FINAL

REMEDIAL INVESTIGATION/FEASIBILITY STUDY
IROQUOIS GAS/WESTWOOD PHARMACEUTICALS SITE #915141

APPENDICES

VOLUME III

February 1994

Prepared by:
GeoTrans, Inc.
Sterling, Virginia

Iroquois Gas/Westwood Squibb
Appendices
Volume III

Prepared for:

Westwood Squibb Pharmaceuticals
100 Forest Avenue
Buffalo, NY 14213

Prepared by:

GeoTrans, Inc.
46050 Manekin Plaza
Suite 100
Sterling, Virginia 20166

GeoTrans Project No. 7647-023

February 2, 1994

Table of Contents

APPENDIX A

Appendix A
SOILS INVESTIGATION AND WELL CONSTRUCTION DATA REPORT

INTRODUCTION

This data report summarizes the soils investigation and well construction work performed at the Iroquois Gas/Westwood Squibb Site RI/FS (NYSDEC Site No. 915141). The work was performed by GeoTrans, Inc. for Westwood Squibb Inc. from April 2 through April 30, 1992. Included in this report are discussions on field activities, laboratory activities, and a copy of the soil-boring logs and well construction diagrams. The location of the site is shown in Figure A-1.

FIELD ACTIVITIES

The field activities described here include drilling, sample collection and decontamination procedures, well development, and elevation control. The drilling, sample collection, and decontamination procedures are further subdivided into discussions on soil borings, fill monitor wells and piezometers, and sand monitor wells and piezometers. Drilling and well installation services were provided by Buffalo Drilling Inc. of Buffalo, New York. Surveying services were provided by Krehbiel Associates of Buffalo, New York.

Drilling, Sample Collection, and Decontamination

A total of 26 borings were drilled, nine were completed as monitor wells, six were completed as piezometers, and 11 remained as soil borings. The locations of the borings are shown in Figure A-2. The primary purpose of monitor wells was to provide access for the groundwater sampling program. The primary purpose of the piezometers was to allow water-level measurements at different points in the aquifers. The primary purpose of the soil borings was to determine the horizontal and vertical extent of soil contamination in the subsurface.

Soil samples for chemical analysis were collected using a 24-inch long, three-inch diameter, stainless steel, split-spoon sampler. Soil samples for lithologic description were collected with a 24-inch long, two-inch diameter, steel split-spoon sampler. At locations where surface soil samples were collected, any ground covering such as asphalt or road gravel was scraped off prior to sampling.

The drills, rig, all augers, split-spoon samplers, and other drilling equipment were decontaminated by a steam spray washer prior to drilling at each location. Split-spoon samplers were decontaminated after each sample by a wash and scrub with non-phosphate detergent, a tap water rinse, deionized water rinse, ten percent methanol solution rinse, final deionized water rinse, and air drying.

Soil Borings. Eleven soil borings were augered in the fill material in the northern, eastern, and western portions of the site. Augering was conducted using nominal four-inch I.D. hollow-stem augers.

In general, soil samples were obtained continuously to the top of the native silty clay using the split-spoon method. However, borings at locations SB2, SB3, and SB5 were terminated prior to encountering the native silty clay because of misidentification of the compacted clayey fill material present. The lithology of the compacted fill material was similar to that anticipated for the native silty clay.

All samples were visually examined for evidence of contamination, and organic vapor readings were recorded for each split-spoon sample. Selected soil samples were collected and sent to an analytical laboratory for analysis. The depth of the selected samples, and the parameters analyzed, are described below in the Chemical Analysis section on page A-6.

Monitor Wells and Piezometers. Nine monitor wells were added to the five existing wells onsite. Of the nine new wells, five were drilled and screened in the fill material, and four were drilled and screened in the lower sand layer. Six piezometers were also added. Four of these were drilled and screened in the fill material, and two were drilled and screened in the lower sand layer. A summary of well construction information is presented in Table A-1.

Soil samples were obtained continuously to the top of the native silty clay. All samples were visually examined for evidence of contamination, and organic vapor readings were recorded for each split-spoon sample. Selected soil samples were collected and sent to an analytical laboratory for analysis. The depth of the selected samples and the parameters analyzed are described below in the Chemical Analysis section on page A-6.

Fill Monitor Wells and Piezometers. The following procedures were used to install the monitor wells and piezometers in the fill material:

1. 4¼-inch I.D. hollow-stem augers were used to advance the borehole to the top of the silty clay layer while collecting continuous split-spoon samples.

2. New, two-inch I.D., stainless steel (Type 304) riser and ten-slot (0.010-inch diameter) stainless steel screen was installed in the borehole.

3. A sand pack using Morie No. 0 rounded sand was poured to a depth of two ft above the top of the well screen as the augers were withdrawn.

4. A bentonite pellet seal was installed above the sand pack to provide approximately a two-ft seal. The bentonite seal was allowed to hydrate a minimum of one hour prior to placement of the grout.

5. The remaining annular space was then grouted either by directly pouring the grout in the annulus or by lateral grout displacement using a positive pressure tremie pipe into the annulus.

6. All wells and piezometers were completed with approximately two ft of protective surface casing stickup, three bumper posts, a three-ft diameter cement pad, and a locking well cap.

7. All reusable tools and materials were decontaminated prior to use at the next well.

A schematic diagram of a typical fill well or piezometer is presented in Figure A-3.

At piezometers PF3 and PF6, minor deviations from the above procedure were necessary due to special conditions or objectives. In piezometer PF3,

a 0.5-ft bentonite seal was installed due to the shallow depth of this piezometer. For piezometer PF6, this installation was drilled using 4¼-inch I.D. hollow-stem augers for sampling, then reamed with 8¼-inch I.D. hollow-stem augers for piezometer installation. This installation was finished as a four-inch I.D. piezometer to allow sufficient annulus to install a data logger and pressure transducer for long term water-level monitoring.

Lower Sand Monitor Wells and Piezometers. The following procedures were used to install the monitor wells and piezometers in the lower sand layer and to prevent cross contamination in the lower sand layer:

1. 4¼ inch I.D. hollow-stem augers were used to advance the borehole approximately two ft below the top of the silty clay layer. Split-spoon samples were collected continuously.

2. The borehole was then reamed with 8¼-inch I.D., hollow-stem augers.

3. The 8¼-inch I.D. augers were removed, and a predetermined volume of grout was placed in the reamed borehole. The grout volume was calculated to fill the annulus between the borehole wall and a ten-inch I.D. steel casing.

4. Ten-inch I.D. steel casing with a drillable cement shoe was driven approximately three ft below the top of the silty clay layer.

5. The grout was allowed to set for a minimum of 24 hours.

6. 4¼-inch I.D. hollow-stem augers were then used to drill through the cement shoe to final depth. The final depth was the top of bedrock as determined by either split-spoon refusal (100 blows per two inches) or by drilling action at an anticipated depth. Split-spoon samples were collected at five-ft. intervals to the top of bedrock.

7. The installations were completed in a similar manner to that of the fill wells except at MWS2, MWS3, and PS2. At these locations, a bentonite slurry was tremied into place instead of using bentonite pellets.

A schematic diagram of a lower sand well or piezometer is presented in Figure A-4.

At installations PS1 and MWS1, deviations from the above procedure were necessary due to special conditions or objectives. Piezometer PS1 was installed as a four-inch installation to allow sufficient annulus to install a data logger and pressure transducer for long term water-level monitoring. After the ten-inch surface casing was installed and the 4¼-inch I.D. hollow-stem augers drilled to depth, the augers were removed and temporary, six-inch, flush-threaded casing was spun to depth. Four-inch diameter riser and screen were installed inside the temporary six-inch casing. The piezometer was then completed in a similar manner to the other wells and piezometers.

At well MWS1, the installation was completed with a five-ft screen interval instead of a ten-ft screen due to the limited thickness of the lower sand layer at that location.

Well Development

Each new well and piezometer was developed by surging and discharging water from the well. Surging was conducted by moving a capped, 1½-inch I.D. PVC pipe up and down in approximately two-ft intervals across the screened zone. This was typically done several times across the screened zone.

Discharge water was removed by either a pump or a bailer. The pumps used were either a peristaltic pump or a Brainard Kilman hand pump. Field measurements of pH, temperature, and specific conductance were recorded during well development. Well development was considered complete when the field parameters were consistent to within ten percent for three consecutive well volumes. Noticeable turbidity reduction was generally observed in the wells and piezometers by the end of well development. Table A-2 presents well development and final field parameter measurements.

All reusable tools and materials were decontaminated with the steam spray washer prior to use at the next well.

Elevation and Horizontal Control

An elevation and horizontal survey was conducted after completion of the new wells and piezometers. The survey was performed by a licensed surveyor with a vertical accuracy to the nearest 0.01 ft, and a horizontal

accuracy less than 0.06 times the square root of the horizontal distance from the reference datum (in miles). Measurements of the new and existing monitor wells and piezometers were referenced to the 1929 National Geodetic Vertical Datum (NGVD).

LABORATORY ANALYSIS

Chemical Analysis

Chemical analytical results from the soil investigation are presented in this section. Analytical laboratory services were provided by General Testing Corporation of Rochester, New York. A total of 48 samples were collected with the associated QA/QC samples. The depth and location of individual soil samples are presented in Table A-3. The sample-depth-selection rationale was to satisfy a number of data users and objectives. These included:

1. Characterize the horizontal and vertical extent, nature, and levels of soil and nonaqueous phase liquid contamination.
2. Provide further identification of locations where hazardous substances are present.
3. Further determine types, quantities, and extent of buried waste.
4. Collect sufficient data to prepare a baseline risk assessment.
5. Propose remedial action objectives for each contaminated media.

The analytical methods employed were consistent with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) December, 1989. Samples were analyzed for volatile organic compounds (VOCs), base neutral analytes (BNAs), acid extractable organics (AEOs), Target Analyte List metals (TALs), and total organic carbon (TOC). A list of the analytes is presented in Table A-4. The method employed for VOC analysis was ASPDEC89-I, ASPDEC89-II for BNAs and AEOs, EPA 7000 Series for TAL metals, and the Modified Walkley-Black titration method for TOC.

The results of these organic and inorganic analyses are presented in Tables A-5 and A-6, respectively. The sample identification numbers in these tables indicates the location of each sample and the top of the depth interval sampled. Sample identification SB6-10 indicates the soil sample was collected at soil boring six from a depth of ten to 12 ft.

Geotechnical Analysis

Geotechnical testing results from the soil investigation are presented in this section. Geotechnical testing was provided by Buffalo Drilling of Buffalo, New York. Three samples were collected for grain size analysis and three samples were collected for vertical permeability. The geotechnical method employed for grain-size analysis was ASTM D422-63. The method employed on the shelby tube samples for vertical permeability was in accordance with procedures described in the US Army Corps of Engineers Manual EM 1110-2-1906.

The results of the grain size analysis and the shelby tube samples are presented in Tables A-7 and A-8, respectively. Samples were selected based on representativeness of the various sediments encountered, and on the lack of visual contamination.

BORING LOGS

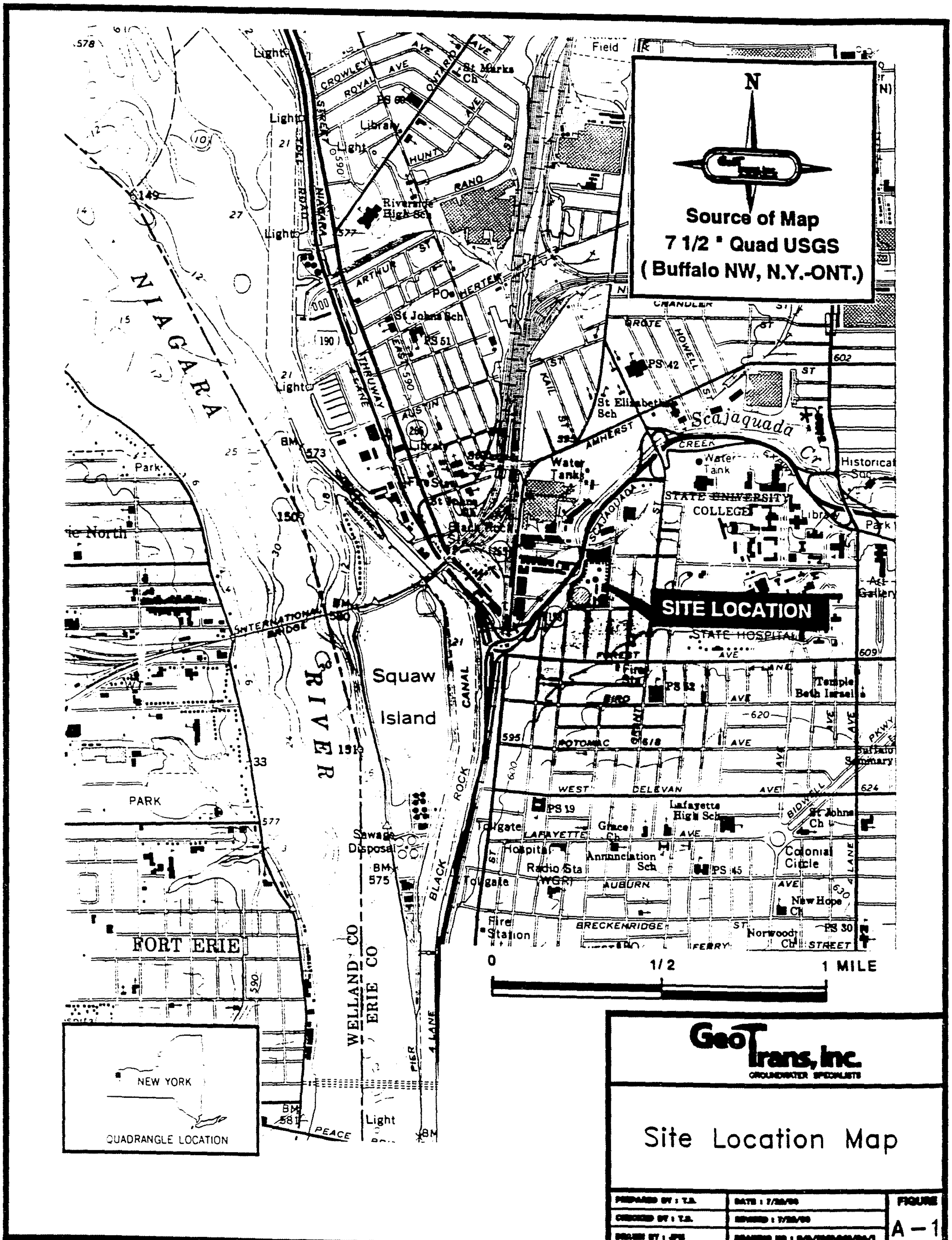
Attached are the final boring logs for the soil borings, monitor wells, and piezometers installed at the site. Also attached are well construction diagrams for the newly installed wells and piezometers.

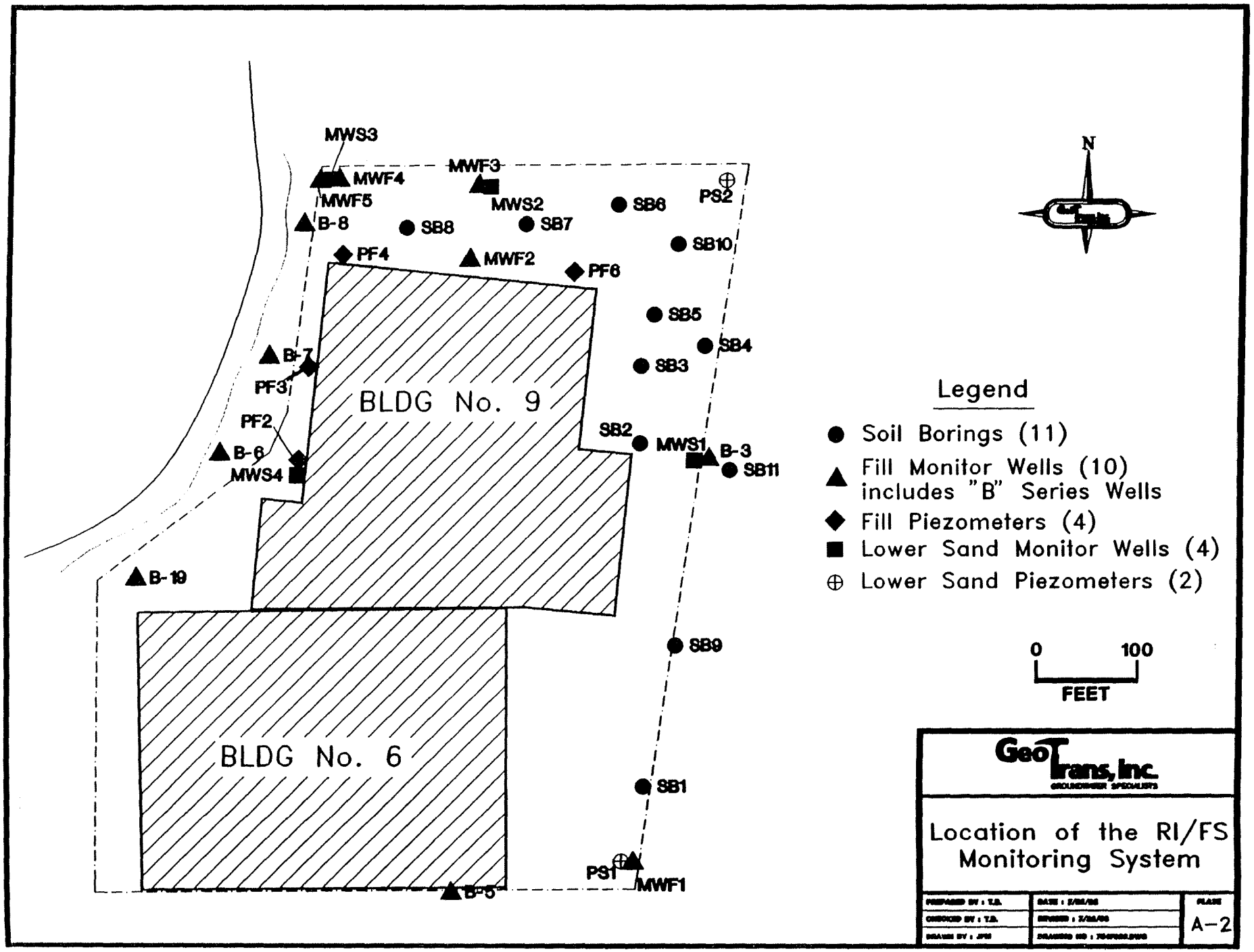
PREVIOUS BORING LOGS

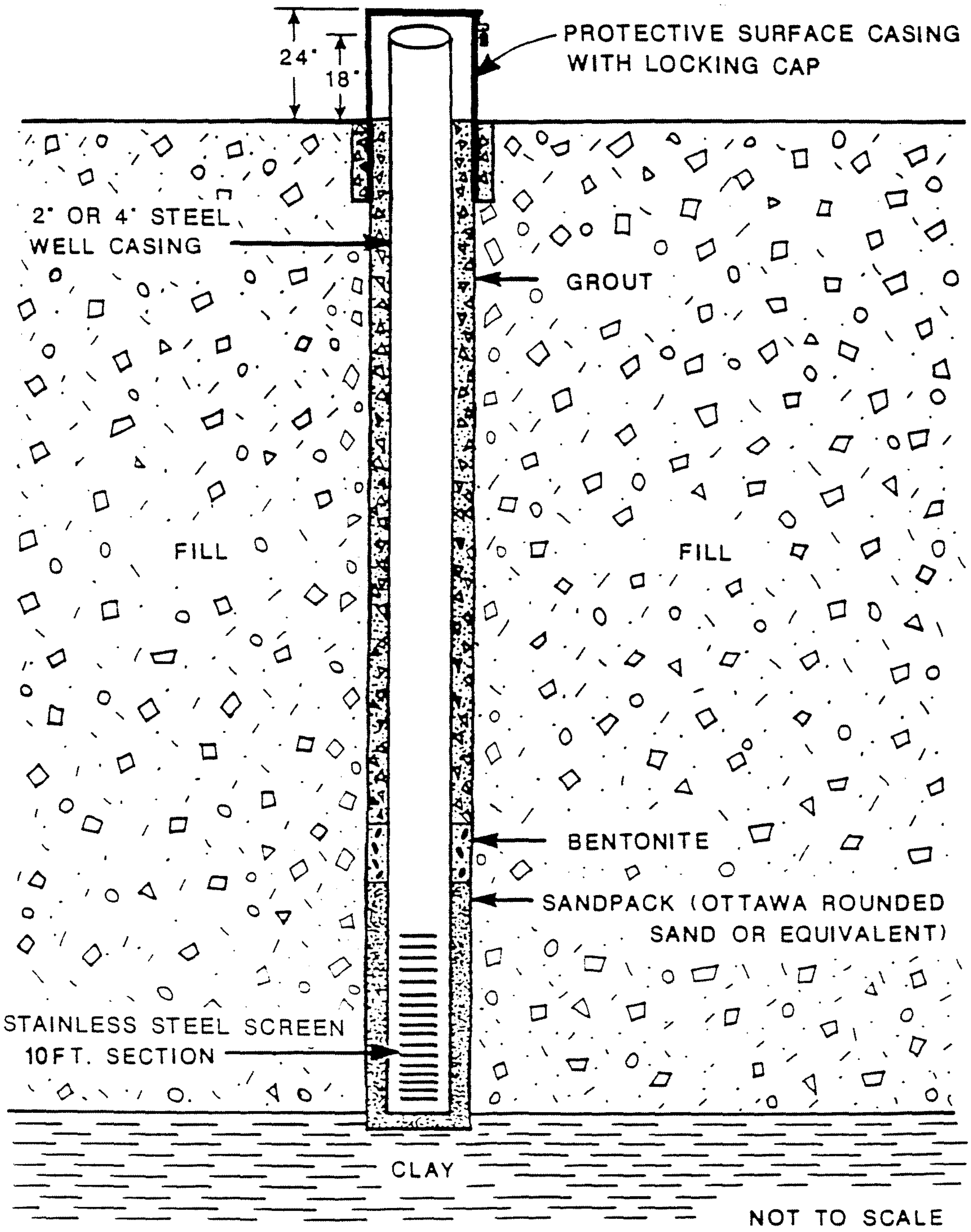
Attached are the final boring logs for the "B Series" monitor wells (Termini, 1987) previously installed at the site. Also attached are well construction diagrams for the "B Series" wells.

REFERENCE

Termini, C.R., 1987. Subsurface evaluation of the Dart Street former fuel gas plant site, Buffalo, New York.


N
Source of Map
7 1/2 " Quad USGS
(Buffalo NW, N.Y.-ONT.)
SITE LOCATION
STATE UNIVERSITY COLLEGE
STATE HOSPITAL
NIAGARA
RIVER
Squaw
Island
BLACK ROCK CANAL
FORT ERIE
WELLAND CO
ERIE CO
NEW YORK
QUADRANGLE LOCATION
0
1/2
1 MILE
GeoTrans, Inc.
Site Location Map
FIGURE
A-1


MWS3
MWF4
MWF3
MWF5
MWS2
SB6
PS2
B-8
SB8
SB7
SB10
PF4
MWF2
PF6
SB5
SB4
B-7
SB3
PF3
BLDG No. 9
PF2
SB2
MWS1
B-3
B-6
MWS4
SB11
B-19
SB9
BLDG No. 6
SB1
PS1
MWF1
B-5
N
Legend
Soil Borings (11)
Fill Monitor Wells (10) includes "B" Series Wells
Fill Piezometers (4)
Lower Sand Monitor Wells (4)
Lower Sand Piezometers (2)
0
100
FEET
GeoTrans, Inc.
GROUNDWATER SPECIALISTS
Location of the RI/FS Monitoring System
A-2

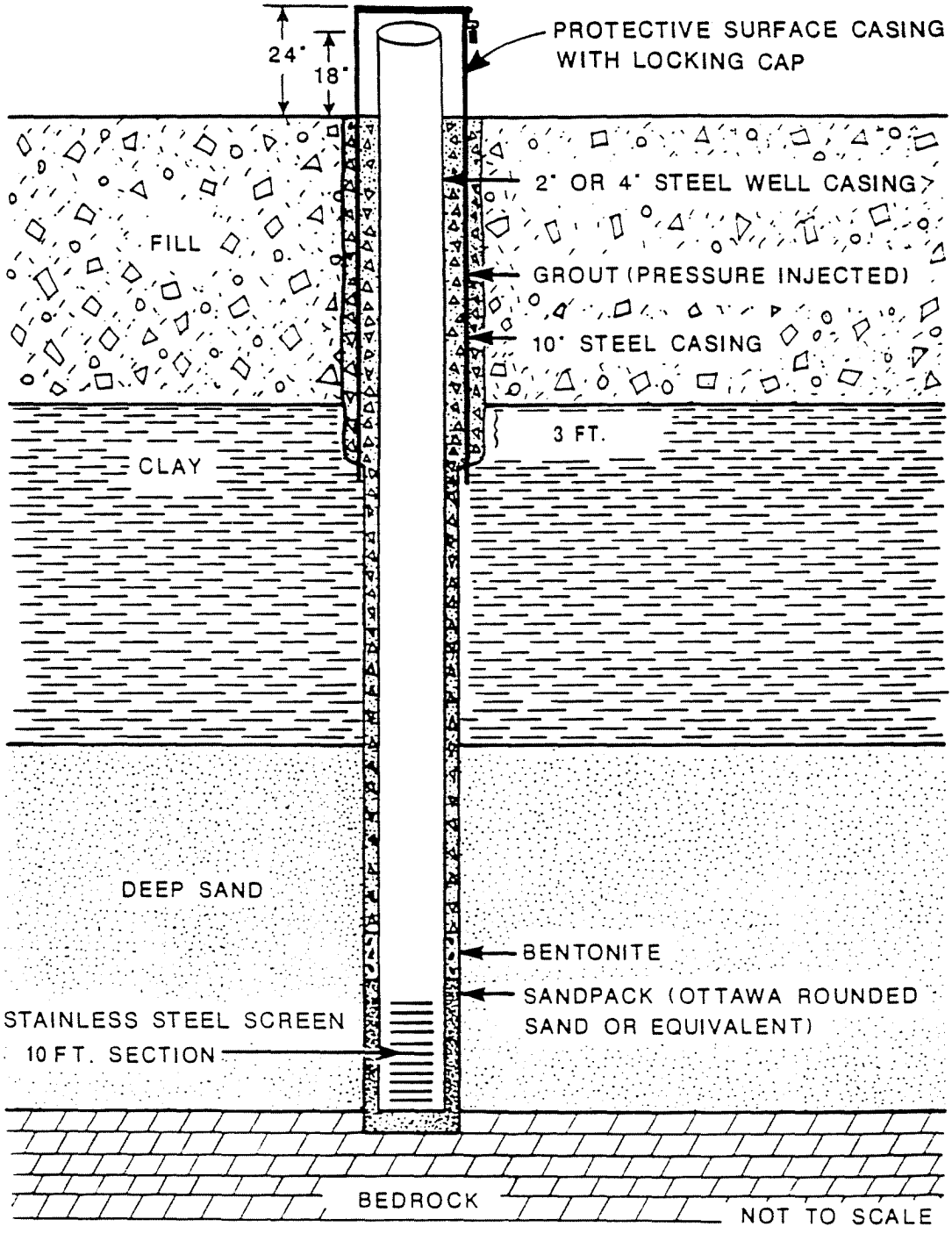


GeoTrans, Inc.
GROUNDWATER SPECIALISTS

Schematc of typical fill well/ piezometer

PREPARED BY : T.S.
CHECKED BY : T.S.
DRAWN BY : JPM

FIGURE A-3



GeoTrans, Inc.
GROUNDWATER SPECIALISTS

Schematc of deep sand well/ piezometer

PREPARED BY : T.S.	DATE : 7/22/96	FIGURE
CHECKED BY : T.S.	REVISED : 7/27/96	A-4
DRAWN BY : JPH	DRAWING NO : S/A/7947-042/DA/3	

Table A-1. Monitor Well and Piezometer construction information.

MW/Piez. ID	Elev. of Measured Reference Point	Ground Surface Elevation	Northing	Easting	Depth to Top of Bentonite Seal	Depth to Top of Sand Pack	Depth to Top of Screen Interval	Depth to Bottom of Screen Interval	Depth to Bottom of Borehole	Casing Diameter and Material	Depth to Bottom of Surface Casing	Geologic Unit Screen Interval
NEW WELLS												
MWF1	592.94	591.4	1067719.01	417322.96	4.0	6.0	8.3	18.3	18.3	2",SS	-	Fill
MWF2	592.74	590.5	1068321.46	417156.76	12.2	14.0	16.0	26.0	26.0	2",SS	-	Fill
MWF3	593.11	591.0	1068394.99	417164.59	10.0	12.0	14.0	24.0	24.2	2",SS	-	Fill
MWF4	592.69	590.3	1068401.40	417025.55	10.0	12.0	13.0	18.0	18.0	2",SS	-	Fill
MWF5	591.71	589.8	1068400.13	417006.44	20.1	22.1	23.1	28.1	28.1	2",SS	-	Fill
MWS1	591.40	589.1	1068121.04	417381.99	63.3	65.3	67.3	72.3	72.3	2",SS	20	Sand & Grav
MWS2	593.29	591.0	1068393.79	417176.16	18.0	73.0	74.5	84.5	84.5	2",SS	34	Sand & Grav
MWS3	592.51	590.1	1068401.53	417017.14	64.0	71.5	73.5	83.5	83.5	2",SS	34	Sand & Grav
MWS4	593.71	591.2	1068106.49	416986.62	68.0	70.0	72.0	82.0	82.0	2",SS	19	Sand & Grav
PF2	593.51	591.3	1068121.99	416988.59	2.5	3.0	5.0	15.0	15.0	2",SS	-	Fill
PF3	593.04	591.1	1068214.32	416997.69	10.1	12.0	14.2	24.2	24.3	2",SS	-	Fill
PF4	592.25	590.7	1068326.22	417030.38	14.2	16.2	18.2	28.2	28.2	2",SS	-	Fill
PF6	593.55	591.2	1068309.27	417260.70	10.7	13.0	15.0	25.0	26.0	4",SS	-	Fill
PS1	593.55	591.3	1067719.70	417311.31	26.0	33.0	35.0	45.0	49.0	4",SS	18	Sand & Grav
PS2	594.23	591.5	1068400.13	417411.11	74.0	76.0	79.2	89.2	89.2	2",SS	19	Sand & Grav
B SERIES WELLS												
B3	591.39	588.7	1068123.07	417396.69	12.0	13.0	18.0	23.0	31.0	2",PVC	-	Silt & Clay
B5	593.12	590.2	1067688.76	417141.92	3.0	4.0	4.5	9.5	11.0	2",PVC	-	Silt & Clay
B6	593.03	590.0	1068128.22	416909.78	11.5	13.0	19.0	24.0	28.0	2",PVC	-	Silt & Clay/Fill
B7	592.49	590.3	1068224.93	416957.81	11.0	12.0	23.0	28.0	34.0	2",PVC	-	Silt & Clay/Fill
B8	593.03	590.3	1068356.88	416991.10	11.0	12.0	23.0	28.0	29.0	2",PVC	-	Silt & Clay/Fill
B19	592.5	589.4	1068004.04	416827.18	9.0	10.0	17.0	22.0	22.0	1.5",PVC	-	Silt & Clay/Fill

Note:

(1) All Measurements in Feet
(2) Elevation of Measured Reference Point is the Top of the Fixed Section of the Protective Casing Next to the Lock Hasp
(3) Elevation Values Expressed in Feet With Respect to the 1929 National Geodetic Vertical Datum (NGVD)
(4) "Depth To..." Measurements Made From Ground Surface
(5) PVC-Polyvinyl Chloride
(6) "B" Wells Installed By Termini Associates
(7) SS - Stainless Steel
(8) Construction Information Provided By Termini, 1987

Table A-2. Well development final measured parameters.

Well/Piez ID	WD Method	Total Volume Purged (gals)	Temp. (°F)	pH	Cond. (μohms/cm)	Comments
MWF1	Bailer	13.5	52.5	7.4	2200	Repeatedly Bailed to Within 6" of Dry
MWF2	-	-	-	-	-	DNAPL Present, No Well Development Done
MWF3	Bailer/ Per. Pump	65	49.6	7.7	570	
MWF4	Bailer/ Per. Pump	53	51.4	7.8	740	
MWF5	Bailer/ Per. Pump	190	51.1	8.0	760	
MWS1	BK Pump	250	54.3	7.1	1540	
MWS2	BK Pump	250	52.0	7.2	1640	
MWS3	BK Pump	500	52.2	7.5	1700	
MWS4	BK Pump	250	52.4	7.4	1780	
PF2	Bailer	~6	51.6	6.7	1540	Bailed Dry, Very Slow to Recovery
PF3	Bailer	31	53.6	7.0	1650	Noticeable Odor Present, Oily Sheen on Water Surface
PF4	Bailer	24	52.7	6.8	1100	Noticeable Odor Present, Oily Sheen on Water Surface
PF6	Bailer	20	52.0	6.3	1700	Stopped WD Due to Floating Oil Layer Present
PS1	BK Pump	75	55.4	7.1	1730	
PS2	BK Pump	140	53.6	7.0	1690	

Note: (1) Wells Were Purged, Pumped, or Bailed
(2) Per. Pump is a Peristaltic Pump
(3) BK Pump is a Brainard Kilman PVC Hand Pump
(4) WD is Well Development

Table A-3. Soil sample depth.

Boring	Sample Depth*	Field Sample ID	Chemical Table ID	Comment QA/QC Notation
S1	4-6	SB1-4	SB1-4	C-of-C Reference SB1/4-6
	10-12	SB1-10	SB1-10	C-of-C Reference SB1/10-12
S2	6-8	SS2-6	SB2-6	
	10-12	SS21-10	SB2-10	State Split
S3	4-6	SB3-4	SB3-4	C-of-C Reference SB3/4-6
	10-12	SB3-10	SB3-10	C-of-C Reference SB3/10-12
S4	0-2	SS4-0	SB4-0	
	18-20	SS4-18	SB4-18	
	18-20	SS4-20	-	Duplicate of S4-18
S5	4-6	SS5-4	SB5-4	
	10-12	SS5-10	SB5-10	
S6	4-6	SS6-4	SB6-4	
	10-12	SS6-10	SB6-10	
S7	0-2	SS7-0	SB7-0	
	4-6	SS7-4	SB7-4	
	4-6	SS7-6	-	Duplicate of S7-4
S8	4-6	SS8-4	SB8-4	
S9	16-18	SB9-16	SB9-16	Added Sample
S10	12-14	SB0-12	SB10-12	Added Sample
MWS1	2-4	SS1-2	MWS1-2	C-of-C Reference SS1-2
	10-12	SS1-10	MWS2-10	C-of-C Reference SS1-10
MWS2	2-4	MS2-2	MWS2-2	C-of-C Reference MWS2/2-4
	10-12	MS2-10	MWS1-10	C-of-C Reference MWS2/10-12
MWS3	8-10	MS3-8	MWS3-8	
	12-14	MS3-12	MWS3-12	MS/MSD-1 Obtained, State Split
	32-34	MS3-32	MWS3-32	
MWS4	4-6	MS4-4	MWS4-4	C-of-C Reference MWS4/4-6
	10-12	MS4-10	MWS4-10	C-of-C Reference MWS4/10-12
PS1	0-2	PS1-0	PS1-0	
	0-2	PS1-2	-	Duplicate of PS1-0
	10-12	PS1-10	PS1-10	
PS2	4-6	PS2-4	PS2-4	C-of-C Reference PS2/4-6
	10-12	PS2-10	PS2-10	C-of-C Reference PS2/10-12

Table A-3. Soil Sample depth (continued).

Boring	Sample Depth[a]	Field Sample ID	Chemical Table ID	Comment QA/QC Notation
PF1	0-2	PF1-0	PF1-0	
	2-4	PF1-2	PF1-2	Not A Duplicate
PF2	0-3"	PF2-0	PF2-0	0-3" Surface Sample. This well is paired with MWS4.
PF3	0-2	PF3-0	PF3-0	
	22-24	PF3-22	PF3-22	State Split
PF4	28-30	PF4-28	PF4-28	
PF6	0-3"	PF6-0	PF6-0	0-3" Surface Sample. MS/MSD-2 also collected.
	4-6	PF6-4	PF6-4	
MWF1	0-3"	MF1-0	MWF1-0	0-3" Surface Sample
	0-3"	MF1-2	-	Duplicate of MF1-0, 0-3" Sample
MWF2	4-6	MF2-4	MWF2-4	
	4-6	MF2-6	-	Duplicate of MWF2-4
	22-24	MF2-22	MWF2-22	Split With State of Contaminated Interval
	26-28	MF2-26	MWF2-26	
MWF4	0-3"	MF4-0	MWF4-0	0-3" Surface Sample

Note: (1) [a]Depth Measurements Made In Feet Below Ground Surface (bgs) Unless Otherwise Noted
(2) C-of-C Refers to the Chain of Custody
(3) All Samples Analyzed For VOA, Semi VOA, TAL, TCN, TOC

Table A-4. Chemical parameters analyzed.

Volatile Organic Compounds (33)	Acid Extractable Organic Compounds (12)	Base Neutral Analytes Compounds (47)		TAL Metals (24)	Miscellaneous (1)
Acetone	4 Chloro-3 methyl phenol	Acenaphthene	Hexachlorobenzene	Aluminum	Total Organic Carbon
Benzene	2-Chlorophenol	Acenaphthylene	Hexachlorobutadiene	Antimony	
Bromodichloromethane	2,4-Dimethylphenol	Anthracene	Hexachlorocyclopentadiene	Arsenic	
Bromoform	2-methyl-4,6-Dinitro-phenol	Benzo(a)anthracene	Ideno(1,2,3-c,d)pyrene	Barium	
Bromomethane	2-Methyl phenol	Benzo(a)pyrene	Isophorone	Beryllium	
2-Butanone	4-Methyl phenol	Benzo(b)fluoranthene	2-Methylnaphthalene	Cadmium	
Carbon Disulfide	2-Nitrophenol	Benzo(k)fluoranthene	Naphthalene	Calcium	
Carbon Tetrachloride	4-Nitrophenol	Benzo(g,h,i)perylene	2-Nitroaniline	Chromium	
Chlorobenzene	Pentachlorophenol	bis(2-Chloroethyl) ether	3-Nitroaniline	Cobalt	
Chloroethane	Phenol	bis(2-Chloroisopropyl) ether	4-Nitroaniline	Copper	
Chloroform	2,4,5-Trichlorophenol	bis(2-Ethylhexyl)phthalate	Nitrobenzene	Iron	
Chloromethane	2,4,6-Trichlorophenol	4-Bromophenyl phenyl ether	N-Nitrosodi-n-propylamine	Lead	
Dibromochloromethane		Butyl benzyl phthalate	N-Nitrosodiphyenylamine	Magnesium	
1,1-Dichloroethane		4-Chloroaniline	Phenanthrene	Manganese	
1,2-Dichloroethane		4-Chlorophenyl phenyl ether	Pyrene	Mercury	
1,1-Dichloroethene		Chrysene	1,2,4-Trichlorobenzene	Nickel	
trans-1,2-Dichloroethene		Dibenz(a,h)anthracene		Potassium	
1,2-Dichloropropane		Dibenzofuran		Selenium	
cis-1,3-Dichloropropene		Di-n-butylphthalate		Silver	
trans-1,3-Dichloropropene		1,2-Dichlorobenzene		Sodium	
Ethylbenzene		1,3-Dichlorobenzene		Thallium	
2-Hexanone		1,4-Dichlorobenzene		Vanadium	
4-Methyl-2-pentanone		3,3'-Dichlorobenzidine		Zinc	
Methylene chloride		Diethyl phthalate		Cyanide	
Styrene		Dimethyl phthalate			
1,1,2,2-Tetrachloroethane		2,4-Dinitrotoluene			
Tetrachloroethene		2,6-Dinitrotoluene			
1,1,1-Trichloroethane		Di-n-octyl phthalate			
1,1,2-Trichloroethane		Fluorene			
Trichloroethene		Fluoranthene			
Toluene		Hexachloroethane			
Vinyl Chloride					
Xylenes					

Table A-5
SOIL ORGANIC RESULTS

Analysis (ug/kg)	Sample Identification SB1-4	SB1-10	SB2-6	SB2-10	SB3-4	SB3-10	SB4-0	SB5-4	SB5-10	SB6-4	SB6-10	SB7-0
Volatile Organic Compounds												
(m+p)Xylene	<6	5 J	12000	190000	<7	69000	3 J	<6	11000	4 J	<7	<6
1,1,1-Trichloroethane	<6	<7	<9000	<81000	<7	11000 J	<8	<6	<840	<7	<7	<6
1,2-Dichloroethane	<6	<7	<9000	<81000	<7	<31000	<8	<6	<840	<7	<7	<6
Cis-1,2-Dichloroethene	<6	<7	<9000	<81000	2 J	<31000	4 J	<6	<840	4 J	<7	<6
2-Butanone	<6	<7	<9000	<81000	<7	<31000	<8	<6	<840	<7	<7	<6
Acetone	42	<7	<9000	<81000	<7	<31000	<8	54	<840	<7	<7	<6
Benzene	3 J	12	2300 J	55000 J	1 J	16000 J	<8	<6	1200	1 J	<7	<6
Carbon Disulfide	<6	15	<9000	<81000	<7	<31000	<8	<6	<840	<7	<7	<6
Chlorobenzene	<6	<7	<9000	<81000	<7	<31000	<8	<6	<840	<7	<7	<6
Chloroform	<6	<7	<9000	<81000	<7	<31000	3 J	<6	<840	3 J	<7	<6
Ethylbenzene	<6	7	23000	220000	<7	55000	<8	<6	17000	<7	<7	<6
Methylene Chloride	<6	<7	<9000	<81000	<7	<31000	16 J	<6	<840	42 J	2 J	2 J
Styrene	<6	<7	<9000	<81000	<7	<31000	<8	<6	<840	<7	<7	<6
Tetrachloroethene	<6	<7	<9000	<81000	<7	<31000	4 J	<6	<840	4 J	<7	<6
Toluene	<6	6 J	4300 J	<81000	<7	14000 J	<8	<6	280 J	5 J	<7	<6
Trichloroethene	<6	9	<9000	<81000	2 J	<31000	6 J	<6	<840	8 J	<7	<6
o-Xylene	<6	5 J	10000	91000	<7	34000	<8	<6	7300	<7	<7	<6

J = Estimated value, analyte detected below contract required detection level.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS).
The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilvoc.wq1 p 1 of 6

Table A-5 (Continued)
SOIL ORGANIC RESULTS

Analysis (ug/kg)	Sample Identification SB7-4	SB8-4	SB10-12	PF1-2	PF3-22	PF4-28	PF6-4	PS1-0	PS1-10	PS2-4	PS2-10	MWF1-0
Volatile Organic Compounds												
(m+p)Xylene	5 J	2900	2400	2300 J	5300 J	10	1900	<6	<7	<6	<6	<6
1,1,1-Trichloroethane	<6	<760	<770	<710	<8500	<6	<6	<6	<7	<6	<6	<6
1,2-Dichloroethane	<6	330 J	<770	<710	<8500	<6	<6	<6	<7	<6	<6	<6
Cis-1,2-Dichloroethene	<6	<760	<770	<710	<8500	<6	<6	2 J	<7	<6	<6	<6
2-Butanone	<6	<760	1100 J	<710	<8500	<6	<6	<6	<7	<6	<6	<6
Acetone	<6	<760	<770	<710	<8500	<6	<6	<6	180	42	<6	<6
Benzene	120	20000	<770	820 J	1900 J	12	3600	<6	<7	3 J	2 J	<6
Carbon Disulfide	<6	<760	<770	<710	<8500	<6	<6	<6	<7	<6	<6	<6
Chlorobenzene	<6	<760	<770	180 J	<8500	<6	<6	<6	<7	<6	<6	<6
Chloroform	<6	<760	<770	<710	<8500	<6	<6	2 J	<7	<6	<6	1 J
Ethylbenzene	5 J	17000	2400	2100 J	13000	15	4400	<6	<7	<6	2 J	<6
Methylene Chloride	<6	<760	<770	<710	<8500	<6	<6	<6	<7	<6	<6	<6
Styrene	<6	1200	<770	350 J	<8500	<6	540	<6	<7	<6	<6	<6
Tetrachloroethene	<6	<760	<770	<710	<8500	<6	<6	<6	<7	<6	<6	<6
Toluene	6 J	7200	<770	720 J	<8500	5	1900	1 J	<7	<6	<6	<6
Trichloroethene	<6	<760	<770	<710	<8500	<6	<6	4 J	<7	<6	<6	3 J
o-Xylene	3 J	5400	1400	3000 J	5000 J	7	2100	<6	<7	<6	<6	<6

J = Estimated value, analyte detected below contract required detection level.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS).
The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilvoc.wq1 p 2 of 6

Table A-5 (Continued)
SOIL ORGANIC RESULTS

Analysis (ug/kg)	Sample Identification MWF2-4	MWF2-22	MWF4-0	MWS1-10	MWS2-2	MWS2-10	MWS3-8	MWS3-12	MWS3-32	MWS4-4	MS4-10
Volatile Organic Compounds											
(m+p)Xylene	26000 J	210000	<5	12 J	760 J	760 J	2 J	1900 J	2 J	<33	<7
1,1,1-Trichloroethane	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
1,2-Dichloroethane	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
Cis-1,2-Dichloroethene	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
2-Butanone	22000 J	57000 J	<5	<30	<830	<780	<6	<8100	<6	<33	5 J
Acetone	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	1100 J	1100 J
Benzene	36000	90000	<5	<30	1000	3800	4 J	<8100	<6	<33	<7
Carbon Disulfide	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
Chlorobenzene	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
Chloroform	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
Ethylbenzene	87000	480000	<5	11 J	1400	840	<6	5400 J	2 J	<33	<7
Methylene Chloride	11000 J	29000 J	<5	<30	<830	<780	<6	<8100	<6	<33	<7
Styrene	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
Tetrachloroethene	<31000	<90000	<5	<30	<830	<780	<6	<8100	<6	<33	<7
Toluene	6900 J	150000	<5	<30	630 J	160 J	<6	<8100	<6	<33	<7
Trichloroethene	<31000	<90000	1 J	<30	<830	<780	<6	<8100	<6	<33	<7
o-Xylene	22000 J	170000	<5	10 J	400 J	460 J	<6	2500 J	<6	<33	<7

J = Estimated value, analyte detected below contract required detection level.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS).
The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilvoc.wq1 p 3 of 6

Table A-5
SOIL ORGANIC RESULTS

Analysis (ug/kg)	Sample Identification SB1-4	SB1-10	SB2-6	SB2-10	SB3-4	SB3-10	SB4-0	SB4-18	SB5-4	SB5-10	SB6-4	SB6-10	SB7-0	SB7-4
SEMIVOLATILE ORGANIC COMPOUND														
1,2-Dichlorobenzene	<770	<920	<140000	<160000	<880	<24000	<1100	<770	<800	<130000	<870	<860	<760	<790
2,4-Dinitrotoluene	<770	<920	18000 J	<160000	<880	<24000	<1100	<770	<800	<130000	<870	<860	<760	<790
2-Methylnaphthalene	1000	3100	490000	1400000	<880	150000	960 J	<770	<800	1100000	<870	<860	250 J	430 J
4-Chloroaniline	<770	110 J	<140000	<160000	<880	<24000	<1100	<770	<800	<130000	<870	<860	<760	<790
4-Nitrophenol	<3700	<4500	<690000	<770000	<4300	<120000	<5200	<3700	<3900	<640000	<4200	<4200	<3700	<3800
Acenaphthene	1300	530 J	360000	1200000	<880	98000	250 J	<770	<800	750000	<870	<860	<760	120 J
Acenaphthylene	<770	690 J	710000	100000 J	<880	16000 J	1800	<770	<800	66000 J	<870	<860	1900	2400
Anthracene	1700	1000	520000	570000	<880	68000	1700	<770	<800	420000	110 J	<860	8400	1400
Benzoic Acid	<3700	<4500	<690000	<770000	<4300	<120000	<5200	<3700	<3900	<640000	<4200	<4200	<3700	<3800 J
Benzo(a)anthracene	2700	1700	350000	280000	150 J	43000	9900	<770	<800	250000	460 J	100 J	9000	4800
Benzo(a)pyrene	2100 J	1200 J	270000	230000	120 J	35000	7500 J	<770	<800	210000	560 J	<860	5600 J	7300
Benzo(b)fluoranthene	2100 J	1500 J	160000	130000 J	140 J	14000 J	7600 J	<770	<800	90000 J	720 J	<860	5400 J	4500
Benzo(g,h,i)perylene	<770	1100 J	110000 J	110000 J	<880	16000 J	9600 J	<770	<800	84000 J	<870	<860	3400 J	3700
Benzo(k)fluoranthene	1800 J	850 J	170000	130000 J	130 J	22000 J	6300 J	<770	<800	130000 J	700 J	<860	12000 J	4600
Bis(2-ethylhexyl)phthalate	<770	<920	<140000	<160000	<880	<24000	<1100	<770	<800	<130000	<870	<860	<760	<790
Butyl benzyl phthalate	<770	<920	<140000	<160000	<880	<24000	<1100	<770	<800	<130000	<870	<860	<760	<790
Chrysene	2500	1600	<140000	<160000	170 J	41000	11000	<770	<800	<130000	690 J	100 J	9900	4900
Di-n-Butylphthalate	<770	<920	<140000	<160000	<880	<24000	<1100	<770	<800	<130000	<870	<860	<760	<790
Dibenz(a,h)anthracene	<770	<920	<140000	<160000	<880	<24000	2500 J	<770	<800	21000 J	<870	<860	300 J	320 J
Dibenzofuran	850	450 J	58000 J	74000 J	<880	8600 J	340 J	<770	<800	38000 J	<870	<860	83 J	100 J
Fluoranthene	4700	3700	750000	750000	340 J	83000	9000	<770	<800	490000	1100	190 J	6000	4200
Fluorene	1000	1300	570000	560000	<880	54000	460 J	<770	<800	440000	<870	<860	370 J	400 J
Indeno(1,2,3-cd)pyrene	1600 J	990 J	81000 J	77000 J	<880	12000 J	7300 J	<770	<800	64000 J	<870	<860	2500 J	2800
Naphthalene	2400	6900	900000	2600000	<880	320000	1100 J	<770	<800	1900000	<870	<860	260 J	660 J
Phenanthrene	5200	4300	1100000	1300000	260 J	170000	5700	<770	<800	1000000	640 J	<860	4400	4000
Pyrene	7200	6300	900000	820000	280 J	110000	20000	<770	<800	660000	1300	230 J	12000	8300
Total Organic Carbon (%)	0.73	0.73	6.3	1.8	0.66	0.45	0.94	0.18	0.06	1.5	0.63	0.09	0.28	0.73

J = Estimated value, analyte detected below contract requierd detection limits.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS).
The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilsemi.wq1 p 4 of 6

Table A-5 (Continued)
SOIL ORGANIC RESULTS

Analysis (ug/kg)	Sample Identification SB8-4	SB10-12	PF1-0	PF1-2	PF2-0	PF3-0	PF3-22	PF4-28	PF6-0	PF6-4	PS1-0	PS1-10	PS2-4	PS2-10
SEMIVOLATILE ORGANIC COMPOUND														
1,2-Dichlorobenzene	<800	<820	<790	<120000	<710	<780	<27000	120 J	<780	<1000	<780	<870	<830	<840
2,4-Dinitrotoluene	120 J	<820	<790	<120000	<710	<780	<27000	<730	<780	<1000	<780	<870	<830	<840
2-Methylnaphthalene	3800	7300	120 J	<120000	<710	<780	2600000	320 J	550 J	1800	350 J	<870	<830	<840
4-Chloroaniline	<800	<820	<790	<120000	<710	110 J	<27000	<730	<780	<1000	<780	<870	<830	<840
4-Nitrophenol	<3900	<4100	<3800	<560000	<3500	<3800	130000 J	<3700	<3900	<5000	<3900	<4200	<4000	<4100
Acenaphthene	1500	2400	<790	<120000	<710	<780	2000000	220 J	1100	9600	980	<870	<830	<840
Acenaphthylene	2500	340 J	150 J	<120000	<710	<780	150000	<730	590 J	13000	11000	<870	<830	<840
Anthracene	3000	1600	220 J	<120000	<710	<780	1200000	76 J	1700	8300	3300 J	90 J	<830	<840
Benzoic Acid	<3900	<4100	<3800	<560000	<3500	<3800	<130000	<3700	<3900	<5000	<3900	<4200	<4000	<4100
Benzo(a)anthracene	3400	930	960	14000 J	80 J	<780	570000	<730	3900	23000	22000 J	<870	<830	<840
Benzo(a)pyrene	2800	740 J	1500	21000 J	<710	<780	410000	<730	3900 J	28000 J	30000 J	<870	<830	<840
Benzo(b)fluoranthene	<800	390 J	1200	14000 J	270 J	<780	390000 J	<730	3700 J	12000 J	36000 J	<870	<830	<840
Benzo(g,h,i)Perylene	1200	320 J	880	<120000	<710	<780	260000 J	<730	1300 J	11000 J	41000 J	<870	<830	<840
Benzo(k)fluoranthene	2000	340 J	1300	<120000	<710	<780	390000 J	<730	<780	9700 J	60000 J	<870	<830	<840
Bis(2-ethylhexyl)phthalate	<800	<820	<790	<120000	<710	<780	<27000	<730	<780	<1000	<780	<870	<830	<840
Butyl benzyl phthalate	<800	<820	<790	<120000	<710	<780	<27000	<730	<780	<1000	<780	<870	<830	<840
Chrysene	3700	900	1100	23000 J	130 J	<780	600000	<730	4100	23000	29000 J	<870	<830	<840
Di-n-Butylphthalate	<800	<820	<790	<120000	<710	<780	<27000	<730	120 J	<1000	<780	<870	<830	<840
Dibenz(a,h)anthracene	370 J	<820	92 J	<120000	<710	<780	19000 J	<730	<780	6000 J	2900	<870	<830	<840
Dibenzofuran	300 J	110 J	<790	<120000	<710	<780	250000	<730	770 J	1600	<780	<870	<830	<840
Fluoranthene	5300	1600	1200	13000 J	170 J	<780	1000000	140 J	6100	13000	3300 J	<870	<830	91 J
Fluorene	3200	1100	<790	<120000	<710	<780	1100000	120 J	1100	9100	<780	<870	<830	<840
Indeno(1,2,3-cd)pyrene	960	<820	800	<120000	<710	<780	190000 J	<730	2300 J	8700 J	28000 J	<870	<830	<840
Naphthalene	11000	9800	<790	<120000	<710	<780	3300000	650 J	890	7100	940	<870	<830	<840
Phenanthrene	7000	5400	560 J	<120000	98 J	<780	2100000	470 J	6000	15000	2000 J	92 J	<830	480 J
Pyrene	6900	3100	1200	97000 J	150 J	<780	1500000	200 J	10000	66000	27000 J	<870	<830	140 J
Total Organic Carbon (%)	0.23	<0.5	0.96	14	0.2	0.16	4.2	0.38	0.64	2.3	0.26	0.2	0.35	0.38

J = Estimated value, analyte detected below contract requierd detection limits.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS).
The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilsemi.wq1 p 5 of 6

Table A-5 (Continued)
SOIL ORGANIC RESULTS

Analysis (ug/kg)	Sample Identification													
	MWF1-0	MWF2-4	MWF2-22	MWF2-26	MWF4-0	MWS1-2	MWS1-10	MWS2-2	MWS2-10	MWS3-8	MWS3-12	MWS3-32	MWS4-4	MWS4-10
SEMIVOLATILE ORGANIC COMPOUND														
1,2-Dichlorobenzene	<760	<120000	<330000	<850	<710	<1700	<800	<880	<820	<810	<4300	<840	<880	<880
2,4-Dinitrotoluene	<760	<120000	<330000	<850	<710	<1700	<800	<880	<820	<810	1100 J	<840	<880	<880
2-Methylnaphthalene	<760	630000	4900000	<850	<710	910	2500	3800	350 J	<810	58000	<840	130 J	<880
4-Chloroaniline	<760	<120000	<330000	<850	<710	<1700	<800	<880	<820	<810	<4300	<840	<880	<880
4-Nitrophenol	<3800	<620000	<1700000	<4300	<3500	<8400	<3900	<4300	<4000	<3900	<21000	<4200	<4300	<4300
Acenaphthene	<760	320000	2300000	<850	<710	980	2700	1500	400 J	<810	55000	<840	<880	130 J
Acenaphthylene	<760	31000 J	440000	<850	110 J	2700	190 J	4800	160 J	<810	9100	<840	150 J	<880
Anthracene	210 J	200000	1500000	<850	92 J	6300	1200	3000	560 J	<810	31000	<840	210 J	<880
Benzoic Acid	<3800	<620000	<1700000	<4300	<3500	110 J	290 J	<4300	<4000	<3900	<21000	<4200	<4300	<4300
Benzo(a)anthracene	720 J	100000 J	780000	<850	450 J	7800	650 J	17000	990	97 J	29000	<840	820 J	150 J
Benzo(a)pyrene	650 J	94000 J	580000	<850	460 J	8100 J	540 J	22000	830	<810	29000	<840	840 J	170 J
Benzo(b)fluoranthene	670 J	37000 J	240000 J	<850	370 J	5900 J	240 J	14000	870	85 J	15000	<840	760 J	170 J
Benzo(g,h,i)perylene	<760	<120000	<330000	<850	<710	3700 J	250 J	11000	390 J	<810	8200	<840	330 J	99 J
Benzo(k)fluoranthene	610 J	48000 J	310000 J	<850	360 J	4100 J	290 J	11000	700 J	<810	16000	<840	830 J	140 J
Bis(2-ethylhexyl)phthalate	<760	<120000	<330000	<850	<710	<1700	<800	<880	<820	<810	<4300	<840	<880	<880
Butyl benzyl phthalate	<760	<120000	<330000	<850	<710	<1700	<800	<880	50 J	<810	<4300	<840	<880	<880
Chrysene	760	99000 J	730000	<850	520 J	7300	650 J	17000	1100	<810	26000	<840	840 J	140 J
Di-n-Butylphthalate	<760	<120000	<330000	<850	97 J	<1700	<800	<880	<820	<810	<4300	<840	<880	<880
Dibenz(a,h)anthracene	<760	<120000	<330000	<850	<710	<1700	<800	3900 J	140 J	<810	2700 J	<840	<880	<880
Dibenzofuran	<760	22000 J	160000 J	<850	<710	380 J	130 J	380 J	250 J	<810	8800	<840	<880	<880
Fluoranthene	1400	220000	1400000	<850	750	11000	1400	12000	2500	250 J	28000	<840	1300	200 J
Fluorene	<760	180000	1400000	<850	<710	3300	1200	1900	530 J	<810	45000	<840	<880	150 J
Indeno(1,2,3-cd)pyrene	150 J	<120000	<330000	<850	230 J	3000 J	190 J	7300 J	380 J	<810	6800	<840	350 J	<880
Naphthalene	<760	1100000	5800000	93 J	<710	1700	5000	9800	3400	<810	61000	94 J	280 J	<880
Phenanthrene	830	640000	3100000	120 J	470 J	13000	4300	6300	2700	160 J	46000	160 J	860 J	140 J
Pyrene	1400	350000	2000000	<850	1200	18000	2100	55000	2200	190 J	51000	<840	1300	210 J
Total Organic Carbon (%)	0.81	1.2	7.7	0.19	0.15	1.3	1.9	2.9	0.76	0.59	1.2	0.43	0.66	0.88

J = Estimated value, analyte detected below contract requierd detection limits.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS).
The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilsemi.wq1 p 6 of 6

Table A-6
SOIL INORGANIC RESULTS

Analysis (mg/kg)	Sample Identification SB1-4		SB1-10		SB2-6		SB2-10		SB3-4		SB3-10		SB4-0		SB4-18	
Aluminum	8220		22200		2520		7320		17200		20000		21100		15100	
Antimony		R		R		R	<35.6			R		R	<35.6			R
Arsenic	2.8		5.2		4.8		14		5.1		3.7		14.7		4	
Barium	58.5	J	170	J	16.8	J	152	J	135	J	114	J	159	J	99.1	J
Beryllium	0.35		1.1		0.25		0.53		0.81		0.76		3.2		0.59	
Cadmium	<3.8		<3.8		<3.8		<3.8		<3.8		0.81	J	<3.8		<3.8	
Calcium	81700		63400		4910		6060		31400		59100		106000		70000	
Chromium	<3		28.9	J	<3		17	J	23.6	J	24.3	J	45.2	J	20.5	J
Cobalt	5.2		13.7		3.5		7.8		11.1		11.3		11.5		10	
Copper	10.9		26.6		15.7		110		50.4		18.7		57.2		16.5	
Iron	12100	J	29100	J	6420	J	13200	J	26800	J	25700	J	57000	J	22100	J
Lead	13.8	J	18.8	J	78.4	J	631	J	99.7	J	18.9	J	352	J	9.8	J
Magnesium	16200		14600		735		1280		9610		22900		22700		23800	
Manganese	256	J	598	J	45.1	J	162	J	413	J	503	J	2290	J	474	J
Mercury	<0.1		<0.1		0.2		0.23		<0.1		0.4		0.19		<0.1	
Nickel	12.7		30.8		13.8		21.8		24.7		25.6		27		22.4	
Potassium	1810	J	5550	J	207	J	882	J	3030	J	4170	J	2560	J	3610	J
Selenium	<2.8		<2.8		1	J	20.5	J	<2.8		<2.8		6	J	<2.8	
Sodium	145		325		208		280		175		147		681		247	
Thallium	<2.2		<2.2		1.6		<2.2		<2.2		<2.2		0.47		0.26	J
Vanadium	15.1		37.7		7.8		28.5		34.5		27.1		43.8		21.3	
Zinc	45.5	J	81.2	J	113	J	173	J	101	J	69.2	J	361	J	60.8	J
Cyanide	<10		<10		<10		<10		<10		2.8	J	10.2	J	<10	

J = Estimated value, analyte detected below contract required detection limits or qualified by data validation.
R = Value rejected by data validation.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS). The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilin.wq1 p 1 of 6

Table A-6 (continued)
SOIL INORGANIC RESULTS

Analysis (mg/kg)	Sample Identification SB5-4		SB5-10		SB6-4		SB6-10		SB7-0		SB7-4		SB8-4		SB9-16	
Aluminum	8060		16200		10300	J	20600	J	5760	J	18300	J	10500	J	27000	
Antimony		R		R		R		R		R		R		R		R
Arsenic	2.7		9.5		16.7	J	3.1	J	1.8	J	4.7	J	3.2	J	22.6	J
Barium	45.9	J	111	J	119	J	89.3	J	49.9	J	105	J	86.8	J	152	
Beryllium	0.31		0.83		1		0.54		0.3		0.79		0.56		1	
Cadmium	<3.8		<3.8		0.75		<3.8		<3.8		0.6		0.39		0.52	J
Calcium	62300		35200		<77.3		<77.3		73600	J	69400	J	84800	J	2550	J
Chromium	<3		22.7	J	26.5		17.1		<3		24.1		18.1		35	J
Cobalt	4.2		11.9		10		7.1		<17.4		8.1		6.6		14.7	J
Copper	9.1		25.9		36.1	J	16.4	J	9.3	J	24.8	J	25.2	J	19	
Iron	11800	J	20500	J	20800	J	31900	J	9910	J	20500	J	19200	J	33800	
Lead	10.2	J	43.8	J	112	J	9.9	J	9.9	J	44.6	J	30.3	J	11.5	
Magnesium	27800		12500		4370	J	36000	J	30200	J	24700	J	32000	J	8680	
Manganese	385	J	432	J	193		443		338		547		557		420	J
Mercury	<0.1		<0.1		2.6		<0.1		<0.1		<0.1		0.12		<0.1	
Nickel	9.5		27.5		25.5		16.5		8.6		20.4		16.1		33.9	
Potassium	2110	J	3010	J	1240	J	4170	J	1360	J	2490	J	2280	J	5480	J
Selenium	0.47	J	<2.8		1.7	J		R		R	1.8	J		R	1.3	J
Sodium	160		229		190		164		169		216		180		360	J
Thallium	<2.2		<2.2		<2.2		<2.2		<2.2		<2.2		0.19	J	<2.2	
Vanadium	15		28.7		28.6	J	35.7	J	14.2	J	26.4	J	24	J	46.1	
Zinc	70.2	J	72.9	J	103		73.2		69.3		92.6		90.9		66.5	J
Cyanide	<10		<10		<10		<10		<10		2.4	J	11.6	J	<10	

J = Estimated value, analyte detected below contract required detection limits or qualified by data validation.
R = Value rejected by data validation.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS). The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilin.wq1 p 2 of 6

Table A-6 (continued)
SOIL INORGANIC RESULTS

Analysis (mg/kg)	Sample Identification SB10-12		PF1-0		PF1-2		PF2-0		PF3-0		PF3-22		PF4-28		PF6-0	
Aluminum	28800		19800	J	13900	J	2180	J	7050	J	21000	J	11300	J	9210	J
Antimony	<35.6			R		R	3.6	J		R		R	3.6	J		R
Arsenic	19.9	J	6.1	J	8.2	J	<3		5.5	J	3.7	J	<3		<3	
Barium	163		149	J	122	J	5.7		82.4	J	125	J	78	J	78.9	J
Beryllium	1.2		1.2		1		0.31		0.61		0.93		0.43		0.71	
Cadmium	0.68	J	0.65		32.8		0.63		0.92		0.75		<3.8		0.97	
Calcium	5170	J	53800	J	28500	J	206000		54500	J	14300	J	95500		68700	
Chromium	37	J	42.9		29.8		4.2	J	20		32.4		12.8	J	16.8	J
Cobalt	14.7	J	11.8		13.1		<17.4		6.5		12.1		5.8		9.6	
Copper	32.3		26.4	J	86	J	<4.5		38.7	J	42.6	J	11.6	J	35.4	J
Iron	33800		32300	J	36300	J	638	J	15900	J	31300	J	1560	J	19300	J
Lead	16.7		56	J	238	J	139	J	57.8	J	865	J	9.6	J	96.5	J
Magnesium	8000		16800	J	14500	J	102000		17700	J	10300	J	3850		10100	
Manganese	561	J	722		731		536		474		246		383		488	
Mercury	<0.1		<0.1		0.38		<0.1		<0.1		0.37		<0.1		<0.1	
Nickel	38.4		28.6		41.4		4.9		24		28.9		13.3		20.3	
Potassium	5360	J	4090	J	2510	J	1100	J	1290	J	3100	J	2610	J	2000	J
Selenium	1.7	J	1.6	J	1.4	J	<2.8			R		R	0.49	J	<2.8	
Sodium	164	J	259		209		67.2		166		1820		133		120	
Thallium	<2.2		<2.2		<2.2		0.22		<2.2		0.24	J	<2.2		<2.2	
Vanadium	49.3		34.2	J	24.4	J	<36.6		14.6	J	32.5	J	13.3		15.5	
Zinc	90.3	J	116		5630		35.1	J	144		146		<5.3		131	J
Cyanide	<10		<10		270	J	<10		<10		<10		<10		<10	

J = Estimated value, analyte detected below contract required detection limits or qualified by data validation.
R = Value rejected by data validation.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS). The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilin.wq1 p 3 of 6

Table A-6 (continued).
SOIL INORGANIC RESULTS

Analysis (mg/kg)	Sample Identification PF6-4		PS1-0		PS1-10		PS2-4		PS2-10		MWF1-0		MWF2-4		MWF2-22	
Aluminum	32300	J	15200	J	27200	J	34000		30800		9400	J	25900	J	53200	J
Antimony		R		R		R	<35.6			R	4.8	J		R		R
Arsenic	<3		7.8	J	10.5	J	3.6		2.9		<3		<3		<3	
Barium	227	J	219	J	175	J	96.3	J	175	J	56.9	J	153	J	249	J
Beryllium	1.6		1.3		1.3		1.2		1.2		0.4		1.3		2	
Cadmium	0.75		0.76		0.45		<3.8		<3.8		0.93		<3.8		1.5	
Calcium	6820		40400	J	42600	J	61500		55200		93100		58200		16200	
Chromium	41.6	J	27.4		38.5		43.3	J	39	J	13.9	J	32.8	J	57.2	J
Cobalt	20.3		9.1		17.6		16.6		15.9		5.7		16.1		25.6	
Copper	77.8	J	22.1	J	24.2	J	26.3		25.3		24.2	J	23	J	39.3	J
Iron	46300	J	26300	J	33900	J	36800	J	36100	J	14700	J	34400	J	54700	J
Lead	514	J	55.3	J	13.1	J	10.7	J	11.3	J	92.6	J	195	J	93.7	J
Magnesium	9870		11700	J	15600	J	19200		20600		43900		16300		16400	
Manganese	385		808		576		602	J	639	J	394		710		528	
Mercury	<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		122	J	<0.1	
Nickel	45.1		20.8		35.5		38.5		38.6		14.9		34.1		56.5	
Potassium	7200	J	3110	J	5590	J	8070	J	7870	J	1980	J	6420	J	8140	J
Selenium	<2.8		0.34	J		R	<2.8		<2.8		<2.8		<2.8		<2.8	
Sodium	207		194		273		278		409		95.9		215		221	
Thallium	<2.2		<2.2		<2.2		0.3		<2.2		<2.2		<2.2		<2.2	
Vanadium	53.5		30	J	40.2	J	47.3		43.9		12.4		39.5		66.2	
Zinc	121	J	107		76.3		81.8	J	80.3	J	115	J	77.6	J	212	J
Cyanide	<10		<10		<10		<10		<10		<10		7.6		<10	

J = Estimated value, analyte detected below contract required detection limits or qualified by data validation.
R = Value rejected by data validation.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS). The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilin.wq1 p 4 of 6

Table A-6 (continued).
SOIL INORGANIC RESULTS

Analysis (mg/kg)	Sample Identification MWF2-26		MWF4-0		MWS1-2		MWS1-10		MWS2-2		MWS2-10		MWS3-8		MWS3-12	
Aluminum	26500	J	3690	J	6060	J	13600	J	24500		18400		14900	J	12700	J
Antimony		R		R		R		R		R	<35.6			R		R
Arsenic	<3		<3		8	J	0.61	J	4.8		5		9.6	J	4.7	J
Barium	96.3	J	14	J	62.9	J	146	J	171	J	144	J	120	J	122	J
Beryllium	1.3		0.22		0.79		1.2		1.1		0.7		0.81		0.83	
Cadmium	0.77		0.46		1.6		0.51		<3.8		<3.8		0.62		0.74	
Calcium	54300		183000		3170	J	91100	J	54300		27100		24200	J	73800	J
Chromium	36.9	J	5	J	<3		35.2		32.4	J	24.2	J	26.2		24.9	
Cobalt	17.7		2.3		8		13.3		15.3		9.8		9.7		9.3	
Copper	23.8	J	24.3	J	59.4	J	37.5	J	25.1		42.6		30.1	J	19.9	J
Iron	36300	J	733	J	31500	J	22200	J	33200	J	22900	J	22600	J	19200	J
Lead	14	J	52.4	J	76.1	J	18.3	J	14.1	J	481	J	56.1	J	18	J
Magnesium	15900		92300		1130	J	32700	J	19700		12000		10300	J	23500	J
Manganese	582		440		453		648		646	J	339	J	507		532	
Mercury	<0.1		<0.1		0.15		<0.1		<0.1		0.88		<0.1		<0.1	
Nickel	36.9		8		21.1		33.5		36.1		20.3		21.2		21.9	
Potassium	7420	J	1190	J	1010	J	2940	J	5660	J	2820	J	2280	J	2400	J
Selenium	<2.8		<2.8		0.47	J		R	0.52	J	<2.8		0.42	J	49.8	J
Sodium	190		79.2		272		342		204		152		137		178	
Thallium	<2.2		0.28		<2.2		<2.2		0.3		0.23		<2.2		<2.2	
Vanadium	40.4		<36.6		18.8	J	26.5	J	38.6		31.3		29.9	J	25.3	J
Zinc	92.8	J	<5.3		343		115		85.3	J	188	J	96.4		71.3	
Cyanide	<10		<10		<10		<10		3.5	J	1.7	J	<10		<10	

J = Estimated value, analyte detected below contract required detection limits or qualified by data validation.
R = Value rejected by data validation.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS). The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilin.wq1 p 5 of 6

Table A-6 (continued).
SOIL INORGANIC RESULTS

Analysis (mg/kg)	Sample Identification MWS3-32		MWS4-4		MWS4-10	
Aluminum	16300	J	6340		25000	
Antimony		R		R		R
Arsenic	<3		8.4		3.9	
Barium	115	J	2070	J	158	J
Beryllium	0.8		0.69		1.1	
Cadmium	0.71		<3.8		<3.8	
Calcium	76100		13500		42200	
Chromium	20.2	J	<3		38.4	J
Cobalt	11		9.5		15.7	
Copper	19	J	51		23.1	
Iron	23500	J	18200	J	41300	J
Lead	9	J	64.9	J	16.5	J
Magnesium	29800		1020		12700	
Manganese	524		975	J	786	J
Mercury	<0.1		<0.1		<0.1	
Nickel	22.3		13.4		34.9	
Potassium	4560	J	424	J	4870	J
Selenium	3.4	J	1.2	J	<2.8	
Sodium	202		149		127	
Thallium	<2.2		<2.2		<2.2	
Vanadium	21.6		12.2		52.3	
Zinc	70.6	J	273	J	75.6	J
Cyanide	<10		187	J	<10	

J = Estimated value, analyte detected below contract required detection limits or qualified by data validation.
R = Value rejected by data validation.
Sample identifications are from the numbered soil borings (SB), near-surface fill wells or piezometers (MWF or PF), and lower sand wells or piezometers (MWS or PS). The second half of the sample identification refers to the top of the two-foot interval the sample was obtained from.
soilin.wq1 p 6 of 6

Table A-7. Results of grain-size analysis.

Installation	Depth of Sample (ft)	Depth of Screened Interval	Gradation Analysis			Sample Description
			Grav (%)	Sand (%)	Silt/Clay (%)	
MWS-2	79.0-81.0	74.5-84.5	1.2	92.4	6.4	f/c Sand, tr. Silt, tr. Gravel
MWS-3	78.5-80.5	73.5-83.5	46.8	41.8	11.4	Gravel and f/c Sand, tr. Silt, tr. Clay
MWS-4	74.0-76.0	72.0-82.0	28.5	60.3	11.2	f/c Sand, some Gravel, tr. Silt, tr. Clay

Note: (1) f/c is fine to coarse
(2) tr. is trace

Table A-8. Results of Shelby tube analysis.

Installation	Depth of Sample (ft)	Depth of Screened Interval	Perm. (ft/day)	Sample Description
MWS-2	44.0-46.0	74.5-84.5	1.4×10^{-4}	Clay, s. Silt, little f/c Sand
MWS-3	48.5-50.5	73.5-83.5	5.4×10^{-5}	Clay and Silt, little f/c Gravel, tr. f/c Sand
PS-1	34.0-36.0	35.0-45.0	1.2×10^{-3}	Clay, s. Silt, tr. f. Gravel, tr. f. Sand

Note: (1) s. is Sand
(2) f/c is Fine to Coarse
(3) tr. is Trace
(4) f. is Fine

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date DRY

Boring Number SB-1
Date Started 4-7-92
Date Completed 4-7-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 1 of 2
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.5	16-42-29-20 (71)	Gravel fill material.	Air Mont:(HNu,CGI) of sample (BG, 0%)
2	2-4	S2	0.5	9-41 100/3"	Same as above.	(BG, 0%)
4	4-6	S3	1.8	5-12-7-8 (19)	0-10" Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), wet, some gravel. 10-20" Gravel fill, grayish black (N2), moist, slightly oily.	(BG, 0%) Chemical sample from S3 Sample ID SB1 4-6. Slight odor to the gravel fill.
6	6-8	S4	1.8	1-3 4-4 (7)	Fat Clay w/ Gravel and construction debris, (CH), olive brown and gray (N5).	(BG, 0%)
8						

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date DRY

Boring Number SB-1
Date Started 4-7-92
Date Completed 4-7-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 2 of 2
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	8-10	S5	1.0	3-2-3-4 (5)	Same as S4, moderate yellow brown (10 YR 5/4), moist.	(BG,0%)
10	10-12	S6	1.0	3-8-4-8 (12)	Similar to above, S5.	(BG,0%) Chemical sample SB1 10-12.
12	12-14	S7	0.5	50/2"	Construction debris, thin blk watery covering on red overlying brick.	(BG,0%) At 12' "soupy" cutting returns. At 13' rough drilling, hitting some kind of obstruction.
14	14-16	S8	0.5	100/3"	Gravelly Silty Clay, (CL-ML), gray black (N2), wet, loose.	(BG,0%) Slight oily sheen to wet sediments. At 15' could not get past an obstruction. End boring total depth 15.5'. Borehole abandoned w/bentonite grout. Poured thru the augers prior to removing the augers.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date 11 ft. bgs on 4-8-92

Boring Number SB-2
Date Started 4-8-92
Date Completed 4-8-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 1 of 2
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.0	9-14 -30 (44)	Construction fill and gravel, moist.	Air Mont:(HNu,CGI) of sample: (BG, 0%)
2	2-4	S2	1.6	13-85- 42-27 (127)	0-6" Gravelly Clay, (CL-ML), medium gray (N6), moist. Possibly construction fill. 6-10" Red brick fragments. 10-19" Similar to 0-6" but black, (N1). Possibly asphalt-like fill.	(BG)
4	4-6	S3	0	7-16- 14-11 (30)	No recovery in the spoon. A wood fragment blocked the split spoon shoe.	Note: the first chem. sample will be from 6-8'.
6	6-8	S4	0.2	8-5 8-6 (13)	Clayey Gravel, (GP-GC), slightly oily covered, wet.	(BG, 0%) Chemical sample S2-6. Sample obtained at 13:35 but was noted on the bottle as 14:00. Insufficient sample volume. Will repush the same interval. Second spoon was driven from 7 to 9'.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 100
Water Level & Date 11 ft. bgs on 4-8-92

Boring Number SB-2
Date Started 4-8-92
Date Completed 4-8-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 2 of 2
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	0.4	4-6-5-7 (11)	Same as S4, wet.	Air Mont:(HNu,CGI) of sample: (15 ppm, 0.2%) Sample (BG) Borehole
10	10-12	S6	1.5	3-5-6-6 (11)	0-6" Lean Clay, (CL), dry, pale yellow brown (10 YR 4/2), stiff. 6-18" Same as S4, wet.	(20 ppm, 0%) Sample (BG) Borehole Chemical sample S2-10. State split sample for VOA, semi-VOA, and metals. From water line on drill rods, water at 11 ft.
12	14-14	S7	1.0	3-5-4-8 (9)	Gravelly Clay, (CL-ML), oil covered, grayish black, (N2), moist, some peat.	(1 ppm, 0%) switch to 1.5" spoons
14	14-16	S8	0.4	4-5-7-7 (12)	Peat, (PT), moderate brown (5 YR 4/4), dry, "oil rind" outside the sediments.	(BG,0%). Outside of the sample is oil soaked but the inside is not, possibly due to the inside of the split spoon is going thru an oily layer. Terminate boring at 16'. Borehole abandoned with bentonite grout.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date

Boring Number SB-3
Date Started 4-7-92
Date Completed 4-7-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 1 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.0	18-30 -31 (61)	Asphalt and gravel fill.	Air Mont:(HNu,CGI) of sample: (BG,0%)
2	2-4	S2	1.0	16-16- 12-11 (28)	0-6" Same fill. 6-12" Clay with Gravel, (CL), pale yellow brown (10 YR 6/2), dry, slight plastic.	(BG,0%) Using a 2.5" ID stainless steel split spoon.
4	4-6	S3	1.8	4-4- 4-6 (8)	0-8" Same as S2 6-12", dry. 8-12" Silty clay and gravelly fill, moist. 12-20" Same as 0-8" above, dry.	(BG,0%) Chemical analysis of sample SB3 4-6.
6	6-8	S4	1.5	18-18- 19-15 (37)	0-12" Covered construction debris. 12-18" Clay with gravel, (CL), pale yellow brown, (10 YR 6/2), dry with oil staining in the clay.	(5 ppm, 0%) of sample (3 ppm) in borehole Oily odor present.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date

Boring Number SB-3
Date Started 4-7-92
Date Completed 4-7-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 2 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	8-10	S5	1.5	8-19-22-27 (41)	Same as above S4 12-18". Oil staining in the clay matrix.	(20 ppm, 0%) of sample (2 ppm, 0%) in borehole Oily odor present.
10	10-12	S6	1.7	4-7-13-14 (20)	Same as above.	(5 ppm, 0%) of sample (1 ppm) in borehole Chemical sample taken SB3 10-12.
12	12-14	S7	1.8	7-9-12-14 (21)	Same as above, slightly more fat.	(5 ppm, 0%) of sample (BG, 0%) in borehole
14	14-16	S8	1.5	3-5-8-10 (13)	0-12" Same as S7. 12-16" Clay with fine Gravel, (CL) 16-18" Same as 0-12".	(5 ppm, 0%) of sample (BG, 0%) in borehole Switch to 1.5" split spoon.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date

Boring Number SB-3
Date Started 4-7-92
Date Completed 4-7-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 3 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	0	11-88-5 (93)	No recovery.	(BG, 0%) in borehole. No sample, split spoon was oil covered. Will terminate the boring here. Total depth drilled 14' Total sampled 16'. Borehole abandoned with bentonite cement, poured through the augers prior to removal
18						

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590 '
Water Level & Date

Boring Number SB-4
Date Started 4-9-92
Date Completed 4-9-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 1 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.5	41-52 -56 (108)	Gravel fill and construction fill.	Air Mont:(HNu,CGI) of sample: (BG,0%) Chemical sample taken from below the asphalt to 2', 0.5 to 2.0'. Sample S4-0. Split spoon from 0.5 to 2.0'.
2	2-4	S2	1.5	11-19-26-62 (45)	Clayey gravel fill, black (N1), and orange brown (10 YR 6/6), dry.	(BG, 0%)
4	4-6	S3	1.5	6-3-3-4 (6)	Fat Clay, (CH), pale yellow brown (10 YR 6/2), moist, intermixed with Clayey Gravel, (GC), gray (N2), moist to wet. Probable fill material.	(BG,0%)
6	6-8	S4	1.5	3-8-13-16 (21)	0-12" Fat Clay, (CH), pale yellow brown, (10 YR 6/2), dry, stiff. 12-18' Same as Clayey Gravel, (GC), above.	(BG,0%)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date

Boring Number SB-4
Date Started 4-9-92
Date Completed 4-9-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 2 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.5	2-4-10-16 (14)	Fat Clay w/ Gravel (CH), pale yellow brown (10 YR 6/2), with light olive gray (5 Y 5/2), moist with some gravel, bottom 6" is less fat, clay.	
10	10-12	S6	1.5	3-6-8-9 (14)	Similar to above, but with charcoal fragments in the plastic clay.	
12	12-14	S7	1.8	8-9-12-17 (21)	0-14" Same as above, moist. 14-20" Clay, (CL), black (N1), with wood fragments, moist to wet.	
14	14-16	S8	1.5	7-16-27-35 (43)	Lean Clay, (CL), pale yellow brown (10 YR 6/2), clay matrix is dry, secondary fractures in the clay have a white silty infilling, some of these are wet, very stiff.	(BG,0%) This is possible native soil.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590 FT.
Water Level & Date

Boring Number SB-4
Date Started 4-9-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
18	16-18	S9	1.8	13-24-37-46 (61)	Same as S8, Lean Clay, (CL), with white silty infilling, dry, trace sandstone pebble sand gravel, root holes present.	
20	18-20	S10	1.8	14-24-39-45 (63)	Similar to above. Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), dry, very dense, trace gravel.	Chemical sample S418. S420 is the duplicate of S418. Boring terminated at 20'. Borehole abandoned by pouring grout through the augers prior to removal

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date

Boring Number SB-5
Date Started 4-8-92
Date Completed 4-8-92
Drilling Method 4.25 HSA W/DIETRICK D5
Page Number 1 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	0.9	9-16 -8 (24)	Gravel fill.	Air Mont:(HNu,CG) of sample (BG, 0%) Only an 18' sample was drilled due to the first 6" being asphalt.
2	2-4	S2	0.8	6-11-19-18 (30)	0-8" Lean Clay, (CL), pale yellow brown (10 YR 6/2), dry, very stiff to hard plastic, trace gravel. 8-10" Clayey Gravel, (GP-GC), dark gray (N3), loose.	(BG, 0%)
4	4-6	S3	1.5	5-5-4-10 (9)	0-6" Sandy Lean Clay, (CL), pale yellow brown (10 YR 6/2), moist, stiff. Fine grained trace gravel at 6". 6-18" same as S2 0-8" Lean Clay, (CL), dry.	(BG, 0%) Chemical sample S5-4.
6	6-8	S4	1.5	5-11-10-13 (21)	0-5" Same as S3 6-18", moist. 5-12" Boulder debris w/clay, debris is "red brick" colored. 12-18" Lean Clay w/ Gravel,(CL), med gray (N4), moist, very stiff.	(10 ppm, 0%) Oily odor.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date

Boring Number SB-5
Date Started 4-8-92
Date Completed 4-8-92
Drilling Method 4.25 HSA W/DIETRICK D5
Page Number 2 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.8	5-11-15-17 (26)	0-18" Lean Clay, (CL), same as above dry. 18-22" Lean Clay with Gravel, (CL), oil stained, moist.	(20 ppm, 0%) Sample (1 ppm, 0%) Borehole Oily odor present.
10	10-12	S6	2.0	5-5-5-7 (10)	0-6" Lean Clay, (CL), pale yellow brown (10 YR 6/2), dry. 6-9" Gravel w/ Clay, (GP-GC), light gray (N7), oily film present. 6-16" Same as 0-6", dry. 16-18" Same a 6-9", oily film present. 18-24" Lean Clay w/ Gravel, (CL), dark gray (N8), moist, some oily film present.	Chemical sample SB5-10.
12	12-14	S7	1.5	3-3-5-5 (8)	Gravelly Fat Clay, (CH), pale brown (5 YR 5/2), moist, firm.	(1 ppm, 0%) Sample (1 ppm) Borehole Switched to 1.5" split spoons from 2.5" ID. Slight oily odor.
14	14-16	S8	1.5	2-4-4-5 (8)	Fat Clay w/ Gravel, (CH), pale brown (5 YR 5/2), moist firm.	(BG, 0%) Sample (1 ppm) Borehole

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date

Boring Number SB-5
Date Started 4-8-92
Date Completed 4-8-92
Drilling Method 4.25 HSA W/ DIETRICK D5
Page Number 3 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.5	5-5-6-4 (11)	0-6" Same as above. 6-18" Black Peat, (PT), grayish black (N2), moist.	(BG, 0%)
						Total depth 18'. Borehole abandoned by pouring bentonite grout through the augers and pulling the auges one at a time.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date ~ 6' BGS on 4-9-92

Boring Number SB-6
Date Started 4-9-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D5
Page Number 1 of 4
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.0	26-29-35-39 (64)	Gravel fill.	Air Mont:(HNu,CGI,Dust) of sample (BG)
2	2-4	S2	1.8	8-11-19-29 (30)	0-12" Lean Clay w/Gravel, (CL), pale yellow brown (10 YR 6/2), dry, stiff, root holes. 12-18" Charcoal wood fragments and clay, black (N1), dry. 18-21" Same as 0-12".	(BG)
4	4-6	S3	1.5	8-8-8-5 (16)	Construction debris and clayey gravel. Clayey gravel is grayish black (N2), moist with some clay light olive gray (5 Y 5/2).	(BG) Chemical sample is SB-4 water table ~ 6 ft. from water line on drill rods.
6	6-8	S4	1.8	3-6-9-11 (15)	0-6" Same as above. 6-18" Lean Clay, (CL), pale yellow brown same as S2 0-12". 18-20" Same as 0-6".	(BG)

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date ~ 6' BGS on 4-9-92

Boring Number SB-6
Date Started 4-9-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D5
Page Number 2 of 4
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.0	5-8-9-11 (17)	Same as above, more plastic, dry.	(BG)
10	10-12	S6	1.5	9-6-9-10 (15)	Same as above, slightly higher sand content, moist to wet.	Chemical sample S6-10.
12	12-14	S7	1.0	4-4-6-6 (10)	0-6" Same, moist. 6-9" Black wood fragments, moist. 9-12" Clayey gravel, (GC), pale yellow brown (10 YR 6/2), and black (N1), moist.	(1 ppm) Switch to 1.5" split spoons. water table ~ 6 ft. from water line on drill rods.
14	14-16	S8	1.0	3-5-8-9 (13)	Same as above.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date ~ 6' BGS on 4-9-92

Boring Number SB-6
Date Started 4-9-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D5
Page Number 3 of 4
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.0	4-4-5-6 (9)	Same w/ 8-10" clayey sand seam, grayish black (N2), wet, sand is fine to medium.	(BG)
18	18-20	S10	1.5	2-3-7-7 (10)	0-6" Clayey Sand, (SC), olive gray (5 Y 3/2), to pale yellow brown (10 YR 6/2), moist to wet, loose, and sand is fine to medium grained. 6-14" Peat (PT). 14-18" Same as 0-6".	(BG)
20	20-22	S11	1.8	4-7-14-14 (21)	Silty Clay, (CL-ML), dark yellow brown (10 YR 4/2), dry, very stiff.	(BG) Possibly native material.
22	22-24	S12	1.9	10-20-36-22 (56) (56)	Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), dry, very dense. Clay has numerous white possibly calcite infillings which some are moist. Trace gravel throughout.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590'
Water Level & Date ~ 6' BGS on 4-9-92

Boring Number SB-6
Date Started 4-9-92
Date Completed 4-9-92
Drilling Method 4.25" HSA W/ DIETRICK D5
Page Number 4 of 4
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	1.9	19-16-25-30 (41)	Same as S12.	(BG)
						Terminate borehole at 26 ft. Borehole abandoned w/ bentonite grout poured through the augers before removing the augers.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation - 590
Water Level & Date

Boring Number SB-7
Date Started 4-13-92
Date Completed 4-13-92
Drilling Method 4.25" ID HSA W/ CME 55
Page Number 1 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.8	5-12-15-15 (27)	Fill, clayey silt w/ some gravels, (ML), trace wood debris, trace brick dusky yellowish brown (10 YR 4/2), moist to slightly moist, very stiff.	Air Mont:(HNu,CGI) of sample. (BG) Chemical sample S7-0.
2	2-4	S2	0.3	11-11-15-10 (26)	Fill, silty lean clay, (CL), some gravels, pale brown (5 YR 5/2), slightly moist, very stiff.	(BG)
4	4-6	S3	1.5	10-13-17-22 (30)	Fill, same as 2-4'. Visual contamination throughout spoon, more odorous near shoe with black stained horizons.	(5 ppm above known background (akb)). Chemical sample S7-4. Duplicate collected S7-6, collected concurrently w/ S7-4. Both samples from same spoon. No archive.
6	6-8	S4	0.5	10-5-5-6 (10)	Fill, same as 2-4', strong odors present.	(20 ppm akb)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date

Boring Number SB-7
Date Started 4-13-92
Date Completed 4-13-92
Drilling Method 4.25" HSA W/ CME 55
Page Number 2 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.0	5-5-6-5 (11)	Lean clay, (CL), fill, trace wood chips, trace gravel, pale brown (5 YR 5/2), slightly moist, stiff. Zones of black staining, obvious odor, streaked zones of orange-brown odored, viscous liquid.	(100 ppm) fresh surface
10	10-12	S6	0.9	3-4-4-6 (8)	Fill, same as 8-10 with occasional smell, brick fragments (orange).	
12	12-14	S7	0.7	4-4 4-5 (8)	Same as 8-10.	
14	14-16	S8	1.2	3-4-4-5 (8)	Same as 8-10.	

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590
Water Level & Date

Boring Number SB-7
Date Started 4-13-92
Date Completed 4-13-92
Drilling Method 4.25 HSA W/ CME 55
Page Number 3 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.5	2-4-5-5 (9)	Fat Clay, (CH), grading down to lean clay with sharp contact below to clayey sands, little gravel, (CL-ML) fine grained, saturated, firm-stiff.	
18	18-20	S10	1.8	5-7-7-7 (14)	Fat Clay, (CH), massive, dark yellowish brown (10 YR 4/2), soft to firm. Sharp contact below to clayey sand, (GC), fine grained, saturated with black stained liquid/product.	(5 ppm) of sample. (2-5 ppm) inside augers (BG) in breathing zone.
20	20-22	S11	2.0	4-5-5-6 (10)	Peat, (PT), decaying cellulose material, laminated parallel to ground surface/platy. Dusky yellowish brown (10 YR 2/2), moist, sulfide odor, uniform material throughout.	(20 ppm, 1%) of sample. CGI >100% inside auger. After 1 hr. CGI = 40% inside augers.
22	22-24	S12	0.8	5-6-8-8 (14)	Same as 20-22, Peat, (PT), less platy, more prismatic, washed, saturated, uniform throughout. Some zones of product staining near shoe. Dark yellowish orange product on moderate yellowish brown (10 YR 5/4) matrix.	(180 ppm, 0%) of sample CGI 30% inside augers.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date

Boring Number SB-7
Date Started 4-13-92
Date Completed 4-13-92
Drilling Method 4.25 HSA W/ CME 55
Page Number 4 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	1.2	3-3-3-5 (6)	Lean Clay, (CL), with trace organic cellulose material, and silt, dusky yellowish brown (10 YR 2/2), very moist to wet, firm.	(40 ppm) CGI 2-4% inside augers.
26	26-28	S14	1.5	1-2-3-6 (5)	Clayey Silt, (ML), some organics (tree limbs, cellulose, peat), dark yellowish brown (10 YR 4/2), grading down to a Lean Clay, (CL), dark yellow brown (10 YR 4/2), moist.	(2 ppm)
28	28-30	S15	1.5	6-10-14-21 (24)	Same as in shoe of 26-28' spoon, Silty Lean Clay, (CL), dark yellowish brown (10 YR 4/2), moist, very stiff to hard, massive, homogeneous. One rounded cobble, occasional to trace fine gravels.	(2 ppm)
30	30-32	S16	1.5	21-21-18-24 (39)	Same as 28-30'. Native till.	(3 ppm) Terminated boring at 32 ft. BGS. Borehole abandoned w/ bentonite grout poured through augers prior to removal

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date ~ 10 ft. BGS

Boring Number SB-8
Date Started 4-13-92
Date Completed 4-14-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 3
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.5	14-15-17-20 (32)	Clayey Sand and Gravel, (SC), fine grained, pale brown (5 YR 5/2), slightly moist, dense, grading down to Silty Lean Clay, (CL), some gravel, moderate brown (5 YR 4/4), slightly moist, stiff.	Air Mont:(HNu,CGI) of of sample (BG)
2	2-4	S2	1.5	18-25-100/4"	Same as lower part of 0-2' with slightly more clay content, less silt, large cobbles. Zone of compressed platy material, black, resembling mica.	(0.5 ppm above known background (akb)). Slight odor in shoe.
4	4-6	S3	1.7	10-12-12-12 (24)	Clayey Sand and Gravel, (SC), trace debris (bricks, black), trace organics grading down to Silty Lean Clay, (CL), some gravel, moderate brown (5 YR 3/4), slightly moist, very stiff.	(5 ppm akb) Chemical sample S8-4. Slight creosole odor.
6	6-8	S4	0.9	4-3-6-7 (9)	Silty Clay, (CL-ML), trace gravel some fibrous wood zones, moderate brown (5 YR 3/4), saturated, very stiff. Completely saturated with irridescent sheen.	(160 ppm) Creosole odor very strong. Contaminated soil throughout spoon.
8						

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date ~ 10' BGS

Boring Number SB-8
Date Started 4-13-92
Date Completed 4-14-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 3
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.6	3-5-6-9 (11)	Same as 6-8' with discrete zones of clayey sands, fine grained, trace fibrous wood throughout.	(160 ppm) Sample contaminated w/ black and yellow brown product, especially in sand zones.
10	10-12	S6	1.4	7-12-12-16 (24)	Lean Clay, (CL), trace gravel moderate brown (5 YR 4/4), very moist, very stiff, heavily contaminated zone from 1.0'-1.2' above shoe where clay is less stiff with a slightly higher silt content.	(50 ppm) Noticeable visual contamination. Spoon exterior wet.
12	12-14	S7	1.3	7-13-14-15 (27)	Same as 10'-12' with a sandy zone of contamination in the center of recovery (0.2' wide).	(60 ppm) Visual contamination.
14	14-16	S8	1.7	6-20-11-11 (31)	Same as 10-12', grading down to a Clayey Sand, (SC), fine to medium grained, trace gravel, trace wood/ cellulose material, occasional cobbles (rounded), saturated with product in shoe, olive gray (5 Y 4/1), very stiff and dense.	(60 ppm) Visual contamination.
16						

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date ~ 10' BGS

Boring Number SB-8
Date Started 4-13-92
Date Completed 4-14-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 3
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.5	5-6-7-9 (13)	Lean Clay, (CL), little gravel, dark yellowish brown (10 YR 4/2), moist (spoon exterior/interior saturated) very stiff clay zones, 2 small seams of clayey gravels with some fine sand, saturated with product.	(55 ppm) Visible contamination present.
18	18-20	S10	1.0	5-7-7-9 (14)	Lean Clay, (CL), dark yellowish brown (10 YR 4/2), wet, very stiff with 4 seams of clayey gravel, some sand, trace wood/cellulose, each seam saturated with product. Product not present through massive clay zones.	(60 ppm) Product dripping out of spoon.
20	20-22	S11	1.0	4-6-6-5 (12)	Clayey Gravel, (GC), some sand, trace wood/cellulose. Saturated with dark reddish brown to black product. Loose matrix, no cohesion between aggregates.	(70 ppm) Boring terminated at 22 ft. Spoon augering ended at 20' BGS. Abandoned with bentonite grout poured through the augers before removing the augers.

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
OWater Level & Date ~ 8 ft. bgs on 4/12/92

Boring Number SB-9
Date Started 4-21-92
Date Completed 4-21-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 3
Logged By T. ROGERS

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.6	13-30-52-23 (82)	0-6" Topsoil, grass. Gravel, fill 13".	Air Mont:(HNu,CGI) of sample:
2	2-4	S2	1.5	13-18-18-18 (36)	Lean Clay, (CL), light yellow brown (10 YR 6/2), very dry, light inter-bedded minor gravel - 14". Clay Gravel, (GP-GC), dark gray (N3) loose, some silt and clay.	(BG)
4	4-6	S3	1.3	4-5-7-7 (12)	Sandy Lean Clay, (CL), light brown (5 YR 5/6) to red brown (10 R 4/6), moist, tight, very plastic, top 13". Sandy Gravel, (GM), black (N1), to dark gray (N3).	(4 ppm) bottom 3"
6	6-8	S4	1.9	3-3-4-7 (7)	0-6" Sandy Lean Clay, (CL), light brown (5 YR 5/6) to red (5 R 4/6), plastic. 6-9" Fill, sandy gravel, yellow green (5 GY 7/4). 9-23" Lean Clay, (CL), light brown (5 YR 5/6) to red (5 R 4/6), silt, tight clay, very stiff.	(25 ppm) Strong odor, visible sheen, visible contamination present.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date ~ 8 ft. bgs on 4/21/92

Boring Number SB-9
Date Started 4-21-92
Date Completed 4-21-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 3
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.7	7-7-10-4 (17)	0-3" Lean Clay, (CL), medium brown (5 YR 4/4) to red (5 R 4/6), wet, oil stained. 3-20" Fill, cinder, ash, white yellow (5 Y 8/4) to green (5 G 5/6). Gravel.	(25 ppm) Contamination present. Oily odor present. Ash fill with odor, contamination present.
10	10-12	S6	2.0	3-3-5-9 (8)	0-16" Fill, same as above, ash and cinder. 16-22" Silty Clay, (CL), brown red (10 R 4/6), very tight. 22-24" Well Graded Sand w/ Gravel, (SW), black (N1), to dark gray (N3).	Wet conditions effecting the HNu. (BG) visible contamination.
12	12-14	S7	1.6	5-5-7-18 (12)	0-13" Fill, cinder ash. 13-19" Silty Clay, (CL), medium brown (5 YR 4/4) to red (5 R 4/6), dry, stiff.	HNu down because of rain. Visible contamination.
14	14-16	S8	1.4	8-21-25-36 (46)	0-3" Fill, cinder ash 3-14" Silty Clay, (CL), medium brown (5 YR 4/4) to yellow (5 Y 7/6), dry, very stiff. 14-17" Silty Sand, (ML), medium brown (5 YR 4/4) to light red (5 R 4/6).	Visible contamination HNu effected by the rain.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date ~ 8 ft. bgs on 4/21/92

Boring Number SB-9
Date Started 4-21-92
Date Completed 4-21-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 3
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.9	12-26-37-50/3" (63)	Fat Clay, (CH), with gravel, pale brown (5 YR 5/2), to yellow brown (10 YR 5/4), moist, firm, very stiff	(BG)
18						Boring terminated at 18 ft. Abandonded with grout poured through the augers before removing the augers.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590
Water Level & Date

Boring Number SB-10
Date Started 4-22-92
Date Completed 4-22-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 2
Logged By T. ROGERS

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.2	16-59-50/2"	0-5" Topsoil, grass. 5-10" Fill, gravel.	Air Mont:(HNu,CGI) of sample: (BG)
2	2-4	S2	1.7	12-12-13-23 (25)	0-15" Fill, cinder ash, yellow (5 Y 7/6) to gray (N5), to black (N1), friable. 15-20" Sandy Silt with Gravel, (GM), orange (10 R 6/6) to medium brown (5 YR 3/4).	(BG)
4	4-6	S3	1.2	18-9-8-9 (17)	0-7" Gravel with some Sand, (GP), medium gray (N6), to orange (10 R 6/6). 7-14" Silty Clay, (CL), with clear (calcite ?) crystals, medium brown (5 YR 4/4), to orange (10 R 6/6), to gray (N5). 14-15" Gravel, (GP), light gray (N7) to pale yellow brown (10 YR 6/2).	(BG)
6	6-8	S4	1.7	6-9-7-4 (16)	0-8" Silty Clay, (CL), medium brown (5 YR 4/4) to light red brown (10 R 5/4), moderately stiff. 8-20" Fill, cinder, ash, with gravel at base, white (N7), to moderate reddish orange (10 R 6/6).	(BG)

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590 FEET
Water Level & Date

Boring Number SB-10
Date Started 4-22-92
Date Completed 4-22-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 2
Logged By T. ROGERS

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.2	9-7-14-15 (21)	0-7" Fill, cinder ash, light gray (N7), to white (N9). 7-14" Silty Clay, (CL), medium brown (5 YR 4/4) to red brown (10 R 4/6), moderately dry, moderately stiff. Dark thin bands.	(70 ppm) Visible staining, odor, soil contamination present.
10	10-12	S6	1.4	2-5-11-17 (16)	Fill, gravel debris, broken porcelen rubber fragments, coal tar brown/ black blobs, very oily.	(130 ppm) Strong odor, visible contamination present.
12	12-14	S7	1.6	7-20-37-50/4 (57)	Silty Clay, (CL), medium brown (5 YR 4/4), very dry lean clay, very stiff.	(BG) Boring terminated at 14 ft. Abandoned with grout poured through the augers before removing the augers.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590 FT.
Water Level & Date

Boring Number SB-11
Date Started 5-05-92
Date Completed 5-05-92
Drilling Method TRIPOD/SNATCH BLOCK
Page Number 1 of 2
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.5	4-4-6-7 (10)	0-6" Top soil and grass vegetation. 6-1.5' Silty Sand, (SM), little gravel, little slag/cinders, grayish black (N2), damp, loose. 1.5-2' Silty Clay, (CL), lean, little gravel, moderate brown (5 YR 3/4), moist, stiff, fill.	Air Mont:(HNu,CGI) of sample: (0.4 ppm above known background (akb))
2	2-4	S2	0.5	6-6-7-8 (13)	Silty Clay, (CL), lean, little gravel, moderate brown (5 YR 3/4), moist, stiff, fill.	(75 ppm) of sample. No distinctive odor.
4	4-6	S3	1.2	10-9-10-12 (19)	Silty Clay, (CL), lean, some gravel, trace wood, cinders/slag, brick, pale brown (5 YR 5/2), moist, stiff, fill.	(32 ppm) of sample. No distinctive odor.
6	6-8	S4	1.5	8-9-6-5 (15)	6-6.5' Same as 4-6'. 6.5-8' Sharp contact to Clayey Gravel, (GC), and fly ash, some sand well graded, medium light gray (N6), wet, loose, fill.	(7 ppm) of sample. (12 ppm) of sample. Slight petroleum odor.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590 FT.
Water Level & Date

Boring Number SB-11
Date Started 5-05-92
Date Completed 5-05-92
Drilling Method TRIPOD/SNATCH BLOCK
Page Number 2 of 2
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.0	4-5-5-5 (10)	8-8.5′ Same as 6.5-8′. 8.5-10′ Silty Gravel, (GM), some sand, well graded, trace fly ash, light gray (N7), with brownish/burnt orange product, saturated, loose.	(85 ppm) of sample. Contamination present, 0.5′ thick, from 9.4-9.9′ bgs, saturated w/ product. Silty clay in shoe. Till.
10	10-12	S6	0.4	4-4-4-4 (8)	10-11′ Gravel wash same as 8.5-10′. 11-12′ Silty Clay, (CL), lean, trace gravel, moderate brown (5 YR 4/4) w/ small streaked zones/lenses of light olive gray (5 Y 6/1) staining, moist very stiff.	Spoon retrieved saturated with water and product (burnt orange to black product plus sheen). Gravel wash same as 8.5-10.0′ bgs. 11-12′ no obvious contamination. Till.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
CLient Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 589.13
Water Level & Date 579.8 ft. above MSL, 5/18/92

Boring Number MWS-1
Date Started 4-9-92
Date Completed 4-10-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 6
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.7	12-15-23-18 (38)	Sand and gravel fill, brown (5 YR 4/4) and gray (N5), moist.	Air Mont:(HNu,CGI) of sample: HNu effected by the high humidity, CGI 0%.
2	2-4	S2	1.7	4-7-12-8 (19)	Gravel fill, cinders with plastic clay bands, brown (5 YR 4/4), and gray (N5).	Strong odor with sheen. CGI 0%.
4	4-6	S3	1.7	4-9-11-8 (20)	Gravel fill with slag material, brown (5 YR 4/4), and gray (N5), moist.	Strong odor with sheen. CGI 0%.
6	6-8	S4	1.5	12-16-12-15 (28)	Silty Clay, (CL), with pieces of coal and rock fragments, brown (5 YR 4/4), moist.	CGI 0%.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 589.12
Water Level & Date 579.8 ft. above MSL, 5/18/92

Boring Number MWS-1
Date Started 4-9-92
Date Completed 4-10-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 6
Logged By J. MOFFITT

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.8	7-22-40-42 (62)	Same as above, but clay more homogenous.	Air Mont:(HNu,CGI) of sample: HNu effected by the high humidity, CGI 0%.
10	10-12	S6	1.7	18-20-22-40 (42)	Clay, (CL), moderate brown (5 YR 3/4), with gray streaks, few rock pebbles, moist, till.	
12	12-14	S7	1.9	3-12-18-22 (30)	Same as above.	
14	14-16	S8	1.9	17-28-36-37 (64)	Same as above.	

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 589.13
Water Level & Date 579.8 ft. above MSL, 5/18/92

Boring Number MWS-1
Date Started 4-9-92
Date Completed 4-10-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 6
Logged By J. MOFFITT

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.8	15-29-44-50 (73)	Same as above.	Air Mont:(HNu,CGI) of sample: (BG, 0%)
18	18-20	S10	1.8	3-40-39-37 (79)	Same as above.	(BG, 0%)
					Moved over 5' and augered with 8.25" to set 10" steel casing at 20'. Moved to avoid possibly hitting a nearby water line.	Pulled auger plug from augers at 20'. Clay was contaminated, very strong odor, HNu=20 ppm next to plug. Air breathing space was 5-7 ppm; after 20 min was BG level. Did not start grouting inside augers until a fan and level B equip. could be obtained due to possibility of strong contamination on augers when they are removed after grouting. Set 10" surface casing to 20'.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 589.13
Water Level & Date 579.8 FT. ABOVE MSL, 5/18/92

Boring Number MWS-1
Date Started 4-27-92
Date Completed 4-28-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 4 of 6
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
20	20-22	S11	1.2	65-6-10-12 (16)	20-20.5' Gravel, (GW), and sand with rock fragments, dark greenish gray (5 GY 4/1), saturated, loose. 20.5-22' Silty Clay, (CL), lean, trace gravel, dark yellowish brown (10 YR 4/2), moist, stiff.	(0.2 ppm above known background (akb)) (7 ppm akb)
25	25-27	S12	2.0	10-8-10-12 (18)	Silty Clay, (CL), trace sub-rounded gravel, pale brown (5 YR 5/2), moist stiff, massive, homogeneous.	(2.5 ppm akb)
30	30-32	S13	2.0	4-4-6 (10)	Same as 25-27' but not as lean. Firm consistency.	(1.2 ppm akb) Spoon driven 18", clay expanded to 24" inside spoon.
35	35-37	S14	2.0	2-2-4 (6)	Same as 30-32' with some zones of light olive gray staining (5 Y 6/1). Not as firm as 30-32', more fat.	(0.5 ppm akb)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 589.13
Water Level & Date 579.8 FT. ABOVE MSL, 5/18/92

Boring Number MWS-1
Date Started 4-27-92
Date Completed 4-28-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 5 of 6
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
40	40-42	S15	2.0	2-3 -3 (6)	Same as 35-37'.	(0.2 ppm akb)
45	45-47	S16	2.0	5-6 -7 (13)	Same as 30-32', but with more gravel (little gravel), lack of gray stained zones.	(BG)
50	50-52	S17	2.0	5-5 -6 (11)	Same as 30-32', but with occasional light olive gray zones of staining.	(BG) Lack of standing water 4/28/92 a.m. inside HSA
55	55-57	S18	2.0	7-5 -8 (13)	Same as 25-27'.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 589.13'
Water Level & Date 579.8 FT. ABOVE MSL, 5/18/92

Boring Number MWS-1
Date Started 4-27-92
Date Completed 4-28-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 6 of 6
Logged By TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
60	60-62	S19	1.5	12-14--20 (34)	60-60.5' Same as 55-57'. 60.5' Sharp contact to a Clayey Sand (SC), and silt, little to trace gravel, fine grained, pale brown (5 YR 5/2), moist, stiff, with two small seams of loose fine grained sand, no clay, no gravel, moist.	(BG)
65	65-67	S20	2.0	WOR-5 -8 (13)	65-65.5' Same as 30-32'. 65.5' Sharp contact to Clayey Sand, (SC), and silt, fine grained, pale brown (5 YR 5/2), wet, firm, grading down to Clayey Sand, (SC), some gravel, little silt, medium grained, brownish gray (5 YR 4/1), compact, wet, subrounded to subangular limestone gravels.	(BG)
70	70-72	S21	0.4	29-100/2"	Sandy Gravel, (GM), little silt, fine to coarse grained, occasional cobble, pale yellowish brown (10 YR 5/2), saturated, compact. (6" auger wash).	(BG) Center plug pulled dripping wet.
75	75-77	S22	0.2	100/2"	Same as 70-72' with more cobbles/ rock fragments. Bedrock at 72.3'.	Total depth 72.3'. Well Screen 67.3-72.3'. Sand Pack 65.3-72.3'. Bentonite Seal 63.3-65.3'. Grout Sand 0-63.3'.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.03
Water Level & Date 578.0 ft. above MSL, 5/18/92

Boring Number MWS-2
Date Started 4-8-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 7
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.2	8-10-11-15 (21)	Silty clay fill with rock fragments and pieces of brick, brown (5 YR 2/2), moist.	Air Mont:(HNu,CGI) of sample: (0, 0%)
2	2-4	S2	1.2	9-8-11-16 (19)	Silty Clay, (CL), brown (5 YR 2/2), moist, dark stains, black band with gravel at 2.5-3.1', glass, wood, and rock fragments, also cinders in this zone.	(1 ppm, 0%) Strong odor.
4	4-6	S3	1.2	11-12-7-10 (19)	Silty Clay, (CL), same as above with dark contaminated zones.	(1 ppm, 0%) Strong creosole-type odor.
6	6-8	S4	1.2	7-2-11-14 (13)	Silty Clay, (CL), same as above.	(1 ppm, 0%) Strong odor.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.03
Water Level & Date 578.0 ft. above MSL, 5/18/92

Boring Number MWS-2
Date Started 4-8-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 7
Logged By J. MOFFITT

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.3	8-8-10-12 (18)		Air Mont:(HNu,CGI) of sample: (1 ppm, 0%)
10	10-12	S6		7-6-8-15 (14)	Same as above with several dark bands of rock fragments and carbonaceous material.	2' of water in hole at 10'. Strong odor.
12	12-14	S7	0.5	2-2-3-2 (5)	Lean Clay, (CL), possibly fill, dark gray (N4), very wet.	(1 ppm, 0%)
14	14-16	S8	0.5	3-3-9-3 (12)	Clay fill, with pieces of brick and rock fragments.	(1 ppm, 0%)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.03
Water Level & Date 578.0 ft. above MSL, 5/18/92

Boring Number MWS-2
Date Started 4-8-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 7
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	0.7	3-4-4-6 (8)	Same as above.	(1 ppm, 0%)
18	18-20	S10	0.7	3-2-2-3 (4)	Fill, wood chips or peat, yellowish brown (10 YR 5/4), wet, soft.	(1 ppm, 0%)
20	20-22	S11	0.5	2-2-2-2 (4)	Top 3" same as above. Base 3" Lean Clay, (CL), and rock fragments, dark, wet, staining.	(1 ppm, 0%) Strong odor.
22	22-24	S12	1.3	WOH	Silty Clay, (CL-ML), dark gray (N4), rock fragments, stains.	(2 ppm, 0%) Strong odor.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.03
Water Level & Date 578.0 ft. above MSL, 5/18/92

Boring Number MWS-2
Date Started 4-8-92
Date Completed 4-9-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 4 of 7
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	1.3	1-10-16-20 (26)	Lean Clay, (CL), brown (5 YR 4/4), moist, dense, light gray streaks	(BG, 0%)
26	26-28	S14	1.6	25-18-30-34 (48)	Same as above.	(BG, 0%)
28	28-30	S15	1.8	21-25-30-32 (55)	Same as above.	(BG, 0%)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.03
Water Level & Date 578.0 ft. above MSL, 5/18/92

Boring Number MWS-2
Date Started 4-23-92
Date Completed
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 5 of 7
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
35	34-36	S16	2.0	3-3-4-4 (7)	Fat Clay, (CH), light medium gray (N6), to pale yellow brown (10 YR 6/2), moist, soft, firm. Some varves.	Set 10 inch surface casing to 34 feet.
40	35-41	S17	2.0	WOH-1-2-3 (3)	Fat Clay, (CH), same as above, some sand and trace gravel.	
45	44-46	SH-1			Apparently the same as above. Logged from the bottom and top of the Shelby tube.	
50	49-51	S18	2.0	7-7-12-13 (19)	Similar, more lean, slightly moist, pronounced varves.	First gear on the rig transmission went down.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.03
Water Level & Date 578.0 ft. above MSL, 5/18/92

Boring Number MWS-2
Date Started 4-24-92
Date Completed 4-24-92
Drilling Method 4.25 HSA W/ CME 55
Page Number 6 of 7
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
55	54-56	S19	2.0	WOR from 30' up	Fat Clay, (CH), pale yellow brown (10 YR 6/2), with some medium light gray (N6), moist, soft, plastic.	Rods dropped the final 30'.
60	59-61	S20	2.0	10-11-14-13 (25)	Same as S18, varved, moist, sand is firm.	
65	64-66	S21	1.0	14-20-22-26 (42)	Silty Clay with Sand and Gravel, (CL-ML), greensih gray (5 G 6/1), to grayish yellow (5 GY 7/2), moist to dry, hard, sand is fine to medium grained, gravel appears to be limestone.	Gravel from this spoon is the same as the drive way stone.
70	69-71	S22	1.0	8-13-26-29 (39)	0-6" Silty Sand, (SC-SM), light olive gray (5 Y 6/1), wet, sand is fine grained. 6-12" Clayey Sand with Gravel, (SC), light olive gray (5 Y 6/1), wet, dense limestone gravel.	Gravel same as drive way stone.

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.03
Water Level & Date 578.0 ft. above MSL, 5/18/92

Boring Number MWS-2
Date Started 4-24-92
Date Completed 4-24-92
Drilling Method 4.25 HSA W/ CME 55
Page Number 7 of 7
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
75	74-76	S23	2.0	14-22-18-22 (40)	Poorly Graded Sand with Gravel, (SP-SC), light olive gray, (5 Y 6/1) dry to moist, dense.	No archive sample.
						Slow drilling at 78'.
80	79-81	S24	2+	90-100/5"	Poorly Graded Sand, (SP-SM), light olive gray (5 Y 6/1), wet, dense, sand is medium to coarse grained. Sand is composed of limestone fragments with some quartz grains.	Blow counts are not representative, spoon was pushed full. Rough drilling at 79'. Smother drilling at 80'
85	84-86	S25	2.0	100/2"	Same, fill up in the spoon from the previous interval.	No archive sample, same as S24. Washed out the augers with the roller bit. Top of rock is 84' as determined by drilling action. Total depth 86'. Well screen 74.5-84.5'. Sand 73-84.5'. Bentonite seal 18-73' (plus some cave in). Grout sand 0-18'.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1' above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-13-92
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.5	16-50 -50 (100)	Fill, gravel construction debris, "Graystone", dry to slightly moist.	Air Mont:(HNu,CGI) of sample: (BG, 0%).
2	2-4	S2	1.2	17-18-25-12 (43)	Fill, gravel construction debris, same as above, dry.	(BG)
4	4-6	S3	0.9	16-25-11-10 (36)	Fill, gravel construction debris, wet.	(BG)
6	6-8	S4	0.5	6-29-38-22 (67)	Lean Clay with Gravel, (CL), pale yellow brown (10 YR 6/2), dry, hard.	(BG)

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1 ft. above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-13-92
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.5	9-12-15-10 (27)	Same as S4, less gravel, slightly moist to dry.	(BG) Chemical sample MS3-8. Also MS/MSD-1. No archive sample, insufficient sample volume.
10	10-12	S6	1.5	5-5-8-5 (13)	Same, bottom 6" is moist to wet.	Note: on 4/14 water level was ~ 10' bgs overnight. Odor from the split spoon and borehole. (15 ppm) Sample. (0.5 ppm) Borehole.
12	12-14	S7	1.5	6-8-13-13 (21)	Similar to above, oily staining, oily odor present in two distinct bands of wood fragments at 4-6" and 12-14".	Chemical sample MS3-12. State split sample will take a third chemical sample below visual contamination. Begin using engineering control of 1500 cfs fan
14	14-16	S8	0.9	14-14-18-18 (32)	Lean Clay, (CL), pale yellow brown (10 YR 6/2), dry, hard, trace gravel	(BG)

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1 ft. above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-13-92
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.5	17-10-13-10 (23)	0-4" Same, moist. 4-10" Wood chips and fragments, moist to wet.	(0.5 ppm)
18	18-20	S10	1.5	9-10-11-12 (21)	Clayey Sand, (SC), pale olive (10 Y 6/2), moist to wet, medium, grained, some gravel and construction debris.	(BG) slight odor.
20	20-22	S11	0.8	36-41-40 50/4" (81)	Similar to S10, more clay. Sandy Lean Clay, (CL), pale olive (10 Y 6/2), wet, hard, with gravel.	(BG) Water at 15', as noted on the drill rods. Water level is rising.
22	22-24	S12	0.6	31-27-16-10 (43)	0-3" Same as S11, wet. 3-7" Slightly cemented fine to medium grained sand, gray black (N2) dry.	(5 ppm) for 0-3" (BG) for 3-7".

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1 ft. above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-13-92
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 4 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	0.5	15-18-22-10 (40)	Similar to S12 with gravel, wet.	(BG)
26	26-28	S14	1.8	5-20-18-18 (38)	0-4" Gravelly Clay, (CL), similar to above, oily sheen present, slight odor, wet. 4-16" Same as S13. 16-22" Wood fragments, strong odor, moist to wet (highest HNu readings).	(5-20 ppm).
28	28-30	S15	1.5	6-8-7-15 (15)	0-12" Fat Clay, (CH), light gray (N7), dry to moist, stiff, some gravel present. Slight organic odor 12-18" Fat Clay, (CH), moderate brown (5 YR 4/4), dry to moist, stiff, slight organic odor.	(BG)
30	30-32	S16	1.8	5-7-8-8 (15)	Same as S15 12-18" dry to moist.	(BG) Slight odor, however, the outside of the spoon sample has a gray mud covering probably from the water present in the borehole.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1 ft. above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-13-92
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 5 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
32	32-34	S17	1.8	8-14-14-14 (28)	Same, dry to moist.	Chemical sample MS3-32. (BG)
34	34-36	S18	2.0	8-10-10-8 (20)	0-12" Sandy Fat Clay, (CH), pale yellow brown (10 YR 6/2), wet, stiff 12-24" Same as S17.	(BG) Will ream out borehole with 8.25" HSA to 34', then push 10" steel casing to 35' (+1 to 35 feet bgs).

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1 ft. above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-21-92 LOWER SAND DRILL
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 6 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
35					For last sample see previous boring log.	
40	38.5-40.5	S19	2.0	5-6-6-7 (12)	Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), moist, stiff, very plastic, some sand, a thin sandy clay seam at 20-22".	(BG)
45	43.5-45.5	S20	2.0	4-5-6-9 (11)	Silty Clay, (CL-ML), same as above, some trace gravel, moist.	
50	48.5-50.5	SH1	2.0			Shelby Tube.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1 ft. above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-21-92
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 7 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
55	53.5-55.5	S21	2.0	5-8-16-12 (24)	Similar to above, moist, pronounced varved intervals ~ 1-2" thick.	
60	58.5-60.5	S22	2.0	17-17 24-27 (41)	Similar to above, more stiff and drier, less moist.	
65	63.5-65.5	S23	1.5	9-10 -8 (18)	Same as S20, with a dry sandy clay seam ~ 1" thick at 2-3" from the top of the spoon, light gray color. is fine to medium grained, light gray, wet.	Switched to driving 18" spoons.
70	68.5-72.5	S24	1.5	7-10 -10 (20)	Similar to above, Fat Clay with Sand (CH), pale yellow brown (10 YR 6/2), moist to wet, stiff, varved. Sand is fine to medium grained, light gray, wet.	

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.11
Water Level & Date 580.1 ft. above MSL, 5/18/92

Boring Number MWS-3
Date Started 4-21-92
Date Completed 4-23-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 8 of 8
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
75	73.5-75.5	S25	1.0	14-17-20 (37)	Clayey Gravel with Sand, (GC-GM), pale yellow brown (10 YR 6/2), moist to wet, dense.	~ 74' begin rough drilling. "Wash up" into the augers ~ 20' of running medium to coarse sand.
80	78.5-80.5	S26	1.0	29-100/6 (109)	Poorly Graded Gravel, (GP), medium gray (N5), wet, very dense. The gravel is medium to very coarse. Some small boulders, subangular to angular. Material is probably limestone and dolomite with some shale and quartz.	Grain size sample, no archive. At ~ 80' rough drilling. At 82' less rough. At 82.5' rough to very rough drilling. 15 minutes to drill from 81-83.0'.
85	83.0-85.0	S27	1.0	100/0"	0-6" Same as above. 6-12" Weathered bedrock. Gray limestone or dolomite with white silty infilling, possibly calcite.	Total depth is 84'. Screen Interval 73.5-83.5'. Sand Pack 71.5-83.5'. Bentonite Seal 64.0-71.5'. Grout Seal 0-64'.

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.19
Water Level & Date 577.6 ft. above MSL, 5/18/92

Boring Number MWS-4
Date Started 4-6-92
Date Completed 4-20-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 7
Logged By J. MOFFIT

Depth BGS (ft)	Sample Interval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.5	7-5-9-7 (14)	Fill, coarse sand, moderate brown (5 YR 3/4), moist. Wet at 2'. Rock and wood fragments present.	Air Mont:(HNu,CGI) of sample: (3 ppm, 0%).
2	2-4	S2	1.2	11-14-15-18 (29)	Sand, (SP), moderate brown (5 YR 3/4), moist to wet, coarse gr. 3.5-4' Lean Clay, (CL).	(BG, 0%)
4	4-6	S3	1.3	12-12-16-20 (28)	Cinders, dark gray (N3), to black (N1), coarse grained.	(BG, 0%)
6	6-8	S4	1.3	8-8-9 (17)	Silty Clay, (CL-ML), moderate brown (5 YR 3/4), moist to wet, very coarse grained. Cinders and rock fragments present. Cinders present in lower half foot of the spoon.	(BG, 0%)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.19
Water Level & Date 577.6' above MSL, 5/18/92

Boring Number MWS-4
Date Started 4-6-92
Date Completed 4-20-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 7
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.6	4-3-4-5 (7)	Silty Clay, (CL-ML), dark gray (N3), moist to wet, coarse cinder bands and rock fragments, very dense.	Air Mont:(HNu,CGI) of sample: (2 ppm, 0%)
10	10-12	S6	1.3	2-3-6-5 (9)	Silty Clay, (CL-ML), dark gray (N3), moist to wet, dense, very plastic, rock fragments present.	(2 ppm, 0%) Slight odor present.
12	12-14	S7	1.2	4-10-12-18 (22)	Silty Clay, (CL-ML), moderate brown (5 YR 3/4), with dark gray streaks (N3), dense, plastic, stiff.	(BG, 0%)
14	14-16	S8	1.6	7-9-10-11 (19)	Silty Clay, (CL-ML), moderate brown (5 YR 3/4), with dark streaks, plastic, stiff, rock fragments present.	(BG, 0%)

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.19
Water Level & Date 577.6 ft. above MSL, 5/18/92

Boring Number MWS-4
Date Started 4-6-92
Date Completed 4-20-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 7
Logged By J. MOFFITT

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.8	7-13-20-34 (33)	Silty Clay, (CL-ML), medium brown (5 YR 4/4), with dark gray streaks, plastic, stiff, rock fragments present.	(BG, 0%)
18	18-20	S10	1.8	15-27-33-46 (60)	Silty Clay, (CL-ML), medium brown (5 YR 4/4), with gray steaks, plastic, rock fragments present.	(BG, 0%) Set 10 inch surface casing to 19 ft.
20	20-22	S11	1.8	6-20-25-50 (45)	Silty Clay, (CL-ML), moderate brown (5 YR 4/4), with gray streaks, plastic, rock fragments present.	(BG, 0%)
22	22-24	S12	1.9	16-32-42-43 (74)	Silty Clay, (CL), same as above.	(BG, 0%)

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.19
Water Level & Date 577.6 ft. above MSL, 5/18/92

Boring Number MWS-4
Date Started 4-6-92
Date Completed 4-20-92
Drilling Method 4.25" HSA W/DIETRICK D55
Page Number 4 of 7
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	1.8	13-23-28-29 (51)	Same as above but increase in 5% of silt towards base of sample, moderate brown (5 YR 3/4).	(BG, 0%)
26	26-28	S14	1.8	12-17-16-20 (33)	Clay, (CL), increasing in silt, moderate brown (5 YR 3/4).	(BG, 0%) Note: all clays from 14-30'+ appear to be glacial till.
28	28-30	S15	1.8	9-9-12-15 (21)	Same as above.	
30	30-32	S16		5-7-8-8 (15)	Same as above.	

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.19
Water Level & Date 577.6 ft. above MSL, 4/18/92

Boring Number MWS-4
Date Started 4-6-92
Date Completed 4-20-92
Drilling Method 4.25" HSA W/DIETRICK D55
Page Number 5 of 7
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
30						
35						Continue drilling through the surface casing with 4.25" HSA.
40	39-41	S18	1.6	8-10-15-15 (25)	Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), dry to moist, very stiff, plastic, sandy seam from 12-14".	(BG)
45	44-46	S19	2.0	6-7-10-13 (17)	Same as above, dry to moist with gravel.	(BG)
50	49-51	S20	2.0	WOR-2-10-11 (12)	Same. Dry to moist.	(BG)

GEOLOGIC LOG

oject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.19
Water Level & Date 577.6 ft. above MSL, 5/18/92

Boring Number MWS-4
Date Started 4-6-92
Date Completed 4-20-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 6 of 7
Logged By

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
55	54-56	S21	2.0	WOR-4 11-12 (15)	Same, moist.	
60	59-61	S22	2.0	6-8-17-26 (25)	0-18" Sandy Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), dry to moist, stiff. Varved, alternating predominantly sand/clay/sand/clay. Sand is fine to medium grained, trace gravel. 18-24" Similar, light olive gray (5 Y 5/2), moist, more sand and more gravel.	(BG)
65	64-66	S23	1.0	14-45-26-20 (71)	0-6" Clayey Gravel with Sand, (GC), light olive gray (5 Y 6/1), wet, very dense. 6-12" Well Graded Gravel, (GW), predominant color is brownish gray (5 YR 4/1), wet gravel appears to be predominantly limestone.	Water on the rods to ~ 45' bgs. Stop for the day at 66' ~ 8:00 4/16 ~ 2' of run up inside the augers from ~ 62' to 64". At ~ 66' rough drilling action. At ~ 68' soft drilling.
70	69-71	S24	1.0	27-100/5"	Same as S23, Clayey Gravel with Sand, (GC), and Well Graded Gravel, (GW).	

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.19
Water Level & Date 577.6 ft. above MSL, 5/18/92

Boring Number MWS-4
Date Started 4-6-92
Date Completed 4-20-92
Drilling Method 4.25" HSA
Page Number 7 of 7
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
75	74-76	S25	1.0	36-69-64-55 (133)	Same as above, Clayey Gravel, (GC), some large gravel.	At 69' drillers add ~ 30 gals of water to stabilize the bottom of the borehole to prevent runup. At 70' rough drilling. Grain size analysis sample MS4 69-76. Note: From 74-76' sample a gravel is similar to road bed gravel. At 80' very rough drilling.
80	79-81	S26	1.0	77-100/4	Same, slightly less clay.	
	82-84	S27	0	50/.5	No recovery.	Total depth 82'. Pulled rods, augers open to 75'. "Washed" borehole open to 82 ft. Screen Interval 72-82'. Sand Pack 70-82'. Bentonite Seal 68-70'. Grout Seal 0-68'.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.41
Water Level & Date 580.7 ft. above MSL, 5/18/92

Boring Number MWF1
Date Started 4/17/92
Date Completed 4/17/92
Drilling Method 4.25" HSA
Page Number 1 of 1
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
					See PS-1 Boring Log for lithologic log.	Air Mont:(HNu,CGI) of sample.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.47
Water Level & Date 582.0 ft. above MSL, 5/18/92

Boring Number MWF-2
Date Started 4-16-92
Date Completed 4-17-92
Drilling Method 6.25" HSA W/DIETRICK D55
Page Number 1 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.4	5-18-14-14 (32)	Gravel fill material, well graded, some sand, sand is medium to coarse grained, dark yellowish brown (10 YR 4/2), very moist.	Air Mont:(HNu,CGI) of sample. Humidity effecting the HNU.
2	2-4	S2	1.2	11-21-31-10 (52)	Same as 0-2' with brick, concrete greater than 50%. Black stained grains in shoe.	Coal tar odor.
4	4-6	S3	1.4	4-11-8-8 (19)	Silty lean clay fill, little gravel moderate brown (5 YR 3/4), moist, vein of porosity (secondary). Burnt orange product, stiff. Gravel lens and sand, trace clay, loose, saturated with product.	Chemical sample MF 2-4. Duplicate sample MF2-6. Visual contamination present.
6	6-8	S4	1.7	4-7-7-9 (14)	Same as above, clay fill. Lens of silty sand, some gravel, trace clay, little wood, black glossy product.	Visual contamination present.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.47
Water Level & Date 582.0 ft. above MSL, 5/18/92

Boring Number MWF-2
Date Started 4-16-92
Date Completed 4-17-92
Drilling Method 6.25" HSA W/DIETRICK D55
Page Number 2 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.3	5-5-7-9 (12)	Same as 6-8' less stiff (firm) grading to stiff at 10'. Lens of silty sand and gravel, fine to coarse grained, trace wood, saturated with irridescent product, burnt orange with some purple color.	HNu effected by the high humidity.
10	10-12	S6	1.1	3-5-7-9 (12)	Silty Lean Clay, (CL-ML), fill, trace gravel, dark yellowish brown (10 YR 4/2), moist, stiff to very stiff, massive, (homogeneous throughout recovery).	Slight petroleum odor.
12	12-14	S7	1.5	2-4-3-4 (7)	Silty Clay, (CL-ML), fill and some gravel, dark yellowish brown (10 YR 4/2), moist, soft/firm consistency (more fat than 10-12'). Product visible in secondary porosity (burnt orange oily contamination).	
14	14-16	S8	1.2	6-10-12-12 (22)	Same as 12-14' with more gravel. Lens of silty gravel, trace clay, saturated with burnt orange oily product.	End split spoon at 16' on 4-16-92. End 6" HSA at 18' on 4-16-92.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.47
Water Level & Date 582.0 ft. above MSL, 5/18/92

Boring Number MWF-2
Date Started 4-16-92
Date Completed 4-17-92
Drilling Method 4.25" HSA
Page Number 3 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	0.9	4-5-7-9 (12)	Silty Lean Clay, (CL-ML), little gravel, trace wood, trace rock fragments, trace brick, brownish gray (5 YR 4/1), moist, stiff. Contamination in secondary porosity (burnt orange color), very odorous.	(80 ppm) Sample. (40 ppm) Borehole. Split spoon exterior covered with product.
18	18-20	S10	2.0	3-7-7-14 (14)	Peat and Cellulose/Wood, 100% organic (particles/sizes like particle board), grains/fibers very moist with product, coal tar and organic decomposition odor.	(80 ppm) Sample. CGI 52% in borehole.
20	20-22	S11	1.5	6-7-7-7 (14)	Same as 18-20' Peat and Cellulose/ Wood.	(250 ppm) CGI 13% in borehole.
					Clayey Sand and Silt, (SC), black (N1), grading to olive black (5 Y 2/1), very moist, firm, fine grained, some wood, trace shells (gastropods, bivalves).	(15 ppm)
22	22-24	S12	2.0	3-3-4-4 (7)	Peat/Cellulose Wood Fibers, very loose, saturated with burnt orange brown colored product, irridescent.	(250 ppm)
					Clayey Sand, (SC), olive gray (5 Y 4/1), fine grained, little plant material (root/grass), little wood, moist, firm.	(15 ppm)
					Same as 22.0-22.6'.	(230 ppm) Chemical samp MF2-22, dupli. MF2-22.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.47
Water Level & Date 582.0 ft. above MSL, 5/18/92

Boring Number MWF-2
Date Started 4-16-92
Date Completed 4-17-92
Drilling Method 6" HSA W/DIETRICK D55
Page Number 4 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	2.0	5-5-7-8 (12)	Silty Clay, (CL-ML), trace gravel, medium gray (N5), stiffing downward from firm, massive, homogeneous, occasional secondary permeability with black stained products.	HNu effected by high humidity.
26	26-28	S14	2.0	10-11-13-14 (24)	Silty Lean Clay, (CL-ML), occasional gravel, grayish brown (5 YR 3/2), moist, stiff and grading down to very stiff, massive, homogeneous.	(2 ppm above known background (akb) Chemical sample MF2-26. (3 ppm akb) End boring at 26' bgs. End spooning at 28' bgs Screened Interval 16-26'. Sand Pack 14-16'. Bentonite Seal 12-14'. Cement Grout 0-12'. (3 ppm akb)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.31
Water Level & Date 578.8 ft. above MSL, 5/18/92

Boring Number PS-1
Date Started 4-14-92
Date Completed 4-24-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 5
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.3	9-14 23-19 (37)	0-4" Top Soil. 4-8" Asphalt fill. 8-15" Lean Clay with Gravel, (CL), very stiff. Some black organic silt possibly fly ash.	(BG) Chemical sample PS1-0. Duplicate sample PS1-2.
2	2-4	S2	1.5	5-8- 13-13 (21)	Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), dry, stiff, slightly plastic, trace gravel in a couple of discontinuous bands.	(BG)
4	4-6	S3	1.5	10-14- 14-18 (28)	Similar to S2, more gravel and more plastic, dry.	(BG)
6	6-8	S4	1.5	7-10- 8-11 (18)	Similar to S3, less gravel. Bottom 6" were moist to wet.	(BG)

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.31
Water Level & Date 578.8 ft. above MSL, 5/18/92

Boring Number PS-1
Date Started 4-14-92
Date Completed 4-24-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 5
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.0	7-8-8-11 (16)	Same as above, slightly more plastic except for 6-9" which is dusky yellow brown (10 YR 2/2).	(BG)
10	10-12	S6	1.5	5-7-15-13 (22)	Same as S5, slightly moist.	Chemical sample PS1-10. (BG)
12	12-14	S7	1.0	4-10-100/4"	Same, more plastic, trace gravel, slightly moist, wood fragment in the toe of the split spoon.	(BG)
14	14-16	S8	1.5	19-23-25-22 (48)	Silty Clay, (CL-ML), pale yellow brown (10 YR 6/2), dry, hard, slightly plastic, calcite silt infilling of secondary fractures, trace gravel.	(BG) Native till.

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.31
Water Level & Date 578.8 ft. above MSL, 5/18/92

Boring Number PS-1
Date Started 4-14-92
Date Completed 4-24-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 5
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.5	7-14-18-19 (32)	Same, dry, some trace gravel.	(BG)
						Set 10 inch surface casing to 18'.
						Note: No water in this borehole.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.31
Water Level & Date 578.8 ft. above MSL, 5/18/92

Boring Number PS-1
Date Started 4-22-92
Date Completed 4-24-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 4 of 5
Logged By T. ROGERS

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S10	1.4	7-13-13-16 (26)	Silty Clay, (CL-ML), medium red (5 R 4/6), to moderate brown (5 YR 4/4), dry, moderately stiff.	(BG)
29	29-31	S11	2.0	8-10-12-14 (22)	Same as above, minor pebbles.	(BG)
34	34-36	SH-1	2.2	Shelby Tube	Silty Clay, (CL-ML), medium brown (5 YR 4/4), to red (5 R 4/6), dry, very stiff, with minor pebbles medium gray (N5), to dark green (5 G 3/2), well rounded. Description of soil based on exposed bottom of Shelby Tube.	
39	39-41	S12	0.8	100/3"	Silty Sand (SM), silt is light brown (5 YR 5/6), to tan. Sand is medium brown (5 YR 4/4), to medium gray (N5), to green (5 G 5/6). Shale is dark gray to green with white calcite cement.	(BG) Spoon is wet.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.31
Water Level & Date 578.8 ft. above MSL, 5/18/92

Boring Number PS-1
Date Started 4-22-92
Date Completed 4-24-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 5 of 5
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
44	44-46	S13	0.1	100/1"	Same as above, no sand or silt, dark gray (N3), shale with white calcite cement.	(BG)
47	47-51	S14	0.2	100/1"	Dark gray (N3), to dark green (5 G 3/2), shale, friable, platy, crystalline. White calcite cement. Bedrock.	(BG) Total depth 49'. Screen Interval 35-45'. Sand Pack 33-45'. Bentonite Seal 26-33'. Cement Grout 0-26'. Set 4" stainless steel well at PS-1.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.48
Water Level & Date 577.5 ft. above MSL, 5/18/92

Boring Number PS-2
Date Started 4-24-92
Date Completed 4-30-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 6
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.2	4-12-16-9 (28)	0-6" Clay, (CL), brownish black (5 YR 2/1). 6-9" fill with coarse sand and cinders, moist.	Air Mont:(HNu,CGI) of sample: (BG, 0%)
2	2-4	S2	1.2	7-14-18-28 (32)	Silty Clay, (CL-ML), dark reddish brown (10 R 3/4), moist, dense, plastic, a few rock pebbles and gray streaks.	(BG, 0%)
4	4-6	S3	1.2	16-30-40-50 (70)	Clay, (CL), similar to above, very dense with white gray streaks along vertical fractures, appears to be calcite crystals, a few rock pebbles	(BG, 0%)
6	6-8	S4	1.3	14-28-42-53 (70)	Same as above.	(BG, 0%)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.48
Water Level & Date 577.5 ft. above MSL, 5/18/92

Boring Number PS-2
Date Started 4-24-92
Date Completed 4-30-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 2 of 6
Logged By J. MOFFITT

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5				
10	10-12	S6				
12	12-14	S7				
14	14-16	S8				

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.48
Water Level & Date 577.5 ft. above MSL, 5/18/92

Boring Number PS-2
Date Started 4-24-92
Date Completed 4/30/92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 3 of 6
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
15	15-19	S9	1.8	15-24-30-43 (54)	Silty Clay, (CL-ML), medium brown (5 YR 4/4), to medium red (5 R 4/6), to yellow (5 Y 7/6), moist, moderately stiff, with minor pebbles rounded 3/4", dark green (5 G 3/2), to gray (N5), with light gray (N7), streaks.	(BG)
19	19-24	S10	2.0	16-26-30-36 (56)	Silty Clay, (CL-ML), same as above, and medium to fine grained sand lens vertical fractures, white to light gray (N7), moist, with calcite content.	(BG) Set 10 inch surface casing to 19 ft.
24	24-29	S11	2.0	20-27-34-37 (61)	Silty Clay, (CL-ML), same as above, color change to light brown (5 YR 5/6), to medium brown (5 YR 4/4).	(BG) Sample wet along outside of core beside spoon.
29	29-34	S12	2.0	7-7-11-12 (18)	Clay, (OH), medium brown (5 YR 4/4), to dark brown (5 YR 2/2), to red (5 R 4/6), medium moist, very sticky moderate stiff, medium to high plasticity.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.48
Water Level & Date 577.5 ft. above MSL, 5/18/92

Boring Number PS-2
Date Started 4-24-92
Date Completed 4-30-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 4 of 6
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
34	34-39	S13	2.0	WH-WH-WH-6	Same as above plus Organic Clay, (OH), color in bottom 8" medium red (5 R 4/6), less brown, more moisture low plasticity.	(BG)
39	39-44	S14	2.0	WH-WH-6-7	Same clay as above, Organic Clay, (OH), medium red (5 R 4/6), to medium gray (N5), low moisture, very plastic, banding (6").	(BG)
44	44-49	S15	2.0	WH-WH-8-10	Same as above, Organic Clay, (OH).	(BG)
49	49-54	S16	2.0	WH-11-7-13 (18)	Organic Clay, (OH), same as above.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.48
Water Level & Date 577.5 ft. above MSL, 5/18/92

Boring Number PS-2
Date Started 4-24-92
Date Completed 4-30-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 5 of 6
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
54	54-59	S17	2.0	WH-WH-8-14	Organic Clay, (OH), same as above.	(BG)
59	59-64	S18	2.0	WH-WH-7-7	Organic Clay, (OH), same as above.	(BG)
64	64-69	S19	2.0	18-38-40-101 (78)	Silty Sand with Rock Fragments, (SM) dark yellow brown (10 YR 4/2), very moist, dense, with subangular gravel	(BG)
69	69-74	S20	1.2	30-55-90-62 (145)	Silty Sand with Rock Fragments, (SM) same as above, but sand is grading coarser.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.48
Water Level & Date 577.5 ft. above MSL, 5/18/92

Boring Number PS-2
Date Started 4-24-92
Date Completed 4-30-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 6 of 6
Logged By J. MOFFITT

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
74	74-79	S21	1.3	28-48-35-70 (83)	Coarse Sand and Gravel.	
79	79-84	S22	0.8	58-107/3"	Same as above.	
84	84-89	S23	0.1	108/1"	Weathered dolomite/limestone, light gray, moist, soft.	Split spoon refusal at 89.1'. Auger refusal at 89.2'. Total depth 89.2'. Screen Interval 79.2-89.2'. Sand Pack 76-89.2'. Bentonite Seal 74-76'. Cement Grout 0-74'.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation -590 ft.
Water Level & Date

Boring Number PF-1
Date Started 4-10-92
Date Completed 4-10-92
Drilling Method 4.25" AUGUGS W/DIETR. D5
Page Number 1 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.8	20-16-20-45 (36)	0-12" Gravel fill. 12-20" Silty Clay with Gravel, (CL-ML), grayish brown (5 YR 3/2), dry, dense.	Air Mont:(HNu,CGI) of sample. (BG) Chemical sample PF1-0.
2	2-4	S2	1.5	13-22-33-27 (55)	0-12" Same as S1 12-20" with more gravel. 12-18" Lean Clay with Gravel, (CL), black (N1), medium, dry, with wood fragments. Still in the fill.	(2 ppm) of sample. (5 ppm) in borehole. Chemical sample PF1-2.
4	4-6	S3	1.5	7-14-21-25 (35)	Silty Clay with Gravel, (CL-ML), moderate brown (5 YR 4/4), dry, hard Small pebbles in the clay matrix and some thin calcite and gravel seams. All dry.	(BG)
6	6-8	S4	1.5	6-8-13-18 (21)	Same as S3, less gravel, dry.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590 ft.
Water Level & Date

Boring Number PF-1
Date Started 4-10-92
Date Completed 4-10-92
Drilling Method 4.25" AUGUGS W/DIETR. D5
Page Number 2 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.8	13-18-21-29 (39)	Same as S4, trace gravel, dry.	(BG)
10	10-12	S6	1.8	7-11-20-25 (31)	Same as above, dry.	(BG)
12	12-14	S7	1.8	11-16-21-26 (37)	Same, slightly moist, more plastic.	(BG) Slower drilling, tight unit.
14	14-16	S8	2.0	11-15-20-22 (35)	Same, slightly moist, more plastic.	(BG)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation ~ 590 ft.
Water Level & Date

Boring Number PF-1
Date Started 4-10-92
Date Completed 4-10-92
Drilling Method 4.25" AUGUGS W/DIETR. D5
Page Number 3 of 3
Logged By A. BRYDA

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	2.0	5-10-10-10 (20)	Same as S8, slightly moist to wet, 1" thin seams.	(BG)
						Total depth 18 ft. Borehole abandoned by pouring grout down the inside of the augers prior to auger removal.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.05'
Water Level & Date 575.8 ft. above MSL, 5/18/92

Boring Number PF-3
Date Started 4-14-92
Date Completed 4-15-92
Drilling Method 6" HSA
Page Number 1 of 5
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.4	18-15-14-22 (29)	Silty Sand, (SM), fill, mod. brown (5 YR 3/4), fine to medium grained, and gravel (parking lot stone), slightly moist, loose.	Air Mont:(HNu,CGI) of sample. (BG) Chemical sample PF3-0.
2	2-4	S2	0.8	10-12-14-13 (26)	Silty Clay, (CL-ML), fill, grayish brown (5 YR 3/2), some gravel, trace organics, occasional cobble, slightlly moist, very stiff.	(0.5 ppm above known background (akb)) Slight petroleum odor.
4	4-6	S3	1.5	3-9-14-16 (23)	Same as S2. Sharp contact below to silty sand, olive black (5 Y 2/1), little gravel, trace organics, trace cinders, fine to medium grained, moist, loose, trace clay.	(0.8 ppm akb) Slight petroleum odor.
6	6-8	S4	1.6	10-40-65-47 (105)	Silty sand fill matrix <20% in between gravel, cobbles, cinders, slag, organics, fine to medium grained, brownish black (5 YR 2/1), moist, compact, zone of highest contamination (mostly loose sand), trace clay.	(140 ppm) Sample. Coal tar odor. Visual contamination present.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.05'
Water Level & Date 575.8 ft. above MSL, 5/18/92

Boring Number PF-3
Date Started 4-14-92
Date Completed 4-15-92
Drilling Method 6" HSA
Page Number 2 of 5
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.3	10-20-13-10 (33)	Same as 6-8' with additional rubber, brick, lack of slag. Contaminated sandy zone which is saturated with oily black product. Exterior of spoon wet.	(90 ppm akb) of sample Visible contamination present.
10	10-12	S6	1.4	5-24-15-14 (39)	Silty Clay, (CL-ML), fill, olive gray (5 Y 4/1), some gravels, little cobbles, brick fragments, wet, very stiff with sharp contact below to 0.4' lens of silty sand, and gravel, trace clay, saturated with some contamination, very loose, moderate reddish brown (10 R 4/6), with glossy brownish black staining.	(45 ppm) of sample
12	12-14	S7	0.5	15-25-12-10 (37)	Silty Clay, (CL-ML), fill, moderate brown (5 YR 4/4), moist, very stiff. Entire spoon saturated with an oily irridescent film. Tar substance inside clay seams.	(65 ppm) of sample (60 pp akb) in borehole Visible contamination present.
14	14-16	S8	0.9	9-6-6-8 (12)	Silty Clay and Gravel, (CL-ML), fill moderate brown (5 YR 4/4), saturated very stiff, black staining on gravels and sand. Clay not massive (more varved).	(90 ppm) Visible contamination present.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.05'
Water Level & Date 575.8 ft. above MSL, 5/18/92

Boring Number PF-3
Date Started 4-14-92
Date Completed 4-15-92
Drilling Method 6" HSA
Page Number 3 of 5
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.8	4-6-9-12 (15)	Silty Clay, (CL-ML), fill, pale brown (5 YR 5/2), little gravel, ocasional brick fragments, cinders, moist, very stiff.	(5 ppm above known background (akb)) No visible contamination in lower 1.5' of recovery.
18	18-20	S10	1.8	5-8-10-12 (18)	Same as 16-18. Sharp contact to silty sand lens, fine to medium grained, wet, loose.	(6 ppm) Tar substance coating the grains.
20	20-22	S11	1.6	5-8-9-7 (17)	Clayey Sand, (SC), fill, some gravel trace wood, trace cinders, grayish black (N2), with yellowish gray (5 Y 8/1), zones of (ash?), compact to dense in some areas.	(35 ppm) Contamination with tar throughout.
22	22-24	S12	1.8	5-5-5-7 (10)	Silty Clay, (CL-ML), fill, pale brown (5 YR 5/2), stiff, overlying clayey sand, trace gravels, trace glass, few wood chips, fine grained, black (N1), moist, compact.	(25 ppm) Chemical sample PF3-22. Split given to state. Noticeable contamination.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.05'
Water Level & Date 575.8 ft. above MSL, 5/18/92

Boring Number PF-3
Date Started 4-14-92
Date Completed 4-15-92
Drilling Method 6" HSA
Page Number 4 of 5
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
26	24-26	S13	2.0	5-6-6-8 (12)	Clayey Sand and Silt, (SC), dusky yellowish brown (10 YR 2/2), little organics (wood, peat, roots), little gravel, fine grained, moist. Fossil layer of snail shells (gastropods and brachipods), 0.2' lens. Below lens, Clayey Silty (ML) of same description as upper part of spoon. Stream deposits.	(12 ppm)
26	26-28	S14	1.5	1-1-3-4 (4)	Silty Sand, (SM), olive gray (5 Y 4/1), some wood (trees/roots), little "shells", little clay, saturated, loose.	(25 ppm) (CGI 3%) inside augers. Water level - 10' bgs. Strong organic decomposition odor.
28	28-30	S15	1.1	10-11-16-17 (27)	Lean Clay, (CL), medium gray (N5), moist, stiff, trace gravels. Homogeneous throughout spoon.	(15 ppm) (CGI 1%) inside augers. Strong decomposition odor.
30	30-32	S16	1.4	12-18-23-27 (41)	Silty Clay, (CL-ML), medium gray (N5), trace gravel, moist, stiff. Continuation of 28-30' grading down to Silty Clay, (CL-ML), moderate brown (5 YR 3/4), trace gravel, moist, very stiff.	(5 ppm) (BG) End boring at 30' bgs. End spooning at 32' bgs

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.05'
Water Level & Date 575.8 ft. above MSL, 5/18/92

Boring Number PF-3
Date Started 4-14-92
Date Completed 4-15-92
Drilling Method 6' HSA
Page Number 5 of 5
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
						Piezometer constructed in a second auger hole, 5' away. 2" stainless steel. Total depth 24.3'. Screen Interval 14.3-24.3'. Sand Pack 12-24.3'. Bentonite Seal 10.1-12' Cement Grout 0-10.1'.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.65
Water Level & Date 571.6 ft. above MSL, 5/18/92

Boring Number PF-4
Date Started 4-15-92
Date Completed 4-16-92
Drilling Method 6.25 " HSA
Page Number 1 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.5	8-12-15-17 (27)	Silty sand fill, dark yellow brown (10 YR 4/2), little gravel, trace clay, saturated, loose, medium grained. Grading down to clayey sand and gravel fill, dusky yellow brown (10 YR 2/2), wet, stiff.	Air Mont:(HNu,CGI) of sample: (BG)
2	2-4	S2	1.7	5-10-30-80 (40)	Same clayey sand fill continued.	(BG)
					Sharp contact to silty sand and gravel fill, trace clay, occasional cobble, moist, compact. Brownish black stained grains.	(BG)
4	4-6	S3	0	12-15-10-15 (25)	Brick block wedged in spoon shoe. No recovery.	
8	6-8	S4	1.5	10-28-39-24 (67)	Brick and concrete rubble, moderate reddish brown (10 R 4/6), with black stained grains, wet.	(BG) inside auger at 6'
					Silty Sand, (SM), black (N1), stained, little clay, fine to medium grained, moist, very dense.	(28 ppm) of sample. Coal tar odor.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.65
Water Level & Date 571.6 ft. above MSL, 5/18/92

Boring Number PF-4
Date Started 4-15-92
Date Completed 4-16-92
Drilling Method 6.25 " HSA
Page Number 2 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.0	5-8-12-15 (20)	Silty Clay, (CL-ML), fill, mod brown (5 YR 3/4), moist (spoon saturated, dripping), very stiff. One lens of sand/gravel with brick and concrete debris, saturated, loose, black staining.	(25 ppm) of sample. (5 ppm) inside augers Contamination present.
10	10-12	S6	1.5	2-3-5-9 (8)	Silty Clay, (CL-ML), fill, mod brown (5 YR 3/4), with some gravel (stained black in stiff clay matrix) moist (spoon saturated). Brick lens (crushed) with fat clay. Silty Sand, (SM), fill, black (N1), little gravel, no clay, trace coal, moist, loose.	(15 ppm) (10 ppm) Odorous.
12	12-14	S7	1.4	12-7-7-7 (14)	Same as 10-11'. Slightly less lean, more fat. Fill.	(4 ppm above known background (akb)) Very slight odor/coal tar.
14	14-16	S8	1.7	6-7-4-4 (11)	Continuation of 12-14'. Zone of gravelly sand fill, light brown (5 YR 5/6), medium to coarse grained, moist, very loose. Subrounded gravels, cinders, trace black stained grains. Continuation of 12-14', very moist.	(4 ppm akb) (0.5 ppm akb) (0.5 ppm akb) (6 ppm akb) Slight to moderate coal tar odor.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.65
Water Level & Date 571.6 ft. above MSL, 5/18/92

Boring Number PF-4
Date Started 4-15-92
Date Completed 4-16-92
Drilling Method 6.25" HSA
Page Number 3 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.8	2-4-7-7 (11)	Silty Clay, (CL-ML), fill, mod brown (5 YR 4/4), trace gravel, with black stained veins in no preferred orientation, moist, soft.	
					Clayey gravels and sand fill, light brown (5 YR 5/6), saturated with product, glassy black with irridescent sheen, little wood (tree or root).	(25 ppm) adjacent to product. Spoon retrieved w/ irridescent product on exterior.
					Same as 16-16.5'.	
18	18-20	S10	1.2	4-5-7-9 (12)	Silty Clay, (CL-ML), fill, pale brown (5 YR 5/2), trace gravel, homogeneous, massive, lack of black stained veins, firm grading down to stiff.	(3 ppm)
					Bottom 3" of spoon - lens of wood fiber, coal tar stained.	(12 ppm)
20	20-22	S11	1.2	2-4-6-8 (10)	Clayey Gravels, (GC), fill, some wood (tree and roots), some construction debris (glass, fiberboard, rubber). <20% matrix soil (clay).	(65 ppm) of sample Completely saturated w/ black irridescent coal tar product, spoon covered with product. Very odorous.
22	22-24	S12	1.6	2-3-5-9 (8)	Clayey Sand, (SC), and wood, some silt, trace gravel, olive black to glossy black staining throughout. Completely saturated with product. (No grains unstained, original color 100% masked throughout spoon), compact, fine grained.	(110 ppm) of sample

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 590.65
Water Level & Date 571.6 ft. above MSL, 5/18/92

Boring Number PF-4
Date Started 4-15-92
Date Completed 4-16-92
Drilling Method 6.25" HSA
Page Number 4 of 4
Logged By J. TOTH

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	1.8	3-5-5-7 (10)	Clayey Sand and Silt, (SC), dark yellowish brown (10 YR 4/2), little organics (plant roots), occasional subrounded gravels, trace shells (gastropods, brachiopods), very moist (spoon saturated w/ product from above in column). No product between grains, stratified (X-beds?)	(25 ppm)
26	26-28	S14	2.0	6-6-6-6 (12)	Continuation of 24-26'. Zone of Well Graded Gravels, (GW), fossils, sand medium to very coarse, saturated, some burnt orange product (irridescent) visible. Sharp contact to Fat Clay, (CH), medium light gray (N6), trace gravel moist, soft to firm.	(60 ppm) Organic decomposition odor. (40 ppm)
28	28-30	S15	1.8	4-5-8-8 (13)	Continuation of 27.5-28' grading down to same material but more lean, Silty Clay, (CL-ML), stiff at 29'. Sharp gradational contact over 0.1' in color to grayish red (10 R 4/2), of same Lean Clay, (CL).	(0.5 akb) Chemical sample PF4-28. (0.5 ppm akb) Terminate augering at 28'. Terminate spooning at 30' in native till under fill and alluvium. Screen Interval 18.2-28.2'. Sand Pack 16.2-28.2'. Bent. Seal 14.2-16.2'. Cement Grout 0-14.2'.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.22
Water Level & Date 581.6 ft. above MSL, 5/18/92

Boring Number PF-6
Date Started 4-20-92
Date Completed 4-20-92
Drilling Method 4.25 HSA W/ DIETRICK D50
Page Number 1 of 4
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
	0-2	S1	1.0	3-4-5-7 (9)	Sand, (SM), dark brown (5 YR 2/2) to medium brown (5 YR 3/4), very moist, medium to fine sand grading down from fine to coarse to bottom 1'.	Air Mont:(HNu,CGI) of sample: (0.4 ppm) background
2	2-4	S2	1.7	14-10-9-9 (19)	Subrounded coarse to medium fill. 4" coarse fill at top grading to medium fill, subangular 16", light gray (N7), to black (N1).	(5 ppm)
4	4-6	S3	1.2	5-8-8-8 (16)	Gravel fill with medium size rocks at top 7", wet, with dark gray (N3), to black (N1), bottom 8" contaminated. Visible sheen/odor. Bottom 5" Organic Clay, (OH), light brown (5 YR 5/6), to medium brown (5 YR 4/4), tight.	(120 ppm) Contamination in gravel above clay.
6	6-8	S4	1.7	9-11-12-13 (23)	Lean Clay, (CL), medium brown (5 YR 4/4), to light gray (N7) slightly moist, very tight, fine to very fine clay with minor medium to fine fill at bottom 2", oily sheen present.	(25 ppm) Coal tar odor.

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.22
Water Level & Date 581.6 ft. above MSL, 5/18/92

Boring Number PF-6
Date Started 4-20-92
Date Completed 4-20-92
Drilling Method 4.25" HSA W/ DIETR. D50
Page Number 2 of 4
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
8	8-10	S5	1.2	4-7-9-9 (16)	Organic Clay, (OH), medium brown (5 YR 4/4), to red brown (10 R 4/6), clays with gray organic silts, very plastic clays, tight w/ net moisture, small lens of organic silts with contamination throughout.	(40 ppm)
10	10-12	S6	1.0	3-3-4-4 (7)	Silty Clay with Sand, (CL), dry to moist. Bottom 4" Silty Clay, (CL-ML), with lens of organic silt. Top 8" Organic Clay, (OH), medium brown (5 YR 4/4) to brown red (10 R 4/6), dry, stiff, tight.	(BG)
12	12-14	S7	1.0	3-5-5-9 (10)	0-8" Organic Clay, (OH), medium brown (5 YR 4/4), to brownish red (10 R 4/6), very tight. 8-12" Silty Clay with Sand, (CL-ML).	(140 ppm, 21%) Visible contamination. 1" lens in the middle of bottom 4" very contaminated.
14	14-16	S8	1.2	4-4-4-5 (8)	0-4" Silty Clay, (CL), medium gray (N5), to red tan (10 R 6/2), subangular grains. 4-14" Organic Clay, (OH), medium red (5 R 4/6), to tan, very light moist to dry, medium plasticity.	(50 ppm) Contamination present in top 4".

GEOLOGIC LOG

roject IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.22
Water Level & Date 581.6 ft. above MSL, 5/18/92

Boring Number PF-6
Date Started 4-20-92
Date Completed 4-20-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 3 of 4
Logged By T. ROGERS

Depth BGS (ft)	Sample Int-erval	Type &No.	Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
16	16-18	S9	1.5	4-3-4-5 (7)	Organic Clays, (OH), medium brown red (10 R 4/6), to gray (N5), with some mottled. Thin lens of silty clay throughout (usually contaminated. 14-18" Wood shavings medium gray (N5), to black (N1).	(60 ppm) Contamination present. (200 ppm)
18	18-20	S10	1.8	2-3-3-6 (6)	0-6" Silty Clay, (CL-ML), dark gray (N3), to dark brown (5 YR 2/2), very wet with minor rounded pebbles. Wood shavings bottom 16", shavings usually 1/4" long, very mottled, moist, friable.	(250 ppm) Contamination present.
20	20-22	S11	1.5	3-3-4-3 (7)	Silty Clay, (CL-ML), dark gray (N3), to black (N1), moist, moderately plastic, bottom 3". Wood shavings 12" same as above. Wet above shavings 3" silty clay.	(150 ppm) Contamination present.
22	22-24	S12	1.7	3-5-5-7 (10)	0-5" Wood shavings with sand and gravel, medium gray (N5), to dark brown (5 YR 2/2). 5-9" Interbedded silty clay and wood shavings next 4", medium gray (N5), medium plastic. 9-21" Organic Clay, (OH), medium gray (N5), to light gray (N7) dry, medium to tight clay.	(100 ppm) (1 ppm)

GEOLOGIC LOG

Project IG/WS
Location Buffalo, New York
Client Westwood Squibb
Driller Buffalo Drilling Inc.
Elevation 591.22
Water Level & Date 581.6 ft. above MSL, 5/18/92

Boring Number PF-6
Date Started 4-20-92
Date Completed 4-20-92
Drilling Method 4.25" HSA W/DIETRICK D50
Page Number 4 of 4
Logged By T. ROGERS

Depth BGS (ft)	Sample Interval	Sample Type &No.	Sample Rec. (ft)	SPT Result (N)	Description: Name & USCS Group Symbol, Color, Moisture Content, Rel. Density or Consistency, & Mineralogy	Remarks: incl Air, Mont, Depth of Casing, Dril Rate, & Fluid Loss
24	24-26	S13	1.8	7-9-15-20 (24)	0-5" Silty Clay interbedded w/ wood shavings. 5-22" Silty Lean Clay, (CL), grayish brown (5 YR 3/2), moist, stiff and transition to very stiff. Gray lens bands, massive, homogeneous, 17".	(90 ppm) (0 ppm)
26	26-28	S14	1.3	12-17-22-30 (39)	Silty Lean Clay, (CL), brown gray (5 YR 3/2), stiff and uniform plasticity to bottom. Gray lens (banding) in core, very homogeneous.	(1 ppm) Note sampled with the 4.25" Augers and reamed to set the well with 8.25" augers. Total Depth 26'. Screen Interval 15-25'. Sand Pack 13-25'. Bentonite Seal 10.7-13' Cement Grout 0-10.7'. Set a 4" stainless steel well at PF6.

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by J. Toth

Boring/Piezometer No. MWF1
TOC Elevation 592.94 ft
Location Buffalo, New York
Date 4/17/92

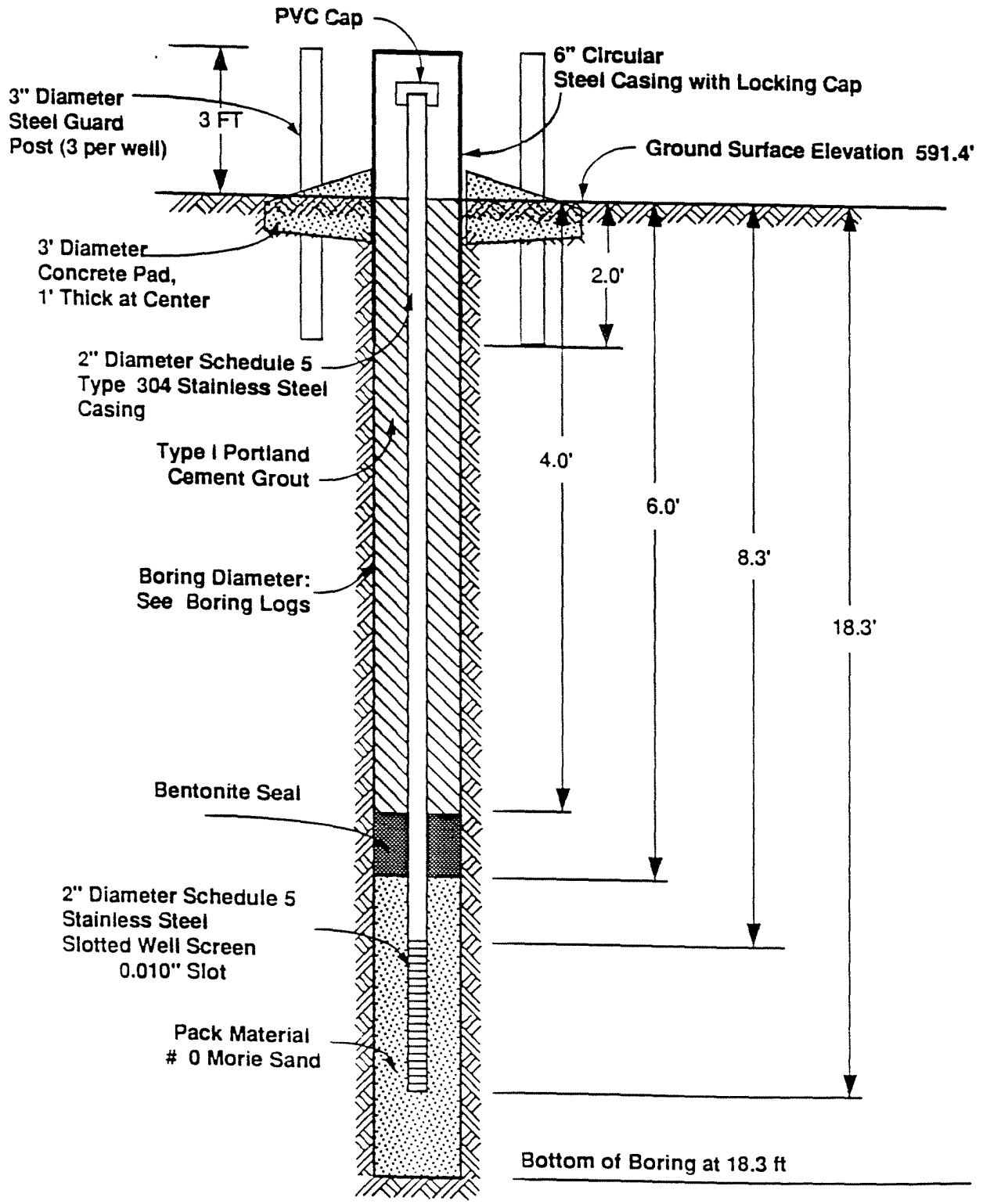


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by J. Toth

Boring/Piezometer No. MWF2
TOC Elevation 592.74 ft
Location Buffalo, New York
Date 4/17/92

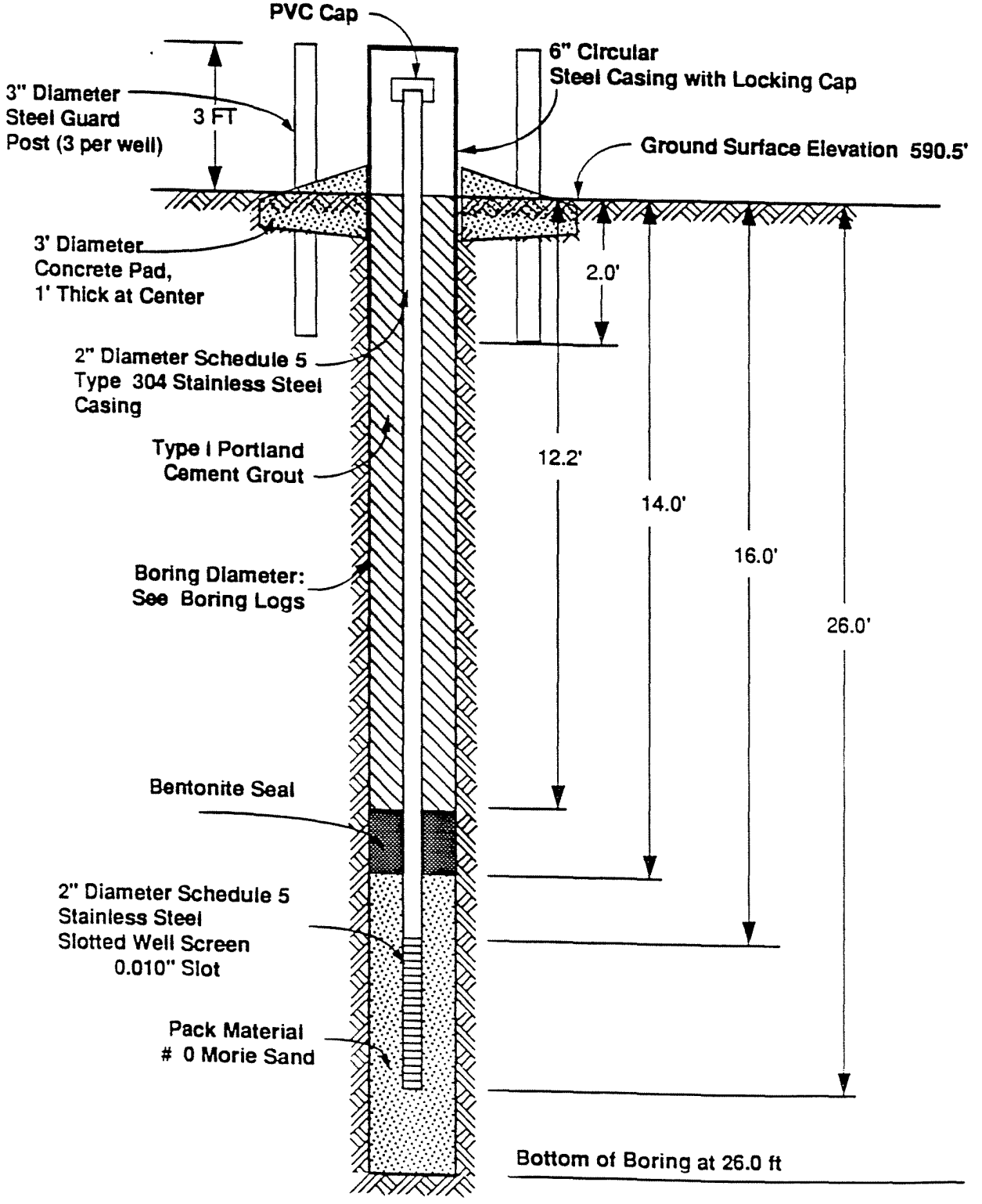


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by T. Rogers

Boring/Piezometer No. MWF3
TOC Elevation 593.11 ft
Location Buffalo, New York
Date 4/20/92

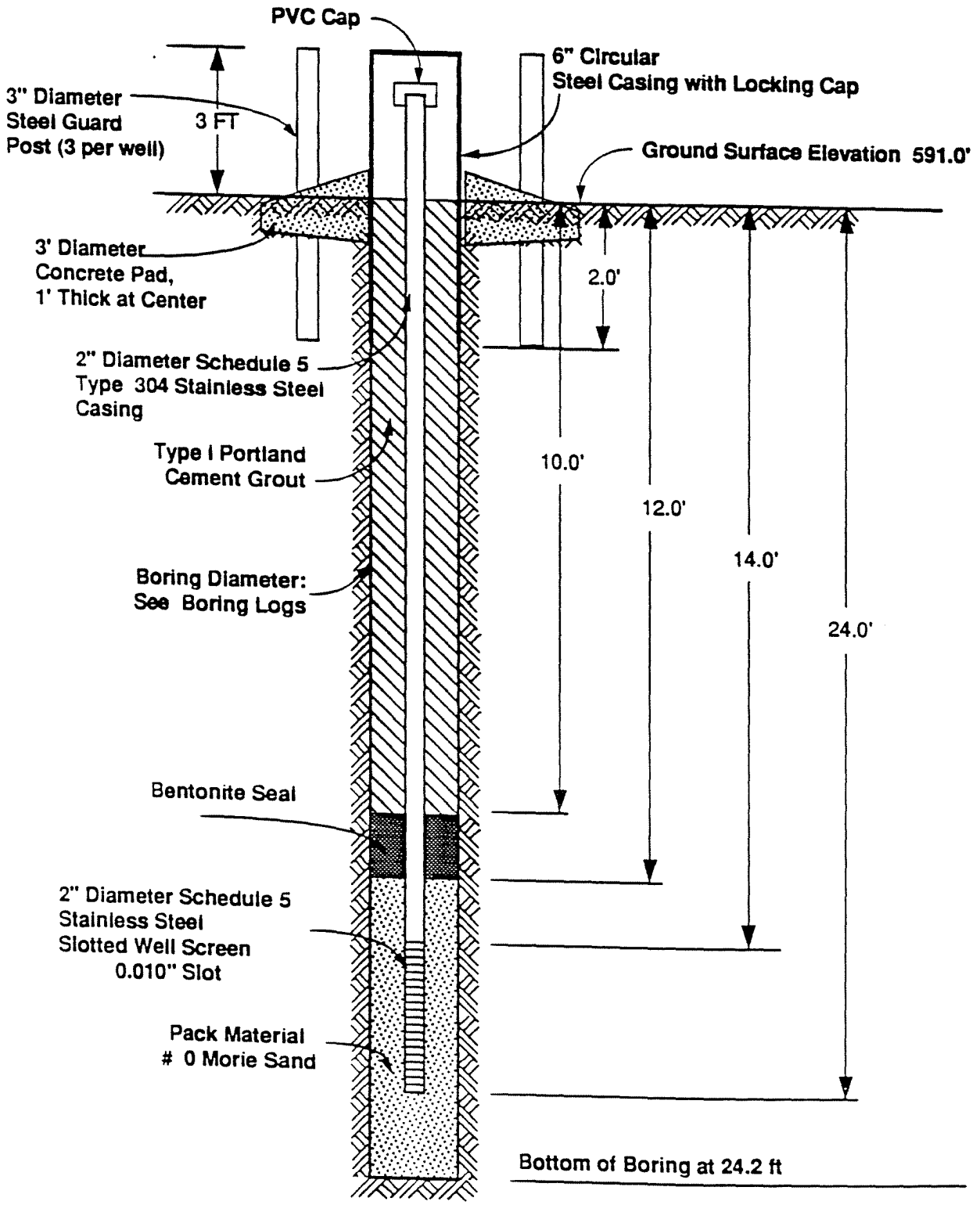


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by A. Bryda

Boring/Piezometer No. MWF4
TOC Elevation 592.69 ft
Location Buffalo, New York
Date 4/23/92

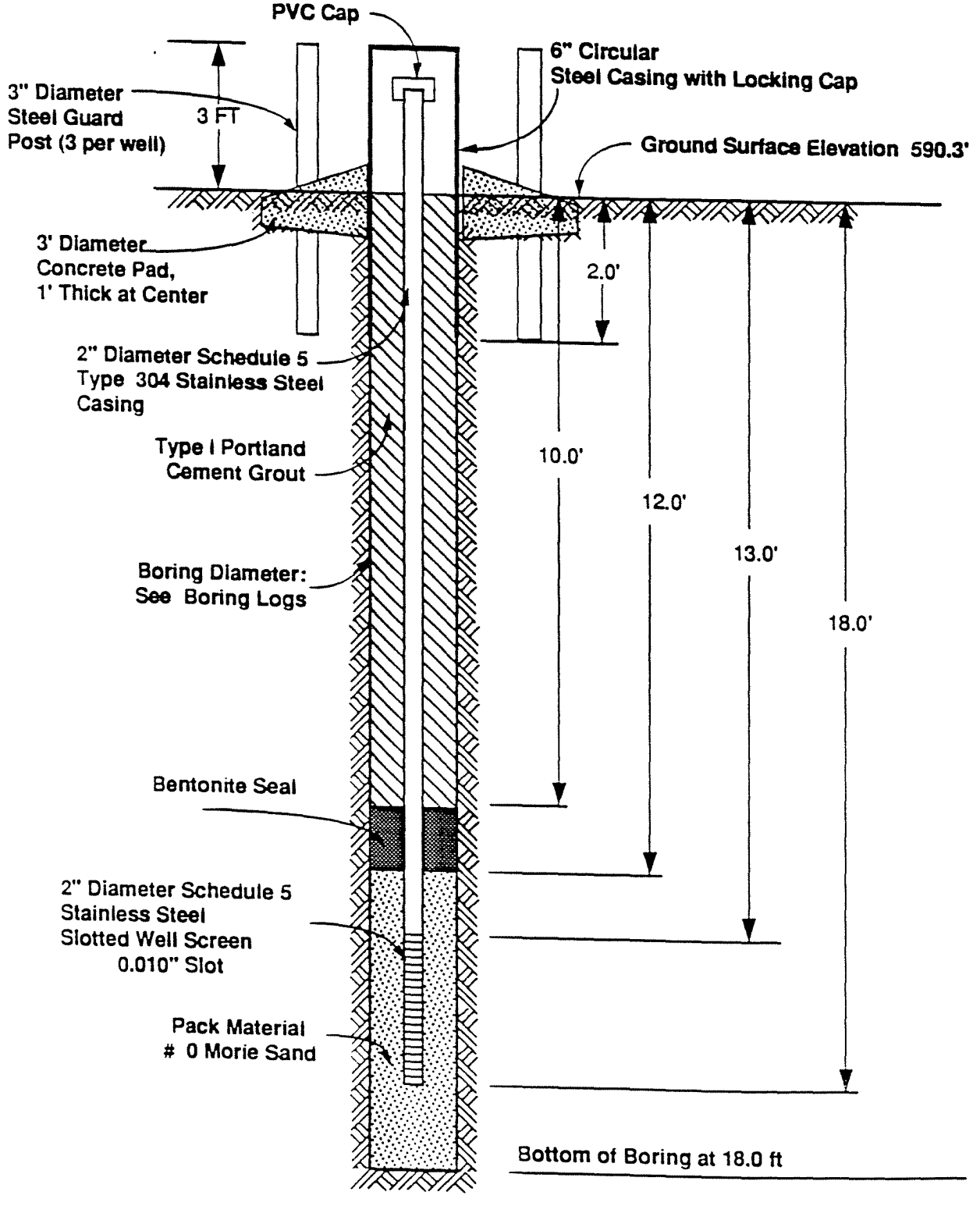


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
oject No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by A. Bryda

Boring/Piezometer No. MWF5
TOC Elevation 591.71 ft
Location Buffalo, New York
Date 4/23/92

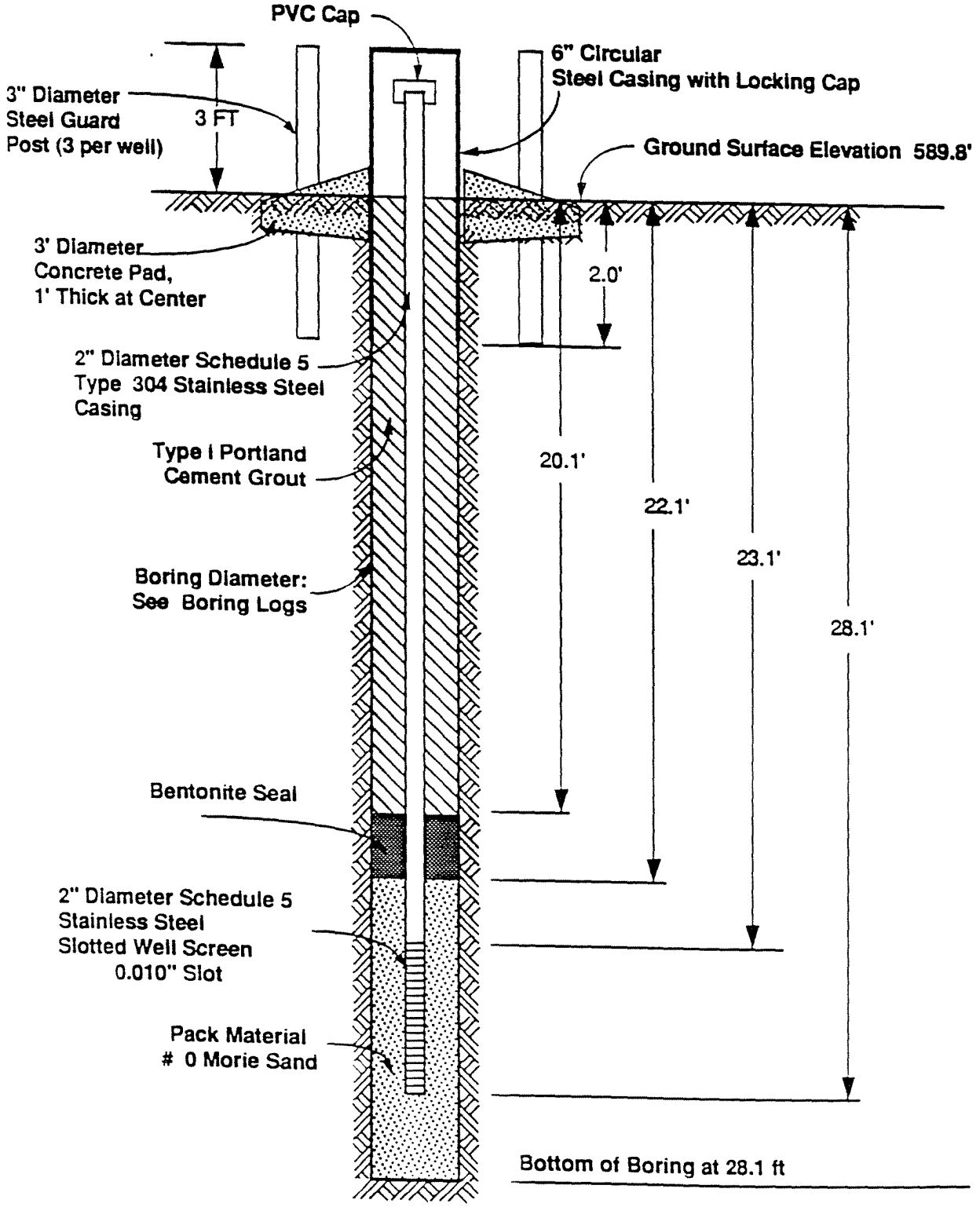


Figure Not to Scale

Piezometer Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by J. Toth

Boring/Piezometer No. PF2
TOC Elevation 593.51 ft
Location Buffalo, New York
Date 4/21/92

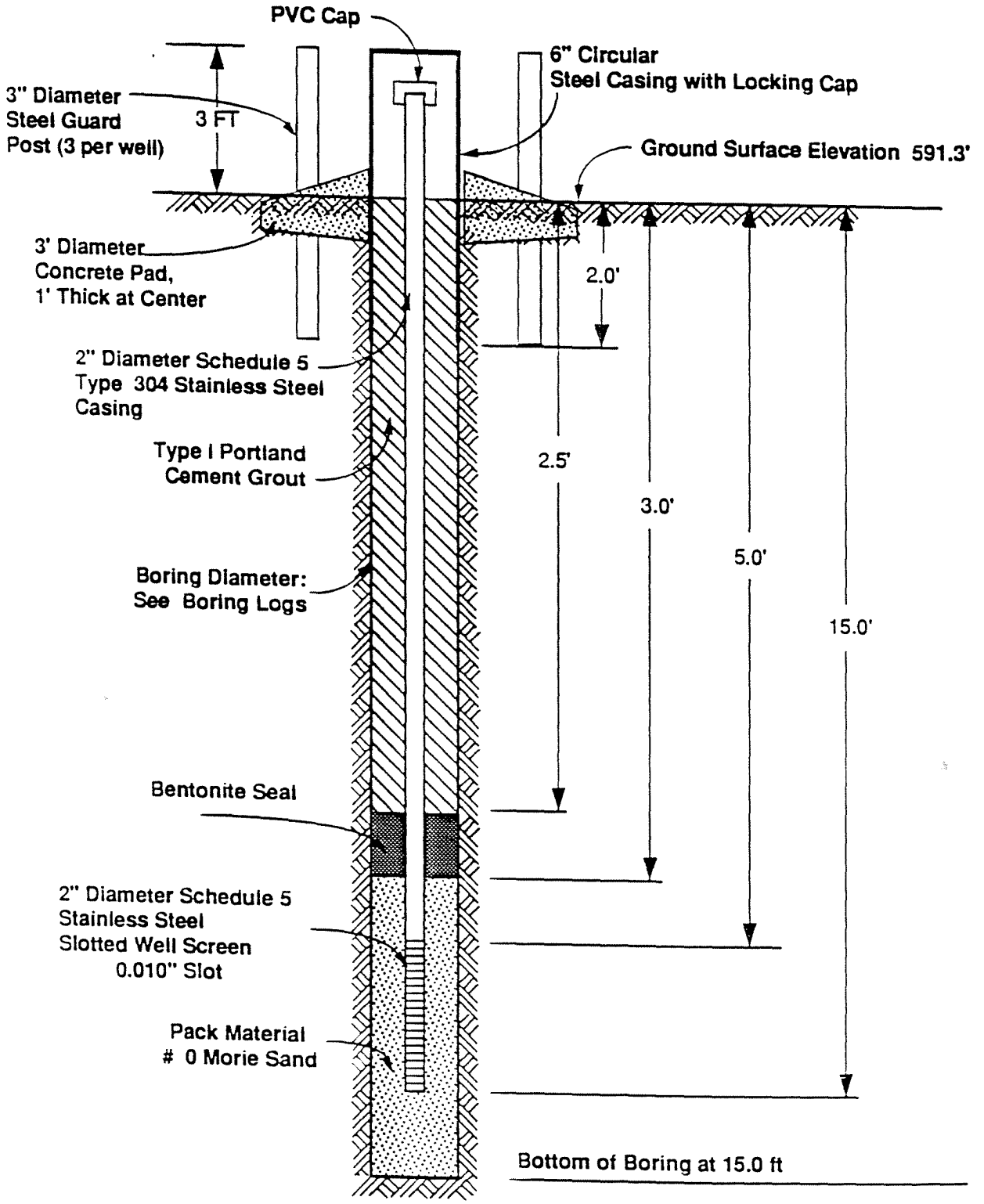


Figure Not to Scale

Piezometer Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by J. Toth

Boring/Piezometer No. PF3
TOC Elevation 593.04 ft
Location Buffalo, New York
Date 4/15/92

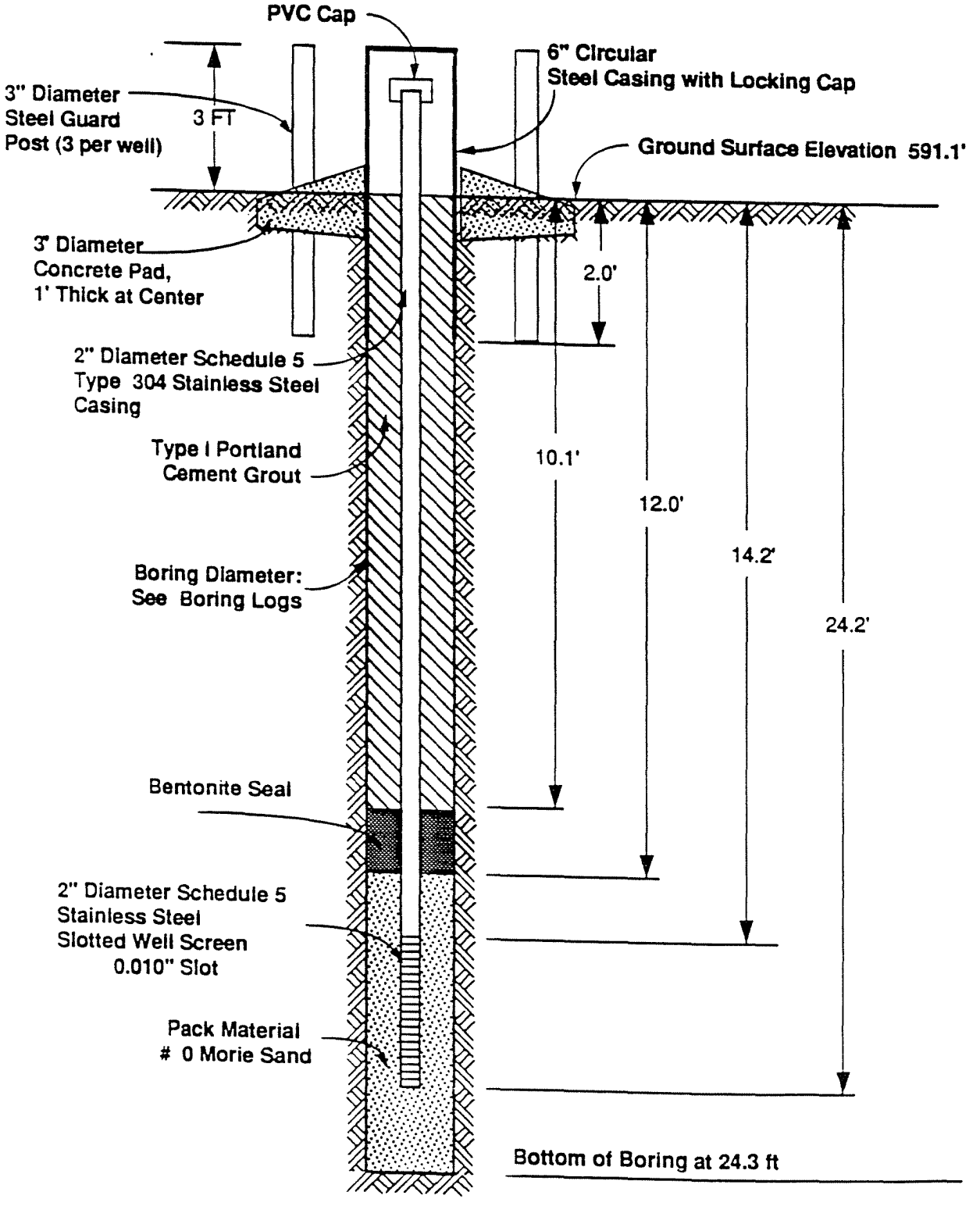


Figure Not to Scale

Piezometer Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by J. Toth

Boring/Piezometer No. PF4
TOC Elevation 592.25 ft
Location Buffalo, New York
Date 4/16/92

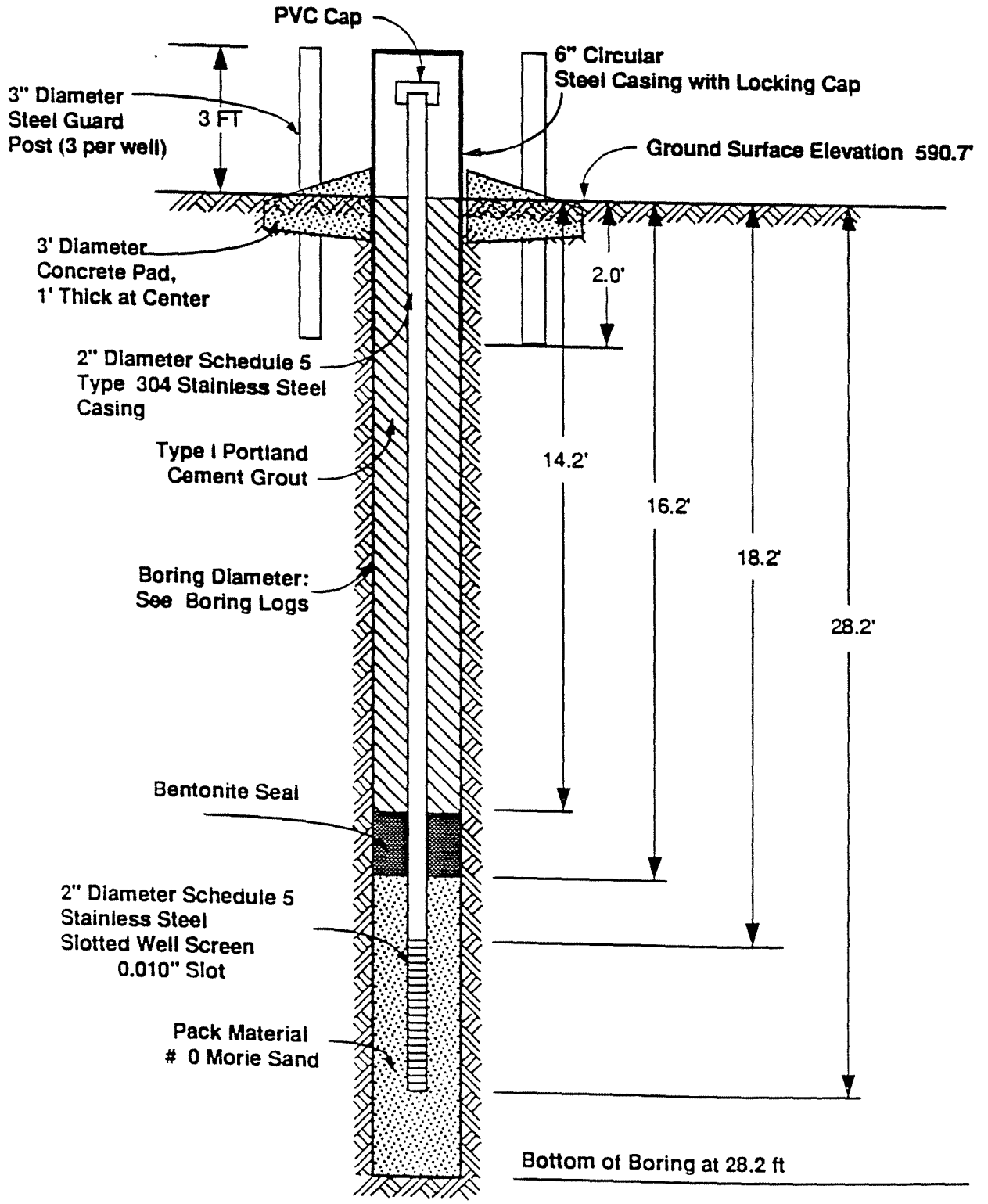


Figure Not to Scale

Piezometer Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by T. Rogers

Boring/Piezometer No. PF6
TOC Elevation 593.55 ft
Location Buffalo, New York
Date 4/20/92

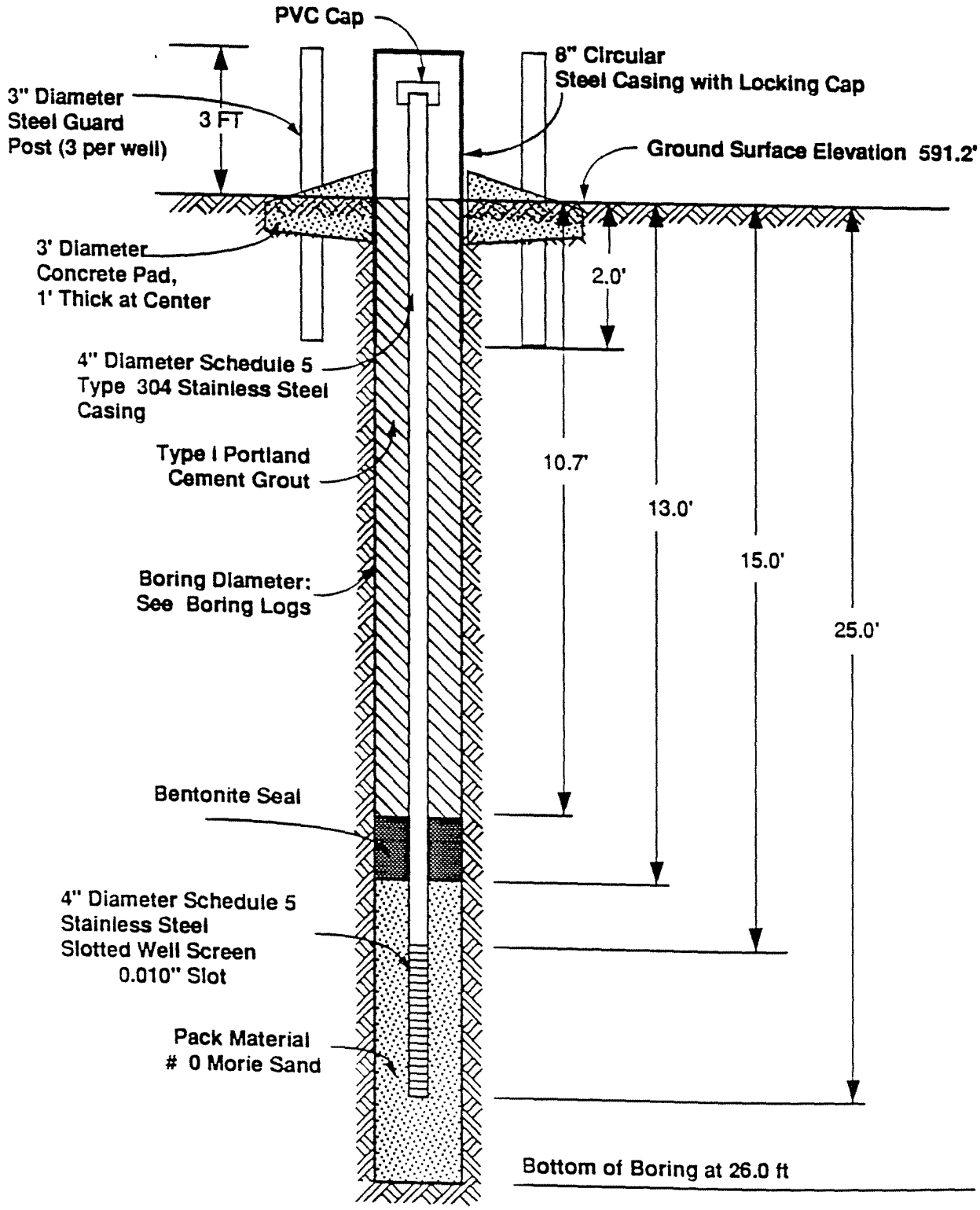


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by J. Toth

Boring/Piezometer No. MWS1
TOC Elevation 591.40 ft
Location Buffalo, New York
Date 4/28/92

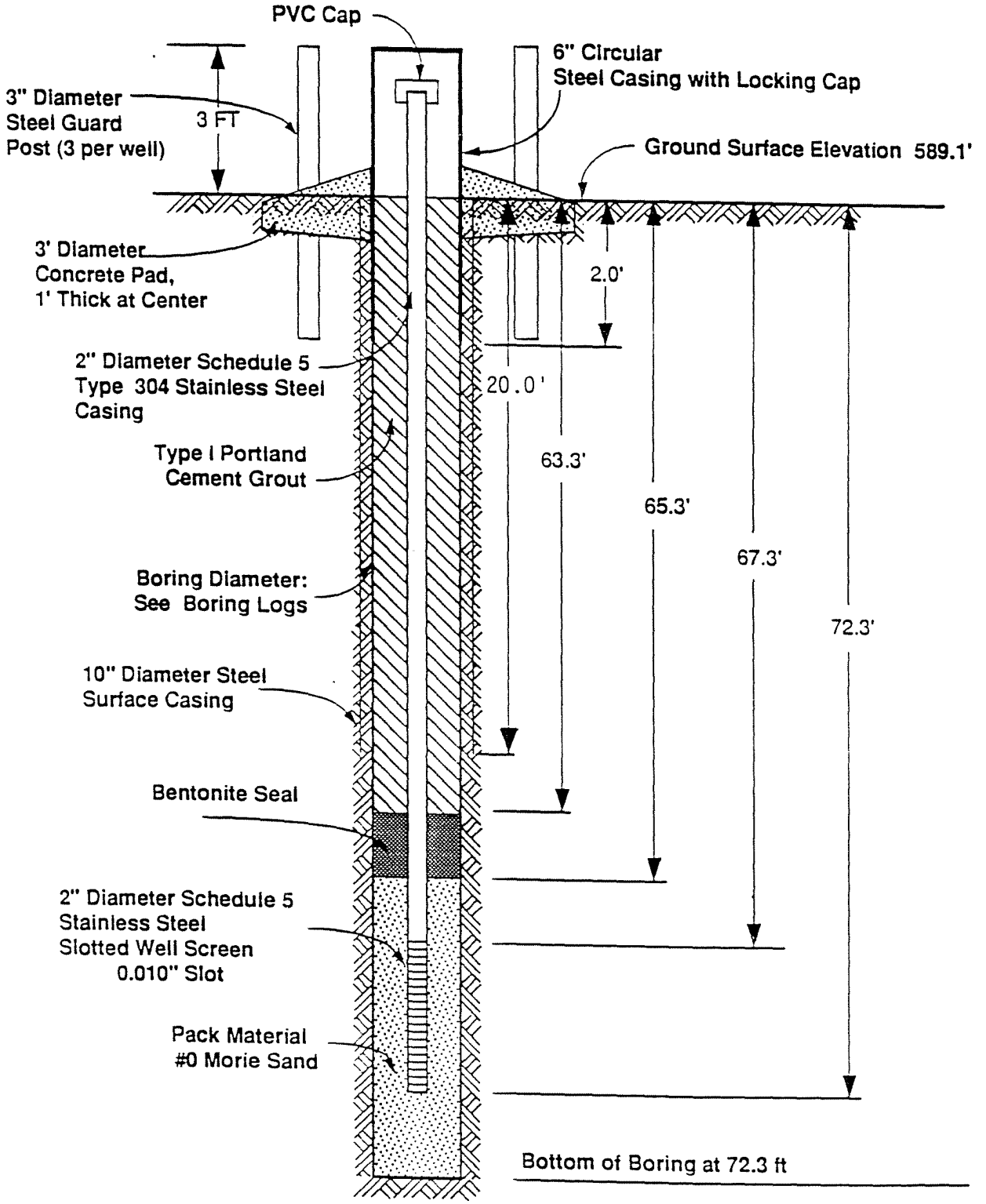


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by A. Bryda

Boring/Piezometer No. MWS2
TOC Elevation 593.29 ft
Location Buffalo, New York
Date 4/24/92

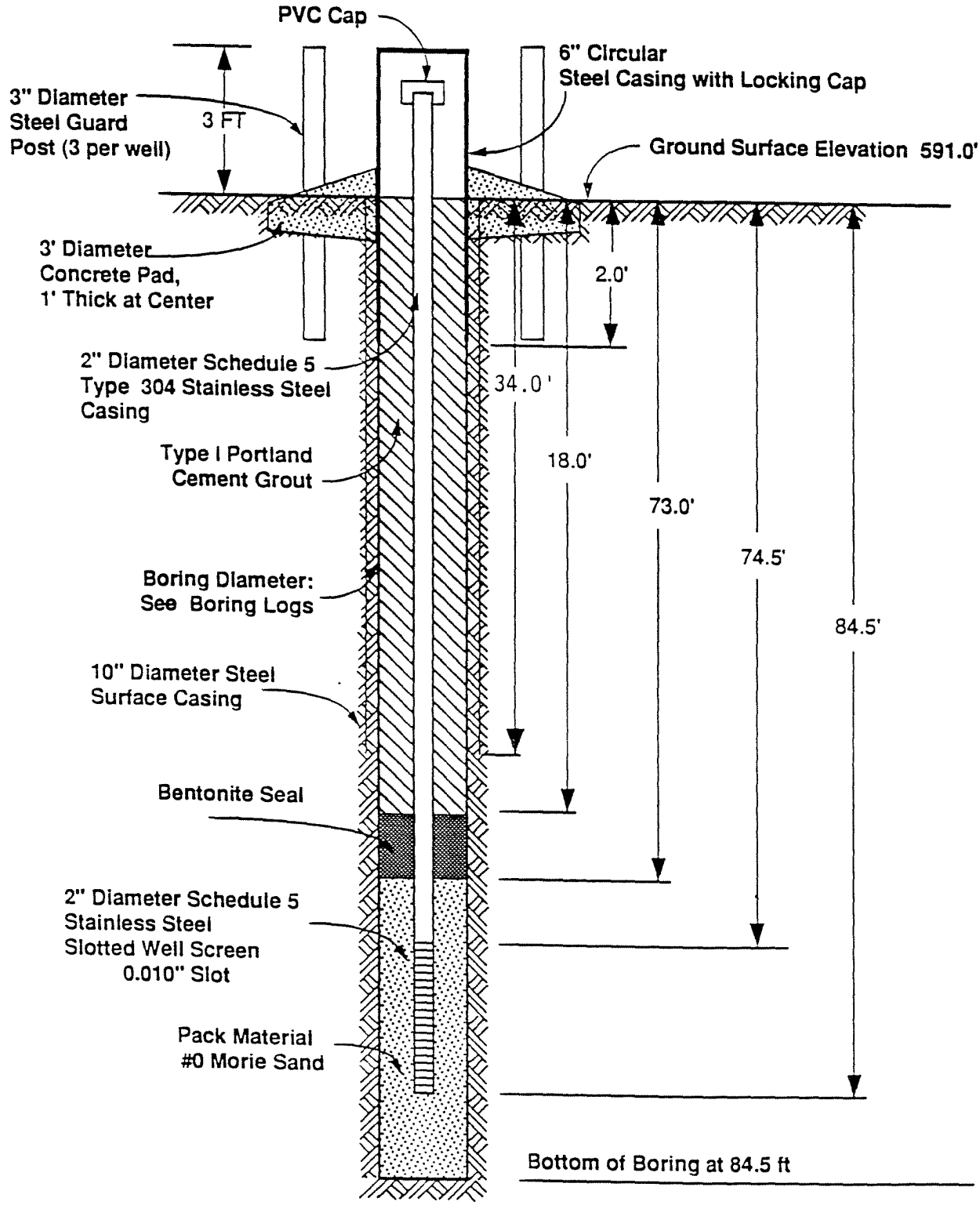


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by A. Bryda

Boring/Piezometer No. MWS3
TOC Elevation 592.51 ft
Location Buffalo, New York
Date 4/23/92

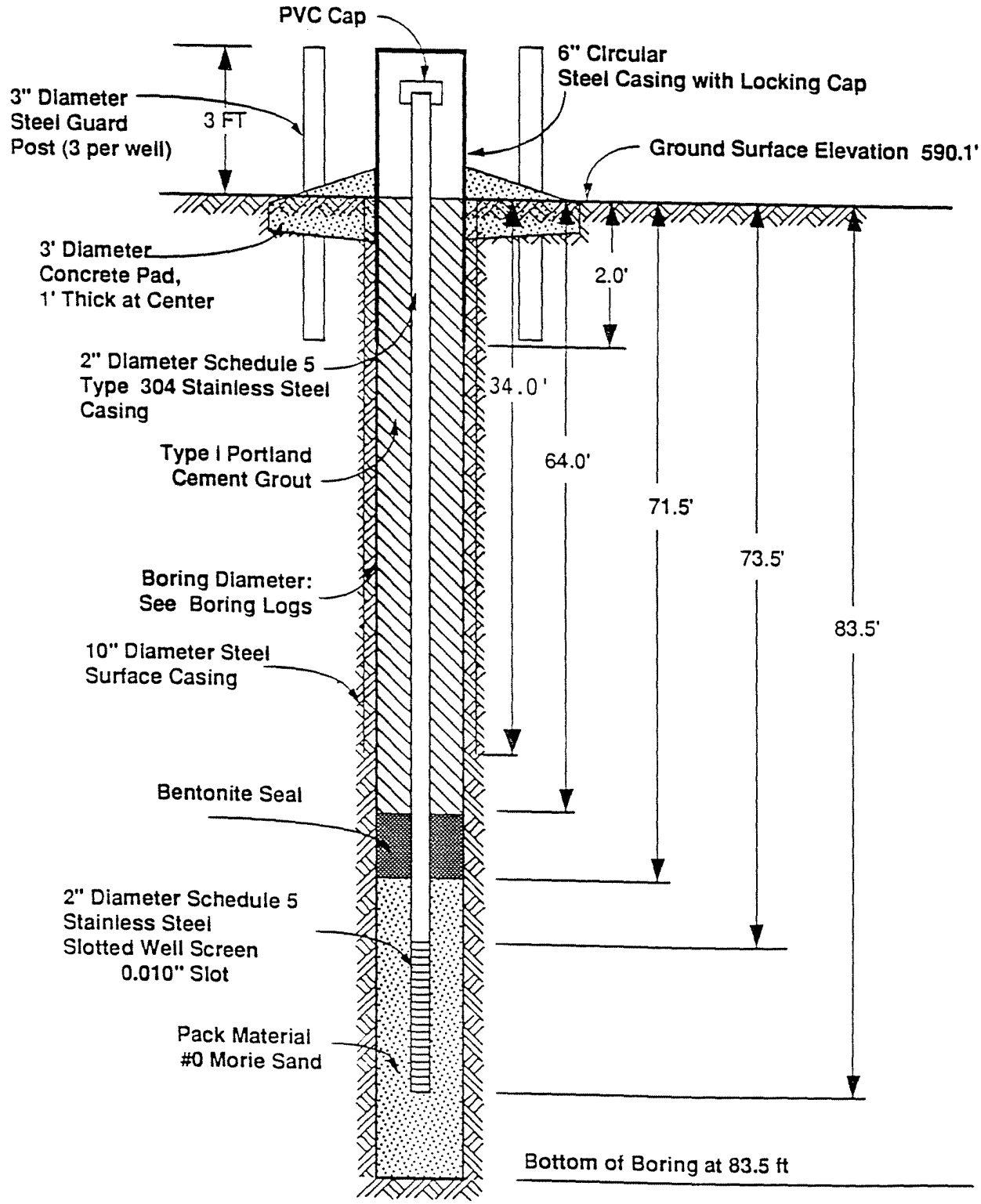


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by A. Bryda

Boring/Piezometer No. MWS4
TOC Elevation 593.71 ft
Location Buffalo, New York
Date 4/20/92

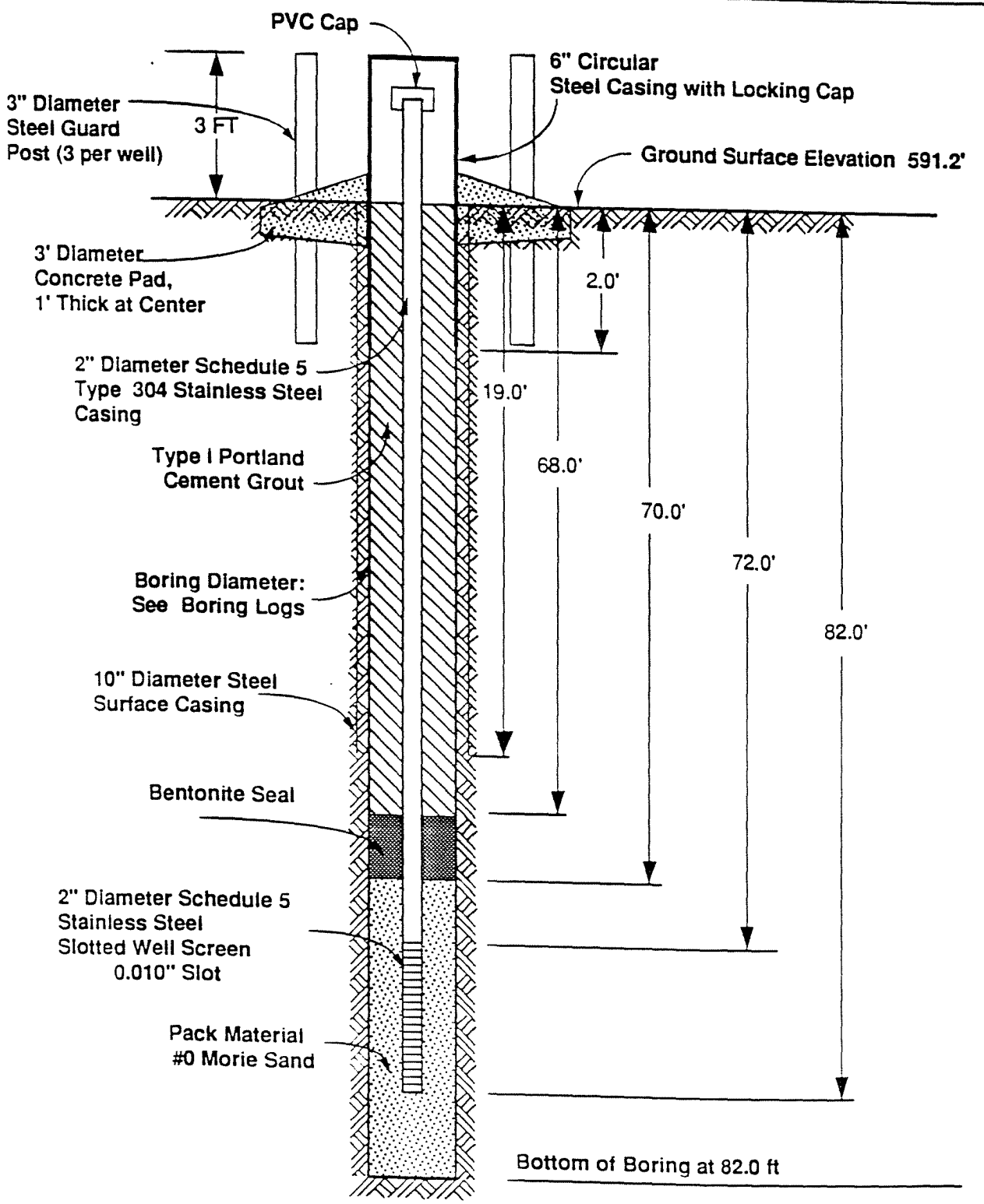


Figure Not to Scale

Monitoring Well Construction Diagram

Project Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by T. Rogers

Boring/Piezometer No. PS1
TOC Elevation 593.55 ft
Location Buffalo, New York
Date 4/24/92

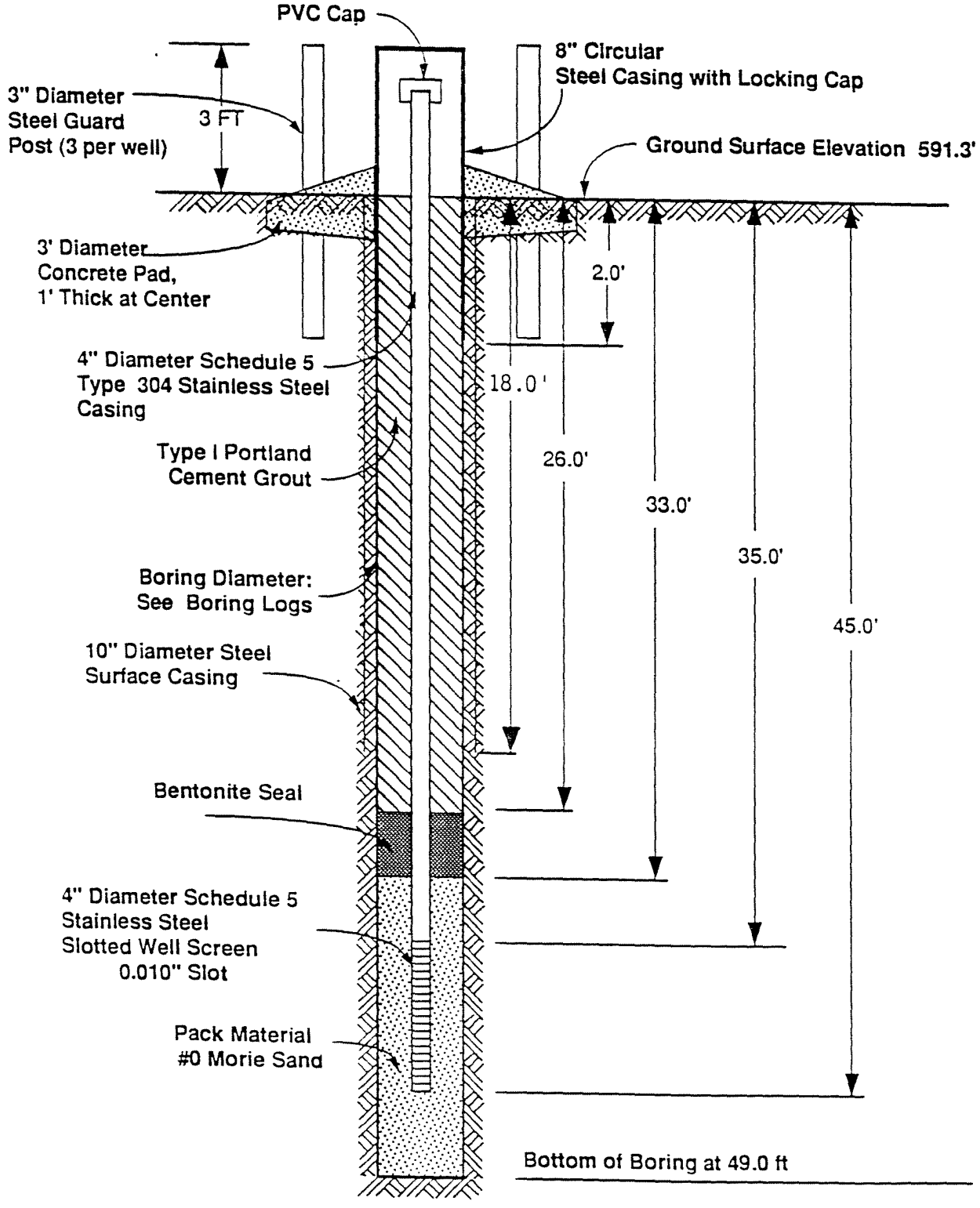


Figure Not to Scale

Monitoring Well Construction Diagram

roject Name IG/WS RI/FS
Project No. 7647-011
Drilling Contractor Buffalo Drilling
Recorded by J. Moffitt

Boring/Piezometer No. PS2
TOC Elevation 594.23 ft
Location Buffalo, New York
Date 4/30/92

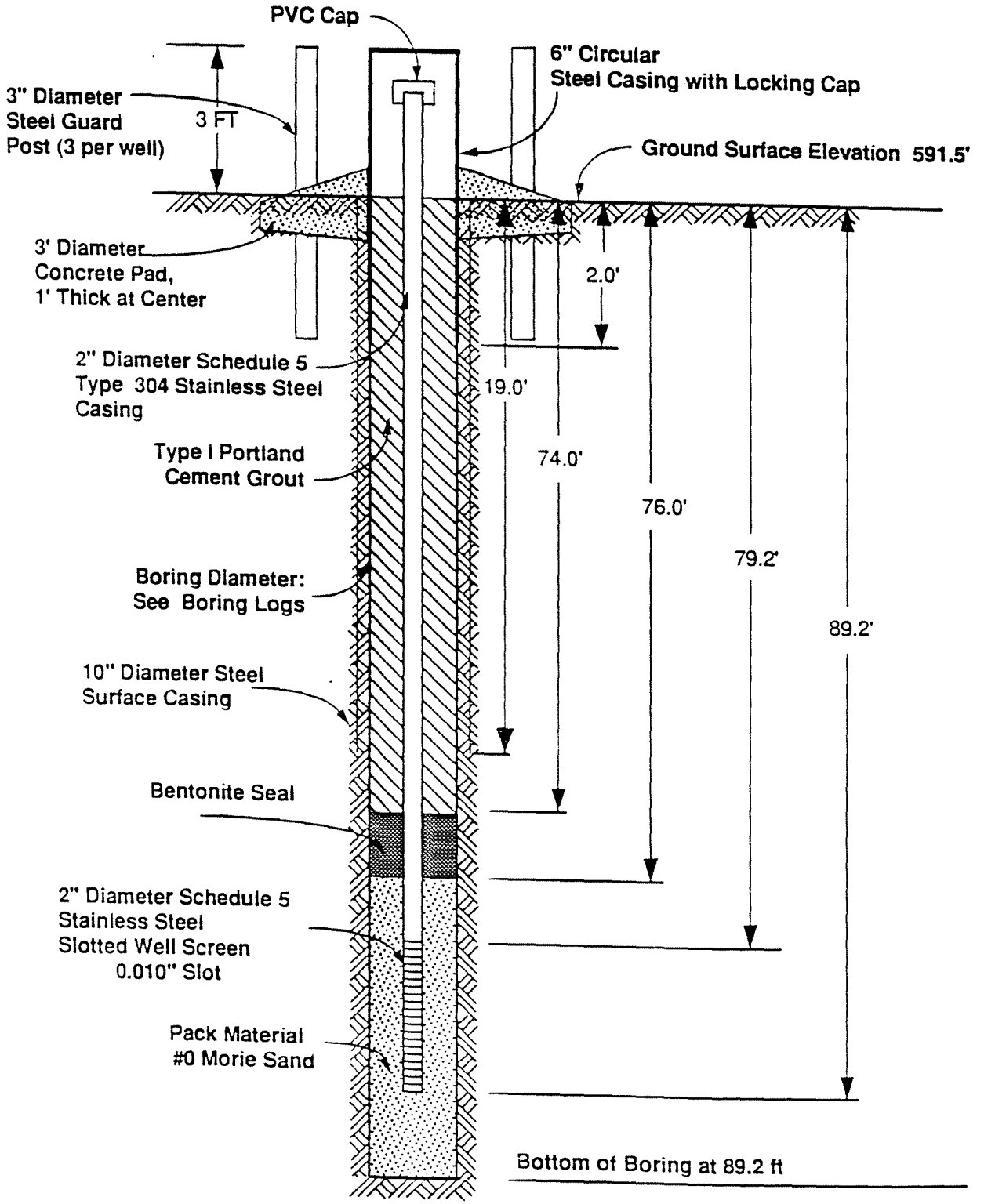


Figure Not to Scale

"B Series" Boring Logs and Monitor Well Schematics
Termini Associates, 1987, Subsurface Evaluation of the
Dart Street Former Fuel Gas Plant Site, Buffalo, New York

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-3

Driller: Darryl Altrogge
Type of Drill Rig: CME 55
Sampling Method: ASTM D1586
Size and Type of Bit: 6 in. ID augers

Surface Elevation: 99.76 ft.
Datum: manhole NW corner Bldg. # 6
Location: refer to boring location plan
Date Started: 1/2/86 Completed: 1/3/86

Overburden Samples: Disturbed: 8 Undist.:
Total Depth of Hole: 31.0 ft.
Depth Drilled into Rock: 0 ft.

Top of Rock Elevation:
Bottom of Hole Elevation: 68.76
Ground Water Depth: refer to Table I labeled Summary of Water Level Readings

Depth (ft)	Blows per 5 ft.	Sample No.	N	% Rec (ROD)	SOIL AND ROCK DESCRIPTION	REMARKS
	76	S-1	100+	100	0.5' Crushed Stone (Fill) 0.5' Concrete Slab	S-1: 0-0.5'
1						
	9 15	S-2	24	50	Black/Yellow, dense Rubble, moist (Fill)	S-2: 2-3.5'
	86	S-3	100+	75	Grey, v.dense Gravel and Sand,moist (Fill)	S-3: 4-4.2'
	80/3"				1.8' Concrete Slab	
5						
	1 3	S-4	7	60	Brown/Grey,med. stiff, Clay, some Sand little Gravel,little oil,plastic,wet(Fill)	S-4: 6-8'
	4 5					
	7 12	S-5	31	30	Grey/black, dense,Gravel and Sand,little Clay, wet, oil soaked (Fill)	S-5: 8-10'
	19 19					
10					Brown, hard, SILT and Clay, little f/c Sand, moist, slight plasticity (ML-CL)	
	7 12	S-6	36	75		S-6: 10-12'
	24 23					
	8 12	S-7	34	50	...grade: tr.gravel,tr. of oil, wet	S-7: 12-14' note 1
	22 24					
	10 17	S-8	42	100	same as S-6	S-8: 14-16'
15	25 25					
	10 15	S-9	53	75	same as S-6	S-9: 16-18'
	28 35					
	12 17	S-10	39	100	same as S-6	S-10: 18-20'
20	22 20					

Notes 1.) possible zone of migration
2.) Well installed (refer to Appendix I, labeled Monitoring Well Schematics)

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-3

Depth (ft)	Blows per 5 ft		Sample No.	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
	6	12					
21	17	21	S-11	39	100	same as S-6	S-11: 20-22'
	10	17					
	22	19	S-12	39	100	Red/brown, hard SILT, some Clay, little Gravel, plastic, wet (ML-CL)	S-12: 22-24'
	7	12					
25	15	19	S-13	37	100	same as S-12	S-13: 24-26'
	6	6				Red/brown, stiff, CLAY, some Silt, plastic,	
30	5	6	S-14	11	75	wet (ML-CL)	S-14: 29-31'
						Bottom of hole 31.0 ft.	
35							

Notes

Sheet No 2 of 2

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-5

Driller: Darryl Altrogge
Type of Drill Rig: CME 55
Sampling Method: ASTM D1586
Size and Type of Bit: 6 in. ID augers

Surface Elevation: 99.12
Datum: manhole NW corner of Bldg. # 6
Location: refer to boring location plan
Date Started: 12/31/85 Completed: 12/31/85

Overburden Samples: Disturbed: 4 Undist.:
Total Depth of Hole: 11.0 ft.
Depth Drilled into Rock: 0 ft.

Top of Rock Elevation: -
Bottom of Hole Elevation: 88.12
Ground Water Depth: refer to table I labeled Summary of Water Level Readings

Depth (ft)	Blows per 5 ft	Sample No	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
1						
	4 6	S-1	12	75	Brown, stiff, Clay and Silt, little f. Sand, tr. Gravel, moderate plasticity, moist (Fill)	S-1: 2-4'
	6 8					
	4 4	S-2	9	80	same as S-1	S-2: 4-6'
5	5 4					
	8 16	S-3	29	100	Brown, v. stiff, SILT, some Clay, little Sand, slight plasticity, moist (ML-CL)	S-3: 6-8'
	13 17					
	7 12	S-4	27	100	...grade: and Clay, moderate plasticity	S-4: 9-11'
10	15 14					
					Bottom of hole 11.0 ft.	
15						
20						

Notes 1.) Well installed (refer to Appendix I labeled Monitoring Well Schematics)

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-6

Driller: Darryl Altrogge
Type of Drill Rig: CME 55
Sampling Method: ASTM D1586
Size and Type of Bit: 6 in. ID augers

Surface Elevation: 99.31
Datum: manhole NW corner Bldg. # 6
Location: refer to boring location plan
Date Started: 1/6/86 Completed: 1/6/86

Overburden Samples: Disturbed: 12 Undist.:
Total Depth of Hole: 28.0 ft.
Depth Drilled into Rock: 0 ft.

Top of Rock Elevation: -
Bottom of Hole Elevation: 71.31
Ground Water Depth: refer to table I labeled Summary of Water Level Readings

Depth (ft.)	Blows per 5 ft	Sample No	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
1	7 8				Brown, v. stiff, Silt, some Clay, little Sand, tr. Coal fragments, moderate plasticity, moist (Fill)	
	8 11	S-1	19	75	...grade to oil soaked	S-1: 0-3'*
	11 10					
	8 7	S-2	15	10	same as S-1	S-2: 3-4'
5	7 22				...grade: little gravel, hard	
	18 18	S-3	36	75	Black, dense Coal fragments, tr. sandstone fragments, dry (Random Fill)	S-3: 4-7'*
	32 19					
	6 6	S-4	8	<5	Grey, loose Concrete fragments, dry (Random Fill)	S-4: 7-9'
	2 2					
10	5 20				Brown, v.stiff, Silt,some Clay, little Sand, plastic, lense of Greenish blue Silt, lense of Gravel and Sand, moist to wet (Fill)	
	18 12	S-5	30	60		S-5: 9-12'*
	10 15					
	4 5	S-6	16	20	Brown, med. stiff Silt and Clay, little f. Sand, plastic, wet (Fill)	S-6: 12-14'
	11 17					
15	7 7				Brown/black, v.stiff, Silt, some Gravel sized Coal fragments and Sandstone fragments, wet (Fill)	
	11 8	S-7	19	30		S-7: 14-17'*
	14 13					
	5 2	S-8	7	30	Brown, med. stiff, Clay and Silt, some oil soaked nodules, tr. Gravel, plastic, wet (Fill)	S-8: 17-19'
	5 9					
20	14 14					

Notes 1.) Well installed (refer to Appendix I labeled Monitoring Well Schematics)
2.) petroleum odor
3.) *implies soil sample taken with 3 inch diameter by three foot long split spoon sampler.

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-6

Depth (ft)	Blows per 5 ft		Sample No.	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
	14	6				Grey, med.dense Concrete fragments, wet (Fill)	
21	5	6	S-9	20	20	Black, stiff organic SILT and CLAY, tr. Shells, plastic, wet (OL)	S-9: 19-22' * note 2.
	2	4					
	4	4	S-10	8	75	same as S-9	S-10: 22-24'
	4	4					
25	3	3	S-11	7	60	Brown, loose f/m SAND and Shells, tr. organics, wet (SM)	S-11: 24-26'
	6	6					
	9	10	S-12	15	80	Grey, stiff CLAY, little Silt, plastic, wet (ML-CL)	S-12: 26-28'
						Bottom of hole 28.0'	
30							

Notes

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-7

Driller: Darryl Altrogge
Type of Drill Rig: CME 55
Sampling Method: ASTM D1586
Size and Type of Bit: 6 in. ID augers

Surface Elevation: 99.37 ft.
Datum: manhole NW corner of Bldg. # 6
Location: refer to boring location plan
Date Started: 1/5/86 Completed: 1/5/86

Overburden Samples: Disturbed: 13 Undist.:
Total Depth of Hole: 34.0 ft.
Depth Drilled into Rock: 0 ft.

Top of Rock Elevation: -
Bottom of Hole Elevation: 80.04'
Ground Water Depth: no water at completion

Depth (ft)	Blows per 5 ft		Sample No	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
1	5	9				Dark brown, dense, f/c Sand, some Silt, little Gravel, tr. Coal fragments, moist (Fill)	
	19	13	S-1	32	70		S-1: 0-3'*
	13	13					
	4	4	S-2	8	20	Brown, stiff, Silt and Clay, little Gravel, tr. Coal fragments, plastic, wet (Fill)	S-2: 3-5'
5	4	13					
	10	11				Black, dense Coal fragments, tr. Sandstone fragments, moist (Random Fill)	
	14	24	S-3	38	60		S-3: 5-8'*
	33	47					*note 1
	17	45				Brown, v. dense, gravel sized Concrete fragments, some f/c Sand, dry (Random Fill)	
10	30	23	S-4	53	30		S-4: 9-12'*
	25	22					
	7	8	S-5	15	50	...grade: some Silt, tr. Coal fragments	S-5: 12-14'
	7	5					
	5	10				Brown, med. dense Gravel, some Clay,	
15	11	5	S-6	16	50	little f/c Sand, saturated (Fill)	S-6: 14-17'*
	6	5					
	5	6	S-7	11	10	...grade: oil soaked	S-7: 17-19'
	5	4				Black, med. dense, Silt and Clay, little	S-8: 19-21'*
20	4	2	S-8	6	50	Slag, plastic, moist (Fill)	note 1

Notes 1.) petroleum odor

2.) Well installed (refer to Appendix I, labeled Monitoring Well Schematics)

3.) *implies soil sample taken with 3 inch diamter by 3 foot long split spoon sampler.

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client Westwood Pharmaceuticals
Project Evaluation of potential industrial waste site
File No. 85-226 Boring No. B-7

Depth (ft)	Blows per 5 ft.		Sample No	N	% Rec (ROD)	SOIL AND ROCK DESCRIPTION	REMARKS
21	4	8				...grade: brown, some Gravel, oil soaked	S-8: 19-21'
	7	9	S-9	11	80	same as S-8	S-9: 22-24'
	2	2					
25	4	6				Brown, med. stiff, SILT, some Organics,	
	2	5	S-10	7	100	some Shells, little f/m Sand, non-plastic, moist (OL)	S-10: 24-27'*
	5	8					
	8	8	S-11	10	100	...grade: Grey, some Gravel, tr. organics, oil soaked, saturated	S-11: 27-29'
	2	4					
30	3	5	S-12	17	80	Grey, v. stiff, CLAY, some Silt, little f/c Sand, plastic, wet (ML-CL)	S-12: 29-31'
	12	24					
	31	40	S-13	91	100	Brown, hard, SILT and Clay, little f/c Sand, plastic, moist to wet (ML-CL)	S-13: 32-34'
	51	76					
35						Bottom of hole 34.0 ft.	

Notes

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-8

Driller: Darryl Altrogge
Type of Drill Rig: CME 55
Sampling Method: ASTM D1586
Size and Type of Bit: 6 in. ID augers

Surface Elevation: 100.04
Datum: manhole NW corner of Bldg. # 6
Location: refer to boring location plan
Date Started: 1/7/86 Completed: 1/7/86

Overburden Samples: Disturbed: 10 Undist.:
Total Depth of Hole: 29.0 ft.
Depth Drilled into Rock: 0 ft.

Top of Rock Elevation: -
Bottom of Hole Elevation: 71.04'
Ground Water Depth: refer to Table I labeled Summary of Water Level Readings

Depth (ft)	Blows per 5 ft	Sample No	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
1					Crushed Stone	augered without sampling
5	3 6 9 12 12 11	S-1	21	50	Brown/black, v. stiff, Silt, some Clay, little f. Sand, tr. Concrete fragments, plastic, wet (Fill)	S-1: 4-7'*
	5 3 3 3	S-2	6	10	Red, loose, gravel sized Brick fragments, wet (Random Fill)	S-2: 7-9
10	5 16 22 16 32 23	S-3	38	30	Black/brown, hard, Silt, some Clay, little Gravel, tr. Brick, tr. Sandstone, plastic, saturated (Random Fill)	S-3: 9-12'* note 1
	6 3 3 1	S-4	6	<5	Grey, loose, gravel sized Concrete fragments, moist (Random Fill)	S-4: 12-14'
15	5 6 6 10 15 27	S-5	16	50	Brown, v. stiff, Clay, some Silt, little Sand, tr. Wood fragments, plastic, moist (Fill)	S-5: 14-17'*
	6 7 9 7	S-6	16	50	same as S-5	S-6: 17-19'
20	3 20					

Notes

1.) petroleum odor

2.) Well installed (refer to Appendix I, labeled Monitoring Well Schematics)

3.) Lense of oil at Gravel/Clay interface

4.) *implies soil sample taken with 3 inch diameter by 3 foot long split spoon sampler.

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client Westwood Pharmaceuticals
Project Evaluation of potential industrial waste site
File No. 85-226 Boring No B-8

Depth (ft.)	Blows per 5 ft.		Sample No.	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
21	20	45	S-7	65	50	Black, v. dense, Gravel, some f/c Sand, oil soaked, saturated (Fill)	S-7: 19-22'*
	14	6					
	1	1	S-8	3	50	Black, organic SILT, little Clay, tr. Shells, slight plasticity, wet (OL)	S-8: 23-25' note 1
25	2	1					
	4	1	S-9	2	100	same as S-8	S-9: 25-27' note 1
	1	1				Grey,v. loose, GRAVEL, some f/c Sand, wet (GW)	
	3	1	S-10	2	100	Grey,v.soft,Clay,some Silt,little Sand, plastic, saturated (CL-ML)	S-10: 27-29' note 3
30						Bottom of hole 29.0 ft.	

Notes

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
955 Niagara Street
Buffalo, New York 14213

Client: Westwood Pharmaceuticals
Project: Evaluation of potential industrial waste site
File No.: 85-226 Boring No.: B-19A

Driller: Darryl Altrogge
Type of Drill Rig: CME 55
Sampling Method: ASTM D 1586
Size and Type of Bit: 3-3/4 in. ID augers

Surface Elevation: about 575 ft.
Datum:
Location: refer to boring location plan
Date Started: 6/9/86 Completed: 6/9/86

Overburden Samples: Disturbed 7 Undist.
Total Depth of Hole: 23.0 ft.
Depth Drilled into Rock: 0 ft.

Top of Rock Elevation:
Bottom of Hole Elevation:
Ground Water Depth: 10.0 ft. at completion

Depth (ft.)	Blows per 5 ft.		Sample No	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
1						Brown, dense, f/c Sand, some Gravel, some Silt, trace Brick, trace Slag, moist (Fill)	(refer to note 2)
5							augered to 9.0 ft. no samples taken
	9	7					
10	9	10	S-1	16	0		S-1: 9-11' no recovery
	4	4				Red/brown, stiff, CLAY, some Silt, plastic, wet (CL-ML)	
	5	7	S-2	9	50		S-2: 11-13'
	7	7					
	11	10	S-3	18	50	...grade: v. stiff	S-3: 13-15'
15	4	7					
	12	13	S-4	19	80	same as S-3	S-4: 15-17'
	8	14				Red/brown, hard, SILT, some Clay, little f/c Sand, tr. Gravel, non-plastic, wet (Till)	
	19	17	S-5	33	50		S-5: 17-19'
20	7	14	S-6	35	100	same as S-5	S-6: 19-21'

Notes
1.) Boring B-19A drilled to replace B-19 which was destroyed during construction of the adjacent building foundation system.
2.) Fill description presented as determined by boring B-19.
3.) Well installed (refer to Appendix D labeled Monitoring Well Schematics).

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
1965 Sheridan Drive
Kenmore, New York 14223

Client Westwood Pharmaceuticals
Project Evaluation of potential industrial waste site
File No. 85-226 Boring No. B-19A

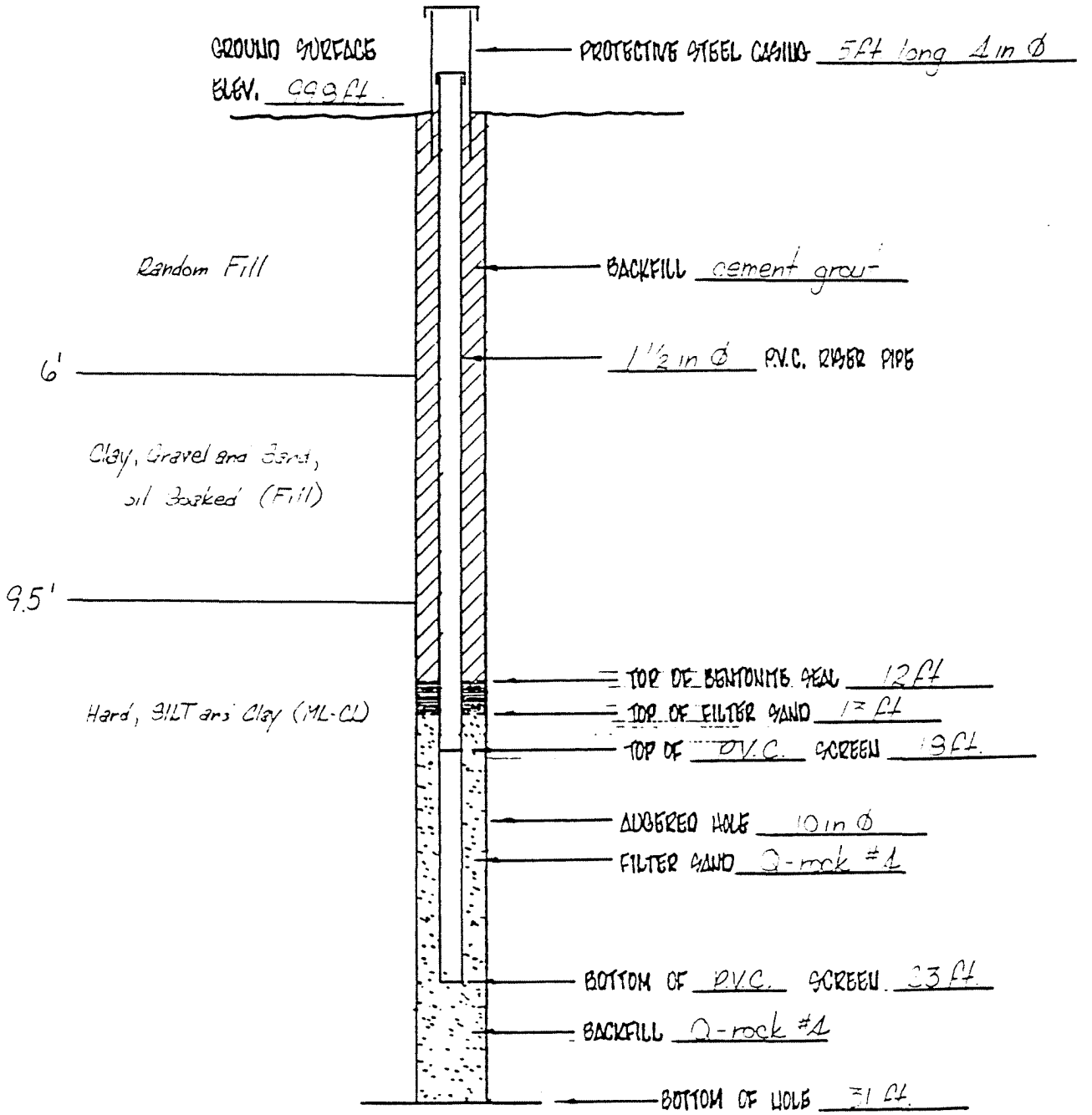
Depth (ft.)	Blows per 5 ft.		Sample No.	N	% Rec (RQD)	SOIL AND ROCK DESCRIPTION	REMARKS
21	21	28	S-6	35	100		S-6: 19-21'
	7	11	S-7	38	100	same as S-5	S-7: 21-23'
	27	31					
						Bottom of Hole 23.0 ft.	

Notes

BY _____ DATE _____ SUBJECT Former Industrial Site Evaluation at Westwood Pharmaceuticals, Buffalo, N.Y. SHEET NO. _____ OF _____

CHKD. BY _____ DATE _____ JOB NO. 85-226

WELL B-3



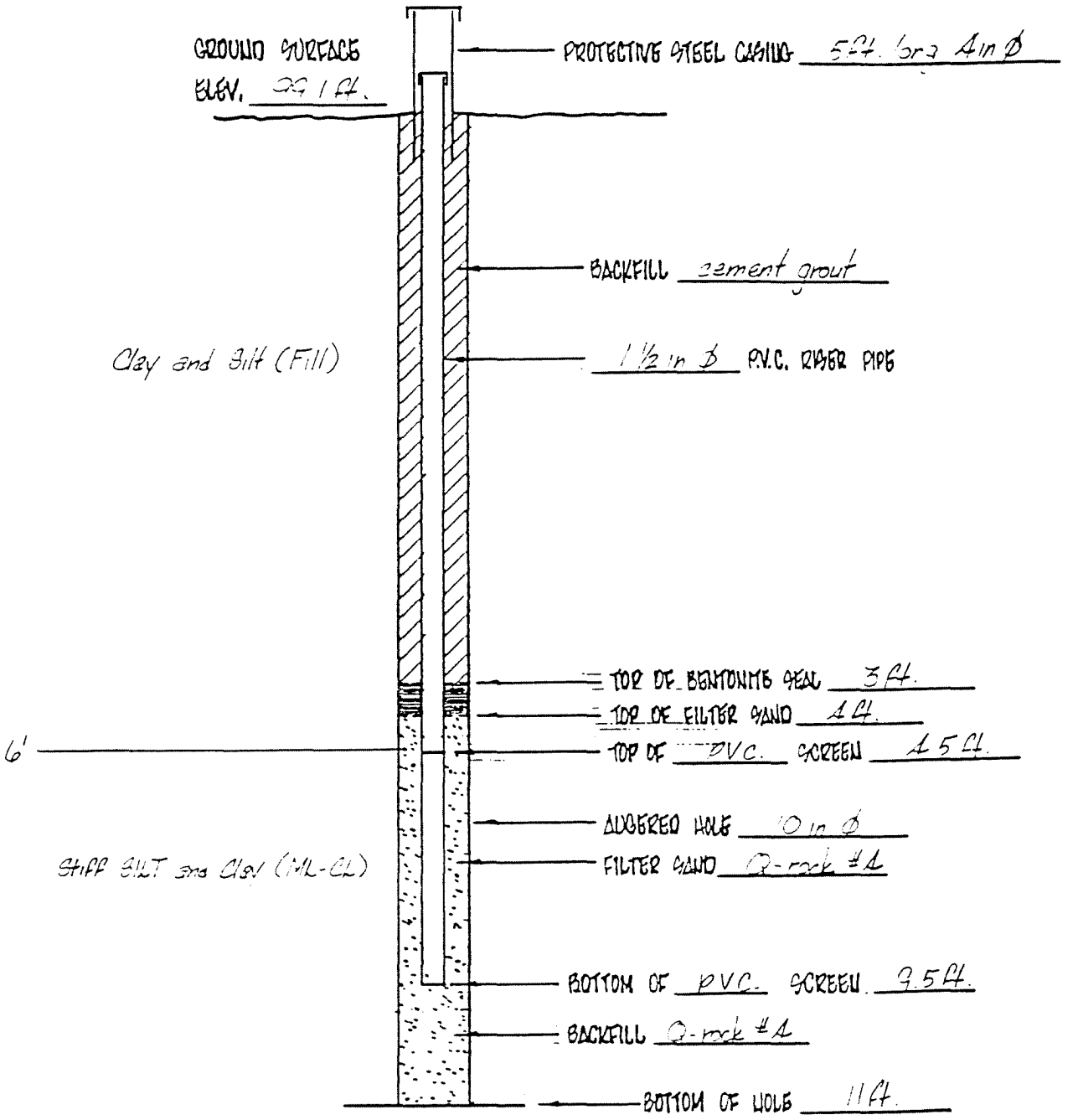
SUMMARY OF SUBSURFACE CONDITIONS

BY _____ DATE _____
CHKD. BY _____ DATE _____

SUBJECT Former Industrial Site Evaluation at Westwood Pharmaceuticals Bldg. 36, NY

SHEET NO. _____ OF _____
JOB NO. 95-226

WELL B-5

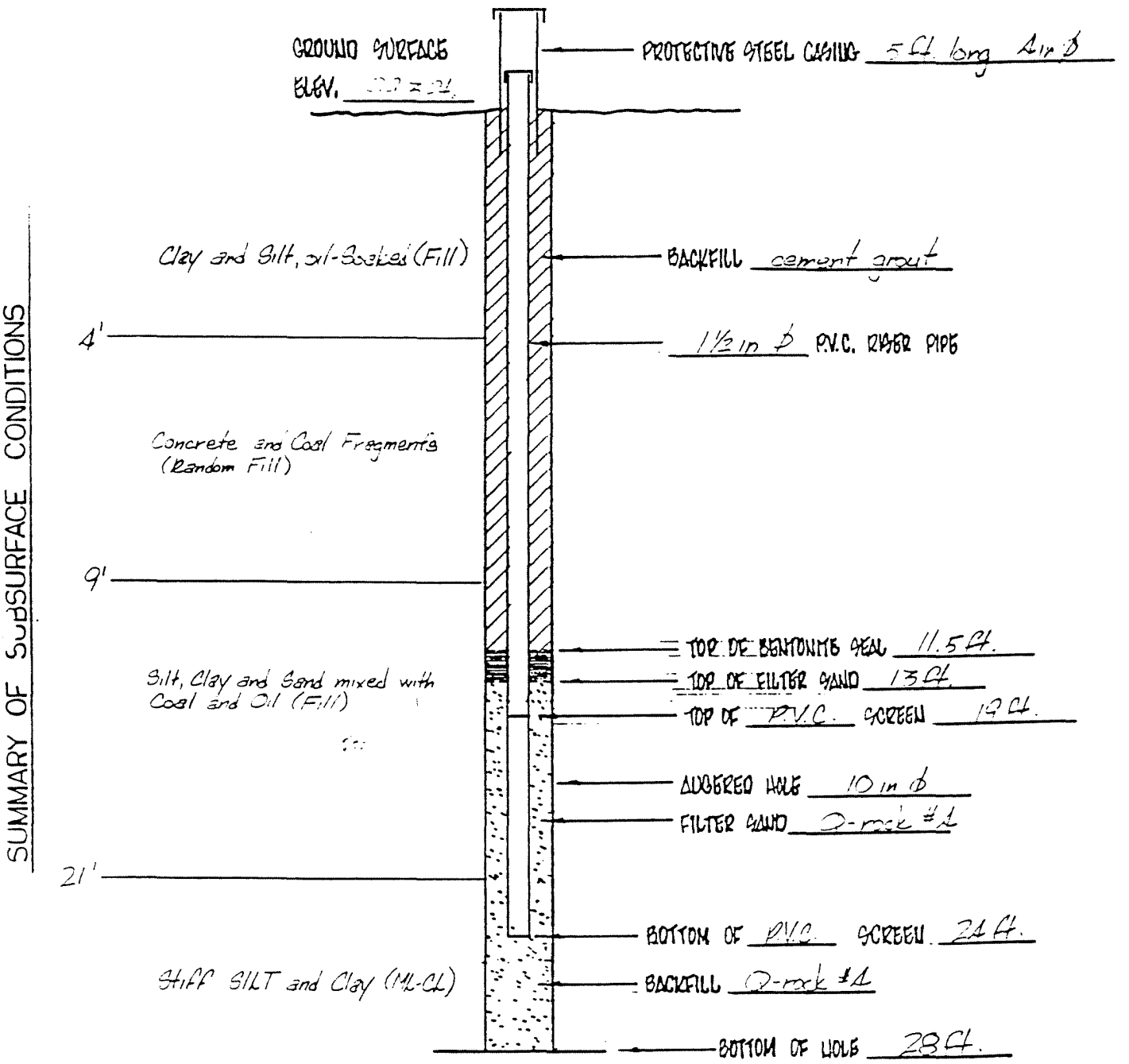


SUMMARY OF SUBSURFACE CONDITIONS

BY _____ DATE _____ SUBJECT Former Industrial Site Evaluation at Westwood Pharmaceuticals Buffalo, N.Y. SHEET NO. _____ OF _____

CHKD. BY _____ DATE _____ JOB NO. 85-216

WELL B-6



SUMMARY OF SUBSURFACE CONDITIONS

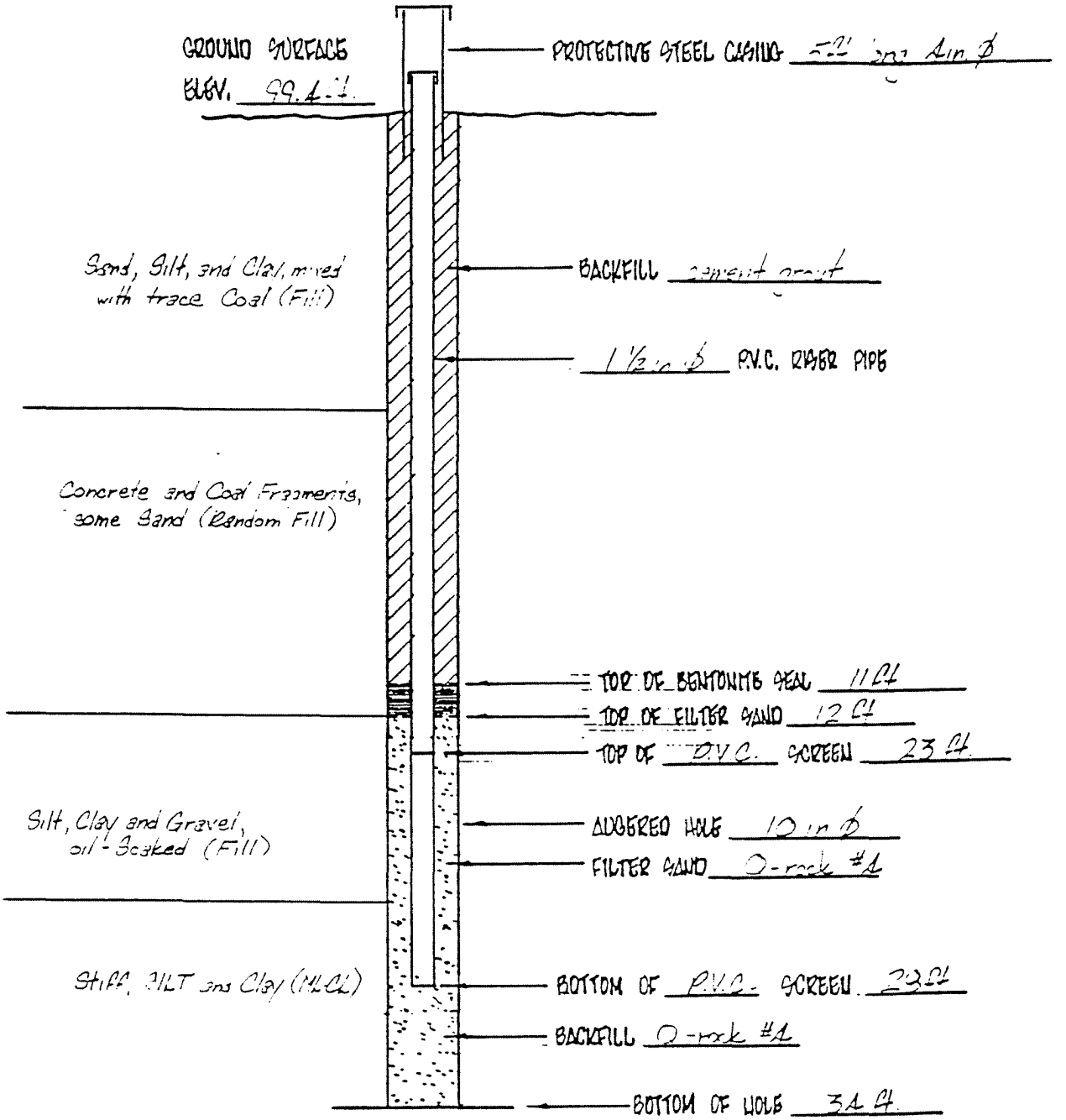
BY _____ DATE _____
CHKD. BY _____ DATE _____

SUBJECT Former Industrial Site Evaluation at Westwood Pharmaceuticals Buffalo, N.Y.

SHEET NO. _____ OF _____
JOB NO. 25-226

SUMMARY OF SUBSURFACE CONDITIONS

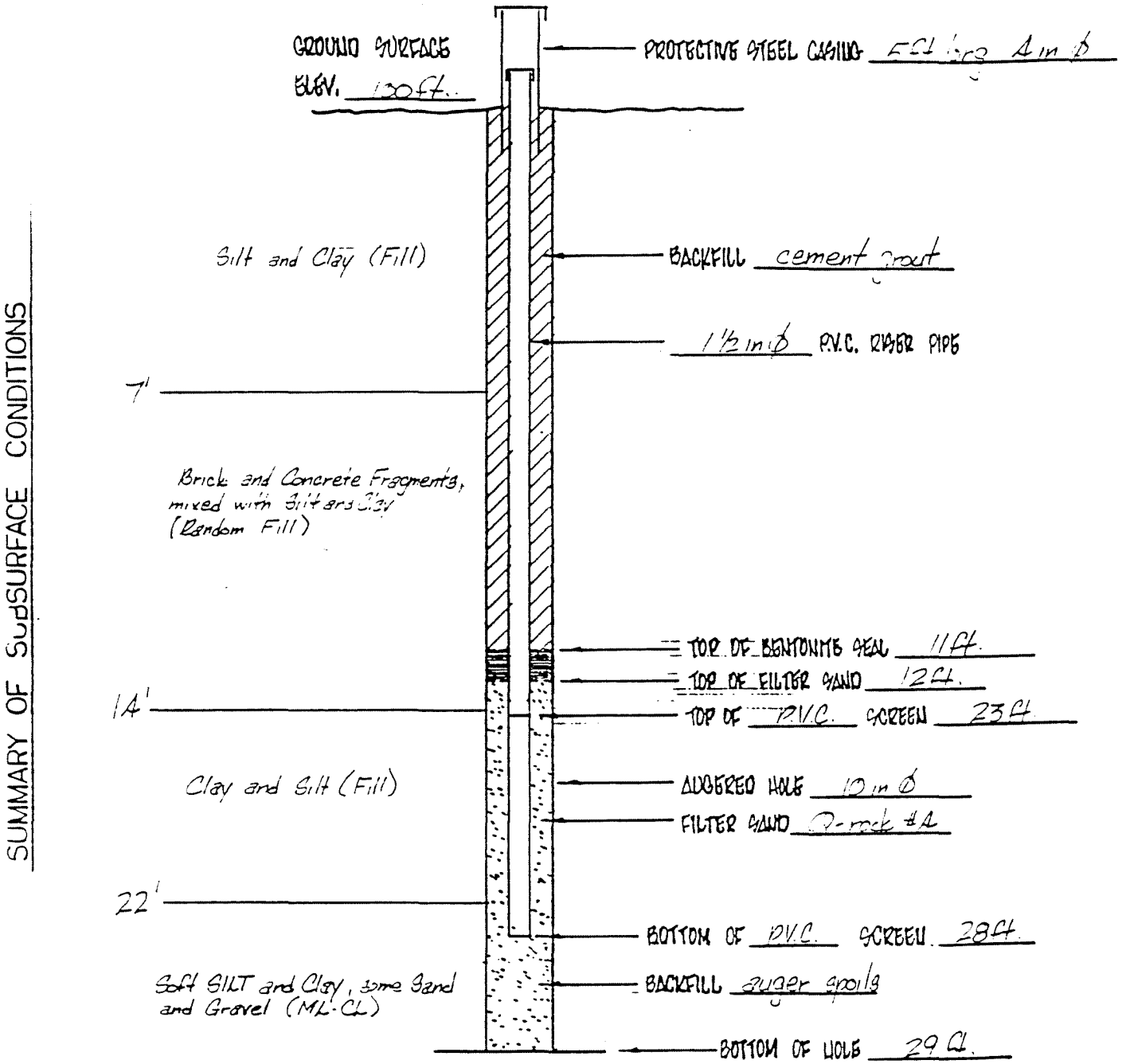
WELL B-7



BY _____ DATE _____ SUBJECT Former Industrial Site Evaluation at Westwood Pharmaceuticals Suffern, N.Y. SHEET NO. _____ OF _____

CHKD. BY _____ DATE _____ JOB NO. 85-776

WELL B-8

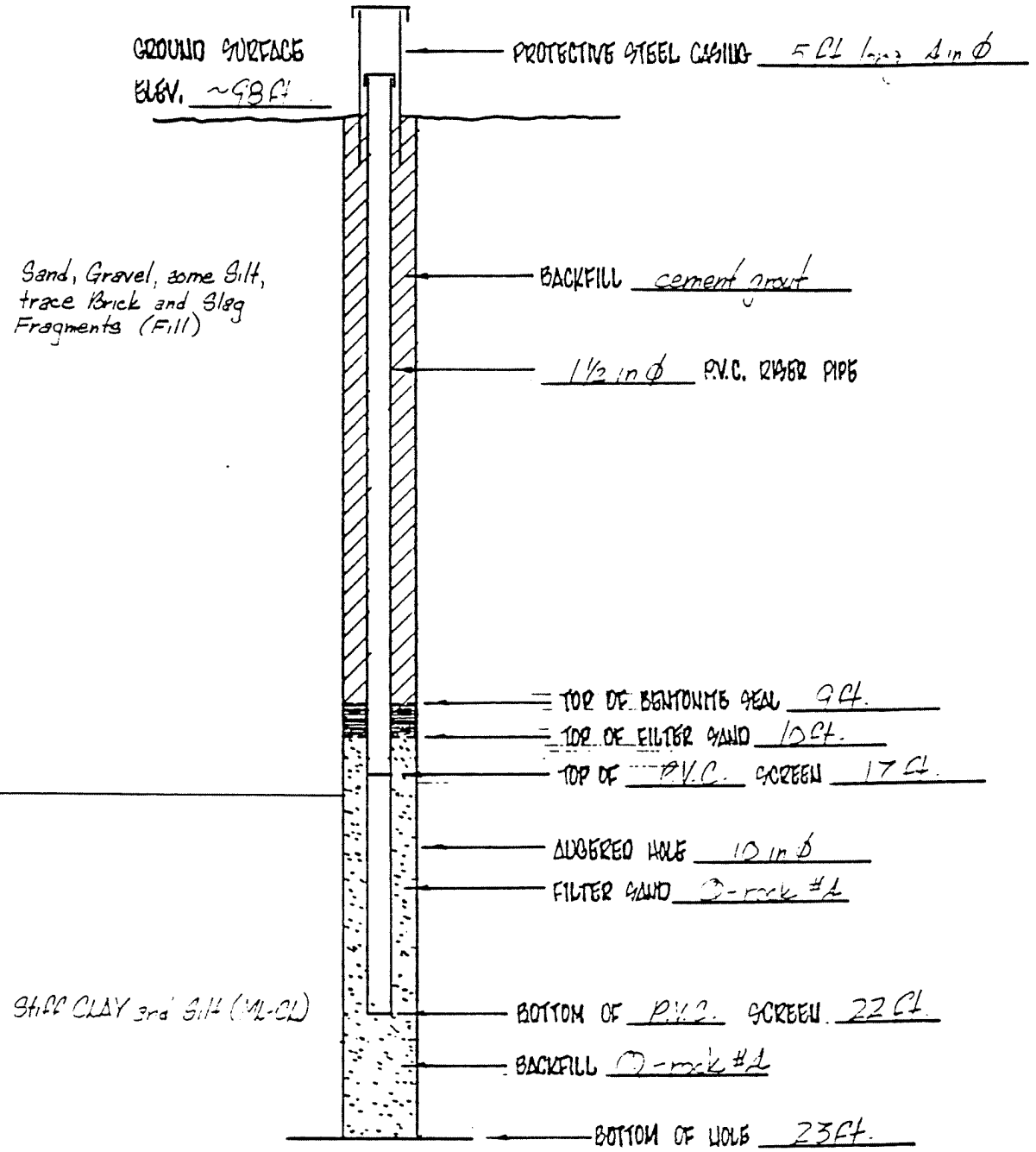


SUMMARY OF SUBSURFACE CONDITIONS

BY _____ DATE _____ SUBJECT Former Industrial Site Evaluation at Westwood Chemicals Bu[illegible]s N.Y. SHEET NO. _____ OF _____

CHKD. BY _____ DATE _____ JOB NO. 85-226

WELL B-19A



SUMMARY OF SUBSURFACE CONDITIONS