

**PHASE II REMEDIAL INVESTIGATION
FIELD DATA REPORT**

LOCKPORT CITY LANDFILL

LOCKPORT (C), NIAGARA (C), NEW YORK

NYSDEC SITE NO. 9-32-010

CITY OF LOCKPORT, NEW YORK

MAY 1991

Prepared For:

CITY OF LOCKPORT, NEW YORK

Lockport Municipal Building

One Locks Plaza

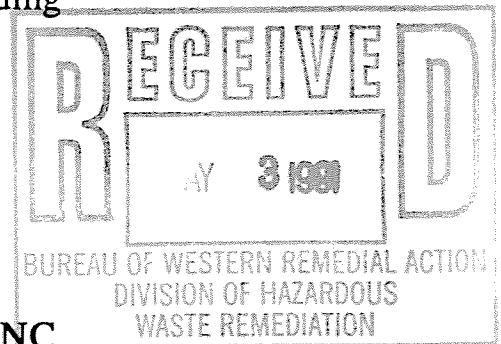
Lockport, New York

Prepared By:

URS CONSULTANTS, INC.

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CITY OF LOCKPORT, NEW YORK
LOCKPORT MUNICIPAL BUILDING
ONE LOCKS PLAZA
LOCKPORT, NEW YORK 14094

PREPARED BY:

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PHASE II REMEDIAL INVESTIGATION

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1.0 INTRODUCTION

1.1 Purpose of Report

The purpose of the Second Phase Remedial Investigation (RI) Report is to present, and summarize data collected during the Second Phase Remedial Investigation (RI) activities at the Lockport City Landfill, City of Lockport, Niagara County, New York. The material presented in this report is limited to hydrogeological/geological information and field data recorded during the field program. Since analytical data from the Second Phase Environmental Sampling was not available at the time of preparation of this document, a further assessment of site chemical conditions is not presented. This assessment will be forthcoming in the Final RI Report.

The intent of the Phase II RI was to further define the horizontal extent of the groundwater contamination detected during the Phase I activities, determine the extent to which the wetland acts as a recharge zone to the bedrock aquifers, and to determine the extent of the buried valley in the central portion of the landfill.

1.2 Site Description

The approximately 30-acre Lockport City Landfill is located partially in the City of Lockport, partially in the Town of Lockport, Niagara County, New York. The site location is shown in Figure 1-1, and the site plan in Plate 1. The site is bounded by The Gulf, a creek running along the north and west boundary, and by Sutliff Rotary Park and Railroad Street on the east. The southern boundary is not clearly defined at this point. The property is currently owned by the City of Lockport.

The site lies on a re-entrant (angular indentation) of the Niagara escarpment. The site topography is variable. A large portion of the site is relatively flat. A steep slope, however, borders this area on the west

and to a lesser degree on the north. At the base of this abrupt slope (the escarpment), which is approximately 60 feet high, lie a ravine and The Gulf. The Gulf flows north along the base of the landfill, discharging into Eighteen Mile Creek approximately one mile north of the site. The Gulf and Eighteen Mile Creek are classified by the New York State Department of Environmental Conservation (NYSDEC) as a Class D waters. A 3-acre unclassified wetland is located north of The Gulf at the toe of the landfill. Two ponds that appear to have been formed by landfilling activities are located south of the landfill. A 36-inch cement pipe, which was installed to drain a spring near Oakhurst Street, lies within the fill. The outfall pipe is located near The Gulf in the southwestern portion of the site. This seep was identified in the Phase I and II reports (RECRA Research, 1983, 1984).

The landfill is composed of two distinct fill areas. These areas are separated by the Somerset Railroad tracks. The tracks run in a north-south direction. The main portion of the landfill is located west of the tracks. A smaller fill area, located east of the tracks, was excavated for cover material for the main landfill. The excavated area was later filled with refuse, covered, and graded.

The area east of the tracks is sparsely vegetated, with small trees and scrub brush. The main portion of the landfill is heavily vegetated with trees and brush. Large piles of tree limbs are scattered on the surface. The sideslopes are heavily vegetated. Numerous empty drums and other refuse items protrude from this area.

2.0 REMEDIAL INVESTIGATION FIELD ACTIVITIES

2.1 Summary of Field Activities

The second phase of field activities at the Lockport City Landfill included the installation of five (5) monitoring wells, three (3) well points, eight (8) exploratory boring through the fill (two completed as piezometers), and the replacement of stream gauges #1 and #2. Environmental sampling efforts included the re-sampling of 15 of the existing 16 wells and two groundwater breakthroughs (L-1 and L-2), sampling the five (5) second phase monitoring wells, three (3) surface water/sediment locations, two storm/sanitary sewer manholes (situated on the northwest side of the site), one waste sample collected from a landfill boring and a soil/sediment sample collected from the wetlands. These sampling points are illustrated on Plate 2-1. Phase II field activities were initiated on February 15, 1991, and are still continuing as of this report, April 29, 1991.

2.1.1 Subsurface Drilling Program/Monitoring Well Installation

Soil borings and monitoring wells were installed at the site during the Phase II investigation to further delineate contamination and confirm groundwater flow patterns. Drilling services were provided by Buffalo Drilling Company of Buffalo, New York. Subsurface conditions evaluated included: stratigraphy, aquifer parameters, and groundwater flow and quality. Thirteen borings were advanced at eleven locations; stainless steel monitoring wells were installed at five (5) of these locations while PVC piezometers were installed at two (2) of these locations. A total of three (3) shallow well points were installed on the north end of the site, south of The Gulf. Plate 2 illustrates the location of these borings and wells points. Soil boring logs and monitoring well installation diagrams are included as Appendices A and B respectively.

Borings were advanced in accordance with the procedures specified in the FSP (URS, 1989) with the exception of rock hole reaming. A slightly larger roller bit was used to ream the rock holes to a 6-inch diameter instead of the proposed 5-inch rock hole. Rock coring was accomplished with a NX size core barrel (3 1/2" OD).

All of the Phase II monitoring wells were constructed through 6-inch ID permanent casing, which was grouted to the bedrock surface. This method of sealing off the overburden was also used during the Phase I drilling program.

Monitoring wells were constructed of 2-inch 304 stainless steel riser and screens. Well materials were emplaced by tremie methods or poured in the annular space. Piezometers were constructed of schedule 40 PVC riser and screens.

Monitoring well MW-10D required replacement when it was discovered that the bentonite slurry seal had migrated downward, into the screened portion of the well. To rectify the situation, the stainless steel well materials were salvaged from the borehole and the borehole thoroughly flushed with clean water to remove all the remaining well materials (sand and bentonite). The borehole was then advanced an additional five feet to increase the screened portion of the well. The salvaged stainless steel material was then used (following decontamination) to reconstruct the well. During well development using a stainless-steel bailer, this well exhibited high specific conductance ($>20,000 \mu\text{mho}$), a strong sulfur odor and PID headspace readings (from containerized groundwater samples) ranging from 50-150 ppm.

Monitoring wells MW-11D, MW-12I and MW-12D were developed using a surge block in an attempt to hasten the recovery time of the wells. This method involved the addition of water from an approved source to the well to increase the height of the water column followed by surging and

bailing. This method is more aggressive in removing fines from the sand pack, thus improving the yield of the well. Although some improvement in recharge was noted following surging blocking, these wells continue to have low yield.

Eight exploratory borings were advanced through the fill material to determine the extent of a buried valley that was identified during the Phase I investigation. Two of these borings were completed as piezometers (B-21 and B-23) to monitor the groundwater flow in the fill unit. Borings B-26 and B-27 were relocated from their proposed locations in order to delineate the horizontal extent of a waste material encountered at boring B-25. A localized pocket of suspected methane gas was encountered at a depth of 16 feet at boring B-21. Sustained LEL (lower explosive limit) levels of 100% were present at this location for a two hour time period. Drilling operations were suspended during this time period and were resumed when acceptable LEL levels were attained.

In an attempt to determine if the wetland north of the site is acting as a localized recharge point for the bedrock aquifers paired well points (shallow and deep) were proposed in the wetland north of the site to determine vertical hydraulic gradients. Due to the shallow depth of the bedrock in this area (less than 3 feet) installation of the well points was not feasible. It was possible to install three shallow well points (WP-4, WP-5 and WP-6) on the northern end of the site, just south of The Gulf. Well construction diagrams for the well points are included in Appendix B.

The data produced during drilling operations are included in Appendix A (boring logs) and Appendix B (monitoring well installation reports). Appendix C contains the well development reports. Appendix E includes well locations and elevations.

2.1.2 Environmental Sampling

The purpose of the Phase II sampling program was to supplement the existing chemical data base of the site by the collection and analysis of samples from existing locations (Phase I monitoring wells and samples L-1 and L-2) as well as sample collection from Phase II locations. Table 2-1 summarizes the sampling efforts. Sample locations are shown on Plate 2. Groundwater field parameters are included as Appendix D.

Chemical analysis was performed by IEA Incorporated of Monroe, Connecticut, NYSDEC Contact Laboratory Program (CLP) laboratory. All analyses were performed in accordance with Analytical Services Protocol (ASP), September, 1989. Sample quantities and matrices obtained during this Phase II investigation are summarized below.

(a) Groundwater: Groundwater was collected from 17 groundwater monitoring wells. Nine of these wells were installed during the Phase I investigation, two were installed as part of the Phase II activities and the remaining six wells were installed previously by Recra Research during their Phase II investigation in 1984. Existing wells that were not sampled were MW-1D, MW-3, MW-11D, MW-12I, and MW-12D. Monitoring well MW-3 was installed by Recra Research (1984). This well has an anomalous water level and has never been sampled. Monitoring well MW-1D had an anomalous pH due to grout contamination. Monitoring well MW-11D was installed during Phase II to replace MW-1D and to further delineate groundwater quality and flow conditions. Phase II monitoring wells MW-11D, MW-12I, and MW-12D were yet to be sampled at the time this report was submitted due to slow recharge rates for these wells. It is anticipated that these wells will be sampled by 5/2/91. Although piezometers P-1 and P-7 were originally scheduled for sampling, later discussions with the NYSDEC led to the decision not to sample these points.

TABLE 2-1
PHASE II SAMPLING DATA

SAMPLE ID	SAMPLE TYPE	DESCRIPTION	DATE SAMPLED	GRID LOCATION	REASON FOR LOCATION	ANALYTICAL SCHEDULE
LCL-LL-1	Groundwater Break Through	Clear to slightly turbid. Trace organic debris	3/19/91	N 18093 E 11902	Resample of Phase I location	A & B
LCL-LL-2	Groundwater Break Through	Slightly turbid. Slight organic odor	3/19/91	N 18777 E 11419	Resample of Phase I location	A & B
LCL-WSS-1	Soil/Sediment	Brown to dark brown sand and silt. Saturated	3/19/91	N 20084 E 11639	Wetland sediment evaluation	A & C
LCL-MH-1	Leachate	Slightly turbid, sewage odor	3/26/91	N 17066 E 11508	Upstream storm/sanitary sewer sample	A
LCL-MH-2	Leachate	Slightly turbid, sewage odor	3/26/91	N 20017 E 11981	Downstream storm/sanitary sewer sample	A
LCL-MW-2S	Groundwater	Slightly turbid, some orange flock	3/28/91	N 17982 E 11676	Second round sampling	A & B
LCL-MW-2I	Groundwater	Clear	3/28/91	N 17985 E 11671	Second round sampling	A & B
LCL-MW-2I MS/MSD	Groundwater (MS/MSD)	Clear	3/28/91	N 17985 E 11671	Second round sampling (quality control samples)	A & B
LCL-MW-3S	Groundwater	Clear	4/1/91	N 18834 E 11426	Second round sampling (quality control samples)	A & B
LCL-MW-4S	Groundwater	Clear	4/1/91	N 19386 E 11329	Second round sampling (quality control samples)	A & B

TABLE 2-1 (Continued)

SAMPLE ID	SAMPLE TYPE	DESCRIPTION	DATE SAMPLED	GRID LOCATION	REASON FOR LOCATION	ANALYTICAL SCHEDULE
LCL-MW-9S	Groundwater	Clear	4/1/91	N 19264 E 11415	Second round sampling (quality control)	A & B
LCL-MW-9I	Groundwater	Clear	4/1/91	N 19260 E 11416	Second round sampling	A & B
LCL-MW-7S	Groundwater	Clear to rusty orange	4/2/91	N 19719 E 11829	Second round sampling	A and oil and grease
LCL-MW-5S	Groundwater	Clear to turbid, some orange flock	4/2/91	N 19785 E 11488	Second round sampling	A & B
LCL-MW-5I	Groundwater	Clear to turbid	4/2/91	N 19774 E 11496	Second round sampling	A & B
LCL-MW-1S	Groundwater	Clear to slightly turbid	4/2/91	N 17852 E 12331	Second round sampling	A & B
LCL-MW-1I	Groundwater	Clear	4/2/91	N 17869 E 12344	Second round sampling	A & B
LCL-MW-6I	Groundwater	Clear	4/3/91	N 18721 E 12070	Second round sampling	A & B
LCL-MW-6D	Groundwater	Slightly turbid	4/3/91	N 18727 E 12067	Second round sampling	A & B
LCL-MW-10I	Groundwater	Clear	4/3/91	N 18891 E 12296	Intermediate groundwater monitor to delineate existing organic contamination	A & B

TABLE 2-1 (Continued)

SAMPLE ID	SAMPLE TYPE	DESCRIPTION	DATE SAMPLED	GRID LOCATION	REASON FOR LOCATION	ANALYTICAL SCHEDULE
LCL-MW-10D	Groundwater	Clear, strong sulfur odor. Elevated PID readings from sample	4/3/91	N 18882 E 12299	Deep groundwater monitor to delineate existing organic contamination	A & B
LCL-MW-8I	Groundwater	Clear	4/3/91	N 19212 E 12053	Second round sampling	A & B
LCL-MW-8D	Groundwater	Clear	4/3/91	N 19211 E 12060	Second round sampling	A & B
LCL-SB25	Waste	Black granular material with tar seams. Petroleum odor	4/5/91	N 18361 E 12017	Waste encountered at boring B-25. Sampled 6-12 ft. interval	A & D
LCL-SB25 MS/MSD	Waste (MS/MSD)	Black granular material with tar seams. Petroleum odor	4/5/91	N 18361 E 12017	Waste encountered at boring B-25 sampled 6-12 ft. interval (Quality Control Samples)	A & D
LCL-SS-4	Stream Sediment	Brown, v. fine sand and silt. Some coarse gravel. Some organic debris	4/8/91	N 18276 E 11228	Background sample	A & C
LCL-SW-4	Surface water	Clear to slightly turbid	4/8/91	N 18276 E 11228	Background sample	A & B
LCL-SS-9	Stream sediment	Lt. brown sand and silt with some coarse gravel	4/8/91	N 20130 E 12527	Downstream of Phase I sample SS/SW-8	A & C

TABLE 2-1 (Continued)

SAMPLE ID	SAMPLE TYPE	DESCRIPTION	DATE SAMPLED	GRID LOCATION	REASON FOR LOCATION	ANALYTICAL SCHEDULE
LCL-SW-9 MS/MSD	Surface water	Clear	4/8/91	N 20130 E 12527	Downstream of Phase I sample SS/SW-8 (Quality Control Samples)	A & B
LCL-SS-10	Stream Sediment	Lt. Brown/gray sand and silt, some coarse gravel	4/8/91	N 20313 E 12848	Downstream of sample SS/SW-9	A & C
LCL-SW-10	Surface Water	Clear	4/8/91	N 20313 E 12848	Downstream of sample SS/SW-9	A & B
LCL-MW-11D	Groundwater	NA	*	N 17790 E 12922	Upgradient Irondequoit Limestone	A & B
LCL-MW-12I	Groundwater	NA	*	N 17760 E 11961	Side gradient Rochester Shale Aquifer Monitor	A & B
LCL-MW-12D	Groundwater	NA	*	N 11751 E 11957	Side gradient Irondequoit Limestone Aquifer Monitor	A & B

* Not sampled as of 4/29/91 due to insufficient groundwater recharge rates.

(b) Surface water/stream sediments: Three additional stream water/stream sediments samples (SW/SS) were collected from The Gulf. Two of the samples were collected from The Gulf, downstream of sample location SW/SS-8, to determine downstream extent of the contamination if any, which may be emanating from the site. The third sample was collected in the west tributary of The Gulf, approximately 200 yards upstream of sample location SW/SS-4. The majority of flow in this stream is attributed to process and storm water discharge from the Harrison Radiator plant. The discharge from this tributary was calculated at 35.59 cfs during the Phase I investigation.

(c) Soil/waste: One soil/waste sample was attained from a waste interval encountered during the placement of boring B-25. This was the only boring location where a waste material was encountered, therefore only one of the two proposed soil/waste samples was collected.

(d) Groundwater breakthrough and Sewer Sampling: Groundwater breakthrough locations L-1 and L-2 were resampled to confirm Round I sampling results. In an attempt to determine offsite migration of landfill contaminants (in the form of shallow groundwater) two samples were collected from the storm/sanitary sewer that transverses the west/northwest side of the site (Plate 2-1). The sampling points were manholes, one upstream of the site and one downstream. Flow measurements were taken at each manhole indicated a greater flow volume at the downstream manhole (3.5 ft/sec) compared to the upstream manhole (2.8 ft/sec) suggesting an additional flow component attributed to The Gulf or the shallow groundwater in this area.

(e) Soil/sediment sampling: One soil/sediment sample was collected from the wetlands, north of The Gulf to determine if contamination exists in the wetlands sediments.

2.1.3 Surveying and Mapping

A topographic map of the Lockport City Landfill was prepared for use during the site investigation, data analysis phase, and subsequent evaluations of remedial alternatives. The map was drawn to a scale of 1 inch equals 100 feet, at a contour interval of 2 feet. Mapping was performed using aerial photography with ground survey. Field surveys were conducted to create a grid system for locational control during site investigation activities and to establish the exact locations and elevations of all groundwater monitors and other field data points. Vertical control was set using the National Geodetic Vertical Datum of 1929, and horizontal control was referenced to a project coordinate system. The project coordinate system at the Lockport City Landfill was derived arbitrarily to give horizontal control over the entire site. Actual horizontal closure was 1:124,000 unadjusted, and primary vertical control was 0.03 (allowable closure error was 0.081). Surveying of the data points was performed by O.M. Popli, P.E., under the supervision of a URS-licensed surveyor. The survey was conducted from April 18 to April 23, 1991.

2.1.4 Macrobenthic Survey

The necessity of a macrobenthic survey for the Gulf was discussed with the NYSDEC and it was decided that the sufficient species survey performed during the Phase I investigation would best meet the needs of this study. Therefore no other macrobenthic was performed.

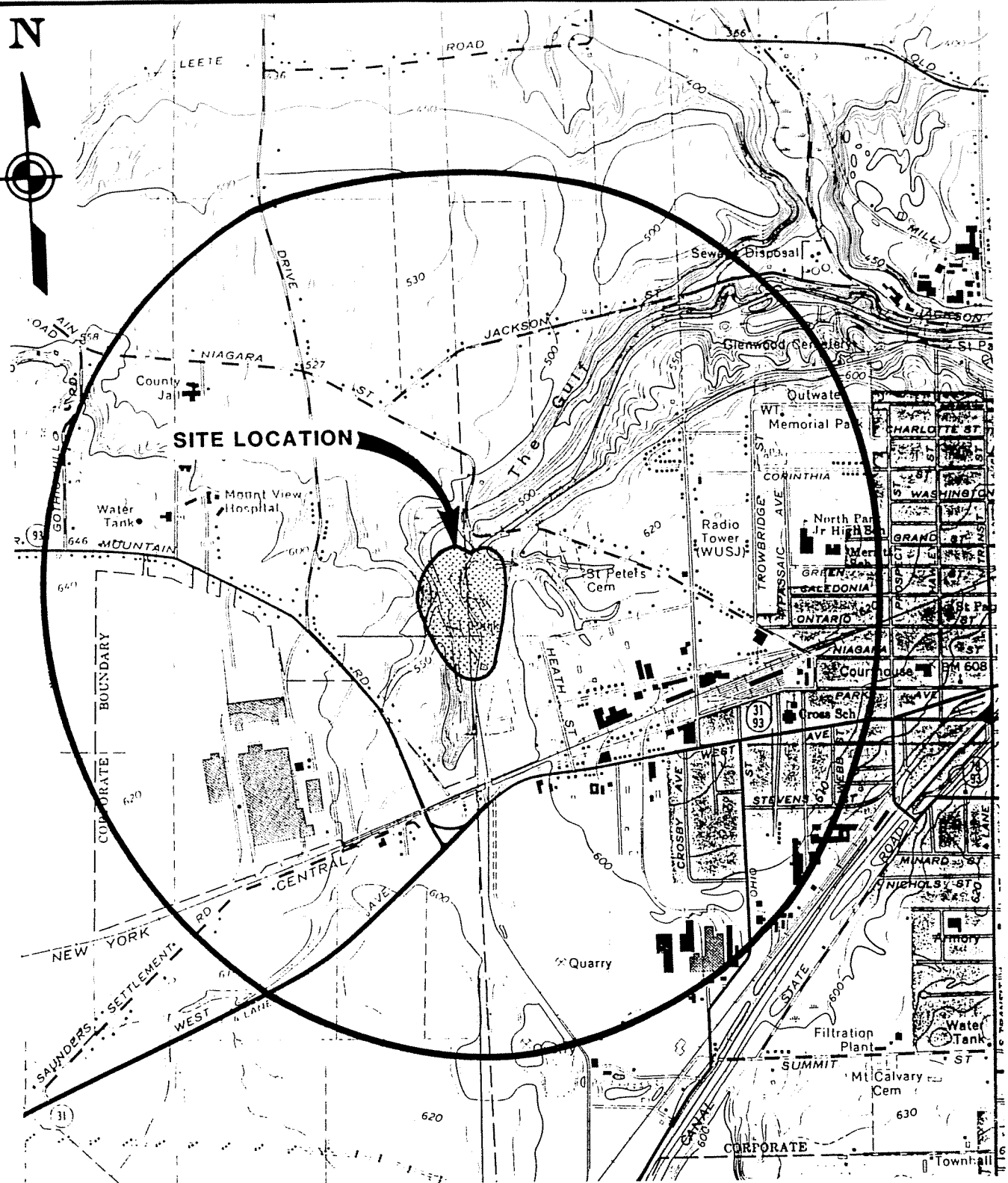
2.1.5 Water Usage Reconnaissance Survey

During the first phase of this investigation, a limited community well survey was conducted. A number of households were surveyed during a house-to-house canvassing of the area. The limited number of responses to

that survey pointed out the necessity of expanding the well survey during the second phase of this investigation.

As part of the expanded well survey, residential streets within a one mile radius of the site boundaries were identified. Residents on these streets were contacted through the use of a form letter which also contained a brief water usage reconnaissance survey. Results of this survey were not available at the time this report was submitted. The boundary of the survey is shown in Figure 2-1. The survey form used in this study is presented as Figure 2-2.

N



SOURCE

USGS; LOCKPORT, N.Y. QUADRANGLE
7.5 MINUTE SERIES, 1965

SCALE

0 1000 2000 FT.



A-3770

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BOUNDARY OF WELL SURVEY

FIGURE 2-1

WATER USAGE RECONNAISSANCE SURVEY

NAME: _____

ADDRESS: _____

TELEPHONE: _____
(optional)

A. Do you have a water well? Yes _____ No _____

Answer questions A.1 - A.6 only if you answered yes to Question A.

A.1 Please list your uses for this well water (if any) such as drinking, agriculture, livestock.

1. _____

2. _____

3. _____

4. _____

5. _____

A.2 If the well is abandoned, is it:

Capped _____

Plugged with cement _____

Open _____

A.3 When was your well constructed? 19 _____

A.4 Was it dug or drilled? dug _____ drilled _____

A.5 How deep is your well? _____ feet

A.6 Is your well completed in _____ bedrock
_____ overburden

B. Are you currently using municipal water? _____ Yes _____ No

C. Do you have a sump pump? _____ Yes _____ No

D. Do you ever have water leaking into your basement?
_____ Yes _____ No

GENERAL COMMENTS

PLEASE USE BACK OF FORM FOR ANY COMMENTS

FIGURE 2-2

3.0 GEOLOGY AND HYDROGEOLOGY

Information presented in this section was obtained from a review of available geologic reports, geologic maps and data gathered during the two rounds of the remedial investigation. The investigation included a surface geophysical survey (Phase I task), a soil boring/rock coring program that characterized soil, fill and bedrock at 40 boring locations, installation of 15 monitoring wells and 8 piezometers in the fill. In addition, 6 monitoring wells installed previously, during the Phase II investigation (Recra, 1984), were utilized for both physical and chemical site characterization.

3.1 Regional Geology

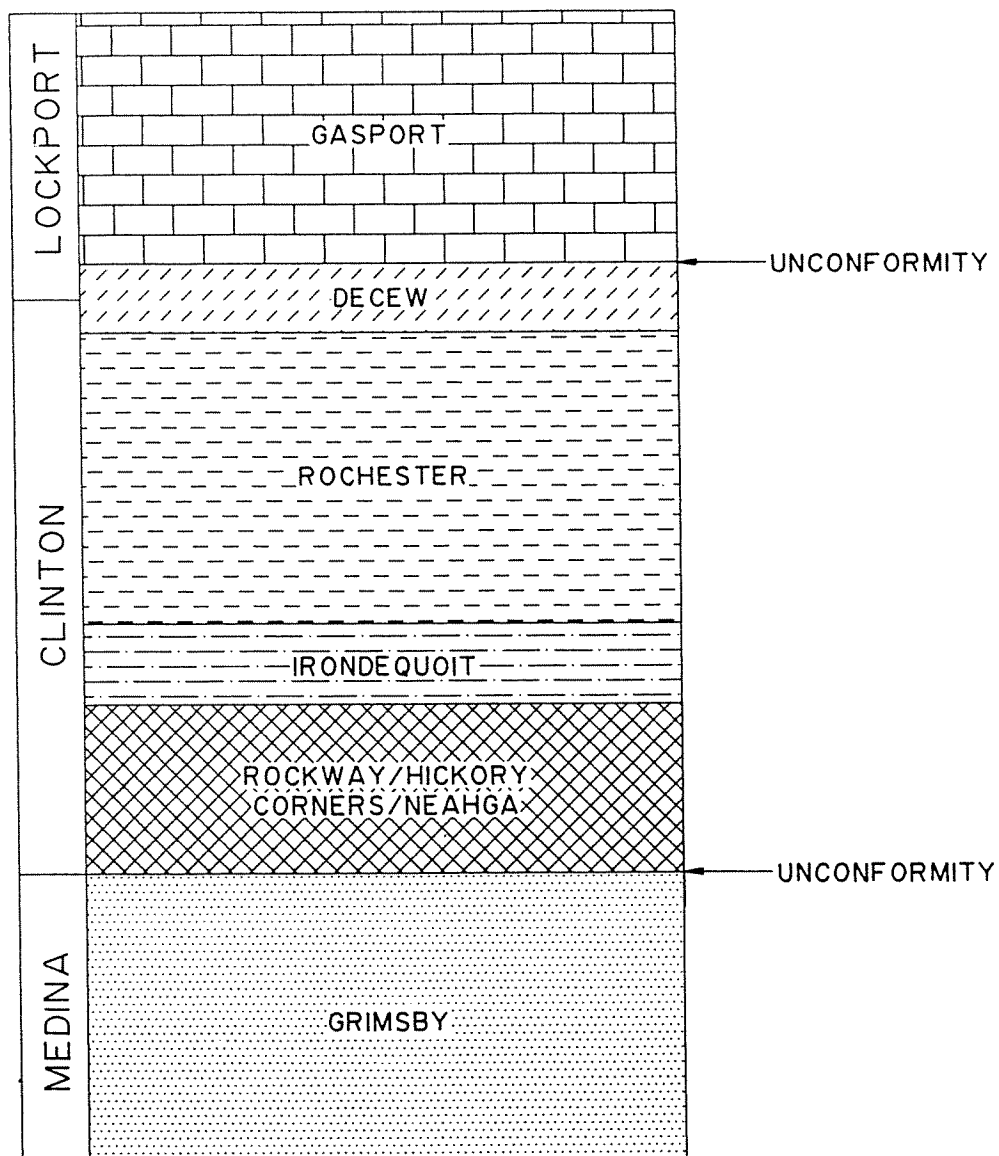
The unconsolidated sediments encountered at the Lockport City Landfill are the result of combined forces of fluvial influences (The Gulf) and glacial disposition (Wisconsin glaciation). The present-day Gulf served as an outlet for glacial Lake Tonawanda, which formed as the Wisconsin ice sheet retreated (Mueller, 1977). During the advance of the Wisconsin ice sheet, lodgement till consisting of silty and sandy clays were deposited over the area.

The Middle Silurian Lockport and Clinton Groups underlie the Lockport area. In the Lockport area, the Lockport Dolomite ranges from 0-100 feet in thickness and consists of 5 members that have been differentiated on the basis of lithologic characteristics and fossil evidence (Zenger, 1965). The Lockport Dolomite is underlain by the 60-80 foot thick Rochester Shale of the Clinton Group. The Rochester Shale is underlain by a 140-foot thick sequence of limestone, dolomite, shale, and sandstone of Middle and Early Silurian age most of which are exposed at or near this site. Physical descriptions of the rock units are supplied in Table 3-1; a stratigraphic illustration appears in Figure 3-1.

TABLE 3-1

LITHOLOGICAL UNITS

Group	Formation	Description
Lockport	Gasport	Pink to light gray, coarse grained dolomitic limestone, crinoidal remnants present.
Lockport	DeCew	Medium gray crystalline dolostone. Shale partings at base. Gradation to Rochester shale.
Clinton	Rochester	Gray to dark gray aphinitic shale. Fossiliferous and calcareous (bioherms).
Clinton	Irondequoit	Fine to medium grained limestone, light gray to gray in color. Fossiliferous, some pink calcite crystals.
Clinton	Rockway	Aphanitic dolostone, gray-blue to dark green in color. Numerous shale partings.
Clinton	Merritton	Thin bedded argillaceous limestone, gray in color.
Clinton	Hickory Corners	Dark gray cherty limestone, medium grained.
Clinton	Neahga	Soft green-olivine green shale. Flaky.
Medina	Grimsby	Pale green, fine grained mottled red sandstone with inclusions of sandy red shales.



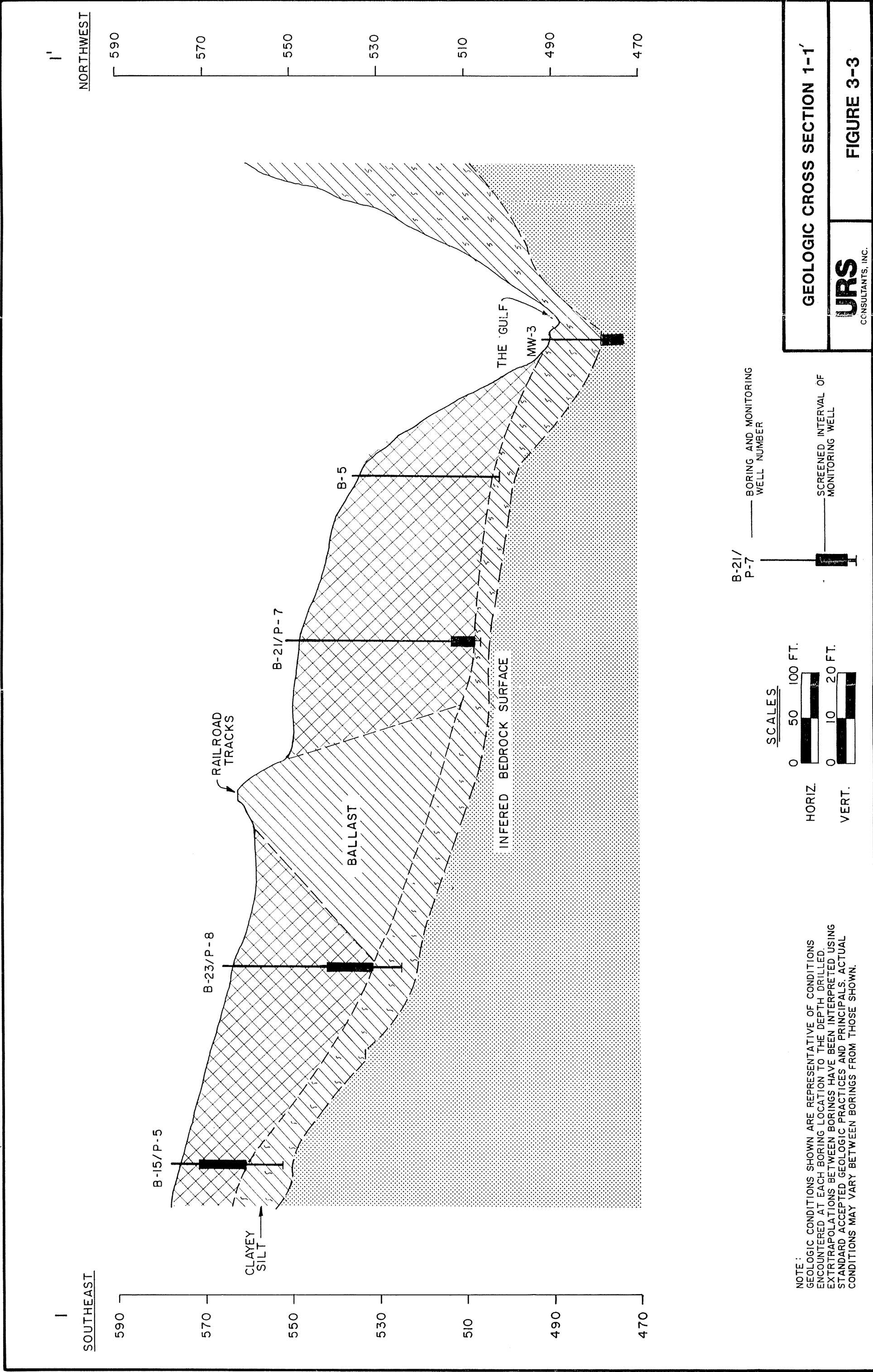
3.2 Site Stratigraphy

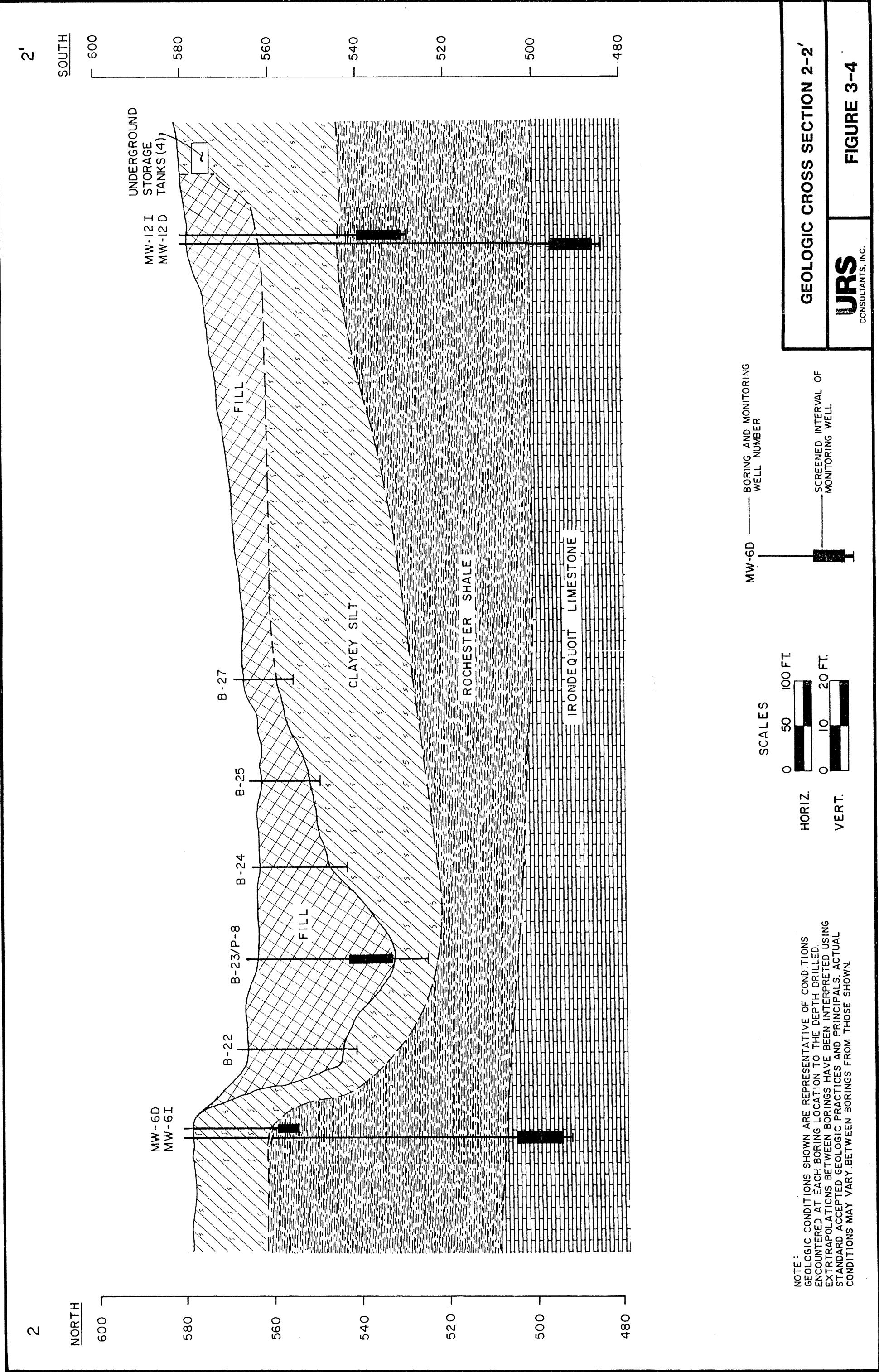
The Lockport City Landfill is situated on a terrace along the Niagara escarpment. The stratigraphic units exposed there, from top to bottom (youngest to oldest), are fill from landfill operations; glacial till; and bedrock of the Middle and Early Silurian period (Gasport Limestone, DeCew Dolostone, Rochester Shale, Irondequoit Limestone, Rockway Dolostone, Merrittton Limestone, Hickory Corners Limestone, Neahga Shale, and Grimsby Sandstone) (Figure 3-1). Figure 3-2 contains the location of the geological cross sections discussed below.

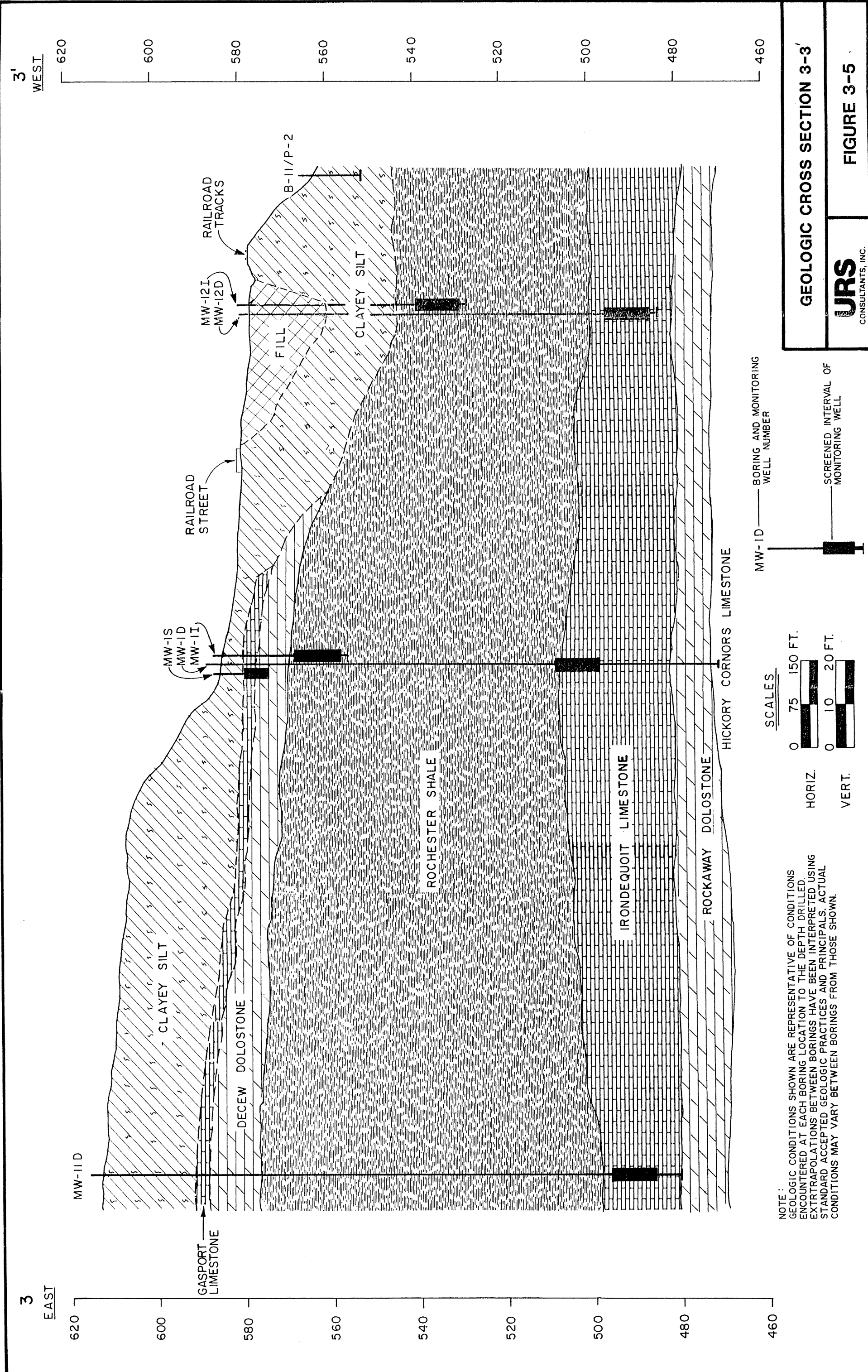
The Phase II boring program provided additional stratigraphic data for the Rochester Shale and Irondequoit Limestone Formations and further defined the existence of a tributary valley to The Gulf which had been filled in the central portion of the landfill (Figures 3-3 and 3-4).

The youngest bedrock encountered during the Phase II boring program was the Gasport Formation at the offsite location MW-11D. The lower 3 feet of this dolomitic limestone was encountered at this location. Approximately 12 feet of the DeCew Dolostone was encountered directly below the Gasport formation at MW-11D. A uniform thickness of these two rock units exists between MW-11D and MW-1D, with the units pinching out between MW-1 and MW-12 as shown in Figure 3-5 (Cross Section 3-3').

The Rochester shale was encountered below overburden at two of three monitoring well locations (MW-10 and MW-12). At these locations, the top 5-10 feet of the shale was highly weathered, exhibiting numerous fractures along rock bedding planes with occasional clay seams. These weathered shale zones were not consistently distributed across the rock unit. However, competency of this unit appears to increase with depth in those borings which encountered a weathered zone. The thickness of the shale decreases to the west and is absent along the Gulf.







Below the Rochester Shale lies the Irondequoit Limestone, a competent limestone with few open fractures. Those fractures, which were associated with shale partings, were concentrated in the upper part of the unit. Rock core recoveries ranged from 90-100%. Figure 2-3 illustrates southerly dip of the Irondequoit Limestone which was calculated at approximately 80 feet per mile in a southeasterly direction.

The landfill soil boring program provided a clearer definition of a buried valley identified during the Phase I investigation. This localized feature trends from the southeast to the northwest and is situated in the central portion of the landfill. It appears that this feature is continuous from boring B-5 to boring B-15, and extends below the existing railroad grade. It is assumed that the material below the railroad tracks is ballast or some type of railroad fill placed in the valley to support the load exerted by the trains. Historical aerial photography of the site indicates that the railroad pre-dates the landfill. During subsequent landfill operations, fill was placed in the remainder of the valley, east and west of the railroad tracks. The portion of the buried valley west of the railroad tracks contains the maximum thickness of fill encountered during both phases of the investigation (40.5 feet at boring B-21). The greatest thickness of fill encountered, east of the railroad tracks was 32 feet at boring B-23. In general, the portion of fill east of the railroad tracks contained mainly municipal type refuse consisting of wood, concrete, paper and decomposed leaves. The only exception to this was a localized area of waste encountered at B-25, adjacent to the railroad tracks. The fill west of the railroad tracks is denser than the eastern fill portion. The western portion contained a greater amount of industrial refuse including lumber, metal, paper bales and concrete.

The two boring proposed for the southern end of the site (B-26 and B-27) were relocated to delineate the waste material encountered at boring B-25. Boring B-11 advanced in this area during the Phase I boring program did not encounter fill at this location. Further evidence that fill did

not exist beyond the southern end of the site (west of the railroad tracks) is the presence of bedrock outcrops in the area of proposed boring B-27. Approximately 19 feet of fill and or disturbed soils was however encountered at boring MW-12D, situated near the southern end of the site. The fill material consisted of minor amount of brick, glass, concrete and boulders. Four underground storage tanks are situated approximately 75 feet southeast of MW-12. It is assumed that the location of the tanks represents the southern boundary of the fill. Table 3-2 summarizes the fill depths encountered during the Phase II boring program.

3.3 Hydraulic Conductivity

The hydraulic conductivity of the Rochester Shale and Irondequoit Limestone were estimated conducting variable-head slug tests and/or pressure tests. Results of these tests are included as Appendix F.

Slug tests were conducted on monitoring wells MW-10I (Rochester Shale) and MW-10D (Irondequoit Limestone). Average hydraulic conductivity values of 2.34×10^{-4} cm/sec was calculated for the Rochester Shale and 1.91×10^{-4} cm/sec for the Irondequoit Limestone at this location. Pressure testing was performed on the Irondequoit at MW-12D. Results from this test indicate an average hydraulic conductivity value of 3.95×10^{-4} cm/sec. These values for the respective rock units are within the range measured during the Phase I well testing.

3.4 Groundwater Evaluation Data

Wells installed during the Phase II investigation monitor the groundwater flow in three horizons; the unconfined water table, the Rochester Shale and the Irondequoit Limestone. A comparison of water elevation at well clusters indicate a strong downward hydraulic gradient between well pairs at higher elevations east of the site, and a variable weak downward to upward hydraulic gradient near the Gulf.

TABLE 3-2

FILL THICKNESS - EXPLORATORY BOREHOLES THROUGH THE FILL
PHASE II BORINGS

Boring/Well No.	Ground Elevation	Grid Location	Fill Thickness (ft).
B-20	545.8	N 18776 E 11752	12.0
B-21/P-7	547.9	N 18665 E 11705	40.5
B-22	566.5	N 18633 E 12018	22.0
B-23/P-8	563.8	N 18544 E 11999	32.0
B-24	562.5	N 18458 E 11991	16.0
B-25	563.4	N 18361 E 12017	12.0
B-26	572.6	N 18296 E 12096	18.0
B-27	567.4	N 18296 E 12042	10.0

Groundwater elevation data for the Phase II groundwater study are summarized in Tables 3-3 and 3-4. Piezometric maps for the respective water bearing zones will be constructed and submitted in the final RI report.

Table 3-3
LOCKPORT CITY LANDFILL STREAM GAGES, WELL POINTS AND
PIEZOMETER ELEVATIONS

MONITOR LOCATION	SG-1 STREAM	SG-2 STREAM	SG-3 STREAM	D-3A FILL/SILT CLAY	WP-4 SHALLOW OVERBURDEN	WP-5 SHALLOW OVERBURDEN	WP-6 SHALLOW OVERBURDEN	P-1 PIEZOMETER	P-2 PIEZOMETER CLAYEY SILT	P-3 PIEZOMETER	P-4 PIEZOMETER	P-5 PIEZOMETER	P-6 PIEZOMETER	P-7 PIEZOMETER	P-8 PIEZOMETER
HORIZON	NA	NA	NA	NA	NA	NA	NA	561.36	563.85	530.16	556.82	578.15	557.56	551.66	567.64
RISER ELEVATION	469.06	493.65	495.51	559.66	475.3	472.89	472.68	558.6	561.2	528	553.9	576	554.5	547.9	563.8
GROUND ELEVATION				558.6	473.4	470.8	471.9	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
SCREENED INTERVAL															
2/21/91	NT	NT	NT	NA	NA	NA	NA	545.32	556.77	NA	542.90	NT	542.14	NA	NA
2/25/91	447.81	463.15	464.51	NA	NA	NA	NA	545.39	555.77	NA	542.87	572.75	542.37	NA	NA
2/27/91	454.06	486.90	490.95	NA	NA	NA	NA	545.37	555.42	NA	542.97	572.48	542.28	NA	NA
3/1/91	454.81	488.15	491.01	NA	NA	NA	NA	545.49	555.20	NA	543.06	572.30	542.44	NA	NA
3/5/91	449.06	485.15	489.76	NA	NA	NA	NA	545.46	556.64	NA	543.04	573.46	542.46	NA	NA
3/7/91	NT	NT	NT	NA	NA	NA	NA	545.46	557.44	NA	543.04	NT	542.54	NA	NA
3/8/91	449.31	485.15	489.51	NA	NA	NA	NA	545.49	557.02	NA	543.01	574.60	542.53	NA	NA
3/12/91	453.56	487.15	490.76	547.16	NA	NA	NA	545.60	556.05	NA	543.05	573.60	542.62	NA	NA
3/14/91	454.56	NT	NT	547.16	NA	NA	NA	545.39	555.73	NA	543.07	573.35	542.64	NA	NA
3/15/91	453.44	487.78	491.01	547.15	NA	470.52	469.70	545.52	555.55	NA	543.05	573.15	542.64	NA	NA
3/18/91	451.56	487.78	491.01	547.20	NA	470.68	470.36	545.58	555.15	NA	543.10	NT	542.68	NA	NA
3/19/91	451.19	486.90	490.51	547.21	NA	470.73	470.36	545.52	556.72	NA	543.10	573.33	542.66	NA	NA
3/20/91	452.19	486.15	491.01	547.21	NA	NT	470.04	545.47	556.45	NA	543.07	573.22	542.65	NA	NA
3/21/91	453.56	487.40	491.01	547.20	NA	470.67	469.91	545.52	556.23	NA	543.09	573.37	542.66	NA	NA
3/22/91	455.06	488.03	491.14	547.20	NA	470.59	469.79	545.40	556.03	NA	543.08	573.08	542.68	NA	NA
3/25/91	451.19	485.90	490.14	547.24	NA	470.69	470.14	545.47	556.70	NA	543.08	573.62	NT	NA	NA
3/26/91	452.94	486.03	490.76	547.26	NA	470.66	470.26	545.56	556.42	NA	543.10	573.77	542.71	NA	NA
3/28/91	447.06	482.15	488.01	547.26	NA	470.81	470.66	545.56	556.42	NA	543.10	573.77	542.71	NA	NA
3/29/91	452.56	487.15	488.76	547.27	NA	470.76	470.29	545.52	557.12	NA	543.09	575.19	575.19	NA	NA
4/1/91	451.81	485.28	490.39	547.31	NA	470.66	470.33	545.57	NT	NA	543.10	573.75	542.80	NA	NA
4/2/91	452.31	486.65	490.51	NT	NA	470.64	470.02	545.54	555.84	NA	543.09	573.78	542.76	NA	NA
4/4/91	453.56	488.15	490.76	547.28	NA	470.58	469.78	545.59	559.06	NA	543.13	NT	542.82	510.46	NA
4/5/91	455.06	487.15	490.76	547.23	470.11	470.56	469.75	545.50	555.43	NA	543.06	573.59	542.72	510.30	540.62
4/8/91	454.69	486.90	490.89	547.23	469.96	470.47	469.64	545.47	555.21	NA	543.06	573.21	542.67	510.30	540.48
4/9/91	454.06	489.40	491.14	547.22	469.95	470.48	469.62	545.44	554.91	NA	543.06	573.03	542.70	510.30	540.46
4/10/91	453.06	487.15	491.01	547.20	470.06	470.47	469.72	545.40	554.76	NA	543.06	572.89	542.68	510.28	540.39
4/12/91	453.94	488.03	491.26	547.14	469.90	470.39	469.53	545.39	554.55	NA	543.02	572.57	542.61	510.19	540.14
4/15/91	447.06	482.65	463.31	547.16	470.59	470.65	470.31	545.48	554.28	NA	543.07	572.82	542.62	NT	540.32
4/17/91	454.06	487.40	491.14	547.13	470.31	470.57	469.88	545.40	554.15	NA	543.02	572.85	542.58	510.23	540.12
4/25/91	453.56	487.15	489.76	547.24	470.70	470.69	470.09	545.47	556.56	NA	542.99	574.62	542.62	510.21	540.61
4/26/91	453.06	486.40	490.39	546.13	470.38	470.61	468.94	545.48	556.29	NA	543.00	574.42	542.63	510.24	540.66

Table 3-4

LOCKPORT CITY LANDFILL GROUNDWATER ELEVATIONS

MONITOR LOCATION	MW-1S	MW-1I	MWS-1D	MW-2S	MW-2I	MW-3S	MW-4S	MW-5S	MW-5I	MW-6I	MW-6D
HORIZON	WT	RS	IL	WT	RK	WT	WT	WT	RK	RS	IL
RISER ELEVATION	586.72	587.26	586.73	509.23	508.29	491.78	480.49	477.32	479.34	580.15	581.05
GROUND ELEVATION	584.6	585.1	584.6	507.4	507	490.2	478.6	476	476.7	579	578.8
SCREEN LENGTH	5	10	10	5	5	5	5	5	5	5	10
2/21/91	NT	582.04	529.83	503.79	503.51	489.40	477.69	472.56	472.78	566.07	508.73
2/25/91	584.04	581.64	529.75	503.63	503.31	489.26	477.55	472.26	472.42	565.13	509.47
2/27/91	583.95	581.48	529.89	503.63	506.25	489.25	477.49	472.25	NA	564.79	509.15
3/1/91	584.07	581.45	530.00	503.71	503.31	489.34	477.57	472.28	NA	564.62	509.08
3/5/91	584.32	579.29	530.27	503.86	503.56	489.50	477.77	472.61	NA	566.23	509.23
3/7/91	NT	NT	NT	NT	NT	NT	NT	NT	NA	567.71	509.65
3/8/91	584.31	582.30	530.23	503.93	503.77	489.48	477.77	NT	NA	567.45	509.45
3/11/91	584.24	582.03	530.01	NT	NT	NT	NT	NT	NA	566.61	509.67
3/12/91	584.20	581.90	530.03	503.87	503.71	489.44	477.69	472.43	NA	566.37	509.71
3/14/91	584.14	581.78	530.18	NT	NT	NT	NT	NT	NA	566.03	509.63
3/15/91	584.09	582.30	530.03	503.93	503.43	489.39	477.63	472.37	NA	565.82	509.17
3/18/91	584.15	581.66	530.33	503.99	503.49	489.44	477.79	472.43	NA	565.70	509.70
3/19/91	584.17	581.81	530.26	503.78	503.52	489.50	478.21	472.57	NA	566.00	509.48
3/20/91	584.12	581.72	530.09	503.47	503.47	489.40	477.71	472.52	NA	565.44	509.22
3/21/91	584.12	581.70	530.17	503.62	503.46	489.38	477.68	472.47	NA	565.96	509.50
3/22/91	584.08	581.60	530.09	503.73	503.44	489.36	477.66	472.38	NA	565.75	509.23
3/25/91	584.24	582.05	530.21	503.85	503.57	489.46	477.75	472.56	NA	566.66	509.25
3/26/91	584.25	581.98	530.11	503.88	503.60	489.45	477.74	472.52	NA	566.64	508.39
3/28/91	584.36	582.50	530.40	504.02	503.87	489.66	477.99	472.88	NA	568.19	509.97
3/29/91	584.27	582.23	530.29	503.95	503.76	489.48	477.84	472.64	474.26	567.73	509.86
4/1/91	584.16	581.83	530.12	NT	NT	489.40	477.73	472.50	474.20	566.57	509.96
4/2/91	584.09	581.66	529.94	NT	NT	489.39	477.79	472.47	474.14	566.67	509.55
4/3/91	NT	NT	NT	NT	NT	NT	NT	NT	NT	566.57	509.41
4/4/91	584.10	581.56	529.93	503.83	503.53	489.36	477.74	472.42	474.11	566.45	509.71
4/5/91	584.11	581.52	529.86	503.78	503.50	489.33	477.70	472.35	474.03	566.26	509.63
4/8/91	583.96	581.24	529.98	503.76	503.47	489.28	477.63	472.32	473.86	565.65	509.33
4/9/91	583.93	581.15	530.05	503.75	503.44	489.26	477.67	472.32	473.84	565.51	509.28
4/10/91	583.98	581.22	530.06	503.78	503.47	489.29	477.62	472.31	473.84	565.45	509.05
4/11/91	583.85	581.04	529.77	NT	NT	NT	NT	NT	NT	NT	NT
4/12/91	583.74	580.95	529.52	503.73	503.38	489.23	477.57	472.26	473.79	565.11	508.45
4/15/91	584.15	581.32	529.89	NT	NT	489.44	477.81	471.93	474.46	565.08	509.12
4/17/91	583.94	581.12	529.73	NT	NT	489.24	477.63	472.32	473.85	565.52	508.68
4/25/91	584.19	581.75	529.66	503.99	503.69	489.38	476.86	472.58	474.20	567.79	509.68
4/26/91	584.17	581.48	529.68	NT	NT	NT	477.79	471.54	474.23	567.39	509.83

WT = Water Table
MS = Medina Sandstone

IL = Irondequoit Limestone
RK = Rockway Dolostone

RS = Rochester Shale

Table 3-4

LOCKPORT CITY LANDFILL GROUNDWATER ELEVATIONS

MONITOR LOCATION	MW-7S	MW-8I	MW-8D	MW-9S	MW-9I	MW-10I	MW-10D	MW-11D	MW-12I	MW-12D
HORIZON	WT	RS	IL	WT	RK	RS	IL	IL	RS	IL
RISER ELEVATION	503.82	576.96	577.3	488.01	486.53	580.25	579.76	614.9	580.79	580.76
GROUND ELEVATION	501.6	574.4	574.3	484.4	484.1	577.4	577.3	612.5	578.1	578.3
SCREEN LENGTH	5	10	10	5	5	10	10	10	10	10
2/21/91	491.60	550.72	508.62	481.49	481.17	NA	NA	NA	NA	NA
2/25/91	491.04	550.76	509.02	481.47	481.11	NA	NA	NA	NA	NA
2/27/91	490.98	550.70	508.88	481.46	481.08	NA	NA	NA	NA	NA
3/1/91	491.04	550.80	508.85	481.55	481.13	NA	513.46	NA	NA	NA
3/5/91	491.04	550.88	509.08	481.61	481.26	557.41	512.89	NA	NA	NA
3/7/91	492.00	550.98	509.57	NT	NT	558.03	512.89	NA	NA	NA
3/8/91	491.56	550.96	509.49	NT	481.29	557.97	505.32	NA	NA	NA
3/11/91	NT	550.94	509.51	NT	NT	557.77	509.61	NA	NA	NA
3/12/91	491.25	550.96	509.48	481.61	481.28	557.82	509.75	NA	NA	NA
3/14/91	491.15	550.89	509.38	NT	NT	557.55	509.86	NA	NA	508.38
3/15/91	491.12	550.78	509.07	481.59	481.20	557.26	509.68	NA	NA	NT
3/18/91	491.22	550.97	509.36	481.63	481.25	557.67	NT	NA	NA	509.56
3/19/91	491.37	550.88	509.25	481.63	481.28	557.55	NT	NA	554.37	509.52
3/20/91	491.37	550.78	509.05	481.60	481.23	557.28	NT	NA	552.46	509.20
3/21/91	491.29	550.95	509.28	481.60	481.22	557.59	NT	NA	534.43	509.01
3/22/91	491.22	550.78	509.02	481.59	481.21	556.54	509.84	NA	535.11	495.84
3/25/91	491.52	550.82	509.10	481.63	481.26	557.39	509.42	NA	539.13	501.09
3/26/91	491.49	550.93	509.13	481.65	481.31	557.62	509.14	NA	539.47	508.10
3/28/91	492.24	551.14	509.82	481.69	481.43	558.29	509.95	NA	532.43	491.54
3/29/91	491.89	551.12	509.74	481.66	481.39	558.10	509.80	NA	531.11	490.40
4/1/91	489.40	551.11	509.77	481.64	481.28	557.51	509.88	NA	534.09	493.54
4/2/91	491.39	550.90	509.41	481.62	481.23	557.51	510.46	NA	534.13	490.74
4/3/91	NT	564.86	509.27	NT	NT	557.41	509.31	NA	534.35	491.66
4/4/91	491.47	551.03	509.50	481.62	481.26	557.67	509.36	592.95	531.49	490.78
4/5/91	491.39	550.92	509.38	481.64	481.23	557.64	509.54	491.70	532.01	491.36
4/8/91	491.15	550.77	509.09	481.60	481.21	557.48	509.28	491.18	534.58	494.32
4/9/91	491.17	550.74	509.02	481.59	481.18	557.43	509.26	489.94	532.33	492.82
4/10/91	491.12	550.64	508.80	481.54	481.15	557.27	509.03	486.97	531.73	490.60
4/11/91	NT	550.49	518.42	NT	NT	556.87	508.56	486.80	531.74	491.16
4/12/91	491.14	550.52	508.30	481.57	481.15	556.84	508.43	487.14	532.33	490.41
4/15/91	491.17	548.88	508.80	481.65	481.24	557.45	509.16	487.30	533.44	491.59
4/17/91	491.12	548.62	508.44	481.59	481.16	557.21	508.68	487.14	532.55	490.92
4/25/91	491.74	550.90	509.59	481.67	481.40	557.95	509.65	597.02	530.44	488.96
4/26/91	491.54	550.95	509.68	481.67	481.37	557.91	509.83	596.77	531.17	490.45

WT = Water Table

IL = Irondequoit Limestone

RS = Rochester Shale

MS = Medina Sandstone

RK = Rockway Dolostone

4.0 NATURE AND EXTENT OF CONTAMINATION

Due to the unavailability of analytical data and the ongoing Phase II field activities, the nature and extent of contamination can not be addressed at this time. The Final RI report will include a complete summary of the nature and extent of contamination.

APPENDIX A
SOIL BORING LOGS

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. **B-20**

PROJECT: **Lockport City Landfill**

SHEET NO. 1 OF 1

CLIENT: **CITY of Lockport**

JOB NO.: **35180**

BORING CONTRACTOR: **BUFFALO Drilling**

BORING LOCATION: **N 18776 E 11752**

GROUND WATER: **DRY HOLE**

CAS. SAMP CORE TUBE

GROUND ELEVATION: **545.8**

DATE TIME LEV TYPE TYPE

DATE STARTED: **4/2/91**

4/2/91 **DRY** **B.H. Completion** **DIA.**

DATE FINISHED: **4/2/91**

WT.

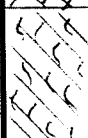
DRILLER: **C. Nicomiti**

FALL

GEOLOGIST: **Daniel Sheldon**

POCKET PENETROMETER READING

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE				DESCRIPTION				REMARKS		
		NO.	TYPE	BLOWS PER 6"	RECOVERY ROD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	PID (ppm)		CLASS USCS	
5		S-1	SS	3	5	35	BAN	LOOSE	CLAY SILT MISC. GRAD	0.0	Fill	• HARD Augering 6-8'
				9	17		BAN-GRAY	MED. DENSE to U. DENSE	Fill; Predominantly WASTE PAPER AND LUMBER but also includes GLASS, METAL AND PLASTIC			
		S-2	SS	3	7	50						
				6	3							
5		S-3	SS	11	15	25						
				33	10							
	S-4	SS	Sampler Refusl		0							
10		S-5	SS	57	19	5						
				21	19							
12		S-6	SS	10	20	20						
				50/1								
		S-7	SS	7	5	60	H. GRAY W/ BAN Mottles	STIFF ↓ HARD	CLAYey Silt	0.0	ML-CL	• SI. Moist • Dry & Tight
				6	12							
15		S-8	SS	7	13	80						
16				22	33							
20												
25												
30												
35												
				</								

COMMENTS **Hole advanced with a Dietrich D-50 drill rig equipped with 4 1/4" Augers.**
Bottom of Fill at 12.0 Feet. PID reading from split spoon samples.

PROJECT NO.
BORING NO.

35180
B-20

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO.

B-21/P-7

PROJECT: Lackport City Landfill

SHEET NO. 1 OF 2

CLIENT: City of Lackport

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling

BORING LOCATION: N 18665 E 11705

GROUND WATER:

GROUND ELEVATION: 547.9

DATE TIME LEV TYPE TYPE

DATE STARTED: 4/3/91

4/3 5:00P 37.2 1/2 hour AFTER

DATE FINISHED: 4/3/91

From G.S. piezometer

DRILLER: C. Nicometi / K. HUBERT

installation

GEOLOGIST: Daniel Sheldon

POCKET PENETROMETER READING

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE				RECOVERY RCD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 6"							
4	CLAY	S-1	SS	7	13	50	RED-BRN	STIFF ↓ MED STIFF	Clayey Silt intermixed with Gravel (Fill)	Fill	• Moist
				7	15						
5	CLAY	S-2	SS	4	8	60	↓	↓	↓		• Moist
				6	6						
	CLAY	S-3	SS	5	5	60	GRAY-BRN	LOOSE to DENSE	Fill; glass, bricks AND cinders stratified with loose gray clayey silt		
				6	8						
	CLAY	S-4	SS	3	6	25	↓				
				11	17						
10	CLAY	S-5	SS	4	5	10	↓				• WET
				6	9						
	CLAY	S-6	SS	9	11	20	BLK-BRN		Fill; black stained wood AND lumber		• 2 ppm PID 14-16' sample
				Refusal							
	CLAY	S-7	SS	7	12	35					• HARD Augering 15-16'
				17	29						
15	CLAY	S-8	SS	4	27	15					• 100% LEL @ 16'
				24	40						
	CLAY	S-9	SS	56	20/1	10					• 2% LEL
20	CLAY	S-10	SS	19	24	10					• 3% LEL
				20	26						
	CLAY	S-11	SS	7	12	5					• 30% LEL
				8	8						
	CLAY	S-12	SS	5	7	5					
				12	10						
25	CLAY	S-13	SS	6	7	60					• Black oily CINDERS 25-26'
				8	10						
	CLAY	S-14	SS	12		10					• WET at 26.5'
				Refusal							
30	CLAY	S-15	SS	4	9	55					• wet cuttings 30-32'
				11	22						
	CLAY	S-16	SS	22	45/1	0					
	CLAY	SAMPLER		Refusal							
		AUGERED to 33 Feet									
35	CLAY	S-17	SS	13	60	90	↓	↓	↓	↓	
				63	45						
		LOG CONTINUED ON FOLLOWING PAGE									

Log CONTINUED ON Following PAGE

COMMENTS

Hole advanced with a Dietrich D-50 drill rig equipped with 4 1/4" Augers. LEL levels of 100% encountered at 16' level. Hole allowed to vent for two hours before drilling was resumed. PID readings taken from split spoon samples.

PROJECT NO.

BORING NO.

35180

B-21/P-7

URS CONSULTANTS, Inc.

TEST BORING LOG
BORING NO.

B-21/P-7

PROJECT: Lockport City Landfill

SHEET NO. 2 OF 2

CLIENT: City of Lockport

JOB NO.: 35180

DEPTH FT	STRATA	SAMPLE				COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %					
35										
37		S-18	SS	13 15 64 41	60	BLACK	DENSE to LOOSE	Fill; wood, glass, bricks, slag, concrete AND black cinders	Fill	• SI. Moist • WET
		S-19	SS	3 3 6 11	50					
40		S-20	SS	17 37 22 21	60					
40.5						GRAY	V. STIFF	Clayey Silt, root material	CL- ML	• SI. Moist • Trace Gravel, 42.5-43
43		S-21	SS	6 14 18 19	60					
								Boring Completed at 43.0 Feet No Cave-in of Borehole		

COMMENTS

Piezometer P-7 installed in borehole*. Bottom of Fill at 40.5'

* Piezometer installation diagram included in Appendix B
Piezometer P-7: Screened Interval: 35.5-40.5'
Seal Placed: 27.5-30.0'

PROJECT NO.
BORING NO.

35180
B-21/P-7

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

B-22

PROJECT: Lakeport City Landfill

SHEET NO. 1 OF 1

CLIENT: CITY OF LAKEPORT

JOB NO.: 35180

BORING CONTRACTOR: BUFFALO DRILLINGBORING LOCATION: N 18633 E 12018GROUND WATER: DRY HOLE

CAS.

SAMP

CORE

TUBE

GROUND ELEVATION: 566.5DATE: 4/4 TIME: DRY B.H. (completion)

TYPE

DIA.

WT.

FALL

SS (split)

2"

140"

30"

DATE STARTED: 4/4/91DATE FINISHED: 4/4/91DRILLER: K. HUEBERTGEOLOGIST: Daniel Sheldon

REVIEWED BY:

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE					DESCRIPTION				REMARKS												
		NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS														
5		S-1	SS	3 4	3 2	20	BRN BLACK GRAY w/lt. brn mottles	Loose ↓ MED DENSE	Fill; bricks, concrete AND GRAVEL INTERMIXED WITH A CLAYEY SILT	Fill	• SI. Moist												
		S-2	SS	4 11	7 8	40																	
		S-3	SS	7 7	12 3	40																	
		S-4	SS	6 8	7 8	5																	
10		S-5	SS	2 5	5 9	15		Loose Loose	Fill; consisting of burnt WOOD, concrete, paper AND A FINE BLACK SAND		• DRY • 5% LEL * • BIK. SAND 19-22 • 20% LEL * • Moist • 30% LEL *												
		S-6	SS	6 6	6 7	25																	
15		S-7	SS	16 18	13 5	70						STIFF STIFF	CLAYEY SILT, mottled	CL- ML	• SI. Moist • TRACE FINE GRAVEL 25-26								
		S-8	SS	4 12	11 8	35																	
		S-9	SS	3 13	7 12	40																	
20		S-10	SS	6 4	6 3	30										Boring Completed AT 26.0 FEET			* Quickly Dissipated				
		S-11	SS	7 3	3 4	30																	
22		S-12	SS	3 9	6 14	45																	
		S-14	SS	6 11	10 18	90																	
25																							
26																							
30																							
35																							

COMMENTS

Hole advanced with a Diedrich D-50 drill rig equipped with 3 3/4" Augers
 Bottom of fill at 22 feet. PID readings taken from split spoon samples, no elevated readings.

PROJECT NO.

BORING NO.

35180

B-22

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. B-23/P-8

PROJECT: Lockport City Landfill

SHEET NO. 1 OF 2

CLIENT: City of Lockport

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling

BORING LOCATION: N 18544 E 11999

GROUND WATER:

CAS.

SAMP

CORE

TUBE

GROUND ELEVATION: 563.8

DATE 4/4 TIME 12:45P LEV 29.5

TYPE

TYPE

SS (Split Spoon)

DATE STARTED: 4/4/91

4/4 3:30P 22.6' Below GRADE ←

Type

WT.

140#

DATE FINISHED: 4/4/91

Piezometer

FALL

30"

DRILLER: K. HUBERT

Completion

POCKET PENETROMETER READING

GEOLOGIST: DANIEL SHELTON

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE					DESCRIPTION			REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	
5	Gravel	S-1	SS	3 5 13 18	15	BRN-O.BRN	MED DENSE	INTERMIXED GRAVEL AND SILTY CLAY (Fill)	Fill	• Sample Saturated
6	Gravel	S-2	SS	16 5 2 4	15					
8	Gravel	S-3	SS	8 2 2 5	10					
10	Gravel	S-4	SS	7 8 6 8	50					
10	Gravel	S-5	SS	10 16 18 15	40	BRN/O.BRN	MEDIUM DENSE TO DENSE	Fill; Cinders, glass, burnt WOOD, paper, plastic. Trace to some clayey silt		
15	Gravel	S-6	SS	5 21 25 10	90					
15	Gravel	S-7	SS	7 9 9 14	40					
15	Gravel	S-8	SS	14 9 5 7	45	Black				• BLACK SAND 16-18'
20	Gravel	S-9	SS	30 42 20 12	40					
20	Gravel	S-10	SS	14 38 15 19	30					• 25% LEL *
25	Gravel	S-11	SS	13 13 12 3	10					• 10% LEL *
25	Gravel	S-12	SS	2 1 1 1	0		Loose			• 60% LEL *
25	Gravel	S-13	SS	2 1 7 4	5					• SATURATED
30	Gravel	S-14	SS	3 2 2 5	20					
30	Gravel	S-15	SS	4 4 1 6	0					
32	Gravel	S-16	SS	5 6 10 11	5		MED DENSE			• SATURATED
35	Gravel	S-17	SS	5 7 13 17	70	GRAY W/LT BRN Mottles	STIFF to U. STIFF	Silty CLAY with organic (root) MATERIAL	CL	
35	Gravel	S-18	SS	9 10 18 32	10					

COMMENTS: Hole Advanced with a DIEDRICH D-50 drill rig equipped with 3/4 Augers. Bottom of Fill at 32 feet. P.D. readings taken from split spoon samples, no readings above background. * Quickly dissipated.

PROJECT NO.

BORING NO.

35180

B-23/P-8

TEST BORING LOG
BORING NO.

SHEET NO. 2 OF 2

JOB NO. : 35180

[illegible]

COMMENTS Piezometer P-8 installed in borehole. Screened from 22.3 - 32.3' Seal
placed from 16.0 - 20.0'. Well installation diagram included in Appendix B.

PROJECT NO. _____
BORING NO. _____

35180
B-23 / 8-8

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. B-24

PROJECT: Lakport City Landfill

SHEET NO. 1 OF 1

CLIENT: City of Lakport

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling Co.

BORING LOCATION: N18458 E11991

GROUND WATER: Levels from GS

CAS.

SAMP

CORE

TUBE

GROUND ELEVATION: 562.5

DATE: 4/4

TIME: 4:30P

LEV: 7.0'

TYPE: Bore Hole at

DIA.

WT.

FALL

DATE STARTED: 4/4/91

DATE FINISHED: 4/4/91

DRILLER: K. HUEBERT

GEOLOGIST: Daniel Sheldon

4/4 5:30P 4.5 Bore Hole

Completion

* POCKET PENETROMETER READING

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE					DESCRIPTION			REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY ROD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	GLASS USCS	
		S-1	SS	2 5 5 4	65	BRN	LOOSE to MED DENSE	COARSE ANGULAR GRAVEL IN CLAYEY SILT MATRIX (Fill)	Fill	
		S-2	SS	2 5 10 12	30					
5		S-3	SS	7 9 14 5	45					
		S-4	SS	16 22 2 1	35					
8		S-5	SS	6 16 31 1	45	BRN	MED DENSE TO DENSE	Fill; glass, paper, wood plastic AND cloth		• Sample Saturated
10		S-6	SS	10 20 16 2	40					
		S-7	SS	40 6 8 5	5					
15		S-8	SS	6 9 12 2	5					
16		S-9	SS	8 21 20 10	60	GRAY YELLOW ↓ GRAY BRN ↓	U. STIFF	CLAYEY SILT, trace to some ANGULAR GRAVEL AND SHALE Fragments	CL- ML	• DRY • TRACE Fossil
20		S-10	SS	6 18 28 30	70					
								Boring Completed AT 20.0 FEET		
25										
30										
35										

COMMENTS

Hole advanced with a Dietrich D-50 drill rig equipped with 3 3/4" Augers.
Bottom of Fill at 16 Feet. PID readings taken split spoon samples, No PID readings.

PROJECT NO.

BORING NO.

35180

B-24

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

B-25

PROJECT: Lockport City Landfill

SHEET NO. 1 OF 1

CLIENT: City of Lockport

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling

BORING LOCATION: N18361 E12017

GROUND WATER:

GROUND ELEVATION: 563.4

DATE: 4/5 TIME: 8:50 A

DATE STARTED: 4/5/91

LEV: 80' TYPE: Borehole at

DATE FINISHED: 4/5/91

Below Grade 10'

DRILLER: K. HUEBERT

GEOLOGIST: Daniel Sheldon

REVIEWED BY:

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE				DESCRIPTION				PSD (g/m)	REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS		
		S-1	SS	6 17	40	BRN- lt. BRN	MED DENSE	GRAVEL AND CONCRETE pieces in a clayey silt	Fill	0.0	
		S-2	SS	25 9	20					0.0	
4				11 15							
5		S-3	SS	12 30	55	BLACK	V. DENSE	Fill; burnt wood AND GRAVEL (4-6')		0.0	• HARD Aug- ering 4-5'
		S-4	SS	25/2			LOOSE TO DENSE	WASTE; Black oily material with tar inclusions (6-12')		60.0	• Petroleum ODOR
		S-5	SS	3 10	35					6.0	
10				11 1							
		S-6	SS	4 4	55					6.0	
				4 5							
12		S-7	SS	5 6	30					60.0	
				14 9							
		S-8	SS	7 11	75	H. GRAY	STIFF	Silty Clay, trace to some Angular Gravel	CL- ML	0.0	
15				16 25							
16		S-8	SS	11 14	5		VERY STIFF			0.0	
				36 25							
								Boring Completed At 16.0 Feet			
20											
25											
30											
35											

COMMENTS

Hole advanced with a Friedrich D-50 drill rig equipped with 3/4" Augers. PID readings from split spoon samples. Collected waste sample LCL-SB-25 from 6-12' interval.

PROJECT NO.

35180

BORING NO.

B-25

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

B-26

PROJECT: Lockport City Landfill

SHEET NO. 1 OF 1

CLIENT: City of Lockport

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling

BORING LOCATION: N18296 E12097

GROUND WATER:

CAS.

SAMP

CORE

TUBE

GROUND ELEVATION: 572.6

DATE

TIME

LEV

TYPE

TYPE

SS (Silt + Sand)

DATE STARTED: 4/5/91

4/5

11:50A

9.0'

Borehole

DIA.

2"

DATE FINISHED: 4/5/91

Below Grader

Completion

WT.

140

DRILLER: C. Nicometti

FALL

30"

GEOLOGIST: Daniel Sheldon

* POCKET PENETROMETER READING

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE					DESCRIPTION				REMARKS
		NO.	TYPE	BLOWS PER 6"		RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	
	CLAYEY SILT	S-1	SS	1	1	25	BRN	U. LOOSE to DENSE	Fill; COARSE GRAVEL AND Some clay in a clayey silt matrix	Fill	• Si. Moist
		S-2	SS	2	2	40					
				2	4						
5		S-3	SS	5	32	50					
6				12	7						
		S-4	SS	9	11	90	GRAY	Loose to DENSE	Fill; Decomposed leaves and wood. Some silt (6-10')		
				9	9						
10		S-5	SS	3	5	70					
				11	9						
		S-6	SS	6	9	80	H. BRN		Fill; BURNED wood, glass, bricks AND SLAG (10-18')		
			18	20							
	S-7	SS	16	19	45	BLACK				• SATURATED	
			21	10							
15	S-8	SS	4	1	10						
			2	7							
	S-9	SS	8	4	10						
18			3	5							
	S-10	SS	8	16	70	GRAY w/ yellow mottles	U. STIFF	CLAYEY silt, mottled, trace organic material	CL- ML	Si. Moist	
20			23	31							
								Boring Completed At 20.0 Feet			
25											
30											
35											

COMMENTS

Hole advanced with a Dietrich D-50 drill rig equipped with 3 3/4" Augers. Bottom of fill at 18 feet.

PROJECT NO.

BORING NO.

35180

B-26

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

B-27

PROJECT: Lockport City Landfill

SHEET NO. 1 OF 1

CLIENT: City of Lockport

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling

BORING LOCATION: N18255 E12042

GROUND WATER:

GROUND ELEVATION: 567.4

DATE	TIME	LEV	TYPE	TYPE	CAS.	SAMP	CORE	TUBE
						SS (Silt Spec.)		
				DIA.		2"		
				WT.		140#		
				FALL		30"		

DATE STARTED: 4/5/91

DATE FINISHED: 4/5/91

DRILLER: C. Nicometti

GEOLOGIST: Daniel Sheldon

REVIEWED BY:

POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE				DESCRIPTION				REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY ROD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	
5		S-1	SS	5 10 18 26	25	B.R.N.	MED DENSE 1	Fill; COARSE GRAVEL in a CLAYEY SILT MATRIX	Fill	• Sl. Moist
		S-2	SS	3 10 4 5	40					• Sl. Moist
		S-3	SS	4 5 10 14	25					
		S-4	SS	5 5 5 5	55					• Sl. Moist
		S-5	SS	3 3 10 23	20	B.R.N. ↓	MED DENSE ↓	Fill; Decomposed LEAVES, PEAT AND Plastic BAGS	↓	
7.5		S-6	SS	4 9 21 26	60	lt. B.R.N. w/ Dusty Yellow Mottles ↓	U. STIFF ↓	CLAYEY SILT, Mottled, Trace ORGANIC (roots)	CL- ML ↓	• DRY
10		S-7	SS	18 23 26 31	65					• Wet at 14'
15								Boring Completed At 14.0 Feet		
20										
25										
30										
35										

COMMENTS

Hole Advanced with Dietrich D-50 drill rig equipped with 3 3/4" Augers.
Bottom of Fill at 10.0 feet.

PROJECT NO.

35180

BORING NO.

B-27

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. **MW-10 D**

PROJECT: **Lockport Landfill**

SHEET NO. 1 OF 3

CLIENT: **City of Lockport**

JOB NO.: **35180**

BORING CONTRACTOR: **Buffalo Drilling**

BORING LOCATION: **N 18882 E 12299**

GROUND WATER:

CAS. SAMP CORE TUBE

GROUND ELEVATION: **577.3**

DATE	TIME	LEV	TYPE	TYPE		SS	NX
2/19	11:20A	7.9	Overburden/ borehole A + 9.6'	DIA.		2"	3"
				WT.		140"	
				FALL		30"	

DATE STARTED: **2/19/91**

DATE FINISHED: **3/19/91**

DRILLER: **C. Nicometi**

GEOLOGIST: **Daniel M. Sheehan**

REVIEWED BY:

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE					DESCRIPTION				REMARKS
		NO.	TYPE	BLOWS PER 6"		RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	
	SS	S-1	SS	1 3	2 3	40	BRN ↓ LT. BRN	SOFT ↓ STIFF	Silty Clay with Angular Gravel Seams (1" typ)	CL	• HARD Augering 2-8' • Yellow Mottling 4-8'
	SS	S-2	SS	13 12	11 10	410	↓ ↓ V. STIFF ↓ HARD	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	
5	SS	S-3	SS	14 50/4	34	95					
	SS	S-4	SS	68	50/1	40					
	SS	S-5	SS	60/1		410					
10	Roller Bit Drilled 9.6-11.2'					NA					GRAY
11.2						REC	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	
						93					
15		RC-1	HX	6.3	6.8	0					
						RQD					
18											
20						REC	D. GRAY	MED. HARD	Rochester SHALE; Aphanitic SHALE with Fossiliferous layers (bioherms)	BR	• Silted Fractures at 20.5', 22.6', 25.4' and 26.5'
						90					
		RC-2	NX	9.0	10.0	30					
25						RQD					
28						REC	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓	
						100					
		RC-3	NX	10.4	10.4	90					
30						RQD					
35							↓	↓	↓	↓	• Bioherms 26-33' CLAY SEAMS AND UGS 28-33'

COMMENTS

Drilled with Dietrich D-50 rig. Rat hole reamed to a 6" diameter.
6 1/4" Augers used (overburden) and NX core (bedrock). See Appendix B for well construction details.

PROJECT NO.

35180

BORING NO.

MW-10 D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

MW-10D

PROJECT: Lockport City Landfill

SHEET NO. 2 OF 3

CLIENT: City of Lockport

JOB NO.: 35180

DEPTH FT	STRATA	SAMPLE				COLOR	CONSISTENCY HARDNESS	DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 5'	RECOVERY RQD %					
38.4		RC-3				D. GRAY	MED. HARD	RockHester SHALE	BR.	
40					REC 100					
		RC-4	NX	7.5	7.5					Bichers 42-70.5'
45					98					
45.9					120					
50		RC-5	NX	9.7	10.9					Some water loss during Run #5
					88					
55					67					
56.8										
60		RC-6	NX	8.4	8.9					
					100					
65					50					
65.7										
70		RC-7	NX	9.8	10.0					
70.7					98					
					78					
75										
75.7										
		RC-8	NX	6.8	7.0					
					97					
					79					
						LT. GRAY - TAN	HARD	Fraudeguit Limestone; FINE TO MEDIUM GRAINED Crystalline Limestone	BR.	Clay seam 70.5-70.7' Pale green SHALE partings (1/2" T48) 70.1-79.0'

COMMENTS Vertical Fracture 72.4-72.7' Silted open Fractures along shale partings At 76.1', 76.8-77.2 and 77.7 Feet.

PROJECT NO.
BORING NO.

35180
MW-10D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

MW-10D

PROJECT: Lockport City Landfill

SHEET NO. 3 OF 3

CLIENT: City of Lockport

JOB NO.: 35180

DEPTH FT	STRATA	SAMPLE				COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %					
80		RCB				H. GRAY -TAN	HARD	Irondequoit Limestone	BR.	• Compacted, Very few shale partings 78.9- 82.7 Feet
82.7										
85		*								
88										
								Boring Completed at 88.0'		

COMMENTS

* Roller bit drilled 82.7-88.0'

PROJECT NO.

BORING NO.

35180

MW-10D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. *MW-10 I*

PROJECT: *Lockport City Landfill*

SHEET NO. *1 OF 1*

CLIENT: *City of Lockport*

JOB NO.: *35180*

BORING CONTRACTOR: *Buffalo Drilling*

BORING LOCATION: *N 18891 E 12296*

GROUND WATER:

CAS. SAMP CORE TUBE

GROUND ELEVATION: *577.4*

DATE TIME LEV TYPE

TYPE

DATE STARTED: *2/15/91*

DIA.

DATE FINISHED: *3/1/91*

WT.

DRILLER: *C. Niccmeti*

FALL

GEOLOGIST: *DANIEL SHELDON*

POCKET PENETROMETER READING

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE				DESCRIPTION				REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	
5								SEE BORING LOG MW-10 J FOR OVERBURDEN Description		
10										
11.3										
15										
15.2										
20										
25										
30										
34.6										
35										

RC-1	NX	1.0	3.9	REC 25/ 0	D. GRAY	SOFT	WEATHERED SHALE with CLAY LAYERS	V. BR.
RC-2	NX	0.0	4.8	0/ 0				
RC-3	NX	4.6	5.0	93/ 15	D. GRAY	MED HARD	Rochester SHALE; Aphanitic SHALE with Fossiliferous Layers (bioherms)	V. BR.
RC-4	NX	8.6	9.4	92/ 54				

Boring Completed at 34.6 Feet							
----------------------------------	--	--	--	--	--	--	--

• Auger Refusal At 11.3' • Roller Bit Drilled to 12' to start Run #1 • Difficult Coring 12-20'	• Some water Loss 23.5-25.0' • Oblique Weathered Fracture AT 26.1'
--	--

COMMENTS

Drilled with a DIEDRICH D-50 rig. Rock hole reamed to a 6" diameter.

PROJECT NO.

35180

BORING NO.

MW-10 I

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

RAW-11D

PROJECT: Lockport City Landfill

SHEET NO. 1 OF 4

CLIENT: City of Lakeland

JOB NO. : 35180

BORING CONTRACTOR: BUFFALO DRILLING

BORING LOCATION: N 17990 E 12922

GROUND WATER:

GROUND ELEVATION: 612.5

DATE	TIME	LEV	TYPE	TYPE
------	------	-----	------	------

DATE STARTED: 3/20/91

			DIA.
--	--	--	------

DATE FINISHED: 4/1/91

				WT.
--	--	--	--	-----

DRILLER: C. Nicomati

			FALL
--	--	--	------

GEOLOGIST: D. SHELDON / M. GUTMANN

* POCKET PENETROMETER READING

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE				RECOVERY RCD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 6"							
		S-1	SS	2 2 4 7	75		D. BAN - BIR ↓ RED/ BAN	MED STIFF	CLAYEY SILT, TRACE SAND AND GRAVEL	ML- CL	
		S-2	SS	5 10 11 11	80						
5		S-3	SS	4 5 7 7	60						
		S-4	SS	5 28 18 18	75			U. STIFF			
		S-5	SS	25 25 17 23	90						
10		S-6	SS	5 23 45 59	100						
		S-7	SS	19 59 2 2	60			DENSE to V. DENSE	SILTY GRAVEL, trace to some CLAY AND SAND	GM	
12.5		S-8	SS	15 19 20 23	80						
		S-9	SS	4 11 18 18	100			U. STIFF	CLAYEY SILT, TRACE to some GRAVEL AND SAND	ML- CL	
16.5		S-10	SS	7 12 16 26	90						
17.0		S-11	SS	13 57 50/1	70			HARD	- MORE GRAVEL		
20											
20.5											
						REC		GRAY HARD	COARSE GRAINED Dolomitic Limestone (GAS PORT)	BL.	
						67		LT. GRAY	Fine Crystalline Dolostone (DECON)		
25		RC-1	NX	6.7 100		95					
30											
30.5											
						REC					
		RC-2	NX	4.8 5.0		97/98					
35											
35.5		RC-3	NX	5.3 9.5		56/72		D. GRAY MED HARD	ROCHESTER SHALE	BL.	

COMMENTS

COMMENTS Drilled with AT Diedrich D-50 drill rig. Rock hole reamed to a 6" diameter. Overburden drilled with 6 1/4" augers, rock coring with NX core. See Appendix B for well construction details

PROJECT NO.

BORING NO.

MAW-11D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

MW-11D

PROJECT: Lockport City Landfill

SHEET NO. 2 OF 4

CLIENT: City of Lockport

JOB NO.: 35180

DEPTH FT	STRATA	SAMPLE				DESCRIPTION				REMARKS
		NO.	TYPE	BLOWS PER 5"	RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	
40		RC-3	NX			D. GRAY	MED HAND	ROCHESTER SHALE; Aphanitic shale with fossiliferous layers (bioherm) AND CLAY LAYERS	BR.	
45		RC-4	NX	4.4	5.0					
50										
55		RC-5	NX	5.0	10.0					
60										
65		RC-6	NX	5.0	5.0					
70		RC-7	NX	3.3	6.0					
71										
75		RC-8	NX	4.7	7.0					

V. GR.

SOME WATER
TAKE AT 74'
16" CLAY LAYER
AT 75'

COMMENTS

Changed from wire-line rock coring method to conventional methods at 71 feet. Flamed core hole to a 6" diameter to 71 feet prior to change.

PROJECT NO.

35180

BORING NO.

MW-11D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

MW-11 D

PROJECT: LOCKPORT CITY LANDFILL

SHEET NO. 3 OF 4

CLIENT: City of Newport

JOB NO. : 35180

DEPTH FT	STRATA	SAMPLE			RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 5"						
78					REC	D. GRAY	MED HARD	ROCHESTER SHALE	BR.	
80					96					
		RC-9	NX	9.6 10.0	80					
85					RQD					
86										
90					83					
		RC-10	NX	8.3 10.0	68					
95										
96										
100					96					
		RC-11	NX	9.6 10.0	80					
105										
106										
110					100					
		RC-12	NX	5.5 5.5	95					
113.5										
115					99	D. GRAY - TAN	HARD	IRONDEQUOIT LIMESTONE; FINE TO MEDIUM GRAINED CRYSTALLINE LIMESTONE, GREEN SHALE PARTINGS	BR.	
		RC-13	NX	9.9 10.0	75					

COMMENTS

PROJECT NO.

BORING NO.

35180

mw-11D

A-3205A

MW-11D

SHEET NO. 4 OF 4

JOB NO. : 35180

A-3205A

Probable Rockway Dolostone at 132.0 Feet

35180

MW-11D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

MW-12 D

PROJECT: Lockport City Landfill

SHEET NO. 1 OF 3

CLIENT: City of Lockport

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling

BORING LOCATION: N 17751 E 11957

GROUND WATER:

CAS.

SAMP

CORE

TUBE

GROUND ELEVATION: 578.3

DATE

TIME

LEV

TYPE

TYPE

DIA.

WT.

DATE STARTED: 3/1/91

DATE FINISHED: 3/12/91

DRILLER: C. Nicometti

GEOLOGIST: DANIEL SHELDON

REVIEWED BY:

* POCKET PENETROMETER READING

DEPTH FT	STRATA	SAMPLE					COLOR	CONSISTENCY HARDNESS	DESCRIPTION MATERIAL DESCRIPTION	PTD (ft)	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY ROD %							
		S-1	SS	10	50/4	15	BRN		Fill; concrete, brick, GLASS in a clayey silt matrix	0.0	Fill	
		S-2	SS	24	21	20		DENSE		0.0		
		S-3	SS	5	6	40				0.0		
		S-4	SS	50/1		5			CONCRETE AND ROCK DEBRIS	0.0		
		RC-0		3.2	4.0	80				-		• limestone Fragments • Auger Refusal at 6.5'
10		Roller Bit Drilling 11.0 - 17.0'								-		• limestone, sandstone and concrete pieces in RC-0 sample.
11										-		
15										-		
17		S-5	SS	23	13	30			Fill; gravel and concrete in a clayey silt matrix	0.0		
19				11	11							• pulled casing, reset
20		NO SAMPLE					LT. BRN	U. STIFF	Silt, trace to some CLAY. Some coarse angular gravel in SEAMS (1" TYP)	-	ML	• Petroleum odor from samples 20-34 • 20-22' sample wet
		S-6	SS	8	16	50				5.0		
		S-7	SS	9	17	45				5.0		
25		S-8	SS	9	15	60	LT. GRAY			2.0		
26				12	9							
		S-9	SS	15	7	65	LT. BRN Yellow	STIFF	CLAY, plastic. Trace to some organic material	8.0	CL	• Moist
28.6				9	14							
30		S-10	SS	6	25	80	LT. GRAY	HARD	CLAYEY silt, trace to some SHALE FRAGMENTS	3.0	CL- ML	• DRY
				46	47							
31.5		S-11	SS	32	100/5	50				1.0		
34		S-12	SS	100/4		15	D. GRAY	SOFT	WEATHERED AND FRACTURED SHALE (Rochester)	0.0	V. BR.	
35												• Auger and sample Refusal at 34.0'
		RC-1	NX							0.0		
				8.0	9.7							

COMMENTS

* Set 6" casing on assumed bedrock, pulled and reset on actual bedrock surface at 34 feet. PTD readings from split spoon samples. No elevated readings above the borehole. Drilled with a Dietrich D-50 drill rig.

PROJECT NO.

BORING NO.

35180

MW-12 D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

MW-12D

PROJECT: Lockport City Landfill

SHEET NO. 2 OF 3

CLIENT: City of Lockport

JOB NO.: 35180

DEPTH FT	STRATA	SAMPLE				RECOVERY ROD %	COLOR	CONSISTENCY HARDNESS	DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 6"							
37.4	CO A-D-C					REC 83	D. GUY	SOFT	WEATHERED SHALE (ROCHESTER)	V. BR.	• WEATHERED SHALE 34.0 - 37.4
40		RC-1	NX			19		MED HARD	ROCHESTER SHALE; Aphanitic shale with Fossiliferous layers (bicherm)	BR.	• Bicherm 34.0 - 41.0'
43.7						R20					
45						98					
		RC-2	NX	9.2	4.4	80					
50											
53.1											
55						94					
		RC-3	NX	10.1	10.7						
60						67					
63.8											
65						97					• Bicherm layers 63.8 - 76.8
		RC-4	NX	9.7	10.0	80					
70											
73.8											
75		RC-5	NX	9.0	10.0	90					
						80					

A-3205A

COMMENTS

PROJECT NO.

BORING NO.

35180

MW-12D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO.

NW-12D

PROJECT: Lockport City Landfill

SHEET NO. 3 OF 3

CLIENT: City of Lockport

JOB NO.: 35180

DEPTH FT	STRATA	SAMPLE				RECOVERY RQD %	COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		NO.	TYPE	BLOWS PER 6"							
78.8		RC-5	NX		REC	D. GRAY	MED HARD	ROCHESTER SHALE	BR.	• Top of Ironde-quit Limestone At 78.8'	
80					90	LT. GRAY - TAN	HARD	IRONDEQUIT Limestone; Fine to medium GRAINED Crystalline Limestone			• Pale Green SHALE Partings 78.8 - 85.2, ONE At 41.8'
					80						
					RQD						
83.8		RC-6	NX							• WEATHERED, Silted Fracture At 88.4'	
85					100						
					80						
90											
93.2								Bottom of Boring At 93.2 Feet			

COMMENTS

Rock hole reamed to a 6" diameter.

PROJECT NO.

BORING NO.

35180

NW-12D

URS CONSULTANTS, Inc.

TEST BORING LOG

BORING NO. MW-12I

PROJECT: Lockport City Landfill

SHEET NO. 1 OF 1

CLIENT: CITY OF LOCKPORT

JOB NO.: 35180

BORING CONTRACTOR: Buffalo Drilling

BORING LOCATION: N 17760 E 11961

GROUND WATER:

CAS.

SAMP

CORE

TUBE

GROUND ELEVATION: 578.1

DATE

TIME

LEV

TYPE

TYPE

NX

DATE STARTED: 3/12/91

DIA.

3"

DATE FINISHED: 3/15/91

WT.

DRILLER: C. Nicometi

FALL

GEOLOGIST: Daniel Sheldon

• POCKET PENETROMETER READING

REVIEWED BY:

DEPTH FT	STRATA	SAMPLE				COLOR	CONSISTENCY HARDNESS	DESCRIPTION		REMARKS
		NO.	TYPE	BLOWS PER 6"	RECOVERY ROD %			MATERIAL DESCRIPTION	CLASS USCS	
								See Boring Log MW-12D For overburden description		
30										
33.3										
35		RC-1	NX	46	6.0	77% RD	D. GRAY ↓	Highly WEATHERED Shale (Rochester) ↓	V.BN. ↓	• Clay seam (2") at 34.8'
		RC-2	NX	29	3.3	33% 34	D. GRAY ↓	Rochester Shale; argillitic Shale, weathered and fractured ↓	V.BN. ↓	
40		RC-3	NX	30	3.2	93% 0	↓	↓	↓	• Fine sand in fractures at 39.5', 41.3'
45								Roller Bit Drilled 42.5- 49.8' Due to coring Difficulties		• Drilled quickly, probably weathered
50								Boring completed at 49.8 Feet		

COMMENTS

Drilled with Diederich D-50 drill rig equipped with 6 1/4" Augers and NX coring.
Rock hole returned to 6" diameter. Appendix B contains well construction details.

PROJECT NO.

BORING NO.

35180

MW-12I

APPENDIX B
MONITORING WELL INSTALLATION REPORTS

DRILLING SUMMARY

Supervising Geologist :

Daniel Sheldon

Drilling Company:

Buffalo Drilling

Drillers: *C. Nicometti*

J. Warren

Rig make / model:

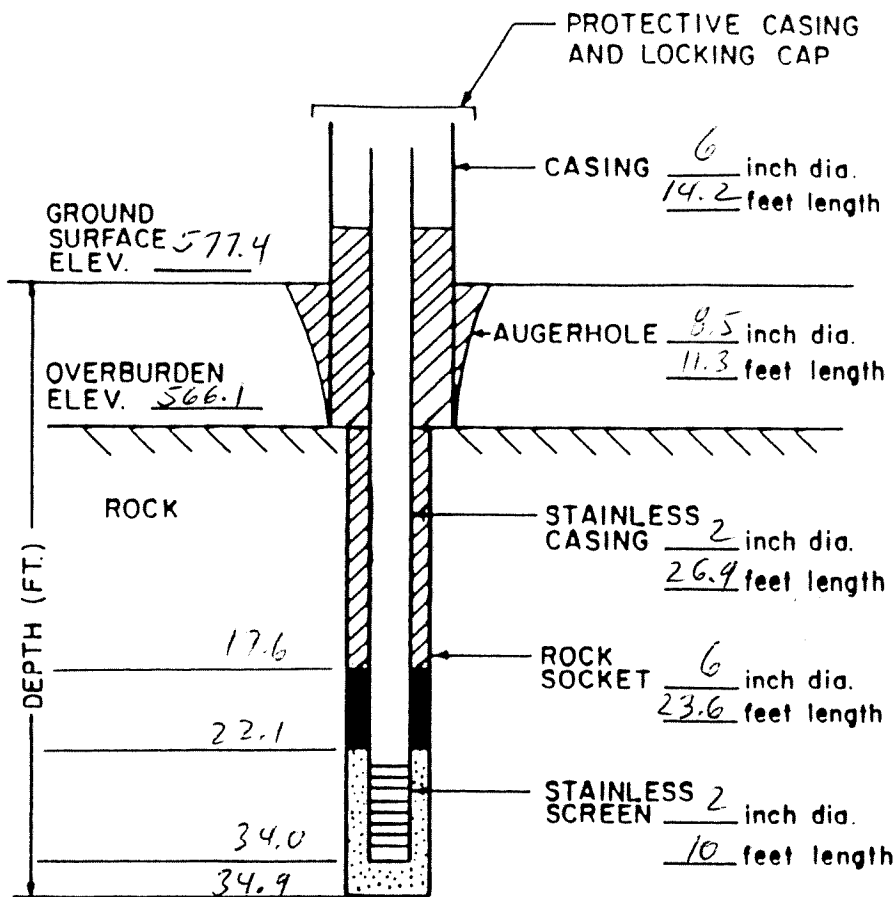
Diedrich D-50

Date :

3/1/91

GEOLOGIC LOG

depth (ft.)	lithology
0-11.3	Clayey Silt
11.3-20.0	Weathered Shale (Rochester)
20.0-34.6	Rochester SHALE



CASING MATERIAL

Surface: *Steel*

Monitor: *Stainless Steel*

Schedule 304

SCREEN MATERIAL

Type: *Stainless Steel*
Schedule 304
Slot Size: *#10*

FILTER MATERIAL

Type: *#4 Q-Rok* Setting: *22.1-34.9'*

SEAL MATERIAL

Type: *Bentonite Pellets* Setting: *17.6-22.1'*

COMMENTS:

LEGEND

	CEMENT, BENTONITE GROUT
	BENTONITE SEAL
	SILICA SANDPACK

Client :

CITY OF Lakport

Location :

Lakport City Landfill

Project No. :

35180

URS
CONSULTANTS

MONITORING WELL
CONSTRUCTION DETAILS
BEDROCK FORMATION

WELL No. :

MW-10I

DRILLING SUMMARY

Supervising Geologist:

D. Sheldon / R. Trampusch

Drilling Company:

Buffalo Drilling

Drillers: C. Nicometti

J. Warren

Rig make / model:

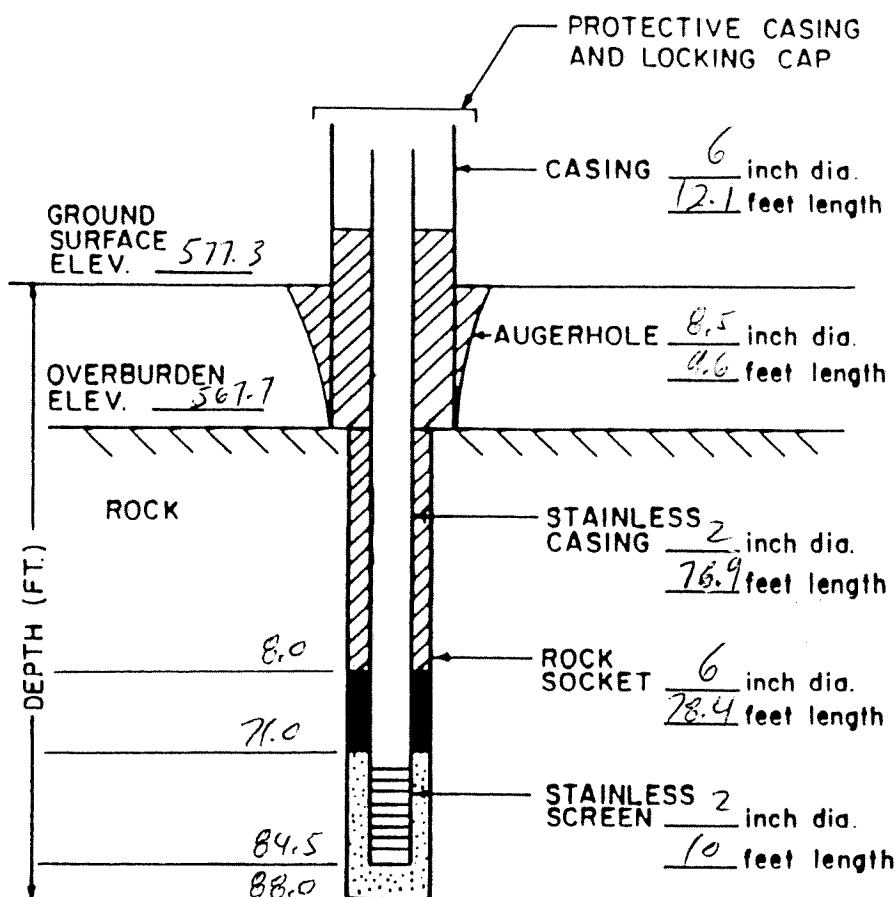
Diedrich D-50

Date:

3/19/91

GEOLOGIC LOG

depth (ft.)	lithology
0-9.6	Clayey Silt
9.6-70.7	Rochester Shale
70.7-88.0	Irondequoit Limestone



CASING MATERIAL

Surface: Steel

Monitor: Stainless Steel
Schedule 304

SCREEN MATERIAL

Type: Stainless Steel

Slot Size: .010"

FILTER MATERIAL

Type: #4 Q-Rok Setting: 71.0-88.0'

SEAL MATERIAL

Bentonite
Type: Pellets Setting: 66.0-71.0'
Bentonite Slurry 8.0-66.0'

COMMENTS:

LEGEND

- CEMENT, BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client:

City of Lockport

Location:

Lockport City Landfill

Project No.

35180

URS
CONSULTANTS

MONITORING WELL
CONSTRUCTION DETAILS
BEDROCK FORMATION

WELL No:

MW-10 D

DRILLING SUMMARY

Supervising Geologist :

DANIEL Sheldon

Drilling Company:

Buffalo Drilling Co

Drillers: C. Nicometti

K. HOEBERT

Rlg make / model:

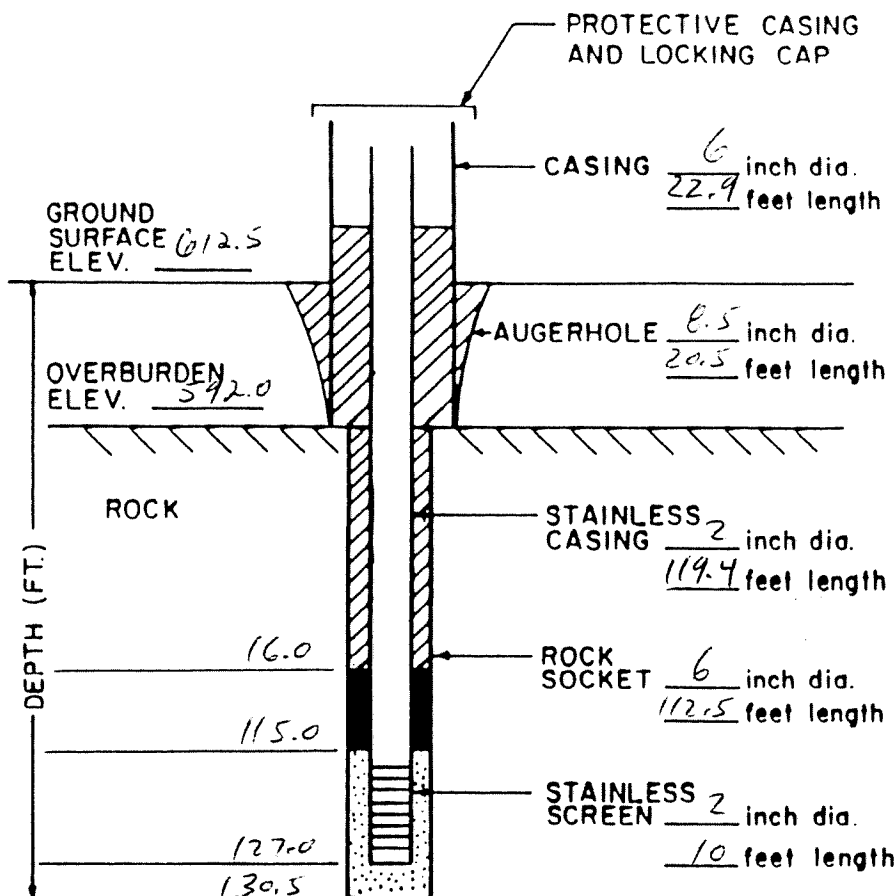
Diedrich D-50

Date :

4/1/91

GEOLOGIC LOG

depth (ft.)	lithology
0-6.0	SILTY CLAY
6.0-14.5	Gravel, some silt AND CLAY
14.5-20.5	CLAYEY Silt, some Gravel
20.5-114.0	Rochester SHALE
114.0-132.5*	Irondequoit Limestone



CASING MATERIAL

Surface: Steel

Monitor: Stainless Steel
Schedule 304

SCREEN MATERIAL

Type: Stainless Steel

Slot Size: .010"
Schedule 304

FILTER MATERIAL

#4
Type: Q-Rok Setting: 115.0-130.5

SEAL MATERIAL

Bentonite Pellets
Type: Bentonite Slurry Setting: 111.0-115.0'
16.0-111.0'

COMMENTS:

* Possible Rock Dolostone
132.0-132.5

LEGEND

	CEMENT, BENTONITE GROUT
	BENTONITE SEAL
	SILICA SANDPACK

Client :

CITY OF Lakport

Location :

Lakport City Landfill

Project No. :

35180

URS
CONSULTANTS

MONITORING WELL
CONSTRUCTION DETAILS
BEDROCK FORMATION

WELL No. :

MW-11D

DRILLING SUMMARY

Supervising Geologist :

Daniel Sheldon

Drilling Company:

Buffalo Drilling

Drillers: *C. Nicometi*

J. WARREN

Rig make / model:

Diedrich D-50

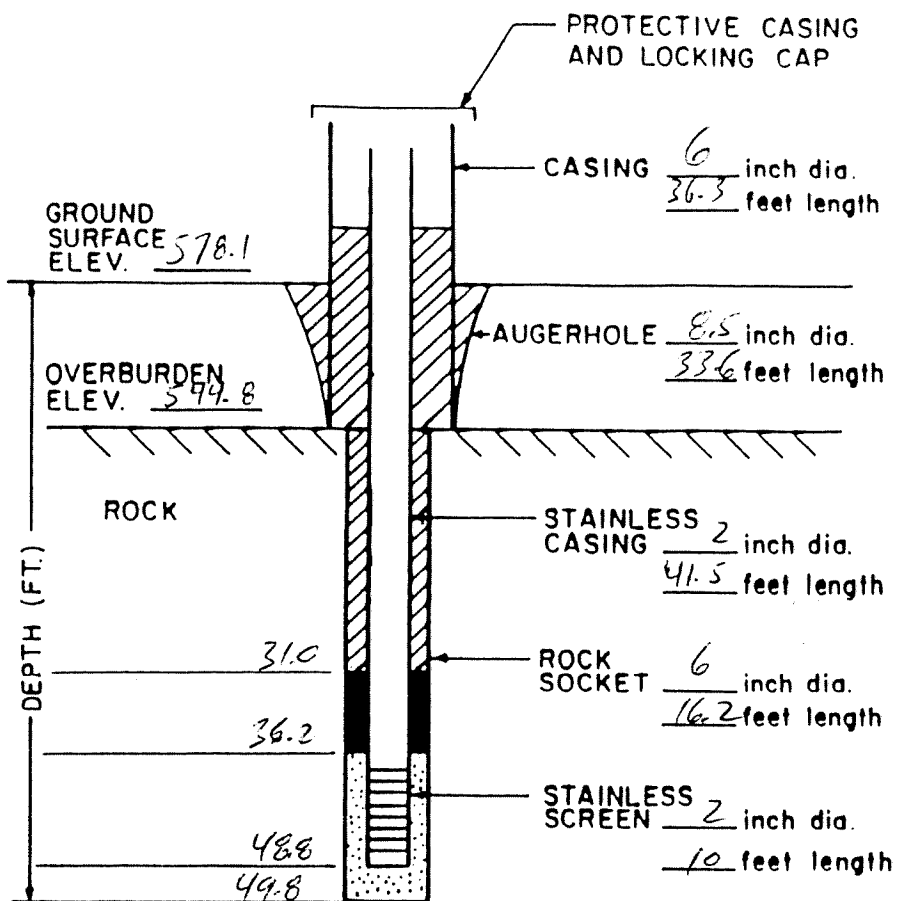
Date :

3/15/91

GEOLOGIC LOG

depth (ft.) lithology

*SEE Boring Log
for MW -12 D*



CASING MATERIAL

Surface: *Steel*

Monitor: *Stainless Steel*

Schedule 304

SCREEN MATERIAL

Type: *Stainless Steel
Schedule 304*

Slot Size: *.010"*

FILTER MATERIAL

Type: *#4 Q-Rock* Setting: *36.2 - 49.8'*

SEAL MATERIAL

Type: *Bentonite Pellets* Setting: *31.0 - 36.2'*

COMMENTS:

LEGEND

CEMENT BENTONITE GROUT
 BENTONITE SEAL
 SILICA SANDPACK

Client :

CITY OF LockPORT

Location:

LockPORT City Landfill

Project No. :

35180

URS
CONSULTANTS

MONITORING WELL
CONSTRUCTION DETAILS
BEDROCK FORMATION

WELL No. :

MW -12 I

DRILLING SUMMARY

Supervising Geologist :

Daniel Sheldon

Drilling Company:

Buffalo Drilling

Drillers: *C. Nicometti*

J. WARREN

Rig make / model:

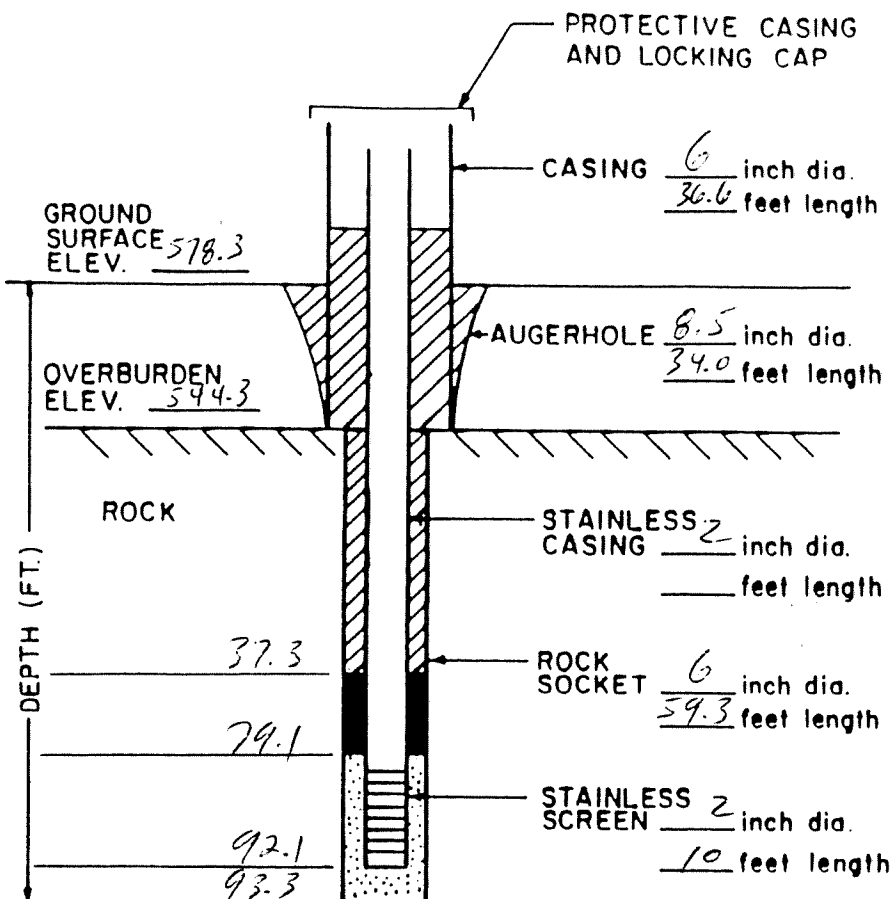
Diedrich D-50

Date :

3/12/91

GEOLOGIC LOG

depth (ft.)	lithology
0 - 19.0	Fill
19.0 - 26.0	Clayey Silt, Some Gravel
26.0 - 28.6	Mottled Clay
28.6 - 31.5	Clayey Silt
31.5 - 34.0	Weathered Shale
34.0 - 78.8	Rochester Shale
78.8 - 93.3	Irregular Limestone



CASING MATERIAL

Surface: *Steel*

Monitor: *Stainless Steel*

Schedule 304

SCREEN MATERIAL

Type: *Stainless Steel*

Slot Size: *.010"*

Schedule 304

FILTER MATERIAL

Type: *#4*
Q-Rok Setting: *79.1-93.0'*

SEAL MATERIAL

Type: *BENTONITE*
pellets Setting: *73.5-79.1'*
Bentonite Slurry *37.3-73.5'*

COMMENTS:

LEGEND

- CEMENT, BENTONITE GROUT
- BENTONITE SEAL
- SILICA SANDPACK

Client :

CITY OF LockPORT

Location :

LockPORT City Landfill

Project NO. :

35180

URS
CONSULTANTS

MONITORING WELL
CONSTRUCTION DETAILS
BEDROCK FORMATION

WELL NO. :

MW-12D

DRILLING SUMMARY

Supervising Geologist :

DANIEL SHELDON

Drilling Company:

BUFFALO DRILLING

Drillers: C. Nicometti

K. Huebert

Rig make / model:

DIEDRICH D-50

Date :

4/13/91

GEOLOGIC LOG

depth (ft.)	lithology
0-40.5	Fill
40.5-43.0	Clayey Silt

TOP OF RISER ELEV.

551.66

GROUND SURFACE ELEV.

547.4

DEPTH (FT.)

27.5

30.0

40.5

41.0

3.76 FT.

GROUND LEVEL

AUGERHOLE 6 inch dia.
41.0 feet length

PVC RISER 2 inch dia.
39.2 feet length

PVC SCREEN 2 inch dia.
5 feet length

CASING MATERIAL

Surface: PVC

Monitor: PVC

Schedule 40

SCREEN MATERIAL

Type: PVC
Schedule

Slot Size: .020"

FILTER MATERIAL

Type: #4 R-Rock Setting: 30.0-41.0'

SEAL MATERIAL

Type: BENTONITE
Pellets Setting: 27.5-30.0'

COMMENTS:

Installed in boring B-21

LEGEND



CEMENT BENTONITE GROUT



BENTONITE SEAL



SILICA SANDPACK

Client :

City of Lockport

Location :

LOCKPORT CITY LANDFILL

Project No :

35180

URS
CONSULTANTS

**PIEZOMETER
CONSTRUCTION DETAILS**

Piezometer No :

P-7

DRILLING SUMMARY

Supervising Geologist :

Daniel Sheldon

Drilling Company:

Boffelo Drilling

Drillers: *C. Nicometi*

K. Hoeber

Rlg make / model:

Diedrich D-50

Date :

4/4/91

GEOLOGIC LOG

depth (ft.)	lithology
0 - 32.0	Fill
32.0 - 38.0	Silty clay, root material
38.0 - 40.0	Clayey silt, some gravel

TOP OF
RISER
ELEV.

567.64

GROUND
SURFACE
ELEV.

563.8

3.84 FT.

GROUND LEVEL

DEPTH (FT.)

16.0

20.0

32.3

38.2

AUGERHOLE *5 1/2* inch dia.
38.2 feet length

PVC RISER *1.5* inch dia.
26.1 feet length

PVC SCREEN *1.5* inch dia.
10 feet length

CASING MATERIAL

Surface: *PVC*

Monitor: *PVC*
Schedule 40

SCREEN MATERIAL

Type: *PVC*

Slot Size: *.010"*

FILTER MATERIAL

Type: *#4*
Q-Rok Setting: *20.0-38.2'*

SEAL MATERIAL

Type: *Bentonite*
Pellets Setting: *16.0-20.0'*

COMMENTS:

Installed in boring B-23

LEGEND



CEMENT, BENTONITE GROUT



BENTONITE SEAL



SILICA SANDPACK

Client :

City of Lockport

Location :

Lockport City Landfill

Project No :

35180

URS
CONSULTANTS

**PIEZOMETER
CONSTRUCTION DETAILS**

Piezometer No :

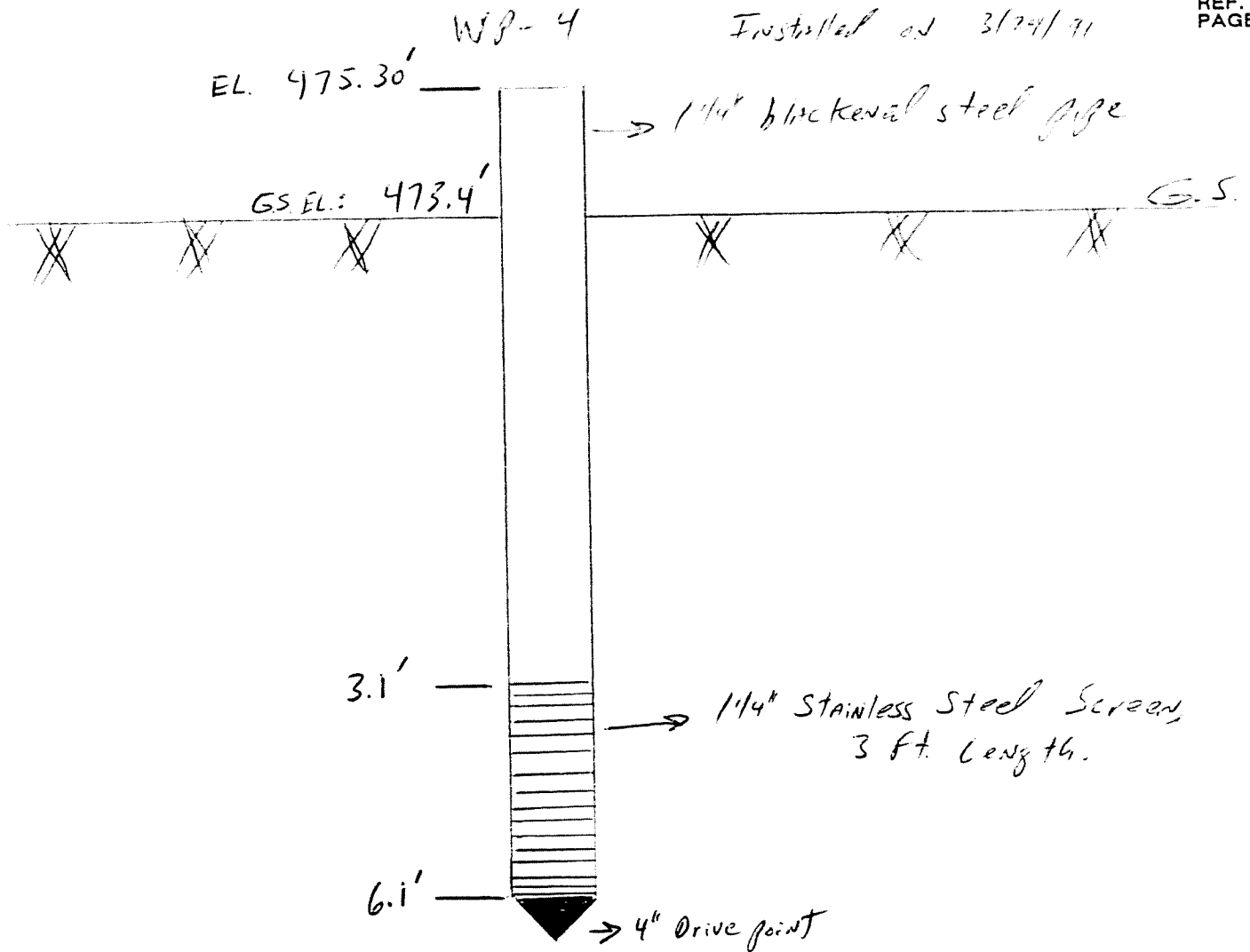
P-8

URS CONSULTANTS, INC.

PROJECT Lockport City Landfill
SUBJECT Well Point Installation - WP-4

PAGE 1 OF 1
SHEET NO. 1 OF 1
JOB NO. 35180
MADE BY AMS DATE 4/22/91
CHKD. BY _____ DATE _____

REF.
PAGE

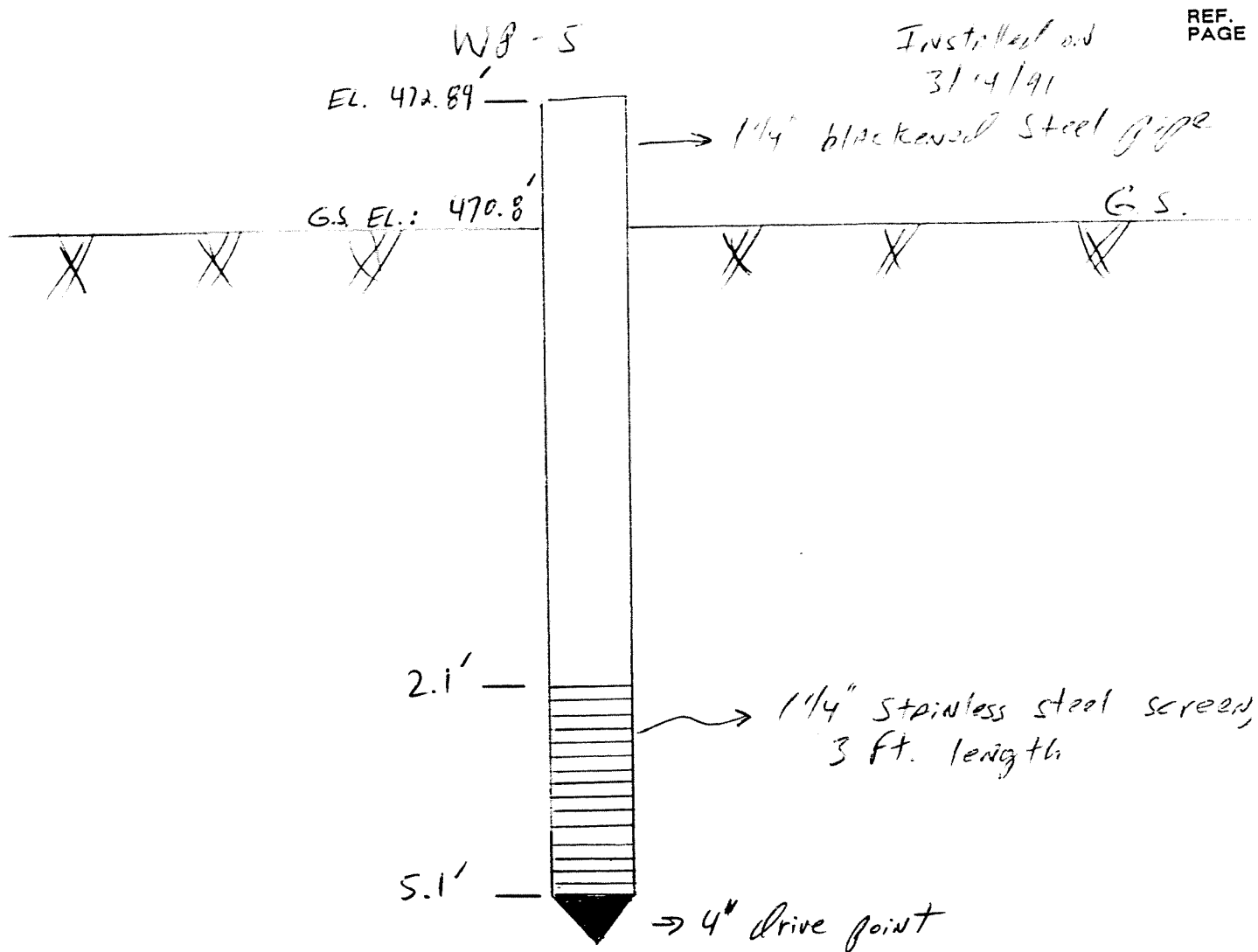


All well points were installed by hand with
A 10 pound sledge hammer or A 80 pound
drive hammer

URS CONSULTANTS, INC.

PAGE 1 OF 1
SHEET NO. 1 OF 1
JOB NO. 35180
MADE BY JMS DATE 4/22/91
CHKD. BY DATE

PROJECT Lockport City Landfill
SUBJECT Well Point Installation - WP-5



URS CONSULTANTS, INC.

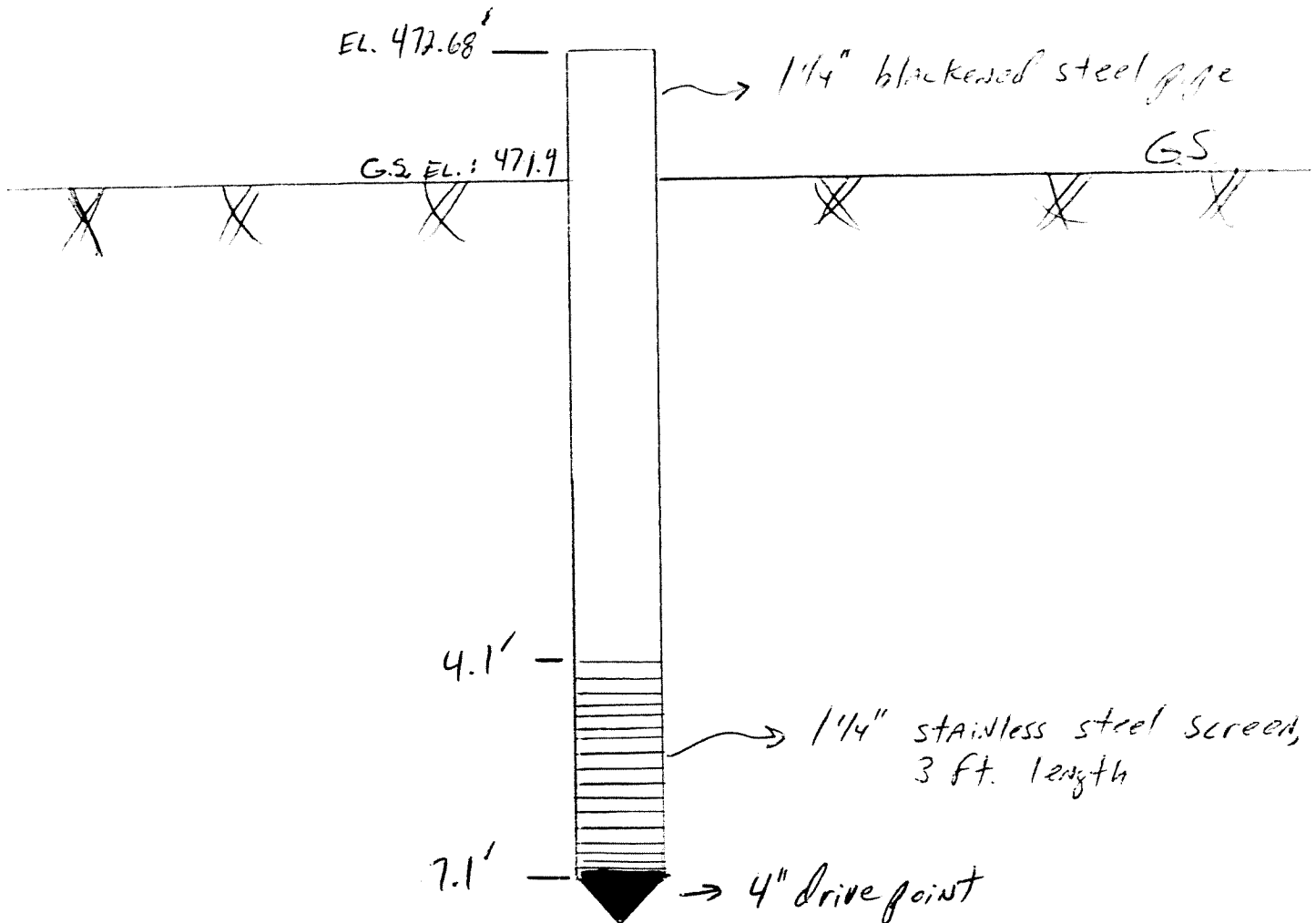
PROJECT Lockport City Landfill
SUBJECT Well Point Installation - WP-6

PAGE 1 OF 1
SHEET NO. 1 OF 1
JOB NO. 35180
MADE BY DMS DATE 4/22/91
CHKD. BY _____ DATE _____

WP-6

Installed on 3/8/91

REF.
PAGE



APPENDIX C
WELL DEVELOPMENT REPORTS



URS Company, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard

DATE: 3-5-91 / 3-6-91

WELL NO.: MW101

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) 22.84

④ VOLUME OF WATER IN CASING (GAL.) _____

DEVELOPMENT	
WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL.}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	20	25	30	35	40	45
pH	8.74	9.28	8.34	8.45	5.54	12.05	10.12	9.55	8.82	8.46	7.87
Spec. Cond (gm/L)	540	480	660	600	720	770	770	840	860	840	900
Turbidity (NTU)	>100	>100	>100	>100	>100	54	>100	>100	>100	>100	>100
Temperature (°C)	8	9	7	7	8	10	10	10	10	9	10
	3-5					3-6					

COMMENTS:

A-2347 ...



URS Company, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard / B. Helmich

DATE: 3-8-91 / 3-12-91 / 3-13-91 / 3-14-91

WELL NO.: MW 10 I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.): _____

④ VOLUME OF WATER IN CASING (GAL.) _____

Development	
WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (②)^2 \times (① - ③) = \text{_____ GAL.}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	45	50	55	55	60	65	70	72	75	80	80
pH	8.22	8.08	8.06	8.96	8.58	8.44	8.40	9.23	8.65	N/T	N/T
Spec. Cond. (γmho)	870	800	960	920	840	920	900	960	880	950	960
Turbidity (NTU)	13	>100	>100	14	>100	>100	>100	18	>100	>100	13
Temperature (°C)	9	9	10	8	8	8	9	9	9	9	9
	3-8			3-12				3-13			3-14

COMMENTS:

A-2347

N/T - Not taken due to meter malfunction



URS Company, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: S. Lamb

DATE: 3-14-91

WELL NO.: MW10I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

Development	
WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL.}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	85	90								
PH	N/T	N/T								
Spec Cond. (gmol)	1000	960								
Temperature (°C)	9	9								
Turbidity (NTU)	34	16								

COMMENTS:

A-2347

N/T - Not taken due to meter malfunction.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: D. Sheppard

DATE: 3-5-91 / 3-6-91

WELL NO.: MW10D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) 66.87

④ VOLUME OF WATER IN CASING (GAL.) _____

[illegible]

1" 0.04

2" 0.17

3" 0.38

4" 0.66

5" 1.04

6"	1.50
----	------

2.60

$$V = 0.0408 (2)^2 \times (1 - 3) = \underline{\hspace{2cm}} \text{ GAL.}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	0	5	5	6						
pH	11.04	10.36	10.47	N/T						
Spec. Cond. (µmho)	900	710	1080	N/T						
Turbidity (NTU)	>100	>100	>100	N/T						
Temperature (°C)	10	10	10	N/T						
	3-5		3-6							

COMMENTS:

A-2347 --- 15

N/T - Not taken - interval to dryness was only 1 gallon.

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney K. Nobssavage

DATE: 3.26.91 / 3-28-91

WELL NO.: MW 10 D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) 70.62

④ VOLUME OF WATER IN CASING (GAL.) _____

Development	
WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	8	8	13	18	23	23	28	33	38
pH	8.56	8.93	8.22	8.62	8.98	7.78	7.33	7.95	8.07	7.73	7.01
Spec. Cond. (umho)	350	400	2000	11000	9000	13000	15500	15000	14000	17000	>20000
Turbidity (NTU)	>100	>100	>100	64	>100	>100	>100	95	>100	>100	>100
Temperature (°C)	10	10	10	9.8	10.5	8.9	9.1	10	10	10	10
	3.26.91					3-28					

COMMENTS: Bailed to dryness on 3.26.91

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35190-00

STAFF: K Kearney + K Messavage

DATE: 3-28-91, 4-1/4-2

WELL NO.: <u>mw10D</u>	Development	
	WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
② CASING INTERNAL DIAMETER (in.): <u>2</u>	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.) _____	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.) _____	4"	0.66
	5"	1.04
	6"	1.50
	8"	2.60

$$V = 0.0408 (②)^2 \times (① - ③) = \text{_____ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	43	48	53	53	58	63	68*	73	78	78
pH		7.35	6.96	6.99	9.17	7.85	7.24	6.94	7.14	6.78	8.01
Spec. Cond. (umho)		17000	>20000	>20000	16000	17000	19600	>20000	>20000	>20000	>20000
Turbidity (NTU)		>100	>100	>100	>100	>100	>100	>100	>100	>100	82
Temperature (°C)		10	10	10	10	10	10	10	9.8	8.7	7.7
PID (ppm)								42			
		3-28				4-1				4-2	

COMMENTS: After well was redrilled, the water produced a strong organic + sulfur odor. Intermittent PID readings were taken.

PROJECT TITLE: Lackport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney / K. Nossavage

DATE: 4-2-91

WELL NO.: <u>mw10D</u>	<u>Development</u>	
	WELL I.D.	VOL. GAL./FT.
① TOTAL CASING AND SCREEN LENGTH (FT.): _____	1"	0.04
② CASING INTERNAL DIAMETER (in.): <u>2</u>	2"	0.17
③ WATER LEVEL BELOW TOP OF CASING (FT.) _____	3"	0.38
④ VOLUME OF WATER IN CASING (GAL.) _____	4"	0.66
	5"	1.04
	6"	1.50
	8"	2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	83	88	93							
pH		7.42	6.78	6.65							
Spec. Cond. (µmho)		>20000	>20000	>20000							
Turbidity (NTU)		82	81	61							
Temperature (°C)		8.4	9.5	9.2							

4-2

COMMENTS:

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney K. Nossavage S. CAMPB

DATE: 3-20-91 / 3-25-91 / 3-26-91 4.1.91 / 4-3

DEVELOPMENT

WELL NO.: MW 12 I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) 28.33

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (②)^2 \times (① - ③) = \text{_____ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	8	8	11	11	12.5	13.5 12.5	15.5	(INT) 15.5	16.0
pH	10.26	10.38	10.47	11.10	11.00	11.04	10.78	10.24	N/T	10.90	10.73
Spec. Cond. (µmho)	7000	4150	3100	4500	4500	4100	3700	8000	N/T	8700	9400
Turbidity (NTU)	14	>100	>100	>100	>100	>100	>100	38	N/T	10	7100
Temperature (°C)	10	10	10	10	10	10	10	9.5	N/T	10.4	10.6
	3-20			3-25		3-26		4.1		4.3	

COMMENTS: Bailed to dryness on 3-20-91 & 3-25-91 & 3-26-91.
4.1.91 4.3.91

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: K. Kearney

DATE: 4-8-91 / 4-9-91 / 4-12 / 4-15 / 4-22 / 4-23
4-24

WELL NO.: MW 12 I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2)^2 \times (1 - 3) = \text{_____ GAL. (3 casings)}$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Int 16	17.5	Int 17.5	18.5	19	20	20	26	26	27.5	27.5
pH	10.72	10.22	11.08	11.08	10.70	10.30	9.54	10.20	9.16	9.77	9.51
Spec. Cond. (µmho)	11,500	11,000	11,300	11,200	12,000	13,500	3800	4100	3000	3700	3800
Turbidity (NTU)	7100	7100	7100	7100	7100	7100	>100	>100	34	>100	19
Temperature (°C)	11	11	12.3°C	12.1°C	10	12	9	9	11.8	11.7	12.6
	4-8-91		4-9-91		4-12	4-15	4-22		4-23		4-24

COMMENTS: Well was surge blocked on 4-19.

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35190-00

STAFF: D. Sheppard / K. Kearney

DATE: 4-24-91

WELL NO.: MW12I

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

Development

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	0	28								
pH		9.60								
Spec. Cond. (µmho)		4600								
Turbidity (NTU)		>100								
Temperature (°C)		11.6								

4-24

COMMENTS:

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180 - 00

STAFF: K. Kearney

DATE: 4-8-91 / 4-9 / 4-11 / 4-12 / 4-15 / 4-22 / 4-23

WELL NO.: MW 12 D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2)^2 \times (1 - 3) = \text{_____ GAL. (3 casings)}$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	INT 23.5	25.5	Int 25.5	28.5	Int 28.5	29.5	31	32.5	32.5	36	36
pH	7.53	7.44	7.81	7.57	7.27	7.70	7.54	7.52	7.35	7.93	6.90
Spec. Cond. (umho)	16,000	17,050	17,000	17,200	18,000	18,000	17,500	18,000	2500	2700	3800
Turbidity (NTU)	65	>100	>100	>100	>100	>100	>100	>100	>100	>100	46
Temperature (°C)	12	12	11.6	12	9.6	9.8	10	12	12.3	10.4	10.6
	4-8-91	4-9-91	4-11-91	4-12	4-15	4-22	4-23				

COMMENTS:



PROJECT NO.: 35180-00

DATE: 4-23-91 / 4-24

Development

WELL I.D.

VOL.
GAL./FT.

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

11

0.04

② CASING INTERNAL DIAMETER (in.): 2

 2^1

0.17

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

3'

0.38

4

0.66

5

1.04

6

1.50

④ VOLUME OF WATER IN CASING (GAL.) _____

8

2.60

$$V = 0.0408 (2)^2 \times (1 - 3) = \underline{\hspace{2cm}} \text{ GAL. (3 casings)}$$

COMMENTS:

PROJECT TITLE: LOCKPORT CITY LANDFILL

PROJECT NO.: 35180-00

STAFF: S. LAMB, K. KEARNEY

DATE: 4.4.91 / 4-5 / 4-8

DEVELOPMENT

WELL NO.: MW11D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (②)^2 \times (① - ③) = \text{_____ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	5	10	15	20	25	30	33	37	42	45
pH	10.79	10.41	9.44	8.74	8.81	7.84	7.65	7.58	8.81	8.20	8.40
Spec. Cond. (µmho)	1500	1090	960	850	900	1450	2000	4000	2000	5400	2100
Turbidity (NTU)	100+	100+	100+	100+	100+	100+	100+	100+	100+	100+	100+
Temperature (°C)	14	14	14	14	14	14	14	12.4	12.0	12.1	15.6
	4.4.91							4/5/91	4/8/91		

COMMENTS:

PROJECT TITLE: Lockport City Landfill Phase II

PROJECT NO.: 35180-00

STAFF: S. Lamb, K. Kearney, K. Nossavage, D. Sheppard

DATE: 4-9-91 / 4-12 / 4-15 Development
4-22 / 4-23

WELL NO.: MW 11 D

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

② CASING INTERNAL DIAMETER (in.): 2

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

④ VOLUME OF WATER IN CASING (GAL.) _____

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Int 45	48	49.5	50	50	55	60	60	65	70	75
pH	8.19	8.16	7.69	7.57	7.76	7.53	7.68	7.00	7.00	7.33	7.28
Spec. Cond. (µmho)	2500	4100	8000	13,000	1300	1400	1200	1240	1240	1240	1240
Turbidity (NTU)	46	>100	>100	>100	40	>100	>100	37	>100	>100	>100
Temperature (°C)	13.4	12.3	10	11.5	10	10	8.3	10.9	10.8	10.8	10.8
	4-9-91			4-12	4-15	4-22			4-23		

COMMENTS: Well was surge blocked on 4-19.



DATE: 4-24-91 / 4-25-91

Development	
WELL I.D.	VOL. GAL./FT.

1" 0.04

2" 0.17

3" 0.38

3	0.55
4"	0.66

4	0.66
5 ¹¹	1.04

5	1.04
6"	1.50

6	1.50
6"	2.60

8	2.60
---	------

$$V = 0.0408 (2)^2 \times (1 - 3) = \underline{\hspace{2cm}} \text{ GAL. (3 casings)}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0	75	80	85	90	95	95	100	105	110	115
pH		7.16	7.13	7.11	7.31	7.37	7.16	7.21	7.28	7.29	7.42
Spec. Cond. (µmho)		1250	1270	1170	1200	1240	1500	1240	1256	1240	1236
Turbidity (NTU)		66	15	28	32	>100	16	81	86	>100	>100
Temperature (°C)		16	10	10	10	10	11.8	12.5	12.7	11.4	12.6
	4-74						4-25				

COMMENTS:

A-2347



PROJECT NO.: 35180-00

STAFF: D. Sheppard

DATE: 4-25-91

Development

WELL NO.: MW 11D

WELL I.D.

VOL.
GAL./FT.

① TOTAL CASING AND SCREEN LENGTH (FT.): _____

11

0.04

② CASING INTERNAL DIAMETER (in.): 2

2'

0.17

③ WATER LEVEL BELOW TOP OF CASING (FT.) _____

3'

0.38

4

0.66

5'

104

5

1.50

④ VOLUME OF WATER IN CASING (GAL.) _____

8

260

$$V = 0.0408 (2)^2 \times (1 - 3) = \underline{\hspace{2cm}} \text{ GAL. (3 casings)}$$

COMMENTS:

A-2347

APPENDIX D
WELL SAMPLING REPORTS

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC
 Address: 455 South Niagara St Lockport, NY 14094
 Contact: Jim Moros (NYSDEC) Phone: 433-9131 / 512-453-0315

Evacuation

Sample Point: MW25
 Sample Location: Downgradient of landfill on east side of The Golf
 Date: 3/28/91 Crew: K Kearney / K. Nussavage / D. Sheppard
 Weather: 40°F, winds SW 20-40mph, Overcast/Lt. Rain
 Purging Device: 1500 peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 1300
 Comments and Observations: Turbid/orange floc turning clear with
no odor.

Collection

Date: 3/28/91 Crew: D. Sheppard, K. Kearney, K. Nussavage
 Weather: See above
 Time of Collection: 1330 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.09</u>	<u>1950</u>	<u>10</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MW25-GW
 Physical Observations: Slightly turbid w/ some orange floc, no odor
Turbidity = 47 NTU
 Laboratory: IEA Testing Co Monroe, CT
 Comments: Sampled for Schedule A+B. Shipped Fed. Ex
Priority 1 for 3-29 arrival at lab

Reviewed by: [Signature] Date: 3/28/91
 Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC
 Address: 455 South Niagara St Lockport, NY 14094
 Contact: Jim Marra, NYSDER Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MW2I
 Sample Location: Downgradient of landfill on east side of The Gulf
 Date: 3/28/91 Crew: K. Kearney / K. Nossavage / D. Sheppard
 Weather: 40°F, Winds SW 20-40 mph, Overcast / Lt. Rain
 Purging Device: ISCO peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 1315
 Comments and Observations: Clear, no odor.

Collection

Date: 3/28/91 Crew: D. Sheppard / K. Kearney / K. Nossavage
 Weather: See above
 Time of Collection: 1430 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.05</u>	<u>2000</u>	<u>10</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MW2I-GW
 Physical Observations: Clear, no odor.

Laboratory: IEA testing Co. Monroe, CT

Comments: Sampled for Schedule A+B including IMS + IMSP.
Shipped Fed Ex Priority 1 for 3-29 arrival
at lab. Turbidity = 7 NTU

Reviewed by: [Signature] Date: 3/28/91
 Supervisor

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Board II → Lockport / NYSD&E
 Address: 455 South Niagara St Lockport, NY 14094
 Contact: Jim Maros (NYSD&E) Phone: 433-4131 / 518-457 0315

Evacuation

Sample Point: MW35

Sample Location: Downgradient of landfill on east side of The Gulf

Date: 4 / 1 / 91 Crew: S. Lamb / K. Nossavage / D. Sheppard

Weather: 40°F, Winds = Var & 3-5 mph, Overcast

Purging Device: Dedicated HDPE trailer

Time Evacuated: 1245

Comments and Observations: Rusty orange, no odor

Water changed color upon exposure to air

Collection

Date: 4 / 1 / 91 Crew: D. Sheppard / K. Nossavage / S. Lamb

Weather: 40°F, Winds = Var & 3-5 mph, Overcast

Time of Collection: 1430 Sampling Device: Dedicated HDPE

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>6.88</u>	<u>2000</u>	<u>2.6</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Identification: LCL-MW35-GW

Physical Observations: Clear, no odor.

Turbidity = 16 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex.

Priority 1 for 4-2 arrival at lab.

Reviewed by: [Signature] Date: 4 / 1 / 91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDDEC
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Moros (NYSDDEC) Phone: 433-9131 / 512-457-2215

Evacuation

Sample Point: MW9S
 Sample Location: Downgradient of landfill on east side of The Gulf
 Date: 4 / 1 / 91 Crew: D. Sheppard / S. Lamb / K. Messavage
 Weather: 40°F, winds Var 3-5 mph, Overcast
 Purging Device: Dedicated HDPE bailer
 Time Evacuated: 1300
 Comments and Observations: Clear, no odor

Collection

Date: 4 / 1 / 91 Crew: D. Sheppard / S. Lamb / K. Messavage
 Weather: See above
 Time of Collection: 1330 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.13</u>	<u>1750</u>	<u>8.8</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MW9S-GW
 Physical Observations: Clear, no odor
 Turbidity = 30 NTU
 Laboratory: IEA Testing Co. Monroe, CT
 Comments: Sampled for Schedule A+B. Shipped Fed. Ex.
Priority 1 for 4-2 arrival at lab

Reviewed by: [Signature] Date: 4 / 1 / 91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDDEC

Address: 455 South Niagara St. Lockport, NY 14094

Contact: Jim Marcus (NYSDDEC) Phone: 433-4131 / 518-457-0315

Evacuation

Sample Point: MW9I

Sample Location: Downgradient of landfill on east side of The 60'

Date: 4/1/91 Crew: D. Sheppard / S. Lamb / K. Nossavage

Weather: 40°F, winds Var e 3-5 mph, Overcast

Purging Device: Dedicated HDPE bailer

Time Evacuated: 1315

Comments and Observations: Clear, no odor.

Collection

Date: 4/1/91 Crew: D. Sheppard / S. Lamb / K. Nossavage

Weather: 40°F, winds Var e 3-5 mph, Overcast

Time of Collection: 1400 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>6.87</u>	<u>1900</u>	<u>7.5</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Identification: LCL-MW9I-GW

Physical Observations: Clear, no odor

Turbidity = 26 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Clear, no odor

Reviewed by: [Signature] Date: 4/1/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NISDEC
 Address: 455 South Main St Lockport, NY 14094
 Contact: Joe Macias (NISDEC) Phone: 433-9131 / 516-457-0315

Evacuation

Sample Point: MW45
 Sample Location: Down gradient of landfill on east side of the Gulf
 Date: 4/1/91 Crew: S. Lumb / K. Nossavage / D. Sheppard
 Weather: 40°F, Winds Var 3-5 mph, Overcast
 Purging Device: Dedicated HDPE boiler
 Time Evacuated: 1400
 Comments and Observations: Rusty orange to clear, no odor

Collection

Date: 4/2/91 Crew: D. Sheppard / S. Lumb / K. Nossavage
 Weather: See above
 Time of Collection: 1500 Sampling Device: Dedicated HDPE boiler

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>6.84</u>	<u>1900</u>	<u>10</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Identification: LCL-MW45-6W

Physical Observations: Clear, no odor

Turbidity = 35 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex.

Priority 1 for 4-2 arrival @ lab.

Prepared by: [Signature]

Date: 4/1/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lackport City Landfill + Lackport / NYSDDEC
 Address: 455 South Niagara St. Lackport, NY 14094
 Contact: Jim Miras (NYSDDEC) Phone: 433-4131 / 518-457-0315

Evacuation

Sample Point: MW7S
 Sample Location: North end of landfill south of the Gulf
 Date: 4/12/91 Crew: S. Lamb / K. Nossavage
 Weather: 40°F, Winds = We 5-10mph, Overcast
 Purging Device: ISCO peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 0900
 Comments and Observations: Grey w/floc, no odor

Collection

Date: 4/12/91 Crew: S. Lamb / K. Nossavage
 Weather: 40°F, Winds = We 5-10mph, Overcast
 Time of Collection: 1100 Sampling Device: Dedicated HDPE header

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.07</u>	<u>1850</u>	<u>10.4</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MW7S-GW
 Physical Observations: Clear to rusty orange, no odor
Turbidity = 4 NTU
 Laboratory: IEA Testing Co. Monroe, CT
 Comments: Sampled for Schedule A + Oil + Grease. Shipped
Federal Express Priority 1 for 4-3 arrival at lab.

Reviewed by: [Signature] Date: 4/12/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDDEC
 Address: 455 South Niagara St Lockport, NY 14094
 Contact: Jim Moras Phone: 433-4131 / 518-457-0315

Evacuation

Sample Point: MW51
 Sample Location: Down gradient of landfill on east side of The Gulf.
 Date: 4/17/91 Crew: S. Lamb / K. Nossavage
 Weather: 40°F, Winds = W/E 5-10mph, Overcast
 Purging Device: ISCO peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 0910
 Comments and Observations: Tan/Grey to clear, no odor

Collection

Date: 4/17/91 Crew: S. Lamb / K. Nossavage
 Weather: See above
 Time of Collection: 1030 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>6.81</u>	<u>1800</u>	<u>7.0</u>

Identification: LCH-MW51-GW

Physical Observations: Clear to turbid, no odor

Turbidity = 10 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed Ex
Priority 1 for 4-3 arrival e lab.

Reviewed by: [Signature]

Date: 4/12/91

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Mucis (NYSDEC) Phone: 433-9131 / 518-457 0315

Evacuation

Sample Point: MW55
 Sample Location: Down gradient of landfill on east side of The Gulf
 Date: 4 / 2 / 91 Crew: K. Nossavage + S. Lamb
 Weather: 40°F, Winds = We 5-10mph, Overcast
 Purging Device: ISCO peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 0945
 Comments and Observations: Rusty orange, no odor

Collection

Date: 4 / 2 / 91 Crew: S. Lamb / K. Nossavage
 Weather: See above
 Time of Collection: 1000 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>6.79</u>	<u>1900</u>	<u>8.2</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MW55-GW

Physical Observations: Clear turning turbid with some orange
flor, no odor. Turbidity = 50 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex
Priority 1 for 4-3 arrival @ lab.

Reviewed by: [Signature]

Supervisor

Date: 4 / 2 / 91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDDEC
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Moran (NYSDDEC) Phone: 433-4131 / 516-457-0315

Evacuation

Sample Point: MW15
 Sample Location: Upgradient of landfill across S. Niagara St.
 Date: 4/2/91 Crew: D. Sheppard
 Weather: 40°F, Winds we 5-10mph, Overcast
 Purging Device: ISCO peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 1100
 Comments and Observations: Slightly turbid orange, no odor

Collection

Date: 4/2/91 Crew: D. Sheppard / S. Lamb
 Weather: See above
 Time of Collection: 1330 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.07</u>	<u>1000</u>	<u>8.5</u>

Identification: LCL-MW15-6W
 Physical Observations: Clear to slightly turbid, no odor
Turbidity = 54 NTU
 Laboratory: IEA Testing Co. Monroe, CT
 Comments: Sampled for Schedule A+B. Shipped Fed Ex
Priority 1 for 4-3 arrival at lab

Prepared by:

[Signature]

Date: 4/2/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDDEC
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Monroe (NYSDDEC) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW11
 Sample Location: Upgradient of Landfill across S. Niagara St.
 Date: 4/2/91 Crew: D. Sheppard / S. Lamb
 Weather: 40°F, winds W 5-10 mph, Overcast
 Purging Device: ISCO peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 1115
 Comments and Observations: Clear, No Odor

Collection

Date: 4/2/91 Crew: D. Sheppard / S. Lamb
 Weather: See above
 Time of Collection: 1400 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.14</u>	<u>1520</u>	<u>7.5</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MW11-GW
 Physical Observations: Clear, no odor
Turbidity = 6 NTU

Laboratory: IEA Testing Co. Monroe, CT
 Comments: Sampled for Schedule A+B. Shipped Fed. Ex.
Priority 1 for 4-3 arrival & lab

Reviewed by: [Signature] Date: 4/2/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSD&C
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Morris (NYSD&C) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW6T
 Sample Location: Upgradient of Landfill in Rotary Park
 Date: 4 / 2 / 91 Crew: S. Lamb
 Weather: 40°F, winds We 5-10 mph
 Purging Device: ISCO peristaltic pump + dedicated HDPE tubing
 Time Evacuated: 1700
 Comments and Observations: Clear to slightly turbid, no odor

Collection

Date: 4 / 3 / 91 Crew: S. Lamb / K. Nossavage / D. Sheppard
 Weather: 45°F, winds = Se 5-10 mph, Clear
 Time of Collection: 1400 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.30</u>	<u>710</u>	<u>10.6</u>

Identification: LCL-MW6T-GW

Physical Observations: Clear, No Odor

Turbidity = 23 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex.

Priority 1 for 4-4 arrival at lab

Reviewed by: [Signature] Date: 4 / 3 / 91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Muras (NYSDEC) Phone: 433-9131 / 518-455-0315

Evacuation

Sample Point: MW6D
 Sample Location: Upgradient of landfill in Rotary Park
 Date: 4/13/91 Crew: D. Sheppard / K. Kearney / S. Lamb
 Weather: 45°F, See 5-10mph, Clear
 Purging Device: Dedicated HDPE bailer
 Time Evacuated: 1300
 Comments and Observations: Clear to turbid, no odor

Collection

Date: 4/13/91 Crew: S. Lamb / K. Messavage
 Weather: See above
 Time of Collection: 1430 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
8.58	850	10.7

Identification: LCL-MW6D-GW
 Physical Observations: Slightly turbid, no odor
Turbidity = > 100 NTU
 Laboratory: IEA Testing Co. Monroe, CT
 Comments: Sampled for Schedule A + B. Shipped Fed. Ex.
Priority 1 for 4-4 arrival at lab

Reviewed by: [Signature] Date: 4/13/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill Lockport, NYSDOC
 Address: 455 South Niagara St Lockport, NY 14094
 Contact: Jim Morris (NYSDOC) Phone: 433-9131 / 518-457-0315

Evacuation

Sample Point: MW101
 Sample Location: Upgradient of landfill in Rotary Park
 Date: 4/3/91 Crew: S. Lamb / K. Nossavage
 Weather: 45°F, winds SW @ 5-10mph, Clear
 Purging Device: Purged with a stainless steel bailer
 Time Evacuated: 1215
 Comments and Observations: Clear to slightly turbid, no odor

Collection

Date: 4/3/91 Crew: D. Sheppard / S. Lamb
 Weather: See above
 Time of Collection: 1500 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.26</u>	<u>910</u>	<u>11.8</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Identification: LCL-MW101-GW

Physical Observations: Clear, No Odor

Turbidity = 23 NTU

Laboratory: IEA Testing Co. Merroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex.
Priority 1 for a 4-4 arrival at lab

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC
 Address: 455 South Niagara St Lockport, NY 14094
 Contact: Jim Murges (NYSDEC) Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MW10D
 Sample Location: Upgradient of landfill in Rotary Park
 Date: 4/3/91 Crew: D. Sheppard/S. Lamb/K. Massavage
 Weather: 45°F, winds Se 5-10 mph, Clear
 Purging Device: Dedicated HDPE bailer
 Time Evacuated: 1040
 Comments and Observations: Slightly turbid, no odor

Collection

Date: 4/3/91 Crew: D. Sheppard/S. Lamb
 Weather: See above
 Time of Collection: 1530 Sampling Device: Dedicated HDPE bailer

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>6.68</u>	<u>20,000</u>	<u>12.3</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MW10D-6W
 Physical Observations: Clear with a strong sulfur odor
Turbidity = 40 NTU PID of sample cup = 146 ppm
 Laboratory: IEA Testing Co. Monroe, CT
 Comments: Sampled for Schedule A+B. Shipped Fed. Ex.
Priority 1 for 4-4 arrival at lab.

Reviewed by: [Signature] Date: 4/3/91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport / NYSDEC
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Morris Phone: 432-4131 / 518-457-0315

Evacuation

Sample Point: MW BT
 Sample Location: Upgradient of landfill in Rotary Park
 Date: 4 / 3 / 91 Crew: S. Lamb
 Weather: 45°F, winds = SE 5-10, Clear
 Purging Device: Dedicated HDPE bailer
 Time Evacuated: 1345
 Comments and Observations: Clear to slightly turbid, no odor

Collection

Date: 4 / 3 / 91 Crew: K. Nessavage / S. Lamb
 Weather: See above
 Time of Collection: _____ Sampling Device: _____

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>6.86</u>	<u>730</u>	<u>11.6</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MWBT-6W
 Physical Observations: Clear, No Odor
Turbidity = 3.4 NTU
 Laboratory: IEA Testing Co. Monroe, CT
 Comments: Sampled for Schedule A+B. Shipped Fed. Ex
Priority 1 for 4-4 arrival at lab

Date: 4 / 3 / 91

URS COMPANY, INC.

WELL SAMPLING FIELD SHEET

Client Name: Lockport City Landfill → Lockport/NYSDEC
 Address: 455 South Niagara St. Lockport, NY 14094
 Contact: Jim Morris (NYSDEC) Phone: 433-9131/518-457-0315

Evacuation

Sample Point: MWB D
 Sample Location: Upgradient of landfill in Rotary Park.
 Date: 4/3/91 Crew: K. Messavage
 Weather: 45°F, Winds Se 5-10 mph, Clear
 Purging Device: Dedicated HDPE bailer
 Time Evacuated: 1400
 Comments and Observations: Clear, No odor

Collection

Date: 4/3/91 Crew: S. Lamb/K. Messavage
 Weather: See above
 Time of Collection: _____ Sampling Device: Dedicated HDPE biker

Field Measurements:

pH Units	Specific Conductance (umhos/cm)	Temp., (°C)
<u>7.06</u>	<u>3200</u>	<u>10.7</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Identification: LCL-MWB D-6W
 Physical Observations: Clear, no odor

Turbidity = 29 NTU

Laboratory: IEA Testing Co. Monroe, CT

Comments: Sampled for Schedule A+B. Shipped Fed. Ex.
Priority 1 for 4-4 arrival at lab.

APPENDIX E
WELL LOCATIONS AND ELEVATIONS

LOCKPORT CITY LANDFILL
WELL AND SAMPLE LOCATIONS AND ELEVATIONS

NAME	NORTHING	EASTING	ELEVATION	
WELLS				
MW 5I	-----	-----	476.4	GRD.
			477.33	RISER
			477.32	CASE
MW 10I	18891.17	12296.54	577.4	GRD.
			580.25	RISER
			580.29	CASE
MW 10D	18891.92	12299.79	577.3	GRD.
			579.76	RISER
			579.79	CASE
MW 11D	17990.17	12922.29	612.5	GRD.
			614.90	RISER
			614.94	CASE
MW 12D	17751.29	11957.30	578.3	GRD.
			580.76	RISER
			580.90	CASE
MW 12I	17760.36	11960.89	578.1	GRD.
			580.79	RISER
			581.13	CASE
D-3A	18175.67	11915.27	558.6	GRD.
			559.66	RISER
			559.80	CASE
WELL POINTS				
WP 4	19948.5	11970.1	473.4	GRD.
			475.30	RISER
WP 5	19911.3	11828.8	470.8	GRD.
			472.89	RISER
WP 6	19954.5	11907.8	471.9	GRD.
			472.68	RISER
BOREHOLES				
B-20	18775.9	11752.4	545.8	GRD.
B-21/P-7	18665.2	11705.4	547.9	GRD.
			551.66	RISER
B-22	18633.1	12018.1	566.5	GRD.
B-23/P-8	18544.6	11999.3	563.8	GRD.
			567.64	RISER
B-24	18458.1	11991.6	562.5	GRD.
B-25	18361.0	12017.5	563.4	GRD.
B-26	18296.3	12096.8	572.6	GRD.
B-27	18255.0	12041.9	567.4	GRD.
STREAM GAGES				
1	-----	-----	469.06	TOP OF RULER
2	-----	-----	-----	DESTROYED
3	-----	-----	495.51	TOP OF RULER
WETLAND SEDIMENT				
WSS-1	20083.8	11639.5	471.7	GRD.
SURFACE WATER/STREAM SEDIMENT				
SW/SS 4	18276.0	11227.9	503.8	GRD.
SW/SS 9	20130.3	12526.9	459.5	GRD.
SW/SS 10	20313.2	12847.8	455.2	GRD.
SANITARY MANHOLES				
MH 1	17065.7	11507.8	509.42	RIM
MH 2	20017.4	11980.9	469.68	RIM

LOCKPORT CITY LANDFILL

Reduced by B. Merritt 4/24/91

Checked by E. Vandrei 4/24/91

NOTE: Coordinate values are relative to a control traverse beginning at LL-11 & LL-12 and closing on LL-10 & LL-9. Beginning and ending control was established by URS Consultants 7/89. Elevations are relative to a control bench 1000 using benchmarks TBM X elevation 414.03 and TBM Z elevation 577.65 established by URS Consultant 7/89.

APPENDIX F
SLUG TEST DATA

Hvorslev Method for Interpretation of Slug Tests (Assumes Isotropic Conditions)

To utilize this worksheet, enter your data at locations marked by an "X".
 Program can include effects of sandpack dewatering (assuming water is rising within the sandpack).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)
1	1.580	17.11	0.090	1.00	0.0000	-0.08
2	1.660	17.10	0.080	0.89	-0.1178	0.00
3	3.500	17.09	0.070	0.78	-0.2513	1.84
4	4.500	17.08	0.060	0.67	-0.4055	2.84
5	5.500	17.07	0.050	0.56	-0.5878	3.84
6	7.500	17.06	0.040	0.44	-0.8109	5.84
7	8.500	17.05	0.030	0.33	-1.0986	6.84
8	9.500	17.04	0.020	0.22	-1.5041	7.84
9	14.000	17.03	0.010	0.11	-2.1972	12.34
10	30.000	17.02	0.000	0.00	ERR	28.34

PROJECT NAME : LOCKPORT CITY LANDFILL
 PROJECT NO : 35180
 WELL NO : NW-100 (SLUG IN)
 ANALYST : MOELLER
 DATE COLLECTED : 4/11/91
 RISER PIPE (ID) : (d) = 2.0 in.
 EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
 EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
 MAX DRAWDOWN (IN SUBSET): (H-Ho) = 0.09 Ft.
 STATIC WATER LEVEL : (H) = 17.02 Ft.
 INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
 SPECIFIC YIELD OF SANDPACK = 0.15
 ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 5.86 min.
 HYDRAULIC CONDUCTIVITY (K) = 1.44E-04 cm/sec

Regression Output:
 Constant 4.66E-02
 Std Err of Y Est 0.1276
 R Squared 0.9718
 No. of Observations 8
 Degrees of Freedom 6

X Coefficient(s) -1.78E-01
 Std Err of Coef. 0.0124

LINEAR REGRESSION DATA RANGE: 2 TO 9

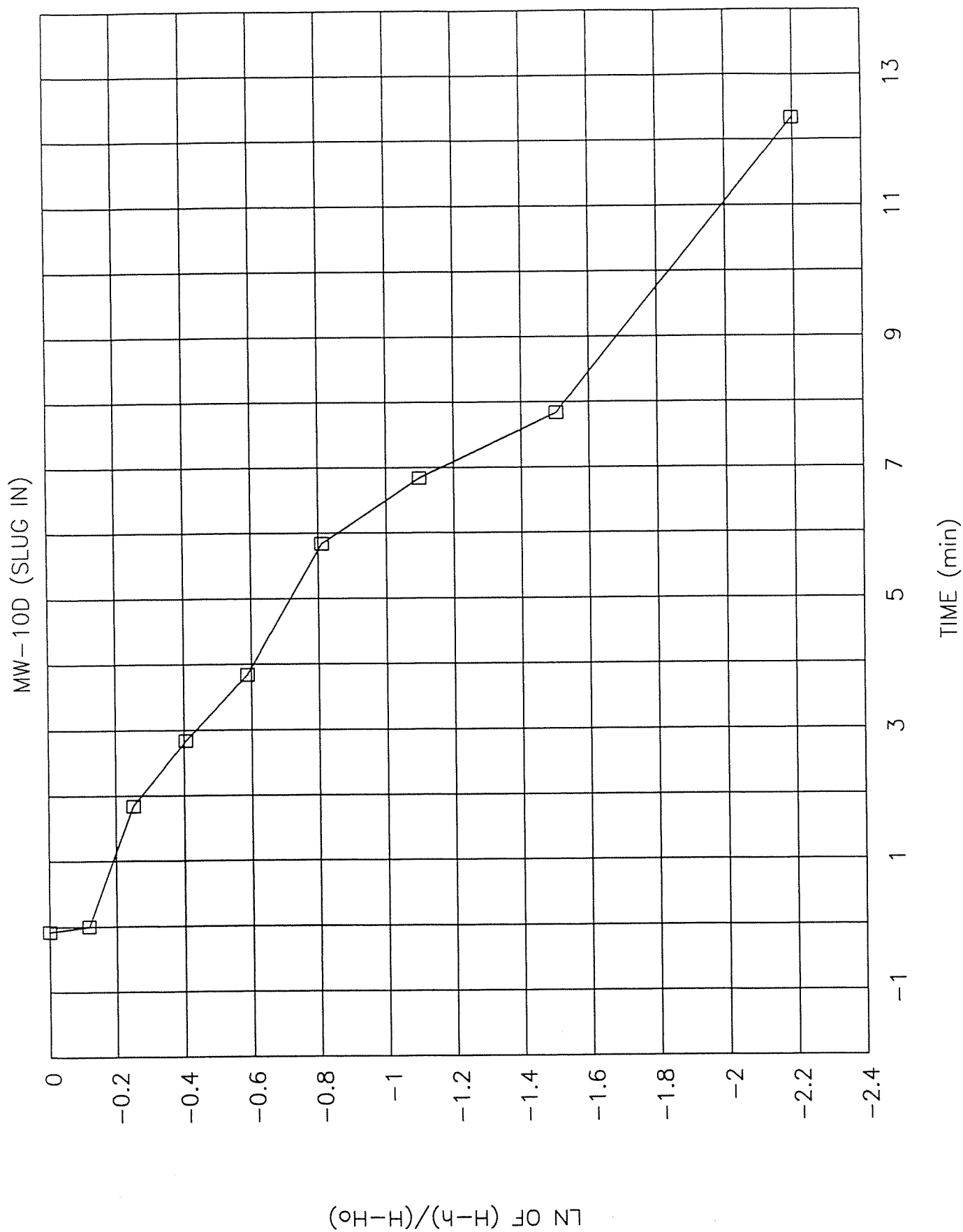
ALTERNATE TWO POINT METHOD OF COMPUTATION:
 SEE NAVFAC Table 4-3 (Piezometer in
 Isotropic Soil for method's reference)

SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
 (H values are normalized heads and t is in minutes)

H1 = 0.89 t1 = 1.66 min
 H2 = 0.11 t2 = 14.00 min

HYDRAULIC CONDUCTIVITY = 4.69E-06 ft/sec
 = 1.43E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)



HWORSLEY METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
 TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
 PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)
1	0.020	16.77	0.230	1.00	0.0000	-0.39
2	0.023	16.78	0.220	0.96	-0.0445	-0.39
3	0.030	16.79	0.210	0.91	-0.0910	-0.38
4	0.080	16.80	0.200	0.87	-0.1398	-0.33
5	0.160	16.81	0.190	0.83	-0.1911	-0.25
6	0.210	16.82	0.180	0.78	-0.2451	-0.20
7	0.410	16.83	0.170	0.74	-0.3023	0.00
8	0.910	16.84	0.160	0.70	-0.3629	0.50
9	1.160	16.85	0.150	0.65	-0.4274	0.75
10	1.660	16.86	0.140	0.61	-0.4964	1.25
11	2.500	16.87	0.130	0.57	-0.5705	2.09
12	3.000	16.88	0.120	0.52	-0.6506	2.59
13	3.500	16.89	0.110	0.48	-0.7376	3.09
14	4.000	16.90	0.100	0.43	-0.8329	3.59
15	5.000	16.91	0.090	0.39	-0.9383	4.59
16	5.500	16.92	0.080	0.35	-1.0561	5.09
17	6.500	16.93	0.070	0.30	-1.1896	6.09
18	8.000	16.95	0.050	0.22	-1.5261	7.59
19	12.000	16.96	0.040	0.17	-1.7492	11.59
20	14.000	16.98	0.020	0.09	-2.4423	13.59
21	18.000	16.99	0.010	0.04	-3.1355	17.59
22	24.000	17.00	0.000	0.00	ERR	23.59

PROJECT NAME	: LOCKPORT CITY LANDFILL
PROJECT NO	: 35180
WELL NO	: MW-10D (SLUG OUT)
ANALYST	: MOELLER
DATE COLLECTED	: 4/11/91
RISER PIPE (ID):	(d) = 2.0 in.
EFFECTIVE SCREEN DIAMETER:	(D) = 2.0 in.
EFFECTIVE SCREEN LENGTH:	(L) = 10.00 Ft.
MAX DRAWDOWN (IN SUBSET):	(H-Ho) = 0.23 Ft.
STATIC WATER LEVEL:	(H) = 17.00 Ft.
INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) =	0.00
SPECIFIC YIELD OF SANDPACK =	0.15
ADJUSTED RISER PIPE ID (d) =	2.000 in.

BASIC TIME LAG:	(To) = 4.69 min.
HYDRAULIC CONDUCTIVITY	(K) = 1.80E-04 cm/sec

Constant	-2.67E-01
Std Err of Y Est	0.1031
R Squared	0.9851
No. of Observations	15
Degrees of Freedom	13

X Coefficient(s)	-1.55E-01
Std Err of Coef.	0.0053

LINEAR REGRESSION DATA RANGE: 7 TO 21

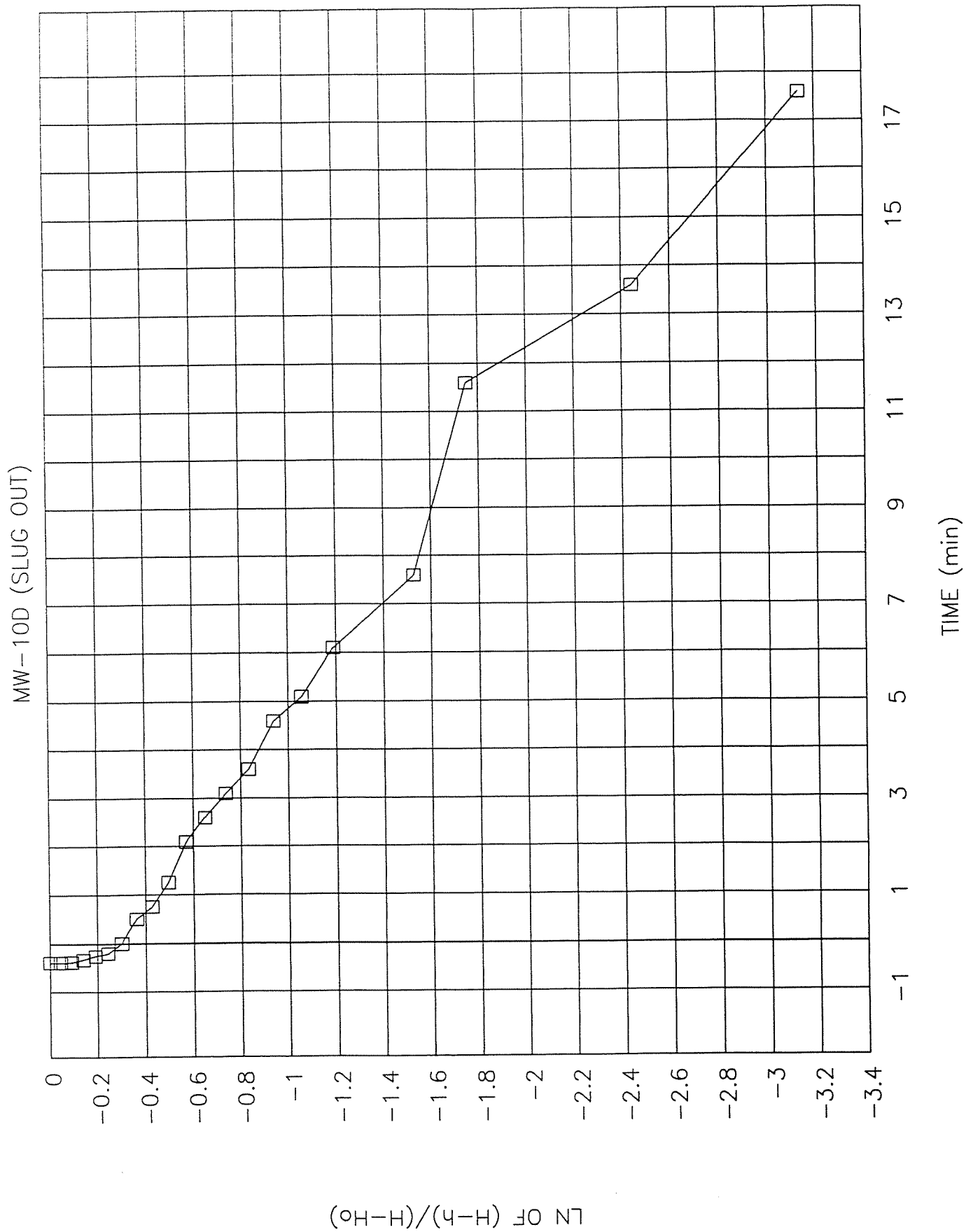
ALTERNATE TWO POINT METHOD OF COMPUTATION:
 SEE NAVFAC Table 4-3 (Piezometer in
 Isotropic Soil for method's reference)

SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
 (H values are normalized heads and t is in minutes)

H1 =	0.74	t1 =	0.41 min
H2 =	0.04	t2 =	18.00 min

HYDRAULIC CONDUCTIVITY =	4.60E-06 ft/sec
=	1.40E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)



HWORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
 TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "X".
 PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)
1	0.100	11.11	0.770	1.00	0.0000	-0.23
2	0.150	11.12	0.760	0.99	-0.0131	-0.18
3	0.180	11.13	0.750	0.97	-0.0263	-0.15
4	0.210	11.14	0.740	0.96	-0.0397	-0.12
5	0.250	11.15	0.730	0.95	-0.0533	-0.08
6	0.280	11.16	0.720	0.94	-0.0671	-0.05
7	0.330	11.17	0.710	0.92	-0.0811	0.00
8	0.410	11.19	0.690	0.90	-0.1097	0.08
9	0.500	11.20	0.680	0.88	-0.1243	0.17
10	0.580	11.22	0.660	0.86	-0.1542	0.25
11	0.660	11.23	0.650	0.84	-0.1694	0.33
12	0.750	11.25	0.630	0.82	-0.2007	0.42
13	0.830	11.26	0.620	0.81	-0.2167	0.50
14	0.910	11.27	0.610	0.79	-0.2329	0.58
15	1.000	11.28	0.600	0.78	-0.2495	0.67
16	1.080	11.29	0.590	0.77	-0.2663	0.75
17	1.160	11.31	0.570	0.74	-0.3008	0.83
18	1.330	11.33	0.550	0.71	-0.3365	1.00
19	1.410	11.34	0.540	0.70	-0.3548	1.08
20	1.500	11.35	0.530	0.69	-0.3735	1.17
21	1.580	11.36	0.520	0.68	-0.3926	1.25
22	1.750	11.37	0.510	0.66	-0.4120	1.42
23	1.830	11.38	0.500	0.65	-0.4318	1.50
24	1.910	11.39	0.490	0.64	-0.4520	1.58
25	2.000	11.40	0.480	0.62	-0.4726	1.67
26	2.500	11.45	0.430	0.56	-0.5826	2.17
27	3.000	11.49	0.390	0.51	-0.6802	2.67
28	3.500	11.53	0.350	0.45	-0.7885	3.17
29	4.000	11.56	0.320	0.42	-0.8781	3.67
30	4.500	11.59	0.290	0.38	-0.9765	4.17
31	5.000	11.61	0.270	0.35	-1.0480	4.67
32	5.500	11.64	0.240	0.31	-1.1658	5.17
33	6.000	11.65	0.230	0.30	-1.2083	5.67
34	6.500	11.68	0.200	0.26	-1.3481	6.17
35	7.000	11.69	0.190	0.25	-1.3994	6.67
36	7.500	11.71	0.170	0.22	-1.5106	7.17
37	8.000	11.72	0.160	0.21	-1.5712	7.67
38	8.500	11.73	0.150	0.19	-1.6358	8.17
39	9.000	11.74	0.140	0.18	-1.7047	8.67
40	9.500	11.76	0.120	0.16	-1.8589	9.17
41	10.000	11.77	0.110	0.14	-1.9459	9.67
42	12.000	11.80	0.080	0.10	-2.2644	11.67
43	14.000	11.82	0.060	0.08	-2.5520	13.67
44	16.000	11.84	0.040	0.05	-2.9575	15.67
45	18.000	11.85	0.030	0.04	-3.2452	17.67
46	20.000	11.86	0.020	0.03	-3.6507	19.67
47	22.000	11.87	0.010	0.01	-4.3438	21.67
48	26.000	11.88	0.000	0.00	ERR	25.67

PROJECT NAME : LOCKPORT CITY LANDFILL
 PROJECT NO : 35180
 WELL NO : MW-101 (SLUG IN)
 ANALYST : MOELLER
 DATE COLLECTED : 4/11/91
 RISER PIPE (ID) : (d) = 2.0 in.
 EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
 EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
 MAX DRAWDOWN (IN SUBSET): (H-Ho) = 0.77 Ft.
 STATIC WATER LEVEL : (H) = 11.88 Ft.
 INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
 SPECIFIC YIELD OF SANDPACK = 0.15
 ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 4.62 min.
 HYDRAULIC CONDUCTIVITY (K) = 1.83E-04 cm/sec

Regression Output:
 Constant -1.59E-01
 Std Err of Y Est 0.0460
 R Squared 0.9971
 No. of Observations 39
 Degrees of Freedom 37

X Coefficient(s) -1.81E-01
 Std Err of Coef. 0.0016

LINEAR REGRESSION DATA RANGE: 7 TO 45

ALTERNATE TWO POINT METHOD OF COMPUTATION:
 SEE NAVFAC Table 4-3 (Piezometer in
 Isotropic Soil for method's reference)

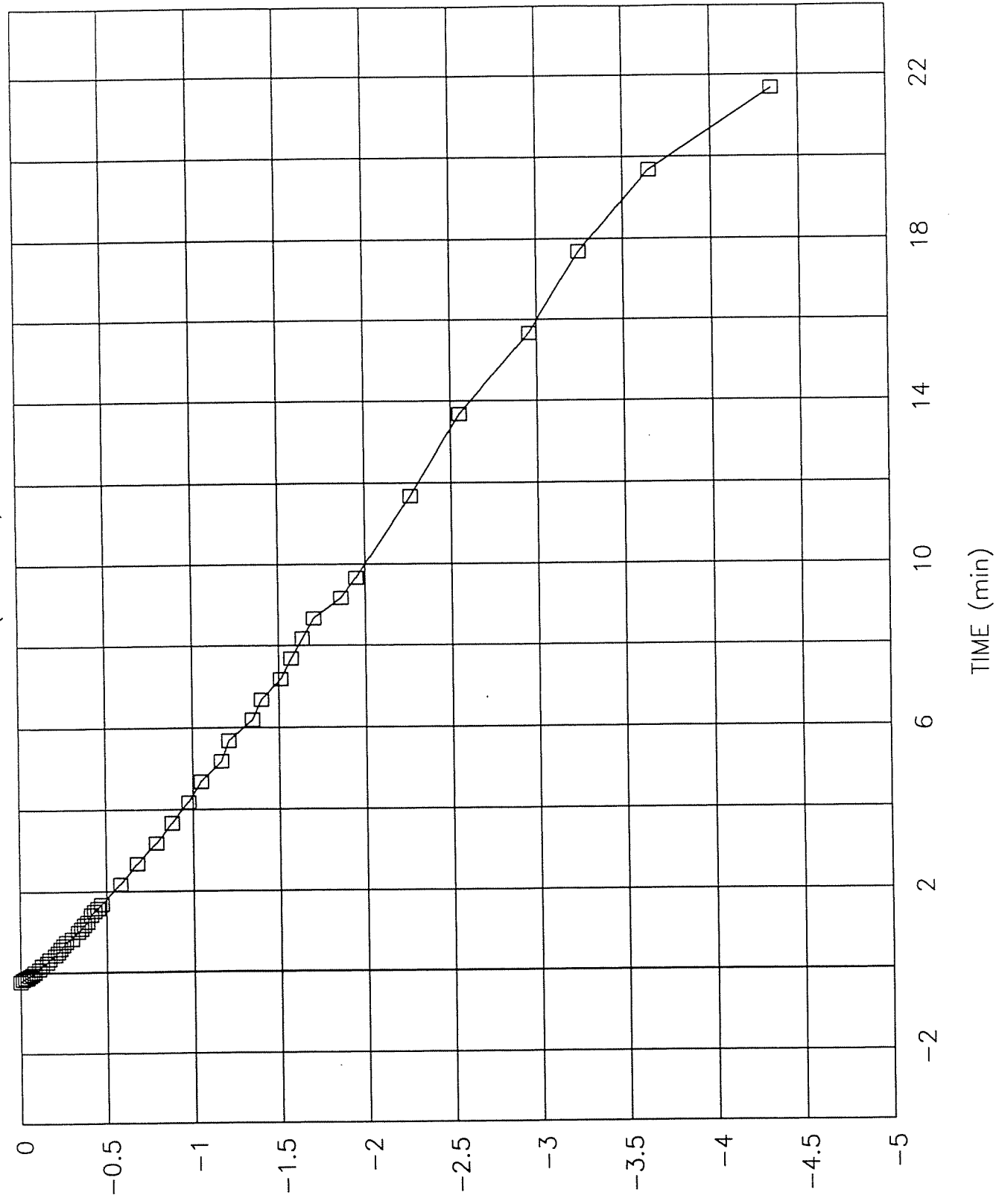
SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
 (H values are normalized heads and t is in minutes)

H1 = 0.92 t1 = 0.33 min
 H2 = 0.04 t2 = 18.00 min

HYDRAULIC CONDUCTIVITY = 4.92E-06 ft/sec
 = 1.50E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

MW-101 (SLUG IN)



Hvorslev Method for Interpretation of Slug Tests (Assumes Isotropic Conditions)
 TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "X".
 PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LN (Y)	TIME min (ADJUSTED)	PROJECT NAME PROJECT NO WELL NO ANALYST DATE COLLECTED RISER PIPE (ID): EFFECTIVE SCREEN DIAMETER: (D) = EFFECTIVE SCREEN LENGTH: (L) = MAX DRAWDOWN (IN SUBSET): (H-Ho) = STATIC WATER LEVEL: (H) = INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = SPECIFIC YIELD OF SANDPACK = ADJUSTED RISER PIPE ID (d) =	LOCKPORT CITY LANDFILL :35180 :MW-101 (SLUG OUT) :MOELLER :4/11/91 CHECKED BY :
1	0.300	12.60	0.740	1.00	0.0000	-0.70		
2	0.330	12.59	0.730	0.99	-0.0136	-0.67		
3	0.410	12.57	0.710	0.96	-0.0414	-0.59		
4	0.500	12.56	0.700	0.95	-0.0556	-0.50		
5	0.580	12.54	0.680	0.92	-0.0846	-0.42		
6	0.660	12.53	0.670	0.91	-0.0994	-0.34		
7	0.750	12.51	0.650	0.88	-0.1297	-0.25		
8	0.830	12.50	0.640	0.86	-0.1452	-0.17		
9	0.910	12.48	0.620	0.84	-0.1769	-0.09		
10	1.000	12.47	0.610	0.82	-0.1932	0.00		
11	1.080	12.45	0.590	0.80	-0.2265	0.08		
12	1.250	12.43	0.570	0.77	-0.2610	0.25		
13	1.330	12.42	0.560	0.76	-0.2787	0.33		
14	1.410	12.41	0.550	0.74	-0.2967	0.41		
15	1.500	12.40	0.540	0.73	-0.3151	0.50		
16	1.580	12.39	0.530	0.72	-0.3338	0.58		
17	1.660	12.38	0.520	0.70	-0.3528	0.66		
18	1.750	12.37	0.510	0.69	-0.3722	0.75		
19	1.830	12.36	0.500	0.68	-0.3920	0.83		
20	1.910	12.35	0.490	0.66	-0.4122	0.91		
21	2.000	12.34	0.480	0.65	-0.4329	1.00		
22	2.500	12.29	0.430	0.58	-0.5429	1.50		
23	3.000	12.25	0.390	0.53	-0.6405	2.00		
24	3.500	12.21	0.350	0.47	-0.7487	2.50		
25	4.000	12.18	0.320	0.43	-0.8383	3.00		
26	4.500	12.15	0.290	0.39	-0.9368	3.50		
27	5.000	12.12	0.260	0.35	-1.0460	4.00		
28	5.500	12.10	0.240	0.32	-1.1260	4.50		
29	6.000	12.08	0.220	0.30	-1.2130	5.00		
30	6.500	12.06	0.200	0.27	-1.3083	5.50		
31	7.000	12.04	0.180	0.24	-1.4137	6.00		
32	7.500	12.03	0.170	0.23	-1.4709	6.50		
33	8.000	12.01	0.150	0.20	-1.5960	7.00		
34	8.500	12.00	0.140	0.19	-1.6650	7.50		
35	9.000	11.99	0.130	0.18	-1.7391	8.00		
36	9.500	11.98	0.120	0.16	-1.8192	8.50		
37	10.000	11.97	0.110	0.15	-1.9062	9.00		
38	12.000	11.94	0.080	0.11	-2.2246	11.00		
39	14.000	11.92	0.060	0.08	-2.5123	13.00		
40	16.000	11.90	0.040	0.05	-2.9178	15.00		
41	20.000	11.89	0.030	0.04	-3.2055	19.00		
42	24.000	11.88	0.020	0.03	-3.6109	23.00		
43	30.000	11.87	0.010	0.01	-4.3041	29.00		

Regression Output:
 Constant -2.58E-01
 Std Err of Y Est 0.0455
 R Squared 0.9964
 No. of Observations 31
 Degrees of Freedom 29
 X Coefficient(s) -1.82E-01
 Std Err of Coef. 0.0020
 LINEAR REGRESSION DATA RANGE: 10 TO 40

ALTERNATE TWO POINT METHOD OF COMPUTATION:
 SEE NAVFAC Table 4-3 (Piezometer in
 Isotropic Soil for method's reference)

SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
 (H values are normalized heads and t is in minutes)

H1 = 0.82 t1 = 1.00 min
 H2 = 0.05 t2 = 16.00 min
 HYDRAULIC CONDUCTIVITY = 5.17E-06 ft/sec
 = 1.57E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

MW-101 (SLUG OUT)

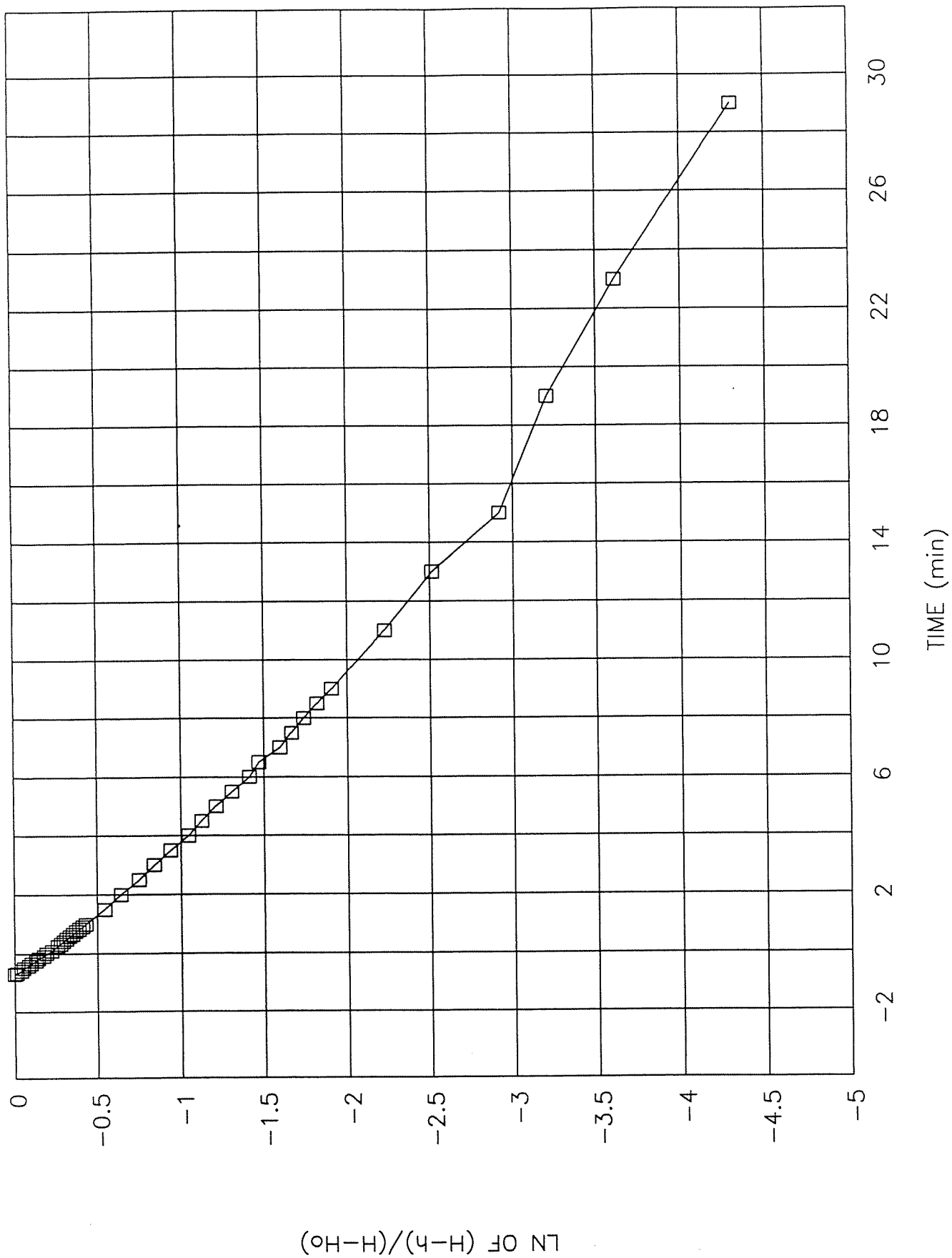


TABLE 3-7

LOCKPORT LANDFILL RI/FS
PERMEABILITY VALUES GENERATED FROM PACKER TEST DATA FOR BEDROCK WELLS

WELL NUMBER	INTERVAL TESTED	BOREHOLE RADIUS (feet)	INTERVAL LENGTH (feet)	ELEVATION HEAD (feet)	PRESSURE HEAD (psi)	TEST DURATION (min)	TOTAL FLOW (gal)	k (ft/min)	k (cm/sec)
MW-1D	92-87	0.333	5.0	102.4	44.0	5.0	0.0	0.0E+00	0.0E+00
MW-1D	87-82	0.333	5.0	102.4	42.0	5.0	21.0	2.4E-04	1.2E-04
MW-1D	82-77	0.333	5.0	102.3	40.0	5.0	6.0	7.1E-05	3.6E-05
MW-1D	77-72	0.333	5.0	81.5	38.0	5.0	3.6	4.9E-05	2.5E-05
MW-1I	26.3-21.3	0.333	5.0	30.3	20.0	5.0	4.8	1.4E-04	7.3E-05
MW-1I	21.3-16.3	0.333	5.0	29.3	15.0	5.0	14.0	5.0E-04	2.6E-04
MW-1I	16.3-11.3	0.333	5.0	29.3	15.0	3.0	0.0	0.0E+00	0.0E+00
MW-2I	28.1-23.1	0.250	5.0	39.3	20.0	5.0	20.0	6.0E-04	3.0E-04
MW-2I	23.1-18.1	0.250	5.0	39.3	17.0	5.0	20.0	6.5E-04	3.3E-04
MW-2I	18.1-13.1	0.250	5.0	30.1	14.0	5.0	22.0	9.0E-04	4.6E-04
MW-5I	25.5-20.5	0.416	5.0	28.5	18.0	4.0	8.5	3.2E-04	1.6E-04
MW-5I	20.5-15.5	0.416	5.0	28.5	10.0	5.0	10.0	4.1E-04	2.1E-04
MW-6D	84-79	0.333	5.0	90.0	45.0	5.0	0.0	0.0E+00	0.0E+00
MW-6D	79-74	0.333	5.0	90.0	45.0	5.0	0.0	0.0E+00	0.0E+00
MW-6D	77-72	0.333	5.0	86.0	15.0	5.0	47.0	9.0E-04	4.6E-04
MW-6D	26-21	0.333	5.0	29.7	13.0	5.0	5.0	1.9E-04	9.8E-05
MW-8I	31.7-26.7	0.333	5.0	35.2	28.0	5.0	2.0	4.6E-05	2.3E-05
MW-8I	26.7-21.7	0.333	5.0	35.2	16.0	5.0	13.0	4.1E-04	2.1E-04
MW-8D	79-74	0.333	5.0	86.0	50.0	5.0	0.5	5.7E-06	2.9E-06
MW-8D	74-69	0.333	5.0	86.0	20.0	5.0	31.0	5.4E-04	2.7E-04
MW-8D	69-64	0.333	5.0	76.0	46.0	5.0	11.0	1.4E-04	7.1E-05
MW-8D	64-59	0.333	5.0	76.0	50.0	5.0	1.0	1.2E-05	6.1E-06
MW-12D	80.7-75.7	0.250	5.0	21.14	38.0	5.0	28.8	6.7E-04	3.4E-04
MW-12D	85.7-80.7	0.250	5.0	16.14	40.0	5.0	11.7	2.7E-04	1.4E-04
MW-12D	90.7-85.7	0.250	5.0	11.14	43.0	5.0	16.5	3.8E-04	1.9E-04

APPENDIX G

CHAIN-OF-CUSTODIES AND ANALYTICAL REQUEST FORMS

40-07

[illegible]

CHAIN OF CUSTODY RECORD

[illegible]

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS COMPANY, INC.

570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORMPROJECT NO. 25180-00DATE 3-14-91TO (lab) 25180-102-85FROM (URS) David A. Sappal**PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :**

LCL-LL-1

LCL-LL-2

LCL-LLTB-1 > VOA ONLY

PARAMETERS :^{TCL}
☒ Volatiles^{TCL}
☒ Semi-Volatiles^{TCL}
☒ Pesticides/P.C.B.'s^{FAL}
☒ Metals☐ Total☐ Dissolved☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc**MISC. ANALYSIS :**☐ B.O.D. (5)
☐ TSS☐ TS
☐ T-PO₄☐ Oil & Grease Differentiation
☐ pH☐ Conductivity**ADDITIONAL ANALYSIS :**CN⁻
+
PhenolsSchedule B

CHAIN OF CUSTODY RECORD

[illegible]

URS

INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS COMPANY, INC.

570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-DO
DATE 3-14-91
TO (lab) Environmental Sciences
FROM (URS) David S. Steppert

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :LCL-WSS-1**PARAMETERS :**^{TCL}
☒ Volatiles^{TCL}
☒ Semi-Volatiles^{TCL}
☒ Pesticides / P.C.B.'s^{TAL}
☒ Metals☐ Total☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

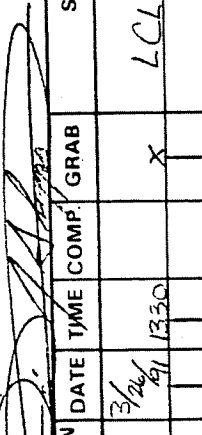
CN⁻
+

Phenols

Schedule C

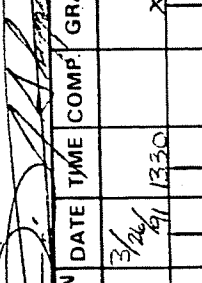
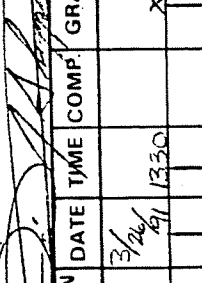
See attachment for all parameters & values

CHAIN OF CUSTODY RECORD

PROJECT NO:		SITE NAME:		NO. OF CON-TAINERS		REMARKS	
35180-00		LOCKPORT CITY LANDFILL					
SAMPLERS (SIGNATURE):							
							
STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	REMARKS
LCL-MH1	3/24/91	1330		X	LCL-MH1	3	40ml vial
						2	1 liter glass container
						1	1 liter glass container
						1	1 liter plastic
						1	1 liter plastic
						1	1 liter glass container
LCL-MH2	3/24/91	1430		X	LCL-MH2	3	40ml vial
						2	1 liter glass container
						1	1 liter glass container
						1	1 liter plastic
						1	1 liter plastic
						1	1 liter glass container

RELINQUISHED BY (SIGNATURE):		DATE TIME:		RECEIVED BY (SIGNATURE):		DATE TIME:	

RELINQUISHED BY (SIGNATURE):		DATE TIME:		RECEIVED BY (SIGNATURE):		DATE TIME:	

RELINQUISHED BY (SIGNATURE):		DATE TIME:		RECEIVED FOR LABORATORY BY (SIGNATURE):		DATE TIME:	
		3-26-91 1600				3-26-91 1600	

Original accompanies shipment - copy to coordination field file.

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS COMPANY, INC.

570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-50

DATE 3-26-91

TO (lab) Environmental Sciences

FROM (URS) James J. Murphy

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-MH1

LCL-MH2

PARAMETERS :

TCL

☒ Volatiles

TCL

☒ Semi-Volatiles

TCL

☒ Pesticides/P.C.B.'s

TAL

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

CN⁻
+
PHENOL

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

[illegible]

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BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-00

DATE 2-28-91

TO (lab) Environmental Sciences (10-A)

FROM (URS) James J. Sullivan

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-MW2S-GW

LCL-MW2I-GW

LCL-GWTB-1 → VOA ONLY!

PARAMETERS :

☒ Volatiles

☒ Semi-Volatiles

☒ Pesticides / P.C.B.'s

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS : CN⁻

+

PHENOLS

SCHEDULE B

SEE ATTACHMENT FOR ALL ANALYSIS

A-2/86

CHAIN OF CUSTODY RECORD

[illegible]

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BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORMPROJECT NO. 27150-00DATE 5-28-91TO (lab) James J. ... (lab)FROM (URS) James J. ...**PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :**

LCL-MW2I-MS

LCL-MW2I-MSD

PARAMETERS :^{TCL}
☒ Volatiles^{TCL}
☒ Semi-Volatiles^{TCL}
☒ Pesticides/P.C.B.'s^{TAL}
☒ Metals☐ Total☐ Dissolved☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc**MISC. ANALYSIS :**☐ BOD (5)
☐ TSS☐ TS
☐ T-PO₄☐ Oil & Grease Differentiation
☐ pH☐ Conductivity**ADDITIONAL ANALYSIS :** CN⁻+
PHENOLSSchedule B

SEE ATTACHMENT FOR ALL ANALYSES

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

[illegible]

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INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

JRS COMPANY, INC.

570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35150-00

DATE 4-1-91

TO (lab) Winn-Dixie Lab

FROM (URS) David J. Stappert

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-MW95-GW

LCL-MW91-GW

LCL-GW1B-2 → VOA only!

PARAMETERS :

☒ Volatiles

☒ Semi-Volatiles

☒ Pesticides / P.C.B.'s

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS : CN⁻

+
Phenols

Schedule B

See attachment for all parameters

CHAIN OF CUSTODY RECORD

[illegible]

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BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORMPROJECT NO. 35180-00DATE 4-1-91TO (lab) Sohoma Dubek's ICAFROM (URS) David J. Sheppard**PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :**LCL-MW35-CWLCL-MW45-CW**PARAMETERS :**TCL
☒ VolatilesTCL
☒ Semi-VolatilesTCL
☒ Pesticides / P.C.B.'sTCL
☒ Metals☐ Total☐ Dissolved☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc**MISC. ANALYSIS :**☐ BOD (5)
☐ TSS☐ TS
☐ T-PO₄☐ Oil & Grease Differentiation
☐ pH☐ Conductivity**ADDITIONAL ANALYSIS :** CN⁻+
PHENOLSSCHEDULE BSee attachment for all parameters

CHAIN OF CUSTODY RECORD

[illegible]

URS CORPORATION

SITE NAME:

SITE NAME: Lockport City Lands.11

SAMPLERS SIGNATURE:

[Signature]

STATION	TIME	COMP	GBAR
1	10:00	100	100
2	10:15	100	100
3	10:30	100	100
4	10:45	100	100
5	11:00	100	100
6	11:15	100	100
7	11:30	100	100
8	11:45	100	100
9	12:00	100	100
10	12:15	100	100
11	12:30	100	100
12	12:45	100	100
13	13:00	100	100
14	13:15	100	100
15	13:30	100	100
16	13:45	100	100
17	14:00	100	100
18	14:15	100	100
19	14:30	100	100
20	14:45	100	100
21	15:00	100	100
22	15:15	100	100
23	15:30	100	100
24	15:45	100	100
25	16:00	100	100
26	16:15	100	100
27	16:30	100	100
28	16:45	100	100
29	17:00	100	100
30	17:15	100	100
31	17:30	100	100
32	17:45	100	100
33	18:00	100	100
34	18:15	100	100
35	18:30	100	100
36	18:45	100	100
37	19:00	100	100
38	19:15	100	100
39	19:30	100	100
40	19:45	100	100
41	20:00	100	100
42	20:15	100	100
43	20:30	100	100
44	20:45	100	100
45	21:00	100	100
46	21:15	100	100
47	21:30	100	100
48	21:45	100	100
49	22:00	100	100
50	22:15	100	100
51	22:30	100	100
52	22:45	100	100
53	23:00	100	100
54	23:15	100	100
55	23:30	100	100
56	23:45	100	100
57	00:00	100	100
58	00:15	100	100
59	00:30	100	100
60	00:45	100	100
61	01:00	100	100
62	01:15	100	100
63	01:30	100	100
64	01:45	100	100
65	02:00	100	100
66	02:15	100	100
67	02:30	100	100
68	02:45	100	100
69	03:00	100	100
70	03:15	100	100
71	03:30	100	100
72	03:45	100	100
73	04:00	100	100
74	04:15	100	100
75	04:30	100	100
76	04:45	100	100
77	05:00	100	100
78	05:15	100	100
79	05:30	100	100
80	05:45	100	100
81	06:00	100	100
82	06:15	100	100
83	06:30	100	100
84	06:45	100	100
85	07:00	100	100
86	07:15	100	100
87	07:30	100	100
88	07:45	100	100
89	08:00	100	100
90	08:15	100	100
91	08:30	100	100
92	08:45	100	100

STATION LOCATION

CBAB

NO.

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1

10:15 AM - 1:00 PM

40 ml vs 1

—

100

Free club - 1854

11-5 Plastic HNCx

1947-1948 - 1949 - 1950

11/10/2017

liter-dietic

Good - 10/11-12

LC2-737 4 1/2

LCL-AWB-3

W 153	191	RECEIVED BY (SIGNATURE)
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DATE: TIME:

RECEIVED BY (SIGNATURE):

CLASS BY SIGNATURE

RECEIVED BY (SIGNATURE):

RECEIVED FOR

11-7-61	13	120
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4-2-71 11:30
General contractor's shipment copy to coordinator field files

URS CONSULTANTS

[illegible]

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570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-00

DATE 4-2-91

TO (lab) Intanna Dubekis

FROM (URS) David J. Sheppard

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL - MW55 - GW

LCL - MW5I - GW

LCL - MW75 - GW → SCHEDULE A + OIL & GREASE ONLY

LCL - GWTB-3 → VOA ONLY!

PARAMETERS :

☒ Volatiles

☒ Semi-Volatiles

☒ Pesticides / P.C.B.'s

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

CN⁻
+
Phenols

SCHEDULE B

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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URS COMPANY, INC.

570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-00

DATE 4-2-91

TO (lab) Johanne Dubekis

FROM (URS) David J. Sheppard

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-MWIS-GW

LCL-MWII-GW

PARAMETERS :

☒ Volatiles

☒ Semi-Volatiles

☒ Pesticides / P.C.B.'s

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS : CN⁻

+

PHENOL

SCHEDULE B

CHAIN OF CUSTODY RECORD

[illegible]

URS CORPORATION

CHAIN OF CUSTODY RECORD

PROJECT NO.: 35180-00		SITE NAME: Lockport City Landfill		NO. OF CON. TAINERS		REMARKS	
SAMPLERS (SIGNATURE):		STATION LOCATION					
STATION NO.	DATE	TIME	COMP.	GRAB			
LCL-SB25	4/5/91	0830	X		2		40ml vial
					1		250ml glass
					1		250ml glass
					1		250ml glass
LCL-SB25	4/5/91	0830	X		2		40ml vial
					1		250ml glass
					1		250ml glass
					1		250ml glass → TOP ONLY
LCL-SB25	4/5/91	0830	X		2		40ml vial
					1		250ml glass
					1		250ml glass
					1		250ml glass

RELINQUISHED BY (SIGNATURE):		DATE TIME:		RECEIVED BY (SIGNATURE):		DATE TIME:	
RELINQUISHED BY (SIGNATURE):		DATE TIME:		RECEIVED BY (SIGNATURE):		DATE TIME:	
RELINQUISHED BY (SIGNATURE):		DATE TIME:		RECEIVED FOR LABORATORY BY (SIGNATURE):		REMARKS:	
		4-5-91 1600					

Original accompanies shipment - copy to coordinator field files

CHAIN OF CUSTODY RECORD

PROJECT NO.: 35180-00		SITE NAME: Lockport City Landfill		NO. OF CON-TAINERS		REMARKS	
SAMPLERS (SIGNATURE): 							
STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		
SS-4	4/6/91	1045		X	LCL-SS-4		
			X				
			X				
			X				
			X				
LCL-SS-10	4/6/91	1420		X	LCL-SS-10		
			X				
			X				
			X				
LCL-SS-9	4/6/91	1300		X	LCL-SS-9 (ms/msd)		
			X				
			X				
			X				

RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	
RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	
RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	

RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	
RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	

RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	
RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	

RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	
RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	

RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	
RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	

RELINQUISHED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):		DATE / TIME:	
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CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

Distribution Original accompanies shipment. Copy to coordinator field files

URS

INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS COMPANY, INC.

570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-00

DATE 4-2-91

TO (lab) Lab. in Buffalo

FROM (URS) David J. Campbell

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-MWBT - GW

LCL-MWBD - GW

LCL - GWIB-4

PARAMETERS :

☒ Volatiles

☒ Semi-Volatiles

☒ Pesticides / P.C.B.'s

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

CN⁻
-1

PHENAS

SAMPLE B

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BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORMPROJECT NO. 35180-00DATE 4-3-11TO (lab) Ismael D. ...FROM (URS) David A. ...**PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :**LCL-MW100-GWLCL-MW101-GW**PARAMETERS :**

TCL

☒ Volatiles

TCL

☒ Semi-Volatiles

TCL

☒ Pesticides / P.C.B.'s

TAL

☒ Metals☐ Total☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity**ADDITIONAL ANALYSIS :**

CN⁻
+

Phenols

Schedule B

See attachment for all parameters

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

PROJECT NO.:		SITE NAME:		NO. OF CON-TAINERS		REMARKS	
35180-00		Lockport City Landfill					
SAMPLERS (SIGNATURE):		STATION LOCATION					
<i>[Signature]</i>							
STATION NO.	DATE	TIME	COMP.	GRAB			
LCL-727	4/26/91	1430		X			40 ml vac
MW-52							1 liter glass carboy
							1 liter glass carboy
							1 liter glass carboy 11501
							1 liter glass carboy 11502
							1 liter glass carboy 11503
							1 liter glass carboy 11504
							1 liter glass carboy 11505
							1 liter glass carboy 11506
							1 liter glass carboy 11507
							1 liter glass carboy 11508
							1 liter glass carboy 11509
							1 liter glass carboy 11510
							1 liter glass carboy 11511
							1 liter glass carboy 11512
							1 liter glass carboy 11513
							1 liter glass carboy 11514
							1 liter glass carboy 11515
							1 liter glass carboy 11516
							1 liter glass carboy 11517
							1 liter glass carboy 11518
							1 liter glass carboy 11519
							1 liter glass carboy 11520
							1 liter glass carboy 11521
							1 liter glass carboy 11522
							1 liter glass carboy 11523
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							1 liter glass carboy 11526
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							1 liter glass carboy 11530
							1 liter glass carboy 11531
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							1 liter glass carboy 11553
							1 liter glass carboy 11554
							1 liter glass carboy 11555
							1 liter glass carboy 11556
							1 liter glass carboy 11557
							1 liter glass carboy 11558
							1 liter glass carboy 11559
							1 liter glass carboy 11560
							1 liter glass carboy 11561

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PHONE: 716-883-5525

ANALYTICAL REQUEST FORMPROJECT NO. 35185-00DATE 4-3-91TO (lab) Intertec DetekFROM (URS) David J. Stuppard**PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :**

LCL - MW 6J - CW

LCL - MW 6D - CW

PARAMETERS :^{LCL}
☒ Volatiles^{LCL}
☒ Semi-Volatiles^{LCL}
☒ Pesticides / P.C.B.'s^{LCL}
☒ Metals☐ Total☐ Dissolved☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc**MISC. ANALYSIS :**☐ BOD (5)
☐ TSS☒ TS
☐ T-PO₄☐ Oil & Grease Differentiation
☐ pH☐ Conductivity**ADDITIONAL ANALYSIS :**CN⁻

4

Phenol

SCHEDULE B

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

[illegible]

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ANALYTICAL REQUEST FORM

PROJECT NO. 35180-00
DATE 4-5-91
TO (lab) Johnston, D. L.akis
FROM (URS) David L. Sheppard

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-SB25 (MS/MCD → SCH. A)
(MS → TCLP ONLY)

PARAMETERS :

TCL

☒ Volatiles

TCL

☒ Semi-Volatiles

TCL

☒ Pesticides / P.C.B.'s

TAL

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

CN⁻

+

PHENOLS

SCHEDULE D

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URS COMPANY, INC.

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BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-00
DATE 4-8-91
TO (lab) Johanna Dubek's
FROM (URS) David J. Sheppard

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-SS-4

LCL-SS-9 (ins/msd)

LCL-SS-10

LCL-SSRB-1 → Sch. A only

PARAMETERS :

☒ Volatiles

☒ Semi-Volatiles

☒ Pesticides / P.C.B.'s

☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

CN⁻
+
Pic-nol

Schedule C

CHAIN OF CUSTODY RECORD

[illegible]

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570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORMPROJECT NO. 35180-00DATE 4-8-91TO (lab) J. J. DabakisFROM (URS) David J. Sheppard**PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :**LCL-SW-4 (AT/MSD)**PARAMETERS :**^{TCL}
☒ Volatiles^{TCL}
☒ Semi-Volatiles^{TCL}
☒ Pesticides / P.C.B.'s^{TAL}
☒ Metals☐ Total☐ Dissolved☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc**MISC. ANALYSIS :**☐ BOD (5)
☒ TSS☐ TS
☐ T-PO₄☐ Oil & Grease Differentiation
☐ pH☐ Conductivity**ADDITIONAL ANALYSIS :** CN⁻

+

PHENOLSSCHEDULE B

CHAIN OF CUSTODY RECORD

[illegible]

CHAIN OF CUSTODY RECORD

[illegible]

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BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 3-5180-00

DATE 4-2-91

TO (lab) Johnnie D. Drake

FROM (URS) David J. Sheppard

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL-SW-4

LCL-SW-10

LCL-SW13-1 → VOA ONLY!

PARAMETERS :

^{TCL}
☒ Volatiles

^{TCL}
☒ Semi-Volatiles

^{TCL}
☒ Pesticides / P.C.B.'s

^{TAL}
☒ Metals

☐ Total

☐ Dissolved

☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ Cadmium

☐ Calcium
☐ Chrome
☐ Cobalt
☐ Copper
☐ Iron
☐ Lead

☐ Magnesium
☐ Manganese
☐ Mercury
☐ Nickel
☐ Potassium
☐ Selenium

☐ Silver
☐ Sodium
☐ Thallium
☐ Tin
☐ Vanadium
☐ Zinc

MISC. ANALYSIS :

☐ BOD (5)
☐ TSS

☐ TS
☐ T-PO₄

☐ Oil & Grease Differentiation
☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

CN⁻
+
Phenols

SCHEDULE B

CHAIN OF CUSTODY RECORD

[illegible]

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URS COMPANY, INC.

570 DELAWARE AVE.

BUFFALO, NEW YORK 14202-1090

PHONE: 716-883-5525

ANALYTICAL REQUEST FORM

PROJECT NO. 35180-00

DATE 4-11-91

TO (lab) Johanna Dubekis

FROM (URS) David J. Sheppard

PLEASE PERFORM ANALYSIS ON THE FOLLOWING SAMPLES :

LCL - DTH - P II (DUGG TANK WATER)

PARAMETERS :

☐ Volatiles

☐ Semi-Volatiles

☐ Pesticides/P.C.B.'s

☐ Metals

☐ Total

☐ Dissolved

☐ Aluminum

☐ Antimony

☐ Arsenic

☐ Barium

☐ Beryllium

☐ Cadmium

☐ Calcium

☐ Chrome

☐ Cobalt

☐ Copper

☐ Iron

☐ Lead

☐ Magnesium

☐ Manganese

☐ Mercury

☐ Nickel

☐ Potassium

☐ Selenium

☐ Silver

☐ Sodium

☐ Thallium

☐ Tin

☐ Vanadium

☐ Zinc

MISC. ANALYSIS :

☐ B.O.D (5)

☐ TSS

☐ TS

☐ T-PO₄

☐ Oil & Grease Differentiation

☐ pH

☐ Conductivity

ADDITIONAL ANALYSIS :

Schedule D

TCLP

APPENDIX H

EXISTING SOMERSET RAILROAD BORING LOGS/WELL DIAGRAM



BORING LOG

PROJECT		Somerset Railroad		JOB NO.	14818	SHEET NO.	1 OF 2	HOLE NO.	D-3
COORDINATES		N 1,155,531 E 462,545		ANGLE FROM HORIZ		90°		BEARING	
SITE		H & L Portion		DRILLER		J. Jensen/Empire		DRILL MAKE AND MODEL	
BEGIN		9-16-81		COMPLETED		9-17-81		HOLE SIZE (INCHES)	
CORE RECOVERY (FT.)		21.8/92		CORE SAMPLES		10		GROUND EL. (FT.)	
SAMPLE HAMMER WEIGHT/FALL		140#/30"		CASING LEFT IN HOLE DIA./LENGTH		None		LOGGED BY	
								M. Donnelly	

SAMPLER TYPE AND DIAMETER	SAMPLER ADVANCE	SAMPLER CORE R.P.R.	SAMPLER RECOVERY	SAMPLER BLOWS	PENETRATION BLOWS			ELEVATION (FT.)	DEPTH (FT.)	UNIFIED SOIL CLASSIFICATION	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
					1ST 6"	2ND 6"	3RD 6"						
SS	2	0.7	39	40	22	17		555.2		SM/GM	1	Gray very loose FILL. Fill is predominately silty fine to coarse SAND but contains varying amounts of gravel, coal cinders, ash, glass, and brick fragments.	(L) Soil drilling with 3 1/2" ID hollow stem augers.
SS	2	0.5	5	4	3	2					2		(L) PP-pocket penetrometer valve in TSP
SS	2	0.3	2	2	1	1			5	SP/GP	3		(L)
SS	2	0.5	2	2	1	1					4		(L)
SS	2	NR	3	3	2	1			10		5		(L)
SS	2	0.7	3	2	1	2				SM	6	Black very loose silty fine sand below 10 feet.	(L)
SS	1.5	1.2	12	2	4	8		540.0	15	MR	7	Mottled tan-gray stiff clayey SILT.	(L) PP=1.6
SS	1.5	0.8	53	15	21	32			20	CH	8	Similar, trace dolomite gravel, roots and decayed organic matter.	(L) PP=1.2
SS	1.5	1.0	39	41	19	20			25	ML	9	Similar, stiffer, less plastic.	(L) PP=4
SS	1.5	1.2	123	25	41	82			30	CL	10	Similar, grades to shale.	(L) Rock drilling with NX split liner tube core barrel. Full return water, brown.
NX	1.7	1.7	100	0	0	2.6		523.7 min/ft			11	SHALE, gray, soft, interbedded with tan silty clay and weathered shale.	
NX	3.0	3.0	33	0	0	2.5					12		

SS = SPLIT SPOON, ST = SHREY TUBE;
O = OENRISON, P = PITCHER, Q = OTHER

OPD 11-84 Rev. 1-82 (Form 11-70-1)

Lockport Landfill (Ref. 3)

BORING LOG							PROJECT		JOB NO.		SHEET NO.		HOLE NO.	
							Somerset Railroad		14818		2 OF 2		D-3	
SAMPLE TYPE AND DIAMETER	SAMPLER ADVANCE	LENGTH CORE RUN	SAMPLE RECOVERY	CORE RECOVERY	SAMPLE BLANK	PENETRATION BLOWS PERCENT CORE RECOVERY	1ST "	2ND "	3RD "	ELEVATION (FT.)	DEPTH FT.	UNIFIED SOIL CLASSIFICATION	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
NX	4.0	4.0		100	0	0	0	0	4	502.7	35	R U N	To 38'. Below 38', gray, medium soft, thin horizontally bedded, bedding occasionally undulating, slump structures with limestone inclusions, fresh to severely weathered locally, fossiliferous. (brachiopods) ROCHESTER FM.	Pulled barrel-suspect plug. Full return water, gray.
NX	5.0	5.0		100	4.3	86			3.3 3.3 2.3 2.3 2		40	R U N	40.2'-41.5' - Bedding plane joints, 0°, fresh. 42.5' - Bedding plane joint, 0°, severely weathered.	
NX	5.0	5.0		100	4.9	98			3 3 3.3 3.0 2.7		45	R U N	46.6'-0.1' Limestone bed.	
										502.7	50		LIMESTONE, light gray to tan, medium hard, medium to coarse crystalline, horizontally bedded with irregular shale partings, fresh, vuggy. Breaks along irregular shale partings. IRONDEQUOIT FM. (Unnamed mem.)	Roller bit 50.2'-60.2'. Lost return water at 52.5'. Water came back when drilling stopped.
											55			
											60	R U N		No return water. Did not come back after drilling.
NX	5.0	5.0		100	5.0	100			2.2 3.0 2.5 2.0 2.0	491.0	65		Boring terminated at 64.2' depth. Rock grouted, soil backfilled.	
											70			

SE = SPLIT SPOON; ST = SHIELBY TUBE;
 D = DENNISON; P = FITCHER; O = OTHER

H & L Portion

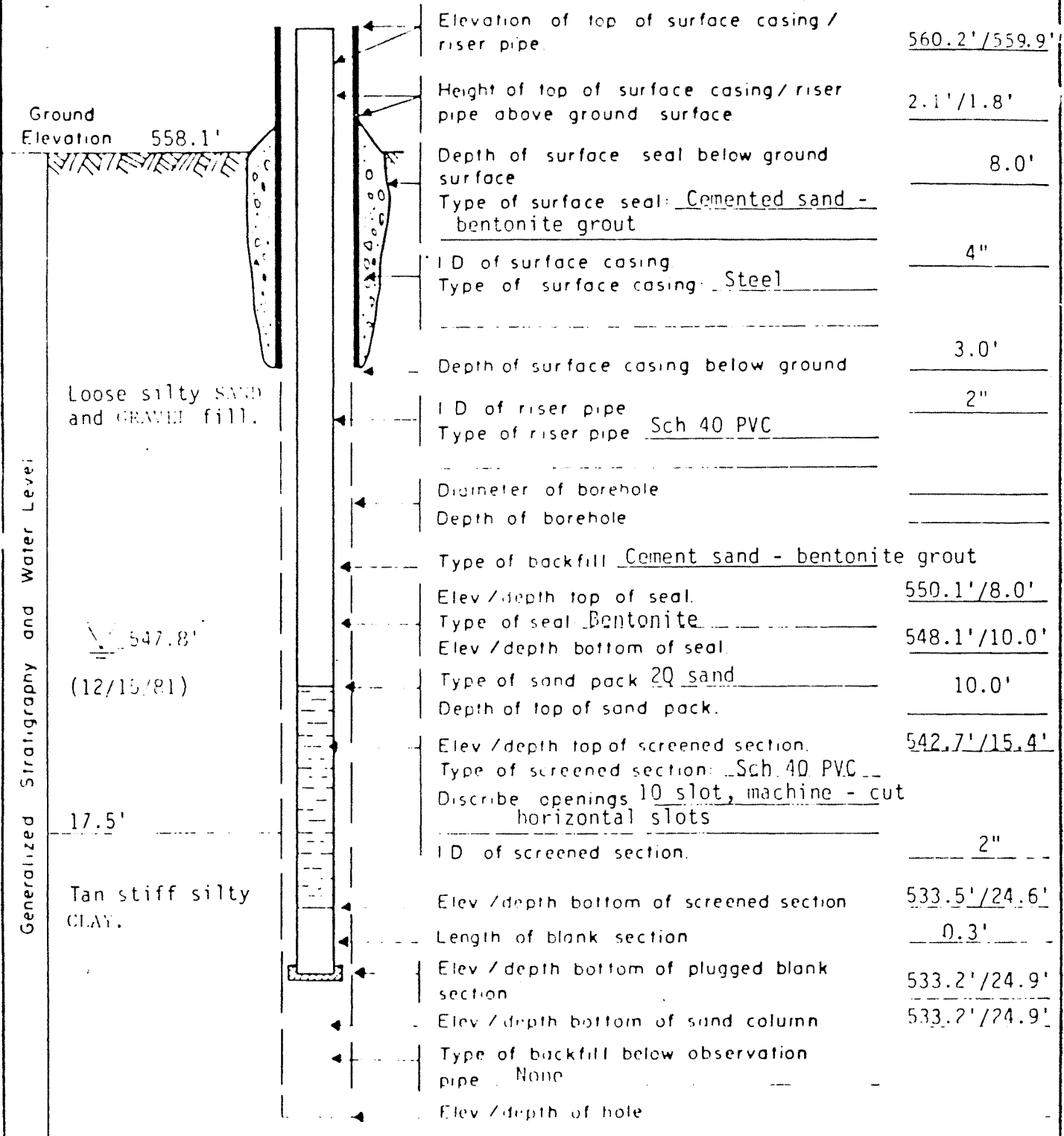
D-3

BORING LOG										PROJECT		JOB NO		SHEET NO		HOLE NO			
H & L Portion										Somerset Railroad		14818		1 OF 2		D-3A			
COORDINATES										N 1,155,306 E 462,613		ANGLE FROM HORIZ		90°		BEARING			
DRILLER										J. Jensen/Empire		TRUCK MAKE AND MODEL		Truck CME 55		HOLE SIZE (INCHES)		OVERBURDEN (FT.)	
CORE RECOVERY (FT./IN)										None		CORE SAMPLES		15		GROUND EL. (FT.)		558.1	
DEPTH/EL. GROUND WATER (FT.)										10.3/547.8 (12-15-81)		DEPTH/EL. TOP OF ROCK (FT.)		42/516.1					
SAMPLE NUMBER WEIGHT/FALL										140#/30"		CASING LEFT IN HOLE DIA./LENGTH		None		LOGGED BY:		M. Donnelly/C. F. Wall	
SAMPLER TYPE AND DIAPHRAGM	SAMPLER ADVANCE	SAMPLER CORE LENGTH (FT.)	SAMPLER CORE RECOVERY (%)	SAMPLER BLOWS	PENETRATION BLOWS			ELEVATION (FT.)	DEPTH (FT.)	UNIFIED SOIL CLASSIFICATION	SOIL SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.						
					1ST	2ND	3RD												
SS	2	0.5	5	2	2	3	558.1		SM/GM	1	Tan, gray, and black loose silty SAND fill.	Soil drilling with 3 1/4" ID hollow stem augers.							
SS	2	0.5	8	3	4	4		SM/GM	2	Fill contains coal cinders, ash, brick, wood and glass fragments.									
SS	2	0.5	8	1	2	6		SM/GM	3										
SS	2	0.8	13	4	11	2		SM/GM	4										
SS	2	0.1	3	1	2	1		SM	5										
SS	2	0.8	9	6	3	6		SM	6	Black loose silty fine sand, metal fragments.									
SS	2	NR	8	6	6	2			7										
SS	2	NR	NA						8										
SS	2	2	18	18	10	8	540.6	SM	9A	Retrieve center bit from hole w/3" spoon.									
SS	2	0.3	17	5	8	9			10	Tan stiff to very stiff silty CLAY.									
SS	1.5	NR	25	8	9	16		CH/MH	11										
SS	1.5	0.6	16	6	8	8			12	Similar, trace v. fine sand.									
SS	1.5	0.9	16	6	6	10			13	Same.									

GROUND WATER OBSERVATION WELL REPORT

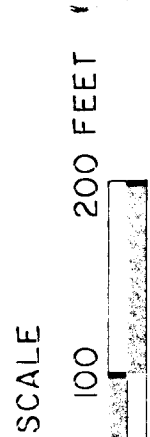
PROJECT Somerset Railroad
 LOCATION N 1,155,306 E 462,613
 Date Completed 9/21/81 Original Depth _____
 Inspected By C. F. Wall Date 9/21/81
 Checked By _____ Date _____

Page 1 of 1
 Well No D-3A
 Aquifer _____
 Depth Interval _____





NOTE
ALL PROPERTY LINES SHOWN ARE TAKEN FROM CITY AND TOWN OF LOCKPORT TAX MAPS AND ARE APPROXIMATE IN THEIR LOCATION. THESE LINES ARE NOT TO BE USED FOR ANY OTHER PURPOSES. THIS MAP WAS PREPARED BY LOCKWOOD SUPPORT SERVICES, ROCHESTER, N.Y., USING APRIL 1988 AERIAL PHOTOGRAPHY.



NO.	DATE	DESCRIPTION	NO.	DATE	DESCRIPTION

DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
PROJ. ENGR.	

URS
CONSULTANTS, INC.
NEW YORK

URS CONSULTANTS, INC.
BUFFALO, NEW YORK
MAY 2 1991
DATE PRINTED

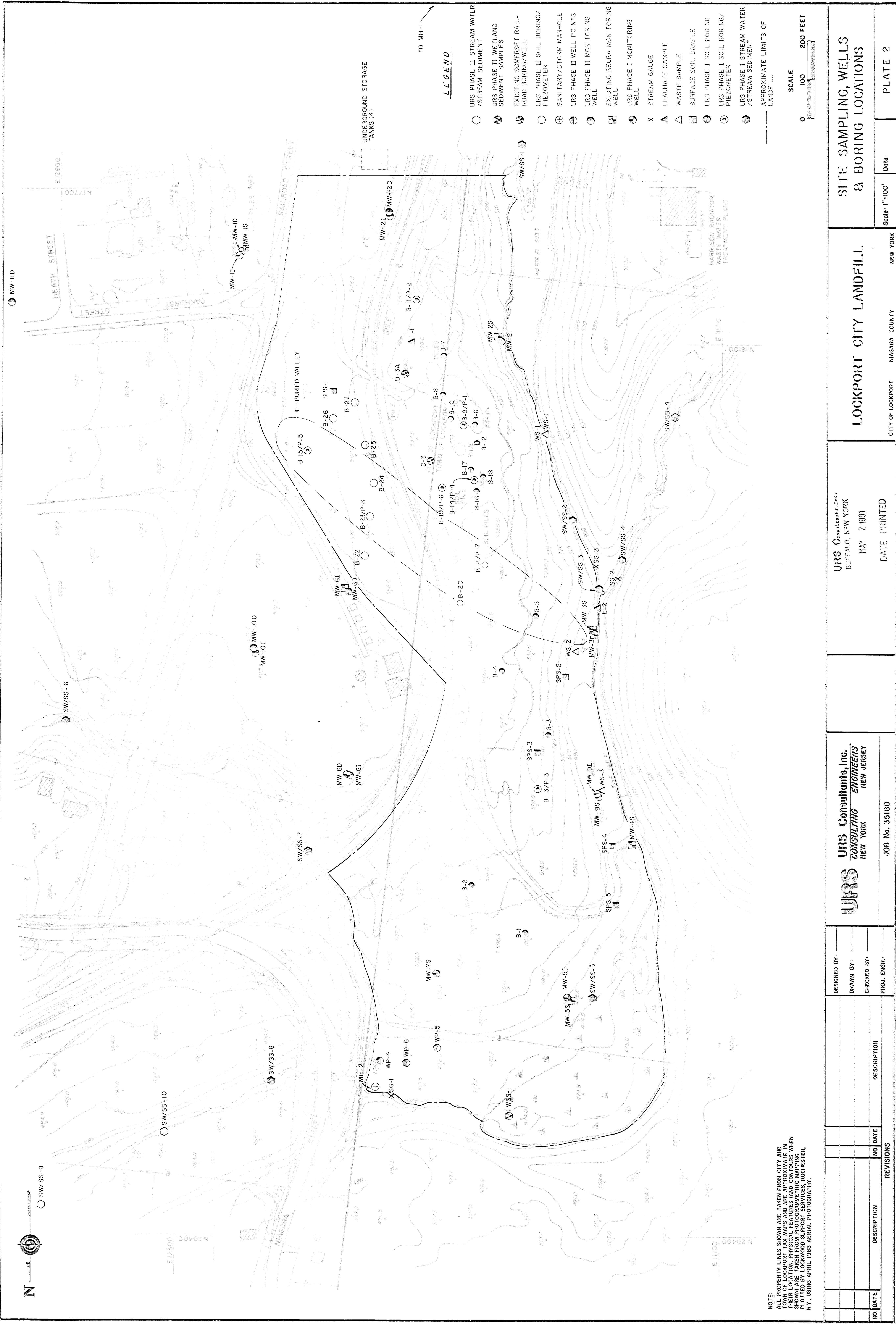
JOB No. 35180

URS CONSULTANTS, INC.
BUFFALO, NEW YORK
MAY 2 1991
DATE PRINTED

CITY OF LOCKPORT
NIAGARA COUNTY
NEW YORK

LOCKPORT CITY LANDFILL

SITE PLAN



NOTE:
ALL PROPERTY LINES SHOWN ARE TAKEN FROM CITY AND COUNTY RECORDS. THE LOCATION OF MONITORING POINTS SHOWN ARE TAKEN FROM PHOTOGRAMMETRIC MAPPING PLOTTED BY LOCKWOOD SUPPORT SERVICES, ROCHESTER, N.Y., USING APRIL 1988 AERIAL PHOTOGRAPHY.

DESIGNED BY:		URS CONSULTANTS, INC.		URS CONSULTANTS, INC.		SITE SAMPLING, WELLS & BORING LOCATIONS	
DRAWN BY:		NEW YORK		BUFFALO, NEW YORK		LOCKPORT CITY LANDFILL	
CHECKED BY:		NEW JERSEY		MAY 2 1991		CITY OF LOCKPORT	
PROJ. ENGR.:		JOB No. 35180		DATE PRINTED		NIAGARA COUNTY	
NO DATE		NO DATE		NO DATE		Scale: 1"=100'	
DESCRIPTION		REVISIONS		NEW YORK		PLATE 2	
DESCRIPTION		NO DATE		DATE		Date	

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MAY 16 1991

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