ENGINEERING INVESTIGATIONS AT
INACTIVE HAZARDOUS WASTE SITES
IN THE STATE OF NEW YORK
PHASE II INVESTIGATION

QUEENSBURY LANDFILL
SITE NO. 557005
QUEENSBURY (T), WARREN (C)

VOLUME I
APRIL 1992

Performed Under
NYSDEC CONTRACT NO. D002340
NYSDEC WORK ASSIGNMENT NO. D002340-3

By
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For
DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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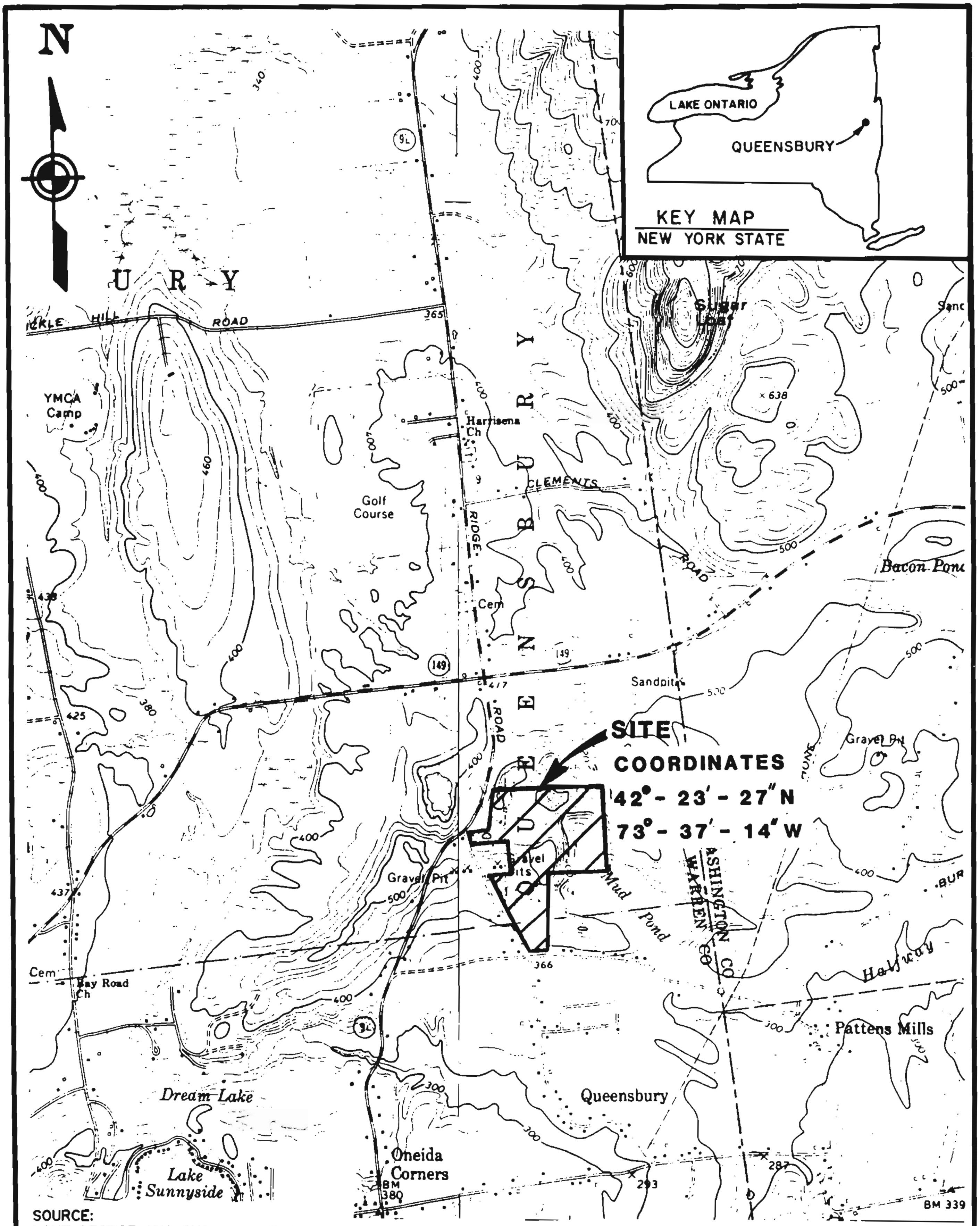
1. EXECUTIVE SUMMARY

The Queensbury Landfill is a municipally owned and operated solid waste disposal site located northeast of the intersection of Ridge and Jenkinsville Roads in the Town of Queensbury, Warren County, New York (Figure 1-1). In operation since the late 1940s, this 50 acre facility currently accepts an average of 250-300 cubic yards of compacted and 100 cubic yards of uncompacted non-hazardous residential and commercial refuse daily (1991 estimate) (Ref. 10). A recycling collection station operates near the Ridge Road (NY Route 9L) entrance to the landfill (Figure 1-3). The landfill's NYSDEC Operating Permit expired on December 26, 1982, and the landfill has been operating without a permit since that date.

Based on allegations that the landfill had accepted hazardous wastes in the form of paint sludge and PCB capacitors prior to 1976, the site was, in December 1983, listed as Class 2a on the New York State Registry of Inactive Hazardous Waste Disposal Sites (Ref. 2 and 11). The Class 2a designation is a temporary classification, assigned to sites that have inadequate or insufficient data for inclusion in any other classification. A Phase I investigation completed by Wehran Engineering in 1986 did not yield sufficient information to adequately evaluate and reclassify the site.

Conservative estimates from the site reconnaissance are that approximately 50 acres of the property have received some amount of fill (Figure 1-2). Most of the site is inactive at present, with only a small area (just east of the adjacent Ciba-Geigy Secure Landfill) receiving non-hazardous municipal waste (Figure 1-3). Landfilling in the unlined active area is proceeding upward in lifts and through extension of the northern and northwestern slopes. Wood and lumber wastes are periodically burned in open fires southwest of the active fill area. The remainder of the site's estimated fill area is inactive and unlined. In early 1979, in a 4- to 6-acre area near Mud Pond (located upslope from the present-day



SOURCE:
LAKE GEORGE, N.Y. QUADRANGLE (1966)
PUTNAM MOUNTAIN, N.Y. QUADRANGLE (1966)
USGS 7.5 MINUTE SERIES

SCALE: 1"= 2000'

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SITE LOCATION MAP
QUEENSBURY SANITARY LANDFILL

FIGURE 1-1

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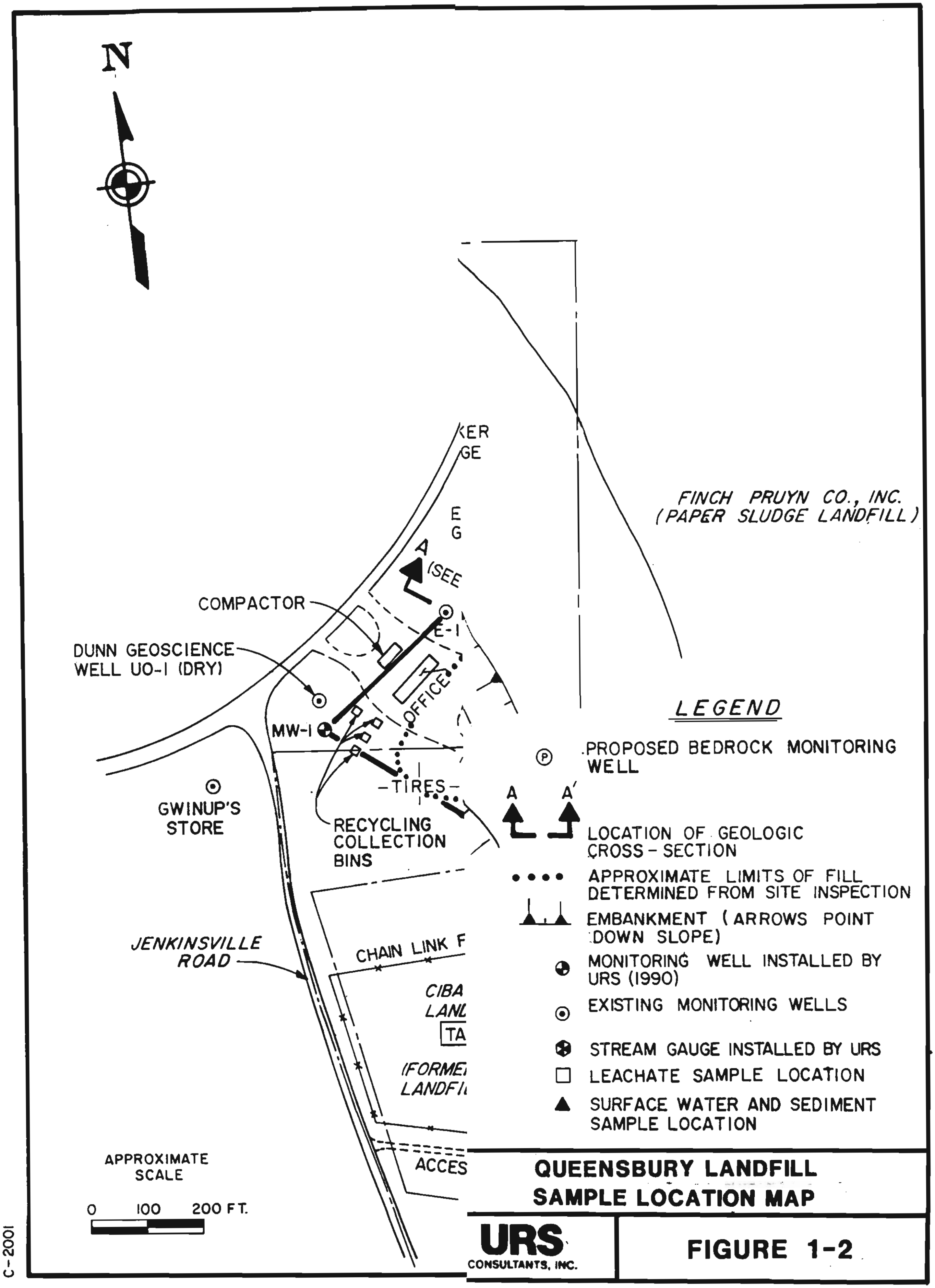

QUEENSBURY LANDFILL
SAMPLE LOCATION MAP

FIGURE 1-2

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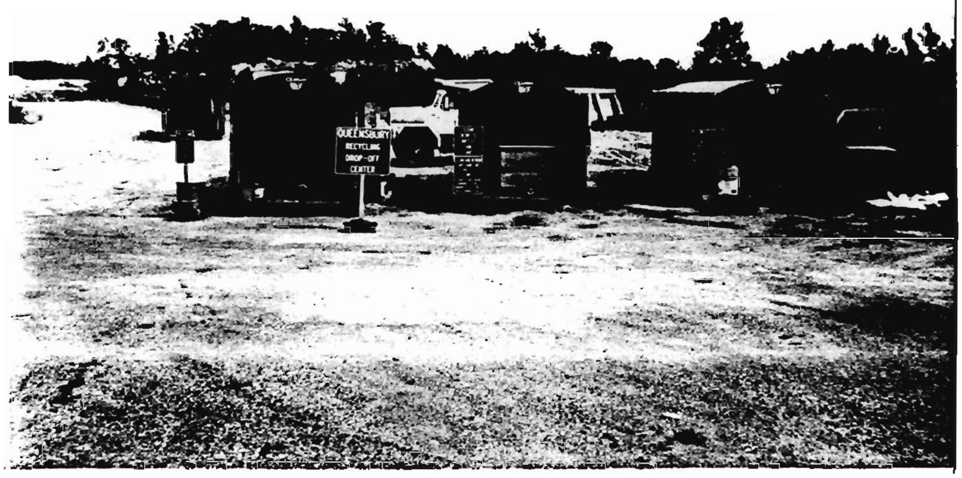
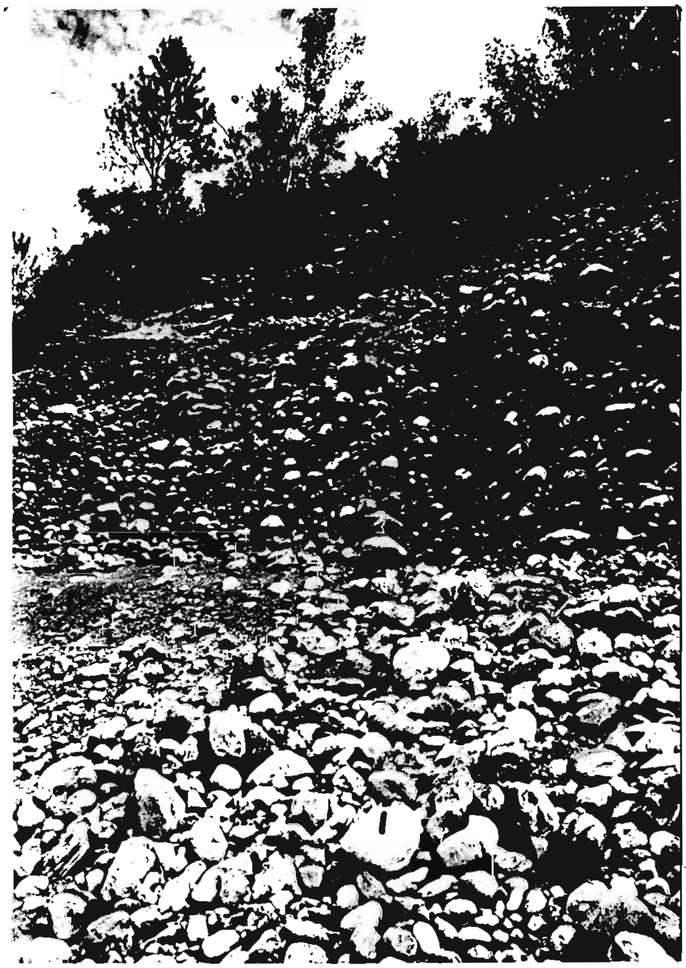


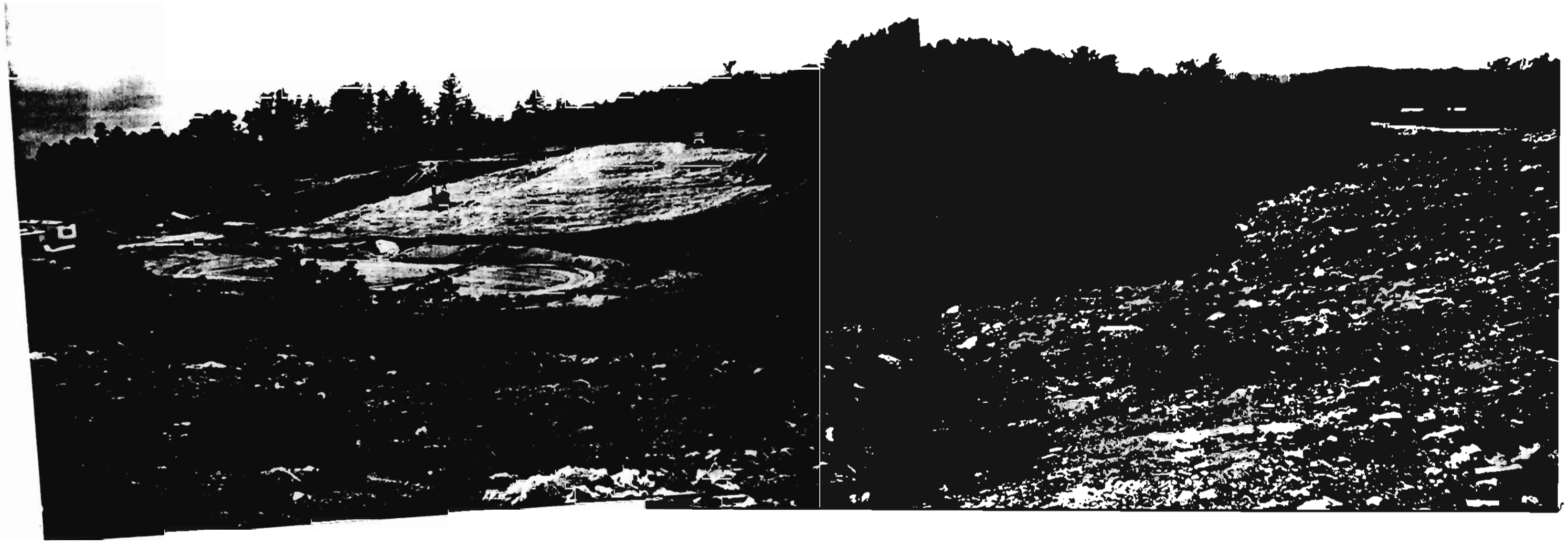
A view of the recycling station that operates near the Ridge Road entrance to the landfill. The photo was taken near well UO-1 looking toward the southeast.

FIGURE 1-3 SITE PHOTOGRAPH
Queensbury Landfill



A photo to illustrate the typical geologic materials that make up the glacial overburden aquifer (sand, gravel, and cobbles) and which are visible throughout the site.

FIGURE 1–3 SITE PHOTOGRAPH
Queensbury Landfill

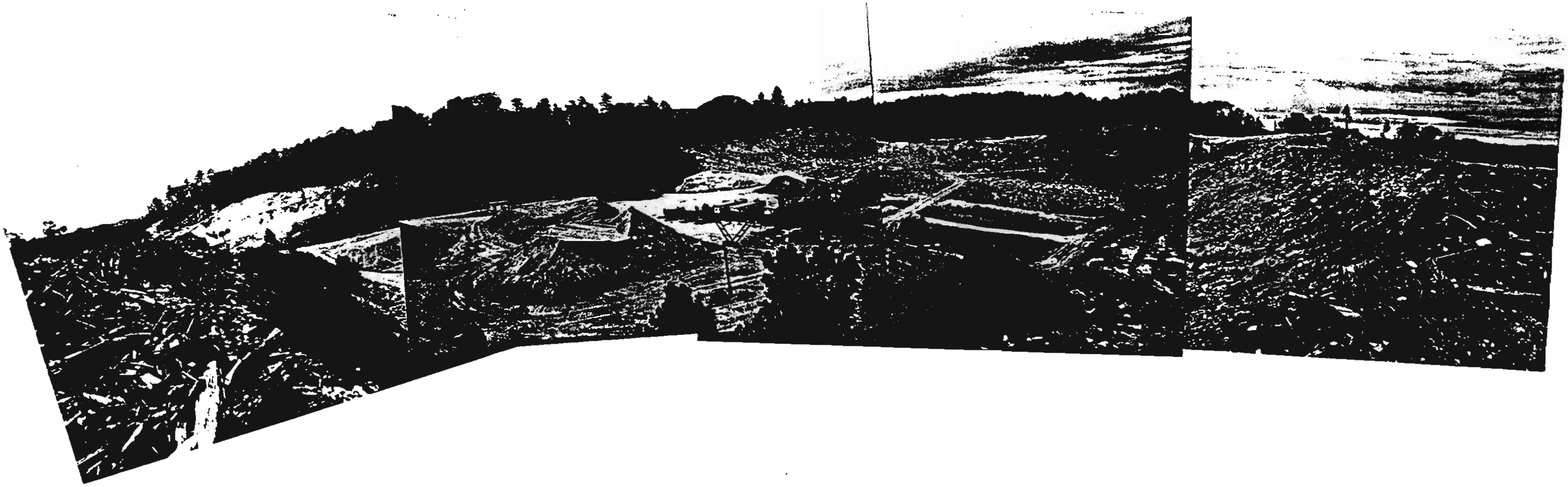


A view of the Ciba-Geigy Secure Landfill taken from a location southeast of the Queensbury Landfill recycling station.

FIGURE 1-3 SITE PHOTOGRAPH
Queensbury Landfill

A view of the 4- to 6-acre area near Mud Pond that received an experimental Finch-Pruyn paper sludge/soil mixture as a liner in 1979. Mud Pond is visible in the center-right portion of the panorama. Exposed municipal waste and a leachate seep are visible on the left side of the panorama. The photos were taken from a spot slighty east of well MW-3 looking toward the northeast.

FIGURE 1-3 SITE PHOTOGRAPH
Queensbury Landfill



A panorama of the Torrington Construction sand and gravel pit taken from a spot east of the "white goods pile" looking north. Note the ponded water in the center of the panorama and the leachate stains at the base of the fill slope on the left side of the panorama.

FIGURE 1–3 SITE PHOTOGRAPH
Queensbury Landfill

A panorama of the Queensbury Landfill taken from the Ridge Road entrance looking southeast. Active landfilling takes place in the far center portion of the panorama. The "white goods pile" can be seen in the left backround portion of the panorama.

FIGURE 1–3   SITE PHOTOGRAPH
Queensbury Landfill

leachate containment berm), a Finch-Pruyn paper sludge/soil mixture was used as a experimental liner in an effort to reduce the high permeability of site soils. Use of this material was discontinued that same year when it was found to be ineffective, but the area continued to receive municipal waste until 1990 (Figure 1-3). This liner material may be a contributor of phenolics to the site, since analyses have shown that the Finch-Pruyn Paper Mill sludge contains concentrations of phenols in excess of 50 ppb. It may also be a contributor of metals. Final capping and closure has not been performed on any of the inactive portion of the site. A rudimentary leachate collection system has been constructed near Mud Pond, but no leachate recycling or treatment program is in place. The adequacy of the leachate containment system has been addressed in several NYSDEC documents, and numerous leachate seeps have been observed throughout the site. There is evidence that leachate travels over the leachate containment berm toward Mud Pond.

Torrington Construction maintains a sand and gravel mining operation in the northern portion of the site, with excavation of material taking place on the east and north sideslopes of the pit (Figure 1-3). There is a difference of approximately 75 feet between the elevation of the present pit floor (~415 ft above mean sea level [amsl]) and of the 1966 pit floor (~340 ft amsl). It is estimated that as much as 70 to 80 feet of municipal refuse may exist below the level of the present pit floor.

The site is located on a glacial kame terrace deposit which consists of sand and gravel with extensive cobbles (Figures 1-3). Approximately 160 feet of relief is found at the site, which lies between 320 and 480 feet amsl. Limestone bedrock lies beneath the overburden near the 280 foot elevation. The water table was encountered at 320-325 ft amsl. Site surface water drainage separates along an approximately east-west trending drainage divide that roughly bisects the limits of fill delineated in Figure 1-2. In the northern portion of the site, surface water flows downslope toward the Torrington Construction sand and gravel pit. The surface water collects in ponds on the bottom of the sand and gravel pit and eventually evaporates or infiltrates into the groundwater. This groundwater flows south to southeast toward Mud Pond, which is the principal groundwater discharge area for the site. Surface water on the southern side of the divide flows downslope and eventually discharges into the 12-acre wetlands area known as Mud Pond. Mud Pond is drained to the southeast by an unnamed tributary which flows for 1/2 mile to Halfway Creek, a Class A stream. About 30 homes within 2,000 feet of the site utilize groundwater as a source of potable water.

Phase II activities included installation of one upgradient (MW-1) monitoring well and four downgradient (MW-2 through MW-5) wells, all of which were screened across the water table in the glacial deposits. Eight groundwater samples (five from the new URS wells and three from existing wells), two leachate samples, a Mud Pond surface water sample, and a Mud Pond sediment sample were collected and analyzed for TCL parameters. Results of sample analyses are summarized below:

Groundwater

1,1-dichloroethane and 1,1,1-trichloroethane were detected in a downgradient well at levels exceeding ARARs (18 ppb maximum). Methylene chloride was detected in two wells above ARAR limits but was also detected in the method blank. Iron, manganese, magnesium, and sodium concentrations in many wells exceeded ARAR values, and aluminum, arsenic, iron, magnesium, manganese, nickel, potassium, silver, sodium, and vanadium concentrations increased in a downgradient direction. Arsenic, nickel, silver, and vanadium were detected only in downgradient wells.

Mud Pond Surface Water/Sediment

Three common laboratory contaminants (methylene chloride, acetone, and 2-butanone) were the only organic compounds detected. Iron, beryllium, and manganese concentrations in the surface water sample exceeded ARAR values but were comparable to upgradient groundwater values. Arsenic, chromium, cobalt, copper, lead, magnesium, nickel, silver and vanadium were found in the sediment sample but not in the surface water sample. With the exception of chromium, the same metals were detected in the sediment and leachate samples. Since there is documentation of leachate overflowing the containment berm in the area of Mud Pond, the downslope transport of leachate or leachate-contaminated soil is a possible transport mechanism for the contaminants observed in the Mud Pond sediment sample.

Leachate

BTEX compounds were detected in one leachate sample (maximum 56 ppb), and elevated iron concentrations (maximum 206,000 ppb) were found in both samples. Arsenic, nickel, silver and vanadium were detected in the leachate samples but not in any of the upgradient groundwater samples, indicating that these metals were leached from the landfill contents.

Based on the findings of this Phase II investigation, it appears that the landfill has an impact on downgradient groundwater quality and on Mud Pond sediments. The following Hazard Ranking System scores were calculated:

$S_M = 23.01$ ($S_{GW} = 39.80$, $S_{SW} = 0.73$, $S_A = 0.00$)
$S_{FE} = 0.00$
$S_{DC} = 25.00$

The contaminants observed at the site and their concentrations are comparable to values observed at other municipal waste landfills compiled by USEPA (Ref. 27). The file search performed as part of this investigation uncovered no documentation to support allegations of hazardous waste disposal at this site as defined by 6 NYCRR Part 371, and there appears to be no attendant significant threat to the public or environment relative to hazardous waste disposal at this site. Granted, the report clearly demonstrates that there are numerous impacts on the environment relative to the current conditions at the landfill, but these impacts are not related to any disposal of hazardous wastes. The normal decomposition and leaching of non-hazardous municipal wastes could account for the contaminants observed in the media sampled at the site. Therefore, this site should be delisted from the New York State Registry of Hazardous Waste Disposal Sites and referred to the Division of Solid Waste - Bureau of Facility Management for proper closure under the appropriate NYSDEC regulations.

2. PURPOSE

The objectives of this Phase II Investigation are:

- To collect and present accurate and defensible information regarding the environmental and health-related significance of the site.
- To document the disposal of hazardous waste as defined by 6 NYCRR Part 371.
- To evaluate the existing conditions and immediate concerns at the site regarding past hazardous waste disposal practices.
- To evaluate the potential impacts imposed by the site on the air, soils, sediments, surface water, and groundwater at or near the site.
- To determine the need for further action at the site and assign an appropriate classification to the site.

The Phase I Investigation completed by Wehran Engineering in April 1986 under contract with the NYSDEC did not provide enough information to adequately evaluate and reclassify the site. Therefore, NYSDEC authorized this Phase II Investigation with the following scope:

- Site reconnaissance with a photoionization air monitoring survey in the normal breathing zone.
- A magnetometer survey to locate any potential subsurface hazards and therefore to reduce the risks associated with drilling and subsurface exploration.
- A radiation survey to locate and document potential radioactive hazards.

- Installation of 5 additional monitoring wells to better evaluate upgradient and downgradient groundwater quality.

- Hydraulic conductivity testing of the new wells to assess the hydrogeologic conditions present in the glacial sediments making up the upper water bearing zone.

- Collection and analysis of groundwater, surface water, sediment, and leachate samples to document and assess any potential impacts by the site upon these pathways.

- Identification and assessment of site conditions which impact the environment and/or public health.

- Recommendation for future actions.

3. SCOPE OF WORK

3.1 Introduction

The site-specific tasks that were performed for this NYSDEC Phase II Investigation included:

- Records search
- Site reconnaissance and air monitoring survey
- Geophysical and radiation surveys
- Installation of monitoring wells
- Air monitoring during onsite activities
- Environmental sampling and analysis of subsurface soils, pond sediment, groundwater, pond surface water, and drilling water
- Surveying and mapping
- Data and site contamination assessment
- Report preparation
- Project management, coordination, and administration

The site-specific tasks are described below. Each phase of the field investigation was supervised by a URS Geologist and was conducted in accordance with the NYSDEC Work Plan and the Quality Assurance/Quality Control Plan, approved by NYSDEC, and the URS Health and Safety Plan, as accepted by NYSDEC (Ref. 19, 24, 25).

3.2 Records Search

A records search was conducted to verify the Phase I Investigation results, and to compile any additional information made available since the Phase I was completed (Ref. 2). This effort involved the compilation of information gathered from the following sources:

- NYSDEC Central Offices, Albany, and Region 5 Office, Warrenburg, New York
- New York State Department of Health
- Saratoga County Department of Health
- Warren County Department of Health
- Public libraries

3.3 Site Reconnaissance and Air Monitoring Survey

A site walkover was conducted by Scott Swanson and Robert Kreuzer (URS geologists) and William Shaw (NYSDEC Engineering Geologist) on June 12, 1990. The group staked five proposed monitoring well locations. Four existing wells were also located (Figure 1-2). Terrain and existing access roads were inspected for drill rig accessibility. James Coughlin (Town of Queensbury Landfill Supervisor) discussed the landfill operation and offered to provide the support of Town personnel and heavy equipment to improve the condition of the site access roads to accommodate movement of the drilling rig to the proposed well locations.

After observing the exposed cut banks used for landfill cover and the walls of the surrounding gravel pits, it became apparent that conventional hollow-stem auger drilling would be difficult based upon the frequency of boulders and cobbles in the overburden material. After further discussion with Mr. Coughlin about past problems with auger drilling on the site, and discussions with William Woodcock, a local water well driller, alternate drilling methods were investigated.

Leachate seeps were noted throughout the site. Leachate pools were found near the entrance to the landfill, with overflow draining down a roadside ditch to the Torrington Construction sand and gravel pit. Leachate was also ponded behind a containment berm near the base of the active landfill slope near Mud Pond. During the site walkover, continuous air monitoring was conducted with an HNu photoionization detector (PID). No readings were recorded above background.

3.4 Geophysical and Radiation Surveys

A geophysical survey was conducted at each proposed well location on July 20, 1990, by Doria Kutrubes of Weston Geophysical. Its purpose was to locate possible buried objects which might interfere with drilling. Weston personnel used a Geonics EM-31D terrain conductivity meter to survey a 20- by 20-foot area around each proposed monitoring well location. Phyllis Rettke (URS), William Shaw (NYSDEC), and Steven Perrigo (NYSDEC) were present during the survey. The effective depth of penetration of the conductivity meter was 15 to 20 feet. All planned well locations were found to be free of any metallic objects and therefore clear for drilling. [See Weston Geophysical Report, Appendix A.]

While the geophysical survey was being conducted, a radiation survey was performed using a Ludlum Model No. 2 radiation meter. No readings were detected above 1 mrem per hour.

3.5 Air Monitoring

Air monitoring was performed with an HNu photoionization detector (PID) during the initial site reconnaissance and during the drilling program. The HNu was calibrated daily on a 100 ppm isobutylene standard. While drilling, the borehole was periodically monitored with the PID and an oxygen meter/explosimeter. These instruments were also used to monitor the breathing space around the drillers, especially if any unusual odors were present. No abnormal readings were reported from any of the instruments.

3.6 Monitoring Well Installation

The locations of the five monitoring wells installed around the perimeter of the Queensbury Landfill are shown in Figure 1-2. Drilling commenced on October 11, 1990, and was completed by November 9, 1990. Construction Drilling Services (CDS) performed the drilling operations with a two-man crew supervised by a URS Geologist. NYSDEC Engineering Geologist William Shaw was present throughout the drilling and well installation program. CDS used a truck-mounted Ingersoll Rand Cyclone TH-60 air-rotary rig to drill each of the five borings.

Because the overburden is composed of boulders and cobbles, an alternative method to hollow-stem auger drilling was employed. NYSDEC approved the use of the Tubex system, which is effective in advancing the borehole in difficult drilling environments. The Tubex system is composed of a down-the-hole percussion bit that advances casing during air-rotary drilling. The bit and drill string is initially inserted into 6-inch I.D. by 6-5/8-inch O.D. steel casing until it encounters the drive shoe, a solid steel ring which is welded at the bottom of the lead casing length. When the down-the-hole hammer is seated against the drive shoe, the drill bit protrudes below the bottom of the casing. The drill bit contains a pilot bit 5-1/2 inches in diameter, and an eccentric reamer which swings out to ream the hole 7-3/8 inches in diameter to accommodate the advancing 6-5/8-inch O.D. casing.

Compressed air is circulated down the inside of the drill string and jetted out through two ports on the bottom of the drill bit. This forces cuttings upward through the annulus between the casing and drill string to the surface. At the surface, the cuttings are forced through a discharge head attached to the top of the casing and are then diverted out a flexible chute onto the ground. Changes in lithology were monitored as the cuttings were discharged on the ground surface. Signs of moisture were also observed for determination of screen placement. Moist zones reduced the dust content of the discharge air. Wet zones were apparent by the water observed dripping out of the discharge head at the top of casing.

Drilling progressed in 20-foot increments. Upon advancing the drill string 20 feet into the subsurface, another 20-foot drill string and casing combination was prepared by inserting a 20-foot drill rod inside two 10-foot casing lengths, which are reverse-threaded to counteract the clock-wise rotation of the bit. This 20-foot combination was constructed on the ground on wood blocks or over plastic to prevent surface soil contamination and cabled up for hoisting in a vertical position for joint connection with the downhole drill string. Each additional 20-foot connection required that the discharge head be removed and re-attached to the top of the added casing lengths.

Once the depth to water table was established by monitoring moisture in the cuttings, drilling was continued for about 18 additional feet to allow placement of a 20-foot screen across the water table. At total depth of boring, the drill string was withdrawn by reversing rotation, which causes the eccentric reamer to fold in, and allows the drill bit assembly to fit up through the drive shoe and casing.

With the drill pipe removed from the cased hole, the well was ready to be set using 2-inch I.D. schedule 40 PVC riser and screen with 0.010-inch slotted openings. After placement of the screen and riser inside the casing, # 1 silica sand was placed around the PVC screen while removing the casing. The sand was gravity-fed through the top of the casing at the surface. The sand level was continuously monitored with the driller's tape measure to prevent bridging between the PVC well and the casing and to maintain a uniform sand pack.

When the sand pack reached a few feet above the top of each screen, a Benseal slurry mix or bentonite pellets were placed using a tremie to create a seal in the annular space around the riser, thus isolating the water zone and preventing contamination from any potential uphole or surface sources. After the seal was placed and allowed to swell, the remainder of the borehole was filled with grout; then a protective steel casing was installed, cemented in place, and padlocked to prevent tampering. [See Monitoring Well Construction Details, Appendix D.]

Some changes of technique took place during the drilling program. Because threaded casing joints were snapping off near the bottom of the drill string at depths greater than 100 feet at three different well locations, air pressure was reduced and the first few lead casing joints were tack-welded at two points each. This was effective in preventing additional casing breakage and the consequent need to redrill lost holes.

The drill rod, casing, equipment, and rig were steam-cleaned before and after drilling each well to prevent any potential cross-contamination. Plastic sheeting was placed under the drill rig to contain any oils or hydraulic fluids dripping from the undercarriage during drilling.

Monitoring well descriptions which include the depth of each boring, screened interval, and unit screened are presented in Table 3-1. Monitoring well MW-1 was drilled at an upgradient location near the entrance to the landfill. Monitoring well MW-2 was placed between the adjacent Ciba-Geigy hazardous waste landfill and the southwest side of the project site to monitor any potential contaminant influence from the Ciba-Geigy facility. MW-3 was drilled just south of the active fill area. The farthest downgradient well, MW-4, was established at the base of the landfill face next to Mud Pond, which has an elevation about 160 feet lower than the top of the landfill. MW-5 was located in the north-central portion of the Torrington Construction sand and gravel pit. Water levels were measured in each well upon completion. A complete round of measurements was taken on November 9, 1990, and also during well sampling

TABLE 3-1

MONITORING WELL SPECIFICATIONS

Well No	Well Boring Depth (Ft)*	Well Depth	Location	Unit Screened	Screened Interval (Ft)*
MW-1	180	175	Upgradient	Water table - glacial outwash, very coarse sands	155-175
MW-2	135	131	Downgradient	Water table - glacial outwash, silty sands, some gravels	111-131
MW-3	182	180	Downgradient	Water table - fine-medium sands	160-180
MW-4	22	21	Downgradient	Water table - sandy gravels	3-21
MW-5	111	110	Downgradient	Water table - sandy gravels	90-110

* Depth below ground surface (ft.)

from November 28 to 30, 1990. Water level and elevation data are presented in Table 4-1.

3.7 Monitoring Well Development

The last of five monitoring wells was completed November 8, 1990. Well development was performed from November 8 to 10 and on November 15, 1990. The monitoring wells were developed to remove residual fine sediments within and around the screened interval so that a representative groundwater sample could be collected.

All five wells were developed using a Waterra Hydro-Lift Inertial Pump. This unit contains an electric 1/2 horsepower motor which drives a reciprocating drive rod a fixed stroke length of six inches. Dedicated polyethylene tubing with a threaded foot valve at the bottom is inserted down the well and attached to the drive rod at the surface with clamps. The up and down motion of the tubing forces water up in continuous columns. The rate of flow can be adjusted by changing the variable stroke rate of the drive rod. Flow rates at the Queensbury monitoring wells ranged from 0.6 to 1.2 gallons per minute.

The monitoring wells were pumped and surged until discharge achieved visual clarity and/or pH and conductivity measurements stabilized. The targeted turbidity was less than 50 NTU, which was achieved in MW-1, MW-4, and MW-5. The turbidity was reduced to 62 NTU at MW-2, while MW-3 was still turbid after producing 180 gallons of water. The turbidity of both of these wells was reduced below 50 NTU during purging prior to sampling.

Due to the greater well depths in MW-1 and MW-3, high-capacity 1-inch O.D. high-density polyethylene tubing (HDPE) was used in them during development. The 1-inch tubing is more rigid than the standard 5/8-inch O.D. HDPE tubing used in MW-2, MW-4, and MW-5. Well development and purging logs indicating water volumes extracted, parameter measurements, and flow rates are provided in Appendix E.

3.8 Environmental Sampling and Analysis

3.8.1 Groundwater Sampling and Analysis

Groundwater samples were collected from the five URS monitoring wells and the three existing wells on November 28, 29, and 30, 1990. Each of the samples and one field blank were sent to Versar Laboratories, Springfield, Virginia, to be analyzed for Target Compound List (TCL) parameters. In addition, two trip blanks were analyzed for TCL volatiles as specified in the Quality Assurance/Quality Control Plan (URS, August 1990). Analyses and reporting procedures were conducted in accordance with the applicable NYSDEC Analytical Services Protocol (ASP) methods document, dated September 1989. Results of these analyses are presented in Section 4.5.2.

Prior to sample collection, the static water level in each well was recorded and at least three well volumes of water were purged with a stainless-steel bailer and dedicated nylon rope. The bailers were decontaminated before sampling each well by first washing with non-phosphate soap and water, and then rinsing successfully with tap-water, pesticide-grade methanol, and de-ionized water.

The NYSDEC Work Plan dated September 28, 1990, proposed sampling three existing wells around the site periphery in addition to the five URS-installed wells. Initially, two wells next to Mud Pond and one well in the Torrington Construction sand and gravel pit were to be sampled. NYSDEC approved the substitution of an existing deep well near the landfill office for one of the existing Mud Pond wells. Existing wells at the Queensbury site have been referred to by differing names in the past, and in an attempt to clarify this confusion Table 3-2 gives the URS

TABLE 3-2
QUEENSBURY LANDFILL
EXISTING-WELL NAMES

URS Phase II Designation	Sampled by URS	NYSDEC Phase II Work Plan Designation	Other Names
E-1	yes	well (420' deep)	Office Well Well #1
E-2	yes	#3	Well #3 DO-2
DO-1	no (substituted E-1)	#2	Well #2 DO-1
E-3	yes	well (100' deep)	Torrington Construction Well

designations for the existing wells, with cross-references to the names used by others.

Wells E-1 and E-3 could not be sampled using a bailer because of their submersible pump mechanisms. E-1 was sampled from a faucet inside the landfill office and E-3 was sampled from a spigot near the well.

3.8.2 Mud Pond Surface Water and Sediment Sampling and Analysis

Pond water and sediment samples (SW-1/SED-1) were collected on the edge of Mud Pond near monitoring well MW-4 on November 29, 1990. These samples were also analyzed by Versar Laboratories for TCL parameters. Matrix spike and matrix spike duplicate samples were also collected and analyzed for TCL parameters in compliance with the QA/QC Plan (URS, August 1990). Analyses and reporting followed applicable NYSDEC ASP Methods (Ref. 18). Analytical results for these samples are presented in Section 4.5.3.

3.8.3 Leachate Sampling and Analysis

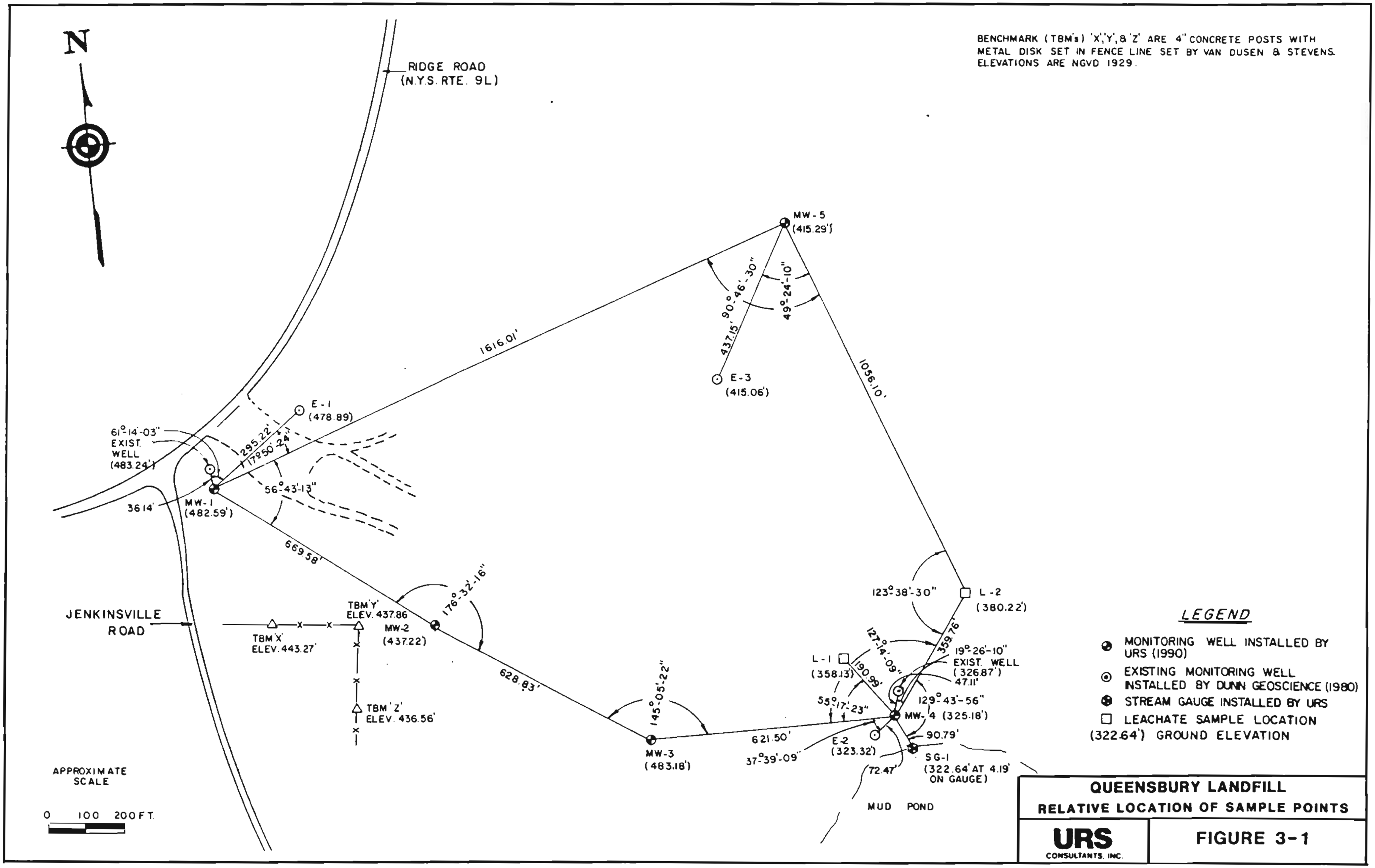
Two locations were selected to collect liquid leachate samples near the base of the sloped landfill face. Samples L-1 and L-2 were collected from drainage channels on November 28 and 29, 1990, respectively, and analyzed by Versar Laboratories for TCL parameters. Analysis and reporting followed applicable NYSDEC ASP Methods (Ref 18). Analytical results for these samples are presented in Section 4.5.4.

3.9 Survey and Mapping

Following the completion of the Phase II monitoring well installation and field sampling programs, wells and sampling points were surveyed for horizontal and vertical location. This information was used for the preparation of the site maps and for other analyses.

The horizontal datum was local and site-specific. The vertical datum was based upon existing temporary bench marks (TBMs) set by Van Dusen and Stevens, surveyors for Ciba-Geigy Corp., Ardsley, New York, on August 27, 1990. The TBMs were 3 cone monuments with metal disks located along the northerly and easterly fence line, enclosing the Ciba-Geigy Landfill. TBM elevations (436.56 feet, 437.86 feet, and 443.27 feet) were based upon the National Geodetic Vertical Datum of 1929 (NGVD).

All URS surveying was done under the supervision of a New York State-licensed Land Surveyor. A map for the site was prepared using the Phase I site sketch as a base. Obvious defects or important additional topographic features were added as necessary. Wells and sample points were plotted to an appropriate scale using the survey data (Figure 3-1).



BENCHMARK (TBM's) 'X','Y',& 'Z' ARE 4" CONCRETE POSTS WITH METAL DISK SET IN FENCE LINE SET BY VAN DUSEN & STEVENS. ELEVATIONS ARE NGVD 1929.

LEGEND

- ● MONITORING WELL INSTALLED BY URS (1990)
- ⊙ EXISTING MONITORING WELL INSTALLED BY DUNN GEOSCIENCE (1980)
- ⊕ STREAM GAUGE INSTALLED BY URS
- ☐ LEACHATE SAMPLE LOCATION
- (322.64') GROUND ELEVATION

QUEENSBURY LANDFILL

RELATIVE LOCATION OF SAMPLE POINTS

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FIGURE 3-1

4. SITE ASSESSMENT

4.1 Site History

Queensbury Landfill is a municipally owned and operated solid waste disposal site located northeast of the intersection of Ridge and Jenkinsville Roads in the Town of Queensbury, Warren County, New York. This facility, which has been in operation since the late 1940s, currently accepts 250-350 cubic yards of compacted and 100 cubic yards of uncompacted non-hazardous residential and commercial waste daily (1991 estimate) (Ref. 10). A recycling collection station operates near the Ridge Road entrance to the landfill. The landfill's NYSDEC Operating Permit expired on December 26, 1982, and the landfill has been operating without a permit since that date (Ref. 10). It is alleged that prior to 1976, the Queensbury Landfill received heavy metal sludges (purported to have come from Hercules, Inc., in Glens Falls) and PCB capacitors (purported to have come from General Electric Co. in Hudson Falls) (Ref. 2 and 11). The site was listed as Class 2a on the New York State Registry of Inactive Hazardous Waste Disposal Sites in December 1983.

Conservative estimates from the site reconnaissance are that approximately 50 acres of the property, including the bottom of the Torrington Construction sand and gravel pit, have received some amount of fill (Figure 1-2). Most of the site is inactive at present, with only a small area east of the Ciba-Geigy Landfill receiving non-hazardous municipal waste (Figure 1-2). Landfilling in the unlined active area is proceeding upward in lifts and through extension of the northern and northwestern slopes. Open burning of wood and lumber wastes periodically takes place southwest of the active fill area.

The remainder of the estimated fill area is inactive and unlined. In early 1979, in an effort to reduce the high permeability of site soils, a 4- to 6-acre bowl-shaped area upslope from what is now the leachate contaminant berm was lined with an experimental mixture of site soil and Finch-Pruyn paper sludge. This liner not only proved to be ineffective, and it even may have been a source of heavy metal and phenolic contaminants. Analysis of the Finch-Pruyn sludge indicated that phenols, a natural constituent of various wood species, were present in concentrations exceeding 50 ppb (Ref. 17). Use of the sludge was discontinued in the fall of 1979. The area continued to receive municipal waste until 1990, and is now inactive. Final capping and closure has not been performed on any inactive portion of the site.

A rudimentary leachate collection system, consisting of a leachate containment berm and two leachate collection manholes, was constructed near Mud Pond in 1979 but no leachate treatment or recycling program is in place. The adequacy of the leachate containment system has been addressed in several NYSDEC documents. Numerous leachate seeps have been observed throughout the site. There is evidence that leachate travels over the leachate containment berm toward Mud Pond. The frequency and duration of these episodes is not known.

The Torrington Construction sand and gravel pit is located in the northern portion of the site. Torrington Construction owned this land until it was condemned and taken over by the Town of Queensbury in 1970. However, Torrington Construction retains mining rights to the property until August 1, 1993. Two workers, an equipment operator and a rock crusher operator, are at the sand and gravel pit on a daily basis loading customer dump trucks. The east and north side-slopes of the pit are the areas mined for the sand and gravel. The pit floor, which contains sand and gravel stockpiles, is relatively flat.

A difference of approximately 75 feet exists between the present pit floor elevation (~415 feet amsl) and the pit floor elevation (~340 feet amsl) mapped on the USGS 1966 Putnam Mountain, New York, 7.5-minute quadrangle. Test-trenching conducted in late 1991 by Clough, Harbour, and

Associates found municipal refuse that contained a newspaper dated 1977 approximately 4 feet below the present pit bottom (Ref. 16). It is estimated that as much as 70 to 80 feet of municipal refuse may be below the level of the present-day pit floor (Ref. 10).

Various small sand and gravel mining operations are currently being carried on in the southern portion of the property (not shown on Figure 1-2). Landfilling is not known to have taken place in these areas.

Two other landfills are located adjacent to the Queensbury Landfill. To the southwest is the recently closed Ciba-Geigy Secure Landfill (formerly Hercules Landfill) (EPA ID# NYD000519520), a privately run site on land leased from the Town of Queensbury. This 3.7-acre site accepted hazardous paint sludge from the Ciba-Geigy plant wastewater treatment facility from 1975 to 1990 (Ref. 26). This site has a double bentonite liner and was capped and closed in the Fall of 1990. An extensive monitoring well network has been installed at the site, and offsite contaminant migration has not been reported.

The Finch-Pruyn and Company Landfill (NYSDEC Site Code #557002) is a privately owned and operated 186-acre site adjacent to the eastern side of the Queensbury Landfill. The Finch-Pruyn Landfill receives only dewatered paper mill sludge. The surface drainage network and the groundwater system discharge to Mud Pond (Ref. 17). A monitoring well network is in place on this site. Downgradient groundwater samples at this site have exceeded NYSDEC Standard/Guidance Values for iron, lead, and phenols. Analysis of the sludge indicated that phenols, a natural constituent of various wood species, were present in concentrations exceeding 50 ppb (Ref. 17). A compacted Finch-Pruyn paper sludge/soil mixture was once used as an experimental liner material in a portion of the Queensbury Landfill.

4.2 Regional Geology

The Queensbury Landfill is located in the Hudson-Champlain Lowlands Terrain of eastern New York State (Ref. 14). Bedrock consists of Upper Cambrian to Late-Middle Ordovician shelf carbonates that were locally folded, tilted, and block-faulted during the early phase of the Taconic Orogeny, and later reactivated during the Mesozoic and Cenozoic Eras.

During the Pleistocene Epoch (2 million to 10,000 years ago) the southward-advancing Laurentide ice sheet smoothed and scoured existing topographic features and deposited lodgement tills. As the glaciers retreated, the Hudson-Champlain Lowlands were occupied by the Hudson Lobe of the ice sheet. The vast quantities of meltwater generated by the retreating ice led to the formation of proglacial lakes, of which Lake Albany, Lake Quaker Springs, and Lake Coveville had the greatest effect on the lowlands (Ref. 12, 13). Lake clays were deposited in the lake bottoms; lake sands were deposited near the lake margins; and deltas were deposited near lake spillways and the mouths of tributary streams. In addition to these features, which were deposited in temporary glacial water bodies, ice-contact depositional features such as kames, eskers, and moraines were deposited in the vicinity of the Queensbury Landfill. Over the past 12,000 years, these deposits have subsequently been weathered, eroded, and more recently modified and mined by man.

4.3 Site Geography

4.3.1 Topography

The Queensbury Landfill, which covers approximately 50 acres, is located on an east-northeast trending kame terrace. Several narrow eskers are located atop the kame terrace (Ref. 12). The irregular terrain associated with a typical kame deposit has been masked by various sand/gravel mining and subsequent landfilling operations at the site. The area between Ridge Road and the active landfill face is relatively flat as a result of fill modifications. Site elevation varies from over 480 feet amsl near Ridge Road to less than 320 feet amsl near Mud Pond (approximately 160 feet of site relief). Steep slopes exist on site, particularly around the working gravel operation (where the edges of the active excavation area drop 70 feet over a distance of 15 to 20 feet to the present pit bottom) and around the leachate collection pond (where the edges of the active area drop sharply toward the pond). Esker ridges at the site have been used as a fill/cover material source.

Approximately 200 feet southeast of the active landfill face is Mud Pond, a freshwater wetland that covers about 12 acres. Mud Pond appears to be the groundwater discharge area for the site. An unnamed tributary drains Mud Pond to the southeast and after 1/2 mile joins Halfway Creek, which flows to the northeast. Halfway Creek and its tributaries have been classified as Class A waters by NYSDEC (Ref. 21).

The land surrounding the Queensbury Landfill, consisting of field and woodland, is primarily rural. Many sand/gravel mining operations are carried out in the area. Most or all of the 25 to 30 homes within 1/2 mile of the site use groundwater for drinking purposes, since community water service is not available in the area.

4.3.2 Soils

Soils at the site fall within the Hinckley, Oakville, and Plainfield series (Ref. 22). These soils, developed in glacial deposits, are generally deep, well to excessively drained, and have hydraulic conductivities of 6-20 inches/hour (4.2×10^{-3} to 1.4×10^{-2} cm/sec).

The Hinckley series typically has a dark grayish-brown loamy sand surface layer 7 inches thick. The subsoil layer (from 7 to 15 inches) is strong brown and yellowish-brown gravelly loamy sand. From 15 to 18 inches the subsoil is yellowish-brown gravelly sand. The substratum from 18 to 60 inches is light olive brown stratified sand, gravel, and cobbles.

The Oakville series typically has a dark grayish-brown fine sand surface layer 7 inches thick. The subsoil is strong brown, yellowish-brown, and brown fine sand 27 inches thick. The substratum is pale brown fine sand.

The Plainfield series typically has a brown loamy sand surface layer 8 inches thick. The subsoil is dark yellowish-brown sand 12 inches thick. The substratum is yellowish-brown sand and light yellowish-brown fine sand.

All three soil series show severe limitations for usage in sanitary facilities due to their high seepage potential.

4.4 Site Hydrogeology

4.4.1 Site Geology

The bedrock beneath the site has not been formally identified due to the thick overburden cover but evidence from the drilling log for well E-1 (which showed limestone at 195 feet below grade) and correlation with adjacent areas would seem to indicate that the site is underlain by the Cambrio-Ordovician Beekmantown Group, which consists of undifferentiated dolostones and limestones (Ref. 23). Thickness of the Beekmantown Group is unknown.

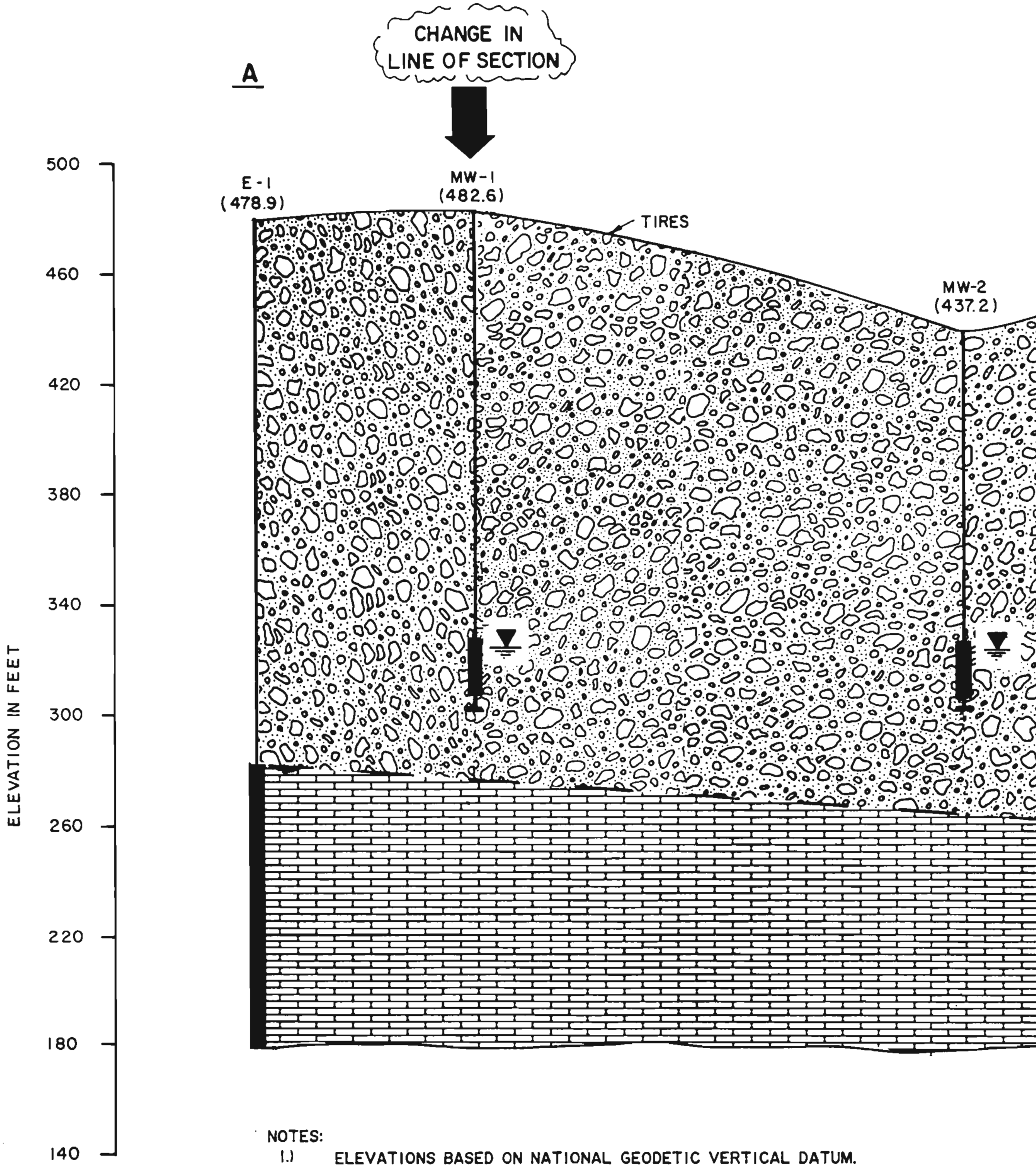
Structurally, the area lies within a graben bounded on the east by the Hadlock Pond Fault and on the west by the French Mountain Fault, both of which strike southwest to northeast. A younger fault, the Dream Lake Fault, runs along the southern periphery of the site (Ref. 14). The Dream

Lake Fault strikes east to west with a strike-slip motion along the fault line.

During the Pleistocene, the last major glacier to override the area deposited a thick sequence of glacial sediments over the bedrock. Previous investigators (Ref. 1, 2) have hypothesized that a layer of lodgement till was deposited over bedrock as the ice advanced, but no evidence of this has been found at the site. During the ice retreat, a kame terrace was deposited which in some areas is nearly 200 feet thick. The deposit is non-homogeneous, medium to coarse sand and gravel with extensive cobble deposits and discontinuous silt lenses. Young soils have developed in the upper few feet of the glacial deposits but little B-horizon development is present. Streams, erosion, and the activities of man have since modified the kame terrace morphology and continue to do so to the present.

Figure 4-1 presents a generalized NW-SE geologic cross-section (A-A′ on Figure 1-2) from well E-1 to well MW-4. The drilling log for well E-1 indicates that limestone bedrock was encountered at the 195-foot depth (283 feet elevation) and that the well was drilled another 105 feet into bedrock. No mention was made in the drilling log of encountering a lodgement till over bedrock. Bedrock was not encountered in any of the other wells. The contact between glacial overburden and bedrock is inferred, and mimics the local land surface gradient (3 percent slope to the southeast).

Figure 4-2 presents a generalized north-south geologic cross-section (B-B′ on Figure 1-2). This figure (in combination with cross-section A-A′) is included primarily to provide the reader with a three-dimensional view of the subsurface geology. The contact between glacial overburden and bedrock is inferred and mimics the local land surface gradient. The contact between the glacially deposited sand and gravel overburden and fill is based upon a reconstruction of the 1966 land surface from contours



NOTES:

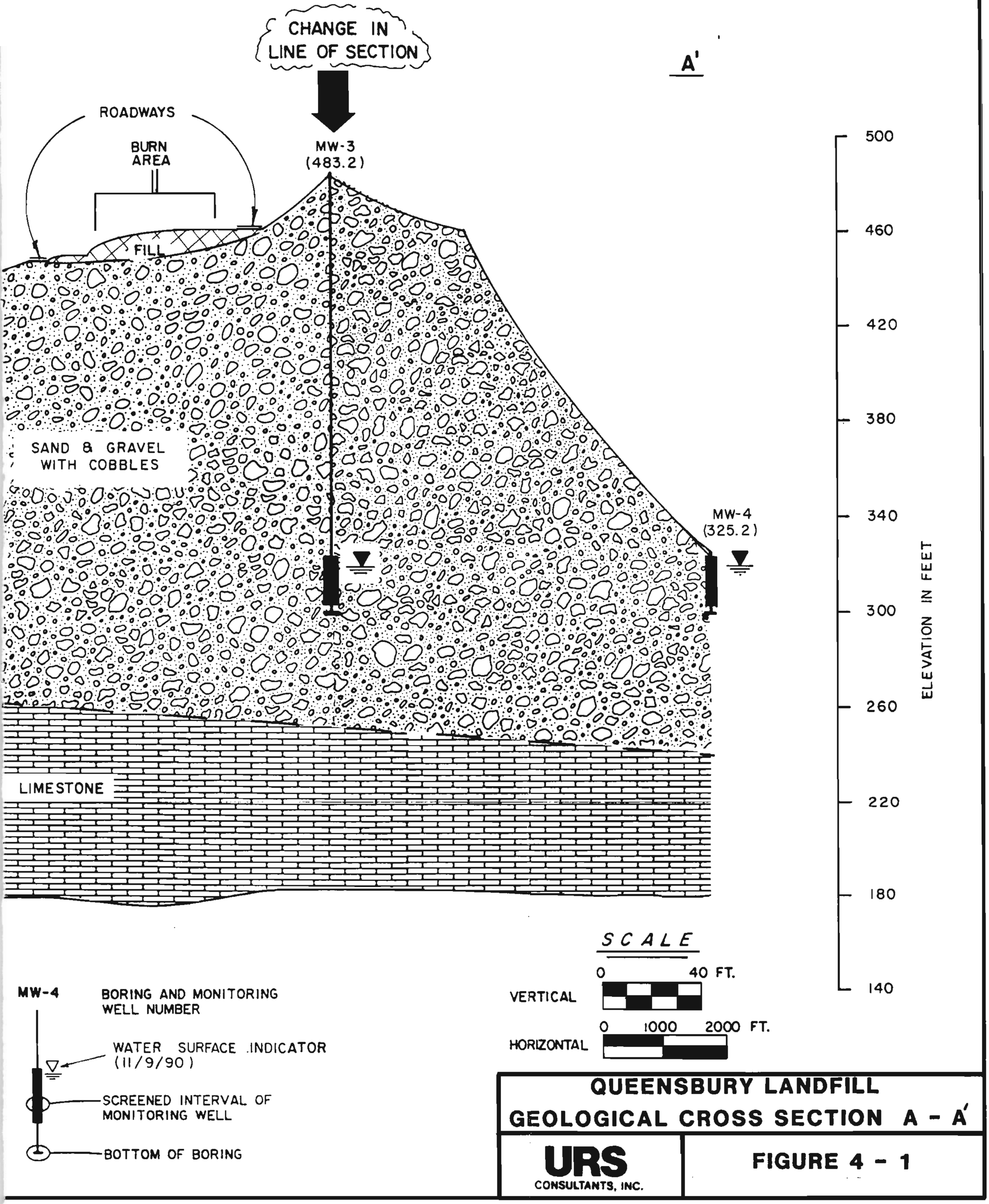
1.) ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM.

2.) GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF CONDITIONS ENCOUNTERED AT EACH BORING LOCATION TO THE DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS HAVE BEEN INTERPRETED USING STANDARDLY ACCEPTED GEOLOGICAL PRACTICES AND PRINCIPALS; ACTUAL CONDITIONS MAY VARY BETWEEN BORINGS FROM THOSE SHOWN.

3.) THE CONTACT BETWEEN OVERBURDEN AND BEDROCK IS INFERRED. DIP OF BEDROCK MIMICS THE REGIONAL LAND SURFACE SLOPE OF ~ 3° TO THE SOUTHEAST.

4.) NUMBERS IN PARENTHESES (483.2) ARE GROUND SURFACE ELEVATIONS.

5.) SEE FIGURE 1-2 FOR LOCATION OF SECTION



QUEENSBURY LANDFILL
GEOLOGICAL CROSS SECTION A - A′

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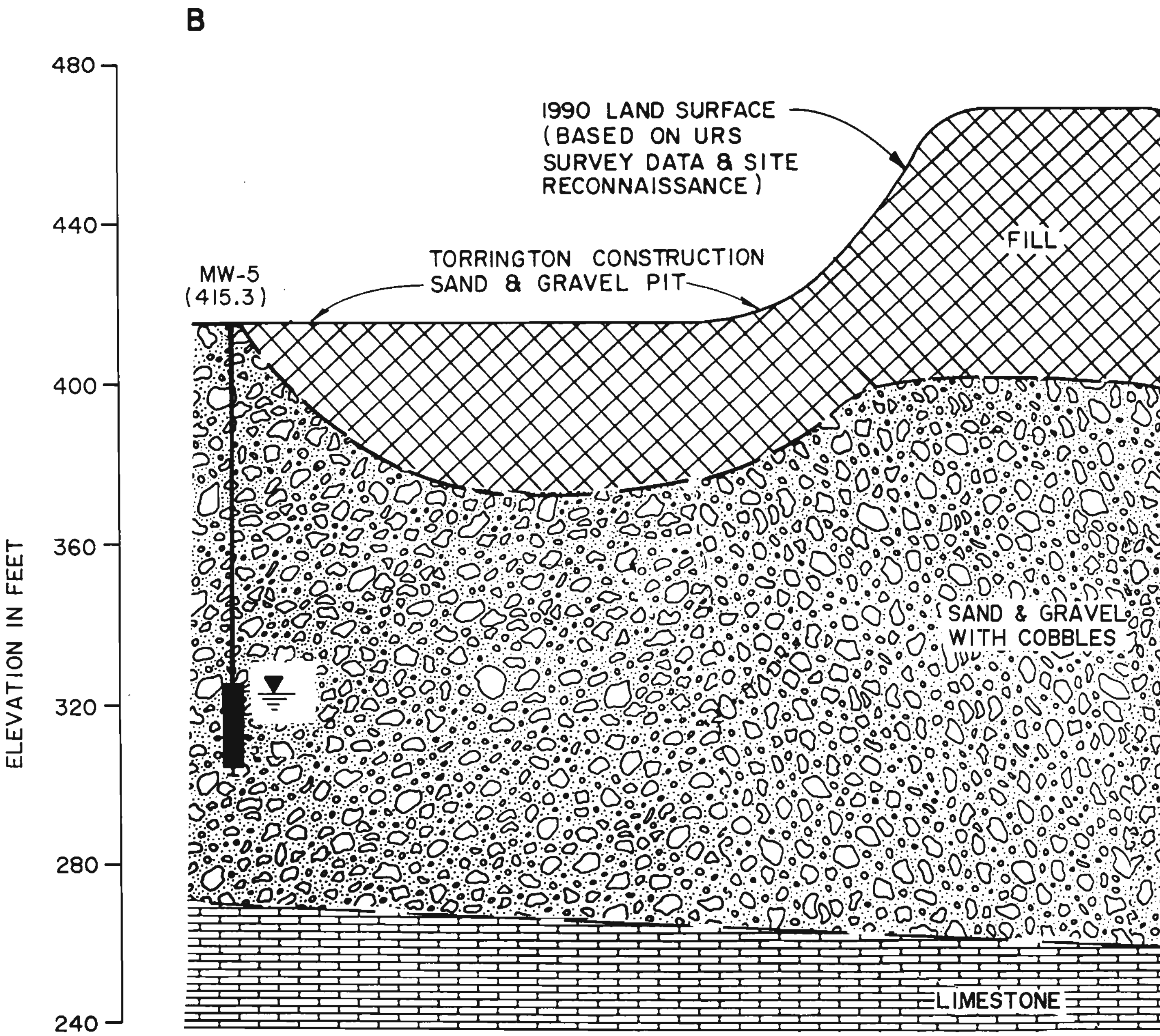
FIGURE 4 - 1



LEGEND

1) ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

2) THE CONTACT BETWEEN THE FILL AND THE UNDERLYING SAND/GRAVEL HAS BEEN ESTIMATED USING THE CONTOURS ON THE 1966 PUTNAM MT. USGS 7.5' QUAD. MAP.

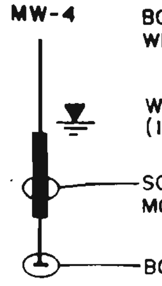
3) PREVIOUS LAND SURFACE (1966) DOES NOT ACCOUNT FOR SAND AND GRAVEL EXCAVATIONS SUBSEQUENT TO 1966.

4) GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF CONDITIONS ENCOUNTERED AT EACH BORING LOCATION TO THE DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS HAVE BEEN INTERPRETED USING STANDARDLY ACCEPTED GEOLOGIC PRACTICES AND PRINCIPALS. ACTUAL CONDITIONS MAY VARY BETWEEN BORINGS FROM THOSE SHOWN.

5) THE CONTACT BETWEEN OVERBURDEN AND BEDROCK IS INFERRED. DIP OF BEDROCK MIMICS THE REGIONAL LAND SURFACE SLOPE OF APPROX. 3° TO THE SOUTHEAST.

6) NUMBERS IN PARENTHESES (415.3) ARE GROUND SURFACE ELEVATIONS.

7) SEE FIGURE 1-2 FOR LOCATION OF SECTION



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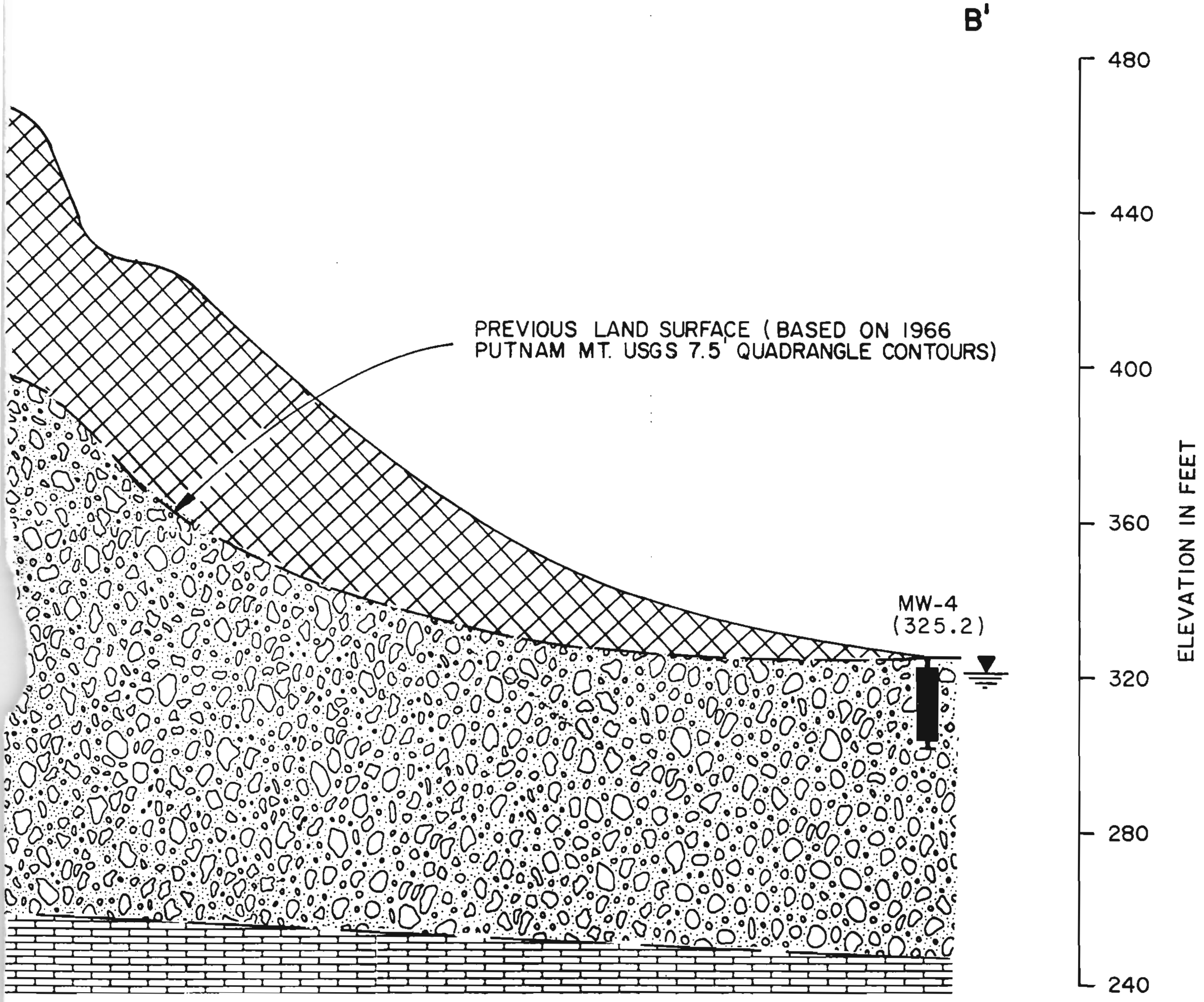

SCALE

VERTICAL 0 20 40 FT.

HORIZONTAL 0 56 112 FT.

RING AND MONITORING
LL NUMBER

ATER SURFACE INDICATOR
-9-90)

REENED INTERVAL OF
NITORING WELL

TTOM OF BORING

QUEENSBURY LANDFILL
GEOLOGIC CROSS SECTION B - B

URS
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FIGURE 4-2

on the 1966 Putnam Mountain USGS 7.5-minute topographic quadrangle. Sand and gravel mining operations subsequent to 1966 are not accounted for and the actual fill-overburden contact may depart radically from that shown in cross-section B-B'. The 1990 land surface was based upon URS survey data and site reconnaissance.

4.4.2 Surface Hydrology

Regional drainage patterns are only moderately well developed due to the presence of the thick, porous glacial sediment cover. The drainage pattern is rectangular, with a deranged pattern overprint (Ref. 1). The poorly developed rectangular pattern indicates original bedrock control, while the deranged overprint reflects modification due to the unconsolidated overburden present.

Locally, site surface water drainage separates along an approximately east-west trending drainage divide that roughly bisects the limits of fill delineated in Figure 1-2. In the northern portion of the site, surface water flows downslope toward the Torrington Construction sand and gravel pit via overland flow, rill flow, and drainage ditches. The surface water collects in ponds on the bottom of the Torrington Construction sand and gravel pit and eventually evaporates or infiltrates into the groundwater (the sand and gravel pit probably representing a local groundwater recharge area). Surface water on the southern side of the drainage divide flows downslope via overland flow, rill flow, and small drainage channels to its eventual discharge into the wetland area known as Mud Pond. Mud Pond is drained by an unnamed tributary which flows southeasterly for approximately 1/2 mile before emptying into Halfway Creek. Halfway Creek, which flows to the northeast, is located in the Lake Champlain drainage basin (Ref. 28). Halfway Creek and its tributaries are classified by NYSDEC as Class A water bodies. Minor amounts of surface water may also accumulate in localized depressions caused by sand and gravel mining operations.

4.4.3 Groundwater Hydrology

The principal aquifer of interest in the study area is the sand and gravel water table aquifer within the kame terrace. A deep bedrock aquifer underlying the sand and gravel also exists (the casing on well E-1 encounters bedrock), but the degree of hydraulic connection between the overburden and bedrock is unknown. Previous investigators have hypothesized that a lodgement till might be present over bedrock but no evidence was presented to justify this claim nor was a till mentioned by the drillers of Well E-1. If a lodgement till is present over bedrock, then any hydraulic connection between the water table and deeper bedrock aquifers would be limited since till is generally an excellent aquitard. Groundwater flow in the carbonate bedrock aquifer would probably be controlled by fractures, solution cavities, and joints (secondary porosity), and yields should be lower than in the overlying kame terrace aquifer.

Five new monitoring wells (MW-1 to MW-5) were installed in the kame terrace aquifer to better assess groundwater quality and flow characteristics (Figure 1-2). Table 4-1 contains a summary of water elevation data gathered during the field investigation.

All five wells were screened across the water table primarily in the phreatic zone. Soil samples were taken from the screened interval for each well and analyzed for grain-size distribution [See Empire Soil Grain Size (Appendix C).] Table 4-2 provides descriptions and USCS classifications for these samples.

A groundwater contour map (Figure 4-3) was constructed from six well water elevations and a stream gauge reading taken during the 3-day period,

TABLE 4-1
QUEENSBURY LANDFILL
SUMMARY OF WATER ELEVATION DATA

MONITORING WELL	MW-1	MW-2	MW-3	MW-4	MW-5	E-1	E-2	E-3	MUD POND STREAM GAUGE SG-1
RISER ELEVATION (feet)	484.75	439.81	485.67	327.77	417.30	481.25	326.54	417.12	
GROUND ELEVATION (feet)	482.59	437.22	483.18	325.18	415.29	478.89	323.32	415.06	
*RISER HEIGHT (feet)	2.16	2.59	2.49	2.59	2.01	2.36	3.22	2.06	
	WATER ELEVATIONS								
DATE: 10/26/90	324.11								
10/29/90					323.90				
11/2/90	324.07	323.73		321.71	323.84				
11/8/90	324.01				323.78				
11/9/90	323.99	323.61	321.10	321.64	323.76				
11/15/90		323.68							
11/28/90					323.77		321.29	327.39	320.72
11/29/90		323.53		321.67					
11/30/90	324.75		321.42						

All elevations are based on the National Geodetic Vertical Datum.

Well water levels were measured from top of riser.

* - Riser height referenced above ground surface.

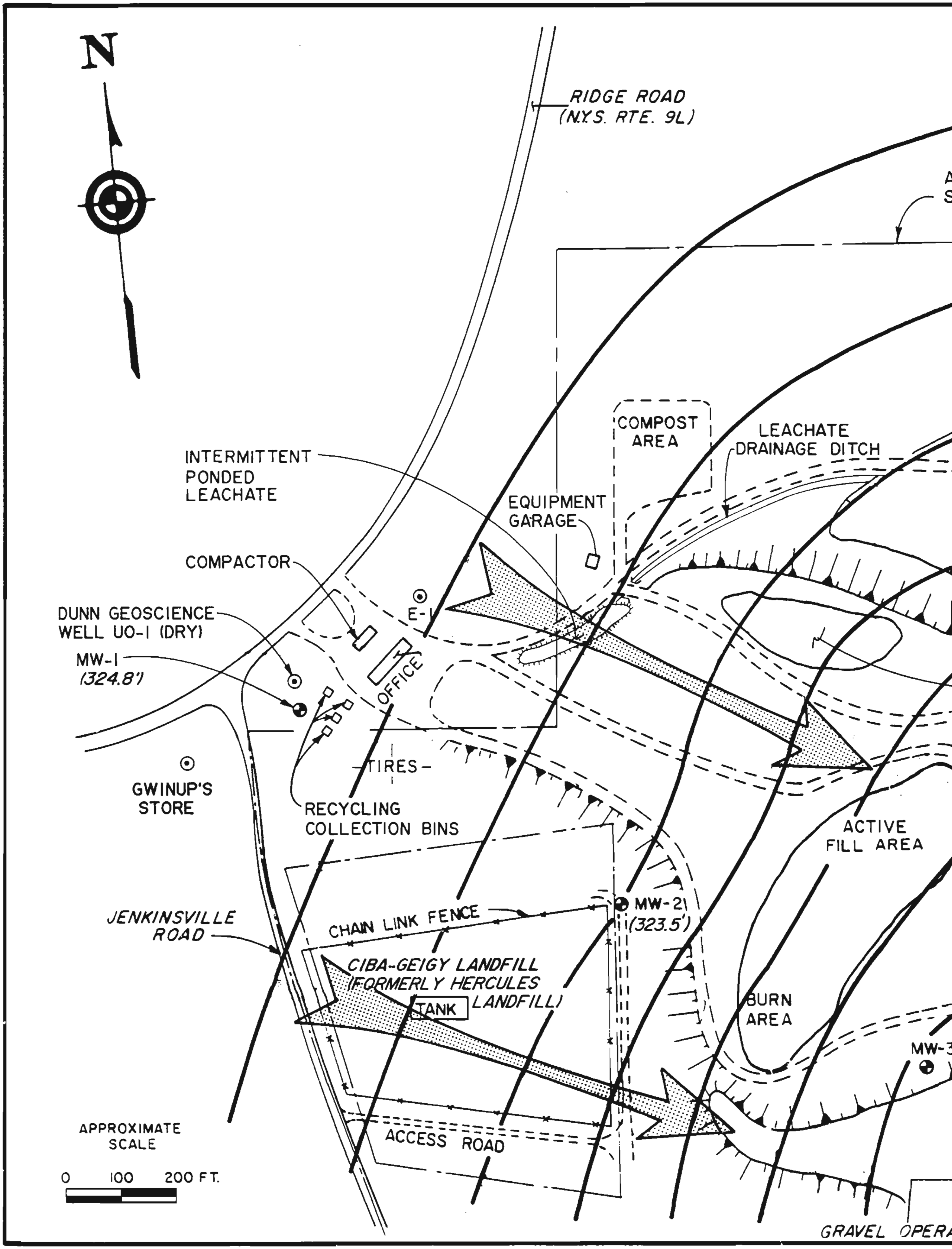
TABLE 4-2
QUEENSBURY LANDFILL
SUMMARY OF HYDROGEOLOGICAL PROPERTIES

HYDROGEOLOGICAL UNITS		HYDRAULIC CONDUCTIVITY (cm/second)	GRAIN-SIZE ANALYSIS			MATERIAL DESCRIPTION	USCS CLASSIFICATION
			% gravel	% sand	% silt and clay		
UPPER WATER BEARING ZONE	VADOSE ZONE Hinckley, Oakville, and Plainfield Soil Series	1.4x10-2 to 4.2x10-3 (Ref.18)	0-25 (typical ranges)	35-95	0-40	see section 4.3.2 for detailed descriptions	SM, SP, SP-SM (all series) GM, GP, GP-GM (Hinckley)
	PHREATIC ZONE	(see NOTES)					
	MW-1	1.91x10-3	6.0*	91.3*	2.7*	BROWN SAND, trace gravel and fines	SP
	MW-2	3.68x10-5	3.5	83.8	12.7	GREY SAND, little fines, trace gravel	SP
	MW-3	4.33x10-4	22.0	60.7	17.3	BROWN SAND, some gravel, little fines	SP-SM
	MW-4	≥10-3	NA	NA	NA	NA	
	MW-5	≥10-3	38.2	58.1	3.7	BROWN SAND AND GRAVEL, trace fines	SW
LOWER WATER BEARING ZONE	Limestone Bedrock	estimated 10-4 to 10-7 (Ref.12)	NOT ENCOUNTERED DURING THIS INVESTIGATION				

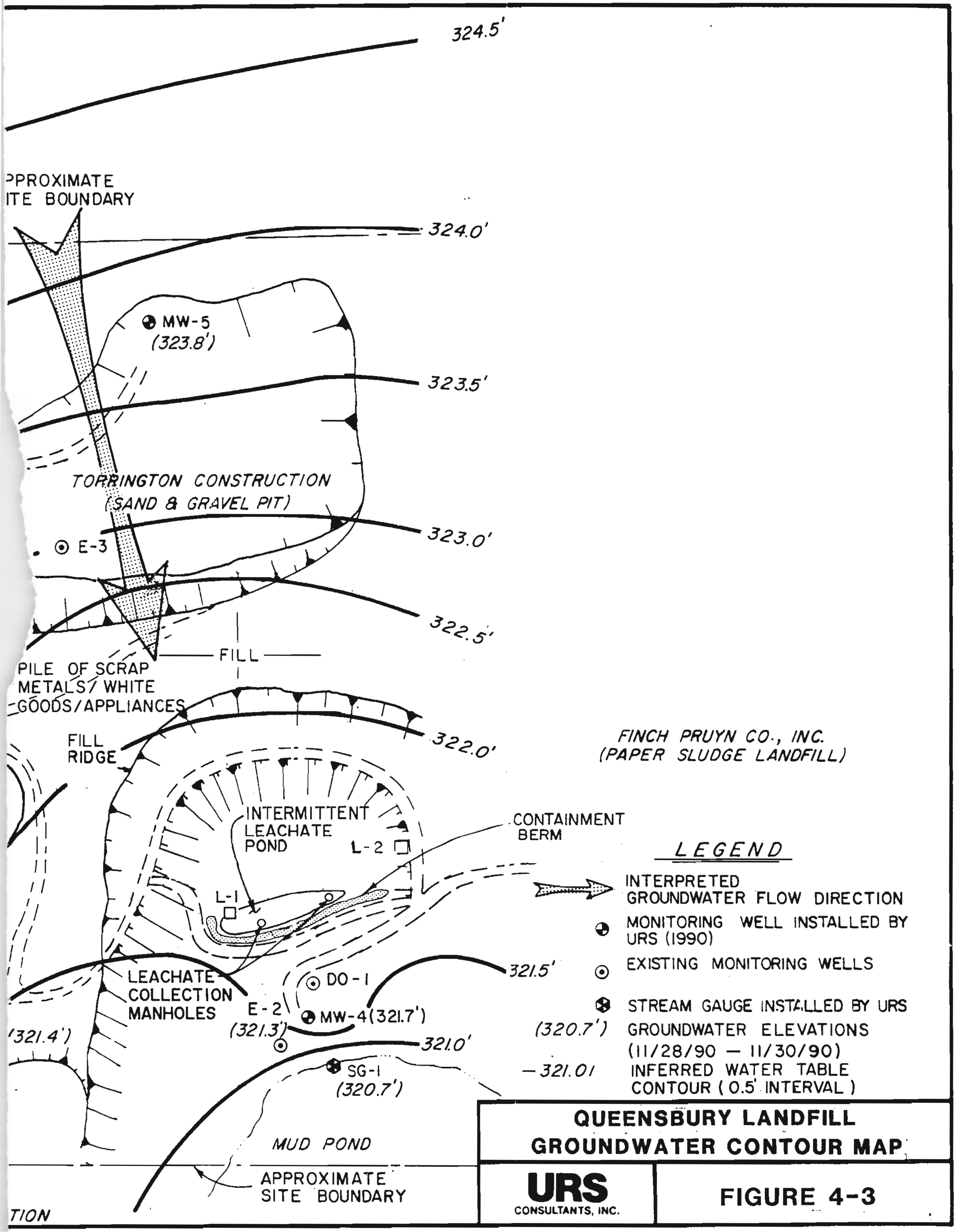
NA - Not analyzed

* - Average of two samples.

NOTES - Soil sample(s) taken from screened interval of well.
Conductivity values calculated using slug-out testing.
Hydraulic conductivities for MW-4 and MW-5 were estimated.


N
RIDGE ROAD
(N.Y.S. RTE. 9L)
A
S
COMPOST AREA
LEACHATE DRAINAGE DITCH
INTERMITTENT PONDED LEACHATE
EQUIPMENT GARAGE
COMPACTOR
E-1
DUNN GEOSCIENCE WELL UO-1 (DRY)
MW-1
(324.8')
OFFICE
GWINUP'S STORE
TIRES
RECYCLING COLLECTION BINS
ACTIVE FILL AREA
JENKINSVILLE ROAD
CHAIN LINK FENCE
MW-2
(323.5')
CIBA-GEIGY LANDFILL (FORMERLY HERCULES LANDFILL)
TANK
BURN AREA
MW-3
ACCESS ROAD
APPROXIMATE SCALE
0
100
200 FT.
GRAVEL OPERA

C-2098



QUEENSBURY LANDFILL
GROUNDWATER CONTOUR MAP

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FIGURE 4-3

November 28-30, 1990. This time period was chosen to allow the use of a maximum number of reliable data points since, due to logistical and instrumentation problems, no full set of readings could be collected on a single day. Weather during the 3-day period was consistent, with no precipitation and temperatures in the 40-45° F range. Well E-1 was not accessible for water elevation measurement. Well E-3 had anomalously high water levels, possibly due to groundwater mounding caused by water retention in the fill materials or the fact that this may be a groundwater recharge area, and was disregarded during map preparation. There is an approximately 4-foot drop in hydraulic head between MW-1 and Mud Pond. Groundwater flows in a south-southeasterly direction, with Mud Pond being the principal groundwater discharge area for the site. Groundwater recharge is mainly from rainfall and snowmelt infiltration.

Tests to determine rates of well recovery and hydraulic conductivities were conducted on URS wells MW-1 to MW-5. Appendix F contains the data and results from the slug tests performed. Hydraulic conductivities were calculated using the method of Bouwer and Rice (Ref. 9). Hydraulic conductivities fell in the 10^{-5} to 10^{-3} cm/sec range, with those samples that contained a higher percentage of fine material yielding lower conductivity values. Table 4-2 summarizes hydraulic conductivity data and includes grain-size analyses from Appendix C for soil samples taken from the screened interval of each well. Slug test data for monitoring wells MW-4 and MW-5 were unusable due to excessive instrument fluctuation and the extremely rapid recovery time of the wells. Recovery times of these wells were faster than those for MW-1 and therefore their hydraulic conductivities are estimated to be $\geq 10^{-3}$ cm/sec.

Based upon a hydraulic conductivity range of 10^{-5} to 10^{-2} cm/sec, and assuming pure advective motion with no mechanical diffusion, molecular diffusion, or adsorption retardation, contaminants introduced into the groundwater near Ridge Road could theoretically take as little as two months or as long as 50 years to leach across the site to the Mud Pond area.

4.5 Site Contamination Assessment

4.5.1 Previous Investigations

Dunn Geoscience completed a hydrogeological investigation of the Queensbury Landfill in September 1981 under NYSDEC contract to evaluate groundwater quality pursuant to the RCRA open dump inventory. Three monitoring wells (one upgradient and two downgradient) were installed in July and August of 1980. The upgradient well near Ridge Road (UO-1) was drilled to a depth of 79.5 feet but was subsequently abandoned as it did not provide sufficient water for sampling. The first downgradient well was abandoned at a depth of 62.0 feet due to drilling difficulties. The second downgradient well was initially screened in saturated material from 54 to 59 feet but went dry. It was redrilled to a depth of 105 feet but was subsequently damaged by a piece of equipment and was deemed unserviceable. Since none of these wells proved to be productive, two existing downgradient wells, DO-1 and DO-2 (URS E-2), and a nearby water supply well serving Gwinups Store across Jenkinsville Road, were sampled by Dunn Geoscience in August 1981. Both downgradient well samples showed iron and manganese concentrations in contravention of NYS Groundwater Standards and greatly elevated relative to the upgradient well. The landfill, however, was judged to meet RCRA Part 257 groundwater quality criteria (Table 4-3).

Quarterly groundwater samples from one upgradient (office well, or URS E-1) and two downgradient (well #2 or DO-1, and well #3 or URS E-2) wells submitted by the Town of Queensbury between June 1980 and January 1982 frequently showed elevated levels of iron and conductivity in downgradient wells relative to the upgradient well (Table 4-4). More comprehensive annual testing of samples taken from these same three wells

TABLE 4-3
QUEENSBURY LANDFILL
DUNN GEOSCIENCE— NYSDEC RCRA OPEN DUMP INVENTORY
GROUNDWATER QUALITY EVALUATION

SAMPLE-ID		ARAR	Gwinup's	DO-1	DO-2
URS DESIGNATION		VALUE	Gwinup's	DO-1	E-2
SAMPLE TYPE		Class GA	GW - RESIDENTIAL	GROUNDWATER	GROUNDWATER
COLLECTION DATE			8/5/81		
PARAMETER	UNITS				
Chloride (mg/l)	ppm	250	44	22	38
Fluoride (mg/l)	ppm	1.5	0.76	<0.10	0.13
Sulfate, as SO4 (mg/l)	ppm	250	15	6	16
TDS (g/l)	g/l		0.37	0.47	0.50
Conductivity (umhos/cm)	umhos/cm		580	720	710
pH			7.5	7.2	7.2
Color (color units)	color units		<5	<5	10
Odor (threshold units)	threshold units			140	6
TOC	ppm		2.0	2.0	4.0
ARSENIC	ppb	25	<10	<10	<10
BARIUM	ppb	1,000	170	31	74
CADMIUM	ppb	10	1.0	<0.5	<0.5
CHROMIUM	ppb	50	<4	<4	<4
COPPER	ppb	200	49	<5	<5
IRON	ppb	300	50	15500	12400
LEAD	ppb	25	7	<5	<5
MANGANESE	ppb	300	<10	920	1800
MERCURY	ppb	2	<0.1	<0.1	<0.1
SELENIUM	ppb	10	<10	<10	<10
SILVER	ppb	50	<2	<2	<2
ZINC	ppb	300	1500	<8	<8

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

All analyses performed by Energy Resources Co., Inc.

on July 21, 1980, revealed levels of chromium, lead, and mercury exceeding NYS Groundwater Quality Standards. Samples taken from these wells on April 15, 1981, showed levels of chromium and lead in excess of these standards (Table 4-5). Quarterly samples from Mud Pond and the leachate manhole, taken on March 21, 1980, showed high iron and conductivity values compared to those typical of groundwater in the upgradient well (Table 4-4).

Leachate manhole samples taken by NYSDEC in June 1984 were contaminated with chlorinated and non-chlorinated organic compounds, including phenols (Table 4-6). NYSDEC investigators found: leachate pools where HNu photoionization readings were between 5 and 10 ppm; exposed drums; and evidence that leachate had overflowed the containment berm (Ref. 2).

In April 1986, NYSDEC contracted Wehran Engineering to conduct a Phase I investigation of the site. The preliminary Hazard Ranking System (HRS) score was Sm = 34.55. Due to the proximity of private residences and the documentation of previous contaminant releases Wehran recommended a Phase II investigation.

NYSDOH sampled the Queensbury Landfill office well (URS E-1) and seven private wells south of the Queensbury Landfill on October 25, 1990 (Figure 4-4). Five of eight wells showed iron concentrations over the 300 ppb ARAR (Applicable or Relevant and Appropriate Requirements). Three of eight wells showed magnesium concentrations above the 35,000 ppb Guidance Value. In one well sample the ARAR for zinc was exceeded, and in another, the ARAR for manganese. The 20,000 ppb ARAR for sodium was exceeded in two wells. Trichloroethane and 1,1-dichloroethane were detected in three wells (Table 4-7).

On January 28, 1991, NYSDOH resampled the three wells which contained trichloroethane and 1,1-dichloroethane, and also sampled two

TABLE 4-4
QUEENSBURY LANDFILL
TOWN OF QUEENSBURY— QUARTERLY TESTING

SAMPLE-ID	ARAR VALUE (ppm) Class A*	Mud Pond	Leachate Manhole
SAMPLE TYPE		SURFACE WATER	LEACHATE
COLLECTION DATE		3/21/80	
PARAMETER			
pH		7.3	7.3
TDS (mg/l)			
Chloride (mg/l)	250	126	200
TOC (mg/l)		60	62
Conductivity (umhos/cm)		750	650
Iron (mg/l)	0.3	7.7	37

Only detected results are reported.

* - Class A ARARs are applicable only for Mud Pond surface water sample.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

All analyses performed by Environment One Corporation.

TABLE 4-4 (cont.)
QUEENSBURY LANDFILL
TOWN OF QUEENSBURY— QUARTERLY TESTING

SAMPLE-ID	ARAR	Office well	Well #2	Well #3	Office well	Well #2	Well #3	Office well	Well #2	Well #3
URS DESIGNATION	VALUE	E-1	DO-1	E-2	E-1	DO-1	E-2	E-1	DO-1	E-2
SAMPLE TYPE	(ppm)	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
COLLECTION DATE		6/5/80			10/24/80			1/22/81		
PARAMETER	Class GA									
pH		7.9	7.1	7.3	8.0	6.9	7.2	8.0	7.3	7.3
TDS (mg/l)								154		
Chloride (mg/l)	250	1.0	15	18	3.4	23	19	2.5	126	200
TOC (mg/l)		7	11	21	7	25	16	5	60	62
Conductivity (umhos/cm)		265	800	750	260	700	600	265	750	650
Iron (mg/l)	0.3	0.35	14.00	27.00	0.40	11	16	0.18	7.7	37

Only detected results are reported.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

All analyses performed by Environment One Corporation.

TABLE 4-4 (cont.)
QUEENSBURY LANDFILL
TOWN OF QUEENSBURY— QUARTERLY TESTING

SAMPLE-ID	ARAR	Office well	Well #2	Well #3	Office well	Well #2	Well #3	Office well	Well #2	Well #3
URS DESIGNATION	VALUE	E-1	DO-1	E-2	E-1	DO-1	E-2	E-1		
SAMPLE TYPE	(ppm)	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
COLLECTION DATE		4/15/81			7/14/81			10/19/81		
PARAMETER	Class GA									
pH		7.9	7.1	7.6	8.0	7.1	7.6	8.1	7.1	7.7
TDS (mg/l)		168			205			163		
Chloride (mg/l)	250	2.4	20	27	2.5	28	24	1.7	28.3	20.7
TOC (mg/l)		5	2	5	3	8	18	<1	28	7
Conductivity (umhos/cm)		260	650	550	262	650	600	280	590	680
Iron (mg/l)	0.3	0.15	20	27	0.15	7.0	55	1.2	54	22

Only detected results are reported.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

All analyses performed by Environment One Corporation.

TABLE 4-4 (cont.)
QUEENSBURY LANDFILL
TOWN OF QUEENSBURY— QUARTERLY TESTING

SAMPLE-ID	ARAR	Office well	Well #2	Well #3
URS DESIGNATION	VALUE	E-1	DO-1	E-2
SAMPLE TYPE	(ppm)	GROUNDWATER	GROUNDWATER	GROUNDWATER
COLLECTION DATE		1/25/82		
PARAMETER	Class GA			
pH		8.0	6.9	7.5
TDS (mg/l)		532		
Chloride (mg/l)	250	3.5	54.2	59.1
TOC (mg/l)		<1	42	48
Conductivity (umhos/cm)		278	900	800
Iron (mg/l)	0.3	0.65	23	105

Only detected results are reported.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

All analyses performed by Environment One Corporation.

TABLE 4-5
QUEENSBURY LANDFILL
TOWN OF QUEENSBURY— ANNUAL TESTING

SAMPLE-ID	ARAR	Office well	Well #2	Well #3	Office well	Well #2	Well #3
URS DESIGNATION	VALUE	E-1	DO-1	E-2	E-1	DO-1	E-2
SAMPLE TYPE	(ppm)	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
COLLECTION DATE		7/21/80			4/15/81		
PARAMETER	Class GA						
Sulfate, as SO4	250	4	15	8	5	8.5	19.5
N as Nitrite	10	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01
N as Nitrate	10	0.04	0.18	0.15	<0.01	0.04	0.02
N as Ammonia	2	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06
TKN		0.06	0.56	0.84	0.11	0.40	4.6
Total Phosphate, as P	0.100	<0.04	<0.04	<0.04	<0.03	0.06	<0.03
Phenols	0.001	<0.004	<0.004	<0.004	NA	NA	NA
Chromium	0.050	<0.005	0.1	0.01	<0.005	<0.05	0.28
Copper	0.200	<0.1	<0.1	<0.01	0.004	0.020	0.27
Lead	0.025	0.01	0.1	0.1	<0.01	<0.1	0.2
Mercury	0.002	<0.001	0.0055	0.0042	0.0015	<0.0004	<0.0004
Potassium		1	4.6	4.1	1.55	1.80	28.5
Sodium	20	11.5	6	10.2	10.5	11.0	11.5
Zinc	0.300	1.1	0.07	0.06	0.63	<0.05	0.60
Cyanide	0.100	NA	NA	NA	<0.003	0.005	<0.003

NA - Not analyzed.

All results reported in mg/l.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

All analyses performed by Environment One Corporation.

TABLE 4-6
QUEENSBURY LANDFILL
NYSDEC SAMPLING OF INACTIVE HAZARDOUS WASTE SITES

SAMPLE-ID		ARAR VALUE (ppb)	Mud Pond	Leachate Pool
SAMPLE TYPE			SURFACE WATER	LEACHATE
SAMPLE NUMBER			#6-001	#6-002
COLLECTION DATE			6/13/84	6/13/84
PARAMETER	TYPE	Class A*		
PHENOL	SEMI	1		555
BIS(2-CHLOROETHYL) ETHER	SEMI	0.3 G		
2-CHLOROPHENOL	SEMI			36
1,3-DICHLOROBENZENE	SEMI	20		
1,4-DICHLOROBENZENE	SEMI	30		30
1,2-DICHLOROBENZENE	SEMI			
BIS(2-CHLOROISOPROPYL) ETHER	SEMI			
N-NITROSODI-N-PROPYLAMINE	SEMI			159
HEXACHLOROETHANE	SEMI			
NITROBENZENE	SEMI	30		
ISOPHORONE	SEMI	50 G		
2-NITROPHENOL	SEMI			
2,4-DIMETHYLPHENOL	SEMI			
BIS(2-CHLOROETHOXY)METHANE	SEMI			
2,4-DICHLOROPHENOL	SEMI	0.3		
1,2,4-TRICHLOROBENZENE	SEMI	10		39
NAPHTHALENE	SEMI	10		
HEXACHLOROBUTADIENE	SEMI	0.5		
4-CHLORO-3-METHYLPHENOL	SEMI			3
HEXACHLOROCYCLOPENTADIENE	SEMI	1.0		
2,4,6-TRICHLOROPHENOL	SEMI			
2-CHLORONAPHTHALENE	SEMI	10		
DIMETHYLPHTHALATE	SEMI	50 G		
ACENAPHTHYLENE	SEMI			
2,6-DINITROTOLUENE	SEMI	0.07 G		
ACENAPHTHENE	SEMI	20		72
2,4-DINITROPHENOL	SEMI			
4-NITROPHENOL	SEMI			45

SEMI - Semivolatiles

G - Guidance values

All results reported in μg/L (ppb).

Only detected results are reported.

* - Class A ARARs are applicable for Mud Pond surface water sample only.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

Analyses performed by Energy Resources Co., Inc.

TABLE 4-6 (cont.)
QUEENSBURY LANDFILL
NYSDEC SAMPLING OF INACTIVE HAZARDOUS WASTE SITES

SAMPLE-ID		ARAR VALUE (ppb)	Mud Pond	Leachate Pool
SAMPLE TYPE			SURFACE WATER	LEACHATE
SAMPLE NUMBER			#6-001	#6-002
COLLECTION DATE			6/13/84	6/13/84
PARAMETER	TYPE	Class A*		
2,4-DINITROTOLUENE	SEMI			90
DIETHYLPHTHALATE	SEMI	50 G		81
4-CHLOROPHENYL-PHENYL ETHER	SEMI			
FLUORENE	SEMI	50 G		
4,6-DINITRO-2-METHYLPHENOL	SEMI			
N-NITROSODIPHENYLAMINE	SEMI	50 G		
4-BROMOPHENYL-PHENYL ETHER	SEMI			
HEXACHLOROBENZENE	SEMI	0.02 G		
PENTACHLOROPHENOL	SEMI			3
PHENANTHRENE	SEMI	50 G		
ANTHRACENE	SEMI	50 G		
DI-N-BUTYLPHTHALATE	SEMI	50 G		48
FLUORANTHENE	SEMI	50 G		
PYRENE	SEMI	50 G		51
BUTYLBENZYLPHTHALATE	SEMI	50 G		
3,3'-DICHLOROBENZIDINE	SEMI			
BENZO(A)ANTHRACENE	SEMI			
CHRYSENE	SEMI	0.002 G		
BIS(2-ETHYLHEXYL)PHTHALATE	SEMI	4 G		42
DI-N-OCTYL PHTHALATE	SEMI	50 G		
BENZO(K)FLUORANTHENE	SEMI	0.002 G		
BENZO(A)PYRENE	SEMI	0.002 G		
INDENO(1,2,3-CD)PYRENE	SEMI	0.002 G		
DIBENZO(A,H)ANTHRACENE	SEMI			
BENZO(G,H,I)PERYLENE	SEMI			
BENZIDINE	SEMI			
1,2-DIPHENYLHYDRAZINE	SEMI			
N-NITROSODIMETHYLAMINE	SEMI			
3,4-BENZOFLUORANTHENE	SEMI			
2,3,7,8-Tetrachlorodibenzo-p-dioxin	SEMI			

SEMI - Semivolatiles

G - Guidance values

All results reported in µg/L (ppb).

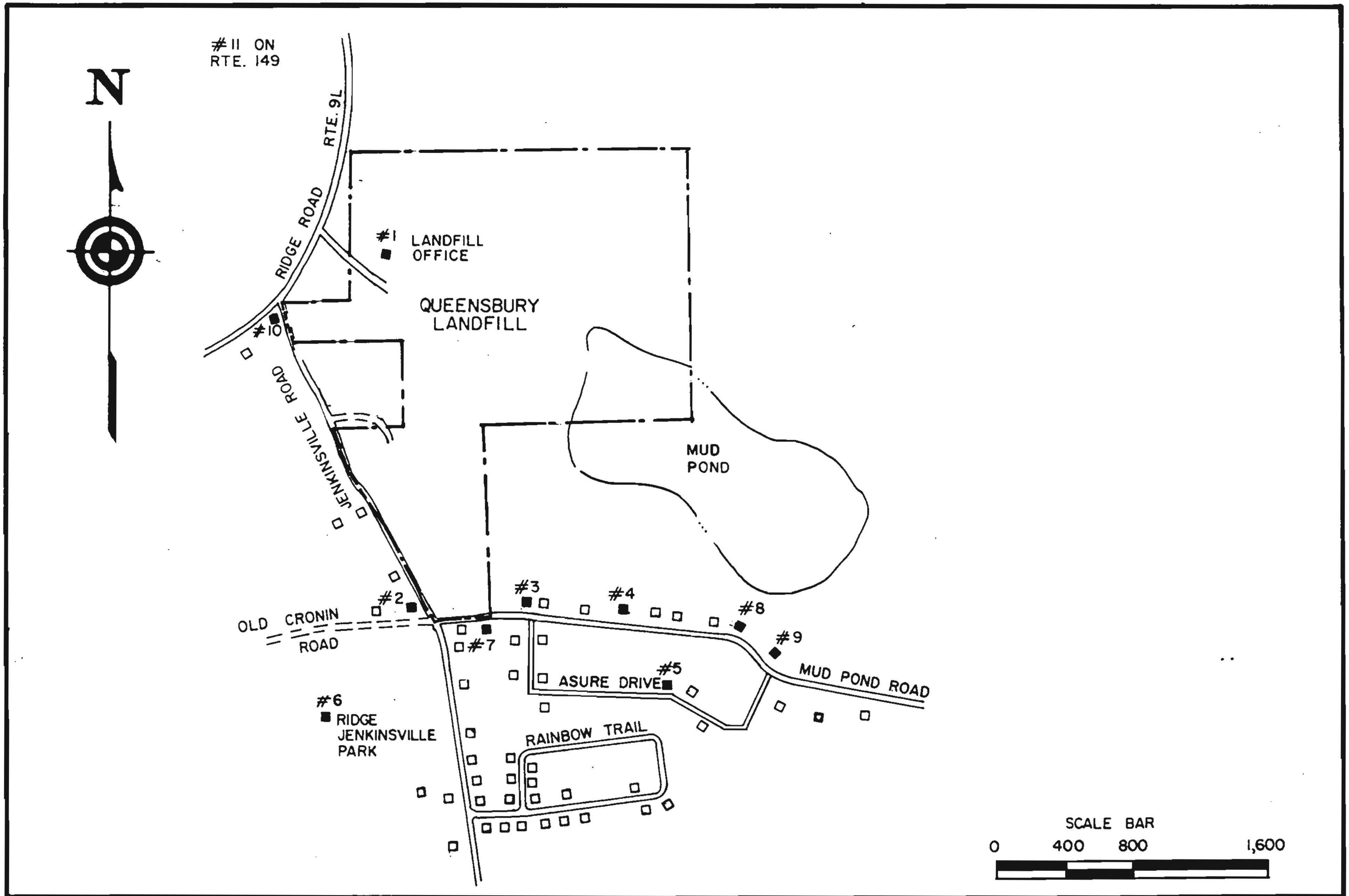
Only detected results are reported.

* - Class A ARARs are applicable for Mud Pond surface water sample only.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

Analyses performed by Energy Resources Co., Inc.

A-3726



URS
CONSULTANTS, INC.

QUEENSBURY LANDFILL
NYSDOH DRINKING WATER SURVEY SAMPLE LOCATION

FIGURE 4-4

TABLE 4-7
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL GROUNDWATER SAMPLES

SAMPLE-ID		ARAR	Landfill E-1	Cutter	DeVoe	LaPlache	Reynolds	Ridge Park	Schies	Sullivan
SAMPLE TYPE		VALUE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE #		(ppb)	1	8	3	4	7	6	2	5
COLLECTION DATE			10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90
PARAMETER	TYPE	Class GA								
CHLOROMETHANE	VOC	5								
BROMOMETHANE	VOC	5								
VINYL CHLORIDE	VOC	2								
DICHLORODIFLUOROMETHANE	VOC	5								
CHLOROETHANE	VOC	5								
METHYLENE CHLORIDE	VOC	5								
TRICHLOROFLUOROMETHANE	VOC	5								
1,1-DICHLOROETHENE	VOC	5								
1,1-DICHLOROETHANE	VOC	5				1				
TRANS-1,2-DICHLOROETHENE	VOC	5								
CIS-1,2-DICHLOROETHENE	VOC	5								
CHLOROFORM	VOC	100								
1,2-DICHLOROETHANE	VOC	5								
DIBROMOMETHANE	VOC	5								
1,1,1-TRICHLOROETHANE	VOC	5								
CARBON TETRACHLORIDE	VOC	5								
BROMODICHLOROMETHANE	VOC	50 G								
2,3-DICHLOROPROPENE	VOC									
1,2-DICHLOROPROPANE	VOC	5								
CIS-1,3-DICHLOROPROPENE	VOC	5								
TRICHLOROETHENE	VOC	5	2	2						
1,3-DICHLOROPROPANE	VOC	5								
DIBROMOCHLOROMETHANE	VOC	50 G								
TRANS-1,3-DICHLOROPROPENE	VOC	5								
1,1,2-TRICHLOROETHANE	VOC	5								
1,2-DIBROMOETHANE (EDB)	VOC									
2-CHLOROETHYLVINYL ETHER	VOC									
BROMOFORM	VOC	50 G								
1,1,1,2-TETRACHLOROETHANE	VOC	5								
1,2,3-TRICHLOROPROPANE	VOC	5								

VOC - Volatile Organic Compounds

G - Guidance values

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-7 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL GROUNDWATER SAMPLES

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	DeVoe	LaPlache	Reynolds	Ridge Park	Schies	Sullivan
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE #			1	8	3	4	7	6	2	5
COLLECTION DATE			10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90
PARAMETER	TYPE	Class GA								
1,1,2,2-TETRACHLOROETHANE	VOC	5								
TETRACHLOROETHENE	VOC	5								
PENTACHLOROETHANE	VOC	5								
1-CHLOROCYCLOHEXENE-1	VOC									
CHLOROBENZENE	VOC	5								
BIS(2-CHLOROETHYL) ETHER	SEMI	1								
1,2-DIBROMO-3-CHLOROPROPANE	VOC	5								
BROMOBENZENE	VOC	5								
o-CHLOROTOLUENE	VOC	5								
BIS(2-CHLOROISOPROPYL) ETHER	SEMI									
1,3-DICHLOROBENZENE	SEMI	5								
1,2-DICHLOROBENZENE	SEMI	4.7								
1,4-DICHLOROBENZENE	SEMI	4.7								
BENZENE	VOC	ND								
TOLUENE	VOC	5								
ETHYLBENZENE	VOC	5								
p-XYLENES	VOC	5								
m-XYLENES	VOC	5								
o-XYLENES	VOC	5								
ISOPROPYLBENZENE	VOC	5								
STYRENE	VOC	5								
p-BROMOFLUOROBENZENE	VOC	5								
N-PROPYLBENZENE	VOC	5								
TERT-BUTYLBENZENE	VOC	5								
p-CHLOROTOLUENE	VOC	5								
m-CHLOROTOLUENE	VOC	5								
1,3,5-TRIMETHYLBENZENE	VOC	5								
1,2,4-TRIMETHYLBENZENE	VOC	5								
4-ISOPROPYLTOLUENE	VOC	5								
CYCLOPROPYLBENZENE	VOC	5								
SEC-BUTYLBENZENE	VOC	5								

VOC - Volatile Organic Compounds

SEMI - Semivolatile

G - Guidance values

ND - Non Detectable

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4–7 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL GROUNDWATER SAMPLES

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	DeVoe	LaPlache	Reynolds	Ridge Park	Schies	Sullivan
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE #			1	8	3	4	7	6	2	5
COLLECTION DATE			10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90
PARAMETER	TYPE	Class GA								
N-BUTYLBENZENE	VOC	5								
2,3-BENZOFURAN	SEMI									
HEXACHLOROBUTADIENE	SEMI	5								
1,2,4-TRICHLOROBENZENE	SEMI	5								
NAPHTHALENE	SEMI	10 G								
1,2,3-TRICHLOROBENZENE	SEMI	5								
2-BUTANONE	VOC									
4-METHYL-2-PENTANONE	VOC									
ACETONE	VOC									
METHYL TERT BUTYL ETHER	VOC	5								
PHENOL	SEMI	1*			NA	NA	NA	NA		NA
2-CHLOROPHENOL	SEMI	*			NA	NA	NA	NA		NA
4-NITROPHENOL	SEMI	*			NA	NA	NA	NA		NA
2,4-DIMETHYLPHENOL	SEMI	*			NA	NA	NA	NA		NA
2,4-DICHLOROPHENOL	SEMI	*			NA	NA	NA	NA		NA
4-CHLORO-3-METHYLPHENOL	SEMI	*			NA	NA	NA	NA		NA
2,4,6-TRICHLOROPHENOL	SEMI	*			NA	NA	NA	NA		NA
2,4,5-TRICHLOROPHENOL	SEMI	*			NA	NA	NA	NA		NA
4-NITROPHENOL	SEMI	*			NA	NA	NA	NA		NA
2-METHYL-4,6-DINITROPHENOL	SEMI	*			NA	NA	NA	NA		NA
PENTACHLOROPHENOL	SEMI	*			NA	NA	NA	NA		NA
N-NITROSODI-N-PROPYLAMINE	SEMI				NA	NA	NA	NA		NA
HEXACHLOROETHANE	SEMI	5			NA	NA	NA	NA		NA
NITROBENZENE	SEMI	5			NA	NA	NA	NA		NA

VOC - Volatile Organic Compounds

SEMI - Semivolatile

NA - Not analyzed

* - Total phenolic compound limit (SUM) = 1 ppb.

All results reported in $\mu g/L$ (ppb).

Only detected results are reported.

TABLE 4-7 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL GROUNDWATER SAMPLES

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	DeVoe	LaPlache	Reynolds	Ridge Park	Schies	Sullivan
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE #			1	8	3	4	7	6	2	5
COLLECTION DATE			10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90
PARAMETER	TYPE	Class GA								
ISOPHORONE	SEMI	50 G			NA	NA	NA	NA		NA
BIS(2-CHLOROETHOXY)METHANE	SEMI				NA	NA	NA	NA		NA
HEXACHLOROCYCLOPENTADIENE	SEMI	5			NA	NA	NA	NA		NA
2-CHLORONAPHTHALENE	SEMI	5			NA	NA	NA	NA		NA
2,6-DINITROTOLUENE	SEMI	5			NA	NA	NA	NA		NA
ACENAPHTHYLENE	SEMI				NA	NA	NA	NA		NA
DIMETHYLPHTHALATE	SEMI	50 G			NA	NA	NA	NA		NA
ACENAPHTHENE	SEMI	20 G			NA	NA	NA	NA		NA
2,4-DINITROTOLUENE	SEMI	5			NA	NA	NA	NA		NA
DIETHYLPHTHALATE	SEMI	50 G			NA	NA	NA	NA		NA
FLUORENE	SEMI	50 G			NA	NA	NA	NA		NA
N-NITROSODIPHENYLAMINE	SEMI	50 G			NA	NA	NA	NA		NA
1.2-DIPHENYLHYDRAZINE	SEMI	ND			NA	NA	NA	NA		NA
4-BROMOPHENYL-PHENYL ETHER	SEMI				NA	NA	NA	NA		NA
HEXACHLOROBENZENE	SEMI	0.35			NA	NA	NA	NA		NA
PHENANTHRENE	SEMI	50 G			NA	NA	NA	NA		NA
ANTHRACENE	SEMI	50 G			NA	NA	NA	NA		NA
DI-N-BUTYLPHTHALATE	SEMI	50			NA	NA	NA	NA		NA
FLUORANTHENE	SEMI	50 G			NA	NA	NA	NA		NA
PYRENE	SEMI	50 G			NA	NA	NA	NA		NA
BENZIDINE	SEMI	5			NA	NA	NA	NA		NA
BUTYLBENZYLPHTHALATE	SEMI	50 G			NA	NA	NA	NA		NA
BENZO(A)ANTHRACENE	SEMI	0.002 G			NA	NA	NA	NA		NA
3,3'-DICHLOROBENZIDINE	SEMI	5			NA	NA	NA	NA		NA
CHRYSENE	SEMI	0.002 G			NA	NA	NA	NA		NA
BIS(2-ETHYLHEXYL)PHTHALATE	SEMI	50			NA	NA	NA	NA		NA
DI-N-OCTYL PHTHALATE	SEMI	50 G			NA	NA	NA	NA		NA
BENZO(B)FLUORANTHENE	SEMI	0.002 G			NA	NA	NA	NA		NA
BENZO(K)FLUORANTHENE	SEMI	0.002 G			NA	NA	NA	NA		NA
BENZO(A)PYRENE	SEMI	ND			NA	NA	NA	NA		NA
INDENO(1,2,3-CD)PYRENE	SEMI	0.002 G			NA	NA	NA	NA		NA
DIBENZO(A,H)ANTHRACENE	SEMI				NA	NA	NA	NA		NA
BENZO(G,H,I)PERYLENE	SEMI				NA	NA	NA	NA		NA

SEMI - Semivolatiles

G - Guidance values

NA - Not analyzed.

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-7 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL GROUNDWATER SAMPLES

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	DeVoe	LaPlache	Reynolds	Ridge Park	Schies	Sullivan
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE #			1	8	3	4	7	6	2	5
COLLECTION DATE			10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90
PARAMETER	TYPE	Class GA								
HCH, ALPHA	PST	ND			NA	NA	NA	NA		NA
HCH, BETA	PST	ND			NA	NA	NA	NA		NA
HCH, GAMMA (LINDANE)	PST	ND			NA	NA	NA	NA		NA
HCH, DELTA	PST	ND			NA	NA	NA	NA		NA
HEPTACHLOR	PST	ND			NA	NA	NA	NA		NA
ALDRIN	PST	ND			NA	NA	NA	NA		NA
HEPTACHLOR EPOXIDE	PST	ND			NA	NA	NA	NA		NA
ENDOSULFAN I	PST				NA	NA	NA	NA		NA
4,4'-DDE	PST	ND			NA	NA	NA	NA		NA
DIELDRIN	PST	ND			NA	NA	NA	NA		NA
ENDRIN	PST	ND			NA	NA	NA	NA		NA
4,4'-DDD	PST	ND			NA	NA	NA	NA		NA
ENDOSULFAN II	PST				NA	NA	NA	NA		NA
ENDRIN ALDEHYDE	PST	5			NA	NA	NA	NA		NA
ENDOSULFAN SULFATE	PST				NA	NA	NA	NA		NA
4,4'-DDT	PST	ND			NA	NA	NA	NA		NA
METHOXYCHLOR	PST	35			NA	NA	NA	NA		NA
TOXAPHENE	PST	ND			NA	NA	NA	NA		NA
CHLORDANE	PST	0.1			NA	NA	NA	NA		NA
MIREX	PST	0.1			NA	NA	NA	NA		NA
AROCLOR-1221	PCB	0.1			NA	NA	NA	NA		NA
AROCLOR-1016/1242	PCB	0.1			NA	NA	NA	NA		NA
AROCLOR-1248	PCB	0.1			NA	NA	NA	NA		NA
AROCLOR-1254	PCB	0.1			NA	NA	NA	NA		NA
AROCLOR-1260	PCB	0.1			NA	NA	NA	NA		NA

PST - Pesticides

PCB - Polychlorinated Biphenyls

ND - Non Detectable

NA - Not analyzed

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-7 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL GROUNDWATER SAMPLES

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	DeVoe	LaPlache	Reynolds	Ridge Park	Schies	Sullivan
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE #			1	8	3	4	7	6	2	5
COLLECTION DATE			10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90	10/25/90
PARAMETER	TYPE	Class GA								
ALUMINUM	METALS									
ANTIMONY	METALS	3 G								
ARSENIC	METALS	25								
BARIUM	METALS	1,000	464	48	35	216			225	26
BERYLLIUM	METALS	3 G								
CADMIUM	METALS	10								
CALCIUM	METALS		36100	96300	71500	123000	560		73800	44200
CHROMIUM	METALS	50								
COBALT	METALS									
COPPER	METALS	200			8					
IRON	METALS	300	344	5140	162	1820			1940	441
LEAD	METALS	25								
MAGNESIUM	METALS	35,000 G	18200	39300	29700	39100			37100	16000
MANGANESE	METALS	300	15	133		2060			66	36
MERCURY	METALS	2								
MOLYBDENUM	METALS									
NICKEL	METALS					8				
POTASSIUM	METALS		1600	1600	1600	1800			1800	1000
SELENIUM	METALS	10								
SILVER	METALS	50								
SODIUM	METALS	20,000	18400	6700	5900	17500	139000	24400	16200	3800
STRONTIUM	METALS		1460	445	265	526			624	267
TIN	METALS									
TITANIUM	METALS									
THALLIUM	METALS									
VANADIUM	METALS									
ZINC	METALS	300	628				14			

G - Guidance values

All results reported in μg/L (ppb).

Only detected results are reported.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

Analyses performed by NYSDOH Wadsworth Center for Laboratories and Research.

additional homeowner wells. No volatiles were detected in the two well samples that had previously contained trichloroethane. The LaPlache well still showed a low level of 1,1-dichloroethane (Table 4-8). One of the additionally sampled wells had a relatively high sodium concentration.

Appendix G contains the analytical testing results from the aforementioned previous investigations.

4.5.2 Groundwater Contamination Assessment

Eight groundwater samples (from URS monitoring wells MW-1 through MW-5 and from existing wells E-1 through E-3) were collected as part of this investigation. These samples were analyzed for TCL parameters. Substances detected and their concentrations are summarized in Table 4-9. Also included in the table are NYSDEC Standards/Guidance Values for groundwater (Class GA) which are considered to be the ARARs for this site (Ref. 19).

MW-3 and MW-4 showed concentrations of methylene chloride slightly above the ARAR of 5 ppb but the compound was also detected in the method blank. 1,1-dichloroethane and 1,1,1-trichloroethane were detected in downgradient well MW-3 at levels exceeding the 5 ppb ARAR (18 ppb and 15 ppb, respectively). Volatiles concentrations on all other groundwater samples were below ARAR values or not detected. No semivolatiles, pesticides, PCBs, or cyanide were detected in any groundwater sample.

Concentrations of aluminum, arsenic, iron, magnesium, manganese, nickel, potassium, silver, sodium, and vanadium appeared to increase between the upgradient and downgradient wells. All well samples (with the exception of E-1, which is not screened in glacial material) showed iron concentrations in excess of the 300 ppb NYSDEC standard. There was an approximately ten-fold increase in iron concentration downgradient in MW-3, MW-4, and E-2. Manganese concentrations were above the ARAR of 300 ppb

TABLE 4-8
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL RESAMPLING AND ADDITIONAL SAMPLING

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	LaPlache	Gwinup	Bowman
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE#			1	8	4	10	11
COLLECTION DATE			1/28/91	1/28/91	1/28/91	1/28/91	1/28/91
PARAMETER	TYPE	Class GA					
CHLOROMETHANE	voc	5					
BROMOMETHANE	voc	5					
VINYL CHLORIDE	voc	2					
DICHLORODIFLUOROMETHANE	voc	5					
CHLOROETHANE	voc	5					
METHYLENE CHLORIDE	voc	5					
TRICHLOROFLUOROMETHANE	voc	5					
1,1-DICHLOROETHENE	voc	5					
1,1-DICHLOROETHANE	voc	5			2		
TRANS-1,2-DICHLOROETHENE	voc	5					
CIS-1,2-DICHLOROETHENE	voc	5					
CHLOROFORM	voc	100					
1,2-DICHLOROETHANE	voc	5					
DIBROMOMETHANE	voc	5					
1,1,1-TRICHLOROETHANE	voc	5					
CARBON TETRACHLORIDE	voc	5					
BROMODICHLOROMETHANE	voc	50 G					
2,3-DICHLOROPROPENE	voc						
1,2-DICHLOROPROPANE	voc	5					
CIS-1,3-DICHLOROPROPENE	voc	5					
TRICHLOROETHENE	voc	5					
1,3-DICHLOROPROPANE	voc	5					
DIBROMOCHLOROMETHANE	voc	50 G					
TRANS-1,3-DICHLOROPROPENE	voc	5					
1,1,2-TRICHLOROETHANE	voc	5					
1,2-DIBROMOETHANE (EDB)	voc						
2-CHLOROETHYLVINYL ETHER	voc						
BROMOFORM	voc	50 G					
1,1,1,2-TETRACHLOROETHANE	voc	5					
1,2,3-TRICHLOROPROPANE	voc	5					

VOC - Volatile Organic Compounds

G - Guidance values

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4–8 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL RESAMPLING AND ADDITIONAL SAMPLING

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	LaPlache	Gwinup	Bowman
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE#			1	8	4	10	11
COLLECTION DATE			1/28/91	1/28/91	1/28/91	1/28/91	1/28/91
PARAMETER	TYPE	Class GA					
1,1,2,2–TETRACHLOROETHANE	VOC	5					
TETRACHLOROETHENE	VOC	5					
PENTACHLOROETHANE	VOC	5					
1–CHLOROCYCLOHEXENE–1	VOC						
CHLOROBENZENE	VOC	5					
BIS(2–CHLOROETHYL) ETHER	SEMI	1					
1,2–DIBROMO–3–CHLOROPROPANE	VOC	5					
BROMOBENZENE	VOC	5					
o–CHLOROTOLUENE	VOC	5					
BIS(2–CHLOROISOPROPYL) ETHER	SEMI						
1,3–DICHLOROBENZENE	SEMI	5					
1,2–DICHLOROBENZENE	SEMI	4.7					
1,4–DICHLOROBENZENE	SEMI	4.7					
BENZENE	VOC	ND	NA		NA		
TOLUENE	VOC	5	NA		NA		
ETHYLBENZENE	VOC	5	NA		NA		
p–XYLENES	VOC	5	NA		NA		
m–XYLENES	VOC	5	NA		NA		
o–XYLENES	VOC	5	NA		NA		
ISOPROPYLBENZENE	VOC	5	NA		NA		
STYRENE	VOC	5	NA		NA		
p–BROMOFLUOROBENZENE	VOC	5	NA		NA		
N–PROPYLBENZENE	VOC	5	NA		NA		
TERT–BUTYLBENZENE	VOC	5	NA		NA		
p–CHLOROTOLUENE	VOC	5	NA		NA		
m–CHLOROTOLUENE	VOC	5	NA		NA		
1,3,5–TRIMETHYLBENZENE	VOC	5	NA		NA		
1,2,4–TRIMETHYLBENZENE	VOC	5	NA		NA		
4–ISOPROPYLTOLUENE	VOC	5	NA		NA		
CYCLOPROPYLBENZENE	VOC	5	NA		NA		

VOC - Volatile Organic Compounds

SEMI - Semivolatile

G - Guidance values

ND - Non Detectable

NA - Not analyzed

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-8 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL RESAMPLING AND ADDITIONAL SAMPLING

SAMPLE-ID		ARAR	Landfill E-1	Cutter	LaPlache	Gwinup	Bowman
SAMPLE TYPE		VALUE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE#		(ppb)	1	8	4	10	11
COLLECTION DATE			1/28/91	1/28/91	1/28/91	1/28/91	1/28/91
PARAMETER	TYPE	Class GA					
SEC-BUTYLBENZENE	VOC	5	NA		NA		
N-BUTYLBENZENE	VOC	5	NA		NA		
2,3-BENZOFURAN	SEMI		NA		NA		
HEXACHLOROBUTADIENE	SEMI	5	NA		NA		
1,2,4-TRICHLOROBENZENE	SEMI	5	NA		NA		
NAPHTHALENE	SEMI	10 G	NA		NA		
1,2,3-TRICHLOROBENZENE	SEMI	5	NA		NA		
2-BUTANONE	VOC		NA		NA		
4-METHYL-2-PENTANONE	VOC		NA		NA		
ACETONE	VOC		NA		NA		
METHYL TERT BUTYL ETHER	VOC	5	NA		NA		
PHENOL	SEMI	1*	NA	NA	NA	NA	NA
2-CHLOROPHENOL	SEMI	*	NA	NA	NA	NA	NA
4-NITROPHENOL	SEMI	*	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	SEMI	*	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	SEMI	*	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	SEMI	*	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	SEMI	*	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	SEMI	*	NA	NA	NA	NA	NA
4-NITROPHENOL	SEMI	*	NA	NA	NA	NA	NA
2-METHYL-4,6-DINITROPHENOL	SEMI	*	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	SEMI	*	NA	NA	NA	NA	NA
N-NITROSODI-N-PROPYLAMINE	SEMI		NA	NA	NA	NA	NA
HEXACHLOROETHANE	SEMI	5	NA	NA	NA	NA	NA
NITROBENZENE	SEMI	5	NA	NA	NA	NA	NA

VOC - Volatile Organic Compounds

SEMI - Semivolatile

NA - Not analyzed

* - Total phenolic compound limit (SUM) = 1 ppb.

All results reported in $\mu g/L$ (ppb).

Only detected results are reported.

TABLE 4-8 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL RESAMPLING AND ADDITIONAL SAMPLING

SAMPLE-ID		ARAR	Landfill E-1	Cutter	LaPlache	Gwinup	Bowman
SAMPLE TYPE		VALUE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE#		(ppb)	1	8	4	10	11
COLLECTION DATE			1/28/91	1/28/91	1/28/91	1/28/91	1/28/91
PARAMETER	TYPE	Class GA					
ISOPHORONE	SEMI	50 G	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	SEMI		NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	SEMI	5	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	SEMI	5	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	SEMI	5	NA	NA	NA	NA	NA
ACENAPHTHYLENE	SEMI		NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	SEMI	50 G	NA	NA	NA	NA	NA
ACENAPHTHENE	SEMI	20 G	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	SEMI	5	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	SEMI	50 G	NA	NA	NA	NA	NA
FLUORENE	SEMI	50 G	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	SEMI	50 G	NA	NA	NA	NA	NA
1.2-DIPHENYLHYDRAZINE	SEMI	ND	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYL ETHER	SEMI		NA	NA	NA	NA	NA
HEXACHLOROBENZENE	SEMI	0.35	NA	NA	NA	NA	NA
PHENANTHRENE	SEMI	50 G	NA	NA	NA	NA	NA
ANTHRACENE	SEMI	50 G	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	SEMI	50	NA	NA	NA	NA	NA
FLUORANTHENE	SEMI	50 G	NA	NA	NA	NA	NA
PYRENE	SEMI	50 G	NA	NA	NA	NA	NA
BENZIDINE	SEMI	5	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	SEMI	50 G	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	SEMI	0.002 G	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	SEMI	5	NA	NA	NA	NA	NA
CHRYSENE	SEMI	0.002 G	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	SEMI	50	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	SEMI	50 G	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	SEMI	0.002 G	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	SEMI	0.002 G	NA	NA	NA	NA	NA
BENZO(A)PYRENE	SEMI	ND	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	SEMI	0.002 G	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	SEMI		NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	SEMI		NA	NA	NA	NA	NA

SEMI - Semivolatiles

G - Guidance values

NA - Not analyzed

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-8 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL RESAMPLING AND ADDITIONAL SAMPLING

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	LaPlache	Gwinup	Bowman
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE#			1	8	4	10	11
COLLECTION DATE			1/28/91	1/28/91	1/28/91	1/28/91	1/28/91
PARAMETER	TYPE	Class GA					
HCH, ALPHA	PST	ND	NA	NA	NA	NA	NA
HCH, BETA	PST	ND	NA	NA	NA	NA	NA
HCH, GAMMA (LINDANE)	PST	ND	NA	NA	NA	NA	NA
HCH, DELTA	PST	ND	NA	NA	NA	NA	NA
HEPTACHLOR	PST	ND	NA	NA	NA	NA	NA
ALDRIN	PST	ND	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	PST	ND	NA	NA	NA	NA	NA
ENDOSULFAN I	PST		NA	NA	NA	NA	NA
4,4'-DDE	PST	ND	NA	NA	NA	NA	NA
DIELDRIN	PST	ND	NA	NA	NA	NA	NA
ENDRIN	PST	ND	NA	NA	NA	NA	NA
4,4'-DDD	PST	ND	NA	NA	NA	NA	NA
ENDOSULFAN II	PST		NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	PST	5	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	PST		NA	NA	NA	NA	NA
4,4'-DDT	PST	ND	NA	NA	NA	NA	NA
METHOXYCHLOR	PST	35	NA	NA	NA	NA	NA
TOXAPHENE	PST	ND	NA	NA	NA	NA	NA
CHLORDANE	PST	0.1	NA	NA	NA	NA	NA
MIREX	PST	0.1	NA	NA	NA	NA	NA
AROCLOR-1221	PCB	0.1	NA	NA	NA	NA	NA
AROCLOR-1016/1242	PCB	0.1	NA	NA	NA	NA	NA
AROCLOR-1248	PCB	0.1	NA	NA	NA	NA	NA
AROCLOR-1254	PCB	0.1	NA	NA	NA	NA	NA
AROCLOR-1260	PCB	0.1	NA	NA	NA	NA	NA

PST - Pesticides
PCB - Polychlorinated Biphenyls
ND - Non Detectable
NA - Not anlayzed
All results reported in μg/L (ppb).
Only detected results are reported.

TABLE 4-8 (cont.)
QUEENSBURY LANDFILL
NYSDOH—HOMEOWNER WELL RESAMPLING AND ADDITIONAL SAMPLING

SAMPLE-ID		ARAR VALUE (ppb)	Landfill E-1	Cutter	LaPlache	Gwinup	Bowman
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
FIGURE 4-4 SAMPLE#			1	8	4	10	11
COLLECTION DATE			1/28/91	1/28/91	1/28/91	1/28/91	1/28/91
PARAMETER	TYPE	Class GA					
ALUMINUM	METALS		NA		NA		*
ANTIMONY	METALS	3 G	NA		NA		*
ARSENIC	METALS	25	NA		NA		*
BARIUM	METALS	1,000	NA	32	NA	174	*
BERYLLIUM	METALS	3 G	NA		NA		*
CADMIUM	METALS	10	NA		NA		*
CALCIUM	METALS		NA	36300	NA	38200	*
CHROMIUM	METALS	50	NA		NA		*
COBALT	METALS		NA		NA		*
COPPER	METALS	200	NA	35	NA	18	*
IRON	METALS	300	NA	261	NA	149	*
LEAD	METALS	25	NA		NA		*
MAGNESIUM	METALS	35,000 G	NA	15700	NA	17900	*
MANGANESE	METALS	300	NA	6	NA	127	*
MERCURY	METALS	2	NA		NA		*
MOLYBDENUM	METALS		NA		NA		*
NICKEL	METALS		NA		NA		*
POTASSIUM	METALS		NA	1200	NA	1200	*
SELENIUM	METALS	10	NA		NA		*
SILVER	METALS	50	NA		NA		*
SODIUM	METALS	20,000	NA	3100	NA	45200	*
STRONTIUM	METALS		NA	291	NA	1150	*
TIN	METALS		NA		NA		*
TITANIUM	METALS		NA		NA		*
THALLIUM	METALS		NA		NA		*
VANADIUM	METALS		NA		NA		*
ZINC	METALS	300	NA	20	NA	664	*

G - Guidance values

NA - Not analyzed

* - Analyses not provided but stated to be in "excepted backround range."

All results reported in μg/L (ppb).

Only detected results are reported.

ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

Analyses performed by NYSDOH Wadsworth Center for Laboratories and Research.

TABLE 4-9
QUEENSBURY LANDFILL
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	MW-1	MW-2	MW-3	MW-4	MW-5	E-1	E-2	E-3	DW-1
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	DRILL WATER
SAMPLE QUALIFIER											
COLLECTION DATE			11/30/90	11/29/90	11/30/90	11/29/90	11/28/90	11/28/90	11/29/90	11/28/90	11/7/90
PARAMETER	TYPE	Class GA									
CHLOROMETHANE	VOC	5									
BROMOMETHANE	VOC	5									
VINYL CHLORIDE	VOC	2									
CHLOROETHANE	VOC	5									
METHYLENE CHLORIDE	VOC	5				8 B			9 B		
ACETONE	VOC										
CARBON DISULFIDE	VOC										
1,1-DICHLOROETHENE	VOC	5									
1,1-DICHLOROETHANE	VOC	5		3 JX	18						
1,2-DICHLOROETHENE (TOTAL)	VOC	5									
CHLOROFORM	VOC	100			4 J						
1,2-DICHLOROETHANE	VOC	5									
2-BUTANONE	VOC										
1,1,1-TRICHLOROETHANE	VOC	5			15						
CARBON TETRACHLORIDE	VOC	5									
VINYL ACETATE	VOC										
BROMODICHLOROMETHANE	VOC	50 G									
1,2-DICHLOROPROPANE	VOC	5									
CIS-1,3-DICHLOROPROPENE	VOC	5									
TRICHLOROETHENE	VOC	5									
DIBROMOCHLOROMETHANE	VOC	50 G									
1,1,2-TRICHLOROETHANE	VOC	5									
BENZENE	VOC	ND									
TRANS-1,3-DICHLOROPROPENE	VOC	5									
BROMOFORM	VOC	50 G									
4-METHYL-2-PENTANONE	VOC										
2-HEXANONE	VOC	50 G									
TETRACHLOROETHENE	VOC	5									
1,1,2,2-TETRACHLOROETHANE	VOC	5									
TOLUENE	VOC	5									
CHLOROBENZENE	VOC	5									
ETHYLBENZENE	VOC	5									
STYRENE	VOC	5									
TOTAL XYLENES	VOC	5 *									

VOC - Volatile Organic Compounds

G - Guidance values

ND - Non Detectable

* - Applies to each isomer [(1,2-), (1,3-), and (1,4-)] individually.

All results reported in μg/L (ppb).

Only detected results are reported.

DATA QUALIFIERS:

B - Indicates compound was detected in associated method blank.

J - Indicates the value is < the sample quantitation limit but > 0.

X - Mass spectrum does not meet EPA CLP criteria but presence is strongly suspected.

TABLE 4–9 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	MW-1	MW-2	MW-3	MW-4	MW-5	E-1	E-2	E-3	DW-1
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	DRILL WATER
SAMPLE QUALIFIER											
COLLECTION DATE			11/30/90	11/29/90	11/30/90	11/29/90	11/28/90	11/28/90	11/29/90	11/28/90	11/7/90
PARAMETER	TYPE	Class GA									
PHENOL	SEMI	1									
BIS(2–CHLOROETHYL) ETHER	SEMI	1									
2–CHLOROPHENOL	SEMI										
1,3–DICHLOROBENZENE	SEMI	5									
1,4–DICHLOROBENZENE	SEMI	4.7									
BENZYL ALCOHOL	SEMI										
1,2–DICHLOROBENZENE	SEMI	4.7									
2–METHYLPHENOL	SEMI										
BIS(2–CHLOROISOPROPYL) ETHER	SEMI										
4–METHYLPHENOL	SEMI										
N–NITROSODI–N–PROPYLAMINE	SEMI										
HEXACHLOROETHANE	SEMI	5									
NITROBENZENE	SEMI	5									
ISOPHORONE	SEMI	50 G									
2–NITROPHENOL	SEMI										
2,4–DIMETHYLPHENOL	SEMI										
BENZOIC ACID	SEMI										
BIS(2–CHLOROETHOXY)METHANE	SEMI										
2,4–DICHLOROPHENOL	SEMI										
1,2,4–TRICHLOROBENZENE	SEMI										
NAPHTHALENE	SEMI	10 G									
4–CHLOROANILINE	SEMI	5									
HEXACHLOROBUTADIENE	SEMI	5									
4–CHLORO–3–METHYLPHENOL	SEMI										
2–METHYLNAPHTHALENE	SEMI										
HEXACHLOROCYCLOPENTADIENE	SEMI	5									
2,4,6–TRICHLOROPHENOL	SEMI										
2,4,5–TRICHLOROPHENOL	SEMI										
2–CHLORONAPHTHALENE	SEMI	5									
2–NITROANILINE	SEMI	5									
DIMETHYLPHTHALATE	SEMI	50 G									
ACENAPHTHYLENE	SEMI										
2,6–DINITROTOLUENE	SEMI	5									
3–NITROANILINE	SEMI	5									

SEMI - Semivolatiles

G - Guidance values

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-9 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	MW-1	MW-2	MW-3	MW-4	MW-5	E-1	E-2	E-3	DW-1
SAMPLE TYPE			GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	DRILL WATER
SAMPLE QUALIFIER											
COLLECTION DATE			11/30/90	11/29/90	11/30/90	11/29/90	11/28/90	11/28/90	11/29/90	11/28/90	11/7/90
PARAMETER	TYPE	Class GA									
ACENAPHTHENE	SEMI	20 G									
2,4-DINITROPHENOL	SEMI										
4-NITROPHENOL	SEMI										
DIBENZOFURAN	SEMI										
2,4-DINITROTOLUENE	SEMI	5									
DIETHYLPHTHALATE	SEMI	50 G									
4-CHLOROPHENYL-PHENYL ETHER	SEMI										
FLUORENE	SEMI	50 G									
4-NITROANILINE	SEMI										
4,6-DINITRO-2-METHYLPHENOL	SEMI										
N-NITROSODIPHENYLAMINE	SEMI	50 G									
4-BROMOPHENYL-PHENYL ETHER	SEMI										
HEXACHLOROBENZENE	SEMI	0.35									
PENTACHLOROPHENOL	SEMI										
PHENANTHRENE	SEMI	50 G									
ANTHRACENE	SEMI	50 G									
DI-N-BUTYLPHTHALATE	SEMI	50									
FLUORANTHENE	SEMI	50 G									
PYRENE	SEMI	50 G									
BUTYLBENZYLPHTHALATE	SEMI	50 G									
3,3'-DICHLOROBENZIDINE	SEMI	5									
BENZO(A)ANTHRACENE	SEMI										
CHRYSENE	SEMI	0.002 G									
BIS(2-ETHYLHEXYL)PHTHALATE	SEMI	50									
DI-N-OCTYL PHTHALATE	SEMI	50 G									
BENZO(B)FLUORANTHENE	SEMI	0.002 G									
BENZO(K)FLUORANTHENE	SEMI	0.002 G									
BENZO(A)PYRENE	SEMI	ND									
INDENO(1,2,3-CD)PYRENE	SEMI	0.002 G									
DIBENZO(A,H)ANTHRACENE	SEMI										
BENZO(G,H,I)PERYLENE	SEMI										

SEMI - Semivolatiles

G - Guidance values

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-9 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR	MW-1	MW-2	MW-3	MW-4	MW-5	E-1	E-2	E-3	DW-1
SAMPLE TYPE		VALUE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	DRILL WATER
SAMPLE QUALIFIER		(ppb)									
COLLECTION DATE			11/30/90	11/29/90	11/30/90	11/29/90	11/28/90	11/28/90	11/29/90	11/28/90	11/7/90
PARAMETER	TYPE	Class GA									
ALPHA-BHC	PST	ND									
BETA-BHC	PST	ND									
DELTA-BHC	PST	ND									
GAMMA-BHC (LINDANE)	PST	ND									
HEPTACHLOR	PST	ND									
ALDRIN	PST	ND									
HEPTACHLOR EPOXIDE	PST	ND									
ENDOSULFAN I	PST										
DIELDRIN	PST	ND									
4,4'-DDE	PST	ND									
ENDRIN	PST	ND									
ENDOSULFAN II	PST										
4,4'-DDD	PST	ND									
ENDOSULFAN SULFATE	PST										
4,4'-DDT	PST	ND									
METHOXYCHLOR	PST	35									
ENDRIN KETONE	PST										
ALPHA-CHLORDANE	PST	0.1									
GAMMA-CHLORDANE	PST	0.1									
TOXAPHENE	PST	ND									
AROCLOR-1016	PCB	0.1									
AROCLOR-1221	PCB	0.1									
AROCLOR-1232	PCB	0.1									
AROCLOR-1242	PCB	0.1									
AROCLOR-1248	PCB	0.1									
AROCLOR-1254	PCB	0.1									
AROCLOR-1260	PCB	0.1									

PST - Pesticides

PCB - Polychlorinated Biphenyls

ND - Non Detectable

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4–9 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR	MW-1	MW-2	MW-3	MW-4	MW-5	E-1	E-2	E-3	DW-1
SAMPLE TYPE		VALUE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	DRILL WATER
SAMPLE QUALIFIER		(ppb)									
COLLECTION DATE			11/30/90	11/29/90	11/30/90	11/29/90	11/28/90	11/28/90	11/29/90	11/28/90	11/7/90
PARAMETER	TYPE	Class GA									
ALUMINUM	MCP		870	1720	8280	1720	549				984
ANTIMONY	MCP	3 G									
ARSENIC	MCP	25			3.2 B	13.1			14.4 S	3.9 B	
BARIUM	MCP	1,000	55.4 B	240	206	407	38.0 B	477	313	275	12.2 B
BERYLLIUM	MCP	3 G				1.8 B	4.9 B	4.9 B	1.9 B	2.8 B	
CADMIUM	MCP	10					5.5	5.5			
CALCIUM	MCP		118,000	216,000	245,000	156,000	75,300	33,300	158,000	144,000	8580
CHROMIUM	MCP	50									
COBALT	MCP		9.8 B		78.4	8.7 B					
COPPER	MCP	200	8.2 B	6.6 B	59.5	10.1 B	4.9 B	5.3 B			5.8 B
IRON	MCP	300	3990	4340	37,700	21,000	1800	149	23,700	9430	433
LEAD	MCP	25	6.1	3.9 S	14.1	3.1	2.5 BW				2.6 B
MAGNESIUM	MCP	35,000 G	23,200	79,900	96,000	34,500	19,200	16,500	41,500	51,100	835 B
MANGANESE	MCP	300	103	716	1710	518	42.0	13.9 B	574	471	4.2 B
MERCURY	MCP	2							0.26		
NICKEL	MCP			28.4 B	137					17.8 B	
POTASSIUM	MCP			7220	5600	9810	1280 B		8160	35,300	1010 B
SELENIUM	MCP	10									
SILVER	MCP	50			4.6 B				3.2 B		
SODIUM	MCP	20,000	28,300	110,000	178,000	51,800	14,800	17,800	49,200	92,900	12,400
THALLIUM	MCP	4 G									
VANADIUM	MCP			7.3 B	31.0 B	8.2 B				8.8 B	
ZINC	MCP	300	22.1	29.7	83.8	19.6 B	15.7 B	108		38.0	14.4 B
CYANIDE	MCP	100									

MCP – Metals, Cyanide, Phenol

G – Guidance values

All results reported in μg/L (ppb) unless otherwise specified.

Only detected results are reported.

DATA QUALIFIERS:

B – Result < quantitation limit but > zero.

W – Post–digestion spike for AA (furnace) is out of QC limits.

S – Reported value was determined by the Method of Standard Additions (MSA).

ARAR VALUES – NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

in five of seven groundwater samples and ranged from 42 ppb to 1,710 ppb, with an increase in concentration evident in all downgradient wells relative to upgradient wells. Magnesium concentrations were above the NYSDEC Guidance Value of 35,000 ppb in 4 of 7 groundwater samples, with downgradient concentrations being two to three times higher than in upgradient wells. Beryllium concentration in upgradient samples E-1 and MW-5 was 4.9 ppb, which is above the 3 ppb guidance value. Arsenic, nickel, silver, and vanadium were detected only in downgradient wells but at levels below ARAR values. Six of the eight wells had sodium concentrations in excess of the 20,000 ppb standard and there appeared to be a trend toward increasing concentration downgradient.

These results appear to indicate that the landfill does impact downgradient groundwater quality in the kame terrace aquifer. The landfill appears to be contributing low ppb levels of volatile organics (1,1-dichloroethane, chloroform, and 1,1,1-trichloroethane) and metals (aluminum, arsenic, iron, magnesium, manganese, nickel, potassium, silver, sodium, and vanadium) to the groundwater.

4.5.3 Mud Pond Surface Water and Sediment Contamination Assessment

Surface water (SW-1) and sediment (SED-1) samples were collected from the edge of Mud Pond near monitoring well MW-4. The samples were analyzed for TCL parameters. Substances detected and their concentrations are summarized in Table 4-10, along with NYSDEC Standards/Guidance Values for Class A surface water, which are considered to be the ARARs for Mud Pond water (Ref. 19).

Three common laboratory contaminants (methylene chloride, acetone, and 2-butanone) were the only volatile compounds detected in the surface water and sediment samples. These were detected at low levels (23 ppb maximum). Methylene chloride was detected in the associated method blank. Methylene chloride and acetone are common laboratory solvents, used in the

TABLE 4-10
QUEENSBURY LANDFILL
SUMMARY OF MUD POND WATER/SEDIMENT SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	SW-1	SED-1
SAMPLE TYPE			SURFACE WATER	SEDIMENT
SAMPLE QUALIFIER				
COLLECTION DATE			11/29/90	11/29/90
PARAMETER	TYPE	Class A*	(ppb)	(ppb)
CHLOROMETHANE	voc			
BROMOMETHANE	voc			
VINYL CHLORIDE	voc	0.3 G		
CHLOROETHANE	voc			
METHYLENE CHLORIDE	voc	5 G	8 B	
ACETONE	voc			23
CARBON DISULFIDE	voc			
1,1-DICHLOROETHENE	voc	0.07 G		
1,1-DICHLOROETHANE	voc	5 G		
1,2-DICHLOROETHENE (TOTAL)	voc	5 G		
CHLOROFORM	voc	0.2		
1,2-DICHLOROETHANE	voc	0.8		
2-BUTANONE	voc			5 J
1,1,1-TRICHLOROETHANE	voc	5 G		
CARBON TETRACHLORIDE	voc	0.4 G		
VINYL ACETATE	voc			
BROMODICHLOROMETHANE	voc	50 G		
1,2-DICHLOROPROPANE	voc	5 G		
CIS-1,3-DICHLOROPROPENE	voc			
TRICHLOROETHENE	voc	3 G		
DIBROMOCHLOROMETHANE	voc	50 G		
1,1,2-TRICHLOROETHANE	voc	0.6		
BENZENE	voc	0.7 G		
TRANS-1,3-DICHLOROPROPENE	voc			
BROMOFORM	voc	50 G		
4-METHYL-2-PENTANONE	voc			
2-HEXANONE	voc	50 G		
TETRACHLOROETHENE	voc	0.7 G		
1,1,2,2-TETRACHLOROETHANE	voc	0.2 G		
TOLUENE	voc	5 G		
CHLOROBENZENE	voc	20		
ETHYLBENZENE	voc	5 G		
STYRENE	voc	50		
TOTAL XYLENES	voc	5 G +		

VOC - Volatile Organic Compounds
G - Guidance values
SW-1 results reported in µg/L (ppb).
SED-1 results reported in µg/kg (ppb).
* - Class A ARARs are applicable to SW-1 only.
\+ - Applies to each isomer [(1,2-), (1,3-), and (1,4-)] individually.
Only detected results are reported.

DATA QUALIFIERS:
B - Indicates compound was detected in associated method blank.
J - Indicates the value is < the sample quantitation limit but > 0.

TABLE 4-10 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF MUD POND WATER/SEDIMENT SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	SW-1	SED-1
SAMPLE TYPE			SURFACE WATER	SEDIMENT
SAMPLE QUALIFIER				
COLLECTION DATE			11/29/90	11/29/90
PARAMETER	TYPE	Class A*	(ppb)	(ppb)
PHENOL	SEMI	1		
BIS(2-CHLOROETHYL) ETHER	SEMI	0.3 G		
2-CHLOROPHENOL	SEMI			
1,3-DICHLOROBENZENE	SEMI	20		
1,4-DICHLOROBENZENE	SEMI	30		
BENZYL ALCOHOL	SEMI			
1,2-DICHLOROBENZENE	SEMI			
2-METHYLPHENOL	SEMI			
BIS(2-CHLOROISOPROPYL) ETHER	SEMI			
4-METHYLPHENOL	SEMI			
N-NITROSODI-N-PROPYLAMINE	SEMI			
HEXACHLOROETHANE	SEMI			
NITROBENZENE	SEMI	30		
ISOPHORONE	SEMI	50 G		
2-NITROPHENOL	SEMI			
2,4-DIMETHYLPHENOL	SEMI			
BENZOIC ACID	SEMI			
BIS(2-CHLOROETHOXY)METHANE	SEMI			
2,4-DICHLOROPHENOL	SEMI	0.3		
1,2,4-TRICHLOROBENZENE	SEMI	10		
NAPHTHALENE	SEMI	10		
4-CHLOROANILINE	SEMI			
HEXACHLOROBUTADIENE	SEMI	0.5		
4-CHLORO-3-METHYLPHENOL	SEMI			
2-METHYLNAPHTHALENE	SEMI			
HEXACHLOROCYCLOPENTADIENE	SEMI	1.0		
2,4,6-TRICHLOROPHENOL	SEMI			
2,4,5-TRICHLOROPHENOL	SEMI			
2-CHLORONAPHTHALENE	SEMI	10		
2-NITROANILINE	SEMI			
DIMETHYLPHTHALATE	SEMI	50 G		
ACENAPHTHYLENE	SEMI			
2,6-DINITROTOLUENE	SEMI	0.07 G		
3-NITROANILINE	SEMI			

SEMI - Semivolatiles

G - Guidance values

SW-1 results reported in μg/L (ppb).

SED-1 results reported in μg/kg (ppb).

* - Class A ARARs are applicable to SW-1 only.

Only detected results are reported.

TABLE 4-10 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF MUD POND WATER/SEDIMENT SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	SW-1	SED-1
SAMPLE TYPE			SURFACE WATER	SEDIMENT
SAMPLE QUALIFIER				
COLLECTION DATE			11/29/90	11/29/90
PARAMETER	TYPE	Class A*	(ppb)	(ppb)
ACENAPHTHENE	SEMI	20		
2,4-DINITROPHENOL	SEMI			
4-NITROPHENOL	SEMI			
DIBENZOFURAN	SEMI			
2,4-DINITROTOLUENE	SEMI			
DIETHYLPHTHALATE	SEMI	50 G		
4-CHLOROPHENYL-PHENYL ETHER	SEMI			
FLUORENE	SEMI	50 G		
4-NITROANILINE	SEMI			
4,6-DINITRO-2-METHYLPHENOL	SEMI			
N-NITROSODIPHENYLAMINE	SEMI	50 G		
4-BROMOPHENYL-PHENYL ETHER	SEMI			
HEXACHLOROBENZENE	SEMI	0.02 G		
PENTACHLOROPHENOL	SEMI			
PHENANTHRENE	SEMI	50 G		
ANTHRACENE	SEMI	50 G		
DI-N-BUTYLPHTHALATE	SEMI	50 G		
FLUORANTHENE	SEMI	50 G		
PYRENE	SEMI	50 G		
BUTYLBENZYLPHTHALATE	SEMI	50 G		
3,3'-DICHLOROBENZIDINE	SEMI			
BENZO(A)ANTHRACENE	SEMI			
CHRYSENE	SEMI	0.002 G		
BIS(2-ETHYLHEXYL)PHTHALATE	SEMI	4 G		
DI-N-OCTYL PHTHALATE	SEMI	50 G		
BENZO(B)FLUORANTHENE	SEMI	0.002 G		
BENZO(K)FLUORANTHENE	SEMI	0.002 G		
BENZO(A)PYRENE	SEMI	0.002 G		
INDENO(1,2,3-CD)PYRENE	SEMI	0.002 G		
DIBENZO(A,H)ANTHRACENE	SEMI			
BENZO(G,H,I)PERYLENE	SEMI			

SEMI - Semivolatiles
G - Guidance values
SW-1 results reported in μg/L (ppb).
SED-1 results reported in μg/kg (ppb).
* - Class A ARARs are applicable to SW-1 only.
Only detected results are reported.

TABLE 4-10 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF MUD POND WATER/SEDIMENT SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	SW-1	SED-1
SAMPLE TYPE			SURFACE WATER	SEDIMENT
SAMPLE QUALIFIER				
COLLECTION DATE			11/29/90	11/29/90
PARAMETER	TYPE	Class A*	(ppb)	(ppb)
ALPHA-BHC	PST	0.02 G		
BETA-BHC	PST	0.02 G		
DELTA-BHC	PST	0.02 G		
GAMMA-BHC (LINDANE)	PST	0.02 G		
HEPTACHLOR	PST	0.009		
ALDRIN	PST	0.002 G		
HEPTACHLOR EPOXIDE	PST	0.009		
ENDOSULFAN I	PST			
DIELDRIN	PST	0.0009 G		
4,4'-DDE	PST	0.01		
ENDRIN	PST	0.2		
ENDOSULFAN II	PST			
4,4'-DDD	PST	0.01		
ENDOSULFAN SULFATE	PST			
4,4'-DDT	PST	0.01		
METHOXYCHLOR	PST	35		
ENDRIN KETONE	PST			
ALPHA-CHLORDANE	PST	0.02 G		
GAMMA-CHLORDANE	PST	0.02 G		
TOXAPHENE	PST	0.01 G		
AROCLOR-1016	PCB	0.01		
AROCLOR-1221	PCB	0.01		
AROCLOR-1232	PCB	0.01		
AROCLOR-1242	PCB	0.01		
AROCLOR-1248	PCB	0.01		
AROCLOR-1254	PCB	0.01		
AROCLOR-1260	PCB	0.01		

PST - Pesticides
PCB - Polychlorinated Biphenyls
G - Guidance values
SW-1 results reported in μg/L (ppb).
SED-1 results reported in μg/kg (ppb).
* - Class A ARARs are applicable to SW-1 only.
Only detected results are reported.

TABLE 4-10 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF MUD POND WATER/SEDIMENT SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		ARAR VALUE (ppb)	SW-1	SED-1
SAMPLE TYPE			SURFACE WATER	SEDIMENT
SAMPLE QUALIFIER				
COLLECTION DATE			11/29/90	11/29/90
PARAMETER	TYPE	Class A*	(ppb)	(ppb)
ALUMINUM	MCP		27.8 B	3120
ANTIMONY	MCP	3 G		
ARSENIC	MCP	50		3.7
BARIUM	MCP	1,000	158 B	19.1 B
BERYLLIUM	MCP	3 G	4.9 B	0.59 B
CADMIUM	MCP	10		
CALCIUM	MCP		113,000	45,100
CHROMIUM	MCP	50		2.7
COBALT	MCP			2.7 B
COPPER	MCP	200		2.7 B
IRON	MCP	300	3240	6720
LEAD	MCP	50		4.1 N
MAGNESIUM	MCP	35,000	27,200	6800 ED
MANGANESE	MCP	300	321	102
MERCURY	MCP	2		
NICKEL	MCP			66 B
POTASSIUM	MCP		5050	333 B
SELENIUM	MCP	10		
SILVER	MCP	50		0.83 B
SODIUM	MCP		29,900	95.1 B
THALLIUM	MCP	4 G		
VANADIUM	MCP			10.1 B
ZINC	MCP	300	19.8 B	16.4
CYANIDE	MCP	100		

MCP - Metals, Cyanide, Phenol
G - Guidance values
SW-1 results reported in μg/L (ppb).
SED-1 results reported in mg/kg (ppm).
* - Class A ARARs are applicable to SW-1 only.
Only detected results are reported.
ARAR VALUES - NYSDEC Ambient Water Quality Standards and Guidance Values, September 1990 (TOGS 1.1.1).

DATA QUALIFIERS:
B - Result < quantitation limit but > zero.
E - Value is estimated due the presence of interference.
N - Spike recovery not within QC limits.
D - Duplicate analysis not within QC limits.

organic extraction process; 2-butanone may be used as a laboratory solvent or may be a breakdown product from other laboratory chemicals. Even under ideal laboratory conditions, these rapidly volatilizing solvents become airborne and can be carried throughout the laboratory, leading to minor contamination of samples and instruments. No semivolatiles, pesticides, PCBs, or cyanide were detected in either the surface water or sediment sample.

Ten of the twenty-three metals were detected in the surface water sample. The concentration of iron in sample SW-1 was above the ARAR of 300 ppb but was comparable to upgradient groundwater values. Beryllium, at 4.9 ppb, was above the guidance value of 3 ppb, but was comparable to upgradient groundwater values. The concentration of manganese, at 321 ppb, exceeded the ARAR of 300 ppb, but was again comparable to upgradient groundwater values.

Eighteen of the twenty-three metals were detected in the sediment sample. All metals detected in both the surface water and sediment samples were found to be more highly concentrated in the sediment sample. Arsenic, chromium, cobalt, copper, lead, magnesium, nickel, silver, and vanadium were found in the sediment sample but not in the surface water sample. With the exception of chromium, the same metals were detected in the sediment and both leachate samples. Elevated concentrations of metals such as aluminum, iron, magnesium, manganese, calcium, sodium, potassium, and some trace metals are probably attributable to the presence of significant amounts of igneous rock in the glacially deposited overburden sediments, although there does appear to be a trend towards downgradient enrichment of these metals in the groundwater samples. Barium, beryllium, cobalt, copper, lead, and zinc detected in upgradient groundwater samples tends to support the conclusion of their derivation from local geologic materials. This may be verified with the analysis of local soil and rock samples (not within the scope of this project). Arsenic, nickel, silver, and vanadium were detected only in the downgradient groundwater and/or leachate samples, and their presence in the Mud Pond sediment sample is most likely attributable to the leaching of Queensbury Landfill municipal waste materials. Chromium was also detected in the sediment sample but was not detected in any other samples taken during this investigation.

The Finch-Pruyn Landfill may also impact the Mud Pond water and sediment. Determining the respective influence of the two landfills on Mud Pond would require a more detailed study.

4.5.4 Leachate Contamination Assessment

Two leachate samples, L-1 and L-2, were collected from drainage channels near the base of the sloped landfill face which leads down to the Mud Pond wetland area. They were analyzed for TCL parameters. Substances detected and their concentrations are summarized in Table 4-11.

Leachate sample L-1 was the only site sample to contain BTEX compounds (benzene, toluene, ethylbenzene, xylenes) and chlorobenzene. The concentrations of these compounds in sample L-1 were: benzene, 6 ppb; toluene, 5 ppb; ethylbenzene, 26 ppb; total xylenes, 56 ppb; and chlorobenzene, 20 ppb. Leachate sample L-2 contained methylene chloride at a concentration of 9 ppb and benzoic acid at a concentration of 36 ppb. The methylene chloride was also detected in the associated method blank and is most likely the results of laboratory contamination.

Seventeen of the twenty-three metals were detected in the leachate samples. Barium, magnesium, iron, potassium, and sodium concentrations were two to ten times greater than those observed in the downgradient groundwater samples. These elevated metals concentrations may have resulted from the leaching of landfill wastes or may be the manifestation of a topographic enrichment phenomenon observed in soils. On hilltops, more mobile cations such as magnesium, calcium, sodium, and divalent iron can be leached downslope by surface water and percolating groundwater,

TABLE 4-11
QUEENSBURY LANDFILL
SUMMARY OF LEACHATE SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		L-1	L-2
SAMPLE TYPE		LEACHATE	LEACHATE
SAMPLE QUALIFIER			
COLLECTION DATE		11/28/90	11/29/90
PARAMETER	TYPE		
CHLOROMETHANE	voc		
BROMOMETHANE	voc		
VINYL CHLORIDE	voc		
CHLOROETHANE	voc		
METHYLENE CHLORIDE	voc		9 B
ACETONE	voc		
CARBON DISULFIDE	voc		
1,1-DICHLOROETHENE	voc		
1,1-DICHLOROETHANE	voc		
1,2-DICHLOROETHENE (TOTAL)	voc		
CHLOROFORM	voc		
1,2-DICHLOROETHANE	voc		
2-BUTANONE	voc		
1,1,1-TRICHLOROETHANE	voc		
CARBON TETRACHLORIDE	voc		
VINYL ACETATE	voc		
BROMODICHLOROMETHANE	voc		
1,2-DICHLOROPROPANE	voc		
CIS-1,3-DICHLOROPROPENE	voc		
TRICHLOROETHENE	voc		
DIBROMOCHLOROMETHANE	voc		
1,1,2-TRICHLOROETHANE	voc		
BENZENE	voc	6	
TRANS-1,3-DICHLOROPROPENE	voc		
BROMOFORM	voc		
4-METHYL-2-PENTANONE	voc		
2-HEXANONE	voc		
TETRACHLOROETHENE	voc		
1,1,2,2-TETRACHLOROETHANE	voc		
TOLUENE	voc	5	
CHLOROBENZENE	voc	20	
ETHYLBENZENE	voc	26	
STYRENE	voc		
TOTAL XYLENES	voc	56	

VOC - Volatile Organic Compounds
All results reported in μg/L (ppb).
Only detected results are reported.

DATA QUALIFIERS: B - Indicates compound was detected in associated method blank.

TABLE 4-11 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF LEACHATE SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		L-1	L-2
SAMPLE TYPE		LEACHATE	LEACHATE
SAMPLE QUALIFIER			
COLLECTION DATE		11/28/90	11/29/90
PARAMETER	TYPE		
PHENOL	SEMI		
BIS(2-CHLOROETHYL) ETHER	SEMI		
2-CHLOROPHENOL	SEMI		
1,3-DICHLOROBENZENE	SEMI		
1,4-DICHLOROBENZENE	SEMI		
BENZYL ALCOHOL	SEMI		
1,2-DICHLOROBENZENE	SEMI		
2-METHYLPHENOL	SEMI		
BIS(2-CHLOROISOPROPYL) ETHER	SEMI		
4-METHYLPHENOL	SEMI		
N-NITROSODI-N-PROPYLAMINE	SEMI		
HEXACHLOROETHANE	SEMI		
NITROBENZENE	SEMI		
ISOPHORONE	SEMI		
2-NITROPHENOL	SEMI		
2,4-DIMETHYLPHENOL	SEMI		
BENZOIC ACID	SEMI		36 JX
BIS(2-CHLOROETHOXY)METHANE	SEMI		
2,4-DICHLOROPHENOL	SEMI		
1,2,4-TRICHLOROBENZENE	SEMI		
NAPHTHALENE	SEMI		
4-CHLOROANILINE	SEMI		
HEXACHLOROBUTADIENE	SEMI		
4-CHLORO-3-METHYLPHENOL	SEMI		
2-METHYLNAPHTHALENE	SEMI		
HEXACHLOROCYCLOPENTADIENE	SEMI		
2,4,6-TRICHLOROPHENOL	SEMI		
2,4,5-TRICHLOROPHENOL	SEMI		
2-CHLORONAPHTHALENE	SEMI		
2-NITROANILINE	SEMI		
DIMETHYLPHTHALATE	SEMI		
ACENAPHTHYLENE	SEMI		
2,6-DINITROTOLUENE	SEMI		
3-NITROANILINE	SEMI		

SEMI - Semivolatiles

All results reported in µg/L (ppb).

Only detected results are reported.

DATA QUALIFIERS: J - Value < quantitation limit but > zero.

X - Mass spectrum does not meet EPA CLP criteria but presence is strongly suspected.

TABLE 4-11 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF LEACHATE SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		L-1	L-2
SAMPLE TYPE		LEACHATE	LEACHATE
SAMPLE QUALIFIER			
COLLECTION DATE		11/28/90	11/29/90
PARAMETER	TYPE		
ACENAPHTHENE	SEMI		
2,4-DINITROPHENOL	SEMI		
4-NITROPHENOL	SEMI		
DIBENZOFURAN	SEMI		
2,4-DINITROTOLUENE	SEMI		
DIETHYLPHTHALATE	SEMI		
4-CHLOROPHENYL-PHENYL ETHER	SEMI		
FLUORENE	SEMI		
4-NITROANILINE	SEMI		
4,6-DINITRO-2-METHYLPHENOL	SEMI		
N-NITROSODIPHENYLAMINE	SEMI		
4-BROMOPHENYL-PHENYL ETHER	SEMI		
HEXACHLOROBENZENE	SEMI		
PENTACHLOROPHENOL	SEMI		
PHENANTHRENE	SEMI		
ANTHRACENE	SEMI		
DI-N-BUTYLPHTHALATE	SEMI		
FLUORANTHENE	SEMI		
PYRENE	SEMI		
BUTYLBENZYLPHTHALATE	SEMI		
3,3'-DICHLOROBENZIDINE	SEMI		
BENZO(A)ANTHRACENE	SEMI		
CHRYSENE	SEMI		
BIS(2-ETHYLHEXYL)PHTHALATE	SEMI		
DI-N-OCTYL PHTHALATE	SEMI		
BENZO(B)FLUORANTHENE	SEMI		
BENZO(K)FLUORANTHENE	SEMI		
BENZO(A)PYRENE	SEMI		
INDENO(1,2,3-CD)PYRENE	SEMI		
DIBENZO(A,H)ANTHRACENE	SEMI		
BENZO(G,H,I)PERYLENE	SEMI		

SEMI - Semivolatiles

All results reported in µg/L (ppb).

Only detected results are reported.

TABLE 4-11 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF LEACHATE SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		L-1	L-2
SAMPLE TYPE		LEACHATE	LEACHATE
SAMPLE QUALIFIER			
COLLECTION DATE		11/28/90	11/29/90
PARAMETER	TYPE		
ALPHA-BHC	PST		
BETA-BHC	PST		
DELTA-BHC	PST		
GAMMA-BHC (LINDANE)	PST		
HEPTACHLOR	PST		
ALDRIN	PST		
HEPTACHLOR EPOXIDE	PST		
ENDOSULFAN I	PST		
DIELDRIN	PST		
4,4'-DDE	PST		
ENDRIN	PST		
ENDOSULFAN II	PST		
4,4'-DDD	PST		
ENDOSULFAN SULFATE	PST		
4,4'-DDT	PST		
METHOXYCHLOR	PST		
ENDRIN KETONE	PST		
ALPHA-CHLORDANE	PST		
GAMMA-CHLORDANE	PST		
TOXAPHENE	PST		
AROCLOR-1016	PCB		
AROCLOR-1221	PCB		
AROCLOR-1232	PCB		
AROCLOR-1242	PCB		
AROCLOR-1248	PCB		
AROCLOR-1254	PCB		
AROCLOR-1260	PCB		

PST - Pesticides

PCB - Polychlorinated Biphenyls

All results reported in μg/L (ppb).

Only detected results are reported.

TABLE 4-11 (cont.)
QUEENSBURY LANDFILL
SUMMARY OF LEACHATE SAMPLING ANALYTICAL RESULTS

SAMPLE-ID		L-1	L-2
SAMPLE TYPE		LEACHATE	LEACHATE
SAMPLE QUALIFIER			
COLLECTION DATE		11/28/90	11/29/90
PARAMETER	TYPE		
ALUMINUM	MCP	885	6620
ANTIMONY	MCP		
ARSENIC	MCP	11.9	3.7 B
BARIUM	MCP	2030	601
BERYLLIUM	MCP	4.6 B	2.4 B
CADMIUM	MCP		
CALCIUM	MCP	203,000	321,000
CHROMIUM	MCP		
COBALT	MCP	18.2 B	27.3
COPPER	MCP	4.3 B	28.1
IRON	MCP	206,000	58,700
LEAD	MCP	14.1	17.4
MAGNESIUM	MCP	60,100	114,000
MANGANESE	MCP	918	1220
MERCURY	MCP		
NICKEL	MCP	32.6 B	55.7
POTASSIUM	MCP	108,000	198,000
SELENIUM	MCP		
SILVER	MCP	28.4	6.5 B
SODIUM	MCP	269,000	440,000
THALLIUM	MCP		
VANADIUM	MCP	13.1 B	22.6 B
ZINC	MCP	68.7	96.1
CYANIDE	MCP		

MCP - Metals, Cyanide, Phenol

All results reported in μg/L (ppb).

Only detected results are reported.

DATA QUALIFIER: B - Result < quantitation limit but > zero.

resulting in an enrichment of these mobile cations in downslope soils relative to upslope soils (Ref. 8). Both leachate samples were taken at the base of the landfill sloping face and thus this downslope enrichment phenomenon may account for the increased concentration of some metals in the leachate samples relative to the downgradient groundwater samples. For the most part, the metals concentrations in the leachate samples were comparable to downgradient groundwater values.

In relation to upgradient groundwater samples, the leachate samples had higher concentrations of aluminum, barium, calcium, cobalt, copper, iron, lead, magnesium, manganese, potassium, sodium, and zinc. In addition, arsenic, nickel, silver and vanadium were detected in the leachate samples but not in any of the upgradient groundwater samples. This again would indicate that the Queensbury Landfill is contributing volatile (BTEX and chlorobenzene) and semivolatile (benzoic acid) organic compounds and metals to waters that leach through the fill. It should be noted that the contaminants present in the leachate samples are typical of those observed in leachates from municipal waste landfills, and their concentrations fall in the low end of the ranges reported by USEPA for constituent concentrations in leachate from municipal waste landfills (Ref. 27).

With the exception of chromium, exactly the same metals were detected in both the leachate and sediment samples. There is documented evidence that leachate has overflowed the containment berm in the area of Mud Pond (Ref. 2). Transport of leachate and leachate contaminated soil downslope to Mud Pond may be a plausible mechanism for explaining the metals concentrations observed in the Mud Pond sediment sample. Surface soil sampling in the area between the leachate containment berm and Mud Pond would provide data to substantiate this hypothesis.

Additional Leachate Sampling

On January 16, 1991, NYSDEC collected a leachate sample from the leachate holding pond (intermittent leachate pond in Figure 1-2). The sample was analyzed for metals and other miscellaneous parameters and the results are presented in Table 4-12. Phenolic (20 ppb) and metallic contaminants were present in the leachate sample. The concentrations of metals in the sample were lower than those observed in the URS leachate samples. This may be due to the dilution of the leachate by snow meltwaters. The phenols may be attributable to the leaching of the Finch-Pruyn paper mill sludge/soil experimental liner material.

4.6 Air Quality Assessment

No organic contaminants above background levels (0 to 0.3 ppm) were recorded during the site reconnaissance, drilling, or sampling programs.

4.7 Conclusions

Based upon the Phase II field investigation results and upon all other sources of information used to compile this report, the following conclusions may be drawn:

- Surficial sediments at this site consist of a thick sequence of highly permeable (10^{-5} to 10^{-2} cm/sec.) glacial kame terrace deposits. These unconsolidated deposits overlie undifferentiated limestone/dolostone bedrock. Contaminants introduced to the groundwater could be rapidly transported through the sand and gravel water table aquifer.

- Groundwater flow appears to be in a south to southeasterly direction with Mud Pond being the principal groundwater discharge area for the site.

TABLE 4–12
QUEENSBURY LANDFILL
NYSDEC LEACHATE SAMPLING

SAMPLE-ID		REPORTING UNITS	Leachate Holding Pond
SAMPLE TYPE			LEACHATE
SAMPLE NUMBER			911005005
COLLECTION DATE			1/16/91
PARAMETER	TYPE		
ALKALINITY to pH 4.5	MISC	ppm	1530
BORON	MISC	ppm	1.5
B.O.D., 5 day	MISC	ppm	24
C.O.D.	MISC	ppm	260
CARBON, total organic (TOC)	MISC	ppm	70
CHLORIDE	MISC	ppm	291
CHROMIUM, hexavalent	MISC	ppb	<5.0
CYANIDES, hydrolyzable	MISC	ppm	0.004
HARDNESS, total as CaCO3	MISC	ppm	762
NITROGEN, ammonia, as N	MISC	ppm	97
NITROGEN, Kjeldahl, as N	MISC	ppm	106
NITROGEN, nitrate (+NO2), as N	MISC	ppm	0.06
PHENOLS	MISC	ppb	20.0
SOLIDS, total dissolved (TDS)	MISC	ppm	1730
SULFATE as SO4	MISC	ppm	2.3
SULFIDE	MISC	ppm	1.4
TURBIDITY	MISC	——	opaque
ALUMINUM	MCP	ppb	309
ANTIMONY	MCP	ppb	<80
ARSENIC	MCP	ppb	<10
BARIUM	MCP	ppb	298
BERYLLIUM	MCP	ppb	<1
CADMIUM	MCP	ppb	<5
CALCIUM	MCP	ppm	194
CHROMIUM	MCP	ppb	11
COBALT	MCP	ppb	11
COPPER	MCP	ppb	6
IRON	MCP	ppb	45,700
LEAD	MCP	ppb	<10
MAGNESIUM	MCP	ppm	67.0
MANGANESE	MCP	ppb	654
MERCURY	MCP	ppb	0.3
MOLYBDENUM	MCP	ppb	<20
NICKEL	MCP	ppb	29
POTASSIUM	MCP	ppm	92.0
SELENIUM	MCP	ppb	<5
SILVER	MCP	ppb	<10
SODIUM	MCP	ppm	230.0
STRONTIUM	MCP	ppb	1440
TIN	MCP	ppb	<50
TITANIUM	MCP	ppb	24
THALLIUM	MCP	ppb	<80
VANADIUM	MCP	ppb	<5
ZINC	MCP	ppb	18

MISC – Miscellaneous parameters

MCP – Metals, Cyanide, Phenol

Results reported in mg/L (ppm) or µg/L (ppb).

Analyses were performed at the NYSDOH Wadsworth Center for Laboratories and Research.

- Surface water drainage appears to separate along an east to west trending drainage divide that bisects the mapped limits of fill. Surface water drainage north of the drainage divide flows into the onsite Torrington Construction sand and gravel pit. Surface water drainage south of the drainage divide flows downslope and eventually discharges into the Mud Pond wetland area. Minor amounts of surface water may also accumulate in localized depressions caused by sand and gravel mining operations.

- The landfill appears to be contributing low ppb levels of volatile organics (1,1,1-trichloroethane, chloroform, and 1,1-dichloroethane) and metals (aluminum, arsenic, iron, magnesium, manganese, nickel, potassium, silver, sodium, and vanadium) to the groundwater.

- The site has a history of leachate problems. Leachate seeps and evidence of leachate overflowing the containment berm were observed by NYSDEC personnel in 1984 and again during the 1990 URS Phase II investigation. Leachate sampled in 1984 contained chlorinated and non-chlorinated phenolic compounds. Leachate sampled during the Phase II investigation contained BTEX compounds, chlorobenzene, and benzoic acid. The leachate also contained metals (arsenic, nickel, silver, and vanadium) which were not observed in upgradient groundwater samples. Leachate sampled by NYSDEC in January 1991 contained phenols and metallic contaminants. In view of the high permeability of site soils, landfill leachate appears to pose a contamination risk to groundwater and to Mud Pond surface water.

- Water sampled from Mud Pond contained concentrations of beryllium, iron, and manganese in excess of NYS

Standard/Guidance Values for Class A waters. Due to the close proximity of two other landfills, which are also upgradient of Mud Pond, these contaminants may not be solely attributable to Queensbury Landfill, but groundwater and leachate data support the conclusion that Queensbury Landfill may have a minor impact on the water quality of Mud Pond.

- Sediment samples from Mud Pond contained four (4) metals (arsenic, nickel, silver, and vanadium) which were not detected in upgradient groundwater samples but were detected in downgradient groundwater and leachate samples. This supports the conclusions that the landfill is impacting the quality of Mud Pond through the contribution of metallic contaminants. With the exception of chromium, exactly the same metals were detected in the leachate and sediment samples. Since there is documented evidence that leachate has seeped over the containment berm near Mud Pond, transport of leachate and leachate-contaminated soil downslope to Mud Pond could explain the similarity in metals present in the leachate and sediment samples.

- The contaminants present in the leachate samples are typical of those observed in leachates from municipal waste landfills and their concentrations are in the low end of the ranges reported by USEPA for constituent concentrations in leachate from municipal waste landfills.

- Contrary to information contained in previous reports, a clay liner was not used under any portion of the site. In early 1979, a 4- to 6-acre area near Mud Pond was lined with a Finch-Pruyn paper sludge/soil mixture. The use of this experimental liner material was discontinued in the fall of 1979 when the liner proved to be ineffective. This area continued to receive municipal wastes until it became inactive in 1990 and to date has not been properly capped or closed. The experimental paper sludge soil "liner" may be a source of heavy metal and phenolic contaminants.

- No PCBs were detected in any site samples.

- Although there have been allegations of hazardous waste disposal at the Queensbury Landfill (PCB capacitors, paint sludge), no documentation was uncovered during this investigation which supports these claims. Contaminants observed in site samples seem to be consistent with those observed in samples from other municipal waste landfills. Since there is no evidence to indicate that disposal of hazardous wastes as defined by 6 NYCRR Part 371 has occurred at the Queensbury Landfill site, there is no significant threat to the public or environment relative to hazardous waste disposal.

4.8 Recommendations

Based on the conclusions of this Phase II Investigation, the following additional measures are recommended:

- The information presented in this Phase II report supports the delisting of this site. No evidence or documentation of hazardous waste disposal according to 6 NYCRR Part 371 was discovered and therefore there is no significant threat to the public health or environment relative to hazardous waste disposal. Granted, the report clearly demonstrates that there are numerous impacts on the environment relative to the current conditions at the landfill, but these impacts are not related to any disposal of hazardous wastes at the site.

Therefore, this site should be delisted and referred to NYSDEC Division of Solid Waste - Bureau of Facility Management for proper closure under the appropriate NYSDEC regulations.

5. FINAL APPLICATION OF HAZARD RANKING SYSTEM

The Queensbury Landfill is located on Ridge Road (NYS Route 9L) in the Town of Queensbury, Warren County, New York. Approximately 50 acres of the site, which opened in the late 1940s, have received fill in the form of municipal wastes from the Town of Queensbury. It has been alleged that the site also received hazardous wastes in the form of paint sludge and PCB capacitors (although no PCBs were detected in any media sampled on site).

In 1979, a 4- to 6-acre bowl-shaped area of the landfill was lined with an experimental mixture of paper sludge and soil. Municipal waste was disposed of in that area. The liner material proved to be ineffective and its use was discontinued in the fall of 1979, but the area continued to receive municipal waste until it became inactive in 1990. The liner material may be a source of heavy metal and phenolic contaminants

Currently the site is used for disposal of municipal waste, a recycling program, and a sand and gravel operation. Wood and lumber wastes are periodically burned in open fires on site.

Analytical data from groundwater samples, leachate samples, and one surface water/sediment sample indicate the following:

- Groundwater contains 1,1-dichloroethane, 1,1,1-trichloroethane, beryllium, iron, magnesium, manganese, and sodium in excess of NYS Standard Values for Class GA water downgradient of the site. This contamination is observed as a direct release based on comparisons with upgradient water samples.

- Surface water from Mud Pond contains methylene chloride, beryllium, iron, and manganese in excess of NYS Standard Values for Class A waters.

- Leachate, for which there are no standards, contains benzene, toluene, chlorobenzene, ethylbenzene, and xylenes.

About 30 homes within 2,000 feet of the site utilize groundwater as a source of potable water. Groundwater discharge and portions of the surface water drainage from the site are into Mud Pond.

FACILITY NAME: Queensbury Landfill

LOCATION: Queensbury, New York

EPA REGION: II

PERSON(S) IN CHARGE OF THE FACILITY: Jim Coughlin, Landfill Superintendent
Queensbury Landfill
Queensbury, New York

NAME OF REVIEWER: URS Consultants, Inc. DATE: 3/18/91

GENERAL DESCRIPTION OF THE FACILTY:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action;etc.)

The Queensbury Landfill is located in the Town of Queensbury, Warren County, New York. Conservative estimates are that approximately 50 acres of the property have received some amount of fill. The waste disposed of at the landfill consists primarily of municipal refuse. It is alleged that the site also received hazardous waste in the form of paint sludge and PCB capacitors. Mud Pond, estimated to be 12 acres in size, is a freshwater wetland and groundwater discharge area located approximately 200 feet from the site. Approximately 30 homes using private residential wells for potable water are within 2,000 feet of the site.

SCORES: Sm= 23.01 (Sgw = 39.80 Ssw = 0.73 Sa = 0.00)

Sfe = 0.00

Sdc = 25.00

HRS COVER SHEET

GROUND WATER ROUTE WORK SHEET

RATING FACTOR	ASSIGNED VALUE	MULTI-PLIER	SCORE	MAX. SCORE	REF. (SECTION)
1 OBSERVED RELEASE	0 45 [45]	1	45	45	3.1
IF OBSERVED RELEASE IS GIVEN A SCORE OF 45, PROCEED TO LINE 4 IF OBSERVED RELEASE IS GIVEN A SCORE OF 0, PROCEED TO LINE 2					
2 ROUTE CHARACTERISTICS					3.2
DEPTH TO AQUIFER OF CONCERN	0 1 2 3 ☐	2	0	6	
NET PRECIPITATION	0 1 2 3 ☐	1		3	
PERMEABILITY OF THE UNSATURATED ZONE	0 1 2 3 ☐	1		3	
PHYSICAL STATE	0 1 2 3 ☐	1		3	
TOTAL ROUTE CHARACTERISTICS SCORE			0	15	
3 CONTAINMENT	0 1 2 3 ☐	1		3	3.3
4 WASTE CHARACTERISTICS					
TOXICITY/PERSISTANCE	0 3 6 9 12 15 18 [12]	1	12	18	3.4
HAZARDOUS WASTE QUANTITY	0 1 2 3 4 5 6 7 8 [1]	1	1	8	
TOTAL WASTE CHARACTERISTICS SCORE			13	26	
5 TARGETS					
GROUND WATER USE	0 1 2 3 [3]	3	9	9	
DISTANCE TO NEAREST WELL /POPULATION SERVED	0 4 6 8 10 12 16 18 24 30 32 35 40 [30]	1	30	40	
TOTAL TARGETS SCORE			39	49	
6 IF LINE 1 IS 45, MULTIPLY 1 X 4 X 5			22815	57,330	
IF LINE 1 IS 0, MULTIPLY 2 X 3 X 4 X 5			0		
7 DIVIDE LINE 6 BY 57,330 AND MULTIPLY BY 100 Sgw =			39.80		

GROUND WATER ROUTE WORK SHEET

SURFACE WATER ROUTE WORK SHEET

RATING FACTOR	ASSIGNED VALUE	MULTIPLIER	SCORE	MAX. SCORE	REF. (SECTION)
1 OBSERVED RELEASE	0 45 $\boxed{0}$	1	0	45	4.1
IF OBSERVED RELEASE IS GIVEN A SCORE OF 45, PROCEED TO LINE 4 IF OBSERVED RELEASE IS GIVEN A SCORE OF 0, PROCEED TO LINE 2					
2 ROUTE CHARACTERISTICS					4.2
FACILITIES SLOPE AND INTERVENING TERRAIN	0 1 2 3 $\boxed{2}$	1	2	3	
1-yr 24 HOUR RAINFALL	0 1 2 3 $\boxed{2}$	1	2	3	
DISTANCE TO NEAREST SURFACE WATER	0 1 2 3 $\boxed{3}$	2	6	6	
PHYSICAL STATE	0 1 2 3 $\boxed{3}$	1	3	3	
TOTAL ROUTE CHARACTERISTICS SCORE			13	15	
3 CONTAINMENT	0 1 2 3 $\boxed{3}$	1	3	3	4.3
4 WASTE CHARACTERISTICS					
TOXICITY/PERSISTANCE	0 3 6 9 12 15 $\boxed{0}$	1	0	18	4.4
HAZARDOUS WASTE QUANTITY	1 2 3 4 5 6 7 8 $\boxed{1}$	1	1	8	
TOTAL WASTE CHARACTERISTICS SCORE			1	26	
5 TARGETS					4.5
SURFACE WATER USE	0 1 2 3 $\boxed{2}$	3	6	9	
DISTANCE TO A SENSITIVE ENVIRONMENT	0 1 2 3 $\boxed{3}$	2	6	6	
POPULATION SERVED/DIST TO WATER INTAKE DOWNSTREAM	0 4 6 8 10 12 16 18 20 24 30 32 35 40 $\boxed{0}$	1	0		
TOTAL TARGETS SCORE			12	55	
6 IF LINE 1 IS 45, MULTIPLY 1 X 4 X 5			0		
IF LINE 1 IS 0, MULTIPLY 2 X 3 X 4 X 5			468	64,350	
7 DIVIDE LINE 6 BY 64,350 AND MULTIPLY BY 100					
Ssw =			0.73		

SURFACE WATER ROUTE WORK SHEET

AIR ROUTE WORK SHEET

RATING FACTOR	ASSIGNED VALUE	MULTI-PLIER	SCORE	MAX. SCORE	REF. (SECTION)
1 OBSERVED RELEASE	0 45 $\boxed{0}$	1	0	45	5.1
DATE AND LOCATION:	June 12, 1990, Queensbury, New York				
SAMPLING PROTOCOL:	HNμ (PID)				
IF LINE 1 IS 0, THE Sa =0. ENTER ON LINE 5 IF LINE 1 IS 45, THEN PROCEED TO; LINE 2.					
2 WASTE CHARACTERISTICS					5.2
REACTIVITY AND INCOMPATIBILITY	0 1 2 3 $\boxed{0}$	1	0	3	
TOXICITY	0 1 2 3 $\boxed{0}$	3	0	9	
HAZARDOUS WASTE QUANTITY	3 4 5 6 7 8 $\boxed{0}$	1	0	8	
TOTAL WASTE CHARACTERISTICS SCORE			0	20	
3 TARGETS					5.3
POPULATION WITHIN 4 MILE RADIUS	O 9 12 21 24 27 $\boxed{0}$	1	0	30	
DISTANCE TO SENSITIVE ENVIRONMENT	0 1 2 3 $\boxed{0}$	2	0	6	
LAND USE	0 1 2 3 $\boxed{0}$	1	0	3	
TOTAL TARGETS SCORE			0	39	
4 MULTIPLY 1 X 2 X 3			0	35,100	
5 DIVIDE LINE 4 BY 35,100 AND MULTIPLY BY 100 Sa=			0.00		

	S	S^2
GROUNDWATER ROUTE SCORE (Sgw)	39.80	1583.72
SURFACE WATER ROUTE SCORE (Ssw)	0.73	0.53
AIR ROUTE SCORE (Sa)	0.00	0.00
$S^2gw + S^2sw + S^2a$	▨	1584.24
square root of($S^2gw + S^2sw + S^2a$)	▨	39.80
square root of ($S^2gw + S^2sw + S^2a$)/1.73 = Sm	▨	23.01

WORKSHEET FOR COMPUTING Sm

FIRE AND EXPLOSION WORK SHEET

RATING FACTOR	ASSIGNED VALUE		MULTI-PLIER	SCORE	MAX. SCORE	REF. (SECTION)
1 CONTAINMENT	1 3	0	1	0	3	7.1
2 WASTE CHARACTERISTICS						
DIRECT EVIDENCE	0 3	0	1	0	3	7.2
IGNITABILITY	0 1 2 3	0	1	0	3	
REACTIVITY	0 1 2 3	0	1	0	3	
INCOMPATIBILITY	0 1 2 3	0	1	0	3	
HAZARDOUS WASTE					3	
QUANTITY	1 2 3 4 5 6 7 8	0	1	0	8	
TOTAL WASTE CHARACTERISTICS SCORE				0	20	
3 TARGETS						7.3
DISTANCE TO NEAREST POPULATION	0 1 2 3 4 5	0	1	0		
DISTANCE TO NEAREST BUILDING	0 1 2 3	0	1	0		
DISTANCE TO A SENSITIVE ENVIRONMENT	0 1 2 3	0	1	0	6	
LAND USE	0 1 2 3	0	1	0		
POPULATION WITHIN 2 MILE RADIUS	0 1 2 3 4 5	0	1	0		
BUILDINGS WITHIN 2 MILE RADIUS	0 1 2 3 4 5	0	1	0		
TOTAL TARGETS SCORE				0	24	
4 MULTIPLY 1 X 2 3				0	1,440	
5 DIVIDE LINE 4 BY 1,440 AND MULTIPLY BY 100 Sfe =				0.00		

FIRE AND EXPLOSION WORK SHEET

DIRECT CONTACT WORK SHEET					
RATING FACTOR	ASSIGNED VALUE	MULTIPLIER	SCORE	MAX. SCORE	REF. (SECTION)
1 OBSERVED RELEASE	0 45 $\boxed{0}$	1	0	45	8.1
IF LINE 1 IS 45, PROCEED TO LINE 2 IF LINE 1 IS 0, PROCEED TO LINE 2					
2 ACCESSIBILITY	0 1 2 3 $\boxed{3}$	1	3	3	8.2
3 CONTAINMENT	0 15 $\boxed{15}$	1	15	15	8.3
4 WASTE CHARACTERISTICS TOXICITY	0 1 2 3 $\boxed{3}$	5	15	15	8.4
5 TARGETS					8.5
POPULATION WITHIN 1 MILE RADIUS	0 1 2 3 4 5 $\boxed{2}$	4	8	20	
DISTANCE TO A CRITICAL HABITAT	0 1 2 3 $\boxed{0}$	4	0	12	
	TOTAL TARGETS SCORE		8	32	
6 IF LINE 1 IS 45, MULTIPLY 1 X 4 X 5 IF LINE 1 IS 0, MULTIPLY 2 X 3 X 4 X 5			0 5400	21,600	
7 DIVIDE LINE 6 BY 21,600 AND MULTIPLY BY 100			Sdc =	25.00	

DIRECT CONTACT WORK SHEET

GROUNDWATER ROUTE

1 OBSERVED RELEASE

o CONTAMINANTS DETECTED (5 MAXIMUM):

1,1,1-Trichloroethane

o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE FACILITY:

1990 Phase II sampling by URS Consultants (Ref. 7) indicated a concentration of 15 ppb in downgradient monitoring well MW-3 while no TCE was detected in upgradient monitoring well MW-5.

SCORE 45

***

2. ROUTE CHARACTERISTICS

DEPTH TO AQUIFER OF CONCERN

o NAME/DESCRIPTION OF AQUIFER(S) OF CONCERN:

Glacial overburden aquifer

o DEPTH(S) FROM THE GROUND SURFACE TO THE HIGHEST SEASONAL LEVEL OF THE SATURATED ZONE [WATER TABLE(S)] OF THE AQUIFER OF CONCERN:

30 feet

o DEPTH FROM THE GROUND SURFACE TO THE LOWEST POINT OF WASTE DISPOSAL/STORAGE:

Unknown, assumed to be on the surface

SCORE 2

***

NET PRECIPITATION

- o MEAN ANNUAL OR SEASONAL PRECIPITATION(LIST MONTHS FOR SEASONAL):

  42 inches (Ref. 5)

- o MEAN ANNUAL OR SEASONAL EVAPORATION (LIST MONTHS FOR SEASONAL):

  26 inches (Ref. 5)

- o NET PRECIPITATION (SUBTRACT THE ABOVE FIGURES):

  16 inches

SCORE 3

PERMEABILITY OF UNSATURATED ZONE

- o SOIL TYPE IN UNSATURATED ZONE:

  Loamy sands, sands and gravels

- o PERMEABILITY ASSOCIATED WITH SOIL TYPE:

  10^{-5} to 10^{-3} cm/sec (Ref. 5)

SCORE 2

PHYSICAL STATE

- o PHYSICAL STATE OF SUBSTANCES AT TIME OF DISPOSAL (OR AT PRESENT TIME FOR GENERATED GASES):

  Solid, sludge

SCORE 3

***

3. CONTAINMENT

CONTAINMENT

- o METHOD(S) OF WASTE OF LEACHATE CONTAINMENT EVALUATED:

  A leachate collection system is in place adjacent to Mud Pond. There is an inadequate liner.

- o METHOD WITH THE HIGHEST SCORE:

  No liner

SCORE 3

***

4. WASTE CHARACTERISTICS

TOXICITY AND PERSISTENCE

- o COMPOUND(S) EVALUATED:

Compound Evaluated	Toxicity	Persistence	Score
1,1,1-trichloroethane	2	2	12

- o COMPOUND WITH THE HIGHEST SCORE:

  1,1,1-trichloroethane

SCORE 12

HAZARDOUS WASTE QUANTITY

- o TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY, EXCLUDING THOSE WITH A CONTAINMENT SCORE OF 0(GIVE A REASONABLE ESTIMATE EVEN IF QUANTITY IS ABOVE MAXIMUM):

  Unknown

SCORE 1

- o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

  Minimum Quantity of waste is scored a 1

***

5. TARGETS

GROUNDWATER USE

- o USE(S) OF AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS OF THE FACILITY:

  Drinking water

SCORE 3

DISTANCE OF NEAREST WELL

- o LOCATION OF NEAREST WELL DRAWING FROM AQUIFER OF CONCERN OR OCCUPIED BUILDING NOT SERVED BY A PUBLIC WATER SUPPLY:

  Private wells are located in the vicinity of the landfill. Many of these are located downgradient of the landfill.

- o DISTANCE TO ABOVE WELL OR BUILDING:

  < 1,000 ft

POPULATION SERVED BY GROUNDWATER WELL WITHIN A 3-MILE RADIUS

- o IDENTIFIED WATER-SUPPLY WELL(S) DRAWING FROM AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS AND POPULATIONS SERVED BY EACH:

  Approximately 435 homes (Ref. 2)

- o COMPUTATION OF LAND AREA IRRIGATED BY SUPPLY WELL(S) DRAWING FROM AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS, AND CONVERSION TO POPULATION(1.5 PEOPLE PER ACRE):

  None

- o TOTAL POPULATION SERVED BY GROUNDWATER WITHIN A 3-MILE RADIUS:

  1,653

SCORE 30

SURFACE WATER ROUTE

1. OBSERVED RELEASE

- o CONTAMINANTS DETECTED IN SURFACE WATER AT THE FACILITY OR DOWNHILL FROM IT (5 MAXIMUM):

  None detected

- o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE FACILITY:

  1990 Phase II analytical sampling results

SCORE 0

***

2. ROUTE CHARACTERISTICS

FACILITY SLOPE AND INTERVENING TERRAIN

- o AVERAGE SLOPE OF THE FACILITY IN PERCENT:

  23% (Ref. 6)

- o NAME/DESCRIPTION OF THE NEAREST DOWNSLOPE SURFACE WATER:

  Mud Pond

- o AVERAGE SLOPE OF TERRAIN BETWEEN FACILITY AND ABOVE-CITED SURFACE WATER IN PERCENT:

  3 to 5% (Ref. 6)

- o IS THE FACILITY LOCATED EITHER TOTALLY OR PARTIALLY IN SURFACE WATER?:

  No

SCORE 2

- o IS THE FACILITY COMPLETELY SURROUNDED BY AREAS OF HIGHER ELEVATION?

  No

1-YEAR 24 HOUR RAINFALL IN INCHES

2.3 inches (Ref. 5)

SCORE 2

DISTANCE TO NEAREST DOWNSLOPE SURFACE WATER

200 feet

SCORE 3

PHYSICAL STATE OF WASTE

Solid, sludge (Ref. 2)

SCORE 3

***

3. CONTAINMENT

CONTAINMENT

- o METHOD(S) OF WASTE OR LEACHATE CONTAINMENT EVALUATED:

  Facility is unlined

- o METHOD WITH THE HIGHEST SCORE:

SCORE 3

***

4. WASTE CHARACTERISTICS

TOXICITY AND PERSISTENCE

- COMPOUND(S) EVALUATED

  None

- COMPOUND WITH THE HIGHEST SCORE:

  NA

SCORE 0

HAZARDOUS WASTE QUANTITY

- TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY EXCLUDING THOSE WITH A CONTAINMENT SCORE OF 0 (GIVE A REASONABLE ESTIMATE EVEN IF QUANTITY IS ABOVE MAXIMUM):

  Unknown

SCORE 1

- BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

  A minimum quantity of waste is scored a 1

***

5. TARGETS

SURFACE WATER USE

- USE(S) OF SURFACE WATER WITHIN 3 MILES DOWNSTREAM OF THE HAZARDOUS SUBSTANCE:

  Recreation

Score 2

- o IS THERE TIDAL INFLUENCE?

  No

DISTANCE TO A SENSITIVE ENVIRONMENT

- o DISTANCE TO A 5-ACRE(MINIMUM) COASTAL WETLAND, IF 2 MILES OR LESS:

  NA

- o DISTANCE TO A 5 ACRE (MINIMUM) FRESH-WATER WETLAND, IF 1 MILE OR LESS:

  Adjacent Mud Pond borders a freshwater wetland

- o DISTANCE TO CRITICAL HABITAT OF AN ENDANGERED SPECIES OR NATIONAL WILDLIFE REFUGE, IF 1 MILE OR LESS:

  None reported

SCORE 3

POPULATION SERVED BY SURFACE WATER

- o LOCATION(S) OF WATER-SUPPLY INTAKE(S) WITHIN 3 MILES(FREE-FLOWING BODIES) OR 1 MILE (STATIC WATER BODIES) DOWNSTREAM OF THE HAZARDOUS SUBSTANCE AND POPULATION SERVED BY EACH INTAKE:

  None within 3 miles (Ref. 3)

- COMPUTATION OF LAND AREA IRRIGATED BY ABOVE-CITED INTAKE(S) AND CONVERSION TO POPULATION (1.5 PEOPLE PER ACRE):

  NA

- TOTAL POPULATION SERVED

  NA

- NAME/DESCRIPTION OF NEAREST ABOVE-CITED WATER BODIES:

  NA

- DISTANCE TO ABOVE-CITED INTAKES, MEASURED IN STREAM MILES:

  NA

SCORE 0

***

AIR ROUTE

1. OBSERVED RELEASE

- o CONTAMINANTS DETECTED:

  No observed air release during site activities

- o DATE AND LOCATION OF DETECTION OF CONTAMINANTS:

  Survey conducted - 6/14/90 - Queensbury, New York, air monitoring was also performed during drilling activities - 10/11/90 - 11/9/90

- o METHODS USED TO DETECT THE CONTAMINANTS:

  HNu (PID) - calibrated daily with a isobutylene standard

- o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE SITE:

  None detected

SCORE 0

***

2. WASTE CHARACTERISTICS

REACTIVITY AND INCOMPATIBILITY

- o MOST REACTIVE COMPOUND

  No observed air release

- o MOST INCOMPATIBLE PAIR OF COMPOUNDS

  No observed air release

SCORE 0

TOXICITY

o MOST TOXIC COMPOUND

No observed air release

SCORE 0

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS WASTE:

No observed air release

SCORE 0

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

NA

***

3 TARGETS

POPULATION WITHIN 4-MILE RADIUS

o UNDERLINE RADIUS USED, GIVE POPULATION AND INDICATE HOW DETERMINED:

0 TO 4 MI   0 TO 1 MI   0 TO 0.5 MI   0 TO 0.25 MI

No observed air release

SCORE 0

DISTANCE TO A SENSITIVE ENVIRONMENT

o DISTANCE TO 5 ACRE (MINIMUM) COASTAL WETLAND, IF 2 MILES OR LESS:

NA

- o DISTANCE TO 5 ACRE (MINIMUM) FRESH WATER WETLAND, IF 1 MILE OR LESS:

  No observed air release

- o DISTANCE TO CRITICAL HABITAT OF AN ENDANGERED SPECIES, IF 1 MILE OR LESS:

  None reported

SCORE 0

<u>LAND USE</u>

- o DISTANCE TO COMMERCIAL/INDUSTRIAL AREA , IF 1 MILE OR LESS:

  No observed air release

- o DISTANCE TO NATIONAL OR STATE PARK, FOREST, OR WILDLIFE RESERVE, IF 2 MILES OR LESS:

  No observed air release

- o DISTANCE TO RESIDENTIAL AREA, IF 2 MILES OR LESS:

  No observed air release

- o DISTANCE TO AGRICULTURAL LAND IN PRODUCTION WITHIN THE LAST 5 YEARS, IF 1 MILE OR LESS:

  No observed air release

- o DISTANCE TO PRIME AGRICULTURAL LAND IN PRODUCTION WITHIN PAST YEARS, IF 2 MILES OR LESS:

  No observed air release

- o IS A HISTORICAL OR LANDMARK SITE(NATIONAL REGISTER OR HISTORIC PLACES AND NATIONAL NATURAL LANDMARKS) WITHIN VIEW OF THE SITE?

  No observed air release

SCORE 0

***

FIRE AND EXPLOSION

1. CONTAINMENT

o HAZARDOUS SUBSTANCES PRESENT:

No threat of fire or explosion

o TYPE OF CONTAINMENT, IF APPLICABLE:

NA

SCORE 0

***

2. WASTE CHARACTERISTICS

DIRECT EVIDENCE

o TYPE OF INSTRUMENT AND MEASUREMENTS:

No threat of fire or explosion

SCORE 0

IGNITABILITY

o COMPOUND USED

No threat of fire or explosion

SCORE 0

REACTIVITY

o MOST REACTIVE COMPOUND:

No threat of fire or explosion

SCORE

INCOMPATIBILITY

o MOST INCOMPATIBLE PAIR OF COMPOUNDS:

No threat of fire or explosion

SCORE_0

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY:

No threat of fire or explosion

SCORE 0

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

NA

3 TARGETS

DISTANCE TO NEAREST POPULATION

No threat of fire or explosion

SCORE 0

DISTANCE TO NEAREST BUILDING

No threat of fire or explosion

SCORE 0

DISTANCE TO SENSITIVE ENVIRONMENT

o DISTANCE TO WETLANDS

No threat of fire or explosion

o DISTANCE TO CRITICAL HABITAT:

No threat of fire or explosion

SCORE 0

LAND USE

- o DISTANCE TO COMMERCIAL/INDUSTRIAL AREA

  No threat of fire or explosion

- o DISTANCE TO NATIONAL OR STATE PARK, FOREST OF WILDLIFE RESERVE, IF 2 MILES OR LESS:

  No threat of fire or explosion

- o DISTANCE TO RESIDENTIAL AREA, IF 2 MILES OR LESS:

  No threat of fire or explosion

- o DISTANCE TO AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 1 MILE OR LESS:

  No threat of fire or explosion

- o DISTANCE TO PRIME AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 2 MILES OR LESS:

  No threat of fire or explosion

- o IF A HISTORIC OR LANDMARK SITE (NATIONAL REGISTER OF HISTORIC PLACES AND NATIONAL NATURAL LANDMARKS) WITHIN VIEW OF THE SITE?

  No threat of fire or explosion

SCORE 0

POPULATION WITHIN 2 MILE RADIUS

No threat of fire or explosion

SCORE 0

BUILDINGS WITHIN A 2 MILE RADIUS

No threat of fire or explosion

SCORE 0

***

DIRECT CONTACT

1. OBSERVED INCIDENT

o DATE, LOCATION AND PERTINENT DETAILS OF INCIDENT:

None reported

SCORE 0

***

2. ACCESSIBILITY

o DESCRIBE TYPE OF BARRIER(S):

The site is not completely fenced

SCORE 3

***

3. CONTAINMENT

o TYPE OF CONTAINMENT, IF APPLICABLE:

There is no liner in place at this site

SCORE 15

***

4. WASTE CHARACTERISTICS

TOXICITY

o COMPOUNDS EVALUATED

Compounds Evaluated	Toxicity
Benzene	3
Ethylbenzene	2
Toluene	2

o COMPOUND WITH HIGHEST SCORE:

Benzene

SCORE 3

***

5 TARGETS

<u>POPULATION WITHIN 1 MILE RADIUS</u>

460 people (Ref. 2)

SCORE 2

<u>DISTANCE TO CRITICAL HABITAT (OF ENDANGERED SPECIES)</u>

None reported (Ref. 2)

SCORE 0

***

HRS REFERENCES

1. NYSDEC, 1981. Open Dump Inventory Groundwater Quality Evaluation, Queensbury Landfill, Dunn Geoscience.

2. NYSDEC, 1986. Phase I Investigation of the Queensbury Landfill, Wehran Engineering.

3. NYSDOH, 1982. Atlas of Community Water Systems.

4. United States Department of Commerce, 1960. Climates of the States.

5. USEPA, 1984. Uncontrolled Hazardous Waste Site Ranking System, A Users Manual, HW-10.

6. USGS 7.5 Minute Topo Map, Putnam Mountain, New York 1966.

*7. Versar, 1990. Analytical results from Phase II Sampling at Queensbury Landfill.

* References included with this report.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Site Inspection Report

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

II. SITE NAME AND LOCATION

01 SITE NAME *(Legal, common, or descriptive name of site)*	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Queensbury Landfill	Ridge Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Queensbury	NY	12801	Warren		

09 COORDINATES LATITUDE 43° 23' 27" LONGITUDE 73° 37' 14"

10 TYPE OF OWNERSHIP *(Check one)*
☐ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☒ E. MUNICIPAL
☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 6 / 12 / 90 (MONTH DAY YEAR)

02 SITE STATUS ☒ ACTIVE ☐ INACTIVE

03 YEARS OF OPERATION 1948-50 (BEGINNING YEAR) Present (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION *(Check all that apply)*
☐ A. EPA ☐ B. EPA CONTRACTOR ______ *(Name of firm)* ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ______ *(Name of firm)*
☒ E. STATE ☒ F. STATE CONTRACTOR URS Consultants *(Name of firm)* ☐ G. OTHER ______ *(Specify)*

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Scott Swanson	Geologist	URS	(716) 856-5636
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Robert Kreuzer	Geologist	URS	(716) 856-5636
William Shaw	Engineering Geologist	NYSDEC	(518) 457-9538
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY *(Check one)* ☐ PERMISSION ☐ WARRANT	18 TIME OF INSPECTION 10:30 A.M.	19 WEATHER CONDITIONS Sunny, 70° F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF *(Agency/Organization)*	03 TELEPHONE NO.
Phyllis Rettke	URS Consultants, Inc.	(716) 856-5636

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
				3 / 25 / 91 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

☒ A. SOLID
☐ B. POWDER, FINES
☒ C. SLUDGE
☐ D. OTHER ______ *(Specify)*
☐ E. SLURRY
☐ F. LIQUID
☐ G. GAS

02 WASTE QUANTITY AT SITE *(Measures of waste quantities must be independent)*

TONS ______
CUBIC YARDS 832,000
NO. OF DRUMS ______

03 WASTE CHARACTERISTICS *(Check all that apply)*

☐ A. TOXIC
☐ B. CORROSIVE
☐ C. RADIOACTIVE
☐ D. PERSISTENT
☐ E. SOLUBLE
☐ F. INFECTIOUS
☐ G. FLAMMABLE
☐ H. IGNITABLE
☐ I. HIGHLY VOLATILE
☐ J. EXPLOSIVE
☐ K. REACTIVE
☐ L. INCOMPATIBLE
☒ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			Unknown
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	None reported				

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

NYSDEC files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE: NY

02 SITE NUMBER: D000512590

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION
02 ☒ OBSERVED (DATE: 1990) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1653
04 NARRATIVE DESCRIPTION

Population within a 3 mile radius of the site using residential wells for potable water.

01 ☒ B. SURFACE WATER CONTAMINATION
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

Leachate onsite has the potential to contaminate Mud Pond. Contaminants were detected in the sediment from Mud Pond but may not be attributable to the site.

01 ☐ C. CONTAMINATION OF AIR
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

None detected during Phase II screening.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

None reported

01 ☒ E. DIRECT CONTACT
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

Leachate has been observed onsite during the Phase II site reconnaissance

01 ☒ F. CONTAMINATION OF SOIL
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: unknown (Acres)
04 NARRATIVE DESCRIPTION

Size of the landfill is 50 acres, the size of the contaminated area is unknown.

01 ☒ G. DRINKING WATER CONTAMINATION
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

Homes in the vicinity of the site use private residential wells for potable water.

01 ☒ H. WORKER EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: unknown
04 NARRATIVE DESCRIPTION

Workers onsite have the potential for exposure to leachate present onsite.

01 ☒ I. POPULATION EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1653
04 NARRATIVE DESCRIPTION

Population within a 3 mile radius of site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None reported

01 ☐ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(include name(s) of species)*

None reported

01 ☒ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Contaminants entering Mud Pond with the leachate have the potential to contaminate the food chain.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills, Runoff, Standing liquids, Leaking drums)* 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION

Unknown

01 ☐ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None reported

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None reported

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None reported

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: ______

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

NYSDEC Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☒ G. STATE (Specify)				Part 360
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	832,000	cu. yds
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

■ A. BUILDINGS ON SITE

06 AREA OF SITE

approx. 50 (Acres)

07 COMMENTS

The waste quantity in IIIF above is based on an estimate of 400 cubic yards of waste per day for 8 years (1984-1991).

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

unknown

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

A small portion of the landfill was lined with an experimental liner of paper sludge and soil. This liner failed, as such the site is unlined.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ■ YES ☐ NO

02 COMMENTS

Waste is exposed onsite, leachate "pond" is present during part of the year.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NYSDEC Region 5 files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE NY
02 SITE NUMBER D000512590

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY *(Check as applicable)*

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☒
NON-COMMUNITY	C. ☐	D. ☒

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☒
D. ☐	E. ☒	F. ☐

03 DISTANCE TO SITE
A. 3 (mi)
B. 0.1 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY *(Check one)*

☒ A. ONLY SOURCE FOR DRINKING
☐ B. DRINKING *(Other sources available)* COMMERCIAL, INDUSTRIAL, IRRIGATION *(No other water sources available)*
☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION *(Limited other sources available)*
☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 1653

03 DISTANCE TO NEAREST DRINKING WATER WELL >0.2 (mi)

04 DEPTH TO GROUNDWATER variable, based on terrain (ft)

05 DIRECTION OF GROUNDWATER FLOW South-southeast

06 DEPTH TO AQUIFER OF CONCERN see III04 (ft)

07 POTENTIAL YIELD OF AQUIFER Unknown (gpd)

08 SOLE SOURCE AQUIFER ☐ YES ☒ NO

09 DESCRIPTION OF WELLS *(Including useage, depth, and location relative to population and buildings)*

Unknown, no well construction details or well logs were found during the file search

10 RECHARGE AREA
☒ YES
☐ NO
COMMENTS Contamination in the groundwater has the potential to recharge the aquifer.

11 DISCHARGE AREA
☒ YES
☐ NO
COMMENTS Surface runoff from site and leachate has the potential to enter Mud Pond as does groundwater discharge.

IV. SURFACE WATER

01 SURFACE WATER USE *(Check one)*

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE
☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
☐ C. COMMERCIAL, INDUSTRIAL
☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Mud Pond	☐	0.04 (mi)
	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 460 NO. OF PERSONS	B. 900 NO. OF PERSONS	C. 1653 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 0.1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 237

04 DISTANCE TO NEAREST OFF-SITE BUILDING 0.1 (mi)

05 POPULATION WITHIN VICINITY OF SITE *(Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)*

The population in the vicinity of the site is rural.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE *(Check one)*

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☒ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK *(Check one)*

this value is estimated

☐ A. IMPERMEABLE *(Less than 10^{-6} cm/sec)* ☒ B. RELATIVELY IMPERMEABLE *($10^{-4} - 10^{-6}$ cm/sec)* ☐ C. RELATIVELY PERMEABLE *($10^{-2} - 10^{-4}$ cm/sec)* ☐ D. VERY PERMEABLE *(Greater than 10^{-2} cm/sec)*

fractures increase permeability

03 DEPTH TO BEDROCK: estimated to be 195 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE: unknown (ft)

05 SOIL pH: unknown

06 NET PRECIPITATION: 16 (in)

07 ONE YEAR 24 HOUR RAINFALL: 2.3 (in)

08 SLOPE

SITE SLOPE: 3-5 %

DIRECTION OF SITE SLOPE: southwest

TERRAIN AVERAGE SLOPE: 23 %

09 FLOOD POTENTIAL

SITE IS IN Not in YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS *(5 acre minimum)*

ESTUARINE A. NA (mi)

OTHER B. 0.2 (mi)

12 DISTANCE TO CRITICAL HABITAT *(of endangered species)*

_______ (mi)

ENDANGERED SPECIES: none reported

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL A. _______ (mi)

RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES B. 0.2 (mi)

AGRICULTURAL LANDS

PRIME AG LAND C. less than 2 (mi)

AG LAND D. less than 1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located on a kame terrace approximately 180 feet above the level of Mud Pond.

VII. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	8	Versar	1990
SURFACE WATER	1	Versar	1990
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL /Sediment	1	Versar	1990
VEGETATION			
OTHER Leachate	2	Versar	1990

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
HNu	No readings above background 6/12/90 or during drilling activities
Radiation Meter	No readings above background 7/20/90 or during drilling activities

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☒ AERIAL

02 IN CUSTODY OF URS Consultants, Inc.
(Name of organization or individual)

03 MAPS
☒ YES
☐ NO

04 LOCATION OF MAPS
URS Consultants, Inc., 282 Delaware Avenue, Buffalo, NY 14202

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Water levels were obtained from the monitoring wells. Data is contained in the Phase II report or from URS Consultants.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Phase II Investigation

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE NY
02 SITE NUMBER D000512590

II. CURRENT OWNER(S)		**PARENT COMPANY** *(If applicable)*	
01 NAME Town of Queensbury	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)* Bay at Haviland Road	04 SIC CODE	10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	11 SIC CODE
05 CITY Queensbury	06 STATE NY 07 ZIP CODE 12804	12 CITY	13 STATE 14 ZIP CODE
01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE	10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	11 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	12 CITY	13 STATE 14 ZIP CODE
01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE	10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	11 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	12 CITY	13 STATE 14 ZIP CODE
01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE	10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	11 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	12 CITY	13 STATE 14 ZIP CODE

III. PREVIOUS OWNER(S) *(List most recent first)*		**IV. REALTY OWNER(S)** *(If applicable, list most recent first)*	
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE	03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY	06 STATE 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE	03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY	06 STATE 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE	03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY	06 STATE 07 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

II. CURRENT OPERATOR *(Provide if different from owner)*

01 NAME
02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
04 SIC CODE
05 CITY
06 STATE
07 ZIP CODE
08 YEARS OF OPERATION
09 NAME OF OWNER

OPERATOR'S PARENT COMPANY *(If applicable)*

10 NAME
11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
13 SIC CODE
14 CITY
15 STATE
16 ZIP CODE

III. PREVIOUS OPERATOR(S) *(List most recent first; provide only if different from owner)*

01 NAME
02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
04 SIC CODE
05 CITY
06 STATE
07 ZIP CODE
08 YEARS OF OPERATION
09 NAME OF OWNER DURING THIS PERIOD

01 NAME
02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
04 SIC CODE
05 CITY
06 STATE
07 ZIP CODE
08 YEARS OF OPERATION
09 NAME OF OWNER DURING THIS PERIOD

01 NAME
02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
04 SIC CODE
05 CITY
06 STATE
07 ZIP CODE
08 YEARS OF OPERATION
09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES *(If applicable)*

10 NAME
11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
13 SIC CODE
14 CITY
15 STATE
16 ZIP CODE

10 NAME
11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
13 SIC CODE
14 CITY
15 STATE
16 ZIP CODE

10 NAME
11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*
13 SIC CODE
14 CITY
15 STATE
16 ZIP CODE

IV. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE NY	02 SITE NUMBER D000512590

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME Finch & Pruyn		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY Queensbury	06 STATE NY	07 ZIP CODE 12801	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

NYSDEC files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D000512590

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ L. ENCAPSULATION 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES/SUMP 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE NY

02 SITE NUMBER D000512590

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ W. GAS CONTROL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ X. FIRE CONTROL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE NY

02 SITE NUMBER D000512590

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA FORM 2070-13 (7-81)

GENERAL REFERENCES

8. Birkeland, P.W. Soils and Geomorphology, (New York: Oxford University Press, 1984), pp. 372.

9. Bouwer, H., and Rice, R.C., 1976, A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells: Water Resources Research, Vol. 12, no. 3, p. 423 - 428.

*10. Coughlin, James, 1991. Queensbury Landfill Superintendent, personal communication with Steven Moeller of URS Consultants, March 15 and 19, and April 12, 1991.

*11. Comeau, Barbara J., 1982. Letter to Congressman Gerald Soloman.

12. Davis, J.R., 1973, Surficial Geology of the Glens Falls Region, N.Y., N.Y.S. Museum Map and Chart Series #23.

13. DeSimone, D.J., and LaFleur, R.G., 1985, Glacial Geology and History of the Northern Hudson Basin, New York and Vermont: N.Y.S.G.A., Guidebook, 57th Annual Meeting, p. 82-117.

14. Fisher, D.W., 1984, Bedrock Geology of the Glens Falls - Whitehall Region, N.Y., N.Y.S. Museum Map and Chart Series #35.

15. Freeze, R.A., and Cherry, J.A. Groundwater (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1979), p. 604.

*16. Kane, D., 1991. Director of Recycling and Waste Management for the Warren County Department of Public Works, personal communication with Scott Swanson of URS Consultants, April 12, 1991.

* References included with this report.

17. NYSDEC, 1987. Phase I Investigation of the Finch-Pruyn and Company Landfill, Wehran Engineering.

18. NYSDEC, September 1989, Analytical Services Protocol, vol. 1 - 8.

19. NYSDEC, September 1990, NYS T.O.G.S. (1.1.1) Ambient Water Quality Standards and Guidance Values.

20. NYSDEC, September 1990, Phase II (Fourth Round) Work Plan for the Queensbury Landfill.

*21. NYSDEC Region 5, 1991, NYSDEC Warrensburg office personal communication with Steven Moeller of URS Consultants for Stream Classification, March 19, 1991.

*22. Peck, J.T., 1991, Sr. District Technician for the Warren County Soil and Water Conservation District, Soil Information for the Queensbury Landfill.

*23. Provost Bros., Inc., 1978, Well Construction Documentation for Potable Water Well Near Queensbury Landfill Entrance.

24. URS Consultants, June 1990, Health and Safety Plan, Queensbury Landfill.

25. URS Consultants, August 1990, Phase II (Fourth Round) Quality Assurance/Quality Control Plan, Queensbury Landfill.

26. USEPA, 1987. Preliminary Assessment Hercules Landfill, NUS Corporation.

* References included with this report.

27. USEPA, 1987. Addendum to Characterization of Municipal Landfill Leachates - A Literature Review, NUS Corporation. EPA/530-SW-87-028C.

28. Wagner, L., 1982, Drainage Areas of N.Y. Streams by River Basins - A Stream Gazetteer, U.S.G.S. Water Resources Investigation, Open File Report 81-1055.

* References included with this report.

10

URS
AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

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APR 22 1991
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April 16, 1991

James Coughlin
Town of Queensbury Landfill
531 Bay Road
Queensbury, New York 12804

RE: QUEENSBURY LANDFILL

Dear Mr. Coughlin:

As you are well aware, URS Consultants, Inc. is currently conducting a Phase II Investigation of the Queensbury Landfill. We are performing this investigation under contract to the New York State Department of Environmental Conservation (NYSDEC) pursuant to the requirements of the New York State Environmental Conservation Law, Section 27-1309.

This is to confirm our telephone conversations on March 15 and 19, and April 12, 1991 wherein you provided the following information:

- Landfilling first began at the Queensbury Landfill around 1948-1950.
- The Town of Queensbury has owned the property since landfilling commenced. ? NOT SURE JTC
- There is no clay liner at the Queensbury Landfill.
- In 1979, a 4-6 acre bowl shaped area near Mud Pond (near the present leachate containment berm):
  - FALSE 1.) received an experimental Finch-Pruyn paper sludge/~~soil liner which~~ proved ineffective and was discontinued in the fall of 1979, FALSE JTC
  - 2.) received only municipal waste until becoming inactive in 1990, STILL WORKING
  - 3.) and has never been properly capped and closed.
- The Queensbury Landfill's operating permit expired December 26, 1982.
- The Ciba-Geigy Landfill is on land leased from the Town of Queensbury and was closed in the fall of 1990.
- The Queensbury Landfill currently receives approximately 250-350 cubic yards of compacted and approximately 100 cubic yards of noncompacted municipal waste daily.

10

- The Torrington Construction sand and gravel pit may have as much as ~~90 to~~ 70 ~~100~~ 80 feet of fill below the present-day pit floor. BELOW FALSE

We would appreciate it if you would review this information, note any necessary corrections, and return a signed and dated copy to indicate your concurrence. Your prompt attention to this would be greatly appreciated, as the information is necessary to complete our evaluation of the site. Please use the enclosed return envelope.

Thank you for your time and cooperation,

URS CONSULTANTS, INC.

S M Moeller

Steven M. Moeller
Geologist

SMM/ys

4-16-91L.SM
35231.05 (File: 5025 - 207)

I agree with the information as it is presented.

James T. Coughlin
James Coughlin

4-19-1991
Date

11

RD # 1
Mud Pond Rd.
Glens Falls, NY 12801
August 15, 1982

Mr. Gerald Solomon, Congressman
21 Bay Street
Glens Falls, NY 12801

Dear Mr. Solomon:

Enclosed you will find a copy of a petition signed by the residents living in the area of the Queensbury land fill.

I have, along with others, contacted the Environmental Protection Agency and the New York State Health Dept. regarding the families of Theresa Akins and Nancy Cutter. This land is located at the outlet to Mud Pond and is in desperate need of attention. The Cutters, while in the process of building a house, find each day that the soil is turning to white fuzz and when there is high humidity, it has an odor.

Needless-to-say, the Health Department and the Environmental Protection Agency both realize the land fill should be closed, however no action has been taken. The advise the Health Department gives is that a water sample should be taken to the Glens Falls Hospital for testing. As you are aware, the Glens Falls Hospital does a test ONLY for bacteria and not for chemical contamination.

Along with the Companies listed on the petition, there is also The General Electric Company who has been dumping capacitors along with their other toxic waste since 1946 at this dump site.

We believe that the time has come to protect the health and safety of our families as well as our property. Please, as Congressman, we need your help!

Respectfully,

Barbara J. Comeau

Barbara J. Comeau

CC: Environmental Protection Agency
New York State Health Dept.

REF ⑯

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

JOB NO. 35231.05 **JOB NAME** Queensbury Landfill

MEMO OF TELECON

DATE 4/12/91 **TELEPHONE** (518) 761-6556

PERSON CALLING Scott Swanson **PERSON CALLED** Dan Kane

REPRESENTING URS Consultants **REPRESENTING** Warren County

PURPOSE OF TELECON AND/OR EQUIPMENT INVOLVED: Research results of test trenching in bottom of Torrington sand/gravel pit in 1990.

TEXT OF TELECON

During my conversation with DAN Kane, Director of Recycling and Waste Management for the Warren County Public Works Department, it was explained to me that Clough, Harbour and associates of Albany, NY dug 2 trenches in the base of the Torrington Construction gravel pit to establish how deep fill was located. Garbage fill was found about 4 feet deep and a newspaper was found with a date of September, 1977, which is near the time Jones Coughlin landfill supervisor says landfilling ended in this area. This landfilling was conducted on the south side of the pit bottom filling in an area for Torrington to bring in equipment and stockpile gravels from the conveyors off the crusher.

CC:

REF ㉑

URS

AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

JOB NO. 35231.05. JOB NAME Queensbury Landfill

MEMO OF TELECON

DATE March 19, 1991 TELEPHONE (518) 623-3671

PERSON CALLING Steven Moeller PERSON CALLED

REPRESENTING URS Consultants REPRESENTING NYSDEC - Warrensburg Regional Office

PURPOSE OF TELECON AND/OR EQUIPMENT INVOLVED:

6 NYCRR 600.1 Classification for Mud Pond

TEXT OF TELECON

Mud Pond (P438) is a class "A" waterbody. The tributary between Mud Pond and Halfway Creek (C134-4-19-17) is a class "A" waterbody. Halfway Creek (C134-4-19) is a class "A" waterbody.

CC:

REF (22)

Warren County Soil and Water Conservation District
122 Main Street - Warrensburg, NY 12885

January 4, 1991

Phyllis Rettke, Geologist
URS Consultants, Inc.
570 Deleware Ave.
Buffalo, NY 14202-1207

Dear Ms. Rettke:

Please find enclosed the soils information that you requested for the Queensbury Landfill site for the Phase II Investigation you are doing for NYSDEC. Included is a soil map with property boundaries taken from the Warren County tax map, soils map unit descriptions, and soils interpretation records for the appropriate soils.

For the location of farmland under cultivation within a 1 mile radius of the site contact Dave Holck at the Agricultural Stabilization and Conservation Service (ASCS), RD 1, Box 15B, York Plaza, Hudson Falls, NY 12839 at (518) 747-5256. I'll let him know you'll be in contact with him.

Yours in Conservation,

John Thomas Peck

John Thomas Peck
Sr. District Technician

JTP

RECEIVED
URS CONSULTANTS
JAN 7 1991
JOB # 35231.00
5025 (207)

CONSERVATION · DEVELOPMENT · SELF-GOVERNMENT

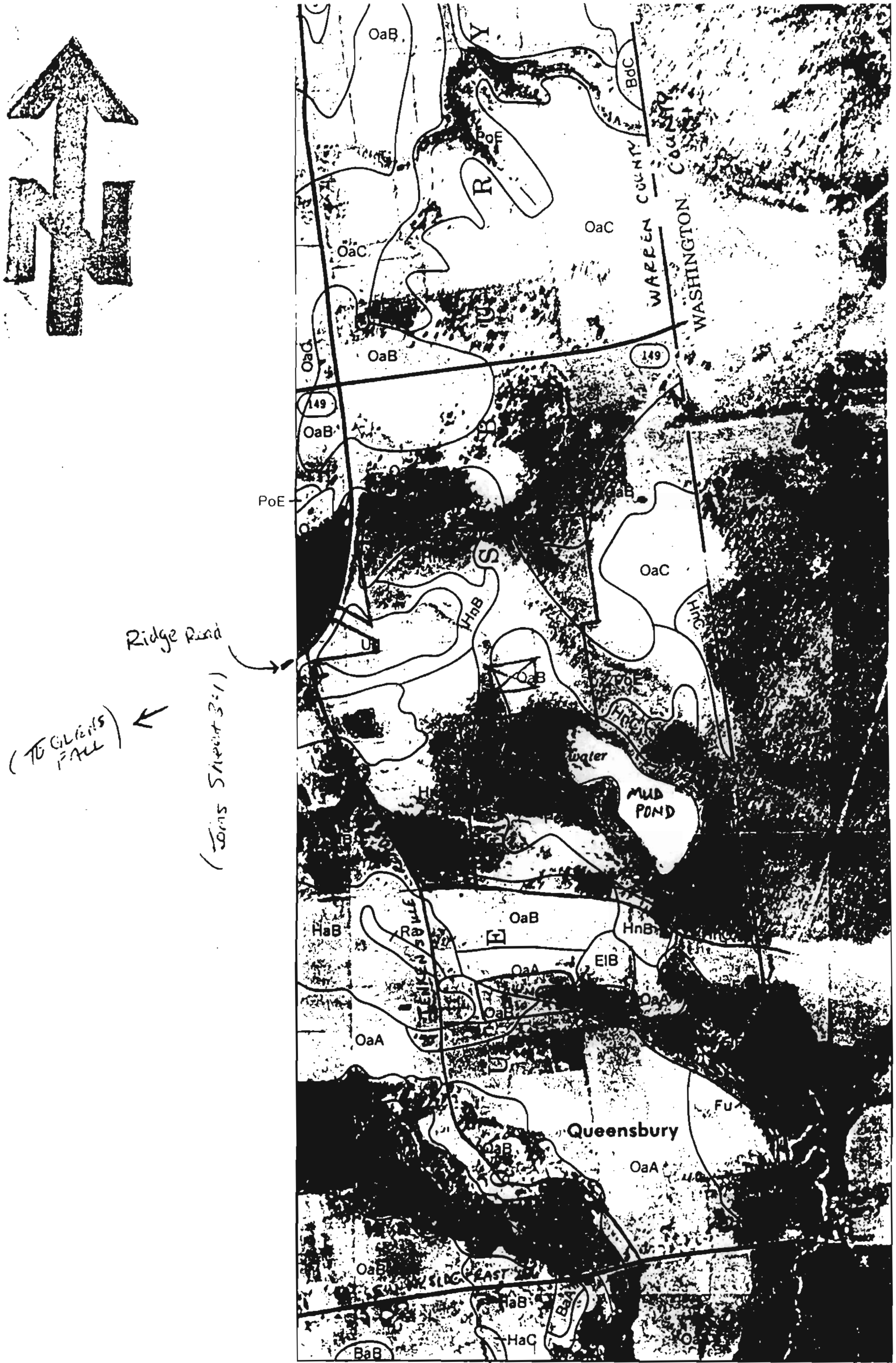
U. S. DEPARTMENT OF AGRICULTURE

SCS-CPA-15
(3-88) REF

22

SOIL MAP

Owner TOWN OF QUEENSBURY Operator (SAME) QUEENSBURY LANDFILL
County WARREN State NY
Soil survey sheet(s) or code nos. INSET ON SHEET 37 Approximate scale 1" = 1,320' OR 4" 1 MILE
Prepared by U. S. Department of Agriculture, Soil Conservation Service cooperating with WARREN COUNTY SOIL & WATER Conservation District



REF ㉒

SOIL LETTER CODE	SOIL NUMBER CODE	SOIL NAME	SLOPE	DESCRIPTION
HnB	31B	Hinckley cobbly sandy loam	3-8%	This soil is gently sloping, deep and excessively drained. It has a high content of sand, gravel, and cobblestones. It is on terraces and benches in valleys, and on nearly flat plains.
HnC	31C	Hinckley cobbly sandy loam	8-15%	This soil is gently sloping, deep and excessively drained. It has a high content of sand, gravel, and cobblestones. It is on terraces and benches in valleys, and on nearly flat plains.
OaB	145B	Oakville loamy fine sand	3-8%	This soil is gently sloping, deep and well drained. It is on sandy outwash plains.
OaC	145C	Oakville loamy fine sand	8-15%	This soil is sloping, deep and well drained. It is on side slopes of sandy outwash terraces.
Pg		Pits, sand, and gravel		This miscellaneous area consists of excavations primarily in areas of gravelly and sandy glacial outwash. Some excavations, however, are in areas of loose, sandy glacial till.
PoE	41DE	Plainfield & Oakville Soils		This soil consists of deep, excessively drained soils on side slopes of outwash terraces. Some areas of this unit consist of Plainfield soils, some Oakville soils, and some of both. The Plainfield and Oakville soils were mapped together because they have no major differences in use and management.
Ud		Udorthents, smoothed		This unit consists of cut and fill material derived from sources of sand, gravel, and sandy glacial till.
		Depth to Bedrock		"Deep" = Bedrock is 40 in. or more below soil surface. "Moderately Deep" = Bedrock is from 20-40 in. below the soil surface. "Shallow" = Bedrock is from 10-20 in. below the soil surface. "Rock Outcrop" = Bedrock is at the surface.

REF

Hinckley ㉒

MA0024

SOIL INTERPRETATIONS RECORD

MLRA(S): 141, 144A, 145, 101, 142, 149B
REV. DGG, 7-83
TYPIC UDORTHENTS, SANDY-SKELETAL, MIXED, MESIC

HINCKLEY SERIES

THE HINCKLEY SERIES CONSISTS OF DEEP, EXCESSIVELY DRAINED SOILS ON TERRACES, OUTWASH PLAINS, DELTAS, KAMES AND ESKERS. THEY FORMED IN WATER-SORTED MATERIAL. TYPICALLY THESE SOILS HAVE A VERY DARK GRAYISH BROWN LOAMY SAND SURFACE LAYER 7 INCHES THICK. THE SUBSOIL LAYERS FROM 7 TO 15 INCHES ARE STRONG BROWN AND YELLOWISH BROWN GRAVELLY LOAMY SAND. FROM 15 TO 18 INCHES THE SUBSOIL IS YELLOWISH BROWN GRAVELLY SAND. THE SUBSTRATUM FROM 18 TO 60 INCHES IS LIGHT OLIVE BROWN STRATIFIED SAND, GRAVEL, AND COBBLESTONES. SLOPES RANGE FROM 0 TO 60 PERCENT.

ESTIMATED SOIL PROPERTIES (A)

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLAS-TICITY INDEX
0-7	LS, SL, LCOS	SM, SP-SM	A-1, A-2, A-4, A-3	0-5	80-95	75-85	30-80	5-50	<20	NP
0-7	GR-LS, GR-SL, GR-LCOS	SM, SP-SM	A-1, A-2, A-3, A-4	0-10	60-95	40-75	20-70	2-40	<20	NP
7-15	GR-LS, LFS, GRV-LCOS	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0-20	50-95	30-85	15-70	2-30	<20	NP
15-60	SR-GRV-LFS-CB-COS	SP, SP-SM, GP, GP-GM	A-1	5-30	20-65	20-50	10-40	0-20	<10	NP

DEPTH (IN.)	CLAY (PCT)	MOIST BULK DENSITY (G/CM3)	PERMEA-BILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	T	WIND EROD. GROUP	ORGANIC MATTER (PCT)	CORROSIVITY STEEL	CONCRETE
0-7	4-8	0.90-1.10	6.0-20	0.05-0.20	3.6-6.0	-	LOW	.20	3	-	2-7	LOW	HIGH
0-7	4-8	1.00-1.20	6.0-20	0.03-0.18	3.6-6.0	-	LOW	.17	3	-	2-7		
7-15	1-5	1.20-1.40	6.0-20	0.01-0.10	3.6-6.0	-	LOW	.17					
15-60	0-3	1.30-1.50	>20	0.01-0.06	3.6-6.0	-	LOW	.10					

FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE		HYD GRP	POTENT'L FROST ACTION
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS	DEPTH (IN)	HARDNESS	INIT. (IN)	TOTAL (IN)		
NONE			>6.0			-		>60		-		A	LOW

SANITARY FACILITIES (B)

SEPTIC TANK ABSORPTION FIELDS	0-15%: SEVERE-POOR FILTER 15+%: SEVERE-SLOPE,POOR FILTER
SEWAGE LAGOON AREAS	0-7%: SEVERE-SEEPAGE 7+%: SEVERE-SLOPE,SEEPAGE
SANITARY LANDFILL (TRENCH)	0-15%: SEVERE-SEEPAGE,TOO SANDY 15+%: SEVERE-SLOPE,SEEPAGE,TOO SANDY
SANITARY LANDFILL (AREA)	0-15%: SEVERE-SEEPAGE 15+%: SEVERE-SLOPE,SEEPAGE
DAILY COVER FOR LANDFILL	0-15%: POOR-TOO SANDY,SEEPAGE,SMALL STONES 15+%: POOR-SLOPE,TOO SANDY,SEEPAGE

BUILDING SITE DEVELOPMENT (B)

SHALLOW EXCAVATIONS	0-15%: SEVERE-CUTBANKS CAVE 15+%: SEVERE-SLOPE,CUTBANKS CAVE
DWELLINGS WITHOUT BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
DWELLINGS WITH BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
SMALL COMMERCIAL BUILDINGS	0-4%: SLIGHT 4-8%: MODERATE-SLOPE 8+%: SEVERE-SLOPE
LOCAL ROADS AND STREETS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	0-15% LS,SL,LCOS: SEVERE-DROUGHTY 15+% LS,SL,LCOS: SEVERE-DROUGHTY,SLOPE 0-15% GR: SEVERE-SMALL STONES,DROUGHTY 15+% GR: SEVERE-SMALL STONES,DROUGHTY,SLOPE

REGIONAL INTERPRETATIONS

CONSTRUCTION MATERIAL (B)

ROADFILL	0-15%: GOOD 15-25%: FAIR-SLOPE 25+%: POOR-SLOPE
SAND	PROBABLE
GRAVEL	PROBABLE
TOPSOIL	0-15%: POOR-TOO SANDY,AREA RECLAIM, SMALL STONES 15+%: POOR-SLOPE,TOO SANDY,SMALL STONES

WATER MANAGEMENT (B)

POND RESERVOIR AREA	0-8%: SEVERE-SEEPAGE 8+%: SEVERE-SLOPE,SEEPAGE
EMBANKMENTS DIKES AND LEVEES	SEVERE-SEEPAGE
EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER.
DRAINAGE	DEEP TO WATER
IRRIGATION	0-3%: DROUGHTY,FAST INTAKE 3+%: SLOPE,DROUGHTY,FAST INTAKE
TERRACES AND DIVERSIONS	0-8%: LARGE STONES,TOO SANDY 8+%: SLOPE,LARGE STONES,TOO SANDY
GRASSED WATERWAYS	0-8%: LARGE STONES,DROUGHTY 8+%: LARGE STONES,DROUGHTY,SLOPE

REF ㉒

RECREATIONAL DEVELOPMENT (B)

CAMP AREAS	0-8% LS,SL,LCOS: SLIGHT 8-15% LS,SL,LCOS: MODERATE-SLOPE 15+% LS,SL,LCOS: SEVERE-SLOPE 0-15% GR: SEVERE-SMALL STONES 15+% GR: SEVERE-SLOPE,SMALL STONES	PLAYGROUNDS	0-2% LS,SL,LCOS: MODERATE-SMALL STONES 2-6% LS,SL,LCOS: MODERATE-SLOPE,SMALL STONES 6+% LS,SL,LCOS: SEVERE-SLOPE 0-6% GR: SEVERE-SMALL STONES 6+% GR: SEVERE-SLOPE,SMALL STONES
PICNIC AREAS	0-8% LS,SL,LCOS: SLIGHT 8-15% LS,SL,LCOS: MODERATE-SLOPE 15+% LS,SL,LCOS: SEVERE-SLOPE 0-15% GR: SEVERE-SMALL STONES 15+% GR: SEVERE-SLOPE,SMALL STONES	PATHS AND TRAILS	0-15%; SLIGHT 15-25%: MODERATE-SLOPE 25+%; SEVERE-SLOPE

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS-DETERMINING PHASE	CAPABILITY		CORN SILAGE (TONS)		ALFALFA HAY (TONS)		GRASS-LEGUME HAY (TONS)		GRASS-CLOVER (AUM)		CORN, SWEET (TONS)		TOBACCO (LBS)			
	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	R.
0-8%	3S		12		2.5		2.0		3.6		4.5		-	1200		
8-15%	4S		-		-		-		2.5		-		-	-		
15-25%	6S		-		-		-		2.0		-		-	-		
25+%	7S		-		-		-		-		-		-	-		

WOODLAND SUITABILITY (C)

CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY		TREES TO PLANT
		EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	COMMON TREES	SITE INDX	
0-15%	5S	SLIGHT	SLIGHT	SEVERE	SLIGHT		NORTHERN RED OAK	49	EASTERN WHITE PINE
15-35%	5S	SLIGHT	MODERATE	SEVERE	SLIGHT		EASTERN WHITE PINE	60 *	RED PINE
35+%	5S	MODERATE	SEVERE	SEVERE	SLIGHT		RED PINE	58 *	EUROPEAN LARCH
							SUGAR MAPLE	57	

WINDBREAKS

CLASS-DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
	NONE							

WILDLIFE HABITAT SUITABILITY (C)

CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:			
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
0-25%	POOR	POOR	POOR	POOR	POOR	-	V. POOR	V. POOR	POOR	POOR	V. POOR	-
25+%	V. POOR	POOR	POOR	POOR	POOR	-	V. POOR	V. POOR	POOR	POOR	V. POOR	-

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE				
POTENTIAL PRODUCTION (LBS./AC. DRY WT):						
FAVORABLE YEARS						
NORMAL YEARS						
UNFAVORABLE YEARS						

FOOTNOTES

A BASED ON TEST DATA OF 5 PEDONS; 3 FROM ANDROSCOGGIN CO., MAINE, AND 2 FROM FRANKLIN CO., MASS.
B RATINGS BASED ON NSH, PART 2, SECTION 403, MARCH 1978.
C RATINGS BASED ON SOILS MEMOS 26, SEPT. 1967; OR 74, JANUARY 1972.
* SITE INDEX IS A SUMMARY OF 5 OR MORE MEASUREMENTS ON THIS SOIL.

REF ㉒

MI0038

SOIL INTERPRETATIONS RECORD

MLRA(S): 95A, 97, 98, 99, 101, 144A, 108, 110, 115
REV. ESC, 5-83
TYPIC UDIPSAMMENTS, MIXED, MESIC

OAKVILLE SERIES

THE OAKVILLE SERIES CONSISTS OF WELL DRAINED SOILS FORMED IN FINE SAND SEDIMENTS ON OUTWASH AND LAKE PLAINS, MORAINES, AND BEACH RIDGES. THE SURFACE LAYER IS VERY DARK GRAYISH BROWN FINE SAND 7 INCHES THICK. THE SUBSOIL IS STRONG BROWN, YELLOWISH BROWN AND BROWN FINE SAND 27 INCHES THICK. THE SUBSTRATUM IS PALE BROWN FINE SAND. SLOPES RANGE FROM 0 TO 60 PERCENT. MOST AREAS ARE IN WOODLAND OR IDLE CROPLAND.

ESTIMATED SOIL PROPERTIES

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
0-7	LS, LFS	SM	A-2	0	100	100	55-75	15-25	-	NP
0-7	FS, S	SM, SP, SP-SM	A-2, A-3	0	100	100	50-85	0-35	-	NP
7-60	FS, S, LFS	SM, SP, SP-SM	A-2, A-3	0	100	95-100	65-95	0-25	-	NP

DEPTH (IN.)	CLAY (PCT)	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	T	WIND EROD. GROUP	ORGANIC MATTER (PCT)	CORROSIVITY STEEL	CONCRETE
0-7	2-14	1.30-1.55	6.0-20	0.09-0.12	5.6-7.3	-	LOW	.15	5	2	.5-2	LOW	MODERATE
0-7	0-10	1.30-1.55	6.0-20	0.07-0.09	5.6-7.3	-	LOW	.15	5	1	.5-2		
7-60	0-10	1.30-1.65	6.0-20	0.06-0.10	5.6-7.3	-	LOW	.15					

FLOODING FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE INIT. (IN)	TOTAL (IN)	HYD GRP	POTENT'L FROST ACTION
NONE			>6.0			-		>60		-		A	LOW

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	0-15%: SEVERE-POOR FILTER 15+%: SEVERE-SLOPE,POOR FILTER
SEWAGE LAGOON AREAS	0-7%: SEVERE-SEEPAGE 7+%: SEVERE-SEEPAGE,SLOPE
SANITARY LANDFILL (TRENCH)	0-15%: SEVERE-SEEPAGE,TOO SANDY 15+%: SEVERE-SEEPAGE,TOO SANDY,SLOPE
SANITARY LANDFILL (AREA)	0-15%: SEVERE-SEEPAGE 15+%: SEVERE-SEEPAGE,SLOPE
DAILY COVER FOR LANDFILL	0-15%: POOR-TOO SANDY,SEEPAGE 15+%: POOR-TOO SANDY,SLOPE,SEEPAGE

BUILDING SITE DEVELOPMENT

SHALLOW EXCAVATIONS	0-15%: SEVERE-CUTBANKS CAVE 15+%: SEVERE-CUTBANKS CAVE,SLOPE
DWELLINGS WITHOUT BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
DWELLINGS WITH BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
SMALL COMMERCIAL BUILDINGS	0-4%: SLIGHT 4-8%: MODERATE-SLOPE 8+%: SEVERE-SLOPE
LOCAL ROADS AND STREETS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	0-8%: MODERATE-DROUGHTY 8-15%: MODERATE-SLOPE,DROUGHTY 15+%: SEVERE-SLOPE

REGIONAL INTERPRETATIONS

CONSTRUCTION MATERIAL

ROADFILL	0-15%: GOOD 15-25%: FAIR-SLOPE 25+%: POOR-SLOPE
SAND	PROBABLE
GRAVEL	IMPROBABLE-TOO SANDY
TOPSOIL	0-15%: POOR-TOO SANDY 15+%: POOR-TOO SANDY,SLOPE

WATER MANAGEMENT

POND RESERVOIR AREA	0-8%: SEVERE-SEEPAGE 8+%: SEVERE-SEEPAGE,SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-PIPING,SEEPAGE
EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DRAINAGE	DEEP TO WATER
IRRIGATION	FAST INTAKE,DROUGHTY,SOIL BLOWING
TERRACES AND DIVERSIONS	0-8%: TOO SANDY,SOIL BLOWING 8+%: SLOPE,TOO SANDY,SOIL BLOWING
GRASSED WATERWAYS	0-8%: DROUGHTY 8+%: SLOPE,DROUGHTY

REF 22

OAKVILLE SERIES

MI0038

RECREATIONAL DEVELOPMENT

CAMP AREAS	0-8% LS,LFS: SLIGHT 8-15% LS,LFS: MODERATE-SLOPE 15+% LS,LFS: SEVERE-SLOPE 0-15% FS,S: SEVERE-TOO SANDY 15+% FS,S: SEVERE-TOO SANDY,SLOPE	PLAYGROUNDS	0-2% LS,LFS: SLIGHT 2-6% LS,LFS: MODERATE-SLOPE 6+% LS,LFS: SEVERE-SLOPE 0-6% FS,S: SEVERE-TOO SANDY 6+% FS,S: SEVERE-SLOPE,TOO SANDY
PICNIC AREAS	0-8% LS,LFS: SLIGHT 8-15% LS,LFS: MODERATE-SLOPE 15+% LS,LFS: SEVERE-SLOPE 0-15% FS,S: SEVERE-TOO SANDY 15+% FS,S: SEVERE-TOO SANDY,SLOPE	PATHS AND TRAILS	0-15% LS,LFS: SLIGHT 15-25% LS,LFS: MODERATE-SLOPE 25+% LS,LFS: SEVERE-SLOPE 0-25% FS,S: SEVERE-TOO SANDY 25+% FS,S: SEVERE-SLOPE,TOO SANDY

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS-DETERMINING PHASE	CAPABILITY		CORN (BU)		CORN SILAGE (TONS)		OATS (BU)		WHEAT, WINTER (BU)		GRASS-LEGUME HAY (TONS)					
	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIPR	IRR.
0-6%	4S		50		8		48		24		2.0					
6-18%	6S		-		-		35		-		1.8					
18+%	7S		-		-		-		-		-					

WOODLAND SUITABILITY

CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY		TREES TO PLANT
		EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	COMMON TREES	SITE INDX	
0-18% MAAT<50	2S	SLIGHT	MODERATE	SEVERE	SLIGHT	MODERATE	RED PINE	62	RED PINE
18-35% MAAT<50	2R	MODERATE	SEVERE	SEVERE	SLIGHT	MODERATE	NORTHERN RED OAK	-	EASTERN WHITE PINE
35+% MAAT<50	2R	SEVERE	SEVERE	SEVERE	SLIGHT	MODERATE	WHITE OAK	-	
							QUAKING ASPEN	-	
							BLACK OAK	-	
							EASTERN WHITE PINE	-	
0-18% MAAT>50	3S	SLIGHT	SLIGHT	SEVERE	SLIGHT	SLIGHT	WHITE OAK	70	EASTERN WHITE PINE
18-35% MAAT>50	3R	MODERATE	SEVERE	SEVERE	SLIGHT	SLIGHT	RED PINE	78	RED PINE
35+% MAAT>30	3R	SEVERE	SEVERE	SEVERE	SLIGHT	SLIGHT	EASTERN WHITE PINE	85	JACK PINE
							JACK PINE	68	

WINDBREAKS [A]

CLASS-DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
MAAT<50	EASTERN WHITE PINE	28	SILKY DOGWOOD	10	CAROLINA POPLAR	60	LILAC	10
	RED PINE	29	AUTUMN-OLIVE	14	EASTERN WHITE PINE	28	NORWAY SPRUCE	[illegible]
	JACK PINE	30	AMUR PRIVET	11	WHITE SPRUCE	22	MANCHURIAN CRABAPPLE	19
MAAT>50	EASTERN WHITE PINE	26	RED PINE	16	AUSTRIAN PINE	18	JACK PINE	16
	EASTERN REDCEDAR	15	LILAC	8	RADIANT CRABAPPLE	12	AUTUMN-OLIVE	9
	WASHINGTON HAWTHORN	10	AMUR HONEYSUCKLE	8	TATARIAN HONEYSUCKLE	8	SIBERIAN PEASHRUB	7

WILDLIFE HABITAT SUITABILITY

CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABIT.T FOR:			
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
0-6% LS,LFS	POOR	FAIR	FAIR	GOOD	GOOD	-	POOR	V. POOR	FAIR	GOOD	V. POOR	-
0-6% FS	POOR	POOR	FAIR	GOOD	GOOD	-	POOR	V. POOR	POOR	GOOD	V. POOR	-
6-25% LS,LFS	POOR	FAIR	FAIR	GOOD	GOOD	-	V. POOR	V. POOR	FAIR	GOOD	V. POOR	-
6-25% FS	POOR	POOR	FAIR	GOOD	GOOD	-	V. POOR	V. POOR	POOR	GOOD	V. POOR	-
25+%	V. POOR	POOR	FAIR	GOOD	GOOD	-	V. POOR	V. POOR	POOR	GOOD	V. POOR	-

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE				
STAGHORN SUMAC	RHTY					
WITCHHAZEL	HAVI4					
BLACKBERRY	RUBUS					
PAWPAW	ASTR					
FLOWERING DOGWOOD	COFL2					
EASTERN HOPHORNBEAM	OSVI					
COMMON MOONSEED	MECA3					
VIRGINIA CREEPER	PAQU2					
POISON-IVY	RHRA					
ROUNDLEAF GREENBRIER	SMRO					
MAPLELEAF VIBURNUM	VIAC					
SUMMER GRAPE	VIAE					
POTENTIAL PRODUCTION (LBS./AC. DRY WT):						
FAVORABLE YEARS						
NORMAL YEARS						
UNFAVORABLE YEARS						

FOOTNOTES

A WINDBREAK GROUP 7

REF ㉒

PlAINFiel

WI0116

SOIL INTERPRETATIONS RECORD

MLRA(S): 95A, 91, 97, 98, 104, 105, 110, 144A
REV FLA, 7-83
TYPIC UDIPSAMMENTS, MIXED, MESIC

PLAINFIELD SERIES
MAAT<50

THE PLAINFIELD CONSISTS OF DEEP, EXCESSIVELY DRAINED SOILS FORMED IN SANDY DRIFT ON OUTWASH PLAINS, STREAM TERRACES AND GLACIAL MORAINES. THE SURFACE LAYER IS BROWN LOAMY SAND 8 INCHES THICK. THE SUBSOIL IS DARK YELLOWISH-BROWN SAND 12 INCHES THICK. THE SUBSTRATUM IS YELLOWISH BROWN SAND AND LIGHT YELLOWISH BROWN FINE SAND. SLOPES RANGE FROM 0 TO 60 PERCENT. USED MOSTLY FOR PASTURE AND WOODLAND. SOME AREAS ARE IRRIGATED AND USED TO GROW VEGETABLE AND GENERAL FARM CROPS

ESTIMATED SOIL PROPERTIES (A)

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				LIQUID LIMIT	PLASTICITY INDEX
					4	10	40	200		
0-8	LS, LFS	SM, SP-SM	A-2, A-4, A-1	0	75-100	75-100	40-90	12-40	-	NP
0-8	S, FS	SP-SM, SM, SP	A-3, A-2, A-1	0	75-100	75-100	40-80	3-35	-	NP
8-48	S	SP, SM, SP-SM	A-3, A-1, A-2	0	75-100	75-100	40-70	1-15	-	NP
48-60	S, FS	SP, SM, SP-SM	A-3, A-1, A-2	0	75-100	75-100	40-90	1-15	-	NP

DEPTH (IN.)	CLAY (PCT)	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	EROSION FACTORS		WIND EROD. GROUP	ORGANIC MATTER (PCT)	CORROSIVITY	
								K	T			STEEL	CONCRETE
0-8	3-7	1.50-1.65	2.0-6.0	0.09-0.12	4.5-7.3	-	LOW	.17	5	2	.5-2	LOW	HIGH
0-8	2-5	1.50-1.65	6.0-20	0.04-0.08	4.5-7.3	-	LOW	.15	5	1	.5-2		
8-48	0-4	1.50-1.65	6.0-20	0.04-0.07	4.5-6.5	-	LOW	.17					
48-60	0-4	1.50-1.70	6.0-20	0.04-0.07	4.5-6.5	-	LOW	.17					

FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE		HYD GRP	POTENT'L FROST ACTION
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS	DEPTH (IN)	HARDNESS	INIT. (IN)	TOTAL (IN)		
NONE			>6.0			-		>60		-		A	LOW

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	0-15%: SEVERE-POOR FILTER 15+%: SEVERE-SLOPE,POOR FILTER
SEWAGE LAGOON AREAS	0-7%: SEVERE-SEEPAGE 7+%: SEVERE-SEEPAGE,SLOPE
SANITARY LANDFILL (TRENCH)	0-15%: SEVERE-SEEPAGE,TOO SANDY 15+%: SEVERE-SEEPAGE,SLOPE,TOO SANDY
SANITARY LANDFILL (AREA)	0-15%: SEVERE-SEEPAGE 15+%: SEVERE-SEEPAGE,SLOPE
DAILY COVER FOR LANDFILL	0-15%: POOR-TOO SANDY,SEEPAGE 15+%: POOR-TOO SANDY,SLOPE,SEEPAGE

BUILDING SITE DEVELOPMENT

SHALLOW EXCAVATIONS	0-15%: SEVERE-CUTBANKS CAVE 15+%: SEVERE-CUTBANKS CAVE,SLOPE
DWELLINGS WITHOUT BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
DWELLINGS WITH BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
SMALL COMMERCIAL BUILDINGS	0-4%: SLIGHT 4-8%: MODERATE-SLOPE 8+%: SEVERE-SLOPE
LOCAL ROADS AND STREETS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	0-8% LFS,LS: MODERATE-DROUGHTY 8-15% LFS,LS: MODERATE-SLOPE,DROUGHTY 15+% LFS,LS: SEVERE-SLOPE 0-15% S,FS: SEVERE-DROUGHTY 15+% S,FS: SEVERE-DROUGHTY,SLOPE

REGIONAL INTERPRETATIONS

CONSTRUCTION MATERIAL

ROADFILL	0-15%: GOOD 15-25%: FAIR-SLOPE 25+%: POOR-SLOPE
SAND	PROBABLE
GRAVEL	IMPROBABLE-TOO SANDY
TOPSOIL	0-15% LFS,LS: POOR-THIN LAYER 15+% LFS,LS: POOR-SLOPE,THIN LAYER 0-15% S,FS: POOR-TOO SANDY 15+% S,FS: POOR-TOO SANDY,SLOPE

WATER MANAGEMENT

POND RESERVOIR AREA	0-8%: SEVERE-SEEPAGE 8+%: SEVERE-SEEPAGE,SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-SEEPAGE,PIPING
EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DRAINAGE	DEEP TO WATER
IRRIGATION	DROUGHTY,FAST INTAKE,SOIL BLOWING
TERRACES AND DIVERSIONS	0-8%: TOO SANDY,SOIL BLOWING 8+%: SLOPE,TOO SANDY,SOIL BLOWING
GRASSED WATERWAYS	0-8%: DROUGHTY 8+%: DROUGHTY,SLOPE

REF 22

PLAINFIELD SERIES
MAAT<60

WI0116

RECREATIONAL DEVELOPMENT

CAMP AREAS	0-8% LFS,LS: SLIGHT 8-15% LFS,LS: MODERATE-SLOPE 15+% LFS,LS: SEVERE-SLOPE 0-15% S,FS: SEVERE-TOO SANDY 15+% S,FS: SEVERE-SLOPE,TOO SANDY	PLAYGROUNDS	0-2% LFS,LS: SLIGHT 2-6% LFS,LS: MODERATE-SLOPE 6+% LFS,LS: SEVERE-SLOPE 0-6% S,FS: SEVERE-TOO SANDY 6+% S,FS: SEVERE-SLOPE,TOO SANDY
PICNIC AREAS	0-8% LFS,LS: SLIGHT 8-15% LFS,LS: MODERATE-SLOPE 15+% LFS,LS: SEVERE-SLOPE 0-15% S,FS: SEVERE-TOO SANDY 15+% S,FS: SEVERE-SLOPE,TOO SANDY	PATHS AND TRAILS	0-15% LFS,LS: SLIGHT 15-25% LFS,LS: MODERATE-SLOPE 25+% LFS,LS: SEVERE-SLOPE 0-25% S,FS: SEVERE-TOO SANDY 25+% S,FS: SEVERE-SLOPE,TOO SANDY

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT) (B)

CLASS-DETERMINING PHASE	CAPABILITY		CORN (BU)		CORN SILAGE (TONS)		OATS (BU)		GRASS-LEGUME HAY (TONS)		KENTUCKY BLUEGRASS (AUM)		SOYBEANS (BU)			
	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
0-6% LFS,LS	4S		45	130	7		46		2.5	5.0	1.2		18			
0-6% LFS,LS,ERODED	4S		44	128	6		43		2.3	-	1.0		17			
6-12% LFS,LS	6S		-	-	-		46		2.2	-	0.8		-			
6-12% LFS,LS,ERODED	6S		-	-	-				2.0	-	0.4		-			
12-20% LFS,LS	6S		-	-	-		-		-	-	0.4		-			
20+% LFS,LS	7S		-	-	-		-		-	-	-		-			
0-6% S,FS	4S		43	126	5		42		2.3	4.7	0.9		16			
0-6% S,FS,ERODED	4S		41	124	4		40		2.1	-	0.8		15			
6-12% S,FS	6S		-	-	-		-		-	-	-		-			
6-12% S,FS,ERODED	6S		-	-	-		-		-	-	-		-			
12-20% S,FS	6S		-	-	-		-		-	-	-		-			
20+% S,FS	7S		-	-	-		-		-	-	-		-			

WOODLAND SUITABILITY

CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY		TREES TO PLANT
		EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y	WINDTH. HAZARD	PLANT COMPET	COMMON TREES	SITE INDX	
0-12%	3S	SLIGHT	MODERATE	MODERATE	SLIGHT	MODERATE	RED PINE	56	RED PINE
12-50%	3R	MODERATE	SEVERE	MODERATE	SLIGHT	MODERATE	EASTERN WHITE PINE	59	EASTERN WHITE PINE
							JACK PINE	49	JACK PINE
							NORTHERN PIN OAK	46	
							BLACK OAK	-	
							WHITE OAK	-	

WINDBREAKS (C)

CLASS-DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
HIGH PPT	EASTERN WHITE PINE	30	RED PINE	30	JACK PINE	30	NORWAY SPRUCE	20
	SIBERIAN PEASHRUB	8	LILAC	10	MANYFLR COTONEASTER	6	EASTERN REDCEDAR	15
	AMER CRANBERRYBUSH	10	SILKY DOGWOOD	8	GRAY DOGWOOD	6	AMUR MAPLE	10
LOW PPT	EASTERN WHITE PINE	26	RED PINE	18	AUSTRIAN PINE	20	JACK PINE	18
	EASTERN REDCEDAR	15	LILAC	7	TATARIAN HONEYSUCKLE	7	SIBERIAN PEASHRUB	7

WILDLIFE HABITAT SUITABILITY

CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR			
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
0-6%	POOR	POOR	FAIR	POOR	POOR	-	V. POOR	V. POOR	POOR	POOR	V. POOR	-
6+%	V. POOR	POOR	FAIR	POOR	POOR	-	V. POOR	V. POOR	POOR	POOR	V. POOR	-

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE				
FLOWERING SPURGE	EUCO10					
AMERICAN HAZEL	COAM•					
LEADPLANT	AMCA6					
RICHARDS COMANDRA	COUMD					
FIELD PUSSYTOES	ANNE					
SEDGE	CAREX					
POTENTIAL PRODUCTION (LBS./AC. DRY WT):						
FAVORABLE YEARS						
NORMAL YEARS						
UNFAVORABLE YEARS						

FOOTNOTES

A ESTIMATES OF ENGINEERING PROPERTIES BASED PARTIALLY ON HIGHWAY DEPARTMENT TEST DATA AND NSSL DATA.
1 THE EFFLUENT DRAINS SATISFACTORILY BUT THERE IS DANGER OF GROUND WATER POLLUTION.
B GRASS-LEGUME HAY YIELDS ARE FOR BROMEGRASS-ALFALFA MIXTURE.
C WINDBREAK GROUP 7.

REF ㉓

ORIG. TO V.

Provost Bros., Inc.

FREE ESTIMATES — DRILLED WATER WELLS SINCE 1912 — CODE 518 868-2126

GOULDS PUMPS

Sales and Service

SLOANSVILLE, NEW YORK

December 28, 1978

RECEIVED
DEC 29 1978
RIST-FROST, ASSOCIATES

Rist-Frost Assoc.
Consulting Engineers
21 Bay St.
P.O.Box 838
Glens Falls, N.Y.
12801

Town of Queensbury

AA	Nov. 13, 1978	Moved equipment to site	$ 275.00 ✓
DD	Nov. 14,	Set up & started drilling	210.00 ✓
BB	Nov. 15,	Set 23' of 10" pipe	100.00 ✓
EE	Nov. 16, - 26	Drilling to depth of 195'	1462.50 ✓
CC	Nov. 27	Enlarged hole to 9" and installed casing to bed rock at 195'. 196' casing	1078.00 ✓
GG	Nov. 28,	Bailed well empty and pulled casing up 6"	22.50 ✓
		Started well development	
		Water level 21' above bottom	
		Yield 15 g.p.m.	
	Nov. 29,	Water level 21' above bottom	
HH		Installed 5' screen .050 Slot	325.00 ✓
GG		Pulled casing 3½' and cut off	157.50 ✓
	Nov. 30,	Developing well, well empty @ 5:p.m. 9 hrs. @ $45.00	405.00 ✓
	Dec. 1,	8' of water in well	
I		Surged w/ plunger 2½ hrs.	112.50 ✓
		Filled well w/water to 30' from top	
K		Stand-by time 3½ hrs. @ $25.00	87.50 ✓
	Dec. 2,	Water level lowered from 30' to 123' overnight	
I		Surged well 4 hrs. @ $45.00	180.00 ✓
I		Bailed well empty 1 hr.	45.00 ✓
K		Stand-by time 2 hrs. @ $25.00	50.00 ✓
I	Dec. 4,	Removing screen 8½ hrs. @ $45.00	382.50 ✓
			$ 4893.00 ✓

Continued Page 2

REVIEWED AND FOUND SATISFACTORY

12-29-78

RECOMMEND IMMEDIATE PAYMENT

REF ㉓

Provost Bros., Inc.

FREE ESTIMATES
DRILLED WATER WELLS SINCE 1912
CODE 518 868-2126

GOULDS PUMPS
Sales and Service
SLOANSVILLE, NEW YORK

Page 2

Rist-Frost Assoc.
Re: Town of Queensbury

From Page 1			$ 4893.00
	Dec. 5, 1978	Finished removing screen, welded on 6" bored coupling and drove pipe 1' from bed rock 8 hrs. @ $45.00	360.00 ✓
		1 6" weld coupling	15.00 ✓
		Welding	15.00 ✓
I	Dec. 6,	Cleaned well 1 hr.	45.00 ✓
		No water came in 1 hr.	
K		3 hrs. stand-by time	75.00 ✓
		Cemented well w/ 8 bags Portland cement & sand	32.00 ✓
		2½ hrs. cementing (drove pipe to rock)	62.50 ✓
K	Dec. 7,	Stand-by time cement to harden 8 hrs. @ $25.00	200.00 ✓
	Dec. 8,	Drilled out cement and drilled 80' @7.50 VERTICAL into limerock	600.00 ✓
		At 270' level, well produced 2 g.p.m.	
	Dec. 9,	Water level 150' from top	
		Drilled 25' limestone @ 7.50 VERTICAL	187.50 ✓
		Total depth of well 300 ft.	
	Dec. 11,	Removed drill pipe and bail checked well, Yield approximately 3 g.p.m.	
		Water level 150' from top	
FF		Checking well 5½ hrs. @ $45.00	247.50 ✓
		Remove 11' of 10" casing	27.50 ✓
			$ 6760.00 ✓
		Credit for temporary casing	40.00 ✓
			$ 6720.00 ✓

Harold T Provost

Harold T. Provost, Pres.
Provost Bros. Inc.
hp-mp