EA REPORT DEC63A

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

SMITHTOWN MSF
TOWN OF SMITHTOWN, SUFFOLK COUNTY
NEW YORK I.D. NO. 152044

Prepared for

Division of Solid and Hazardous Waste
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-0001

Prepared by

EA Science and Technology
R.D. 2, Goshen Turnpike
Middletown, New York 10940

A Division of EA Engineering, Science, and Technology, Inc.

June 1987

CONTENTS

SECTION 1 DIVIDER

1. EXECUTIVE SUMMARY

The Smithtown MSF site (New York I.D. No. 152044 and EPA I.D. No. D980763759) is a 23.5-acre landfill situated at the intersection of Old Commack Road and Old Northport Road in the Town of Smithtown, Suffolk County, New York (Figures 1-1 and 1-2, and Photos 1-1 through 1-12). The site, owned and operated by the Town of Smithtown, began operation in 1978. Situated on an 89.7-acre parcel of undeveloped land, Smithtown accepts residential, commercial, and limited industrial refuse, as well as sludge from the Town's wastewater treatment plant.

The facility is comprised of five separate disposal cells, three of which were closed and capped in 1984. Cell 4 is presently being used for disposal of refuse. Cell 5 is excavated but not yet receiving garbage. The landfill is constructed with a single liner on the sides and a double liner on the bottom. Between these liners is a layer of sand and a leachate collection system. Upon closure, the cap will also have a liner.

A ground-water monitoring network has been installed at the site with two upgradient and five downgradient monitoring wells. Analysis of ground-water samples collected in April 1983 indicated that low concentrations of manganese and zinc were detected in downgradient wells. However, New York State Department of Environmental Conservation (NYSDEC) has indicated that this data is insufficient to determine leachate migration and has suggested a need for further investigation.

There is no indication that hazardous waste has been disposed of at the Smithtown MSF site. However, because the available analytical data for ground-water suggests the release of low levels of zinc and manganese from the site, a preliminary HRS score has been developed for this site. Based on this, the preliminary Migration Score (S_M) is 28.9 (Ground Water Route [S_{gw}] = 50.0; Surface Water Route [S_{sw}] = 0; Air Route [S_a] = 0); Fire and Explosion Score (S_{FE}) = N/A; and Direct Contact Score (S_{DC}) is 0.

In order to prepare a final HRS score for this site, collection of another suite of ground-water samples from the existing 7 monitoring wells is recommended for analysis of the Hazardous Substance List (HSL) of parameters. This additional investigation will also include preparation of a final HRS score and documentation, preliminary evaluation and costing of appropriate remediation, and submit a report to document the findings and results of the additional investigation. The estimated cost of this proposed work is $33,295.

Site Coordinates:

Latitude: 40° 52' 14"
Longitude: 73° 16' 35"

SMITHTOWN MSF

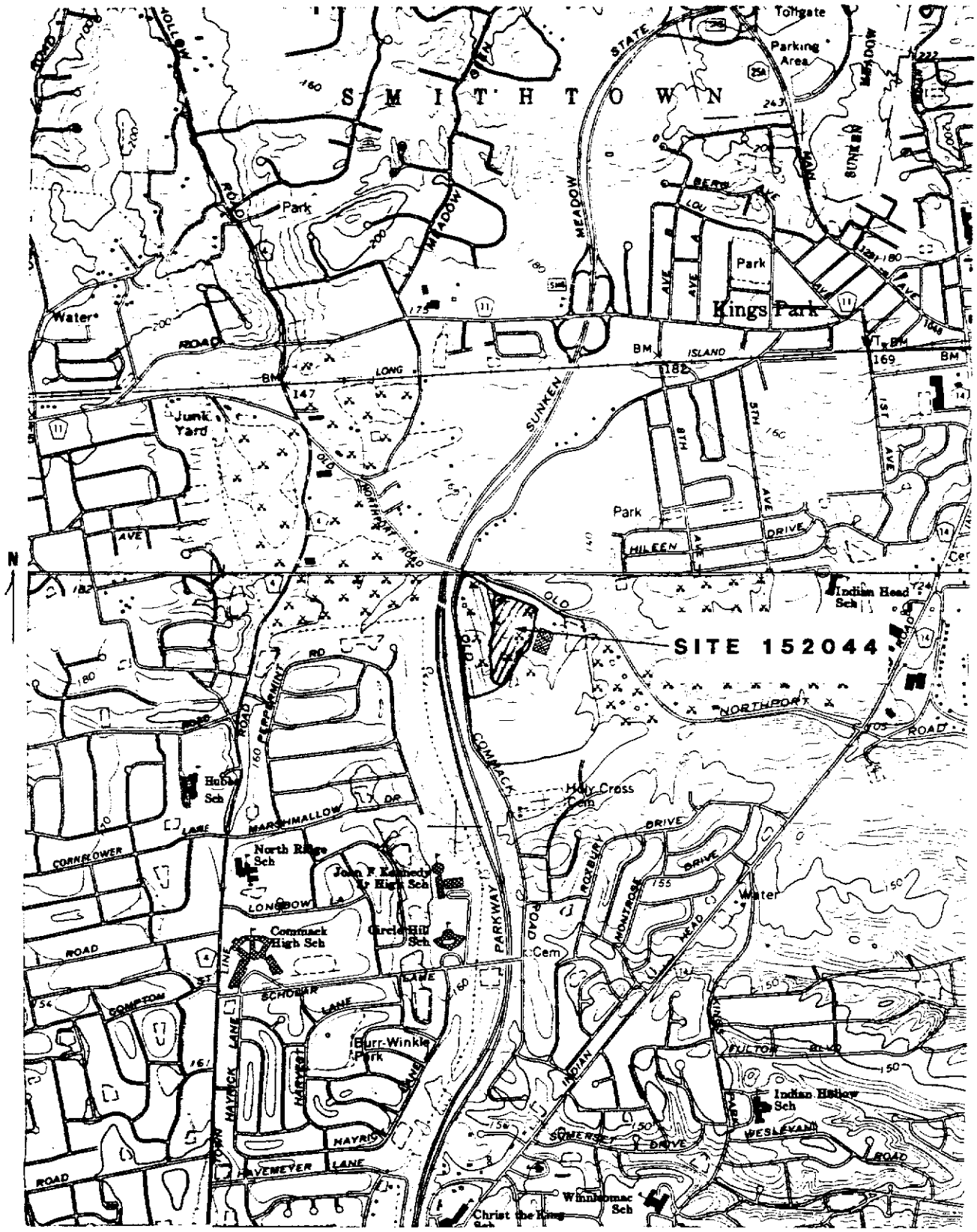
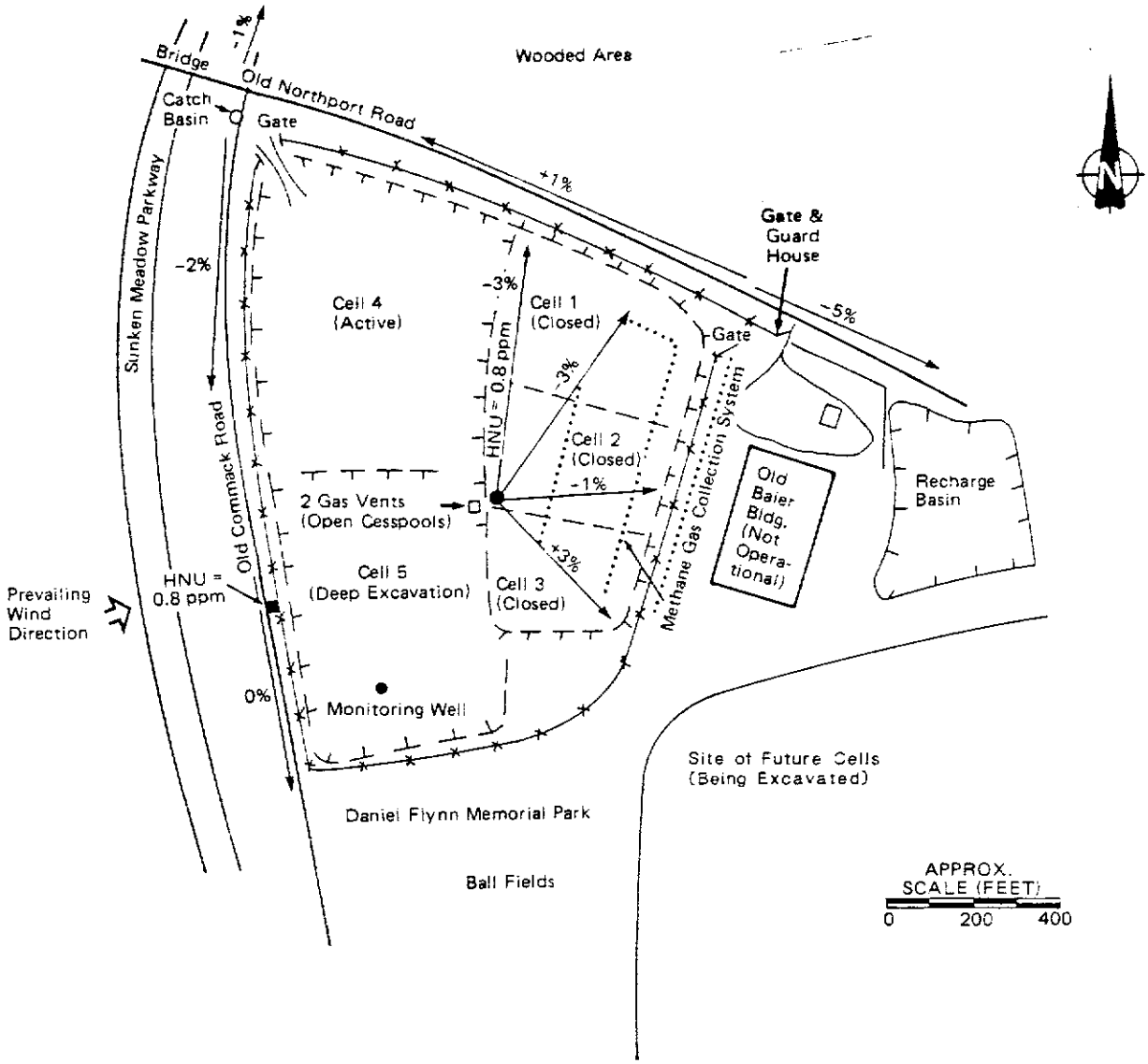


Figure 1-1. **GREENLAWN & NORTHPORT QUADS.**

Scale 1:24,000



NOTE: Base map enlarged from SCDOP Spring 1980 Air Photo No. E644, N4524.

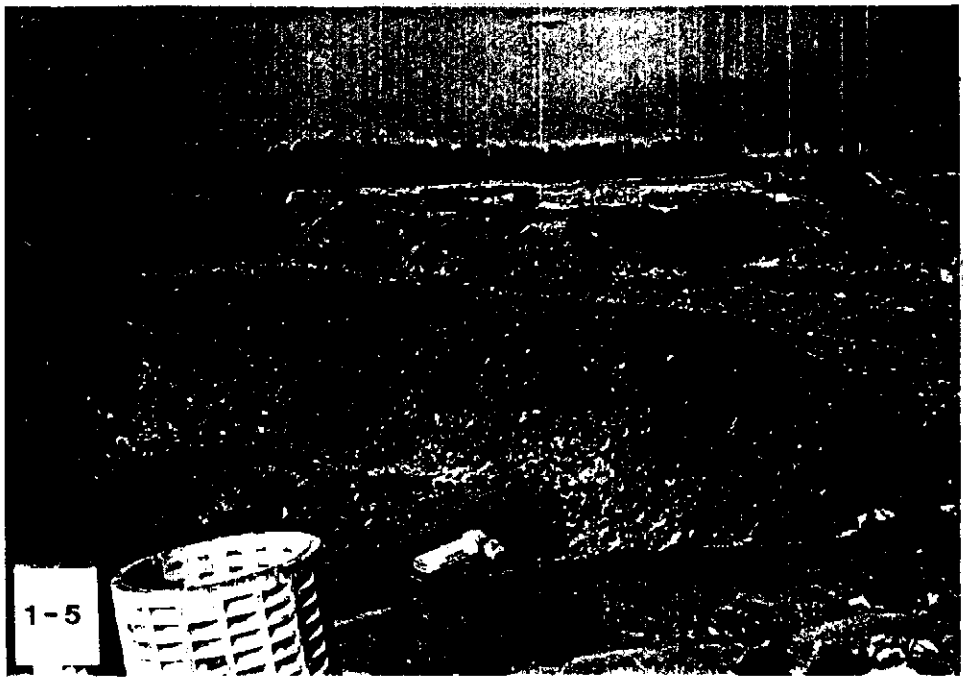
Figure 1-2. Site sketch. Smithtown MSF, 21 January 1986.

1-1

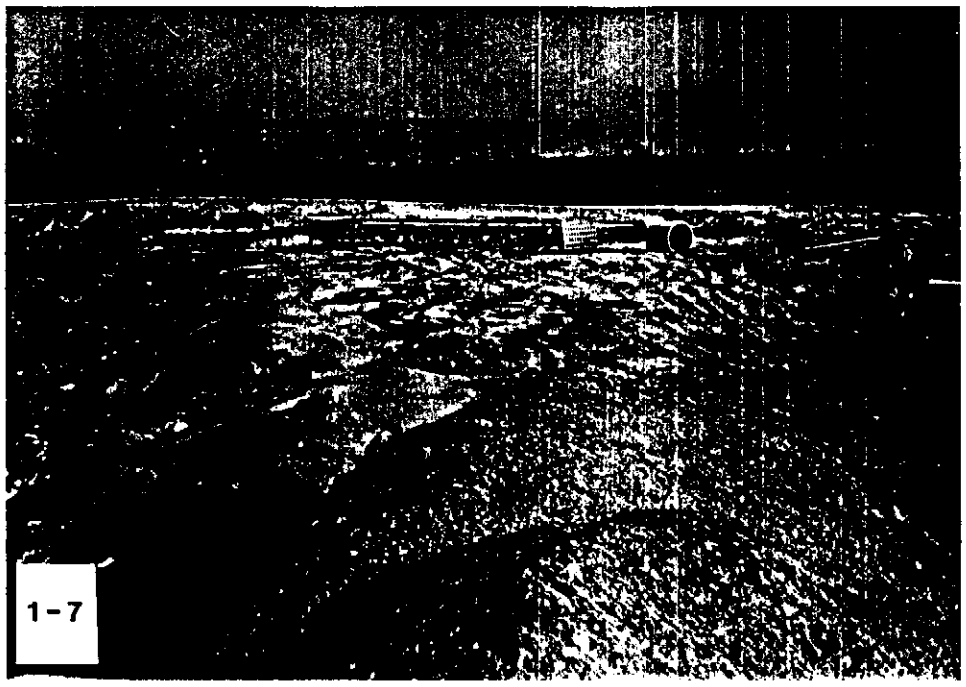
1-2

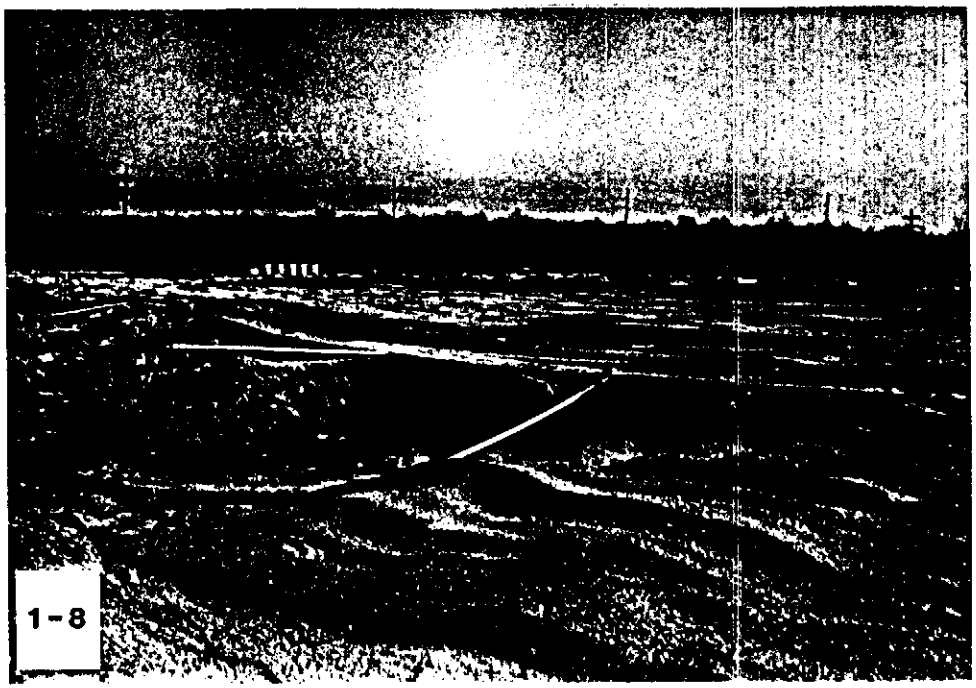
1-3

1-4

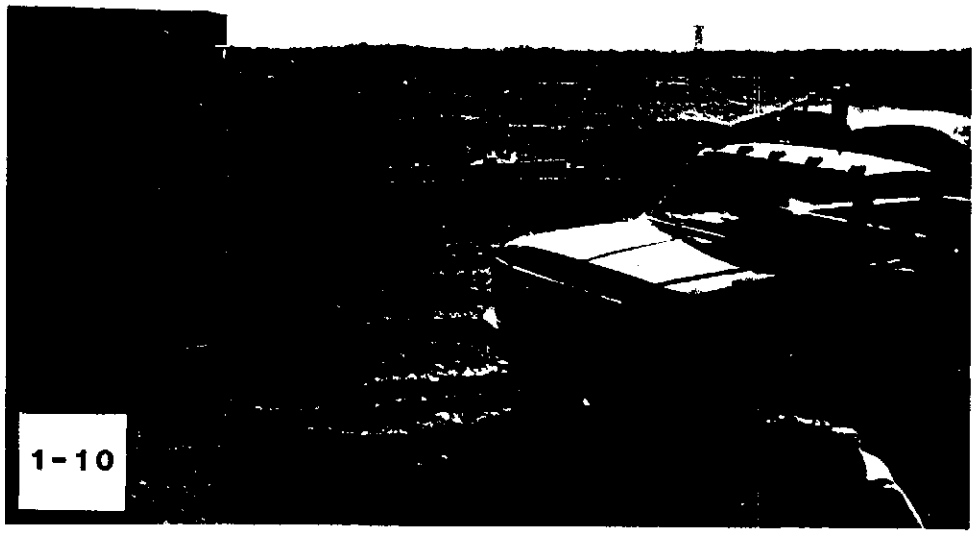

1-5


1-6


1-7


1-8


1-9


1-10


1-11


1-12

SMITHTOWN MSF - PHOTO LOG

Photo	Description
1-1	View of the entrance to the Smithtown MSF off of Old Northport Road.
1-2 through 1-10	Panoramic view (350°) from the southwest corner of closed Cell 2 (Figure 1-2).
1-2	South-southwest view across Cell 5 which is excavated but not yet receiving garbage. Concrete cesspools formerly used as natural methane gas vents are stored in the base of Cell 5.
1-3	West-southwest view across Cell 5.
1-4	West view across Cell 5 and the southern portion of Cell 4 (active). The upper right portion of the photo shows the liner in place on the western edge of Cell 4.
1-5	West-northwest view across the active cell (No. 4). In the upper right portion of the photo is the access gate located at the northwest corner of Cell 4.
1-6	North-northwest view across Cell 4 to the gate located in the northwest corner of the landfill. Liner material placed on the northern side of Cell 4 is visible in the upper central portion of the photo.
1-7	North view across the top of the closed Cells 1 and 2 toward Old Northport Road. In the center right of the photo are PVC pipes which are part of the methane collection system.
1-8	Northeast view across the top of closed Cells 1 and 2.
1-9	East view across Cell 2 to the old baler building.
1-10	Southeast view across the top of closed Cell 3.
1-11	Southwest view of the methane gas collection system along the northeast corner of the landfill and just off the landfill proper. Visible is the fence which surrounds the entire landfill.
1-12	South view of the recharge basin located east of the Smithtown MSF site.

SECTION 2 DIVIDER

2. PURPOSE

The Smithtown MSF site was listed in the New York State Registry of Inactive Hazardous Wastes Sites simply because it is a landfill.

The goal of the Phase I investigation of this site was to: (1) obtain available records on the site history from state, federal, county, and local agencies; (2) obtain information on site topography, geology, local surface water and ground-water use, previous contamination assessments, and local demographics; (3) interview site owners, operators, and other groups or individuals knowledgeable of site operations; (4) conduct a site inspection to observe current conditions; and (5) prepare a Phase I report. The Phase I report includes a preliminary Hazard Ranking Score (HRS), an assessment of the available information, and a recommended work plan for additional investigation.

SECTION 3 DIVIDER

3. SCOPE OF WORK

The Phase I investigation of the Smithtown MSF site involved a site inspection by EA Science and Technology, as well as record searches and interviews. The following agencies or individuals were contacted:

Contact	Information Received
Mr. Andrew Wolke Site Supervisor Town of Smithtown P.O. Box 575 Smithtown, New York 11787 (516) 269-6600	Site Interview
Mr. John Trent, P.E. Town Engineer Town of Smithtown Engineering Department 124 West Main Street Smithtown, New York 11787 (516) 360-7550	Interview
Mr. Anthony Candela, P.E. Senior Sanitary Engineer New York State Department of Environmental Conservation Division of Solid Waste SUNY Campus - Building 40 Stony Brook, New York 11794 (516) 751-7900	Site file
Mr. James H. Pim, P.E. Suffolk County Department of Health Services Hazardous Materials Management 15 Horseblock Place Farmingville, New York 11738 (516) 451-4634	Interview and site file
Mr. Steve Carey/Mr. Dennis Moran Suffolk County Department of Health Services Bureau of Water Resources 225 Rabro Drive East Hauppauge, New York 11788 (516) 348-2893	Ground-water use; public water supplies and ground-water monitoring information

Contact	Information Received
Mr. Dan Fricke Suffolk County Cooperative Extension Association 264 Griffing Avenue Riverhead, New York 11901 (516) 727-7850	Ground-water and surface water use for irrigation
Mr. William Schickler/Mr. Robert Bowen Suffolk County Water Authority Sunrise Highway and Pond Road Oakdale, New York 11769 (516) 589-5200	Public water supply and distribution
Mr. Doug Pica New York State Department of Environmental Conservation Division of Water SUNY Campus - Building 40 Stony Brook, New York 11794 (516) 751-7900	Ground-water use for irrigation
Mr. Allan S. Connell District Conservationist U.S. Department of Agriculture Soil Conservation Survey 127 East Main Street Riverhead, New York 11901	Ground-water use for irrigation
Mr. Al Anderson Chief Fire Inspector Department of Fire Prevention 99 West Main Street Smithtown, New York 11787 (516) 360-7539	Information regarding the threat of fire and/or explosion at the site
Mr. Kevin Walter, P.E. New York State Department of Environmental Conservation Division of Hazardous Waste Enforcement 50 Wolf Road Albany, New York 12233-0001 (518) 457-4346	No file/information
Mr. John Iannotti, P.E. New York State Department of Environmental Conservation Bureau of Remedial Action 50 Wolf Road Albany, New York 12233-0001 (518) 457-5637	No file/information

Contact	Information Received
Mr. Earl Barcomb, P.E. New York State Department of Environmental Conservation Bureau of Municipal Wastes Section of Landfill Operations Vatrano Road Albany, New York 12205 (518) 457-2051	Site file
Mr. Peter Skinner, P.E. New York State Attorney General's Office Room 221 Justice Building Albany, New York 12224 (518) 474-2432	No file/information
Mr. Ron Tramontano/Mr. Charlie Hudson New York State Department of Health Bureau of Toxic Substances Assessment Nelson A. Rockefeller Empire State Plaza Corning Tower Building, Room 342 Albany, New York 12237 (518) 473-8427	Site file
Mr. James Covey, P.E. New York State Department of Health Nelson A. Rockefeller Empire State Plaza Corning Tower Building Albany, New York 12237 (518) 473-4637	Community Water Supply Atlas
Mr. Rocky Paggione, Atty./ Mr. Louis A. Evans, Atty. New York State Department of Environmental Conservation Division of Environmental Enforcement 202 Mamaroneck Avenue White Plains, New York 10601-5381 (914) 761-6660	No file/information
Mr. Marsden Chen, P.E. New York State Department of Environmental Conservation Bureau of Site Control 50 Wolf Road Albany, New York 12233-0001 (518) 457-0639	Site file

Contact	Information Received
Mr. John W. Ozard Senior Wildlife Biologist New York State Department of Environmental Conservation Wildlife Resources Center Significant Habitat Unit Delmar, New York 12054 (518) 439-7486	Significant habitats
Mr. Perry Katz U.S. Environmental Protection Agency Region II Room 757 26 Federal Plaza New York, New York 10278 (212) 264-4595	No file/information
Mr. Robert E. Ulreich Consulting Engineer Sidney B. Bowne & Son 235 East Jericho Turnpike P.O. Box 109 Mineola, New York 11501 (516) 746-2350	Water district information

SECTION 4 DIVIDER

4. SITE ASSESSMENT - SMITHTOWN MSF

4.1 SITE HISTORY

The Smithtown Municipal Services Facility (MSF) is a 23.5-acre landfill situated at the intersection of Old Commack Road and Old Northport Road in the Town of Smithtown, Suffolk County, New York. The site, owned and operated by the Town of Smithtown, began operation after receiving a permit on 23 June 1978 with the stipulation that the Town move towards resource recovery (Appendixes 1.1-1 through 1.1-5). Situated on a 89.7-acre parcel of undeveloped land, Smithtown accepts residential, commercial, and limited industrial refuse, as well as sludge from the Town's wastewater treatment plant (Appendixes 1.1-1 and 1.1-6). According to the engineers to the Town of Smithtown, no hazardous, toxic, radioactive, explosive, or biologically unacceptable waste material is accepted at the landfill (Appendix 1.1-6a).

The facility is comprised of five separate disposal cells, three of which were closed and capped in 1984. At the present time, Cell 4 is receiving refuse. Cell 5 is excavated but not yet receiving garbage. The landfill is constructed with a single liner on the sides and a double liner on the bottom. The double liner consists of an upper 30-mil hypalon liner and a lower 20-mil PVC liner (Appendixes 1.1-1 and 1.1-6). Between the double liner on the bottom of the landfill is a layer of sand and a leachate collection system. Although liquid was found between these liners, it is reported to be rainwater which occurred during placement of the liners (Appendixes 1.1-2 and 1.1-6). Sampling of this liquid for analysis was apparently not performed. Upon closure, the cap will

also have a liner. This is in the process of being installed in Cells 1-3 (Appendix 1.1-1). As a temporary measure, the cells were capped with a clay loam mixture (Appendixes 1.1-5 and 1.1-7).

The bottom liners have a bathtub effect, collecting leachate which is pumped out and hauled to the Kings Park sewage treatment plant. Other than the rainwater, the site supervisor indicated there are no known problems of leachate collecting between the two bottom liners (Appendix 1.1-1).

Seven ground-water monitoring wells have been installed at the site: two upgradient and five downgradient (Appendixes 1.1-4, 1.1-7, and 1.1-7a). Analysis of groundwater samples collected in April 1983 indicate that low concentrations of manganese and zinc were detected above ambient (upgradient) ground-water conditions. The samples were not analyzed for organic contaminants (Appendix 1.1-8). In a NYSDEC memorandum dated 12 January 1984, it was stated that the data was insufficient and that the wells should be resampled (Appendix 1.1-9). In April 1984, the Department of Health Services assisted the NYSDEC in sampling 3 of the downgradient wells. Results of the analysis indicated elevated concentrations of several organic compounds and phenols. However, no upgradient samples were collected to compare concentrations to ambient ground-water conditions (Appendixes 1.1-9a and 1.1-9b). In February 1985, two NYSDEC memoranda confirmed that further investigation was needed to determine if leachate was escaping from the existing disposal cells (Appendixes 1.1-10 and 1.1-11.)

In 1984, the natural methane vents were replaced by a methane collection system, converting generated gases to electricity (Appendix 1.1-1). Other than complaint of odors (Appendix 1.1-12), there have been few complaints about the Smithtown MSF. SCDHS does not believe that the landfill has received hazardous wastes (Appendix 1.1-13).

In 1983, NUS Corporation, a U.S. EPA contractor, investigated the Smithtown MSF site. NUS Corporation reported that no hazardous substances were known to be present at the site, and recommended no further action be taken (Appendix 1.1-6).

In 1986, consulting engineers Charles R. Velzy Associates conducted hydrogeologic investigations at the Smithtown MSF to establish the geology and ground-water flow patterns beneath the site. To accomplish these objectives, a 625-ft deep well cluster was installed. The study concluded that while the MSF landfill is located in a deep flow ground water recharge area, the areal extent and thickness of the Smithtown Clay in the study area renders the impact of the landfill minimal to recharge of the deep flow zone (Appendix 1.1-6a).

4.2 SITE TOPOGRAPHY

The Smithtown MSF (landfill) site is located along the northern shore of Long Island, about 2.9 mi inland from the Long Island Sound at an elevation of approximately 150 ft above mean sea level. The regional slope of terrain in the immediate vicinity of the site is approximately 5 percent to the east

southeast. The 23.5-acre site slopes approximately 1 percent to the north northeast (Cells 4 and 5 are in an enclosed basin) (Appendix 1.2-1, EA Site Inspection).

There are five separate disposal cells at the landfill; the first through third cells were closed in July 1984. These three closed cells were sloped to one corner in order to facilitate runoff collection into recharge basins. However, the third cell has settled extensively and now falls short of Cell 1 and Cell 2. An old baler building (no longer in operation), a recharge basin, and a guardhouse are located to the east of the cells.

The landfill operations are surrounded by Daniel Flynn Memorial Park to the south, Old Commack Road to the west, Old Northport Road to the north, and a sandpit to the east. The nearest commercial establishment is a sand and gravel mining operation located approximately 1,600 ft to the northwest of the landfill. The nearest residence and private well are located on Old Commack Road, approximately 2,000 ft to the north. The nearest surface waterbody is a small tributary entering Willow Pond, approximately 2.5 mi southeast of the site. There is no viable overland route from the site to this surface water because several roads and recharge basins intersect the pathway.

4.3 SITE HYDROGEOLOGY

The site is directly underlain by Pleistocene Age glaciofluvial deposits. This deposit is then in turn underlain by Cretaceous Age Matawan Group-Magothy Formation (undifferentiated), the Clay Member and Lloyd Sand Member of the Raritan Formation and finally by Precambrian Age crystalline metamorphic and

igneous rocks (Appendix 1.3-1). The Pleistocene deposits are estimated to be 240 ft in thickness (ground surface elevation and Appendix 1.1-6a) and largely comprised of stratified sand and gravel with thick to thin discontinuous lenses of silt and clay, particularly present in buried valleys (Appendixes 1.3-1 and 1.1-6a). Based upon Appendix 1.1-6a, the site is underlain by a portion of the Smithtown Clay unit. The unit is approximately 35 ft in thickness. The upper surface of the unit is reportedly 80-120 ft beneath ground surface at the landfill, and dips steeply toward the east northeast. A considerable thickness of clay was penetrated by Wells S-19057 and S-21134 located southwest of the site while very little clay was reportedly encountered at Well S-54162 located northwest of the site (Appendix 1.3-2). Although seven monitoring wells exist at the site, the boring logs and well construction diagrams have not been made available for this investigation. Based upon Appendixes 1.1-6a and 1.1-7, these 7 wells were installed in 1983. Based upon the elevation of the screened interval determined from Appendix 1.1-7 and the approximate elevation of the Smithtown Clay unit shown on Figure 14 of Appendix 1.1-6a, the upgradient wells (Nos. 6 and 7) appear to be screened below the Clay unit while the downgradient wells (Nos. 1, 2, 3, 4, and 5) appear to be screened above the Clay unit. Appendix 1.1-6a provides the boring log and well schematic for a deep well cluster (S-82188) located just southeast of the landfill and installed during January 1986 as part of a study by Velzy Associates.

The Matawan Group-Magothy Formation (undifferentiated) is estimated to be 400 ft in thickness in the vicinity of the site (Appendixes 1.3-3 and 1.1-6a). The upper surface of this deposit is irregular because of considerable erosion during the Tertiary and Pleistocene times. Therefore, accurate prediction of formation thickness between control points (boreholes) is difficult. Lubke

(Appendix 1.3-1) reports that the upper portion of this formation is generally composed of interbedded clay, fine to medium sand, silt and some lignite; while the lower portion is generally coarse sand, gravel, and some clay. The clay and silt beds are often apparently discontinuous lenses as indicated on the geologic logs (Appendix 1.3-2) for six nearby deep water supply wells and one observation well: Observation Well S-46965 (170-ft total borehole depth), located opposite the site on Old Northport Road; Well S-34460 (620-ft total borehole depth), located approximately 2 mi east of the site; Well S-54162 (548-ft total borehole depth), located about 2.5 mi northwest of the site; and Well S-21134 (680-ft total borehole depth), Well S-19057 (664-ft total borehole depth), and Well S-23999 (620-ft total borehole depth), located about 1.5, 2.25, and 2.75 mi, respectively, southwest of the site.

The Clay Member of the Raritan Formation is estimated to be 200 ft in thickness in the vicinity of the site (Appendix 1.3-3). Lubke (Appendix 1.3-1) reports that the Raritan Clay is composed chiefly of gray, white, and red clay and silt, and a few layers of sand. Lignite and pyrite concretions are common. The Lloyd Sand Member of the Raritan Formation is estimated to be 250 ft in thickness in the vicinity of the site (Appendix 1.3-3). Lubke (Appendix 1.3-1) reports that the Lloyd Sand is composed of white to pale yellow fine to coarse sand and gravel with some clay and layers of silt and clay.

Water pumped from aquifers underlying Suffolk County is the sole source of water for public supply, agriculture, and industry (Appendix 1.3-3). The upper glacial and Magothy aquifers act as a single hydrological unit and are the only aquifers reportedly developed by wells for water supply within 3 mi of the site. Therefore, both the upper glacial and Magothy aquifers are designated as

the aquifer of concern. The Lloyd aquifer, though moderately permeable (165 gpd/ft^2 estimated horizontal permeability at Brookhaven National Laboratory about 20 mi east of the site), has not been developed for water supply because more permeable aquifers are present at shallower depths. Additionally, the Lloyd Aquifer is overlain by the extensive, thick, low permeability (confining) Raritan Clay (Appendixes 1.3-1 and 1.3-4). Therefore, the Lloyd Aquifer will not be considered further by this Phase I investigation. The aquifers of Long Island are hydraulically interconnected and although beds and discontinuous layers of silt and clay within and between aquifers serve to confine water below them, they do not completely prevent the vertical movement of water through and around them. Soren (Appendix 1.3-4) presents data which reflect the high degree of hydraulic interconnection between the upper glacial and Magothy aquifers in the vicinity: 1) for wells completed in the upper glacial and Magothy aquifers in nearby Brentwood and Hauppauge, the head in these two aquifers decrease at a fairly uniform rate with increasing depth, and 2) water-level fluctuation in the same well groups were very similar. Soren also reports that the estimated downward velocity of water through the Magothy aquifer in the vicinity of the ground-water divide in 1968 (along which the site is located) was 0.006 ft/day (approximately 2.2 ft/yr).

Recharge to the upper glacial aquifer is derived entirely from precipitation. Recharge to the Magothy and Lloyd aquifers is derived entirely from the downward movement of water from each overlying aquifer (Appendix 1.3-1). In general, recharge to the lower aquifers occurs near the center of Long Island and discharge occurs along the edge of Long Island to the ocean and Long Island Sound. The average annual precipitation in the area is 49 in., of which 21 in.

is estimated to infiltrate to the water table (Appendix 1.3-1). The remainder of the precipitation is returned to the atmosphere by evaporation and transpiration, except for a small amount of runoff to streams.

The upper glacial aquifer is the most permeable aquifer on Long Island with an estimated horizontal permeability of 750-1,500 gpd/ft^2 (Appendixes 1.3-1 and 1.3-4). The site is located north of the center of Long Island in an area of recharge for the glacial aquifer. Appendix 1.1-6a indicates that the site overlies an area which also recharges the deeper aquifers. However, it should be noted that beneath the site the ground-water table is generally present at the surface of, or within, the Smithtown Clay unit which would impede the downward flow of water (precipitation) to the underlying Magothy aquifer (Appendix 1.1-6a). In 1968, it was estimated in the region that water in the upper glacial aquifer was moving horizontally at rates less than 0.5 ft/day in areas distant from centers of pumping and to hundreds of ft/day near the screens of pumping wells (Appendix 1.3-4). The permeability of the underlying Magothy aquifer ranges widely depending upon the presence and amount of clay and silt. In 1968, it was estimated in the region that water in the Magothy aquifer was moving horizontally at rates less than 0.2 ft/day in areas distance from pumping, and to hundreds of ft/day near screens of pumping wells.

Based upon Appendix 1.1-6a the depth to ground water in February 1986 is estimated to be approximately 100-105 ft below ground surface, and the regional ground-water natural (unaffected by pumping) flow direction appears to be toward the north northeast. Appendix 1.1-6a indicates the February 1986 ground-water elevation to be approximately 45-47 ft above mean sea level. Within 3 mi of the site, the upper glacial and Magothy aquifer of concern has

been developed by 13 Suffolk County Water Authority well fields, three of the four Greenlawn well fields (all reportedly completed in the Magothy Aquifer), the King's Park Psychiatric Center wells and the Northport VA Hospital wells. Appendix 1.3-5 provides a list of municipal supply wells located within 3 mi of the site. The entire area within 3 mi of the site appears to be served by three public water systems (Suffolk County Water Authority, Greenlawn Water District, and Smithtown Water District) and the two institutional water systems stated previously.

4.4 SITE CONTAMINATION

Waste Types and Quantities

Residential, commercial, and limited industrial refuse are accepted at the Smithtown MSF site. Sludge from the Town's wastewater treatment plant is also disposed of at the site (Appendix 1.1-1). It is estimated that approximately 18,000 gal/day are pumped from the site's leachate collection well and transported to the King's Park sewage treatment plant (Appendix 1.1-6). In 1980, leachate was sampled four times. Samples were analyzed at Pedneault Associates Testing Laboratories, Inc., Bohemia, New York, for BOD, suspended solids, and metals. Analysis of the samples indicated high levels of iron and manganese (Appendix 1.4-1).

Ground Water

Ground-water samples were collected from onsite monitoring wells on 7 April 1983 (downgradient wells) and 21 April 1983 (upgradient wells). Samples were analyzed at Pedneault Associates Testing Laboratories, Inc., Bohemia, New York, for inorganics such as nutrients, physical parameters such as color and turbidity, and trace metals. Analysis of the samples indicate above-background levels of ammonia, sulfate, total alkalinity, total dissolved solids, copper, iron, manganese, and zinc in downgradient wells. Concentrations of 0.38 mg/liter for manganese and 0.37 mg/liter for zinc were reported in downgradient monitoring wells (No. 4 and No. 3, respectively). Reported ambient (upgradient) concentrations of the two metals were, respectively, <0.01-0.03 mg/liter and 0.01-0.02 mg/liter (Appendix 1.1-8). The New York State Class GA ground-water standards for both of these two metals is 0.3 mg/liter.

In April 1984, the Department of Health Services assisted the NYSDEC in sampling three downgradient monitoring wells for priority pollutant organics, acid and base neutral extractables, pesticides, and metals. Results of the analyses indicated elevated levels of cis/trans-1,2-dichloroethene, tetrachloroethene, toluene, vinyl chloride, 1,1-dichloroethane, chloroform, trichloroethene, benzene, tetrachloroethene, ethyl benzene, and phenols. No upgradient wells were sampled to establish ambient ground water conditions. Therefore, a release to ground water of these contaminants cannot be confirmed (Appendixes 1.1-9a and 1.1-9b).

Surface Water

No data available.

Soil

No data available.

Air

During EA's site inspection on 21 January 1986, total volatiles were measured using a photoionization detection device (HNU). No readings above background were obtained. Air quality measurements were obtained using an HNU during the April 1983 site inspection by an EPA contractor. At that time, no readings above background were reported.

SECTION 5 DIVIDER

SMITHTOWN MSF
TOWN OF SMITHTOWN, SUFFOLK COUNTY

The Smithtown MSF site is a 23.5-acre landfill situated at the intersection of Old Commack Road and Old Northport Road in the Town of Smithtown, Suffolk County, New York. The site, owned and operated by the Town of Smithtown, began operation in 1978. Situated on an 89.7-acre parcel of undeveloped land, Smithtown accepts residential, commercial, and limited industrial refuse, as well as sludge from the Town's wastewater treatment plant.

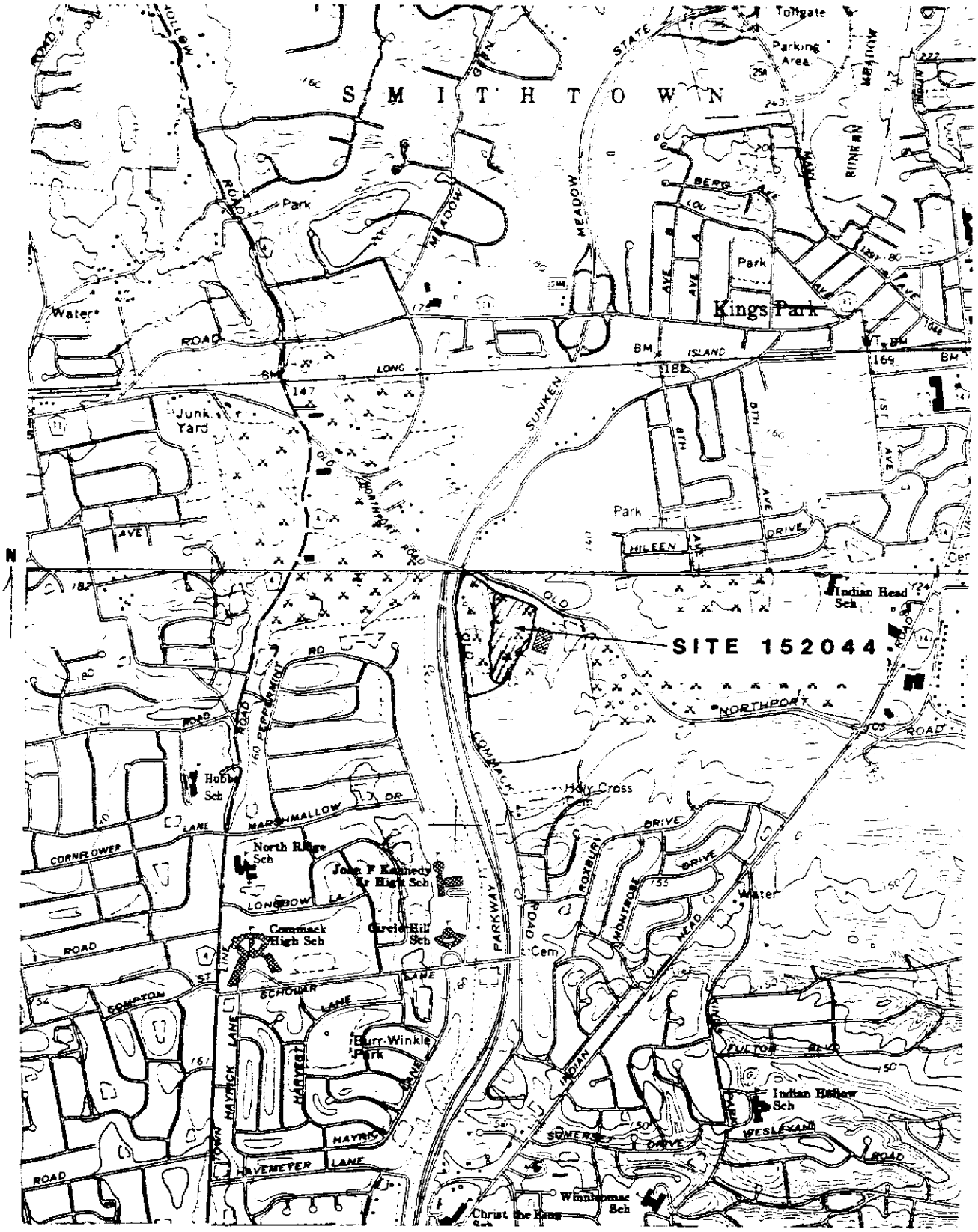
The facility is comprised of five separate disposal cells, three of which were closed and capped in 1984. Cell 4 is presently being used for disposal of refuse. Cell 5 is excavated but not yet receiving garbage. The landfill is constructed with a single liner on the sides and a double liner on the bottom. Between these liners is a layer of sand and a leachate collection system. Upon closure, the cap will also have a liner.

A ground-water monitoring network installed at the site with two upgradient and five downgradient monitoring wells. Analysis of ground-water samples collected in April 1983 indicated that low concentrations of manganese and zinc were detected in downgradient wells. However, New York State Department of Environmental Conservation (NYSDEC) has indicated that this data is insufficient to determine leachate migration and has suggested a need for further investigation.

Site Coordinates:

Latitude: 40° 52' 14"
Longitude: 73° 16' 35"

SMITHTOWN MSF



GREENLAWN & NORTHPORT QUADS.

Scale 1:24,000

Facility name: Smithtown MSF

Location: Town of Smithtown, Suffolk County, New York

EPA Region: II

Person(s) in charge of the facility: Town of Smithtown

99 West Main Street

Smithtown, New York 11787

Name of Reviewer: EA Science and Technology Date: 23 February 1987

General description of the facility:

(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.)

Smithtown MSF is a 23.5-acre (active) landfill which accepts residential, commercial, and some industrial garbage (papers and cardboard boxes), as well as sludge from the Town's WWTP. The landfill has a double liner with a layer of sand and a leachate collection system between the liners. However, ground-water monitoring data from 1983 indicates low levels of manganese and zinc above ambient conditions in two of the downgradient wells.

Scores: $S_M = 28.9(S_{gw} = 50 \quad S_{sw} = 0 \quad S_a = 0)$

$S_{FE} =$ NA

$S_{DC} = 0$

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref (Section)
1 Observed Release	0 (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		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				15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			13	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / 24 30 32 35 (40)	1	40	40	
Total Targets Score			49	49	
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			28,665	57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} =	50.0		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	(0) 1 2 3	1	0	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	(0) 1 2 3	2	0	6	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			5	15	
3 Containment	(0) 1 2 3	1	0	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	(0) 3 6 9 12 15 18	1	0	18	
Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1	0	8	
Total Waste Characteristics Score			0	26	
5 Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
Total Targets Score			6	55	
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	64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{sw} =	0		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multiplier	Score	Max Score	Ref. (Section)
1 Observed Release	(0)	45	1	0	45	5.1
Date and Location:						
Sampling Protocol:						
If line 1 is 0, the S_a = 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		1		3	
Toxicity	0 1 2 3		3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8		1		8	
Total Waste Characteristics Score					20	
3 Targets						5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30		1		30	
Distance to Sensitive Environment	0 1 2 3		2		6	
Land Use	0 1 2 3		1		3	
Total Targets Score					39	
4 Multiply 1 x 2 x 3				0	35,100	
5 Divide line 4 by 35,100 and multiply by 100			S_a =	0		

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	50	2,500
Surface Water Route Score (S_{sw})	0	0
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2,000
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		50
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M$		28.9

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet:						
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} = NA			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	1	0	3	8.2
3 Containment	(0) 15	1	0	15	8.3
4 Waste Characteristics Toxicity	(0) 1 2 3	5	0	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 (5)	4	20	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			20	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	21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} =	0		

FIGURE 12
DIRECT CONTACT WORK SHEET

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: As briefly as possible, summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

FACILITY NAME: Smithtown MSF

LOCATION: Town of Smithtown, Suffolk County, New York

DATE SCORED: 23 February 1987

PERSON SCORING: EA Science and Technology

PRIMARY SOURCES(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.)

EA Site Inspection, 21 January 1986
Mr. Andrew Wolke, Site Supervisor, Smithtown MSF
Mr. John Trent, P.E., Town Engineer, Town of Smithtown

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

COMMENTS OR QUALIFICATIONS:

No hazardous waste disposal has been documented. However, a preliminary HRS score has been developed because available ground-water analytical data suggests a release of contaminants from the site. Concentrations of zinc and manganese in downgradient ground-water samples were significantly higher (>10 times) than background concentrations. No organic data is available.

Surface water is scored on the basis that Cells 4 and 5 are in an enclosed basin and Cells 1-3 are adequately covered.

The local fire marshal does not consider the site to be an imminent fire or explosion threat.

Direct contact is scored on the basis that the landfill is adequately covered and entirely fenced.

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Zinc and manganese.

Reference: 1.

Rationale for attributing the contaminants to the facility:

Analysis of ground-water samples collected on 7 April 1983 (downgradient) and 21 April 1983 (upgradient) indicated above-background levels of zinc (0.37 mg/liter) and manganese (0.38 mg/liter) in wells reported to be located downgradient of the landfill (Wells No. 3 and No. 4, respectively). Analysis of upgradient samples (Wells No. 6 and No. 7) indicated background levels of these two metals to be 0.01-0.02 mg/liter and <0.01-0.03 mg/liter, respectively (Reference: 1). For purposes of preparing a preliminary HRS score, this will be considered an observed release of the contaminants to ground water since reported downgradient concentrations are >10 times the reported background concentrations.

Assigned value = 45.

Reference: 2.

***

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table[s]) of the aquifer of concern:

Depth from the ground surface to the lowest point of waste disposal/storage:

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

Mean annual lake or seasonal evaporation (list months for seasonal):

Net precipitation (subtract the above figures):

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Permeability associated with soil type:

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

***

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

***

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Manganese and zinc.

Reference: 1.

Compound with highest score:

Manganese and zinc = 12.

References: 2 and 3.

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.

Reference: Chapter 3.

Basis of estimating and/or computing waste quantity:

Minimum quantity assumed.

Assigned value = 1.

Reference: 2.

***

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Drinking water with municipal water from alternate sources presently unavailable.

References: 4-8.

Assigned value = 3.

Reference: 2.

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Private residence located on Old Commack Road.

References: 7, 8, and 10.

Distance to above well or building:

Approximately 1,775 ft from the most distant border of the closed cells.

Reference: 10.

Assigned value = 4.

Reference: 2.

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

Community Supplies:	Population:
Suffolk County Water Authority (Smithtown Water District)	89,836
Greenlawn Water District	40,000
Northport VA Hospital	3,500
King's Park Psychiatric Center	3,100
Total	136,436

Appendix 1.3-5 provides a list of well fields and wells within a 3-mi radius of the site.

There are also a number of undetermined private wells within a 3-mi radius of the site.

References: 4-8 and 11.

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):

Approximately 140 acres of land are used for agricultural purposes within a 3-mi radius of the site. However, irrigation wells on agricultural land in Suffolk County are not registered by any regulatory agency, so there are no lists or descriptions of the locations of these wells.

References: 12-16.

Total population served by ground water within a 3-mile radius:

136,436.

References: 4-8, 11, and 16.

Assigned value = 5.

Reference: 2.

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

No data available.

Reference: Chapter 3.

Assigned value = 0.

Reference: 2.

Rationale for attributing the contaminants to the facility:

***

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Approximately 1 percent. Estimated with Suunto clinometer.

Reference: 9.

Name/description of nearest downslope surface water:

Tributary to Willow Pond.

Reference: 10.

Average slope of terrain between facility and above-cited surface water body in percent:

Approximately 0.8 percent. Estimated from the topographic map.

Reference: 10.

Is the facility located either totally or partially in surface water?

No.

References: 9 and 10.

Is the facility completely surrounded by areas of higher elevation?

No.

References: 9 and 10.

Assigned value = 0.

Reference: 2.

1-Year, 24-Hour Rainfall in Inches

2.5 in.

Assigned value = 2.

Reference: 2.

Distance to Nearest Downslope Surface Water

2.5 mi.

Reference: 10.

Assigned value = 0.

Reference: 2.

Physical State of Waste

Solid and sludge.

References: 17 and 18.

Assigned value = 3.

Reference: 2.

***

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Cells 4 and 5 are located in an enclosed basin. Cells 1-3 were closed in 1984 and capped with a loam clay mixture.

References: 9, 17, and 19.

Method with highest score:

Landfill is adequately covered.

Assigned value = 0.

Reference: 2.

***

4 WASTE CHARACTERISTICS

Contaminant score = 0; therefore, waste characteristics are not scored.

Reference: 2.

Toxicity and Persistence

Compound(s) evaluated

Compound with highest score:

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):

Basis of estimating and/or computing waste quantity:

***

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational. Willow Pond is part of Nissequogue River State Park.

Reference: 10.

Assigned value = 2.

Reference: 2.

Is there tidal influence?

No.

Reference: 10.

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None.

Reference: 10.

Distance to 5-acre (minimum) freshwater wetland, if 1 mile or less:

None.

Reference: 10.

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None.

Reference: 20.

Assigned value = 0.

Reference: 2.

Population Served by Surface Water

Location(s) of water supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static waterbodies) downstream of the hazardous substance and population served by each intake:

None.

References: 5, 12, and 13.

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre).

None. The major source of irrigation water in Suffolk County is ground water from wells. Generally, surface water is not utilized for this purpose.

Reference: 12-15.

Total population served:

Zero.

References: 5 and 12-15.

Name/description of nearest of above waterbodies:

Distance to above-cited intakes, measured in stream miles.

AIR ROUTE

During EA's site inspection on 21 January 1986, air quality was measured using a photoionization detector (HNU). No measurements above background were found. HNU readings were also obtained during the April 1983 site inspection by NUS Corporation. No readings above background were reported (Reference: 18). EA has researched all agency files and has found no data indicating a release to air (Chapter 3).

Assigned value = 0.

Reference: 2.

1 OBSERVED RELEASE

Contaminants detected:

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

***

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) freshwater wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

FIRE AND EXPLOSION

The local fire marshal has not certified that the site presents a significant fire or explosion threat (Reference: 21). There are no analytical data in any of the agency files examined (Chapter 3).

1 CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

***

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

***

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

***

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

No observed incident on record.

Reference: Chapter 3.

Assigned value = 0.

Reference: 2.

***

2 ACCESSIBILITY

Describe type of barrier(s):

Site is entirely fenced.

Reference: 9.

Assigned value = 0.

Reference: 2.

***

3 CONTAINMENT

Type of containment, if applicable:

Landfill is adequately covered.

References: 9 and 17.

Assigned value = 0.

Reference: 2.

***

4 WASTE CHARACTERISTICS

Containment score = 0; therefore, waste characteristics are not evaluated.

Reference: 2.

Toxicity

Compounds evaluated:

Compound with highest score:

***

5 TARGETS

Population Within 1-Mile Radius

11,530. Estimated as 10 percent of the population of Fort Solonga (10,286), 15 percent of Kings Park (16,203), 15 percent of Commack (34,007), and 15 percent of East Northport (19,803).

Reference: 22.

Assigned value = 5.

Reference: 2.

Distance to Critical Habitat (of Endangered Species)

None.

Reference: 20.

Assigned value = 0.

Reference: 2.

REFERENCES

1. Pedneault Associates Testing Laboratories, Inc. Analytical data of field sampling. Town of Smithtown. (Appendix 1.1-8.)

2. U.S. Environmental Protection Agency. 1984. Uncontrolled Hazardous Waste Site Ranking System. A Users Manual. (HW-10). Originally published in the July 16, 1982, Federal Register.

3. Sax, N. Irving. 1979. Dangerous Properties of Industrial Materials. Van Nostrand Reinhold Company, New York.

4. Suffolk County Department of Health Services (SCDHS). Water Resources Division. 1985. Supply and Monitoring Well Location Maps.

5. New York State Department of Health (NYSDOH). 1982. New York State Atlas of Community Water Systems Sources. (Appendix 1.5-10.)

6. NYSDOH. 1984. Inventory-Community Water Systems. Volumes I and II. (Appendix 1.5-11.)

7. Suffolk County Water Authority (SCWA). 1985. Distribution of System Plates: 4I, 3I, 5I, 4J, 3J, 3K, and 4K.

8. Ulreich. 1986. Consulting Engineer, Greenlawn Water District. Letter to E. Bidwell. 13 March. (Appendix 1.5-2.)

9. EA Site Inspection, 21 January 1986.

10. U.S. Geological Survey. Photorevised 1979. 7.5-Minute Series. Northport and Greenlawn Quads. (Appendix 1.2-1.)

11. SCWA. 1985. Active Service Estimates. (Appendix 1.5-1.)

12. Connell, A. 1986. District Conservationist, USDA Soil Conservation Service. Personal communication. 13 March. (Appendix 1.5-3.)

13. Fricke, D. 1986. Suffolk County Cooperative Extension Association. Personal communication. 7 April. (Appendix 1.5-4.)

14. Carey, S. 1986. Ground Water Section, SCDHS. Personal communication. 7 April. (Appendix 1.5-5.)

15. Pica, D. 1986. Water Unit, Region I, New York State Department of Environmental Conservation. Personal communication. (Appendix 1.5-6.)

16. Long Island Regional Planning Board (LIRPB). 1982. Land Use in 1981. Quantification and Analysis of Land Use for Nassau and Suffolk Counties. (Appendix 1.5-6.)

17. Wolke, A. 1986. Supervisor, Town of Smithtown MSF. Personal communication. 21 January. (Appendix 1.1-1.)

REFERENCES (Cont.)

18. NUS Corporation. 1983. Potential Hazardous Waste Assessment. 11 May. (Appendix 1.1-6.)

19. Letter from John T. Trent, Assistant Civil Engineer, to Mr. James H. Heil, NYSDEC, regarding Smithtown MSF. 23 February 1984. (Appendix 1.1-7.)

20. Ozard, J.W. 1984. Senior Wildlife Biologist, NYSDEC Wildlife Resources Center, Significant Habitat Unit. Personal communication. 26 February. (Appendix 1.5-8.)

21. Anderson, A. 1986. Chief Fire Inspector, Town of Smithtown. Personal communication. 21 April. (Appendix 1.5-9.)

22. LIRPB. 1985. Population Survey. Current Population Estimates for Nassau and Suffolk Counties. Hauppauge, Long Island, New York.

United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington DC 20460

EPA Form 2070-12
July 1981

Smithtown MSF

EPA

Potential Hazardous Waste Site

Preliminary Assessment

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980763759

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Smithtown MSF	Old Northport Road				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Kings Park	NY	11754	Suffolk	103	02
09 COORDINATES LATITUDE	**LONGITUDE**				
40° 52' 14."	73° 16' 35."				

10 DIRECTIONS TO SITE (Starting from nearest public road)

Site is located on the south side of Old Northport Road just west of the intersection of Old Northport Road and Old Commack Road in Kings Park, New York.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)			
Town of Smithtown	99 West Main Street			
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
Smithtown	NY	11787	(516) 360-7600	
07 OPERATOR (If known and different from owner) Municipal Services Facility, Town of Smithtown	**08 STREET** (Business, mailing, residential) Post Office Box 575			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**	
Smithtown	NY	11787	(516) 269-6600	

13 TYPE OF OWNERSHIP (Check one)

☐ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☒ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES ☐ NO DATE 1 / 21 / 86 (MONTH DAY YEAR)

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☒ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): EA Science and Technology

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1978 (BEGINNING YEAR) | Present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

The landfill accepts residential, commercial, and limited industrial garbage, but not 55-gallon drums. The site also accepts sludge from the Town's waste water treatment plant.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

None known.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
Rebecca Ligotino	EA Science and Technology		(914) 692-6706
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Stephen Barry		EA	(914) 692-6706	3 / 25 / 86 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980763759

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A. SOLID
- [ ] B. POWDER, FINES
- [X] C. SLUDGE
- [ ] D. OTHER (Specify) C & D debris
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

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

TONS _____
CUBIC YARDS Unknown
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
- [X] M. NOT APPLICABLE

III. WASTE TYPE Unknown

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE		Unknown	Municipal WWTP sludge
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) Not applicable

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers) Not applicable

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, sampling analysis, reports)

EA site inspection, 21 January 1986.
New York State Department of Environmental Conservation Bureau of Hazardous Site Control files.
Interview with Mr. Andrew Wolke, Site Supervisor, 21 January 1986.
New York State Department of Health, Bureau of Toxic Substances file.

United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington, DC 20460

EPA Form 2070-13
July, 1981

Smithtown MSF

EPA

Potential Hazardous Waste Site

Site Inspection Report

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980763759

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Smithtown MSF	Old Northport Road				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Smithtown	NY	11754	Suffolk	103	02

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
40° 52' 14"	73° 16' 35"	☐ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☒ E. MUNICIPAL ☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
01 21 86 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	1978 (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 EA Science and Tech (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
James Shultz	Senior Geologist	EA	(914) 692-6706
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Rebecca Ligotino	Environmental Scientist	EA	(914) 692-6706
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Andrew Wolke	Site Supervisor	Municipal Services Facility	(516) 269-6600
		Town of Smithtown	( )
		P.O. Box 575, Smithtown, NY 11787	
John Trent, P.E.	Town Engineer	Town of Smithtown	(516) 360-7550
		Engineering Department	( )
		124 West Main Street	( )
		Smithtown, New York 11787	

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	0930	Clear, no snow cover (temp: 40's)

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Rebecca Ligotino	EA Science and Technology	(914) 692-6706

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Rebecca Ligotino		EA	(914) 692-6706	02 24 86 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

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: unknown
- 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	Municipal WWTP sludge
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) None known

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers) Not applicable

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)

EA Site Inspection.
References: 17 and 18.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: 136,436
02 ☒ OBSERVED (DATE: 4/7/83) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Within a 3-mi radius of the site, the upper glacial and Magothy aquifer of concern has been developed by 13 Suffolk County Water Authority well fields, 3 Greenlawn well fields, 2 King's Park Psychiatric Center wells, and a Northport VA Hospital well.*

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

There is no viable overland route from the site to surface water due to several roads and recharge basins which intersect the pathway.

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

None reported.

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

None reported.

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

None reported.

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

None reported.

01 ☒ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: 136,436
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Limited to the population served by ground water from the aquifer of concern within a 3-mi radius of the site.

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

None reported in conjunction with landfill operations.

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

None reported.

EPA FORM 2070-13 (7-81)

*In addition, there are a number of private wells within a 3 mi radius of the site.

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D980763759

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

None known or reported.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include number of species)

None known or reported.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None known or reported.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 136,436 — 04 NARRATIVE DESCRIPTION

Limited to the population served by ground water from the aquifer of concern within a 3-mi radius of the site.

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

None known or reported.

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

None known or reported.

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

None known or reported.

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: 136,436

IV. COMMENTS

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

References: 4-10.
Chapter 3.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

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)	52-S-21	6/23/73	6/20/82	NYCRR 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		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCINERATION
- ☐ 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

23.5 (Acres)

07 COMMENTS

Landfill accepts residential, commercial, and limited industrial refuse, as well as sludge from the Town's WTP. Facility is composed of five cells, Cells 1-3 were closed and capped in 1984. Cell 4 is currently being used, and Cell 5 is excavated but not yet receiving refuse. A baler/compactor was once used, however, is no longer operational.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

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

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

The landfill has a double liner; between these liners is a layer of sand and a leachate collection system.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☐ YES ☒ NO

02 COMMENTS

Area is entirely fenced.

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

EA Site Inspection.
References: 17 and 18.
Appendix 1.1-3.

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D980763759

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as appropriate)

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

02 STATUS: unknown

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

03 DISTANCE TO SITE
A. 1 (mi)
B. 0.34 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)
☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (Also other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER: 136,436
03 DISTANCE TO NEAREST DRINKING WATER WELL: 0.34 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
110 (ft)	NE	10 (ft)	unknown (gpd)	☒ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)
Within a 3-mi radius of the site, the aquifer of concern has been developed by 13 Suffolk County Water Authority well fields, 3 Greenlawn well fields, 2 King's Park Psychiatric Center wells, and 1 Northport VA Hospital well. In addition, there are a number of private wells within a 3-mi radius of the site.

10 RECHARGE AREA		11 DISCHARGE AREA	
☒ YES ☐ NO	COMMENTS	☐ YES ☐ NO	COMMENTS

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
No overland migration route.	☐	(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. 11,530 NO. OF PERSONS	B. 45,542 NO. OF PERSONS	C. 85,512 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 0.34 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE:
04 DISTANCE TO NEAREST OFF-SITE BUILDING: 0.34 (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 site is located in a medium density residential development immediately surrounded by sand mining operations to the east and northwest, undeveloped land to the north, a park to the south, and a residential development to the west.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980763759

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)

unknown

☐ 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)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
_____ (ft)	unknown (ft)	unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
21 (in)	2.5 (in)	1 %	NNE	0.8 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

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

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. _____ (mi)	B. 3.2 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____ (mi)

ENDANGERED SPECIES: none

13 LAND USE IN VICINITY

DISTANCE TO COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS; FORESTS; OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 0.30 (mi)	B. 0.34 (mi)	C. 0.44 (mi)	D. 0.44 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Site is located approximately 3 mi inland of Long Island Sound at an elevation of approximately 150 ft above mean sea level. Two cells at the landfill are totally enclosed. The other three, which have been closed and capped, have an average slope of 1 percent to the north-northeast. The site is surrounded by rolling hills with a regional slope of terrain to the east at approximately 5 percent.

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

EA Site Inspection.
Section 4.2 and 4.3.
References: 5, 10, 11, 16, 20, and 22.
U.S. Department of Interior Geological Survey. 1967. Map of Flood-Prone Areas. 7.5-Minute Series, Northport and Greenlawn Quads.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

II. SAMPLES TAKEN

None

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Slope	Estimated with a Suunto clinometer.
Volatile organics	Measured with a photoionization device (HNU). No readings above background were recorded.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☒ AERIAL

02 IN CUSTODY OF EA Science and Technology
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS EA Science and Technology

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

EA Site Inspection.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
Town of Smithtown	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
99 West Main Street	

05 CITY	06 STATE	07 ZIP CODE
Smithtown	NY	11787

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

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

Appendix 1.1-2.

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980763759

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Town of Smithtown	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
P.O. Box 575	

05 CITY	06 STATE	07 ZIP CODE
Smithtown	NY	11787

08 YEARS OF OPERATION	09 NAME OF OWNER
1978-present	Town of Smithtown

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

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

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

Appendixes 1.1-1 and 1.1-2.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

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	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

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.)

Chapter 3.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

II. PAST RESPONSE ACTIVITIES Not applicable

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	02 SITE NUMBER
NY	D980763759

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)

Chapter 3.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980763759

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)

Chapter 3.

SECTION 6 DIVIDER

6. ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

6.1 ADEQUACY OF EXISTING DATA

The available data are considered adequate to prepare a preliminary HRS score for the Smithtown MSF site. A release of low concentrations of zinc and manganese to the ground water is indicated by the detected presence of these two metals at significantly (>10 times) higher concentrations in downgradient samples as compared with upgradient/background samples collected during April 1983 from the seven existing monitoring wells. None of these samples were reportedly analyzed for the Hazardous Substance List (HSL) organic compounds. Priority pollutant analysis was performed on three ground-water samples collected in April 1984, however, all three sites were reportedly located downgradient of the landfill. Several organic compounds were detected, including tetrachloroethylene, toluene, benzene, and phenols.

6.2 RECOMMENDATIONS

In order to prepare a final HRS score for this site, a release of contaminants to the ground water should be confirmed by additional sampling and analysis (full HSL) of the existing seven monitoring wells, including the following six tasks:

Task 1 - Mobilization, Site Reconnaissance, and Preparation of Final Sampling Plan

Project mobilization includes review of the Phase I report and updating the site database with any new information made available since completion of the Phase I report, including boring logs and well diagrams for the seven existing wells. Based on that review, a draft scope of work for this site will be agreed to and a project schedule developed. At this time, a draft Quality Assurance/Quality Control (QA/QC) document will be prepared in accordance with the most up-to-date NYSDEC guidelines.

Site reconnaissance will be performed to examine the location and condition (integrity) of the seven existing monitoring wells and general site access. Site reconnaissance will familiarize key project personnel with the site, enable the project Health and Safety Officer to develop specific health and safety requirements for the field activities. Emergency, fire, and hospital services will be identified. Standard practice during site reconnaissance is an air survey with a photoionization detector (HNU or similar instrument). The air survey would be performed around the site perimeter and throughout the site for safety purposes. Detection of releases to air during site reconnaissance may warrant further confirmation studies. Based on the Phase I study, it is expected that field activities will require only Level D health and safety protective measures.

All data collected will be evaluated to finalize sampling and boring/well locations. The final sampling plan will be developed and submitted to NYSDEC for approval.

Task 2 - Sampling

All sampling and analysis will be conducted in accordance with the project QA/QC Plan. The analytical program for every water sample will include the 130 organic and 25 inorganic parameters listed in Statement of Work No. 784, New York State Department of Environmental Conservation Superfund and Contract Laboratory Protocol, January 1985. Also, all additional non-priority pollutant GC/MS major peaks will be identified and quantified. Major peaks will be considered as those whose area is 10 percent or greater than the calibrating standard(s). Based upon the currently available information, collection and analysis of the following numbers and types of samples is recommended:

7 Ground-water samples (one from each of the seven existing monitoring wells)

Task 3 - Contamination Assessment

EA will evaluate the data obtained during the records search and field investigation: prepare final HRS scores and documentation forms; complete EPA Form 2070-13; summarize site history, site characteristics, available sampling and analysis data; and determine the adequacy of the existing data to confirm release, and if there is a population at risk.

Task 4 - Remedial Cost Estimate

EA will evaluate remedial alternatives for the site and develop a list of potential options given the information available on the nature and extent of contamination. Approximate cost estimates for the selected potential remedial options will be computed. This work is not intended to be, or a substitute for, a formal cost effectiveness analysis of potential remedial actions.

Task 5 - Final Report

The report will include:

a. The results of the additional investigation.
b. Final HRS scores with detailed documentation.
c. Selected potential remedial alternatives and associated cost estimates.

In addition to the final report, the following raw data and resulting reduction would be provided to NYSDEC:

a. all sampling forms and data
b. all analytical data
c. chain-of-custody forms

Task 6 - Project Management/Quality Assurance

A Project Manager will be responsible for the supervision, direction, and review of the project activities on a day-to-day basis. A Quality Assurance Officer will ensure that the QA/QC Program protocols are maintained and that the resultant analytical data are accurate.

6.3 ADDITIONAL WORK COST ESTIMATE

Based on the scope of work and assumptions described above, the estimated costs to complete the additional investigation of the Smithtonw MSF site are as follows:

Consultant Costs (including labor, direct costs, fee)	$22,445
Drilling Contractor	N/A
Laboratory	10,850
Total	$33,295

Appendix A.1-1

p 1 of 3

INTERVIEW ACKNOWLEDGEMENT FORM

Site Name: Smithtown MSF

I.D. Number: 152044

Person Contacted: Mr. Andrew Wolke

Date: 21 January 1986

Title: Site Supervisor

Affiliation: Municipal Services Facility
Town of Smithtown

Phone No.: (516) 269-6600

Address: Municipal Services Facility
Town of Smithtown
Post Office Box 575
Smithtown, New York 11787

Persons Making Contact:
EA Representatives:

James Shultz
Rebecca Ligotino

Type of Contact: In person

Interview Summary:

The Smithtown Municipal Services Facilities (MSF) landfill began operation in 1978. The 89.7-acre site, developed on farmland and undeveloped, wooded property accepts residential, commercial, and limited industrial garbage, but not 55-gallon drums. Constructed into five separate disposal cells, the first through third cells were closed and capped in July of 1984. These three closed cells were sloped to one corner in order to facilitate runoff collection into recharge basins. However, the third cell has settled extensively and now falls short of cell one and two. Cell four is currently receiving garbarge but is filling quickly. Cell five is excavated but not yet accepting garbage. To extend the life of the landfill a baler was used to compact incoming trash. Due to explosions in the past, the baler is no longer used.

The landfill is constructed with a single liner on the sides and a double liner on the bottom. The depth of all the cells is 100 feet below grade. Upon final closure, the landfill surface will slope to the southeast corner (2 percent grade) to channel runoff into catch basins which will drain to the recharge basin. The cap will also have a single liner (in the process of being installed in Cells 1-3).

There are numerous monitoring wells (4-in PVC) on site and a leachate detection well between the two bottom liners. The bottom liners have a bathtub effect collecting leachate which is pumped out and and hauled to the Kings Park sewage treatment plant. Mr. Wolke indicated there are no known problems of leachate collecting between the two bottom liners.

In 1984, natural methane vents were replaced with a methane collection system, converting generated gases to electricity. The operators are currently considering the installation of an incinerator.

Acknowledgement:

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to EA Science and Technology interviewers, or as I have revised below, is an accurate account.

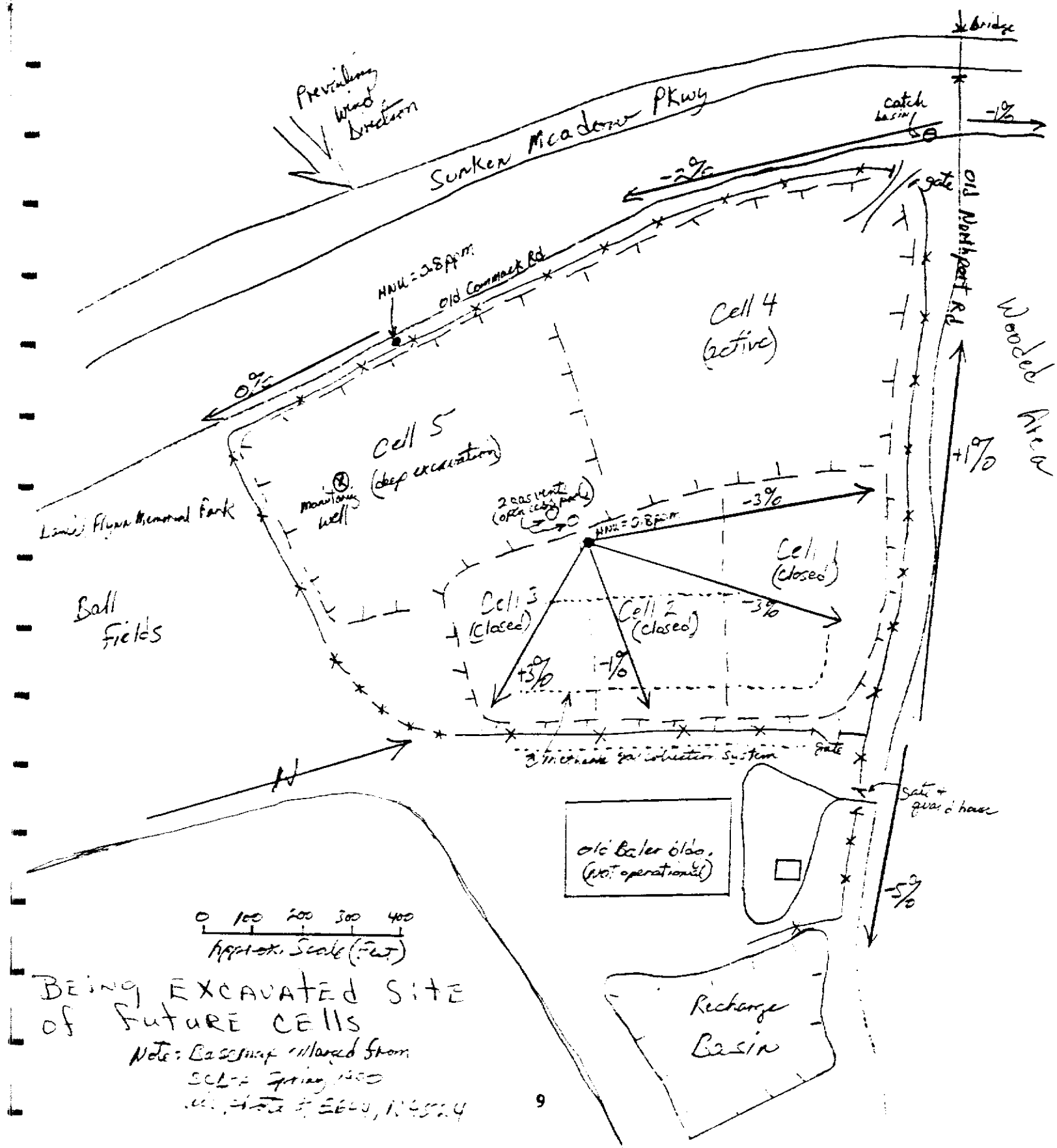
Revisions (please write in corrections to above transcript):

CELL FIVE IS SHAPED AND READY TO BE LINED. LINER INSTALLATION SHOULD BE COMPLETE BY 9/1/86
MAP HAS BEEN UPDATED TO SHOW AREA OF PRESENT EXCAVATING AND FUTURE CELLS

Signature: [signature] Date: 4/11/86

10. SITE SKETCH

Site Name: Smithtown MFS **Date:** 1-21-86



BEING EXCAVATED SITE of FUTURE CELLS

Note: Locations moved from scale drawing [illegible]

Appendix 1.1-2

p 1 of 2

INTERVIEW ACKNOWLEDGEMENT FORM

Site Name: Smithtown MSF

I.D. Number: 152044

Person Contacted: Mr. John Trent, P.E.

Date: 24 April 1986

Title: Town Engineer

Affiliation: Town of Smithtown
Engineering Department

Phone No.: (516) 360-7550

Address: 124 West Main Street
Smithtown, New York 11787

Persons Making Contact:
EA Representatives:

William Going
Rebecca Ligotino

Type of Contact: In person

Interview Summary:

Smithtown MSF is a town-owned facility. It was developed on a wooded property which the Town condemned in 1974. Bulldozers cleared and leveled the property and, as the landfill cells were excavated, the Town sold a coarse sand which was approved for concrete. Cells (4) were double lined with a synthetic material, and a leachate collection system was developed. When the landfill was being constructed, rainwater got into the facility and was collected between the liners. Leachate has been pumped out of the various wells since the facility opened and sent to local STP...pumping was necessary almost six days per week during wet seasons but only infrequently (one day per week) during dry seasons. There is no current reason to believe that either liner has leaked...only rainwater gets into the cells...not ground water. Analytical data from the well cluster at the site indicates that there are no hazardous concentrations of contamination in the ground water to date. (Will supply data...) Monitoring wells do not indicate the presence of a contamination plume. (Will send map of well locations, boring logs, and an engineering report.)

The facility accepts residential, commercial, and some industrial garbage (industrial paper and cardboard boxes). The facility is permitted pursuant to NYCRR Part 360 regulations. U.S. EPA, NYSDEC, and SCDHS have all inspected the facility. There was once a methane problem but there is no problem now. There has not been any enforcement or remedial action taken at the facility.

Ground water flows in a north-northeast direction below the landfill. There are several old dumps and landfills very nearby. The Smithtown MSF has capacity for 30 more years.

INTERVIEW ACKNOWLEDGEMENT FORM (Cont.)

Acknowledgement:

I have read the above transcript and I agree that it is an accurate summary of the information verbally conveyed to EA Science and Technology interviewers, or as I have revised below, is an accurate account.

Revisions (please write in corrections to above transcript):

_____

_____

_____

_____

_____

Signature: _____ Date: _____

_____

Received from
NYSDEC Region 1

Appendix 1.1-3

p 1 of 2

Town of Smithtown
Solid Waste Management Facilities
Status Report

A. - Municipal Services Facility - Balefill - (52-S-21) -

The permit status of the Municipal Services Facility landfill is outlined below:

° In 1976, Smithtown applied for a 70-acre, three-phased facility permit. Review of the application was suspended pending the outcome of the Plainview (Oyster Bay) Landfill permit hearings and the 208 study, which were then in progress.

° Based on the outcome of those events, a three-year 12-acre permit (Cells #1 thru #3) was issued June 23, 1978, with a stipulation that the Town move toward resource recovery. The permit expired June 20, 1982 and a renewal was not granted because of the Town's failure to adequately address resource recovery. A subsequent renewal application for a 23.5-acre site (Cells #1 through #5) was made December 17, 1983. Department action is still pending.

An incomplete notice was issued by the Department on January 16, 1984, and a resubmission was made by the Town on February 23, 1984.

Under the provisions of the Uniform Procedures Act, the permit for the 12 acre site is still in effect (This is of limited usefulness, though, since Cells #1 thru #3 are full). The current operation of the balance of the 23.5 acres (Cells #4 and #5) is not covered by permit.

The pending application will have to be treated as two applications - a renewal application for Cells #1 thru #3, and a new application for Cells #4 and #5. Under the provision of the Long Island Landfill Law (Chapter 299 of the Laws of 1983), the portion of the application covering Cells #4 and #5 will be considered a limited expansion.

The Landfill Law allows a limited expansion to landfills located in the deep-flow recharge zone. The purpose of the limited expansion is to provide time for resource recovery implementation, but must close by December 18, 1990. A review of the Town's volume calculations indicates a projected site life of about 1990 for Cells #4 and #5.

A key to granting a limited expansion is the requirement that the Town demonstrate that it is implementing resource recovery. In accordance with the Implementation Guidelines of the Long Island Landfill Law, a municipality must by now have completed the following items to adequately demonstrate that they are pursuing resource recovery: pass a Town Board resolution committing the Town to resource recovery, hire a consultant, and prepare a feasibility study. To date, this has not been done. Although the other aspects of the technical submission appear complete, an environmental review and the required public hearings must also be undertaken.

It is unlikely, therefore, that additional areas beyond Cells #4 and #5 can be permitted under the Long Island Landfill Law, as currently written.

An annual report, covering the operations at the balefill, including an update of groundwater and methane monitoring data, solid waste management planning, and other items is now due.

B. - Municipal Services Facility - Baler - (52-P-01, 52-M-01)

The high-density baler was closed due to a methane explosion on May 4, 1984. At the time of the explosion, the baler was down for major maintenance and repair. Items to be replaced include wear plates, hydraulic oil, and the main conveyor roller assemblies. It is unknown if and when these repairs will be made, and whether or not the facility will ever reopen.

C. - South Montclair Avenue Brush Disposal Site (52-D-13) -

In the fall of 1982 it was discovered that the Town was operating a brush disposal site on Montclair Avenue, St. James without a Part 360 Permit. A fine was paid and a pemit was issued December 13, 1982, with an expiration date of December 13, 1983. It is assumed that operations have ceased at this facility and that the site has been properly closed, although this has not been verified by the Department.

D. - Kings Park Construction and Demolition Debris Disposal Site (52-D-03)

A permit for the C and D site located on the north side of Old Northport Road was issued in 1980, with an expiration date of July 11, 1983. The permit was renewed on March 5, 1984, with an expiration date of March 31, 1985. The size of the site was increased from 9 to 15 acres at that time.

A renewal application has been submitted for this site. The Department's revised permit conditions for this type of site will apply to the renewal permit.

E. - Izzo Brothers Property - (52-S-12) -

This site, which was leased from Izzo Brothers, was operated as a municipal landfill by the Town of Smithtown. In 1982 it was determined that the facility should be properly capped and closed, since facilities in existence prior to the implementation of Part 360 must be closed in accordance with Part 360. To date the site has not been properly closed, although methane is being recovered by the Smithtown Landgas Company under State permit. This site will have to be capped and provisions will have to be made to control drainage, methane migration, etc.

F. - New Smithtown Construction and Demolition Debris Disposal Site - (52-D-18) -

An application for a new Town C and D site to be located at the present sand-mining site at the Municipal Services Facility is pending.

52521

Appendix 1.1-4

Received from NYDEC Bureau of Landfills

BUSINESS FORMS INC., SCHENECTADY, N.Y.

p 1 of 1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

APPLICATION FOR APPROVAL TO OPERATE A SOLID WASTE MANAGEMENT FACILITY

SEE APPLICATION INSTRUCTIONS ON REVERSE SIDE

FOR STATE USE ONLY

PROJECT NO.	DATE RECEIVED
10-83-1639	
DEPARTMENT ACTION ☐ Approved ☐ Disapproved	DATE

1. OWNER'S NAME	2. ADDRESS (Street, City, State, Zip Code)	3. Telephone No.
TOWN OF SMITHTOWN	99 W. MAIN ST., SMITHTOWN, NEW YORK 11787	516-360-7512
4. OPERATOR'S NAME	5. ADDRESS (Street, City, State, Zip Code)	6. Telephone No.
TOWN OF SMITHTOWN	99 W. MAIN ST., SMITHTOWN, NEW YORK 11787	516-360-7512
7. ENGINEER'S NAME	8. ADDRESS (Street, City, State, Zip Code)	9. Telephone No.
DONAL A. DEVINE, P.E.	99 W. MAIN ST., SMITHTOWN, NEW YORK 11787	516-360-7550
10. ON-SITE SUPERVISOR	11. ADDRESS (Street, City, State, Zip Code)	12. Telephone No.
DUANE B. RHODES	99 W. MAIN ST., SMITHTOWN, NEW YORK 11787	516-269-6600

13. HAS THE INDIVIDUAL NAMED IN ITEM 10 ATTENDED A DEPARTMENT SPONSORED OR APPROVED TRAINING COURSE?
☒ Yes Date 9-12-74 Course Title SANITARY LANDFILL OPERATORS TRAINING COURSE Location STONY BROOK ☐ No

14. PROJECT/FACILITY NAME	15. COUNTY IN WHICH FACILITY IS LOCATED	16. ENVIRONMENTAL CONSERVATION REGION
SMITHTOWN MUNICIPAL SERVICES FACILITY	SUFFOLK	I

17. TYPE OF PROJECT FACILITIES: ☐ Composting ☐ Transfer ☐ Shredding ☒ Baling ☒ Sanitary Landfill ☐ Incineration ☐ Pyrolysis ☐ Resource Recovery-Energy ☒ Resource Recovery-Materials ☐ Other

18. HAS THIS DEPARTMENT EVER APPROVED PLANS AND SPECIFICATIONS AND/OR ENGINEERING REPORTS FOR THIS FACILITY? ☒ Yes Date 6-23-78 ☐ No

19. LIST WASTES NOT ACCEPTED

THIS FACILITY WILL NOT ACCEPT HAZARDOUS, RADIOACTIVE, EXPLOSIVE, TOXIC OR BIOLOGICALLY UNACCEPTABLE SOLID WASTES.

20. BRIEFLY DESCRIBE OPERATION

THE TOWN OF SMITHTOWN ACCEPTS HOUSEHOLD AND COMMON COMMERCIAL SOLID WASTES AT THE MUNICIPAL SERVICES FACILITY BUILDING. THESE WASTES ARE DEPOSITED ON THE FLOOR OF THE FACILITY, LARGE SALVAGEABLE ITEMS REMOVED AND STORED ON THE FLOOR, AND THE REMAINING WASTES ARE LOADED ONTO CONVEYORS. THE CONVEYORS DIRECT THE SOLID WASTE STREAM TO MAGNETIC SEPARATORS WHICH REMOVE FERROUS MATERIALS. ANOTHER CONVEYOR IS AVAILABLE FOR HAND-SORTING OF USEABLE MATERIALS. ALL SOLID WASTE TO BE DISPOSED OF IS THEN DIRECTED INTO A HIGH DENSITY COMPACTION MACHINE FOR BALING. THE BALER COMPRESSES THE SOLID WASTE TO DENSITIES OF APPROXIMATELY 1,600 POUNDS PER CUBIC YARD. THESE BALES ARE THEN LOADED DIRECTLY ON FLATBED TRAILERS FROM THE BALER CHAMBER. THE BALES OF SOLID WASTE ARE TRANSPORTED TO THE ADJACENT SANITARY LANDFILL SITE WHERE THEY ARE DEPOSITED AND BURIED.

THIS APPLICATION IS FOR RENEWAL OR EXTENSION OF PERMITS NUMBERS 0001, 0002, AND 0003 WHICH WERE ISSUED ON JUNE 23, 1978.

21. IF FACILITY IS A SANITARY LANDFILL, PROVIDE THE FOLLOWING INFORMATION:
a. Total useable area: (Acres) Initially 70 Currently 23.5
b. Distance to nearest offsite, downgradient, water supply well 1200 Feet
c. No. of groundwater monitoring wells Seven Upgradient Two Downgradient Five

22. INDICATE WHICH ATTACHMENTS, IF ANY, ARE INCLUDED WITH THIS APPLICATION:
☐ Form 47-19-2 or SW-7 ☒ Operations Plan ☐ USGS Topographic Map ☐ Record Forms ☐ Other
☐ Construction Certificate ☐ Boring Logs ☒ Water Sample Analysis ☐ None

23. CERTIFICATION:
I hereby affirm under penalty of perjury that information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief. False statements made h[illegible] punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

14-12-2 (6/81) Received from NYSDEC Region 1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NOTIFICATION OF AVAILABILITY FOR REVIE

~~[illegible]~~ p 14

Appendix 1.1-5

INITIATING UNIT: Reg. Affairs Contact: Karen Chytalo

OTHER # _____ DATE ISSUED January 17, 1984

OTHER # 52-D-26 Received from NYSDEC Region 1 DATE DUE January 27, 1984

OTHER # _____ DEC # 10-83-1190 (262)

PURPOSE FOR NOTIFICATION/REVIEW AUTHORITY: PLEASE Draft and Have Typed a Permit for Part 360 - Demo Debris Mining Permit issued by Galli on 1/11/84.

APPLICANT: Town of Smithtown

PROJECT NAME/DESCRIPTION: Town of Smithtown Municipal Services Facility.

PROJECT LOCATION: Old Commack Rd & Old Northport Rd

City/Village Kings Park Town: Smithtown

County: Suffolk USGS Quad: _____

(Attach a location map)

REMARKS: Return typed permit to me for issuance Thanks.
Also, assign SW number

DISTRIBUTION: ~~[illegible]~~ J. Heil ✓

RECEIVED
JAN 20 1984
SOLID WASTE MANAGEMENT
DEC REGION 1

no comments ☐ comments attached ☐

RESPONDING UNIT: Request additional information as per attached letter

BY: Robert A Bachman 9/24/84
(name/unit/date)

[illegible] OFFICE [illegible]

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FOR STATE USE ONLY p 2of3

APPLICATION FOR USE OF A CONSTRUCTION AND DEMOLITION DEBRIS DISPOSAL SITE

PROJECT NO. 10-85-890 | DATE RECEIVED

DEPARTMENT ACTION [illegible] ☐ Approved ☐ Disapproved | DATE

1. [illegible] ADDRESS (Street, City, State, Zip Code) 99 West Main Street, Smithtown, N.Y. 11787 | 3. Telephone No. 516-360-7512

2. [illegible] Town of Smith[illegible] ADDRESS (Street, City, State, Zip Code) 99 West Main Street, Smithtown, N.Y. 11787 | 4. Telephone No. 516-360-7512

7. ON-SITE SUPERVISOR Mr. Duane Rh[illegible] ADDRESS (Street, City, State, Zip Code) 99 West Main Street, Smithtown, N.Y. 11787 | 8. Telephone No. 516-369-6600

10. PROJECT/FACILITY NAME
Municipal Services Facility

11. PROJECT STATUS ☒ Public ☐ Private ☐ Proposed ☐ Existing

12. COUNTY IN WHICH FACILITY IS LOCATED Suffolk

13. ENVIRONMENTAL CONSERVATION REGION I

14. OPERATING HOURS/DAY
Monday - Saturday 8 Hours

15. ESTIMATED SITE LIFE [illegible] Months

16. ESTIMATED DAILY VOLUME [illegible] Cubic Yards

17. DESCRIBE SPECIFIC LOCATION OF SITE
Southeasterly portion of the 86 acre Municipal Services Facility site located on the Southeast corner of the intersection of Old Northport Road and Old Commack Road, Kings Park, New York.

18. LIST EACH WASTE COMPONENT TO BE DISPOSED
Leaves, branches, garden trimmings, stumps and trees, demolition debris consisting of brick, stone, asphalt, wood and other inert materials.

19. METHOD OF PROPOSED COMPACTION, COVER, SEEDING AND FINAL CLOSURE
Deposited material shall be compacted daily by rubber-tired front end loaders or bulldozers. Daily cover shall consist of a minimum of six inches of sand or sandy loam.

Access to and use of the facility shall be controlled by fencing, gates, signs and other suitable means.

Final closure shall include a minimum cover of 18 inches of sand and sandy loam, topped by a minimum of six inches of [illegible]. The final [illegible] of the fill shall not exceed existing grade. The site shall be graded to eliminate [illegible] surface water, and shall be seeded.

RECEIVED

20. CERTIFICATION:
I hereby affirm under penalty of perjury that information provided [illegible] is true to the best of my knowledge and belief. False statements made herein are punishable as a Class [illegible] pursuant to section 210.45 of the Penal Law.

10/7/85 [illegible] SUPERVISOR

47-19-6 (6/77)
Formerly 55-6d

NYDOH
Bur Toxic Sub.

152044

Appendix 1.1-6
p 1 of 8

NUS CORPORATION

POTENTIAL HAZARDOUS WASTE SITE

EXECUTIVE SUMMARY

Smithtown Landfill (Active)	NY New
Site Name	EPA Site ID Number
Kings Park	02-8303-09
Address	TDD Number

Date of Site Visit: 4/13/83

SITE DESCRIPTION

The site is an 86 acre municipal landfill which handles only sanitary refuse and sludges from the town's waste water treatment plant. The landfill is double lined and has an on site bailer/compactor. There is an extensive leachate collection system and a ground water monitoring system was recently installed.

PRIORITY FOR FURTHER ACTION: High___ Medium___ Low x

RECOMMENDATIONS

No further action is recommended.

Prepared by: Edward E. McTamaney
of NUS Corporation

Date: 5/11/83

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: New

II. SITE NAME AND LOCATION

01 SITE NAME	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Smithtown Landfill (Active)	Old Indian Head Rd.				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Kings Park	NY	11754	Suffolk	103	02
09 COORDINATES LATITUDE: 40° 52' 30"	LONGITUDE: 73° 16' 30"				

10 DIRECTIONS TO SITE: Veterans Memorial Highway to Meadow State Parkway north. Meadow State Parkway to Old Northport Rd.. Landfill is on right hand side of Old Northport Rd.

III. RESPONSIBLE PARTIES

01 OWNER	02 STREET			
Municipality of Smithtown	124 Main Street			
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
Smithtown	NY	11787	(516) 360-7550	
07 OPERATOR	**08 STREET**			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**	
			(,)	

13 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☒ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES ☐ NO DATE 04 / 23 / 83 (MONTH DAY YEAR)

BY (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): NUS CORPORATION

02 SITE STATUS (Check one)
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
6/78 (BEGINNING YEAR) | present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
- Sanitary solid waste generated by households
- Sludge from municipal WWTP

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
- Leachate permeating through double lined landfill into groundwater
- Explosion or fire in solid waste baler.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER		
Donald Devine - Town Engineer	Municipality of Smithtown	(516) 360-7550		
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Michael G. Kramer		NUS CORP.	(201) 225-6160	04 / 21 / 83 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] 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 373,200

CUBIC YARDS _____

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
- [x] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown		Municipal WWTP Sludge
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
	No hazardous substance				
	known to be present in				
	landfill. Landfill				
	accepts domestic				
	sanitary waste and WWTP				
	sludge only				

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)

- Suffolk County file
- Donald Devine, Township Engineer
- Duane Rhodes, Sanitation Supervisor
- NYDEC, File

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: New

II. HAZARDOUS CONDITIONS AND INCIDENTS

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

Landfill is double lined with 30 mil reinforced Hypalon (upper) and a PVC (lower) liner. A leachate collection system exists between the two liners. The leachate is collected on the base of the landfill. It is then pumped out and sent to a municipal WWTP.

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

No potential exists.

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

A buildup of odors could occur at landfill during warm months. The odors could present a nuisance.

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

An explosion potential exists in the baler due to compaction of the waste. Dust is ventilated from the baler room. This minimizes the risk of a large scale explosion caused by the accumulation of dust or vapors.

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

No potential exists.

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

No potential exists.

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

Contamination could occur through breakthrough of the second liner by leachate.

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

Several workers have been injured through explosions while operating the baler. No fatalities have been recorded. This was stated by D. Devine, the town engineer.

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

No potential exists.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: New

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

No potential exists.

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

No potential exists.

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

No potential exists

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums)
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

Liquid was observed between the 2 landfill liners in the leachate collection system. The liquid could result from a leak or permeation of the liner material.

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

No potential exists

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

Leachate collected from leachate collection wells is brought to municipal WWTP. It was estimated that approx. 18,000 glns./day are pumped from the leachate collection wells.

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

Municipal WWTP sludge is applied on the landfill. It is not known if the landfill is permitted to accept the sludge.

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

Liquid was observed between the 2 landfill liners in a leachate collection well. It was explained that the liquid was in fact water, and resulted from rainfall during placement of the liners in 1978.

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

- Suffolk County files
- Donald Devine, Township Engineer
- NYDEC file

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

EPA

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: NEW

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER				
Smithtown Landfill (Active)	Old Indian Head Road				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Kings Park	NY	11754	Suffolk	103	02

09 COORDINATES LATITUDE 40° 52' 30" | LONGITUDE 73° 16' 30"

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	02 SITE STATUS	03 YEARS OF OPERATION
04/13/83 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	6/78 (BEGINNING YEAR) Present (ENDING YEAR) ☐ UNKNOWN

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

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Michael G. Kramer	Environmental Scientist	NUS Corp.	(201)225-6160
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO**
Edward McTiernan	Ecologist	NUS Corp.	(201)225-6160
Martin O'Neill	Ecologist	NUS Corp.	(201)225-6160
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Donald Devine	Township Engineer	124 W. Main Street Smithtown, NY 11787	(516)360-7550
Duane B. Rhodes	Sanitation Supervisor	99 W. Main Street Smithtown, NY 11787	(516)269-6600
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	10:00 a.m.	Clear - 40°F - Wind west 10-20mph

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Mark Haulenbeek	USEPA Region II, Edison, NJ	(201) 321-6685

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Michael G. Kramer		NUS Corp.	(201)225-6160	5/3/83 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NEW

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)	0002 (52-P-01)			Sanitary Landfill
☐ 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	373,200	Tons
☐ 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) Bailing

05 OTHER

- ☒ A. BUILDINGS ON SITE

06 AREA OF SITE

86 (Acres)

07 COMMENTS

The landfill does not accept hazardous or industrial waste.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

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

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

The landfill is double lined. The upper liner is 30 mil reinforced hypalon. The second liner is of 20 mil PVC material. A layer of sand and leachate collection system exists between the 2 liners. Leachate is also collected above the top liner.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☐ YES ☒ NO

02 COMMENTS

The landfill is surrounded by a fence and is covered after each operational day.

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

-Donald Devine, Township Engineer

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	NEW

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER		No Samples Taken	
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Air Quality	Photoionizer (HNU) did not detect contamination above background levels

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF NUS Corporation, Edison, NJ
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS
In report, in file NUS Corporation, Edison, NJ

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

- Donald Devine, Township Engineer
-Duane Rhodes, Sanitation Supervisor

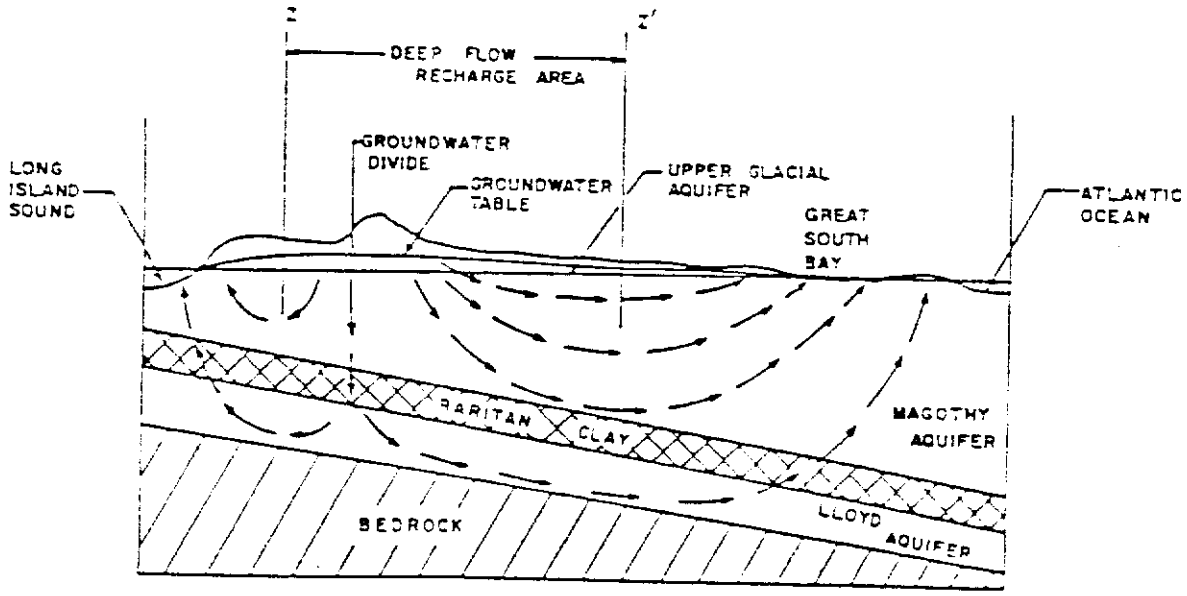
Appendix 1.1-6a

P 1 of 10

TOWN OF SMITHTOWN

SUFFOLK COUNTY, NEW YORK

HYDROGEOLOGIC INVESTIGATIONS



KINGS PARK AREA
AND
MSF LANDFILL

Velzy ASSOCIATES

Charles R Velzy Associates, Inc.
Consulting Engineers
Armonk, New York
Buffalo, New York
Carle Place, Long Island, New York
York, Pennsylvania

HYDROGEOLOGIC INVESTIGATIONS

KINGS PARK AREA

TOWN OF SMITHTOWN

SUFFOLK COUNTY, NEW YORK

APRIL 1986

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

SECTION I

SECTION 1

SUMMARY AND CONCLUSIONS

1.0 SUMMARY

1. The hydrogeological investigations was initiated to establish the geology and groundwater flow patterns beneath the Smithtown MSF landfill and the site's proximity to the hydrogeologic Zone I boundary as defined in the 208 Study.

   To accomplish these objectives, a deep well cluster approximately 625 feet deep was drilled to the Raritan formation. In addition, information was obtained on other wells in the area and three well fields owned and operated by the Suffolk County Water Authority (SCWA).

2. The drilling program confirmed the existence of the Smithtown Clay unit having a thickness of approximately 35 feet at the site and located just beneath the existing MSF Landfill.

   This semi-impermeable barrier in addition to the composite double liner system of the landfill provides maximum protection to the deep flow region of this portion of the Town.

3. Based upon analysis of data collected under this program and prior reports, the Smithtown Clay unit appears to be continuous between the MSF landfill site and the limits of the deep flow recharge area as defined by the 208 Study. This continuous clay unit impedes direct recharge of the deep flow system at the landfill and in the local area.

4. At the MSF landfill site the upper surface of the Magothy formation was confirmed to be at approximately elevation -90 feet relative to MSL. The depth of the clay member of the Raritan Formation was at elevation -490 feet and was identified as an apparent transition zone boundary containing both Magothy and Raritan Formation material.

5. At the MSF Landfill site there is an apparent downward vertical flow component as established through potentiometric head measurements taken at the well cluster in February 1986.

In measurements obtained at the Suffolk County Water Authority Carlson Avenue well field, potentiometric elevations in shallow and deep wells were identical thus signifying its location at the boundary of the deep flow recharge area. This SCWA site is located

approximately 1.5 miles from the MSF Landfill in the apparent direction of groundwater flow. The Lawrence and Kings Park Road well sites indicated higher potentiometric elevations in the shallow wells signifying a downward flow component thus located within the deep flow recharge area.

6. Based upon data collected under these investigations, it would appear that the limit of the Zone I boundary area, as defined in the 208 Study, is reasonably accurate.

1.1 CONCLUSIONS

1. Based upon field investigations conducted in February 1986, the MSF landfill site appears to be within the deep flow recharge area as defined under the 208 Study. However, due to the areal extent and thickness of the Smithtown Clay in the study area, the impact of the landfill site is minimal relative to recharge of the deep flow zone.

   Hydrogeology of the study area is complex due to the Smithtown Clay unit thus the accepted concepts relative to deep flow recharge not directly apply to the study area and specifically the MSF landfill site.

2. The deep flow region below the Smithtown Clay unit from the MSF landfill site to present Zone I-Hydrogeologic Boundary line appears to be a flow transition zone.

3. The potentiometric head relationship at the site involving the clay unit/water table surface is complex. A one (1) foot upward flow differential was measured between the top and bottom of the Smithtown Clay unit. Locally this would indicate a vertical flow direction from under the clay member.

SECTION II

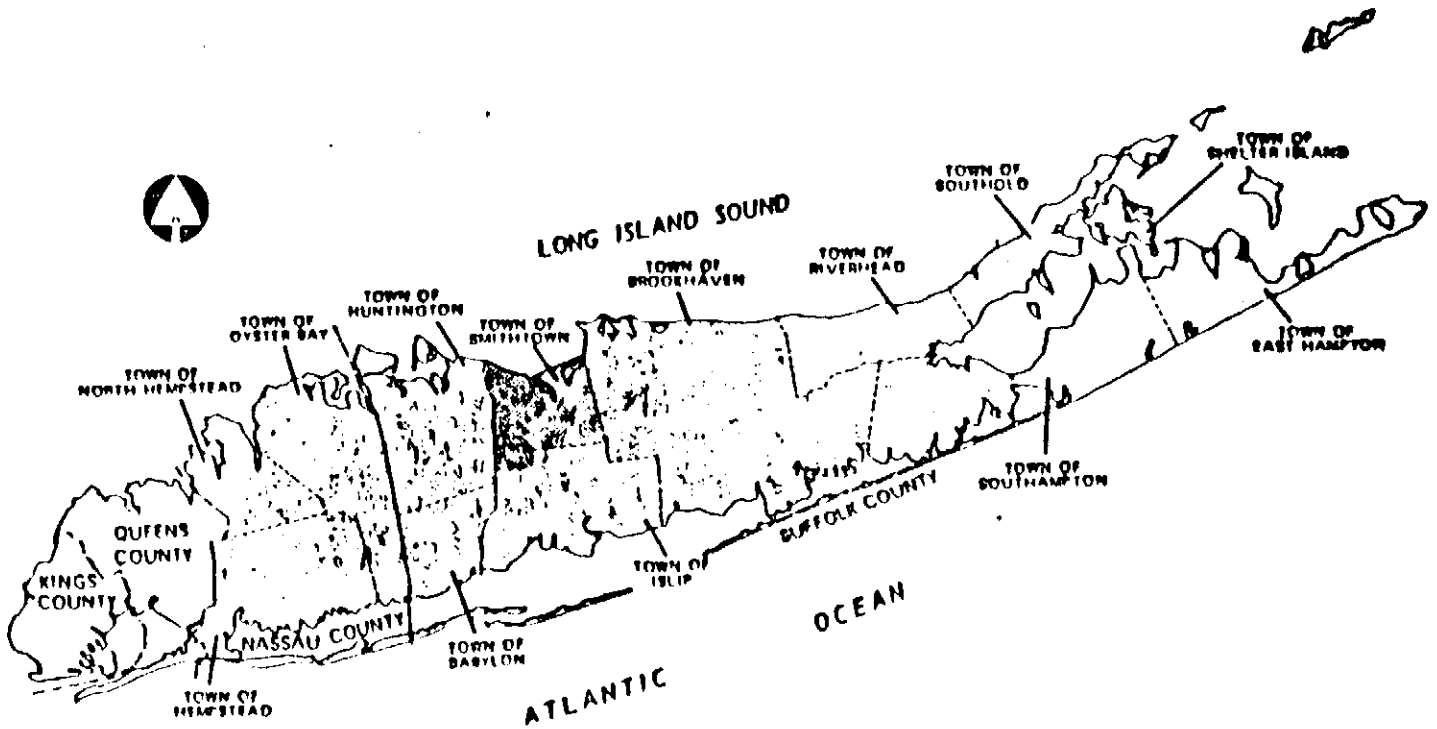
SECTION 2.0

INTRODUCTION

2.1 LOCATION AND DESCRIPTION OF STUDY AREA

The Town of Smithtown is situated in the northwesterly portion of Suffolk County and comprises an area of 53.3 square miles (34,017 acres). The Town is bounded on the north by Smithtown Bay, on the east by the Town of Brookhaven, on the south by the Town of Islip and to the west by the Town of Huntington. A location plan of the regional area is included as Figure 1. The Town includes the Incorporated Villages of Head of the Harbor, Nissequogue and The Branch and unincorporated areas of Commack, Fort Salonga, Hauppauge, Kings Park, Lake Ronkonkoma, Nesconset, St. James and the Hamlet of Smithtown.

Smithtown achieved its greatest period of growth during the fifties and sixties. The population of the Town doubled in the fifties and again in the sixties but the increase during the seventies was modest at approximately two (2%) percent. The decline in growth between 1970 and until the recent economic upturn is attributed to young adults moving out, declining birth rate and very little new home construction.



TOWN OF SMITHTOWN

LOCATION PLAN

FIGURE 1

Volzy ASSOCIATES

p 14 of 14

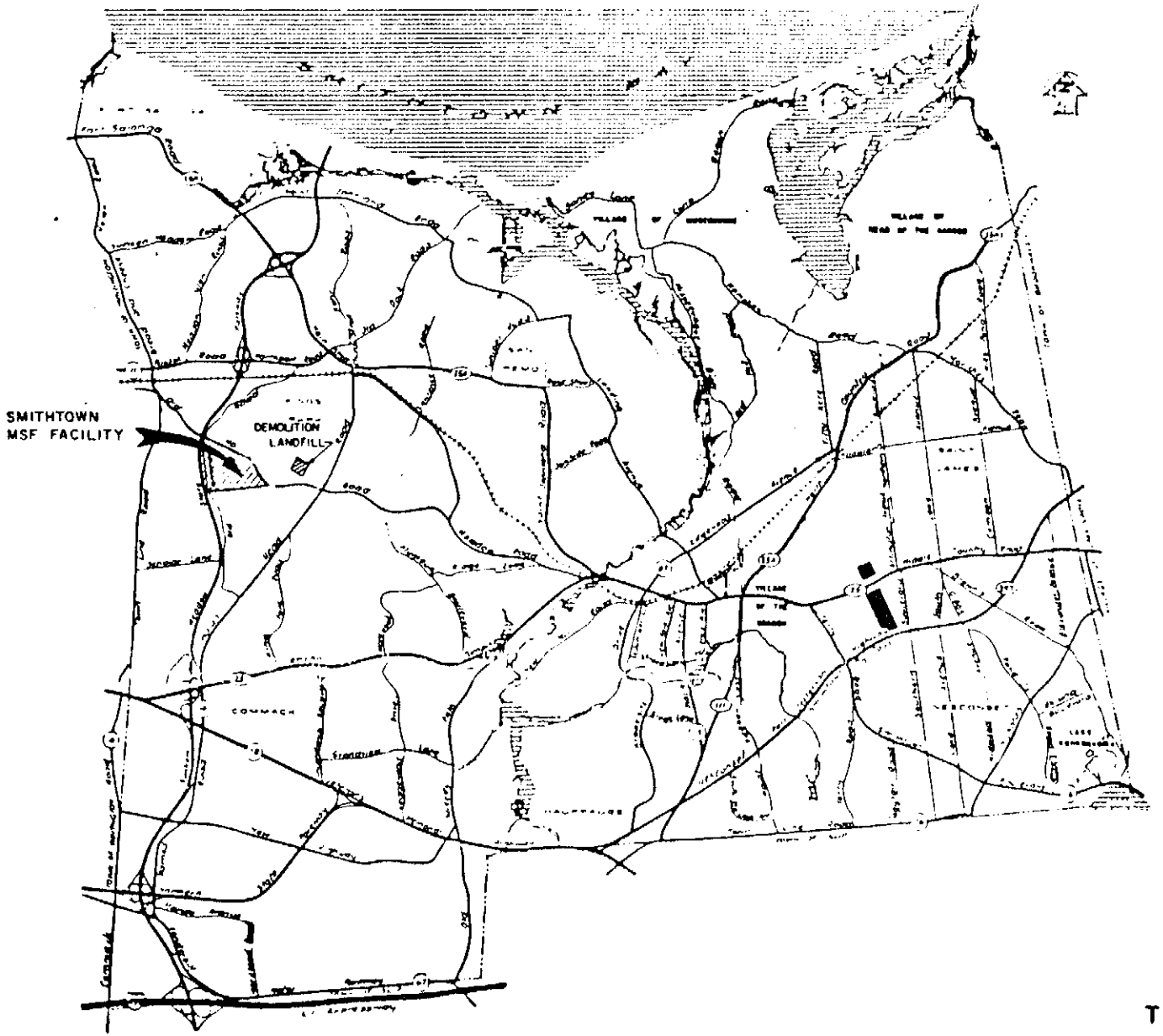
The population for the Town of Smithtown in 1980, based on U.S. Census data, was 116,663. Saturation population based on existing zoning ordinances for the Town and its Incorporated Villages for the year 2020 is projected to be about 142,900 persons.

2.2 MUNICIPAL SERVICES FACILITY AND LANDFILL

The Town's Municipal Services Facility (MSF) including landfill encompasses approximately 86 acres in the southeast corner of the intersection of Old Northport Road and Old Commack Road in Kings Park, Figure 2. Approximately 70 acres of the site is designated landfill area with the remaining 16 acres used for buffer zones, process building, administration building and parking, gate house, recharge basin and access roads. The Municipal Services Facility Site Plan is shown on Figure 3.

2.2.1 Processing Building

Construction on the solid waste management facility started in 1975 under Environmental Facility bond Act Resource Recovery Project 1-MSWRR-001Q. The processing building is approximately 200' x 300' (60,000 SF) and incorporates resource techniques to remove salvageable solid waste materials and a high density hydraulic press to bale all of



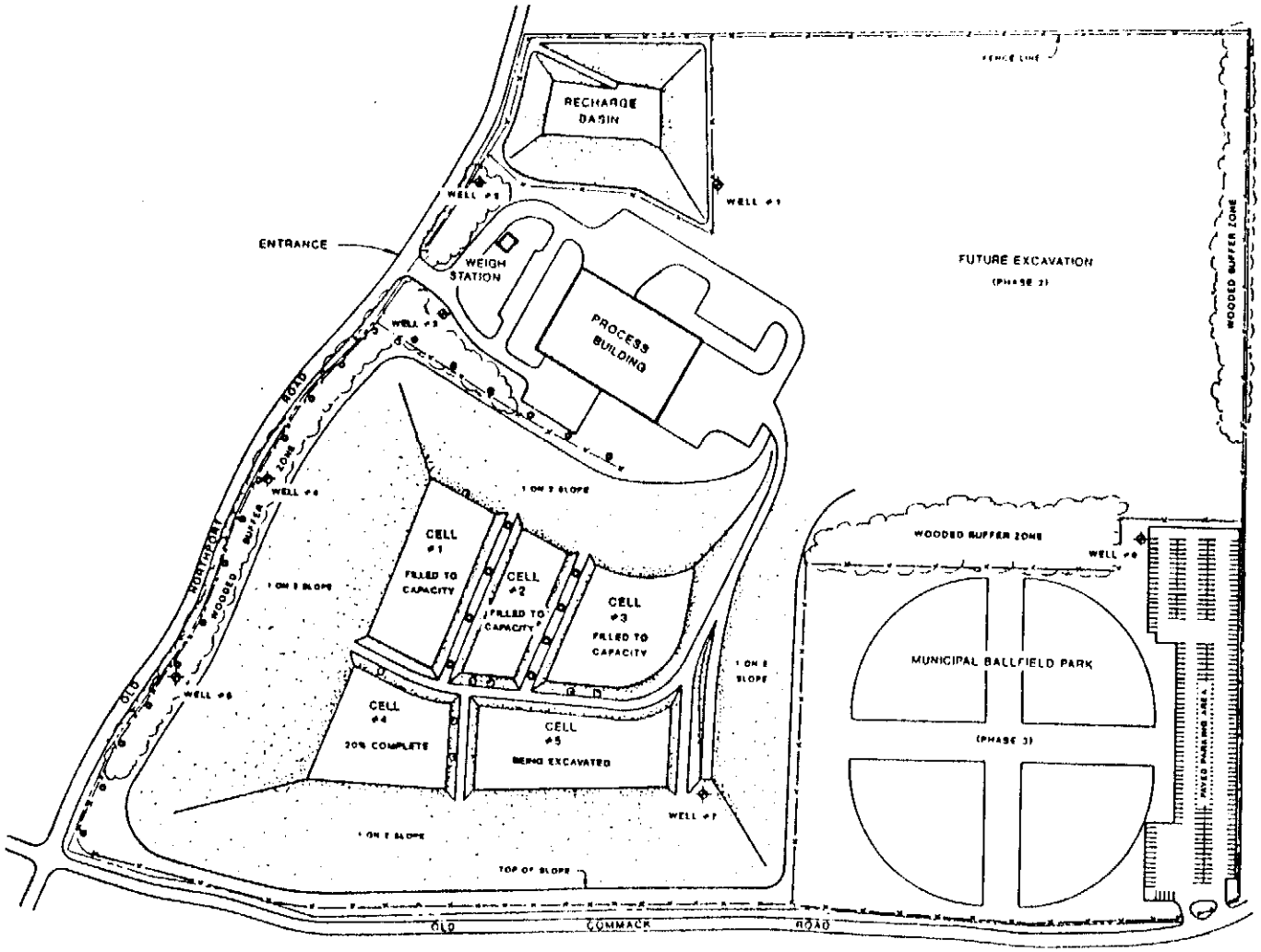
TOWN OF SMITHTOWN

LANDFILL LOCATIONS

FIGURE 2

Velzy ASSOCIATES

p 16 of 19



SITE PLAN

SMITHTOWN MUNICIPAL SERVICES FACILITY

FIGURE 3

Volzy ASSOCIATES

P 17 of 101

the remaining un-salvageable solid waste material. The Town ceased operation of the baler in September 1983 after four (4) years of service due to mechanical failures. The building was closed in May 1984.

2.2.2 Landfill Area

Landfilling of solid waste began in June 1979 for baleable and unbaleable material. However, since the baler operation ceased in September 1983, only conventional landfilling is being performed at this site. The 70 acres of this site designated as landfill area was developed to proceed in three (3) phases. Phase I (23.5 acres) is the current landfilling area and has been further segmented into five (5) separate operational cells, see Figure 3.

Composite Double Liner System

This Phase I area is constructed with a flexible membrane liner (FML) Composite Double Liner system. The flexible membrane liner (FML)/composite double liner system consists of a primary leachate collection and removal system, a top FML (primary) liner, a secondary leachate collection system, and a bottom composite FML (secondary) liner. This system complies with current design guidelines, is state-of-the-art technology for landfill liners and provides maximum protection to human health and the environment.

The function of the primary leachate collection and removal system is to minimize the head (depth) of leachate on top of the primary liner during the landfill operations period and to remove liquids through the post-closure period. The primary liner has been designed to prevent migration of waste liquid constituents during operations and the post-closure period to minimize infiltration of any constituent into the liner itself.

Leachate collection is by a six (6) inch perforated polyvinyl chloride (PVC) pipe system which flows to a precast concrete sump for removal from the landfill. Leachate is pumped from the collection sump into trucks by an independent contractor and disposed of at the Suffolk County Kings Park Wastewater Treatment Plant.

The secondary leachate detection system between the two FML liners is provided to rapidly detect, collect, and remove liquids entering the system for disposal through the post-closure monitoring period. The secondary (bottom) liner consists of two components that is intended to function as one system, hence, the term "composite" liner. The upper component of the secondary liner is designed to prevent the migration of any constituent of the waste liquid during the facility operation, including post-closure period.

This design methodology is effective in preventing virtually all percolation of leachate into the groundwater because the combination of the two components in the secondary liner system will provide for virtually complete removal of waste or leachate by the leachate collection system if a leak were to occur in the primary liner system.

An added barrier and protection to the groundwater system is the 35 feet of Smithtown Clay unit immediately beneath the MSF landfill site.

No hazardous, toxic, radioactive, explosive, or biologically unacceptable waste material is accepted at the MSF landfill site.

2.2.3 Useful Landfill Life

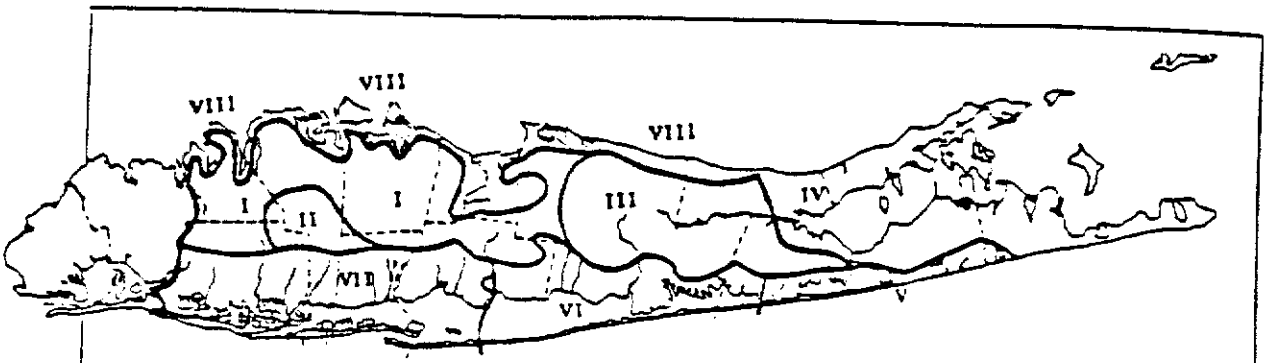
Under present operational conditions, landfilling of raw refuse, the remaining life of the Town of Smithtown MSF Landfill (Phased I, II and III) is approximately 28 years. Based upon population projections presented in the Town's Phase I Solid Waste Management Plan, the MSF landfill could serve the Town to the year 2013. The useful landfill life could increase significantly if the site were used in conjunction with a Town Resource Recovery Facility for the disposal of ash residue, unprocessible materials and system bypass.

2.3 PURPOSE AND SCOPE OF INVESTIGATIONS

The United States Environmental Protection Agency (EPA) has designated Long Island as a sole source aquifer region. This designation is a product of the Long Island Comprehensive Waste Treatment Management Plan of 1978 (i.e., the 208 Study) which study was prepared pursuant to Section 208 of the Federal Water Pollution Control Act. Sensitive deep flow recharge areas within the counties of Nassau and Suffolk have been defined by the plan as Hydrogeologic Zones I, II and III. The approximate location of these zones and typical groundwater flow patterns are shown on Figure 4.

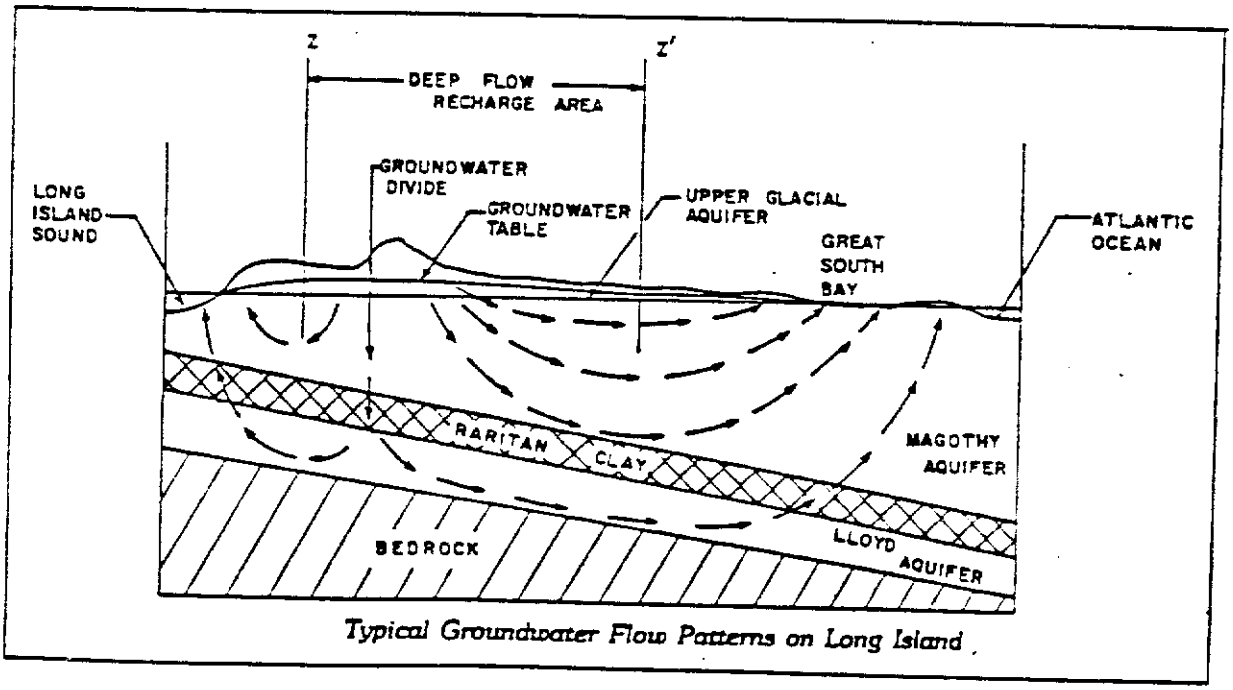
The Long Island Landfill Bill was signed into law on June 21, 1983 and has an effective date of December 18, 1983. The purpose of this legislation was to phase out the landfilling of raw municipal refuse as a primary solid waste disposal practice in Nassau and Suffolk Counties and to have resource recovery facilities replace the landfilling no later than December 18, 1990.

New York State Department of Environmental Conservation (NYSDEC) has determined that the Smithtown MSF landfill is within the sensitive deep flow recharge area, Hydrogeologic Zone I, and must be phased out of operation by December 18,



Hydrogeologic Zones in the Nassau-Suffolk 208 Study Area

FIGURE O



Typical Groundwater Flow Patterns on Long Island

FIGURE P

SOURCE - DRAFT - LONG ISLAND GROUNDWATER MANAGEMENT PROGRAM
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

HYDROGEOLOGIC ZONES IN THE SMITHTOWN (LANDFILLS) AREA.
FIGURE 4

1990. The site is situated about 7500 feet (1.4 miles) southwesterly of the defined 208 line in the groundwater flow direction.

The location of the Smithtown landfill within the Zone I area has significant implications for the Town of Smithtown in its ability to include the existing site in the development of a long term solid waste management plan. The forced closure of the landfill would most probably require the Town to site and construct a new landfill, and/or be faced with the inability to dispose of its municipal solid waste without implementation of a Resource Recovery Program.

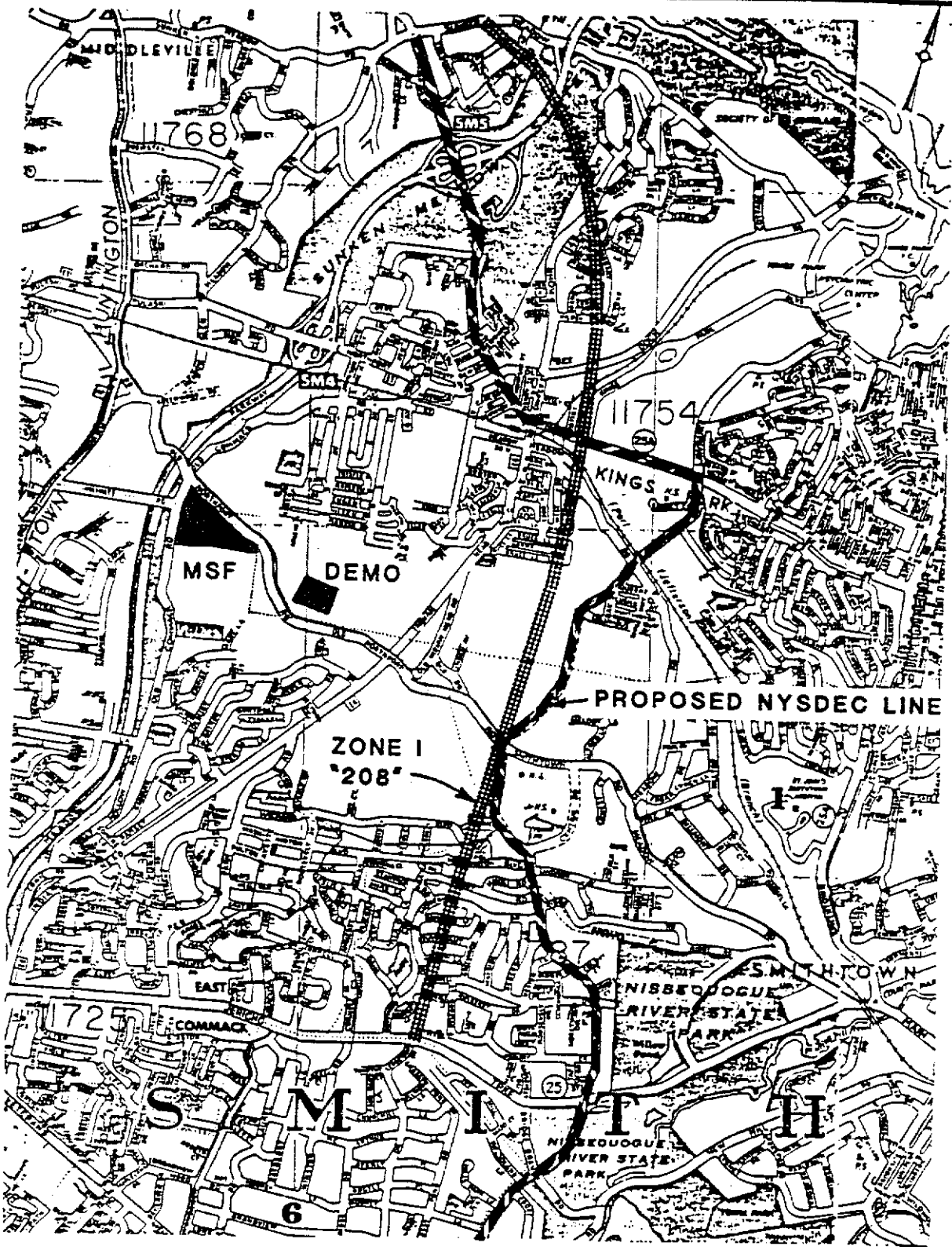
The Town's Phase I - Solid Waste Management Plan projected the useful life of the MSF site to be approximately 28 years when landfilling raw municipal refuse and demolition materials. If closed by December 18, 1990, 24 years of useful life at the existing site would be unavailable for disposal of municipal refuse without implementation of a resource recovery facility. Notwithstanding, the Town would still require an active landfill for the ash disposal, landfilling of bypass and for disposal of unprocessable materials.

Hydrogeologic zone boundaries established through the 208 Study used available data and information. Although several

reports were published at that time which described the Huntington-Smithtown hydrogeology, they did not have sufficient hydrogeologic data to accurately describe the presently used Zone I boundary or its proposed modification by the NYSDEC, Figure 5. The relative lack of data coupled with the complexity of the Smithtown geology raises questions as to the exactness of this boundary line and its use in planning or implementation efforts.

The principle and subordinate objectives of the project include:

- o Verification that the existing Smithtown Landfill site is within/without the deep flow recharge area and the significance of its location relative to the Zone 1 hydrogeologic boundary.
- o To supplement geological information in the vicinity of the Smithtown Landfill and expand upon the existing data base for this complex flow regime area.
- o Develop hydrogeologic information that will be of assistance to Federal, State and local agencies for water resources planning and implementation of the NYSDEC Long Island Groundwater Management Program.
- o To supplement the groundwater monitoring wells in the vicinity of the Smithtown Landfill and other private landfill sites.



PROPOSED MODIFICATION TO HYDROGEOLOGIC ZONE BOUNDARIES IN THE VICINITY OF TOWN OF SMITHTOWN LANDFILL SITES

FIGURE 5

Volley ASSOCIATES

- To compile information on existing wells, geology and other groundwater information in the Kings Park area.

2.4 REGIONAL AND LOCAL PHYSIOGRAPHY AND GEOLOGY

The area in general is characterized by very hilly and irregular topography. Land surface elevations average about 150 feet above mean sea level (MSL) in the immediate vicinity of the Smithtown MSF complex. To the north, west, and south, as one approaches the Harbor Hill and Ronkonkoma terminal moraines, elevations average over 200 feet above MSL and exceed 300 feet above MSL southwest of the site near Dix Hills. The land surface drops off to the east and reaches sea level at the Nissequogue River.

The geology consists of a thick sequence of southeast-sloping, unconsolidated deltaic/alluvial sediments resting uncomfortably on dense, crystalline bedrock. The sediments are effectively covered by recent glacial moraine and outwash deposits. In general, the sediments are comprised of porous, water-saturated, sand and gravel beds, somewhat clayey and silty, with numerous interbedded and discontinuous clay layers (Table 1). All gradations from one type of material to another are represented in the strata. A summary of the hydrogeologic formations underlying the Smithtown area follows and is shown

—*Summary of the stratigraphy and water-bearing properties of the deposits underlying the Huntington-Smithtown area, Suffolk County, N.Y.*

System	Series	Stratigraphic unit	Thickness (feet)	Character of deposits	Water-bearing properties
Quaternary	Recent	Recent deposits Artificial fill, marsh deposits, beach deposits, and surficial soil.	0–20±	Sand, gravel, silt, and clay; organic mud, peat, loam, and shells. Colors are brown, yellow and gray.	Sandy and gravelly beach deposits may locally yield small supplies of fresh to brackish water to wells. Marine silt and clay in north-shore harbors retard salt-water encroachment and confine underlying aquifers.
	Pleistocene	Upper Pleistocene deposits.	0–300±	Till composed of unassorted clay, sand, and boulders as ground moraine in area north of Harbor Hill terminal moraine and possibly as buried ground moraine of the Ronkonkoma lobe. Outwash deposits of brown well-stratified sand and gravel—predominantly quartzose but containing biotite and other dark minerals and igneous and metamorphic rock fragments—including advance outwash, channel and valley-fill, and outwash-plain deposits. Ice-contact deposits of crudely stratified sand and gravel and isolated masses of till in the Ronkonkoma and Harbor Hill terminal moraines. Glaciolacustrine deposits of brown and gray silt and clay intercalated with outwash deposits in buried valleys.	Till, relatively impermeable; commonly causes perched-water bodies to form locally and impedes recharge from precipitation. Outwash and ice-contact deposits are moderately to highly permeable. Wells screened in outwash deposits generally at depths of less than 250 ft yield as much as 1,700 gpm. Specific capacities of public-supply wells range from 22 to 222 gpm per ft of drawdown. Water is generally fresh and unconfined. Chief source of water for domestic, public-supply, industrial, and irrigation wells in project area. Glaciolacustrine deposits of silt and clay are relatively impermeable and locally retard movement of water between adjacent water-bearing beds in Pleistocene and Cretaceous deposits.
		----Unconformity?----			
		Pleistocene deposits undifferentiated.	0–400±	Sand, gravel, clay, and silt. Lignite present in some silt or clay layers. Colors are brown and gray. These deposits are present in deep buried valleys and may include equivalents of the Gardiners clay and the Jameco gravel found elsewhere on Long Island. This unit may include some Pliocene(?) deposits, but evidence is scanty.	Coarser sand and gravel beds are permeable and would presumably yield moderate to large supplies to properly constructed wells. One well, 816,137, screened in these deposits yields 1,400 gpm, and has a specific capacity of 46 gpm per ft of drawdown. Silt and clay beds confine water in adjacent water-bearing beds.
Tertiary(?)	Pliocene(?)	----Unconformity?----			
		Manetto gravel	0–300±	Stratified sand and gravel and scattered clay lenses; unit is predominantly quartzose; igneous and metamorphic rock fragments are scarce. Colors are pale to yellowish brown. Caps hills in western part of Huntington and locally present in buried valleys.	Deposits are moderately to highly permeable but generally lie above the zone of saturation. Locally, water supplies for domestic use are obtained from these deposits, such as at wells 84, 5308 and 8977. No large public-supply or industrial wells were screened in these deposits in 1960.
		---- Unconformity ----			
Cretaceous	Upper Cretaceous	Magothy(?) formation	0–800±	Sand, clayey, with silt, clay, and some gravel. Colors are white, gray, brown, yellow, and red. The upper part of the formation commonly includes interbedded clay, fine to medium sand, silt, and some lignite; the lower part is largely coarse sand, gravel, and some clay.	Generally ranges from moderately to highly permeable. The lower part of the formation is more permeable than the upper part. Several public-supply wells screened in the basal zone have yields ranging from 1,000 to 1,600 gpm and specific capacities from 20 to 80 gpm per ft of drawdown. Water is generally of excellent quality. Second most important source of water to wells. Unconfined conditions are common in uppermost part of formation, but confined conditions prevail in the lower part; some wells flow.
		---- Unconformity ----			
		Raritan formation: Clay member	0(?)–188±	Clay and silt, and a few layers of sand. Lignite and pyrite concretions are common. Colors are mostly gray, white, and red.	Relatively impermeable. Acts as a confining bed, which retards but does not prevent movement of water between the Magothy(?) formation and the Lloyd sand member.
		Raritan formation: Lloyd sand member	200–265±	Sand, fine to coarse, and gravel, mixed with some clay and some layers of silt and clay. Colors are white to pale yellow.	Moderately permeable. Not extensively developed. Several public-supply and industrial wells yield as much as 250 gpm in northern Huntington, but potential yields from properly constructed wells are much greater. Water is confined and some wells flow. Water is generally of excellent quality, but on Eaton Neck it is brackish.
		---- Unconformity ----			
Precambrian to lower Paleozoic		Bedrock		Crystalline metamorphic and igneous rocks.	Relatively impermeable. Forms the floor of the groundwater reservoir.

SOURCE: Lubke (1964)

TOWN OF SMITHTOWN
SMITHTOWN LANDFILL

SUMMARY OF DEPOSITS UNDERLYING THE SMITHTOWN AREA

TABLE NO. 1

Velzy ASSOCIATES

schematically in Figure 4. The reader is referred to the paper by Lubke (1964) for a more in-depth description.

The bedrock basement underlying the Smithtown area is the oldest geologic unit and consists mainly of gneiss and schist of low hydraulic conductivity. Its upper surface ranges in elevation from 650 feet below MSL in the northwest corner of the town to 1350 feet below MSL in the southeast near Lake Ronkonkoma.

The Raritan Formation lies directly on top of the bedrock and is the earliest of the upper Cretaceous deposits. It consists of a lower Lloyd Sand Member and an upper Clay member. The formation ranges from about 300 feet below MSL in the northwest to 800 feet below MSL near Lake Ronkonkoma. The Lloyd Sand Member (Lloyd Aquifer) generally consists of beds of fine to coarse sand and gravel, commonly in a clayey matrix, with some interbedded layers of solid and silty clay. The Clay member consists of solid and silty clay with few layers of sand. The hydraulic properties of the Lloyd Sand Member are generally quite good. Groundwater contained within the sediments is strongly confined under artesian conditions by the overlying, relatively impermeable Clay member.

The Magothy Formation (Magothy Aquifer) is in general the most important water supply source in the Smithtown area.

Its lower boundary generally corresponds to the upper surface of the Raritan Formation. The sediments are mostly silty, fine to medium sand with interbedded gravel and clay layers. The lower 50-200 feet of the deposit commonly contain abundant gravel. Groundwater contained within the upper portion of the formation generally exists under unconfined, water table conditions. With increasing depth, artesian conditions prevail as the numerous, interbedded clay layers become more effective in confining the water. The upper surface of the formation is highly irregular due to extensive erosion which occurred during pre-glacial times by streams draining the land surface.

Lying atop this eroded surface and comprising the remainder of the land mass are deposits of undifferentiated pre-, intra-, and post-glacial sands, gravels, and clays. Termed the Upper Pleistocene deposits (Upper Glacial Aquifer), these sediments contain mostly interbedded fine to often very coarse sand and gravel with some thick marine and glacial silt and clay layers. The sediments are generally very porous and permeable and are also an important water supply source for the Smithtown area. Groundwater generally exists under unconfined, water table conditions. Locally, however, artesian conditions prevail beneath the numerous and often quite extensive clay deposits.

2.5 PREVIOUS STUDIES

The U.S. Geological Survey, in cooperation with the Suffolk County Department of Health Services, Suffolk County Water Authority, and N.Y. State Department of Environmental Conservation, has published a number of reports on various aspects of Long Island's hydrogeology. The most extensive study devoted to the Town of Smithtown area was performed by Lubke (1964).

Groundwater flow studies were performed more recently by Jensen and Soren (1974), McClymonds and Franke (1972), Donaldson and Koszalka (1982), and Donaldson (1982). Krulikas, Koszalka, and Doriski (1983) presented an updated interpretation of the Matawan Group-Magothy Formation surface, and Krulikas and Koszalka (1983) investigated the areal extent of a significant glacial-age clay unit throughout the Smithtown-Brookhaven area. Hydrogeologic data from selected wells in the Smithtown area can be found in Jensen and Soren(1971) and Krulikas(1981).

In addition, the Town of Smithtown has installed a number of shallow permanent observation wells for the purposes of monitoring water table levels and groundwater quality in and around the MSF site.

Information from all previous studies was used to its maximum extent as background data and supplemental information and incorporated into these investigations.

SECTION III

SECTION 3.0

SITE INVESTIGATIONS

3.1 GENERAL

The primary objective of the site investigations was the installation of a deep well cluster for the purposes of evaluating head differentials beneath the Smithtown MSF Landfill site. Information from the program would provide verification that the existing MSF landfill site is within/without the deep flow recharge area and the significance of the site relative to the published 208 Study - Zone I hydrogeologic boundary.

A drilling program was designed to advance a 24 inch diameter borehole to the top of the Raritan Formation Clay member, estimated to be about 600 feet below grade surface (Jensen and Soren, 1974). Three, four (4) inch wells were installed in the borehole and screened at various depths. Each well was individually developed and static water levels were recorded.

The information gained from the well cluster is three-fold:

1) Potentiometric Surface - The potentiometric surface is the elevation (referred to mean sea level) to

which water will rise in a tightly cased well from a given screened interval in an aquifer. The water table is a particular potentiometric surface. Differential potentiometric surface elevations of wells in the cluster are head losses associated with vertical flow through the aquifer(s).

2) The relative component direction of groundwater flow--whether upwards, downwards, or horizontal--can be deduced from a comparison of the differential heads as measured in the cluster wells. Groundwater flows from regions of higher energy head, or fluid potential, to regions of lower energy head. A higher potentiometric surface elevation in the shallow well of a cluster than in the deeper well is indicative of a region of groundwater recharge, thus, downwards flow component. The reverse case of potentiometric surface elevations in the well cluster would indicate a upwards flow component, or an area of groundwater discharge. Identical potentiometric surface elevations for both deep and shallow wells would be associated with horizontal flow, neither recharge nor discharge.

3) Periodic potentiometric surface measurements in cluster wells can be used to determine seasonal or long term changes in contours of groundwater levels together with flow lines and, similarly, flow lines within the confined aquifer which are orthogonal to

contours of the potentiometric surface. This information can be used to better understand the groundwater flow region of the area and characterize the hydrogeological environment.

Supplemental information in the form of geologic corelog descriptions and static water level measurements of existing wells in the vicinity was compiled and evaluated in order to more definitively determine the surrounding subsurface hydrogeologic environment.

The literature and files of the NYSDEC and U.S. Geological Survey was researched to identify deep wells or combination of wells in the study area which could be considered as representative well "clusters" for measurement purposes. Due to the lack of deep wells accessible for such measurements and, at the same time, beyond the range of influence of major public supply pumping wells, additional well clusters could not be defined in the study area.

Static head measurements were obtained, however, directly from several Suffolk County Water Authority (SCWA) public supply deep well clusters during non-pumping conditions. The SCWA had been in the process of undertaking a pumping test program at its well fields throughout the County for evaluating the characteristics of individual wells and, in general, the overall efficiency of the system. Part of

this program entailed taking out of service the entire well field for several hours and allowing the system to achieve predevelopment or non-pumping conditions. It was through this cooperative effort that Velzy was able to obtain potentiometric surface measurements for the various SCWA deep wells in proximity to the Smithtown MSF site and in the vicinity of the 208 Study Zone I hydrogeologic boundary line.

3.2 DEEP WELL CLUSTER INSTALLATION

3.2.1 Drilling Phase

Drilling operations commenced on January 13, 1986, and were completed on January 24, 1986. The Reverse Rotary drilling method was employed. The work was performed by Delta Well, Ronkonkoma, New York. A final borehole depth of 620 feet below grade was recorded. This depth corresponds approximately to the top of the Clay member of the Raritan Formation.

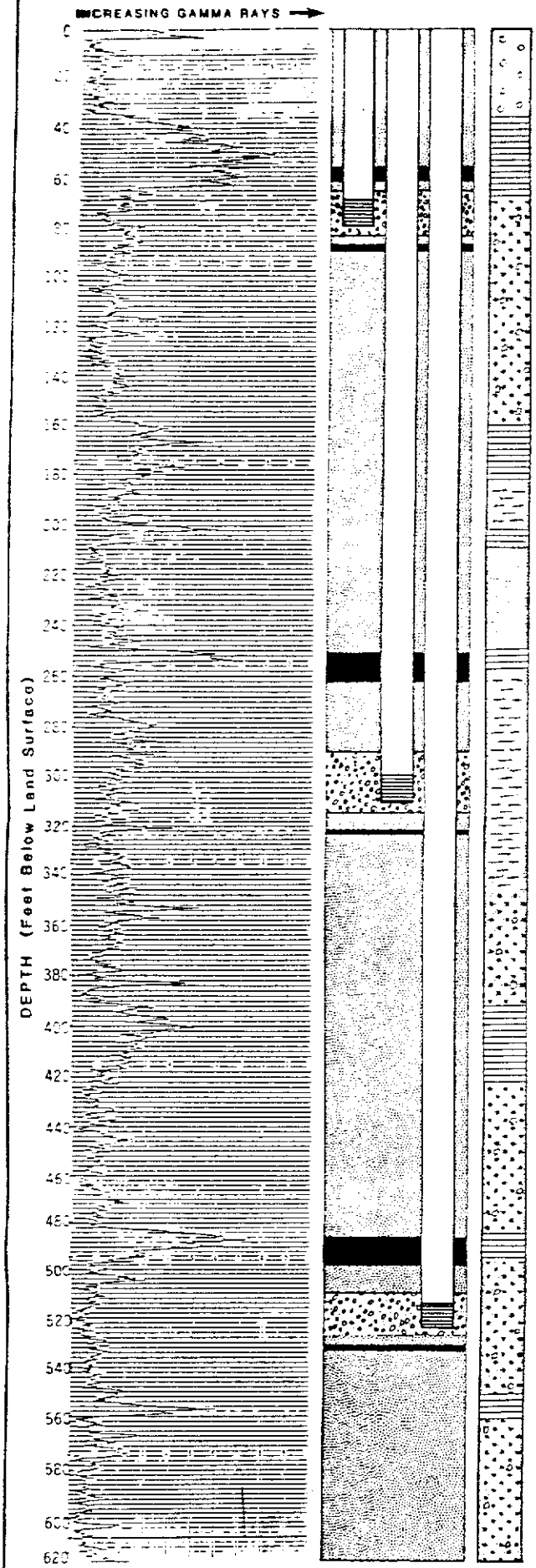
Split-spoon geologic core samples, approximately twelve (12) inches long each, were taken at twenty (20) foot intervals and at depths where a distinct change in lithology of the sediments occurred. In addition, discharge pit washings were continuously monitored. Laboratory analysis of the core samples was performed in

order to confirm field estimates of grain size ranges and percentages. Results are included in Appendix A. A copy of the geologic log for the borehole is shown in Figure 6.

Representatives of the U.S. Geological Survey and New York State Department of Environmental Conservation frequented the site to observe and collaborate with Velzy's geologist in identification of various strata penetrated.

Approximately 200 feet of Upper Pleistocene/Pliocene(?) deposits were penetrated as well as about 420 feet of Late Cretaceous deposits. Included in the Upper Pleistocene/ Pliocene(?) deposits was 35 feet of an extensive clay deposit identified as the Smithtown Clay, a major confining clay which was presumably deposited in an intramorainal lake.

Also observed in the Upper Pleistocene deposits about 90 feet below the Smithtown Clay and just above the Magothy Formation were significant clay lenses and intercalations which may be related to the Gardiner's Clay and/or Monmouth Greensand. These two formations have as yet to be identified definitively in the Smithtown area, but are quite extensive in southern Long Island. The lateral extent of this clayey material and its confining influence could not be fully confirmed given the existing lack of available deep well data on the area. In contrast, the



Elevation = 111.44 ft.

Sand - brown, fine to medium; gravel, coarse

Clay - gray and brown, silty; some gravel

Sand - brown, medium to coarse; clay streaks, gray and brown; gravel, fine to coarse

Clay - multicolored, silty; some sand and gravel layers

Sand - gray, fine to medium, clayey and silty; clay streaks, gray, sandy; some gravel

Clay - gray and brown, solid and sandy, some sand, medium

Sand - gray, fine to medium; some gravel, fine; some clay streaks, gray and brown, sandy and solid

Clay - gray and black, solid

Sand - gray, fine to medium, silty; clay streaks, white, gray, and brown; some gravel, fine

Sand - gray, medium to very coarse; gravel, fine; lignite; some clay streaks, gray

Clay - gray, and brown, silty and sandy, lignitic; some sand, medium to very coarse; some gravel, fine

Sand - gray, fine to very coarse; gravel, fine to medium; some sandy clay, gray and white

Clay - brown and gray, solid, lignitic; some sandy clay

Sand - gray, medium to very coarse; gravel, fine to coarse; some clay, gray, silty and sandy

Clay - brown, yellow and white, silty and sandy; some gravel, fine

Sand - gray, fine to very coarse; gravel, fine to medium; some silty clay, gray

LEGEND:
- Solid Bentonite Slurry with some Sand
- Gravel
- Sand

SMITHTOWN LANDFILL

GAMMA LOG, WELL CLUSTER SCHEMATIC & GEOLOGIC LOG OF SMITHTOWN DEEP WELL TEST BORING

JANUARY, 1986

FIGURE NO.6

Volzey ASSOCIATES

lateral extent of the Smithtown Clay is well known and was mapped by Krulikas and Koszalka (1983).

The Magothy Formation generally contained silty and clayey sand with interbedded layers of gravel. As is typical, it also contained some silty and sandy layers of clay, the lateral extent of which is unknown given the available well data. No clay layers exceeded a thickness of ten (10) feet and one thirty (30) foot thick layer of silty clay with sandy intercalations was observed approximately centered at the 400 foot depth. The lower Magothy Formation was typically very coarse-grained and gravelly.

No strata uniquely identifiable as the clay member of the Raritan Formation was penetrated. Instead, Raritan and Magothy Formation material was identified together in the same strata beyond the 600 foot depth. This situation would indicate an apparent transition zone between the formations and not a clear-cut boundary.

3.2.2 Geophysical Logging

Geophysical logs furnish continous records of subsurface conditions that can generally be correlated from one well to another. They also serve as valuable supplements to geologic logs. Upon completion of the drilling phase of this program, natural-gamma logging of the uncased borehole

was performed by representatives of the U.S. Geological Survey.

Because all subsurface materials emit natural-gamma radiation, a record of this constitutes a natural-gamma log. The radiation originates from unstable elements that occur to varying amounts in subsurface formations.

In general, the natural-gamma activity of clayey formations is significantly higher than that of quartz sands, etc. The most important application to groundwater hydrology is identification of lithology, particularly clayey sediments, which posses the highest gamma intensity. However, the emission of natural-gamma radiation and its intensity can also be used to identify differences between the types of materials associated with successive strata.

At the Smithtown site, the natural-gamma log in conjunction with geologic logs was used to establish lithology of the borehole and for establishing the most favorable placement for screen intervals of the well cluster.

Figure 6 shows the natural-gamma log of the uncased borehole sediments together with its geologic interpretation.

3.2.3 Well Screen Settings

Well screen settings were chosen on the basis of the natural-gamma log and geologic core sampling lithology results, as well as field observations of drilling rates. It was desired to place the screens in relatively permeable, sandy zones where the wells could be adequately developed and where measured potentiometric surfaces are more indicative of regional flow conditions.

Representatives of the New York State Department of Environmental Conservation and U.S. Geological Survey were also on site during the well screen setting phase of the project.

Well screens consist of ten (10) foot long, four (4) inch diameter, stainless steel, continuous slot No. 20 screens with four (4) inch diameter, Schedule 80, polyvinyl chloride (PVC) casings. Joining of casing lengths was accomplished using flush thread-type joints.

The upper screen was set below the Smithtown Clay in the Upper Pleistocene deposits. The remaining two screens were set in the Magothy Formation, the middle screen in the upper Magothy and the lower screen in the lower (basal) Magothy. Figure 6 shows a schematic of the borehole and placement of well screens.

In addition, a fourth length of PVC casing with a three (3) inch diameter, slotted, ten (10) foot long, PVC screen was set in the top of the Smithtown Clay. This was used to detect any perched water that may have been resting on top of the clay unit.

Each well screen setting consists of a gravel filter pack enveloping the well screen. A Bentonite clay pellet seal is placed above and below the filter pack to hydraulically isolate the screen settings and prevent a vertical flow of water through the annular space of the borehole to the screens. Fine sand "buffer" layers were emplaced between the filter packs and Bentonite seals to disallow migration of the Bentonite clay towards the well screen during well development. The remaining annular space was backfilled with a similar fine sand material.

3.2.4 Well Development

Each four (4) inch well was developed using the air-lift methodology. Pumping rates of about 10-15 gallons per minute (gpm) were maintained for a minimum of two (2) hours and until turbidity declined to acceptable levels and each well yielded clean, silt-free, formation water.

3.3 POTENTIOMETRIC SURFACE MEASUREMENTS

During an eight (8) day monitoring period in February, 1986, static potentiometric surface measurements were recorded for designated wells in the vicinity of the Smithtown MSF site. Background information, details of the wells and measured potentiometric surface elevation (heads) are presented in Table 2. The location of each monitoring location is shown in Figure 7.

3.3.1 Suffolk County Department of Health Services Wells

The Suffolk County Department of Health Services (S.C.D.H.S.) maintains an extensive network of observation wells throughout Suffolk County. Potentiometric surface measurements are compiled and detailed annual water table contour maps developed from this data.

Three (3) S.C.D.H.S. permanent observation wells are located in the study area. Potentiometric surfaces for these wells represent the water table at time of measurement. The wells are relatively shallow and are screened in a zone of the Upper Glacial Aquifer where groundwater exists under unconfined, water table conditions. Details of these wells are presented in Table 2 and location shown in Figure 7.

3.3.2 Suffolk County Water Authority Wells

The Suffolk County Water Authority (S.C.W.A.) maintains a number of operable public supply well fields within the Town of Smithtown. Three (3) S.C.W.A. well fields are located within two (2) miles of the Smithtown MSF site and include the Kings Park Road, Lawrence Road, and Carlson Avenue stations (Figure 7).

Through the cooperative effort with the S.C.W.A., static potentiometric surface measurements were recorded at each well field during non-pumping conditions.

The Kings Park Road wells were shut down for twenty-five (25) hours prior to the taking of measurements. The two (2) deeper wells recorded different potentiometric levels, yet, they are screened at about the same elevations thus should theoretically yield the same, or very similar, results. A number of factors could be responsible for this discrepancy. Averaging of the two potentiometric surface elevations was considered sufficient for the purposes of this report. This average value for the potentiometric surface elevation was 43.3 feet above MSL. The differential between the upper and lower screened zones is about 14.4 inches (1.2 feet) with the shallower well yielding the higher water surface elevation. This would

TABLE 2
RECORDED HEADS IN THE VICINITY OF THE TOWN OF SMITHTOWN MSF LANDFILL
FEBRUARY, 1986

NYSDEC WELL NUMBER		OWNER	DATE OF MEASUREMENT	SCREENED FROM/TO (mean sea level)	MEASURED HEAD (mean sea level)
S-74868		Smithtown	2/27/86	26/16	44.57
S-74869		"	"	45/35	44.68
S-74870		"	"	44/34	44.68
S-74872		"	"	25/5	46.09
S-82188	Shallow	"	2/21/86	40/30	46.63
	Middle	"	"	-190/-200	45.61
	Deep	"	"	-405/-415	45.01
S-15923		S.C.W.A.	"	?/-110	44.44
S-33006		"	"	-188/-351	42.26
S-53361		"	"	-285/-366	44.24
S-16129		"	2/25/86	-252/-382	37.64
S-64062		"	"	-351/-466	37.30
S-24545		"	"	-282/-350	36.02
S-66758		"	"	-333/-424	35.10
S-45402		S.C.D.H.S.	2/27/86	13/3	42.24
S-46964		"	"	33/23	41.14
S-46965		"	"	24/14	43.99

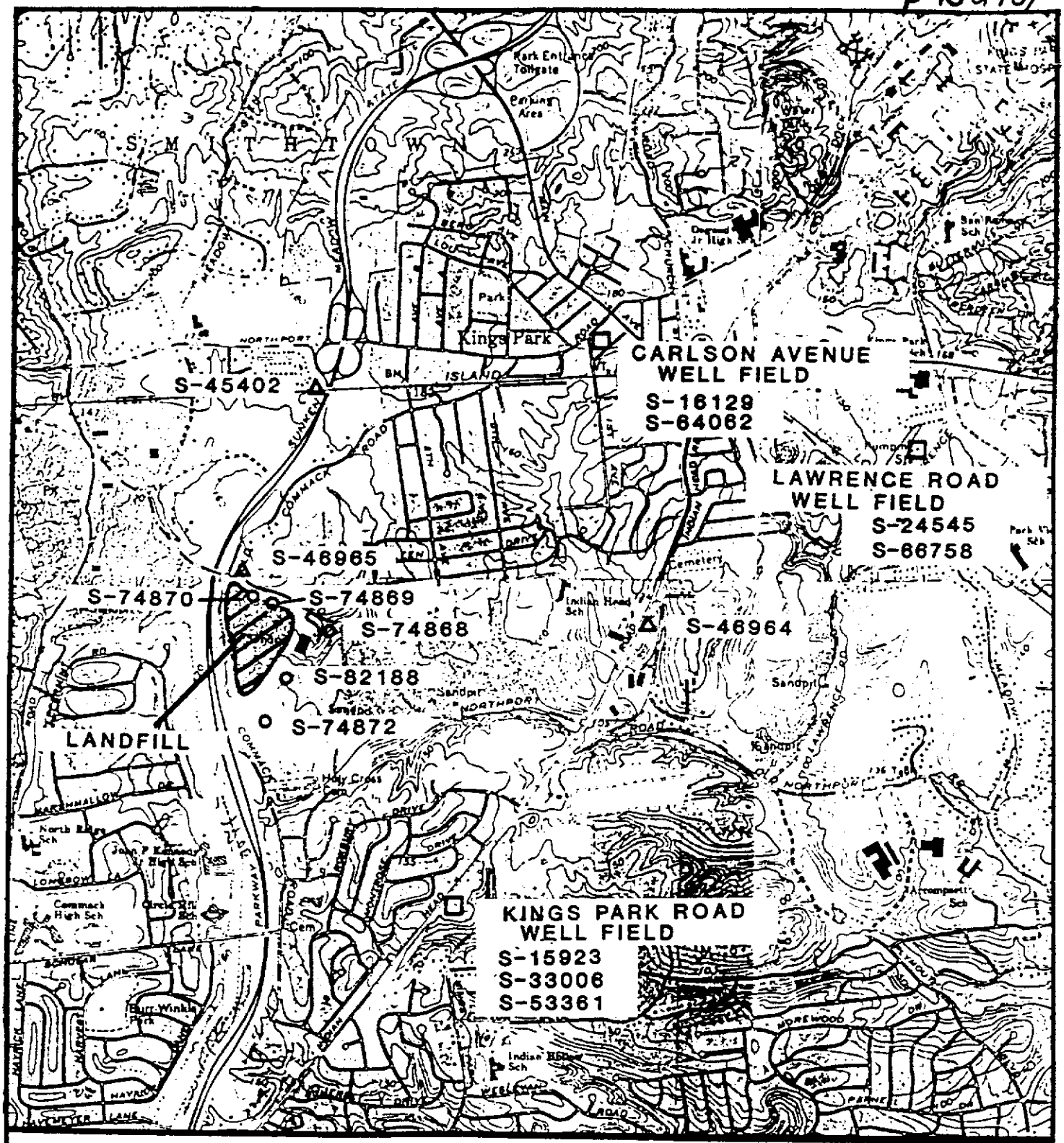


FIGURE 7
LOCATION MAP OF WELLS AND WELL CLUSTERS IN THE VICINITY OF THE TOWN OF SMITHTOWN LANDFILL

- ○ Town of Smithtown Observation Wells
- △ Suffolk County Dept. of Health Services Shallow Observation Wells
- □ Suffolk County Water Authority Public Supply Well Fields

suggest that the Kings Park Road station is in a region of groundwater recharge, e.g. Zone I hydrogeologic area.

The Carlson Avenue and Lawrence Road well fields were both shut down for over two (2) hours. The differential potentiometric levels between the two well screens recorded at the Lawrence Road well field and between those at the Carlson Avenue well field were 9.6 inches (0.8 feet) and 2.4 inches (0.2 feet) respectively. The higher water surface elevation for both sites were recorded in the shallower wells. These results would indicate that these well fields should be at the limit of a deep flow recharge area, e.g. boundary of the Zone I hydrogeologic area. For the period of these measurements, this would tend to confirm the general location of the Zone I boundary as established by the 208 Study.

3.3.3 Town of Smithtown Observation Wells

Shallow Water Table Wells

In compliance with New York State Part 360 Solid Waste Management Facilities Guidelines, the Town of Smithtown has installed a series of shallow permanent observation wells in the vicinity of the MSF landfill. The purposes of these wells is to monitor water table elevations and groundwater quality. Measurements obtained from these observation

wells were used to supplement those recorded for the S.C.D.H.S. shallow wells.

Deep Well Cluster

This well (NYSDEC No. S-82188) was described fully in Section 3.2. At the time of measurements, the shallow (upper) well had a 12.2 inch (1.02 feet) differential in potentiometric surfaces than the intermediate or upper Magothy well. Similarly, the differential in potentiometric surface elevations between the intermediate and deep or lower (basal) Magothy well was 7.2 inches (0.6 feet) with the upper Magothy having the higher elevation.

Results of the potentiometric surface measurements indicate a total 19.4 inch (1.62 feet) downward differential between the Upper Pleistocene, just below the Smithtown Clay unit and the lower (basal) Magothy formations.

SECTION IV

SECTION 4.0

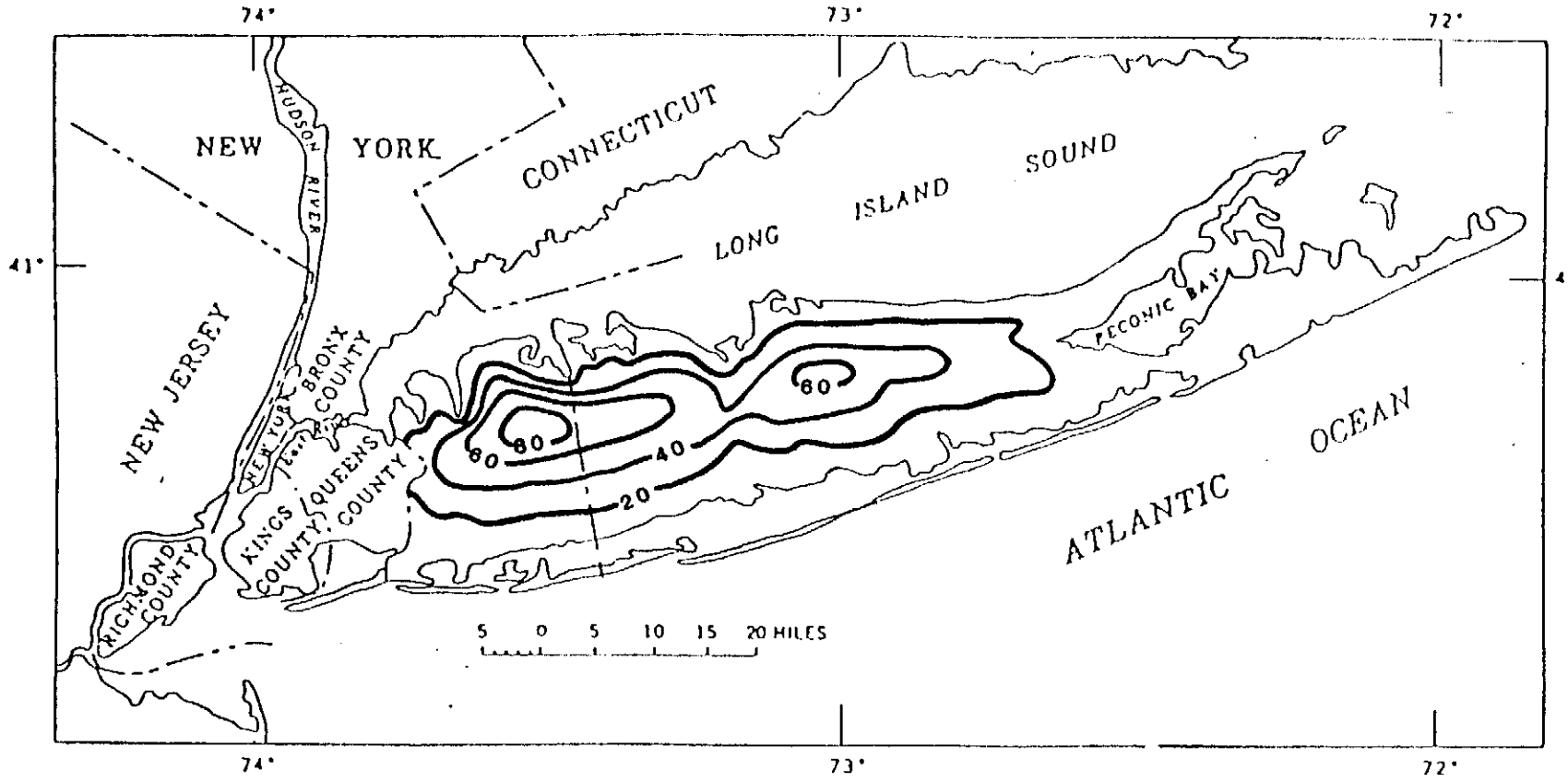
REGIONAL AND LOCAL HYDROGEOLOGY

4.1 CONTOURS ON THE WATER TABLE

4.1.1 General

Water table contour maps are prepared from potentiometric surface measurements of wells screened in the shallow, saturated zones of aquifers. The water table represents the boundary between saturated and unsaturated conditions and can be viewed as a subdued replica of the topography. Below the water table, the intergranular voids of the sediments are filled with water. The voids above the water table are only partially filled and act as the conduits for downward percolating precipitation which feeds the groundwater reservoir.

On Long Island, under natural conditions, the water table can be expected to fluctuate within a range of as much as ten (10) feet, according to long-term variations in precipitation and groundwater pumpage. This maximum fluctuation occurs at the groundwater divide. A generalized water table contour map for Long Island is included in Figure 8.



GENERALIZED WATER TABLE CONTOURS ON LONG ISLAND

FIGURE NO. 8

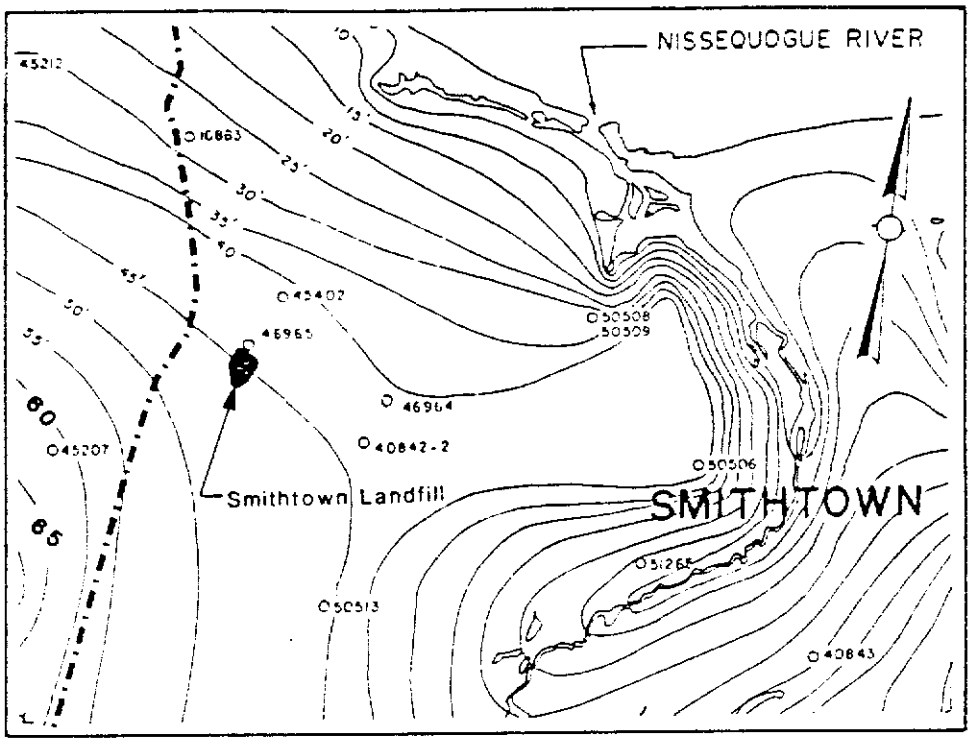
Velzy ASSOCIATES

4.1.2 Regional Contours on the Water Table

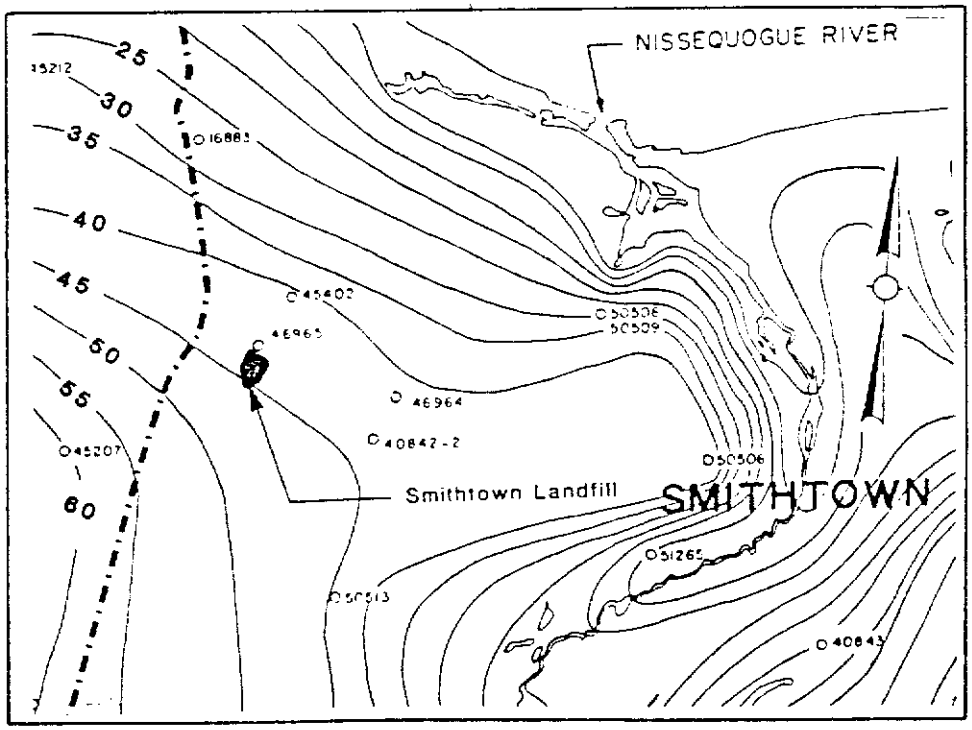
Water table contour maps, for the years 1982 to 1985, prepared by the Suffolk County Department of Health Services are included in Figures 9 and 10. Characteristic features of the water table in the study area include a water table mound to the southwest (off the map) and a water table trough to the east and southeast. A water table mound, or local high point on the water table, exists to the southwest, corresponding to a topographic high on the Ronkonkoma terminal moraine in central Huntington. The edge is evidenced by the 60 and 65 foot contours in the lower left corner of the maps. The water table is relatively flat due east of the MSF site, and abruptly drops off towards the Nissoguogue River. A major trough, or low point, exists on the water table surface corresponding to the Nissoquogue River Valley.

Water Table maps of 1979 through 1985 indicate that the maximum annual elevation of the water table has fluctuated within a range of about seven (7) feet at the MSF site, from elevation 44 feet to 51 feet above MSL, during the seven (7) year period. Unlike other locations in the study area, there appears to be an adequate number of shallow observation wells (supplemented by the Town of Smithtown

p 53 of 10



CONTOURS OF THE WATER TABLE - 1982



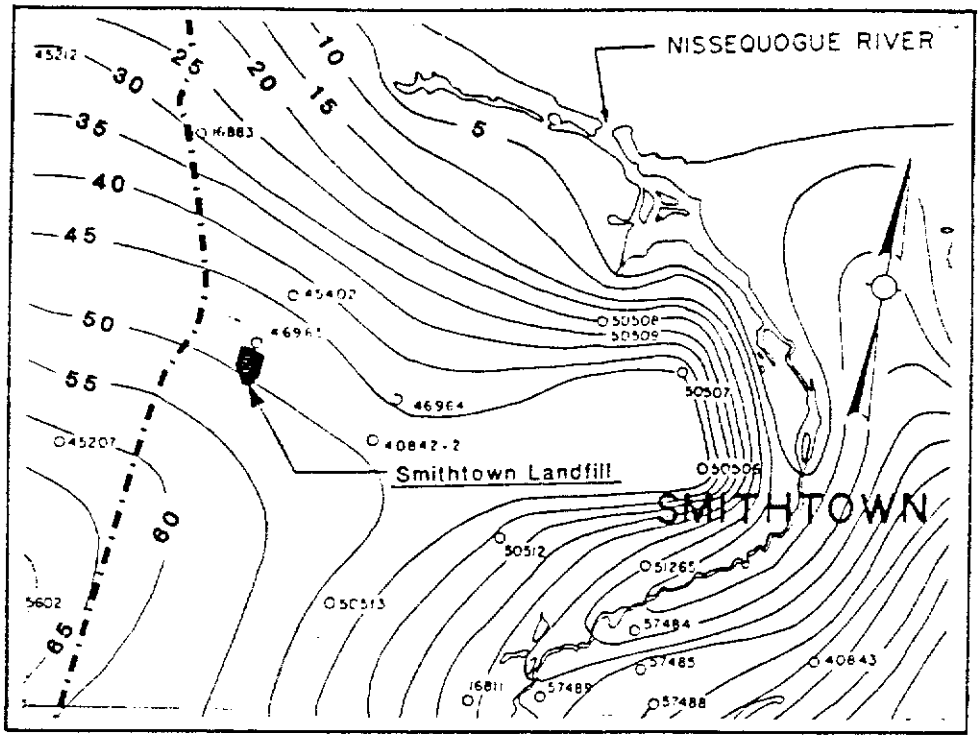
CONTOURS OF THE WATER TABLE - 1983

TOWN OF SMITHTOWN
SMITHTOWN LANDFILL

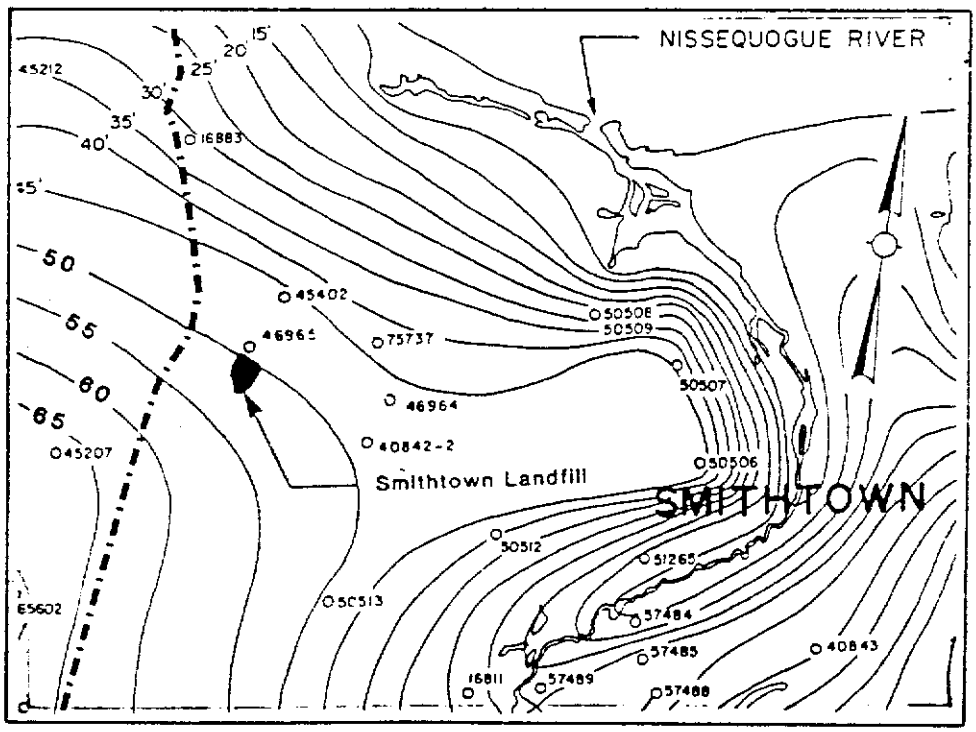
GROUNDWATER CONTOURS
SMITHTOWN LANDFILL VICINITY

FIGURE NO. 9

Velzy ASSOCIATES



CONTOURS OF THE WATER TABLE - 1984



CONTOURS OF THE WATER TABLE - 1985

TOWN OF SMITHTOWN
SMITHTOWN LANDFILL

GROUNDWATER CONTOURS
SMITHTOWN LANDFILL VICINITY

FIGURE NO. 10

Velzy ASSOCIATES

shallow wells) for accurate water table contouring purposes near the MSF site.

During the February 1986 monitoring period, water levels in Well Nos. 46964, 46965, and 45402 were recorded. Well No. 40842-2 was damaged and unavailable for measurements. Well No. 75737 is a wastewater treatment plant well and is not considered suitable for regional contouring purposes.

4.1.3 Flow in Relation to Groundwater Contours

Generalized horizontal components of shallow groundwater flow can be deduced from water table contour maps. Because no flow crosses an impermeable boundary, flow lines must parallel it. Simlarly, if no flow crosses the water table of an unconfined aquifer, it becomes a boundary flow surface. Therefore, under steady-state conditions, the elevation of any point on the water table equals the energy head and, as a consequence, flow levels lie perpendicular to the water table contours. Therefore, groundwater flows from regions of higher energy head (contour elevation) to lower energy head and in the direction of greatest differential head.

Contour maps of the water table indicate a north-northeast flow direction reaching Smithtown Bay somewhere west of the

Nissequogue River outlet. This groundwater flow appears to have remained fairly constant over the past several years.

Contours of the water table for the immediate vicinity around the MSF site are shown in Figure 11. This water table map is based on potentiometric surface measurements recorded in late February, 1986. A water table elevation of about 46 feet above MSL is somewhat low for the MSF site average, corresponding to a deficit of precipitation during the previous fall and winter, as recorded at Nissequogue River State Park.

These updated contours are similar, if not identical, to S.C.D.H.S. contours for the years 1979 to 1985. They suggest a similar north-northeast flow path for shallow groundwater flow between the MSF site and Smithtown Bay.

4.2 EXTENT OF SMITHTOWN CLAY UNIT

4.2.1 Regional Correlations

The areal extent of the Smithtown Clay, a major confining clay unit, throughout the Smithtown area is well-documented (Krulikas and Koszalka, 1983). Figure 12 illustrates its general location, thickness, and inferred limit, as correlated from well records by the U.S. Geological Survey. Additional correlations were identified based on geologic

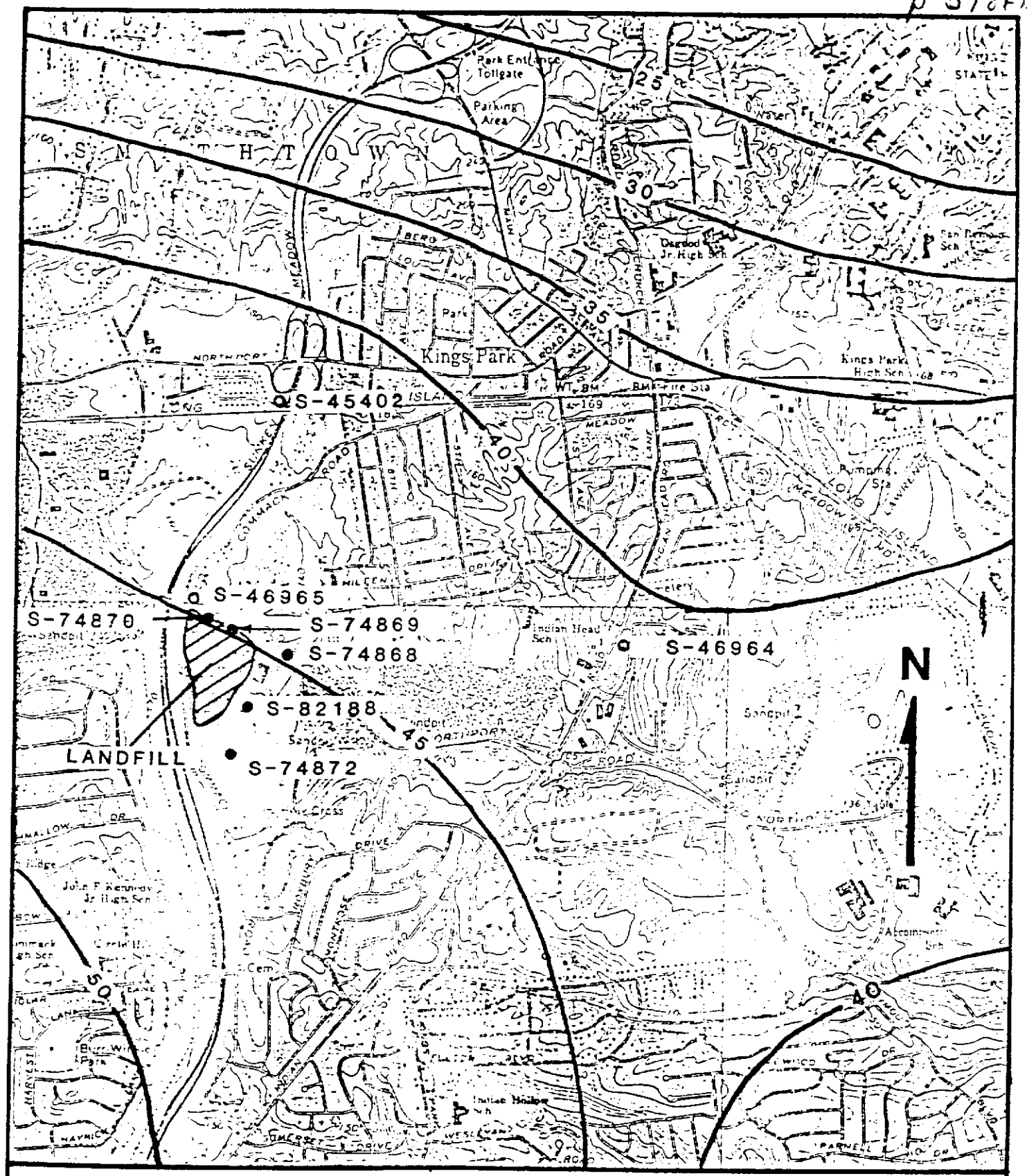


FIGURE 11
GROUNDWATER CONTOURS - SMITHTOWN LANDFILL VICINITY
FEBRUARY, 1986

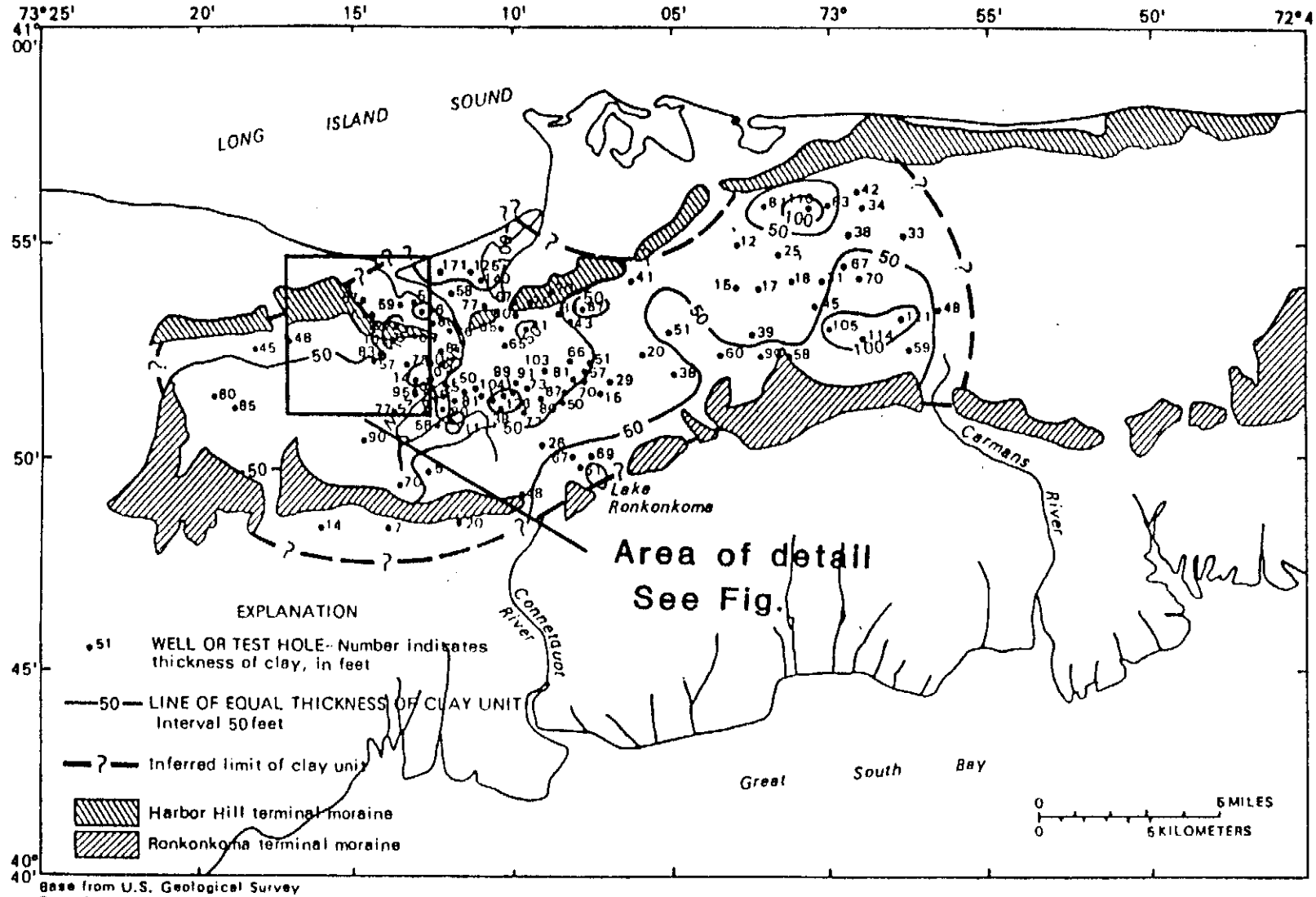
—35— Approximate location of Water Table Contours. Datum is above mean sea level.

o Suffolk County D.H.S. Water Table Observation Wells.

● Town of Smithtown Observation Wells

Scale: 1" = 2000'

Velzy ASSOCIATES



TOWN OF SMITHTOWN
SMITHTOWN LANDFILL

THICKNESS OF SMITHTOWN CLAY UNIT

FIGURE NO.12

Source: Krulikas and Koszalka (1983)

Volzy ASSOCIATES

core log descriptions included in well records on file at the NYSDEC. Figure 13 presents the locations of the wells used for mapping the Smithtown clay and the estimated thickness of the clay unit in relation to the MSF landfill site.

4.2.2 Site Correlation

The upper surface of the Smithtown Clay beneath the MSF landfill was identified from core log descriptions of Town observation wells. During installation of the shallow water table wells at the site in 1983, drilling proceeded to or into the top of the clay unit. The depth at which clay was reached was recorded in the drilling report. This information, along with that supplied by the more recent deep well cluster, was used to contour the upper surface of the Smithtown clay beneath the MSF site in Figure 14.

The upper surface of the clay lies about 100 to 150 feet below land surface at the site and slopes off to the east-northeast, in the direction of shallow groundwater flow. The clay unit is approximately 35 feet thick at the deep well cluster.

Top of the Smithtown Clay unit lies at about the same elevation as the water table in the study area. The upper surface of the clay unit is generally quite irregular and

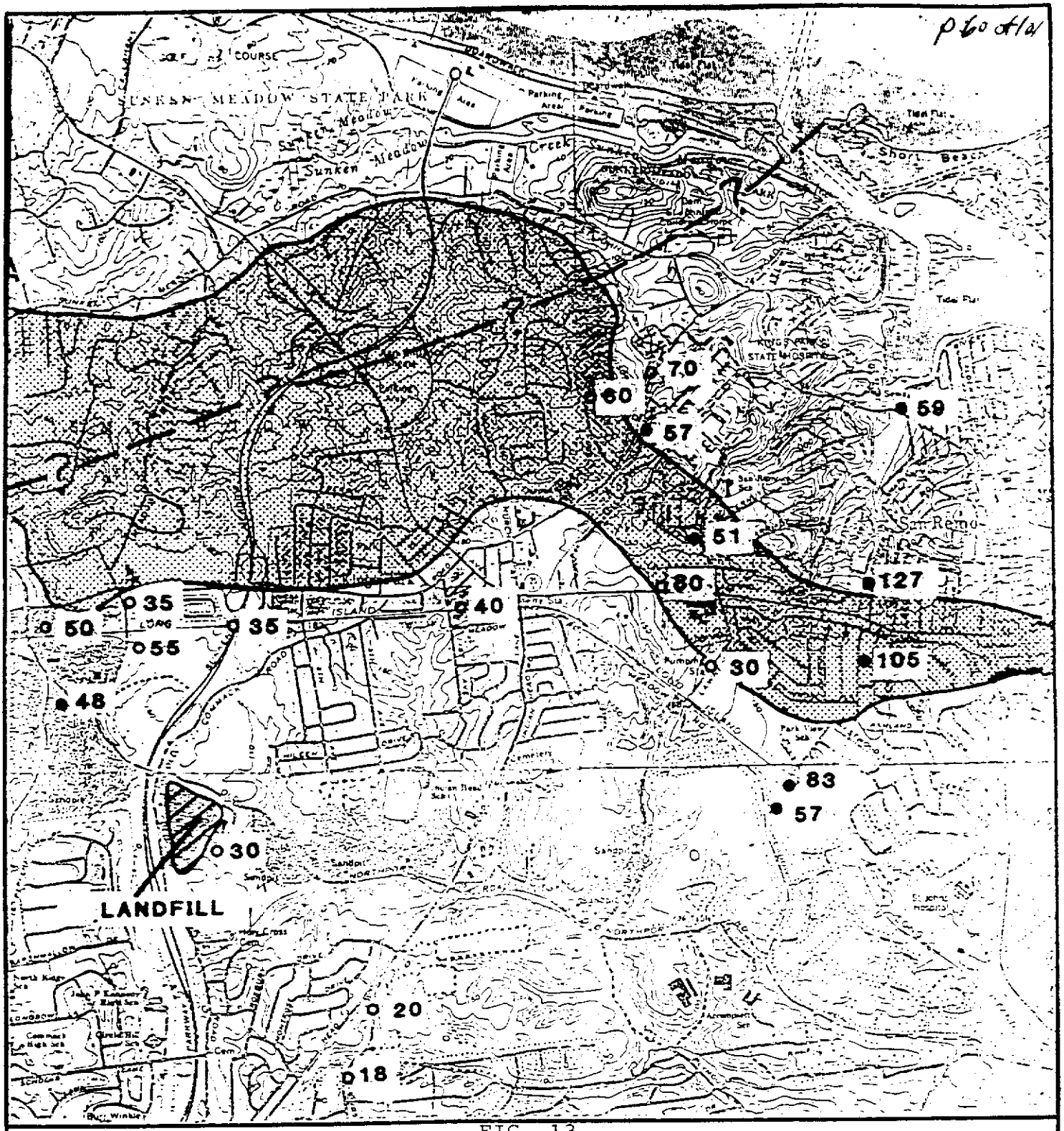


FIG. 13

LOCATION OF WELLS AND ESTIMATED THICKNESS OF SMITHTOWN CLAY - SMITHTOWN LANDFILL

(in feet)

o 50	Smithtown Clay Unit Thickness Data From Available Well Reports
• 50	Smithtown Clay Unit Thickness From U.S.G.S. Report (Fig.)
-?-	Inferred Limit of Smithtown Clay
	Harbor Hill Terminal Moraine (Jensen Soren, 1974)

Scale: 1" = 2500'

Velzy ASSOCIATES

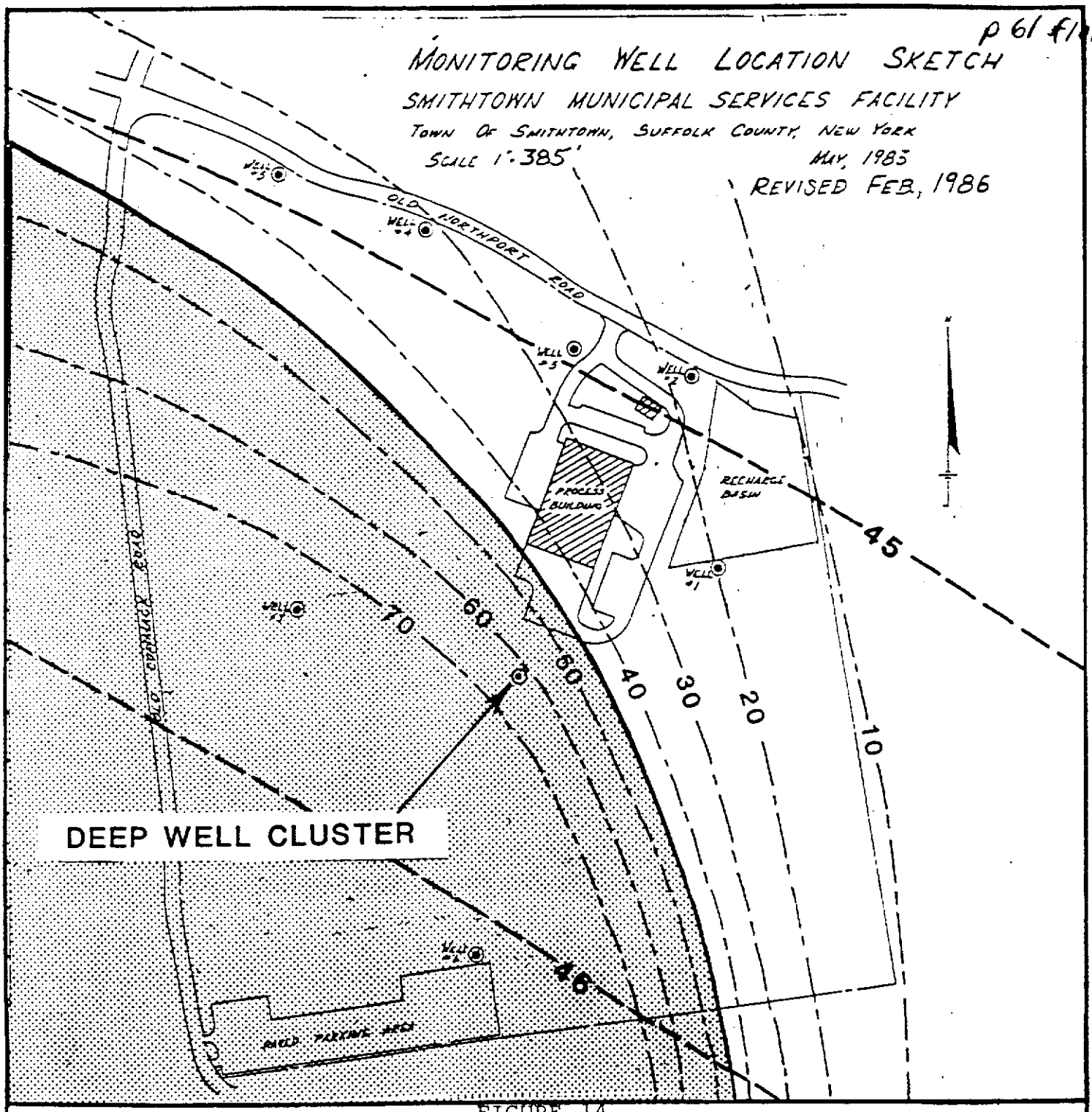


FIGURE 14

CONTOURS OF THE WATER TABLE AND UPPER SURFACE OF SMITHTOWN CLAY UNIT - SMITHTOWN LANDFILL VICINITY
FEBRUARY, 1986

45 — Approximate location of local water table contours

30 — Approximate location of contours on the upper surface of the Smithtown clay

Areas where the water table is located within the Smithtown clay. Otherwise, the water table is above the Smithtown clay.

Note: All datum is above mean sea level.

Volzy Associates

hilly due to erosional forces which acted prior to deposition of the overlying sand and gravel layers. In contrast, the water table surface is fairly regular. As a result, in some areas the clay unit often includes the water table surface within its thickness; in other areas, the water table is located above the upper surface of the clay and appears to be the condition at the MSF site.

Drilling records during installation of the Town wells indicate that Well No. 6 (S-74872), an upgradient well, is screened within the clay unit and that the remaining wells are all screened above the clay unit. At the deep well cluster location drilled in February, the water table was within the clay at about 25 feet below the top of the clay unit.

Figure 14 presents the upper surface of the clay unit; water table contours; and, areas where the water table is located within and above the clay unit. The line separating the shaded from non-shaded area approximates the intersection of the water table with the upper surface of the clay unit.

4.3 POTENTIOMETRIC CONTOURS

Potentiometric contour maps for Long Island have been published by the U.S. Geological Survey based on

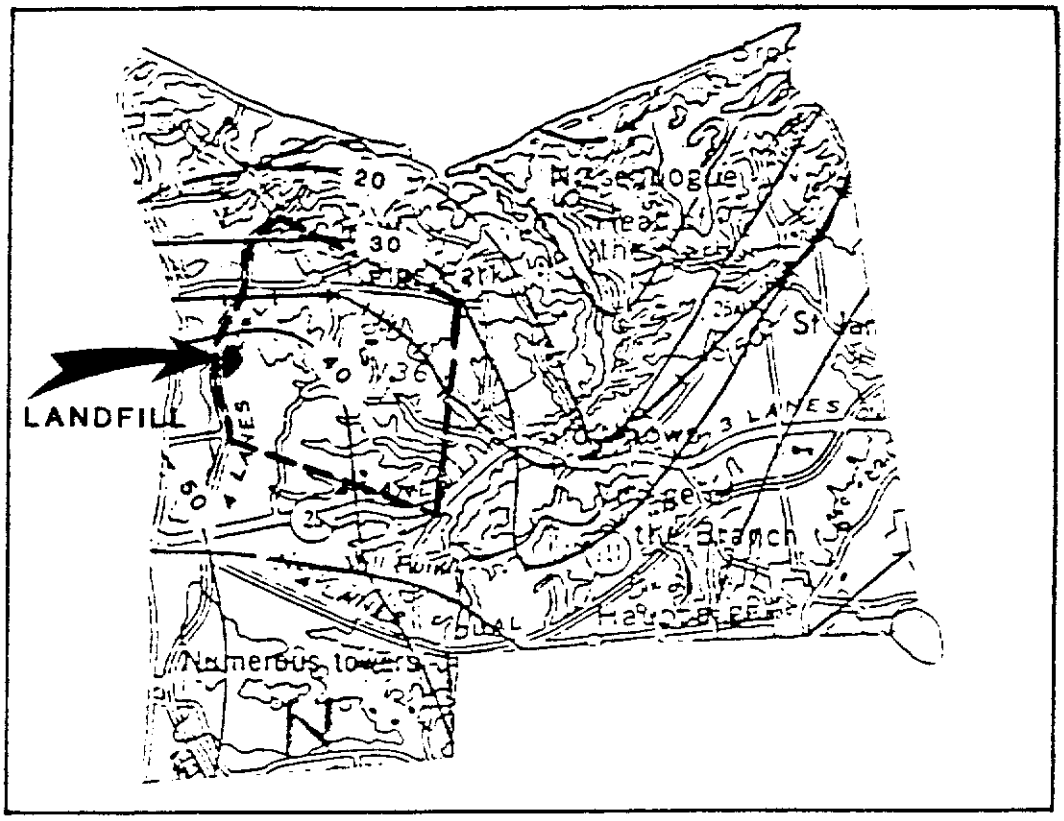
measurements of wells screened in the Magothy Formation. Potentiometric contours on a map represent equipotential lines (equal head, or potential, of the formation water).

Potentiometric contour maps are analogous to water table contour maps. However, unlike water table contour maps, potentiometric contour maps are prepared for deep aquifer zones where the formation water exists under confined conditions. Similarly, flow lines within the confined aquifer are orthogonal to contours of the potentiometric surface.

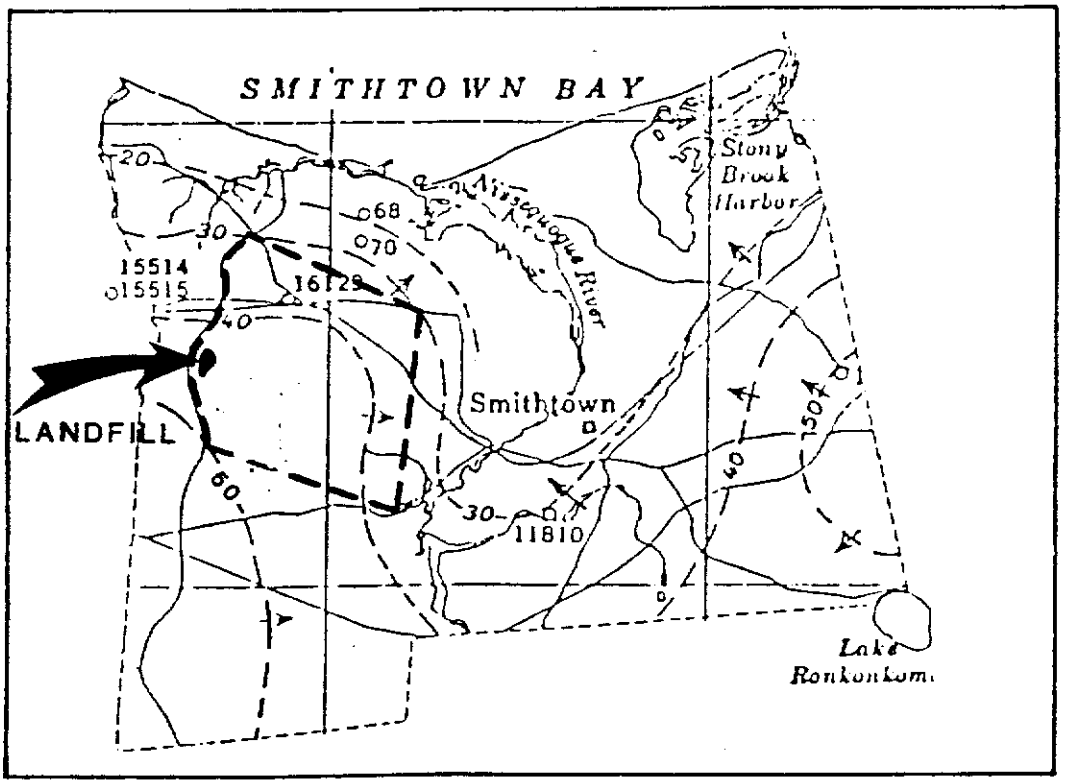
Potentiometric contour maps for the Magothy Formation for the years 1959, 1971, and 1979 are shown on Figures 15 and 16. High and low points on the potentiometric surface can be seen southwest and east-southeast of the MSF site, respectively, corresponding to the same high and low points on the water table contour maps. A north-northeast horizontal direction of groundwater flow is suggested by these maps.

A modified potentiometric contour map for the immediate vicinity around the MSF site is presented Figure 17. These contours are developed from measurements taken in the Town of Smithtown and S.C.W.A. deep well clusters in February, 1986. Results are similar to those of previous years, as represented by the U.S.G.S. maps.

p 64 of 19



POTENTIOMETRIC CONTOURS OF THE MAGOTHY-1971
Source: Jensen and Soren (1974)



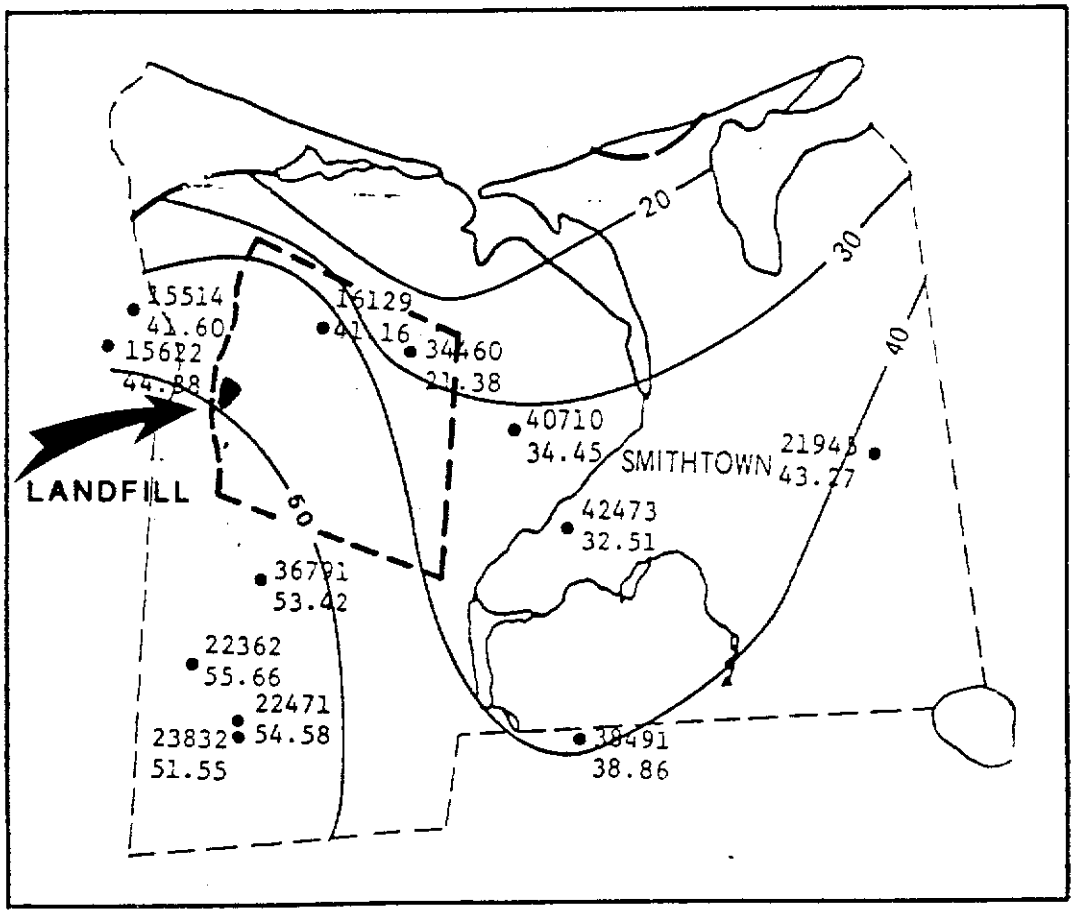
POTENTIOMETRIC CONTOURS OF THE MAGOTHY - 1959
Source: Lubke (1964)

TOWN OF SMITHTOWN
SMITHTOWN LANDFILL

POTENTIOMETRIC CONTOURS

FIGURE NO. 15

Velzy ASSOCIATES



POTENTIOMETRIC CONTOURS OF THE MAGOTHY - 1979

Source: Donaldson and Koszalka (1982)

TOWN OF SMITHTOWN
SMITHTOWN LANDFILL

POTENTIOMETRIC CONTOURS

FIGURE NO. 16

Volzy ASSOCIATES

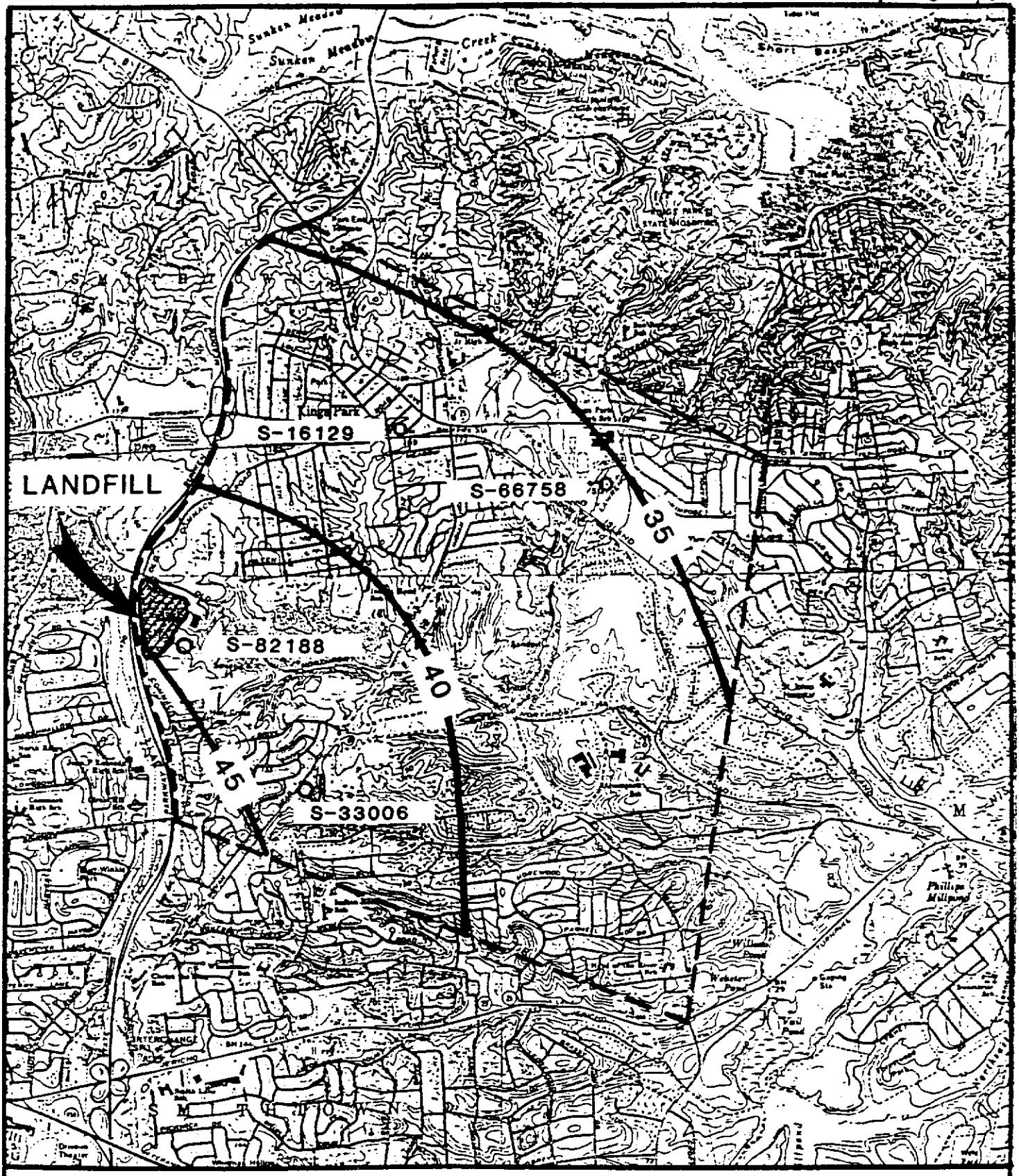


FIGURE 17

POTENTIOMETRIC CONTOURS OF THE MAGOTHY FORMATION
SMITHTOWN LANDFILL VICINITY

(SEE FIGURES 15 AND 16)
DATUM: MEAN SEA LEVEL

FIGURE NO.17

Veltzy ASSOCIATES

4.4 HYDROLOGIC CROSS SECTIONS

To assess the significance of vertical flow gradients, potentiometric surface elevations were plotted on hydrologic cross sections (at the midpoint of the well screens) to determine lines of equal potentiometric head. The direction of vertical flow was determined by drawing a line perpendicular to the equal potential contour lines. Convex contours indicate regions of groundwater recharge, while concave contours are associated with groundwater discharge.

The location of hydrologic cross sections and wells used for its development are shown on Figure 18.

Hydrologic profile Y-Y' is in the direction of groundwater flow, Figure 19, while profile X-X' is perpendicular to the flow direction, Figure 20. Inferred direction of groundwater flow in the confined formation are shown by arrows plotted on the equal potential contour lines. The orthogonal flow net formed by flow and equipotential lines was not developed. Additional deep well clusters and potentiometric surface measurements within the study area would be required for development of flow nets.

Based on the potentiometric surface measurements recorded in February, 1986, and the hydrologic profiles, Figures 19 and 20, indicate groundwater recharge at the MSF site and at the Lawrence Road and Kings Park Road well fields. Data for the Carlson Avenue well field, located about 1.5 miles from the MSF site in the direction of groundwater flow, indicates horizontal flow and thus the limit of the recharge area, Zone I - hydrogeologic boundary. The Carlson Avenue field is located directly on the proposed NYSDEC modified 208 line. Groundwater flow beneath the MSF site appears to be in a transition zone approaching horizontal flow at the Carlson Avenue station of the SCWA.

It must be emphasized that the referenced groundwater flow regime occurs beneath the Smithtown Clay unit which separates the MSF landfill from the confined aquifer system. As such, the deeper Magothy formation is not directly affected by recharge at the MSF landfill site.

Based on results of this study, the Smithtown MSF landfill is located within the deep flow recharge area as defined in the 208 Study and Draft-Long Island Groundwater Management Program of the NYSDEC.

The deep groundwater flow regime in the vicinity of the MSF landfill is protected due to the geology of the area, e.g. presence of the Smithtown Clay unit. Furthermore, the

p 69 of 101

area between the landfill site and the Zone I - Hydrogeologic Boundary line in the direction of flow appears to be a transition zone thus recharge at the site has little or no impact on the flow system.

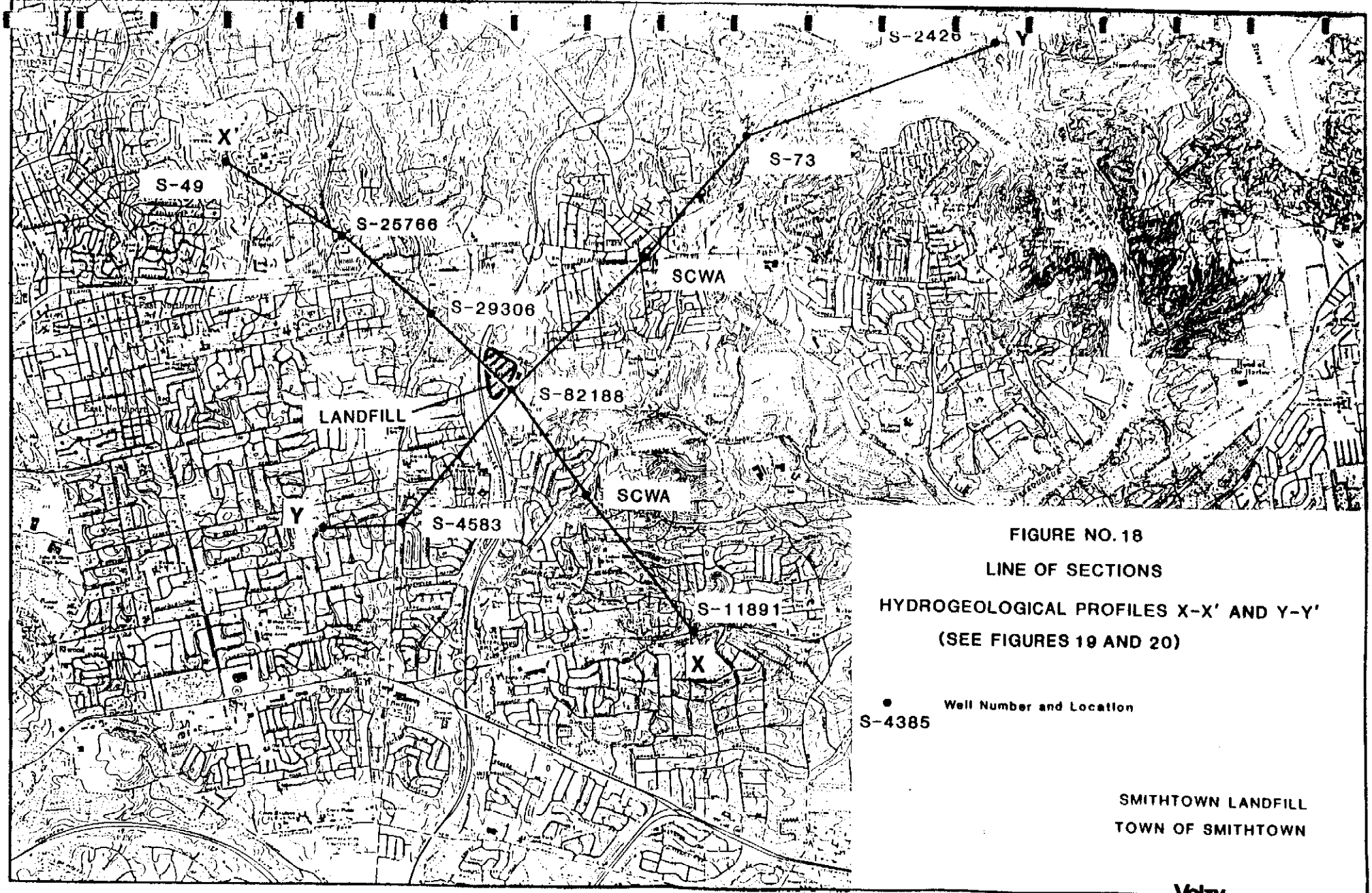


FIGURE NO. 18

LINE OF SECTIONS

HYDROGEOLOGICAL PROFILES X-X' AND Y-Y'

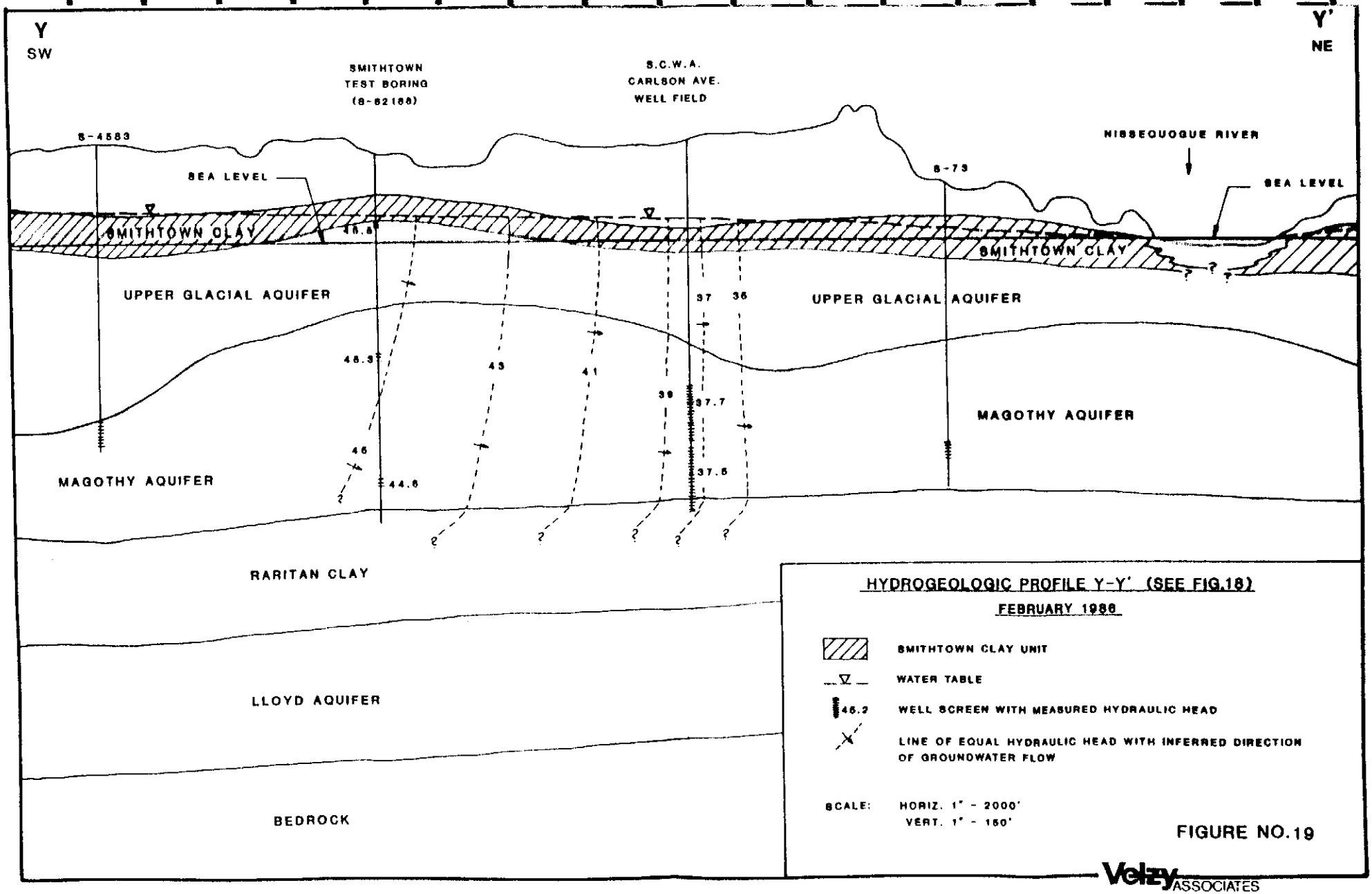
(SEE FIGURES 19 AND 20)

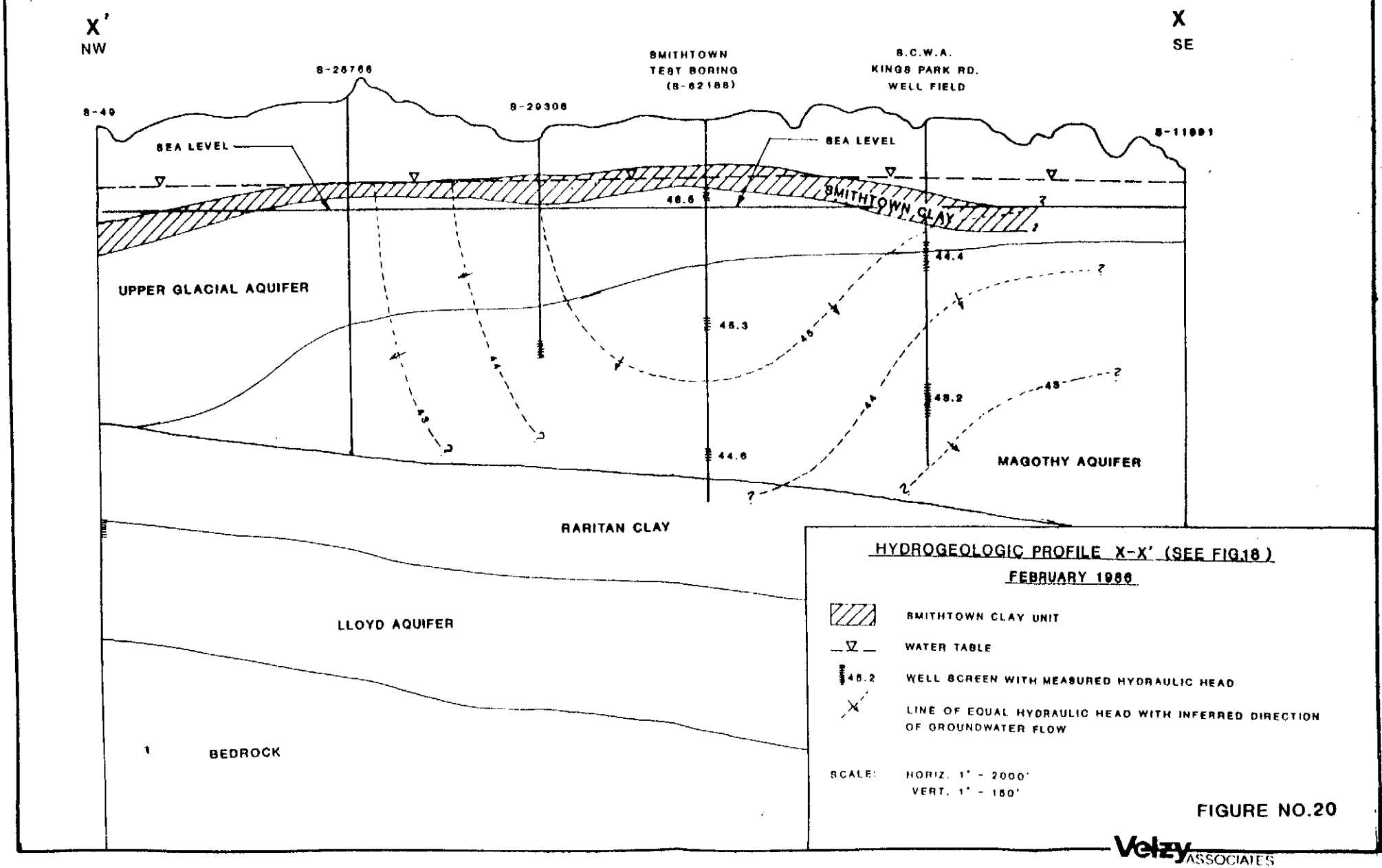
● S-4385 Well Number and Location

SMITHTOWN LANDFILL

TOWN OF SMITHTOWN

Volzy ASSOCIATES


Y
SW
Y'
NE
SMITHTOWN
TEST BORING
(S-82188)
S.C.W.A.
CARLSON AVE.
WELL FIELD
S-4583
S-73
NISSEQUOGUE RIVER
SEA LEVEL
SEA LEVEL
SMITHTOWN CLAY
SMITHTOWN CLAY
UPPER GLACIAL AQUIFER
UPPER GLACIAL AQUIFER
MAGOTHY AQUIFER
MAGOTHY AQUIFER
RARITAN CLAY
LLOYD AQUIFER
BEDROCK
46.8
46.3
46
44.6
43
41
39
37
37.7
37.5
36
HYDROGEOLOGIC PROFILE Y-Y' (SEE FIG.18)
FEBRUARY 1986
SMITHTOWN CLAY UNIT
WATER TABLE
46.2
WELL SCREEN WITH MEASURED HYDRAULIC HEAD
LINE OF EQUAL HYDRAULIC HEAD WITH INFERRED DIRECTION OF GROUNDWATER FLOW
SCALE:
HORIZ. 1" = 2000'
VERT. 1" = 150'
FIGURE NO.19
Velzy ASSOCIATES



HYDROGEOLOGIC PROFILE X-X' (SEE FIG.18)

FEBRUARY 1986

- SMITHTOWN CLAY UNIT
- WATER TABLE
- 48.2 WELL SCREEN WITH MEASURED HYDRAULIC HEAD
- LINE OF EQUAL HYDRAULIC HEAD WITH INFERRED DIRECTION OF GROUNDWATER FLOW

SCALE: HORIZ. 1" = 2000'
VERT. 1" = 150'

FIGURE NO.20

Velzy ASSOCIATES

REFERENCES

Donaldson, C. D., and Koszalka, E. J., 1982, Potentiometric Surface of the Magothy Aquifer, Long Island, New York, in March 1979: U.S. Geological Survey Open-File Report 82-160

Jensen, H. M., and Soren, Julian, 1971, Hydrogeologic Data From Selected Wells and Test Holes in Suffolk County, Long Island, New York: Long Island Water Resources Bull. 3

Jensen, H.M., and Soren, Julian, 1974, Hydrogeology of Suffolk County, Long Island, New York: U.S. Geological Survey Hydrologic Investigations Atlas HA-501

Krulikas, R. K., 1981, Hydrogeologic Data From Selected Wells and Test Holes in Suffolk County, Long Island, New York, 1972-80: U.S. Geological Survey Open-File Report 81-500

Krulikas, R. K., and Koszalka, E. J., 1983, Geologic Reconnaissance of an Extensive Clay Unit in North-Central Suffolk County, Long Island, New York: U.S. Geological Survey Water-Resources Investigations 82-4075

Krulikas, R. K., Kosalka, E. J., and Doriski, T. P., 1983, Altitude of the Top of the Matawan Group-Magothy Formation, Suffolk County, Long Island, New York: U.S. Geological Survey Open-File Report 83-137.

Lubke, E. R., 1964, Hydrogeology of the Huntington-Smithtown Area, Suffolk County, New York: U.S. Geological Survey Water-Supply Paper 1669-D

Long Island Groundwater Management Program, Executive Summary, Draft, 1983, New York State Dept. of Environmental Conservation

Solid Waste Management Plan-Phase I-Evaluation of Existing Solid Waste Situation, January, 1985, Charles R Velzy Associates, Inc.

APPENDIX A

APPENDIX A

SIEVE ANALYSES OF SMITHTOWN DEEP WELL TEST BORING GEOLOGIC CORE SAMPLES

WELTA WELL CO., INC.
97 UNION AVE, P.O.BOX# 1309
RONKONKOMA, NEW YORK, 11779
TEL.# 516 - 981 - 2255

SIEVE ANALYSIS FORMULA

JOB NAME: SMITHTOWN LANDFILL

COMP. FILE NAME -B:SIEV1

WORK ORDER #

SIZE SIEVE	DEPTH WT.	BACKFILL CUM.%		DEPTH WT.	65 CUM.%	DEPTH WT.	85 CUM.%	DEPTH WT.	104 CUM.%	DEPTH WT.	124 CUM.%	DEPTH WT.	143 CUM.%	DEPTH WT.	163 CUM.%	DEPTH WT.	185 CUM.%		DEPTH WT.	204 CUM.%
.065	7	.045455	C		ERROR	0	0	14	.067	10	.055	8	.051	14	.119	8	.039	C		ERROR
.046	20	.129870			ERROR	1	.007	15	.072	11	.061	10	.064	19	.161	9	.044			ERROR
.033	36	.233766	L		ERROR	4	.027	18	.087	12	.066	18	.115	25	.212	10	.049	L		ERROR
.023	60	.389610			ERROR	8	.053	39	.188	24	.133	52	.333	34	.288	21	.102			ERROR
.016	97	.629870	A		ERROR	46	.307	135	.649	86	.475	96	.615	44	.373	86	.420	A		ERROR
.012	130	.844156			ERROR	100	.667	180	.865	146	.807	128	.821	53	.449	149	.727			ERROR
.008	147	.954545	Y		ERROR	120	.8	189	.909	154	.851	141	.904	60	.508	170	.829	Y		ERROR
PAN	154	1			ERROR	150	1	208	1	181	1	156	1	118	1	205	1			ERROR

SIZE	DEPTH WT.	224 CUM.%	DEPTH WT.	243 CUM.%	DEPTH WT.	264 CUM.%	DEPTH WT.	284 CUM.%	DEPTH WT.	304 CUM.%	DEPTH WT.	325 CUM.%	DEPTH WT.	345 CUM.%	DEPTH WT.	365 CUM.%		DEPTH WT.	385 CUM.%
.065	8	.041237	5	.029	12	.064	0	0	10	.070	8	.043	14	.092	8	.033	C		ERROR
.046	9	.046392	6	.035	14	.074	4	.022	11	.077	9	.049	15	.099	9	.038			ERROR
.033	10	.051546	7	.041	16	.085	6	.033	12	.085	10	.054	21	.138	10	.042	L		ERROR
.023	20	.103093	20	.118	34	.181	10	.056	22	.155	30	.163	32	.211	22	.092			ERROR
.016	66	.340206	110	.647	98	.521	21	.117	84	.592	90	.489	62	.408	72	.3	A		ERROR
.012	130	.670103	145	.853	150	.798	41	.228	118	.831	142	.772	110	.724	152	.633			ERROR
.008	164	.845361	150	.882	162	.862	98	.544	126	.887	152	.826	134	.882	198	.825	Y		ERROR
PAN	194	1	170	1	188	1	180	1	142	1	184	1	152	1	240	1			ERROR

SIZE	DEPTH WT.	405 CUM.%	DEPTH WT.	425 CUM.%	DEPTH WT.	443 CUM.%	DEPTH WT.	463 CUM.%	DEPTH WT.	483 CUM.%	DEPTH WT.	487 CUM.%	DEPTH WT.	503 CUM.%	DEPTH WT.	523 CUM.%	DEPTH WT.	543 CUM.%
.065	11	.077465	0	0	0	0	0	0	43	.141	C	ERROR	32	.198	133	.554	96	.64
.046	12	.084507	1	.006	1	.006	4	.028	83	.273		ERROR	50	.309	156	.65	102	.68
.033	14	.098592	3	.017	4	.022	9	.063	193	.635	L	ERROR	74	.457	184	.767	108	.72
.023	15	.105634	9	.052	26	.144	37	.257	261	.859		ERROR	102	.630	210	.875	118	.787
.016	22	.154930	28	.161	110	.611	107	.743	281	.924	A	ERROR	125	.772	228	.95	124	.827
.012	48	.338028	76	.437	158	.878	124	.861	290	.954		ERROR	140	.864	231	.963	132	.88
.008	101	.711268	125	.718	165	.917	130	.903	292	.961	Y	ERROR	144	.889	234	.975	135	.9
PAN	142	1	174	1	180	1	144	1	304	1		ERROR	162	1	240	1	150	1

SIZE	DEPTH WT.	553 CUM.%	DEPTH WT.	573 CUM.%	DEPTH WT.	593 CUM.%	DEPTH WT.	613 CUM.%
.065	3	.016304	155	.596	14	.126	88	.468
.046	4	.021739	176	.677	19	.171	100	.532
.033	5	.027174	193	.742	25	.225	114	.606
.023	10	.054348	208	.8	37	.333	134	.713
.016	48	.260870	220	.846	62	.559	150	.798
.012	134	.728261	234	.9	85	.766	160	.851
.008	154	.836957	240	.923	94	.847	168	.894
PAN	184	1	260	1	111	1	188	1

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3900 • Telex 29-7454
UOP Inc

SAMPLE ANALYSIS
(FINE) p 27 of 101

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

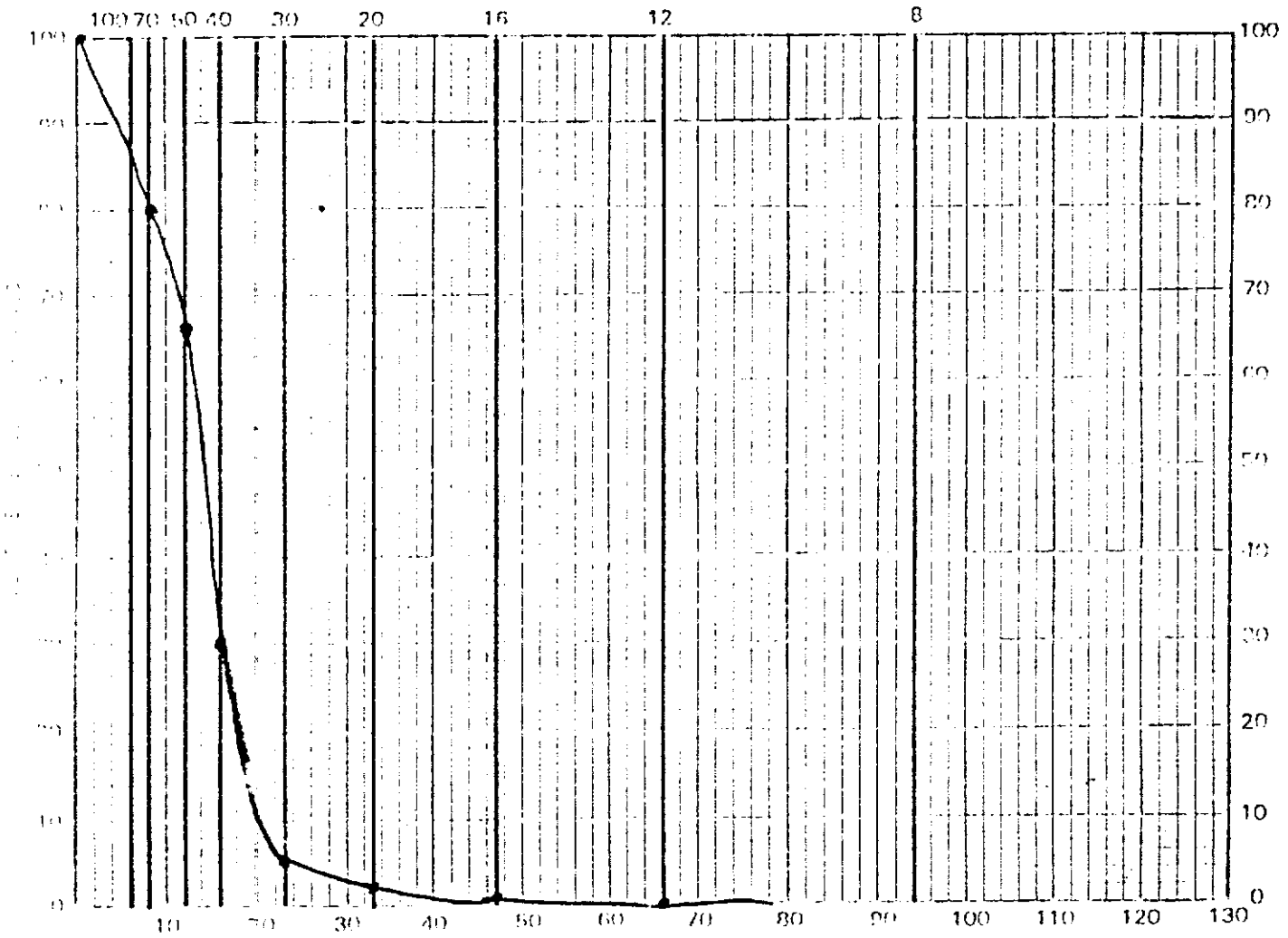
Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 85'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.35			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.59			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7151
UOP Inc.

(FINE) p 78 of 101

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

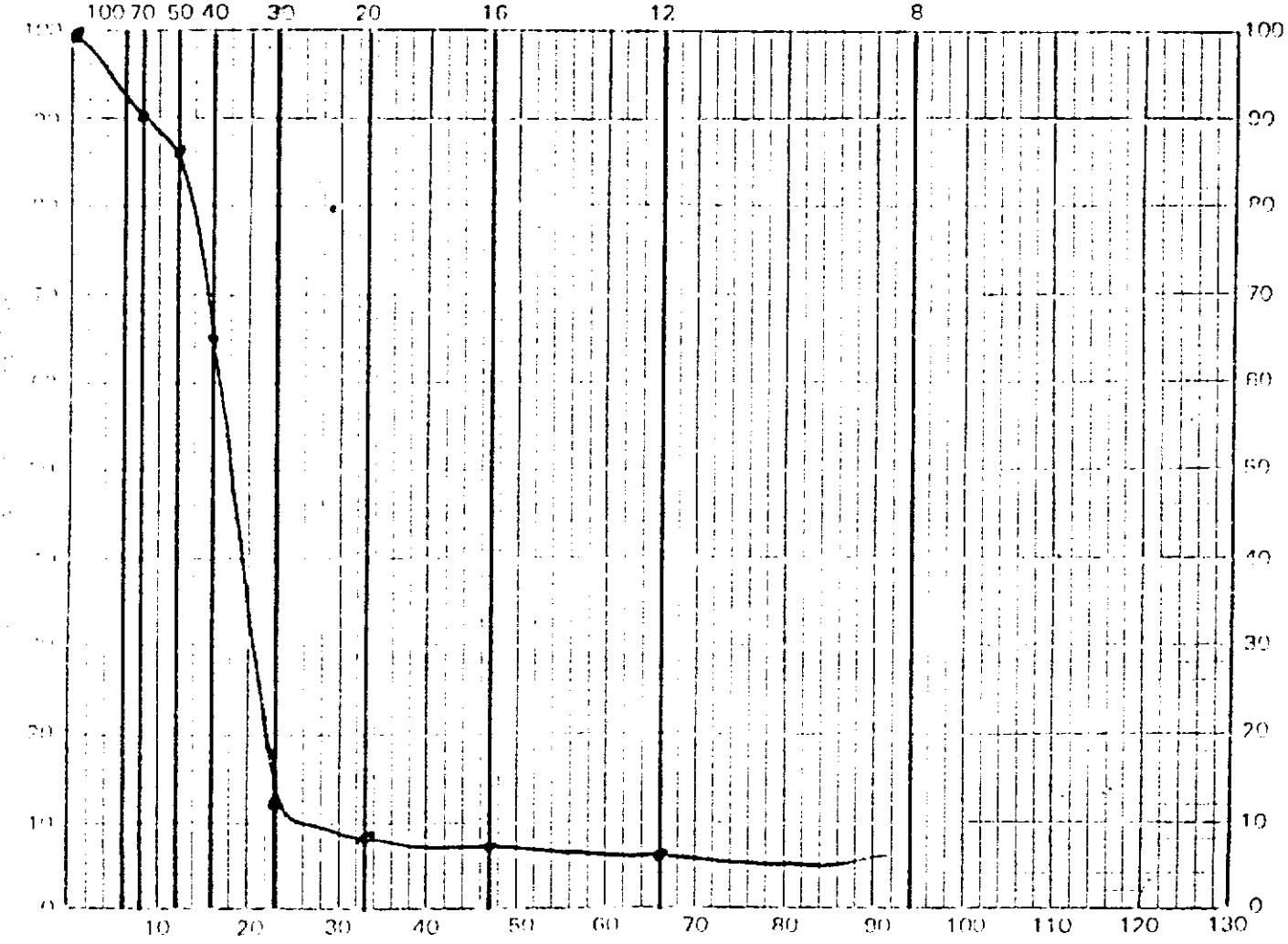
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 104'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.36			
8	.094	2.39			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.009	0.21			
100	.006	0.15			

Notes:

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

Inc
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3300 • Telex 29-7454

SAND ANALYSIS

(FINE) p 79 of ft.

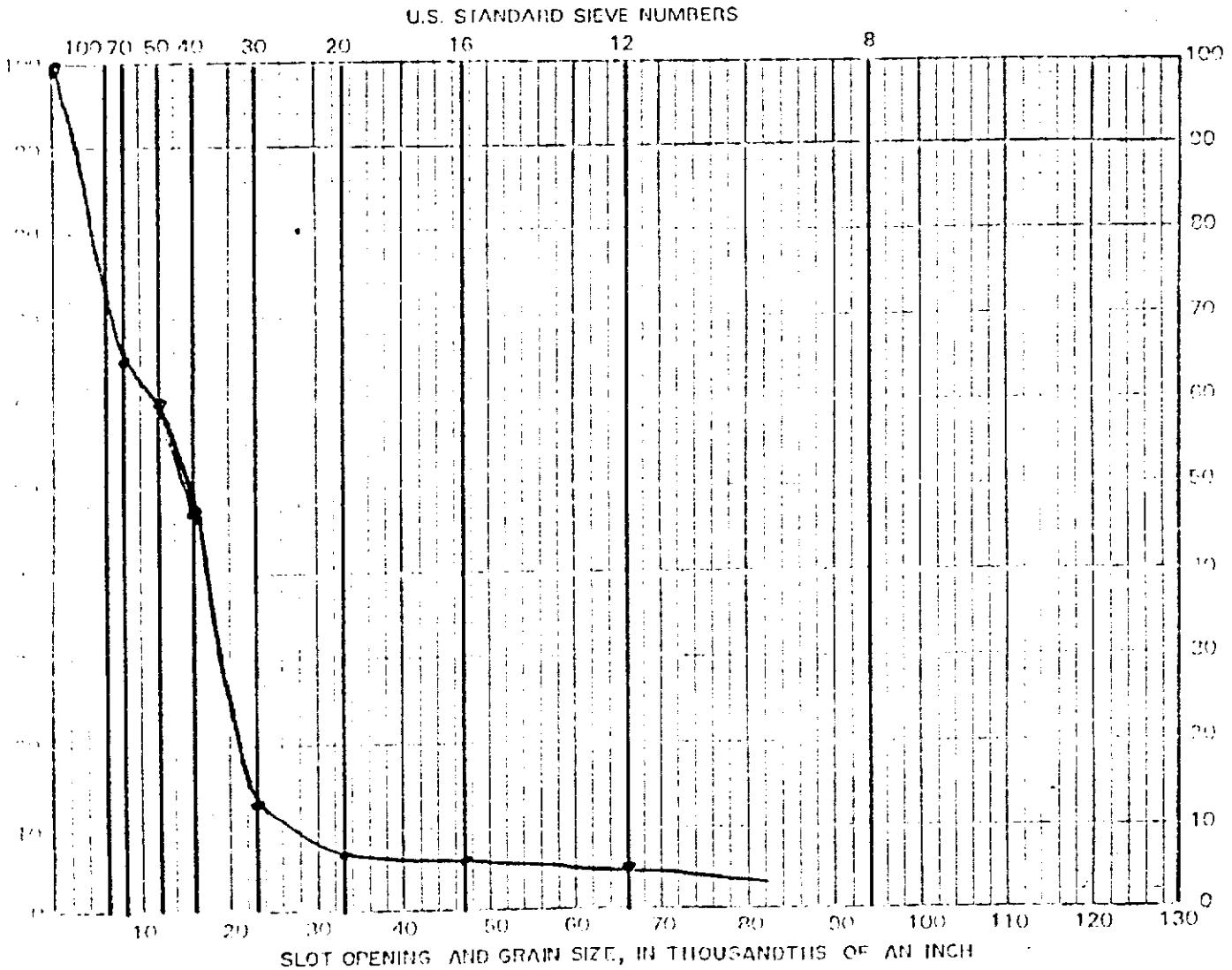
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 124'



6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP Inc
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-0761

(FINE)
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

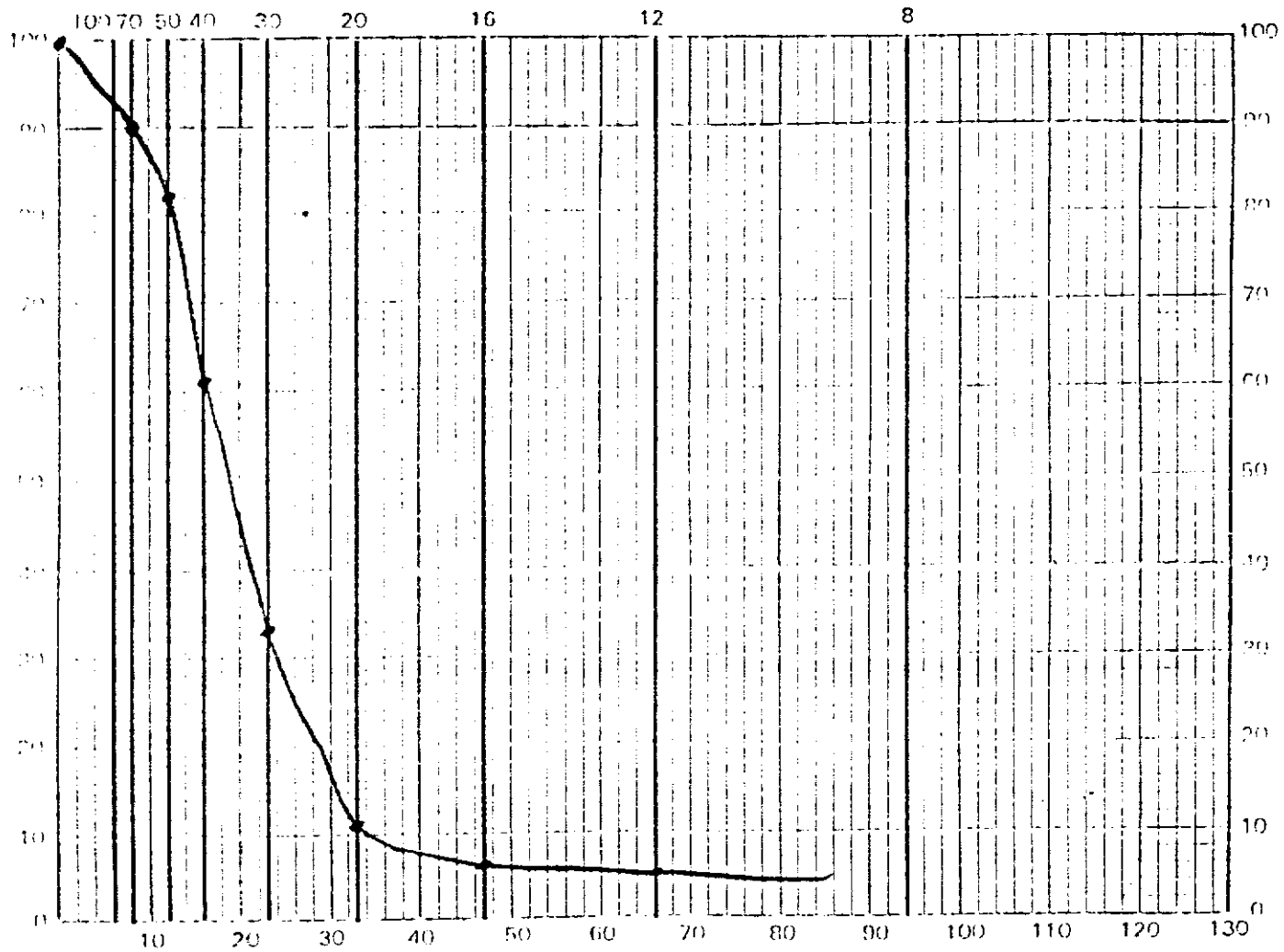
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 143'

U.S. STANDARD SIEVE NUMBERS



U.S. STD. SIEVE NO.	SIEVE OPENINGS		CUMULATIVE PERCENTAGE		
	inches	mm			
6	.132	3.35			
8	.094	2.39			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 2153

[illegible]
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7451
[illegible] Inc.

SAND ANALYSIS

(FINE) p 81 of 101

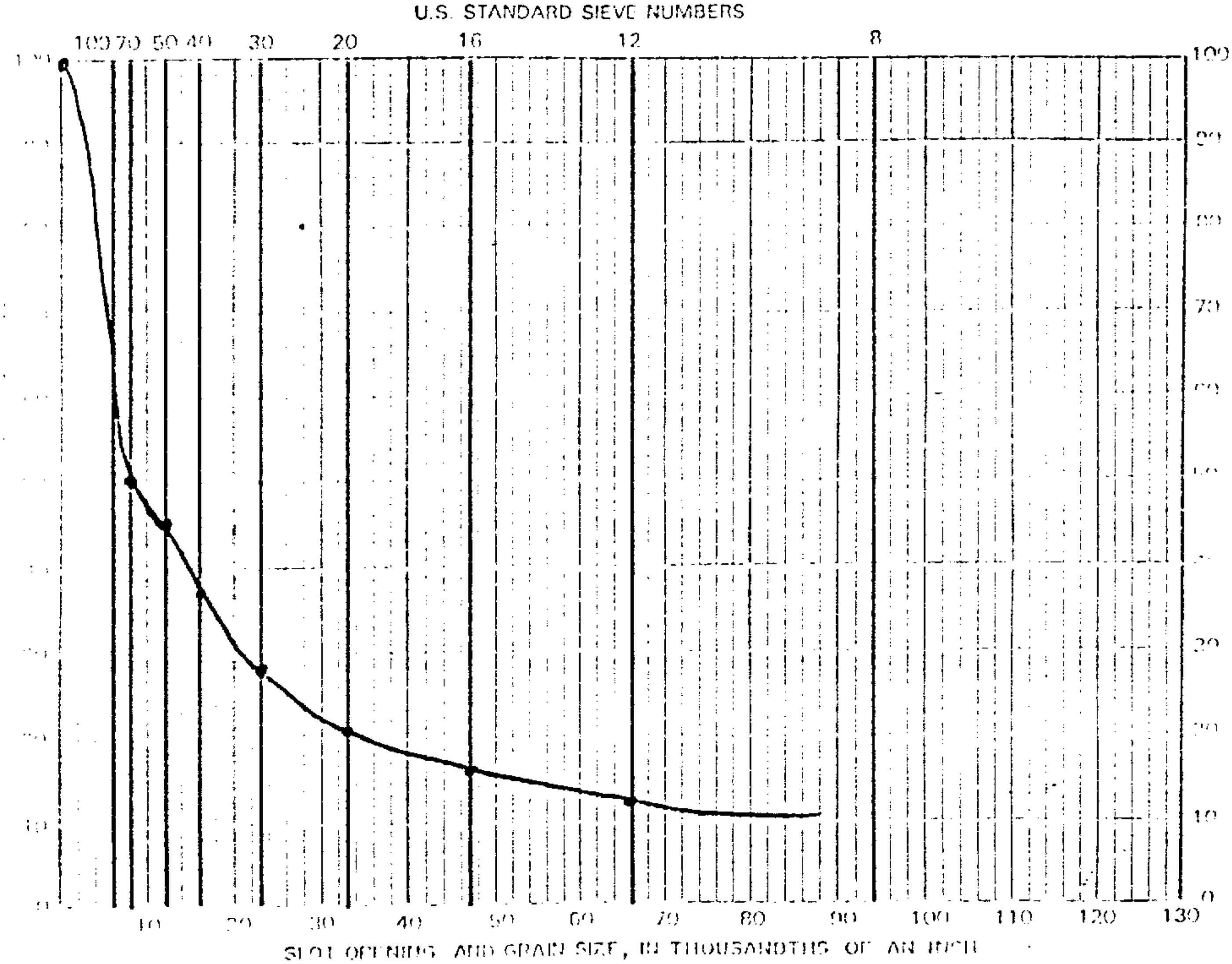
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

Sample sent in by ____________________

Town ____________________ State ______ Zip ______ Date ______

From well of ____________________

Remarks Depth = 163'



Sieve No.	Sieve Opening Inches	Sieve Opening MM	Cumulative % Retained		
6	132	3.36			
8	094	2.38			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes ____________________

Recommended Slot Opening ____________________

Recommended Screen: Dia. ______ in. Length ______ Ft.

By ______

[illegible]

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3900 • Telex 29-7264
Johnson Inc.

(FINE) p 82 of 101

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

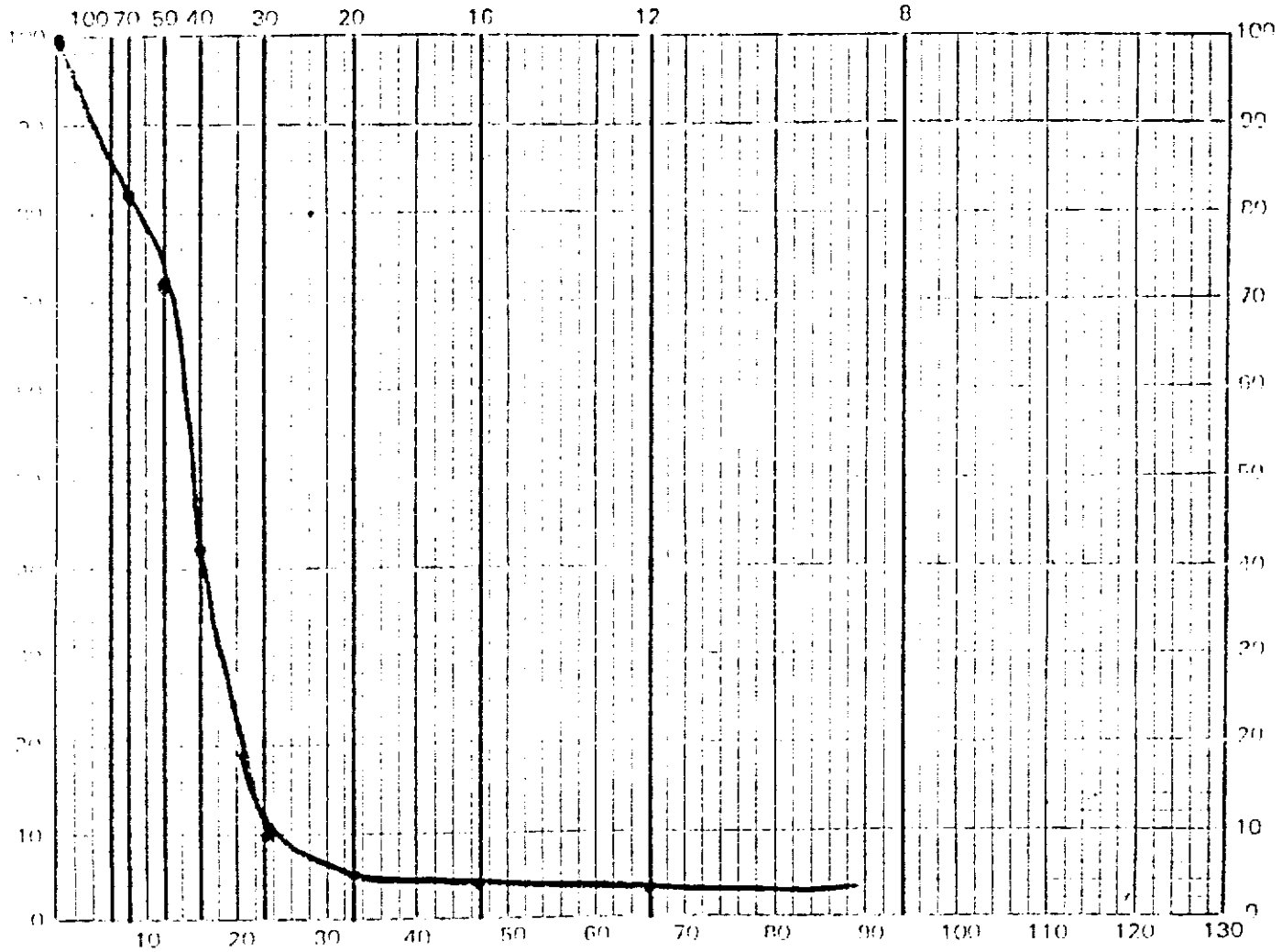
Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 185'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	132	3.36			
8	094	2.38			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes:

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UDP 14.5105

UOP Inc.
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3080 • Telex 29-7451

SAND ANALYSIS

(FINE) p 83 of 101

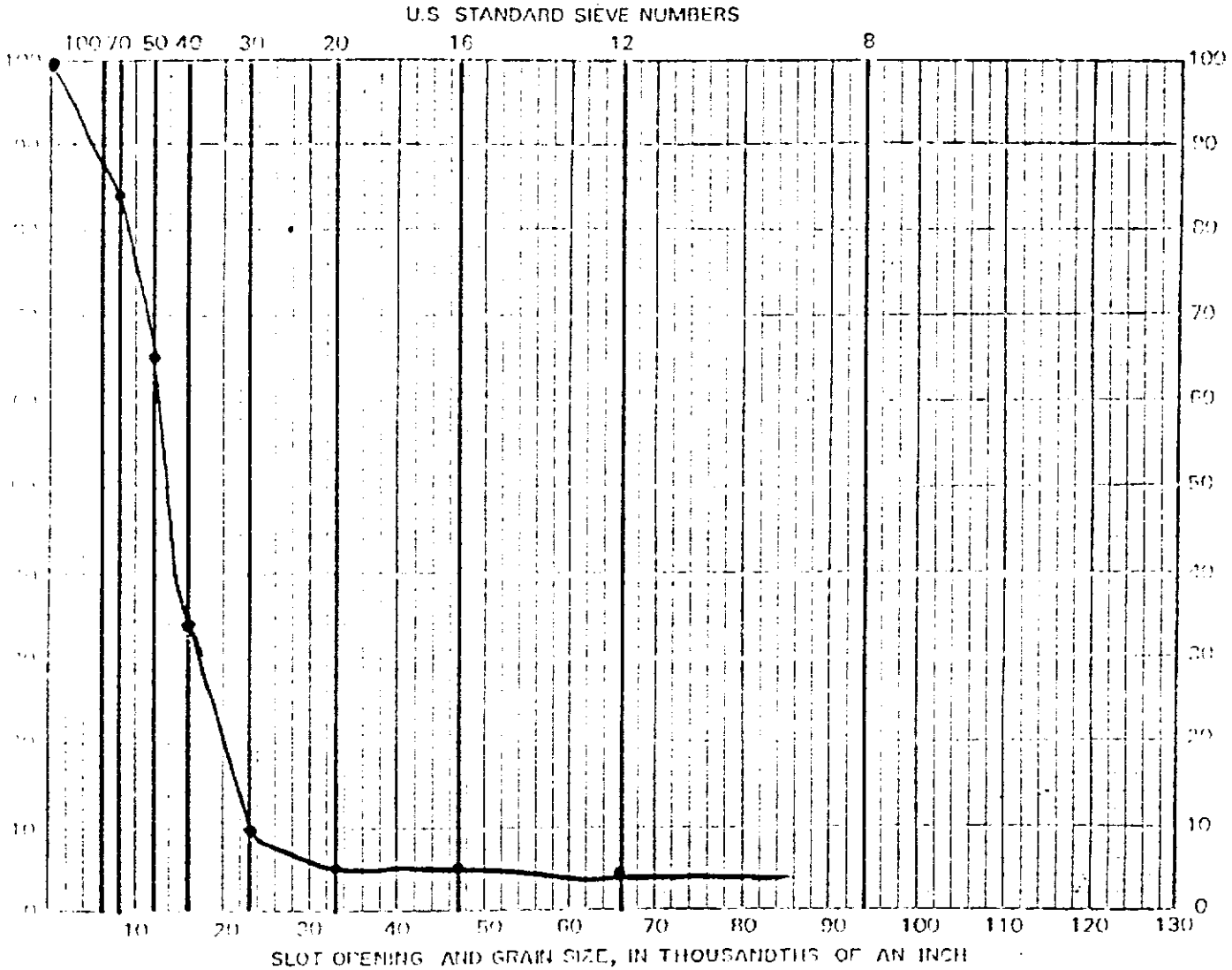
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 224'



6	.132	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.59	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.006	0.15	

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3900 • Telex 29-7151
UOP Inc.

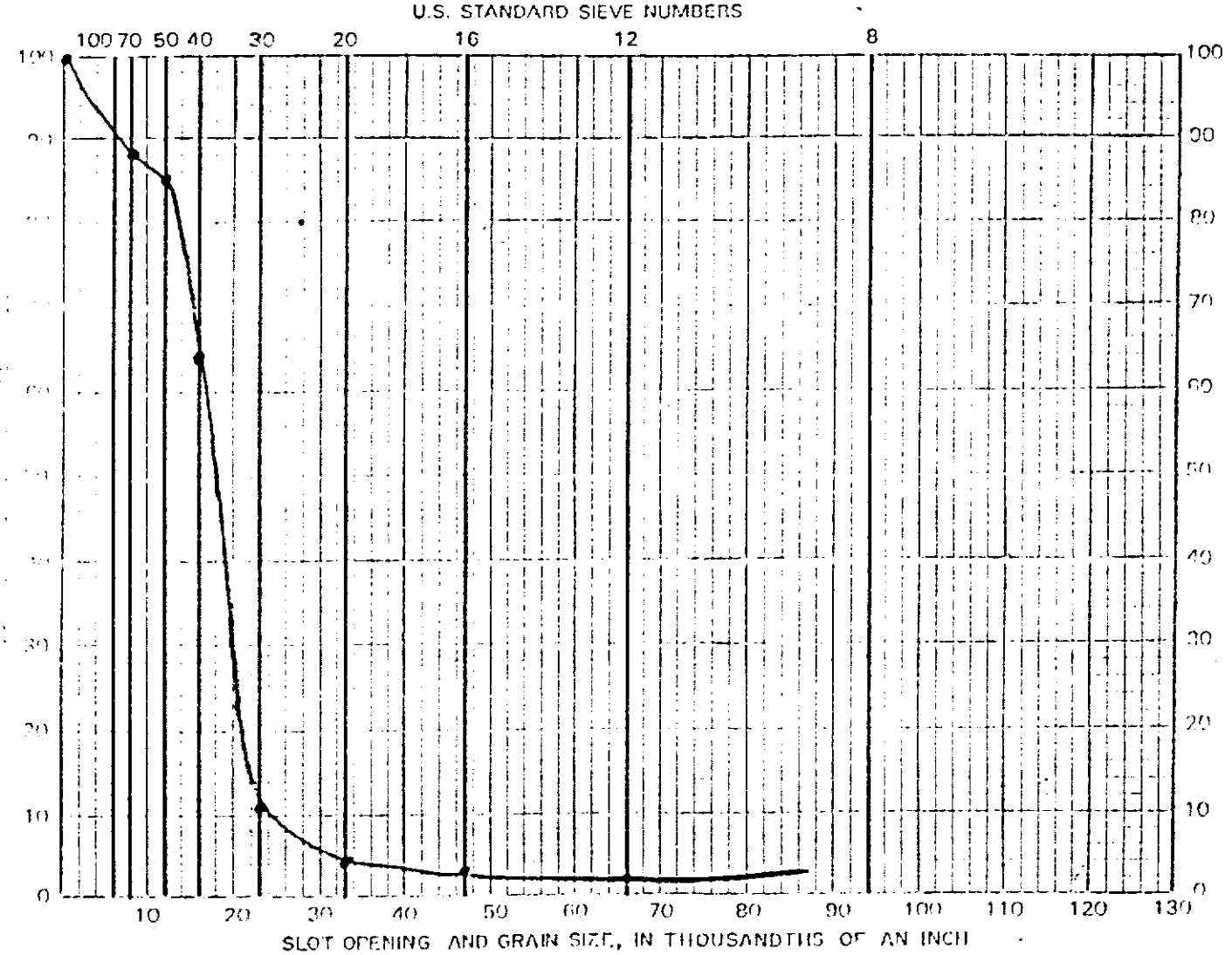
SAND ANALYSIS
(FINE) p 84 of 10
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

Sample sent in by

Town ____ State ____ Zip ____ Date ____

From well of ____

Remarks: Depth = 243'.



	SIEVE OPENING		CUMULATIVE % RETAINED		
	INCHES	MM			
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: ____

Recommended Slot Opening: ____

Recommended Screen: Dia. ____ in. Length ____ Ft.

By: ____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 2155

JOHNSON Division
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7154
UOP Inc

SAND ANALYSIS
(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

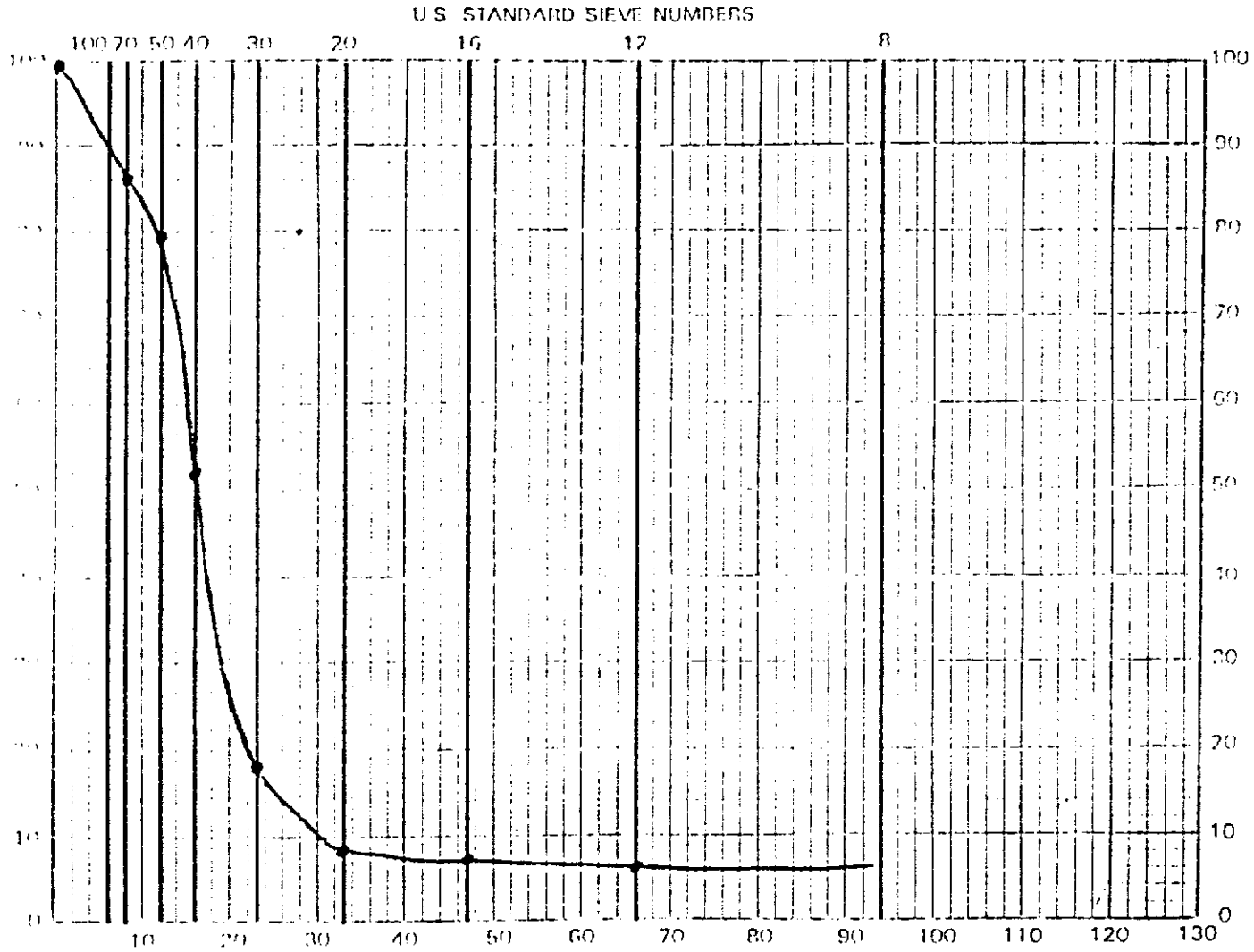
Page 86 of 91

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 264'



6	132	3.35			
8	094	2.39			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612/636-3900 • Telex 29-0761
UOP Inc

p 96 of 101

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

Sample sent in by

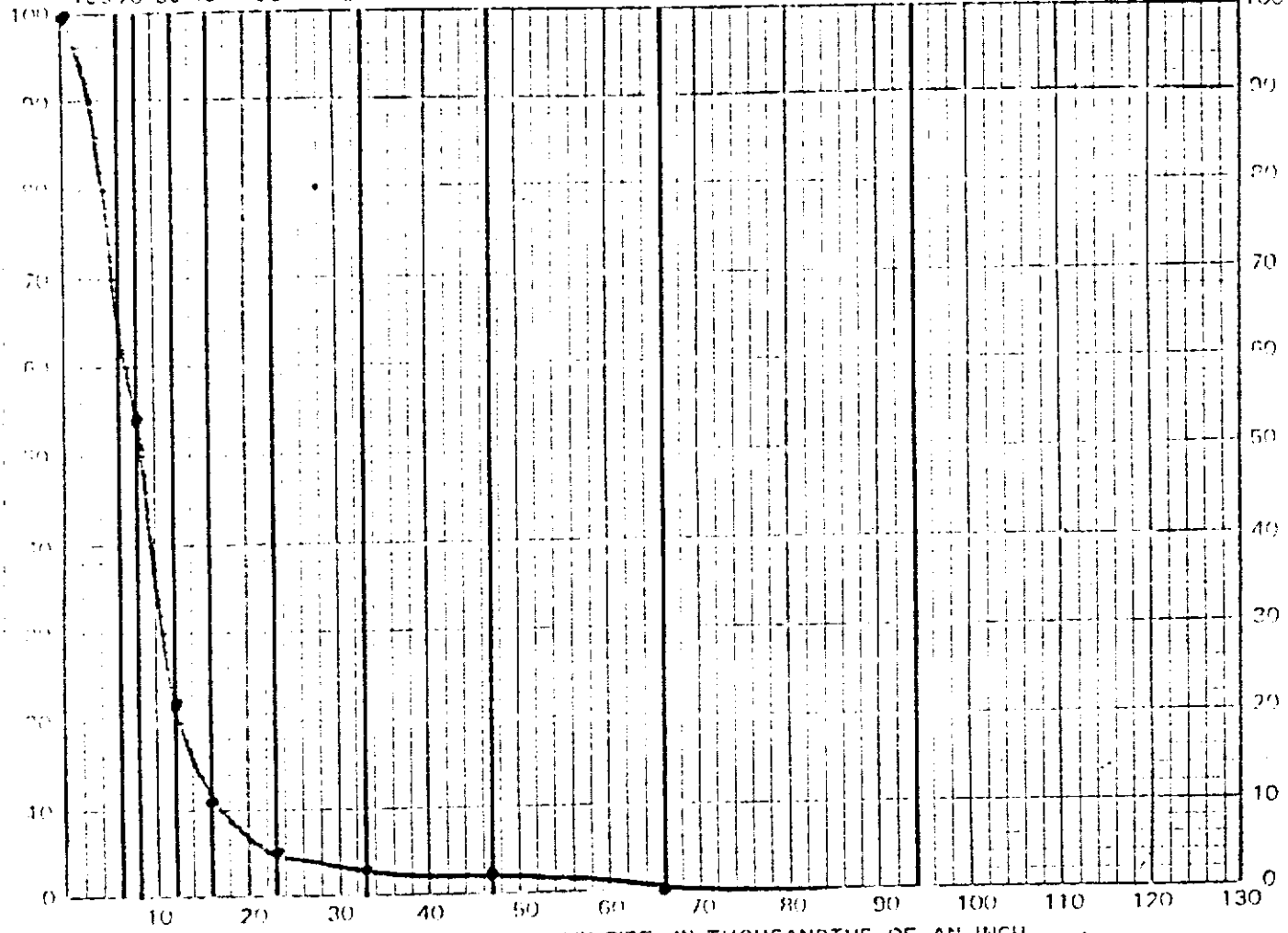
Town State Zip Date

From well of

Remarks Depth = 284'

U.S. STANDARD SIEVE NUMBERS

100 70 50 40 30 20 16 12 8



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

U.S. SIEVE NO.	SIEVE OPENINGS INCHES	SIEVE OPENINGS MM	CUMULATIVE % RETAINED		
6	132	3.36			
8	094	2.38			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.59			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes:

Recommended Slot Opening

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONDITIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7454
Johnson Inc.

STANDARD ANALYSIS

(FINE)

p 87 of 10

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

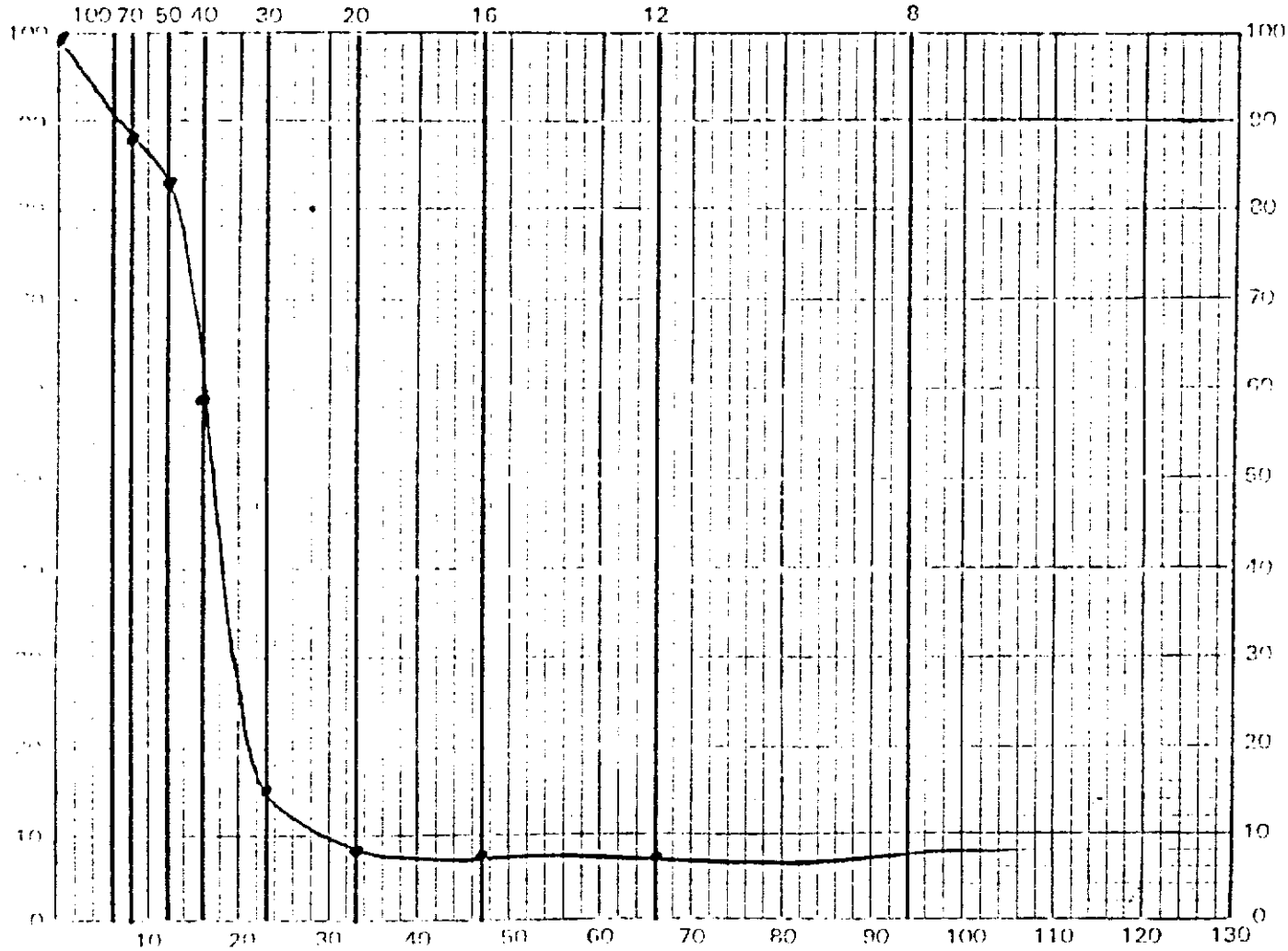
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 304'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

U.S. STD. SIEVE NO.	SLOT OPENING		CUMULATIVE % RETAINED		
	INCHES	MM			
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ In. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612 636 3900 • Telex 29-0754
JOHNSON DIVISION UOP Inc.

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

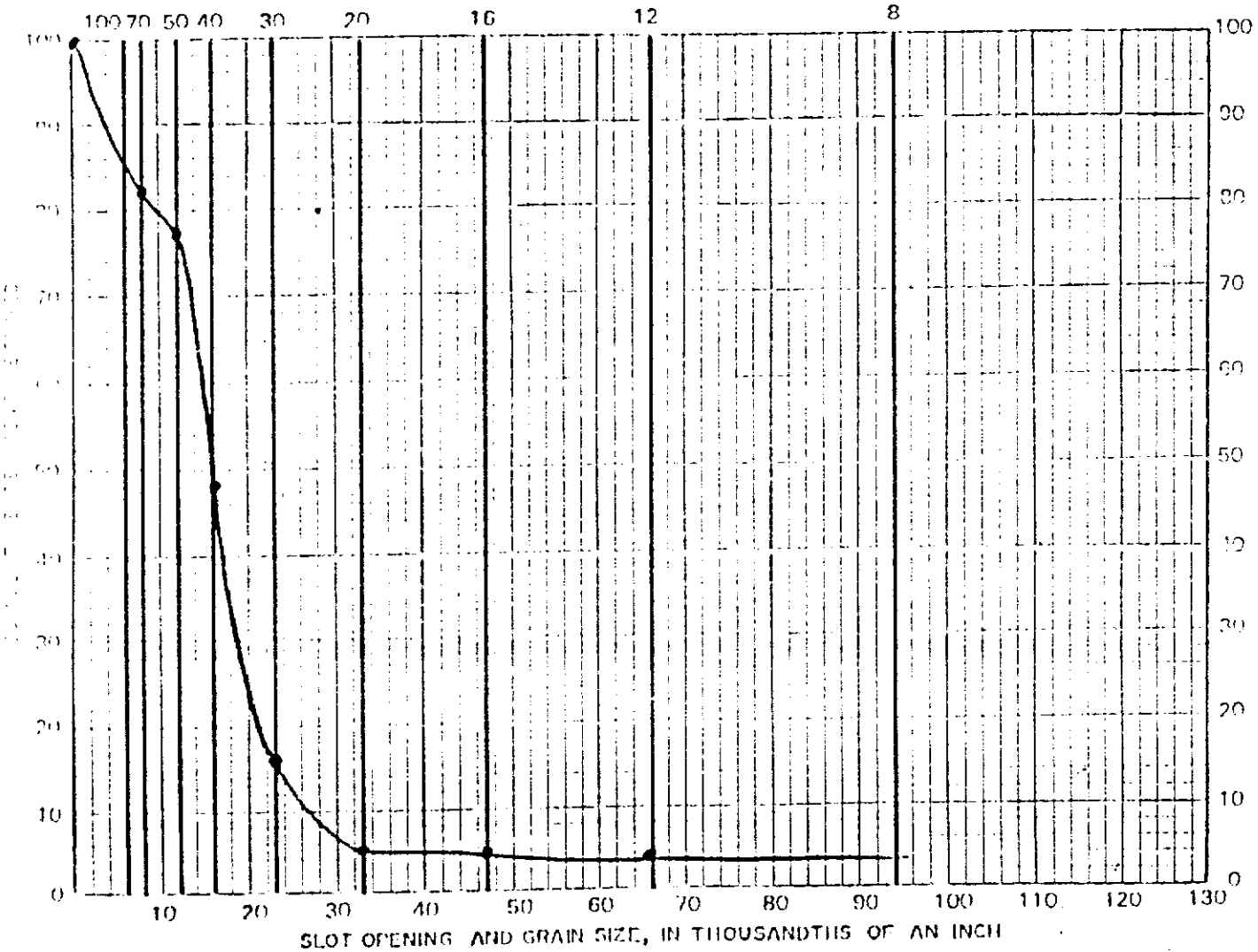
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 325'

U.S. STANDARD SIEVE NUMBERS



U.S. Sieve No.	Sieve Openings Inches	mm	Cumulative % Retained		
6	.132	3.35			
8	.094	2.36			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone: (612) 636-3000 • Telex: 29-7454
UOP Inc

SAND ANALYSIS
(FINE)
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

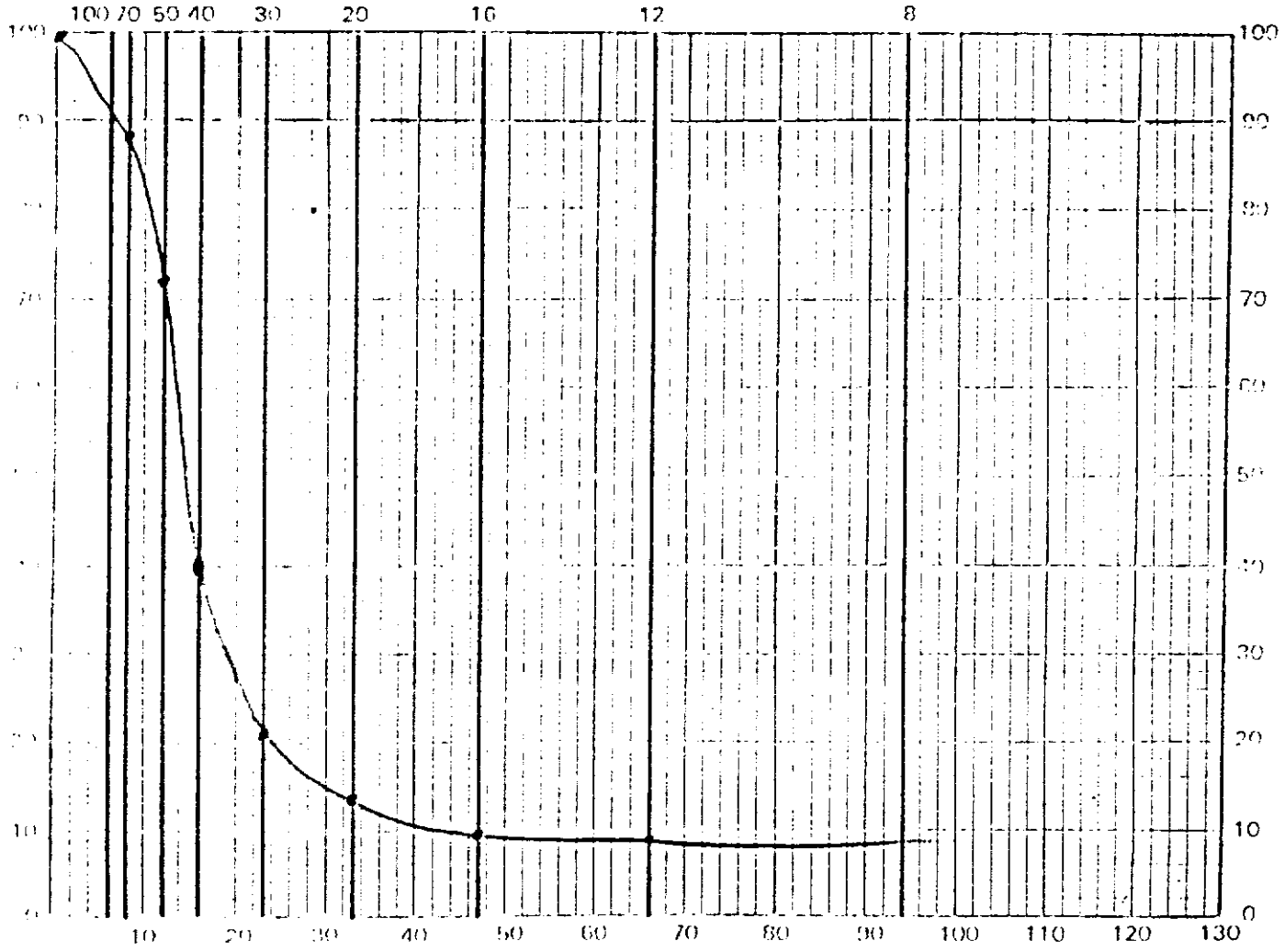
Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 345'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

U.S. Sieve No.	Slot Opening Inches	mm	Cumulative % Retained		
6	.132	3.35			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes:

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 215

JOHNSON [illegible]
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-0451
UOP Inc.

SAND ANALYSIS
(FINE)

p 90 of 5

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

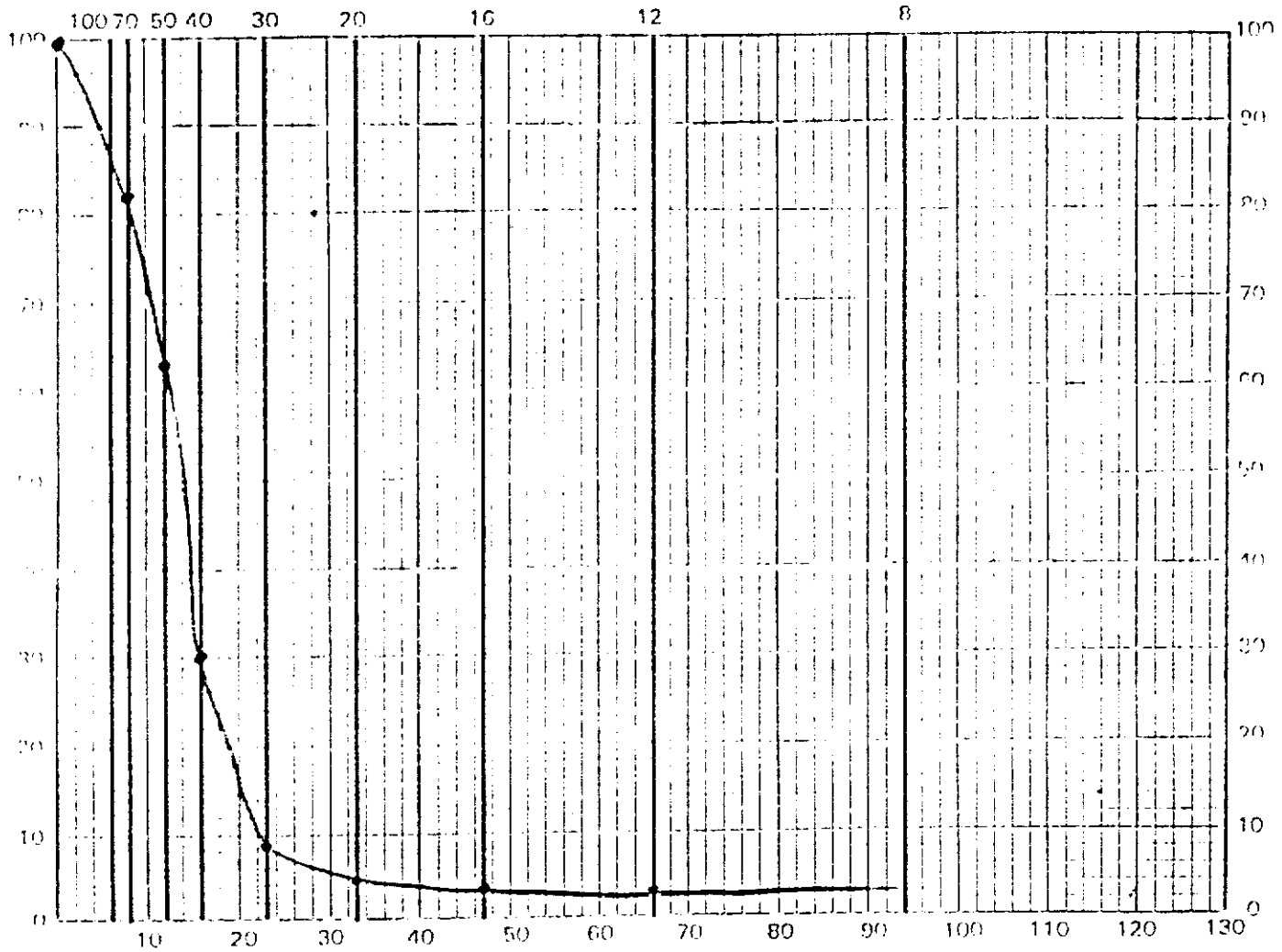
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 365'.

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

[illegible]	SIEVE OPENINGS		CUMULATIVE % RETAINED		
	[illegible]	[illegible]			
6	132	3.36			
8	094	2.38			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.59			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY VARIABLES ENTER INTO THE MAKEUP OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14-2155

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-0464
UOP Inc

SAND ANALYSIS

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p9/of/2

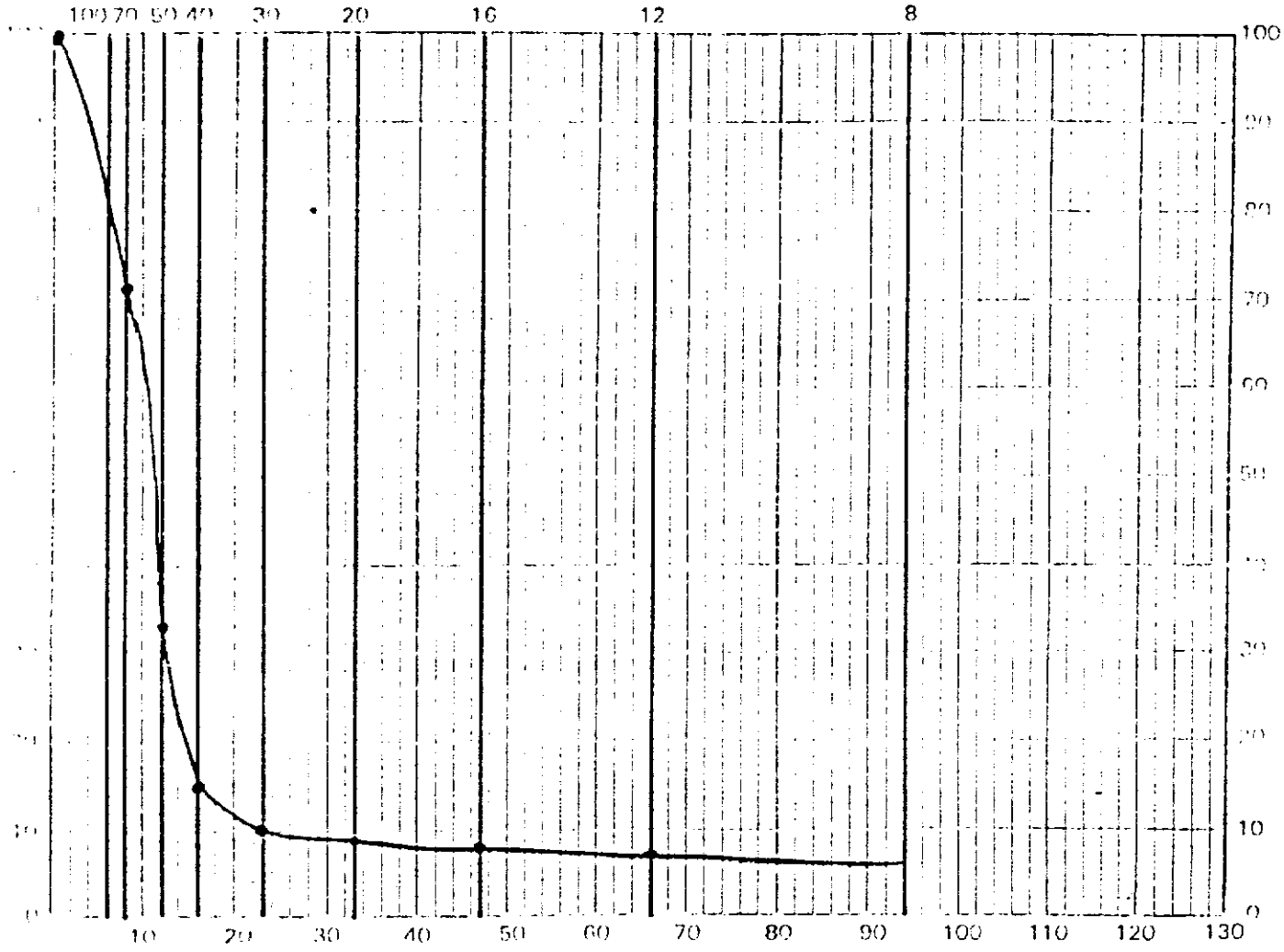
Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 405'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.36	
8	.094	2.39	
12	.066	1.65	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.006	0.15	

Notes:

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAID SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 2/59

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3900 • Telex 29-0761
UOP Inc

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p 92 of 10

Sample sent in by: _____

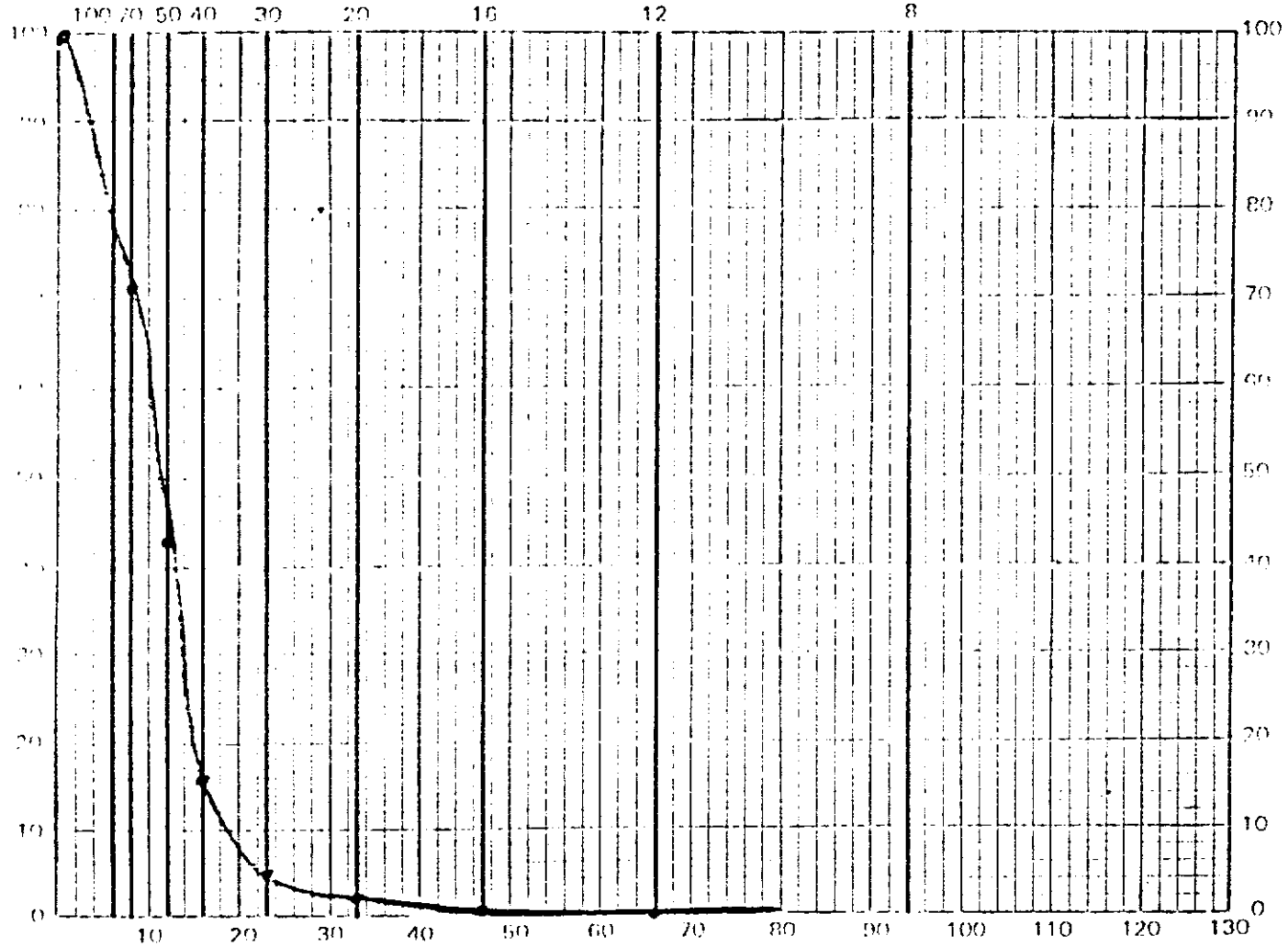
Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 425'

U.S. STANDARD SIEVE NUMBERS

100 70 50 40 30 20 16 12 8



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

	SIEVE NUMBER		CUMULATIVE % RETAINED		
6	132	3.36			
8	094	2.38			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43113 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7251
UOP Inc.

SIEVE ANALYSIS
(FINE)

MAILING ADDRESS: P.O. BOX 43113
ST. PAUL, MINNESOTA • 55164

p 93 of 6

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 443'

U.S. STANDARD SIEVE NUMBERS

SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.009	0.21	
100	.006	0.15	

Notes _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ In. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL, THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

Inc.
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-0454

(FINE) P 9 of 10

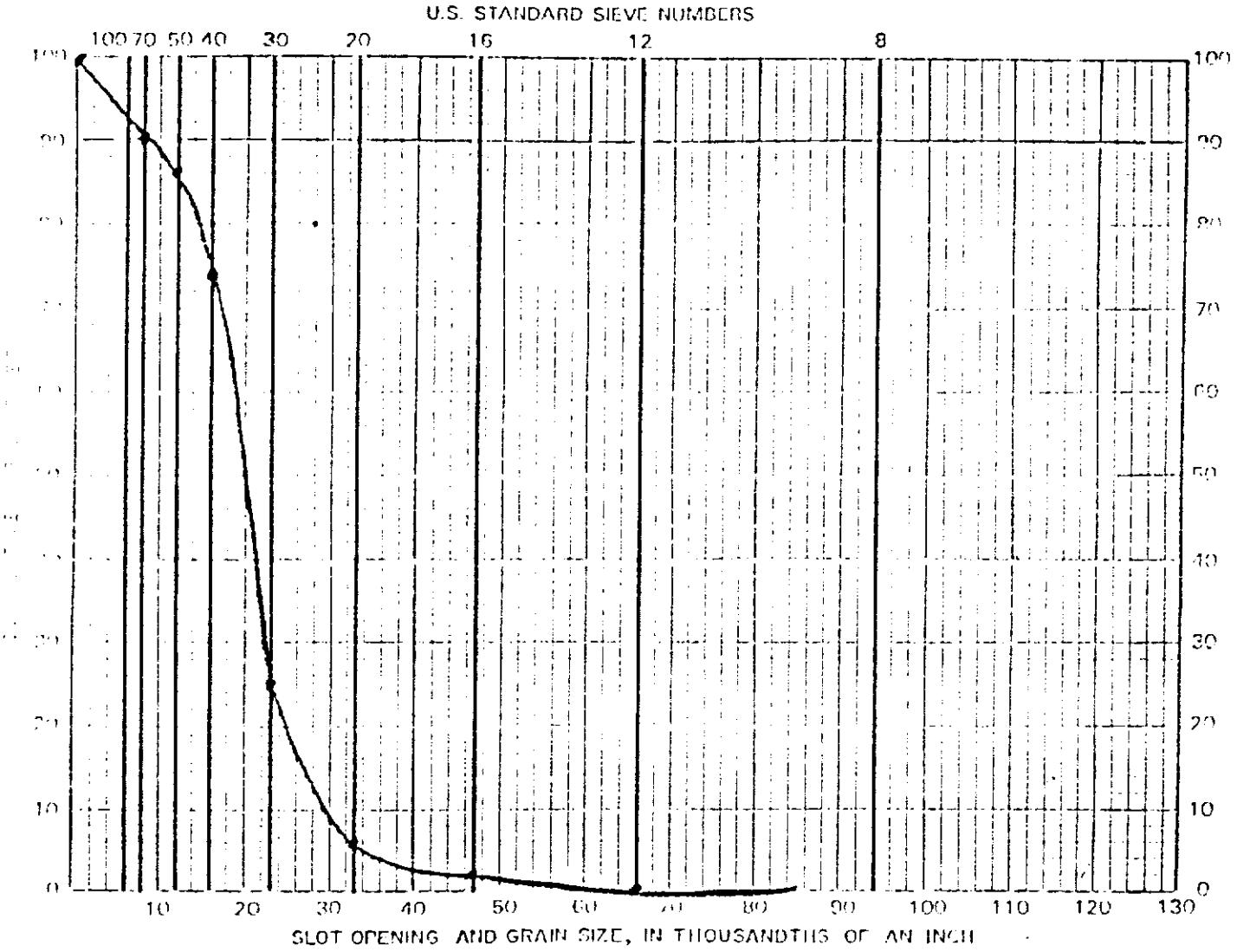
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 463'



6	.132	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.006	0.15	

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3900 • Telex 29-7451
UOP Inc

SAND ANALYSIS

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p 95 of 10

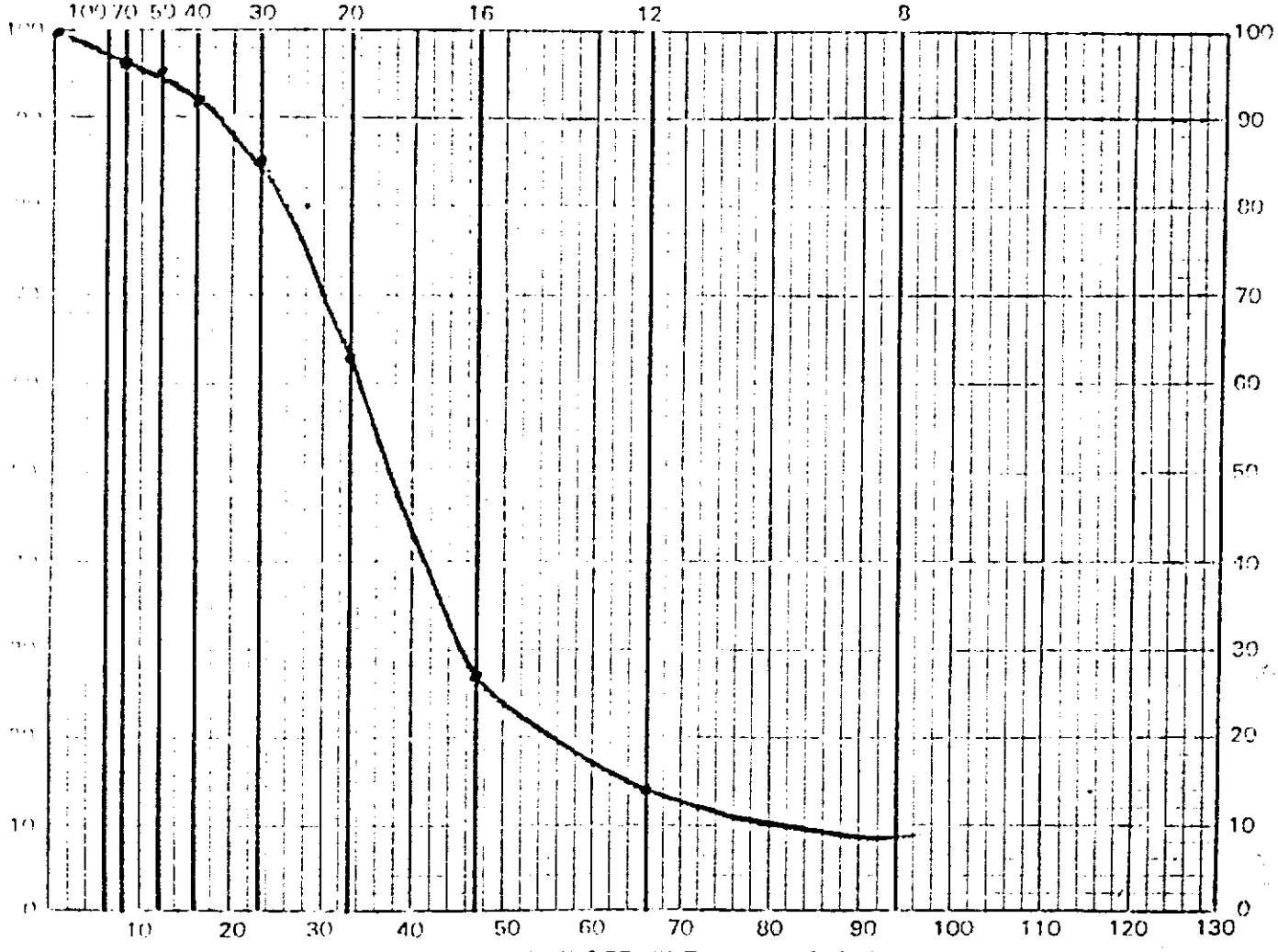
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 483'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	132	3.36			
8	094	2.39			
12	066	1.65			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

(FINE)
MAILING ADDRESS P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p 95 of 101

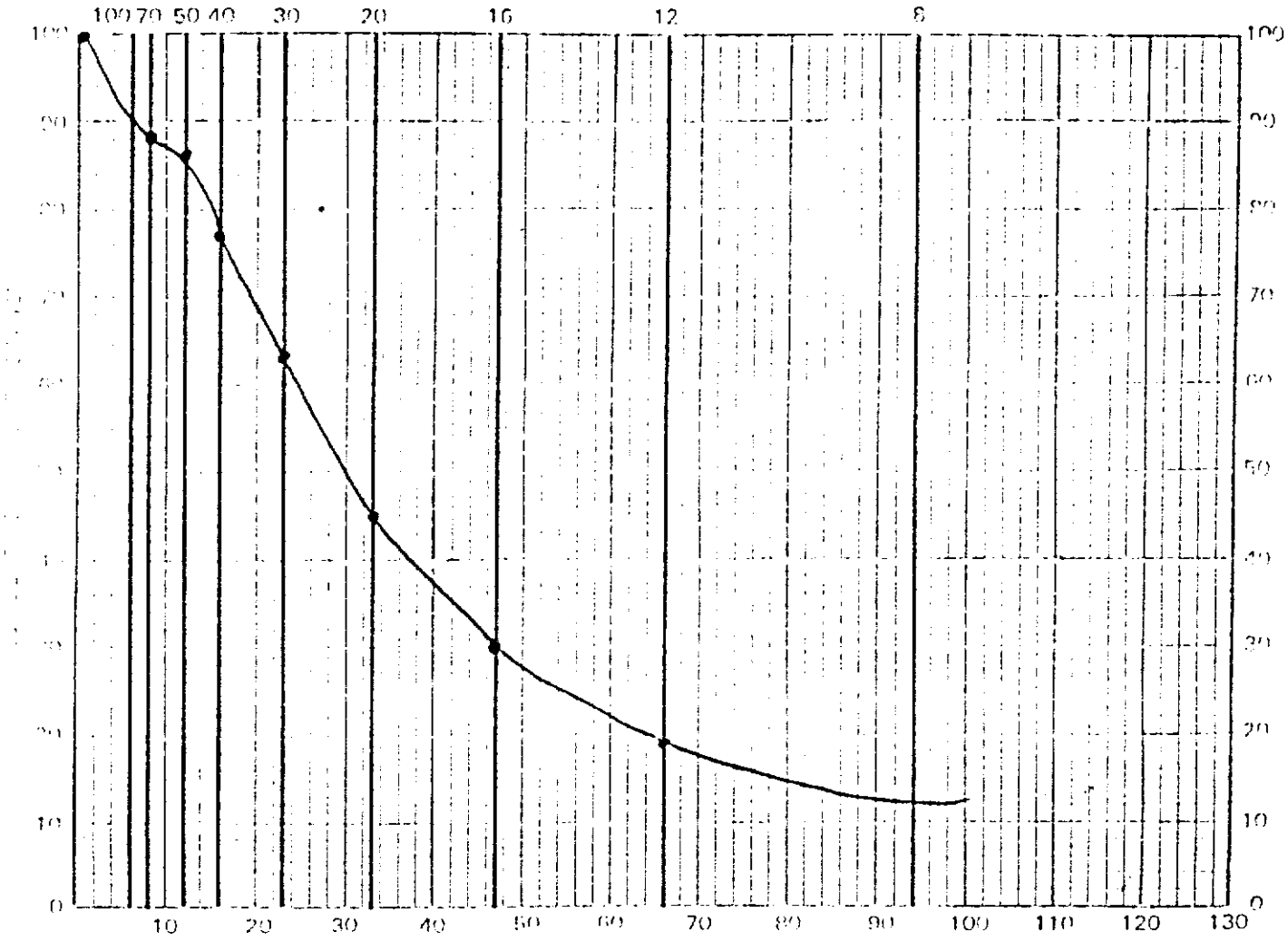
Sample sent in by

Town State Zip Date

From well of

Remarks: Depth = 503'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	132	3.36			
8	094	2.38			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes:

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

[illegible]
P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612/636-3900 • Telex 29-7154
UOP Inc.

SAND ANALYSIS

(FINE) 097 fine

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

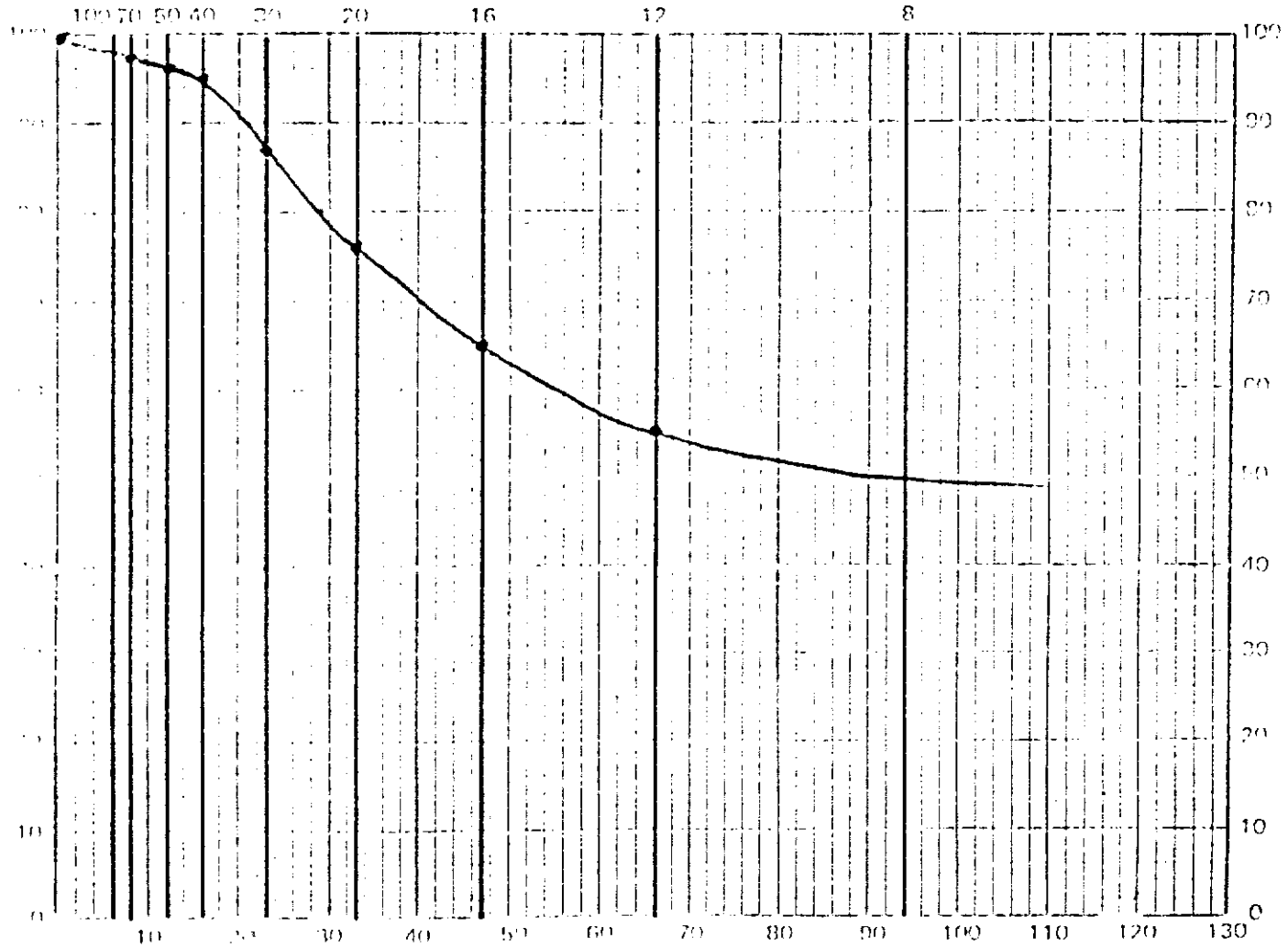
Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 523'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

	Sieve Openings		Cumulative % Retained		
	Inches	mm			
6	.132	3.36			
8	.094	2.36			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.59			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes:

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-0741
UOP Inc

(FINE)
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p 97 of 191

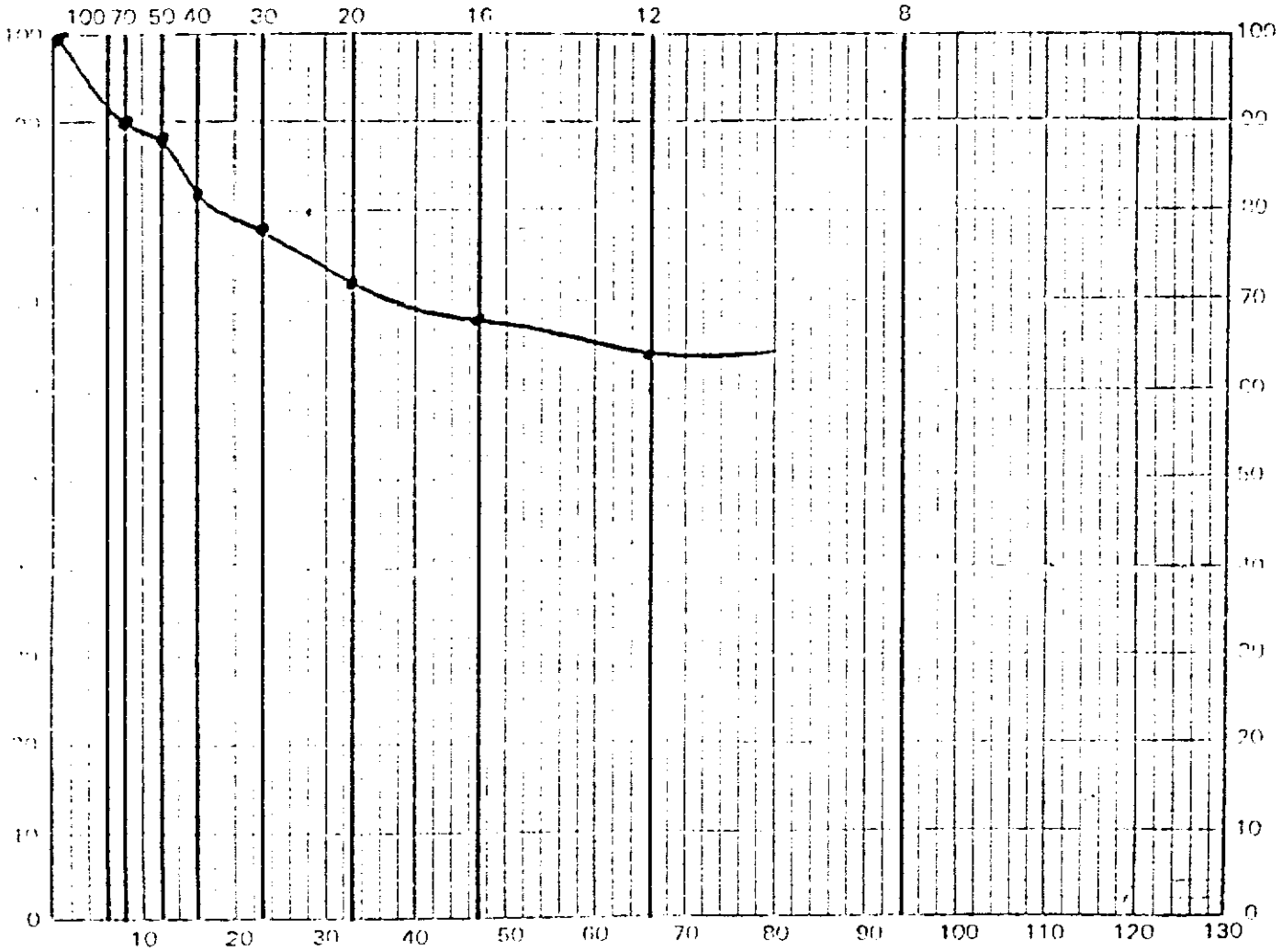
Sample sent in by

Town _____ State _____ Zip _____ Date _____

From well of

Remarks Depth = 543'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.35
8	.094	2.33
12	.066	1.68
16	.047	1.19
20	.033	0.84
30	.023	0.59
40	.016	0.42
50	.012	0.30
70	.008	0.21
100	.006	0.15

Notes

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14-2155

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612 636 3900 • Telex 29-0754
UOP Inc.

SAND ANALYSIS
(FINE)
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p 98 of 101

Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 553'

U.S. STANDARD SIEVE NUMBERS

SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

			CUMULATIVE % RETAINED		
6	132	3.36			
8	093	2.38			
12	066	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes:

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED HEREUNDER CAREFULLY AND CORRECTLY, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 2155

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7054
UOP Inc.

SAND ANALYSIS

(FINE)

p 99 of 101

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

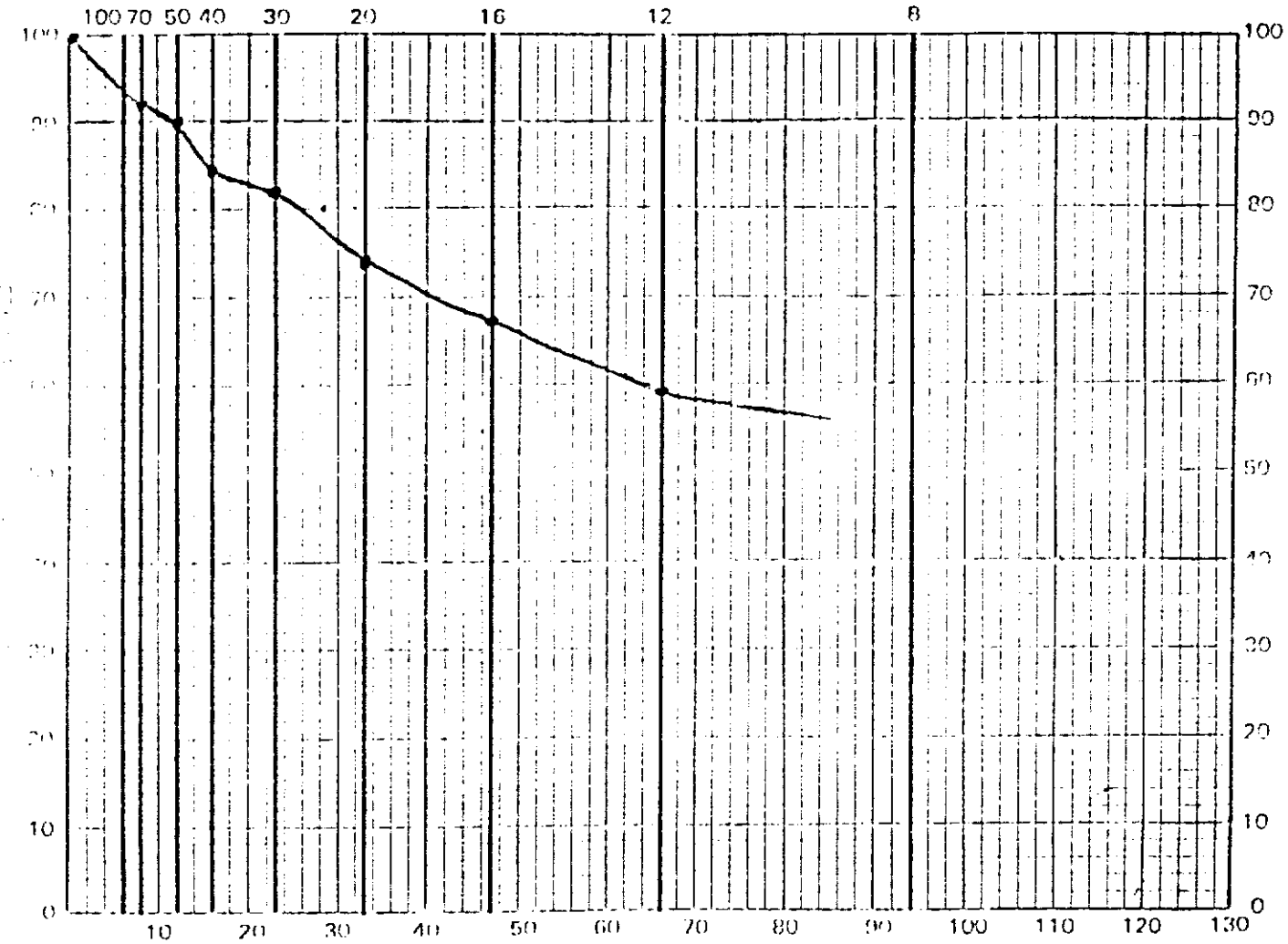
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 573'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

U.S. SIEVE NO.	SLOT OPENING		CUMULATIVE % RETAINED		
	PLASTIC	MM			
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14-3155

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7051
UOP Inc

SAND ANALYSIS
(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

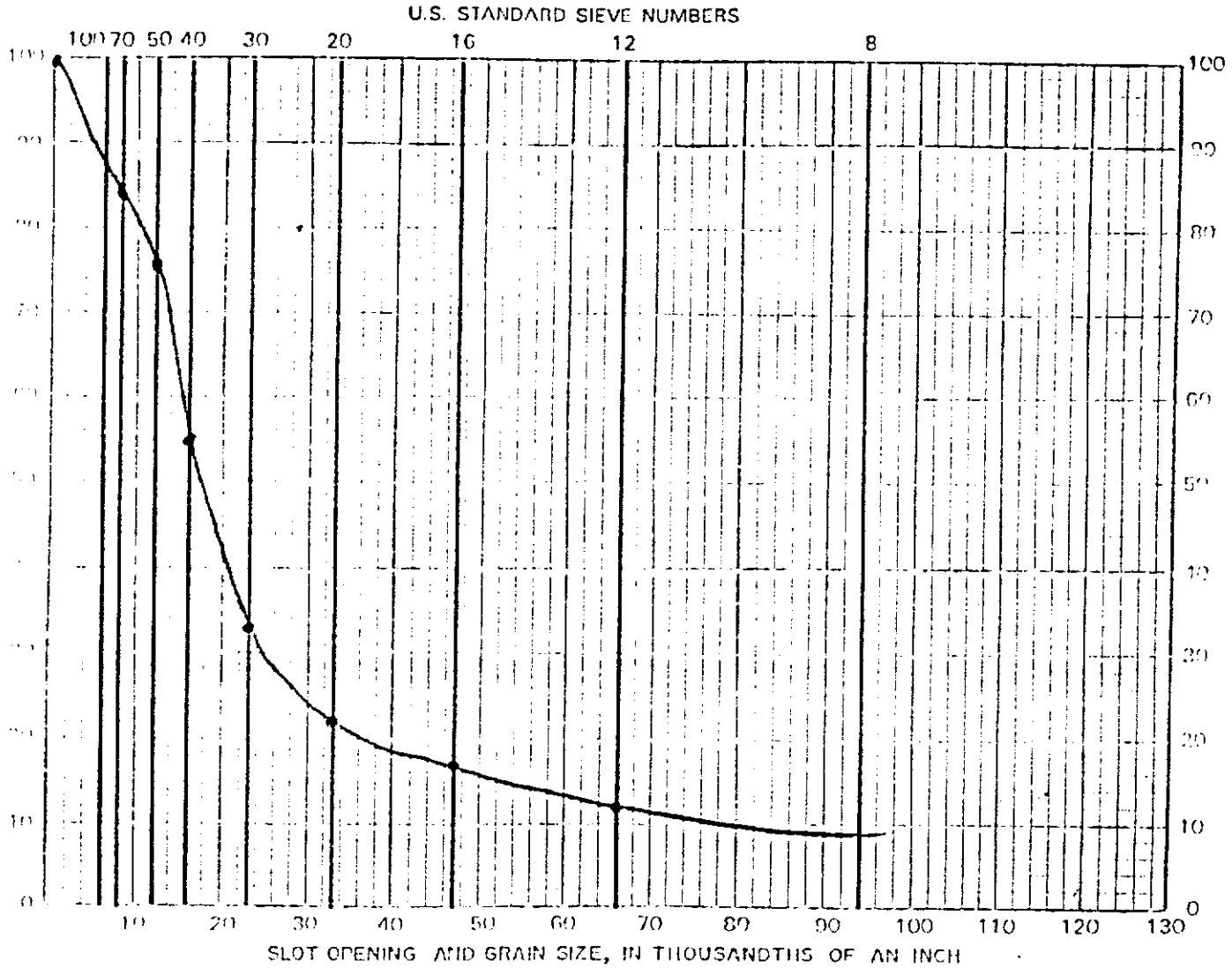
p 700 ft

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 593'



U.S. SIEVE NO.	SIEVE OPENING INCHES	SIEVE OPENING MM	CUMULATIVE % RETAINED		
6	.132	3.36			
8	.094	2.39			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 2155

(FINE)

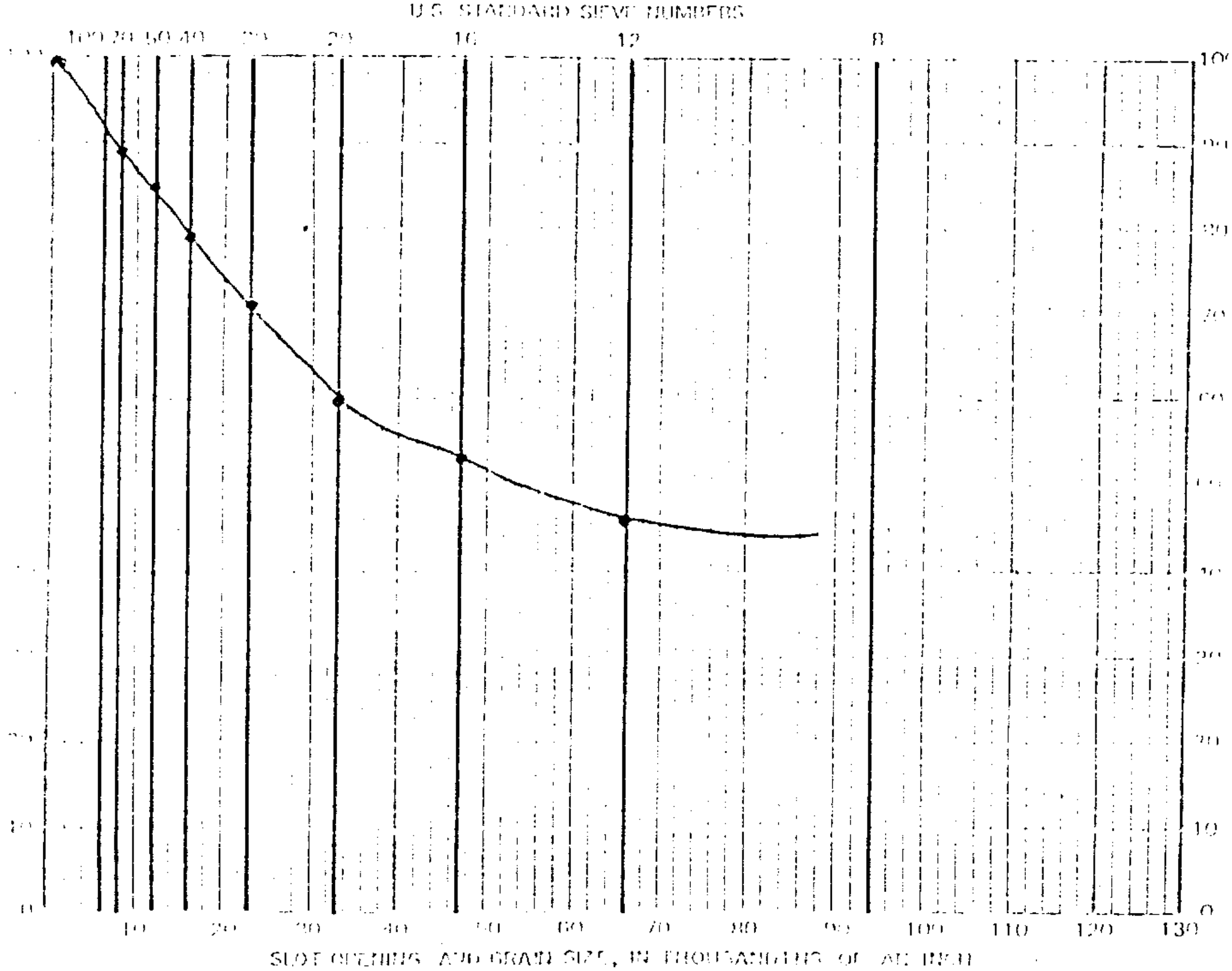
Mailing Address: P.O. Box ...
St. Paul, Minnesota 55164

Sample sent in by

Town State Zip Date

From well at

Remarks Depth = 613'.



Sieve	Inches	mm			
6	.132	3.36			
8	.093	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes

Recommended Slot Opening

Recommended Screen Dia. in. Length Ft.

By

Ted Sand and
FY: Appendix 1.1-7

TOWN OF SMITHTOWN

516 360-7550

ENGINEERING DEPARTMENT
DONAL A. DEVINE
TOWN ENGINEER

HAND-DELIVERED

February 23, 1984

Received from
NYDEC Bureau of Landfills

Mr. James H. Heil, P.E.
New York State Department of
Environmental Conservation
Division of Solid Waste
Building #40, SUNY
Stony Brook, New York 11794

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

Dear Mr. Heil:

The following information is offered in response to your letter of January 16, 1984. For clarity, I have attempted to address each question separately.

(1) VOLUME OF CELLS NO. 4 AND NO. 5

Cell No. 4 = 529,712 cubic yards = 2 1/2 years
Cell No. 5 = 557,043 cubic yards = 2 1/2 years

(2) ANTICIPATED FILLING RATE

As you are aware, the fill rate for these cells will depend upon a great number of variables. Of major concern is the impact of the disposal of construction and demolition debris. Currently, the Town of Smithtown utilizes another site for disposal of this material, thus reserving the expensive lined cells exclusively for the putrescible solid waste stream. Due to this economic impact, it is assumed that every effort will be made to exclude this material from Cells No. 4 and No. 5. Accordingly, the Town of Smithtown has filed an application for a new construction and demolition disposal site (D.E.C. No. 10-83-1262) which we are confident will serve for many years to come.

where? in SE corner?

124 WEST MAIN STREET • P. O. BOX 575 • SMITHTOWN, NEW YORK • 11787

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

The Town of Smithtown estimates the rate of fill for both Cell #4 and #5 to be 18,000 cubic yards per month. This estimate is based on the following:

(1) Method - In order to determine a "worst case" rate of fill, heavy emphasis of landfilling, rather than balefilling is assumed. (1000 lbs/cy) (1600 lbs./cy)

(2) Experience - Over the past five (5) years, the Town has completed Cells Nos. 1, 2 and 3. These volumes have been tabulated and incorporated into the proposed rate of fill.

(3) Actual Survey - Actual field surveys are periodically taken as part of our normal planning process. Lead time for cell construction and lining is considerable, and to date, our fill predictions have proven to be accurate and reliable.

(3) MONITORING WELL DATA

As shown on the previously submitted "Revised Site Plan", Drawing No. 101A, dated July, 1983, the following information corresponds to the well numbers as indicated:

WELL No.	S NO.	TYPE	TOTAL DEPTH	SCREEN TYPE	SCREEN DEPTH	SURFACE ELEVATION*
1	S 74871	4" PVC	140'	10' x 4" 18 Slot	110-120	149.93
2	S 74868	4" PVC	131'	10' x 4" 25 Slot	121-131	145.92
3	-	4" Steel	125'	-	-	152.17**
4	S 74869	4" PVC	123'	10' x 4" 25 Slot	113-123	156.89
5	S 74870	4" PVC	130'	10' x 4" 18 Slot	120-130	162.66
6	S 74872	4" PVC	164'	20' x 4"	144-164	168.98**
7	-	4" PVC	130'	10' x 4"	120-130	161.84

* Denotes elevation of top of casing unless otherwise noted.

** Elevation of top of concrete cover

Please note that Well No. 3 has a steel casing and was originally installed as a temporary water well during the plant construction. This well includes a submersible pump which is currently operable. Well No. 7 was installed in the bottom of the excavation pit. Although this well was originally intended as an upstream monitoring well, its location at the base of the access road subjects it to miscellaneous runoff and ponding, thereby limiting its future usefulness.

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

p 3 of 4

(4) CURRENT STATUS OF CELLS NO. 4 AND NO. 5

During the Summer of 1983, Cell No. 4 was fine graded and lined. This completed installation is now ready to accept solid waste, and filling is scheduled to begin next month.

Cell No. 5 has been excavated to its working depth, and rough grading has been accomplished. It is likely that the Town of Smithtown will proceed with the final construction of Cell No. 5 as soon as possible. Current fill rates indicate that Cell No. 5 will be filled to capacity well before the year 1990. The physical location of this cell will enable its completion with relatively low cost. Furthermore, early completion of this cell will benefit the fill operation in that the number of access roads necessary will be substantially reduced.

(5) SITE USE AND BALER STATUS

As outlined above in Question No. 2, Cells No. 4 and No. 5 will be filled, utilizing a combination of balefill and landfill techniques. Although originally intended to be strictly a balefill, practical experience over the past five (5) years at the site, indicates that future cells will be completed via both methods. As you are aware, lawn trimmings in the solid waste stream during the Summer months has limited the effectiveness of baling at these times. To date, efforts to alleviate this problem by baling a more homogeneous mix of solid waste have not succeeded. Certainly, the exclusion or separate handling of lawn trimmings is a solution which the Town continues to explore. Baler downtime is another factor which dictates landfilling. Although normal maintenance has not necessitated substantial downtime, there have been instances where the procurement of certain parts has taken considerable time. Finally, it should be noted that there are times when landfilling is preferable to balefilling. For example, we are presently utilizing landfill methods to bring Cells No. 1 and No. 2 to final grade. In this case, fills of one (1) to three (3) feet actually dictate landfilling.

Currently, the Baler is down for major maintenance and repair. Among the items to be replaced are the wear plates, hydraulic oil, and main conveyor roller assemblies. Cost Estimates have been obtained by the Sanitation Department and approval by the Town Board has been indicated. This work is expected to commence immediately, thus continuing the balefill operation.

(6) ANTICIPATED LEACHATE VOLUMES

The Town of Smithtown does not anticipate additional problems with regard to leachate handling and disposal due to the additional

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

loading of Cells No. 4 and No. 5. This will be primarily due to the closure and capping of the initial three (3) cells. Cells No. 1 and No. 2 are currently being brought to final grade and temporarily capped with a loam clay mixture to prevent the infiltration of precipitation and direct surface runoff to the existing storm water recharge system. As we do expect some minor initial settlement to occur, capping with P.V.C. Liner will follow as grade corrections and stabilization are achieved. The majority of the 20 mil P.V.C. liner materials necessary to complete final capping of Cells No. 1 and No. 2 have been obtained, and additional material will be acquired as necessary. Closure of Cell No. 3 will proceed in the same manner, once it is brought to final grade. This will most likely occur sometime during the life of Cell No. 4.

The Town ofSmithtown has purchased a vacuum type tank truck which is utilized to transport leachate in a steady and reliable manner. The majority of the leachate has been deposited at the Kings Park Sewage Treatment Plant. As we have had some success with evaporation and recirculation within existing cells, these methods will continue to be used whenever practical.

I trust that the above information will be sufficient for your needs. The Town of Smithtown is looking forward to renewal of its Operating Permits to include Cells No. 4 and No. 5 as soon as possible.

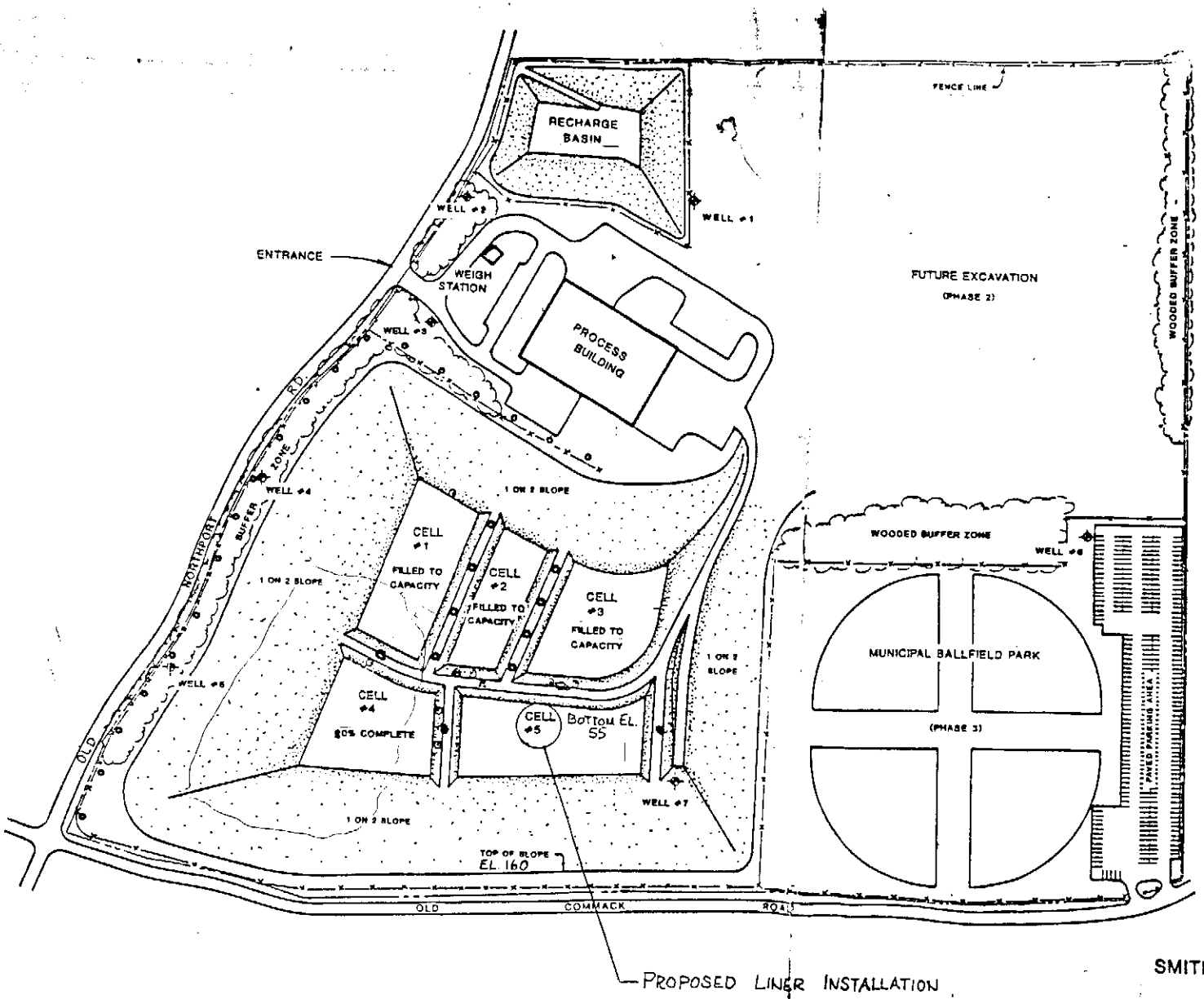
If I can be of any further assistance, please do not hesitate to contact me.

Very truly yours,

John T. Trent
Assistant Civil Engineer

JTT:vjp

cc: Hon. Patrick R. Vecchio, Supervisor
Donald R. Blydenburgh, Town Attorney
Duane B. Rhodes, Sanitation Superintendent
Donal A. Devine, Town Engineer



Appendix 1.1-7a
Received from NYSDEC Region 1

SITE PLAN

SMITHTOWN MUNICIPAL SERVICES FACILITY

JULY, 1986

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3900 • Telex 29-0741
UOP Inc

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p 9 2 of 10

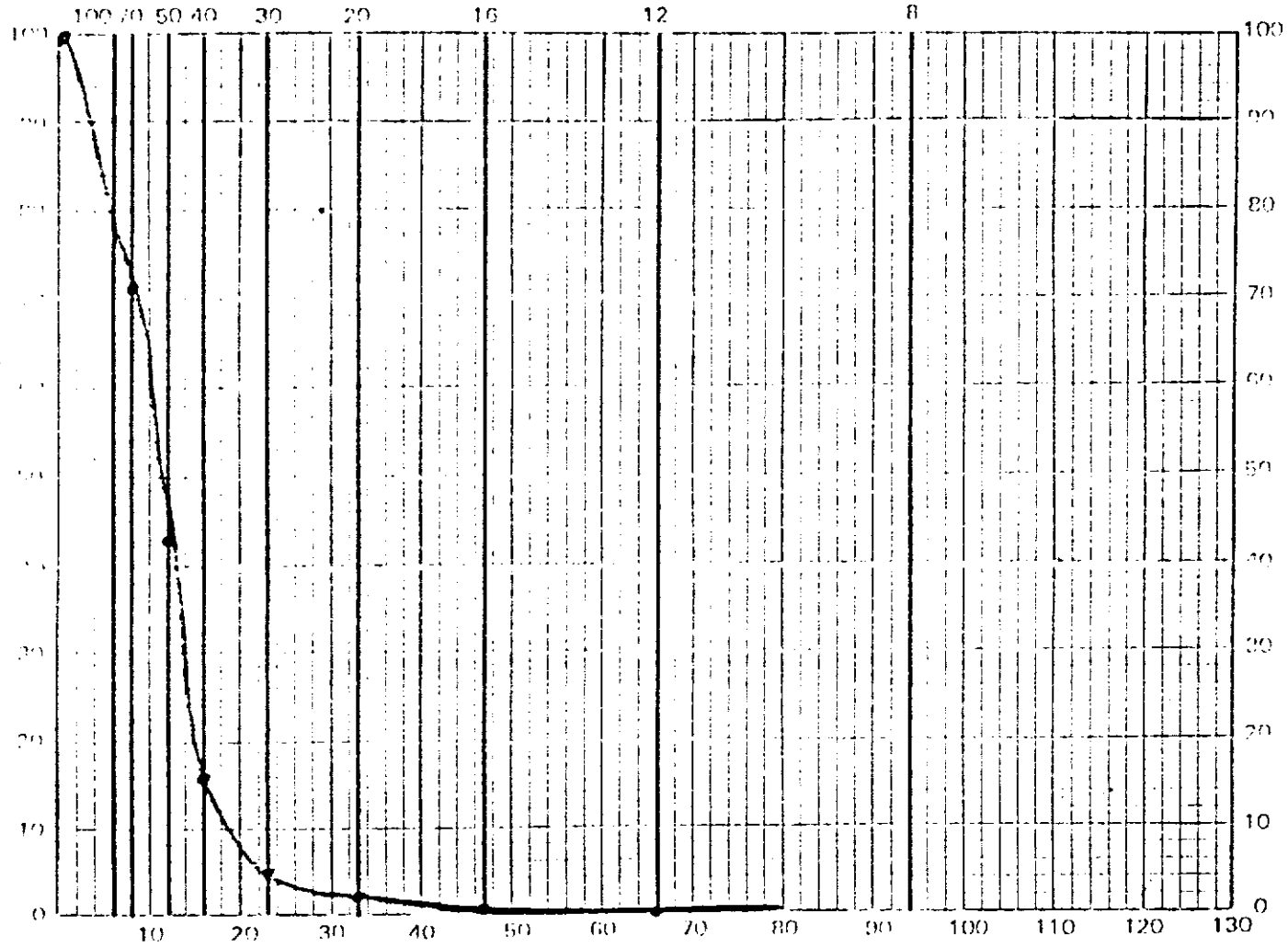
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 425'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

U.S. Std. Sieve No.	Sieve Opening, Inches	Sieve Opening, mm	Cumulative % Retained		
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen Dia. _____ In. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43183 • St. Paul, Minnesota 55164
Telephone 612 636-3900 • Telex 29-7251
Inc.

STANDARD ANALYSIS
(FINE)

MAILING ADDRESS: P.O. BOX 43183
ST. PAUL, MINNESOTA • 55164

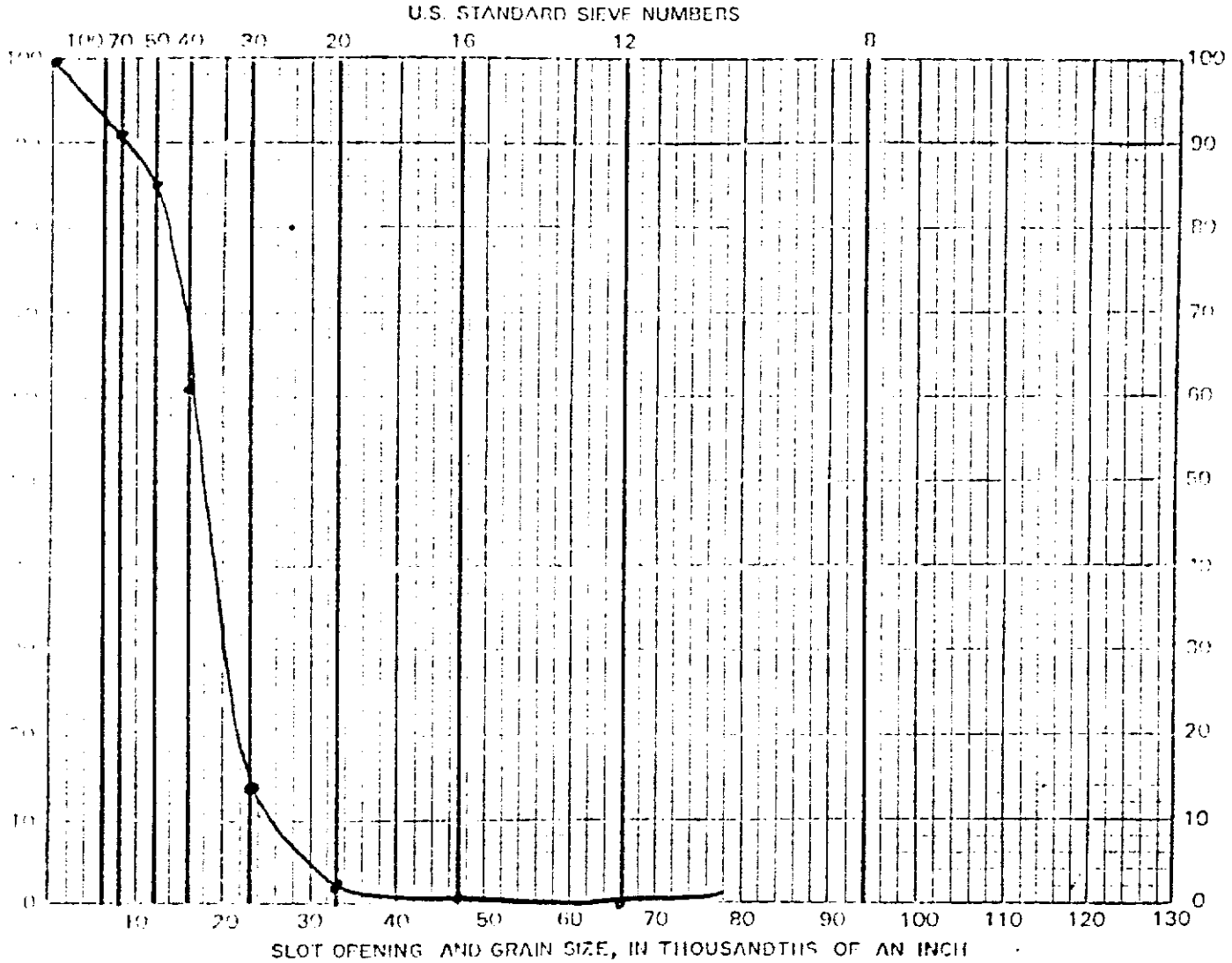
p 93 of 6

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 443'



SIEVE	SIEVE OPENING		CUMULATIVE % RETAINED		
NO.	INCHES	MM			
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ In. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612 636 3900 • Telex 29-0751
UOP Inc.

(FINE) P 9 of 101

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

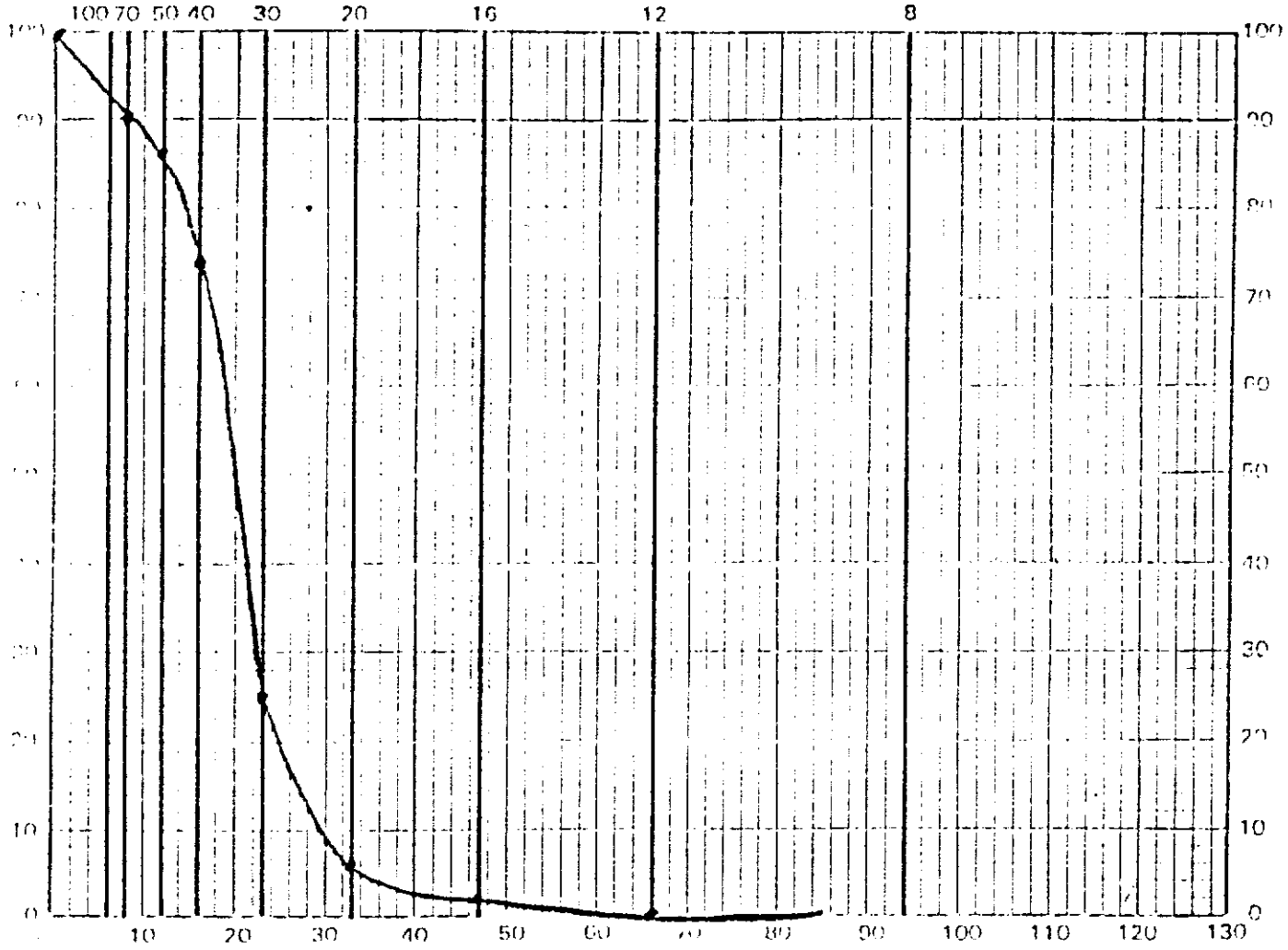
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 463'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

No.	Slot Opening Inches	Slot Opening mm	Cumulative % Retained		
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-636-3900 • Telex 29-7054
UOP Inc

SIEVE ANALYSIS

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

p 95 of 10

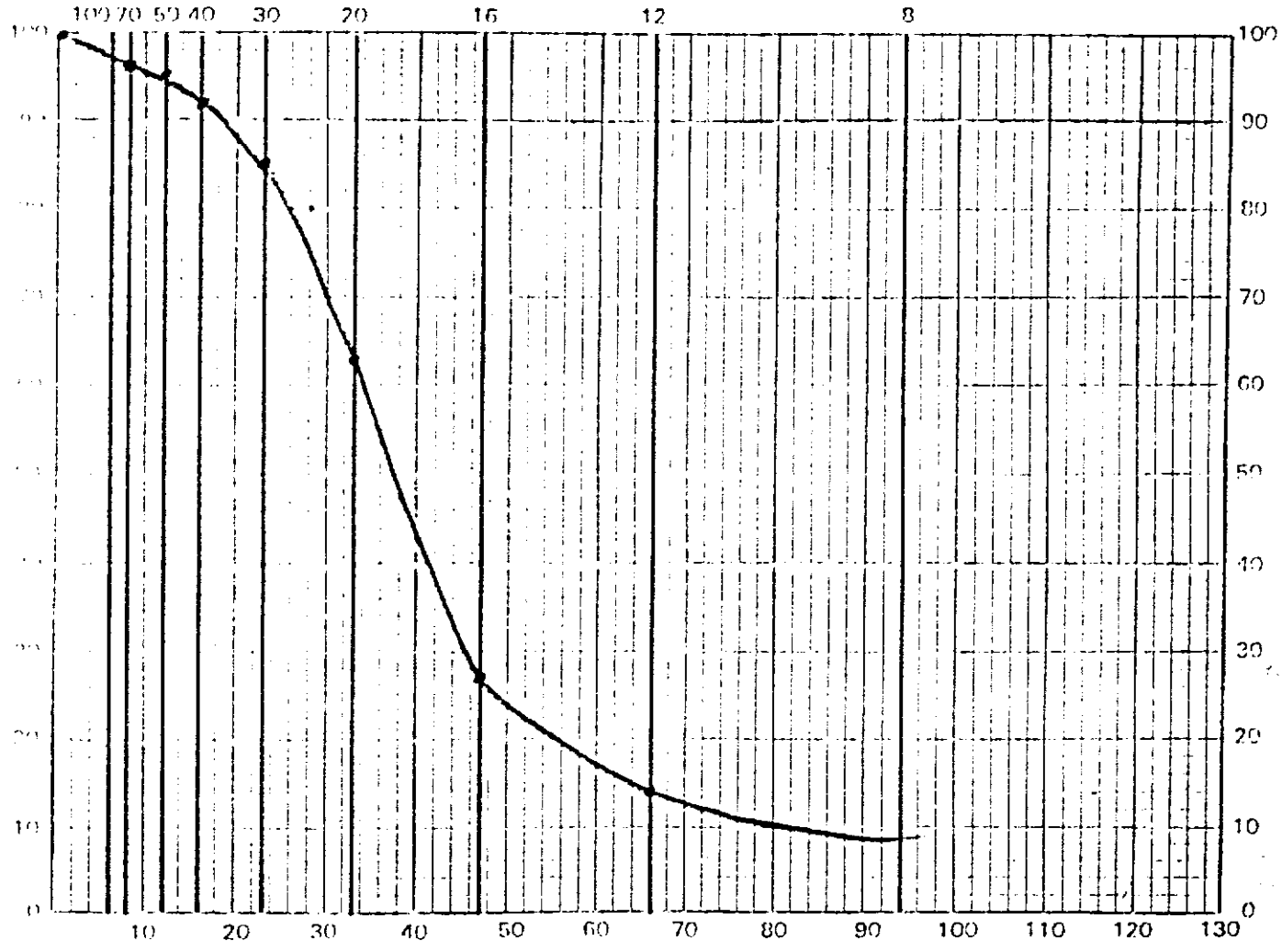
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 483'

U.S. STANDARD SIEVE NUMBERS



6	.132	3.36			
8	.094	2.39			
12	.066	1.65			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ In. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

NOV 14 2014

(FINE)
MAILING ADDRESS P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

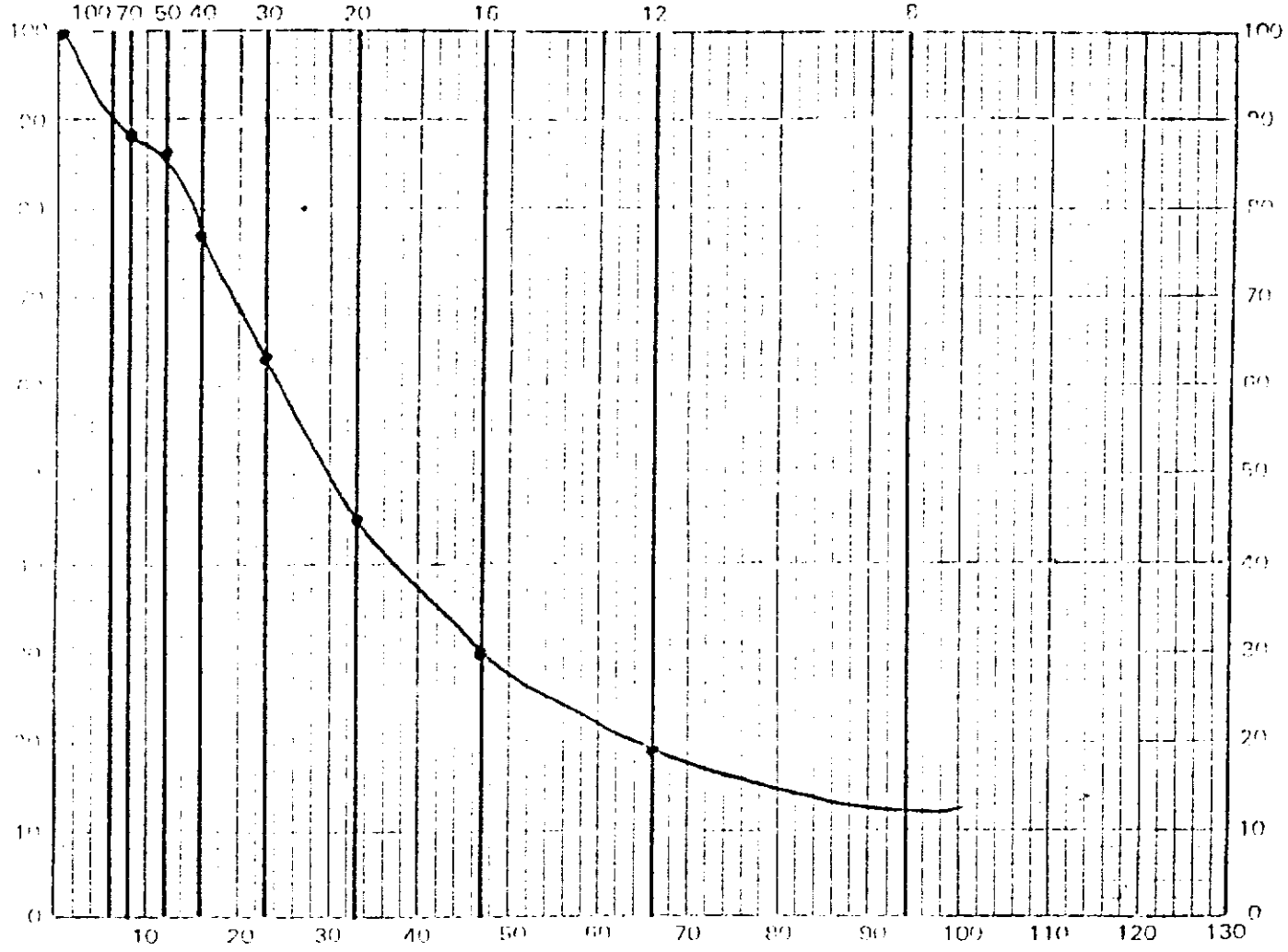
Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 503'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.36			
8	.094	2.39			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.009	0.21			
100	.006	0.15			

Notes

Recommended Slot Opening:

Recommended Screen: Dia. In. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612/636-3900 • Telex 29-0761
UOP Inc.

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

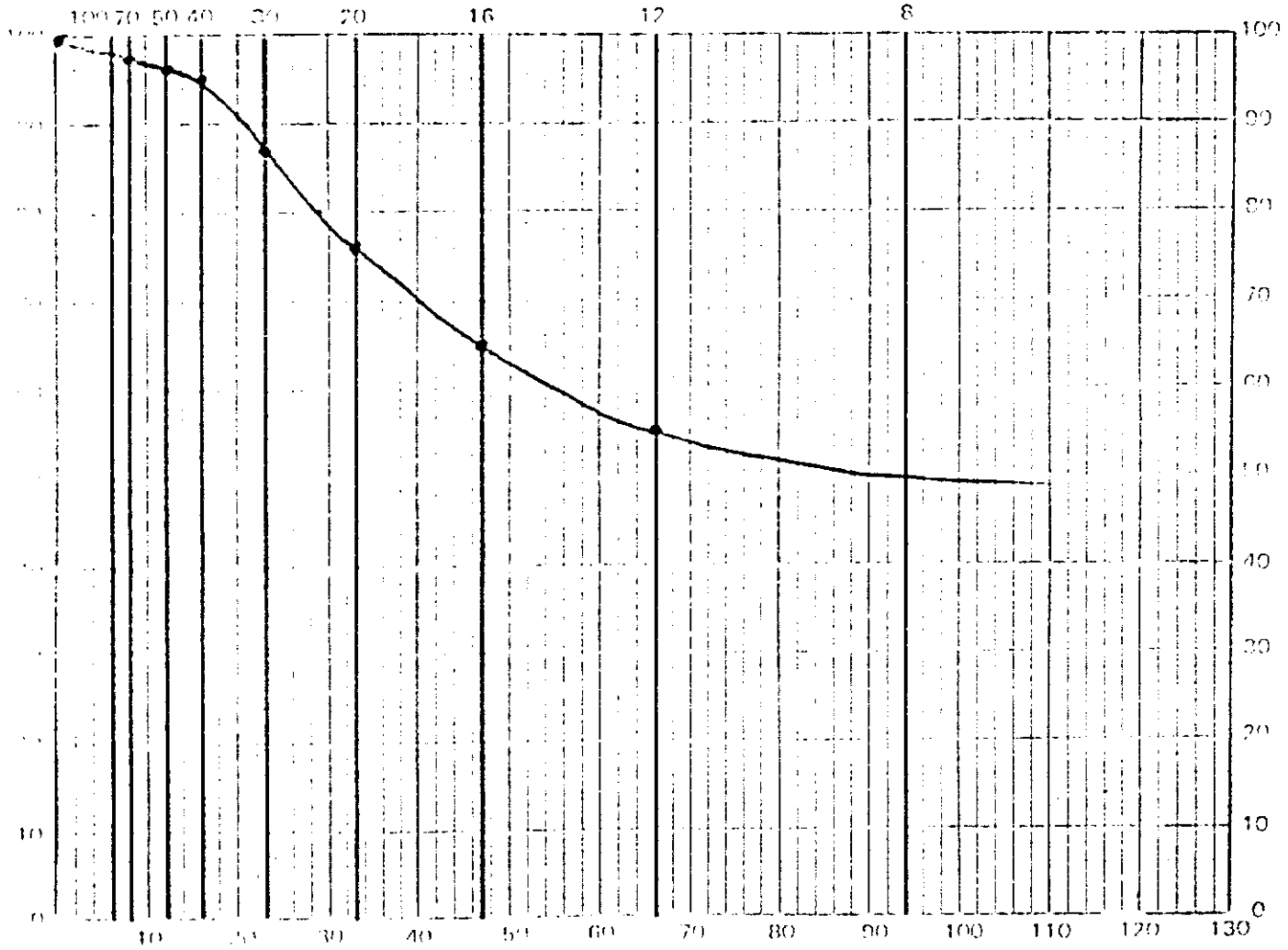
Sample sent in by

Town State Zip Date

From well of

Remarks Depth = 523'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

	SIZE OF OPENINGS		CUMULATIVE % RETAINED		
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.83			
30	.023	0.59			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes:

Recommended Slot Opening:

Recommended Screen: Dia. in. Length Ft.

By:

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7161
UOP Inc

(FINE) p 97 of 104

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

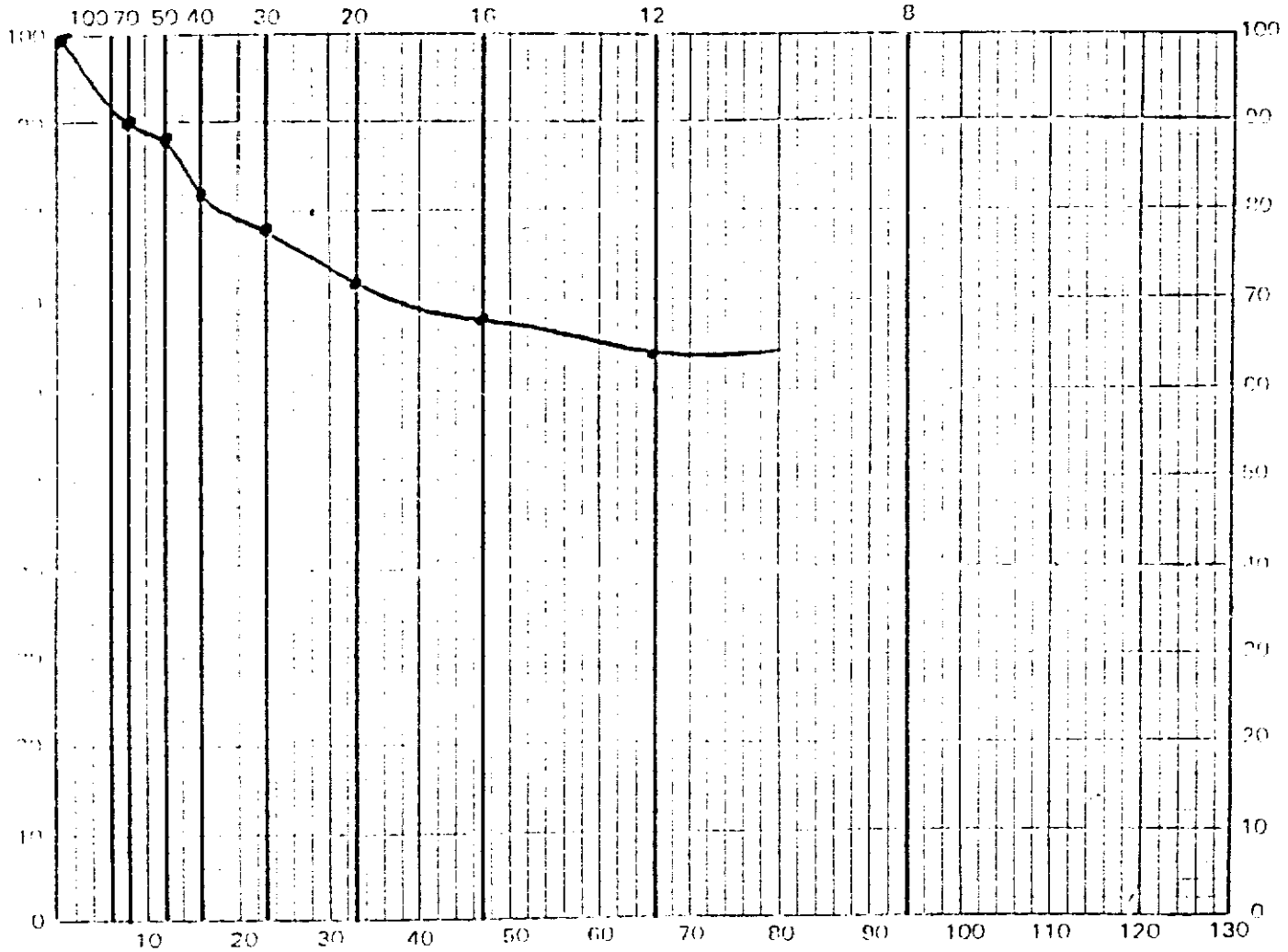
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 543'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.35			
8	.094	2.39			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612 636 3900 • Telex 29-7264
UOP Inc

SAND ANALYSIS

(FINE) p 98 of 101

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

Sample sent in by: _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 553'

U.S. STANDARD SIEVE NUMBERS

SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

			CUMULATIVE % RETAINED		
	% RETAINED	mm			
6	132	3.36			
8	094	2.38			
12	056	1.68			
16	047	1.19			
20	033	0.84			
30	023	0.60			
40	016	0.42			
50	012	0.30			
70	008	0.21			
100	006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 2156

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-7264
UOP Inc.

SAND ANALYSIS

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

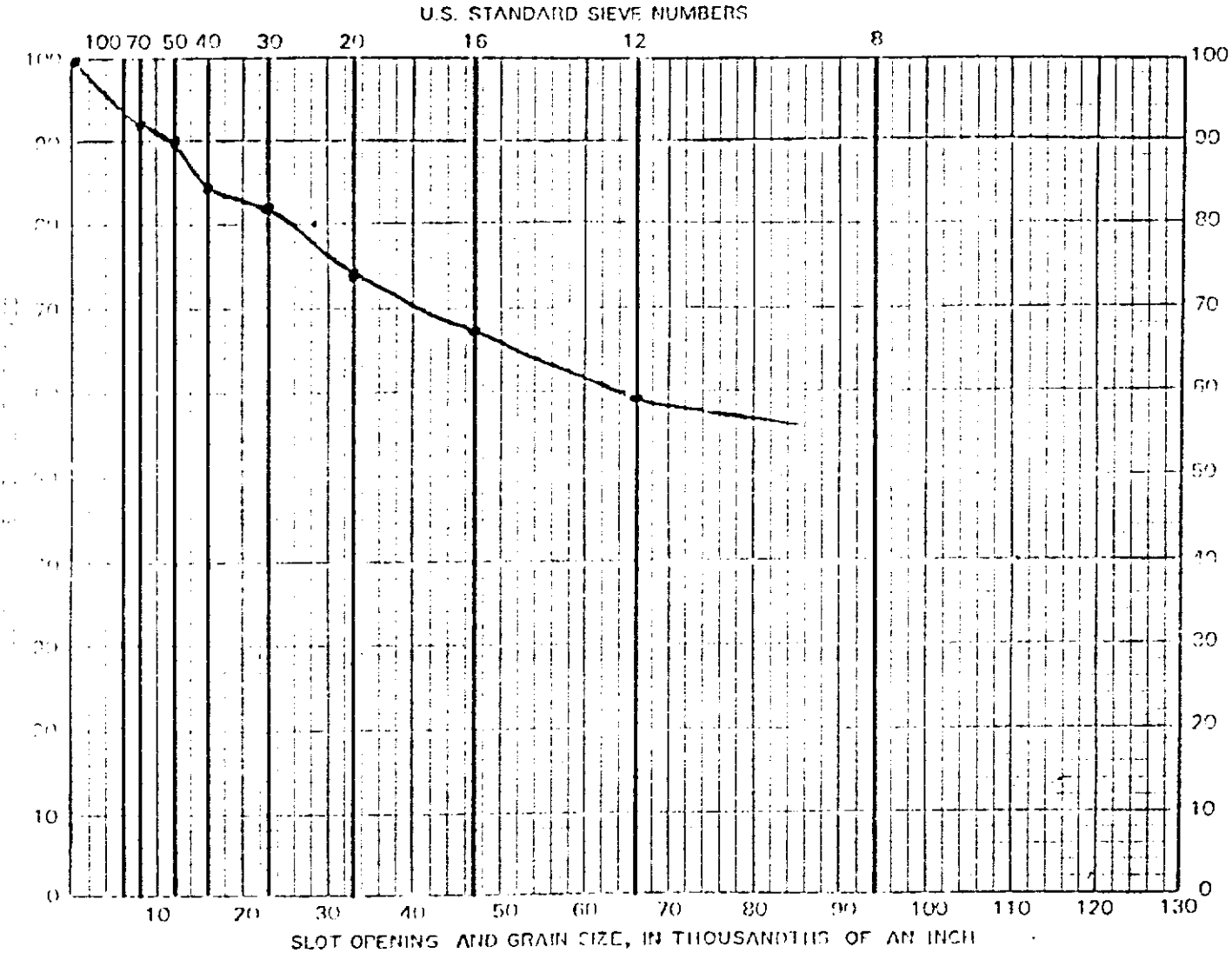
p 99 of 101

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: Depth = 573'



U.S. SIEVE No.	SIEVE OPENINGS		CUMULATIVE % RETAINED		
	INCHES	MM			
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ In. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone (612) 636-3900 • Telex 29-0741
UOP Inc.

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

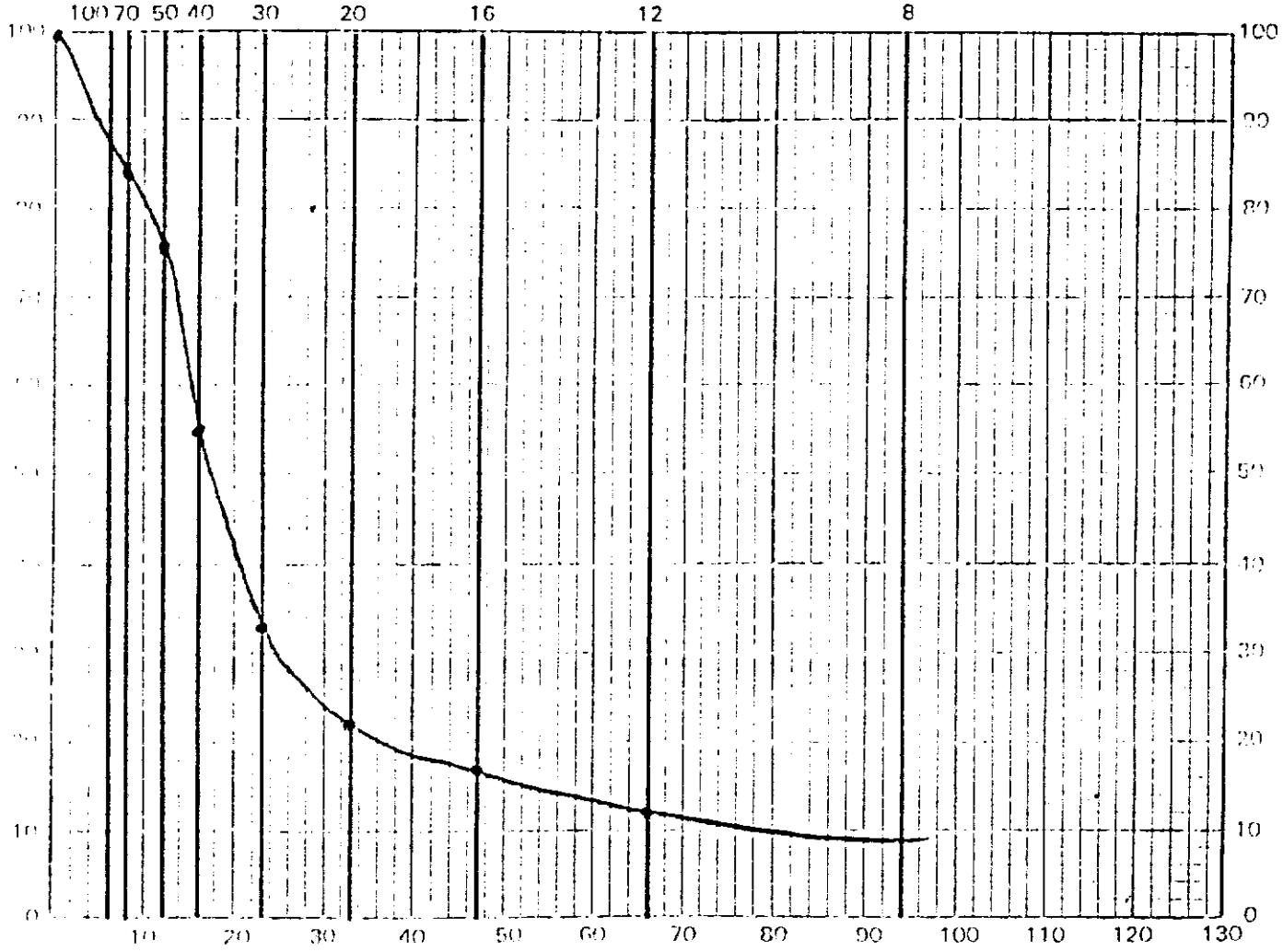
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks Depth = 593'

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN THOUSANDTHS OF AN INCH

6	.132	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.006	0.15	

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

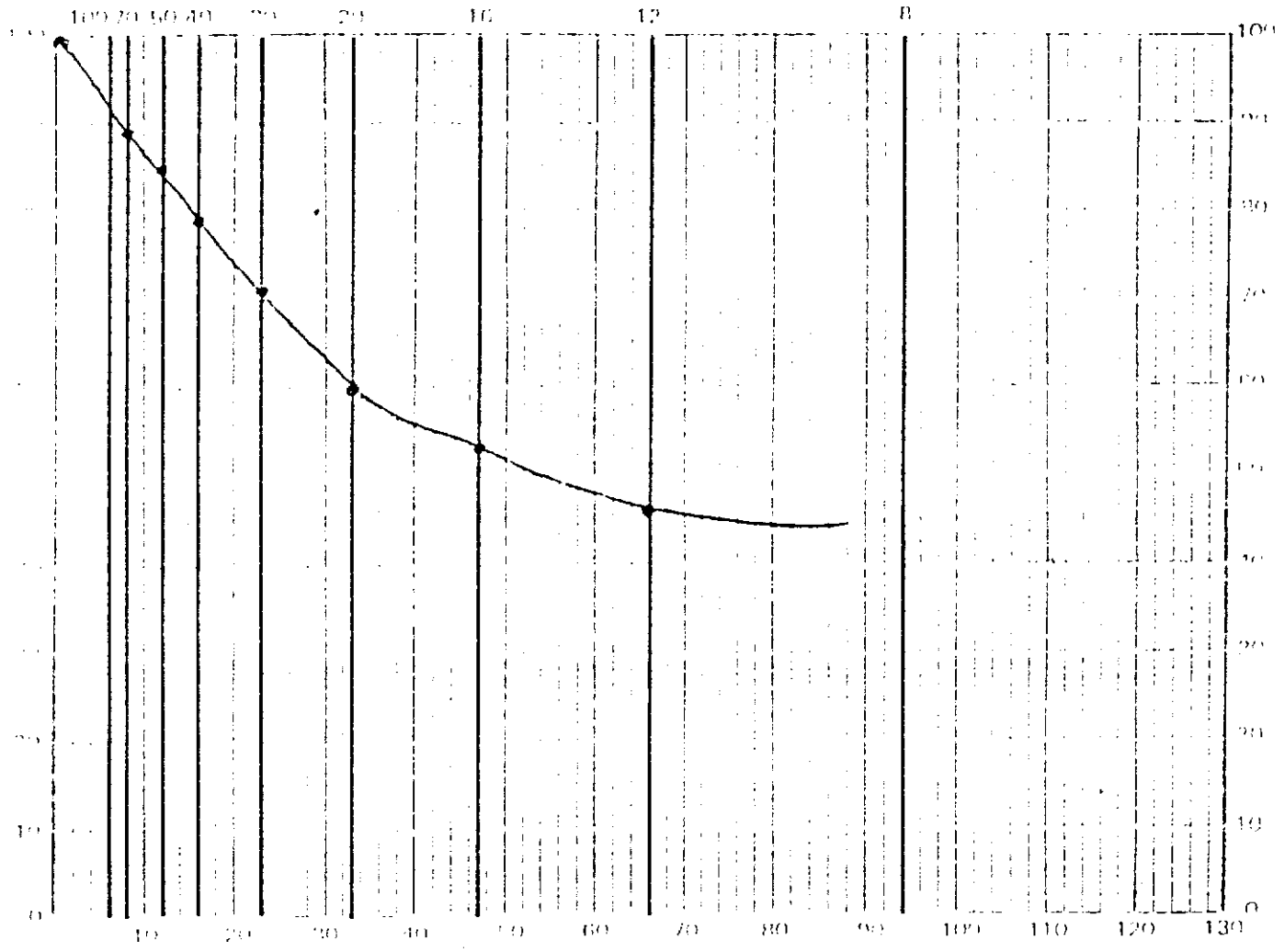
SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

UOP 14 2155

(FINE) p 1 of 1

Depth = 613'.

U.S. STANDARD SIEVE NUMBERS



SLOT OPENING AND GRAIN SIZE, IN HUNDREDTHS OF AN INCH

6	132	3.36
8	094	2.38
12	066	1.68
16	047	1.19
20	033	0.84
30	023	0.60
40	016	0.42
50	012	0.30
70	008	0.21
100	006	0.15

Notes

Recommended Slot Opening

Recommended Screen Dia in Length Ft.

By

SOME CONSIDERATIONS USED FOR THE MAKING OF A GOOD WELL: THAT WHILE WE HELP SELECT SLOT SIZES FURNISHED OR RECOMMENDED FROM SAMPLES AND CORRECTLY ASSURE BOTH SPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

Ted Sand and FY: Appendix 1.1-7 p 1 of 4

TOWN OF SMITHTOWN

SUPERVISOR
PATRICK R. VECCHIO
COUNCILMEN
IRA P. BLOCK
EUGENE A. CANNATARO
[redacted]
BRADLEY L. HARRIS
Michael R. Lanzarone

516 360-7550

ENGINEERING DEPARTMENT
DONAL A. DEVINE
TOWN ENGINEER

HAND-DELIVERED

February 23, 1984

Received from NYDEC Bureau of Landfills

Mr. James H. Heil, P.E.
New York State Department of
Environmental Conservation
Division of Solid Waste
Building #40, SUNY
Stony Brook, New York 11794

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

Dear Mr. Heil:

The following information is offered in response to your letter of January 16, 1984. For clarity, I have attempted to address each question separately.

(1) VOLUME OF CELLS NO. 4 AND NO. 5

Cell No. 4 = 529,712 cubic yards = 2½ years
Cell No. 5 = 557,043 cubic yards = 2½ years

(2) ANTICIPATED FILLING RATE

As you are aware, the fill rate for these cells will depend upon a great number of variables. Of major concern is the impact of the disposal of construction and demolition debris. Currently, the Town of Smithtown utilizes another site for disposal of this material, thus reserving the expensive lined cells exclusively for the putrescible solid waste stream. Due to this economic impact, it is assumed that every effort will be made to exclude this material from Cells No. 4 and No. 5. Accordingly, the Town of Smithtown has filed an application for a new construction and demolition disposal site (D.E.C. No. 10-83-1262) which we are confident will serve for many years to come.

where? in SE corner?

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

The Town of Smithtown estimates the rate of fill for both Cell #4 and #5 to be 18,000 cubic yards per month. This estimate is based on the following:

(1) Method - In order to determine a "worst case" rate of fill, heavy emphasis of landfilling, rather than balefilling is assumed. (1000 lbs/cy) (1600 lbs./cy)

(2) Experience - Over the past five (5) years, the Town has completed Cells Nos. 1, 2 and 3. These volumes have been tabulated and incorporated into the proposed rate of fill.

(3) Actual Survey - Actual field surveys are periodically taken as part of our normal planning process. Lead time for cell construction and lining is considerable, and to date, our fill predictions have proven to be accurate and reliable.

(3) MONITORING WELL DATA

As shown on the previously submitted "Revised Site Plan", Drawing No. 101A, dated July, 1983, the following information corresponds to the well numbers as indicated:

WELL No.	S NO.	TYPE	TOTAL DEPTH	SCREEN TYPE	SCREEN DEPTH	SURFACE ELEVATION*
1	S 74871	4" PVC	140'	10' x 4" 18 Slot	110-120	149.93
2	S 74868	4" PVC	131'	10' x 4" 25 Slot	121-131	145.92
3	-	4" Steel	125'	-	-	152.17**
4	S 74869	4" PVC	123'	10' x 4" 25 Slot	113-123	156.89
5	S 74870	4" PVC	130'	10' x 4" 18 Slot	120-130	162.66
6	S 74872	4" PVC	164'	20' x 4"	144-164	168.98 **
7	-	4" PVC	130'	10' x 4"	120-130	161.84

* Denotes elevation of top of casing unless otherwise noted.

** Elevation of top of concrete cover

Please note that Well No. 3 has a steel casing and was originally installed as a temporary water well during the plant construction. This well includes a submersible pump which is currently operable. Well No. 7 was installed in the bottom of the excavation pit. Although this well was originally intended as an upstream monitoring well, its location at the base of the access road subjects it to miscellaneous runoff and ponding, thereby limiting its future usefulness.

p 3 of 4

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

(4) CURRENT STATUS OF CELLS NO. 4 AND NO. 5

During the Summer of 1983, Cell No. 4 was fine graded and lined. This completed installation is now ready to accept solid waste, and filling is scheduled to begin next month.

Cell No. 5 has been excavated to its working depth, and rough grading has been accomplished. It is likely that the Town of Smithtown will proceed with the final construction of Cell No. 5 as soon as possible. Current fill rates indicate that Cell No. 5 will be filled to capacity well before the year 1990. The physical location of this cell will enable its completion with relatively low cost. Furthermore, early completion of this cell will benefit the fill operation in that the number of access roads necessary will be substantially reduced.

(5) SITE USE AND BALER STATUS

As outlined above in Question No. 2, Cells No. 4 and No. 5 will be filled, utilizing a combination of balefill and landfill techniques. Although originally intended to be strictly a balefill, practical experience over the past five (5) years at the site, indicates that future cells will be completed via both methods. As you are aware, lawn trimmings in the solid waste stream during the Summer months has limited the effectiveness of baling at these times. To date, efforts to alleviate this problem by baling a more homogeneous mix of solid waste have not succeeded. Certainly, the exclusion or separate handling of lawn trimmings is a solution which the Town continues to explore. Baler downtime is another factor which dictates landfilling. Although normal maintenance has not necessitated substantial downtime, there have been instances where the procurement of certain parts has taken considerable time. Finally, it should be noted that there are times when landfilling is preferable to balefilling. For example, we are presently utilizing landfill methods to bring Cells No. 1 and No. 2 to final grade. In this case, fills of one (1) to three (3) feet actually dictate landfilling.

Currently, the Baler is down for major maintenance and repair. Among the items to be replaced are the wear plates, hydraulic oil, and main conveyor roller assemblies. Cost Estimates have been obtained by the Sanitation Department and approval by the Town Board has been indicated. This work is expected to commence immediately, thus continuing the balefill operation.

(6) ANTICIPATED LEACHATE VOLUMES

The Town of Smithtown does not anticipate additional problems with regard to leachate handling and disposal due to the additional

RE: PART 360 RENEWAL APPLICATION
NO. 10-83-1639

loading of Cells No. 4 and No. 5. This will be primarily due to the closure and capping of the initial three (3) cells. Cells No. 1 and No. 2 are currently being brought to final grade and temporarily capped with a loam clay mixture to prevent the infiltration of precipitation and direct surface runoff to the existing storm water recharge system. As we do expect some minor initial settlement to occur, capping with P.V.C. Liner will follow as grade corrections and stabilization are achieved. The majority of the 20 mil P.V.C. liner materials necessary to complete final capping of Cells No. 1 and No. 2 have been obtained, and additional material will be acquired as necessary. Closure of Cell No. 3 will proceed in the same manner, once it is brought to final grade. This will most likely occur sometime during the life of Cell No. 4.

The Town ofSmithtown has purchased a vacuum type tank truck which is utilized to transport leachate in a steady and reliable manner. The majority of the leachate has been deposited at the Kings Park Sewage Treatment Plant. As we have had some success with evaporation and recirculation within existing cells, these methods will continue to be used whenever practical.

I trust that the above information will be sufficient for your needs. The Town of Smithtown is looking forward to renewal of its Operating Permits to include Cells No. 4 and No. 5 as soon as possible.

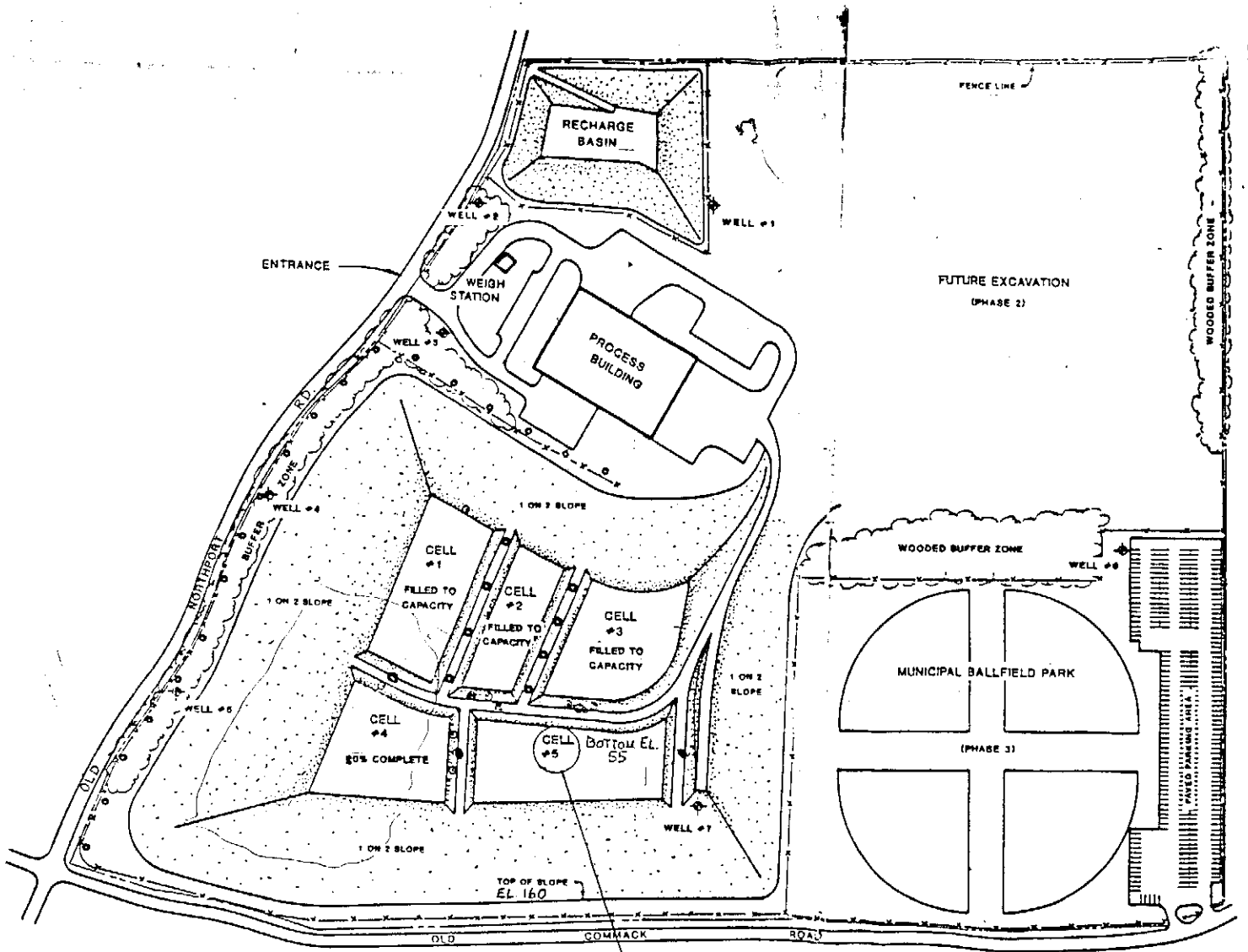
If I can be of any further assistance, please do not hesitate to contact me.

Very truly yours,

John T. Trent
Assistant Civil Engineer

JTT:vjp

cc: Hon. Patrick R. Vecchio, Supervisor
Donald R. Blydenburgh, Town Attorney
Duane B. Rhodes, Sanitation Superintendent
Donal A. Devine, Town Engineer



LEGEND

- METHANE VENT STACKS
- COLLECTION POINTS
- METHANE MONITORING POINTS
- WATER MONITORING WELLS

Appendix I.I-7a
Received from NYSDEC Region I

SITE PLAN

SMITHTOWN MUNICIPAL SERVICES FACILITY

JULY, 1986

Received from
NYDEC Bureau of Landfills

Appendix 1.1-8
p 1 of 4

PEDNEAULT ASSOCIATES
TESTING LABORATORIES, INC.

(516) 467-8477

1615 NINTH STREET
BOHEMIA, N.Y. 11716

April 19, 1983

TO: Town of Smithtown
124 Main Street
Smithtown, New York 11787

Date: Collected ....4/7/83..... **Analyzed** ...4/7-18/83..... **Report** ....4/19/83.....

Sampling Point

1. Well #.1 ....(IMMEDIATELY UPGRADIENT OF RECHARGE BASIN).....
2. Well #.2 ....(IMMEDIATELY DOWNGRADIENT OF RECHARGE BASIN).....
3. Well #.3 ....(DOWNGRADIENT OF LANDFILL).....
4. Well #.4 ....(..... " " ").....
5. Well #.5 ....(..... " " ").....

Parameters		1	2	3	4	5
Turbidity	units	<5	<5	<5	<5	<5
Odor	units	0	0	0	0	0
Color	units	<5	<5	<5	<5	<5
pH		6.3	6.4	6.9	5.8?	6.6
Nitrate	mg/l	2.30	2.18	1.65	0.77?	0.97
Nitrite	mg/l	0.004	0.004	0.002	0.002	0.076
Ammonia	mg/l	0.007	<0.001	<0.001	2.51?	0.087
Fluoride	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
Chloride (Recharge Basin)	mg/l	67.0?	66.5?	19.9	10.0?	6.0
Methylene Blue Active Substance	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05
Sulfate	mg/l	6	6	5	26?	21?
Total Alkalinity	mg/l	15	19	18	49?	43
Total Dissolved Solids (R.B.)	mg/l	132?	164?	50	130?	80
Calcium Hardness	mg/l	10	50	23	56	52
Cyanide	mg/l	<0.04	<0.04	<0.04	<0.04	<0.04

Lab Number 25556

ENGINEERING DEPT.
RECEIVED
MAY - 5 1983

JOHN PEDNEAULT
Lab Director

52521
P 2 of 4

PEDNEAULT ASSOCIATES
TESTING LABORATORIES, INC.

(516) 467-8477

1615 NINTH STREET
BOHEMIA, N.Y. 11716

Received from
NYDEC Bureau of Landfills

April 19, 1983

TO: Town of Smithtown
124 Main Street
Smithtown, New York 11787

Date: Collected ....4/7/83..... **Analyzed** ...4/7-18/83..... **Report** ...4/19/83.....

Sampling Point

1. Well #.1
2. Well #.2
3. Well #.3
4. Well #.4
5. Well #.5

Parameters		1	2	3	4	5
Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Arsenic	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Barium	mg/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Cadmium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Copper	mg/l	< 0.01	< 0.01	0.05	0.03	< 0.01
Iron	mg/l	0.06	< 0.01	0.08	0.04	0.02
Mercury	mg/l	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Manganese	mg/l	< 0.01	< 0.01	< 0.01	* 0.38	< 0.01
Sodium	mg/l	3.3	3.3	3.1	3.1	2.9
Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Zinc	mg/l	0.02	0.02	0.37	0.05	0.02
Lead	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

* EXCEEDS PART 703

Lab Number 25556

ENGINEERING DEPT.
RECEIVED
MAY - 5 1983

JOHN PEDNEAULT
Lab Director

52521
p 3 of 4

PEDNEAULT ASSOCIATES
TESTING LABORATORIES, INC.

(516) 467-8477

1615 NINTH STREET
BOHEMIA, N.Y. 11716

Received from
NYDEC Bureau of Landfills

May 4, 1983

TO: Town of Smithtown
124 Main Street
Smithtown, New York 11787

Date: Collected ... 4/21/83 ..... Analyzed ... 4/21-5/3/83 .... Report ... 5/4/83 .....

Sampling Point

1. Well #6 (UPGRADIENT OF LANDFILL)
2. Well #7 (IMMEDIATELY UPGRADIENT OF LANDFILL)
3. .....
4. .....
5. .....

Parameters		X #6	X #7	3	4	5
Silver	mg/l	<0.01	<0.01			
Arsenic	mg/l	<0.01	<0.01			
Barium	mg/l	<0.04	<0.04			
Cadmium	mg/l	<0.01	<0.01			
Chromium	mg/l	<0.01	<0.01			
Copper	mg/l	<0.01	<0.01			1.0
Iron	mg/l	<0.01	<0.01			0.3
Mercury	mg/l	<0.0002	<0.0002			
Manganese	mg/l	0.03	<0.01			0.3
Sodium	mg/l	2.3	2.8			
Lead	mg/l	<0.01	<0.01			
Selenium	mg/l	<0.01	<0.01			
Zinc	mg/l	0.01	0.02			5

Lab Number 25652

ENGINEERING DEPT.
RECEIVED
MAY - 5 1983

JOHN PEDNEAULT
Lab Director

52521
p 4 of 4

PEDNEAULT ASSOCIATES
TESTING LABORATORIES, INC.

(516) 467-8477

1615 NINTH STREET
BOHEMIA, N.Y. 11716

May 4, 1983

Received from
NYDEC Bureau of Landfills

TO: Town of Smithtown
124 Main Street
Smithtown, New York 11787

Date: Collected .... 4/21/83 ..... **Analyzed** ... 4/21-5/3/83 ... **Report** ... 5/4/83 .....

Sampling Point

1. Well # 6
2. Well # 7
3.
4.
5.

Parameters		X #6	X #7	3	4	5
Turbidity	units	0	0			
Odor	units	<5	<5			
Color	units	0	0			
pH		? 5.7	6.0			
Nitrate	mg/l	2.22	2.36			10.0
Nitrite	mg/l	0.005	0.045			
Ammonia	mg/l	0.017	<0.001			
Fluoride	mg/l	<0.01	<0.01			
Methylene Blue Active Substance	mg/l	<0.05	<0.05			
Sulfate	mg/l	19	33			250
Total Alkalinity	mg/l	29	22			
Total Dissolved Solids	mg/l	? 172	? 186			
Calcium Hardness	mg/l	48	63			
Chloride	mg/l	8.9	? 40.2			250
Cyanide	mg/l	<0.04	<0.04			

↑ Part 703

ENGINEERING DEPT.
RECEIVED
MAY - 5 1983

JOHN PEDNEAULT
Lab Director

Lab Number 25652

00-17-1 (5/76)
Formerly GA-4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

52521

Received from NYDEC Bureau of Landfills

TRANSMITTAL SLIP

Appendix 1.1-9

TO: DENNIS W.

FROM: TED S.

DATE: 1-12-84

RE: SMITHTOWN (T) SLF - INITIAL GW MONITORING DATA - WELLS #3 and/or #4 EXHIBIT SIGNIFICANT VALUES FOR: pH, AMMONIA, SULFATE, TOTAL ALKALINITY, TDS, COPPER, IRON, MANGANESE & ZINC. MANGANESE (0.38 mg/l) VIOLATES PART 7. UNFORTUNATELY, NO LOGS OR W.L.'s. I LOOK FORWARD TOWARD YOUR REACTION.

FOR ACTION AS INDICATED:

- ☐ Please Handle
- ☐ Prepare Reply
- ☐ Prepare Reply for _____ Signature
- ☒ Information
- ☐ Approval
- ☐ Prepare final/draft in _____ Copies
- ☑ Comments
- ☐ Signature
- ☐ File
- ☐ Return to me
- ☐ _____
- ☐ _____

Dennis is not concerned. The data submitted is insufficient to cause alarm. The wells should be resampled, and the inter-liner water should also be sampled.

Appendix 1.1-9a

COUNTY OF SUFFOLK

PETER F. COHALAN
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

DAVID HARRIS, M.D., M.P.H.
COMMISSIONER

June 14, 1985

Mr. Theodore M. Sanford, P.E.
Regional Solid Waste Engineer
New York State Department of
Environmental Conservation
Building 40
State University of New York
Stony Brook, NY 11794

Dear Mr. Sanford:

In April 1984, the Department of Health Services assisted the NYSDEC in sampling monitoring wells at several landfills and industrial sites in Suffolk County. Although the water quality results from H2M's laboratory were delayed in their arrival, a complete review of the data has recently been completed, and copies of results from the East Northport and Smithtown landfills are compiled for your information. Several organic compounds have been detected as follows:

	Well No.	Constituent	Concentration
East Northport	73560	ethylbenzene	15 µg/1
	73561	benzene	17 µg/1
		ethylbenzene	15 µg/1
	73565	tetrachloroethene	25 µg/1
	73567	cis/trans-1,2-dichloroethene	12 µg/1
		tetrachloroethane	15 µg/1
		chlorobenzene	15 µg/1
	73568	trichloroethene	23 µg/1

225 RABRO DRIVE EAST
HAUPPAUGE, N.Y. 11788

Well No.	Constituent	Concentration
Smithtown west well	cis/trans-1,2-dichloroethene	23 µg/l
	tetrachloroethene	48 µg/l
	toluene	32 µg/l
central well	vinyl chloride	270 µg/l
	1,1-dichloroethane	1100 µg/l
	cis/trans,1,2-dichloroethene	440 µg/l
	chloroform	25 µg/l
	trichloroethene	100 µg/l
	benzene	47 µg/l
	tetrachloroethene	170 µg/l
	ethylbenzene	240 µg/l

Although these samples were taken over a year ago, these results may be useful to your agency for comparison with town obtained monitoring data, or for amending any provisions or requirements of these landfills under your regulations.

Respectfully,

Steven V. Cary, P.E.
Supervisor, Groundwater Resources
and Reclamation Section

SVC/jb
Enclosures

H2M
HOLZMACHER, McLENDON and MURRELL, P.C • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE N.Y 11747 • 516-694-3040

APR 20 1984

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454701
Sample: DEC ID# R-184-305-01
Date Sampled: 4/2/84
Collected By: PH 99 S. Carey

BASE NEUTRAL EXTRACTABLES PRIORITY POLLUTANTS

Compound	ug/l
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Hexachloroethane	ND
Bis(2 chloroethyl) ether	ND
1,2-Dichlorobenzene	ND
Bis(2-chlorisopropyl) ether	ND
N-nitroso-di-n-propyl amine	ND
Nitrobenzene	ND
Hexachlorobutadiene	ND
1,2,4-Trichlorobenzene	ND
Isophorone	ND
Naphthalene	ND
Bis(2-chloroethoxy) methane	ND
Hexachlorocyclopentadiene	ND
Chloronaphthalene	ND
Acenaphthylene	ND
Acenaphthene	ND
Dimethyl phthalate	ND
2,6-Dinitrotoluene	ND
Fluorene	ND
4-Chlorophenyl phenyl ether	ND
2,4-Dinitrotoluene	ND
1,2-Diphenyl hydrazine	ND
Diethyl phthalate	ND

Compound	ug/l
N-Nitrosodiphenylamine	ND
Hexachlorobenzene	ND
4-Bromophenyl phenyl ether	ND
Phenanthrene	ND
Anthracene	ND
Di-n-butyl pthtalate	ND
Fluoroanthene	ND
Pyrene	ND
Benzidine	ND
Butyl benzyl pthalate	ND
Bis(2-ethylhexyl) phthalate	ND
Chrysene	ND
Benzo(a)anthracene	ND
3,3-Dichlorobenzidine	ND
Di-n-octyl phthalate	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Benzo(a)pyrene	ND
1) Indeno(1,2,3-c,d)pyrene	ND
1) Dibenzo(a,h)anthracene	ND
1) Benzo(g,h,i)perylene	ND
n-nitrosodimethylamine	ND

Date Reported: 8/13/84

Method limit of detection: lower than 10 ug/l (unless otherwise indicated)

Quantification limit: 10 ug/l.

ND - Under detection limit.

1) Method limit of detection: lower than 25 ug/l.

S. McLendon, P.E. - Lab Director

H2M
HOLZMACHER, McLENDON and MURRELL, P.C • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454699/454700
Sample Description: DEC ID# R-184-305-01

Date Sampled: 4/2/84
Collected By: PH 99

PURGEABLE ORGANICS PRIORITY POLLUTANTS

Compound	ug/l	
Chloromethane	ND	Method limit of detection lower than 10 ug/l
Bromomethane	ND	
Vinyl Chloride	ND	
Chloroethane	ND	ND- Under detection limit.
Methylene chloride	ND	
Trichlorofluoromethane	ND	1) Method limit of detection lower than 100 ug/l.
1,1-dichloroethene	NA	
1,1-dichloroethane	ND	
Cis/Trans-1,2-dichloroethene	23	NA - High background interference.
Chloroform	ND	
1,2-dichloroethane	ND	
1,1,1-trichloroethane	NA	
Carbon Tetrachloride	ND	
Bromodichloromethane	ND	
1,2-dichloropropane	ND	
Trans-1,3-dichloropropene	ND	
Trichloroethene	ND	
Dibromochloromethane	ND	
1,1,2-trichloroethane	ND	
Cis-1,3-dichloropropene	ND	
Benzene	ND	
2-chloroethylvinyl ether	ND	
Bromoform	ND	
1,1,2,2-tetrachloroethane	ND	
Tetrachloroethene	48	
Toluene	32	
Chlorobenzene	ND	
Ethylbenzene	ND	
Acrolein	1) ND	
Acrylonitrile	1) ND	

Date Reported: 8/13/84

****

****

C.C. McLendon, P.E.
Laboratory Director

H2M
HOLZMACHER, McLENDON and MURRELL, P.C • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454702
Sample: DEC ID# R-184-305-01
Date Sampled: 4/2/84
Collected By: PH 99

ACID EXTRACTABLE PRIORITY POLLUTANTS

Compound	ug/l
2-Chlorophenol	ND
2-Nitrophenol	ND
Phenol	ND
2,4-Dimethylphenol	ND
2,4-Dichlorophenol	ND
2,4,6-Trichlorophenol	ND
4-Chloro-3-methylphenol	ND
2,4-Dinitrophenol	2) ND
2-Methyl-4,6-dinitrophenol	2) ND
Pentachlorophenol	ND
4-Nitrophenol	1) ND

Method limit of detection: lower than 25 ug/l (unless indicated otherwise)

Quantification limit: 25 ug/l

ND - Under detection limit.

1) Method limit of detection 40 ug/l.

2) Method limit of detection 60 ug/l.

Date Reported: 8/13/84

S.C. McLendon, P.E. Lab Director

H2M
HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454703
Sample: R-184-305-01
Date Sampled: 4/2/84
Collected By: PH 99

PESTICIDES/PCB PRIORITY POLLUTANTS

Compound	ug/l
a-bhc	ND
g-bhc	ND
b-bhc	ND
Heptachlor	ND
d-bhc	ND
Aldrin	ND
Heptachlor epoxide	ND
Endosulfan I	ND
Dieldrin	ND
4,4'-DDE	ND
Endrin	ND
Endosulfan II	ND
4,4'-DDD	ND
4,4'-DDT	ND
Endrin aldehyde	ND
Endosulfan sulfate	ND
Chlordane	ND
Toxaphene	ND
Aroclor 1016	ND
Aroclor 1221	ND
Aroclor 1232	ND
Aroclor 1242	ND
Aroclor 1248	ND
Aroclor 1254	ND
Aroclor 1260	ND

Method limit of detection: lower than 10 ug/l. (unless otherwise indicated)

Quantification limit: 10 ug/l.

ND - Under detection limit.

Date Reported: 8/13/84

S.C. McLendon, P.E., Lab Director

H2M
Environmental Engineers & Scientists
HOLZMACHER, McLENDON and MURRELL, P.C.
575 BROAD HOLLOW ROAD, MELVILLE, NEW YORK 11747 (516) 694-3040
WATER RESOURCES • WATER SUPPLY & TREATMENT • SEWERAGE & TREATMENT • ECOLOGICAL & IMPACT STUDIES
MODEL STUDIES • PILOT PLANT STUDIES • WATER/WASTE WATER LABORATORY AND ANALYTICAL SERVICES

LABORATORY REPORT

5/.022

LAB NO. 45170

PROJECT NO. 2C

CLIENT'S NAME AND ADDRESS

N.Y.S. DEPT. OF ENV. CONS.
50 WOLF ROAD
ALBANY, NY 12233

TYPE OF SAMPLE - MISCELLANEOUS
DATE COLLECTED - 4/ 2/84
COLLECTED BY PH
DATE RECEIVED - 4/ 2/84

PRIORITY POLLUTANT METALS & CYANIDE & PHENOL
DEC.ID #R-184-305-01
LIQUID SAMPLE

RECEIVED
JUL 13 1984
BUREAU OF WATER RESEARCH
DIVISION OF PURE WATERS

PARAMETER	RESULT	PARAMETER	RESULT
ANTIMONY	<0.20	SELENIUM	<4.00#
ARSENIC	<2.00#	SILVER	<0.02
BERYLLIUM	<0.02	THALLIUM	<0.20
CADMIUM	<0.02	ZINC	<0.02
CHROMIUM	<0.02	PHENOLS	<1.00#
COPPER	<0.02	CYANIDE	<0.01
LEAD	<2.00#	SPEC. COND.	120.
MERCURY	<0.50#		
NICKEL	<0.02		

ALL RESULTS IN (MG/L) EXCEPT AS NOTED BY # (UG/L) OR % (PERCENT) AND
T.COLI BACT. & FECAL COLI (MPN/100ML)
COLOR, ODOR, TURBIDITY & PH (UNITS)
AFC & FECAL STREP (COUNTS/ML)
SPEC.COND. (UMHOS) SETT.SOLIDS(ML/L)

DATE REPORTED 7/18/84

S. C. McLENDON, P.E., LABORATORY DIRECTOR

0.7 of F

H2M

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS

575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454709
Sample: R-184-305-02
Date Sampled: 4/2/84
Collected By: PH 99

PESTICIDES/PCB PRIORITY POLLUTANTS

Compound	ug/l
a-bhc	ND
g-bhc	ND
b-bhc	ND
Heptachlor	ND
d-bhc	ND
Aldrin	ND
Heptachlor epoxide	ND
Endosulfan I	ND
Dieldrin	ND
4,4'-DDE	ND
Endrin	ND
Endosulfan II	ND
4,4'-DDD	ND
4,4'-DDT	ND
Endrin aldehyde	ND
Endosulfan sulfate	ND
Chlordane	ND
Toxaphene	ND
Aroclor 1016	ND
Aroclor 1221	ND
Aroclor 1232	ND
Aroclor 1242	ND
Aroclor 1248	ND
Aroclor 1254	ND
Aroclor 1260	ND

Method limit of detection: lower than 10 ug/l. (unless otherwise indicated)

Quantification limit: 10 ug/l.

ND - Under detection limit.

Date Reported: 8/17/84

* * * * * * * * * * * *
*
*
* * * * * * * * * * * *

S.C. McLendon, P.E., Lab Director

HOLZMACHER, McLENDON and MURRELL, P.C • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454708
Sample: DEC ID #R-184-305-02
Date Sampled: 4/2/84
Collected By: PH 99

ACID EXTRACTABLE PRIORITY POLLUTANTS

Compound	ug/l
2-Chlorophenol	ND
2-Nitrophenol	ND
Phenol	ND
2,4-Dimethylphenol	ND
2,4-Dichlorophenol	ND
2,4,6-Trichlorophenol	ND
4-Chloro-3-methylphenol	ND
2,4-Dinitrophenol	2) ND
2-Methyl-4,6-dinitrophenol	2) ND
Pentachlorophenol	ND
4-Nitrophenol	1) ND

Method limit of detection: lower than 25 ug/l (unless indicated otherwise)

Quantification limit: 25 ug/l

ND - Under detection limit.

1) Method limit of detection 40 ug/l.

2) Method limit of detection 60 ug/l.

Date Reported: 12/4/84

S.C. McLendon, P.E. Lab Director

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454707
Sample: DEC ID# R-184-305-02
Date Sampled: 4/2/84
Collected By: PH 99

BASE NEUTRAL EXTRACTABLES PRIORITY POLLUTANTS

Compound	ug/l
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Hexachloroethane	ND
Bis(2 chloroethyl) ether	ND
1,2-Dichlorobenzene	ND
Bis(2-chlorisopropyl) ether	ND
N-nitroso-di-n-propyl amine	ND
Nitrobenzene	ND
Hexachlorobutadiene	ND
1,2,4-Trichlorobenzene	ND
Isophorone	ND
Naphthalene	ND
Bis(2-chloroethoxy) methane	ND
Hexachlorocyclopentadiene	ND
Chloronaphthalene	ND
Acenaphthylene	ND
Acenaphthene	ND
Dimethyl phthalate	ND
2,6-Dinitrotoluene	ND
Fluorene	ND
4-Chlorophenyl phenyl ether	ND
2,4-Dinitrotoluene	ND
1,2-Diphenyl hydrazine	ND
Diethyl phthalate	ND

Compound	ug/l
N-Nitrosodiphenylamine	ND
Hexachlorobenzene	ND
4-Bromophenyl phenyl ether	ND
Phenanthrene	ND
Anthracene	ND
Di-n-butyl pthtalate	ND
Fluoroanthene	ND
Pyrene	ND
Benzidine	ND
Butyl benzyl pthalate	ND
Bis(2-ethylhexyl) phthalate	ND
Chrysene	ND
Benzo(a)anthracene	ND
3,3-Dichlorobenzidine	ND
Di-n-octyl phthalate	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Benzo(a)pyrene	ND
1) Indeno(1,2,3-c,d)pyrene	ND
1) Dibenzo(a,h)anthracene	ND
1) Benzo(g,h,i)perylene	ND
n-nitrosodimethylamine	ND

Date Reported: 8/17/84

Method limit of detection: lower than 10 ug/l (unless otherwise indicated)

Quantification limit: 10 ug/l.

ND - Under detection limit.

1) Method limit of detection: lower than 25 ug/l.

S.C. McLendon, P.E. - Lab Director

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454705/454706
Sample: DEC ID# R-184-305-02

Date Sampled: 4/2/84
Collected By: PH 99

PURGEABLE ORGANICS PRIORITY POLLUTANTS

Compound	ug/l
Chloromethane	ND
Bromomethane	ND
Vinyl Chloride	270
Chloroethane	ND
Methylene chloride	ND
Trichlorofluoromethane	ND
1,1-dichloroethene	NA
1,1-dichloroethane	1100
Cis/Trans-1,2-dichloroethene	440
Chloroform	25
1,2-dichloroethane	ND
1,1,1-trichloroethane	NA
Carbon Tetrachloride	ND
Bromodichloromethane	ND
1,2-dichloropropane	ND
Trans-1,3-dichloropropene	ND
Trichloroethene	100
Dibromochloromethane	ND
1,1,2-trichloroethane	ND
Cis-1,3-dichloropropene	ND
Benzene	47
2-chloroethylvinyl ether	ND
Bromoform	ND
1,1,2,2-tetrachloroethane	ND
Tetrachloroethene	170
Toluene	ND
Chlorobenzene	ND
Ethylbenzene	240
Acrolein	1) ND
Acrylonitrile	1) ND

Method limit of detection lower than 10 ug/l.

Quantification limit: 10 ug/l.

ND - Not detected.

1) Method limit of detection: lower than 100 ug/l.

NA - Not analyzed due to high background interference.

Date Reported: 8/13/84

S.C. McLendon, P.E.
Laboratory Director

H2M
Environmental Engineers & Scientists
HOLZMACHER, McLENDON and MURRELL, P.C.
575 BROAD HOLLOW ROAD, MELVILLE, NEW YORK 11747 (516) 694-3040
WATER RESOURCES • WATER SUPPLY & TREATMENT • SEWERAGE & TREATMENT • ECOLOGICAL & IMPACT STUDIES
MODEL STUDIES • PILOT PLANT STUDIES • WATER/WASTE WATER LABORATORY AND ANALYTICAL SERVICES

LABORATORY REPORT

LAB NO. 4547
PROJECT NO. 2C

CLIENT'S NAME AND ADDRESS

N.Y.S. DEPT. OF ENV. CONS.
50 WOLF ROAD
ALBANY, NY 12233

TYPE OF SAMPLE - MISCELLANEOUS
DATE COLLECTED - 4/ 2/84
COLLECTED BY FH
DATE RECEIVED - 4/ 2/84

PRIORITY POLLUTANT METALS & CYANIDE & PHENOL
DEC ID #R-184-305-02
LIQUID SAMPLE

PARAMETER	RESULT	PARAMETER	RESULT
ANTIMONY	<0.20	SELENIUM	<2.00#
ARSENIC	<2.00#	SILVER	<0.02
BERYLLIUM	<0.02	THALLIUM	<0.20
CADMIUM	<0.02	ZINC	<0.02
CHROMIUM	<0.02	PHENOLS	42.0 #
COPPER	0.03	CYANIDE	<0.01
LEAD	<2.00#	SPEC. COND.	175.
MERCURY	1.10#		
NICKEL	<0.02		

ALL RESULTS IN (MG/L) EXCEPT AS NOTED BY # (UG/L) OR % (PERCENT) AND
T.COLI BACT. & FECAL COLI (MPN/100ML)
COLOR, ODOR, TURBIDITY & PH (UNITS)
APC & FECAL STREP (COUNTS/ML)
SPEC.COND. (UMHOS) SETT.SOLIDS(ML/L)

DATE REPORTED 7/12/

S. C. McLENDON, P.E., LABORATORY DIRECTOR

H2M
HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454711/454712
Sample Description: DEC ID# R-184-305-03

Date Sampled: 4/2/84
Collected By: PH 99

PURGEABLE ORGANICS PRIORITY POLLUTANTS

Compound	ug/l
Chloromethane	ND
Bromomethane	ND
Vinyl Chloride	ND
Chloroethane	ND
Methylene chloride	ND
Trichlorofluoromethane	ND
1,1-dichloroethene	NA
1,1-dichloroethane	ND
Cis/Trans-1,2-dichloroethene	ND
Chloroform	ND
1,2-dichloroethane	ND
1,1,1-trichloroethane	NA
Carbon Tetrachloride	ND
Bromodichloromethane	ND
1,2-dichloropropane	ND
Trans-1,3-dichloropropene	ND
Trichloroethene	ND
Dibromochloromethane	ND
1,1,2-trichloroethane	ND
Cis-1,3-dichloropropene	ND
Benzene	ND
2-chloroethylvinyl ether	ND
Bromoform	ND
1,1,2,2-tetrachloroethane	ND
Tetrachloroethene	2) ND
Toluene	ND
Chlorobenzene	ND
Ethylbenzene	ND
Acrolein	1) ND
Acrylonitrile	1) ND

Method limit of detection lower than 10 ug/l.

ND- Under detection limit.

1) Method limit of detection lower than 100 ug/l.

NA - High background interference.

2) Quantification limit in presence of interference : 30 ug/l.

Date Reported: 8/13/84

S.C. McLendon, P.E.
Laboratory Director

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454713
Sample: DEC ID# R-184-305-03
Date Sampled: 4/2/84
Collected By: SC 99

BASE NEUTRAL EXTRACTABLES PRIORITY POLLUTANTS

Compound	ug/l	Compound	ug/l
1,3-Dichlorobenzene	ND	N-Nitrosodiphenylamine	ND
1,4-Dichlorobenzene	ND	Hexachlorobenzene	ND
Hexachloroethane	ND	4-Bromophenyl phenyl ether	ND
Bis(2 chloroethyl) ether	ND	Phenanthrene	ND
1,2-Dichlorobenzene	ND	Anthracene	ND
Bis(2-chlorisopropyl) ether	ND	Di-n-butyl pthtalate	ND
N-nitroso-di-n-propyl amine	ND	Fluoroanthene	ND
Nitrobenzene	ND	Pyrene	ND
Hexachlorobutadiene	ND	Benzidine	ND
1,2,4-Trichlorobenzene	ND	Butyl benzyl pthalate	ND
Isophorone	ND	2) Bis(2-ethylhexyl) phthalate	ND
Naphthalene	ND	Chrysene	ND
Bis(2-chloroethoxy) methane	ND	Benzo(a)anthracene	ND
Hexachlorocyclopentadiene	ND	3,3-Dichlorobenzidine	ND
Chloronaphthalene	ND	Di-n-octyl phthalate	ND
Acenaphthylene	ND	Benzo(b)fluoranthene	ND
Acenaphthene	ND	Benzo(k)fluoranthene	ND
Dimethyl phthalate	ND	Benzo(a)pyrene	ND
2,6-Dinitrotoluene	ND	1) Indeno(1,2,3-c,d)pyrene	ND
Fluorene	ND	1) Dibenzo(a,h)anthracene	ND
4-Chlorophenyl phenyl ether	ND	1) Benzo(g,h,i)perylene	ND
2,4-Dinitrotoluene	ND	n-nitrosodimethylamine	ND
1,2-Diphenyl hydrazine	ND		
Diethyl phthalate	ND		

Date Reported: 8/14/84

Method limit of detection: lower than 10 ug/l (unless otherwise indicated)

Quantification limit: 10 ug/l.

ND - Under detection limit.

1) Method limit of detection: lower than 25 ug/l.
2) Quantification limit in the presence of interference 120 ug/l.

****

****

S[illegible] P.E. - Lab Director

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454714
Sample: DEC ID# R-184-305-03
Date Sampled: 4/2/84
Collected By: SC 99

ACID EXTRACTABLE PRIORITY POLLUTANTS

Compound	ug/l
2-Chlorophenol	ND
2-Nitrophenol	ND
Phenol	ND
2,4-Dimethylphenol	ND
2,4-Dichlorophenol	ND
2,4,6-Trichlorophenol	ND
4-Chloro-3-methylphenol	ND
2,4-Dinitrophenol	2) ND
2-Methyl-4,6-dinitrophenol	2) ND
Pentachlorophenol	ND
4-Nitrophenol	1) ND

Method limit of detection: lower than 25 ug/l (unless indicated otherwise)

Quantification limit: 25 ug/l

ND - Under detection limit.

1) Method limit of detection 40 ug/l.

2) Method limit of detection 60 ug/l.

Date Reported: 8/14/84

S.C. McLendon, P.E. Lab Director

HOLZMACHER, McLENDON and MURRELL, P.C. • CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
575 BROAD HOLLOW ROAD, MELVILLE, N.Y. 11747 • 516-694-3040

CLIENT NAME AND ADDRESS

N.Y.S. DEC
50 Wolf Road
Albany, NY 12233

Lab No. 454715
Sample: R-184-305-03
Date Sampled: 4/2/84
Collected By: SC 99

PESTICIDES/PCB PRIORITY POLLUTANTS

Compound	ug/l
a-bhc	ND
g-bhc	ND
b-bhc	ND
Heptachlor	ND
d-bhc	ND
Aldrin	ND
Heptachlor epoxide	ND
Endosulfan I	ND
Dieldrin	ND
4,4'-DDE	ND
Endrin	ND
Endosulfan II	ND
4,4'-DDD	ND
4,4'-DDT	ND
Endrin aldehyde	ND
Endosulfan sulfate	ND
Chlordane	ND
Toxaphene	ND
Aroclor 1016	ND
Aroclor 1221	ND
Aroclor 1232	ND
Aroclor 1242	ND
Aroclor 1248	ND
Aroclor 1254	ND
Aroclor 1260	ND

Method limit of detection: lower than 10 ug/l. (unless otherwise indicated)

Quantification limit: 10 ug/l.

ND - Under detection limit.

Date Reported: 8/14/84

S.C. McLendon, P.E., Lab Director

H2M
Environmental Engineers & Scientists
HOLZMACHER, McLENDON and MURRELL, P.C
575 BROAD HOLLOW ROAD, MELVILLE, NEW YORK 11747 (516) 694-3040

...TER RESOURCES • WATER SUPPLY & TREATMENT • SEWERAGE & TREATMENT • ECOLOGICAL & IMPACT STUDIES
MODEL STUDIES • PILOT PLANT STUDIES • WATER/WASTE WATER LABORATORY AND ANALYTICAL SERVICES

LABORATORY REPORT

S/H

LAB NO. 15[illegible]

PROJECT NO. 2C

CLIENT'S NAME AND ADDRESS

N.Y.S. DEPT. OF ENV. CONS.

50 WOLF ROAD

ALBANY, NY 12233

TYPE OF SAMPLE - MISCELLANEOUS — COLLECTED BY SC 4/99

DATE COLLECTED - 4/ 2/84 — DATE RECEIVED - 4/ 2/84

PRIORITY POLLUTANT METALS & CYANIDE & PHENOL
DEC ID #R-184-305-03
LIQUID SAMPLE

PARAMETER	RESULT	PARAMETER	RESULT
ANTIMONY	<0.20	SELENIUM	<2.00#
ARSENIC	<2.00#	SILVER	<0.02
BERYLLIUM	<0.02	THALLIUM	<0.20
CADMIUM	<0.02	ZINC	0.90
CHROMIUM	<0.02	PHENOLS	<1.00#
COPPER	0.02	CYANIDE	<5.00#
LEAD	<2.00#	SPEC. COND.	130.
MERCURY	2.00#		
NICKEL	<0.02		

[illegible] APR 12 [illegible]

SOLID WASTE MANAGEMENT
DEC [illegible]

ALL RESULTS IN (MG/L) EXCEPT AS NOTED BY # (UG/L) OR % (PERCENT) AND
T.COLI BACT. & FECAL COLI (MPN/100ML)
COLOR, ODOR, TURBIDITY & PH (UNITS)
APC & FECAL STREP (COUNTS/ML)
SPEC.COND. (UMHOS) SETT.SOLIDS(ML/L)

DATE REPORTED 6/29/84

S. C. McLENDON, LABORATORY DIRECTOR

0.17417

Appendix 1.1-96

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

COMMUNICATIONS RECORD FORM

Distribution: ( ) _____, ( ) _____
( ) _____, ( ) _____
( ) Author

Person Contacted: Steve Carey Date: 22 May 1987

Phone Number: (516) 348-2893 Title: Supervisor, Groundwater Resources

Affiliation: SCDHS Type of Contact: Telephone

Address: 225 Rabro Drive East Person Making Contact: E. Metzger
Hauppauge, NY 11788

Communications Summary: Steve has talked with the individual who sampled the three wells in April 1984 at the Smithtown MSF and he cannot remember which wells they were. Steve does believe they were all downgradient of the facility.

(see over for additional space)

Signature: Ellen B. Metzger

File Appendix 1.1-10

Received from
NYDEC Bureau of Landfills

Ted Sanford, Region 1
Larry Rosenmann, Bureau of Municipal Waste
Monitor Wells at the Smithtown Sanitary Landfill

February 4, 1985

In my review of the data accompanying Phil Barbato's January 11, 1985 memo on the Smithtown Landfill, it became apparent that the seven wells now at the site are insufficient to detect if leachate is escaping from the existing and planned future waste cells. Two of the down gradient wells Nos. 4 and 5 are screened in an interval approximately 10-20 feet below the surface of the water table in the upper glacial aquifer. The third down gradient well is screened in an interval 25-35 feet below the top of the water table. The remaining portions of the upper glacial aquifer and the lower magothy aquifer are not monitored at all so that a bottom seeking contaminant plume is apt to go undetected.

It is recommended that cluster wells screened in the Magothy aquifer and at varying elevations in the upper glacial aquifer be installed at least for each of the existing well sites and in several additional areas if the landfill is to be expanded towards the east. These wells could obviously be useful for both water quality sampling and any planned flow direction study associated with any work done to support a zone change.

cc: Phil Barbato
bcc: David O'Toole
Earl Barcomb
Hans Dirzuweit
Dennis Wolterding
File
LAR:alw

~~Hans Dirzuweit~~

Appendix 1.1-11

p 1 of 6

Received from
NYDEC Bureau of Landfills

Daniel Halton, Director, Bureau of Water Resources
David O'Toole, Chief, Bureau of Municipal Waste
Hydrogeologic Zone Classification Vicinity of Smithtown Landfill, Suffolk County
February 4, 1985

Bureau of Municipal Waste (BMW) geological staff have reviewed the monitoring well data submitted by the Town of Smithtown in support of its request to reclassify the hydrogeologic zone boundary at the Smithtown Landfill from its currently mapped designation of Zone I. For the reasons explained in the attached memorandum (Rosenmann to O'Toole 01/31/85), the data is wholly inadequate from a technical perspective for sustaining any reclassification. While recommendations for approaching this problem are put forth by BMW staff, the question of any alteration in the Long Island hydrogeologic zones - as we discussed on 01/28/85 - is properly one within the purview of the Division of Water. I trust the attached analysis will aid decision making on this question, but please call Mr. Rosenmann or me (457-2051) if further information is required.

cc: P. Barbato
T. Sanford

bcc: Michael O'Toole
Earl Barcomb
Hans Dirzuweit
Dennis Wolterding
Larry Rosenmann

jlc

New York State Department of Environmental Conservation

MEMORANDUM

TO: David O'Toole
FROM: Larry Rosenmann
SUBJECT: Hydrogeologic Zone Boundary - Vicinity of Smithtown Landfill
DATE: February 4, 1985

This memorandum is written in response to Philip Barbato's memo dated January 11, 1985 which requests suggestions for investigative procedures to define further the location of the hydrogeologic zone boundary between the deep flow recharge area and the shallow flow recharge area in the vicinity of the Smithtown Landfill. (Attachment 1)

Summary

The memo proposes ways of distinguishing the deep flow recharge areas from those of shallow flow and outlines the basic method for obtaining the relevant data to make the determination.

The recommendations are, of course, only suggestions since the authority to relocate these zonal boundaries lies with the NYSDEC Division of Water, in concert with Region 1 and the Nassau-Suffolk Regional Planning Board (208 Technical Advisory Committee).

As currently mapped the Smithtown Landfill is located in Hydrogeologic Zone 1, a deep flow recharge area. The well data included with the January 11, 1985 memo is totally insufficient to make any determination regarding reclassification. The locations of the screens on the presently existing wells all appear to be at roughly the same level and therefore, do not allow for the determination of vertical components of flow. Further, the spatial distribution of the array does not permit sufficient areal coverage to define a linear boundary.

Criterion for Distinguishing Flow Regimes

Criteria for distinguishing the deep flow recharge areas (Hydrogeologic Zones 1 - 3) from the shallow flow areas (Zones 4 - 8) are given in Volume I (pages 44-46; 188-189) and Volume II (pages 88-90) of the Long Island Comprehensive Waste Treatment Managment Plan (L.I.R.P.B. 1978). These are further discussed and clarified in the Minutes of a 208 Technical Advisory Committee (TAC) meeting held on October 6, 1980 and entitled, "Notes on Location of Hydrogeologic Zone Boundaries."

The basic criterion adduced by the TAC (10/6/80, Item 2) for distinguishing a deep flow recharge area from a shallow flow area is the occurrence in the former of a vertical downward (recharge) component of groundwater flow to the Magothy Aquifer. To quote the TAC, "The presence of a vertical Magothy recharge flow regime is identified by

potentiometric measurements made in the Upper Glacial aquifer and the Magothy aquifer. Furthermore, since the upper surface of the Magothy aquifer is frequently ill-defined, the potentiometric measurements must be made as close as possible to its lower surface. Vertical recharge flow is indicated when the values measured in the Upper Glacial aquifer are greater than those measured in the lower Magothy." (underlining added) Conversely, when the potentiometric surface of the Magothy as judged by appropriately screened piezometers equals or exceeds that of the water table (in the Upper Glacial Aquifer), a recharge component to the Magothy does not exist and the area shows characteristics of the shallow flow regime (Zones 4 - 8).

In recognition of the dynamic nature of Long Island's groundwater system where the point of transition from a vertical recharge flow regime to a horizontal (shallow) flow regime can change seasonally or cyclically depending upon the net water balance of the system, the TAC further concluded (10/6/80, Item 3) that "...prudence dictated that the vertical recharge flow zone boundaries should be set conservatively, that is at the location of their apparently furthest excursion shoreward, since that location represents the time of maximum recharge to the Magothy." Simply stated - if an area shows a vertical groundwater flow component at any time, it is to be included within the deep flow recharge area.

The groundwater elevations included with the 1/11/85 memo appear to reflect only the water levels of the upper glacial aquifer. In order to determine whether vertical flow is present in the area of the Smithtown Landfill, the water level in the lower Magothy aquifer must be determined for comparison to the water level in the upper aquifer. In approaching this problem, the Town of Smithtown may wish to begin with a literature search to see if nearby deep wells exist. The existing data may be sufficient to show the presence of strong vertical groundwater flow components in which case any additional efforts to prove the contrary will be a futile exercise. Obviously, evaluation of the literature data and all subsequent studies should be conducted by or in cooperation with a qualified hydrogeologist.

Due to the location of the site well within the mapped Hydrogeologic Zone 1, it is anticipated that if shallow flow occurs at all beneath the site it may be only a temporary phenomenon (probably during times of lowest recharge in the late summer and/or drought conditions). Precise well records over an extended period of time will be needed to positively exclude the possibility of deep flow recharge at the site. If this data is not available from historical hydrographic records at appropriately screened wells, then it will have to be developed. To do this, deep wells to the base of the Magothy aquifer must be drilled adjacent to several of the existing shallow wells to form clusters. Comparison of the water levels between the deep and shallow wells (upper glacial and lower Magothy aquifers) will determine if vertical flow (deep water recharge) is present at the site. As with the literature search, if vertical flow is found to exist, further study would seem to be futile. It should also be pointed out that, thereafter, the well cluster can serve for monitoring groundwater quality at the Smithtown facility in both aquifers.

Once a sufficient data base is built up for these wells (monitoring throughout the year for several years) this data must be correlated with similar data from other nearby wells and adjusted to reflect the effect of periods of maximum recharge. It is recommended that those with the authority to adjust the zonal boundaries be consulted for further recommendations as to how to conduct the investigation, and for the absolute criteria required to make such a change.

Attachment

bcc: P. Barbato
T. Sanford
D. O'Toole
E. Barcomb
H. Dirzuweit
D. Wolterding

jlc

15 (12/75)

New York State Department of Environmental Conservation

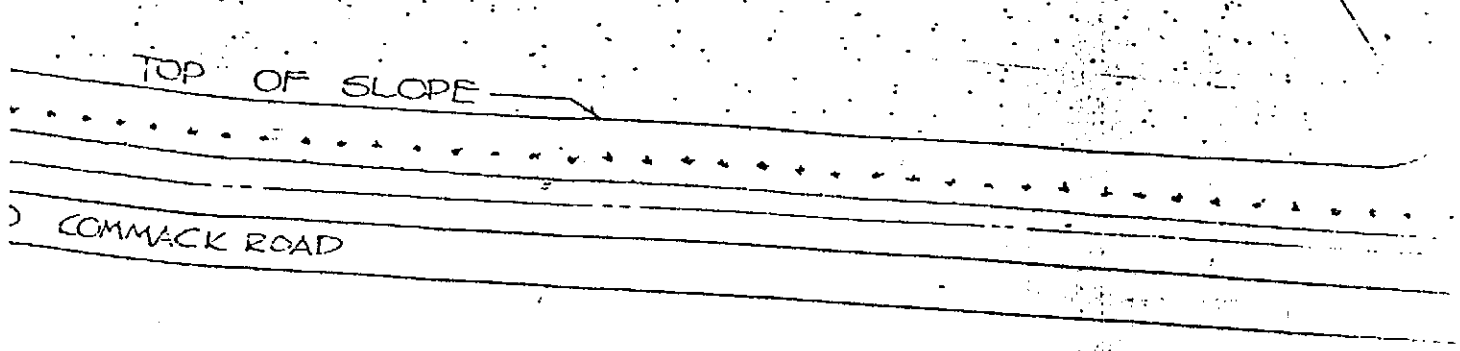
MEMORANDUM

TO: D. O'Toole, D. Halton
FROM: P. Barbato PB
SUBJECT: Hydrogeologic Zone Boundary, Vicinity of Smithtown Landfill

DATE: January 11, 1985

This office has received the attached submission from the Town of Smithtown. It appears to be quite inadequate to evaluate thehydrogeologic classification. In order to assist the Town in performing a proper evaluation, would you kindly provide any suggestions for future work (as was done in the Town of North Hempstead request). We will prepare a response to Smithtown but your assistance will be welcomed.

PB:dm
Attachment
cc: H. Berger
R. Becherer



SURFACE ELEVATION*

149.93
145.92
152.17**
156.89
162.66
168.98**
61.84

noted.

was originally
struction.
operable.
pit. Although
ing well,
to miscellaneous
ss.

GROUNDWATER ELEVATIONS

DATE	LOCATION	ELEVATION
12/5/79	TEST HOLE #1	51.04
"	TEST HOLE #2	51.18
1/4/85	WELL #1	51.09
"	WELL #2	49.54
"	WELL #4	50.14
"	WELL #5	50.16
"	WELL #6	51.19
"	WELL #7	50.85

* ELEVATIONS TO U.S.C.&G. DATUM; ADD 1.11 FEET.

Appendix 1.1-12

p 1 of 2

Received from
NYSDEC Region 1

M E M O R A N D U M
Department of Health Services

TO: Theordore M. Sanford, P.E.
N.Y.S.D.E.C.

FROM: James C. Maloney, P.E.

DATE: August 9, 1985

RE: ODOR COMPLAINTS - KINGS PARK

During the past month, residents in the neighborhood of Marvin Drive and Eugene Drive have been impacted by offensive odors coming from the industrial sources to the south and southeast. Reported occurrences of the mal-odorous conditions were recorded by Diane Nally (see attachment), who lives at 42 Marvin Drive, and who is a member of the Miller Civic Association.

You will note that from July 9th on, reports of nuisance odors have been reported almost daily. Furthermore, it appears that there are two distinctive types of odors: one can be described as cesspool-like odor and the other as garbage odor.

Mr. Williams, of my staff conducted an investigation on August 6 to determine the source of the odors. According to Mr. Williams, the putrescible odors are similar to those coming from the Smithtown Municipal landfill located on East Northport Road and the cesspool-like odor appears to be coming from the property belonging to Northeast Mines (i.e. Steck and Philbin Development Co.).

Based on the frequency of reported odors, it is obvious that a serious nuisance condition exists in this area. It is, therefore, my recommendation that your office begin a detailed investigation of this problem so as to find means to eliminate these offensive odors.

Myself and my staff are at your disposal to assist you in this matter.

JCM:JKW:he
Encl.

cc: Mrs. Nally

Date	Times	Description of Odors
July 8	8:00 P.M. & intermittently through rest of evening	Cesspool
July 9	5:00 A.M.	Garbage
July 10	6:30-8:30 A.M.	Cesspool
July 10	7:00 P.M. through evening	"
July 12	4:00 - 8:00 P.M.	"
July 14	2:30 P.M. & 7:00-8:00 P.M.	"
July 14	11:00 A.M. & for a short period during evening	"
July 15		"
July 20	Morning - 8:30 P.M.	" - H_2S
July 21	12:30 P.M.	" "
July 24	6:30 A.M. & 10:00 P.M. on	Garbage - Cesspool
July 26	All day	-
July 27	11:00 P.M.	Cesspool
July 29	9:00 P.M.	-
July 31	11:00 P.M.	-
Aug. 3	Early	Garbage
Aug. 4	1:00 A.M. & 7:30 A.M.	Cesspool
Aug. 6	5:00-5:30 A.M. & 11:00 P.M.	Chemical
Aug. 6	Morning & Afternoon	Both garbage & Cesspool
Aug. 7	Morning & Afternoon	Cesspool

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

Appendix 1.1-13
p 1 of 2

COMMUNICATIONS RECORD FORM

Distribution: (✓ 152044 , ( ) _____
( ) _____ , ( ) _____
( ) Author

Person Contacted: James Pim Date: 12/10/85

Phone Number: (516) 451-4634 Title: Associate Public Health Engineer

Affiliation: SCDHS Type of Contact: T. conversation

Address: 15 Horseblock Place Person Making Contact: Linda Hoffman/Weston
Farmingville NY 11738

Communications Summary: Re Smithtown MSF 152044

Mr. Pim provided the attached as his comment regarding this site.

(see over for additional space)

Signature: R. J. Leighton

SUPER FUND SITE REPORT REVIEW COMMENTS

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES

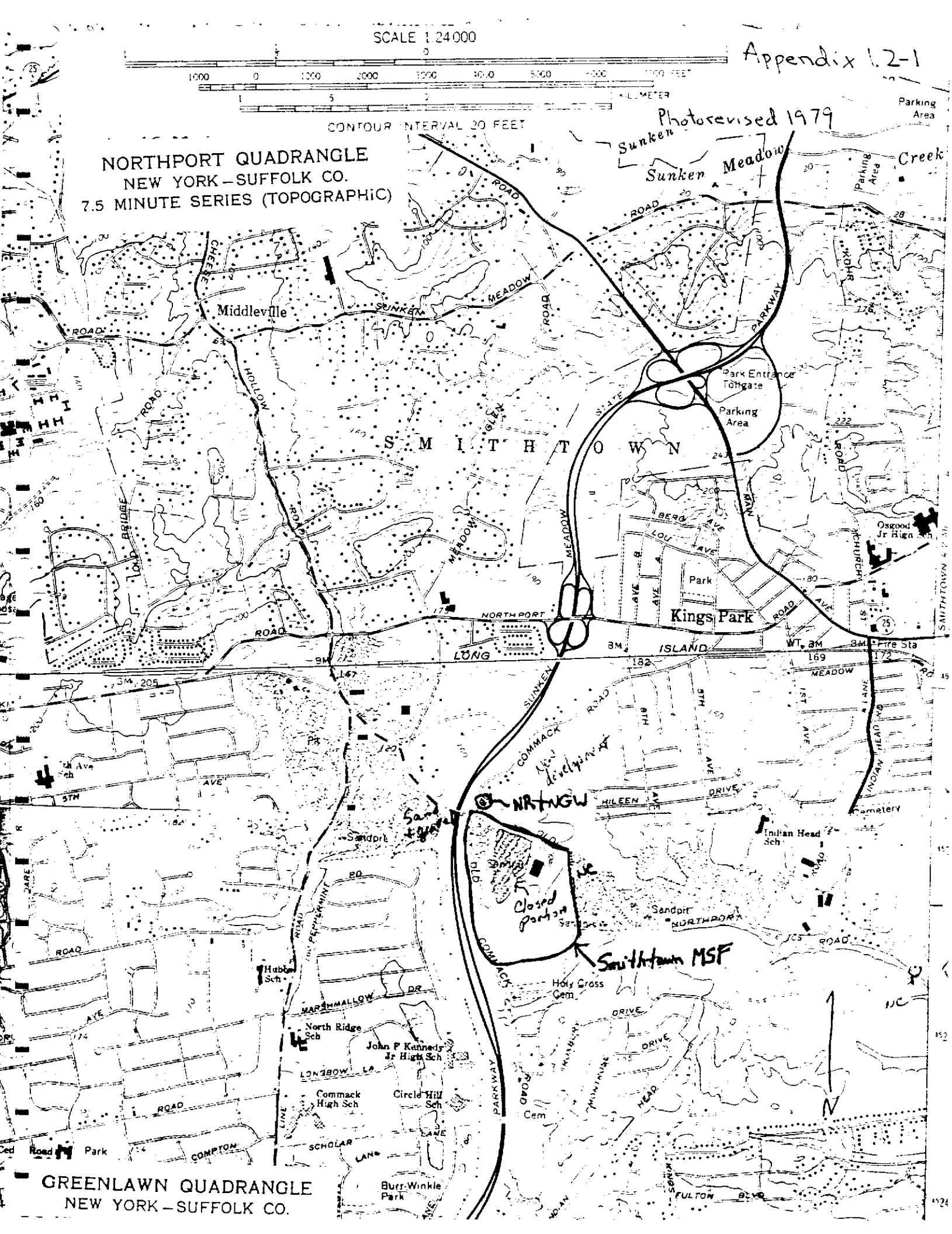
HAZARDOUS MATERIALS MANAGEMENT SECTION

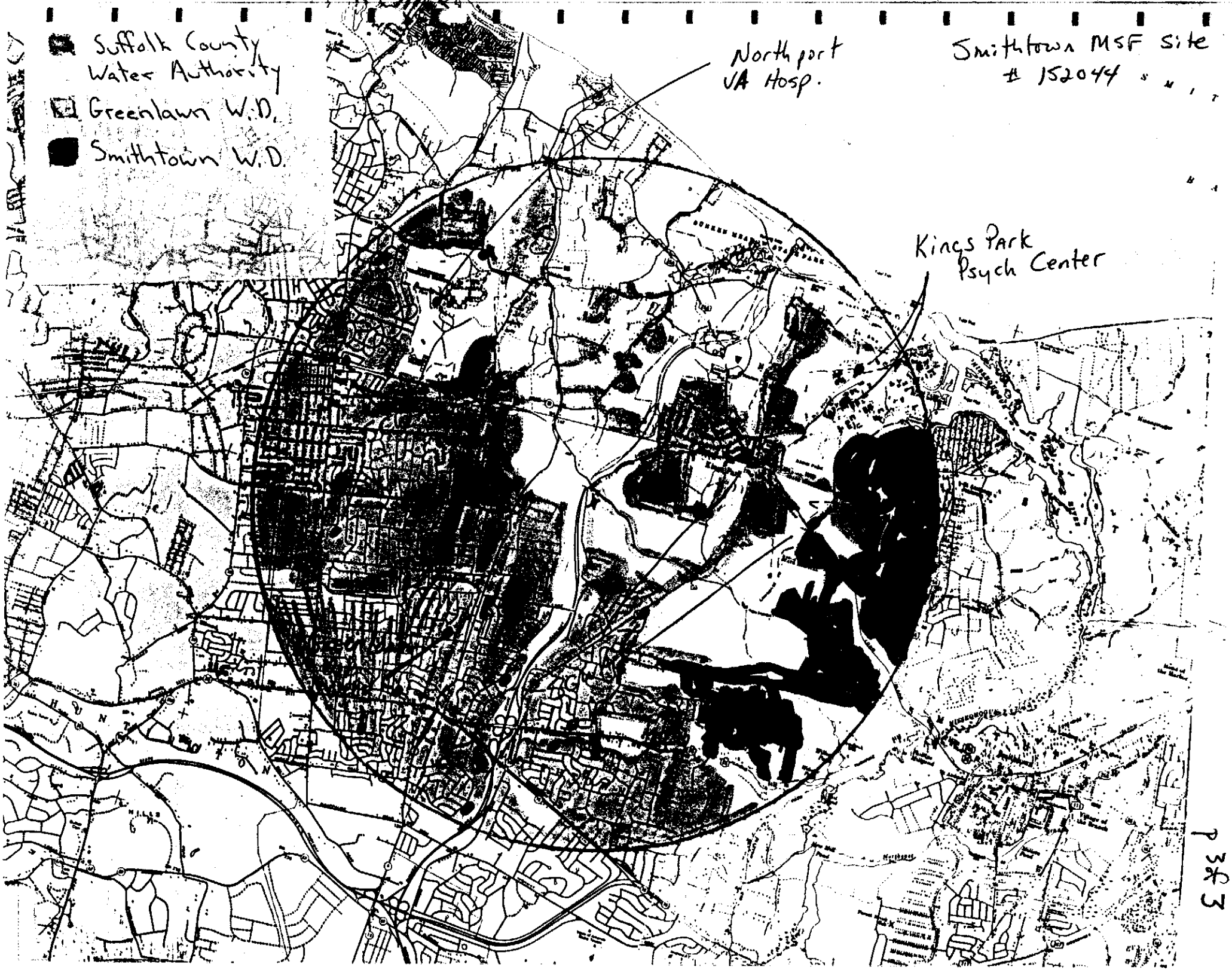
Site Name: Smithtown Landfill (Lacey) N.Y.I.D. # 152...

Report Type: T Contractor LMS EPA ✓ State ____

Date of Report 5/11/83 Date of Review 9/24/84 Reviewer [illegible]

Comments: This is a new lined landfill with no industrial wastes. It should be removed from the list.


Appendix 1.2-1
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
Photorevised 1979
NORTHPORT QUADRANGLE
NEW YORK – SUFFOLK CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
Middleville
SMITHTOWN
Sunken Meadow
Parking Area
Park Entrance Tollgate
Kings Park
NORTHPORT
LONG ISLAND
Osgood Jr High Sch
Fire Sta
NRTNGW
Closed Portion
Smithtown MSF
Sandpit
Indian Head Sch
Cemetery
Holy Cross Cem
Hubbard Sch
North Ridge Sch
John F Kennedy Jr High Sch
Commack High Sch
Circle Hill Sch
Burr-Winkle Park
GREENLAWN QUADRANGLE
NEW YORK – SUFFOLK CO.


Suffolk County Water Authority
Greenlawn W.D.
Smithtown W.D.
Northport VA Hosp.
Smithtown MSF Site # 152044
Kings Park Psych Center

Appendix 1.4-1

TOWN OF SMITHTOWN

SUPERVISOR
PATRICK R. VECCHIO

516 360-7550

ENGINEERING DEPARTMENT
DONAL A. DEVINE
TOWN ENGINEER

COUNCILMEN
EUGENE A. CANNATARO
~~XXXXXXXXXX~~ Ira Block
JOAN M. FRANKE
~~XXXXXXXXXX~~ Bradley Harris

p 1 of 5

RECEIVED
MAY 21 1980
ENVIRONMENTAL QUALITY
REGION 1

May 20, 1980

Mr. Paul Lappano
Assistant Sanitary Engineer
N.Y.S. Department of Environmental Conservation
SUNY, Building 40
Stony Brook, New York 11790

Dear Mr. Lappano:

Enclosed please find four (4) copies of our leachate analysis from January through April 1980, as per our discussion of Friday, May 16th.

Very truly yours,

Paul Schettini

Paul Schettini
Assistant Civil Engineer

PS:apl

PEDNEAULT ASSOCIATES
TESTING LABORATORIES
(516) 223-1918
101 SOUTH BERGEN PLACE
FREEPORT, N.Y. 11520

April 24, 1980

TO: Town of Smithtown
124 West Main Street
Smithtown, New York 11787

Date: Collected 4/8/80 Analyzed 4/15/80 Report 4/24/80

Sampling Point

1. Leachate sample dated 4/ /80
2.
3.
4.
5.

Parameters		1	2	3	4	5
BOD	mg/l	2500				
Suspended Solid	mg/l	66				
pH		7.2				
Nitrate	mg/l	1.25				
Ammonia	mg/l	413.0				
Organic Nitrogen	mg/l	236				
Arsenic	mg/l	<0.01				
Iron	mg/l	27.2				
Zinc	mg/l	0.39				
Cadmium	mg/l	0.02				
Lead	mg/l	<0.01				
Nickel	mg/l	0.27				
Silver	mg/l	<0.01				
Manganese	mg/l	2.3				
Chromium	mg/l	<0.01				
Copper	mg/l	0.08				

Lab Number 19346

JOHN PEDNEAULT
Lab Director

PEDNEAULT ASSOCIATES
TESTING LABORATORIES
(516) 223-1918
101 SOUTH BERGEN PLACE
FREEPORT, N.Y. 11520

April 2, 1980

p 3 of 5

TO: Town of Smithtown
124 West Main Street
Smithtown, New York 11787

Date: Collected 3/13/80 Analyzed 3/19/80 Report 4/2/80

Sampling Point

1. Leachate sample dated 3/13
2.
3.
4.
5.

Parameters		1	2	3	4	5
BOD	mg/l	2310				
Suspended Solids	mg/l	29				
pH		7.3				
Iron	mg/l	24.00				
Zinc	mg/l	0.21				
Cadmium	mg/l	< 0.01				
Lead	mg/l	< 0.01				
Nickel	mg/l	0.07				
Silver	mg/l	< 0.01				
Manganese	mg/l	2.47				
Chromium	mg/l	< 0.01				
Copper	mg/l	< 0.01				
Nitrate	mg/l	1.55				
Ammonia	mg/l	514.0				
Organic Nitrogen	mg/l	436.0				
Arsenic	mg/l	< 0.01				

JOHN PEDNEAULT
Lab Director

ENGINEERING DEPT.
RECEIVED
APR - 7 1980

Lab Number 19222

PEDNEAULT ASSOCIATES
TESTING LABORATORIES
(516) 223-1918
101 SOUTH BERGEN PLACE
FREEPORT, N. Y. 11520

March 5, 1980

p 4 of 5

TO: Town of Smithtown
124 West Main Street
Smithtown, New York 11787

Date: Collected 2/5/80 Analyzed 2/15-20/80 Report 3/5/80

Sampling Point	
1.	Leachate Study
2.	
3.	
4.	
5.	

Parameters		1	2	3	4	5
BOD	mg/l	3100				
Suspended Solids	mg/l	400				
pH		7.4				
Iron	mg/l	32.65				
Zinc	mg/l	0.02				
Cadmium	mg/l	0.01				
Lead	mg/l	< 0.01				
Nickel	mg/l	< 0.01				
Silver	mg/l	< 0.01				
Manganese	mg/l	6.71				
Chromium	mg/l	0.04				
Copper	mg/l	< 0.01				
Nitrates	mg/l	5.4				
Ammonia	mg/l	515.0				
Organic Nitrogen	mg/l	456.0				
Arsenic	mg/l	< 0.01				

19088

JOHN PEDNEAULT
Lab Director

PEDNEAULT ASSOCIATES
TESTING LABORATORIES
(516) 223-1918
101 SOUTH SERGEN PLACE
FREEPORT, N. Y. 11520

January 11, 1980

p 5 of 5

TO: Town of Smithtown
124 W. Main Street
Smithtown, New York 11787

Date: Collected 1/3/80 Analyzed 1/3-9/80 Report 1/11/80

Sampling Point

1. Lechate study
2.
3.
4.
5.

Parameters		1	2	3	4	5
BOD	mg/l	2541				
Suspended Solids	mg/l	440				
pH		6.9				
Iron	mg/l	26.14				
Zinc	mg/l	0.29				
Cadmium	mg/l	<0.01				
Lead	mg/l	<0.01				
Nickel	mg/l	<0.01				
Silver	mg/l	7.58				
Manganese	mg/l	1.18				
Chromium	mg/l	<0.01				
Copper	mg/l	<0.01				
Nitrate	mg/l	2.6				
Ammonia	mg/l	443				
Organic Nitrogen	mg/l	427				

ARSENIC mg/l <0.01

JOHN PEDNEAULT
Lab Director

Lab Number 10882

Appendix 1.5-1

p 1 of 3

SUFFOLK COUNTY WATER AUTHORITY

Oakdale, New York

D.C. Hazlitt
516 728-5

ACTIVE SERVICES

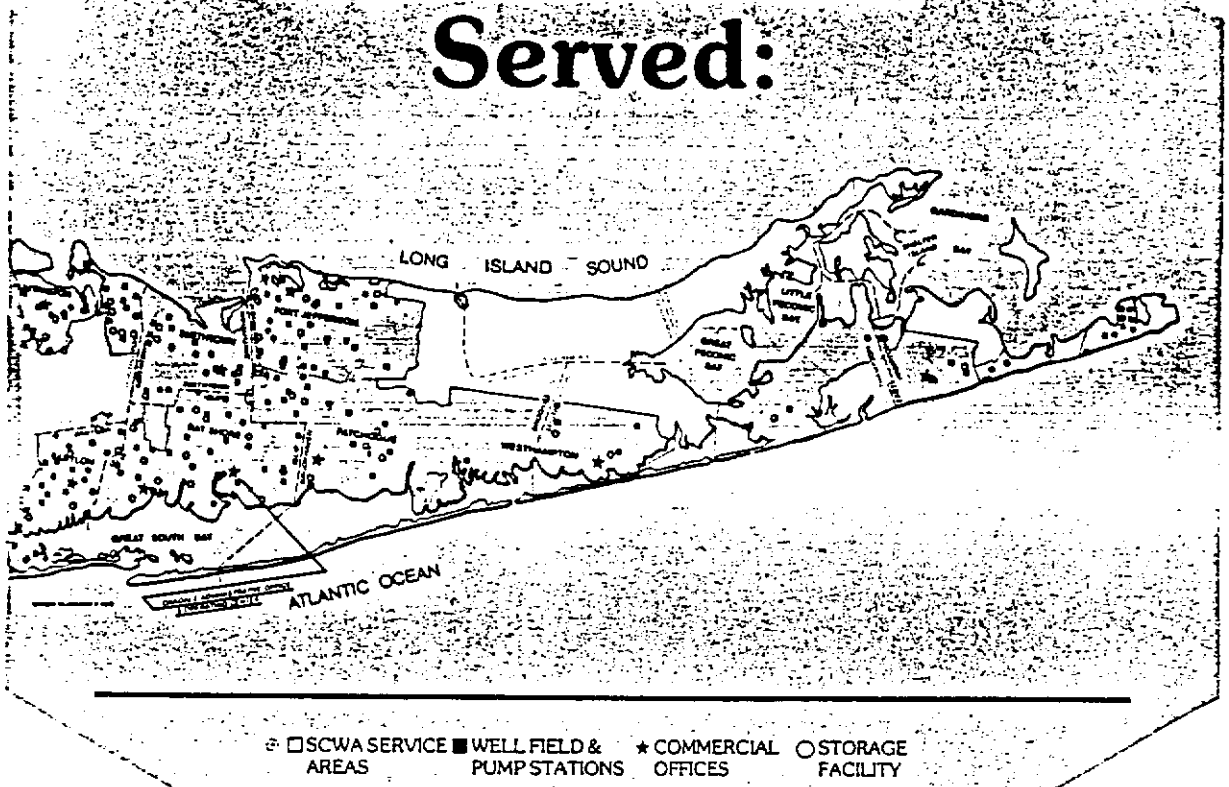
December 1985

DISTRICT OFFICES	1983	1984	1985	Increase or Decrease 1985/84
BABYLON	53 647	53 995	54 655	660
BAY SHORE	46 846	47 269	47 830	561
PATCHOGUE	49 408	51 412	55 104*	3692
HUNTINGTON	28 303	28 530	28 794	264
PORT JEFFERSON	32 881	33 524	34 440	916
SMITHTOWN	22 832	23 257	23 641	384
WESTHAMPTON	4 089	4 451	4 984	533
EAST HAMPTON	10 245	10 523	10 841 of which 1690 service are in the Montauk Section	318
TOTAL FOR AUTHORITY	248 251	252 961	260 289	7328

*Includes 970 Active Services Acquired from Shirley Water Works Co. 3/29/85

cc: Messrs. Hazlitt, Hanrahan, Sidoti, Schickler, Koehler, Dugan, Daly and Cannon
jh - 2/4/86

Communities Served:



SCWA SERVICE AREAS ■ WELL FIELD & PUMP STATIONS ★ COMMERCIAL OFFICES ○ STORAGE FACILITY

BABYLON DISTRICT
Amity Harbor
Amityville
Babylon
Copiague
Deer Park
Dix Hills
Lindenhurst
North Amityville
North Babylon
North Lindenhurst
Pinelawn
West Babylon
Wheatley Heights
Wyandanch

BAY SHORE DISTRICT
Bay Shore
Brentwood
Brightwaters
Central Islip
East Islip
Edgewood
Great River
Islip
Islip Terrace
North Bay Shore
North Great River
Oakdale
West Bay Shore
West Islip

HUNTINGTON DISTRICT
Asharoken
Centerport
Cold Spring Harbor
Commack
Crab Meadow
East Huntington
East Neck
East Northport
Eatons Neck
Fort Salonga
Halesite
Huntington
Huntington Bay
Huntington Station
Lloyd Harbor
Northport

EAST HAMPTON DISTRICT
Amagansett
East Hampton
Freetown
Montauk
North Sea
Sag Harbor
Southampton

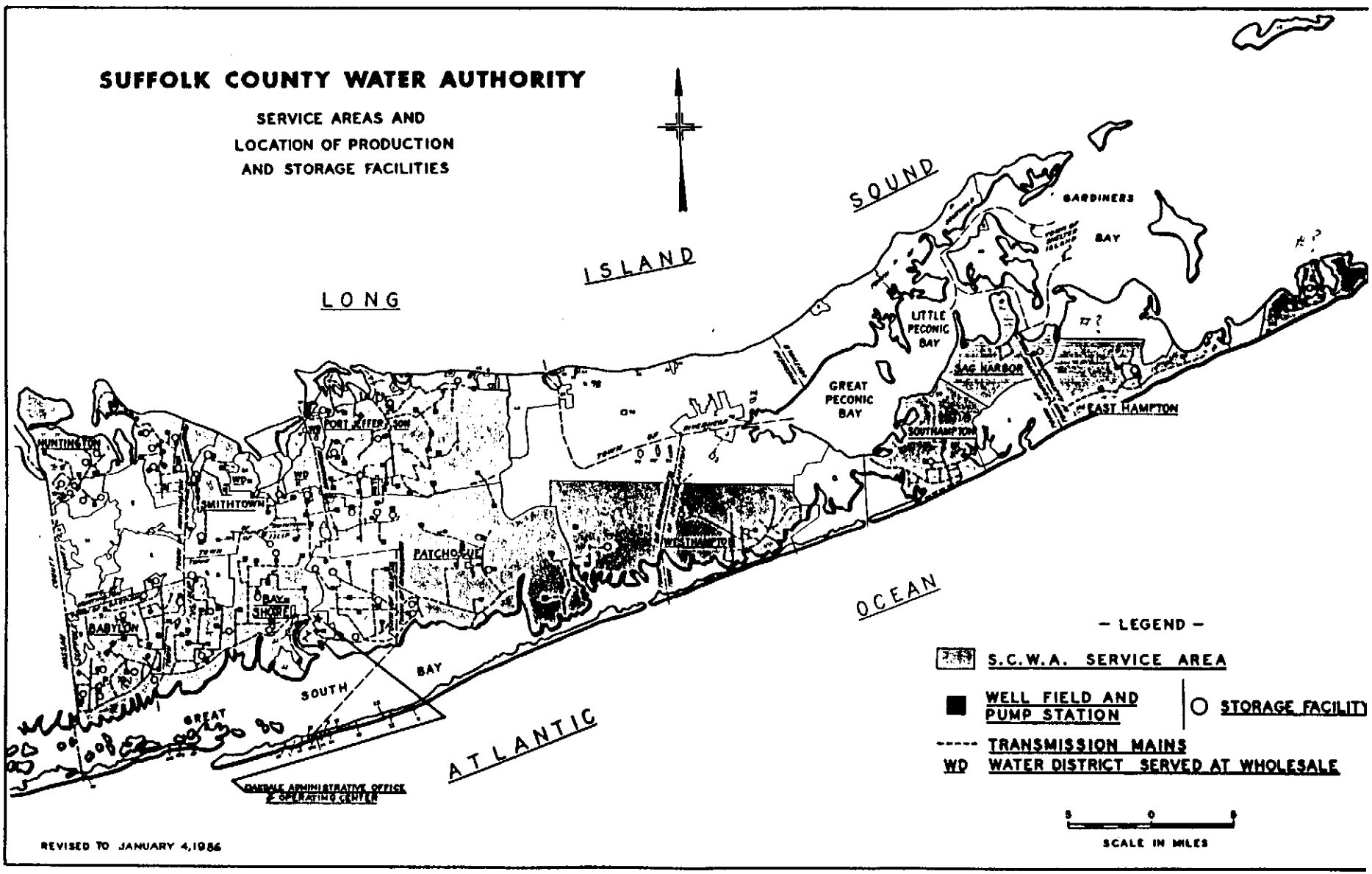
PATCHOGUE DISTRICT
Bayport
Bellport
Blue Point
Bohemia
Brookhaven
Coram
East Holbrook
East Patchogue
Farmingville
Gordon Heights
Holbrook
Holtsville
Lakeland
Lake Ronkonkoma
Mastic
Mastic Beach
Medford
North Bellport
North Patchogue
Patchogue
Ronkonkoma
Sayville
Selden
Shirley
South Centereach
South Holbrook
South Yaphank
West Bellport
West Ronkonkoma
West Sayville
Yaphank

* Included in Wholesale Water District

PORT JEFFERSON DISTRICT
Belle Terre
Centereach
Coram
East Setauket
Lake Grove
Middle Island
Miller Place
Mount Sinai
North Centereach
North Selden
Poquott
Port Jefferson
Port Jefferson Station
Ridge
Rocky Point
Setauket
South Setauket
Sound Beach
South Stony Brook
Stony Brook*
Strongs Neck
Terryville

SMITHTOWN DISTRICT
East Commack
Flowerfield*
Hauppauge
Kings Park
Nesconset
Saint James*
San Remo*
Smithtown
South Hauppauge
West St. James
West Smithtown*
Village of Head of The Harbor
Village of The Branch

WESTHAMPTON DISTRICT
Center Moriches
East Moriches
Eastport
East Quogue
Moriches
South Manor
Quiogue
Quogue
Westhampton
Westhampton Beach


SUFFOLK COUNTY WATER AUTHORITY
SERVICE AREAS AND
LOCATION OF PRODUCTION
AND STORAGE FACILITIES
LONG ISLAND SOUND
GARDINERS BAY
LITTLE PECONIC BAY
GREAT PECONIC BAY
SAG HARBOR
EAST HAMPTON
SOUTHAMPTON
WESTHAMPTON
HUNTINGTON
PORT JEFFERSON
SMITHTOWN
PATCHOGUE
BAY SHORE
BABYLON
SOUTH
GREAT
BAY
ATLANTIC OCEAN
OAKDALE ADMINISTRATIVE OFFICE & OPERATING CENTER
REVISED TO JANUARY 4,1986
- LEGEND -
S.C.W.A. SERVICE AREA
WELL FIELD AND PUMP STATION
STORAGE FACILITY
TRANSMISSION MAINS
WD WATER DISTRICT SERVED AT WHOLESALE
SCALE IN MILES

RECEIVED MAR 17 1986

Appendix 1.5-2

SIDNEY B. BOWNE & SON

Consulting Engineers

235 E. Jericho Turnpike
P.O. Box 109
Mineola, New York 11501
(516) 746-2350

March 13, 1986

RECEIVED MAR 17 1986

EA Science & Technology
RD 2, Box 92
Goshen Turnpike
Middletown, New York 10940

Attention: Ellen Bidwell

Re: Greenlawn Water District

Dear Ms. Bidwell:

With reference to your letter of February 28, 1986 to William Sullivan of the Greenlawn Water District, we are enclosing copies of the well logs for the wells you requested. Also included is a copy of the distribution map of the District. The total population served by the District is approximately 40,000 people.

We hope this information is helpful to you.

Very truly yours,

SIDNEY B. BOWNE & SON
CONSULTING ENGINEERS

ROBERT E. ULREICH

REU:kns
cc: William Sullivan

Appendix 1.5-3

United States Department of Agriculture

Soil Conservation Service

127 East Main Street
Riverhead, New York 11901

March 13, 1986

Mr. William L. Going, Manager
Environmental Assessment Studies
EA Science and Technology
R.D. 2, Box 91
Middletown, New York 10940

Dear Mr. Going:

This office has not compiled any information on the number of acres irrigated based on specific locations in Suffolk County. The 1982 Census of Agriculture estimates that 23,232 acres are irrigated on 500 farms, however, the specific locations of this acreage is not readily available.

The major source of irrigation water in Suffolk County is groundwater through wells. There are literally thousands of wells scattered throughout the county. To locate wells within a three mile radius of the inactive hazardous waste sites would be an impossible task.

Just to inventory the irrigated acres in proximity to these sites would be very time consuming. I do not have the manpower nor the time at present to accomplish such a task.

I would be more than willing to provide you with access to our aerial photographs, soil maps, topographic surveys and other technical information which might be helpful to you in making this inventory.

If you have any questions or I may be of further assistance, call me at 516-727-2315.

Sincerely,

Allan S. Connell

Allan S. Connell,
District Conservationist

3/26/86 Mr. Connell says that the 23,232 ac/500 farms represent the vast majority ... up to 90% ... for Suffolk Co. and that I can assume all irrigate ... so I will count ag. land & the State (and mi) the irrigated acres.

The Soil Conservation Service is an agency of the

SCS-AS-1
10-79

Appendix 1.5-4

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

COMMUNICATIONS RECORD FORM

Distribution: ( ) Suffolk Co General, ( ) _____
( ) " , ( ) _____
( ) Author

Person Contacted: Mr. Don Fricke Date: 4-7-86

Phone Number: 516 727 7850 Title: Coop Ext. Ag. Agent

Affiliation: Suffolk Co. Coop Ext. Assn. Type of Contact: Phone

Address: 264 Griffing Ave. Person Making Contact: Bud
Riverhead NY

Communications Summary: I asked Don question about irrigation practices in Suffolk Co. ie could Coop Ext. identify sources of irrigation water (well + surface) and still use for all irrigated ~~crops~~ acreage... which was in food production or dairy farms?

He said that all irrigation wells were supposed to be registered ~~to~~ with the State and that perhaps SCDHS had the maps to indicate location and number (#) (Joe Bair?) or (Steve Craig)

* He said there was no surface water used for irrigation on the Island.

He said that once we had located all the wells within required distance of sites; we would have to talk to Coop Ext about each well to find out about the use of the land; very time consuming process.

(see over for additional space)

Signature: William Geary

Appendix 1.5-5

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

COMMUNICATIONS RECORD FORM

Distribution: ( ) Suffolk Co. General Files
( ) " , ( )
( ) Author

Person Contacted: Steve Carey Date: 4-7-86

Phone Number: 516 348 2893 Title: Chief

Affiliation: SCDHS Groundwater Section Type of Contact: Phone

Address: 225 Rabro Dr. Person Making Contact: Bud Haring
Hauppauge, NY

Communications Summary: I asked him questions about sources of irrigation water for farmland in food production ---

Steve said well greater than 45 gpm were registered by NYSDEC Reg I except that farms were usually exempted.

He suggested I contact Doug Pica NYSDEC for information.

(see over for additional space)

Signature: William Haring

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

Appendix 1.5-6

COMMUNICATIONS RECORD FORM

Distribution: ( ) Suffolk Co. General Files) _____
( ) _____, ( ) _____
( ) Author

Person Contacted: Mr. Doug Pica Date: 4-7-86

Phone Number: 516 751-7900 Title: _____

Affiliation: NYSDEC Reg 1 Water Unit Type of Contact: Phone

Address: Stonybrook NY Person Making Contact: Bud Young

Communications Summary: I asked questions about irrigation practices on Long Island and about regulations of wells (irrigation supply). Doug said DEC regulated wells that supplied irrigation water to golf courses but did not regulate any farm supply wells because they are exempted from regulation. He therefore has no info on farmland irrigation sources.

(see over for additional space)

Signature: William Young

Appendix 1.5-7

LAND USE 1.5.3

- 1981

Quantification and Analysis of Land Use for Nassau and Suffolk Counties

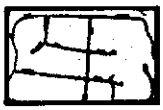
AREAWIDE
WASTE TREATMENT
MANAGEMENT

December 1982

Long Island Regional Planning Board

LEGEND

RESIDENTIAL


1 D.U. & Less/Acre (low density)


2–4 D.U./ Acre


5–10 D.U./ Acre


11 D.U. & Over/Acre (high density)


Commercial


Commercial Recreation


Industrial


Institutional


Open Space & Recreational


Agricultural


Transportation & Utilities


Vacant


LONG ISLAND SOUND
NORTHPORT BAY
Smithtown MSF

Appendix 1.5-8

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

COMMUNICATIONS RECORD FORM

Distribution: ( ) DEC63A, ( ) _____
( ) _____, ( ) _____
( ) Author

Person Contacted: John Ozard Date: 3-6-86

Phone Number: 5184397486 Title: Sr. Wildlife Biologist

Affiliation: NYS DEC Type of Contact: Phone

Address: Delmar NY Person Making Contact: W. Going

Communications Summary: Called John for clarification of the letter, dated 26 February 1986, regarding a "significant habitats" ---

Q. Don't see any reference to Federally listed Threatened or Endangered spp. on any of the 42 site location maps you sent back w your letter -- does this mean there is no habitat of concern for these spp? A. yes --- there is no critical habitat for (Federal spp) at any of the sites being examined.

Q. Are all the wetlands on LI in the vicinity of our sites (refer to location maps) "coastal" wetlands? A. Yes. They all have varying amount of salt being that near the Sound or the Ocean, to be considered coastal wetlands --- also refer to the ("Natural Heritage") wetlands marked in blue.

(see over for additional space)

Signature: William Going

EA SCIENCE AND TECHNOLOGY
A Division of EA Engineering, Science, and Technology, Inc.

Appendix 1.5-9

COMMUNICATIONS RECORD FORM

Distribution: ( ) Smithtown MSF, ( ) _____
( ) _____, ( ) _____
( ) Author

Person Contacted: Mr Al Anderson Date: 4-21-86

Phone Number: 516 360 7539 Title: Chief Fire Inspector

Affiliation: Smithtown Dept Fire Prevention Type of Contact: Phone

Address: 99 West Main St
Smithtown, NY 11787

Person Making Contact: Going

Communications Summary: Mr. Anderson indicated that he had no reason to consider Smithtown MSF on old Northport Rd a threat to the public from fire or explosion hazard.

(see over for additional space)

Signature: William Going

New York State Atlas of Community Water System Sources 1982

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

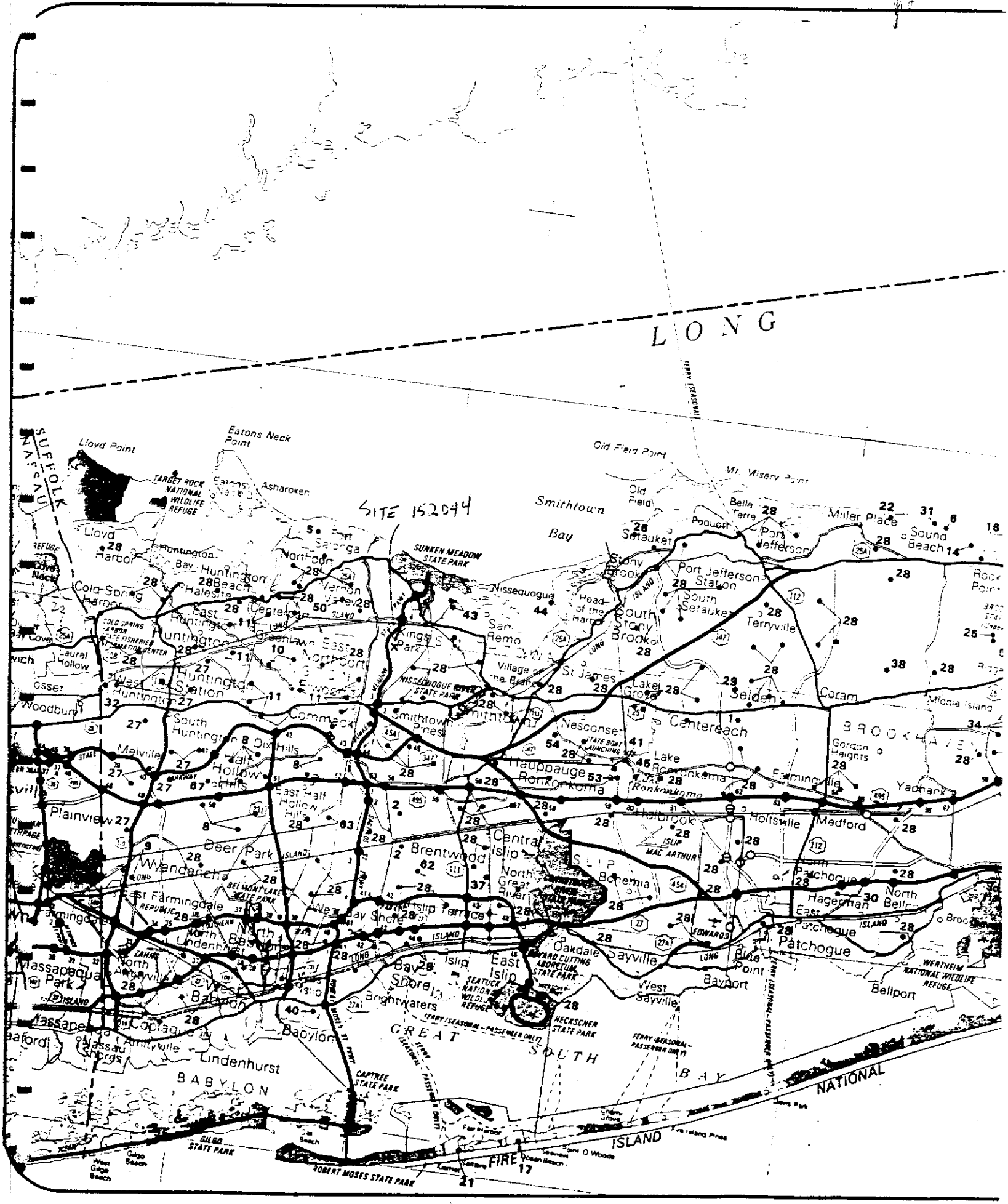
Appendix 1.5-10
p. 1 of 3

SUFFOLK COUNTY

p.343

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
	Municipal Community		
1	Bevon Water Corporation	1150	Wells
2	Brentwood Water District	25812	Wells
3	Bridgehampton Water Company	1916	Wells
4	Captain Kidd Water Company	580	Wells
5	Crab Meadow Beach	50	Wells
6	Culross Corporation (Culross Beach)	104	Wells
7	Dering Harbor Village	130	Wells
8	Dix Hills Water District	30000	Wells
9	East Farmingdale Water District	7850	Wells
10	Fishers Island Water Works Corporation	250	Barlow, Middle Farms and Treasure Ponds, Wells
11	Greenlawn Water District	40000	Wells
12	Greenport Village	6851	Wells
13	Hampton Bays Water District	9500	Wells
14	Hawthorne - Maple Civic Association	50	Wells
15	Herod Point Association	80	Wells
16	North Shores Water Company	5000	Wells
17	Ocean Beach Village	155	Wells
18	Reeves Beach Water Company	650	Wells
19	Riverhead Water District	9300	Wells
20	Roanoke Water Corporation	201	Wells
21	Saltaire Village	35	Wells
22	Scott's Beach Water Company	342	Wells
23	Shelter Island Heights Association	498	Wells
24	Shirley Water Works	3400	Wells
25	Shorewood Water Corporation	10000	Wells
26	Soundview Association	236	Wells
27	South Huntington Water District	51260	Wells
28	Suffolk County Water Authority	900000	Wells
29	Sunhill Water Corporation	3959	Wells
30	Swan Lake Water Corporation	1485	Wells
31	Terrace-on-the-Sound	400	Wells
32	Woodbury Triangle Corporation	800	Wells
	Non-Municipal Community		
33	Aquebogue Mobile Home Court	120	Wells
34	Brookhaven National Labs	3373	Wells
35	Calverton Hills Owners Association	897	Wells
36	Cedar Lodge Nursing Home	100	Wells
37	Central Islip Psychiatric Center	4525	Wells
38	Crest Hall Health Related Facility	120	Wells
39	East Quogue Mobile Estates	160	Wells
40	Good Samaritan Hospital	NA	Wells
41	Greis Mobile Park	70	Wells
42	Hampton Gateway Apartments	304	Wells
43	Kings Park Psychiatric Center	3100	Wells
44	Knox School	NA	Wells
45	Lake Hurst Lodge Adult Home	57	Wells
46	Leier's Mobile Park	350	Wells
47	Little Flower Children's Services	150	Wells
48	Montauk Air Force Station	10	Wells
49	Napeague Trailer Park	78	Wells
50	Northport VA Hospital	3000	Wells
51	Oak Park Trailer Park	50	Wells
52	Oakland Ridge Mobile Park	74	Wells
53	Park Lake Rest Home	46	Wells
54	Peacock Alley	35	Wells
55	Peconic River Trailer Park	90	Wells
56	Peconic View Adult Mobile Home Park	70	Wells
57	Pinecrest Garden Apartments	392	Wells
58	Ramblewood Mobile Homes	210	Wells
59	Ridge Rest Home	58	Wells
60	Rocky Point Family Housing	55	Wells
61	Rollin Mobile Homes	220	Wells
62	St Joseph Convent - Long Island University	1177	Wells
63	Sam A Lewison Start Center	40	Wells
64	South Bay Adult Home	40	Wells
65	Southampton College	1000	Wells
66	Speonk Mobile Home Park	50	Wells
67	Suffolk Developmental Center	3500	Wells
68	Three Mile Harbor Trailer Park	40	Wells
69	Thurm's Mobile Estates	450	Wells
70	USCG Station - Moriches	23	Wells
71	Wes Dubicki Apartments	NA	Wells

LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

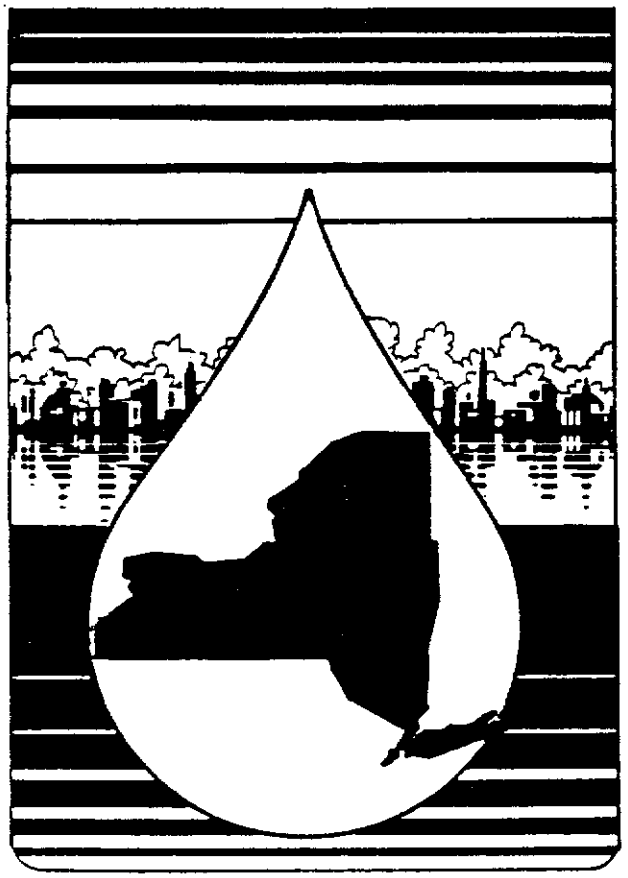


Appendix 1.5-11

3143

NEW YORK STATE DEPARTMENT OF HEALTH

BUREAU OF PUBLIC WATER SUPPLY PROTECTION



INVENTORY —

COMMUNITY WATER SYSTEMS

NEW YORK STATE
VOLUME II - NON-MUNICIPAL

1984

PREPARED BY

NEW YORK STATE DEPARTMENT OF HEALTH
BUREAU OF PUBLIC WATER SUPPLY PROTECTION
EVALUATION AND ENFORCEMENT SECTION

SUPPLYNAME / SUFFOLK COUNTY	SUPPLY LOCATION (TOWN OR CITY)	DR BA	POP'N. SERVED	SOURCE TYPE G	S	P	AVE. DAILY PRODUCTION (GALLONS)	AVE. DAILY CONSUMPTION (GALLONS)	DIST'N. STORAGE (GALLONS)	PERCENT METERED R	C	I
PROGRAM CODE 123 - APARTMENTS												
PEACOCK ALLEY TREATMENT(S): NONE	SMITHTOWN	17	35	1	0	0			200	0	0	0
PINECREST GARDEN APARTMENTS TREATMENT(S): CORROSION CONTROL	RIVERHEAD	17	392	1	0	0	39000	38000	3000	0	0	0
WES DUBICKI APTS TREATMENT(S): NONE	BROOKHAVEN (T)	17	20	1	0	0			120	0	0	0
PROGRAM CODE 150 - NURSING HOMES												
CEDAR LODGE NURSING HOME TREATMENT(S): DISINFECTION	BROOKHAVEN (T)	17	100	2	0	0			5500	0	0	0
CREST HALL HEALTH RELATED FACL TREATMENT(S): DISINFECTION	BROOKHAVEN (T)	17 SEQUESTRATION	120	1	0	0	22000		10000	0	0	0
GOOD SAMARITAN HOSPITAL OF ISL TREATMENT(S): NONE	ISLIP (T)	17	1650	1	0	0				0	0	0
SUFFOLK DEVELOPMENTAL CENTER TREATMENT(S): DISINFECTION	HUNTINGTON (T)	17 SEQUESTRATION	3500	2	0	0	407000	400000	0	0	0	0
PROGRAM CODE 151 - INSTITUTIONS												
CENTRAL ISLIP PSYCHIATRIC CTR TREATMENT(S): DISINFECTION	ISLIP (T)	17 CORROSION CONTROL	4525	1	0	0	900000	900000	1800000	0	0	0
KINGS PARK PSYCHIATRIC CENTER TREATMENT(S): NONE	SMITHTOWN (T)	17	3100	6	0	0	865000	865000	2750000	0	0	0
LAKE HURST LODGE ADULT HOME TREATMENT(S): NONE	BROOKHAVEN (T)	17	57	1	0	0			160	0	0	0
LITTLE FLOWER CHILDREN'S SRVS TREATMENT(S): NONE	RIVERHEAD (T)	17	150	4	0	0	15000	15000	20000	0	0	0
PARK LAKE REST HOME TREATMENT(S): NONE	ISLIP (T)	17	46	1	0	0			120	0	0	0
RIDGE REST HOME TREATMENT(S): SEQUESTRATION	BROOKHAVEN (T)	17	58	1	0	0			1000	1	0	0
SAM A LEWISON START CENTER TREATMENT(S): NONE	HUNTINGTON (T)	17	40	1	0	0			1000	0	0	0
SOUTH BAY ADULT HOME TREATMENT(S): NONE	BROOKHAVEN (T)	17	40	1	0	0			120	0	0	0

	(TOWN OR CITY)	BA	SERVED	TYPE G	TYPE S	TYPE P	PRODUCTION (GALLONS)	CONSUMPTION (GALLONS)	STORAGE (GALLONS)	METERED R	METERED C	METERED I
SUFFOLK COUNTY												
PROGRAM CODE 152 - SCHOOLS												
NUX SCHOOL	SMITHTOWN (T)	17	130	1	0	0			1000	0	0	0
TREATMENT(S): NONE												
T JOSEPH CONVENT LI UNIVERSIT	ISLIP (T)	17	1177	1	0	0	100000	100000	165000	0	0	0
TREATMENT(S): NONE												
PROGRAM CODE 169 - FEDERAL FACILITIES												
BROOKHAVEN NATIONAL LABS	BROOKHAVEN (T)	17	3373	1	0	0	4700000	4200000	300000	0	0	0
TREATMENT(S): DISINFECTION, COAGULATION, FLOCCULATION, AERATION, RAPID SAND FILTRATION, IRON/MANGANESE REMOVAL, CORROSION CONTROL												
NORTHPORT VA HOSPITAL	HUNTINGTON (T)	17	3500	4	0	0	300000	300000	250000	0	0	0
TREATMENT(S): DISINFECTION												
ROCKY POINT FAMILY HOUSING	BROOKHAVEN	17	55	1	0	0			1000	0	0	0
TREATMENT(S): DISINFECTION												
USCG STATION - MORICHES	BROOKHAVEN (T)	17	21	1	0	0			120	0	0	0
TREATMENT(S): DISINFECTION, SOFTENING, IRON/MANGANESE REMOVAL, CORROSION CONTROL												
SULLIVAN COUNTY												
PROGRAM CODE 120 - MOBILE HOMES												
AMBER LIGHT MHP	MAMAKATING (T)	13	25	1	0	0			1500	0	0	0
TREATMENT(S): NONE												
ARTCLIFF MOBILE PARK INC	MAMAKATING (T)	13	28	3	0	0			0	0	0	0
TREATMENT(S): NONE												
AVAIN BATES INC	MAMAKATING (T)	13	50	3	0	0	20000	20000	3500	0	0	0
TREATMENT(S): DISINFECTION												
BIG VALLEY MOBILE ESTATES	MAMAKATING (T)	14	50	1	0	0			1000	0	0	0
TREATMENT(S): NONE												
BLUE SKY MOBILE HOMES INC	MAMAKATING	14	400	2	0	0	14000	12200	2500	100	0	0
TREATMENT(S): NONE												
BROOKSIDE MOBILE PARK	THOMPSON (T)	14	50	2	0	0	6000	6000	1500	0	0	0
TREATMENT(S): NONE												
CAMPSITE 102	THOMPSON (T)	14	30	1	0	0	2500	2500	100	0	0	0
TREATMENT(S): NONE												
DEER PARK TRAILER PARK	FALLSBURG (T)	14	20	1	0	0	600	600	200	0	0	0
TREATMENT(S): NONE												

(47-15-11 (10/83)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SOLID AND HAZARDOUS WASTE

INACTIVE HAZARDOUS WASTE DISPOSAL SITE REPORT

PRIORITY CODE: _____ SITE CODE: 152044

NAME OF SITE: Smithtown MSF REGION: 1

STREET ADDRESS: Old Northport Road

TOWN/CITY: Smithtown COUNTY: Suffolk

NAME OF CURRENT OWNER OF SITE: Town of Smithtown

ADDRESS OF CURRENT OWNER OF SITE: 99 West Main Street, Smithtown, New York 11787

TYPE OF SITE: OPEN DUMP ☐ STRUCTURE ☐ LAGOON ☐

LANDFILL ☒ TREATMENT POND ☐

ESTIMATED SIZE: 23.5 ACRES

SITE DESCRIPTION:

A 23.5-acre landfill located on an 89.7-acre parcel of undeveloped land. The landfill, which began operation in 1978, accepts residential, commercial, and some industrial garbage (industrial paper and cardboard boxes) as well as sludge from the Town's wastewater treatment plant. The facility is comprised of five separate disposal cells, three of which have been closed and capped since July of 1984. The landfill has a double liner with a layer of sand and a leachate collection system between the liners.

HAZARDOUS WASTE DISPOSED: CONFIRMED ☐ SUSPECTED ☐

TYPE AND QUANTITY OF HAZARDOUS WASTES DISPOSED:

TYPE	QUANTITY (POUNDS, DRUMS, TONS, GALLONS)

TIME PERIOD SITE WAS USED FOR HAZARDOUS WASTE DISPOSAL:

_____, 19___ TO _____, 19___

OWNER(S) DURING PERIOD OF USE: Town of Smithtown

SITE OPERATOR DURING PERIOD OF USE: Municipal Services Facility, Town of Smithtown

ADDRESS OF SITE OPERATOR: P.O. Box 575, Smithtown, New York 11787

ANALYTICAL DATA AVAILABLE: AIR ☐ SURFACE WATER ☐ GROUNDWATER ☐
SOIL ☐ SEDIMENT ☐ NONE ☐

CONTRAVENTION OF STANDARDS: GROUNDWATER ☐ DRINKING WATER ☐
SURFACE WATER ☐ AIR ☐

SOIL TYPE: Sand and gravel

DEPTH TO GROUNDWATER TABLE: 110 ft

LEGAL ACTION: TYPE: _____ STATE ☐ FEDERAL ☐
STATUS: IN PROGRESS ☐ COMPLETED ☐
REMEDIAL ACTION: PROPOSED ☐ UNDER DESIGN ☐
IN PROGRESS ☐ COMPLETED ☐

NATURE OF ACTION: _____

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

None known or reported.

ASSESSMENT OF HEALTH PROBLEMS:

None known or reported.

PERSON(S) COMPLETING THIS FORM:

FOR NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NAME EA Science and Technology
TITLE _____
NAME _____
TITLE _____
DATE: 24 February 1987

NEW YORK STATE DEPARTMENT OF HEALTH

NAME _____
TITLE _____
NAME _____
TITLE _____
DATE: _____