

## 2.0 GROUNDWATER CONDITONS

A summary of the groundwater levels measured at each site is shown in Table 1 below. This information is submitted to supplement the groundwater information included in our original July 20, 2005 letter reports.

**TABLE 1**  
**SUMMARY OF MEASURED GROUNDWATER LEVELS**  
**2005 OUTFALL GATE CHAMBER UPGRADING PROGRAM**

SITE	Rowandale Crescent	LeMaire Street	Rue Notre Dame	Kavanagh Street	Evans Street	Falconer Bay	Blackmore Avenue
TEST HOLE	TH-01A	TH-02A	TH-04A	TH-06A	TH-09A	TH-10A	TH-11A
STRATUM	Till	Till	Till	Till	Till	Till	Till
DATE	Measured Groundwater Level (m) <sup>(1)</sup>						
26-Jul-05	-	-	10.67	-	-	-	-
2-Aug-05	4.88	6.72	11.55	5.44	Dry	7.31	4.67

**Notes:**

"-" = No Data

1. All measured groundwater levels are below existing grade at test hole locations.

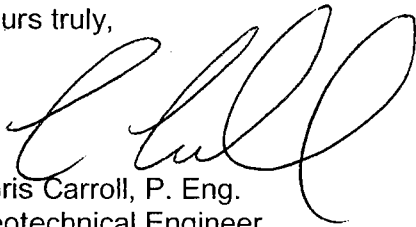
Groundwater levels vary seasonally and in response to precipitation such that future groundwater conditions at the site may vary from those reported herein.

## 3.0 SUMMARY

Standpipe piezometer installations and groundwater level monitoring has been performed at seven (7) sites for the 2005 Gate Chamber Upgrading Program. Measured groundwater levels are reported herein and supplement our original geotechnical letter reports dated July 20, 2005.

We thank you for the opportunity to provide engineering services on this project. If you have any questions please contact the undersigned at 896-1209 or Dr. Rob Kenyon, P. Eng. of our office.

Yours truly,



Chris Carroll, P. Eng.  
Geotechnical Engineer

CC/jr  
Attachment

cc: Mr. Kas Zurek, P. Eng., Design and Construction Engineer

**CLIENT** CITY OF WINNIPEG  
**PROJECT** 2005 OUTFALL GATE CHAMBER UPGRADES - GEOTECHNICAL INVESTIGATIONS  
**SITE** BLACKMORE AVENUE  
**LOCATION** ±15 m west from centreline of existing manhole  
**DRILLING METHOD** 125 mm ø Solid Stem Auger and 200 mm ø Hollow Stem Auger (Truck Mounted)

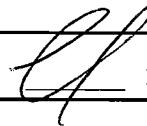
**JOB NO.** 05-107-07.02.1000  
**GROUND ELEV.**  
**WATER ELEV.**  
**DATE DRILLED** 29-Jul-05  
**UTM** N 5520309  
 E 633762

ELEVATION (m)	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE	NUMBER	RECOVERY %	SPT (N) blows/0.30 m ▲	Cu TORVANE (kPa) ◆		
										PL	MC	LL
			<b>TOPSOIL (CLAY)</b> - Greyish-black, damp, soft, intermediate plasticity, trace medium grained sand, trace rootlets, trace oxidation.		0.3		1					
			<b>CLAY FILL</b> - Brownish-grey, damp, firm, low to intermediate plasticity, trace silt pockets, trace rootlets.				2					
1												
	5		<b>SILTY CLAY (CL-CH)</b> - Brown, damp to moist, soft, intermediate to high plasticity, trace fine grained sand, trace silt seams.				3					
2												
	10						4					
3												
	15		- Water infiltration and soft soil conditions at 3.66 m. Switched to hollow stem auger.				5					
4												
	20		<b>CLAYEY SILT AND SAND</b> - Greyish-brown, wet, very soft, low plasticity, with fine grained sand, trace silt pockets.				6					
5			<b>SILTY CLAY (CL-CI)</b> - Grey, moist to wet, soft, low to intermediate plasticity, trace fine grained sand, trace silt seams and pockets.				7					
6			- Wet, very soft below 6.25 m.				8					
	25		- Some fine grained sand below 6.86 m.				9					
7			<b>SILTY CLAY (CI)</b> - Grey, moist, firm, intermediate plasticity, with fine grained sand, trace rootlets.									
8												
	30		- Silt seam (Tan, damp, stiff, low plasticity, trace fine grained gravel) from 9.14 to 9.30 m.				10	80				
9			- Grey, damp, firm, intermediate plasticity, trace coarse grained gravel, trace coarse grained sand, trace silt pockets below 9.30 m.									

SPT & TORVANE P:\PROJECTS\2005\05-0107-07\GEO\LOGS\05-107-07 LOGS (EXPANDED).GPJ

SAMPLE TYPE  Auger Grab  Split Spoon

CONTRACTOR **Paddock Drilling Ltd.** INSPECTOR **B. P. ARPIN**

APPROVED  DATE **09-08-05**

ELEVATION (m)	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE	NUMBER	RECOVERY %	SPT (N) blows/0.30 m ▲	Cu TORVANE (kPa) ◆		
										20	40	60
35												
11							11	22				
							12	100				
12					12.2							
					12.3							
					12.5							
					12.8		15	67				
13			<b>TILL</b> - Tan, wet, hard, dense, fine to coarse grained gravel.				13	50				
			<b>AUGER REFUSAL AT 12.95 m</b>				14	50				
			Notes: 1. Soil stratigraphy from 0 to 7.62 m depth based on previous TH-11 completed on June 17, 2005. 2. Installed Casagrande standpipe to a depth of 12.95 m. Top of pipe is 0.05 m below ground surface elevation. 3. Water level measured at 4.62 m below top of pipe when monitored on August 2, 2005.									
45												
14												
15												
50												
16												
17												
55												
18												
60												
19												
65												
20												
70												

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