

CLIENT CITY OF WINNIPEG
PROJECT MONTCALM FORCE MAIN REPLACEMENT
SITE MONTCALM FORCE MAIN
LOCATION RUE ARCHIBALD, EAST TOP OF BANK, 5529380.2 N 635928.9 E
DRILLING METHOD 150 mm ø Solid Stem Auger, Nodwell and HQ Coring

JOB NO. 03-107-17
GROUND ELEV. 230.40 m
WATER ELEV. 222.48 m (9-Jan-04)
DATE DRILLED 6-Jan-04, 8-9-Jan-04

ELEVATION m (ft)	DEPTH		GRAPHICS	DESCRIPTION AND CLASSIFICATION	PIEZ. LOG	DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	SPT (N) blows/0.30 m ▲	Cu TORVANE (kPa) ◆		
	(m)	(ft)								PL	MC	LL
230.3				GRAVEL (FILL) - Crushed limestone.								
230				CLAY (FILL) - Brown, frozen to moist, stiff, high plasticity, trace fine grained sand. - Frozen to 0.6 m.								
229	1	5					1					
228.1				CLAY (LACUSTRINE) (CH) Brown, moist, stiff, high plasticity, silty.								
228								2				
227	3	10			- Silt layer from 3.35 to 3.66 m. - Increased silt content, trace 2-3 mm ø silt nodules, trace oxidation below 3.35 m.			4				
226	4	15						3				
225	5	20						5				
224	6	25						6				
223	7	30			- Increased moisture content, soft, high plasticity between 7.32 to 7.62 m.			7				
222	8											
221	9			- Increased moisture content, decreased silt nodules between 8.84 to 9.14 m. - Grey, saturated at 9.14 m.								

SAMPLE TYPE Auger Grab Split Spoon Select Core Barrel

CONTRACTOR **Paddock Drilling Ltd.** INSPECTOR **J. CHING / G.E. HARRISON**

APPROVED _____ DATE 19/01/04

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
								20 40 60	20 40 60 80	20 40 60 80	20 40 60 80
220	35		- Firm at 10.67 m.			8					
219											
218	40					9					
217											
216	45					10					
215	50		- Trace 1-2 mm ø silt nodules, trace fine grained angular gravel, between 14.94 and 15.24 m.			11					
214											
213.6	55		- Soft at 16.5 m.			12					
213			SILT (TILL) (ML) - Brown, soft, low plasticity, with fine to coarse grained angular gravel.								
212	60		- End of solid stem auger hole at 18.35 m on Jan 6/04. - Set casing to 18.59 m. - Begin HQ Coring from 18.35 m on Jan 8/04.			13					
211			- Limestone cobble at 18.35 m. - Tan, damp, very dense, low plasticity, trace gravel (to 25 mm ø), trace cobbles (-) at 18.48 m. - Poor recovery, good circulation.								
210	65		- Limestone cobble at 19.51 m.			1					
209	70		- Granitic cobble at 20.57 m. - Limestone cobble at 20.65 m.			2					
			- Granitic cobble at 21.34 m. - Limestone cobble at 21.54 m.								

▲ 100 Fbr 60 mm

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									PL	MC	LL	
								20 40 60	20 40 60 80			
22			- Limestone boulder at 22.40 m.		22.0							
208	75		- Coarse grained, numerous granitic (10%) and limestone pebbles to 0.08 mm ø, minimal recovery, fine grained sand visible in drill fluid.		23.0	3						
207			- Loss of circulation. Advance casing to 24.8 m.		23.3							
206.1			LIMESTONE (BEDROCK) - Solid buff limestone core, very strong.									
206	80					4						
205			- Distinct sedimentation planes with vug holes at 25.15 m.									
205						5						
204	85					6						
204												
203			- White, massive at 27.0 m.									
202.8	90				27.6	7						
28			END OF HOLE AT 27.56 m									
202			Notes: 1. Installed Casagrande standpipe at 23.32 m depth. Pipe consists of 25 mm diameter PVC with response zone from 22.05 to 27.56 m depth. 2. Lockable protective steel casing installed at ground surface. 3. Groundwater depth at 7.92 m below ground surface on January 11, 2004.									
201	95											
200	100											
199												
198	105											
197	110											

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