Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Mayer Landfill Site

Town of Blooming Grove

Orange County, New York

Site Number 3-36-027

January 2005

New York State Department of Environmental Conservation

GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Mayer Landfill site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Mayer Landfill inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, present a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Mayer Landfill site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Limited Action to Remove Light, Nonaqueous Phase Liquid (LNAPL) and Monitor Groundwater. The components of the remedy are as follows:

1. A remedial design to provide the details necessary for the LNAPL and soil excavation, and the installation of new sentinel monitoring wells;

2. Excavation, offsite disposal and backfill of a small area of LNAPL and soil contaminated with LNAPL to prevent future groundwater contamination;

3. Installation of approximately five new sentinel wells for long-term monitoring of downgradient groundwater quality;

4. An Environmental Easement will be required of the property owner to ensure compliance with the Site Management Plan and the required certification. The easement shall define the landfill site, including a buffer around the perimeter of the waste mass;

5. Since the remedy results in contamination above unrestricted levels remaining at the site, a Site Management Plan (SMP) will be developed and implemented. The SMP will include the following institutional controls and engineering controls: (a) a plan for long-term

groundwater monitoring; (b) maintenance of the existing cover; (c) a plan to manage any development of the landfill that would result in excavation into the existing cover and/or waste; (d) an exclusion against future residential use; and (e) a prohibition against the use of groundwater as a source of potable or process water without necessary water quality treatment; and

6. The SMP will include submission of an Institutional Controls/Engineering Controls (IC/EC) certification, annually or for a period to be approved by the NYSDEC, which would certify that the institutional and engineering controls are unchanged and nothing has occurred that would impair the ability of the controls to protect public health or the environment or constitute a violation or failure to comply with any operation and maintenance or the site management plan.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

JAN 18 2005
Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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Town of Blooming Grove, Orange County, New York
Site No. 3-36-027
December 2004

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Mayer Landfill. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, former landfilling operations have resulted in the disposal of hazardous wastes, including light, nonaqueous phase liquid (LNAPL). These wastes have contaminated groundwater at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to LNAPL and LNAPL-contaminated soil, landfill waste and site groundwater.

To eliminate or mitigate these threats, the NYSDEC has selected the following remedy:

- Excavation, offsite disposal and backfill of a small area of LNAPL and soil contaminated with LNAPL to prevent future groundwater contamination;

- An Environmental Easement will be required of the property owner to ensure compliance with the Site Management Plan and the required certification. The easement shall define the landfill site, including a buffer around the perimeter of the waste mass;

- Since the remedy results in contamination above unrestricted levels remaining at the site, a Site Management Plan (SMP) will be developed and implemented. The SMP will include the following institutional controls and engineering controls: (a) a plan for long-term groundwater monitoring; (b) maintenance of the existing cover; (c) a plan to manage any development of the landfill that would result in excavation into the existing cover and/or waste; (d) an exclusion against future residential use; and (e) a prohibition against the use of groundwater as a source of potable or process water without necessary water quality treatment; and

- The SMP will include submission of an Institutional Controls/Engineering Controls (IC/EC) certification, annually or for a period to be approved by the NYSDEC, which would certify that the institutional and engineering controls are unchanged and nothing

has occurred that would impair the ability of the controls to protect public health or the environment or constitute a violation or failure to comply with any operation and maintenance or the site management plan.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Mayer Landfill is located in a rural/ residential area on Prospect Road in the Town of Blooming Grove, Orange County (see Figure 1). It is situated on a 20-acre parcel of land; however, the waste disposal area covers approximately 10.3 acres. The landfill is overgrown with grasses, scrub brush and small trees, and is surrounded with hardwood forest. The landfill slopes gently to the south and southwest. An intermittent stream runs along the western edge of the landfill and discharges into a pond on Prospect Road, across from the landfill access road. Scrapped vehicles and white goods have been abandoned at various locations along the landfill access road. The nearest residence is located about 750 feet southeast of the site, along Peddler Hill Road. Bull Mine Mountain is located just west of the landfill. Magnetite (iron oxide) was mined there in the 19th century as an iron ore.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The landfill operation began at the site in 1940 as an open-face dump, with periodic burning of refuse. Residential, commercial, industrial, demolition and agricultural waste were allegedly disposed of at the landfill. Part of the landfill was designated as a public dump in 1956. In 1965, after being ordered to stop burning, the operator began compacting and covering refuse. The Orange County Department of Health (OCDOH) cited the landfill for mismanagement many times in the early 1970s. Violations included inadequate compacting and covering of wastes, garbage piled too high and steep, and poor use of space. The landfill ceased operations in April 1975 due to failure to comply with state and county regulations.

3.2: Remedial History

In 1975, the Orange County Department of Health conducted an initial investigation of surface water at the landfill. Analytical results showed elevated levels of zinc in a wet area to the south of the landfill. The NYSDEC listed the site on the New York State Registry of Inactive Hazardous Waste Disposal Sites (the Registry) as a Class 2a site in 1985. Class 2a is a temporary classification assigned to a site that has inadequate and/or insufficient data for inclusion in any of the other classifications. To resolve the class 2a status, a Phase II investigation was conducted at the site from 1989 through 1991. The Phase II investigation found that groundwater standards for several organic compounds were exceeded in one

monitoring well. In 1991, the NYSDEC listed the site as a Class 2 site in the Registry. A Class 2 site is a site where hazardous waste disposal presents a significant threat to the public health or the environment and action is required.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

- Reichhold Chemicals, Inc., which reportedly generated hazardous wastes that were disposed of at the landfill;
- Round Lake Sanitation Corp., which allegedly transported hazardous waste to the landfill;
- Velia Mayer, the former property owner and landfill operator; and
- Johanna and William Mayer, Jr., the current property owners.

The PRPs declined to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the NYSDEC will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to determine the nature and extent of contamination and to evaluate the alternatives for addressing significant threats to human health and/or the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between November 1999 and March 2001. The field activities and findings of the investigation are described in the RI report.

The following activities were conducted during the RI:

- Research of historical information;

- Geophysical survey to determine the lateral extent of waste;

- Excavation of 50 test pits to confirm lateral and vertical extent of waste and obtain soil samples for chemical characterization;

- Collection of three soil gas samples to evaluate the presence of landfill gas and/or VOC contaminated soils and possible vapor exposure pathways;

- Installation of 11 new monitoring wells for chemical analysis of subsurface soils and groundwater as well as hydrogeologic conditions;

- Sampling of 16 new and existing monitoring wells;

- Collection of 10 leachate samples from seeps around the landfill perimeter;

- Collection of 10 surface water and sediment samples from the wetland and stream northwest of the landfill; and

- A survey of residential water supply wells in the area around the site.

A Supplemental Remedial Investigation was conducted in late 2001 and a Supplemental Remedial Investigation Report was completed in April 2002. The following activities were conducted:

- Six additional soil gas samples to evaluate the presence of landfill gas and/or VOC contaminated soils and possible vapor exposure pathways between the landfill and Peddler Hill Road;

- Collection of six sediment samples downstream of the pond. Collection of surface water samples was attempted but could not be collected due to dry conditions;

- Installation of a bedrock monitoring well to further define bedrock groundwater conditions at the southeast corner of the landfill; and

- Installation of four temporary monitoring wells and 13 soil borings to define the extent of LNAPL at MW-4.

To further evaluate the site, additional field activities took place in mid-2003. The results were submitted in the September 2003 Additional Groundwater and Surface Water Sampling Results Report. Sampling activities included:

- Collection of nine groundwater samples, six surface water samples downstream of the pond, four on site surface water samples, two leachate samples and two subsurface soil samples.

To determine whether the groundwater, surface water, leachate, sediment and soil contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on NYSDEC “Ambient Water Quality Standards and Guidance Values” and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the NYSDEC "Technical and Administrative Guidance Memorandum (TAGM) 4046; Determination of Soil Cleanup Objectives and Cleanup Levels."

- Background soil samples were taken from five locations. These locations were outside the landfill perimeter, and were unaffected by historic site operations. The samples were analyzed for inorganic compounds. The results of the analysis were compared to data from the RI to determine appropriate site remediation goals (Table 2).

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the 2001 RI Report, the 2002 Supplemental RI Report and the 2003 Additional Groundwater and Surface Water Results Report.

5.1.1: Site Geology and Hydrogeology

Native overburden material at the site consists of discontinuous layers of sand, silt and clay and a highly-compacted lodgement till. The overburden varies in depth from 14 feet to 60 feet. Bedrock beneath the till is a black-gray shale with abundant calcite (calcium carbonate) veins with traces of pyrite (iron sulfide). The top few feet of the shale are highly weathered.

The landfill covers an area of approximately 10 acres. Test pits were excavated into waste to a maximum depth of 15 feet, however, the bottom of waste was not encountered over most of the landfill.

Shallow groundwater monitoring wells were installed in the overburden unit and into the weathered shale. Depth to groundwater in these wells varies from 2 feet above ground surface (artesian conditions) in MW-7 at the entrance of the access road to12 feet below ground surface (bgs) in MW-12 along the north edge of the landfill (see figure 2). Shallow groundwater appears to flow radially out from the landfill.

Bedrock groundwater monitoring wells were typically installed as open holes in competent shale below the weathered shale zone. Depth to bedrock groundwater varies from about 1 foot above ground surface (artesian conditions) in MW-2 at the west side of the landfill adjacent to the wetland to 27 feet bgs in MW-4D on the northeast edge of the landfill. Bedrock groundwater flows to the northwest.

An intermittent stream occasionally flows north along the base of the western slope of the landfill and discharges into the pond across Prospect Hill Road.

5.1.2: Nature of Contamination

As described in the RI report, many soil, groundwater, surface water, leachate and sediment samples were collected to characterize the nature and extent of contamination. As summarized

in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs) and inorganics (metals). The VOCs that most commonly exceed their SCGs are benzene, chlorobenzene and xylene, detected primarily in site groundwater and leachate. The inorganics that exceed their SCGs in landfill waste samples are arsenic, chromium, copper, iron, lead, manganese, nickel, selenium and zinc.

5.1.3: Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

Chemical concentrations are reported in parts per billion (ppb) for water, parts per million (ppm) for waste, soil, and sediment, and micrograms per cubic meter (**:** g/m^3) for soil gas samples. For comparison purposes, where applicable, SCGs are provided for each medium.

Table 1 summarizes the degree of contamination for the contaminants of concern in site media and compares the data with the SCGs for the site. The following are the media that were investigated and a summary of the findings of the investigation.

Landfill Waste

Data collected during the geophysical survey were used to determine the lateral extent of landfill waste. The landfill boundary was later confirmed by the test pit excavations. The extent of fill, shown on Figure 2, covers approximately 10.3 acres. Waste is comprised of all types of household garbage, including tires, glass, paper, plastic, wood and white goods, and varies from seven to more than 15 feet thick. Nineteen soil samples were collected from waste in the test pits at depths ranging from two to 15 feet. Analytical results show scattered low concentrations of VOCs, SVOCs and pesticides, only slightly above TAGM 4046 recommended soil cleanup objectives for soil. Several inorganic compounds were identified above TAGM objectives, including copper, iron, lead, manganese, nickel, selenium, antimony, arsenic, chromium, mercury and zinc.

An area of petroleum contamination was observed as an LNAPL in MW-4 on the north edge of the landfill. This area of LNAPL was investigated further during the supplemental RI to determine the areal and vertical extent of contaminated soil and for product characterization. Analytical results of the LNAPL show it to be a highly degraded fuel oil. It covers an area approximately 1,950 square feet and extends from about six feet bgs to a depth of about 18 feet (see Figure 3). The LNAPL is a source area that has the potential to contaminate groundwater and migrate away from the landfill and, therefore, requires remediation.

These findings are consistent with what is commonly seen in closed municipal landfills. The thickness of cover material (topsoil and clay) varies from six inches to four feet. No major source areas of hazardous waste other than the LNAPL were identified during the investigation.

Surface Soil

Seven surficial soil samples were collected from zero to six inches at several test pit locations. Only one VOC, acetone, was detected above SCGs. No SVOCs, pesticides or PCBs were identified above SCGs. Five inorganic compounds were identified above SCGs: lead, manganese, nickel, selenium and zinc.

Five background soil samples were collected in areas not impacted by the landfill to measure levels of naturally occurring inorganic compounds in soil. These results, shown in Table 2, were used as background levels to which site soil and waste samples were compared.

Subsurface Soil

Ten subsurface soil samples were collected in test pits outside the waste area. No VOCs, SVOCs, pesticides or PCBs were detected above SCGs. Inorganic compounds identified above their SCGs include copper, iron, manganese, arsenic, lead, selenium and zinc.

Groundwater

Two rounds of groundwater sampling were conducted during the RI. Nine wells were selected for sampling during the supplemental RI. Not all wells were analyzed for all compounds during each sampling event. Six VOCs (benzene, chlorobenzene, ethylbenzene, xylene, toluene and isopropylbenzene) were identified above groundwater standards. Chlorobenzene and xylene were detected at concentrations up to 58 ppb and 47 ppb, respectively. Three SVOCs, dichlorobenzene, 4-methylphenol and naphthalene were identified above standards, at 12 ppb, 11 ppb and 21 ppb, respectively. All VOC and SVOC exceedences were limited to three overburden wells: MW-3A, MW-8 and MW-10. Single detections of several pesticides and Aroclor 1260, a PCB, were identified. Three inorganic compounds, iron, manganese and sodium, were identified above standards in many of the wells.

A thin layer (less than one inch) of LNAPL was observed on the water surface in MW-4 during the RI (see section on waste materials). Groundwater from this well was not sampled, however, it is assumed to be impacted by the fuel oil constituents.

The bedrock well that was installed during the 2002 Supplemental RI in the borrow area off the southeast corner of the landfill, drilled to a depth of 128 feet, was dry and was not sampled.

Residential well sampling was conducted in selected homes in April 1987 by the OCDOH, and in February/March 2000, August 2000, October 2000, March/April 2001 and June 2003 by the NYSDEC and/or the NYSDOH. A total of 45 homes were sampled at least once. No organic compounds were detected above NYS Drinking Water Standards. No VOCs, SVOCs, pesticides or PCBs have been identified above drinking water standards in residential wells. Iron and manganese have been detected above drinking water standards in many of the residential wells. These two metals are naturally occurring and their presence in residential wells are not believed to be due to landfilling activities, given the nature of the bedrock and the proximity to the former iron mine upgradient of the landfill.

Surface Water

A total of 20 surface water samples were collected during the RI, the supplemental RI and the additional sampling activities of 2003. Fourteen of these were collected from the intermittent stream adjacent to the west side of the landfill and the remainder of the surface water samples were collected from the intermittent stream that flows out of the pond across Prospect Road (see Figures 4 and 5). No VOCs, SVOCs, pesticides or PCBs above Class C surface water standards were identified. Only 10 of the surface water samples were analyzed for inorganic compounds. Iron and selenium were the only inorganic compounds detected above standards. The artesian conditions in nearby wells and the lack of contaminants in the surface water adjacent to the landfill indicate that this is an area of natural groundwater discharge that is not impacted by the landfill.

Sediment

Ten sediment samples were collected from the intermittent streambed adjacent to the west side and downgradient of the landfill (Figure 4). Six were collected from the streambed downstream of the pond across Prospect Road during the supplemental RI in 2003, which was dry at the time of the 2000 and 2001 sampling (Figure 5). Due to the frequent dry conditions of this stream, the sediment analytical results were compared to soil cleanup objectives. No VOCS, pesticides or PCBs above SCGs were identified. Several SVOCs were identified above SCGs in sampling locations near the pond, away from the landfill. These SVOCs are polynuclear aromatic hydrocarbons (PAHs), compounds that are likely associated with fossil fuel combustion. The highest concentrations of PAHs measured in sediment, up to 2.4 ppm of benzo(a)pyrene and 0.36 ppm of phenol, were located adjacent to Prospect Road, and are likely the result of runoff from the road. The soil cleanup objectives for these two compounds are 0.061ppm and 0.03 ppm, respectively. Several inorganic compounds were identified above background in several of the sample locations, particularly manganese and zinc.

Leachate

A total of 12 leachate samples were collected from leachate seeps along the south and west sides of the landfill (Figure 4). Because leachate flow in the seeps was minimal at the time of sampling, a small depression was dug in the area of each seep to collect sufficient volume for sample analysis. Analytical results were compared to Class C surface water standards. One VOC, chlorobenzene, was detected at levels up to 100 ppb in seven of the seeps. The surface water standard of 5 ppb is based on human consumption of fish. Because of the small size and intermittent nature of the seeps, there are no fish, and this is not a realistic exposure pathway. Dichlorobenzene, an SVOC, was detected at levels up to 10 ppb in three seeps. Naphthalene, also an SVOC, was detected at 15 ppb in one seep. No pesticides or PCBs were detected above standards. Several inorganic compounds, including iron and silver, were identified in a few of the samples above surface water standards.

Soil Gas

Three landfill gas samples were collected during the RI and evaluated for the presence or absence of VOCs and methane. Several VOCs, including benzene, ethylbenzene, toluene, xylenes (BTEX), methyl ethyl ketone (2-butanone), chloroethenes, chloroethanes and methane were detected; however, the concentrations were not quantified. During the Supplemental RI, six soil gas samples were collected between the landfill and Peddler Hill Road. There were several VOCs detected including acetone, benzene, ethylbenzene, tetrachloroethene, toluene and xylene. Methane was not detected in these six samples.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. There were no IRMs performed at this site during the RI/FS.

5.3: Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 4.1 of the RI report.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant source, (2) contaminant release and transport mechanisms, (3) a point of exposure, (4) a route of exposure, and (5) a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Under current site conditions, trespassers on the property may be exposed to contaminated sediments through dermal contact with sediments or incidental sediment ingestion. Potential exposure may also occur through dermal contact with the leachate seeps at the landfill's edge. However, contact with leachate is unlikely due to the heavy vegetation in the area of the seeps.

Depending on future land use conditions at the site, future residents and construction workers could be exposed to contamination present in soil and groundwater. Future residents and

construction workers could come in direct contact with contaminated soil and groundwater if excavation work is conducted on the site. Inhalation of soil particles or vapors released from soil or groundwater may also occur as a result of excavation. Ingestion of contaminated groundwater could also occur if drinking water wells were installed on the site.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The Fish and Wildlife Impact Analysis, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

Intermittent leachate outbreaks have been identified along the south and west margins of the landfill. Chlorobenzene has been detected at up to 100 ppb at several of these locations. A surface water standard of 5 ppb for chlorobenzene has been established based on human consumption of fish, however, for fish propagation the standard is 400 ppb. A value of 400 ppb for chlorobenzene will be considered the SCG for leachate at this site. Due to the intermittent nature of the outbreaks, these areas do not provide viable fish habitat and the presence of chlorobenzene at these concentrations is not considered a significant environmental impact.

Surface water in the intermittent stream that flows west of the landfill into Mayer Pond is not impacted by the landfill, nor is the stream that flows out of the pond. Although the sediment samples collected in the stream showed elevated levels of inorganic compounds, these also are not expected to significantly impact aquatic life due to the intermittent nature of the stream.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed of at the site through the proper application of scientific and engineering principles.
The remediation goals for this site are to eliminate or reduce to the extent practicable:

- Exposure to waste in the landfill;
- Exposure to LNAPL-contaminated soil in the landfill;
- The migration of LNAPL from the small impacted area of the landfill and the release of LNAPL contaminants into groundwater; and
- Exposure to on-site groundwater.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Mayer Landfill Site were identified, screened and evaluated in the January 2002 Final Feasibility Study.
A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the groundwater and LNAPL contaminated soil at the site.

Alternative 1: No Action

Present Worth: . . . . . *$ 0*
Capital Cost: . . . . . *$ 0*
Annual OM&M: . . . . . *$ 0*
Duration: . . . . . *0 months*

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. Under this alternative, no remedial activities or monitoring would take place. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Limited Action to Excavate LNAPL Area and Monitor Groundwater

Present Worth: . . . . . *$ 397,000*
Capital Cost: . . . . . *$ 112,000*
Annual OM&M: . . . . . *$ 18,500*
Duration: . . . . . *6 months*

This alternative would consist of removing the LNAPL and visibly contaminated soil in the vicinity of MW-4. This would eliminate the fuel product as a source area for groundwater contamination and eliminate the potential for product migration beyond the landfill. Approximately 1,300 cubic yards of contaminated soil would be excavated and disposed of at an approved off-site facility. The excavated area would be backfilled with clean fill, graded and seeded.

Approximately five additional monitoring wells would be installed as sentinel wells to monitor potential off-site contaminant migration in overburden and bedrock groundwater. A Site Management Plan would be developed to monitor and inspect the landfill on a regular basis, including annual sampling of the five new sentinel wells and the 11 existing on-site monitoring wells. Repairs to the existing cover would be made as needed. An environmental easement would be required to prevent intrusive activities and exposures to waste within the landfill mass, exclude future residential use of the landfill site, to prevent unauthorized use of site groundwater, and require compliance with the SMP, including an IC/EC certification..

The remedy design could be completed within three months and implemented within another two months. Remedial goals would be met upon completion of construction, which is expected to take about one month.

Alternative 3: Soil Cover, LNAPL Excavation and Groundwater Monitoring

Present Worth: *$1,179,600*
Capital Cost: . . . . . *$ 859,600*
Annual OM&M: . . . . . *$ 20,260*
Duration: . . . . . *One year*

This alternative would include the LNAPL removal and new monitoring well installations discussed in Alternative 2. A 12 inch soil cover would be placed over the existing landfill cover over the entire landfill area and graded to promote runoff from the surface of the landfill, thereby limiting the potential for infiltration into the waste mass. As with Alternative 2, a Site Management Plan would be developed to monitor and inspect the landfill on a regular basis. An institutional control in the form of an environmental easement as described in Alternative 2 would be required.

The remedy design could be completed in four months and construction could begin about two months later. Remedial goals would be met upon completion of construction, which is expected to take approximately six months.

Alternative 4: 6 NYCRR Part 360 Cap, LNAPL Excavation and Groundwater Monitoring

Present Worth: . . . . . *$ 2,705,600*
Capital Cost: . . . . . *$ 2,385,600*
Annual OM&M: . . . . . *$ 20,760*
Duration: . . . . . *Two and one half years*

This alternative would include the LNAPL removal and new monitoring well installations discussed in Alternative 2, and a low-permeability cap consistent with 6 NYCRR Part 360 would be constructed over the landfill. A Part 360 cap is an engineered cover consisting of a gas venting layer, a low-permeability material layer, barrier protection, top soil and vegetation. This would eliminate virtually all precipitation infiltration into the waste mass. As with Alternatives 2 and 3, a Site Management Plan would be developed to monitor and inspect the landfill on a

regular basis, and an institutional control in the form of an environmental easement would be required.

The remedy design could be completed in twelve months and construction could begin about three months later. Remedial goals would be met upon completion of construction, which is expected to take approximately twelve months.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the NYSDEC has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: (1) the magnitude of the remaining risks, (2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and (3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability. The technical and administrative feasibility of implementing each alternative is evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with

potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectiveness. Capital costs and operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 3.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the NYSDEC addressed the concerns raised. Ingeneral, the public comments received were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 2, Limited Action to Remove LNAPL and Monitor Groundwater, as the remedy for this site. The elements of this remedy are described at the end of this section.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 2 is selected because it satisfies the threshold criteria and provides the best balance of the primary criteria described in Section 7.2. It will achieve the remediation goals for the site by removing the LNAPL-contaminated soil, eliminating this as a potential source of groundwater contamination. It will prevent future exposures to waste within the landfill mass by establishing an environmental easement to prevent intrusive activities and the unauthorized use of site groundwater. Alternatives 3 and 4 also satisfy the threshold criteria but at a much greater cost with more extensive short term and long term impacts, without additional benefits to public health or the environment.

The short-term impacts associated with the LNAPL removal activities of Alternative 2 will be manageable with proper engineering controls. Alternatives 3 (soil cover) and 4 (capping) have more significant short-term impacts due to longer and more extensive construction activities. For Alternatives 3 and 4, the existing vegetation covering the landfill would be cleared to allow new cover material to be placed and graded. At the conclusion of construction activities, the landfill would be re-vegetated. The temporary destruction of wildlife habitat for up to three years where no significant environmental impacts have been identified is not justified. The length of time of these short-term impacts and the time needed to complete remediation would be

greatest for Alternative 4. Alternative 2 will be the least disruptive to the existing habitat and will take the least amount of time to complete, while still meeting the remedial objectives.

The greatest long-term effectiveness would be achieved under Alternative 4 with construction of a low-permeability cap over the entire landfill. However, under Alternatives 2, 3, and 4, periodic landfill inspections would take place and repairs to the existing cover (Alternative 2), the soil cover (Alternative 3), or the low-permeability cap (Alternative 4) would be made as needed. An environmental easement and long-term groundwater monitoring would be required by each of these alternatives to monitor their effectiveness.

Alternatives 2, 3, and 4 all would reduce, to a limited extent, the volume of waste at the site by removing the LNAPL-contaminated soil. None of the alternatives would significantly reduce the toxicity, mobility or volume of wastes at the site. The soil cover of Alternative 3 and the low-permeability cap of Alternative 4 would both reduce infiltration and improve surface drainage, but neither infiltration through the landfill waste nor surface runoff appear to be negatively impacting the environment.

All alternatives are readily implementable and technically feasible. The design and construction for Alternatives 3 and 4 would be more complex than Alternative 2; however, both involve standard construction methods. All alternatives would be administratively feasible, although obtaining the environmental easement required by Alternatives 2, 3 and 4 would require cooperation of the property owner.

The estimated total present worth costs for each alternative vary significantly, from under $400,000 for Alternative 2, to about $1,100,000 for Alternative 3, to over $2,700,000 for Alternative 4. Based on the lack of significant impacts to public health and the environment from the waste within the landfill mass on groundwater and surface water quality, Alternatives 3 and 4 would not be cost-effective. Alternative 2 will be the most cost-effective and best protection to public health and the environment.

The estimated present worth cost to implement the remedy is $397,000. The cost to construct the remedy is estimated to be $112,000 and the estimated average annual operation, maintenance, and monitoring costs for 30 years is $18,500.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the LNAPL and soil excavation, offsite disposal and backfill with clean fill, and the installation of new sentinel monitoring wells.

2. The LNAPL and LNAPL-contaminated soils in the vicinity of MW-4 will be excavated and disposed of at an approved offsite facility. The excavated area will be restored by backfilling with clean fill, grading, placement of topsoil, and seeding (see Figure 6).

3. Approximately five new “sentinel” monitoring wells will be installed for long-term groundwater monitoring.

4. An Environmental Easement will be required of the property owner to ensure compliance with the Site Management Plan and the required IC/EC certification. The easement shall define the landfill site, including a buffer around the perimeter of the waste mass.

5. Since the remedy results in contamination above unrestricted levels remaining at the site, a Site Management Plan (SMP) will be developed and implemented. The SMP will include the following institutional controls and engineering controls: (a) a plan for long-term groundwater monitoring; (b) maintenance of the existing cover; (c) a plan to manage any development of the landfill that would result in excavation into the existing cover and/or waste; (d) an exclusion against future residential use; and (e) a prohibition against the use of groundwater as a source of potable or process water without necessary water quality treatment.

6. The SMP will include submission of an Institutional Controls/Engineering Controls (IC/EC) certification, annually or for a period to be approved by the NYSDEC, which would certify that the institutional and engineering controls are unchanged and nothing has occurred that would impair the ability of the controls to protect public health or the environment or constitute a violation or failure to comply with any operation and maintenance or the site management plan.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.

- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.

- A fact sheet was distributed to the contact list in July 1999 to announce the availability of the Site Remedial Investigation Work Plan and a July 20, 1999 public information meeting.

- A Citizen Participation Plan was prepared in August 1999 and placed in the document repositories.

- A fact sheet was distributed to the contact list in April 2001 to announce the availability of the Site Remedial Investigation Report and an April 24, 2001 public information meeting.

- A fact sheet was distributed to the contact list in August 2001 to announce the availability of the Site Supplemental Investigation Work Plan.

- A fact sheet was distributed to the contact list on November 5, 2004 to announce the availability of the November 2004 Proposed Remedial Action Plan (PRAP) and announce the November 30, 2004 public meeting.

- A public comment period was held from November 10, 2004 through December 10, 2004 to present and receive comment on the PRAP.

- In December 2004 a Responsiveness Summary was prepared to address the comments received during the public comment period for the PRAP. The Responsiveness Summary has been incorporated into the ROD as Appendix A and made available to the public.

Mayer Landfill
Site No. 3-36-027
Town of Blooming Grove, Orange County
Table 1
Nature and Extent of Contamination

WASTE November 1999	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	acetone	ND - 1.2	0.2	4 of 19
	xylene	ND - 3.0	1.2	3 of 19
	benzene	ND - 0.2	0.06	1 of 19
	2-butanone	ND - 0.33	0.3	1 of 19
	chlorobenzene	ND - 2.2	1.7	1 of 19
Semivolatile Organic Compounds (SVOCs)	benzo(a)anthracene	ND - 0.25	0.224	1 of 19
	benzo(a)pyrene	ND - 0.85	0.061	2 of 19
PCB/Pesticides	Dieldrin	ND - 0.053	0.044	2 of 19
	Aldrin	ND - 0.064	0.041	1 of 19
Inorganic Compounds	antimony	ND - 346	1.9	3 of 19
	arsenic	ND - 11.8	7.5	1 of 19
	chromium	13.9 - 339	50	6 of 19
	copper	18.2 - 2,210	25	12 of 19
	iron	22,600-192,000	24,000	16 of 19
	lead	14.5 - 3130	28	14 of 19
	manganese	258 - 1,940	514	15 of 19
	mercury	ND - 1.8	0.1	5 of 19
	nickel	18 - 458	19	15 of 19
	selenium	ND - 176	2	12 of 19
	zinc	67.9 - 1970	55.27	15 of 19

Table 1
Nature and Extent of Contamination (continued)

SURFACE SOIL Nov - Dec 1999	**Contaminants of Concern**	**Concentration Range Detected (ppm)[a]**	**SCG[b] (ppm)[a]**	**Frequency of Exceeding SCG**
Volatile Organic	acetone	ND - 1.2	0.2	1 of 7
Compounds (VOCs)				
Semivolatile Organic	none above SCGs			
Compounds (SVOCs)				
PCB/Pesticides	none above SCGs			
Inorganic	lead	14.3 - 32.5	28	1 of 7
Compounds	manganese	183 - 940	514	4 of 7
	nickel	17.3 - 25.7	19	3 of 7
	selenium	6.3 - 21.4	2	7 of 7
	zinc	50.2 - 96	55	4 of 7

SUBSURFACE SOIL Nov - Dec 1999	**Contaminants of Concern**	**Concentration Range Detected (ppm)[a]**	**SCG[b] (ppm)[a]**	**Frequency of Exceeding SCG**
Volatile Organic	none above SCGs			
Compounds (VOCs)				
Semivolatile Organic	none above SCGs			
Compounds (SVOCs)				
PCB/Pesticides	none above SCGs			
Inorganic	arsenic	2.4 - 17.2	7.5	1 of 10
Compounds	copper	3.8 - 48.9	25	4 of 10
	iron	17,000 - 74,000	24,000	5 of 10
	lead	4.4 - 40.6	28	1 of 10
	manganese	582 - 1, 080	514	10 of 10
	mercury	ND - 0.71	0.1	2 of 10

Table 1
Nature and Extent of Contamination (continued)

SUBSURFACE SOIL Nov - Dec 1999	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
	selenium	ND - 10.8	2	3 of 10
	zinc	49.2 - 111	55	8 of 10

SURFACE WATER June 2000 & June 2003	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic	none above SCGs			
Compounds (VOCs)				
Semivolatile Organic	none above SCGS			
Compounds (SVOCs)				
PCB/Pesticides	none above SCGs			
Inorganic	iron	362 - 623	300	10 of 10*
Compounds	selenium	ND - 6.4	4.6	5 of 10*

* June 2003 surface water samples (10 samples) were not analyzed for inorganic compounds

Table 1
Nature and Extent of Contamination (continued)

SEDIMENT June 2000 & Aug 2001	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic	none above SCGs			
Compounds (VOCs)				
Semivolatile Organic	phenol	ND - 0.36	0.03	3 of 10
Compounds (SVOCs)	chrysene	ND - 1.9	0.4	2 of 10
	benzo(a)anthracene	ND - 1.9	0.224	1 of 10
	benzo(b)fluoranthene	ND - 3.3	1.1	1 of 10
	benzo(k)fluoranthene	ND - 1.1	1.1	1 of 10
	benzo(a)pyrene	ND - 2.4	0.061	3 of 10
	dibenzo(a,h)anthracene	ND - 0.27	0.014	1 of 10
PCB/Pesticides	none above SCGs			
Inorganic	arsenic	1.5 - 18.7	7.5	8 of 16
Compounds	copper	ND - 39.1	25	1 of 16
	iron	15,100 - 46,100	24,000	8 of 16
	lead	11.2 - 37.4	28	5 of 16
	manganese	187 - 2,720	514	9 of 16
	nickel	11.8 - 23.4	19	8 of 16
	silver	1.2 - 7.5	2.2	8 of 16
	zinc	45.6 - 176	55	11 of 16

Table 1
Nature and Extent of Contamination (continued)

LEACHATE June 2000 & June 2003	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	chlorobenzene	ND - 100	5	7 of 12
Semivolatile Organic Compounds (SVOCs)	dichlorobenzene	ND - 10	5	3 of 12
	naphthalene	ND - 15	13	1 of 12
PCB/Pesticides	none above SCGs			
Inorganic Compounds	iron	110 - 164,000	300	11 of 12
	lead	ND - 46	3.8	4 of 12
	nickel	1 - 108	52	2 of 12
	selenium	ND - 88.5	4.6	2 of 12
	silver	ND - 30.3	0.1	6 of 12
	vanadium	ND - 53.6	14	2 of 12
	zinc	ND - 238	83	1 of 12

Table 1
Nature and Extent of Contamination (continued)

GROUNDWATER March & May 2000	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	benzene	ND - 9	1	4 of 34
	chlorobenzene	ND - 58	5	5 of 34
	ethylbenzene	ND - 34	1	1 of 34
	xylene	ND - 47	5	5 of 34
	toluene	ND - 23	5	1 of 34
	isopropylbenzene	ND - 7	5	1 of 34
Semivolatile Organic Compounds (SVOCs)	1,4 dichlorobenzene	ND - 12	3	5 of 34
	4 methylphenol	ND - 11	1	4 of 34
	naphthalene	ND - 21	10	1 of 34
PCB/Pesticides	heptachlor	ND - 0.2	0.04	1 of 29
	dieldrin	ND - 0.14	0.004	1 of 29
	endrin	ND - 2.5	ND	1 of 29
	aroclor 1260	ND - 2.5	ND	1 of 29
	alpha BHC	ND - 0.14	0.01	1 of 29
	gamma BHC (lindane)	ND - 0.14	0.05	1 of 29
	aldrin	ND - 0.15	ND	1 of 29
Inorganic Compounds	iron	29.4 - 65,300	300	24 of 34
	manganese	ND - 5,790	300	23 of 34
	sodium	1,820 - 355,000	20,000	10 of 34

Table 1
Nature and Extent of Contamination (continued)

SOIL GAS Dec 1999 & Aug 2001	**Contaminants of Concern**	**Concentration Range Detected (:g/m³)[a]**	**SCG[b] (:g/m³)[a]**	**Number of Detections**
Volatile Organic Compounds (VOCs)	benzene	ND - 2.35	No SCGs for Soil Gas	9 of 9
	toluene	12.3 - 25.3		8 of 9
	tetrachloroethene	38.6 - 82.7		7 of 9
	ethylbenzene	3.6 - 6.53		7 of 9
	xylenes	20.3 - 39.2		9 of 9
	acetone	3.4 - 84.0		6 of 9
	methyl ethyl ketone (2-butanone)	ND - 9.1		4 of 9

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values;

Waste sample results compared to TAGM 4046 Recommended Soil Cleanup Objectives

Leachate sample results compared to Class C surface water standards

ND: non-detect

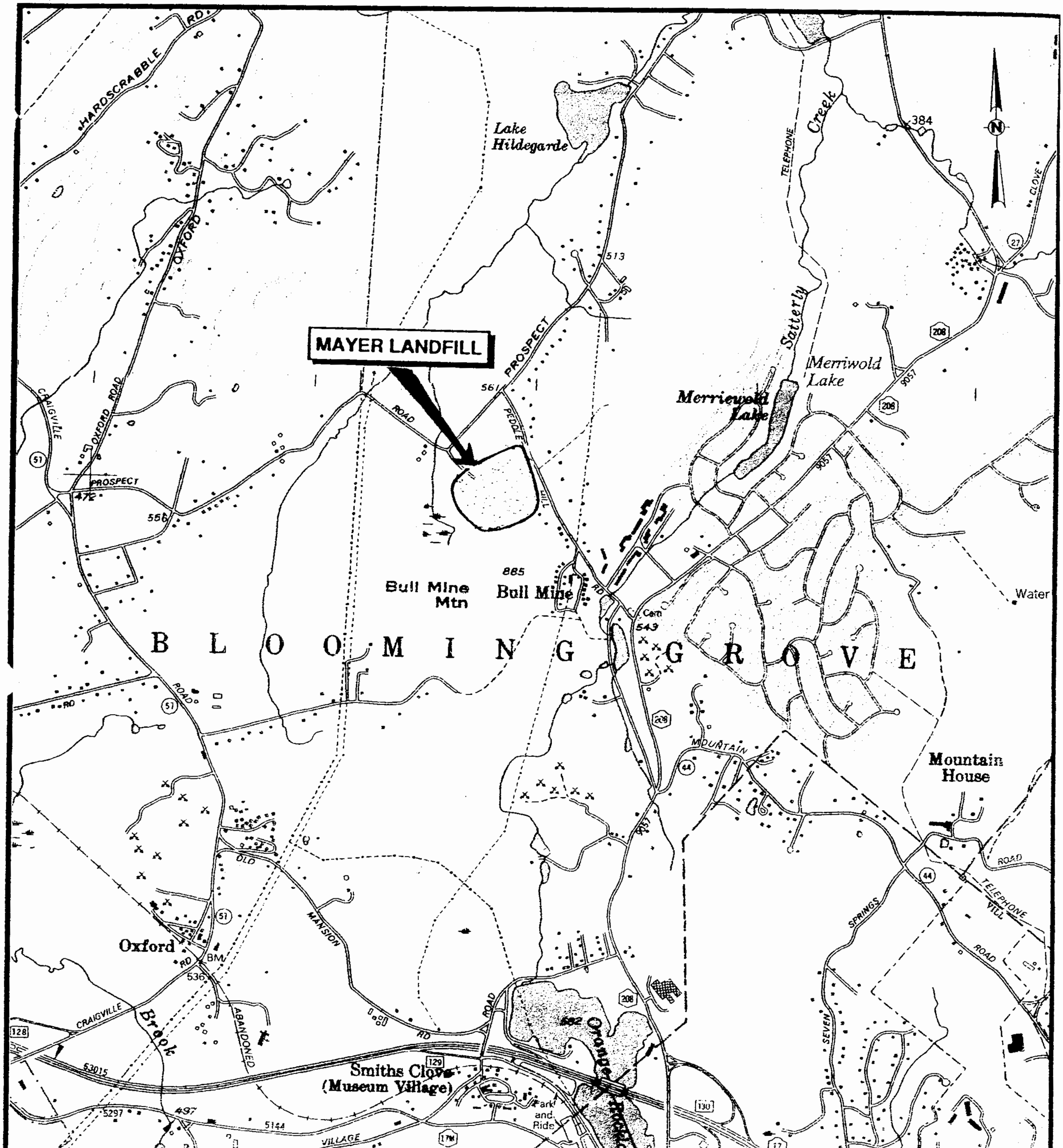
BHC: Hexachlorocyclohexane

Table 2
Background Soil Samples
June 2000

Analyte	TAGM 4046 (mg/kg)	Range of Concentrations mg/kg	95% UCL of Average mg/kg
antimony	site background	ND - 2.0	1.9
beryllium	0.16 or site background	0.37 - 0.83	0.6
iron	2,000 or site background	17,200 - 21,800	24,000
lead	site background	11.5 - 41.4	28
manganese	site background	188 - 742	514
nickel	13 or site background	16.3 - 21.4	19
silver	site background	0.99 - 2.8	2.2
zinc	20 or site background	43.8 - 56.9	55

Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual OM&M	Total Present Worth
Alternative 1: No Action	$0	$0	$0
Alternative 2: Limited Action	$112,000	$18,500	$397,000
Alternative 3: Soil Cover	$859,600	$20,260	$1,179,600
Alternative 4: Part 360 Cap	$2,385,600	$20,760	$2,705,600



0 1000 2000 ft

SCALE
1 in. = 2000 ft

LAT 41 22' 15"
LONG 74° 12' 15"

QUADRANGLE LOCATION

SOURCE: NYSDOT; MONROE & MAYBROOK
MAYBROOK QUADRANGLES,
NEW YORK ORANGE COUNTY,
7.5 MINUTE SERIES

TITLE

SITE LOCATION

PREPARED FOR

MAYER LANDFILL
NYSDEC I.D. NO. 336027

ERM Environmental Resources Management

SCALE	FIGURE
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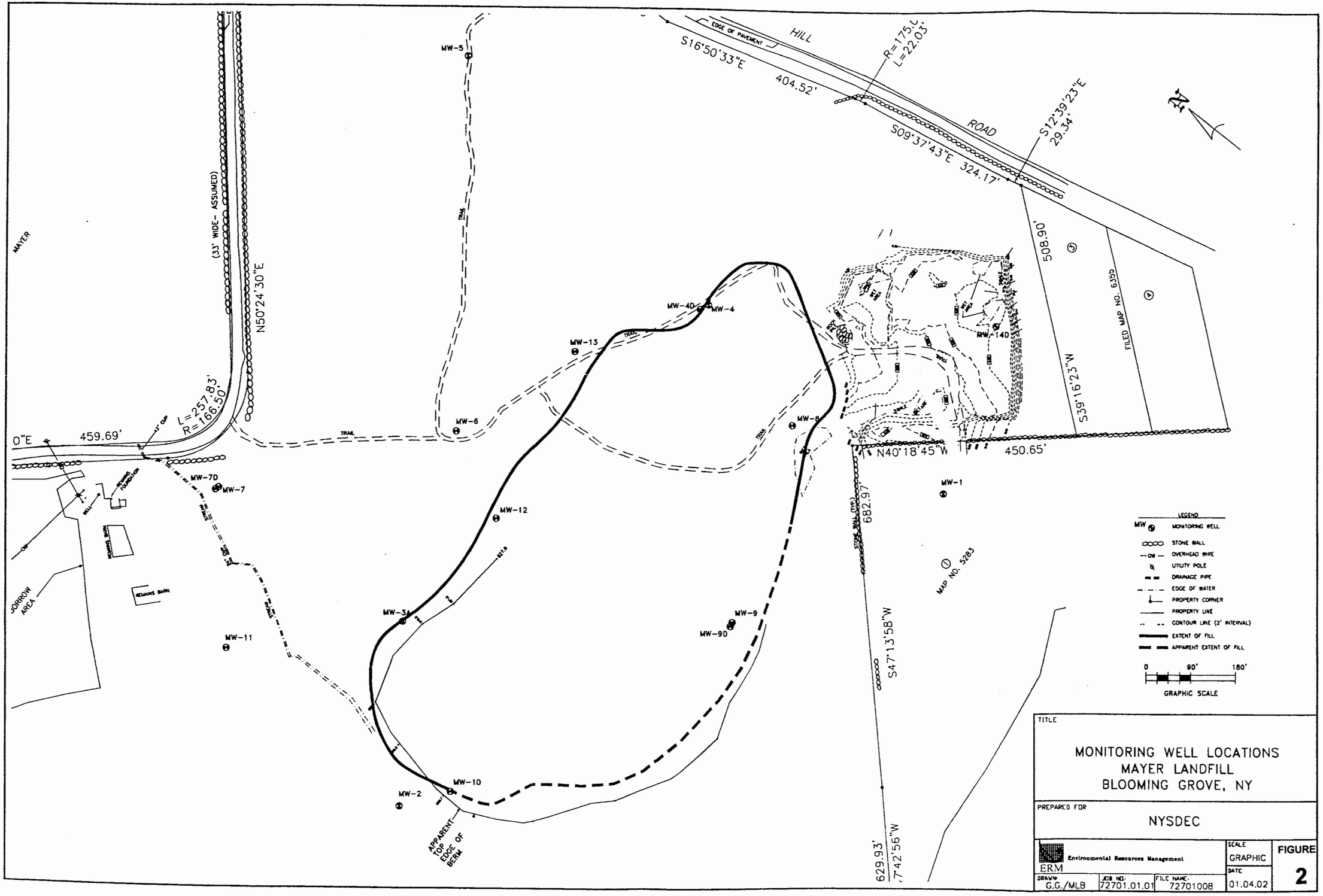
DRAWN:	JOB NO.:	FILE NAME:	DATE
G.G.	164.014		5/4/99



TITLE

MONITORING WELL LOCATIONS
MAYER LANDFILL
BLOOMING GROVE, NY

PREPARED FOR

NYSDEC

Environmental Resources Management

ERM

DRAWN	JOB NO.	FILE NAME	SCALE	DATE	FIGURE
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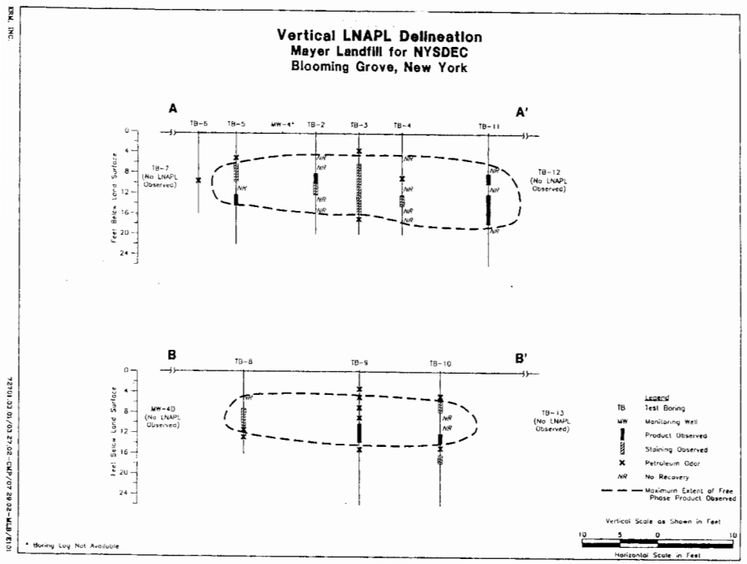

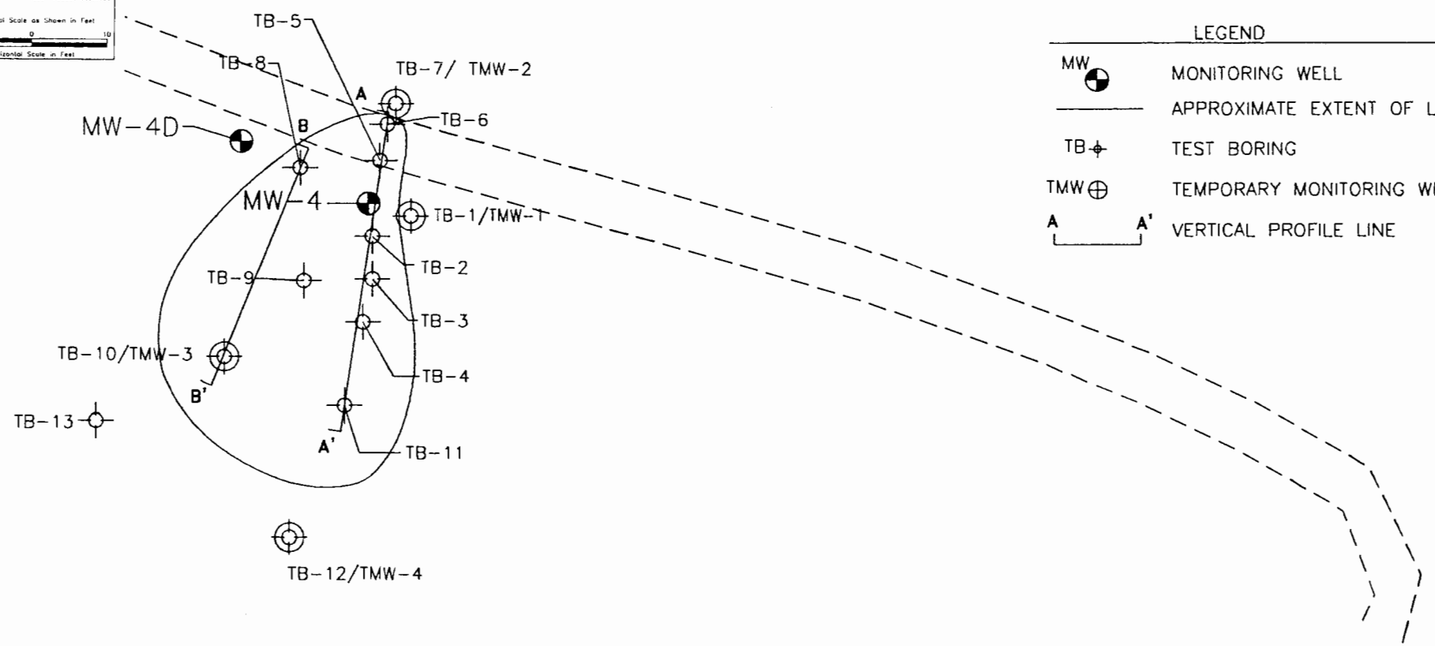

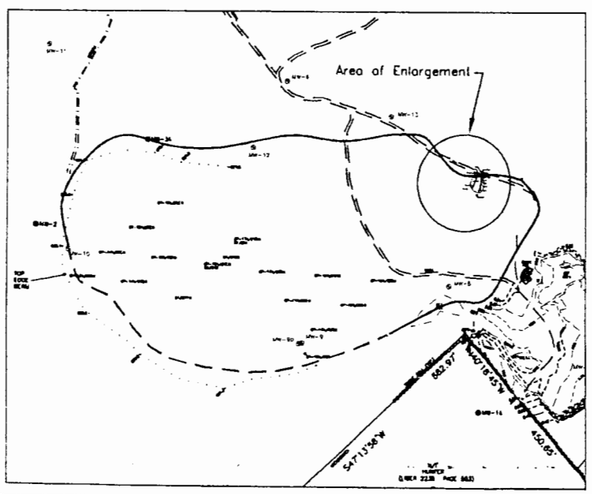

N

LEGEND

- MW — MONITORING WELL
- APPROXIMATE EXTENT OF LNAPL
- TB — TEST BORING
- TMW — TEMPORARY MONITORING WELL
- A — A' VERTICAL PROFILE LINE

TITLE

LNAPL DELINEATION

MAYER LANDFILL
BLOOMING GROVE, NY

PREPARED FOR

NYSDEC

Environmental Resources Management
ERM

DRAWN	JOB NO.	FILE NAME	SCALE	DATE	FIGURE
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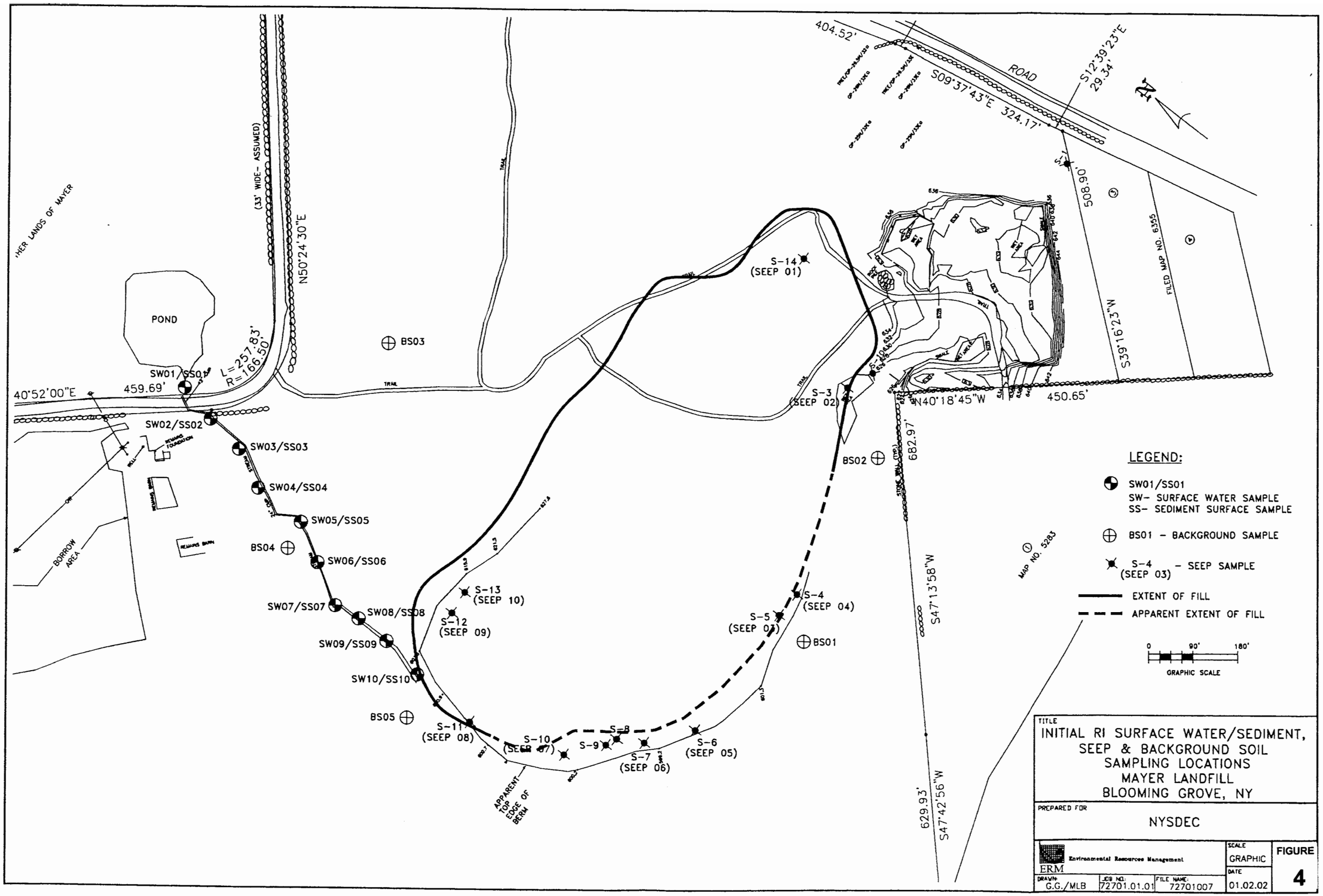

TITLE
INITIAL RI SURFACE WATER/SEDIMENT, SEEP & BACKGROUND SOIL SAMPLING LOCATIONS
MAYER LANDFILL
BLOOMING GROVE, NY

PREPARED FOR
NYSDEC

ERM Environmental Resources Management

DRAWN	JOB NO.	FILE NAME	SCALE	DATE	FIGURE
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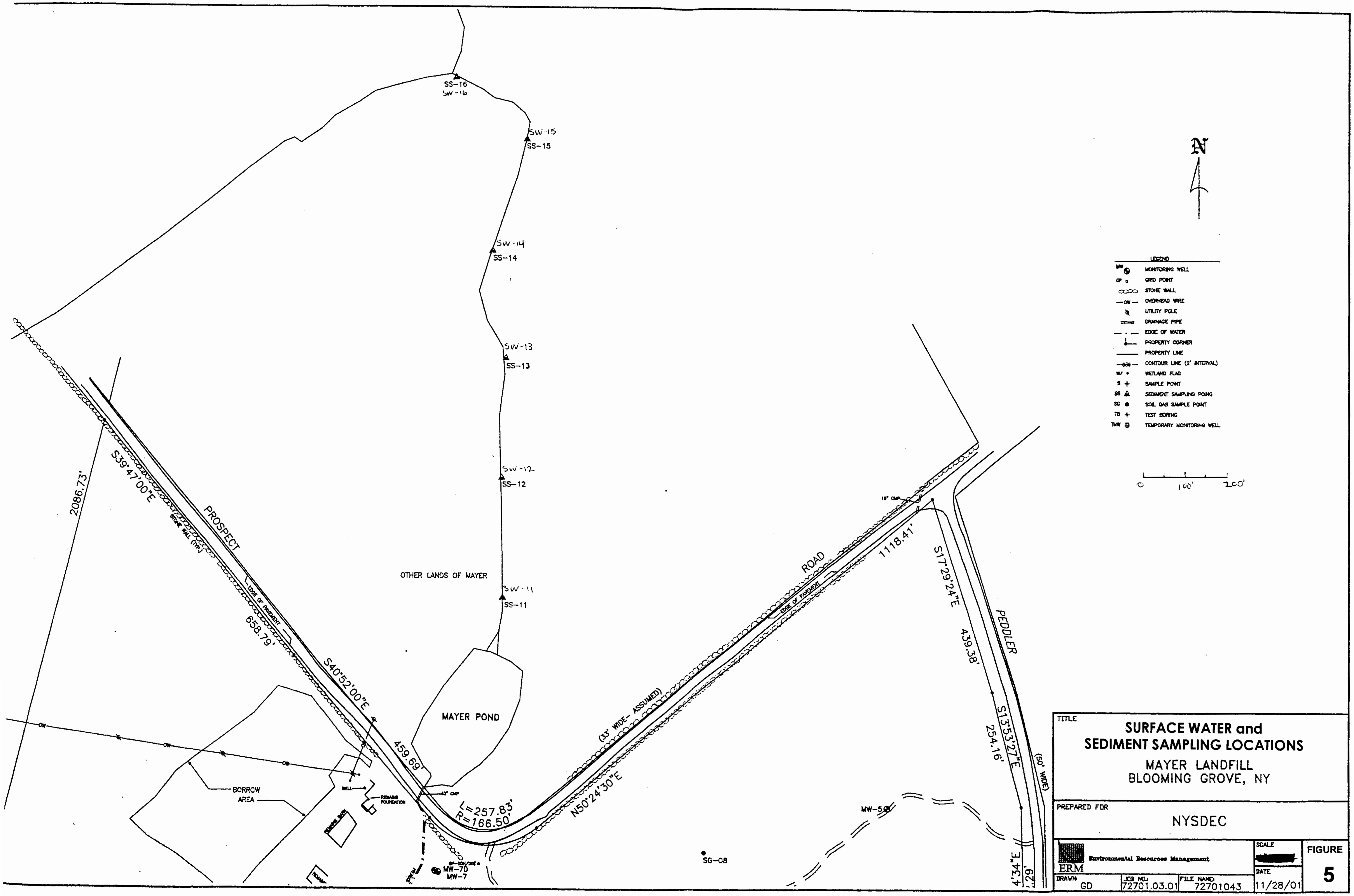

TITLE

SURFACE WATER and SEDIMENT SAMPLING LOCATIONS

MAYER LANDFILL
BLOOMING GROVE, NY

PREPARED FOR

NYSDEC

ERM Environmental Resources Management

DRAWN	JOB NO.	FILE NAME	SCALE	FIGURE
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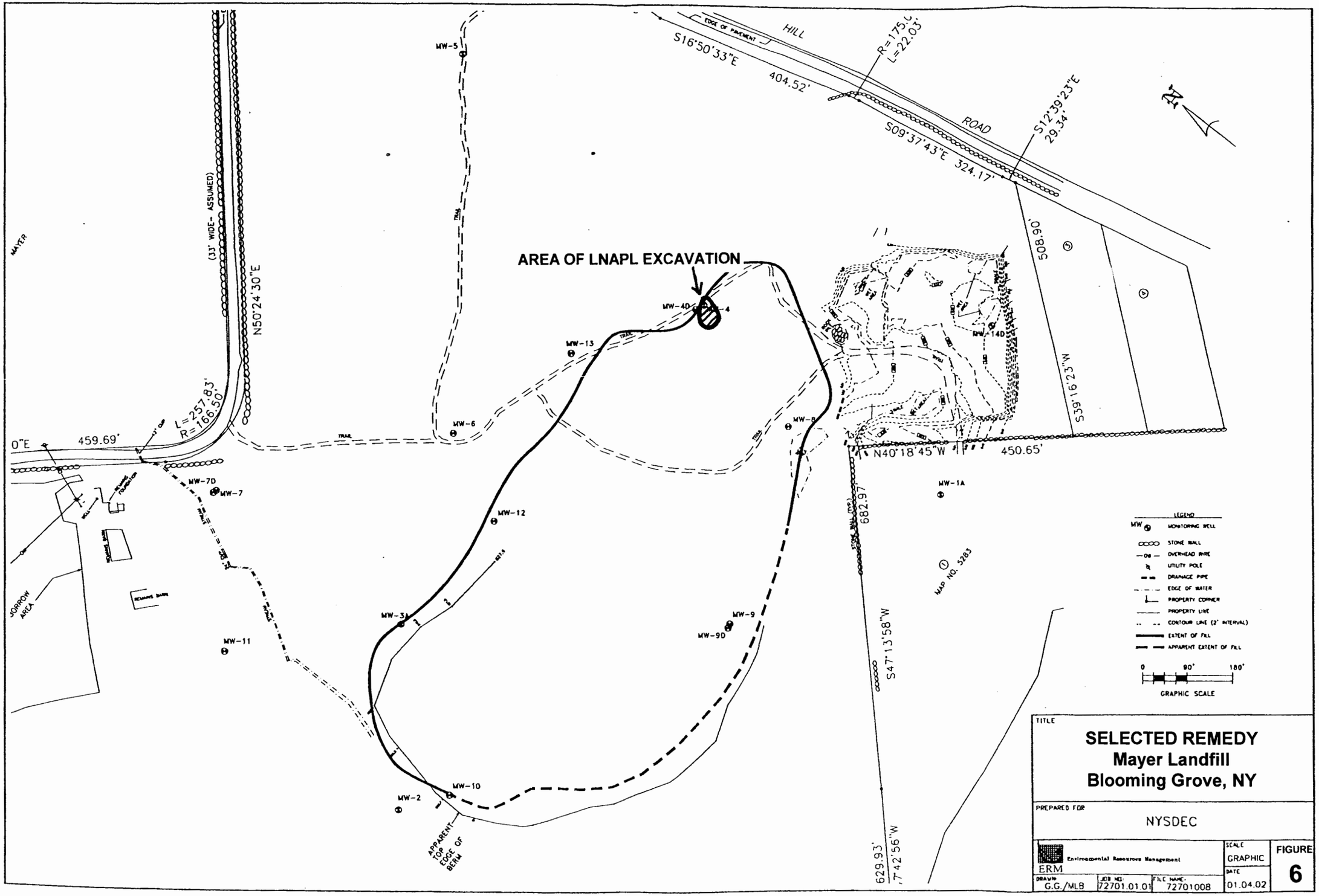
			DATE 11/28/01	



TITLE

SELECTED REMEDY
Mayer Landfill
Blooming Grove, NY

PREPARED FOR

NYSDEC

Environmental Resources Management ERM			SCALE: GRAPHIC	FIGURE 6
DRAWN: G.G./MLB	JOB NO.: 72701.01.01	FILE NAME: 72701008	DATE: 01.04.02	

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY
Mayer Landfill
Town of Blooming Grove, Orange County, New York
Site No. 3-36-027

The Proposed Remedial Action Plan (PRAP) for the Mayer Landfill site was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on November 10, 2004. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the Mayer Landfill site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on November 30, 2004 and included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on December 10, 2004.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the NYSDEC's responses:

COMMENT 1: Was there only one acetone hot spot in surface soil? Can you tell what caused it or where it came from? Could it be due to laboratory contamination?

RESPONSE 1: Yes, only one acetone hot spot was identified in surface soil. We do not know the source of the acetone; due to the elevated level it is probably not due to laboratory contamination. Because it is an isolated occurrence, there are no significant concerns.

COMMENT 2: How close is Lake Hildegarde to the landfill? Is the bedrock groundwater going in that direction? Do you know that you sampled wells deep enough to catch any contaminants that could be going off the site toward the Lake? What does Mayer Pond drain into?

RESPONSE 2: The stream along the south and western boundary of the landfill flows about 800 feet into Mayer Pond. The outlet stream from the northern end of Mayer Pond flows approximately 4400 feet to Lake Hildegarde, almost due north of the landfill. The total distance to Lake Hildegarde from the landfill is approximately one mile. No site-related contaminants were

detected in any surface water samples upstream or downstream of Mayer Pond, or in on-site bedrock groundwater. It is not likely that bedrock groundwater flowing northwest from the landfill would reach Lake Hildegarde.

COMMENT 3: In the past, has the groundwater monitoring been on a yearly or regular schedule?

RESPONSE 3: Historic monitoring of site groundwater wells or residential wells has not occurred on any regular schedule.

COMMENT 4: Is the LNAPL product near the surface? Do you know how long it has been there?

RESPONSE 4: The LNAPL was found from about six feet below ground surface to a total depth of about 18 feet. We do not know how long it has been there.

COMMENT 5: Are there leaking drums there? When you do an electromagnetic survey, how can you tell the difference between a leaking drum and an old refrigerator?

RESPONSE 5: We have no evidence of leaking drums in the landfill. It is often difficult to tell from an electromagnetic survey the difference between large metallic objects such as refrigerators and steel drums. Test pits are normally excavated to determine if an electromagnetic response is due to drums or other metal objects. Test pits excavated at the Mayer Landfill did not reveal any drums.

COMMENT 6: If the PRP can't pay for the remedy, is there money in the Superfund to do it?

RESPONSE 6: Yes, there are funds in the State Superfund to cover the cost of the clean up and long-term monitoring if the PRPs are unwilling or unable to implement the remedy.

COMMENT 7: Since the PRAP calls for a restriction against future residential use of the site, what type of use would be allowed? Would a buffer affect adjoining property owners?

RESPONSE 7: Any type of recreational use that would not compromise the existing cover would be acceptable. A buffer around the perimeter of the landfill would be included in the site definition for the environmental easement, primarily to restrict unauthorized groundwater use adjacent to the waste mass. This buffer will be located within the current owner's property boundary.

COMMENT 8: Will the property owner develop the Site Management Plan? How often will groundwater be monitored? Besides checking monitoring wells, will you also be monitoring homeowners wells?

RESPONSE 8: The identified PRPs, including the property owner, will be asked to implement the remedy, including development and implementation of the Site Management Plan (SMP) and if they decline, the NYSDEC will implement the remedy, including development of the SMP. Long-term groundwater monitoring will most likely require annual sampling of the site monitoring wells, at least initially. Residential wells will not be included in the program. Analytical results of the residential wells sampled over the last 17 years have never shown any site-related contaminants in the wells. Additional "sentinel" monitoring wells will be installed as part of the remedy to monitor groundwater between the site and the downgradient residential wells.

COMMENT 9: When would the institutional controls go into the property's current deed? How can you trust the property owner or other PRP to certify that the institutional controls are being upheld?

RESPONSE 9: The NYSDEC will contact the property owner to implement the remedy as soon as the Record of Decision is completed. The NYSDEC will seek to have the environmental easement specifying the institutional controls finalized within a few months. The institutional controls and environmental controls (IC/EC) will include a plan for long-term groundwater monitoring, maintenance of the existing cover, a plan to manage any development of the landfill that would result in excavation into the existing cover and/or waste, an exclusion against future residential use, and a prohibition against the use of groundwater as a source of potable or process water without necessary water quality treatment. The IC/EC certification must be prepared and stamped by a licensed professional engineer or qualified environmental professional acceptable to the NYSDEC, filed with the appropriate local city or town offices, and a copy submitted to the NYSDEC and other appropriate agencies.

COMMENT 10: What if the remedy is found to be faulty or insufficient later on?

RESPONSE 10: If the routine sampling indicates that there may be a problem, additional sampling and/or investigation would take place. If it is determined that additional remedial actions are required, the Record of Decision could be amended or modified, and the public would be notified.

COMMENT 11: Is this site characterized as a Brownfield?

RESPONSE 11: This site is not in one of the NYSDEC Brownfield Programs at the present. It is a Class 2 site on the NYS Registry of Inactive Hazardous

Waste Disposal Sites. It is noted that the eligibility for Class 2 sites to enter the Brownfield Program will expire in July 2005.

COMMENT 12: Are there any legal requirements for adjacent landowners to disclose the presence of an inactive hazardous waste disposal site during a real estate transaction?

RESPONSE 12: It is the NYSDEC's understanding that a residential property owner (as a seller) is required to notify a potential buyer of any information the seller may possess regarding environmental conditions on his or her property, such as sampling conducted on the property, and provide any information, such as the reports, etc., of which they may be aware, to the buyer. Whether it is a requirement for a seller to notify a potential buyer of conditions on a neighboring property is an issue best discussed with a qualified real estate attorney.

COMMENT 13: Is there any evidence of recent illegal dumping at the site? Can the property be fenced off to prevent dumping which might further contaminate the site?

RESPONSE 13: It does appear that there has been some illegal dumping on the property, especially near Prospect Road. Fences are usually not effective in keeping trespassers and this type of activity away from abandoned sites, but measures to prohibit this activity will be evaluated during the design.

APPENDIX B

Administrative Record

Administrative Record

Mayer Landfill

Town of Blooming Grove, Orange County, New York
Site No. 3-36-027

1. "Phase I Investigation,," June 1987, prepared by EA Science and Technology.

2. "Phase II Investigation, Volume I," June 1991, prepared by Lawler, Matusky & Skelly

3. "Phase II Investigation, Volume II," June 1991, prepared by Lawler, Matusky & Skelly

4. "Remedial Investigation Report, Volume 1," March 2001, prepared by Environmental Resources Management.

5. "Remedial Investigation Report, Volume 2," March 2001, prepared by Environmental Resources Management.

6. "Supplemental Remedial Investigation Work Plan," June 2001, prepared by Environmental Resources Management.

7. "Supplemental Remedial Investigation Report," April 2002, prepared by Environmental Resources Management.

8. "Final Feasibility Study Report," July 2002, prepared by Environmental Resources Management.

9. "Additional Groundwater & Surface Water Samples Work Plan," April 2003, prepared by Environmental Resources Management.

10. "Additional Groundwater & Surface Water Sample Results," September 2003, prepared by Environmental Resources Management.

11. "Proposed Remedial Action Plan for the Mayer Landfill," November 2004, prepared by the NYSDEC.