Department of Environmental Conservation

**Division of Environmental Remediation**

# Environmental Restoration
# Record of Decision
## STEAMBOAT RIVER PARK Site
### Town of Cortlandt, Westchester County,New York
### Site Number B-00047-3

**March 2004**

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

# DECLARATION STATEMENT
# ENVIRONMENTAL RESTORATION RECORD OF DECISION

## Steamboat River Park Environmental Restoration Site
## Town of Cortlandt, Westchester County, New York
## Site No. B-00047-3

**Statement of Purpose and Basis**

The Record of Decision (ROD) presents the selected remedy for the Steam boat River Park site, an environmental restoration 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 Steamboat River Park environmental restoration 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 substances and/or petroleum products 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/or the environment.

**Description of Selected Remedy**

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the Steamboat River Park site and the criteria identified for evaluation of alternatives, the NYSDEC has selected a Two-foot Soil Cover with Geotextile. The components of the remedy are as follows:

- A remedial design program;
- Grading of the existing surface to receive a geotextile;
- Placement of a two-foot soil cover;
- Development of OM&M Plan including a Soils Management Plan, a groundwater use restriction, groundwater monitoring and an inspection schedule; and
- An annual certification.

**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.

MAR 3 1 2004

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

## TABLE OF CONTENTS

**SECTION** **PAGE**

# Environmental Restoration
# RECORD OF DECISION

**Steamboat River Park Site**

**Town of Cortlandt, Westchester County, New York**
**Site No. B-00047-3**
**March 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 a remedy for the Steamboat River Park. The presence of hazardous substances has created threats to human health and/or the environment that are addressed by this remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Under the Environmental Restoration (Brownfields) Program, the state provides grants to municipalities to reimburse eligible costs for site investigation and remediation activities. Once remediated the property can then be reused.

As more fully described in Sections 3 and 5 of this document, past uses of the site have resulted in the disposal of hazardous substances, including volatile organic compounds, semivolatile organic compounds, and inorganics (metals). Past uses of the site include a petroleum storage facility and a boat sales/marina business. These hazardous substances have contaminated the soil and groundwater at the site, and have resulted in:

- a threat to human health associated with current and potential exposure to surface and subsurface soil;
- an environmental threat associated with the impacts of contaminants to contaminated groundwater.

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

- placement of a geotextile fabric to serve as a demarcation barrier and placement of a two-foot soil cover over the area of contamination;
- a long term groundwater monitoring program; and
- imposition of an institutional control in the form of an environmental easement that would:
  - require compliance with an approved soils management plan;

- limit the use and development of the property to recreation, commercial or industrial uses only;
- restrict use of groundwater as a source of potable water; and
- require submission of an annual certification report.

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 site is a 3.5 acre Hudson River waterfront park located in the Hamlet of Verplanck, Westchester County (see Figure 1). The north side of the site is bordered by Hardy Street (also know as Riverview Avenue). Residential properties are located on the north side of Hardy Street, across from the site. Immediately east of the site is a 10-acre mobile home park. The site is bounded to the west and south by the Hudson River (see Figure 2 ). To the northwest is a pier and a park area - formerly a loading dock and fuel oil transfer station. During the 1940's it is reported that the site served as a fuel oil terminal and oil was offloaded and piped through an underground pipe system to on-site storage tanks.

During the past four years, the Town of Cortlandt has implemented a number of improvements to the site:

- A fishing pier for recreational access;
- A rest area and scenic overlook;
- The relocation and paving of the parking area; and
- A pedestrian walkway which traverses the site along the river.

## SECTION 3: SITE HISTORY

### 3.1: Operational/Disposal History

From 1920 - 1970, the Tidewater Oil Company used the site for the storage and distribution of petroleum products. From 1970 - 1990, a portion of the site was used for the sale, refueling, and maintenance of power and recreational boats.

### 3.2: Remedial History

In April 1997, the Town of Cortlandt discovered petroleum contaminated soil while removing an existing section of blacktop. Laboratory testing identified the contaminant as No. 2 fuel oil. The NYSDEC was notified and an NYSDEC spill number (97-0-0895) was assigned.

Two underground storage tanks (6000 gallon and 1000 gallon) and 4,730 tons of contaminated soil were subsequently removed and properly disposed. Post remedial soil tests detected a maximum of 850 ppm of No. 2 fuel oil in the soil. A sample of the standing water at the bottom of the excavation contained 1,2,4-trimethylbenzene (1,000 ppb), n-butylbenzene (1,100 ppb), and naphthalene (12,000 ppb) - with all three compounds exceeding groundwater standards (5 ppb, 5 ppb, and 10 ppb, respectively).

In October 1997, the Town of Cortlandt submitted an application for grant assistance under the Environmental Restoration Program. In April 1998, NYSDEC approved the Town's application.

## SECTION 4: ENFORCEMENT STATUS

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

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. The Town of Cortlandt will assist the state in its efforts by providing all information to the state which identifies PRPs. The Town of Cortlandt will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

## SECTION 5: SITE CONTAMINATION

The Town of Cortlandt has recently completed a site investigation/remedial alternatives report (SI/RAR) to determine the nature and extent of any contamination by hazardous substances at this environmental restoration site.

### 5.1: Summary of the Site Investigation

The purpose of the SI was to define the nature and extent of any contamination resulting from previous activities at the site. The SI was conducted between May 1999 and October 2003. The field activities and findings of the investigation are described in the SI report.

The following activities were conducted during the SI:

- Research of historical information;
- Two geophysical surveys to determine the location of any additional underground storage tanks (USTs) and underground pipes;
- Excavation of test pits to investigate anomalies identified during the geophysical surveys;
- Installation of twenty-two soil borings and six monitoring wells for analysis of soils and groundwater, as well as physical properties of soil and hydrogeologic conditions;
- Sampling the six new monitoring wells three times each;

- A survey of public and private water supply wells in the area around the site;

To determine whether the surface soil, subsurface soil and groundwater 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".

Based on the SI 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 SI report.

### 5.1.1: Site Geology and Hydrogeology

The site consists of beach and river sand deposits that are overlain with mixed gravel and sand fill material. According to the SI report, fill materials were placed years ago extending the shoreline approximately 200 feet south of the original shoreline.

Boring logs indicate that silt, sand, gravel, cobbles, and boulders overlie a clay layer approximately 20-27 feet below grade. Bedrock was not encountered within the first 27 feet of overburden. No borings deeper than 27 feet were drilled at this site.

The site borders the east side of the Hudson River. Daily tidal fluxuations of several feet affect groundwater elevation in site wells. Groundwater changes ranging from several inches to one foot were evident during the SI. According to written records of the 1997 excavation, the elevation of the standing water in that excavation varied as much as 3 feet between low and high tide.

In general, the groundwater flow is southerly toward the river. The river flows from the west to the east in this stretch of the river. Due to tidal influences, the groundwater flow direction varies from south to southeast.

### 5.1.2: Nature of Contamination

As described in the SI report, surface soil, subsurface soil, and groundwater 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 semivolatile organic compounds (SVOCs) and inorganics (metals).

The SVOCs of concern are naphthalene, plus seven SVOC compounds referred to as carcinogenic polyaromatic hydrocarbons, also referred to as cPAHs: benzo (a) anthracene, benzo (b) flouranthene,

benzo (k) flouranthene, benzo (a) pyrene, chrysene, di-benzo (a,h) anthracene, and ideno (1,2,3-c,d) pyrene. For these seven compounds, there is sufficient evidence for carcinogenicity in animals as categorized by the USEPA and/or the International Agency for Research on Cancer (IARC). The above eight SVOC compounds tend to have fairly low solubilities in water. At this site, these SVOC compounds are primarily located in the vadose zone (i.e. above the water table). These compounds tend to either sorb (stick) to the soil particles or be fixed in the voids between the soils particles. As long as there is no carrier present (e.g. free product/oil), the rate of mobility is very slow. At this site, there is no identifiable carrier.

Two metals, chromium and mercury, were also frequently detected at elevated concentrations.

### 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 and parts per million (ppm) for soil. For comparison purposes, where applicable, SCGs are provided for each medium. Table 1 summarizes the degree of contamination for the contaminants of concern in surface soils, subsurface soils, and groundwater and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

#### Surface Soil

Surface soils samples collected during the SI were collected from 0-6 inches below ground surface (bgs). In 26 of the 29 surface soil samples, at least one SVOC exceeded its SCG. Benzo (a) pyrene, a cPAH, exceeded its SCG in 24 of the 29 surface soil samples.

Three non-carcinogenic SVOCs exceeded SCGs twice. They are naphthalene, 2-methlnapthalene, and 3-nitroaniline. The areas where these non-carcinogenic compounds exceeded SCGs generally coincide with areas where SCGs for cPAHs are exceeded.

Chromium (max. 32 ppm)exceeded its SCG (10 ppm) in all 25 of the surface samples. Mercury (max. 0.95 ppm) exceeded its SCG (0.1 ppm) in 23 of the 25 (see Table 1). Six additional metals were detected at concentrations above SCGs. They are arsenic, barium, cadmium, copper, magnesium, and zinc (see Table 1).

During the SI, lead was detected at 1,300 ppm in one surface soil sample. Typical urban background concentrations for lead range from 200-500 ppm. The highest concentration of lead detected in 40 subsequent surface soil samples was 176 ppm.

#### Subsurface Soil

Subsurface contamination is generally limited to the area near the former USTs and the former underground piping system. The subsurface contamination is deeper (approximately 9 feet) in the vicinity of the former tanks than in the vicinity of the former piping system (approximately 2 feet).

All underground piping has been removed, but only a small volume of soil was excavated. No grossly contaminated soil was noted, however, post excavation samples showed levels of SVOC and inorganics (chromium and mercury) above SCGs. During the 1997 excavation, full removal of visibly identifiable contamination was not possible because the excavation wall was in close proximity to the river and collapse was a concern. Subsequent test pits excavated during the SI confirmed that a narrow seam of oil contaminated soil exists at the northern, eastern and southern limits of the 1997 excavation. This seam is located above a discontinuous clay layer at depths ranging from 24" to 48" bgs. Further, analysis suggests that the material used to backfill the UST area has been impacted by the residual contamination. That is, to some extent contamination remaining on-site after the 1997 excavation has migrated into the clean fill.

In 9 of the 21 subsurface soil samples, at least one SVOC exceeded its SCG. None of the non-carcinogenic SVOCs were detected above SCGs.
In general, the seven cPAHs noted in Section 5.1.2 were detected at similar concentrations to those observed in surface soils. Only dibenzo(g,h,i)anthracene was significantly different in the subsurface (max. 560 ppm) than in the surface (max. 0.943 ppm) soil samples (see Table 1).

The maximum value detected in the subsurface was significantly higher than in the surface for arsenic (16.2 vs. 0.76 ppm) and not as much so for chromium (56.4 vs. 32 ppm). It was slightly lower for mercury (0.35 and 0.95 ppm). Three of the metals (barium, cadmium, and lead) which exceeded SCGs in the surface soil samples did not exceed SCGs in the subsurface. The remaining three metals (copper, magnesium, and zinc) which exceeded SCGs were not on the analyte list sampled for in the subsurface.

**Groundwater**

During the 1997 tank removal, a sample of the standing water and visible product was collected from the open excavation (see Figure 2). Three VOCs were detected: 1,2,4-trimethylbenzene (1,000 ppb), n-butylbenzene (1,100 ppb), and naphthalene (12,000 ppb), with all three exceeding NYS groundwater standards (5 ppb, 5 ppb, and 10 ppb, respectively).

In October 2000, January 2001, and April 2001, six overburden groundwater wells (see Figure 4) were sampled and analyzed for VOCs, SVOCs, and metals. No parameters were detected above detection limits, however, the detection limits employed were slightly above groundwater standards. Further, two of the previously detected compounds (1,2,4-trimethylbenzene and n-butylbenzene) were not included in the analyte list. Therefore, significant contamination of the groundwater was not evident, but future groundwater monitoring events must include the full list of parameters and appropriate detection limits.

No known users of groundwater have been identified near the site. All local residences are served by public water.

## 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 SI/RAR.

In April 1997, the Town of Cortlandt began to remove a section of blacktop in an area where an existing parking lot was to be replaced by lawn. Underneath the blacktop, two areas of visually contaminated soils were identified. The NYSDEC was notified, a spill number was assigned, and subsequent remedial activity resulted in excavation of grossly contaminated soils to a depth of 6-9 feet (see Figure 2). Laboratory testing indicated the presence of No. 2 fuel oil.

A total of 4,730 tons of contaminated soil was excavated and two USTs were removed: a 6,000-gallon and a 1,000-gallon tank (see Figure 2). During the excavation, there were concerns that the high tide could cause the river side of the excavation to collapse. Clean backfill was placed prior to the complete removal of all visual contamination. Reports indicate the presence of visible product floating on top of the groundwater, pooled at the bottom of the excavation. Evidence of this contamination was identified during the SI. Peripheral test pitting conducted during the SI identified a narrow seam of contamination (est. 1-2 in width) located on top of a discontinuous clay layer approximately 24 to 48 inches below the ground surface.

In July 1999, during the SI, a third UST (2,000 gallons) was discovered and subsequently removed. The tank contained approximately 300 gallons of petroleum product. There was, however, no evidence that the tank had leaked. Only one of the confirmation samples contained elevated levels of SVOCs. That sample, PE-3, was close to the 1997 excavation and may have been taken from the leading edge of the "seam" discussed above (see Figure 3).

In September 2002, the underground pipe system associated with the previously-removed underground tanks was removed. There was minimal visual evidence of contaminated soils, indicating that the pipes were not leaking during use (see Figure 2).

### 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 5.1 Potential Routes of Migration and Section 6 Summary and Conclusions of the October 2003 SI 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 the current land use conditions at the Steamboat River Park site, two groups of potential receptors could be exposed to site contamination in soil, groundwater, and soil vapors:

- site visitors; and
- construction workers.

Site visitors and construction workers may be exposed to contamination via direct dermal contact with contaminated surface soils. Construction workers are more likely to also be exposed to contaminated subsurface soil, groundwater, and soil vapors in the event of excavation at the site.

Depending on future land use conditions at the site, three groups of potential receptors could be exposed to contamination present in site soil, groundwater, and soil vapors:

- future residents;
- site visitors; and
- construction workers/site employees.

All three of these groups could come in direct contact with contaminated surface soils. As above, a site worker may also be directly exposed to contaminants in groundwater, subsurface soil, and soil vapors during an excavation. Inhalation of soil vapors may also occur as a result of excavation. Inhalation of soil vapors released into a future home or workplace from contaminated groundwater or soils is another potential route of exposure. The future resident may ingest contaminants in groundwater if a private well is installed on-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 most significant environmental resource at this site is the Hudson River. Subsurface investigations indicate the presence of residual contamination, but this contamination does not appear to have migrated to the Hudson River, nor does future migration seem likely. Grossly contaminated soils have been removed and the SVOCs which remain the primary constituents of concern, are fairly immobile. These contaminants have adversely impacted soil and groundwater quality, however, no pathways for environmental exposure or ecological risks have been identified.

## SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND THE PROPOSED USE OF THE SITE

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 substances disposed at the site through the proper application of scientific and engineering principles.
The proposed future use for the Steamboat River Park site is an expanded public park and recreational area.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to cPAHs and metals (chromium and mercury) in surface soils, subsurface soils, and groundwater;

- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards; and

- TAGM 4046 soil cleanup objectives.

## 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. Potential remedial alternatives for the Steamboat River Park Site were identified, screened and evaluated in the RA report which is available at the document repositories identified in Section 1.
A summary of the remedial alternatives that were considered for this site are 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 contaminated soils and groundwater at the site.

### Alternative 1: No Further Action

*Present Worth:* ..... *$46,000*
*Capital Cost:* ..... *None*
*Annual OM&M* ..... *$7,000*

The No Further -Action alternative recognizes remediation of the site conducted under previously completed IRMs. To evaluate the effectiveness of the remediation completed under these IRMs, only continued monitoring is necessary.

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. For costing purposes, annual monitoring has been assumed for the first five years, with the option that reduced frequency of monitoring would be implemented, if warranted.

### Alternative 2: Excavation and Backfill with Clean Fill

*Present Worth:* ..... *$622,000*
*Capital Cost:* ..... *$586,000*
*Annual OM&M:*
*Present Worth:* ..... *$36,000*

This alternative involves excavation of all soils above SCGs for SVOCs, chromium and mercury. This would include the excavation of approximately 1,550 $yd^3$ of clean fill that was recontaminated after the 1997 tank removal. It would also include approximately 4,950 $yd^3$ of soil from the top two feet on the western two-thirds of the site where the underground pipes and tanks were removed, plus approximately 1,240 $yd^3$ from the top one foot of the eastern portion of the site. Also, the contaminated seam on the north, east, and southern boundaries of the 1997 excavation is estimated to require the excavation of approximately 1,520 $yd^3$ of contaminated soils.

Because the remedial design would require predesign sampling to better characterize the lateral and vertical extent of soils requiring removal, the design would take six months to one year. Implementing the remedy would take between four and six months.

This would restore the site to unrestricted use. An annual monitoring program would be implemented to verify that the remedial activities were successful. For costing purposes annual monitoring for a period of five years has been assumed.

### Alternative 3: Bioremediation and Soil Cover with Geotextile

*Present Worth:* ..... *$499,000*
*Capital Cost:* ..... *$321,000*
*Annual OM&M:*
*Present Worth:* ..... *$178,000*

Bioremediation is the metabolism of contaminants in soils and groundwater by microorganisms which breakdown organic contaminants into simpler compounds. The microorganisms used could be indigenous or added as needed. Nutrients and oxygen would be added to the regions being remediated. Since the contaminated areas include the vadose zone, the oxygen and nutrients would need to be introduced in dissolved form into the soils, allowing gravity to draw the nutrients and oxygen downward through the contaminated areas.

It is estimated that the remedy would be constructed in two to four months and would take 5 years for completion. Annual soil samples would be collected to monitor the effectiveness of the remedy. Quarterly groundwater monitoring would be implemented to insure that the residual contamination is not being mobilized by the remedy. For the first five years after the completion of the remedy (years 6-10), groundwater monitoring would be annual. After year 10, the sampling frequency would be evaluated and a less frequent sampling schedule contemplated.

This technology could address the SVOC contamination but would not address the inorganic (chromium and mercury) contamination. A two-foot soil cover would be placed to prevent contact with the remaining inorganic contamination. This two-foot soil cover would be placed on the lower plateau of the site (approximately 2.3 acres - see Figure 5). The cover system would not be required on the balance of the site (i.e. the existing parking area). As a visual marker, a geotextile would be placed before the two-foot soil cover is installed.

In addition to the groundwater monitoring specified above, the Operation, Maintenance, and Monitoring (OM&M) Plan would require:

- Development of a soils management plan to address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations.

- That the property owner provide an annual certification, prepared and submitted by a professional engineer or environmental professional, which would certify that the institutional controls and engineering controls put in place, are unchanged from the previous certification and nothing has occurred that would impair the ability of the control to protect public health or the environment or constitute a violation or failure to comply with any operation an maintenance or soil management plan.

- Imposition of an institutional control in the form of an environmental easement that would: (a) require compliance with the approved soils management plan, (b) limit the use and development of the property to commercial or industrial uses only; (c) restrict use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Westchester County Department of Health; and, (d) require the property owner to complete and submit to the NYSDEC an annual certification.

**Alternative 4: Two Foot Soil Cover with Geotextile**

*Present Worth:* ..... *$191,000*
*Capital Cost:* ..... *$140,000*
*Annual OM&M:*
*Present Worth:* ..... *$51,000*

A two-foot soil cover would be placed to prevent contact with the residual SVOC and inorganic (chromium and mercury) contamination. This two-foot soil cover would be placed on the lower plateau of the site (approximately 2.3 acres - see Figure 5). The cover system would not be required on the balance of the site (i.e. the existing parking area). As a visual marker, a geotextile would be placed before the two-foot soil cover is placed.

The OM&M plan would include groundwater monitoring. During the first five years groundwater monitoring would be annual. This schedule, if warranted, would be modified after five years. For costing purposes, it is assumed that the groundwater monitoring frequency would be reduced to once every five years, after year 5.

The OM&M Plan would also contain a soils management plan, an annual certification, and the imposition of institutional controls consistent with what is proposed in Alternative 3.

## 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 environmental restoration projects in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the RA 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 are 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 2.

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 SI/RA 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. In general, the comments received were supportive of the remedy.

## SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administritive Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 4, **Two Foot Soil Cover with Geotextile** 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 SI and the evaluation of alternatives presented in the RAR.

Alternative 4 is being selected because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by the placement of a 2-foot soil cover to prevent contact with the residual SVOCs and metals contamination. The geotextile placed under this 2-foot soil layer would

serve as a visual indicator if erosion or intrusive activities removed the 2-foot protective soil layer on the covered portion of the site. The soils management plan would ensure that excavated contaminated soils were properly managed to be protective of human health and the environment. The groundwater monitoring program would evaluate the ongoing effectiveness of the remedy to control migration of the residual contamination.

Alternative 2 would be most protective of human health and the environment. It would remove all contaminants from the site above SCGs. Alternatives 3 and 4 would be fully protective of human health and the environment but would do so through the mitigative measures of a soil cover, a soils management plan, and an annual certification. Alternative 1 would not be protective of human health and the environment since nothing would be done to mitigate exposure.

Alternative 2 would fully meet SVOC and inorganic SCGs for onsite soils. Alternative 3 would meet SVOC SCGs but not inorganic SCGs for on-site soils. Neither Alternative 1 nor 4 would meet either SVOC or inorganic SCGs for on-site soils within a reasonable time frame. Alternatives 3 and 4, however, would prevent and/or manage the exposures associated with the residual contamination present on-site. Alternative 1 would not.

The short-term effectiveness criteria would best be satisfied by Alternative 4. The remedy could be implemented in one to two months and involves no invasive work in contaminated soils. The short-term effectiveness of Alternative 3 would be most impacted by its length of implementation (5 years). Otherwise, the invasive activity would be fairly short (about 2 months) and fairly shallow (2-4 feet). The short-term effectiveness of Alternative 2 would be most impacted by the depth of the excavations (up to 9 feet) and the likelihood of workers coming into contact with more heavily contaminated soils for a longer length of time. It would also be impacted by off-site trucking of the contaminated soils (e.g. truck traffic, dust concerns, etc.). Alternative 2 could be completed in about four months. Both Alternatives 2 and 3 would insure short-term effectiveness by monitoring dust generation and implementing appropriate dust control measures when necessary. Alternative 2 would also include increased levels of personal protective equipment for the onsite workers, if necessary, and properly sealed and covered trucks/roll-offs.

The long-term effectiveness would be highest for Alternative 2 because all soils not meeting SVOC and inorganic SCGs would be removed from the site permanently. Alternative 3 would have slightly less long-term effectiveness because it would take 5 years before the remaining contamination on-site would meet SCGs for SVOCs. Eventually, Alternatives 1 and 4 may, through natural attenuation, reach SCGs for SVOCs. Alternatives 1,3, and 4 would be most impacted by the residual inorganic contamination that would not decrease, however, Alternatives 3 and 4 would achieve long-term effectiveness through the soil cover and the soil management plan. Alternative 1 would not achieve long-term effectiveness for inorganic SCGs.

Alternative 2 would reduce toxicity, mobility, and volume at this site for both SVOCs and inorganics within a reasonable period of time (about 3 months). Alternative 3 would do so for SVOCs (about 5 years) but not for inorganics. Alternatives 1 and 4 may eventually do so for SVOCs through natural attenuation, but not for inorganics. Alternatives 3 and 4 would decrease the mobility (due to wind erosion) of contaminated surface soils.

Alternative 4 is most easily implemented. There would be no invasive activity and placing geotextile and a 2-foot soil cover would be a straightforward construction activity. Alternative 2 would be slightly more difficult to implement because of the invasive activities. Greater care would be needed to manage dust generation and contact with contaminated soils. Alternative 3 would be the most difficult to implement because of the piping system which would need to be installed and because of the sampling required to evaluated the effectiveness of the remedial system.

The estimated present worth cost to implement the remedy is $191,000. The cost to construct the remedy is estimated to be $140,000 and the estimated average annual operation, maintenance, and monitoring costs for years 1-5 is $7,000. For years 5-30, the annual operation and maintenance cost is estimated to be $1,000, with a once every five year monitoring of $6,000.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. The site will be graded to receive placement of the geotextile. Then two feet of clean soil will be placed followed by grass seeding.

3. A soils management plan will be developed to address residual contaminated soils that may be excavated from the site during future redevelopment. The plan will require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations. The plan will also require soil vapor sampling, as appropriate, based on future development/construction plans.

4. An institutional control will be imposed in the form of an environmental easement that will: (a) require compliance with the approved soils management plan, (b) limit the use and development of the property to recreational, commercial, or industrial uses only; (c) restrict use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Westchester County Department of Health; and, (d) require the property owner to complete and submit to the NYSDEC an annual certification (see item 6).

5. The property owner will provide an annual certification, prepared and submitted by a professional engineer or environmental professional acceptable to the NYSDEC, which will certify that the institutional controls and engineering controls put in place, are unchanged from the previous certification and nothing has occurred that will impair the ability of the control to protect public health or the environment or constitute a violation or failure to comply with any operation an maintenance or soil management plan.

6. Since the remedy results in untreated hazardous substances remaining at the site, a long term groundwater monitoring program will be instituted. Regular inspections will ensure that erosion of the soil cover is promptly repaired. After a period of five years, based on an evaluation of data, the groundwater sampling frequency may be modified, if warranted.

7. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the NYSDEC determines that continued operation/monitoring is technically impracticable or not feasible.

8. This remedy will address all the remaining issues of Spill No. 97-0-0895 and allow it to be closed.

## SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the Steamboat River Park environmental restoration 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 mailed on February 2, 2004 to announce the availability of the PRAP for public comment and the February 24, 2004 public meeting.
- A public meeting was held on February 24, 2004 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

**TABLE 1**
**Nature and Extent of Contamination**

| SURFACE SOIL | Contaminants of Concern | Concentration Range Detected (ppm)[a] | SCG[b] (ppm)[a] | Frequency of Exceeding SCG |
|---|---|---|---|---|
| **Semivolatile Organic Compounds (SVOCs)** | Naphthalene | ND to 34 | 1.3 | 2 of 29 |
| | 2-Methylnapthalene | ND to 190 | 3.64 | 2 of 29 |
| | 3-Nitroaniline | ND to 4.2 | 0.5 | 2 of 29 |
| | Benzo(a)anthracene | ND to 9.5 | 0.224 | 18 of 29 |
| | Chrysene | ND to 8.8 | 0.4 | 22 of 29 |
| | Benzo(b)fluoranthene | ND to 8.554 | 1.1 | 18 of 29 |
| | Benzo(k)fluoranthene | ND to 6.5 | 1.1 | 14 of 29 |
| | Benzo(a)pyrene | ND to 8.402 | 0.061 | 24 of 29 |
| | Ideno(1,2,3 - c,d)pyrene | ND to 6.807 | 3.2 | 9 of 29 |
| | Dibenzo(a,h)anthracene | ND to 0.943 | .014 | 14 of 29 |
| **Inorganic Compounds** | Arsenic | ND to 13 | 7.5 | 6 of 25 |
| | Barium | 27.9 to 468 | 300 | 2 of 25 |
| | Cadmium | ND to 2 | 1 | 2 of 25 |
| | Chromium | 11.2 to 32 | 10 | 25 of 25 |
| | Copper | 15 to 73 | 25 | 2 of 6 |
| | Lead | .48 to 1,300 | 500 | 1 of 41 |
| | Magnesium | 1,600 to 10,000 | 5,000 | 4 of 6 |
| | Mercury | 0.051 to 0.95 | 0.1 | 23 of 25 |
| | Zinc | 58 to 230 | 20 | 6 of 6 |

## TABLE 1 (con't)
## Nature and Extent of Contamination

| SUBSURFACE SOIL | Contaminants of Concern | Concentration Range Detected (ppm)[a] | SCG[b] (ppm)[a] | Frequency of Exceeding SCG |
|---|---|---|---|---|
| **Semivolatile Organic Compounds (SVOCs)** | Benzo(a)anthracene | ND to 3.1 | .224 | 3 of 21 |
| | Chrysene | ND to 5.344 | 0.4 | 9 of 21 |
| | Benzo(b)fluoranthene | ND to 18.091 | 1.1 | 9 of 21 |
| | Benzo(k)fluoranthene | ND to 3.986 | 1.1 | 6 of 21 |
| | Benzo(a)pyrene | ND to 13.673 | 0.061 | 8 of 21 |
| | Ideno(1,2,3 - c,d)pyrene | ND to 5.731 | 3.2 | 5 of 21 |
| | Dibenzo(g,h,i)anthracene | ND to 560 | 50 | 2 of 21 |
| **Inorganic Compounds** | Arsenic | ND to 16.2 | 7.5 | 2 of 18 |
| | Chromium | 13.4 to 56.4 | 10 | 18 of 18 |
| | Mercury | ND to 0.35 | 0.1 | 4 of 18 |

| GROUNDWATER | Contaminants of Concern | Concentration Range Detected (ppb)[a] | SCG[b] (ppb)[a] | Frequency of Exceeding SCG |
|---|---|---|---|---|
| **Volatile Organic Compounds (VOCs)** | 1,2,4-Trimethylbenzene | 1,000 | 5 | 1 of 19 |
| | N-butylbenzene | 1,100 | 5 | 1 of 19 |
| | Naphthalene | 12,000 | 10 | 1 of 19 |

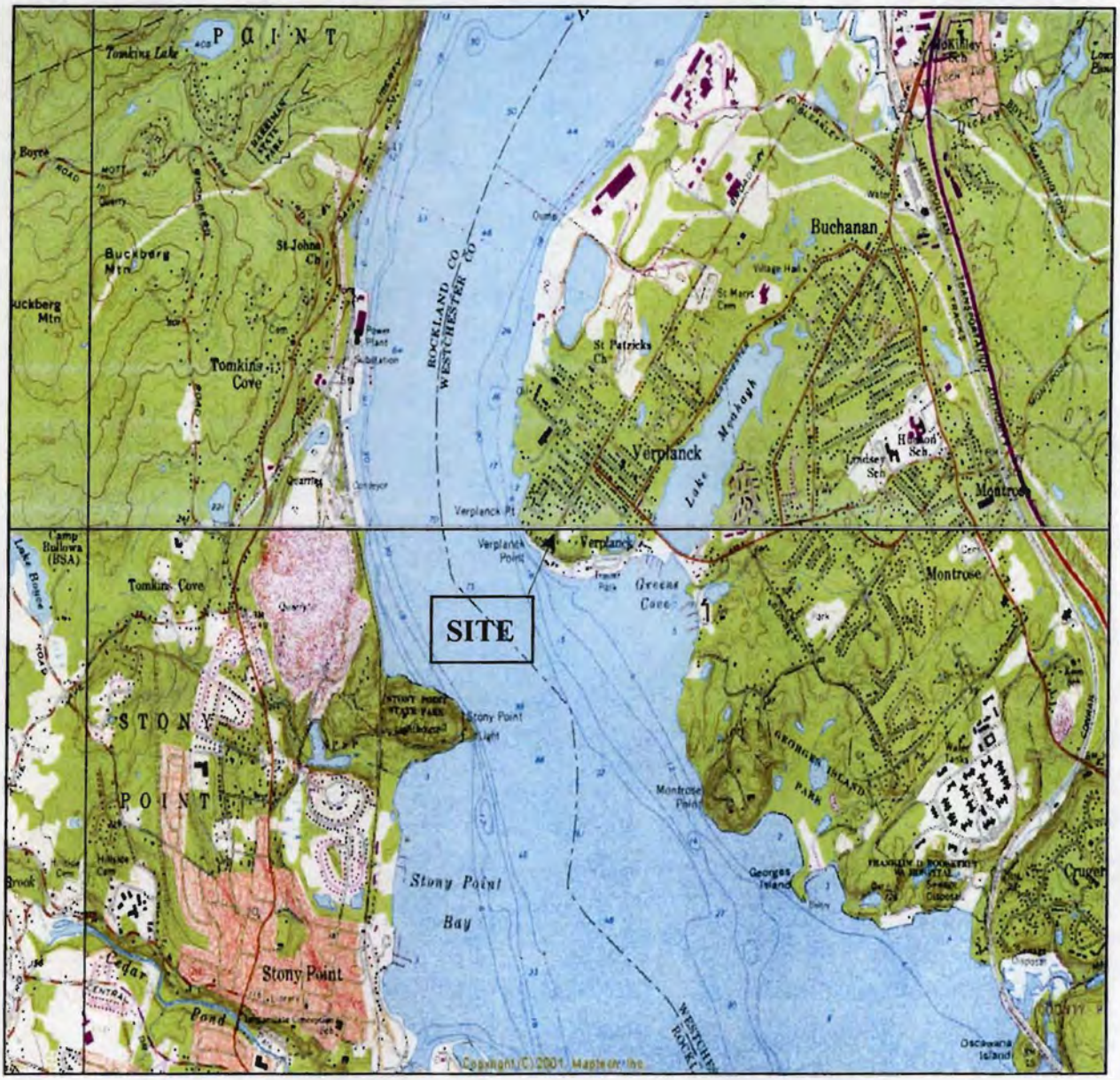
[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

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

[c] ND = Compound Not Detected

**Table 2**
**Remedial Alternative Costs**

| Remedial Alternative | Capital Cost | Annual OM&M | Total Present Worth |
|---|---|---|---|
| Alternative 1 - No Further Action | $0 | $7,000 | $46,000 |
| Alternative 2 - Excavation and Backfill with Clean Fill | $586,000 | $14,000 | $622,000 |
| Alternative 3 - Bioremediation plus Two Foot Soil Cover with Geotextile | $321,000 | $32,000 | $499,000 |
| Alternative 4 - Two Foot Soil Cover with Geotextile | $140,000 | $7,000 | $191,000 |




Not to Scale

**Figure 1**
**General Site Location**
**Steamboat River Park**
**Cortlandt, New York**

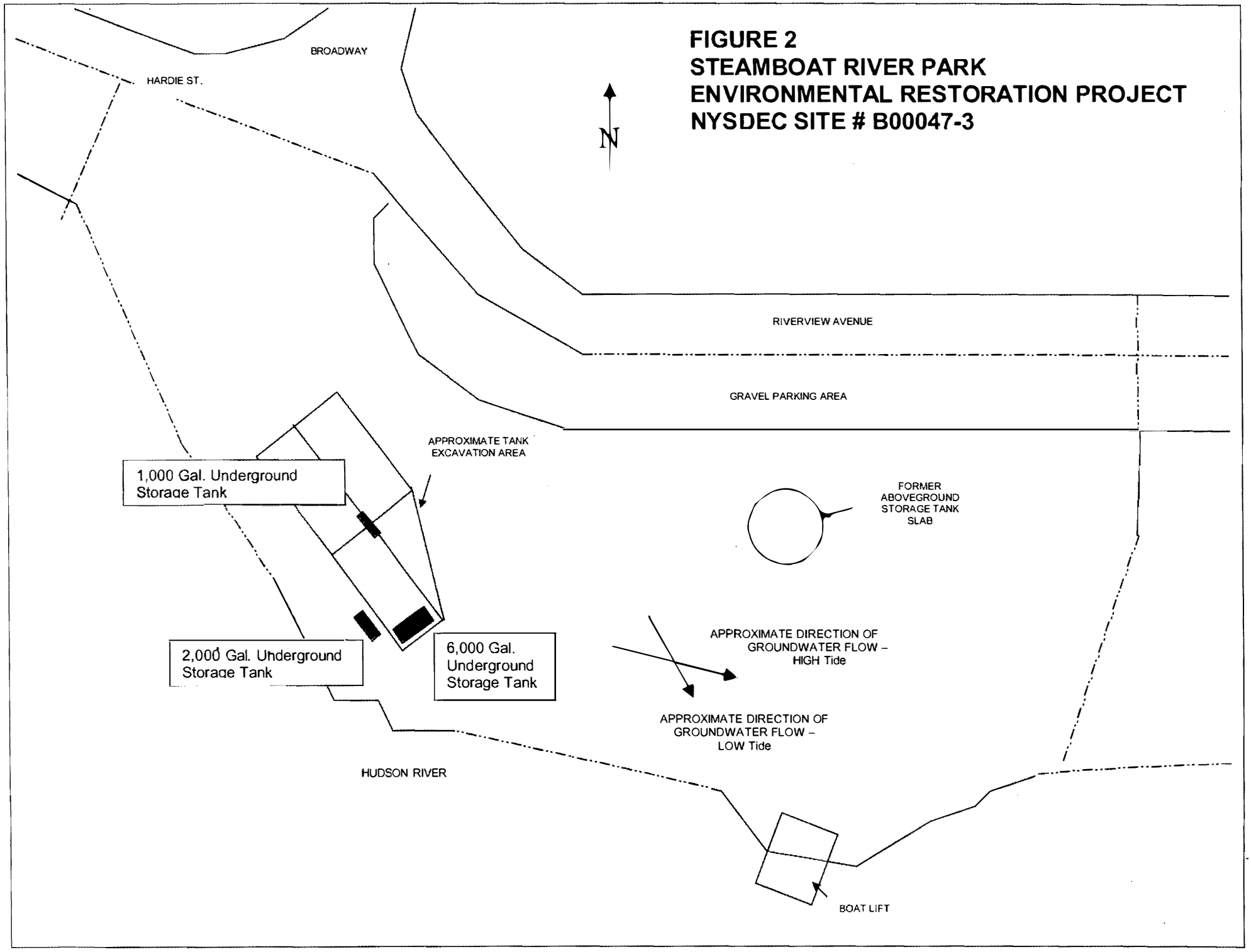


FIGURE 2
STEAMBOAT RIVER PARK
ENVIRONMENTAL RESTORATION PROJECT
NYSDEC SITE # B00047-3
N
BROADWAY
HARDIE ST.
RIVERVIEW AVENUE
GRAVEL PARKING AREA
APPROXIMATE TANK EXCAVATION AREA
1,000 Gal. Underground Storage Tank
FORMER ABOVEGROUND STORAGE TANK SLAB
2,000 Gal. Underground Storage Tank
6,000 Gal. Underground Storage Tank
APPROXIMATE DIRECTION OF GROUNDWATER FLOW – HIGH Tide
APPROXIMATE DIRECTION OF GROUNDWATER FLOW – LOW Tide
HUDSON RIVER
BOAT LIFT

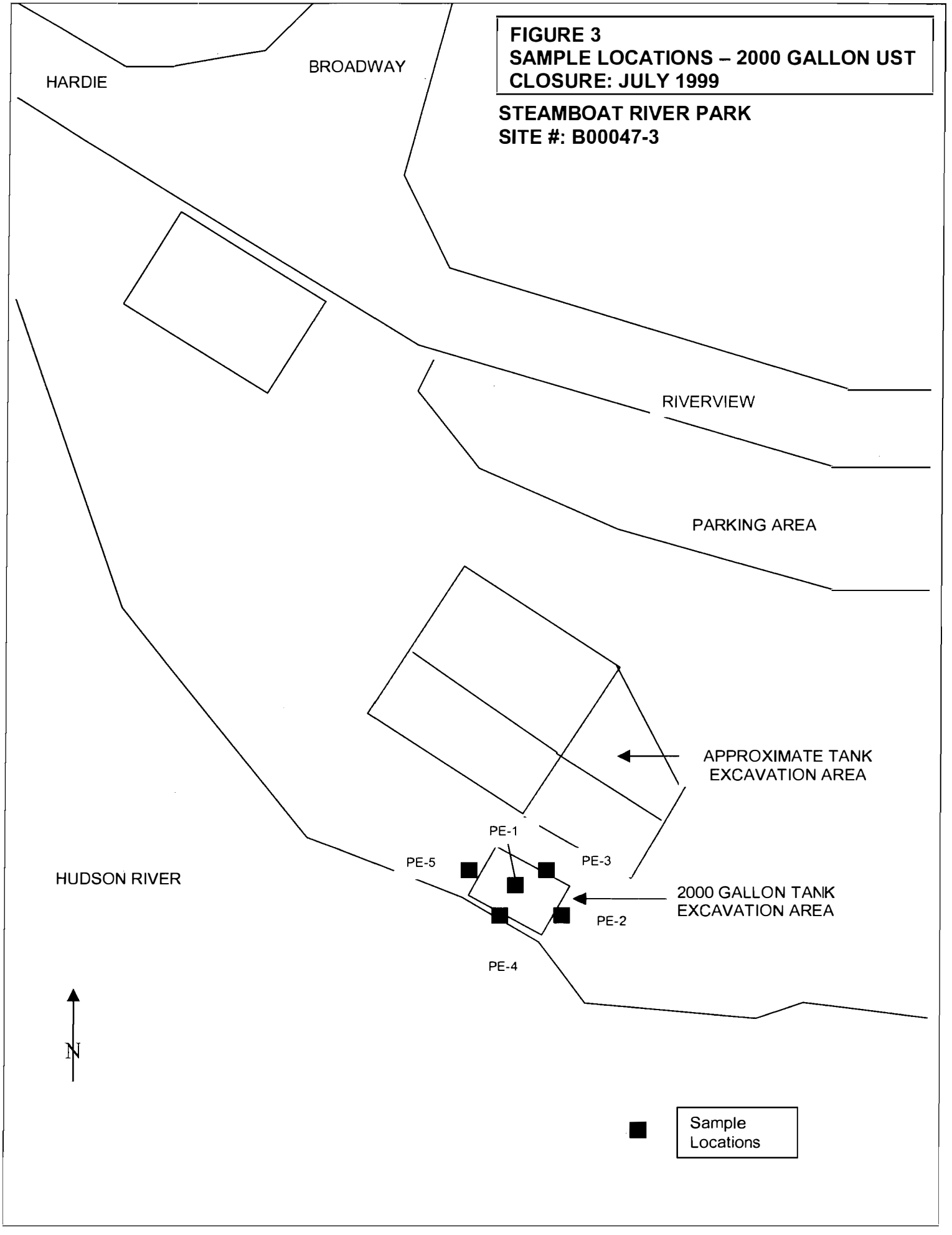


FIGURE 3
SAMPLE LOCATIONS – 2000 GALLON UST
CLOSURE: JULY 1999
STEAMBOAT RIVER PARK
SITE #: B00047-3
HARDIE
BROADWAY
RIVERVIEW
PARKING AREA
APPROXIMATE TANK
EXCAVATION AREA
PE-1
PE-5
PE-3
HUDSON RIVER
2000 GALLON TANK
EXCAVATION AREA
PE-2
PE-4
N
Sample
Locations

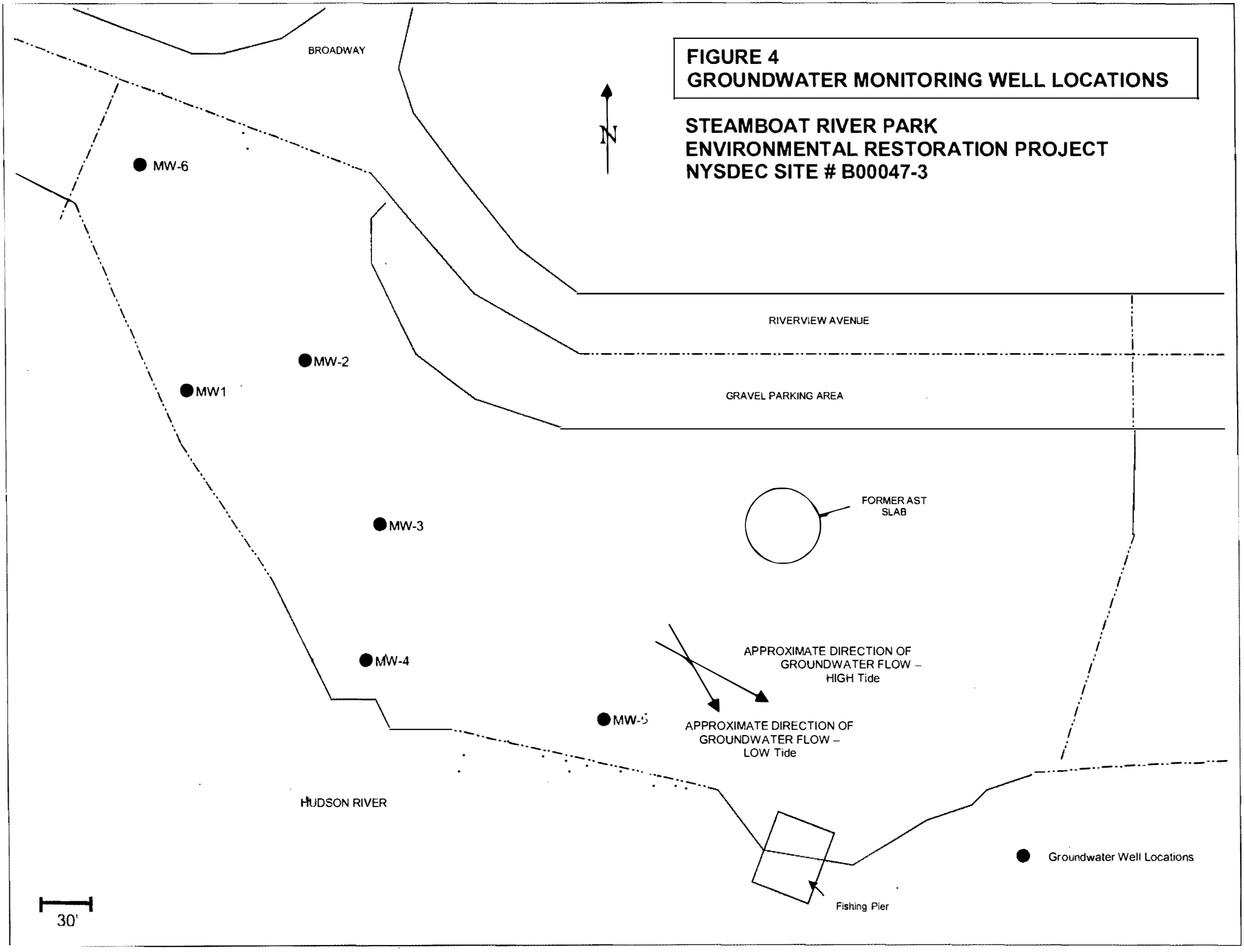
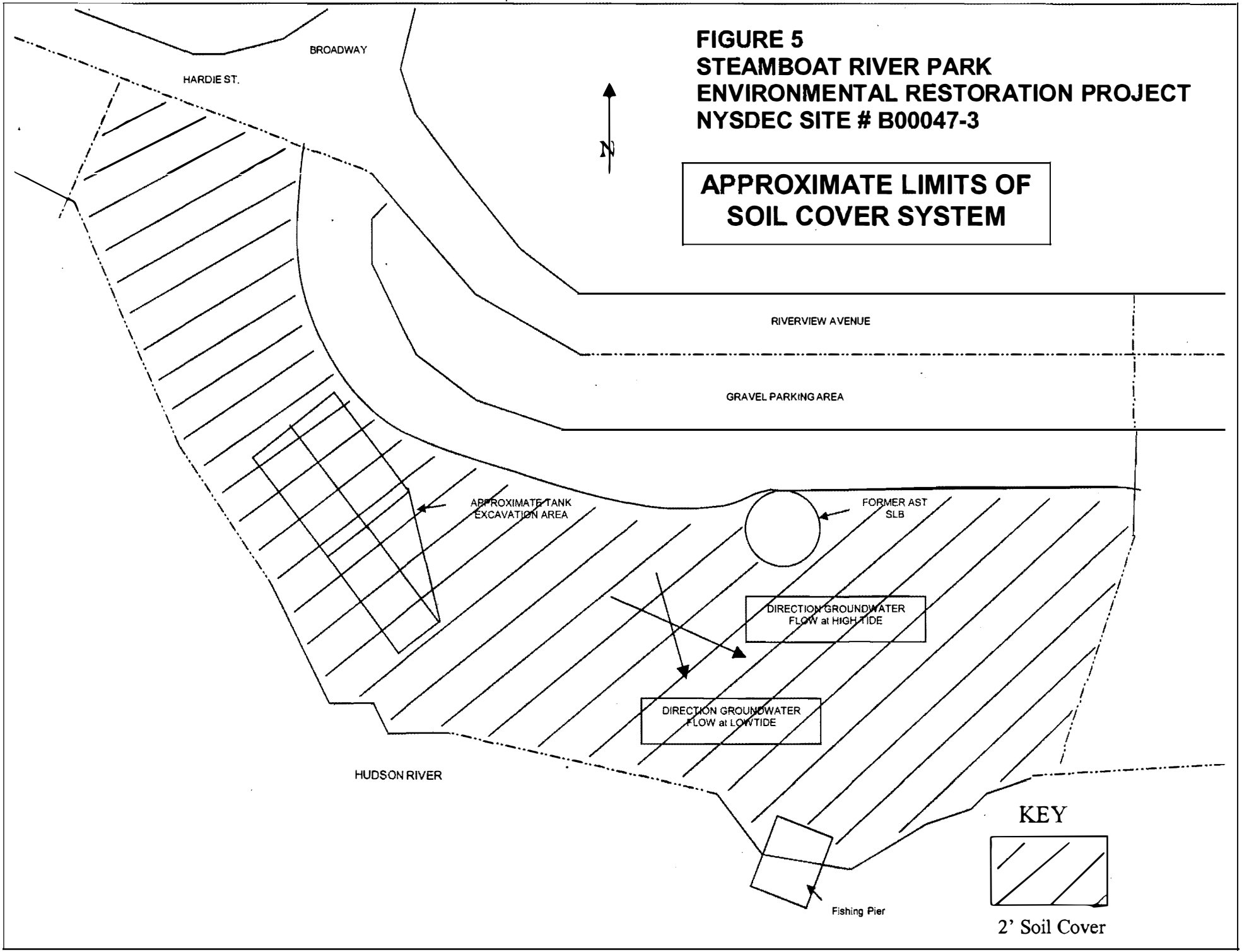


FIGURE 4
GROUNDWATER MONITORING WELL LOCATIONS
STEAMBOAT RIVER PARK
ENVIRONMENTAL RESTORATION PROJECT
NYSDEC SITE # B00047-3
N
BROADWAY
RIVERVIEW AVENUE
GRAVEL PARKING AREA
MW-6
MW-2
MW1
MW-3
MW-4
MW-5
FORMER AST SLAB
APPROXIMATE DIRECTION OF GROUNDWATER FLOW – HIGH Tide
APPROXIMATE DIRECTION OF GROUNDWATER FLOW – LOW Tide
HUDSON RIVER
Fishing Pier
Groundwater Well Locations
30'

# FIGURE 5
# STEAMBOAT RIVER PARK
# ENVIRONMENTAL RESTORATION PROJECT
# NYSDEC SITE # B00047-3

## APPROXIMATE LIMITS OF SOIL COVER SYSTEM



# APPENDIX A

## Responsiveness Summary

# RESPONSIVENESS SUMMARY

## Steamboat River Park Environmental Restoration Site
## Town of Cortlandt, Westchester County, New York
## Site No. B-00047-3

The Proposed Remedial Action Plan (PRAP) for the Steamboat River Park 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 January 30, 2004. The PRAP outlined the remedial measure proposed for the contaminated soil at the Steamboat River Park 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 February 24, 2004, which included a presentation of the Site Investigation (SI) and the Remedial Alternatives Report (RAR) 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 March 19, 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:

**QUESTION 1:** When will the ROD be issued?

**RESPONSE 1:** It is expected that the Record of Decision will be issued by March 31, 2004.

**QUESTION 2:** What is the process after that?

**RESPONSE 2:** It is expected that the Town of Corlandt will then submit an Environmental Restoration Program application amendment to fund the remedy implementation. It is also expected that the Town will secure a design consultant to prepare the remedial design.

**QUESTION 3:** Did the subsequent groundwater sampling events test for compounds that were previously there?

**RESPONSE 3:** As is stated in Section 5.1.3: Extent of Contamination - Groundwater and Section 8: Summary of the Selected Remedy, two of the previously detected compounds (1,2,4-trimethylbenzene and n-butylbenzene) were not included in the analyte list, but future groundwater monitoring events will include the full list of parameters.

**QUESTION 4:** So there is still another sampling event to be done?

**RESPONSE 4:** Subsequent sampling events will include the sampling specifications included in the Operation, Maintenance, and Monitoring (OM&M) plan. The OM&M plan will be developed during the remedial design phase.

**QUESTION 5:** At some point, there was soil removed and clean soil put in its place. If you are taking samples in clean soil, how could contamination be found again?

**RESPONSE 5:** As was stated in Section 5.2: Interim Remedial Measures, during the 1997 excavation, full removal of visibly identifiable contamination was not possible because the excavation wall was in close proximity to the river and collapse was a concern. Subsequent soil sampling suggests that the material used to backfill the UST area has been impacted by the migration of the 1997 residual contamination into the clean fill.

**QUESTION 6:** Was putting clean soil back into the excavation the right thing to do back in 1997, i.e., was it the best thing that could have been done at the time?

**RESPONSE 6:** Given the close proximity to the Hudson River and the risk of cave in, the actions taken during the 1997 excavation were appropriate and prudent.

**QUESTION 7:** Is rip- rap included in the remedy?

**RESPONSE 7:** It is not likely that rip-rap will be needed, but that will be an issue which will be looked at in the design. Part of this site is in the 100-year flood plain.

**QUESTION 8:** How will the walkway be affected?

**RESPONSE 8:** The remedial design should be able to implement the remedy in a way which allows the current walkway to remain in place. Soils close to the walkway could be removed to allow placement of geotextile and 2 feet of clean fill with a gentle slope leading to the walkway. The removed soils will be placed and graded elsewhere on a portion of the site, which will be covered by the geotextile and two feet of clean fill.

**QUESTION 9:** Does the geotextile go wherever you are calling for a soil cover?

**RESPONSE 9:** Yes. The present surface and any excavated soils (see Response 8) will be graded to receive placement of the geotextile. On top of the geotextile, two feet of clean soil will be placed.

**QUESTION 10:** Is it absolutely necessary to cover all the areas with both the geotextile and the soil layer?

**RESPONSE 10:** Yes. The geotextile is a visual indicator which identifies where the contaminated soil beneath that geotextile begins. The two feet of soil is a physical barrier which prevents human

contact with the underlying contaminated soils. The Soils Management Plan (SMP), a component of the Operation, Maintenance, and Monitoring (OM&M) plan, will specify the safeguards which will be implemented if excavation below the geotextile is necessary in the future.

**QUESTION 11:** Will the parking area and slope be affected by the remedy? We want it to be untouched.

**RESPONSE 11:** The parking area will not be affected. When the two feet of soil are laid down, the lower portion of the sloped area will be covered. While the grade (elevation) of the lower plateau will be raised (thus covering part of the slope), the angle of the slope between the two plateaus, however, will remain essentially the same.

**QUESTION 12:** We are encouraging the public to come down to the site, what will the exposure risk be, if any?

**RESPONSE 12:** As long as the two-foot soil cover remains in place, there should be no exposure. The SMP will specify the safeguards which will be implemented to protect the public during any future excavations below the geotextile.

**QUESTION 13:** If the Town does have to dig in this cover area at some later date, how will we know how to do it?

**RESPONSE 13:** As noted in Response 12 above, the SMP will specify the safeguards which will be implemented to protect the public during any future excavations below the geotextile.

**QUESTION 14:** Who does the monitoring well testing in the future?

**RESPONSE 14:** The Town or its consultants will be responsible for any sampling specified in the OM&M plan.

**QUESTION 15:** Will all the monitoring wells be left in place?

**RESPONSE 15:** The design will determine which wells, if any, can be removed. Since two feet of soil will be placed, the remaining wells will need to be extended approximately two feet. They will likely be flush mounted (the top of the well even with the ground).

**QUESTION 16:** What about the cost and reimbursement?

**RESPONSE 16:** The cost will be estimated more accurately during the design phase. Up to ninety percent of the actual eligible onsite costs to design and construct the remedy will be reimbursed by the State.

**QUESTION 17:** Does the state re-imbursement include the cost of the OM&M?

**RESPONSE 17:** No. The Town will be responsible for the OM&M costs.

**QUESTION 18:** What needs to take place now concerning the groundwater testing?

**RESPONSE 18:** Nothing is needed at this time. The groundwater testing will be specified in the OM&M Plan and implemented after the construction of the remedy.

**QUESTION 19:** Will it be possible to have the soil cover remedy in place sometime this season?

**RESPONSE 19:** It is not likely that the soil cover remedy will be in place during the 2004 construction season. First, the Town needs to apply for funding of the design and construction of the selected remedy under the ERP. Then the Town needs to procure a design consultant. That consultant will prepare the remedial design documents and submit them to NYSDEC for review and approval. Even if this could be done before the end of the 2004 construction season, it would be better to wait until next spring to implement the remedy. Seeding the exposed soil during the late fall would not provide adequate time for the grass to establish a solid root base. Implementing the remedy during the Spring of 2005 would allow plenty of time for the grass to establish a solid root base during the summer and fall. The earliest time that this remedy will likely be in place will be during the 2005 construction season.

Lawrence Keefe, a lifetime resident of Verplanck and a member of the VERPLANCK WATERFRONT PRESERVATION COMMITTEE,.submitted.a letter dated March.14,.2004, which included the following comments:

**QUESTION 20:** I suggest that this soil be taken from the Hudson River by dredging the river next to the existing fishing pier and the Steamboat dock area to the north. As tides in the river can run quite low, this dredging would render the part area much more accessible to river activities such a fishing and crabbing. The NYSDEC would also benefit by having a ready access of soil.

**RESPONSE 20**: Several issues would need to be resolved before dredging sediments could be used. First, a dredging permit would be required. Additionally, the sediments would need to be de-watered before they could be placed. The suitability of the sediments' structural qualities would need to be evaluated. Since there are upstream sources of contamination, it is possible that the sediments would contain low levels of contamination. Even if all the criteria would be met, the use of dredged sediments would not be as cost effective as finding an on-shore source of soil. The additional costs for dredging/excavating the sediments would not be a reimbursable expense under the ERP.

# APPENDIX B

## Administrative Record

# Administrative Record

**Steamboat River Park**
**Site No. B-00047-3**

1. Proposed Remedial Action Plan for the Steamboat River Park site, dated January 2004, prepared by the NYSDEC.

2. "Site Investigation Report", October 2003, prepared by E3, Inc., 24 Roxanne Boulevard Highland, NY, 12528.

3. "Final Remedial Alternatives Report", March 2004, prepared by E3, Inc.

4. February 2004 Fact Sheet announcing the issuance of the PRAP and the location and date of the public meeting.

5. July 2000 Fact Sheet announcing an information session to discuss the upcoming site investigation activities.

6. Letter dated March 14, 2003 from Lawrence Keefe, a lifetime resident of Verplanck and a member of the VERPLANCK WATERFRONT PRESERVATION COMMITTEE.