APPENDIX 'A' GEOTECHNICAL REPORT

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APPENDIX 'A' - GEOTECHNICAL REPORT

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The geotechnical report is provided to aid in the Contractor's evaluation of the existing concrete pavement and asphalt overlay for Part A, and the soil conditions beneath the proposed path for Part B. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.

Geotechnical Report for Part A - Roadway Rehabilitation

Test Hole Locations



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Summary of Core Samples

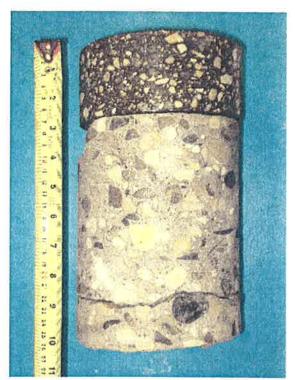
City of Winnipeg 2009 Street Renewal Program East Bound Bishop Grandin Boulevard Pavement Structure Lakewood Boulevard to Lagimoidiere Boulevard

Testhole ID	Testhole Location	Asphalt Thickness (mm)	Concrete Thickness (mm)	Base Coarse Type				
TH1	Centre of the south lane, 453 m west of the centre of Island Shore Boulevard intersection	65	200	Granular Base - 20 mm maximum aggregate size				
TH2	Centre of the north lane, 299 m west of the center of Island Shore Boulevard intersection	60	194	Granular Base - 20 mm maximum aggregate size				
TH3	Centre of the deceleration lane, 120 m west of the centre of Island Shore Boulevard intersection	65	222	Granular Base - 20 mm maximum aggregate size				
TH4	Centre of the south lane, 18 m west of the centre of Island Shore Boulevard intersection	62	194	Granular Base - 20 mm maximum aggregate size				
TH5	Centre of the north lane, 123 m east of the centre of Island Shore Boulevard intersection	67	192	Granular Base - 20 mm maximum aggregate size				
TH6	Centre of the south lane, 318 m east of the centre of Island Shore Boulevard intersection	67	192	Granular Base - 20 mm maximum aggregate size				
TH7	Centre of the deceleration lane, 84 m west of the centre of De La Seigneurie Boulevard intersection	65	230	Granular Base - 20 mm maximum aggregate size				
TH8	Centre of the north lane, 55 m east of the centre of De La Seigneurie Boulevard intersection	61	200	Granular Base - 20 mm maximum aggregate size				
тн9	Centre of the acceleration lane, 155 m east of the centre of De La Selgneurie Boulevard intersection	54	200	Granular Base - 20 mm maximum aggregate size				
TH10	Centre of the south lane, 314 m east of the centre of De La Seigneurie Boulevard intersection	58	201	Granular Base - 20 mm maximum aggregate size				
TH11	Centre of the deceleration lane, 109 m west of the west curb of Lagimodiere Boulevard	62	197	Granular Base - 20 mm maximum aggregate siz				
TH12	Centre of the north lane, 45 m west of the west curb of Lagimodiere Boulevard	55	230	Granular Base - 20 mm maximum aggregate siz				

Note: Testholes were drilled to a depth of 100 mm below the underside of the existing concrete pavement

Pavement Core Photos for Test Hole #1 - 4

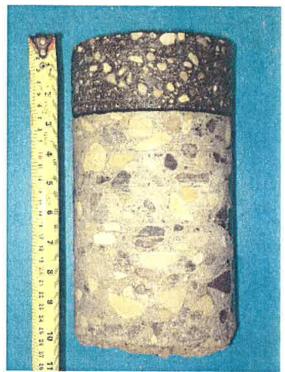




TH1 - East Bound Bishop Grandin



TH3 - East Bound Bishop Grandin



TH2 - East Bound Bishop Grandin



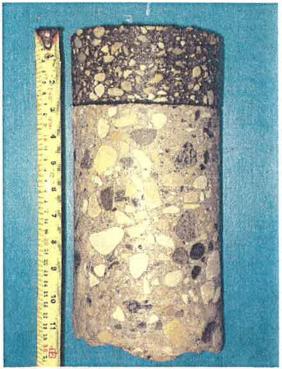
TH4 - East Bound Bishop Grandin

Pavement Core Photos for Test Hole #5 - 8

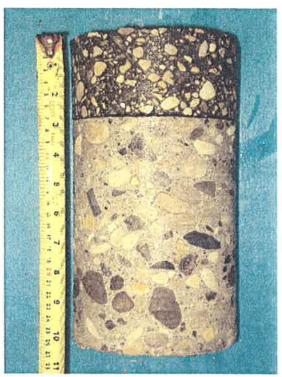




TH5 - East Bound Bishop Grandin



TH 7 - East Bound Bishop Grandin



TH6 - East Bound Bishop Grandin



TH8 - East Bound Bishop Grandin

Pavement Core Photos for Test Hole #9 - 12





TH9 - East Bound Bishop Grandin



TH11 - East Bound Bishop Grandin



TH10 - East Bound Bishop Grandin



TH12 - East Bound Bishop Grandin

Geotechnical Report for Part B – Multi-Use Pathway Construction

Test Hole Locations





Test Hole Log for Test Hole #13

TESTHOLE TH13

Project Name: Bishop Grandin Bike & Foot Path Extension

Client: Dillon Consulting

Drilling Contractor: Maple Leaf Construction Drilling Method: 125 mm Flight Auger



Date Drilled: January 12, 2009 Depth of Testhole: 3.1 m Logged by: Kurtis Kulchyski Reviewed by: Don Flatt

		Laboratory Testing			
Depth (m)	Symbol	Description	Water Content (%) 0 20 40 60 80 100		
0.0-		Ground Surface			
0.0	71171	Topsoil			
(e) (e) (e)		Clay - Black, stiff, moist, high plasticity, with organics to 0.5 m - Grey below 0.5 m - Brown below 0.6 m with trace layers of silt between 0.6 to 0.8 m	47		
1.0-			39		
			48		
2.0-					
: ::			55		
)		£			
3.0-			60		
;; ;; ;;		 Frost to a depth of 0.6 m Testhole was terminated at 3.1 m No water seepage or sloughing were observed during or upon completion of drilling. 			
74 1.5 74 14					

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TESTHOLE TH14

Project Name: Bishop Grandin Bike & Foot Path Extension

Client: Dillon Consulting

Drilling Contractor: Maple Leaf Construction Drilling Method: 125 mm Flight Auger



Date Drilled: January 12, 2009 Depth of Testhole: 6.1 m Logged by: Kurtis Kulchyski Reviewed by: Don Flatt

		Subsurface Profile				. L	aborator	y T	esting		
Depth (m)	Symbol	Description	o L	, To		e Read (kPa) 75	lings 125150	0		er Cont (%) 40 60	ent 80 1
0-		Ground Surface	Ħ	0000000	MOTERIO .						
Ŭ.	**********	Topsoil	71	7	T	7-7			31	1 T	
1000000		Clay Fill - Brown, stiff, moist, high plasticity, trace sand and fine gravel							2/		
10				į							
		*							212		1
2-									10		
				į					\		
3		Clay - Black, stiff, moist, high plasticity, with trace organics between 2.9 to 3.2 m - brown below 3.5 m - trace layers of silt below 4.3 m,			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1		3/2	1 00	
4-		increasing with depth							30		
5-		Silt	1					l	24		
		 Tan, firm, moist to saturated, low to intermediate plasticity, with clay (trace layers of clay observed within the silt layer) 			53/				25	40	
6-		Clay - Brown, stiff, moist, high plasticity		15						/a	
		 Frost to a depth of 0.8 m Water seepage was observed from the silt layer below 4.8 m during drilling 									
7		 Water level at 5.2 m upon completion of drilling Slough was observed at 5.5 m upon completion of drilling 									
3		Testhole was terminated at 6.1 m		1	-						

Test Hole Log for Test Hole #15

TESTHOLE TH15

Project Name: Bishop Grandin Bike & Foot Path Extension

Client: Dillon Consulting

Drilling Contractor: Maple Leaf Construction Drilling Method: 125 mm Flight Auger



Date Drilled: January 12, 2009 Depth of Testhole: 6.1 m Logged by: Kurtis Kulchyski Reviewed by: Don Flatt

Subsurface Profile			Laboratory Testing							
Depth (m)	Symbol	Description	Torvane Readings (kPa) Water Content (%) 0 25 50 75 125150 0 20 40 60 80 10							
0-		Ground Surface								
0-	*************************************	Topsoil	40							
1-		Clay fill - Black, stiff, moist, high plasticity - Brown, stiff, moist below 0.8 m with trace fine gravel	105							
3- 4-		Clay - Black, stiff, moist, high plasticity, with trace organics to 2.8 m - Trace layer of grey clayey silt below 3.0 m - 3.2 m Trace layer of tan silt at 4.1 m	92 86 33 36 36 38							
5			\$50 \$44 \$4							
7		Prost to a depth of 0.6 m No water seepage or sloughing was observed during or upon completion of testhole. Testhole was terminated at 6.1 m								

Test Hole Log for Test Hole #16

TESTHOLE TH16 Date Drilled: January 12, 2009 Project Name: Bishop Grandin Bike & Foot Path Extension **Client: Dillon Consulting** Depth of Testhole: 6.1 m **Drilling Contractor: Maple Leaf Construction** Logged by: Kurtis Kulchyski Drilling Method: 125 mm Flight Auger Reviewed by: Don Flatt Subsurface Profile **Laboratory Testing Torvane Readings Water Content** Depth Symbol Description (kPa) 25 50 75 (m) 125 150 80 100 **Ground Surface** Topsoil Clay fill - Brown, stiff, moist, high plasticity with trace fine gravel - Black, stiff, moist, high plasticity with trace layers of silt - Grey, frm, moist, low plasticity, with clay - Tan below 2.9 m Clay - Brown, stiff, moist, high plasticity with trace layer of sit at 4.3 m · Frost to a depth of 0.9 m · No water seepage or sloughing was abserved during or upon completion of · Testhole was terminated at 6.1 m