

APPENDIX A
TEST HOLE LOGS

CLIENT CITY OF WINNIPEG
PROJECT 2003 Outfall Maintenance Program
LOCATION

JOB NO. 03-107-05.01
DATE DRILLED

GRAPHICS	DESCRIPTION	PIEZ. LOG	DEPTH (m)	SAMPLE		Cu from Unconfined Comp. Test (kPa) \diamond Cu TORVANE (kPa) \blacklozenge PL MC LL ----- ----- ----- % - kPa 20 40 60 80
				TYPE	NUMBER	
SOIL DESCRIPTION						
	TOPSOIL					
	CLAY					
	CLAY (LACUSTRINE)					
	CLAY (FILL)					
	SILT					
	SAND AND GRAVEL FILL					
	CLAY (TILL)					
	SILT TILL					
PIEZOMETER AND INCLINOMETER LOG						
	Slope indicator surrounded with grout, piezometer surrounded with bentonite chips.					
	Slope indicator surrounded with grout, piezometer surrounded with sand.					
	Slope indicator surrounded with grout, piezometer ends in sand.					
	Slope indicator surrounded with grout, sand in piezometer hole.					
	Slope indicator surrounded with grout, bentonite in piezometer hole.					
	Slope indicator surrounded with grout, sloughed material in piezometer hole.					
	Slope indicator surrounded with grout.					
	Slope indicator ends in grout.					
	Grout in hole.					

SAMPLE TYPE AUGER GRAB SHELBY SPLIT SPOON SPLIT BARREL

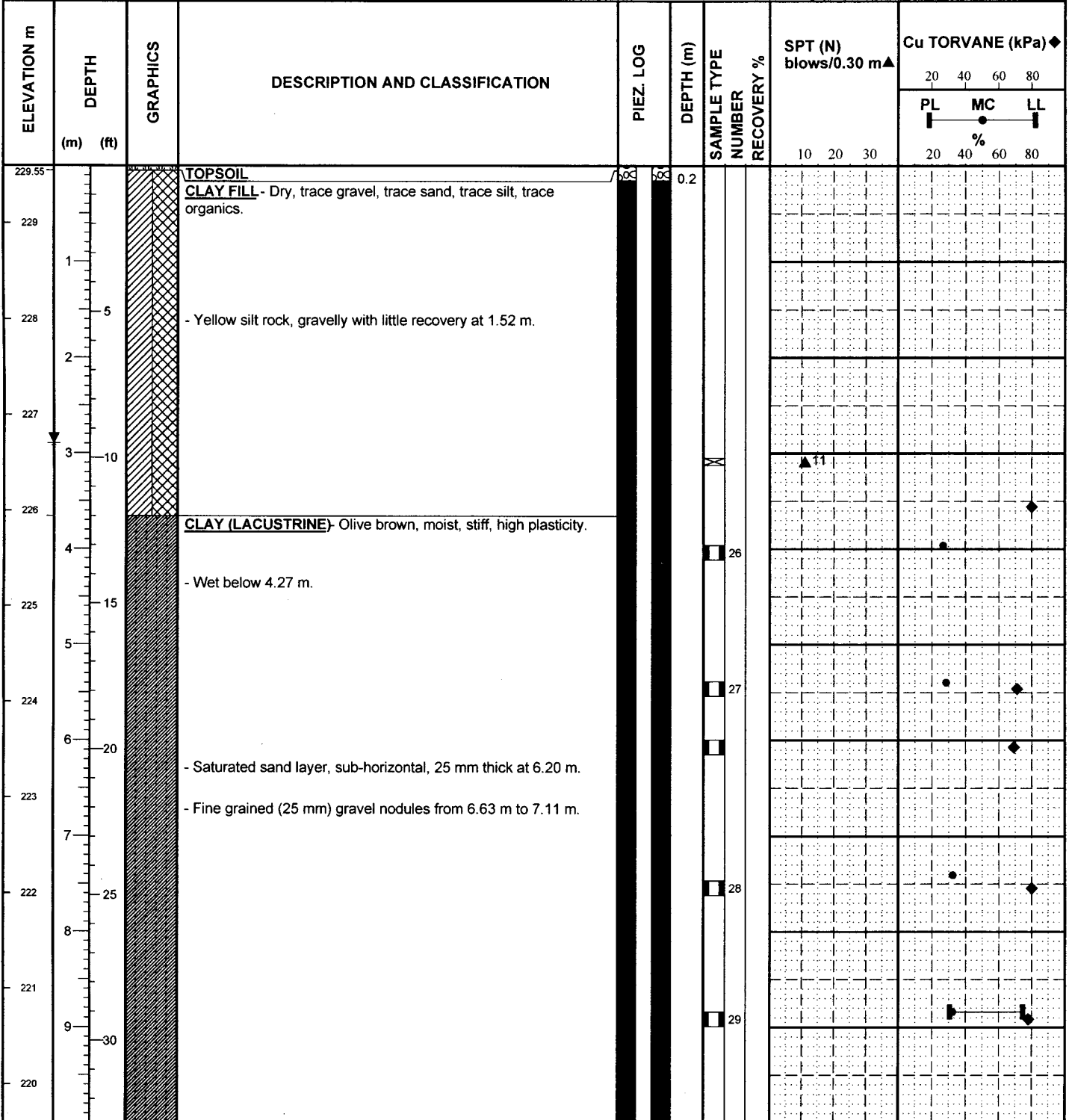
CONTRACTOR _____

INSPECTOR _____

APPROVED _____ DATE 04/07/03

CLIENT CITY OF WINNIPEG
PROJECT 2003 Outfall Maintenance Program
SITE Flood Pumping Station - Dumoulin Outfall
LOCATION 5528327.2 N 634573.7 E (Top of Bank)
DRILLING METHOD #139 Nodwell

JOB NO. 03-107-05.01
GROUND ELEV. 229.60 m
WATER ELEV. 226.70 m (26-Jun-03)
DATE DRILLED 15 May 03



SAMPLE TYPE Split Spoon GRAB FROM DOUBLE TUBE CORE BARREL RECOVERED CORE

CONTRACTOR Paddock Drilling Ltd. **INSPECTOR** N. PRIVAT

APPROVED *JGM* **DATE** 13/08/03

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		
								10 20 30	20 40 60 80	20 40 60 80	20 40 60 80		
219	35		- Grey, firm at 9.91 m. - Brown silt nodules (4 mm) at 10.36 m. - Trace gravel below 10.59 m. - Fine sand layer (20 mm thick), grey with rust colours, 20 degree angle from horizontal at 10.80 m.										
218	40												
217	45												
216	45												
215.66	14		- Free water at 13.72 m. SILT (TILL) - Grey, some sand, some gravel, trace clay.		13.8								
215	15		- Damp, hard at 14.63 m.		14.9								
214.36	50		- Coarse sand, 50 mm recovery from 15.06 m to 15.24 m, slough? AUGER REFUSAL @ 15.24 m		15.1								
214			Notes: 1. Installed stand pipe with Casagrande tip.		15.2								
213	55												
212	60												
211	65												
210	70												
209													
208													

SAMPLE TYPE Split Spoon GRAB FROM DOUBLE TUBE CORE BARREL RECOVERED CORE

CONTRACTOR

Paddock Drilling Ltd.

INSPECTOR

N. PRIVAT

APPROVED


DATE

13/08/03

CLIENT CITY OF WINNIPEG
PROJECT 2003 Outfall Maintenance Program
SITE Flood Pumping Station - Dumoulin Outfall
LOCATION 5528323.4 N 634558.7 E (Middle of Bench)
DRILLING METHOD #139 Nodwell

JOB NO. 03-107-05.01
GROUND ELEV. 226.20 m
WATER ELEV. 223.80 m (26-Jun-03)
DATE DRILLED 15 May 03

ELEVATION m	DEPTH		GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT (N) blows/0.30 m▲	Cu TORVANE (kPa)◆		
	(m)	(ft)								20	40	60
226				CLAY (FILL) - Dark olive grey, moist, stiff, medium plastic, silty, trace gravel, rootlets to 0.61 m.								
225	1											
224.78				SAND AND GRAVEL - Brown, damp, loose, trace silt.								
224.68		5		CLAY (FILL) - Dark olive grey, moist, stiff, medium plastic, silty, trace gravel.								
224.27				SAND AND GRAVEL - Brown, damp.								
224.17		2		CLAY (FILL) - Olive brown with dark grey areas, wet, firm, medium to high plastic, silty, trace sand, isolated fine grained subrounded gravel, trace organics, rootlets.								
224				- Saturated, occasional clay layer (<0.10 m thick), trace organics at 2.44 m.								
				- Free water at 3.05 m.								
223		10		- Sand (Fill) - Black, saturated, trace silt, organic odor from 10.75 to 10.92 m.								
				- Run 8 Recovered (3.56 to 3.63 m): Sand (Fill) - Black, organic, trace silt, free water.								
222				- Run 9 Recovered (4.06 to 4.14 m): 25.4 mm of clay, black sand, 12.7 mm well decomposed wood fibre, trace gravel.								
				- Run 10 Recovered (4.57 to 4.67 m): Clay (Fill) - Saturated, firm, silty, low plastic, trace gravel, trace sand, trace organics.								
221		15		- Run 11 Recovered (at 5.11 m): Clay, gravel, sand, organics, saturated, bottom of metal can.								
				- Run 12 Recovered (from 5.59 m): Clay (Fill) - Saturated, firm, silty, medium plastic, trace sand, trace gravel.								
220		20		- 3 mm wood fiber inclusion.								
				- Run 13 Recovered (6.10 to 6.58 m): Clay - Saturated, firm, high plastic, silty.								
				- 0.05 m layer of sand, very light grey, some gravel at 6.32 m.								
				- Black organic silt layer (25.4 mm thick) at 6.43 m.								
219				- Run 14 Recovered (6.60 to 7.04 m): Clay - Saturated, firm to stiff, medium to high plastic, silty, trace gravel, trace organics.		7.0						
				- Run 15 Recovered (7.11 to 7.47 m): Roots, wood fibers, burnt wood, piece of white china (31.8 mm in size).								
				- Run 16 Recovered (7.62 to 7.67 m): Soft clay, 1 piece of gravel, piece of white china (38.1 mm x 38.1 mm x 6.4 mm).								
218		25		- Run 17 Recovered (8.13 to 8.41 m): Piece of angular gravel (7.62 cm in diameter).								
				CLAY (LACUSTRINE) - Olive brown, saturated, firm, high plastic, silty.								
				- Grey from 8.33 m.								
217		30		- Trace rounded gravel at 9.14 m.								
				- Very light grey, silty, fine grained sand layer (3.2 mm thick) at 9.80								


SAMPLE TYPE  65 mm x 510 mm DOUBLE TUBE CORE BARREL

CONTRACTOR
 Paddock Drilling Ltd.

INSPECTOR
 J. McKAY

APPROVED  DATE 13/08/03

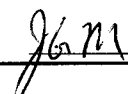
ELEVATION m (ft)	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT (N) blows/0.30 m▲	Cu TORVANE (kPa) ◆		
									PL	MC	LL
								10 20 30	20 40 60 80	20 40 60 80	20 40 60 80
216			m.								
215.68	35		SILT - Light grey, saturated, low plastic, some sand, water sorted			R21	120				
215.38	11		CLAY (TILL) - Light grey, moist to wet, low plastic, hard, with silt, with sand, trace angular gravel.			R22	90				
215			- Particle Size Analysis: Gravel (9%), Sand (31%), Silt (47%), and Clay (13%)			NR	60				
214	40		AUGER REFUSAL @ 12.19 m		12.2	NR	25				
213			Notes: 1. Installed 7.0 cm (2.75 inch) diameter slope indicator casing with 0.71 m stick up, protective steel casing. 2. Installed pneumatic piezometer 1.52 m east of SI (drilled hollow stem to 9.75 m), coordinates 5528323.4 N, 634560.0 E, 226.1 m Elevation.			NR					
212	45										
211	50										
210	55										
209	60										
208	65										
207	70										

SAMPLE TYPE  65 mm x 510 mm DOUBLE TUBE CORE BARREL

CONTRACTOR
Paddock Drilling Ltd.

INSPECTOR
J. MCKAY

APPROVED



DATE 13/08/03

CLIENT CITY OF WINNIPEG
PROJECT 2003 Outfall Maintenance Program
SITE Flood Pumping Station - Dumoulin Outfall
LOCATION 5528320.9 N 634550.5 E (Near Top of Lower Slope)
DRILLING METHOD #139 Nodwell

JOB NO. 03-107-05.01
GROUND ELEV. 226.10 m
WATER ELEV. 223.70 m (26-Jun-03)
DATE DRILLED 15 May 03

ELEVATION m	DEPTH (m) (ft)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT (N) blows/0.30 m▲	CONE blows/0.15 m△	Cu from Uncon. Comp. Test (kPa) ◇			
										20	40	60	80
										Cu TORVANE (kPa) ◆			
										PL	MC	LL	
										%			
										20	40	60	80
226 225.95			CLAY - River deposits, clay with silt. CLAY (FILL) - Olive brown, damp, firm, rootlets and organic material.										
	1												
	5		- Pieces of rusted metal at 1.52 m.				42						
	2												
	224												
	3		- 0.18 m layer of topsoil with organics at 2.44 m. - Yellow/orange gravel pieces (50 mm diameter) at 2.52 m. - Clay with organics below 2.62 m. - 20 mm layer of sand, some silt at 2.79 m. - Trace gravel (12.7 mm diameter) at 3.15 m. - Organics and burnt wood at 3.40 m. - 0.10 m layer of burnt wood at 3.76 m.		3.4								
	4												
	222 221.83		CLAY (LACUSTRINE) - Brown, firm.				44						
	5												
	221												
	6						45						
	220												
	7		- 2 mm lens of silt at 6.86 m.		6.6								
	219												
	8						46						
	218												
	9		- 2 mm organic inclusion at 8.36 m. - Grey, soft, saturated at 8.53 m.		7.5 7.6								
	217						47						
	30		- Some silt, trace subangular gravel, trace sand below 9.12 m. - Grain Size Analysis: Gravel (7%), Sand (30%), Silt (45%) and Clay (19%) SILT (TILL) - With sand, trace angular gravel, trace clay. - Fine to medium sand, trace silt, trace gravel at 9.75 m.				48						

SAMPLE TYPE  GRAB FROM DOUBLE TUBE CORE BARREL RECOVERED CORE

CONTRACTOR
 Paddock Drilling Ltd.

INSPECTOR
 N. PRIVAT

APPROVED



DATE 13/08/03

ELEVATION m (ft)	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	
216												
	35											
215	11											
214	12											
	40											
213.45			AUGER REFUSAL @ 12.65 m		12.6		50					
213	13		Notes: 1. Pneumatic piezometer installed at 7.34 m.									
	45											
212	14											
211	15											
	50											
210	16											
209	17											
	55											
208	18											
	60											
207	19											
206	20											
	65											
205	21											
	70											

SPT_FT_M_CALC_P:\PROJECTS\2003\03DBDD-1\GEOLOGS\03-107-05.GPJ

SAMPLE TYPE GRAB FROM DOUBLE TUBE CORE BARREL RECOVERED CORE

CONTRACTOR
Paddock Drilling Ltd.

INSPECTOR
N. PRIVAT

APPROVED *Rke* DATE **13/08/03**