

Boring Log

NYSDEC OHMS Document No. 201409232-00043

JOB NO. <u>853-3051</u>	GA. INSP. <u>KTM</u>	PROJECT <u>CWM / WELLS / MODEL CITY</u>	BORING NO. <u>MW6-1D</u>
DEPTH HOLE <u>43.0 FT.</u>	DEPTH WL. <u>8.30 FT.</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS 4 1/4" ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>70° F</u>	TIME WL. <u>9/22/86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS INC</u>	SURFACE ELEV. <u>322.7 FT</u>
WEATHER <u>SUNNY CLEAR</u>	DRILL RIG <u>ACKER AD-2</u>	DRILLER <u>J. GENOVESS</u>	DATUM <u>MSL</u>
COORDINATES <u>N 87314 E 10223.77</u>	WT. SAMPLER HAMMER <u>140 LBS</u>	DROP <u>30 IN</u>	STARTED <u>1:20 10-18-86</u>
LOCATION <u>~4.0 FT. E OF MW6-15</u>	WT. CASING HAMMER <u>300 LBS</u>	DROP <u>30 IN</u>	COMPLETED <u>3:44 10-18-86</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
298.7	FOR COMPLETE SOILS DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG MW6-15.						INSTALLED 10 IN. DIAM PVC SURFACE CASING TO 20.0 FT AUGERED TO 24.0 FT, NO SAMPLING	
24.0	VERY SOFT, GRAY CLAY, TRACE TO SOME F TO C SAND, TRACE SILT.	CH	14	1	DO	1-3-11-6	16/24	GLACIOLACUSTRINE CLAY
			8	2	DO	4-4-4-4	24/24	26.0-28.0 FT., LENSES OF BROWN CLAYEY SILT SOME F TO C SAND
			3	3	DO	WH-WH-3-3	24/24	
			3	4	DO	WH-1-2-3	22/24	
			7	5	DO	2-3-4-4	24/24	34.0-34.5 FT., LENSES OF CLAYEY SILT
			4	6	DO	2-2-2-4	24/24	
36.0	COMPACT TURNING TO VERY DENSE, GRAY BROWN, F SAND, SOME M TO C SAND, LITTLE TO TRACE CLAYEY SILT.	SM	23	7	DO	3-4-19-14	24/24	GLACIOLACUSTRINE SILT/SAND 34.5-38.0 FT., VERY SOFT GRAY CLAY WITH LENSES OF CLAYEY SILT. 38.1-38.6 FT., SOFT GRAY CLAY AND F TO M SAND
282.7			200	8	DO	13-30 100-45	8/18	
40.0	VERY DENSE, BROWN TO RED BROWN, CLAYEY SILT SOME F TO C SAND, TRACE RED SHALE AND LIMESTONE FRAGMENTS.	ML	200	9	DO	36-100*	8/12	BASAL RED TILL AUGERED 38.5 TO 40.0 FT., NO SAMPLING AUGERED 41.0-42.5 FT., NO SAMPLING
279.8			200	10	DO	100-25	5/7	
42.9	END OF SAMPLING AUGERED TO 43.0 FT.							END OF SAMPLING * NOTE: 300 LB. HAMMER USED. INSTALLED MW6-1D SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-000073

JOB NO. <u>853-3031</u>	PROJECT <u>CWMA/WELLS/MODEL CITY</u>	WELL NO. <u>MW16-1D</u>	SHEET <u>1</u> OF <u>2</u>
SA INSP. <u>KTM</u>	DRILLING METHOD <u>HOLLOW STEEL AUGERS - 4 1/4" I.D.</u>	GROUND ELEV. <u>322.7 FT.</u>	WATER DEPTH <u>8.30 FT.</u>
WEATHER <u>CLOUDY</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	COLLAR ELEV. <u>325.84 FT.</u>	DATE/TIME <u>9:22 8/6</u>
TEMP. <u>54° F</u>	DRILL RIG <u>ACER AD-2</u>	DRILLER <u>J. GENOVESE</u>	STARTED <u>1:00 6/17/86</u>
LOCATION/COORDINATES <u>35 FT. EAST OF MW 6-1S / N 8731.40 E 10223.77</u>			COMPLETED <u>11:00 6/19/86</u>

MATERIALS INVENTORY

WELL CASING <u>2.0</u> in dia. <u>4.0</u> in	WELL SCREEN <u>2.0</u> in dia. <u>5.6</u> in	BENTONITE SEAL <u>PELLETS 4.0' DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>TREMIE TUBE WASH</u>
JOINT TYPE <u>FLUSH TEFLON WITH 41TON THERMO TAP O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>7.5 LF, 200 OS</u>
GROUT QUANTITY <u>—</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-0 SAND</u>
GROUT TYPE <u>BENTONITE</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>TREMIE TUBE WASH</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
322.7	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG MW16-1D GROUND SURFACE		AUGERED TO 20.0 FT. B.G.S. WITH 12 INCH (0.0) AUGERS.
322.3 0.2	TOPSOIL UPPER CLAY TILL FIRM, TURNING TO VERY STIFF, BROWN, SILTY CLAY, TO CLAYEY SILT, SOME F-C SAND, LITTLE GRAVEL		GROUTED 10 INCH PVC CASING TO 20.0 FT. B.G.S. AUGERED TO 43.0 FT. B.G.S. WITH 4 1/4 INCH (1.0) AUGERS; PULLED AUGERS; INSTALLED 6" Ø TEMPORARY STEEL CASING; WASHED OUT - OPEN TO 43.0 FT. B.G.S.; TREMIED (WITH WATER) #4-0 SAND TO 42.5 FT. B.G.S. (TOOK DRY SAMPLE); INSTALLED WELL PIPE (1-5' SCREEN, 4-10' RISERS)
309.6 13.1	UPPER SILT TILL COMPACT TO LOOSE, RED BROWN, F-C SAND TO GRAY BROWN, SILT, AND F SAND, TRACE CLAY, TRACE GRAVEL		3.1 FT. STICKUP; #1-0 SAND TREMIED TO 39.5 FT (TOOK DRY SAMPLE); TREMIED PELLETS TO 31.5 FT B.G.S. TREMIED #4-0 SAND TO 30.5 FT B.G.S.; MIXED BENTONITE GROUT - LED TO GROUND SURFACE
302.7 20.0	GLACIOLACUSTRINE CLAY VERY SOFT, GRAY, CLAY LITTLE F TO M SAND, MOIST, PLASTIC		REMOVED 6" STEEL CASING GROUT AT 2.5 FT BELOW
(CONTINUED ON NEXT PAGE)			
WELL DEVELOPMENT NOTES			
DATE DEVELOPED: 7-2-86 TO 7-24-86			
DEVELOPMENT METHOD: AIR LIFT			
VOLUME PURGED: 36.9 GAL			
FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE			
286.7 36.0	GLACIOLACUSTRINE SILT SAND COMPACT TURNING TO VERY DENSE, GRAY BROWN, F SAND, SOME M TO C SAND, OCCASIONAL SOFT GRAY CLAY LAYERS		
282.7 40.0	BASAL RED TILL VERY DENSE, BROWN TO RED BROWN, CLAYEY SILT, SOME F TO C SAND, TRACE SHALE, LIMESTONE FRAG.		
279.8 42.9	END OF SAMPLING AUGERED TO 43.0 FT.		
NOTE: A 0.3 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5 AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.25, 9.25, 10.325 FT. IN LENGTH, RESPECTIVELY.			

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY MW6-1D		
Job No. 853-3051	Made by KTM	Date 6-19-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

GROUND SURFACE; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE;
PUT ON 8" ϕ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF
CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN CASING FOR
DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE
PAD WAS LATER PUT AROUND WELL BY THE SITE AND NEW WEEP
HOLES WERE PUT IN CASING; A WELL WIZARD WAS INSTALLED
SUBSEQUENT TO DEVELOPMENT.

Boring Log

NYSDEC OHMS Document No. 20160232 00043

JOB NO. <u>B53-3051</u>	GA. INSP. <u>LEL</u>	PROJECT <u>CWM/WELLS/MODEL CITY</u>	BORING NO. <u>MW6-25</u>
DEPTH HOLE <u>24.0 FT</u>	DEPTH WL. <u>4.15 FT.</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS 4 1/4 ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>78° F</u>	TIME WL. <u>9/23/86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC</u>	SURFACE ELEV. <u>321.9 FT</u>
WEATHER <u>CLOUDY</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>K SWINNIGH</u>	DATUM <u>MSL</u>
COORDINATES <u>N8421.61 E10448.86</u>	WT. SAMPLER HAMMER <u>140 LBS</u>	DROP <u>30 IN</u>	STARTED <u>3:00</u> / <u>5-16-86</u>
LOCATION <u>---</u>	WT. CASING HAMMER <u>300 LBS</u>	DROP <u>30 IN</u>	COMPLETED <u>11:30</u> / <u>5-19-86</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC/ATT		
321.9	GROUND SURFACE						GROUND SURFACE	
321.6 0.3	PLANT MATERIAL		10	1	DO	4-5-5-5	24/24	TOPSOIL
	COMPACT TURNING TO DENSE, BROWN, CLAYEY SILT, SOME F TO C SAND, TRACE TO NO GRAVEL	CL	19	2	DO	5-8-11-16	19/24	UPPER CLAY TILL 0.3-2.0 FT., ROOTS AND WOODY MATERIAL
			28	4	DO	6-12-16-25	24/24	
			50	5	DO	20-22-28-25	24/24	
312.9 9.0			COMPACT TO DENSE, BROWN TO GRAY BROWN, SILT, SOME F-C SAND, TO F-M SAND, SOME CLAYEY SILT, TO CLAYEY SILT, SOME F-C SAND, SOME F GRAVEL.	ML	25	6	DO	
	28	8			DO	8-12-16-14	2/24	
	52	9			DO	26-26-26-26	24/24	
	19	10			DO	8-11-8-8	9/24	
305.9 16.0	SOFT TO VERY SOFT, GRAY, CLAY, LITTLE TO TRACE F TO C SAND.	CH	5	11	DO	5-3-2-3	24/24	GLACIOLACUSTRINE CLAY BROWN SILT LENSE AT 17.5 FT., 17.7 FT., AND 21.2 FT.
			3	12	DO	1-1-2-2	24/24	
			0	13	DO	WH-WH-WH-WH	18/24	
			6	14	DO	3-3-3-3	24/24	
297.9 24.0	END OF BORING						END OF BORING INSTALLED MW6-25 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

JOB NO. <u>B53-3051</u>	Golder Associates	CHECKED <u>JM</u>
SCALE <u>1 INCH = 5 FEET</u>		DATE DRAWN <u>12/13/86</u>

MONITORING WELL INSTALLATION LOG

NYSDPFC OHSMS Document No. 201469232-00043

JOB NO. <u>B53-3051</u>	PROJECT <u>CWM / WELLS / MODEL CITY</u>	WELL NO. <u>MWB-25</u>	SHEET <u>1</u> OF <u>1</u>
GA INSP. <u>LEL</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS - 4 1/4 ID</u>	GROUND ELEV. <u>321.9 FT</u>	WATER DEPTH <u>4.15 FT</u>
WEATHER <u>RAIN</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	COLLAR ELEV. <u>324.20 FT</u>	DATE/TIME <u>9-23-86</u>
TEMP. <u>53° F</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>K SWINNALICH</u>	STARTED <u>9:40</u> <u>5-19-86</u> COMPLETED <u>11:30</u> <u>5-19-86</u>
LOCATION/COORDINATES <u>N 847.1 61</u> <u>E 10448 86</u>		TIME / DATE	TIME / DATE

MATERIALS INVENTORY			
WELL CASING <u>2.0</u> IN. DIA. <u>10.0</u> FT	WELL SCREEN <u>2.0</u> W. DIA. <u>12.9</u> FT	BENTONITE SEAL <u>PELLETS</u> <u>4.4'</u> DEEP	
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>	
JOINT TYPE <u>THREADED</u> <u>TAPE</u> <u>O-RINGS</u>	SLOT SIZE <u>0.006</u> INCH	FILTER PACK QTY. <u>17.6</u> L.F. <u>550</u> LBS	
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>	
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>	

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
321.9	GROUND SURFACE		AUGERED TO 24.0 FT, ADDED #1-Q SAND TO 23.5 FT BELOW GROUND SURFACE (TOOK SAMPLE) INSTALLED WELL PIPE (1.5' SCREEN 1-10' SCREEN 1-10 RISER) 2.4 FT. STICKUP.
0.0	TOPSOIL		ADDED #1-Q SAND TO 6.4 FT.
0.3	PLANT MATERIAL		ADDED PELLETS TO 2.0 FT.
0.3	UPPER CLAY TILL		REMOVED AUGERS; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" DIA ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEED HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER INSTALLED ON THE SITE AND NEW WEED HOLES WERE PUT IN CASING; A DEDICATED STAINLESS STEEL BALLER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.
32.9	COMPACT TURNING TO DENSE, BROWN, CLAYEY SILT, SOME F-C SAND, TRACE GRAVEL		
9.0	UPPER SILT TILL		
305.9	GLACIOLACUSTRINE CLAY		
16.0	SOFT TO VERY SOFT, GRAY CLAY, LITTLE TO TRACE F-C SAND INTERLAYERED SILT AND SAND LENSES		
297.9	END OF BORING		
24.0			

WELL DEVELOPMENT NOTES

DATE DEVELOPED: 9-22-86
 TO 7-25-86
 DEVELOPMENT METHOD: AIR LIFT
 VOLUME PURGED: 37.0 GAL.

FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.

NOTE: A 0.8 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5 AND 10 FT. SCREEN SECTIONS ARE ACTUAL 2.25, 9.325, 10.325 FT. IN LENGTH, RESPECTIVELY.

Boring Log

NYSDEC OHMS Document No. 201469292-00043

JOB NO. <u>853-3051</u>	GA. INSP. <u>CE/LEL</u>	PROJECT <u>CWM / WELLS / MODEL CITY</u>	BORING NO. <u>MW6-35</u>
DEPTH HOLE <u>24.1 FT</u>	DEPTH WL. <u>5.17 FT</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS 4 1/4" ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>75°/50° F</u>	TIME WL. <u>9-23-86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC</u>	SURFACE ELEV. <u>323.1 FT</u>
WEATHER <u>CLEAR</u>	DRILL RIG <u>CME 55 / CME 45</u>	DRILLER <u>R. KEPHART</u>	DATUM <u>MSL</u>
COORDINATES <u>8130.51 N, 10236.07 E</u>	WT. SAMPLER HAMMER <u>140 LBS</u>	DROP <u>30 IN</u>	STARTED <u>3 05 / 9 27 86</u>
LOCATION <u>—</u>	WT. CASING HAMMER <u>300 LBS</u>	DROP <u>30 IN</u>	COMPLETED <u>2 30 / 9 3 86</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS.	BLOWS/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 8 IN.	REC./ATT	
323.1 00	GROUND SURFACE							AUGERED AND SAMPLED TO 60 FT. INSTALLED 10 INCH DIAM. PVC SURFACE CASING TO 6.0 FEET. CONTINUED AUGERING AND SAMPLING.
317.1 60	FIRM, DARK BROWN SILTY CLAY. SOME F TO M SAND. ORGANIC MATERIAL DECAY ODOR.	CL	16	1	DO	7-7-9-7	20/24	UPPER CLAY TILL 0.0-2.0 FT, TRACE F GRAVEL
			18	2	DO	7-12-6-12	18/24	
			37	3	DO	17-18-19-22	3/24	
302.7 60	COMPACT TURNING TO DENSE, BROWN AND GRAY BROWN F TO C SAND. TRACE TO LITTLE CLAYEY SILT	SM ML	74	4	DO	64-38-36-40	12/24	UPPER SILT TILL 6.0-12.0 FT, SOME F TO C GRAVEL. TRACE CLAYEY SILT WET. 10.0-12.0 FT. GRAVEL GRAY DOLOMITE. 16.0-22.4 FT. SOME CLAYEY SILT, LITTLE M TO C SAND.
			45	5	DO	14-18-27-33	14/24	
			47	6	DO	18-19-28-16	10/24	
			44	7	DO	22-22-22-20	10/24	
			16		DO	6-8-8-8	0/24	
			22	8	DO	6-10-12-16	10/24	
			9	9	DO	1-4-5-7	20/24	
			14	10	DO	7-8-6-4	10/24	
300.7 22.4	VERY SOFT, GRAY CLAY, LITTLE F TO M SAND, INTERLAYERED WITH OCCASIONAL BROWN SILT AND F SAND LENSES.	CU CL	7	11 12	DO	2-4-3-4	24/24	22.0-22.4 FT, TRACE GRAVEL, SATURATED. GLACIOLACUSTRINE CLAY
299.1 24.0	END OF SAMPLING AUGERED TO 24.1 FT.							END OF SAMPLING NOTE: NO SAMPLE WAS RETAINED IN SPLIT SPOON BETWEEN 14-16.0 FT. INSTALLED MW6-35 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. <u>853-3021</u>	PROJECT <u>CNM / WELLS / MODEL CITY</u>	WELL NO. <u>MW16-35</u>	SHEET <u>1</u> OF <u>1</u>
GA WSP <u>LEL</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS - 4 1/4" I.D.</u>	GROUND ELEV. <u>323.1 FT.</u>	WATER DEPTH <u>5.17 FT.</u>
WEATHER <u>SUNNY</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	COLLAR ELEV. <u>325.39 FT.</u>	DATE/TIME <u>9-23-86</u>
TEMP <u>68 F</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>KEPHART</u>	STARTED <u>2:30</u> <u>6:30</u> COMPLETED <u>9:40</u> <u>6:40</u>
LOCATION/COORDINATES <u>N 8130.51; E 10236.07</u>		TIME / DATE	

MATERIALS INVENTORY

WELL CASING <u>2.0</u> M. DIA. <u>10.0</u> LI	WELL SCREEN <u>2.0</u> M. DIA. <u>12.9</u> LI	BENTONITE SEAL <u>PELLETS 4.0</u> DEEP
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>FLUSH THREADED</u> <u>TEALON TAPE</u> <u>11TON</u> <u>0-RINGS</u>	SLOT SIZE <u>0.006</u> INCH	FILTER PACK QTY <u>18.1</u> L.F.; <u>390.05</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-G SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>

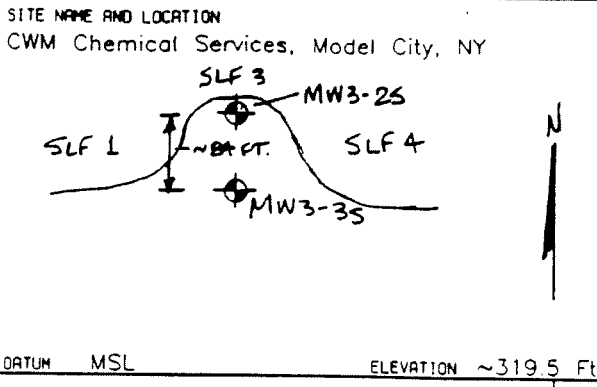
ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
323.1	NOTE: FOR COMPLETE SOIL DESCRIPTIONS SEE BORING LOG MW16-35 GROUND SURFACE		<p>AUGERED TO 24.1 FT.</p> <p>ADDED #1-G SAND TO 23.6 FT.</p> <p>B.G.S.: INSTALLED WELL PIPE (1.5' SCREEN, 1.0' SCREEN, 1.0' RISER) 2.3 FT. STICKUP.</p> <p>ADDED #1-G SAND TO 6.0 FT.</p> <p>B.G.S. (TOOK SAMPLE).</p> <p>ADDED PELLETS TO 2.0 FT.</p> <p>B.G.S.; PULLED AUGERS, MIXED CEMENT GROUT, FILLED TO GROUND SURFACE, PUT ON 8" ALUMINUM PROTECTIVE CASING, FILLED INTERIOR OF CASING WITH #4-G SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE JOBS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PUT AROUND WELL ON THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p>
0.0	UPPER CLAY TILL FIRM, DARK BROWN, SILTY CLAY, SOME F TO M SAND		
317.1	UPPER SILT TILL COMPACT TURNING TO DENSE, BROWN AND GRAY BROWN, F-C SAND		
6.0			
300.7			
22.4	GLACIOLACUSTRINE CLAY VERY SOFT, GRAY, CLAY, LITTLE F-M SAND INTER-LAYERED WITH OCCASIONAL BROWN SILT AND SAND LENSES		
239.1			
24.0	END OF SAMPLING AUGERED TO 24.1 FT.		<p>WELL DEVELOPMENT NOTES</p> <p>DATE DEVELOPED: 6-9-86 TO 7-25-86</p> <p>DEVELOPMENT METHOD: AIR LIFT</p> <p>VOLUME PUMPED: 180 GAL.</p> <p>FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE</p> <p>NOTE: A 0.25 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5, AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 5.325, 10.325 FT. IN LENGTH, RESPECTIVELY.</p>



Golder Associates Inc.

NYSDEC OHS Document No. 201469232-0033

SOIL BOREHOLE LOG

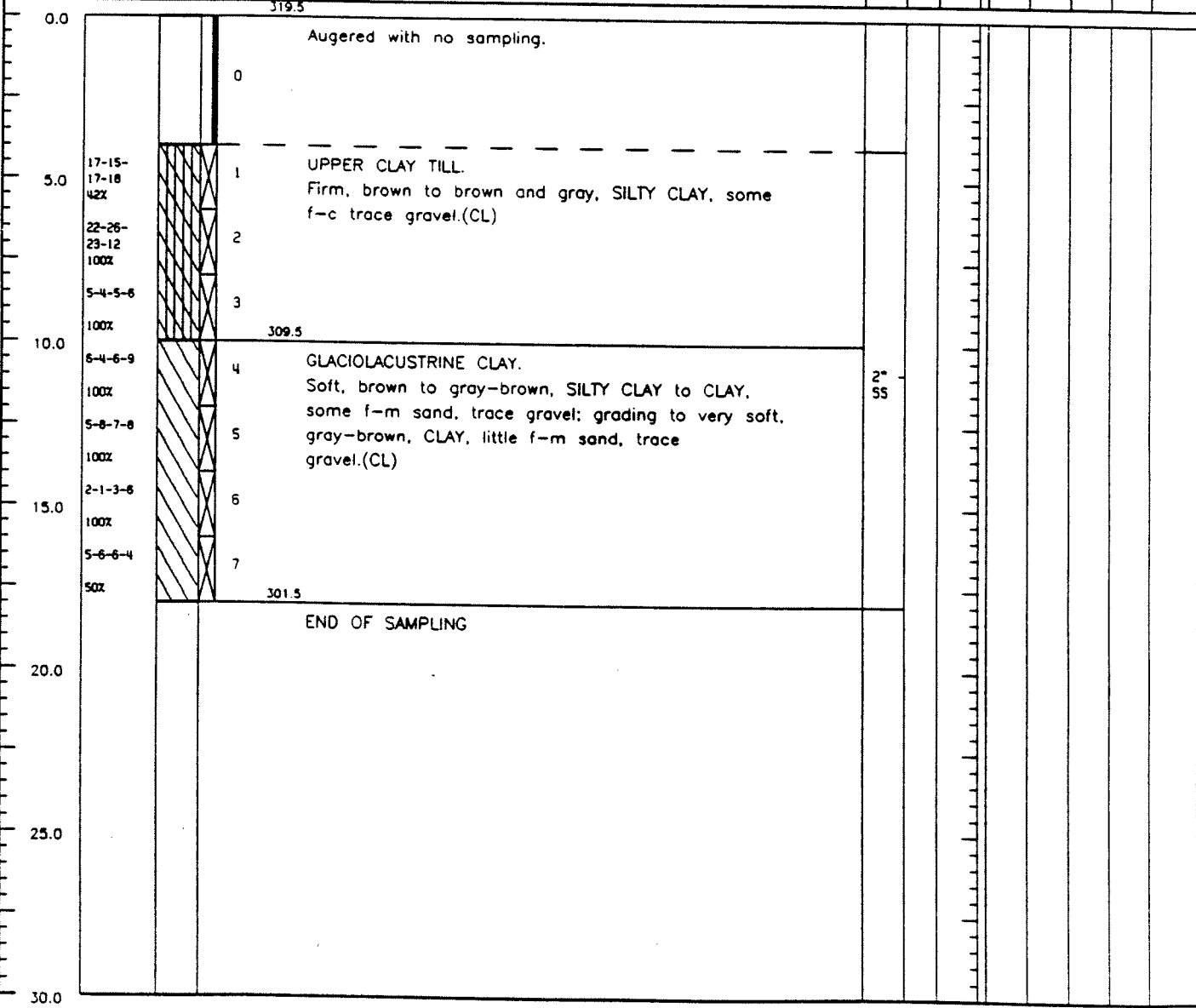


DRILLING METHOD: Hollow Stem Auger - 4 1/4" ID		BORING NO. MW3-35	
SAMPLING METHOD: 24" Split-Spoon		SHEET 1 OF 1	
WATER LEVEL		START TIME	FINISH TIME
TIME		1450	1600
DATE		DATE	DATE
CASING DEPTH		8/14/89	8/14/89

DRILL RIG Track CME 55
 ANGLE Vertical BEARING
 SAMPLE HAMMER TORQUE

SURFACE CONDITIONS: Grass

DEPTH IN FEET	BLOWS/ 6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS				
							WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	VANE (TSF)



DRILLING CONTR Empire Soils Investigations, Inc
A.L. Koske

LOGGED BY A.L. Grasso
 DATE 8/14/89
 CHKD BY *WPA* SL 11043C

MONITORING WELL INSTALLATION LOG

NYSDPFC OHMS Document No. 201469232-00043

JOB NO. <u>803 30053</u> PROJECT <u>GWM/BEI/MG</u>	WELL NO. <u>MWB-3S</u> SHEET <u>1</u> OF <u>1</u>
GA INSP <u>ALG</u> DRILLING METHOD <u>HOLLOW STEM AUGER 4 1/4" ID</u>	GROUND ELEV <u>~319.5'</u> WATER DEPTH <u>7.90'</u>
WEATHER <u>SUN</u> DRILLING COMPANY <u>EMPIRE SOIL INC.</u>	COLLAR ELEV <u>~322.3'</u> DATE/TIME <u>9-12-89/0920</u>
TEMP <u>80° F</u> DRILL RIG <u>TRACK CME 55</u> DRILLER <u>NOT KNOWN</u>	STARTED <u>1620 8-11-89</u> COMPLETED <u>1740 8-11-89</u>
	TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>2.0</u> in dia. <u>10.0</u> I.F.	WELL SCREEN <u>2</u> in dia. <u>10.0</u> I.F.	BENTONITE SEALS <u>BUCKETS OF BENT PELLETS</u>
CASING TYPE <u>STAINLESS STEEL</u>	SCREEN TYPE <u>STAINLESS STEEL</u>	INSTALLATION METHOD <u>POUR THROUGH AUGER</u>
JOINT TYPE <u>FLUSH THREADED JOINT WITH 0' GROUT</u>	SLOT SIZE <u>0.06"</u>	FILTER PACK QTY <u>3- 100 LB BAGS</u>
GROUT QUANTITY <u>---</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u># 10 SAND</u>
GROUT TYPE <u>---</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>POUR THROUGH AUGER</u>
<u>N-8137.0 E-9374.0</u>		

ELEV./DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
	GROUND SURFACE		<p>AUGER AND SOIL SAMPLED TO 18.0' BELOW GROUND SURFACE (BGS)</p> <p>PLACED #40 SAND TO 17.6' BGS</p> <p>PLACED 10' SCREEN AND 10' RISER THROUGH AUGER IN THE BOTTOMS WITH 2.0' STICK UP. PLACED #10 SAND TO 6.1' BGS.</p> <p>PLACED BENTONITE PELLETS TO 3.0' BGS. Poured Deionized Water on pellets to hydrate. Mix cement grout and pour into hole to the ground surface.</p> <p>PUSHED 6" DIA. ALUMINUM PROTECTIVE (LOCKING) CASING TO ~3' ABOVE WELL.</p> <p>PLACED #40 SAND INSIDE CASING TO WITHIN 3' OF TOP OF RISER.</p>	
0.0	ADJERED WITH NO SAMPLE			
4.0	UPPER CLAY TILL FIRM, DOWN TO DRIVEN AND SLAY SILTY CLAY, SOME FC, WACK TRAVEL, CCL		3.0 BENTONITE PELLETS	
6.0	GLACIOLACUSTRINE CLAY SOFT DOWN TO GRAY-DROWN SILTY CLAY TO CLAY, SOME F.M. SAND, TRACE SILTY SILTY CLAY TO 1.1' F.M. SAND, TRACE TRAVEL, CCL		#10 SAND	
8.0	END OF SAMPLING		40 SAND 17.6 18.0	
			<p>NOTE: LENGTH OF 10' SCREEN AND END CAP IS ACTUALLY 10.4'</p>	
			<p>WELL DEVELOPMENT NOTES</p> <p>SEE FORM 'WELL DEVELOPMENT FIELD RECORD' FOR WELL DEVELOPMENT DETAILS.</p>	

JOB NO. 853-3051 GA. INSP. CFC PROJECT CWM / WELLS / MODEL CITY BORING NO. MW7-15
 DEPTH HOLE 16.0 FT DEPTH WL. 2.85 FT. DRILLING METHOD HOLLOW STEM AUGERS-4 1/4" ID SHEET 1 OF 1
 TEMP 70° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOIL INVESTIGATIONS, INC. SURFACE ELEV. 313.8 FT.
 WEATHER CLEAR DRILL RIG CME 45 DRILLER K SWINNICH DATUM MSL
 COORDINATES N110672.90 E10381.26 WT. SAMPLER HAMMER 140 LBS DROP 30 IN. STARTED 12:45 / 5.8.86
 LOCATION 4.0 FT. S OF MW7-1D WT. CASING HAMMER 300 LBS DROP 30 IN. COMPLETED 2:10 / 5.8.86

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
313.8	GROUND SURFACE						GROUND SURFACE	
0.0	STIFF TO VERY STIFF, BROWN, MOTTLED CLAYEY SILT, LITTLE TO SOME F-C SAND, LITTLE F-C GRAVEL AS GRAY AND REDBROWN DROPSTONES, BECOMING FIRM TO STIFF, BROWN, SILTY CLAY, SOME F-C SAND, LITTLE F-C GRAVEL	CL	33	DO	10-13-20-30	0/24	UPPER CLAY TILL	
50			1	DO	20-22-28-30	24/24	COMPACT, BROWN, DILATEL SILT AND F SAND LENSE FROM 5.7 TO 7.0 FT. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 7.0 TO 8.0 FT.	
26			2	DO	10-12-14-24	24/24		
48			3	DO	24-30-18-16	24/24		
27			4	DO	4-14-13-10	18/24		
303.8	FIRM TO SOFT, BROWN GRAY, SILTY CLAY, TRACE TO SOME F-C SAND, TRACE TO SOME GRAY (LIMESTONE) F-C GRAVEL, BECOMING VERY SOFT, GRAY, CLAY, TRACE F SAND	CL	6	6	DO	2-3-3-4	14/24	GLACIOLACUSTRINE CLAY
10.0			14	7	DO	5-7-7-6	14/24	VERTICAL TUBULAR VOIDS IN SAMPLE FROM 12.0 TO 14.0 FT. (MOLLUSK BURROWS)
297.8		CH	2	8	DO	WH-WH-2-3	24/24	
16.0	END OF BORING						END OF BORING INSTALLED MW7-15 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

MONITORING WELL INSTALLATION LOG

NYSDP/C OHMS Document No. 201469232-00043

JOB NO. <u>853-3051</u>	PROJECT <u>CWM / WELLS / MODEL CITY</u>	WELL NO. <u>MW7-15</u>	SHEET <u>1</u> OF <u>1</u>
GA INSP. <u>CFC</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS - 4 1/4" ID</u>	GROUND ELEV. <u>313.8 FT</u>	WATER DEPTH <u>2.85 FT</u>
WEATHER <u>CLEAR</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	COLLAR ELEV. <u>314.33 FT</u>	DATE/TIME <u>9-22-86</u>
TEMP. <u>78°F</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>K. SWINNICH</u>	STARTED <u>2:30</u> <u>9-8-86</u>
LOCATION/COORDINATES <u>4.0 FT. SOUTH OF MW7-10 / N 10672 90 E 10381 26</u>			COMPLETED <u>3:15</u> <u>9-8-86</u>

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN DIA. <u>10.0</u> IF	WELL SCREEN <u>2.0</u> IN DIA. <u>7.9</u> IF	BENTONITE SEAL <u>PELLETS 4.7' DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>FLUSH THREADED</u> <u>TEFLON VITON TAPS</u> <u>O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>9.6 L.F.</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
313.8	GROUND SURFACE		AUGERED TO 16.0 FT., ADDED #1-Q SAND TO 13.4 FT. BELOW GROUND SURFACE; INSTALLED WELL PIPE (1-2" SCREEN, 1-5" SCREEN, 1-10" RISE) 2.5 FT. STICKUP; ADDED #1-Q SAND TO 6.4 FT. (TOOK SAMPLE); ADDED PELLETS TO 4.7 FT.; REMOVED AUGERS; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEED HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PUT AROUND WELL ON THE SITE AND NEW WEED HOLES WERE PUT IN CASING; A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.	
0.0	UPPER CLAY TILL STIFF TO VERY STIFF, BROWN MOTTLED CLAYEY SILT, LITTLE TO SOME F-C SAND AND GRAVEL, BECOMING FIRMLY TO STIFF, BROWN, SILTY CLAY, SOME F-C SAND. GRAY WEATHERING ALONG VERTICAL FEATURES FROM 7.0-8.0 FT.			WELL DEVELOPMENT NOTES DATE DEVELOPED: 5-14-86 TO 7-2-86 DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 16.5 GAL
305.8	GLACIOLACUSTRINE CLAY FINE TO SOFT, BROWN GRAY SILTY CLAY, TRACE TO SOME F-C SAND AND GRAVEL, BECOMING VERY SOFT, GRAY CLAY, TRACE F SAND, VERT. ICAL TUBULAR Voids (MOLLUSK BURROWS) FROM 12.0-14.0 FT.			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
10.0				
297.8	END OF BORING			NOTE: A 8.8 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION 2.5 AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 9.325, 10.325 FT. IN LENGTH RESPECTIVELY.

Boring Log

NYSDEC OHMS Document No. 201409232-00040

JOB NO. <u>853-3051</u>	GA. INSP. <u>FWS</u>	PROJECT <u>CWM/WELLS/MODE CITY</u>	BORING NO. <u>MW7-10</u>
DEPTH HOLE <u>38.5 FT.</u>	DEPTH WL. <u>4.07 FT.</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS 4 1/4" ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>80° F</u>	TIME WL. <u>9/27/86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS INC</u>	SURFACE ELEV. <u>313.9 FT</u>
WEATHER <u>SUNNY</u>	DRILL RIG <u>ACKER AD-2</u>	DRILLER <u>J GENOVESE</u>	DATUM <u>MSL</u>
COORDINATES <u>N10677.26 E10381.04</u>	WT. SAMPLER HAMMER <u>140 LBS</u>	DROP <u>30 IN.</u>	STARTED <u>2:20</u> / <u>5:29</u> <u>86</u>
LOCATION <u>4.0 FT. N OF MW7-15</u>	WT. CASING HAMMER <u>300 LBS</u>	DROP <u>30 IN.</u>	COMPLETED <u>2:08</u> / <u>5:30</u> <u>86</u>

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
297.9	FOR COMPLETE SOIL DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG MW7-15						AUGERED TO 16.0 FT. NO SAMPLING SAMPLED 16.0 TO 20.0 FT. INSTALLED 10 IN. DIAM. PVC SURFACE CASING TO 19.2 FT.	
16.0	VERY SOFT TO SOFT, GRAY, CLAY, LITTLE F-M SAND.	CH	9	1	DO	4-4-5-5	8/24	GLACIOLACUSTRINE CLAY
			9	2	DO	5-6-3-2	12/24	
			1	3	DO	WE-WH-1-2	23/24	
290.4			16	4	DO	2-5-11-12	24/24	
23.5	DENSE TO COMPACT, GRAY TO BROWN GRAY, F SAND, LITTLE TO SOME M-C SAND, TRACE TO SOME CLAY.	SM ML	37	5	DO	10-18-19-13	8/24	MIDDLE SILT TILL FIRM, GRAY, DILATANT, CLAYEY SILT LAYER FROM 23.5 TO 24.0 FT. AUGERED FROM 27.5 TO 28.0 FT. NO SAMPLE THIN, FIRM TO STIFF SILTY CLAY LENSES AT 24.5 FT. AND AT 28.5 FT.
			136	6	DO	17-36-100	18/18	
			43	7	DO	11-14-29-28	2/24	
			26	8	DO	2-12-14-10	8/24	
280.9			14	9	DO	7-7-7-7	19/24	
33.0	FIRM, GRAY TO BROWN, SILTY CLAY AND F-M SAND.	CL					GLACIOLACUSTRINE CLAY	
279.9	VERY DENSE, BROWN GRAY, F SAND, LITTLE TO SOME M-C SAND, LITTLE TO SOME SILT TURNING TO LOOSE TO COMPACT, GRAY TO RED GRAY, F-C SAND, TRACE GRAVEL, TRACE CLAY.	SM	60	10	DO	20-24-36-30		GLACIOLACUSTRINE SILT/SAND
34.0			2170	11	DO	35-70-100	12/18	
276.6	VERY DENSE, RED BROWN, CLAYEY SILT, SOME F-C SAND, DRY.						BASAL RED TILL	
51.3	END OF SAMPLING AUGERED TO 38.5 FT.						END OF SAMPLING	
276.4								
37.5							INSTALLED MW7-10 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

JOB NO. <u>853-3051</u>	Golder Associates	CHECKED <u>DJM</u>
SCALE <u>1 INCH = 5 FEET</u>		DATE DRAWN <u>11/25/86</u>

MONITORING WELL INSTALLATION LOG

JOB NO. 853-3051 PROJECT NYSDEC OFMS Document No. 201469232-00043 WELL NO. MW7-10 SHEET 1 OF 2
 QA INSP. FWS DRILLING METHOD HOLLOW STEM AUGERS 4 1/4" ID GROUND ELEV. 313.9 FT WATER DEPTH 4.07 FT
 WEATHER PARTLY CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC COLLAR ELEV. 318.11 FT DATE/TIME 9-22-86
 TEMP. 70° F DRILL RIG ACKER AD-2 DRILLER J. GENOVESE STARTED 2:45 5/30/86 COMPLETED 3:00 5/31/86
 LOCATION/COORDINATES ± 0 FT. NORTH OF MW7-5 / N 10677.26 E 0381 24

MATERIALS INVENTORY

WELL CASING 20 H. DIA. 300 II WELL SCREEN 20 H. DIA. 10.3 II BENTONITE SEAL PELLETS 4.1' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD TREMIE TUBE & WASH
 JOINT TYPE FLUSH BRON IBROND, TAPE Q-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 12 LF; 250 LBS
 GROUT QUANTITY 85 GAL CENTRALIZERS NONE FILTER PACK TYPE #10 SAND
 GROUT TYPE BENTONITE DRILLING MUD TYPE NONE INSTALLATION METHOD TREMIE TUBE & WASH

ELEV./DEPTH (FT)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
(FT)	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG MW7-10	WELL SKETCH	
313.9	GROUND SURFACE	0.8'	AUGERED TO 17.5 FT. WITH 12 INCH (O.D.) AUGERS, GROUTED 3 INCH Ø PVC CASING 17.5 FT. PUSHED CASING TO 19.2 FT. B.G.S. TOOK GROUT SAMPLE, AUGERED TO 38.5 FT. B.G.S. WITH 4 1/4" (I.O.) AUGERS, PULLED AUGERS, INSTALLED 6" Ø TEMPORARY STEEL CASING; WASHED OUT-OPEN TO 38.4 FT. B.G.S.; TREMIED (WITH WATER) #4-Q SAND TO 38.1 FT. B.G.S. (TOOK DRN SAMPLE); INSTALLED WELL PIPE (2-2' SCREENS 1-5' SCREEN 3-10' RISERS) 2.2 FT STICKUP; TREMIED # -0 SAND TO 26.0 FT. B.G.S. (TOOK DRN SAMPLE), TREMIED PELLETS TO 21.9 FT. B.G.S. TREMIED #4-Q SAND TO 21.1 FT. B.G.S.; MIXED GROUT 2E BATCH 6510S
0.0	UPPER CLAY TILL STIFF TO VERY STIFF, BROWN MOTTLED, CLAYEY SILT, LITTLE TO SOME F-C SAND AND GRAVEL, BECOMING FIRM TO STIFF, BROWN, SILTY CLAY, SOME F-C SAND, GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 7.0-8.0 FT.	2.0'	(CONTINUED ON NEXT PAGE)
303.9	GLAUCOARGILLINE CLAY FIRM TO SOFT BROWN GRAY, SILTY CLAY, TRACE TO SOME F-C SAND AND GRAVEL, BECOMING VERY SOFT, GRAY, CLAY TRACE F SAND. VERTICAL TUBULAR VOIDS (MOLLUSK BURROWS) FROM 12.0-14.0 FT.	12" Ø AUGER BORING	WELL DEVELOPMENT NOTES
10.0	MIDDLE SILT TILL DENSE TO COMPACT GRAY TO BROWN GRAY, F SAND, LITTLE TO SOME SILT TRACE TO SOME M-C SAND AND CLAY	17.5'	DATE DEVELOPED: 6-17-86 TO 7-3-86
290.4	GLAUCOARGILLINE CLAY FIRM, GRAY TO GRAY BROWN, SILTY CLAY, AND F-M SAND	19.2'	DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 31.8 GAL
23.5	GLAUCOARGILLINE SILT SAND VERY DENSE, BROWN GRAY, LITTLE TO SOME M-C SAND AND SILT, LITTLE TO SOME F-C SAND AND GRAVEL, BECOMING FIRM TO STIFF, BROWN, SILTY CLAY, SOME F-C SAND	21.1'	FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE
27.5	BASAL RED TILL VERY DENSE, RED BROWN, CLAYEY SILT, SOME F-C SAND	21.9'	
27.9	END OF SAMPLING AUGERED TO 38.5 FT.	26.0'	
34.0		27.8'	
276.6		28.1'	
37.3		28.4'	
276.4		28.5'	
37.5		CANED MATERIAL	

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY		MW 7-1D
Job No. 853-3051	Made by FWS	Date 5-31-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

BENTONITE / 45 GAL. H₂O, 2ND BATCH 60 LBS. BENTONITE / 40 GAL. H₂O; FILLED TO TOP OF 10" ϕ PVC CASING; PULLED 6" ϕ TEMPORARY STEEL CASING; GROUT TO 2.0 FT. B.G.S.; MIXED CEMENT GROUT; FILLED TO TOP OF 10" ϕ PVC CASING; PUT ON 8" ϕ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF PROTECTIVE CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN PROTECTIVE CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A WELL WIZARD WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

JOB NO. 853-3051 GA. INSP. GR PROJECT CWM/WELLS/MODEL CITY BORING NO. MW7-25
 DEPTH HOLE 22.0 FT. DEPTH WL. 1.81 FT. DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID SHEET 1 OF 1
 TEMP 57°F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 313.5 FT
 WEATHER CLOUDY DRILL RIG CME 45 DRILLER K. SWINNICH DATUM MSL
 COORDINATES N10 23.38 E10 375.52 WT. SAMPLER HAMMER 140 LBS DROP 30 IN. STARTED 9/22/86
 LOCATION 6.0 FT. SOUTHWEST OF MW7-20 WT. CASING HAMMER 300 LBS DROP 30 IN. COMPLETED 11/06/86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
313.5	GROUND SURFACE						GROUND SURFACE	
0.0	FIRM TO VERY STIFF BROWN, MOTTLED, SILTY CLAY, SOME F-C SAND, TRACE TO SOME F GRAVEL AS SUBROUNDED RED AND GRAY SHALE AND LIMESTONE CLASTS.	CL	22	1	DO	12-15-7-15	19/24	UPPER CLAY TILL TOPSOIL FROM 0.0 TO 0.5 FT. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 4.0 TO 6.0 FEET.
35			2	DO	15-15-20-18	15/24		
33			3	DO	7-13-20-21	24/24		
70			4	DO	25-35-35-3	24/24		
21			5	DO	7-9-12-13	24/24		
302.6	SOFT TO FIRM, GRAY BROWN, CLAYEY SILT, SOME F-C SAND, TRACE C GRAVEL.	ML	17	6	DO	2-4-13-11	20/24	UPPER SILT TILL
10.9			7	DO				
301.5	VERY SOFT TO FIRM, GRAY BROWN, SILTY CLAY, TRACE TO SAND F-C SAND, TO VERY SOFT, GRAY, CLAY, TRACE F SAND.	CL	22	8	DO	10-10-12-12	24/24	GLACIOLACUSTRINE CLAY OCCASIONAL THIN SILT AND F SAND LENSES BETWEEN 13.0 AND 16.0 FT.
12.0			9	DO				
8			11	DO	3-3-5-9	18/24		
18			12	DO	7-8-10-11	24/24		
10			13	DO	2-3-7-7	24/24		
291.5		CH	3	14	DO	WH-WH-3-3	24/24	
15			15	DO				
22.0	END OF SAMPLING AUGERED TO 20.5 FT.						END OF SAMPLING INSTALLED MW7-25 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 853-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. MW7-25 SHEET 1 OF 1

GA INSP. GR DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID GROUND ELEV. 313.5 WATER DEPTH 1.81 FT.

WEATHER WARM DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC. COLLAR ELEV. 316.52 DATE/TIME 9-22-86

TEMP. 67° F DRILL RIG CME 45 DRILLER K. SWINNICH STARTED 11:11 6-9-86 COMPLETED 1:20 5-9-86

LOCATION/COORDINATES 4.5 FT. SOUTH MW7-22 / N 10813.38, E 10375.52 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN. DIA. <u>8.0</u> FT.	WELL SCREEN <u>2.0</u> IN. DIA. <u>12.9</u> FT.	BENTONITE SEAL <u>PELLETS 40 DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>FLUSH TEFLON VITON TAPE O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>14.5 LB. 395 LBS.</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>

ELEV./DEPTH (Ft.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG MW7-25			
313.5	GROUND SURFACE			
0.0	UPPER CLAY TILL FIRM TO VERY STIFF, BROWN, MOTTLED, SILTY CLAY, SOME F-C SAND, TRACE TO SOME F GRAVEL. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 4.0-6.0 FT.	<p style="font-size: small;">WELL CASING 3.0 FT. STICKUP 8" φ ALUMINUM CASING WITH LOGS 3.0 FT. STICKUP #4-Q SAND CEMENT GROUT BENTONITE POWDER 10% φ BENTONITE PELLET SEAL END TUBE 20% SS. RISER PIPE #1-Q SAND 2" φ TUBE 304 SS. SCREEN NEW 8" φ BUREAU</p>	<p>AUGERED TO 20.5 FT.; ADDED #1-Q SAND TO 19.4 FT. (TOOK SAMPLE); INSTALLED WELL PIPE (1-2' SCREEN, 1-10' SCREEN, 1-5' RISER, 1-5' RISER) 3.0 FT. STICKUP. ADDED #1-Q SAND TO 6.0 FT. ADDED PELLETS TO 2.0 FT. ADDED BENTONITE POWDER TO 1.5 FT. BELOW GROUND SURFACE. REMOVED AUGERS, MIXED CEMENT GROUT, FILLED TO GROUND SURFACE, PUT ON 8" φ ALUMINUM PROTECTIVE CASING, FILLED INTERIOR OF CASING WITH #4-Q SAND; WEED HOLES WERE PUT IN CASING FOR DRAINAGE. PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEED HOLES WERE PUT IN CASING; A DEDICATED STAINLESS STEEL BAULER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p>	
302.6				
10.9	UPPER SILT TILL SOFT TO FIRM, GRAY BROWN, CLAYEY SILT, SOME F-C SAND			
301.5 12.0	GLACIOLACUSTRINE CLAY VERY SOFT TO FIRM, GRAY BROWN, SILTY CLAY, TRACE TO SAND F-C SAND TO VERY SOFT, GRAY CLAY, TRACE F SAND, WEATHERING TO SILT AND F SANDS, DEPT. 15.0-18.0 FT.			
291.5				
22.0	END OF SAMPLING AUGERED TO 20.5 FT.			
			<p>WELL DEVELOPMENT NOTES</p> <p>DATE DEVELOPED: 5-14-86 TO 7-2-86</p> <p>DEVELOPMENT METHOD: AIR LIFT</p> <p>VOLUME PURGED: 16.3 GAL.</p> <p>FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.</p> <p>NOTE: A 0.5 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5, AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 9.325, 10.325 FT. IN LENGTH, RESPECTIVELY.</p>	

Boring Log

NYSDEC OHMS Document No. 201469232-00043

JOB NO. <u>853-3051</u>	GA. INSP. <u>PLS</u>	PROJECT <u>SWM/REUSE MODEL CITY</u>	BORING NO. <u>MW7-2D</u>
DEPTH HOLE <u>39.5 FT.</u>	DEPTH WL. <u>9.50 FT.</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS - 4 1/4" ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>75° F</u>	TIME WL. <u>9/22/86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	SURFACE ELEV. <u>314.6 FT</u>
WEATHER <u>SUNNY/WARM</u>	DRILL RIG <u>ACKER AD-2</u>	DRILLER <u>J. GENOVESE</u>	ODATUM <u>MSL</u>
COORDINATES <u>N19.8170 E10.378.65</u>	WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>	STARTED <u>11:20 / 6-10-86</u>
LOCATION <u>6.0 FT. NORTHEAST OF MW7-2S</u>	WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>	COMPLETED <u>9:05 / 6-11</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
	FOR COMPLETE SOIL DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG MW7-2S						INSTALLED 10 INCH DIA PVC CASING TO 9.0 FEET AUGERED TO 20.0 FEET, NO SAMPLING	
20.0	FIRM GRAY BROWN, SILTY CLAY, LITTLE TO SOME F-C SAND, TRACE TO SOME F GRAVEL, BECOMING SOFT, GRAY, CLAY, TRACE F-M SAND.	CL	16	1	DO	2-7-9-9	14/24	GLACIOLACUSTRINE CLAY
290.6		CH	19	2	DO	9-7-12-21	22/24	2 INCH COMPACT GRAY AND BROWN SILT LAYER AT 23.7 FT.
240	FIRM GRAY BROWN, CLAYEY SILT, SOME F-C SAND.	ML	34	3	DO	10-17-17-17	4/24	MIDDLE SILT TTL LARGE PIECES OF GRAVEL MAY HAVE PREVENTED MORE SAMPLE RECOVERY
288.6		CL	15	4	DO	5-8-7-9	12/24	GLACIOLACUSTRINE CLAY 2 INCH F SAND LAYER AT 27.0 FT. DILATANT
260	COMPACT GRAY TO BROWN GRAY, SILTY CLAY AND F-M SAND.	CL	16	5	DO	18-9-7-5	18/24	GLACIOLACUSTRINE SILT / SAND
280	COMPACT GRAY TO GRAY BROWN, TO MULTICOLORED, F-M SAND, TRACE TO SOME SILTY CLAY.	SM	10	6	DO	3-4-6-11	12/24	FIRM GRAY BROWN SILTY CLAY SOME F-M SAND FROM 32.0 TO 32.7 FEET INTERLAYERED SILT AND CLAY FROM 32.7-33.0 FT.
278.1		SM	11	7	DO	5-5-6-7	24/24	
365	DENSE TO VERY DENSE, RED BROWN, F SAND, LITTLE TO SOME CLAYEY SILT, LITTLE TO SOME M-C SAND, MOIST.	SM	7100	9	DO	36-100-46-82	20/24	BASAL RED TTL
275.4		SM	7100	10	DO	35-50-50-2	13/24	
392	END OF SAMPLING AUGERED TO 39.5 FT							END OF SAMPLING # 300 LBS. HAMMER USED INSTALLED MW7-2D SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

JOB NO. <u>853-3051</u>	Golder Associates	CHECKED <u>DJM</u>
SCALE <u>1 INCH = 5 FEET</u>		DATE DRAWN <u>11/25/86</u>

MONITORING WELL INSTALLATION LOG

NYDEC OLMG Document No. 201460232 00043

JOB NO. <u>853-3051</u>	PROJECT <u>CWM / WELLS / MODEL CITY</u>	WELL NO. <u>MW7-2D</u>	SHEET <u>1</u> OF <u>2</u>
GA INSP. <u>FWS</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS 4 1/2" ID</u>	GROUND ELEV. <u>314.6 FT.</u>	WATER DEPTH <u>9.50 FT.</u>
WEATHER <u>CLOUDY</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS INC.</u>	COLLAR ELEV. <u>317.35 FT.</u>	DATE/TIME <u>9-22-86</u>
TEMP. <u>60°F</u>	DRILL RIG <u>ACKER AD-2</u>	DRILLER <u>J. GENOVESE</u>	STARTED <u>9:10</u> <u>6/11/86</u> COMPLETED <u>2:50</u> <u>6/11/86</u>
LOCATION/COORDINATES <u>4.5 FT. NORTHEAST OF MW7-25 / N 10B17 TO: E 10378.65</u>			

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN. DIA. <u>36.0</u> LF	WELL SCREEN <u>2.0</u> IN. DIA. <u>5.6</u> LF	BENTONITE SEAL <u>PELLETS 4.5' DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>TRENNE TUBE & WASH</u>
JOINT TYPE <u>FLUSH TEFELON VITON TREADED TAPE O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>20 L.F.</u>
GROUT QUANTITY _____	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#10 SAND</u>
GROUT TYPE <u>BENTONITE</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>TRENNE TUBE & WASH</u>

ELEV./DEPTH (Ft.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG PART-1D		
314.6	GROUND SURFACE	WELL CASING 2.0" DIA. STICKUP	Augered to 19.0 ft. with 1.2 inch (O.D.) augers.
0.0	UPPER CLAY TILL FIRM TO VERY STIFF, BROWN MOTTLED, SILTY CLAY, SOME F-C SAND, TRACE TO SOME F GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 4.0-6.0 FT.	10' PVC CASING	GROUTED 10" PVC CASING 19.0 FT. (TOOK GROUT SAMPLE)
305.7	UPPER SILT TILL SOFT TO FIRM, GRAY BROWN, CLAYEY SILT, SOME F-C SAND	12" DIA. AUGER BORING	Augered to 39.5 ft. with 4 1/4" (I.D.) augers; pulled augers; installed 6" dia temporary steel casing; washed out - open to 39.5 ft.; tremied (with water) #4-Q sand to 38.8 ft. B.G.S. (TOOK DRY SAMPLE)
302.6	UPPER SILT TILL SOFT TO FIRM, GRAY BROWN, CLAYEY SILT, SOME F-C SAND		INSTALLED WELL PIPE (1-5' SCREEN, 2-3' RISERS 3-10' RISERS) 2.8 FT STICKUP, TREMIED #10 SAND TO 31.3 FT. B.G.S. (TOOK DRY SAMPLE);
290.6	GLACIOLACUSTRINE CLAY VERY SOFT TO FIRM, GRAY BROWN, SILTY CLAY, TRACE TO AND F-C SAND, TO VERY SOFT GRAY CLAY, TRACE F SAND, OCCASIONAL THIN SILT & F SANDS FROM 18.0-19.0 FT.		TREMIED PELLETS TO 27.0 FT. B.G.S.; TREMIED #4-Q SAND TO 26.4 FT. B.G.S.; MIXED GROUT; FILLED TO GROUND SURFACE; REMOVED 6" DIA STEEL CASING;
24.0	MIDDLE SILT TILL FIRM, GRAY BROWN, CLAYEY SILT, SOME F-C SAND	DRIVEN 6" DIA TEMPORARY CASED HOLE	(CONTINUED ON NEXT PAGE)
288.6	GLACIOLACUSTRINE CLAY FIRM, GRAY TO BROWN, SILTY CLAY AND F-M SAND		WELL DEVELOPMENT NOTES
286.6	GLACIOLACUSTRINE SILT/SAND		DATE DEVELOPED: 6-17-86 TO 7-3-86
28.0	COMPACT GRAY TO GRAY BROWN TO MULTICOLORED, FINE SAND, TRACE TO SOME SILTY CLAY, INTERLAYERED SILT AND CLAY FROM 32.7-33.0 FT.	2" DIA TYPE 304 S.S. RISER PIPE	DEVELOPMENT METHOD: AIR LIFT
278.1	BASAL RED TILL DENSE TO VERY DENSE, RED BROWN, SAND, LITTLE TO SOME DARK SILT AND M.S. SAND	#4Q SAND	VOLUME PURGED: 38.7 GAL.
36.5	END OF SAMPLING AUGERED TO 39.5 FT.	3/8" BENTONITE PELLETS	FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
275.4		#10 SAND	
39.7		2" DIA TYPE 304 S.S. SCREEN	
		#4Q SAND	
			NOTE: A 0.3 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5, AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 9.825, 10.325 FT. IN LENGTH, RESPECTIVELY.

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY MW7-2D		
Job No. 853-3051	Made by FWS	Date 6-11-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

GROUT AT 0.5 FT. B.G.S.: MIXED CEMENT GROUT; FILLED TO TOP OF 10" ϕ PVC CASING (1.0 FT. ABOVE GROUND SURFACE); PUT ON 8" ϕ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN PROTECTIVE CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A WELL WIZARD WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

Blank lined area for additional notes or drawings.

MONITORING WELL INSTALLATION LOG

NYSDC OHMS Document No. 201469232-00043

JOB NO. B53-3051 PROJECT GWM / WELLS / MODEL CITY WELL NO. MW7-35 SHEET 1 OF 1
 SA WSP CFC DRILLING METHOD HOLLOW STEM AUGERS- 4 1/4" ID GROUND ELEV 315.5 FT WATER DEPTH 4.7 FT
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV 317.34 FT DATE/TIME 9-22-86
 TEMP 65°F DRILL RIG CME 45 DRILLER L. SWINNICH STARTED 8:40 5-8-86 COMPLETED 10:10 5-8-86
 LOCATION/COORDINATES 7.0 FT EAST OF MW7-3D / N 10904.19 E 10493.98 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>2.0</u> W. DIA. <u>10.0</u> I.D.	WELL SCREEN <u>2.0</u> W. DIA. <u>10.6</u> I.D.	BENTONITE SEAL <u>PELLETS 5.5' DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>FLUSH TOP/LON VITON / TUBED TAPS 0-8 INCH</u>	SLOT SIZE <u>0.006</u> INCH	FILTER PACK QTY <u>13 L.F.</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>

ELEV./DEPTH (FT)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS SEE BORING LOG PRINT-88	<p style="font-size: x-small;">WELL CASING 1.9 FT. STICLUP 8" O.D. ALUMINUM CASING WITH LOCK 2.0 FT. STICLUP #4-Q SAND CEMENT GROUT 1.5' 2" O.D. THIN WALL RUBBER PIPE 3/4" O.D. BENTONITE PELLET SEAL 7.0' 8.1' NON-8" O.D. BOREHOLE #1-Q SAND 3/8" TUBE 304 SS SCREEN 18.7'</p>	AUGERED TO 220 FT.; ADDED #1-Q SAND TO 18.7 FT.; INSTALLED WELL PIPE (170' SCREEN 1-10' RISER) 1.9 FT. STICLUP;
315.5	GROUND SURFACE		ADDED #1-Q SAND TO 7.0 FT BELOW GROUND SURFACE (TOOK SAMPLE); ADDED PELLETS TO 1.5 FT.; REMOVED AUGERS;
0.0	FILL VERY STIFF DARK BROWN MOTTLED CLAYEY SILT, SOME F-C SAND, LITTLE F-C GRAVEL		MIXED CEMENT GROUT, FILLED TO GROUND SURFACE; PUT ON 8" O.D. ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND.
4.0	UPPER CLAY TILL VERY STIFF BROWN MOTTLED, SILTY CLAY, BECOMING STIFF TO VERY STIFF CLAYEY SILT SOME F-C SAND TRACE TO LITTLE F-C GRAVEL GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 8.0-11.6 FT.		WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PUT AROUND
3059	GLAUCOGASTRINE CLAY FIRM TO SOFT, GRAY BROWN, SILTY CLAY, SOME F-C SAND CHANGING TO VERY SOFT GRAY CLAY TRACE F-M SAND VERTICAL TUBULAR VOIDS FROM 12.0-14.0 FT. (MOLLUSK BURROWS)		WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A DEDICATED
11.6			STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.
2955	END OF BORING		<h3 style="text-align: center;">WELL DEVELOPMENT NOTES</h3> DATE DEVELOPED: 5-4-86 TO 7-11-86 DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 32.6 GAL. FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
20.0			NOTE: A 0.3 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5 AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 9.325, 10.325 FT. IN LENGTH, RESPECTIVELY.

JOB NO. B53-3051 QA. INSP. FWS PROJECT CWM/WELLS/MODEL CITY BORING NO. MW7-3D
 DEPTH HOLE 42.5 FT. DEPTH WL. 11.9 FT. DRILLING METHOD HOLLOW STEM AUGERS 4 1/4" ID SHEET 1 OF 1
 TEMP 50° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 315.2 FT.
 WEATHER CLOUDY/RAIN DRILL RIG ACKER AD-2 DRILLER J. GENOVESE DATUM MSL
 COORDINATES N10984.23, E10487.19 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 10:00 / 9-22-86
 LOCATION 7.9 FT WEST OF MW7-3S WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 2:45 / 9-22-86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 8 IN. REC./ATT		
295.2	FOR COMPLETE SOIL DESCRIPTION AT THIS LOCATION, ALSO SEE BORING LOG MW7-1D						INSTALLED 10 INCH DIA. PVC CASING TO 20.0 FEET AUGERED TO 20.0 FEET, NO SAMPLING	
20.0	VERY SOFT TO SOFT GRAY CLAY, LITTLE TO SOME F-C SAND.	CH	4	1	DO	4-2-2-2	20/24	GLACIOLACUSTRINE CLAY
			2	2	DO	2-1-1-1	24/24	
			20	3	DO	4-10-10-10	5/24	
288.2	COMPACT TO VERY DENSE, GRAY BROWN TO GRAY F SAND, TRACE TO AND M-C SAND, TRACE TO SOME SILT TRACE TO SOME CLAY, TRACE TO SOME GRAVEL, SATURATED	SM	18	4	DO	8-9-9-23	5/24	MIDDLE SILT TILL
27.0			64	5	DO	25-43-21-17	5/24	DILATANT FROM 27.0 TO 28.0 FEET AND FROM 32.0 TO 34.0 FT
			35	6	DO	3-5-30-26	2/24	
			145	7	DO	50-95	11/12	
261.2	VERY SOFT TO SOFT, GRAY CLAY, TRACE TO SOME F-M SAND.	CH	7	8	DO	WR-2-5-5	19/24	GLACIOLACUSTRINE CLAY FIRM GRAY SILTY CLAY LAYER FROM 34.0 TO 36.0 FT.
			19	9	DO	8-9-10-12	24/24	
			3	10	DO	WR-WR-3-2	23/24	
275.8	STIFF TO FIRM, RED BROWN, SILT SOME F-C SAND, TRACE CLAY MOIST	ML	76	11	DO	WH-23-53-100	19/24	GLACIOLACUSTRINE SILT/SAND
41.4								BASAL BED TILL
278.2	HARD, RED BROWN, SILTY CLAY, SOME F-C SAND, DRY FRAGILE, SOME GRAVEL AS RED BROWN SHALE AND BLUE GRAY LIMESTONE CLASTS	CL						END OF SAMPLING
42.0								
272.8	END OF SAMPLING AUGERED TO 42.5 FT.							INSTALLED MW7-3D SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.
42.4								

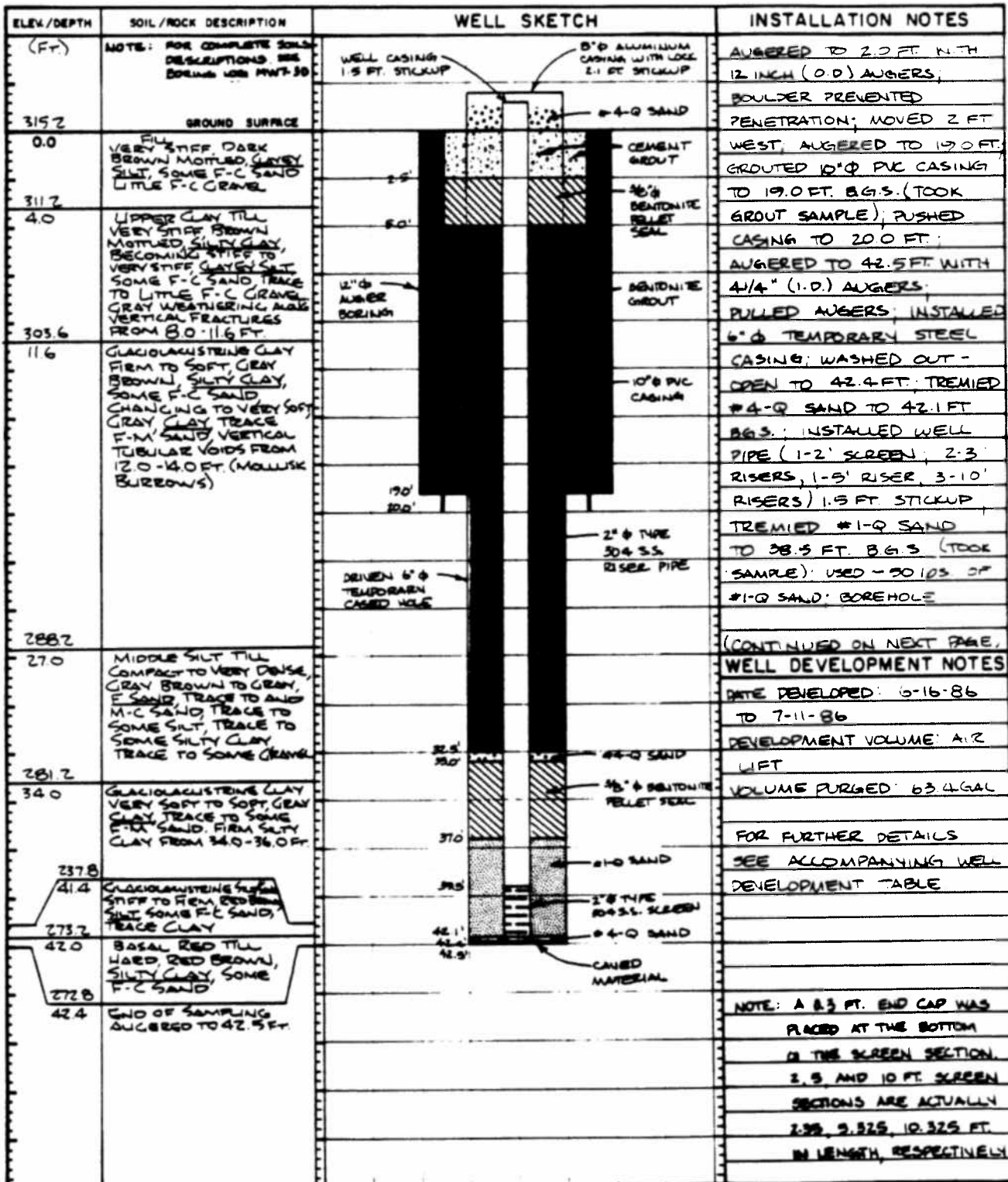
MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 853-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. MWT-3D SHEET 1 OF 2
 GA INSP FNS/DJM/PMS DRILLING METHOD HOLLOW STEM AUGER - 4 1/4" I.D. GROUND ELEV. 315.2 WATER DEPTH 11.7 FT
 WEATHER SUNNY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 316.74 DATE/TIME 9-22-86
 TEMP 70°F DRILL RIG ACKER AD-7 DRILLER J. GENOVESE STARTED 1:45 6-2-86 COMPLETED 4:55 6-9-86
 LOCATION/COORDINATES 6.0 FT. WEST OF MWT-35 / N 10984 23, E 10487.19 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>2.0</u> in. dia. <u>4.0</u> in.	WELL SCREEN <u>2.0</u> in. dia. <u>2.6</u> in.	BENTONITE SEAL <u>PELLETS 4.0' DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>TREMIE TUBE WASH</u>
JOINT TYPE <u>FLUSH TAPERED TAPER 9-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>5.4 L.F.</u>
GROUT QUANTITY _____	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>BENTONITE</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>TREMIE TUBE WASH</u>



JOB NO. 853-3051
 SCALE 1 INCH = 5 FEET

Golder Associates

CHECKED DJM
 DATE DRAWN 12-11-86

Golder Associates

SUBJECT CWM/WELLS/MODEL CITY MW7-3D		
Job No. 853-3051	Made by FWS, DJM, PMS	Date 6-9-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

COLLAPSE; TRIED TO BLOW OUT SOME SAND AND COLLAPSED MATERIAL - ONLY PARTIALLY SUCCESSFUL; CONTINUED ADDING SAND TO 37.0 FT.; TRIED PELLETS TO 33.0 FT B.G.S.; TRIED #4-Q SAND TO 32.5 FT. B.G.S.; MIXED GROUT (TOOK SAMPLE); GROUTED BOREHOLE; REMOVED 6" STEEL CASING; GROUT 5.0 FT. B.G.S.; ADDED PELLETS TO FILL VOID TO 2.5 FT B.G.S.; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" ϕ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A WELL WIZARD WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

JOB NO. B53-3051 GA. INSP. CFC PROJECT CWM/WELLS/NOEL CITY BORING NO. MW7-45
 DEPTH HOLE 20.0 FT. DEPTH WL. 3.68 FT. DRILLING METHOD HOLLOW STEM AUGERS-4 1/4 ID SHEET 1 OF 1
 TEMP 65° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 315.7 FT
 WEATHER PARTLY CLOUDY DRILL RIG CME 45 DRILLER K. SWANNICH DATUM MSL
 COORDINATES N10.98634 E10.63888 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 9:00 / 5-7-86
 LOCATION 4.0 FT. EAST OF MW7-4D WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 10:30 / 5-7-86

ELEV. DEPTH (Ft.)	DESCRIPTION	UNIFIED CLASS.	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
315.7	GROUND SURFACE						GROUND SURFACE	
0.0	COMPACT TO DENSE, BROWN TO GRAY BROWN SILT, AND F-C SAND, LITTLE TO SOME F-C GRAVEL	ML	29	1	DO	10-16-13-12	9/24	FILL
			59		DO	25-29-30-30	0/24	
309.7			39	2	DO	12-19-20-30	2/24	
6.0	VERY STIFF TO STIFF, BROWN, CLAYEY SILT, LITTLE TO SOME F-C SAND, TRACE TO LITTLE F-C GRAVEL	CL	65	3	DO	23-30-35-38	24/24	UPPER CLAY TILL MOTTLED AND WEATHERED GRAY ALONG VERTICAL FRACTURES FROM 6.0 TO 8.0 FEET
			22	4	DO	5-10-11-15	19/24	
303.7			18	5	DO	4-7-11-13	23/24	
12.0	STIFF, BROWN, SILTY CLAY, SOME F-C SAND, TRACE F-C GRAVEL, BECOMING SOFT BROWN GRAY AT 13.0 FT. AT 18.0 FT. BECOMING VERY SOFT GRAY CLAY, TRACE F-M SAND, TRACE SILT.	CL	42	6	DO	4-19-23-21	20/24	GLACIOLACUSTRINE CLAY VERTICAL TUBULAR VOIDS FROM 12.0 TO 14.0 FT. (MOLLUSK BURROWS)
			13	7	DO	3-6-7-7	23/24	
			19	8	DO	7-9-10-11	21/24	
295.7		CH	0	9	DO	WR-WR-NH-2	26/24	
20.0	END OF SAMPLING AUGERED TO 19.3 FT.						END OF SAMPLING	

MONITORING WELL INSTALLATION LOG

JOB NO. 853-3051 PROJECT NYDEC CHMS Document No. 201469232-00043 WELL NO. MWT-45 SHEET 1 OF 1
 SA INSP. CFC DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID GROUND ELEV. 315.7 FT. WATER DEPTH 3.68 FT.
 WEATHER PARTLY CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV. 317.07 FT. DATE/TIME 9-22-86
 TEMP. 70° F DRILL RIG CME 45 DRILLER K. SWINNICH STARTED 11:00 5-7-86 COMPLETED 1:05 5-7-86
 LOCATION/COORDINATES 5.0 FT. EAST MWT-40 / N 10986.54 E 10633.88 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN DIA. <u>10.0</u> FT	WELL SCREEN <u>2.0</u> IN DIA. <u>10.6</u> FT	BENTONITE SEAL <u>PELLETS 34' DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>RUSH TAPER VITON TAPE O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>135 L.F.</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-0 SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>

ELEV./DEPTH (FT)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
(FT)	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG MWT-45		<p>AUGERED TO 19.3 FT. ADDED #1-0 SAND TO 18.4 FT.</p> <p>INSTALLED WELL PIPE (1-10' SCREEN (1-10' RISER) 2.2 FT. STICKUP; ADDED #1-0 SAND TO 5.8 FT. BELOW GROUND SURFACE (TOOK SAMPLE). 0.6 FT. OF AUGER CUTTINGS FELL INTO BOREHOLE; ADDED PELLETS TO 1.8 FT.; REMOVED AUGERS; MIXED CEMENT GROUT, FILLED TO GROUND SURFACE; PUT ON 8" ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-0 SAND. WEED HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL. A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEED HOLES WERE INSTALLED. A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p> <p>WELL DEVELOPMENT NOTES</p> <p>DATE DEVELOPED: 5-4-86 TO 7-2-86</p> <p>DEVELOPMENT METHOD: AIR LIFT</p> <p>VOLUME PURGED: 28.8 GAL.</p> <p>FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.</p> <p>NOTE: A 0.3 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION 2.5, AND 10 FT. 3.88 SECTIONS ARE ACTUAL 2.35, 9.325, 10.325 FT IN LENGTH, RESPECTIVELY.</p>
315.7	GROUND SURFACE		
0.0	FILL COMPACT TO DENSE BROWN TO GRAY BROWN SILT AND F-C SAND, LITTLE TO SOME F-C GRAVEL		
309.7	UPPER CLAY TILL VERY STIFF TO STIFF, BROWN CLAYEY SILT, LITTLE TO SOME F-C SAND, TRACE TO LITTLE F-C GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 5.8-8.0 FT.		
6.0	GLACIOLACUSTRINE CLAY FIRM TO STIFF, BROWN, SILTY CLAY, SOME F-C SAND, TRACE F-C GRAVEL, TURNING TO VERY SOFT, GRAY, CLAY, TRACE F-M SAND, TRACE SILT, VERTICAL TUBULAR VOIDS FROM 12.0-14.0 FT (MOLLUSK BURROWS)		
303.7	END OF SAMPLING AUGERED TO 19.3 FT.		

JOB NO. 853-3051

Golder Associates

CHECKED DJM

SCALE 1 INCH = 5 FEET

DATE DRAWN 12-11-86

JOB NO. 853-3051 GA. INSP. FWS PROJECT CWM/WELLS/MODEL CITY BORING NO. MW7-4D
 DEPTH HOLE 44.0 FT. DEPTH WL. 11.82 FT. DRILLING METHOD HOLLOW STEM AUGERS 4 1/4" ID SHEET 1 OF 1
 TEMP 70°F TIME WL. 9/27/86 DRILLING COMPANY EMPE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 315.4 FEET
 WEATHER SUNNY DRILL RIG ACKER AD-2 DRILLER J. GENOVESE DATUM MSL
 COORDINATES N10906.04 E10629.00 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 8:10 / 5-28-86
 LOCATION 4.0 FT. WEST OF MW7-45 WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 10:25 / 5-28-86

ELEV. DEPTH (Ft.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
295.4	FOR COMPLETE SOIL DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG MW7-4D						INSTALLED 10 INCH DIA PVC CASING TO 20.0 FEET AUGERED TO 20.0 FEET NO SAMPLING	
290	VERY SOFT TO SOFT GRAY CLAY LITTLE TO SOME F.M SAND, TRACE TO SOME GRAVEL, TURNING TO SOFT TO FIRM, GRAY SILTY CLAY LITTLE TO SOME F SAND, TRACE TO LITTLE M SAND	CH	3	1	DO	WH-2-1-1	14/24	GLACIOLACUSTRINE CLAY
		CL	3	2	DO	1-1-2-1	24/24	BROWN SILT AND F SAND LENSES BETWEEN 24.0 AND 26.0 FEET
			17	3	DO	20-12-5-7	7/24	
			14	4	DO	7-8-6-7	10/24	GRAVEL LENSE FROM 27.0 TO 27.2 FEET
285.4			14	5	DO	3-6-8-12	16/24	
30.0	LOOSE TO COMPACT GRAY, F SAND LITTLE TO SOME SILT, LITTLE TO SOME CLAY LITTLE M SAND, TRACE TO LITTLE GRAVEL, MOIST TO WET, DILATANT	ML	18	6	DO	2-4-14-7	5/24	MIDDLE SILT TILL
281.4		SM	8	7	DO	8-4-4-4	9/24	
34.0	VERY SOFT TO FIRM, GRAY TO RED GRAY CLAY TRACE TO AND F-C SAND, TRACE TO LITTLE SILT, TRACE TO LITTLE GRAVEL.	CL	5	8	DO	WH-2-3-5	22/24	GLACIOLACUSTRINE CLAY
			15	9	DO	9-6-9-12	10/24	
			2	10	DO	WR-WR-2-1	24/24	
273.4			3	11	DO	WR-WR-3-8	24/24	
42.0	DENSE REDDISH TAN, F SAND, TRACE SILTY CLAY, WET	SM	7	100	DO	13-18-2-35	11/24	GLACIOLACUSTRINE SILT/SAND
272.4								BASAL RED TILL
43.0	HARD, RED BROWN, CLAYEY SILT, SOME F.M SAND, SOME GRAVEL AS RED SHALE CLASTS, DRY	ML						END OF BORING
271.4								
44.0	END OF BORING							NOTE: * 300 LB. HAMMER USED

INSTALLED MW7-4D SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

NYSDPFC O&MS Document No. 201469232-00043

JOB NO. <u>853-3051</u>	PROJECT <u>CWM/WELLS/MODEL CITY</u>	WELL NO. <u>MW7-40</u>	SHEET <u>1</u> OF <u>2</u>
GA INSP. <u>FWS</u>	DRILLING METHOD <u>HOLLOW STEM AUGER 4 1/4" I.D.</u>	GROUND ELEV. <u>315.4 FT.</u>	WATER DEPTH <u>11.82 FT.</u>
WEATHER <u>SUNNY WINDY</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	COLLAR ELEV. <u>317.61 FT.</u>	DATE/TIME <u>9:22-86</u>
TEMP. <u>80° F</u>	DRILL RIG <u>ACKER AD-2</u>	DRILLER <u>J. GENOVESE</u>	STARTED <u>10:45 5/28/86</u>
LOCATION/COORDINATES <u>4.0 FT. WEST OF MW7-45 / N 10986 04 E 10629 03</u>		COMPLETED <u>9:15 5/29/86</u>	

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN DIA. <u>430</u> FT	WELL SCREEN <u>2.0</u> IN DIA. <u>2.6</u> FT	BENTONITE SEAL <u>PELLETS</u> <u>41</u> DEEP
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>TREMIE TUBE & WASH</u>
JOINT TYPE <u>FLUSH TIGHTEN VITON THREADED TAPS O-RINGS</u>	SLOT SIZE <u>0.006</u> INCH	FILTER PACK QTY. <u>4.2</u> LF
GROUT QUANTITY <u>115</u> GAL.	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#10 SAND</u>
GROUT TYPE <u>BENTONITE</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>TREMIE TUBE & WASH</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
315.4	GROUND SURFACE		AUGERED TO 19.0 FT. WITH 12" (O.D.) AUGERS; GROUTED 10" Ø PVC CASING 7.0 FT. PUSHED CASING TO 20.0 FT. (GROUT SAMPLE TAKEN); AUGERED TO 44.0 FT. WITH 4 1/4" (I.D.) AUGERS; PULLED AUGERS; INSTALLED 6" Ø TEMPORARY STEEL CASING; WASHED OUT - OPEN TO 44.0 FT. B.G.S.; TREMIED #4-Q SAND TO 43.4 FT. B.G.S. (TOOK SAMPLE); INSTALLED WELL PIPE (1-2' SCREEN, 1-3' RISER, 4-10' RISERS) 2.2 FT. STICKUP; TREMIED #1-Q SAND (WITH WATER) TO 42.9 FT. B.G.S.; WATER IN BORING WAS VERY MUDDY AND #1-Q SAND WOULD NOT GO THROUGH TREMIE TUBE THEREFORE WASHED OUT 6" STEEL CASING AGAIN.
0.0	FILL		(CONTINUED ON NEXT PAGE)
309.4	COMPACT TO DENSE, BROWN TO GRAY BROWN SILT AND F-C SAND, LITTLE TO SOME F-C GRAVEL		WELL DEVELOPMENT NOTES
6.0	UPPER CLAY TILL VERY STIFF TO STIFF BROWN, CLAYEY SILT, LITTLE TO SOME F-C SAND, TRACE TO LITTLE F-C GRAVEL. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 6.0-8.0 FT.		DATE DEVELOPED: 5-29-86 TO 7-11-86
303.4	GLACIOLACUSTRINE CLAY FIRM TO STIFF, BROWN, SILTY CLAY, SOME F-C SAND, TRACE F-C GRAVEL, TURNING TO VERY SOFT, GRAY, CLAY, TRACE F-M SAND, TRACE SILT VERTICAL TUBULAR VOIDS FROM 12.0-14.0 FT. (MOLLUSK BURROWS)		DEVELOPMENT METHOD AIR LIFT
12.0			VOLUME PURGED: 24 GAL
285.4	MIDDLE SILT TILL LOOSE TO COMPACT, GRAY F SAND, LITTLE TO SOME SILTY CLAY,		FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
30.0	GLACIOLACUSTRINE CLAY VERY SOFT TO FIRM, GRAY TO RED GRAY, CLAY, TRACE TO AND F-C SAND, TRACE TO LITTLE SILT, TRACE TO LITTLE GRAVEL		
281.4	GLACIOLACUSTRINE SILT/CLAY DENSE, REDDISH TAN, F SAND, TRACE SILTY CLAY		
34.0	BASAL RED TILL HARD, RED BROWN, CLAYEY SILT, SOME F-M SAND, SOME F-C GRAVEL		
273.4	END OF BORING		
42.0			
272.4			
43.0			
271.4			
44.0			

Golder Associates

SUBJECT CWM/WELLS/MODEL CITY MW 7-4D		
Job No. 853-3051	Made by FWS	Date 5-29-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

UNTIL WATER WAS CLEAR; CONTINUED ADDING #1-Q SAND TO 39.2 FT. B.G.S. (TOOK DRY SAMPLE); TREMIED PELLETS TO 35.1 FT. B.G.S.; TREMIED #4-Q SAND TO 34.5 FT. B.G.S.; MIXED GROUT 1ST BATCH 60 LBS. BENTONITE/40 GAL. H₂O, 2ND 55 LBS BENTONITE/40 GAL. H₂O, 3RD 30 LBS BENTONITE/35 GAL. H₂O; REMOVED 6" ϕ STEEL CASING; GROUT 0.8 FT. B.G.S.; MIXED CEMENT GROUT FILLED TO GROUND SURFACE; PUT ON 8" ϕ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A WELL WIZARD WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

Boring Log

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 853-3051 GA. INSP. CFC PROJECT WATER WELLS MODEL CITY BORING NO. MW7-55
 DEPTH HOLE 26.0 FT DEPTH WL. 3.94 FT. DRILLING METHOD HOLLOW STEM AUGERS-4 1/4" ID SHEET 1 OF 1
 TEMP 60° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 316.2 FT
 WEATHER OVERCAST DRILL RIG CME 45 DRILLER K. SWINNICH DATUM MSL
 COORDINATES N 10.987.77 E 10.776.33 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 8:30 / 5:48
 LOCATION 3.5 FT. EAST OF MW7-50 WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 10:30 / 12:16

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT	
316.2	GROUND SURFACE						GROUND SURFACE
0.0	FIRM TO STIFF BROWN, CLAYEY SILT, SOME F-M SAND, LITTLE F GRAVEL, TRACE ROOTS.	ML	11	1	DO	3-4-7-7 14/24	FILL
314.2	VERY STIFF, BROWN, MOTTLED, CLAYEY SILT, TRACE TO SOME F-C SAND, LITTLE F GRAVEL	CL	36	2	DO	13-20-16-22 20/24	UPPER CLAY TILL
2.0			30	3	DO	10-13-17-20 23/24	
			48	4	DO	20-22-26-28 26/24	
			24	5	DO	7-10-14-14 24/24	
			22	6	DO	4-8-14-16 9/24	
304.7	FIRM, GRAY BROWN, SILTY CLAY, BECOMING SOFT TO FIRM CLAYEY SILT, LITTLE TO SOME F-C SAND, TRACE TO LITTLE F-C GRAVEL, BECOMING VERY SOFT, LIGHT GRAY, CLAY LITTLE TO SOME F-C SAND	CL	47	7	DO	20-20-27-26 18/24	GLACIOLACUSTRINE CLAY
12.0			38	8	DO	5-19-19-8 24/24	VERTICAL TUBULAR VOIDS 12.0 TO 14.0 FT. (MOLLUSK BURROWS)
			18	9	DO	8-9-9-10 24/24	
			26	10	DO	8-10-16-16 12/24	
			17	11	DO	5-7-10-4 18/24	COMPACT, GRAY BROWN, SILT AND F SAND LAYER FROM 20.0 TO 20.8 FT.
			10	12	DO	4-4-6-6 24/24	
			11	13	DO	WH-4-7-6 6/24	
290.2	END OF SAMPLING AUGERED TO 24.2 FT.						END OF SAMPLING
26.0							

MONITORING WELL INSTALLATION LOG

NYSDDEC OHMIS Document No. 201469232-00043

JOB NO. 853-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. MW7-55 SHEET 1 OF 2

GA INSP. CFC DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID GROUND ELEV. 316.2 FT. WATER DEPTH 3.94 FT.

WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 318.21 FT. DATE/TIME 9-22-86

TEMP. 70° F DRILL RIG CME 45 DRILLER K. SWINNISH STARTED 11:00 9-6-86 COMPLETED 12:30 9-6-86

LOCATION/COORDINATES 3.5 FT. EAST OF MW7-50 / N 10987.77 E 10776.33

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN. DIA. <u>10.0</u> LF	WELL SCREEN <u>2.0</u> IN. DIA. <u>15.9</u> LF	BENTONITE SEAL <u>PELLETS 6.2' DEEP</u>
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>THREADED</u> RUSH TAPLON VITON	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>17.0 L.F.</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS SEE BORING LOG MW7-53		AUGERED TO 24.2 FT. ADDED #1-Q SAND TO 23.9 FT. BELOW GROUND SURFACE (SAMPLE TAKEN); INSTALLED WELL PIPE (1-5' SCREEN, 1-10' SCREEN, 1-10' RISER), 2.0 FT. STICKUP; ADDED #1-Q SAND TO 7.2 FT. ADDED PELLETS TO 1.0 FT. BELOW GROUND SURFACE; REMOVED AUGERS; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" Ø ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEED HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEED HOLES WERE PUT IN CASING.
316.2	GROUND SURFACE		
0.0	FILL		
314.2	FIRM TO STIFF, BROWN, CLAYEY SILT, SOME F-C SAND		
2.0	UPPER CLAY TILL		
	VERY STIFF, BROWN, MOTTLED, CLAYEY SILT, TRACE TO SOME F-C SAND, LITTLE # GRAVEL		
308.2	GLACIOLACUSTRINE CLAY		(CONTINUED ON NEXT PAGE)
12.0	FIRM, GRAY BROWN, SILTY CLAY, BECOMING SOFT TO FIRM, CLAYEY SILT, BECOMING VERY SOFT, LIGHT GRAY, CLAY, LITTLE TO SOME F-C SAND		WELL DEVELOPMENT NOTES
290.2			DATE DEVELOPED: 8-7-86 TO 7-2-86
26.0	END OF SAMPLING AUGERED TO 24.2 FT.		DEVELOPMENT METHOD: AIR LIFT
			VOLUME PURGED: 41.5 GAL
			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE
			NOTE: A 0.9 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION 2.9, 9.325, 10.325 FT IN LENGTH, RESPECTIVELY

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY		MW7-55
Job No. 855-3051	Made by CFC	Date 5.6.86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

A DEDICATED STAINLESS STEEL BALER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

Lined area for additional notes or drawings.

Boring Log

JOB NO. 853-3051 GA. INV. NYSDEC CHMS Document No. 201469232-00043 PROJECT WATER RES. MODEL CITY BORING NO. MW7-5D
 DEPTH HOLE 40.0 FT DEPTH WL. 11.82 FT DRILLING METHOD HOLLOW STEM AUGERS-4 1/4" ID SHEET 1 OF 1
 TEMP 60°-65° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 316.4 FT
 WEATHER CLOUDY, RAIN, WARM DRILL RIG ACKER AD-2 DRILLER J. GENOVESE DATUM MSL
 COORDINATES N10.98771 E 10.772.87 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 7:20 / 5-23-86
 LOCATION 3.5 FEET WEST OF MW7-5D WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 10:30 / 5-23-86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC/ATT		
292.4	FOR A COMPLETE SOIL DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG MW7-5D						INSTALLED 10 INCH DIA PVC CASING TO 19.7 FT AUGERED TO 24.0 FT NO SAMPLING	
24.0	SOFT, GRAY, CLAY, SOME F-M SAND	CH	7	1	DD	2-2-5-14	22/24	GLACIOLACUSTRINE CLAY THIN SAND LENSSE AT 25.5 FT
208.9			13	2	DD	5-9-14-8	14/24	
27.5	COMPACT TO DENSE, GRAY, F SAND, TRACE TO SOME SILT, TRACE TO SOME MC SAND, TRACE CLAY.	SM	52	3	DD	17-25-27-27	20/24	MIDDLE SILT TILL COMPACT GRAY SILT LAYER FROM 27.5 TO 28.0 FT. DILATANT BELOW 30.0 FT. WET BELOW 32.0 FT.
281.1			81	4	DD	13-31-50-55	14/24	
281.1			82	5	DD	17-35-47-25	13/24	
35.3	DENSE TO VERY DENSE, RED BROWN, F SAND, LITTLE TO SOME M SAND, LITTLE TO SOME SILT, LITTLE TO SOME CLAY, WET, DILATANT.	SM	17	6	DD	8-5-12-12	16/24	GLACIOLACUSTRINE SILT/SAND
277.4			97	7	DD	34-46-51-75	1/24	
39.0	VERY STIFF, RED BROWN CLAYEY SILT SOME F-C SAND, OCCASIONAL GRAY LIMESTONE AND RED TO DARK GRAY SHALE CLAST.	ML	2100	8	DD	65-58-38*	8/12	
276.4			2100	9	DD	100/15*	6/12	BASAL BED TILL
40.0	END OF BORING							END OF BORING

* NOTE: 300 LB. HAMMER WAS USED.

INSTALLED MW7-5D
SEE ACCOMPANYING
MONITORING WELL
INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

NYSD E.C. O.H.M.S. Document No. 201469232-00043

JOB NO. B53-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. MW7-5D SHEET 1 OF 2
 GA INSP BWS DRILLING METHOD HOLLOW STEM AUGER 4 1/4" I.D. GROUND ELEV 316.4 FT WATER DEPTH 11.84 FT
 WEATHER WINDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV 318.32 FT DATE/TIME 9-22-86
 TEMP 70-75°F DRILL RIG ACKER AD-2 DRILLER J. GENOVESE STARTED 1:00 5/23/86 COMPLETED 2:10 5/27/86
 LOCATION/COORDINATES 25 FT. WEST OF MW7-5S / N 10987.71 E 10772.87

MATERIALS INVENTORY

WELL CASING 20 IN DIA. 310 FT WELL SCREEN 2.0 IN DIA. 10.6 FT BENTONITE SEAL PELLETS 3.9' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD TREMIE TUBE & WASH
 JOINT TYPE RUSH PERMAN VITON SLOT SIZE 0.006 INCH FILTER PACK QTY 14.1 L.F. 250 lbs
 GROUT QUANTITY 70 GAL. CENTRALIZERS NONE FILTER PACK TYPE #10 SAND
 GROUT TYPE BENTONITE DRILLING MUD TYPE NONE INSTALLATION METHOD TREMIE TUBE & WASH

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
316.4	GROUND SURFACE		AUGERED TO 19.5 FT WITH 12 INCH (O.D.) AUGERS;
0.0	FIRM TO STIFF BROWN, CLAYEY SILT, SOME F-C SAND		GROUTED 10" φ PVC CASING 19.5 FT. (TOOK GROUT SAMPLE);
314.4	UPPER CLAY TILL		PUSHED CASING TO 19.7 FT. B.G.S.; AUGERED TO 40.0 FT WITH 4 1/4 INCH (I.D.) AUGERS;
2.0	VERY STIFF, BROWN, MOTTLED, CLAYEY SILT, TRACE TO SOME F-C SAND, LITTLE F GRAVEL		PULLED AUGERS; INSTALLED 6" φ TEMPORARY STEEL CASING; WASHED OUT - OPEN TO 40.0 FT; TREMIED (WITH WATER) #4-O SAND TO 39.7 FT. B.G.S. (TOOK DRY SAMPLE);
304.4	GLACIOLACUSTRINE CLAY		INSTALLED WELL PIPE (1-10" SCREEN, 2-3' RISERS, 1-5' RISER, 2-10' RISERS) 1.9 FT. STICKUP; TREMIED #1-Q SAND TO 25.9 FT. B.G.S. (TOOK SAMPLE); ADDED PELLETS TO 22.0 FT. B.G.S. MIXED GROUT; 12" BATCH 50 LBS BENTONITE / 25 GAL. H ₂ O, 2ND BATCH 50 LBS BENTONITE / 35 GAL. H ₂ O;
12.0	FIRM, GRAY BROWN, SILTY CLAY, BECOMING SOFT TO FIRM, CLAYEY SILT, BECOMING VERY SOFT, LIGHT GRAY CLAY, LITTLE TO SOME F-C SAND		(CONTINUED ON NEXT PAGE)
288.9	MIDDLE SILT TILL		WELL DEVELOPMENT NOTES
27.5	COMPACT TO DENSE, GRAY F SAND, TRACE TO SOME SILT, TRACE TO SOME M-C SAND, TRACE CLAY		DATE DEVELOPED: 9-27-86 TO 7-11-86
281.1	GLACIOLACUSTRINE SILT/SAND		DEVELOPMENT METHOD: AIR LIFT
35.3	DENSE TO VERY DENSE, RED BROWN F SAND, LITTLE TO SOME M SAND, LITTLE TO SOME CLAY		VOLUME PURGED: 49.0 GAL.
277.4	VERY STIFF, RED BROWN, CLAYEY SILT, SOME F-C SAND, OCCASIONAL GRAY LAMINATIONS AND RED TO DARK GRAY SHALE CLAY		FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
39.0	BASAL RED TILL		
276.4	END OF BORING		
40.0			

NOTE: A 03 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION 2.5, AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 9.325, 10.325 FT IN LENGTH, RESPECTIVELY.

**Golder
Associates**

NYS DEC OHMS Document No. 201469232-00043

SUBJECT CWM/WELLS/MODEL CITY		MW7-50
Job No. 853-3051	Made by FWS	Date 5-27-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

REMOVED 6" ϕ STEEL CASING; GROUT 2.5 FT. B.G.S.; ADDED PELLETS TO 0.7 FT. B.G.S.; MIXED CEMENT GROUT; FILLED TO TOP OF 10" ϕ PVC CASING; INSTALLED 8" ϕ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF PROTECTIVE CASING WITH #4- ϕ SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A WELL WIZARD WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

Boring Log

NYSDEC OHMS Document No. 201409232-00043

JOB NO. <u>853-3051</u>	QA. INSP. <u>DJM</u>	PROJECT <u>CWM WELLS/ MODEL CITY</u>	BORING NO. <u>P7-15</u>
DEPTH HOLE <u>260 FT.</u>	DEPTH WL. <u>325 FT.</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS-4 1/4" ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>12°/28°</u>	TIME WL. <u>9/22/86</u>	DRILLING COMPANY <u>EMERIE SOILS INVESTIGATIONS, INC.</u>	SURFACE ELEV. <u>317.4 FT.</u>
WEATHER <u>PARTLY CLOUDY</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>J. GENOVESE</u>	DATUM <u>MSL</u>
COORDINATES <u>N 10 523.20 E 11100.59</u>	WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>	STARTED <u>2:25</u> / <u>12:11</u>
LOCATION <u>-12 FT. NORTH OF Z-3</u>	WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>	COMPLETED <u>1:00</u> / <u>12:34</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT	
317.4	GROUND SURFACE							GROUND SURFACE
0.0	COMPACT BROWN, SLIGHTLY MOTTLED, CLAYEY SILT, BECOMING FIRM, SILTY CLAY, SOME F-M SAND TRACE TO LITTLE F GRAVEL AS SUBROUNDED CLASTS.	CL	14	1	DO	6-6-8-11	18/24	UPPER CLAY TILL (POSSIBLY FILL)
			27	2	DO	9-12-15-15	15/24	GRAY WEATHERING ALONG VERTICAL FRACTURES BETWEEN 2.0 AND 6.0 FEET
			20	3	DO	7-8-12-12	24/24	
311.4	COMPACT TO DENSE, LIGHT BROWN, SILT TRACE TO LITTLE, F SAND, TRACE CLAY.	ML	24	4	DO	9-12-12-14	8/24	UPPER SILT TILL (POSSIBLY TRENCH FILL)
			34	5	DO	7-12-22-25	24/24	
			47	6	DO	7-12-22-25	24/24	VERY SOFT SILT AND F SAND LAYER FROM 10.0 TO 10.7 FEET
			47	7	DO	25-25-22-40	24/24	SOFT TO FIRM GRAY SILTY CLAY LAYER FROM 10.7 TO 12.0 FEET
			47	8	DO	20-22-25-24	21/24	
302.1	FIRM, GRAY BROWN, SILTY CLAY SOME F-C SAND, AND TRACE TO LITTLE GRAVEL AS SUBROUNDED.	CL	55	9	DO	17-20-35-22	20/24	GLACIOLACUSTRINE CLAY
19.3			32	12	DO	6-11-21-21	20/24	OCCASIONAL DILATANT SILT LENSES FROM 18.0 TO 20.0 FT.
			34	13	DO	12-14-20-23	15/24	
296.7	DENSE, GRAY BROWN, CLAYEY SILT, BECOMING COMPACT, GRAY BROWN, SILT, SOME F-C SAND, LITTLE F-C GRAVEL AS GRAY SUBROUNDED DROPSTONES, TRACE CLAY.	ML	65	14	DO	22-25-40-45	16/24	MIDDLE SILT TILL
20.7			36	15	DO	15-17-19-17	18/24	
292.4	SOFT, GRAY SILTY CLAY LITTLE F-M SAND, AS GRAY DROPSTONES, PLASTIC	CL	31	16	DO	19-20-11-9	24/24	GLACIOLACUSTRINE CLAY
25.0								
291.4	END OF SAMPLING AUGERED TO 25.0 FT.							INSTALLED P7-15 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.
26.0								

JOB NO. <u>853-3051</u>	Golder Associates	CHECKED <u>DJM</u>
SCALE <u>1 INCH = 5 FEET</u>		DATE DRAWN <u>12/15/86</u>

MONITORING WELL INSTALLATION LOG

NY SPFC O&MS Document No. 201409232-00043

JOB NO. B53-3051 PROJECT CWIM / WELLS / MODEL CITY WELL NO. P7-15 SHEET 1 OF 2
 GA INSP. DJM DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID GROUND ELEV. 317.4 ET WATER DEPTH 3.25 FT
 WEATHER OVERCAST DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 320.41 FT DATE/TIME 9.22.86
 TEMP. _____ DRILL RIG CME 45 DRILLER J. GENOVESE STARTED 1:00 12-20-85 COMPLETED 3:30 12-20-85
 LOCATION/COORDINATES N 10223.20' E 11108.53' TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>2.0</u> W. DIA. <u>10.0</u> I.I.	WELL SCREEN <u>2.0</u> W. DIA. <u>16.2</u> I.I.	BENTONITE SEAL <u>PELLETS</u> 7' DEEP
CASING TYPE <u>PVC</u>	SCREEN TYPE <u>PVC</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>THREADED TAPER O-RINGS</u>	SLOT SIZE <u>0.006</u> INCH	FILTER PACK QTY <u>18</u> FT
GROUT QUANTITY <u>OF SURFACE CASING</u> <u>7'</u>	CENTRALIZERS <u>NA</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>VOCLAY # 700</u>	DRILLING MUD TYPE <u>NA</u>	INSTALLATION METHOD <u>TREMI TUBE</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
317.4	GROUND SURFACE		AUGERED TO 6.5 FT WITH 6 1/4" (I.D.) AUGERS REAMED HOLE WITH 15" CAISON BIT GROUTED HOLE AND INSTALLED 10" STEEL CASING TO 7.0 FT. AUGERED TO 25.0 FT B.G.S WITH 4 1/4" (I.D.) AUGERS. PULLED BACK AUGERS AND TREMIED SAND TO 24.0 FT B.G.S; INSTALLED WELL PIPE (1-10' SCREEN 1-5' SCREEN 1-10' RISER) 2.2 FT STICKUP. IN STEPS OF ~2 FT PULLED BACK AUGERS AND TREMIED SAND. PULLED OUT AUGERS, POURED SAND TO 7.0 FT B.G.S. ADDED PELLETS TO GROUND SURFACE; PUT ON 8" & ALUMINUM PROTECTIVE CASING. FILLED INTERIOR OF CASING WITH #4-10 SAND; WEED HOLES WERE PUT IN FOR DRAINAGE. PROTECTIVE POST WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PUT AROUND WELL ON THE SITE.	
0.0	UPPER CLAY TILL (POSSIBLY FILL) COMPACT BROWN CLAYEY SILT TO SILTY CLAY, SOME F.M SAND, TRACE TO LITTLE GRAVEL.			
311.4	6.0		UPPER SILT TILL (POSSIBLY FILL) COMPACT TO DENSE LIGHT BROWN SILT, TRACE TO LITTLE F SAND.	
302.1	15.3		GLACIOLACUSTRINE CLAY FIRM GRAY BROWN SILTY CLAY, SOME F-C SAND, TRACE TO LITTLE GRAVEL.	
296.7	20.7		MIDDLE SILT TILL DENSE GRAY BROWN CLAYEY SILT TO COMPACT GRAY BROWN SILT, SOME F-C SAND, LITTLE F-C GRAVEL.	
292.4	25.0		GLACIOLACUSTRINE CLAY SOFT GRAY SILTY CLAY, LITTLE F-M SAND.	
291.4	26.0		END OF SAMPLING AUGERED TO 25.0 FT.	
				(CONTINUED ON NEXT PAGE)
				WELL DEVELOPMENT NOTES
				12-23-85 N ₂ GAS PURGE
			12-24-85 N ₂ GAS PURGE	
			01-06-86 N ₂ GAS PURGE	
			S ₂ = 1200 SLIGHTLY SILTY	
			01-07-86 N ₂ GAS PURGE	
			01-08-86 N ₂ GAS PURGE	

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY		P7-1S
Job No. 853-3051	Made by DJM	Date 12-20-85
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

AND NEW WEEP HOLES WERE PUT IN PROTECTIVE CASING; A DEDICATED
BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

[The remainder of the page consists of 25 horizontal lines for additional notes.]

Boring Log

JOB NO. 853-3051 GA. INSP. GR PROJECT CWM/WELLS/MODEL CITY BORING NO. P7-25
 DEPTH HOLE 20.0 FT. DEPTH WL. 9.48 FT. DRILLING METHOD HOLLOW STEM AUGERS 4 1/4" 10 SHEET 1 OF 1
 TEMP 67° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 316.0 FT
 WEATHER CLEAR DRILL RIG CME 45 DRILLER R. KEPHART DATUM MSL
 COORDINATES N 10.392 46 E 10.859 51 WT. SAMPLER HAMMER 140 LBS DROP 30 IN. STARTED 10/20/58
 LOCATION --- WT. CASING HAMMER 300 LBS DROP 30 IN. COMPLETED 1/37/58

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
316.0	GROUND SURFACE						GROUND SURFACE	
0.0	DENSE, LIGHT BROWN, F SAND, LITTLE SP SILTY CLAY, AND PLANT MATERIAL	SP	109	2	DO	18-52-57-35	20/24	GROUND SURFACE TOP SOIL
315.5	VERY STIFF TO FIRM, BROWN TO GRAY BROWN, CLAYEY SILT, SOME F-C SAND, TRACE TO SOME F-C GRAVEL AS DROPSTONES, DRY.	CL	49	3	DO	34-24-25-28	20/24	UPPER CLAY TILL
0.5			32	4	DO	10-14-18-20	24/24	
			73	5	DO	28-32-41-14	24/24	
			15	6	DO	5-6-9-8	24/24	
			12	8	DO	2-3-9-12	9/24	
304.0			COMPACT, GRAY BROWN, F SAND, SOME SILT LITTLE M-C SAND, DILATANT.	SP	38	9	DO	
14.0	SOFT, BROWN GRAY, SILTY CLAY, LITTLE TO AND F-C SAND, TRACE TO LITTLE F GRAVEL, BECOMING VERY SOFT, GRAY, CLAY, TRACE SAND, MOIST.	CL	12	10	DO	5-7-5-8	23/24	GLACIOLACUSTRINE CLAY
			24	11	DO	8-12-12-14	24/24	CLAYEY SILT AND F-C SAND LAYER FROM 18.0 TO 18.5 FEET
298.0		CH	5	12	13	DO	1-2-3-4	
20.0	END OF SAMPLING AUGERED TO 19.5 FT.							END OF SAMPLING
								INSTALLED P7-25 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

JOB NO. 853-3051

Golder Associates

CHECKED DJM

SCALE 1 INCH = 5 FEET

DATE DRAWN 12/15/86

MONITORING WELL INSTALLATION LOG

JOB NO. 853-3031 PROJECT CNM / WELLS / MODEL CITY WELL NO. PT-25 SHEET 1 OF 1
 SA WSP GR DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID GROUND ELEV 316.0 FT WATER DEPTH 5.48 FT
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV 317.48 FT DATE/TIME 9-22-86
 TEMP 70°F DRILL RIG CME 45 DRILLER K SWINNICH STARTED 2:00 5-8-86 COMPLETED 3:15 5-8-86
 LOCATION/COORDINATES N 102°22' 46" E 108°59' 51"

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN DIA. <u>100</u> FT	WELL SCREEN <u>2.0</u> IN DIA. <u>106</u> FT	BENTONITE SEAL <u>PELLETS 4.6</u> DEEP
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>
JOINT TYPE <u>FLUSH TEFALON VITON O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY <u>11.5 LB ; 250 LBS</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>THROUGH AUGERS</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
316.0	GROUND SURFACE		<p>AUGERED TO 19.5 FT.; ADDED #1-Q SAND TO 18.9 FT. BELOW GROUND SURFACE (TOOK SAMPLE); INSTALLED WELL PIPE (1-10' SCREEN, 1-10' RISER); WELL BOTTOM SANK TO 19.1 FT.; 1.5 FT. STICKUP; ADDED #1-Q SAND TO 8.0 FT.; ADDED PELLETS TO 3.4 FT. BELOW GROUND SURFACE; REMOVED AUGERS; ADDED BENTONITE POWDER TO 1.7 FT.; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PUT AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A DEDICATED STAINLESS STEEL SAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p> <p>WELL DEVELOPMENT NOTES</p> <p>DATE DEVELOPED: 5-14-86 TO 7-11-86</p> <p>DEVELOPMENT METHOD: AIR LIFT</p> <p>VOLUME PURGED: 29.0 GAL</p> <p>FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.</p>	
0.0	TOP SOIL DENSE, LIGHT BROWN, F.SAND, LITTLE SILTY CLAY		1.7'	
0.5	UPPER CLAY TILL VERY STIFF TO FIRM, BROWN TO GRAY BROWN, CLAYEY SILT, SOME F-C SAND, TRACE TO SOME F-C GRAVEL		3.4'	
304.0	UPPER SILT TILL COMPACT; BEAN BROWN; F.SAND, SOME SILT, LITTLE M-C SAND		8.0'	
302.0	GLACIOLACUSTRINE CLAY SOFT, BROWN GRAY, SANDY CLAY, LITTLE TO MUD F-C SAND, TRACE TO LITTLE F GRAVEL, BECOMING VERY SOFT, GRAY, CLAY, CLAYEY SILT AND SAND LAYER FROM 18.0-18.5 FT.		18.0'	
206.0	END OF SAMPLING AUGERED TO 19.5 FT.		19.1'	

JOB NO. 853-3031

Golder Associates

CHECKED DJM

DATE DRAWN 12-11-86

1 INCH = 5 FEET

Boring Log

JOB NO. 853-3051 SA. NYSDEC OHMS Document No. 201409282-000123 PROJECT NEW WELLS, MODEL CITY BORING NO. P7-35
 DEPTH HOLE 24.0 FT. DEPTH WL. 4.75 FT. DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID SHEET 1 OF
 TEMP 60° F TIME WL. 9/23/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 318.75 FT
 WEATHER CLOUDY DRILL RIG ACKER AD-2 DRILLER J. GONOVESE DATUM MSL
 COORDINATES N 10.308.39 E 111.6.29 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 9:00 19-8-86
 LOCATION WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 2:50 19-8-86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
318.7	GROUND SURFACE						GROUND SURFACE	
0.0	VERY STIFF, BROWN, MOTTLED, CLAYEY SILT, BECOMING VERY STIFF, TO STIFF BROWN, SILTY CLAY, SOME F-C SAND, TRACE TO LITTLE GRAVEL.	CL	54	1	DO	30-30-24-30	10/24	UPPER CLAY TILL GRAY WEATHERING ALONG VERTICAL FRACTURES BETWEEN 4.0 AND 6.0 FEET SLIGHT ORGANIC ODOR FROM 4.0 AND 12.0 FT.
			78	2	DO	19-40-38-41	14/21	
			53*	3	DO	19-24-29-26*	21/24	
			22*	4	DO	8-10-12-16*	20/24	
			17*	5	DO	15-6-11-14*	21/24	
			36*	6	DO	10-16-20-75*	16/24	
			15*	7	DO	12-6-9-6*	17/24	
14.0	FIRM, GRAY BROWN, CLAY SOME F-M SAND, LITTLE C SANDS, LITTLE GRAVEL AS GRAY SUBROUNDED DROPTONES	CL	16	8	DO	4-8-8-7	18/24	GLACIOLACUSTRINE CLAY
30.9	COMPACT TO DENSE, BROWN SILT, SOME F-C SAND, LITTLE F-C GRAVEL AS GRAY SUBANGULAR TO SUBROUNDED CLASTS, TRACE TO LITTLE CLAY		20	9	DO	4-8-22-12	15/24	UPPER SILT TILL
16.8			38	11	DO	14-16-22-27	5/24	
			28	12	DO	12-14-14-16	12/24	
296.2	SOFT, GRAY BROWN, SILTY CLAY, LITTLE F SAND	CL	8	13	DO	5-3-5-5	13/24	GLACIOLACUSTRINE CLAY
22.5 294.7			14	DO				
24.0	END OF BORING							END OF BORING

* NOTE: 300 LB. HAMMER USED.

 INSTALLED P7-35
 SEE ACCOMPANYING
 MONITORING WELL
 INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

JOB NO. B53-3051 PROJECT CIWM / WELLS / MODEL CITY WELL NO. P7-35 SHEET 1 OF 2
 GA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS-4/4 ID GROUND ELEV. 318.7 FT WATER DEPTH 3.75 FT
 WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC COLLAR ELEV. 320.91 FT DATE/TIME 9-23-86
 TEMP. 65°F DRILL RIG ACKER AD-2 DRILLER J. GENOVESE STARTED 3:00 9:18 86 COMPLETED 4:00 9:18 86
 LOCATION/COORDINATES N 10308.34 E 11116.29

MATERIALS INVENTORY

WELL CASING 2.0 IN. DIA. 10.0 FT WELL SCREEN 2.0 IN. DIA. 15.8 FT BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH TAPERED TAPED VITON O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 16.6 L.F. 400 LBS
 GROUT QUANTITY NA CENTRALIZERS NONE FILTER PACK TYPE #1-0 SAND
 GROUT TYPE NA DRILLING MUD TYPE NONE INSTALLATION METHOD THROUGH AUGERS

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS SEE BORING LOG P7-35	<p style="font-size: small;">WELL CASING 2.2 FT. STICKUP 8" Ø ALUMINUM CASING WITH LONG 2.8 FT. STICKUP 2" Ø TYP. 304 S.S. RISE PIPE 2.2' BENTONITE GROUT 10" Ø PVC CASING 3/8" BENTONITE PELLETS SEAL #1-0 SAND 2" Ø TYP. 304 S.S. SCREEN CAVED MATERIAL</p>	
318.7	GROUND SURFACE		AUGERED TO 6.0 FT. WITH 12 INCH (O.D.) AUGER; UNSTALLED 6 FEET OF 10" Ø PVC CASING; AUGERED TO 24.0 FT WITH 4 1/4 INCH (I.D.) AUGERS.
0.0	UPPER CLAY TILL VERY STIFF, BROWN MOTTLED, CLAYEY SILT, BECOMING VERY STIFF, BROWN, SILTY CLAY, SOME F-C SAND. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 4.0-6.0 FT.		CAVED MATERIAL TO 23.6 FT. INSTALLED WELL PIPE (1-5' SCREEN, 1-10' SCREEN, 1-10' RISE) 2.2 FT. STICKUP; ADDED #1-0 SAND TO 7.0 FT. B.G.S. (TOOK SAMPLE); REMOVED AUGERS; ADDED PELLETS TO 3.0 FT B.G.S.; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE. PUT ON 8" Ø ALUMINUM PROTECTIVE CASING; WEAP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL. A CONCRETE PAD WAS LATER PLACED AROUND WELL ON THE SITE AND NEW WEAP HOLES WERE PUT IN CASING;
308.7	GLACIOLACUSTRINE CLAY FIRM, GRAY BROWN, CLAY, SOME F-C SAND, LITTLE G SAND, LITTLE GRAVEL		(CONTINUED ON NEXT PAGE)
14.0	UPPER SILT TILL COMPACT TO DENSE, BROWN, SILT, SOME F-C SAND LITTLE G GRAVEL, TRACE TO LITTLE CLAY		WELL DEVELOPMENT NOTES
301.9	GLACIOLACUSTRINE CLAY SOFT, GRAY BROWN, SILTY CLAY, LITTLE F SAND		DATE DEVELOPED: 9-19-86 TO 9-26-86
16.8	END OF BORING		DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 18.5 GAL
296.2			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE
22.5			NOTE: A 0.1 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5, AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 5.325, 10.325 FT IN LENGTH, RESPECTIVELY
294.7			
24.0			

Boring Log

NYSDEC OHMS Document No. 201469232-00043

JOB NO. <u>853-3051</u>	GA. INSP. <u>PMS</u>	PROJECT <u>CWM WELLS / MODEL CITY</u>	BORING NO. <u>MW10-1S</u>
DEPTH HOLE <u>24.0 FT.</u>	DEPTH WL. <u>1.06 FT.</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS - 4 1/4 ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>65° F</u>	TIME WL. <u>9/22/86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	SURFACE ELEV. <u>319.1 FT.</u>
WEATHER <u>CLOUDY</u>		DRILL RIG <u>CME 45</u>	DRILLER <u>J. LAMM</u>
COORDINATES <u>N 85° 19' 71" E 11212.55</u>		WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>
LOCATION <u>4.0 FT. SOUTH OF MW10-1D</u>		WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>
			DATUM <u>MSL</u>
			STARTED <u>2/19/16 2:00 PM</u>
			COMPLETED <u>4/30/16 2:00 PM</u>

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
319.1	GROUND SURFACE						GROUND SURFACE	
0.0	BROWN AND GRAY SAND, SOME GRAVEL, TO BROWN, CLAYEY SILT.	SW	-	-	AS	-	FILL AUGERED TO 4.0 FT, NO SAMPLING. ROAD AND BERM FILL	
		CL	-	-	AS	-		
315.1	STIFF, DARK BROWN MOTTLED, SILTY CLAY, SOME F TO C SAND, LITTLE GRAVEL, TO COMPACT, GRAY BROWN, CLAYEY SILT AT 8.0 FT.; AT 10.0 FT. TURNING TO SOFT TO FIRM, GRAY BROWN, SILTY CLAY.	CL	15	1	DO	6-7-8-11	24/24	UPPER CLAY TILL 4.0-4.4 FT., BROWN SAND AND SILT LENSE, 6.1-6.3 FT., C SAND AND GRAVEL LENSE, 7.8-8.0 FT. AND 9.6-9.9 FT. SILT LENSE.
4.0			36	2	DO	21-17-19-21	20/24	
			31	3	DO	8-15-16-7	20/24	
			5	4	DO	2-2-3-10	22/24	
306.6	DENSE TO COMPACT, BROWN, F TO M SAND, SOME SILT, LITTLE C SAND, LITTLE GRAVEL.	ML	36	5	DO	14-16-20-24	24/24	UPPER SILT TILL 2 INCH THICK C SAND LENSES AT 13.5 AND 13.8 FT., AT 14.5 FT., SILT LENSES
12.5			57	7	DO	16-23-14-15	13/24	
			46	8	DO	28-30-16-17	19/24	
300.3	SOFT, GRAY BROWN, CLAYEY SILT, SOME F TO C SAND, LITTLE GRAVEL, TO VERY SOFT, GRAY, CLAY, TRACE C SAND.	CL CH	12	9	DO	6-7-5-7	22/24	GLACIOLACUSTRINE CLAY 20.0-22.0 FT., LARGE PIECE OF GRAVEL PREVENTED MORE RECOVERY.
18.8			4	11	DO	2-2-2-3	9/24	
			6	12	DO	4-3-3-4	24/24	
295.1	END OF BORING						END OF BORING	
24.0							INSTALLED MW10-1S SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

MONITORING WELL INSTALLATION LOG

NYCDEC OHMS Document No. 201460232-00043

JOB NO. B53-3051 PROJECT GWM / WELLS / MODEL CITY WELL NO. MW10-15 SHEET 1 OF 1
 GA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS 4 1/4 ID GROUND ELEV. 319.1 FT. WATER DEPTH 1.06 FT.
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV. 321.05 FT. DATE/TIME 9-22-86
 TEMP. 65°F DRILL RIG CME 45 DRILLER J. LAMM STARTED 8:22 6:10 AM COMPLETED 10:05 6:30 AM
 LOCATION/COORDINATES 4.5 FT. SOUTH MW10-1D / N 8579.71 E 11212.55 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 20 IN. DIA. 10.0 LI. WELL SCREEN 20 IN. DIA. 16.2 LI. BENTONITE SEAL PELLETS 40 PEEF
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE THREADED TYPE O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 18.5 LF
 GROUT QUANTITY NA CENTRALIZERS NONE FILTER PACK TYPE #1-0 SAND
 GROUT TYPE NA DRILLING MUD TYPE NONE INSTALLATION METHOD THROUGH AUGERS

ELEV./DEPTH (Ft.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG MW10-15		
319.1	GROUND SURFACE		<p>AUGERED TO 24.0 FT. ADDED #1-0 SAND TO 23.4 FT. BELOW GROUND SURFACE. SAMPLE TAKEN. INSTALLED WELL PIPE (3-5' SCREENS 1-10' RISER) 2.8 FT. PICKUP ADDED #1-0 SAND (SUBRN) TO 5.5 FT. ADDED PELLETS TO 1.5 FT. REMOVED AUGERS. MIXED CEMENT GROUT. FILLED TO GROUND SURFACE. PUT ON 8" O ALUMINUM PROTECTIVE CASING. FILLED INTERIOR OF CASING WITH #4-0 SAND. WEED HOLES WERE PUT IN CASING FOR DRAINAGE. PROTECTIVE POSTS WERE PUT AROUND WELL. A CONCRETE PAD WAS LATER RAISED AROUND WELL BY THE SITE AND NEW WEED HOLES WERE PUT IN CASING. A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p>
0.0	FILL AUGERED TO 4.0 FT. NO SAMPLING. ROAD AND BERM FILL		<p>WELL DEVELOPMENT NOTES DATE DEVELOPED: 6-23-86 TO 7-3-86 DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 19.4 GAL.</p>
315.1			
4.0	UPPER CLAY TILL STIFF DARK BROWN MOTTLED, SILTY CLAY, SOME F TO C SAND, LITTLE GRAVEL TURNING TO COMPACT, GRAY BROWN CLAYEY SILT AND SILTY CLAY OCCASIONAL SILT AND SAND LENSES		
306.6	UPPER SILT TILL DENSE TO COMPACT, BROWN, F TO M SAND, SOME SILT, LITTLE C SAND, LITTLE GRAVEL OCCASIONAL C SAND LENSES		
12.5	GLACIOFLUVESTINE CLAY SOFT GRAY BROWN, CLAYEY SILT, SOME F TO M SAND, SOME SILT, LITTLE C SAND, LITTLE GRAVEL, TURNING TO VERY SOFT, GRAY, CLAY, TRACE C SAND		
300.3			
18.8			
295.1			
24.0	END OF BORING		

Boring Log

JOB NO. 853-3051 GA. INSP. LEL PROJECT CWM/WELLS/MODEL CITY BORING NO. MW10-1D
 DEPTH HOLE 36.9 FT DEPTH WL. 4.43 FT DRILLING METHOD HOLLOW STEM AUGERS 4 1/4" ID SHEET 1 OF 1
 TEMP 60° F TIME WL. 9/22/86 DRILLING COMPANY EMARE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 319.2 FT
 WEATHER PARTLY CLOUDY DRILL RIG CME 55 DRILLER N. GAUDY DATUM MSL
 COORDINATES N8584.11 E11213.51 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 10:50 / 6:11
 LOCATION 4.0 FT NORTH OF MW10-1S WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 11:55 / 6:15

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOW/FOOT	SAMPLES			REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT	
299.2	FOR COMPLETE SOILS DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG MW10-1S.						INSTALLED 10 INCH DIAM. PVC SURFACE CASING TO 20.0 FEET AUGERED TO 20.0 FT. NO SAMPLING
20.0	VERY SOFT, GRAY, CLAY, SOME TO TRACE F TO C SAND.	CH	3	DO	6-2-1-2	0/24	GLACIOLACUSTRINE CLAY
			5	DO	2-2-3-2	24/24	20.0-22.0 FT, NO SAMPLE RECOVERY
			3	DO	1-1-2-1	24/24	
			5	DO	2-3-2-3	24/24	
			2	DO	1-1-1-1	24/24	0.5 INCH SILT LENSE AT 29.0 FT.
			2	DO	1-1-1-1	24/24	1.0 INCH SILT LENSE AT 31.7 FT.
286.1			25	DO	3-11-14-13	24/24	
33.1	COMPACT, BROWN, F SAND TO F-C SAND, SOME F GRAVEL, LITTLE TO SOME SILT.	SM	22	DO	15-10-12-12	17/24	GLACIOLACUSTRINE SILT/SAND
283.2							
36.0	VERY DENSE, RED BROWN, SILT, AND F TO C SAND, SOME F TO C GRAVEL, GRAY GREEN SHALE FRAGMENTS.	ML	15	DO	55-100/4	12/11	BASAL RED TILL
282.2							
36.9	END OF BORING						END OF BORING
							INSTALLED MW10-1D SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

NYS DEC OHMS Document No. 201469232-00043

JOB NO. 853-3051 PROJECT CWM/WELLS/MODEL CITY WELL NO. MW10-1D SHEET 1 OF 2
 GA INSP. LEL DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" I.D. GROUND ELEV. 319.2 FT. WATER DEPTH 4.43 FT.
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC. COLLAR ELEV. 321.34 FT. DATE/TIME 9-22-86
 TEMP 60°F DRILL RIG CME 55 DRILLER M. GAUDIN STARTED 9:10 6-16-86 COMPLETED 12:10 6-16-86
 LOCATION/COORDINATES 4.0 FT NORTH OF MW10-1S / N 8584 11 E 11213 S1 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>2.0</u> IN DIA. <u>36.0</u> FT.	WELL SCREEN <u>2.0</u> IN DIA. <u>2.6</u> FT.	BENTONITE SEAL PELLETS <u>4.2</u> DEEP
CASING TYPE <u>304 STAINLESS STEEL</u>	SCREEN TYPE <u>304 STAINLESS STEEL</u>	INSTALLATION METHOD <u>TREMBLE TUBE WASH</u>
JOINT TYPE <u>FLUSH TEFLO VITON O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY. <u>4.9 L.F. / 110' DS.</u>
GROUT QUANTITY <u>82 GAL.</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1-Q SAND</u>
GROUT TYPE <u>BENTONITE</u>	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>TREMBLE TUBE WASH</u>

ELEV./DEPTH (FE)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG MW10-1D		
319.2	GROUND SURFACE	8" Ø ALUMINUM CASING WITH LOCK 2.6 FT. STICKUP	AUGERED TO 19.5 FT WITH 12 INCH (ØD) AUGERS;
0.0	FILL	2.1 FT. STICKUP	GROUTED 10" Ø PVC CASING 19.5 FT. (TOOK GROUT SAMPLE)
315.2	AUGERED TO 40 FT. NO SAMPLING - BERM FILL	Ø4-Q SAND	PUSHED CASING TO 19.7 FT B.G.S.; AUGERED TO 36.9 FT B.G.S. WITH 4 1/4" (I.D.) AUGERS
4.0	UPPER CLAY TILL	12" Ø AUGER BORING	PULLED AUGERS; INSTALLED 6" Ø TEMPORARY STEEL CASING; WASHED OUT -
306.7	STIFF, DARK BROWN MOTTLED, SILTY CLAY, SOME F TO C SAND, LITTLE GRAVEL, TURNING TO COMPACT, GRAY BROWN, CLAYEY SILT AND SILTY CLAY. OCCASIONAL SILT AND SAND LENSES	10" Ø PVC CASING	OPEN TO 36.9 FT. B.G.S.; TREMBLED #4-Q SAND (WITH WATER) TO 36.5 FT. B.G.S. (TOOK DRY SAMPLE); INSTALLED
12.5	UPPER SILT TILL	BENTONITE GROUT	WELL PIPE (1-2' SCREEN, 2-3' RISERS, 3-10' RISERS) 2.1 FT. STICKUP; ADDED #1-Q SAND TO 32.0 FT B.G.S. (TOOK SAMPLE); ADDED PELLETS TO 27.8 FT. B.G.S.; ADDED
300.4	UPPER SILT TILL		#4-Q SAND TO 26.5 FT B.G.S.; MIXED GROUT 1ST BATCH 60 LBS. BENTONITE / 40 GAL H ₂ O, 2ND BATCH
18.8	GLACIOLAUSTRINE CLAY	DRIVEN 6" Ø TEMPORARY CASING HOLE	(CONTINUED ON NEXT PAGE)
286.1	SOFT, GRAY BROWN, CLAYEY SILT, SOME F TO C SAND, LITTLE GRAVEL, TURNING TO VERY SOFT, GRAY, CLAY, TRACE C SAND	2" Ø TUBE 304 S.S. RISER PIPE	WELL DEVELOPMENT NOTES
33.1	GLACIOLAUSTRINE SILT/SAND	Ø4-Q SAND	DATE DEVELOPED: 6-23-86 TO 7-11-86
283.2	COMPACT, BROWN, F SAND TO F-C SAND, SOME F GRAVEL, LITTLE TO SOME SILT	3/8" Ø BENTONITE PELLET SEAL	DEVELOPMENT METHOD: AIR LIFT
36.0	BASAL RED TILL	#1-Q SAND	VOLUME PURGED: 47.4 GAL
282.2	VERY DENSE, RED BROWN SILT AND F SAND, SOME	2" Ø TUBE 304 S.S. SCREEN	FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
36.9	END OF BORING	Ø4-Q SAND	
			NOTE: A 0.3 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION 2.5, AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 9.325, 10.325 FT IN LENGTH, RESPECTIVELY

Golder Associates

SUBJECT CWM/WELLS/MODEL CITY		MW 10-10
Job No. 853-3051	Made by LEL	Date 6-16-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

60 lbs. BENTONITE / 37 GAL H₂O, 3RD BATCH 4 lbs BENTONITE / 5 GAL. H₂O; ADDED 2-3 lbs. OF CEMENT TO 3RD BATCH SINCE THE CONSISTANCY WAS RIGHT AND THE DRILLER DIDN'T HAVE ANY MORE BENTONITE POWDER AT THE WELL LOCATION; REMOVED 6" ϕ STEEL CASING; GROUT 2.0 FT. B.G.S.; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" ϕ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4- ϕ SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING; A WELL WIZARD WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

Boring Log

JOB NO. 853-3051 GA. INSP. FWS PROJECT CWM/WELLS/MODEL CITY BORING NO. MW10-25
 DEPTH HOLE 22.0 FT DEPTH WL. 208 FT DRILLING METHOD HOLLOW STEM AUGERS - 4 1/2" I.D. SHEET 1 OF 1
 TEMP 75° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 320.7 FT
 WEATHER SUNNY/WARM DRILL RIG CME 45 DRILLER J. LAMM DATUM MSL
 COORDINATES N 8411.21 E 112.7 30 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 1:30 / 6 20 86
 LOCATION - WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 4:30 / 10 20 86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT	
320.7	GROUND SURFACE						GROUND SURFACE
318.7	BROWN AND GRAY, F-C SAND, AND F-C GRAVEL, TO BROWN, CLAYEY SILT.	SW CL	-	-	AS	-	FILL AUGERED TO 2.0 FT, NO SAMPLE
311.4	STIFF TO VERY STIFF, TURNING COMPACT, BROWN AND GRAY BROWN MOTTLED, CLAYEY SILT, LITTLE F TO C SAND.	CL	10	1	DO	4-3-7-12 11/24	UPPER CLAY TILL
			18	2	DO	7-9-9-14 23/24	4.0-9.3 FT. GRAY ROOT PATTERNS PRESENT, MOIST TO DRY
			45	3	DO	20-24-21-20 24/24	5.0 IN. MULTICOLORED F SAND LAYER AT 7.0 FT.
311.4			13	4	DO	4-7-6-12 24/24	
300.7	COMPACT, GRAY BROWN, F SAND, SOME SILT, SOME TO LITTLE M TO C SAND, SOME TO LITTLE F-C GRAVEL, CLASTS AS GRAY GREEN AND RED BROWN LIMESTONE AND SHALE FRAGMENTS.	ML	8	5	DO	3-5-3-5 24/24	UPPER SILT TILL
			12	6	DO	5-6-6-9 16/24	
			4	7	DO	WH-2-2-2 0/24	
			10	8	DO	4-5-5-7 4.5/24	
298.7	VERY SOFT TO SOFT, GRAY, CLAY, LITTLE C SAND, LITTLE SILT.	CH	23	9	DO	5-9-14-11 8/24	
22.0	END OF BORING		4	10	DO	2-2-2-3 14/24	GLACIOLACUSTRINE CLAY SILT LENSE AT 2: 5 FT, WET DILATANT
							END OF BORING
							INSTALLED MW10-25 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 853-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. MW10-25 SHEET 1 OF 1
 GA WSP. PWS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID GROUND ELEV. 320.7 FT WATER DEPTH 3.08 FT
 WEATHER SUNNY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 323.01 FT DATE/TIME 9-23-86
 TEMP. 80°F DRILL RIG CMB 45 DRILLER J. LAMM STARTED 3:09 6:20:00 COMPLETED 3:50 6:30:00
 LOCATION/COORDINATES N 84-11.21 E 11217.38

MATERIALS INVENTORY

WELL CASING 2.0 in dia. 10.0 ft. WELL SCREEN 2.0 in dia. 13.2 ft. BENTONITE SEAL PELLETS 5.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH TAPER VITON O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 16 0.1 F. 320 IBS.
 GROUT QUANTITY NA CENTRALIZERS NONE FILTER PACK TYPE #1-Q SAND
 GROUT TYPE NA DRILLING MUD TYPE NONE INSTALLATION METHOD THROUGH AUGERS

ELEV./DEPTH (Ft)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
320.7	GROUND SURFACE		<p>AUGURED TO 220 FT; ADDED #1-Q SAND TO 20.9 FT. 320.9</p> <p>GROUND SURFACE (SAMPLE TAKEN); INSTALLED WELL PIPE (1-2' SCREEN 2-5' SCREENS (1-10' RISER) 2.5 FT. STILLUP); ADDED #1-Q SAND TO 6.0 FT; ADDED PELLETS TO 1.0 FT; HYDRATED PELLETS; ADDED ~1"-2" OF #1-Q SAND; REMOVED AUGERS; MIXED CEMENT GROUT; FULLED TO GROUND SURFACE; PUT ON 8" ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND; WEED HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PUT AROUND WELL BY THE SITE AND NEW WEED HOLES WERE PUT IN CASING; A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED</p>	
0.0	FILL AUGERED TO 2.0 FT, NO SAMPLING			WELL DEVELOPMENT NOTES
319.7				DATE DEVELOPED: 6-23-86 TO 7-8-86
2.0	UPPER CLAY TILL STIFF TO VERY STIFF, TURNING COMPACT BROWN AND GRAY BROWN, CLAYEY SILT, LITTLE F TO C SAND			DEVELOPMENT METHOD: AIR LIFT
314.4				VOLUME PURGED: 12.4 GAL
9.3	UPPER SILT TILL COMPACT, GRAY BROWN, F SAND, SOME SILT, SOME TO LITTLE M TO C SAND, SOME TO LITTLE F-C GRAVEL			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
300.7				
20.0	GLACIOLAUSTINE CLAY VERY SOFT TO SOFT, GRAY CLAY, LITTLE C SAND, LITTLE SILT			
235.7				
22.0	END OF BORING			



Golden Associates, Inc.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, MODEL CITY, N.Y.

DRILLING METHOD: 4 1/4 INCH HOLLOW STEM AUGER

BORING NO.

TMW-24S

SHEET

1 OF 1

SAMPLING METHOD: 24 INCH SPLIT SPOON SAMPLER

DRILLING

START TIME FINISH TIME

08:42 09:50

DATE DATE

10/03/88 10/03/88

DATUM MSL ELEVATION 321.0 FT

CASING DEPTH

DRILL RIG TRACK CME 45

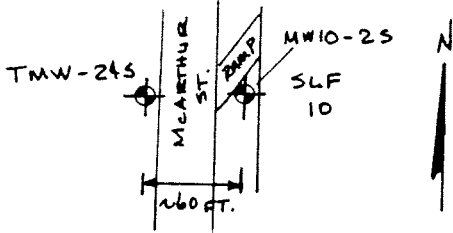
SURFACE CONDITIONS:

ANGLE VERTICAL BEARING

SAMPLE HAMMER TORQUE

DEPTH IN FEET	BLOWS/ 6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS				
							WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	OTHER TESTS

0.0	50-70 100/3 (80%)	[Symbol]	1 FILL Very stiff, dark brown, CLAYEY SILT, some to and f-c sand, little to trace gravel. (ML)																
	13-16 10-10 (50%)	[Symbol]	2																
5.0	13-17 21-28 (62%)	[Symbol]	3 UPPER CLAY TILL Stiff to firm, brown, SILTY CLAY, little to some f-c sand, trace gravel. (CL)																
	20-36 30-29 (75%)	[Symbol]	4																
	12-16 15-17 (75%)	[Symbol]	5																
10.0	12-7 12-7 (54%)	[Symbol]	6																
	10-10 9-8 (100%)	[Symbol]	7 GLACIOLACUSTRINE CLAY Firm to very soft, gray-brown, CLAY, trace f-m sand. (CL)																
15.0	7-4 2-3 (100%)	[Symbol]	8																
			END OF SAMPLING																



EMPIRE SOILS INVESTIGATIONS, INC.
DRILLING CONTR DAN BIETZ

LOGGED BY A. L. GRASSO
DATE 10/03/88
CHKD BY [Signature]
SL10968 C

MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 553-2056 PROJECT CNM/ WEL WELL NO. TMW-245 SHEET 1 OF 1

GA INSP. ALG DRILLING METHOD HOLLOW STEM AUGERS-4' 1/4" ID GROUND ELEV. 321.0 FT WATER DEPTH -

WEATHER SUNNY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV. 323.47 FT DATE/TIME -

TEMP. 15°C DRILL RIG TRACK DRILLER DAN BEITZ STARTED 10:30 1/3/88 COMPLETED 12:00 1/3/88

MATERIALS INVENTORY

WELL CASING 2.0 in dia. 10.0 lf WELL SCREEN 2.0 in dia. 7.93 lf BENTONITE SEAL BENTONITE PELLETS

CASING TYPE PVC SCREEN TYPE PVC INSTALLATION METHOD POUR FROM SURFACE

JOINT TYPE FLUSH THREADED SLOT SIZE 0.01" FILTER PACK QTY 25, 100 LBS BAGS

GROUT QUANTITY 12 GALS CENTRALIZERS NONE FILTER PACK TYPE #1 Q SAND

GROUT TYPE CEMENT BENTONITE DRILLING MUD TYPE NONE INSTALLATION METHOD POUR THROUGH AUGERS

ELEV./DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
321.0	GROUND SURFACE		AUGERED AND SAMPLED TO 16.0' BELOW GROUND SURFACE (BGS). PLACED #4 Q SAND TO 15.75' BGS. INSTALLED WELL THROUGH AUGERS (ONE 5' SCREEN, ONE 2' SCREEN, ONE 10' RISER). PLACED #1 Q SAND TO 6.0' BGS, PULLING THE AUGERS OUT DURING INSTALLATION. POURED BENTONITE PELLETS TO 3.0' BGS. HYDRATED PELLETS WITH 5 GALS. DEIONIZED WATER. PLACED CEMENT GROUT TO GROUND SURFACE. INSTALLED 8" Ø ALUMINUM PROTECTIVE CASING OVER WELL. PLACED #4 Q SAND IN ANNULUS BETWEEN WELL AND PROTECTIVE CASING.	
0.0	FILL VERY SOFT, DARK BROWN CLAYEY SILT, FINE TO med f-c sand, little to trace grav. (ML)		3.0'	
317.0	UPPER CLAY TILL STIFF TO FIRM, BROWN, SILTY CLAY, little to some f-c sand, trace gravel. (CL)		6.0'	
309.0	GLACIOLACUSTRINE CLAY Firm to very soft, gray-brown clay trace f-m sand. (CL)		7.93'	
305.0	END TO SAMPLING		15.75'	
16.0'		16.00'		
			WELL DEVELOPMENT NOTES A 0.2' END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN. THE 5' SCREEN AND 2' SCREEN ACTUALLY ARE 5.46' AND 2.47' IN LENGTH, RESPECTIVELY.	



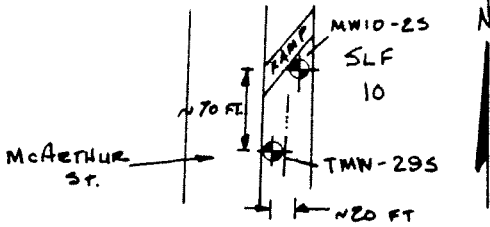
Golder Associates, Inc.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, MODEL CITY, N.Y.

DRILLING METHOD: 4 1/4 INCH HOLLOW STEM AUGER

BORING NO.
TMW-29S



SAMPLING METHOD: 24 INCH SPLIT SPOON SAMPLER

SHEET
1 OF 1

WATER LEVEL

DRILLING

TIME

START TIME

DATE

10:15

11:20

DATUM MSL ELEVATION 319.1 FT

CASING DEPTH

10/06/88 10/06/88

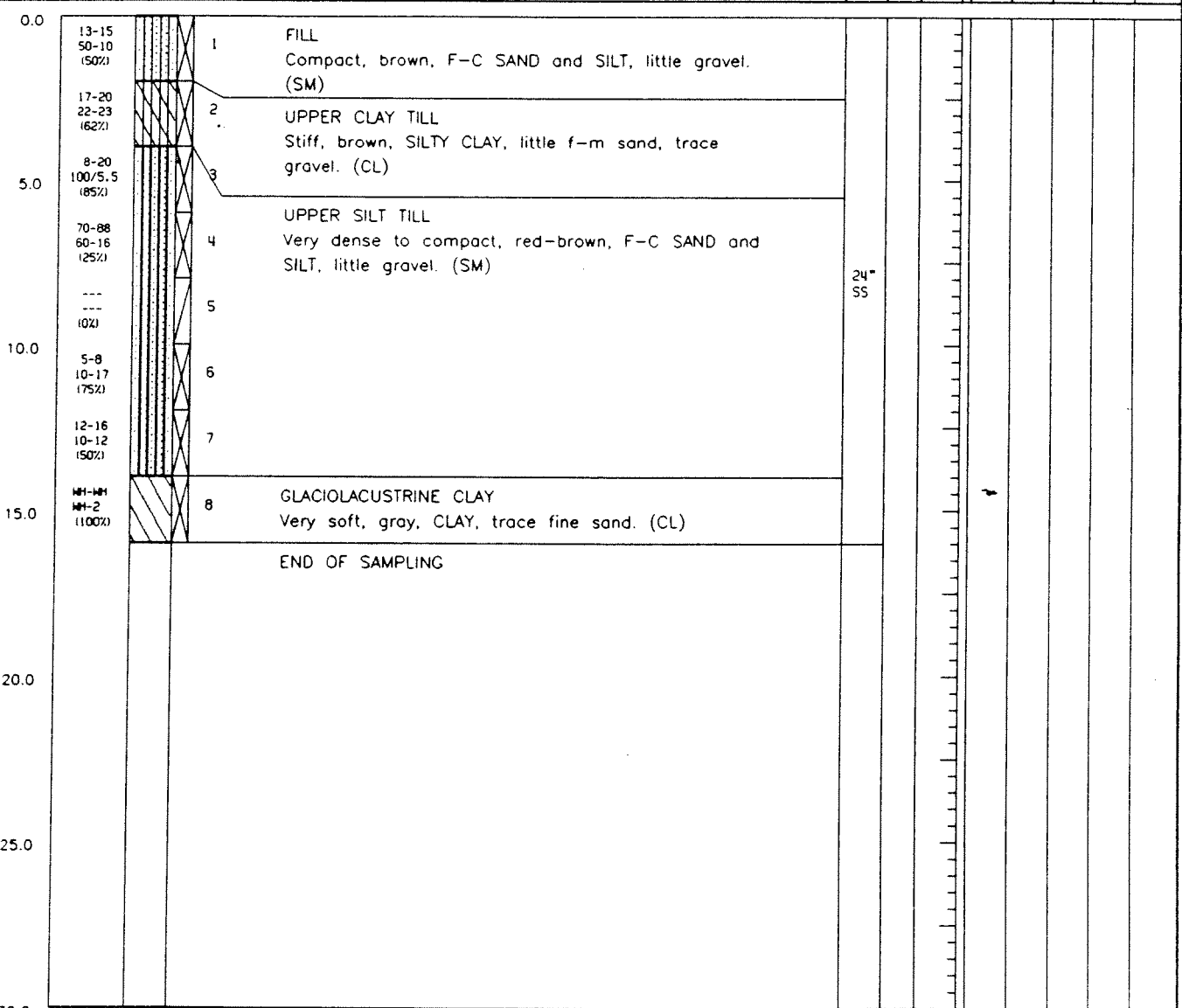
DRILL RIG TRACK CME 45

SURFACE CONDITIONS:

ANGLE VERTICAL BEARING

SAMPLE HAMMER TORQUE

DEPTH IN FEET	BLOWS/ 6 IN SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS				
							WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	OTHER TESTS



EMPIRE SOILS INVESTIGATIONS, INC.
DRILLING CONTR DAN BIETZ

LOGGED BY A. L. GRASSO
DATE 10/06/88
CHKD BY *[Signature]*
SL10975 C

MONITORING WELL INSTALLATION LOG

NYSDEC GHMS Document No. 201469232-00943

JOB NO. 053-3036 PROJECT CWM/WELL WELL NO. TW-295 SHEET 1 OF 1
 GA INSP. ALG DRILLING METHOD HOLLOW STEM AUGERS 4 1/4" ID GROUND ELEV. 319.1 FT WATER DEPTH -
 WEATHER CLUDDY DRILLING COMPANY EMPIRE SOILS INVESTIGATION COLLAR ELEV. 321.62 FT DATE/TIME -
 TEMP 14°C DRILL RIG TRACK DRILLER DAN BEITZ STARTED 11:30 10/6/88 COMPLETED 13:30 10/6/88

MATERIALS INVENTORY

WELL CASING 2.0 in. dia. 10.0 ft. WELL SCREEN 2.0 in. dia. 8.13 ft. BENTONITE SEAL BENTONITE PELLETS
 CASING TYPE PVC SCREEN TYPE PVC INSTALLATION METHOD PUR FROM SURFACE
 JOINT TYPE ELPH THREADED W/ 2" RUB SLOT SIZE 0.01" FILTER PACK QTY 3,100 lb BAGS
 GROUT QUANTITY 10 GALS CENTRALIZERS NONE FILTER PACK TYPE #1 Q SAND
 GROUT TYPE CEMENT BENTONITE DRILLING MUD TYPE NONE INSTALLATION METHOD PUR THROUGH AUGER

ELEV./DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
319.1	GROUND SURFACE		<p>AUGERED AND SPLIT - SCREEN SAMPLED TO 160' BELOW GROUND SURFACE (BGS). PLACED #4 Q SAND TO 15.75' BGS. INSTALLED WELL (ONE 5' SCREEN, ONE 2' SCREEN ONE 10' RISER) THROUGH THE AUGERS TO 15.75' BGS. PLACED #1 Q SAND TO 5.9' BGS WHILE PULLING THE AUGERS OUT IN 1' TO 3' INCREMENTS. PLACED BENTONITE PELLETS TO 2.9' BGS. HYDRATED PELLETS WITH DEIONIZED WATER (5 GALS) PLACED CEMENT GROUT TO GROUND SURFACE. INSTALLED 8" ALUMINUM PROTECTIVE CASING OVER WELL PLACED #4 Q SAND IN ANNULUS BETWEEN WELLS AND PROTECTIVE CASING.</p>
0.0	FILL compact, brown, F-C SAND and SILT, little gravel. (SM)		
317.1 2.0	LIPPER CLAY TILL stiff, brown, SILTY CLAY, little fm sand, trace gravel.		
315.1 4.0	LIPPER SILT TILL Very dense to compact red-brown, F-C SAND and SILT, little gravel. (SM)		
305.1 14.0	GLACIOLACUSTRINE CLAY very soft, gray, CLAY trace fine sand. (CL)		
303.1 16.0	END OF SAMPLING		
			<p>WELL DEVELOPMENT NOTES</p> <p>A 0.2' END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. THE 5' SCREEN AND 2' SCREEN SECTION ARE ACTUALLY 5.46' AND 2.47' IN LENGTH, RESPECTIVELY.</p>

JOB NO. B53-3051 GA. INSP. GR PROJECT CWM/WELLS/NOVEL CITY BORING NO. P10-15
 DEPTH HOLE 18.0 FT. DEPTH WL. 3.89 FT. DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID SHEET 1 OF 1
 TEMP 73° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 321.1 FT.
 WEATHER CLEAR DRILL RIG CME 45 DRILLER K. SWINNICH DATUM MSL
 COORDINATES NB214.09 E11442.85 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 3:30 / 15:12:00
 LOCATION — WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 9:36 / 15:13:00

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
321.1	GROUND SURFACE						GROUND SURFACE	
0.0	VERY DENSE GRAY, F TO C SAND, SOME F GRAVEL, LITTLE SILTY CLAY, TO VERY STIFF, BROWN, CLAYEY SILT.	SM CL	27	2	DO	10-16-11-16	17/24	FILL
319.1	VERY STIFF BROWN MOTTLED, CLAYEY SILT TO FIRM, BROWN, SILTY CLAY, SOME F TO C SAND, LITTLE TO TRACE F GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 6.0 FT.	CL	30	3	DO	9-14-16-17	24/24	UPPER CLAY TILL
2.0			22	4	DO	4-6-16-16	19/24	
			82	5	DO	25-35-47-45	24/24	SAND LENSES AT 10.2 FT AND 10.5 FT.
			21	6	DO	5-8-13-16	24/24	
			17	7	DO	4-7-10-10	15/24	13.5-14.0 FT., SAND LENSE
			32	8	DO	14-16-16-17	24/24	
307.1	COMPACT, BROWN, SILT, AND TO SOME F TO C SAND, GRAY CLASTS, WET	ML	19	9	DO	5-10-9-10	24/24	UPPER SILT TILL 17.0-17.1 FT., SILTY CLAY LENSE
304.1	VERY SOFT, GRAY, CLAY, LITTLE F SAND	CH	17	10	DO	7-8-9-8	24/24	GLACIOLAUSTRIANE CLAY
303.1	END OF SAMPLING AUGERED TO 17.9 FT.							INSTALLED P10-15 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.
18.0								