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APPENDIX 'A' GEOTECHNICAL INVESTIGATION REPORT



January 20, 2025

Project/File: 123317464

Trevor Nickel
Dillon Consulting Limited
300-100 Innovation Drive
Winnipeg, Manitoba R3T 6G2

Good day Trevor,

Reference: 25-R-10 2025 Local Street Renewal Program - Geotechnical Investigation

Stantec Consulting Ltd. (Stantec) was retained to undertake a factual geotechnical investigation for the 25-R-10 2025 Local Street Renewal Program in Winnipeg, Manitoba. Use of this report is subject to the Statement of General Conditions provided in Appendix A.

The drilling program was conducted on December 16, 2024. A total of 15 locations were investigated by subsurface geotechnical drilling. Drilling services were provided by Maple Leaf Drilling under the supervision of Stantec's geotechnical field technologist. A Borehole Location Plan is provided in Appendix B.

1. Geotechnical Drilling

A total of 15 boreholes were investigated by geotechnical drilling. The boreholes were terminated at a depth of 2.5 m below the gravel surface, and soil samples were obtained directly from the auger flights at depths of 0.6 m, 0.9 m, 1.2 m, 1.6 m, 2.0 m, and 2.5 m. The testholes were examined for evidence of sloughing and groundwater seepage upon completion of drilling.

The borehole records are provided in Appendix C. The soil classification used in the borehole records is as per ASTM D2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

2. Laboratory Testing

Laboratory determination of moisture content (ASTM D2216) was conducted on all soil samples. The results are provided on the attached borehole records.

In addition, the following laboratory tests were conducted on select samples:

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Reference: 25-R-10 2025 Local Street Renewal Program - Geotechnical Investigation

- ASTM D4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D7928 Particle-Size Distribution of Fine-Grained Soils Using The Sedimentation Analysis
- ASTM D698 Laboratory Compaction Characteristics of Soil Using Standard Effort
- ASTM D1883 California Bearing Ratio (CBR) of Laboratory-Compacted Soils

The CBR tests were performed on soaked test specimens compacted to 95% of the maximum dry density.

Prior to compressive strength testing, the concrete core samples were conditioned in water at room temperature for 48 hours.

The laboratory test reports are provided in Appendix D.

3. Closure

Please contact the undersigned if you have any questions regarding this report.

Regards,

Stantec Consulting Ltd.

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Senior Associate

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Attachment: Appendix A – Statement of General Conditions

Appendix B – Borehole Location Plan Appendix C – Borehole Records Appendix D – Laboratory Test Reports

Atterberg Limits Test Reports

Particle-Size Analysis Reports

Standard Proctor Test Reports

CBR Test Reports

Jason Thompson C.E.T.

Principal – Manager, Materials Testing Services Manitoba & Northwestern Ontario Operations

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Appendix A

Statement of General Conditions

STATEMENT OF GENERAL CONDITIONS

USE OF THIS REPORT: This report has been prepared for the sole benefit of the Client or its agent and may not be used by any third party without the express written consent of Stantec and the Client. Any use which a third party makes of this report is the responsibility of such third party.

BASIS OF THE REPORT: The information, opinions, and/or recommendations made in this report are in accordance with Stantec's present understanding of the site-specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site-specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Stantec is requested by the Client to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

STANDARD OF CARE: Preparation of this report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state or province of execution for the specific professional service provided to the Client. No other warranty is made.

INTERPRETATION OF SITE CONDITIONS: Soil, rock, or other material descriptions, and statements regarding their condition, made in this report are based on site conditions encountered by Stantec at the time of the work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behavior. Extrapolation of in situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock, and groundwater conditions as influenced by geological processes, construction activity, and site use.

VARYING OR UNEXPECTED CONDITIONS: Should any site or subsurface conditions be encountered that are different from those described in this report or encountered at the test locations, Stantec must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Stantec will not be responsible to any party for damages incurred as a result of failing to notify Stantec that differing site or sub-surface conditions are present upon becoming aware of such conditions.

PLANNING, DESIGN, OR CONSTRUCTION: Development or design plans and specifications should be reviewed by Stantec, sufficiently ahead of initiating the next project stage (property acquisition, tender, construction, etc.), to confirm that this report completely addresses the elaborated project specifics and that the contents of this report have been properly interpreted. Specialty quality assurance services (field observations and testing) during construction are a necessary part of the evaluation of sub-subsurface conditions and site preparation works. Site work relating to the recommendations included in this report should only be carried out in the presence of a qualified geotechnical engineer; Stantec cannot be responsible for site work carried out without being present.

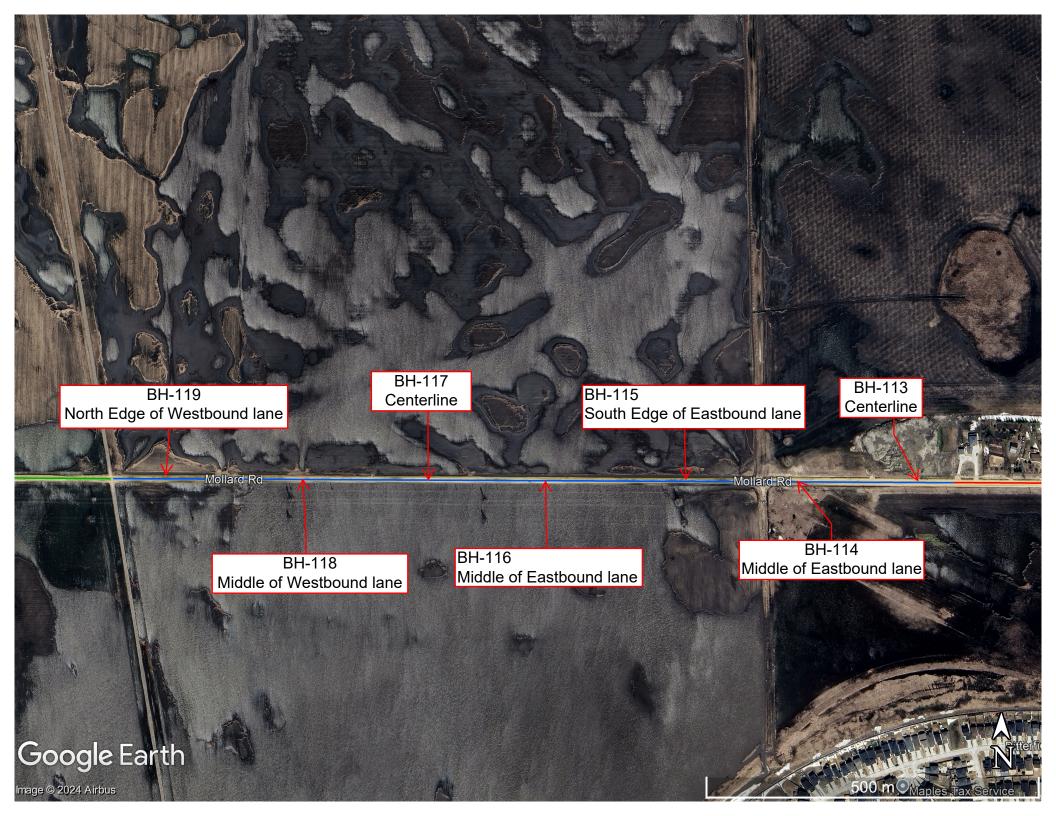




Appendix B

Borehole Location Plan







Appendix C

Borehole Records

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

SOIL DESCRIPTION

Terminology describing common soil genesis

Rootmat	vegetation, roots and moss with organic matter and topsoil typically forming a mattress at the ground surface
Topsoil	mixture of soil and humus capable of supporting vegetative growth
Peat	mixture of visible and invisible fragments of decayed organic matter
Till	unstratified glacial deposit which may range from clay to boulders
Fill	material below the surface identified as placed by humans (excluding buried services)

Terminology describing soil structure

Desiccated	naving visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.		
Fissured	having cracks, and hence a blocky structure		
Varved	composed of regular alternating layers of silt and clay		
Stratified	composed of alternating successions of different soil types, e.g. silt and sand		
Layer	> 75 mm in thickness		
Seam	2 mm to 75 mm in thickness		
Parting	< 2 mm in thickness		

Terminology describing soil types

The classification of soil types are made on the basis of grain size and plasticity in accordance with the Unified Soil Classification System (USCS) (ASTM D 2487 or D 2488) which excludes particles larger than 75 mm. For particles larger than 75 mm, and for defining percent clay fraction in hydrometer results, definitions proposed by Canadian Foundation Engineering Manual, 4th Edition are used. The USCS provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification.

Terminology describing cobbles, boulders, and non-matrix materials (organic matter or debris)

Terminology describing materials outside the USCS, (e.g. particles larger than 75 mm, visible organic matter, and construction debris) is based upon the proportion of these materials present:

Trace, or occasional	Less than 10%
Some	10-20%
Frequent	> 20%

Terminology describing compactness of cohesionless soils

The standard terminology to describe cohesionless soils includes compactness (formerly "relative density"), as determined by the Standard Penetration Test (SPT) N-Value - also known as N-Index. The SPT N-Value is described further on Page 2. A relationship between compactness condition and N-Value is shown in the following table.

Compactness Condition	SPT N-Value
Very Loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very Dense	>50

Terminology describing consistency of cohesive soils

The standard terminology to describe cohesive soils includes the consistency, which is based on undrained shear strength as measured by *in situ* vane tests, penetrometer tests, or unconfined compression tests. Consistency may be crudely estimated from SPT N-Value based on the correlation shown in the following table (Terzaghi and Peck, 1967). The correlation to SPT N-Value is used with caution as it is only very approximate.

Consistency	Undrained S	Approximate	
Consistency	kips/sq.ft	kPa	SPT N-Value
Very Soft	<0.25	<12.5	<2
Soft	0.25 - 0.5	12.5 - 25	2-4
Firm	0.5 - 1.0	25 - 50	4-8
Stiff	1.0 - 2.0	50 – 100	8-15
Very Stiff	2.0 - 4.0	100 - 200	15-30
Hard	>4.0	>200	>30

STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols. The dimensions within the strata symbols are not indicative of the particle size, layer thickness, etc. Not all bedrock strata plots are shown.



























Concrete

Fill

Organics

Clay

Silt

Sand

Gravel Cobbles **Boulders**

Undifferentiated **Bedrock**

Sedimentary Bedrock

Metamorphic Bedrock

Igneous Bedrock

SAMPLE TYPE

AS, BS, GS	Š	Auger sample; bulk sample; grab sample
DP		Direct-Push sample (small diameter tube sampler hydraulically advanced)
PS		Piston sample
so	44	Sonic tube
SS		Split spoon sample (obtained by performing the Standard Penetration Test)
ST		Shelby Tube or thin wall tube
SV	M	Shear vane
RC HQ, NQ, BQ, etc.		Rock Core; samples obtained with the use of standard size diamond coring bits.

WATER LEVEL



Measured:

in standpipe, piezometer, or well



Inferred:

seepage noted or water level measured during or at completion of drilling

RECOVERY FOR SOIL SAMPLES

The recovery is recorded as the length of the soil sample recovered in the direct push, split spoon sampler, Shelby Tube, or sonic tube.

N-VALUE

Numbers in this column are the field results of the Standard Penetration Test (SPT): the number of blows of a 140-pound (63.5 kg) hammer falling 30 inches (760 mm), required to drive a 2 inch (50.8 mm) O.D. split spoon sampler one foot (300 mm) into the soil. In accordance with ASTM D1586, the N-Value equals the sum of the number of blows (N) required to drive the sampler over the interval of 6 to 18 in. (150 to 450 mm). However, when a 24 in. (610 mm) sampler is used, the number of blows (N) required to drive the sampler over the interval of 12 to 24 in. (300 to 610 mm) may be reported if this value is lower. For split spoon samples where insufficient penetration was achieved and N-Values cannot be presented, the number of blows are reported over sampler penetration in millimetres (e.g. 50 for 75 mm or 50/75 mm). Some design methods make use of Nvalues corrected for various factors such as overburden pressure, energy ratio, borehole diameter, etc. No corrections have been applied to the N-values presented on the log.

DYNAMIC CONE PENETRATION TEST (DCPT)

Dynamic cone penetration tests are performed using a standard 60-degree apex cone connected to 'A' size drill rods with the same standard fall height and weight as the Standard Penetration Test. The DCPT value is the number of blows of the hammer required to drive the cone one foot (300 mm) into the soil. The DCPT is used as a probe to assess soil variability.

OTHER TESTS

S	Sieve analysis		
Н	Hydrometer analysis		
k	Laboratory permeability		
γ	Unit weight		
Gs	Specific gravity of soil particles		
CD	Consolidated drained triaxial		
CII	Consolidated undrained triaxial with pore pressure		
CU	measurements		
UU	Unconsolidated undrained triaxial		
DS	Direct Shear		
С	Consolidation		
Q_u	Unconfined compression		
	Point Load Index (Ip on Borehole Record equals Ip(50) in		
I _p	which the index is corrected to a reference diameter of		
	50 mm)		

Ţ	Single packer permeability test; test interval from depth shown to bottom of borehole
	Double packer permeability test; test interval as indicated
Ů,	Falling head permeability test using casing
Ÿ	Falling head permeability test using well point or piezometer

ROCK DESCRIPTION

Except where specified below, terminology for describing rock is as defined by the International Society for Rock Mechanics (ISRM) 2007 publication "The Complete ISRM Suggested Methods for Rock Characterization, Testing and Monitoring: 1974-2006"

Total Core Recovery (TCR) denotes the sum of all measurable rock core recovered in one drill run. The value is noted as a percentage of recovered rock core based on the total length of the drill run.

Solid Core Recovery (SCR) is defined as total length of solid core divided by the total drilled length, presented as a percentage. Solid core is defined as core with one full diameter.

Rock Quality Designation (RQD) is a modified core recovery that incorporates only pieces of solid core that are equal to or greater than 10 cm (4") along the core axis. It is calculated as the total cumulative length of solid core (> 10 cm) as measured along the centerline of the core divided by the total length of borehole drilled for each drill run or geotechnical interval, presented as a percentage. RQD is determined in accordance with ASTM D6032.

Fracture Index (FI) is defined as the number of naturally occurring fractures within a given length of core. The Fracture Index is reported as a simple count of natural occurring fractures.

Terminology describing rock quality

Rock Mass Quality	Rock Quality Designation Number (RQD)	Alternate (Colloquia	l) Rock Mass Quality
Very Poor Quality	0-25	Very Severely Fractured	Crushed
Poor Quality	25-50	Severely Fractured	Shattered or Very Blocky
Fair Quality	50-75	Fractured	Blocky
Good Quality	75-90	Moderately Jointed	Sound
Excellent Quality	90-100	Intact	Very Sound

Terminology describing rock strength

Strength Classification	Grade	Field Estimates of Uniaxial Compressive Strength	Unconfined Compressive Strength (MPa)
Extremely Weak	R0	Indented by thumbnail	<1
Very Weak	R1	Crumbles under firm blows of geological hammer, can be peeled with a pocketknife	1 – 5
Weak	R2	Peeled by pocketknife with difficulty, shallow indentations made by firm blow with point of geological hammer	5 – 25
Medium Strong	R3	Cannot be scraped or peeled with a pocketknife, can be fractured with single firm blow of geological hammer	25 – 50
Strong	R4	More than one blow with geological hammer to fracture	50 – 100
Very Strong	R5	Many blows with geological hammer to fracture	100 – 250
Extremely Strong	R6	Can only be chipped with geological hammer	>250

Terminology describing rock weathering

Term	Symbol	Description
Fresh	W1	No visible signs of rock weathering. Slight discoloration along major discontinuities
Slightly	W2	Discoloration indicates weathering of rock on discontinuity surfaces. All the rock material may be discolored.
Moderately	W3	Less than half the rock is decomposed and/or disintegrated into soil.
Highly	W4	More than half the rock is decomposed and/or disintegrated into soil.
Completely	W5	All the rock material is decomposed and/or disintegrated into soil. The original mass structure is still largely intact.
Residual Soil	W6	All the rock converted to soil. Structure and fabric destroyed.

Terminology describing rock with respect to discontinuity and bedding spacing

Spacing (mm)	Discontinuities Spacing	Bedding
>6000	Extremely Wide	-
2000-6000	Very Wide	Very Thick
600-2000	Wide	Thick
200-600	Moderate	Medium
60-200	Close	Thin
20-60	Very Close	Very Thin
<20	Extremely Close	Laminated
<6	-	Thinly Laminated

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		Firm grey FAT CLAY (CH)																							
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		Borehole Borehole terminated at a depth of 2.5 m. No groundwater seepage or soil sloughing.	a 11/2	o obo-	nyod :	Aurie c	or	on completion of dell	llies																
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	CAT	CT: 25-R-10 2025 Local Street R ON: Mollard Rd	kene	wal					_														N/A
DA	TE B	ORED: <u>December 16 2024</u>							_					L: _			ΓH, Cι	. //-	<u>—</u>	_	_	_	
DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	ТУРЕ	NUMBER	RECOVERY (mm)	N-VALUE or RQD %	OTHER TESTS / REMARKS	* V	LAI PO	BOR OCKE 5	RATO ET PI 0 kP	DRY ENE 'a TEN	TES ⁻ TRO	T MET DO KI H	ER Pa ERBE	♦ FII	ELD ' OCKE	VAN ET S Pa	SHEA 20	AR V.	ANE Pa	BACKFILL
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-		Soft tan LEAN CLAY (CL)																					
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		End of Borehole Borehole terminated at a depth of 2.5 m.	- / A			4													1				
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L								Drilling Cor	ntrac			 1apl	e Le	eaf [Orilli	ng L	_td.			\top	Loc		By: L
ΔCI	/EII I	. SYMBOL ASPHALT	GR			,	NCRE																ed By:

SOIL DESCRI (USCS) FILL: granular materials, fine gravel Firm tan LEAN CLAY (CL	mix of sand and	STRATA PLOT	TYPE	NUMBER	RECOVERY (mm)	N-VALUE or RQD %	OTHER TESTS / REMARKS	UNI ▲ L ★ F	ABOF OCKE 5	RATORET PE	HEAF RY TE NETF	R STR ST ROME 100	ENG ⁻ TER kPa	150	LD VA	NE TE SHEA 20	R VANE 10 kPa	BACKFILL
FILL: granular materials, fine gravel Firm tan LEAN CLAY (CL	mix of sand and	STRATA PLOT			_	N-VALUE or RQD %	OTHER TESTS / REMARKS	▲ L ★ F	ABOF OCKE 5	RATOF ET PE 0 kPa 	RY TE	ST ROME 100	TER kPa	♦ FIE □ PO 150	LD VA CKET kPa	NE TE SHEA 20	R VANE 10 kPa	BACKFILL
FILL: granular materials, fine gravel Firm tan LEAN CLAY (CI	*				2				PI (IN-	value)	BLOW	/S/0.3i					—	
Firm tan LEAN CLAY (CL	*								10	20	30 ^{wa}	ter Conte	nt (%) and	Blow Cour	50 ::::	70	80	
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- soft at 1.3 m - Firm grey FAT CLAY (CH																		
- soft at 1.3 m - Firm grey FAT CLAY (CH			AS							9								
- soft at 1.3 m - Firm grey FAT CLAY (CH																		
Firm grey FAT CLAY (CH			AS)							
Firm grey FAT CLAY (CH							Sieve/Hydro at 1.2 m G S M C 0% 10% 69% 21%											
			BS				0% 10% 69% 21%		1									
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End of Borehole Borehole terminated at No groundwater seepag Borehole backfilled in at	a depth of 2.5 m. ge or soil sloughing v ccordance with the C	was City	obser	rved o	during g Stre	or up	on completion of dril ts Manual.	lling.					::::	<u> </u>				
							Drilling Con	tracto	or: N	1aple	Lea	f Dril	ling L	_td.			Logge	d By: L

LC	CAT	CT: 25-R-10 2025 Local Street F ION: Mollard Rd							_				<i>,</i>		.,.							N/A
DA	ATE B	ORED: <u>December 16 2024</u>			SAMF	PLES			_		TER RAINE				N/A RENG	STH,	Cu ((kPa)				
(III)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	TYPE		RECOVERY (mm)	N-VALUE or RQD %	OTHER TESTS / REMARKS	* V	PO	50	PEI kPa H	NET	100 100	ETER) kPa 		POC 150	kPa	SHI	EAR 200	T VANE kPa W _L	BACKFILL
-		FILL: granular materials, mix of sand and	***	1		~			::	10) 2	20 :::	30	/ater Cor	10 10	nd Blow 50	Count 6	0	70	8	0	
		fine gravel																				
' '		Firm brown LEAN CLAY (CL)																				
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-		Soft tan LEAN CLAY (CL)		BS				Sieve/Hydro at 1.2 m G S M C 0% 13% 68% 19%			1											
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٩C	KFILL	. SYMBOL ASPHALT	GR	OUT	12	CON	ICRE	TE Drilling Meth	hod	: 1	25 m	ım S	SSA	`						R	eviev	ved By:

		CT: 25-R-10 2025 Local Street F ION: Mollard Rd	vene	wdl					_														N/A
DA	ATE B	BORED: December 16 2024							_		TEF								<u>—</u>	_	_	_	
(m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	ТУРЕ	NUMBER	RECOVERY (mm) Fig. or TCR %	N-VALUE or RQD %	OTHER TESTS / REMARKS	* V	LA PC	BOR OCKE	ATO	ORY ENE a	TES TRC 1	ST DME 100 k	ERB	◆ F □ P	IEL OC 50 I	D VA KET kPa	ANE SH	EAR 200	VAN kPa	CKFIL
١ –		FILL: granular materials, mix of sand and	XX	1		₹			1::	10	0	20	3	Water 80	Conten	nt (%) and	Blow C	ount 60	<u>)</u>	70	<u> </u>	30 :::	:
-		fine gravel Firm black to brown FAT CLAY (CH)																					
				./																			
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-		Soft tan LEAN CLAY (CL)		¥								$/\!\!/$											
4				AS					::	: : : :	:::		<u>: : :</u> : : :	1 : :	::	<u>: : : :</u>			<u> </u>		::: :::		:
1				X AS																			
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-		Firm to stiff brown FAT CLAY (CH) - trace silt		Å AS																			
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		End of Borehole Borehole terminated at a depth of 2.5 m. No groundwater seepage or soil sloughin. Borehole backfilled in accordance with the	g was e City	s obse / of Wi	rved d	during g Stre	or up eet Cu	n completion of dri s Manual.	illing	-													
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۸ ۵	VEII 1	SYMBOL ASPHALT	I_CD	OUT	· ·	1001	NCRE																wed By:

LO	CAT	CT:25-R-10 2025 Local Street F ON:Mollard Rd	kene	-wai					_													N/A
DA	TE B	ORED: December 16 2024			SAMI	DI E 6			_					L: _ <u> </u> AR S			H, Cu ((kPa)	<u>—</u>	—	_	
(iii)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	ТУРЕ		RECOVERY (mm)	N-VALUE or RQD %	OTHER TESTS / REMARKS	*	PO VAT	5 ER	ET P 60 kP 	ENE a TEN	10	METE 0 kPa + TTER	R [◆ FIEL POC 150 RG LIM	kPa	SHI	EAR 200	VANE kPa	BACKFILL
		Ell Lagrapular materials, mix of cond and	***			22				10	<u>)</u>	20		Water Co	ntent (%)	and BI	Blow Count	0	70		0	
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-				X X				Sieve/Hydro at 1.2 m G S M C 0% 2% 81% 17%														
$\frac{1}{2}$				BS								-	♦ ∷ •∷									
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j		Soft tan LEAN CLAY (CL)		AS									•									
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\downarrow		End of Borehole		AS							<u> </u>		: :0						<u> </u>			
-		Borehole terminated at a depth of 2.5 m. No groundwater seepage or soil sloughin. Borehole backfilled in accordance with the	g was e City	s obse y of Wi	rved o	during g Stre	or up eet Cu	on completion of dril ts Manual.	lling	•												
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		. SYMBOL ASPHALT		OUT	_		NCRE															ed By:

		CT: 25-R-10 2025 Local Street F	kene	-wai					_															N/A
DA	TE B	ORED: December 16 2024						T	_		TE							_		_			_	
()	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	TYPE	NUMBER	RECOVERY (mm) TO SO TO S	N-VALUE or RQD %	OTHER TESTS / REMARKS	7	LA ★ PC	BOF OCK	RAT ET F 50 kl	ORY PENE Pa	TES	ST OME 100	ETER kPa H	• R □	FIEI PO(150	DV CKE kPa	/AN T SI	1EA 20	NR V 00 k	/ANE (Pa	BACKFILL
-		FILL: granular materials, mix of sand and	***			2				1	0	20		Wate 30	r Conte	ent (%) a	50	Count 6	0	70)	80)	
-		fine gravel Firm black FAT CLAY (CH)																						
-																								
				AS																				
-		Soft to firm tan LEAN CLAY (CL)		AS										/)) :: :: ::									
-				BS				Sieve/Hydro at 1.2 m G S M C 0% 6% 75% 19%				-	<i> </i>	/ : :										
-		Firm grey FAT CLAY (CH)		Y AS																				
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-				√ ^ <u>`</u>																				
-		End of Borehole Borehole terminated at a depth of 2.5 m. No groundwater seepage or soil sloughin. Borehole backfilled in accordance with the	g was	AS s obse	erved o	during eg Stre	or up	ion completion of dril its Manual.	illing	g.														
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PF	ROJE	: Dillon Consulting Ltd. CT: 25-R-10 2025 Local Street ION: Mollard Rd	Ren	ewal					_ _ _								В	ΗE	LE'	VAT	101	1 :	23317 N/A	
D/	ATE B	ORED: December 16 2024							٧	VA٦	ER	LEV	EL:	_N	I/A									_
DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	TYPE	NUMBER		N-VALUE or RQD %	OTHER TESTS / REMARKS	*	LAE PO(SORA CKET 50 ER CO	D SH TOR' PEN kPa 	Y TE	EST ROMI 100	ETE kPa TEF	R I	◆ FI □ P	ELE OCK 50 k	VA KET Pa	NE SHE	AR 200	VANE kPa	BACKFILL	
^						22				10	2	0	30°	ater Cont	tent (%) and E	Blow Co	unt 60		70	8	0		
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1 -		Soft tan LEAN CLAY (CL)		AS							•	\$: : : : : : : : : : : : : : : : : : :												
1 1	-			BS				Sieve/Hydro at 1.2 m G S M C 0% 2% 81% 17%			1			1										
-		Firm brown SILTY CLAY (CL.ML)		AS								(
- 2 -		Firm brown SILTY CLAY (CL-ML)										\	\											
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		End of Borehole Borehole terminated at a depth of 2.5 m No groundwater seepage or soil sloughi Borehole backfilled in accordance with t	ng wa	AS s obse	rved o	during g Stre	or up	on completion of dri ts Manual.	lling.															
3 –																							<u> </u>	_
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\sim	INTILL	. SYMBOL <mark>∰</mark> ASPHALT DNITE ⊠DRILL CUTTINGS [:	SA	OUT			ICRE UGH	Completion		14		0	<u> </u>										. رو ت	_

		CT: 25-R-10 2025 Local Street F ON: Mollard Rd	kene	ewal					_														N/A
DΑ	TE B	ORED: December 16 2024							_					L: _						_		_	1
()	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	TYPE	NUMBER	RECOVERY (mm)	N-VALUE or RQD %	OTHER TESTS / REMARKS	* V	LA PC	BOR OCKE 5	RATO ET P 0 kF +	ORY ENE Pa	TES ETRC 1	T OME 00 k	TER :Pa :ERB	TH, C ◆ FII □ PC 15 ERG I	ELD OCK 60 kF	VAN ET S	SHEA 20	AR V 00 k	/ANE (Pa	BACKFILL
						2				1(20					Blow Cot	^{int} 60	7	0	80)	
		FILL: granular materials, mix of sand and fine gravel																					
-		Soft tan LEAN CLAY (CL)																					
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+		Firm grey FAT CLAY (CH)											:										
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1		End of Borehole • Borehole terminated at a depth of 2.5 m.	<u>Y//</u>	VI		1	1		1::	;;1	:::	:1:	:::	111	::1		1:::	:1:		LIII	نلن		
]		No groundwater seepage or soil sloughing Borehole backfilled in accordance with the	g was e City	s obse y of Wi	rved o	during g Stre	or up	n completion of dri Manual.	illing														
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								Drilling Cor	ntrac	ctor	: N	пар	ie L	eaf	Urill	ıng l	_td.			\perp	Log	ged	l By:

LC	CAT	CT: 25-R-10 2025 Local Street F ION: Mollard Rd	vene	wdl					_														N/A	
DA	ATE B	BORED: December 16 2024			SAMI	01 E 6			_		TEF RAIN						TH, C	Cu (k	(Pa)					
()	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	ТУРЕ		RECOVERY (mm) or TCR %	N-VALUE or RQD %	OTHER TESTS / REMARKS		VAT	5	T P 0 kP +	ENE Pa	TRO 1	OME 100 I H	(Pa ERB	D P	OCł 50 k	Pa	SHE,	AR \ 200	/ANE «Pa	BACKFILL	
_		FULL manufacture to the control of a control of	×××			22			ļ.,	1	0	20		Water 30	Conter 40	nt (%) an	Blow Co	60) 7	70	80	<u>)</u>		
		FILL: granular materials, mix of sand and fine gravel Firm brown LEAN CLAY (CL)	\gg																					
-		- some silt																						
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				Ä Bs				U% 2% 19% 79%																
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-		Soft tan SILTY CLAY (CL-ML)		/								/												
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-		Borehole terminated at a depth of 2.5 m. No groundwater seepage or soil sloughing Borehole backfilled in accordance with the	g was	s obse	rved o	during a Stre	or up	on completion of dril ts Manual.	lling	J.														
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		. SYMBOL∰ASPHALT ONITE ⊠DRILL CUTTINGS [☐]SAI	OUT	∵∠ ‱		ICRE UGH	_				2.5		,, \						+			1 of 1	_



Appendix D

Laboratory Testing Reports

- Atterberg LimitsParticle-Size AnalysisStandard Proctor
- o California Bearing Ratio



PROJECT

TO Dillon Consulting Ltd.

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2

PROJECT NO. 123317464

Trevor Nickel REPORT NO. ATTN

DATE SAMPLED: 2024.Dec.16 DATE RECEIVED: 2024.Dec.16 DATE TESTED: 2024.Jan.06 SAMPLED BY: Larry Presado SUBMITTED BY: Guillaume Beauce Kailash Vaghjiyani TESTED BY:

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-105, 1.2 m

LIQUID LIMIT

TRIAL **BLOWS** MC (%)

LIQUIL	LIIVIIII
1	2
25	25
24	24

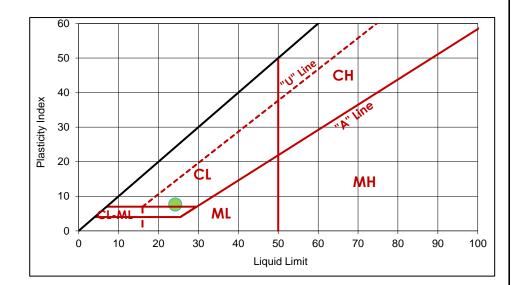
STANTEC SAMPLE NO. 5504

	PLASTI	C LIMIT
TRIAL	1	2
MC (%)	17	17

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%)

25-R-10 Local Street Renewal Program





COMMENTS No comments.

2025.Jan.09 REPORT DATE

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



PROJECT

TO Dillon Consulting Ltd.

300 - 100 Innovation Dr.

Winnipeg, Manitoba

R3T 6G2

PROJECT NO. 123317464

Trevor Nickel ATTN

REPORT NO.

DATE SAMPLED: 2024.Dec.16 SAMPLED BY:

Larry Presado

DATE RECEIVED: 2024.Dec.16 SUBMITTED BY: Guillaume Beauce DATE TESTED: 2024.Jan.06

25-R-10 Local Street Renewal Program

Kailash Vaghjiyani TESTED BY:

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-107, 1.2 m STANTEC SAMPLE NO. 5505

LIQUID LIMIT

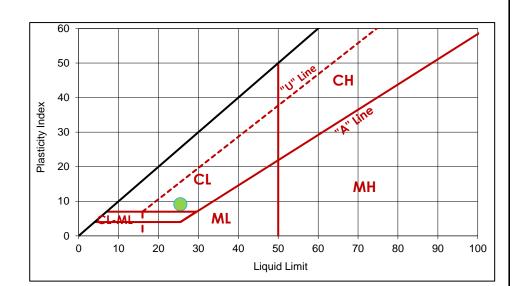
TRIAL **BLOWS** MC (%)

LIQUIL	LIIVIII
1	2
25	26
26	25

	PLASTI	C LIMIT
TRIAL	1	2
MC (%)	16	16

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%)

26
16
10
20.6



COMMENTS No comments.

2025.Jan.09 REPORT DATE

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



PROJECT

TO Dillon Consulting Ltd.

300 - 100 Innovation Dr.

Winnipeg, Manitoba

R3T 6G2

PROJECT NO. 123317464

ATTN Trevor Nickel

REPORT NO. 3

DATE SAMPLED: 2024.Dec.16
SAMPLED BY: Larry Presado

DATE RECEIVED: 2024.Dec.16
SUBMITTED BY: Guillaume Beauce

DATE TESTED: 2024.Jan.06

25-R-10 Local Street Renewal Program

TESTED BY: Kailash Vaghjiyani

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-109, 1.2 m

STANTEC SAMPLE NO. 5506

LIQUID LIMIT

TRIAL BLOWS MC (%)

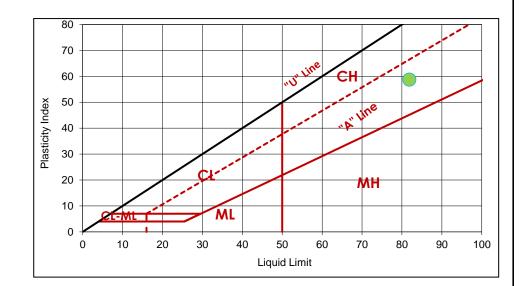
1	2
25	25
82	82

 PLASTIC LIMIT

 TRIAL
 1
 2

 MC (%)
 23
 23

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%) 82 23 59 35 4



COMMENTS
No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd.

PROJECT

25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

PROJECT NO. 123317464

R3T 6G2

Trevor Nickel ATTN

REPORT NO.

DATE SAMPLED: 2024.Dec.16 SAMPLED BY:

Larry Presado

DATE RECEIVED: 2024.Dec.16

DATE TESTED: 2024.Jan.06

SUBMITTED BY: Guillaume Beauce

Ankit Kerai TESTED BY:

MATERIAL IDENTIFICATION

CLIENT FIELD ID

BH-110, 1.2 m

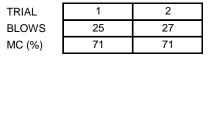
LIQUID LIMIT

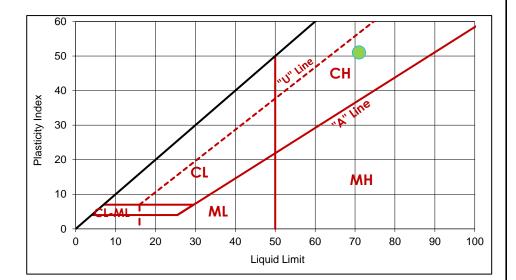
STANTEC SAMPLE NO. 5507

TRIAL MC (%) PLASTIC LIMIT 2 20 LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI

AS REC'D MC (%)

20 51





COMMENTS No comments.

2025.Jan.09 REPORT DATE

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



PROJECT

REPORT NO.

TO Dillon Consulting Ltd.

300 - 100 Innovation Dr.

Winnipeg, Manitoba

R3T 6G2

PROJECT NO. 123317464

Trevor Nickel ATTN

DATE SAMPLED: 2024.Dec.16 DATE RECEIVED: 2024.Dec.16 DATE TESTED: 2024.Jan.06 SAMPLED BY: Larry Presado SUBMITTED BY: Guillaume Beauce Kailash Vaghjiyani TESTED BY:

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-112, 1.2 m

LIQUID LIMIT

TRIAL **BLOWS** MC (%)

LIQUIL	LIIVIII
1	2
26	26
30	30

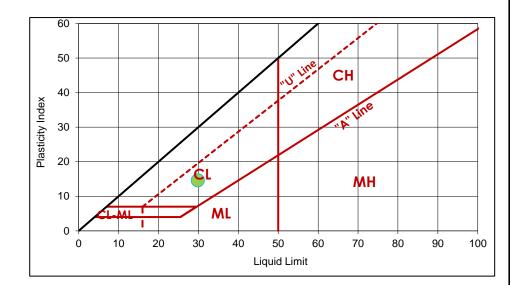
STANTEC SAMPLE NO. 5508

	PLASTI	C LIMIT
TRIAL	1	2
MC (%)	15	15

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%)

25-R-10 Local Street Renewal Program

30	
15	
15	
22 4	1



COMMENTS No comments.

2025.Jan.09 REPORT DATE

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd.

PROJECT

25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

PROJECT NO.

123317464

REPORT NO.

DATE SAMPLED: 2024.Dec.16 SAMPLED BY: Larry Presado

ATTN

R3T 6G2

DATE RECEIVED: 2024.Dec.16

DATE TESTED: 2024.Jan.06

SUBMITTED BY: Guillaume Beauce

Kailash Vaghjiyani TESTED BY:

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-113, 1.2 m

Trevor Nickel

STANTEC SAMPLE NO. 5509

LIQUID LIMIT

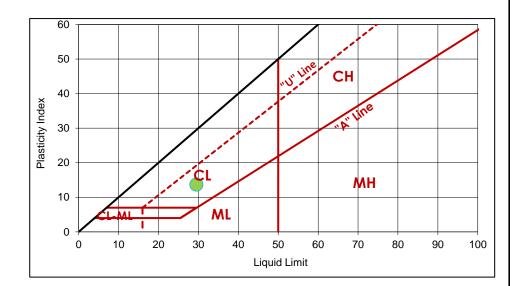
TRIAL **BLOWS** MC (%)

EIQOID EIMIT	
1	2
26	26
29	29

PLASTIC LIMIT TRIAL 2 16 MC (%)

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%)

30	
16	
14	
23.9	



COMMENTS No comments.

2025.Jan.09 REPORT DATE

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd.

PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr.

Winnipeg, Manitoba

R3T 6G2

ATTN

Trevor Nickel

PROJECT NO. 123317464

REPORT NO.

DATE SAMPLED: 2024.Dec.16 SAMPLED BY: Larry Presado DATE RECEIVED: 2024.Dec.16 SUBMITTED BY: Guillaume Beauce

DATE TESTED: 2024.Jan.06

TESTED BY:

Kailash Vaghjiyani

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-115, 1.2 m STANTEC SAMPLE NO. 5510

LIQUID LIMIT

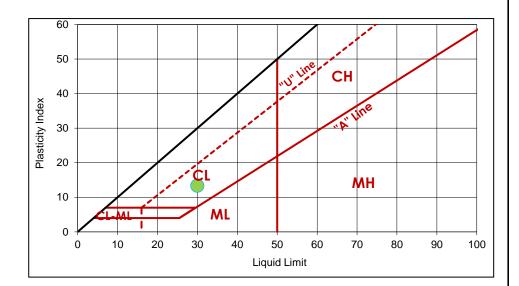
TRIAL **BLOWS** MC (%)

LIQUID LIMIT	
1	2
26	27
30	30

PLASTIC LIMIT TRIAL 2 MC (%)

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%)

17 13 24.6



COMMENTS No comments.

2025.Jan.09 REPORT DATE

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd.

PROJECT

25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

Trevor Nickel

PROJECT NO.

123317464

R3T 6G2

REPORT NO. 8

DATE SAMPLED: 2024.Dec.16 SAMPLED BY: Larry Presado

ATTN

2024.Dec.16 DAT Larry Presado SUE

DATE RECEIVED: 2024.Dec.16
SUBMITTED BY: Guillaume Beauce

DATE TESTED: 2024.Jan.06

TESTED BY:

Kailash Vaghjiyani

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-116, 1.2 m

STANTEC SAMPLE NO. 5511

LIQUID LIMIT

TRIAL BLOWS MC (%)

LIQUID LIMIT	
1	2
26	26
28	28

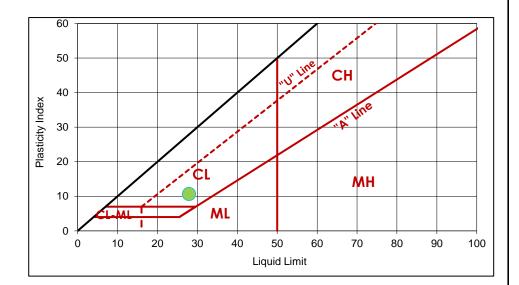
 PLASTIC LIMIT

 TRIAL
 1
 2

 MC (%)
 17
 17

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%)

28	
17	
11	
24.6	



COMMENTS
No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

TO Dillon Consulting Ltd.

PROJECT

25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

PROJECT NO.

123317464

R3T 6G2

ATTN

Trevor Nickel

REPORT NO. 9

DATE SAMPLED: 2024.Dec.16
SAMPLED BY: Larry Presado

DATE RECEIVED: 2024.Dec.16

SUBMITTED BY: Guillaume Beauce

DATE TESTED: 2024.Jan.06

TESTED BY: Kailash Vaghjiyani

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-117, 1.2 m

STANTEC SAMPLE NO. 5512

LIQUID LIMIT

TRIAL BLOWS MC (%)

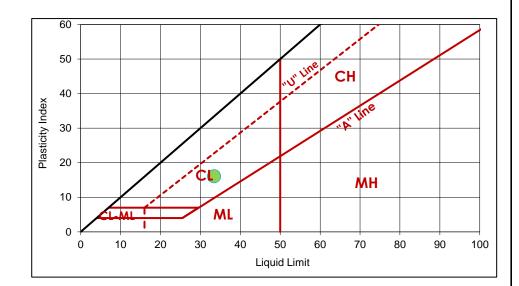
LIQUIL	LIIVIII
1	2
28	28
33	33

 PLASTIC LIMIT

 TRIAL
 1
 2

 MC (%)
 17
 17

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%) 33 17 16 24.4



COMMENTS
No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

PROJECT

TO Dillon Consulting Ltd.

25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2

PROJECT NO. 123317464

ATTN Trevor Nickel

REPORT NO. 10

DATE SAMPLED: 2024.Dec.16
SAMPLED BY: Larry Presado

DATE RECEIVED: 2024.Dec.16

SUBMITTED BY: Guillaume Beauce

DATE TESTED: 2024.Jan.06

TESTED BY: Kailash Vaghjiyani

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-119, 1.2 m

STANTEC SAMPLE NO. 5513

LIQUID LIMIT

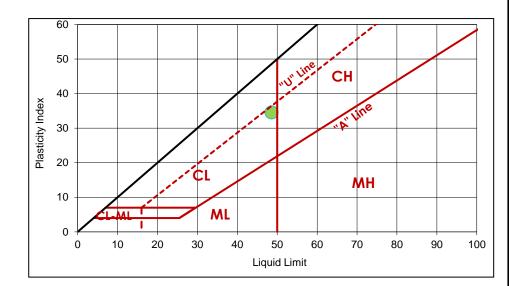
TRIAL BLOWS MC (%)

LIQUIL	LIIVIII
1	2
24	24
49	49

	PLASTI	C LIMIT
TRIAL	1	2
MC (%)	14	14

LIQUID LIMIT, LL PLASTIC LIMIT, PL PLASTICITY INDEX, PI AS REC'D MC (%)

49	
14	
35	
25.7	



COMMENTS
No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 1

DATE SAMPLED: 2024.Dec.16

DATE RECEIVED: 2025.Dec.16

DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado

SUBMITTED BY: Guillaume Beauce

TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-105, 1.2 m

STANTEC SAMPLE NO. 5504

	100	\longleftrightarrow	◇-> 	+		
	90					
	80			$\parallel \parallel $		
(%)	70					
sing	60					
Percent Passing (%)	50					
rcen	40					
Ре	30					
	20					
	10					
	0					
	100	10	1	0.1	0.01	0.00
			Particle Size	(mm)		

Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	98.4
1.18	97.9
0.600	97.6
0.300	97.2
0.150	96.4
0.075	87.6
0.005	11.4
0.002	8.4
0.001	8.1

Gravel		Sand		Silt	Clay	Colloids	
Glavei	Coarse	Medium	Fine	Siit	Clay	Colloids	
0.0	1.6	1.0	9.8	79.2	8.4	8.1	

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 2

DATE SAMPLED: 2024.Dec.16

DATE RECEIVED: 2025.Dec.16

DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado

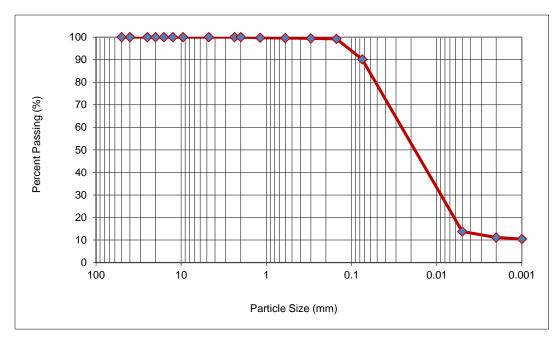
SUBMITTED BY: Guillaume Beauce

TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-107, 1.2 m

STANTEC SAMPLE NO. 5505



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.7
0.600	99.6
0.300	99.4
0.150	99.2
0.075	90.1
0.005	13.8
0.002	11.1
0.001	10.4

Gravel		Sand		Silt	Clay	Colloids	
Glavei	Coarse	Medium	Fine	SIIL	Clay	Oollolas	
0.0	0.0	0.5	9.4	79.0	11.1	10.4	

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 3

DATE SAMPLED: 2024.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado SUBMITTED BY: Guillaume Beauce TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-109, 1.2 m

STANTEC SAMPLE NO. 5506

	100	$ op \sim$		\mathbb{M}	\prod	П	~~	_	\prod	\mathbb{Y}				\square		V			Ш	Π	П			
	90 #								Ш	H				$^{+}$	\dagger				╫	\parallel	\dagger			
	80								₩					₩	+				\blacksquare	\	-	Ļ		
(%)	70 #								+					+	+				+	\parallel				ĺ
sing	60 #								+					\parallel	#				+					
Pas	50								Щ	\perp							_		\parallel	\parallel	\sqcup	\perp		
Percent Passing (%)	40			\prod					\parallel	\perp				\parallel	\parallel				\parallel	\parallel				
Ре	30 #								\parallel	\parallel					\parallel				\parallel	\prod	\parallel	1		
	20 #								\parallel	\parallel				\parallel					\parallel	\parallel	\sqcup	\perp		
	10 #			Щ					Щ	\perp				Щ	1				Щ	\parallel				
	0													Ш										
	100		1	10					1				(0.1				0	.01				0.0	Ю.
								Pa	artic	le S	Size	e (m	m)											

Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.7
0.600	99.6
0.300	99.6
0.150	99.5
0.075	99.2
0.005	79.1
0.002	76.9
0.001	76.2

Gravel		Sand		Silt	Clay	Colloids
Glavei	Coarse	Medium	Fine	Siit	Clay	Colloids
0.0	0.0	0.4	0.4	22.3	76.9	76.2

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 4

DATE SAMPLED: 2024.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.06
SAMPLED BY: Larry Presado SUBMITTED BY: Guillaume Beauce TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-110, 1.2 m

STANTEC SAMPLE NO. 5507

	100					
	90					
	80					
(%)	70					\
sing	60					
t Pas	50					
Percent Passing (%)	40					
Pe	30					
	20					
	10					
	0					
	100	10	1	0.1	0.01	0.00
			Particle Size	(mm)		

Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.9
0.600	99.9
0.300	99.8
0.150	99.7
0.075	99.2
0.005	70.1
0.002	68.3
0.001	68.8

Gravel	Sand			Silt	Clay	Colloids
Glavei	Coarse	Medium	Fine	Siit	Clay	Colloids
0.0	0.0	0.2	0.6	30.9	68.3	68.8

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 5

DATE SAMPLED: 2024.Dec.16

DATE RECEIVED: 2025.Dec.16

DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado

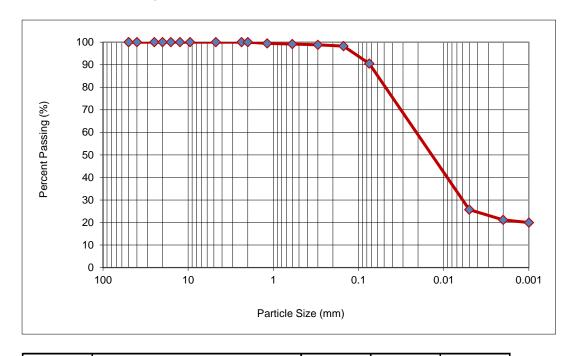
SUBMITTED BY: Guillaume Beauce

TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-112, 1.2 m

STANTEC SAMPLE NO. 5508



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.5
0.600	99.2
0.300	98.8
0.150	98.3
0.075	90.5
0.005	25.7
0.002	21.2
0.001	20.0

Gravel	Sand			Silt	Clav	Colloids
Glavei	Coarse	Medium	Fine	Siit	Clay	Colloids
0.0	0.0	1.1	8.4	69.3	21.2	20.0

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 6

DATE SAMPLED: 2024.Dec.16

DATE RECEIVED: 2025.Dec.16

DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado

SUBMITTED BY: Guillaume Beauce

TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-113, 1.2 m

STANTEC SAMPLE NO. 5509

	100	****	↔			
	90					
	80			+		
(%)	70					
Percent Passing (%)	60					
nt Pa	50					
ercei	40					
△	30					
	20					
	10					
	100	10	1	0.1	0.01	0.001
	Particle Size (mm)					

Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	97.5
0.600	96.2
0.300	95.2
0.150	94.4
0.075	87.2
0.005	24.1
0.002	19.3
0.001	17.4

Gravel	Sand			Silt	Clav	Colloids
Glavei	Coarse	Medium	Fine	Siit	Clay	Colloids
0.0	0.0	4.4	8.4	67.9	19.3	17.4

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 7

DATE SAMPLED: 2024.Dec.16

DATE RECEIVED: 2025.Dec.16

DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado

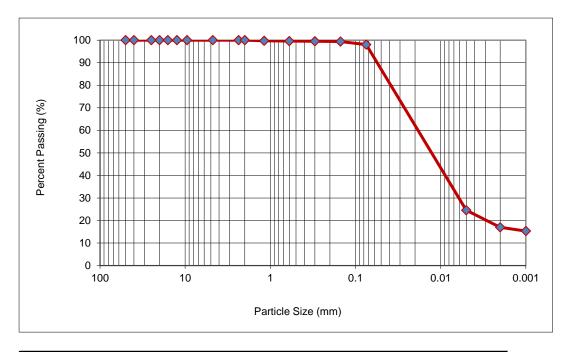
SUBMITTED BY: Guillaume Beauce

TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-115, 1.2 m

STANTEC SAMPLE NO. 5510



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.7
0.600	99.6
0.300	99.5
0.150	99.4
0.075	98.1
0.005	24.6
0.002	17.0
0.001	15.3

Gravel	Sand			Silt	Clay	Colloids
	Coarse	Medium	Fine	Silt	Clay	Colloids
0.0	0.0	0.4	1.5	81.1	17.0	15.3

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 8

DATE SAMPLED: 2024.Dec.16

DATE RECEIVED: 2025.Dec.16

DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado

SUBMITTED BY: Guillaume Beauce

TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-116, 1.2 m

STANTEC SAMPLE NO. 5511

	100					
	90					
	80					
(%)	70					$\overline{}$
sing	60					
Percent Passing (%)	50					
rceni	40					
Pe	30					
	20					
	10					
	0					
	100	10	1	0.1	0.01	0.00
			Particle Size	(mm)		

Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.9
0.600	99.4
0.300	98.4
0.150	96.9
0.075	94.0
0.005	25.8
0.002	19.4
0.001	16.3

Gravel	Sand		Silt	Clay	Colloids	
	Coarse	Medium	Fine	Siit	Clay	Colloids
0.0	0.0	1.2	4.8	74.6	19.4	16.3

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 9

DATE SAMPLED: 2024.Dec.16

DATE RECEIVED: 2025.Dec.16

DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado

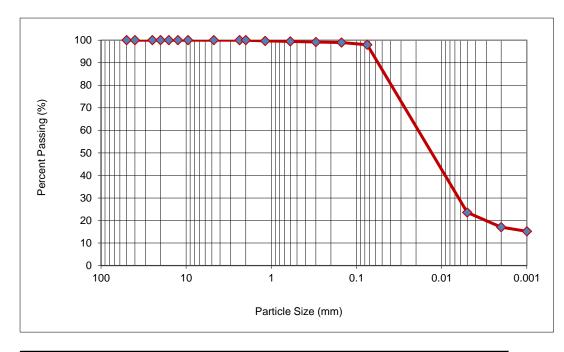
SUBMITTED BY: Guillaume Beauce

TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-117, 1.2 m

STANTEC SAMPLE NO. 5512



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.7
0.600	99.5
0.300	99.2
0.150	98.9
0.075	98.0
0.005	23.6
0.002	17.1
0.001	15.2

Gravel	Sand		Silt	Clay	Colloids	
	Coarse	Medium	Fine	Siit	Clay	Colloids
0.0	0.0	0.7	1.3	80.9	17.1	15.2

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 Local Street Renewal Program

300 - 100 Innovation Dr. Winnipeg, Manitoba

R3T 6G2 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 10

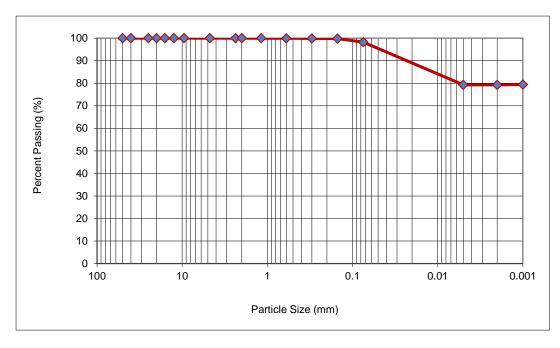
DATE SAMPLED: 2024.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.06

SAMPLED BY: Larry Presado SUBMITTED BY: Guillaume Beauce TESTED BY: Larry Presado

MATERIAL IDENTIFICATION

CLIENT FIELD ID BH-119, 1.2 m

STANTEC SAMPLE NO. 5513



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	100.0
0.600	100.0
0.300	99.9
0.150	99.8
0.075	98.3
0.005	79.3
0.002	79.3
0.001	79.4

Gravel	Sand			Silt	Clay	Colloids
	Coarse	Medium	Fine	SIIL CI	Clay	Colloids
0.0	0.0	0.1	1.6	19.0	79.3	79.4

COMMENTS

No comments.

REPORT DATE 2025.Jan.09

REVIEWED BY G

Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. DATE SAMPLED DATE RECEIVED 2024.Dec.16 2024.Dec.16 DATE TESTED 2025.Jan.07

INSITU MOISTURE 26.7 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

Lean Clay (CL) SIZE **DESCRIPTION**

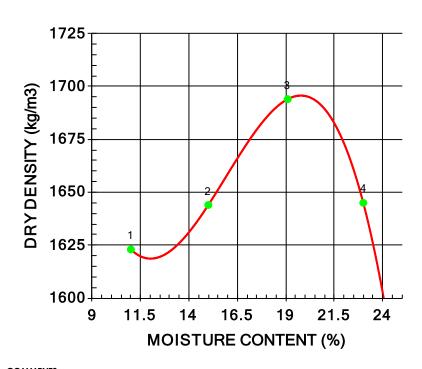
SUPPLIER Existing Materials SOURCE BH-105. 1.2 m (Mollard Rd)

D698

COMPACTION PROCEDURE A: 101.6mm Mold,

Passing 4.75mm

RAMMER TYPE Manual **PREPARATION** Moist OVERSIZE CORRECTION METHOD None RETAINED 4.75mm SCREEN N/A %



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1801	1623	11.0
2	1891	1644	15.0
3	2018	1694	19.1
4	2023	1645	23.0

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1700	20.0
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5504.

REVIEWED BY: Page 1 of 1 2025.Jan.10 Stantec Consulting Ltd.





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. DATE SAMPLED DATE RECEIVED 2024.Dec.16 2024.Dec.16 DATE TESTED 2025.Jan.07

INSITU MOISTURE 27.2 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

Lean Clay (CL) SIZE **DESCRIPTION**

SUPPLIER Existing Materials

SOURCE BH-107, 1.2 m (Mollard Rd)

D698

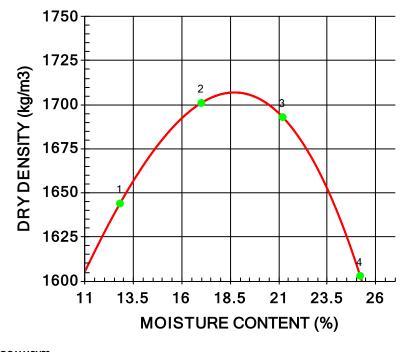
COMPACTION PROCEDURE A: 101.6mm Mold,

Passing 4.75mm

RAMMER TYPE Manual **PREPARATION** Moist OVERSIZE CORRECTION METHOD None

RETAINED 4.75mm SCREEN

N/A %



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1854	1644	12.8
2	1990	1701	17.0
3	2052	1693	21.2
4	2007	1603	25.2

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1710	19.0
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5505.

REVIEWED BY: Page 1 of 1 2025.Jan.10 Stantec Consulting Ltd.





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8 CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. 3 DATE SAMPLED 2024.Dec.16 DATE RECEIVED 2024.Dec.16 DATE TESTED 2025.Jan.08

INSITU MOISTURE 34.6 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

SIZE Fat Clay (CH)
DESCRIPTION

SUPPLIER Existing Materials
SOURCE BH-109, 1.2 m (Mollard Rd)

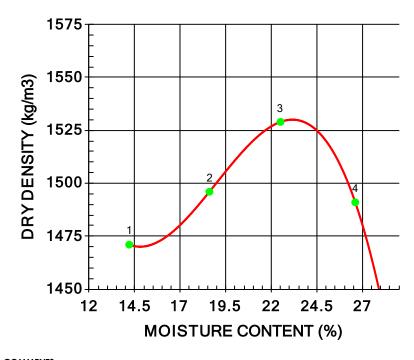
OMPACTION STANDARD Standard Pro

D698

COMPACTION PROCEDURE A: 101.6mm Mold,

Passing 4.75mm

RAMMER TYPE Manual
PREPARATION Moist
OVERSIZE CORRECTION METHOD None
RETAINED 4.75mm SCREEN N/A %



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1680	1471	14.2
2	1774	1496	18.6
3	1873	1529	22.5
4	1887	1491	26.6

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1530	23.0
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5506.

Page 1 of 1 2025. Jan. 10 Stantec Consulting Ltd. REVIEWED BY: Jason Thompson, C.E.T.





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. DATE SAMPLED DATE RECEIVED 2024.Dec.16 2024.Dec.16 DATE TESTED 2025.Jan.07

INSITU MOISTURE 32.3 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

SIZE Fat Clay (CH)

DESCRIPTION SUPPLIER Existing Materials

SOURCE BH-110, 1.2 m (Mollard Rd)

COMPACTION PROCEDURE

RAMMER TYPE **PREPARATION**

OVERSIZE CORRECTION METHOD RETAINED 4.75mm SCREEN

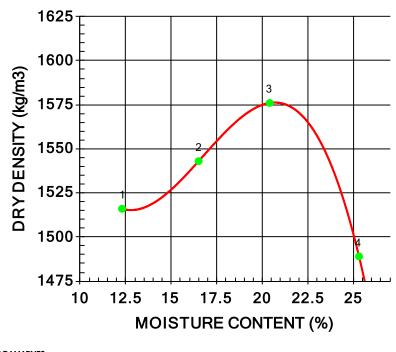
D698

A: 101.6mm Mold,

Passing 4.75mm

Manual Moist

None N/A %



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1702	1516	12.3
2	1798	1543	16.5
3	1897	1576	20.4
4	1866	1489	25.3

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1580	20.5
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5507.

Page 1 of 1

2025.Jan.10

Stantec Consulting Ltd.

REVIEWED BY:





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. DATE SAMPLED DATE RECEIVED 2024.Dec.16 2024.Dec.16 DATE TESTED 2025.Jan.07

INSITU MOISTURE 22.4 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

Lean Clay (CL) SIZE

DESCRIPTION

SUPPLIER Existing Materials SOURCE

BH-112, 1.2 m (Mollard Rd)

COMPACTION PROCEDURE

RAMMER TYPE **PREPARATION**

OVERSIZE CORRECTION METHOD RETAINED 4.75mm SCREEN

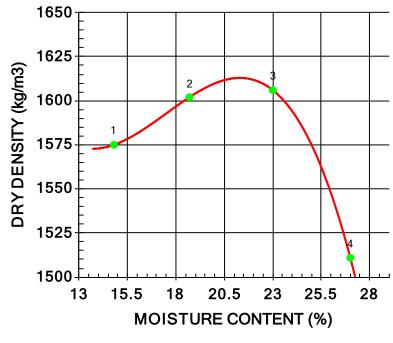
D698

A: 101.6mm Mold,

Passing 4.75mm

Manual Moist

None N/A %



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1808	1575	14.8
2	1902	1602	18.7
3	1975	1606	23.0
4	1919	1511	27.0

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1610	21.5
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5508.

Page 1 of 1

2025.Jan.10

Stantec Consulting Ltd.

REVIEWED BY:





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8 CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. 6 DATE SAMPLED 2024.Dec.16 DATE RECEIVED 2024.Dec.16 DATE TESTED 2025.Jan.08

INSITU MOISTURE 23.9 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

SIZE Lean Clay (CL)
DESCRIPTION

SUPPLIER Existing Materials
SOURCE BH-113, 1.2 m (Mollard Rd)

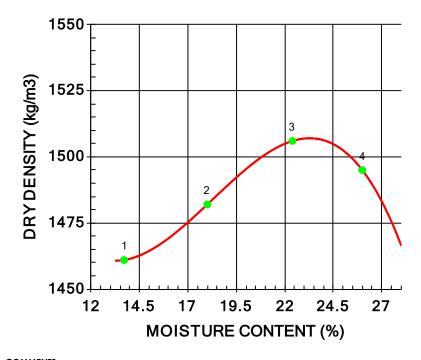
COMPACTION STANDARD Standard Proctor

D698

COMPACTION PROCEDURE A: 101.6mm Mold,

Passing 4.75mm

RAMMER TYPE Manual
PREPARATION Moist
OVERSIZE CORRECTION METHOD None
RETAINED 4.75mm SCREEN N/A %



trial Number	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1661	1461	13.7
2	1749	1482	18.0
3	1843	1506	22.4
4	1884	1495	26.0

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1510	23.5
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5509.

Page 1 of 1 2025. Jan. 10 Stantec Consulting Ltd. REVIEWED BY: Jason Thompson, C.E.T.





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. DATE SAMPLED DATE RECEIVED 2024.Dec.16 2024.Dec.16 DATE TESTED 2025.Jan.09

INSITU MOISTURE 24.6 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

Lean Clay (CL) SIZE

DESCRIPTION SUPPLIER

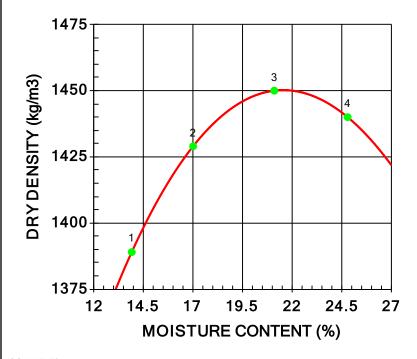
Existing Materials SOURCE BH-115, 1.2 m (Mollard Rd)

COMPACTION PROCEDURE

A: 101.6mm Mold, Passing 4.75mm

RAMMER TYPE Manual **PREPARATION** Moist

OVERSIZE CORRECTION METHOD None RETAINED 4.75mm SCREEN N/A %



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1582	1389	13.9
2	1672	1429	17.0
3	1756	1450	21.1
4	1797	1440	24.8

D698

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1450	21.5
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5510.

Page 1 of 1 REVIEWED BY: 2025.Jan.10 Stantec Consulting Ltd.





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

MATERIAL IDENTIFICATION

PROCTOR NO. DATE SAMPLED DATE RECEIVED 2024.Dec.16 2024.Dec.16 DATE TESTED 2025.Jan.09

INSITU MOISTURE 24.6 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MAJOR COMPONENT Subgrade

Lean Clay (CL) SIZE

SOURCE

COMPACTION PROCEDURE

RAMMER TYPE **PREPARATION** OVERSIZE CORRECTION METHOD

Moist None N/A %

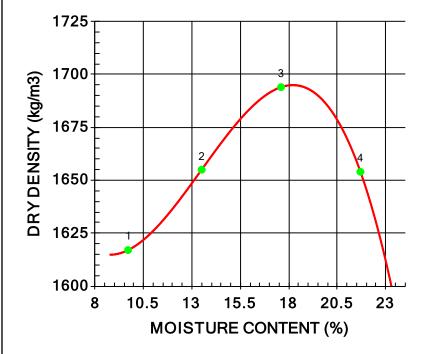
Manual

D698

A: 101.6mm Mold,

Passing 4.75mm

DESCRIPTION SUPPLIER Existing Materials BH-116, 1.2 m (Mollard Rd) RETAINED 4.75mm SCREEN



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1774	1617	9.7
2	1878	1655	13.5
3	1992	1694	17.6
4	2013	1654	21.7

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1700	18.0
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5511.

REVIEWED BY: Page 1 of 1 2025.Jan.10 Stantec Consulting Ltd.





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO.

123317464

PROCTOR NO.

DATE SAMPLED 2024.Dec.16 DATE RECEIVED

2024.Dec.16

DATE TESTED

2025.Jan.09

INSITU MOISTURE 24.2 %

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT

SIZE

Lean Clay (CL)

DESCRIPTION

SOURCE

SUPPLIER

Existing Materials BH-117, 1.2 m (Mollard Rd)

Subgrade

COMPACTION STANDARD

COMPACTION PROCEDURE

RAMMER TYPE **PREPARATION**

OVERSIZE CORRECTION METHOD RETAINED 4.75mm SCREEN

Standard Proctor, ASTM

D698

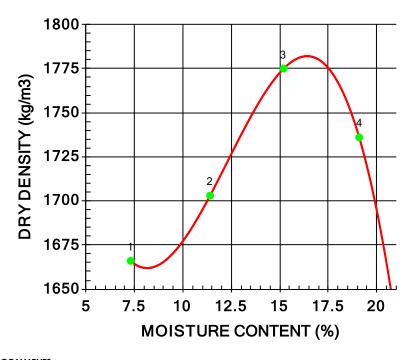
A: 101.6mm Mold,

Passing 4.75mm

Manual

Moist None

N/A %



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1788	1666	7.3
2	1897	1703	11.4
3	2045	1775	15.2
4	2067	1736	19.1

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1780	16.5
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5512.

Page 1 of 1

2025.Jan.10

Stantec Consulting Ltd.

REVIEWED BY:





PROCTOR TEST REPORT

Dillon Consulting Ltd. 300 - 100 Innovation Dr. Winnipeg, MB R3T 6A8

CLIENT Dillon Consulting Ltd. C.C.

ATTN: Trevor Nickel

PROJECT 25-R-10 2025 Local Street Renewal Program

PROJECT NO. 123317464

PROCTOR NO. DATE SAMPLED DATE RECEIVED 2024.Dec.16 2024.Dec.16 DATE TESTED 2025.Jan.09 10

INSITU MOISTURE 24.6 % COMPACTION STANDARD Standard Proctor, ASTM

TESTED BY Donald Eliazar

MATERIAL IDENTIFICATION

MAJOR COMPONENT Subgrade

Lean Clay (CL) SIZE

DESCRIPTION SUPPLIER Existing Materials

SOURCE BH-119, 1.2 m (Mollard Rd)

COMPACTION PROCEDURE

RAMMER TYPE **PREPARATION**

OVERSIZE CORRECTION METHOD RETAINED 4.75mm SCREEN

D698

A: 101.6mm Mold,

Passing 4.75mm

Manual Moist None N/A %

1725 1700 DRY DENSITY (kg/m3) 1675 1650 2 1625 1600 11.5 9 14 16.5 19 21.5 24 **MOISTURE CONTENT (%)**

TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1773	1602	10.7
2	1876	1638	14.5
3	2015	1698	18.7
4	2001	1633	22.5

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1700	19.0
OVERSIZE CORRECTED		

COMMENTS

Stantec Sample No. 5513.

Page 1 of 1 2025.Jan.10 Stantec Consulting Ltd.

REVIEWED BY:



TO Dillon Consulting Ltd. PROJECT 25-R-10 2025 Local Street Renewal

300 - 100 Innovation Drive Program

Winnipeg, Manitoba

R3T 6A8 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 1

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.09

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliazar

Of tivil EED D1. Ctantee	Concaining Liu.	CODMITTED B	1. Ctantoc Concatting Eta.	TEOTEE	Doriala Eliazai
MATERIAL IDENTIFICATIO	N				
MATERIAL USE	Subgrade		SUPPLIER	Existing Materia	al
MAX. NOMINAL SIZE	< 4.75 mm		SOURCE	Mollard Road	
MATERIAL TYPE	Lean Clay (CL)		SAMPLE LOCATION	BH-105, 1.2 m	
SPECIFICATION ID	Not Applicable		STANTEC SAMPLE N	O. 5504	
IMMERSION PERIOD	96 ± 2 hr		TARGET MAX. DRY D	ENSITY	1700 kg/m ³
CONDITION OF SAMPLE	Soaked		TARGET OPTIMUM M	OISTURE	20.0 %
SURCHARGE MASS	4.54 kg				
+19 mm OVERSIZE		0 %	AS-COMPACTED DRY	DENSITY	1616 kg/m³
SWELL OF SAMPLE		1.90 %	AS-COMPACTED MOI	STURE	20.0 %
POST-TEST MOISTURE		22.9 %	AS-COMPACTED % C	OMPACTION	95 %
600				$\neg \mid \ [$	CBR VALUE AT 2.54 mm PENETRATION
<u>g</u> 500			2000	-	4.2
3 400					
wo blunger (kPa) and on Plunger (kPa) and on plunge		-0-0-0-0		7 [CBR VALUE AT 5.08 mm PENETRATION
E 300					3.7
				'	
200 ms 200					
100 J				_	
" /					
0					
0.0 2	.0 4.0	6.0 8.0	10.0 12.0	14.0	
		Penetration (mm)			
				1	

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

REPORT DATE 2025.Jan.14 REVIEWED BY Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 2025 Local Street Renewal

300 - 100 Innovation Drive Program

Winnipeg, Manitoba

R3T 6A8 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 2

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.09

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliazar

MATERIAL IDENTIFICATION **Existing Material** MATERIAL USE Subgrade **SUPPLIER** MAX. NOMINAL SIZE < 4.75 mm SOURCE Mollard Road Lean Clay (CL) BH-107, 1.2 m MATERIAL TYPE SAMPLE LOCATION Not Applicable SPECIFICATION ID STANTEC SAMPLE NO. 5505 96 ± 2 hr IMMERSION PERIOD TARGET MAX. DRY DENSITY 1710 kg/m³ CONDITION OF SAMPLE Soaked TARGET OPTIMUM MOISTURE 19.0 % 4.54 kg SURCHARGE MASS +19 mm OVERSIZE 0 % AS-COMPACTED DRY DENSITY 1625 kg/m³ 1.34 % 18.9 % SWELL OF SAMPLE AS-COMPACTED MOISTURE POST-TEST MOISTURE 24.1 % AS-COMPACTED % COMPACTION 95 % 800 CBR VALUE AT 2.54 mm **PENETRATION** 700 Plunger (kPa) 6.0 600 500 CBR VALUE AT 5.08 mm **PENETRATION** 400 Pressure on 5.5 300 200 100

COMMENTS

0.0

2.0

4.0

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

Penetration (mm)

6.0

REPORT DATE 2025.Jan.14 REVIEWED BY Guillaume Beauce, P.Eng.

8.0

Geotechnical Engineer - Materials Testing Services

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided on written request. The data presented is for sole use of client stipulated above. Stantec is not responsible, nor can be held liable, for the use of this report by any other party, with or without the knowledge of Stantec.

10.0

12.0

14.0



TO Dillon Consulting Ltd. **PROJECT** 25-R-10 2025 Local Street Renewal

Program

Winnipeg, Manitoba

300 - 100 Innovation Drive

R3T 6A8 PROJECT NO. 123317464

Trevor Nickel REPORT NO. 3 ATTN

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.10

Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. Donald Eliazar SAMPLED BY: TESTED BY: MATERIAL IDENTIFICATION

MATERIAL USE

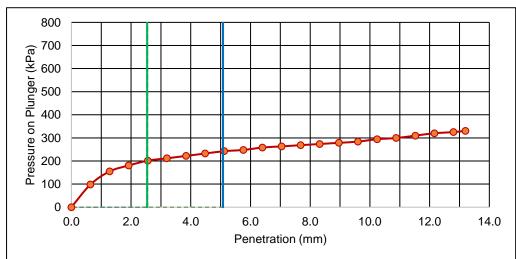
Subgrade **SUPPLIER Existing Material** MAX. NOMINAL SIZE < 4.75 mm SOURCE Mollard Road MATERIAL TYPE Fat Clay (CH) SAMPLE LOCATION BH-109, 1.2 m

SPECIFICATION ID Not Applicable STANTEC SAMPLE NO. 5506

96 ± 2 hr IMMERSION PERIOD TARGET MAX. DRY DENSITY 1530 kg/m³ CONDITION OF SAMPLE Soaked 23.0 % TARGET OPTIMUM MOISTURE

SURCHARGE MASS 4.54 kg

0 % +19 mm OVERSIZE AS-COMPACTED DRY DENSITY 1454 kg/m³ 4.26 % 23.0 % SWELL OF SAMPLE AS-COMPACTED MOISTURE POST-TEST MOISTURE 33.3 % AS-COMPACTED % COMPACTION 95 %



CBR VALUE AT 2.54 mm **PENETRATION** 2.9

CBR VALUE AT 5.08 mm **PENETRATION** 2.4

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

2025.Jan.15 REPORT DATE **REVIEWED BY** Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services

Subgrade

< 4.75 mm

Fat Clay (CH)



ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO Dillon Consulting Ltd. PROJECT 25-R-10 2025 Local Street Renewal

Program

Existing Material

Mollard Road

BH-110, 1.2 m

Winnipeg, Manitoba

MATERIAL IDENTIFICATION

MATERIAL USE

MATERIAL TYPE

MAX. NOMINAL SIZE

300 - 100 Innovation Drive

R3T 6A8 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 4

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.09

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliazar

SUPPLIER

SAMPLE LOCATION

SOURCE

SPECIFICATION ID	Not Applicable	STANTEC	C SAMPLE NO. 5507
IMMERSION PERIOD CONDITION OF SAMPLE SURCHARGE MASS	4.54 kg	TARGET	MAX. DRY DENSITY OPTIMUM MOISTURE
+19 mm OVERSIZE	0 %		PACTED DRY DENSITY
SWELL OF SAMPLE	3.39 %		PACTED MOISTURE
POST-TEST MOISTURE	33.3 %	AS-COMF	PACTED % COMPACTION
600 (e 500 Hunder (kPa) 300 200 200 100 0			
0.0 2.0	0 4.0 6.0	8.0 10.0	12.0 14.0
	Penetrat	tion (mm)	

CBR VALUE AT 2.54 mm PENETRATION 2.5

1580 kg/m³ 20.5 %

1503 kg/m³ 20.3 % 95 %

CBR VALUE AT 5.08 mm PENETRATION 2.2

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

REPORT DATE 2025.Jan.14 REVIEWED BY Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services

Subgrade

< 4.75 mm

Lean Clay (CL)



ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO Dillon Consulting Ltd. PROJECT 25-R-10 2025 Local Street Renewal

300 - 100 Innovation Drive Program

Winnipeg, Manitoba

MATERIAL IDENTIFICATION

MATERIAL USE

MATERIAL TYPE

MAX. NOMINAL SIZE

R3T 6A8 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 5

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.09

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliazar

SUPPLIER

SAMPLE LOCATION

SOURCE

SPECIFICA	TION ID	Not	Applicable					S	TANT	EC SA	MPLE	NO.	5508	3
IMMERSION CONDITION SURCHARG	N OF SAME		96 ± 2 hr Soaked 4.54 kg					-				/ DEN		Ē
+19 mm OV SWELL OF POST-TES	/ERSIZE SAMPLE	RE	9	2.5	0 % 4 % 6 %			Α	S-COI	MPAC	TED M	ORY DE MOISTI 6 COM	JRE	
600														
(kPa)		+												
on Plunger (kPa)		+												
등 급 300						-0-			9	_	<u> </u>	•		
200 Lessare 100			0-0-0											
0														
	0.0	2.0	4.0	6	.0	8.	.0	10	0.0	12	2.0	14	.0	

CBR VALUE AT 2.54 mm PENETRATION 2.3

1610 kg/m³ 21.5 %

1530 kg/m³ 21.4 % 95 %

Existing Material

Mollard Road

BH-112, 1.2 m

CBR VALUE AT 5.08 mm PENETRATION 2.1

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

Penetration (mm)

REPORT DATE 2025.Jan.14 REVIEWED BY Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 2025 Local Street Renewal

300 - 100 Innovation Drive Program

Winnipeg, Manitoba

R3T 6A8 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 6

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.10

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliaza

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliazar

MATERIAL IDENTIFICATION

WATERIAL IDENTIFICATION

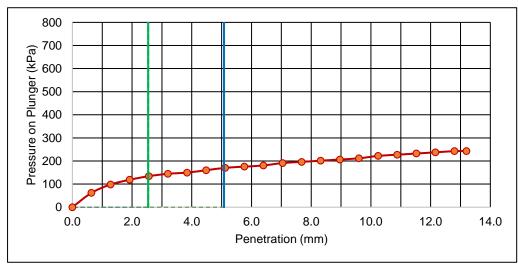
MATERIAL USE Subgrade SUPPLIER Existing Material
MAX. NOMINAL SIZE < 4.75 mm SOURCE Mollard Road
MATERIAL TYPE Lean Clay (CL) SAMPLE LOCATION BH-113, 1.2 m

SPECIFICATION ID Not Applicable STANTEC SAMPLE NO. 5509

IMMERSION PERIOD $96 \pm 2 \text{ hr}$ TARGET MAX. DRY DENSITY 1510 kg/m^3 CONDITION OF SAMPLESoakedTARGET OPTIMUM MOISTURE23.5 %

SURCHARGE MASS 4.54 kg

+19 mm OVERSIZE 0 % AS-COMPACTED DRY DENSITY 1436 kg/m 3 SWELL OF SAMPLE 4.07 % AS-COMPACTED MOISTURE 23.4 % POST-TEST MOISTURE 35.4 % AS-COMPACTED % COMPACTION 95 %



CBR VALUE AT 2.54 mm PENETRATION 1.9

CBR VALUE AT 5.08 mm PENETRATION 1.7

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

REPORT DATE 2025.Jan.15 REVIEWED BY Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. **PROJECT** 25-R-10 2025 Local Street Renewal

Program 300 - 100 Innovation Drive

Winnipeg, Manitoba

R3T 6A8 PROJECT NO. 123317464

Trevor Nickel 7 REPORT NO. ATTN

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.10

Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. Donald Eliazar SAMPLED BY: TESTED BY:

MATERIAL IDENTIFICATION

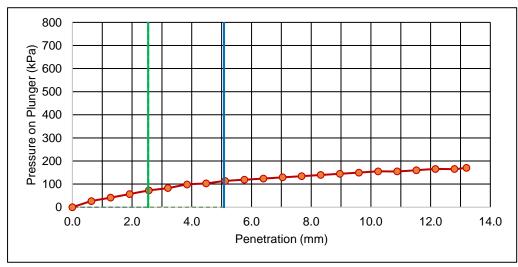
MATERIAL USE Subgrade **SUPPLIER Existing Material** MAX. NOMINAL SIZE < 4.75 mm SOURCE Mollard Road MATERIAL TYPE Lean Clay (CL) SAMPLE LOCATION BH-115, 1.2 m

SPECIFICATION ID Not Applicable STANTEC SAMPLE NO. 5510

96 ± 2 hr IMMERSION PERIOD TARGET MAX. DRY DENSITY 1450 kg/m³ CONDITION OF SAMPLE Soaked 21.5 % TARGET OPTIMUM MOISTURE

SURCHARGE MASS 4.54 kg

0 % +19 mm OVERSIZE AS-COMPACTED DRY DENSITY 1376 kg/m³ 8.09 % 21.6 % SWELL OF SAMPLE AS-COMPACTED MOISTURE POST-TEST MOISTURE 38.1 % AS-COMPACTED % COMPACTION 95 %



CBR VALUE AT 2.54 mm **PENETRATION** 1.0

CBR VALUE AT 5.08 mm **PENETRATION** 1.1

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

2025.Jan.15 REPORT DATE **REVIEWED BY** Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. **PROJECT** 25-R-10 2025 Local Street Renewal

Program 300 - 100 Innovation Drive

Winnipeg, Manitoba

R3T 6A8 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO.

DATE RECEIVED: 2025.Dec.16 DATE SAMPLED: 2025.Dec.16 DATE TESTED: 2025.Jan.13

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. Donald Eliazar TESTED BY:

MATERIAL IDENTIFICATION

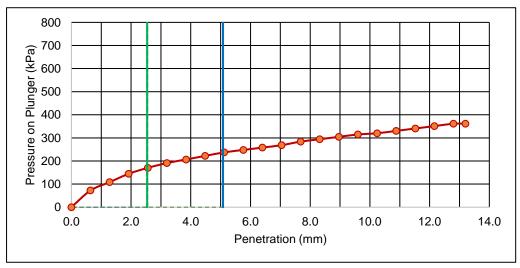
MATERIAL USE	Subgrade	SUPPLIER	Existing Material
MAX. NOMINAL SIZE	< 4.75 mm	SOURCE	Mollard Road
MATERIAL TYPE	Lean Clay (CL)	SAMPLE LOCATION	BH-116, 1.2 m

SPECIFICATION ID Not Applicable STANTEC SAMPLE NO. 5511

96 ± 2 hr IMMERSION PERIOD TARGET MAX. DRY DENSITY 1700 kg/m³ CONDITION OF SAMPLE Soaked TARGET OPTIMUM MOISTURE 18.0 %

SURCHARGE MASS 4.54 kg

0 % +19 mm OVERSIZE AS-COMPACTED DRY DENSITY 1618 kg/m³ 3.00 % 17.9 % SWELL OF SAMPLE AS-COMPACTED MOISTURE POST-TEST MOISTURE 29.8 % AS-COMPACTED % COMPACTION 95 %



CBR VALUE AT 2.54 mm **PENETRATION** 2.5

CBR VALUE AT 5.08 mm **PENETRATION** 2.4

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

REPORT DATE 2025.Jan.20 **REVIEWED BY** Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services



TO Dillon Consulting Ltd. PROJECT 25-R-10 2025 Local Street Renewal

300 - 100 Innovation Drive Program

Winnipeg, Manitoba

MATERIAL IDENTIFICATION

R3T 6A8 PROJECT NO. 123317464

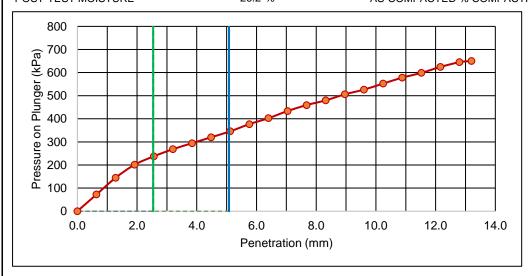
ATTN Trevor Nickel REPORT NO. 9

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.13

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliazar

MATERIAL USE MAX. NOMINAL SIZE MATERIAL TYPE SPECIFICATION ID	Subgrade < 4.75 mm Lean Clay (CL) Not Applicable	SUPPLIER SOURCE SAMPLE LOCATION STANTEC SAMPLE NO.	Existing Material Mollard Road BH-117, 1.2 m 5512	
IMMERSION PERIOD CONDITION OF SAMPLE SURCHARGE MASS	96 ± 2 hr Soaked 4.54 kg	TARGET MAX. DRY DEN TARGET OPTIMUM MOI:		1780 kg/m ³ 16.5 %

+19 mm OVERSIZE 0 % AS-COMPACTED DRY DENSITY 1695 kg/m³ SWELL OF SAMPLE 1.42 % AS-COMPACTED MOISTURE 16.3 % POST-TEST MOISTURE 26.2 % AS-COMPACTED % COMPACTION 95 %



CBR VALUE AT 2.54 mm PENETRATION 3.4

CBR VALUE AT 5.08 mm PENETRATION 3.4

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

REPORT DATE 2025.Jan.20 REVIEWED BY Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services

Subgrade

< 4.75 mm



ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO Dillon Consulting Ltd. PROJECT 25-R-10 2025 Local Street Renewal

300 - 100 Innovation Drive Program

Winnipeg, Manitoba

MATERIAL IDENTIFICATION

MAX. NOMINAL SIZE

MATERIAL USE

R3T 6A8 PROJECT NO. 123317464

ATTN Trevor Nickel REPORT NO. 10

DATE SAMPLED: 2025.Dec.16 DATE RECEIVED: 2025.Dec.16 DATE TESTED: 2025.Jan.09

SAMPLED BY: Stantec Consulting Ltd. SUBMITTED BY: Stantec Consulting Ltd. TESTED BY: Donald Eliazar

SUPPLIER

SOURCE

MATERIAL TYPE	Lean Clay (CL)			SAMPLE	LOCATION	BH-119, 1.2 m	า
SPECIFICATION ID	Not Applicable			STANTE	C SAMPLE NO.	. 5513	
IMMERSION PERIOD	96 ± 2 hr			TARGET	MAX. DRY DE	NSITY	
CONDITION OF SAMP	LE Soaked			TARGET	ГОРТІМИМ МО	ISTURE	
SURCHARGE MASS	4.54 kg						
+19 mm OVERSIZE		0 %		AS-COM	IPACTED DRY I	DENSITY	
SWELL OF SAMPLE		2.05 %		AS-COM	IPACTED MOIS	TURE	
POST-TEST MOISTUR	E	28.1 %		AS-COM	IPACTED % CO	MPACTION	
600							
600						7	CBR V
g 500						_	PE
on Plunger (KPa) and an							<u> </u>
ច្ច 400	+			\rightarrow	- 0-00	4	
l û							CBR V
<u>a</u> 300				+++		-	PE
§ 200						-	
200 essential 20	4						
<u>E</u> 100						┦	
0.0	2.0 4.0	6.0	8.0	10.0	12.0 1	14.0	
 0.0	Z.U 4.U	0.0	0.0	10.0	12.0	14.U	

CBR VALUE AT 2.54 mm PENETRATION 2.8

1700 kg/m³ 19.0 %

1616 kg/m³ 19.0 % 95 %

Existing Material

Mollard Road

CBR VALUE AT 5.08 mm PENETRATION 2.7

COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.

Penetration (mm)

REPORT DATE 2025.Jan.14 REVIEWED BY Guillaume Beauce, P.Eng.

Geotechnical Engineer - Materials Testing Services