

## **APPENDIX A – TESTHOLE LOGS**

**CLIENT** CITY OF WINNIPEG - WATER AND WASTE DEPARTMENT  
**PROJECT** Chataway Outfall Repairs & Rehabilitation  
**SITE** Chataway Blvd Outfall  
**LOCATION** 4 m east of outfall, 3 m south of sidewalk  
**DRILLING METHOD** 200 mm ø Hollow Stem Auger

**JOB NO.** 11-0107-33  
**GROUND ELEV.** 230.56  
**TOP OF PVC ELEV.** Flush Mount  
**WATER ELEV.**  
**DATE DRILLED** 3/21/2012  
**UTM (m)** N 5,526,083  
 E 628,520

ELEVATION (m)	DEPTH		GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT (N) blows/0.15 m ▲	DYNAMIC CONE (N) blows/ft △	Cu POCKET PEN (kPa) ★			Cu TORVANE (kPa) ◆		
	(m)	(ft)									20	40	60	80	20	40
230.3				<b>TOPSOIL</b> - Black to dark brown, damp, firm.												
230	1	3		<b>CLAYEY SILT</b> - Brown, damp, friable, low to intermediate plasticity, trace tree rootlets.		1.2	S1									
229.0	5	16		<b>SILTY CLAY</b> - Brown, damp to moist, firm, intermediate to high plasticity, trace to some silt inclusions, trace fine to medium grained sand, trace roots.		2.9	S2									
228	10	33		- Increase in silt content below 3.0 m.		3.0										
227	15	49		- Grain size distribution: Gravel (0.0%), Sand (5.4%), Silt (56.2%) and Clay (38.0%) at 3.66 m.			S3									
226.0	20	66		- Wet, trace roots below 4.4 m.			S4									
226	25	82		<b>SANDY SILTY CLAY</b> - Grey, damp to moist, soft to firm, with fine to medium grained sand, some red coloured sandy layers throughout (oxidized), trace to some clay.			S5									
225	30	99		- Increase in sand content below 5.49 m.			S6									
224.2	35	115		- Grain size distribution: Gravel (0.0%), Sand (42.4%), Silt (36.9%) and Clay (20.7%) at 5.49 m.			S7									
224	40	132		- Wet, trace cobbles below 6.08 m			S8									
2223	45	148		<b>SILT TILL</b> - Tan to light grey, wet, dense, with cobbles, with hard chunks of silt till, decrease in moisture content with depth.												
2223	50	165		<b>AUGER REFUSAL at 7.62 m</b>		7.6										
222	55	181		Notes: 1. Installed SI-1 at 7.62 m below ground surface. 2. Installed pneumatic piezometer PN-1 (SN 034749) at 3.0 m below ground surface. 3. Groundwater level at 6.4 m below grade at end of drilling. 4. Backfilled TH12-01 with grout from 7.62 m to 0.3 m and bentonite chips from 0.3 m to surface.												
221	60	197														

SAMPLE TYPE  Bag Sample

CONTRACTOR **Paddock Drilling Ltd.**

INSPECTOR **J. CANNING**

APPROVED

DATE 10/25/12

**CLIENT** CITY OF WINNIPEG - WATER AND WASTE DEPARTMENT  
**PROJECT** Chataway Outfall Repairs & Rehabilitation  
**SITE** Chataway Blvd Outfall  
**LOCATION** 5 m west of outfall  
**DRILLING METHOD** 200 mm ø Hollow Stem Auger

**JOB NO.** 11-0107-33  
**GROUND ELEV.** 230.56  
**TOP OF PVC ELEV.** Flush Mount  
**WATER ELEV.**  
**DATE DRILLED** 3/21/2012  
**UTM (m)** N 5,526,087  
 E 628,513

ELEVATION (m)	DEPTH		GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT (N) blows/0.15 m ▲	DYNAMIC CONE (N) blows/ft △	Cu POCKET PEN (kPa) ★			Cu TORVANE (kPa) ◆		
	(m)	(ft)									20	40	60	80	20	40
230.3				<b>TOPSOIL</b> - Black to dark brown, damp, firm.												
230	1			<b>CLAYEY SILT</b> - Brown, damp, friable, low to intermediate plasticity, trace tree rootlets.												
229.0	5			<b>SILTY CLAY</b> - Brown, damp to moist, firm, intermediate to high plasticity, trace to some silt inclusions, trace fine to medium grained sand, trace roots.												
228	2															
227	3	10		- Increase in silt content below 3.0 m.												
226.0	4			- Grain size distribution: Gravel (0.0%), Sand (5.4%), Silt (56.2%) and Clay (38.0%) at 3.66 m.												
226.0	5	15		- Wet, trace roots below 4.4 m.												
225	6			<b>SANDY SILTY CLAY</b> - Grey, damp to moist, soft to firm, with fine to medium grained sand, some red coloured sandy layers throughout (oxidized), trace to some clay.												
224.2	7	20		- Increase in sand content below 5.49 m.												
224	8			- Grain size distribution: Gravel (0.0%), Sand (42.4%), Silt (36.9%) and Clay (20.7%) at 5.49 m.												
224	7			<b>SILT TILL</b> - Tan to light grey, wet, dense, with cobbles, with hard chunks of silt till, decrease in moisture content with depth.												
223	25															
222.6	8			<b>AUGER REFUSAL at 7.9 m</b>												
222	9	30		Notes: 1. Stratigraphy for TH12-02 has been projected from TH12-01 and is assumed representative. 2. Installed Casagrande standpipe at 7.9 m below ground surface. 3. Backfilled TH12-02 with silica sand from 7.9 m to 7.6 m and bentonite chips from 7.6 m to ground surface.		7.6										
221																

SAMPLE TYPE

**CONTRACTOR**  
Paddock Drilling Ltd.

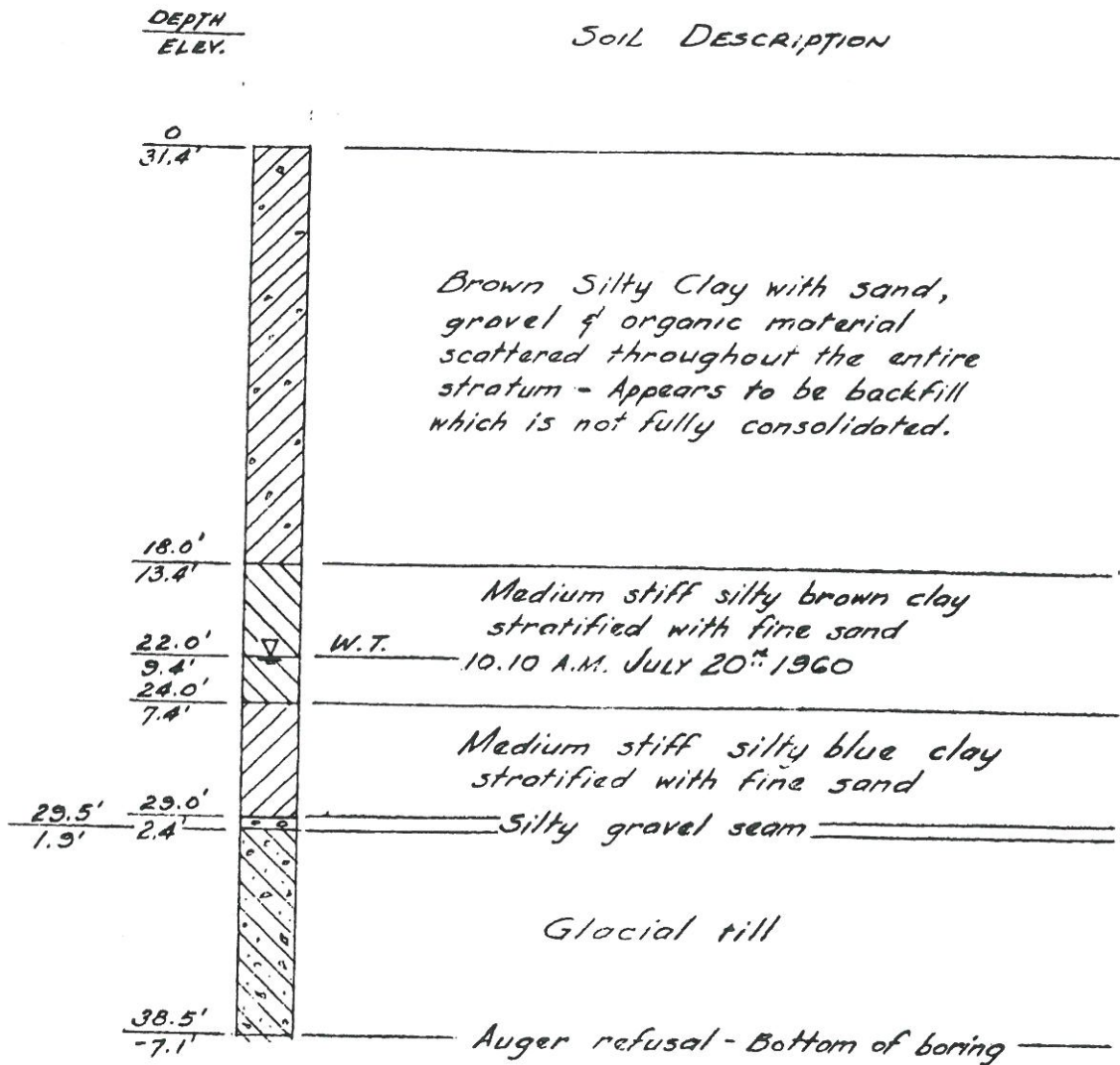
**INSPECTOR**  
J. CANNING

**APPROVED**

**DATE**  
10/25/12

GEO TECHNICAL - SOIL LOG P:\PROJECTS\2011\11-0107-33\DESIGN\GEOLOGS\CHATAWAY BLVD OUTFALL\_11-0107-33.GPJ

CLIFTON OUTFALL



DETAIL OF BORE HOLE No. 2 (Vert. Scale 1" = 10') (1960)

City of Winnipeg Datum - 0.0 = 727.57 (Geod.)



**CLIENT** CITY OF WINNIPEG  
**PROJECT** FLOOD PUMPING STATIONS - CONDITION ASSESSMENT STUDY  
**SITE** Marion Flood Pumping Station  
**LOCATION** Upper Bank, 4 m from Crest at Slope, 12 m West of Pumphouse  
**DRILLING METHOD** 200 mm ø Hollow Stem Auger, ACKER SS Drill Rig

**JOB NO.** 04-107-12.400  
**GROUND ELEV.** 230.20 m  
**TOP OF PVC ELEV.**  
**WATER ELEV.**  
**DATE DRILLED** 15-Oct-04

ELEVATION (m)	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT blows/0.15 m ▲	CONE blows/0.15 m △	Cu from Uncon. Comp. Test (kPa) ◇	Cu TORVANE (kPa) ◆
								20 40 60	20 40 60	20 40 60 80	20 40 60 80
230.1			<b>TOPSOIL</b>								
230			<b>CLAY FILL</b> - Brown, mottled black-brown, moist, very stiff, intermediate plasticity, crumbly, trace gravel, sand, brick, and silt, trace organics and rootlets, trace oxidation. - Near plastic limit, trace wood below 0.51 m.								
229	1		- Mottled brown-light brown below 1.02 m.								
228	2		- Gravel, wood and oxidation decrease below 2.03 m.								
227.7			<b>SILTY CLAY (Cl)</b> - Brown, mottled grey-brown, moist, very stiff, intermediate plasticity, trace silt, trace organics, trace oxidation. - Trace clam shells from 2.54 to 3.05 m.								
227	3										
226	4										
225	5		- Trace organics, trace oxidation below 4.57 m.								
224	6										
223	7		- Stiff below 6.60 m. Grain Size Distribution: Gravel (0.0%), Sand (0.0%), Silt (50.6%) and Clay (49.4%) at 6.60 m.								
222	8		- Alluvial below 8.13 m. - Fine grained sand layer from 8.46 to 8.51 m. - Trace fine grained sand below 8.64 m.								
221	9		- Organic odour below 9.14 m. - Grey, mottled black-grey, firm below 9.65 m								

SPT, FT. M. CALC. P. PROJ. 2004104-0107-12(GEOL)LOGS\04-107-12.400 LOGS.GPJ

SAMPLE TYPE  Split Barrel

**CONTRACTOR** Paddock Drilling Ltd. **INSPECTOR** D. ANDERSON

APPROVED  DATE 20-09-05

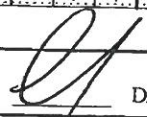


ELEVATION (m)	DEPTH		GRAPHICS	DESCRIPTION AND CLASSIFICATION	INSTALLATION LOG	DEPTH (m)	SAMPLE TYPE	NUMBER	RECOVERY %	SPT blows/0.15 m ▲ CONE blows/0.15 m △	Cu from Uncon. Comp. Test (kPa) ◆	
	(m)	(ft)									PL	MC
220		35	[Hatched Box]									
219.2	11		[Dotted Box]	<b>SAND</b> - Black, wet, loose, poorly graded, coarse grained, trace cobbles, trace silt, trace clay, trace clam shells. - Black, coarse grained below 11.18 m.								
219			[Dotted Box]	- Light brown, fine grained, decreased cobbles below 11.25 m.								
218.4			[Cross-hatched Box]	<b>CLAY TILL</b> - Light grey to pink, moist, soft, trace gravel, sand and silt.								
218.0	12	40		<b>AUGER REFUSAL AT 12.19 m</b>		12.2						
218				<b>Notes:</b> 1. Slope Inclinerometer SI-07 grouted to ground level and installed with an above ground casing.								
217	13											
217		45										
216	14											
216		50										
215	15											
215		55										
214	16											
214		60										
213	17											
213		65										
212	18											
212		70										
211	19											
211												
210	20											
210												
209	21											

SAMPLE TYPE [Symbol] Split Barrel

CONTRACTOR **Paddock Drilling Ltd.**

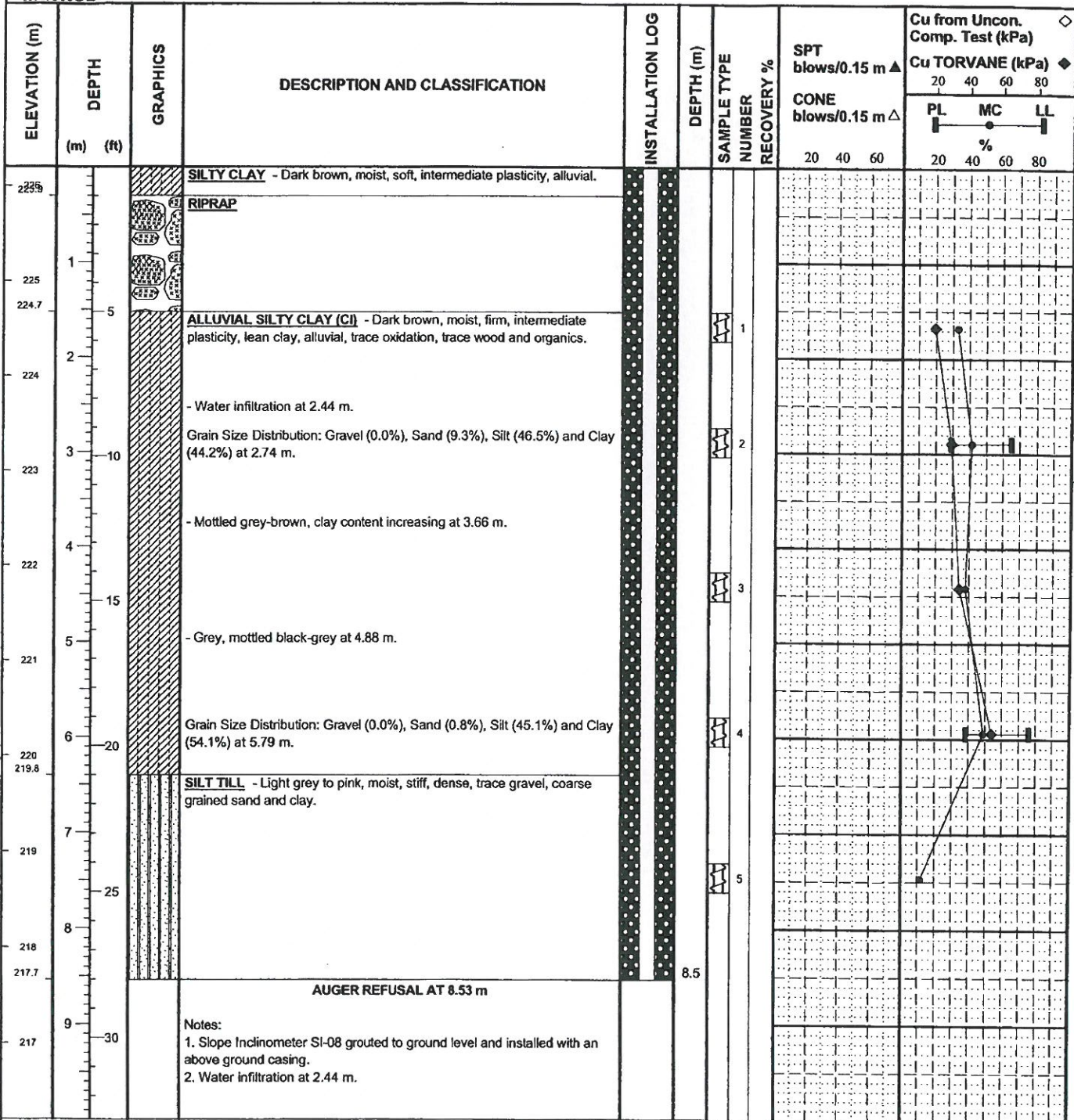
INSPECTOR **D. ANDERSON**

APPROVED  DATE **20-09-05**

SPT, FT. M. CALC P. IPRC 1200404-0107-12\GEO\LOGS\04-107-12.400.LOGS.GPJ

**CLIENT** CITY OF WINNIPEG  
**PROJECT** FLOOD PUMPING STATIONS - CONDITION ASSESSMENT STUDY  
**SITE** Marion Flood Pumping Station  
**LOCATION** Lower Bank, 3 m West of Path  
**DRILLING METHOD** 125 mm ø Solid Stem Auger, ACKER SS Drill Rig

**JOB NO.** 04-107-12.400  
**GROUND ELEV.** 226.20 m  
**TOP OF PVC ELEV.**  
**WATER ELEV.**  
**DATE DRILLED** 14-Oct-04



SPT FT. M. CALC. P:\PROJECTS\2004\04-0107-12\GEOLOGS\04-107-12.400 LOGS.GPJ

**SAMPLE TYPE** Auger Grab  
**CONTRACTOR** Paddock Drilling Ltd. **INSPECTOR** D. ANDERSON  
**APPROVED** **DATE** 20-09-05