Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Trimmer Road Landfill Site
Parma (T), Monroe County, New York
Site Number 8-28-012

March 2001

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Trimmer Road Landfill Inactive Hazardous Waste Site
Parma (T), Monroe County, New York
Site No. 8-28-012

Statement of Purpose and Basis

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

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the **Trimmer Road Landfill site** inactive hazardous waste site and upon public 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 release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the **Trimmer Road Landfill site** and the criteria identified for evaluation of alternatives, the NYSDEC has selected an evapotranspiration cap consisting of a cover of enhanced soil planted with selected vegetation to intercept infiltrating water and evapotranspire it to the air. The components of the remedy are as follows:

- placement of a soil mixture enhanced with organic material on top of the existing landfill, in order to trap and retain infiltrating precipitation and meltwater,
- planting the soil mixture with vegetation chosen because of its ability to take up quantities of water from the ground and transfer it to the air through evaporation and transpiration,
- planting the area immediately northwest of the site with similar vegetation chosen because of its ability to break down certain volatile organic compounds found in site groundwater in this area,
- institution of an operations and maintenance plan to ensure continued effectiveness of the cover system,

- periodic ground water monitoring to evaluate the efficacy of the remedy and ensure continued protection of the public health and the environment, and

- deed restrictions to prevent activities that would threaten the effectiveness of the remedy (e.g., damaging the cover system or extracting groundwater for potable use).

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being 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.

3/30/2001
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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RECORD OF DECISION

Trimmer Road Landfill Site
Parma (T), Monroe County
Site No. 8-28-012
March 2001

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, has selected this remedy to address the potential threat to human health and significant threat to the environment created by the presence of hazardous waste at the **Trimmer Road Landfill site** (also called Trimmer Road Landfill and "the landfill"), a class 2 inactive hazardous waste disposal site. As more fully described in Sections 3 and 4 of this document, disposal of industrial solvent and metal wastes have resulted in the release of a number of hazardous substances, including volatile and semi-volatile organic compounds, and metals (e.g., cadmium, thallium), at the site and from the site into the area surrounding the northwest corner of the site. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- A potential threat to area groundwater used as potable water sources;
- An environmental threat associated with the release of contaminants to the local groundwater aquifer; and
- A potential threat to human health if excavation occurs in areas of contamination that could result in exposures to contaminated wastes.

In order to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous wastes disposed at Trimmer Road Landfill site have caused, the following remedy was selected:

- An enhanced soil cover placed on the upper, flat portion of the landfill to reduce surface water infiltration;
- Hybrid poplar trees or other selected vegetation planted in the enhanced soil to transpire infiltrating water into the air (to reduce leachate generation) and enhance biodegradation of volatile organic contaminants;
- Long-term monitoring of groundwater to verify that cleanup is occurring and that the local water supply is not affected; and
- Deed restrictions to prevent activities that would threaten the effectiveness of the remedy (e.g., damaging the cover system or extracting groundwater for potable use).

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Trimmer Road Landfill site, number 8-28-012, is located in a rural portion of the Town of Parma, Monroe County, New York. It is on the east side of Trimmer Road about a mile north of the intersection of Trimmer Road with Route 104. It is approximately 2 miles northwest of Parma Corners and 10 miles northwest of the City of Rochester. (See Figure 1.)

The 60-acre site consists of an unlined landfill occupying approximately 40 acres and includes a 10-acre pond. (See Figure 2.) The landfilling operations took place between 1952 and 1974.

The site is surrounded by undeveloped land on all sides, although there are a number of residential properties within a half-mile radius. The pond discharges to a tributary of Buttonwood Creek, which is a Class C stream that drains into Lake Ontario.

There are drainage ditches around the perimeter of the site on portions of three sides. The ditches collect leachate seeps and surface runoff, and drain into the pond.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Trimmer Road Landfill was a private disposal facility that accepted municipal waste from surrounding towns and industrial waste from local industries. Some of the industries are known to have produced hazardous waste. While there is no direct evidence of disposal of hazardous waste at the site, chemical analyses of groundwater samples indicate the presence of chlorinated volatile organic compounds.

3.2: Remedial History

A Phase I Investigation conducted in 1983 identified sparse vegetation on the landfilled area, with debris protruding through the ground cover. A Phase II Investigation conducted in 1986 found organic compounds and metals contamination in the groundwater, and established a preliminary groundwater flow direction in the overburden to the northwest. Leachate from landfill seeps was noted entering the pond on the northeast portion of the site through the perimeter drainage ditch.

The site was delisted in 1992 due to the relatively low levels of contamination found in the Phase II study. Additional investigations in 1996 revealed the presence of site contaminants in groundwater at levels that raised public health concerns due to the existence of down gradient private water supplies. Therefore, the site was relisted as a Class 2 site in 1997.

A Remedial Investigation/Feasibility Study (RI/FS) was conducted between October 1999 and January 2001. Its findings are discussed below.

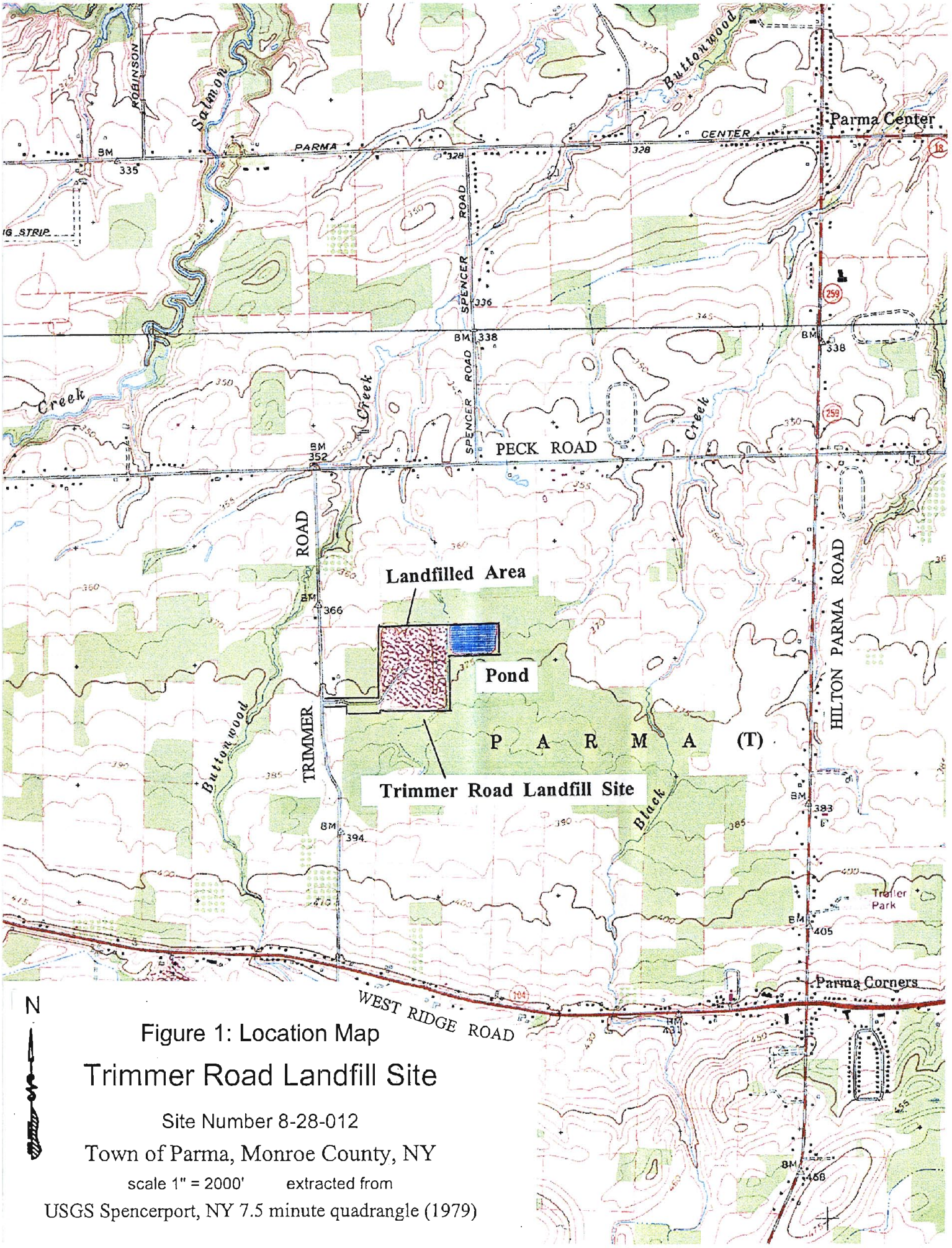

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Figure 1: Location Map

Trimmer Road Landfill Site

Site Number 8-28-012

Town of Parma, Monroe County, NY

scale 1" = 2000' extracted from

USGS Spencerport, NY 7.5 minute quadrangle (1979)

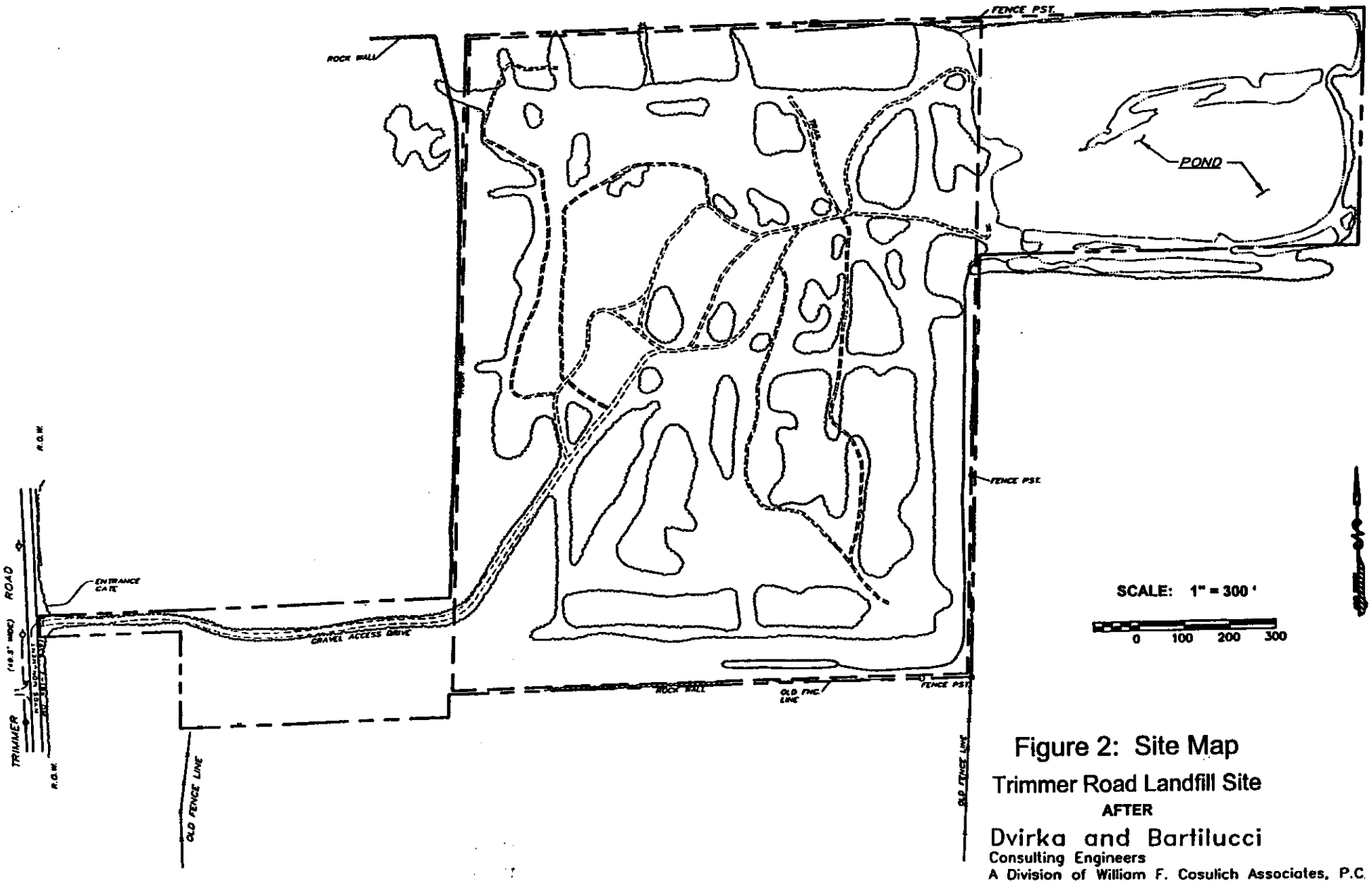


Figure 2: Site Map

Trimmer Road Landfill Site

AFTER

Dvirka and Bartilucci

Consulting Engineers

A Division of William F. Cosulich Associates, P.C.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to identify alternatives to address the significant threat to human health and the environment posed by the Trimmer Road Landfill, a Remedial Investigation/Feasibility Study (RI/FS) was conducted under the NYS Superfund program.

4.1: 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 included the following activities:

- Site surveying, to prepare an accurate map and establish reference points on the ground for locating sample collection points;
- Geophysical survey, to look for off-site leachate migration;
- Landfill gas survey, to evaluate whether a danger exists from methane gas;
- Surface water, surface water sediment, and leachate sampling to determine the levels of contamination in surface water, the sediment in the bottom of surface water bodies, and leachate emerging from the sides of the landfill;
- Test pit excavation, to investigate the nature of the waste deposits and the thickness and condition of the existing soil cover over the wastes;
- Soil/waste sampling, to evaluate the condition and degree of contamination;
- Soil boring and monitoring well installation, to determine sub-surface conditions;
- Groundwater sampling to determine groundwater quality;
- Subsurface soil sampling;
- In-situ hydraulic conductivity testing, to determine zones of preferred groundwater flow; and
- Water Level measurement, to determine groundwater flow direction(s).

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Trimmer Road Landfill site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of the New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and health-based exposure scenarios. In addition, for soils, site specific background concentration levels can be considered for certain classes of contaminants.

Table 1
Nature and Extent of Contamination

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppb)
Ground Water	Volatile Organic Compounds (VOCs)	Vinyl Chloride	ND - 140	7 of 40	2
		Chloroethane	ND - 24	4 of 40	5
		1,1 Dichloroethane	ND - 46	2 of 40	5
		1,2 Dichloroethene	ND - 300	6 of 40	5
		1,1,1 Trichloro-ethane	ND - 14	2 of 20	5
		Trichloroethene	ND - 34	2 of 40	5
		Benzene	ND - 10	13 of 40	1
		Chlorobenzene	ND - 19	7 of 40	5
Ground Water	Semi-volatile Organic Compounds (SVOCs)	Phenol	ND - 6	1 of 20	1
		bis(2-Ethylhexyl-phthalate)	ND - 22	7 of 20	5
Ground Water	Inorganic Parameters (metals) (Unfiltered)	Antimony	ND - 8.0	6 of 40	3
		Arsenic	ND - 90.5	6 of 40	25
		Barium	16.1 - 1,690	7 of 40	1000
		Iron	132 - 33,200	39 of 40	300
		Magnesium	1010 - 287,000	17 of 40	35,000
		Manganese	4.2 - 4,260	38 of 40	300
		Selenium	ND - 32.0	11 of 40	10
		Sodium	10,300 - 3,340,000	39 of 40	20,000
		Thallium	ND - 12	19 of 40	0.5

Table 1 (continued)
Nature and Extent of Contamination

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppb)
Ground Water	Inorganic Parameters (metals) (Filtered)	Antimony	ND - 9.3	3 of 29	3
		Arsenic	ND - 36.3	2 of 29	25
		Barium	ND - 1320	4 of 29	1000
		Iron	12.4 - 18,200	15 of 29	300
		Magnesium	637 - 250,000	10 of 29	35,000
		Manganese	10.5 - 3,690	15 of 29	300
		Selenium	ND - 14.5	6 of 29	10
		Sodium	85,200 - 3,450,000	29 of 29	20,000
		Thallium	ND - 6.7	19 of 29	0.5
Leachate	Volatile Organic Compounds (VOCs)	Benzene	ND (10) to 13	5 of 7	1
		Chlorobenzene	ND (10) to 70	5 of 7	5
		Ethylbenzene	ND (10) to 6	2 of 7	5
		Total Xylenes	ND (10) to 75	3 of 7	5
Leachate	Semivolatile Organic Compounds (SVOCs)	1,4 Dichlorobenzene	2 to 15	5 of 7	3
		2,4 Dimethylphenol	ND (10) to 2	1 of 7	1
		Naphthalene	ND (10) to 15	1 of 7	10
Leachate	Inorganic (metals) Parameters - Unfiltered	Barium	154 - 2,660	1 of 7	1,000
		Cadmium	3.1 - 27.5	5 of 7	5
		Chromium	1.1 - 50.5	1 of 7	50
		Copper	3.3 - 482	2 of 7	200
		Iron	44,200 - 363,000	7 of 7	300
		Lead	24.7 - 693	4 of 7	25
		Magnesium	36,900 - 59,900	6 of 7	35,0(
		Manganese	486 - 4,160	7 of 7	300

Table 1 (continued)
Nature and Extent of Contamination

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppb)
		Mercury	ND - 2.6	2 of 7	0.7
		Nickel	21.3 - 249	3 of 7	100
		Selenium	ND - 17.3	2 of 7	10
		Sodium	31,000 - 403,000	7 of 7	20,000
		Zinc	90.4 - 3,940	2 of 7	2,000
Test Pit Water	VOCs	1,1 Dichloroethene	14	1 of 1	5
		Trichloroethene	11	1 of 1	5
		Benzene	13	1 of 1	1
		Toluene	13	1 of 1	5
		Chlorobenzene	13	1 of 1	5
Surface Water	Inorganic (metals) Parameters - Unfiltered	Aluminum	34.2 - 592	11 of 13	100
		Cobalt	ND - 10.2	1 of 13	5
		Iron	128 - 6,620	9 of 13	300
		Selenium	ND - 14.9	12 of 13	4.6
		Cyanide	ND - 6.8	1 of 13	5.2
Surface Water Sediment	SVOCs	Phenol	180 - 440	2 of 5	5
Surface Water Sediment	Inorganic (metals) Parameters (ppm)	Antimony	ND - 12.5	1 of 5	2 / 25*
		Arsenic	1.2 - 49.2	1 of 5	6 / 33*
		Cadmium	0.72 - 16.9	5 of 5	0.6 / 9*
		Chromium	7.1 - 78.7	1 of 5	26 / 110*
		Iron	12,800 - 213,000	3 of 5	20,000/ 40,000
		Manganese	221 - 24,500	2 of 5	460 / 1000*

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs/Background	SCG/ Bkgd. (ppb)
		Nickel	12.0 - 99.3	2 of 5	16 / 50*
		Silver	1.1 - 21.6	5 of 5	1 / 2.2*
		Zinc	35.3 - 569	1 of 5	120 / 270*

* first value is lowest effect level; second is severe effect level

Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments." Analytical data for leachate samples were compared to groundwater standards.

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 RI Report.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

The Trimmer Road Landfill is located south of Lake Ontario in the plain created by glacial Lake Iroquois. The natural land surface ranges from 387 feet above mean sea level at the southeast corner to 367 feet at the northwest corner of the site. The landfilled portion of the property is a nearly square parcel of 40 acres with relief 10 to 25 feet above the surrounding land surface.

In the area surrounding the landfill the natural soil cover consists of two to seven feet of reddish brown, poorly sorted silt and fine sand. Bedrock beneath the site consists of the Queenston shale formation. At the depths encountered during the investigation, the Queenston shale formation at this site is predominately soft siltstone rock.

Groundwater is found at an average depth of three-and-one-half feet below the ground surface in the wells screened at the base of the overburden. It is found at an average depth of five feet below the ground surface in wells screened in the bedrock. In-situ hydraulic conductivity testing was performed to determine zones of preferred groundwater flow, and water level measurements were made to determine groundwater flow direction(s). In general, groundwater flow rates are slow and the direction of flow is toward the northwest, in both the overburden and bedrock. However observation of drill core and hydraulic tests indicate the presence of higher permeability zones in the bedrock which are characterized by fractures.

4.1.2: Nature of Contamination

The results of sampling and analysis for each medium of concern are summarized in Table 1. As described in the RI report, the main categories of contaminants which exceed their SCGs are inorganics (metals) and volatile organic compounds (VOCs). There are also a few instances where semi-volatile organic compounds (SVOCs) exceed SCGs. No pesticides or PCBs were detected in any of the samples analyzed.

The contaminants of concern for the Trimmer Road Landfill site are the inorganic contaminants aluminum, arsenic, cadmium, iron, manganese, nickel, sodium, silver, and thallium. The volatile organic contaminants (VOCs) are vinyl chloride, 1,1-dichloroethane, 1,2-dichloroethene, trichloroethene, benzene, chlorobenzene, and total xylenes. While there were exceedences for SVOCs, as shown on Table 1, the exceedences were small with respect to the SCGs and they are not considered to be contaminants of concern, which is to say that their presence were not a major factor in selecting a remedy.

- As indicated by the geophysical survey and confirmed by groundwater sampling, contaminated groundwater is migrating in the shallow subsurface to the northwest from the northwest corner of the landfilled area.

- Groundwater samples from 20 monitoring wells sampled in January and June 2000 contained 8 VOCs, 2 SVOCs, and 9 metals above SCGs. The highest levels of VOCs are found northward of the north-west corner of the site. In June 2000 the analyses did not include SVOCs.

- Private water supplies were sampled at 8 homes as part of the RI. No VOCs were detected in any of the samples; the metal iron exceeded SCGs in 2 samples. (The SCG for iron is based on addressing aesthetic concerns, e.g., staining). The samples were not analyzed for SVOCs (The NYSDOH sampled 4 private water supplies in 1997, and detected no contaminants.).

- Surface water sampling at 13 locations did not detect VOCs or SVOCs above SCGs. Four metals exceeded SCGs.

- Surface water sediment sampling did not detect VOCs above SCGs. One SVOC (phenol) was detected above SCGs in two samples of the 5 samples. Two or more metals exceeded SCGs in each of the samples. A total of 8 metals and cyanide exceeded SCGs in one or more samples.

- As indicated by the landfill gas survey, there were no exceedances of the SCG of 5% of the lower explosive limit for methane at any of the 49 sampling points. VOCs were not found at significant levels.

- Test pit excavations were performed to investigate the nature of the landfilling that took place. One sample of leachate was collected from a test pit. Five VOCs exceeded SCGs in that sample. SVOCs were not analyzed for. No exceedences were found for any analyte in the one subsurface soil sample collected from the test pit.

- Leachate was also observed on the northern and eastern slopes of the landfill. Leachate samples from 7 locations detected 4 VOCs, 3 SVOCs and 13 metals above SCGs.

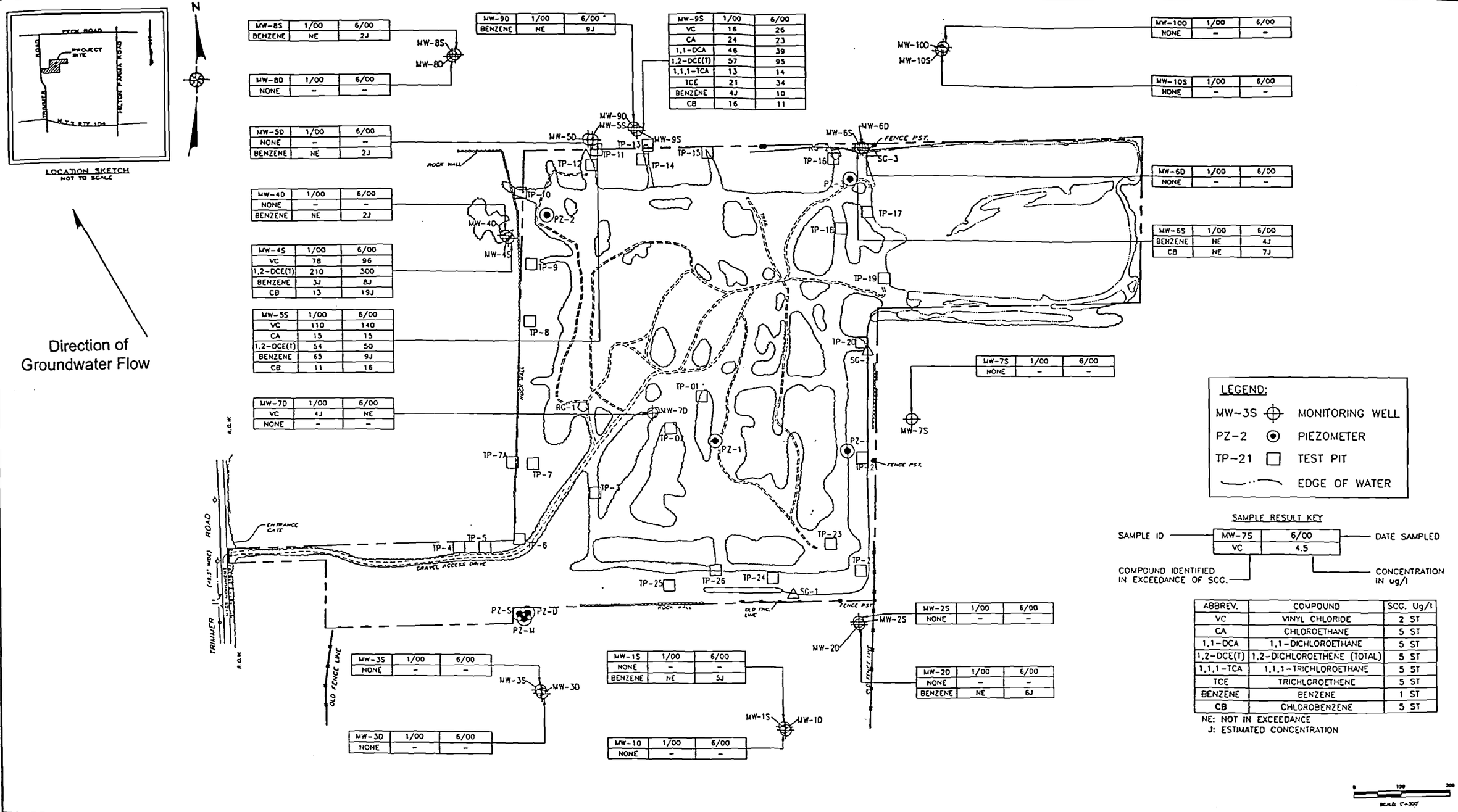
4.1.3: Extent of Contamination

The media of concern for the site are groundwater, leachate, and waste/subsurface soil. These are described below.

Groundwater

The area of highest VOC groundwater contamination is located beneath the northwest corner of the landfill and continues off-site to the northwest from this area as shown on Figure 2A.

Groundwater from several monitoring wells on-site or near the site contained elevated levels of metals. (See Figure 2B.) Iron was found in 39 of 40 analyses (unfiltered) at elevated levels up to 100 times the SCG value. Manganese was found in 12 of 40 analyses at levels up to 14 times the SCG; sodium in 39 of 40 analyses at up to 170 times SCG, and thallium in two analyses at up to 24 times the SCG.



TRIMMER ROAD LANDFILL
TOWN OF PARMA, NEW YORK

SCG EXCEEDANCES FOR VOCs IN GROUNDWATER

Dvirka and Bartilucci
Consulting Engineers
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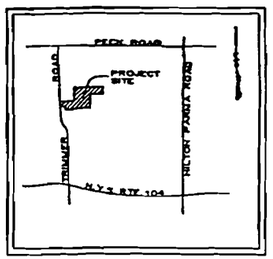
FIGURE 2A



LOCATION SKETCH
NOT TO SCALE

N

Direction of Groundwater Flow

MW-8S	1/00	6/00
Sb	4.2B	U
Fe	9,810	398
Mg	263,000	287,000
Mn	261	353
Na	449,000	441,000
Tl	7.0B	11.2

MW-8D	1/00	6/00
Fe	23,800	6,340
Mn	221	181
Se	U	10.8
Na	352,000	318,000
Tl	3.6B	U

MW-4D	1/00	6/00
Sb	5.5B	U
Fe	7,060	2,120
Mn	144	152
Se	U	14
Na	3,340,000	2,360,000
Tl	2.4B	U

MW-4S	1/00	6/00
Ba	1,630	1,500
Fe	16,200	622
Mg	105,000	97,600
Mn	4,260	3,750
Se	U	32
Na	489,000	402,000

MW-5S	1/00	6/00
As	58.7	NE
Ba	1,280	1,450
Fe	17,800	1,160
Mg	102,000	107,000
Mn	2,880	3,250
Se	U	11
Na	423,000	365,000

MW-7D	1/00	6/00
As	NE	25.9
Fe	10,800	2,600
Mn	231	19.9
Na	581,000	482,000
Tl	3.7B	U

MW-5D	1/00	6/00
Fe	5,290	2,500
Mn	92.8	84.2
Na	1,080,000	994,000
Tl	6.9B	U

MW-9S	1/00	6/00
Sb	5.7B	8.0B
Ba	1,690	1,180
Fe	25,600	1,240
Mg	106,000	112,000
Mn	2,820	3,740
Ni	12B	12B
Se	U	32.0
Na	740,000	709,000
Tl	U	U

MW-9D	1/00	6/00
Fe	12,800	3,190
Mn	166	103
Na	987,000	883,000
Tl	3.0B	U

MW-10D	1/00	6/00
Fe	4,060	1,800
Mn	91.7	57.1
Na	496,000	1,370,000
Tl	4.5 B	U

MW-10S	1/00	6/00
As	31.5	28.2
Fe	5,900	2,590
Mg	NE	38,600
Mn	1,130	1,270
Se	U	14.6
Na	88,500	83,300
Tl	2.7B	U

MW-6D	1/00	6/00
Sb	5.8B	U
Fe	1,470	1,430
Mg	51,300	55,000
Mn	81.3	50.9
Na	1,150,000	1,030,000
Tl	4.7B	U

MW-6S	1/00	6/00
Sb	U	6.5B
As	49.0	90.5
Ba	NE	1,580
Fe	8,620	13,900
Mg	NE	104,000
Mn	815	2,930
Se	U	18.7
Na	68,300	278,000
Tl	6.9B	U

MW-7S	1/00	6/00
Fe	6,560	NE
Mg	52,700	NE
Mn	147	NE
Se	U	14.2
Na	86,900	NE
Tl	2.7B	U

MW-2S	1/00	6/00
Fe	5,000	331
Mn	187	NE
Se	U	13
Na	52,200	43,800
Tl	2.5B	U

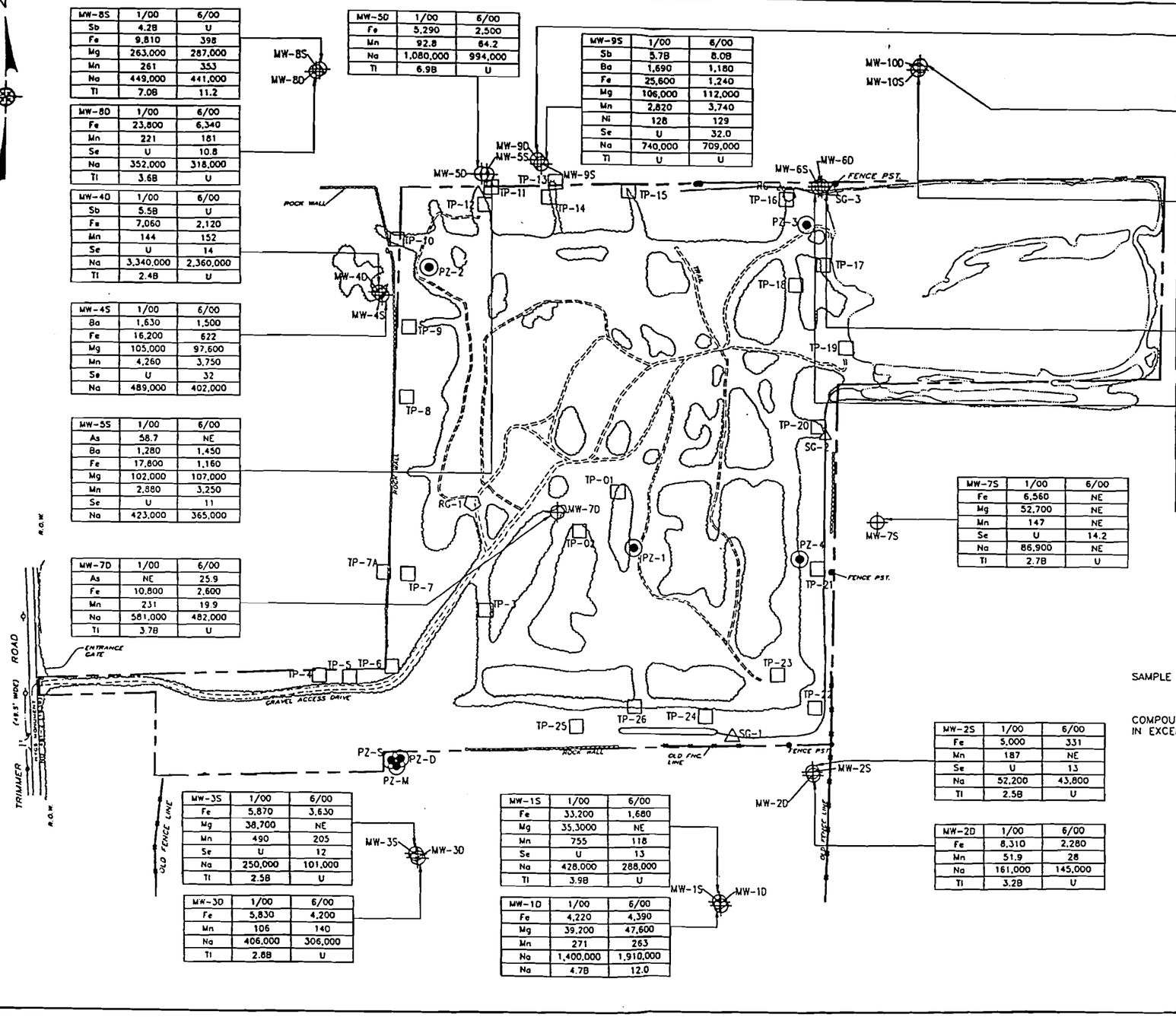
MW-2D	1/00	6/00
Fe	8,310	2,280
Mn	51.9	28
Na	161,000	145,000
Tl	3.2B	U

MW-3S	1/00	6/00
Fe	5,870	3,630
Mg	38,700	NE
Mn	490	205
Se	U	12
Na	250,000	101,000
Tl	2.5B	U

MW-3D	1/00	6/00
Fe	5,830	4,200
Mn	106	140
Na	406,000	306,000
Tl	2.8B	U

MW-1S	1/00	6/00
Fe	33,200	1,680
Mg	35,3000	NE
Mn	755	118
Se	U	13
Na	428,000	288,000
Tl	3.9B	U

MW-1D	1/00	6/00
Fe	4,220	4,390
Mg	39,200	47,600
Mn	271	263
Na	1,400,000	1,910,000
Na	4.7B	12.0



LEGEND:

MW-3S	⊕	MONITORING WELL
PZ-2	◉	PIEZOMETER
TP-21	□	TEST PIT
	~·~	EDGE OF WATER

SAMPLE RESULT KEY

SAMPLE ID → MW-7S | 6/00 ← DATE SAMPLED
COMPOUND IDENTIFIED IN EXCEEDANCE OF SCG. → Tl | 4.5 B ← CONCENTRATION IN ug/l

ABBREV.	ELEMENT	SCG. Ug/l
Sb	ANTIMONY	3 ST
As	ARSENIC	25 ST
Ba	BARIUM	1,000 ST
Fe	IRON	300/500 ST
Mg	MAGNESIUM	35,000 GV
Mn	MANGANESE	300/500 ST
Ni	NICKEL	100 ST
Se	SELENIUM	10 ST
Na	SODIUM	20,000 ST
Tl	THALLIUM	0.5 GV

NE: ANALYTE DETECTED AT A CONCENTRATION BELOW SCG.

U: ANALYTE NOT DETECTED.

0 150 300
SCALE: 1"=300'

TRIMMER ROAD LANDFILL
TOWN OF PARMA, NEW YORK

SCG EXCEEDANCES FOR TOTAL METALS IN GROUNDWATER

Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Cosulich Associates, P.C.

FIGURE 2B

Groundwater from several monitoring wells on-site or near the site contained elevated levels of VOCs. Vinyl chloride was found in 7 of 40 analyses at levels ranging up to 70 times the SCG value, 1,2-dichloroethene was found in 6 analyses at up to 60 times the SCG, and benzene in 13 analyses at up to 10 times the SCG.

Leachate

Leachate from several seeps on-site contained elevated levels of VOCs. Benzene was found in 5 of 7 samples at levels ranging up to 13 times the SCG value, chlorobenzene in 5 of 7 samples up to 14 times SCG, and total xylenes in 3 of 7 samples at up to 15 times SCG.

Subsurface Soil / Wastes

Chemical analysis of the one subsurface soil sample collected from a test pit did not show any exceedances for any SCG. Nonetheless, the wastes are the only source for the contaminants found in groundwater and leachate. Therefore human and wildlife contact with waste materials and subsurface soils in the landfill must be prevented or controlled. Therefore, subsurface soil/wastes are considered to be a medium of concern.

4.2: Summary of Human Exposure Pathways:

This section summarizes the types of human exposures which may be presented by the site. An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

There are potentially completed pathways for human exposure that exist at the site today. These are exposure to exposed wastes and leachate. Groundwater under and near the site within the zone of contamination is not used as a potable water source, therefore groundwater does not represent a completed pathway. It does however remain a potential pathway.

Contaminants have been measured above standards, criteria and guidelines for leachate and groundwater. While contaminant levels are fairly low for the most toxic contaminants, and confined to areas on or near the site, there are several pathways which may possibly be completed in the future. These include:

- Ingestion of contaminated groundwater as a result of migration and subsequent use of groundwater as a source of potable water;
- Dermal contact, ingestion, and inhalation as a result of excavation of waste materials and contaminated soil; and
- Dermal contact, ingestion and inhalation if contaminated subsurface wastes, exposed at the surface, are contacted during recreational use of the land.

4.3: Summary of Environmental Exposure Pathways

Monitoring data from the Trimmer Road Landfill indicate relatively low levels of contaminants in the groundwater and leachate, and lower levels in the surface water, surface water sediments and subsurface soils.

Waste and leachate are the media most likely to lead to exposure of the local biological community to contaminants. However it appears that exposure is limited due to the relatively low concentration of the most toxic contaminants in these media.

If the site is left unremediated, over time contaminants of concern could bioaccumulate in resident pond biota (fish), which in turn could be preyed upon by local wildlife (including such species as osprey). This would complete the contaminant pathway exposure route from landfill to seeps to pond to fish to wildlife.

Upland plants such as the those presently growing on the top and side slopes of the landfill are, for the most part, isolated from groundwater. Evidence of the occurrence of chlorisis, leaf discoloration, or death of plants was not observed during the fish and wildlife investigation conducted during the RI. The grasses, shrubs and trees present on the Trimmer Road Landfill will likely continue to thrive. It is unlikely that contaminant concentrations will be high enough in the future to adversely affect vegetation, even if they are in contact with these levels of contaminants.

SECTION 5: 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.

In addition to the owner and former operators of the site, several local waste generators and transporters are potentially responsible parties. The Department will review the data developed by the RI/FS and any data that may be developed during remediation to further evaluate liability and cost recovery issues.

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. The overall remedial goal is to meet all Standards, Criteria and Guidance (SCGs) and be protective of human health and the environment. 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 at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Prevent the contamination of area groundwater that is used as a source of potable water;

- Prevent the generation of contaminated groundwater that is produced by precipitation migrating downward through the landfill waste to the water table;
- Prevent exposure of the human and wildlife populations to wastes in the landfill;
- Reduce or eliminate the leachate seeps that are emerging from the side slopes of the landfill;
- Minimize the potential for exposures to future site users by taking the above actions, and
- Limit land use at the site through a deed restriction.

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 laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Trimmer Road Landfill site were identified, screened and evaluated in the Feasibility Study report dated January 2001.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated leachate, groundwater, and exposed wastes at the site. Four alternatives were chosen for detailed analysis. These are (1) no-action with long-term monitoring, (2) soil cover with long-term monitoring, (3) evapotranspiration cover with long-term monitoring, and (4) Part 360 cap with long-term monitoring.

Site-wide Alternative 1:

No Action Alternative: No direct remediation activities (that is, no construction activities) would be undertaken, but periodic groundwater monitoring would be initiated.

Present Worth: ..... *$ 59,200*
Capital Cost: ..... *$ 15,000*
Lifetime O&M: ..... *$ 44,200*
Time to Implement ..... *½ year*
Period of Long-Term Monitoring ..... *30 years*

Alternative 1, the "No Action" alternative, provides a basis for comparison with other alternatives, in order to evaluate their effectiveness. Under this alternative there would be no remediation at the site. However, long-term monitoring would be carried out to ensure that contaminant conditions do not worsen. The present worth cost estimate for long-term monitoring includes the cost of two additional monitoring wells which would be placed to the northwest of the site.

Site-wide Alternative 2:

Soil cover: A soil cover would be constructed to reduce infiltration by improving runoff, groundwater monitoring would be initiated, and deed restrictions would be implemented.

Present Worth: *$3,470,200*
Capital Cost: *$3,308,000*
Lifetime O&M: *$162,200*
Time to Implement ..... *1-2 years*
Period of Long-Term Monitoring ..... *30 years*

This alternative would require placement of large quantities of soil to create a new contour to the surface of the landfilled portion of the site. By achieving a minimum 4% slope storm water drainage would be promoted. In addition, a minimum 12-inch permeable soil layer would cover the 36-acre waste mass and 4-acre area of side slopes.

This cover system would reduce leachate generation and groundwater contamination, and would eliminated potential exposure of human and wildlife users of the land. In addition to the surface contouring, several holding ponds would be constructed off the landfill area to control storm runoff.

Long-term monitoring would be carried out to ensure that contaminant conditions do not worsen. Additional groundwater monitoring wells would be installed north and west of the site. Deed restrictions would be implemented to prevent activities that would threaten the effectiveness of the remedy. The purpose of the deed restrictions would be to protect the remedy and reduce or eliminate future exposures to wildlife and any members of the general public who may have access to the site.

Site-wide Alternative 3:

Evapotranspiration cover: A cover of soil enhanced with organic material would be constructed, and special kinds of vegetation, such as hybrid poplar trees, would be planted on the upper flat portion of the landfill. The vegetation would intercept infiltrating water and evapotranspire it to the air. An operations and maintenance program would be instituted to ensure continued growth of the selected vegetation and groundwater monitoring would be performed. Deed restrictions would be implemented.

Present Worth: ..... *$ 2,525,200*
Capital Cost: ..... *$ 2,380,000*
Lifetime O&M: ..... *$ 145,200*
Time to Implement ..... *3 - 6 years*
Period of Long-Term Monitoring ..... *15 years*

Certain trees are known to grow rapidly, take up significant quantities of water, and also break down certain volatile organic compounds such as the contaminants at the site. Under this alternative, a soil cover would be installed, consisting of soil enhanced by the addition of organic material. This cover would be planted with a special variety of hybrid poplar trees. The treatment would be limited to the upper 36-acre portion of the landfill plus other areas most heavily affected by shallow subsurface contaminant migration (in the northwest corner both on and off site). Side slopes would have a minimum of one foot of added soil cover to bring the side slope cover thickness to one and one-half

to two and one-half feet in thickness. Side slope cover would not be enriched since the poplars would not be planted on the side slopes, due to maintenance concerns and the fact that side slopes are sufficiently steep to promote runoff. This approach would provide limited regrading to promote runoff and eliminate ponding.

The climate in which the landfill is located is "humid-continental," with average annual precipitation of 31 inches, including 80 inches of snowfall. During the winter months the poplar trees lose their leaves, and no evapotranspiration takes place. During this time other features of this alternative would help mitigate the effects of precipitation. These features include, (1) elimination of ponding and some improvement to site drainage with installation of the enhanced soil cover, (2) improved "available water holding capacity" of the enhanced soil would store a designed amount of precipitation (for example, 8 inches), and (3) frozen ground during the winter months is relatively impervious to infiltration, and runoff is expected to increase during this condition.

This system would employ innovative technology, utilizing the principle of evapotranspiration to limit percolation through the waste zone and thereby limit leachate generation and contaminant migration.

Hybrid poplar trees would also be planted in the area of highest groundwater contamination near the northwest corner of the site. Groundwater is shallow enough here to allow for uptake and breakdown of the VOCs, a process known as phytoremediation. (Phytoremediation relies on natural processes of plant respiration. It is a technology used to remediate contaminated groundwater, leachate and soil.) The process involves the root system taking up contaminants and circulating them through the plant, where they are converted to less toxic metabolites. Significant research has been completed using hybrid poplar trees for the purpose of landfill remediation.

In order to evaluate the effectiveness of this alternative for the Trimmer Road Landfill, a three-year pilot study would be performed to demonstrate the efficacy of this innovative approach. The pilot study would compare test plots of hybrid poplars versus a selected grass cover. The pilot study will be designed to determine if the use of hybrid poplar trees would significantly reduce the infiltration of precipitation into the waste mass. Given the relatively low level of contamination at this site, it is expected that the use of this cover system would result in achieving the remediation goals for the site at significantly less cost than other alternatives.

Long-term monitoring would be carried out to ensure that contaminant conditions do not worsen. Additional groundwater monitoring wells would be installed north and west of the site. These wells will be used to monitor whether the off-site plume is expanding, contracting, or not changing. If data indicates that the plume is expanding and could contaminate residential water supplies, additional active measures (e.g., groundwater collection) would be taken to control the plume.

The final remediation would also include long-term monitoring, and deed restrictions to prevent activities that would threaten the effectiveness of the remedy as described under Alternative 2.

Site-wide Alternative 4:

Part 360 cap: a low permeability cap would be constructed to Part 360 standards to reduce infiltration. An operations and maintenance program would be instituted and groundwater monitoring would be performed. Deed restrictions would be implemented.

Present Worth: ..... *$ 7,887,200*
Capital Cost: ..... *$ 7,590,000*
Lifetime O&M: ..... *$ 297,200*
Time to Implement ..... *1 - 2 years*
Period of Long-Term Monitoring ..... *30 years*

The Part 360 cap uses standard technology for closure of landfills. Fill material would be placed to contour the landfill surface to enhance surface drainage, a plastic geomembrane would be used to cover the entire surface of the landfill. The geomembrane would be protected by an additional layer of soil placed on top, a drainage layer, and a vegetation (grass) layer.

While the landfill gas survey conducted during the RI detected methane at only one of 49 locations, it is likely that the seal provided by the geomembrane would entrap any methane being generated. Therefore, a venting system would likely be necessary.

The final remediation would also include long-term monitoring. Two additional groundwater monitoring wells would be installed north and west of the site. Deed restrictions would be implemented to prevent activities that would threaten the effectiveness of the remedy as described under Alternative 2.

Runoff from the cover would be directed to the site pond and to detention basins that would be constructed to the north/west of the site.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375).

For each of the listed criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Feasibility Study.

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

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The most significant SCGs for this site are the landfill closure requirements of 6 NYCRR Part 360, Class GA groundwater standards (NYCRR Part 703), Ambient Water Quality Standards and Guidance Values (TOGS 1.1.1), and subsurface soil and waste screening levels from TAGM 4046.

The main performance requirements of a Part 360 cover system can be summarized as meeting two main goals, 1) preventing exposure to contaminated waste materials, and 2) minimizing the infiltration of precipitation into the waste mass. Water that infiltrates into the waste mass can then produce contaminated leachate that could be released to the surface or to groundwater. Alternatives 2, 3, and 4 represent to varying degrees the ability to achieve the performance standards of Part 360.

Alternative 4 meets the current Part 360 requirements. Alternatives 2 and 3 would reduce infiltration into the waste mass in order to minimize leachate generation. Alternative 3 would reduce infiltration more than Alternative 2. All three alternatives would prevent exposure to contaminated waste materials.

Alternative 1, the "No Action" alternative would not achieve goals for metals or VOCs in either leachate or groundwater. This alternative might eventually achieve cleanup standards for VOCs due to degradation by natural processes. However, existing data are not sufficient to identify which processes, if any, are occurring at this site or to support "natural attenuation" as a viable remediation strategy.

Alternatives 3 and 4 are expected to achieve SCGs for VOCs, and metals in the leachate, and VOCs in groundwater by the reduction of infiltrating precipitation. Alternative 2 would substantially but not completely achieve SCGs in leachate and groundwater. The result would be to reduce contaminants to levels where the potential for migration would be minimized. Alternative 3 would be expected to reduce infiltration to levels similar or somewhat better than Alternative 2. Alternative 4 would provide the greatest reduction in infiltration but the ultimate improvement of groundwater quality would likely be similar under Alternatives 2-4.

2. 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.

Alternative 1 would meet this criterion only in the long-term, if at all. Alternative 2 would reduce exposures by (1) covering the wastes and (2) by reducing the rate of leachate generation through reduction of surface water infiltration. Alternatives 3 and 4 are expected to be protective of human health with respect to on-site exposure by isolating waste beneath a cap, and reducing leachate generation to minimal levels and groundwater contamination by reducing and minimizing surface water infiltration through the wastes. While the exact reduction in infiltration rate for an evapotranspirative cover is not known for this site, the value would be determined before construction by conducting the pilot study.

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 and the environment during the construction and/or implementation are evaluated under this criterion. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Potential short-term impacts would include remediation worker exposure or exposure to the casual user of the land during remedial construction activities. Remediation personnel would be protected throughout these activities through implementation of site-specific health and safety procedures. The general public would be protected through implementation of dust control methods along with a community air monitoring/contingency plan.

One of the main challenges regarding the remediation of this site is the flat topography. To reduce infiltration of precipitation through a cover system, standard practice includes sloping the cover to increase runoff. Because the site and surrounding area is quite flat, extensive regrading of the site

would be necessary under Alternatives 2 and 4 to provide minimum slopes for a sloped cover system. Large scale cut-and-fill during construction would raise the possibility of problems with vapor releases and odors. Engineering controls could be employed to minimize these effects.

An additional short-term impact of regrading would be the need to manage increased runoff. Although the east and most of the south side of the site would eventually drain to the on-site pond, runoff from the north and west would run onto adjacent property. To prevent flooding, detention basins would have to be built to handle the increased runoff from Alternatives 2 and 4. Alternative 3 has the significant benefit of handling the bulk of precipitation through enhanced evapotranspiration during the late spring, summer and early autumn. During other periods of the year, the elimination of ponding as a result of placing the enhanced soil cover, improvement to "available water holding capacity" by the enhanced soil, and reduced infiltration into frozen ground during the winter months would combine to reduce infiltration of precipitation.

The length of time needed to achieve the remedial objectives is estimated to be one to two years under Alternatives 2 and 4, and five to six years under Alternative 3. The longer time associated with Alternative 3 is due to the pilot test that would be conducted prior to full implementation of the technology. Since the site conditions appear stable, the additional time needed to complete the pilot test should not cause any significant worsening of conditions. Review of the literature has shown that an evapotranspirative cap should reach partial effectiveness in two years and be fully functional in about three years.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. Since wastes will 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 controls intended to limit the risk, and 3) the reliability of these controls.

Under Alternative 1, wastes would remain on-site continuing to generate leachate and groundwater contamination. The level of risk would continue at the present unacceptable level. The only control would be the monitoring of groundwater to determine if the water supplies of nearby residents were being threatened by an expanding groundwater plume. The other exposure pathways would not be adequately addressed.

Under Alternatives 2, 3, and 4, the leaching of wastes would by reduced upon implementation of the remedy, significantly reducing the time required for groundwater to achieve SCGs with respect to organic contaminants, and minimizing or eliminating leachate outbreaks onto the surface. While it is not possible to predict the exact magnitude of reduction, the relative reduction would likely improve in increasing order from Alternative 2 Soil Cover to Alternative 3 Evapotranspiration to Alternative 4 Part 360 Cap. The reliability varies from alternative to alternative, but each is considered reliable.

Each of these three alternatives would rely upon containment. While each one employs a different technology, all three employ passive technologies. That is, they do not require pumps or other machinery that require periodic replacement.

The difference between the alternatives is the amount of maintenance required to keep the remediation in proper condition to function as designed. Alternative 4 would require the greatest maintenance, since the Part 360 cap would have to be mowed regularly to prevent growth of plants

whose roots might penetrate the cap and provide access for infiltrating water. Failure to properly maintain the cap would reduce the effectiveness. Alternative 2 would require periodic mowing as well as maintenance of the stormwater retention basins, drainage swales and stream channel. Alternative 3 would require a higher initial maintenance until the poplar trees become established. Following the initial maintenance period of several years, maintenance requirements would decrease. With proper maintenance any of these remedial strategies would continue to remain effective.

While the magnitude of the remaining risks is greatly reduced over current risks, each alternative anticipates the use of a deed restriction to protect the selected remedy and to limit future risk.

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.

The "No Action" alternative would not actively reduce contaminant concentrations currently present at the site. The only reductions in toxicity, mobility or volume of contamination would be as a result of unspecified natural degradation processes. Therefore it is not possible to predict the rate at which improvement would occur.

Alternatives 2, 3 and 4 would eliminate the possibility of exposure to wastes buried on-site, and would reduce the rate of leachate generation and groundwater migration. Since the wastes would remain in place there would be little if any reduction in volume. However, each would reduce the rate of generation of leachate and groundwater contamination.

Alternative 2 would reduce mobility by reducing the infiltration of water through the wastes and thereby reduce the rates of leachate and groundwater migration. Alternative 4 would achieve the objective by the same overall strategy, but a Part 360 cap would be expected to achieve it more effectively.

Alternative 3 would also reduce leachate and groundwater contamination generation, but would have the added advantage of directly breaking down a portion of the volatile organic contaminants.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated under this criterion. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

Alternatives 2 and 4 utilize conventional technologies and should encounter no difficulties with implementability. Alternatives 2 and 4 would require large amounts of regrading and imported fill to obtain necessary slopes to promote runoff. As discussed under short-term impacts, detention basins would be needed to prevent flooding of adjacent properties. There is some uncertainty about whether the recharge rates in these basins would be high enough to prevent the basins from spilling over and flooding adjacent properties.

Alternative 3 would utilize 70% less fill material and would employ tree saplings that are readily available and are self regenerating.

The administrative aspects of all alternatives are equally implementable. The implementation of the deed restrictions would require the cooperation of the present land owner.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis under this criterion. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision.

The costs associated with each alternative are presented in Table 2. As Table 2 makes clear, the cost of implementing Alternative 4, $7,887,200, is considerably greater than the others. This is due to costs associated with construction of an engineered Part 360 cap. Alternative 4 does not provide environmental and human health improvements proportionate to the additional costs.

Alternatives 2 and 3 have similar costs associated with them. Alternative 2 would cost $3,470,200 and Alternative 3 $2,525,200. While Alternative 2 would cost somewhat more, it would also require a higher level of maintenance throughout its life cycle and would likely provide a lower level of effectiveness in reducing infiltration.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the manner in which the Department will address the concerns raised. The comments received related to the following areas: general questions about the remedy and the site, questions related to the selected alternative, and miscellaneous questions and comments. In general the public comments received were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting **Alternative 3** as the remedy for this site. Alternative 3 consists of a soil mixture enhanced with organic material and an evapotranspirative vegetative cover of hybrid poplar trees. This remedy will be placed on the upper flat portion of the landfill to reduce infiltration, and on an area overlying contaminated groundwater to the northwest of the site.

While the "no action" alternative (Alternative 1) would not comply with the threshold criteria, Alternatives 2, 3 and 4 would. Alternatives 2, 3 and 4 all provide isolation of wastes, but differ in the degree to which they would reduce or eliminate leachate generation and groundwater contaminant migration and the extent to which they would actively break down volatile organic contaminants. Alternative 3 is expected to be more effective than Alternative 2, and Alternative 4 would reduce infiltration more than Alternative 3. However, Alternative 3 has the dual benefits of both reducing leachate and groundwater contamination generation and decomposing volatile organic compounds. It also employs an innovative technology and has substantially lower cost.

The estimated present worth cost to implement the selected remedy is $2,525,200. The cost to construct the remedy is estimated to be $2,380,000. The estimated present worth cost for operations, maintenance, and long-term monitoring is $145,200.

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Lifetime O&M	Total Present Worth
No Action	$15,000	$44,200	$59,200
Soil Cover	$3,308,000	$162,200	$3,470,200
Evapotranspirative Cover	$2,380,000	$145,200	$2,525,200
Part 360 Cap	$7,590,000	$297,200	$7,887,200

The elements of the selected remedy are as follows:

1. A pilot study to evaluate the effectiveness of the remedy and to collect information for the final design, including the reduction of infiltrating precipitation during the winter months.

2. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved.

3. Construction of the evapotranspirative cap and placement of the poplar saplings.

4. Implementation of the long-term monitoring program.

5. If data indicate that the plume is expanding and could contaminate residential water supplies, additional active measures (e.g., groundwater collection) will be taken to control the plume.

6. Deed restrictions will be implemented to prevent activities that would threaten the effectiveness of the remedy (e.g., damaging the cover system, extracting groundwater for potable use).

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

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

- A repository was established for documents pertaining to the site.
- A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.
- A fact sheet was distributed to the mailing list at the start of field activities.
- A meeting notice/fact sheet was distributed to the mailing list upon publication of the Remedial Investigation, Feasibility Study and Proposed Remedial Action Plan (PRAP).
- A public meeting was held to present the findings of the PRAP, answer the public's questions, and receive public comments.
- In March 2001 a Responsiveness Summary was prepared and made available to the Public, to address the comments received during the public comment period for the PRAP.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Trimmer Road Landfill Site
Proposed Remedial Action Plan
Parma (T), Monroe County
Site No. 8-28-012

The Proposed Remedial Action Plan (PRAP) for the Trimmer Road Landfill site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 16, 2001. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the Trimmer Road Landfill site. The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability. The selected remedy is described in Section 8 of the ROD, above.

A public meeting was held on February 26, 2001 which 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.

Written comments were received from Assemblyman Charles Nesbitt. The public comment period for the PRAP ended on March 22, 2001.

This Responsiveness Summary responds to all questions and comments raised at the February 26, 2001 public meeting and to the written comments received.

The following are the comments received at the public meeting, with the NYSDEC's responses:

Comment 1: Alternative 3 sounds experimental. Why was Alternative 3 chosen over Alternative 2?

Response 1: Alternative 3 has important advantages over Alternative 2. These include: (1) Alternative 2 would require extensive cut and fill of existing waste before placement of the permeable cap in order to achieve the slopes required for runoff of surface water. During the cut and fill operations waste would be exposed creating potential odor and air emission concerns. Deep excavations into waste also would create concerns for releases during heavy rain storms. (2) Alternative 2 would function by producing increased runoff. Additional retention ponds would be required in order to handle the increased runoff to prevent flooding problems on properties around the site.

C 2: Where else has this [an evapotranspiration cover] been used? At how many other locations has this been done?

R 2: The vendor that prepared the conceptual plan used to develop the cost figures reports that they have installed evapotranspiration and phytoremediation caps at 45 sites in the United States. Locations include both inactive and active hazardous waste sites, agrochemical spill areas,

municipal landfills, and so forth. Landfill installations are located in the states of Pennsylvania, Michigan, Missouri, and Virginia, and Oregon, and superfund sites are located in New Hampshire, South Dakota, and Tennessee.

Evapotranspiration covers are a new (emerging) technology at hazardous waste sites. The Trimmer Road Landfill is the second hazardous waste site in New York where an evapotranspiration cover has been proposed. That is why the three year pilot study is incorporated into the proposed remedy - to demonstrate that the cover will work in the climate of Monroe County, New York.

C 3: Did you consider any active permanent remediation measures, such as a drain to pump the leachate out? Has any thought been given to active remediation of groundwater?

R 3: Active remediation measures were considered during the selection of remedial technologies. They were ruled out because the relatively low levels of contamination do not justify the relatively high costs associated with operation and maintenance of such systems.

C 4: What if the pilot test does not prove out? Will another alternative be implemented? Might active remedies be considered in the future?

R 4: If the pilot test fails to demonstrate the efficacy of the remedy, another remedy will be chosen, most likely Alternative 2. It is unlikely that active remedies would be considered in the future.

C 5: The costs of the Alternatives, especially Alternative 4, seem high. The cost of installing a Part 360 cover system should be less than $7 million.

R 5: The relatively high cost of installing a Part 360 cover system results from several factors, including the need to relocate a substantial volume of the existing waste material in order to achieve the minimum slopes required by the Part 360 regulation.

C 6: Will the contamination ever go away completely?

R 6: The contamination is expected to diminish to levels considered safe from the standpoint of human health and wildlife exposure. The length of time required to reach safe levels varies between the alternatives. The remedy should achieve remedial goals in much less time than for Alternative 1 (the no action remedy), and slightly faster than Alternative 2.

A number of the metals present at levels above SCGs (for example, iron, manganese) are also present in the natural environment in the vicinity of the landfill. Clearly, these would not be expected to go away completely.

C 7: What size will the mound be after remediation?

R 7: With the proposed remedy, the mound would be approximately the same size it is now. Approximately two feet of fill will be added over the top, and somewhat less on the sides.

C 8: Will you re-grade off site, especially in the northwest corner?

R 8: The remedy calls for planting trees in the northwest corner, but there are no plans for re-grading off site.

C 9: Will the landfill settle more after the remedy and "squeeze" out more leachate?

R 9: The landfill has not received waste since 1974; it is not expected to settle or squeeze out more leachate under the proposed remedy. Alternatives 2 and 4, which require cutting and filling operations with the waste would likely produce some settling following remedial construction.

C 10: How much of the waste in the landfill is saturated (below groundwater)?

R 10: Examination of aerial photographs taken during the landfilling operation suggest that the thin layer of surface soil was stripped off prior to placement of waste. However, these photographs do not show standing water. The water level in a monitoring well installed into the waste suggests that the bottom foot or so of waste may be saturated with water during the high water table season of the year.

C 11: Will groundwater monitoring be performed for 30 years?

R 11: Groundwater monitoring will continue as long as needed to ensure that the site remedial goals are being met. Long-term cost estimates are based upon 30 years for consistency. Groundwater monitoring at landfill sites can continue indefinitely. The relatively low levels of contamination at this site imply that monitoring could end in less than 30 years. Details of the groundwater monitoring plan can be found in Appendix B of the Feasibility Study document. The cost estimates provided there detail the number and frequency of samples in the groundwater monitoring program.

C 12: Are limitations placed on when someone could develop the property?

R 12: The proposed mechanism for controlling development of the property is "deed restrictions." Deed restrictions are an "institutional control" that is incorporated into the title to the land and will apply to future as well as present land owner(s). In this sense there is no limit to the length of time they will apply.

A deed restriction is tailored to the conditions at a given site, and does not necessarily preclude all development activities. Rather, it limits development to activities consistent with the remedy.

C 13: How will deed restrictions work?

R 13: A Deed restriction consists of language that is inserted into the deed to a property. The language specifies activities that shall not be carried out on the site.

C 14: What was the type of cyanide found in the sediment? Which semi-volatile organics? What were the ranges?

R 14: No cyanide was found in the surface water sediments. Cyanide was found above SCGs in one of the surface water samples at 6.8 ppb verses a standard of 5.2 ppb. It was also found in 24 groundwater samples, but at levels substantially below the SCG.

The range of values for contaminants that exceeded SCGs, arranged by medium, can be found in Table 1 of the Record of Decision (ROD). A compilation of all analytical results from the remedial investigation can be found in the Remedial Investigation Report, Appendix I. Summaries of the data can be found in the PRAP, Figures 2A and 2B, and in the Remedial Investigation report, Figures 4-2 through 4-3.

C 15: What did you find in the monitoring wells in the northwest corner of the site?

R 15: The monitoring wells in the northwest corner of the site consist of an overburden and bedrock well at each of the following locations: MW-4, MW-5, MW-8, and MW-9. Among these wells lower levels of volatile organic compounds such as benzene, chlorobenzene and dichloroethane and vinyl chloride were found. The maximum levels were: benzene 65 ppb, chlorobenzene 19 ppb, dichloroethane 300 ppb and vinyl chloride 140 ppb.

Elevated levels of metals are also found in these wells, but the values are similar to those found in wells in other areas of the landfill.

The range of values for contaminants that exceeded SCGs, arranged by medium, can be found as explained in Response 14.

C 16: What were the results of the water sampling from the pond?

R 16: None of the four water samples from the pond contained any volatile organic compounds above the SCG value. They did exceed SCGs for the metals aluminum, iron, and selenium, as did other surface water samples. Cyanide was found in one sample at 6.8 ppb, compared with an SCG of 5.2 ppb.

The range of values for contaminants that exceeded SCGs, arranged by medium, can be found as explained in Response 14.

C 17: Is a film that looks like an oil sheen an indication of groundwater contamination from the landfill?

R 17: An oil-like sheen on the surface of water may indicate contamination from the landfill. However, a sheen may also come from a number of other sources (some natural, such as the decomposition of organic matter). Unless there is a clear connection between the oil sheen and the landfill, the source cannot accurately be inferred.

C 18: Please describe more about the pilot test. (When and where will the planting take place? How big will the pilot test plots be?)

R 18: The Pilot Test will consist of four separate test plots, each approximately 60 feet by 100 feet. The ground will first be prepared by laying down a plastic liner to trap downward migrating moisture. Next instruments called "permeameters" will be placed to measure the amount of moisture reaching the plastic liner. Then soil will be placed to support the vegetation to be tested. Two of the plots will contain soil designed with moderate moisture retention capacity (MRC) and two will contain soil with high moisture retention capacity. One high MRC and one medium MRC plot will be planted with the hybrid poplars, and the other two will be

planted with a grass cover. The trees will be cared for in a similar way to the maintenance called for in full-scale remedy. The grass will be mowed once or twice per season.

C 19: During the pilot test for the poplar trees, what will the DEC measure to determine if the test is successful?

R 19: The water measurements determined by reading the permeameters will be compared to determine which planting does the best job of limiting infiltration.

C 20: Will the poplars reduce the concentration of metals in groundwater? Will metals precipitate or flow away into off-site areas close to the landfill?

R 20: Metals levels in groundwater tend to decrease with distance from the landfill. (Compare, for example, the levels in MW-5, near the edge of the landfill, with MW-8, approximately 400 feet distant. See Figure 2B.) The decrease is most likely as a result of precipitation and adsorbtion of metals onto soil particles.

The hybrid poplars that will be planted near the northwest corner of the landfill are intended to address VOCs; however, experience at other sites suggests that they may have some impact on metals.

The conclusion is that metals from the site do not move far from the site in groundwater.

C 21: Will there be any phytoremediation for the pond?

R 21: None is planned at this time.

C 22: What will be the source of the funding for the remedy?

R 22: As with the investigation, the source of funding is expected to be the State Superfund. Additional attempts to have responsible parties pay for the work will be made. New York State is in the process of establishing a mechanism for the long-term refinancing of the State Superfund. Assuming that the plan proposed by the Governor, or something similar, is adopted, funding will be available to complete the remedy.

C 23: If Alternative 3 doesn't work out, will you have a funding problem?

R 23: No. If funds are available to perform remedial design and initiate construction, they will be available to implement another alternative if required.

C 24: Are the costs of maintenance included in the estimates for the Alternatives?

R 24: Yes.

C 25: Will the State seek cost recovery from industries that may have dumped there?

R 25: The State always seeks cost recovery from industries that disposed of hazardous waste at listed sites. However, to date efforts to seek cost recovery from responsible parties at this site have not been successful.

C 26: What are the financial obligations to the Town of Parma if the project starts and state-funding runs out?

R 26: The Town of Parma is not responsible for clean up of the Trimmer Road Landfill site.

C 27: What is the time frame? Will it begin this summer? Will the study be done in three years?

R 27: The time frame depends upon funding, as noted in the response to Question 22. When funding is approved, a typical time frame would be one to one-and-a-half years for engineering design, followed by the letting of contracts and conducting the 3-year pilot test.

C 28: The presence of the landfill creates significant flooding problems in the area, especially on the west side where it gets blocked by beavers; and on the eastside where there's a large amount of runoff. Will the remedy help with these problems?

R 28: On February 28, 2001, an NYSDEC representative visited the site and observed both standing and flowing water on the surface of the ground between the eastern end of the pond and Peck Road. No clear drainageways were observed, nor were beaver dams apparent. A local landowner reported that the drainage pathways have changed over the years.

The proposed remedy is designed to increase the quantity of water that returns to the atmosphere, and therefore should act to reduce overall runoff to some extent. However, much of the runoff originates upstream of the site and this quantity of flow will not be altered by the remedy. Thus the issue of surface drainage cannot be resolved at this time.

C 29: Monroe County has a group that is working on issues related to the drainage basins in the area as well as wetland development. They should be contacted regarding this site. I'm concerned about contaminants flowing into the watershed.

R 29: The Department will pursue this approach.

C 30: If the pond is drained, will that increase the flow to places like Long Pond for example?

R 30: There is no plan to drain the pond.

C 31: Will water flow remain the same?

R 31: See response to Question 28.

C 32: Is there any evidence of water flowing from the site to Black Creek?

R 32: Historic maps indicate that at one time surface water flowed out of the pond in two directions, both directly northward toward Peck Road and Buttonwood Creek, and eastward toward Black Creek. At present there is a drainage ditch from the pond outlet northward, but no ditch leading toward the east. Water from the east end of the pond flows overland northward toward Peck Road.

C 33: What are the impacts from the site to Buttonwood Creek?

R 33: Water samples were taken from Buttonwood Creek upstream of the landfill and from the tributary that enters Buttonwood Creek from the landfill drainage. No impacts from the landfill were identified.

C 34: Will this remedy affect the size of a potential pond I'd like to put in on my property?

R 34: The remedy is not expected to significantly affect the total flow entering or leaving the site.

C 35: Will the drainage ditches be cleaned out?

R 35: The current plan does not include a component for cleaning out the drainage ditches.

C 36: Who owns the landfill? Is the landfill owned by the same person as at the time of operation?

R 36: The landfill is currently in private ownership, as it was throughout the period of operation. However, the land has changed hands twice since the landfill ceased operations.

C 37: Does the owner keep rights to the property or could the State take that away?

R 37: With deed restrictions the owner retains title to and ownership of the property. Deed restrictions are designed to prevent activities that would threaten the effectiveness of the remedy (e.g., damaging the cover system or extracting groundwater for potable use).

C 38: Will the work get done with the consent of the landowner? What if the owner refuses to grant the State the deed restrictions needed?

R 38: To date the landowner has been cooperative with the State and we have no indication that this will change.

C 39: Why doesn't a current landowner have to reveal the site to a potential owner?

R 39: Since this question deals with real estate law, we are not able to provide a response.

C 40: This is a class 2 hazardous waste site. There should be better disclosure and better signs to de-mark the site.

R 40: Due to the remote nature of the landfill and the low population density in the neighborhood, there are currently no signs at the entrance to the site. The Department will consider placing signs around the site during construction.

C 41: Is there anywhere on the internet to identify where the other class 2 sites are located?

R 41: No, but Department staff provided this individual with information on how to obtain copies of the Registry of Inactive Hazardous Disposal Waste Sites.

C 42: Could this affect zoning?

R 42: Throughout New York State, all zoning decisions are made at the local government level. Therefore a change in zoning could only originate with the Town. At the present time the State has no plan to request a change to zoning.

C 43: There's another site on Trimmer Road, south of the canal. How do you pick the sites?

R 43: When the DEC receives a report of a possible inactive hazardous waste site, the site is evaluated. Depending on the results of the evaluation, the site is either dropped from further evaluation or ranked. Investigation and remediation are based on the ranking. The former Spencerport Village Dump, is located on Trimmer Road immediately south of the NYS Barge Canal. It is classified as Class 3, indicating that a problem has been confirmed but no current significant threat has been found.

C 44: Is the plant life in the pond healthy?

R 44: During the remedial investigation, professional biologists visited and inventoried the site. They did not note any evidence of stressed vegetation in the pond.

C 45: Is the wildlife safe to eat? Are deer affected by eating from the landfill site?

R 45: The accumulation of contaminants in wildlife depends on a number of factors including, where in the food chain the animal is, what its eating habits are, and what contaminants are present. Based on these factors the State does not see any reason why deer taken on or in the vicinity of the landfill should not be eaten.

C 46: What can the community do to secure continued funding?

R 46: Funding depends on re-financing of the State Superfund by the State Legislature (see Comment 22). Citizens can express their support for re-financing the Superfund to their elected officials.

A letter dated March 9, 2001was received from **Assemblyman Charles Nesbitt** which included the following comment:

C 1: I support securing funds through the 1986 Environmental Bond Act New York State Superfund for remediation of the Trimmer Road Landfill Inactive Hazardous Waste Site.

R 1: The investigation of this site has been funded through the 1986 Environmental Quality Bond Act. The investigation and remediation of hundreds of sites across New York have now essentially fully committed this resource. The Governor and the Legislature are working to re-authorize the State Superfund and develop a long-term mechanism for funding the cleanup of this important work can be completed without delay. The Department is prepared to move ahead with the remediation of this site as soon as a funding mechanism has been identified.

APPENDIX B

Administrative Record

ADMINISTRATIVE RECORD
TRIMMER ROAD LANDFILL SITE NO. 8-28-012

1. File Index
2. Record of Decision, dated March 2001.
3. Proposed Remedial Action Plan (PRAP), dated February 2001.
4. Referral Memorandum dated February 19, 1999 for Trimmer Road Landfill.
5. Work Assignment issued to Dvirka and Bartilucci Consulting Engineers for Remedial Investigation/Feasibility Study in a letter dated May 10, 1999.
6. Ecology and Environment (1990): Letter Report detailing disposal records for the site.
7. NYSDEC Bureau of Hazardous Site Control (1996): Letter Report concerning sample collection and analysis conducted May 15, 1996.
8. RI/FS Work Plan, dated October 7, 1999
9. Final RI Report, dated February 2001.
10. Final FS Report, dated February 2001.
11. Citizen Participation Plan, dated April 2000.
12. Fact Sheets/Notices:

    "Dear Neighbor" letter dated December 9, 1999;

    "DEC Investigates the Trimmer Road Landfill Hazardous Waste Site," May 2000;

    "DEC Proposes Cleanup Plan for the Trimmer Road Landfill Inactive Hazardous Waste Site," February 2001;

    "DEC Announces Cleanup Strategy for the Trimmer Road Landfill Inactive Hazardous Waste Site," March 2001.

13. Letter from Assemblyman Charles Nesbitt, dated March 9, 2001, relating to funding for remedial design and construction.

14. Correspondence File