregor-Inkster Geotech. Investigation

Sample Date 19-Dec-23
Test Date 08-Jan-24
Technician KF

Test Hole	TH23-15	TH23-15	TH23-15	TH23-15	TH23-15	TH23-15
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G136	G137	G138	G139	G140	G141
Tare ID	W92	E119	M93	Z02	E06	H73
Mass of tare	8.6	8.6	6.9	6.9	6.9	8.6
Mass wet + tare	234.2	203.2	237.5	226.8	223.0	232.6
Mass dry + tare	177.5	167.3	192.0	185.6	172.3	174.1
Mass water	56.7	35.9	45.5	41.2	50.7	58.5
Mass dry soil	168.9	158.7	185.1	178.7	165.4	165.5
Moisture %	33.6%	22.6%	24.6%	23.1%	30.7%	35.3%

Test Hole	TH23-15	TH23-15	TH23-15	TH23-16	TH23-16	TH23-16
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G142	G143	G144	G146	G147	G148
Tare ID	M77	M94	E08	H41	Z123	I68
Mass of tare	6.7	6.9	6.8	8.6	8.4	6.9
Mass wet + tare	242.5	220.0	216.0	222.8	219.6	438.4
Mass dry + tare	169.5	154.4	144.5	169.6	172.6	327.3
Mass water	73.0	65.6	71.5	53.2	47.0	111.1
Mass dry soil	162.8	147.5	137.7	161.0	164.2	320.4
Moisture %	44.8%	44.5%	51.9%	33.0%	28.6%	34.7%

Test Hole	TH23-16	TH23-16	TH23-16	TH23-16	TH23-16	TH23-16
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G149	G150	G151	G152	G153	G154
Tare ID	E42	M92	W103	E84	E89	P36
Mass of tare	8.5	6.9	8.6	6.7	6.9	8.8
Mass wet + tare	198.6	228.1	217.4	269.5	258.6	282.5
Mass dry + tare	154.8	175.9	167.5	216.6	211.4	234.7
Mass water	43.8	52.2	49.9	52.9	47.2	47.8
Mass dry soil	146.3	169.0	158.9	209.9	204.5	225.9
Moisture %	29.9%	30.9%	31.4%	25.2%	23.1%	21.2%

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Moisture Content Report
ASTM D2216-98

Project No. 1000-001-33
Client Morrison Hershfield
Project RFP 547-2023 McGregor-Inkster Geotech. Investigation

Sample Date 19-Dec-23
Test Date 08-Jan-24
Technician KF

Test Hole	TH23-17	TH23-17	TH23-17	TH23-17	TH23-17	TH23-17
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G156	G157	G158	G159	G160	G161
Tare ID	N24	E62	W53.	E17	H35	N04
Mass of tare	8.5	6.8	8.5	6.9	8.5	8.7
Mass wet + tare	216.7	256.0	229.0	238.2	242.1	250.7
Mass dry + tare	162.8	196.7	175.9	187.7	198.2	205.2
Mass water	53.9	59.3	53.1	50.5	43.9	45.5
Mass dry soil	154.3	189.9	167.4	180.8	189.7	196.5
Moisture %	34.9%	31.2%	31.7%	27.9%	23.1%	23.2%

Test Hole	TH23-17	TH23-17	TH23-17	TH23-18	TH23-18	TH23-18
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G162	G163	G164	G166	G167	G168
Tare ID	H65	E13	F135	M10	P21	F153
Mass of tare	8.8	6.8	8.6	6.6	8.4	8.5
Mass wet + tare	281.5	249.5	247.1	231.9	234.9	224.8
Mass dry + tare	227.9	204.1	170.4	173.6	183.6	174.8
Mass water	53.6	45.4	76.7	58.3	51.3	50.0
Mass dry soil	219.1	197.3	161.8	167.0	175.2	166.3
Moisture %	24.5%	23.0%	47.4%	34.9%	29.3%	30.1%

Test Hole	TH23-18	TH23-18	TH23-18	TH23-18	TH23-18	TH23-18
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G169	G170	G171	G172	G173	G174
Tare ID	E87	P31	E37	N80	E19	E54
Mass of tare	6.7	8.4	7.1	8.5	8.5	6.7
Mass wet + tare	224.9	239.1	270.7	283.2	244.9	248.4
Mass dry + tare	175.0	179.8	203.9	232.6	170.1	172.1
Mass water	49.9	59.3	66.8	50.6	74.8	76.3
Mass dry soil	168.3	171.4	196.8	224.1	161.6	165.4
Moisture %	29.6%	34.6%	33.9%	22.6%	46.3%	46.1%

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Moisture Content Report
ASTM D2216-98

Project No. 1000-001-33
Client Morrison Hershfield
Project RFP 547-2023 McGregor-Inkster Geotech. Investigation

Sample Date 19-Dec-23
Test Date 08-Jan-24
Technician KF

Test Hole	TH23-19	TH23-19	TH23-19	TH23-19	TH23-19	TH23-19
Depth (m)	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1
Sample #	G176	G177	G178	G179	G180	G181
Tare ID	F127	Z91	E56	N113	AB73	AC15
Mass of tare	8.4	8.6	6.8	8.6	7.1	7.0
Mass wet + tare	234.9	258.4	476.8	203.6	245.5	212.4
Mass dry + tare	182.9	212.6	385.5	167.1	183.4	154.7
Mass water	52.0	45.8	91.3	36.5	62.1	57.7
Mass dry soil	174.5	204.0	378.7	158.5	176.3	147.7
Moisture %	29.8%	22.5%	24.1%	23.0%	35.2%	39.1%

Test Hole	TH23-19	TH23-19	TH23-19	TH23-20	TH23-20	TH23-20
Depth (m)	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0	0.5 - 0.6	0.8 - 0.9	1.1 - 1.2
Sample #	G182	G183	G184	G186	G187	G188
Tare ID	N61	A39	N85	F71	N83	M39
Mass of tare	8.6	8.5	8.5	8.5	8.7	6.8
Mass wet + tare	231.3	237.8	231.7	246.4	214.9	411.7
Mass dry + tare	164.2	161.1	152.6	179.4	164.5	316.9
Mass water	67.1	76.7	79.1	67.0	50.4	94.8
Mass dry soil	155.6	152.6	144.1	170.9	155.8	310.1
Moisture %	43.1%	50.3%	54.9%	39.2%	32.3%	30.6%

Test Hole	TH23-20	TH23-20	TH23-20	TH23-20	TH23-20	TH23-20
Depth (m)	1.4 - 1.5	1.7 - 1.8	2.0 - 2.1	2.3 - 2.4	2.6 - 2.7	2.9 - 3.0
Sample #	G189	G190	G191	G192	G193	G194
Tare ID	Z114	N112	D3	P85	E470	AC24
Mass of tare	8.4	8.7	8.4	8.6	8.7	6.8
Mass wet + tare	215.0	236.2	231.5	225.1	235.7	239.2
Mass dry + tare	167.6	179.6	172.6	166.1	190.2	194.0
Mass water	47.4	56.6	58.9	59.0	45.5	45.2
Mass dry soil	159.2	170.9	164.2	157.5	181.5	187.2
Moisture %	29.8%	33.1%	35.9%	37.5%	25.1%	24.1%

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Atterberg Limits
ASTM D4318-10e1

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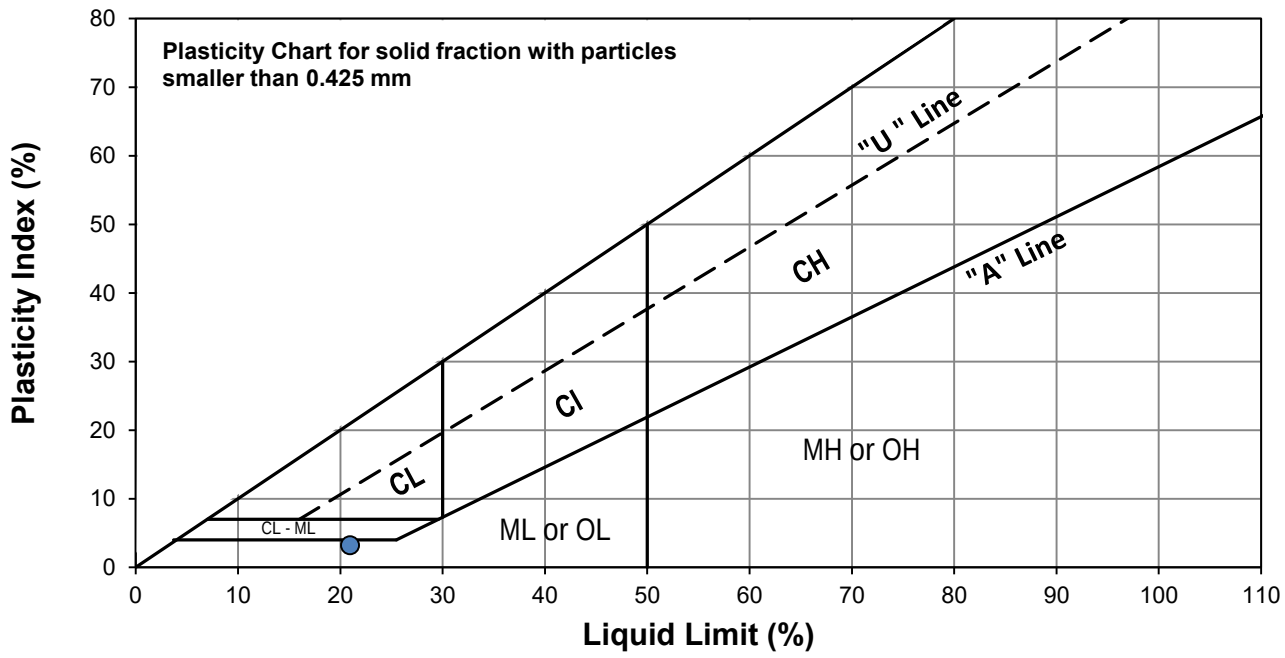
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-11
Sample #	G99
Depth (m)	1.1 - 1.2
Sample Date	19-Dec-23
Test Date	12-Jan-24
Technician	KF

Liquid Limit	21
Plastic Limit	18
Plasticity Index	3

Liquid Limit

Trial #	1	2	3		
Number of Blows (N)	19	26	33		
Mass Tare (g)	13.924	14.276	13.981		
Mass Wet Soil + Tare (g)	27.782	28.257	29.194		
Mass Dry Soil + Tare (g)	25.293	25.838	26.668		
Mass Water (g)	2.489	2.419	2.526		
Mass Dry Soil (g)	11.369	11.562	12.687		
Moisture Content (%)	21.893	20.922	19.910		



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	14.103	13.893			
Mass Wet Soil + Tare (g)	27.179	23.323			
Mass Dry Soil + Tare (g)	25.202	21.907			
Mass Water (g)	1.977	1.416			
Mass Dry Soil (g)	11.099	8.014			
Moisture Content (%)	17.812	17.669			

Note: Additional information recorded/measured for this test is available upon request.

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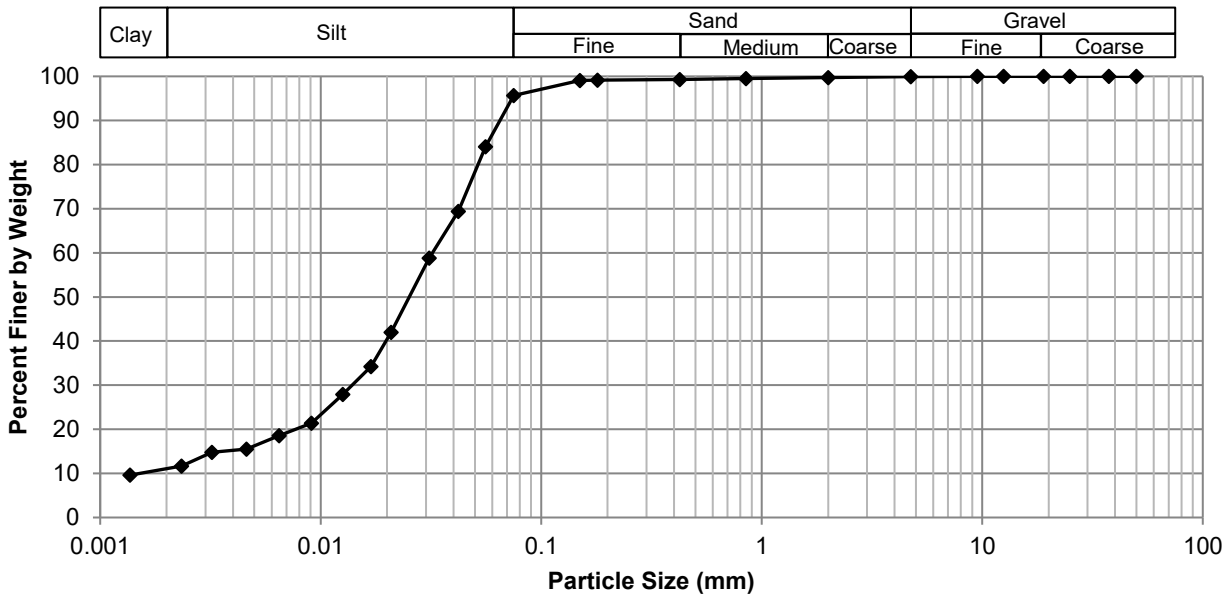
Grain Size Analysis (Hydrometer Method)
AASHTO T 88

Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-11
Sample #	G99
Depth (m)	1.1 - 1.2
Sample Date	19-Dec-23
Test Date	11-Jan-24
Technician	CK/KF

Gravel	0.1%
Sand	4.2%
Silt	84.8%
Clay	10.9%

Particle Size Distribution Curve



Gravel		Sand		Silt and Clay	
Particle Size (mm)	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**
50.0	100.00	4.75	99.92	0.0750	95.69
37.5	100.00	2.00	99.71	0.0559	84.06
25.0	100.00	0.850	99.53	0.0421	69.41
19.0	100.00	0.425	99.33	0.0311	58.81
12.5	100.00	0.180	99.12	0.0209	41.97
9.50	100.00	0.150	99.07	0.0169	34.22
4.75	99.92	0.075	95.69	0.0126	27.94
				0.0091	21.35
				0.0065	18.59
				0.0046	15.52
				0.0032	14.81
				0.0023	11.65
				0.0014	9.60

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Atterberg Limits
ASTM D4318-10e1

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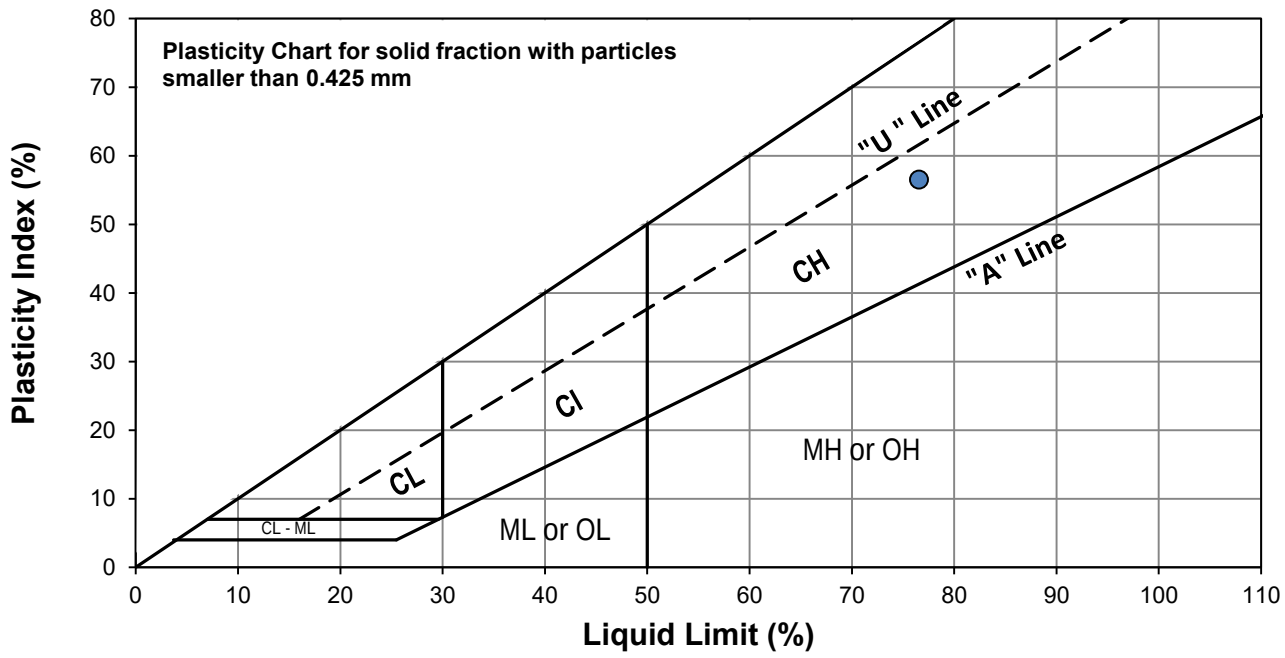
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-14
Sample #	G128
Depth (m)	1.1 - 1.2
Sample Date	19-Dec-23
Test Date	13-Jan-24
Technician	KF/AD

Liquid Limit	77
Plastic Limit	20
Plasticity Index	56

Liquid Limit

Trial #	1	2	3		
Number of Blows (N)	17	21	33		
Mass Tare (g)	13.949	13.970	14.205		
Mass Wet Soil + Tare (g)	23.174	21.631	23.179		
Mass Dry Soil + Tare (g)	19.075	18.271	19.359		
Mass Water (g)	4.099	3.360	3.820		
Mass Dry Soil (g)	5.126	4.301	5.154		
Moisture Content (%)	79.965	78.121	74.117		



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	14.264	14.060			
Mass Wet Soil + Tare (g)	21.521	20.924			
Mass Dry Soil + Tare (g)	20.307	19.776			
Mass Water (g)	1.214	1.148			
Mass Dry Soil (g)	6.043	5.716			
Moisture Content (%)	20.089	20.084			

Note: Additional information recorded/measured for this test is available upon request.

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Grain Size Analysis (Hydrometer Method)
AASHTO T 88

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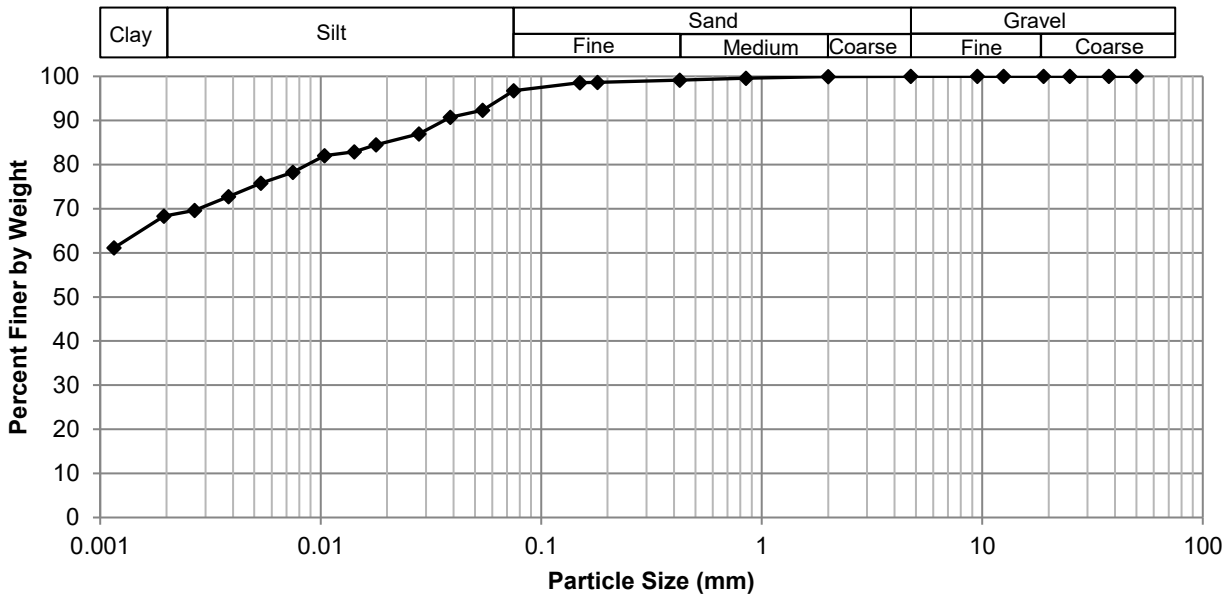
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-14
Sample #	G128
Depth (m)	0.3 - 0.4
Sample Date	19-Dec-23
Test Date	15-Jan-24
Technician	AD/KF

Gravel	0.0%
Sand	3.3%
Silt	28.2%
Clay	68.5%

Particle Size Distribution Curve



Gravel		Sand		Silt and Clay	
Particle Size (mm)	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**
50.0	100.00	4.75	100.00	0.0750	96.75
37.5	100.00	2.00	99.91	0.0543	92.30
25.0	100.00	0.850	99.57	0.0387	90.74
19.0	100.00	0.425	99.17	0.0279	86.99
12.5	100.00	0.180	98.65	0.0178	84.53
9.50	100.00	0.150	98.57	0.0142	82.93
4.75	100.00	0.075	96.75	0.0104	82.00
				0.0075	78.25
				0.0053	75.78
				0.0038	72.73
				0.0027	69.60
				0.0019	68.35
				0.0012	61.13

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Atterberg Limits
ASTM D4318-10e1

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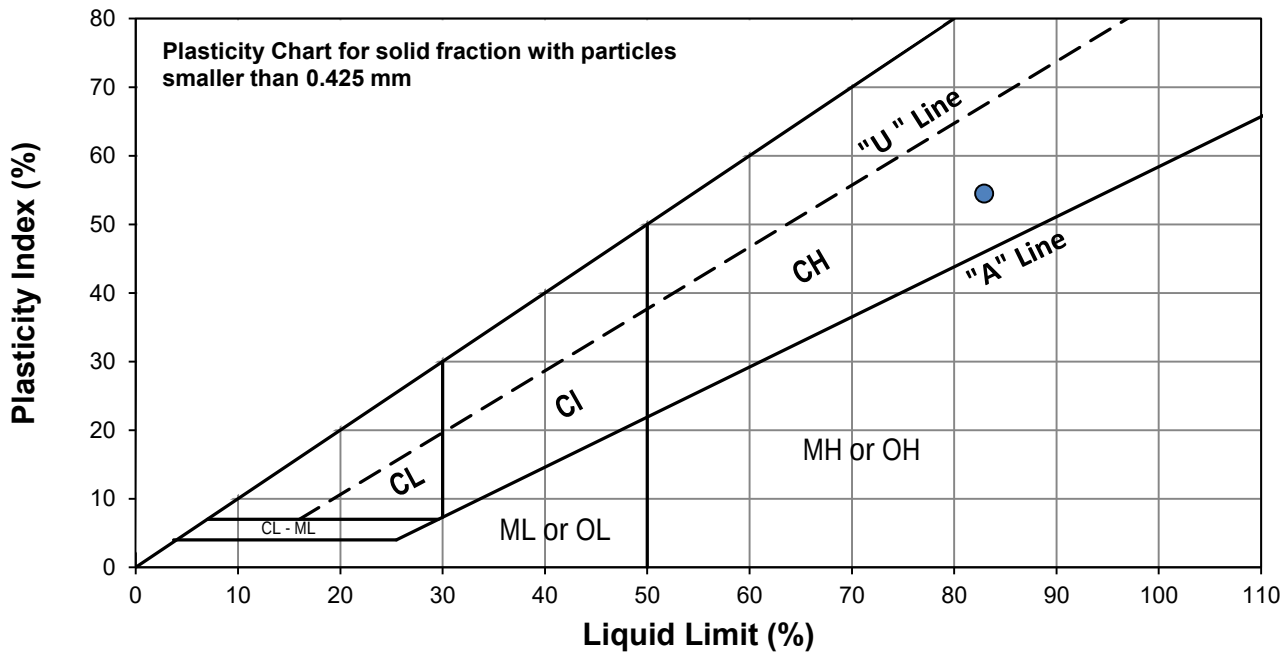
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-16
Sample #	G148
Depth (m)	1.1 - 1.2
Sample Date	19-Dec-23
Test Date	12-Jan-24
Technician	KM

Liquid Limit	83
Plastic Limit	28
Plasticity Index	54

Liquid Limit

Trial #	1	2	3		
Number of Blows (N)	19	25	31		
Mass Tare (g)	14.094	14.047	14.024		
Mass Wet Soil + Tare (g)	26.441	26.067	26.405		
Mass Dry Soil + Tare (g)	20.684	20.607	20.932		
Mass Water (g)	5.757	5.460	5.473		
Mass Dry Soil (g)	6.590	6.560	6.908		
Moisture Content (%)	87.360	83.232	79.227		



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	14.200	14.107			
Mass Wet Soil + Tare (g)	20.427	20.457			
Mass Dry Soil + Tare (g)	19.048	19.048			
Mass Water (g)	1.379	1.409			
Mass Dry Soil (g)	4.848	4.941			
Moisture Content (%)	28.445	28.516			

Note: Additional information recorded/measured for this test is available upon request.

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Grain Size Analysis (Hydrometer Method)
AASHTO T 88

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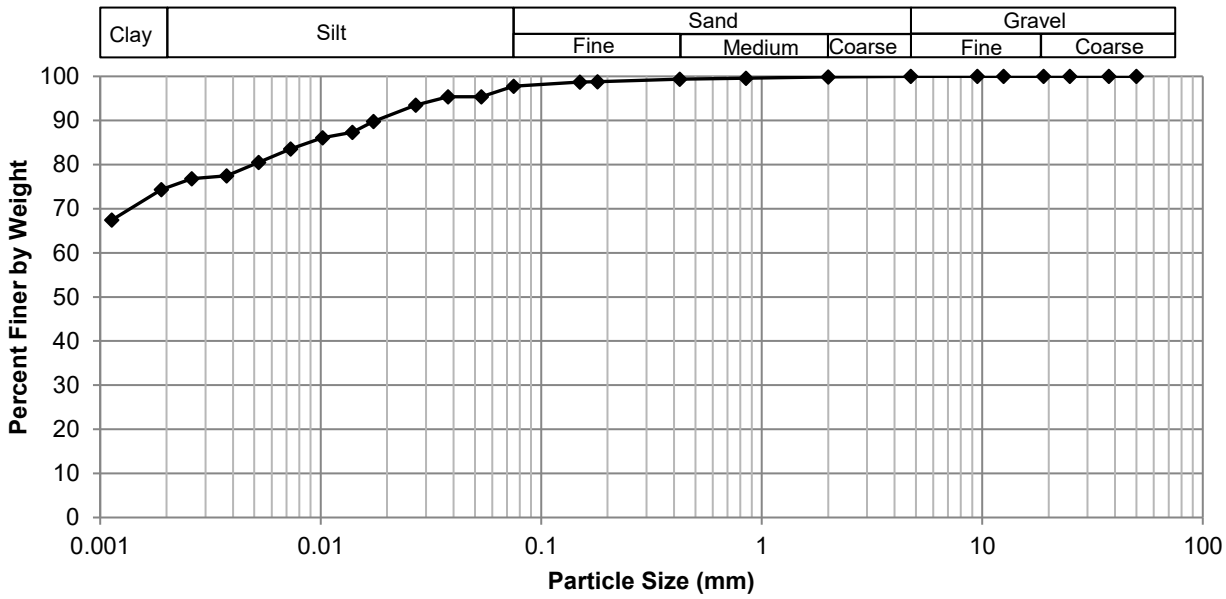
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-16
Sample #	G148
Depth (m)	0.3 - 0.4
Sample Date	19-Dec-23
Test Date	15-Jan-24
Technician	AD/KF

Gravel	0.0%
Sand	2.2%
Silt	23.0%
Clay	74.8%

Particle Size Distribution Curve



Gravel		Sand		Silt and Clay	
Particle Size (mm)	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**
50.0	100.00	4.75	100.00	0.0750	97.78
37.5	100.00	2.00	99.84	0.0535	95.39
25.0	100.00	0.850	99.61	0.0379	95.39
19.0	100.00	0.425	99.33	0.0270	93.52
12.5	100.00	0.180	98.82	0.0174	89.81
9.50	100.00	0.150	98.68	0.0139	87.32
4.75	100.00	0.075	97.78	0.0102	86.07
				0.0073	83.57
				0.0052	80.49
				0.0037	77.45
				0.0026	76.83
				0.0019	74.33
				0.0011	67.42

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Atterberg Limits
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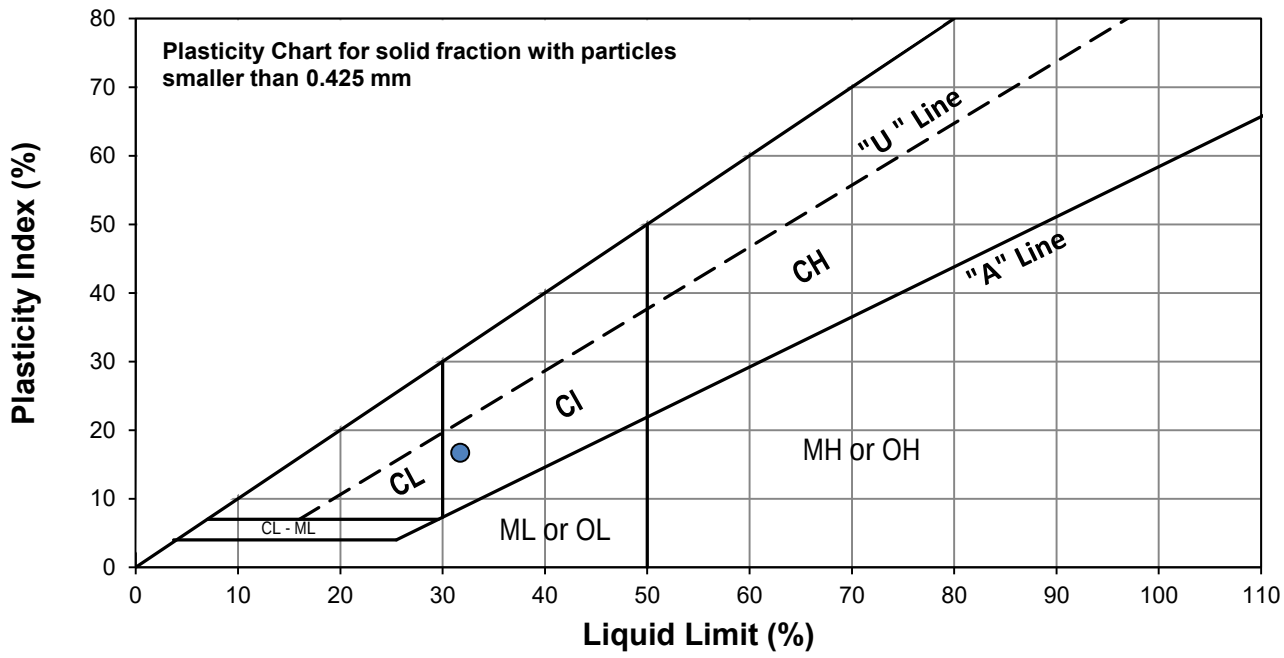
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-19
Sample #	G178
Depth (m)	1.1 - 1.2
Sample Date	19-Dec-23
Test Date	15-Jan-24
Technician	DS

Liquid Limit	32
Plastic Limit	15
Plasticity Index	17

Liquid Limit

Trial #	1	2	3		
Number of Blows (N)	18	22	34		
Mass Tare (g)	14.096	14.047	14.116		
Mass Wet Soil + Tare (g)	23.598	21.491	24.846		
Mass Dry Soil + Tare (g)	21.216	19.667	22.368		
Mass Water (g)	2.382	1.824	2.478		
Mass Dry Soil (g)	7.120	5.620	8.252		
Moisture Content (%)	33.455	32.456	30.029		



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	14.229	14.120			
Mass Wet Soil + Tare (g)	22.686	22.690			
Mass Dry Soil + Tare (g)	21.572	21.582			
Mass Water (g)	1.114	1.108			
Mass Dry Soil (g)	7.343	7.462			
Moisture Content (%)	15.171	14.849			

Note: Additional information recorded/measured for this test is available upon request.

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Grain Size Analysis (Hydrometer Method)
AASHTO T 88

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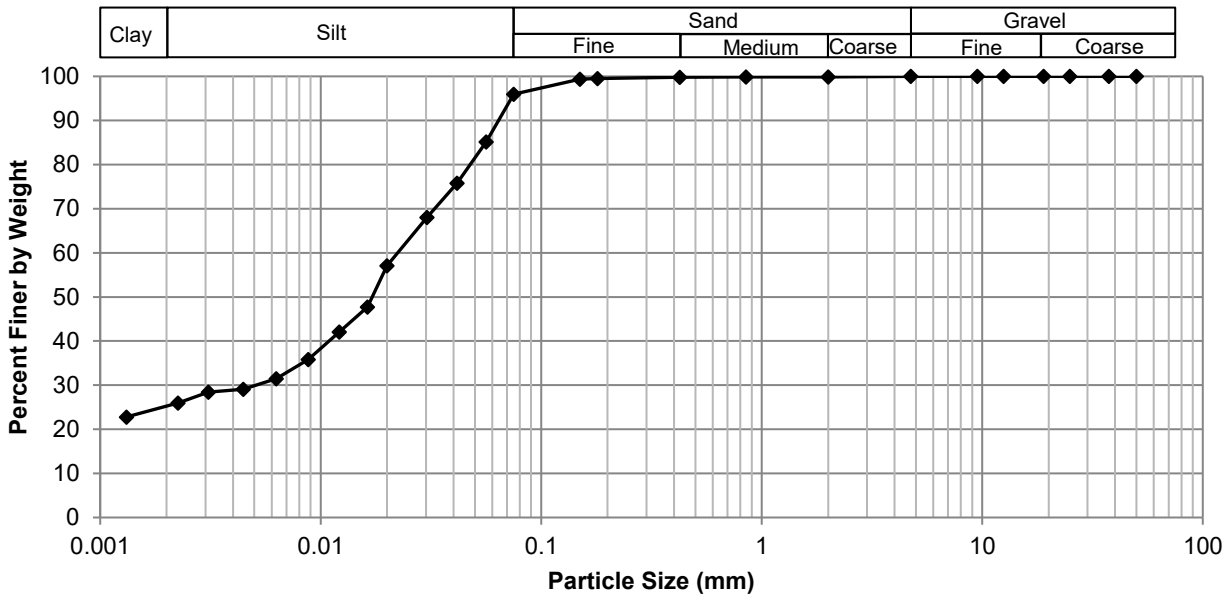
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-19
Sample #	G178
Depth (m)	0.3 - 0.4
Sample Date	19-Dec-23
Test Date	15-Jan-24
Technician	AD/KF

Gravel	0.0%
Sand	4.0%
Silt	70.9%
Clay	25.1%

Particle Size Distribution Curve



Gravel		Sand		Silt and Clay	
Particle Size (mm)	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**
50.0	100.00	4.75	100.00	0.0750	95.98
37.5	100.00	2.00	99.90	0.0562	85.18
25.0	100.00	0.850	99.88	0.0415	75.81
19.0	100.00	0.425	99.80	0.0303	68.00
12.5	100.00	0.180	99.48	0.0200	57.06
9.50	100.00	0.150	99.40	0.0163	47.74
4.75	100.00	0.075	95.98	0.0122	42.07
				0.0088	35.82
				0.0063	31.49
				0.0045	29.08
				0.0031	28.46
				0.0023	25.96
				0.0013	22.79

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Atterberg Limits
ASTM D4318-10e1

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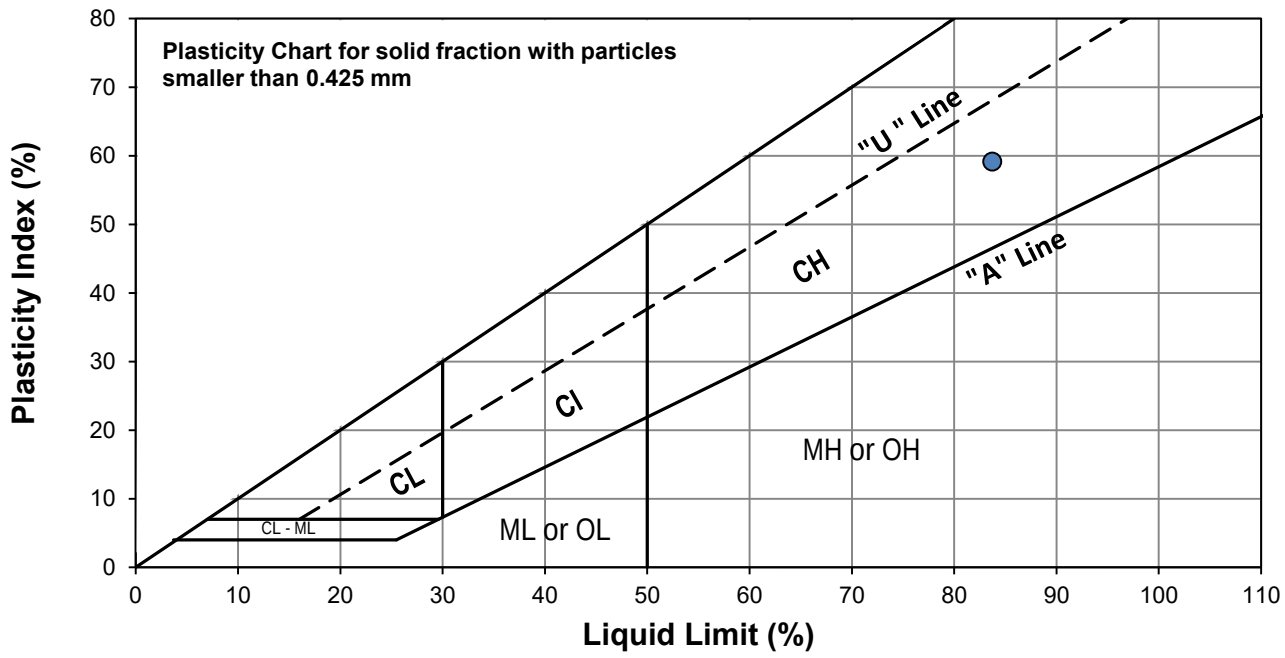
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-20
Sample #	G188
Depth (m)	1.1 - 1.2
Sample Date	19-Dec-23
Test Date	12-Jan-24
Technician	KF

Liquid Limit	84
Plastic Limit	25
Plasticity Index	59

Liquid Limit

Trial #	1	2	3		
Number of Blows (N)	17	29	34		
Mass Tare (g)	13.783	14.123	14.228		
Mass Wet Soil + Tare (g)	23.598	22.286	22.302		
Mass Dry Soil + Tare (g)	19.066	18.579	18.668		
Mass Water (g)	4.532	3.707	3.634		
Mass Dry Soil (g)	5.283	4.456	4.440		
Moisture Content (%)	85.785	83.191	81.847		



Plastic Limit

Trial #	1	2	3	4	5
Mass Tare (g)	14.141	13.874			
Mass Wet Soil + Tare (g)	22.775	21.886			
Mass Dry Soil + Tare (g)	21.093	20.282			
Mass Water (g)	1.682	1.604			
Mass Dry Soil (g)	6.952	6.408			
Moisture Content (%)	24.194	25.031			

Note: Additional information recorded/measured for this test is available upon request.

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Grain Size Analysis (Hydrometer Method)
AASHTO T 88

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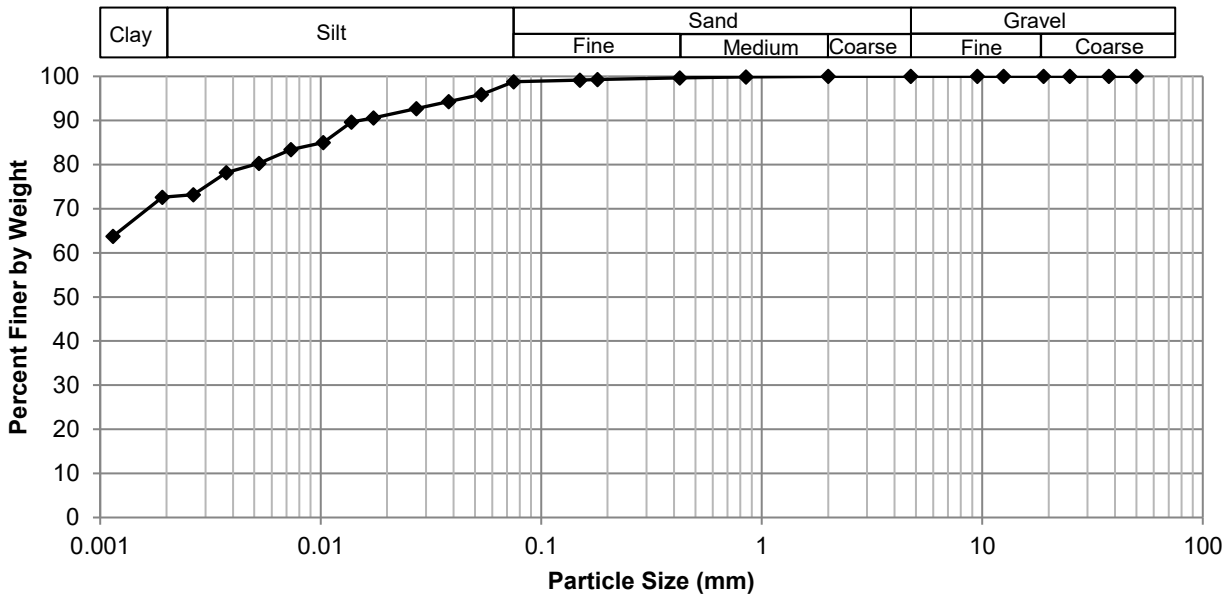
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Test Hole	TH23-20
Sample #	G188
Depth (m)	0.3 - 0.4
Sample Date	19-Dec-23
Test Date	15-Jan-24
Technician	AD/KF

Gravel	0.0%
Sand	1.2%
Silt	26.1%
Clay	72.7%

Particle Size Distribution Curve



Gravel		Sand		Silt and Clay	
Particle Size (mm)	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**	**Particle Size (mm)**	**Percent Passing**
50.0	100.00	4.75	100.00	0.0750	98.78
37.5	100.00	2.00	100.00	0.0535	95.85
25.0	100.00	0.850	99.86	0.0381	94.29
19.0	100.00	0.425	99.67	0.0272	92.72
12.5	100.00	0.180	99.28	0.0173	90.58
9.50	100.00	0.150	99.18	0.0138	89.64
4.75	100.00	0.075	98.78	0.0103	85.00
				0.0073	83.39
				0.0052	80.31
				0.0037	78.21
				0.0026	73.21
				0.0019	72.58
				0.0011	63.78

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Standard Proctor Compaction Test

ASTM D698-12 (2021)

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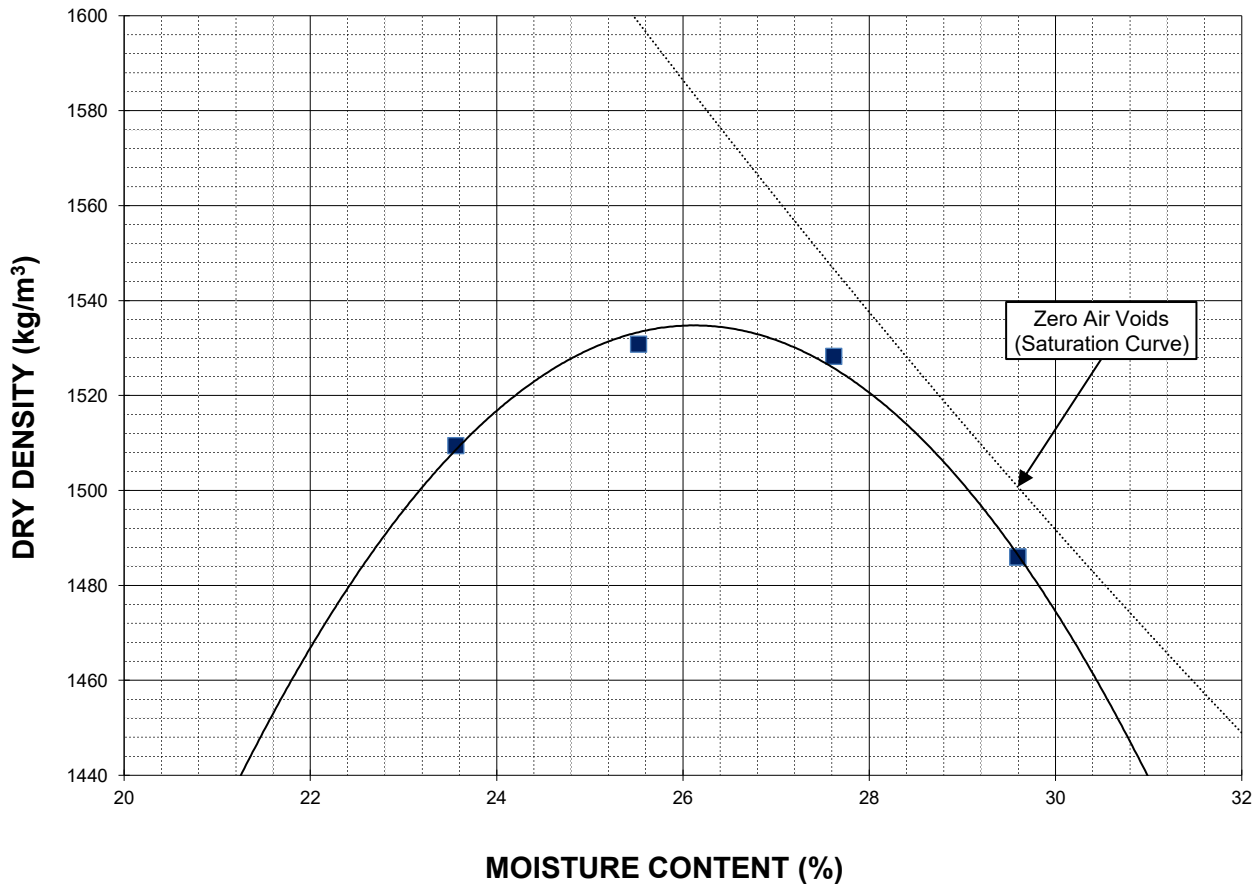
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Sample #	L24-001
Source	TH23-11 (1.5 m - 2.1 m)
Material	Clay
Sample Date	20-Dec-23
Test Date	04-Jan-24
Technician	AD

Maximum Dry Density (kg/m3)	1535
Optimum Moisture (%)	26.1

Trial Number	1	2	3	4	
Wet Density (kg/m^3)	1865	1922	1950	1926	
Dry Density (kg/m^3)	1509	1531	1528	1486	
Moisture Content (%)	23.6	25.5	27.6	29.6	



Note: Additional information recorded/measured for this test is available upon request.

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California Bearing Ratio Test Data Sheet

ASTM D1883-16

Project No.	1000-001-33	**Source**	TH23-11 (1.5 m - 2.1 m)
Client	Morrison Hershfield	**Material**	Clay
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Sample Date**	2023-12-20
Sample #	L24-001	**Test Date**	2024-01-09
		Technician	AD

Proctor Results (ASTM D698)

Maximum Dry Density	1535	kg/m3
Optimum Moisture Content	26.1	%
Material Retained on 19 mm Sieve	0.0	%

CBR Sample Compaction

Dry Density	1465	kg/m3
Initial Moisture Content	26.5	%
Relative Density	95.5	% SPMDD

Soaking Results

Surcharge	4.54	kg
Swell	1.7	%
Moisture Content in top 25 mm	39.2	%
Immersion Period	96	h

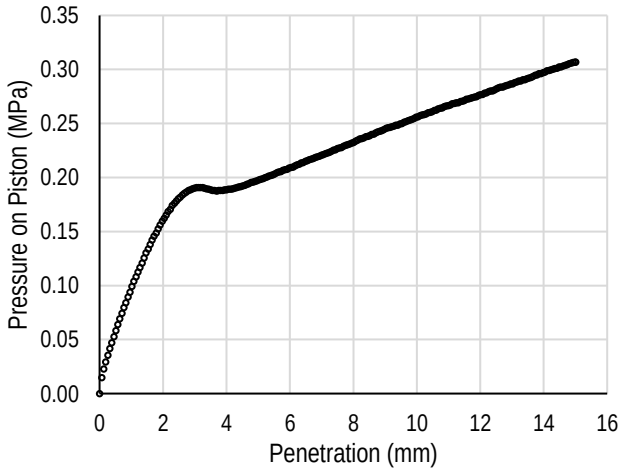
CBR Results

CBR at 2.54 mm	2.6	%
CBR at 5.08 mm	1.9	%
Zero Correction	0	mm

Test Data

Penetration (mm)	Measured Pressure (MPa)	Corrected Pressure (MPa)
0.64	0.07	0.07
1.27	0.12	0.12
1.91	0.16	0.16
2.54	0.18	0.18
3.18	0.19	0.19
3.81	0.19	0.19
4.45	0.19	0.19
5.08	0.20	0.20
7.62	0.23	0.23
10.16	0.26	0.26
12.70	0.28	0.28

Load/Penetration Curve



Comments:

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Standard Proctor Compaction Test

ASTM D698-12 (2021)

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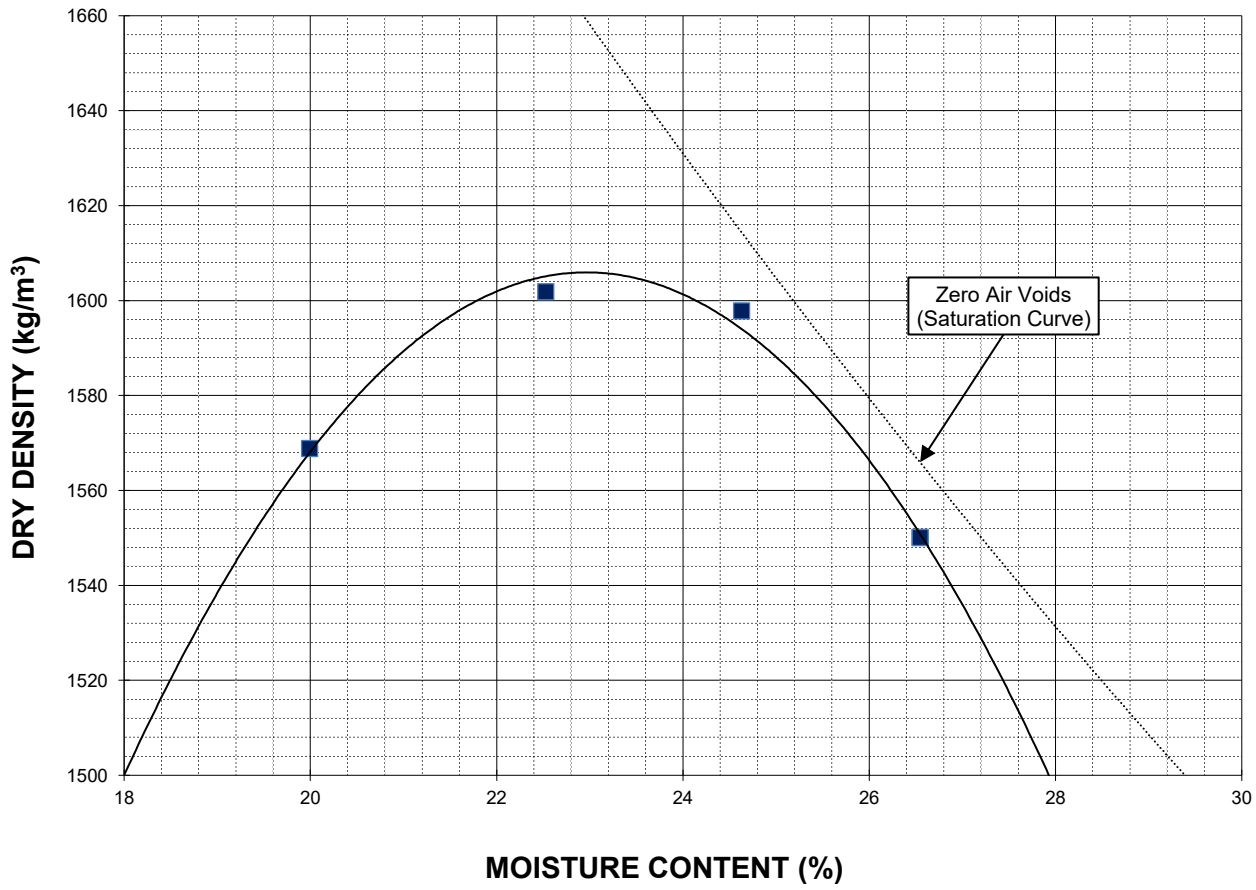
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Sample #	L24-001
Source	TH23-13 (1.5 m - 2.1 m)
Material	Clay
Sample Date	20-Dec-23
Test Date	04-Jan-24
Technician	AD

Maximum Dry Density (kg/m3)	1606
Optimum Moisture (%)	23.0

Trial Number	1	2	3	4	
Wet Density (kg/m^3)	1883	1963	1991	1962	
Dry Density (kg/m^3)	1569	1602	1598	1550	
Moisture Content (%)	20.0	22.5	24.6	26.5	



Note: Additional information recorded/measured for this test is available upon request.

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California Bearing Ratio Test Data Sheet

ASTM D1883-16

Project No.	1000-001-33	**Source**	TH23-13 (1.5 m - 2.1 m)
Client	Morrison Hershfield	**Material**	Clay
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Sample Date**	2023-12-20
Sample #	L24-001	**Test Date**	2024-01-09
		Technician	AD

Proctor Results (ASTM D698)

Maximum Dry Density	1606	kg/m3
Optimum Moisture Content	23.0	%
Material Retained on 19 mm Sieve	0.0	%

CBR Sample Compaction

Dry Density	1525	kg/m3
Initial Moisture Content	23.2	%
Relative Density	95.0	% SPMDD

Soaking Results

Surcharge	4.54	kg
Swell	2.2	%
Moisture Content in top 25 mm	35.1	%
Immersion Period	96	h

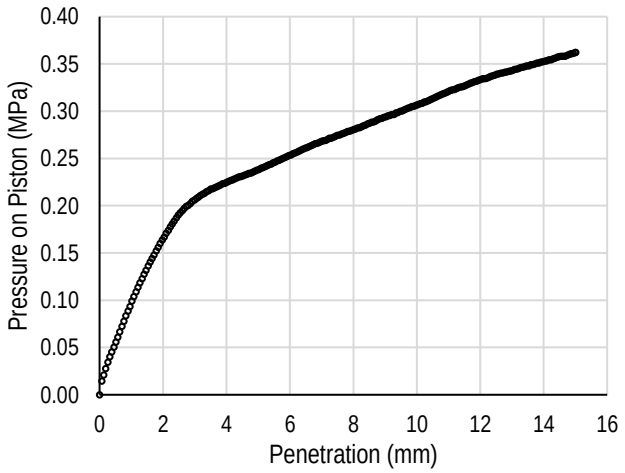
CBR Results

CBR at 2.54 mm	2.8	%
CBR at 5.08 mm	2.3	%
Zero Correction	0	mm

Test Data

Penetration (mm)	Measured Pressure (MPa)	Corrected Pressure (MPa)
0.64	0.07	0.07
1.27	0.12	0.12
1.91	0.16	0.16
2.54	0.19	0.19
3.18	0.21	0.21
3.81	0.22	0.22
4.45	0.23	0.23
5.08	0.24	0.24
7.62	0.28	0.28
10.16	0.31	0.31
12.70	0.34	0.34

Load/Penetration Curve



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Standard Proctor Compaction Test

ASTM D698-12 (2021)

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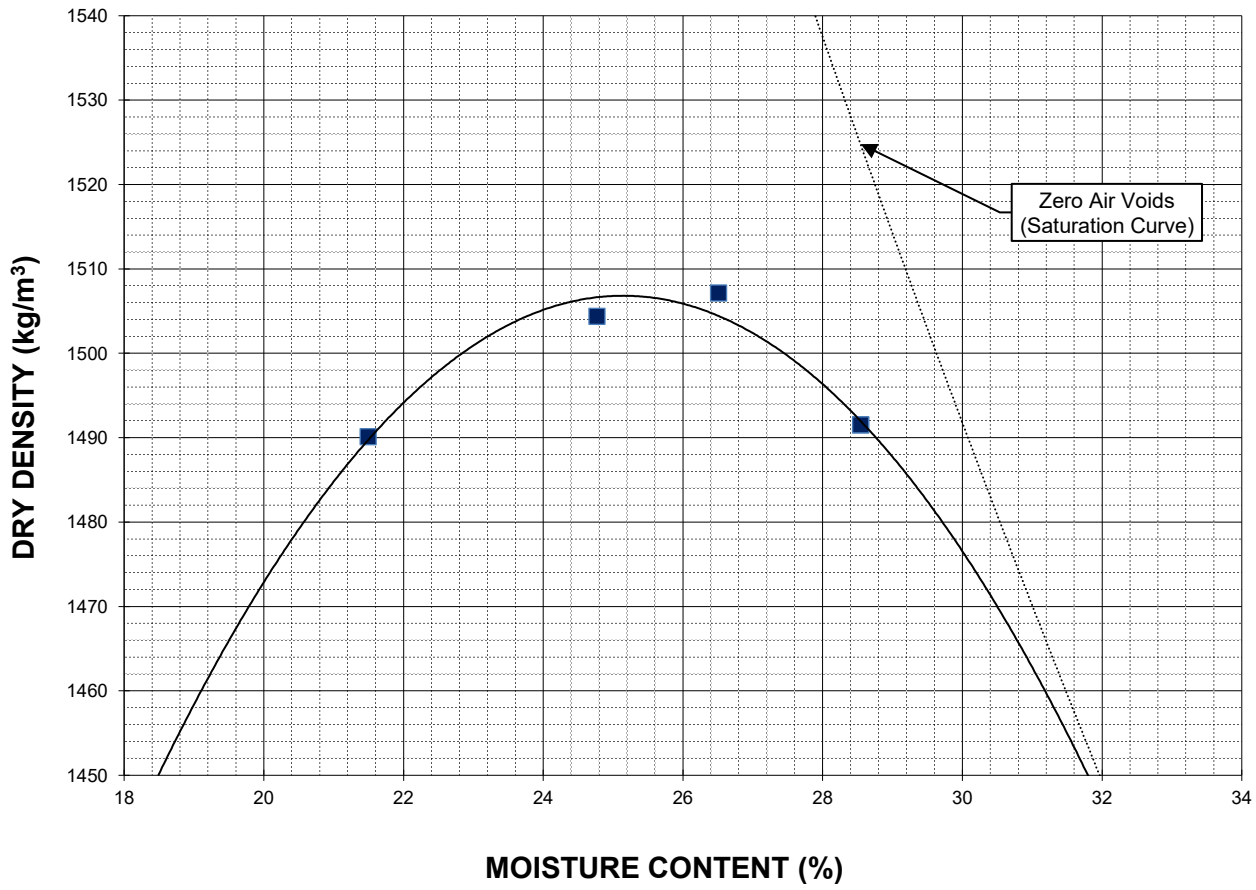
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Sample #	L24-001
Source	TH23-13 (0.9 m - 1.5 m), TH23-14 (0.9 m - 2.1 m), TH23-15 (0.9 m - 2.1 m)
Material	Clay
Sample Date	20-Dec-23
Test Date	11-Jan-24
Technician	AD

Maximum Dry Density (kg/m3)	1507
Optimum Moisture (%)	25.1

Trial Number	1	2	3	4	
Wet Density (kg/m^3)	1810	1877	1907	1917	
Dry Density (kg/m^3)	1490	1504	1507	1492	
Moisture Content (%)	21.5	24.8	26.5	28.5	



Note: Additional information recorded/measured for this test is available upon request.

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California Bearing Ratio Test Data Sheet

ASTM D1883-16

Project No.	1000-001-33	**Source**	TH23-13 (0.9 m - 1.5 m), TH23-14 (0.9 m - 2.1 m), TH23-15 (0.9 m - 2.1 m)
Client	Morrison Hershfield	**Material**	Clay
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Sample Date**	2023-12-20
Sample #	L24-001	**Test Date**	2024-01-13
		Technician	AD

Proctor Results (ASTM D698)

Maximum Dry Density	1507	kg/m3
Optimum Moisture Content	25.1	%
Material Retained on 19 mm Sieve	0.0	%

CBR Sample Compaction

Dry Density	1432	kg/m3
Initial Moisture Content	25.4	%
Relative Density	95.0	% SPMDD

Soaking Results

Surcharge	4.54	kg
Swell	2.4	%
Moisture Content in top 25 mm	43.6	%
Immersion Period	96	h

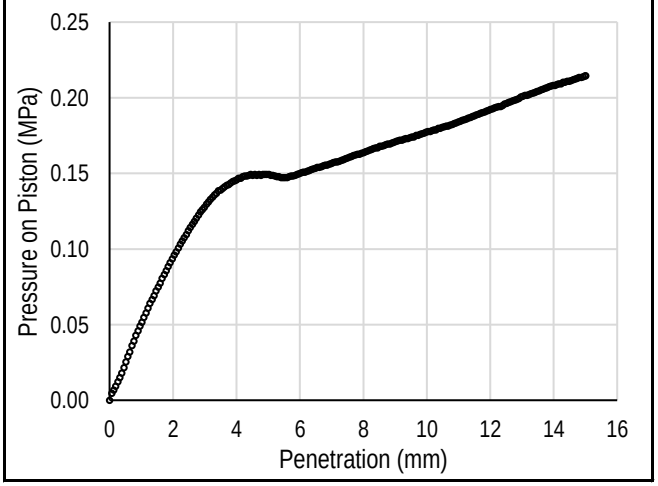
CBR Results

CBR at 2.54 mm	1.7	%
CBR at 5.08 mm	1.4	%
Zero Correction	0	mm

Test Data

Penetration (mm)	Measured Pressure (MPa)	Corrected Pressure (MPa)
0.64	0.03	0.03
1.27	0.06	0.06
1.91	0.09	0.09
2.54	0.11	0.11
3.18	0.13	0.13
3.81	0.14	0.14
4.45	0.15	0.15
5.08	0.15	0.15
7.62	0.16	0.16
10.16	0.18	0.18
12.70	0.20	0.20

Load/Penetration Curve



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Standard Proctor Compaction Test

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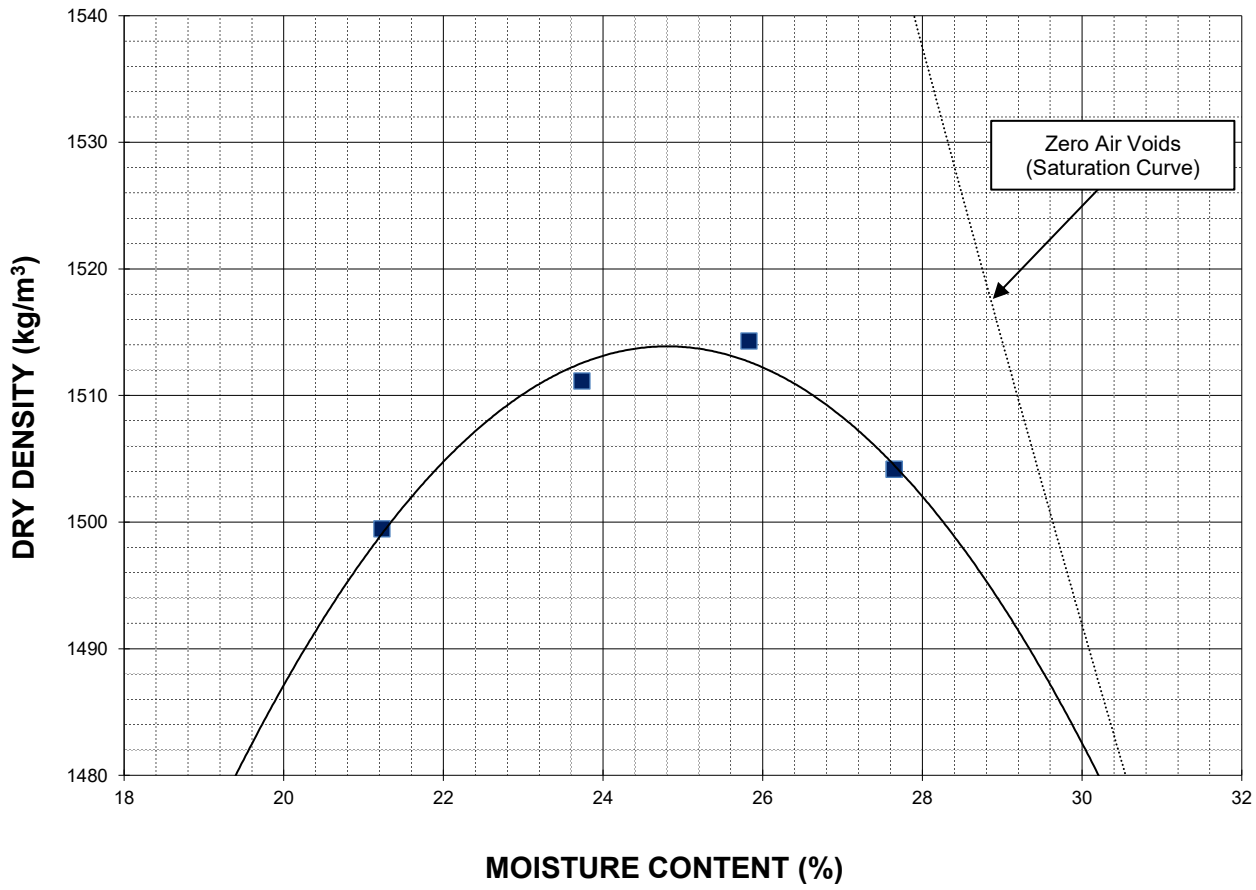
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Sample #	L24-001
Source	TH23-17 (0.9 m - 1.5 m, TH23-16 (1.5 m - 2.1 m)
Material	Clay
Sample Date	21-Dec-23
Test Date	11-Jan-24
Technician	AD

Maximum Dry Density (kg/m3)	1514
Optimum Moisture (%)	24.8

Trial Number	1	2	3	4	
Wet Density (kg/m^3)	1818	1870	1905	1920	
Dry Density (kg/m^3)	1499	1511	1514	1504	
Moisture Content (%)	21.2	23.7	25.8	27.6	



Note: Additional information recorded/measured for this test is available upon request.

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California Bearing Ratio Test Data Sheet

ASTM D1883-16

Project No.	1000-001-33	**Source**	TH23-17 (0.9 m - 1.5 m, TH23-16 (1.5 m - 2.1 m)
Client	Morrison Hershfield	**Material**	Clay
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Sample Date**	2023-12-21
Sample #	L24-001	**Test Date**	2024-01-13
		Technician	AD

Proctor Results (ASTM D698)

Maximum Dry Density	1514	kg/m3
Optimum Moisture Content	24.8	%
Material Retained on 19 mm Sieve	0.0	%

CBR Sample Compaction

Dry Density	1442	kg/m3
Initial Moisture Content	24.8	%
Relative Density	95.2	% SPMDD

Soaking Results

Surcharge	4.54	kg
Swell	2.5	%
Moisture Content in top 25 mm	43.1	%
Immersion Period	96	h

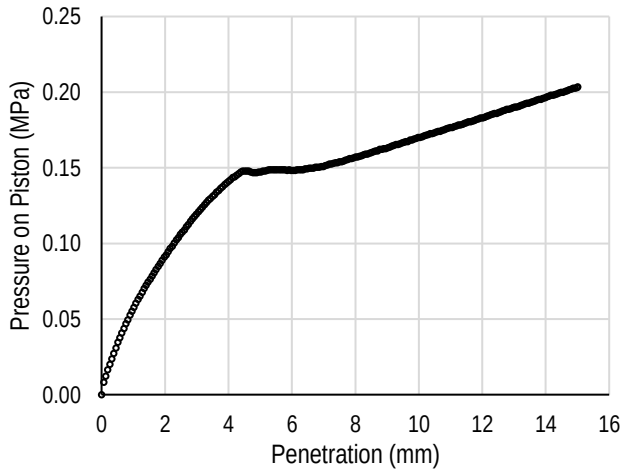
CBR Results

CBR at 2.54 mm	1.6	%
CBR at 5.08 mm	1.4	%
Zero Correction	0	mm

Test Data

Penetration (mm)	Measured Pressure (MPa)	Corrected Pressure (MPa)
0.64	0.04	0.04
1.27	0.07	0.07
1.91	0.09	0.09
2.54	0.11	0.11
3.18	0.12	0.12
3.81	0.14	0.14
4.45	0.15	0.15
5.08	0.15	0.15
7.62	0.15	0.15
10.16	0.17	0.17
12.70	0.19	0.19

Load/Penetration Curve



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Standard Proctor Compaction Test

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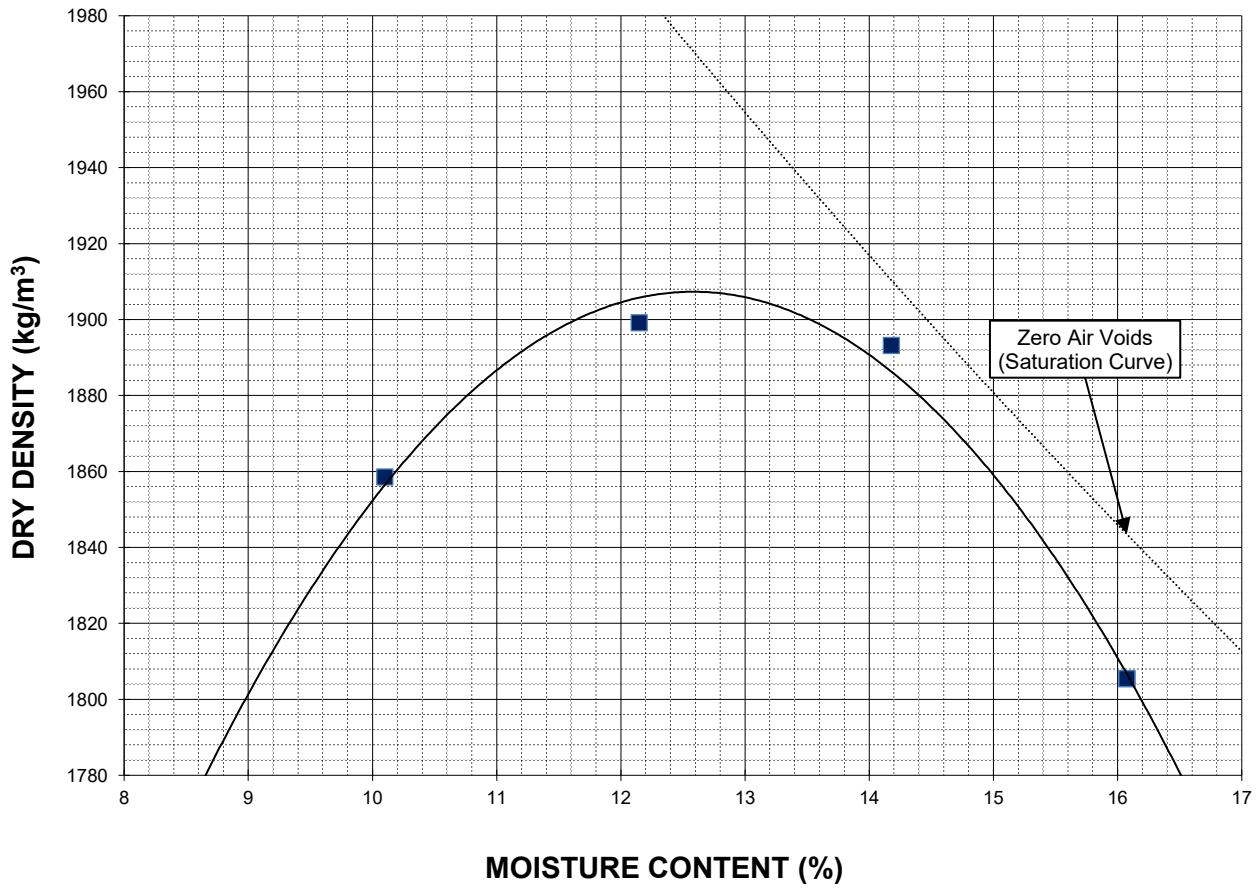
Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Sample #	L24-001
Source	TH23-19 (0.9 m - 1.5 m), TH23-11 (0.9 m - 1.5 m)
Material	Silt
Sample Date	20-Dec-23
Test Date	09-Jan-24
Technician	AD

Maximum Dry Density (kg/m3)	1907
Optimum Moisture (%)	12.6

Trial Number	1	2	3	4	
Wet Density (kg/m^3)	2046	2130	2162	2096	
Dry Density (kg/m^3)	1859	1899	1893	1805	
Moisture Content (%)	10.1	12.1	14.2	16.1	



Note: Additional information recorded/measured for this test is available upon request.

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California Bearing Ratio Test Data Sheet

ASTM D1883-16

Project No.	1000-001-33	**Source**	TH23-19 (0.9 m - 1.5 m), TH23-11 (0.9 m - 1.5 m)
Client	Morrison Hershfield	**Material**	Silt
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Sample Date**	2023-12-20
Sample #	L24-001	**Test Date**	2024-01-11
		Technician	AD

Proctor Results (ASTM D698)

Maximum Dry Density	1907	kg/m3
Optimum Moisture Content	12.6	%
Material Retained on 19 mm Sieve	0.0	%

CBR Sample Compaction

Dry Density	1817	kg/m3
Initial Moisture Content	12.6	%
Relative Density	95.3	% SPMDD

Soaking Results

Surcharge	4.54	kg
Swell	0.5	%
Moisture Content in top 25 mm	20.5	%
Immersion Period	95	h

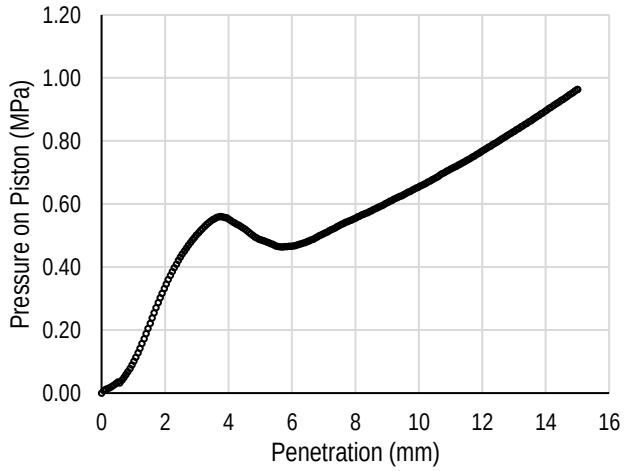
CBR Results

CBR at 2.54 mm	7.4	%
CBR at 5.08 mm	4.5	%
Zero Correction	0.55	mm

Test Data

Penetration (mm)	Measured Pressure (MPa)	Corrected Pressure (MPa)
0.64	0.04	0.14
1.27	0.16	0.30
1.91	0.32	0.43
2.54	0.44	0.51
3.18	0.52	0.56
3.81	0.56	0.53
4.45	0.52	0.49
5.08	0.48	0.46
7.62	0.54	0.56
10.16	0.66	0.70
12.70	0.81	0.85

Load/Penetration Curve



Comments:

www.trekgeotechnical.ca
1712 St. James Street
Winnipeg, MB R3H 0L3
Tel: 204.975.9433 Fax: 204.975.9435

Standard Proctor Compaction Test

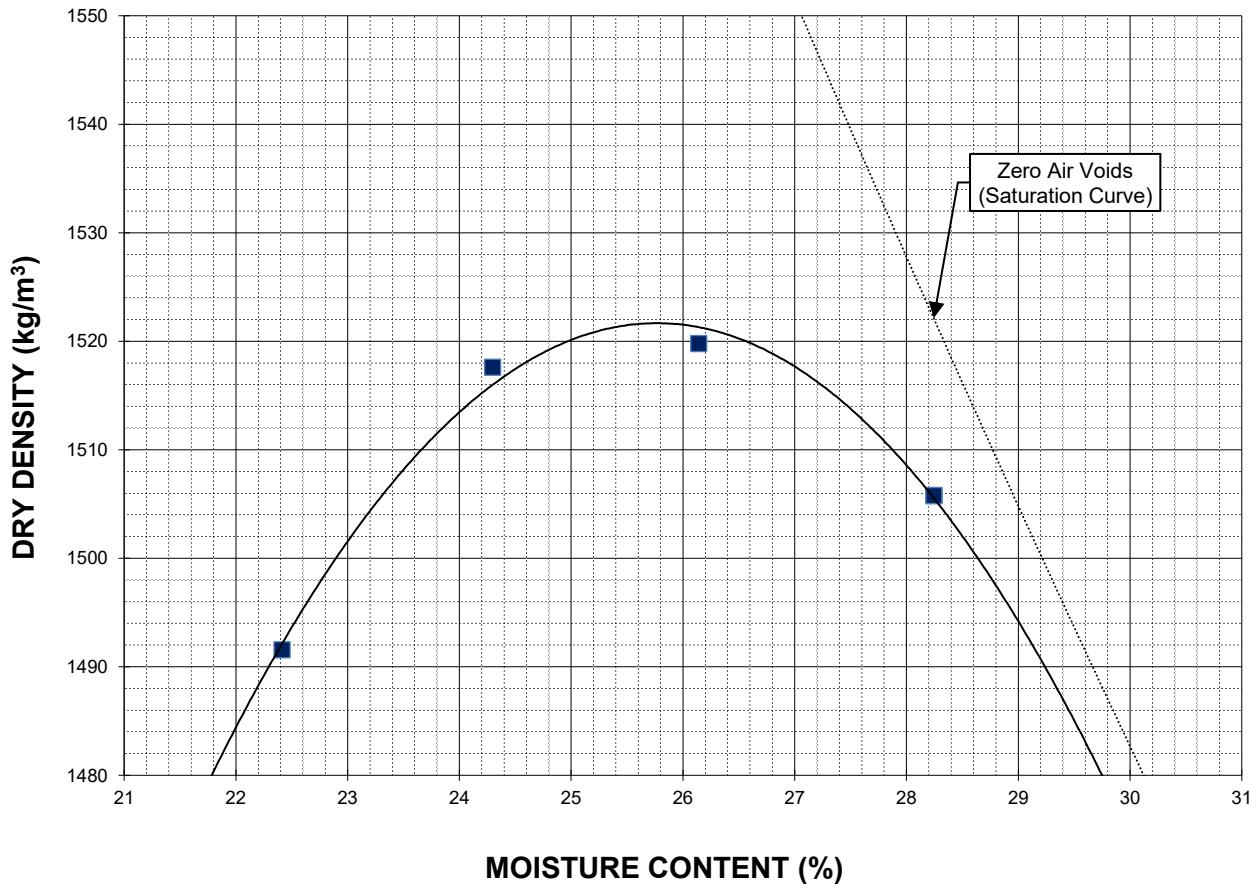
ASTM D698-12 (2021)

CERTIFIED BY CCIL Canadian Council of Independent Laboratories For specific tests as listed on www.ccil.com

Project No.	1000-001-33
Client	Morrison Hershfield
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation
Sample #	L24-001
Source	TH23-20 (0.9 m - 2.1 m), TH23-19 (1.5 m - 2.1 m)
Material	Clay
Sample Date	21-Dec-23
Test Date	09-Jan-24
Technician	AD

Maximum Dry Density (kg/m3)	1522
Optimum Moisture (%)	25.8

Trial Number	1	2	3	4	
Wet Density (kg/m^3)	1826	1886	1917	1931	
Dry Density (kg/m^3)	1492	1518	1520	1506	
Moisture Content (%)	22.4	24.3	26.1	28.2	



Note: Additional information recorded/measured for this test is available upon request.

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Tel: 204.975.9433 Fax: 204.975.9435

California Bearing Ratio Test Data Sheet

ASTM D1883-16

Project No.	1000-001-33	**Source**	TH23-20 (0.9 m - 2.1 m), TH23-19 (1.5 m - 2.1 m)
Client	Morrison Hershfield	**Material**	Clay
Project	RFP 547-2023 McGregor-Inkster Geotech. Investigation	**Sample Date**	2023-12-21
Sample #	L24-001	**Test Date**	2024-01-11
		Technician	AD

Proctor Results (ASTM D698)

Maximum Dry Density	1522	kg/m3
Optimum Moisture Content	25.8	%
Material Retained on 19 mm Sieve	0.0	%

CBR Sample Compaction

Dry Density	1450	kg/m3
Initial Moisture Content	25.7	%
Relative Density	95.3	% SPMDD

Soaking Results

Surcharge	4.54	kg
Swell	2.6	%
Moisture Content in top 25 mm	45.2	%
Immersion Period	94	h

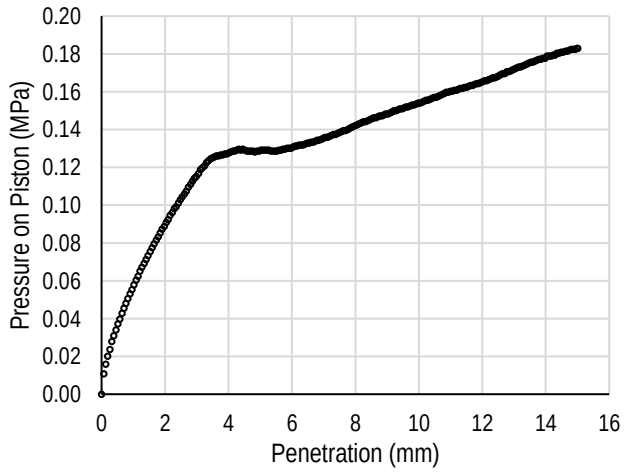
CBR Results

CBR at 2.54 mm	1.5	%
CBR at 5.08 mm	1.3	%
Zero Correction	0	mm

Test Data

Penetration (mm)	Measured Pressure (MPa)	Corrected Pressure (MPa)
0.64	0.04	0.04
1.27	0.07	0.07
1.91	0.09	0.09
2.54	0.10	0.10
3.18	0.12	0.12
3.81	0.13	0.13
4.45	0.13	0.13
5.08	0.13	0.13
7.62	0.14	0.14
10.16	0.16	0.16
12.70	0.17	0.17

Load/Penetration Curve



Comments:

Photo 1: Pavement Core Sample at Test Hole TH23-11

Photo 2: Pavement Core Sample at Test Hole TH23-12

Photo 3: Pavement Core Sample at Test Hole TH23-13

Photo 4: Pavement Core Sample at Test Hole TH23-14

Photo 5: Pavement Core Sample at Test Hole TH23-15

Photo 6: Pavement Core Sample at Test Hole TH23-16

Photo 7: Pavement Core Sample at Test Hole TH23-17

Photo 8: Pavement Core Sample at Test Hole TH23-18

Photo 9: Pavement Core Sample at Test Hole TH23-19

Photo 10: Pavement Core Sample at Test Hole TH23-20

Appendix D

Summary Table and Photographs of Pavement Core Samples
Inkster Boulevard

RFP 547-2023 McGregor-Inkster Geotech. Investigation

Inkster Boulevard

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC23-01	UTM : 55339786 m N, 630913 m E; Located 15 m East of Sheppard St, Eastbound curb lane, 1.2 m North of South curb.	Asphalt	110	Concrete	200
PC23-02	UTM : 5533935 m N, 631017 m E; Inline with West driveway for 1450 Inkster Blvd, Eastbound median lane, 1.2 m South of North curb.	Asphalt	70	Concrete	200
PC23-03	UTM : 5533894 m N, 631095 m E; Located 10 m West of Milner St, Eastbound curb lane, 1.4 m North of South curb.	Asphalt	90	Concrete	210
PC23-04	UTM : 5533666 m N, 631580 m E; 14 m East of Fife St, Eastbound curb lane, 1.0 m North of South curb.	Asphalt	80	Concrete	175
PC23-05	UTM : 5533637 m N, 631655 m E; Located East side of 1221 Inkster Blvd, Eastbound curb lane, 1.1 m South of North curb.	Asphalt	120	Concrete	180
PC23-06	UTM : 5533589 m N, 631751 m E; 1190 Inkster Blvd, Eastbound curb lane, 1.2 m North of South curb.	Asphalt	75	Concrete	215
PC23-07	UTM : 5533569 m N, 631801 m E; Located 1170 Inkster Blvd, Eastbound curb lane, 1.0 m South of North curb.	Asphalt	95	Concrete	230
PC23-08	UTM : 5533534 m N, 631872 m E; Located 1144 Inkster Blvd, Eastbound curb lane, 1.0 m North of South curb.	Asphalt	130	Concrete	230
PC23-09	UTM : 5533518 m N, 631915 m E; Located 1132 Inkster Blvd, Eastbound median travel lane, 5.5 m North of South curb.	Asphalt	90	Concrete	190
PC23-10	UTM : 5533505 m N, 631952 m E; Located 1124 Inkster Blvd, Eastbound median turn lane, 5.5 m South of North curb.	Asphalt	150	Concrete	230
PC23-11	UTM : 5533487 m N, 631975 m E; Located center of Esso, Eastbound curb lane, 1.2 m North of South curb.	Asphalt	150	Concrete	210
PC23-36	UTM : 5532385 m N, 634380 m E; Located 289 Inkster Blvd, Westbound curb lane, 1.0 m South of North curb.	Asphalt	90	Concrete	210
PC23-37	UTM : 5532419 m N, 634309 m E; Located 303 Inkster Blvd, Westbound curb lane, 1.0 m South of North curb.	Asphalt	110	Concrete	150
PC23-38	UTM : 5532449 m N, 634245 m E; Located 327 Inkster Blvd, Westbound curb lane, 1.0 m South of North curb.	Asphalt	90	Concrete	190

RFP 547-2023 McGregor-Inkster Geotech. Investigation

Inkster Boulevard

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC23-39	UTM : 5532641 m N, 633834 m E; Located 475 Inkster Blvd, Westbound curb lane, 1.0 m South of North curb.	Asphalt	175	Concrete	55
PC23-40	UTM : 5532677 m N, 633757 m E; Located 495 Inkster Blvd, Westbound curb lane, 1.1 m South of North curb.	Asphalt	220	Concrete	200
PC23-41	UTM : 5532722 m N, 633649 m E; Located 549 Inkster Blvd, Westbound median lane, 1.3 m North of South curb.	Asphalt	150	Concrete	80
PC23-42	UTM : 5532761 m N, 633577 m E; Located 571 Inkster Blvd, Westbound curb lane, 1.0 m South of North curb.	Asphalt	130	Concrete	-
PC23-43	UTM : 5532795 m N, 633497 m E; Located 599 Inkster Blvd, Westbound median lane, 1.2 m North of South curb.	Asphalt	150	Concrete	165
PC23-44	UTM : 5532817 m N, 633455 m E; Located 608 Inkster Blvd, Westbound curb lane, 1.3 m South of North curb.	Asphalt	170	Concrete	190
PC23-45	UTM : 5532849 m N, 633377 m E; Located 636 Inkster Blvd, Westbound median lane, 1.1 m North of South curb.	Asphalt	155	Concrete	220
PC23-46	UTM : 5532881 m N, 633319 m E; Located 658 Inkster Blvd, Westbound curb lane, 1.3 m South of North curb.	Asphalt	140	Concrete	-
PC23-47	UTM : 5532896 m N, 633290 m E; Located 723 Inkster Blvd, Westbound curb lane, 1.2 m South of North curb.	Asphalt	70	Concrete	220
PC23-48	UTM : 5532927 m N, 633212 m E; Located 747 Inkster Blvd, Westbound median lane, 1.0 m North of South curb.	Asphalt	200	Concrete	190
PC23-49	UTM : 5532968 m N, 633133 m E; Located 771 Inkster Blvd, Westbound curb lane, 1.2 m South of North curb.	Asphalt	200	Concrete	100
PC23-50	UTM : 5533041 m N, 632969 m E; Located 815 Inkster Blvd, Westbound median lane, 1.0 m North of South curb.	Asphalt	75	Concrete	195
PC23-51	UTM : 5533085 m N, 632884 m E; Located 839 Inkster Blvd, Westbound curb lane, 1.3 m South of North curb.	Asphalt	110	Concrete	160
PC23-52	UTM : 5533134 m N, 632769 m E; Located 865 Inkster Blvd, Westbound median lane, 1.1 m North of South curb.	Asphalt	90	Concrete	170
PC23-53	UTM : 5533160 m N, 632722 m E; Located 885 Inkster Blvd, Westbound curb lane, 1.2 m South of North curb.	Asphalt	60	Concrete	200

RFP 547-2023 McGregor-Inkster Geotech. Investigation

Inkster Boulevard

Pavement Core No.	Pavement Core Location	Pavement Surface		Pavement Structure Material	
		Type	Thickness (mm)	Type	Thickness (mm)
PC23-54	UTM : 5533190 m N, 632651 m E; Located 905 Inkster Blvd, Westbound median lane, 1.3 m North of South curb.	Asphalt	65	Concrete	195
PC23-55	UTM : 5533220 m N, 632594 m E; Located 929 Inkster Blvd, Westbound curb lane, 1.2 m South of North curb.	Asphalt	105	Concrete	145
PC23-56	UTM : 5533498 m N, 631991 m E; Located at KFC entryway, Westbound median lane, 1.3 m North of South curb.	Asphalt	75	Concrete	200
PC23-57	UTM : 5533519 m N, 631955 m E; Located 1127 Inkster Blvd, Westbound curb lane, 1.0 m South of North curb.	Asphalt	120	Concrete	165
PC23-58	UTM : 5533539 m N, 631904 m E; Located 1141 Inkster Blvd, Westbound median lane, 1.0 m North of South curb.	Asphalt	80	Concrete	220
PC23-59	UTM : 5533586 m N, 631815 m E; Located 1169 Inkster Blvd, Westbound curb lane, 1.0 m South of North curb.	Asphalt	95	Concrete	185
PC23-60	UTM : 5533604 m N, 631769 m E; Located 1179 Inkster Blvd, Westbound median lane, 1.0 m North of South curb.	Asphalt	50	Concrete	240
PC23-61	UTM : 5533489 m N, 631994 m E; Located at Esso Inkster Blvd, Eastbound curb turn lane, 1.1 m South of North curb.	Asphalt	100	Concrete	200

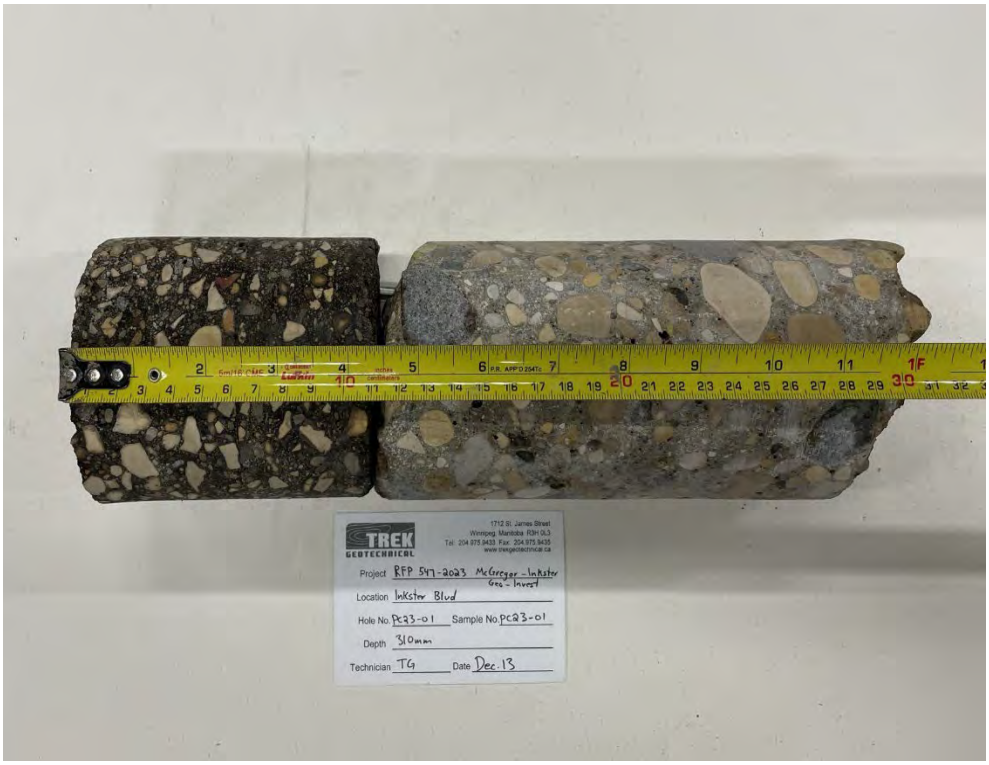


Photo 1: Pavement Core Sample PC23-01

Photo 2: Pavement Core Sample PC23-02

Photo 3: Pavement Core Sample PC23-03

Photo 4: Pavement Core Sample PC23-04

Photo 5: Pavement Core Sample PC23-05

Photo 6: Pavement Core Sample PC23-06

Photo 7: Pavement Core Sample PC23-07

Photo 8: Pavement Core Sample PC23-08

Photo 9: Pavement Core Sample PC23-09

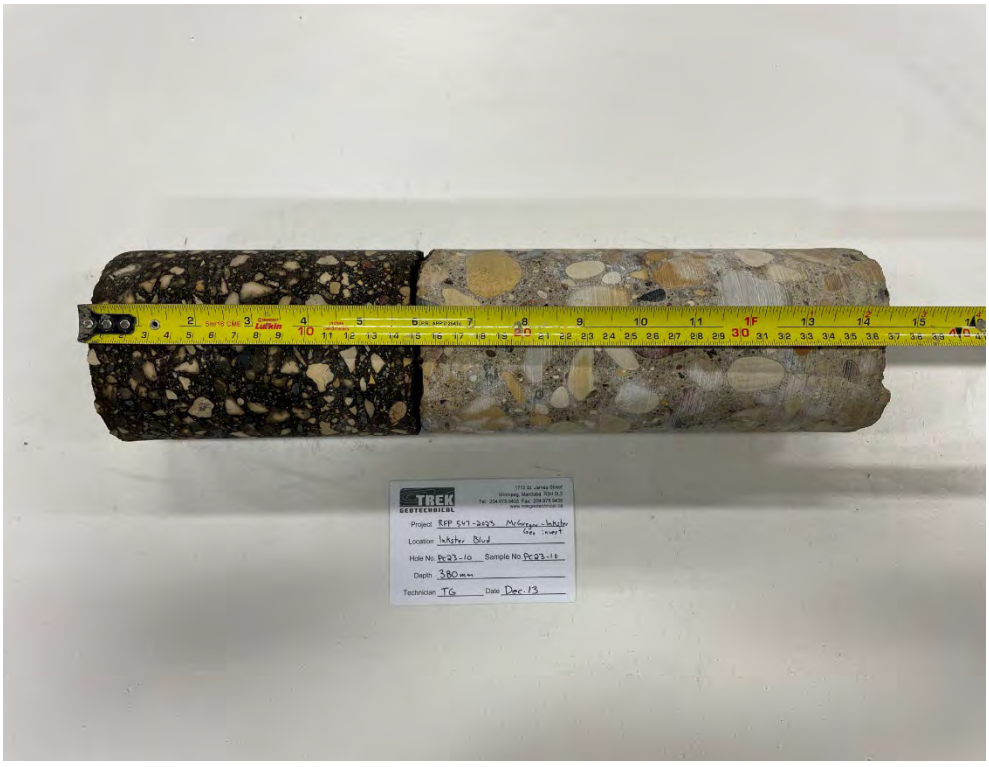


Photo 10: Pavement Core Sample PC23-10

Photo 11: Pavement Core Sample PC23-11

Photo 12: Pavement Core Sample PC23-12

Photo 13: Pavement Core Sample PC23-13

Photo 14: Pavement Core Sample PC23-14

Photo 15: Pavement Core Sample PC23-15

Photo 16: Pavement Core Sample PC23-16

Photo 17: Pavement Core Sample PC23-17

Photo 18: Pavement Core Sample PC23-18

Photo 19: Pavement Core Sample PC23-19

Photo 20: Pavement Core Sample PC23-20

Photo 21: Pavement Core Sample PC23-21

Photo 22: Pavement Core Sample PC23-22

Photo 23: Pavement Core Sample PC23-23

Photo 24: Pavement Core Sample PC23-24

Photo 25: Pavement Core Sample PC23-25

Photo 26: Pavement Core Sample PC23-26

Photo 27: Pavement Core Sample PC23-27

Photo 28: Pavement Core Sample PC23-28

Photo 29: Pavement Core Sample PC23-29

Photo 30: Pavement Core Sample PC23-30

Photo 31: Pavement Core Sample PC23-31

Photo 32: Pavement Core Sample PC23-32

Photo 33: Pavement Core Sample PC23-33

Photo 34: Pavement Core Sample PC23-34

Photo 35: Pavement Core Sample PC23-35

Photo 36: Pavement Core Sample PC23-36

Photo 37: Pavement Core Sample PC23-37

Photo 38: Pavement Core Sample PC23-38

Photo 39: Pavement Core Sample PC23-39

Photo 40: Pavement Core Sample PC23-40

Photo 41: Pavement Core Sample PC23-41

Photo 42: Pavement Core Sample PC23-42

Photo 43: Pavement Core Sample PC23-43

Photo 44: Pavement Core Sample PC23-44

Photo 45: Pavement Core Sample PC23-45

Photo 46: Pavement Core Sample PC23-46

Photo 47: Pavement Core Sample PC23-47

Photo 48: Pavement Core Sample PC23-48

Photo 49: Pavement Core Sample PC23-49

Photo 50: Pavement Core Sample PC23-50

Photo 51: Pavement Core Sample PC23-51

Photo 52: Pavement Core Sample PC23-52

Photo 53: Pavement Core Sample PC23-53

Photo 54: Pavement Core Sample PC23-54

Photo 55: Pavement Core Sample PC23-55

Photo 56: Pavement Core Sample PC23-56

Photo 57: Pavement Core Sample PC23-57

Photo 58: Pavement Core Sample PC23-58

Photo 59: Pavement Core Sample PC23-59

Photo 60: Pavement Core Sample PC23-60

Photo 61: Pavement Core Sample PC23-61