

MONITORING WELL INSTALLATION LOG

NYS DEC FORMS DOCUMENT No. 201409232-00043

JOB NO. B53-3051 PROJECT CWM/WELLS/MODEL CITY WELL NO. F9-25 SHEET 1 OF 1
 SA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" I.D. GROUND ELEV. 322.5 WATER DEPTH 3.74
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 324.26 DATE/TIME 9-22-86
 TEMP. 79 F DRILL RIG CME 45 DRILLER J. LAMM STARTED 8:41 7:10 86 COMPLETED 4:30 7:10 86
 LOCATION/COORDINATES N 8927.40 ; E 12480.31 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING <u>20</u> IN. DIA. <u>100</u> FT.	WELL SCREEN <u>2.0</u> IN. DIA. <u>106</u> FT.	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>THROUGH AUGERS</u>
JOINT TYPE <u>FLUSH TAPERON VITON O-RINGS</u>	SLOT SIZE <u>0.006 INCH</u>	FILTER PACK QTY. <u>13.7 L.F. 300 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 PP-23		<u>AUGURED TO 19.7 FT. ADDED #1-Q SAND TO 18.8 FT. BELOW GROUND SURFACE (TOOK SAMPLE); INSTALLED WELL PIPE (1-10 SCREEN, 1-10 RISER) 1.8 FT. STICKUP;</u>
<u>322.5</u>	<u>GROUND SURFACE</u>		<u>ADDED #1-Q SAND TO 6.0 FT. ADDED PELLETS TO 2.0 FT.; REMOVED AUGERS MIXED CEMENT GROUT;</u>
<u>0.0</u>	<u>FILL</u> VERY STIFF, BROWN, MOTTLED GRAY, SILT TO SILTY CLAY, SOME F-C SAND, TRAILS GRAVEL.		<u>FILLED TO GROUND SURFACE; PUT ON 8" Q ALUMINUM PROTECTIVE CASING; FILLED PROTECTIVE CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN PROTECTIVE CASING FOR DRAINAGE;</u>
<u>316.5</u>	<u>UPPER CLAY TILL</u> STIFF TO FIRM, BROWN MOTTLED, SILTY CLAY, SOME F-C SAND, TRAILS TO LITTLE GRAVEL, TAN SILT LENS FROM 8.4 TO 8.7 FT. SILT FOLDS, RED SHALE AND BEAN LIMESTONE FRAGMENTS FROM 8.7 TO 10.0 FT.		<u>PROTECTIVE POSTS WERE PLACED AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE PUT IN CASING;</u>
<u>6.0</u>	<u>UPPER SILT TILL</u> DENSE TO VERY DENSE, RED BROWN TO BROWN SILT, SOME F-C SAND, TRAILS TO LITTLE GRAVEL AS BEAN SUBSTRATE CLAYS 18.0 TO 17.2 FT. MIXED WITH SILTY CLAY		<u>A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</u>
<u>310.1</u>			<u>WELL DEVELOPMENT NOTES</u>
<u>12.4</u>			<u>DATE DEVELOPED: 7-18-86 TO 7-30-86</u>
<u>304.1</u>			<u>DEVELOPMENT METHOD: AIR LIFT</u>
<u>8.4</u>	<u>GLACIOLACUSTRINE CLAY</u> VERY SOFT, BEAN CLAY, TAN BROWN SILT LENS		<u>VOLUME PURGED: 14.6 GAL.</u>
<u>302.5</u>			<u>FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.</u>
<u>20.0</u>	<u>END OF SAMPLING AUGURED TO 19.7 FT.</u>	<u>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, 5.325, 10.325 FT. IN LENGTH RESPECTIVELY.</u>	

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>F9-35</u>
DEPTH HOLE <u>22.0 FT.</u>	DEPTH WL. <u>1.88 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>9:22:06</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	SURFACE ELEV. <u>319.6 FT.</u>
WEATHER <u>CLEAR</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>J. LAMM</u>	DATUM <u>MSL</u>
COORDINATES <u>N 8248.90 E 12175.06</u>	WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>	STARTED <u>9/30/7-14-86</u>
LOCATION <u>—</u>	WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>	COMPLETED <u>11/11/7-14-86</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOW/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT	
319.6	GROUND SURFACE							GROUND SURFACE
0.0								FILL
318.4	4 FT. GRAY BROWN SILTY CLAY, TURNING AT 0.6 TO F-C GRAVEL, SOME F-C SAND (FM)	CL	32	2	DO	10-18-14-18	24/24	UPPER CLAY TILL GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 3.2 FT. TO 4.5 FT. SLIGHT ORGANIC ODOR FROM 4.0 TO 4.5 FT.
1.2	VERY STIFF BROWN CLAYEY SILT, SOME F-C SAND, TRACE TO LITTLE GRAVEL, BECOMING SOFT TO FIRM GRAY AND BROWN MOTTLED SILTY CLAY, LITTLE F SAND.	CL	27	3	DO	12-13-14-12	15/24	
315.1			30	5	DO	6-10-20-20	21/24	UPPER SILT TILL SLIGHT ORGANIC ODOR FROM 4.0 FT. TO 6.0 FT. SATURATED DILATANT FROM 6.0 TO 18.4 FT.
4.5		SM	38	7	DO	20-18-20-25	24/24	
	DENSE YELLOW BROWN TURNING GRAY BROWN F-SAND, SOME TO LITTLE SILT, LITTLE M-C SAND, TRACE GRAVEL.		45	8	DO	10-20-25-30	17/24	
			71	9	DO	15-21-50-50	21/24	
			36	10	DO	12-15-21-27	24/24	
			39	11	DO	13-18-21-24	20/24	
			41	12	DO	31-21-20-50	24/24	
301.2								GLACIOLACUSTRINE CLAY
18.4	SOFT TO VERY SOFT BROWN GRAY BECOMING GRAY CLAY, SOME TO LITTLE F-C SAND.	CL	22	13	DO	15-12-10-10	7/24	
297.6								END OF BORING
22.0	END OF BORING							

INSTALLED F9-35
SEE ACCOMPANYING
MONITORING WELL
INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

JOB NO. B55-3051 PROJECT CWALYSSERIDGE LAMM BOREHOLE No. 201469232-00048 SHEET 1 OF 2
 SA NIP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" I.D. GROUND ELEV. 319.6 FT WATER DEPTH 1.85 FT
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC. COLLAR ELEV. 321.29 FT DATE/TIME 9-22-86
 TEMP. 65°F DRILL RIG CME 48 DRILLER J. LAMM STARTED 11:23 7/14/86 COMPLETED 1:40 7/14/86
 LOCATION/COORDINATES N 0248.90 E 12175.06 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 2.0 W. DIA. 10.0 I.F. WELL SCREEN 2.0 W. DIA. 12.9 I.F. BENTONITE SEAL PELLETS 6.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE THREADED TAP SLOT SIZE 0.006 INCH FILTER PACK QTY 140 LBS. 300 LBS.
 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
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS SEE BORING LOG PB-33		
319.6	GROUND SURFACE		
0.0	FILL		
318.4	SOFT, BEAN BROWN SILTY CLAY, TURNING TO P-C SAND, SOME P-C SAND (P.M.)		
1-2	UPPER CLAY TILL		
315.1	VERY STIFF BROWN CLAYEY SILT, SOME P-C SAND, TRACE TO LITTLE GRAVEL, BECOMING SOFT, TO FINE, BEAN AND BEAN, MOTTLED SILTY CLAY, LITTLE P SAND		
4.5	UPPER SILT TILL		
301.2	DENSE, YELLOW BROWN TURNING BEAN BROWN F SAND, SOME TO LITTLE SILT, LITTLE M-C SAND, TRACE GRAVEL, SATURATED, DILATANT FROM 6.0 TO 18.4 FT.		
18.4	GLACIOLAQUSTRINE CLAY		
297.6	SOFT TO VERY SOFT, BEAN BEAN, BECOMING BEAN SILTY, SOME TO LITTLE P-C SAND		
22.0	END OF BORING		
			AUGERED TO 22.0 FT; ADDED #1-Q SAND TO 21.2 FT; INSTALLED WELL PIPE (1-2' SCREEN, 1-10' SCREEN, 1-10' RISER) 1-7 FT STICKUP; ADDED #1-Q SAND TO 8.0 FT BELOW GROUND SURFACE (SAMPLE TAKEN); ADDED PELLETS TO 2.0 FT; REMOVED AUGERS; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" Ø ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF PROTECTIVE 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
			(CONTINUED ON NEXT PAGE)
			WELL DEVELOPMENT NOTES DATE DEVELOPED: 7-18-86 TO 8-1-86 DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 37.5 GAL FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
			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		F9-35
Job No. 853-3051	Made by PMS	Date 7-14-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

PUT IN CASING; A DEDICATED STAINLESS STEEL BAILER WAS
INSTALLED SUBSEQUENT TO DEVELOPMENT.

Boring Log

JOB NO. <u>853-3051</u>	GA. INSP. <u>PMS</u>	PROJECT <u>CWM/WELLS/MODEL CITY</u>	BORING NO. <u>TP-45</u>
DEPTH HOLE <u>22.0 FT.</u>	DEPTH WL. <u>3.98 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>320.3 FT.</u>
WEATHER <u>OVERCAST</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>J. LAMM</u>	DATUM <u>MSL</u>
COORDINATES <u>N 90° 29' 28" E 196.63.65</u>	WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>	STARTED <u>10:30 / 6-12-86</u>
LOCATION <u>---</u>	WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>	COMPLETED <u>2:30 / 6-12-86</u>

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
320.3	GROUND SURFACE						GROUND SURFACE	
299.3	FIRM TO STIFF, BROWN TO GRAY BROWN, SILTY CLAY, TO CLAYEY SILT, SOME TO AND F-C SAND, LITTLE TO TRACE GRAVEL	CL	32	1	DO	5-20-12-12	23/24	UPPER CLAY TILL
286.9			18	2	DO	6-6-12-14	22/24	0.0-2.0 FT. FIRM TO COMPACT BROWN AND YELLOW SAND SOME CLAYEY SILT, SOME ROOTS
281.9			7	3	DO	3-2-5-5	21/24	0.0-10.0 FT., MOTTLED
280.9			12	4	DO	6-6-6-6	10/24	4.9-5.2 FT., THIN SAND AND SILT LENSES
276.9			4	5	DO	1-2-2-3	18/24	9.0-10.0 FT., ORGANIC ODD
272.0			12	6	DO	5-5-7-8	24/24	
			14	7	DO	4-7-7-7	16/24	13.8-14.0 FT., LOOSE BROWN C-F SAND
			6	8	DO	2-2-4-4	16/24	
			20	9	DO	6-8-12-18	18/24	
			10	10	DO	4-5-5-5	13/24	
256.9	SOFT GRAY CLAY, TRACE F TO M SAND.	CH	6	11	DO	2-3-3-2	24/24	GLACIOLACUSTRINE CLAY
22.0	END OF BORING						END OF BORING	
							INSTALLED TP-45 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

NYS DECISION DOCUMENT No. 100-19282-001
MONITORING WELL INSTALLATION LOG

JOB NO. 853-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. TP-45 SHEET 1 OF 1
 SA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID GROUND ELEV. 320.3 FT WATER DEPTH 3.98 FT
 WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 321.56 FT DATE/TIME 9-22-86
 TEMP. 65° F DRILL RIG CME 45 DRILLER J. LAMM STARTED 1:40 TIME / DATE 6-12-86 COMPLETED 3:07 TIME / DATE 6-12-86
 LOCATION/COORDINATES N 9029.28 ; E 9468.65

MATERIALS INVENTORY

WELL CASING 2.0 W. DIA. 10.0 W. WELL SCREEN 2.0 W. DIA. 12.9 BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE THREADED TAPER 2-BINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 16.0 LF ; 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
320.3	GROUND SURFACE		<p>AUGERED TO 22.0 FT; ADDED #1-0 SAND TO 21.6 FT BELOW GROUND SURFACE (SAMPLE TAKEN); INSTALLED WELL PIPE (1-2' SCREEN, 1-10' SCREEN 1-0' RISER) 1.3 FT STICKUP; ADDED #1-0 SAND TO 6.0 FT B.G.S.; ADDED PELLETS TO 2.0 FT B.G.S. MIXED CEMENT; REMOVED AUGERS; FILLED TO GROUND SURFACE; PUT ON 8"Ø ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-0 SAND; WEED HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PLACED AROUND WEED. A CONCRETE PAD WAS LATER PLACED AROUND WELL ON THE SITE AND NEW WEED HOLES WERE PUT IN CASING; A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p>
0.0	UPPER CLAY TILL FIRM TO STIFF, BROWN TO GRAY BROWN SILTY CLAY TO CLAYEY SILT SOME TO AND F-C SAND, LITTLE TO TRACE GRAVEL		<p>DATE DEVELOPED: 7-10-86 TO 7-30-86 DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 15.2 GAL</p>
299.3	GLACIOLACUSTRINE CLAY SOFT, GRAY, SILTY, TRACE F-M SAND		<p>FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.</p>
298.3	END OF BORING		<p>NOTE: A 0.3 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION 3, 5 AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.55, 9.325, 10.325 FT. IN LENGTH, RESPECTIVELY.</p>

MONITORING WELL INSTALLATION LOG

JOB NO. B99-3091 PROJECT CWM / WELLS / MODEL CITY WELL NO. TMW-55 SHEET 1 OF 1
 SA INSP LEL DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID GROUND ELEV 317.8 FT WATER DEPTH 1.20 FT
 WEATHER SUNNY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC. COLLAR ELEV 319.72 FT DATE/TIME 9-23-86
 TEMP 75 F DRILL RIG CME 45 DRILLER J. LAMM STARTED 6:15 7:1 8 COMPLETED 5:10 7:1 86
 LOCATION/COORDINATES N 94.73 15 E 9117.97

MATERIALS INVENTORY

WELL CASING 2.0 IN DIA. 10.0 FT WELL SCREEN 2.0 IN DIA. 15.9 FT BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE PLUMB TAPER V-JOIN R-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 18.5 L.F. 380 LBS
 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	
317.8	GROUND SURFACE		<p>AUGERED TO 24.0 FT. ADDED #1-Q SAND TO 24.0 FT. BELOW GROUND SURFACE (TOOK SAMPLE); INSTALLED WELL PIPE (1.5' SCREEN 1.10' SCREEN 1.10' RISER) 1.9 FT STICKUP; ADDED #1-Q SAND TO 6.0 FT.; ADDED PELLETS TO 2.0 FT. BELOW GROUND SURFACE. REMOVED AUGERS. MIXED CEMENT GROUT. FILLED TO GROUND SURFACE. PUT ON 8" ALUMINUM PROTECTIVE CASING; FILLED INTERIOR CASING WITH #4-0 SAND. WEED HOLES WERE PUT IN CASING FOR DRAINAGE. PROTECTING 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 CASING WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p>	
0.0	UPPER CLAY TILL SOFT TO FIRM TURNING STIFF TO VERY STIFF BROWN, CLAYEY SILT SOME F-C SAND			WELL DEVELOPMENT NOTES
303.4	UPPER SILT TILL COMPACT BROWN AND GRAY BROWN F SAND, AND SILT SOME M TO C SAND, LIME GRAVEL			DATE DEVELOPED: 8-19-86 TO 9-3-86
297.0	GLACIOQUASTRING CLAY SOFT TURNING TO VERY SOFT GRAY TO GRAY BROWN CLAY TO SILTY CLAY, SOME F-C SAND			DEVELOPMENT METHOD: AIR LIFT
20.8	END OF SAMPLING AUGERED TO 24.5 FT			VOLUME PURGED: 42.6 GAL
24.0				FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE
			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, 9.825, 10.325 FT. IN LENGTH, RESPECTIVELY.	

JOB NO. 853-3051 GA. INSP. LE PROJECT CWM/WELLS/NOEL CITY BORING NO. TMW-55
 DEPTH HOLE 24.5 FT DEPTH WL. 1.20 FT DRILLING METHOD HOLLOW STEM AXERS-4' & 10' SHEET 1 OF 1
 TEMP 75° F TIME WL. 9:23 AM DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC SURFACE ELEV. 317.8 FT
 WEATHER SUNNY DRILL RIG CME 45 DRILLER J. LAMM DATUM USL
 COORDINATES N947315 E911797 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 2:25 / 7-24-96
 LOCATION - WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 3:55 7-24-96

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS			
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT				
317.8	GROUND SURFACE						GROUND SURFACE			
303.4	SOFT TO FIRM, TURNING STIFF TO VERY STIFF, BROWN, CLAYEY SILT, SOME F-C SAND.	CL	2	1	DO	2-1-1-1	3/24	UPPER CLAY TILL		
			4	2	DO	1-2-2-3	18/24	0.0-14.4 FT, WEATHERING ALONG VERTICAL FRACTURES		
			15	5	DO	3-5-10-13	24/24	0.0-60 FT, FIBROUS ROOTS PRESENT		
			39	6	DO	19-19-20-25	24/24	0-10.0 FT, ORGANIC ODOR		
			28	7	DO	7-13-15-25	22/24	4.0-10.0 FT, RED BROWN SHALE FRAGMENTS		
			22	8	DO	9-9-13-26	24/24	10.0-12.0 FT, STIFF BROWN SILTY CLAY		
			47	9	DO	19-17-30-25	24/24	13.8-14.0 FT, BROWN SILT AND SAND LENSE, MOIST		
297.0			COMPACT, BROWN AND GRAY BROWN, E SAND, AND SILT, SOME M TO C SAND, LITTLE GRAY F GRAVEL LIMESTONE FRAGMENTS.	ML	29	10	DO	4-14-15-19	21/24	UPPER SILT TILL
					45	12	DO	19-19-24-25	19/24	14.4-14.6 FT, TAN F SAND AND SILT LENSE, WET
	22	13			DO	5-11-11-16	12/24	16.0-18.0 FT, LITTLE RED SHALE FRAGMENTS		
293.8	SOFT TURNING TO VERY SOFT, GRAY TO GRAY BROWN, CLAY TO SILTY CLAY, SOME F-U SAND.	CL TO CH	16	14	DO	12-10-6-6	14/24	18.0-20.0 FT, WET, DILATANT		
			12	16	DO	4-5-7-6	18/24	GLACIOLACUSTINE CLAY F SAND LAYER FROM 22.0 TO 22.7 FT.		
24.0	END OF SAMPLING AUGERED TO 24.5 FT.						END OF SAMPLING			
							INSTALLED TMW-55 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.			

NYSPFC CHMS Document No. 201469232-00043
MONITORING WELL INSTALLATION LOG

JOB NO. 853-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. TAW-75 SHEET 1 OF 2
 SA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID GROUND ELEV. 318.7 F. WATER DEPTH 3.77 F.
 WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC. COLLAR ELEV. 321.21 FT DATE/TIME 9-22-06
 TEMP 85° F DRILL RIG CME 45 DRILLER J. LAMM STARTED 9:33 7:00 COMPLETED 11:20 7:00
 LOCATION/COORDINATES N 96.98 27 E 00.34 74 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 1.0 IN DIA. 13.0 LI WELL SCREEN 2.0 IN DIA. 12.9 LI BENTONITE SEAL PELLETS 40' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE THREADED TAPER 1/2 TON Q-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 195 L.F. 550 LBS
 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
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS SEE BORING LOGS THIS-75		
318.7	GROUND SURFACE		AUGERED TO 25.0 FT., ADDED #1-Q SAND (SLURRY) TO SET THE BOTTOM OF THE WELL.
0.0	UPPER ALLUVIUM LOOSE, TURNING TO COMPACT, BROWN TO ORANGE BROWN, MOTTLED S.S. SAND, AND SILT, LITTLE TO SOME M SAND		SAND BRIDGED, INSTALLED WELL PIPE (1-2' SCREEN, 1-10' SCREEN, 1-3' RISER, 17-0' RISER). PUSHED WELL TO 23.4 FT. - BROKE UP BRIDGING.
312.2			2.5 FT. STICKUP: ADDED #1-Q SAND (SLURRY) TO 5.5 FT. BELOW GROUND SURFACE (TOOK DRY SAMPLE); ADDED PELLETS TO 1.5 FT.; REMOVED AUGERS; MIXED CEMENT GROUT.
6.5	UPPER CLAY TILL VERY STIFF TO STIFF, BROWN MOTTLED, CLAYEY SILT AND TO SOME F.C. SAND, LITTLE TO TRACE GRAVEL. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 6.5-8.0 FT.		FILLED TO SURFACE; PUT ON 8" O ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-Q SAND.
304.3			USED HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND WELL BY THE SITE.
14.4	GLACIOFLUVIAL CLAY SOFT GRAY BROWN SANDY CLAY SOME F.C. SAND SOME F. GRAVEL. INTER-LAYERED WITH SAND AND SILT		(CONTINUED ON NEXT PAGE)
300.7			WELL DEVELOPMENT NOTES
18.0	UPPER SILT TILL COMPACT GRAY BROWN S.S. SAND AND SILT LITTLE M.C. SAND, LITTLE GRAVEL		DATE DEVELOPED: 8-4-06 TO 9-2-06
298.7			DEVELOPMENT METHOD: AIR LIFT
200	GLACIOFLUVIAL CLAY FIRM GRAY BROWN TO BROWN, SILTY CLAY SOME F.C. SAND TO SOFT GRAY CLAY, TRACE F.C. SAND, LITTLE TO NO SILT		VOLUME PURGED: 27.4 GAL.
292.7			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
26.0	END OF SAMPLING AUGERED TO 25.0 FT.		NOTE: A 0.85 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 3.5 AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 9.325, 10.325 FT. IN LENGTH RESPECTIVELY.

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY		TMW-75
Job No. 853-3051	Made by PMS	Date 7-8-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

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

Lined area for additional notes or drawings.

Boring Log

JOB NO. BS3-3051 GA. INSP. LEL/PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TW-75
 DEPTH HOLE 26.0 FT. DEPTH WL. 3.77 DRILLING METHOD HOLLOW STEM AUGERS 4 1/4" ID SHEET 1 OF 1
 TEMP 75° F TIME WL. 9-23-86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 318.7
 WEATHER SUNNY DRILL RIG CME 45 DRILLER J. LAMM DATUM MSL
 COORDINATES N 96° 28' 27" E 8834.74 WT. SAMPLER HAMMER 140 LBS DROP 30 IN. STARTED 2:50 / 7:28 86
 LOCATION _____ WT. CASING HAMMER 300 LBS DROP 30 IN. COMPLETED 8:25 / 7:28 86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT	
318.7 0.0	GROUND SURFACE							GROUND SURFACE
312.2 6.5	LOOSE TURNING TO COMPACT BROWN TO ORANGE BROWN MOTTLED F SAND AND SILT, LITTLE TO SOME M SAND, FIBROUS ROOTS.	SM	26	1	DO	5-11-15-15	24/24	UPPER ALLUVIUM
			11	3	DO	6-6-5-3	12/24	0.0-2.0 FT, TRACE GRAVEL
			8	4	DO	3-3-5-7	19/24	4.0-6.0 FT. FIRM TO STIFF BROWN MOTTLED CLAYEY SILT AND SAND
304.3 14.4	VERY STIFF TO STIFF, BROWN MOTTLED, CLAYEY SILT AND TO SOME F-C SAND, LITTLE TO TRACE GRAVEL.	CL	35	5	DO	10-18-17-20	17/24	UPPER CLAY TILL
			31	7	DO	14-15-16-20	24/24	6.5-8.0 FT. FIBROUS ROOTS, GRAY WEATHERING ALONG VERTICAL FRACTURES
			17	8	DO	5-6-11-20	24/24	6.5-10.0 FT. SLIGHT ORGANIC CO2
			47	9	DO	19-24-23-23	16/24	
300.7 18.0	SOFT, GRAY BROWN, SILTY CLAY, SOME F TO C SAND, SOME F GRAVEL.	CL	16	10	DO	5-6-10-11	14/24	GLACIOLACUSTRINE CLAY
			36	12	DO	6-11-25-50/3	18/22	17.0-18.0 FT. INTERLAYERED WITH BROWN F TO C SAND AND SILT. NE. UPPER SILT TILL
298.7 20.0	COMPACT, GRAY BROWN F SAND, AND SILT, LITTLE TO SOME M TO C SAND, LITTLE GRAVEL AS GRAY SUBROUNDED CLASTS.	SM	22	14	DO	12-11-11-13	21/24	
			17	16	DO	4-6-11-11	5/24	GLACIOLACUSTRINE CLAY
292.7 26.0	FIRM GRAY BROWN TO BROWN SILTY CLAY, SOME F-C SAND, TO SOFT GRAY CLAY, TRACE F-C SAND.	CL	22	17	DO	7-11-11-13	6/24	20.0-22.0 FT. INTERLAYERED WITH C SAND AND GRAVEL
			4	18	DO	1-2-2-3	24/24	24.0-26.0 FT. RED BROWN SILT LENSES THROUGHOUT SAMPLE
	END OF SAMPLING AUGERED TO 23.0 FT.							END OF SAMPLING
								INSTALLED TW-75 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

JOB NO. <u>853-3031</u>	PROJECT <u>CWM / WELLS / MODEL CITY</u>	WELL NO. <u>TMW-BS</u>	SHEET <u>1</u> OF <u>1</u>
SA INSP. <u>PMS</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS - 4 1/4" ID</u>	GROUND ELEV. <u>318.0</u>	WATER DEPTH <u>4.02</u> FT.
WEATHER <u>SUNNY</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS INC.</u>	COLLAR ELEV. <u>321.17</u>	DATE/TIME <u>9-22-86</u>
TEMP. <u>60° F</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>J. LAMM</u>	STARTED <u>10:51</u> / <u>6:17</u> AM
LOCATION/COORDINATES <u>45 FT EAST TMW-8D / 49026 92, E 9000 81</u>		COMPLETED <u>12:08</u> / <u>6:18</u> AM	

MATERIALS INVENTORY

WELL CASING <u>304</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 4.0' 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 TAPES <u>TEFLON</u> VITON O-RINGS	SLOT SIZE <u>0.006</u> INCH	FILTER PACK QTY <u>12.5</u> L.F. <u>350</u> LBS
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#4-20 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	
318.0	GROUND SURFACE		<p>AUGERED TO 18.0 FT. ADDED #1-2 SAND TO 17.4 FT. BELOW GROUND SURFACE. INSTALLED WELL PIPE (1-10" SCREEN, 1-10" 2:4GR) 3.2 FT. STICKUP. ADDED # 1-2 SAND TO 3.5 FT. (TOOK SAMPLE), ADDED PELLETS TO 1.5 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 #4-20 SAND. WEEP 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 WEEP HOLES WERE PUT IN CASING. A DEDICATED STAINLESS STEEL CASING WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.</p>	
0.0	UPPER ALLUVIUM STIFF TO FIRM, BROWN MOTTLED, CLAYEY SILT, SOME F-C SAND, LITTLE GRAVEL, TURNING TO COMPACT TO LOOSE, LIGHT BROWN, F SAND, AND SILT		1.6	<p>WELL DEVELOPMENT NOTES DATE DEVELOPED: <u>8-4-86</u> TO <u>9-2-86</u> DEVELOPMENT METHOD: <u>AIR LIFT</u> VOLUME PURGED: <u>26.5</u> GAL.</p>
507.0	GLACIOFLUVIAL CLAY SOFT, BROWN GRAY, SILTY CLAY, SOME F-C SAND		5.0	<p>FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.</p>
11.0			6.0	<p>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.</p>
300.0		17.4		
18.0	END OF BORING	18.0		

Boring Log

JOB NO. B53-3051 GA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TMW-85
 DEPTH HOLE 180 FT DEPTH WL. 4.0 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 SOIL INVESTIGATIONS, INC SURFACE ELEV. 318.0 FT
 WEATHER CLEAR DRILL RIG CME 45 DRILLER J LANM DATUM MSL
 COORDINATE 9826.92 E9088.81 WT. SAMPLER HAMMER 140 LBS DROP 30 IN. STARTED 9:53/6:17:86
 LOCATION 4.5 FT E OF TMW-80 WT. CASING HAMMER 300 LBS DROP 30 IN. COMPLETED 10:48/6:17:86

ELEV. DEPTH (F)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT	
318.0	GROUND SURFACE							GROUND SURFACE
307.0	STIFF TO FIRM, BROWN MOTTLED, CLAYEY SILT, SOME F TO C SAND. LITTLE GRAVEL, AT 50 FT, TURNING TO COMPACT TO LOOSE, LIGHT BROWN, F SAND, AND SILT.	CL	6	1	DO	2-3-3-3	13/24	UPPER ALLUVIUM 0.0-4.0 FT, ROOTS
			13	2	DO	4-6-7-7	17/24	
			18	3	DO	3-4-14-16	22/24	FROM 50 FT, ORGANIC CHEMICAL ODOR
			29	5	DO	10-13-16-21	24/24	8.0-10.0 FT., SILT LENSES
			20	6	DO	8-8-12-13	18/24	
			11	7	DO	7-5-6-8	24/24	
300.0	SOFT, BROWN GRAY, SILTY CLAY, SOME FC SAND, CLASTS AND SUBANGULAR DROPSTONES.	CL	18	9	DO	8-8-10-12	24/24	GLACIOLACUSTRINE CLAY 11.0-12.0 FT, TRACE ORGANIC CHEMICAL ODOR
			8	10	DO	1-3-5-7	24/24	
			7	11	DO	3-3-4-6	24/24	
18.0	END OF BORING							END OF BORING
								INSTALLED TMW-85 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

Boring Log

JOB NO. <u>853-3051</u>	GA. INSP. <u>KTM</u>	PROJECT <u>CWM/WELLS/MODEL CITY</u>	BORING NO. <u>TMW-8D</u>
DEPTH HOLE <u>43.0 FT</u>	DEPTH WL. <u>5.51 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>318.0 FT</u>
WEATHER <u>SUNNY</u>	DRILL RIG <u>ACKER AD-2</u>	DRILLER <u>J. GENOVESE</u>	DATUM <u>H.S.L.</u>
COORDINATES <u>N9825.36 E9084.44</u>	WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>	STARTED <u>9-30/6-25-86</u>
LOCATION <u>4.5 FT. WEST OF TMW-85</u>	WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>	COMPLETED <u>1-15/6-25-86</u>

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 8 IN. REC./ATT		
298.0 20.0	FOR COMPLETE SOILS DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG TMW-85						INSTALLED 10 INCH DIAM. PVC SURFACE CASING TO 20.0 FT., AUGERED TO 20.0 FT., NO SAMPLING.	
282.0 36.0	SOFT TO FIRM, GRAY, CLAY TO SILT/CLAY, AND TO LITTLE F-C SAND.	CL	16	1	DO	2-11-5-6	1/24	GLACIOLACUSTRINE CLAY 20.0-22.0 FT., COMPACT GRAY BROWN SILT AND F SAND 24.0-26.0 FT., SOFT BROWN CLAYEY SILT LENSES 30.0-32.0 FT., GRAY F SAND AND SILT LENSES 34.0-34.7 FT., DENSE GRAY F SAND LAYER
			7	2	DO	3-4-3-4	22/24	
			24	3	DO	8-11-13-13	10/24	
			24	4	DO	8-11-13-17	12/24	
			30	5	DO	8-12-18-20	24/24	
			31	6	DO	10-12-19-22	18/24	
			41	7	DO	9-17-24-29	16/24	
276.0 42.0	VERY DENSE, GRAY BROWN TO RED BROWN, F SAND, AND TO SOME SILT TO CLAYEY SILT, LITTLE M TO C SAND, LITTLE TO TRACE GRAVEL.	SM	70	10	DO	27-30-40-40	18/24	GLACIOLACUSTRINE SILT/SAND AUGERED FROM 39.5 TO 40.0 FT., NO SAMPLING AUGERED FROM 41.5 TO 42.0 FT., NO SAMPLING
			>100	12	DO	27-40-65	18/18	
			>100	13	DO	35-55-80	10/18	
275.0 43.0	VERY DENSE, RED BROWN, CLAYEY SILT, SOME F TO M SAND, TRACE RED SHALEY FRAGMENTS, DRY.	ML	>100	14	DO	40-110	12/12	BASAL RED TILL
275.0 43.0	END OF BORING						END OF BORING	
							INSTALLED TMW-8D SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

MONITORING WELL INSTALLATION LOG

JOB NO. 853-3091 PROJECT CWM/WELLS/MODEL CITY WELL NO. TMW-8D SHEET 1 OF 2
 GA INSP. KTM DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" I.D. GROUND ELEV. 318.0 FT WATER DEPTH 5.5 FT
 WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC. COLLAR ELEV. 319.93 FT DATE/TIME 9-27-86
 TEMP 57°F DRILL RIG AXLER AD-2 DRILLER J. GONDRESE STARTED 3:30 6-24-86 COMPLETED 10:30 6-24-86
 LOCATION/COORDINATES +5 FT. WEST OF TMW-8S / N 9825.36 E 9084.44 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 20 IN DIA. 36.0 FT. WELL SCREEN 20 IN DIA. 7.9 FT. BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH 6" CASING
 JOINT TYPE FLUSH WELDED TUBE 2-RISERS SLOT SIZE 0.006 INCH FILTER PACK QTY. 10.5 LF, 200 LBS
 GROUT QUANTITY _____ CENTRALIZERS NONE FILTER PACK TYPE #1-Q SAND
 GROUT TYPE BENTONITE DRILLING MUD TYPE NONE INSTALLATION METHOD TRIPLE TUBE WASH

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
318.0	GROUND SURFACE		AUGERED TO 20.0 FT. WITH 12 INCH (0.0) AUGERS BROUGHT	
0.0	UPPER ALLUVIUM STIFF TO FIRM, BROWN MOTTLED, CLAYEY SILT, SOME F-C SAND, LITTLE GRAVEL, TURNING TO COMPACT TO LOOSE, LIGHT BEDDUN, F SAND, AND SILT		10" PVC CASING TO 20.0 FT (GROUT SAMPLE TAKEN);	
307.0	GLACIOLACUSTINE CLAY SOFT, BEDDUN GRAY, SILTY CLAY, SOME F-C SAND, OCCASIONAL SAND AND SILT LENSES		4" (1.0) AUGERS PULLED	AUGERED TO 43.0 FT WITH 4" (1.0) AUGERS PULLED
11.0			TEMPORARY STEEL CASING WASHED OUT - OPEN TO 43.0 FT	AUGERS INSTALLED 6" TEMPORARY STEEL CASING WASHED OUT - OPEN TO 43.0 FT
11.0			B.G.S. TREATED #4-Q SAND (WITH WATER) TO 42.0 FT	B.G.S. TREATED #4-Q SAND (WITH WATER) TO 42.0 FT
11.0			B.G.S. (TOOK DRU SAMPLE);	B.G.S. (TOOK DRU SAMPLE);
11.0	GLACIOLACUSTINE CLAY SOFT, BEDDUN GRAY, SILTY CLAY, SOME F-C SAND, OCCASIONAL SAND AND SILT LENSES		INSTALLED WELL PIPE (1-2' SCREEN, 1-5' SCREEN, 2-3' RISERS 3-10' RISERS) 1.9 FT	INSTALLED WELL PIPE (1-2' SCREEN, 1-5' SCREEN, 2-3' RISERS 3-10' RISERS) 1.9 FT
11.0			STICKUP ADDED #1-Q SAND TO 32.5 FT. B.G.S. ADDED	STICKUP ADDED #1-Q SAND TO 32.5 FT. B.G.S. ADDED
11.0			PELLETS TO 28.5 FT. B.G.S. ADDED	PELLETS TO 28.5 FT. B.G.S. ADDED
282.0	GLACIOLACUSTINE SILT/SAND VERY DENSE, GRAY BROWN TO RED BROWN, F SAND, AND TO SOME SILT. SILT TO CLAYEY SILT, LITTLE M TO C SAND, LITTLE TO TRACE GRAVEL		ADDED #4-Q SAND TO 28.0 FT. B.G.S. MIXED GROUT REMOVED	ADDED #4-Q SAND TO 28.0 FT. B.G.S. MIXED GROUT REMOVED
36.0		6" STEEL CASING GROUT AT 2.0 FT. B.G.S. MIXED CEMENT	6" STEEL CASING GROUT AT 2.0 FT. B.G.S. MIXED CEMENT	
36.0		GROUT FILLED TO GROUND	GROUT FILLED TO GROUND	
36.0		SUBFAUL PUT ON 8" Q	SUBFAUL PUT ON 8" Q	
36.0		(CONTINUED ON NEXT PAGE)	(CONTINUED ON NEXT PAGE)	
276.0	BASAL RED TILL VERY DENSE, RED BROWN, CLAYEY SILT, SOME F-C SAND	WELL DEVELOPMENT NOTES	WELL DEVELOPMENT NOTES	
42.0		DATE DEVELOPED: 8-14-86 TO 9-2-86	DATE DEVELOPED: 8-14-86 TO 9-2-86	
275.0	END OF BORING	DEVELOPMENT METHOD: A.2	DEVELOPMENT METHOD: A.2	
43.0		LIFT	LIFT	
43.0	END OF BORING	VOLUME PURGED: 38.6 GAL	VOLUME PURGED: 38.6 GAL	
43.0		FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE	FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE	
43.0	END OF BORING	NOTE: A 8.5 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 3, 5 AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 2.325, 10.325 FT. IN LENGTH, RESPECTIVELY.	NOTE: A 8.5 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 3, 5 AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.35, 2.325, 10.325 FT. IN LENGTH, RESPECTIVELY.	
43.0				

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY		TMW-8D
Job No. 853-3051	Made by KTM	Date 6-26-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF PROTECTIVE CASING WITH #4-0 SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A CONCRETE PAD WAS LATER PLACED AROUND THE 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.

Boring Log

JOB NO. 853-3051 GA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TW-95
 DEPTH HOLE 30.0 FT DEPTH WL. 8.53 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 SOILS INVESTIGATIONS INC SURFACE ELEV. 226.6 FT
 WEATHER CLEAR DRILL RIG CME 45 DRILLER J. LAUM DATUM MSL
 COORDINATES N 478.08 E 9459.52 WT. SAMPLER HAMMER 140 LBS DROP 30 IN STARTED 10/4/62
 LOCATION - WT. CASING HAMMER 300 LBS DROP 30 IN COMPLETED 2/2/62

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.		
326.6 0.0	GROUND SURFACE						GROUND SURFACE	
			-	-	AS	-	-	FILL 0.0-2.0 FT, NO SAMPLE TAKEN, ROADFILL
	COMPACT, BROWN, CLAYEY SILT, SOME F TO C SAND, TURNING AT 8.0 FT TO SOFT TO FIRM, BROWN SILTY CLAY; AND TO SOME F TO C SAND	ML CL	17	1	DO	10-8-9-10	8/24	SLIGHT ORGANIC ODOR THROUGHOUT SILT LENSE AT 11.9 FT 12.0-14.0 FT, COMPACT BROWN AND GRAY SILT AND F SAND, LAYERED
			17	2	DO	8-7-10-8	5/24	
			14	3	DO	5-6-8-9	5/24	
			11	4	DO	4-5-6-8	17/24	
			40	5	DO	10-20-20-14	11/24	
312.6 14.0	STIFF, BROWN, SILTY CLAY, SOME F TO C SAND, LITTLE GRAVEL.	CL	29	6	DO	6-6-23-37	9/24	UPPER CLAY TILL 14.0-18.0 FT, SLIGHT ORGANIC ODOR
			37	7	DO	6-16-14-23	19/24	
			43	8	DO	18-22-21-21	4/24	
306.1 20.5	SOFT, GRAY TO GRAY BROWN, CLAY, SOME F TO C SAND, LITTLE TO TRACE GRAVEL, TURNING AT 27.5 FT. TO FIRM, BROWN, SILTY CLAY TO CLAYEY SILT, TURNING AT 29.6 TO VERY SOFT, GRAY CLAY.	CL CH	21	9	DO	9-9-12-14	24/24	GLACIOLACUSTRINE CLAY 20.5-26.0 FT, SILT AND GRAVEL 28.3-29.6 FT. LAYERS OF BROWN AND GRAY SILT AND CLAY
			9	10	DO	4-4-5-7	21/24	
			14	12	DO	7-7-7-9	24/24	
			5	13	DO	1-2-3-6	24/24	
296.6 30.0	END OF BORING							28.3-29.6 FT. LAYERS OF BROWN AND GRAY SILT AND CLAY
								INSTALLED TW-95 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

Boring Log

JOB NO. 853-3061 QA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TMW-105
 DEPTH HOLE 36.0 FT DEPTH WL. 8.5 FT DRILLING METHOD HOLLOW STEM AUGERS 4 1/2 ID SHEET 1 OF 1
 TEMP 60° F TIME WL. 9/22/86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC SURFACE ELEV. 328.6 FT
 WEATHER PARTLY CLOUDY DRILL RIG CME 45 DRILLER J LAMM DATUM MSL
 COORDINATES N9693.52 E9803.85 WT. SAMPLER HAMMER 140 LBS DROP 30 IN. STARTED 9/17/86 10:30
 LOCATION - WT. CASING HAMMER 300 LBS DROP 30 IN. COMPLETED 12/4/86 10:30

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT	
328.6 0.0	GROUND SURFACE							GROUND SURFACE
314.6 14.0	STIFF TURNING TO SOFT, BROWN, CLAYEY SILT TO SILTY CLAY, SOME F-C SAND LITTLE TO TRACE GRAVEL	CL	-	-	AS	-	-	FILL 0.0-2.0 FT, NO SAMPLE, ROADFILL 2.0-6.0 FEET SLIGHT ORGANIC ODOOR
			15	1	DO	7-7-8-9	20/24	8.0-9.2 FEET LOOSE BROWN F SAND SOME SILTY CLAY
			15	2	DO	8-7-8-9	22/24	9.8-10.0 FEET, SILT AND SAND LENSES
			12	3	DO	10-7-5-5	9/24	SILT LENSE AT 12.4 FEET AND 13.5 FEET
			4	4	DO	2-2-2-2	21/24	13.2-14.0 FEET, COMPACT BROWN SAND LITTLE SILT
			7	6	DO	1-2-5-9	9/24	
			24	7	DO	11-11-13-19	20/24	
			24	8	DO	11-11-13-19	20/24	
306.6 14.0	VERY STIFF TURNING TO STIFF, BROWN SILTY CLAY, SOME F TO C SAND	CL	25	9	DO	8-11-14-20	24/24	UPPER CLAY TILL 14.0-20.0 FEET GRAY WEATHERING ALONG VERTICAL FRACTURE 16.0-17.2 FEET LENSES. 19.5-20.5 FEET SILT LENSES
37			10	DO	20-18-9-17	24/24		
19			11	DO	7-8-11-16	24/24		
15			12	DO	3-6-9-11	18/24	20.0-22.0 FEET, SLIGHT ORGANIC ODOOR.	
302.6 22.0	STIFF GRAY BROWN CLAYEY SILT SOME F TO C SAND AS SUBROUNDED GRAY CLASTS	ML	29	13	DO	11-13-16-11	19/24	UPPER SILT TILL SILT LENSES THROUGHOUT SAMPLE ORGANIC ODOOR
24.0			CL	5	14	DO	1-2-3-4	12/24
298.6 30.0	10	15		DO	4-5-5-4	24/24	26.0-28.0 FEET, SLIGHT ORGANIC ODOOR	
	4	16		DO	WH-1-3-7	24/24		
297.6 36.0	VERY LOOSE TURNING TO COMPACT GRAY BROWN F SAND SOME TO LITTLE CLAYEY SILT, TO SILT AND F-C SAND	ML	3	17	DO	WH-1-2-4	20/24	MIDDLE SILT TILL SLIGHT ORGANIC ODOOR THROUGHOUT
			12	18	DO	5-5-7-8	24/24	
			-	19	DO	-	-	
36.0	END OF SAMPLING AUGERED TO 39.0 FT.							END OF SAND. W INSTALLED TMW-105 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

NYSDEC OHMS Document No. 201469232-00043
MONITORING WELL INSTALLATION LOG

JOB NO. BS3-3031 PROJECT CWM / WELLS / MODEL CITY WELL NO. TAW-105 SHEET 1 OF 2
 QA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID GROUND ELEV. 328.6 WATER DEPTH 3.65
 WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 329.97 DATE/TIME 9-22-86
 TEMP. 60° F DRILL RIG CME 45 DRILLER J. LAMM STARTED 1:22 6-24-86 COMPLETED 3:26 6-24-86
 LOCATION/COORDINATES N 94° 3' 52" E 9803 85

MATERIALS INVENTORY

WELL CASING 2.0 IN DIA. 13.0 FT WELL SCREEN 2.0 IN DIA. 20.6 FT BENTONITE SEAL PELLETS 4.0 DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH TEFLON NYLON W/ION TAPE 0-3 RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 28.0 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	
328.6 0.0	GROUND SURFACE FILL STIFF TURNING TO SOFT, BROWN, CLAYEY SILT TO SILTY CLAY, SOME F-C SAND, LITTLE TO TRACE GRAVEL, OCCASIONAL SILT AND SAND LENSES	<p>WELL CASING 14 FT STEEL 8" ALUMINUM CASING WITH LOCAL 2.7 FT STEEL #4-0 SAND CEMENT GROUT 3" BENTONITE PELLET SEAL 2" TYPE 304 SS BRASS PIPE #1-0 SAND 4" BOREHOLE 2" TYPE 304 SS SCREEN 36.0</p>	AUGERED TO 35.0 FT. ADDED #1-0 SAND (SUDDEN) TO 28.0 FT. BELIEVED SOME OF THIS TO BE RUNNING SAND. INSTALLED WELL PIPE (2.0' RISE). PUSHED WELL PIPE TO 31.8 FT. BELOW GROUND SURFACE. ADDED #1-0 SAND (SUDDEN) BY THE HANDFUL. RAISED THE AUGER 1-2' AND THE WELL PIPE FELL TO 32.5 FT. BELOW GROUND SURFACE. ADDED #1-0 SAND (SUDDEN) TO 7.0 FT. BELOW GROUND SURFACE. TOOK 2.0' SAMPLE. ADDED PELLETS TO 3.0 FT. REMOVED AUGERS. MIXED CEMENT GROUT. FILLED TO GROUND SURFACE. PUT ON 8" ALUMINUM PROTECTIVE CASING. FILLED INTERIOR OF CASING WITH #4-0 SAND WEEP HOLES. (CONTINUED ON NEXT PAGE)	
314.6 14.0	UPPER CLAY TILL VERY STIFF TURNING TO STIFF BROWN, SILTY CLAY, SOME F-C SAND. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 14.0-20.0 FT.			WELL DEVELOPMENT NOTES DATE DEVELOPED: 8-14-86 TO 9-2-86 DEVELOPMENT METHOD: A.R. LIFT VOLUME PURGED: 22.7 GAL
306.6 22.0	UPPER SILT TILL STIFF, GRAY BROWN, CLAYEY SILT, SOME F TO C SAND, LITTLE TO TRACE GRAVEL			
304.6 24.0	GLAUCOCLASTINE CLAY SOFT, GRAY BROWN, SILTY CLAY, SOME TO LITTLE F TO M SAND, OCCASIONAL SILT LENSES			
298.6 30.0	MIDDLE SILT TILL VERY LOOSE TURNING TO COMPACT, GRAY BROWN, F SAND, SOME TO LITTLE CLAYEY SILT, TO SILT AND F-C SAND			
292.6 36.0	END OF SAMPLING AUGERED TO 35.0 FT.			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
				NOTE: A 8.5 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.

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY		TMW-10S
Job No. 853-3051	Made by PMS	Date 6-24-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A GRAVEL PAD WAS LATER PLACED AROUND WELL BY THE SITE; A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

Boring Log

JOB NO. <u>853-3051</u>	QA. INSP. <u>PMS</u>	PROJECT <u>CWU/ WELLS/ MODEL CITY</u>	BORING NO. <u>TW-115</u>
DEPTH HOLE <u>200 FT</u>	DEPTH WL. <u>107.1 FT</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS-4" x 4" D</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>70° F</u>	TIME WL. <u>9/23/86</u>	DRILLING COMPANY <u>EMPERE SOIL INVESTIGATIONS, INC</u>	SURFACE ELEV. <u>316.9 FT</u>
WEATHER <u>CLOUDY</u>		DRILL RIG <u>CUE 45</u>	DRILLER <u>J. LAMM</u>
COORDINATES <u>N960615 E099931</u>		WT. SAMPLER HAMMER <u>40 LBS</u>	DROP <u>30 IN.</u>
LOCATION <u>-</u>		WT. CASING HAMMER <u>300 LBS</u>	DROP <u>30 IN.</u>
			STARTED <u>11/01/79</u>
			COMPLETED <u>1/24/80</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOW/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 8 IN. REC./ATT		
316.9	GROUND SURFACE						GROUND SURFACE	
0.0	STIFF TURNING TO FIRM, BROWN, SILTY CLAY, SOME F TO C SAND, LITTLE TO TRACE GRAVEL.		-	-	AS	-		
		CL	13	1	DO	5-6-7-7	22/24	UPPER CLAY TILL ROADFILL ORGANIC ODOOR THROUGH 2.0-4.0 FEET ORANGE, BROWN, AND BLACK STREAKS.
			21	2	DO	5-10-11-11	24/24	4.3-4.7 FEET SILT AND SAND LENSES
			32	3	DO	14-17-15-19	4/24	
306.9			17	4	DO	7-10-7-12	4/24	
10.0	SOFT TURNING TO FIRM, GRAY BROWN, SILTY CLAY, SOME F TO C SAND, AT 18.0 FT BECOMING VERY SOFT, GRAY, CLAY, WITH THIN RED BROWN SILT LENSES.		22	5	DO	8-10-12-12	11/24	GLACIOFLUVIATING CLAY 10.0-14.0 FEET, TRACE GRAVEL, SILT LENSES
		CL	18	6	DO	8-8-10-13	24/24	14.0-16.0 FEET SLIGHT ORGANIC ODOOR
			27	7	DO	9-12-15-12	2/24	17.5-17.8 FEET, SAND LENSE, SILT POCKETS ABOVE AND BELOW LENSE
			27	8	DO	25-12-15-12	24/24	
296.9			6	9	DO	2-3-3-4	24/24	
200	END OF SAMPLING DIGGED TO 9.0 FT.							END OF SAMPLING INSTALLED TW-115 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

JOB NO. B53-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. TMW-115 SHEET 1 OF 1
 SA HSP PMS DRILLING METHOD HOLLOW STEEL AUGERS - 4 1/4" ID GROUND ELEV 316.9 FT WATER DEPTH 10.7
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC COLLAR ELEV 319.36 FT DATE/TIME 9-23-86
 TEMP 75° F DRILL RIG CMB 45 DRILLER J. LAMM STARTED 1:58 7.9.86 COMPLETED 2:53 7.9.86
 LOCATION/COORDINATES N 29° 04' S E 3999 31

MATERIALS INVENTORY

WELL CASING 20 IN. DIAM. 100 LI WELL SCREEN 2 IN. DIAM. 10.6 LI BENTONITE SEAL PELLETS 40 DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE T-GEARED TAPE 0.6 INGS SLOT SIZE 0.006 INCH FILTER PACK QTY 130 L.F. : 300 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	
316.9	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE DRILLING LOG THIS LOG GROUND SURFACE		<p>AUGERED TO 10.0 FT.; ADDED #1-0 SAND TO 18.1 FT. TOOK SAMPLE; INSTALLED WELL PDS (-10' SCREEN, -10' RISER); 2.5 FT. STICKUP ADDED #1-0 SAND TO 6.0 FT. BELOW GROUND SURFACE; ADDED PELLETS TO 2.0 FT.; REMOVED AUGERS; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" Ø ALUMINUM PROTECTIVE CASING</p>	
0.0	UPPER CLAY TILL STIFF TURNING TO FINE, BROWN, SILTY CLAY, SOME F-C SAND, LITTLE TO TRACE GRAVEL		<p>2.0' 2" Ø TYPE 304 S.S. EDGE PIPE 2.0' BENTONITE PELLET SEAL</p>	<p>FILLED INTERIOR OF CASING WITH #4-0 SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PUT AROUND WELL; A GRAVEL PAD WAS LATER PUT AROUND WELL BY THE SITE; A DEDICATED STAINLESS STEEL SAUER WAS INSTALLED FOR DEVELOPMENT AND FOR SUBSEQUENT SAMPLING</p>
306.9	GLACIOLACUSTRINE CLAY SOFT TURNING TO FINE, GRAY BROWN, SILTY CLAY, SOME F TO C SAND, SILT AND GRAVEL LENSES FROM 0.0-14.0 FT. AT 18.0 FT. BECOMING VERY SOFT, GRAY, CLAY, WITH THIN SILT LENSES		<p>18.1' 19.0' NOMI 8" Ø BOREHOLE</p>	<p>WELL DEVELOPMENT NOTES DATE DEVELOPED: 8-4-86 TO 9-3-86 DEVELOPMENT METHOD: SAUER VOLUME PURGED: 6.2 GAL FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.</p>
20.0	END OF SAMPLING AUGERED TO 19.0 FT.		<p>10.0'</p>	<p>NOTE: A 0.9 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

JOB NO. <u>B53-3051</u>	GA. INSP. <u>PMS</u>	PROJECT <u>CANA/WELLS/MODEL CITY</u>	BORING NO. <u>TMW-125</u>
DEPTH HOLE <u>16.3 FT</u>	DEPTH WL. <u>4.03 FT</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS-4 1/4 ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>100° F</u>	TIME WL. <u>9/23/86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	SURFACE ELEV. <u>3119.5</u>
WEATHER <u>CLEAR</u>	DRILL RIG <u>CME 45</u>	DRILLER <u>J. LAMM</u>	DATUM <u>MSL</u>
COORDINATES <u>N10021.55 E0310.83</u>	WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>	STARTED <u>9-23-86 10:25 AM</u>
LOCATION <u>-</u>	WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>	COMPLETED <u>2-23-87 10:25 AM</u>

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC/ATT	
3119.0	GROUND SURFACE							GROUND SURFACE
3079.40	VERY STIFF TO FIRM, GRAY BROWN, CLAYEY SILT TO SILTY CLAY, SOME F TO C SAND, LITTLE F GRAVEL.	CL	22	1	DO	7-11-11-13	23/24	UPPER CLAY TILL
3035.84	SOFT, BROWN GRAY, SILTY CLAY, SOME F-M SAND.	CL	4	3	DO	2-2-2-3	15/24	GLACIOLACUSTRINE CLAY 6.0-8.4 FEET, SILT LENSES
2994.125	LOOSE TO COMPACT, BROWN, SILT, AND F SAND, TO F SAND, AND SILT, SOME TO LITTLE M TO C SAND AND GRAY SUBROUNDED DROPSTONES, TRACE CLAY.	ML	22	5	DO	7-11-11-13	18/24	UPPER SILT TILL
2959.160	SOFT TO VERY SOFT GRAY BROWN TO GRAY, SILTY CLAY TO CLAY, LITTLE TO SOME F SAND.	CL	13	8	DO	5-6-7-7	24/24	GLACIOLACUSTRINE CLAY 14.0-14.9 FEET, GRAY SILT LENSES, RED BROWN SILT LENS AT 15.4 FEET
16.0	END OF SAMPLING AUGERED TO 16.3 FT.							END OF SAMPLING

INSTALLED TMW-125
SEE ACCOMPANYING
MONITORING WELL
INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

JOB NO. B53-3031 PROJECT CWM / WELLS / MODEL CITY WELL NO. TMW-12S SHEET 1 OF 2
 GA. RESP. PMS DRILLING METHOD HOLLOW STEM AUGERS-4 1/4" ID GROUND ELEV. 311.9 FT. WATER DEPTH 4.03 FT.
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 314.60 FT. DATE/TIME 9-23-86
 TEMP. 60 F DRILL RIG CME 45 DRILLER J. LAMM STARTED 10:23 6:25 AM COMPLETED 11:34 6:25 AM
 LOCATION/COORDINATES N 10021.95 E 9310.83 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 2.0 IN. DIA. 8.0 FT. WELL SCREEN 2.0 IN. DIA. 10.6 FT. BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH TRENCHED TAPS BELOW V-TON O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY. 11 3LF 250 LOS.
 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
311.9	GROUND SURFACE		AUGERED TO 16.3 FT. ADDED #1-0 SAND TO 18.8 FT. BELOW GROUND SURFACE (TOOK SAMPLE). INSTALLED WELL PIPE (1" O.D.) SCREEN, 1-3" RISES (1-5" 2-6") 2.8 FT. STICKUP. ADDED #1-0 SAND TO 5.0 FT. WHILE REMOVING LAST SECTION OF AUGER. THE WELL CAP FELL INTO BOREHOLE. IT COULD NOT BE RETRIEVED. ANOTHER CAP PLACED ON WELL PIPE. ADDED PELLETS TO 1.0 FT. BELOW GROUND SURFACE. MIXED CEMENT GROUT. FILLED TO GROUND SURFACE. PUT ON 8" O.D. ALUMINUM PROTECTIVE CASING. FILLED INTERIOR OF CASING WITH #4-0 SAND. WEED HOLES WERE PUT IN CASING FOR DRAINAGE. PROTECTIVE JOBS WERE PLACED AROUND WELL. A CONCRETE PAD WAS LATER.
0.0	UPPER CLAY TILL VERY STIFF TO FIRM, GRAY BROWN, CLAYEY SILT TO SILTY CLAY, SOME F.F. SAND, LITTLE F GRAVEL.		
307.9	GLACIOFLUVIAL CLAY SOFT, BROWN GRAY, SILTY CLAY, SOME F.F. SAND, SILT LENSES FROM 6.0-8.4		
303.5	UPPER SILT TILL LOOSE TO COMPACT, BROWN SILT, AND F SAND, TO F SAND AND SILT, SOME TO LITTLE M.C. SAND		
299.4	GLACIOFLUVIAL CLAY SOFT TO VERY SOFT, GRAY BROWN TO GRAY, SILTY CLAY TO CLAY, LITTLE TO SOME F SAND, OCCASIONAL THIN SILT LENSES		
295.9	END OF SAMPLING AUGERED TO 16.3 FT.		
16.0			
(CONTINUED ON NEXT PAGE)			WELL DEVELOPMENT NOTES
			DATE DEVELOPED: 8-14-86 TO 9-3-86
			DEVELOPMENT METHOD: A.I.E. LIST
			VOLUME PURGED: 89 GAL.
			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
			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		TMW-12S
Job No. 853-3051	Made by PMS	Date 6-25-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

PLACED AROUND WELL BY THE SITE AND NEW WEEP HOLES WERE
PUT IN CASING; A DEDICATED STAINLESS STEEL BAILER WAS
INSTALLED SUBSEQUENT TO DEVELOPMENT.

Blank lined area for additional notes or drawings.

Boring Log

JOB NO. 853-3051 QA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TW-135
 DEPTH HOLE 22.0 FT DEPTH WL. 3.65 FT DRILLING METHOD HOLLOW STEM AUGERS-4" I.D. SHEET 1 OF 1
 TEMP 80° F TIME WL. 9/23/85 DRILLING COMPANY EMARE SOIL INVESTIGATIONS, INC. SURFACE ELEV. 318.3 FT
 WEATHER CLOUDY DRILL RIG CME 45 DRILLER J. LAAMA DATUM MSL
 COORDINATES N9903.50 E9620.12 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 2:20 / 7:8:85
 LOCATION - WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 4:15 / 7:8:85

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
318.3	GROUND SURFACE						GROUND SURFACE	
0.0	VERY STIFF TO STIFF, BROWN MOTTLED CLAYEY SILT, SOME F-C SAND, TRACE GRAVEL, AT 8.0 FT, BECOMING STIFF TO FIRM, BROWN SILTY CLAY, SOME F-C SAND.	CL	18	1	DO	5-8-10-4	18/24	UPPER CLAY TILL 6.0-8.0 FEET, GREY WEATHERING ALONG VERTICAL FRACTURES
			16	2	DO	5-6-10-11	11/24	
			26	3	DO	10-12-14-16	24/24	
			32	4	DO	20-15-17-25	24/24	
			20	5	DO	4-6-14-15	23/24	
			37	6	DO	6-19-18-21	24/24	
			53	7	DO	14-16-17-12	18/24	
			21	8	DO	6-8-13-8	3/24	
302.3	FIRM TO SOFT, GRAY BROWN SILTY CLAY, SOME F-C SAND, BECOMING VERY SOFT, GRAY CLAY.	CL CH	20	9	DO	6-8-12-20	24/24	GLACIAL LUSTINE CLAY 18.1-18.3 FT SAND LENSE 20.3-22.0 THIN SILT LENSES THROUGHOUT
16.0			23	10	DO	12-15-8-10	14/24	
296.3			5	11	DO	1-2-3-3	24/24	
22.0	END OF BORING						END OF BORING INSTALLED TW-135 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

NYSDEC OHMS Document No. 201469232-00043
MONITORING WELL INSTALLATION LOG

JOB NO. B52-3031 PROJECT CWM / WELLS / MODEL CITY WELL NO. TW-35 SHEET 1 OF 1
 SA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID GROUND ELEV. 318.3 FT WATER DEPTH 3.45
 WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC COLLAR ELEV. 320.04 DATE/TIME 9-23-86
 TEMP 65 F DRILL RIG CASE 45 DRILLER J. LAMM STARTED 8:14 7-9-86 COMPLETED 9:22 7-9-86
 LOCATION/COORDINATES N 9903.20 E 9620.12 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 2.0 W. O.D. 10.0 W. I.D. WELL SCREEN 2.0 W. O.D. 12.9 W. I.D. BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH TEP-LON 1-TON TAPS 0-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY. 160 LBS 450 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	
318.3	GROUND SURFACE	<p>WELL CASING 1.7 FT. STICKUP 8" φ ALUMINUM CASING WITH LOW 2.0 FT. STICKUP #4-0 SAND CEMENT GROUT 8" φ BENTONITE PELLET SEAL 2" φ TYP. 304 SS. BASE PIPE #1-0 SAND 2" φ TYP. 304 SS. SCREEN NOM. 8" φ BOREHOLE</p>	AUGERED TO 22.0 FT. ADDED #1-0 SAND TO 21.2 FT. BELOW GROUND SURFACE (SAMPLE TAKEN); INSTALLED WELL PIPE (1-2 SCREEN 170' SCREEN (1-10' BISEE) 1.7 FT. STICKUP) ADDED #1-0 SAND TO 6.0 FT. ADDED PELLETS TO 2.0 FT. REMOVED AUGER; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE; PUT ON 8" φ ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF CASING WITH #4-0 SAND. WEED HOLES WERE PUT IN CASING FOR DRAINAGE. PROTECTIVE ZONES WERE PUT AROUND WELL. A GRAVEL PAD WAS LAID AROUND WELL LATER BY THE SITE. A DEDICATED STAINLESS STEEL CASING WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.	
0.0	UPPER CLAY TILL VERY STIFF TO STIFF, BROWN, MOTTLED; CLAYEY SILT, SOME F-C SAND. TRACE GRAVEL. AT 8.0 FT. BECOMING STIFF TO FIRM, BROWN, SILTY CLAY. GRAY WEATHERING ALONG VERTICAL FRACTURES FROM 6.0-8.0 FT.		20'	
16.0	GLACIOLACUSTRINE CLAY FIRM TO SOFT, GRAY BROWN, SILTY CLAY, SOME F-C SAND, BECOMING VERY SOFT, GRAY, CLAY. OCCASIONAL SILT AND SAND LENSES		6.0'	
296.3	END OF BORING		8.3'	
22.0		4.2' 22.0'		

WELL DEVELOPMENT NOTES

DATE DEVELOPED: 8-14-86 TO 9-3-86
 DEVELOPMENT METHOD: A.R. LIFT
 VOLUME PURGED: 239 GAL

FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.

NOTE: A 2.5 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.

Boring Log

JOB NO. 853-3021 QA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TMW-145
 DEPTH HOLE 16.0 FT DEPTH WL. 6.80 FT DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID SHEET 1 OF 1
 TEMP 65° F TIME WL. 9-23-86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 32.5 FT
 WEATHER CLEAR DRILL RIG CME 45 DRILLER J. LAMM DATUM MSL
 COORDINATES N10023.85 E9875.18 WT. SAMPLER HAMMER 140 LBS DROP 30 IN STARTED 2:30 / 9-23-86
 LOCATION - WT. CASING HAMMER 300 LBS DROP 30 IN COMPLETED 3:28 / 9-23-86

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
312.5 0.0	GROUND SURFACE						GROUND SURFACE	
308.5 4.0	VERY STIFF TO FIRM, BROWN CLAYEY SILT, SOME F TO C SAND, LITTLE TO TRACE F GRAVEL.	CL	18	1	DO	11-9-9-13	21/24	UPPER CLAY TILL 0.0-2.0 FT, ROCKS
			17	2	DO	10-9-8-9	20/24	
	FIRM TO VERY SOFT, GRAY BROWN TO BROWN GRAY, SILTY CLAY, SOME F TO C SAND AS SUBANGULAR DROPSTONES.	CL	6	3	DO	2-3-3-5	18/24	GLACIOLACUSTRINE CLAY
			10	4	DO	3-5-5-4	24/24	SILT LENSE AT 5.9 FT, AND 7.0 FT.
			5	5	DO	4-3-2-4	24/24	
			0	6	DO	WH-WH-WH-2	24/24	
			7	7	DO	3-3-4-3	24/24	
296.5 16.0	AT 14.0 FT. BECOMING VERY SOFT, GRAY, CLAY, TRACE F SAND, TRACE SILT.	CH	0	8	DO	WR-WH-1-1	24/24	
	END OF BORING							END OF BORING
								INSTALLED TMW-145 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

JOB NO B53-3051 PROJECT CWM/WELLS/ MODEL CITY WELL NO JMW-145 SHEET 1 OF 2
 GA INSP PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4 ID GROUND ELEV 312.5 FT WATER DEPTH 2.80 FT
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV 314.73 FT DATE/TIME 9-23-86
 TEMP 65.0 F DRILL RIG CME 45 DRILLER J. LAMM STARTED 3:35 6 25 86 COMPLETED 4:20 6 25 86
 LOCATION/COORDINATES N 10023 85 E 9875 18 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 2.0 IN. DIA. 100 FT. WELL SCREEN 2.0 IN. DIA. 79 FT. BENTONITE SEAL PELLETS 4.0' 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 10 O.L.F. 250 LBS
 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	
312.5	GROUND SURFACE	<p>WELL SKETCH 8" ALUMINUM CASING WITH LOCK 3.1 FT. STICKUP #4-Q SAND CEMENT GROUT 3/8" BENTONITE PELLET SEAL 2" O.D. 304 SS RISER PIPE #1-Q SAND 2" O.D. 304 SS SCREEN NOM. 8" BOREHOLE WELL CASING 2.2 FT. STICKUP 20' 60' 78' 187' 160'</p>	AUGERED TO 16.0 FT. ADDED #1-Q SAND TO 15.4 FT. BELOW GROUND SURFACE (TOOK SAMPLE). INSTALLED WELL PIPE (1-2' SCREEN, 1-9' SCREEN 1-10' RISER). WELL PIPE BOTTOM SANG TO 19.7 FT. BELOW GROUND SURFACE. 2.2 FT. STICKUP. ADDED #1-Q SAND TO 6.0 FT. BELOW GROUND SURFACE. ADDED PELLETS TO 2.0 FT.	
0.0	UPPER CLAY TILL VERY STIFF TO FIRM, BROWN, CLAYEY SILT, SOME F-C SAND, LITTLE TO TRACE F GRAVEL			REMOVED AUGERS; MIXED CEMENT GROUT; FILLED TO GROUND SURFACE. PUT ON 8" ALUMINUM
308.5	GLACIOLACUSTRINE CLAY FIRM TO VERY SOFT, GRAY BROWN TO BROWN GRAY, SILTY CLAY, SOME F TO C SAND			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 GRAVEL PAD WAS LATER PLACED AROUND WELL.
4.0	AT 14.0 FT, BECOMING VERY SOFT, GRAY CLAY, TRACE F SAND			
296.5	END OF BORING		(CONTINUED ON NEXT PAGE)	
16.0			WELL DEVELOPMENT NOTES DATE DEVELOPED: 8-14-86 TO 9-3-86 DEVELOPMENT METHOD: AIR LIFT VOLUME AUGERED: 5.5 GAL. FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE. NOTE: A 8.3 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 TMW-145		
Job No. 853-3051	Made by PMS	Date 6-25-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

BY THE SITE, A DEDICATED STAINLESS STEEL BAILER WAS
INSTALLED SUBSEQUENT TO DEVELOPMENT.

Boring Log

JOB NO. 853-3051 GA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TMW-155
 DEPTH HOLE 24.0 FT. DEPTH WL. 4.87 FT. DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID SHEET 1 OF 1
 TEMP 70° F TIME WL. 9-23-86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 313.8 FT.
 WEATHER SUNNY DRILL RIG CME 45 DRILLER J. LAMM DATUM MSL
 COORDINATES N10171.02 E 955397 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 10:10 / 6-16-86
 LOCATION 3.0 FT. WEST OF TMW-15D WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 11:47 / 6-16-86

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 (FILL)	
0.0	LOOSE, BROWN, CLAYEY SILT, SOME F-C SAND, SOME GRAVEL, TO FIRM, GRAY BROWN, SILTY CLAY, SOME F-M SAND.	ML CL	5	1	DO	3-2-3-3	6/24	ON EDGE OF BERM NORTH OF NORTH SALTS AREA AUGERED FROM 2.0 TO 4.0 FT. NO SAMPLE
308.9	COMPACT TO DENSE, BROWN, F-M SAND, SOME TO LITTLE SILT, LITTLE GRAVEL AS GRAY SUBANGULAR LIMESTONE FRAGMENTS.	SW	15	2	DO	2-3-12-20	17/24	UPPER ALLUVIUM
4.9			45	4	DO	20-15-30-12	18/24	SLIGHT ORGANIC CHEMICAL ODOR IN SAMPLE FROM 3.0-6.0 FT.
305.8	SOFT-FIRM, BROWN GRAY, SILTY CLAY, SOME F-C SAND, TRACE GRAVEL AS GRAY DROPSTONES.	CL	6	5	DO	2-2-4-6	24/24	GLACIOLACUSTRINE CLAY
8.0			12	6	DO	6-6-6-7	13/24	LARGE GRAVEL IN SPOON MOUTH AT ~11.1 FT.
			17	7	DO	7-7-10-13	24/24	
			17	8	DO	5-7-10-15	3/24	
			18	9	DO	12-10-8-15	13/24	
	AT 18.0 FT. TURNING TO SOFT, BROWN GRAY, CLAY WITH RED BROWN SILT LENSES 1/2 TO 2 INCH THICK OCCURRING TO 24.0 FT.	CH	5	10	DO	1-2-3-4	24/24	
			7	11	DO	2-3-4-6	24/24	
			13	12	DO	5-6-7-9	20/24	
289.8	END OF SAMPLING AUGERED TO 23.5 FT.							END OF SAMPLING
24.0								INSTALLED TMW-155 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

MONITORING WELL INSTALLATION LOG

JOB NO. B53-3051 PROJECT CWM/WELLS/MODEL CITY WELL NO. TMW-155 SHEET 1 OF 1
 GA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID GROUND ELEV. 313.8 FT. WATER DEPTH 4.37 FT.
 WEATHER CLOUDY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV. 316.18 FT. DATE/TIME 9-23-86
 TEMP. 65°F DRILL RIG CME 45 DRILLER J. LAMM STARTED 1:36 6/16/86 COMPLETED 3:42 6/16/86
 LOCATION/COORDINATES 35 FT. WEST OF TMW-15D / N 10171.02 E 9553.94 / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 2.0 IN. DIA. 10.0 LF WELL SCREEN 2.0 IN. DIA. 15.9 LF BENTONITE SEAL PELLETS 40' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH TEFLON VITON TAPE O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY. 17.5 L.F. ; 425 LBS.
 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
(FT.)	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG THER-188		
313.8	GROUND SURFACE		AUGERED TO 23.5 FT.; ADDED #1-Q SAND TO 23.2 FT.
0.0	FILL		BELOW GROUND SURFACE (TOOK SAMPLE); INSTALLED WELL PIPE (1-5' SCREEN, 1-10' SCREEN, 1-10' RISER); WELL PIPE BOTTOM SANK TO 23.5 FT. BELOW GROUND SURFACE; 2.4 FT. STICKUP; ADDED #1-Q SAND TO 6.0 FT.
308.9	LOOSE, BROWN CLAYEN SILT, SOME F-C SAND, SOME GRANULAR TO FIRM, BROWN SILTY CLAY, SOME F-A SAND.		ADDED PELLETS TO 2.0 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 GRAVEL PAD WAS LATER PUT AROUND THE WELL.
4.9	UPPER ALLUVIUM COMPACT TO DENSE, BROWN F-A SAND, SOME TO LITTLE SILT, LITTLE GRANULAR TO BROWN SUBSANGUINE LIMESTONE FRAGMENTS		ON THE SITE, A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.
305.8	GLACIOLACUSTRINE CLAY		WELL DEVELOPMENT NOTES
8.0	SOFT TO FIRM, BROWN GRAY SILTY CLAY, SOME F-C SAND, TRACE GRANULAR AS BROWN OOLITHES, LARGE GRANULAR IN SPOON MOUTH AT ~11.1 FT. AT 15.0 FT. BECOMING SOFT, BROWN GRAY CLAY WITH RED BROWN SILT LENSES 1/2 TO 2 INCH THICK OCCURRING TO 24.0 FT.		DATE DEVELOPED: 8-14-86 TO 9-2-86 DEVELOPMENT METHOD: AIR LIFT VOLUME PURGED: 16.6 GAL.
289.8			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
24.0	END OF SAMPLING AUGERED TO 23.5 FT.		NOTE: A 8.5 FT. END CAP WAS PLACED AT THE BOTTOM OF THE SCREEN SECTION. 2.5, AND 10 FT. SCREEN SECTIONS ARE ACTUALLY 2.55, 9.325, 10.325 FT. IN LENGTH, RESPECTIVELY.

Boring Log

JOB NO. 853-3051 GA. INSP. LEL/PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TMW-150
 DEPTH HOLE 37.0 FT. DEPTH WL. 1.61 FT. DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID SHEET 1 OF 1
 TEMP 65° F TIME WL. 9-23-86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC SURFACE ELEV. 313.8 FT.
 WEATHER PARTLY CLOUDY DRILL RIG CME 55 DRILLER J. GENOVESE DATUM USL
 COORDINATES N10171.75 E9550.56 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 9/24/86
 LOCATION 3.5 FT. EAST OF TMW-155 WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 10/24/86

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS.	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
289.8 24.0	FOR COMPLETE SOILS DESCRIPTION AT THIS LOCATION ALSO SEE BORING LOG TMW-155						INSTALLED 10 INCH PVC SURFACE CASING TO 19.3 FT. AUGERED TO 24.0 FT, NO SAMPLING	
283.2 30.6	SOFT TO VERY SOFT, GRAY CLAY TO SILTY CLAY, SOME TO LITTLE F TO C SAND.	CH TO CL	12	1	DO	3-5-7-7	7/24	GLACIOLACUSTRINE CLAY
			17	2	DO	5-7-10-10	24/24	
			5	3	DO	2-2-3-4	24/24	
277.8 36.0	INTERLAYERED VERY SOFT, GRAY, CLAY, WITH VERY DENSE, BROWN, SILT AND F SAND LENSES 1/4 TO 1/2 IN. THICK, AT 35.5 DENSE, BROWN, SILT, AND F SAND, LITTLE C SAND, TRACE GRAVEL, DILATANT, LITTLE CLAY.	CL/ML	12	4	DO	1-2-10-10	9/24	GLACIOLACUSTRINE SILT/SAND (LAMINATED CLAYS TO 35.5 FT.)
			6	5	DO	2-2-4-5	24/24	
277.3 36.5	HARD, RED BROWN, CLAYEY SILT, SOME F TO C SAND, LITTLE GRAVEL, SHALEY, (WEATHERED SHALE) DRY.	ML	>100	7	DO	37-100-33-35	24/24	BASAL RED TILL
	END OF SAMPLING AUGERED TO 37.0 FT.							END OF SAMPLING
								* NOTE: 300 LB. HAMMER USED.
								INSTALLED TMW-150 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

NYSDEC OHMS Document No. 201469232-00043
MONITORING WELL INSTALLATION LOG

JOB NO. BS3-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. TMW-15D SHEET 1 OF 2
 GA INSP. PMS DRILLING METHOD HOLLOW STEEL AUGERS - 4 1/4" I.D. GROUND ELEV. 313.8 FT WATER DEPTH 1.61 FT
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 315.57 FT DATE/TIME 9-23-86
 TEMP. 65°F DRILL RIG CME 95 DRILLER J. GENOVESE STARTED 11:30 6-27-86 COMPLETED 9:30 6-30-86
 LOCATION/COORDINATES 3.3 FT. EAST OF TMW-155 / N 10171.75, E 9958.5

MATERIALS INVENTORY

WELL CASING 2.0 in dia. 36.0 I.F. WELL SCREEN 2.0 in dia. 2.6 I.F. BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD TREMIE TUBE WASH
 JOINT TYPE PLUSH THREADED TEFLON VITON O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 5.0 L.F. / 100 LBS.
 GROUT QUANTITY _____ CENTRALIZERS NONE FILTER PACK TYPE #1-Q SAND
 GROUT TYPE BENTONITE DRILLING MUD TYPE NONE INSTALLATION METHOD TREMIE TUBE WASH

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
313.8	GROUND SURFACE	<p>WELL SKETCH: A vertical cross-section of the well. At the top, there is a 1.8 ft stickup of well casing. Below this is a section of 8" aluminum casing with a 2.4 ft stickup. The casing is filled with #4-Q sand. Below the casing is a section of cement grout. The main well casing is 10" diameter PVC casing. Below the PVC casing is a section of bentonite grout. A 2" diameter type 304 stainless steel riser pipe is shown. Below the riser pipe is a section of 3/8" diameter bentonite pellet seal. Below the seal is a section of #1-Q sand. Below the sand is a section of 2" diameter type 304 stainless steel screen. Below the screen is a section of #4-Q sand. A driven 6" diameter temporary cased hole is also shown.</p>	AUGERED TO 19.9 FT. WITH 12 INCH (O.D.) AUGERS; GROUTED 10" Ø PVC CASING TO 19.3 FT. B.G.S.; AUGERED TO 37.0 FT. B.G.S. WITH 4 1/4" (I.D.) AUGERS; PULLED AUGERS
0.0	FILL LOOSE, BROWN CLAYEY SILT, SOME F-C SAND, SOME GRAVEL, TO FIRM, GRAY BROWN SILTY CLAY, SOME F-M SAND		INSTALLED 6" Ø TEMPORARY STEEL CASING, WASHED OUT -
308.9	UPPER ALLUVIUM COMPACT TO DENSE, BROWN F-M SAND, SOME TO LITTLE SILT, LITTLE GRAVEL AS GRAY SUBANGULAR LIMESTONE FRAGMENTS		OPEN TO 37.0 FT. B.G.S.; TREMIED #4-Q SAND (WITH WATER) TO 36.0 FT. (TOOK DRY SAMPLE); INSTALLED WELL PIPE (1-2' SCREEN, 2-3' RISERS, 3-10' RISERS) 1.8 FT. STICKUP; WELL BOTTOM AT 36.8 FT. B.G.S.; ADDED #1-Q SAND TO 32.0 FT. B.G.S. (TOOK SAMPLE); ADDED PELLETS TO 28.0 FT. B.G.S.; MIXED GROUT; REMOVED 6" STEEL CASING; GROUT 2.0 FT. B.G.S.; MIXED CEMENT GROUT; FILLED TO TOP OF 10" Ø PVC CASING.
305.8	GLACIOLACUSTRINE CLAY SOFT TO FIRM, BROWN GRAY SILTY CLAY, SOME F-C SAND, TRACE GRAVEL AS GRAY DEEPSTONES, LARGE GRAVEL IN SPOON MOUTH AT 311.1 FT. AT 18.0 FT. BECOMING SOFT, BROWN GRAY CLAY WITH RED BROWN SILT LENSES 1/2 TO 2 IN. THICK OCCURRING TO 24.0 FT.		(CONTINUED ON NEXT PAGE)
283.2	GLACIOLACUSTRINE SILT/SAND INTERLAYERED, VERY SOFT, GRAY, CLAY, AND VERY DENSE BROWN, SILT, AND F SAND LENSES 1/8 TO 1/2 IN. THICK		WELL DEVELOPMENT NOTES
30.0	BASAL RED TILL HARD, RED BROWN, CLAYEY SILT, SOME F-C SAND, LITTLE GRAVEL		DATE DEVELOPED: 8-14-86 TO 9-2-86
277.3	END OF SAMPLING AUGERED TO 37.0 FT.		DEVELOPMENT METHOD: AIR LIFT
			VOLUME PURGED: 39.1 GAL
			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
			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 TMW-15D		
Job No. 853-3051	Made by PMS	Date 6-30-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

(0.7 FT. ABOVE 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 GRAVEL PAD WAS LATER PUT AROUND WELL BY THE SITE; A WELL WIZARD WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.

Blank lined area for additional notes or drawings.

Boring Log

JOB NO. 853-3051 GA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TMW-165
 DEPTH HOLE 24.0 FT DEPTH WL. 21.01 FT DRILLING METHOD HOLLOW STEM AUGERS-4 1/4" ID SHEET 1 OF 1
 TEMP 65° F TIME WL. 9:23-86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 317.7
 WEATHER OVERCAST DRILL RIG ACKER AD-2 DRILLER J. GENOVESE DATUM N.S.L.
 COORDINATES N 9330.76, E 8627.92 WT. SAMPLER HAMMER 140 LBS DROP 30 IN. STARTED 10:01 / 9-19-86
 LOCATION - WT. CASING HAMMER 300 LBS DROP 30 IN. COMPLETED 12:03 / 9-19-86

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
317.7	GROUND SURFACE						GROUND SURFACE	
0.0	FIRM TO SOFT, BROWN, SILTY CLAY, SOME F-C SAND, TRACE GRAVEL, NO STRUCTURE.	CL	4	1	DO	1-1-3-4	8/24	RED BROWN AND GRAY BROWN MOTTLED BETWEEN 2.0 AND 4.0 FT.
			5	2	DO	2-2-3-3	5/24	
311.7				6	3	DO	2-3-3-3	6/24
6.0	STIFF, RED BROWN AND GRAY BROWN MOTTLED, SILTY CLAY, SOME F-C SAND, LITTLE TO TRACE GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES AND JOINTS.	CL	13	4	DO	3-4-9-11	10/24	UPPER CLAY TILL
			29	5	DO	5-12-17-22	19/24	ORGANIC CHEMICAL ODOR THROUGHOUT INTERVAL BECOMING STRONG BETWEEN 12.0 AND 14.0 FT.
			27	6	DO	10-10-17-17	17/24	
303.7				60	7	DO	17-30-30-30	22/24
14.0	SOFT TO FIRM, GRAY BROWN, SILTY CLAY TO CLAY, SOME F-C SAND, LITTLE TO TRACE F GRAVEL.	CL	20	8	DO	5-10-10-10	9/24	GLACIOLACUSTRINE CLAY
300.9				60	9	DO	10-30-36-42	17/24
16.8	VERY DENSE TO COMPACT, RED BROWN, SILTY, SOME F-C SAND, LITTLE GRAVEL.	ML	19	11	DO	22-10-9-5	16/24	UPPER SILT TILL
297.1				26	12	DO	16-18-8-9	17/24
20.6	FIRM TO SOFT, GRAY BROWN, SILTY CLAY TO CLAY, SOME F-C SAND.	CL TO CH	26	13	DO	16-18-8-9	17/24	GLACIOLACUSTRINE CLAY
293.7				16	14	DO	2-7-9-10	3/24
24.0	END OF BORING							END OF BORING
								INSTALLED TMW-165 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

NYSDEC OHMS Document No. 201469232-00043
MONITORING WELL INSTALLATION LOG

JOB NO. 053-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. TMW-165 SHEET 1 OF 2
 GA INSP. P. SHONKA DRILLING METHOD HOLLOW STEM AUGERS - 4 1/2" D GROUND ELEV. 317.7 FT WATER DEPTH 21.01 FT
 WEATHER OVERCAST DRILLING COMPANY EMPIRE SOIL INVESTIGATIONS COLLAR ELEV. 320.00 FT DATE/TIME 9-23-86
 TEMP. 65° F. DRILL RIG ACKER DRILLER J. GENOVESE STARTED 12:00 9/23/86 COMPLETED 12:55 9/23/86
 LOCATION/COORDINATES N 930.76 ; E 8627.92 TIME / DATE TIME / DATE

MATERIALS INVENTORY

WELL CASING 2.0 in. dia. 15.0 l.f. WELL SCREEN 2.0 in. dia. 10.4 l.f. BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH REGION VITON SLOT SIZE 0.006 INCH FILTER PACK QTY 17.0 L.F. 500 LBS
THREADED TAPER O-RINGS CENTRALIZERS NONE FILTER PACK TYPE #1-Q SAND
 GROUT QUANTITY NA DRILLING MUD TYPE NONE INSTALLATION METHOD THROUGH AUGERS
 GROUT TYPE NA

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
317.7	GROUND SURFACE		AUGERED TO 24.0 FT. ; ADDED #1-Q SAND TO 23.0 FT. (TOOK SAMPLE), INSTALLED WELL PIPE (1-10' SCREEN, 1-5' RISER, 1-10' RISER) ; 2.4 FT STICKUP ; ADDED #1-Q SAND TO 7.0 FT. BELOW GROUND SURFACE ; ADDED #4-Q SAND TO 6.0 FT. ; ADDED PELLETS TO 2.0 FT. MIXED CEMENT GROUT ; REMOVED AUGERS ; ADDED CEMENT GROUT TO GROUND SURFACE ; PUT ON 8" ϕ ALUMINUM PROTECTIVE CASING ; FILLED INTERIOR OF PROTECTIVE CASING WITH #4-Q SAND ; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE ; PROTECTIVE POSTS WERE PLACED AROUND WELL ; A DEDICATED STAINLESS STEEL BAILER	
0.0	FILL FIRM TO SOFT BROWN SILTY CLAY, SOME F-C SAND, TRACE GRAVEL, NO STRUCTURE, RED BROWN AND WEAK BROWN, MOTTLED BETWEEN 1.0 AND 4.0 FT.			(CONTINUED ON NEXT PAGE)
311.7	UPPER CLAY TILL STIFF, RED BROWN AND WEAK BROWN MOTTLED SILTY CLAY, SOME F-C SAND, LITTLE TO TRACE GRAVEL, OVER WEATHERED ALONG VERTICAL FRACTURES AND JOINTS			WELL DEVELOPMENT NOTES
6.0	GLACIOLACUSTRINE CLAY SOFT TO FIRM, WEAK BROWN SILTY CLAY TO CLAY, SOME F-C SAND, LITTLE TO TRACE F GRAVEL			DATE DEVELOPED: 10-1-86 TO 11-14-86
14.0	UPPER SILT TILL VERY BRUISE TO COMPACT, RED BROWN SILTY, SOME F-C SAND, LITTLE GRAVEL, GRAVEL LAYER FROM 14.5 - 16.9 FT.			DEVELOPMENT METHOD: BAILER VOLUME PURGED: 16.8 GAL.
303.7	GLACIOLACUSTRINE CLAY FIRM TO SOFT, WEAK BROWN SILTY CLAY, TO CLAY, SOME F-C SAND			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE
16.8	GLACIOLACUSTRINE CLAY FIRM TO SOFT, WEAK BROWN SILTY CLAY, TO CLAY, SOME F-C SAND			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, 9.325, 10.325 FT. IN LENGTH, RESPECTIVELY.
300.9	UPPER SILT TILL VERY BRUISE TO COMPACT, RED BROWN SILTY, SOME F-C SAND, LITTLE GRAVEL, GRAVEL LAYER FROM 14.5 - 16.9 FT.			
16.8	UPPER SILT TILL VERY BRUISE TO COMPACT, RED BROWN SILTY, SOME F-C SAND, LITTLE GRAVEL, GRAVEL LAYER FROM 14.5 - 16.9 FT.			
297.1	GLACIOLACUSTRINE CLAY FIRM TO SOFT, WEAK BROWN SILTY CLAY, TO CLAY, SOME F-C SAND			
206	GLACIOLACUSTRINE CLAY FIRM TO SOFT, WEAK BROWN SILTY CLAY, TO CLAY, SOME F-C SAND			
293.7	GLACIOLACUSTRINE CLAY FIRM TO SOFT, WEAK BROWN SILTY CLAY, TO CLAY, SOME F-C SAND			
24.0	END OF BORING			

**Golder
Associates**

SUBJECT CWM/WELLS/MODEL CITY		TMW-16S
Job No. 853-3051	Made by PMS	Date 9-19-86
Ref.	Checked DJM	Sheet 2 of 2
	Reviewed JFC	

WAS INSTALLED FOR DEVELOPMENT AND FOR SUBSEQUENT SAMPLING.

[The remainder of the page consists of approximately 35 horizontal lines for additional notes.]

Boring Log

JOB NO. 853-3061 GA. INSP. PMS PROJECT CWM/WELLS/MOORE CITY BORING NO. TMW-175
 DEPTH HOLE 20.0 FT DEPTH WL. 16.83 FT DRILLING METHOD HOLLOW STEM AUGERS-4 1/4 ID SHEET 1 OF 1
 TEMP 70° F TIME WL. 9-23-86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 315.3 FT
 WEATHER CLOUDY DRILL RIG ACKER AD-2 DRILLER J. GENOVESE DATUM MSL
 COORDINATES N 94 04.24 E 87 59.03 WT. SAMPLER HAMMER 140 LBS DROP 30 IN STARTED 3 00 / 9-19-86
 LOCATION --- WT. CASING HAMMER 300 LBS DROP 30 IN COMPLETED 4 20 / 9-19-86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
315.3	GROUND SURFACE						GROUND SURFACE	
0.0	FIRM, RED BROWN AND GRAY BROWN MOTTLED AND LAYERED, SILTY CLAY TO CLAYEY SILT, SOME F-C SAND, TRACE GRAVEL.	CL	16	1	DO	5-8-8-7	17/24	FILL NUMEROUS ROOTS FROM 0.0-2.0 FT, DARK GRAY SAND LENSE 2 INCH THICK AT 2.5 FT ORGANIC CHEMICAL ODOR THROUGHOUT
311.3			17	2	DO	5-6-11-17	16/24	
4.0	FIRM TO STIFF, RED BROWN AND GRAY BROWN MOTTLED, SILTY CLAY, SOME F-C SAND, TRACE GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES AND JOINTS.	CL	27	3	DO	6-10-17-17	19/24	UPPER CLAY TILL
303.3			60	4	DO	27-32-28-25	6/24	SLIGHT ORGANIC CHEMICAL ODOR THROUGHOUT, SILT LAYERS FROM 6.0 TO 8.0 FT BECOMING UNIFORM BROWN AT 10.0 FT. NO FRACTURES EVIDENT
			15	5	DO	3-6-9-11	20/24	
			15	6	DO	3-6-9-10	19/24	
12.0	FIRM, GRAY BROWN, SILTY CLAY, TO SOFT, GRAY BROWN, CLAY, SOME F-C SAND.	CL	17	7	DO	7-7-10-10	24/24	GLACIOLACUSTRINE CLAY TRACE ORGANIC CHEMICAL ODOR TO 12.9 FT.
300.5			27	9	DO	3-15-12-10	17/24	UPPER SILT TILL NO ORGANIC CHEMICAL ODOR LAYERED SILT AND SILTY CLAY BETWEEN 16.0 AND 18.0 FT.
14.8	COMPACT TO DENSE, BROWN, SILTY TO CLAYEY SILT, SOME F-C SAND, LITTLE F GRAVEL.	ML	40	11	DO	10-20-20-16	13/24	
296.8			10	12	DO	6-5-5-6	24/24	GLACIOLACUSTRINE CLAY
18.5	SOFT, GRAY, CLAY, TRACE F SAND.	CH	10	13	DO			
295.3								
20.0	END OF SAMPLING AUGERED TO 17.0 FT.							END OF SAMPLING INSTALLED TMW-175 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

Boring Log

JOB NO. 853-3051 GA. INSP. PMS PROJECT CWM/WELLS/MODEL CITY BORING NO. TMW-175
 DEPTH HOLE 20.0 FT. DEPTH WL. 16.83 FT. DRILLING METHOD HOLLOW STEM AUGERS-4 1/4" ID SHEET 1 OF 1
 TEMP 70° F TIME WL. 9-23-86 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 315.3 FT.
 WEATHER CLOUDY DRILL RIG ACKER AD-2 DRILLER J. GENOVESE DATUM MSL
 COORDINATES N 94 04.24 E 87 59.03 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 3 00 / 9-19-86
 LOCATION - WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 4 20 / 9-19-86

ELEV. DEPTH (FT)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
315.3	GROUND SURFACE						GROUND SURFACE	
0.0	FIRM, RED BROWN AND GRAY BROWN MOTTLED AND LAYERED, SILTY CLAY TO CLAYEY SILT, SOME F-C SAND, TRACE GRAVEL.	CL	16	1	DO	5-8-8-7	17/24	FILL NUMEROUS ROOTS FROM 0.0-2.0 FT, DARK GRAY SAND LENS 2 INCH THICK AT 2.3 FT. ORGANIC CHEMICAL ODOR THROUGHOUT
311.3			17	2	DO	5-6-11-17	16/24	
4.0	FIRM TO STIFF, RED BROWN AND GRAY BROWN MOTTLED, SILTY CLAY, SOME F-C SAND, TRACE GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES AND JOINTS.	CL	27	3	DO	6-10-17-17	19/24	UPPER CLAY TILL
303.3			60	4	DO	27-32-28-25	6/24	SLIGHT ORGANIC CHEMICAL ODOR THROUGHOUT, SILT LAYERS FROM 6.0 TO 8.0 FT. BECOMING UNIFORM BROWN AT 10.0 FT. NO FRACTURES EVIDENT
			15	5	DO	3-6-9-11	20/24	
			15	6	DO	3-6-9-10	19/24	
12.0	FIRM, GRAY BROWN, SILTY CLAY TO SOFT, GRAY BROWN, CLAY, SOME F-C SAND.	CL	17	7	DO	7-7-10-10	24/24	GLACIOLACUSTRINE CLAY TRACE ORGANIC CHEMICAL ODOR TO 12.9 FT.
300.5			27	9	DO	3-15-12-10	17/24	UPPER SILT TILL NO ORGANIC CHEMICAL ODOR LAYERED SILT AND SILTY CLAY BETWEEN 16.0 AND 18.0 FT.
14.8	COMPACT TO DENSE, BROWN, SILT TO CLAYEY SILT, SOME F-C SAND, LITTLE F GRAVEL.	ML	40	11	DO	10-20-20-16	13/24	
296.8			10	12	DO	6-5-5-6	24/24	GLACIOLACUSTRINE CLAY
18.5	SOFT, GRAY, CLAY, TRACE F SAND.	CH	10	13	DO	6-5-5-6	24/24	
295.3								
20.0	END OF SAMPLING AUGERED TO 19.0 FT.						END OF SAMPLING	
							INSTALLED TMW-175 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.	

MONITORING WELL INSTALLATION LOG

JOB NO. B53-3051 PROJECT CWM / WELLS / MODEL CITY WELL NO. TMW-175 SHEET 1 OF 1
 QA INSP. PMS DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" ID GROUND ELEV. 315.3 FT WATER DEPTH 16.83 FT
 WEATHER OVERCAST DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS INC. COLLAR ELEV. 317.73 FT DATE/TIME 9-23-86
 TEMP. 70° F DRILL RIG ACKER AD-2 DRILLER J. GENOVESE STARTED 4:30 9-19-86 COMPLETED 5:10 9-19-86
 LOCATION/COORDINATES N 9404.24 E 8759.03

MATERIALS INVENTORY

WELL CASING 2.0 in. dia. 10.0 ft. WELL SCREEN 2.0 in. dia. 10.4 ft. BENTONITE SEAL PELLETS 4.0' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGER
 JOINT TYPE FLUSH TEFLON VITON TAPE O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 130 L.F. ; 300 LBS
 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
	NOTE: FOR COMPLETE SOIL DESCRIPTIONS, SEE BORING LOG TMW-175		
315.3	GROUND SURFACE		AUGERED TO 19.0 FT. ADDED #1-Q SAND TO 18.0 FT (SAMPLE TAKEN); ADDED WELL PIPE (1-10' SCREEN, 1-10' RISER); ADDED #1-Q SAND TO 6.0 FT. BELOW GROUND SURFACE; ADDED PELLETS TO 2.0 FT.
0.0	FILL FIRM, RED BROWN AND GRAY BROWN, MOTTLED AND UNBEDDED SILTY CLAY TO CLAY. SILT, SOME F-C SAND, TRACE GRAVEL. DARK FRESH SAND LENSES 2 INCHES THICK AT 3.3 FT.		REMOVED AUGERS; MIXED CEMENT GROUT; ADDED CEMENT GROUT TO GROUND SURFACE; PUT ON 8" Ø ALUMINUM PROTECTIVE CASING; FILLED INTERIOR OF PROTECTIVE CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE; PROTECTIVE POSTS WERE PLACED AROUND WELL; A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED FOR DEVELOPMENT AND FOR SUBSEQUENT SAMPLING.
4.0	UPPER CLAY TILL FIRM TO STIFF RED BROWN AND GRAY BROWN, MOTTLED SILTY CLAY. SOME F-C SAND, TRACE GRAVEL. FRESH WEATHERING ALONG VERTICAL FRACTURES AND JOINTS. SILT LAYERS FROM 1.0-8.0 FT. BECOMING UNIFORM BROWN AT 10.0 FT. NO FRACTURES EVIDENT.		
303.3	GLACIOLACUSTRINE CLAY FIRM, GRAY BROWN SILTY CLAY TO SOFT, GRAY BROWN CLAY, SOME F-C SAND.		
12.0	UPPER SILT TILL COMPACT TO DENSE, BROWN SILTY CLAYED SILT, SOME F-C SAND. LITTLE F WEATHERED SILT AND SILTY CLAY BETWEEN 1.0-18.0 FT.		
300.5	GLACIOLACUSTRINE CLAY SOFT, GRAY SILTY CLAY, TRACE F SAND.		
14.8			
296.8			
18.5			
295.3			
20.0	END OF SAMPLING AUGERED TO 19.0 FT.		
			WELL DEVELOPMENT NOTES
			DATE DEVELOPED: 10-1-86 TO 11-14-86
			DEVELOPMENT METHOD: BAILER VOLUME PURGED: 12.7 GAL.
			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.
			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 2.25, 5.325, 10.325 FT IN LENGTH, RESPECTIVELY.

Boring Log

JOB NO. <u>853-3051</u>	GA. INSP. <u>PMS</u>	PROJECT <u>CWM/WELLS/MODEL CITY</u>	BORING NO. <u>TMW-185</u>
DEPTH HOLE <u>18.0 FT.</u>	DEPTH WL. <u>345 FT.</u>	DRILLING METHOD <u>HOLLOW STEM AUGERS-4 1/4" ID</u>	SHEET <u>1</u> OF <u>1</u>
TEMP <u>60° F</u>	TIME WL. <u>9-23-86</u>	DRILLING COMPANY <u>EMPIRE SOILS INVESTIGATIONS, INC.</u>	SURFACE ELEV. <u>316.4 FT.</u>
WEATHER <u>OVERCAST</u>	DRILL RIG <u>ACKER AD-2</u>	DRILLER <u>J. GENOVESE</u>	FOOTUM <u>MSL</u>
COORDINATES <u>N 9398.74, E 3895.99</u>	WT. SAMPLER HAMMER <u>140 LBS.</u>	DROP <u>30 IN.</u>	STARTED <u>9:00</u> <u>19-23-86</u>
LOCATION <u>-</u>	WT. CASING HAMMER <u>300 LBS.</u>	DROP <u>30 IN.</u>	COMPLETED <u>10:15</u> <u>19-23-86</u>

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES				REMARKS
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN.	REC./ATT	
316.4 0.0	GROUND SURFACE							GROUND SURFACE
	FIRM, GRAY BROWN, SILTY CLAY, SOME F-C SAND, LITTLE F GRAVEL.	CL	23	1	DO	7-9-14-12	12/24	FILL
312.4 4.0			26	2	DO	12-12-14-12	11/24	DARK GRAY SAND LENSE 4 INCH THICK AT 2.8 FEET, ORGANIC CHEMICAL ODOR THROUGHOUT
310.4 6.0	STIFF, RED BROWN AND GRAY BROWN MOTTLED, SILTY CLAY, SOME F-C SAND, TRACE F GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES.	CL	48	3	DO	14-21-27-32	20/24	UPPER CLAY TILL
	VERY DENSE TO COMPACT, RED BROWN, SILT TO CLAYEY SILT, SOME F-C SAND, LITTLE F GRAVEL.	ML	87	4	DO	32-42-45-47	16/24	UPPER SILT TILL
306.1 10.3			24	5	DO	10-12-12-15	12/24	SLIGHT CHEMICAL ODOR THROUGHOUT
	FIRM, BROWN, SILTY CLAY, SOME F-C SAND, TRACE GRAVEL, AT 14.0 FT. GRADING TO A SOFT, GRAY BROWN, CLAY, SOME F-C SAND, TRACE GRAVEL.	CL CH	23	6 7	DO	7-11-12-14	13/24	GLACIOLACUSTRINE CLAY
			41	8	DO	14-17-24-34	18/24	SLIGHT ORGANIC CHEMICAL ODOR BETWEEN 14.0 AND 16.0 FT.
			13	9	DO	6-7-6-7	3/24	
298.4 18.0			16	10	DO	7-8-8-10	17/24	
	END OF BORING							END OF BORING
								INSTALLED TMW-185 SEE ACCOMPANYING MONITORING WELL INSTALLATION LOG.

NYSDEC OHMS Document No. 201469232-00043
MONITORING WELL INSTALLATION LOG

JOB NO. 853-3051 PROJECT CWM/WELLS/MODEL CITY WELL NO. TMW-185 SHEET 1 OF 1
 GA INSP P. SHONKA DRILLING METHOD HOLLOW STEM AUGERS - 4 1/4" I.D. GROUND ELEV 316.4 WATER DEPTH 3.45 FT
 WEATHER CLOUDY RAIN DRILLING COMPANY EMPIRE SOIL INVESTIGATIONS, INC COLLAR ELEV 318.83 DATE/TIME 9-23-86
 TEMP 60°F DRILL RIG ACKER AD-2 DRILLER J. GENOVESE STARTED 10:15 9/22/86 COMPLETED 11:00 9/22/86
 LOCATION/COORDINATES N 9298.74 E 8895.99

MATERIALS INVENTORY

WELL CASING 20 in. dia. 10.0 ft. WELL SCREEN 20 in. dia. 10.4 ft. BENTONITE SEAL PELLETS 40' DEEP
 CASING TYPE 304 STAINLESS STEEL SCREEN TYPE 304 STAINLESS STEEL INSTALLATION METHOD THROUGH AUGERS
 JOINT TYPE FLUSH TEFLON WITH TIGHT O-RINGS SLOT SIZE 0.006 INCH FILTER PACK QTY 120 / 275 lbs
 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	
316.4	GROUND SURFACE		AUGERED TO 18.0 FT, ADDED WELL PIPE (1-10' SCREEN (1-10' RISER); 2.4 FT STICKUP; ADDED #1-Q SAND TO 6.0 FT. BELOW GROUND SURFACE (TOOK SAMPLE); ADDED PELLETS TO 20 FT.; REMOVED AUGERS; MIXED CEMENT GROUT; ADDED CEMENT GROUT TO GROUND SURFACE. PUT ON 8" Ø PROTECTIVE CASING; FILLED INTERIOR OF PROTECTIVE CASING WITH #4-Q SAND; WEEP HOLES WERE PUT IN CASING FOR DRAINAGE. PROTECTIVE POSTS WERE PLACED AROUND WELL. A DEDICATED STAINLESS STEEL BAILER WAS INSTALLED SUBSEQUENT TO DEVELOPMENT.	
0.0	FILL FIRM, GRAY BROWN SILTY CLAY, SOME F-C SAND, LITTLE F GRAVEL. DARK GRAY SAND LENS 4 INCH THICK AT 2.8 FT.		20'	
312.4			6.0'	
4.0	UPPER CLAY TILL STIPPLE, RED BROWN AND GRAY BROWN MOTTLED SILTY CLAY, SOME F-C SAND, TRACE F GRAVEL, GRAY WEATHERING ALONG VERTICAL FRACTURES.		7.6'	
310.4	UPPER SILT TILL VERY DENSE TO COMPACT, RED BROWN SILT TO SANDY SILT, SOME F-C SAND, LITTLE F GRAVEL.			
6.0				
306.1	GLACIOLACUSTRINE CLAY FIRM, BROWN SILTY CLAY, SOME F-C SAND, TRACE GRAVEL AT 14.0 FT. GRADING TO A SOFT, GRAY BROWN CLAY, SOME F-C SAND, TRACE GRAVEL.	18.0'		
10.3				
298.4				
18.0	END OF BORING			
			WELL DEVELOPMENT NOTES	
			DATE DEVELOPED: 9-23-86 TO 9-26-86	
			DEVELOPMENT METHOD: AIR LIFT	
			VOLUME PURGED: 9.7 GAL.	
			FOR FURTHER DETAILS SEE ACCOMPANYING WELL DEVELOPMENT TABLE.	
			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, 9.325, 10.325 FT IN LENGTH, RESPECTIVELY.	



Golder Associates Inc.

SOIL BOREHOLE LOG

NYSDEC OHMS Document No. 401469232-00043

SITE NAME AND LOCATION
CWM Chemical Services, Model City, NY

DRILLING METHOD: Hollow Stem Auger - 4 1/4" ID

BORING NO.

WS-1S



SAMPLING METHOD: 24" Split-Spoon

SHEET

1 OF 1

DRILLING

WATER LEVEL

START TIME

FINISH TIME

TIME

1445 1600

DATE

DATE

DATUM MSL ELEVATION ~320.0 Ft

CASING DEPTH

8/15/89 8/15/89

DRILL RIG Track CME 55

SURFACE CONDITIONS: Grass

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	VANE (TSF)				
0.0			320.0 1 FILL. Very dense to dense, brown, SILT and F-M SAND, grades to brown and black mottled, SILT and CLAYEY SILT, some f-c sand, trace gravel.(SP-SM)												
2.5-3.6	52Z		2 316.0												
2.5-2.0	24-36		3 316.0												
1.6-1.9	17-23		4 312.7												
2.1-2.4	21-14		5 310.0												
0.6-0.9	9-13		6 310.0												
0.9-1.1	29-21		7 302.0												
1.3-1.7	10-15		8 302.0												
3-11	29-18		9 300.0												
2.0-2.7	25-22		10 300.0												
5-6	7-6		END OF SAMPLING												
5.6-5.8	58Z														

DRILLING CONTR Empire Soils Investigations, Inc

LOGGED BY A. L. Grasso

DATE 8/11/89

MONITORING WELL INSTALLATION LOG

NVSDPC OHS Document No. 201469232-00043

JOB NO. <u>8233805</u>	PROJECT <u>CWM/DEL/MODEL CITY</u>	WELL NO. <u>WS-15</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>~320.0'</u>	WATER DEPTH <u>7.15'</u>
WEATHER <u>CLOUDY</u>	DRILLING COMPANY <u>EMPIRE SOUS INC</u>	COLLAR ELEV. <u>~321.4'</u>	DATE/TIME <u>2-8-89/1045</u>
TEMP. <u>70°F</u>	DRILL RIG <u>TRAK CME 55</u>	DRILLER <u>ART KOSKE</u>	STARTED <u>0830</u> <u>2-16-89</u> COMPLETED <u>1010</u> <u>2-16-89</u>

MATERIALS INVENTORY			
WELL CASING <u>2.0</u> in dia <u>10.0</u> ft	WELL SCREEN <u>2.0</u> in dia <u>10.0</u> ft	BENTONITE SEAL <u>2.5 BUCKETS OF BENT PELLETS</u>	
CASING TYPE <u>STAINLESS STEEL</u>	SCREEN TYPE <u>STAINLESS STEEL</u>	INSTALLATION METHOD <u>POUR THROUGH AUGERS</u>	
JOINT TYPE <u>FLUSH TRENCHED JOINT WITH 0" BGS</u>	SLOT SIZE <u>0.06"</u>	FILTER PACK QTY <u>3-100LB BAGS</u>	
GROUT QUANTITY _____	CENTRALIZERS <u>NONE</u>	FILTER PACK TYPE <u>#1 Q SAND</u>	
GROUT TYPE _____	DRILLING MUD TYPE <u>NONE</u>	INSTALLATION METHOD <u>GRAVITY POUR THROUGH AUGERS</u>	
<u>N9032.0 F-9118.0</u>			

ELEV./DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	GROUND SURFACE		AUGERED AND SOIL SAMPLED TO 20.0' BELOW GROUND SURFACE (BGS.) PLACED #4 Q SAND TO 19.0' BGS. INSTALLED WELL (10' SCREEN AND 10' RISER SECTION) THROUGH AUGERS PLACED #1 Q SAND TO 7.0' BGS. PLACED BENTONITE PELLETS TO 3.7' BGS. HYDRATED PELLETS WITH DEIONIZED WATER. PLACED CEMENT GROUT TO THE GROUND SURFACE. PLACED 8" DIA ALUMINUM PROTECTIVE (LOCKING) CASING OVER WELL. PLACED #4 Q SAND INSIDE CASING TO WITHIN 5" OF TOP OF RISER.
0.0	<p>SOIL SAMPLED TO 1.4' BGS. (SILT, SAND, CLAY, SILT, SOME FINE SAND, TRACE GRAVEL, (SCL))</p>		NOTE: LENGTH OF 10' SCREEN AND END GAP IS ACTUALLY 10.4'
4.0	UPPER ALLUVIUM SOFT, BROWN SILT, SILT TO CLAY, SOME FINE SAND (SCL)		WELL DEVELOPMENT NOTES SEE FORM 'WELL DEVELOPMENT FIELD RECORD' FOR WELL DEVELOPMENT DETAILS.
3.3	UPPER CLAY TILL FIRM, BROWN, SILTY CLAY, SOME FINE SAND, TRACE GRAVEL (CL)		
2.7	UPPER SILT TILL SOFT, BROWN SILT, SILT TO CLAY, SOME FINE SAND, TRACE GRAVEL, CLAY TO SILT, SOME FINE SAND, TRACE GRAVEL (SCL)		
8.0	GLACIOLACUSTRINE CLAY SOFT, BROWN, SILTY CLAY, SOME FINE SAND, TRACE GRAVEL, CLAY TO SILT, SOME FINE SAND (CL)		
2.0	END OF SAMPLING		



Golder Associates Inc.

SOIL BOREHOLE LOG

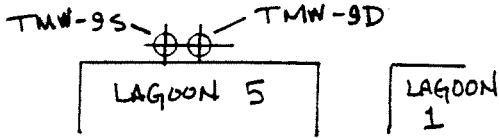
SITE NAME AND LOCATION
SCA Chemical Services, Model City, NY

DRILLING METHOD: 6 1/4 and 4 1/4 inch Hollow
Stem Augers

BORING NO.
TMW-9D

SAMPLING METHOD: 24 inch Split Spoon

SHEET
1 OF 1



DRILLING			
START TIME	FINISH TIME	START DATE	FINISH DATE
1300	1620	4/27/88	4/27/88

DATUM MSL ELEVATION 326.70 FT

DRILL RIG CME 55

SURFACE CONDITIONS: Gravel and compacted soil fill.

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							
25.0			301.7 Augered to 25 ft. and pushed 10-inch diameter PVC casing to 29 ft. Washed out casing to 28 ft. to begin sampling.															
29.0	6-7-9-11 (712)	1	GLACIOLACUSTRINE CLAY Firm to soft, gray-brown to gray to red-brown.	2"														
30.0	8-8-9-11 (1002)	2	SILTY CLAY to CLAY, jumbled with clayey silt to silt and f-c sand, trace gravel. (CL)	2"														
33.0	3-3-4-7 (872)	3		2"														
35.0	11-73-76-98 (712)	4	292.7 GLACIOLACUSTRINE SILT/SAND Very dense, brown, F-C SAND, some to trace silt, trace to little gravel. Becoming very dense, red-brown, SILT and F-C SAND, trace to little gravel. (SM-ML)	2"														
38.0	40-52-100-100/2" (952)	5		2"														
40.0	12-28-43-50 (1002)	6		2"														
42.0	8-11-13-15 (1002)	7		2"														
44.0	15-25-60-88 (1002)	8		2"														
46.0	24-60-85-100/5" (962)	9		2"														
48.0	30-100/5" (1002)	10		2"														
50.0	45-100/2" (1002)	11		2"														
51.0			276.7															
52.0	57-100/2" (1002)	12	BASAL RED TILL Hard, red-brown, SILT, trace to little f-c sand. (ML)	2"														
53.0	75-100/1" (1002)	13	274.1	2"														
55.0			END OF SAMPLING Deep monitoring well installed in borehole. See Monitoring Well Installation Log TMW-9D.	2"														

Empire Soils Investigations, Inc
DRILLING CONTR J. Lamm

SL10700 C

CHKD BY *WJL*

LOGGED BY P. Shenka
DATE 4-27-88

MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 803-3056 PROJECT CWM/WELL INVESTIGATIONS/MODEL CITY WELL NO. TMW-9D SHEET 1 OF 1
 GA INSP. P. SHONKA DRILLING METHOD 6 1/4" & 4 1/4" I.D. HOLLOW STEM AUGER GROUND ELEV. 326.70 WATER DEPTH 7.63 F
 WEATHER CLOUDY/RAIN DRILLING COMPANY EMPIRE SOIL INVESTIGATIONS, INC. COLLAR ELEV. 327.55 DATE/TIME 4-22-00/16
 TEMP ~50°F DRILL RIG CME 55 TRUCK DRILLER JIM LAMM STARTED 1320 / 4-26-00 COMPLETED 1110 / 4-28-00

MATERIALS INVENTORY

WELL CASING <u>2</u> in. dia. <u>40.2</u> I.F.	WELL SCREEN <u>2</u> in. dia. <u>13.1</u> I.F.	BENTONITE SEAL <u>PELLETS</u>
CASING TYPE <u>SCHEDULE 40 PVC</u>	SCREEN TYPE <u>SCHEDULE 40 PVC</u>	INSTALLATION METHOD <u>TREMMIED</u>
JOINT TYPE <u>FLUSH THREADED</u>	SLOT SIZE <u>#10</u>	FILTER PACK QTY <u>149 FT. / ~350 L</u>
GROUT QUANTITY <u>27.3 FT. / 150 LBS.</u>	CENTRALIZERS <u>N/A</u>	FILTER PACK TYPE <u>#10 SAND</u>
GROUT TYPE <u>AMERICAN COLLOID VOLCLAY BENTONITE</u>	DRILLING MUD TYPE <u>N/A</u>	INSTALLATION METHOD <u>TREMMIED</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
326.70 0.0	GROUND SURFACE	<p>The well sketch shows a vertical cross-section of the well. At the top, there is a 3" diameter aluminum protective casing with a locking cap, containing 0.5' of cement. Below this is a 2" diameter PVC riser pipe. At the bottom of the riser pipe is a 2" diameter #10 slot PVC screen. The well is filled with #10 sand. A bentonite seal is located between the riser pipe and the casing, containing bentonite pellets. The casing is filled with Volclay grout. The well is developed to a depth of 51.9 feet. The diagram also shows caved material between 30.5' and 32.5' depth.</p>	<p>AUGERED WITH 6 1/4" I.D. AUGERS TO 25 FT. BGE. FILLED AUGERS WITH VOLCLAY GROUT. PULLED AUGERS. FLISHED 10" Ø STEEL CASING TO 22.0 FT. WASHED OUT CASING TO 28.0 FT. WITH TRI-CONE ROLLER BIT. AUGER WITH 4 1/4" I.D. AUGERS & SPLIT SPIN SAMPLER TO 52.6 FT. PULLED AUGERS. INSTALLED 10" Ø STEEL CASING TO 52.5 FT. FLUSHED CASING TO 52.7 FT. UNTIL WATER RAN CLEAR - ADDED 0.8 BT #4 Q.S. INSTALLED #10 SLOT PVC SCREEN & RISER TO 51.9 FT. BGE. #10 SAND TO 36.8 FT. BENTONITE PELLETS TO 32.5 FT. WHILE PULLING CASING AT 6" INTERVALS. MATERIAL CAVED IN 30.5 FT. TREMMIED VOLCLAY GROUT TO WITHIN 2 FT. OF TOP OF 10" Ø CASING. POUR CEMENT INTO TOP 2 FT. & INSTALL 3" Ø ALUM. PROTECTIVE CASING. WELL DEVELOPMENT NOT</p>
312.70 14.0	FILL COMPACT, BROWN, CLAYEY SILT, SOME F-C SAND CHANGING @ 8.0 FT. TO SOFT TO FIRM, BROWN SILTY CLAY, AND TO SOME F-C SAND. (ML-CL)		
306.20 20.5	UPPER CLAY TILL STIFF, BROWN, SILTY CLAY, SOME F-C SAND, LITTLE GRAVEL. (CL)		
292.70 34.0	GLACIOLACUSTRINE CLAY SOFT TO FIRM, GREY TO GREY BROWN, SILTY CLAY TO CLAY, SOME F-C SAND, TRACE GRAVEL. JUMBLED WITH CLAYEY SILT & F-C SAND, TRACE GRAVEL. (CL)		
276.70 50.0	GLACIOLACUSTRINE SILT/SAND VERY DENSE, BROWN, F-C SAND, SOME TO TRACE SILT, TRACE TO LITTLE GRAVEL. BOTTOM BECOMES VERY DENSE, RED-BROWN, SILT AND F-C SAND, TRACE TO LITTLE GRAVEL. (SM-ML)		
272.70 54.0	BASAL RED TILL HARD, RED-BROWN, SILT, TRACE TO LITTLE F-C SAND. (ML) END OF SAMPLING		



Golder Associates Inc.

SOIL BOREHOLE LOG

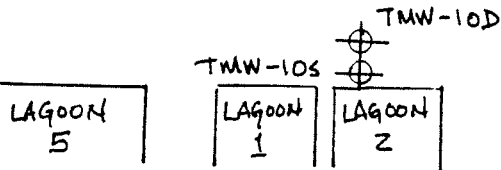
SITE NAME AND LOCATION
SCA Chemical Services, Model City, NY

DRILLING METHOD: 6 1/4 and 4 1/4 inch Hollow
Stem Augers

BORING NO.
TMW-10D

SAMPLING METHOD: 24 inch Split Spoon

SHEET
1 OF 1



WATER LEVEL				START	FINISH
TIME				1257	1535
DATE				DATE	DATE
CASING DEPTH				5/3/88	5/3/88

DATUM MSL ELEVATION 327.40 FT

DRILL RIG CME 55

SURFACE CONDITIONS: Graves and soil compacted fill.

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				
30.0			297.4 Set 10-inch diameter PVC casing to 31.6 ft. Augered to 34 ft. to begin sampling.												
35.0	12-17 18-20 (79)2	1	MIDDLE SILT TILL Dense, gray to gray-brown, CLAYEY SILT, some f-c sand. (ML) 291.4	08	2"										
	12-14 25-17 (100)2	2	GLACIOLACUSTRINE CLAY 290.6 Soft, gray to red-brown, CLAY. (CL)	08	2"										
	32-100/4"	3	GLACIOLACUSTRINE SILT/SAND Very dense, brown to red-brown, SILT and F-C SAND, trace gravel. Grades to F-C SAND, some to little silt, trace gravel. (SM)	08	2"										
40.0	38-78- 100/2"	4		08	2"										
	(100)2			08	2"										
	40-54- 57-54 (96)2	5		08	2"										
45.0	13-35- 40-35 (100)2	6		08	2"										
	(100)2			08	2"										
	45-38- 38-36 (100)2	7		08	2"										
	(100)2			08	2"										
50.0	21-100/5"	8	279.4 BASAL RED TILL Hard, red-brown, SILT, some to little f-c sand. (ML)	08	2"										
	(100)2			08	2"										
	61-100/3"	9	275.4	08	2"										
	(100)2			08	2"										
55.0			END OF SAMPLING Deep monitoring well installed in borehole. See Monitoring Well Installation Log TMW-10D.												
60.0															

Empire Soils Investigations, Inc.

DRILLING CONTR J. L. GIMM

SL10701 C

LOGGED BY P. Shonko
DATE 5/3/88

CHKD BY *WJY*

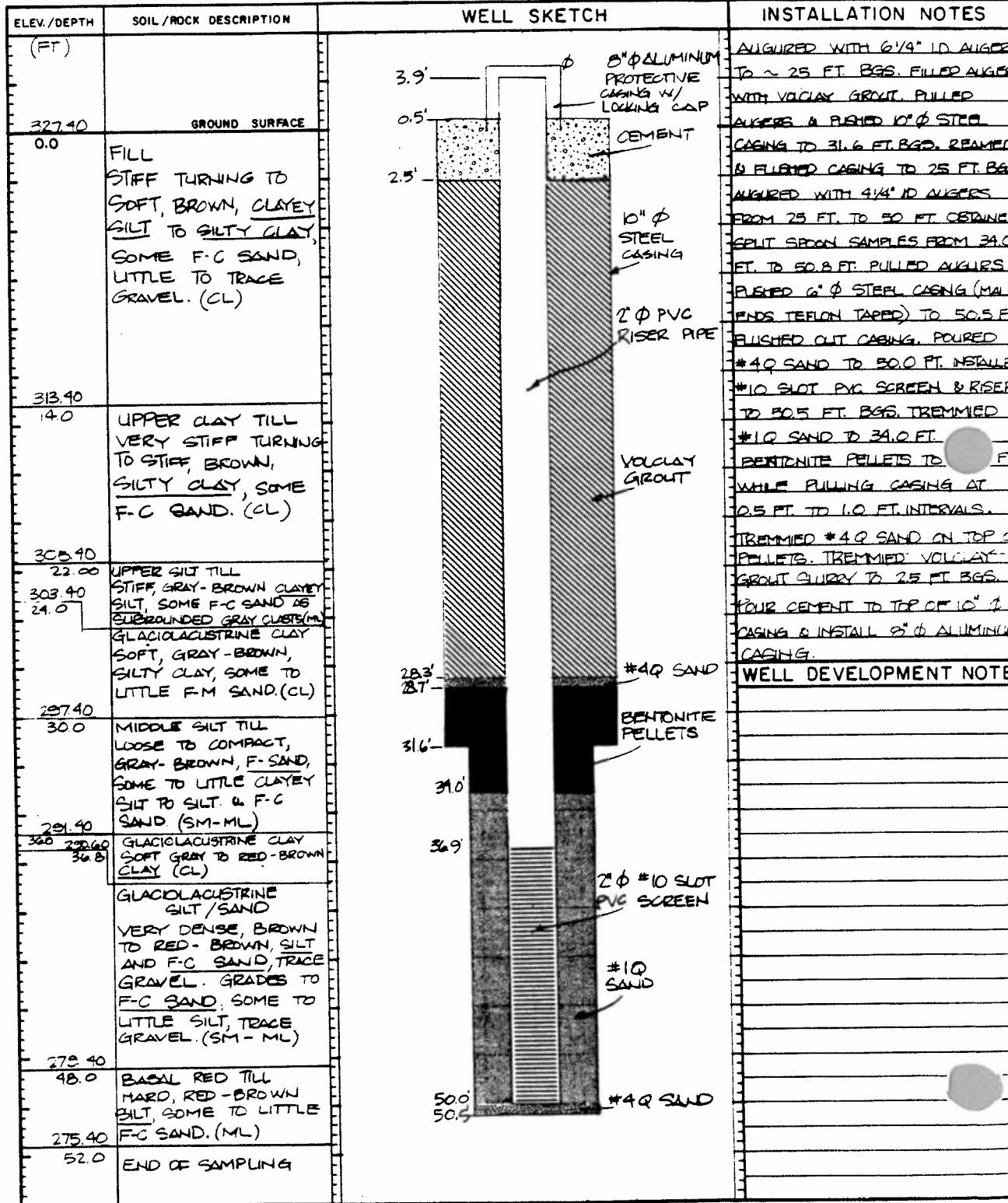
MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 853 3056 PROJECT GWM/WELL INV./MODEL CITY WELL NO. TMW-100 SHEET 1 OF 1
 GA INSP. PSTONKA DRILLING METHOD 6/4" & 4/4" I.D. TOLLOW STEM AUGERS GROUND ELEV. 327.40 WATER DEPTH —
 WEATHER CLEAR DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. COLLAR ELEV. 331.30 DATE/TIME —
 TEMP. 60° F DRILL RIG CME 55 DRILLER JIM LAMM STARTED 1300/5-2-88 COMPLETED 1100/5-5-88
TIME / DATE TIME DATE

MATERIALS INVENTORY

WELL CASING <u>2</u> in. dia. <u>40.2</u> ft.	WELL SCREEN <u>2</u> in. dia. <u>13.1</u> ft.	BENTONITE SEAL <u>PELLETS</u>
CASING TYPE <u>JOHNSON SCH. 40 PVC</u>	SCREEN TYPE <u>JOHNSON SCH. 40 PVC</u>	INSTALLATION METHOD <u>TREMMIED</u>
JOINT TYPE <u>FLUSH THREADED</u>	SLOT SIZE <u>#10</u>	FILTER PACK QTY. <u>16 FT.</u>
GROUT QUANTITY <u>100 LBS. / 25.3 FT.</u>	CENTRALIZERS <u>NA</u>	FILTER PACK TYPE <u>#10 SAND</u>
GROUT TYPE <u>AMERICAN COLLOID VOLCLAY BENTONITE</u>	DRILLING MUD TYPE <u>NA</u>	INSTALLATION METHOD <u>TREMMIED</u>



October 1989

893-3840

TABLE 2

MONITORING PROGRAM AND EVALUATION SUMMARY

(Page 2 of 5)

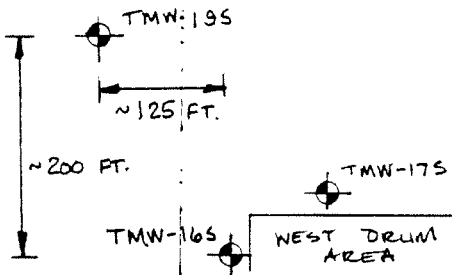
UNIT/ PROGRAM	WELL ID	FREQUENCY				PARAMETERS			DET. MON.	INVEST.	PRED.
		Q	S	A	B	VOA	OPP	WL	WELL	WELL	INT.
SLF 11	W1001S		X			X			X		23 ug/L
	W1001D		X			X			X		23 ug/L
	W1002S	X				X			X	X	TBD
	TW24S	X				X				X	NA
	TW29S	X				X				X	NA
	P1102S		X					X	X		NA
	P1103S		X					X	X		NA
	P1104S		X					X	X		NA
	P1105S		X					X	X		NA
	W1101S		X			X			X		23 ug/L
	W1101D		X			X			X		23 ug/L
	W1102S		X			X			X		23 ug/L
	W1102D		X			X			X		23 ug/L
	W1103S		X			X			X	X	ALT1
	W1103D		X			X			X		23 ug/L
	W1104S		X			X			X	X	ALT1
	W1104D		X			X			X		23 ug/L
	W1105S		X			X			X	X	ALT1
	W1105D		X			X			X		23 ug/L
	W1106S		X			X			X	X	ALT1
	W1106D		X			X			X		23 ug/L
	W1107S		X			X			X		23 ug/L
	W1107D		X			X			X		23 ug/L
	W1108S		X			X			X		23 ug/L
	W1108D		X			X			X		23 ug/L
W1109S		X			X			X		23 ug/L	
W1109D		X			X			X		23 ug/L	
GZR01S		X			X					X	23 ug/L
GZR02S		X			X					X	23 ug/L
GZR03S		X			X					X	23 ug/L
GZR04S		X			X					X	23 ug/L
P12-2S											
P1202S		X				X				X	NA
TW25S		X				X				X	NA
TW26S		X				X				X	NA
FIRE POND											
FP01S			X			X			X		23 ug/L
FP01D			X			X			X		23 ug/L



Golder Associates Inc.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
SCA Chemical Services, Model City, NY



DRILLING METHOD: 4 1/4 inch Hollow Stem Augers

BORING NO.
TMW-19S

SAMPLING METHOD: 24 inch Split Spoon

SHEET
1 OF 1

WATER LEVEL

DRILLING

TIME

START TIME
1245

DATE

FINISH TIME
1400

DATUM MSL ELEVATION 316.40 FT

CASING DEPTH

5/31/88 6/1/88

DRILL RIG CME 45 TRACK

SURFACE CONDITIONS: Knee high weeds.

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			316.4 1 FILL	00 2"										
5.0			312.4 3 UPPER CLAY TILL Firm to stiff, brown, CLAYEY SILT to SILTY CLAY, some f-c sand, little to trace gravel. (CL)	00 2"										
10.0			298.4 5 6 7 8 9	00 2"										
15.0			295.4 10 UPPER SILT TILL Compact, red-brown, SILT and F-C SAND, little gravel. (SM-ML)	00 2"										
20.0			290.4 11 GLACIOLACUSTRINE CLAY Firm, gray brown, CLAY, some to trace f-c sand, little to trace gravel; becoming soft, gray, CLAY, trace f-m sand. (CL)	00 2"										
25.0			13 END OF SAMPLING Temporary shallow monitoring well installed in borehole. See Monitoring Well Installation Log TMW-19S.	00 2"										
30.0														

Empire Soils Investigations, Inc.
DRILLING CONTR. E. Keohart

LOGGED BY AL Grosso
DATE 5/31/88
CHKD BY ADM
SL 702 C

MONITORING WELL INSTALLATION LOG

NYSDEC ORHMS Document No. 201469232-00043

JOB NO. 853-30564 PROJECT CWM WEST PLUM AREA INV. MOORE CITY WELL NO. TMW-195 SHEET 1 OF 1

GA INSP. ALG DRILLING METHOD 4 1/4" HOLLOW STEM AUGERS GROUND ELEV. _____ WATER DEPTH _____

WEATHER SUNNY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV. _____ DATE/TIME _____

TEMP. 60'S DRILL RIG CME 55 DRILLER JIM LAMM STARTED 10:40 6/1/88 COMPLETED 13:15 6/1/88

MATERIALS INVENTORY

WELL CASING <u>2.0</u> in. dia. <u>10.0</u> I.F.	WELL SCREEN <u>2.0</u> in. dia. <u>16.22</u> I.F.	BENTONITE SEAL <u>BENTONITE PELLET</u>
CASING TYPE <u>SCH 40 PVC</u>	SCREEN TYPE <u>SCH 40 PVC</u>	INSTALLATION METHOD <u>PORE THROUGH AUG</u>
JOINT TYPE <u>FLUSH THREADED</u>	SLOT SIZE <u>0.01 INCH</u>	FILTER PACK QTY <u>334 100 LBS BAGS</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NA</u>	FILTER PACK TYPE <u>NO. 1 Q-SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NA</u>	INSTALLATION METHOD <u>PORE THROUGH AUG</u>

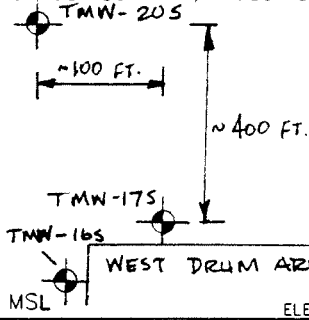
ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
	GROUND SURFACE		
0.0	FILL FIRM, BROWN CLAYEY SILT, SOME F-M SAND, TRACE ORGANICS		AUGERED TO 25.0 FT. WITH 4 1/4" I.D. HOLLOW STEM AUGERS. LAST SAMPLE WAS TAKEN AT 24 TO 26 FT. PULLED AUGER UP 6" ADDED SAND TO 23.5 FT. INSTALLED WELL (ONE 10' RISER, ONE 10' WELL SCREEN, ONE 5' WELL SCREEN) THROUGH AUGERS WHILE AUGER WERE PULLED AT 6" INTERVALS. SET SAND TO 6.0 FT. ADDED BENTONITE PELLETS THROUGH AUGER TO 2.0 FT. REMOVED AUGERS ADDED CEMENT TO GROUND SURFACE. PLACED PROTECTIVE COVER (8" O.D. ALUMINUM) OVER WELL CASING.
4.0	UPPER CLAY TILL FIRM TO STIFF BROWN, CLAYEY SILT TO SILTY CLAY, SOME F-C SAND, LITTLE TO TRACE GRAVEL.		
17.0	UPPER SILT TILL COMPACT RED BROWN SILT AND F-C SAND LITTLE GRAVEL.		
21.0	GLACIOLACUSTRINE CLAY FIRM, GRAY BROWN, CLAY SOME TO TRACE F-C SAND LITTLE TO TRACE GRAVEL BECOMING SOFT GRAY CLAY, TRACE FM SAND		
26.0	END OF BORING		
23.4 25.0 26.0			
			WELL DEVELOPMENT NOTE



Golder Associates Inc.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
SCA Chemical Services, Model City, NY



DRILLING METHOD: 4 1/4 inch Hollow Stem Augers		BORING NO. TMW-20S	
SAMPLING METHOD: 24 inch Split Spoon		SHEET 1 OF 1	
WATER LEVEL		START TIME	FINISH TIME
TIME		1545	0905
DATE		DATE	DATE
CASING DEPTH		6/1/88	6/2/88

DRILL RIG CME 55
ANGLE Vertical BEARING
SAMPLE HAMMER TORQUE

SURFACE CONDITIONS: Knee high weeds.

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			315.7												
8-11-12-11 (21%)		1	TOPSOIL Loose, brown, SILT, some f-c sand, trace organics.	00 2"											
			313.7 (ML)												
7-7-6-8 (63%)		2	UPPER CLAY TILL Stiff, brown, CLAYEY SILT to SILTY CLAY, some f-c sand, trace gravel. (CL)	00 2"											
4-5-9-15 (79%)		3		00 2"											
19-23-26-30 (88%)		4		00 2"											
9-15-16-25 (100%)		5		00 2"											
15-11-12-15 (92%)		6		00 2"											
15-14-20-26 (100%)		7		00 2"											
			301.7												
8-8-9-10 (100%)		8	GLACIOLACUSTRINE CLAY Firm to soft, brown to gray, CLAY, little f-c sand, becoming trace f-m sand. (CL)	00 2"											
8-7-7-4 (92%)		9		00 2"											
3-5-2-3 (54%)		10		00 2"											
			295.7												
			END OF SAMPLING Shallow monitoring well installed in borehole. See Monitoring Well Installation Log TMW-20S.												

DRILLING CONTR J. Lamont
 LOGGED BY A.L. Grosso
 DATE 6/1/88
 CHKD BY WDM
 3 HOLE SITS
 Empire Soils Investigations, Inc.

MONITORING WELL INSTALLATION LOG

NYSDEC OHMS Document No. 201469232-00043

JOB NO. 853-30564 PROJECT CUM WEST 12.0 M AREA IN, MORRIS CITY WELL NO. TMW-205 SHEET 1 OF 1

GA INSP. ALG DRILLING METHOD 4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV. _____ WATER DEPTH _____

WEATHER SUNNY DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV. _____ DATE/TIME _____

TEMP. 60's DRILL RIG CME 55 DRILLER JIM LAMM STARTED 930 6/2/88 COMPLETED 1300 6/2/88

MATERIALS INVENTORY

WELL CASING <u>2.0</u> in. dia. <u>10.0</u> l.f.	WELL SCREEN <u>2.0</u> in. dia. <u>10.8</u> l.f.	BENTONITE SEAL <u>BENTONITE PELLETS</u>
CASING TYPE <u>SCH 40 PVC</u>	SCREEN TYPE <u>SCH 40 PVC</u>	INSTALLATION METHOD <u>POUR THROUGH AUGER</u>
JOINT TYPE <u>FLUSH THREADED</u>	SLOT SIZE <u>0.01 INCH</u>	FILTER PACK QTY. <u>234.00 LB BAGS / 118 BAG</u>
GROUT QUANTITY <u>NA</u>	CENTRALIZERS <u>NA</u>	FILTER PACK TYPE <u>#10 SAND #40 SAND</u>
GROUT TYPE <u>NA</u>	DRILLING MUD TYPE <u>NA</u>	INSTALLATION METHOD <u>POUR THROUGH AUGER</u>

ELEV./DEPTH (FT.)	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
	GROUND SURFACE		<p>AUGERED TO 20.0 FT. WITH 4 1/4 INCH I.D. HOLLOW STEM AUGERS. PULLED AUGERS UP 6", ADDED #40 SAND TO 18.9 FT. INSTALLED WELL (ONE 10' RISER, ONE 10' WELL SCREEN, & END CAP) THROUGH AUGERS. ADDED #10 SAND THROUGH AUGERS WHILE AUGERS WERE PULLED AT 6" INTERVALS. SET SAND TO 6.0 FT. ADDED BENTONITE PELLETS THROUGH AUGERS TO 1.5 FT. HYDRATED PELLETS WITH 2 GALLONS OF WATER FROM THE RIG. REMOVED AUGERS & ADDED CEMENT TO GROUND SURFACE. PLACED PROTECTIVE COVER (8 INCH O.D. ALUMINUM COVER) OVER WELL CASING.</p>	
0.0	TOP SOIL LOOSE, BROWN, SILT, SOME F-C SAND, SOME ORGANICS			
2.0	UPPER CLAY TILL STIFF, BROWN, CLAYEY SILT TO SILTY CLAY, SOME F-C SAND, TRACE GRAVEL			
14.0	GLACIOLACUSTRINE CLAY FIRM TO SOFT, BROWN TO GRAY, CLAY, LITTLE F-C SAND, BECOMING TRACE F-M SAND			
20.0	END OF BORING			
			<p>WELL DEVELOPMENT NOTES</p> <p>NOTE: ACTUAL LENGTH OF 10' WELL SCREEN IS 12.45' END CAP LENGTH IS 0.31'.</p>	



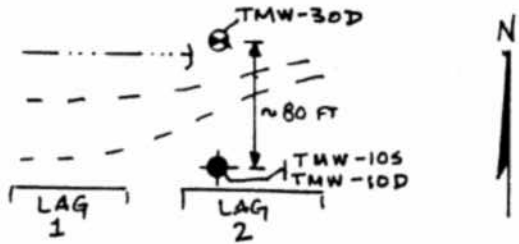
SOIL BOREHOLE LOG

Golder Associates Inc.

SITE NAME AND LOCATION
CWM Chemical Services, Madel City, N.Y.

DRILLING METHOD: 6 1/4" & 4 1/4" ID
Hollow Stem Augers

BORING NO.
TMW-30D



SAMPLING METHOD: 24" Split Spoon

SHEET
1 OF 2

DRILLING					START TIME	FINISH TIME
WATER LEVEL					1115	1530
TIME					DATE	DATE
DATE					10/12/88	10/18/88

DATUM MSL ELEVATION 320.4 FT

CASING DEPTH

DRILL RIG CME 55

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	3-4		1 FILL																
17-10	900		2 Compact to loose, brown, CLAYEY SILT, some f-c sand little to trace gravel. (ML)																
13-31-	24-15																		
750																			
0.0	6-6		3 UPPER CLAY TILL																
5.0	3-8		4 Firm, brown, SILTY CLAY, some f-c sand, trace gravel, 1 in. to 2 in. silt lenses at 10 ft. to 12 ft. (CL)																
900																			
5.0	5-8																		
11-12	880																		
0.0	0-4		5																
13-20	1000																		
10.0	9-8		6																
9-7	1000																		
10-10	10-10		7 GLACIOLACUSTRINE CLAY																
55-60	1000		8 Firm, gray-brown, CLAY, some f-c sand, little gravel, occasional silt lenses. (CL)																
10-15	10-15																		
12-16	900																		
15.0	10-15		9 MIDDLE SILT TILL																
15-20	750		10 Compact, brown to grayish brown, SILT and F-C SAND; grades to F-C SAND. Silty clay layer at 26 ft. to 30 ft., little to trace gravel. (SM-ML)																
10-8	12-17																		
680																			
20.0	9-11-		11																
9-8	870																		
16-15	16-15		12																
830																			
25.0	11-12		13																
11-18	1000																		
0-8	0-8		14																
1000																			
0-20	33-40		15																
1000																			
30.0																			

DRILLING CONTR Empire Soils Investigations, Inc
Larry Schroeder

LOGGED BY A. L. Grasso
DATE 10/18/88
CHKD BY *AWA* SL 1860 C



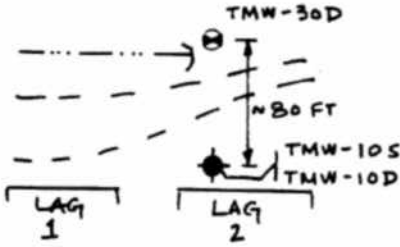
Golder Associates Inc.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM Chemical Services, Model City, N.Y.

DRILLING METHOD: 6 1/4" & 4 1/4" ID
Hollow Stem Augers

BORING NO.
TMW-30D



SAMPLING METHOD: 24" Split Spoon

SHEET
2 OF 2

WATER LEVEL

DRILLING

TIME

START TIME

DATE

1115

1530

DATE DATE

DATUM: MSL ELEVATION: 320.44 FT CASING DEPTH: 10/12/88 10/18/88

DRILL RIG: CME 55

SURFACE CONDITIONS:

ANGLE: Vertical BERRING

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
30.0	100/4 (100%)		MIDDLE SILT TILL See description from sheet 1 of 2.		STEEL						
35.0	65-78 80-88 83-90										
	33-12 18-28 (100%)										
	43-41 31-46 (100%)		GLACIOLACUSTRINE SILT/SAND Compact to very dense, red-brown, F-C SAND, some gravel, little to some silt. (ML)	SS 24"							
40.0	46-44 100/3 (100%)										
	65-77 100/2 (100%)										
45.0			BASAL RED TILL Hard, red-brown, SILT, some f-c sand, little gravel. (ML)	P							
50.0			END OF BORING								
55.0											
60.0											

DRILLING CONTR Empire Soils Investigations, Inc.

SL10861 C

LOGGED BY A. L. Grasso

DATE 10/18/88

CHKD BY *WDA*

Larry Schroeder

MONITORING WELL INSTALLATION LOG

JOB NO. 822-3056 PROJECT NYSDEC OJWS DOCUMENT NO. 201469232-00043 WELL NO. TMW-300 SHEET 1 OF 1
 GA INSP. ALG DRILLING METHOD HOLLOW STEM AUGER 6/4"/4/4" ID GROUND ELEV. 320.44 FT WATER DEPTH —
 WEATHER OVERCAST DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS COLLAR ELEV. 322.12 FT DATE/TIME —
 TEMP 40° F DRILL RIG CME 53 DRILLER LARRY SCHUBERT STARTED 14:30 10/30/88 COMPLETED 16:30 10/19/88

MATERIALS INVENTORY

WELL CASING 2 in dia. 42.95 ft. WELL SCREEN 2 in dia. 7.93 ft. BENTONITE SEAL PELLETS
 CASING TYPE PVC SCH 40 SCREEN TYPE PVC SCH 40 INSTALLATION METHOD TREMMIED
 JOINT TYPE FLUSH THREADED W/0" RING SLOT SIZE 0.01 IN. FILTER PACK QTY 200 LBS
 GROUT QUANTITY 150 LBS / 30.6 FT CENTRALIZERS N/A FILTER PACK TYPE *1/2 SAND
 GROUT TYPE AMERICAN COLLOID DRILLING MUD TYPE N/A INSTALLATION METHOD TREMMIED
VOLCLAY BENTONITE

ELEV./DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES	
	GROUND SURFACE			
0.0	FILL COMPACT TO LOOSE, BROWN CLAYEY SILT, SOME F-C SAND LITTLE TO TRACE GRAVEL (ML)		AUGERED AND SET TO DEPTH SAMPLED WITH 6/4" AUGER TO - 38 FT BELOW GROUND SURFACE (BGS) FILLED AUGER WITH VOLCLAY GROUT. PULLED AUGER AND PUSHED 10" Ø STEEL AISI TO 37.7 FT BGS REAMED AND FLUSHED CASING TO 38 FT. BGS AUGERED AND SPLIT-30" SAMPLED WITH 4/4 AUGERS - 42 FT BGS AUGERED TO 50 FT BGS WITHOUT SAMPLING DUE TO FORMATION CAVE-IN. PULLED AUGERS AND PUSHED 10" Ø STEEL CASING TO 50 BGS FLUSHED OUT CASING WITH WATER. INSTALL 2" Ø SLOT PVC SCREEN AND TO 49.2 FT BGS (ONE 5' SCREEN, ONE 2' SCREEN, FOUR 10' RISER SAND ONE 3' RISER, TREMMIED *1/2 SAND TO 40.0' BGS WHILE PULLING CASING A 0.5 FT TO 1.0 FT INTERVALS CAVE-IN FROM 40 FT TO 32.7 BGS. TREMMIED *1/2 SAND TO 37.2 FT BGS. TREMMIED BENTONITE PELLETS TO 33.4 FT BGS TREMMIED *4 Q SAND ON TOP OF PELLETS TO 32.7 FT BGS TREMMIED VOLCLAY GROUT SLURRY TO 21 FT BGS POWDER CEMENT TO GROUND SURFACE INSTALLED 2" Ø ALUMINUM CASING.	
4.0	UPPER CLAY TILL FIRM BROWN, SILTY CLAY SOME F-C SAND, TRACE GRAVEL (ML) TO 2 INCH SILT LENSES AT 10 FT TO 12 FT (CL)			
12.0	GLACIOLACUSTRINE CLAY FIRM, GRAY-BROWN, CLAY SOME F-C SAND, LITTLE GRAVEL, OCCASIONAL SILT LENSES (CL)			
14.0	MIDDLE SILT TILL COMPACT, BROWN TO GRAY/CLAY BROWN, SILT AND F-C SAND; GRADES TO F-C SAND SILTY CLAY LAYER PRESENT AT 26 FT TO 30 FT LITTLE TO TRACE GRAVEL (SM-ML)			
32.0	GLACIOLACUSTRINE SILT/SAND COMPACT TO VERY DENSE, RED BROWN, F-C SAND, SOME GRAVEL LITTLE TO SOME SILT (SM)			
42.0	BASAL RED TILL HARD RED-BROWN, SILT SOME F-C SAND, LITTLE GRAVEL (ML) TOP OF BEDROCK			
42.5	END OF BORING			
50.0				
55.5				

Boring Log
 NYSDEC OHMS Document No. 201469232-00043

JOB NO. 853-3051 GA. INSP. LEL PROJECT CWM/WELLS/MODEL CITY BORING NO. UW12-15
 DEPTH HOLE 16.0 FT DEPTH WL. 7.2 FT. DRILLING METHOD HOLLOW STEM AUGERS 4 1/4 ID SHEET 1 OF 1
 TEMP 81° F TIME WL. 9:23:00 DRILLING COMPANY EMPIRE SOILS INVESTIGATIONS, INC. SURFACE ELEV. 314.4 FT
 WEATHER PARTLY CLOUDY DRILL RIG CME 45 DRILLER J. LAMM DATUM MSL
 COORDINATES N10650.14 E 8595.35 WT. SAMPLER HAMMER 140 LBS. DROP 30 IN. STARTED 11:15 / 18:15:00
 LOCATION 4.5 FT. SOUTH OF UW12-11D, 7.9 FT SOUTH OF UW12-11D WT. CASING HAMMER 300 LBS. DROP 30 IN. COMPLETED 1:30 / 18:15:00

ELEV. DEPTH (FT.)	DESCRIPTION	UNIFIED CLASS	BLOWS/FOOT	SAMPLES			REMARKS	
				NUMBER	TYPE	HAMMER BLOWS PER 6 IN. REC./ATT		
314.4	GROUND SURFACE						GROUND SURFACE	
312.4	GRAVEL AND SAND SOME COBBLES (FILL)	GP	--	AS			NO SAMPLE TAKEN FROM 0-2 BECAUSE FILL WAS ADDED FOR BOREHOLE ACCESS	
312.4	VERY STIFF TO STIFF, BROWN CLAYEY SILT SOME FINE TO COARSE SAND LITTLE TO TRACE F-C GRAVEL COMPACT BROWN GRAY SILT AND FINE SAND LAYERS AT BOTTOM OF SAMPLE	CL	24	1	DO	6-10-14-15	26/24	UPPER CLAY TILL
			45	2	DO	18-20-25-25	5/24	MOTTLED TO 4.0 FEET COLOR BANDING, GRAY AND BLACK WEATHERING ALONG VERTICAL FRACTURES AND JOINTS TO 10.0 FEET
			36	3	DO	17-19-17-19	26/24	
			18	4	DO	6-8-10-14	24/24	
			28	5	DO	6-8-20-20	26/24	SILT AND F SAND LAYER 11.9-12.0 FT. AND 12.7-13.0 FT
301.4	SOFT TO VERY SOFT BROWN GRAY SILTY CLAY TO CLAY SOME FINE TO COARSE SAND INTERLAYERED WITH LOOSE GRAY F-M SAND AND COMPACT GRAY BROWN DILATANT SILT LENSES	CL	27	4	DO	17-14-13-11	26/24	GLACIOLACUSTRINE CLAY
298.4			14	12	DO	5-6-8-18	24/24	SILT OR SAND LAYERS FROM 13.7-14.0 FT., 14.3-14.9 FT & 15.6-16.0 FT
298.4	END OF BORING						END OF BORING	

JOB NO. 853-3051

Golder Associates

CHECKED _____

DATE DRAWN _____

SCALE 1 INCH = 5 FEET